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COMPONENT CONNECTOR END VIEWS - INDEX

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B23 Camshaft Position Sensor (L5P)
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B26 Crankshaft Position Sensor (L5P)
B26 Crankshaft Position Sensor (L96/LC8)
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B33 Engine Coolant Level Switch
B34 Engine Coolant Temperature Sensor (L5P)
B34 Engine Coolant Temperature Sensor (L96/LC8)
B34 Engine Coolant Temperature Sensor (LV3)
B35 Engine Oil Level Switch (L5P)

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Description
B35 Engine Oil Level Switch (LV3)
B37B Engine Oil Pressure Sensor (L5P)
B37B Engine Oil Pressure Sensor (L96/LC8)
B37B Engine Oil Pressure Sensor (LV3)
B39 A/C Evaporator Temperature Sensor
B47B Fuel Rail Pressure Sensor
B47 Fuel Pressure Sensor
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B52E Heated Oxygen Sensor - Bank 2 Sensor 1 (L96/LC8)
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B55 Engine Hood Switch
B55 Hood Ajar Switch (CK100+Z88)
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B59 Front Impact Sensor
B60 Passenger Presence Sensor
B61P Seat Belt Tension Sensor - Passenger (AL0)
B62D Seat Position Sensor - Driver
B62P Seat Position Sensor - Passenger
B63LF Side Impact Sensor - Left Front
B63LR Side Impact Sensor - Left Rear
B63RF Side Impact Sensor - Right Front
B63RR Side Impact Sensor - Right Rear
B65 Intake Manifold Pressure and Air Temperature Sensor (L5P)
B68A Knock Sensor 1
B68B Knock Sensor 2
B74 Manifold Absolute Pressure Sensor (L96/LC8)
B74 Manifold Absolute Pressure Sensor (LV3/L8B/L83/L86)
B75C Multifunction Intake Air Sensor (L5P)
B75C Multifunction Intake Air Sensor (L96/LC8)
B75C Multifunction Intake Air Sensor (LV3)
B77LF Radio Volume Compensator Interior Noise Microphone - Left Front
B77R Radio Volume Compensator Interior Noise Microphone - Rear
B77RF Radio Volume Compensator Interior Noise Microphone - Right Front
B78E Rear Object Sensor - Left Middle
B78G Rear Object Sensor - Left Outer
B78H Rear Object Sensor - Right Outer
B80 Park Brake Switch
B87 Rearview Camera
B88D Seat Belt Switch - Driver

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Description
B88P Seat Belt Switch - Passenger
B99 Steering Wheel Angle Sensor
B107 Accelerator Pedal Position Sensor (E29)
B107 Accelerator Pedal Position Sensor (-E29)
B115 Vehicle Speed Sensor (L5P+MW7(-NQF/NQG))
B115 Vehicle Speed Sensor (L5P+NQF+MW7)
B115 Vehicle Speed Sensor (L5P+NQG+MW7)
B115 Vehicle Speed Sensor (L83/L86)
B115 Vehicle Speed Sensor (L8B)
B115 Vehicle Speed Sensor (L96+ZW9)
B115 Vehicle Speed Sensor (LC8/L96&NQF)
B115 Vehicle Speed Sensor (LC8/L96&NQG)
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B118B Windshield Washer Fluid Level Switch
B130A Exhaust Gas Recirculation Temperature Sensor 1
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B131B Exhaust Temperature Sensor 2
B131C Exhaust Temperature Sensor 3
B131D Exhaust Temperature Sensor 4
B131E Exhaust Temperature Sensor 5
B136 Exhaust Particulate Matter Sensor
B137B Power Steering Shaft Torque/Position Sensor (1500)
B150 Fuel Tank Pressure Sensor
B152LF Suspension Position Sensor - Left Front
B152LR Suspension Position Sensor - Left Rear
B152RF Suspension Position Sensor - Right Front
B152RR Suspension Position Sensor - Right Rear
B154 Diesel Particulate Filter Exhaust Differential Pressure Sensor
B160 Windshield Temperature and Inside Moisture Sensor
B165 Content Theft Deterrent Sensor Module (UTU/UTV)
B174W Frontview Camera - Windshield (UFL)
B174W Frontview Camera - Windshield (UHX)
B193A Charge Air Cooler Inlet Temperature Sensor
B193B Charge Air Cooler Outlet Temperature Sensor
B195A Nitrogen Oxides Sensor 1 (L5P)
B195B Nitrogen Oxides Sensor 2
B198 Fuel Composition Sensor
B227 Gear Position Sensor
B229 Alternative Fuel Rail Pressure/Temperature Sensor (LC8)
B235 Starter/Generator Coolant Temperature Sensor
B257 Alternative Fuel Pressure Sensor (LC8)
B263 Alternative Fuel Tank Temperature Sensor (LC8)

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Description
B264 CNG High Pressure Regulator Temperature Sensor (LC8)
B280 Automatic Transmission Accumulator Solenoid Valve (M5X)
B295 Reductant Quality Sensor (L5P)
B302 Power Steering Pressure Sensor (NV8)
B306A Parking Assist Sensor - Front Left Outer
B306B Parking Assist Sensor - Front Left Middle
B306C Parking Assist Sensor - Front Right Middle
B306D Parking Assist Sensor - Front Right Outer
B306G Parking Assist Sensor - Rear Right Middle
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C4A Hybrid/EV Battery Section 1 X1 (HP5)
C4B Hybrid/EV Battery Section 2 X1 (HP5)
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E1C Accent Lamp - Driver Door Handle
E1L Accent Lamp - Overhead Console
E2A Marker Lamp - Endgate
E3A Roof Clearance Lamp - Left Front Outer
E3C Roof Clearance Lamp - Front Middle
E3E Roof Clearance Lamp - Right Front Outer
E3LF Rear Fender Clearance Lamp - Left Front
E3LR Rear Fender Clearance Lamp - Left Rear
E3RF Rear Fender Clearance Lamp - Right Front
E3RR Rear Fender Clearance Lamp - Right Rear
E6 Center High Mounted Stop Lamp (ZYD)
E7L License Plate Lamp - Left
E7R License Plate Lamp - Right
E11A Fuel Heater/Water in Fuel Sensor
E12A Glow Plug 1
E12B Glow Plug 2
E12C Glow Plug 3
E12D Glow Plug 4
E12E Glow Plug 5
E12F Glow Plug 6
E12G Glow Plug 7
E12H Glow Plug 8
E14A Seat Heating Element - Driver Back
E14B Seat Heating Element - Driver Cushion
E14C Seat Heating Element - Passenger Back
E14D Seat Heating Element - Passenger Cushion
E18 Rear Defogger Grid X1
E28 Center Console Compartment Lamp
E29LF Fog Lamp - Left Front (UD5)

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Description
E29LF Fog Lamp - Left Front (-UD5)
E29RF Fog Lamp - Right Front (UD5)
E29RF Fog Lamp - Right Front (-UD5)
E31L Sunshade Mirror Lamp - Left
E31R Sunshade Mirror Lamp - Right
E33LF Cargo Lamp - Left Front (ZYD)
E33LR Cargo Lamp - Left Rear (ZYD)
E37B Dome/Reading Lamps - 2nd Row
E37EL Dome/Reading Lamps - Front Overhead Console Left
E37ER Dome/Reading Lamps - Front Overhead Console Right
E52 Reductant Line Heater (L5P)
E52B Reductant Line Heater 2 (L5P)
E87L Cargo Lamp - Left Cargo Stowage Box (ZYD)
E87R Cargo Lamp - Right Cargo Stowage Box (ZYD)
F101 Passenger Instrument Panel Air Bag
F102 Hybrid/EV Battery Pack Cable Cover
F106D Seat Side Air Bag - Driver
F106P Seat Side Air Bag - Passenger
F112D Seat Belt Retractor Pretensioner - Driver (Crew Cab)
F112D Seat Belt Retractor Pretensioner - Driver (Extended Cab)
F112D Seat Belt Retractor Pretensioner - Driver (Regular Cab)
F112P Seat Belt Retractor Pretensioner - Passenger (Crew Cab)
F112P Seat Belt Retractor Pretensioner - Passenger (Extended Cab)
F112P Seat Belt Retractor Pretensioner - Passenger (Regular Cab)
F113D Seat Belt Anchor Pretensioner - Driver
F113P Seat Belt Anchor Pretensioner - Passenger
G10L Cooling Fan Motor - Left
G10R Cooling Fan Motor - Right
G12A Fuel Pump - Primary
G12B Fuel Pump - Secondary (L5P)
G12B Fuel Pump - Secondary (L96)
G13E Generator - Auxiliary
G13 Generator X1 ()
G14 Hybrid/EV Battery Pack Cooling Fan
G17 Heater Coolant Pump (L5P)
G18 High Pressure Fuel Pump
G24 Windshield Washer Pump
G43 Starter/Generator Coolant Pump
K4 Assist Step Control Module X1
K4 Assist Step Control Module X2 (1500)
K9 Body Control Module X1
K9 Body Control Module X2
K9 Body Control Module X4

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Description
K9 Body Control Module X5
K9 Body Control Module X6
K9 Body Control Module X7
K17 Electronic Brake Control Module (Heavy Duty)
K17 Electronic Brake Control Module (Light Duty)
K19 Suspension Control Module
K20 Engine Control Module X1 (L5P)
K20 Engine Control Module X1 (L83/L86)
K20 Engine Control Module X1 (L8B)
K20 Engine Control Module X1 (L96)
K20 Engine Control Module X1 (LV3)
K20 Engine Control Module X2 (L8B)
K20 Engine Control Module X2 (L83+MYC-NQH/NQG)
K20 Engine Control Module X2 (L5P)
K20 Engine Control Module X2 (L96)
K20 Engine Control Module X2 (LV3-(NQG/NQH))
K20 Engine Control Module X2 (LV3+(NQG/NQH))
K20 Engine Control Module X3 (L8B)
K20 Engine Control Module X3 (L83/L86)
K20 Engine Control Module X3 (L5P)
K20 Engine Control Module X3 (L96)
K20 Engine Control Module X3 (LV3)
K22 Cooling Fan Control Module
K29 Seat Heating Control Module X1
K29 Seat Heating Control Module X2
K33 HVAC Control Module X1
K33 HVAC Control Module X2
K33 HVAC Control Module X3
K33 HVAC Control Module X4
K34 Glow Plug Control Module
K36 Inflatable Restraint Sensing and Diagnostic Module X1
K36 Inflatable Restraint Sensing and Diagnostic Module X2
K38A Chassis Control Module - Auxiliary (JL1)
K38 Chassis Control Module (L96)
K40 Seat Memory Control Module X1
K40 Seat Memory Control Module X2
K40 Seat Memory Control Module X3
K40 Seat Memory Control Module X4
K40 Seat Memory Control Module X5
K40 Seat Memory Control Module X6
K43 Power Steering Control Module
K44 Power Take-Off Control Module X1
K44 Power Take-Off Control Module X2

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Description
K56 Serial Data Gateway Module X1
K56 Serial Data Gateway Module X2
K59 Starter/Generator Control Module X1
K59 Starter/Generator Control Module X5
K69 Transfer Case Control Module X1
K69 Transfer Case Control Module X2
K69 Transfer Case Control Module X3
K71 Transmission Control Module
K73 Telematics Communication Interface Control Module X1
K73 Telematics Communication Interface Control Module X2
K74 Human Machine Interface Control Module X1
K74 Human Machine Interface Control Module X2
K77 Remote Control Door Lock Receiver
K85 Passenger Presence Module
K111 Fuel Pump Driver Control Module (L5P)
K111 Fuel Pump Driver Control Module (Light Duty)
K112A Hybrid/EV Battery Interface Control Module 1 X1
K112A Hybrid/EV Battery Interface Control Module 1 X2
K112B Hybrid/EV Battery Interface Control Module 2 X1
K112B Hybrid/EV Battery Interface Control Module 2 X2
K114B Hybrid/EV Powertrain Control Module 2 X1
K114B Hybrid/EV Powertrain Control Module 2 X2
K114B Hybrid/EV Powertrain Control Module 2 X3
K114B Hybrid/EV Powertrain Control Module 2 X4
K114B Hybrid/EV Powertrain Control Module 2 X5
K114B Hybrid/EV Powertrain Control Module 2 X6
K114B Hybrid/EV Powertrain Control Module 2 X7
K115 Reductant Control Module X1 (L5P)
K115 Reductant Control Module X2 (L5P)
K133 Trailer Brake Power Control Module
K182 Parking Assist Control Module X1
K182 Parking Assist Control Module X2
K182 Parking Assist Control Module X3
K188 Human Machine Interface Control Module Bypass Module X1
KR58 Roof Beacon Relay
M5 Adjustable Pedal Motor
M9 Brake Booster Pump Motor
M26 Front Axle Engagement Actuator
M50D Seat Front Vertical Motor - Driver
M50P Seat Front Vertical Motor - Passenger
M51D Seat Horizontal Motor - Driver
M51P Seat Horizontal Motor - Passenger
M52D Seat Lumbar Support Horizontal Motor - Driver

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Description
M52P Seat Lumbar Support Horizontal Motor - Passenger
M55D Seat Rear Vertical Motor - Driver
M55P Seat Rear Vertical Motor - Passenger
M56D Seat Recline Motor - Driver
M56P Seat Recline Motor - Passenger
M63 Sliding Rear Window Motor
M64 Starter Motor (L5P)
M64 Starter Motor (L96/LC8)
M64 Starter Motor (LV3)
M73A Seat Blower Motor - Driver Back
M73B Seat Blower Motor - Passenger Back
M73C Seat Blower Motor - Driver Cushion
M73D Seat Blower Motor - Passenger Cushion
M74D Window Motor - Driver
M74LR Window Motor - Left Rear
M74P Window Motor - Passenger
M74RR Window Motor - Right Rear
M75 Windshield Wiper Motor
M95L Assist Step - Left
M95R Assist Step - Right
M103 Turbocharger Vane Position Actuator
P3 Backup Alarm (8S3)
P12 Horn
P14 Passenger Air Bag Disabled Indicator
P16 Instrument Cluster (UHS)
P16 Instrument Cluster (-UHS)
P17 Info Display Module X1 (IO3)
P17 Info Display Module X1 (IO5/IO6)
P17 Info Display Module X1 (IOB)
P17 Info Display Module X2
P17 Info Display Module X3 (IO3/IO5/IO6)
P19AC Speaker - Subwoofer
P19AG Speaker - Left Front Door
P19AH Speaker - Right Front Door
P19AL Speaker - Left Rear Door
P19AM Speaker - Right Rear Door
P19AN Speaker - Left Rear Trim Panel
P19AP Speaker - Right Rear Trim Panel
P19J Speaker - Left Instrument Panel (UQ3/UQG)
P19J Speaker - Left Instrument Panel (UQA/UQS/UQH-UQG)
P19W Speaker - Right Instrument Panel (UQ3/UQG/UQ5)
P19W Speaker - Right Instrument Panel (UQA)
P22A Video Display - 2nd Row

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Description
P43 Collision Alert Indicators
P45LR Seat Haptic Movement Motor - Driver Left Rear
P45RR Seat Haptic Movement Motor - Driver Right Rear
Q2 A/C Compressor Clutch
Q6 Camshaft Position Actuator Solenoid Valve
Q8 Control Solenoid Valve Assembly
Q12 Evaporative Emission Purge Solenoid Valve (L96/LC8)
Q12 Evaporative Emission Purge Solenoid Valve (LV3)
Q13 Evaporative Emission Vent Solenoid Valve
Q14 Exhaust Gas Recirculation Valve
Q17A Fuel Injector 1 (L5P)
Q17A Fuel Injector 1 (L96/LC8)
Q17B Fuel Injector 2 (L5P)
Q17B Fuel Injector 2 (L96/LC8)
Q17C Fuel Injector 3 (L5P)
Q17C Fuel Injector 3 (L96/LC8)
Q17D Fuel Injector 4 (L5P)
Q17D Fuel Injector 4 (L96/LC8)
Q17E Fuel Injector 5 (L5P)
Q17E Fuel Injector 5 (L96/LC8)
Q17F Fuel Injector 6 (L5P)
Q17F Fuel Injector 6 (L96/LC8)
Q17G Fuel Injector 7 (L5P)
Q17G Fuel Injector 7 (L96/LC8)
Q17H Fuel Injector 8 (L5P)
Q17H Fuel Injector 8 (L96/LC8)
Q18A Fuel Pressure Regulator 1
Q37LF Shock Absorber Actuator - Left Front
Q37LR Shock Absorber Actuator - Left Rear
Q37RF Shock Absorber Actuator - Right Front
Q37RR Shock Absorber Actuator - Right Rear
Q38 Throttle Body (L5P)
Q38 Throttle Body (L96/LC8)
Q38 Throttle Body (LV3)
Q43 Valve Lifter Oil Manifold Assembly (L8B/L83/L86)
Q43 Valve Lifter Oil Manifold Assembly (LV3)
Q44 Engine Oil Pressure Control Solenoid Valve
Q46 A/C Compressor Solenoid Valve
Q47 Exhaust Gas Recirculation Cooler Bypass Solenoid Valve
Q61 Reductant Injector
Q67 Exhaust Aftertreatment Fuel Injector
R6A Terminating Resistor - High Speed Bus
R6E Terminating Resistor - High Speed Extension Bus 1

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Description
R6F Terminating Resistor - High Speed Extension Bus 2
S5 Center Console Compartment Lamp Switch
S12 Dome Lamp Switch
S13D Door Lock Switch - Driver (A31)
S13D Door Lock Switch - Driver (-A31)
S13P Door Lock Switch - Passenger (A31)
S13P Door Lock Switch - Passenger (-A31)
S25 Garage Door Opener
S30 Headlamp Switch
S31D Seat Heating and Cooling Switch - Driver
S31P Seat Heating and Cooling Switch - Passenger
S40 Passenger Air Bag Disable Switch
S47D Seat Memory Switch - Driver
S48A Multifunction Switch - Instrument Panel X1
S48A Multifunction Switch - Instrument Panel X2
S52 Outside Rearview Mirror Switch (A45)
S52 Outside Rearview Mirror Switch (-A45)
S63 Roof Beacon Switch
S64D Seat Adjuster Switch - Driver X1
S64D Seat Adjuster Switch - Driver X2
S64P Seat Adjuster Switch - Passenger X1
S64P Seat Adjuster Switch - Passenger X2
S68 Sliding Rear Window Switch
S72 Sunroof Switch
S76 Trailer Brake Control Switch
S77 Transfer Case Shift Control Switch (NQG)
S77 Transfer Case Shift Control Switch (NQH/NQF)
S79D Window Switch - Driver
S79LR Window Switch - Left Rear
S79P Window Switch - Passenger X1
S79P Window Switch - Passenger X2
S79RR Window Switch - Right Rear
S135 Rollover Protection Disable Switch
S164L Rear Compartment Lid Release Switch - Left (ZYD)
S164R Rear Compartment Lid Release Switch - Right (ZYD)
T1 Accessory DC/AC Power Inverter Module (KI5)
T3 Audio Amplifier X1 (UQA/UQG+D07)
T3 Audio Amplifier X1 (UQA/UQG-D07)
T3 Audio Amplifier X2
T3 Audio Amplifier X3
T3 Audio Amplifier X4
T8A Ignition Coil 1 (L96/LC8)
T8A Ignition Coil 1 (LV3)

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Description
T8B Ignition Coil 2 (LV3/L8B/L83/L86)
T8C Ignition Coil 3 (L96/LC8)
T8C Ignition Coil 3 (LV3/L8B/L83/L86)
T8D Ignition Coil 4 (LV3)
T8D Ignition Coil 4 (L96/LC8)
T8E Ignition Coil 5 (L96/LC8)
T8E Ignition Coil 5 (LV3)
T8F Ignition Coil 6 (LV3/L8B/L83/L86)
T8G Ignition Coil 7 (LV3/L8B/L83/L86)
T8G Ignition Coil 7 (L96/LC8)
T8H Ignition Coil 8 (L8B/L83/L86)
T8H Ignition Coil 8 (L96/LC8)
T22 Mobile Device Wireless Charger Module
X80D Accessory Power Receptacle - Center Console Compartment (-(AE7/AZ3/B3F))
X80D Accessory Power Receptacle - Center Console Compartment (AE7/AZ3/B3F)
X80E Accessory Power Receptacle - Center Seat
X80G Accessory Power Receptacle - Instrument Panel
X80J Accessory Power Receptacle - Instrument Panel 1
X80K Accessory Power Receptacle - Instrument Panel 2
X80L Accessory Power Receptacle - Center Console Rear
X81B Accessory Power Receptacle - 220V AC X1
X81B Accessory Power Receptacle - 220V AC X2
X81 Accessory Power Receptacle - 110V AC X1
X81 Accessory Power Receptacle - 110V AC X2
X82 Audio/Video Input Adapter
X83 Auxiliary Audio Input (A31)
X83 Auxiliary Audio Input (AZ3/AE7)
X83 Auxiliary Audio Input (D07)
X84 Data Link Connector
X85 Steering Wheel Air Bag Coil
X88 Trailer Connector (8S3)
X88 Trailer Connector (UY2)
X88 Trailer Connector (-UY2-8S3)
X92 USB Receptacle

Article GUID: A00857111

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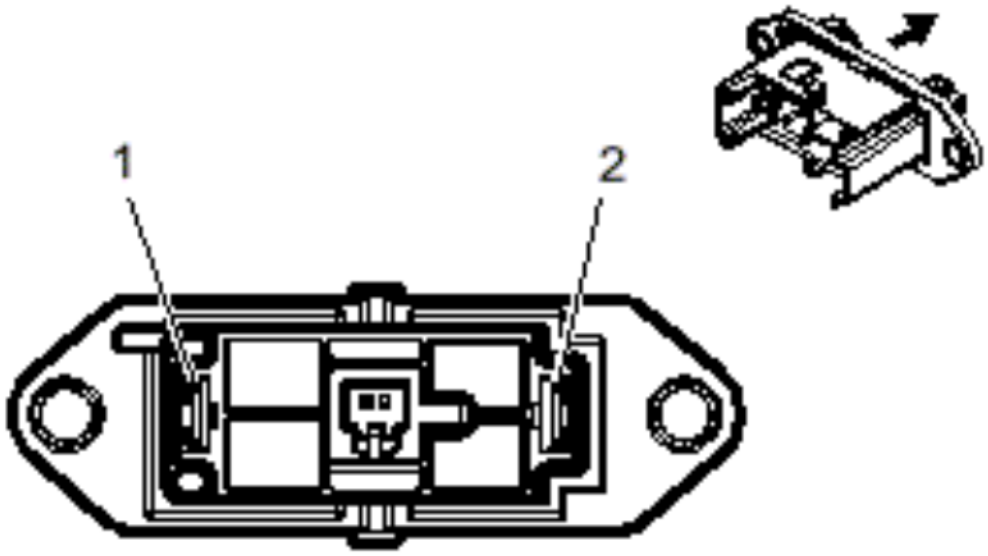
COMPONENT CONNECTOR END VIEWS

A4 HYBRID/EV BATTERY PACK



Connector Part Information

- Harness Type: High Voltage Battery Manual Service Disconnect
- OEM Connector: 33213213
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F MSD 125 Receptacle (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	12	OG	3970	High Voltage Battery 4 (+)	I	-
2	12	OG	3970	High Voltage Battery 4 (+)	I	-

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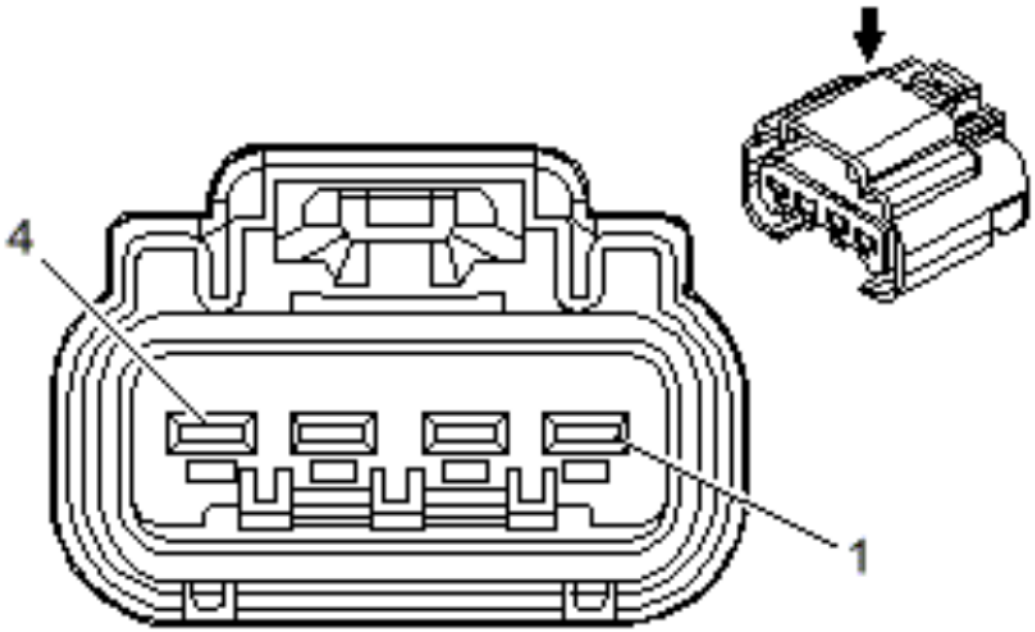
A6C FUEL PUMP AND LEVEL SENSOR ASSEMBLY - PRIMARY



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13527865
- Service Connector: 13587174
- Description: 4-Way F 280 GT Series, Sealed (NA)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	GY	120	Fuel Pump Control	I	-
2	2.5	BK/GN	1580	Fuel Pump Low Reference	I	-
3	0.5	BK/GN	6281	Fuel Level Sensor Low Reference	I	-
4	0.5	BU/VT	1589	Primary Fuel Level Sensor Signal	I	-

A6D FUEL PUMP AND LEVEL SENSOR ASSEMBLY - SECONDARY (L5P+N2N)

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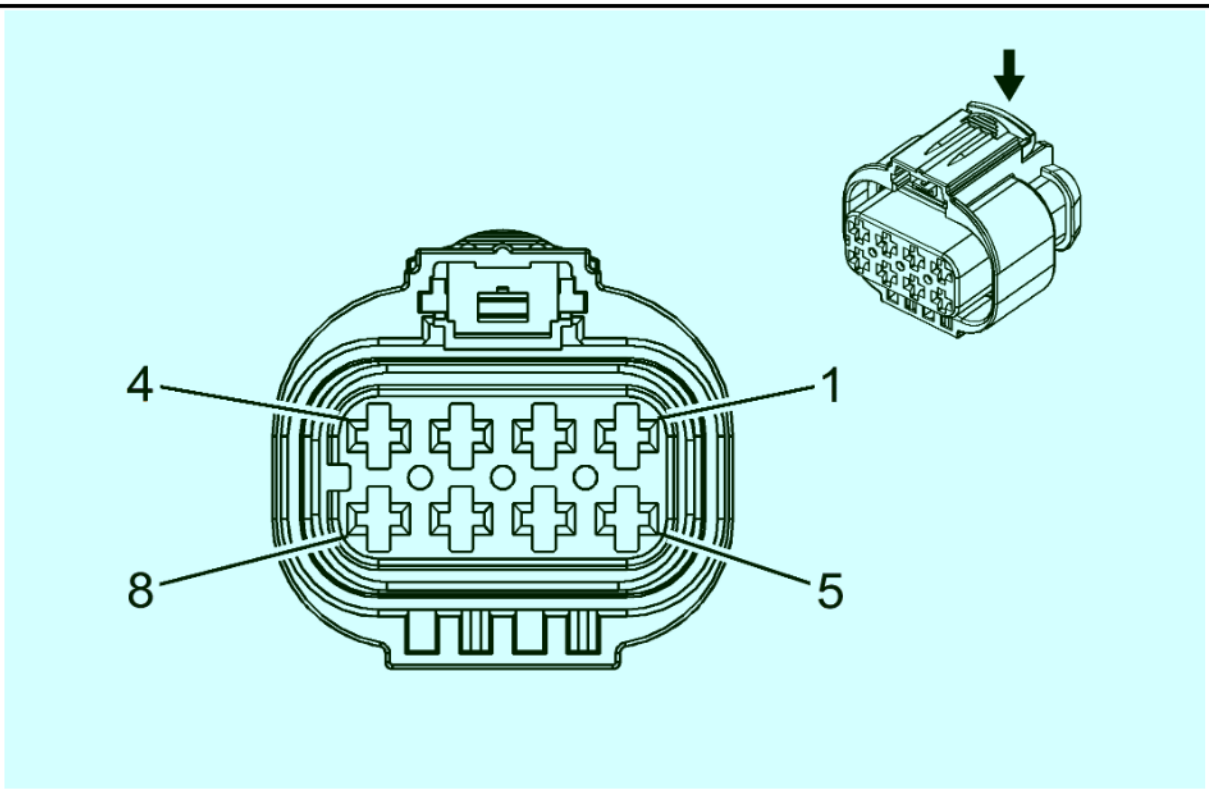

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 33180742
- Service Connector: 19354078
- Description: 8-Way F 2.8 Series, Sealed (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	GY	120	Fuel Pump Control	I	-
2	2.5	BK	2150	Ground	I	-
3 - 4	-	-	-	Not Occupied	-	-
5	0.5	BU/WH	1937	Secondary Fuel Level Sensor Signal	I	-
6	0.5	BK/GN	6281	Fuel Level Sensor Low Reference	I	-
7 - 8	-	-	-	Not Occupied	-	-

A6D FUEL PUMP AND LEVEL SENSOR ASSEMBLY - SECONDARY

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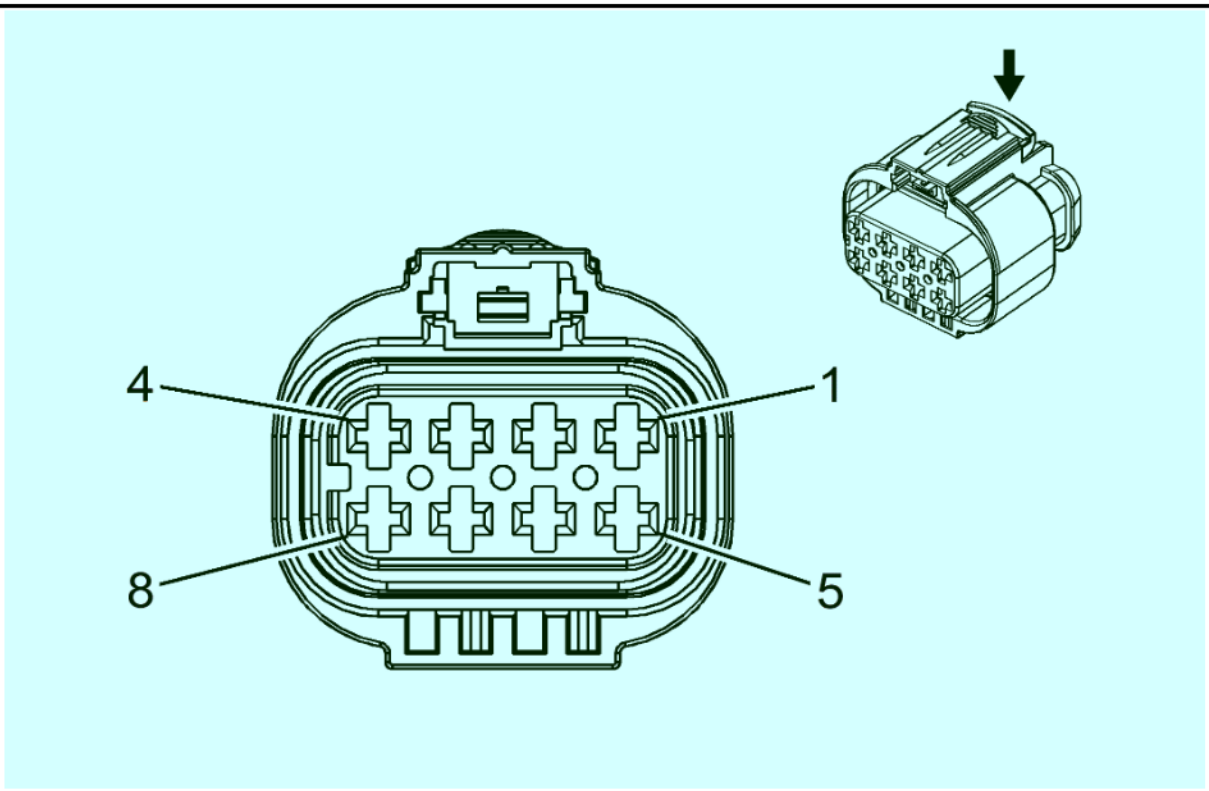

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 33180742
- Service Connector: 19354078
- Description: 8-Way F 2.8 Series, Sealed (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	GY	120	Fuel Pump Control	I	-
2	2.5	BK	2150	Ground	I	-
3 - 4	-	-	-	Not Occupied	-	-
5	0.5	D-BU/WH	1937	Secondary Fuel Level Sensor Signal	I	-
6	0.5	BK/L-GN	6281	Fuel Level Sensor Low Reference	I	-
7 - 8	-	-	-	Not Occupied	-	-

A7 FUEL PUMP AND LEVEL SENSOR ASSEMBLY

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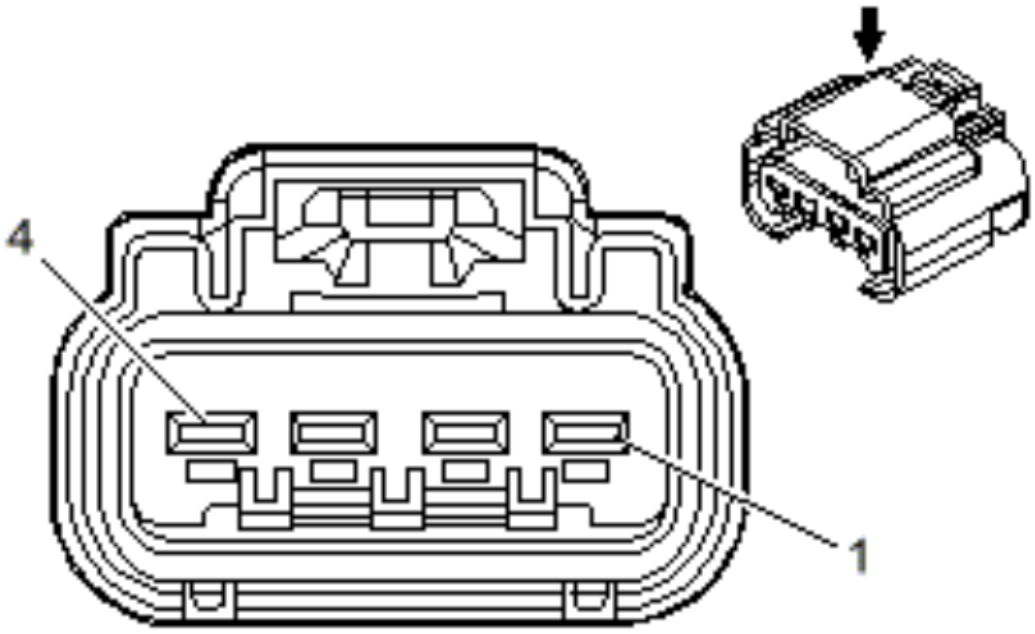

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13527865
- Service Connector: 13587174
- Description: 4-Way F 280 GT Series, Sealed (NA)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	GY	120	Fuel Pump Control	I	-
2	2.5	BK/GN	1580	Fuel Pump Low Reference	I	FPPM
3	0.5	BK/GN	6281	Fuel Level Sensor Low Reference	I	-
4	0.5	BU/VT	1589	Primary Fuel Level Sensor Signal	I	L96+N2M/N2N-N2L

A10 INSIDE REARVIEW MIRROR

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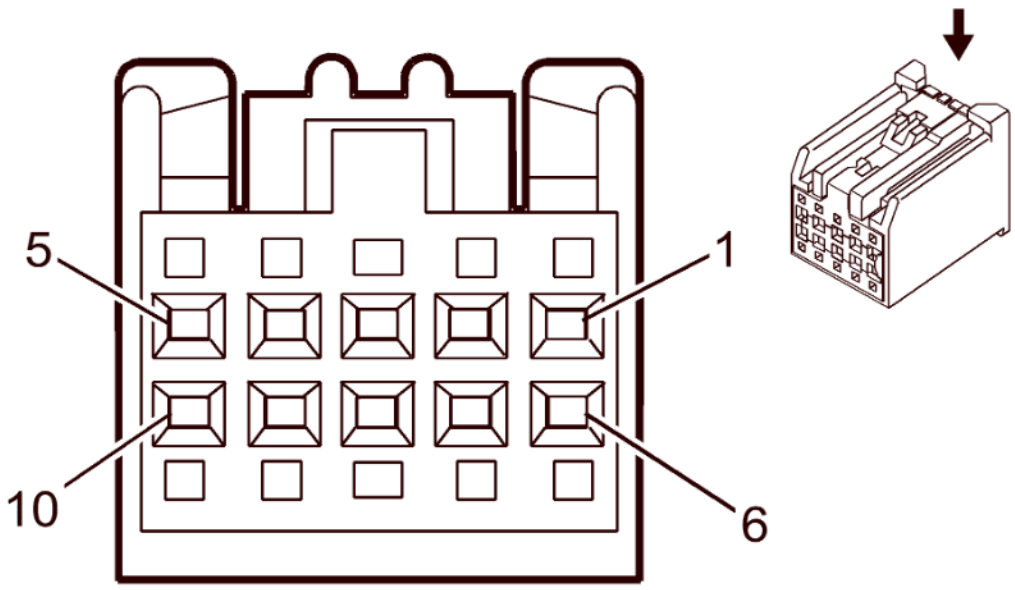

Connector Part Information

- Harness Type: Headliner
- OEM Connector: 13815336
- Service Connector: 13577390
- Description: 10-Way F 0.64 Kaizen Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575867	J-35616-64B (LT BU)	J-38125-215A	SAIT-A03T-M064	Yazaki 14	P	P

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GN/RD	24	Backup Lamp Control	I	-
2	0.35	VT/GN	1739	Run/Crank Ignition 1 Voltage	I	-
3	0.35	GN/BU	2514	Keypad Signal	I	-
4	0.35	GN/BK	2515	Keypad Control	I	-
5	0.5	BK	1050	Ground	I	-
6	0.35	YE/BN	2516	Keypad Green LED Control	I	-
7	0.35	BN/WH	2517	Keypad Red LED Control	I	-
8	0.35	BK/YE	1691	Automatic Day/Night Mirror Low Reference	I	-
9	0.35	YE/WH	1690	Automatic Day/Night Mirror Signal	I	-

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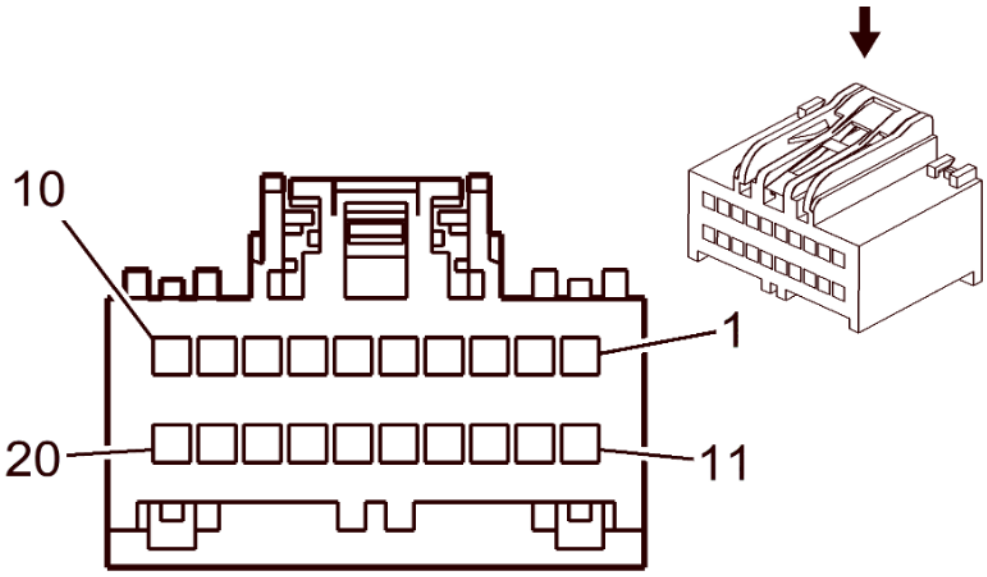
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
10	-	-	-	Not Occupied	-	-

A11 RADIO X1



Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 15491304
- Service Connector: 15126710
- Description: 20-Way F USCAR 64 Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575867	J-35616-64B (LT BU)	J-38125-215A	SAIT-A03T-M064	Yazaki 14	P	P

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	2550	Ground	I	-
2	0.35	GY/BN	9003	-	I	-
3	0.35	BN	9004	-	I	-
4	0.35 0.5	WH/BU GY/GN	6973 1102	Camera Signal 2 Low Speed GMLAN Serial Data #2	I I	IO3 IOB

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
5	0.35	GY/YE	6972	Camera Signal 2 +	I	-
6	0.35 0.35 0.5	BK/GY BK/BN BARE	5152 654 5842	Voice Recognition Audio Low Reference Cellular Telephone Microphone Low Reference Auxiliary Audio Screen 2	I I I	IOB+UE1 IOB-UE1 MCR/USR+IO3+D09
7	0.35 0.35 0.35	GY/YE BU BU	5149 655 2060	Voice Recognition Audio Signal Cellular Telephone Microphone Signal Auxiliary Detection Signal	I I I	IOB+UE1 IOB-UE1 MCR/USR+IO3+D09
8	0.35 0.35	BN/GN VT	3983 5843	Display Radio Bank Switch Signal 2 Auxiliary Audio Common Signal	I I	IOB MCR/USR+IO3+D09
9	0.35 0.35	GY BK/YE	5839 659	Left Auxiliary Audio Signal 2 Cellular Telephone Voice Low Reference	I I	MCR/USR+IO3+D09 UE1+IOB
10	0.35 0.35	GN YE	5841 658	Right Auxiliary Audio Signal 2 Cellular Telephone Voice Signal	I I	MCR/USR+IO3+D09 UE1+IOB
11	0.75	RD/VT	340	Battery Positive Voltage	I	-
12	-	-	-	Not Occupied	-	-
13	0.5	GN/BU	7532	Local Interconnect Network Serial Data Bus 10	I	-
14	0.5 0.35	GY/GN WH/BU	1102 6973	Low Speed GMLAN Serial Data #2 Camera Signal 2	I I	IO3/IO4/IO5/IO6-IOB IOB
15	0.35	GY/YE	6972	Camera Signal 2 +	I	-
16	0.5	BARE	5842	Auxiliary Audio Screen 2	I	-
17	0.35	BU	2060	Auxiliary Detection Signal	I	-
18	0.35	VT	5843	Auxiliary Audio Common Signal	I	-
19	0.35 0.35	GY BK/YE	5839 659	Left Auxiliary Audio Signal 2 Cellular Telephone Voice Low Reference	I I	IOB -IOB
20	0.35 0.35	GN YE	5841 658	Right Auxiliary Audio Signal 2 Cellular Telephone Voice Signal	I I	IOB -IOB

A11 RADIO X2 (IOB)

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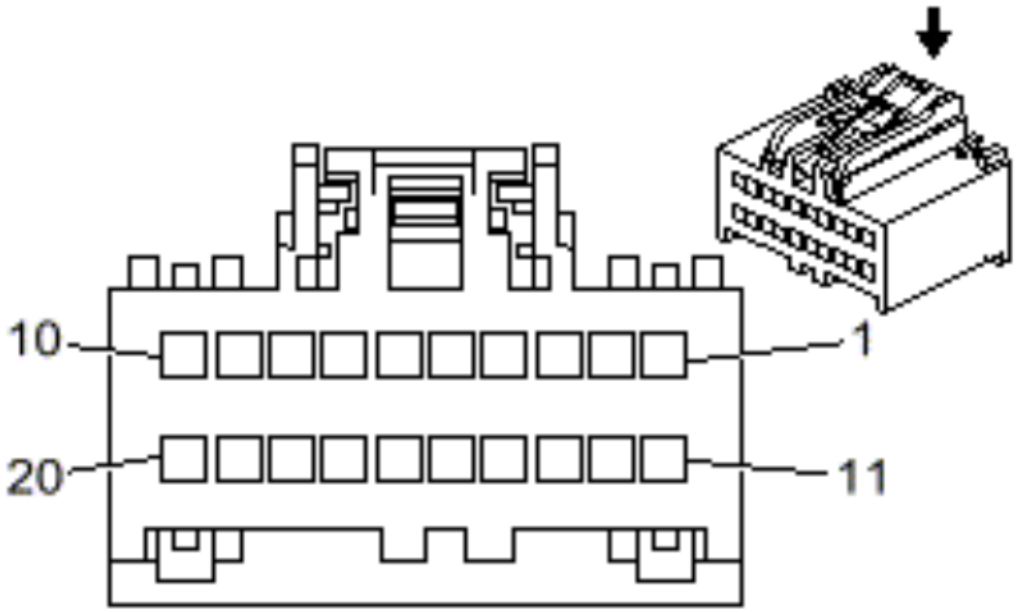

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 15491305
- Service Connector: 15126709
- Description: 20-Way F USCAR 64 Series (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575867	J-35616-64B (LT BU)	J-38125-215A	SAIT-A03T-M064	Yazaki 14	P	P
II	19300440	J-35616-64B (LT BU)	J-38125-215A	SAIT-A03T-M064	Yazaki 14	P	P

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	-	-	-	Not Occupied	-	-
3	0.35	GY	314	Radio On Signal	II	-
4	0.35	VT/GY	1381	LCD Dimming Signal	II	-
5	0.35	GY/D-BU	3989	Display Radio Bank Switch Dim Signal	II	-
6	0.35	BN/L-GN	4502	Video Display Request Signal	II	-
7	0.35	BN/L-GN	3364	Navigation Display Reset Signal	II	-
8	0.35	D-BU	4315	Radio Volume Up Signal	II	-
9	0.35	GY/BN	4314	Radio Volume Down Signal	II	-

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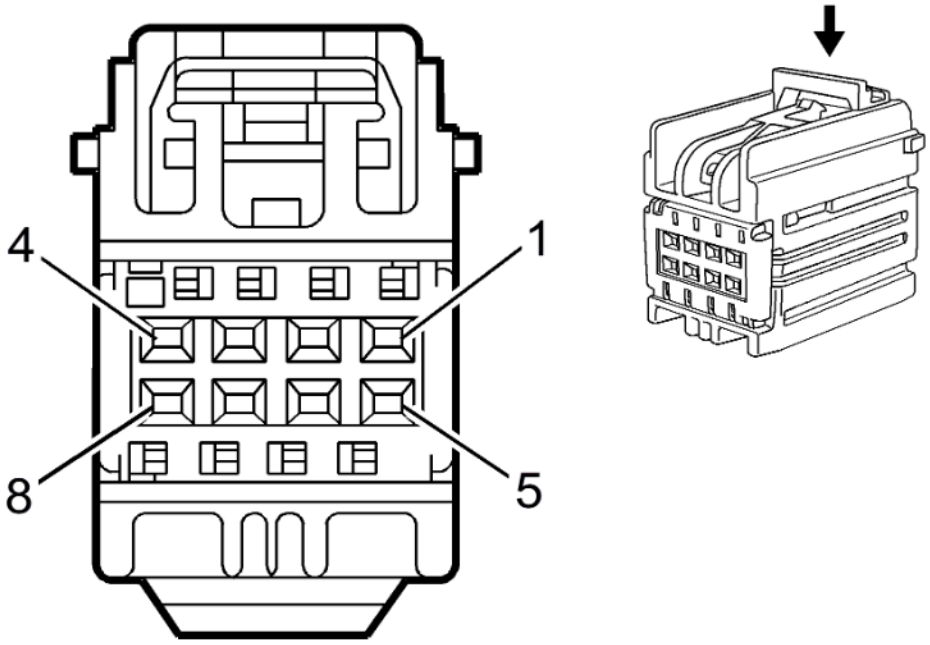
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
10	0.75	BK	2550	Ground	I	-
11	0.5	WH	46	Right Rear Speaker Control (+)	II	-
12	0.5	D-BU/BK	115	Right Rear Speaker Signal (-)	II	-
13	0.5	L-GN	199	Left Rear Speaker Control (+)	II	-
14	0.5	L-GN/BK	116	Left Rear Speaker Signal (-)	II	-
15	0.75	YE/BK	117	Right Front Speaker Signal (-) 1	I	-
16	0.75	YE	200	Right Front Speaker Control (+) 1	I	-
17	0.75	BN/D-BU	118	Left Front Speaker Signal (-) 1	I	-
18	0.75	D-BU	201	Left Front Speaker Control (+) 1	I	-
19	-	-	-	Not Occupied	-	-
20	0.75	RD/VT	340	Battery Positive Voltage	I	-

A11 RADIO X2 (-IOB)



Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13551679
- Service Connector: 19115653
- Description: 8-Way F YESC Kaizen Series (L-GY)

Terminal Part Information

Terminal	Terminated	Diagnostic	Terminal	Service	Tray	Core	Insulation

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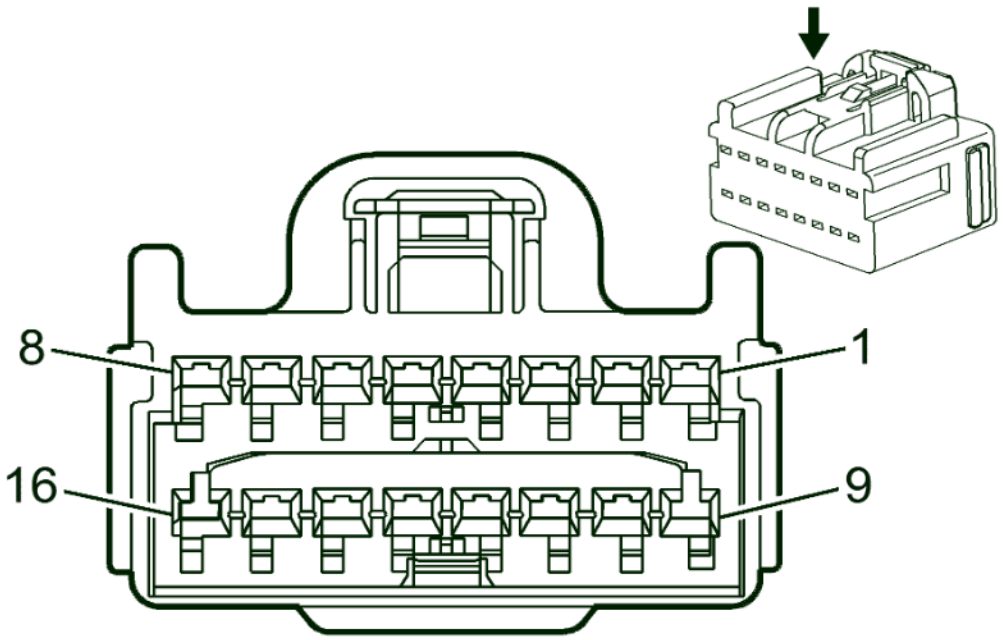
Type ID	Lead	Test Probe	Removal Tool	Terminal	Name	Crimp	Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/L-GN	3997	MOST Serial Data (-)	I	-
2	0.5	GY/VT	3998	MOST Serial Data (+)	I	-
3	0.5	WH/L-GN	3997	MOST Serial Data (-)	I	-
4	0.5	GY/VT	3998	MOST Serial Data (+)	I	-
5 - 6	-	-	-	Not Occupied	-	-
7	0.35	WH/VT	3999	MOST Control	I	-
8	-	-	-	Not Occupied	-	-

A11 RADIO X3



Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 10847013
- Service Connector: 89047090
- Description: 16-Way F 1.5 Kaizen Series (GN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp

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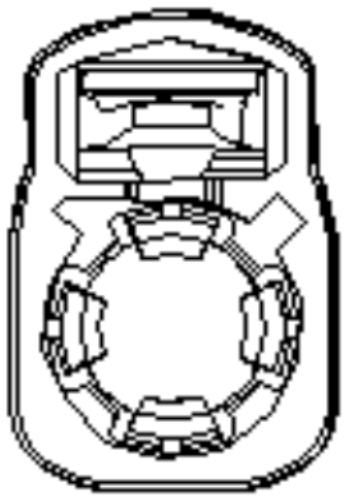
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575808	J-35616-2A (GY)	J-38125-217	Not Available	Not Available	Not Available	Not Available
II	13578891	J-35616-2A (GY)	J-38125-11A	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BU	201	Left Front Speaker Control (+) 1	I	-
2	0.75	YE	200	Right Front Speaker Control (+) 1	I	-
3	0.5	GN	199	Left Rear Speaker Control (+)	II	-
4	0.5	WH	46	Right Rear Speaker Control (+)	II	-
5 - 7	-	-	-	Not Occupied	-	-
8	0.75	RD/VT	340	Battery Positive Voltage	I	-
9	0.75	BN/BU	118	Left Front Speaker Signal (-) 1	I	-
10	0.75	YE/BK	117	Right Front Speaker Signal (-) 1	I	-
11	0.5	GN/BK	116	Left Rear Speaker Signal (-)	II	-
12	0.5	BU/BK	115	Right Rear Speaker Signal (-)	II	-
13 - 15	-	-	-	Not Occupied	-	-
16	0.75	BK	2550	Ground	I	-

A11 RADIO X4



Connector Part Information

- Harness Type: Radio Antenna Jumper COAX

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- OEM Connector: 12784257
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 1-Way F Coax Type (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	Coax	-	(AM/FM) Antenna RF Signal	I	-

A11 RADIO X5 (IOB)

-

Connector Part Information

- Harness Type: Instrument Panel COAX
- OEM Connector: 33233609
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 1-Way

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	COAX	Coax Cable	I	-

A11 RADIO X6 (IO5/IO6 +U2K)

-

Connector Part Information

- Harness Type: Instrument Panel COAX
- OEM Connector: 33233609
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 1-Way

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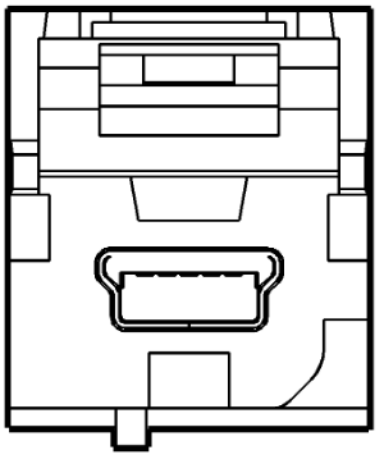
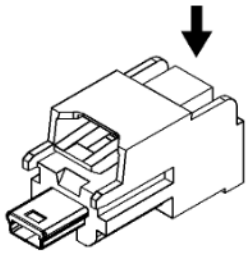
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	COAX	Coax Cable	I	-

A11 RADIO X7 (IO3/IOB)





Connector Part Information

- Harness Type: Instrument Panel LVDS
- OEM Connector: Not Available
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 5-Way M LVDS Cable Connector (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

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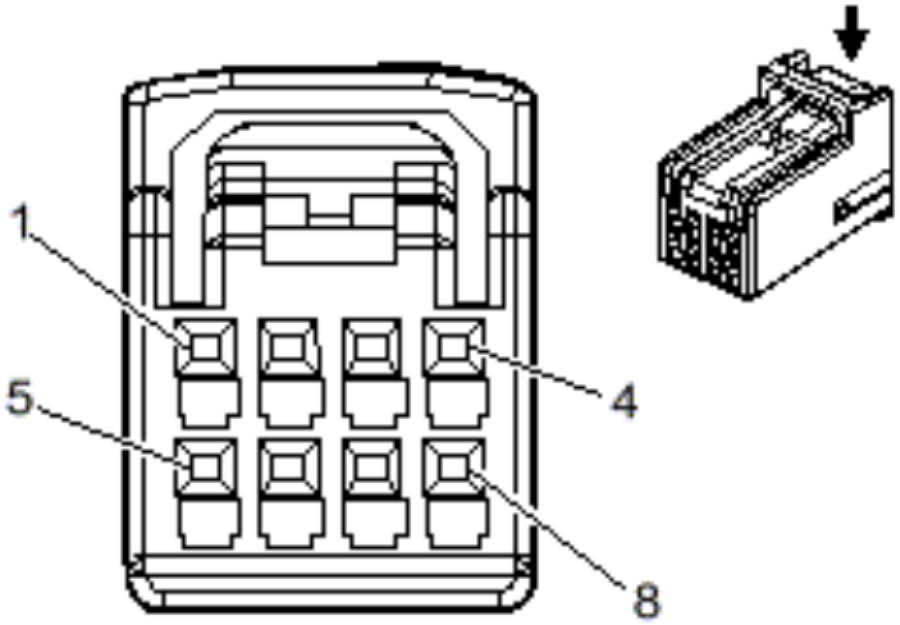
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	LVDS	-	(Infotainment) Infotainment Display Signal	I	-

A14D SEAT LUMBAR SUPPORT PUMP - DRIVER



Connector Part Information

- Harness Type: Driver Seat Back Jumper
- OEM Connector: MX34E08SF1
- Service Connector: Service by Harness - See Part Catalog
- Description: 8-Way F 0.64 Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	YE/BN	768	Driver Power Seat Lumbar Motor Up Control	I	-
2	0.75	VT	610	Driver Power Seat Lumbar Motor Rearward Control	I	-

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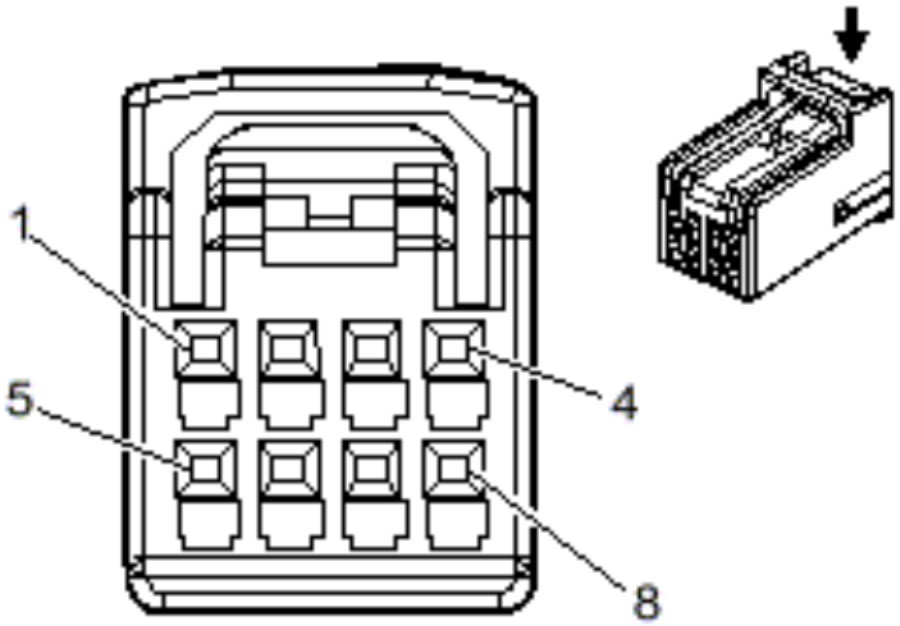
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	0.75	YE/BU	767	Driver Power Seat Lumbar Motor Down Control	I	-
4	-	-	-	Not Occupied	-	-
5	0.75	BU	611	Driver Power Seat Lumbar Motor Forward Control	I	-
6 - 8	-	-	-	Not Occupied	-	-

A14P SEAT LUMBAR SUPPORT PUMP - PASSENGER



Connector Part Information

- Harness Type: Passenger Seat Back Jumper
- OEM Connector: MX34E08SF1
- Service Connector: Service by Harness - See Part Catalog
- Description: 8-Way F 0.64 Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option

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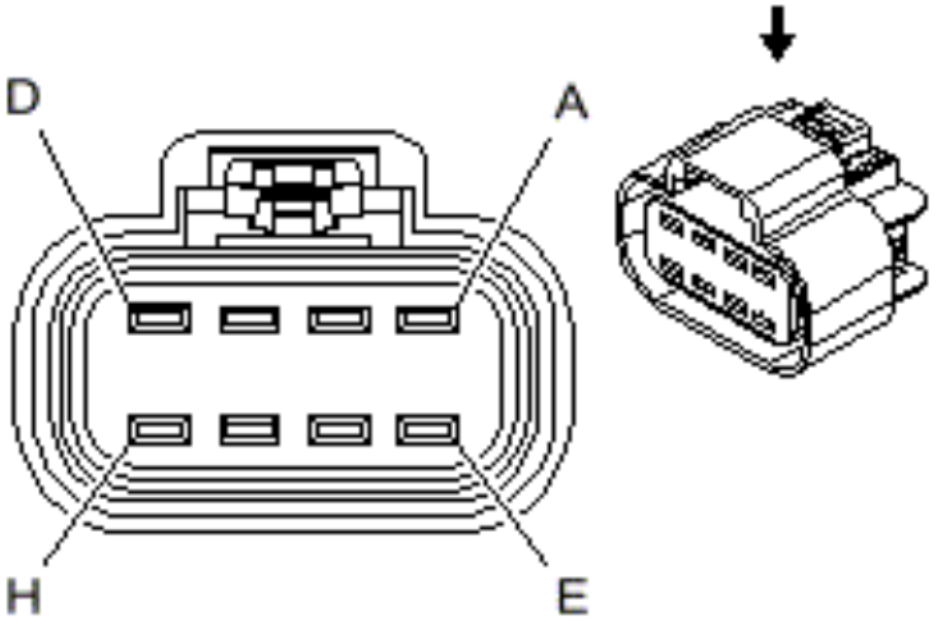
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN/YE	793	Passenger Power Seat Lumbar Motor Up Control	I	-
2	0.75	VT	210	Passenger Power Seat Lumbar Motor Rearward Control	I	-
3	0.75	BU/YE	792	Passenger Power Seat Lumbar Motor Down Control	I	-
4	-	-	-	Not Occupied	-	-
5	0.75	BU	211	Passenger Power Seat Lumbar Motor Forward Control	I	-
6 - 8	-	-	-	Not Occupied	-	-

A16 TRANSFER CASE MOTOR (L5P)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13669205
- Service Connector: 19300464
- Description: 8-Way F 280 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35	No Tool	Not Required	Not	Not	Not

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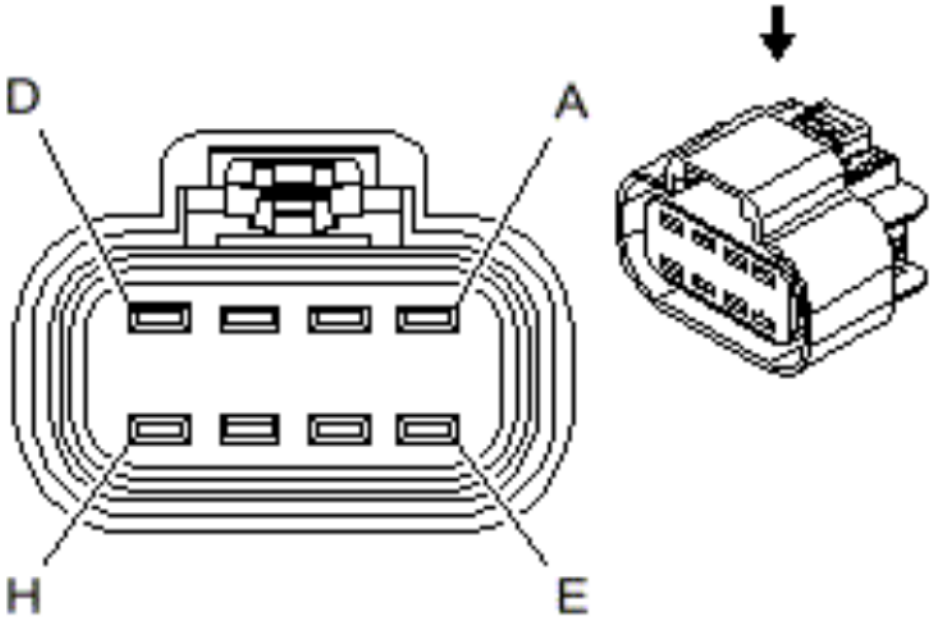
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
		(VT)	Required		Required	Required	Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	3	OG	1552	Transfer Case Motor Clockwise Control	I	-
B - C	-	-	-	Not Occupied	-	-
D	3	YE/VT	1553	Transfer Case Motor Counter Clockwise Control	I	-
E	0.5	D-BU/GY	7473	Incremental Encoder Impulse Signal	I	-
F	0.5	YE	7474	Incremental Encoder Direction Signal	I	-
G	0.5	WH/L-GN	7475	Incremental Encoder Sensor 8V Reference	I	-
H	0.5	VT	7476	Incremental Encoder Sensor Low Reference	I	-

A16 TRANSFER CASE MOTOR (L96)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13669205
- Service Connector: 19300464

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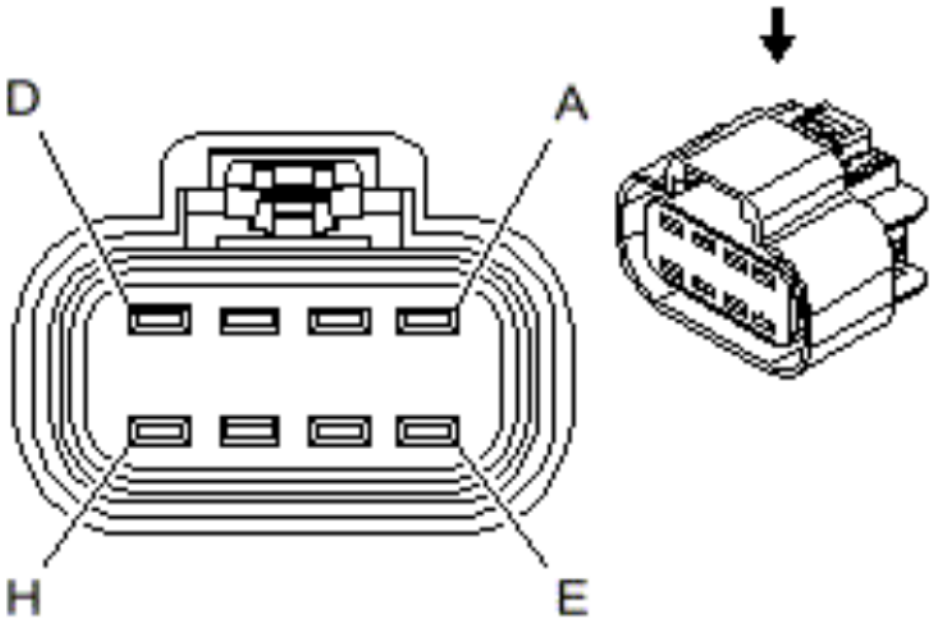
- Description: 8-Way F 280 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	3	OG	1552	Transfer Case Motor Clockwise Control	I	-
B - C	-	-	-	Not Occupied	-	-
D	3	YE/VT	1553	Transfer Case Motor Counter Clockwise Control	I	-
E	0.5	D-BU/GY	7473	Incremental Encoder Impulse Signal	I	-
F	0.5	YE	7474	Incremental Encoder Direction Signal	I	-
G	0.5	WH/L-GN	7475	Incremental Encoder Sensor 8V Reference	I	-
H	0.5	VT	7476	Incremental Encoder Sensor Low Reference	I	-

A16 TRANSFER CASE MOTOR



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Connector Part Information

- Harness Type: Engine
- OEM Connector: 13669205
- Service Connector: 19300464
- Description: 8-Way F 280 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	3	OG	1552	Transfer Case Motor Clockwise Control	I	-
B	3	RD/GY	1342	Battery Positive Voltage	I	-
C	2.5	YE/BN	1569	Transfer Case Lock Solenoid Control	I	-
D	3	YE/VT	1553	Transfer Case Motor Counter Clockwise Control	I	-
E	0.5	BU/GY	7473	Incremental Encoder Impulse Signal	I	-
F	0.5	YE	7474	Incremental Encoder Direction Signal	I	-
G	0.5	WH/GN	7475	Incremental Encoder Sensor 8V Reference	I	-
H	0.5	VT	7476	Incremental Encoder Sensor Low Reference	I	-

A22 RADIO CONTROLS

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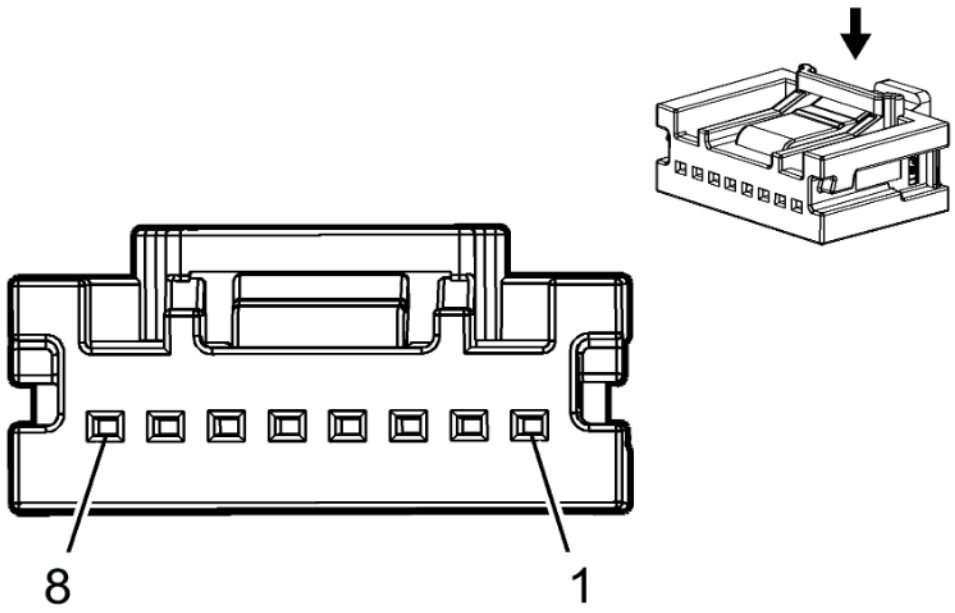

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 15532151
- Service Connector: 15532151
- Description: 8-Way F 0.64 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY/BN	3761	Infotainment Regulated Control	I	-
2	0.35	L-GN/BK	2515	Keypad Control	I	-
3	0.35	BN/L-GN	3983	Display Radio Bank Switch Signal 2	I	-
4	0.35	GY	314	Radio On Signal	I	-
5	0.35	GY/D-BU	3989	Display Radio Bank Switch Dim Signal	I	-
6	0.35	D-BU	4315	Radio Volume Up Signal	I	-
7	0.35	GY/BN	4314	Radio Volume Down Signal	I	-
8	0.35	BK/BN	2518	Keypad Low Reference	I	-

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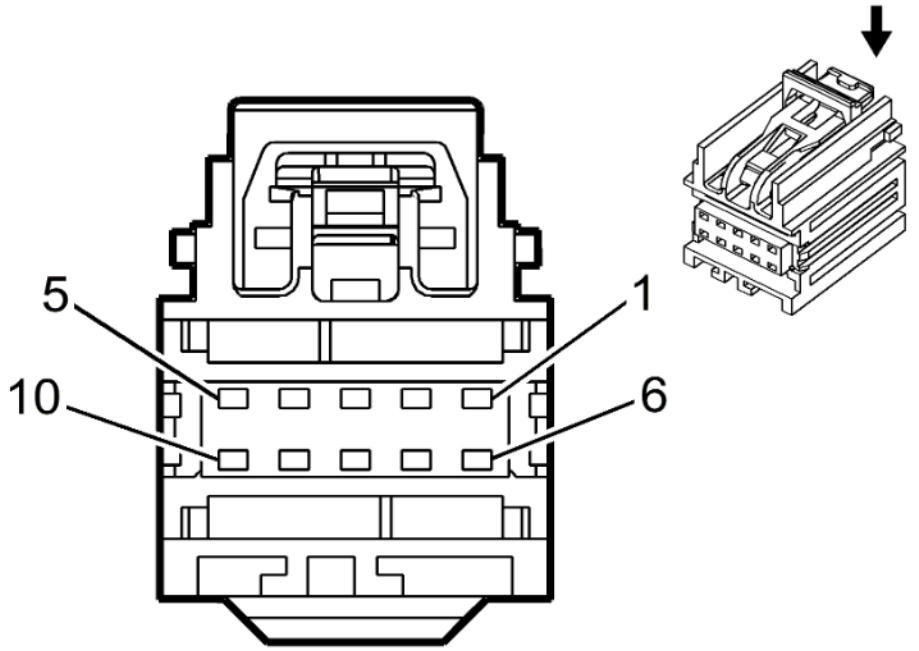
A23D DOOR LATCH ASSEMBLY - DRIVER



Connector Part Information

- Harness Type: Driver Door
- OEM Connector: 33110655
- Service Connector: Service by Harness - See Part Catalog
- Description: 10-Way F 0.64 YESC Kaizen Series (GN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY	745	Left Front Door Ajar Switch Signal	I	-
2	-	-	-	Not Occupied	-	-
3	0.5	BK	1150	Ground	I	-
4	0.35	WH/VT	3270	Driver Door Lock Motor Status Signal	I	-
5	0.35	D-BU/VT	1124	Door Lock Key Switch Unlock Signal	I	-
6	-	-	-	Not Occupied	-	-

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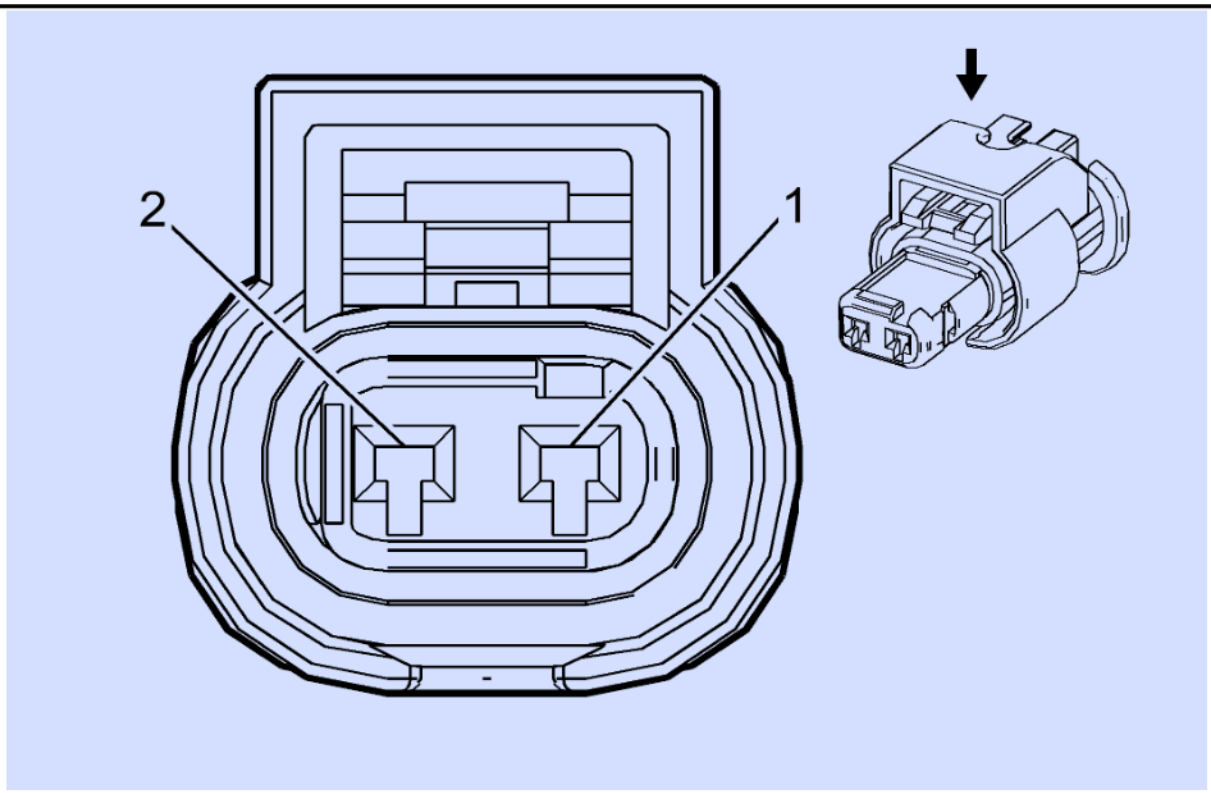
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
7	0.75	GY	5911	Door Lock Actuator Lock Control 2	I	-
8	0.75	BN/BK	294	Door Lock Actuator Unlock Control	I	-
9 - 10	-	-	-	Not Occupied	-	-

A23E DOOR LATCH ASSEMBLY - ENDGATE (A91)



Connector Part Information

- Harness Type: Tailgate
- OEM Connector: 13927761
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	GY	295	Door Lock Actuator Lock	I	-

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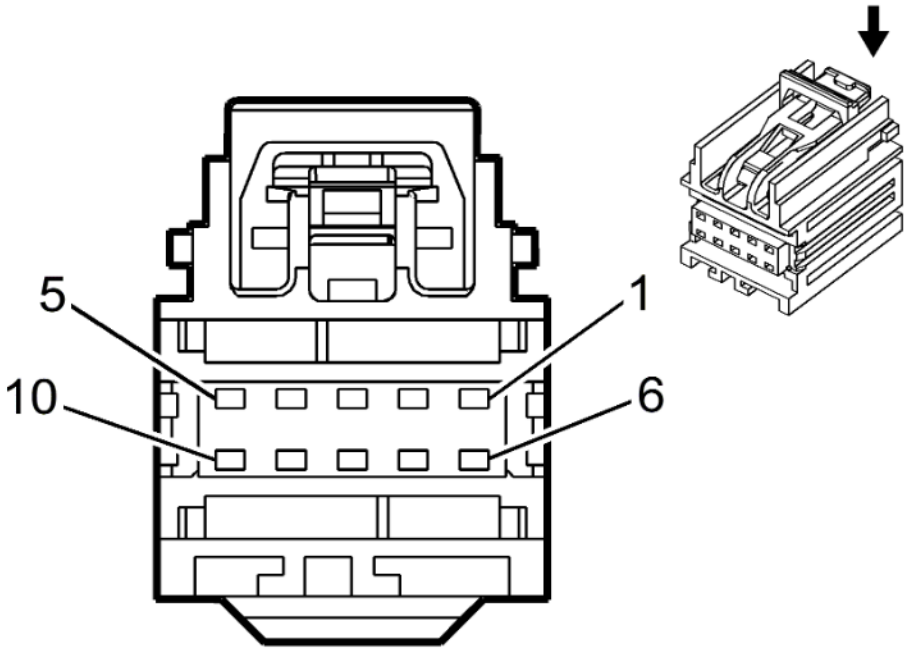
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
				Control		
2	-	BN/YE	294	Door Lock Actuator Unlock Control	I	-

A23LR DOOR LATCH ASSEMBLY - LEFT REAR



Connector Part Information

- Harness Type: Left Rear Door
- OEM Connector: 33110655
- Service Connector: Service by Harness - See Part Catalog
- Description: 10-Way F 0.64 YESC Kaizen Series (GN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY/WH	747	Left Rear Door Ajar Switch Signal	I	-

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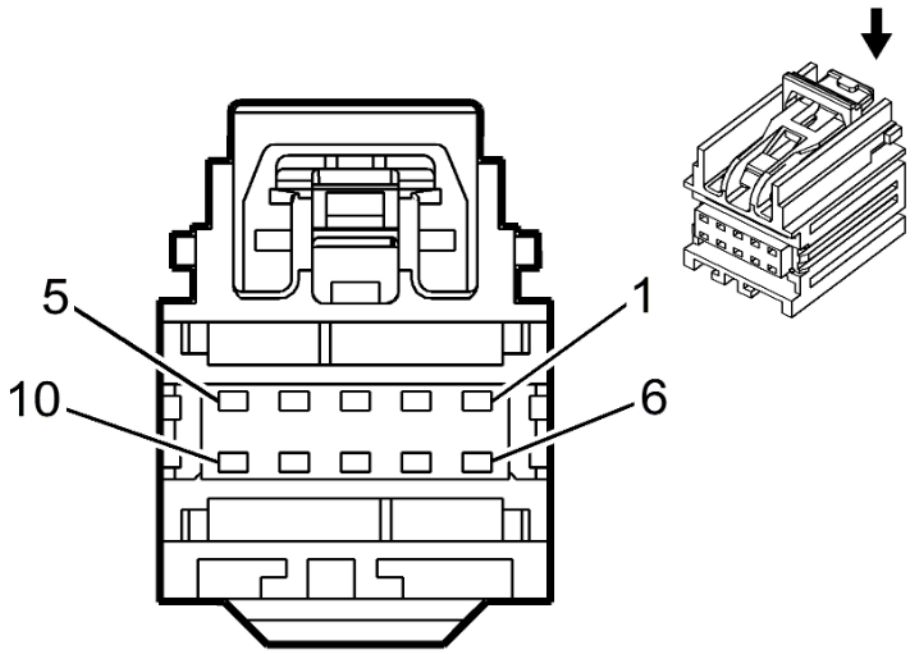
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
2	0.35	BN/WH	3269	Child Security Lock Motor Status Signal Left Rear	I	-
3	0.5	BK	1150	Ground	I	-
4 - 6	-	-	-	Not Occupied	-	-
7	0.75	GY	295	Door Lock Actuator Lock Control	I	-
8	0.75	BN/YE	294	Door Lock Actuator Unlock Control	I	-
9	0.75	WH/D-BU	3266	Child Security Lock Motor Lock Control	I	-
10	-	-	-	Not Occupied	-	-

A23P DOOR LATCH ASSEMBLY - PASSENGER



Connector Part Information

- Harness Type: Passenger Door
- OEM Connector: 33110655
- Service Connector: Service by Harness - See Part Catalog
- Description: 10-Way F 0.64 YESC Kaizen Series (GN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp

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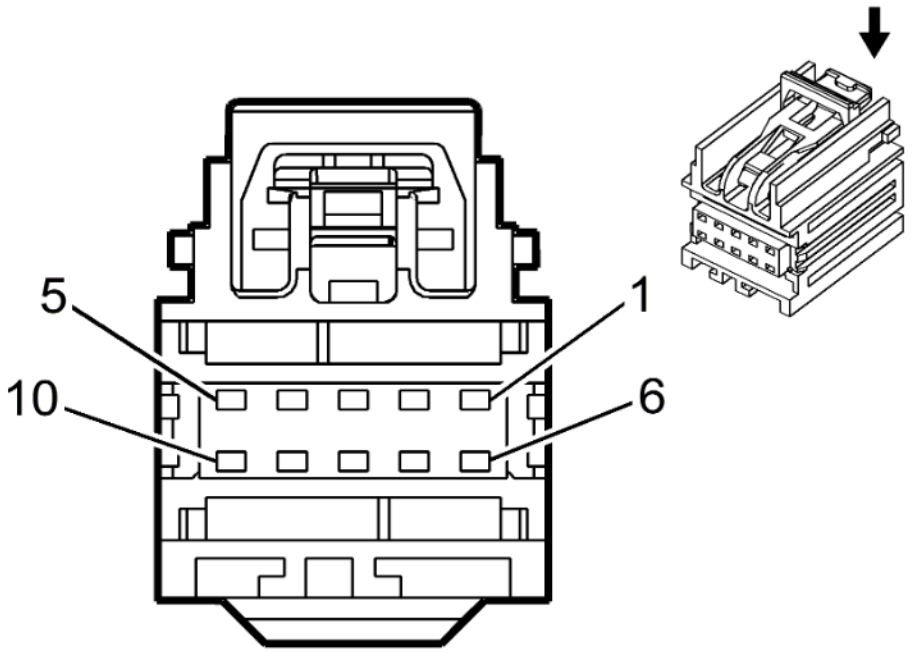
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	-	-	-	Not Occupied	-	-
3	0.5	BK	1250	Ground	I	-
4	-	-	-	Not Occupied	-	-
5	0.35	GY	746	Right Front Door Ajar Switch Signal	I	-
6 - 7	-	-	-	Not Occupied	-	-
8	0.75	BN/YE	294	Door Lock Actuator Unlock Control	I	-
9	0.75	GY	295	Door Lock Actuator Lock Control	I	-
10	-	-	-	Not Occupied	-	-

A23RR DOOR LATCH ASSEMBLY - RIGHT REAR



Connector Part Information

- Harness Type: Right Rear Door
- OEM Connector: 33110655
- Service Connector: Service by Harness - See Part Catalog
- Description: 10-Way F 0.64 YESC Kaizen Series (GN)

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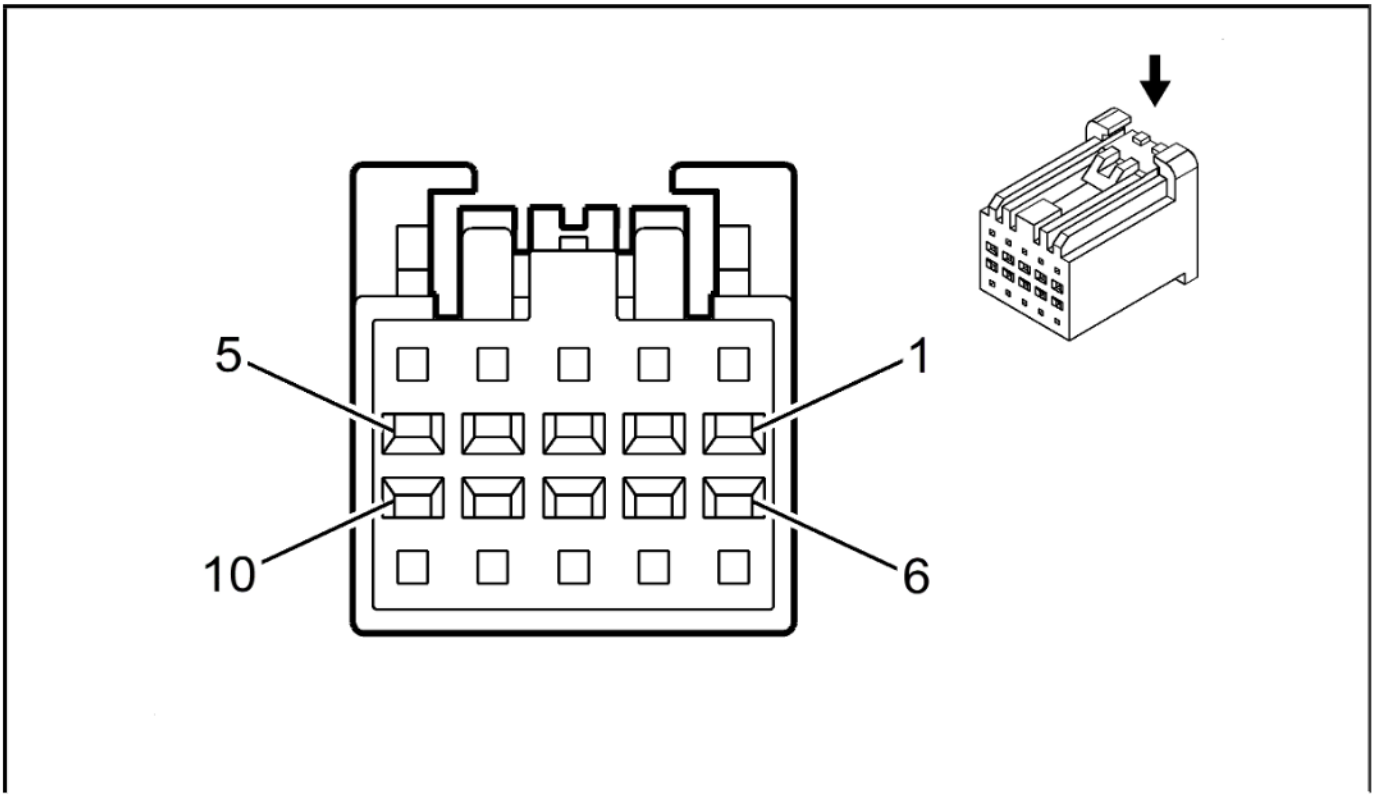
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	-	-	-	Not Occupied	-	-
3	0.5	BK	1250	Ground	I	-
4	0.35	GY/BK	3268	Child Security Lock Motor Status Signal Right Rear	I	-
5	0.35	GY/WH	748	Right Rear Door Ajar Switch Signal	I	-
6	-	-	-	Not Occupied	-	-
7	0.75	WH/D-BU	3266	Child Security Lock Motor Lock Control	I	-
8	0.75	BN/YE	294	Door Lock Actuator Unlock Control	I	-
9	0.75	GY	295	Door Lock Actuator Lock Control	I	-
10	-	-	-	Not Occupied	-	-

A26 HVAC CONTROLS X2



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Connector Part Information

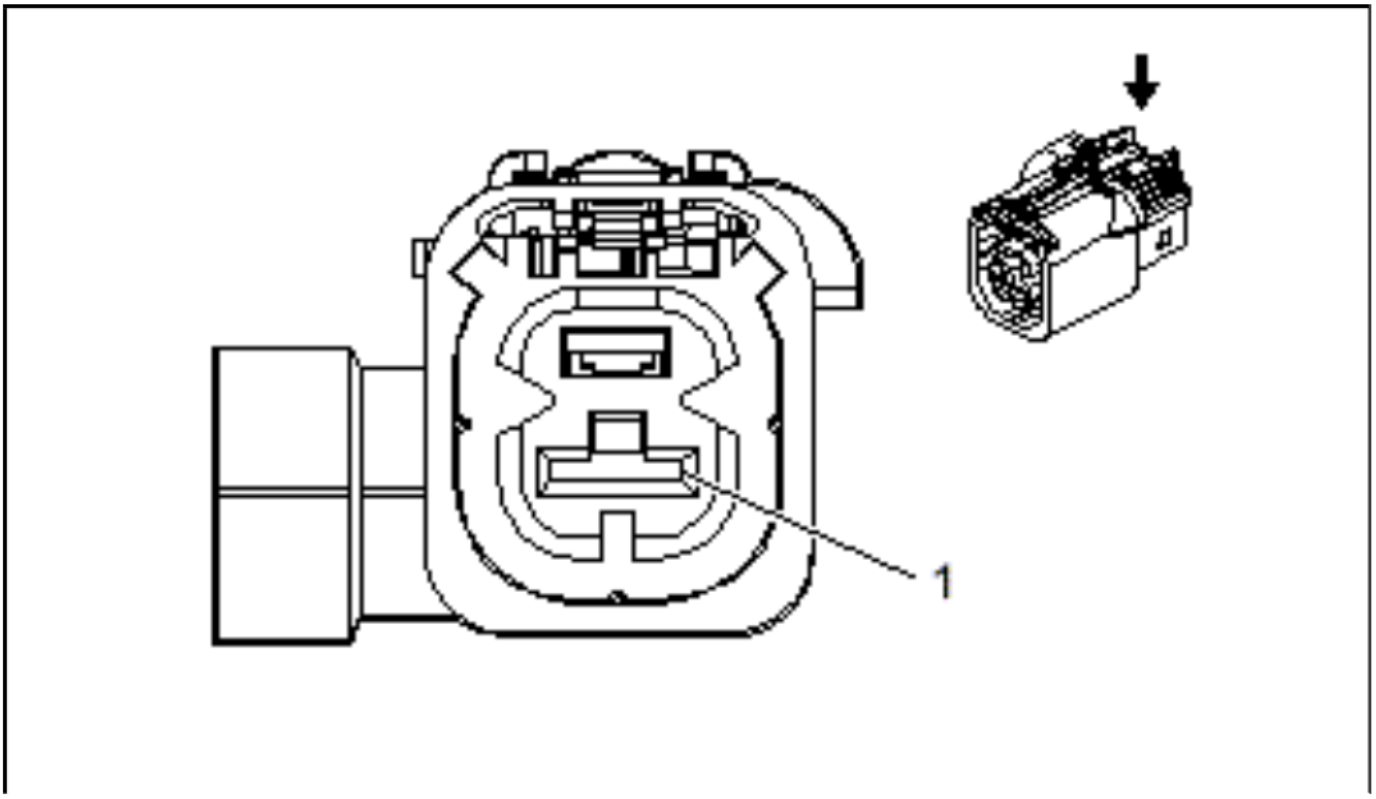
- Harness Type: Instrument Panel
- OEM Connector: 13876499
- Service Connector: 13581139
- Description: 10-Way F 0.64 Kaizen Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD/GY	2840	Battery Positive Voltage	I	-
2	-	-	-	Not Occupied	-	-
3	0.5	GN	5060	Low Speed GMLAN Serial Data	I	-
4 - 8	-	-	-	Not Occupied	-	-
9	0.35	GN/YE	7531	Local Interconnect Network Serial Data Bus 9	I	-
10	0.75	BK	2550	Ground	I	-

A28 HYBRID/EV BATTERY CONTACTOR ASSEMBLY X1



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Connector Part Information

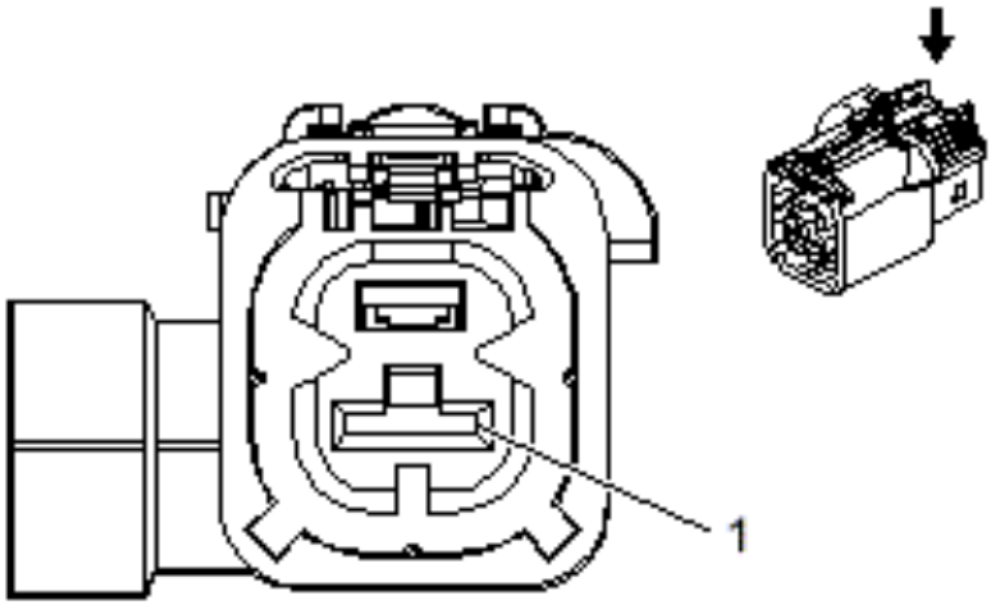
- Harness Type: High Voltage Battery Negative
- OEM Connector: 33119077
- Service Connector: Service by Harness - See Part Catalog
- Description: 1-Way F 6.3 Series (OG)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	12	OG	5084	High Voltage Battery (+)	I	-

A28 HYBRID/EV BATTERY CONTACTOR ASSEMBLY X2



Connector Part Information

- Harness Type: High Voltage Battery Positive
- OEM Connector: 33119078
- Service Connector: Service by Harness - See Part Catalog
- Description: 1-Way F 6.3 Series (OG)

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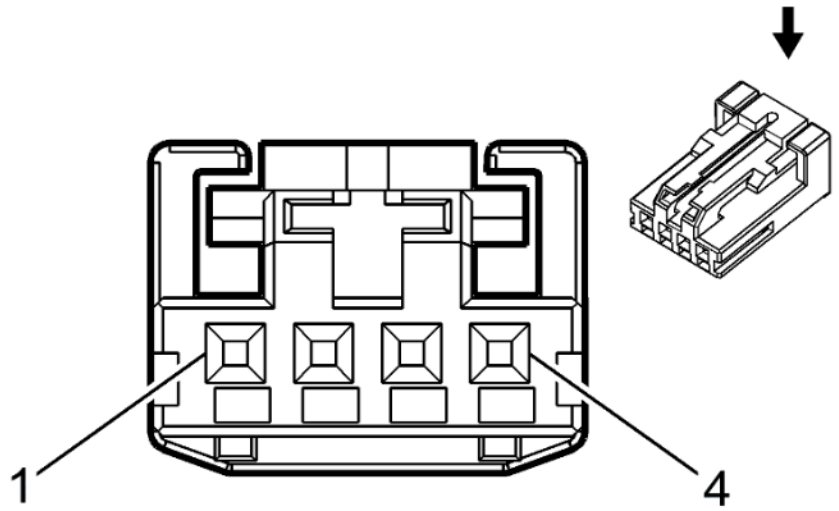
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	12	OG	5084	High Voltage Battery (+)	I	-

A28 HYBRID/EV BATTERY CONTACTOR ASSEMBLY X3



Connector Part Information

- Harness Type: High Voltage Battery Monitoring
- OEM Connector: 13969166
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 0.64 Micro-Quadlock Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

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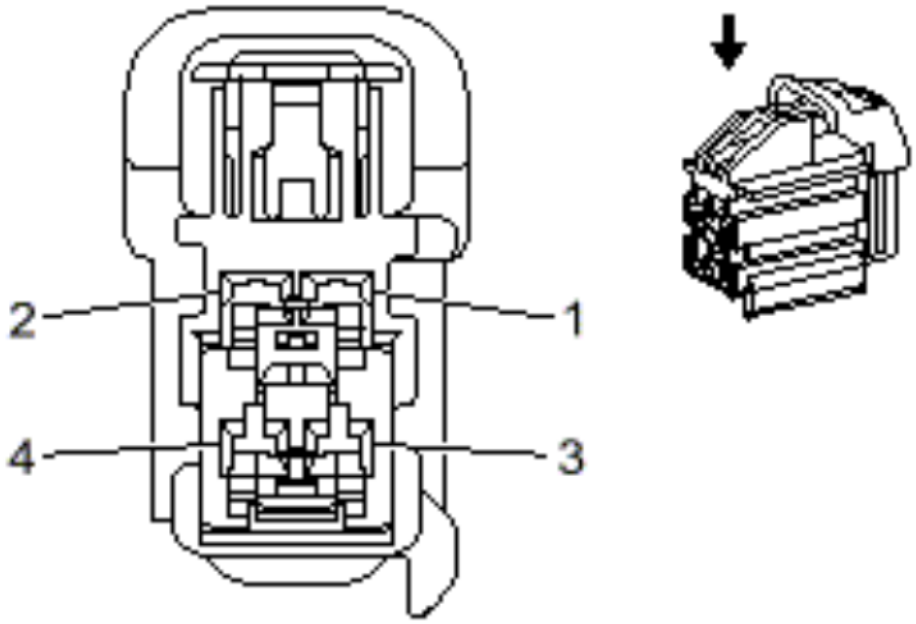
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.35	VT/RD	2965	High Voltage Battery Current Sensor Voltage Reference	I	-
3	0.35	BK/GY	2963	High Voltage Battery Current Sensor Low Reference	I	-
4	0.35	BU/YE	2962	High Voltage Battery Current Sensor Course Signal	I	-

A28 HYBRID/EV BATTERY CONTACTOR ASSEMBLY X4



Connector Part Information

- Harness Type: High Voltage Battery Monitoring
- OEM Connector: 10846820
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F YESC Kaizen Series (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal	Option

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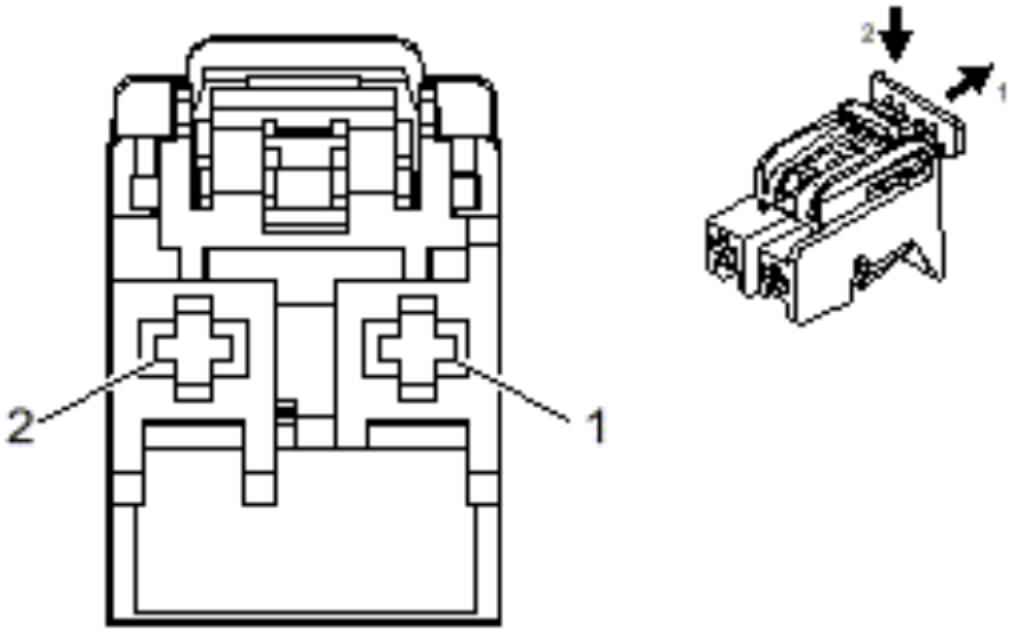
					Type ID	
1	0.35	GY	5138	Precharge Relay	I	-
2	0.35	BK	150	Ground	I	-
3	0.35	VT/GY	3961	High Voltage Battery (-) Relay Control	I	-
4	0.35	BN/GN	3959	High Voltage Battery 1 (+) Relay Control	I	-

A28 HYBRID/EV BATTERY CONTACTOR ASSEMBLY X5



Connector Part Information

- Harness Type: High Voltage Battery Monitoring
- OEM Connector: 13848288
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 2.8 MCP Series (OG)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT	3546	High Voltage Battery Positive	I	-

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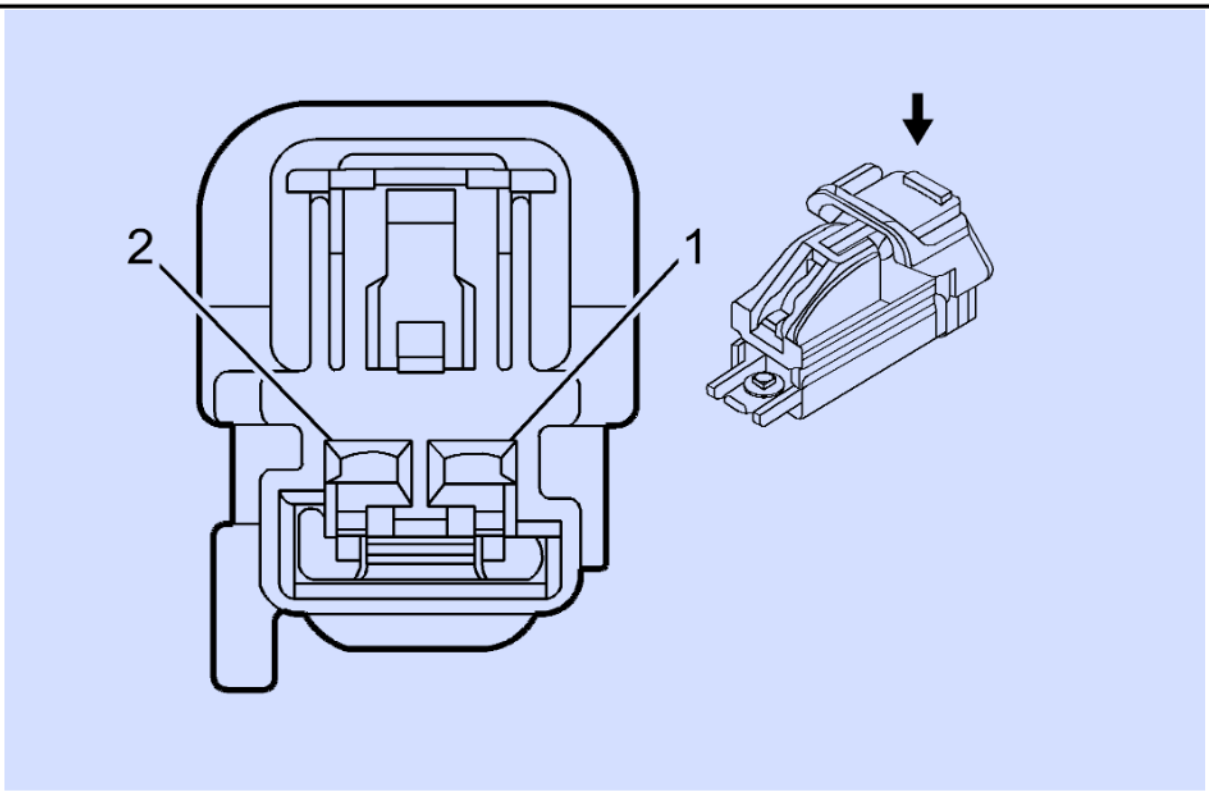
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
				Monitor Signal		
2	0.5	GY/VT	3548	High Voltage Battery Negative Monitor Signal	I	-

A28 HYBRID/EV BATTERY CONTACTOR ASSEMBLY X6



Connector Part Information

- Harness Type: High Voltage Battery Monitoring
- OEM Connector: 10846794
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.5 YESC Series (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	150	Ground	I	-
2	-	-	-	Not Occupied	-	-

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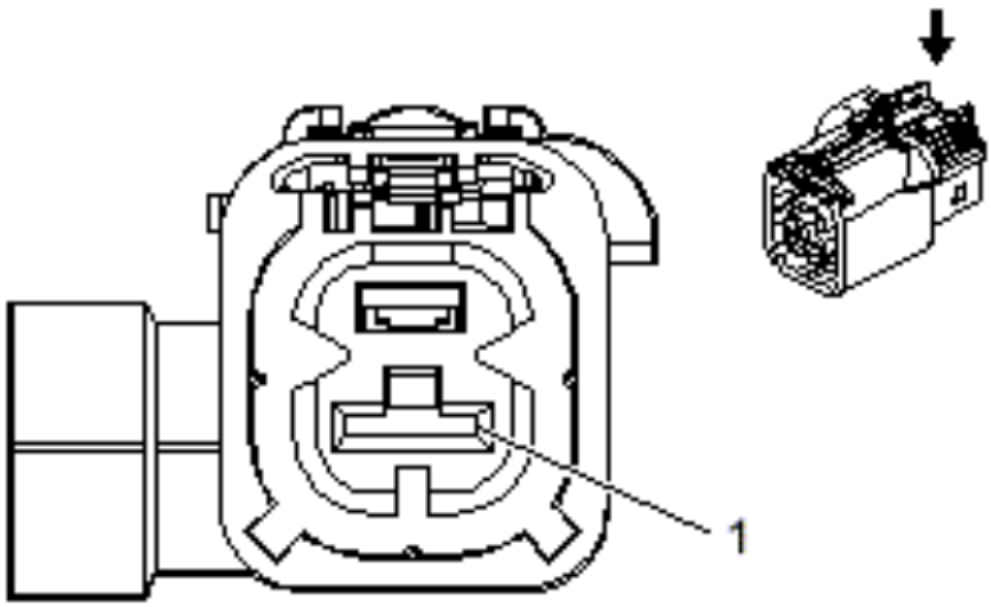
A28 HYBRID/EV BATTERY CONTACTOR ASSEMBLY X7



Connector Part Information

- Harness Type: High Voltage Body
- OEM Connector: 33119078
- Service Connector: Service by Harness - See Part Catalog
- Description: 1-Way F 6.3 Series (OG)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	12	OG	5084	High Voltage Battery (+)	I	-

A28 HYBRID/EV BATTERY CONTACTOR ASSEMBLY X8

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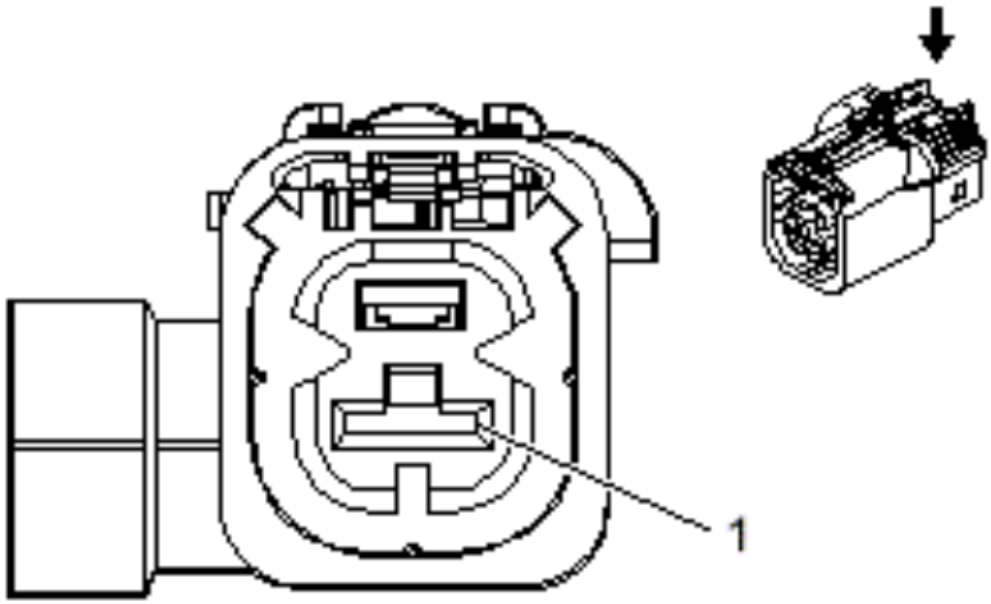

Connector Part Information

- Harness Type: High Voltage Body
- OEM Connector: 33119077
- Service Connector: Service by Harness - See Part Catalog
- Description: 1-Way F 6.3 Series (OG)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	12	OG	5083	High Voltage Battery (-)	I	-

A33 MEDIA DISC PLAYER X1 (D07/U42)

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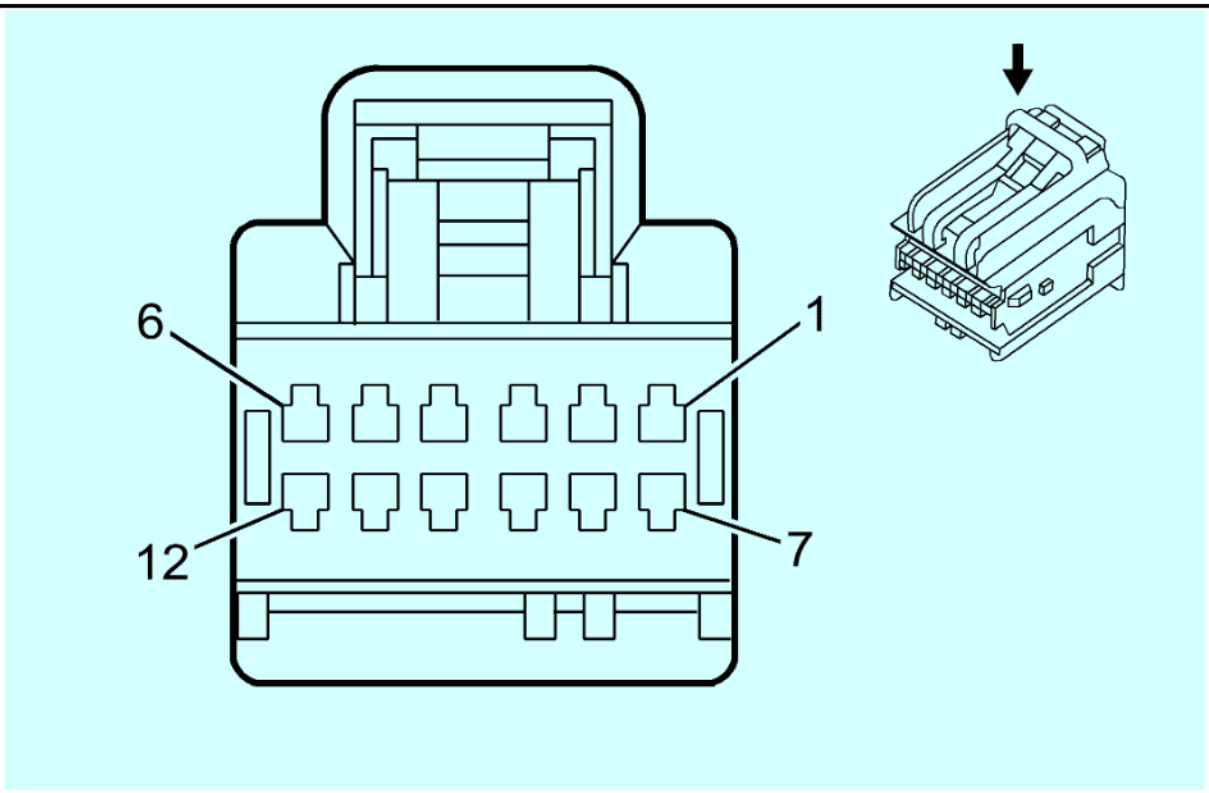

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13784026
- Service Connector: 13578574
- Description: 12-Way F 0.64 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575550	J-35616-16 (LT GN)	J-38125-559	15445905	Delphi 23	J	J
II	13582250	J-35616-16 (LT GN)	J-38125-559	15445905	Delphi 23	K	K

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	RD/VT	340	Battery Positive Voltage	II	-
2	-	-	-	Not Occupied	-	-
3	0.5	WH/GN	3997	MOST Serial Data (-)	I	-
4	0.5	GY/VT	3998	MOST Serial Data (+)	I	-
5	0.5	WH/GN	3997	MOST Serial Data (-)	I	-
6	0.5	GY/VT	3998	MOST Serial Data (+)	I	-
7	0.5	BK	2550	Ground	I	-
8	0.35	GN/YE	7066	Entertainment Remote Enable Signal	I	-

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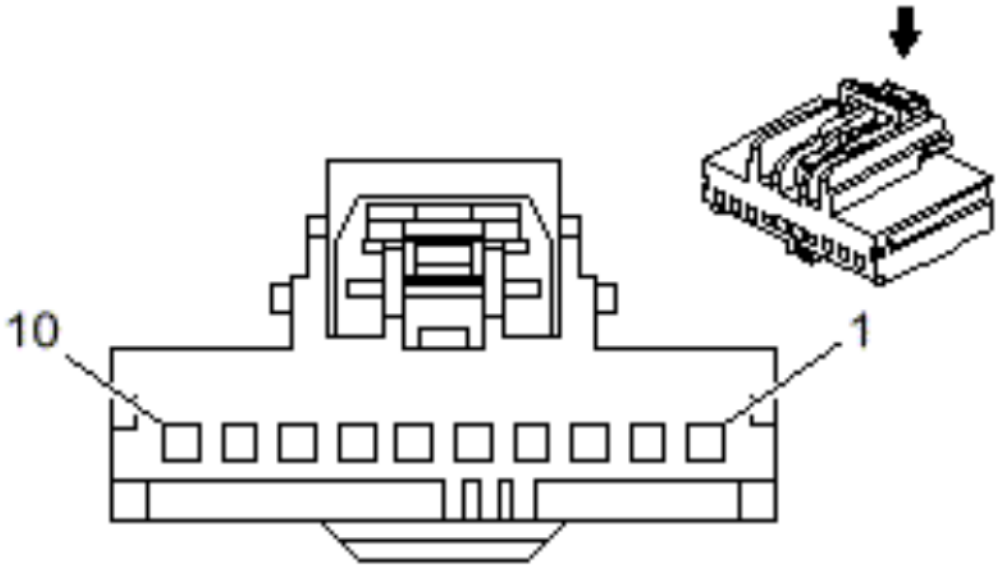
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
9	-	-	-	Not Occupied	-	-
10	0.35	WH/VT	3999	MOST Control	I	-
11	0.5	GY/GN	1102	Low Speed GMLAN Serial Data #2	I	-
12	-	-	-	Not Occupied	-	-

A33 MEDIA DISC PLAYER X1 (TG5)



Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 15490628
- Service Connector: 89047355
- Description: 10-Way F 0.64 Kaizen Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575867	J-35616-64B (LT BU)	J-38125-215A	SAIT-A03T-M064	Yazaki 14	P	P

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	WH/VT	3999	MOST Control	I	-
2	-	-	-	Not Occupied	-	-

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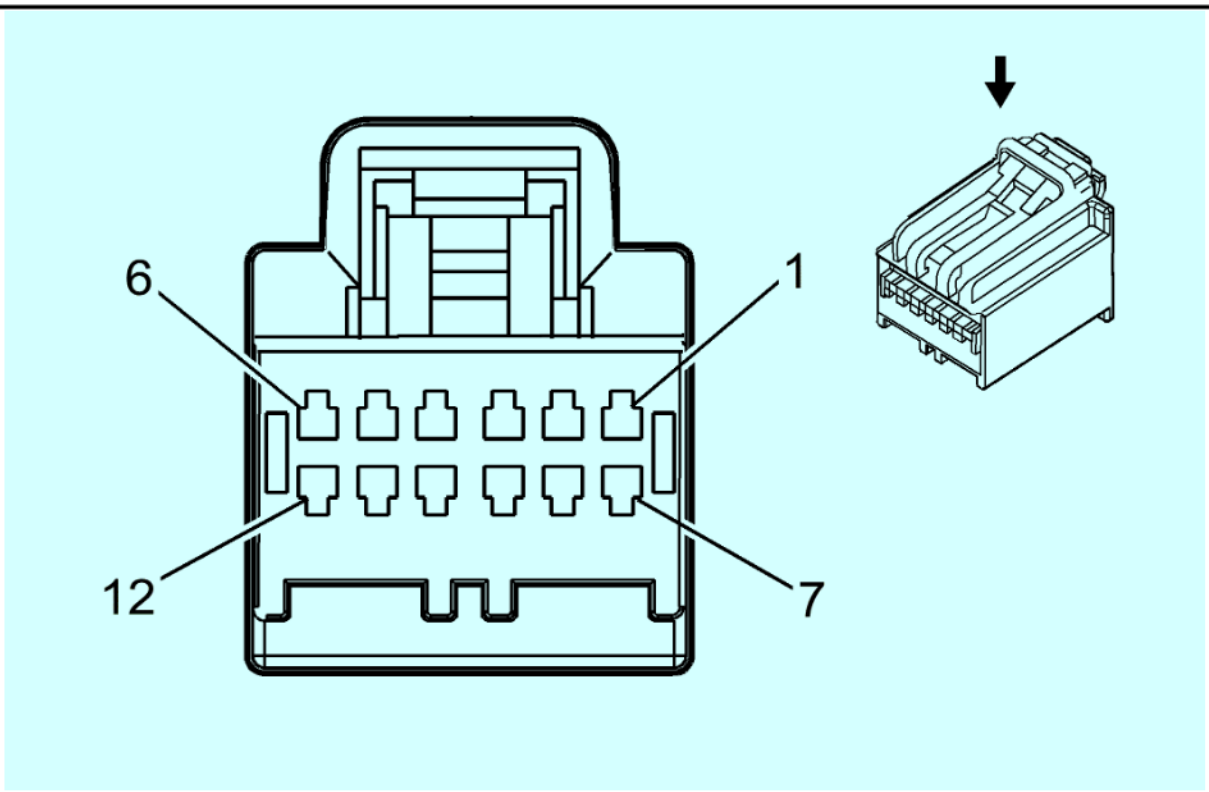
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	0.5	WH/GN	3997	MOST Serial Data (-)	I	-
4	0.5	GY/VT	3998	MOST Serial Data (+)	I	-
5	0.5	WH/GN	3997	MOST Serial Data (-)	I	-
6	0.5	GY/VT	3998	MOST Serial Data (+)	I	-
7	-	-	-	Not Occupied	-	-
8	0.75	BK	2550	Ground	I	-
9	-	-	-	Not Occupied	-	-
10	0.75	RD/VT	340	Battery Positive Voltage	I	-

A33 MEDIA DISC PLAYER X2 (D07/U42)



Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13587624
- Service Connector: 19151154
- Description: 12-Way F 64 Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575867	J-35616-64B (LT BU)	J-38125-215A	SAIT-A03T-M064	Yazaki 14	P	P

Pin	Size	Color	Circuit	Function	Terminal	Option

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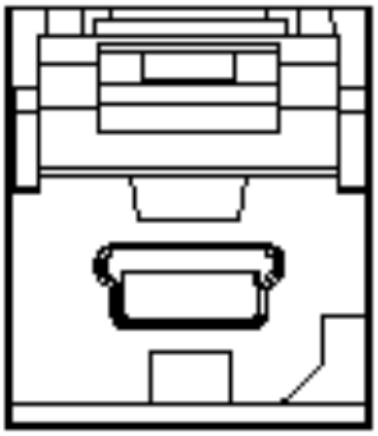
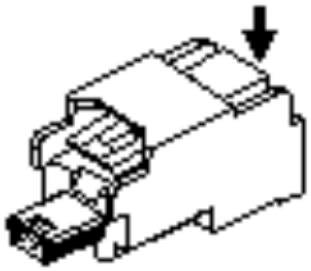
					Type ID	
1	0.35	GN/WH	3355	Left Rear Seat Audio Headphone Signal	I	-
2	0.35	BN/GY	3357	Right Rear Seat Audio Headphone Signal	I	-
3	0.35	BU/VT	3356	Rear Seat Audio Headphone Common Signal	I	-
4	0.5	BARE	3354	Rear Seat Audio Headphone Low Reference	I	-
5 - 12	-	-	-	Not Occupied	-	-

A33 MEDIA DISC PLAYER X3 (U42)





Connector Part Information

- Harness Type: Instrument Panel USB
- OEM Connector: Not Available
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 5-Way M USB Cable Connector (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

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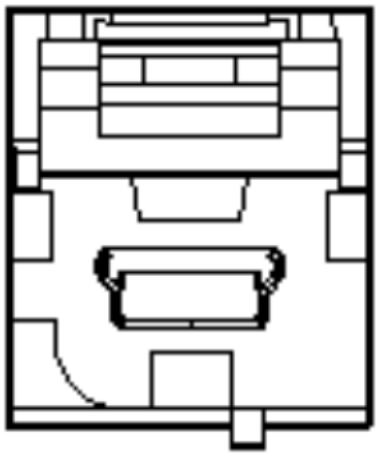
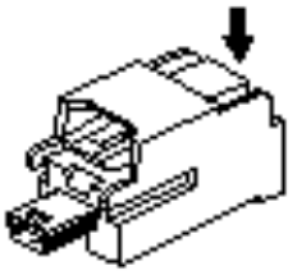
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	USB	-	USB Serial Data	I	-

A33 MEDIA DISC PLAYER X4 (U42)





Connector Part Information

- Harness Type: Instrument Panel LVDS
- OEM Connector: Not Available
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 5-Way F LVDS Cable Connector (WH)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	LVDS	-	(Infotainment) Infotainment Display Signal	I	-

A33 MEDIA DISC PLAYER X5 (U42)

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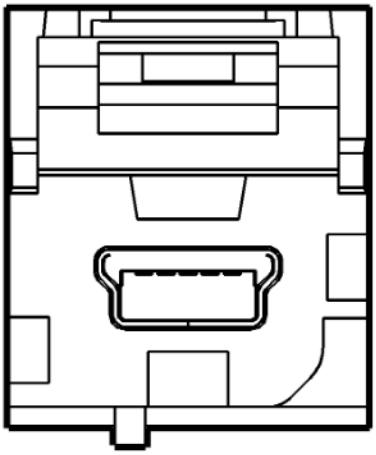

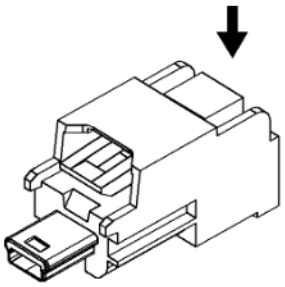

Connector Part Information

- Harness Type: Instrument Panel LVDS
- OEM Connector: Not Available
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 5-Way F LVDS Cable Connector (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	LVDS	-	(Infotainment) Infotainment Display Signal	I	-

A38 REDUCTANT PUMP AND SENSOR ASSEMBLY (L5P)

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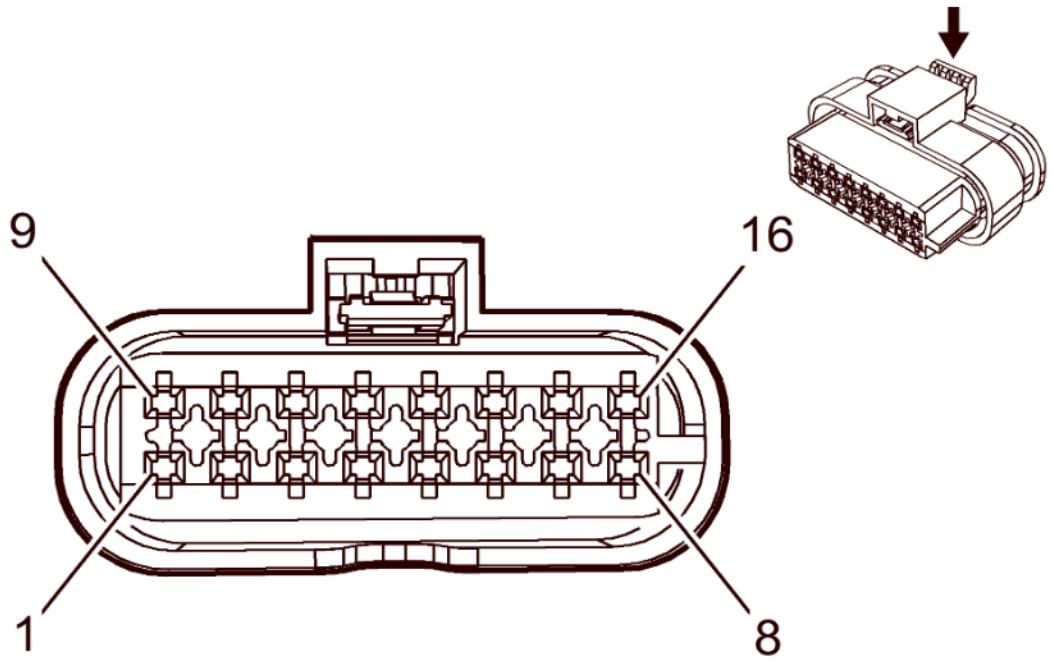

Connector Part Information

- Harness Type: Reductant Fuel Pump
- OEM Connector: 13935934
- Service Connector: Service by Harness - See Part Catalog
- Description: 16-Way F 1.2 Multilock Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN	-	Temperature Sensor Signal	I	-
2	0.5	BK	-	Temperature Sensor Ground	I	-
3	0.5	BN	-	Pressure Sensor Ground	I	-
4	0.5	BU	-	Pressure Sensor Signal	I	-
5	0.5	BN	-	Pressure Sensor Supply	I	-
6	0.5	BU	-	Level Sensor Ground	I	-
7	1.0	WH	-	Pump Phase A	I	-
8	1.0	BU	-	Pump Phase B	I	-
9	1.0	WH	-	Tank Heater Supply	I	-
10	-	-	-	Not Occupied	-	-

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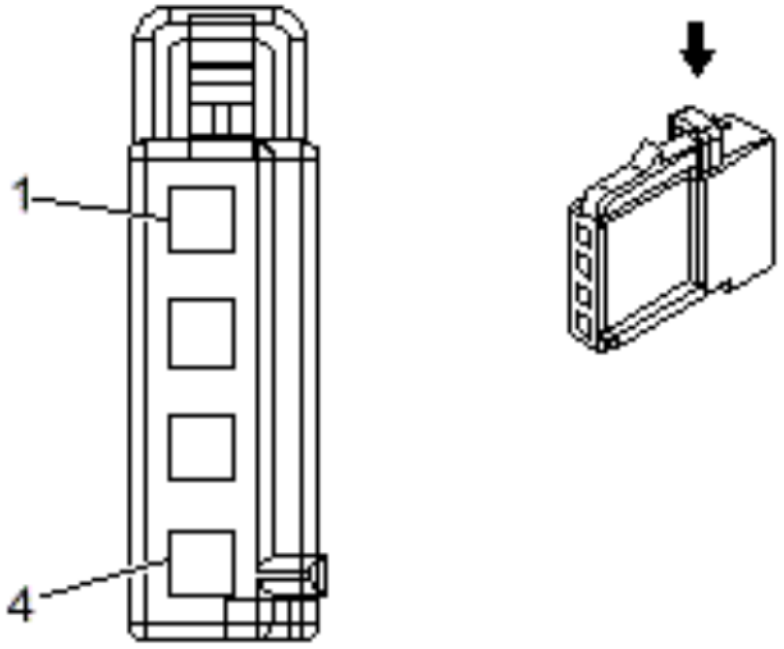
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
11	1.0	BK	-	Tank Heater Ground	I	-
12	-	-	-	Not Occupied	-	-
13	0.5	BU	-	Level Sensor Supply	I	-
14	0.5	BN	-	Level Sensor Signal	I	-
15	1.0	BN	-	Pump Ground	I	-
16	1.0	BN	-	Pump Phase C	I	-

A101L CARGO BOX STOWAGE BOX LID LATCH - LEFT (ZYD)



Connector Part Information

- Harness Type: Left Bin Jumper
- OEM Connector: 24466147
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 1.2 Timer Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option

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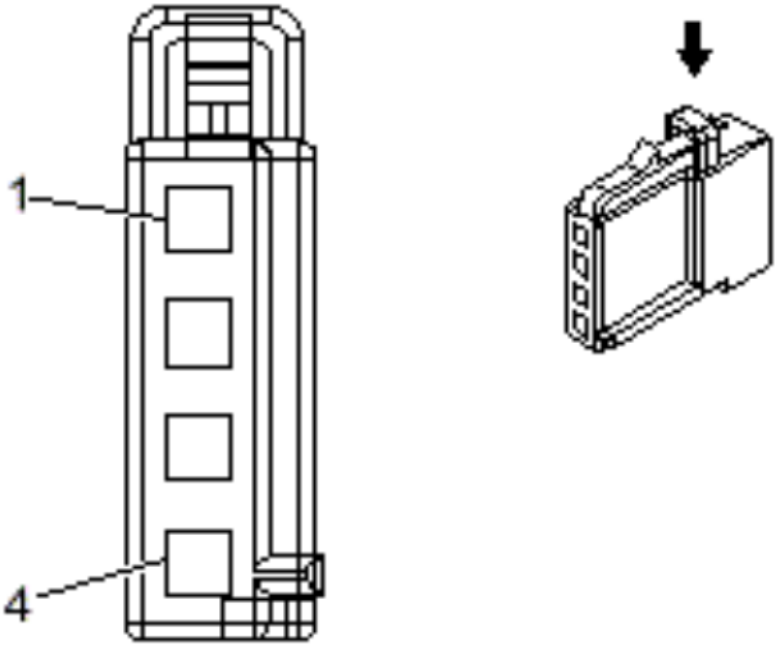
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	YE/BN	967	Configurable Provision 3 Control	I	-
2	0.75	BK	1450	Ground	I	-
3	-	-	-	Not Occupied	-	-
4	0.75	BN	9200	Low Reference	I	-

A101R CARGO BOX STOWAGE BOX LID LATCH - RIGHT (ZYD)



Connector Part Information

- Harness Type: Right Bin Jumper
- OEM Connector: 24466147
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 1.2 Timer Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	RD/GN	968	Configurable Provision 4 Control	I	-
2	0.75	BK	1450	Ground	I	-

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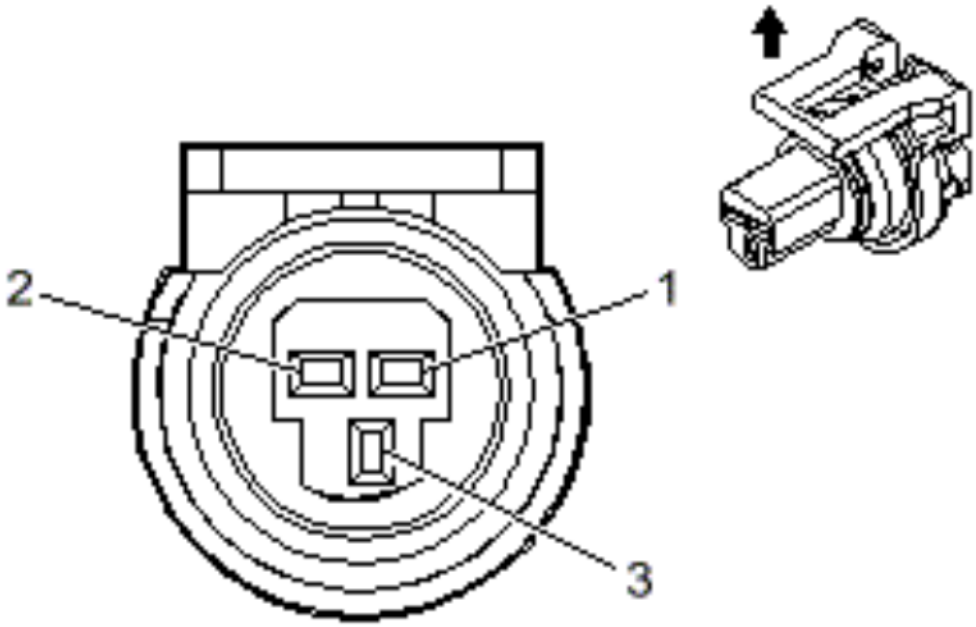
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	-	-	-	Not Occupied	-	-
4	0.75	BN	9200	Low Reference	I	-

B1 A/C REFRIGERANT PRESSURE SENSOR (L5P)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13846842
- Service Connector: 19301715
- Description: 3-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/BN	5514	A/C Refrigerant Pressure Sensor Low Reference	I	-
2	0.5	BN/RD	2700	A/C Pressure Sensor 5V Reference	I	-

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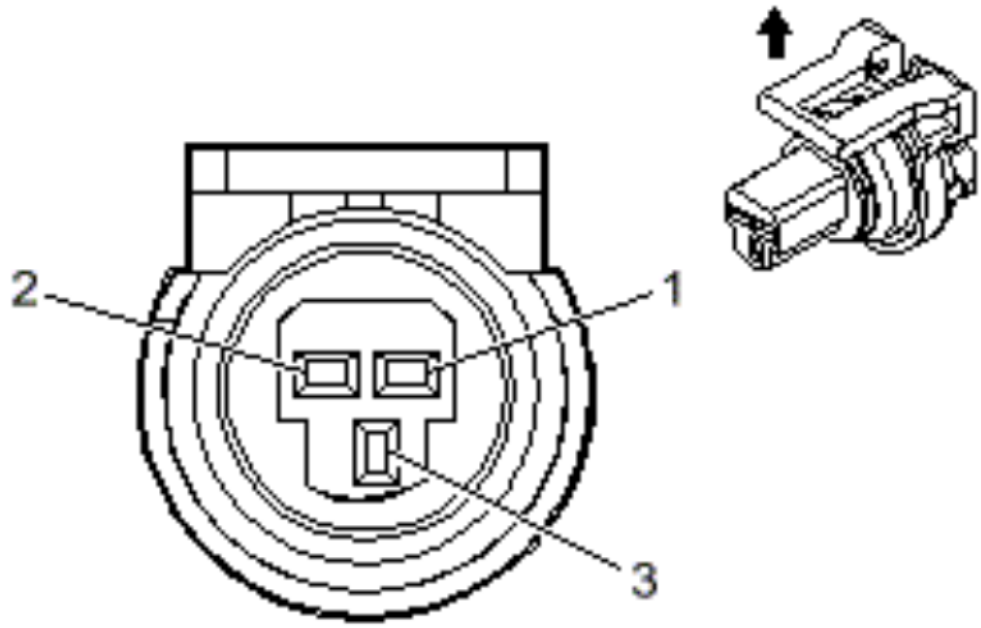
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	0.5	L-GN	380	A/C Refrigerant Pressure Sensor Signal	I	-

B1 A/C REFRIGERANT PRESSURE SENSOR (L96)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13846842
- Service Connector: 19301715
- Description: 3-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/BN	5514	A/C Refrigerant Pressure Sensor Low Reference	I	-
2	0.5	BN/RD	2700	A/C Pressure Sensor 5V Reference	I	-

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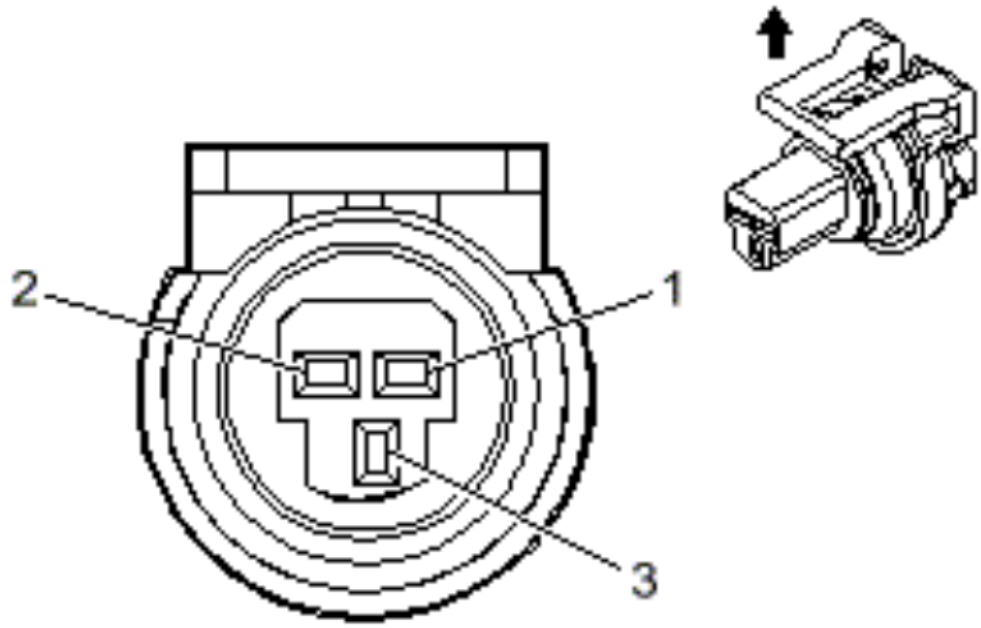
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	0.5	L-GN	380	A/C Refrigerant Pressure Sensor Signal	I	-

B1 A/C REFRIGERANT PRESSURE SENSOR (LV3)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13846842
- Service Connector: 19301715
- Description: 3-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/BN	5514	A/C Refrigerant Pressure Sensor Low Reference	I	-
2	0.5	BN/RD	2700	A/C Pressure Sensor 5V Reference	I	-

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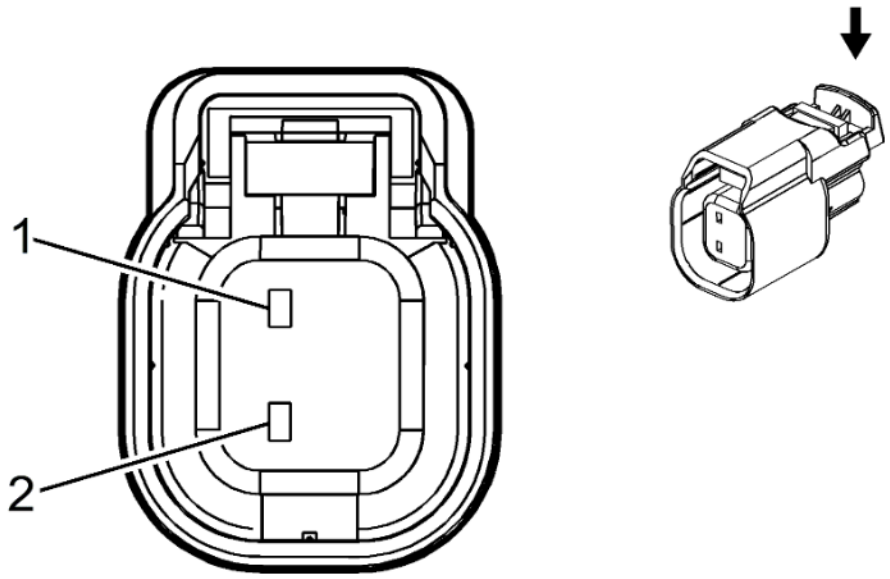
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	0.5	L-GN	380	A/C Refrigerant Pressure Sensor Signal	I	-

B5LF WHEEL SPEED SENSOR - LEFT FRONT



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13828712
- Service Connector: 19300543
- Description: 2-Way F 1.5 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/WH	7064	Wheel Speed Sensor Control Left Front	I	-
2	0.5	GY	830	Wheel Speed Sensor Signal Left Front	I	-

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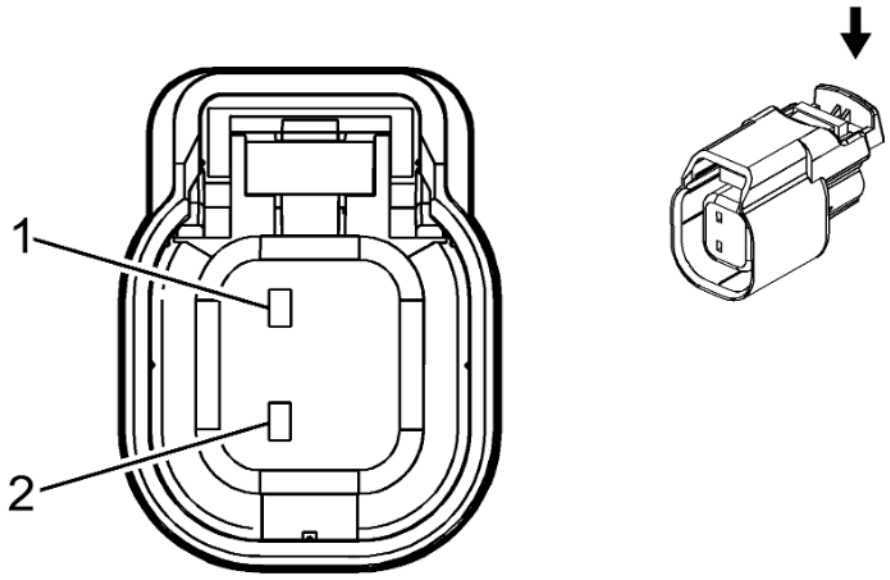
B5LR WHEEL SPEED SENSOR - LEFT REAR



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13828712
- Service Connector: 19300543
- Description: 2-Way F 1.5 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/BK	7127	Wheel Speed Sensor Control Left Rear	I	-
2	0.5	D-BU	884	Wheel Speed Sensor Signal Left Rear	I	-

B5RF WHEEL SPEED SENSOR - RIGHT FRONT

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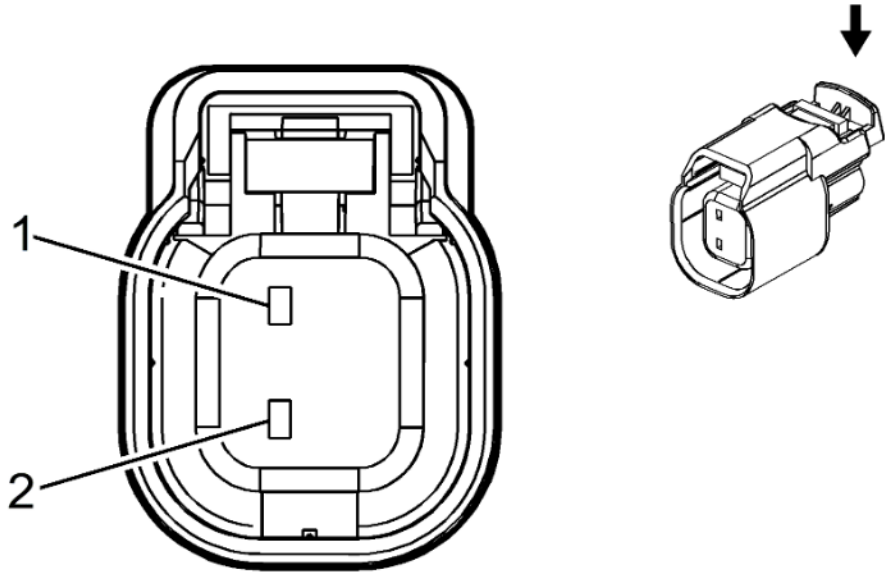

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13828712
- Service Connector: 19300543
- Description: 2-Way F 1.5 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/BN	7065	Wheel Speed Sensor Control Right Front	I	-
2	0.5	YE	872	Wheel Speed Sensor Signal Right Front	I	-

B5RR WHEEL SPEED SENSOR - RIGHT REAR

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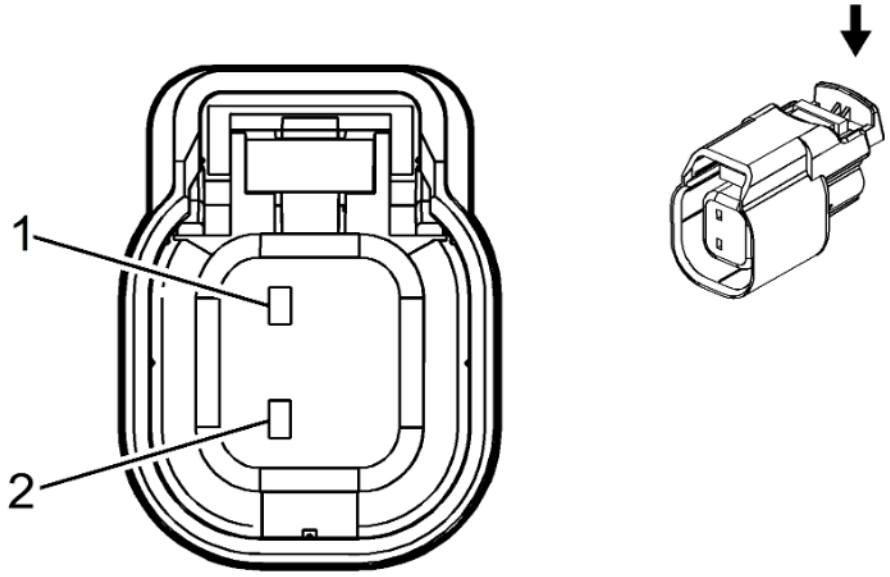

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13828712
- Service Connector: 19300543
- Description: 2-Way F 1.5 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/YE	7128	Wheel Speed Sensor Control Right Rear	I	-
2	0.5	VT	882	Wheel Speed Sensor Signal Right Rear	I	-

B9 AMBIENT AIR TEMPERATURE SENSOR (1500)

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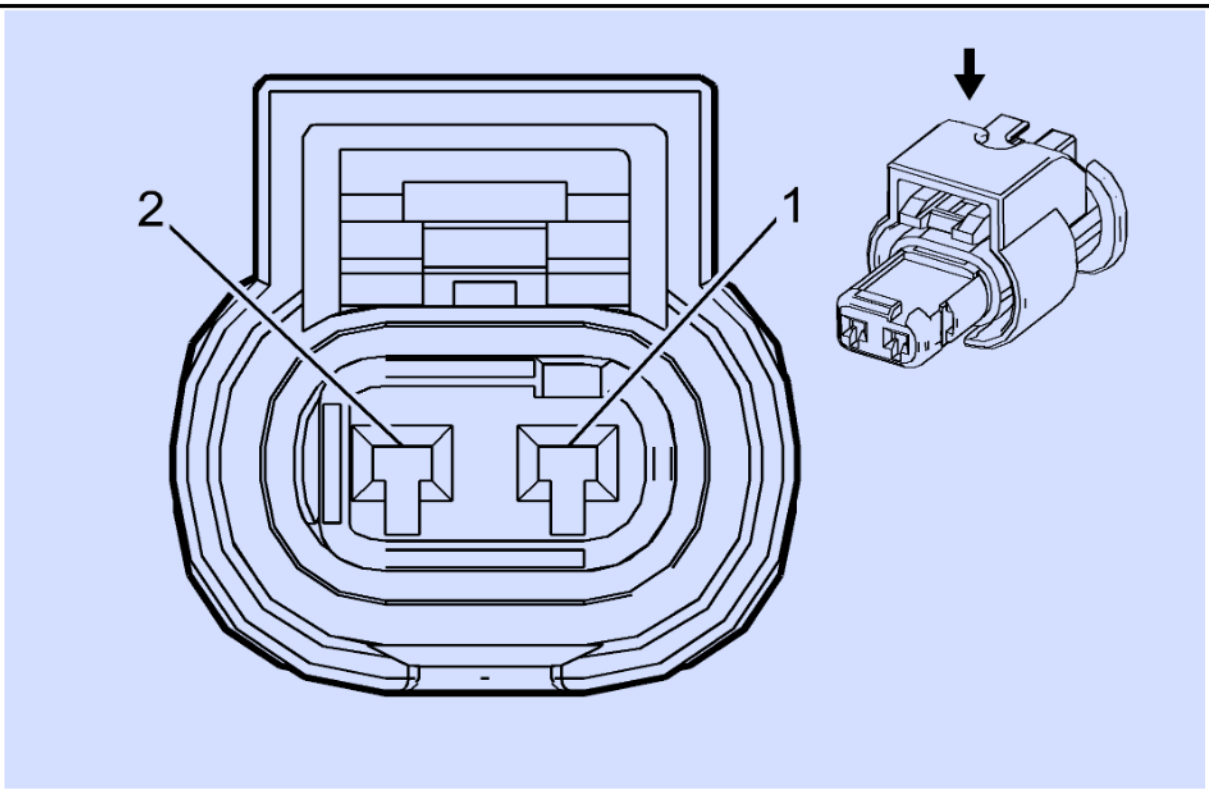

Connector Part Information

- Harness Type: Aero Shutter Jumper
- OEM Connector: 13927761
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU/GY	636	Outside Ambient Air Temperature Sensor Signal	I	-
2	0.5	BK/BU	61	Outside Ambient Temperature Sensor Low Reference	I	-

B9 AMBIENT AIR TEMPERATURE SENSOR (2500/3500)

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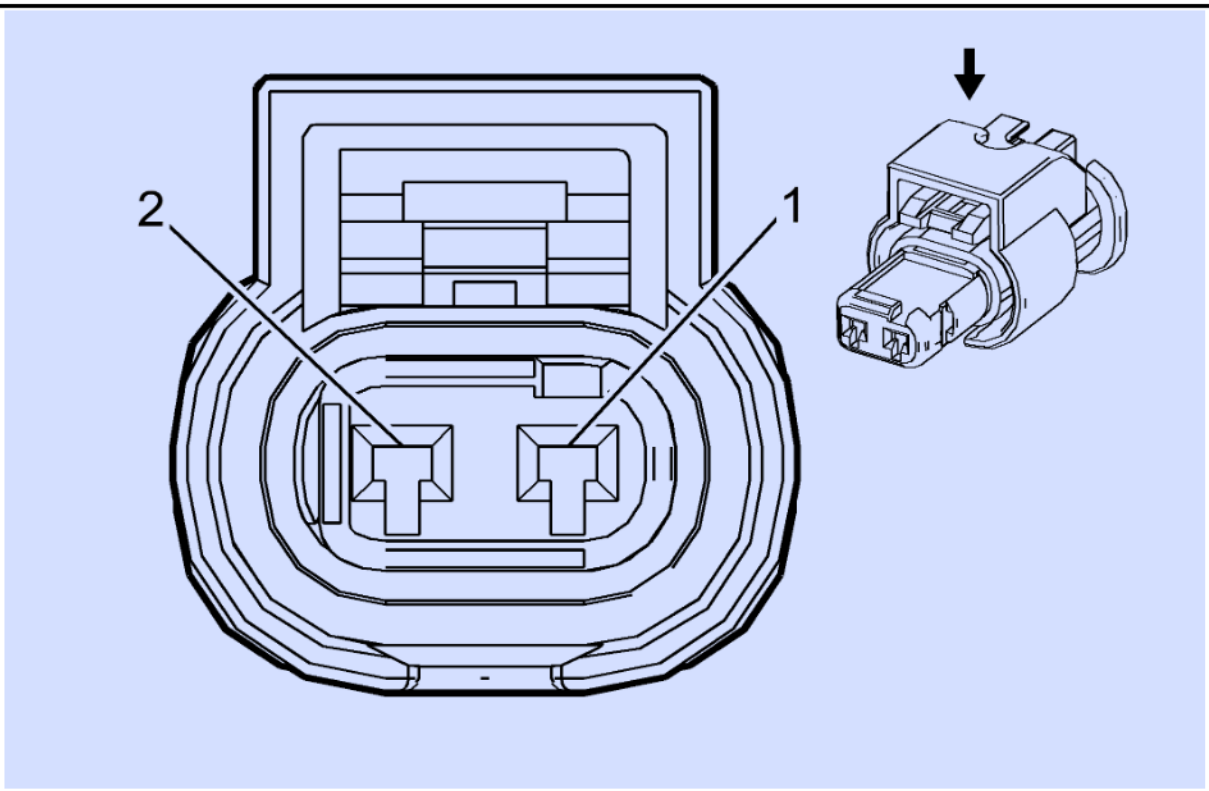

Connector Part Information

- Harness Type: Forward Lamp
- OEM Connector: 13927761
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/BU	636	Outside Ambient Air Temperature Sensor Signal	I	-
2	0.5	BU/GY	61	Outside Ambient Temperature Sensor Low Reference	I	-

B9D AMBIENT AIR TEMPERATURE SENSOR - MIRROR

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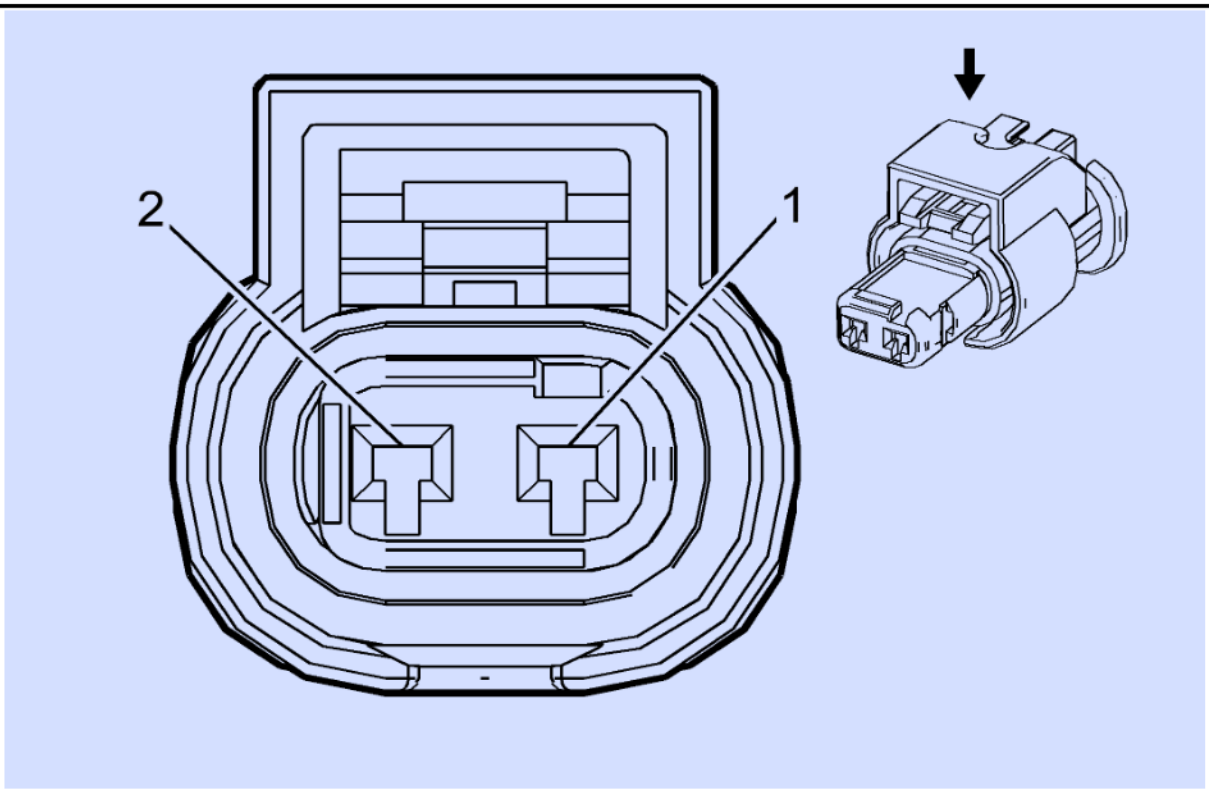

Connector Part Information

- Harness Type: Forward Lamp
- OEM Connector: 13927761
- Service Connector: 19300402
- Description: 2-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	D-BU/GY	636	Outside Ambient Air Temperature Sensor Signal	I	-
2	0.5	BK/D-BU	61	Outside Ambient Temperature Sensor Low Reference	I	-

B10B AMBIENT LIGHT/SUNLOAD SENSOR

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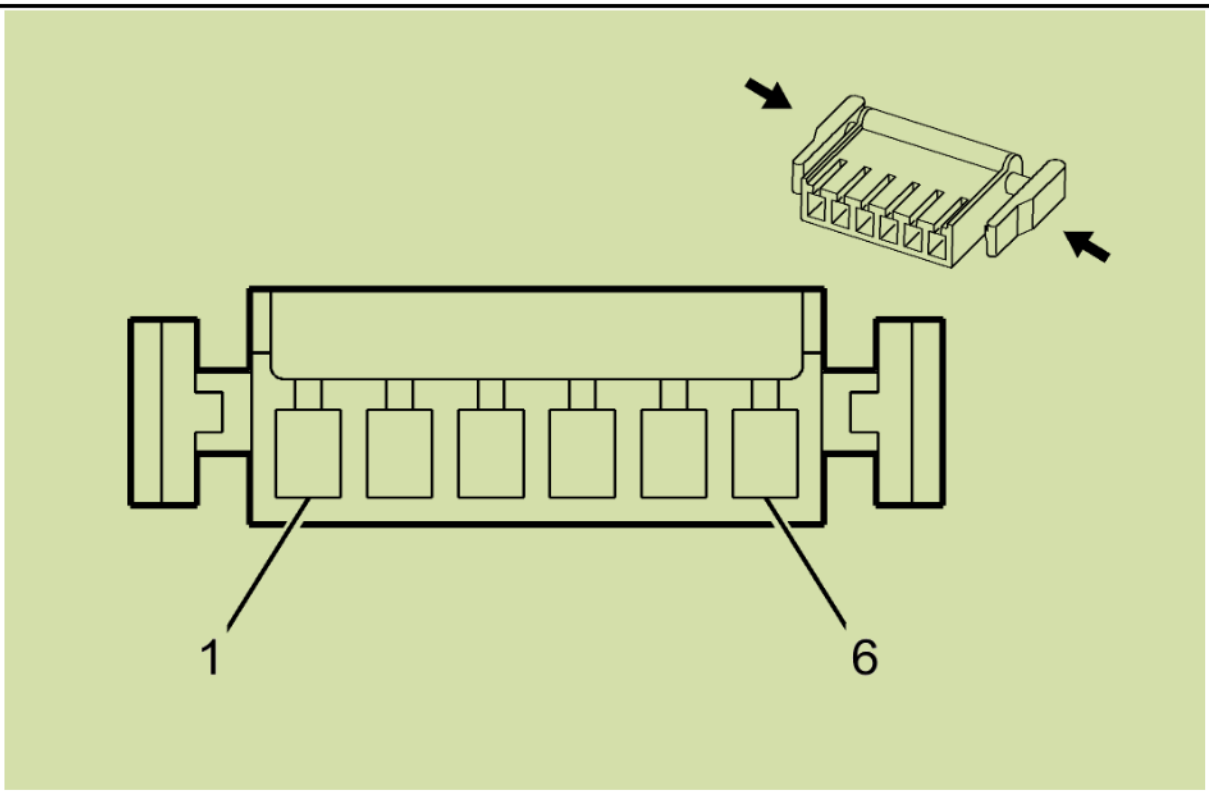

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13726957
- Service Connector: 13576539
- Description: 6-Way F 0.64 Micro-Quadlock Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY	728	Security Indicator Control	I	-
2	0.35	GY	590	Solar Sensor Driver Signal	I	-
3	0.35	D-BU/WH	734	Inside Air Temperature Sensor Signal	I	-
4	0.35	YE/VT	1783	Twilight Sentinel Delay Signal	I	-
5	0.35	WH/D-BU	278	Ambient Light Sensor Signal	I	-
6	0.35	BK/YE	1791	Air Temperature Door Control Low Reference	I	-

B12A TRANSMISSION FLUID PRESSURE SWITCH (MW7)

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Connector Part Information

- Harness Type: Allison LCT
- OEM Connector: 29543226
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	-	OG	1224	Transmission Fluid Pressure Switch Signal Bit 1	I	-
B	-	WH	1225	Transmission Fluid Pressure Switch Signal Bit 2	I	-
C	-	GY	1226	Transmission Fluid Pressure Switch Signal Bit 3	I	-
D	-	BN	1530	Transmission Mainline Pressure Solenoid Control	I	-
E	-	TN	1227	Transmission Temperature Sensor Signal	I	-
F	-	BK	407	Sensor Low Reference	I	-

B14A TRANSMISSION OUTPUT SHAFT SPEED SENSOR (LV1+(C67/C42))

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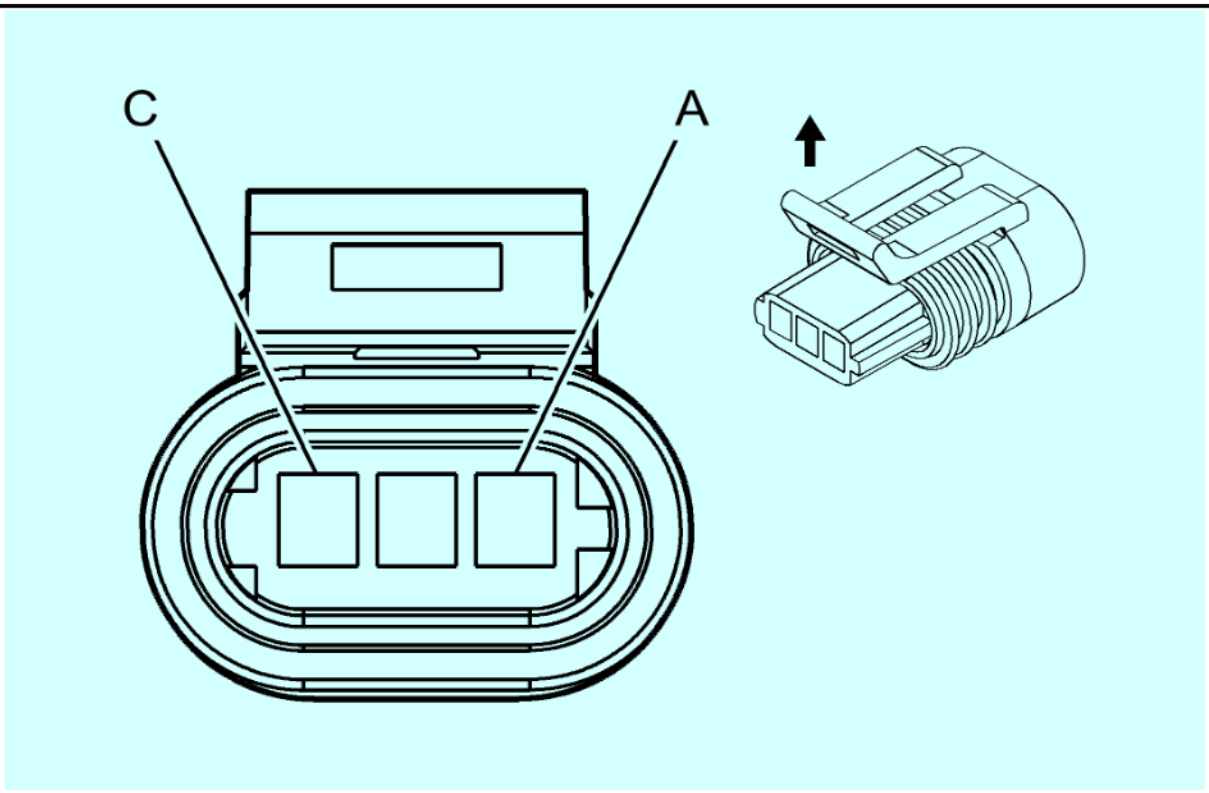

Connector Part Information

- Harness Type: Engine
- OEM Connector: 12162280
- Service Connector: 12085538
- Description: 3-Way F 150.2 Metri-Pack Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	GY/BK	3096	Output Speed (Digital) Sensor 5V Reference	I	-
B	0.5	L-GN	3098	Output Speed (Digital) Signal	I	-
C	0.5	WH/BK	3097	Output Speed (Digital) Sensor Low Reference	I	-

B14A TRANSMISSION OUTPUT SHAFT SPEED SENSOR (LV3)

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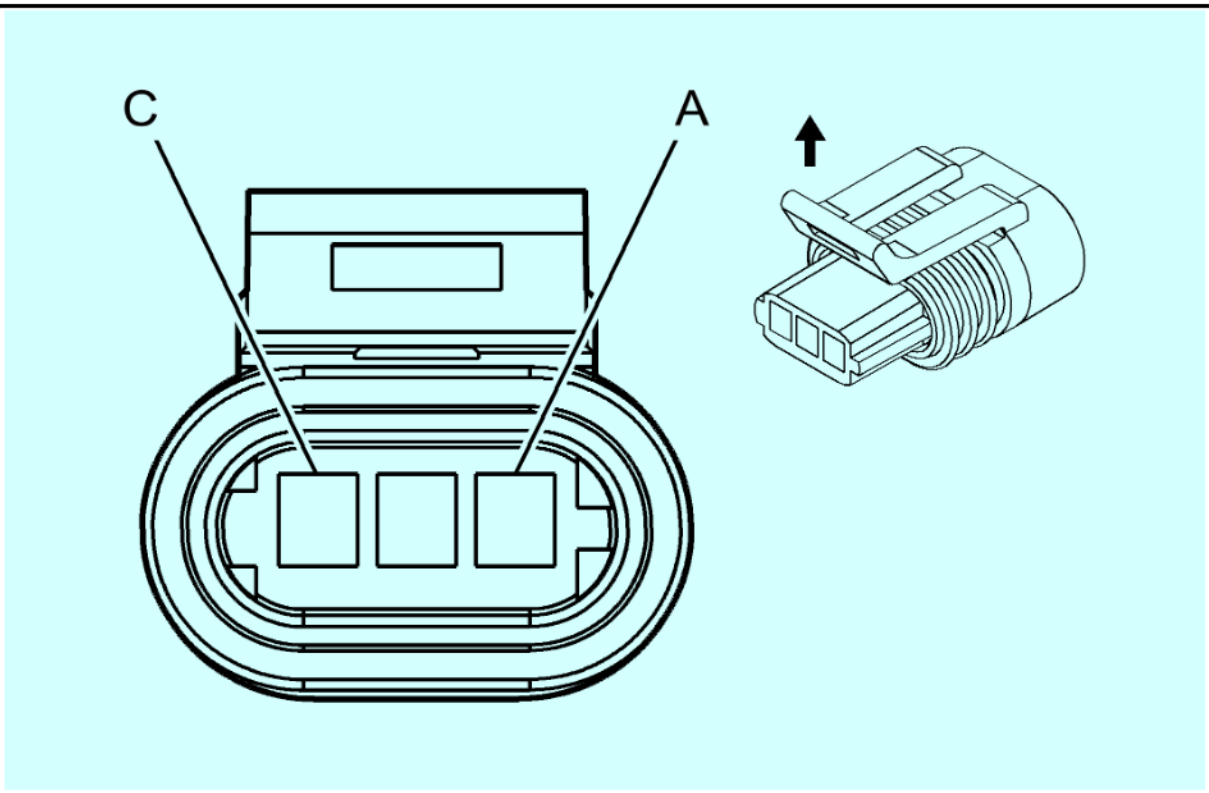

Connector Part Information

- Harness Type: Engine
- OEM Connector: 12162280
- Service Connector: 12085538
- Description: 3-Way F 150.2 Metri-Pack Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	GY/BK	3096	Output Speed (Digital) Sensor 5V Reference	I	-
B	0.5	GN	3098	Output Speed (Digital) Signal	I	-
C	0.5	WH/BK	3097	Output Speed (Digital) Sensor Low Reference	I	-

B14B TRANSMISSION TURBINE SPEED SENSOR (L5P)

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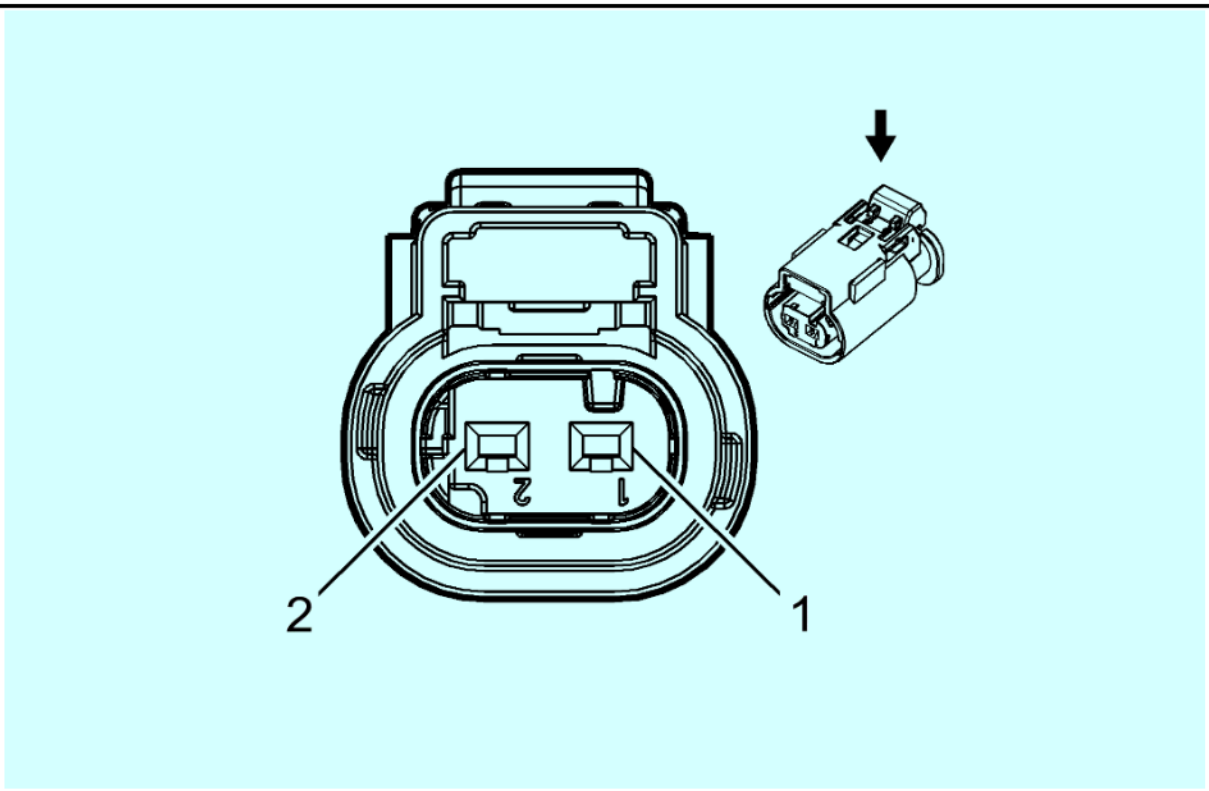

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13735326
- Service Connector: 13587326
- Description: 2-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	L-GN/YE	6353	Input Speed Signal	I	-
2	0.75	YE/D-BU	4171	Transmission Position Sensor A 9V Reference	I	-

B15 TRANSMISSION INTERNAL MODE SWITCH (M5U/M5X)

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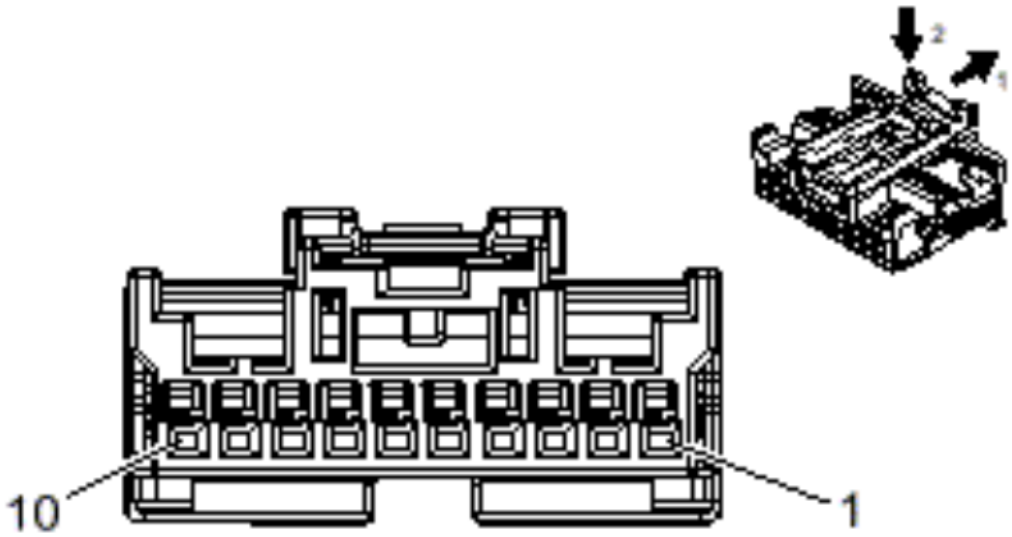

Connector Part Information

- Harness Type: Transmission Control
- OEM Connector: 2138504-1
- Service Connector: Service by Harness - See Part Catalog
- Description: 10-Way F 0.64 Generation Y Series (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/GY	1786	Transmission Park/Neutral Signal 1	I	-
2	0.5	BK/GY	3927	IMS Mode Switch Low Reference	I	-
3	-	-	-	Not Occupied	-	-
4	0.5	YE/BU	4171	Transmission Position Sensor A 9V Reference	I	-
5	0.5	VT/WH	5981	PRNDL A Signal	I	-
6	0.5	WH/BK	5983	PRNDL C Signal	I	-
7	0.5	GY/YE	4169	PRNDL S Signal	I	-
8	0.5	GY/BN	5982	PRNDL B Signal	I	-

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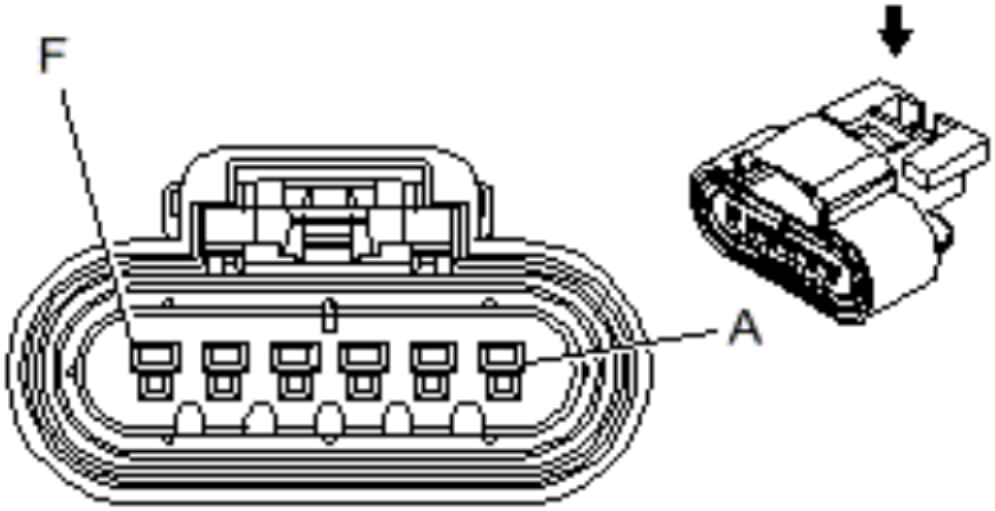
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
9	0.5	GY/WH	4168	PRNDL P Signal	I	-
10	0.5	YE/GN	4170	Transmission Position Sensor B 9V Reference	I	-

B15 TRANSMISSION INTERNAL MODE SWITCH (MW7)



Connector Part Information

- Harness Type: Allison LCT
- OEM Connector: 15326830
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	PU/BK	1995	Transmission Park/Neutral Signal 2	I	-

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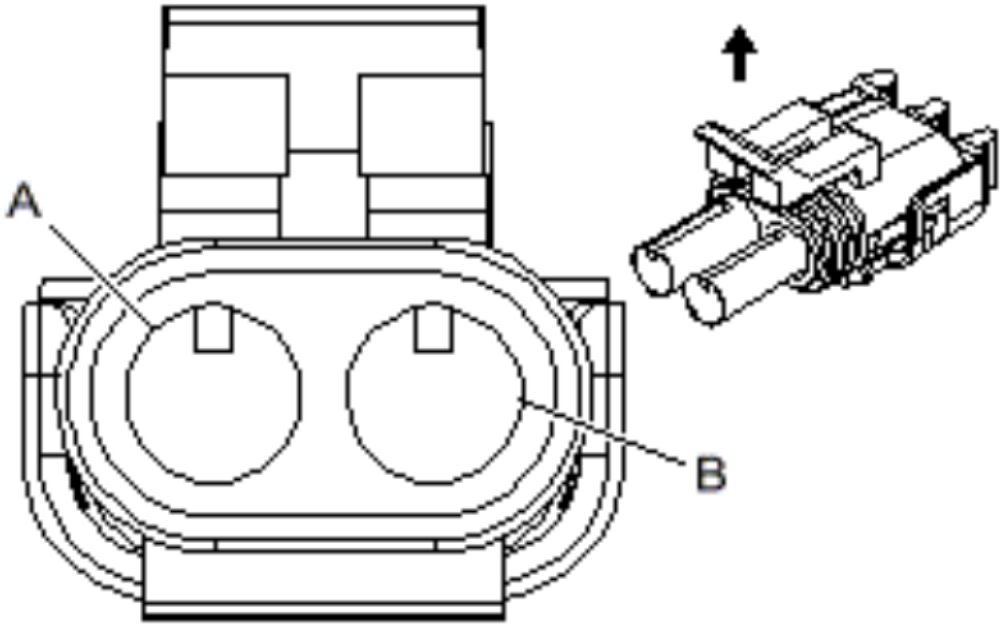
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
B	0.5	PK/BK	776	Transmission Position Switch Parity Bit Signal	I	-
C	0.5	YE/BK	771	Transmission Position Switch Bit 1 Signal	I	-
D	0.5	TN/WH	772	Transmission Position Switch Bit 2 Signal	I	-
E	0.5	BK/WH	773	Transmission Position Switch Bit 3 Signal	I	-
F	0.5	BK	407	Sensor Low Reference	I	-

B16 BACKUP LAMP SWITCH (L96+ZW9)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 12103584
- Service Connector: 12085485
- Description: 2-Way M Weather Pack Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-9 (OR)	No Tool Required	Not Required	Not Required	Not Required	Not Required

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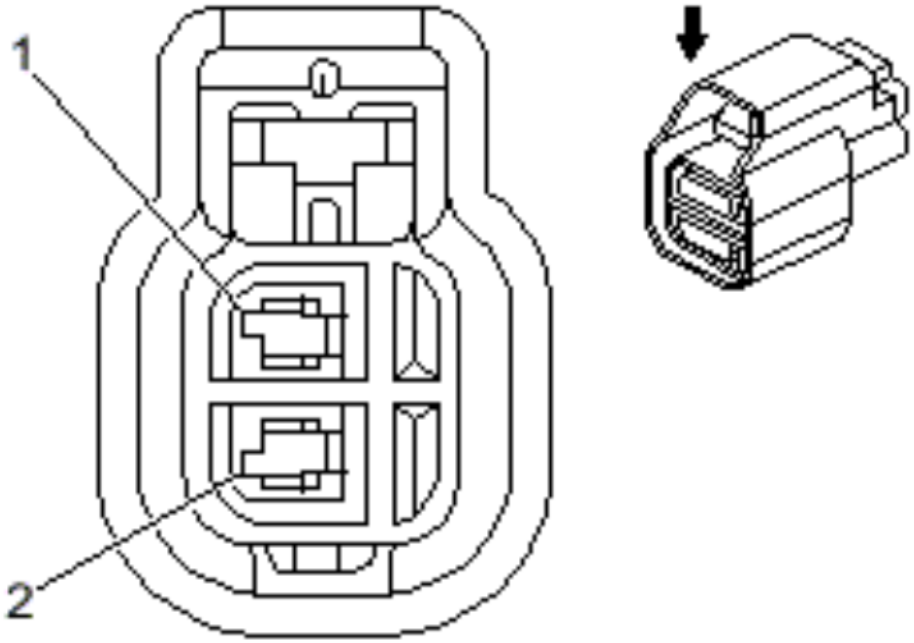
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.75	BK/WH	451	Signal Ground	I	-
B	0.5	GN/WH	5007	Reverse Switch Signal	I	-

B16 BACKUP LAMP SWITCH (LV1+(C42/C67))



Connector Part Information

- Harness Type: Engine
- OEM Connector: 15383325
- Service Connector: 89046838
- Description: 2-Way F 1.5 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK/WH	451	Signal Ground	I	-
2	0.5	L-GN/WH	5007	Reverse Switch Signal	I	-

B18 BATTERY CURRENT SENSOR

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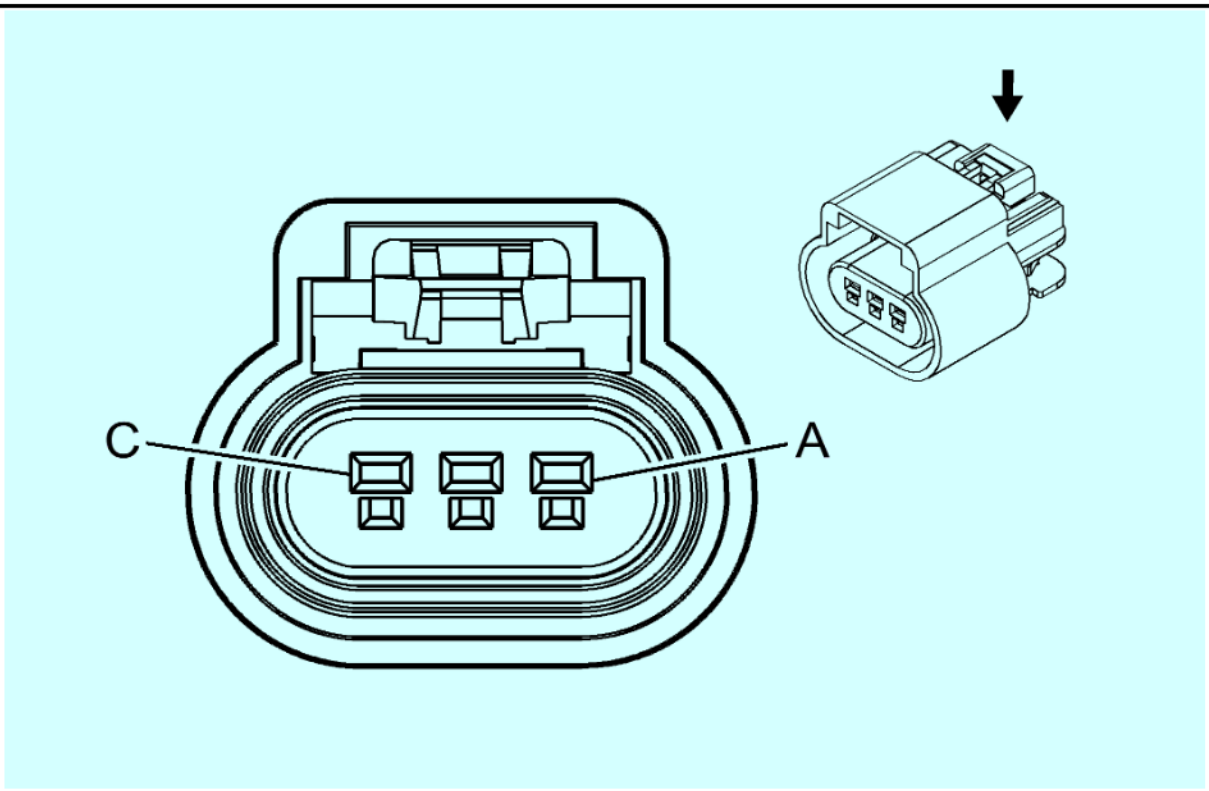

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13519047
- Service Connector: 13580871
- Description: 3-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	D-BU/VT	5076	Current Sensor Control	I	-
B	0.5	BK/VT	5077	Current Sensor Low Reference	I	-
C	0.5	WH/YE	5075	Current Sensor Signal	I	-

B19B BRAKE BOOSTER VACUUM SENSOR

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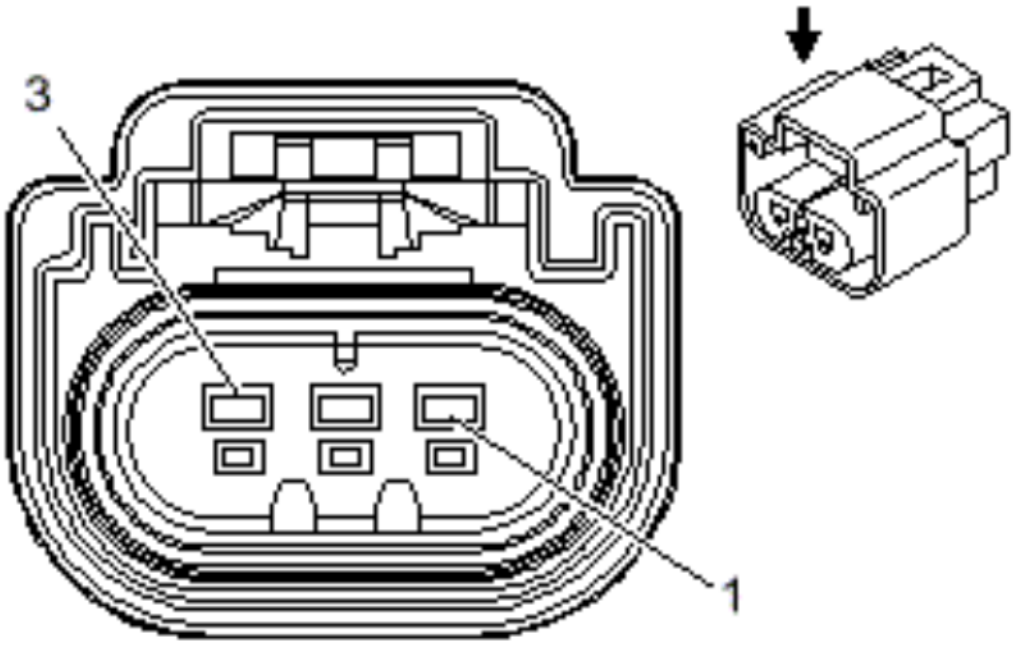

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13511996
- Service Connector: 13580873
- Description: 3-Way F 150 GT Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/VT	6030	Brake Vacuum Sensor Signal	I	-
2	0.5	BK/YE	6032	Brake Vacuum Sensor Low Reference	I	-
3	0.5	YE/RD	6031	Brake Vacuum Sensor 5V Reference	I	-

B20 BRAKE FLUID LEVEL SWITCH

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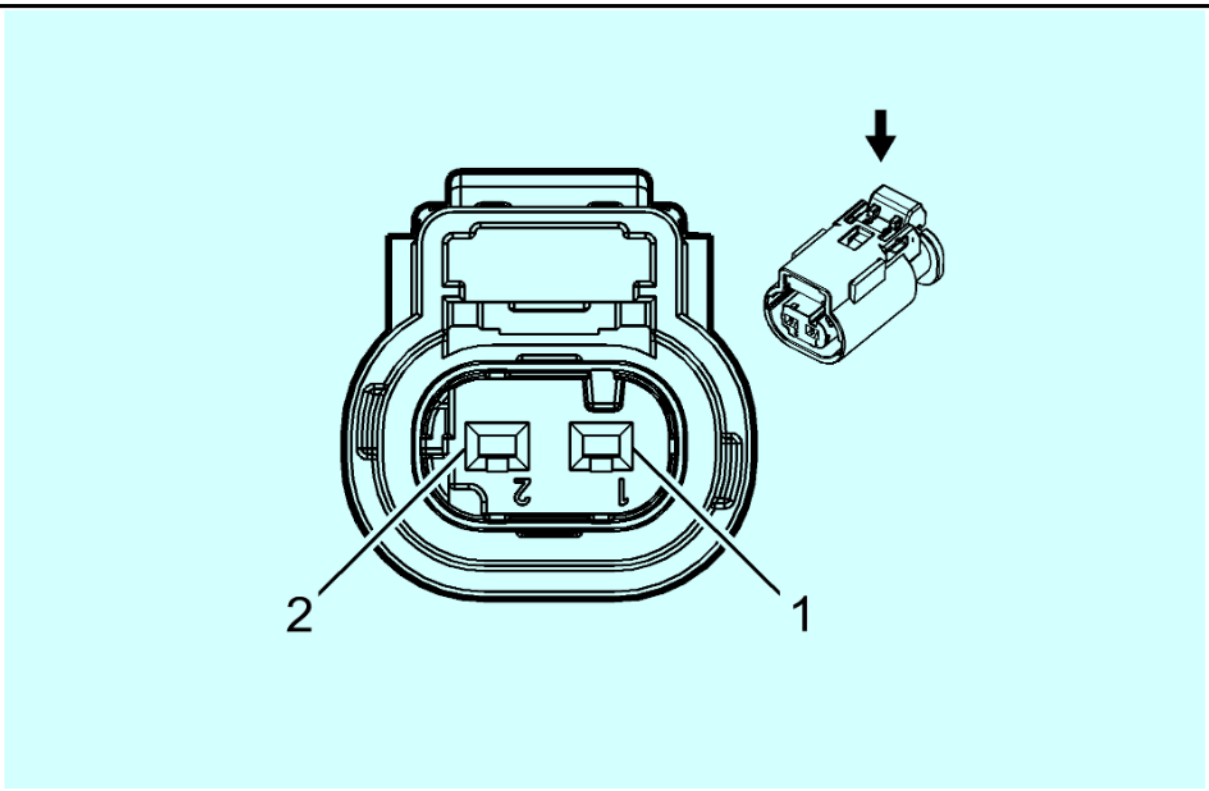

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13735326
- Service Connector: 13587326
- Description: 2-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5 0.75	BK BK	2150 2150	Ground Ground	I I	SERIES10 SERIES20/SERIES30 /SERIES31
2	0.5	GN/GY	333	Brake Fluid Level Sensor Signal	I	-

B22 BRAKE PEDAL POSITION SENSOR

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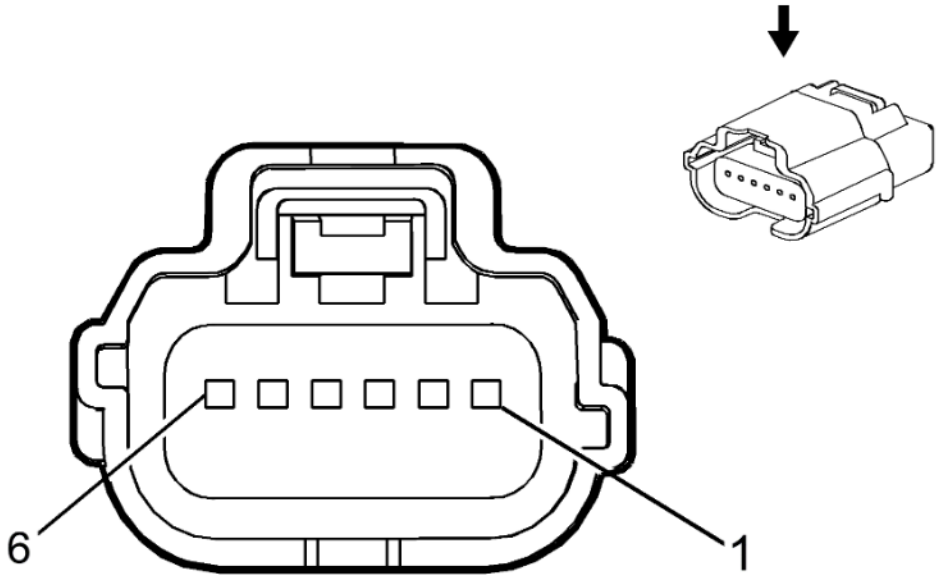

Connector Part Information

- Harness Type: Brake Clutch
- OEM Connector: 13893502
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way F 64 Series, Sealed (NA)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/GN	552	Sensor Low Reference	I	-
2	0.5	GY/RD	598	5V Reference	I	-
3	0.5	WH/GN	526	Stop Lamp Switch Signal	I	-
4	0.5	BU/YE	5361	Brake Apply Sensor Signal	I	-
5	0.5	BK/BN	5360	Brake Apply Sensor Low Reference	I	-
6	0.5	WH	5359	Brake Apply Sensor Control	I	-

B23 CAMSHAFT POSITION SENSOR (L5P)

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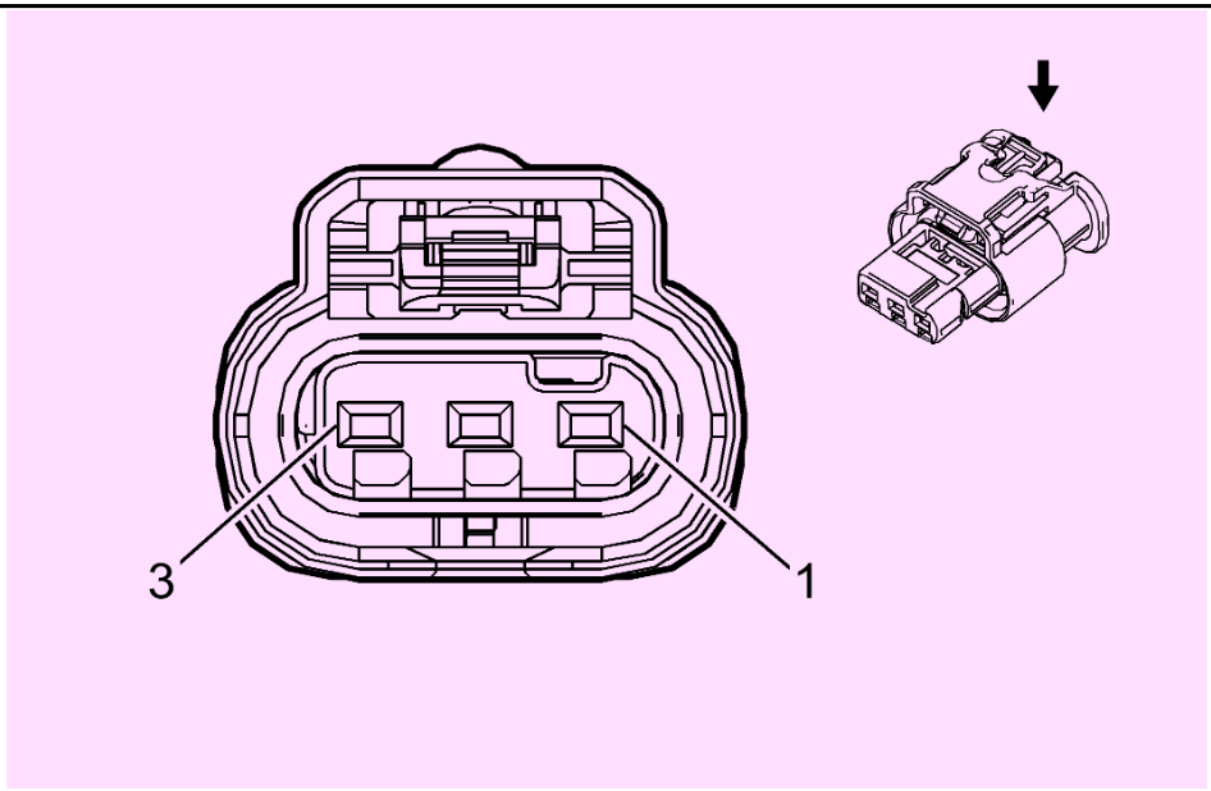

Connector Part Information

- Harness Type: Engine
- OEM Connector: 2098541-5
- Service Connector: 19329387
- Description: 3-Way F 1.2 MCP Series, Sealed (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/BU	5300	Camshaft Position Intake Sensor Control 1	I	L5P
2	0.5	BK/GN	5301	Camshaft Position Intake Sensor Low Reference 1	I	L5P
3	0.5	YE/VT	5275	Camshaft Position Intake Sensor 1	I	L5P

B23 CAMSHAFT POSITION SENSOR (L83/L86/L8B)

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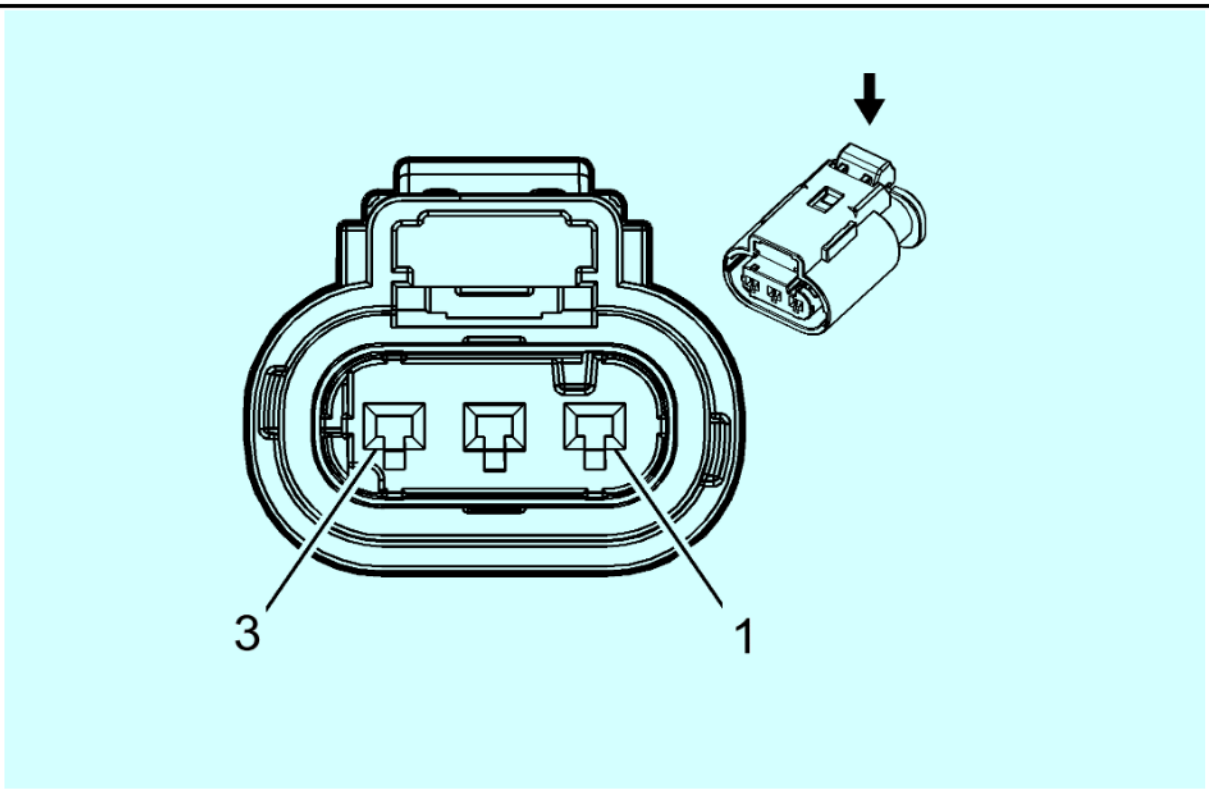

Connector Part Information

- Harness Type: Camshaft Position Sensor Jumper
- OEM Connector: 10010341
- Service Connector: Service by Harness - See Part Catalog
- Description: 3-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/BU	5300	Camshaft Position Intake Sensor Control 1	I	-
2	0.5	BK/GN	5301	Camshaft Position Intake Sensor Low Reference 1	I	-
3	0.5	YE/VT	5275	Camshaft Position Intake Sensor 1	I	-

B24 CELLULAR PHONE MICROPHONE

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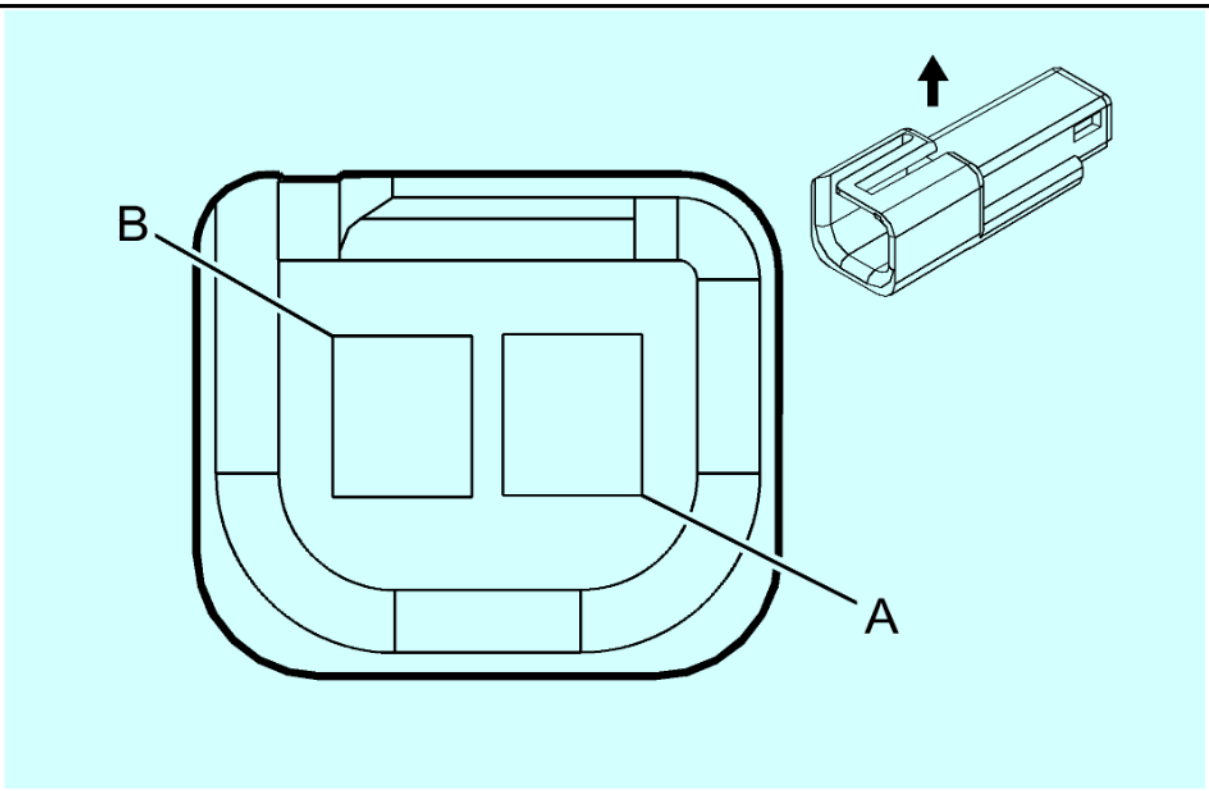

Connector Part Information

- Harness Type: Headliner
- OEM Connector: 12047663
- Service Connector: 13584278
- Description: 2-Way M 150 Metri-Pack Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-3 (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.35	BK/BN	654	Cellular Telephone Microphone Low Reference	I	-
B	0.35	D-BU	655	Cellular Telephone Microphone Signal	I	-

B25B CLUTCH PEDAL POSITION SENSOR

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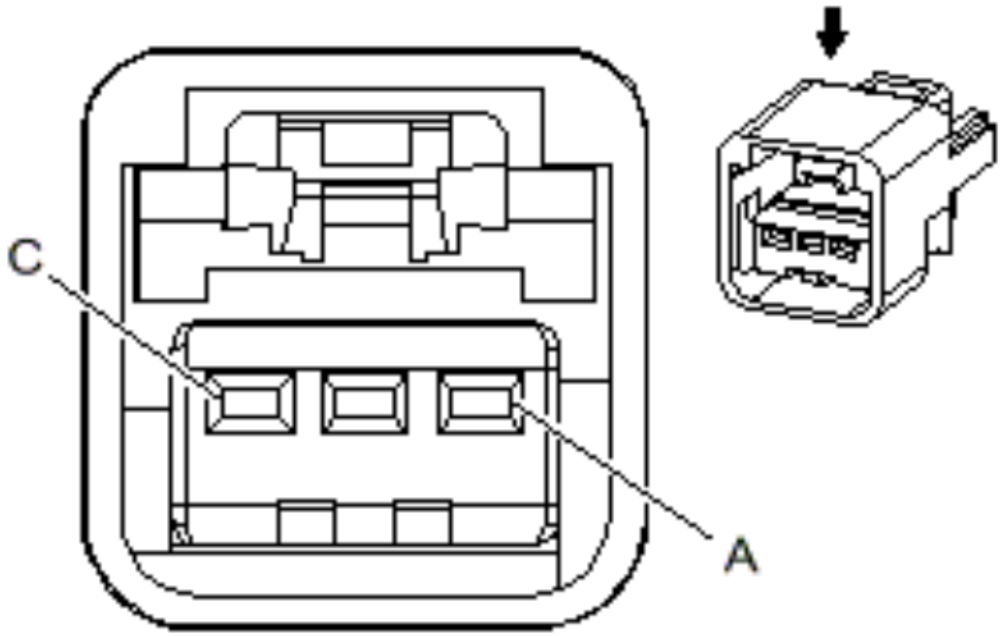

Connector Part Information

- Harness Type: Brake Clutch
- OEM Connector: 15332132
- Service Connector: Service by Harness - See Part Catalog
- Description: 3-Way F 150 GT Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	GY/RD	6109	Clutch Apply Sensor 5V Reference	I	-
B	0.5	YE	6111	Clutch Apply Sensor Signal	I	-
C	0.5	BK/GY	6110	Clutch Apply Sensor Low Reference	I	-

B26 CRANKSHAFT POSITION SENSOR (L5P)

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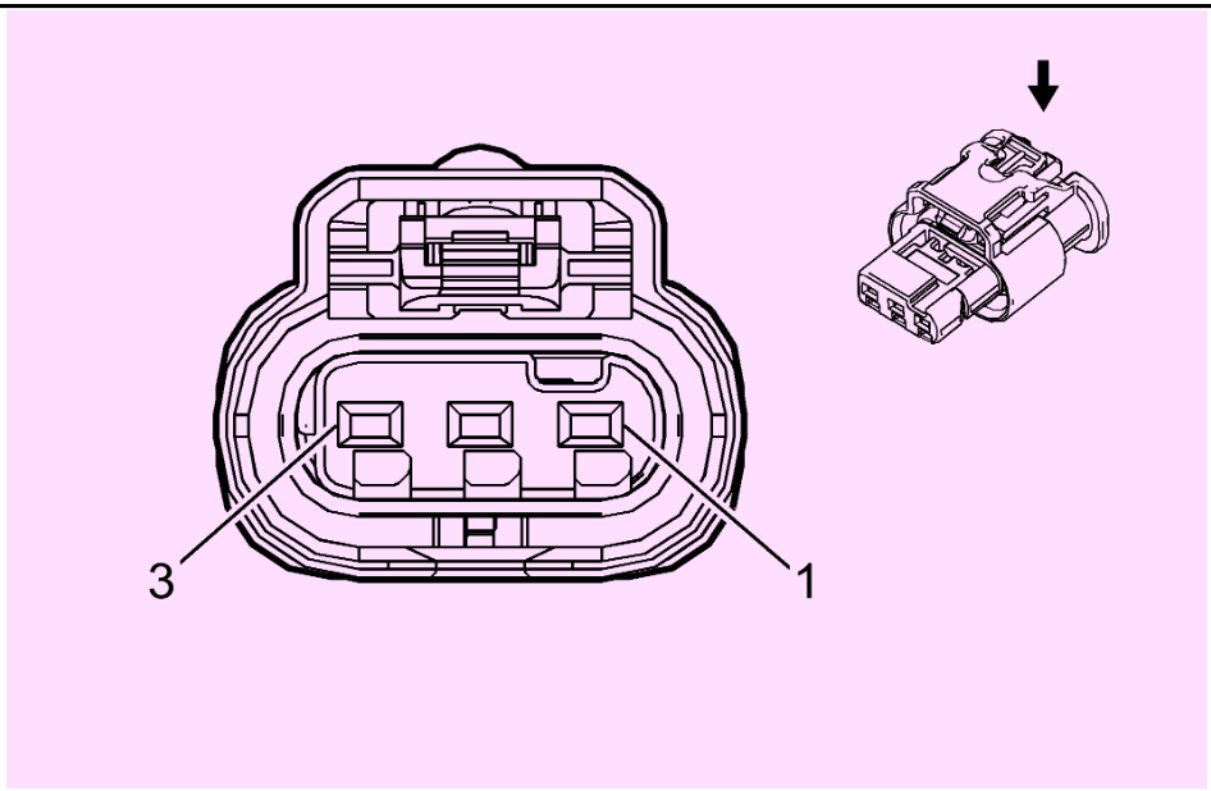

Connector Part Information

- Harness Type: Engine
- OEM Connector: 2098541-5
- Service Connector: 19329387
- Description: 3-Way F 1.2 MCP Series, Sealed (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/BU	6270	Crankshaft 60X Sensor 5V Reference	I	L5P
2	0.5	BK/VT	6272	Crankshaft 60X Sensor Low Reference	I	L5P
3	0.5	GN	6271	Crankshaft 60X Sensor Signal	I	L5P

B26 CRANKSHAFT POSITION SENSOR (L96/LC8)

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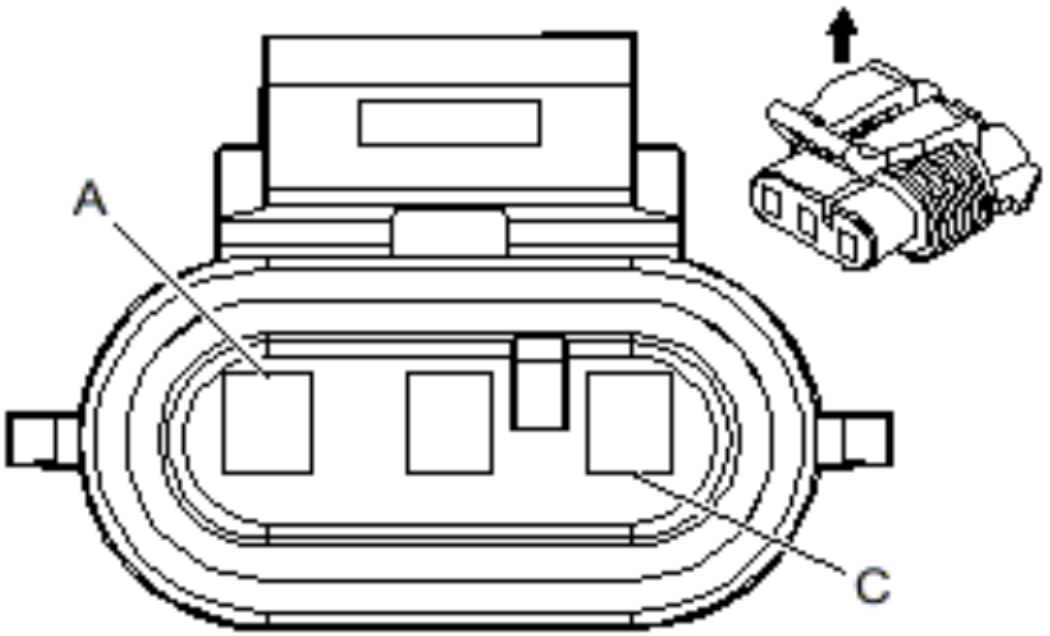

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13838337
- Service Connector: 19329936
- Description: 3-Way F 150 Metri-Pack Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	GN	6271	Crankshaft 60X Sensor Signal	I	-
B	0.5	BK/VT	6272	Crankshaft 60X Sensor Low Reference	I	-
C	0.5	VT/BU	6270	Crankshaft 60X Sensor 5V Reference	I	-

B26 CRANKSHAFT POSITION SENSOR (LV1/LV3)

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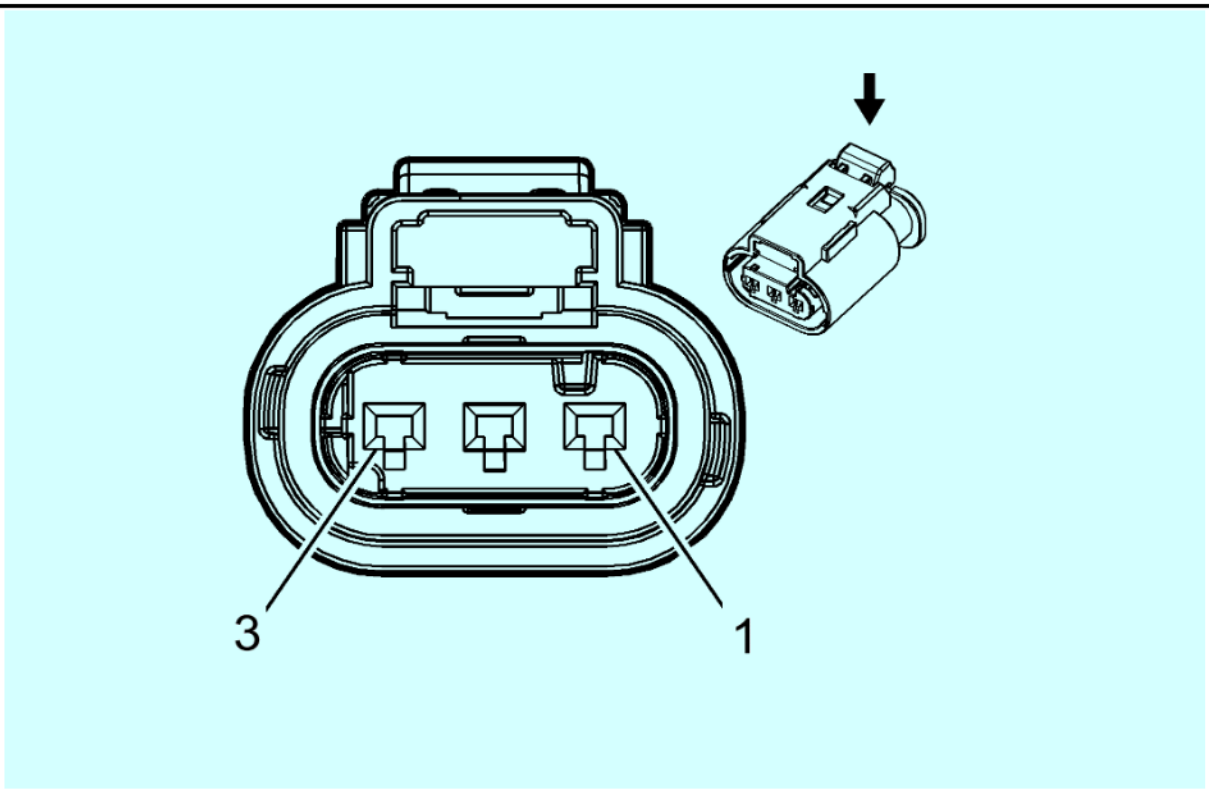

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13763990
- Service Connector: 19299690
- Description: 3-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-GN	6271	Crankshaft 60X Sensor Signal	I	-
2	0.5	BK/VT	6272	Crankshaft 60X Sensor Low Reference	I	-
3	0.5	VT/D-BU	6270	Crankshaft 60X Sensor 5V Reference	I	-

B33 ENGINE COOLANT LEVEL SWITCH

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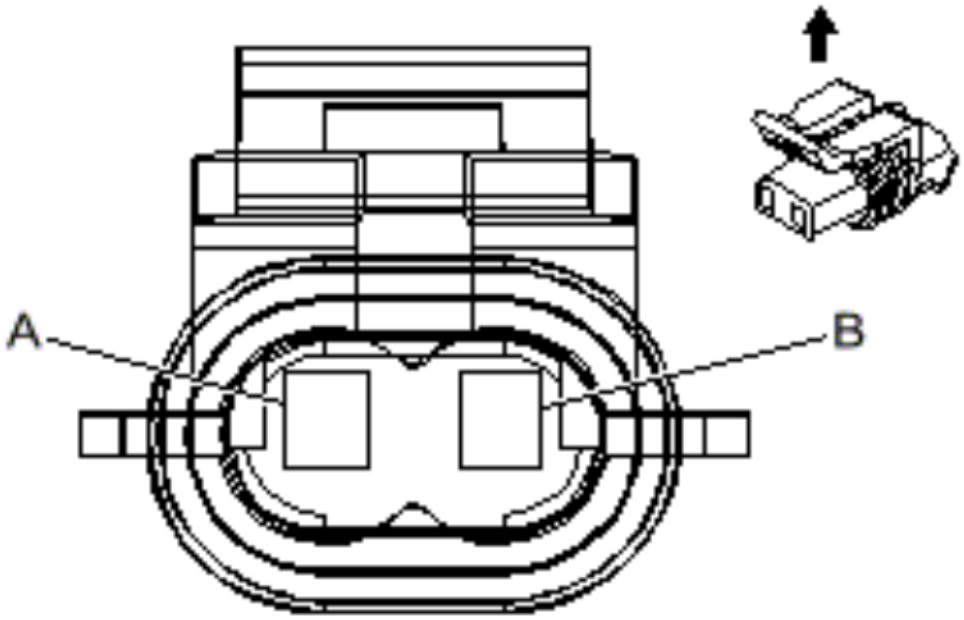

Connector Part Information

- Harness Type: Engine
- OEM Connector: 15324243
- Service Connector: 15306302
- Description: 2-Way F 150 Metri-Pack Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	D-BU/YE	68	Low Coolant Level Indicator Control	I	-
B	0.75	BK/WH	451	Signal Ground	I	-

B34 ENGINE COOLANT TEMPERATURE SENSOR (L5P)

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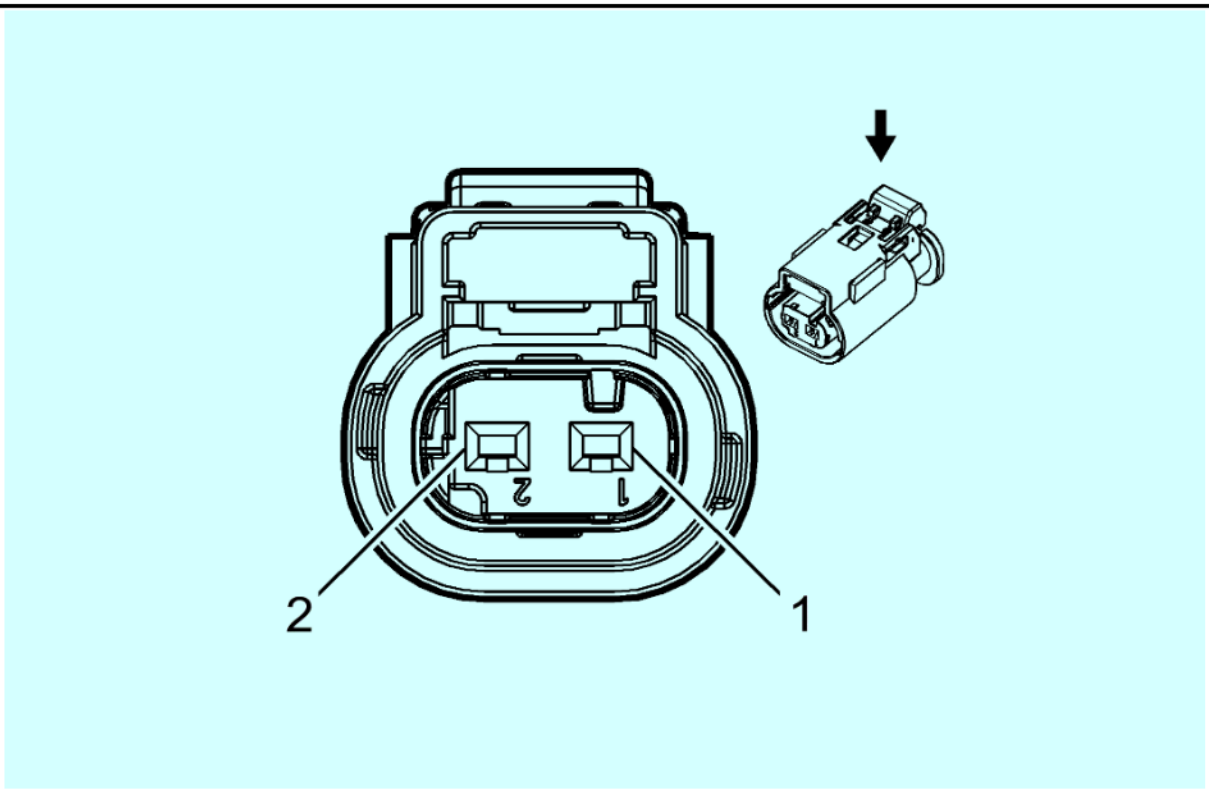

Connector Part Information

- Harness Type: Engine
- OEM Connector: 10010337
- Service Connector: 13587326
- Description: 2-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/BN	2761	Coolant Temperature Sensor Low Reference	I	L5P
2	0.5	BU	410	Engine Coolant Temperature Sensor Signal	I	L5P

B34 ENGINE COOLANT TEMPERATURE SENSOR (L96/LC8)

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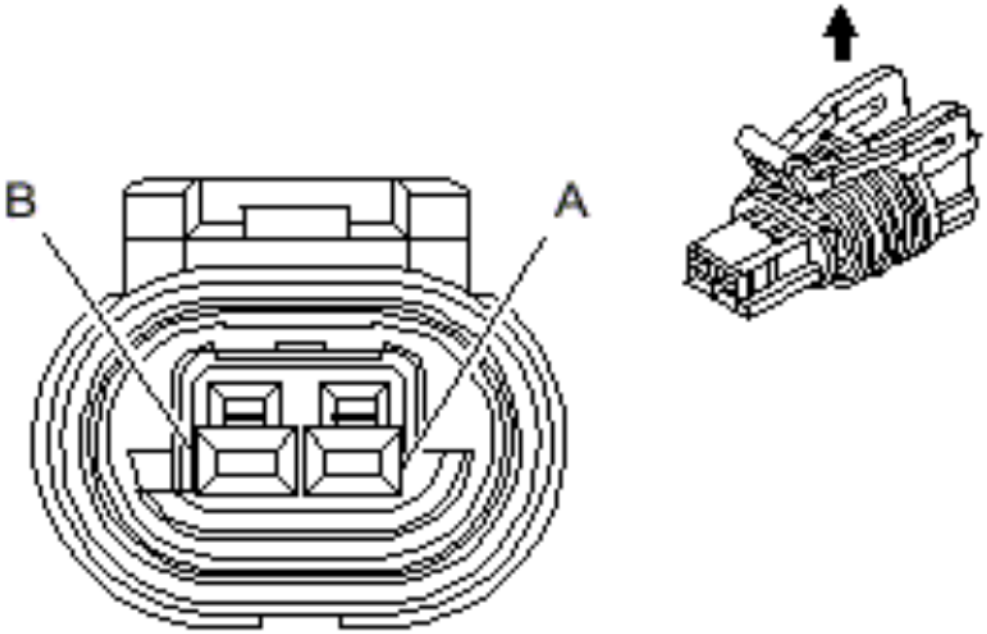

Connector Part Information

- Harness Type: Engine
- OEM Connector: 15449028
- Service Connector: 88987993
- Description: 2-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	BK/BN	2761	Coolant Temperature Sensor Low Reference	I	-
B	0.5	BU	410	Engine Coolant Temperature Sensor Signal	I	-

B34 ENGINE COOLANT TEMPERATURE SENSOR (LV1/LV3)

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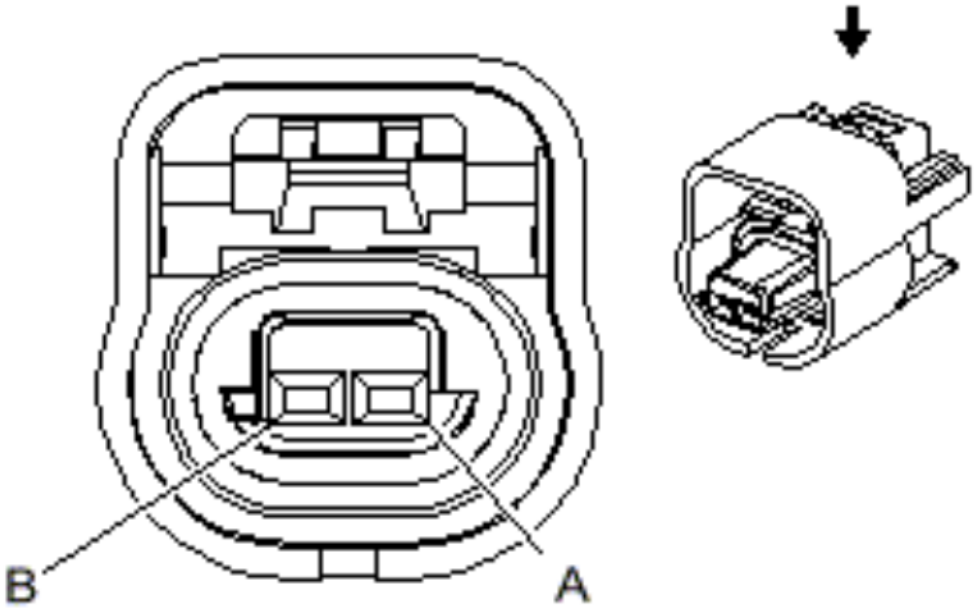

Connector Part Information

- Harness Type: Engine
- OEM Connector: 15355317
- Service Connector: 19178093
- Description: 2-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	BK/BN	2761	Coolant Temperature Sensor Low Reference	I	-
B	0.5	D-BU	410	Engine Coolant Temperature Sensor Signal	I	-

B35 ENGINE OIL LEVEL SWITCH (L5P)

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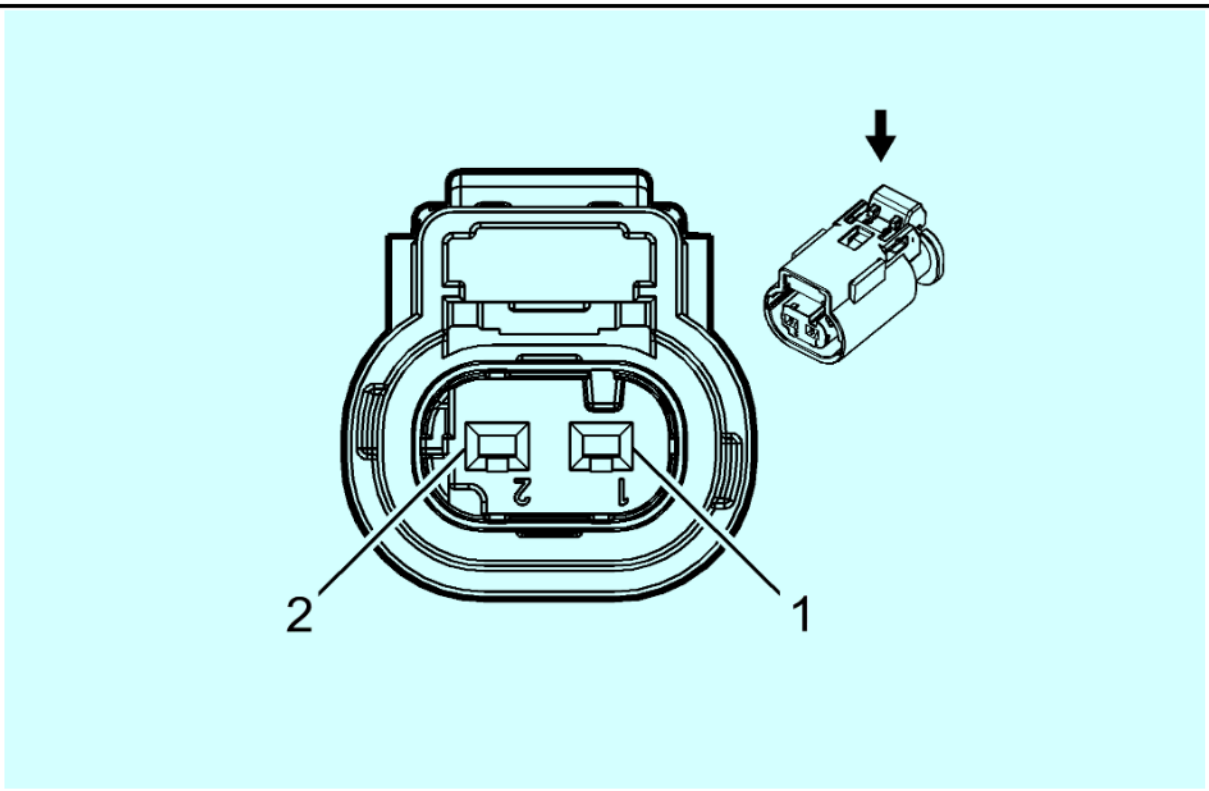

Connector Part Information

- Harness Type: Engine
- OEM Connector: 10010337
- Service Connector: 13587326
- Description: 2-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/WH	251	Signal Ground	I	L5P
2	0.5	BN/GN	1174	Oil Level Switch Signal	I	L5P

B35 ENGINE OIL LEVEL SWITCH (LV1/LV3)

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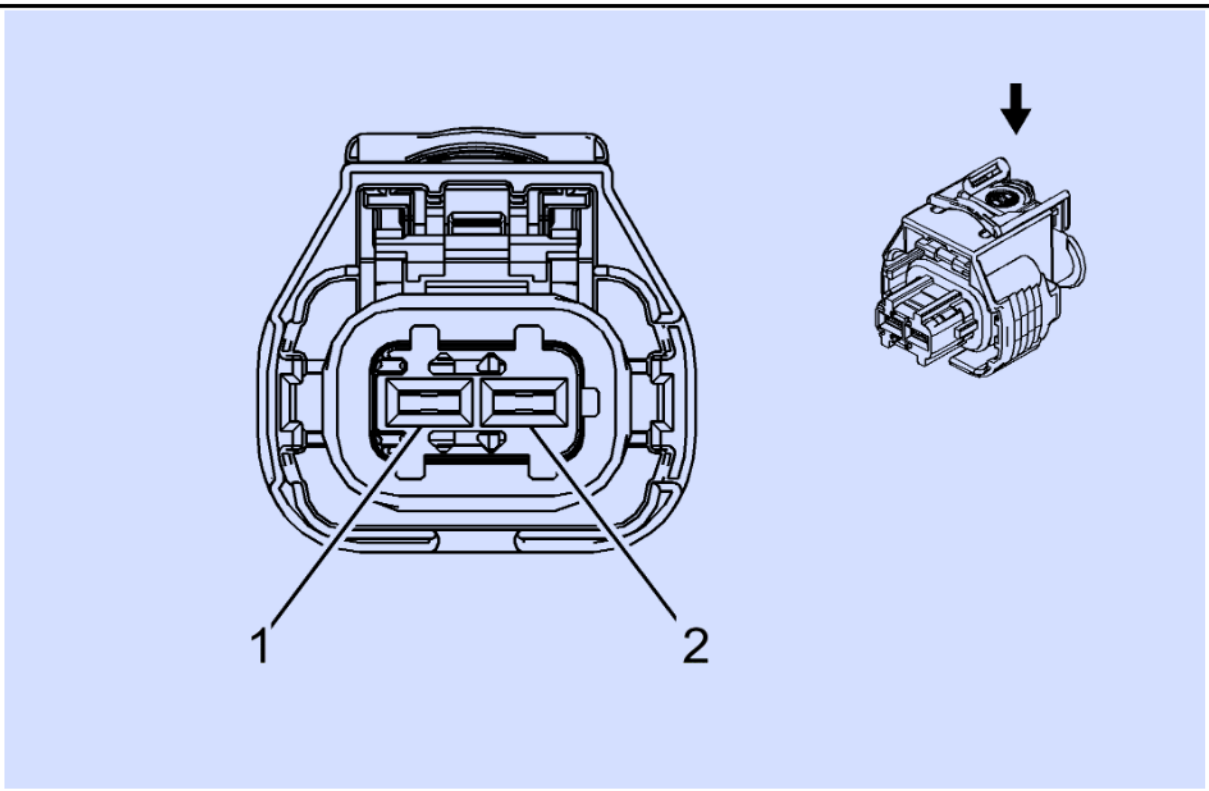

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13930085
- Service Connector: 13384371
- Description: 2-Way F 2.8 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/WH	451	Signal Ground	I	-
2	0.5	BN/L-GN	1174	Oil Level Switch Signal	I	-

B37B ENGINE OIL PRESSURE SENSOR (L5P)

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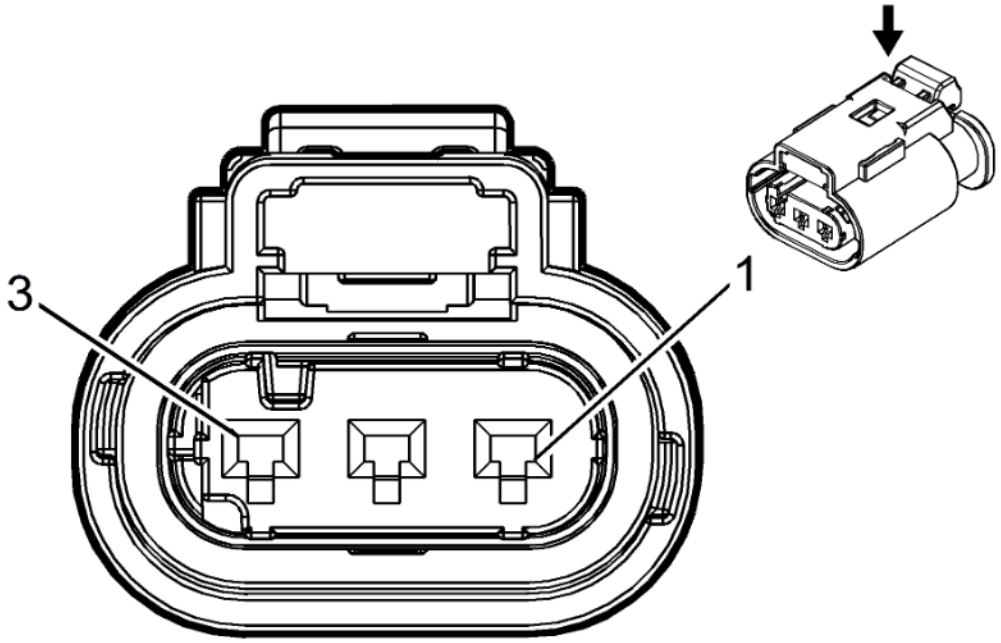

Connector Part Information

- Harness Type: Engine
- OEM Connector: 10010344
- Service Connector: 19301717
- Description: 3-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/BN	331	Oil Pressure Sensor Signal	I	L5P
2	0.5	BK/VT	2755	Oil Pressure Sensor Low Reference	I	L5P
3	0.5	WH/RD	2705	Oil Pressure Sensor 5V Reference	I	L5P

B37B ENGINE OIL PRESSURE SENSOR (L96/LC8)

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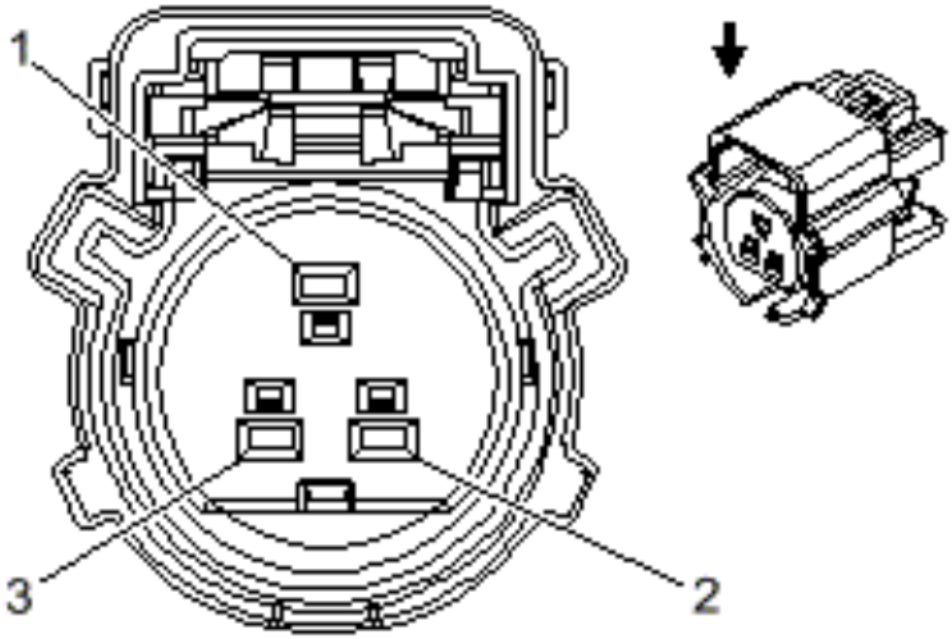

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13589761
- Service Connector: 13501882
- Description: 3-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/BN	331	Oil Pressure Sensor Signal	I	-
2	0.5	WH/RD	2705	Oil Pressure Sensor 5V Reference	I	-
3	0.5	BK/VT	2755	Oil Pressure Sensor Low Reference	I	-

B37B ENGINE OIL PRESSURE SENSOR (LV1/LV3)

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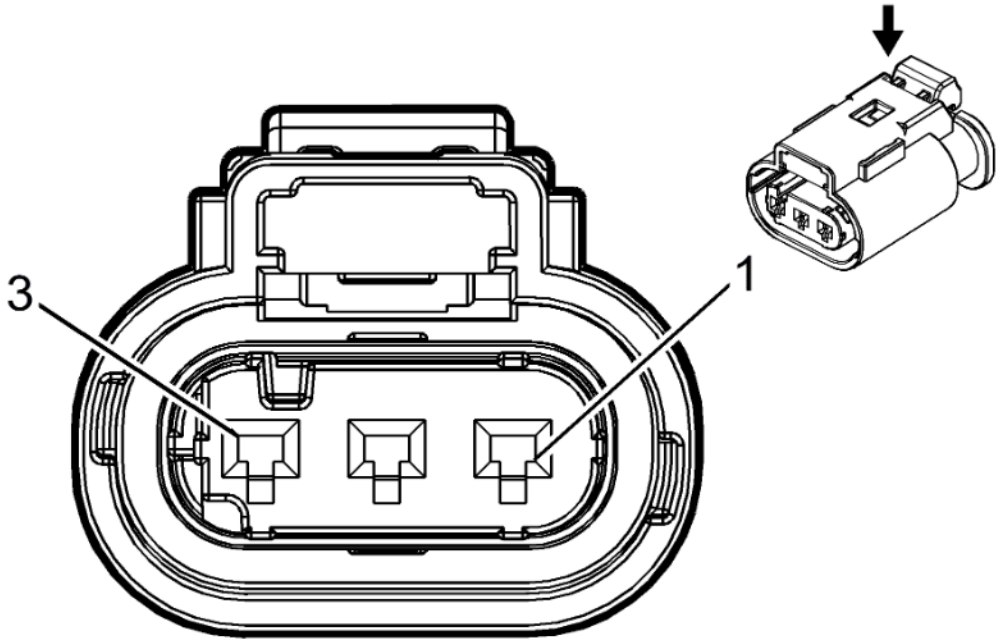

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13889776
- Service Connector: 19301717
- Description: 3-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/BN	331	Oil Pressure Sensor Signal	I	-
2	0.5	BK/VT	2755	Oil Pressure Sensor Low Reference	I	-
3	0.5	WH/RD	2705	Oil Pressure Sensor 5V Reference	I	-

B39 A/C EVAPORATOR TEMPERATURE SENSOR

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Connector Part Information

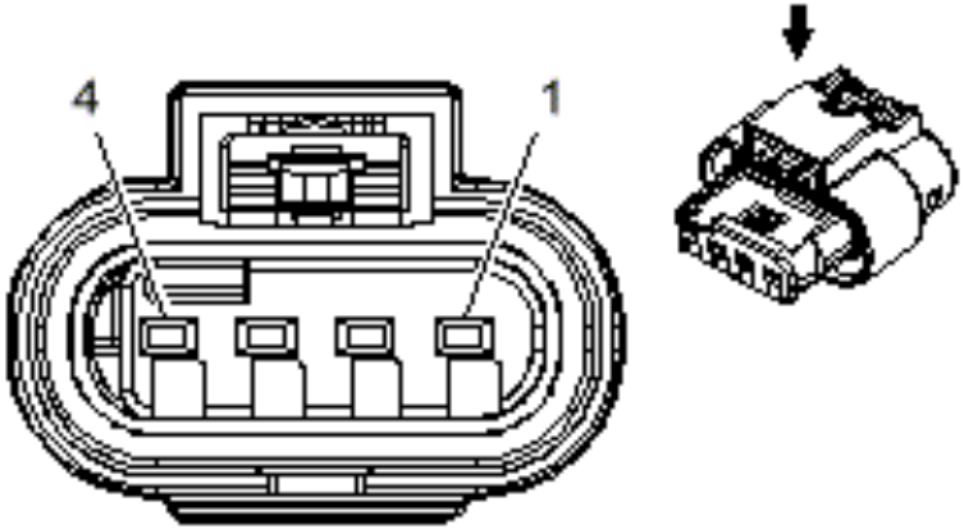
- Harness Type: HVAC
- OEM Connector: T1026590N
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.35	GY	6137	EVAP Core Temperature Sensor Signal	I	-
B	0.35	BK/YE	407	Sensor Low Reference	I	-

B47B FUEL RAIL PRESSURE SENSOR



Connector Part Information

- Harness Type: Engine
- OEM Connector: 1-1456426-5
- Service Connector: 19300397

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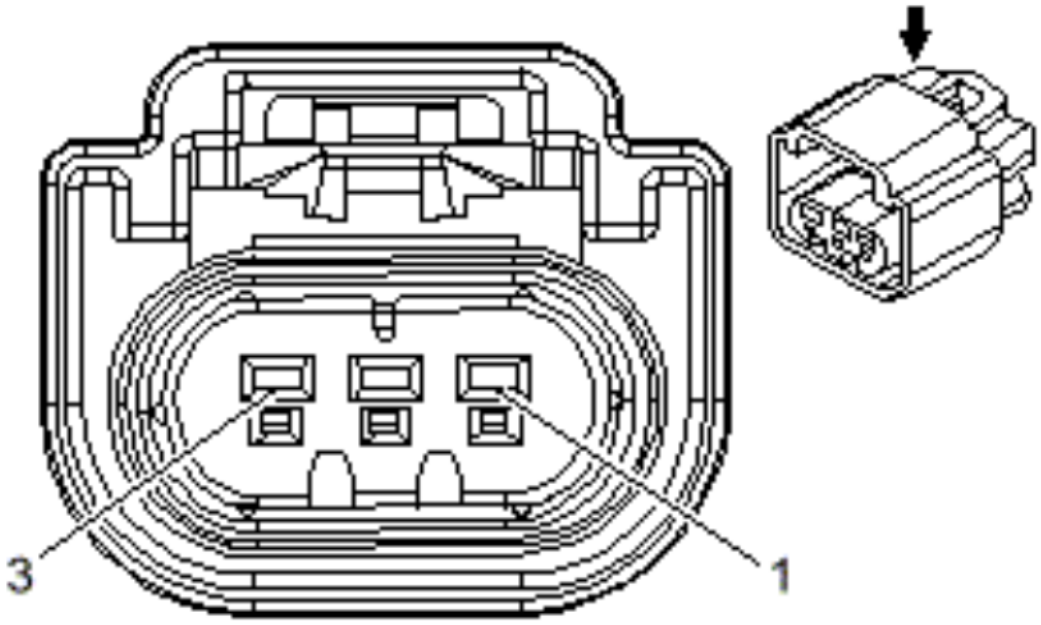
- Description: 4-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN/RD	2917	Fuel Rail Pressure Sensor 5V Reference	I	L5P
2	0.5	BN/YE	2161	Fuel Rail Pressure Sensor 2 Signal	I	L5P
3	0.5	BK/GN	2919	Fuel Rail Pressure Sensor Low Reference	I	L5P
4	0.5	BU/WH	2918	Fuel Rail Pressure Sensor Signal	I	L5P

B47 FUEL PRESSURE SENSOR



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13511131
- Service Connector: 19168035
- Description: 3-Way F 150 GT Series, Sealed (BK)

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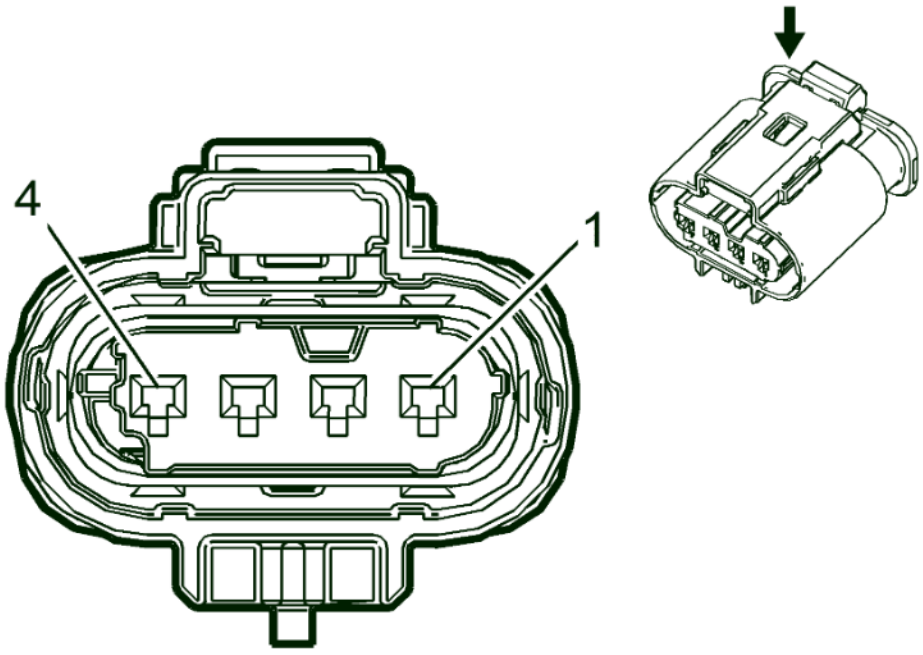
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	D-BU/WH	7446	Fuel Line Pressure Sensor Signal	I	-
2	0.5	BK/YE	7447	Fuel Line Pressure Sensor Low Reference	I	-
3	0.5	BN/RD	7445	Fuel Line Pressure Sensor 5V Reference	I	-

B52C HEATED OXYGEN SENSOR - BANK 1 SENSOR 1 (LV3/L8B/L83/L86)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13869004
- Service Connector: 19301716
- Description: 4-Way F 1.2 Multilock Series, Sealed (D-GY)

Terminal Part Information

Terminal	Terminated	Diagnostic	Terminal	Service	Tray	Core	Insulation

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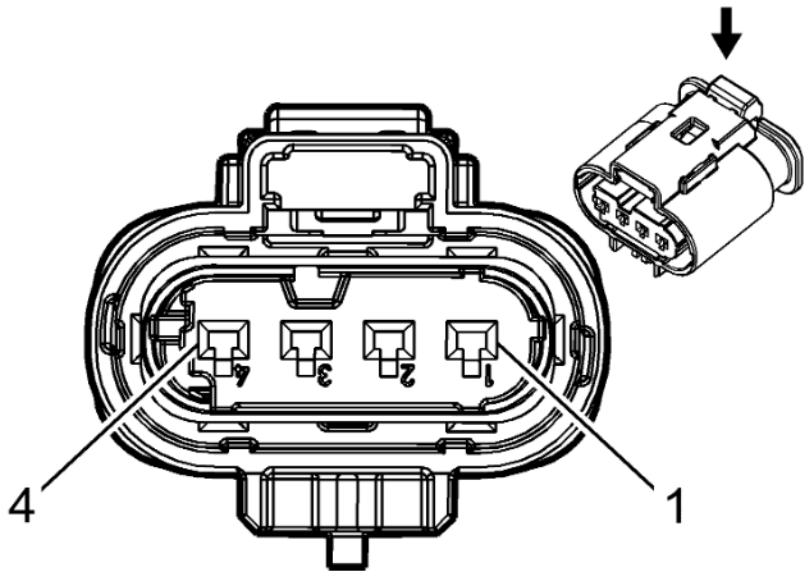
Type ID	Lead	Test Probe	Removal Tool	Terminal	Name	Crimp	Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/WH	3113	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 1	I	-
2	0.5	VT/BU	5293	Powertrain Main Relay Fused Supply 4	I	-
3	0.5	WH/BK	3111	Heated Oxygen Sensor Low Signal Bank 1 Sensor 1	I	-
4	0.5	VT/GY	3110	Heated Oxygen Sensor High Signal Bank 1 Sensor 1	I	-

B52D HEATED OXYGEN SENSOR - BANK 1 SENSOR 2



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13815348
- Service Connector: 13587298
- Description: 4-Way F 1.2 Multilock Series, Sealed (L-GY)

Terminal Part Information

Terminal	Terminated	Diagnostic	Terminal	Service	Tray	Core	Insulation

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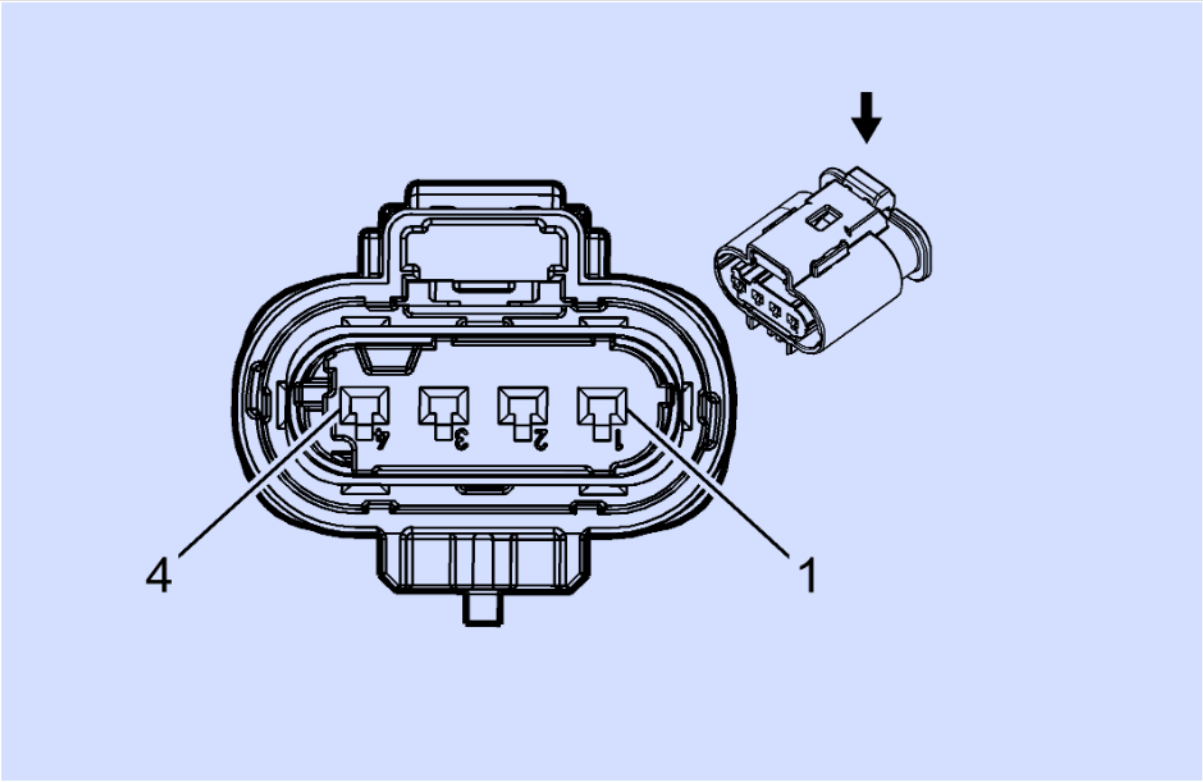
Type ID	Lead	Test Probe	Removal Tool	Terminal	Name	Crimp	Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/WH	3122	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 2	I	-
2	0.5	VT/BU	5294	Powertrain Main Relay Fused Supply 5	I	-
3	0.5	WH/YE	3121	Heated Oxygen Sensor Low Signal Bank 1 Sensor 2	I	-
4	0.5	VT/BU	3120	Heated Oxygen Sensor High Signal Bank 1 Sensor 2	I	-

B52E HEATED OXYGEN SENSOR - BANK 2 SENSOR 1 (L96/LC8)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13815341
- Service Connector: 13587299
- Description: 4-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal	Terminated	Diagnostic	Terminal	Service	Tray	Core	Insulation

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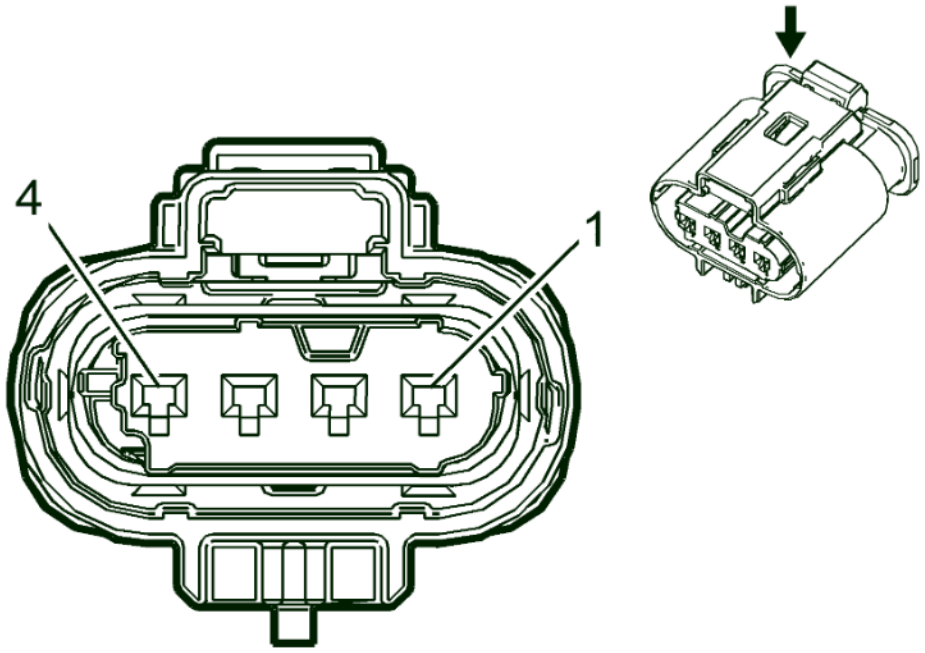
Type ID	Lead	Test Probe	Removal Tool	Terminal	Name	Crimp	Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-GN/YE	3212	Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 1	I	-
2	0.75	VT/D-BU	5293	Powertrain Main Relay Fused Supply 4	I	-
3	0.5	YE/WH	3211	Heated Oxygen Sensor Low Signal Bank 2 Sensor 1	I	-
4	0.5	VT/WH	3210	Heated Oxygen Sensor High Signal Bank 2 Sensor 1	I	-

B52E HEATED OXYGEN SENSOR - BANK 2 SENSOR 1 (LV3/L8B/L83/L86)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13869004
- Service Connector: 19301716
- Description: 4-Way F 1.2 Multilock Series, Sealed (D-GY)

Terminal Part Information

Terminal	Terminated	Diagnostic	Terminal	Service	Tray	Core	Insulation

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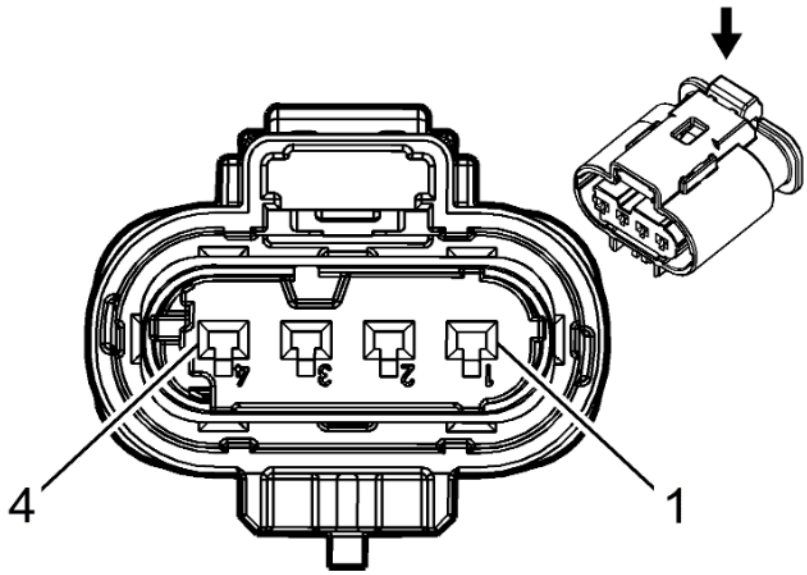
Type ID	Lead	Test Probe	Removal Tool	Terminal	Name	Crimp	Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GN/YE	3212	Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 1	I	-
2	0.5	VT/BU	5293	Powertrain Main Relay Fused Supply 4	I	-
3	0.5	YE/WH	3211	Heated Oxygen Sensor Low Signal Bank 2 Sensor 1	I	-
4	0.5	VT/WH	3210	Heated Oxygen Sensor High Signal Bank 2 Sensor 1	I	-

B52F HEATED OXYGEN SENSOR - BANK 2 SENSOR 2



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13815348
- Service Connector: 13587298
- Description: 4-Way F 1.2 Multilock Series, Sealed (L-GY)

Terminal Part Information

Terminal	Terminated	Diagnostic	Terminal	Service	Tray	Core	Insulation

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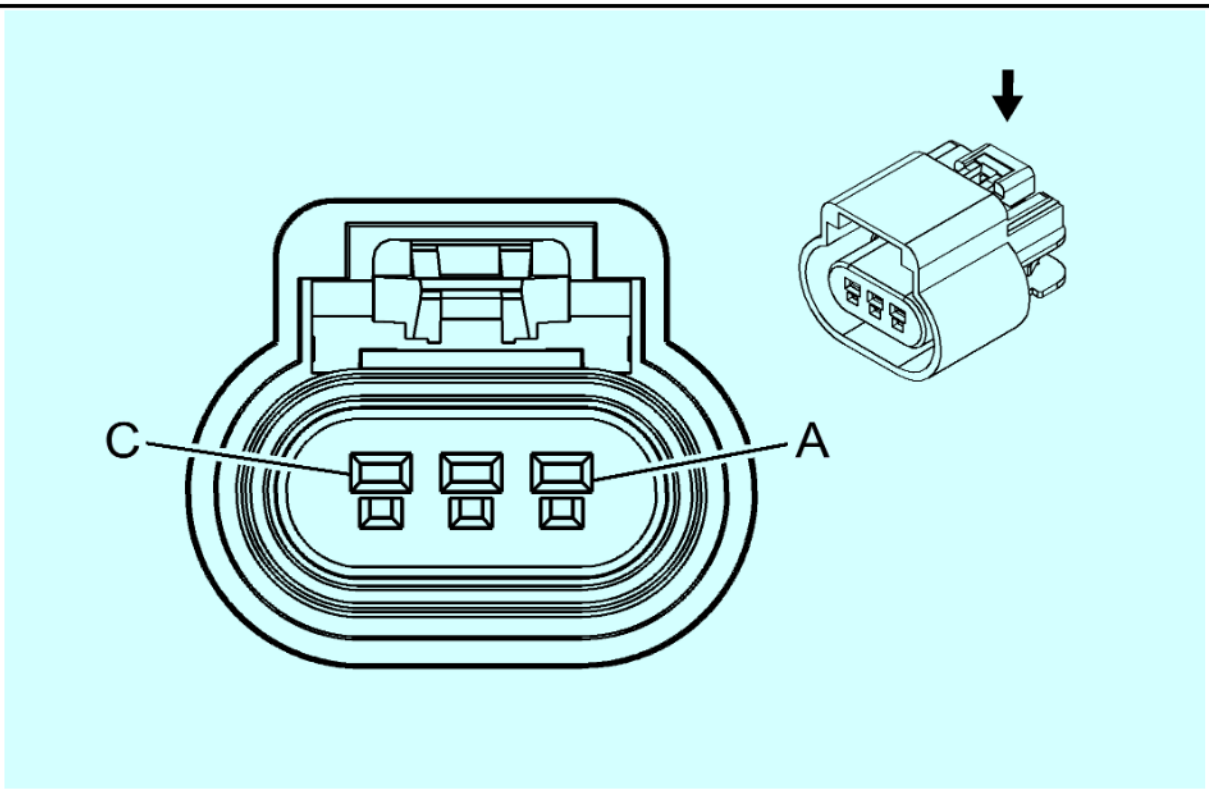
Type ID	Lead	Test Probe	Removal Tool	Terminal	Name	Crimp	Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/BN	3223	Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 2	I	-
2	0.5	VT/D-BU	5294	Powertrain Main Relay Fused Supply 5	I	-
3	0.5	YE/D-BU	3221	Heated Oxygen Sensor Low Signal Bank 2 Sensor 2	I	-
4	0.5	VT/L-GN	3220	Heated Oxygen Sensor High Signal Bank 2 Sensor 2	I	-

B55 ENGINE HOOD SWITCH



Connector Part Information

- Harness Type: Forward Lamp
- OEM Connector: 13519047
- Service Connector: 13580871
- Description: 3-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal	Terminated	Diagnostic	Terminal	Service	Tray	Core	Insulation

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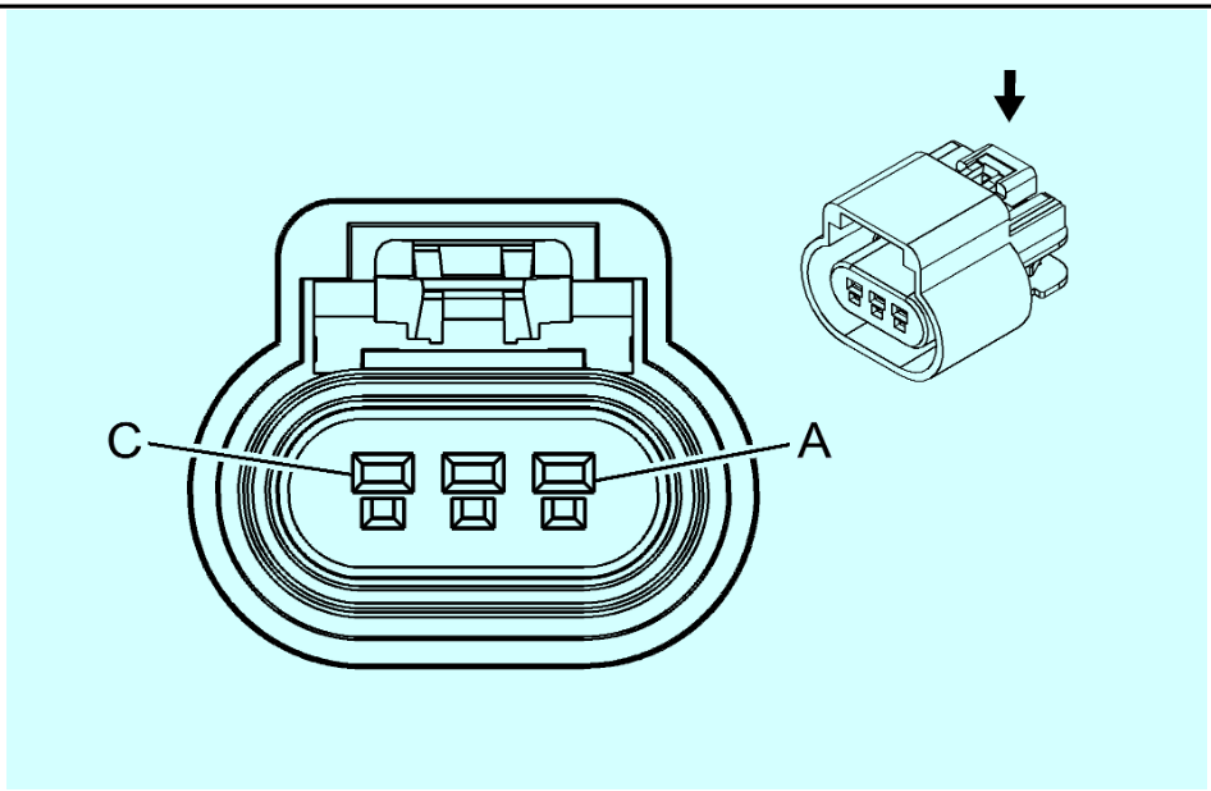
Type ID	Lead	Test Probe	Removal Tool	Terminal	Name	Crimp	Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	YE	5530	Hood Open Switch Signal	I	-
B	0.5	BN/GN	109	Hood Ajar Switch Signal	I	-
C	1 0.5	BK BK/YE	250 4082	Ground Hood Latch Sensor Low Reference	I I	BTV/HP5 /M1F/UTJ-L83-L86-LV1-LV3 L86/L83 /LV1/LV3-HP5

B55 HOOD AJAR SWITCH (CK100+Z88)



Connector Part Information

- Harness Type: Forward Lamp
- OEM Connector: 13519047
- Service Connector: 13580871
- Description: 3-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal	Service Terminal	Tray Name	Core Crimp	Insulation Crimp

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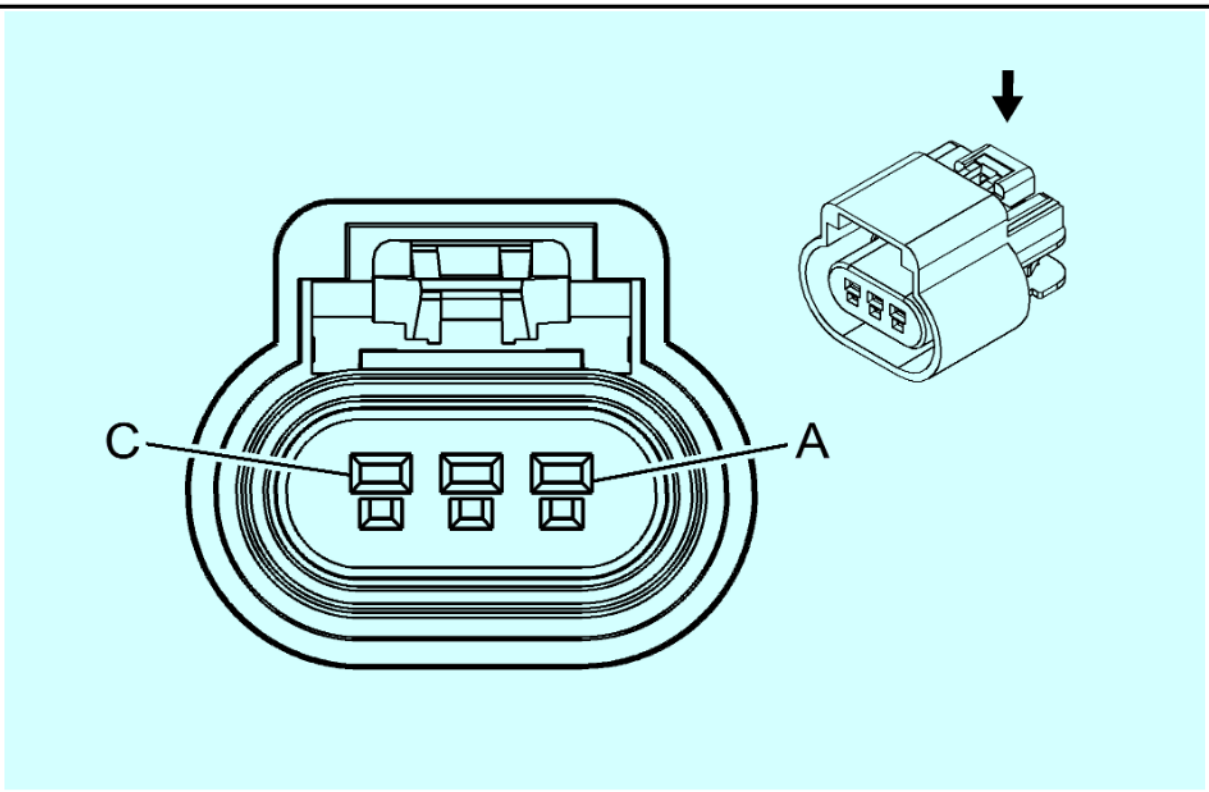
			Tool				
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	YE	5530	Hood Open Switch Signal	I	-
B	0.5	BN/L-GN	109	Hood Ajar Switch Signal	I	-
C	1	BK	250	Ground	I	-

B55 HOOD AJAR SWITCH (CK200+X88)



Connector Part Information

- Harness Type: Forward Lamp
- OEM Connector: 13519047
- Service Connector: 13580871
- Description: 3-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal	Option

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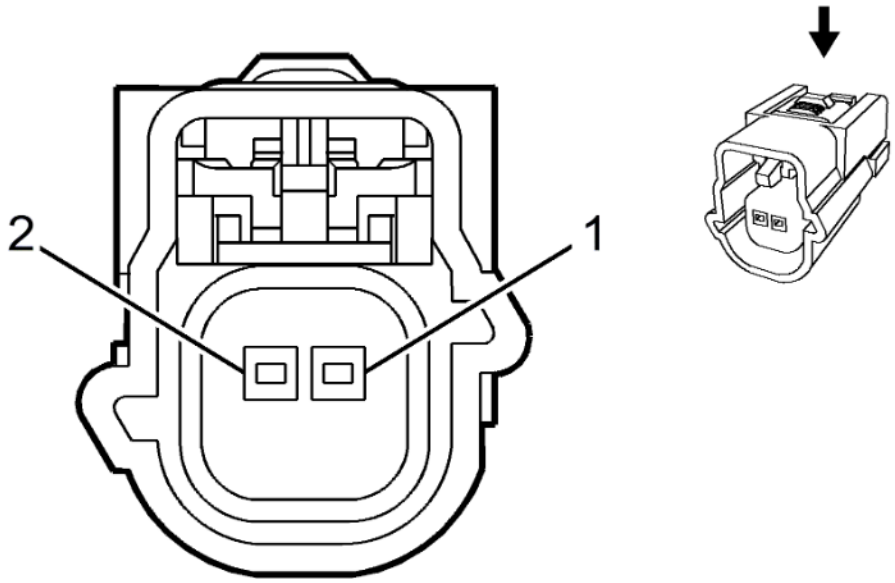
					Type ID	
A	-	-	-	Not Occupied	-	-
B	0.5	BN/L-GN	109	Hood Ajar Switch Signal	I	-
C	1	BK	250	Ground	I	-

B59L FRONT IMPACT SENSOR - LEFT



Connector Part Information

- Harness Type: Forward Lamp
- OEM Connector: 13593078
- Service Connector: 13577629
- Description: 2-Way F 0.64 Series, Sealed (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG/YE	354	Left Front Discriminating Sensor Signal	I	-
2	0.5	BK/OG	5045	Left Front Discriminating Sensor Low Reference	I	-

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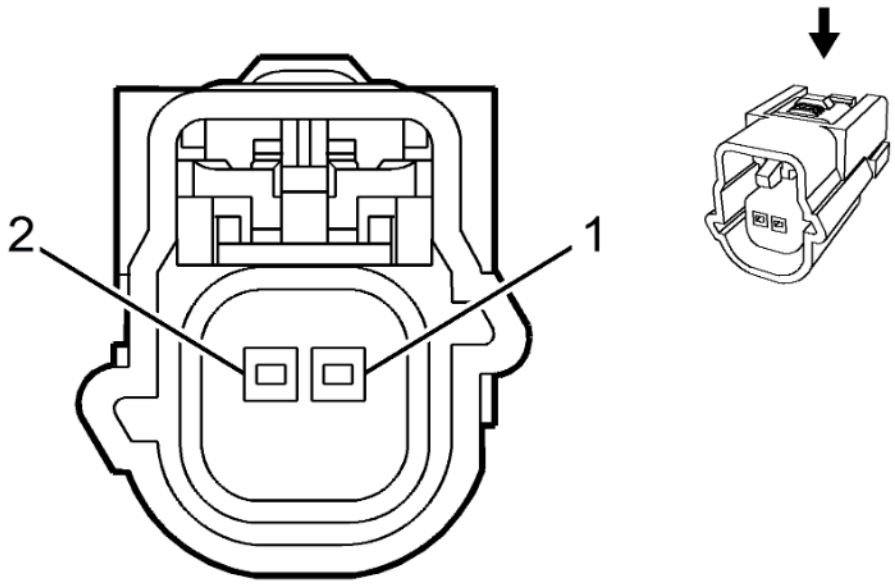
B59R FRONT IMPACT SENSOR - RIGHT



Connector Part Information

- Harness Type: Forward Lamp
- OEM Connector: 13593078
- Service Connector: 13577629
- Description: 2-Way F 0.64 Series, Sealed (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG/L-GN	1409	Right Front Discriminating Sensor Signal	I	-
2	0.5	BK/OG	5600	Right Front Discriminating Sensor Low Reference	I	-

Article GUID: A00854475

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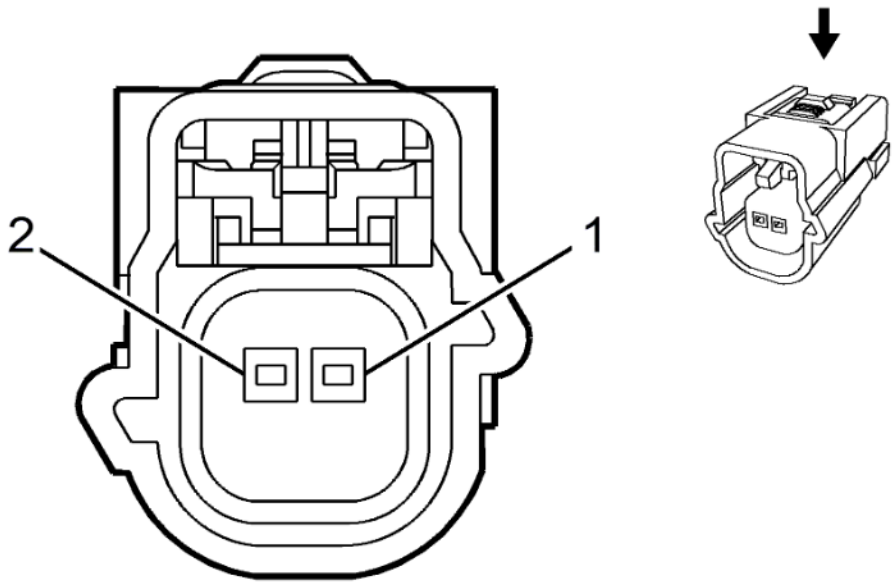
COMPONENT CONNECTOR END VIEWS

B59 FRONT IMPACT SENSOR



Connector Part Information

- Harness Type: Forward Lamp
- OEM Connector: 13593078
- Service Connector: 13577629
- Description: 2-Way F 0.64 Series, Sealed (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG/GY	6618	Middle Front Discriminating Sensor Signal	I	-

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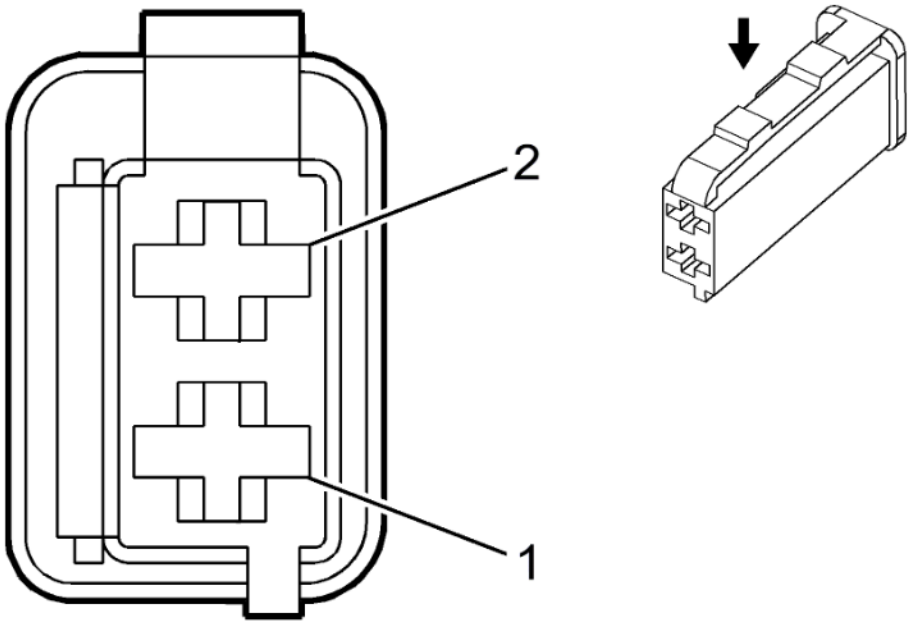
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
2	0.5	BK/OG	6619	Middle Front Discriminating Sensor Low Reference	I	-

B60 PASSENGER PRESENCE SENSOR



Connector Part Information

- Harness Type: Body
- OEM Connector: 13670097
- Service Connector: 13580951
- Description: 2-Way F 1.6 Timer Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BU/RD	5612	Passenger Seat Belt Tension Sensor 5V Reference	I	-
2	0.35	VT/OG	5611	Passenger Seat Belt Tension Sensor Signal	I	-

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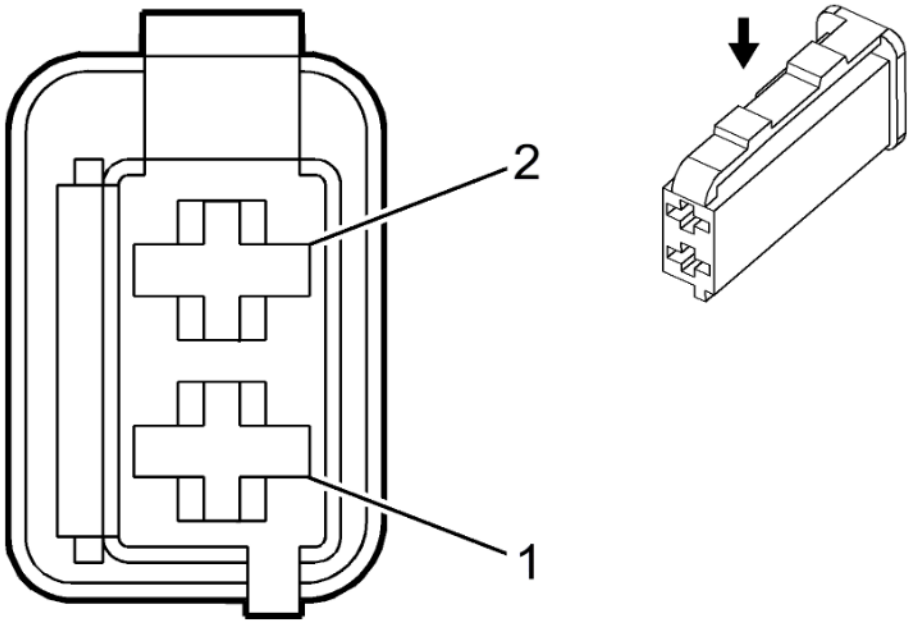
B61P SEAT BELT TENSION SENSOR - PASSENGER (AL0)



Connector Part Information

- Harness Type: Body
- OEM Connector: 13670097
- Service Connector: 13580951
- Description: 2-Way F 1.6 Timer Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	BU/RD	5612	Passenger Seat Belt Tension Sensor 5V Reference	I	-
2	-	RD	5611	Passenger Seat Belt Tension Sensor Signal	I	-

B62D SEAT POSITION SENSOR - DRIVER

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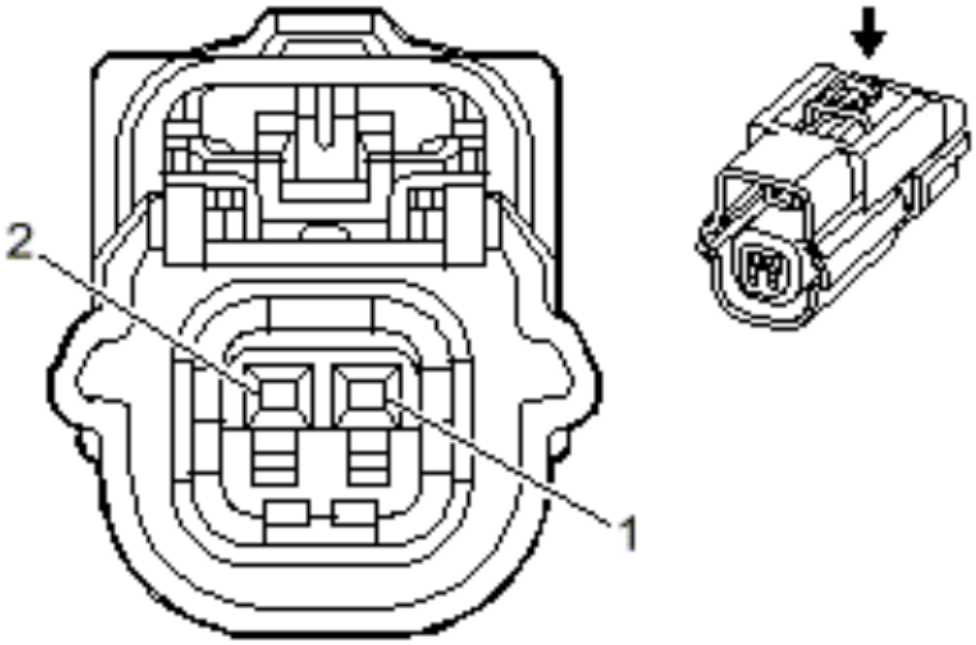

Connector Part Information

- Harness Type: Driver Seat Cushion
- OEM Connector: 54390239
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 0.64 Kaizen Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK/OG	1363	Driver Seat Belt Switch Low Reference	I	-
2	0.35	OG/L-GN	5055	Driver Seat Position Switch Signal	I	-

B62P SEAT POSITION SENSOR - PASSENGER

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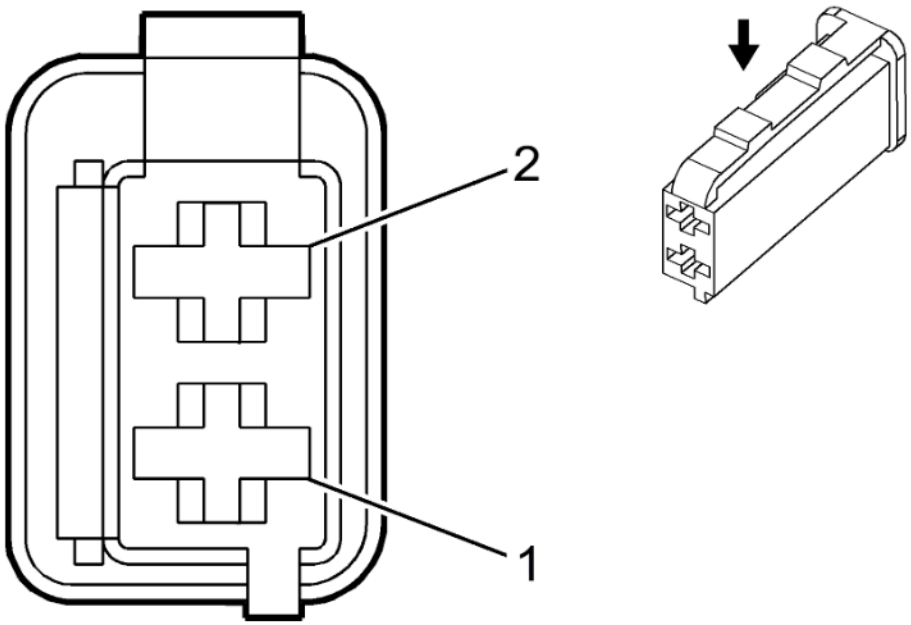

Connector Part Information

- Harness Type: Passenger Seat Cushion
- OEM Connector: 19179871
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.6 Timer Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	BK/OG	1361	Passenger Seat Belt Switch Low Reference	I	-
2	-	OG/BU	5056	Passenger Seat Position Switch Signal	I	-

B63LF SIDE IMPACT SENSOR - LEFT FRONT

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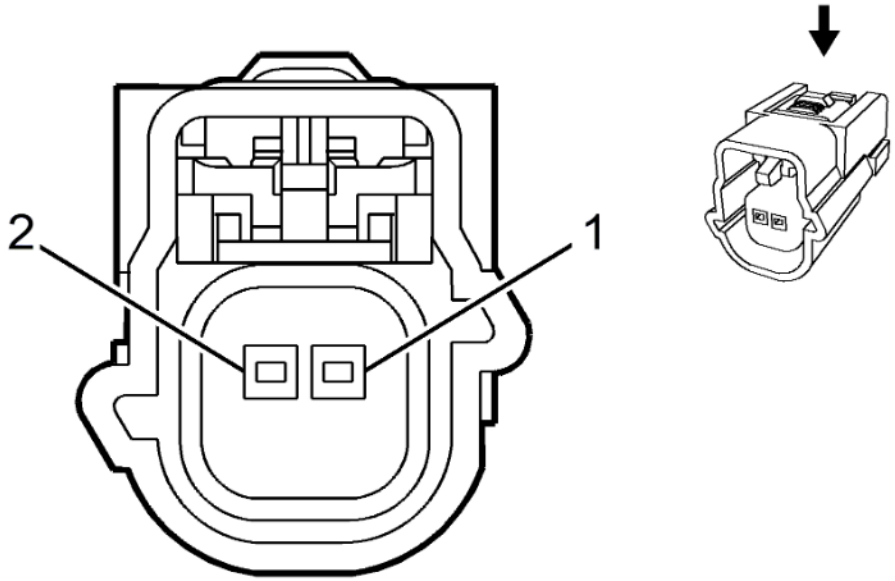

Connector Part Information

- Harness Type: Driver Door
- OEM Connector: 13593078
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 0.64 Series, Sealed (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG/L-GN	2132	Left Front Side Impact Sensing Module Signal	I	-
2	0.5	BK/OG	6628	Left Front Side Impact Sensing Module Low Reference	I	-

B63LR SIDE IMPACT SENSOR - LEFT REAR

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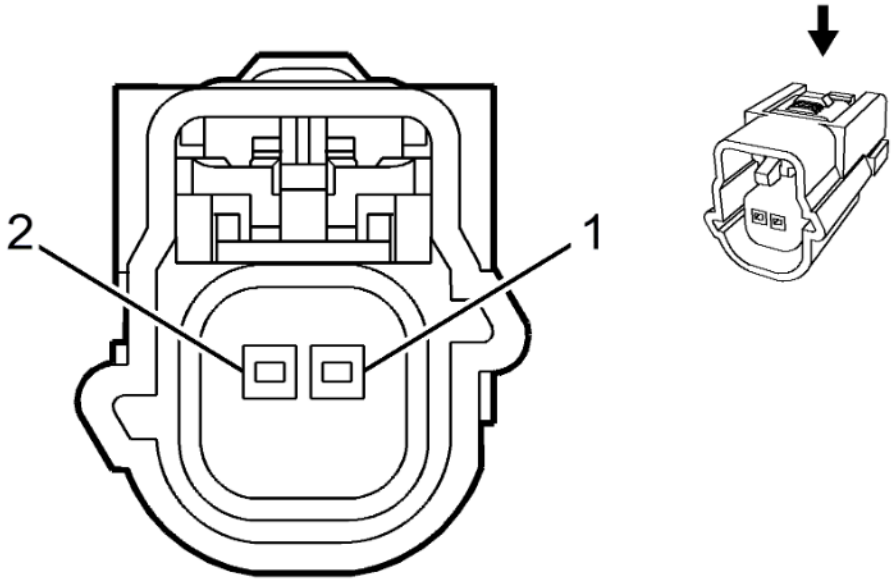

Connector Part Information

- Harness Type: Left Rear Door
- OEM Connector: 13610095
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 0.64 Series, Sealed (D-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG/BU	6620	Left Middle Side Impact Sensing Module Signal	I	-
2	0.5	BK/OG	6621	Left Middle Side Impact Sensing Module Low Reference	I	-

B63RF SIDE IMPACT SENSOR - RIGHT FRONT

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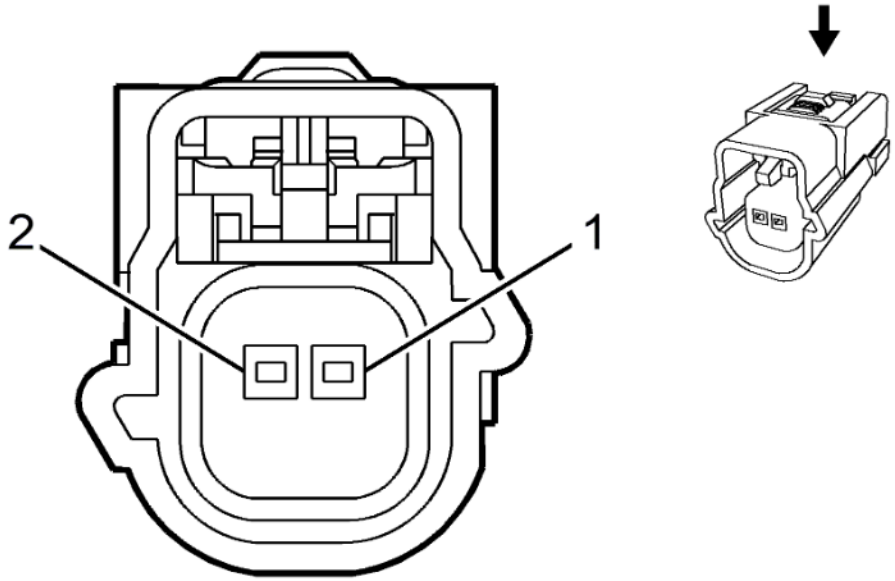

Connector Part Information

- Harness Type: Passenger Door
- OEM Connector: 13593078
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 0.64 Series, Sealed (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG/L-GN	2134	Right Front Side Impact Sensing Module Signal	I	-
2	0.5	BK/OG	6629	Right Front Side Impact Sensing Module Low Reference	I	-

B63RR SIDE IMPACT SENSOR - RIGHT REAR

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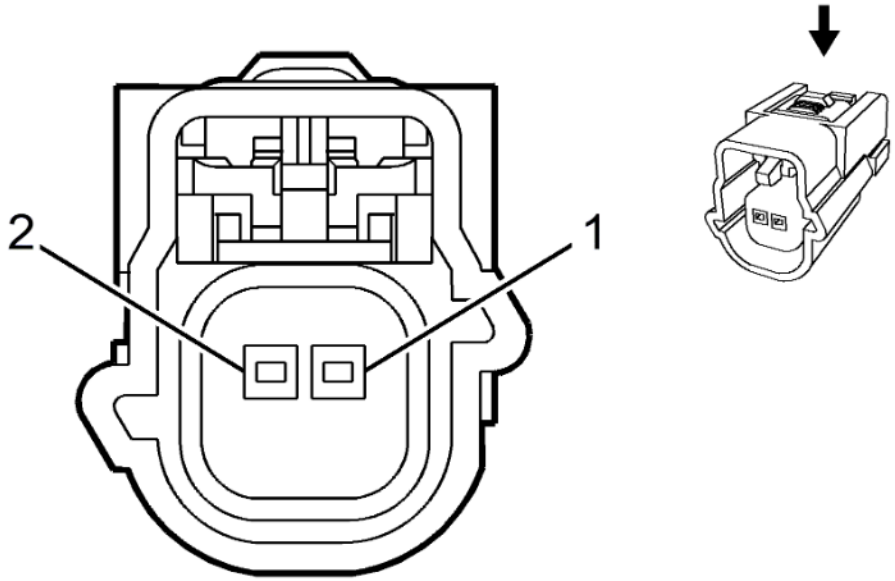

Connector Part Information

- Harness Type: Right Rear Door
- OEM Connector: 13610095
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 0.64 Series, Sealed (D-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG/VT	6624	Right Middle Side Impact Sensing Module Signal	I	-
2	0.5	BK/OG	6625	Right Middle Side Impact Sensing Module Low Reference	I	-

B65 INTAKE MANIFOLD PRESSURE AND AIR TEMPERATURE SENSOR (L5P)

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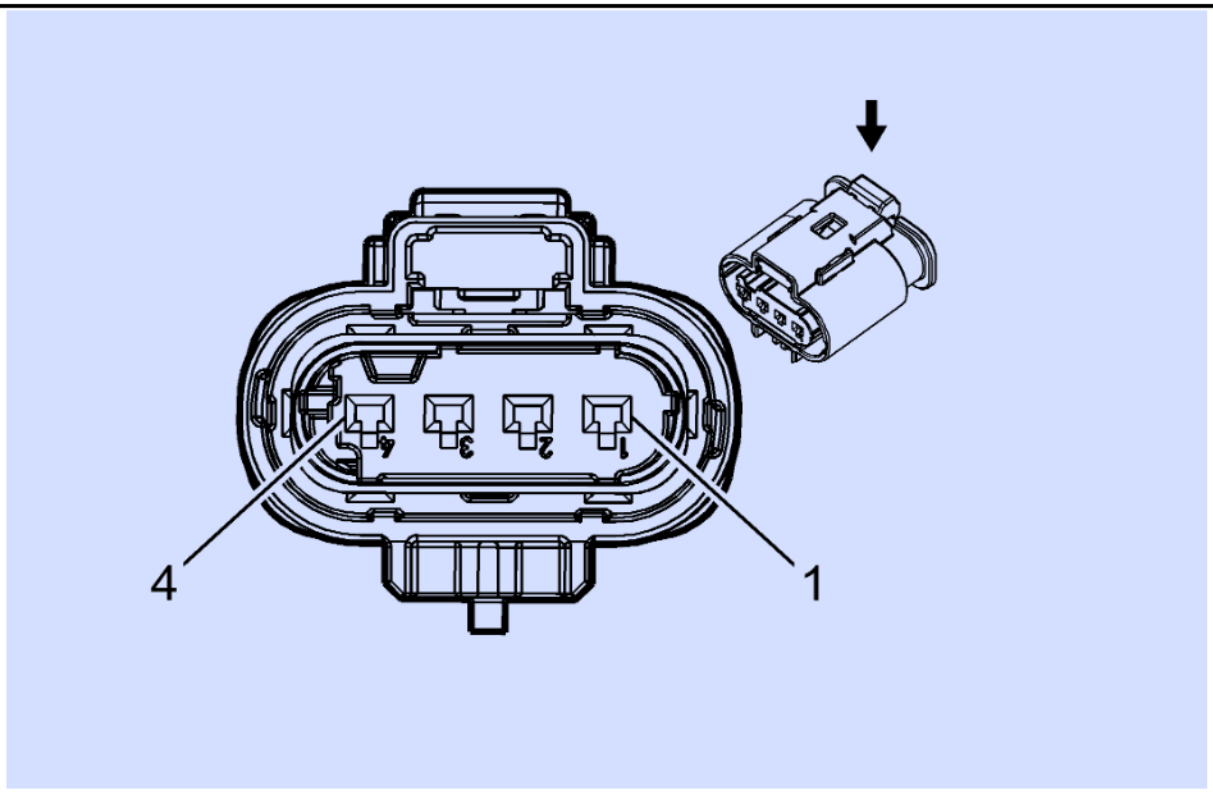

Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 10010346
- Service Connector: 13587299
- Description: 4-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN	7348	Induction Air Temperature Sensor 2 Signal	I	L5P
2	0.5	GY/RD	2704	Manifold Absolute Pressure Sensor 5V Reference	I	L5P
3	0.5	BK/GN	469	Manifold Absolute Pressure Sensor Low Reference	I	L5P
4	0.5	GN/WH	432	Manifold Absolute Pressure Sensor Signal	I	L5P

B68A KNOCK SENSOR 1

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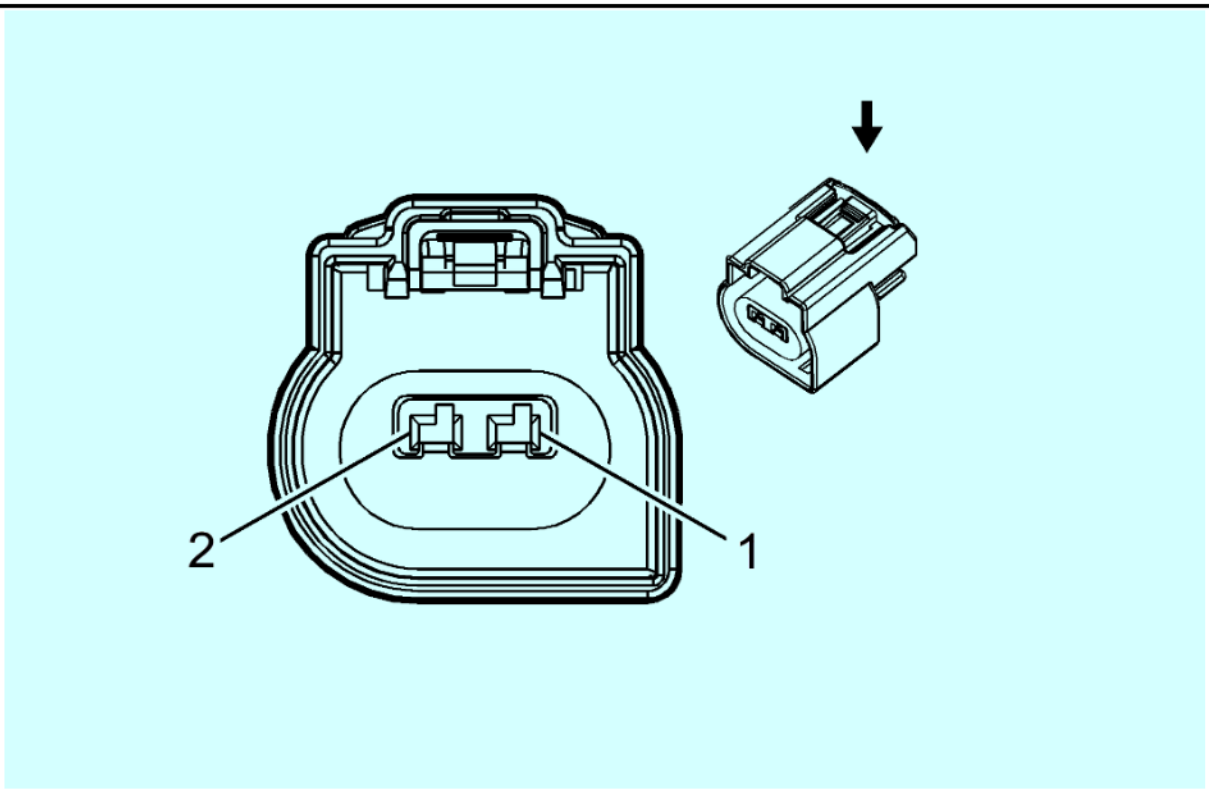

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13814755
- Service Connector: 19301207
- Description: 2-Way F 150 MX Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	VT/GY	496	Knock Sensor Signal 1	I	-
2	0.75	BK/YE	1716	Knock Sensor Low Reference 1	I	-

B68B KNOCK SENSOR 2

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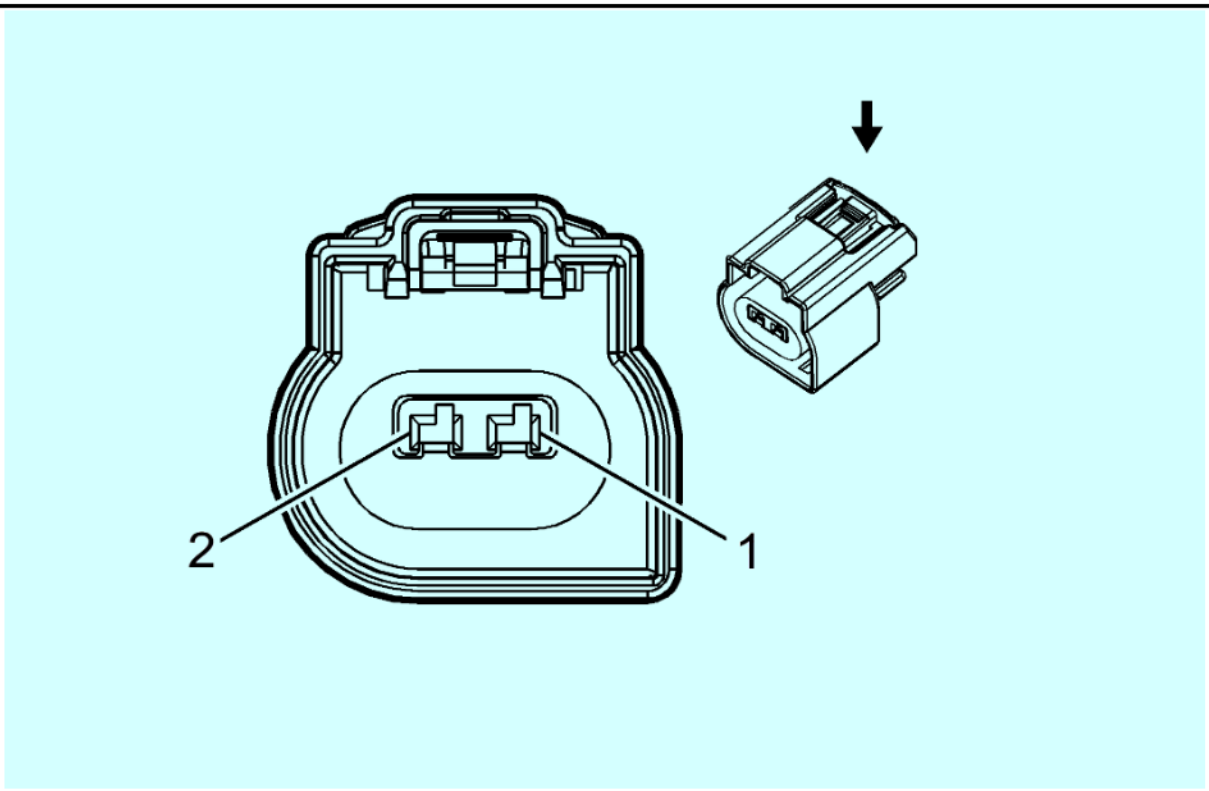

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13814755
- Service Connector: 19301207
- Description: 2-Way F 150 MX Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	WH/GY	1876	Knock Sensor Signal 2	I	-
2	0.75	BK/GY	2303	Knock Sensor Low Reference 2	I	-

B74 MANIFOLD ABSOLUTE PRESSURE SENSOR (L96/LC8)

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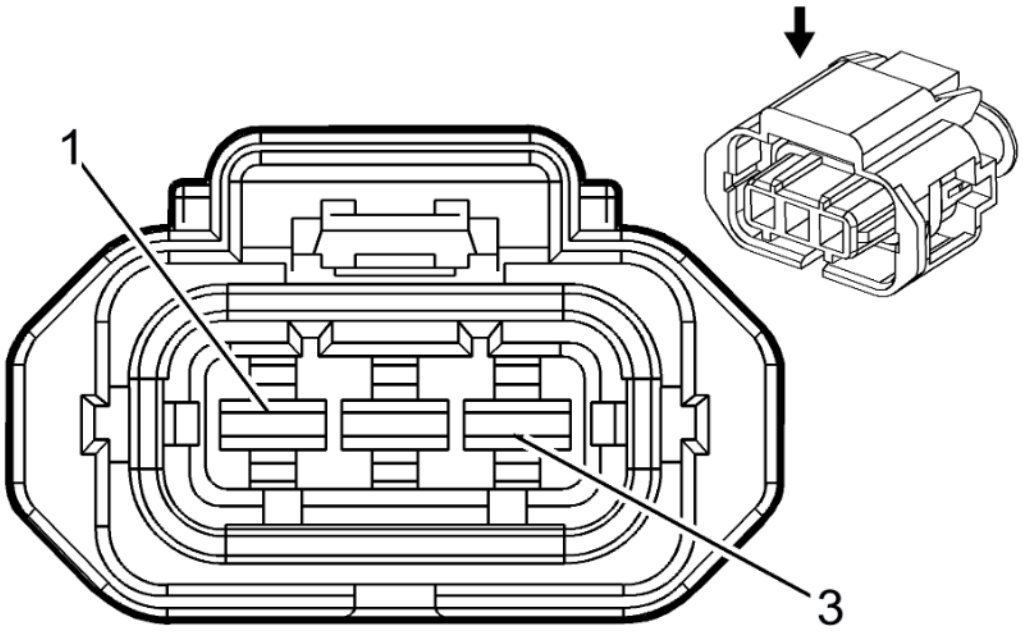

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13639747
- Service Connector: 19181248
- Description: 3-Way F 2.8 Junior Power Timer Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/RD	2704	Manifold Absolute Pressure Sensor 5V Reference	I	-
2	0.5	BK/GN	469	Manifold Absolute Pressure Sensor Low Reference	I	-
3	0.5	GN/WH	432	Manifold Absolute Pressure Sensor Signal	I	-

B74 MANIFOLD ABSOLUTE PRESSURE SENSOR (LV3/L8B/L83/L86)

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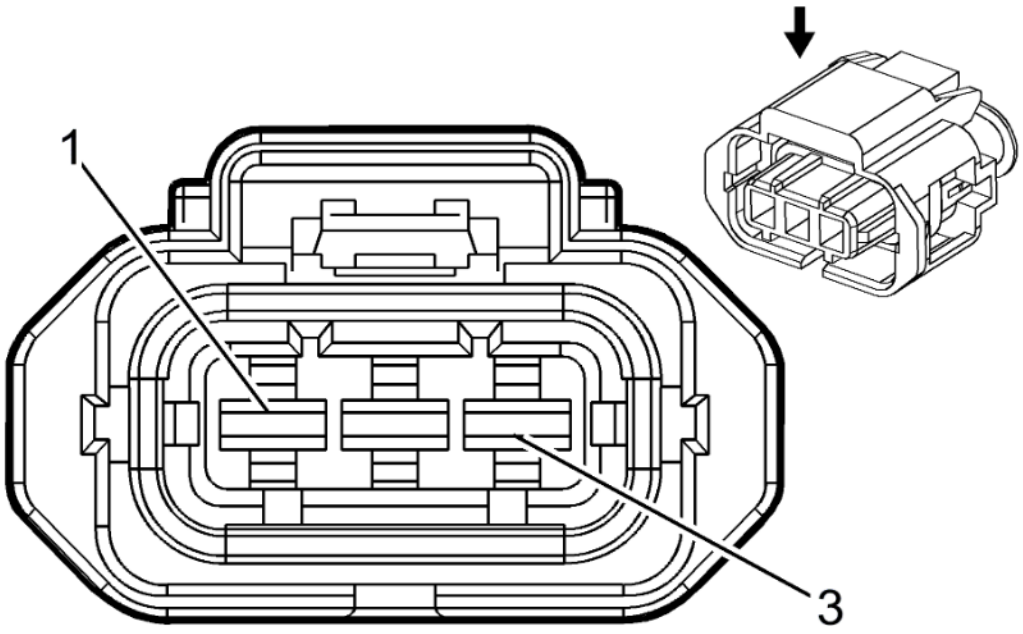

Connector Part Information

- Harness Type: Engine
- OEM Connector: 15397338
- Service Connector: 13585845
- Description: 3-Way F 2.8 Junior Power Timer Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/RD	2704	Manifold Absolute Pressure Sensor 5V Reference	I	-
2	0.5	BK/GN	469	Manifold Absolute Pressure Sensor Low Reference	I	-
3	0.5	GN/WH	432	Manifold Absolute Pressure Sensor Signal	I	-

B75C MULTIFUNCTION INTAKE AIR SENSOR (L5P)

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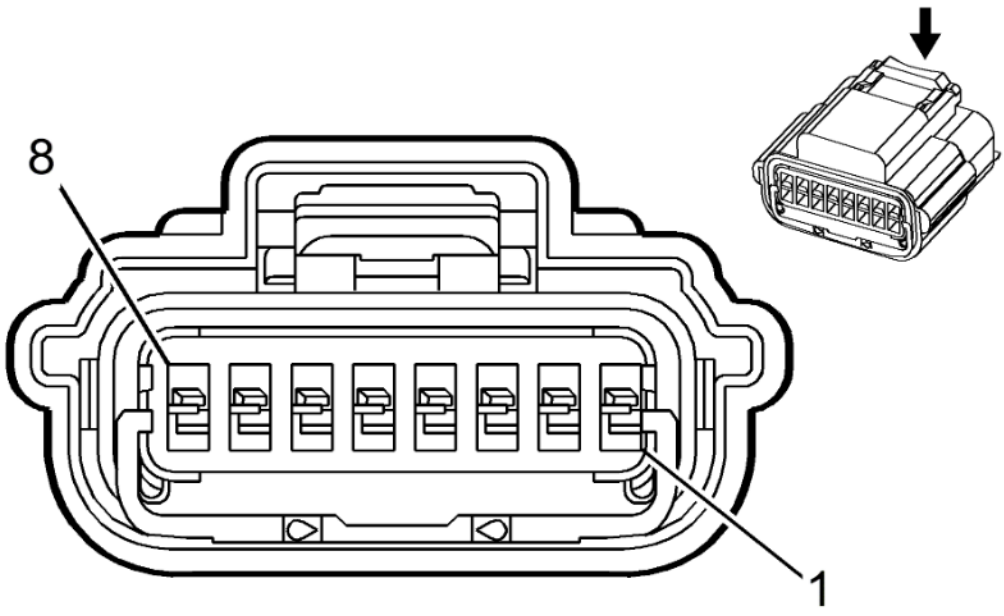

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13774439
- Service Connector: 13583440
- Description: 8-Way F 0.64 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/D-BU	6289	Induction Air Temperature Sensor Signal	I	-
2	0.5	WH/RD	3201	Throttle Inlet Absolute Pressure Sensor 5V Reference	I	-
3	0.5	BK/VT	2760	Intake Air Temperature Sensor Low Reference	I	-
4	0.5	BN/L-GN	5266	Ambient Air Pressure Sensor Signal	I	-
5	0.5	VT/D-BU	5294	Powertrain Main Relay Fused Supply 5	I	-
6	0.5	L-GN/WH	492	Mass Air Flow Sensor Signal	I	-

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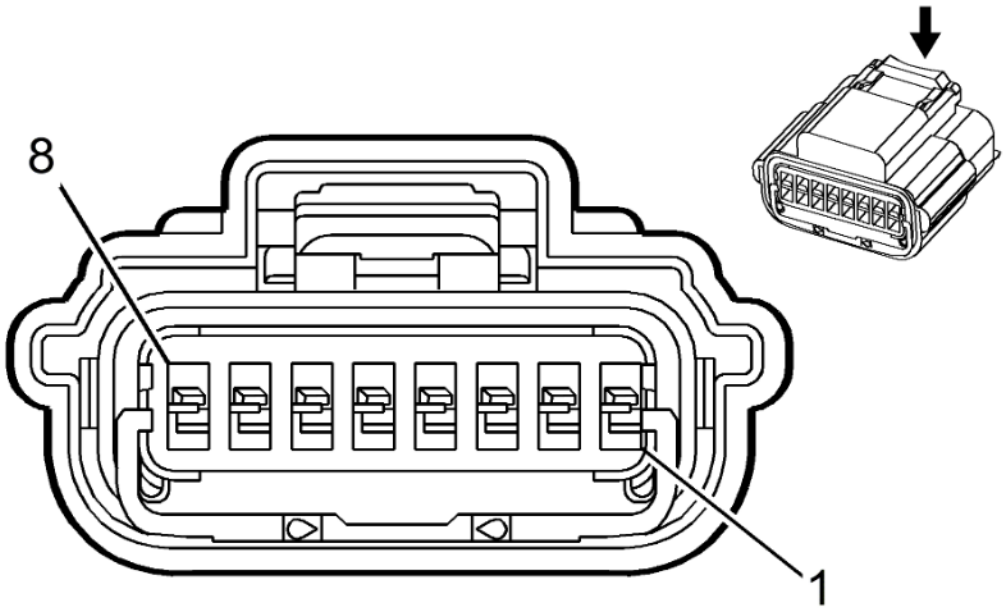
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
7	0.75	BK/WH	451	Signal Ground	I	-
8	0.5	BN/GY	4008	Humidity Sensor Signal	I	-

B75C MULTIFUNCTION INTAKE AIR SENSOR (L96/LC8)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13774439
- Service Connector: 13583440
- Description: 8-Way F 0.64 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/D-BU	6289	Induction Air Temperature Sensor Signal	I	-
2	0.5	WH/RD	3201	Throttle Inlet Absolute Pressure Sensor 5V Reference	I	-

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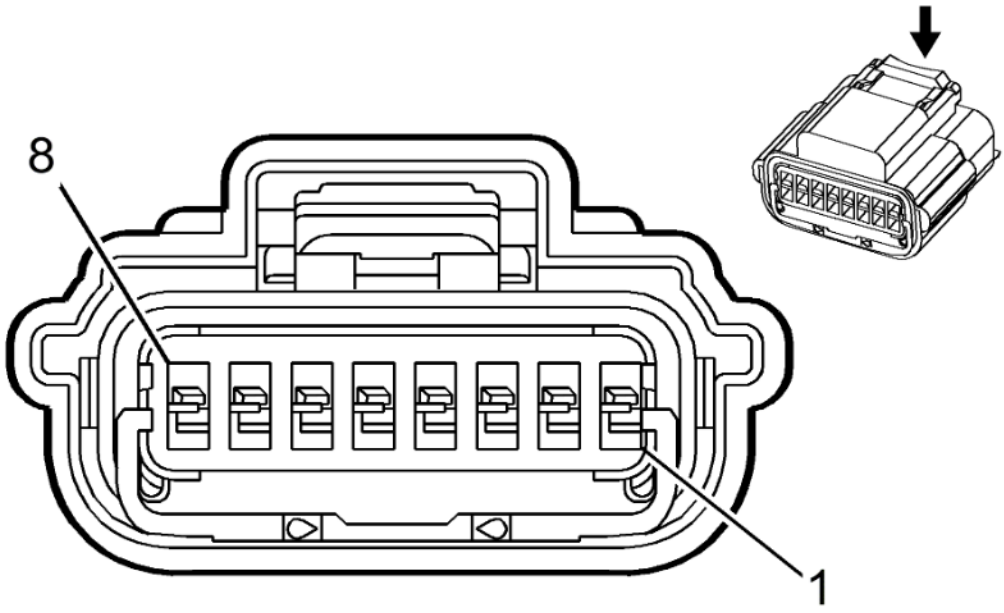
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	0.5	BK/VT	2760	Intake Air Temperature Sensor Low Reference	I	-
4	0.5	YE/WH	3200	Throttle Inlet Absolute Pressure Sensor Signal	I	-
5	0.5	VT/D-BU	5294	Powertrain Main Relay Fused Supply 5	I	-
6	0.5	L-GN/WH	492	Mass Air Flow Sensor Signal	I	-
7	0.75	BK/WH	451	Signal Ground	I	-
8	0.5	GY/D-BU	7564	Humidity Sensor Signal	I	-

B75C MULTIFUNCTION INTAKE AIR SENSOR (LV3)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13774439
- Service Connector: 13583440
- Description: 8-Way F 0.64 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

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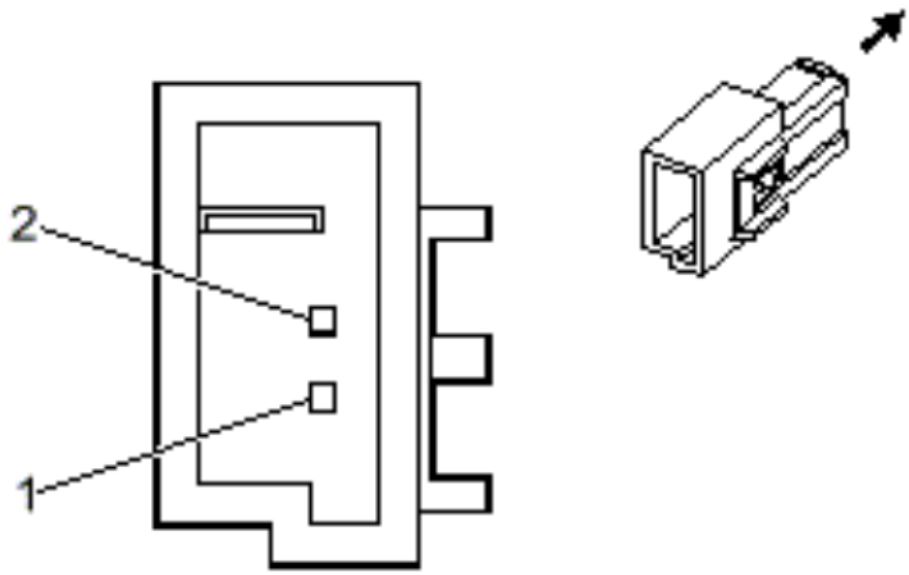
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/D-BU	6289	Induction Air Temperature Sensor Signal	I	-
2	0.5	WH/RD	3201	Throttle Inlet Absolute Pressure Sensor 5V Reference	I	-
3	0.5	WH/YE	3202	Throttle Inlet Absolute Pressure Sensor Low Reference	I	-
4	0.5	YE/WH	3200	Throttle Inlet Absolute Pressure Sensor Signal	I	-
5	0.5	VT/D-BU	5294	Powertrain Main Relay Fused Supply 5	I	-
6	0.5	L-GN/WH	492	Mass Air Flow Sensor Signal	I	-
7	0.75	BK/WH	451	Signal Ground	I	-
8	0.5	GY/D-BU	7564	Humidity Sensor Signal	I	-

B77LF RADIO VOLUME COMPENSATOR INTERIOR NOISE MICROPHONE - LEFT FRONT



Connector Part Information

- Harness Type: Headliner
- OEM Connector: 13676029
- Service Connector: 19260825
- Description: 2-Way M 0.64 Series (BK)

Terminal Part Information

Terminal	Terminated	Diagnostic	Terminal	Service	Tray	Core	Insulation

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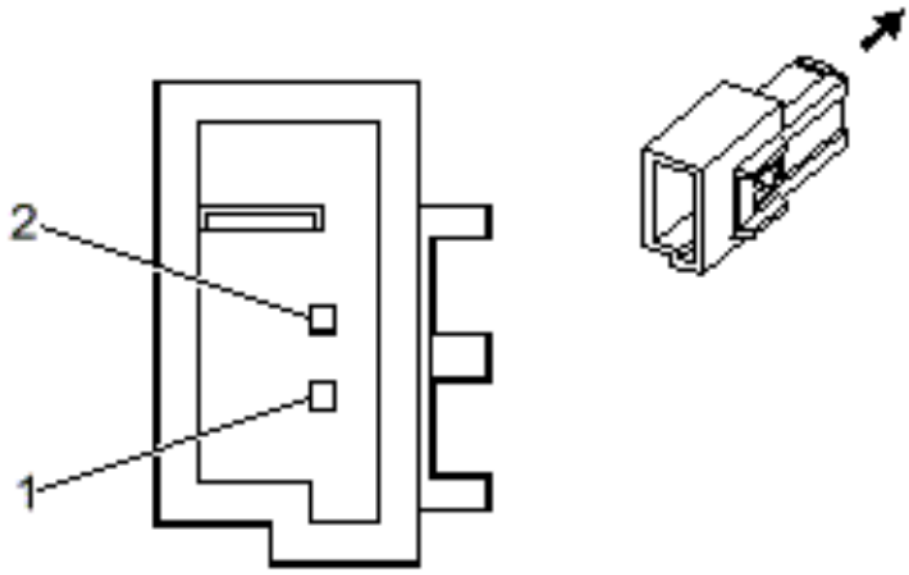
Type ID	Lead	Test Probe	Removal Tool	Terminal	Name	Crimp	Crimp
I	Not Required	J-35616-65B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	L-GN/BK	3008	Noise Reduction Microphone 1 Low Reference	I	-
2	0.35	L-GN/WH	3005	Noise Reduction Microphone 1 Signal	I	-

B77R RADIO VOLUME COMPENSATOR INTERIOR NOISE MICROPHONE - REAR



Connector Part Information

- Harness Type: Headliner
- OEM Connector: 13676029
- Service Connector: 19260825
- Description: 2-Way M 0.64 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-65B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

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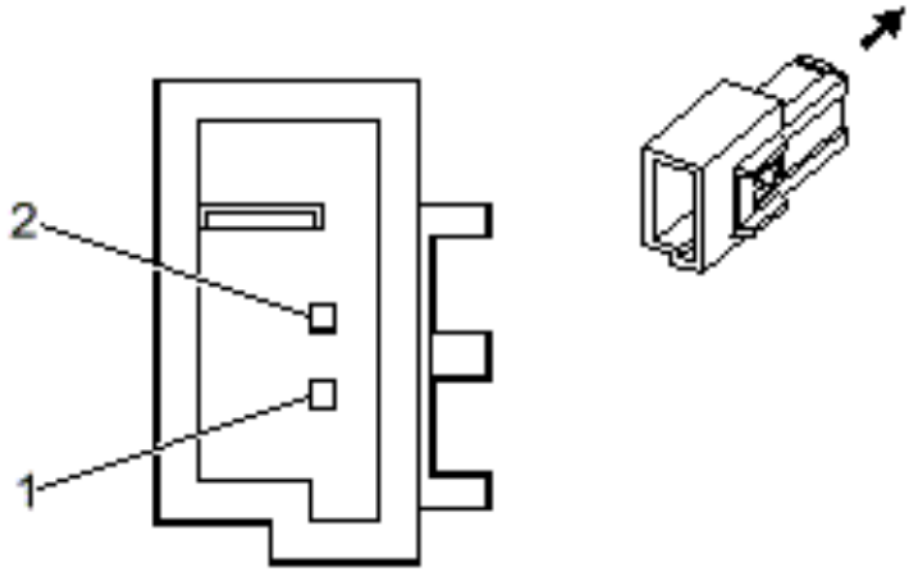
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY/BN	3010	Noise Reduction Microphone 3 Low Reference	I	-
2	0.35	GY/D-BU	3007	Noise Reduction Microphone 3 Signal	I	-

B77RF RADIO VOLUME COMPENSATOR INTERIOR NOISE MICROPHONE - RIGHT FRONT



Connector Part Information

- Harness Type: Headliner
- OEM Connector: 13676029
- Service Connector: 19260825
- Description: 2-Way M 0.64 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-65B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	D-BU/BK	3009	Noise Reduction Microphone 2 Low Reference	I	-

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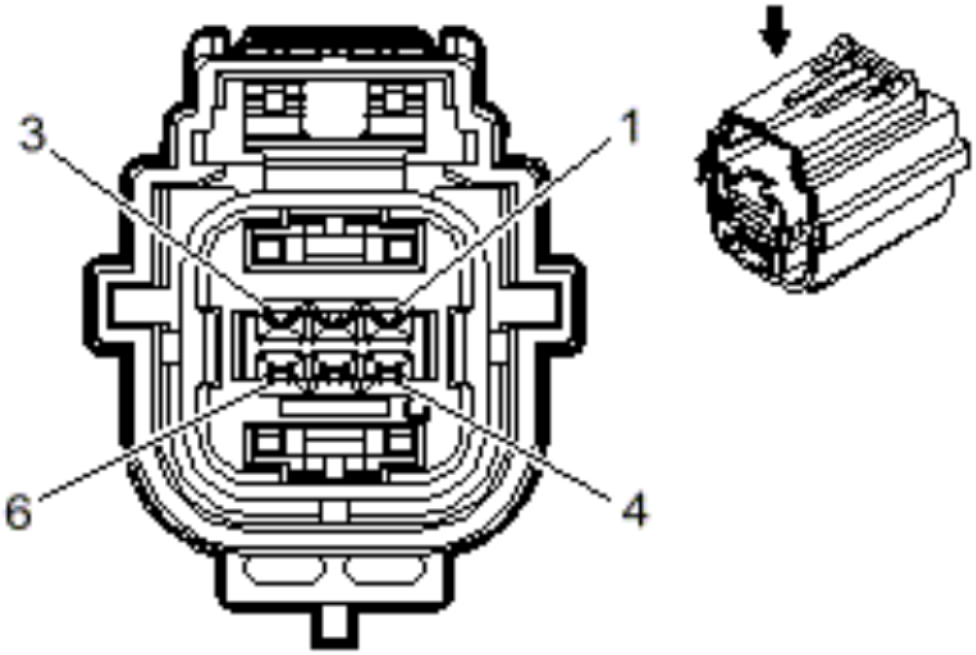
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
2	0.35	D-BU/YE	3006	Noise Reduction Microphone 2 Signal	I	-

B87 REARVIEW CAMERA



Connector Part Information

- Harness Type: Tailgate
- OEM Connector: 19169088
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way F 0.64 Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY/YE	6972	Camera Signal 2 +	I	-
2	0.35	BN	6974	Camera Low Reference	I	-
3	0.35	GN/WH	24	Backup Lamp Control	I	-
4	0.35	WH/BU	6973	Camera Signal 2	I	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
5	0.35	BK	2550	Ground	I	-
6	0.35	VT/GN	1739	Run/Crank Ignition 1 Voltage	I	-

B99 STEERING WHEEL ANGLE SENSOR

-

Connector Part Information

- Harness Type: Steering Column
- OEM Connector: 1241370
- Service Connector: Service by Harness - See Part Catalog
- Description: 8-Way

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH	6106	High Speed GMLAN Serial Data (-) 2	I	-
2	0.5	WH	6106	High Speed GMLAN Serial Data (-) 2	I	-
3	0.5	BU/YE	6105	High Speed GMLAN Serial Data (+) 2	I	-
4	0.5	BU/YE	6105	High Speed GMLAN Serial Data (+) 2	I	-
5	0.35	GN/BN	2087	Combined Vehicle Inertial Sensor Supply Voltage	I	-
6	0.5	BK/WH	1851	Signal Ground	I	-
9	0.5	BU/YE	6105	High Speed GMLAN Serial Data (+) 2	I	-
10	0.5	WH	6106	High Speed GMLAN Serial Data (-) 2	I	-

B78E REAR OBJECT SENSOR - LEFT MIDDLE

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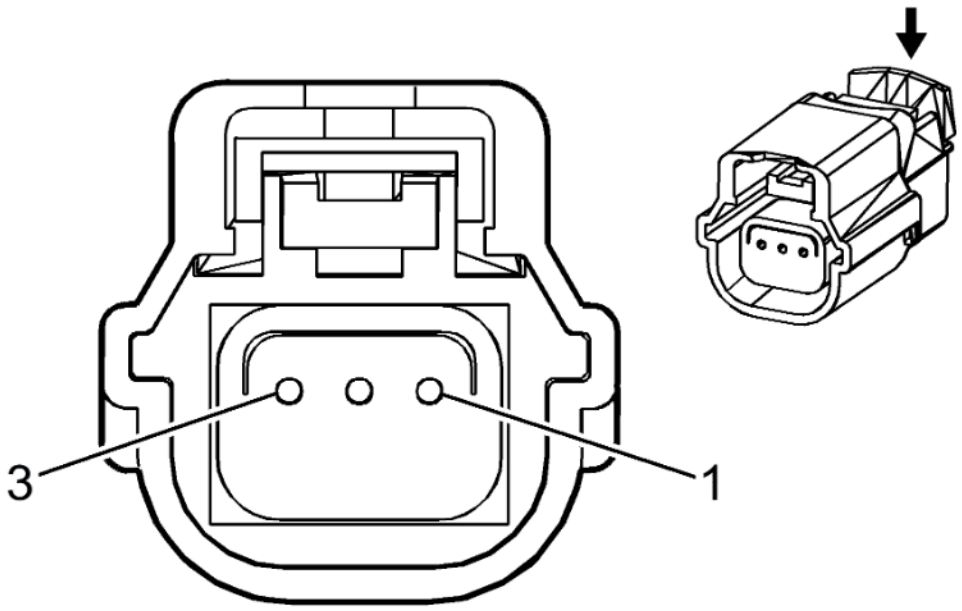

Connector Part Information

- Harness Type: Rear Bumper
- OEM Connector: 13512481
- Service Connector: Service by Harness - See Part Catalog
- Description: 3-Way F 0.64 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN/WH	2374	Object Sensor Control	I	-
2	0.5	YE/D-BU	2376	Left Rear Middle Object Sensor Signal	I	-
3	0.5	BK/GY	2379	Object Sensor Low Reference	I	-

B306G PARKING ASSIST SENSOR - REAR RIGHT MIDDLE

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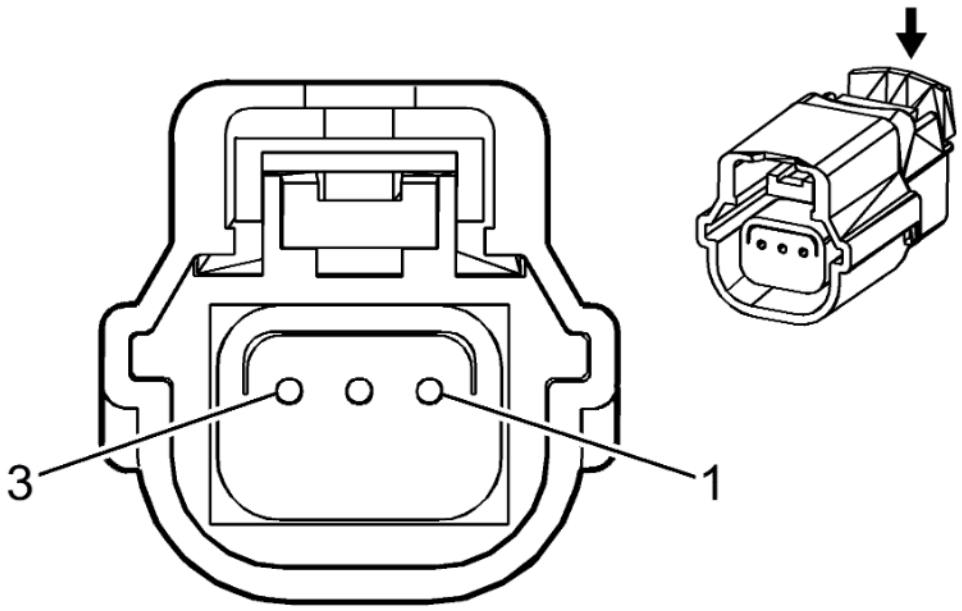

Connector Part Information

- Harness Type: Rear Bumper
- OEM Connector: 13512481
- Service Connector: Service by Harness - See Part Catalog
- Description: 3-Way F 0.64 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN/WH	2374	Object Sensor Control	I	-
2	0.5	YE/WH	2377	Right Rear Middle Object Sensor Signal	I	-
3	0.5	BK/GY	2379	Object Sensor Low Reference	I	-

B78G REAR OBJECT SENSOR - LEFT OUTER

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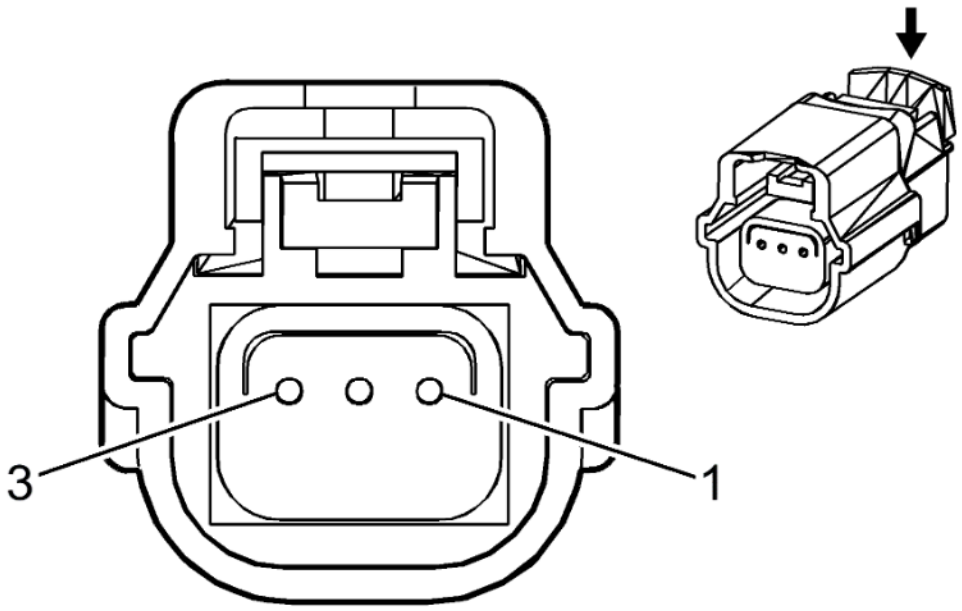

Connector Part Information

- Harness Type: Rear Bumper
- OEM Connector: 13512481
- Service Connector: Service by Harness - See Part Catalog
- Description: 3-Way F 0.64 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN/WH	2374	Object Sensor Control	I	-
2	0.5	YE	2375	Left Rear Corner Object Sensor Signal	I	-
3	0.5	BK/GY	2379	Object Sensor Low Reference	I	-

B78H REAR OBJECT SENSOR - RIGHT OUTER

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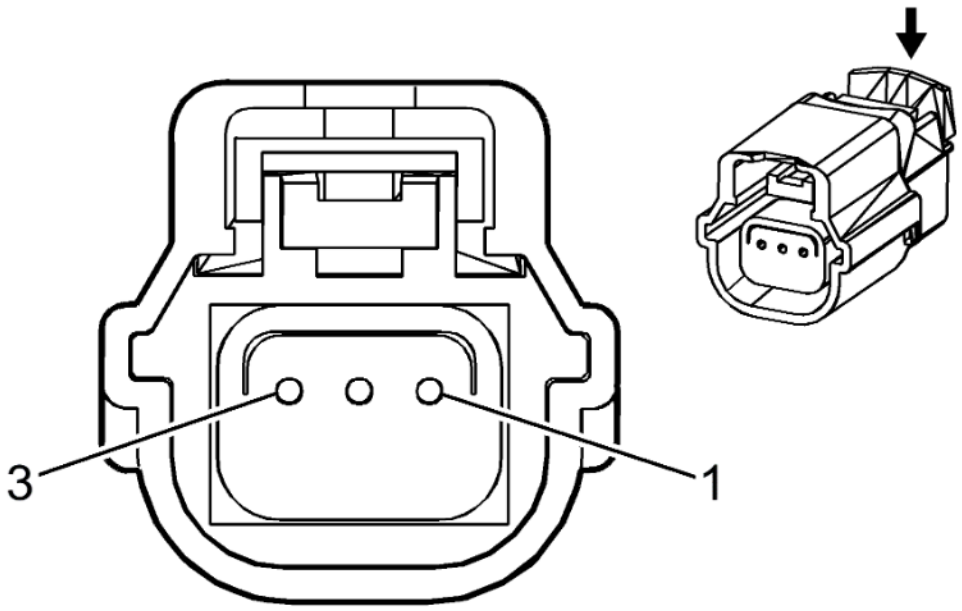

Connector Part Information

- Harness Type: Rear Bumper
- OEM Connector: 13512481
- Service Connector: Service by Harness - See Part Catalog
- Description: 3-Way F 0.64 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN/WH	2374	Object Sensor Control	I	-
2	0.5	YE/VT	2378	Right Rear Corner Object Sensor Signal	I	-
3	0.5	BK/GY	2379	Object Sensor Low Reference	I	-

B80 PARK BRAKE SWITCH

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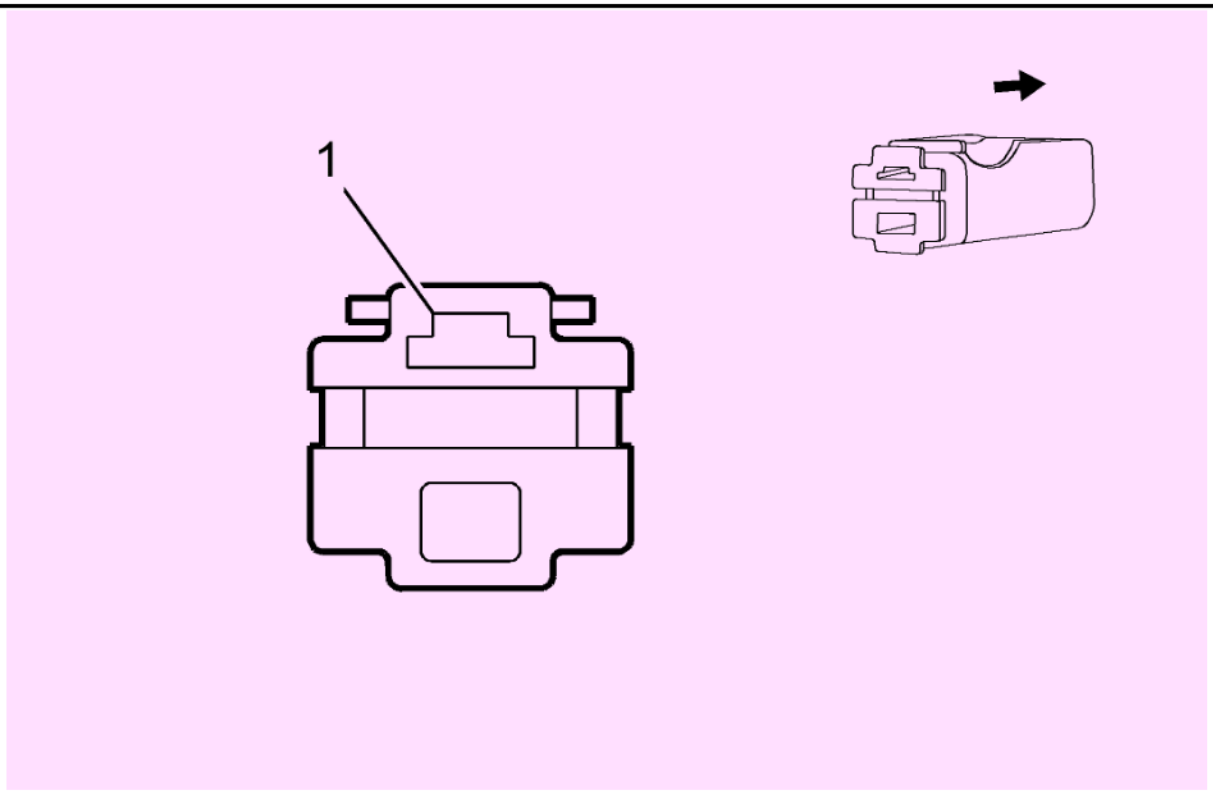

Connector Part Information

- Harness Type: Body
- OEM Connector: 13511619
- Service Connector: 88988465
- Description: 1-Way F 250 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-42 (RD)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	D-BU/VT	1134	Park Brake Switch Signal	I	-

B88D SEAT BELT SWITCH - DRIVER

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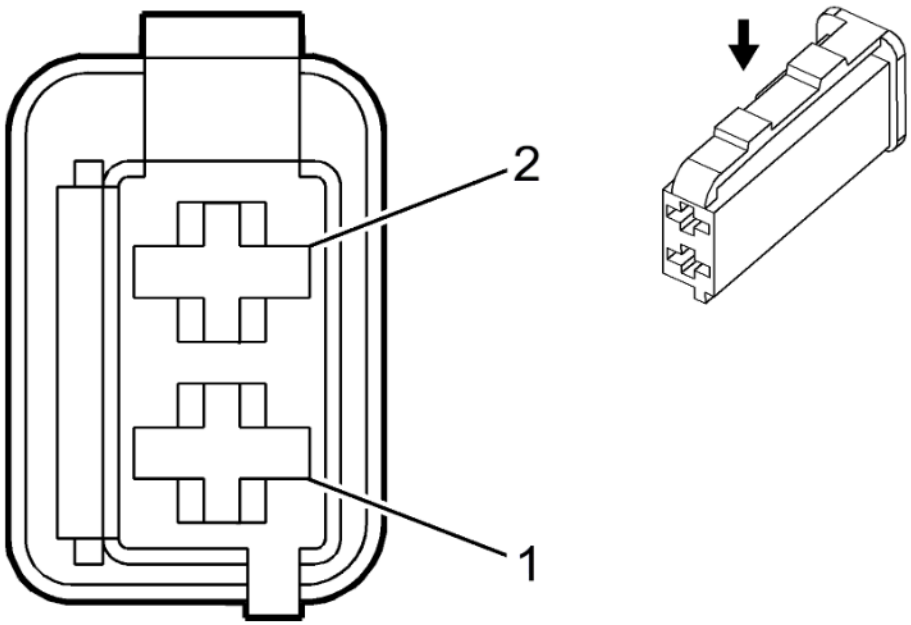

Connector Part Information

- Harness Type: Driver Seat Cushion
- OEM Connector: 1563189-1
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.6 Timer Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK/OG	1363	Driver Seat Belt Switch Low Reference	I	-
2	0.35	OG/BN	238	Driver Seat Belt Switch Signal	I	-

B88P SEAT BELT SWITCH - PASSENGER

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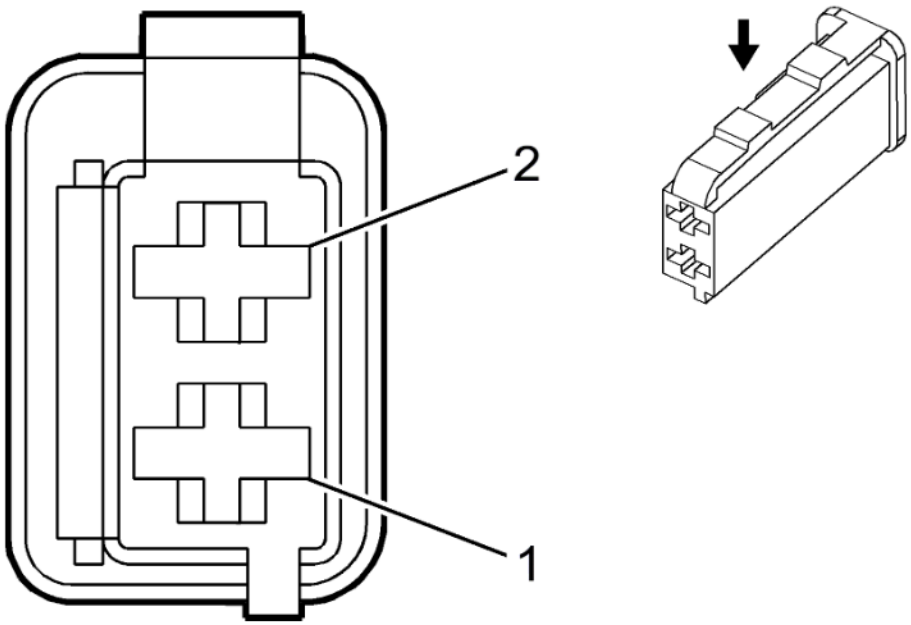

Connector Part Information

- Harness Type: Passenger Seat Cushion
- OEM Connector: 1563189-1
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.6 Timer Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK/OG	1361	Passenger Seat Belt Switch Low Reference	I	-
2	0.35	OG/VT	1362	Passenger Seat Belt Switch Signal	I	-

B107 ACCELERATOR PEDAL POSITION SENSOR (E29)

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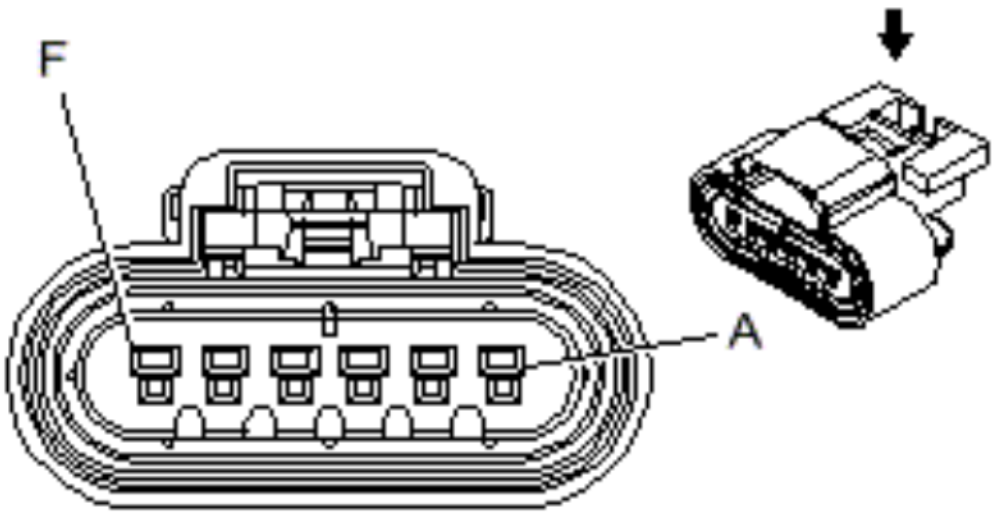

Connector Part Information

- Harness Type: Brake Clutch
- OEM Connector: 15326830
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.35	BK/VT	1272	Accelerator Pedal Position Low Reference 2	I	-
B	0.35	GN/WH	1162	Accelerator Pedal Position Signal 2	I	-
C	0.35	BN/RD	1274	Accelerator Pedal Position 5V Reference 2	I	-
D	0.35	WH/RD	1164	Accelerator Pedal Position 5V Reference 1	I	-
E	0.35	YE/WH	1161	Accelerator Pedal Position Signal 1	I	-

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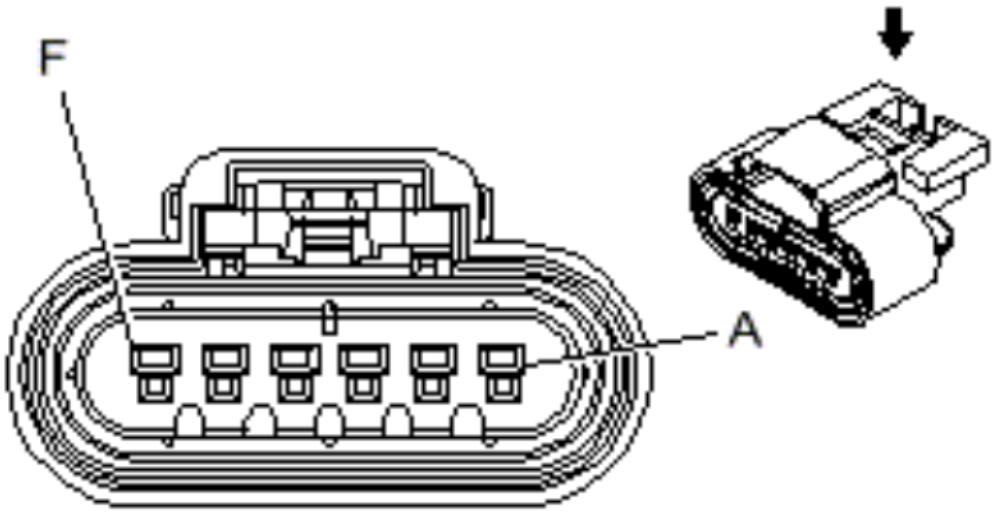
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
F	0.35	BK/BU	1271	Accelerator Pedal Position Low Reference 1	I	-

B107 ACCELERATOR PEDAL POSITION SENSOR (-E29)



Connector Part Information

- Harness Type: Brake Clutch
- OEM Connector: 15326830
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.35	BK/VT	1272	Accelerator Pedal Position Low Reference 2	I	-
B	0.35	GN/WH	1162	Accelerator Pedal Position Signal 2	I	-

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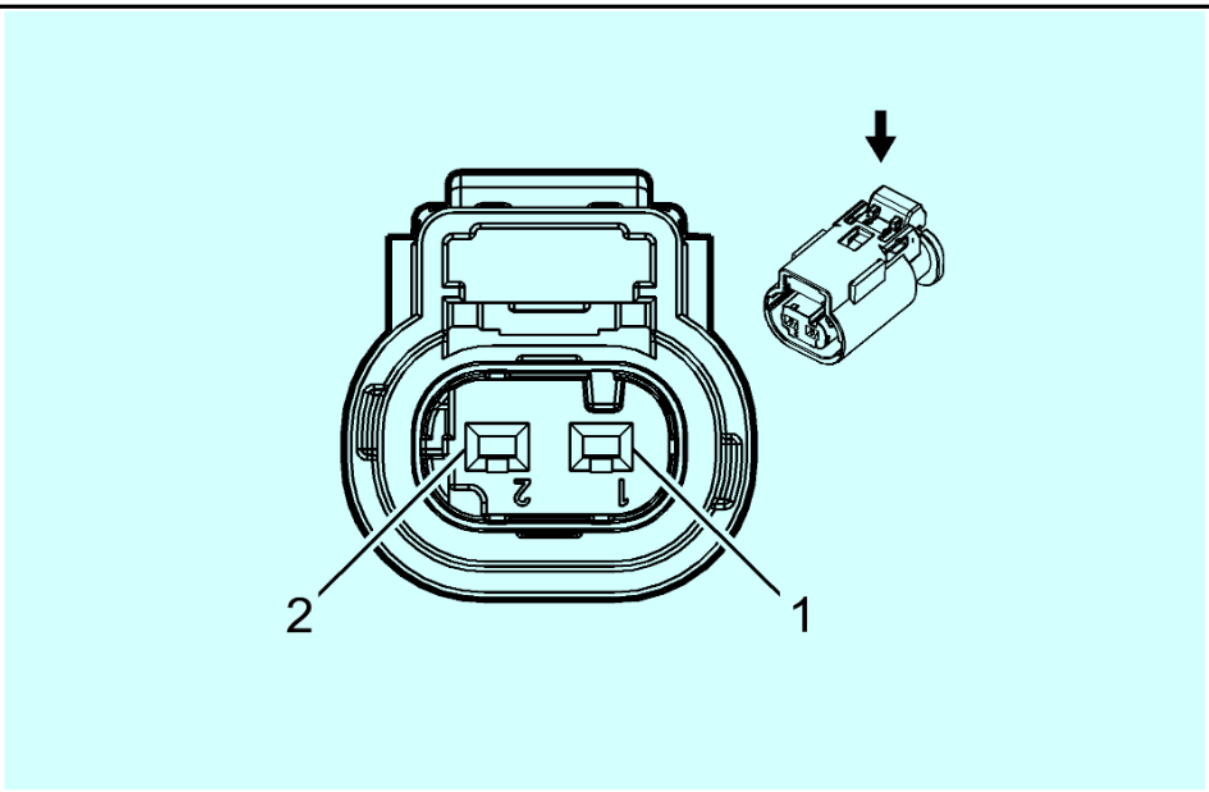
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
C	0.35	BN/RD	1274	Accelerator Pedal Position 5V Reference 2	I	-
D	0.35	WH/RD	1164	Accelerator Pedal Position 5V Reference 1	I	-
E	0.35	YE/WH	1161	Accelerator Pedal Position Signal 1	I	-
F	0.35	BK/BU	1271	Accelerator Pedal Position Low Reference 1	I	-

B115 VEHICLE SPEED SENSOR (L5P+MW7(-NQF/NQG))



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13735326
- Service Connector: 13587326
- Description: 2-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

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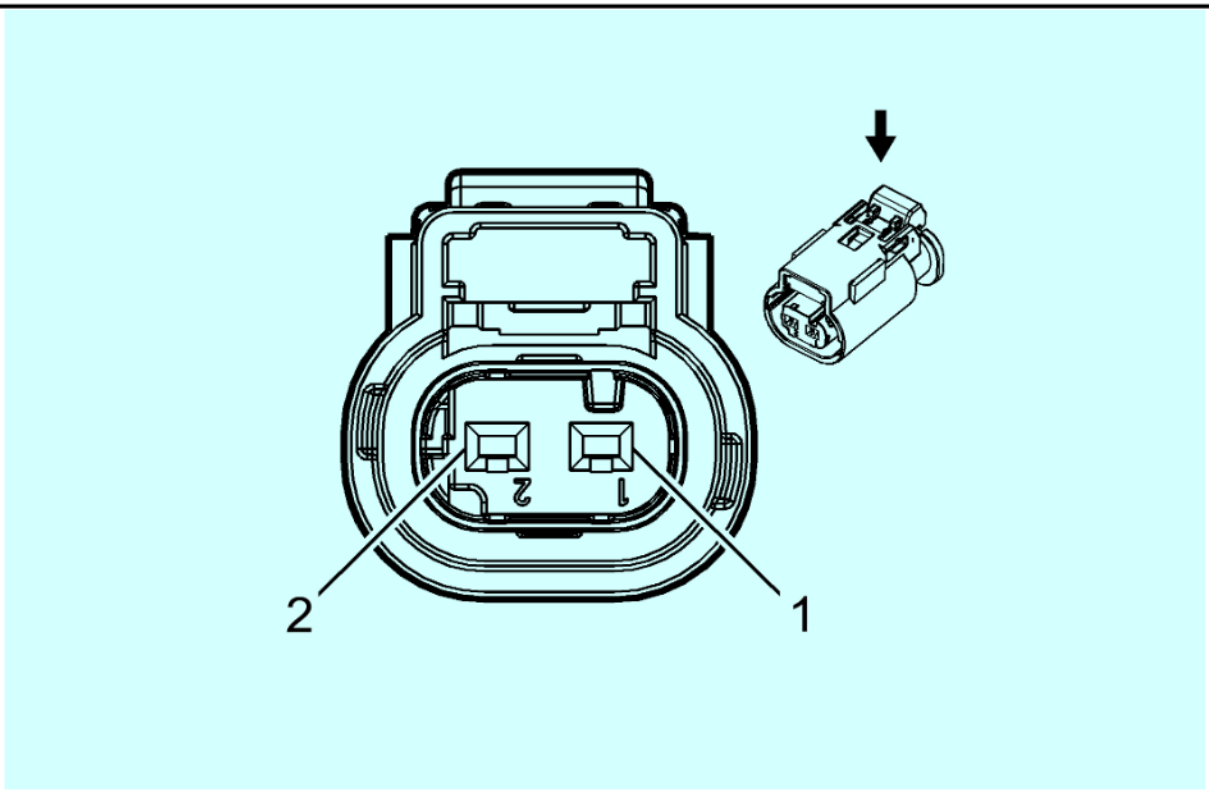
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GY/D-BU	6358	Output Speed Signal	I	-
2	0.75	YE/L-GN	4170	Transmission Position Sensor B 9V Reference	I	-

B115 VEHICLE SPEED SENSOR (L5P+NQF+MW7)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13735326
- Service Connector: 13587326
- Description: 2-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/D-BU	6358	Output Speed Signal	I	-
2	0.5	YE/L-GN	4170	Transmission Position Sensor B 9V Reference	I	-

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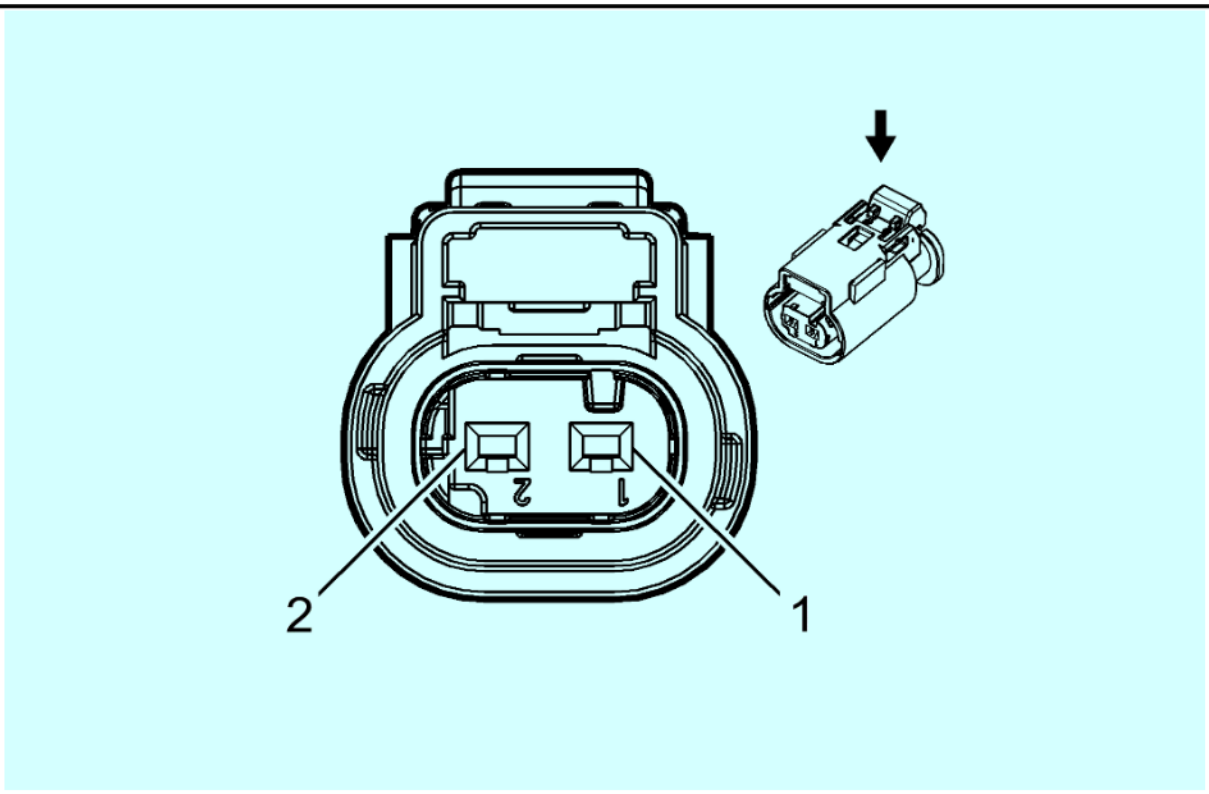
B115 VEHICLE SPEED SENSOR (L5P+NQG+MW7)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13735326
- Service Connector: 13587326
- Description: 2-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/D-BU	6358	Output Speed Signal	I	-
2	0.5	YE/L-GN	4170	Transmission Position Sensor B 9V Reference	I	-

B115 VEHICLE SPEED SENSOR (L83/L86)

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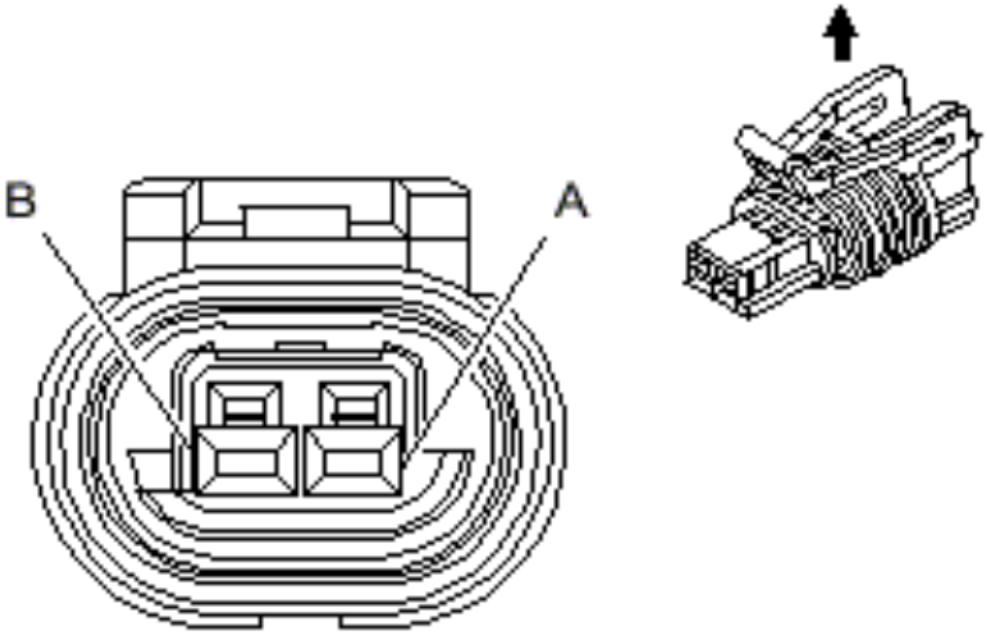

Connector Part Information

- Harness Type: Engine
- OEM Connector: 15449028
- Service Connector: 88987993
- Description: 2-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5 0.5	VT/WH BK/GN	821 822	Vehicle Speed Sensor Signal Vehicle Speed Sensor Low Reference	I I	L83/L86/L8B/L8X /L96/LV1/LV3 L83/L86/L8X
B	0.5 0.5	BK/GN VT/WH	822 821	Vehicle Speed Sensor Low Reference Vehicle Speed Sensor Signal	I I	L83/L86/L8B/L8X /L96/LV1/LV3 L83/L86/L8X

B115 VEHICLE SPEED SENSOR (L8B)

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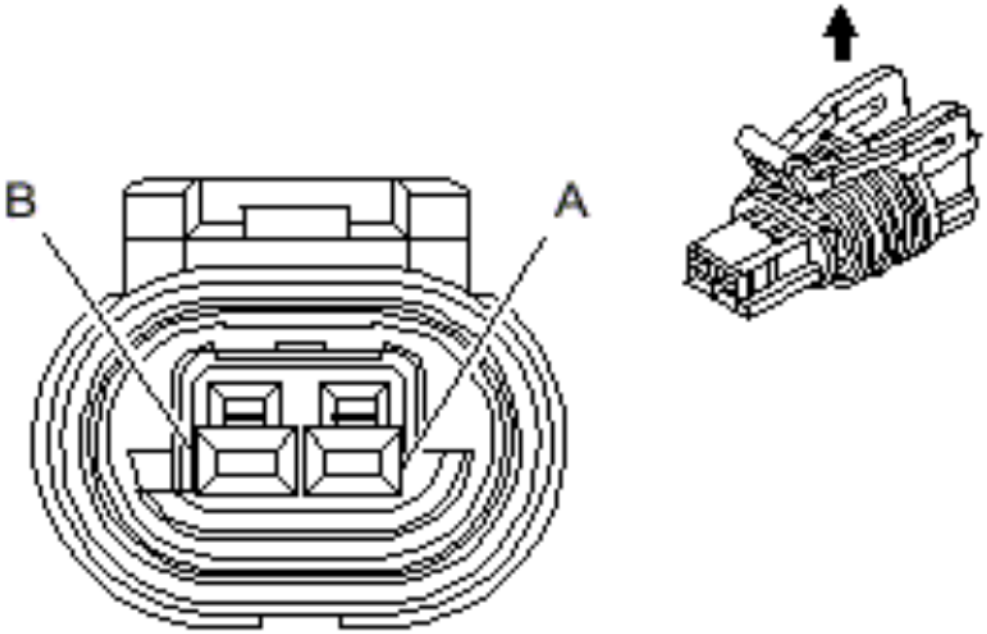

Connector Part Information

- Harness Type: Engine
- OEM Connector: 15449028
- Service Connector: 88987993
- Description: 2-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	VT/WH	821	Vehicle Speed Sensor Signal	I	-
B	0.5	BK/GN	822	Vehicle Speed Sensor Low Reference	I	-

B115 VEHICLE SPEED SENSOR (L96+ZW9)

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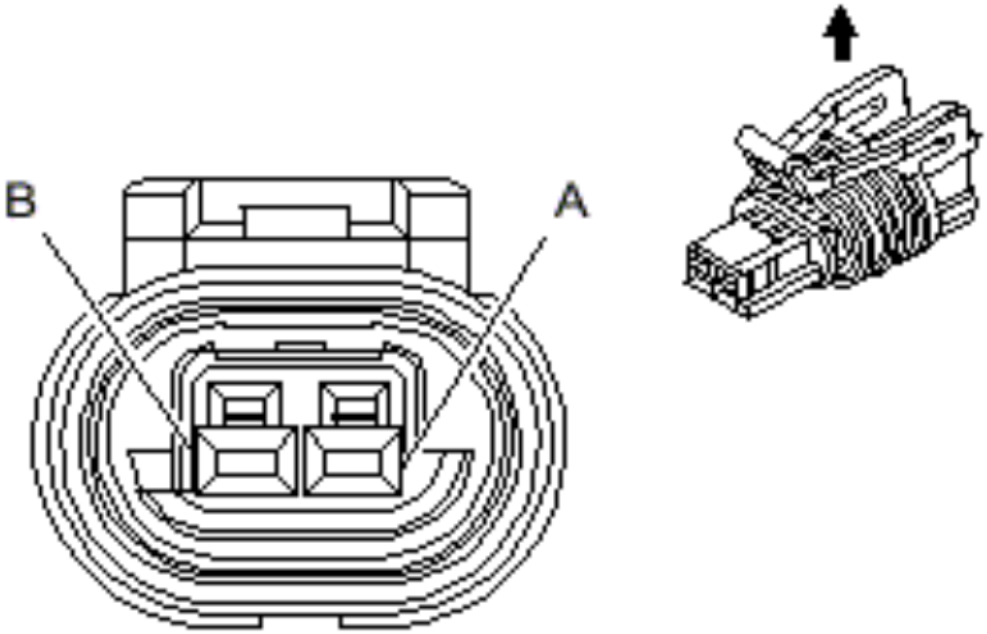

Connector Part Information

- Harness Type: Engine
- OEM Connector: 15449028
- Service Connector: 88987993
- Description: 2-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	VT/WH	821	Vehicle Speed Sensor Signal	I	-
B	0.5	BK/L-GN	822	Vehicle Speed Sensor Low Reference	I	-

B115 VEHICLE SPEED SENSOR (LC8/L96&NQF)

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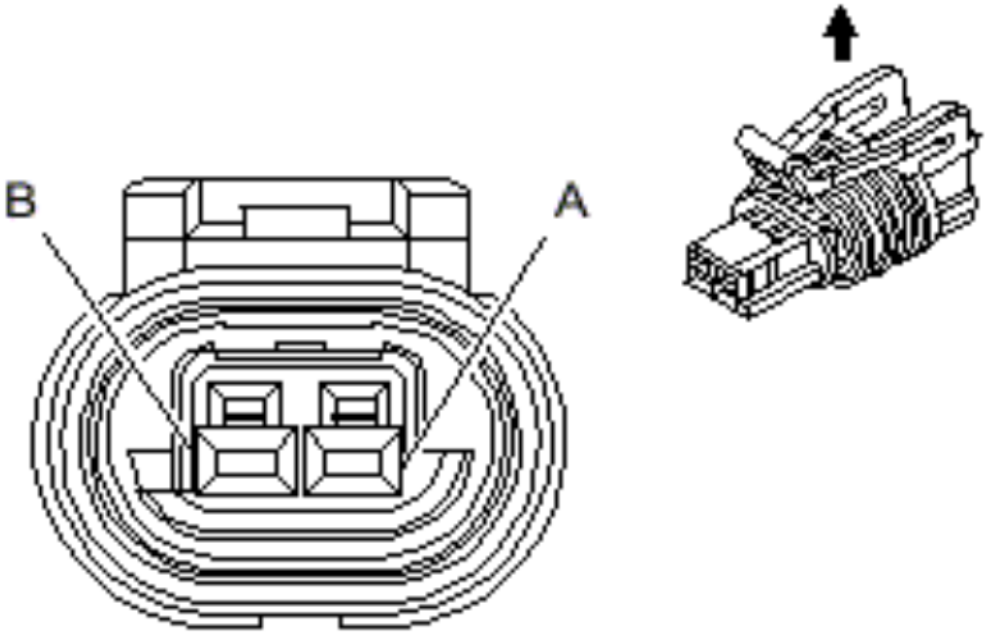

Connector Part Information

- Harness Type: Engine
- OEM Connector: 15449028
- Service Connector: 88987993
- Description: 2-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	VT/WH	821	Vehicle Speed Sensor Signal	I	-
B	0.5	BK/L-GN	822	Vehicle Speed Sensor Low Reference	I	-

B115 VEHICLE SPEED SENSOR (LC8/L96&NQG)

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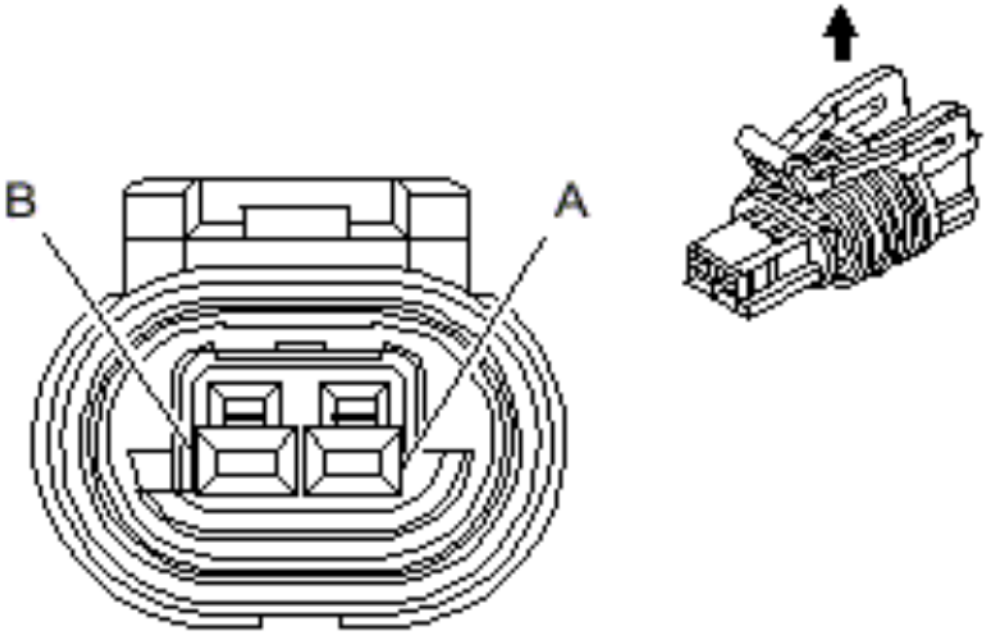

Connector Part Information

- Harness Type: Engine
- OEM Connector: 15449028
- Service Connector: 88987993
- Description: 2-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	VT/WH	821	Vehicle Speed Sensor Signal	I	-
B	0.5	BK/L-GN	822	Vehicle Speed Sensor Low Reference	I	-

B115 VEHICLE SPEED SENSOR (LV3)

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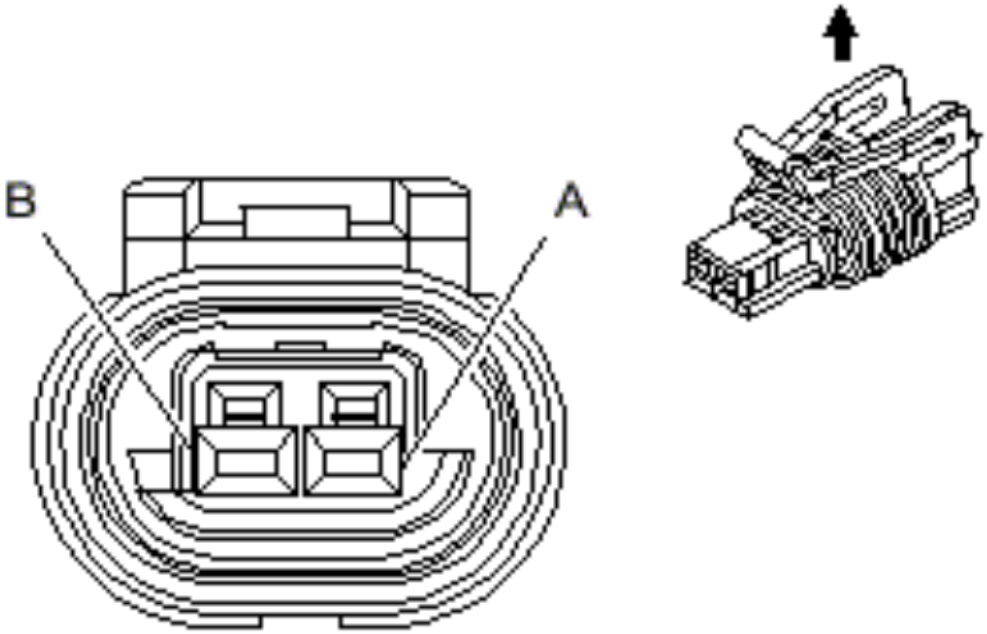

Connector Part Information

- Harness Type: Engine
- OEM Connector: 15449028
- Service Connector: 88987993
- Description: 2-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	VT/WH	821	Vehicle Speed Sensor Signal	I	-
B	0.5	BK/L-GN	822	Vehicle Speed Sensor Low Reference	I	-

B118B WINDSHIELD WASHER FLUID LEVEL SWITCH

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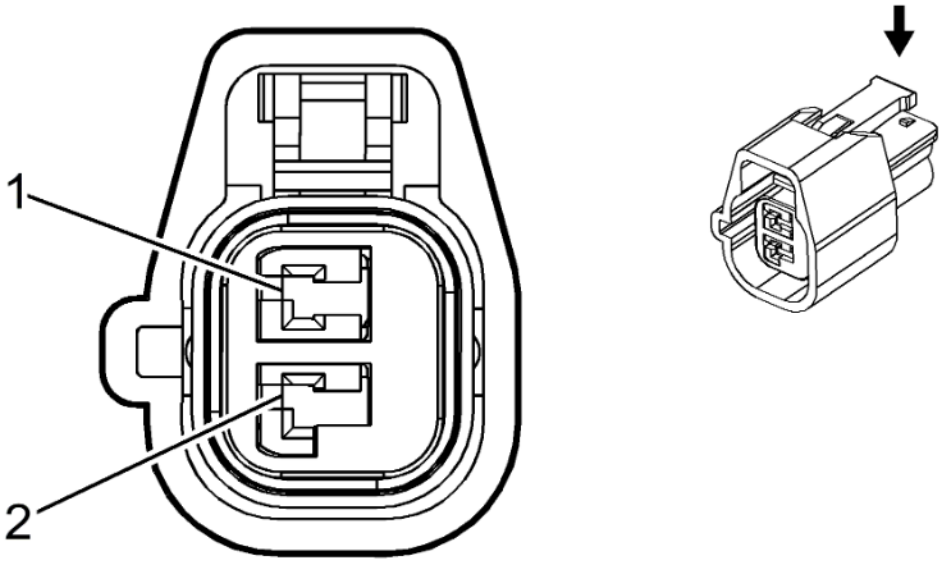

Connector Part Information

- Harness Type: Forward Lamp
- OEM Connector: 33113086
- Service Connector: 13593220
- Description: 2-Way F 1.5 Series (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT	185	Low Washer Fluid Indicator Control	I	-
2	0.5	BK	150	Ground	I	-

B130A EXHAUST GAS RECIRCULATION TEMPERATURE SENSOR 1

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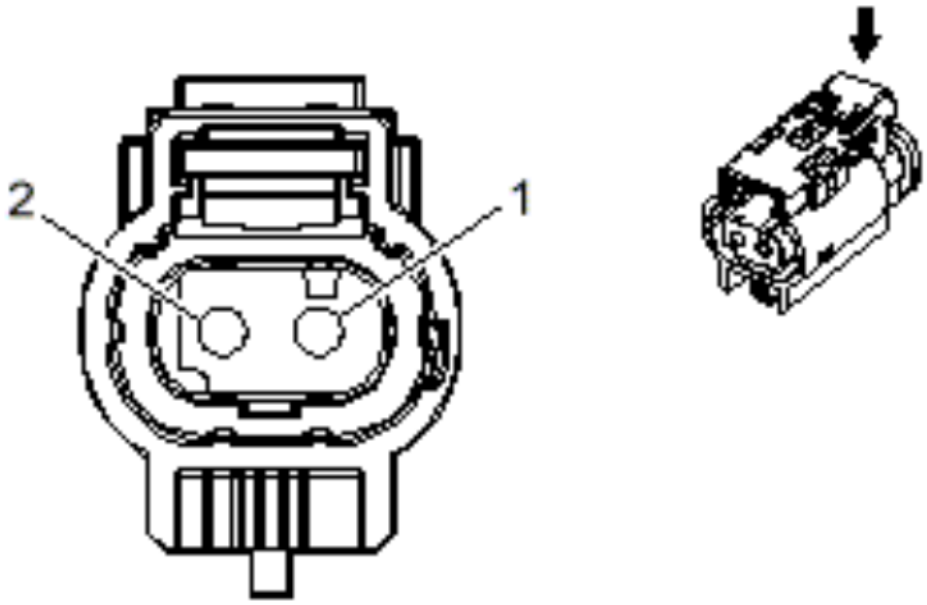


Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 10094237
- Service Connector: 19332628
- Description: 2-Way F 1.2 Multilock Series, Sealed (GY)

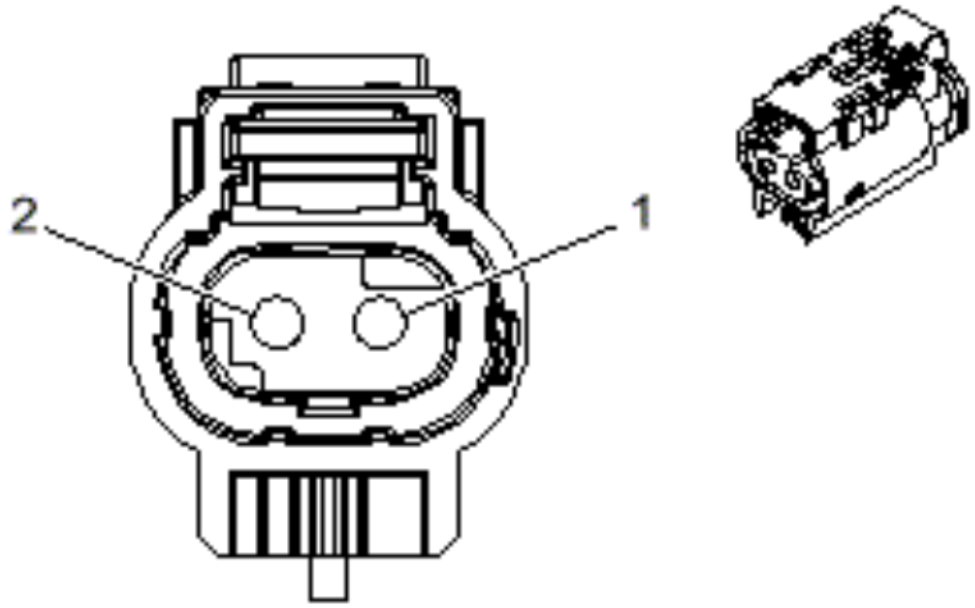
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/BN	3237	Exhaust Gas Recirculation Temperature Sensor Signal	I	L5P
2	0.5	BK/BU	6274	Exhaust Gas Recirculation Temperature Sensor Low Reference	I	L5P

B130B EXHAUST GAS RECIRCULATION TEMPERATURE SENSOR 2

cardiagn.com



Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 10094241
- Service Connector: 19354079
- Description: 5-Way F 1.2 Multilock Series, Sealed

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/GN	3236	Exhaust Gas Recirculation Temperature Sensor 2 Signal	I	L5P
2	0.5	BK/YE	6275	Exhaust Gas Recirculation Temperature Sensor 2 Low Reference	I	L5P

B131A EXHAUST TEMPERATURE SENSOR 1

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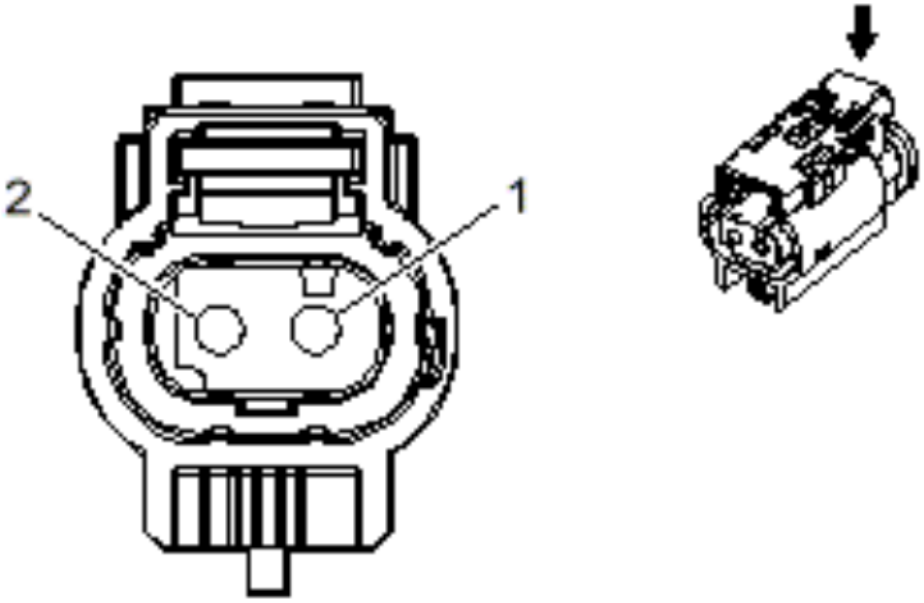

Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 10094234
- Service Connector: 19332719
- Description: 2-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU/WH	5277	Exhaust Gas Temperature Sensor 1	I	L5P
2	0.5	BK/BN	6782	Exhaust Gas Temperature Sensor 1 Low Reference	I	L5P

B131B EXHAUST TEMPERATURE SENSOR 2

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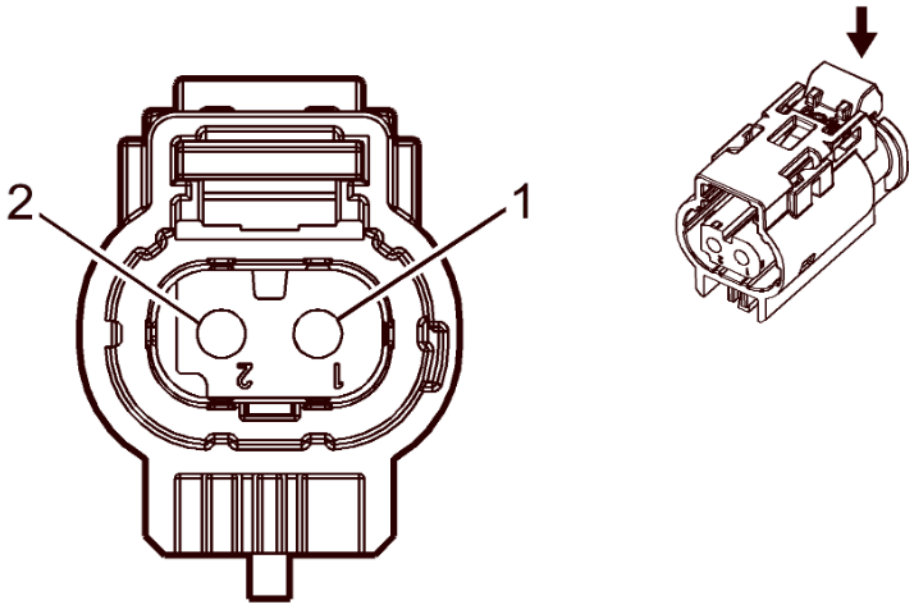

Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 10094236
- Service Connector: 19332627
- Description: 2-Way F 1.2 Multilock Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU/GN	5377	Exhaust Gas Temperature Sensor 2	I	L5P
2	0.5	BK/BU	6783	Exhaust Gas Temperature Sensor 2 Low Reference	I	L5P

B131C EXHAUST TEMPERATURE SENSOR 3

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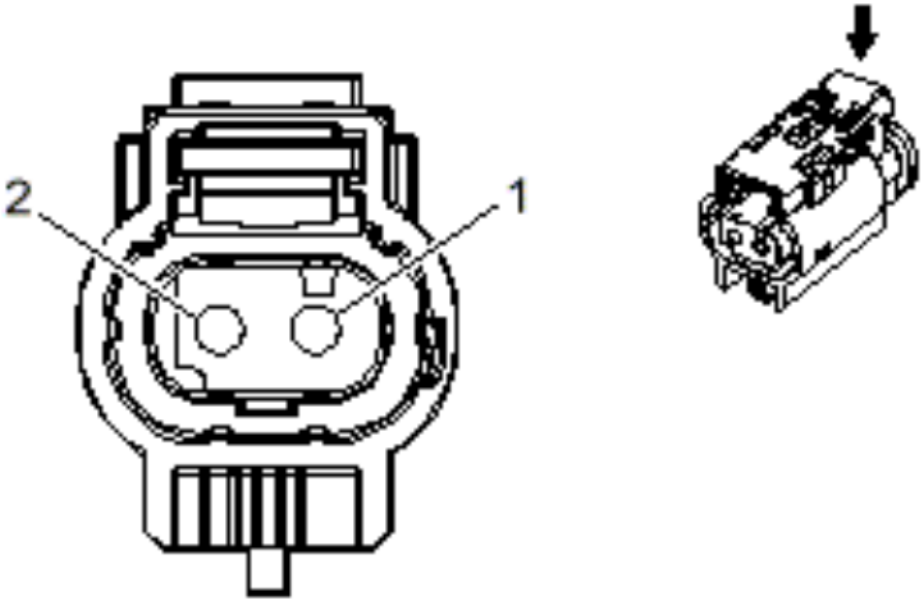

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 33180624
- Service Connector: 19332628
- Description: 2-Way F 1.2 Multilock Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/L-GN	5378	Exhaust Gas Temperature Sensor 3	I	-
2	0.5	BK/L-GN	3657	Exhaust Gas Temperature Sensor 3 Low Reference	I	-

B131D EXHAUST TEMPERATURE SENSOR 4

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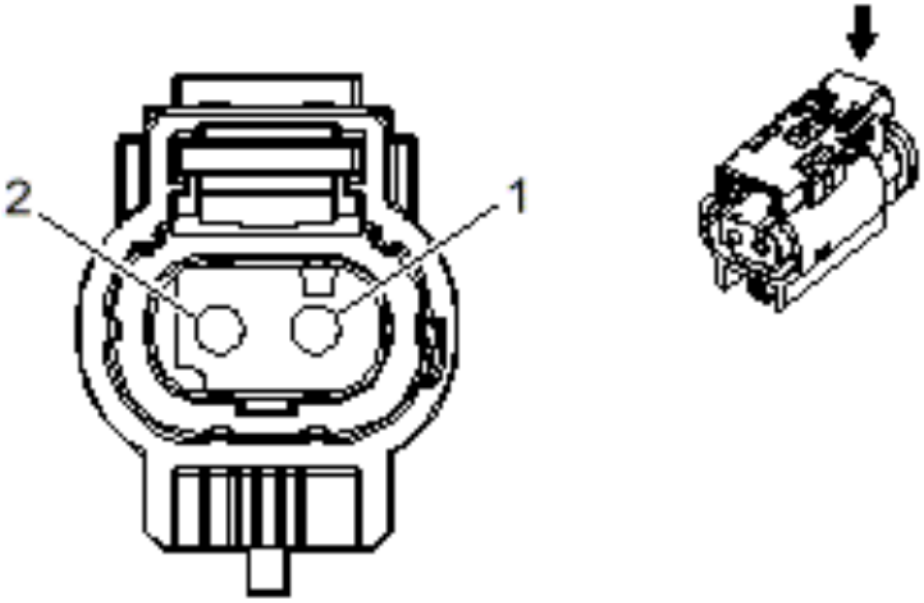

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 33180624
- Service Connector: 19332628
- Description: 2-Way F 1.2 Multilock Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/BN	3658	Exhaust Gas Temperature Sensor 4 Signal	I	-
2	0.5	BK/GY	3659	Exhaust Gas Temperature Sensor 4 Low Reference	I	-

B131E EXHAUST TEMPERATURE SENSOR 5

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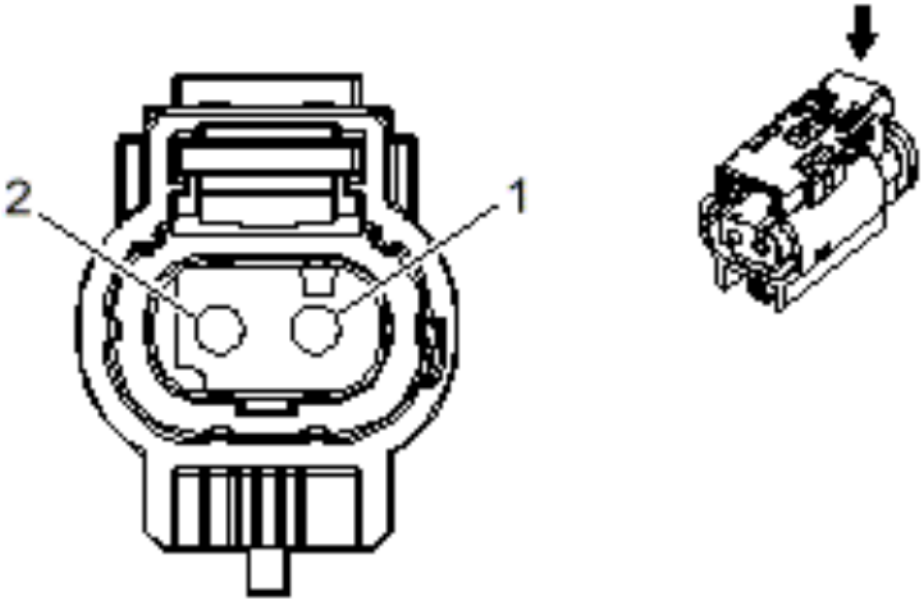

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 33180624
- Service Connector: 19332628
- Description: 2-Way F 1.2 Multilock Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU/GY	3660	Exhaust Gas Temperature Sensor 5 Signal	I	-
2	0.5	BK/VT	3661	Exhaust Gas Temperature Sensor 5 Low Reference	I	-

B136 EXHAUST PARTICULATE MATTER SENSOR

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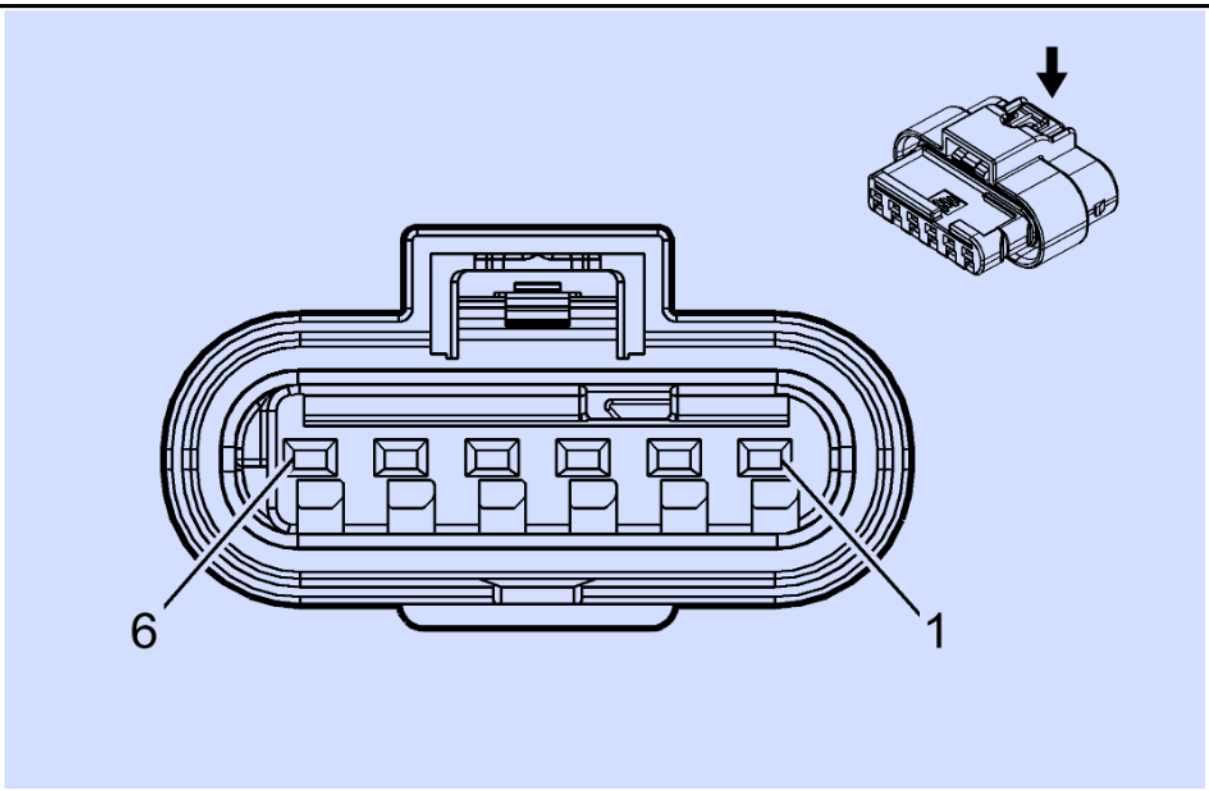

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 15525825
- Service Connector: 19329386
- Description: 6-Way F 1.2 MCON-CB Series, Sealed (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	BK	2150	Ground	I	-
2	0.5	WH	4499	High Speed GMLAN Serial Data (-) 7	I	-
3	0.5	WH	4499	High Speed GMLAN Serial Data (-) 7	I	-
4	0.5	BU/BN	4498	High Speed GMLAN Serial Data (+) 7	I	-
5	0.5	BU/BN	4498	High Speed GMLAN Serial Data (+) 7	I	-
6	1.5	VT/BU	3674	NOx Sensor 1 Control	I	-

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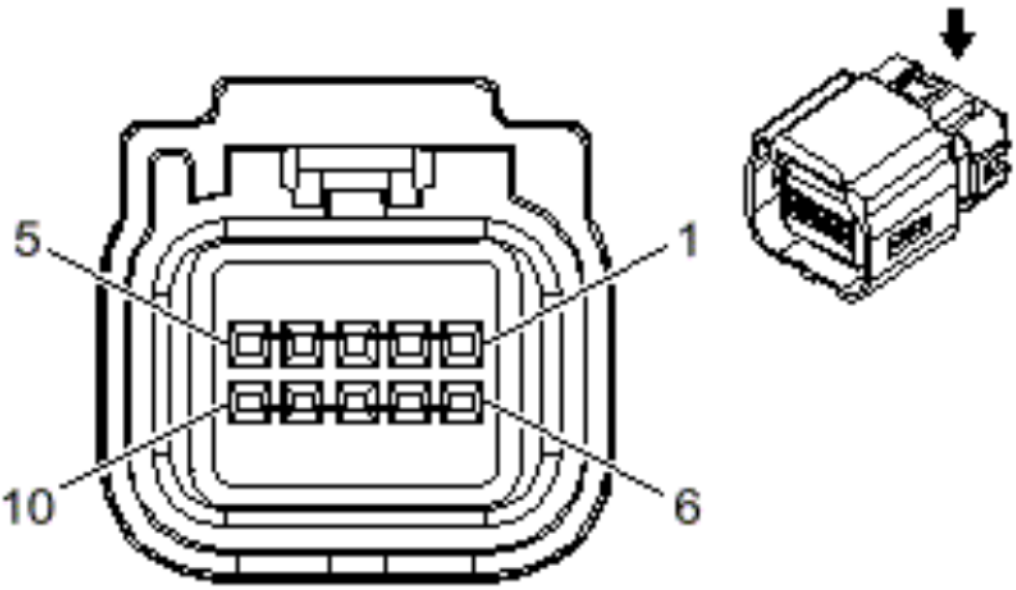
B137B POWER STEERING SHAFT TORQUE/POSITION SENSOR (1500)



Connector Part Information

- Harness Type: Power Steering Jumper
- OEM Connector: 28249221
- Service Connector: Service by Harness - See Part Catalog
- Description: 10-Way F 0.64 Kaizen Series, Sealed (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU/GN	-	TRQ2 PWM Q2	I	-
2	0.5	TN	-	SDA	I	-
3	0.5	RD	-	5-Volt Reference	I	-
4	0.5	BK	-	Low Reference	I	-
5	0.5	WH	-	TRQ1 PWM Q1	I	-
6	0.5	VT	-	SCL	I	-
7	0.5	GN/BU	-	TOR IN 2	I	-
8	-	-	-	Not Occupied	-	-
9	0.5	GN	-	TOR IN 1	I	-

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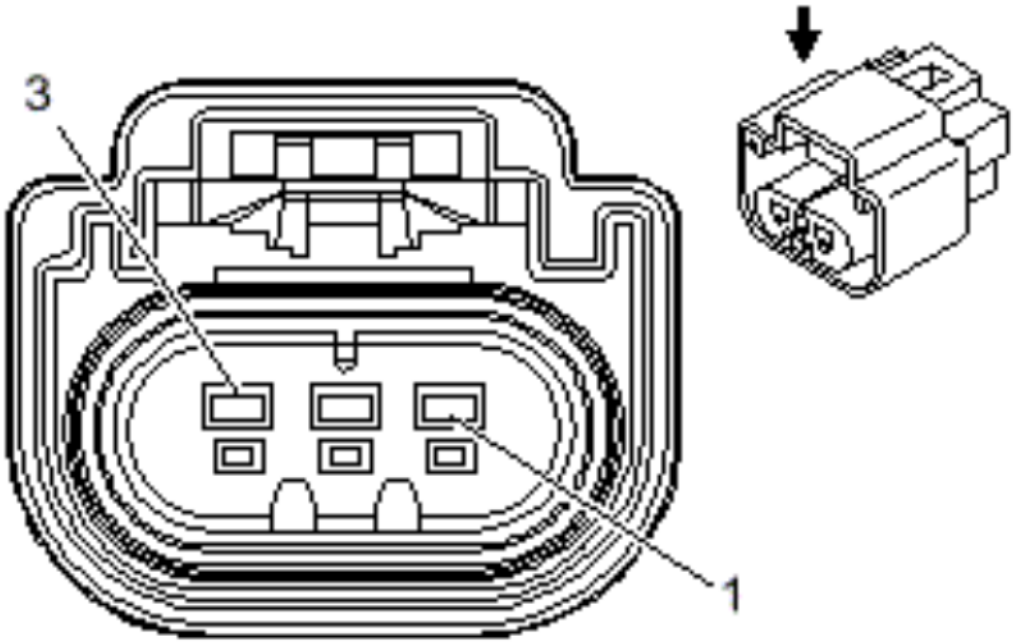
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
10	-	-	-	Not Occupied	-	-

B150 FUEL TANK PRESSURE SENSOR



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13511996
- Service Connector: 13580873
- Description: 3-Way F 150 GT Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	D-BU/WH	890	Fuel Tank Pressure Sensor Signal	I	-
2	0.5	BK/L-GN	6281	Fuel Level Sensor Low Reference	I	-

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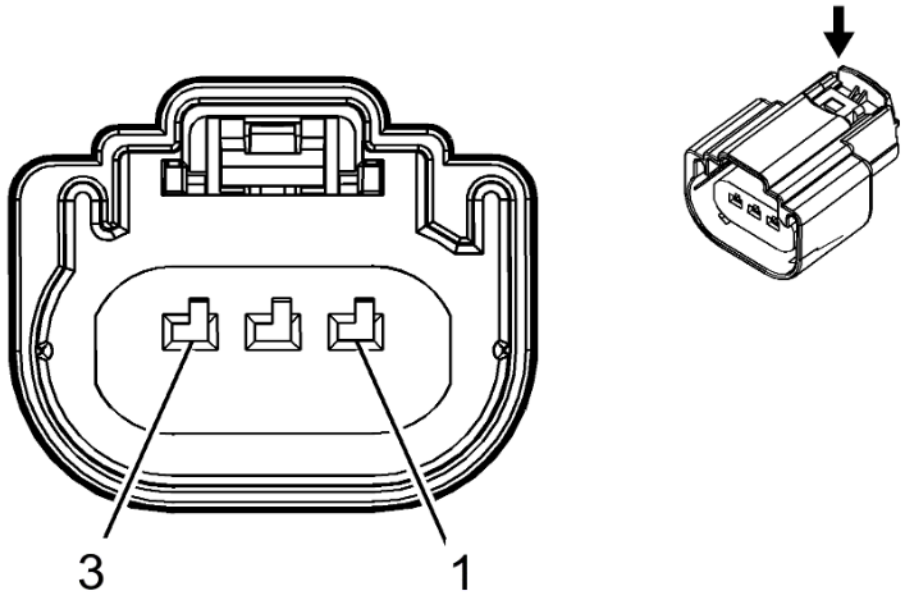
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	0.5	YE/RD	2709	Fuel Tank Pressure Sensor 5V Reference	I	-

B152LF SUSPENSION POSITION SENSOR - LEFT FRONT



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13873527
- Service Connector: 19300594
- Description: 3-Way F 1.5 Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	D-BU/RD	1205	Left Front Strut Position Sensor 5V Reference	I	-
2	0.5	BK/D-BU	1206	Left Front Strut Position Sensor Low Reference	I	-

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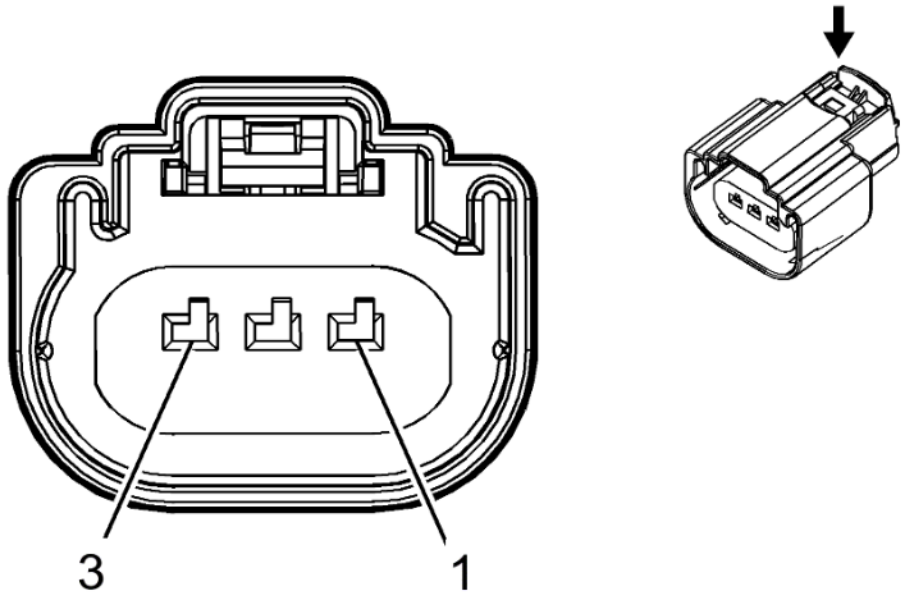
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	0.5	BN/WH	1207	Left Front Strut Position Sensor Signal	I	-

B152LR SUSPENSION POSITION SENSOR - LEFT REAR



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13873527
- Service Connector: 19300594
- Description: 3-Way F 1.5 Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/RD	1208	Left Rear Strut Position Sensor 5V Reference	I	-
2	0.5	BK/L-GN	1209	Left Rear Strut Position Sensor Low Reference	I	-

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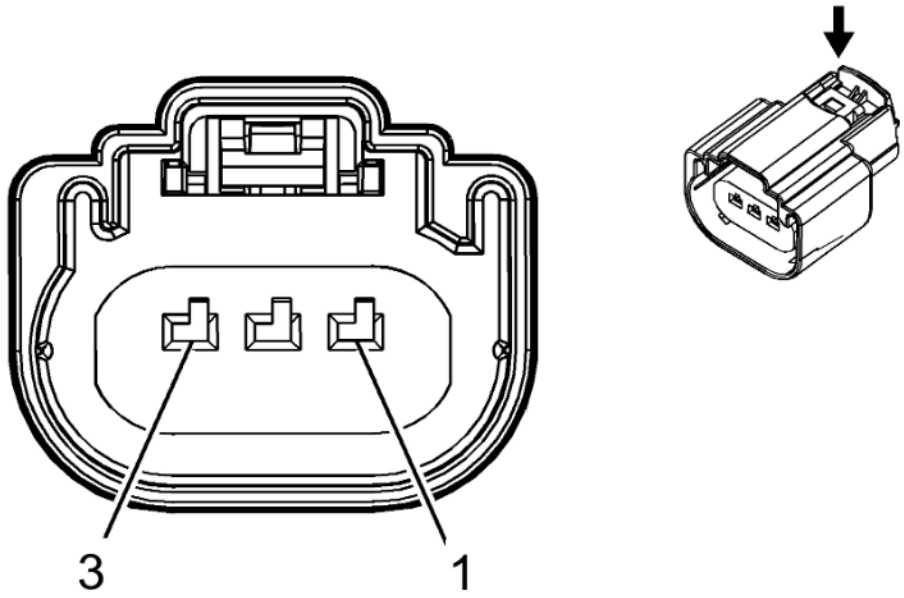
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	0.5	L-GN/WH	1210	Left Rear Strut Position Sensor Signal	I	-

B152RF SUSPENSION POSITION SENSOR - RIGHT FRONT



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13873527
- Service Connector: 19300594
- Description: 3-Way F 1.5 Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN/RD	1211	Right Front Strut Position Sensor 5V Reference	I	-
2	0.5	BK/GY	1212	Right Front Strut Position Sensor Low Reference	I	-

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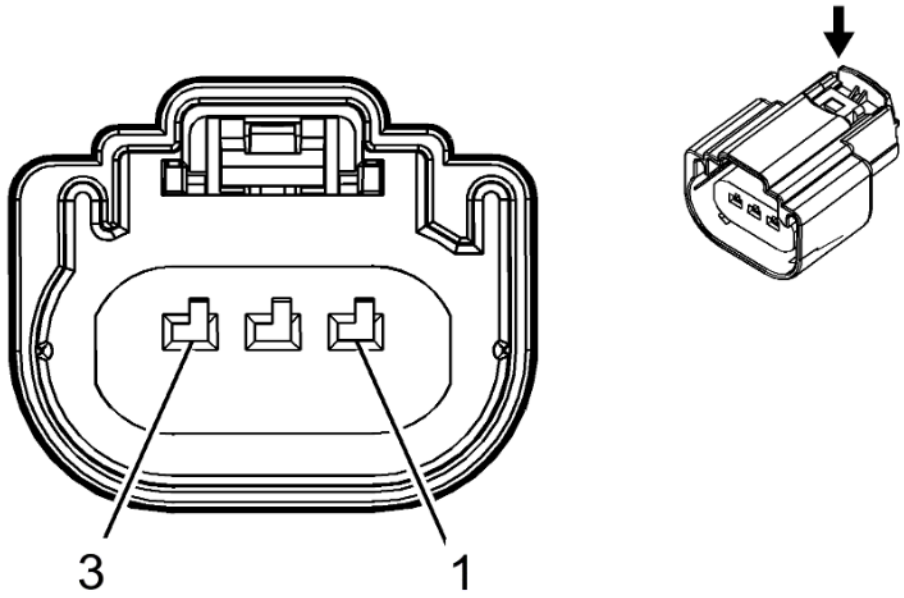
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	0.5	YE/WH	1213	Right Front Strut Position Sensor Signal	I	-

B152RR SUSPENSION POSITION SENSOR - RIGHT REAR



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13873527
- Service Connector: 19300594
- Description: 3-Way F 1.5 Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GN/RD	1214	Right Rear Strut Position Sensor 5V Reference	I	-
2	0.5	BK/YE	1215	Right Rear Strut Position Sensor Low Reference	I	-

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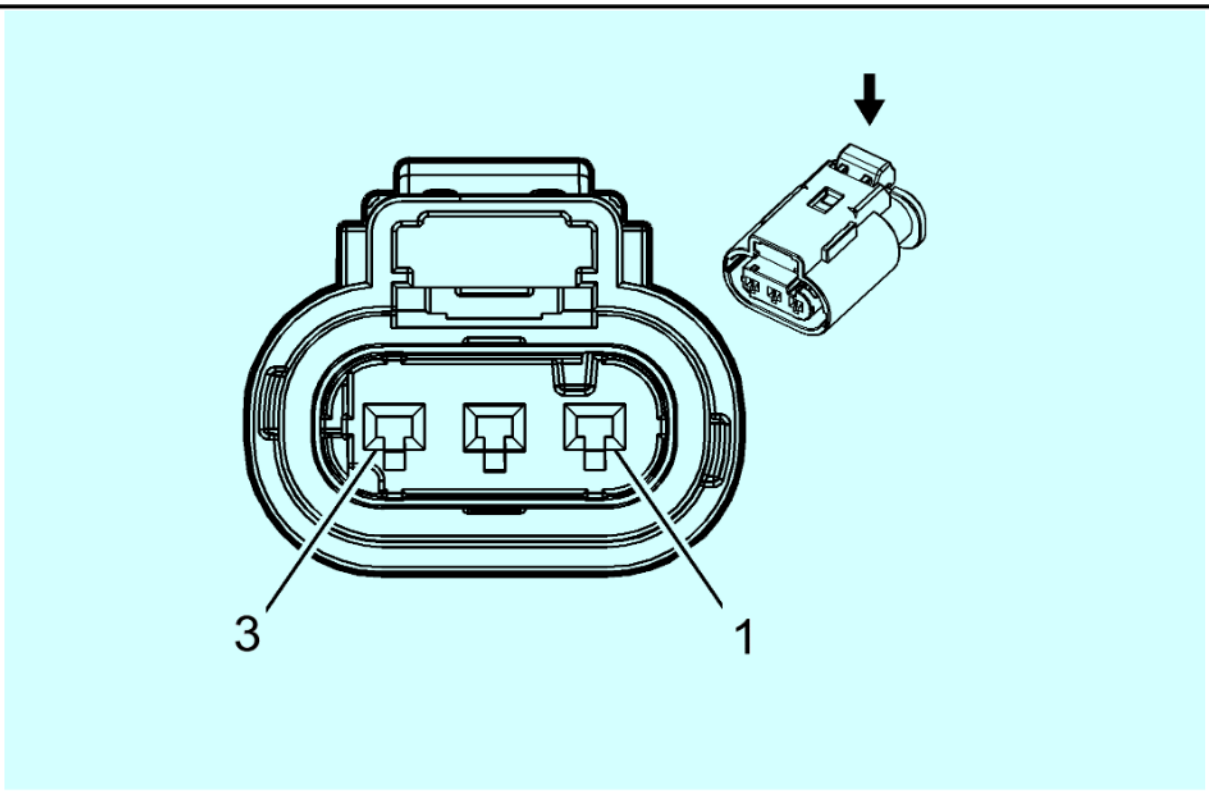
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	0.5	GN/GY	1216	Right Rear Strut Position Sensor Signal	I	-

B154 DIESEL PARTICULATE FILTER EXHAUST DIFFERENTIAL PRESSURE SENSOR



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13763990
- Service Connector: 19299690
- Description: 3-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	D-BU	6053	Exhaust Pressure Sensor Signal 1	I	-
2	0.5	BK/YE	6055	Exhaust Pressure Sensor Low Reference 1	I	-

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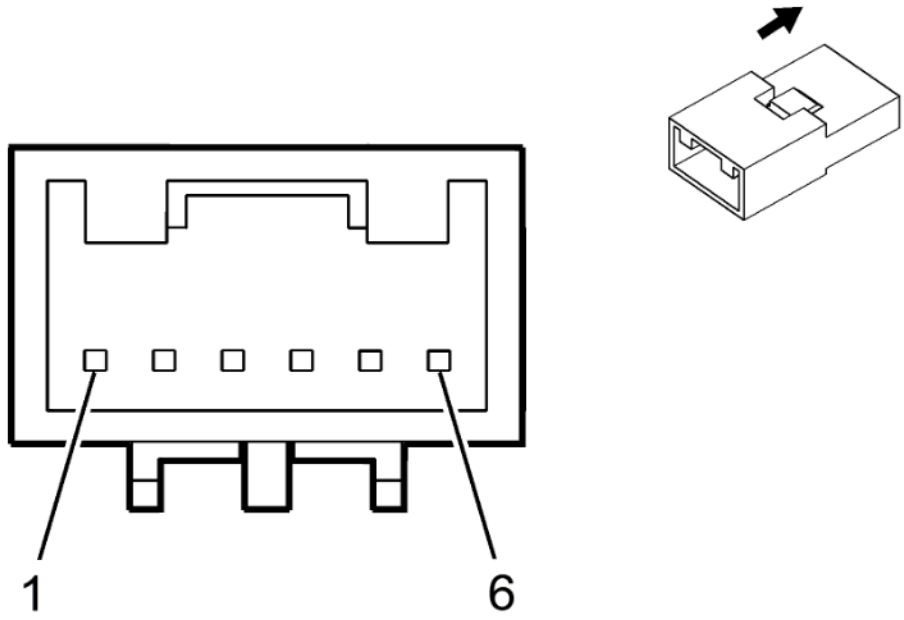
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	0.5	WH/RD	6054	Exhaust Pressure Sensor 5V Reference 1	I	-

B160 WINDSHIELD TEMPERATURE AND INSIDE MOISTURE SENSOR



Connector Part Information

- Harness Type: RH A Pillar
- OEM Connector: 13770074
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way M 0.64 Kaizen Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-65B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE/RD	597	5V Reference	I	-
2	0.35	GY/BU	7564	Humidity Sensor Signal	I	-
3	0.35	BK/BU	7566	Humidity/Windscreen Temp Sensor Low Reference	I	-

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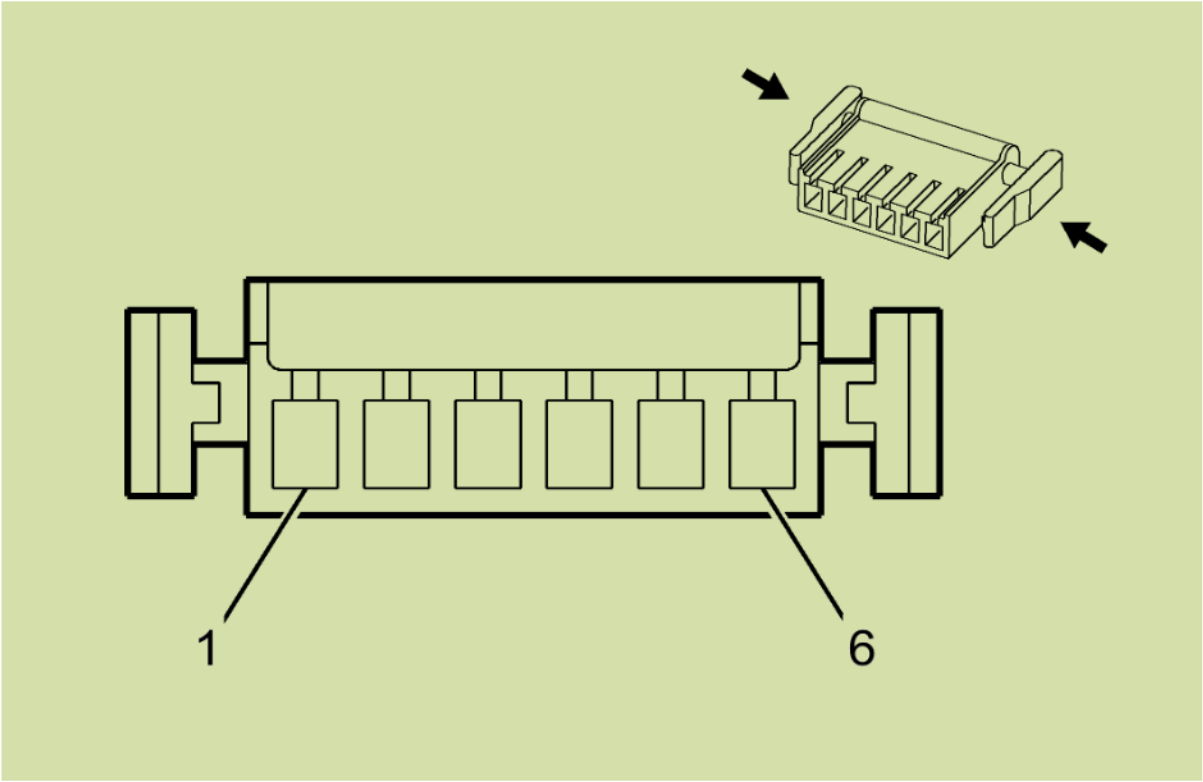
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
4	0.35	GY/GN	7565	Windscreen Temp Sensor Signal	I	-
5	0.35	YE/BU	3197	Humidity Temperature Sensor Signal	I	-
6	-	-	-	Not Occupied	-	-

B165 CONTENT THEFT DETERRENT SENSOR MODULE (UTU/UTV)



Connector Part Information

- Harness Type: Overhead Console
- OEM Connector: 24419225
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way F 0.64 Micro-Quadlock Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	VT/BK	5068	Intrusion Sensor Switch Disable Signal	I	-

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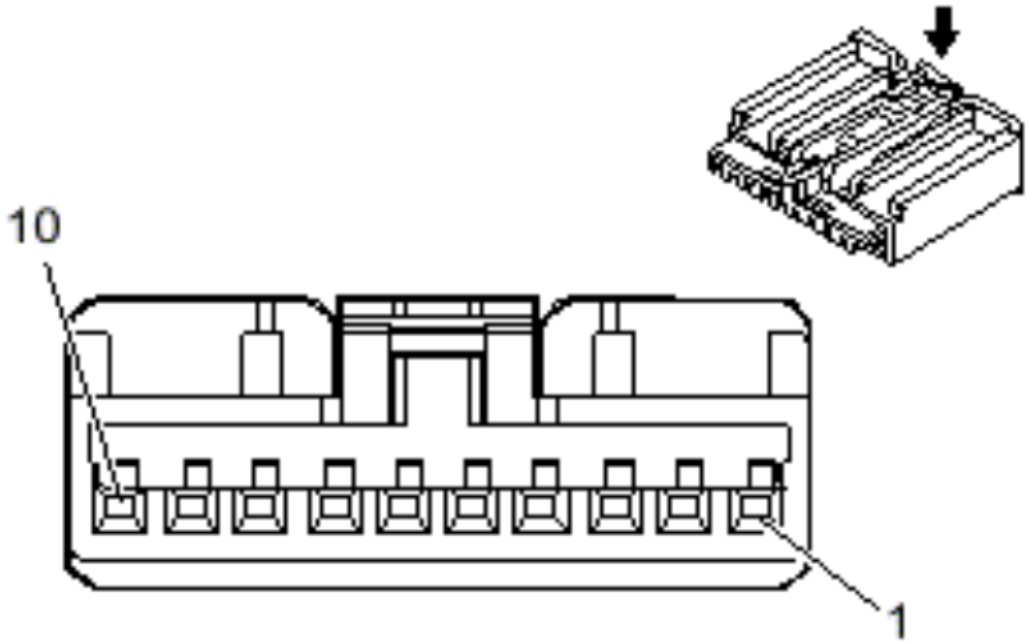
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
2	-	YE/BU	3278	Intrusion Sensor Switch LED Control	I	-
3	-	RD/BU	4540	Battery Positive Voltage	I	-
4	-	GN/BN	6132	Local Interconnect Network Serial Data Bus 1	I	-
5	-	BK	1050	Ground	I	-
6	-	-	-	Not Occupied	-	-

B174W FRONTVIEW CAMERA - WINDSHIELD (UFL)



Connector Part Information

- Harness Type: Headliner
- OEM Connector: 13574592
- Service Connector: 13576634
- Description: 10-Way F 0.64 Kaizen Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	19300440	J-35616-64B (LT BU)	J-38125-215A	SAIT-A03T-M064	Yazaki 14	P	P

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option

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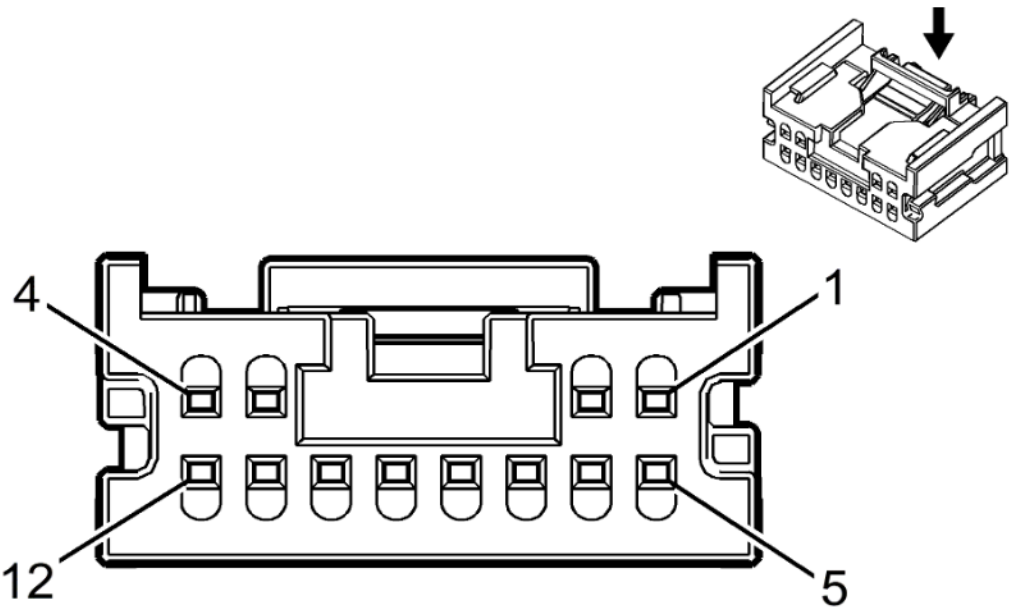
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK	1050	Ground	I	-
2	-	-	-	Not Occupied	-	-
3	0.5	RD/L-GN	3140	Battery Positive Voltage	I	-
4	0.35	WH	3152	Lane Departure Warning Indicator Control	I	-
5 - 6	-	-	-	Not Occupied	-	-
7	0.35	L-GN	5060	Low Speed GMLAN Serial Data	I	-
8 - 9	-	-	-	Not Occupied	-	-
10	0.35	GY/WH	3153	Lane Departure Warning Disable Switch Signal	I	-

B174W FRONTVIEW CAMERA - WINDSHIELD (UHX)



Connector Part Information

- Harness Type: Headliner
- OEM Connector: 33235297
- Service Connector: 13507121
- Description: 12-Way F Mini 50 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	19330186	EL-35616-58 (BK)	J-38125-553	Not Available	Not Available	Not Available	Not Available

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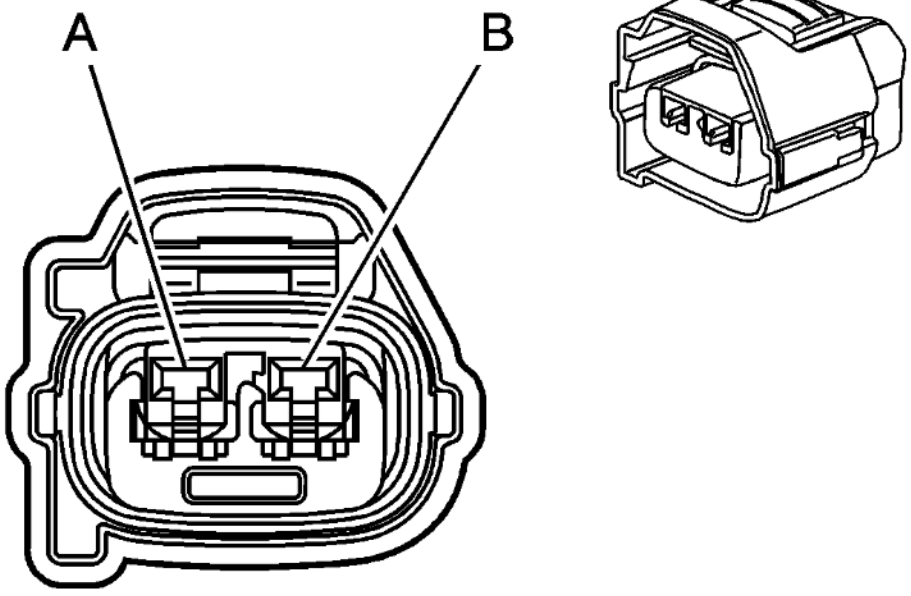
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK	1050	Ground	I	-
2	-	-	-	Not Occupied	-	-
3	0.35	RD/GN	3140	Battery Positive Voltage	I	-
4	0.35	WH	3152	Lane Departure Warning Indicator Control	I	-
5	0.35	BU/GY	3935	High Speed GMLAN Serial Data (+) 8	I	-
6	0.35	WH/GY	3936	High Speed GMLAN Serial Data (-) 8	I	-
7	0.35	BU/GY	3935	High Speed GMLAN Serial Data (+) 8	I	-
8	0.35	WH/GY	3936	High Speed GMLAN Serial Data (-) 8	I	-
9	0.35	WH/BU	5986	Serial Data Communication Enable	I	-
10	0.35	GY/WH	3153	Lane Departure Warning Disable Switch Signal	I	-
11	0.35	GN	5060	Low Speed GMLAN Serial Data	I	-
12	-	-	-	Not Occupied	-	-

B193A CHARGE AIR COOLER INLET TEMPERATURE SENSOR



Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 7283-7020-10
- Service Connector: 13576415
- Description: 2-Way F 2.3 Series, Sealed (D-GY)

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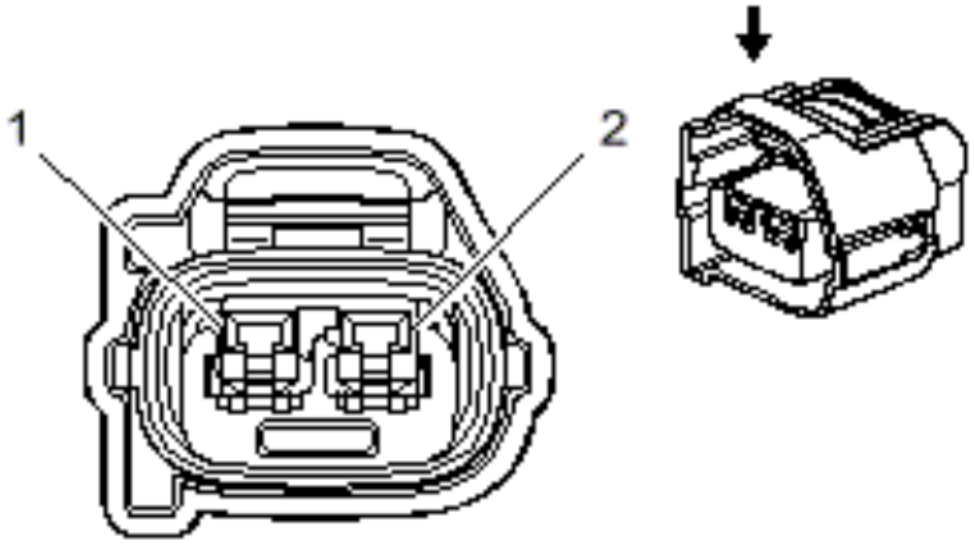
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-18 (BK)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GN	3683	Charge Air Cooler Inlet Temperature Sensor Signal	I	L5P
2	0.5	YE/BK	3682	Charge Air Cooler Inlet Temperature Sensor Low Reference	I	L5P

B193B CHARGE AIR COOLER OUTLET TEMPERATURE SENSOR



Connector Part Information

- Harness Type: Engine
- OEM Connector: 15401053
- Service Connector: 13576415
- Description: 2-Way F 090 Series, Sealed (D-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal	Service Terminal	Tray Name	Core Crimp	Insulation Crimp

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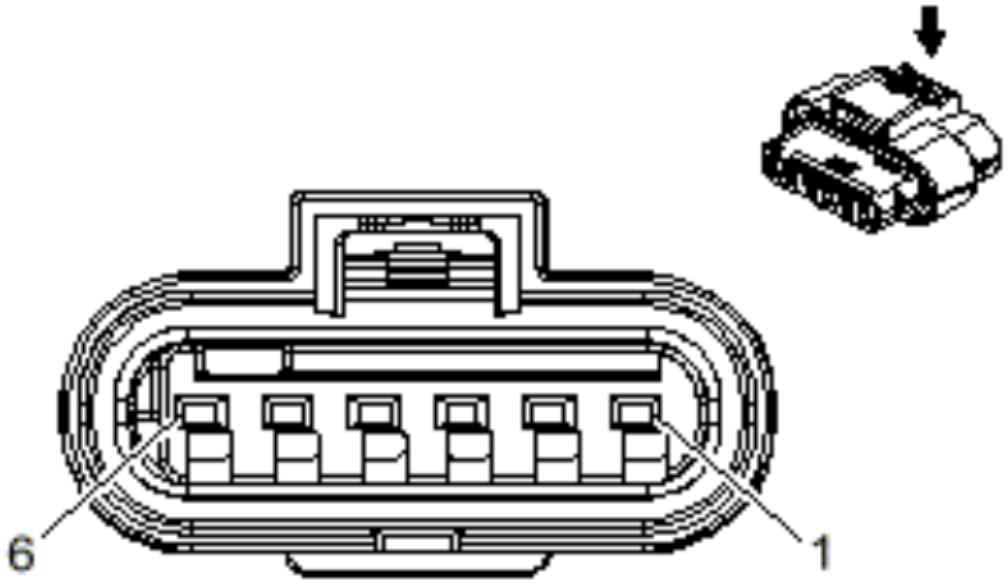
			Tool				
I	Not Required	J-35616-18 (BK)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN	3681	Charge Air Cooler Outlet Temperature Sensor Signal	I	-
2	0.5	YE/D-BU	3680	Charge Air Cooler Outlet Temperature Sensor Low Reference	I	-

B195A NITROGEN OXIDES SENSOR 1 (L5P)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13975341
- Service Connector: 19329354
- Description: 6-Way F 1.2 MCON-CB Series, Sealed (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

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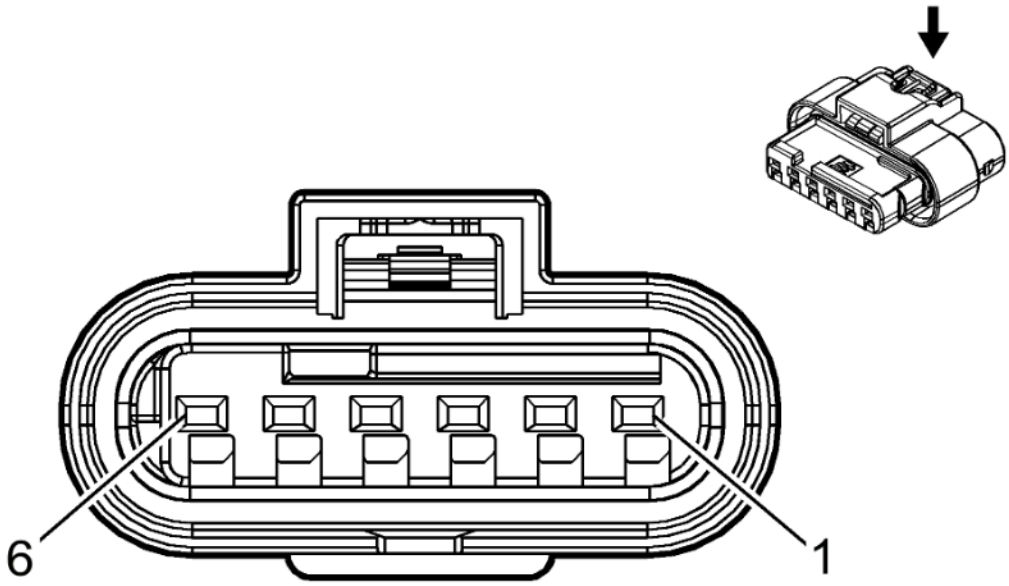
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/D-BU	3674	NOx Sensor 1 Control	I	-
2	0.5	D-BU/BN	4498	High Speed GMLAN Serial Data (+) 7	I	-
3	0.5	D-BU/BN	4498	High Speed GMLAN Serial Data (+) 7	I	-
4	0.5	WH	4499	High Speed GMLAN Serial Data (-) 7	I	-
5	0.5	WH	4499	High Speed GMLAN Serial Data (-) 7	I	-
6	0.75	BK/WH	451	Signal Ground	I	-

B195B NITROGEN OXIDES SENSOR 2



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13961841
- Service Connector: 13586091
- Description: 6-Way F 1.2 MCON-CB Series, Sealed (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16	No Tool	Not Required	Not	Not	Not

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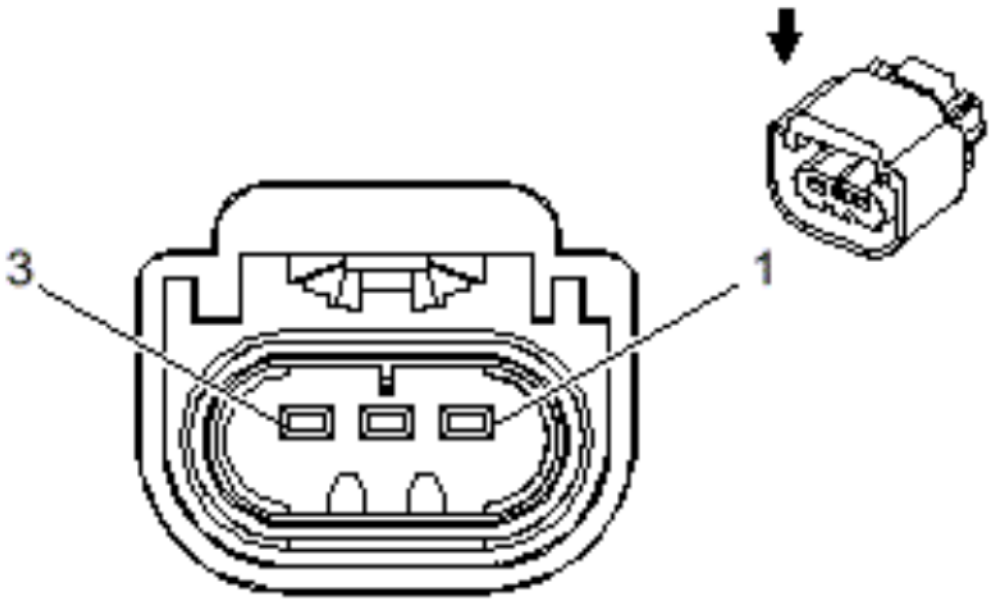
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
		(LT GN)	Required		Required	Required	Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	VT/D-BU	3674	NOx Sensor 1 Control	I	-
2	0.5	D-BU/BN	4498	High Speed GMLAN Serial Data (+) 7	I	-
3	0.5	D-BU/BN	4498	High Speed GMLAN Serial Data (+) 7	I	-
4	0.5	WH	4499	High Speed GMLAN Serial Data (-) 7	I	-
5	0.5	WH	4499	High Speed GMLAN Serial Data (-) 7	I	-
6	1.5	BK	2150	Ground	I	-

B198 FUEL COMPOSITION SENSOR



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13511132
- Service Connector: 19301582
- Description: 3-Way F 150 GT Series, Sealed (BN)

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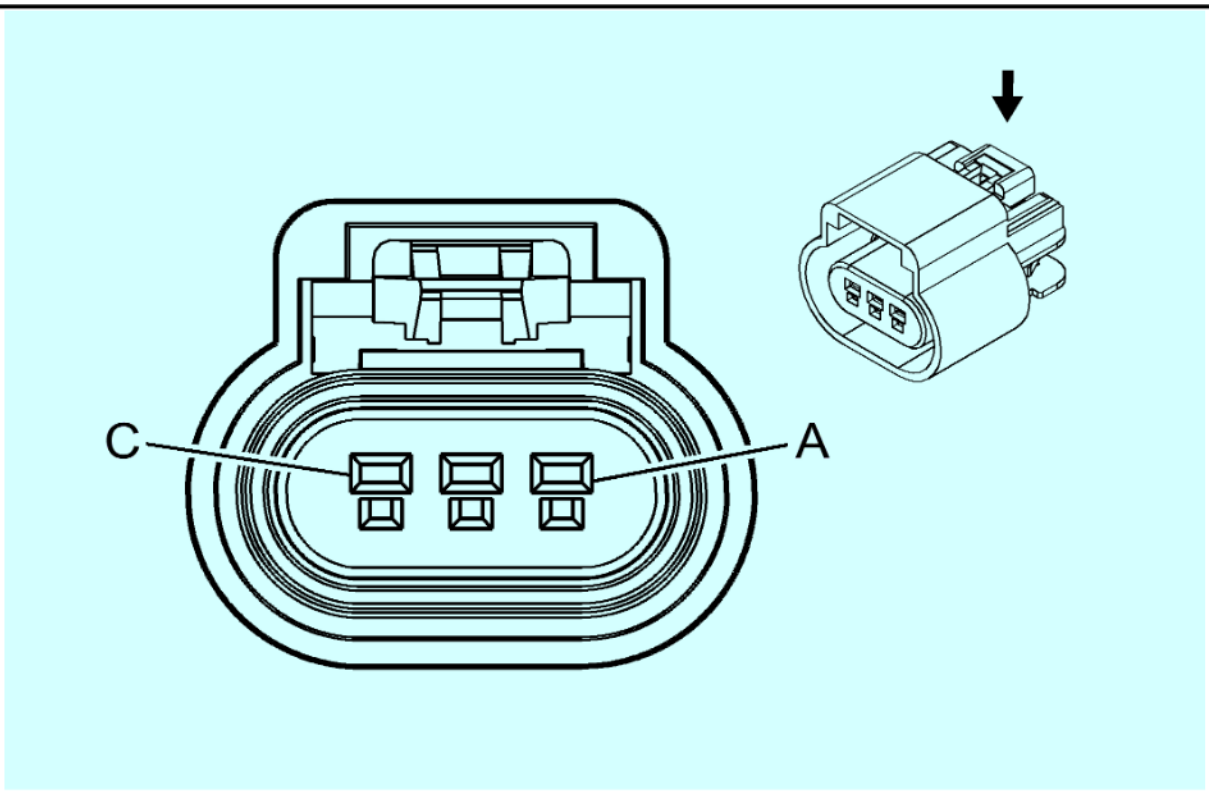
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/D-BU	5294	Powertrain Main Relay Fused Supply 5	I	-
2	0.5	BK	2150	Ground	I	-
3	0.5	WH	1579	Fuel Temperature/Composition Signal	I	-

B227 GEAR POSITION SENSOR



Connector Part Information

- Harness Type: Engine
- OEM Connector: 15326808
- Service Connector: 13580871
- Description: 3-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14	No Tool	Not Required	Not	Not	Not

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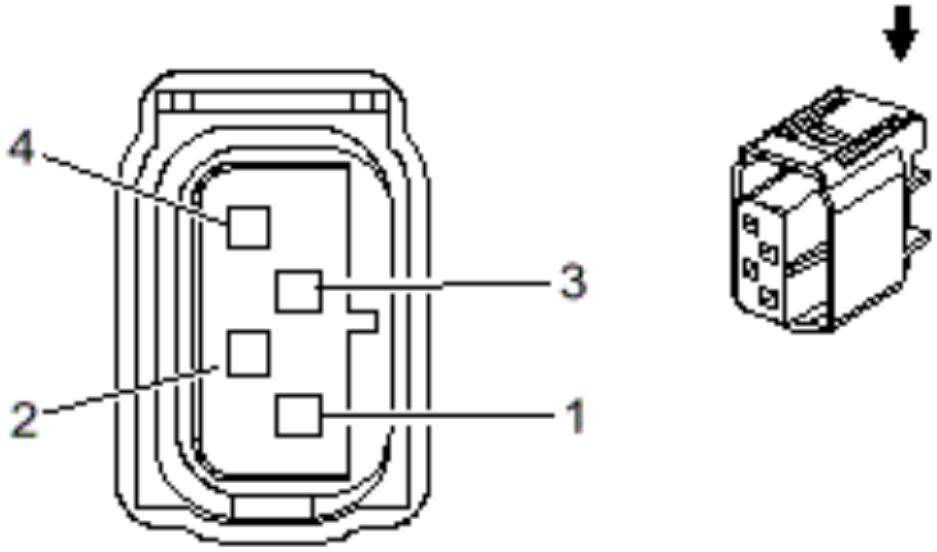
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
		(GN)	Required		Required	Required	Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	YE/BK	7478	Rotary Position Sensor Low Reference	I	-
B	0.5	WH/RD	7477	Rotary Position Sensor 5V Reference	I	-
C	0.5	WH/L-GN	7479	Rotary Position Sensor Signal	I	-

B229 ALTERNATIVE FUEL RAIL PRESSURE/TEMPERATURE SENSOR (LC8)



Connector Part Information

- Harness Type: CNG Injector
- OEM Connector: 1-967640-1
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 0.64 Micro-Quadlock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool	Not Required	Not	Not	Not

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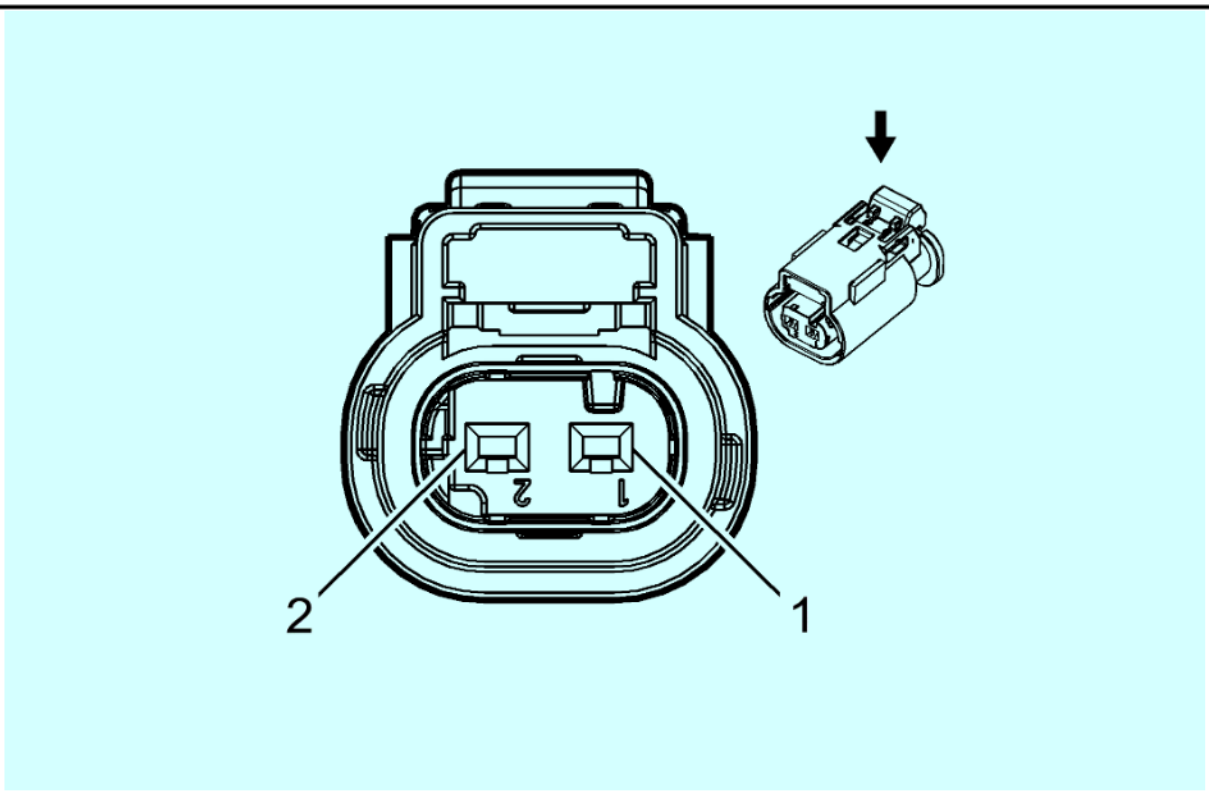
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
			Required		Required	Required	Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK	-	Ground	I	-
2	0.5	BU/GN	-	Alternative Fuel Pressure Sensor Signal	I	-
3	0.5	BU/BK	-	Temperature Sensor Signal	I	-
4	0.5	RD/WH	-	5-Volt Reference	I	-

B235 STARTER/GENERATOR COOLANT TEMPERATURE SENSOR



Connector Part Information

- Harness Type: Forward Lamp
- OEM Connector: 13735326
- Service Connector: 13587326
- Description: 2-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16	No Tool	Not Required	Not	Not	Not

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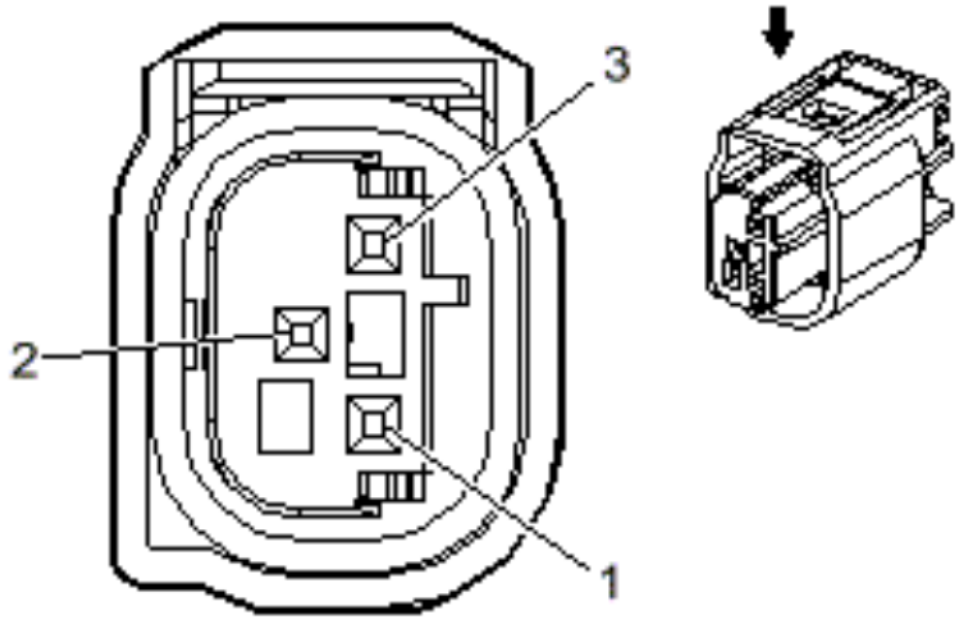
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
		(LT GN)	Required		Required	Required	Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/VT	3873	Powertrain Electronics Cooling Loop (PECL) Temperature Sensor Signal	I	-
2	0.5	BK/GY	3872	Powertrain Electronics Cooling Loop (PECL) Temperature Sensor Low Reference	I	-

B257 ALTERNATIVE FUEL PRESSURE SENSOR (LC8)



Connector Part Information

- Harness Type: CNG Rear
- OEM Connector: 2-967642-1
- Service Connector: Service by Harness - See Part Catalog
- Description: 3-Way F MQS Socket Housing, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp

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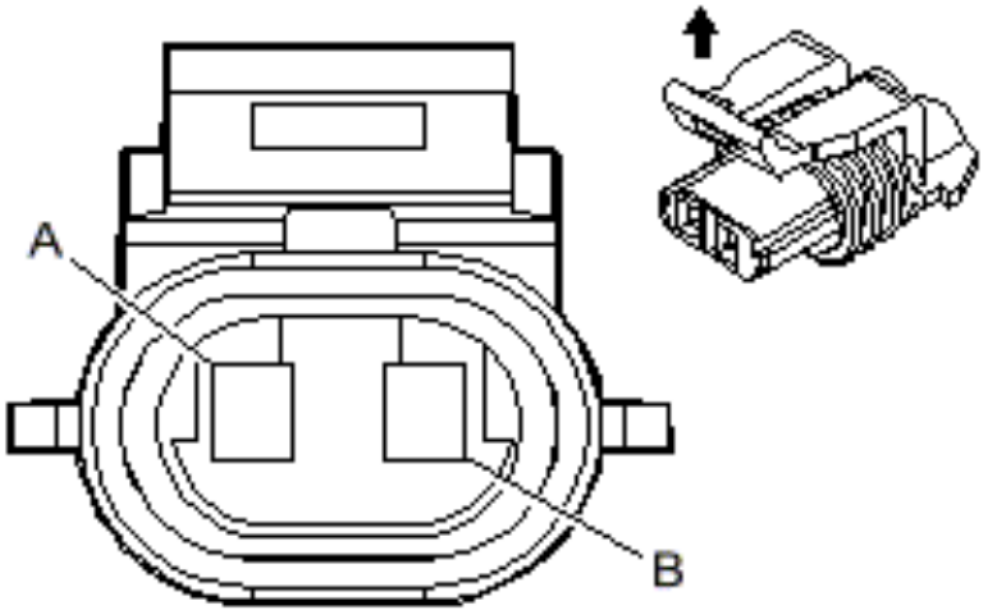
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK	-	Alternative Fuel Tank Sensor Low Reference	I	-
2	0.5	BU/YE	-	Alternative Fuel Tank Pressure Signal	I	-
3	0.5	RD/WH	-	Alternative Fuel Tank Sensore Voltage Reference	I	-

B263 ALTERNATIVE FUEL TANK TEMPERATURE SENSOR (LC8)



Connector Part Information

- Harness Type: CNG Rear
- OEM Connector: 12052644
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 150 Metri-Pack Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal	Service Terminal	Tray Name	Core Crimp	Insulation Crimp

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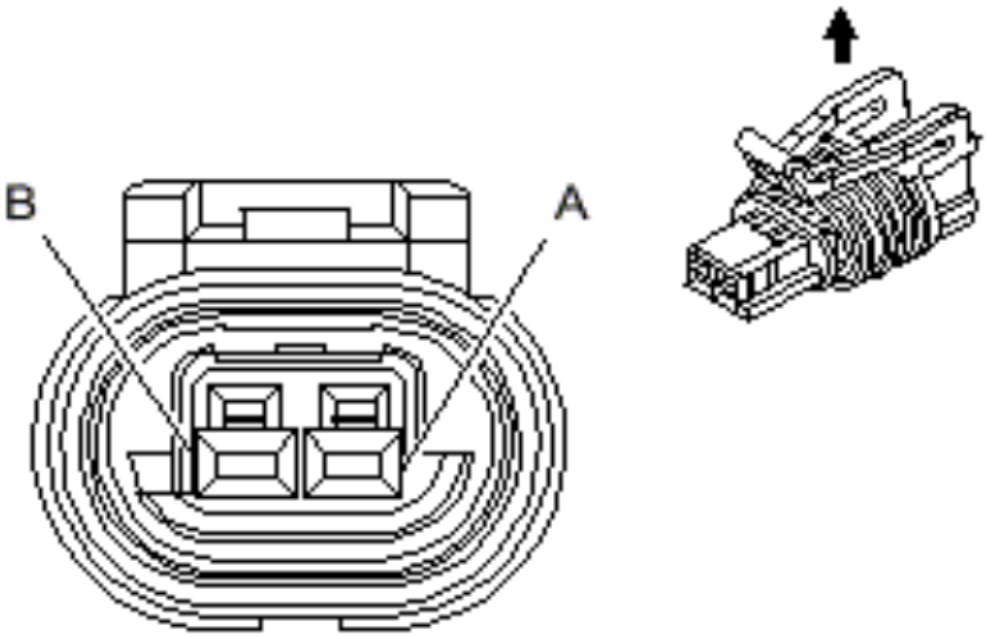
			Tool				
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1	BU/RD	-	CNG Tank Sensor Temperature Signal	I	-
B	1	BK	-	Low Reference	I	-

B264 CNG HIGH PRESSURE REGULATOR TEMPERATURE SENSOR (LC8)



Connector Part Information

- Harness Type: CNG Rear
- OEM Connector: 15449028
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal	Option

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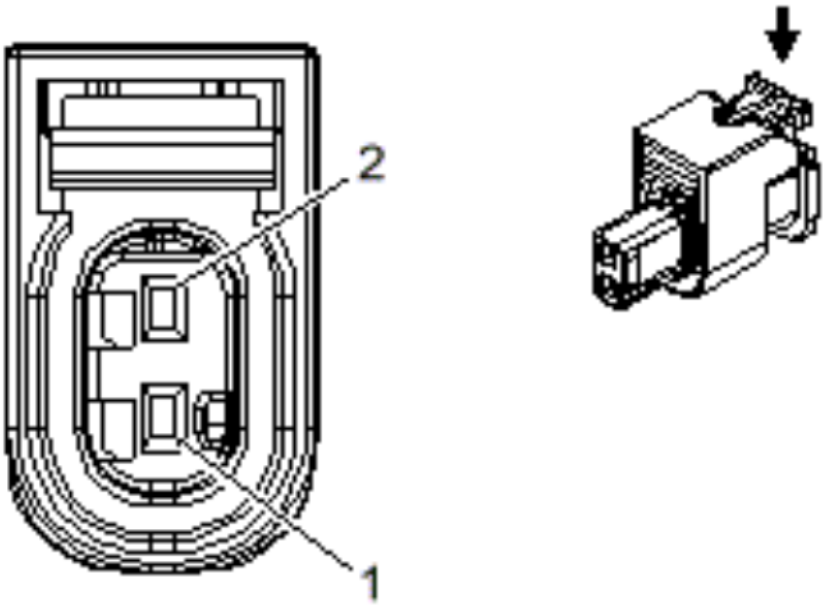
					Type ID	
A	1	BU/OG	-	Coolant Temperature Input	I	-
B	1	BK	-	Ground	I	-

B280 AUTOMATIC TRANSMISSION ACCUMULATOR SOLENOID VALVE (M5X)



Connector Part Information

- Harness Type: Transmission
- OEM Connector: 2138873-4
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.2 MCON Series, Sealed (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/BU	5294	Powertrain Main Relay Fused Supply 5	I	-
2	0.5	WH/GY	4578	Surge Accumulator Solenoid Low Side Control	I	-

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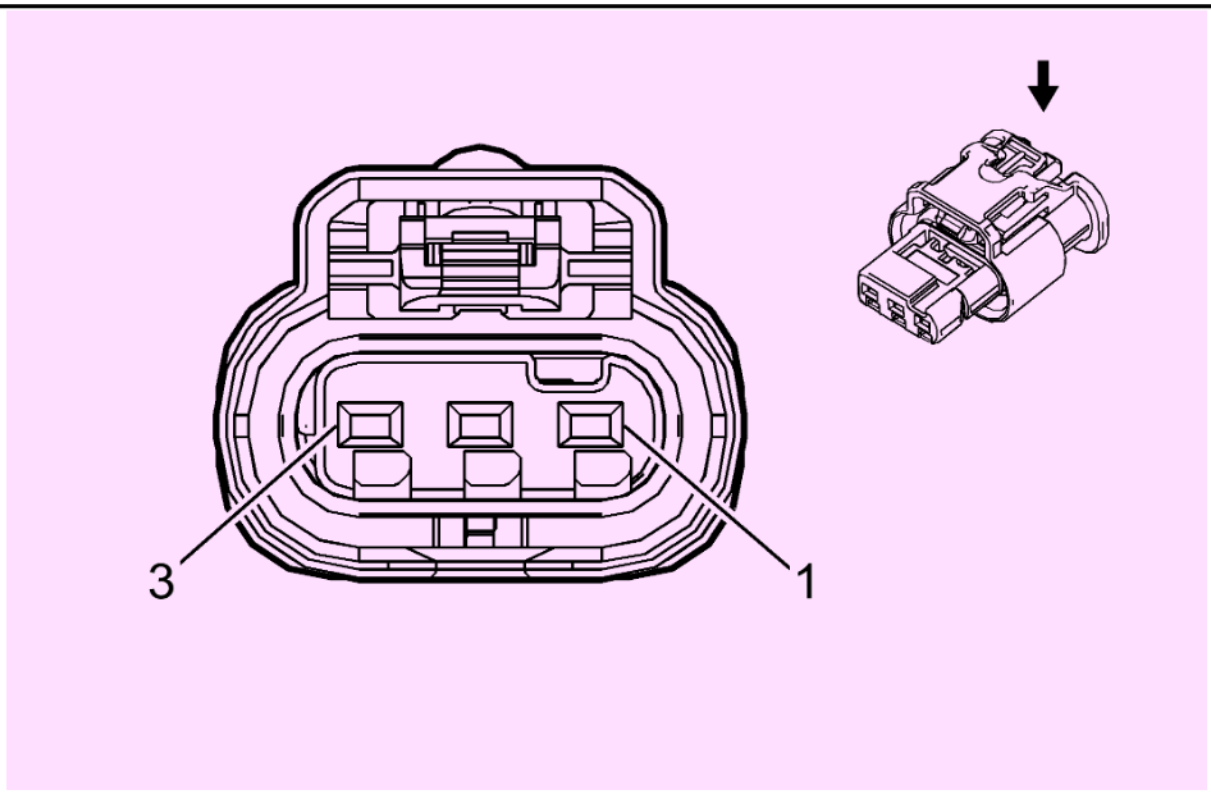
B295 REDUCTANT QUALITY SENSOR (L5P)



Connector Part Information

- Harness Type: Reductant Fuel Pump
- OEM Connector: 13884759
- Service Connector: Service by Harness - See Part Catalog
- Description: 3-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU	-	Quality Sensor Supply	I	-
2	0.5	BN	-	Quality Sent Data	I	-
3	0.5	BK	-	Quality Sensor Ground	I	-

B302 POWER STEERING PRESSURE SENSOR (NV8)

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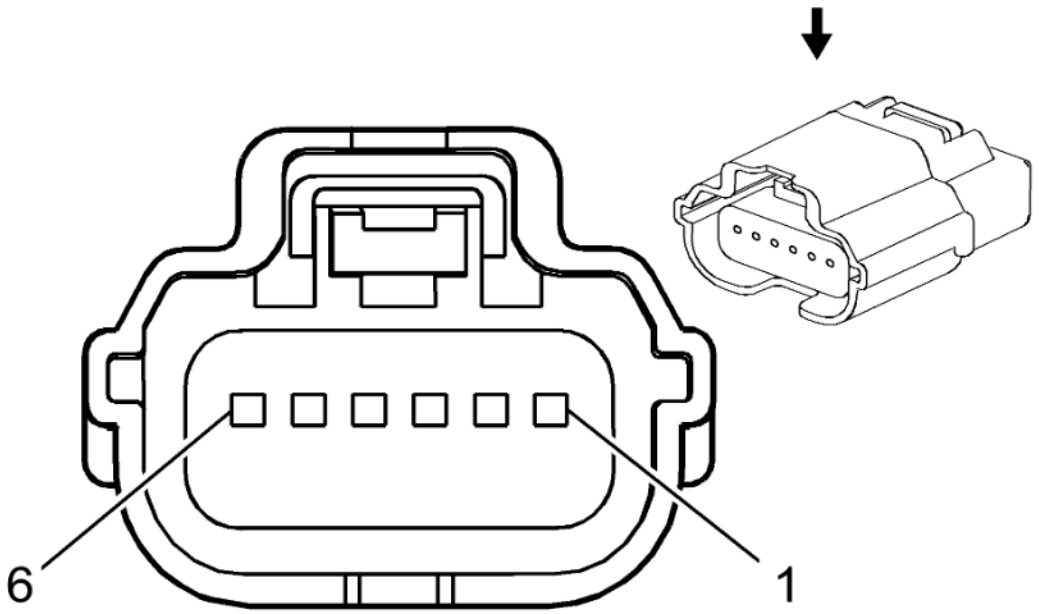

Connector Part Information

- Harness Type: Power Steering Control Module
- OEM Connector: 31404-6132
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way F 0.64 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.5	RD	-	5-Volt Reference	I	-
3	0.5	D-GN	-	Right Pressure Sensor	I	-
4	0.5	BN	-	Left Pressure Sensor	I	-
5	0.5	BK	-	Low Reference	I	-
6	-	-	-	Not Occupied	-	-

B306A PARKING ASSIST SENSOR - FRONT LEFT OUTER

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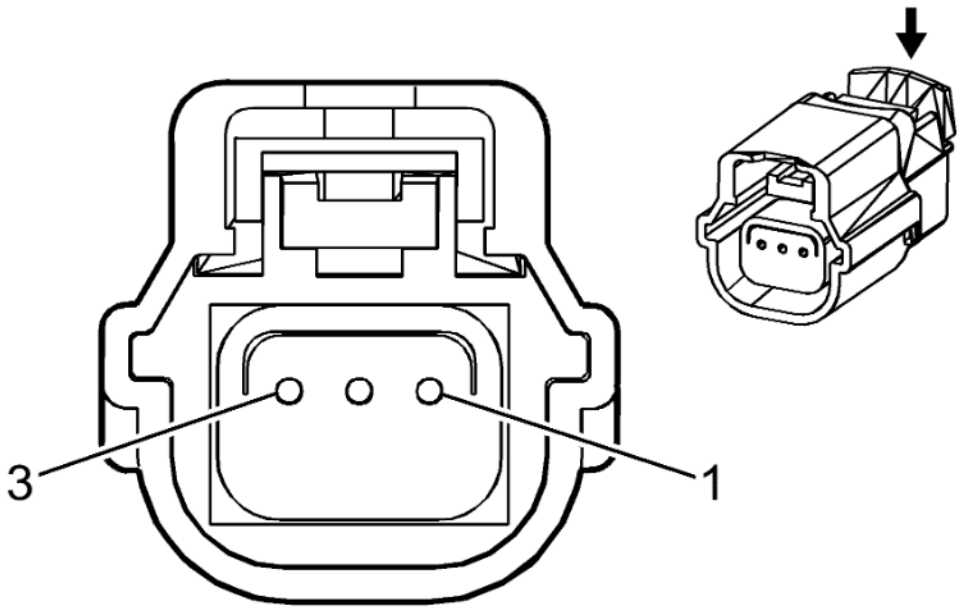

Connector Part Information

- Harness Type: Front Bumper
- OEM Connector: 13512481
- Service Connector: Service by Harness - See Part Catalog
- Description: 3-Way F 0.64 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/L-GN	5213	Front Parking Left/Right/Mid Sensor	I	-
2	0.5	VT/WH	5215	Front Parking Left Corner Sensor	I	-
3	0.5	BK/D-BU	5214	Front Parking Sensor Low Reference	I	-

B306B PARKING ASSIST SENSOR - FRONT LEFT MIDDLE

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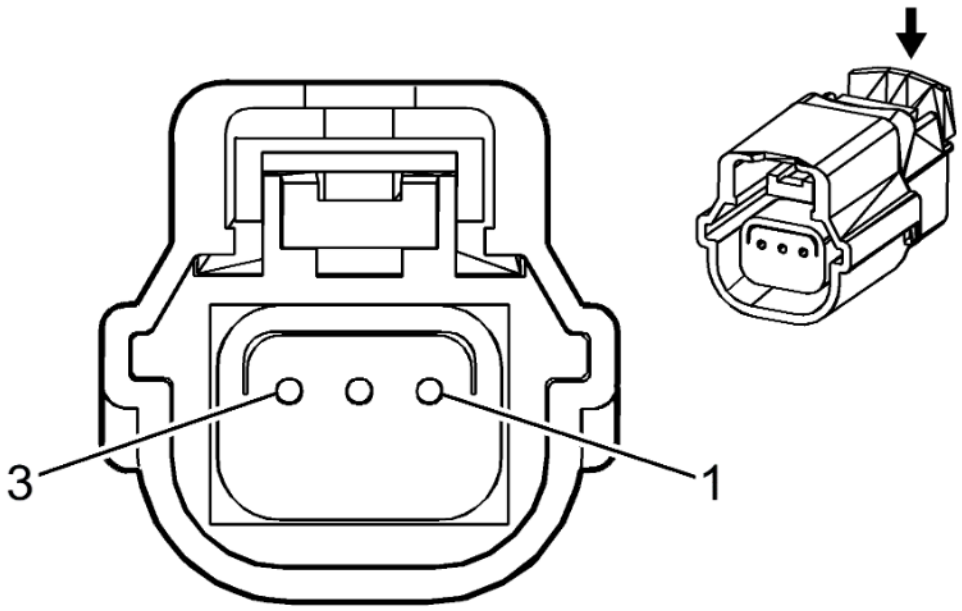

Connector Part Information

- Harness Type: Front Bumper
- OEM Connector: 13512481
- Service Connector: Service by Harness - See Part Catalog
- Description: 3-Way F 0.64 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/L-GN	5213	Front Parking Left/Right/Mid Sensor	I	-
2	0.5	YE/GY	5216	Front Parking Left Mid Sensor	I	-
3	0.5	BK/D-BU	5214	Front Parking Sensor Low Reference	I	-

B306C PARKING ASSIST SENSOR - FRONT RIGHT MIDDLE

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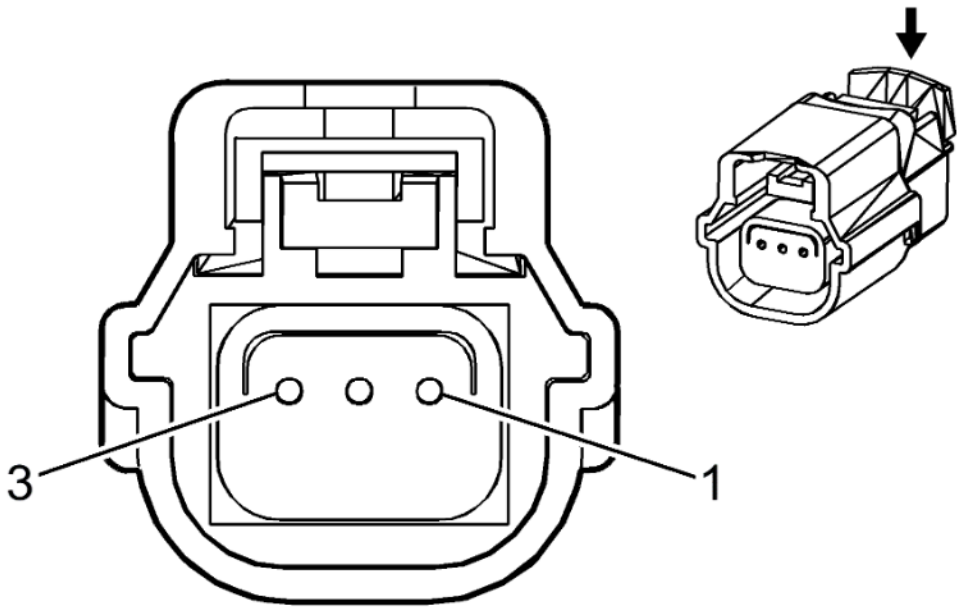

Connector Part Information

- Harness Type: Front Bumper
- OEM Connector: 13512481
- Service Connector: Service by Harness - See Part Catalog
- Description: 3-Way F 0.64 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/L-GN	5213	Front Parking Left/Right/Mid Sensor	I	-
2	0.5	VT/GY	5218	Front Parking Right Mid Sensor	I	-
3	0.5	BK/D-BU	5214	Front Parking Sensor Low Reference	I	-

B306D PARKING ASSIST SENSOR - FRONT RIGHT OUTER

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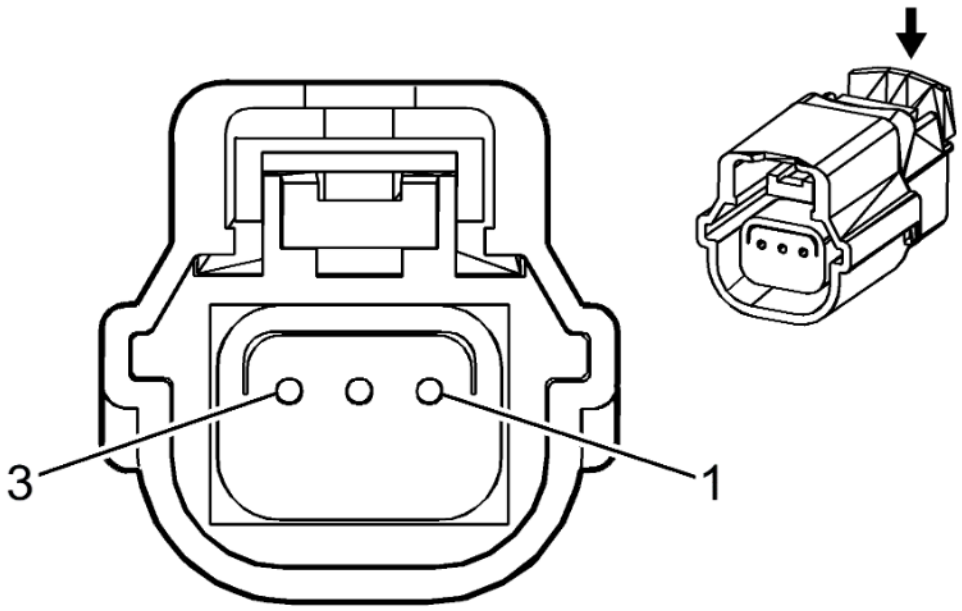

Connector Part Information

- Harness Type: Front Bumper
- OEM Connector: 13512481
- Service Connector: Service by Harness - See Part Catalog
- Description: 3-Way F 0.64 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/L-GN	5213	Front Parking Left/Right/Mid Sensor	I	-
2	0.5	WH/GY	5217	Front Parking Right Corner Sensor	I	-
3	0.5	BK/D-BU	5214	Front Parking Sensor Low Reference	I	-

B310 FUEL PRESSURE/TEMPERATURE SENSOR (1500)

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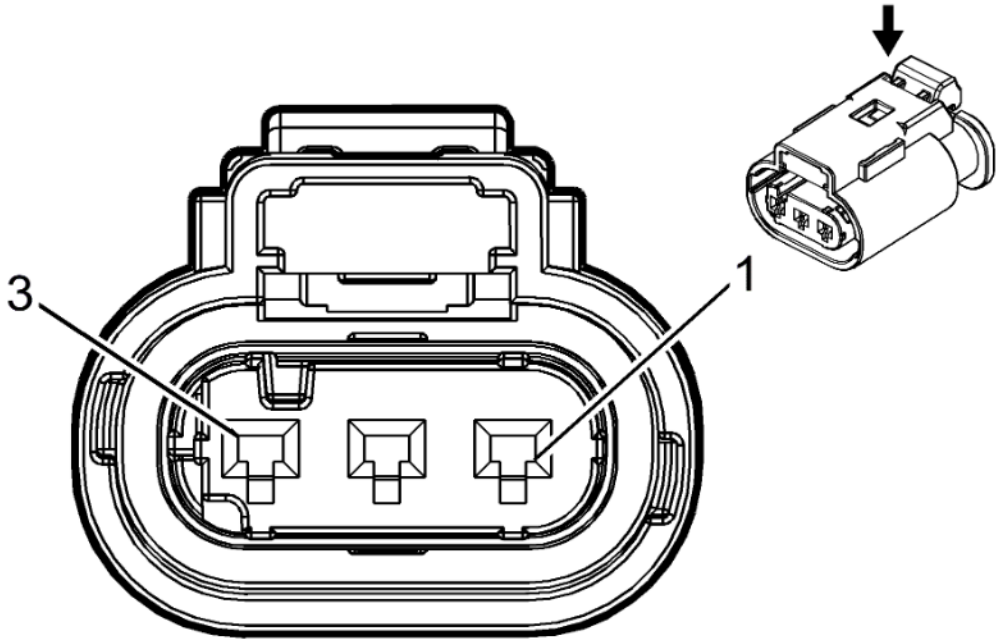

Connector Part Information

- Harness Type: Fuel Injector
- OEM Connector: 13503573
- Service Connector: Service by Harness - See Part Catalog
- Description: 3-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5 0.5	BN/RD BK/L-GN	2917 2919	Fuel Rail Pressure Sensor 5V Reference Fuel Rail Pressure Sensor Low Reference	I I	5V1 L83/L86/L8B
2	0.5	BU/WH	2918	Fuel Rail Pressure Sensor Signal	I	L83/L86/L8B
3	0.5 0.5	BK/L-GN BN/RD	2919 2917	Fuel Rail Pressure Sensor Low Reference Fuel Rail Pressure Sensor 5V Reference	I I	5V1 L83/L86/L8B

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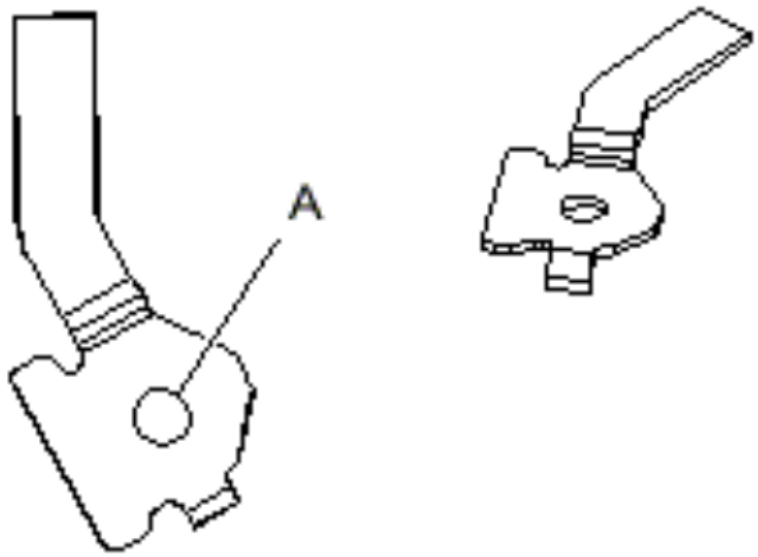
C4A HYBRID/EV BATTERY SECTION 1 (HP5 (NEGATIVE))



Connector Part Information

- Harness Type: High Voltage Battery Negative
- OEM Connector: 15544775
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 1-Way Ring Terminal

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	12	OG	5084	High Voltage Battery (+)	I	-

C4A HYBRID/EV BATTERY SECTION 1 X1 (HP5)

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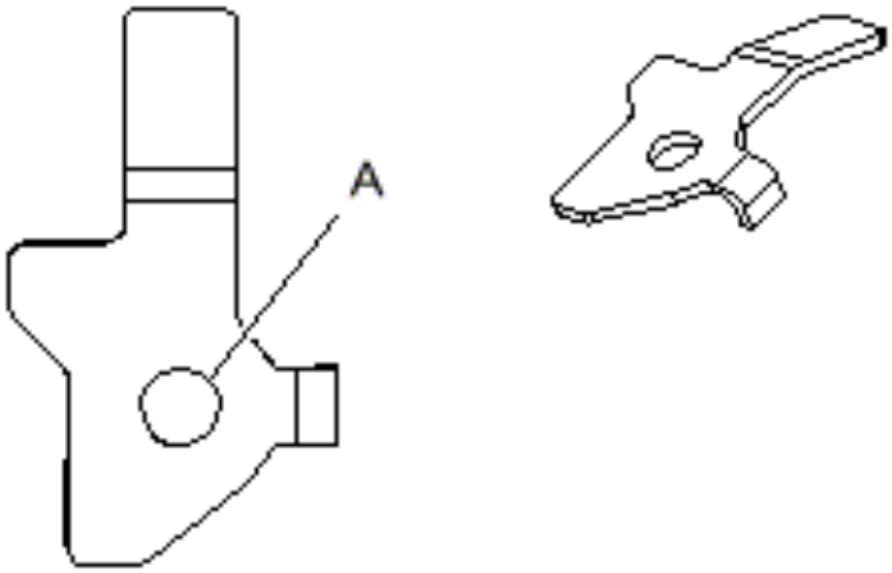

Connector Part Information

- Harness Type: High Voltage Battery Manual Service Disconnect
- OEM Connector: 15544777
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 1-Way Ring Terminal

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	12	OG	3970	High Voltage Battery 4 (+)	I	-

C4B HYBRID/EV BATTERY SECTION 2 X1 (HP5)

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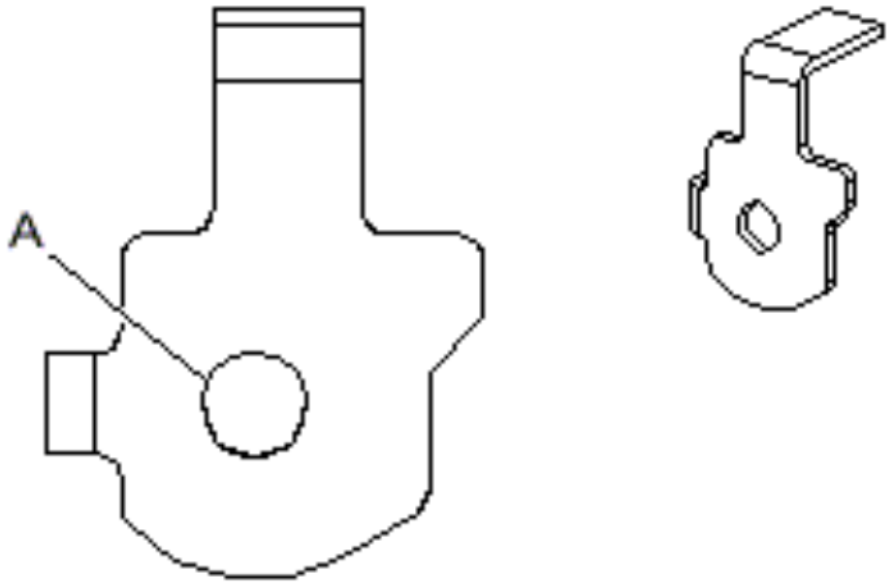

Connector Part Information

- Harness Type: High Voltage Battery Manual Service Disconnect
- OEM Connector: 15544776
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 1-Way Ring Terminal

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	12	OG	3970	High Voltage Battery 4 (+)	I	-

C4B HYBRID/EV BATTERY SECTION 2 X2 (HP5)

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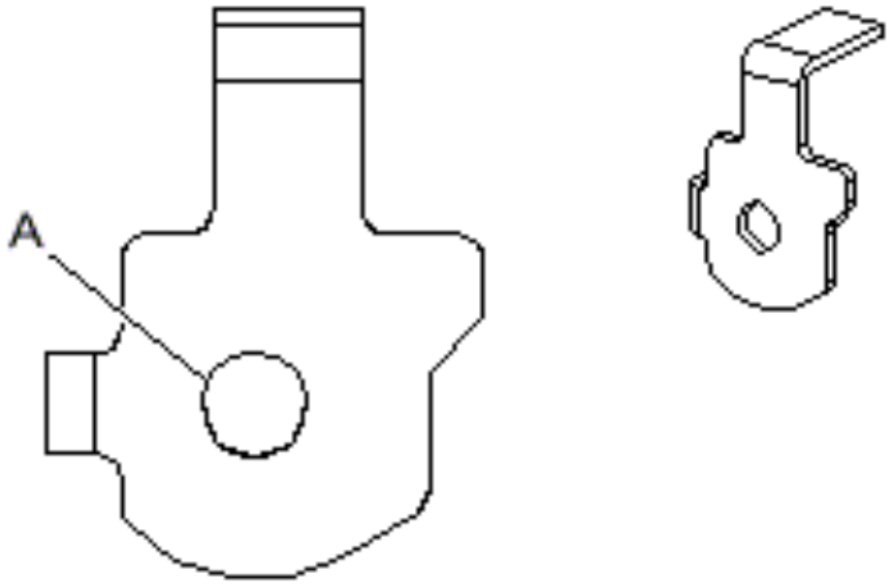

Connector Part Information

- Harness Type: High Voltage Battery Positive
- OEM Connector: 15544776
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 1-Way Ring Terminal

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	12	OG	5084	High Voltage Battery (+)	I	-

E1C ACCENT LAMP - DRIVER DOOR HANDLE

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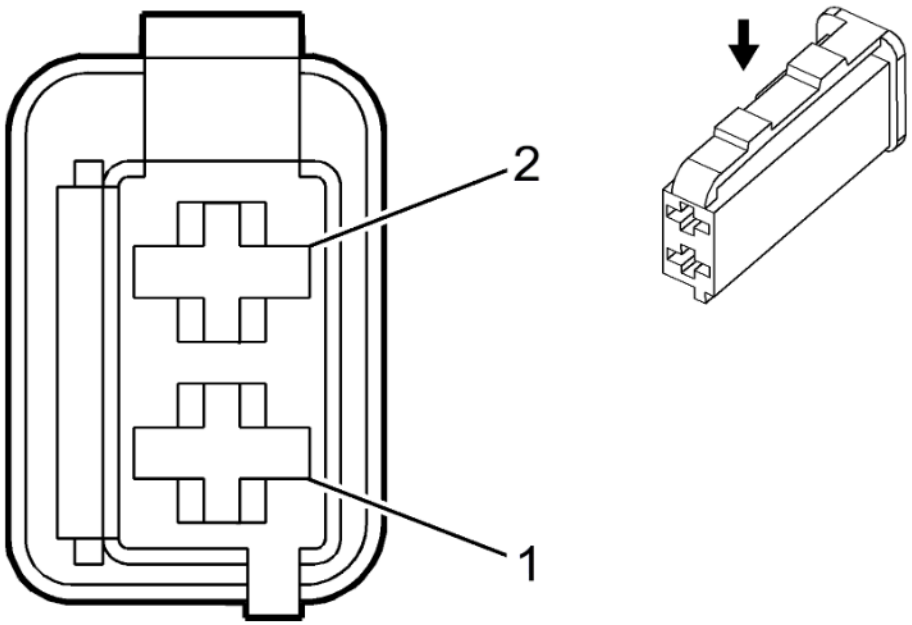

Connector Part Information

- Harness Type: Driver Door Trim
- OEM Connector: 13670097
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.6 Timer Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	WH/YE	7557	LED Ambient Lighting Control 1	I	-
2	0.35	BK	1150	Ground	I	-

E1L ACCENT LAMP - OVERHEAD CONSOLE

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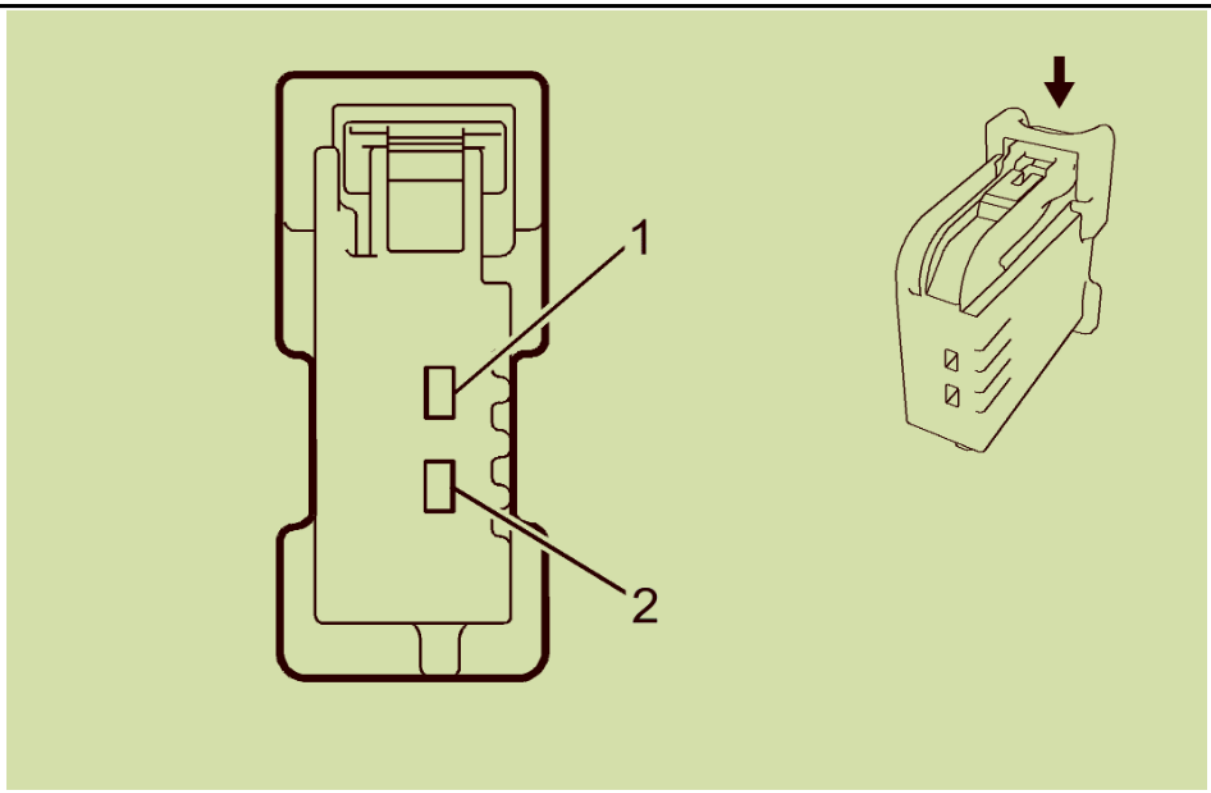

Connector Part Information

- Harness Type: Overhead Console
- OEM Connector: 13595207
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.5 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	VT/GN	7558	LED Ambient Lighting Control 2	I	-
2	0.35	BK	1050	Ground	I	-

E2A MARKER LAMP - ENDGATE

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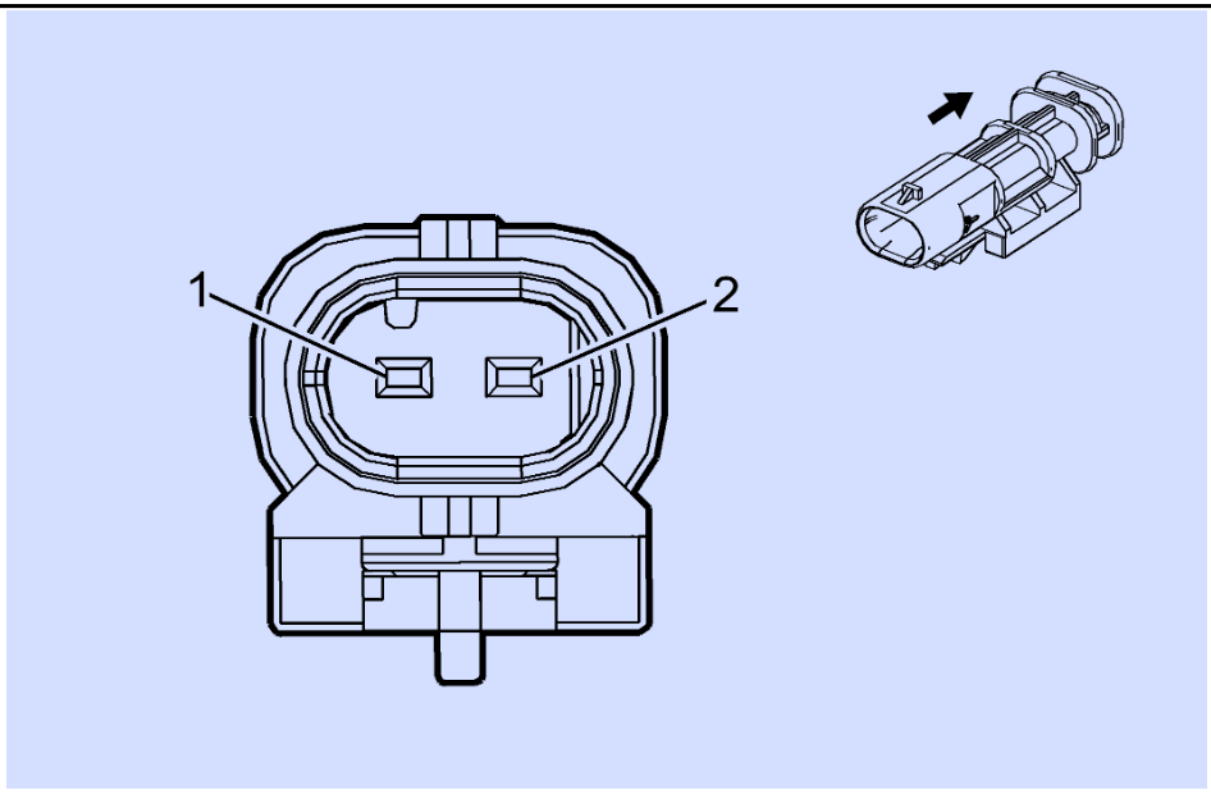

Connector Part Information

- Harness Type: Rear Clearance Lamps
- OEM Connector: 13788295
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way M 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-13 (BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/BN	309	Right Park Lamp Control	I	-
2	0.5	BK	1750	Ground	I	-

E3A ROOF CLEARANCE LAMP - LEFT FRONT OUTER

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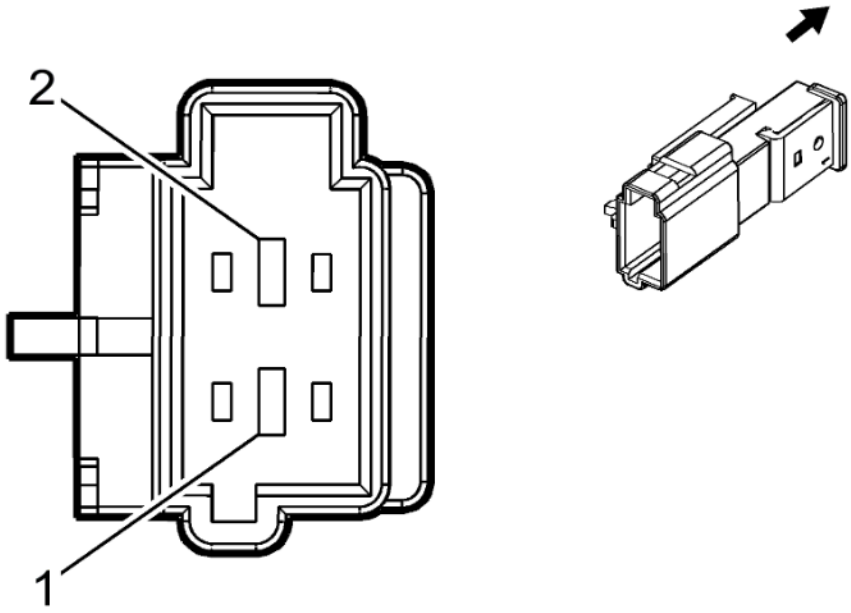

Connector Part Information

- Harness Type: RH A Pillar
- OEM Connector: 13662506
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way M 1.6 Timer Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-34 (YE)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/GY	709	Left Park Lamp Control	I	-
2	0.5	BK	1050	Ground	I	-

E3C ROOF CLEARANCE LAMP - FRONT MIDDLE

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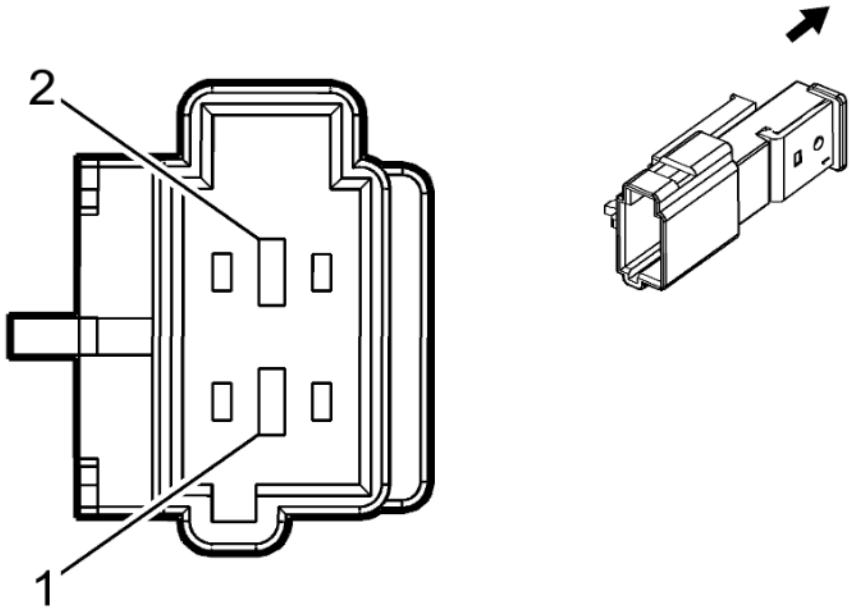

Connector Part Information

- Harness Type: RH A Pillar
- OEM Connector: 13662506
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way M 1.6 Timer Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-34 (YE)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/GY	709	Left Park Lamp Control	I	-
2	0.5	BK	1050	Ground	I	-

E3E ROOF CLEARANCE LAMP - RIGHT FRONT OUTER

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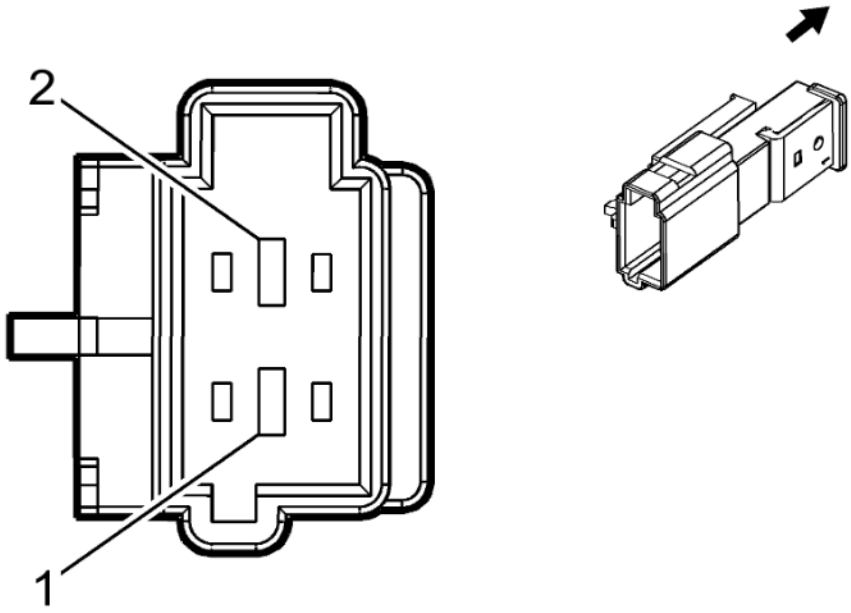

Connector Part Information

- Harness Type: RH A Pillar
- OEM Connector: 13662506
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way M 1.6 Timer Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-34 (YE)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/GY	709	Left Park Lamp Control	I	-
2	0.5	BK	1050	Ground	I	-

E3LF REAR FENDER CLEARANCE LAMP - LEFT FRONT

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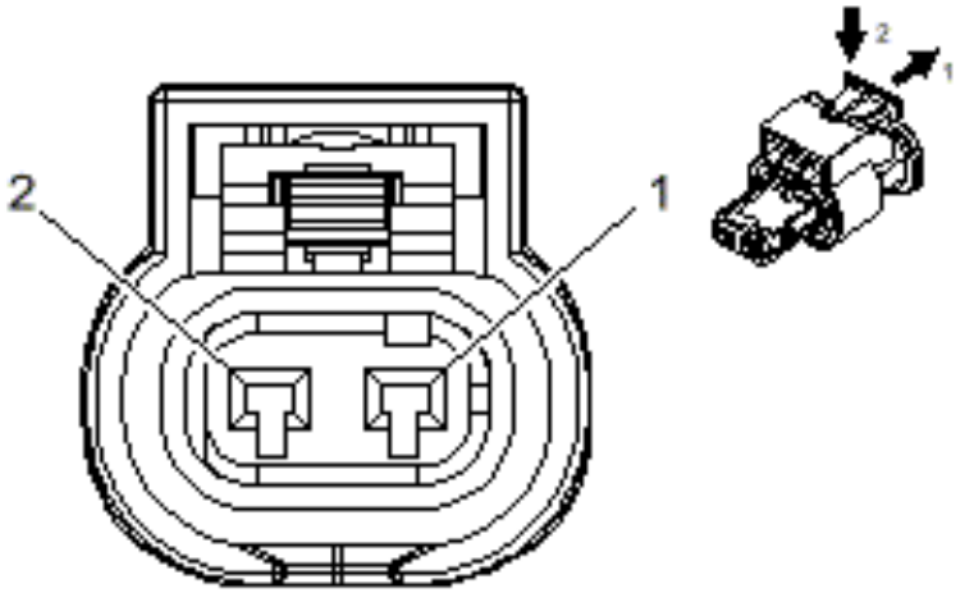

Connector Part Information

- Harness Type: Rear Clearance Lamps
- OEM Connector: 13627836
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/GY	709	Left Park Lamp Control	I	-
2	0.5	BK	1750	Ground	I	-

E3LR REAR FENDER CLEARANCE LAMP - LEFT REAR

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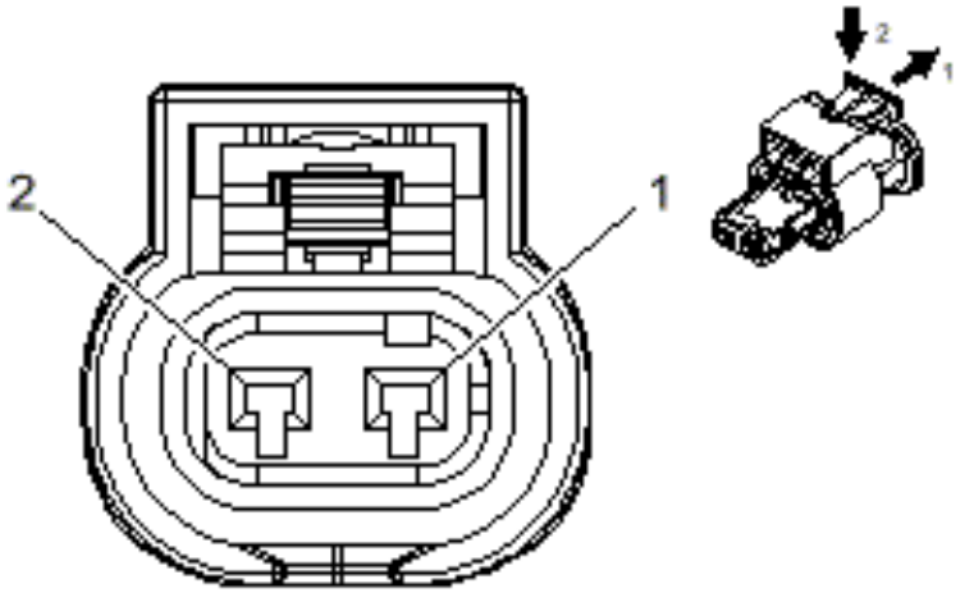

Connector Part Information

- Harness Type: Rear Clearance Lamps
- OEM Connector: 13627836
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/GY	709	Left Park Lamp Control	I	-
2	0.5	BK	1750	Ground	I	-

E3RF REAR FENDER CLEARANCE LAMP - RIGHT FRONT

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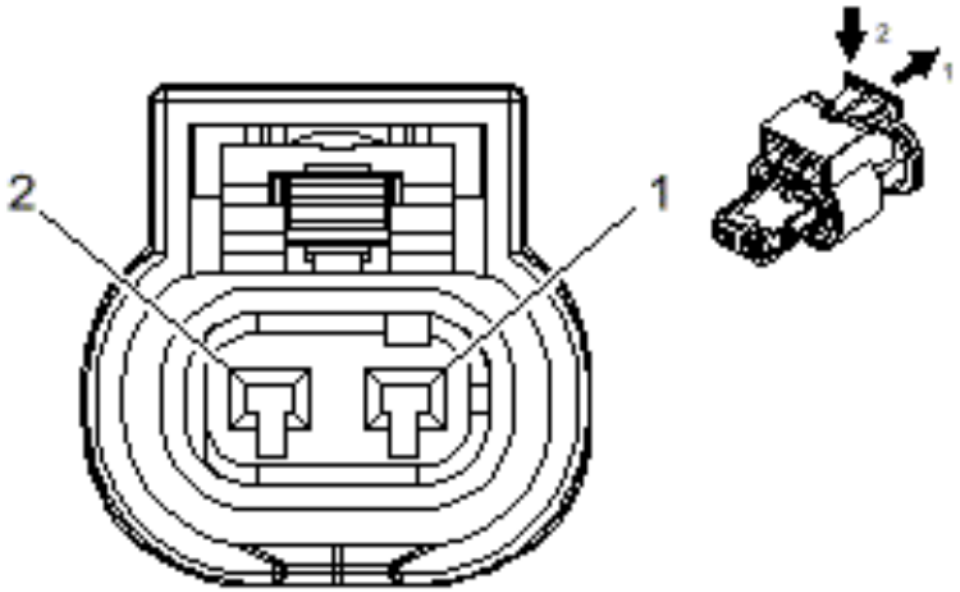

Connector Part Information

- Harness Type: Rear Clearance Lamps
- OEM Connector: 13627836
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/BN	309	Right Park Lamp Control	I	-
2	0.5	BK	1750	Ground	I	-

E3RR REAR FENDER CLEARANCE LAMP - RIGHT REAR

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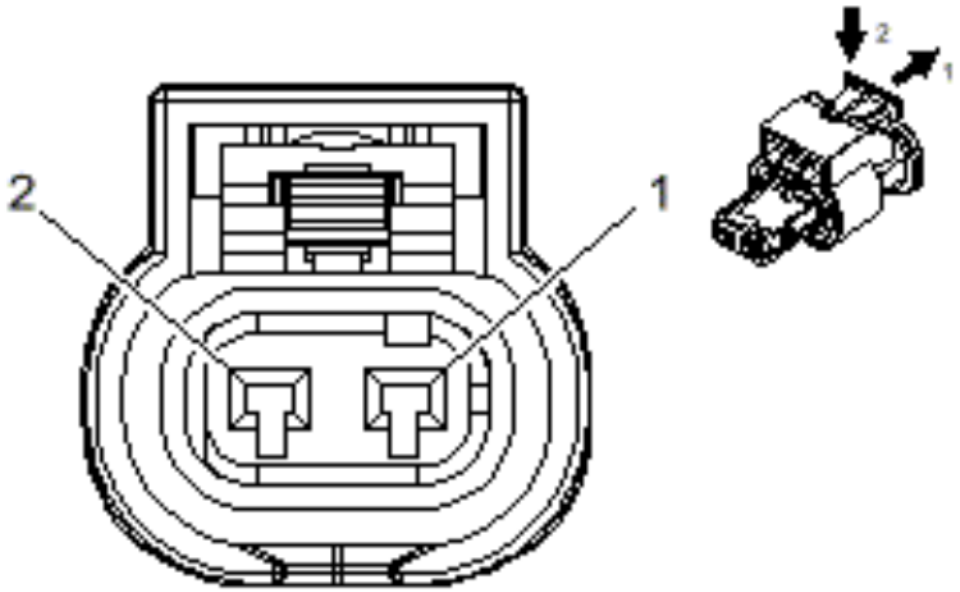

Connector Part Information

- Harness Type: Rear Clearance Lamps
- OEM Connector: 13627836
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/BN	309	Right Park Lamp Control	I	-
2	0.5	BK	1750	Ground	I	-

E6 CENTER HIGH MOUNTED STOP LAMP (ZYD)

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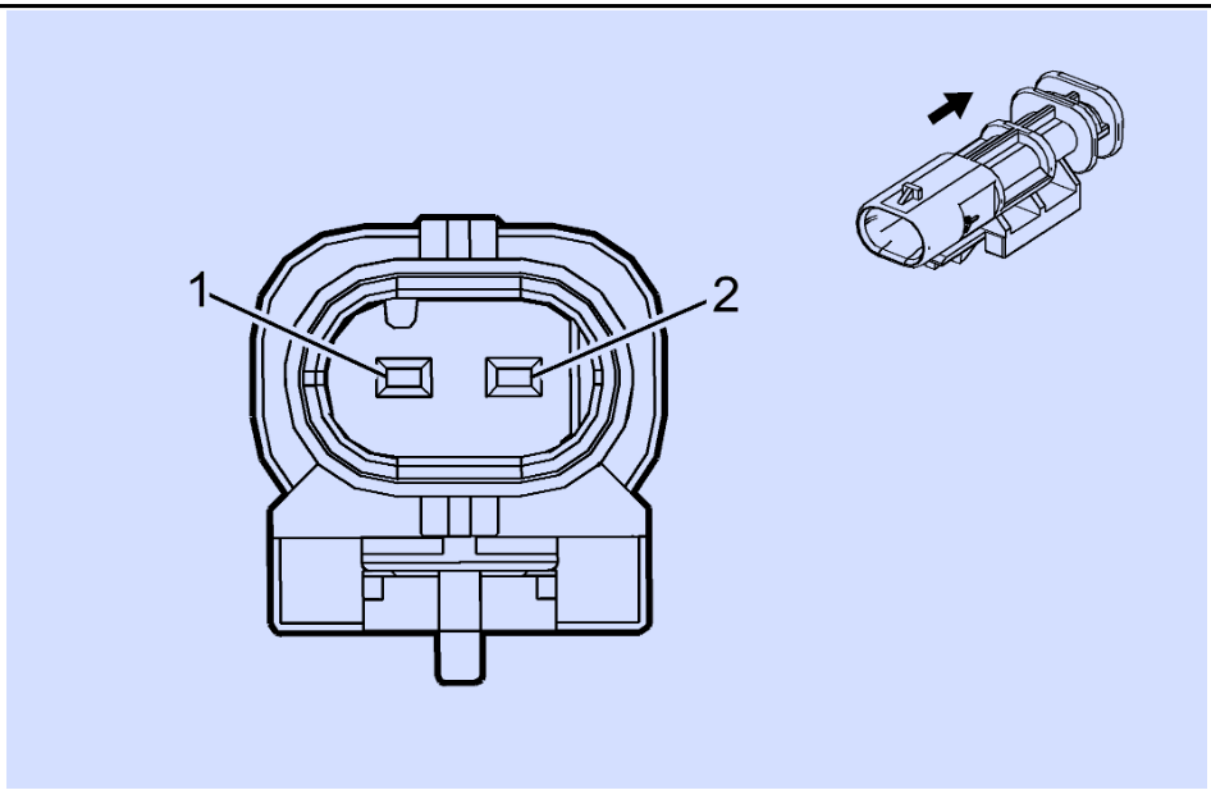

Connector Part Information

- Harness Type: CHMSL Jumper
- OEM Connector: 13591337
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way M 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/GY	1054	Stop Lamp Control	I	-
2	0.5	BK	1450	Ground	I	-

E7L LICENSE PLATE LAMP - LEFT

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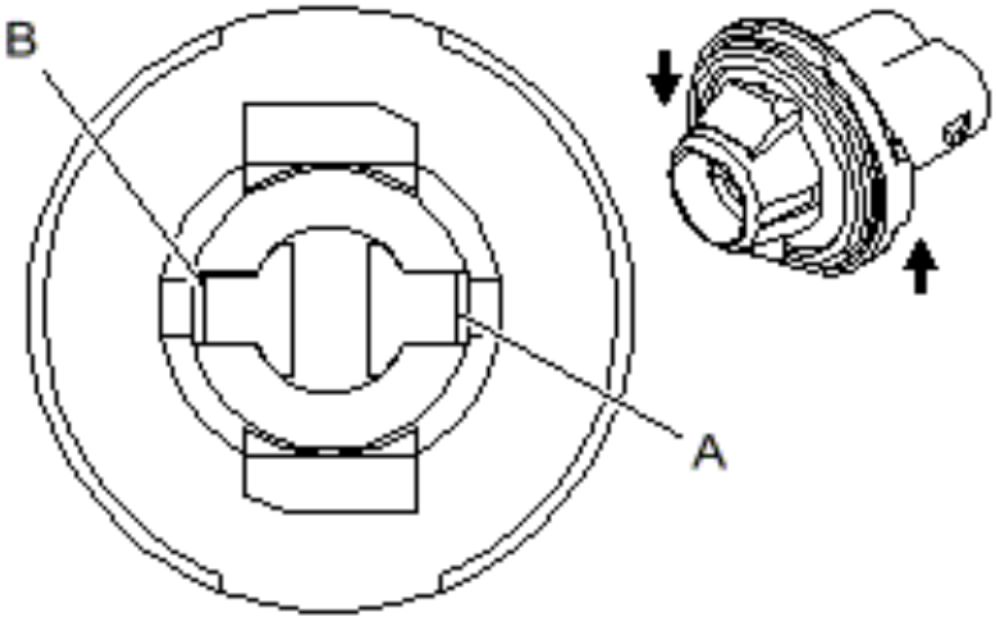

Connector Part Information

- Harness Type: Rear Bumper
- OEM Connector: 15324946
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F Lamp Socket Wedge Base, Type W-2 (D-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	L-GN/YE	6846	Rear License Lamp Control	I	-
B	0.5	BK	1750	Ground	I	-

E7R LICENSE PLATE LAMP - RIGHT

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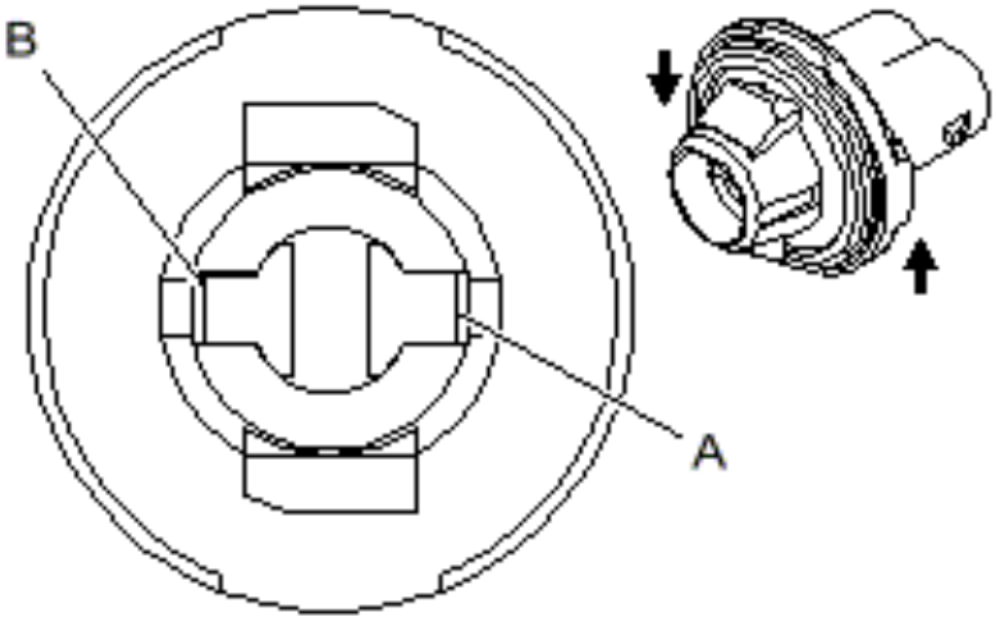

Connector Part Information

- Harness Type: Rear Bumper
- OEM Connector: 15324946
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F Lamp Socket Wedge Base, Type W-2 (D-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	L-GN/YE	6846	Rear License Lamp Control	I	-
B	0.5	BK	1750	Ground	I	-

E11A FUEL HEATER/WATER IN FUEL SENSOR

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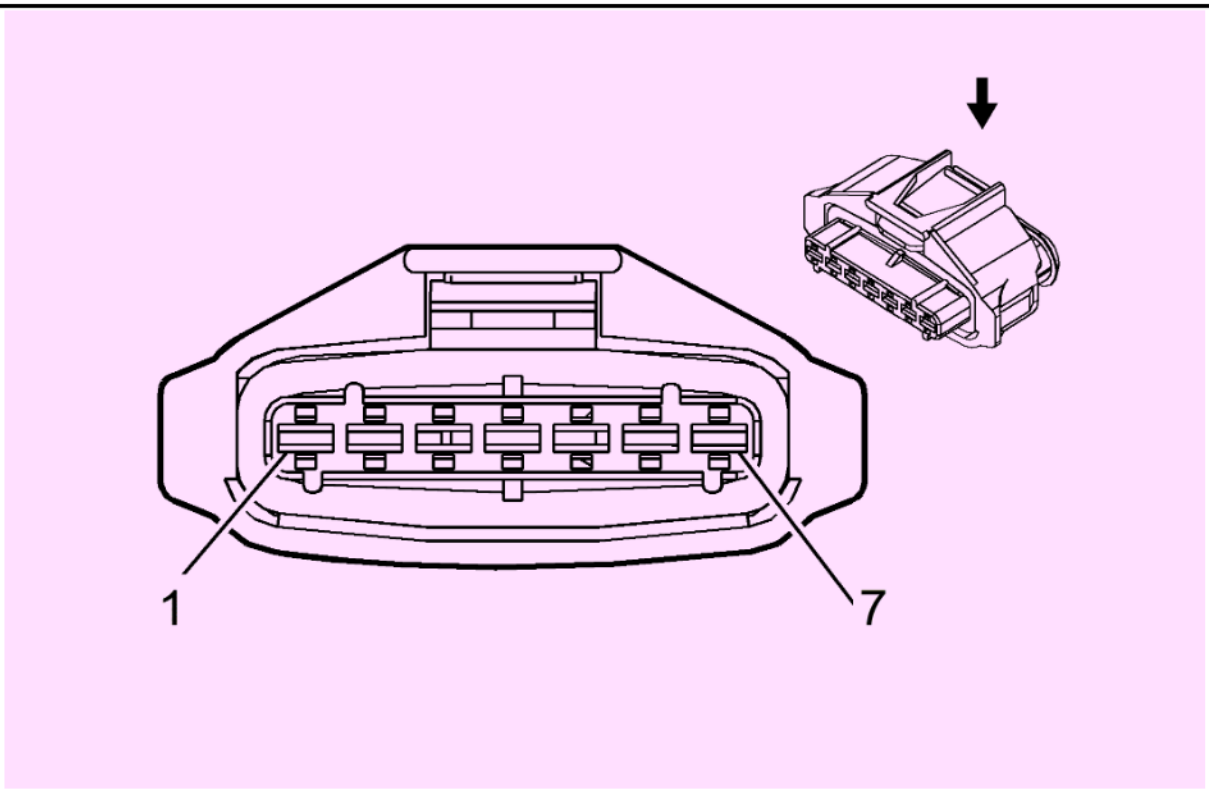

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 10774827
- Service Connector: 19354080
- Description: 7-Way F 2.8 Junior Power Timer Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-33 (YE)	No Tool Required	Not Required	Not Required	Not Required	Not Required
II	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/VT	412	Fuel Filter Temperature Sensor Low Reference	II	-
2	0.5	BN/VT	455	Fuel Filter Temperature Signal	II	-
3	0.5	D-BU/YE	6861	Water In Fuel Sensor Signal	II	-
4	0.5	BK/D-BU	6863	Water In Fuel Sensor Low Reference	II	-
5	-	-	-	Not Occupied	-	-
6	2.5	VT/L-GN	355	Fuel Filter Heater Voltage	I	-
7	2.5	BK	2150	Ground	I	-

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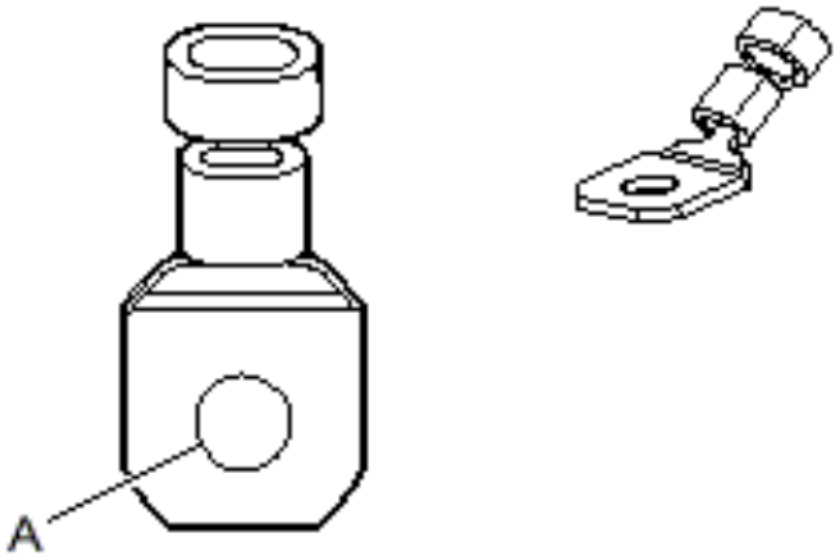
E12A GLOW PLUG 1



Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 7009-1338-02
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 1-Way Ring Terminal

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	2	GY/BU	1581	Glow Plug Control 1	I	L5P

E12B GLOW PLUG 2

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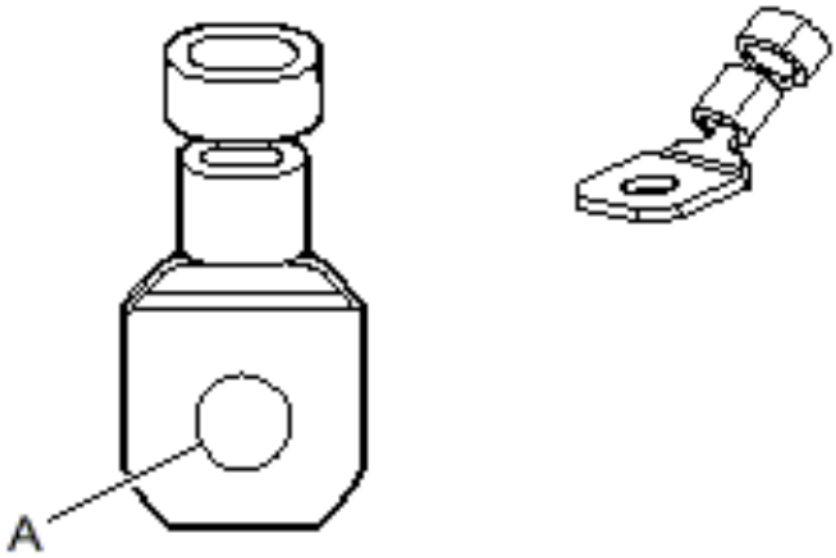

Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 7009-1338-02
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 1-Way Ring Terminal

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	2	GY/BN	1582	Glow Plug Control 2	I	L5P

E12C GLOW PLUG 3

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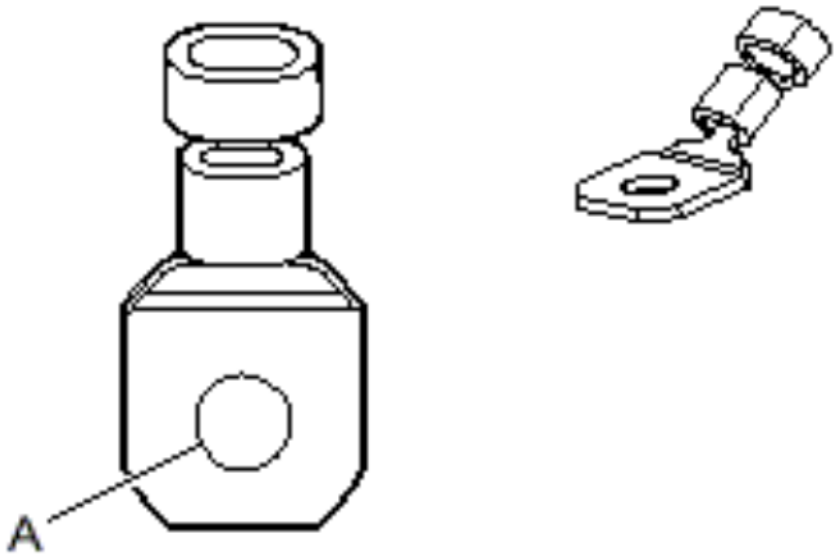

Connector Part Information

- Harness Type: Engine
- OEM Connector: 7009-1338-02
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 1-Way Ring Terminal

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	2	GY/GN	1583	Glow Plug Control 3	I	L5P

E12D GLOW PLUG 4

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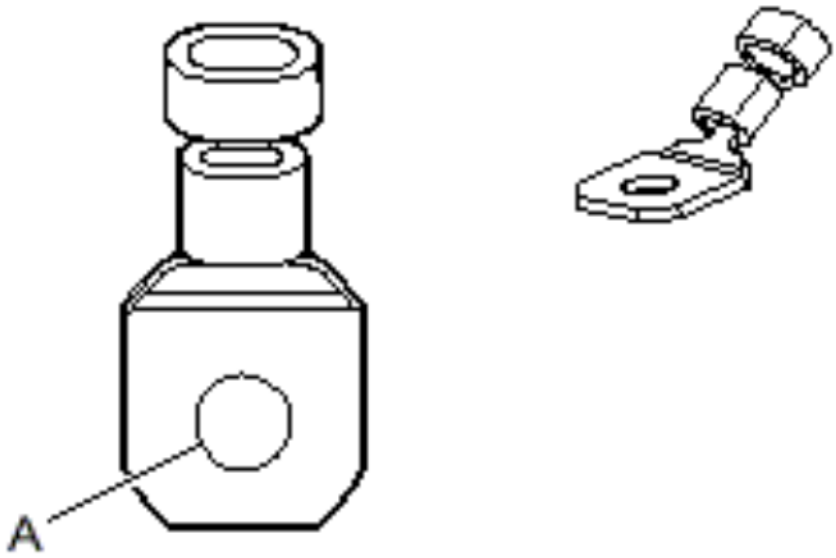

Connector Part Information

- Harness Type: Engine
- OEM Connector: 7009-1338-02
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 1-Way Ring Terminal

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	2	GY/YE	1584	Glow Plug Control 4	I	L5P

E12E GLOW PLUG 5

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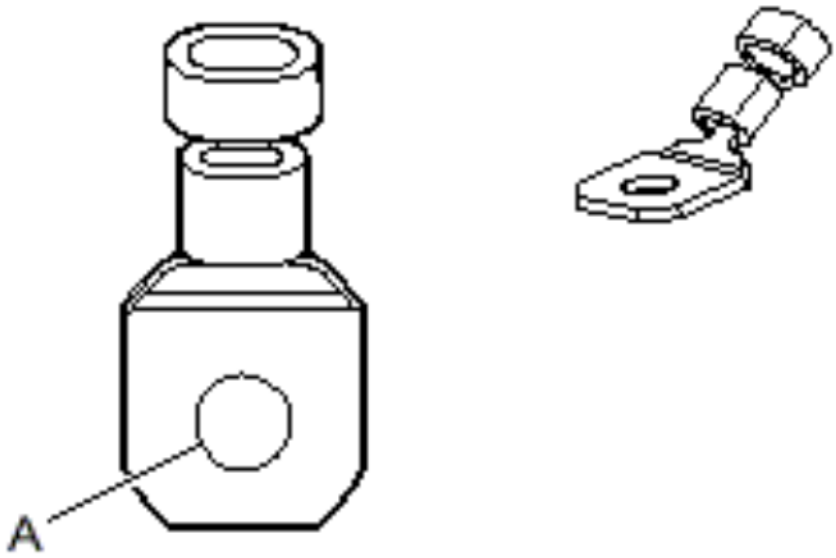

Connector Part Information

- Harness Type: Engine
- OEM Connector: 7009-1338-02
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 1-Way Ring Terminal

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	2	GY/WH	1585	Glow Plug Control 5	I	L5P

E12F GLOW PLUG 6

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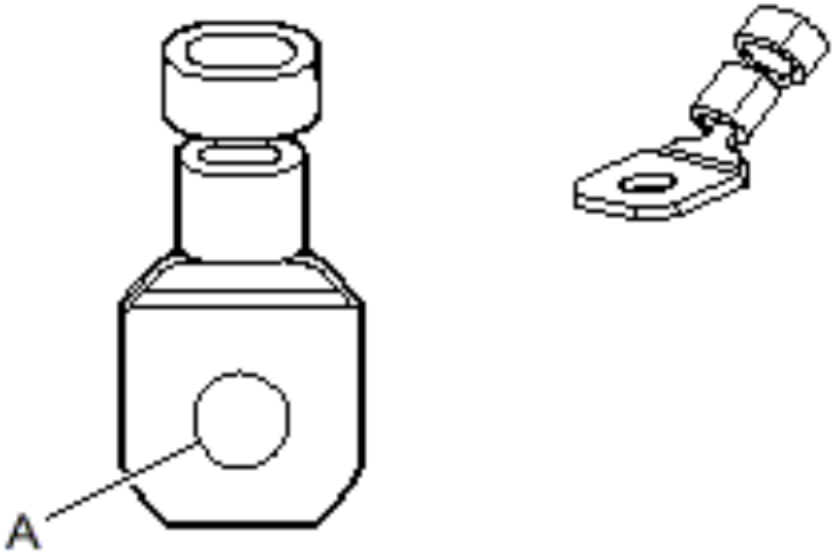


Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 7009-1338-02
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 1-Way Ring Terminal

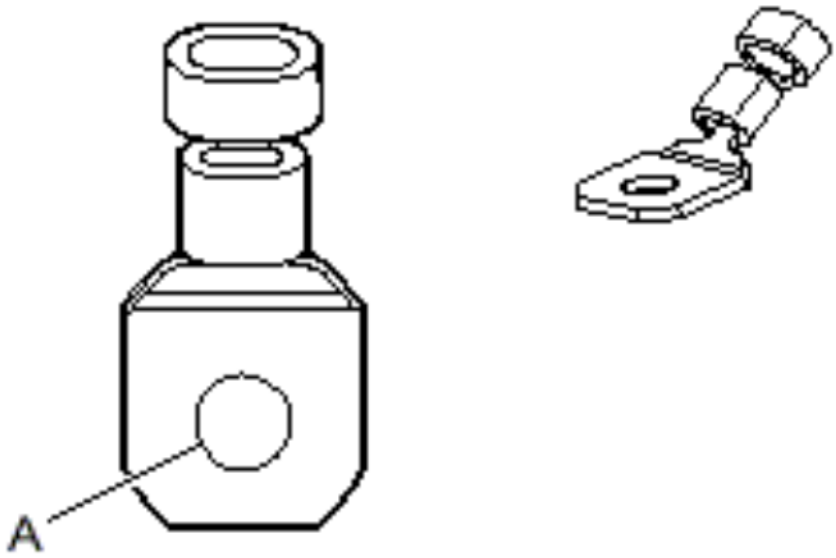
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	2	GY/VT	1586	Glow Plug Control 6	I	L5P

E12G GLOW PLUG 7

cardiagn.com



Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 7009-1338-02
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 1-Way Ring Terminal

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	2	WH/BK	1587	Glow Plug Control 7	I	L5P

E12H GLOW PLUG 8

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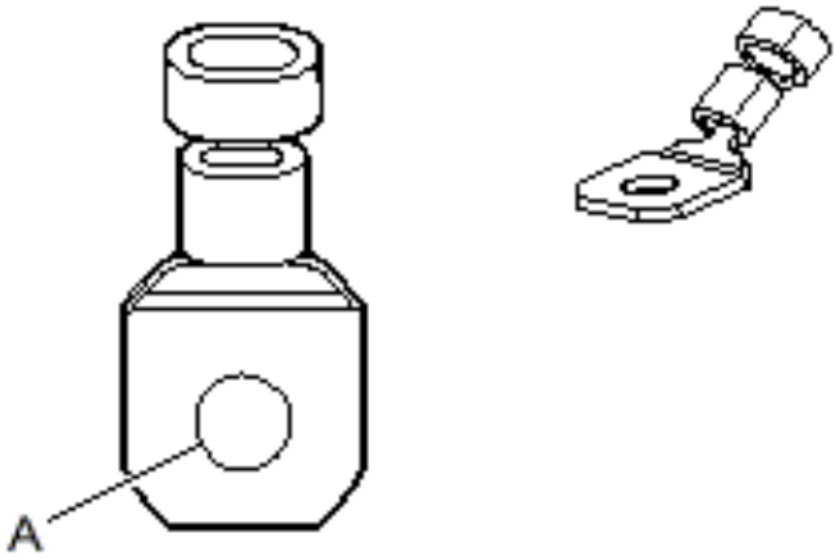

Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 7009-1338-02
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 1-Way Ring Terminal

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	2	WH/BU	1588	Glow Plug Control 8	I	L5P

E14A SEAT HEATING ELEMENT - DRIVER BACK

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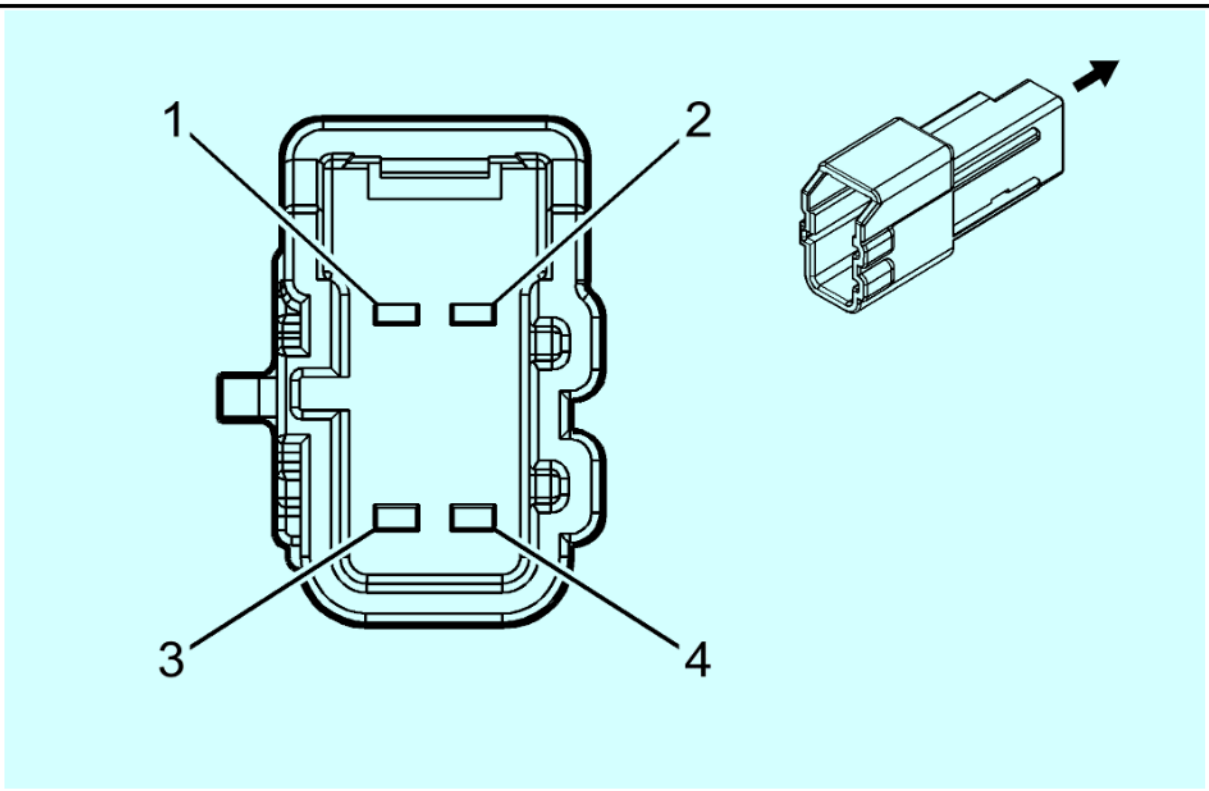

Connector Part Information

- Harness Type: Driver Seat Back Jumper
- OEM Connector: 6098-7781
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way M 1.2 Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-13 (BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN	2432	Driver Heated Back Element Control	I	-
2	0.5	BU	2425	Driver Heated Back NTC Signal	I	-
3	0.5	BK/YE	2080	Driver Heated Seat NTC Low Reference	I	-
4	0.75	BN/BK	2078	Driver Heated Seat Element Low Reference	I	-

E14B SEAT HEATING ELEMENT - DRIVER CUSHION

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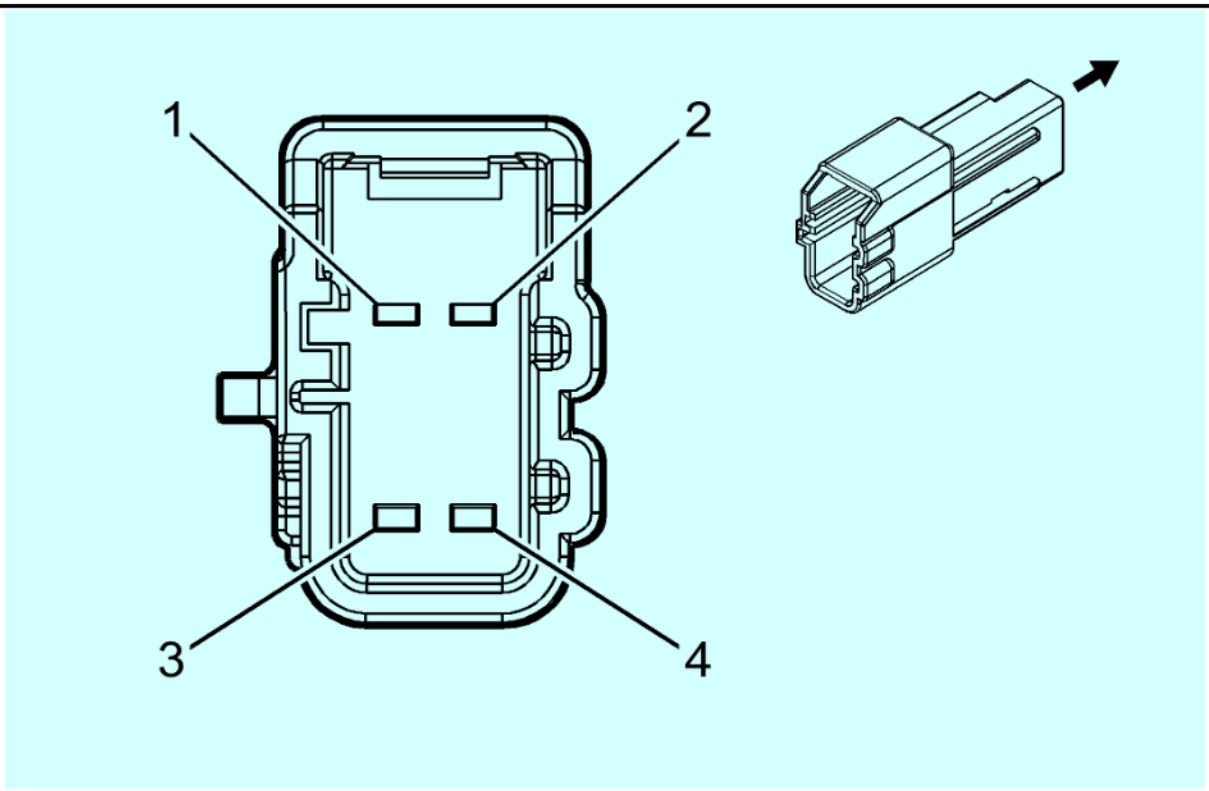

Connector Part Information

- Harness Type: Driver Seat Cushion
- OEM Connector: 6098-7779
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way M 1.2 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-13 (BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN/VT	2077	Driver Heated Seat Element Control	I	-
2	0.5	YE/GY	2079	Driver Heated Seat NTC Signal	I	-
3	0.5	BN/YE	2080	Driver Heated Seat NTC Low Reference	I	-
4	0.75	BN/BK	2078	Driver Heated Seat Element Low Reference	I	-

E14C SEAT HEATING ELEMENT - PASSENGER BACK

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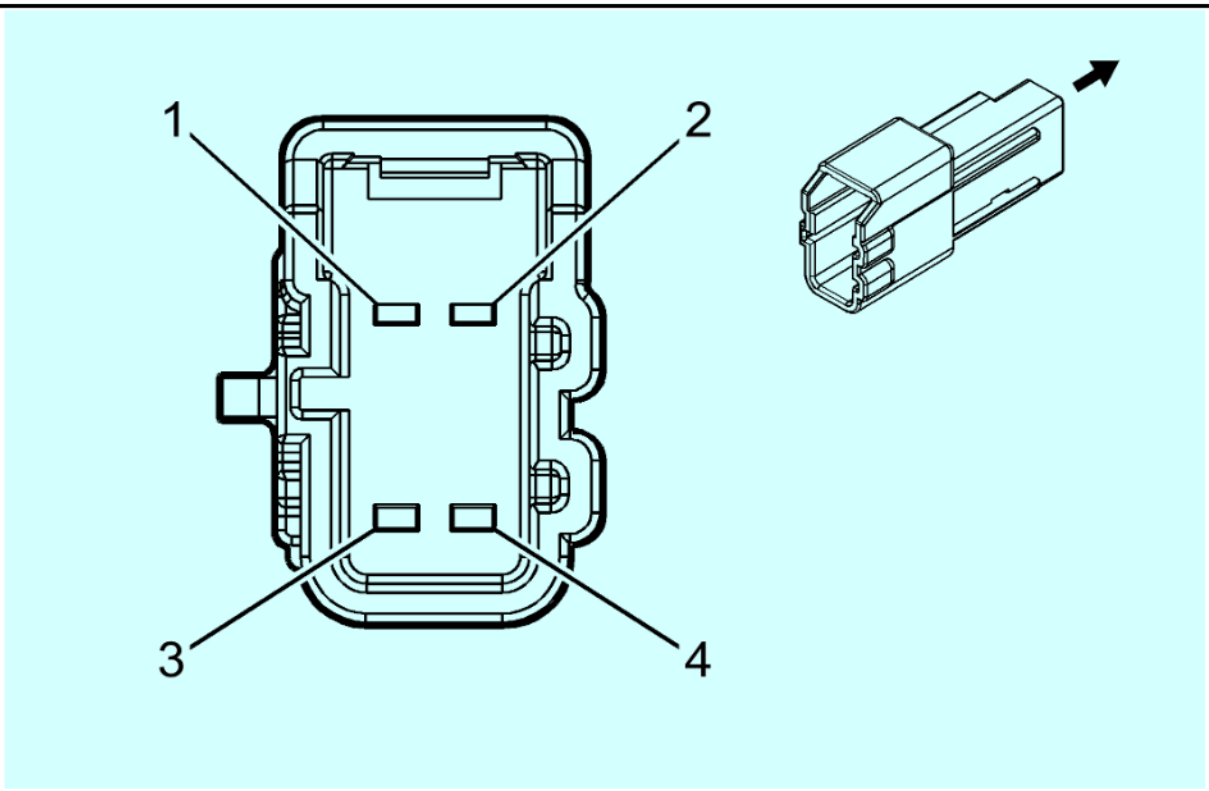

Connector Part Information

- Harness Type: Passenger Seat Back Jumper
- OEM Connector: 6098-7781
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way M 1.2 Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-13 (BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	WH/BN	2481	Passenger Heated Back Element Control	I	-
2	0.5	WH/BU	2436	Passenger Heated Back NTC Signal	I	-
3	0.5	BK/GN	2482	Passenger Heated Back NTC Low Reference	I	-
4	0.75	GY/BK	2480	Passenger Heated Seat Element Low Reference	I	-

E14D SEAT HEATING ELEMENT - PASSENGER CUSHION

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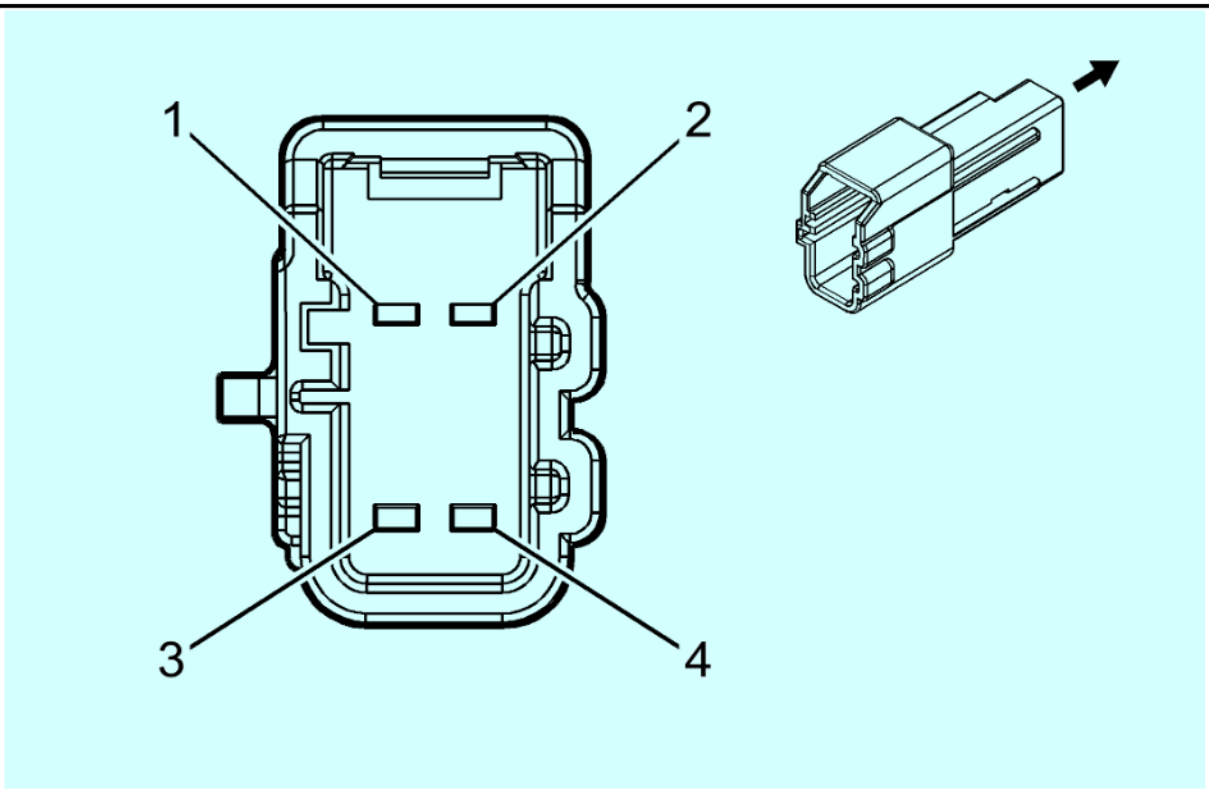

Connector Part Information

- Harness Type: Passenger Seat Cushion
- OEM Connector: 6098-7779
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way M 1.2 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-13 (BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN/L-BU	2479	Passenger Heated Seat Element Control	I	-
2	0.5	WH/GY	2434	Passenger Heated Seat NTC Signal	I	-
3	0.5	BK/GY	2435	Passenger Heated Seat NTC Low Reference	I	-
4	0.75	GY/BK	2480	Passenger Heated Seat Element Low Reference	I	-

E18 REAR DEFOGGER GRID X1

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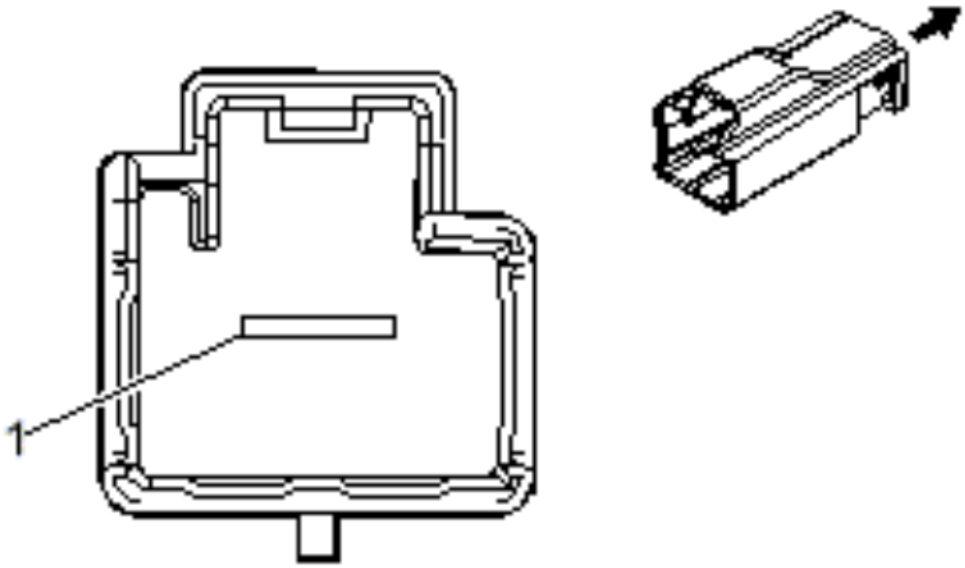

Connector Part Information

- Harness Type: Body
- OEM Connector: 13953570
- Service Connector: 19333227
- Description: 1-Way M 6.3 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-43 (RD)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	BN/VT	293	Rear Defog Element Control	I	-

E28 CENTER CONSOLE COMPARTMENT LAMP

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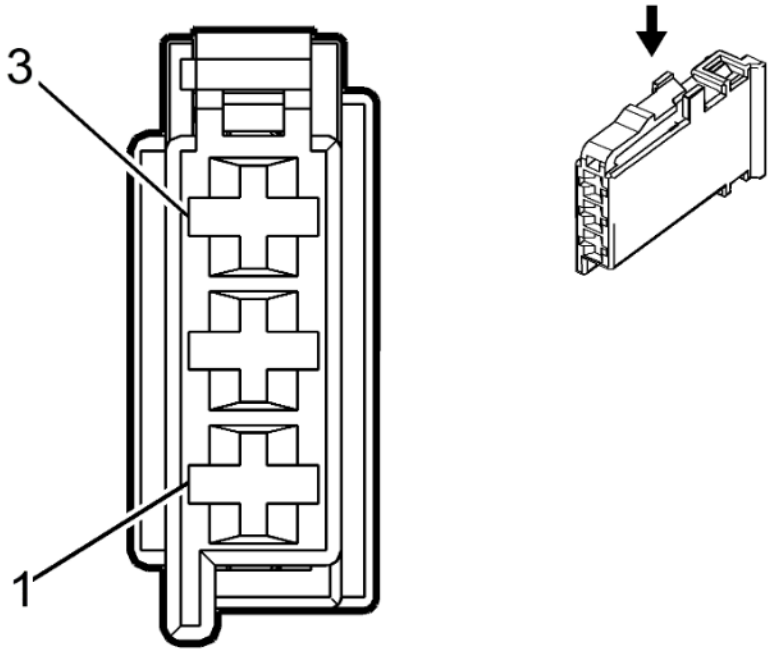

Connector Part Information

- Harness Type: Floor Console
- OEM Connector: 10865339
- Service Connector: Service by Harness - See Part Catalog
- Description: 3-Way F 1.6 Micro-Timer Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/BN	6815	Inadvertent Power Control	I	-
2	0.75	BK	1050	Ground	I	-
3	-	-	-	Not Occupied	-	-

E29LF FOG LAMP - LEFT FRONT (UD5)

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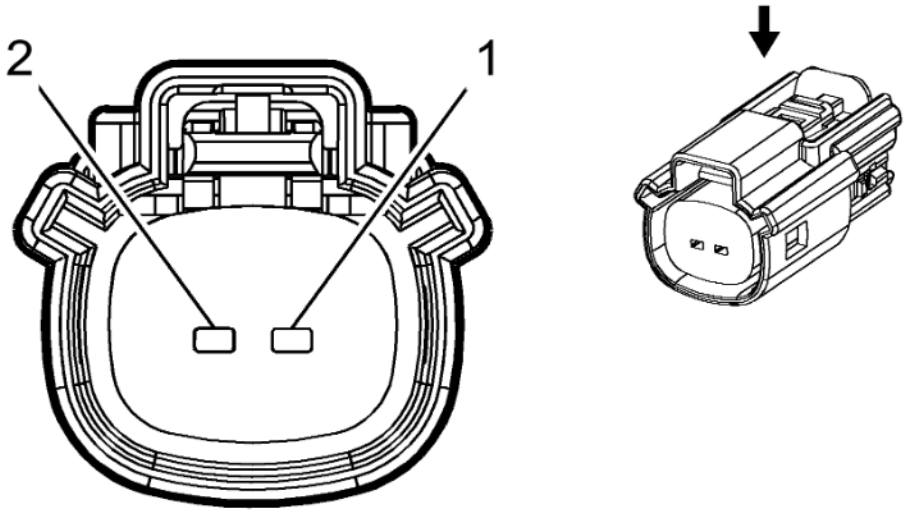

Connector Part Information

- Harness Type: Front Bumper
- OEM Connector: 13782480
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 150 MX Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN/VT	2234	Front Fog Lamp Control	I	-
2	0.5	BK	150	Ground	I	-

E29LF FOG LAMP - LEFT FRONT (-UD5)

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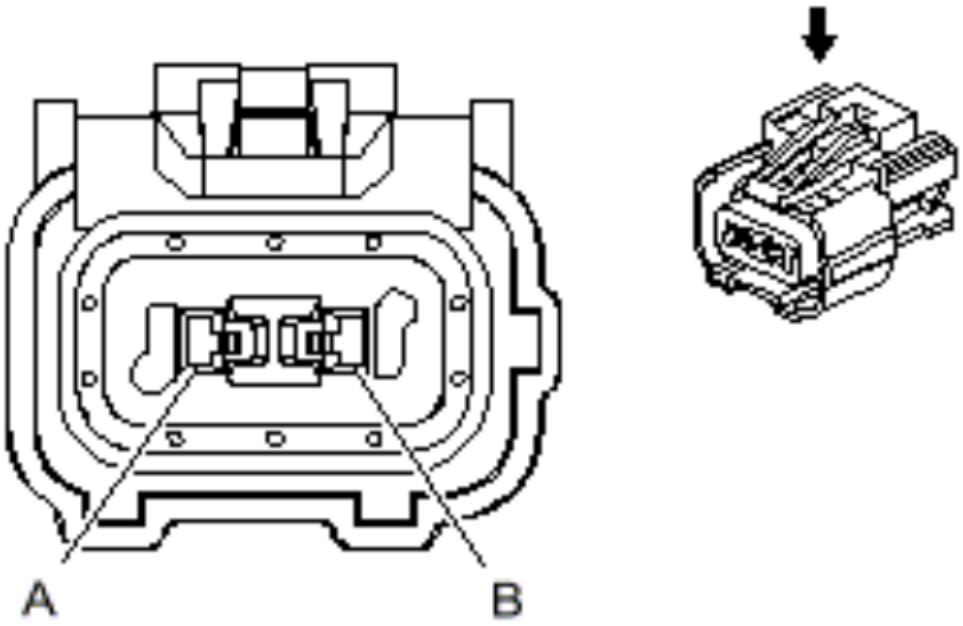

Connector Part Information

- Harness Type: Front Bumper
- OEM Connector: 15489797
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 150 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	BN/VT	2234	Front Fog Lamp Control	I	-
B	0.5	BK	150	Ground	I	-

E29RF FOG LAMP - RIGHT FRONT (UD5)

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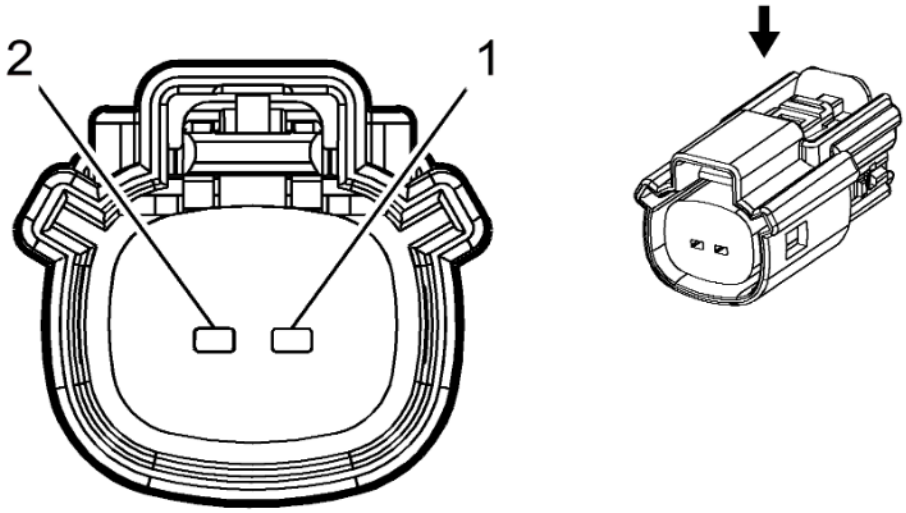

Connector Part Information

- Harness Type: Front Bumper
- OEM Connector: 13782480
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 150 MX Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN/VT	2234	Front Fog Lamp Control	I	-
2	0.5	BK	250	Ground	I	-

E29RF FOG LAMP - RIGHT FRONT (-UD5)

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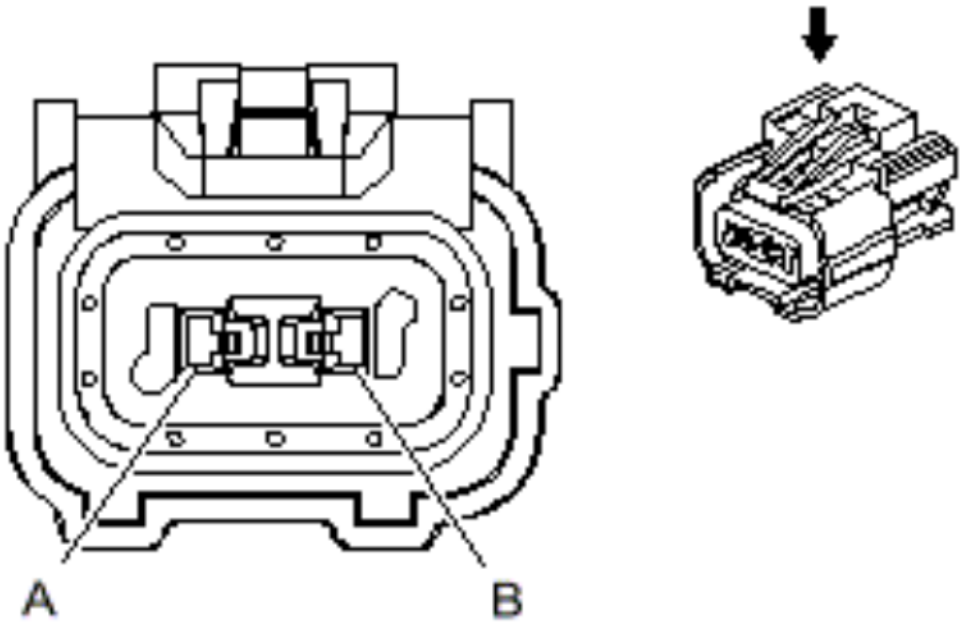

Connector Part Information

- Harness Type: Front Bumper
- OEM Connector: 15489797
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 150 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	BN/VT	2234	Front Fog Lamp Control	I	-
B	0.5	BK	250	Ground	I	-

E31L SUNSHADE MIRROR LAMP - LEFT

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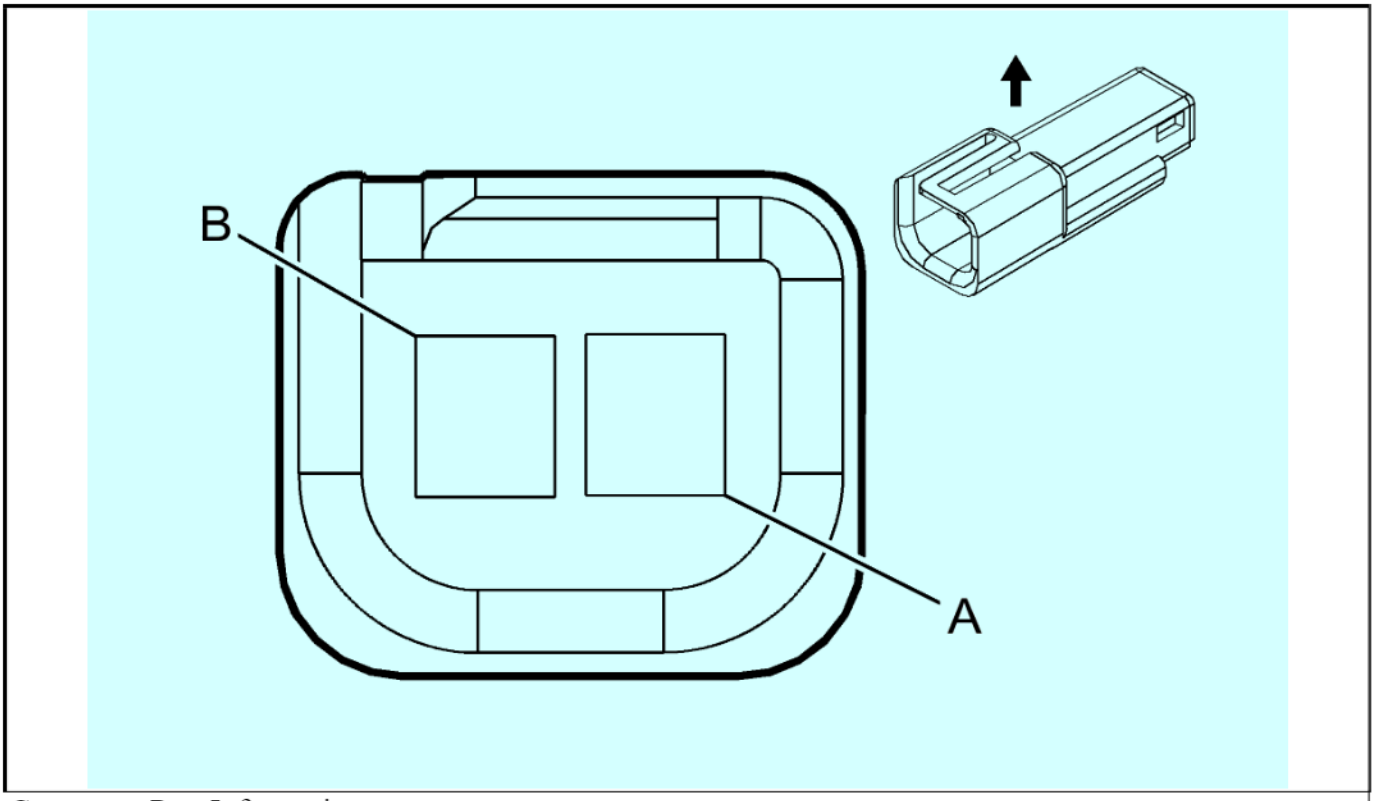

Connector Part Information

Terminal Part Information

- Harness Type: Headliner
- OEM Connector: 12047663
- Service Connector: 13584278
- Description: 2 Way M 150 Metri-Pack Series (BK)

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
Not Required	Not Required	I-35616-3 (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	WH/BN	6815	Inadvertent Power Control	I	-
B	0.5	BK	1050	Ground	I	-

Article GUID: A00854476

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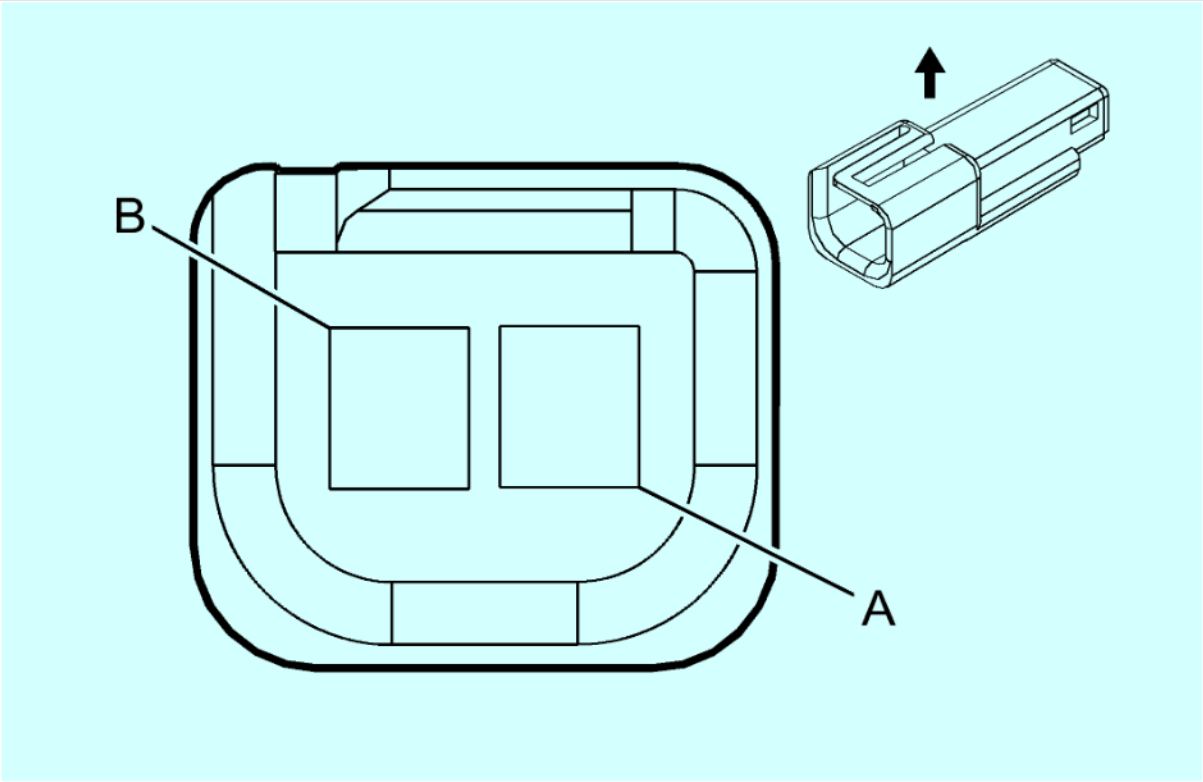
COMPONENT CONNECTOR END VIEWS

E31R SUNSHADE MIRROR LAMP - RIGHT



Connector Part Information

- Harness Type: Headliner
- OEM Connector: 12047663
- Service Connector: 13584278
- Description: 2-Way M 150 Metri-Pack Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-3 (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	WH/BN	6815	Inadvertent Power Control	I	-
B	0.5	BK	1050	Ground	I	-

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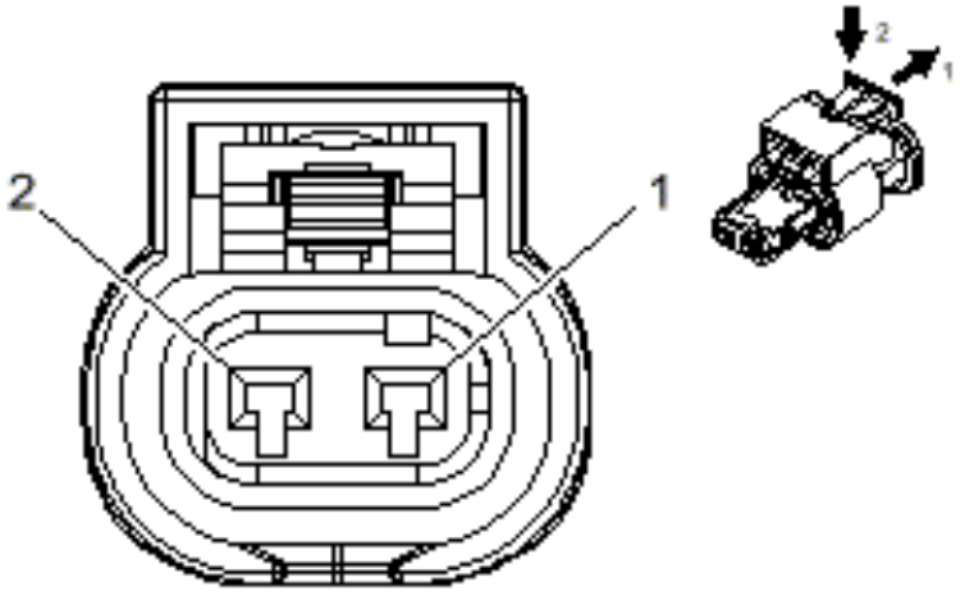
E33LF CARGO LAMP - LEFT FRONT (ZYD)



Connector Part Information

- Harness Type: Left Bin Jumper
- OEM Connector: 13580179
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	1450	Ground	I	-
2	0.75	WH/VT	1430	Exterior Courtesy Lamp Control	I	-

E33LR CARGO LAMP - LEFT REAR (ZYD)

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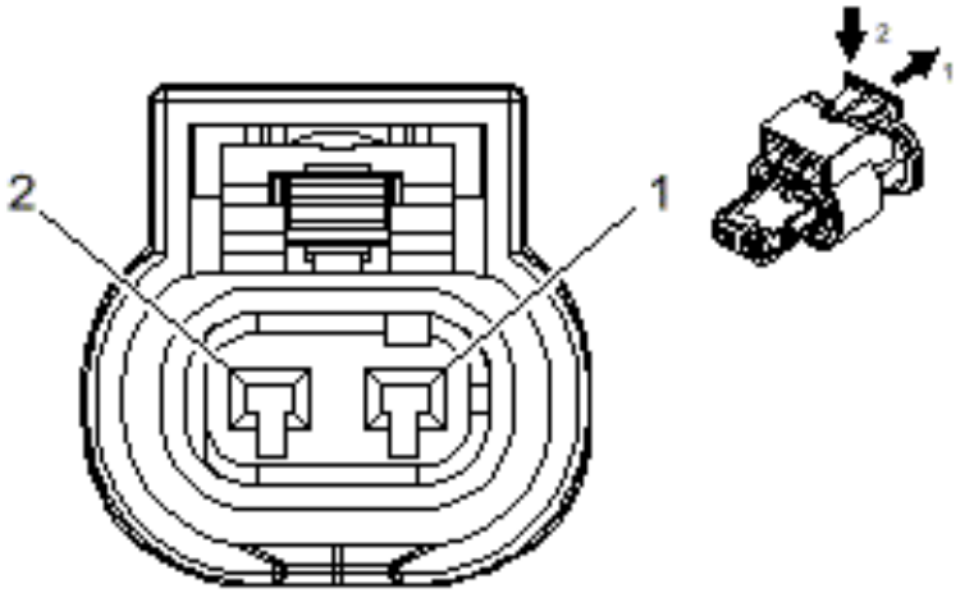

Connector Part Information

- Harness Type: Left Bin Jumper
- OEM Connector: 13580179
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	1450	Ground	I	-
2	0.752	WH/VT	1430	Exterior Courtesy Lamp Control	I	-

E37B DOME/READING LAMPS - 2ND ROW

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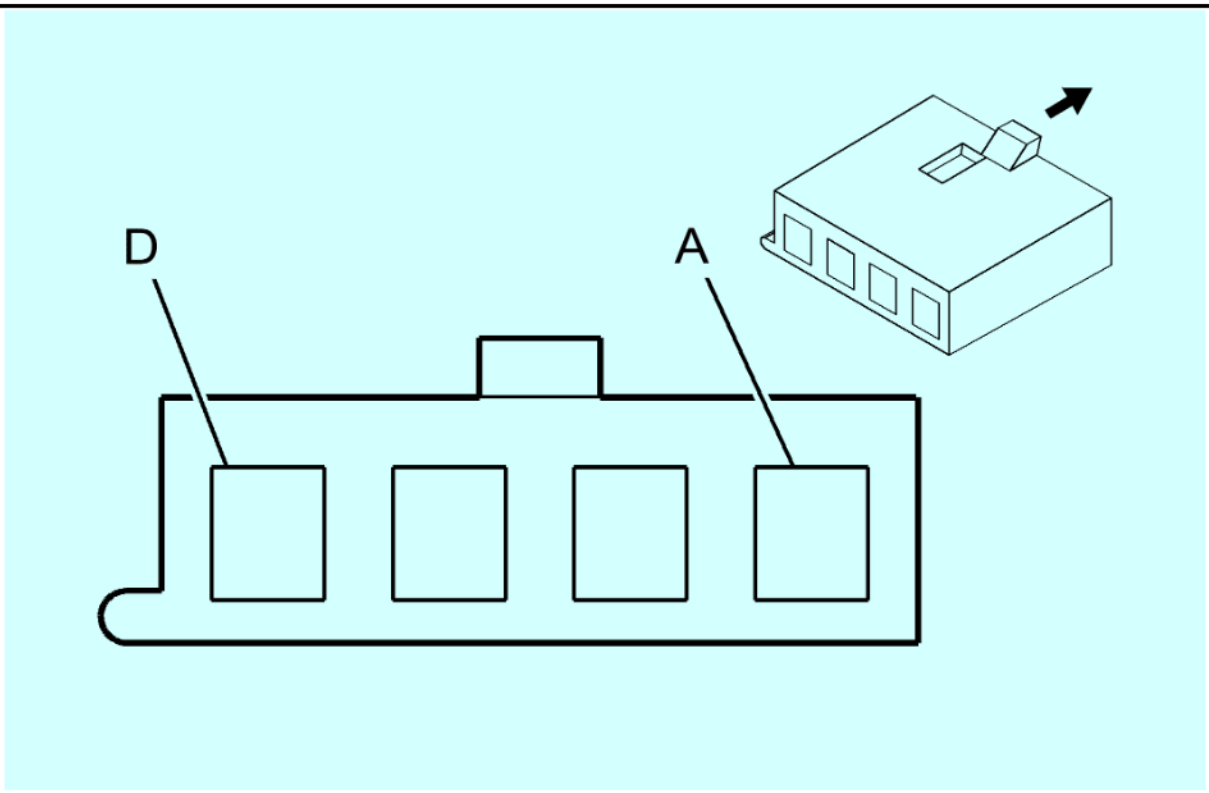

Connector Part Information

- Harness Type: Headliner
- OEM Connector: 12092162
- Service Connector: 15306021
- Description: 4-Way F 150 Metri-Pack Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	WH/BN	6815	Inadvertent Power Control	I	-
B	0.5	BK	1050	Ground	I	-
C	0.5	GY	157	Interior Lamp Control	I	-
D	0.5	YE	6817	LED Backlight Dimming Control	I	-

E37EL DOME/READING LAMPS - FRONT OVERHEAD CONSOLE LEFT

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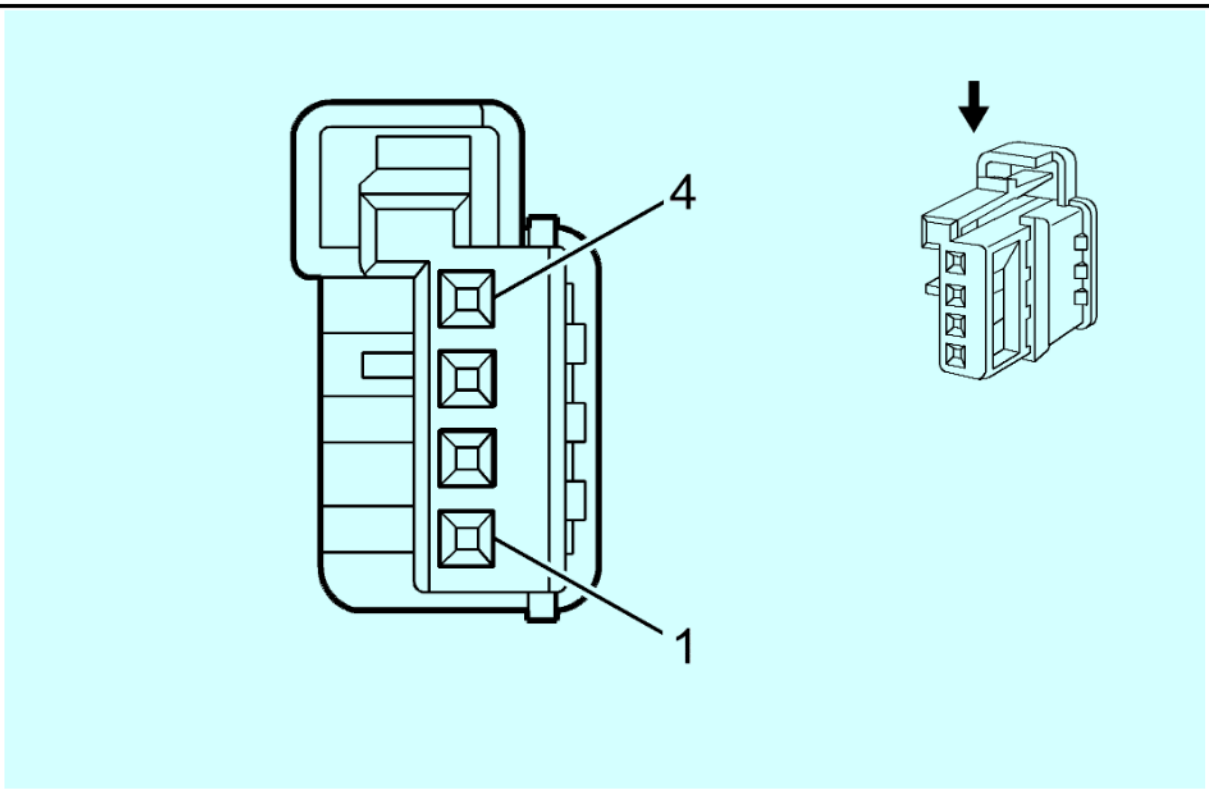

Connector Part Information

- Harness Type: Overhead Console
- OEM Connector: 10812166
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 0.64 Micro-Quadlock Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE	6817	LED Backlight Dimming Control	I	-
2	0.5	WH/BN	6815	Inadvertent Power Control	I	-
3	0.5	GY	157	Interior Lamp Control	I	-
4	0.5	BK	1050	Ground	I	-

E37ER DOME/READING LAMPS - FRONT OVERHEAD CONSOLE RIGHT

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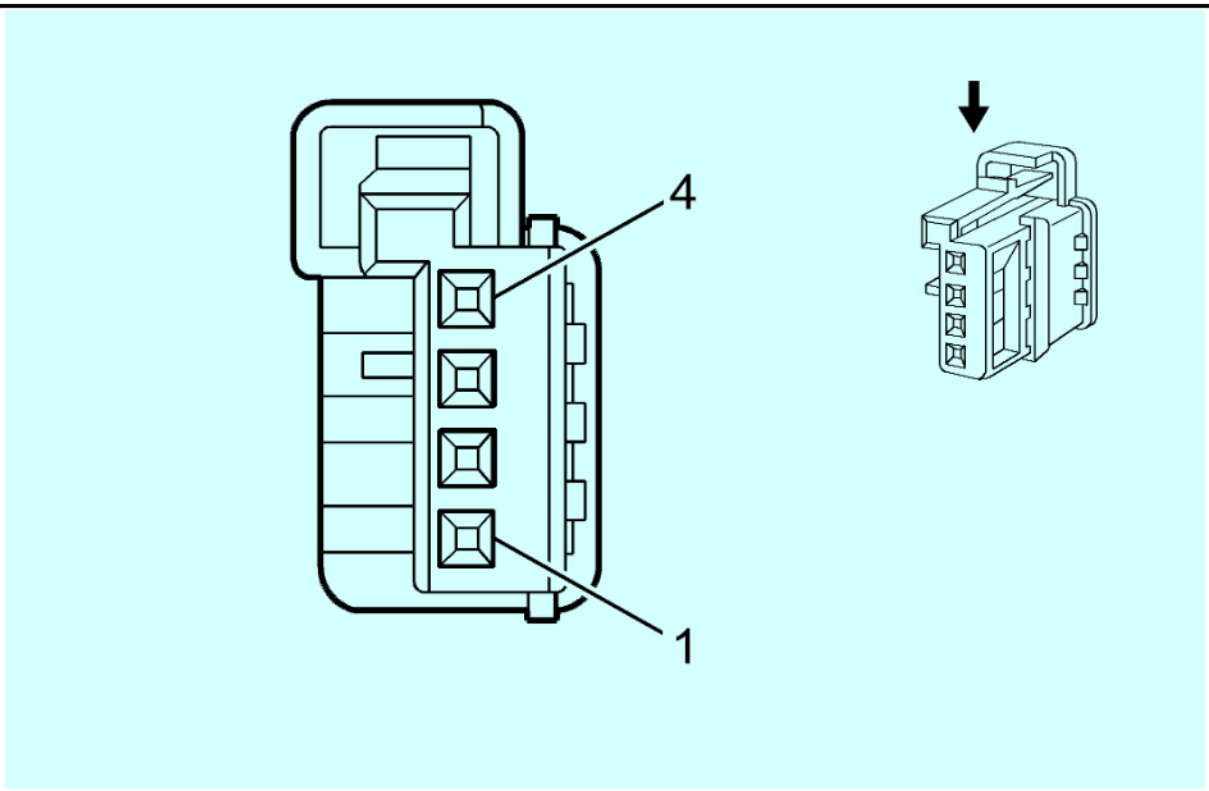

Connector Part Information

- Harness Type: Overhead Console
- OEM Connector: 10812166
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 0.64 Micro-Quadlock Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE	6817	LED Backlight Dimming Control	I	-
2	0.5	WH/BN	6815	Inadvertent Power Control	I	-
3	0.5	GY	157	Interior Lamp Control	I	-
4	0.5	BK	1050	Ground	I	-

E52 REDUCTANT LINE HEATER (L5P)

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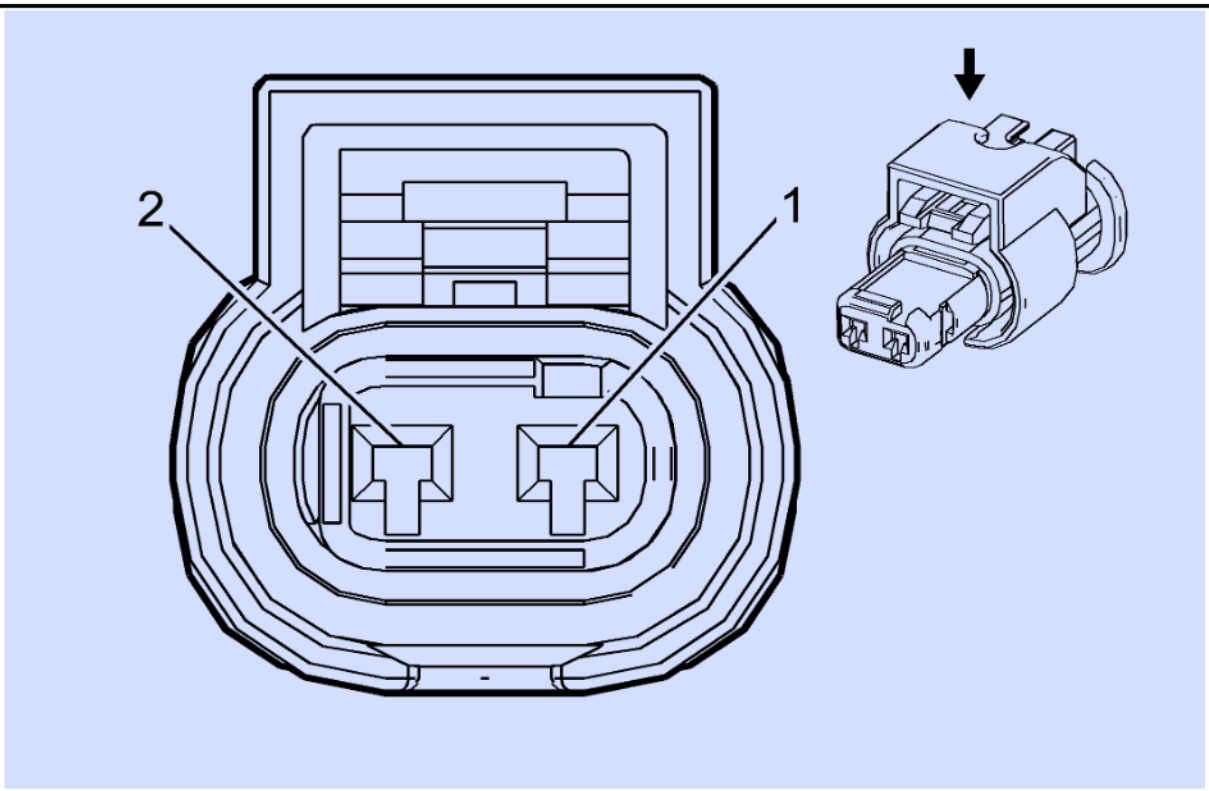

Connector Part Information

- Harness Type: Reductant Fuel Pump
- OEM Connector: 13927761
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.0	YE	-	Line Heat Ground	I	-
2	1.0	BN	-	Line Heater Supply	I	-

E52B REDUCTANT LINE HEATER 2 (L5P)

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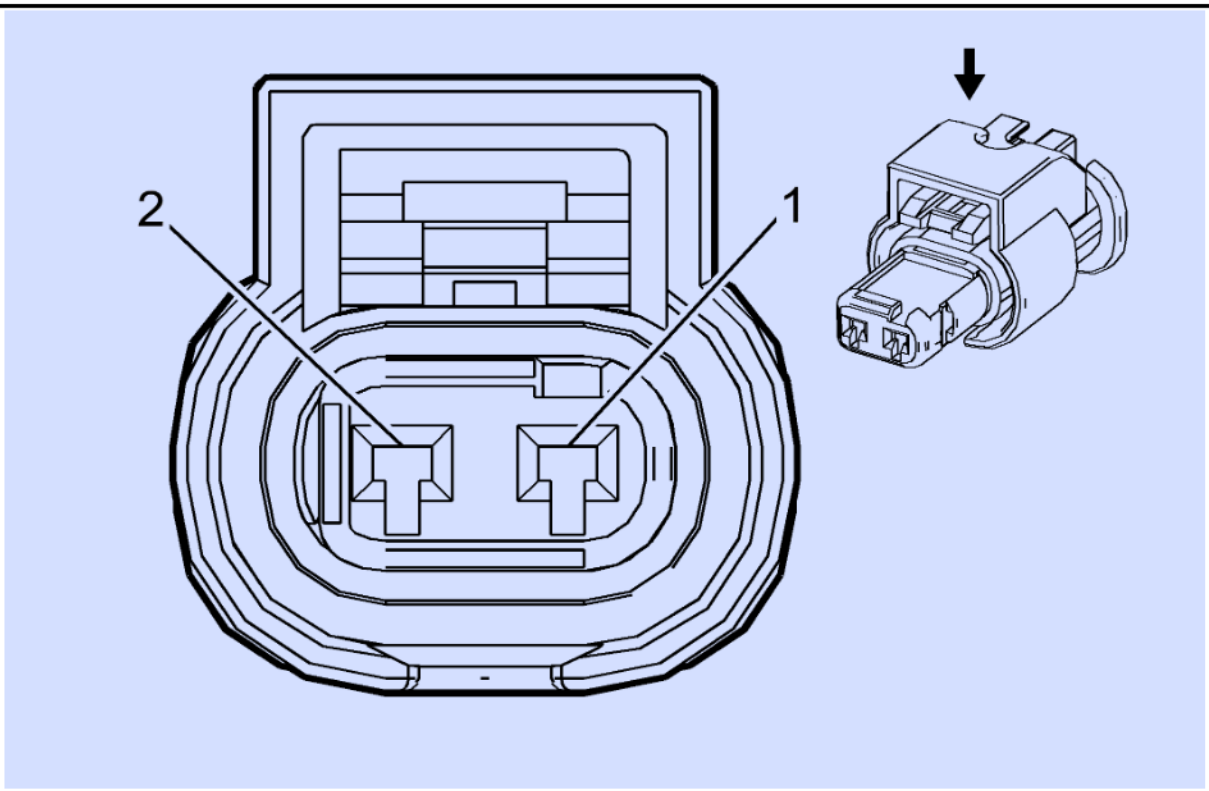

Connector Part Information

- Harness Type: Line Heater
- OEM Connector: 13586143
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.0	YE	-	Line Heat Ground	I	-
2	1.0	BN	-	Line Heater Supply	I	-

E87L CARGO LAMP - LEFT CARGO STOWAGE BOX (ZYD)

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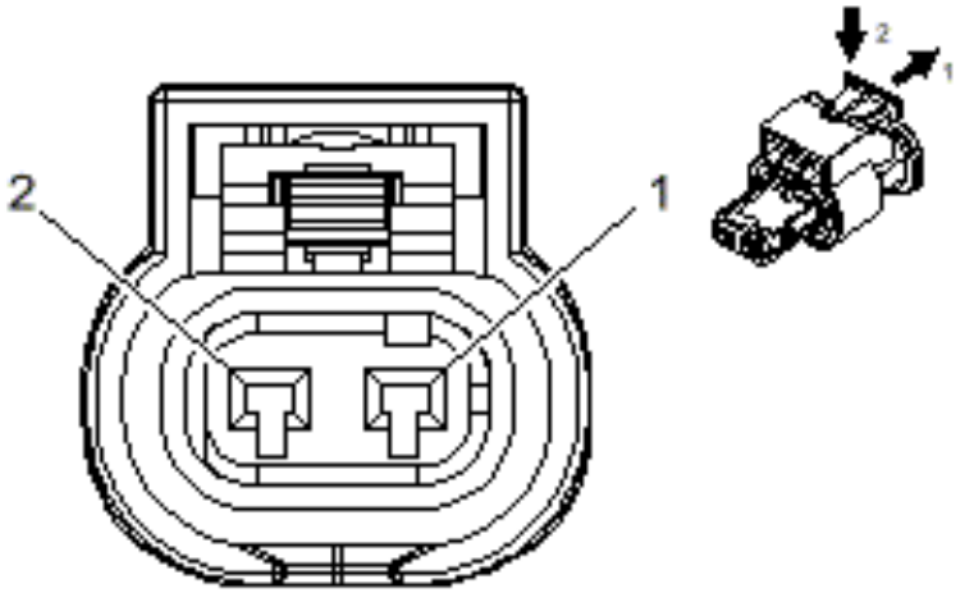

Connector Part Information

- Harness Type: Left Bin Jumper
- OEM Connector: 13580179
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN	9200	Low Reference	I	-
2	0.75	WH/BN	6815	Inadvertent Power Control	I	-

E87R CARGO LAMP - RIGHT CARGO STOWAGE BOX (ZYD)

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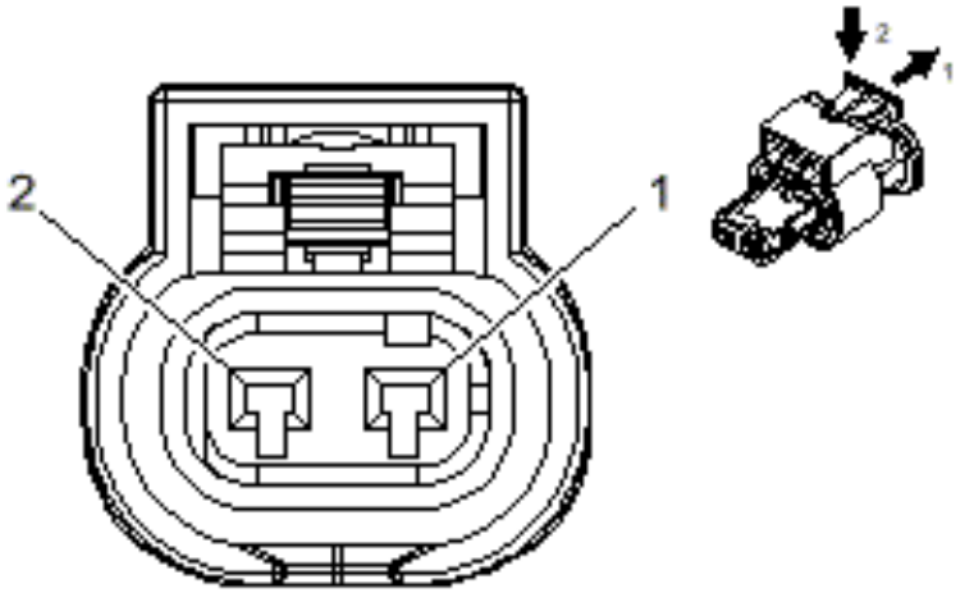

Connector Part Information

- Harness Type: Right Bin Jumper
- OEM Connector: 13580179
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN	9200	Low Refrence	I	-
2	0.75	WH/BN	6815	Inadvertent Power Control	I	-

F101 PASSENGER INSTRUMENT PANEL AIR BAG

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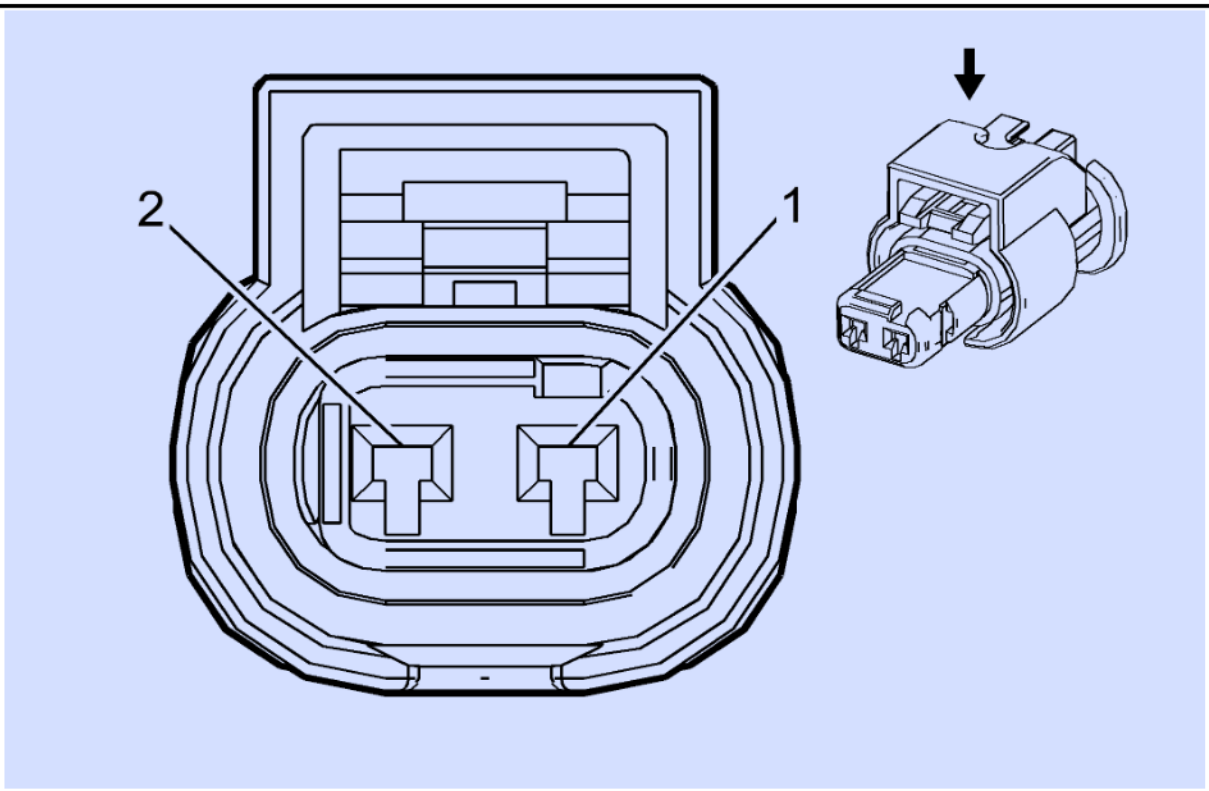

Connector Part Information

- Harness Type: Instrument Panel Extension
- OEM Connector: 13863037
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.2 MCP Series, Sealed (YE)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE/OG	3025	Passenger IP Module Stage 1 High Control	I	-
2	0.35	OG/WH	3024	Passenger IP Module Stage 1 Low Control	I	-

F102 HYBRID/EV BATTERY PACK CABLE COVER

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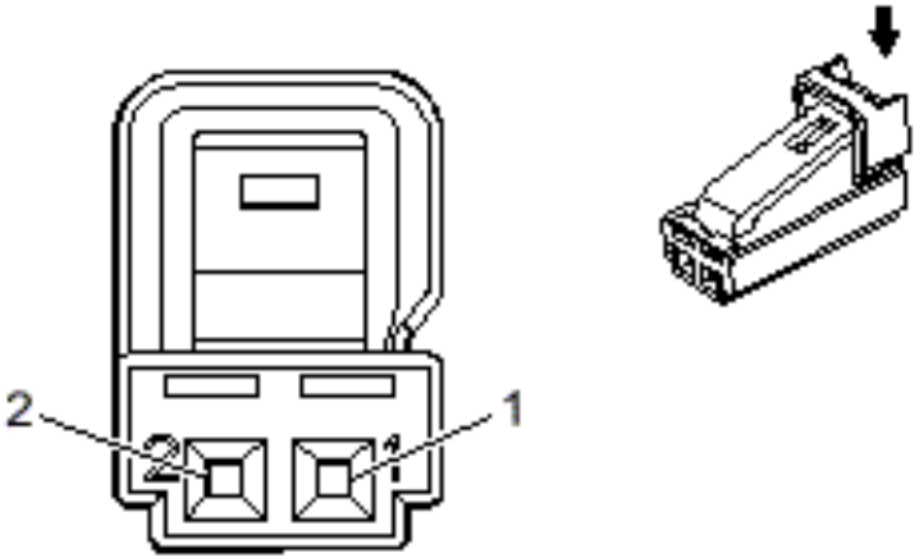

Connector Part Information

- Harness Type: High Voltage Battery Monitoring
- OEM Connector: 10865735
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 0.64 Micro-Quadlock Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT	5087	High Voltage Interlock Loop Signal 1	I	-
2	0.5	BK/BN	5088	High Voltage Interlock Loop Low Reference 1	I	-

F106D SEAT SIDE AIR BAG - DRIVER

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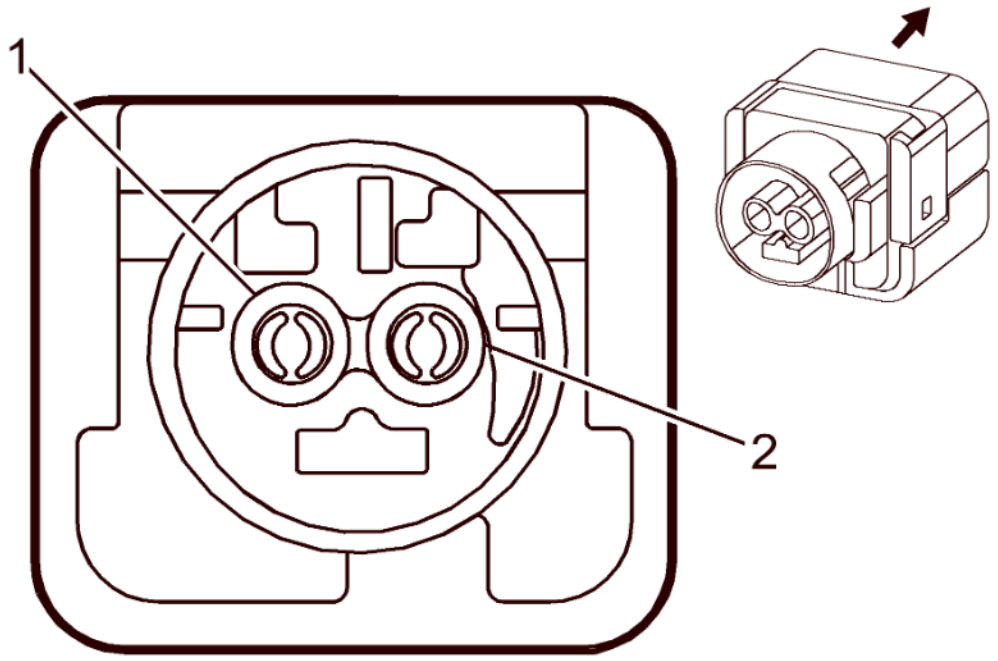

Connector Part Information

- Harness Type: Driver Seat Back Jumper
- OEM Connector: PPI0001142
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F FPB 180-1 Series (BK with YE Cover)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG/BU	3068	Driver Side Impact Module High Control	I	-
2	0.5	GN/OG	3069	Driver Side Impact Module Low Control	I	-

F106P SEAT SIDE AIR BAG - PASSENGER

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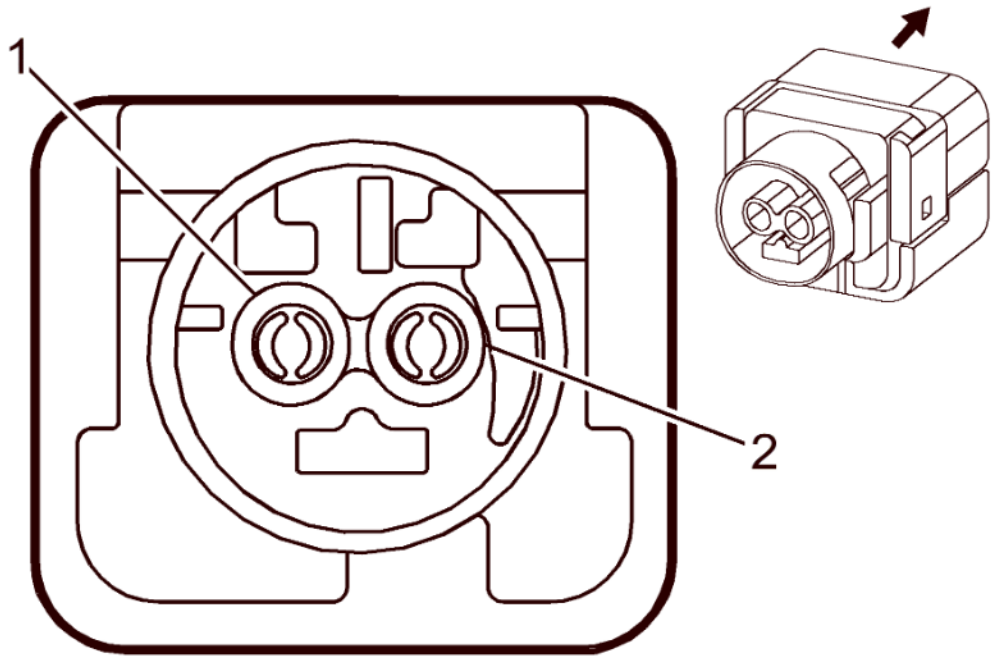

Connector Part Information

- Harness Type: Passenger Seat Back Jumper
- OEM Connector: PPI0001142
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F FPB 180-1 Series (BK with YE Cover)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG/GY	3066	Passenger Side Impact Module High Control	I	-
2	0.5	BN/OG	3067	Passenger Side Impact Module Low Control	I	-

F112D SEAT BELT RETRACTOR PRETENSIONER - DRIVER (CREW CAB)

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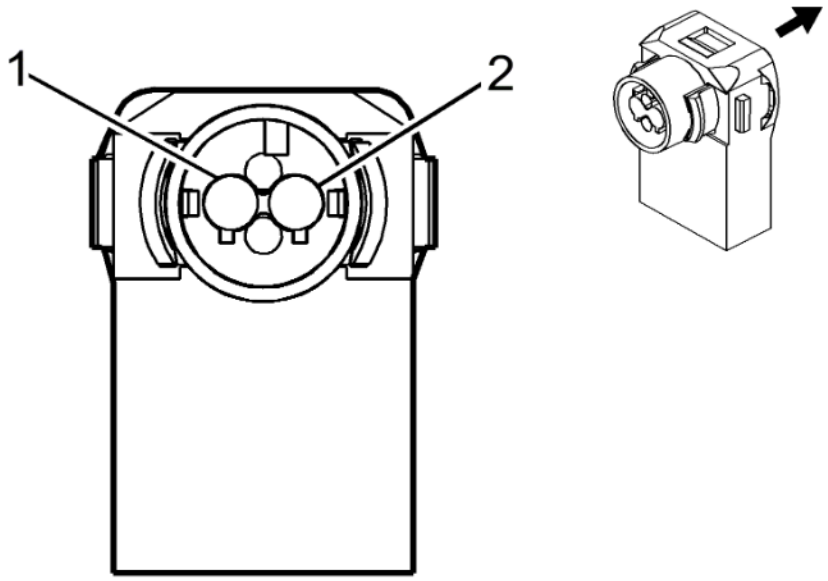

Connector Part Information

- Harness Type: Body
- OEM Connector: 33154433
- Service Connector: 19354083
- Description: 2-Way F 1.0 MAC Series (PU with YE Cover)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	3477	Driver Seat Belt Retractor Pretensioner High Control	I	-
2	-	-	3478	Driver Seat Belt Retractor Pretensioner Low Control	I	-

F112D SEAT BELT RETRACTOR PRETENSIONER - DRIVER (EXTENDED CAB)

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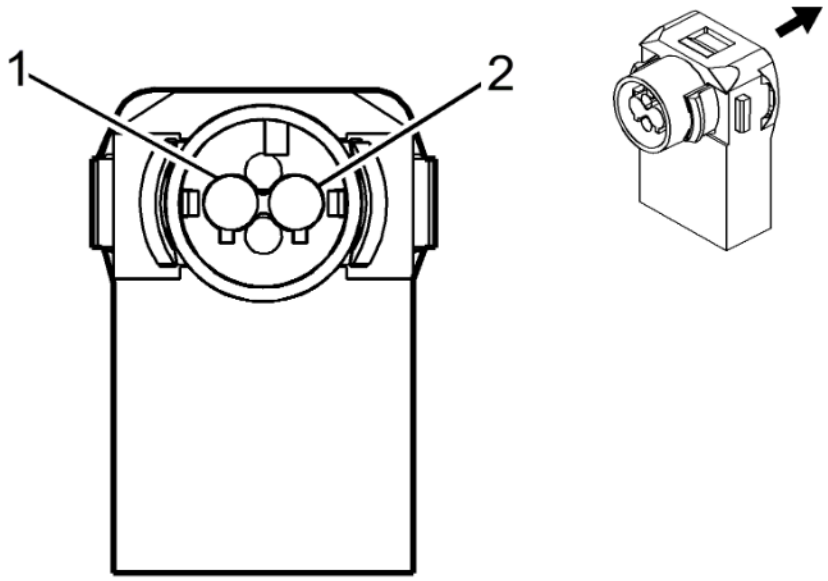

Connector Part Information

- Harness Type: Body
- OEM Connector: 33154433
- Service Connector: 19354083
- Description: 2-Way F 1.0 MAC Series (PU with YE Cover)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD	3477	Driver Seat Belt Retractor Pretensioner High Control	I	-
2	0.5	GY	3478	Driver Seat Belt Retractor Pretensioner Low Control	I	-

F112D SEAT BELT RETRACTOR PRETENSIONER - DRIVER (REGULAR CAB)

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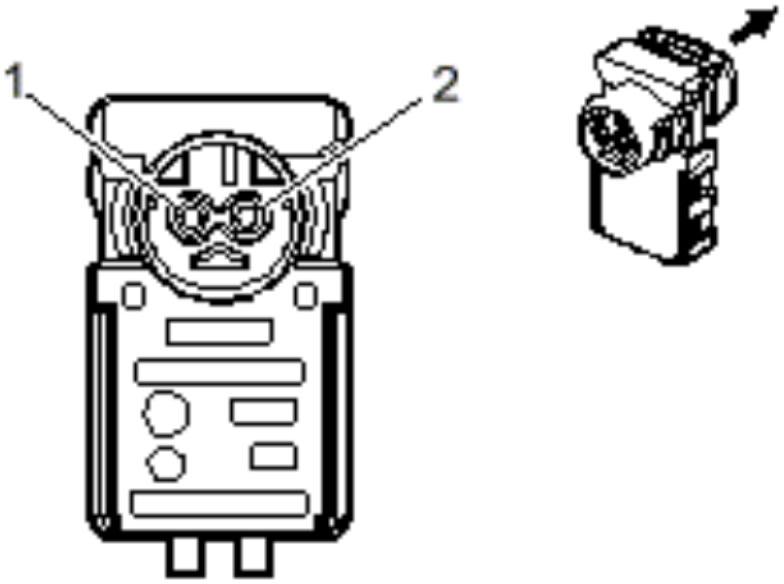

Connector Part Information

- Harness Type: Body
- OEM Connector: 988530061
- Service Connector: 19119345
- Description: 2-Way F AK-2 Series (BK with YE Cover)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	3477	Driver Seat Belt Retractor Pretensioner High Control	I	-
2	-	-	3478	Driver Seat Belt Retractor Pretensioner Low Control	I	-

F112P SEAT BELT RETRACTOR PRETENSIONER - PASSENGER (CREW CAB)

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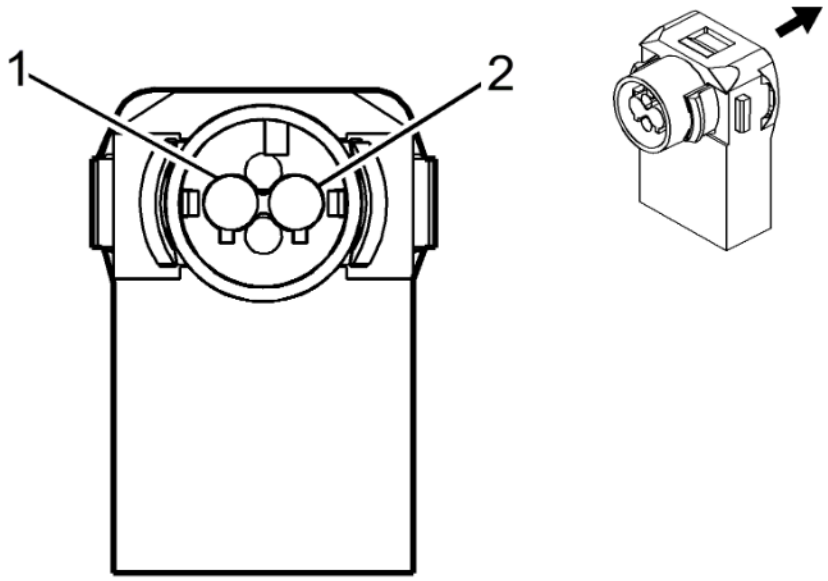

Connector Part Information

- Harness Type: Body
- OEM Connector: 33154433
- Service Connector: 19354083
- Description: 2-Way F 1.0 MAC Series (PU with YE Cover)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	3475	Passenger Seat Belt Retractor Pretensioner High Control	I	-
2	-	-	3476	Passenger Seat Belt Retractor Pretensioner Low Control	I	-

F112P SEAT BELT RETRACTOR PRETENSIONER - PASSENGER (EXTENDED CAB)

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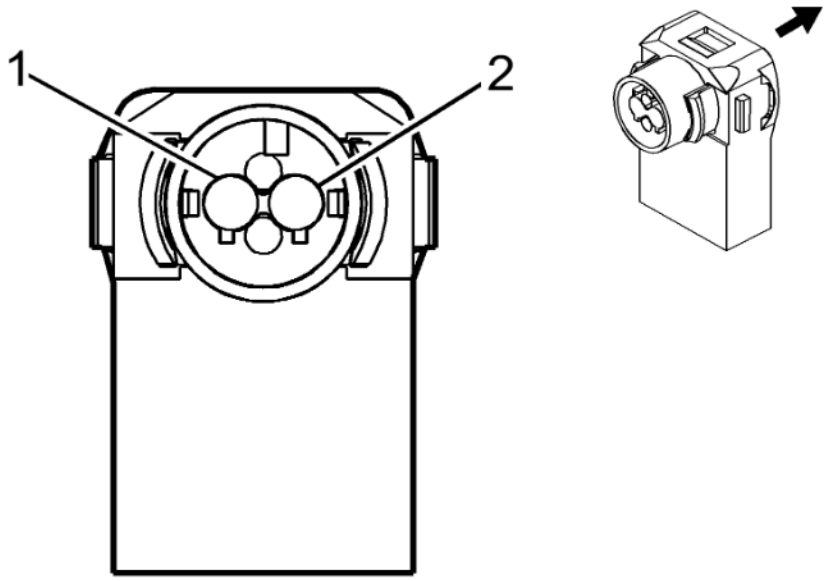

Connector Part Information

- Harness Type: Body
- OEM Connector: 33154433
- Service Connector: 19354083
- Description: 2-Way F 1.0 MAC Series (PU with YE Cover)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	3475	Passenger Seat Belt Retractor Pretensioner High Control	I	-
2	-	-	3476	Passenger Seat Belt Retractor Pretensioner Low Control	I	-

F112P SEAT BELT RETRACTOR PRETENSIONER - PASSENGER (REGULAR CAB)

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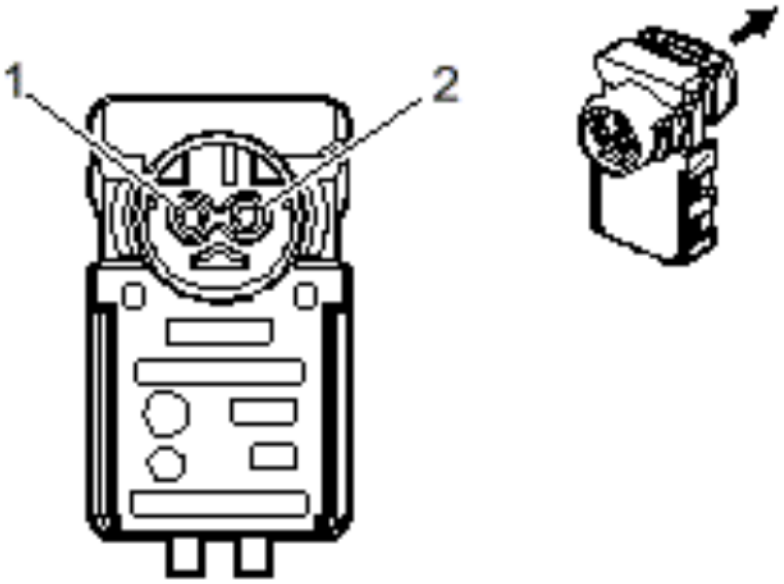

Connector Part Information

- Harness Type: Body
- OEM Connector: 988530061
- Service Connector: 19119345
- Description: 2-Way F AK-2 Series (BK with YE Cover)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GN	3475	Passenger Seat Belt Retractor Pretensioner High Control	I	-
2	0.5	WH	3476	Passenger Seat Belt Retractor Pretensioner Low Control	I	-

F113D SEAT BELT ANCHOR PRETENSIONER - DRIVER

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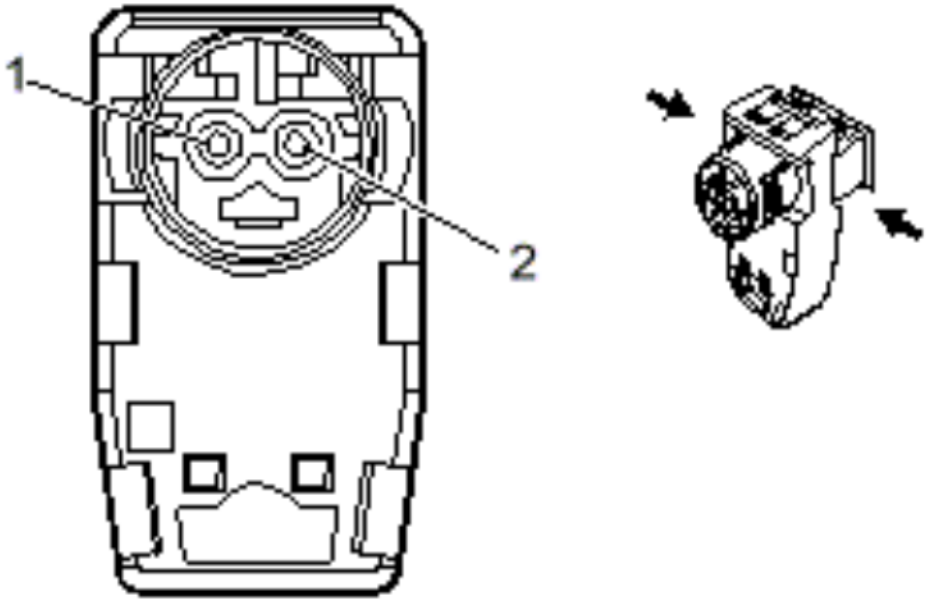

Connector Part Information

- Harness Type: Driver Seat Cushion
- OEM Connector: PPI0001721
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 0.64 Series, Sealed (BK with YE Cover)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG/YE	3481	Driver Seat Belt Anchor Pretensioner High Control	I	-
2	0.5	YE/OG	3482	Driver Seat Belt Anchor Pretensioner Low Control	I	-

F113P SEAT BELT ANCHOR PRETENSIONER - PASSENGER

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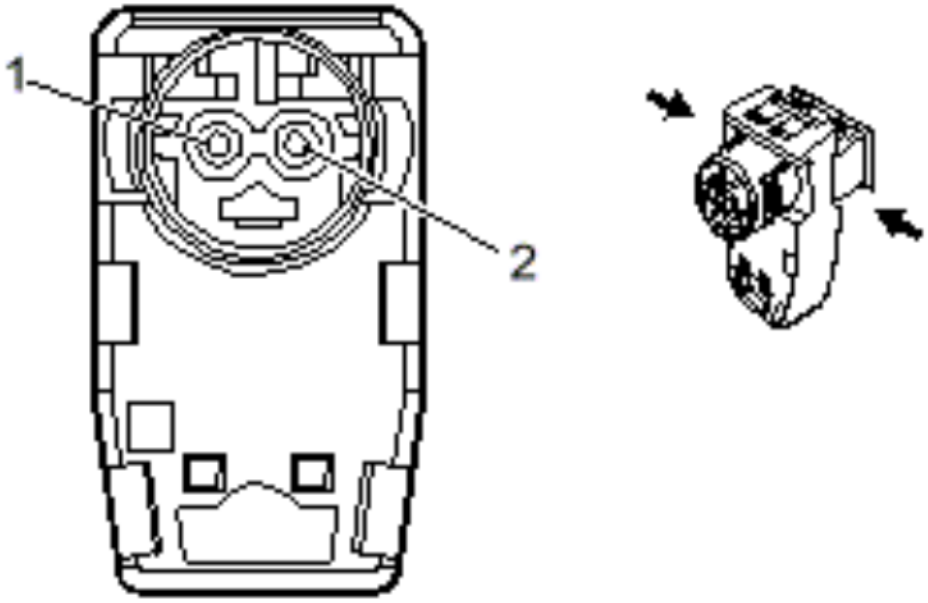

Connector Part Information

- Harness Type: Passenger Seat Cushion
- OEM Connector: PPI0001721
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 0.64 Series, Sealed (BK with YE Cover)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG/BN	3479	Passenger Seat Belt Anchor Pretensioner High Control	I	-
2	0.5	GY/OG	3480	Passenger Seat Belt Anchor Pretensioner Low Control	I	-

G10L COOLING FAN MOTOR - LEFT

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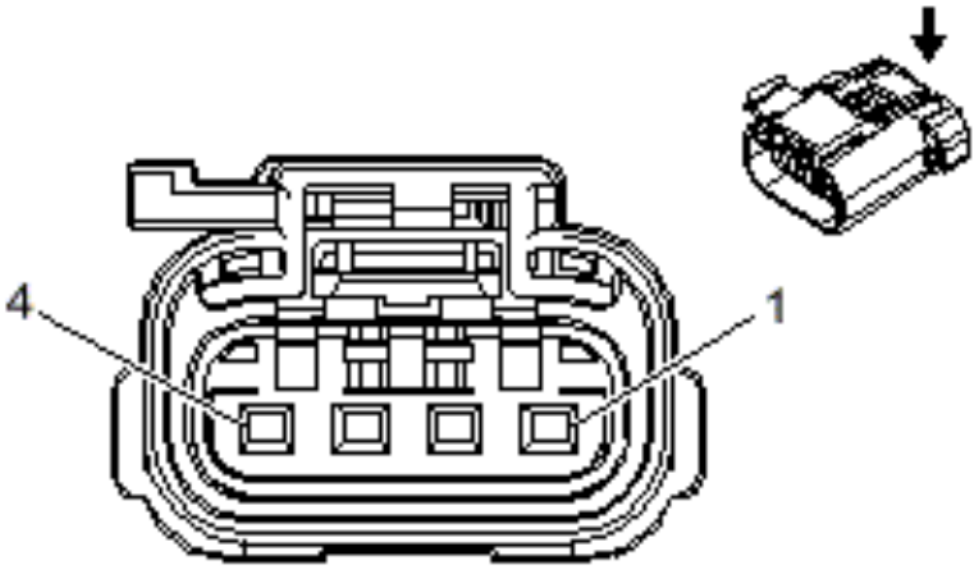

Connector Part Information

- Harness Type: Forward Lamp
- OEM Connector: 33234266
- Service Connector: 19354081
- Description: 4-Way F 2.8 APEX Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	4	BK	150	Ground	I	-
2	4	RD/WH	342	Battery Positive Voltage	I	-
4	0.5	BN/YE	473	High Speed Cooling Fan Relay Control	I	-

G10R COOLING FAN MOTOR - RIGHT

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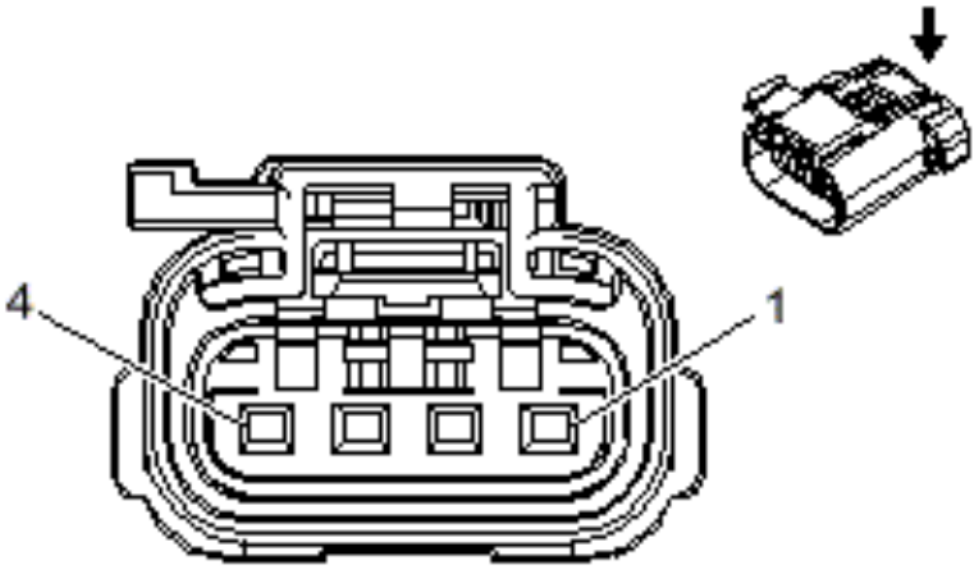

Connector Part Information

- Harness Type: Forward Lamp
- OEM Connector: 33234266
- Service Connector: 19354081
- Description: 4-Way F 2.8 APEX Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	4	BK	250	Ground	I	-
2	4	RD/GY	642	Battery Positive Voltage	I	-
3	-	-	-	Not Occupied	-	-
4	0.5	BN/YE	473	High Speed Cooling Fan Relay Control	I	-

G12A FUEL PUMP - PRIMARY

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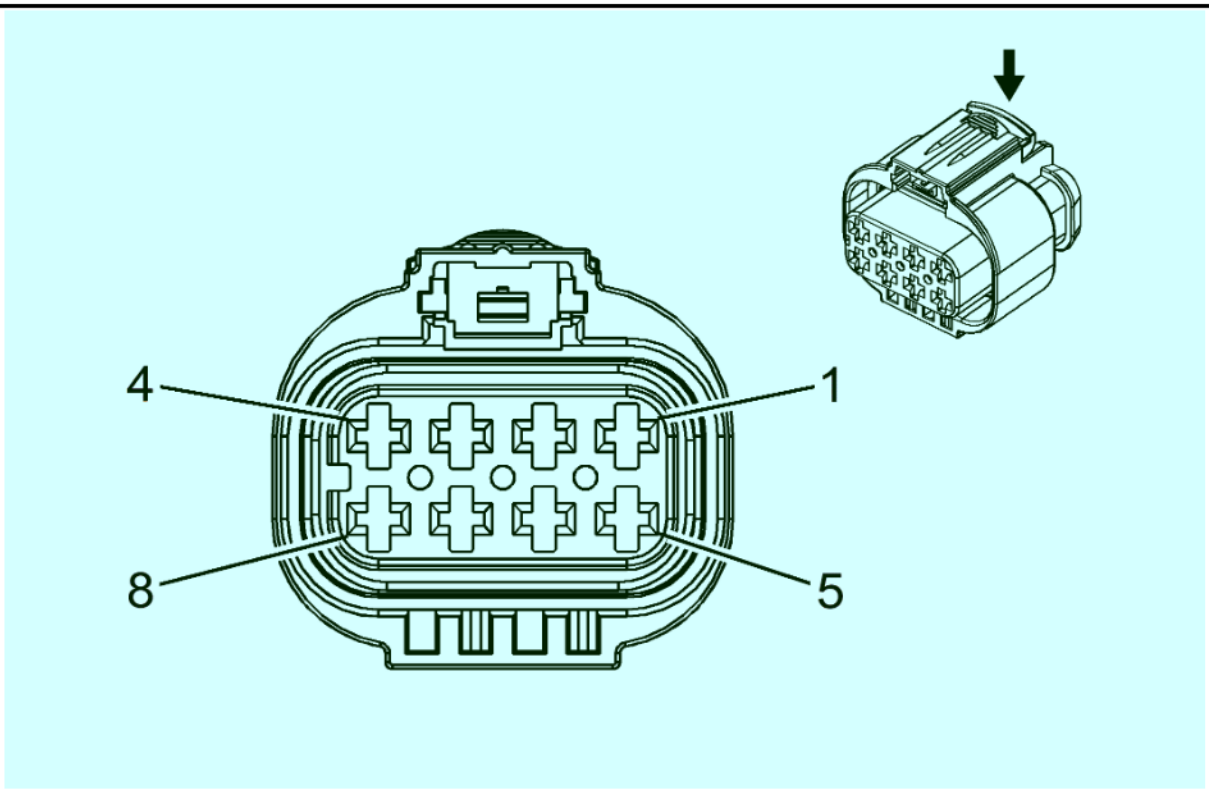

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 33180742
- Service Connector: 19354078
- Description: 8-Way F 2.8 Series, Sealed (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	GY	120	Fuel Pump Control	I	-
2	2.5	YE/GY	4137	Fuel Pump Supply Voltage Phase 2	I	-
3	2.5	WH/BN	4138	Fuel Pump Supply Voltage Phase 3	I	-
4	0.5	BK	7444	Fuel System Control Module Shield Ground	I	-
5	0.5	D-BU/VT	1589	Primary Fuel Level Sensor Signal	I	-
6	0.5	BK/L-GN	6281	Fuel Level Sensor Low Reference	I	-

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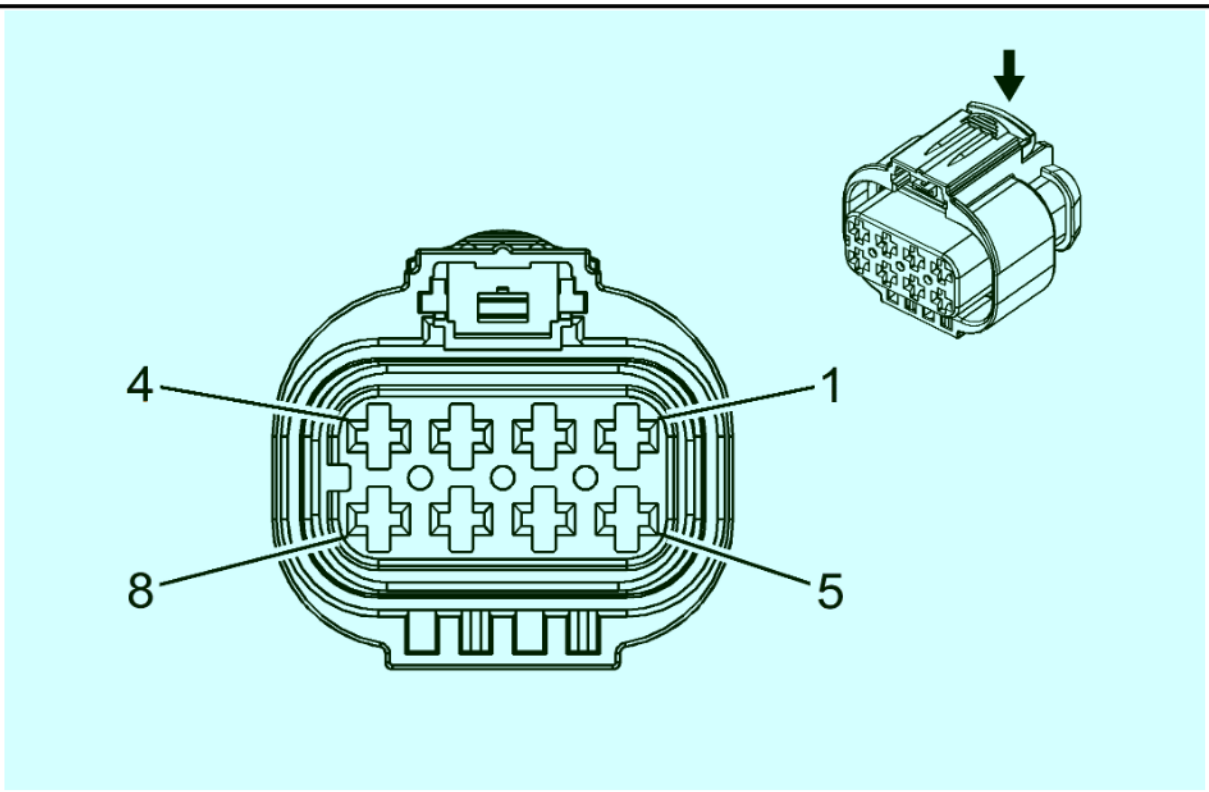
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
7 - 8	-	-	-	Not Occupied	-	-

G12B FUEL PUMP - SECONDARY (L5P)



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 33180742
- Service Connector: 19354078
- Description: 8-Way F 2.8 Series, Sealed (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	GY	120	Fuel Pump Control	I	-
2	2.5	YE/GY	4137	Fuel Pump Supply Voltage Phase 2	I	-
3	2.5	WH/BN	4138	Fuel Pump Supply Voltage Phase 3	I	-

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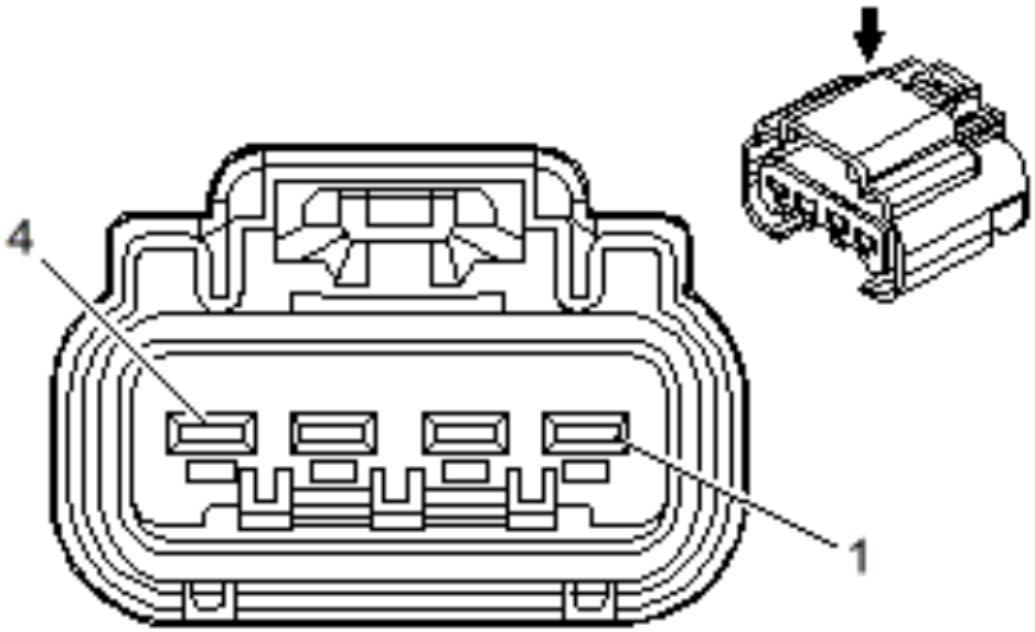
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
4	0.5	BK	7444	Fuel System Control Module Shield Ground	I	-
5	0.5	D-BU/VT	1589	Primary Fuel Level Sensor Signal	I	-
6	0.5	BK/L-GN	6281	Fuel Level Sensor Low Reference	I	-
7 - 8	-	-	-	Not Occupied	-	-

G12B FUEL PUMP - SECONDARY (L96)



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13527865
- Service Connector: 13587174
- Description: 4-Way F 280 GT Series, Sealed (NA)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal	Option

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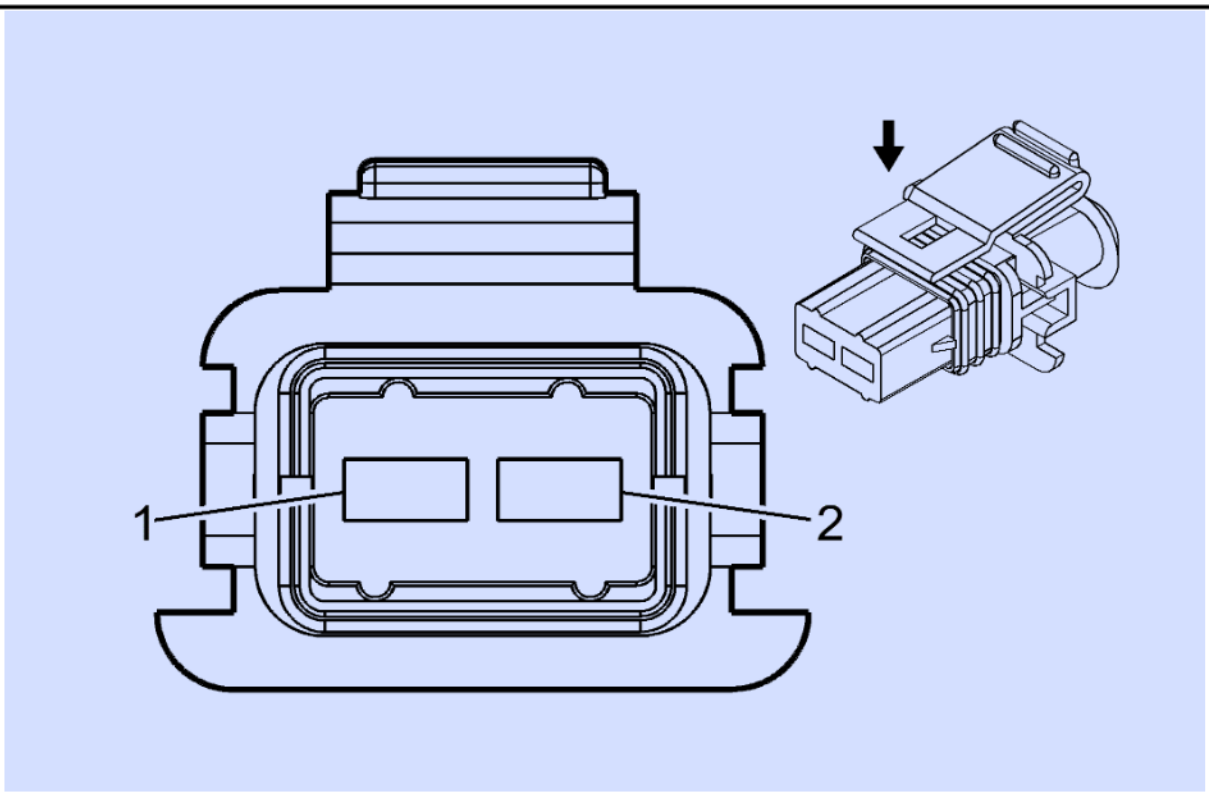
					Type ID	
1	2.5	GY	120	Fuel Pump Control	I	-
2	2.5 2.5	BK/L-GN BK	1580 2150	Fuel Pump Low Reference Ground	I I	N2L N2N
3	0.5	BK/L-GN	6281	Fuel Level Sensor Low Reference	I	-
4	0.5	D-BU/WH	1937	Secondary Fuel Level Sensor Signal	I	N2N

G13E GENERATOR - AUXILIARY



Connector Part Information

- Harness Type: Engine
- OEM Connector: 12186308
- Service Connector: 13585849
- Description: 2-Way F Junior Power Timer Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option

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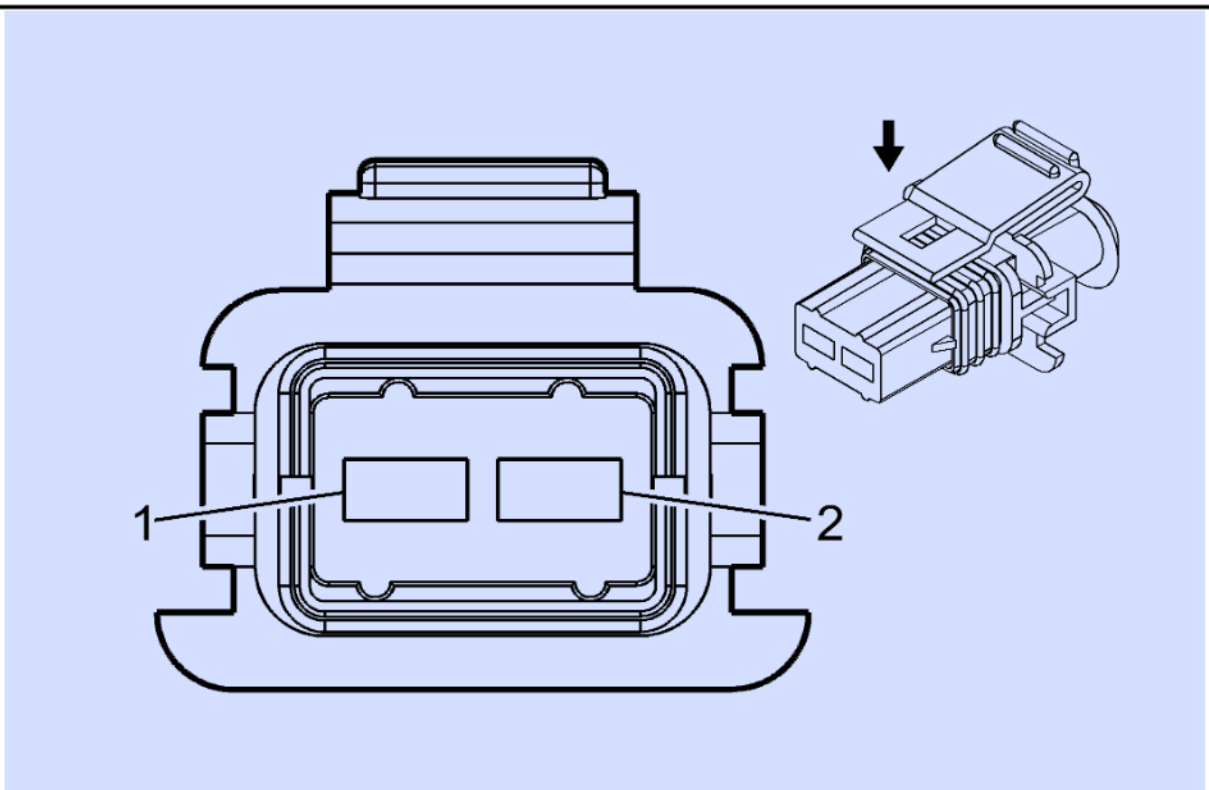
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN	25	Charge Indicator Control	I	-
2	-	-	-	Not Occupied	-	-

G13 GENERATOR X1 ()



Connector Part Information

- Harness Type: Engine
- OEM Connector: 12186308
- Service Connector: 13585849
- Description: 2-Way F Junior Power Timer Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required
II	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5 0.75	BN BN	25 25	Charge Indicator Control Charge Indicator Control	I I	1500 L5P

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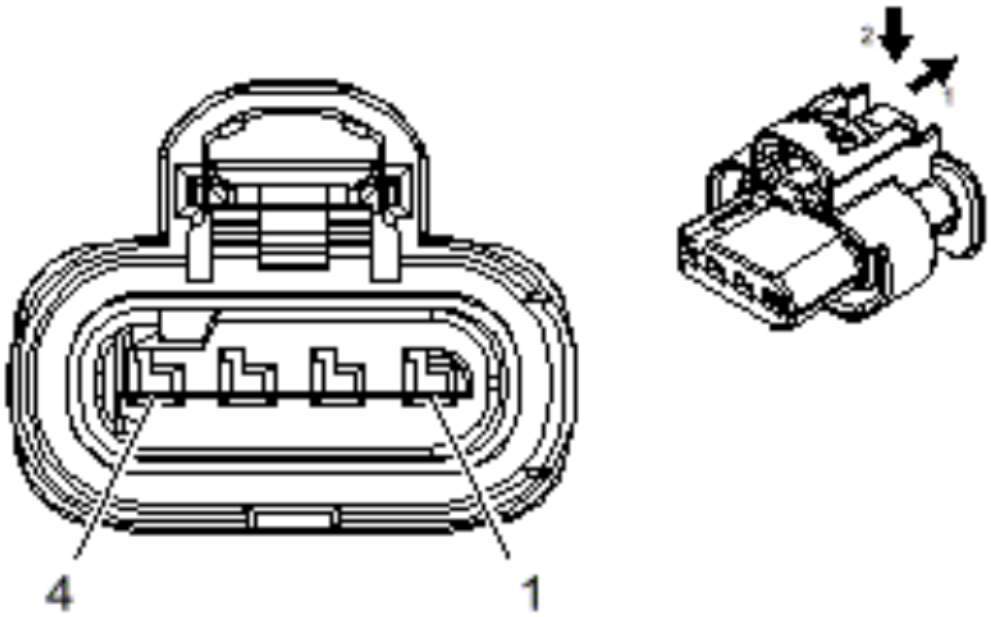
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
	0.5	BN	25	Charge Indicator Control	II	L96/LC8
2	0.5 0.5	GY GY	23 23	Generator Field Duty Cycle Signal Generator Field Duty Cycle Signal	II I	L96/LC8 -L96/LC8

G14 HYBRID/EV BATTERY PACK COOLING FAN



Connector Part Information

- Harness Type: High Voltage Battery Monitoring
- OEM Connector: 33150389
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 1.2 MCON-CB Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/D-BU	6276	Fan Speed Sensor Low	I	-

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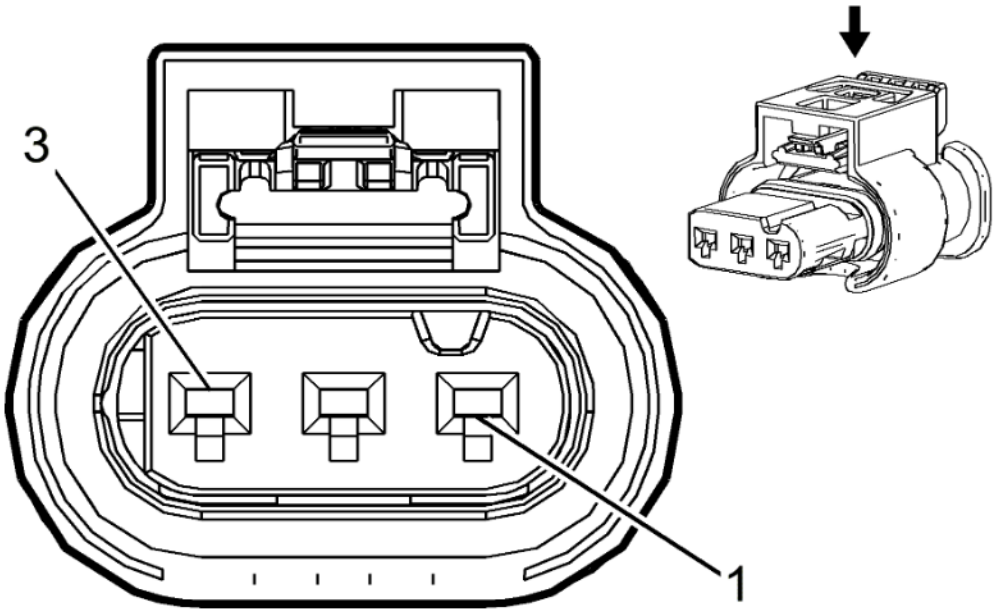
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
				Reference		
2	0.35	YE/L-GN	5598	Fan Speed Signal 1	I	-
3	0.35	D-BU/VT	5599	Fan Speed Signal 2	I	-
4	0.5	BN/WH	6277	Fan Speed Sensor Control	I	-

G17 HEATER COOLANT PUMP (L5P)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13663390
- Service Connector: 13574937
- Description: 3-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-13 (BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	550	Ground	I	-
2	0.5	YE/D-BU	5126	After Boil Heater Pump Control	I	-

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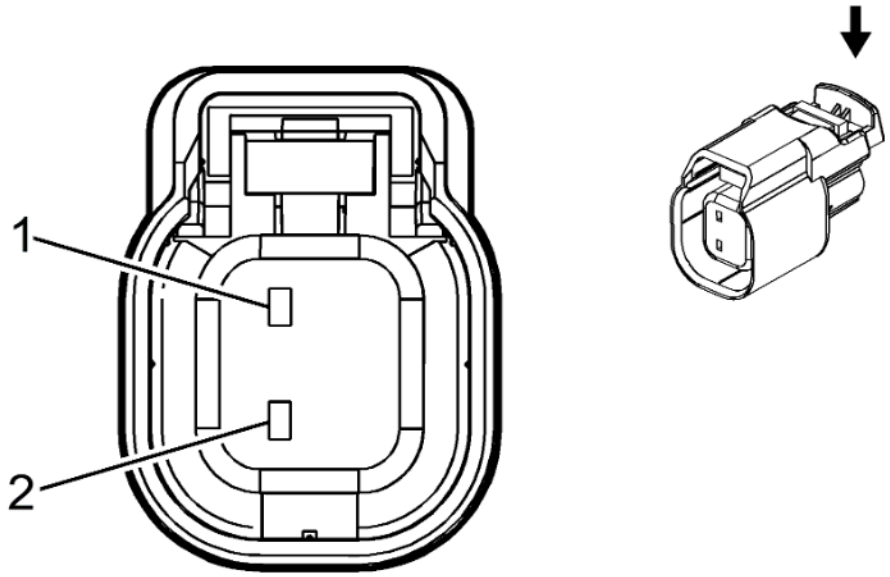
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	-	-	-	Not Occupied	-	-

G18 HIGH PRESSURE FUEL PUMP



Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 34062-4008
- Service Connector: 19352068
- Description: 2-Way F 1.5 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK/YE	2834	Fuel Rail Pressure Solenoid Low Reference	I	L5P
2	0.75	BU/WH	2530	Fuel Rail Pressure Solenoid Control	I	L5P

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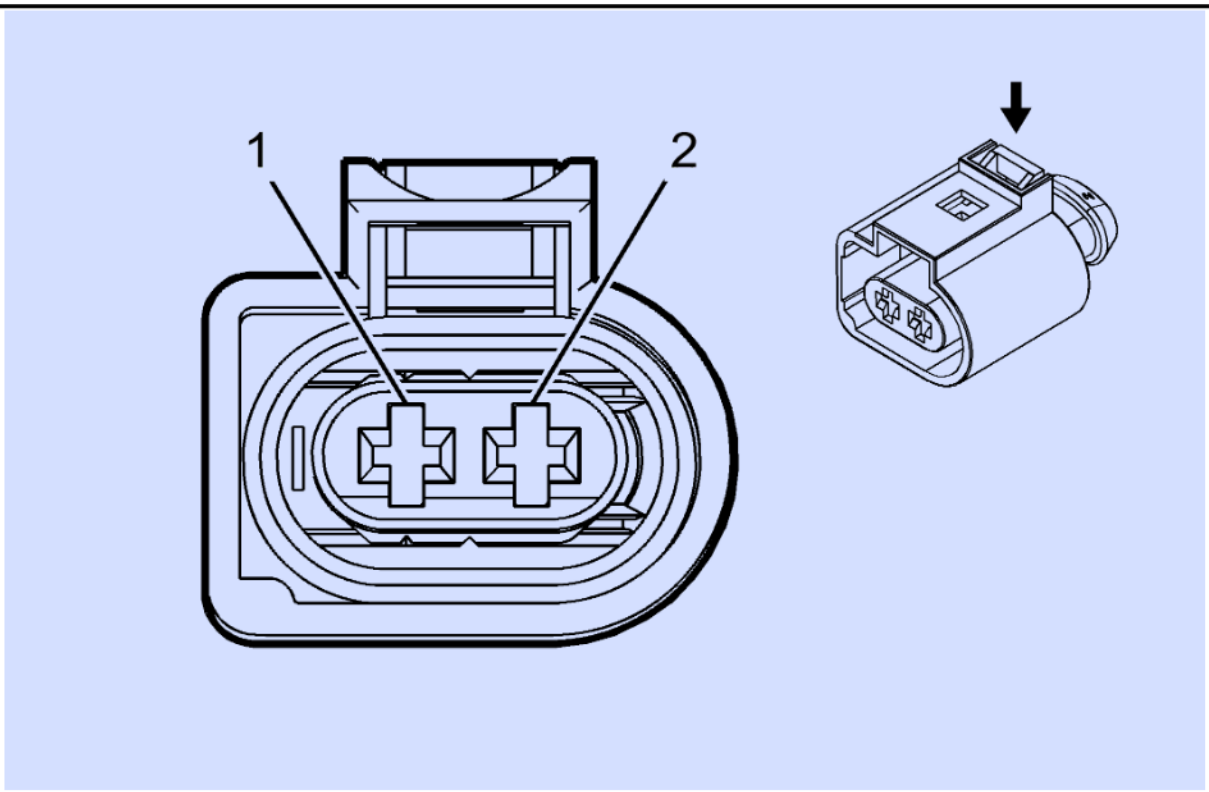
G24 WINDSHIELD WASHER PUMP



Connector Part Information

- Harness Type: Forward Lamp
- OEM Connector: 10863916
- Service Connector: 13576532
- Description: 2-Way F 2.8 MDK5 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GY/VT	228	Windshield Washer Pump Control	I	-
2	0.75	BK	150	Ground	I	-

G43 STARTER/GENERATOR COOLANT PUMP

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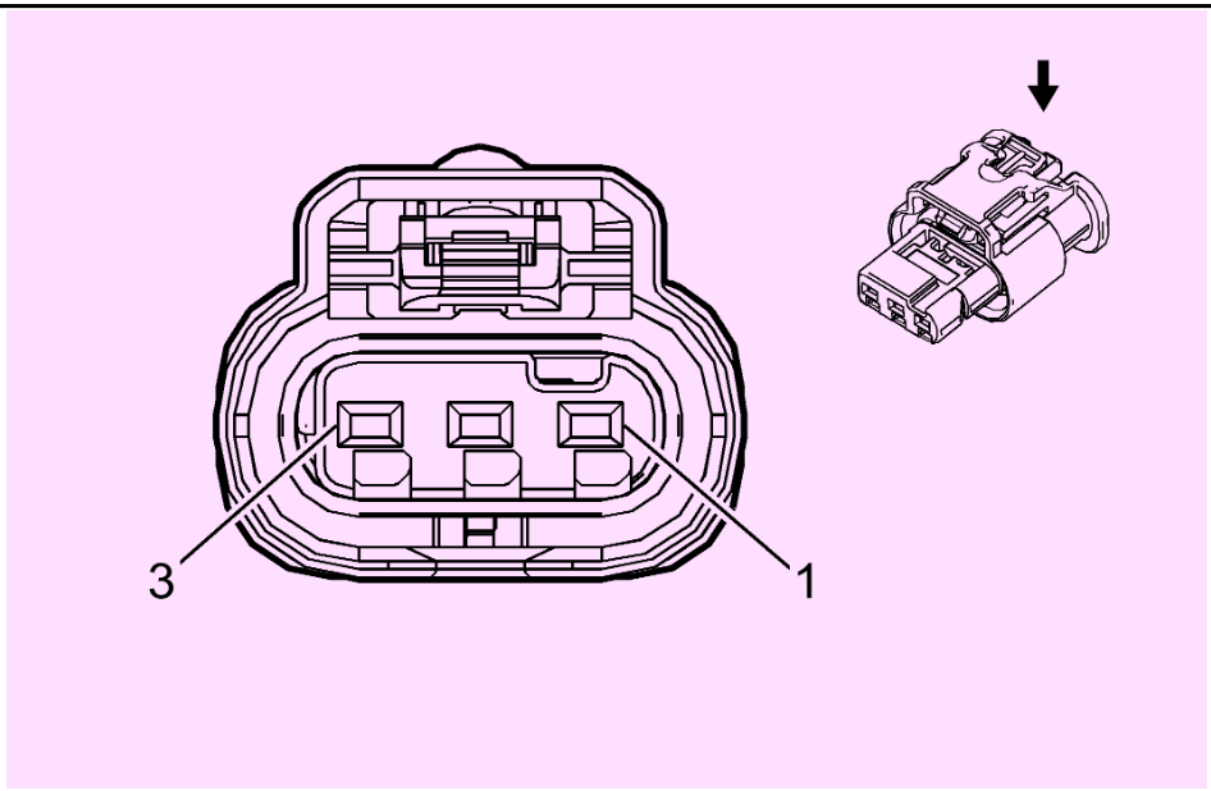

Connector Part Information

- Harness Type: Forward Lamp
- OEM Connector: 13868589
- Service Connector: 19329387
- Description: 3-Way F 1.2 MCP Series, Sealed (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	BK	250	Ground	I	-
2	0.5	GY/D-BU	3769	MGU Coolant Pump Control	I	-
3	0.5	VT/D-BU	3790	Electric Coolant Motor Feedback Signal	I	-

K4 ASSIST STEP CONTROL MODULE X1

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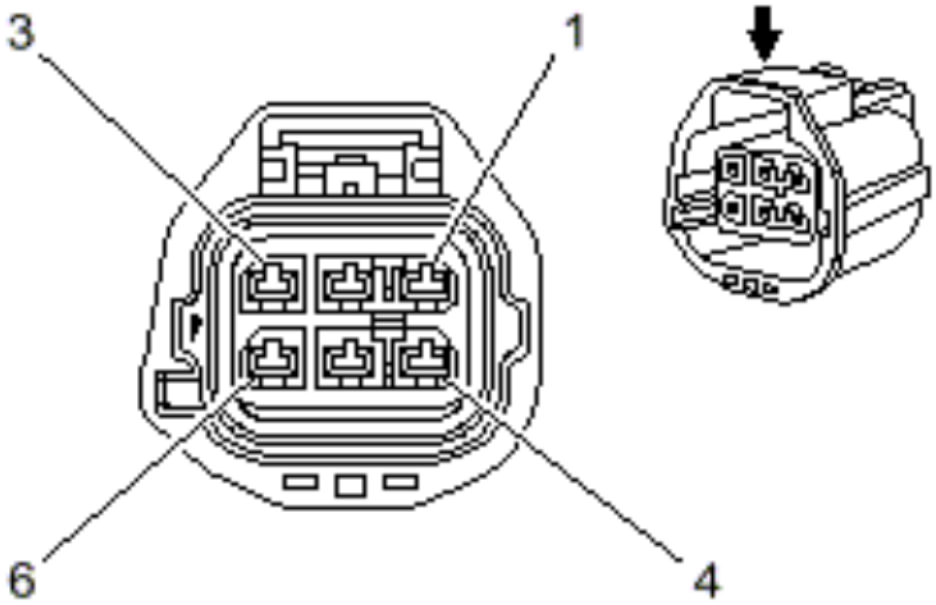

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 15342659
- Service Connector: 88988393
- Description: 6-Way F 2.8 Series, Sealed (D-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2	L-GN	7469	Articulating Running Boards Motor Right Control Retract	I	-
2	2.5	BK	2150	Ground	I	-
3	2	WH/BN	7471	Articulating Running Boards Motor Left Control Extend	I	-
4	2	D-BU	7470	Articulating Running Boards Motor Right Control Extend	I	-
5	2.5	RD/YE	1142	Battery Positive Voltage	I	-
6	2	GY	7472	Articulating Running Boards Motor Left Control Retract	I	-

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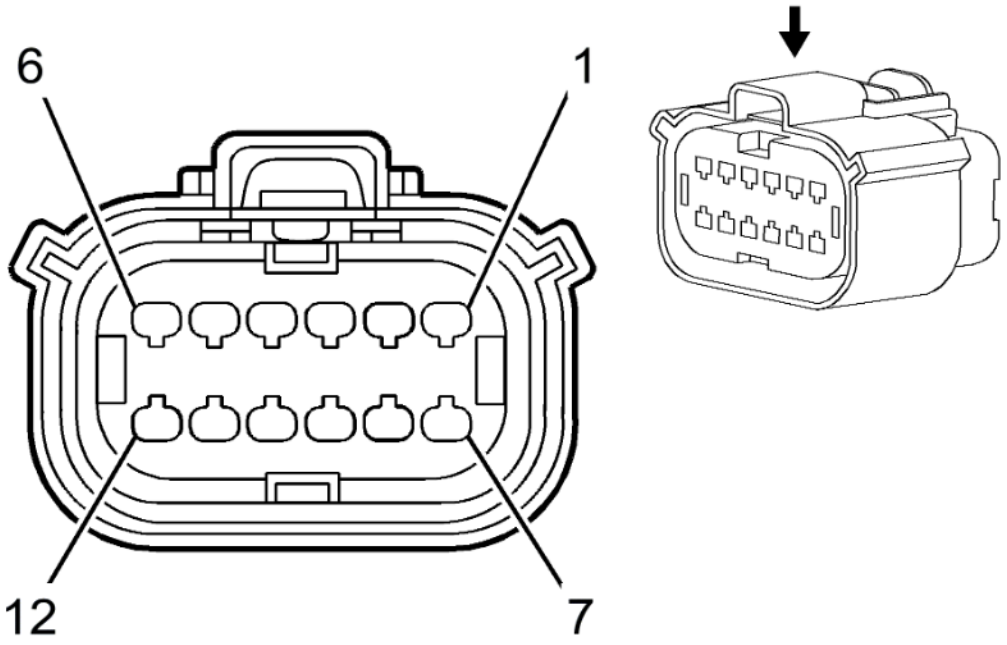
K4 ASSIST STEP CONTROL MODULE X2 (1500)



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13653762
- Service Connector: 13503528
- Description: 12-Way F 1.5 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	19300635	J-35616-2A (GY)	J-38125-217	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/RD	7468	Running Boards Motor Hall Sensor Left 5V Reference	I	-
2	0.5	GN/RD	7464	Running Boards Motor Hall Sensor Right 5V Reference	I	-
3	0.5	YE	7467	Running Boards Motor Hall Sensor Left Signal	I	-
4	0.5	VT	7465	Running Boards Motor Hall Sensor Right Signal	I	-
5	0.5	YE/BN	7466	Running Boards Motor Hall Sensor Left Low Reference	I	-

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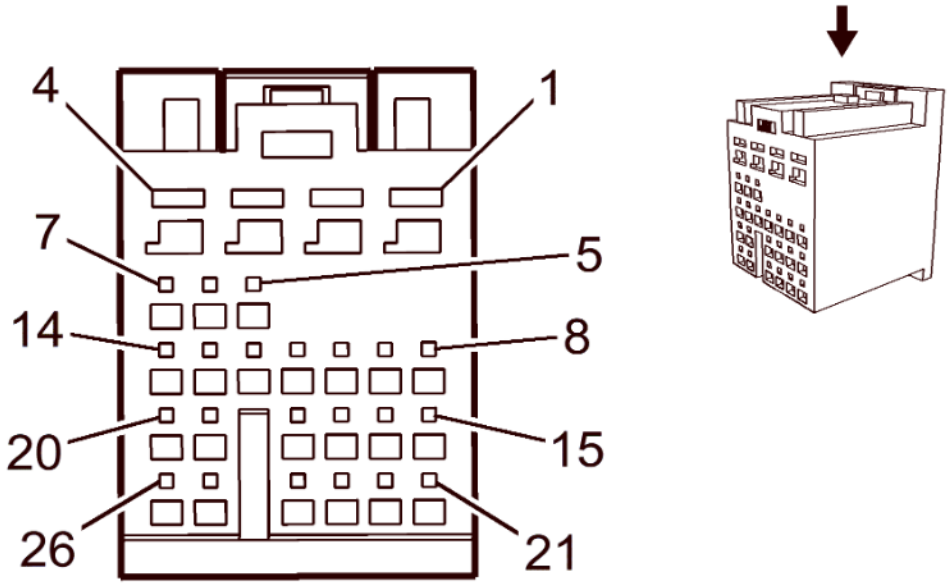
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
6	0.5	YE/BK	7463	Running Boards Motor Hall Sensor Right Low Reference	I	-
7	0.5	BN/WH	9002	-	I	-
8	0.5	GN	5060	Low Speed GMLAN Serial Data	I	-
9	-	-	-	Not Occupied	-	-
10	0.5	BN/WH	7462	Running Boards Disable Signal	I	-
11	0.5	BN/WH	9001	-	I	-
12	0.5	BN/WH	9000	-	I	-

K9 BODY CONTROL MODULE X1



Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13943345
- Service Connector: 13582966
- Description: 26-Way F 0.64, 2.8 Series (NA)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575871	J-35616-35 (VT)	J-38125-12A	SNAC-A061T-M2.8	Delphi 20	C	A

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Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
II	13575871	J-35616-35 (VT)	J-38125-12A	SNAC-A061T-M2.8	Delphi 20	E	A
III	13582297	J-35616-64B (LT BU)	J-38125-22	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	1850	Ground	II	-
2	0.75	RD/D-BU	2540	Battery Positive Voltage	II	-
3	1	RD/GY	2140	Battery Positive Voltage	I	-
4	0.5	RD/BN	2240	Battery Positive Voltage	II	-
5	0.5	WH	6816	Indicator Dimming Control	III	-
6	-	-	-	Not Occupied	-	-
7	0.35	BK/YE	5005	Instrument Panel Lamp Dimmer Switch Low Reference	III	-
8 - 9	-	-	-	Not Occupied	-	-
10	0.5	D-BU/VT	1134	Park Brake Switch Signal	III	-
11	0.35	L-GN/BN	306	Headlamp Switch Headlamps Off Signal Control	III	-
12	-	-	-	Not Occupied	-	-
13	0.35	D-BU/RD	1688	5V Reference	III	-
14	0.35	GY/L-GN	328	Interior Lamp Defeat Switch Signal	III	-
15	0.35	D-BU/GY	192	Front Fog Lamp Switch Signal	III	-
16	0.35	WH/VT	103	Headlamp Switch On Signal	III	-
17 - 18	-	-	-	Not Occupied	-	-
19	0.35	BK/L-GN	552	Sensor Low Reference	III	-
20	-	-	-	Not Occupied	-	-
21	0.35	GY	728	Security Indicator Control	III	-
22	0.35	L-GN/GY	13	Headlamp Switch Park Lamp Signal	III	-
23	0.5	VT/L-GN	7558	LED Ambient Lighting Control 2	III	-
24	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	III	-
25	0.5	D-BU	2500	High Speed GMLAN Serial Data (+) 1	III	-
26	0.35	D-BU/WH	3275	Remote Function Actuator Receive Signal	III	-

K9 BODY CONTROL MODULE X2

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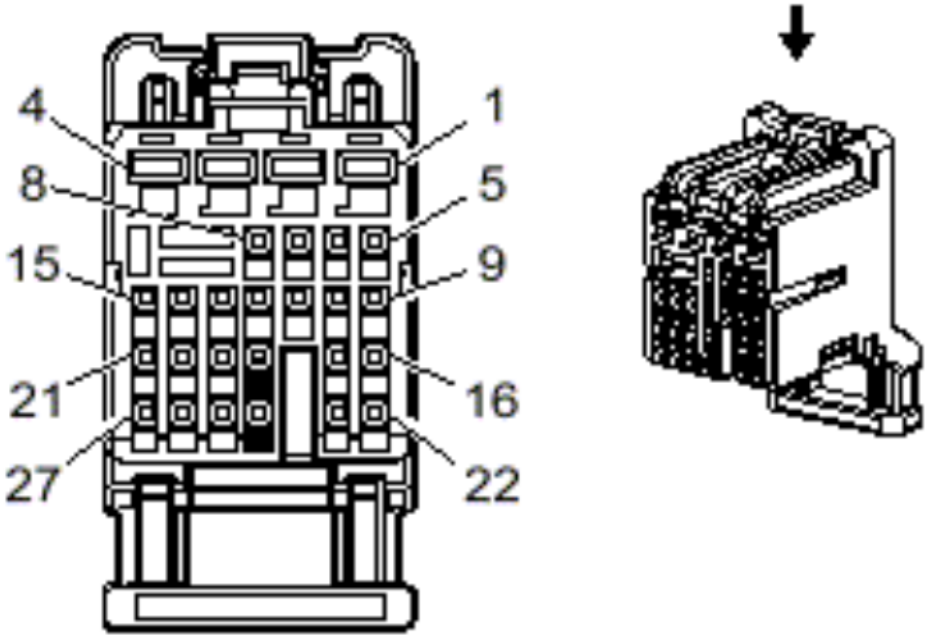

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13943361
- Service Connector: 13576637
- Description: 27-Way F 0.64, 2.8 Series (L-BU)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575871	J-35616-35 (VT)	J-38125-12A	SNAC-A061T-M2.8	Delphi 20	E	A
II	13582297	J-35616-64B (LT BU)	J-38125-22	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD/WH	2740	Battery Positive Voltage	I	-
2	0.75	BK	1850	Ground	I	-
3	0.5	RD/BN	2940	Battery Positive Voltage	I	-
4	0.75	RD/VT	4040	Battery Positive Voltage	I	-
5	-	-	-	Not Occupied	-	-
6	0.35	GY	5697	Child Lockout Indicator Control	II	-
7	0.35	WH/L-GN	526	Stop Lamp Switch Signal	II	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
8	0.5	YE	6817	LED Backlight Dimming Control	II	-
9	0.35	YE/GY	44	Instrument Panel Lamp Dimmer Switch Signal	II	-
10	0.35	WH/D-BU	278	Ambient Light Sensor Signal	II	-
11 - 12	-	-	-	Not Occupied	-	-
13	0.35	GY/RD	598	5V Reference	II	-
14	0.35	D-BU/VT	1788	Traction Control Switch Signal 1	II	-
15	0.35	BN/WH	781	Driver Door Lock Switch Unlock Signal	II	-
16	0.35	GY	3273	Remote Function Actuator Low Reference	II	-
17	-	-	-	Not Occupied	-	-
18	0.5	GY	158	Cargo Lamp Switch Signal	II	-
19	0.35	BN/YE	780	Driver Door Lock Switch Lock Signal	II	-
20	0.5	WH/D-BU	3691	Trailer Brake Apply Signal	II	-
21	0.5	L-GN/GY	6135	Local Interconnect Network Serial Data Bus 4	II	-
22 - 24	-	-	-	Not Occupied	-	-
25	0.35	GY/WH	3272	Remote Function Actuator Control	II	-
26	0.35	L-GN/WH	111	Hazard Switch Signal	II	-
27	0.35	YE/L-GN	3274	Remote Function Actuator Transmit Signal	II	-

K9 BODY CONTROL MODULE X4

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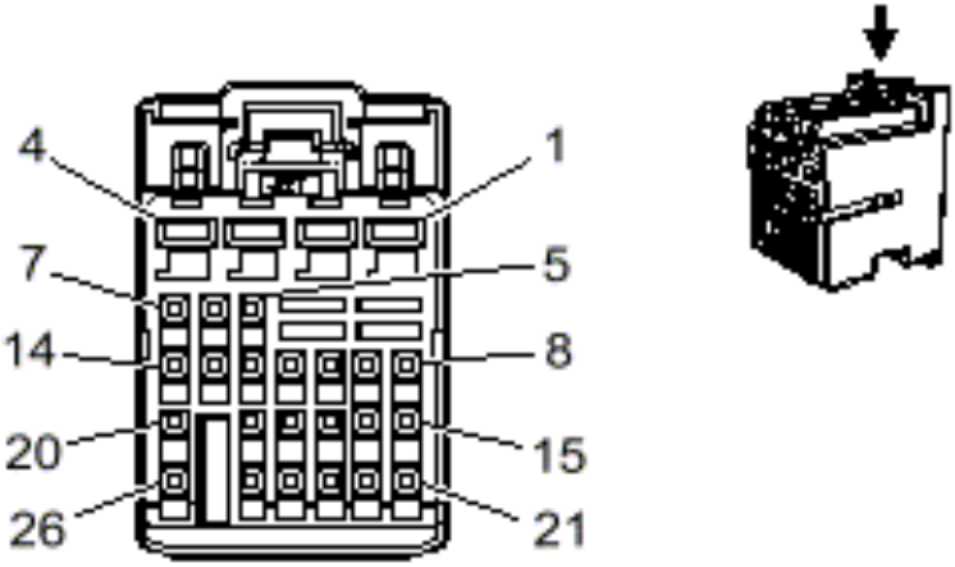

Connector Part Information

- Harness Type: Body
- OEM Connector: 13962485
- Service Connector: 13587579
- Description: 26-Way F 0.64, 2.8 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575871	J-35616-35 (VT)	J-38125-12A	SNAC-A061T-M2.8	Delphi 20	E	A
II	13582297	J-35616-64B (LT BU)	J-38125-22	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	YE	712	Left Headlamp Low Beam Control	I	-
2	0.75	YE	312	Right Headlamp Low Beam Control	I	-
3	0.75	L-GN/VT	1315	Right Front Turn Signal Lamp Control	I	-
4	0.5	BN/L-GN	19	Right Rear Stop/Turn Lamp Control	I	-
5 - 6	-	-	-	Not Occupied	-	-
7	0.75	GY/D-BU	7538	Left Front DRL Control	II	-

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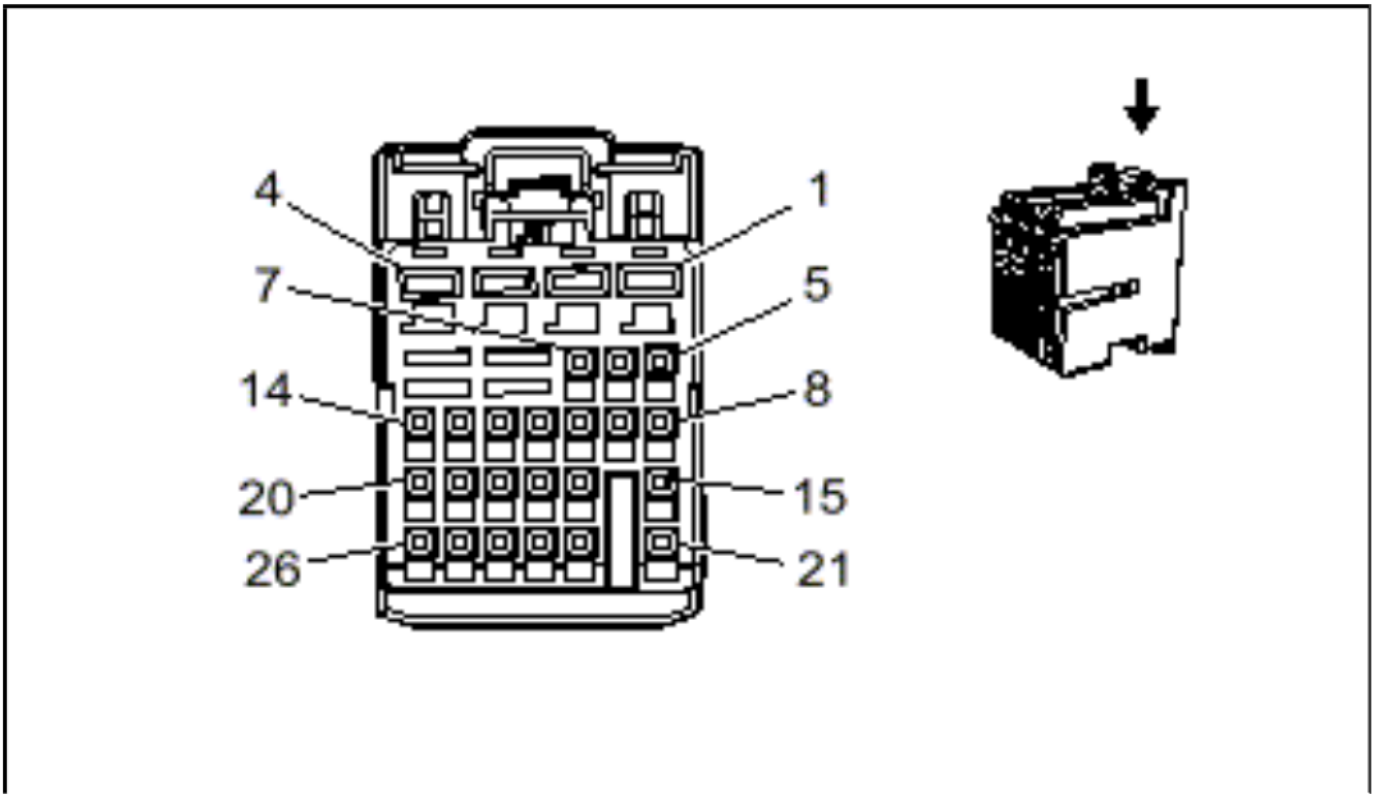
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
8 - 10	-	-	-	Not Occupied	-	-
11	0.5	VT/WH	5065	Stop Lamp Relay Coil Control	II	-
12	0.35	GY/VT	755	RAP Relay Coil Control	II	-
13	0.5	L-GN/YE	6846	Rear License Lamp Control	II	-
14	0.35	BN/GY	2268	Windshield Washer Relay Control	II	-
15	0.35	L-GN/VT	5199	Run/Crank Relay Coil Control	II	-
16	0.35	GY	91	Windshield Wiper Motor Relay Coil Control	II	-
17	0.5	BN/L-GN	196	Windshield Wiper Motor Park Switch Signal	II	-
18	0.35	WH/YE	5075	Current Sensor Signal	II	-
19	0.35	D-BU/YE	6844	ABS/TCS Hill Descent Control Switch Signal	II	-
20	0.75	RD/YE	2340	Battery Positive Voltage	II	-
21	0.35	D-BU/VT	5076	Current Sensor Control	II	-
22	0.35	VT/YE	5985	Accessory Wakeup Serial Data	II	-
23	0.5	WH/D-BU	5986	Serial Data Communication Enable	II	-
24	0.5	BN/L-GN	109	Hood Ajar Switch Signal	II	-
25	0.5	L-GN/YE	2081	Exhaust Brake Switch Control	II	-
26	0.75	BK/WH	451	Signal Ground	II	-

K9 BODY CONTROL MODULE X5



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Connector Part Information

- Harness Type: Body
- OEM Connector: 13962299
- Service Connector: 13587577
- Description: 26-Way F 0.64, 2.8 Series (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575871	J-35616-35 (VT)	J-38125-12A	SNAC-A061T-M2.8	Delphi 20	E	A
II	13582297	J-35616-64B (LT BU)	J-38125-22	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/D-BU	18	Left Rear Stop/Turn Lamp Control	I	-
2	0.75	D-BU/WH	1314	Left Front Turn Signal Lamp Control	I	-
3	0.75	RD/L-GN	5140	Battery Positive Voltage	I	-
4	0.75	RD/WH	3440	Battery Positive Voltage	I	-
5	-	-	-	Not Occupied	-	-
6	0.35	BK/VT	5077	Current Sensor Low Reference	II	-
7	0.75	D-BU/BN	7539	Right Front DRL Control	II	-
8	0.35	D-BU/WH	5186	Left Trailer Turn Signal Lamp Control	II	-
9	-	-	-	Not Occupied	-	-
10	0.5	BN	1317	Fog Lamp Relay Control	II	-
11	-	-	-	Not Occupied	-	-
12	0.35	WH/D-BU	6311	Cruise/ETC/TCC Brake Signal	II	-
13	-	-	-	Not Occupied	-	-
14	0.35	VT/BN	300	Run Ignition 3 Voltage	II	-
15	0.35	L-GN/WH	3438	Exhaust Brake Switch Signal	II	-
16	0.35	VT/YE	3267	Child Security Lock Relay Control	II	-
17	0.35	YE/GY	5187	Right Trailer Turn Signal Lamp Control	II	-
18	0.35	BN/VT	1969	Headlamp High Beam Relay Control	II	-
19	0.35	BN/WH	28	Horn Relay Control	II	-
20 - 21	-	-	-	Not Occupied	-	-
22	0.35	D-BU	45	Park Lamp Relay Control	II	-
23	0.35	YE	6812	Out of Park Signal	II	-

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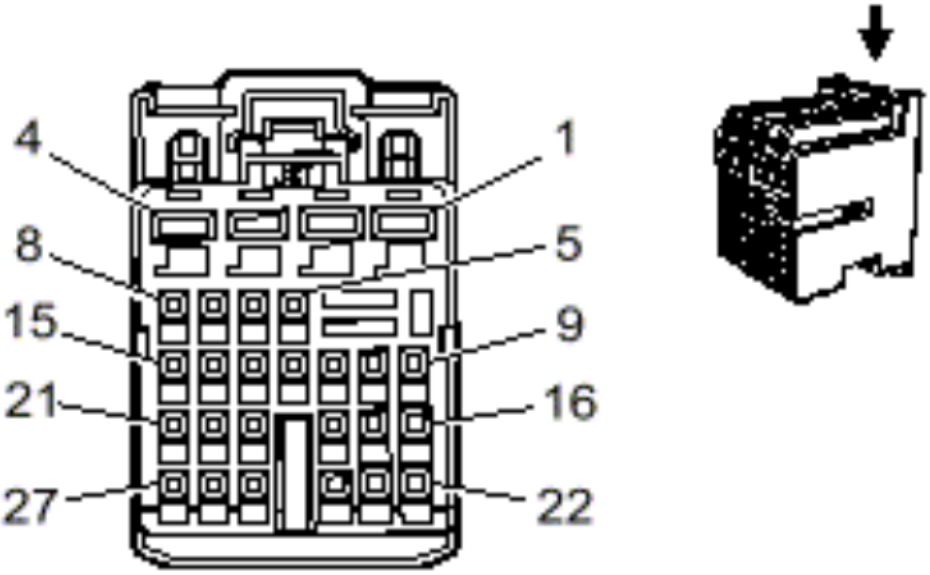
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
24	0.35	WH/VT	860	Front Windshield Wiper Switch High Signal	II	-
25	-	-	-	Not Occupied	-	-
26	0.35	D-BU/BN	38	Backup Lamp Relay Control	II	-

K9 BODY CONTROL MODULE X6



Connector Part Information

- Harness Type: Body
- OEM Connector: 13962300
- Service Connector: 13587576
- Description: 27-Way F 0.64, 2.8 Series (L-PU)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575871	J-35616-35 (VT)	J-38125-12A	SNAC-A061T-M2.8	Delphi 20	C	A
II	13575871	J-35616-35 (VT)	J-38125-12A	SNAC-A061T-M2.8	Delphi 20	E	A
III	13582297	J-35616-64B (LT BU)	J-38125-22	Not Available	Not Available	Not Available	Not Available

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	BU/WH	195	Door Lock Control	I	-
2	1.5	GY/GN	3271	Door Lock Control 2	I	-
3	1.5	BK	1850	Ground	I	-
4	1.5 0.75	BN/YE BN/YE	294 294	Door Lock Actuator Unlock Control Door Lock Actuator Unlock Control	I II	CREW CAB/EXTENDED CAB REGULAR CAB
5	-	-	-	Not Occupied	-	-
6	0.35	BU/VT	1124	Door Lock Key Switch Unlock Signal	III	-
7 - 8	-	-	-	Not Occupied	-	-
9	0.5	GN/BU	6133	Local Interconnect Network Serial Data Bus 2	III	-
10	0.5	GN/YE	6134	Local Interconnect Network Serial Data Bus 3	III	-
11	-	-	-	Not Occupied	-	-
12	0.5	YE/BK	5356	Left Tail Lamp Outage Detection Signal	III	-
13	-	-	-	Not Occupied	-	-
14	0.5	YE	9003	-	III	-
15	0.5	GY/GN	6190	Lift Glass/Rear Compartment Lid Exterior Release Signal	III	-
16 - 20	-	-	-	Not Occupied	-	-
21	0.35	WH/VT	3270	Driver Door Lock Motor Status Signal	III	-
22	0.5	VT/YE	5357	Right Tail Lamp Outage Detection Signal	III	-
23	-	-	-	Not Occupied	-	-
24	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	III	-
25	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	III	-
26	0.5	BN/WH	1429	Standing Lamp Relay Control	III	-
27	-	-	-	Not Occupied	-	-

K9 BODY CONTROL MODULE X7

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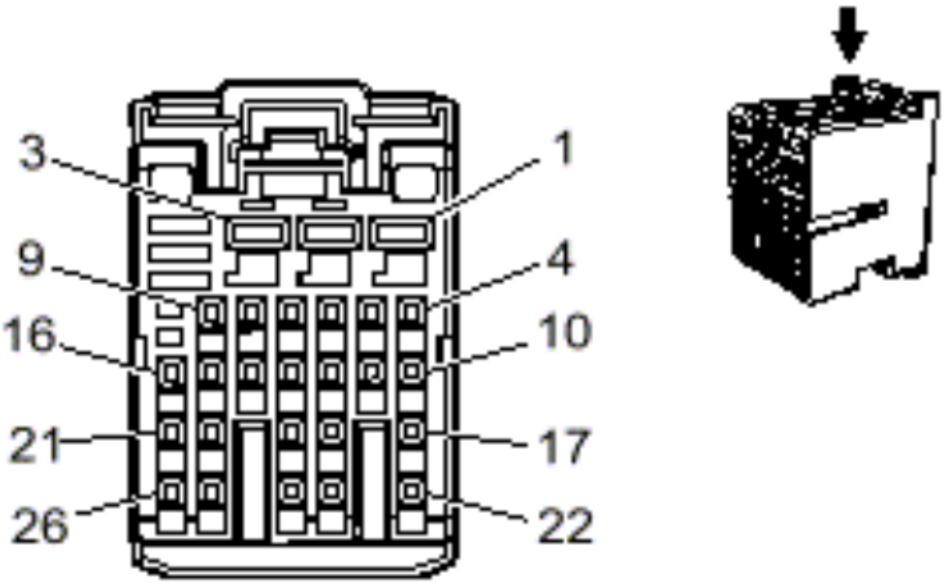

Connector Part Information

- Harness Type: Body
- OEM Connector: 13962301
- Service Connector: 13587578
- Description: 26-Way F 0.64, 2.8 Series (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575871	J-35616-35 (VT)	J-38125-12A	SNAC-A061T-M2.8	Delphi 20	E	A
II	13582297	J-35616-64B (LT BU)	J-38125-22	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY	157	Interior Lamp Control	I	-
2	-	-	-	Not Occupied	-	-
3	0.5 0.75	WH/BN WH/BN	6815 6815	Inadvertent Power Control Inadvertent Power Control	I I	E29 ZYD-E29
4 - 5	-	-	-	Not Occupied	-	-
6	0.35	YE/WH	816	Brake Transmission Shift Interlock Solenoid Control	II	-
7	-	-	-	Not Occupied	-	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
8	0.5	GY/GN	5996	Driver Outside Rear View Mirror Puddle Lamp Control	II	-
9	0.5	YE	6817	LED Backlight Dimming Control	II	-
10 - 11	-	-	-	Not Occupied	-	-
12	0.35	BN/WH	3269	Child Security Lock Motor Status Signal Left Rear	II	-
13	-	-	-	Not Occupied	-	-
14	0.35	GY	746	Right Front Door Ajar Switch Signal	II	-
15	0.35	YE/BN	3265	Child Security Lock Switch Signal	II	-
16	0.5	WH/BU	3691	Trailer Brake Apply Signal	II	-
17	-	-	-	Not Occupied	-	-
18	0.35	GY/BK	3268	Child Security Lock Motor Status Signal Right Rear	II	-
19	0.35	GY	156	Courtesy Lamp Switch Signal	II	-
20	-	-	-	Not Occupied	-	-
21	0.35	YE/VT	244	Passenger Door Lock Switch Lock Control	II	-
22	0.35	WH/YE	7557	LED Ambient Lighting Control 1	II	-
23	0.5	GN	5060	Low Speed GMLAN Serial Data	II	-
24	0.35	BN/VT	245	Passenger Door Lock Switch Unlock Control	II	-
25	0.35 0.35	GN GY	4512 745	Wireless Charging System Charge Indicator Control Left Front Door Ajar Switch Signal	II II	K4C REGULAR CAB
26	-	-	-	Not Occupied	-	-

K17 ELECTRONIC BRAKE CONTROL MODULE (HEAVY DUTY)

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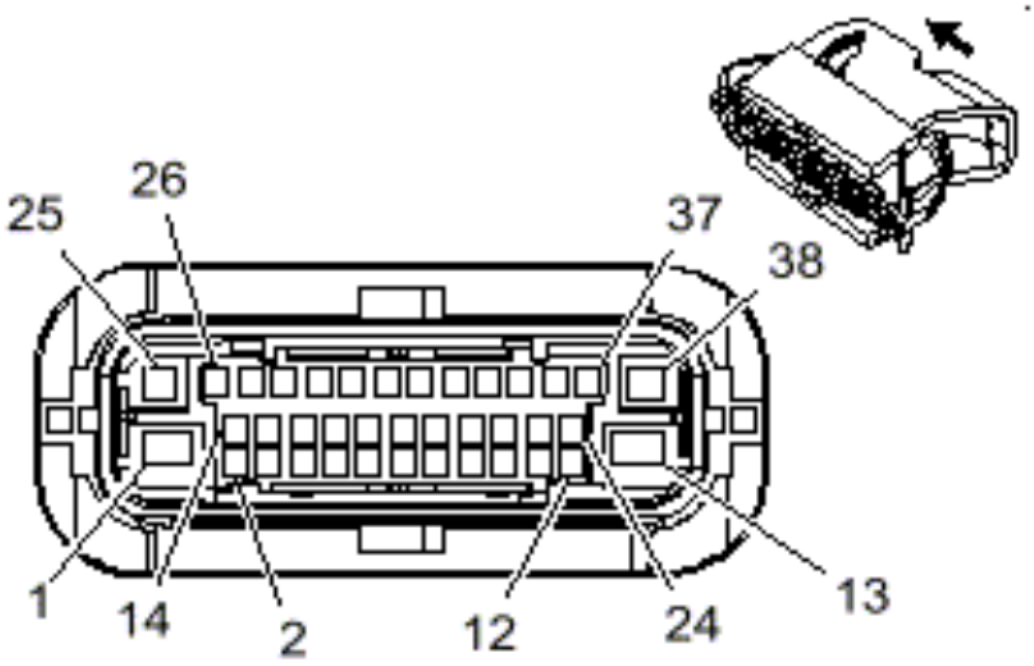

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 33102987
- Service Connector: 19329396
- Description: 38-Way F 1.5 CTS, 2.8 MCP, 4.8 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13576374	J-35616-35 (VT)	J-38125-557	1-968857-3	Lear 7	C	1
II	19119381	J-35616-14 (GN)	J-38125-215A	Not Available	Not Available	Not Available	Not Available
III	19119560	J-35616-40 (BU)	J-38125-556	1241408-1	Lear 28	B	G
IV	19329757	J-35616-14 (GN)	J-38125-215A	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	5	RD/YE	442	Battery Positive Voltage	III	-
2	-	-	-	Not Occupied	-	-
3	0.5	GY/YE	7128	Wheel Speed Sensor Control Right Rear	II	-
4	0.5	VT	882	Wheel Speed Sensor Signal Right Rear	II	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
5	0.5	BU/YE	6105	High Speed GMLAN Serial Data (+) 2	II	-
6	0.5	WH	6106	High Speed GMLAN Serial Data (-) 2	II	-
7	-	-	-	Not Occupied	-	-
8	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	II	-
9	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	II	-
10	0.5	GY/BN	7065	Wheel Speed Sensor Control Right Front	II	-
11	0.5	YE	872	Wheel Speed Sensor Signal Right Front	II	-
12	-	-	-	Not Occupied	-	-
13	5	BK	2150	Ground	III	-
14 - 16	-	-	-	Not Occupied	-	-
17	0.5	GN/BN	2087	Combined Vehicle Inertial Sensor Supply Voltage	IV	-
18	0.5	GN/GY	333	Brake Fluid Level Sensor Signal	II	-
19	-	-	-	Not Occupied	-	-
20	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	II	-
21	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	II	-
22 - 24	-	-	-	Not Occupied	-	-
25	2.5	RD/VT	1640	Battery Positive Voltage	I	-
26 - 27	-	-	-	Not Occupied	-	-
28	0.5	WH/BU	5986	Serial Data Communication Enable	II	-
29	0.5	GY/BK	7127	Wheel Speed Sensor Control Left Rear	II	-
30	0.5	BU	884	Wheel Speed Sensor Signal Left Rear	II	-
31 - 32	-	-	-	Not Occupied	-	-
33	0.5	GN/GY	817	Vehicle Speed Signal	II	-
34	-	-	-	Not Occupied	-	-
35	0.5	GY/WH	7064	Wheel Speed Sensor Control Left Front	II	-
36	0.5	GY	830	Wheel Speed Sensor Signal Left Front	II	-
37	-	-	-	Not Occupied	-	-
38	2.5	BK	2150	Ground	I	-

K17 ELECTRONIC BRAKE CONTROL MODULE (LIGHT DUTY)

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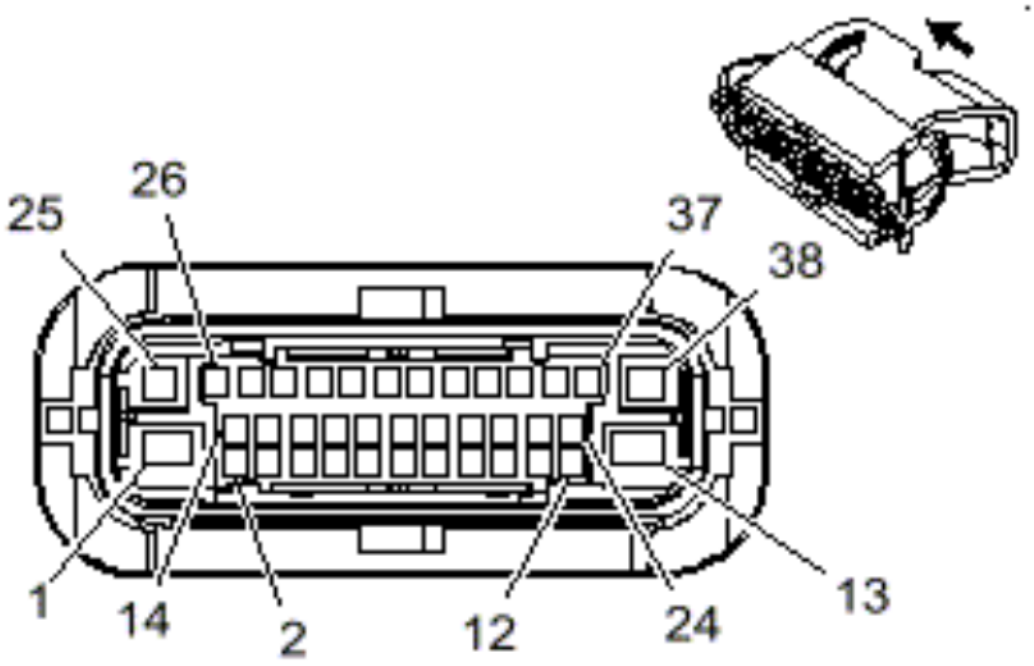

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13655518
- Service Connector: 19303771
- Description: 38-Way F 1.5 CTS, 2.8 MCP, 4.8 MCP Series, Sealed (BK with BN Inner Connector)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13576374	J-35616-35 (VT)	J-38125-557	1-968857-3	Lear 7	C	1
II	19119381	J-35616-14 (GN)	J-38125-560	Not Available	Not Available	Not Available	Not Available
III	19119560	J-35616-40 (BU)	J-38125-556	1241408-1	Lear 28	B	G
IV	19329757	J-35616-14 (GN)	J-38125-215A	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	5	RD/YE	442	Battery Positive Voltage	III	-
2	-	-	-	Not Occupied	-	-
3	0.5	GY/YE	7128	Wheel Speed Sensor Control Right Rear	II	-
4	0.5	VT	882	Wheel Speed Sensor Signal Right Rear	II	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
5	0.5	BU/YE	6105	High Speed GMLAN Serial Data (+) 2	II	-
6	0.5	WH	6106	High Speed GMLAN Serial Data (-) 2	II	-
7	-	-	-	Not Occupied	-	-
8	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	II	-
9	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	II	-
10	0.5	GY/BN	7065	Wheel Speed Sensor Control Right Front	II	-
11	0.5	YE	872	Wheel Speed Sensor Signal Right Front	II	-
12	-	-	-	Not Occupied	-	-
13	5	BK	2150	Ground	III	-
14 - 16	-	-	-	Not Occupied	-	-
17	0.5	GN/BN	2087	Combined Vehicle Inertial Sensor Supply Voltage	IV	-
18	0.5	GN/GY	333	Brake Fluid Level Sensor Signal	II	-
19	0.5	BN	6305	Brake Vacuum Switch Signal	II	-
20	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	II	-
21	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	II	-
22 - 23	-	-	-	Not Occupied	-	-
24	0.5	BK/YE	6032	Brake Vacuum Sensor Low Reference	II	-
25	2.5	RD/VT	1640	Battery Positive Voltage	I	-
26 - 27	-	-	-	Not Occupied	-	-
28	0.5	WH/BU	5986	Serial Data Communication Enable	II	-
29	0.5	GY/BK	7127	Wheel Speed Sensor Control Left Rear	II	-
30	0.5	BU	884	Wheel Speed Sensor Signal Left Rear	II	-
31	-	-	-	Not Occupied	-	-
32	0.5	YE/RD	6031	Brake Vacuum Sensor 5V Reference	II	-
33	0.5	GN/GY	817	Vehicle Speed Signal	II	-
34	0.5	YE/VT	6030	Brake Vacuum Sensor Signal	II	-
35	0.5	GY/WH	7064	Wheel Speed Sensor Control Left Front	II	-
36	0.5	GY	830	Wheel Speed Sensor Signal Left Front	II	-
37	-	-	-	Not Occupied	-	-

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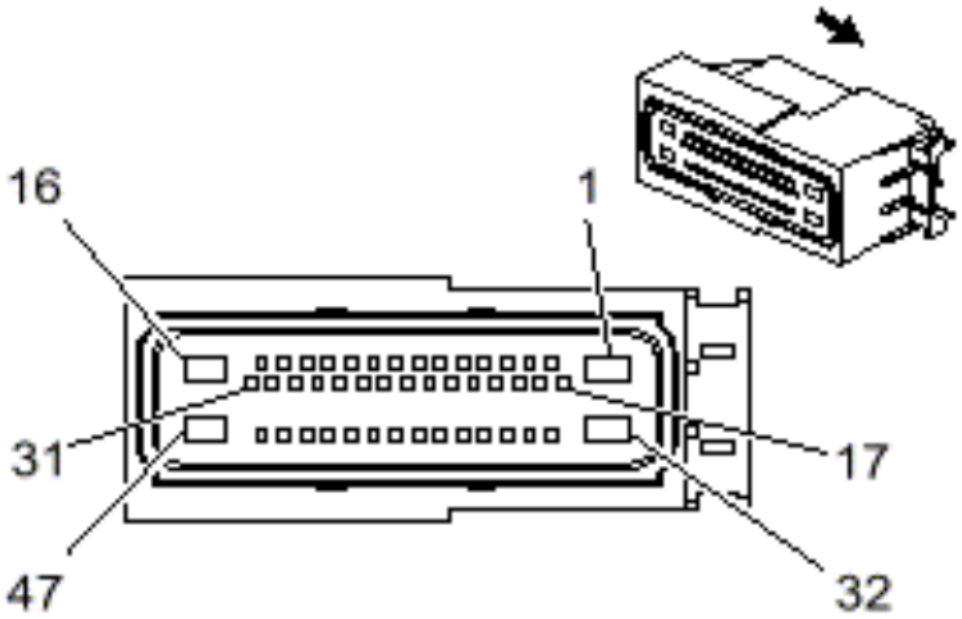
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
38	2.5	BK	2150	Ground	I	-

K19 SUSPENSION CONTROL MODULE



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 15491306
- Service Connector: 19168025
- Description: 47-Way F 0.64, 6.3 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13578883	J-35616-64B (LT BU)	J-38125-215A	SAITS-A03T-M064	Yazaki 14	9	9
II	13579754	J-35616-42 (RD)	J-38125-553	15476168	Delphi 5	F	3
III	13579754	J-35616-42 (RD)	J-38125-553	Not Available	Not Available	Not Available	Not Available
IV	13579755	J-35616-42 (RD)	J-38125-553	15476168	Delphi 5	F	3
V	13579766	J-35616-64B (LT BU)	J-38125-215A	SAITS-A03T-M064	Yazaki 14	9	9

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.5	BK/L-GN	1209	Left Rear Strut Position Sensor Low Reference	I	-
3	0.5	YE/WH	1213	Right Front Strut Position Sensor Signal	I	-
4	-	-	-	Not Occupied	-	-
5	0.5	BK/YE	1215	Right Rear Strut Position Sensor Low Reference	I	-
6	0.5	BN/WH	1207	Left Front Strut Position Sensor Signal	I	-
7 - 11	-	-	-	Not Occupied	-	-
12	0.5	D-BU/YE	6105	High Speed GMLAN Serial Data (+) 2	I	-
13	0.5	D-BU/YE	6105	High Speed GMLAN Serial Data (+) 2	I	-
14	0.5	WH	6106	High Speed GMLAN Serial Data (-) 2	I	-
15	0.5	WH	6106	High Speed GMLAN Serial Data (-) 2	I	-
16	0.75	WH/D-BU	5986	Serial Data Communication Enable	III	-
17	0.5	L-GN/WH	1210	Left Rear Strut Position Sensor Signal	I	-
18	0.5	BK/GY	1212	Right Front Strut Position Sensor Low Reference	I	-
19	-	-	-	Not Occupied	-	-
20	0.5	L-GN/GY	1216	Right Rear Strut Position Sensor Signal	I	-
21	0.5	BK/D-BU	1206	Left Front Strut Position Sensor Low Reference	I	-
22 - 23	-	-	-	Not Occupied	-	-
24	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-
25	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-
26	-	-	-	Not Occupied	-	-
27	0.75	BN	1009	Right Front Strut Motor Decrease Damping Control	V	-
28	0.75	WH/BK	1006	Right Front Strut Motor Increase Damping Control	V	-
29	-	-	-	Not Occupied	-	-
30	0.75	WH/L-GN	1005	Left Front Strut Motor Decrease Damping Control	V	-
31	0.75	WH/GY	1448	Left Front Strut Motor Increase Damping Control	V	-

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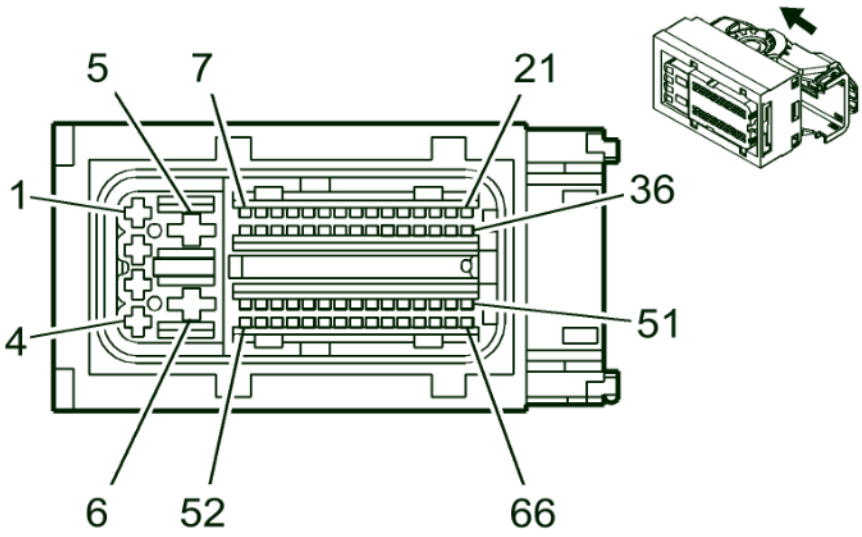
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
32	3	RD/L-GN	2440	Battery Positive Voltage	II	-
33	0.5	YE/RD	1208	Left Rear Strut Position Sensor 5V Reference	I	-
34	0.5	BN/RD	1211	Right Front Strut Position Sensor 5V Reference	I	-
35	0.5	L-GN/RD	1214	Right Rear Strut Position Sensor 5V Reference	I	-
36	0.5	D-BU/RD	1205	Left Front Strut Position Sensor 5V Reference	I	-
37 - 38	-	-	-	Not Occupied	-	-
39	0.5	D-BU	2500	High Speed GMLAN Serial Data (+) 1	I	-
40	0.5	D-BU	2500	High Speed GMLAN Serial Data (+) 1	I	-
41	-	-	-	Not Occupied	-	-
42	0.75	WH/BK	1013	Left Rear Strut Motor Decrease Damping Control	V	-
43	0.75	BN/VT	1010	Left Rear Strut Motor Increase Damping Control	V	-
44	-	-	-	Not Occupied	-	-
45	0.75	VT	1017	Right Rear Strut Motor Decrease Damping Control	V	-
46	0.75	YE	1014	Right Rear Strut Motor Increase Damping Control	V	-
47	4	BK	1750	Ground	IV	-

K20 ENGINE CONTROL MODULE X1 (L5P)



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Connector Part Information

- Harness Type: Engine
- OEM Connector: 33261333
- Service Connector: 19181736
- Description: 66-Way F 0.64, 2.8, 6.3 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13579752	J-35616-4A (PU)	J-38125-36	Not Available	Not Available	Not Available	Not Available
II	13584448	J-35616-64B (LT BU)	J-38125-12A	1719532-5	Lear 7	J	J
III	13584458	J-35616-4A (PU)	J-38125-36	4-964286-1	Lear 16	E	1
IV	13584528	J-35616-42 (RD)	J-38125-11A	Not Available	Not Available	Not Available	Not Available
V	13584529	J-35616-42 (RD)	J-38125-11A	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	VT/BU	5290	Powertrain Main Relay Fused Supply 1	III	-
2	0.5	VT/BU	5290	Powertrain Main Relay Fused Supply 1	I	-
3	-	-	-	Not Occupied	-	-
4	0.5	RD/BN	440	Battery Positive Voltage	I	-
5	2.5	VT/BU	5290	Powertrain Main Relay Fused Supply 1	IV	-
6	4	BK/WH	451	Signal Ground	V	-
7	0.5	VT/YE	5985	Accessory Wakeup Serial Data	II	-
8	0.5	WH/GY	1786	Transmission Park/Neutral Signal 1	II	-
9	0.5	GY/BK	1694	Four Wheel Drive Low Signal	II	-
10	0.5	GN/WH	492	Mass Air Flow Sensor Signal	II	-
11	0.5	BU/GY	636	Outside Ambient Air Temperature Sensor Signal	II	-
12	-	-	-	Not Occupied	-	-
13	0.5	WH/RD	1164	Accelerator Pedal Position 5V Reference 1	II	-
14	0.5	BN/RD	1274	Accelerator Pedal Position 5V Reference 2	II	-
15	0.5	GN/WH	1162	Accelerator Pedal Position Signal 2	II	-
16	0.5	BK/VT	1272	Accelerator Pedal Position Low Reference 2	II	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
17 - 20	-	-	-	Not Occupied	-	-
21	0.5	YE	2928	Fuel Metering Valve High Control	II	-
22	0.5	VT/GN	439	Run/Crank Ignition 1 Voltage	II	-
23	0.5	YE/WH	1695	Four Wheel Drive Wheel Lock Indicator Control	II	-
24	0.5	WH/BU	6311	Cruise/ETC/TCC Brake Signal	II	-
25	0.5	BN/GY	4008	Humidity Sensor Signal	II	-
26	0.5	BK/BU	61	Outside Ambient Temperature Sensor Low Reference	II	-
27	0.5	BK/BU	1271	Accelerator Pedal Position Low Reference 1	II	-
28	0.5	YE/WH	1161	Accelerator Pedal Position Signal 1	II	-
29 - 32	-	-	-	Not Occupied	-	-
33	0.5	BN/WH	419	Check Engine Indicator Control	II	-
34	0.5	GN/BN	507	Wait To Start Indicator Control	II	-
35	0.5	WH/GY	459	A/C Compressor Clutch Relay Control	II	-
36	0.5	BN/BK	2929	Fuel Metering Valve Low Control	II	-
37 - 38	-	-	-	Not Occupied	-	-
39	0.5	WH	4499	High Speed GMLAN Serial Data (-) 7	II	-
40	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	II	-
41 - 42	-	-	-	Not Occupied	-	-
43	0.5	BK/BN	5360	Brake Apply Sensor Low Reference	II	-
44	0.5	WH	5359	Brake Apply Sensor Control	II	-
45	0.5	WH/BU	6289	Induction Air Temperature Sensor Signal	II	-
46	0.5	BN/RD	2700	A/C Pressure Sensor 5V Reference	II	-
47	0.5	GN	380	A/C Refrigerant Pressure Sensor Signal	II	-
48	0.5	BK/BN	5514	A/C Refrigerant Pressure Sensor Low Reference	II	-
49	-	-	-	Not Occupied	-	-
50	0.5	WH/BK	2366	Cooling Fan Control Relay Speed Signal	II	-
51	0.5	YE	5991	Powertrain Relay Coil Control	II	-
52 - 53	-	-	-	Not Occupied	-	-
54	0.5	BU/BN	4498	High Speed GMLAN Serial Data (+) 7	II	-
55	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	II	-
56 - 58	-	-	-	Not Occupied	-	-
59	0.5	BU/YE	5361	Brake Apply Sensor Signal	II	-

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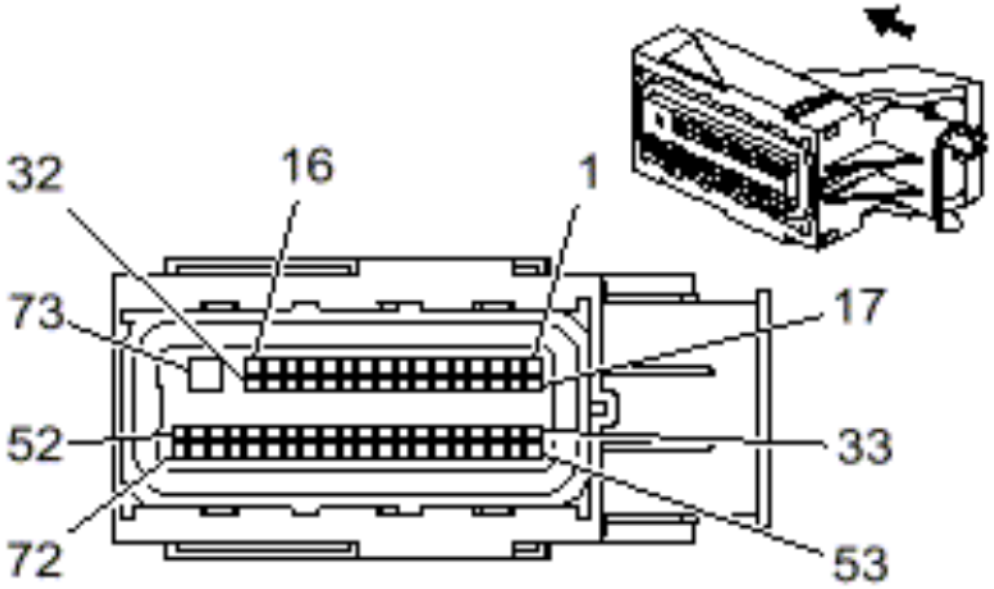
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
60	0.5	BK/VT	2760	Intake Air Temperature Sensor Low Reference	II	-
61 - 63	-	-	-	Not Occupied	-	-
64	0.5	YE/BU	1465	Secondary Fuel Pump Relay Control	II	-
65	0.5	YE/BK	625	Starter Enable Relay Control	II	-
66	0.5	GN/GY	465	Fuel Pump Primary Relay Control	II	-

K20 ENGINE CONTROL MODULE X1 (L83/L86)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13820453
- Service Connector: 19260919
- Description: 73-Way F 0.64, 2.8 Series, Sealed (BK with BU Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575797	J-35616-4A (PU)	J-38125-11A	7116-4152-02	Yazaki 9	A	5
II	13575812	J-35616-64B (LT BU)	J-38125-213	33467-0003	Delphi 23	Not Available	J

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.5	BU/WH	7446	Fuel Line Pressure Sensor Signal	II	-
3	-	-	-	Not Occupied	-	-
4	0.5	YE/WH	3200	Throttle Inlet Absolute Pressure Sensor Signal	II	-
5	0.5	WH/RD	3201	Throttle Inlet Absolute Pressure Sensor 5V Reference	II	-
6	0.5	GN	380	A/C Refrigerant Pressure Sensor Signal	II	-
7	0.5	YE	5530	Hood Open Switch Signal	II	-
8	0.5	BK/YE	7447	Fuel Line Pressure Sensor Low Reference	II	-
9	0.5	BU/WH	890	Fuel Tank Pressure Sensor Signal	II	-
10	0.5	YE/RD	2709	Fuel Tank Pressure Sensor 5V Reference	II	-
11 - 12	-	-	-	Not Occupied	-	-
13	0.5	BU/GY	636	Outside Ambient Air Temperature Sensor Signal	II	-
14	0.5	WH/RD	1164	Accelerator Pedal Position 5V Reference 1	II	-
15	0.5	YE/WH	1161	Accelerator Pedal Position Signal 1	II	-
16 - 20	-	-	-	Not Occupied	-	-
21	0.5	BN/RD	2700	A/C Pressure Sensor 5V Reference	II	-
22	0.5	BK/BN	5514	A/C Refrigerant Pressure Sensor Low Reference	II	-
23	-	-	-	Not Occupied	-	-
24	0.5	BN/RD	7445	Fuel Line Pressure Sensor 5V Reference	II	-
25	0.5	BU/VT	1589	Primary Fuel Level Sensor Signal	II	-
26	0.5	BK/GN	6281	Fuel Level Sensor Low Reference	II	-
27 - 29	-	-	-	Not Occupied	-	-
30	0.5	BK/BU	1271	Accelerator Pedal Position Low Reference 1	II	-
31	-	-	-	Not Occupied	-	-
32	0.5	WH/GY	459	A/C Compressor Clutch Relay Control	II	-
33	0.5	BN/RD	1274	Accelerator Pedal Position 5V Reference 2	II	-
34	0.5	GN/WH	1162	Accelerator Pedal Position Signal 2	II	-
35	-	-	-	Not Occupied	-	-
36	0.5	BU/BK	7493	High Speed GMLAN Serial Data (+)3	II	-
37	0.5	WH	7494	High Speed GMLAN Serial Data (-)3	II	-
38	0.5	WH	1579	Fuel Temperature/Composition Signal	II	-
39	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	II	-
40	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	II	-
41	0.5	BU/WH	2918	Fuel Rail Pressure Sensor Signal	II	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
42 - 43	-	-	-	Not Occupied	-	-
44	0.5	GY	5660	Fuel Pump Controller Data Out Signal	II	-
45	-	-	-	Not Occupied	-	-
46	0.5	BN/WH	419	Check Engine Indicator Control	II	-
47	0.5	WH	5359	Brake Apply Sensor Control	II	-
48	0.5	BU/YE	5361	Brake Apply Sensor Signal	II	-
49 - 50	-	-	-	Not Occupied	-	-
51	0.5	VT/GN	439	Run/Crank Ignition 1 Voltage	II	-
52	0.5	RD/BN	440	Battery Positive Voltage	II	-
53	0.5	BK/VT	1272	Accelerator Pedal Position Low Reference 2	II	-
54	0.5	GN/VT	4621	Local Interconnect Network Serial Data Bus 21	II	-
55 - 56	-	-	-	Not Occupied	-	-
57	0.5	WH/BU	6311	Cruise/ETC/TCC Brake Signal	II	-
58	-	-	-	Not Occupied	-	-
59	0.5	BN/YE	473	High Speed Cooling Fan Relay Control	II	-
60	0.5	YE/WH	1695	Four Wheel Drive Wheel Lock Indicator Control	II	-
61	0.5	GY/BK	1694	Four Wheel Drive Low Signal	II	-
62	0.75	VT/BU	5291	Powertrain Main Relay Fused Supply 2	II	-
63	0.5	YE/BK	625	Starter Enable Relay Control	II	-
64 - 65	-	-	-	Not Occupied	-	-
66	0.5	WH	1310	EVAP Canister Vent Solenoid Control	II	-
67	0.75	VT/BU	5292	Powertrain Main Relay Fused Supply 3	II	-
68	0.5	BK/BN	5360	Brake Apply Sensor Low Reference	II	-
69	-	-	-	Not Occupied	-	-
70	0.5	VT/YE	5985	Accessory Wakeup Serial Data	II	-
71	-	-	-	Not Occupied	-	-
72	0.5	YE	5991	Powertrain Relay Coil Control	II	-
73	2.5	VT/BU	5290	Powertrain Main Relay Fused Supply 1	I	-

K20 ENGINE CONTROL MODULE X1 (L8B)

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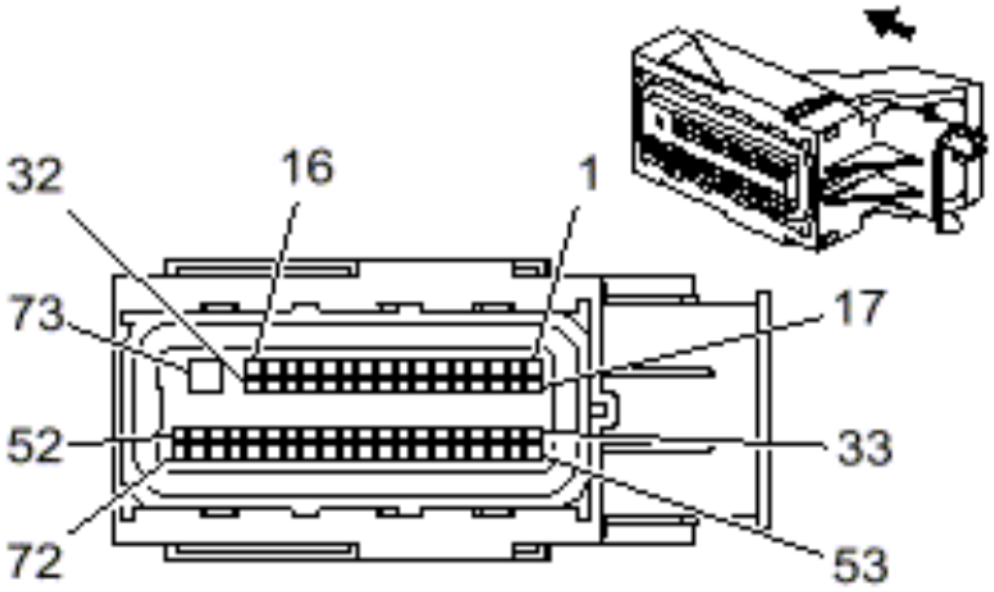

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13820453
- Service Connector: 19260919
- Description: 73-Way F 0.64, 2.8 Series, Sealed (BK with BU Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575797	J-35616-4A (PU)	J-38125-11A	7116-4152-02	Yazaki 9	A	5
II	13575812	J-35616-64B (LT BU)	J-38125-213	33467-0003	Delphi 23	Not Available	J

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.5	BU/WH	7446	Fuel Line Pressure Sensor Signal	II	-
3	-	-	-	Not Occupied	-	-
4	0.5	YE/WH	3200	Throttle Inlet Absolute Pressure Sensor Signal	II	-
5	0.5	WH/RD	3201	Throttle Inlet Absolute Pressure Sensor 5V Reference	II	-
6	0.5	GN	380	A/C Refrigerant Pressure Sensor Signal	II	-
7	-	-	-	Not Occupied	-	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
8	0.5	BK/YE	7447	Fuel Line Pressure Sensor Low Reference	II	-
9	0.5	BU/WH	890	Fuel Tank Pressure Sensor Signal	II	-
10	0.5	YE/RD	2709	Fuel Tank Pressure Sensor 5V Reference	II	-
11 - 12	-	-	-	Not Occupied	-	-
13	0.5	BU/GY	636	Outside Ambient Air Temperature Sensor Signal	II	-
14	0.5	WH/RD	1164	Accelerator Pedal Position 5V Reference 1	II	-
15	0.5	YE/WH	1161	Accelerator Pedal Position Signal 1	II	-
16 - 20	-	-	-	Not Occupied	-	-
21	0.5	BN/RD	2700	A/C Pressure Sensor 5V Reference	II	-
22	0.5	BK/BN	5514	A/C Refrigerant Pressure Sensor Low Reference	II	-
23	-	-	-	Not Occupied	-	-
24	0.5	BN/RD	7445	Fuel Line Pressure Sensor 5V Reference	II	-
25	0.5	BU/VT	1589	Primary Fuel Level Sensor Signal	II	-
26	0.5	BK/GN	6281	Fuel Level Sensor Low Reference	II	-
27 - 29	-	-	-	Not Occupied	-	-
30	0.5	BK/BU	1271	Accelerator Pedal Position Low Reference 1	II	-
31	-	-	-	Not Occupied	-	-
32	0.5	WH/GY	459	A/C Compressor Clutch Relay Control	II	-
33	0.5	BN/RD	1274	Accelerator Pedal Position 5V Reference 2	II	-
34	0.5	GN/WH	1162	Accelerator Pedal Position Signal 2	II	-
35	-	-	-	Not Occupied	-	-
36	0.5	BU/BK	7493	High Speed GMLAN Serial Data (+)3	II	-
37	0.5	WH	7494	High Speed GMLAN Serial Data (-)3	II	-
38	0.5	WH	1579	Fuel Temperature/Composition Signal	II	-
39	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	II	-
40	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	II	-
41	0.5	BU/WH	2918	Fuel Rail Pressure Sensor Signal	II	-
42 - 43	-	-	-	Not Occupied	-	-
44	0.5	GY	5660	Fuel Pump Controller Data Out Signal	II	-
45	-	-	-	Not Occupied	-	-
46	0.5	BN/WH	419	Check Engine Indicator Control	II	-
47 - 50	-	-	-	Not Occupied	-	-
51	0.5	VT/GN	439	Run/Crank Ignition 1 Voltage	II	-
52	0.5	RD/BN	440	Battery Positive Voltage	II	-
53	0.5	BK/VT	1272	Accelerator Pedal Position Low Reference 2	II	-

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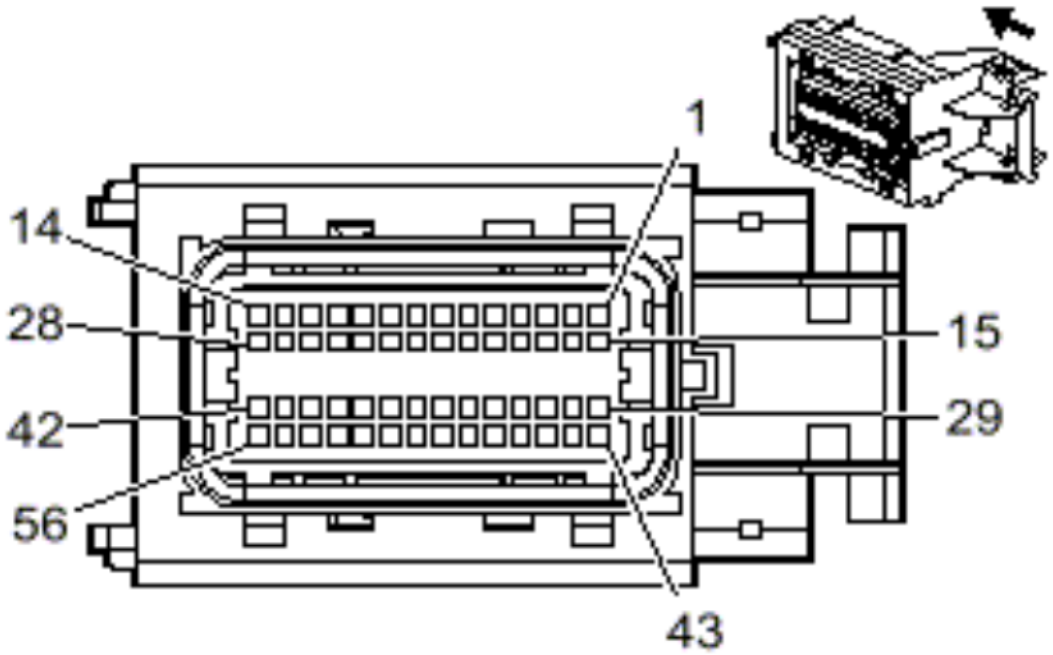
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
54	0.5	GN/VT	4621	Local Interconnect Network Serial Data Bus 21	II	-
55 - 56	-	-	-	Not Occupied	-	-
57	0.5	WH/BU	6311	Cruise/ETC/TCC Brake Signal	II	-
58	-	-	-	Not Occupied	-	-
59	0.5	BN/YE	473	High Speed Cooling Fan Relay Control	II	-
60 - 61	-	-	-	Not Occupied	-	-
62	0.75	VT/BU	5291	Powertrain Main Relay Fused Supply 2	II	-
63	0.5	YE/BK	625	Starter Enable Relay Control	II	-
64 - 65	-	-	-	Not Occupied	-	-
66	0.5	WH	1310	EVAP Canister Vent Solenoid Control	II	-
67	0.75	VT/BU	5292	Powertrain Main Relay Fused Supply 3	II	-
68 - 69	-	-	-	Not Occupied	-	-
70	0.5	VT/YE	5985	Accessory Wakeup Serial Data	II	-
71	-	-	-	Not Occupied	-	-
72	0.5	YE	5991	Powertrain Relay Coil Control	II	-
73	2.5	VT/BU	5290	Powertrain Main Relay Fused Supply 1	I	-

K20 ENGINE CONTROL MODULE X1 (L96)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13820449
- Service Connector: 19329930

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- Description: 56-Way F 0.64 I Series, Sealed (BK with BU Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575812	J-35616-64B (LT BU)	J-38125-213	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.5	GN/WH	1162	Accelerator Pedal Position Signal 2	I	-
3	0.5	GN/WH	492	Mass Air Flow Sensor Signal	I	-
4	0.5	GY/BK	1694	Four Wheel Drive Low Signal	I	-
5	0.5	YE/WH	1695	Four Wheel Drive Wheel Lock Indicator Control	I	-
6 - 7	-	-	-	Not Occupied	-	-
8	0.5	GY/BU	7564	Humidity Sensor Signal	I	-
9	-	-	-	Not Occupied	-	-
10	0.5	YE/WH	1161	Accelerator Pedal Position Signal 1	I	-
11	0.5	YE/WH	3200	Throttle Inlet Absolute Pressure Sensor Signal	I	-
12	0.5	GN	380	A/C Refrigerant Pressure Sensor Signal	I	-
13	0.5	BK/BN	5514	A/C Refrigerant Pressure Sensor Low Reference	I	-
14	0.5	YE/BU	1465	Secondary Fuel Pump Relay Control	I	-
15	-	-	-	Not Occupied	-	-
16	0.5	BN/RD	1274	Accelerator Pedal Position 5V Reference 2	I	-
17	-	-	-	Not Occupied	-	-
18	0.5	VT/YE	5985	Accessory Wakeup Serial Data	I	-
19	0.5	VT/GN	439	Run/Crank Ignition 1 Voltage	I	-
20	0.5	RD/BN	440	Battery Positive Voltage	I	-
21 - 23	-	-	-	Not Occupied	-	-
24	0.5	WH/RD	1164	Accelerator Pedal Position 5V Reference 1	I	-
25	0.5	WH/RD	3201	Throttle Inlet Absolute Pressure Sensor 5V Reference	I	-
26	0.5	BN/RD	2700	A/C Pressure Sensor 5V Reference	I	-
27	0.5	YE/BK	625	Starter Enable Relay Control	I	-
28	0.5	GN/GY	465	Fuel Pump Primary Relay Control	I	-
29	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	I	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
30	0.5	BK/VT	1272	Accelerator Pedal Position Low Reference 2	I	-
31	0.5	BK/VT	2760	Intake Air Temperature Sensor Low Reference	I	-
32	-	-	-	Not Occupied	-	-
33	0.5	WH/BU	6311	Cruise/ETC/TCC Brake Signal	I	-
34	0.5	WH/GY	1786	Transmission Park/Neutral Signal 1	I	-
35 - 37	-	-	-	Not Occupied	-	-
38	0.5	BK/BU	1271	Accelerator Pedal Position Low Reference 1	I	-
39	-	-	-	Not Occupied	-	-
40	0.5	YE	5991	Powertrain Relay Coil Control	I	-
41 - 42	-	-	-	Not Occupied	-	-
43	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-
44	-	-	-	Not Occupied	-	-
45	0.5	WH/BU	6289	Induction Air Temperature Sensor Signal	I	-
46	-	-	-	Not Occupied	-	-
47	0.5	BN	25	Charge Indicator Control	I	-
48 - 51	-	-	-	Not Occupied	-	-
52	0.5	BN/WH	419	Check Engine Indicator Control	I	-
53	0.5	WH/GY	459	A/C Compressor Clutch Relay Control	I	-
54 - 55	-	-	-	Not Occupied	-	-
56	0.5	WH	1310	EVAP Canister Vent Solenoid Control	I	-

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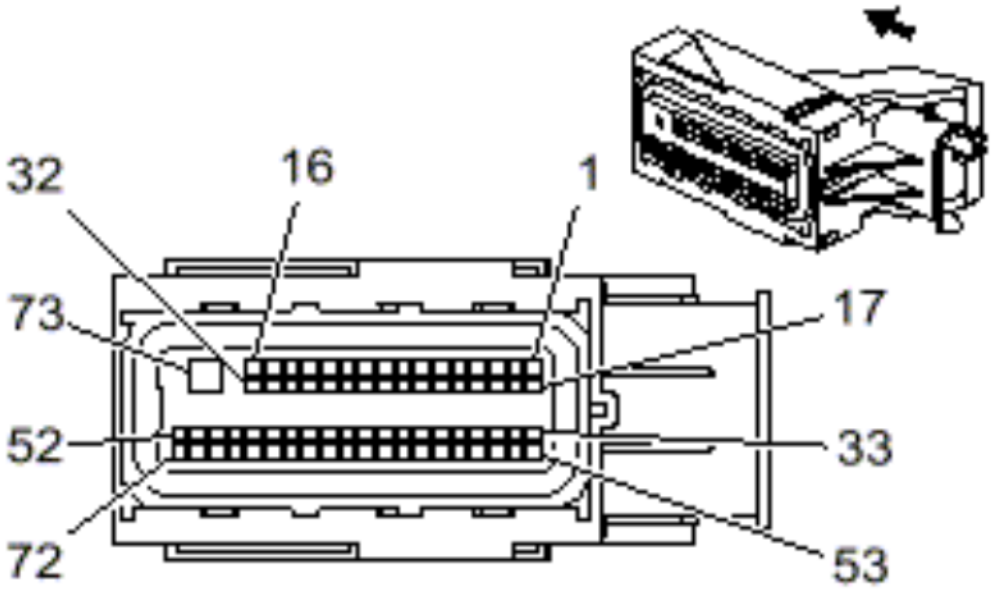
COMPONENT CONNECTOR END VIEWS

K20 ENGINE CONTROL MODULE X1 (LV3)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13820453
- Service Connector: 19260919
- Description: 73-Way F 0.64, 2.8 Series, Sealed (BK with BU Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575812	J-35616-64B (LT BU)	J-38125-213	Not Available	Not Available	Not Available	Not Available
II	13579770	J-35616-35 (VT)	J-38125-11A	7116-4152-02	Yazaki 9	A	5

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.5	D-BU/WH	7446	Fuel Line Pressure Sensor Signal	I	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	-	-	-	Not Occupied	-	-
4	0.5	YE/WH	3200	Throttle Inlet Absolute Pressure Sensor Signal	I	-
5	0.5	WH/RD	3201	Throttle Inlet Absolute Pressure Sensor 5V Reference	I	-
6	0.5	L-GN	380	A/C Refrigerant Pressure Sensor Signal	I	-
7	0.5	YE	5530	Hood Open Switch Signal	I	-
8	0.5	BK/YE	7447	Fuel Line Pressure Sensor Low Reference	I	-
9	0.5	D-BU/WH	890	Fuel Tank Pressure Sensor Signal	I	-
10	0.5	YE/RD	2709	Fuel Tank Pressure Sensor 5V Reference	I	-
11 - 12	-	-	-	Not Occupied	-	-
13	0.5	D-BU/GY	636	Outside Ambient Air Temperature Sensor Signal	I	-
14	0.5	WH/RD	1164	Accelerator Pedal Position 5V Reference 1	I	-
15	0.5	YE/WH	1161	Accelerator Pedal Position Signal 1	I	-
16 - 20	-	-	-	Not Occupied	-	-
21	0.5	BN/RD	2700	A/C Pressure Sensor 5V Reference	I	-
22	0.5	BK/BN	5514	A/C Refrigerant Pressure Sensor Low Reference	I	-
23	-	-	-	Not Occupied	-	-
24	0.5	BN/RD	7445	Fuel Line Pressure Sensor 5V Reference	I	-
25	0.5	D-BU/VT	1589	Primary Fuel Level Sensor Signal	I	-
26	0.5	BK/L-GN	6281	Fuel Level Sensor Low Reference	I	-
27 - 29	-	-	-	Not Occupied	-	-
30	0.5	BK/D-BU	1271	Accelerator Pedal Position Low Reference 1	I	-
31	-	-	-	Not Occupied	-	-
32	0.5	WH/GY	459	A/C Compressor Clutch Relay Control	I	-
33	0.5	BN/RD	1274	Accelerator Pedal Position 5V Reference 2	I	-
34	0.5	L-GN/WH	1162	Accelerator Pedal Position Signal 2	I	-
35	-	-	-	Not Occupied	-	-
36	0.5	D-BU/BK	7493	High Speed GMLAN Serial Data (+)3	I	-
37	0.5	WH	7494	High Speed GMLAN Serial Data (-)3	I	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
38	0.5	WH	1579	Fuel Temperature/Composition Signal	I	-
39	0.5	D-BU	2500	High Speed GMLAN Serial Data (+) 1	I	-
40	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-
41	0.5	D-BU/WH	2918	Fuel Rail Pressure Sensor Signal	I	-
42 - 43	-	-	-	Not Occupied	-	-
44	0.5	GY	5660	Fuel Pump Controller Data Out Signal	I	-
45	-	-	-	Not Occupied	-	-
46	0.5	BN/WH	419	Check Engine Indicator Control	I	-
47	0.5 0.5	GY/RD WH	6109 5359	Clutch Apply Sensor 5V Reference Brake Apply Sensor Control	I I	M2P/MXW MYC
48	0.5 0.5	YE D-BU/YE	6111 5361	Clutch Apply Sensor Signal Brake Apply Sensor Signal	I I	M2P/MXW MYC
49 - 50	-	-	-	Not Occupied	-	-
51	0.5	VT/L-GN	439	Run/Crank Ignition 1 Voltage	I	-
52	0.5	RD/BN	440	Battery Positive Voltage	I	-
53	0.5	BK/VT	1272	Accelerator Pedal Position Low Reference 2	I	-
54	0.5	L-GN/VT	4621	Local Interconnect Network Serial Data Bus 21	I	-
55 - 56	-	-	-	Not Occupied	-	-
57	0.5	WH/D-BU	6311	Cruise/ETC/TCC Brake Signal	I	-
58	-	-	-	Not Occupied	-	-
59	0.5	BN/YE	473	High Speed Cooling Fan Relay Control	I	-
60	0.5	YE/WH	1695	Four Wheel Drive Wheel Lock Indicator Control	I	-
61	0.5	GY/BK	1694	Four Wheel Drive Low Signal	I	-
62	0.75	VT/D-BU	5291	Powertrain Main Relay Fused Supply 2	I	-
63	0.5	YE/BK	625	Starter Enable Relay Control	I	-
64 - 65	-	-	-	Not Occupied	-	-
66	0.5	WH	1310	EVAP Canister Vent Solenoid Control	I	-
67	0.75	VT/D-BU	5292	Powertrain Main Relay Fused Supply 3	I	-
68	0.5 0.5	BK/GY BK/BN	6110 5360	Clutch Apply Sensor Low Reference Brake Apply Sensor Low Reference	I I	M2P/MXW MYC
69	-	-	-	Not Occupied	-	-

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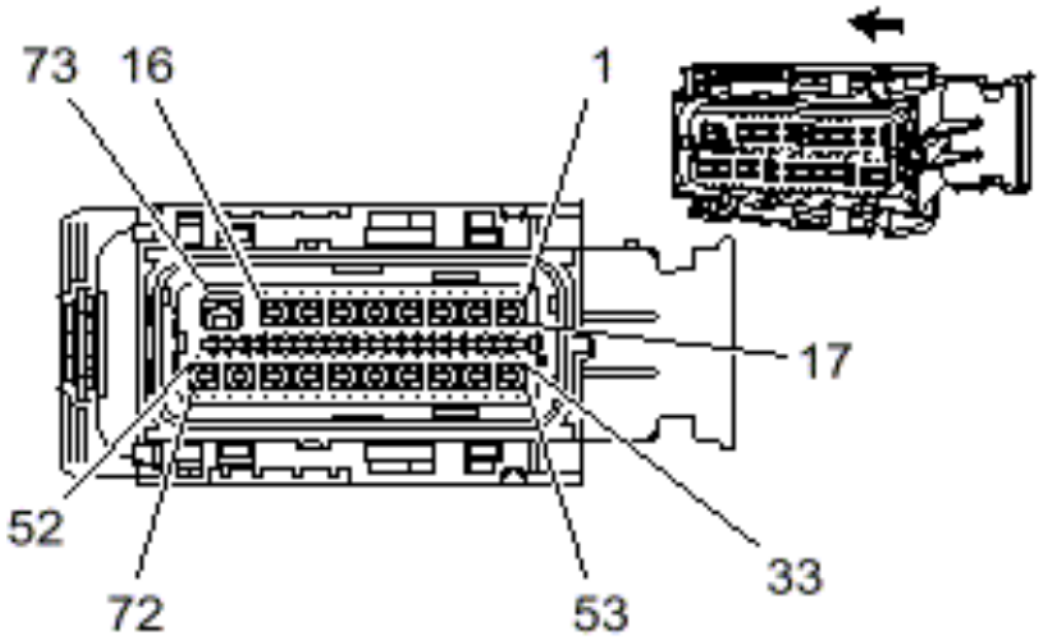
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
70	0.5	VT/YE	5985	Accessory Wakeup Serial Data	I	-
71	-	-	-	Not Occupied	-	-
72	0.5	YE	5991	Powertrain Relay Coil Control	I	-
73	2.5	VT/D-BU	5290	Powertrain Main Relay Fused Supply 1	II	-

K20 ENGINE CONTROL MODULE X2 (L8B)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 33152986
- Service Connector: 19301191
- Description: 73-Way F 0.64, 2.8 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575797	J-35616-4A (PU)	J-38125-11A	7116-4152-02	Yazaki 9	A	5
II	13575812	J-35616-64B (LT BU)	J-38125-213	33467-0003	Delphi 23	Not Available	J

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	-	-	-	Not Occupied	-	-
3	0.5	BK/GN	2919	Fuel Rail Pressure Sensor Low Reference	II	-
4 - 5	-	-	-	Not Occupied	-	-
6	0.5	VT/WH	821	Vehicle Speed Sensor Signal	II	-
7	0.5	BK/GN	822	Vehicle Speed Sensor Low Reference	II	-
8 - 9	-	-	-	Not Occupied	-	-
10	0.5	VT/GY	3110	Heated Oxygen Sensor High Signal Bank 1 Sensor 1	II	-
11	0.5	VT/WH	3210	Heated Oxygen Sensor High Signal Bank 2 Sensor 1	II	-
12	0.5	VT/BU	3120	Heated Oxygen Sensor High Signal Bank 1 Sensor 2	II	-
13	0.5	VT/GN	3220	Heated Oxygen Sensor High Signal Bank 2 Sensor 2	II	-
14	-	-	-	Not Occupied	-	-
15	0.5	GY/BU	7564	Humidity Sensor Signal	II	-
16	0.5	BN/WH	582	Throttle Actuator Control Close	II	-
17	-	-	-	Not Occupied	-	-
18	0.5	BN/RD	2917	Fuel Rail Pressure Sensor 5V Reference	II	-
19 - 25	-	-	-	Not Occupied	-	-
26	0.5	WH/BK	3111	Heated Oxygen Sensor Low Signal Bank 1 Sensor 1	II	-
27	0.5	YE/WH	3211	Heated Oxygen Sensor Low Signal Bank 2 Sensor 1	II	-
28	0.5	WH/YE	3121	Heated Oxygen Sensor Low Signal Bank 1 Sensor 2	II	-
29	0.5	YE/BU	3221	Heated Oxygen Sensor Low Signal Bank 2 Sensor 2	II	-
30 - 31	-	-	-	Not Occupied	-	-
32	0.5	YE	581	Throttle Actuator Control Open	II	-
33	-	-	-	Not Occupied	-	-
34	0.5	BN/RD	2701	Throttle Position Sensor 5V Reference	II	-
35	-	-	-	Not Occupied	-	-
36	0.75	VT/GY	496	Knock Sensor Signal 1	II	-
37	0.75	WH/GY	1876	Knock Sensor Signal 2	II	-
38 - 40	-	-	-	Not Occupied	-	-
41	0.5	GY/WH	3113	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 1	II	-
42	0.5	GY/WH	3122	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 2	II	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
43	0.5	GN/WH	432	Manifold Absolute Pressure Sensor Signal	II	-
44	0.5	GY/RD	2704	Manifold Absolute Pressure Sensor 5V Reference	II	-
45 - 46	-	-	-	Not Occupied	-	-
47	0.5	VT/YE	3854	Cabin Heater Coolant Motor Control	II	-
48	-	-	-	Not Occupied	-	-
49	0.5	WH/BU	6289	Induction Air Temperature Sensor Signal	II	-
50	-	-	-	Not Occupied	-	-
51	0.5	GN/BU	428	EVAP Canister Purge Solenoid Control	II	-
52	0.5	GN/WH	492	Mass Air Flow Sensor Signal	II	-
53	-	-	-	Not Occupied	-	-
54	0.5	BK/BN	2752	Throttle Position Sensor Low Reference	II	-
55	-	-	-	Not Occupied	-	-
56	0.75	BK/YE	1716	Knock Sensor Low Reference 1	II	-
57	0.75	BK/GY	2303	Knock Sensor Low Reference 2	II	-
58	0.5	WH/GY	1786	Transmission Park/Neutral Signal 1	II	-
59	0.5	BU	179	Oil Pump Command Signal	II	-
60	0.5	BN/GN	1174	Oil Level Switch Signal	II	-
61	0.5	GN/YE	3212	Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 1	II	-
62	0.5	WH/BN	3223	Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 2	II	-
63	0.5	BK/GN	469	Manifold Absolute Pressure Sensor Low Reference	II	-
64	-	-	-	Not Occupied	-	-
65	0.5	BK/BU	61	Outside Ambient Temperature Sensor Low Reference	II	-
66 - 68	-	-	-	Not Occupied	-	-
69	0.5	WH/YE	3202	Throttle Inlet Absolute Pressure Sensor Low Reference	II	-
70	0.5	BU/WH	3630	Throttle Position Sensor (SENT1) Signal	II	-
71 - 72	-	-	-	Not Occupied	-	-
73	2.5	BK/WH	451	Signal Ground	I	-

K20 ENGINE CONTROL MODULE X2 (L83+MYC-NQH/NQG)

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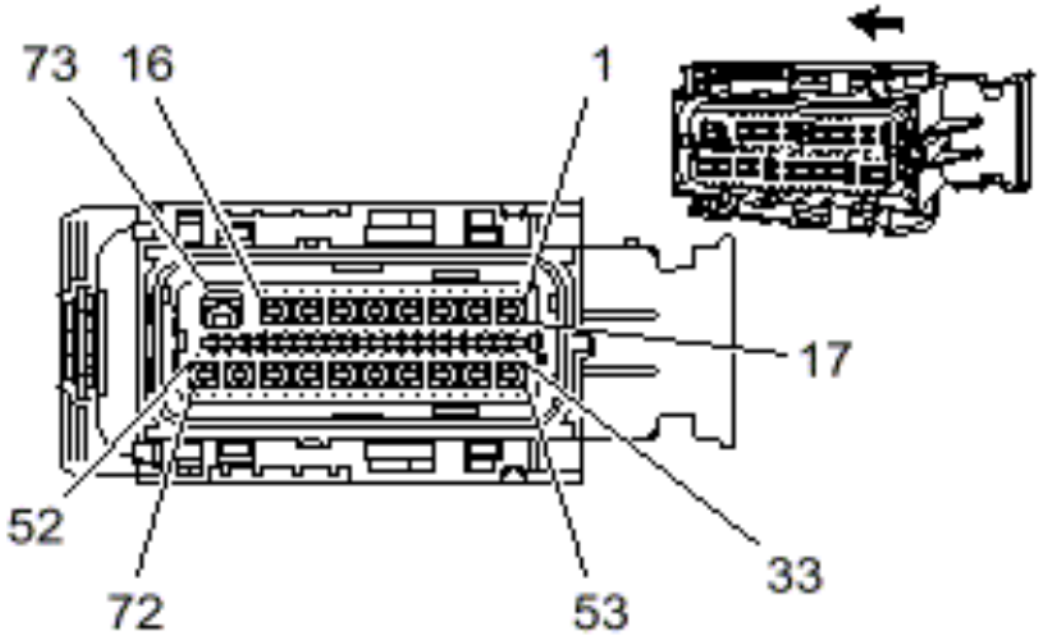

Connector Part Information

- Harness Type: Engine
- OEM Connector: 33264057
- Service Connector: 19301191
- Description: 73-Way F 0.64, 2.8 Series, Sealed (BK with BK Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575812	J-35616-64B (LT BU)	J-38125-213	Not Available	Not Available	Not Available	Not Available
II	13579770	J-35616-4A (PU)	J-38125-11A	7116-4152-02	Yazaki 9	A	5

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	-	-	-	Not Occupied	-	-
3	0.5	BK/GN	2919	Fuel Rail Pressure Sensor Low Reference	I	-
4 - 7	-	-	-	Not Occupied	-	-
8	0.5	BN/WH	6354	Output Speed High (Replicated TOS) Input Signal	I	-
9	-	-	-	Not Occupied	-	-
10	0.5	VT/GY	3110	Heated Oxygen Sensor High Signal Bank 1 Sensor 1	I	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
11	0.5	VT/WH	3210	Heated Oxygen Sensor High Signal Bank 2 Sensor 1	I	-
12	0.5	VT/BU	3120	Heated Oxygen Sensor High Signal Bank 1 Sensor 2	I	-
13	0.5	VT/GN	3220	Heated Oxygen Sensor High Signal Bank 2 Sensor 2	I	-
14	-	-	-	Not Occupied	-	-
15	0.5	GY/BU	7564	Humidity Sensor Signal	I	-
16	0.5	BN/WH	582	Throttle Actuator Control Close	I	-
17	-	-	-	Not Occupied	-	-
18	0.5	BN/RD	2917	Fuel Rail Pressure Sensor 5V Reference	I	-
19 - 25	-	-	-	Not Occupied	-	-
26	0.5	WH/BK	3111	Heated Oxygen Sensor Low Signal Bank 1 Sensor 1	I	-
27	0.5	YE/WH	3211	Heated Oxygen Sensor Low Signal Bank 2 Sensor 1	I	-
28	0.5	WH/YE	3121	Heated Oxygen Sensor Low Signal Bank 1 Sensor 2	I	-
29	0.5	YE/BU	3221	Heated Oxygen Sensor Low Signal Bank 2 Sensor 2	I	-
30 - 31	-	-	-	Not Occupied	-	-
32	0.5	YE	581	Throttle Actuator Control Open	I	-
33	-	-	-	Not Occupied	-	-
34	0.5	BN/RD	2701	Throttle Position Sensor 5V Reference	I	-
35	-	-	-	Not Occupied	-	-
36	0.75	VT/GY	496	Knock Sensor Signal 1	I	-
37	0.75	WH/GY	1876	Knock Sensor Signal 2	I	-
38 - 39	-	-	-	Not Occupied	-	-
40	0.5	VT/BU	6091	Crankshaft Position Sensor Replicated Signal	I	-
41	0.5	GY/WH	3113	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 1	I	-
42	0.5	GY/WH	3122	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 2	I	-
43	0.5	GN/WH	432	Manifold Absolute Pressure Sensor Signal	I	-
44	0.5	GY/RD	2704	Manifold Absolute Pressure Sensor 5V Reference	I	-
45	-	-	-	Not Occupied	-	-
46	0.5	GY/BN	2410	Fuel Pump Prime Control	I	-
47 - 48	-	-	-	Not Occupied	-	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
49	0.5	WH/BU	6289	Induction Air Temperature Sensor Signal	I	-
50	-	-	-	Not Occupied	-	-
51	0.5	GN/BU	428	EVAP Canister Purge Solenoid Control	I	-
52	0.5	GN/WH	492	Mass Air Flow Sensor Signal	I	-
53	0.5	BN	25	Charge Indicator Control	I	-
54	0.5	BK/BN	2752	Throttle Position Sensor Low Reference	I	-
55	0.5	GY	23	Generator Field Duty Cycle Signal	I	-
56	0.75	BK/YE	1716	Knock Sensor Low Reference 1	I	-
57	0.75	BK/GY	2303	Knock Sensor Low Reference 2	I	-
58	0.5	WH/GY	1786	Transmission Park/Neutral Signal 1	I	-
59	0.5	BU	179	Oil Pump Command Signal	I	-
60	0.5	BN/GN	1174	Oil Level Switch Signal	I	-
61	0.5	GN/YE	3212	Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 1	I	-
62	0.5	WH/BN	3223	Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 2	I	-
63	0.5	BK/GN	469	Manifold Absolute Pressure Sensor Low Reference	I	-
64	-	-	-	Not Occupied	-	-
65	0.5	BK/BU	61	Outside Ambient Temperature Sensor Low Reference	I	-
66 - 68	-	-	-	Not Occupied	-	-
69	0.5	WH/YE	3202	Throttle Inlet Absolute Pressure Sensor Low Reference	I	-
70	0.5	BU/WH	3630	Throttle Position Sensor (SENT1) Signal	I	-
71 - 72	-	-	-	Not Occupied	-	-
73	2.5	BK/WH	451	Signal Ground	II	-

K20 ENGINE CONTROL MODULE X2 (L5P)

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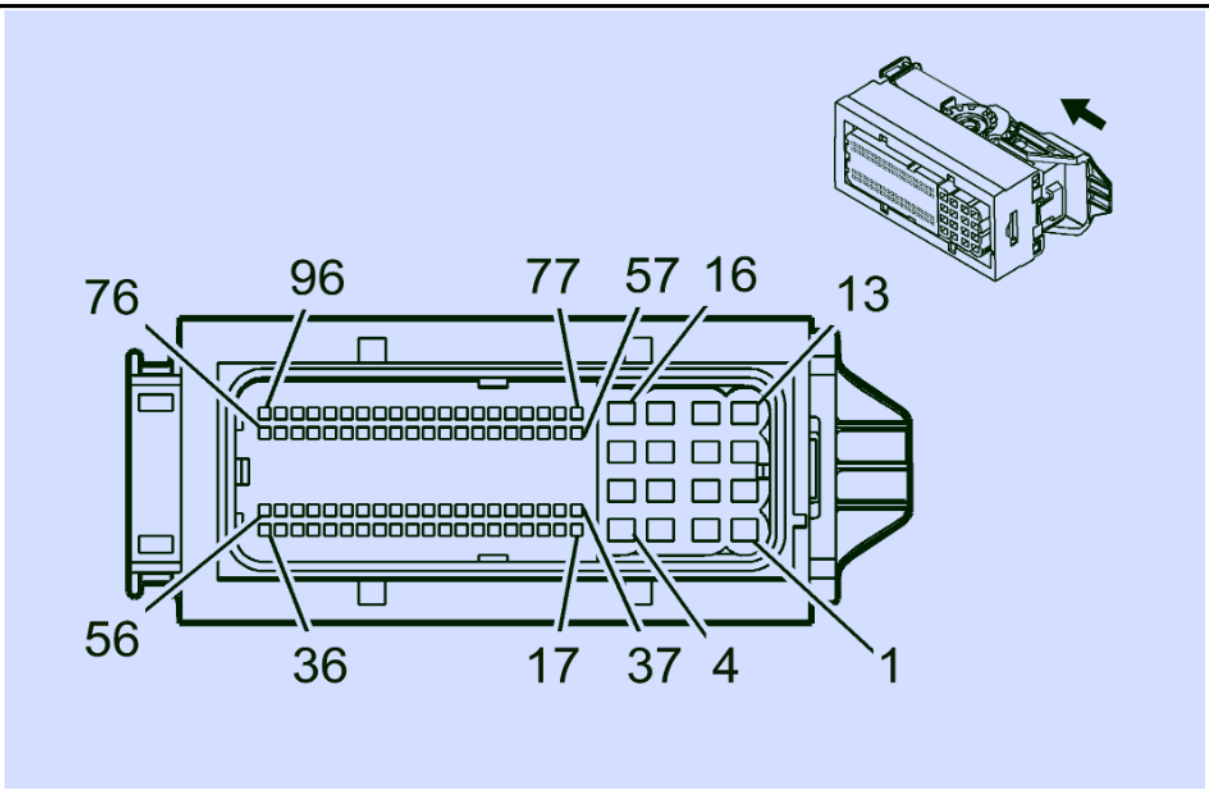

Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 33237908
- Service Connector: 13586128
- Description: 96-Way F 0.64 MTS-B, 2.8 ATS Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13584448	J-35616-64B (LT BU)	J-38125-12A	1719532-5	Lear 7	J	J
II	13584530	J-35616-4A (PU)	J-38125-36	4-964286-1	Lear 16	E	1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	VT/GN	4806	Direct Fuel Injector (DFI) High Voltage Control Cylinder 6	II	L5P
2	0.75	YE/GY	4807	Direct Fuel Injector (DFI) High Voltage Control Cylinder 7	II	L5P
3	0.75	GY/BU	4804	Direct Fuel Injector (DFI) High Voltage Control Cylinder 4	II	L5P
4	0.75	BN	4801	Direct Fuel Injector (DFI) High Voltage Control Cylinder 1	II	L5P
5	0.75	VT/GY	4906	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 6	II	L5P

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
6	0.75	WH/YE	4907	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 7	II	L5P
7	0.75	BU/WH	4904	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 4	II	L5P
8	0.75	BN/WH	4901	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 1	II	L5P
9	0.75	GN/GY	4903	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 3	II	L5P
10	0.75	GY/WH	4908	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 8	II	L5P
11	0.75	GN/WH	4905	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 5	II	L5P
12	0.75	BU/GY	4902	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 2	II	L5P
13	0.75	GN	4803	Direct Fuel Injector (DFI) High Voltage Control Cylinder 3	II	L5P
14	0.75	GY	4808	Direct Fuel Injector (DFI) High Voltage Control Cylinder 8	II	L5P
15	0.75	WH/GN	4805	Direct Fuel Injector (DFI) High Voltage Control Cylinder 5	II	L5P
16	0.75	BU	4802	Direct Fuel Injector (DFI) High Voltage Control Cylinder 2	II	L5P
17	0.5	BK/VT	2755	Oil Pressure Sensor Low Reference	I	L5P
18	0.5	YE/BN	331	Oil Pressure Sensor Signal	I	L5P
19	0.5	WH/RD	2705	Oil Pressure Sensor 5V Reference	I	L5P
20	0.5	BU/RD	2702	Exhaust Gas Recirculation 5V Reference 2	I	L5P
21	0.5	BN/WH	5763	Exhaust Gas Recirculation Valve Sensor Signal	I	L5P
22	0.5	BK/BN	2753	Exhaust Gas Recirculation Sensor Low Reference	I	L5P
23	-	-	-	Not Occupied	-	-
24	0.5	BN/YE	2161	Fuel Rail Pressure Sensor 2 Signal	I	L5P
25	-	-	-	Not Occupied	-	-
26	0.5	BN	7348	Induction Air Temperature Sensor 2 Signal	I	L5P
27 - 29	-	-	-	Not Occupied	-	-
30	0.5	BU	410	Engine Coolant Temperature Sensor Signal	I	L5P
31	0.5	BN	25	Charge Indicator Control	I	L5P
32 - 36	-	-	-	Not Occupied	-	-
37	0.5	BK/GN	5301	Camshaft Position Intake Sensor Low Reference 1	I	L5P
38	0.5	YE/VT	5275	Camshaft Position Intake Sensor 1	I	L5P

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
39	0.5	GY/BU	5300	Camshaft Position Intake Sensor Control 1	I	L5P
40	0.5	VT/RD	3652	EGR Cooler Bypass Position Sensor 5V Reference	I	L5P
41	0.5	GN/GY	3654	EGR Cooler Bypass Position Sensor Signal	I	L5P
42	0.5	BK/BU	3653	EGR Cooler Bypass Position Sensor Low Reference	I	L5P
43	0.5	BK/BN	2752	Throttle Position Sensor Low Reference	I	L5P
44	0.5	BU/WH	3630	Throttle Position Sensor (SENT1) Signal	I	L5P
45	0.5	BN/RD	2701	Throttle Position Sensor 5V Reference	I	L5P
46 - 49	-	-	-	Not Occupied	-	-
50	0.5	BK/BN	2761	Coolant Temperature Sensor Low Reference	I	L5P
51	0.5	GY	23	Generator Field Duty Cycle Signal	I	L5P
52 - 56	-	-	-	Not Occupied	-	-
57	0.5	BK/GN	2919	Fuel Rail Pressure Sensor Low Reference	I	L5P
58	0.5	BU/WH	2918	Fuel Rail Pressure Sensor Signal	I	L5P
59	0.5	BN/RD	2917	Fuel Rail Pressure Sensor 5V Reference	I	L5P
60	0.5	GY/RD	2704	Manifold Absolute Pressure Sensor 5V Reference	I	L5P
61	0.5	GN/WH	432	Manifold Absolute Pressure Sensor Signal	I	L5P
62	0.5	BK/GN	469	Manifold Absolute Pressure Sensor Low Reference	I	L5P
63 - 68	-	-	-	Not Occupied	-	-
69	0.5	BN/BU	2926	Hydrocarbon Injector High Control	I	L5P
70	-	-	-	Not Occupied	-	-
71	0.5	VT/BU	6091	Crankshaft Position Sensor Replicated Signal	I	L5P
72	0.5	VT/BN	2927	Hydrocarbon Injector Low Control	I	L5P
73	-	-	-	Not Occupied	-	-
74	0.5	YE	581	Throttle Actuator Control Open	I	L5P
75	0.5	BN/WH	582	Throttle Actuator Control Close	I	L5P
76	0.75	BK/YE	2834	Fuel Rail Pressure Solenoid Low Reference	I	L5P
77 - 79	-	-	-	Not Occupied	-	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
80	0.5	BN/RD	7445	Fuel Line Pressure Sensor 5V Reference	I	L5P
81	0.5	BU/WH	7446	Fuel Line Pressure Sensor Signal	I	L5P
82	0.5	BK/YE	7447	Fuel Line Pressure Sensor Low Reference	I	L5P
83	-	-	-	Not Occupied	-	-
84	0.5	BK/VT	6272	Crankshaft 60X Sensor Low Reference	I	L5P
85	0.5	GN	6271	Crankshaft 60X Sensor Signal	I	L5P
86	0.5	VT/BU	6270	Crankshaft 60X Sensor 5V Reference	I	L5P
87	0.5	BN/GN	1174	Oil Level Switch Signal	I	L5P
88 - 90	-	-	-	Not Occupied	-	-
91	0.5	BU/GN	7071	Heater Fuel Control	I	L5P
92	0.5	BN/VT	3656	EGR Cooler Bypass Motor Close Control	I	L5P
93	0.5	YE/GN	3655	EGR Cooler Bypass Motor Open Control	I	L5P
94	0.5	VT/BK	5746	Exhaust Gas Recirculation Valve Motor Low Signal	I	L5P
95	0.5	WH/VT	5764	Exhaust Gas Recirculation Valve Motor High Signal	I	L5P
96	0.75	BU/WH	2530	Fuel Rail Pressure Solenoid Control	I	L5P

K20 ENGINE CONTROL MODULE X2 (L96)

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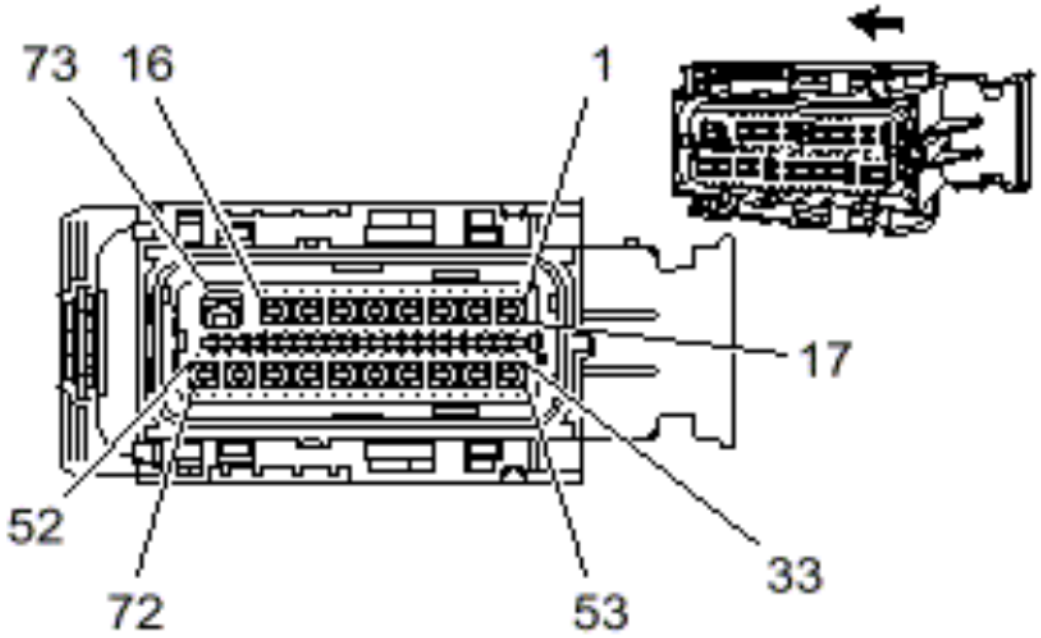

Connector Part Information

- Harness Type: Engine
- OEM Connector: 33152986
- Service Connector: 19301191
- Description: 73-Way F 0.64, 2.8 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575812	J-35616-64B (LT BU)	J-38125-213	Not Available	Not Available	Not Available	Not Available
II	13579770	J-35616-4A (PU)	J-38125-11A	7116-4152-02	Yazaki 9	A	5

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU/VT	2121	Ignition Control 1	I	-
2	0.5	GN/YE	1744	Fuel Injector Control 1	I	-
3	0.5	BN/GY	878	Fuel Injector Control 8	I	-
4	0.5	BN/VT	877	Fuel Injector Control 7	I	-
5	0.5	YE/WH	1745	Fuel Injector Control 2	I	-
6	0.5	BN/BU	846	Fuel Injector Control 6	I	-
7	0.5	BN/GN	845	Fuel Injector Control 5	I	-
8	0.5	BN/YE	844	Fuel Injector Control 4	I	-
9	0.5	BN/VT	1746	Fuel Injector Control 3	I	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
10	-	-	-	Not Occupied	-	-
11	0.5	VT/BN	5284	Camshaft Phaser Intake Solenoid 1	I	-
12 - 14	-	-	-	Not Occupied	-	-
15	0.5	YE	581	Throttle Actuator Control Open	I	-
16	0.5	BN/WH	582	Throttle Actuator Control Close	I	-
17	0.5	VT/WH	2128	Ignition Control 8	I	-
18	0.5	YE/BU	2124	Ignition Control 4	I	-
19	0.5	BK/GY	2130	Ignition Control Low Reference Bank 2	I	-
20	0.5	BK/VT	6272	Crankshaft 60X Sensor Low Reference	I	-
21 - 23	-	-	-	Not Occupied	-	-
24	0.5	BK/GN	5301	Camshaft Position Intake Sensor Low Reference 1	I	-
25	0.5	BK/VT	2755	Oil Pressure Sensor Low Reference	I	-
26 - 27	-	-	-	Not Occupied	-	-
28	0.75	VT/BU	5290	Powertrain Main Relay Fused Supply 1	I	-
29	0.5	BK/BN	6753	Cam Phaser W Low Reference	I	-
30 - 32	-	-	-	Not Occupied	-	-
33	0.5	GN/GY	2127	Ignition Control 7	I	-
34	0.5	BU/GY	2125	Ignition Control 5	I	-
35	0.5	BK/BU	2129	Ignition Control Low Reference Bank 1	I	-
36	0.5	VT/BU	6270	Crankshaft 60X Sensor 5V Reference	I	-
37 - 39	-	-	-	Not Occupied	-	-
40	0.5	GY/BU	5300	Camshaft Position Intake Sensor Control 1	I	-
41	0.5	WH/RD	2705	Oil Pressure Sensor 5V Reference	I	-
42	-	-	-	Not Occupied	-	-
43	0.5	BN/YE	2701	Throttle Position Sensor 5V Reference	I	-
44	0.5	BK/BN	2752	Throttle Position Sensor Low Reference	I	-
45	0.5	BU/WH	3630	Throttle Position Sensor (SENT1) Signal	I	-
46	-	-	-	Not Occupied	-	-
47	0.5	WH/BK	3111	Heated Oxygen Sensor Low Signal Bank 1 Sensor 1	I	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
48	0.5	YE/WH	3211	Heated Oxygen Sensor Low Signal Bank 2 Sensor 1	I	-
49	0.75	BK/YE	1716	Knock Sensor Low Reference 1	I	-
50	0.75	BK/GY	2303	Knock Sensor Low Reference 2	I	-
51	-	-	-	Not Occupied	-	-
52	0.5	GN/YE	3212	Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 1	I	-
53	0.5	BU/WH	2122	Ignition Control 2	I	-
54	0.5	BN/BU	2126	Ignition Control 6	I	-
55	0.5	GN/BU	2123	Ignition Control 3	I	-
56	0.5	GN	6271	Crankshaft 60X Sensor Signal	I	-
57 - 59	-	-	-	Not Occupied	-	-
60	0.5	YE/VT	5275	Camshaft Position Intake Sensor 1	I	-
61	0.5	YE/BN	331	Oil Pressure Sensor Signal	I	-
62 - 66	-	-	-	Not Occupied	-	-
67	0.5	VT/GY	3110	Heated Oxygen Sensor High Signal Bank 1 Sensor 1	I	-
68	0.5	VT/WH	3210	Heated Oxygen Sensor High Signal Bank 2 Sensor 1	I	-
69	0.75	VT/GY	496	Knock Sensor Signal 1	I	-
70	0.75	WH/GY	1876	Knock Sensor Signal 2	I	-
71	-	-	-	Not Occupied	-	-
72	0.5	GY/WH	3113	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 1	I	-
73	2.5	BK/WH	451	Signal Ground	II	-

K20 ENGINE CONTROL MODULE X2 (LV3-(NQG/NQH))

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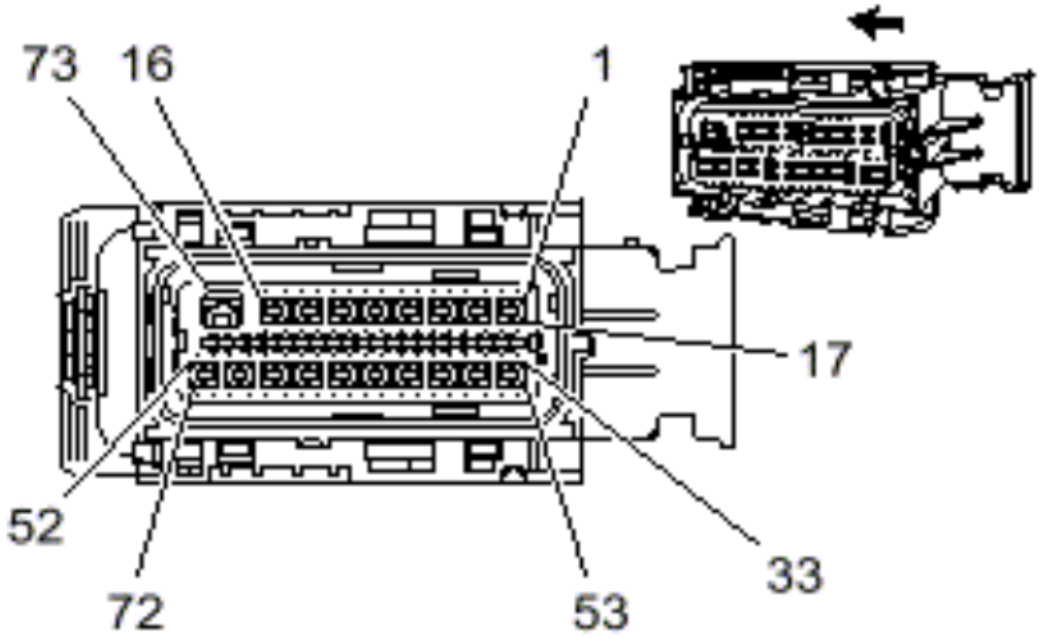

Connector Part Information

- Harness Type: Engine
- OEM Connector: 33264057
- Service Connector: Service by Harness - See Part Catalog
- Description: 73-Way F 0.64, 2.8 Series, Sealed (BK with BK Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575812	J-35616-64B (LT BU)	J-38125-213	Not Available	Not Available	Not Available	Not Available
II	13579770	J-35616-35 (VT)	J-38125-11A	7116-4152-02	Yazaki 9	A	5

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	-	-	-	Not Occupied	-	-
3	0.5	BK/L-GN	2919	Fuel Rail Pressure Sensor Low Reference	I	-
4	-	-	-	Not Occupied	-	-
5	0.5	GY/BK	3096	Output Speed (Digital) Sensor 5V Reference	I	-
6 - 7	-	-	-	Not Occupied	-	-
8	0.5 0.5	L-GN BN/WH	3098 6354	Output Speed (Digital) Signal Output Speed High (Replicated TOS) Input Signal	I I	M2P/MXW -NQG/NQH

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
9	-	-	-	Not Occupied	-	-
10	0.5	VT/GY	3110	Heated Oxygen Sensor High Signal Bank 1 Sensor 1	I	-
11	0.5	VT/WH	3210	Heated Oxygen Sensor High Signal Bank 2 Sensor 1	I	-
12	0.5	VT/D-BU	3120	Heated Oxygen Sensor High Signal Bank 1 Sensor 2	I	-
13	0.5	VT/L-GN	3220	Heated Oxygen Sensor High Signal Bank 2 Sensor 2	I	-
14	-	-	-	Not Occupied	-	-
15	0.5	GY/D-BU	7564	Humidity Sensor Signal	I	-
16	0.5	BN/WH	582	Throttle Actuator Control Close	I	-
17	-	-	-	Not Occupied	-	-
18	0.5	BN/RD	2917	Fuel Rail Pressure Sensor 5V Reference	I	-
19 - 20	-	-	-	Not Occupied	-	-
21	0.5	WH/BK	3097	Output Speed (Digital) Sensor Low Reference	I	-
22	-	-	-	Not Occupied	-	-
23	0.5	L-GN/WH	5007	Reverse Switch Signal	I	-
24 - 25	-	-	-	Not Occupied	-	-
26	0.5	WH/BK	3111	Heated Oxygen Sensor Low Signal Bank 1 Sensor 1	I	-
27	0.5	YE/WH	3211	Heated Oxygen Sensor Low Signal Bank 2 Sensor 1	I	-
28	0.5	WH/YE	3121	Heated Oxygen Sensor Low Signal Bank 1 Sensor 2	I	-
29	0.5	YE/D-BU	3221	Heated Oxygen Sensor Low Signal Bank 2 Sensor 2	I	-
30 - 31	-	-	-	Not Occupied	-	-
32	0.5	YE	581	Throttle Actuator Control Open	I	-
33	-	-	-	Not Occupied	-	-
34	0.5	BN/RD	2701	Throttle Position Sensor 5V Reference	I	-
35	-	-	-	Not Occupied	-	-
36	0.75	VT/GY	496	Knock Sensor Signal 1	I	-
37	0.75	WH/GY	1876	Knock Sensor Signal 2	I	-
38 - 40	-	-	-	Not Occupied	-	-
41	0.5	GY/WH	3113	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 1	I	-
42	0.5	GY/WH	3122	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 2	I	-
43	0.5	L-GN/WH	432	Manifold Absolute Pressure Sensor Signal	I	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
44	0.5	GY/RD	2704	Manifold Absolute Pressure Sensor 5V Reference	I	-
45	-	-	-	Not Occupied	-	-
46	0.5	GY/BN	2410	-	I	-
47 - 48	-	-	-	Not Occupied	-	-
49	0.5	WH/D-BU	6289	Induction Air Temperature Sensor Signal	I	-
50	-	-	-	Not Occupied	-	-
51	0.5	L-GN/D-BU	428	EVAP Canister Purge Solenoid Control	I	-
52	0.5	L-GN/WH	492	Mass Air Flow Sensor Signal	I	-
53	0.5	BN	25	Charge Indicator Control	I	-
54	0.5	BK/BN	2752	Throttle Position Sensor Low Reference	I	-
55	0.5	GY	23	Generator Field Duty Cycle Signal	I	-
56	0.75	BK/YE	1716	Knock Sensor Low Reference 1	I	-
57	0.75	BK/GY	2303	Knock Sensor Low Reference 2	I	-
58	0.5	WH/GY	1786	Transmission Park/Neutral Signal 1	I	-
59	0.5	D-BU	179	Oil Pump Command Signal	I	-
60	0.5	BN/L-GN	1174	Oil Level Switch Signal	I	-
61	0.5	L-GN/YE	3212	Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 1	I	-
62	0.5	WH/BN	3223	Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 2	I	-
63	0.5	BK/L-GN	469	Manifold Absolute Pressure Sensor Low Reference	I	-
64	-	-	-	Not Occupied	-	-
65	0.5	BK/D-BU	61	Outside Ambient Temperature Sensor Low Reference	I	-
66 - 68	-	-	-	Not Occupied	-	-
69	0.5	WH/YE	3202	Throttle Inlet Absolute Pressure Sensor Low Reference	I	-
70	0.5	D-BU/WH	3630	Throttle Position Sensor (SENT1) Signal	I	-
71 - 72	-	-	-	Not Occupied	-	-
73	2.5	BK/WH	451	Signal Ground	II	-

K20 ENGINE CONTROL MODULE X2 (LV3+(NQG/NQH))

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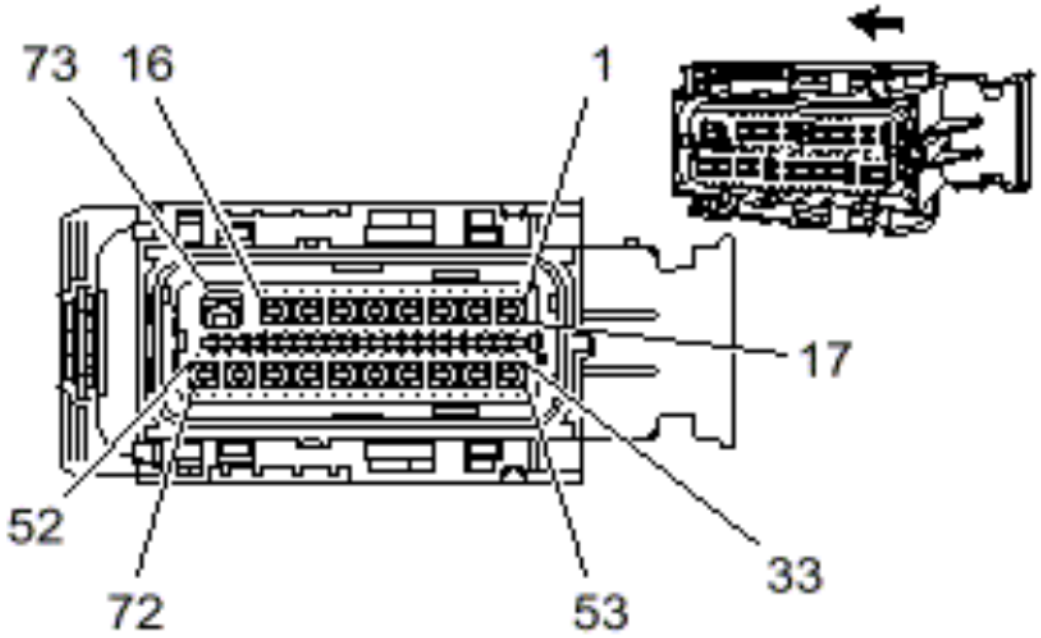

Connector Part Information

- Harness Type: Engine
- OEM Connector: 33264056
- Service Connector: 19301191
- Description: 73-Way F 0.64, 2.8 Series, Sealed (BK with BK Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575812	J-35616-64B (LT BU)	J-38125-213	Not Available	Not Available	Not Available	Not Available
II	13579770	J-35616-4A (PU)	J-38125-11A	7116-4152-02	Yazaki 9	A	5

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	-	-	-	Not Occupied	-	-
3	0.5	BK/GN	2919	Fuel Rail Pressure Sensor Low Reference	I	-
4 - 5	-	-	-	Not Occupied	-	-
6	0.5	VT/WH	821	Vehicle Speed Sensor Signal	I	-
7	0.5	BK/GN	822	Vehicle Speed Sensor Low Reference	I	-
8 - 9	-	-	-	Not Occupied	-	-
10	0.5	VT/GY	3110	Heated Oxygen Sensor High Signal Bank 1 Sensor 1	I	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
11	0.5	VT/WH	3210	Heated Oxygen Sensor High Signal Bank 2 Sensor 1	I	-
12	0.5	VT/BU	3120	Heated Oxygen Sensor High Signal Bank 1 Sensor 2	I	-
13	0.5	VT/GN	3220	Heated Oxygen Sensor High Signal Bank 2 Sensor 2	I	-
14	-	-	-	Not Occupied	-	-
15	0.5	GY/BU	7564	Humidity Sensor Signal	I	-
16	0.5	BN/WH	582	Throttle Actuator Control Close	I	-
17	-	-	-	Not Occupied	-	-
18	0.5	BN/RD	2917	Fuel Rail Pressure Sensor 5V Reference	I	-
19 - 25	-	-	-	Not Occupied	-	-
26	0.5	WH/BK	3111	Heated Oxygen Sensor Low Signal Bank 1 Sensor 1	I	-
27	0.5	YE/WH	3211	Heated Oxygen Sensor Low Signal Bank 2 Sensor 1	I	-
28	0.5	WH/YE	3121	Heated Oxygen Sensor Low Signal Bank 1 Sensor 2	I	-
29	0.5	YE/BU	3221	Heated Oxygen Sensor Low Signal Bank 2 Sensor 2	I	-
30 - 31	-	-	-	Not Occupied	-	-
32	0.5	YE	581	Throttle Actuator Control Open	I	-
33	-	-	-	Not Occupied	-	-
34	0.5	BN/RD	2701	Throttle Position Sensor 5V Reference	I	-
35	-	-	-	Not Occupied	-	-
36	0.75	VT/GY	496	Knock Sensor Signal 1	I	-
37	0.75	WH/GY	1876	Knock Sensor Signal 2	I	-
38 - 40	-	-	-	Not Occupied	-	-
41	0.5	GY/WH	3113	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 1	I	-
42	0.5	GY/WH	3122	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 2	I	-
43	0.5	GN/WH	432	Manifold Absolute Pressure Sensor Signal	I	-
44	0.5	GY/RD	2704	Manifold Absolute Pressure Sensor 5V Reference	I	-
45	-	-	-	Not Occupied	-	-
46	0.5	GY/BN	2410	Fuel Pump Prime Control	I	-
47 - 48	-	-	-	Not Occupied	-	-
49	0.5	WH/BU	6289	Induction Air Temperature Sensor Signal	I	-
50	-	-	-	Not Occupied	-	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
51	0.5	GN/BU	428	EVAP Canister Purge Solenoid Control	I	-
52	0.5	GN/WH	492	Mass Air Flow Sensor Signal	I	-
53	0.5	BN	25	Charge Indicator Control	I	-
54	0.5	BK/BN	2752	Throttle Position Sensor Low Reference	I	-
55	0.5	GY	23	Generator Field Duty Cycle Signal	I	-
56	0.75	BK/YE	1716	Knock Sensor Low Reference 1	I	-
57	0.75	BK/GY	2303	Knock Sensor Low Reference 2	I	-
58	0.5	WH/GY	1786	Transmission Park/Neutral Signal 1	I	-
59	0.5	BU	179	Oil Pump Command Signal	I	-
60	0.5	BN/GN	1174	Oil Level Switch Signal	I	-
61	0.5	GN/YE	3212	Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 1	I	-
62	0.5	WH/BN	3223	Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 2	I	-
63	0.5	BK/GN	469	Manifold Absolute Pressure Sensor Low Reference	I	-
64	-	-	-	Not Occupied	-	-
65	0.5	BK/BU	61	Outside Ambient Temperature Sensor Low Reference	I	-
66 - 68	-	-	-	Not Occupied	-	-
69	0.5	WH/YE	3202	Throttle Inlet Absolute Pressure Sensor Low Reference	I	-
70	0.5	BU/WH	3630	Throttle Position Sensor (SENT1) Signal	I	-
71 - 72	-	-	-	Not Occupied	-	-
73	2.5	BK/WH	451	Signal Ground	II	-

K20 ENGINE CONTROL MODULE X3 (L8B)

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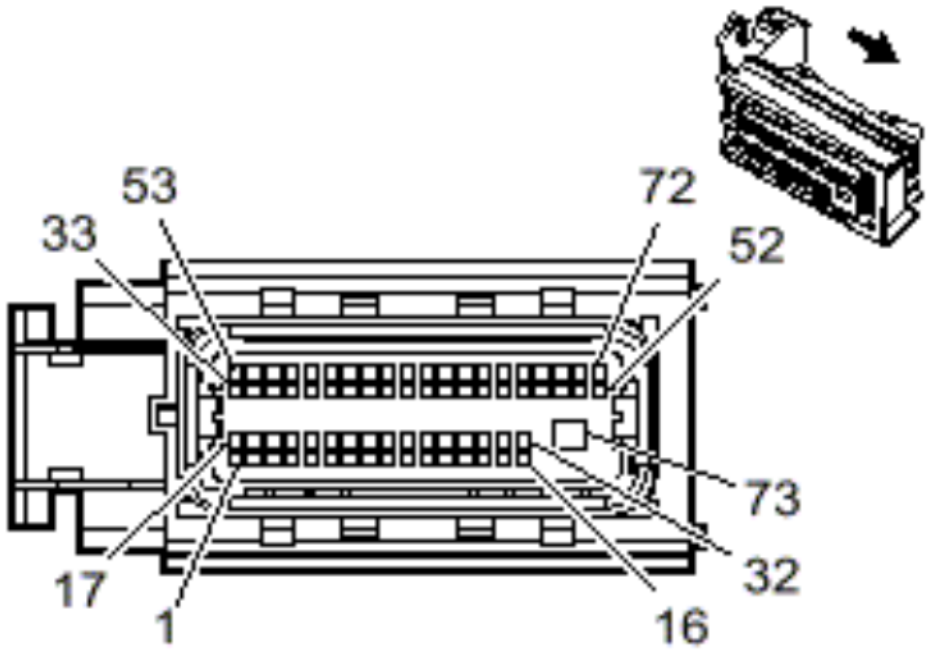

Connector Part Information

- Harness Type: Engine
- OEM Connector: 33157045
- Service Connector: 19260918
- Description: 73-Way F 0.64, 2.8 Series, Sealed (BK with GY Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575797	J-35616-4A (PU)	J-38125-11A	7116-4152-02	Yazaki 9	A	5
II	13575812	J-35616-64B (LT BU)	J-38125-213	33467-0003	Delphi 23	Not Available	J

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/BN	331	Oil Pressure Sensor Signal	II	-
2	0.5	WH/RD	2705	Oil Pressure Sensor 5V Reference	II	-
3 - 7	-	-	-	Not Occupied	-	-
8	0.5	BU	410	Engine Coolant Temperature Sensor Signal	II	-
9	-	-	-	Not Occupied	-	-
10	0.5	VT/BU	6270	Crankshaft 60X Sensor 5V Reference	II	-
11	0.5	GN/BU	2123	Ignition Control 3	II	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
12	0.5	YE/BU	2124	Ignition Control 4	II	-
13	0.5	BU/GY	2125	Ignition Control 5	II	-
14	0.5	BN/BU	2126	Ignition Control 6	II	-
15	0.5	BK/GY	2130	Ignition Control Low Reference Bank 2	II	-
16	0.75	YE	7301	High Pressure Fuel Pump Actuator High - Control	II	-
17	0.5	BK/VT	2755	Oil Pressure Sensor Low Reference	II	-
18 - 23	-	-	-	Not Occupied	-	-
24	0.5	BK/BN	2761	Coolant Temperature Sensor Low Reference	II	-
25	0.5	BK/VT	6272	Crankshaft 60X Sensor Low Reference	II	-
26	0.5	GN	6271	Crankshaft 60X Sensor Signal	II	-
27	0.5	BU/WH	2122	Ignition Control 2	II	-
28	0.5	GN/GY	2127	Ignition Control 7	II	-
29	0.5	VT/WH	2128	Ignition Control 8	II	-
30	0.5	BU/VT	2121	Ignition Control 1	II	-
31	0.5	BK/BU	2129	Ignition Control Low Reference Bank 1	II	-
32	0.75	VT/BK	7300	High Pressure Fuel Pump Actuator Low - Control	II	-
33	0.5	YE/VT	5275	Camshaft Position Intake Sensor 1	II	-
34	0.5	GY/BU	5300	Camshaft Position Intake Sensor Control 1	II	-
35 - 38	-	-	-	Not Occupied	-	-
39	0.5	VT/BN	5284	Camshaft Phaser Intake Solenoid 1	II	-
40 - 42	-	-	-	Not Occupied	-	-
43	0.5	GY	5493	Cylinder Shutoff Solenoid Control 3	II	-
44	0.5	YE/BU	5494	Cylinder Shutoff Solenoid Control 4	II	-
45	0.75	GY/BU	4804	Direct Fuel Injector (DFI) High Voltage Control Cylinder 4	II	-
46	0.75	BU	4802	Direct Fuel Injector (DFI) High Voltage Control Cylinder 2	II	-
47	0.75	GN/VT	4806	Direct Fuel Injector (DFI) High Voltage Control Cylinder 6	II	-
48	0.75	GY	4808	Direct Fuel Injector (DFI) High Voltage Control Cylinder 8	II	-
49	0.75	GN	4803	Direct Fuel Injector (DFI) High Voltage Control Cylinder 3	II	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
50	0.75	YE/GY	4807	Direct Fuel Injector (DFI) High Voltage Control Cylinder 7	II	-
51	0.75	WH/GN	4805	Direct Fuel Injector (DFI) High Voltage Control Cylinder 5	II	-
52	0.75	BN	4801	Direct Fuel Injector (DFI) High Voltage Control Cylinder 1	II	-
53	0.5	BK/GN	5301	Camshaft Position Intake Sensor Low Reference 1	II	-
54 - 58	-	-	-	Not Occupied	-	-
59	0.5	BK/BN	6753	Cam Phaser W Low Reference	II	-
60 - 62	-	-	-	Not Occupied	-	-
63	0.5	BU	5491	Cylinder Shutoff Solenoid Control 1	II	-
64	0.5	GN	5492	Cylinder Shutoff Solenoid Control 2	II	-
65	0.75	BU/WH	4904	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 4	II	-
66	0.75	BN/GN	4902	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 2	II	-
67	0.75	VT	4906	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 6	II	-
68	0.75	WH/GN	4908	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 8	II	-
69	0.75	GN/BK	4903	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 3	II	-
70	0.75	WH/YE	4907	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 7	II	-
71	0.75	GN/WH	4905	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 5	II	-
72	0.75	BN/WH	4901	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 1	II	-
73	2.5	BK/WH	451	Signal Ground	I	-

K20 ENGINE CONTROL MODULE X3 (L83/L86)

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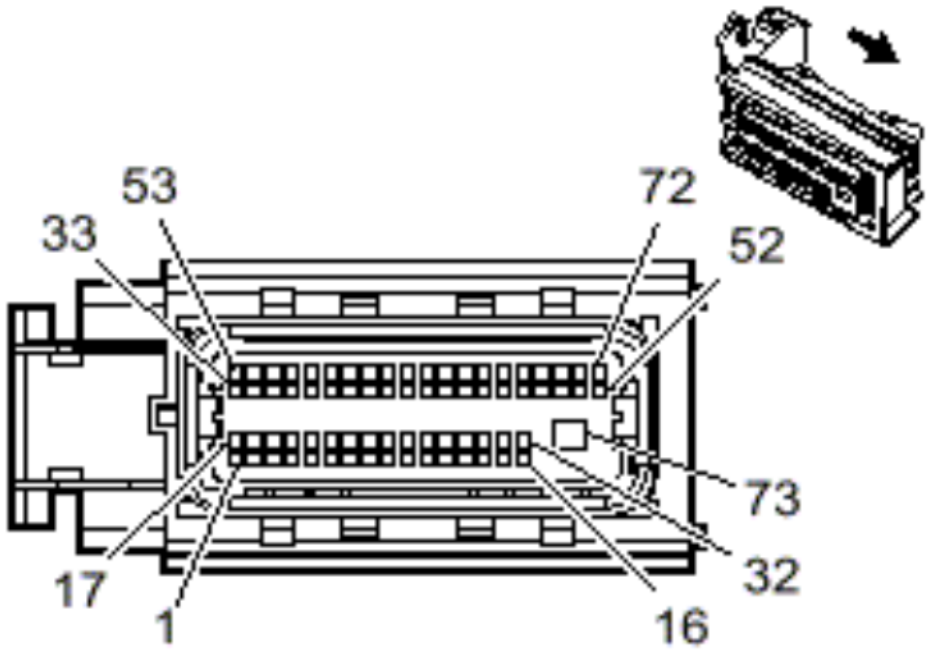

Connector Part Information

- Harness Type: Engine
- OEM Connector: 33157045
- Service Connector: 19260918
- Description: 73-Way F 0.64, 2.8 Series, Sealed (BK with GY Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575812	J-35616-64B (LT BU)	J-38125-213	33467-0003	Delphi 23	J	J
II	13579770	J-35616-35 (VT)	J-38125-11A	7116-4152-02	Yazaki 9	A	5

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/BN	331	Oil Pressure Sensor Signal	I	-
2	0.5	WH/RD	2705	Oil Pressure Sensor 5V Reference	I	-
3	0.5	BN/YE	2161	Fuel Rail Pressure Sensor 2 Signal	I	-
4 - 7	-	-	-	Not Occupied	-	-
8	0.5	D-BU	410	Engine Coolant Temperature Sensor Signal	I	-
9	-	-	-	Not Occupied	-	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
10	0.5	VT/D-BU	6270	Crankshaft 60X Sensor 5V Reference	I	-
11	0.5	L-GN/D-BU	2123	Ignition Control 3	I	-
12	0.5	YE/D-BU	2124	Ignition Control 4	I	-
13	0.5	D-BU/GY	2125	Ignition Control 5	I	-
14	0.5	BN/D-BU	2126	Ignition Control 6	I	-
15	0.5	BK/GY	2130	Ignition Control Low Reference Bank 2	I	-
16	0.75	YE	7301	High Pressure Fuel Pump Actuator High - Control	I	-
17	0.5	BK/PU	2755	Oil Pressure Sensor Low Reference	I	-
18 - 23	-	-	-	Not Occupied	-	-
24	0.5	BK/BN	2761	Coolant Temperature Sensor Low Reference	I	-
25	0.5	BK/PU	6272	Crankshaft 60X Sensor Low Reference	I	-
26	0.5	L-GN	6271	Crankshaft 60X Sensor Signal	I	-
27	0.5	D-BU/WH	2122	Ignition Control 2	I	-
28	0.5	L-GN/GY	2127	Ignition Control 7	I	-
29	0.5	VT/WH	2128	Ignition Control 8	I	-
30	0.5	D-BU/VT	2121	Ignition Control 1	I	-
31	0.5	BK/D-BU	2129	Ignition Control Low Reference Bank 1	I	-
32	0.75	VT/BK	7300	High Pressure Fuel Pump Actuator Low - Control	I	-
33	0.5	YE/VT	5275	Camshaft Position Intake Sensor 1	I	-
34	0.5	GY/D-BU	5300	Camshaft Position Intake Sensor Control 1	I	-
35 - 38	-	-	-	Not Occupied	-	-
39	0.5	VT/BN	5284	Camshaft Phaser Intake Solenoid 1	I	-
40 - 42	-	-	-	Not Occupied	-	-
43	0.5	GY	5493	Cylinder Shutoff Solenoid Control 3	I	-
44	0.5	YE/D-BU	5494	Cylinder Shutoff Solenoid Control 4	I	-
45	0.75	GY/D-BU	4804	Direct Fuel Injector (DFI) High Voltage Control Cylinder 4	I	-
46	0.75	D-BU	4802	Direct Fuel Injector (DFI) High Voltage Control Cylinder 2	I	-
47	0.75	L-GN/VT	4806	Direct Fuel Injector (DFI) High Voltage Control Cylinder 6	I	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
48	0.75	GY	4808	Direct Fuel Injector (DFI) High Voltage Control Cylinder 8	I	-
49	0.75	L-GN	4803	Direct Fuel Injector (DFI) High Voltage Control Cylinder 3	I	-
50	0.75	YE/GY	4807	Direct Fuel Injector (DFI) High Voltage Control Cylinder 7	I	-
51	0.75	WH/L-GN	4805	Direct Fuel Injector (DFI) High Voltage Control Cylinder 5	I	-
52	0.75	BN	4801	Direct Fuel Injector (DFI) High Voltage Control Cylinder 1	I	-
53	0.5	BK/L-GN	5301	Camshaft Position Intake Sensor Low Reference 1	I	-
54 - 58	-	-	-	Not Occupied	-	-
59	0.5	BK/BN	6753	Cam Phaser W Low Reference	I	-
60 - 62	-	-	-	Not Occupied	-	-
63	0.5	D-BU	5491	Cylinder Shutoff Solenoid Control 1	I	-
64	0.5	L-GN	5492	Cylinder Shutoff Solenoid Control 2	I	-
65	0.75	D-BU/WH	4904	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 4	I	-
66	0.75	BN/L-GN	4902	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 2	I	-
67	0.75	VT	4906	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 6	I	-
68	0.75	WH/L-GN	4908	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 8	I	-
69	0.75	L-GN/BK	4903	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 3	I	-
70	0.75	WH/YE	4907	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 7	I	-
71	0.75	L-GN/WH	4905	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 5	I	-
72	0.75	BN/WH	4901	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 1	I	-
73	2.5	BK/WH	451	Signal Ground	II	-

K20 ENGINE CONTROL MODULE X3 (L5P)

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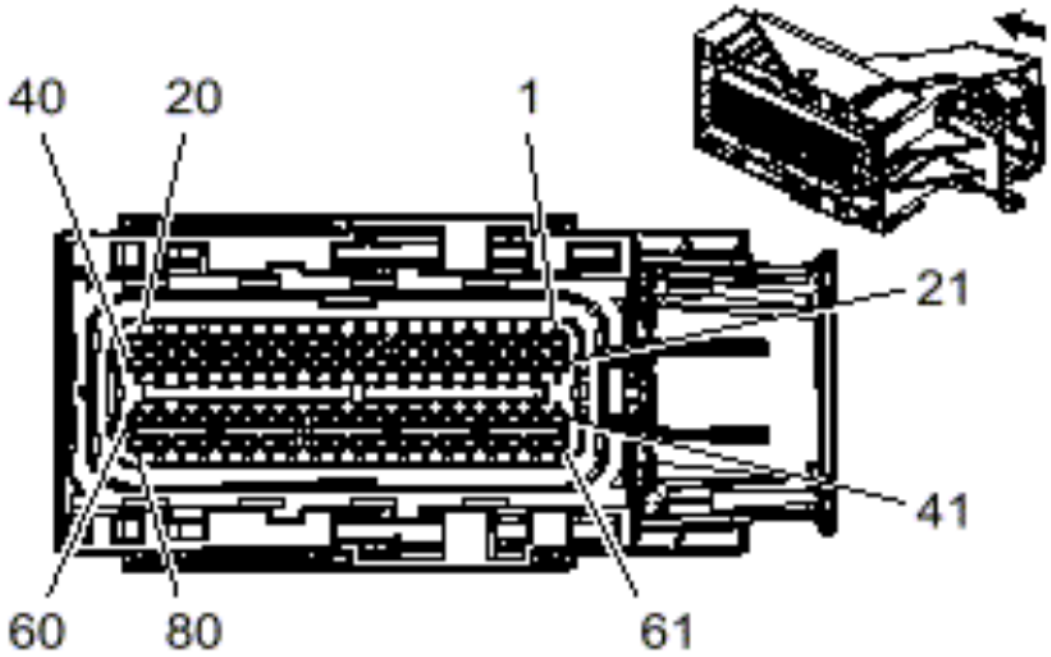

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13782479
- Service Connector: 13577545
- Description: 80-Way F MX123 Series, Sealed (BU)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575812	J-35616-64B (LT BU)	J-38125-213	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN	3099	DEF Dosing Valve High Control	I	-
2	-	-	-	Not Occupied	-	-
3	0.5	GN/BU	3889	DEF Power Module Relay Control	I	-
4 - 11	-	-	-	Not Occupied	-	-
12	0.5	YE/BK	3682	Charge Air Cooler Inlet Temperature Sensor Low Reference	I	-
13	0.5	YE/BU	3680	Charge Air Cooler Outlet Temperature Sensor Low Reference	I	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
14	0.5	BK/YE	6275	Exhaust Gas Recirculation Temperature Sensor 2 Low Reference	I	-
15	0.5	BK/BU	6274	Exhaust Gas Recirculation Temperature Sensor Low Reference	I	-
16	0.5	BK/VT	3661	Exhaust Gas Temperature Sensor 5 Low Reference	I	-
17	0.5	BK/GY	3659	Exhaust Gas Temperature Sensor 4 Low Reference	I	-
18	0.5	BK/GN	3657	Exhaust Gas Temperature Sensor 3 Low Reference	I	-
19	0.5	BK/BU	6783	Exhaust Gas Temperature Sensor 2 Low Reference	I	-
20	0.5	BK/BN	6782	Exhaust Gas Temperature Sensor 1 Low Reference	I	-
21	0.75	BN/WH	3100	DEF Dosing Valve Low Control	I	-
22 - 24	-	-	-	Not Occupied	-	-
25	0.5	WH/GN	6142	Power Take Off Engine Shutdown Signal	I	-
26 - 27	-	-	-	Not Occupied	-	-
28	0.5	WH/RD	3201	Throttle Inlet Absolute Pressure Sensor 5V Reference	I	-
29	0.5	BN/GN	5266	Ambient Air Pressure Sensor Signal	I	-
30 - 31	-	-	-	Not Occupied	-	-
32	0.5	GN	3683	Charge Air Cooler Inlet Temperature Sensor Signal	I	-
33	0.5	BN	3681	Charge Air Cooler Outlet Temperature Sensor Signal	I	-
34	0.5	YE/GN	3236	Exhaust Gas Recirculation Temperature Sensor 2 Signal	I	-
35	0.5	WH/BN	3237	Exhaust Gas Recirculation Temperature Sensor Signal	I	-
36	0.5	BU/GY	3660	Exhaust Gas Temperature Sensor 5 Signal	I	-
37	0.5	VT/BN	3658	Exhaust Gas Temperature Sensor 4 Signal	I	-
38	0.5	GY/GN	5378	Exhaust Gas Temperature Sensor 3	I	-
39	0.5	BU/GN	5377	Exhaust Gas Temperature Sensor 2	I	-
40	0.5	BU/WH	5277	Exhaust Gas Temperature Sensor 1	I	-
41 - 64	-	-	-	Not Occupied	-	-

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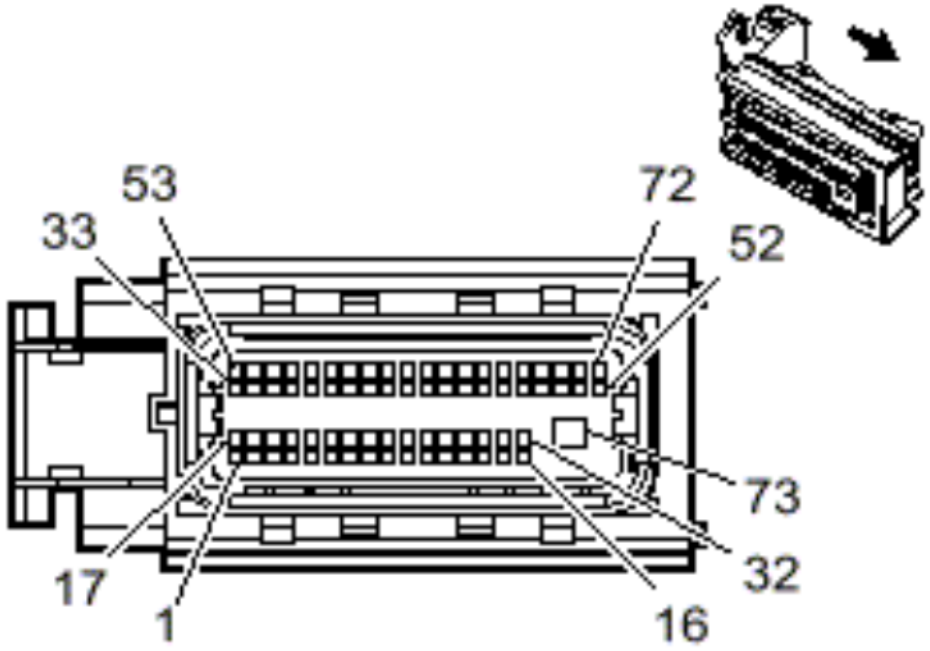
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
65	0.5	BK/BN	6141	Cooling Fan Speed Low Reference	I	-
66	0.5	BU/VT	2364	Cooling Fan Speed Signal	I	-
67	0.5	GY/RD	2365	Cooling Fan Speed 5V Reference	I	-
68 - 75	-	-	-	Not Occupied	-	-
76	0.5	BK/YE	6055	Exhaust Pressure Sensor Low Reference 1	I	-
77	0.5	BU	6053	Exhaust Pressure Sensor Signal 1	I	-
78	0.5	WH/RD	6054	Exhaust Pressure Sensor 5V Reference 1	I	-
79 - 80	-	-	-	Not Occupied	-	-

K20 ENGINE CONTROL MODULE X3 (L96)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 33157048
- Service Connector: 19260918
- Description: 73-Way F 0.64, 2.8 Series, Sealed (BK with GY Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575812	J-35616-64B	J-38125-213	Not	Not	Not	Not

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Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
		(LT BU)		Available	Available	Available	Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-GN/WH	5007	Reverse Switch Signal	I	-
2 - 9	-	-	-	Not Occupied	-	-
10	0.5	L-GN/D-BU	428	EVAP Canister Purge Solenoid Control	I	-
11 - 15	-	-	-	Not Occupied	-	-
16	0.5	WH/BN	3223	Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 2	I	-
17	0.5	GY	23	Generator Field Duty Cycle Signal	I	-
18 - 21	-	-	-	Not Occupied	-	-
22	0.5 0.5	BK/GY BK/BN	6110 5360	Clutch Apply Sensor Low Reference Brake Apply Sensor Low Reference	I I	E29 -E29
23 - 26	-	-	-	Not Occupied	-	-
27	0.5	BK/L-GN	6281	Fuel Level Sensor Low Reference	I	-
28	0.5	GY/RD	2704	Manifold Absolute Pressure Sensor 5V Reference	I	-
29	0.5	BK/L-GN	469	Manifold Absolute Pressure Sensor Low Reference	I	-
30	0.5	BK/BN	2761	Coolant Temperature Sensor Low Reference	I	-
31	-	-	-	Not Occupied	-	-
32	0.5	GY/WH	3122	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 2	I	-
33 - 37	-	-	-	Not Occupied	-	-
38	0.5 0.5	GY/RD WH	6109 5359	Clutch Apply Sensor 5V Reference Brake Apply Sensor Control	I I	E29 -E29
39 - 42	-	-	-	Not Occupied	-	-
43	0.5	YE/RD	2709	Fuel Tank Pressure Sensor 5V Reference	I	-
44	0.5	D-BU/WH	1937	Secondary Fuel Level Sensor Signal	I	-
45	0.5	L-GN/WH	432	Manifold Absolute Pressure Sensor Signal	I	-
46	0.5	D-BU	410	Engine Coolant Temperature Sensor Signal	I	-
47	-	-	-	Not Occupied	-	-
48	0.5	VT/WH	821	Vehicle Speed Sensor Signal	I	-

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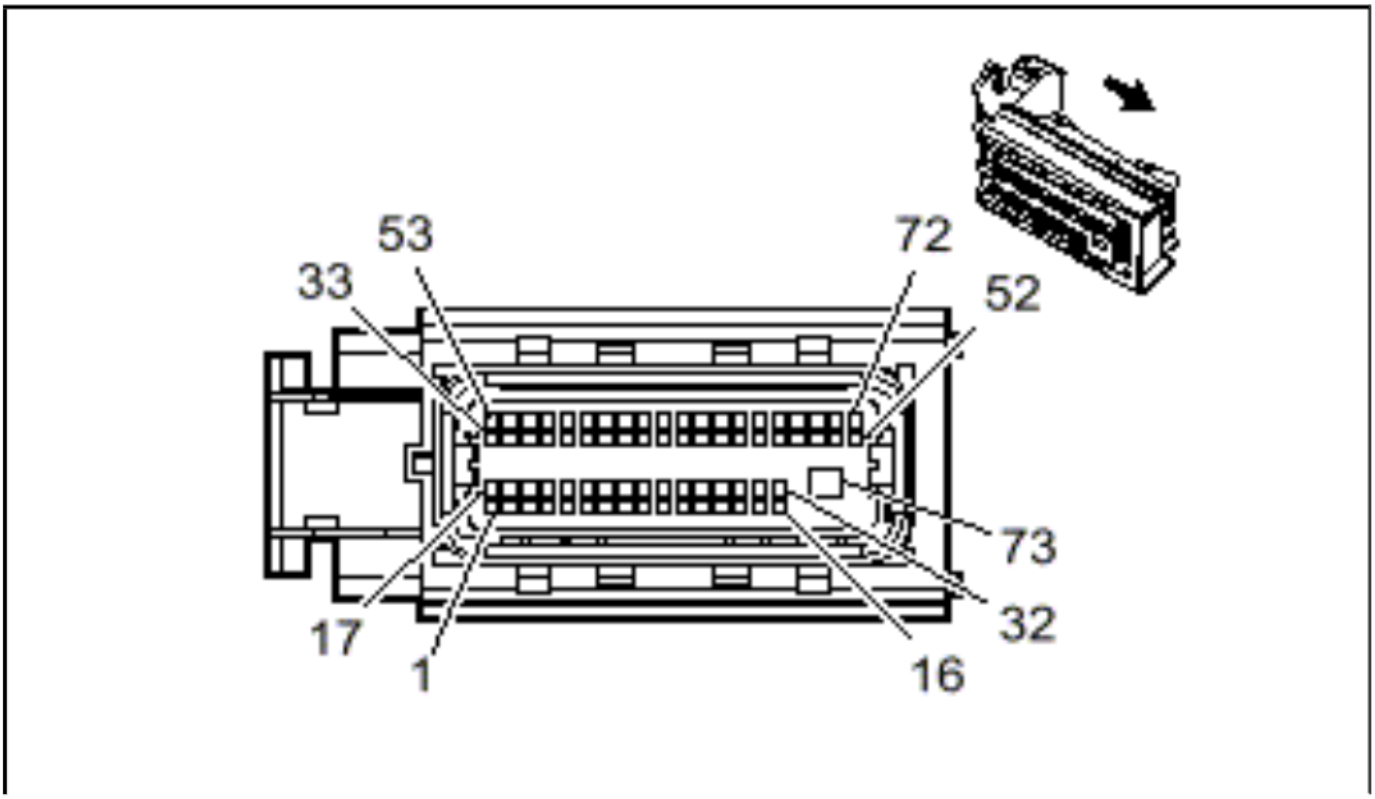
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
49	0.5	BK/L-GN	822	Vehicle Speed Sensor Low Reference	I	-
50 - 54	-	-	-	Not Occupied	-	-
55	0.5	BN/WH	6354	Output Speed High (Replicated TOS) Input Signal	I	-
56 - 57	-	-	-	Not Occupied	-	-
58	0.5 0.5	YE D-BU/YE	6111 5361	Clutch Apply Sensor Signal Brake Apply Sensor Signal	I I	E29 -E29
59 - 62	-	-	-	Not Occupied	-	-
63	0.5	D-BU/WH	890	Fuel Tank Pressure Sensor Signal	I	-
64	0.5	D-BU/VT	1589	Primary Fuel Level Sensor Signal	I	-
65	0.5	VT/L-GN	3220	Heated Oxygen Sensor High Signal Bank 2 Sensor 2	I	-
66	0.5	YE/D-BU	3221	Heated Oxygen Sensor Low Signal Bank 2 Sensor 2	I	-
67	0.5	VT/D-BU	3120	Heated Oxygen Sensor High Signal Bank 1 Sensor 2	I	-
68	0.5	WH/YE	3121	Heated Oxygen Sensor Low Signal Bank 1 Sensor 2	I	-
69 - 73	-	-	-	Not Occupied	-	-

K20 ENGINE CONTROL MODULE X3 (LV3)



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Connector Part Information

- Harness Type: Engine
- OEM Connector: 33157046
- Service Connector: 19260918
- Description: 73-Way F 0.64, 2.8 Series, Sealed (BK with GY Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575812	J-35616-64B (LT BU)	J-38125-213	Not Available	Not Available	Not Available	Not Available
II	13579770	J-35616-35 (VT)	J-38125-11A	7116-4152-02	Yazaki 9	A	5

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/BN	331	Oil Pressure Sensor Signal	I	-
2	0.5	WH/RD	2705	Oil Pressure Sensor 5V Reference	I	-
3 - 7	-	-	-	Not Occupied	-	-
8	0.5	D-BU	410	Engine Coolant Temperature Sensor Signal	I	-
9	-	-	-	Not Occupied	-	-
10	0.5	VT/D-BU	6270	Crankshaft 60X Sensor 5V Reference	I	-
11 - 12	-	-	-	Not Occupied	-	-
13	0.5	D-BU/WH	2122	Ignition Control 2	I	-
14	0.5	L-GN/D-BU	2123	Ignition Control 3	I	-
15	0.5	BK/GY	2130	Ignition Control Low Reference Bank 2	I	-
16	0.75	YE	7301	High Pressure Fuel Pump Actuator High - Control	I	-
17	0.5	BK/VT	2755	Oil Pressure Sensor Low Reference	I	-
18 - 23	-	-	-	Not Occupied	-	-
24	0.5	BK/BN	2761	Coolant Temperature Sensor Low Reference	I	-
25	0.5	BK/VT	6272	Crankshaft 60X Sensor Low Reference	I	-
26	0.5	L-GN	6271	Crankshaft 60X Sensor Signal	I	-
27	0.5	YE/D-BU	2124	Ignition Control 4	I	-
28	0.5	D-BU/GY	2125	Ignition Control 5	I	-
29	0.5	BN/D-BU	2126	Ignition Control 6	I	-
30	0.5	D-BU/VT	2121	Ignition Control 1	I	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
31	0.5	BK/D-BU	2129	Ignition Control Low Reference Bank 1	I	-
32	0.75	VT/BK	7300	High Pressure Fuel Pump Actuator Low - Control	I	-
33	0.5	YE/VT	5275	Camshaft Position Intake Sensor 1	I	-
34	0.5	GY/D-BU	5300	Camshaft Position Intake Sensor Control 1	I	-
35 - 38	-	-	-	Not Occupied	-	-
39	0.5	VT/BN	5284	Camshaft Phaser Intake Solenoid 1	I	-
40 - 45	-	-	-	Not Occupied	-	-
46	0.75	GY/D-BU	4804	Direct Fuel Injector (DFI) High Voltage Control Cylinder 4	I	-
47	0.75	L-GN	4803	Direct Fuel Injector (DFI) High Voltage Control Cylinder 3	I	-
48	0.75	L-GN/VT	4806	Direct Fuel Injector (DFI) High Voltage Control Cylinder 6	I	-
49	-	-	-	Not Occupied	-	-
50	0.75	WH/L-GN	4805	Direct Fuel Injector (DFI) High Voltage Control Cylinder 5	I	-
51	0.75	D-BU	4802	Direct Fuel Injector (DFI) High Voltage Control Cylinder 2	I	-
52	0.75	BN	4801	Direct Fuel Injector (DFI) High Voltage Control Cylinder 1	I	-
53	0.5	BK/L-GN	5301	Camshaft Position Intake Sensor Low Reference 1	I	-
54 - 58	-	-	-	Not Occupied	-	-
59	0.5	BK/BN	6753	Cam Phaser W Low Reference	I	-
60 - 62	-	-	-	Not Occupied	-	-
63	0.5	D-BU	5491	Cylinder Shutoff Solenoid Control 1	I	-
64	0.5	L-GN	5492	Cylinder Shutoff Solenoid Control 2	I	-
65	-	-	-	Not Occupied	-	-
66	0.75	D-BU/WH	4904	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 4	I	-
67	0.75	L-GN/BK	4903	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 3	I	-
68	0.75	VT	4906	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 6	I	-
69	-	-	-	Not Occupied	-	-
70	0.75	L-GN/WH	4905	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 5	I	-

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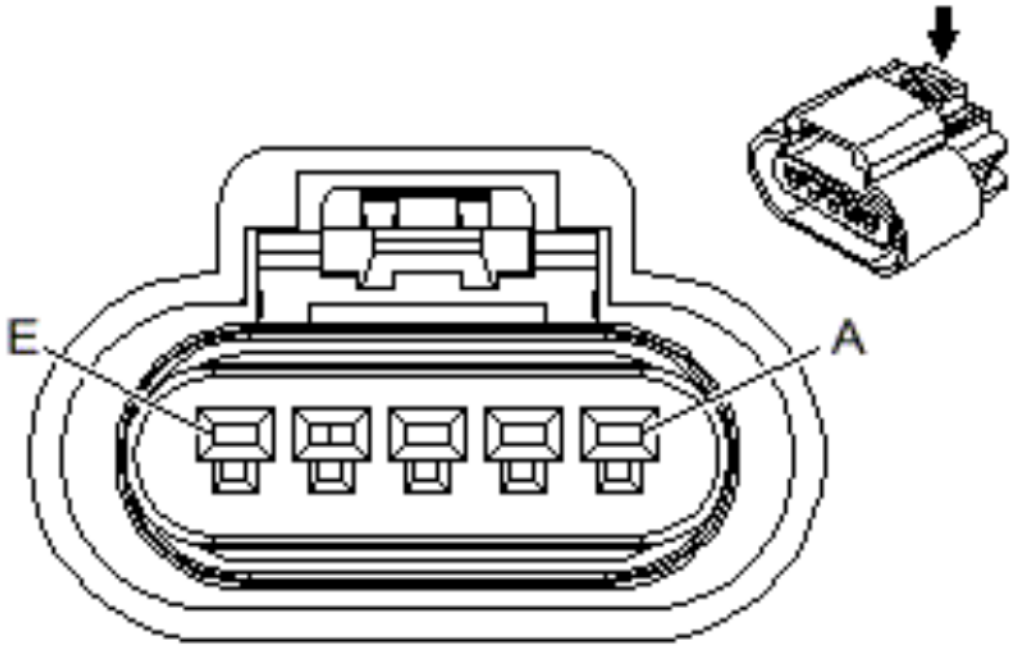
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
71	0.75	BN/L-GN	4902	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 2	I	-
72	0.75	BN/WH	4901	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 1	I	-
73	2.5	BK/WH	451	Signal Ground	II	-

K22 COOLING FAN CONTROL MODULE



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13519051
- Service Connector: 13585858
- Description: 5-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.75	BK	550	Ground	I	-

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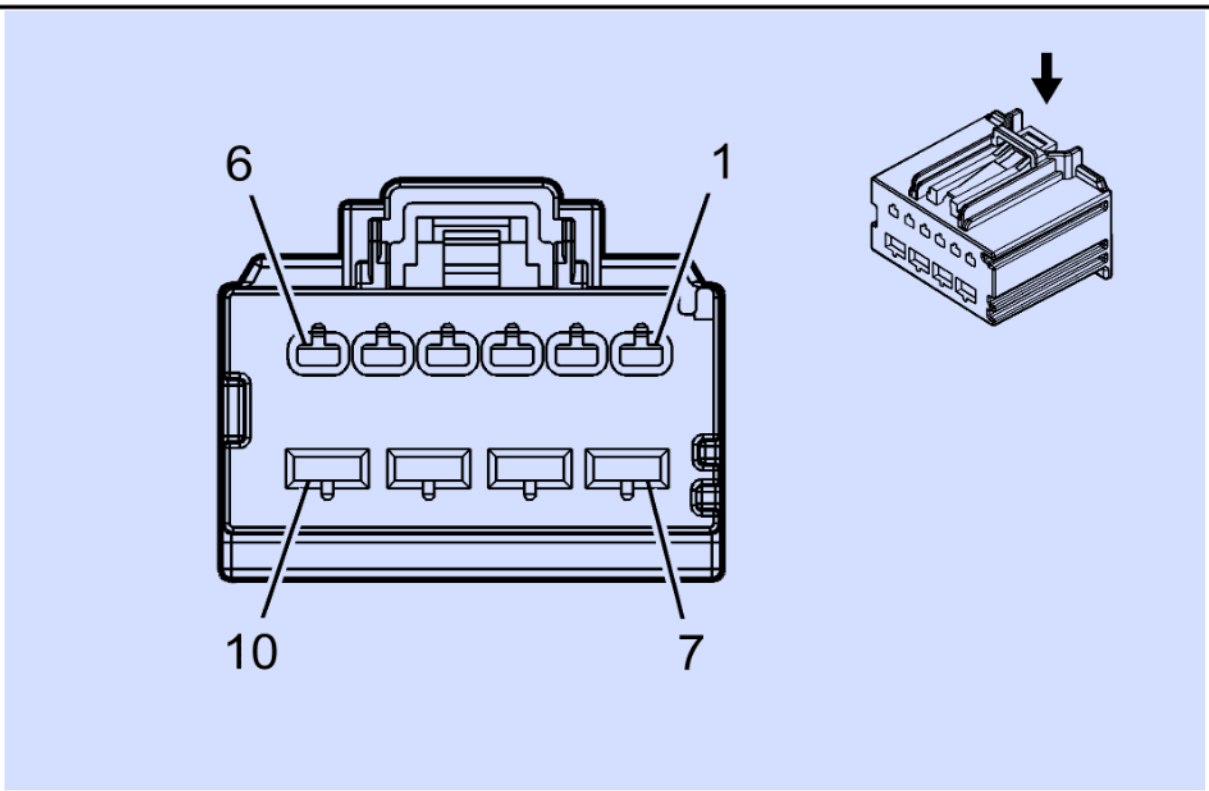
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
B	0.5	WH	2368	Cooling Fan Control Signal	I	-
C	0.5	BK/BN	6141	Cooling Fan Speed Low Reference	I	-
D	0.5	D-BU/VT	2364	Cooling Fan Speed Signal	I	-
E	0.5	GY/RD	2365	Cooling Fan Speed 5V Reference	I	-

K29 SEAT HEATING CONTROL MODULE X1



Connector Part Information

- Harness Type: Passenger Seat Cushion
- OEM Connector: 31372-1000
- Service Connector: Service by Harness - See Part Catalog
- Description: 10-Way F 1.5, 2.8 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required
II	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

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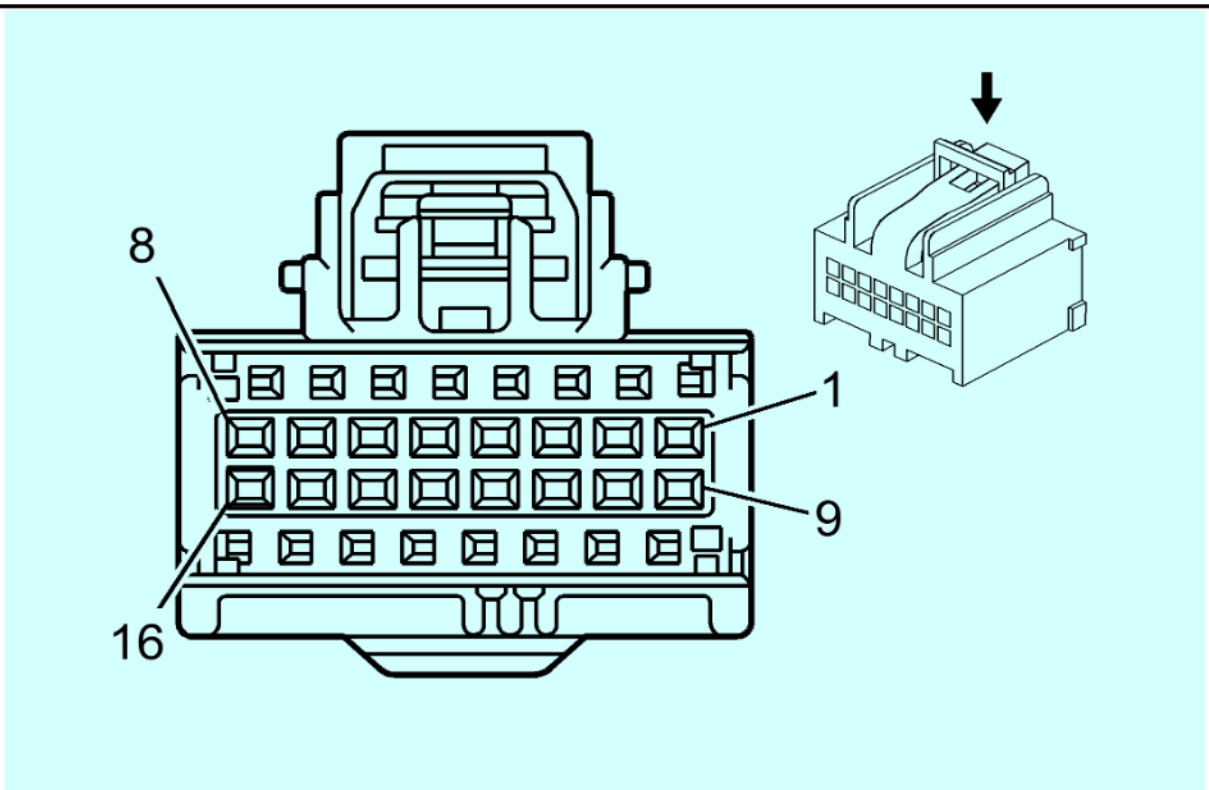
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	WH/BN	2481	Passenger Heated Back Element Control	I	-
2	0.75	BN/BU	2479	Passenger Heated Seat Element Control	I	-
3	0.75	GY/BK	2480	Passenger Heated Seat Element Low Reference	I	-
4	0.75	BN/BK	2078	Driver Heated Seat Element Low Reference	I	-
5	0.75	BN	2432	Driver Heated Back Element Control	I	-
6	0.75	BN/VT	2077	Driver Heated Seat Element Control	I	-
7	0.75	RD/GN	6140	Battery Positive Voltage	II	-
8	0.75	BK	1250	Ground	II	-
9	-	-	-	Not Occupied	-	-
10	0.75	RD/GN	5140	Battery Positive Voltage	II	-

K29 SEAT HEATING CONTROL MODULE X2



Connector Part Information

- Harness Type: Passenger Seat Cushion
- OEM Connector: 15136073
- Service Connector: Service by Harness - See Part Catalog
- Description: 16-Way F 0.64 Kaizen Series (BK)

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Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/YE	2080	Driver Heated Seat NTC Low Reference	I	-
2	0.5	BK/GY	2435	Passenger Heated Seat NTC Low Reference	I	-
3	0.5	BU	2425	Driver Heated Back NTC Signal	I	-
4	0.5	WH/BU	2436	Passenger Heated Back NTC Signal	I	-
5	0.5	WH/GY	2434	Passenger Heated Seat NTC Signal	I	-
6	0.5	YE/GY	2079	Driver Heated Seat NTC Signal	I	-
7	-	-	-	Not Occupied	-	-
8	0.35	GN/BU	6133	Local Interconnect Network Serial Data Bus 2	I	-
9	0.35	GN/VT	5906	Driver Seat Vent Motor Control 1	I	-
10	0.35	VT/WH	5908	Passenger Seat Vent Motor Control 1	I	-
11	-	-	-	Not Occupied	-	-
12	0.5	BK/GN	2482	Passenger Heated Back NTC Low Reference	I	-
13 - 16	-	-	-	Not Occupied	-	-

K33 HVAC CONTROL MODULE X1

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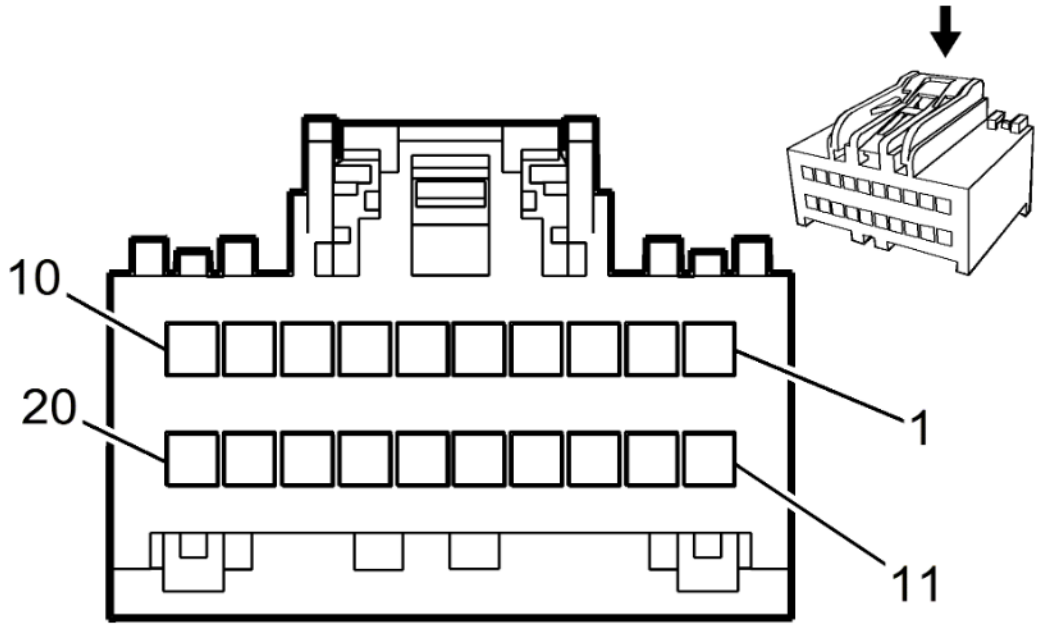

Connector Part Information

- Harness Type: HVAC
- OEM Connector: 19153728
- Service Connector: Service by Harness - See Part Catalog
- Description: 20-Way F 0.64 Series (GN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.35	GY/GN	7565	Windscreen Temp Sensor Signal	I	-
3	-	-	-	Not Occupied	-	-
4	0.35	BU/WH	734	Inside Air Temperature Sensor Signal	I	-
5	0.35	YE/BU	3197	Humidity Temperature Sensor Signal	I	-
6	0.35	YE/RD	597	5V Reference	I	-
7	0.35	BK/BU	7566	Humidity/Windscreen Temp Sensor Low Reference	I	-
8 - 11	-	-	-	Not Occupied	-	-
12	0.35	GY/BU	7564	Humidity Sensor Signal	I	-

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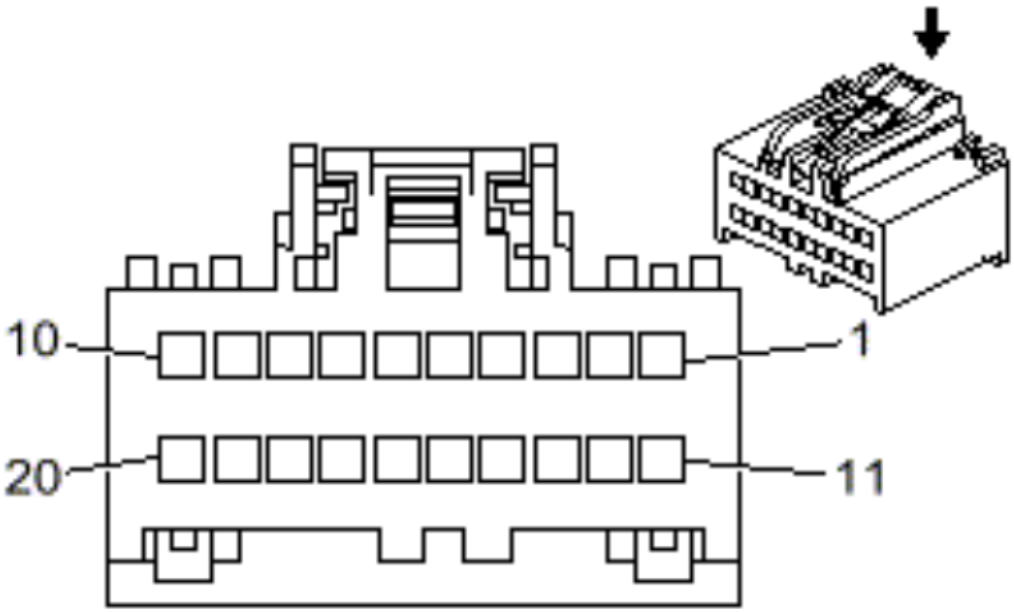
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
13	0.35	YE/VT	1783	Twilight Sentinel Delay Signal	I	-UE1
14	0.35	YE/VT	1783	Twilight Sentinel Delay Signal	I	UE1
15 - 19	-	-	-	Not Occupied	-	-
20	0.35	GY	590	Solar Sensor Driver Signal	I	-

K33 HVAC CONTROL MODULE X2



Connector Part Information

- Harness Type: HVAC
- OEM Connector: 15126709
- Service Connector: Service by Harness - See Part Catalog
- Description: 20-Way F USCAR 64 Series (BN with WH Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD/VT	3340	Battery Positive Voltage	I	-
2	0.35	GN	5060	Low Speed GMLAN Serial Data	I	-

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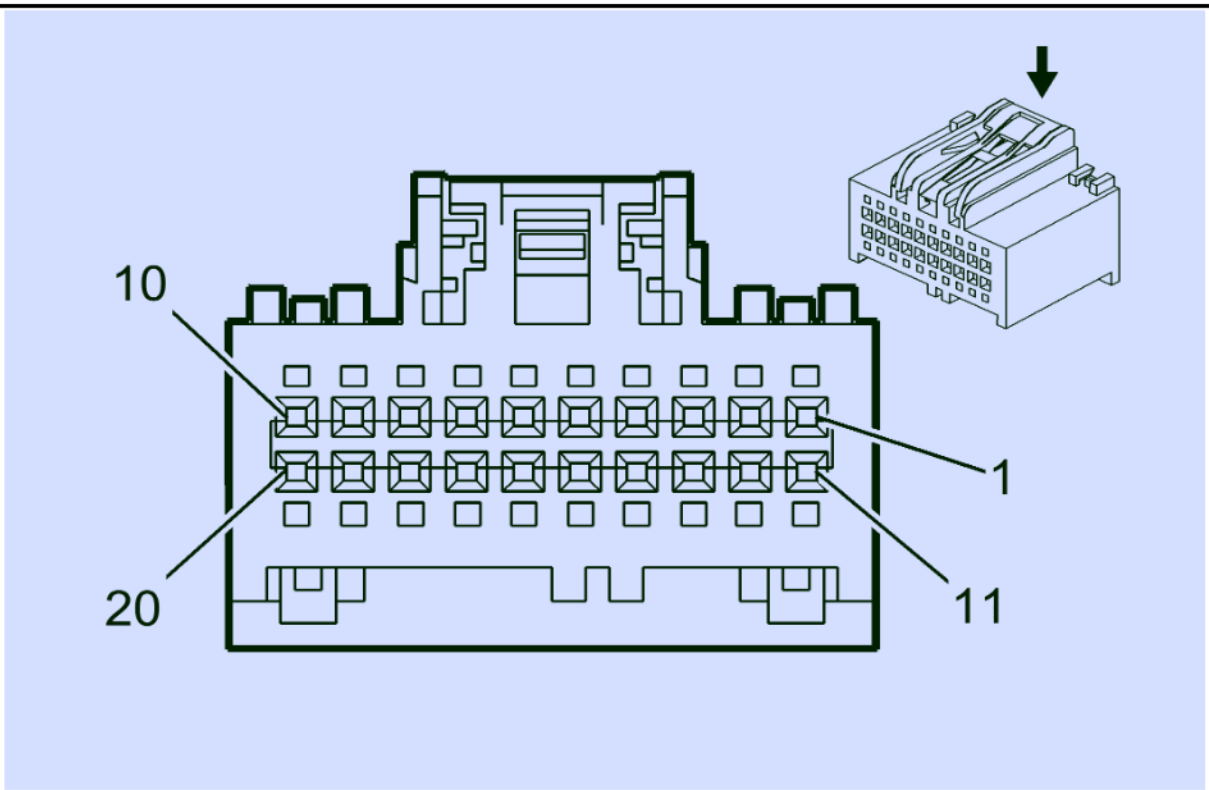
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	-	-	-	Not Occupied	-	-
4	0.35	GN/YE	7531	Local Interconnect Network Serial Data Bus 9	I	-
5	0.5	YE/GN	3196	Auxiliary Heater Status Signal	I	-
6	-	-	-	Not Occupied	-	-
7	0.5	VT	3195	Auxiliary Heater Control	I	-
8	0.35	BK/WH	1851	Signal Ground	I	-
9	0.5	VT/GY	539	Run/Crank Ignition 1 Voltage	I	-
10	0.5	BU/YE	7574	Electric Variable Displacement Control	I	-
11	0.5	BU/BN	7573	Electric Variable Displacement Supply	I	-
12 - 14	-	-	-	Not Occupied	-	-
15	0.35	BU/GY	754	Blower Motor Speed Control	I	-
16	-	-	-	Not Occupied	-	-
17	0.35	GY/RD	598	5V Reference	I	-
18 - 20	-	-	-	Not Occupied	-	-

K33 HVAC CONTROL MODULE X3



Connector Part Information

- Harness Type: HVAC
- OEM Connector: 15126711
- Service Connector: Service by Harness - See Part Catalog

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- Description: 20-Way F 0.64 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BU	516	Upper Left Air Temperature Sensor Signal	I	-
2	0.35	YE/BN	2273	Mode Door Control	I	-
3	0.35	WH	119	Mode Door Control	I	-
4	0.35	WH/GN	2275	Mode 1 Valve Position Sensor Signal	I	-
5 - 8	-	-	-	Not Occupied	-	-
9	0.35	BK/YE	407	Sensor Low Reference	I	-
10	-	-	-	Not Occupied	-	-
11	0.35	GY/GN	2210	Air Temperature Door Control	I	-
12	0.35	BU/BN	1199	Air Temperature Door Control	I	-
13	0.35	BU/YE	733	Air Temperature Door Position Signal	I	-
14 - 15	-	-	-	Not Occupied	-	-
16	0.35	YE/BK	2274	Recirculation Door Control	I	-
17	0.35	GN	1614	Recirculation Door Control	I	-
18	0.35	VT/GN	1838	Recirculation Door Position Signal	I	-
19	-	-	-	Not Occupied	-	-
20	0.35	GY	6137	EVAP Core Temperature Sensor Signal	I	-

K33 HVAC CONTROL MODULE X4

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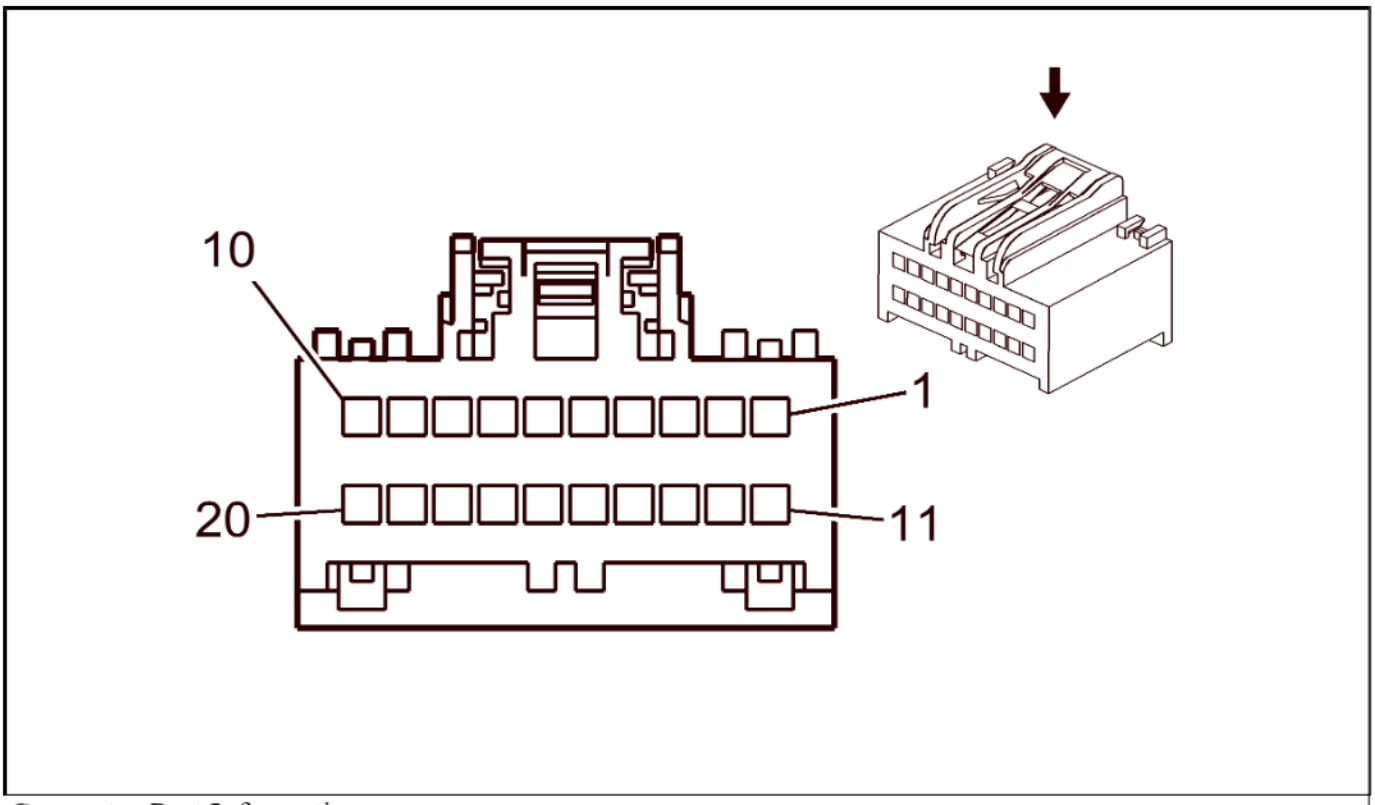

Connector Part Information

Terminal Part Information

- Harness Type: HVAC
- OEM Connector: 15126710
- Service Connector: Service by Harness - See Part Catalog
- Description: 20-Way F 1.5 SVC Pack 1 Series (GY)

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
Not Required	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 4	-	-	-	Not Occupied	-	-
5	0.35	GY/BK	2778	Passenger Air Temperature Motor Control	I	-
6	0.35	WH/BK	1236	Passenger Air Temperature Door Control	I	-
7	0.35	BN/BU	1646	Passenger Air Temperature Door Position Signal	I	-
8	-	-	-	Not Occupied	-	-
9	0.35	YE	517	Upper Right Air Temperature Sensor Signal	I	-
10	-	-	-	Not Occupied	-	-
11	0.35	GN	518	Lower Left Air Temperature Sensor Signal	I	-
12	0.35	RD	520	Lower Right Air Temperature Sensor Signal	I	-
13 - 20	-	-	-	Not Occupied	-	-

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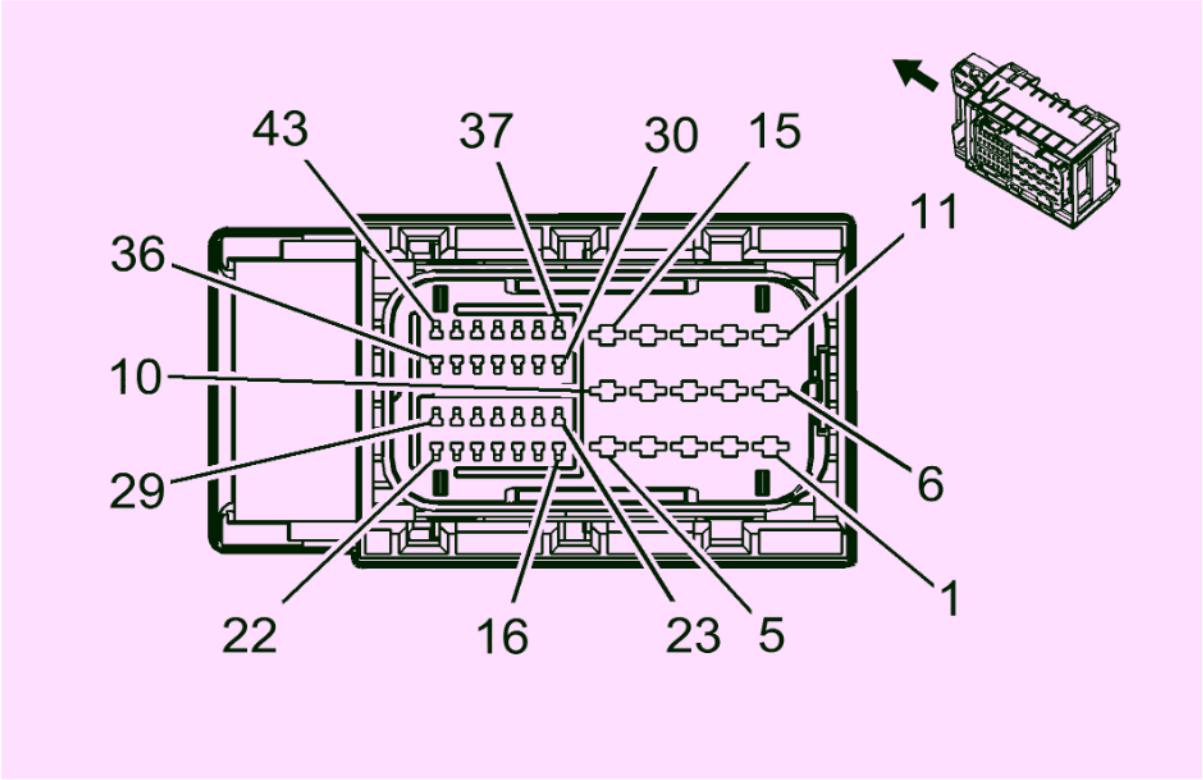
COMPONENT CONNECTOR END VIEWS

K34 GLOW PLUG CONTROL MODULE



Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 10023701
- Service Connector: Service by Harness - See Part Catalog
- Description: 43-Way F 1.2, 2.8 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13576372	J-35616-4A (PU)	J-38125-556	Not Available	Not Available	Not Available	Not Available
II	13580008	J-35616-16 (LT GN)	J-38125-21	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	2	GY/YE	1584	Glow Plug Control 4	I	L5P

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	2	GY/GN	1583	Glow Plug Control 3	I	L5P
4	2	GY/BN	1582	Glow Plug Control 2	I	L5P
5	2	GY/BU	1581	Glow Plug Control 1	I	L5P
6 - 9	-	-	-	Not Occupied	-	-
10	2	BK	550	Ground	I	L5P
11	-	-	-	Not Occupied	-	-
12	2	GY/WH	1585	Glow Plug Control 5	I	L5P
13	2	GY/VT	1586	Glow Plug Control 6	I	L5P
14	2	WH/BK	1587	Glow Plug Control 7	I	L5P
15	2	WH/BU	1588	Glow Plug Control 8	I	L5P
16	0.5	BK	-	-	II	L5P
17	0.5	BK	-	-	II	L5P
18	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	II	L5P
19	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	II	L5P
20 - 22	-	-	-	Not Occupied	-	-
23	0.5	BK	-	-	II	L5P
24	0.5	BK	-	-	II	L5P
25	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	II	L5P
26	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	II	L5P
27 - 29	-	-	-	Not Occupied	-	-
30	0.5	BK	-	-	II	L5P
31	0.5	BK	-	-	II	L5P
32	-	-	-	Not Occupied	-	-
33	0.5	VT/BK	2139	Run/Crank Ignition 1 Voltage	II	L5P
34 - 36	-	-	-	Not Occupied	-	-
37	0.5	BK	-	-	II	L5P
38	0.5	BK	-	-	II	L5P
39	-	-	-	Not Occupied	-	-
40	0.5	VT/YE	443	Accessory Ignition Voltage	II	L5P
41 - 43	-	-	-	Not Occupied	-	-

K36 INFLATABLE RESTRAINT SENSING AND DIAGNOSTIC MODULE X1

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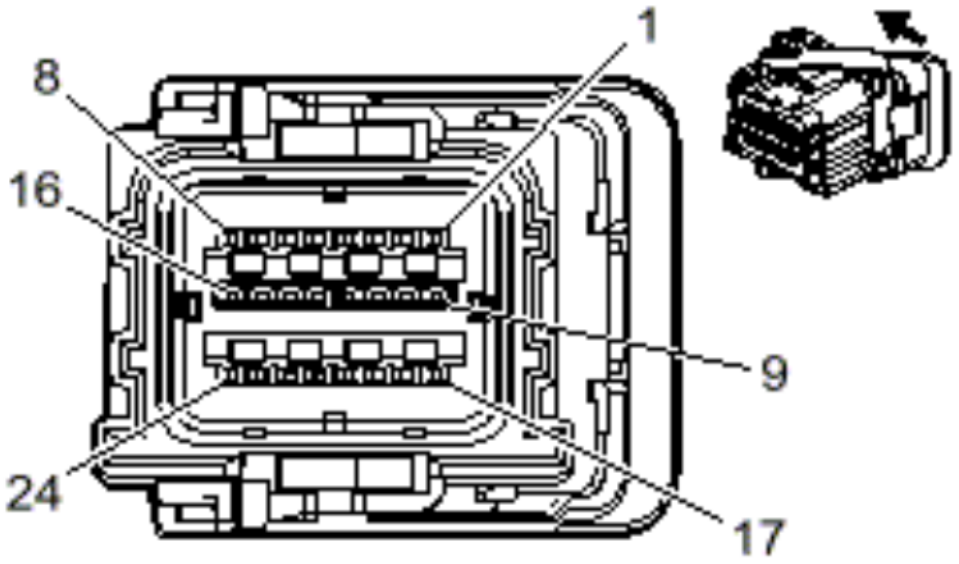

Connector Part Information

- Harness Type: Body
- OEM Connector: 13887360
- Service Connector: 19328755
- Description: 24-Way F 0.64 Series, Sealed (YE)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	19328872	J-35616-64B (LT BU)	J-38125-11A	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	OG/GN	3023	Steering Wheel Module Stage 2 High Control	I	-
2	0.35	WH/OG	3022	Steering Wheel Module Stage 2 Low Control	I	-
3	0.35	BN/OG	3020	Steering Wheel Module Stage 1 Low Control	I	-
4	0.35	OG/VT	3021	Steering Wheel Module Stage 1 High Control	I	-
5	0.35	YE/OG	3025	Passenger IP Module Stage 1 High Control	I	-
6	0.35	OG/WH	3024	Passenger IP Module Stage 1 Low Control	I	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
7	0.35	OG/VT	3026	Passenger IP Module Stage 2 Low Control	I	-
8	0.35	GY/OG	3027	Passenger IP Module Stage 2 High Control	I	-
9	0.5	RD/GN	4440	Battery Positive Voltage	I	-
10	0.35	VT/WH	5234	Passenger Seat Belt Indicator Control	I	-
11	0.35	BU	2307	Passenger Air Bag On Indicator Control	I	-
12	0.35	GN	2308	Passenger Air Bag Off Indicator Control	I	-
13	0.35	VT/OG	371	Passenger IP Module Disable Switch Signal	I	-
14	0.35	BU/OG	7328	Passenger IP Module Disable Switch Low Reference	I	-
15	0.5	GN	5060	Low Speed GMLAN Serial Data	I	-
16	-	-	-	Not Occupied	-	-
17	0.5	WH/BU	5986	Serial Data Communication Enable	I	-
18	0.5	BU/YE	6105	High Speed GMLAN Serial Data (+) 2	I	-
19	0.5 0.75	BK/WH BK/WH	2751 2751	Signal Ground Signal Ground	I I	AL0 SERIES20/SERIES30+AK5-AL0
20	0.5	WH	6106	High Speed GMLAN Serial Data (-) 2	I	-
21 - 24	-	-	-	Not Occupied	-	-

K36 INFLATABLE RESTRAINT SENSING AND DIAGNOSTIC MODULE X2

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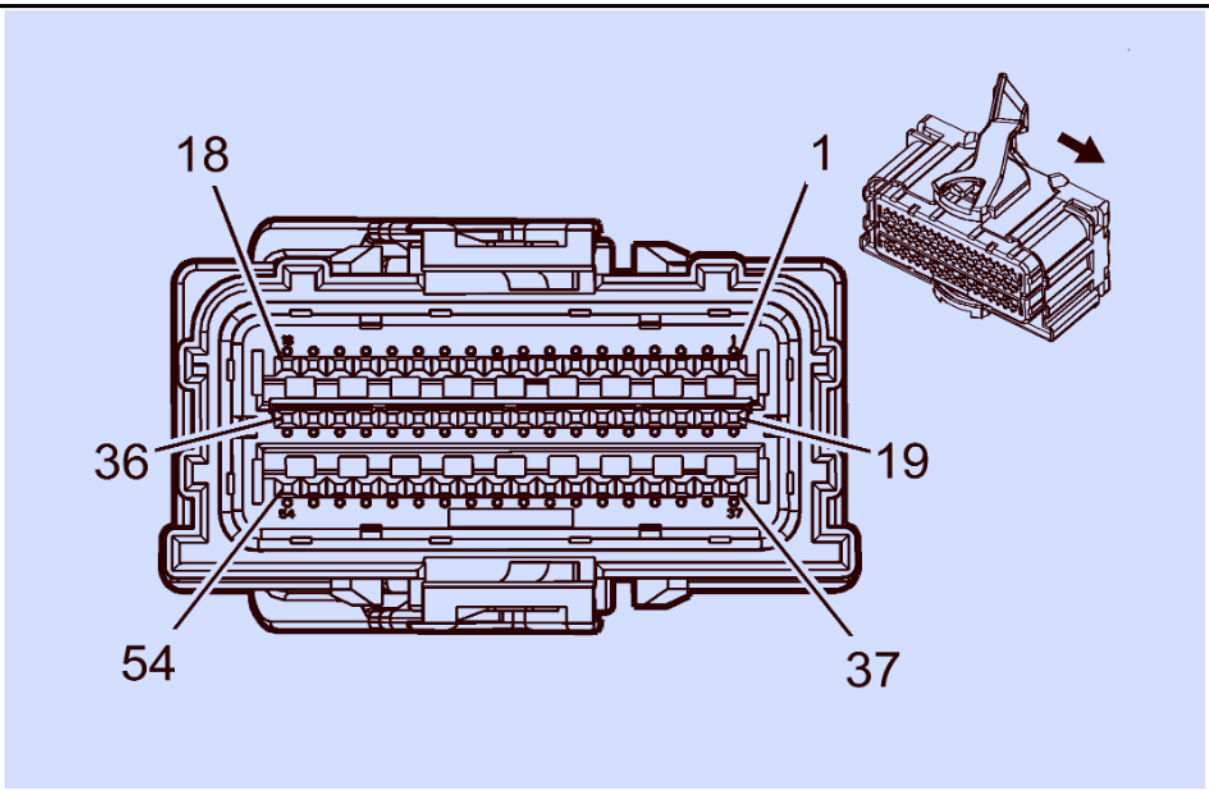

Connector Part Information

- Harness Type: Body
- OEM Connector: 13944372
- Service Connector: 19303770
- Description: 54-Way F 0.64 Series, Sealed (YE)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	19328872	J-35616-64B (LT BU)	J-38125-11A	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 8	-	-	-	Not Occupied	-	-
9	0.35	OG/YE	3481	Driver Seat Belt Anchor Pretensioner High Control	I	-
10	0.35	YE/OG	3482	Driver Seat Belt Anchor Pretensioner Low Control	I	-
11	0.35	GY/OG	3480	Passenger Seat Belt Anchor Pretensioner Low Control	I	-
12	0.35	OG/BN	3479	Passenger Seat Belt Anchor Pretensioner High Control	I	-
13	0.35	OG/D-BU	3068	Driver Side Impact Module High Control	I	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
14	0.35	L-GN/OG	3069	Driver Side Impact Module Low Control	I	-
15	0.35	BN/OG	3067	Passenger Side Impact Module Low Control	I	-
16	0.35	OG/GY	3066	Passenger Side Impact Module High Control	I	-
17	0.35	OG/L-GN	5019	Left Front Head Curtain Module High Control	I	-
18	0.35	VT/OG	5020	Left Front Head Curtain Module Low Control	I	-
19	0.35	OG/L-GN	2132	Left Front Side Impact Sensing Module Signal	I	-
20	0.35	BK/OG	6628	Left Front Side Impact Sensing Module Low Reference	I	-
21	0.35	BK/OG	6629	Right Front Side Impact Sensing Module Low Reference	I	-
22	0.35	BN/OG	2134	Right Front Side Impact Sensing Module Signal	I	-
23	0.35	OG/YE	354	Left Front Discriminating Sensor Signal	I	-
24	0.35	BK/OG	5045	Left Front Discriminating Sensor Low Reference	I	-
25	0.35	BK/OG	5600	Right Front Discriminating Sensor Low Reference	I	-
26	0.35	OG/L-GN	1409	Right Front Discriminating Sensor Signal	I	-
27	0.35	OG/D-BU	6620	Left Middle Side Impact Sensing Module Signal	I	-
28	0.35	BK/OG	6621	Left Middle Side Impact Sensing Module Low Reference	I	-
29	0.35	BK/OG	6625	Right Middle Side Impact Sensing Module Low Reference	I	-
30	0.35	OG/VT	6624	Right Middle Side Impact Sensing Module Signal	I	-
31 - 36	-	-	-	Not Occupied	-	-
37	-	-	3477	Driver Seat Belt Retractor Pretensioner High Control	I	-
38	-	-	3478	Driver Seat Belt Retractor Pretensioner Low Control	I	-
39	-	-	3476	Passenger Seat Belt Retractor Pretensioner Low Control	I	-
40	-	-	3475	Passenger Seat Belt Retractor Pretensioner High Control	I	-
41	0.35	OG/BN	238	Driver Seat Belt Switch Signal	I	-

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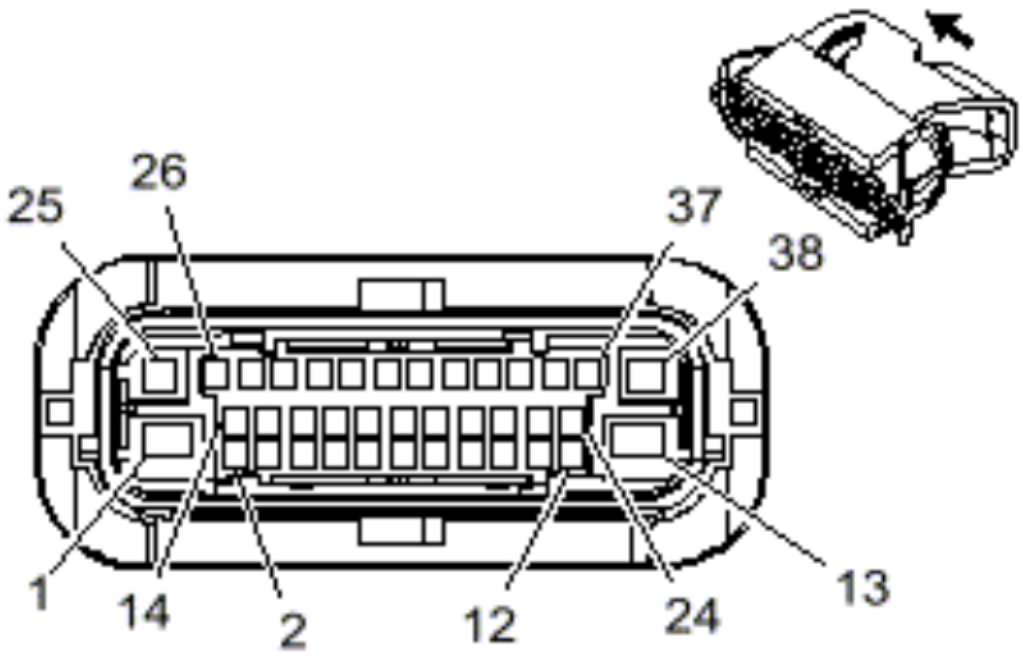
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
42	0.35	OG/L-GN	5055	Driver Seat Position Switch Signal	I	-
43	0.35	BK/OG	1363	Driver Seat Belt Switch Low Reference	I	-
44	0.35	BK/OG	1361	Passenger Seat Belt Switch Low Reference	I	-
45	0.35	OG/VT	1362	Passenger Seat Belt Switch Signal	I	-
46	0.35	OG/D-BU	5056	Passenger Seat Position Switch Signal	I	-
47 - 52	-	-	-	Not Occupied	-	-
53	0.35	OG/GY	5021	Right Front Head Curtain Module High Control	I	-
54	0.35	WH/OG	5022	Right Front Head Curtain Module Low Control	I	-

K38A CHASSIS CONTROL MODULE - AUXILIARY (JL1)



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 33102981
- Service Connector: 19329471
- Description: 38-Way F 1.5 CTS, 2.8 MCP, 4.8 MCP Series, Sealed (BK)

Terminal Part Information

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Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	19119381	J-35616-14 (GN)	J-38125-215A	Not Available	Not Available	Not Available	Not Available
II	19119772	J-35616-35 (VT)	J-38125-557	1241388-1	Lear 17	E	C
III	19301775	J-35616-40 (BU)	J-38125-556	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	RD/WH	2040	Battery Positive Voltage	III	-
2 - 12	-	-	-	Not Occupied	-	-
13	0.75	BK	1750	Ground	III	-
14	0.5	VT/YE	5985	Accessory Wakeup Serial Data	I	-
15	-	-	-	Not Occupied	-	-
16	0.5	BU/RD	7632	Integrated Trailer Brake Controller Switch 5V Reference	I	-
17	-	-	-	Not Occupied	-	-
18	0.5	BN	7634	Integrated Trailer Brake Controller Redundant Manual Apply Signal	I	-
19	0.5	BK/BN	7631	Integrated Trailer Brake Controller Switch Low Reference	I	-
20	0.5	YE	7635	Integrated Trailer Brake Controller Manual Apply Signal	I	-
21	0.5	GN/BK	7633	Integrated Trailer Brake Controller User Gain Signal	I	-
22	0.5	YE/BK	2224	Trailer Brake Enable Signal	I	-
23	0.5	WH/BK	2223	Trailer Brake Control Signal	I	-
24	-	-	-	Not Occupied	-	-
25	0.75	VT/GN	439	Run/Crank Ignition 1 Voltage	II	-
26	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	I	-
27	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	I	-
28	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-
29	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-
30	0.5	GN/VT	4114	Local Interconnect Network Serial Data Bus 14	I	-
31 - 38	-	-	-	Not Occupied	-	-

K38 CHASSIS CONTROL MODULE (L96)

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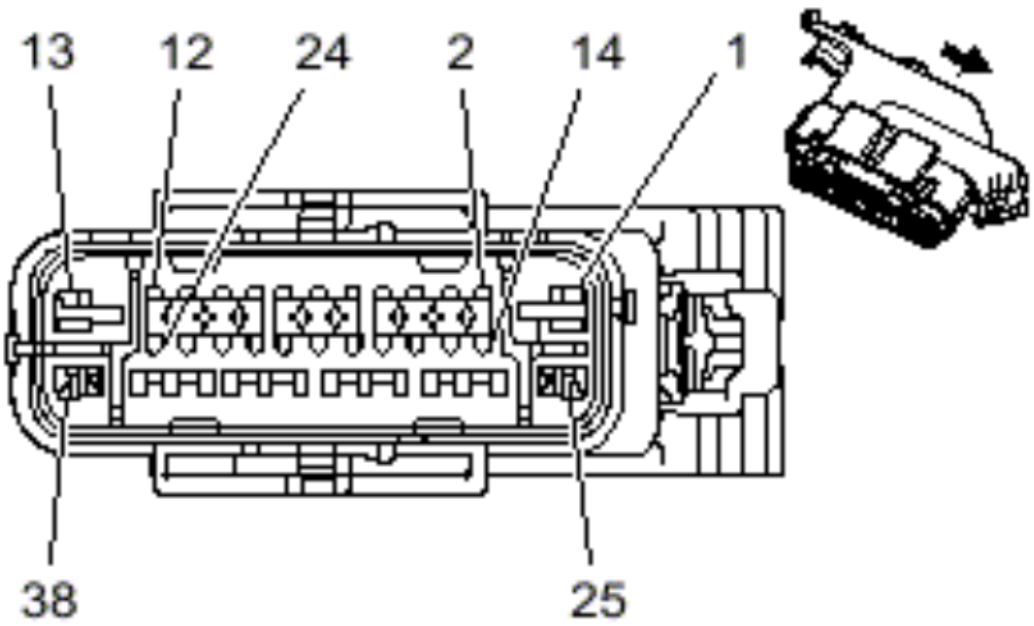

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13518748
- Service Connector: 19178089
- Description: 38-Way F 0.64, 2.8 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575408	J-35616-4A (PU)	J-38125-553	Not Available	Not Available	Not Available	Not Available
II	13576407	J-35616-4A (PU)	J-38125-553	15304720	Delphi 19	4	5
III	13579766	J-35616-64B (LT BU)	J-38125-215A	SAITS-A03T-M064	Yazaki 14	9	9
IV	13579774	J-35616-64B (LT BU)	J-38125-215A	SAITS-A03T-M064	Yazaki 14	9	9

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	RD/VT	1940	Battery Positive Voltage	II	-
2 - 4	-	-	-	Not Occupied	-	-
5	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	IV	-
6	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	IV	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
7	-	-	-	Not Occupied	-	-
8	0.5	VT/YE	5985	Accessory Wakeup Serial Data	IV	-
9	-	-	-	Not Occupied	-	-
10	0.5	BU/WH	7446	Fuel Line Pressure Sensor Signal	IV	-
11 - 12	-	-	-	Not Occupied	-	-
13	2.5	GY	120	Fuel Pump Control	I	-
14 - 16	-	-	-	Not Occupied	-	-
17	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	IV	-
18	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	IV	-
19	-	-	-	Not Occupied	-	-
20	0.5	GN/GY	465	Fuel Pump Primary Relay Control	IV	-
21	0.75	VT/GN	439	Run/Crank Ignition 1 Voltage	III	-
22	0.5	BN/RD	7445	Fuel Line Pressure Sensor 5V Reference	IV	-
23	0.5	BK/YE	7447	Fuel Line Pressure Sensor Low Reference	IV	-
24	0.5	BU	7444	Fuel System Control Module Shield Ground	IV	-
25	2.5	BK	2150	Ground	I	-
26 - 37	-	-	-	Not Occupied	-	-
38	2.5	BK/GN	1580	Fuel Pump Low Reference	I	-

K40 SEAT MEMORY CONTROL MODULE X1

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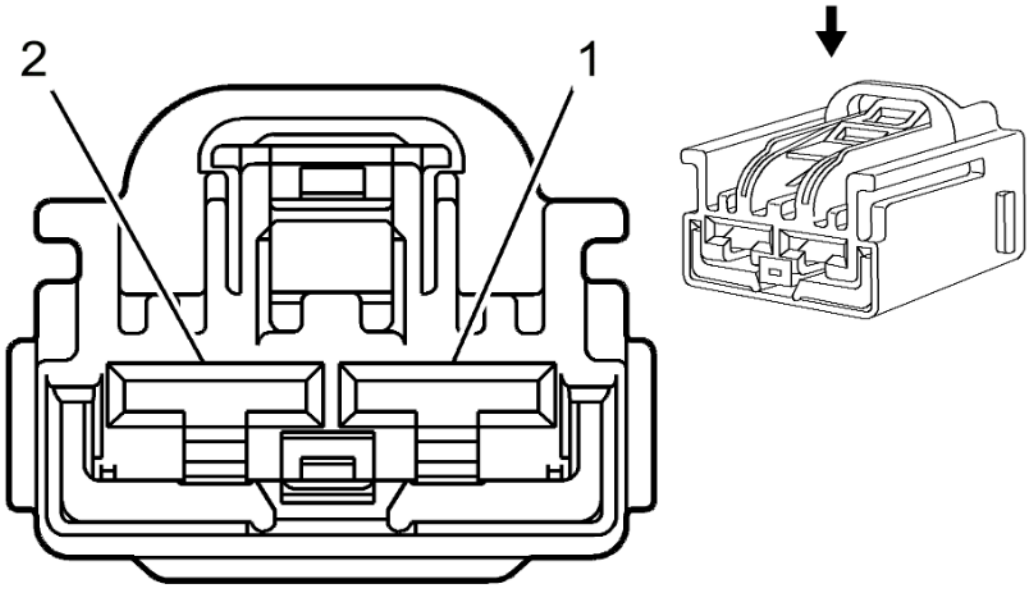

Connector Part Information

- Harness Type: Driver Seat Cushion
- OEM Connector: 7283-6458-40
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 6.3 Series (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-42 (RD)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	RD/BN	1140	Battery Positive Voltage	I	-
2	2.5	RD/YE	5040	Battery Positive Voltage	I	-

K40 SEAT MEMORY CONTROL MODULE X2

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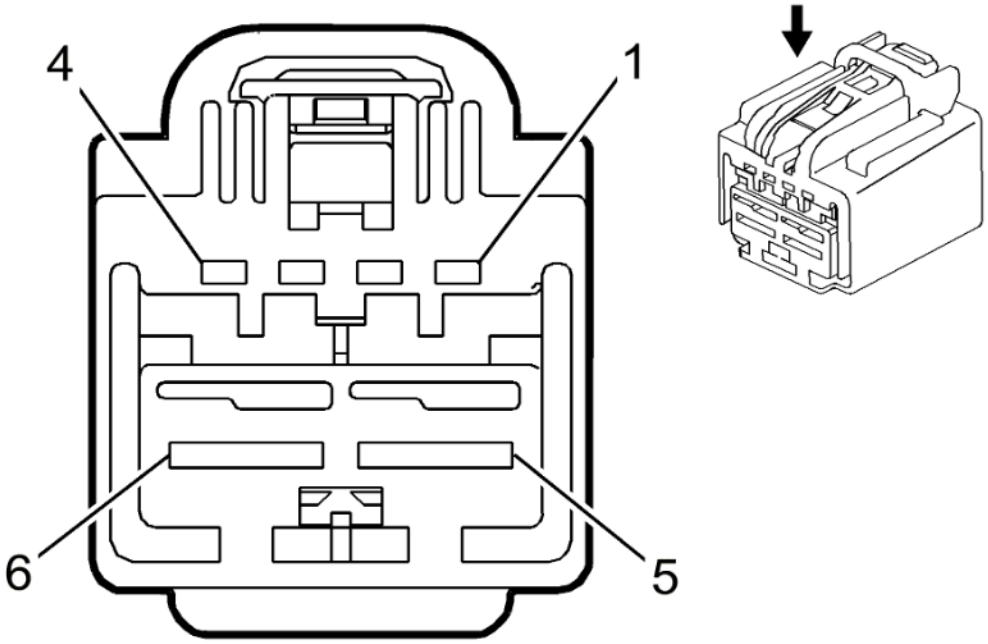

Connector Part Information

- Harness Type: Driver Seat Cushion
- OEM Connector: 7283-9749-30
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way F YESC Kaizen Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required
II	Not Required	J-35616-42 (RD)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-GN	5060	Low Speed GMLAN Serial Data	I	-
2	-	-	-	Not Occupied	-	-
3	0.5	L-GN/WH	7530	Local Interconnect Network Serial Data Bus 8	I	-
4	-	-	-	Not Occupied	-	-
5	2.5	BK	1150	Ground	II	-
6	-	-	-	Not Occupied	-	-

K40 SEAT MEMORY CONTROL MODULE X3

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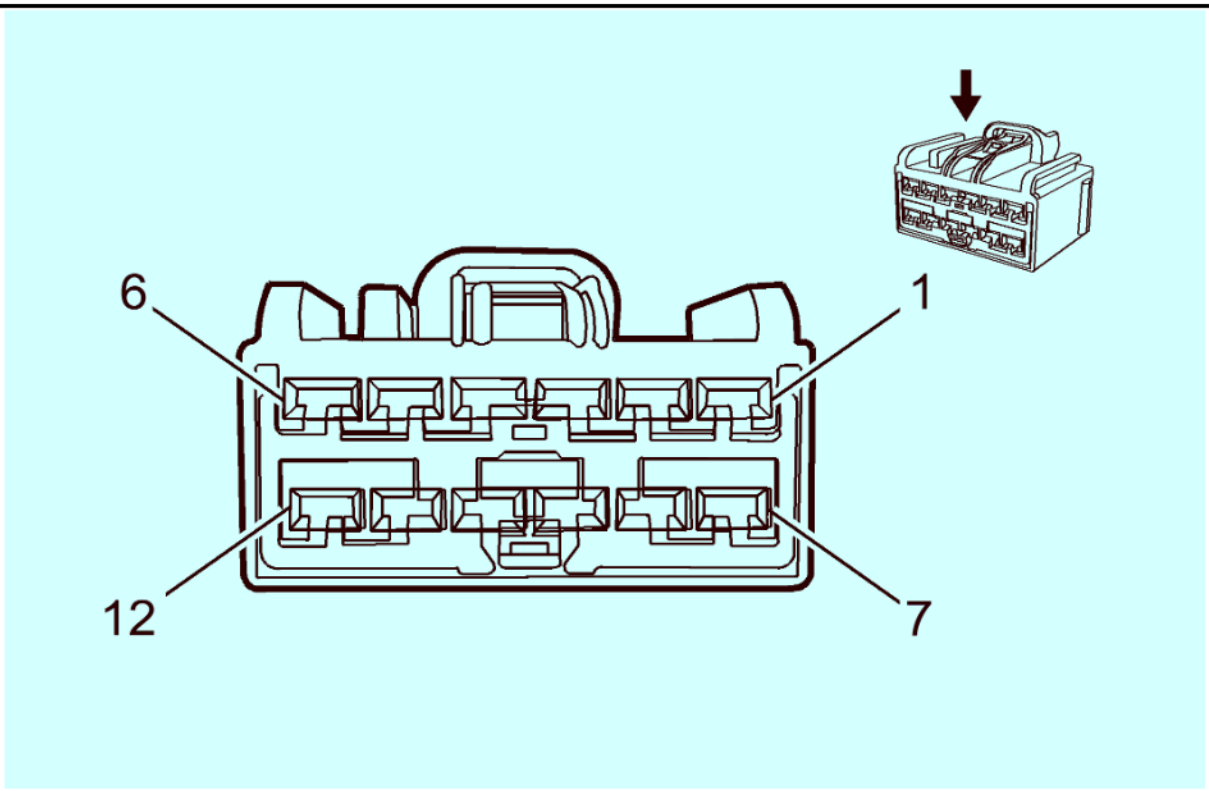

Connector Part Information

- Harness Type: Driver Seat Cushion
- OEM Connector: 7283-6467-40
- Service Connector: Service by Harness - See Part Catalog
- Description: 12-Way F 2.8 Kaizen Series (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	L-GN/YE	276	Driver Power Seat Recline Motor Forward Control	I	-
2	1.5	L-BU/YE	277	Driver Power Seat Recline Motor Rearward Control	I	-
3	1.5	L-GN/BN	286	Driver Power Seat Front Vertical Motor Up Control	I	-
4	1.5	L-BU/VT	287	Driver Power Seat Front Vertical Motor Down Control	I	-
5	1.5	YE	282	Driver Power Seat Rear Vertical Motor Up Control	I	-

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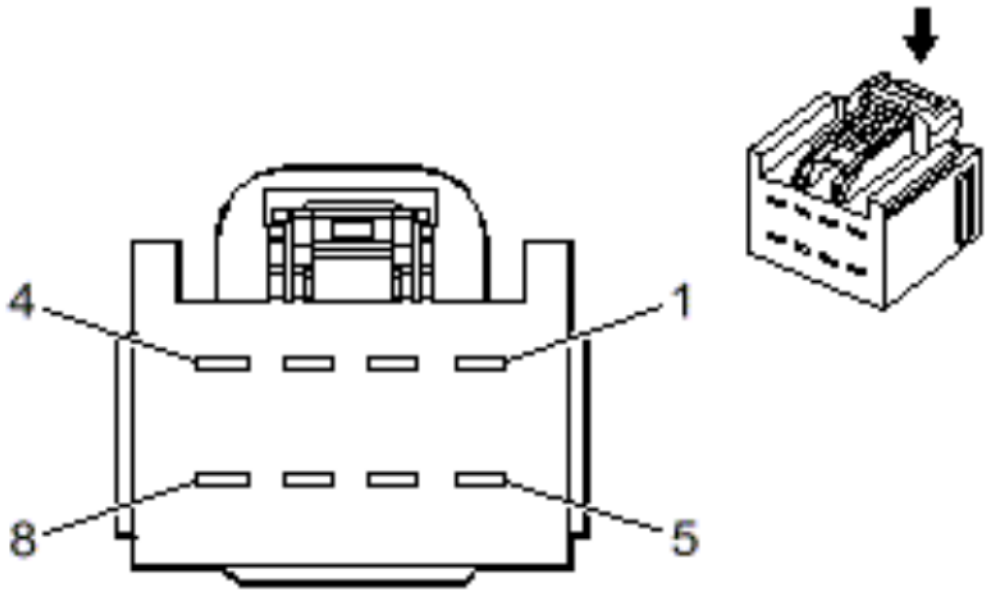
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
6	1.5	GY/L-BU	283	Driver Power Seat Rear Vertical Motor Down Control	I	-
7	1.5	YE/BN	768	Driver Power Seat Lumbar Motor Up Control	I	-
8	1.5	YE/L-BU	767	Driver Power Seat Lumbar Motor Down Control	I	-
9	1.5	L-BU	611	Driver Power Seat Lumbar Motor Forward Control	I	-
10	1.5	VT	610	Driver Power Seat Lumbar Motor Rearward Control	I	-
11	1.5	YE/L-BU	285	Driver Power Seat Horizontal Motor Forward Control	I	-
12	1.5	GY/L-GN	284	Driver Power Seat Horizontal Motor Rearward Control	I	-

K40 SEAT MEMORY CONTROL MODULE X4



Connector Part Information

- Harness Type: Driver Seat Cushion
- OEM Connector: 7283-3243-40
- Service Connector: Service by Harness - See Part Catalog
- Description: 8-Way F 2.8 Series (L-GY)

Terminal Part Information

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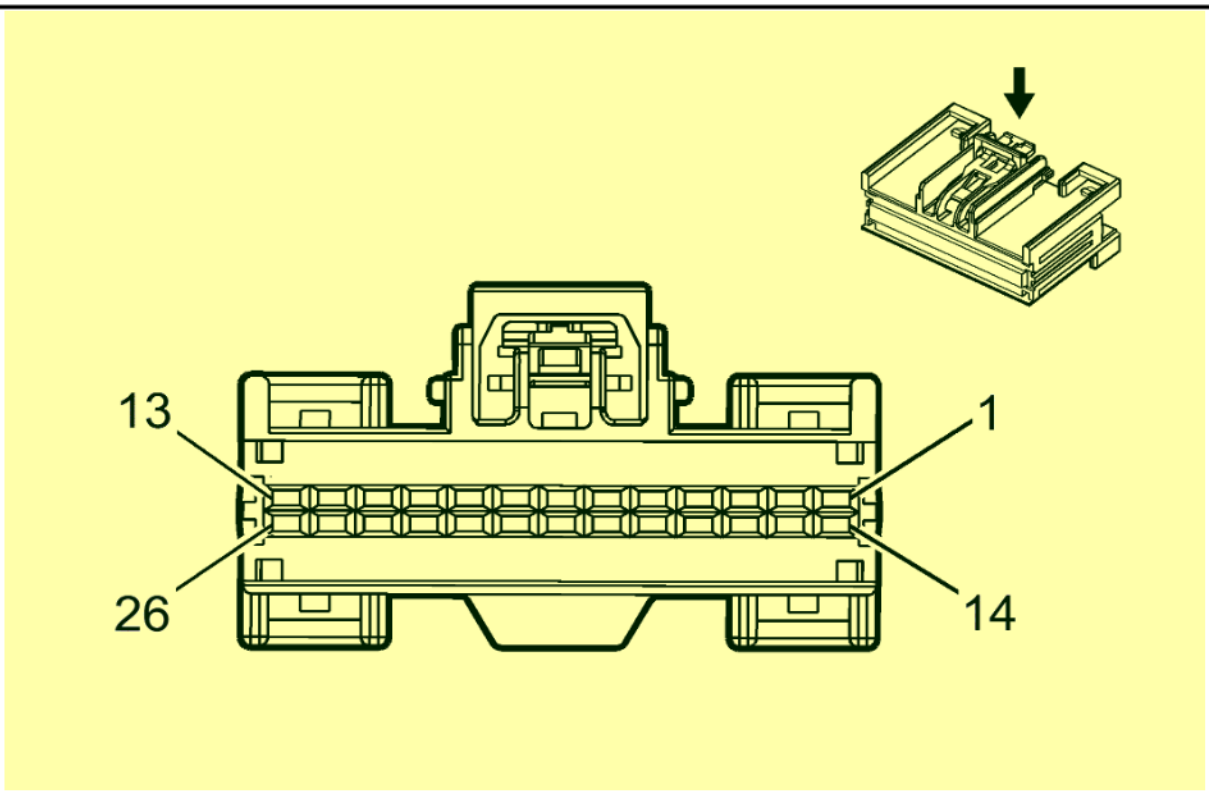
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	GN/VT	5130	Adjustable Pedal Actuator Forward Control	I	-
2	1.5	YE	5129	Adjustable Pedal Actuator Rearward Control	I	-
3 - 8	-	-	-	Not Occupied	-	-

K40 SEAT MEMORY CONTROL MODULE X5



Connector Part Information

- Harness Type: Driver Seat Cushion
- OEM Connector: 7287-2043-30
- Service Connector: Service by Harness - See Part Catalog
- Description: 26-Way F 0.64 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp

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Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/RD	3298	Memory Sensor High Reference 2	I	-
2 - 3	-	-	-	Not Occupied	-	-
4	0.5	BN	3038	Right Rear Haptic Seat Motor Control	I	-
5	0.5	YE/BN	3037	Left Rear Haptic Seat Motor Control	I	-
6	0.5	BK/GY	6206	Memory Sensor Low Reference	I	-
7	0.5	YE/BN	1522	Power Seat Horizontal Forward Switch Signal	I	-
8	0.5	GY/L-GN	1523	Power Seat Horizontal Rearward Switch Signal	I	-
9	0.5	L-GN/BN	1518	Power Seat Front Vertical Up Switch Signal	I	-
10	0.5	L-BU/VT	1520	Power Seat Front Vertical Down Switch Signal	I	-
11	0.5	L-GN	569	Memory Seat Horizontal Motor Position Sensor Signal	I	-
12	0.5	BN/WH	557	Memory Seat Front Vertical Motor Position Sensor Signal	I	-
13	0.5	WH/RD	6207	Memory Sensor High Reference	I	-
14	0.5	YE	1065	Driver Seat Lumbar Forward Switch Signal	I	-
15	0.5	L-BU/VT	1064	Driver Seat Lumbar Rearward Switch Signal	I	-
16	0.5	WH	1066	Driver Seat Lumbar Up Switch Signal	I	-
17	0.5	YE/BK	1067	Driver Seat Lumbar Down Switch Signal	I	-
18	-	-	-	Not Occupied	-	-
19	0.5	YE	1519	Power Seat Rear Vertical Up Switch Signal	I	-
20	0.5	YE/L-BU	1521	Power Seat Rear Vertical Down Switch Signal	I	-
21	0.5	GY/BK	1269	Power Seat Recline Forward Switch Signal	I	-
22	0.5	L-GN/GY	1270	Power Seat Recline Rearward Switch Signal	I	-
23 - 24	-	-	-	Not Occupied	-	-

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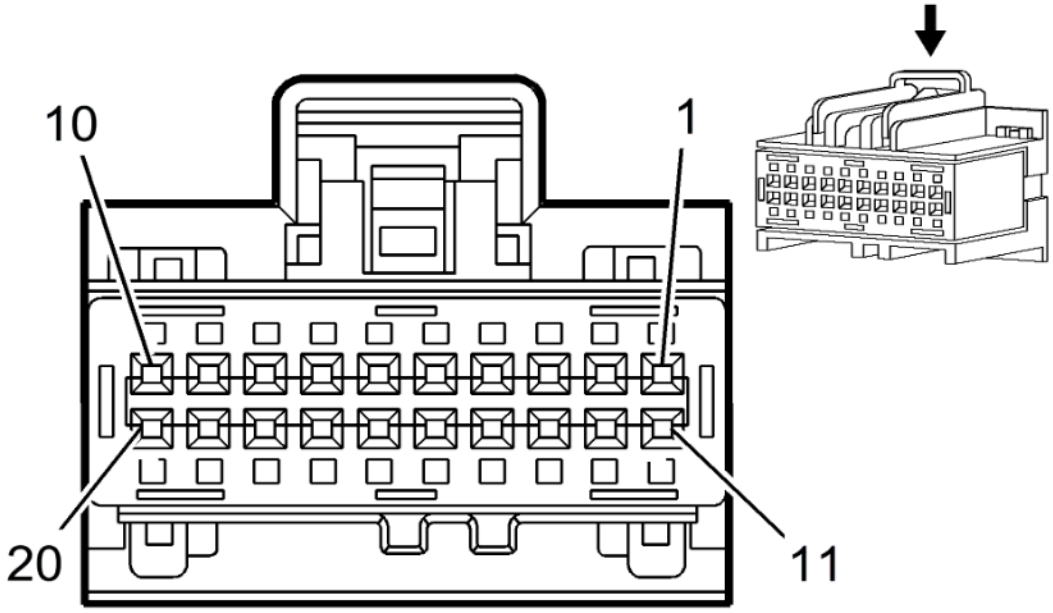
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
25	0.5	YE/L-BU	568	Memory Seat Rear Vertical Motor Position Sensor Signal	I	-
26	0.5	WH/BK	570	Driver Memory Seat Recline Motor Position Sensor Signal	I	-

K40 SEAT MEMORY CONTROL MODULE X6



Connector Part Information

- Harness Type: Driver Seat Cushion
- OEM Connector: 31410-1201
- Service Connector: Service by Harness - See Part Catalog
- Description: 20-Way F 64 Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 3	-	-	-	Not Occupied	-	-

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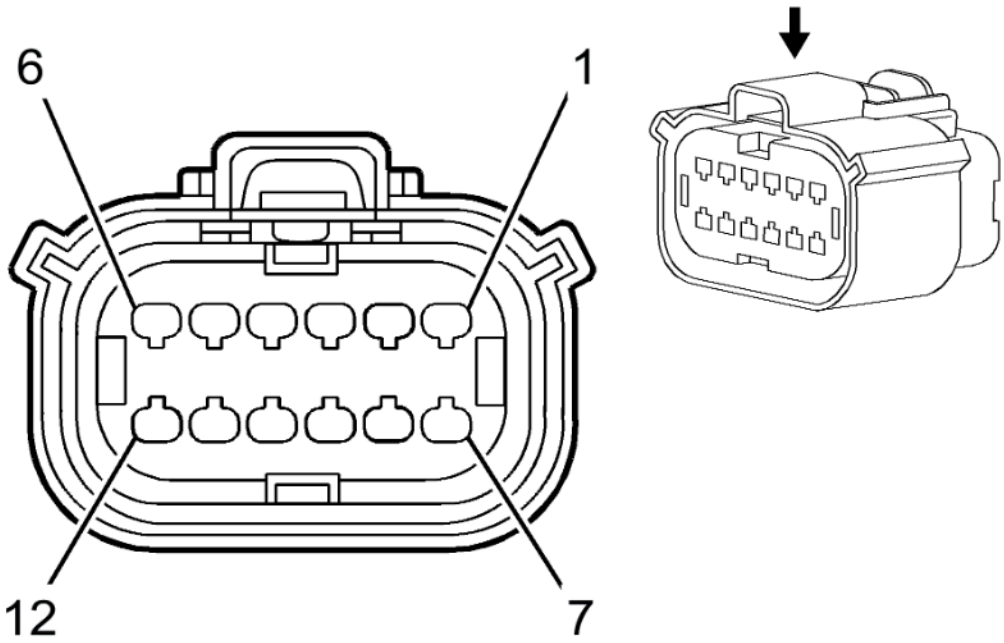
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
4	0.35	L-BU	5952	Adjustable Pedal Position Sensor Brake Signal	I	-
5	-	-	-	Not Occupied	-	-
6	0.35	L-GN/GY	5286	Adjustable Pedal Switch Forward Signal	I	-
7	0.35	WH/GY	5285	Adjustable Pedal Switch Rearward Signal	I	-
8 - 10	-	-	-	Not Occupied	-	-
11	0.35	BK/L-BU	5978	Memory Switch Low Reference	I	-
12	0.35	WH	615	Memory Seat Switch Signal 1	I	-
13 - 14	-	-	-	Not Occupied	-	-
15	0.35	L-GN/L-BU	614	Memory Seat Switch Set Signal	I	-
16 - 20	-	-	-	Not Occupied	-	-

K43 POWER STEERING CONTROL MODULE



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13595088
- Service Connector: 19150019
- Description: 12-Way F 1.5 Series, Sealed (BK)

Terminal Part Information

Terminal	Terminated	Diagnostic	Terminal	Service	Tray	Core	Insulation

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Type ID	Lead	Test Probe	Removal Tool	Terminal	Name	Crimp	Crimp
I	13575808	J-35616-2A (GY)	J-38125-217	Not Available	Not Available	Not Available	Not Available
II	19300635	J-35616-2A (GY)	J-38125-217	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	D-BU	2500	High Speed GMLAN Serial Data (+) 1	II	-
2	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	II	-
3	0.5	D-BU/YE	6105	High Speed GMLAN Serial Data (+) 2	II	-
4	0.5	WH	6106	High Speed GMLAN Serial Data (-) 2	II	-
5	0.5	RD/WH	2740	Battery Positive Voltage	II	-
6	-	-	-	Not Occupied	-	-
7	0.5	D-BU	2500	High Speed GMLAN Serial Data (+) 1	II	-
8	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	II	-
9	0.5	D-BU/YE	6105	High Speed GMLAN Serial Data (+) 2	II	-
10	0.5	WH	6106	High Speed GMLAN Serial Data (-) 2	II	-
11	0.75	BK	2150	Ground	I	-
12	0.5	WH/D-BU	5986	Serial Data Communication Enable	II	-

K44 POWER TAKE-OFF CONTROL MODULE X1

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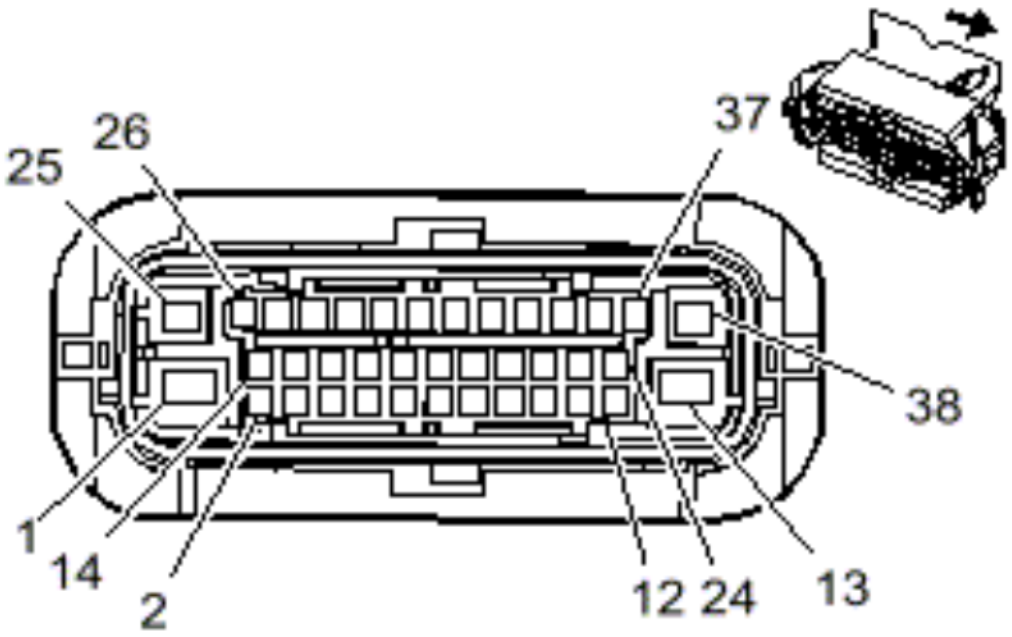

Connector Part Information

- Harness Type: Engine
- OEM Connector: 15498534
- Service Connector: 19329924
- Description: 38-Way F 1.5 CTS, 2.8 MCP, 4.8 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13582180	J-35616-14 (GN)	J-38125-560	1241374-1	Lear 17	E	2
II	19119560	J-35616-40 (BU)	J-38125-556	1241408-1	Lear 28	C	A
III	19119772	J-35616-35 (VT)	J-38125-557	1241388-1	Lear 17	E	C
IV	19353101	J-35616-40 (BU)	J-38125-556	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	RD/D-BU	4540	Battery Positive Voltage	IV	-
2 - 12	-	-	-	Not Occupied	-	-
13	1.5	BK/WH	451	Signal Ground	II	-
14	0.5	WH/D-BU	5986	Serial Data Communication Enable	I	-
15	0.5	L-GN/WH	488	Power Take Off Control Switch	I	-

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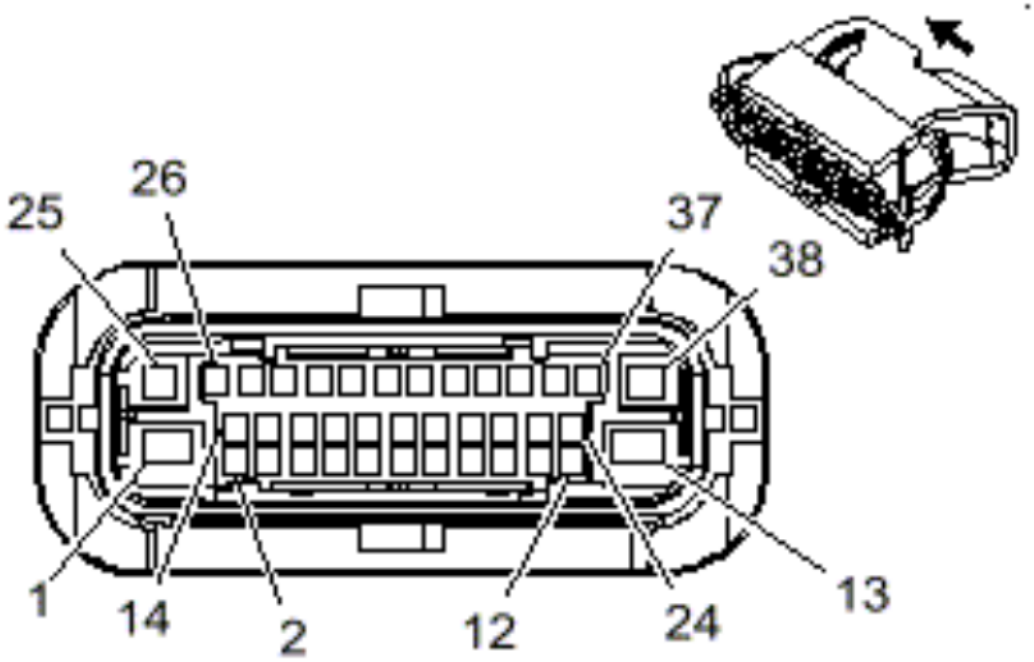
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
16 - 17	-	-	-	Not Occupied	-	-
18	0.5	BN/L-GN	4311	Power Take Off Enable In Cab Switch Normally Closed Signal	I	-
19 - 24	-	-	-	Not Occupied	-	-
25	0.75	BN/WH	6085	Power Take Off Remote Engine Start Switch Signal	III	-
26	0.5	D-BU	2500	High Speed GMLAN Serial Data (+) 1	I	-
27	0.5	D-BU	2500	High Speed GMLAN Serial Data (+) 1	I	-
28	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-
29	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-
30 - 38	-	-	-	Not Occupied	-	-

K44 POWER TAKE-OFF CONTROL MODULE X2



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13655518
- Service Connector: 19303771
- Description: 38-Way F 1.5 CTS, 2.8 MCP, 4.8 MCP Series, Sealed (BK with BN Inner Connector)

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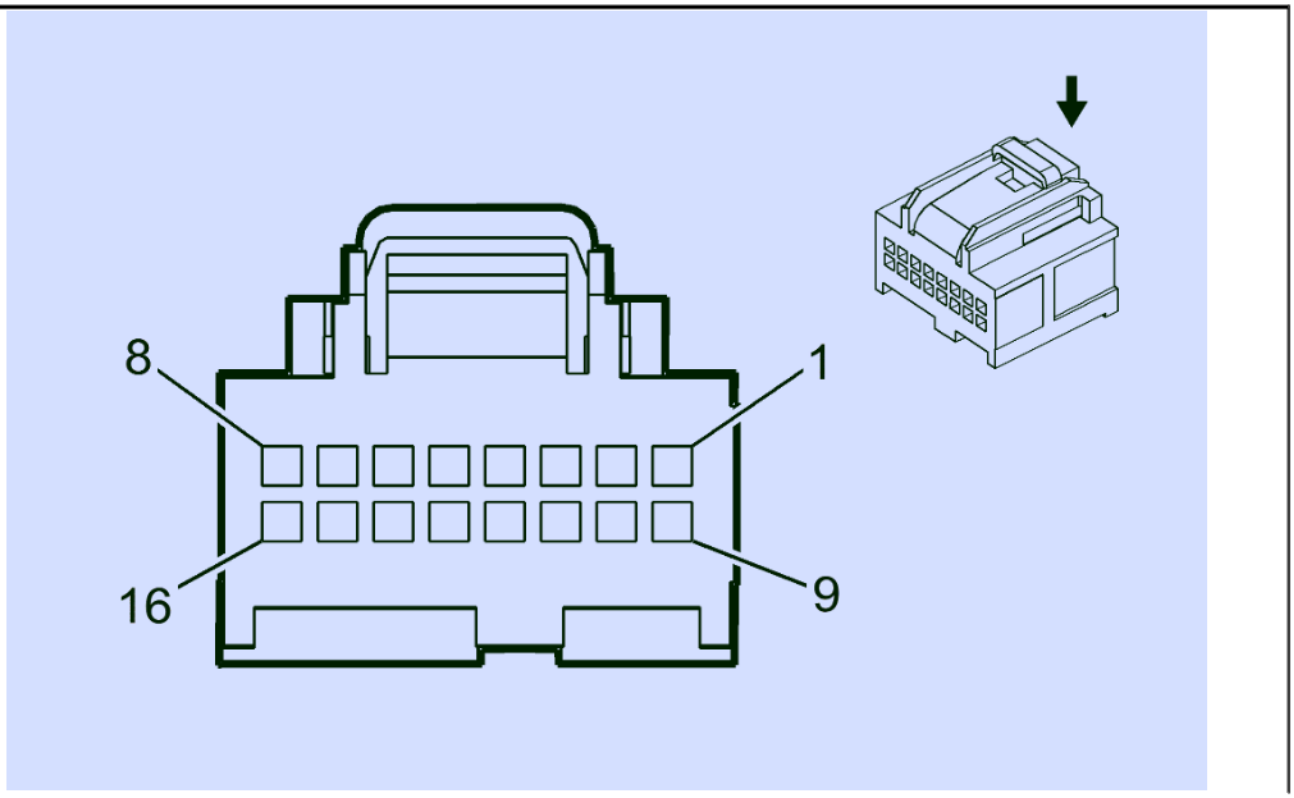
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	19119381	J-35616-14 (GN)	J-38125-215A	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 7	-	-	-	Not Occupied	-	-
8	0.75	YE	2522	Power Take Off Status Signal	I	-
9 - 10	-	-	-	Not Occupied	-	-
11	0.5	VT/D-BU	2562	Power Take Off Relay Coil Control	I	-
12 - 27	-	-	-	Not Occupied	-	-
28	0.5	WH/L-GN	6142	Power Take Off Engine Shutdown Signal	I	-
29 - 34	-	-	-	Not Occupied	-	-
35	0.5	D-BU/GY	6089	Power Take Off Remote Switch Set Signal 1	I	-
36	0.75	D-BU/BN	4408	Power Take Off Enable Signal	I	-
37	0.75	BN	6381	Power Take Off Relay Engage Signal	I	-
38	-	-	-	Not Occupied	-	-

K56 SERIAL DATA GATEWAY MODULE X1



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Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13819409
- Service Connector: 13582576
- Description: 16-Way F 0.64 OCS Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	19300660	J-35616-64B (LT BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	RD/VT	3340	Battery Positive Voltage	I	-
2	-	-	-	Not Occupied	-	-
3	0.35	D-BU/L-GN	1304	High Speed GMLAN Serial Data (+)9	I	-
4	0.35	WH/L-GN	1305	High Speed GMLAN Serial Data (-)9	I	-
5	-	-	-	Not Occupied	-	-
6	0.75 0.35	BK/WH BK/WH	1851 1851	Signal Ground Signal Ground	I I	E29 -E29
7	0.5	D-BU	2500	High Speed GMLAN Serial Data (+) 1	I	-
8	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-
9	-	-	-	Not Occupied	-	-
10	0.35	WH/D-BU	5986	Serial Data Communication Enable	I	-
11	0.35	D-BU/L-GN	1304	High Speed GMLAN Serial Data (+)9	I	-
12	0.35	WH/L-GN	1305	High Speed GMLAN Serial Data (-)9	I	-
13	0.35	D-BU/L-GN	1304	High Speed GMLAN Serial Data (+)9	I	-
14	0.35	WH/L-GN	1305	High Speed GMLAN Serial Data (-)9	I	-
15	0.5	L-GN	5060	Low Speed GMLAN Serial Data	I	-
16	-	-	-	Not Occupied	-	-

K56 SERIAL DATA GATEWAY MODULE X2

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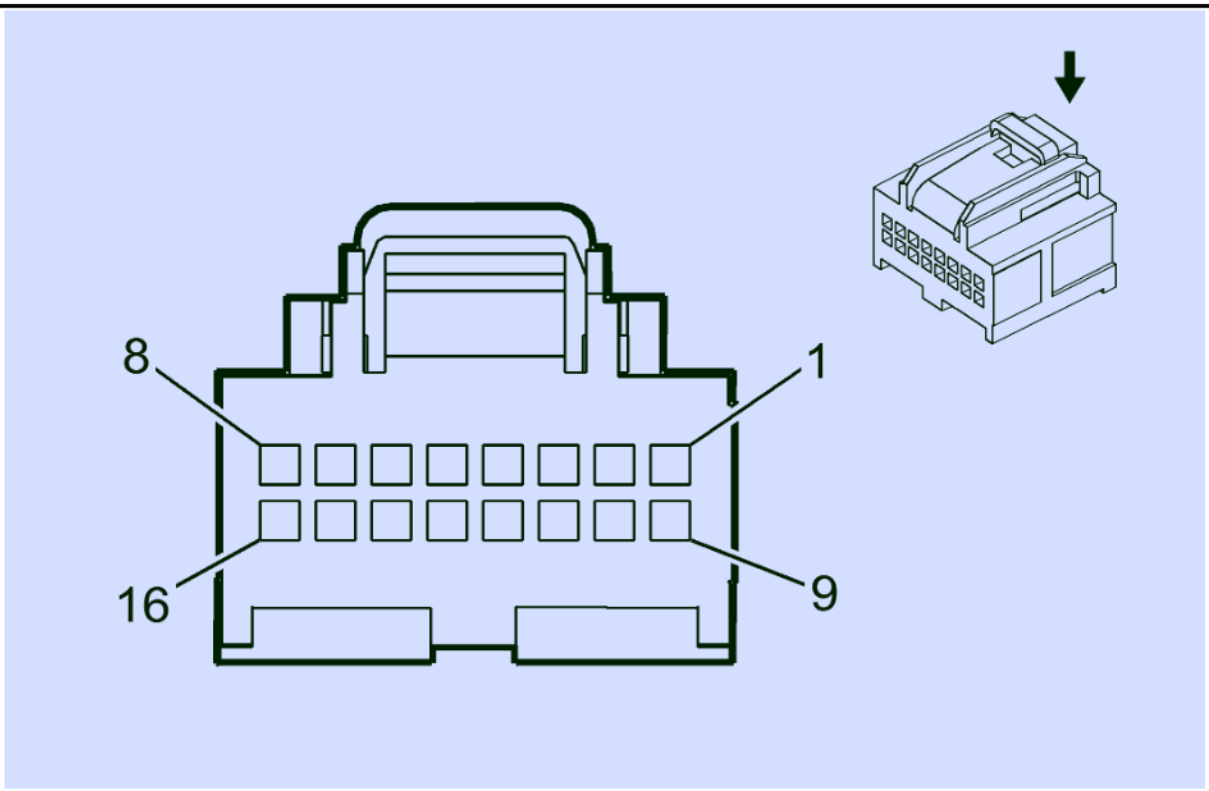

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 33104225
- Service Connector: 13594066
- Description: 16-Way F 0.64 OCS Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	19300660	J-35616-64B (LT BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	I	-
2	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-
3	0.35	BU/GY	3935	High Speed GMLAN Serial Data (+) 8	I	-
4	0.35	WH/GY	3936	High Speed GMLAN Serial Data (-) 8	I	-
5	0.35	BU/GY	3935	High Speed GMLAN Serial Data (+) 8	I	-
6	0.35	WH/GY	3936	High Speed GMLAN Serial Data (-) 8	I	-

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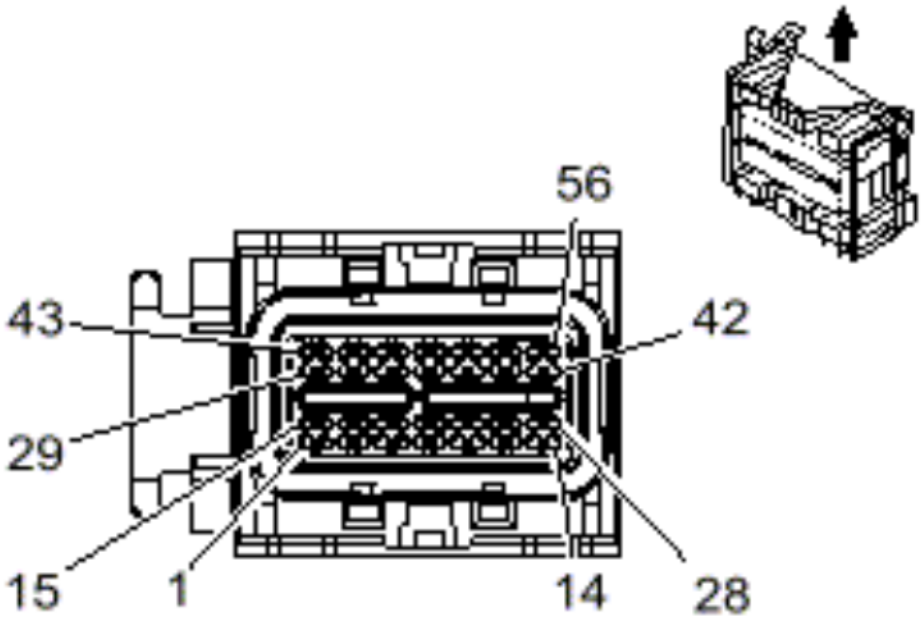
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
7	0.5	BU/YE	6105	High Speed GMLAN Serial Data (+) 2	I	-
8	0.5	WH	6106	High Speed GMLAN Serial Data (-) 2	I	-
9	-	-	-	Not Occupied	-	-
10	0.5	GY/GN	1102	Low Speed GMLAN Serial Data #2	I	-
11 - 12	-	-	-	Not Occupied	-	-
13	0.35	BU/GY	3935	High Speed GMLAN Serial Data (+) 8	I	-
14	0.35	WH/GY	3936	High Speed GMLAN Serial Data (-) 8	I	-
15	0.5	BU/YE	6105	High Speed GMLAN Serial Data (+) 2	I	-
16	0.5	WH	6106	High Speed GMLAN Serial Data (-) 2	I	-

K59 STARTER/GENERATOR CONTROL MODULE X1



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13510837
- Service Connector: 88988373
- Description: 56-Way F 0.64 Series, Sealed (BU with BU Terminal Position Assurance)

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Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575812	J-35616-64B (LT BU)	J-38125-213	33467-0003	Delphi 23	Not Available	J

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/GN	439	Run/Crank Ignition 1 Voltage	I	-
2	0.5	VT/YE	5985	Accessory Wakeup Serial Data	I	-
3	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	I	-
4	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-
5	0.5	BU/BK	7493	High Speed GMLAN Serial Data (+)3	I	-
6	0.5	WH	7494	High Speed GMLAN Serial Data (-)3	I	-
7	0.75	BU	7645	Traction Power Inverter Module Resolver 1 Excitation Signal Positive	I	-
8	0.75	WH/GN	7648	Traction Power Inverter Module Traction Power Inverter Module Resolver 1 Excitation Signal Negative	I	-
9	0.75	BN	7652	Traction Power Inverter Module Resolver 1 S3 Signal	I	-
10	0.75	YE	7649	Traction Power Inverter Module Resolver 1 S1 Signal	I	-
11	0.75	VT/GN	7647	Transmission Traction Power Inverter Module Resolver 1 S2 Signal	I	-
12	0.75	GY	7646	Transmission Traction Power Inverter Module Resolver 1 S4 Signal	I	-
13 - 16	-	-	-	Not Occupied	-	-
17	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	I	-
18	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-
19	0.5	BU/BK	7493	High Speed GMLAN Serial Data (+)3	I	-
20	0.5	WH	7494	High Speed GMLAN Serial Data (-)3	I	-
21 - 27	-	-	-	Not Occupied	-	-
28	0.5	WH	5359	Brake Apply Sensor Control	I	-
29 - 38	-	-	-	Not Occupied	-	-

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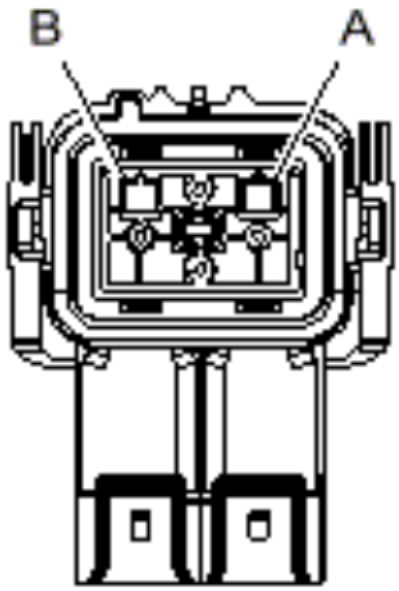
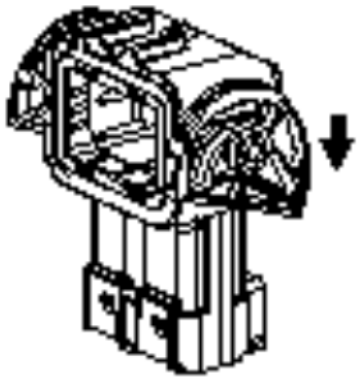
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
39	0.5	BK/BN	5360	Brake Apply Sensor Low Reference	I	-
40	0.5	BK/GY	3872	Powertrain Electronics Cooling Loop (PECL) Temperature Sensor Low Reference	I	-
41	-	-	-	Not Occupied	-	-
42	0.5	WH/BN	3768	MGU Coolant Pump Relay Control	I	-
43 - 48	-	-	-	Not Occupied	-	-
49	0.5	VT/BU	3790	Electric Coolant Motor Feedback Signal	I	-
50 - 52	-	-	-	Not Occupied	-	-
53	0.5	BU/YE	5361	Brake Apply Sensor Signal	I	-
54	0.5	GY/VT	3873	Powertrain Electronics Cooling Loop (PECL) Temperature Sensor Signal	I	-
55	-	-	-	Not Occupied	-	-
56	0.5	WH/GY	4578	Surge Accumulator Solenoid Low Side Control	I	-

K59 STARTER/GENERATOR CONTROL MODULE X5





Connector Part Information

- Harness Type: High Voltage Body
- OEM Connector: 33199304

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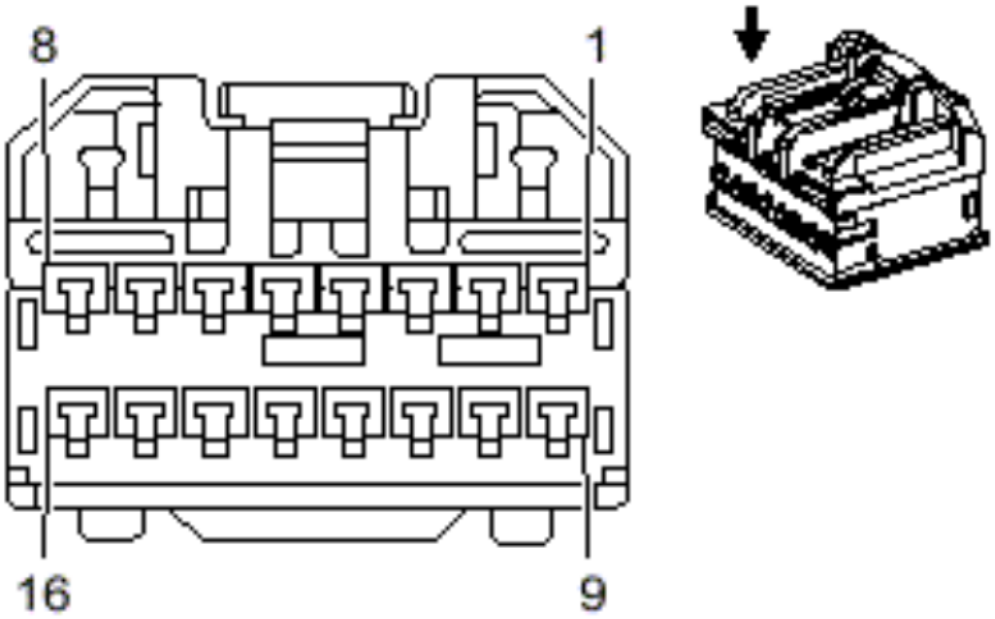
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F Power Pack 1000 Series, Sealed (OG)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	12	OG	5084	High Voltage Battery (+)	I	-
B	12	OG	5083	High Voltage Battery (-)	I	-

K69 TRANSFER CASE CONTROL MODULE X1



Connector Part Information

- Harness Type: Brake Clutch
- OEM Connector: 13547237
- Service Connector: Service by Harness - See Part Catalog
- Description: 16-Way F 1.5 Series (GY)

Terminal Part Information

Terminal	Terminated	Diagnostic	Terminal	Service	Tray	Core	Insulation

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Type ID	Lead	Test Probe	Removal Tool	Terminal	Name	Crimp	Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/BK	7478	Rotary Position Sensor Low Reference	I	-
2	0.5	WH/L-GN	7479	Rotary Position Sensor Signal	I	-
3	0.35	YE	7474	Incremental Encoder Direction Signal	I	-
4	0.5	GY/BK	1570	Front Axle Actuator Control	I	-
5	0.35	D-BU/GY	7473	Incremental Encoder Impulse Signal	I	-
6	0.35	GY/RD	6029	Four Wheel Drive Mode Switch 5V Reference	I	-
7	0.35	D-BU/YE	1693	Four Wheel Drive Switch Signal	I	-
8	-	-	-	Not Occupied	-	-
9	0.5	WH/RD	7477	Rotary Position Sensor 5V Reference	I	-
10	0.35	WH/L-GN	7475	Incremental Encoder Sensor 8V Reference	I	-
11	0.35	VT	7476	Incremental Encoder Sensor Low Reference	I	-
12	0.5	YE/WH	1695	Four Wheel Drive Wheel Lock Indicator Control	I	-
13	1	YE/BN	1569	Transfer Case Lock Solenoid Control	I	-
14 - 16	-	-	-	Not Occupied	-	-

K69 TRANSFER CASE CONTROL MODULE X2

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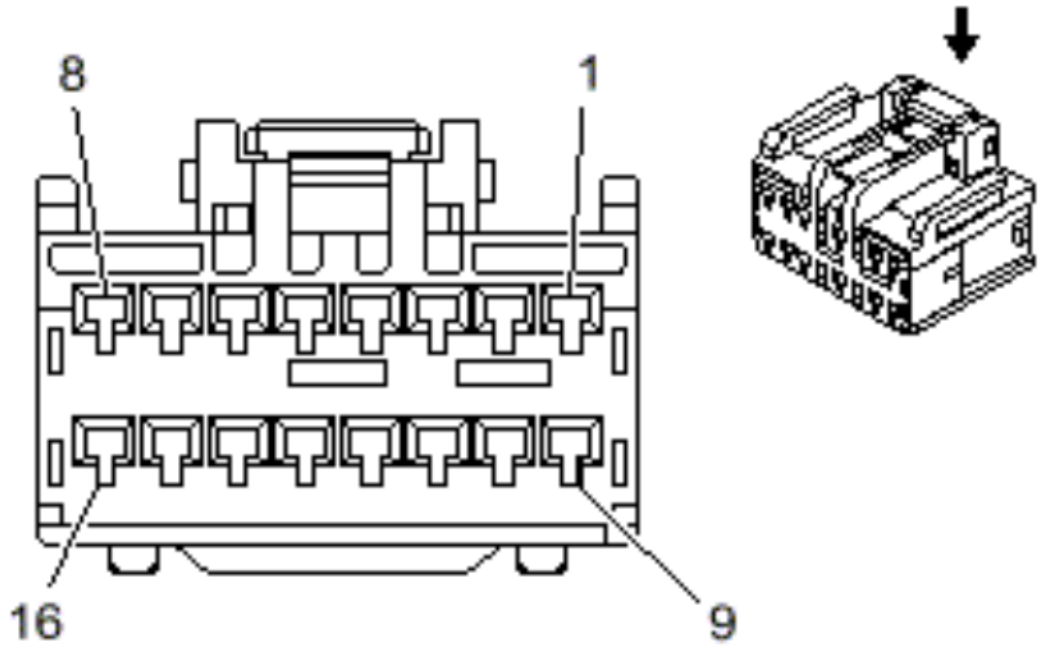

Connector Part Information

- Harness Type: Brake Clutch
- OEM Connector: 15489823
- Service Connector: Service by Harness - See Part Catalog
- Description: 16-Way F 1.5 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	-	-	-	Not Occupied	-	-
3	0.35	VT/WH	1565	4 LO Indicator Control	I	-
4	0.35	VT/L-GN	1739	Run/Crank Ignition 1 Voltage	I	-
5	-	-	-	Not Occupied	-	-
6	0.35	VT/YE	5985	Accessory Wakeup Serial Data	I	-
7	0.5	D-BU	2500	High Speed GMLAN Serial Data (+) 1	I	-
8	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-
9 - 10	-	-	-	Not Occupied	-	-

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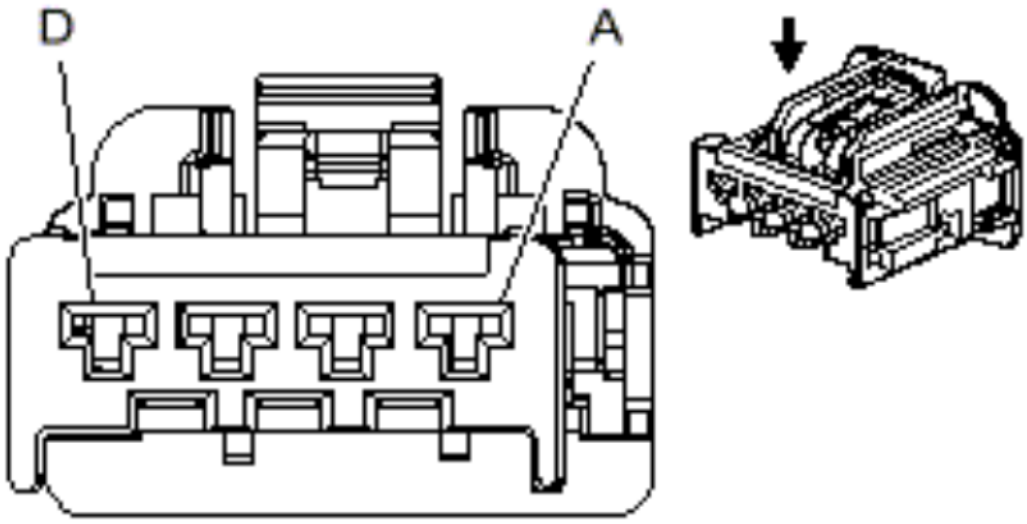
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
11	0.35	GY/L-GN	1561	AWD Indicator Control	I	-
12	0.35	BN	1560	Neutral Indicator Control	I	-
13	0.35	L-GN/BK	1563	2 HI Indicator Control	I	-
14	0.35	BN/BK	1566	4 HI Indicator Control	I	-
15	0.5	D-BU	2500	High Speed GMLAN Serial Data (+) 1	I	-
16	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-

K69 TRANSFER CASE CONTROL MODULE X3



Connector Part Information

- Harness Type: Brake Clutch
- OEM Connector: 15466671
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 280 GT Series (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

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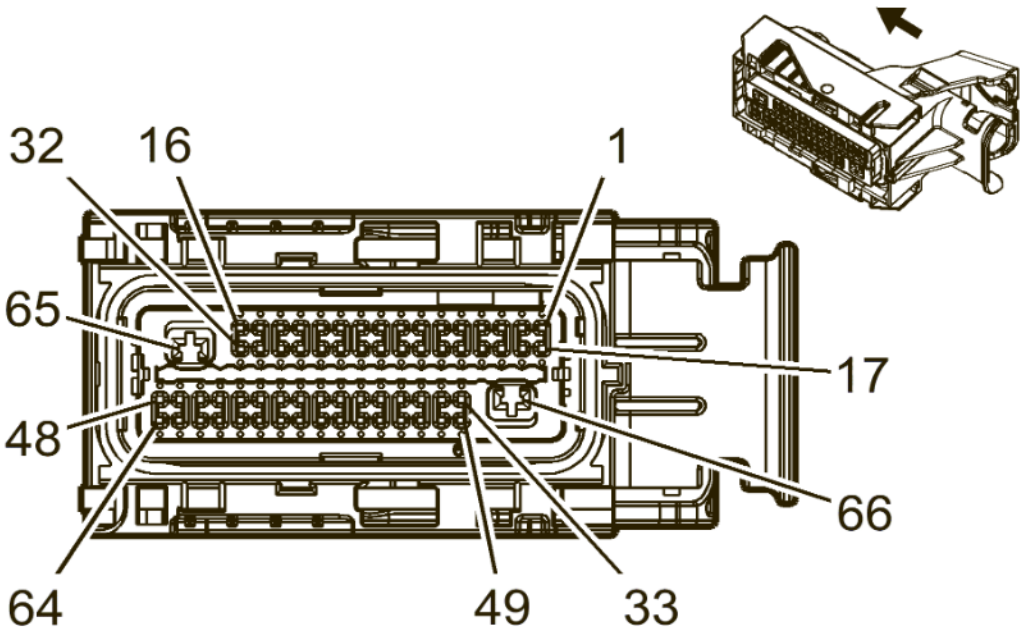
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	4	YE/VT	1553	Transfer Case Motor Counter Clockwise Control	I	-
B	4	YE/GY	1552	Transfer Case Motor Clockwise Control	I	-
C	3	RD/GY	1342	Battery Positive Voltage	I	-
D	3	BK	550	Ground	I	-

K71 TRANSMISSION CONTROL MODULE



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13965710
- Service Connector: 19329822
- Description: 66-Way F 0.64, 2.8 Series, Sealed (BK with BK Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575812	J-35616-64B (LT BU)	J-38125-213	Not Available	Not Available	Not Available	Not Available
II	13579770	J-35616-4A (PU)	J-38125-11A	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal	Option

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					Type ID	
1	0.5	WH/BU	4507	Transmission Clutch H Control	I	-
2	0.5 0.75	BU BU	6401 6401	Clutch B Control Clutch B Control	I I	M5U/M5X MW7
3	0.5	GY/GN	6403	Clutch D Control	I	-
4 - 6	-	-	-	Not Occupied	-	-
7	0.5 0.75	YE/GN YE/GN	4170 4170	Transmission Position Sensor B 9V Reference Transmission Position Sensor B 9V Reference	I I	MW7+NQF MW7-NQF-NQG
8	0.5 0.75	YE/BU YE/BU	4171 4171	Transmission Position Sensor A 9V Reference Transmission Position Sensor A 9V Reference	I I	M5U/M5X MW7
9	0.75	WH/BN	1226	Transmission Fluid Pressure Switch Signal Bit 3	I	-
10	0.75	GN/BK	2529	Transmission Fluid Pressure Switch Signal Bit 4	I	-
11 - 12	-	-	-	Not Occupied	-	-
13	0.5	GN/VT	4510	Transmission Intermediate Speed Signal	I	-
14	0.5 0.75	GY/BU GY/BU	6358 6358	Output Speed Signal Output Speed Signal	I I	M5U/M5X MW7
15	0.5 0.75	GN/YE GN/YE	6353 6353	Input Speed Signal Input Speed Signal	I I	M5U/M5X MW7
16	-	-	-	Not Occupied	-	-
17	0.5 0.75	WH WH	4508 4508	Transmission Clutch G Control Transmission Clutch G Control	I I	M5U/M5X MW7
18	0.5 0.75	BN BN	6400 6400	Clutch A Control Clutch A Control	I I	M5U/M5X MW7
19	0.5 0.75	GY GY	6402 6402	Clutch C Control Clutch C Control	I I	M5U/M5X MW7
20	0.5	YE/BN	6404	Clutch E Control	I	-
21	0.5 0.75	GN/WH WH/BN	6380 2527	TCC On/Off Solenoid A Control Shift Solenoid Control 5	I I	M5U/M5X MW7
22	0.5	YE/BN	6210	TCC On/Off Solenoid B Control	I	-
23	0.75	WH/GN	1222	1 Shift Solenoid Valve Control	I	-
24	0.75	YE/BK	1223	2 Shift Solenoid Valve Control	I	-
25	0.5	BK/GY	3927	IMS Mode Switch Low Reference	I	-
26	0.5	WH/BK	5983	PRNDL C Signal	I	-
27	0.5	VT/WH	5981	PRNDL A Signal	I	-
28	0.5 0.75	BK/BN BK/BN	586 586	Transmission Oil Temperature Sensor Low Reference Transmission Oil Temperature Sensor Low Reference	I I	M5U/M5X MW7
29 - 32	-	-	-	Not Occupied	-	-

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33	0.75	GN/GY	6387	Transmission High Side Driver 1 Signal Driver	I	-
34	-	-	-	Not Occupied	-	-
35	0.5	VT/BK	2139	Run/Crank Ignition 1 Voltage	I	-
36	0.75	GN/VT	1225	Transmission Fluid Pressure Switch Signal Bit 2	I	-
37	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	I	-
38	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-
39 - 46	-	-	-	Not Occupied	-	-
47	0.5	GY/YE	4169	PRNDL S Signal	I	-
48	-	-	-	Not Occupied	-	-
49	0.75	GY/BN	6388	Transmission High Side Driver 2 Signal	I	-
50	-	-	-	Not Occupied	-	-
51	0.5	VT/YE	5985	Accessory Wakeup Serial Data	I	-
52	0.75	VT/GY	1224	Transmission Fluid Pressure Switch Signal Bit 1	I	-
53	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	I	-
54	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-
55	0.5	GY/WH	4168	PRNDL P Signal	I	-
56 - 57	-	-	-	Not Occupied	-	-
58	0.5	GY/BN	5982	PRNDL B Signal	I	-
59	0.5	GY/WH	4168	PRNDL P Signal	I	-
60	0.5	WH/BK	5983	PRNDL C Signal	I	-
61	0.5	GY/BN	5982	PRNDL B Signal	I	-
62	0.5	VT/WH	5981	PRNDL A Signal	I	-
63	0.5 0.75	BN/WH BN/WH	585 585	Transmission Oil Temperature Sensor Signal Transmission Oil Temperature Sensor Signal	I I	M5U/M5X MW7
64	-	-	-	Not Occupied	-	-
65	1.5	BK/WH	451	Signal Ground	II	-
66	1.5	RD/GN	1840	Battery Positive Voltage	II	-

K73 TELEMATICS COMMUNICATION INTERFACE CONTROL MODULE X1

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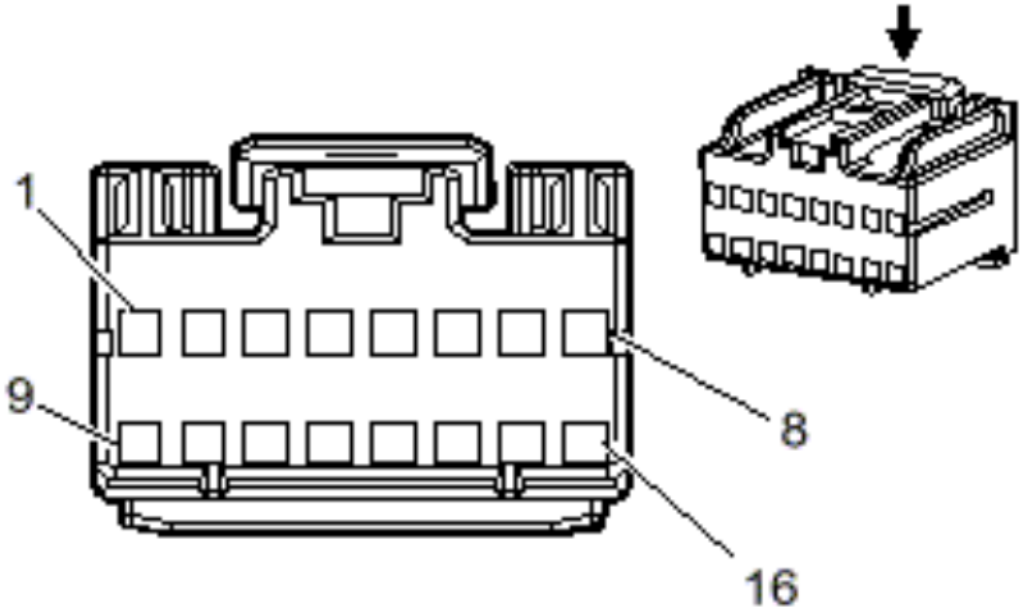

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 15431362
- Service Connector: 15306351
- Description: 16-Way F 100A Micro-Pack Series (NA)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575546	J-35616-16 (LT GN)	J-38125-559	15445905	Delphi 23	J	J

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/L-GN	1102	Low Speed GMLAN Serial Data #2	I	-
2	0.35	BN/WH	2517	Keypad Red LED Control	I	-
3	0.35	YE/VT	2516	Keypad Green LED Control	I	-
4 - 5	-	-	-	Not Occupied	-	-
6	0.35	L-GN/BK	2515	Keypad Control	I	-
7	0.35	BK	2550	Ground	I	-
8 - 9	-	-	-	Not Occupied	-	-
10	0.35	D-BU/L-GN	1304	High Speed GMLAN Serial Data (+)9	I	-
11	0.35	L-GN/WH	2514	Keypad Signal	I	-

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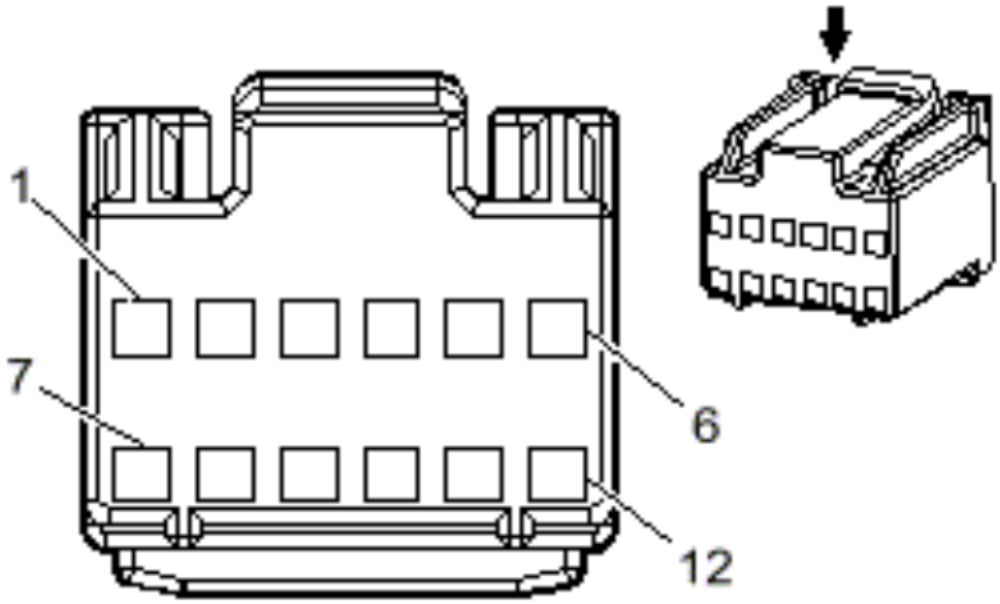
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
12	0.35	WH/L-GN	1305	High Speed GMLAN Serial Data (-)9	I	-
13 - 14	-	-	-	Not Occupied	-	-
15	0.35	RD/D-BU	3240	Battery Positive Voltage	I	-
16	-	-	-	Not Occupied	-	-

K73 TELEMATICS COMMUNICATION INTERFACE CONTROL MODULE X2



Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 15431365
- Service Connector: 88952886
- Description: 12-Way F 100A Micro-Pack Series (NA)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575546	J-35616-16 (LT GN)	J-38125-559	15445905	Delphi 23	J	J

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE	658	Cellular Telephone Voice Signal	I	-

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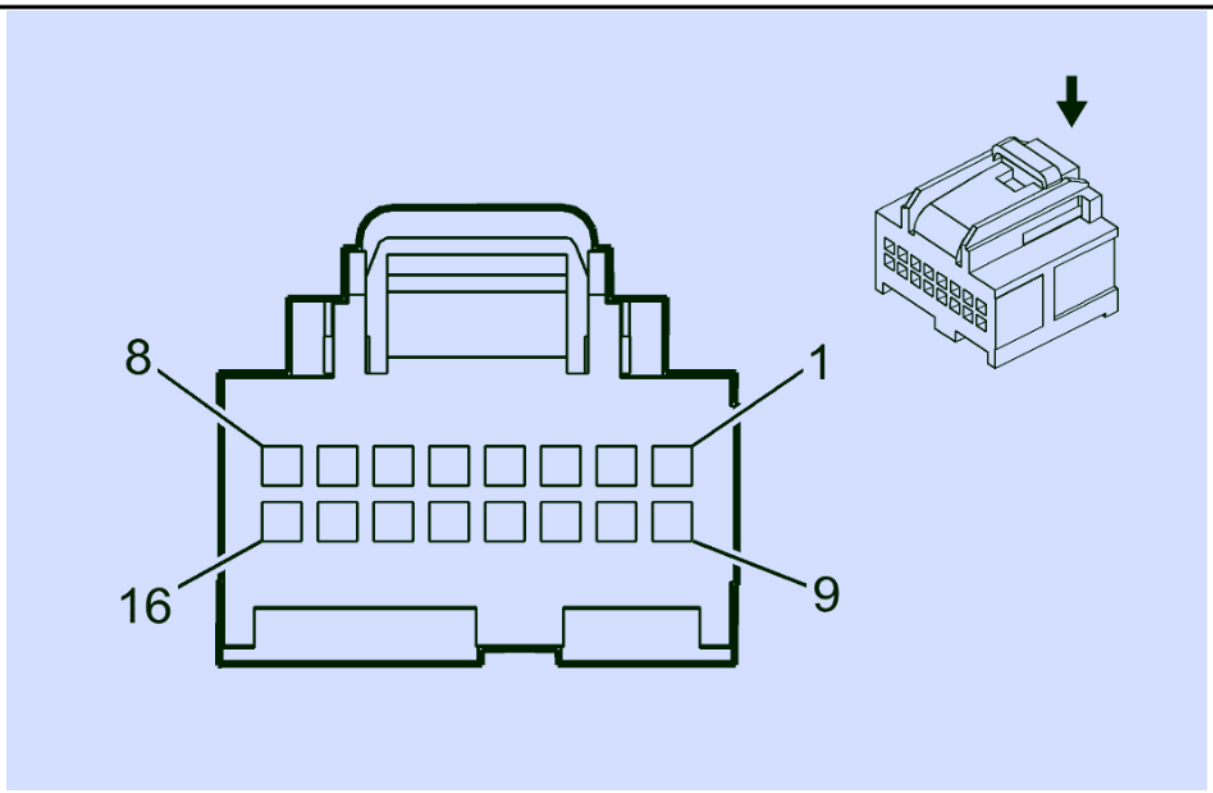
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
2	0.35	BK/YE	659	Cellular Telephone Voice Low Reference	I	-
3	0.5	D-BU/L-GN	1304	High Speed GMLAN Serial Data (+)9	I	-
4	0.5	WH/L-GN	1305	High Speed GMLAN Serial Data (-)9	I	-
5	0.5	BARE	1792	Low Reference	I	-
6	0.35	GY/YE	5149	Voice Recognition Audio Signal	I	-
7	0.35	WH/D-BU	5986	Serial Data Communication Enable	I	-
8	0.35	BARE	1782	Low Reference	I	-
9	0.35	D-BU	655	Cellular Telephone Microphone Signal	I	-
10	0.35	BK/BN	654	Cellular Telephone Microphone Low Reference	I	-
11	-	-	-	Not Occupied	-	-
12	0.35	BK/GY	5152	Voice Recognition Audio Low Reference	I	-

K74 HUMAN MACHINE INTERFACE CONTROL MODULE X1



Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13819409
- Service Connector: 13582576

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- Description: 16-Way F 0.64 OCS Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	19300660	J-35616-64B (LT BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35 0.35	GY/YE D-BU	5149 655	Voice Recognition Audio Signal Cellular Telephone Microphone Signal	I I	UE1 -UE1
2	0.35 0.35	BK/GY BK/BN	5152 654	Voice Recognition Audio Low Reference Cellular Telephone Microphone Low Reference	I I	UE1 -UE1
3 - 4	-	-	-	Not Occupied	-	-
5	0.35	WH/D-BU	5986	Serial Data Communication Enable	I	-
6	-	-	-	Not Occupied	-	-
7	0.75	RD/VT	340	Battery Positive Voltage	I	-
8	0.75	BK	2550	Ground	I	-
9	0.5	L-GN/WH	7527	Local Interconnect Network Serial Data Bus 5	I	-
10	-	-	-	Not Occupied	-	-
11	0.5 0.35	D-BU/L-GN D-BU/L-GN	1304 1304	High Speed GMLAN Serial Data (+)9 High Speed GMLAN Serial Data (+)9	I I	UE1 -UE1
12	0.5 0.35	WH/L-GN WH/L-GN	1305 1305	High Speed GMLAN Serial Data (-)9 High Speed GMLAN Serial Data (-)9	I I	UE1 -UE1
13	0.5	D-BU/L-GN	1304	High Speed GMLAN Serial Data (+)9	I	-
14	0.5	WH/L-GN	1305	High Speed GMLAN Serial Data (-)9	I	-
15 - 16	-	-	-	Not Occupied	-	-

K74 HUMAN MACHINE INTERFACE CONTROL MODULE X2

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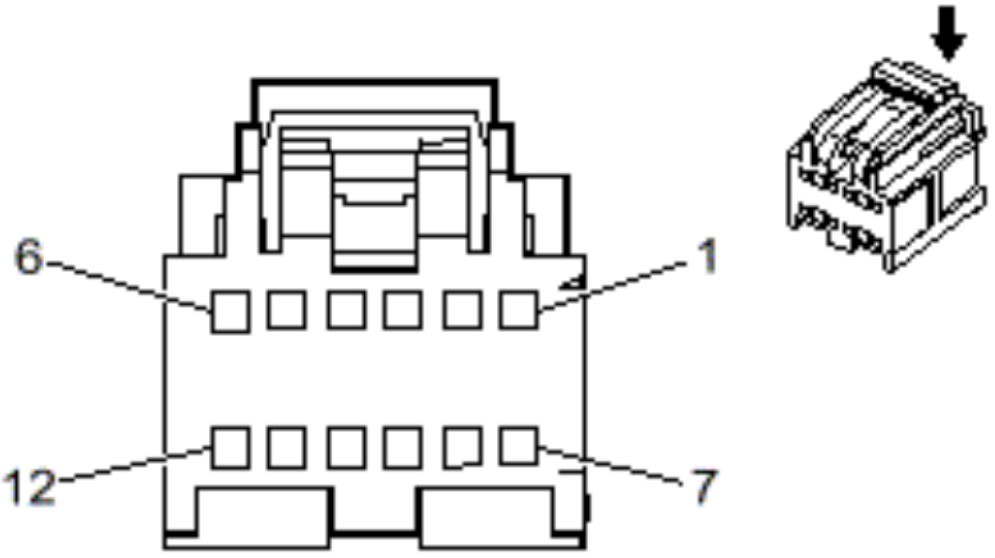

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 33104389
- Service Connector: 13594072
- Description: 12-Way F 0.64 OCS Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	19300660	J-35616-64B (LT BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	WH/VT	3999	MOST Control	I	-
2	0.5	WH/L-GN	3997	MOST Serial Data (-)	I	-
3	0.5	GY/VT	3998	MOST Serial Data (+)	I	-
4	-	-	-	Not Occupied	-	-
5	0.35	GY/YE	6972	Camera Signal 2 +	I	-
6	0.35	WH/D-BU	6973	Camera Signal 2	I	-
7	-	-	-	Not Occupied	-	-
8	0.5	GY/VT	3998	MOST Serial Data (+)	I	-
9	0.5	WH/L-GN	3997	MOST Serial Data (-)	I	-
10 - 12	-	-	-	Not Occupied	-	-

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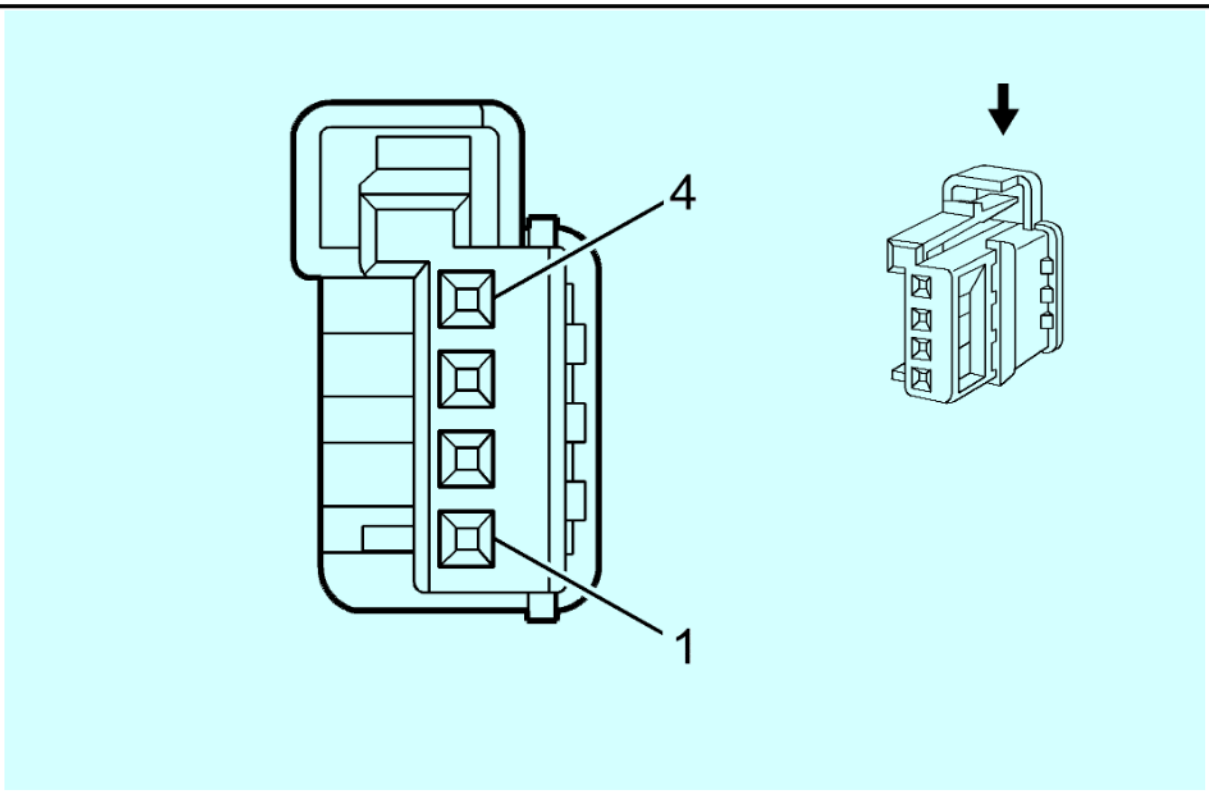
K77 REMOTE CONTROL DOOR LOCK RECEIVER



Connector Part Information

- Harness Type: Body
- OEM Connector: 10768790
- Service Connector: 13584096
- Description: 4-Way F 0.64 Micro-Quadlock Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY	3273	Remote Function Actuator Low Reference	I	-
2	0.35	YE/GN	3274	Remote Function Actuator Transmit Signal	I	-
3	0.35	BU/WH	3275	Remote Function Actuator Receive Signal	I	-
4	0.35	GY/WH	3272	Remote Function Actuator Control	I	-

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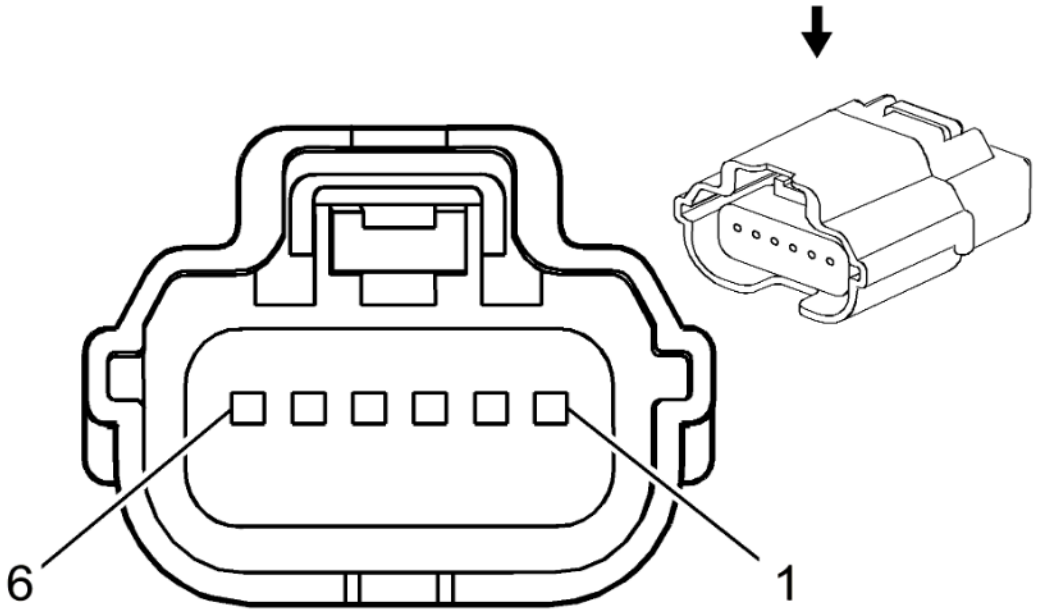
K85 PASSENGER PRESENCE MODULE



Connector Part Information

- Harness Type: Passenger Seat Cushion
- OEM Connector: 31404-6132
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way F 0.64 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	RD/L-GN	4440	Battery Positive Voltage	I	-
2	0.35	L-GN	5060	Low Speed GMLAN Serial Data	I	-
3	-	-	-	Not Occupied	-	-
4	0.35	BK/WH	2751	Signal Ground	I	-
5	0.35	L-BU/RD	5612	Passenger Seat Belt Tension Sensor 5V Reference	I	-
6	0.35	VT/OG	5611	Passenger Seat Belt Tension Sensor Signal	I	-

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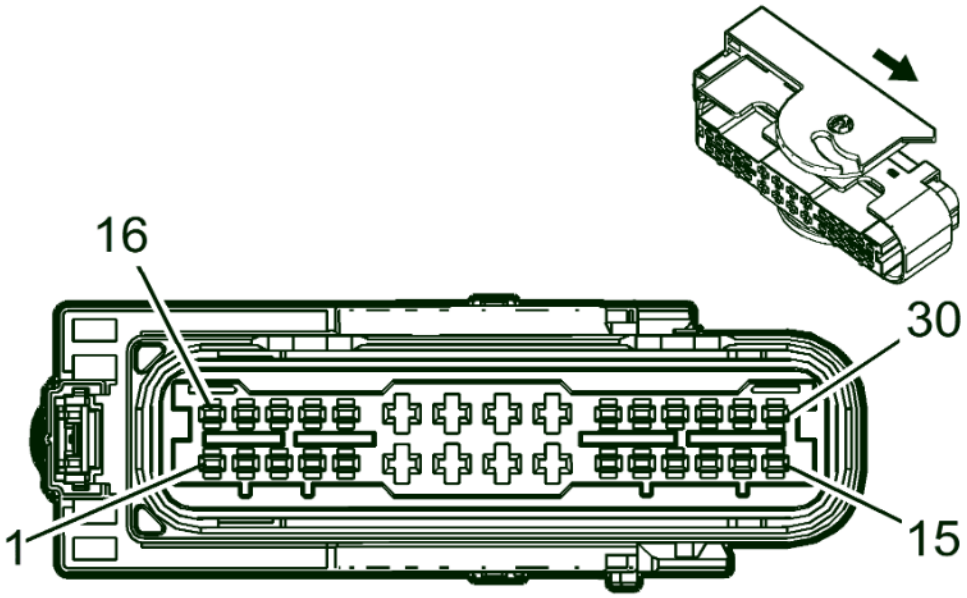
K111 FUEL PUMP DRIVER CONTROL MODULE (L5P)



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13888308
- Service Connector: 19354086
- Description: 30-Way F 1.5, 2.8 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	19300440	J-35616-35 (VT)	J-38125-557	Not Available	Not Available	Not Available	Not Available
II	19329958	J-35616-2A (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 3	-	-	-	Not Occupied	-	-
4	0.5	BN/VT	455	Fuel Filter Temperature Signal	II	-
5	0.5	BU/YE	6861	Water In Fuel Sensor Signal	II	-
6	-	-	-	Not Occupied	-	-
7	2.5	RD/VT	1940	Battery Positive Voltage	I	-
8	2.5	GY	120	Fuel Pump Control	I	-
9	2.5	YE/GY	4137	Fuel Pump Supply Voltage Phase 2	I	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
10 - 12	-	-	-	Not Occupied	-	-
13	0.5	BU/VT	1589	Primary Fuel Level Sensor Signal	II	-
14	0.5	BU/WH	1937	Secondary Fuel Level Sensor Signal	II	-
15	0.5	WH	4499	High Speed GMLAN Serial Data (-) 7	II	-
16	0.5	VT/BU	3674	NOx Sensor 1 Control	II	-
17	0.75	VT/GN	439	Run/Crank Ignition 1 Voltage	II	-
18	0.5	GN/GY	465	Fuel Pump Primary Relay Control	II	-
19	0.5	BK/VT	412	Fuel Filter Temperature Sensor Low Reference	II	-
20 - 21	-	-	-	Not Occupied	-	-
22	2.5	BK	2150	Ground	I	-
23	0.5	BK	7444	Fuel System Control Module Shield Ground	I	-
24	2.5	WH/BN	4138	Fuel Pump Supply Voltage Phase 3	I	-
25	0.5	BK/BU	6863	Water In Fuel Sensor Low Reference	II	-
26 - 27	-	-	-	Not Occupied	-	-
28	0.5	BK/GN	6281	Fuel Level Sensor Low Reference	II	-
29	0.5	BK/GN	6281	Fuel Level Sensor Low Reference	II	-
30	0.5	BU/BN	4498	High Speed GMLAN Serial Data (+) 7	II	-

K111 FUEL PUMP DRIVER CONTROL MODULE (LIGHT DUTY)

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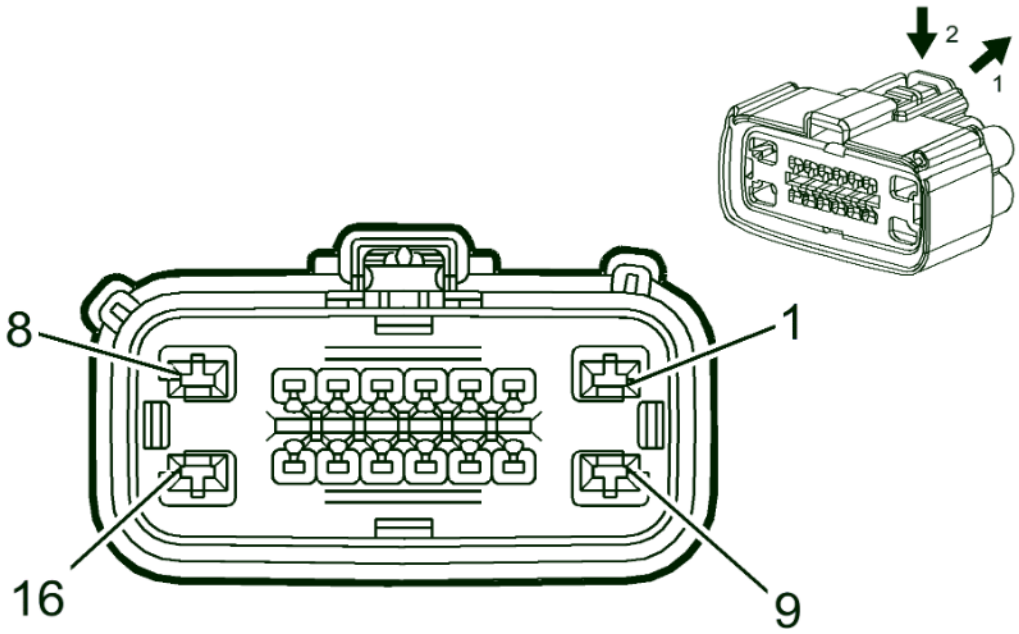

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 33233355
- Service Connector: 13599870
- Description: 16-Way F 1.5, 2.8 Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575808	J-35616-2A (GY)	J-38125-217	Not Available	Not Available	Not Available	Not Available
II	13579750	J-35616-35 (VT)	J-38125-12A	1326030-8	Lear 17	4	D
III	19300635	J-35616-2A (GY)	J-38125-217	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	RD/VT	1940	Battery Positive Voltage	II	-
2	0.5	GY	5660	Fuel Pump Controller Data Out Signal	I	-
3	-	-	-	Not Occupied	-	-
4	0.5	BU/BK	7493	High Speed GMLAN Serial Data (+)3	III	-
5	0.5	WH	7494	High Speed GMLAN Serial Data (-)3	III	-

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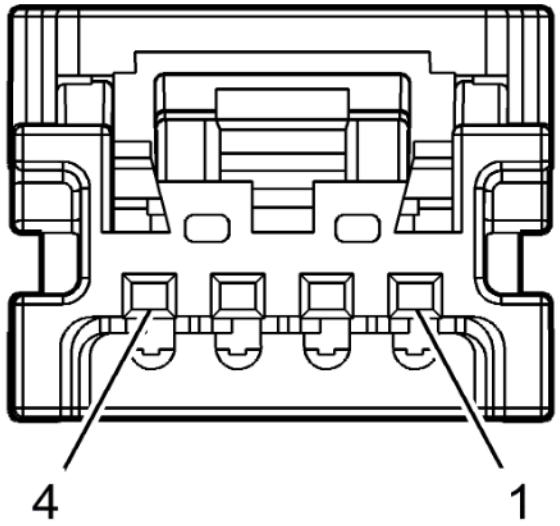
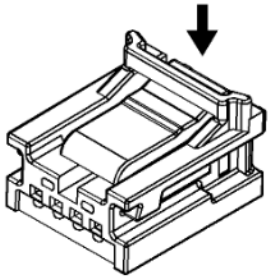
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
6	0.5	VT/GN	439	Run/Crank Ignition 1 Voltage	III	-
7	0.5	VT/YE	5985	Accessory Wakeup Serial Data	III	-
8	2.5	GY	120	Fuel Pump Control	II	-
9	2.5	BK	2150	Ground	II	-
10 - 14	-	-	-	Not Occupied	-	-
15	0.5	BU	7444	Fuel System Control Module Shield Ground	III	-
16	2.5	BK/GN	1580	Fuel Pump Low Reference	II	-

K112A HYBRID/EV BATTERY INTERFACE CONTROL MODULE 1 X1





Connector Part Information

- Harness Type: High Voltage Battery Monitoring
- OEM Connector: 33228283
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F Mini 50 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

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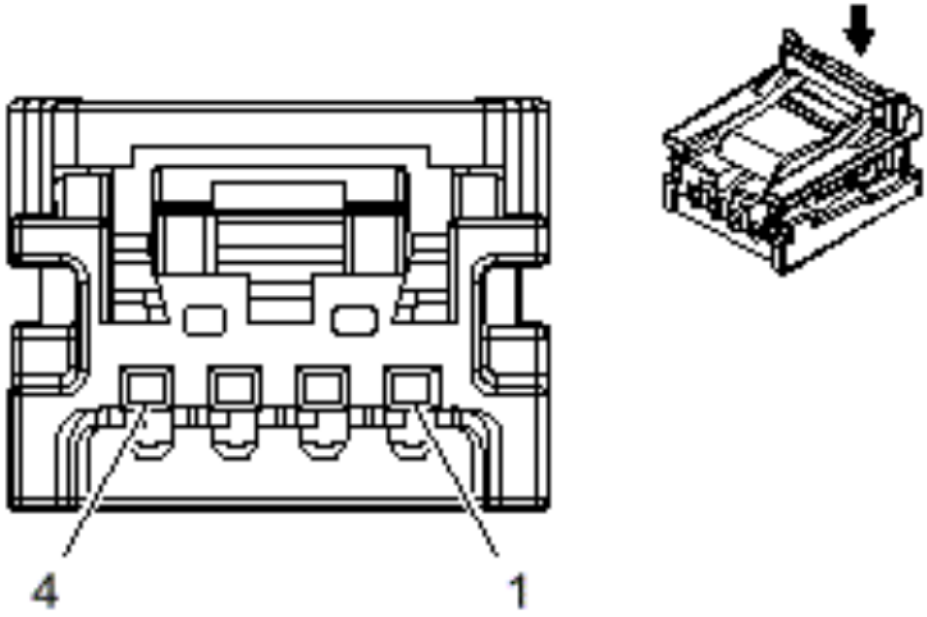
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	L-GN	1726	Battery Cell Sensing Serial Data (-) 3	I	-
2	0.35	WH/L-GN	1725	Battery Cell Sensing Serial Data (+) 3	I	-
3	0.35	VT	1759	Battery Cell Sensing Serial Data (-) 4	I	-
4	0.35	WH/VT	1758	Battery Cell Sensing Serial Data (+) 4	I	-

K112A HYBRID/EV BATTERY INTERFACE CONTROL MODULE 1 X2



Connector Part Information

- Harness Type: High Voltage Battery Monitoring
- OEM Connector: 33228285
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F Mini 50 Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

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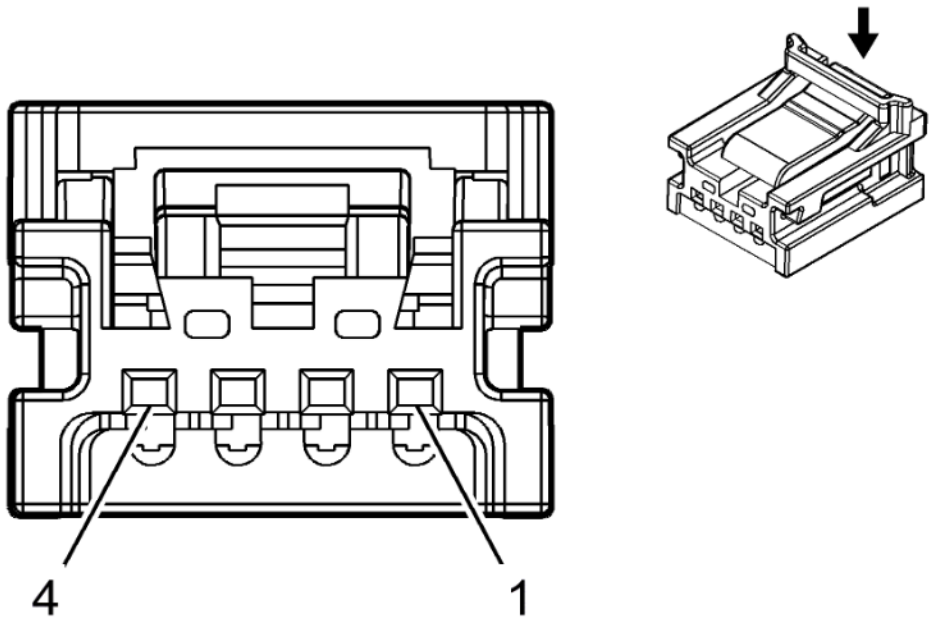
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	D-BU	1626	Battery Cell Sensing Serial Data (-) 2	I	-
2	0.35	WH/D-BU	1625	Battery Cell Sensing Serial Data (+) 2	I	-
3	0.35	WH	1511	Battery Cell Sensing Serial Data (-) 1	I	-
4	0.35	WH/BN	1510	Battery Cell Sensing Serial Data (+) 1	I	-

K112B HYBRID/EV BATTERY INTERFACE CONTROL MODULE 2 X1



Connector Part Information

- Harness Type: High Voltage Battery Monitoring
- OEM Connector: 33228283
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F Mini 50 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

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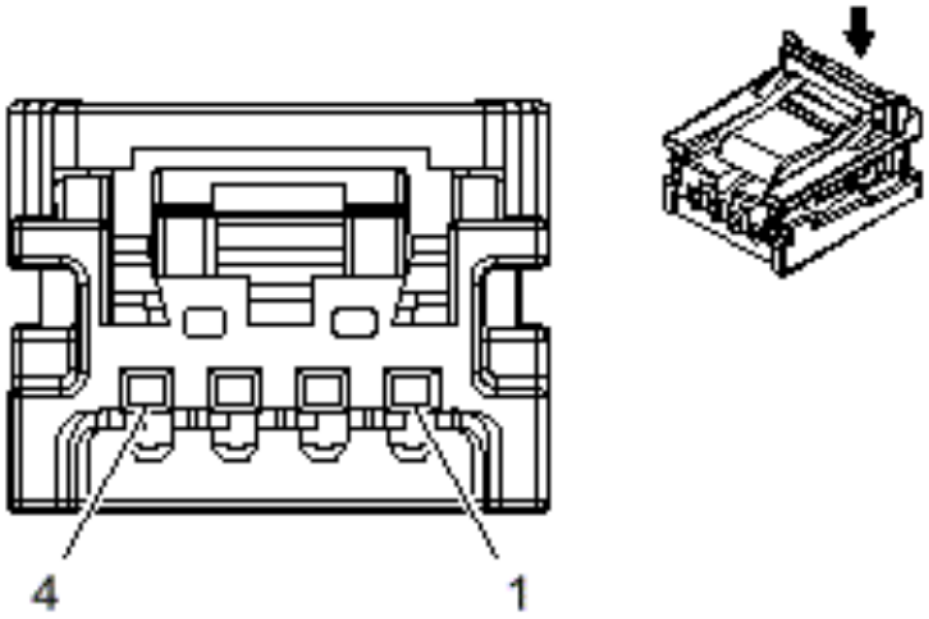
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	WH	1511	Battery Cell Sensing Serial Data (-) 1	I	-
2	0.35	WH/BN	1510	Battery Cell Sensing Serial Data (+) 1	I	-
3	0.35	WH	1511	Battery Cell Sensing Serial Data (-) 1	I	-
4	0.35	WH/BN	1510	Battery Cell Sensing Serial Data (+) 1	I	-

K112B HYBRID/EV BATTERY INTERFACE CONTROL MODULE 2 X2



Connector Part Information

- Harness Type: High Voltage Battery Monitoring
- OEM Connector: 33228285
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F Mini 50 Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

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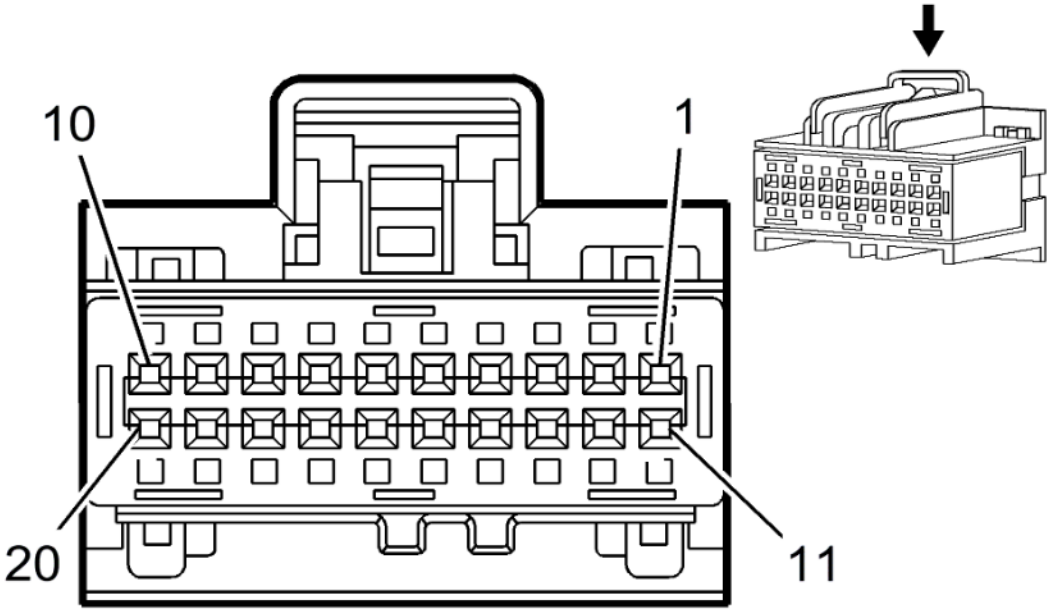
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	VT	1759	Battery Cell Sensing Serial Data (-) 4	I	-
2	0.35	WH/VT	1758	Battery Cell Sensing Serial Data (+) 4	I	-
3	0.35	L-GN	1726	Battery Cell Sensing Serial Data (-) 3	I	-
4	0.35	WH/L-GN	1725	Battery Cell Sensing Serial Data (+) 3	I	-

K114B HYBRID/EV POWERTRAIN CONTROL MODULE 2 X1



Connector Part Information

- Harness Type: Body
- OEM Connector: 13950640
- Service Connector: 15126709
- Description: 20-Way F USCAR 64 Series (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	19300440	J-35616-64B (LT BU)	J-38125-215A	SAIT-A03T-M064	Yazaki 14	P	P

Pin	Size	Color	Circuit	Function	Terminal	Option

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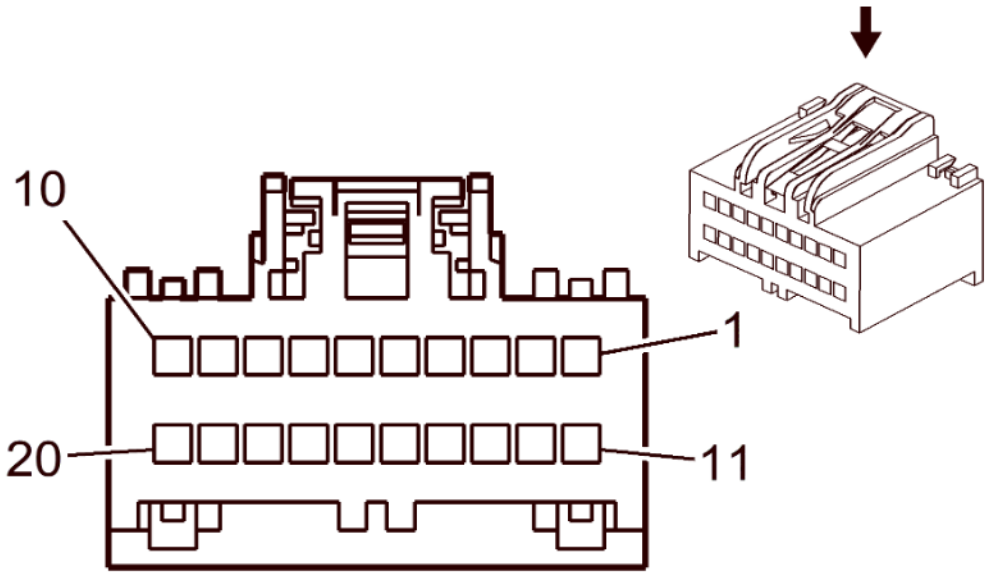
					Type ID	
1	0.5	WH	7494	High Speed GMLAN Serial Data (-)3	I	-
2	0.5	D-BU/BK	7493	High Speed GMLAN Serial Data (+)3	I	-
3 - 6	-	-	-	Not Occupied	-	-
7	0.5	L-GN	5060	Low Speed GMLAN Serial Data	I	-
8 - 9	-	-	-	Not Occupied	-	-
10	0.5	YE	5530	Hood Open Switch Signal	I	-
11	-	-	-	Not Occupied	-	-
12	0.5	WH	7494	High Speed GMLAN Serial Data (-)3	I	-
13	0.5	D-BU/BK	7493	High Speed GMLAN Serial Data (+)3	I	-
14 - 19	-	-	-	Not Occupied	-	-
20	0.35	D-BU/VT	5599	Fan Speed Signal 2	I	-

K114B HYBRID/EV POWERTRAIN CONTROL MODULE 2 X2



Connector Part Information

- Harness Type: Body
- OEM Connector: 13859758
- Service Connector: 15126710
- Description: 20-Way F USCAR 64 Series (GY)

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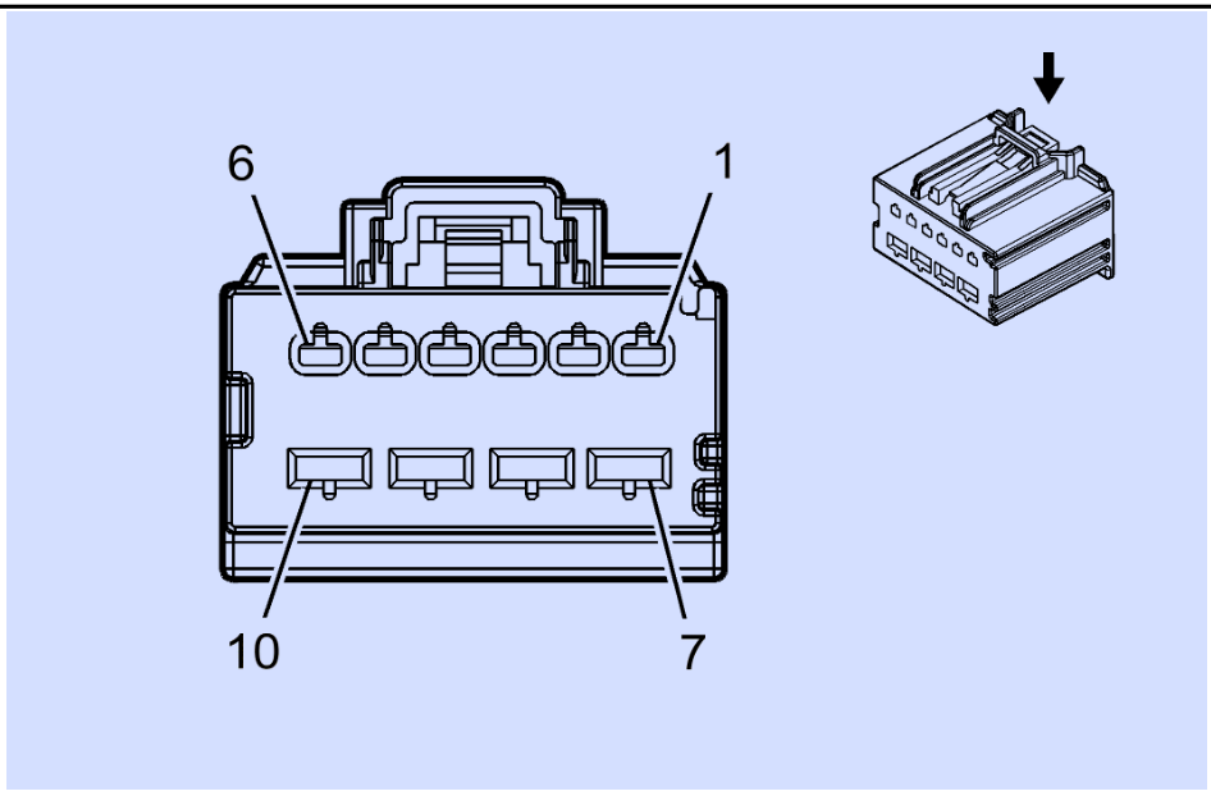
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	19300440	J-35616-64B (LT BU)	J-38125-215A	SAIT-A03T-M064	Yazaki 14	P	P

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 3	-	-	-	Not Occupied	-	-
4	0.35	YE/L-GN	5598	Fan Speed Signal 1	I	-
5 - 8	-	-	-	Not Occupied	-	-
9	0.5	VT/BK	2139	Run/Crank Ignition 1 Voltage	I	-
10 - 20	-	-	-	Not Occupied	-	-

K114B HYBRID/EV POWERTRAIN CONTROL MODULE 2 X3



Connector Part Information

- Harness Type: Body
- OEM Connector: 33175128
- Service Connector: 13596102
- Description: 10-Way F 1.5, 2.8 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13578893	J-35616-35	J-38125-11A	7116-4110-02	Yazaki 9	E	C

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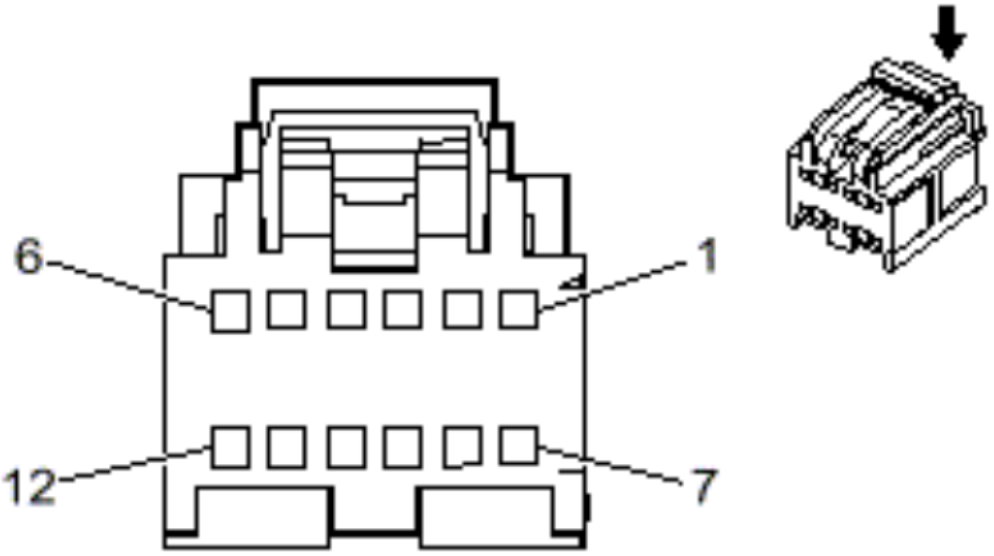
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
		(VT)					
II	19300635	J-35616-2A (GY)	J-38125-217	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	II	-
3	0.5	D-BU	2500	High Speed GMLAN Serial Data (+) 1	II	-
4	0.5	D-BU	2500	High Speed GMLAN Serial Data (+) 1	II	-
5	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	II	-
6	-	-	-	Not Occupied	-	-
7	0.5	BK	1250	Ground	I	-
8	-	-	-	Not Occupied	-	-
9	0.35	VT/YE	5985	Accessory Wakeup Serial Data	I	-
10	0.5	RD/BN	2940	Battery Positive Voltage	I	-

K114B HYBRID/EV POWERTRAIN CONTROL MODULE 2 X4



Connector Part Information

- Harness Type: High Voltage Battery Monitoring

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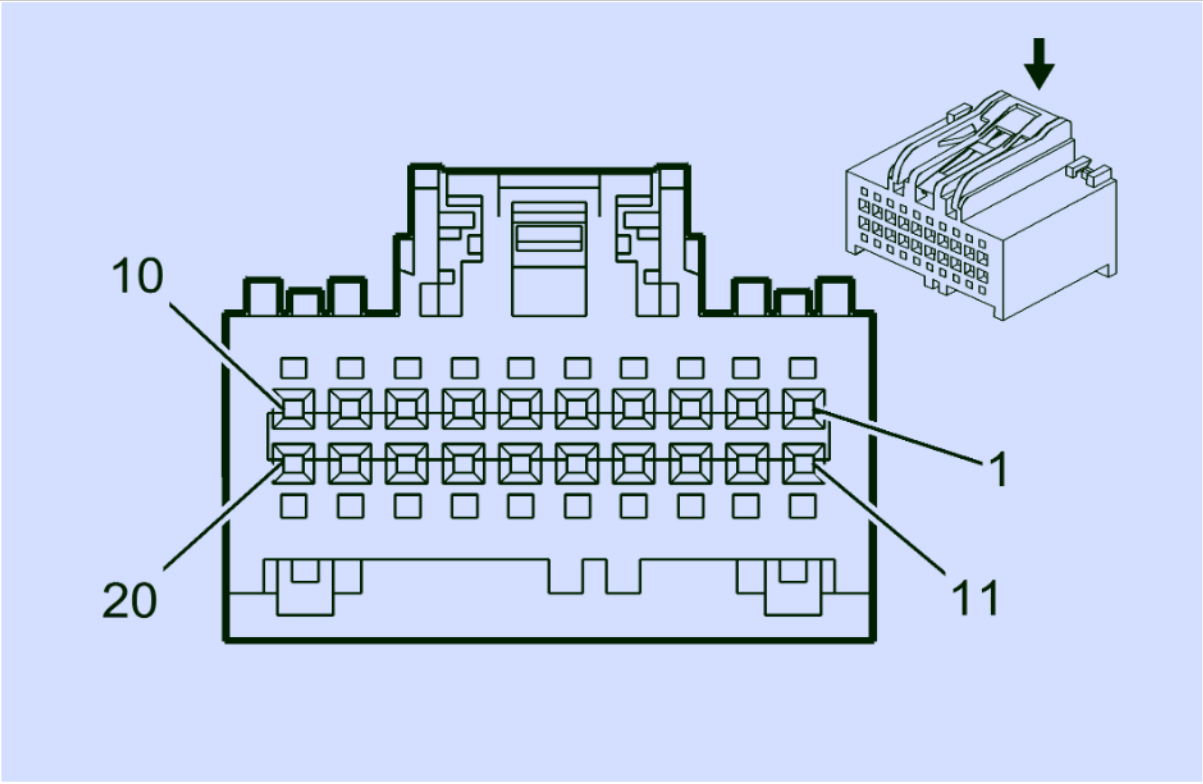
- OEM Connector: 33104389
- Service Connector: Service by Harness - See Part Catalog
- Description: 12-Way F 0.64 OCS Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BN/L-GN	3959	High Voltage Battery 1 (+) Relay Control	I	-
2	0.35	VT/GY	3961	High Voltage Battery (-) Relay Control	I	-
3	0.35	GY	5138	Precharge Relay	I	-
4 - 6	-	-	-	Not Occupied	-	-
7	0.35	BK	150	Ground	I	-
8 - 12	-	-	-	Not Occupied	-	-

K114B HYBRID/EV POWERTRAIN CONTROL MODULE 2 X5



Connector Part Information

- Harness Type: High Voltage Battery Monitoring

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- OEM Connector: 33125545
- Service Connector: Service by Harness - See Part Catalog
- Description: 20-Way F 64 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT	5087	High Voltage Interlock Loop Signal 1	I	-
2 - 3	-	-	-	Not Occupied	-	-
4	0.35	D-BU/YE	2962	High Voltage Battery Current Sensor Course Signal	I	-
5 - 10	-	-	-	Not Occupied	-	-
11	0.5	BK/BN	5088	High Voltage Interlock Loop Low Reference 1	I	-
12	-	-	-	Not Occupied	-	-
13	0.35	VT/RD	2965	High Voltage Battery Current Sensor Voltage Reference	I	-
14	0.35	BK/GY	2963	High Voltage Battery Current Sensor Low Reference	I	-
15 - 20	-	-	-	Not Occupied	-	-

K114B HYBRID/EV POWERTRAIN CONTROL MODULE 2 X6

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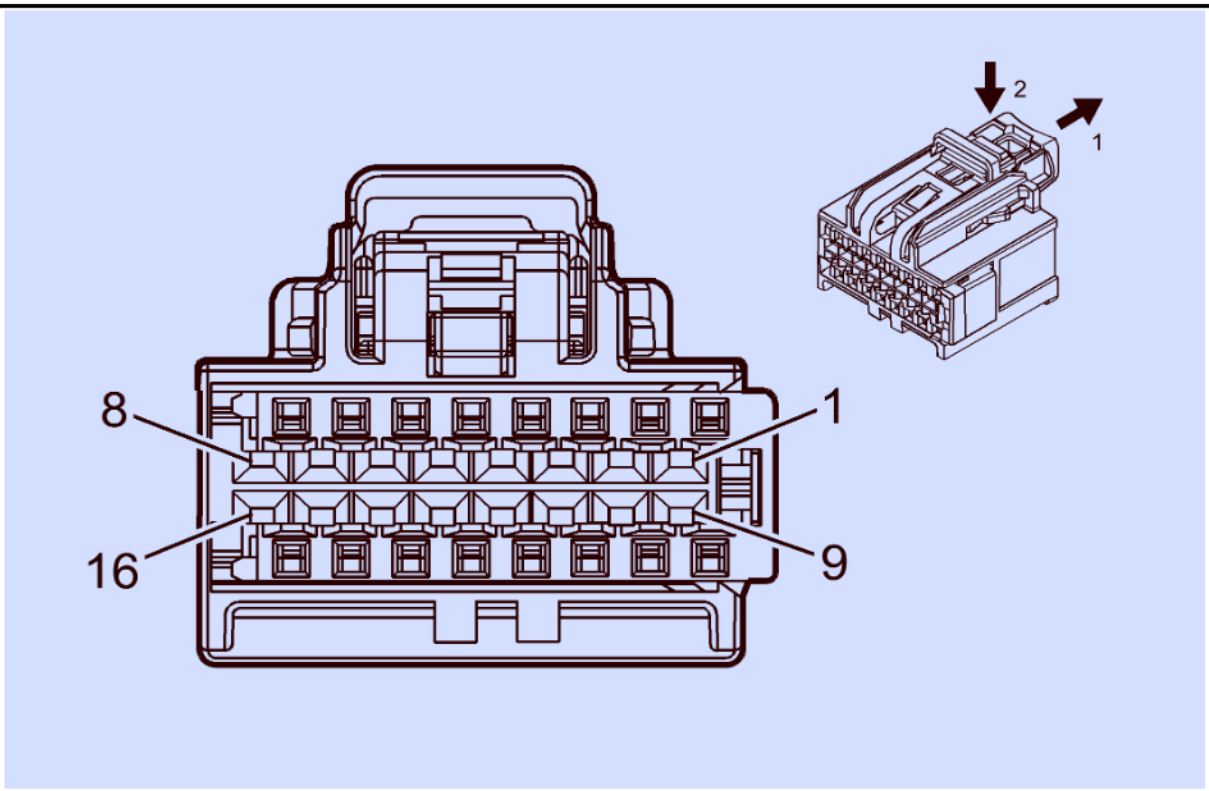

Connector Part Information

- Harness Type: High Voltage Battery Monitoring
- OEM Connector: 33104226
- Service Connector: Service by Harness - See Part Catalog
- Description: 16-Way F 0.64 OCS Series (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.5	VT	3546	High Voltage Battery Positive Monitor Signal	I	-
3 - 6	-	-	-	Not Occupied	-	-
7	0.5	GY/VT	3548	High Voltage Battery Negative Monitor Signal	I	-
8 - 16	-	-	-	Not Occupied	-	-

K114B HYBRID/EV POWERTRAIN CONTROL MODULE 2 X7

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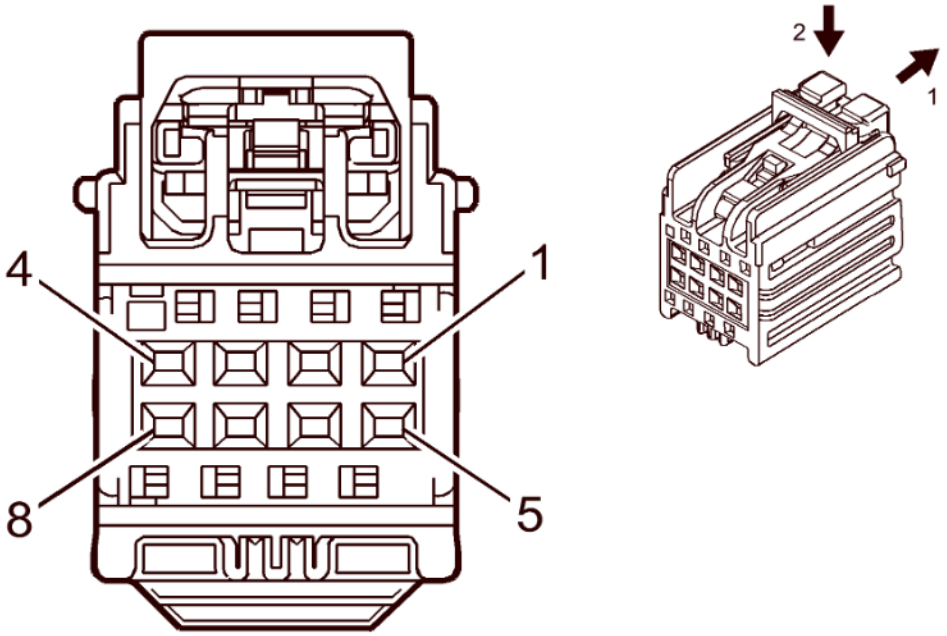

Connector Part Information

- Harness Type: High Voltage Battery Monitoring
- OEM Connector: 33183559
- Service Connector: Service by Harness - See Part Catalog
- Description: 8-Way F YESC Kaizen Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	WH	1511	Battery Cell Sensing Serial Data (-) 1	I	-
2 - 3	-	-	-	Not Occupied	-	-
4	0.35	BU	1626	Battery Cell Sensing Serial Data (-) 2	I	-
5	0.35	WH/BN	1510	Battery Cell Sensing Serial Data (+) 1	I	-
6 - 7	-	-	-	Not Occupied	-	-
8	0.35	WH/BU	1625	Battery Cell Sensing Serial Data (+) 2	I	-

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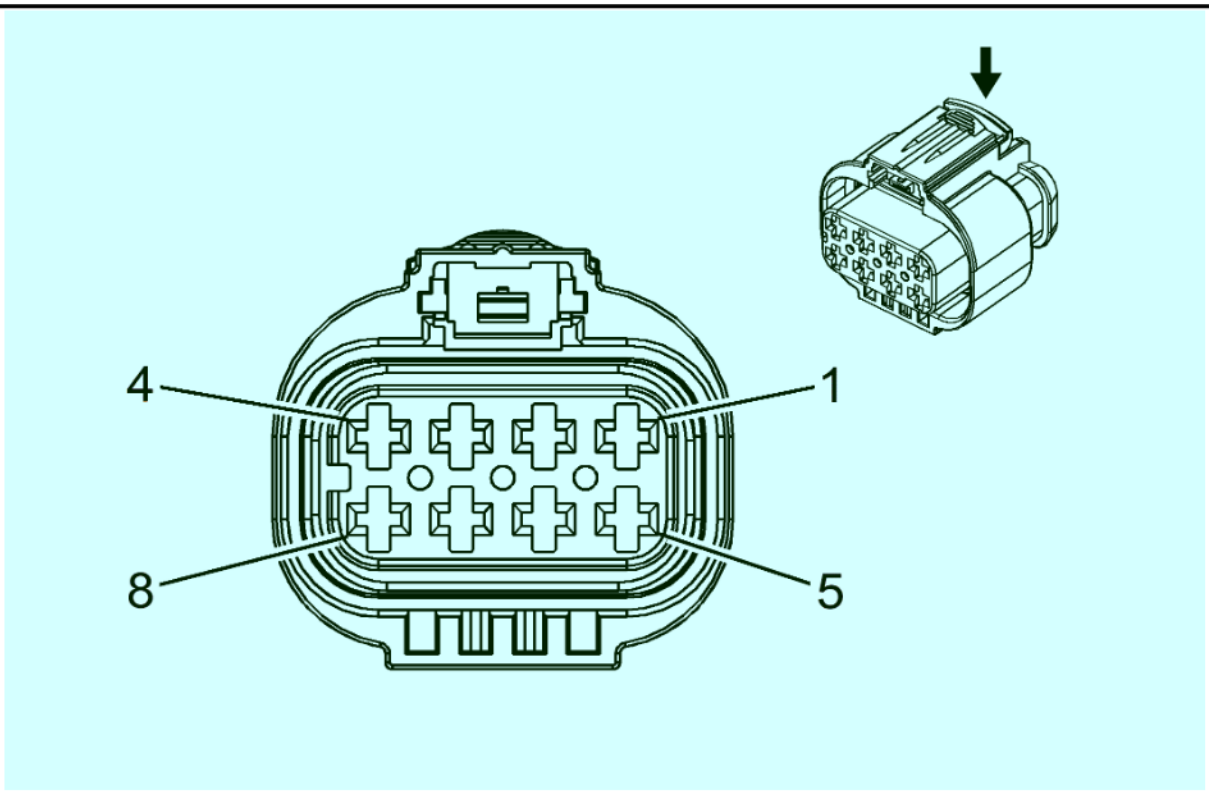
K115 REDUCTANT CONTROL MODULE X1 (L5P)



Connector Part Information

- Harness Type: Reductant Fluid
- OEM Connector: 15530717
- Service Connector: Service by Harness - See Part Catalog
- Description: 8-Way F 2.8 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD/WH	3440	Battery Positive Voltage	I	-
2	0.5	WH	4499	High Speed GMLAN Serial Data (-) 7	I	-
3	0.5	BU/BN	4498	High Speed GMLAN Serial Data (+) 7	I	-
4	2.5	BK/WH	451	Signal Ground	I	-
5	0.5	VT/GN	4320	Selective Catalytic Reduction Power Module Wake-Up Signal	I	-

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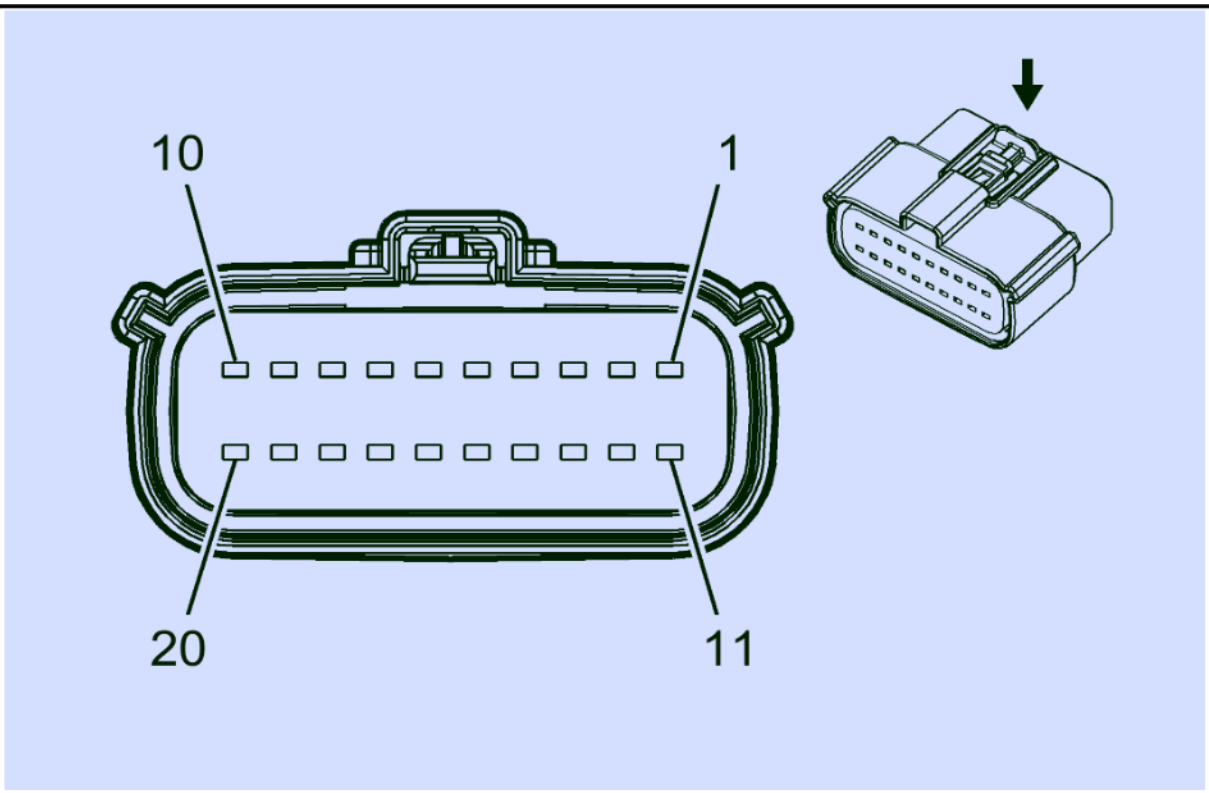
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
6	0.5	WH	4499	High Speed GMLAN Serial Data (-) 7	I	-
7	0.5	BU/BN	4498	High Speed GMLAN Serial Data (+) 7	I	-
8	2.5	BU	3921	DEF Heater Supply 1	I	-

K115 REDUCTANT CONTROL MODULE X2 (L5P)



Connector Part Information

- Harness Type: Reductant Fuel Pump
- OEM Connector: 13650143
- Service Connector: Service by Harness - See Part Catalog
- Description: 20-Way F 1.5 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.0	BN	-	Pump Phase C	I	-

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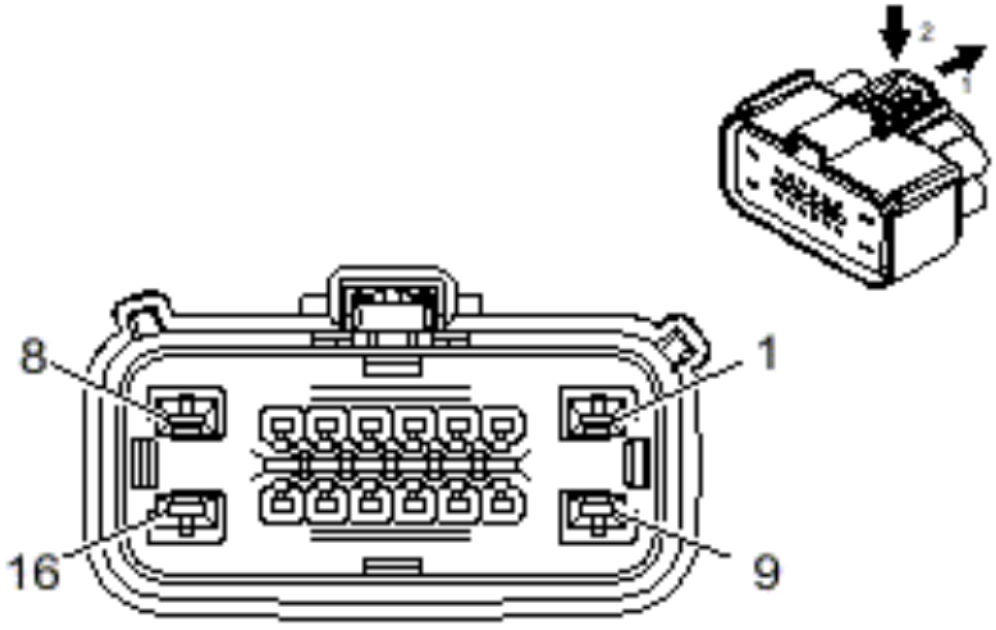
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
2	1.0	BU	-	Pump Phase B	I	-
3	1.0	WH	-	Pump Phase A	I	-
4	1.0	BK	-	Tank Heater Ground	I	-
5	1.0	BN	-	Pump Ground	I	-
6	0.5	BK	-	Quality Sensor Ground	I	-
7	1.0	BN	-	Line Heater Supply	I	-
8	-	-	-	-	I	-
9	0.5	BN	-	Temperature Sensor Signal	I	-
10	0.5	BK	-	Temperature Sensor Ground	I	-
11	1.0	WH	-	Tank Heater Supply	I	-
12	0.5	BN	-	Pressure Sensor Supply	I	-
13	0.5	BU	-	Pressure Sensor Signal	I	-
14	0.5	BN	-	Pressure Sensor Ground	I	-
15	0.5	BK	-	Level Sensor Supply	I	-
16	0.5	BN	-	Level Sensor Signal	I	-
17	0.5	BU	-	Level Sensor Ground	I	-
18	0.5	BN	-	Quality Sent Data	I	-
19	0.5	BU	-	Quality Sensor Supply	I	-
20	1.0	YE	-	Line Heat Ground	I	-

K133 TRAILER BRAKE POWER CONTROL MODULE



Connector Part Information

- Harness Type: Chassis

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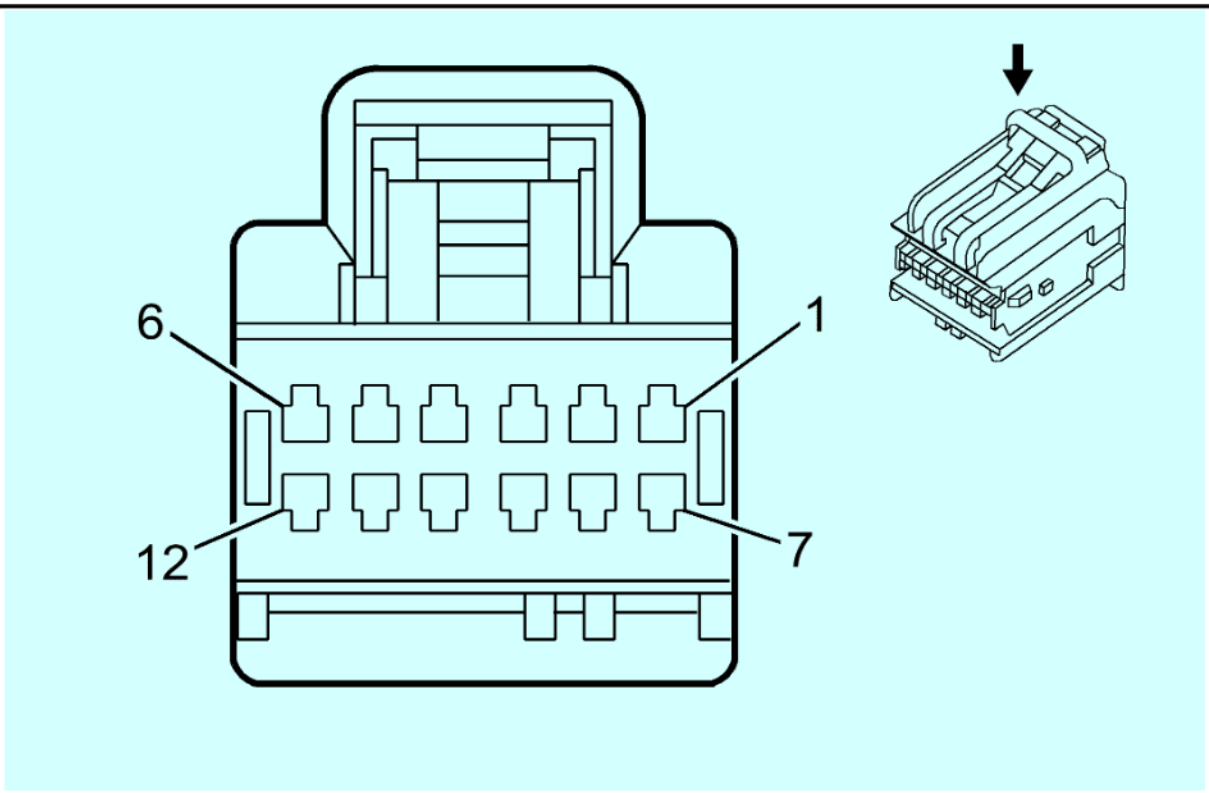
- OEM Connector: 33297568
- Service Connector: 13599889
- Description: 16-Way F 1.5, 2.8 Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13579750	J-35616-35 (VT)	J-38125-12A	1326030-8	Lear 17	4	D
II	19300635	J-35616-2A (GY)	J-38125-217	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	RD/GN	242	Battery Positive Voltage	I	-
2	0.5	WH/BK	2223	Trailer Brake Control Signal	II	-
5	0.5	YE/BK	2224	Trailer Brake Enable Signal	II	-
8	2.5	BU	47	Trailer Auxiliary Control	I	-
9	2.5	BK	1750	Ground	I	-
12	0.5	GN/VT	4114	Local Interconnect Network Serial Data Bus 14	II	-

K182 PARKING ASSIST CONTROL MODULE X1



Connector Part Information

- Harness Type: Body

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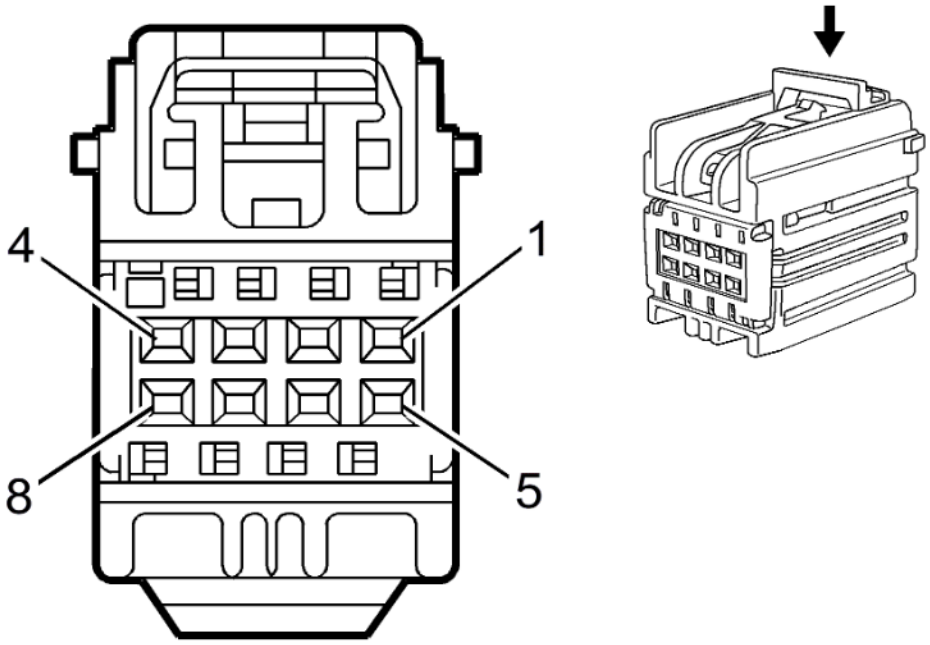
- OEM Connector: 13551678
- Service Connector: 89047364
- Description: 12-Way F 0.64 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575845	J-35616-64B (LT BU)	J-38125-215A	SAIT-A03T-M064	Yazaki 14	P	P
II	13579945	J-35616-64B (LT BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	RD/GN	3140	Battery Positive Voltage	II	-
2	-	-	-	Not Occupied	-	-
3	0.35	GN/BN	5852	Rear Park Assist LED Disable Signal	I	-
4	0.35	GN	5060	Low Speed GMLAN Serial Data	I	-
5 - 6	-	-	-	Not Occupied	-	-
7	0.75	BK/WH	2751	Signal Ground	II	-
8	0.35	GY/GN	2555	Rear Park Assist Disable Signal	I	-
9 - 12	-	-	-	Not Occupied	-	-

K182 PARKING ASSIST CONTROL MODULE X2



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Connector Part Information

- Harness Type: Body
- OEM Connector: 13551679
- Service Connector: 19115653
- Description: 8-Way F YESC Kaizen Series (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE	2375	Left Rear Corner Object Sensor Signal	I	-
2	-	-	-	Not Occupied	-	-
3	0.35	YE/BU	2376	Left Rear Middle Object Sensor Signal	I	-
4	0.35	BN/WH	2374	Object Sensor Control	I	-
5	0.35	YE/VT	2378	Right Rear Corner Object Sensor Signal	I	-
6	-	-	-	Not Occupied	-	-
7	0.35	YE/WH	2377	Right Rear Middle Object Sensor Signal	I	-
8	0.35	BK/GY	2379	Object Sensor Low Reference	I	-

K182 PARKING ASSIST CONTROL MODULE X3

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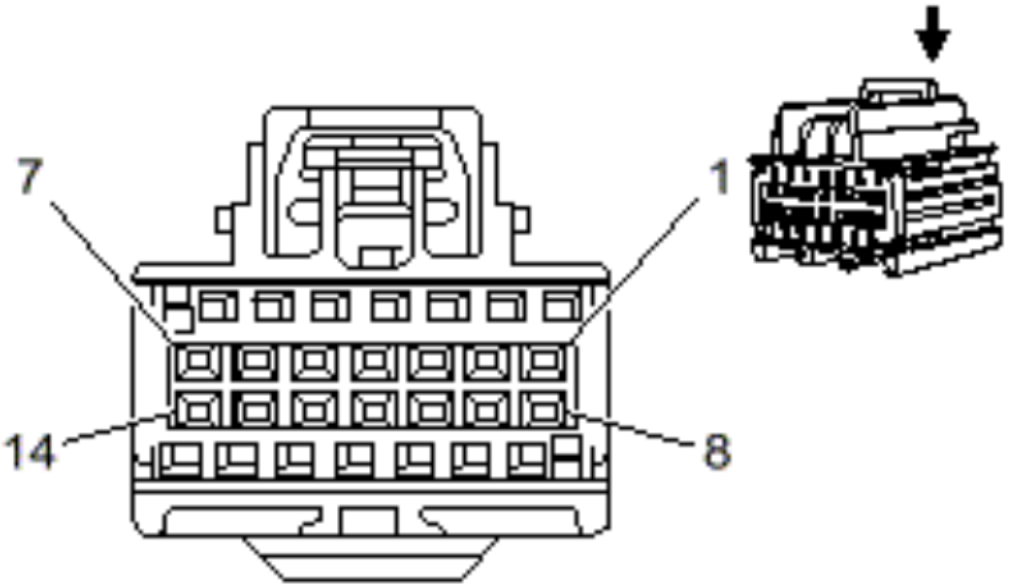

Connector Part Information

- Harness Type: Body
- OEM Connector: 15491263
- Service Connector: 15127038
- Description: 14-Way F 0.64 Kaizen Series (BU)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575845	J-35616-64B (LT BU)	J-38125-215A	SAIT-A03T-M064	Yazaki 14	P	P
II	19300440	J-35616-64B (LT BU)	J-38125-215A	SAIT-A03T-M064	Yazaki 14	P	P

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE/VT	5213	Front Parking Left/Right/Mid Sensor	I	-
2 - 3	-	-	-	Not Occupied	-	-
4	0.35	VT/WH	5215	Front Parking Left Corner Sensor	II	-
5	0.35	YE/GY	5216	Front Parking Left Mid Sensor	II	-
6 - 7	-	-	-	Not Occupied	-	-
8	0.35	BK/D-BU	5214	Front Parking Sensor Low Reference	II	-
9 - 10	-	-	-	Not Occupied	-	-

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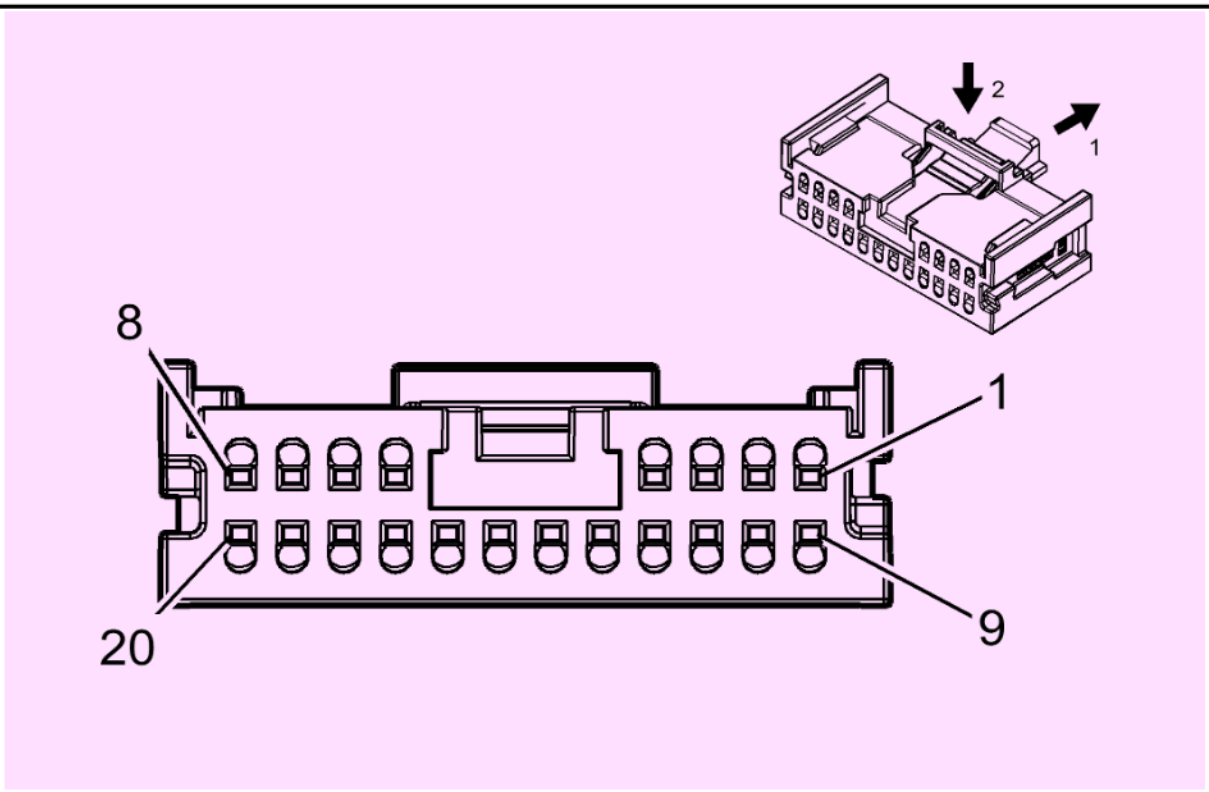
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
11	0.35	WH/GY	5217	Front Parking Right Corner Sensor	II	-
12	0.35	VT/GY	5218	Front Parking Right Mid Sensor	II	-
13 - 14	-	-	-	Not Occupied	-	-

K188 HUMAN MACHINE INTERFACE CONTROL MODULE BYPASS MODULE X1



Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 33273811
- Service Connector: 13211020
- Description: 20-Way F Mini 50 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13579954	EL-35616-58 (BK)	No Tool Required	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	RD/GY	2840	Battery Positive Voltage	I	-
2	0.35	GY/VT	755	RAP Relay Coil Control	I	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	0.35	GN/WH	7527	Local Interconnect Network Serial Data Bus 5	I	-
4	-	-	-	Not Occupied	-	-
5	0.35	BK	2550	Ground	I	-
6	0.35	GY/YE	6972	Camera Signal 2 +	I	-
7	-	-	-	Not Occupied	-	-
8	0.35	GY/YE	6972	Camera Signal 2 +	I	-
9	0.35	GN/WH	24	Backup Lamp Control	I	-
10 - 17	-	-	-	Not Occupied	-	-
18	0.35	WH/BU	6973	Camera Signal 2	I	-
19	0.35	BN	6974	Camera Low Reference	I	-
20	0.35	WH/BU	6973	Camera Signal 2	I	-

Article GUID: A00854479

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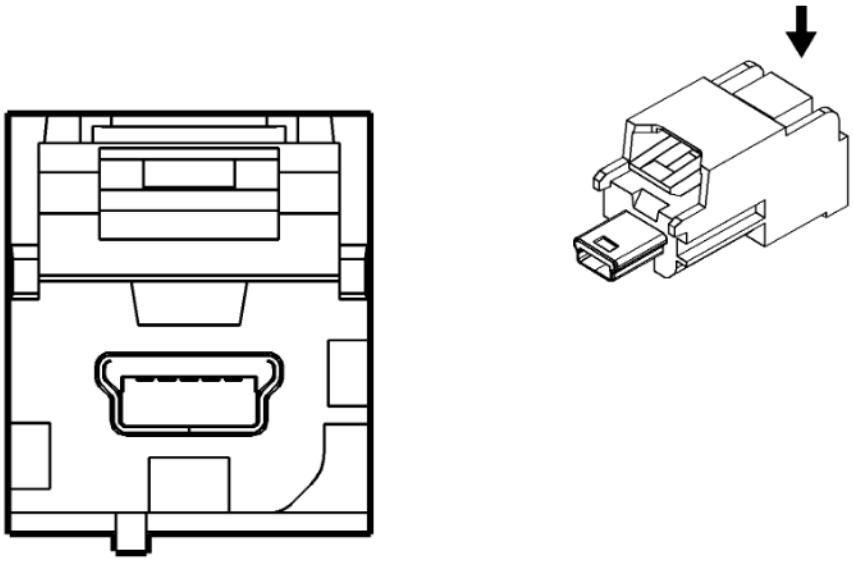
COMPONENT CONNECTOR END VIEWS

A33 MEDIA DISC PLAYER X5 (U42)



Connector Part Information

- Harness Type: Instrument Panel LVDS
- OEM Connector: Not Available
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 1-Way F LVDS Cable Connector (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	LVDS	-	Infotainment Display Signal	I	-

A33 MEDIA DISC PLAYER X5 (U42)

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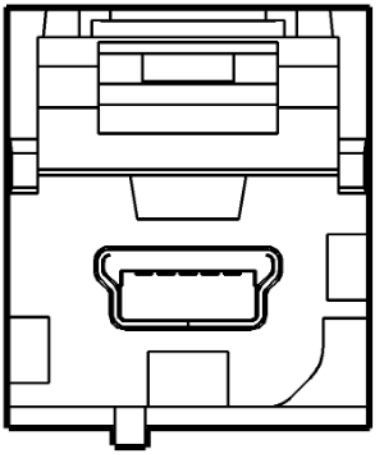

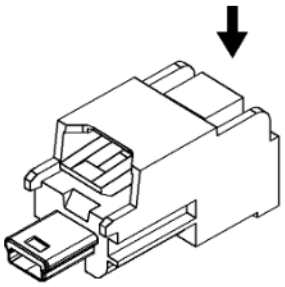

Connector Part Information

- Harness Type: Instrument Panel LVDS
- OEM Connector: Not Available
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 1-Way F LVDS Cable Connector (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	LVDS	-	Infotainment Display Signal	I	-

KR58 ROOF BEACON RELAY

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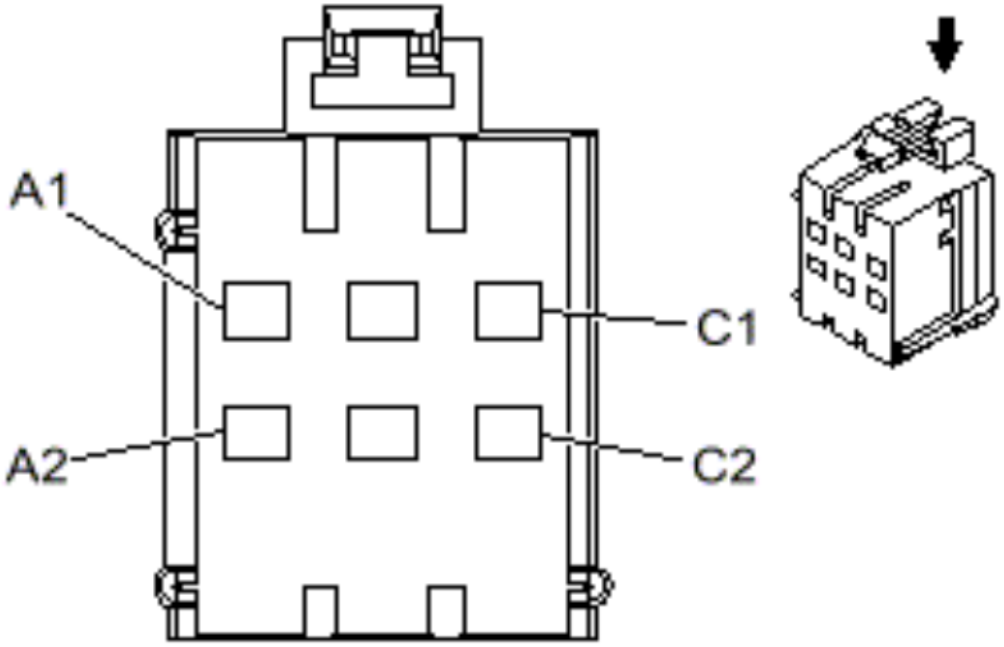

Connector Part Information

- Harness Type: Overhead Console
- OEM Connector: 12110541
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way F 280 Metri-Pack Flexlock Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A1	0.35	BK	1050	Ground	I	-
A2	2.5	L-GN/D-BU	5989	Emergency Lamp Relay Contact Control	I	-
B1 - B2	-	-	-	Not Occupied	-	-
C1	2.5	RD/L-GN	3140	Battery Positive Voltage	I	-
C2	0.5	WH/BK	5990	Emergency Lamp Switch Signal	I	-

M5 ADJUSTABLE PEDAL MOTOR

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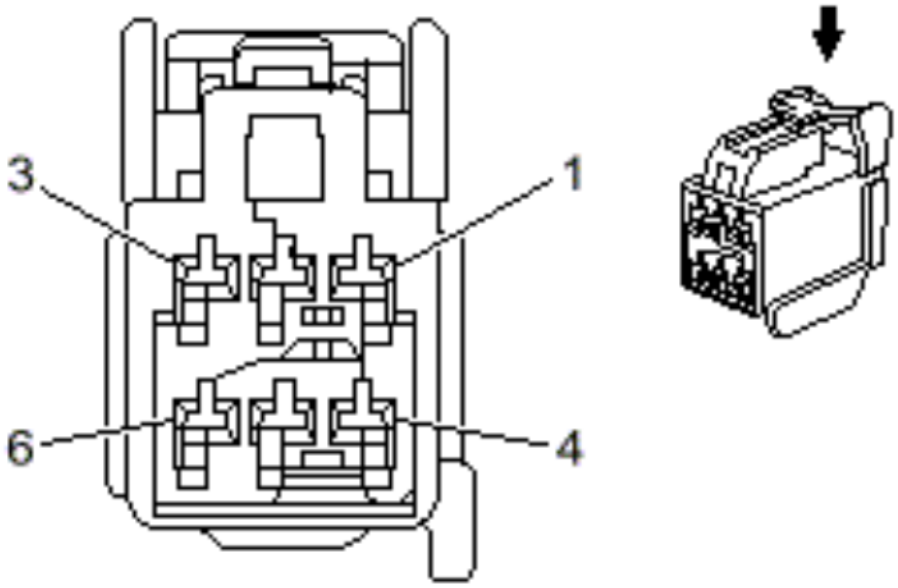

Connector Part Information

- Harness Type: Brake Clutch
- OEM Connector: 10846805
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way F 1.5 Kaizen Series (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	GN/VT	5130	Adjustable Pedal Actuator Forward Control	I	-
2	0.5	BU	5952	Adjustable Pedal Position Sensor Brake Signal	I	-
3	0.5	BK/GY	6206	Memory Sensor Low Reference	I	-
4	1.5	YE	5129	Adjustable Pedal Actuator Rearward Control	I	-
5	0.5	WH/RD	6207	Memory Sensor High Reference	I	-
6	-	-	-	Not Occupied	-	-

M9 BRAKE BOOSTER PUMP MOTOR

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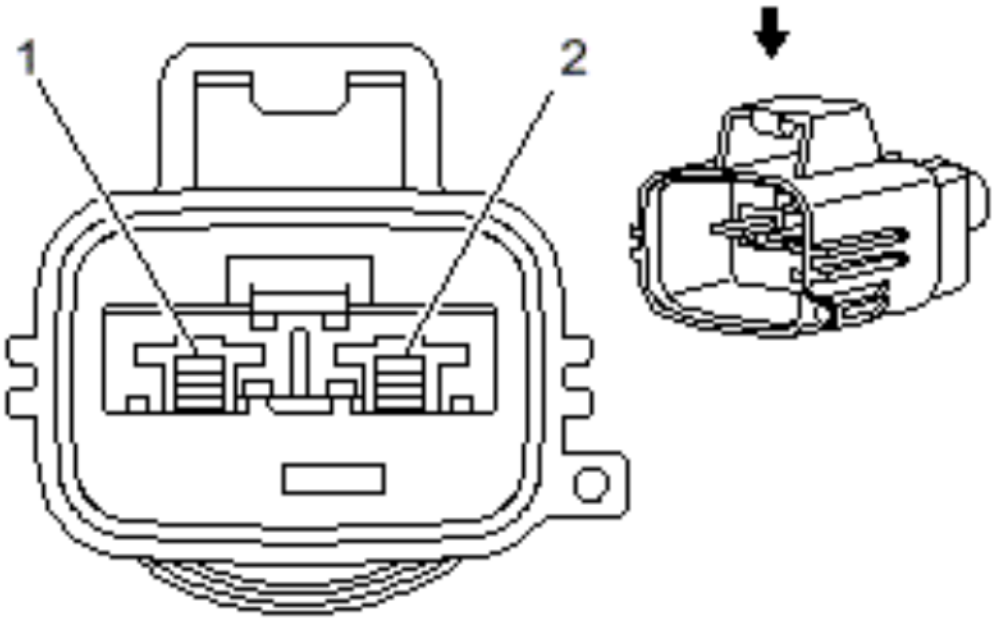

Connector Part Information

- Harness Type: Engine
- OEM Connector: 15425573
- Service Connector: 88953304
- Description: 2-Way M 6.3 Weather Pack Series (D-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-43 (RD)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	BN/VT	1470	Brake Booster Pump Motor Control	I	-
2	2.5	BK	550	Ground	I	-

M26 FRONT AXLE ENGAGEMENT ACTUATOR

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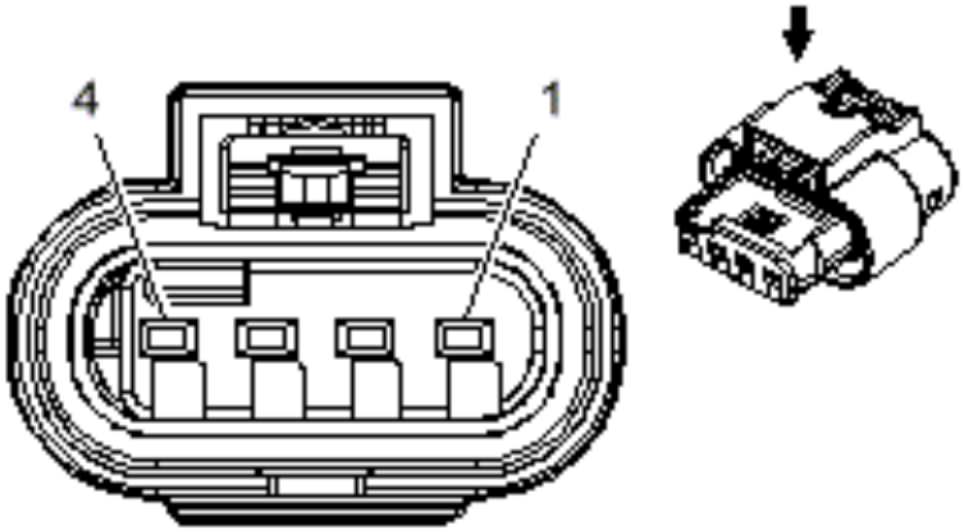

Connector Part Information

- Harness Type: Front Axle Jumper
- OEM Connector: 13817132
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/BK	2139	Run/Crank Ignition 1 Voltage	I	-
2	0.5	GY/BK	1570	Front Axle Actuator Control	I	-
3	0.5	YE/WH	1695	Four Wheel Drive Wheel Lock Indicator Control	I	-
4	0.5	BK	550	Ground	I	-

M50D SEAT FRONT VERTICAL MOTOR - DRIVER

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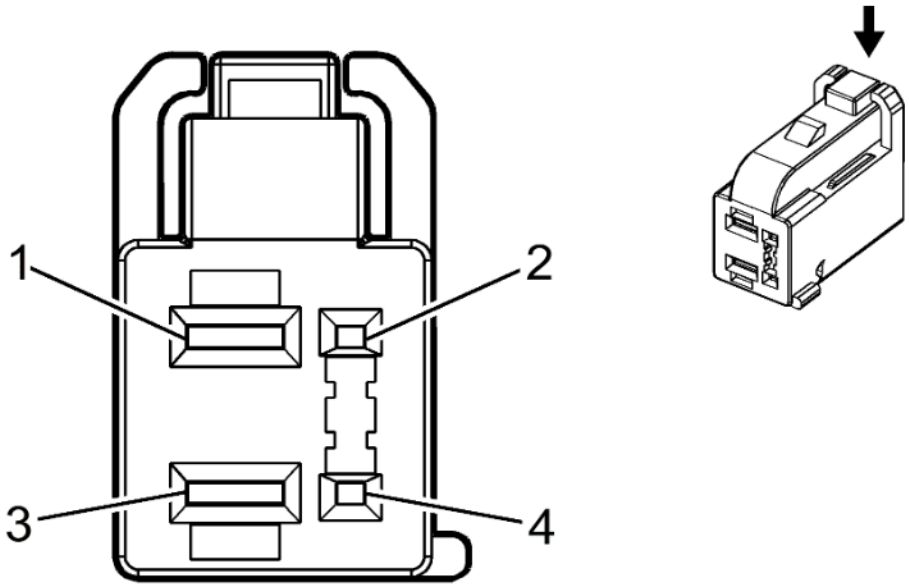

Connector Part Information

- Harness Type: Driver Seat Cushion
- OEM Connector: 3-023-66-52
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 0.64, 2.8 Series (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required
II	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	L-GN/BN	286	Driver Power Seat Front Vertical Motor Up Control	I	-
2	0.35	WH/RD	3298	Memory Sensor High Reference 2	II	-
3	1.5	L-BU/VT	287	Driver Power Seat Front Vertical Motor Down Control	I	-
4	0.5	BN/WH	557	Memory Seat Front Vertical Motor Position Sensor Signal	II	-

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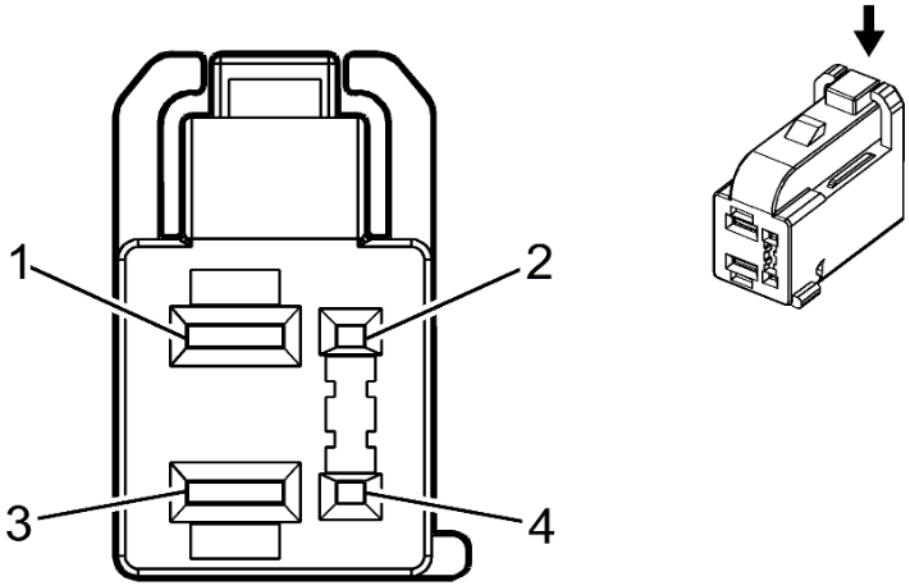
M50P SEAT FRONT VERTICAL MOTOR - PASSENGER



Connector Part Information

- Harness Type: Passenger Seat Cushion
- OEM Connector: 3-023-66-52
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 0.64, 2.8 Series (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	GN/BU	298	Passenger Power Seat Front Vertical Motor Down Control	I	-
2	-	-	-	Not Occupied	-	-
3	1.5	GN/VT	297	Passenger Power Seat Front Vertical Motor Up Control	I	-
4	-	-	-	Not Occupied	-	-

M51D SEAT HORIZONTAL MOTOR - DRIVER

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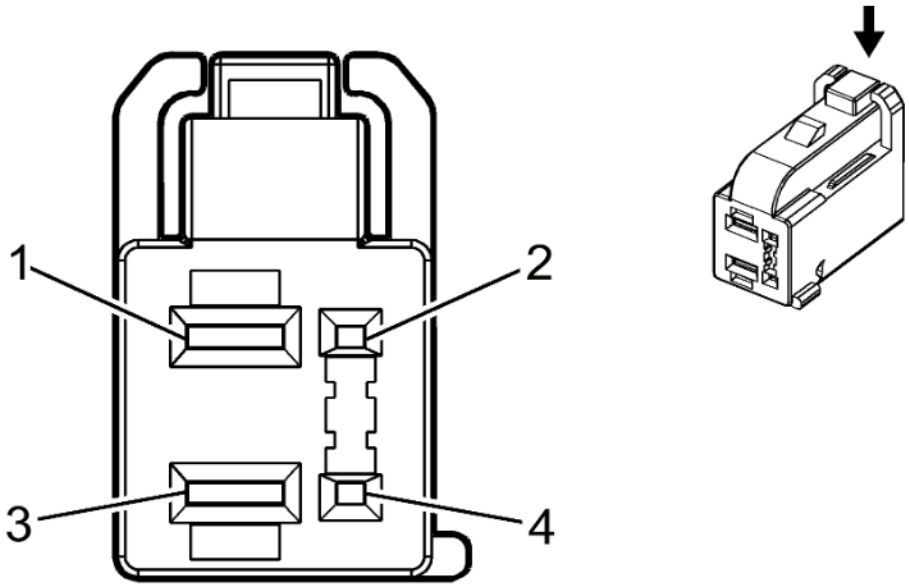

Connector Part Information

- Harness Type: Driver Seat Cushion
- OEM Connector: 3-023-66-52
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 0.64, 2.8 Series (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required
II	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	YE/L-BU	285	Driver Power Seat Horizontal Motor Forward Control	I	-
2	0.35	WH/RD	3298	Memory Sensor High Reference 2	II	-
3	1.5	GY/L-GN	284	Driver Power Seat Horizontal Motor Rearward Control	I	-
4	0.5	L-GN	569	Memory Seat Horizontal Motor Position Sensor Signal	II	-

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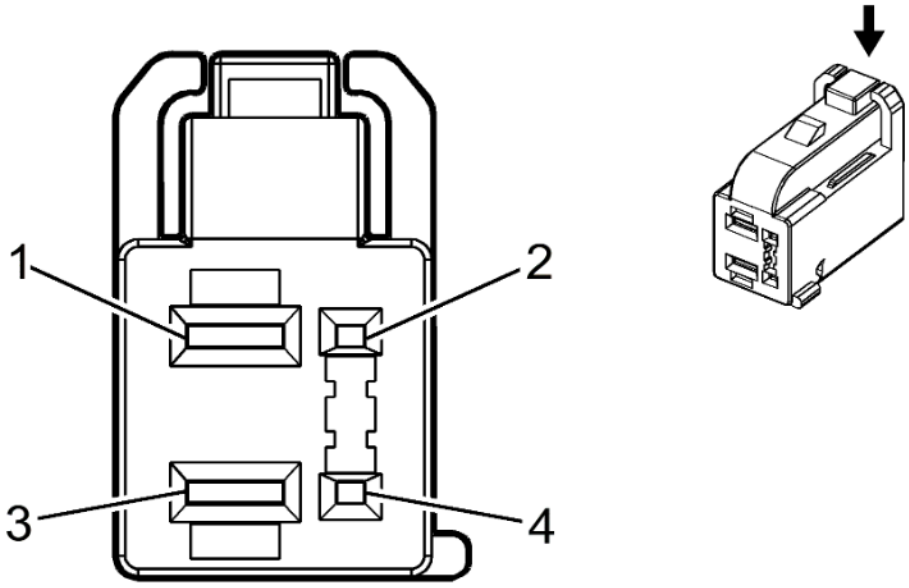
M51P SEAT HORIZONTAL MOTOR - PASSENGER



Connector Part Information

- Harness Type: Passenger Seat Cushion
- OEM Connector: 3-023-66-52
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 0.64, 2.8 Series (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	YE/BU	290	Passenger Power Seat Horizontal Motor Rearward Control	I	-
2	-	-	-	Not Occupied	-	-
3	1.5	YE/WH	296	Passenger Power Seat Horizontal Motor Forward Control	I	-
4	-	-	-	Not Occupied	-	-

M52D SEAT LUMBAR SUPPORT HORIZONTAL MOTOR - DRIVER

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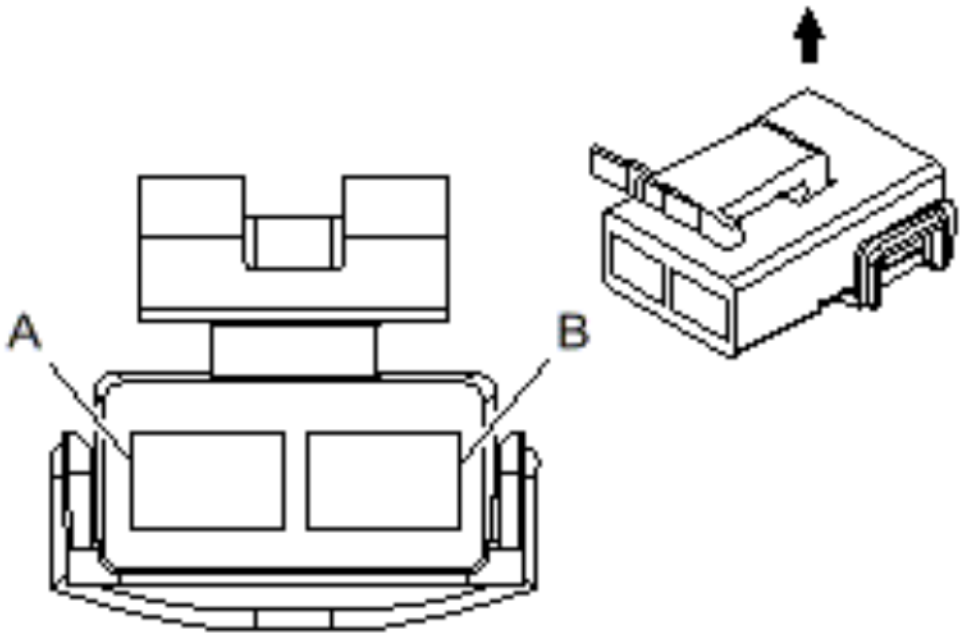

Connector Part Information

- Harness Type: Driver Seat Back Jumper
- OEM Connector: 12020556
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 480 Metri-Pack Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-40 (BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	L-BU	611	Driver Power Seat Lumbar Motor Forward Control	I	-
B	1.5	VT	610	Driver Power Seat Lumbar Motor Rearward Control	I	-

M52P SEAT LUMBAR SUPPORT HORIZONTAL MOTOR - PASSENGER

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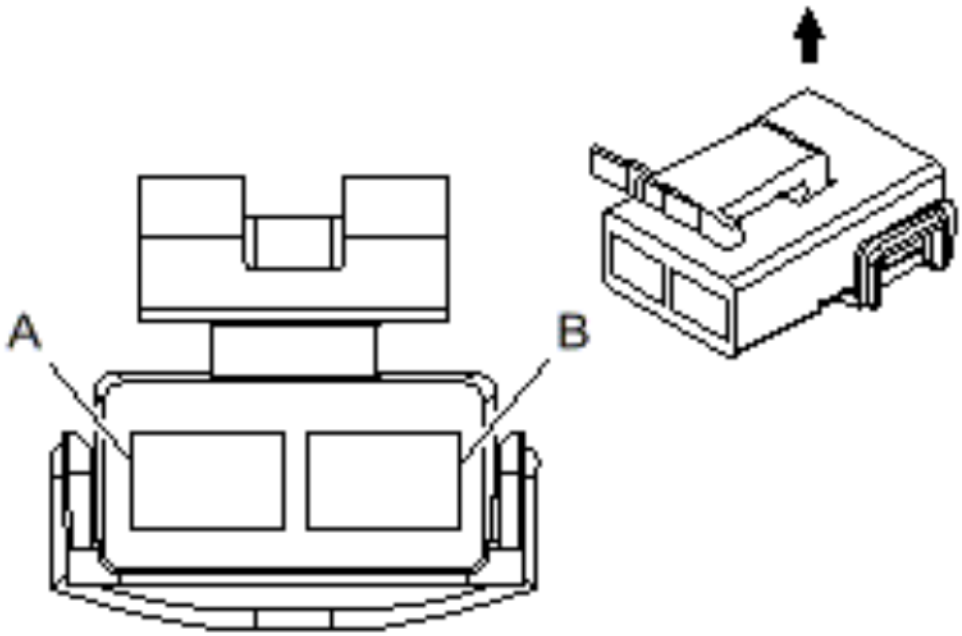

Connector Part Information

- Harness Type: Passenger Seat Back Jumper
- OEM Connector: 12020556
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 480 Metri-Pack Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-40 (BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	BU	211	Passenger Power Seat Lumbar Motor Forward Control	I	-
B	1.5	VT	210	Passenger Power Seat Lumbar Motor Rearward Control	I	-

M55D SEAT REAR VERTICAL MOTOR - DRIVER

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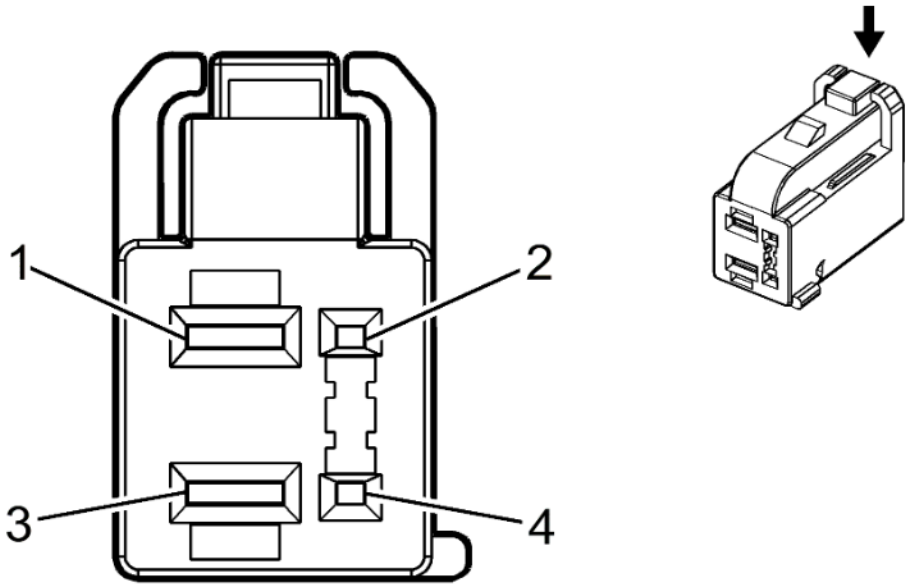

Connector Part Information

- Harness Type: Driver Seat Cushion
- OEM Connector: 3-023-66-52
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 0.64, 2.8 Series (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required
II	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	GY/BU	283	Driver Power Seat Rear Vertical Motor Down Control	I	-
2	0.35	WH/RD	3298	Memory Sensor High Reference 2	II	-
3	1.5	YE	282	Driver Power Seat Rear Vertical Motor Up Control	I	-
4	0.5	YE/BU	568	Memory Seat Rear Vertical Motor Position Sensor Signal	II	-

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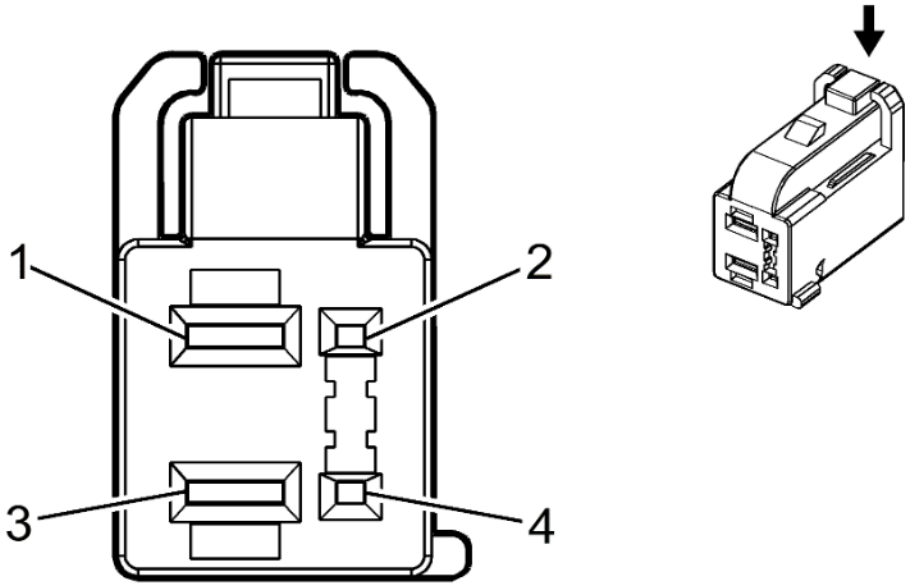
M55P SEAT REAR VERTICAL MOTOR - PASSENGER



Connector Part Information

- Harness Type: Passenger Seat Cushion
- OEM Connector: 3-023-66-52
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 0.64, 2.8 Series (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	GN/WH	288	Passenger Power Seat Rear Vertical Motor Up Control	I	-
2	-	-	-	Not Occupied	-	-
3	1.5	BU/WH	289	Passenger Power Seat Rear Vertical Motor Down Control	I	-
4	-	-	-	Not Occupied	-	-

M56D SEAT RECLINE MOTOR - DRIVER

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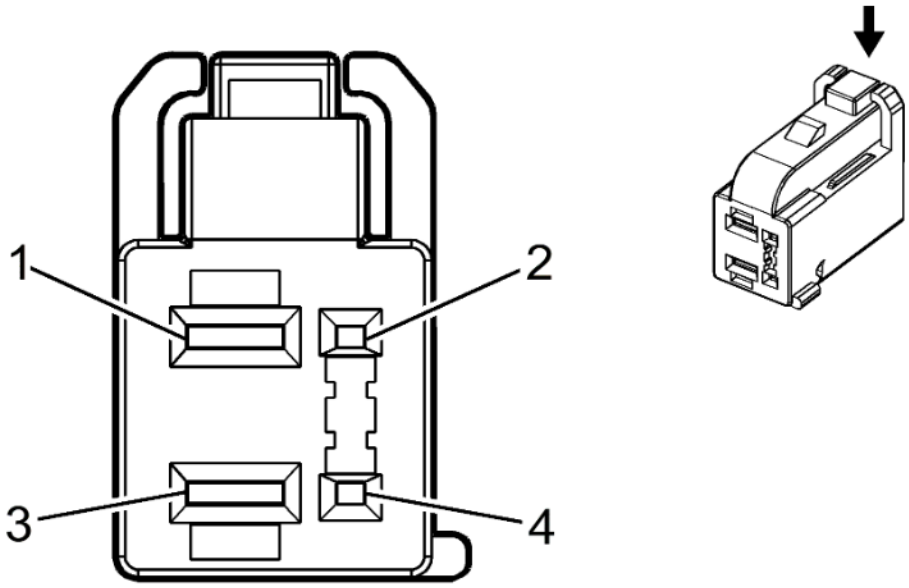

Connector Part Information

- Harness Type: Driver Seat Back Jumper
- OEM Connector: 3-023-66-52
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 0.64, 2.8 Series (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required
II	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	GN/YE	276	Driver Power Seat Recline Motor Forward Control	I	-
2	0.35	WH/RD	3298	Memory Sensor High Reference 2	II	-
3	1.5	BU/YE	277	Driver Power Seat Recline Motor Rearward Control	I	-
4	0.35	WH/BK	570	Driver Memory Seat Recline Motor Position Sensor Signal	II	-

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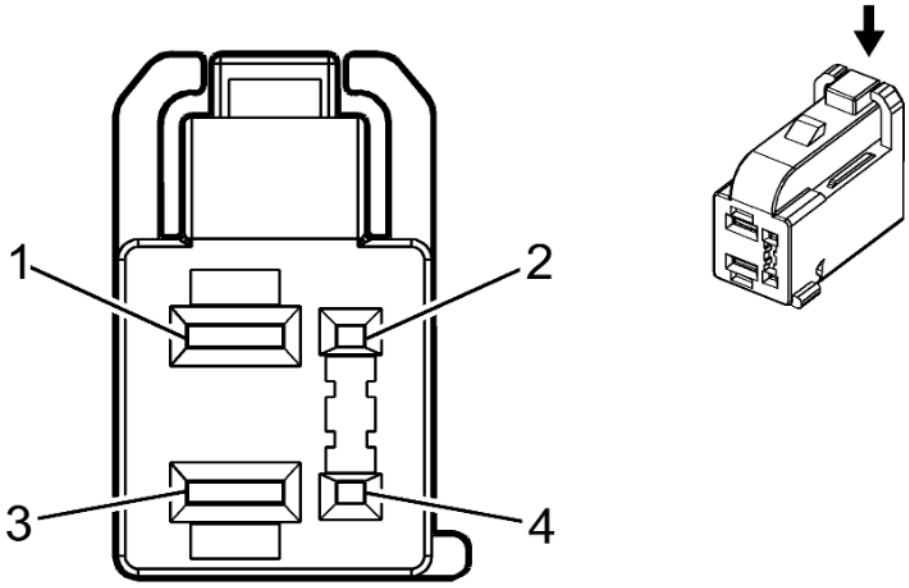
M56P SEAT RECLINE MOTOR - PASSENGER



Connector Part Information

- Harness Type: Passenger Seat Back Jumper
- OEM Connector: 3-023-66-52
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 0.64, 2.8 Series (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	GN	76	Passenger Power Seat Recline Motor Forward Control	I	-
2	-	-	-	Not Occupied	-	-
3	1.5	BU/BN	77	Passenger Power Seat Recline Motor Rearward Control	I	-
4	-	-	-	Not Occupied	-	-

M63 SLIDING REAR WINDOW MOTOR

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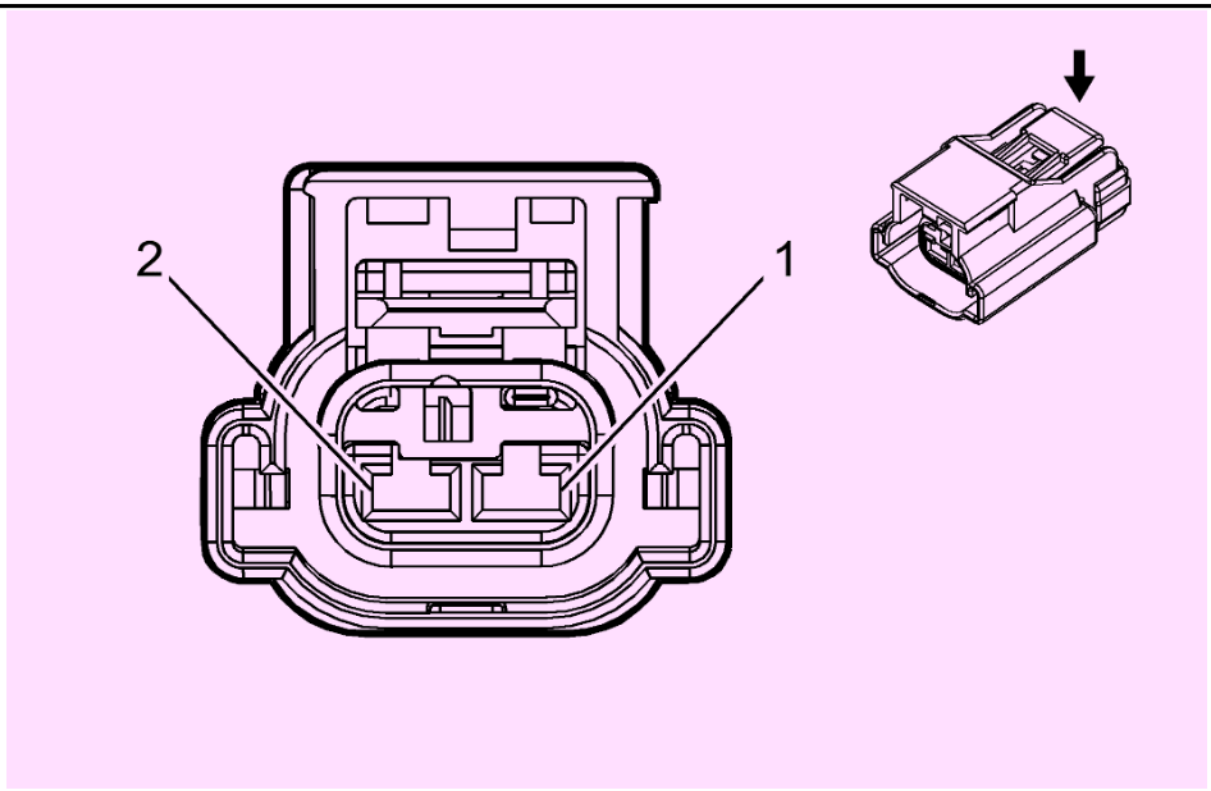

Connector Part Information

- Harness Type: Body
- OEM Connector: 13863838
- Service Connector: 19301518
- Description: 2-Way F 2.8 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	GY/L-GN	5441	Endgate Window Regulator Down Signal	I	-
2	2.5	YE/D-BU	5442	Endgate Window Regulator Up Signal	I	-

M64 STARTER MOTOR (L5P)

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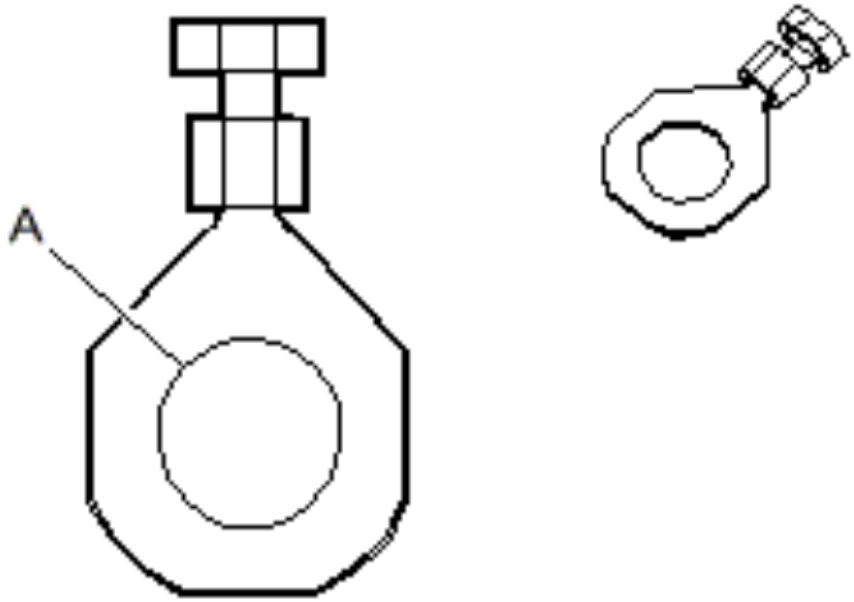

Connector Part Information

- Harness Type: Engine
- OEM Connector: 12103519
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 1-Way Ring Terminal

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	3	YE/VT	6	Starter Solenoid Crank Ignition Voltage	I	-

M64 STARTER MOTOR (L96/LC8)

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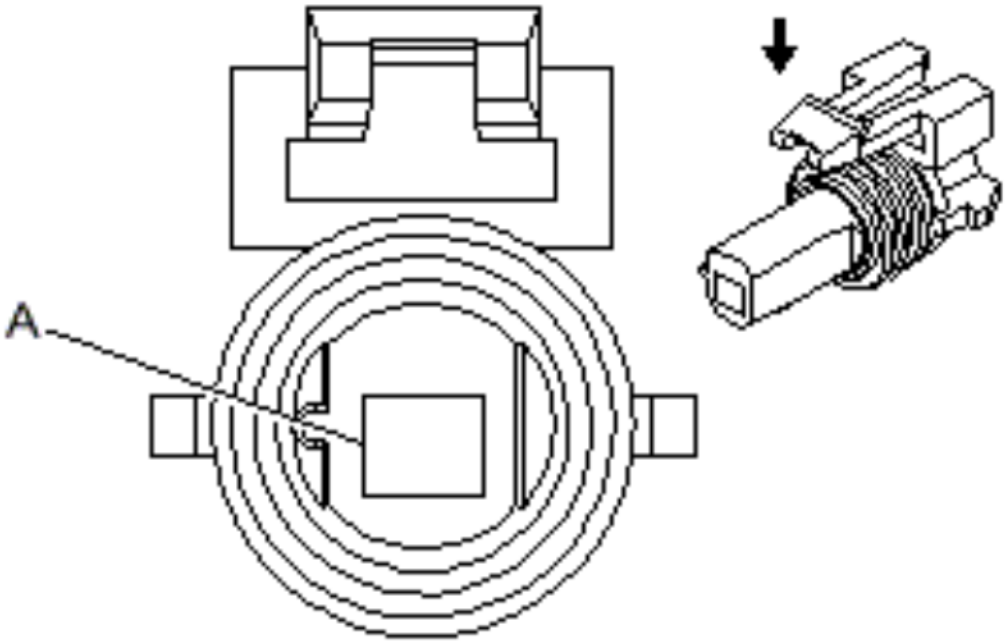

Connector Part Information

- Harness Type: Engine
- OEM Connector: 12089916
- Service Connector: 13584479
- Description: 1-Way F 280 Metri-Pack Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	4	YE	6	Starter Solenoid Crank Ignition Voltage	I	-

M64 STARTER MOTOR (LV1/LV3)

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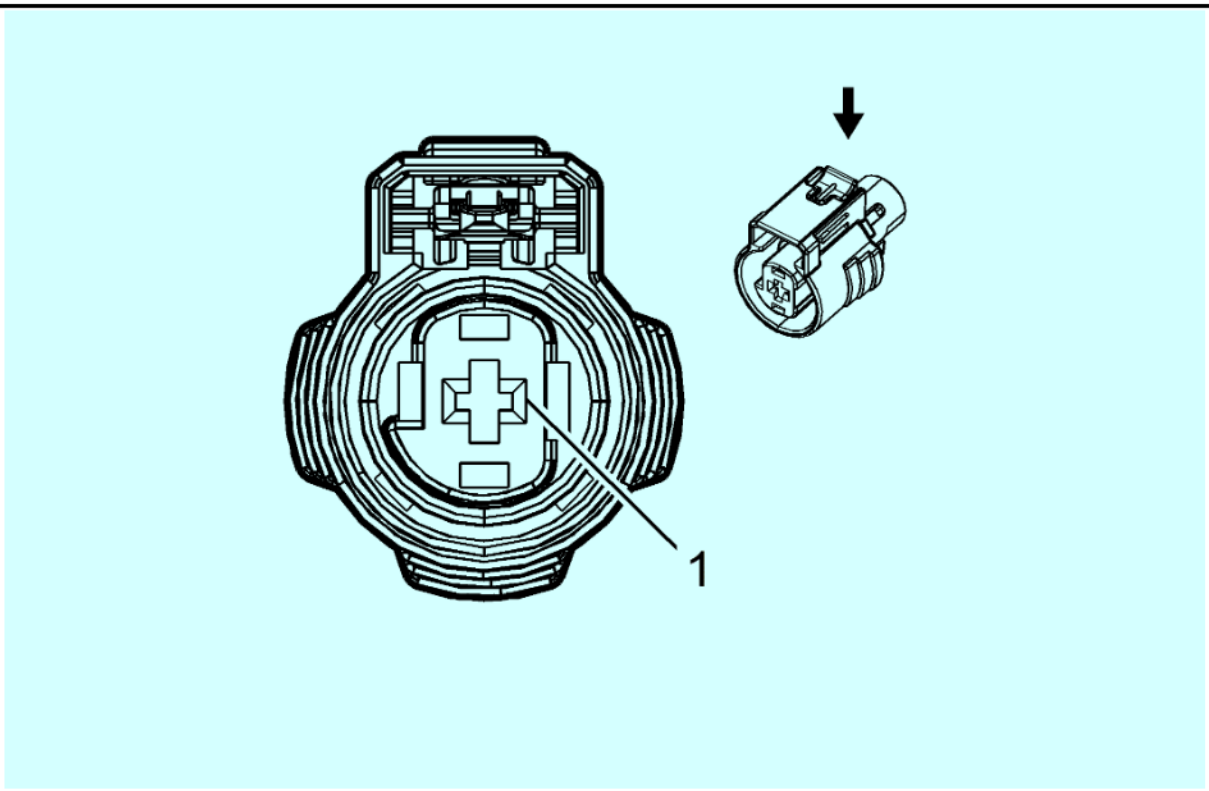

Connector Part Information

- Harness Type: Engine
- OEM Connector: 15526411
- Service Connector: 19300471
- Description: 1-Way F 2.8 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	4	YE	6	Starter Solenoid Crank Ignition Voltage	I	-

M73A SEAT BLOWER MOTOR - DRIVER BACK

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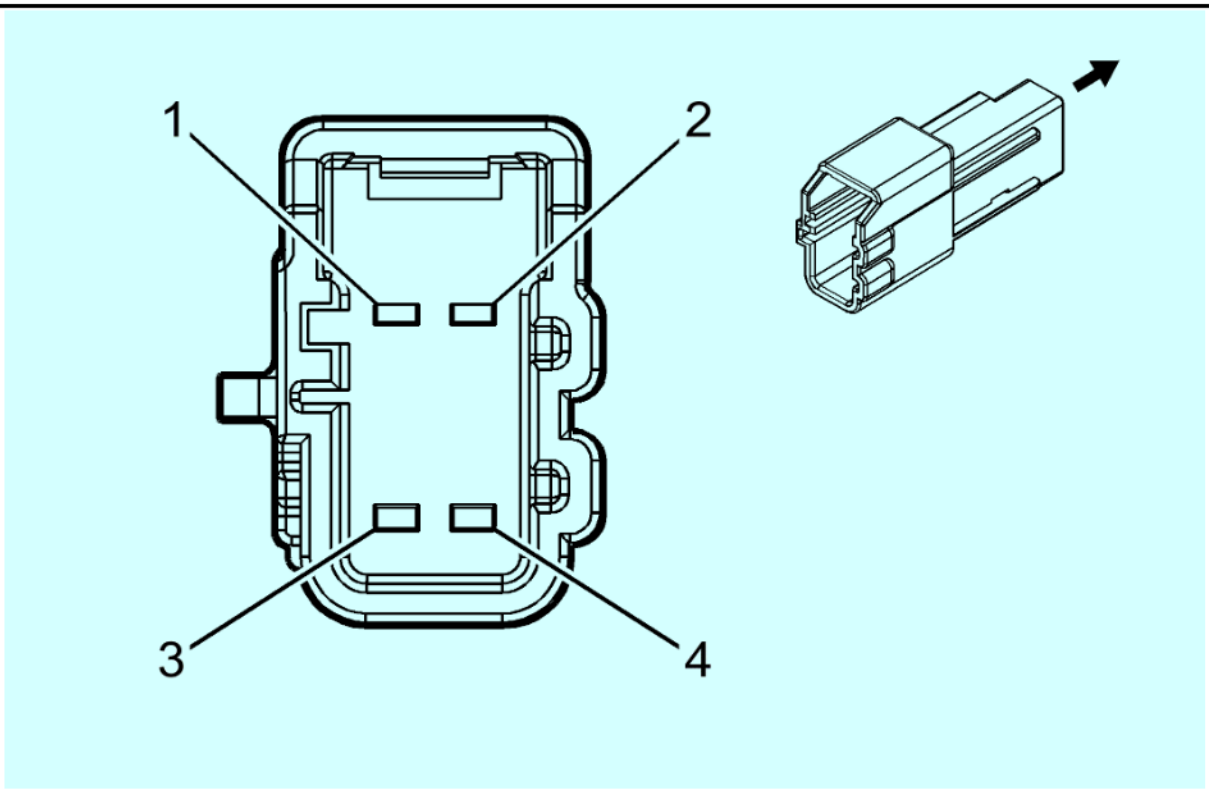

Connector Part Information

- Harness Type: Driver Seat Back Jumper
- OEM Connector: 6098-7779
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way M 1.2 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-13 (BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	RD/GN	5140	Battery Positive Voltage	I	-
2	0.35	GN/VT	5906	Driver Seat Vent Motor Control 1	I	-
3	0.75	BK	1150	Ground	I	-
4	-	-	-	Not Occupied	-	-

M73B SEAT BLOWER MOTOR - PASSENGER BACK

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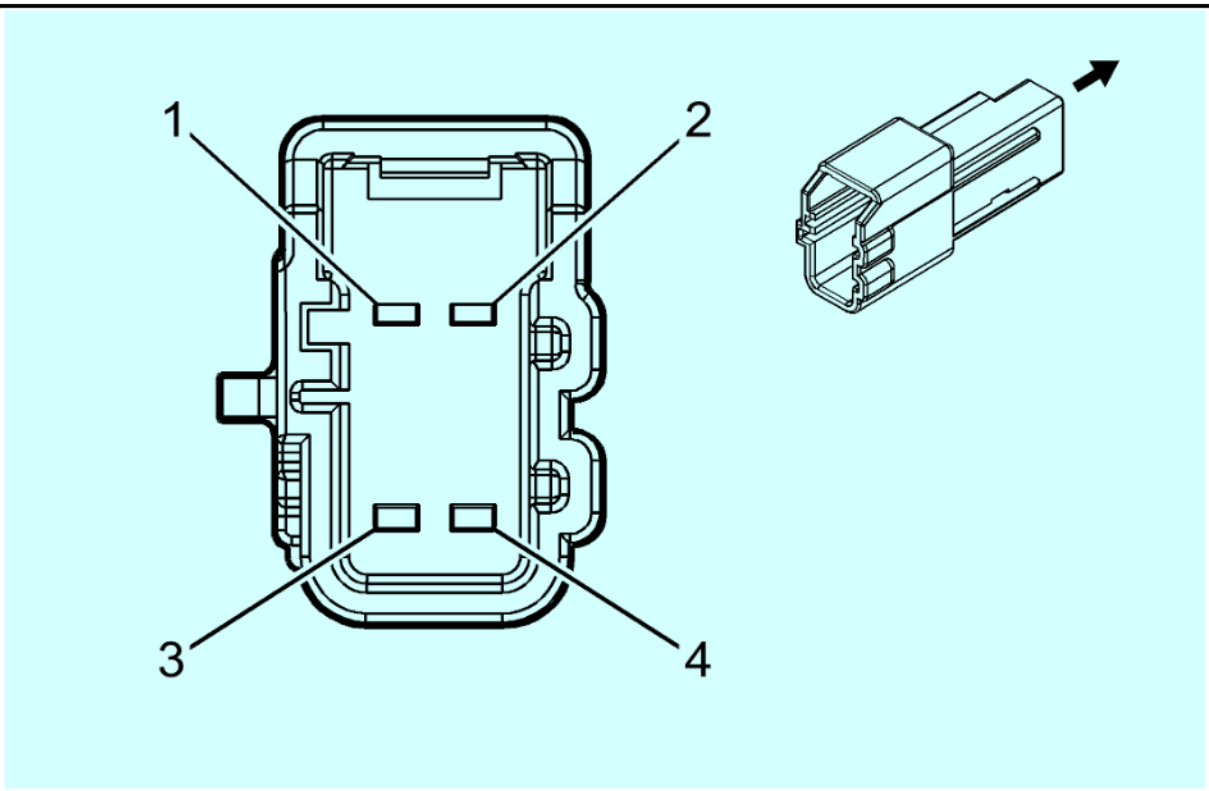

Connector Part Information

- Harness Type: Passenger Seat Back
- OEM Connector: 6098-7779
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way M 1.2 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-13 (BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	RD/L-GN	6140	Battery Positive Voltage	I	-
2	0.35	VT/WH	5908	Passenger Seat Vent Motor Control 1	I	-
3	0.75	BK	1250	Ground	I	-
4	-	-	-	Not Occupied	-	-

M73C SEAT BLOWER MOTOR - DRIVER CUSHION

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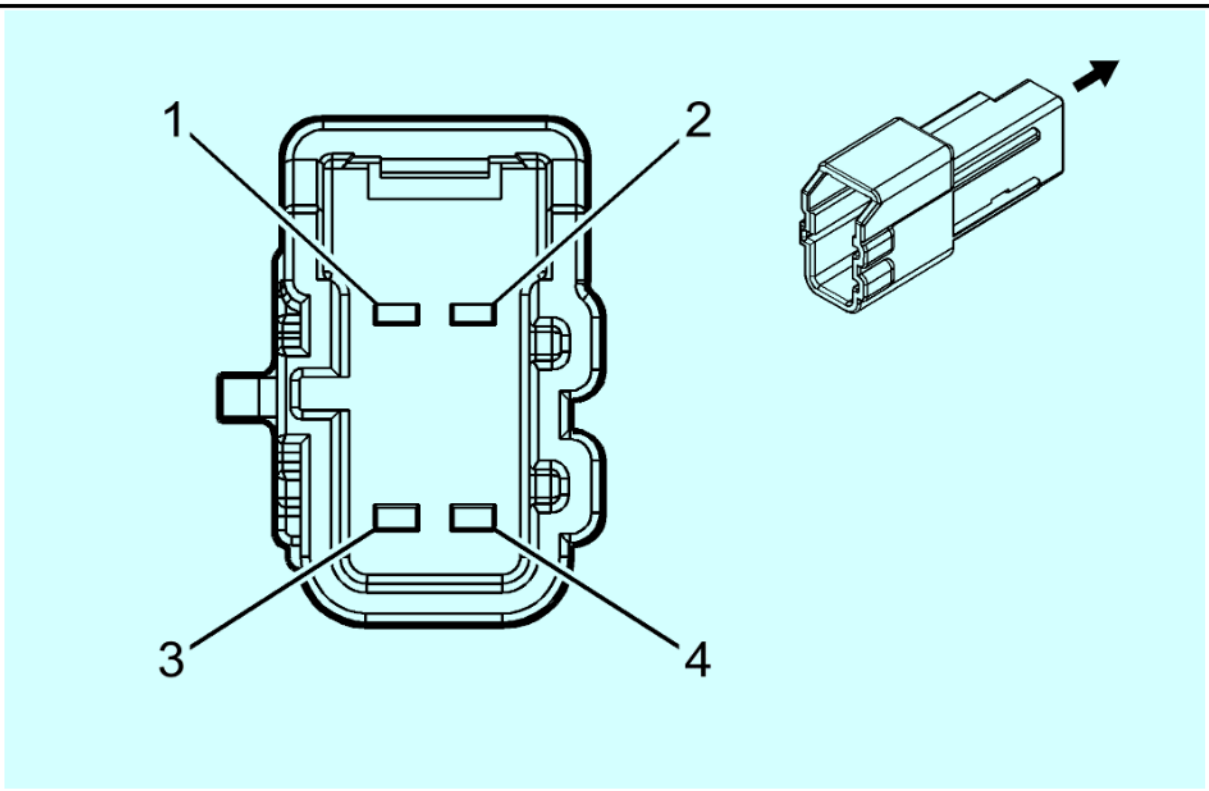

Connector Part Information

- Harness Type: Driver Seat Cushion
- OEM Connector: 6098-7781
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way M 1.2 Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-13 (BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	RD/L-GN	5140	Battery Positive Voltage	I	-
2	0.35	L-GN/VT	5906	Driver Seat Vent Motor Control 1	I	-
3	0.75	BK	1150	Ground	I	-
4	-	-	-	Not Occupied	-	-

M73D SEAT BLOWER MOTOR - PASSENGER CUSHION

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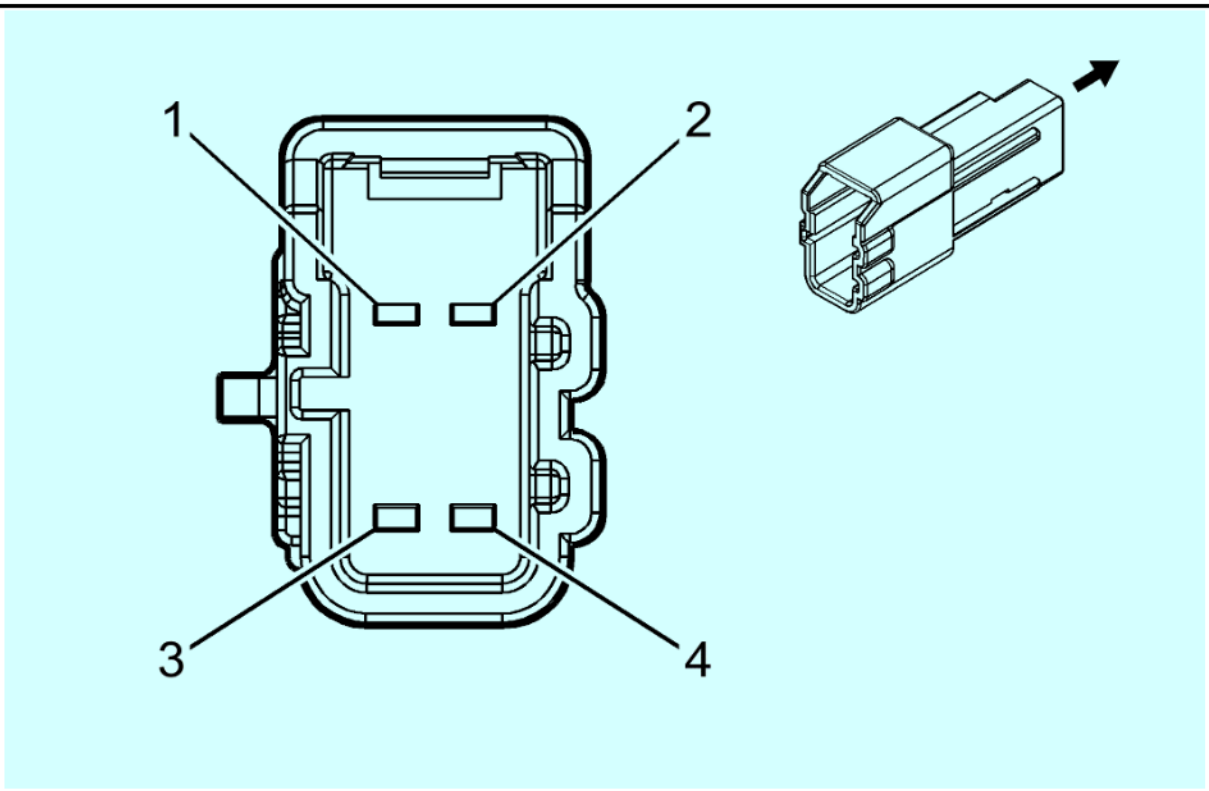

Connector Part Information

- Harness Type: Passenger Seat Cushion
- OEM Connector: 6098-7781
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way M 1.2 Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-13 (BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	RD/GN	6140	Battery Positive Voltage	I	-
2	0.35	VT/WH	5908	Passenger Seat Vent Motor Control 1	I	-
3	0.75	BK	1250	Ground	I	-
4	-	-	-	Not Occupied	-	-

M74D WINDOW MOTOR - DRIVER

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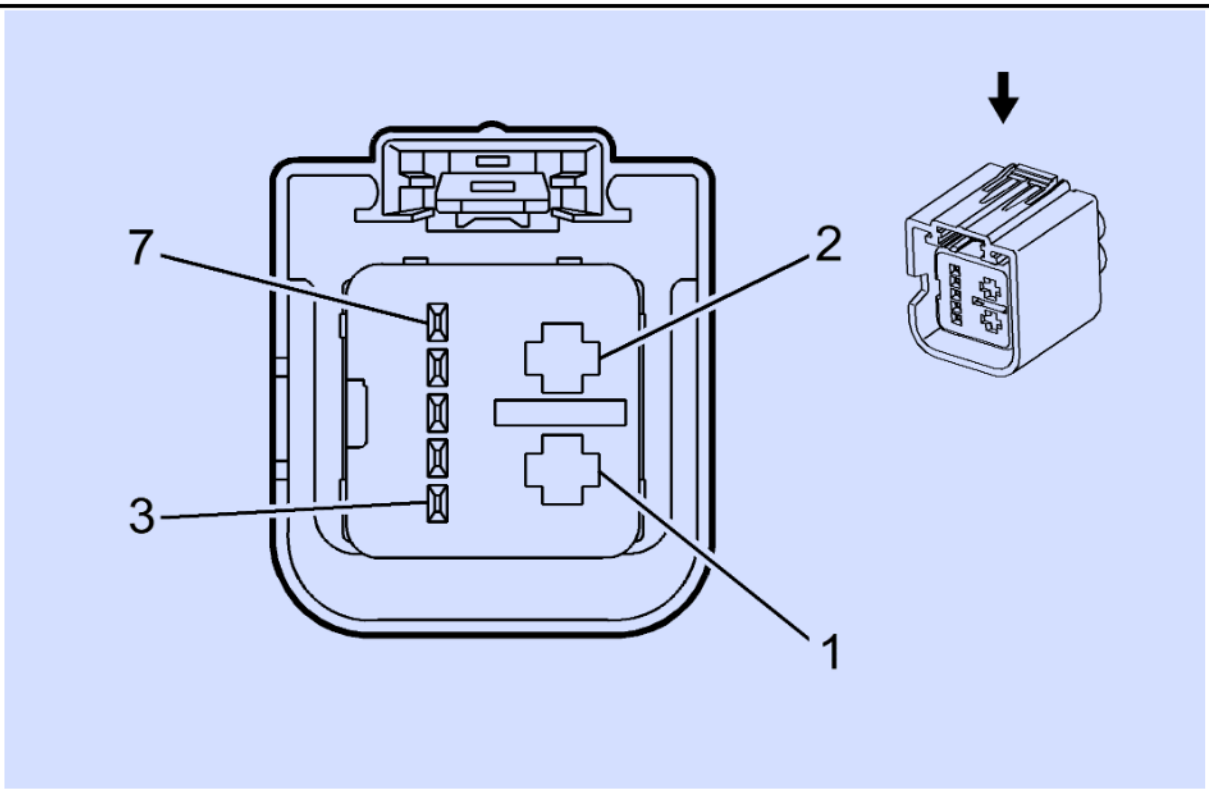

Connector Part Information

- Harness Type: Driver Door
- OEM Connector: 15504732
- Service Connector: Service by Harness - See Part Catalog
- Description: 7-Way F 0.64, 2.8 Kaizen Timer Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required
II	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	BK	1150	Ground	I	-
2	2.5	RD/BU	1842	Battery Positive Voltage	I	-
3	0.35	GN/WH	1300	Power Window Master Switch Left Front Up Signal	II	-
4	0.5	GN/YE	6134	Local Interconnect Network Serial Data Bus 3	II	-
5	0.35	GN/VT	7628	Power Window Motor Left Front Express Control	II	-

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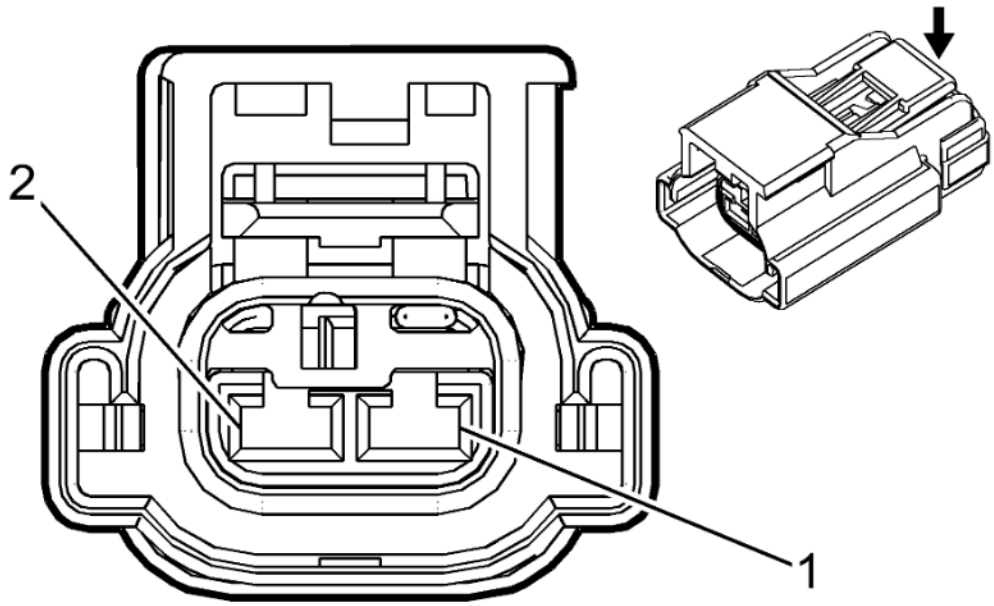
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
6	0.35	GY	745	Left Front Door Ajar Switch Signal	II	-
7	0.35	GY	1136	Power Window Master Switch Left Front Down Signal	II	-

M74LR WINDOW MOTOR - LEFT REAR



Connector Part Information

- Harness Type: Left Rear Door
- OEM Connector: 13896059
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 2.8 APEX Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	D-BU/VT	668	Power Window Motor Left Rear Up Control	I	-

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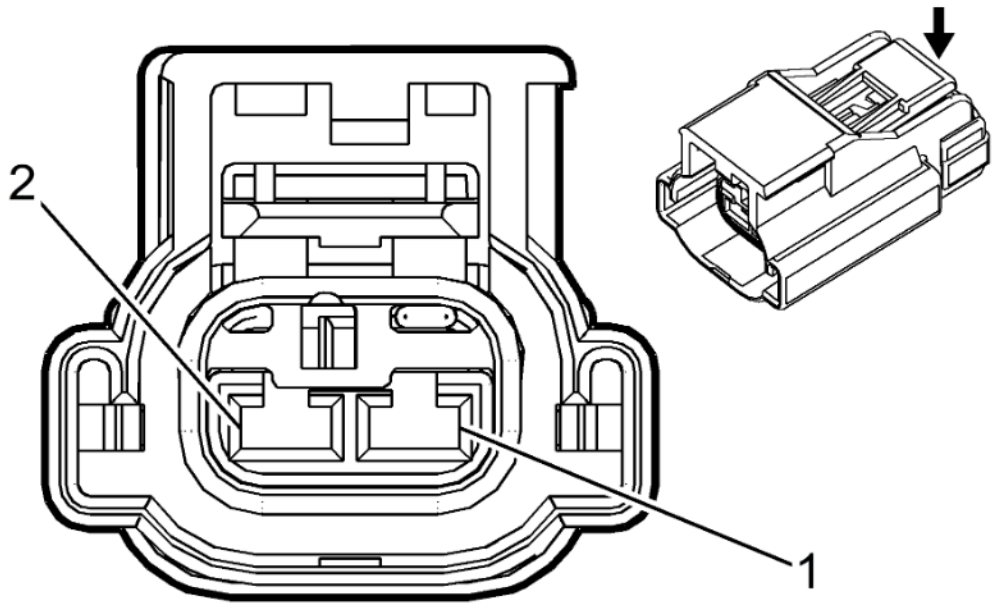
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
2	2.5	YE/D-BU	669	Power Window Motor Left Rear Down Control	I	-

M74P WINDOW MOTOR - PASSENGER



Connector Part Information

- Harness Type: Passenger Door
- OEM Connector: 13896059
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 2.8 APEX Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	YE/BU	3388	Power Window Motor Passenger Down Control	I	-
2	2.5	GN/GY	3387	Power Window Motor Passenger Up Control	I	-

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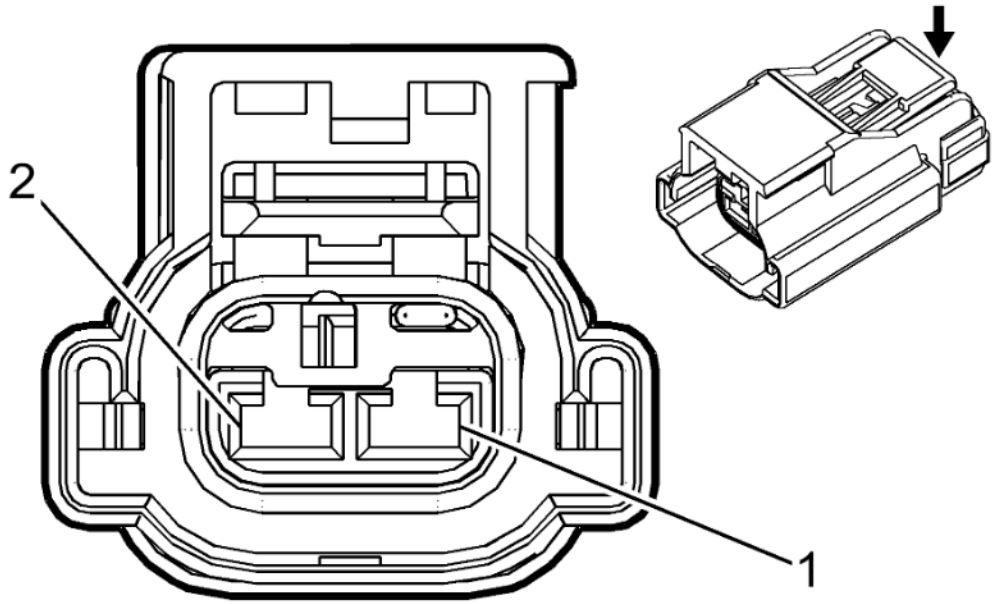
M74RR WINDOW MOTOR - RIGHT REAR



Connector Part Information

- Harness Type: Right Rear Door
- OEM Connector: 13896059
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 2.8 APEX Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	D-BU/GY	670	Power Window Motor Right Rear Up Control	I	-
2	2.5	L-GN/BK	671	Power Window Motor Right Rear Down Control	I	-

M75 WINDSHIELD WIPER MOTOR

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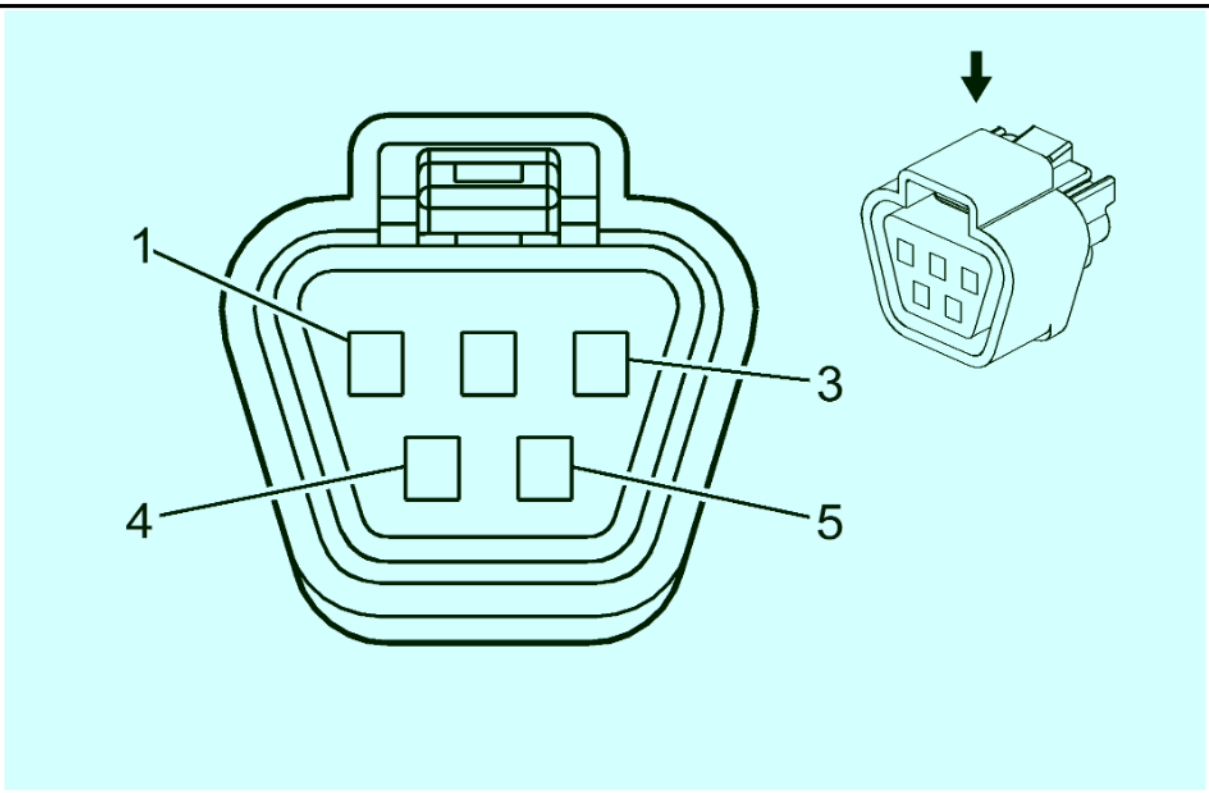

Connector Part Information

- Harness Type: Body
- OEM Connector: 15316488
- Service Connector: 13587179
- Description: 5-Way F 090 Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-18 (BK)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	YE/BN	95	Windshield Wiper Motor Low Speed Control	I	-
2	0.5	BK	1850	Ground	I	-
3	0.5	BN/L-GN	196	Windshield Wiper Motor Park Switch Signal	I	-
4	1	WH	92	Windshield Wiper Motor High Speed Control	I	-
5	1	BK	550	Ground	I	-

M95L ASSIST STEP - LEFT

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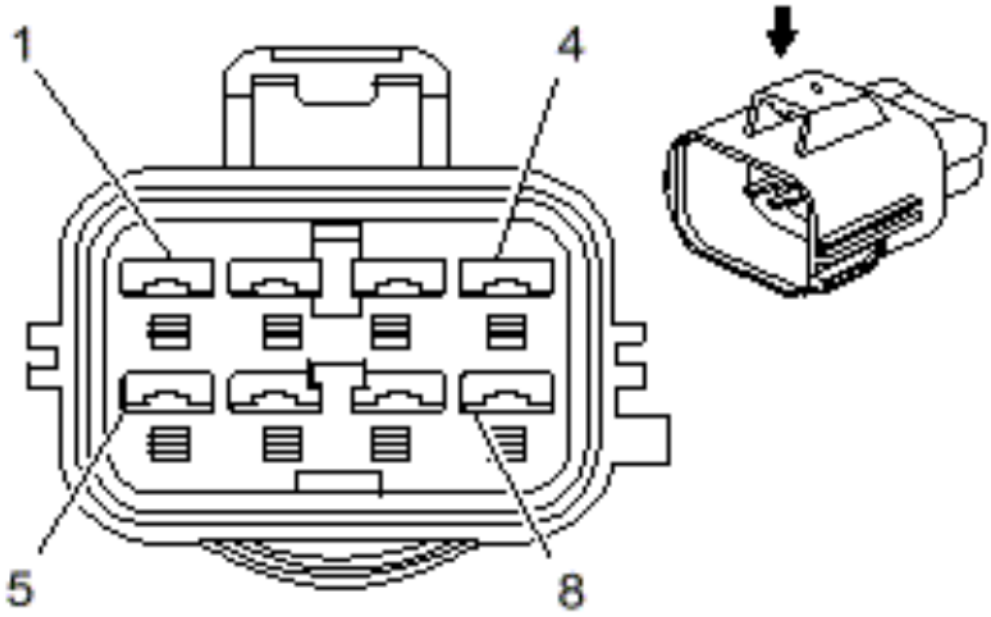

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 15419459
- Service Connector: 19167744
- Description: 8-Way M 2.8 Series, Sealed (D-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-5 (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2	WH/BN	7471	Articulating Running Boards Motor Left Control Extend	I	-
2	0.5	VT/RD	7468	Running Boards Motor Hall Sensor Left 5V Reference	I	-
3	0.5	YE	7467	Running Boards Motor Hall Sensor Left Signal	I	-
4	0.5	YE/BN	7466	Running Boards Motor Hall Sensor Left Low Reference	I	-
5	2	GY	7472	Articulating Running Boards Motor Left Control Retract	I	-
6	-	-	-	Not Occupied	-	-

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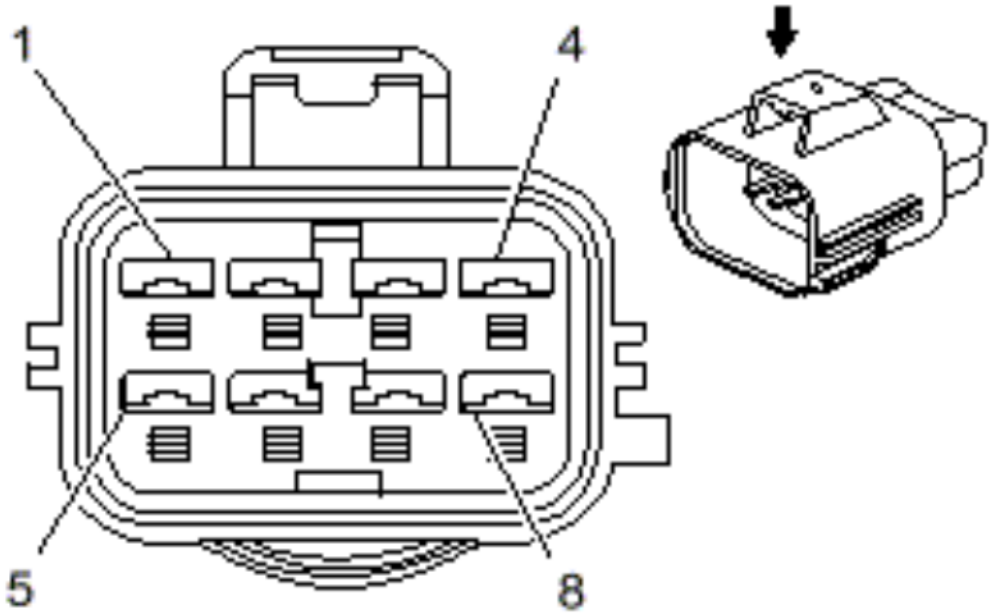
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
7	0.5	BN/WH	9001	-	I	-
8	0.5	BN/WH	9002	-	I	-

M95R ASSIST STEP - RIGHT



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 15419459
- Service Connector: 19167744
- Description: 8-Way M 2.8 Series, Sealed (D-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-5 (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2	D-BU	7470	Articulating Running Boards Motor Right Control Extend	I	-
2	0.5	L-GN/RD	7464	Running Boards Motor Hall Sensor Right 5V Reference	I	-

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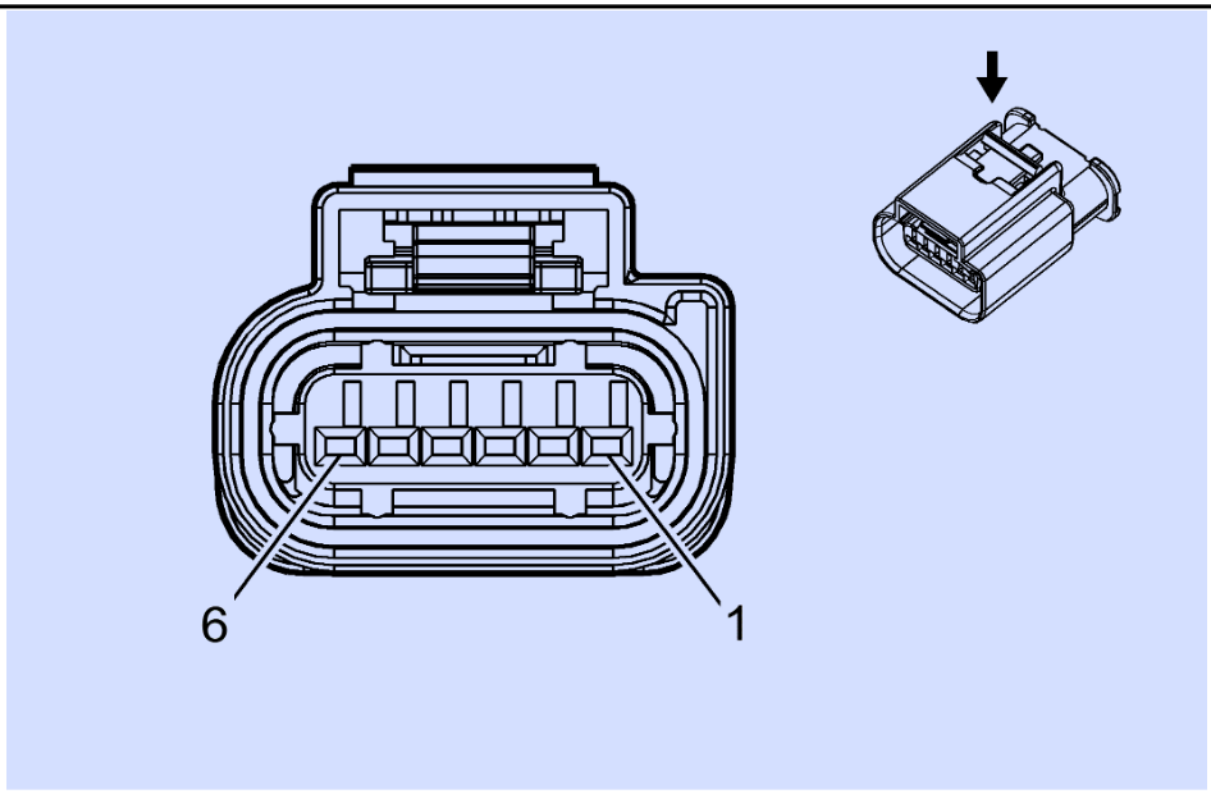
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	0.5	VT	7465	Running Boards Motor Hall Sensor Right Signal	I	-
4	0.5	YE/BK	7463	Running Boards Motor Hall Sensor Right Low Reference	I	-
5	2	L-GN	7469	Articulating Running Boards Motor Right Control Retract	I	-
6	-	-	-	Not Occupied	-	-
7	0.5	BN/WH	9000	-	I	-
8	0.5	BN/WH	9002	-	I	-

M103 TURBOCHARGER VANE POSITION ACTUATOR



Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 2138387-1
- Service Connector: 19333225
- Description: 6-Way F 1.2 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

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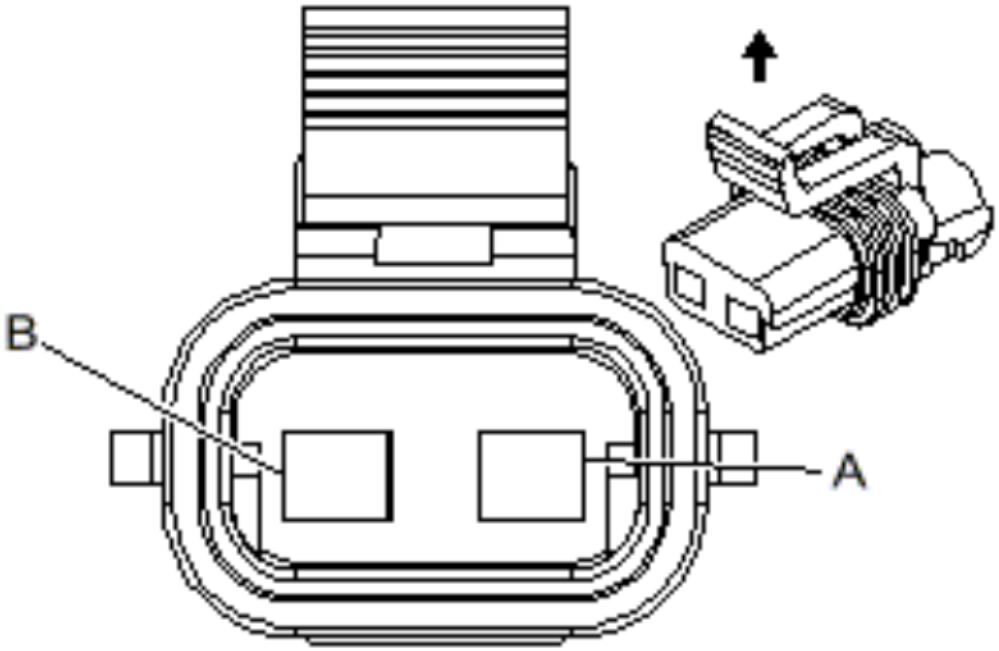
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH	4499	High Speed GMLAN Serial Data (-) 7	I	L5P
2	0.5	WH	4499	High Speed GMLAN Serial Data (-) 7	I	L5P
3	0.5	BU/BN	4498	High Speed GMLAN Serial Data (+) 7	I	L5P
4	0.5	BU/BN	4498	High Speed GMLAN Serial Data (+) 7	I	L5P
5	0.5	BK/WH	251	Signal Ground	I	L5P
6	0.5	VT/BU	3674	NOx Sensor 1 Control	I	L5P

P3 BACKUP ALARM (8S3)



Connector Part Information

- Harness Type: Back up Alarm
- OEM Connector: 15300027
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 280 Metri-Pack Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A	No Tool	Not Required	Not	Not	Not

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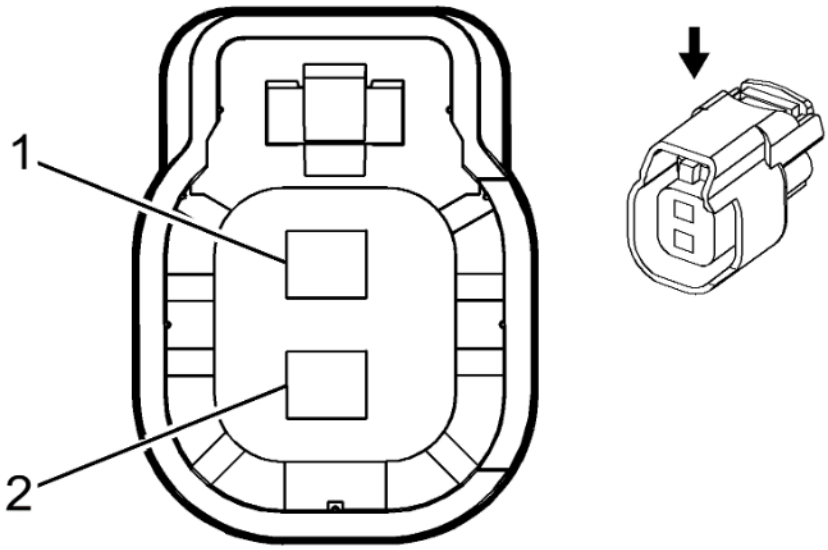
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
		(PU)	Required		Required	Required	Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1	GN	1624	Trailer Backup Lamp Control	I	-
B	1	WH	22	Trailer Ground	I	-

P12 HORN



Connector Part Information

- Harness Type: Forward Lamp
- OEM Connector: 13771883
- Service Connector: 13579002
- Description: 2-Way F 1.5 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal	Option

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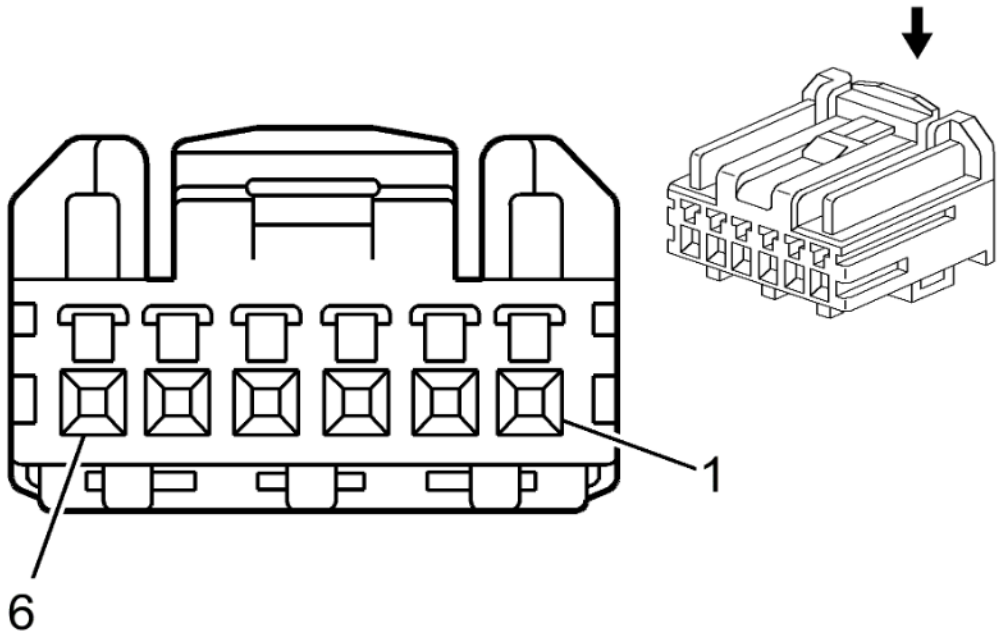
					Type ID	
1	0.75	BK	150	Ground	I	-
2	0.75	BN/GY	29	Horn Control	I	-

P14 PASSENGER AIR BAG DISABLED INDICATOR



Connector Part Information

- Harness Type: Overhead Console
- OEM Connector: 13608102
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way F 0.64 HCM Series (NA)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BU	2307	Passenger Air Bag On Indicator Control	I	-
2	0.5	BK	1050	Ground	I	-
3	0.35	GN	2308	Passenger Air Bag Off Indicator Control	I	-

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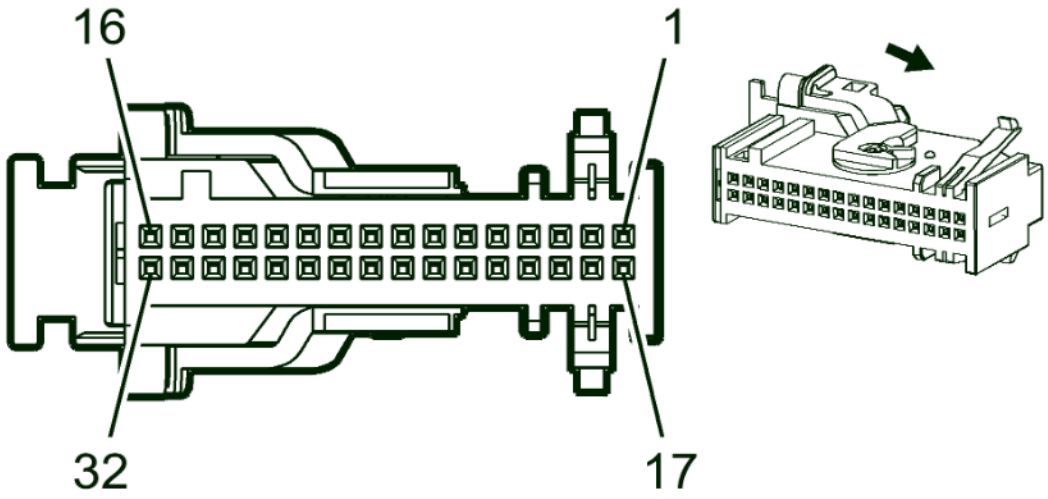
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
4	0.35	VT/WH	1139	Run/Crank Ignition 1 Voltage	I	-
5	0.35	VT/WH	5234	Passenger Seat Belt Indicator Control	I	-
6	-	-	-	Not Occupied	-	-

P16 INSTRUMENT CLUSTER (UHS)



Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 12198036
- Service Connector: 88988405
- Description: 32-Way F 0.64 Micro-Quadlock Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575522	J-35616-64B (LT BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/GN	3997	MOST Serial Data (-)	I	-
2	0.5	GY/VT	3998	MOST Serial Data (+)	I	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	0.5	GY/GN	1102	Low Speed GMLAN Serial Data #2	I	-
4	-	-	-	Not Occupied	-	-
5	0.35	WH/VT	3999	MOST Control	I	-
6	-	-	-	Not Occupied	-	-
7	0.5	RD/GY	2840	Battery Positive Voltage	I	-
8	0.5	VT/BK	1639	Run/Crank Ignition 1 Voltage	I	-
9	-	-	-	Not Occupied	-	-
10	0.5	BU/YE	68	Low Coolant Level Indicator Control	I	-
11	-	-	-	Not Occupied	-	-
12	0.35	GY/YE	3885	Forward Collision Alert LED Control	I	-
13 - 15	-	-	-	Not Occupied	-	-
16	0.35	BN/WH	419	Check Engine Indicator Control	I	-
17	0.5	GY/VT	3998	MOST Serial Data (+)	I	-
18	0.5	WH/GN	3997	MOST Serial Data (-)	I	-
19	0.5	BK/WH	1851	Signal Ground	I	-
20	0.5	GN/BK	3894	Local Interconnect Network Serial Data Bus 12	I	-
21 - 23	-	-	-	Not Occupied	-	-
24	0.35	VT	185	Low Washer Fluid Indicator Control	I	-
25	0.35	BK/BU	61	Outside Ambient Temperature Sensor Low Reference	I	-
26	-	-	-	Not Occupied	-	-
27	0.35	BU/GY	636	Outside Ambient Air Temperature Sensor Signal	I	-
28 - 29	-	-	-	Not Occupied	-	-
30	0.35	WH/GN	3535	Reflected LED Display Dimming Control	I	-
31	-	-	-	Not Occupied	-	-
32	0.35	GN/BN	507	Wait To Start Indicator Control	I	-

P16 INSTRUMENT CLUSTER (-UHS)

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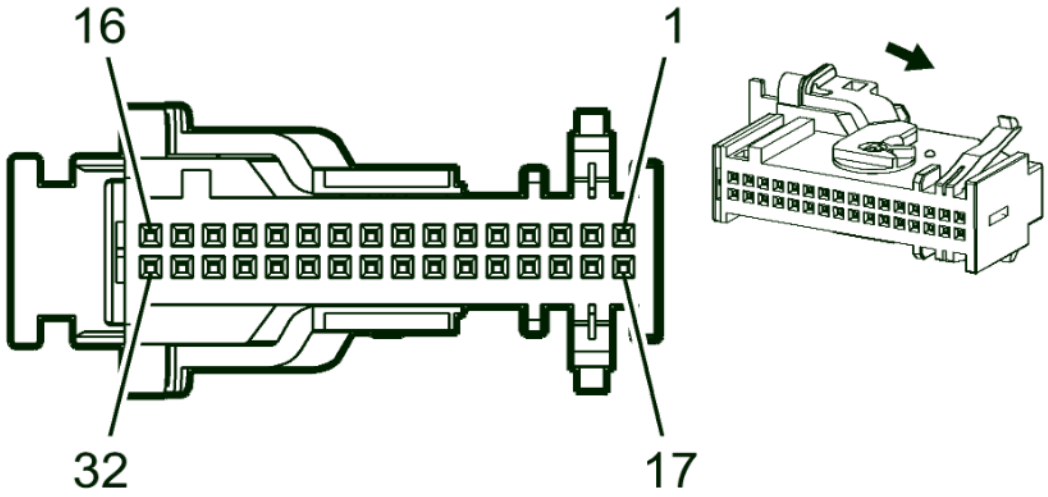

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 12198036
- Service Connector: 88988405
- Description: 32-Way F 0.64 Micro-Quadlock Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575522	J-35616-64B (LT BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/GN	3997	MOST Serial Data (-)	I	-
2	0.5	GY/VT	3998	MOST Serial Data (+)	I	-
3	0.5	GY/GN	1102	Low Speed GMLAN Serial Data #2	I	-
4	-	-	-	Not Occupied	-	-
5	0.35	WH/VT	3999	MOST Control	I	-
6	-	-	-	Not Occupied	-	-
7	0.5	RD/GY	2840	Battery Positive Voltage	I	-
8	0.5	VT/BK	1639	Run/Crank Ignition 1 Voltage	I	-
9	-	-	-	Not Occupied	-	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
10	0.5	BU/YE	68	Low Coolant Level Indicator Control	I	-
11	-	-	-	Not Occupied	-	-
12	0.35	GY/YE	3885	Forward Collision Alert LED Control	I	-
13 - 15	-	-	-	Not Occupied	-	-
16	0.35	BN/WH	419	Check Engine Indicator Control	I	-
17	0.5	GY/VT	3998	MOST Serial Data (+)	I	-
18	0.5	WH/GN	3997	MOST Serial Data (-)	I	-
19	0.5	BK/WH	1851	Signal Ground	I	-
20	0.5	GN/BK	3894	Local Interconnect Network Serial Data Bus 12	I	-
21 - 23	-	-	-	Not Occupied	-	-
24	0.35	VT	185	Low Washer Fluid Indicator Control	I	-
25	0.35	BK/BU	61	Outside Ambient Temperature Sensor Low Reference	I	-
26	-	-	-	Not Occupied	-	-
27	0.35	BU/GY	636	Outside Ambient Air Temperature Sensor Signal	I	-
28 - 29	-	-	-	Not Occupied	-	-
30	0.35	WH/GN	3535	Reflected LED Display Dimming Control	I	-
31	-	-	-	Not Occupied	-	-
32	0.35	GN/BN	507	Wait To Start Indicator Control	I	-

P17 INFO DISPLAY MODULE X1 (IO3)

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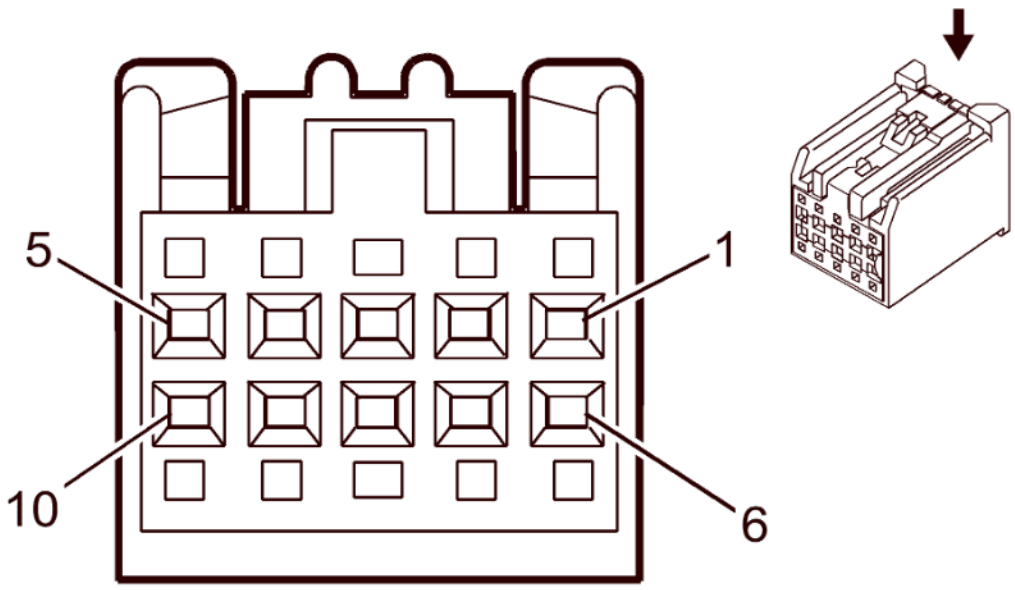

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13815336
- Service Connector: 13577390
- Description: 10-Way F 0.64 Kaizen Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	19300440	J-35616-64B (LT BU)	J-38125-215A	SAIT-A03T-M064	Yazaki 14	P	P

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD/GY	2840	Battery Positive Voltage	I	-
2	-	-	-	Not Occupied	-	-
3	0.5	GY/L-GN	1102	Low Speed GMLAN Serial Data #2	I	-
4	-	-	-	Not Occupied	-	-
5	0.5	L-GN/D-BU	7532	Local Interconnect Network Serial Data Bus 10	I	-
6 - 9	-	-	-	Not Occupied	-	-
10	0.35	BK	2550	Ground	I	-

P17 INFO DISPLAY MODULE X1 (IO5/IO6)

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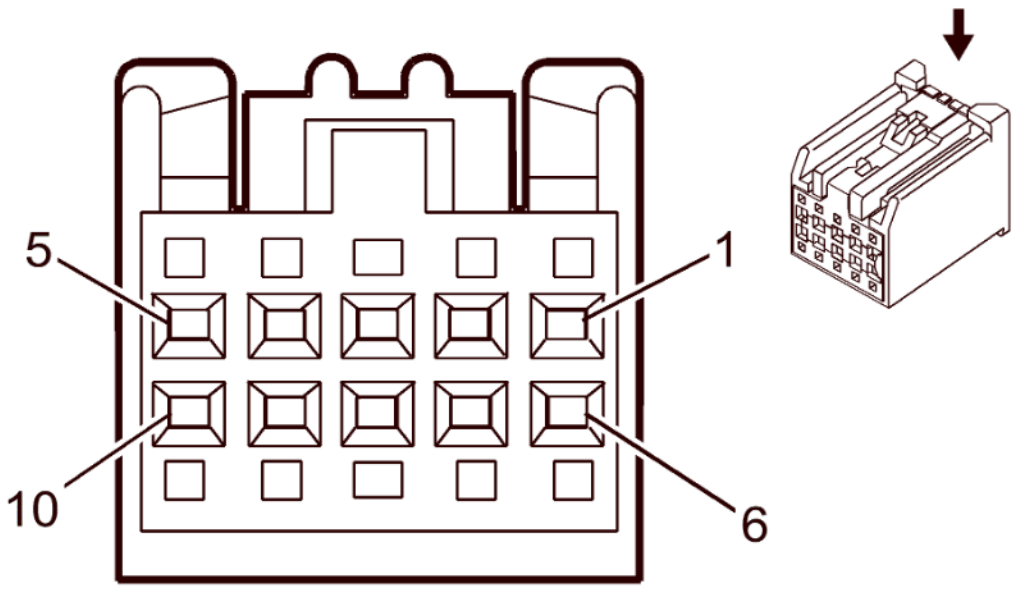

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13815336
- Service Connector: 13577390
- Description: 10-Way F 0.64 Kaizen Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	19300440	J-35616-64B (LT BU)	J-38125-215A	SAIT-A03T-M064	Yazaki 14	P	P

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD/GY	2840	Battery Positive Voltage	I	-
2	-	-	-	Not Occupied	-	-
3	0.5	GY/L-GN	1102	Low Speed GMLAN Serial Data #2	I	-
4	-	-	-	Not Occupied	-	-
5	0.5	L-GN/D-BU	7532	Local Interconnect Network Serial Data Bus 10	I	-
6 - 7	-	-	-	Not Occupied	-	-
8	0.5	L-GN/WH	7527	Local Interconnect Network Serial Data Bus 5	I	-
9	-	-	-	Not Occupied	-	-

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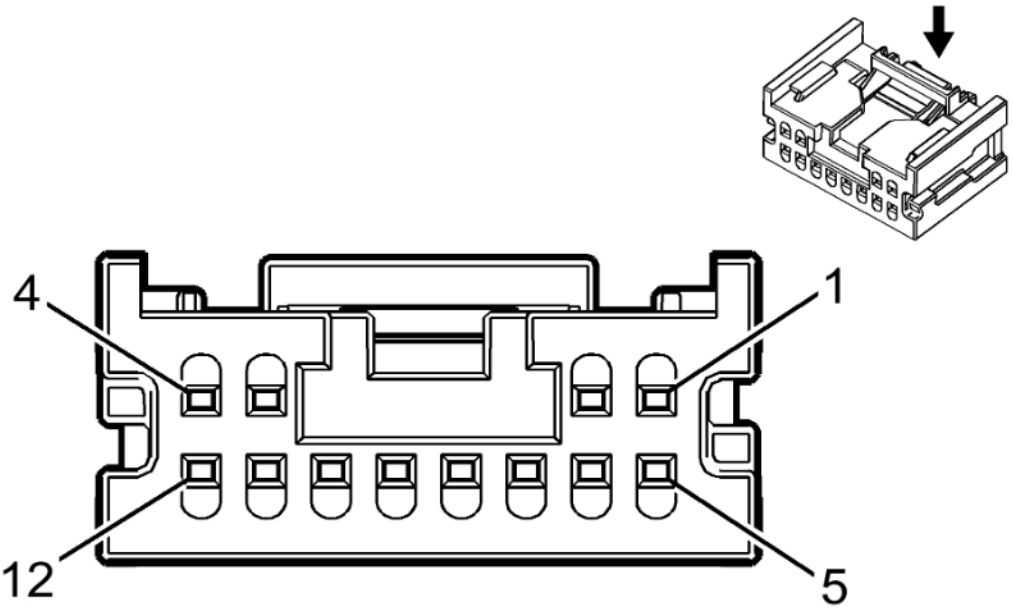
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
10	0.35	BK	2550	Ground	I	-

P17 INFO DISPLAY MODULE X1 (IOB)



Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 33253016
- Service Connector: 13588265
- Description: 12-Way F Mini 50 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13579954	No Tool Required	J-38125-553	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BN	9004	-	I	-
2	0.35	BN/L-GN	3364	Navigation Display Reset Signal	I	-
3	0.35	GY/BN	3761	Infotainment Regulated Control	I	-
4	0.35	L-GN/BK	2515	Keypad Control	I	-
5	0.35	VT/GY	1381	LCD Dimming Signal	I	-

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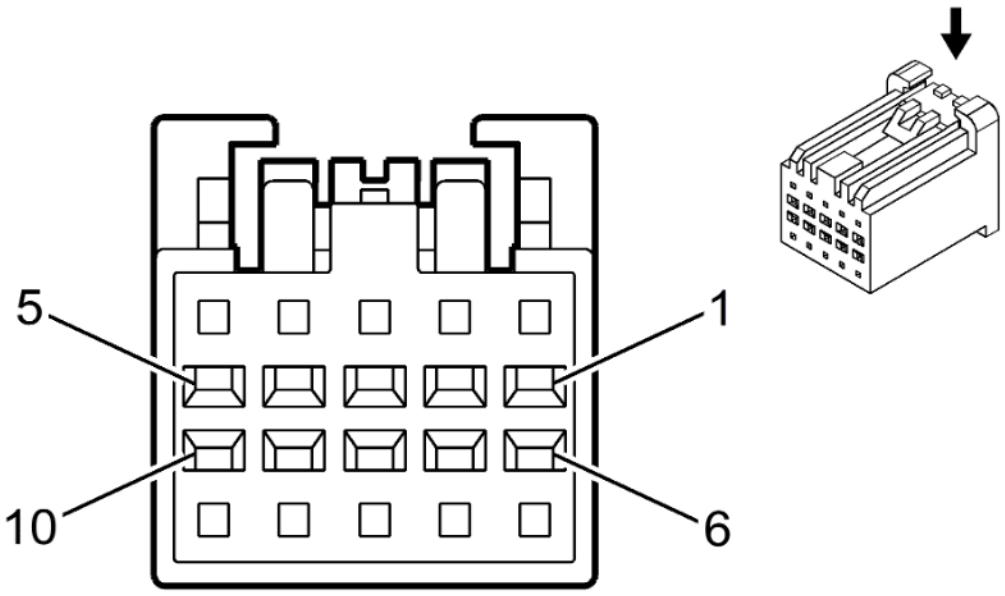
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
6	0.35	GY/D-BU	3989	Display Radio Bank Switch Dim Signal	I	-
7	0.35	BN/L-GN	4502	Video Display Request Signal	I	-
8	0.35	GY/BN	9003	-	I	-
9	0.35	BK	2550	Ground	I	-
10	0.35	BK	2550	Ground	I	-
11	0.35	BK/BN	2518	Keypad Low Reference	I	-
12	0.35	GY/D-BU	3989	Display Radio Bank Switch Dim Signal	I	-

P17 INFO DISPLAY MODULE X2



Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13876499
- Service Connector: 13581139
- Description: 10-Way F 0.64 Kaizen Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	19300440	J-35616-64B (LT BU)	J-38125-215A	SAIT-A03T-M064	Yazaki 14	P	P

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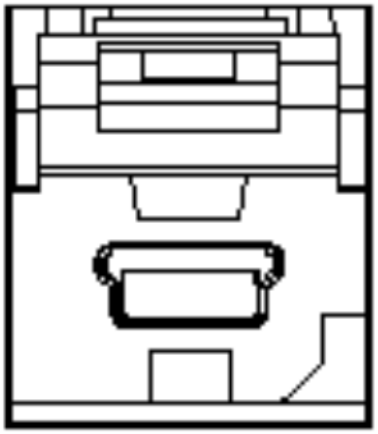
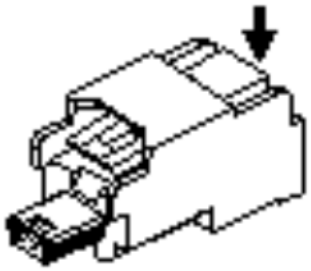
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD/GY	2840	Battery Positive Voltage	I	-
2	-	-	-	Not Occupied	-	-
3	0.35	L-GN	5060	Low Speed GMLAN Serial Data	I	-
4 - 8	-	-	-	Not Occupied	-	-
9	0.35	L-GN/YE	7531	Local Interconnect Network Serial Data Bus 9	I	-
10	0.35	BK	2550	Ground	I	-

P17 INFO DISPLAY MODULE X3 (IO3/IO5/IO6)





Connector Part Information

- Harness Type: Instrument Panel LVDS
- OEM Connector: 13585076
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 5-Way M 2.0 Mini B USB Type (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal	Option

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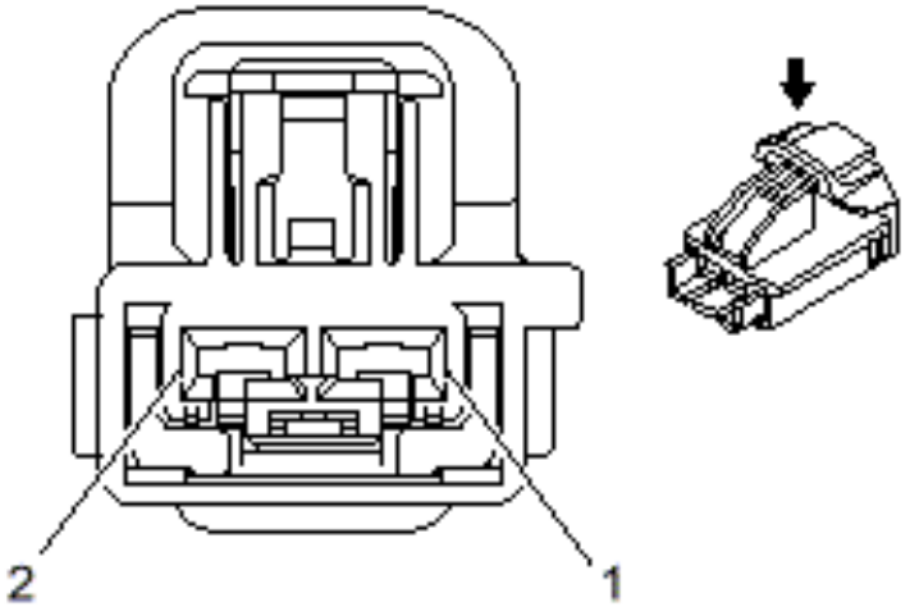
					Type ID	
USB	-	-	-	Not Occupied	-	-

P19AC SPEAKER - SUBWOOFER



Connector Part Information

- Harness Type: Body
- OEM Connector: 10846819
- Service Connector: 19301720
- Description: 2-Way F YESC Kaizen Series (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	D-BU/GY	346	Left/Rear Subwoofer Speaker Control (+)	I	-
2	2.5	GY/BK	315	Right Subwoofer Speaker (-) Low Reference	I	-

P19AG SPEAKER - LEFT FRONT DOOR

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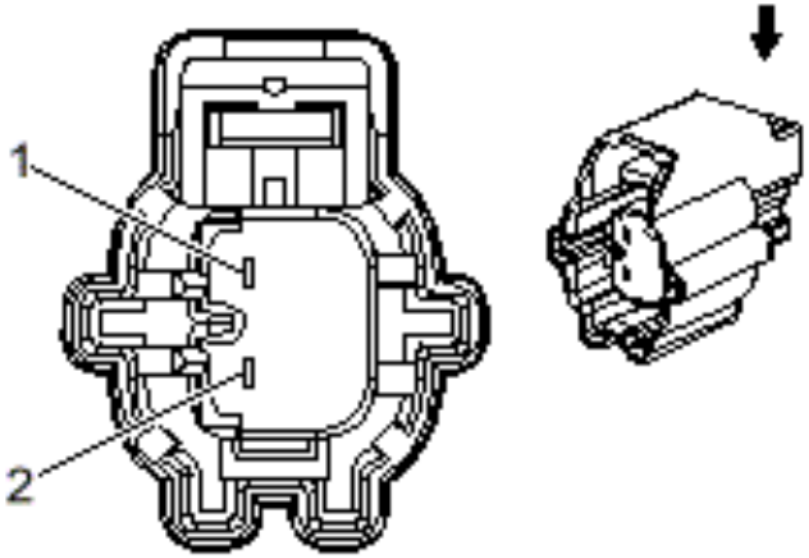

Connector Part Information

- Harness Type: Driver Door
- OEM Connector: 13665501
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 150 GT Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	BN/D-BU	118	Left Front Speaker Signal (-) 1	I	-
2	1	D-BU	201	Left Front Speaker Control (+) 1	I	-

P19AH SPEAKER - RIGHT FRONT DOOR

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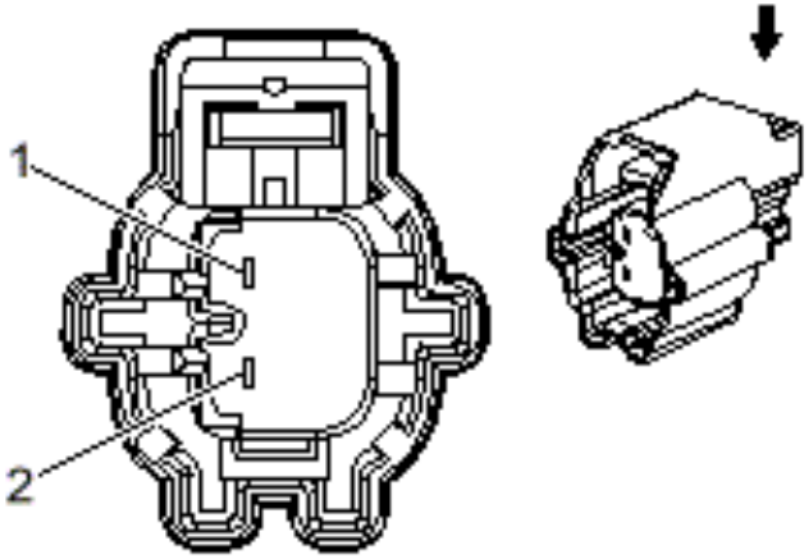

Connector Part Information

- Harness Type: Passenger Door
- OEM Connector: 13665501
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 150 GT Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	YE/BK	117	Right Front Speaker Signal (-) 1	I	-
2	1	YE	200	Right Front Speaker Control (+) 1	I	-

P19AL SPEAKER - LEFT REAR DOOR

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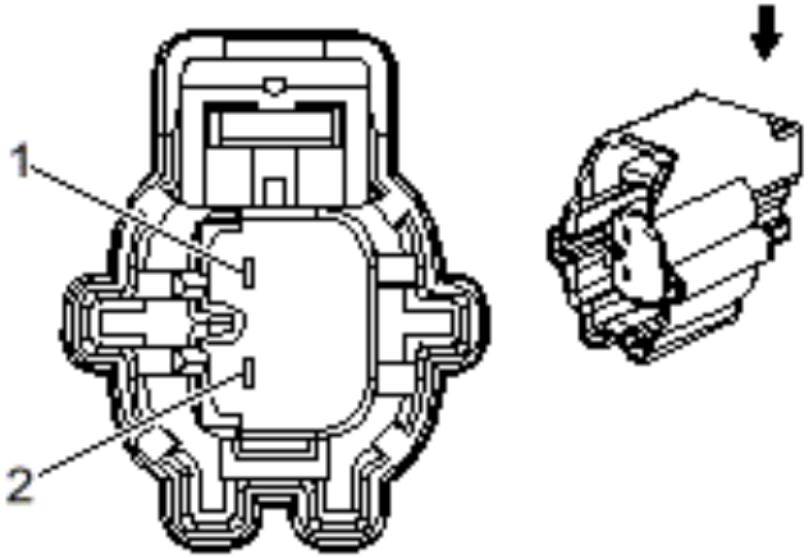

Connector Part Information

- Harness Type: Left Rear Door
- OEM Connector: 13665501
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 150 GT Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	GN/BK	116	Left Rear Speaker Signal (-)	I	-
2	1	GN	199	Left Rear Speaker Control (+)	I	-

P19AM SPEAKER - RIGHT REAR DOOR

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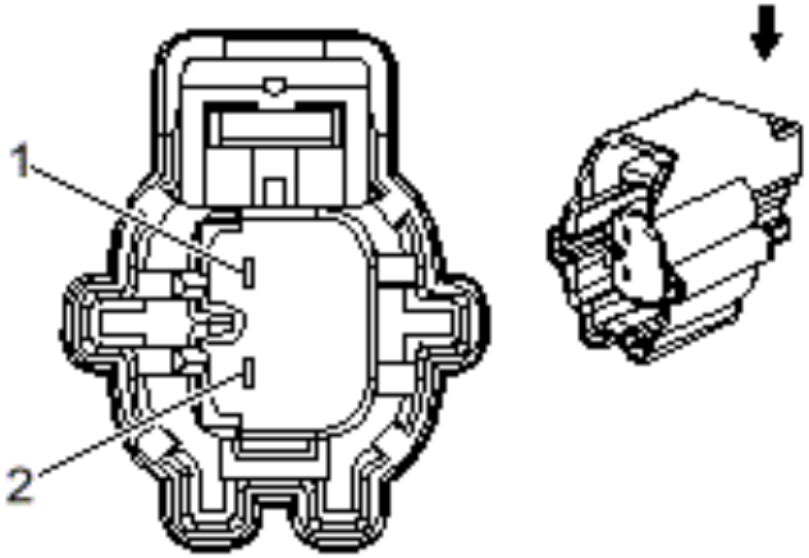

Connector Part Information

- Harness Type: Right Rear Door
- OEM Connector: 13665501
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 150 GT Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	BU/BK	115	Right Rear Speaker Signal (-)	I	-
2	1	WH	46	Right Rear Speaker Control (+)	I	-

P19AN SPEAKER - LEFT REAR TRIM PANEL

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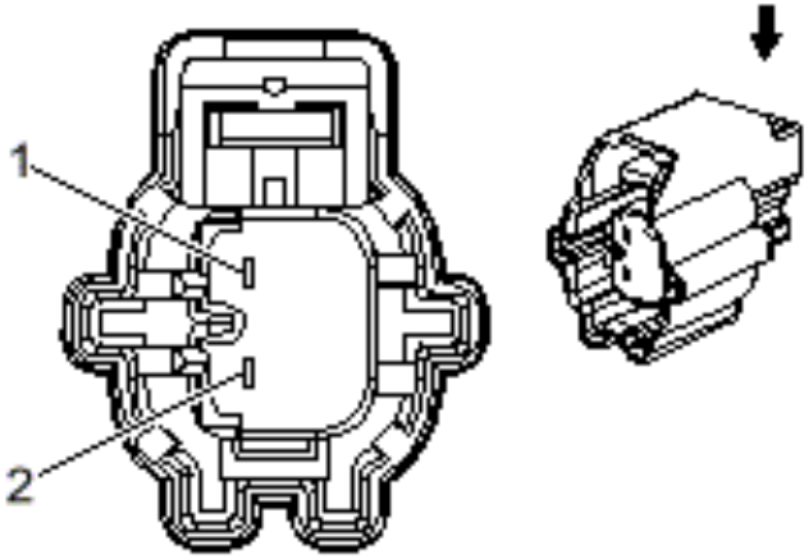

Connector Part Information

- Harness Type: Body
- OEM Connector: 13665501
- Service Connector: 19301724
- Description: 2-Way F 150 GT Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-GN/BK	116	Left Rear Speaker Signal (-)	I	-
2	0.5	L-GN	199	Left Rear Speaker Control (+)	I	-

P19AP SPEAKER - RIGHT REAR TRIM PANEL

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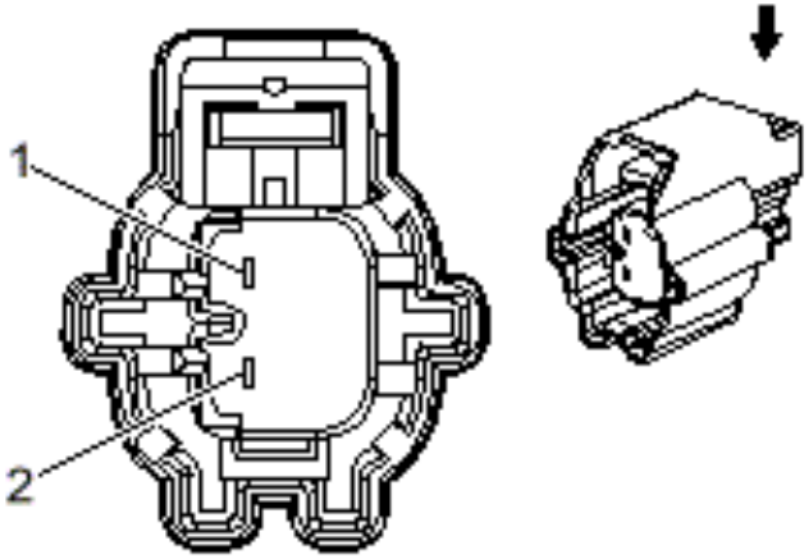

Connector Part Information

- Harness Type: Body
- OEM Connector: 13665501
- Service Connector: 19301724
- Description: 2-Way F 150 GT Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU/BK	115	Right Rear Speaker Signal (-)	I	-
2	0.5	WH	46	Right Rear Speaker Control (+)	I	-

P19J SPEAKER - LEFT INSTRUMENT PANEL (UQ3/UQG)

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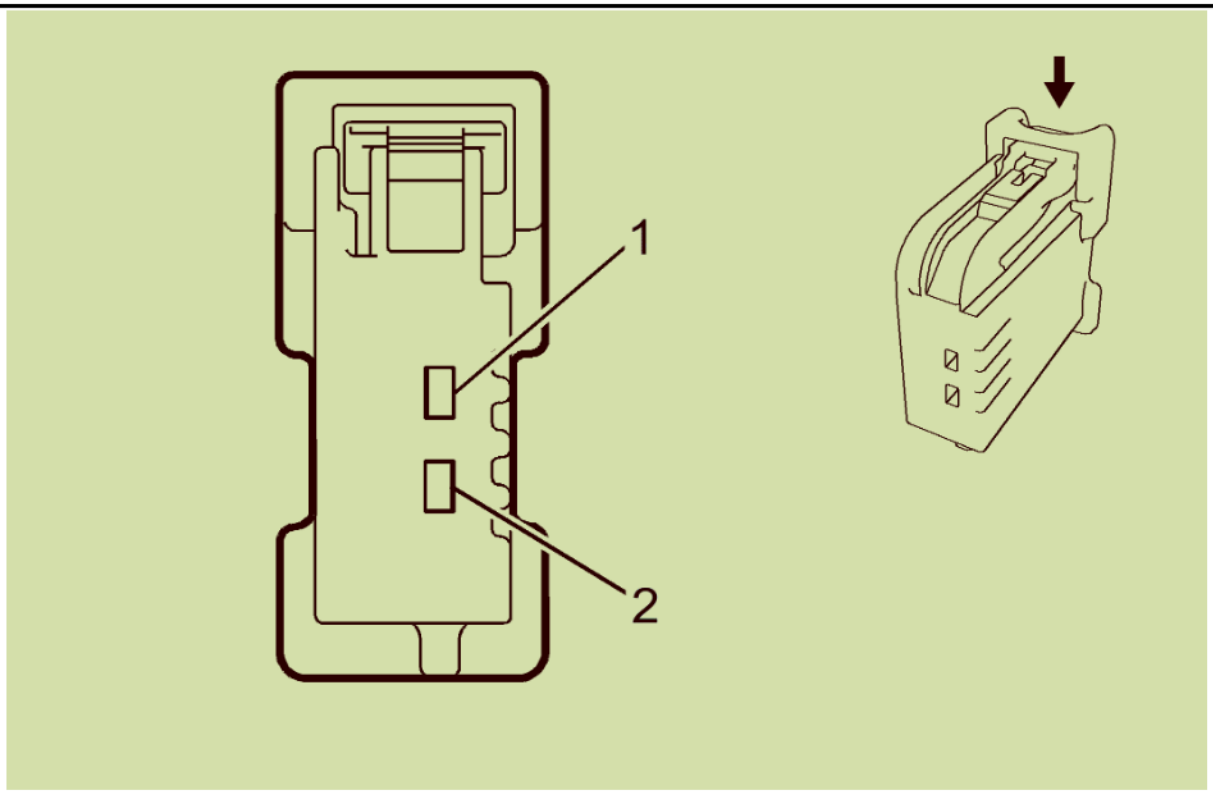

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13595207
- Service Connector: 13584097
- Description: 2-Way F 1.5 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN/BU	118	Left Front Speaker Signal (-) 1	I	-
2	0.5	BU	201	Left Front Speaker Control (+) 1	I	-

P19J SPEAKER - LEFT INSTRUMENT PANEL (UQA/UQS/UQH-UQG)

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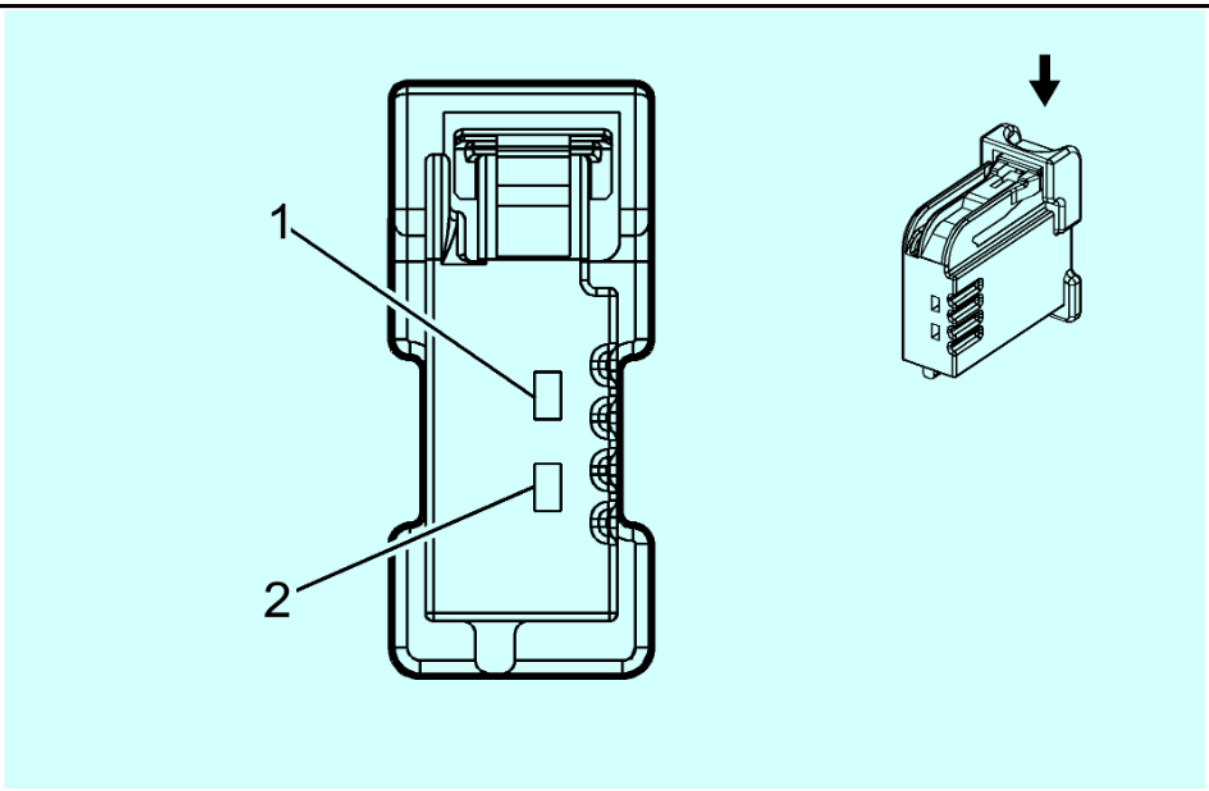

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13608099
- Service Connector: 13314097
- Description: 2-Way F 1.5 Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	YE/GY	1956	Left Front Tweeter Speaker (-) Low Reference	I	-
2	0.75	YE/D-BU	1856	Left Front Tweeter Speaker Control (+)	I	-

P19W SPEAKER - RIGHT INSTRUMENT PANEL (UQ3/UQG/UQ5)

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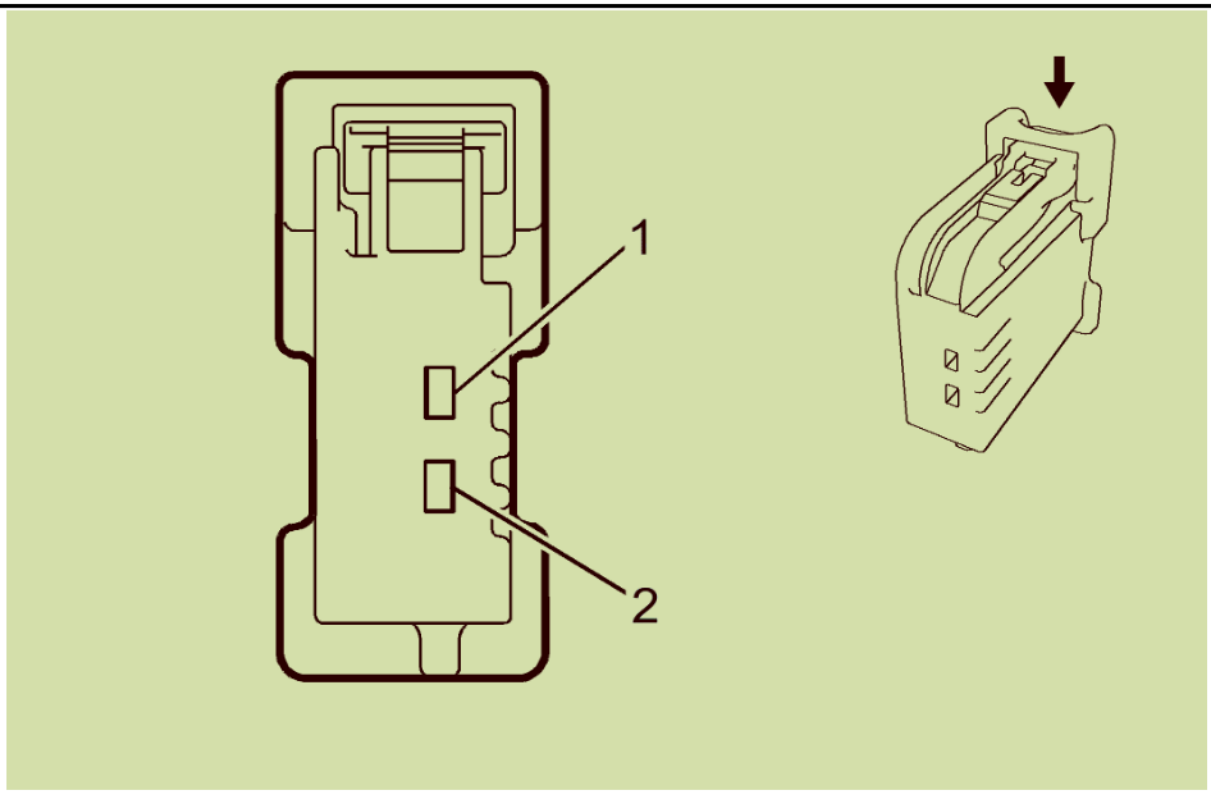

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13595207
- Service Connector: 13584097
- Description: 2-Way F 1.5 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/BK	117	Right Front Speaker Signal (-) 1	I	-
2	0.5	YE	200	Right Front Speaker Control (+) 1	I	-

P19W SPEAKER - RIGHT INSTRUMENT PANEL (UQA)

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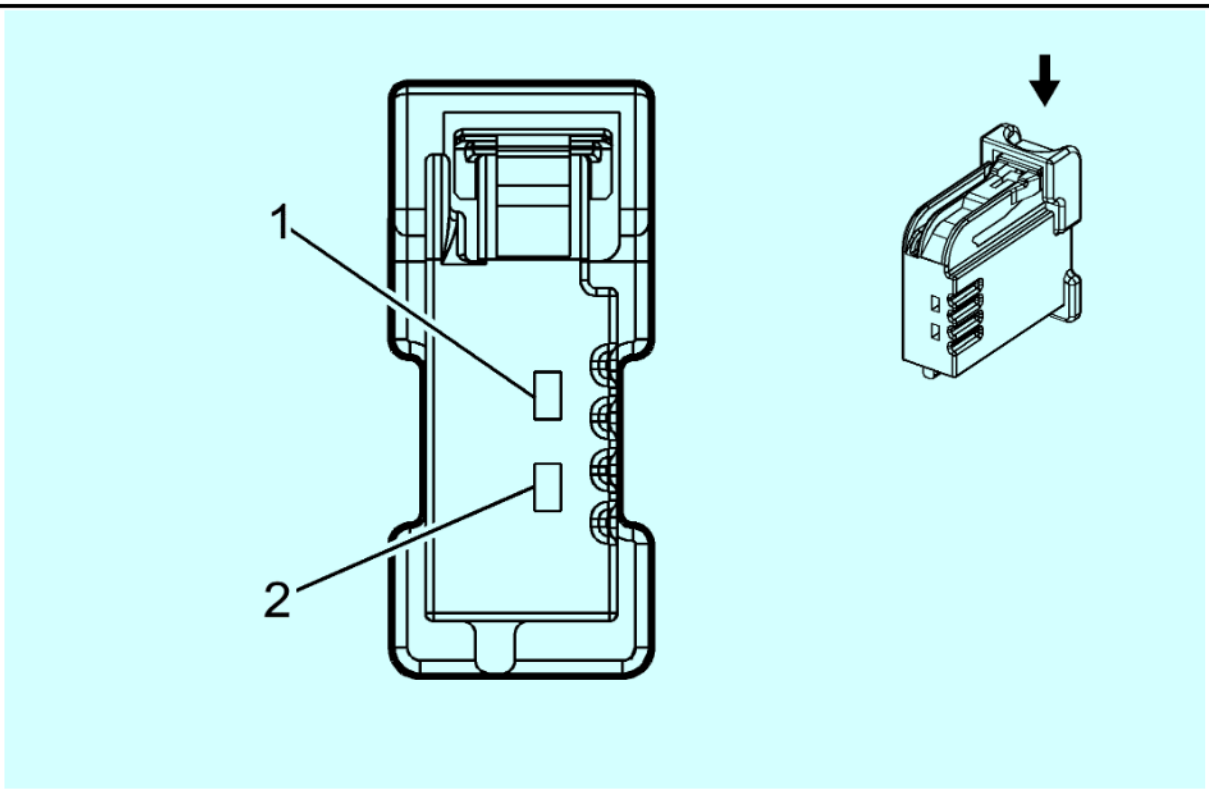

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13608099
- Service Connector: 13314097
- Description: 2-Way F 1.5 Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	VT/BN	1952	Right Front Tweeter Speaker (-) Low Reference	I	-
2	0.75	BN/L-GN	1852	Right Front Tweeter Speaker Control (+)	I	-

P22A VIDEO DISPLAY - 2ND ROW

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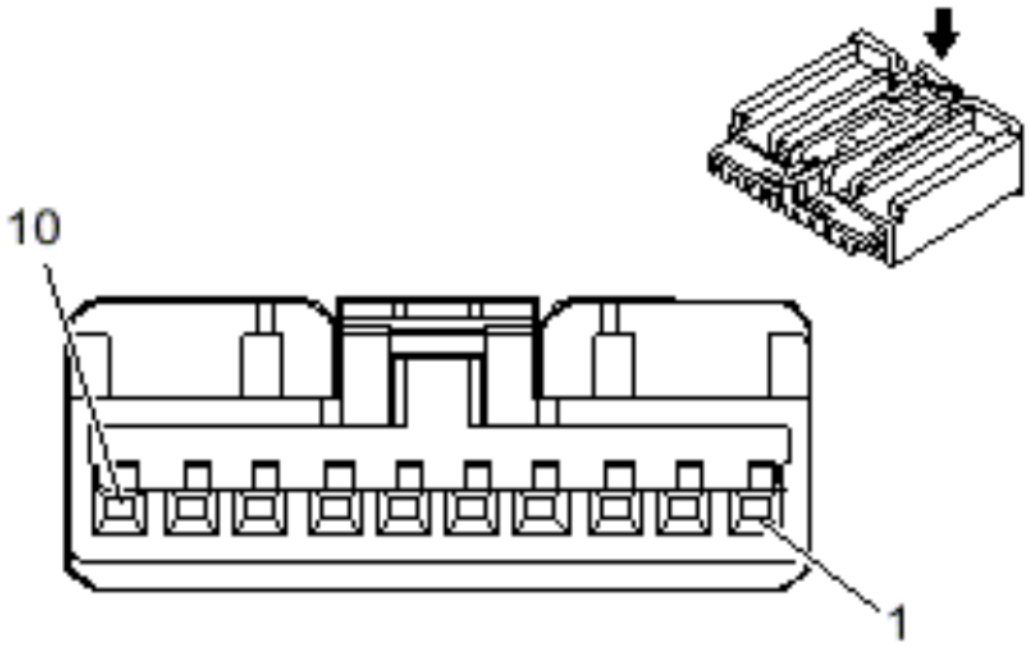

Connector Part Information

- Harness Type: Headliner
- OEM Connector: 13574592
- Service Connector: 13576634
- Description: 10-Way F 0.64 Kaizen Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575867	J-35616-64B (LT BU)	J-38125-215A	SAIT-A03T-M064	Yazaki 14	P	P

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	VT/GN	7558	LED Ambient Lighting Control 2	I	-
2	0.5	BK	1050	Ground	I	-
3	0.5	GY	157	Interior Lamp Control	I	-
4	0.5	YE	6817	LED Backlight Dimming Control	I	-
5	0.5	WH/BN	6815	Inadvertent Power Control	I	-
6 - 7	-	-	-	Not Occupied	-	-
8	0.5	BK/WH	2550	Ground	I	-
9	0.35	GN/YE	7066	Entertainment Remote Enable Signal	I	-
10	0.5	RD/GN	1540	Battery Positive Voltage	I	-

P43 COLLISION ALERT INDICATORS

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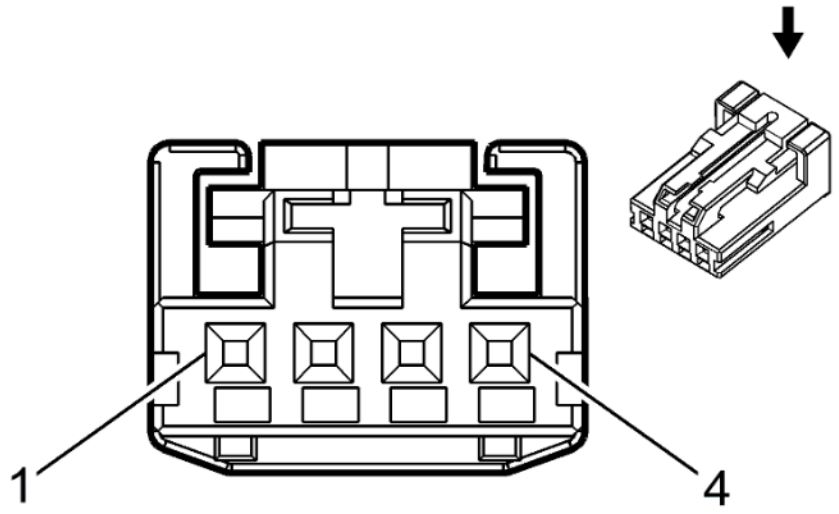

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13853727
- Service Connector: 19300597
- Description: 4-Way F 0.64 Micro-Quadlock Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/BK	1639	Run/Crank Ignition 1 Voltage	I	-
2	0.35	GY/YE	3885	Forward Collision Alert LED Control	I	-
3	0.35	WH/GN	3535	Reflected LED Display Dimming Control	I	-
4	0.35	BK/WH	1851	Signal Ground	I	-

P45LR SEAT HAPTIC MOVEMENT MOTOR - DRIVER LEFT REAR

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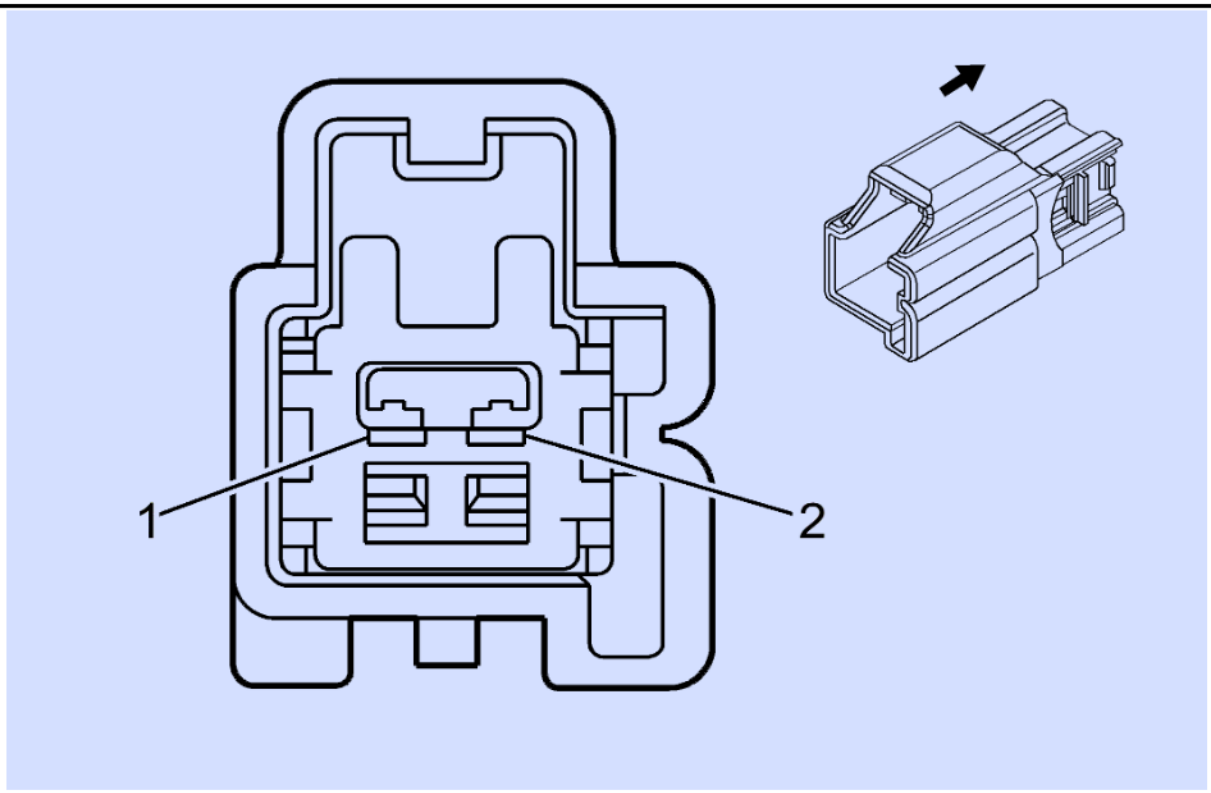

Connector Part Information

- Harness Type: Driver Seat Cushion
- OEM Connector: 7282-6443-40
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way M 1.5 Series (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-3 (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/BN	3037	Left Rear Haptic Seat Motor Control	I	-
2	0.5	BK	1150	Ground	I	-

P45RR SEAT HAPTIC MOVEMENT MOTOR - DRIVER RIGHT REAR

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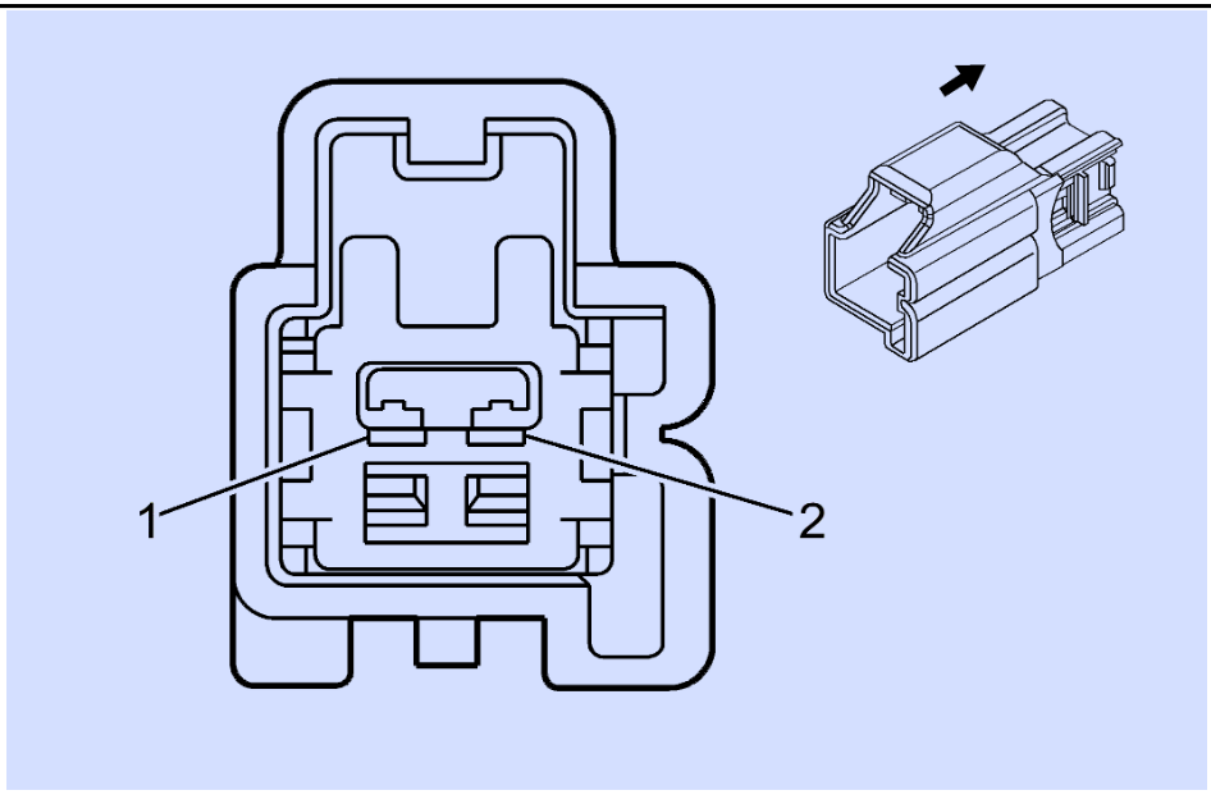

Connector Part Information

- Harness Type: Driver Seat Cushion
- OEM Connector: 7282-6443-40
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way M 1.5 Series (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-3 (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN	3038	Right Rear Haptic Seat Motor Control	I	-
2	0.5	BK	1150	Ground	I	-

Q2 A/C COMPRESSOR CLUTCH

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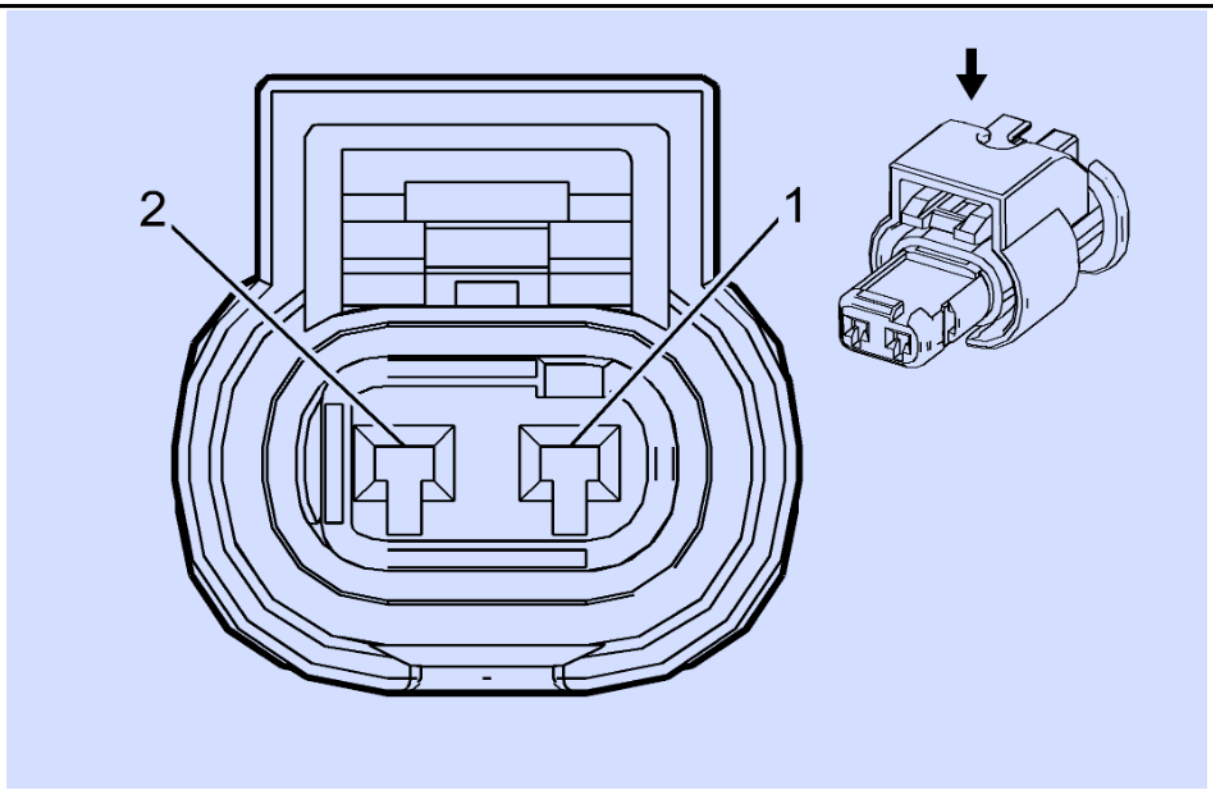

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13927761
- Service Connector: 19300402
- Description: 2-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	BK	550	Ground	I	-
2	0.75	BN/GN	59	A/C Compressor Clutch Control	I	-

Q6 CAMSHAFT POSITION ACTUATOR SOLENOID VALVE

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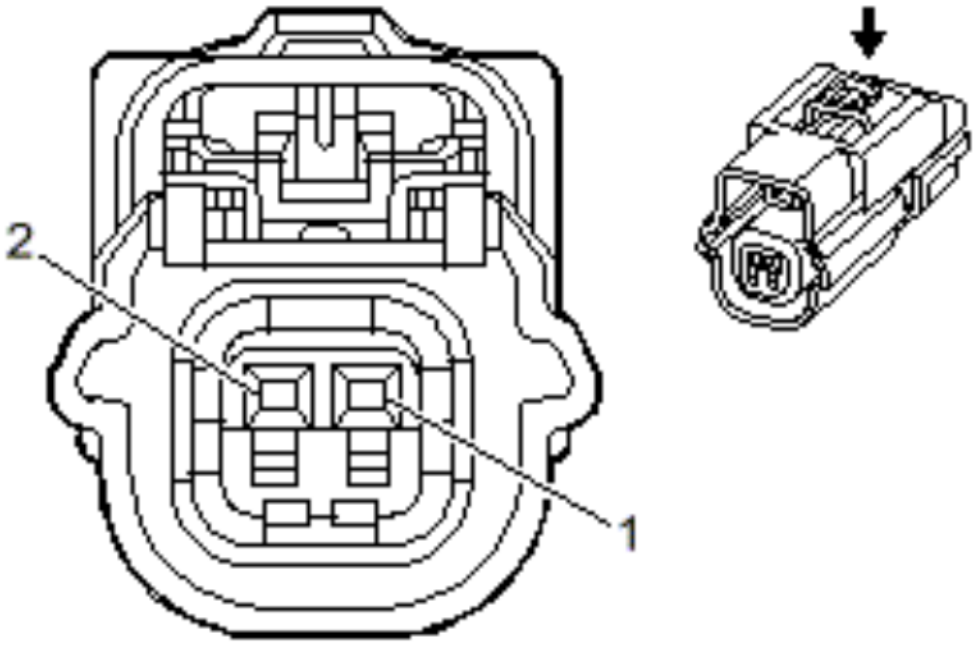

Connector Part Information

- Harness Type: Camshaft Position Sensor Jumper
- OEM Connector: 13528494
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 0.64 Kaizen Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/BN	6753	Cam Phaser W Low Reference	I	-
2	0.5	VT/BN	5284	Camshaft Phaser Intake Solenoid 1	I	-

Q8 CONTROL SOLENOID VALVE ASSEMBLY

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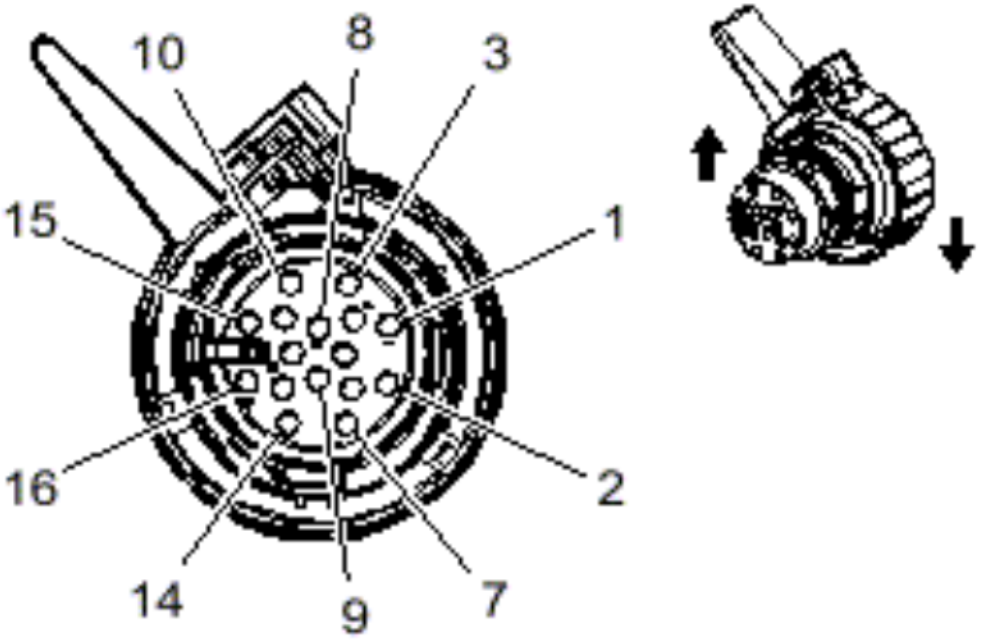

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13878751
- Service Connector: 19303772
- Description: 16-Way F 1.5 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13578934	J-35616-66 (YE)	J-38125-28	2 21 24 47220 0	Yazaki 12	E	1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	-	-	-	Not Occupied	-	-
3	0.5	WH/GY	1786	Transmission Park/Neutral Signal 1	I	-
4	0.75	RD/L-GN	1840	Battery Positive Voltage	I	-
5	0.75	BK/WH	451	Signal Ground	I	-
6 - 8	-	-	-	Not Occupied	-	-
9	0.5	VT/YE	5985	Accessory Wakeup Serial Data	I	-
10	0.5	D-BU	2500	High Speed GMLAN Serial Data (+) 1	I	-
11	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-

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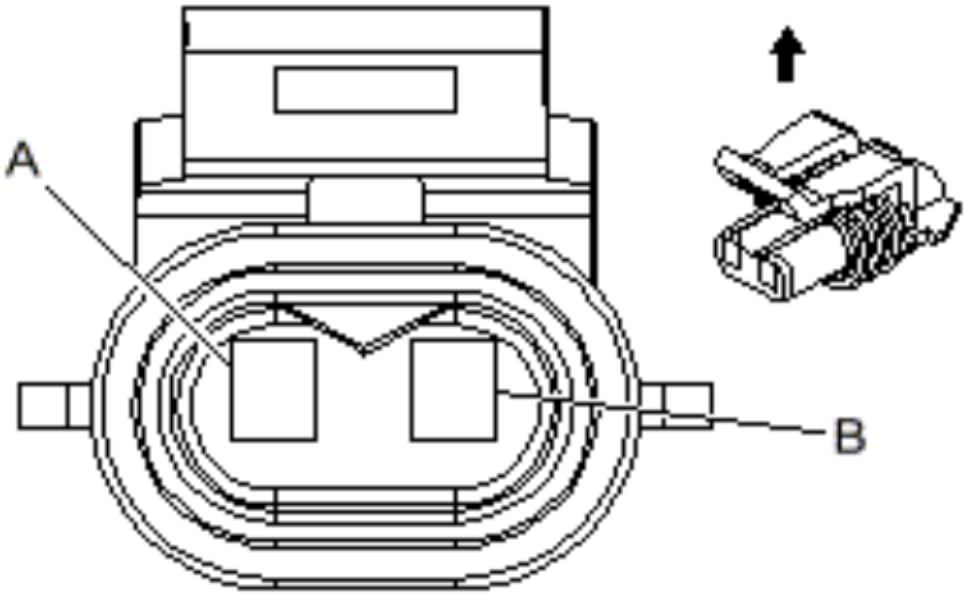
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
12	0.5	VT/BK	2139	Run/Crank Ignition 1 Voltage	I	-
13	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-
14	0.5	D-BU	2500	High Speed GMLAN Serial Data (+) 1	I	-
15	-	-	-	Not Occupied	-	-
16	0.5	BN/WH	6354	Output Speed High (Replicated TOS) Input Signal	I	-

Q12 EVAPORATIVE EMISSION PURGE SOLENOID VALVE (L96/LC8)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 12124037
- Service Connector: 13585860
- Description: 2-Way F 150 Metri-Pack Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

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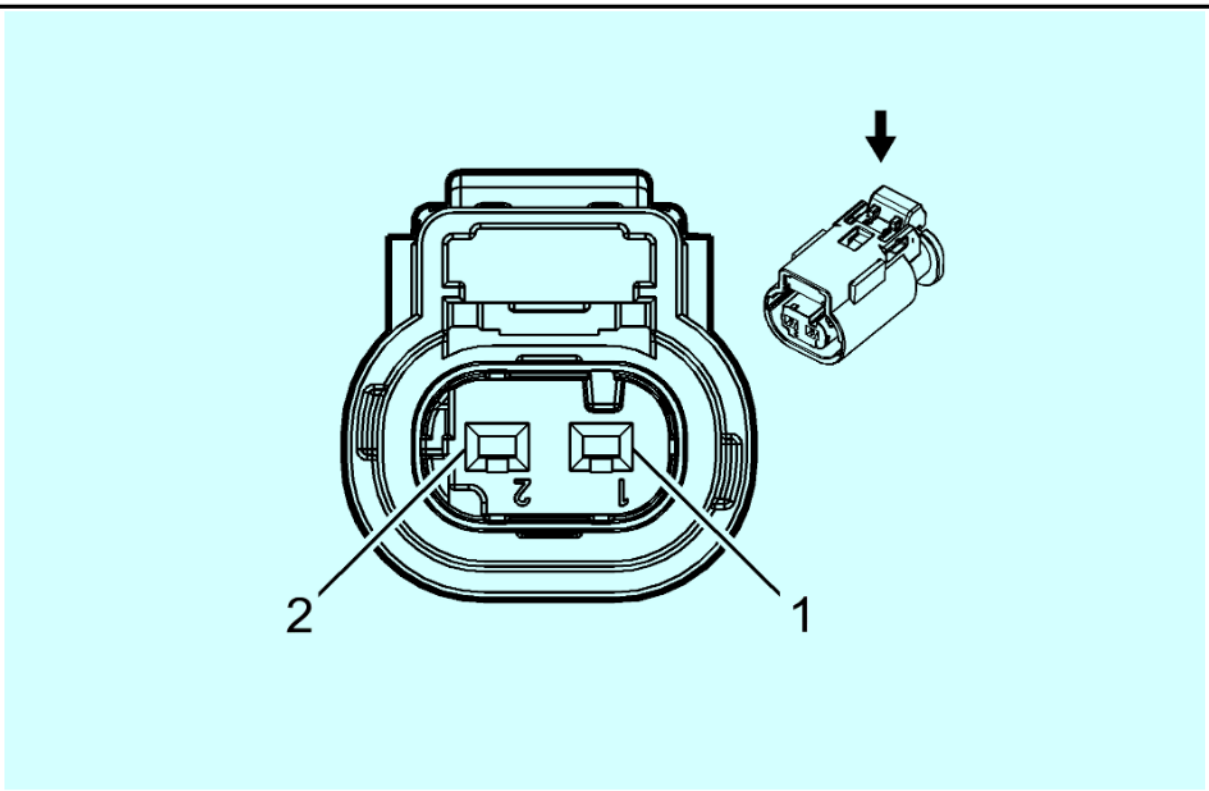
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.75	VT/D-BU	5293	Powertrain Main Relay Fused Supply 4	I	-
B	0.5	L-GN/D-BU	428	EVAP Canister Purge Solenoid Control	I	-

Q12 EVAPORATIVE EMISSION PURGE SOLENOID VALVE (LV3)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13735326
- Service Connector: 13587326
- Description: 2-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/D-BU	5293	Powertrain Main Relay Fused Supply 4	I	-

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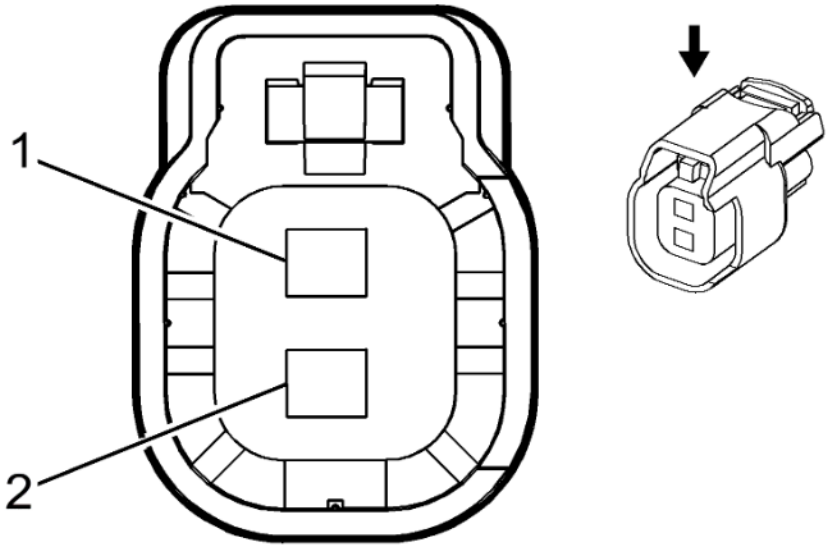
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
2	0.5	L-GN/D-BU	428	EVAP Canister Purge Solenoid Control	I	-

Q13 EVAPORATIVE EMISSION VENT SOLENOID VALVE



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13771883
- Service Connector: 13579002
- Description: 2-Way F 1.5 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH	1310	EVAP Canister Vent Solenoid Control	I	-
2	0.5	RD/L-GN	1840	Battery Positive Voltage	I	-

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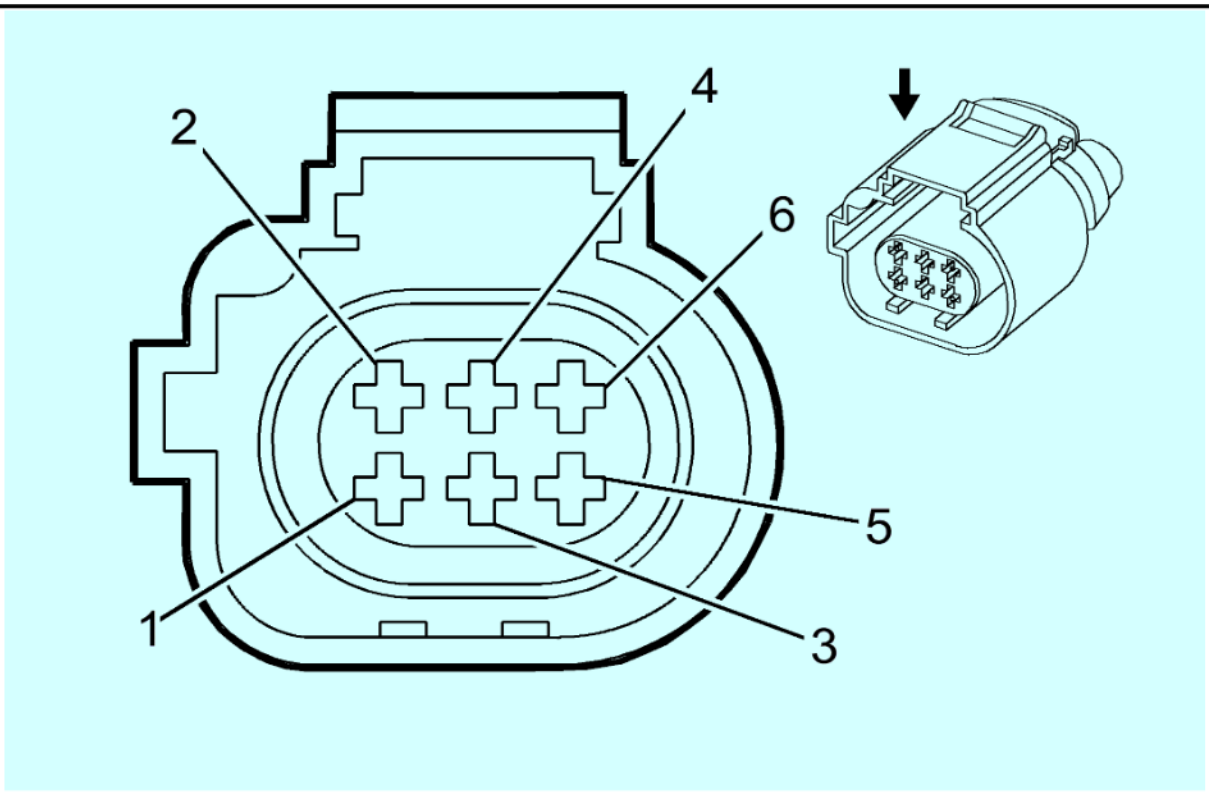
Q14 EXHAUST GAS RECIRCULATION VALVE



Connector Part Information

- Harness Type: Engine
- OEM Connector: 284716-5
- Service Connector: 19354082
- Description: 6-Way F 1.6 Micro-Timer Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/VT	5764	Exhaust Gas Recirculation Valve Motor High Signal	I	L5P
2	0.5	BN/WH	5763	Exhaust Gas Recirculation Valve Sensor Signal	I	L5P
3	-	-	-	Not Occupied	-	-
4	0.5	BK/BN	2753	Exhaust Gas Recirculation Sensor Low Reference	I	L5P
5	0.5	VT/BK	5746	Exhaust Gas Recirculation Valve Motor Low Signal	I	L5P

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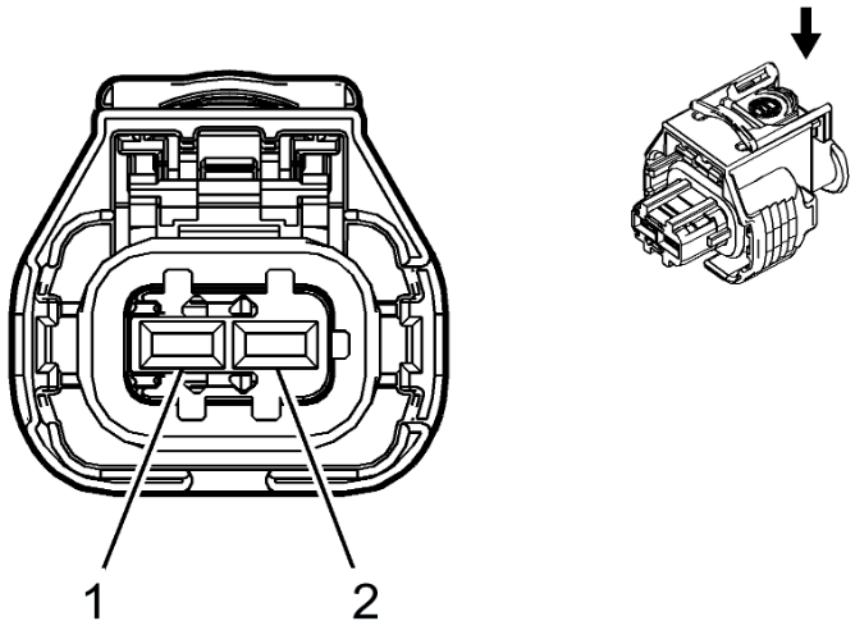
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
6	0.5	BU/RD	2702	Exhaust Gas Recirculation 5V Reference 2	I	L5P

Q17A FUEL INJECTOR 1 (L5P)



Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 1928405715
- Service Connector: 19299882
- Description: 2-Way F 2.8 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN	4801	Direct Fuel Injector (DFI) High Voltage Control Cylinder 1	I	L5P
2	0.75	BN/WH	4901	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 1	I	L5P

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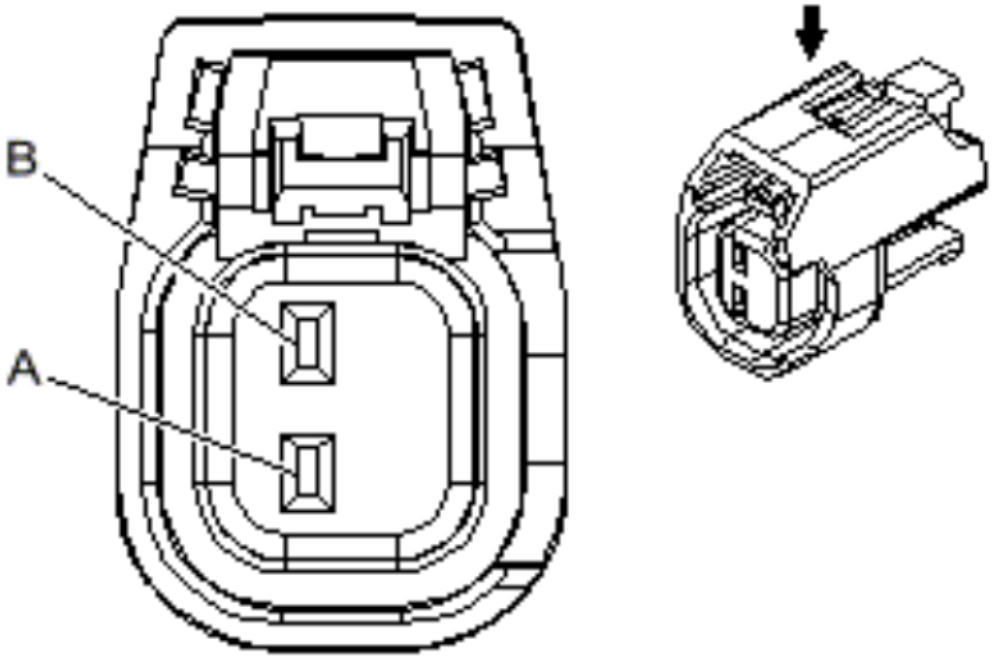
Q17A FUEL INJECTOR 1 (L96/LC8)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 15419715
- Service Connector: 13580876
- Description: 2-Way F 150 GT Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	VT/BU	5291	Powertrain Main Relay Fused Supply 2	I	-
B	0.5	GN/YE	1744	Fuel Injector Control 1	I	-

Q17B FUEL INJECTOR 2 (L5P)

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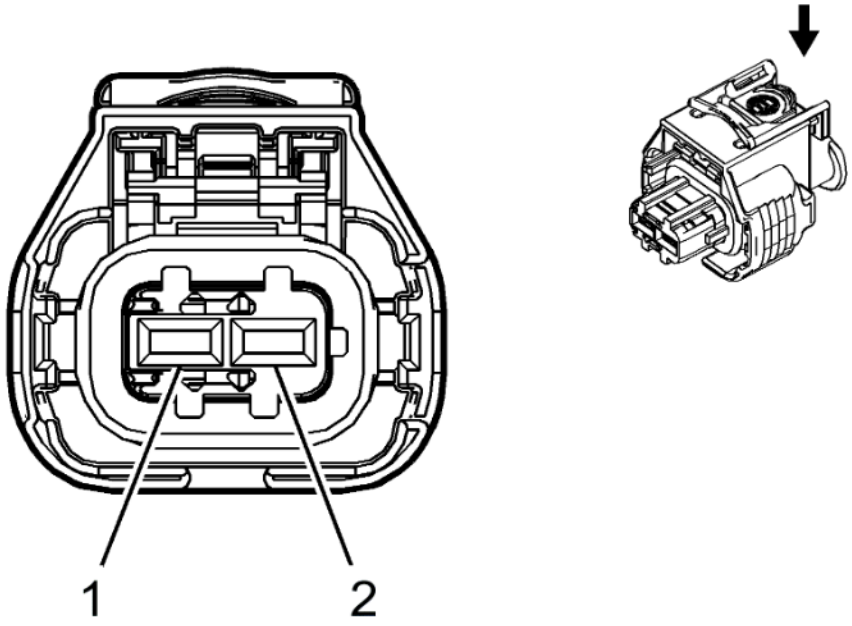

Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 1928405715
- Service Connector: 19299882
- Description: 2-Way F 2.8 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BU	4802	Direct Fuel Injector (DFI) High Voltage Control Cylinder 2	I	L5P
2	0.75	BU/GY	4902	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 2	I	L5P

Q17B FUEL INJECTOR 2 (L96/LC8)

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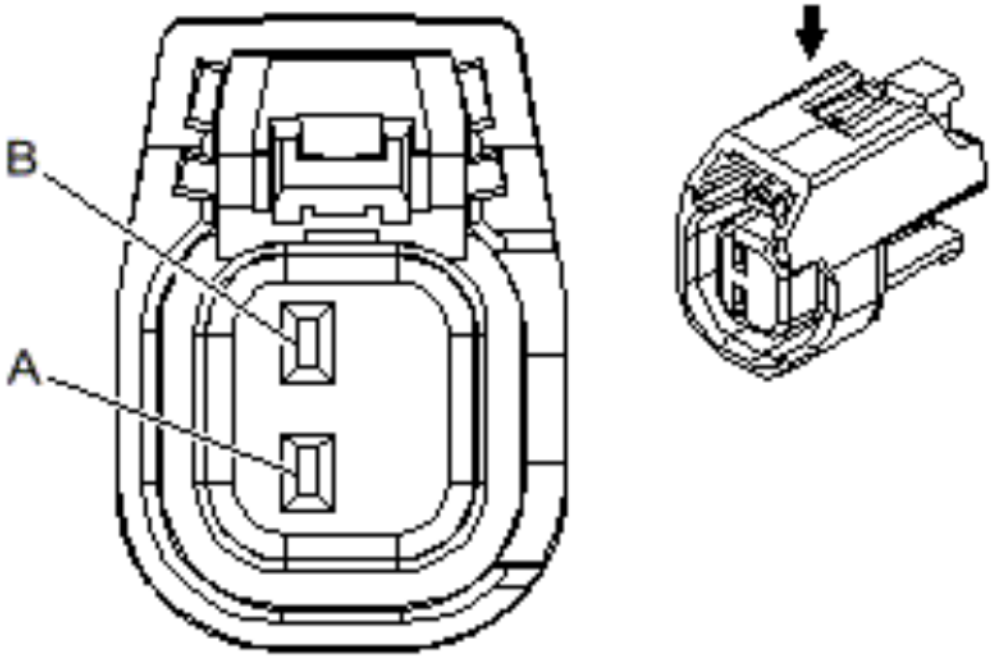

Connector Part Information

- Harness Type: Engine
- OEM Connector: 15419715
- Service Connector: 13580876
- Description: 2-Way F 150 GT Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	VT/D-BU	5292	Powertrain Main Relay Fused Supply 3	I	-
B	0.5	YE/WH	1745	Fuel Injector Control 2	I	-

Q17C FUEL INJECTOR 3 (L5P)

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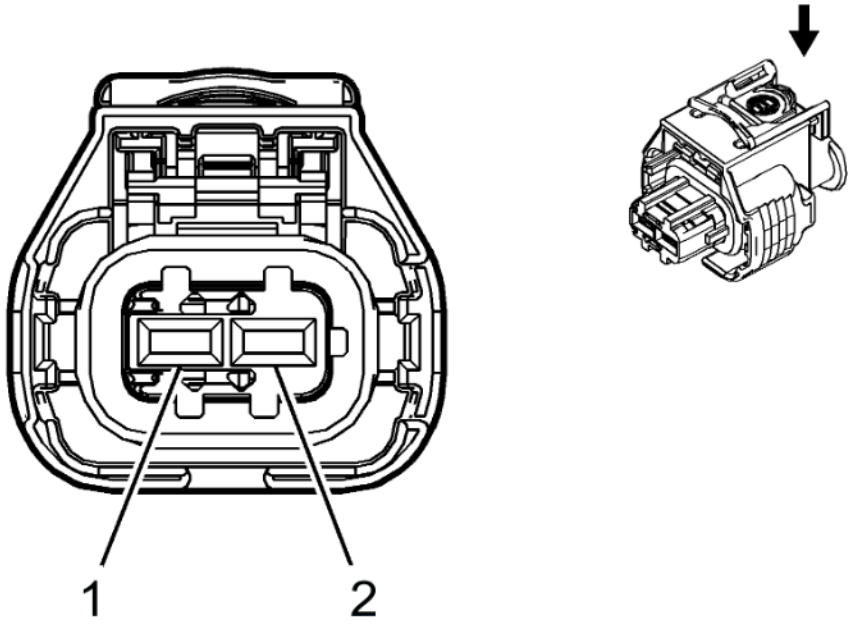

Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 1928405715
- Service Connector: 19299882
- Description: 2-Way F 2.8 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GN	4803	Direct Fuel Injector (DFI) High Voltage Control Cylinder 3	I	L5P
2	0.75	GN/GY	4903	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 3	I	L5P

Q17C FUEL INJECTOR 3 (L96/LC8)

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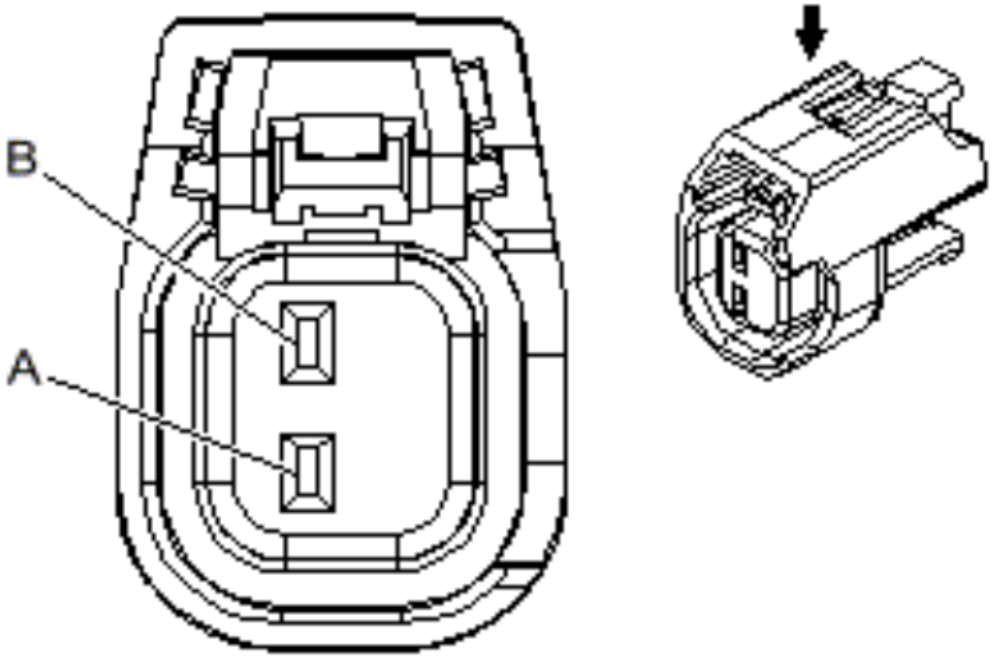

Connector Part Information

- Harness Type: Engine
- OEM Connector: 15419715
- Service Connector: 13580876
- Description: 2-Way F 150 GT Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	VT/D-BU	5291	Powertrain Main Relay Fused Supply 2	I	-
B	0.5	BN/VT	1746	Fuel Injector Control 3	I	-

Q17D FUEL INJECTOR 4 (L5P)

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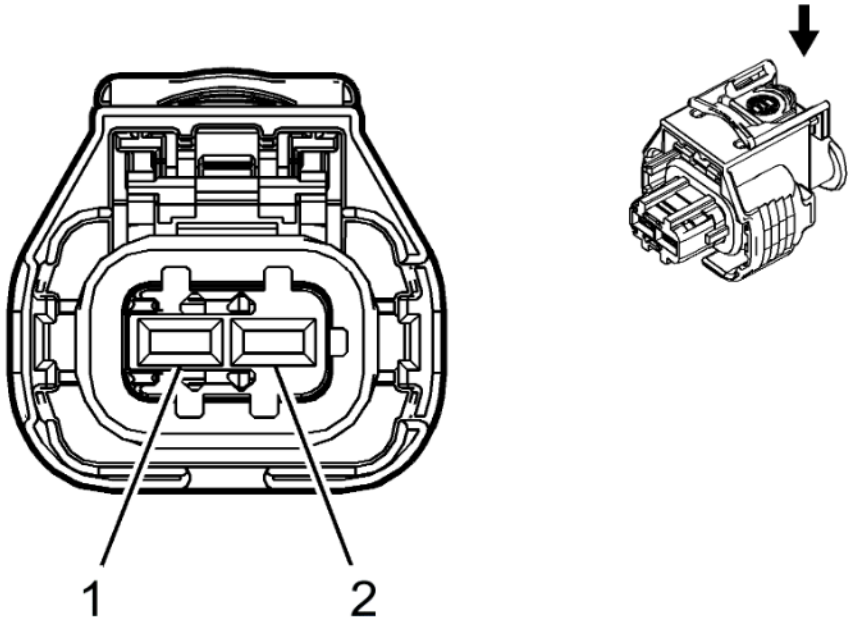

Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 1928405715
- Service Connector: 19299882
- Description: 2-Way F 2.8 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GY/BU	4804	Direct Fuel Injector (DFI) High Voltage Control Cylinder 4	I	L5P
2	0.75	BU/WH	4904	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 4	I	L5P

Q17D FUEL INJECTOR 4 (L96/LC8)

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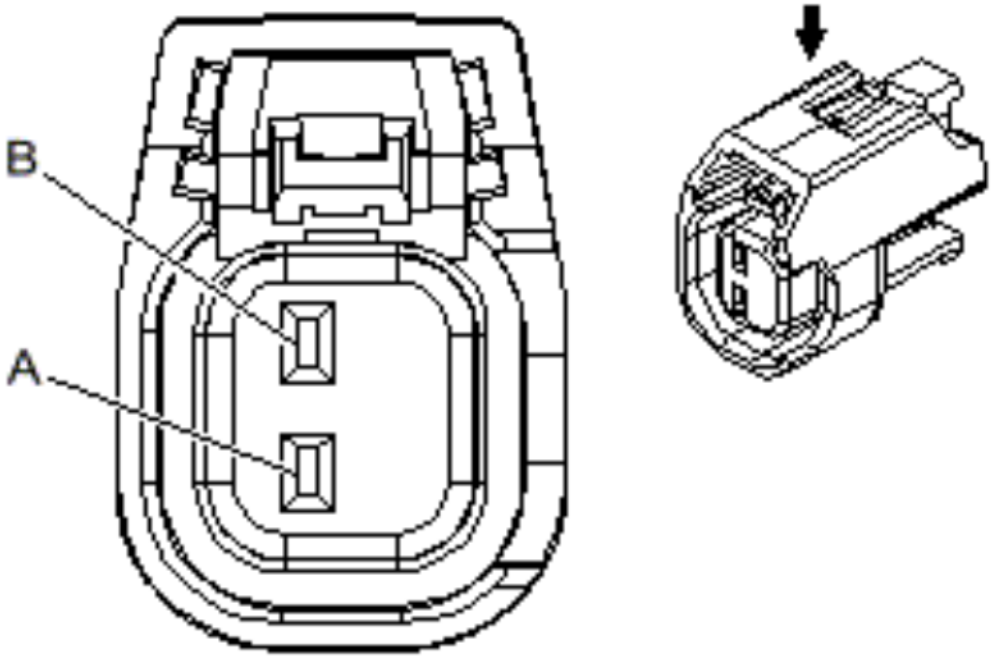

Connector Part Information

- Harness Type: Engine
- OEM Connector: 15419715
- Service Connector: 13580876
- Description: 2-Way F 150 GT Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	VT/D-BU	5292	Powertrain Main Relay Fused Supply 3	I	-
B	0.5	BN/YE	844	Fuel Injector Control 4	I	-

Q17E FUEL INJECTOR 5 (L5P)

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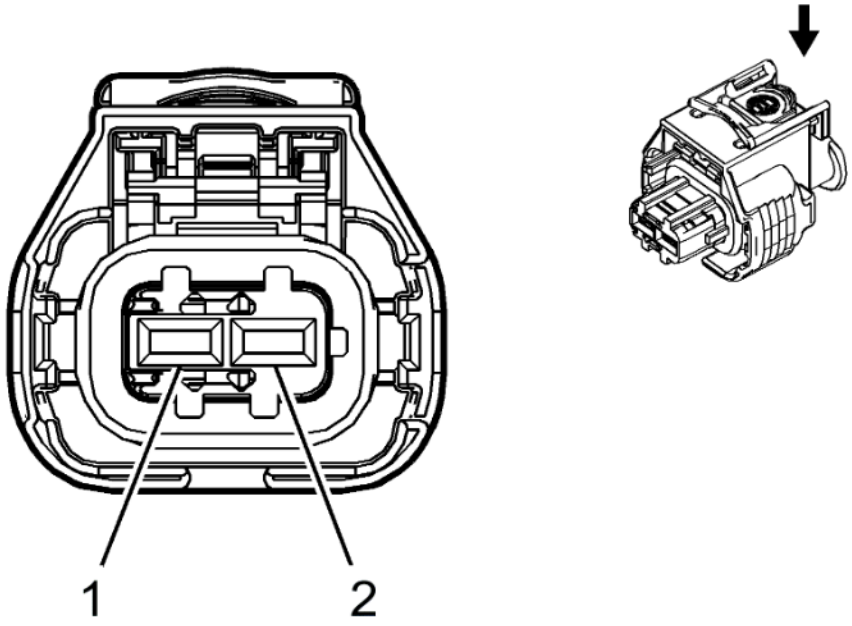

Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 1928405715
- Service Connector: 19299882
- Description: 2-Way F 2.8 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	WH/GN	4805	Direct Fuel Injector (DFI) High Voltage Control Cylinder 5	I	L5P
2	0.75	GN/WH	4905	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 5	I	L5P

Q17E FUEL INJECTOR 5 (L96/LC8)

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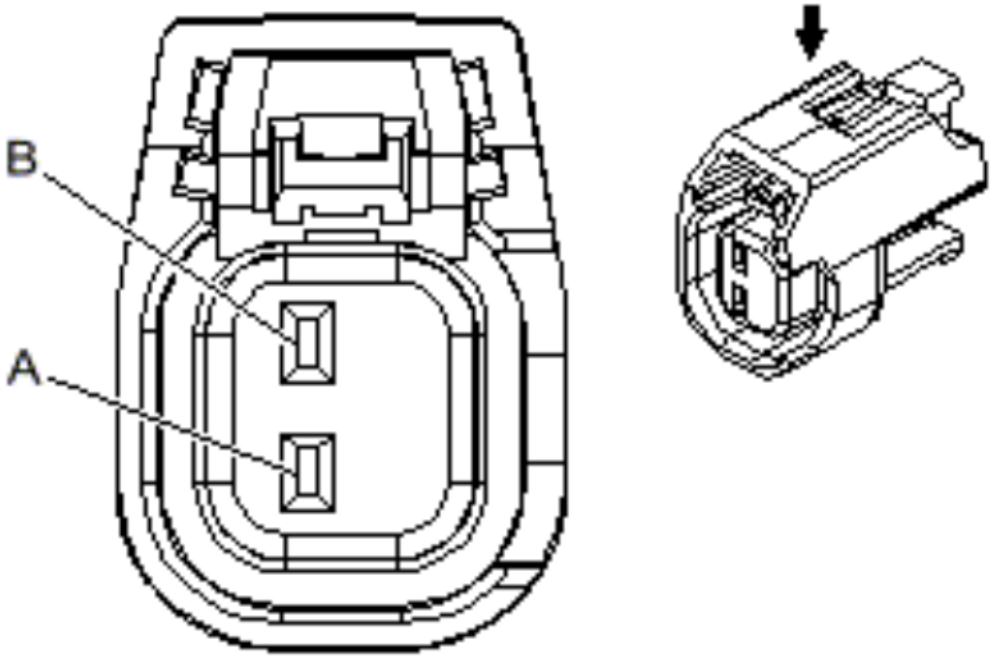

Connector Part Information

- Harness Type: Engine
- OEM Connector: 15419715
- Service Connector: 13580876
- Description: 2-Way F 150 GT Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.75	VT/D-BU	5291	Powertrain Main Relay Fused Supply 2	I	-
B	0.5	BN/L-GN	845	Fuel Injector Control 5	I	-

Q17F FUEL INJECTOR 6 (L5P)

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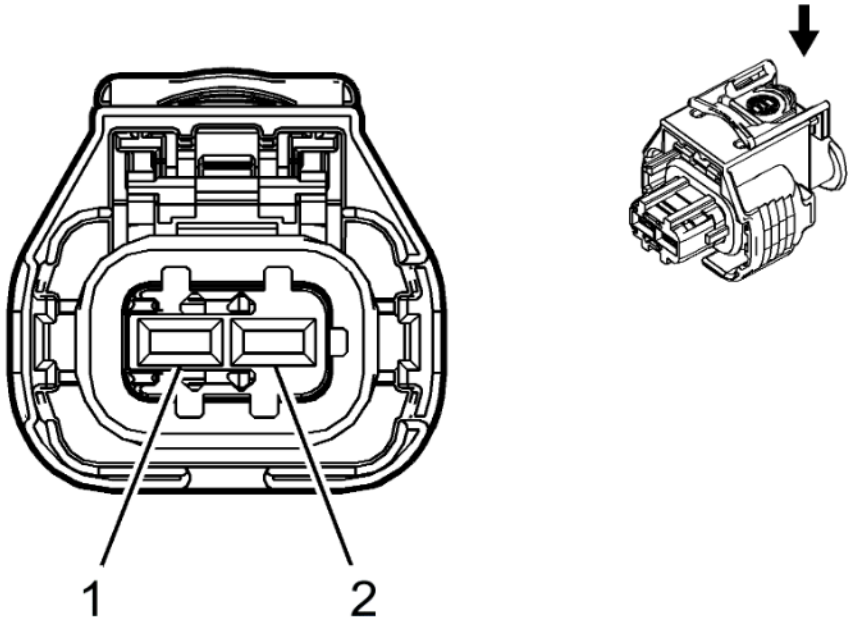

Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 1928405715
- Service Connector: 19299882
- Description: 2-Way F 2.8 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	VT/GN	4806	Direct Fuel Injector (DFI) High Voltage Control Cylinder 6	I	L5P
2	0.75	VT/GY	4906	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 6	I	L5P

Q17F FUEL INJECTOR 6 (L96/LC8)

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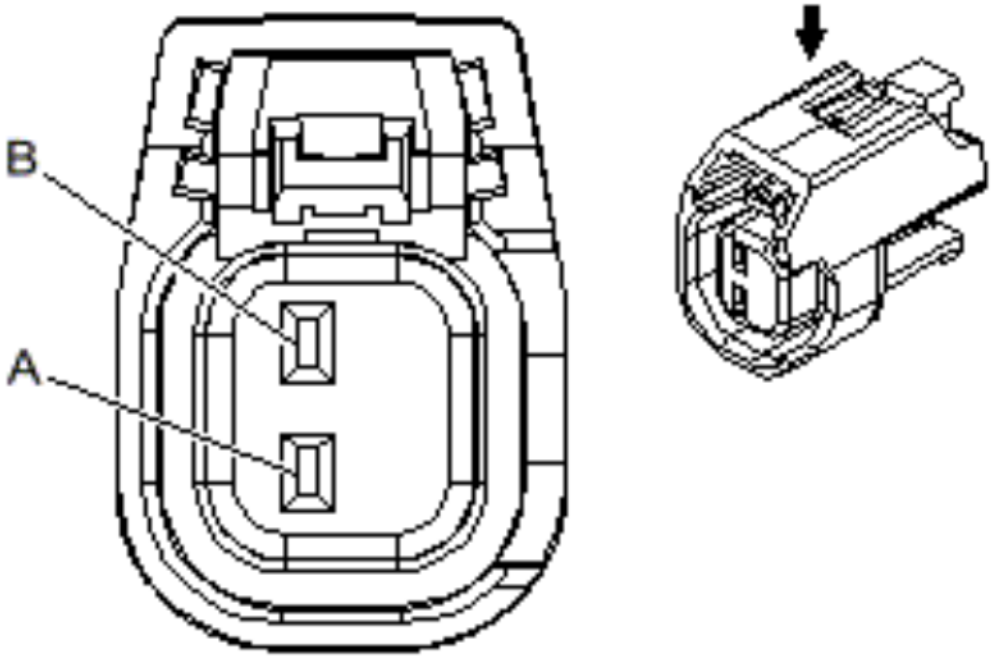

Connector Part Information

- Harness Type: Engine
- OEM Connector: 15419715
- Service Connector: 13580876
- Description: 2-Way F 150 GT Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.75	VT/BU	5292	Powertrain Main Relay Fused Supply 3	I	-
B	0.5	BN/BU	846	Fuel Injector Control 6	I	-

Q17G FUEL INJECTOR 7 (L5P)

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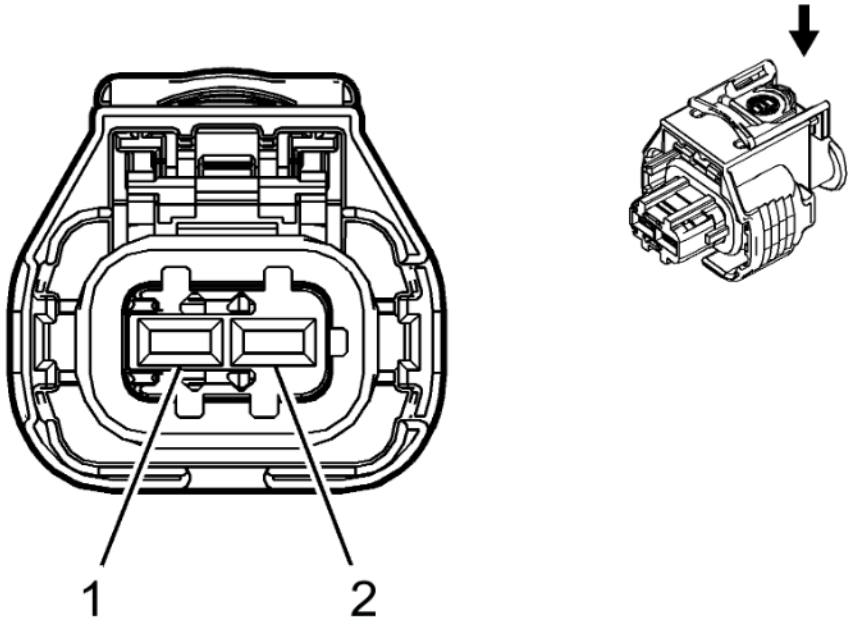

Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 1928405715
- Service Connector: 19299882
- Description: 2-Way F 2.8 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	YE/GY	4807	Direct Fuel Injector (DFI) High Voltage Control Cylinder 7	I	L5P
2	0.75	WH/YE	4907	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 7	I	L5P

Q17G FUEL INJECTOR 7 (L96/LC8)

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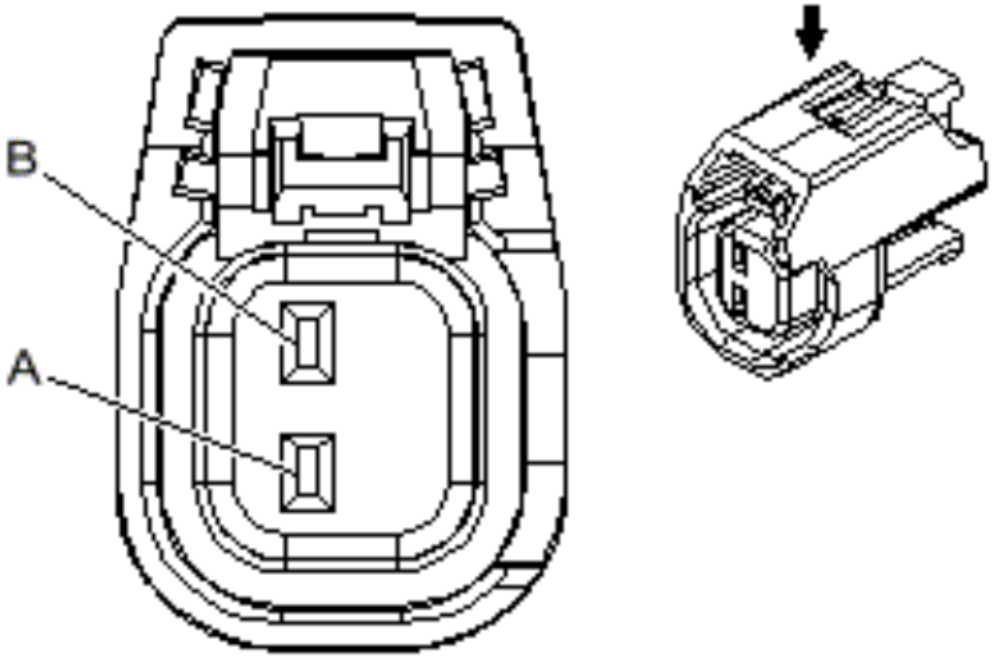

Connector Part Information

- Harness Type: Engine
- OEM Connector: 15419715
- Service Connector: 13580876
- Description: 2-Way F 150 GT Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.75	VT/D-BU	5291	Powertrain Main Relay Fused Supply 2	I	-
B	0.5	BN/VT	877	Fuel Injector Control 7	I	-

Q17H FUEL INJECTOR 8 (L5P)

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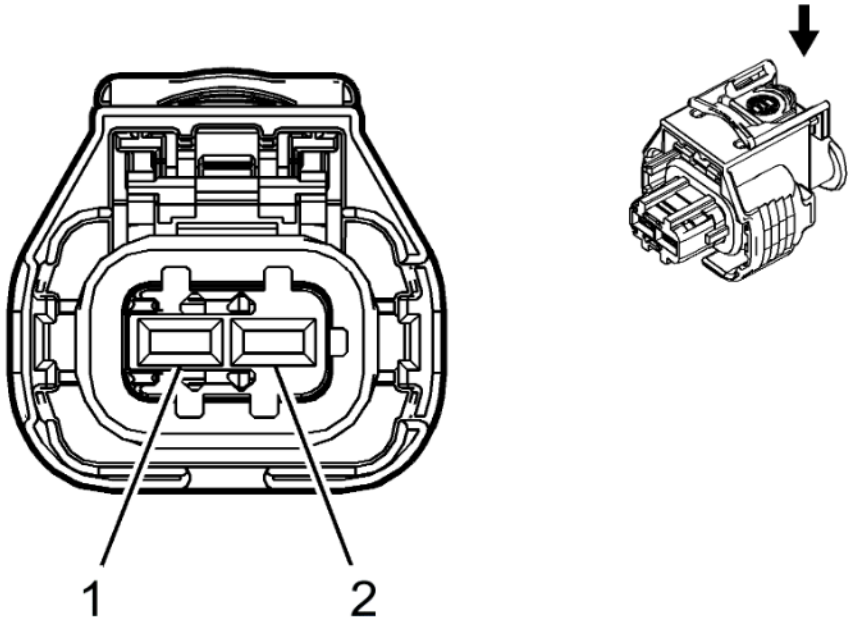

Connector Part Information

- Harness Type: Engine
- OEM Connector: 1928405715
- Service Connector: 19299882
- Description: 2-Way F 2.8 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GY	4808	Direct Fuel Injector (DFI) High Voltage Control Cylinder 8	I	L5P
2	0.75	GY/WH	4908	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 8	I	L5P

Q17H FUEL INJECTOR 8 (L96/LC8)

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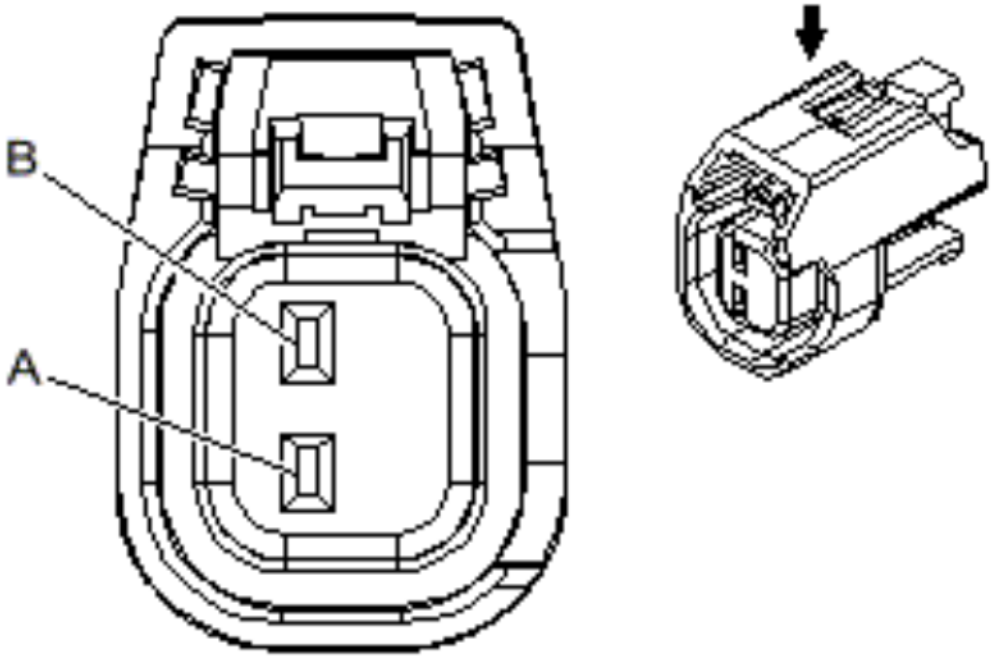

Connector Part Information

- Harness Type: Engine
- OEM Connector: 15419715
- Service Connector: 13580876
- Description: 2-Way F 150 GT Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.75	VT/D-BU	5292	Powertrain Main Relay Fused Supply 3	I	-
B	0.5	BN/GY	878	Fuel Injector Control 8	I	-

Q18A FUEL PRESSURE REGULATOR 1

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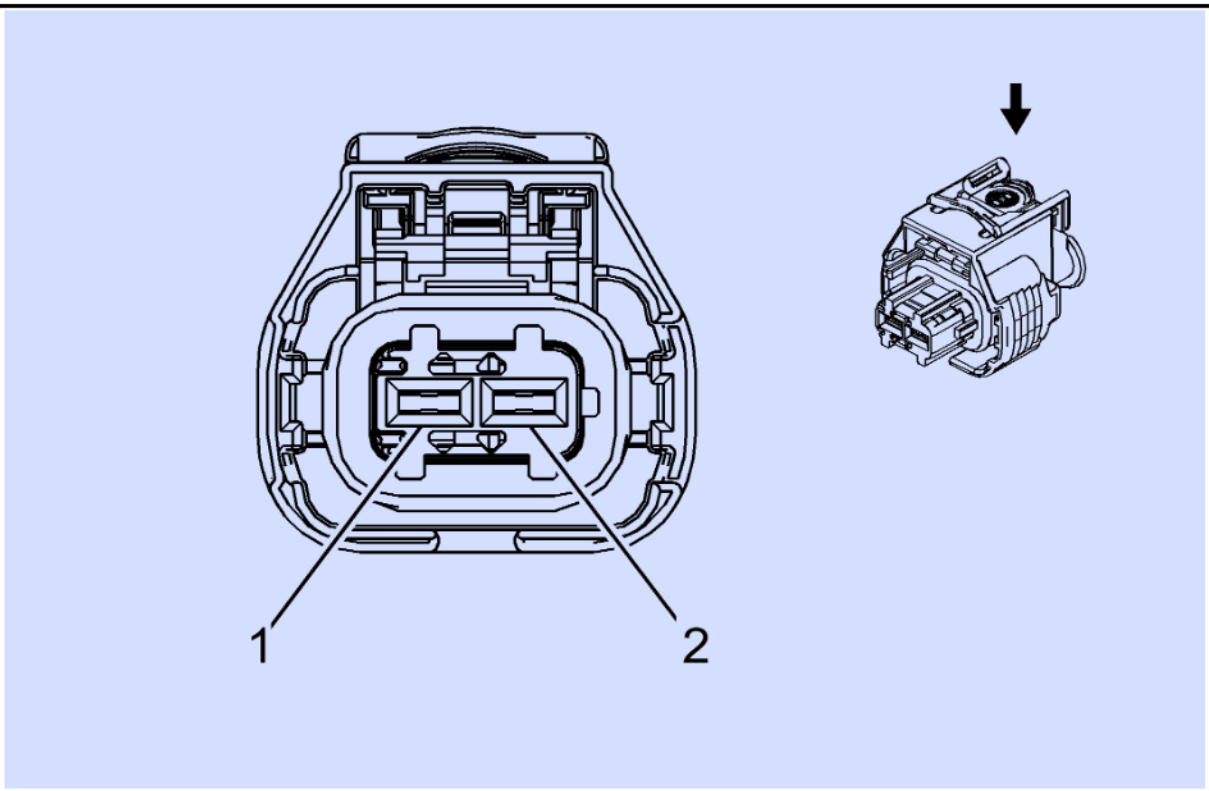

Connector Part Information

- Harness Type: Engine
- OEM Connector: 1928405714
- Service Connector: 19299605
- Description: 2-Way F 2.8 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN/BK	2929	Fuel Metering Valve Low Control	I	L5P
2	0.5	YE	2928	Fuel Metering Valve High Control	I	L5P

Q37LF SHOCK ABSORBER ACTUATOR - LEFT FRONT

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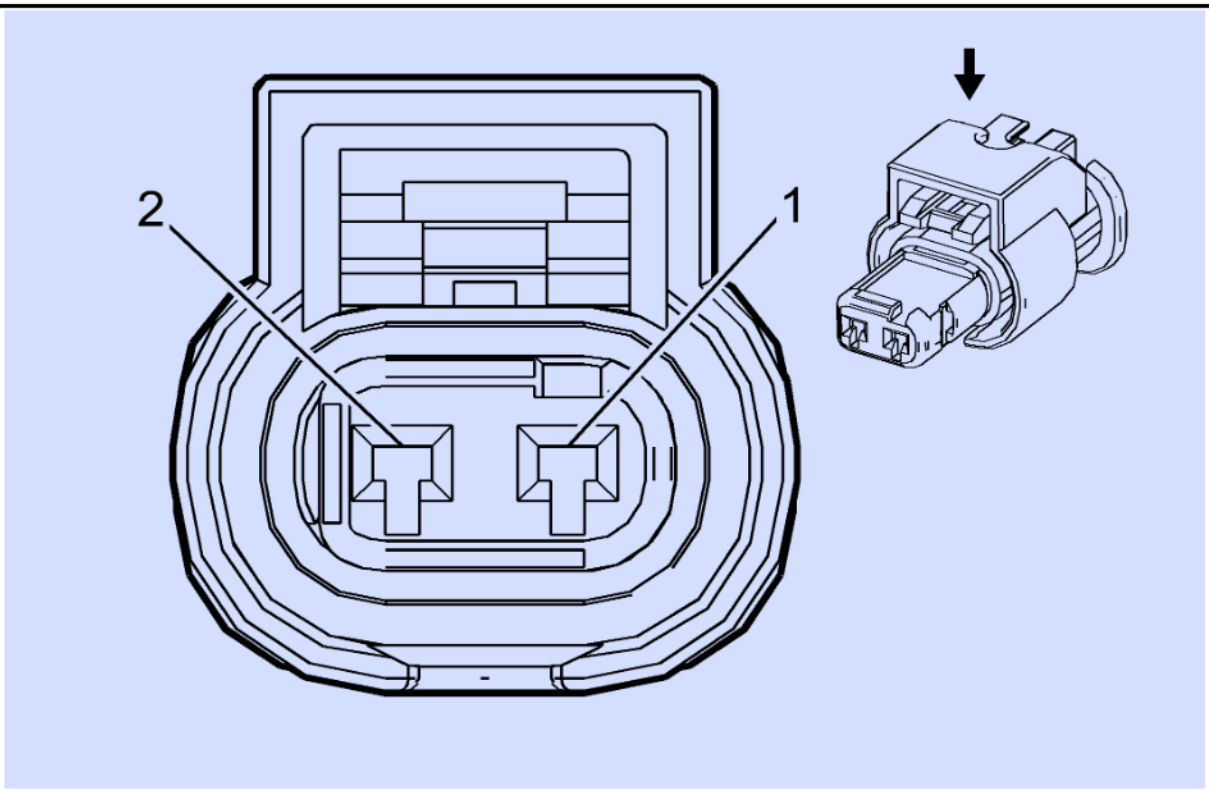

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13927761
- Service Connector: 19300402
- Description: 2-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	WH/GY	1448	Left Front Strut Motor Increase Damping Control	I	-
2	0.75	WH/L-GN	1005	Left Front Strut Motor Decrease Damping Control	I	-

Q37LR SHOCK ABSORBER ACTUATOR - LEFT REAR

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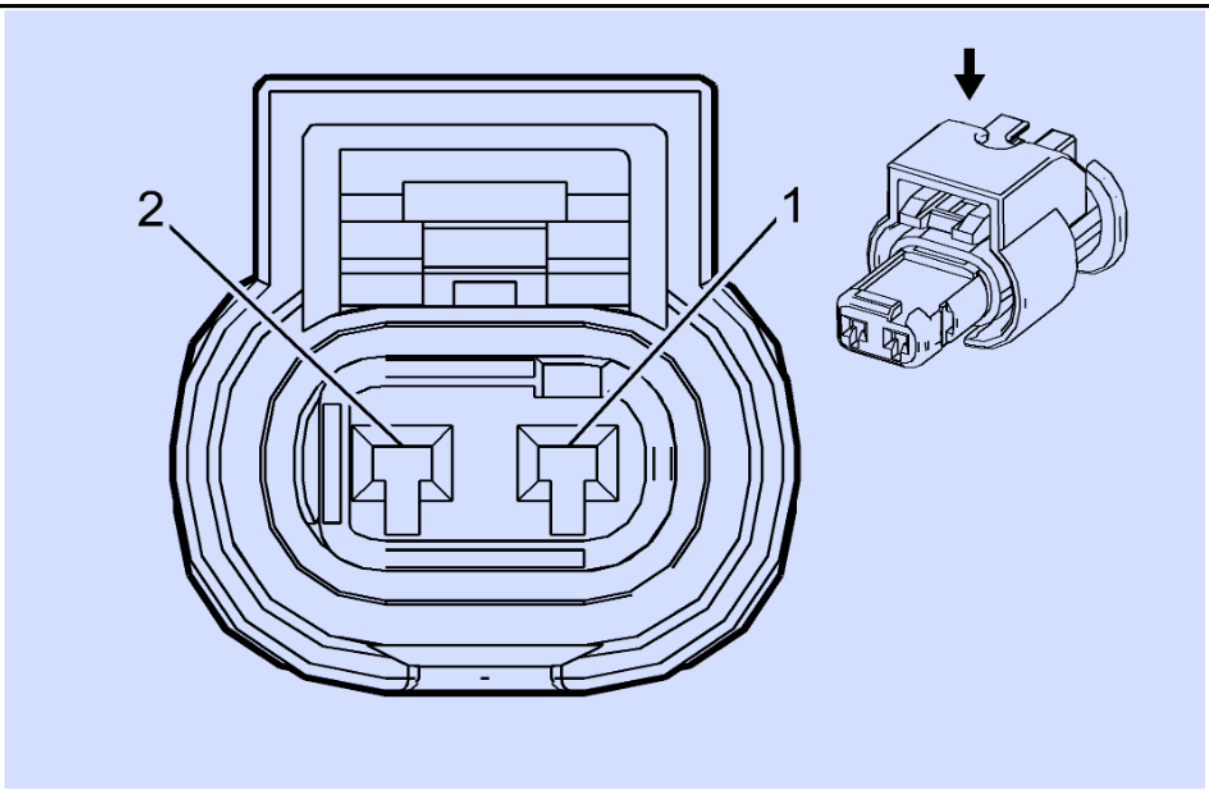

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13927761
- Service Connector: 19300402
- Description: 2-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN/VT	1010	Left Rear Strut Motor Increase Damping Control	I	-
2	0.75	WH/BK	1013	Left Rear Strut Motor Decrease Damping Control	I	-

Q37RF SHOCK ABSORBER ACTUATOR - RIGHT FRONT

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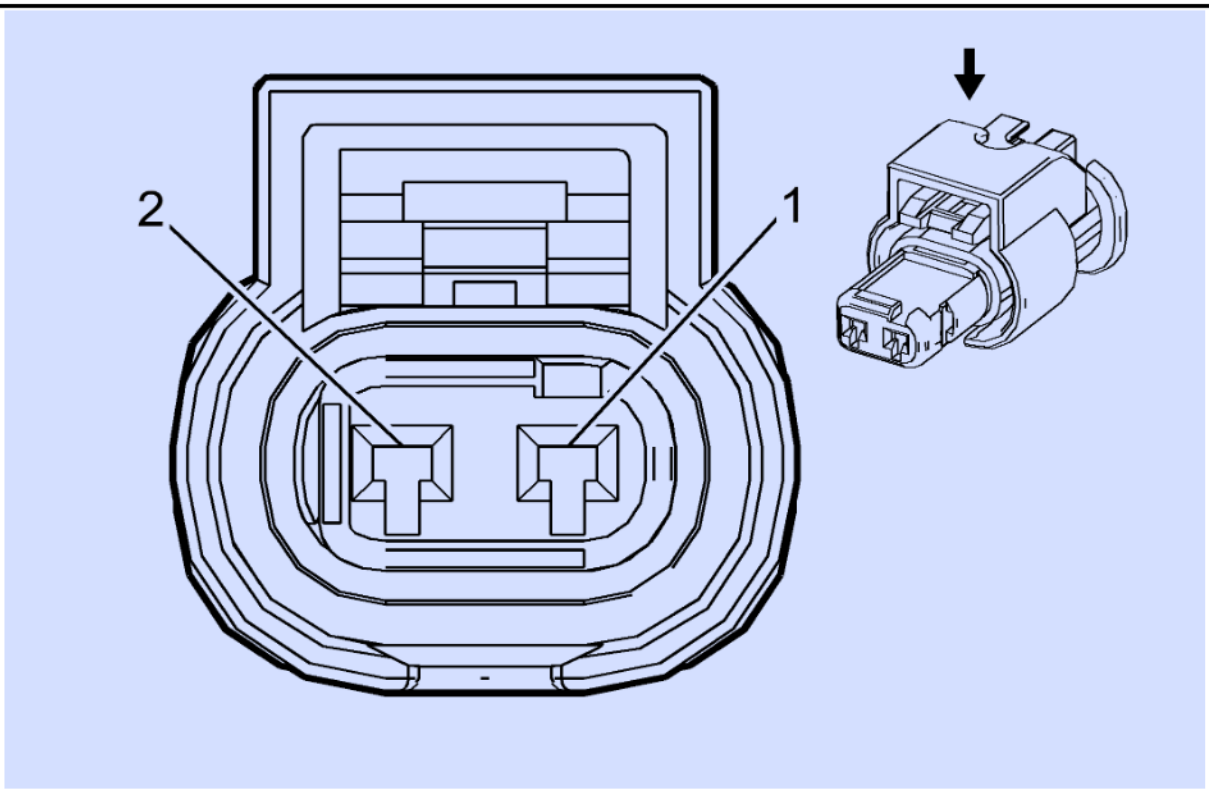

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13927761
- Service Connector: 19300402
- Description: 2-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	WH/BK	1006	Right Front Strut Motor Increase Damping Control	I	-
2	0.75	BN	1009	Right Front Strut Motor Decrease Damping Control	I	-

Q37RR SHOCK ABSORBER ACTUATOR - RIGHT REAR

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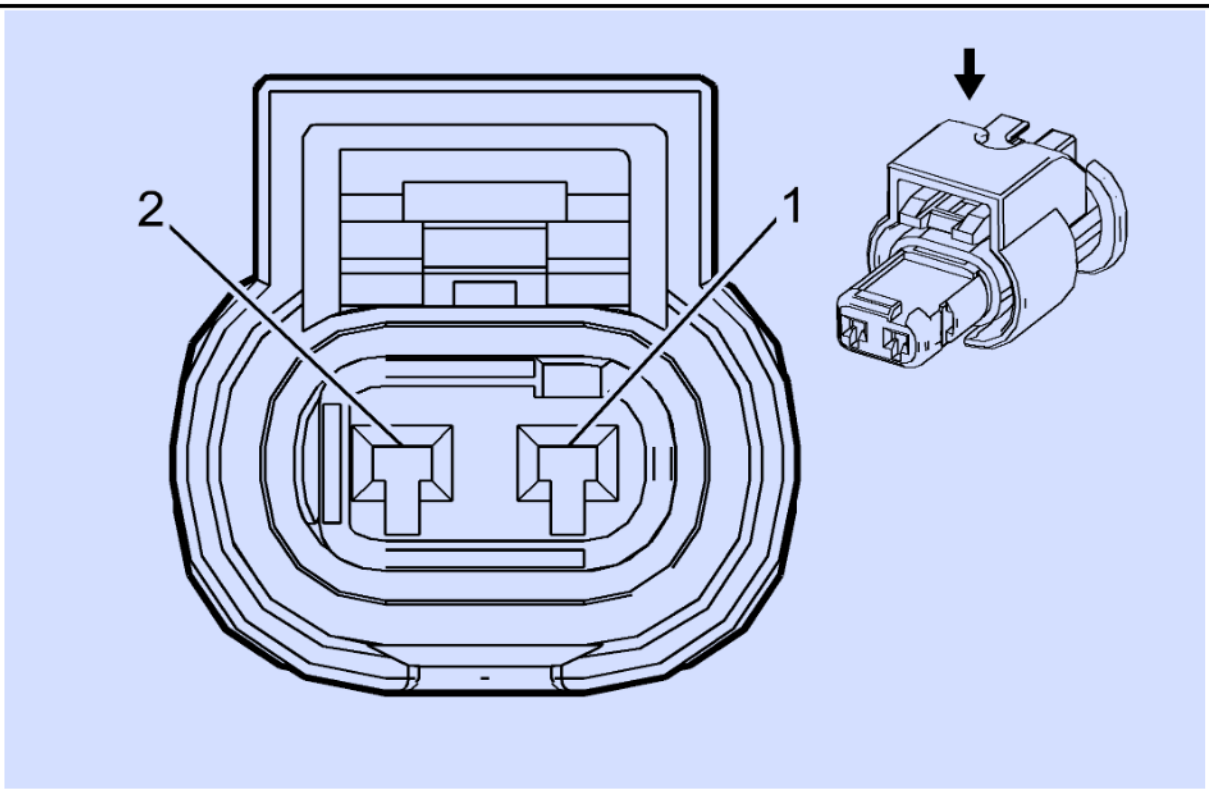

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13927761
- Service Connector: 19300402
- Description: 2-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	YE	1014	Right Rear Strut Motor Increase Damping Control	I	-
2	0.75	VT	1017	Right Rear Strut Motor Decrease Damping Control	I	-

Q38 THROTTLE BODY (L5P)

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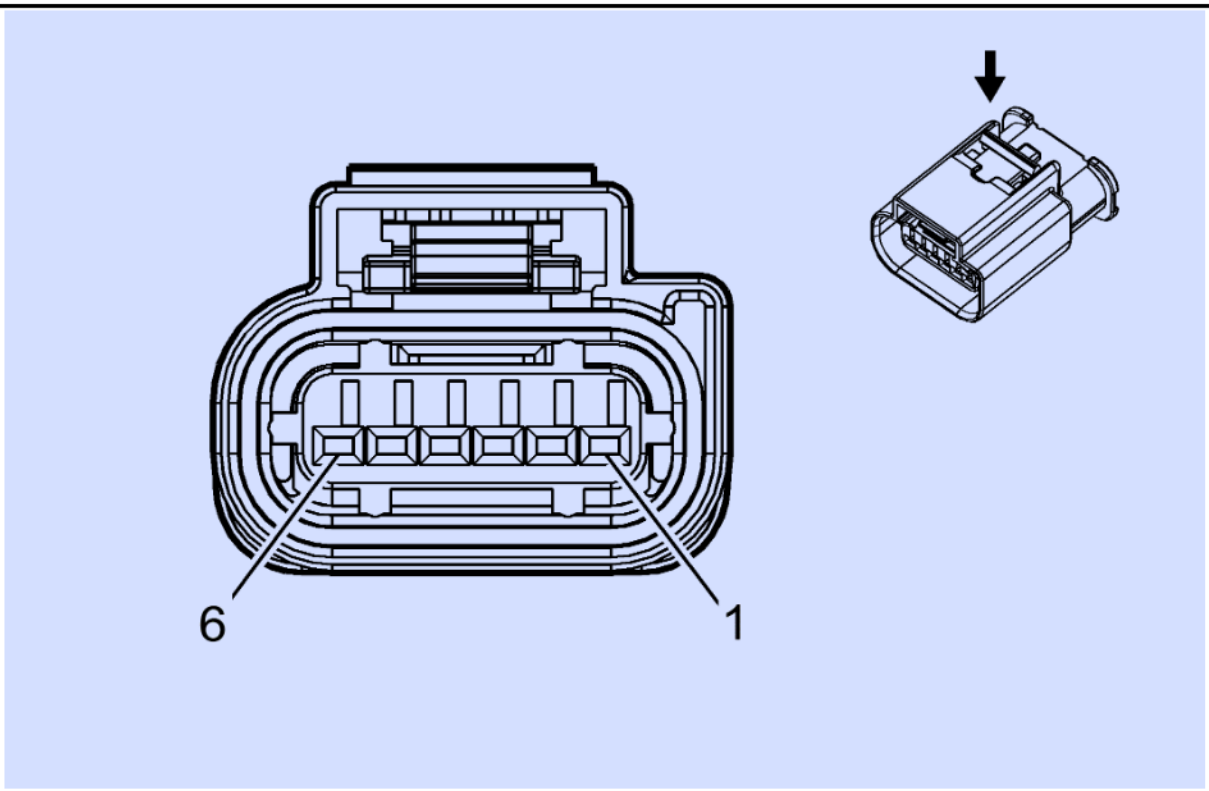

Connector Part Information

- Harness Type: Engine
- OEM Connector: 2272975-5
- Service Connector: 19352911
- Description: 6-Way F 1.2 MCON Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE	581	Throttle Actuator Control Open	I	L5P
2	0.5	BN/WH	582	Throttle Actuator Control Close	I	L5P
3	0.5	BU/WH	3630	Throttle Position Sensor (SENT1) Signal	I	L5P
4	0.5	BK/BN	2752	Throttle Position Sensor Low Reference	I	L5P
5	0.5	BN/RD	2701	Throttle Position Sensor 5V Reference	I	L5P
6	-	-	-	Not Occupied	-	-

Q38 THROTTLE BODY (L96/LC8)

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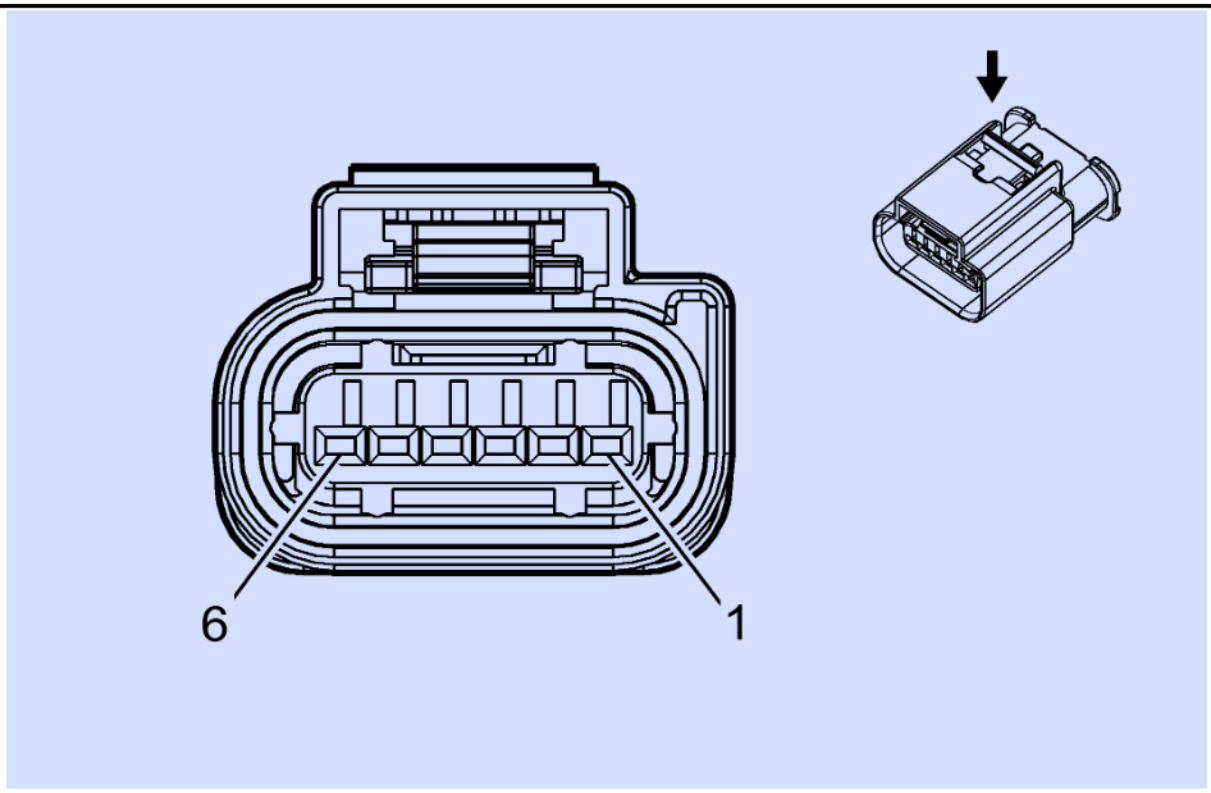

Connector Part Information

- Harness Type: Engine
- OEM Connector: 33220833
- Service Connector: 19352911
- Description: 6-Way F 1.2 MCON Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE	581	Throttle Actuator Control Open	I	-
2	0.5	BN/WH	582	Throttle Actuator Control Close	I	-
3	0.5	D-BU/WH	3630	Throttle Position Sensor (SENT1) Signal	I	-
4	0.5	BK/BN	2752	Throttle Position Sensor Low Reference	I	-
5	0.5	BN/YE	2701	Throttle Position Sensor 5V Reference	I	-
6	-	-	-	Not Occupied	-	-

Q38 THROTTLE BODY (LV3)

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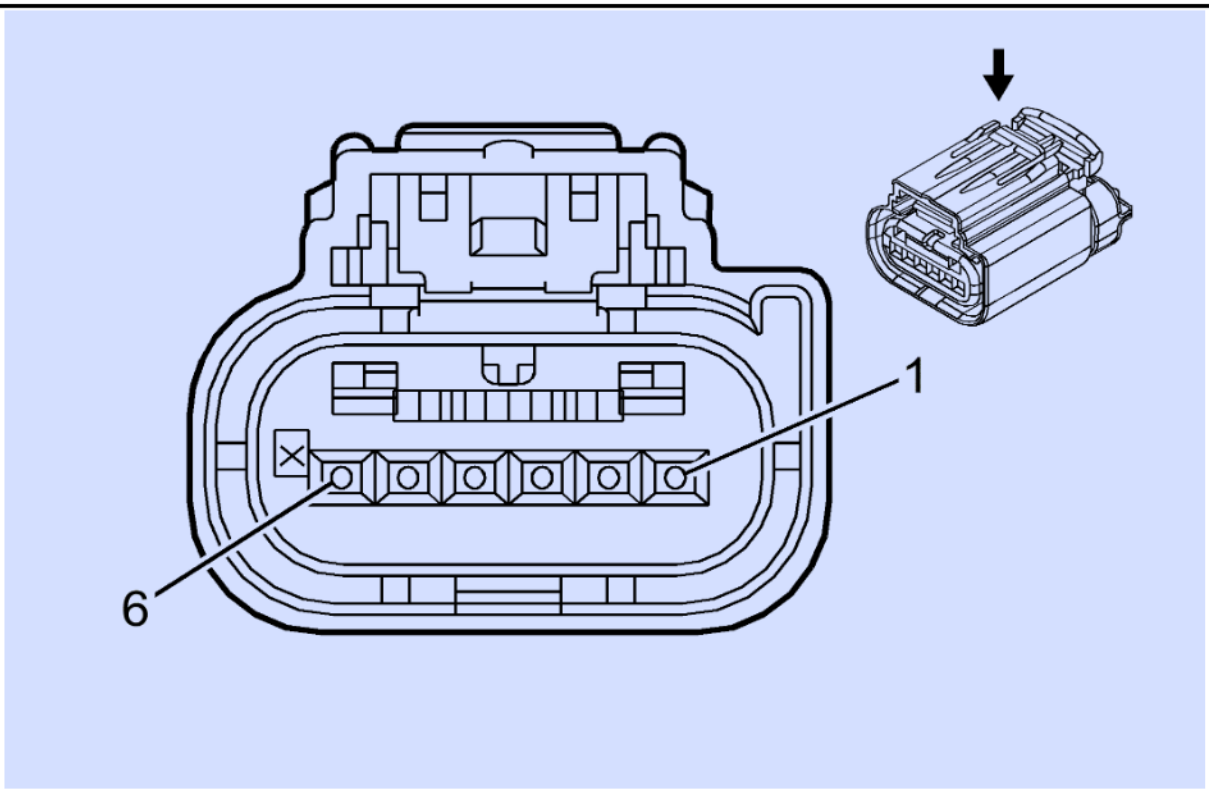

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13699991
- Service Connector: 13581267
- Description: 6-Way F 0.64 GET Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE	581	Throttle Actuator Control Open	I	-
2	0.5	BN/WH	582	Throttle Actuator Control Close	I	-
3	0.5	D-BU/WH	3630	Throttle Position Sensor (SENT1) Signal	I	-
4	0.5	BK/BN	2752	Throttle Position Sensor Low Reference	I	-
5	0.5	BN/RD	2701	Throttle Position Sensor 5V Reference	I	-
6	-	-	-	Not Occupied	-	-

Q43 VALVE LIFTER OIL MANIFOLD ASSEMBLY (L8B/L83/L86)

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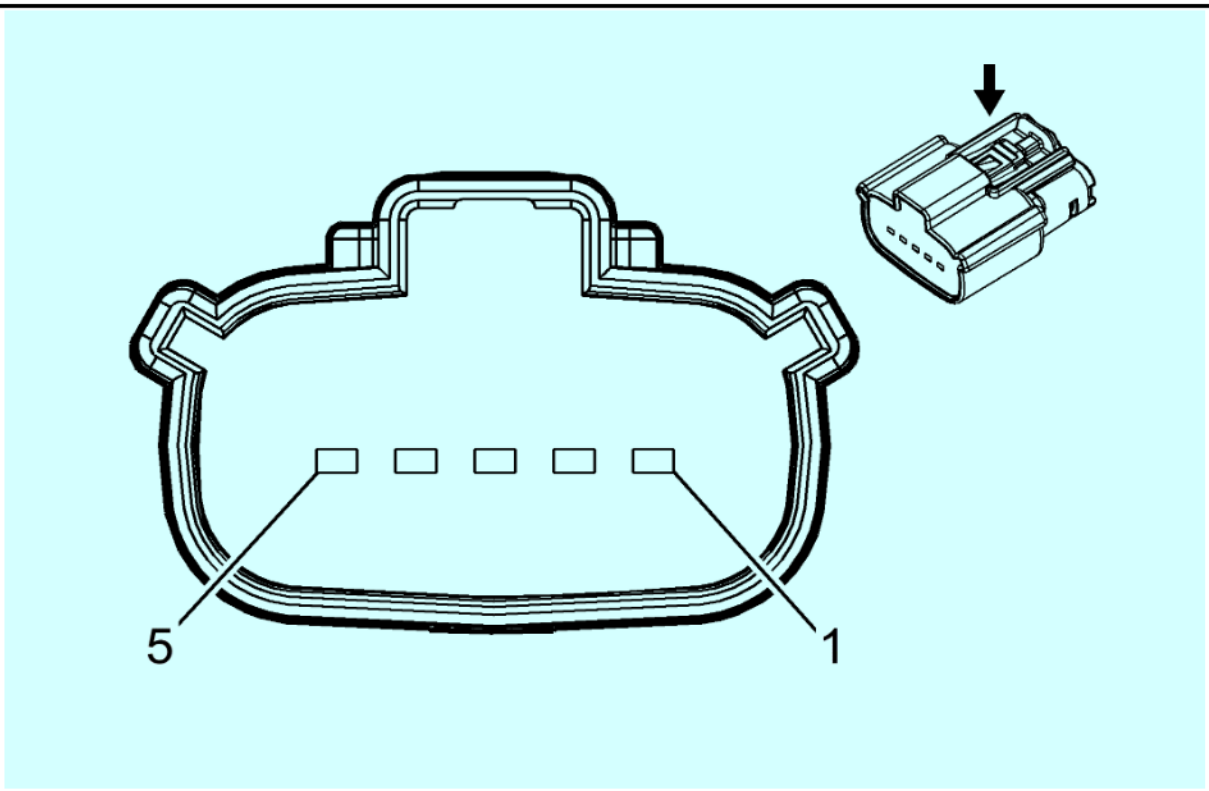

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13845946
- Service Connector: 19301719
- Description: 5-Way F 150 MX Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/BU	5494	Cylinder Shutoff Solenoid Control 4	I	-
2	0.5	GY	5493	Cylinder Shutoff Solenoid Control 3	I	-
3	0.5	BU	5491	Cylinder Shutoff Solenoid Control 1	I	-
4	0.75	VT/BU	5293	Powertrain Main Relay Fused Supply 4	I	-
5	0.5	GN	5492	Cylinder Shutoff Solenoid Control 2	I	-

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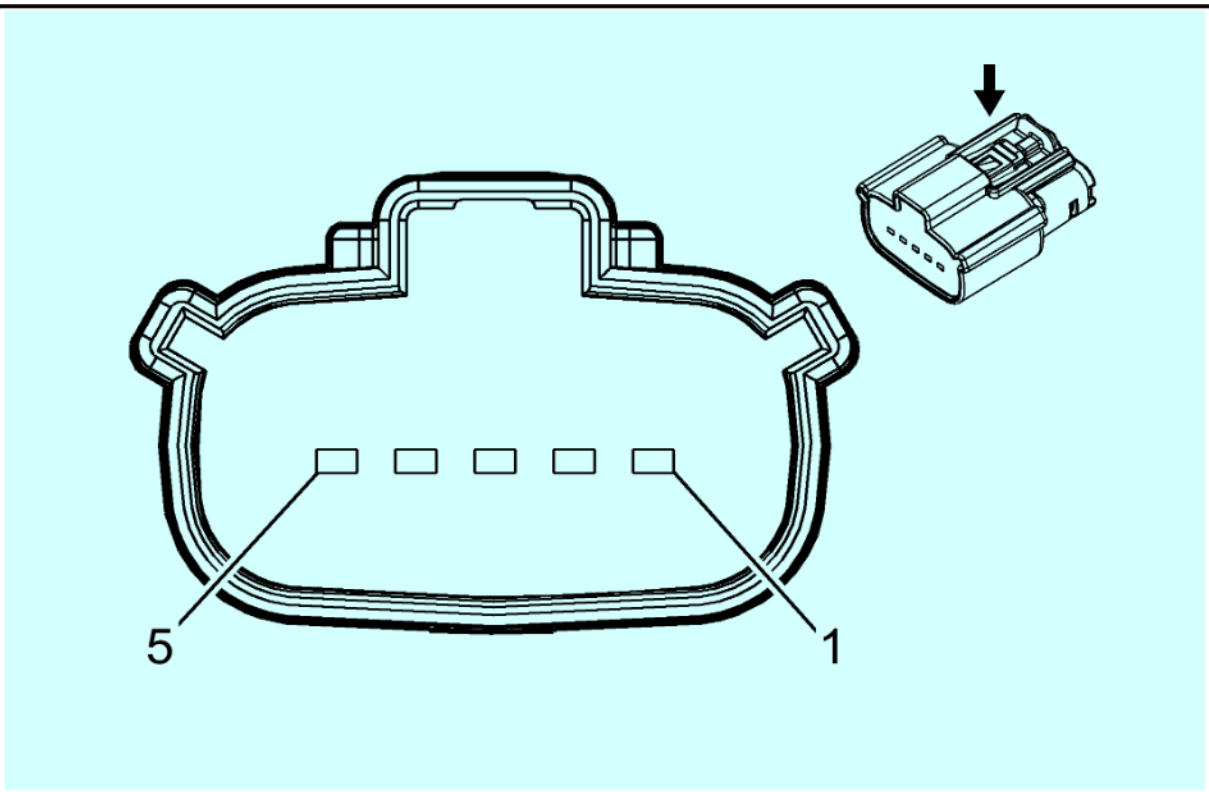
Q43 VALVE LIFTER OIL MANIFOLD ASSEMBLY (LV3)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13843947
- Service Connector: 19301721
- Description: 5-Way F 150 MX Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU	5491	Cylinder Shutoff Solenoid Control 1	I	-
2	-	-	-	Not Occupied	-	-
3	0.75	VT/BU	5293	Powertrain Main Relay Fused Supply 4	I	-
4	-	-	-	Not Occupied	-	-
5	0.5	GN	5492	Cylinder Shutoff Solenoid Control 2	I	-

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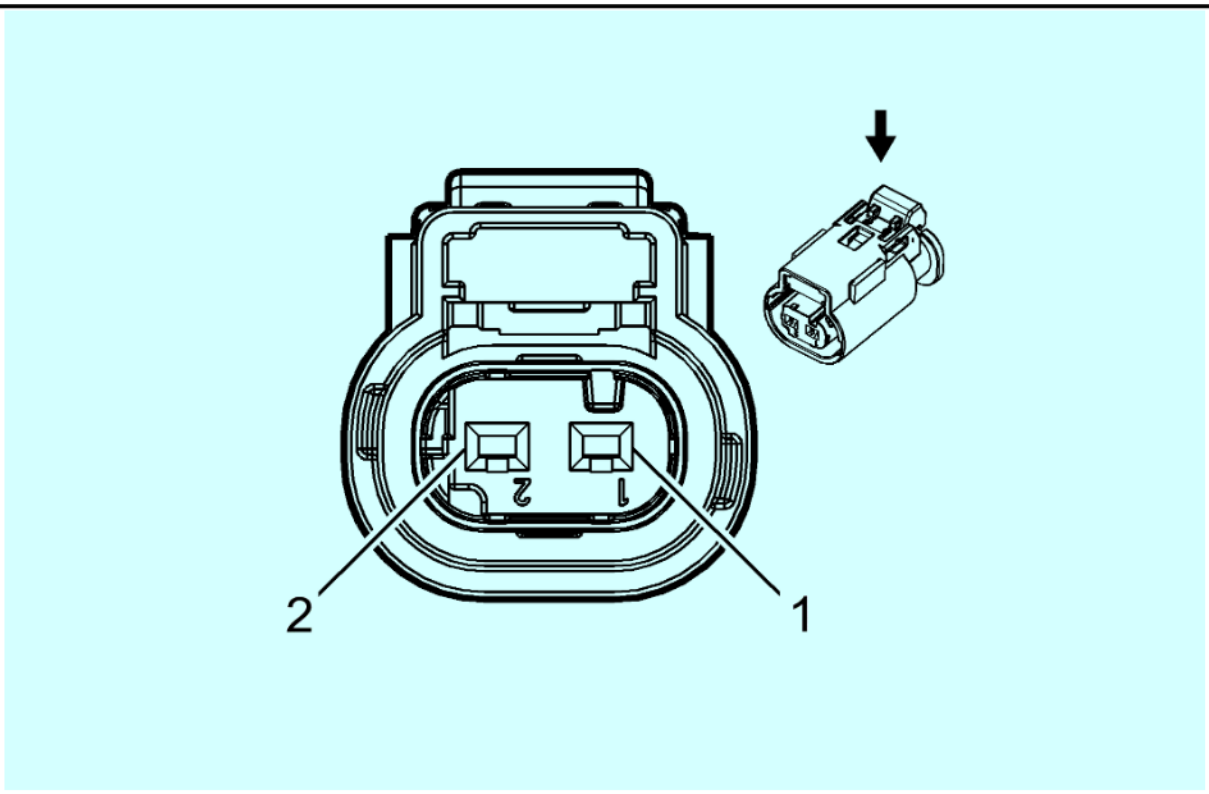
Q44 ENGINE OIL PRESSURE CONTROL SOLENOID VALVE



Connector Part Information

- Harness Type: Camshaft Position Sensor Jumper
- OEM Connector: 13735326
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/D-BU	5293	Powertrain Main Relay Fused Supply 4	I	-
2	0.5	D-BU	179	Oil Pump Command Signal	I	-

Q46 A/C COMPRESSOR SOLENOID VALVE

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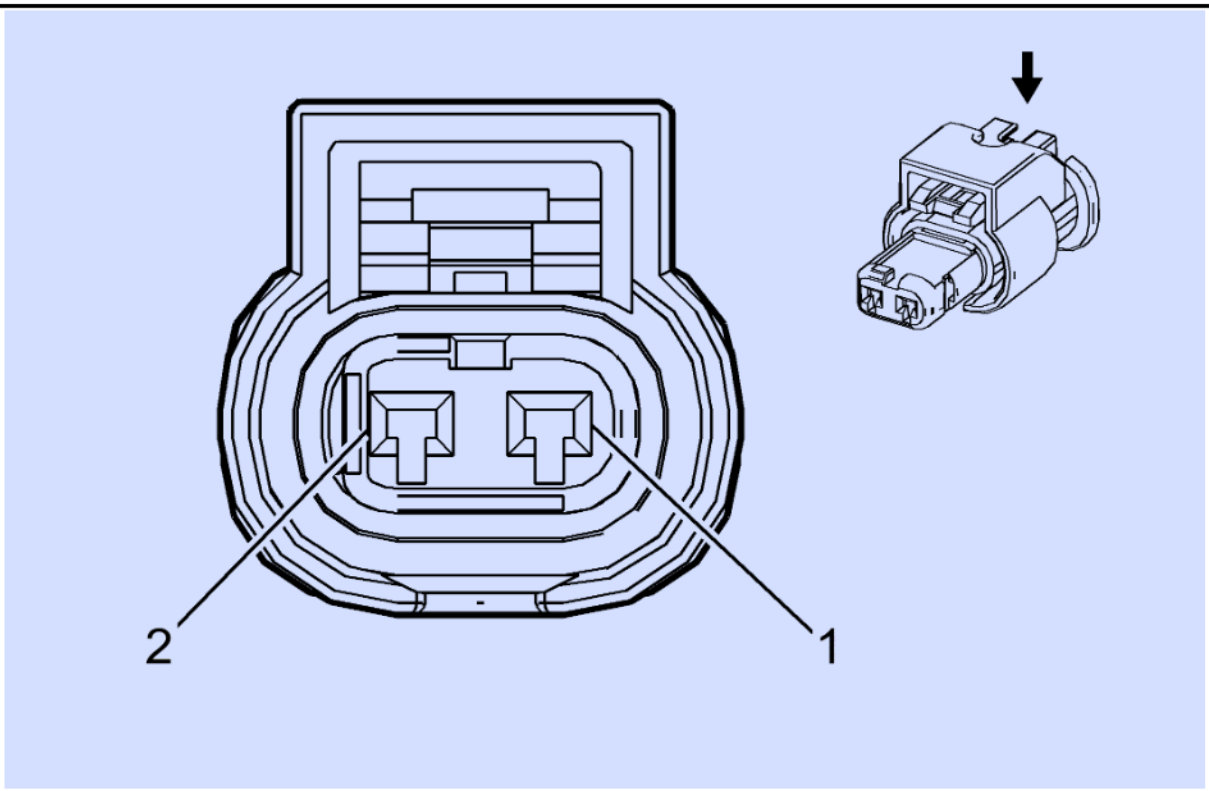

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13927762
- Service Connector: 19299928
- Description: 2-Way F 1.2 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BU/YE	7574	Electric Variable Displacement Control	I	-
2	0.75	BU/BN	7573	Electric Variable Displacement Supply	I	-

Q47 EXHAUST GAS RECIRCULATION COOLER BYPASS SOLENOID VALVE

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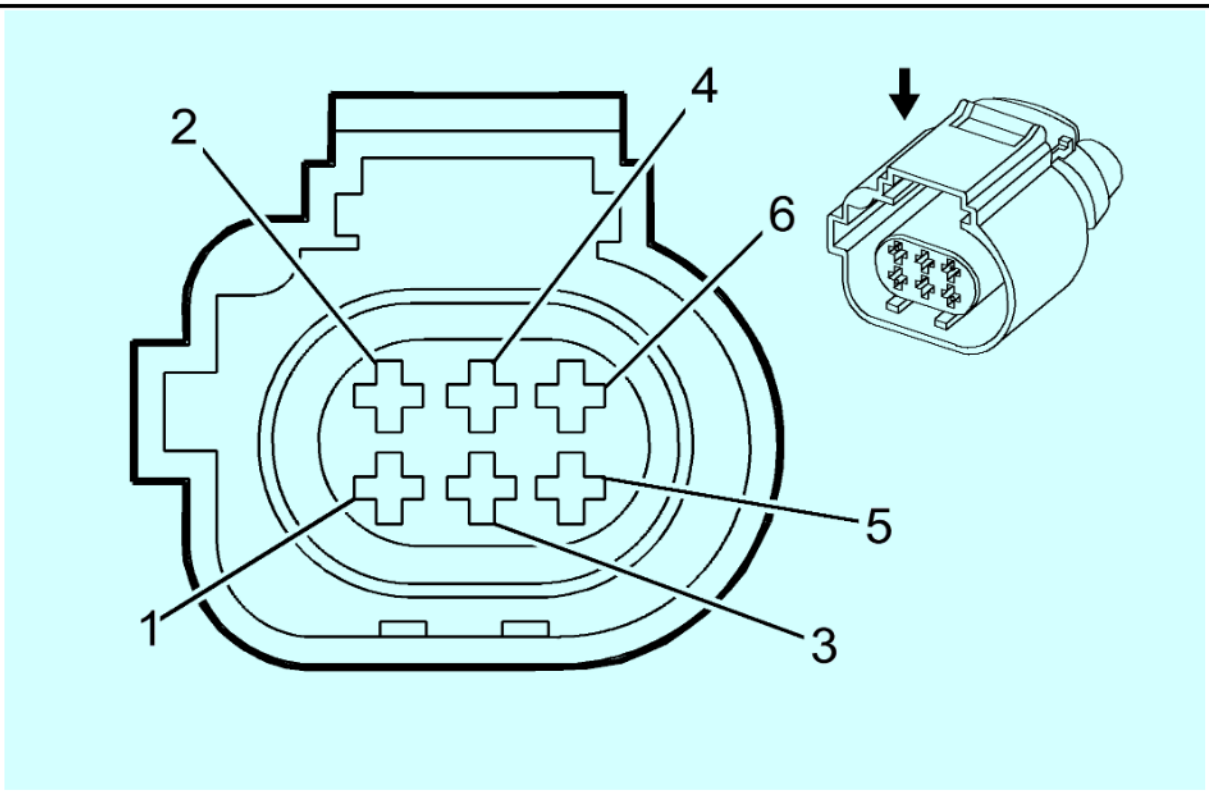

Connector Part Information

- Harness Type: Engine Chassis
- OEM Connector: 284716-5
- Service Connector: 19354082
- Description: 6-Way F 1.6 Micro-Timer Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN/VT	3656	EGR Cooler Bypass Motor Close Control	I	L5P
2	0.5	GN/GY	3654	EGR Cooler Bypass Position Sensor Signal	I	L5P
3	-	-	-	Not Occupied	-	-
4	0.5	BK/BU	3653	EGR Cooler Bypass Position Sensor Low Reference	I	L5P
5	0.5	YE/GN	3655	EGR Cooler Bypass Motor Open Control	I	L5P
6	0.5	VT/RD	3652	EGR Cooler Bypass Position Sensor 5V Reference	I	L5P

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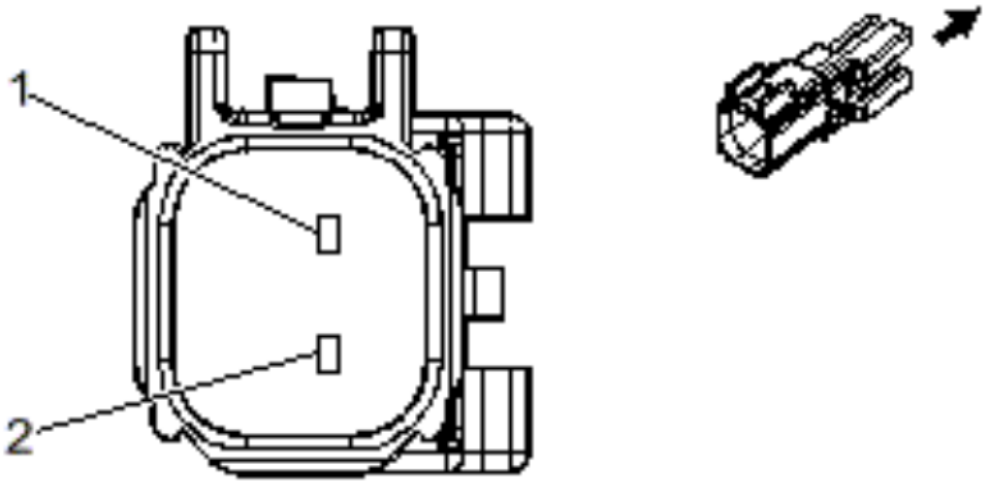
Q61 REDUCTANT INJECTOR



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13719748
- Service Connector: 19301583
- Description: 2-Way M 1.5 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN	3099	DEF Dosing Valve High Control	I	-
2	0.75	BN/WH	3100	DEF Dosing Valve Low Control	I	-

Q67 EXHAUST AFTERTREATMENT FUEL INJECTOR

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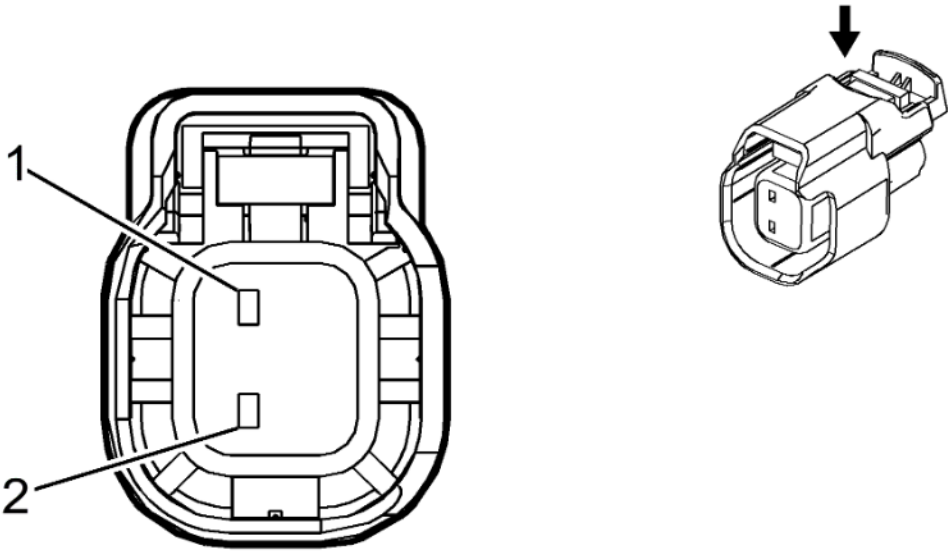

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13820418
- Service Connector: 13580230
- Description: 2-Way F 1.5 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN/BU	2926	Hydrocarbon Injector High Control	I	-
2	0.5	VT/BN	2927	Hydrocarbon Injector Low Control	I	-

R6A TERMINATING RESISTOR - HIGH SPEED BUS

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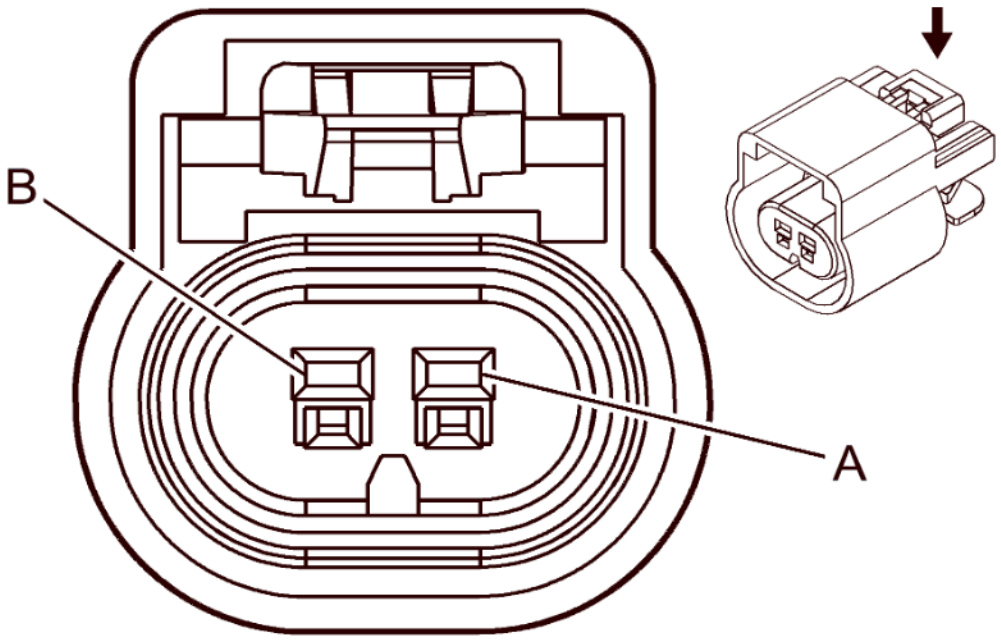

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13510085
- Service Connector: 13580114
- Description: 2-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	D-BU	2500	High Speed GMLAN Serial Data (+) 1	I	-
B	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-

R6E TERMINATING RESISTOR - HIGH SPEED EXTENSION BUS 1

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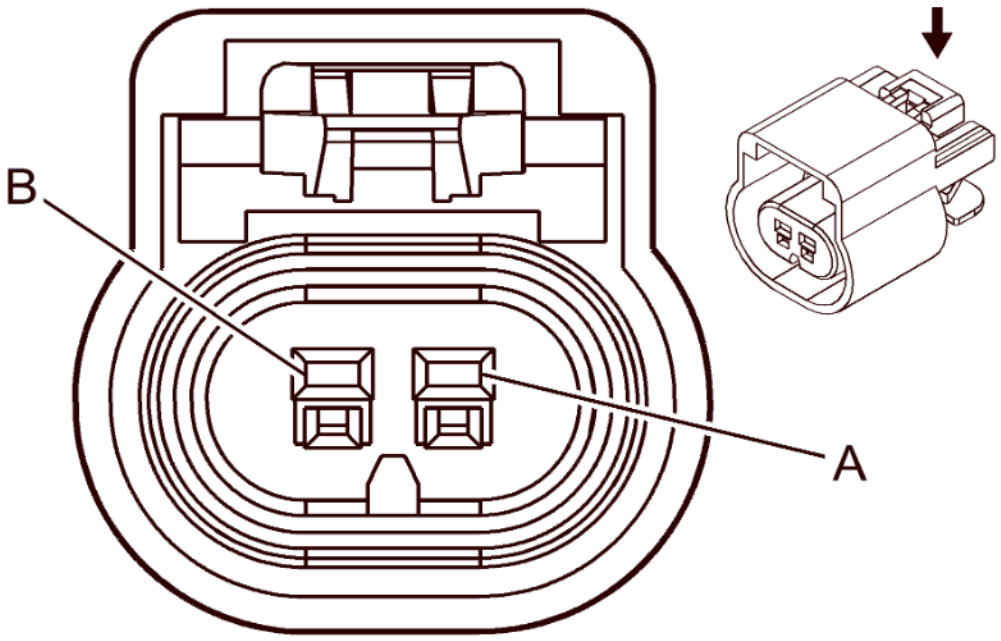

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13510085
- Service Connector: 13580114
- Description: 2-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	D-BU/GY	3935	High Speed GMLAN Serial Data (+) 8	I	-
B	0.5	WH/GY	3936	High Speed GMLAN Serial Data (-) 8	I	-

R6F TERMINATING RESISTOR - HIGH SPEED EXTENSION BUS 2

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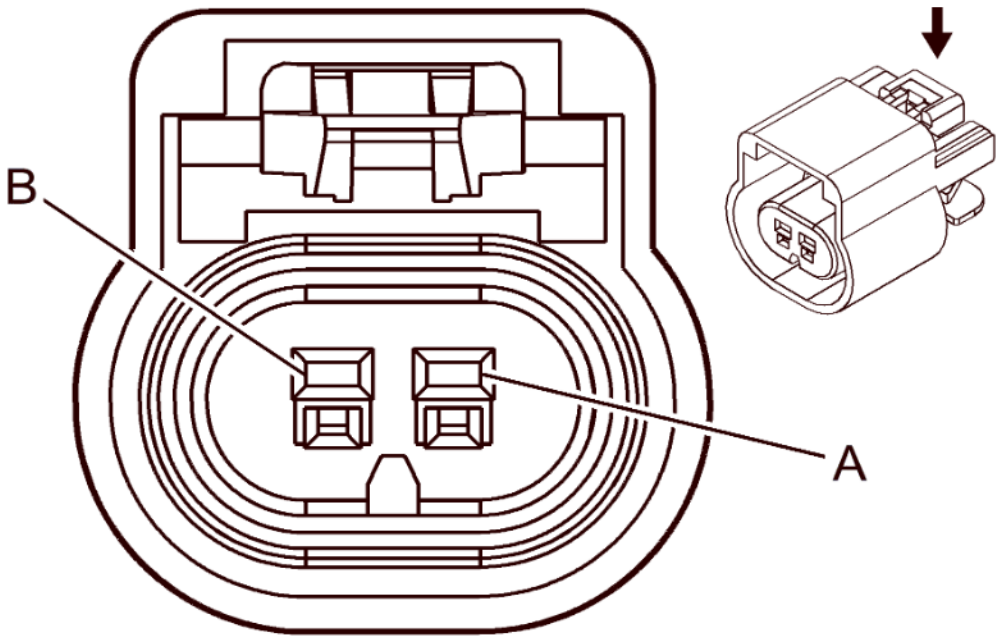

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13510085
- Service Connector: 13580114
- Description: 2-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	D-BU/L-GN	1304	High Speed GMLAN Serial Data (+)9	I	-
B	0.5	WH/L-GN	1305	High Speed GMLAN Serial Data (-)9	I	-

S5 CENTER CONSOLE COMPARTMENT LAMP SWITCH

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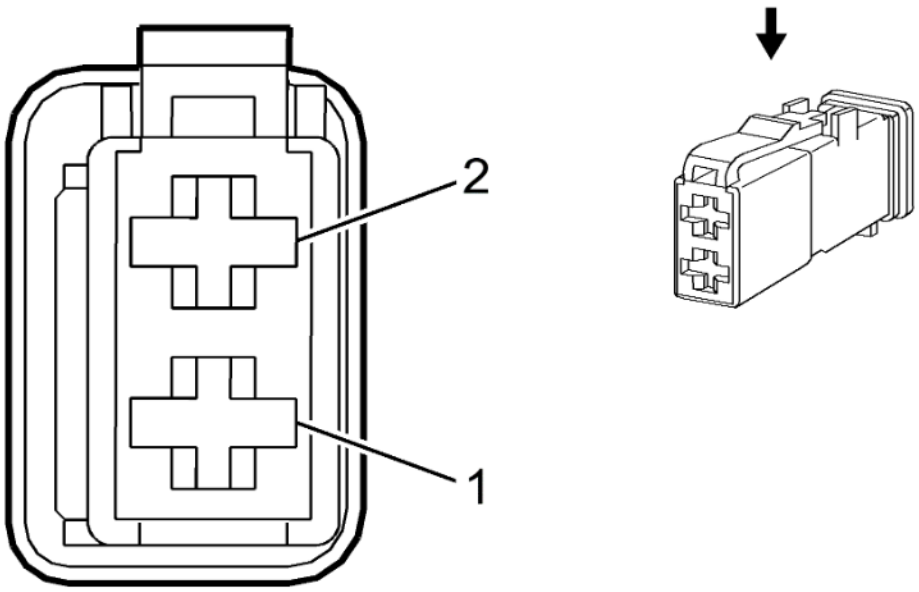

Connector Part Information

- Harness Type: Floor Console
- OEM Connector: 10787635
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.2 Timer Series (NA)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/BN	6815	Inadvertent Power Control	I	-
2	0.5	WH/BN	6815	Inadvertent Power Control	I	-

S12 DOME LAMP SWITCH

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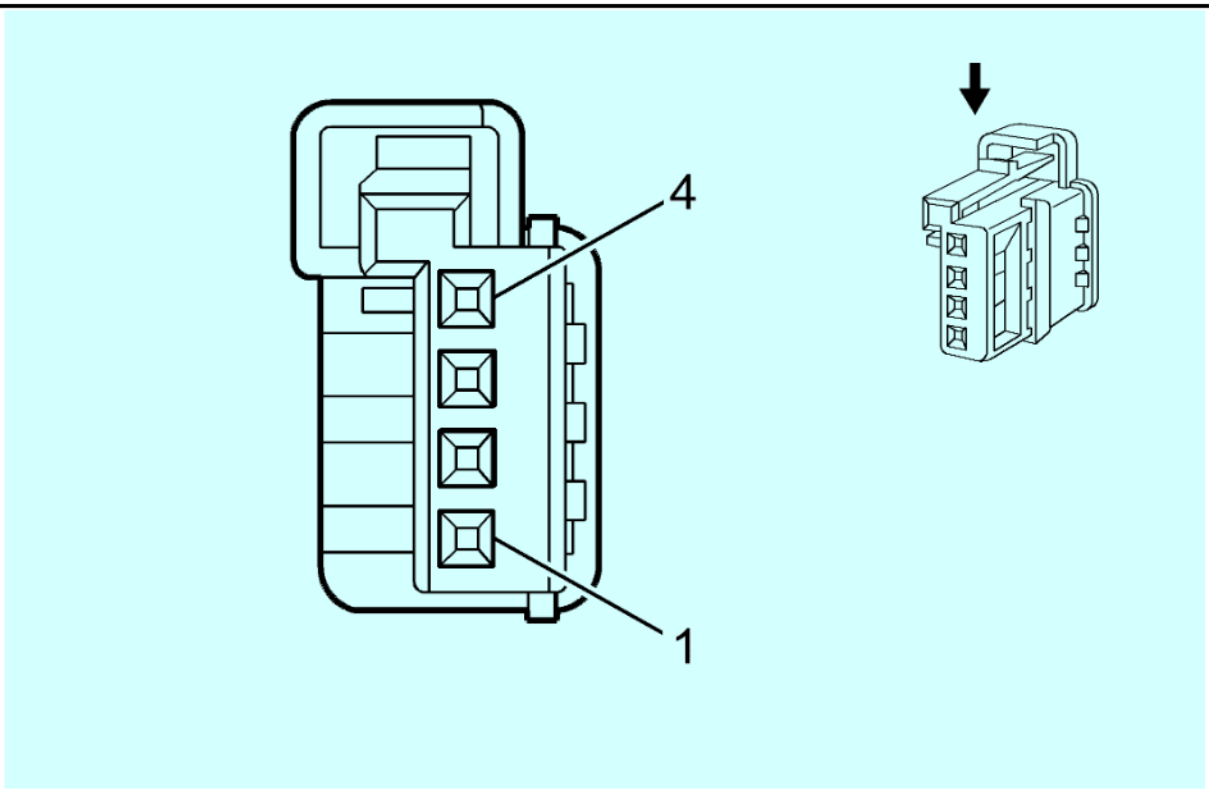

Connector Part Information

- Harness Type: Overhead Console
- OEM Connector: 13862319
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 0.64 Micro-Quadlock Series (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK	1050	Ground	I	-
2	0.35	GY/L-GN	328	Interior Lamp Defeat Switch Signal	I	-
3	0.35	GY	156	Courtesy Lamp Switch Signal	I	-
4	0.35	YE	6817	LED Backlight Dimming Control	I	-

S13D DOOR LOCK SWITCH - DRIVER (A31)

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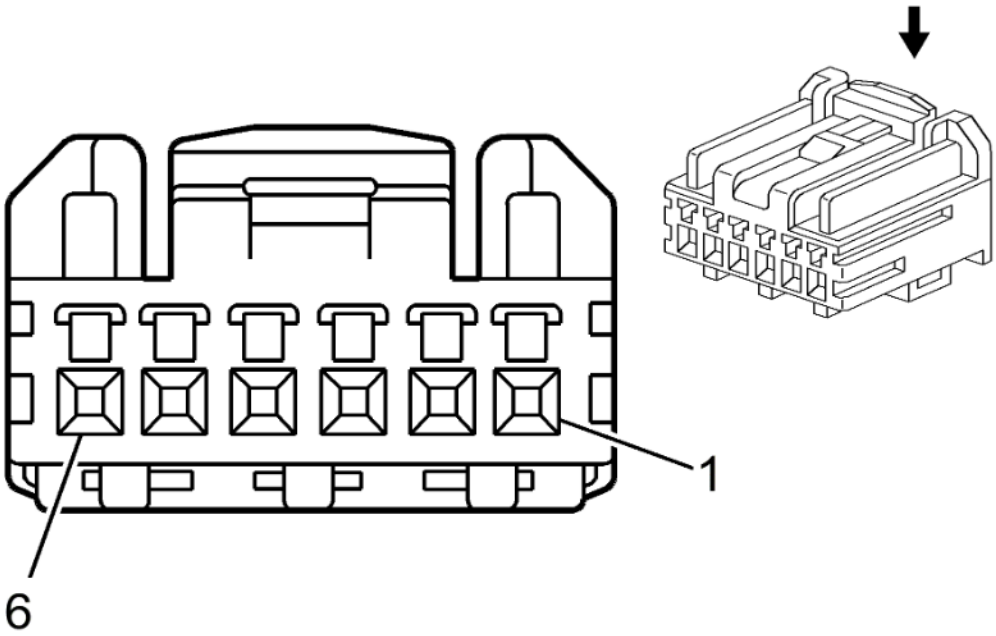

Connector Part Information

- Harness Type: Driver Door Trim
- OEM Connector: 15484551
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way F 0.64 HCM Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.35	YE	6817	LED Backlight Dimming Control	I	-
3	0.35	BN/YE	780	Driver Door Lock Switch Lock Signal	I	-
4	0.35	BN/WH	781	Driver Door Lock Switch Unlock Signal	I	-
5	0.35	BK	1150	Ground	I	-
6	-	-	-	Not Occupied	-	-

S13D DOOR LOCK SWITCH - DRIVER (-A31)

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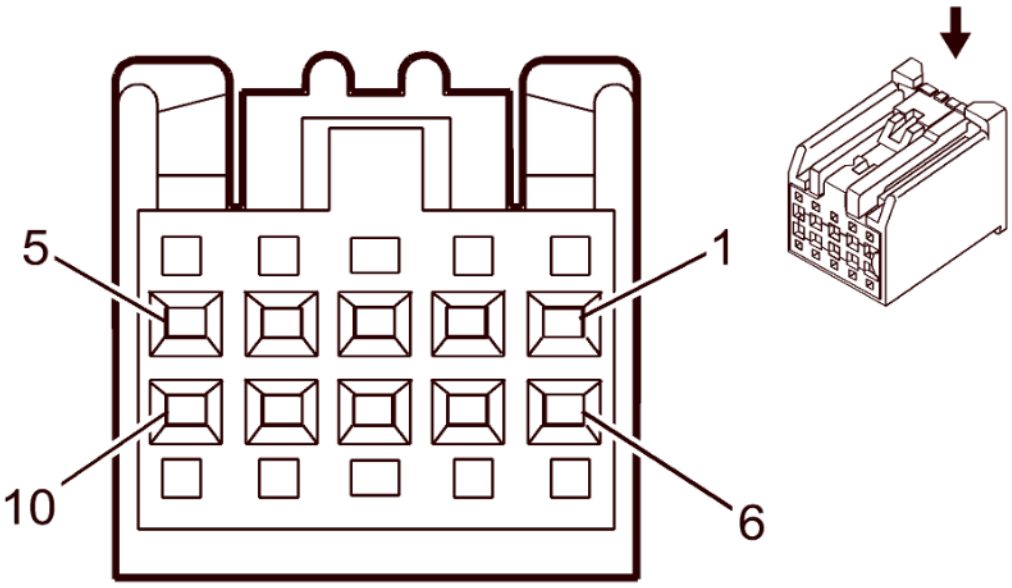

Connector Part Information

- Harness Type: Driver Door Trim
- OEM Connector: 13815336
- Service Connector: Service by Harness - See Part Catalog
- Description: 10-Way F 0.64 Kaizen Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK	1150	Ground	I	-
2 - 3	-	-	-	Not Occupied	-	-
4	0.35	YE	6817	LED Backlight Dimming Control	I	-
5	-	-	-	Not Occupied	-	-
6	0.35	BN/YE	780	Driver Door Lock Switch Lock Signal	I	-
7	0.35	BN/WH	781	Driver Door Lock Switch Unlock Signal	I	-
8 - 10	-	-	-	Not Occupied	-	-

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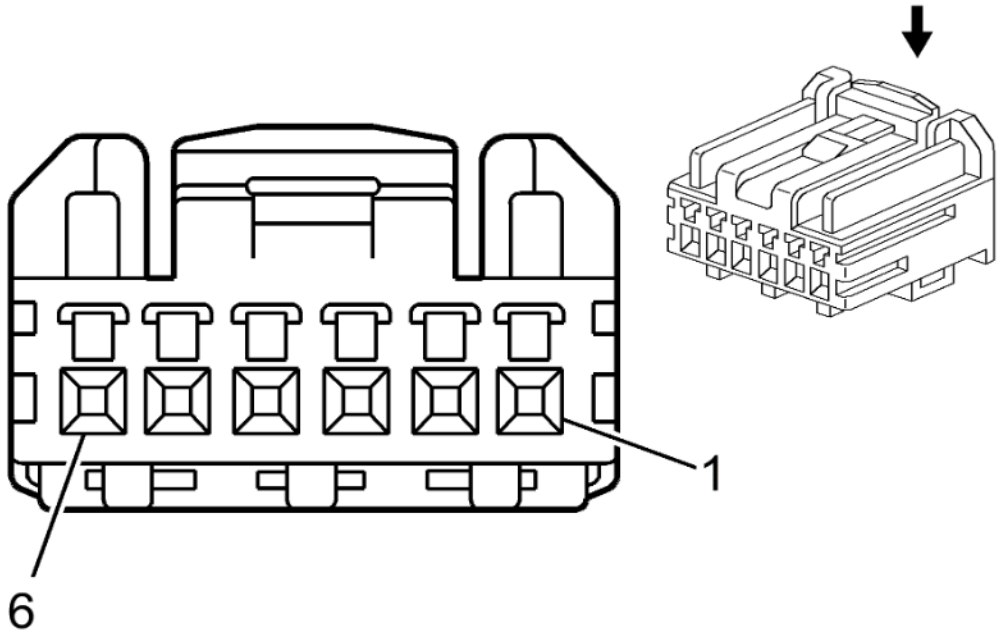
S13P DOOR LOCK SWITCH - PASSENGER (A31)



Connector Part Information

- Harness Type: Passenger Door Trim
- OEM Connector: 15484551
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way F 0.64 HCM Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.35	YE	6817	LED Backlight Dimming Control	I	-
3	0.35	YE/VT	244	Passenger Door Lock Switch Lock Control	I	-
4	0.35	BN/VT	245	Passenger Door Lock Switch Unlock Control	I	-
5	0.35	BK	1250	Ground	I	-
6	-	-	-	Not Occupied	-	-

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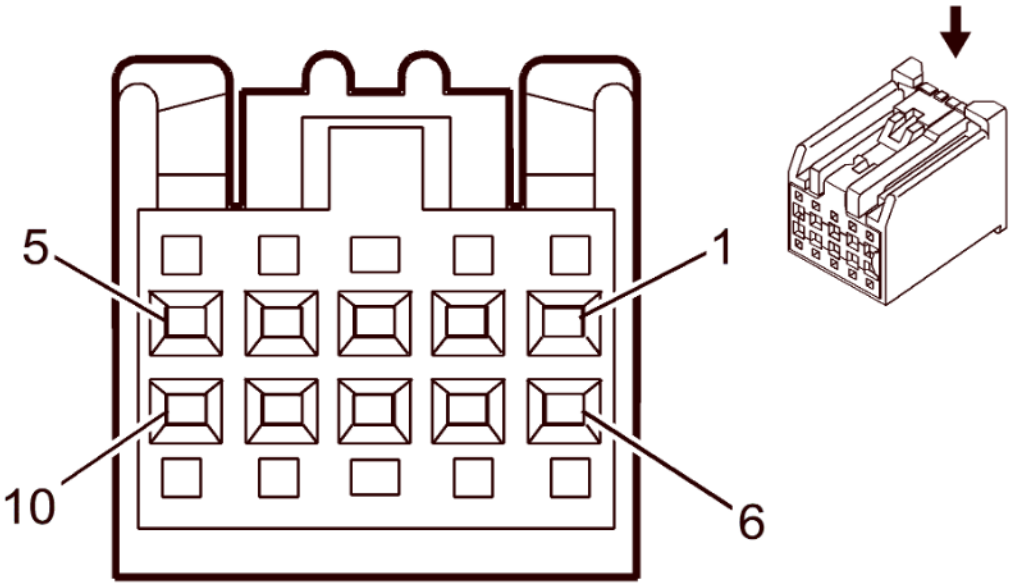
S13P DOOR LOCK SWITCH - PASSENGER (-A31)



Connector Part Information

- Harness Type: Passenger Door Trim
- OEM Connector: 13815336
- Service Connector: Service by Harness - See Part Catalog
- Description: 10-Way F 0.64 Kaizen Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK	1250	Ground	I	-
2 - 3	-	-	-	Not Occupied	-	-
4	0.35	YE	6817	LED Backlight Dimming Control	I	-
5	-	-	-	Not Occupied	-	-
6	0.35	YE/VT	244	Passenger Door Lock Switch Lock Control	I	-
7	0.35	BN/VT	245	Passenger Door Lock Switch Unlock Control	I	-
8 - 10	-	-	-	Not Occupied	-	-

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Article GUID: A00854480

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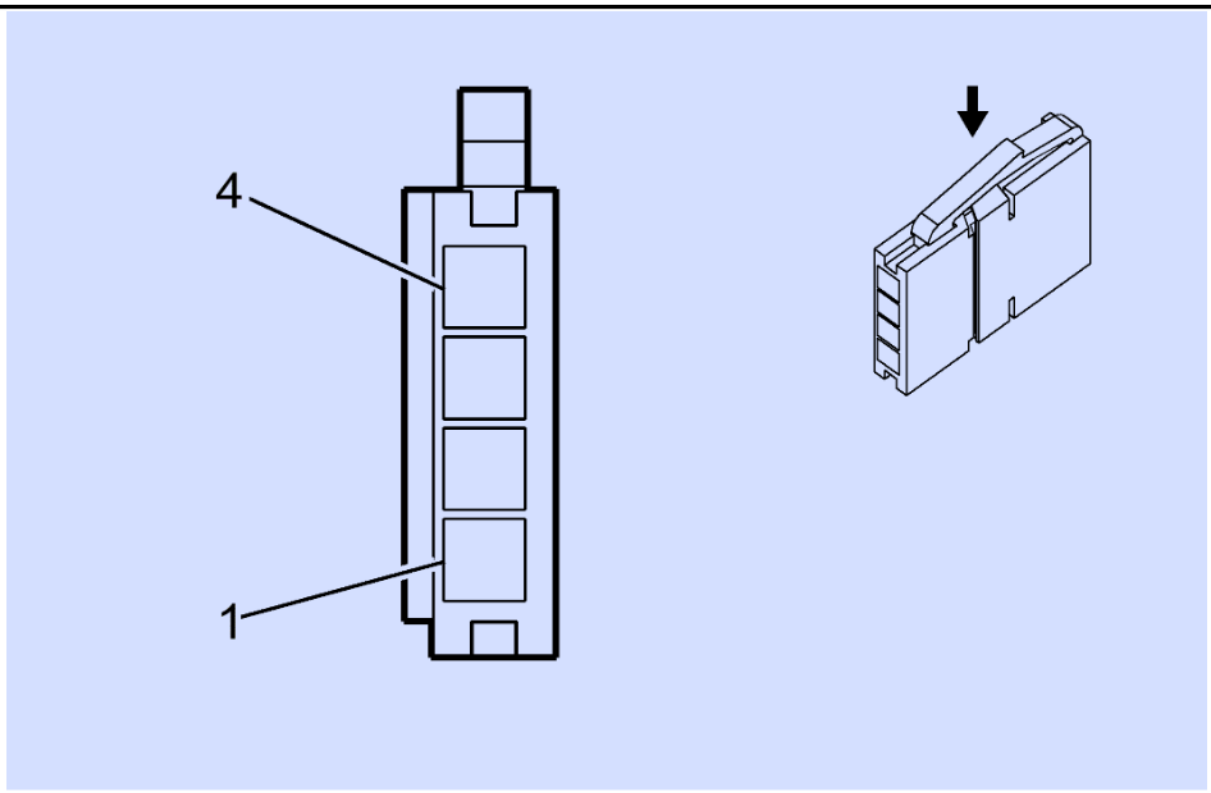
COMPONENT CONNECTOR END VIEWS

S25 GARAGE DOOR OPENER



Connector Part Information

- Harness Type: Overhead Console
- OEM Connector: 13879342
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F f13601803 (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	RD/YE	240	Battery Positive Voltage	I	-
2	0.35	YE	6817	LED Backlight Dimming Control	I	-

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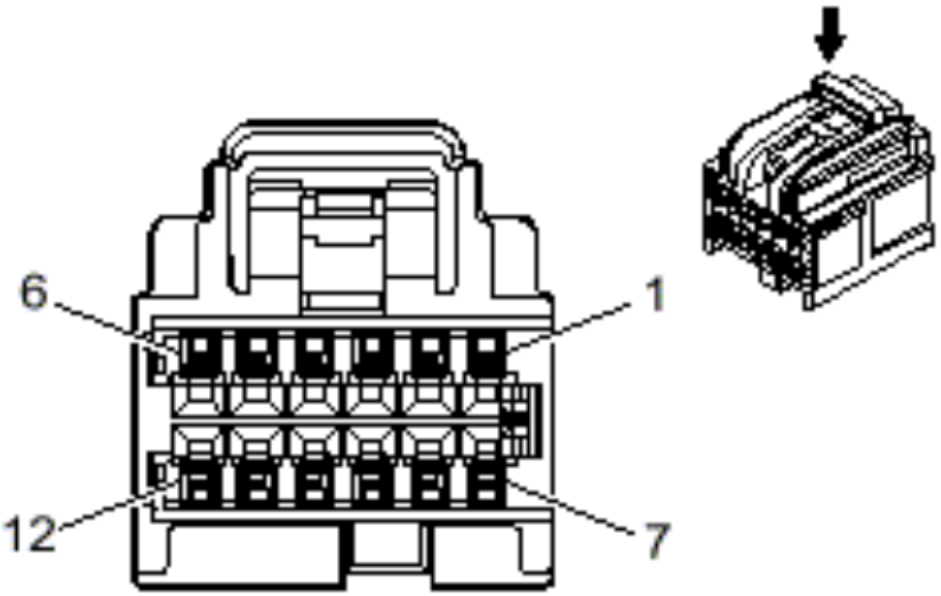
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
3	-	-	-	Not Occupied	-	-
4	0.35	BK	1050	Ground	I	-

S30 HEADLAMP SWITCH



Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13782625
- Service Connector: 19301730
- Description: 12-Way F 0.64 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	19300660	J-35616-64B (LT BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	WH/VT	103	Headlamp Switch On Signal	I	-
2	0.5	YE	6817	LED Backlight Dimming Control	I	-
3	0.35	L-GN/BN	306	Headlamp Switch Headlamps Off Signal Control	I	-

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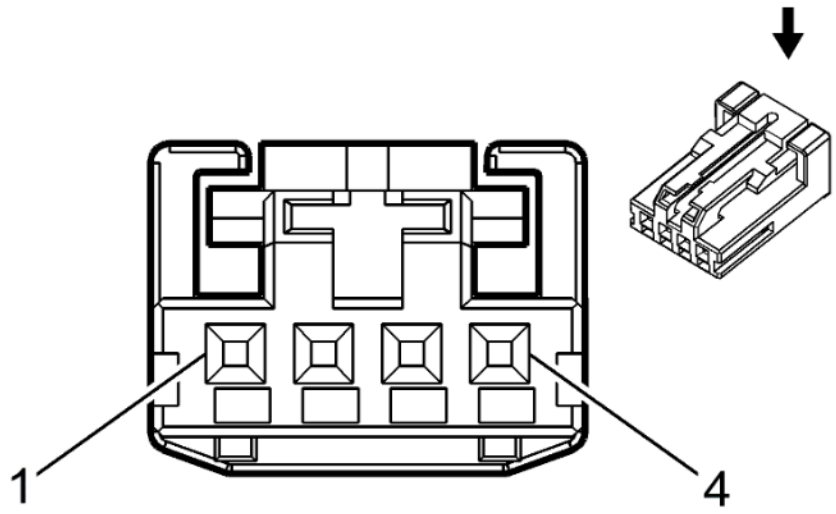
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
4	-	-	-	Not Occupied	-	-
5	0.35	L-GN/GY	13	Headlamp Switch Park Lamp Signal	I	-
6	-	-	-	Not Occupied	-	-
7	0.35	BK/YE	5005	Instrument Panel Lamp Dimmer Switch Low Reference	I	-
8	0.5	BK	1850	Ground	I	-
9	-	-	-	Not Occupied	-	-
10	0.35	D-BU/GY	192	Front Fog Lamp Switch Signal	I	-
11	0.35	YE/GY	44	Instrument Panel Lamp Dimmer Switch Signal	I	-
12	0.35	D-BU/RD	1688	5V Reference	I	-

S31D SEAT HEATING AND COOLING SWITCH - DRIVER



Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13853727
- Service Connector: 19300597
- Description: 4-Way F 0.64 Micro-Quadlock Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal	Service Terminal	Tray Name	Core Crimp	Insulation Crimp

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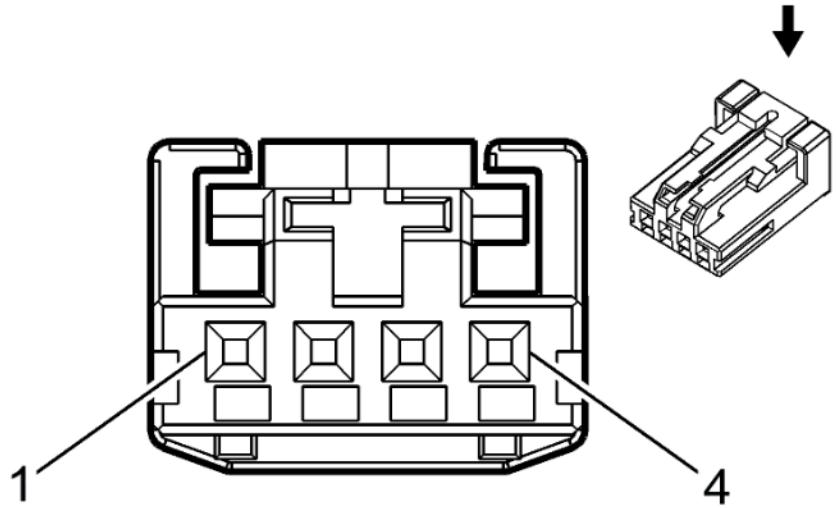
			Tool				
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK	1850	Ground	I	-
2	-	-	-	Not Occupied	-	-
3	0.5	GN/WH	7527	Local Interconnect Network Serial Data Bus 5	I	-
4	0.35	RD/GY	2840	Battery Positive Voltage	I	-

S31P SEAT HEATING AND COOLING SWITCH - PASSENGER



Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13853727
- Service Connector: 19300597
- Description: 4-Way F 0.64 Micro-Quadlock Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

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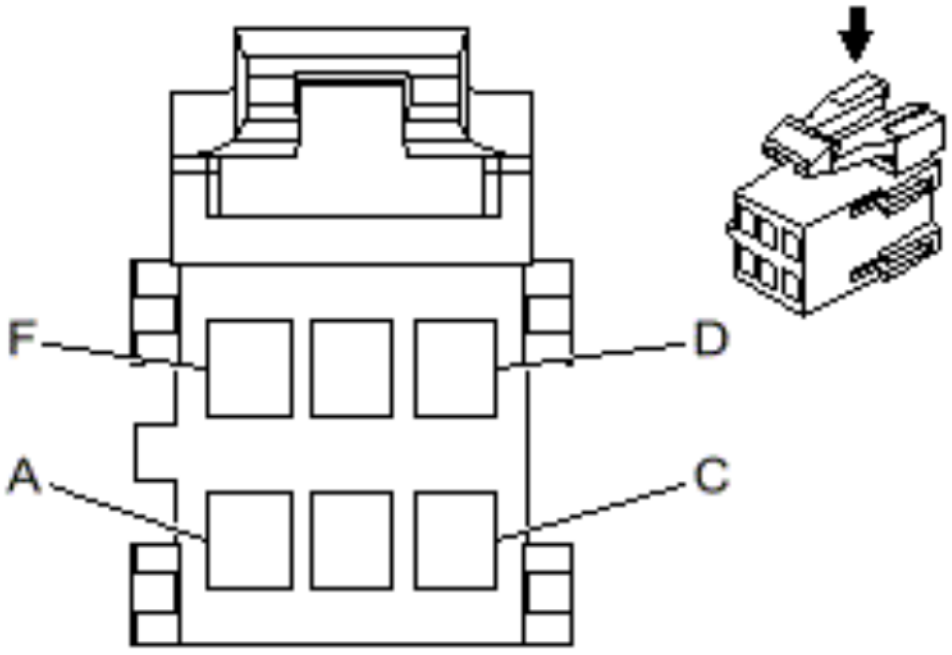
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	RD/GY	2840	Battery Positive Voltage	I	-
2	0.5	L-GN/WH	7527	Local Interconnect Network Serial Data Bus 5	I	-
3	-	-	-	Not Occupied	-	-
4	0.5	BK	1850	Ground	I	-

S40 PASSENGER AIR BAG DISABLE SWITCH



Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 15305286
- Service Connector: 15306014
- Description: 6-Way F 150 Metri-Pack Series (YE)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.35	D-BU/OG	7328	Passenger IP Module Disable	I	-

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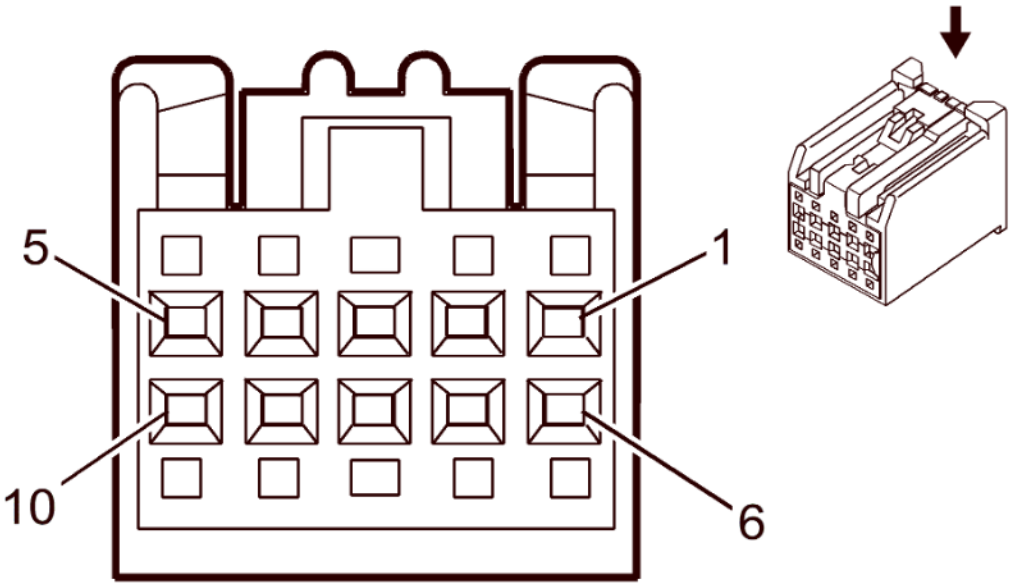
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
				Switch Low Reference		
B - C	-	-	-	Not Occupied	-	-
D	0.35	VT/OG	371	Passenger IP Module Disable Switch Signal	I	-
E - F	-	-	-	Not Occupied	-	-

S47D SEAT MEMORY SWITCH - DRIVER



Connector Part Information

- Harness Type: Driver Door Trim
- OEM Connector: 13815336
- Service Connector: Service by Harness - See Part Catalog
- Description: 10-Way F 0.64 Kaizen Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK/BU	5978	Memory Switch Low Reference	I	-

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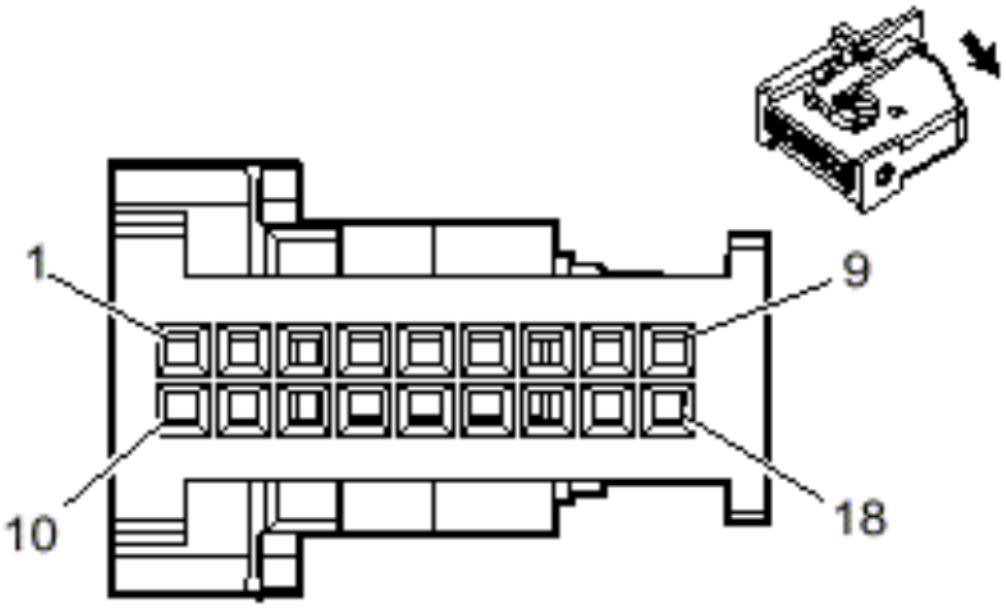
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
2	0.35	YE	6817	LED Backlight Dimming Control	I	-
3 - 4	-	-	-	Not Occupied	-	-
5	0.35	BU/GN	614	Memory Seat Switch Set Signal	I	-
6	0.35	WH	615	Memory Seat Switch Signal 1	I	-
7 - 10	-	-	-	Not Occupied	-	-

S48A MULTIFUNCTION SWITCH - INSTRUMENT PANEL X1



Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 10820548
- Service Connector: 13584100
- Description: 18-Way F 0.64 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575782	J-35616-64B (LT BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE	6817	LED Backlight Dimming Control	I	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
2	0.35	WH	6816	Indicator Dimming Control	I	-
3	0.35	BU/YE	6844	ABS/TCS Hill Descent Control Switch Signal	I	-
4	0.35	BU/YE	6844	ABS/TCS Hill Descent Control Switch Signal	I	-
5	0.35	WH	3152	Lane Departure Warning Indicator Control	I	-
6	0.35	GN/BN	5852	Rear Park Assist LED Disable Signal	I	-
7	0.5	BN/WH	1429	Standing Lamp Relay Control	I	-
8	0.35	GY/WH	3153	Lane Departure Warning Disable Switch Signal	I	-
9	0.35	GY/GN	2555	Rear Park Assist Disable Signal	I	-
10	0.5	WH/BU	964	-	I	-
11	0.5	GN/GY	963	-	I	-
12	0.5	RD/WH	961	-	I	-
13	0.5	YE/WH	962	-	I	-
14	0.5	BK	1850	Ground	I	-
15	0.35	WH/GY	5285	Adjustable Pedal Switch Rearward Signal	I	-
16	0.35	GN/GY	5286	Adjustable Pedal Switch Forward Signal	I	-
17	0.35	BU/VT	1788	Traction Control Switch Signal 1	I	-
18	0.5	GY	158	Cargo Lamp Switch Signal	I	-

S48A MULTIFUNCTION SWITCH - INSTRUMENT PANEL X2

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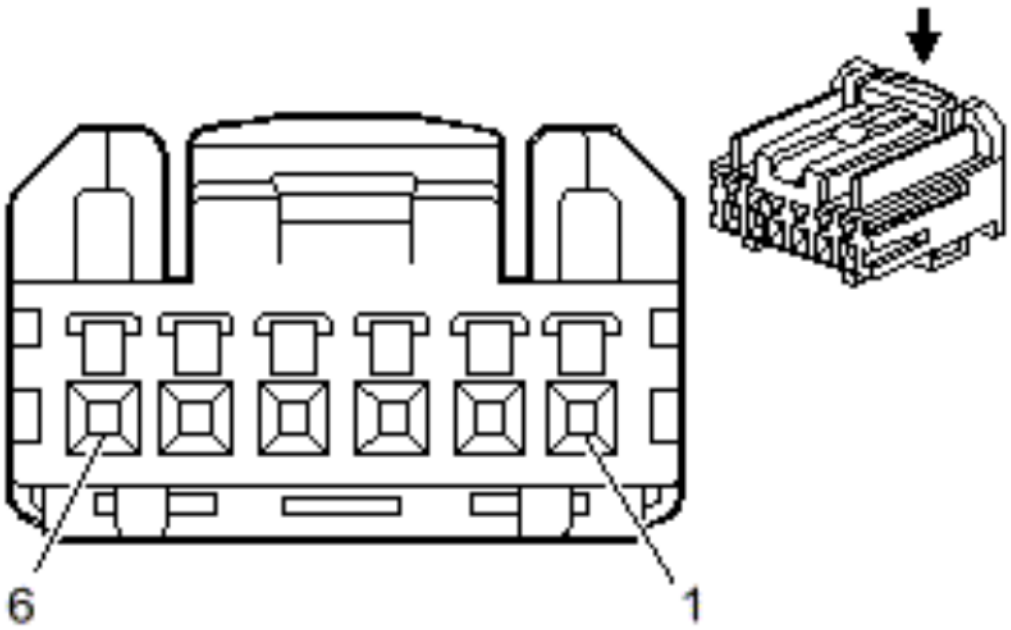

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 15488869
- Service Connector: 19115655
- Description: 6-Way F 0.64 HCM Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BN/L-GN	4311	Power Take Off Enable In Cab Switch Normally Closed Signal	I	-
2	0.35	L-GN/WH	488	Power Take Off Control Switch	I	-
3	0.35	VT/L-GN	1739	Run/Crank Ignition 1 Voltage	I	-
4	0.5	L-GN/YE	2081	Exhaust Brake Switch Control	I	-
5	0.35	L-GN/WH	3438	Exhaust Brake Switch Signal	I	-
6	-	-	-	Not Occupied	-	-

S52 OUTSIDE REARVIEW MIRROR SWITCH (A45)

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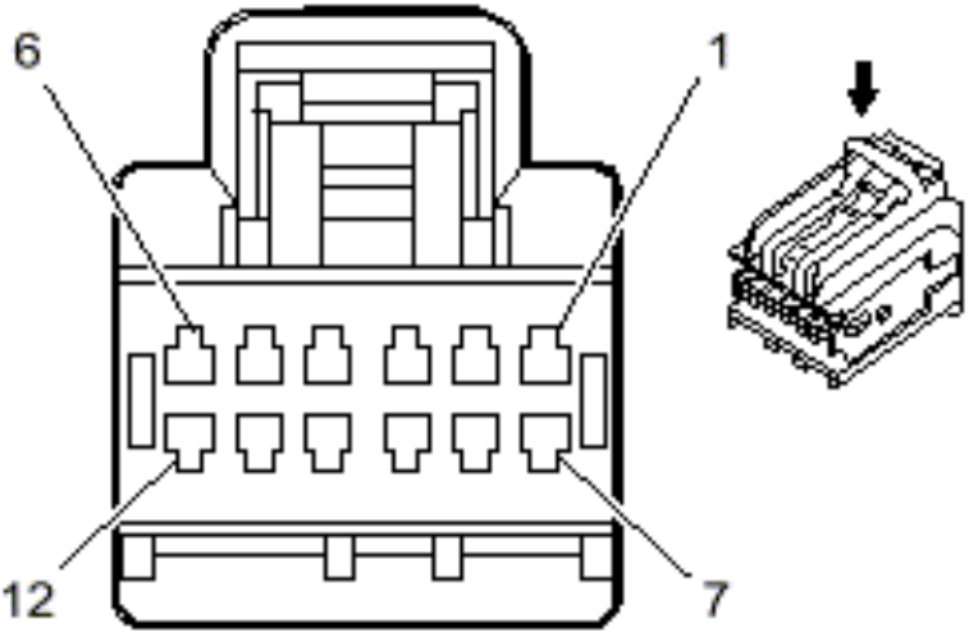

Connector Part Information

- Harness Type: Driver Door Trim
- OEM Connector: 13889385
- Service Connector: Service by Harness - See Part Catalog
- Description: 12-Way F 64 Series, Sealed (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY/BN	3394	Driver Mirror Position Sensor Up (+) Down (-) Signal	I	-
2	0.35	VT/RD	3392	Driver Mirror Position Sensor 5V Reference	I	-
3	0.75	BK	1150	Ground	I	-
4	0.75	VT/D-BU	3390	Driver Mirror Motor Up (+) Down (-) Control	I	-
5	0.75	WH/L-GN	3412	Driver Mirror Motor Fold In Control	I	-
6	0.75	YE/BN	3391	Driver Mirror Motor Common Control	I	-

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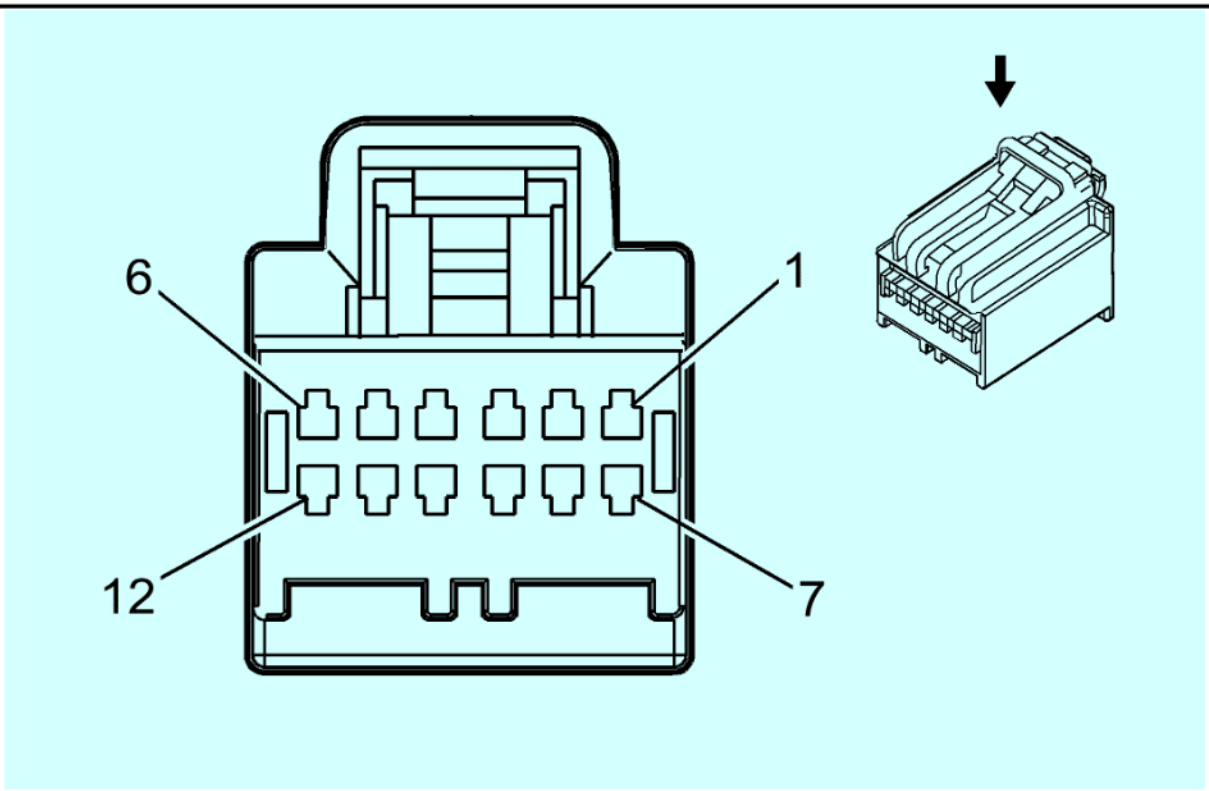
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
7	0.35	WH/YE	3395	Driver Mirror Position Sensor Left (-) Right (+) Signal	I	-
8	0.35	BK/BN	3393	Driver Mirror Position Sensor Low Reference	I	-
9	0.5	L-GN/WH	7530	Local Interconnect Network Serial Data Bus 8	I	-
10	0.75	RD/VT	1940	Battery Positive Voltage	I	-
11	0.75	BN/BK	3389	Driver Mirror Motor Right (+) Left (-) Control	I	-
12	0.75	GY/WH	3411	Driver Mirror Motor Fold Out Control	I	-

S52 OUTSIDE REARVIEW MIRROR SWITCH (-A45)



Connector Part Information

- Harness Type: Driver Door Trim
- OEM Connector: 13587624
- Service Connector: Service by Harness - See Part Catalog
- Description: 12-Way F 64 Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp

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Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	YE/VT	3397	Passenger Mirror Motor Up (+) Down (-) Control	I	-
2	0.75	WH/GN	3412	Driver Mirror Motor Fold In Control	I	-
3	0.75	YE/BN	3391	Driver Mirror Motor Common Control	I	-
4	0.75	GN/BK	3396	Passenger Mirror Motor Right (+) Left (-) Control	I	-
5	0.75	BK	1150	Ground	I	-
6	0.35	YE	6817	LED Backlight Dimming Control	I	-
7	0.75	VT/BU	3390	Driver Mirror Motor Up (+) Down (-) Control	I	-
8	0.75	WH	3398	Passenger Mirror Motor Common Control	I	-
9	0.75	GY/WH	3411	Driver Mirror Motor Fold Out Control	I	-
10	0.75	BN/BK	3389	Driver Mirror Motor Right (+) Left (-) Control	I	-
11	-	-	-	Not Occupied	-	-
12	0.75	RD/VT	1940	Battery Positive Voltage	I	-

S63 ROOF BEACON SWITCH

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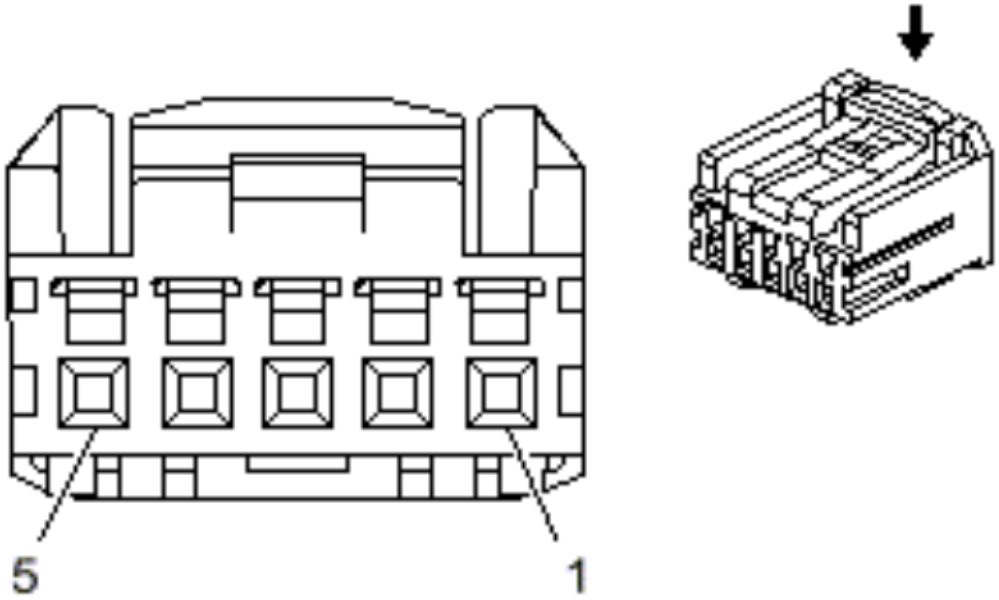

Connector Part Information

- Harness Type: Overhead Console
- OEM Connector: 15491277
- Service Connector: Service by Harness - See Part Catalog
- Description: 5-Way F HCM Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK	1050	Ground	I	-
2	0.5	YE	6817	LED Backlight Dimming Control	I	-
3	0.5	RD/YE	240	Battery Positive Voltage	I	-
4	0.5	WH/BK	5990	Emergency Lamp Switch Signal	I	-
5	-	-	-	Not Occupied	-	-

S64D SEAT ADJUSTER SWITCH - DRIVER X1

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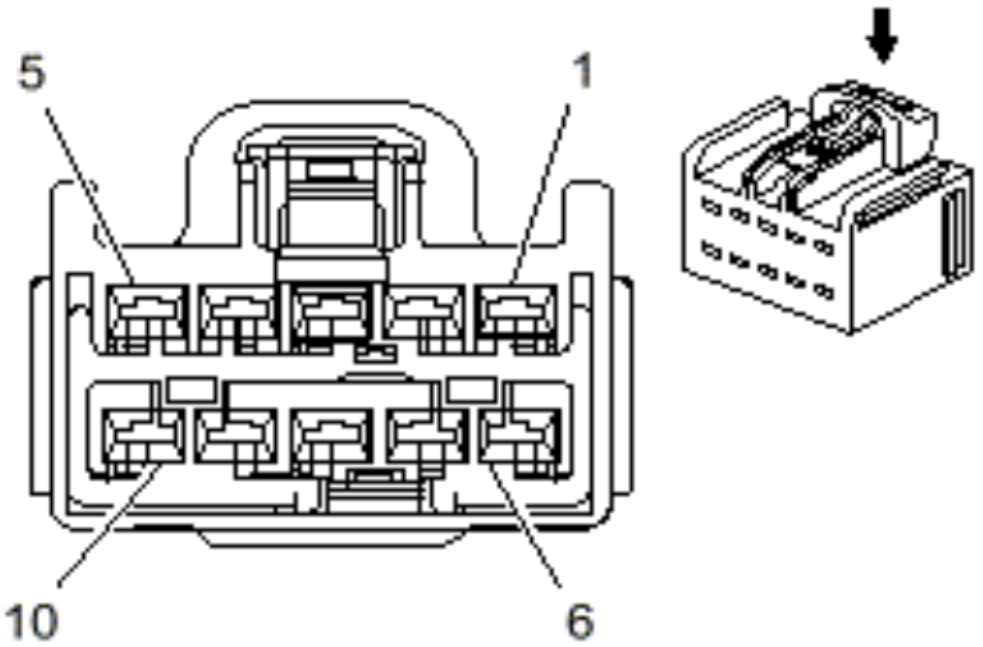

Connector Part Information

- Harness Type: Driver Seat Cushion
- OEM Connector: 7283-6457-40
- Service Connector: Service by Harness - See Part Catalog
- Description: 10-Way F YESC Kaizen Series (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5 1.5	L-GN/BN L-GN/BN	1518 286	Power Seat Front Vertical Up Switch Signal Driver Power Seat Front Vertical Motor Up Control	I I	A45 -A45
2	2.5	BK	1150	Ground	I	-
3	0.5 1.5	YE/BN YE/L-BU	1522 285	Power Seat Horizontal Forward Switch Signal Driver Power Seat Horizontal Motor Forward Control	I I	A45 -A45

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
4	0.5 1.5	GY/BK L-GN/YE	1269 276	Power Seat Recline Forward Switch Signal Driver Power Seat Recline Motor Forward Control	I I	A45 -A45
5	0.5 1.5	L-BU/VT L-BU/VT	1520 287	Power Seat Front Vertical Down Switch Signal Driver Power Seat Front Vertical Motor Down Control	I I	A45 -A45
6	0.35 2.5	BK RD/YE	1150 5040	Ground Battery Positive Voltage	I I	A45 -A45
7	0.5 1.5	GY/L-GN GY/L-GN	1523 284	Power Seat Horizontal Rearward Switch Signal Driver Power Seat Horizontal Motor Rearward Control	I I	A45 -A45
8	0.5 1.5	YE YE	1519 282	Power Seat Rear Vertical Up Switch Signal Driver Power Seat Rear Vertical Motor Up Control	I I	A45 -A45
9	0.5 1.5	L-GN/GY L-BU/YE	1270 277	Power Seat Recline Rearward Switch Signal Driver Power Seat Recline Motor Rearward Control	I I	A45 -A45
10	0.5 1.5	YE/L-BU GY/L-BU	1521 283	Power Seat Rear Vertical Down Switch Signal Driver Power Seat Rear Vertical Motor Down Control	I I	A45 -A45

S64D SEAT ADJUSTER SWITCH - DRIVER X2

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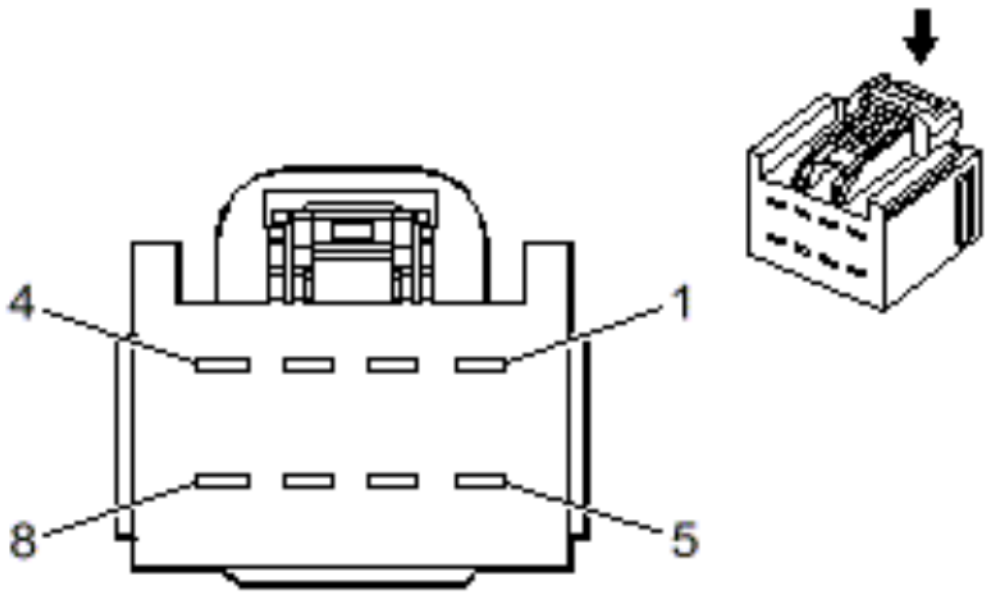

Connector Part Information

- Harness Type: Driver Seat Cushion
- OEM Connector: 7283-3243-40
- Service Connector: Service by Harness - See Part Catalog
- Description: 8-Way F 2.8 Series (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH	1066	Driver Seat Lumbar Up Switch Signal	I	-
2	0.5 1.5	YE L-BU	1065 611	Driver Seat Lumbar Forward Switch Signal Driver Power Seat Lumbar Motor Forward Control	I I	A45 -A45
3 - 4	-	-	-	Not Occupied	-	-
5	0.5	YE/BK	1067	Driver Seat Lumbar Down Switch Signal	I	-

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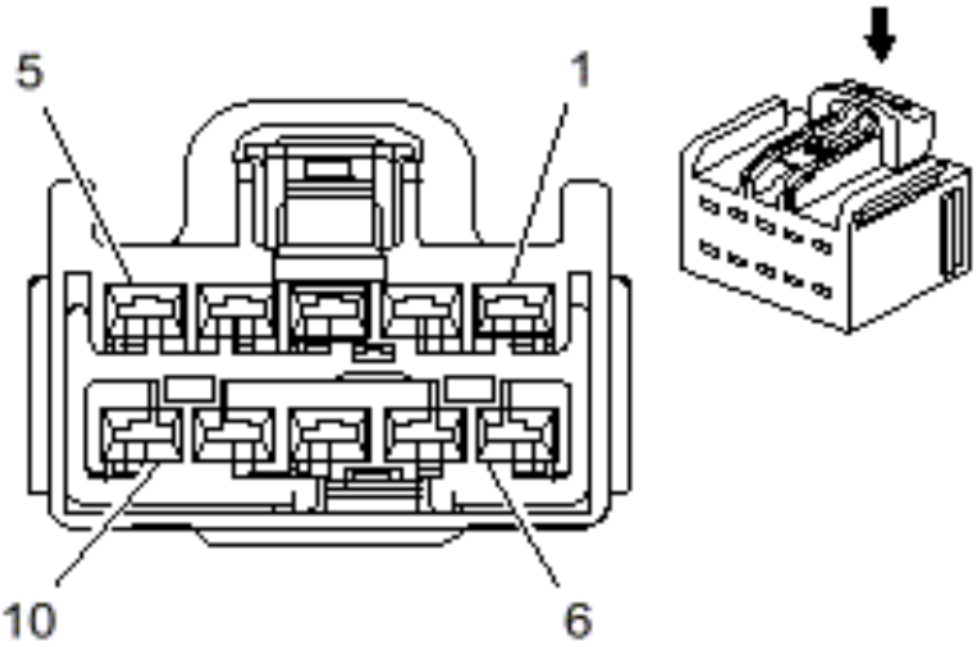
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
6	0.5 1.5	L-BU/VT VT	1064 610	Driver Seat Lumbar Rearward Switch Signal Driver Power Seat Lumbar Motor Rearward Control	I I	A45 -A45
7 - 8	-	-	-	Not Occupied	-	-

S64P SEAT ADJUSTER SWITCH - PASSENGER X1



Connector Part Information

- Harness Type: Passenger Seat Cushion
- OEM Connector: 7283-6457-40
- Service Connector: Service by Harness - See Part Catalog
- Description: 10-Way F YESC Kaizen Series (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	L-GN/L-BU	298	Passenger Power Seat Front	I	-

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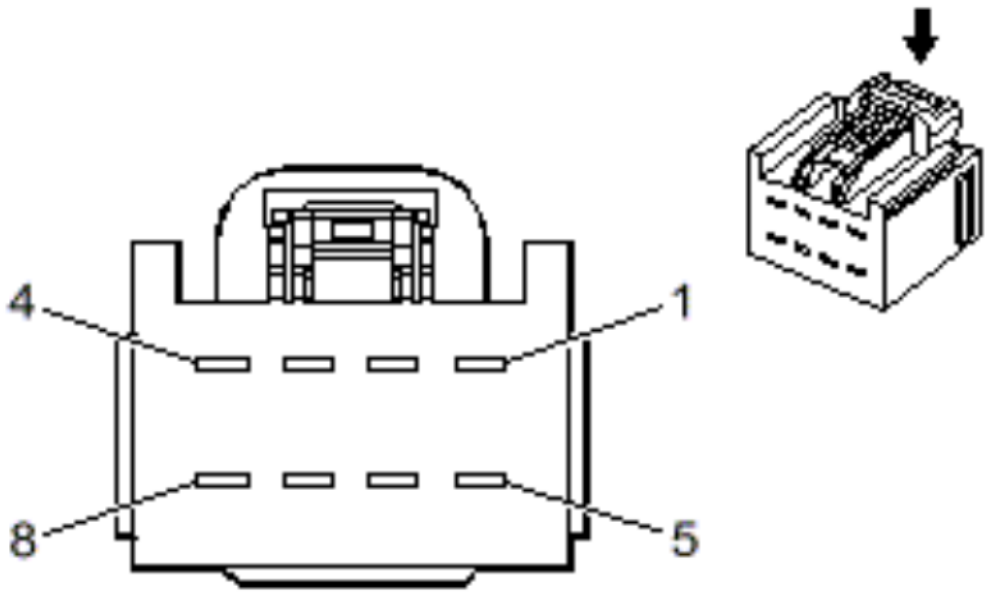
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
				Vertical Motor Down Control		
2	1.5	L-GN	76	Passenger Power Seat Recline Motor Forward Control	I	-
3	1.5	YE/WH	296	Passenger Power Seat Horizontal Motor Forward Control	I	-
4	1.5	L-GN/VT	297	Passenger Power Seat Front Vertical Motor Up Control	I	-
5	2.5	BK	1250	Ground	I	-
6	1.5	L-BU/WH	289	Passenger Power Seat Rear Vertical Motor Down Control	I	-
7	1.5	L-BU/BN	77	Passenger Power Seat Recline Motor Rearward Control	I	-
8	1.5	L-GN/WH	288	Passenger Power Seat Rear Vertical Motor Up Control	I	-
9	1.5	YE/L-BU	290	Passenger Power Seat Horizontal Motor Rearward Control	I	-
10	2.5	RD/BN	1440	Battery Positive Voltage	I	-

S64P SEAT ADJUSTER SWITCH - PASSENGER X2



Connector Part Information

- Harness Type: Passenger Seat Cushion
- OEM Connector: 7283-3243-40

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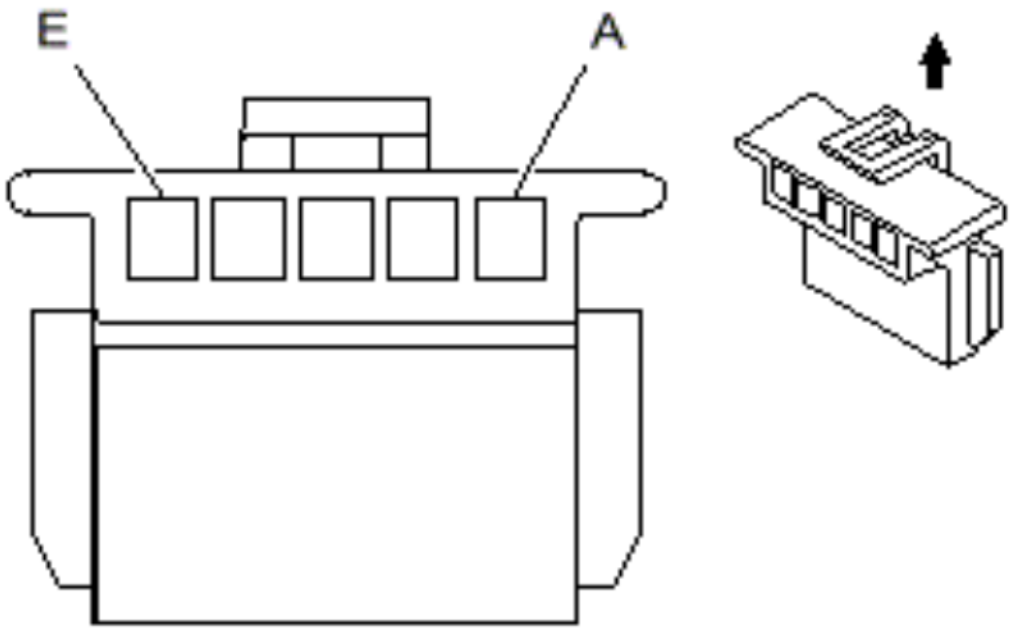
- Service Connector: Service by Harness - See Part Catalog
- Description: 8-Way F 2.8 Series (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	-	-	-	Not Occupied	-	-
3	1.5	VT	210	Passenger Power Seat Lumbar Motor Rearward Control	I	-
4	1.5	BN/YE	793	Passenger Power Seat Lumbar Motor Up Control	I	-
5	-	-	-	Not Occupied	-	-
6	1.5	L-BU	211	Passenger Power Seat Lumbar Motor Forward Control	I	-
7	-	-	-	Not Occupied	-	-
8	1.5	L-BU/YE	792	Passenger Power Seat Lumbar Motor Down Control	I	-

S68 SLIDING REAR WINDOW SWITCH



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Connector Part Information

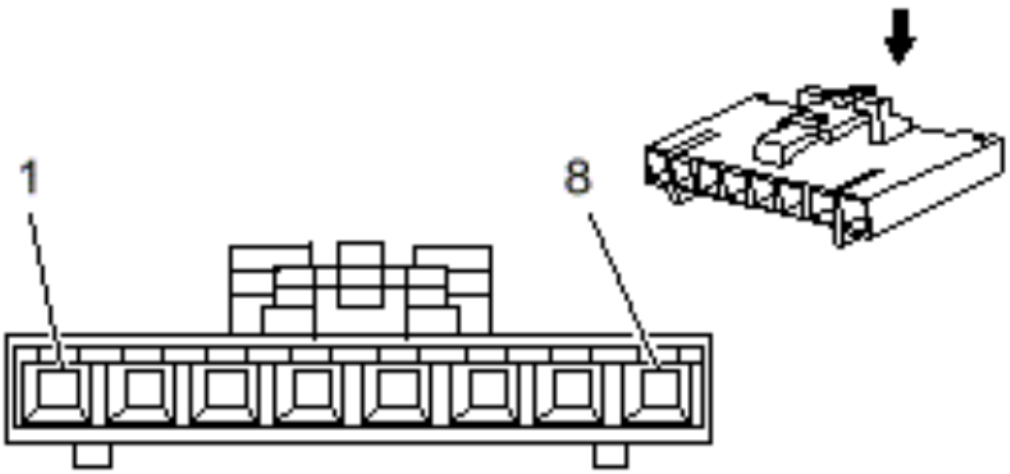
- Harness Type: Overhead Console
- OEM Connector: 12124997
- Service Connector: Service by Harness - See Part Catalog
- Description: 5-Way F 150 Metri-Pack Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.35	VT/YE	43	Accessory Ignition Voltage	I	-
B	0.35	WH	6192	Power Sliding Window Switch Close Signal	I	-
C	0.35	YE/VT	6191	Power Sliding Window Switch Open Signal	I	-
D	0.5	BK	1050	Ground	I	-
E	0.35	YE	6817	LED Backlight Dimming Control	I	-

S72 SUNROOF SWITCH



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Connector Part Information

- Harness Type: Overhead Console
- OEM Connector: 12103492
- Service Connector: Service by Harness - See Part Catalog
- Description: 8-Way F 0.64 SL Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BN/D-BU	2074	Sunroof Switch Express Signal	I	-
2	0.35	YE/VT	144	Sunroof Switch Open Vent Signal	I	-
3	0.35	YE	6817	LED Backlight Dimming Control	I	-
4	0.35	D-BU/WH	110	Sunroof Switch Close Signal	I	-
5	-	-	-	Not Occupied	-	-
6	0.35	L-GN/WH	100	Sunroof Switch Open Signal	I	-
7	0.35	BK	1050	Ground	I	-
8	0.35	GY/VT	2075	Sunroof Switch Close Vent Signal	I	-

S76 TRAILER BRAKE CONTROL SWITCH

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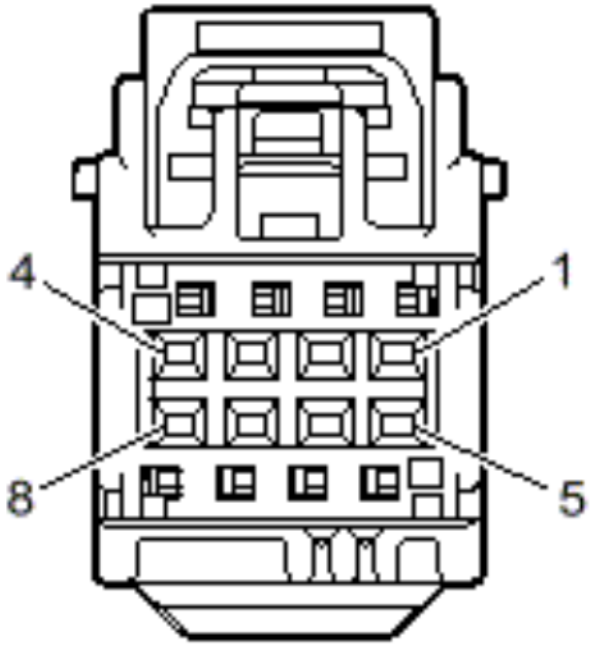

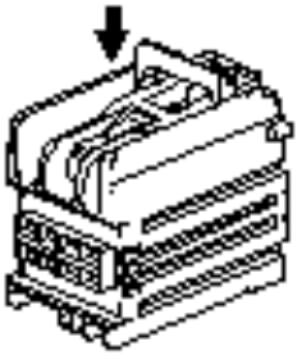

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13518475
- Service Connector: 13576542
- Description: 8-Way F YESC Kaizen Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	-	-	-	Not Occupied	-	-
3	0.5	D-BU/RD	7632	Integrated Trailer Brake Controller Switch 5V Reference	I	-
4	0.5	YE	7635	Integrated Trailer Brake Controller Manual Apply Signal	I	-
5	0.5	BN	7634	Integrated Trailer Brake Controller Redundant Manual Apply Signal	I	-
6	0.5	L-GN/BK	7633	Integrated Trailer Brake Controller User Gain Signal	I	-

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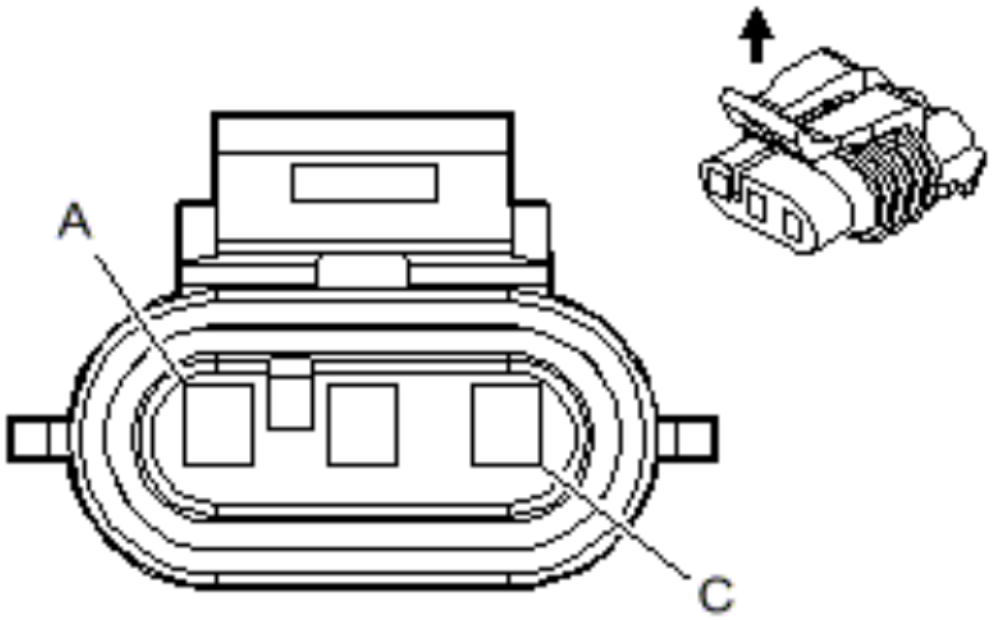
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
7	0.35	YE	6817	LED Backlight Dimming Control	I	-
8	0.5	BK/BN	7631	Integrated Trailer Brake Controller Switch Low Reference	I	-

S77 TRANSFER CASE SHIFT CONTROL SWITCH (NQG)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 12059595
- Service Connector: 13585316
- Description: 3-Way F 150 Metri-Pack Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1	BK	550	Ground	I	-

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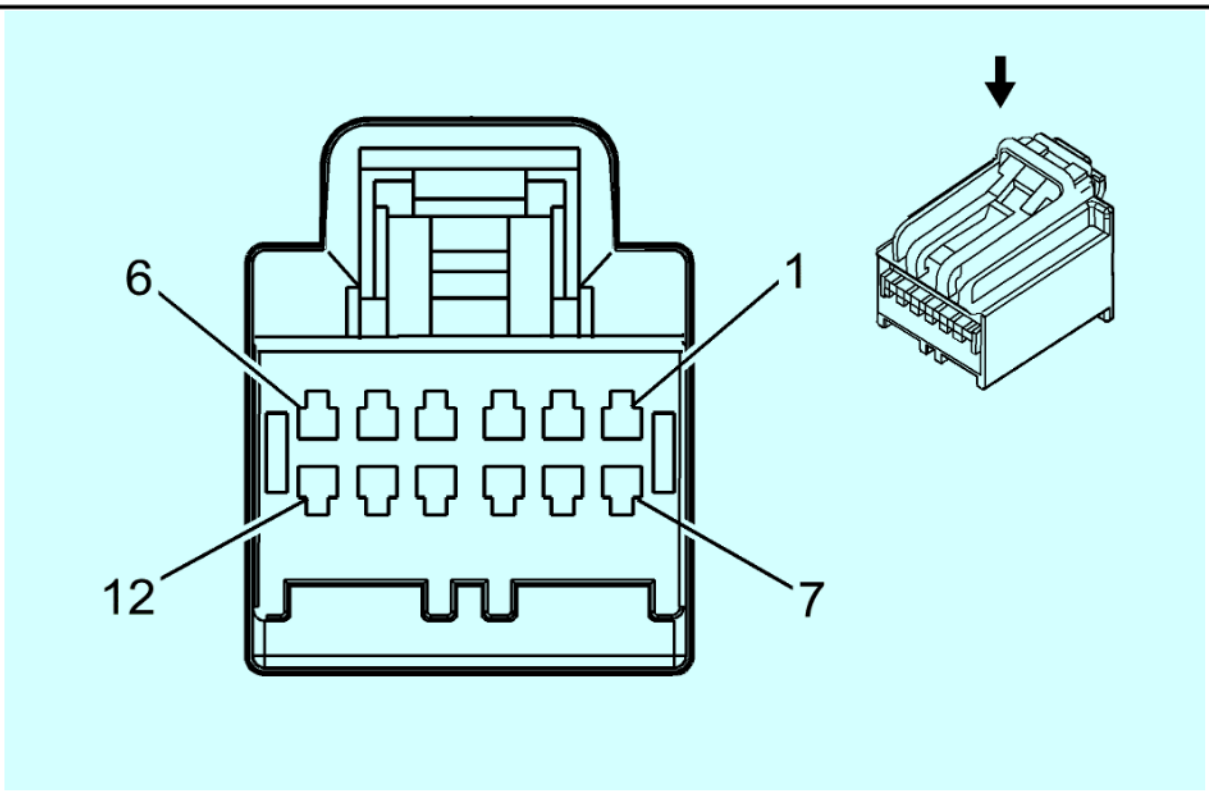
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
B	0.5	GY/BK	1694	Four Wheel Drive Low Signal	I	-
C	0.5	GY/BK	1570	Front Axle Actuator Control	I	-

S77 TRANSFER CASE SHIFT CONTROL SWITCH (NQH/NQF)



Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13587624
- Service Connector: 19151154
- Description: 12-Way F 64 Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575867	J-35616-64B (LT BU)	J-38125-215A	SAIT-A03T-M064	Yazaki 14	P	P

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.35	VT/BN	300	Run Ignition 3 Voltage	I	-
3	0.35	BN	1560	Neutral Indicator Control	I	-
4	0.35	WH	6816	Indicator Dimming Control	I	-

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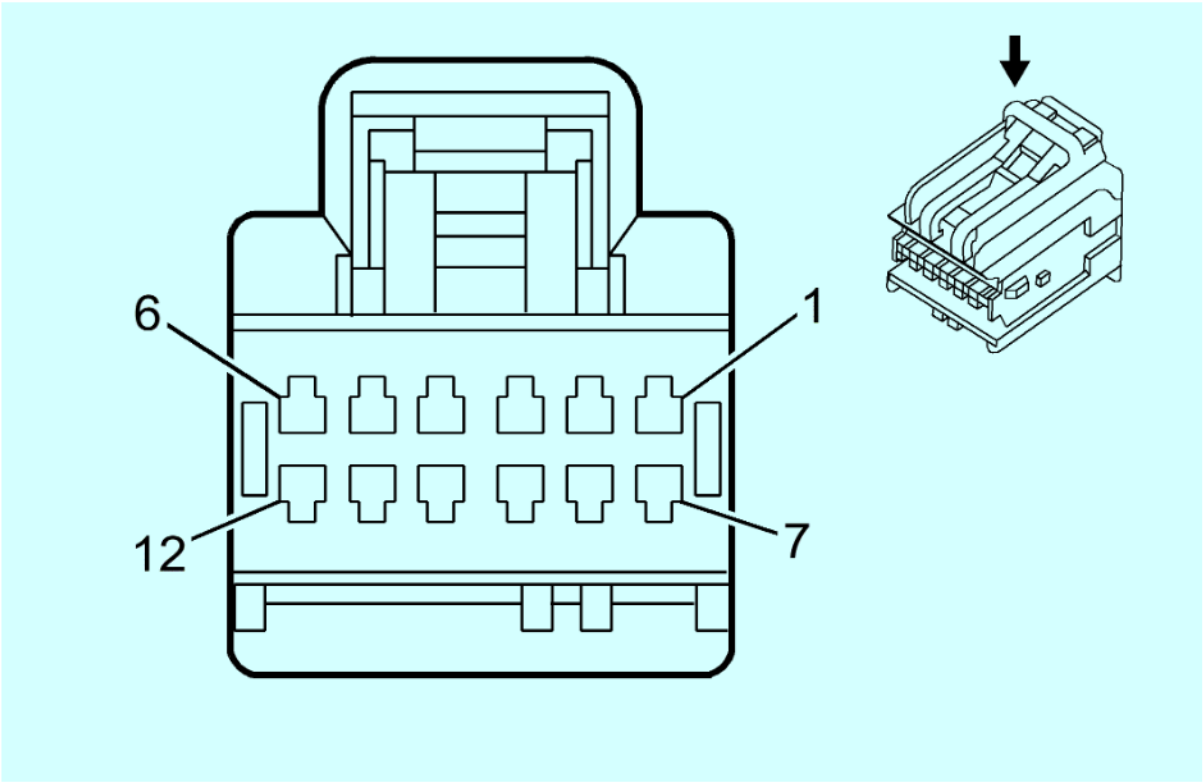
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
5	0.35	YE	6817	LED Backlight Dimming Control	I	-
6	0.5	BK	1050	Ground	I	-
7	0.35	GY/GN	1561	AWD Indicator Control	I	-
8	0.35	GN/BK	1563	2 HI Indicator Control	I	-
9	0.35	BN/BK	1566	4 HI Indicator Control	I	-
10	0.35	VT/WH	1565	4 LO Indicator Control	I	-
11	0.35	GY/RD	6029	Four Wheel Drive Mode Switch 5V Reference	I	-
12	0.35	BU/YE	1693	Four Wheel Drive Switch Signal	I	-

S79D WINDOW SWITCH - DRIVER



Connector Part Information

- Harness Type: Driver Door Trim
- OEM Connector: 13551678
- Service Connector: Service by Harness - See Part Catalog
- Description: 12-Way F 0.64 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B	No Tool	Not	Not	Not	Not

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Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
		(LT BU)	Required	Required	Required	Required	Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	1150	Ground	I	-
2	0.35	GN/VT	7628	Power Window Motor Left Front Express Control	I	-
3	0.35	GY	1136	Power Window Master Switch Left Front Down Signal	I	-
4	0.5	RD/VT	1940	Battery Positive Voltage	I	-
5	0.5	GN/YE	6134	Local Interconnect Network Serial Data Bus 3	I	-
6	0.35	GN/WH	1300	Power Window Master Switch Left Front Up Signal	I	-
7	0.35	WH/VT	3270	Driver Door Lock Motor Status Signal	I	-
8	0.35	BU/VT	1124	Door Lock Key Switch Unlock Signal	I	-
9	-	-	-	Not Occupied	-	-
10	0.35	YE/BN	3265	Child Security Lock Switch Signal	I	-
11	0.35	WH	6816	Indicator Dimming Control	I	-
12	0.35	GY	5697	Child Lockout Indicator Control	I	-

S79LR WINDOW SWITCH - LEFT REAR

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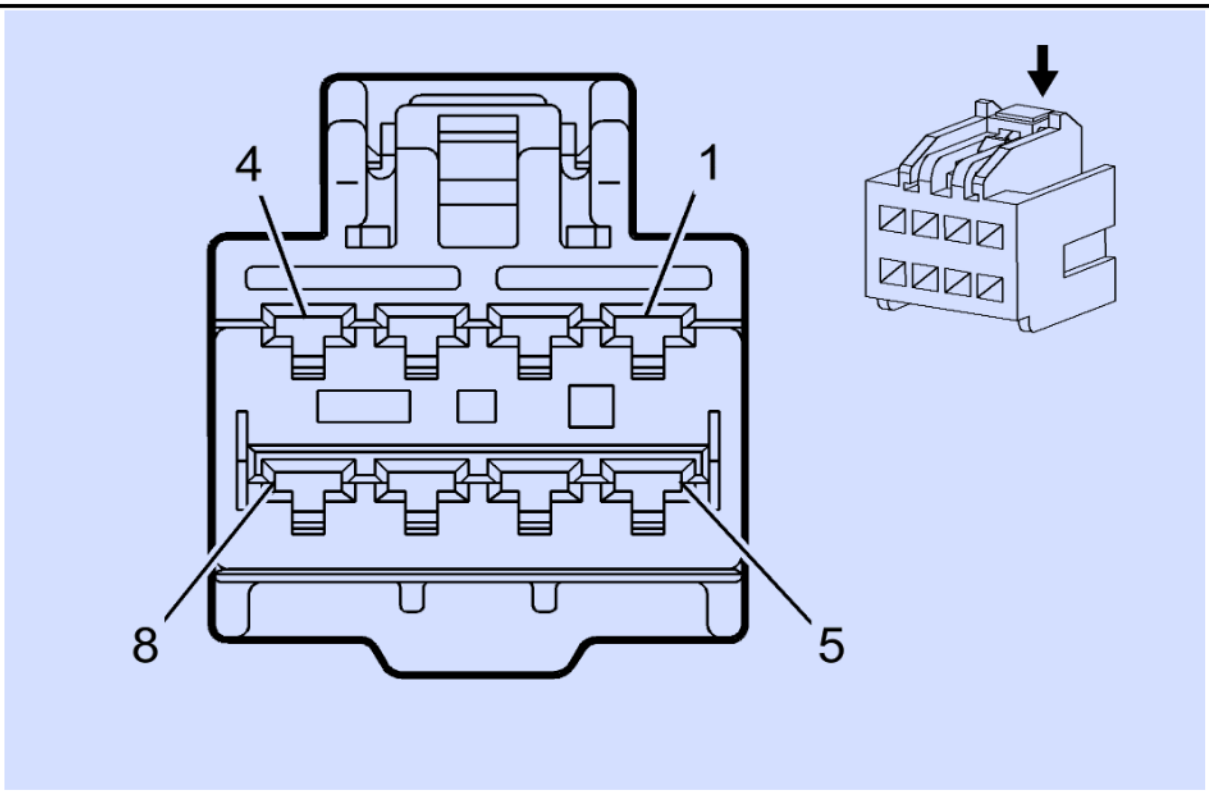

Connector Part Information

- Harness Type: Left Rear Door
- OEM Connector: 15491286
- Service Connector: Service by Harness - See Part Catalog
- Description: 8-Way F 2.8 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-GN/GY	6135	Local Interconnect Network Serial Data Bus 4	I	-
2	0.35	GY/WH	747	Left Rear Door Ajar Switch Signal	I	-
3	0.5	BK	1150	Ground	I	-
4	-	-	-	Not Occupied	-	-
5	2.5	BK	1150	Ground	I	-
6	2.5	D-BU/VT	668	Power Window Motor Left Rear Up Control	I	-
7	2.5	YE/D-BU	669	Power Window Motor Left Rear Down Control	I	-

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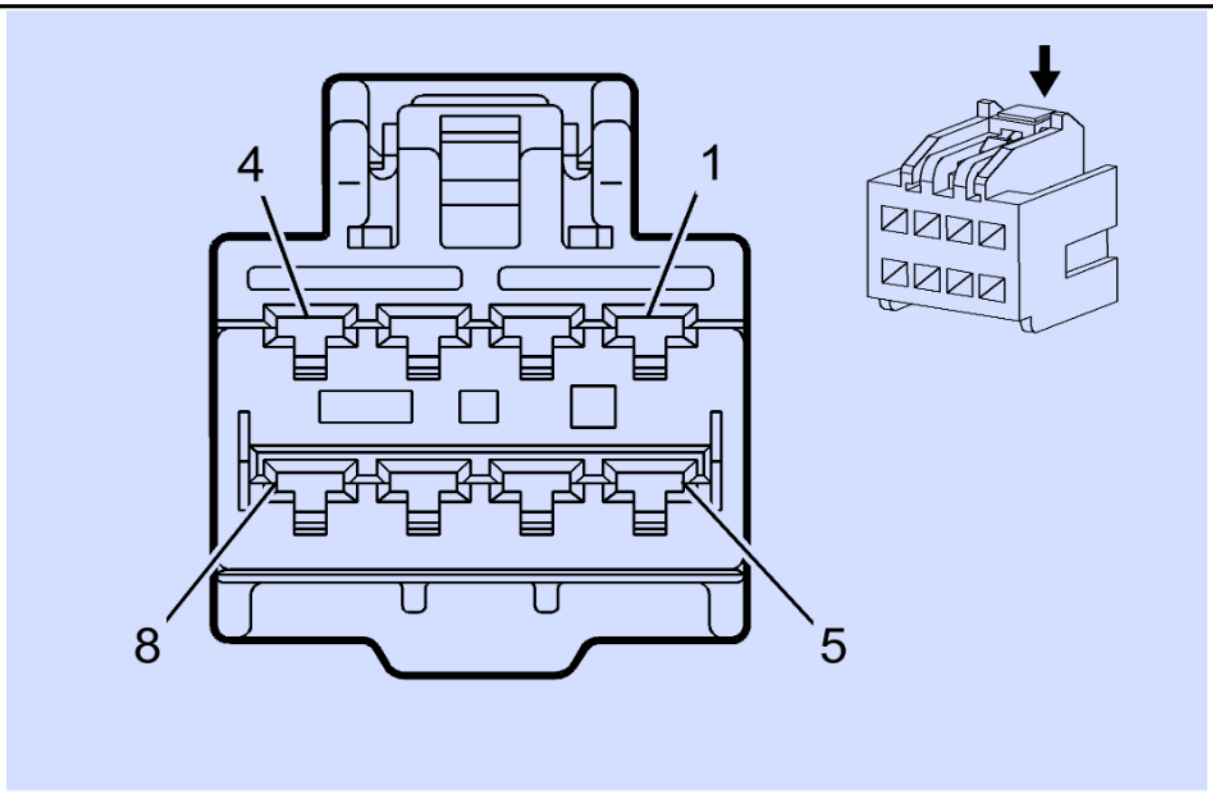
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
8	2.5	RD/D-BU	1842	Battery Positive Voltage	I	-

S79P WINDOW SWITCH - PASSENGER X1



Connector Part Information

- Harness Type: Passenger Door Trim
- OEM Connector: 15491286
- Service Connector: Service by Harness - See Part Catalog
- Description: 8-Way F 2.8 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	BK	1250	Ground	I	-
2	2.5	L-GN/GY	3387	Power Window Motor Passenger Up Control	I	-
3	2.5	YE/D-BU	3388	Power Window Motor Passenger Down Control	I	-

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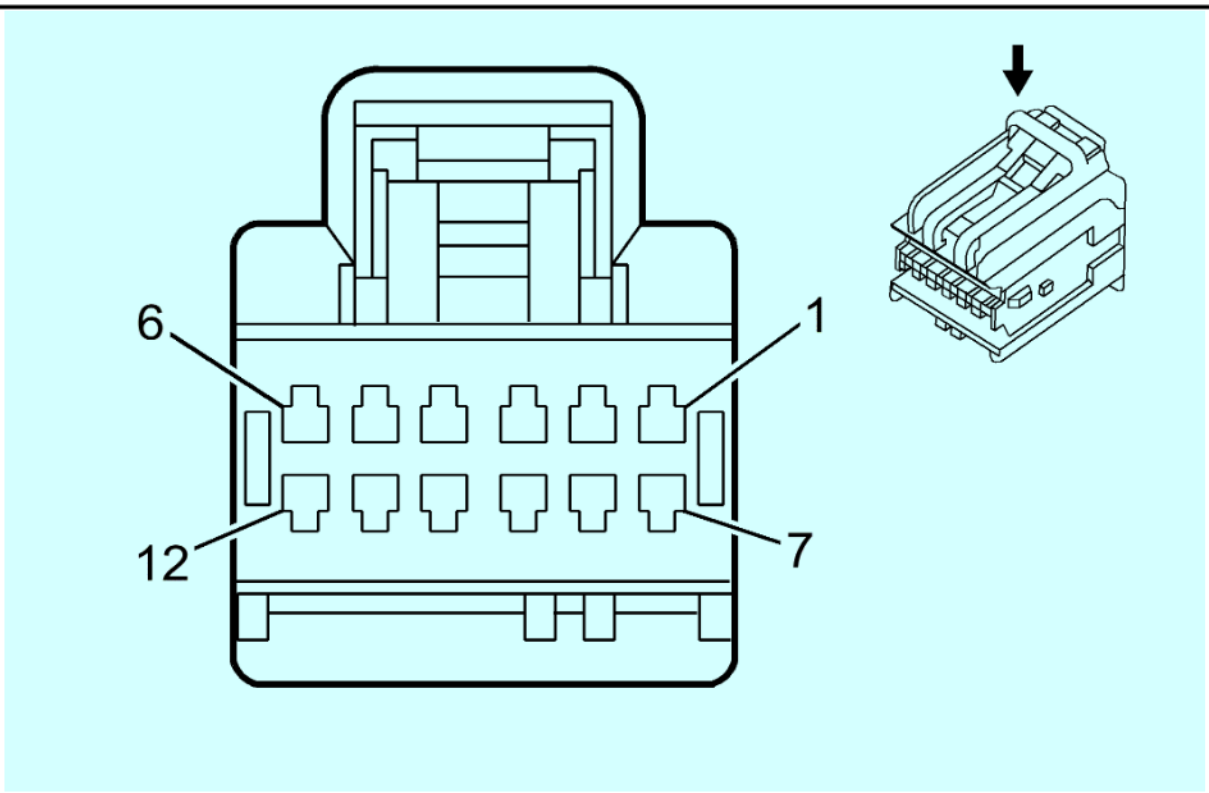
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
4	2.5	RD/WH	1340	Battery Positive Voltage	I	-
5	0.5	L-GN/YE	6134	Local Interconnect Network Serial Data Bus 3	I	-
6 - 7	-	-	-	Not Occupied	-	-
8	0.35	GY	746	Right Front Door Ajar Switch Signal	I	-

S79P WINDOW SWITCH - PASSENGER X2



Connector Part Information

- Harness Type: Passenger Door Trim
- OEM Connector: 13551678
- Service Connector: Service by Harness - See Part Catalog
- Description: 12-Way F 0.64 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option

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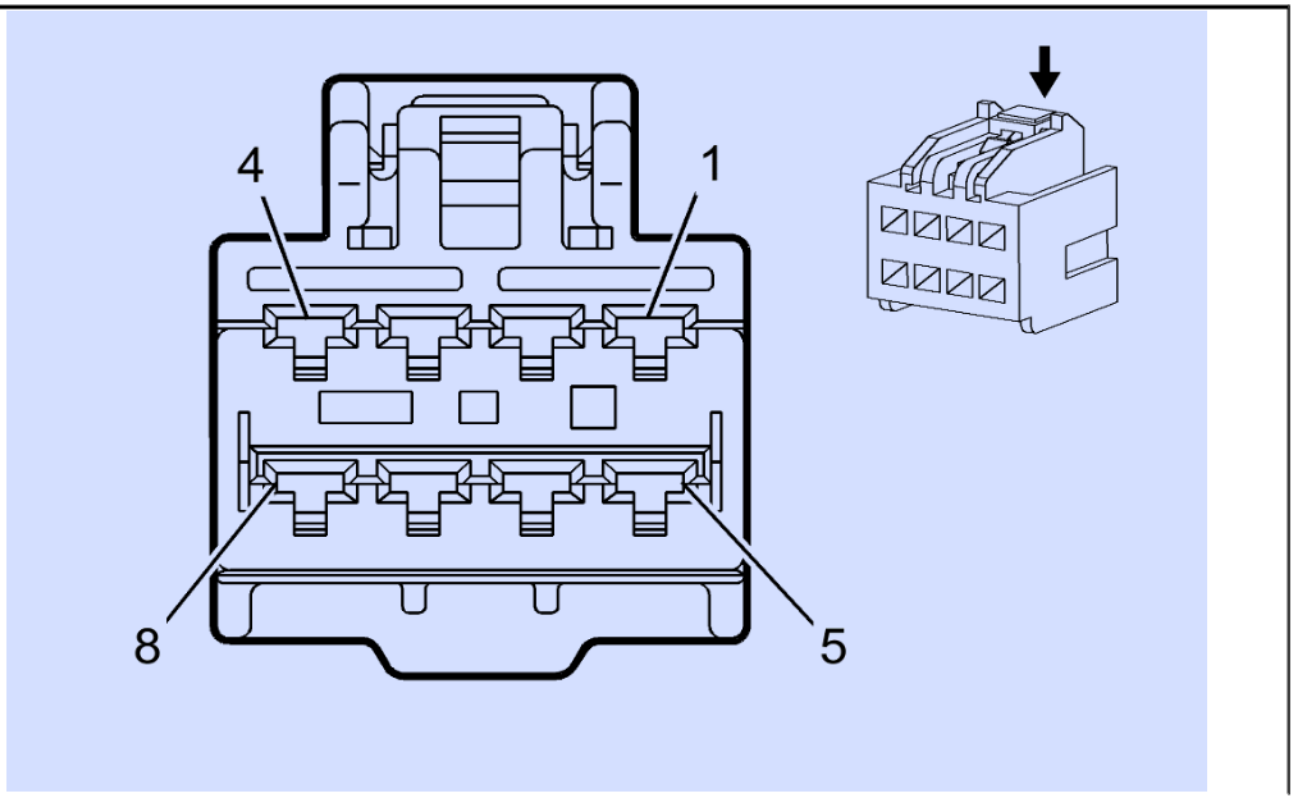
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	YE/WH	3413	Passenger Mirror Motor Fold Out Control	I	-
2	0.75	YE/VT	3397	Passenger Mirror Motor Up (+) Down (-) Control	I	-
3	0.75	WH	3398	Passenger Mirror Motor Common Control	I	-
4	0.35	YE/RD	3399	Passenger Mirror Position Sensor 5V Reference	I	-
5	0.35	D-BU/YE	3401	Passenger Mirror Position Sensor Up (+) Down (-) Signal	I	-
6	0.35	BK/L-GN	3400	Passenger Mirror Position Sensor Low Reference	I	-
7	0.75	D-BU/GY	3414	Passenger Mirror Motor Fold In Control	I	-
8	0.75	L-GN/BK	3396	Passenger Mirror Motor Right (+) Left (-) Control	I	-
9	0.5	L-GN/WH	7530	Local Interconnect Network Serial Data Bus 8	I	-
10	-	-	-	Not Occupied	-	-
11	0.35	VT/WH	3403	Passenger Mirror Position Sensor Left (-) Right (+) Signal	I	-
12	-	-	-	Not Occupied	-	-

S79RR WINDOW SWITCH - RIGHT REAR



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Connector Part Information

- Harness Type: Right Rear Door
- OEM Connector: 15491286
- Service Connector: Service by Harness - See Part Catalog
- Description: 8-Way F 2.8 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-GN/GY	6135	Local Interconnect Network Serial Data Bus 4	I	-
2	0.35	GY/WH	748	Right Rear Door Ajar Switch Signal	I	-
3 - 4	-	-	-	Not Occupied	-	-
5	2.5	BK	1250	Ground	I	-
6	2.5	D-BU/GY	670	Power Window Motor Right Rear Up Control	I	-
7	2.5	L-GN/BK	671	Power Window Motor Right Rear Down Control	I	-
8	2.5	RD/WH	1340	Battery Positive Voltage	I	-

S135 ROLLOVER PROTECTION DISABLE SWITCH

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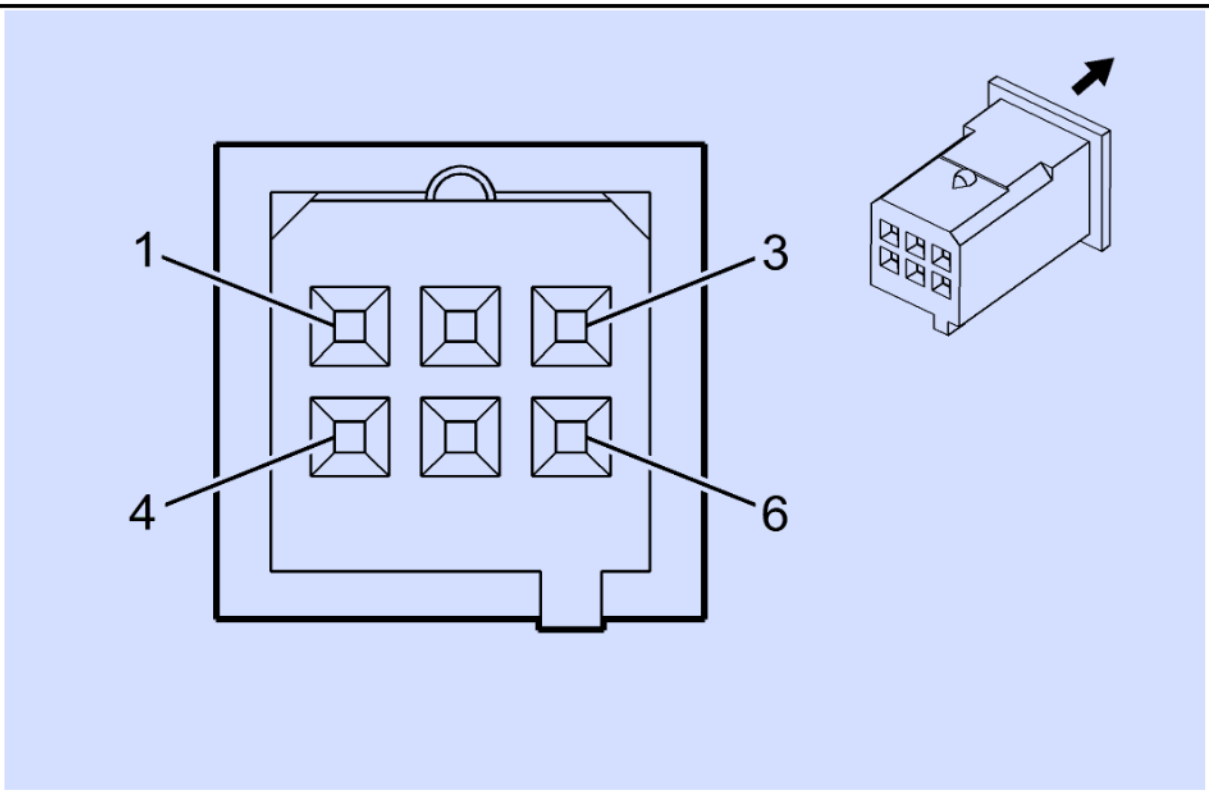

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13548426
- Service Connector: 13225892
- Description: 6-Way F 0.64 Micro-Quadlock Series (NA)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	VT/OG	371	Passenger IP Module Disable Switch Signal	I	-
2	0.35	BU/OG	7328	Passenger IP Module Disable Switch Low Reference	I	-
3 - 6	-	-	-	Not Occupied	-	-

S164L REAR COMPARTMENT LID RELEASE SWITCH - LEFT (ZYD)

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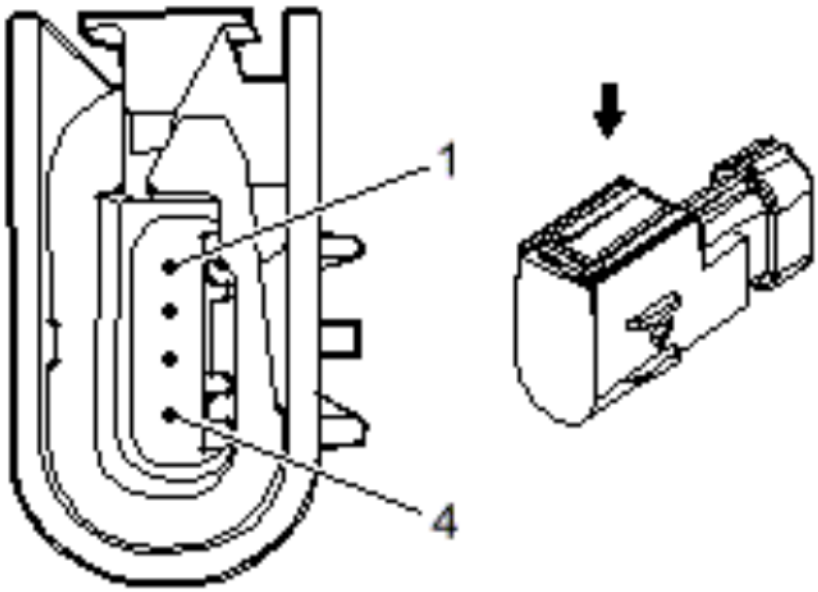

Connector Part Information

- Harness Type: Left Bin Jumper
- OEM Connector: 19153433
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way M 0.64 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	-	-	-	Not Occupied	-	-
3	0.35	BK	1450	Ground	I	-
4	0.5	YE	9003	Low Refrence	I	-

S164R REAR COMPARTMENT LID RELEASE SWITCH - RIGHT (ZYD)

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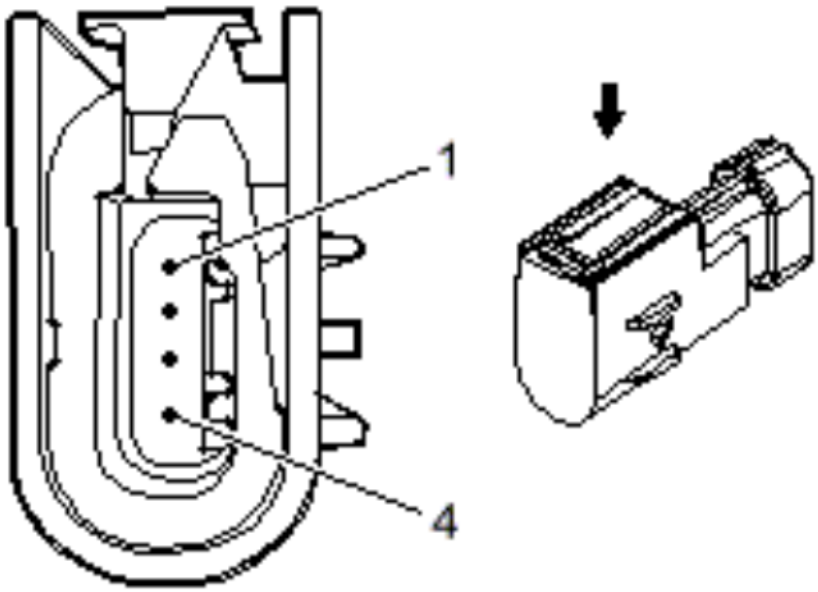

Connector Part Information

- Harness Type: Right Bin Jumper
- OEM Connector: 19153433
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way M 0.64 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	Not Available	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	-	-	-	Not Occupied	-	-
3	0.35	BK	1450	Ground	I	-
4	0.5	GY/GN	6190	Lift Glass/Rear Compartment Lid Exterior Release Signal	I	-

T1 ACCESSORY DC/AC POWER INVERTER MODULE (KI5)

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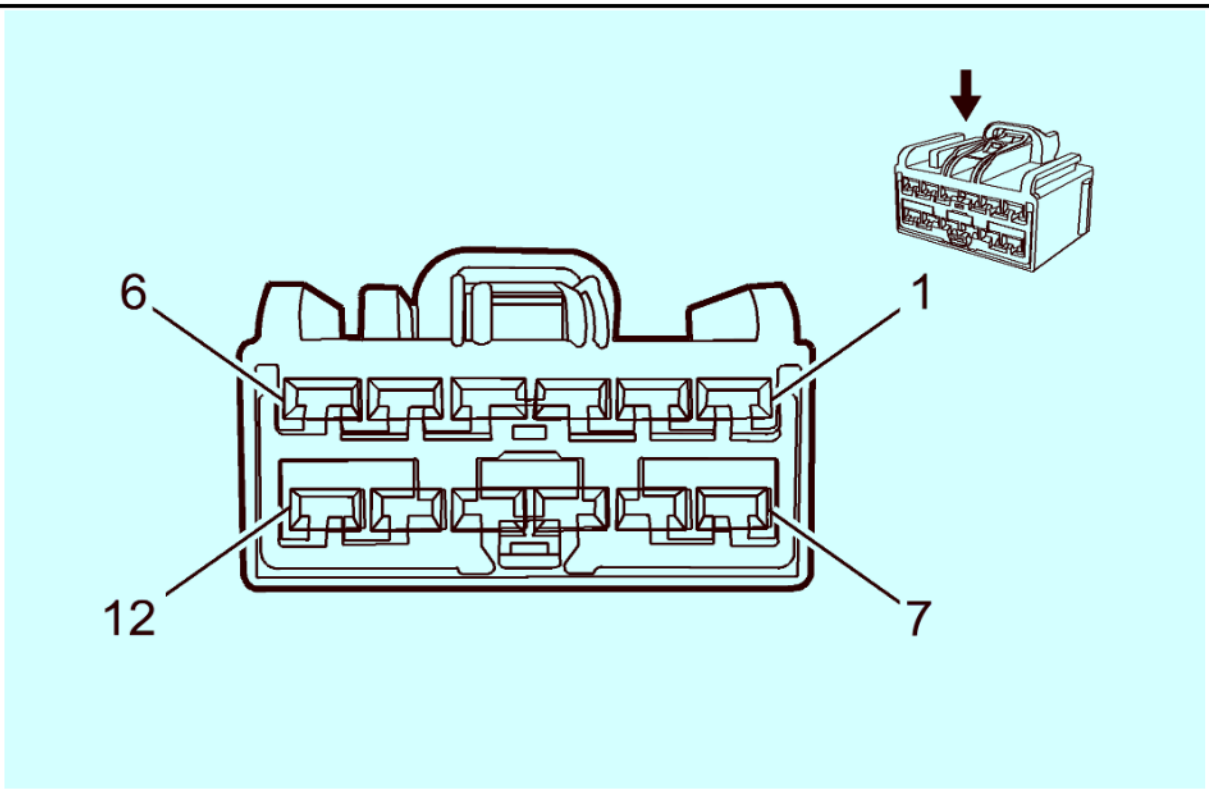

Connector Part Information

- Harness Type: Instrument Panel Extension
- OEM Connector: 10846814
- Service Connector: Service by Harness - See Part Catalog
- Description: 12-Way F 2.8 Kaizen Series (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required
II	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	-	-	-	Not Occupied	-	-
3	1.5	BK	5683	120 V AC Phase A	I	-
4 - 5	-	-	-	Not Occupied	-	-
6	2.5	RD/GY	4140	Battery Positive Voltage	I	-
7	1.5	RD	5684	120 V AC Phase B	I	-
8 - 9	-	-	-	Not Occupied	-	-
10	0.35	BARE	514	Low Reference	II	-
11	2.5	BK	1050	Ground	I	-

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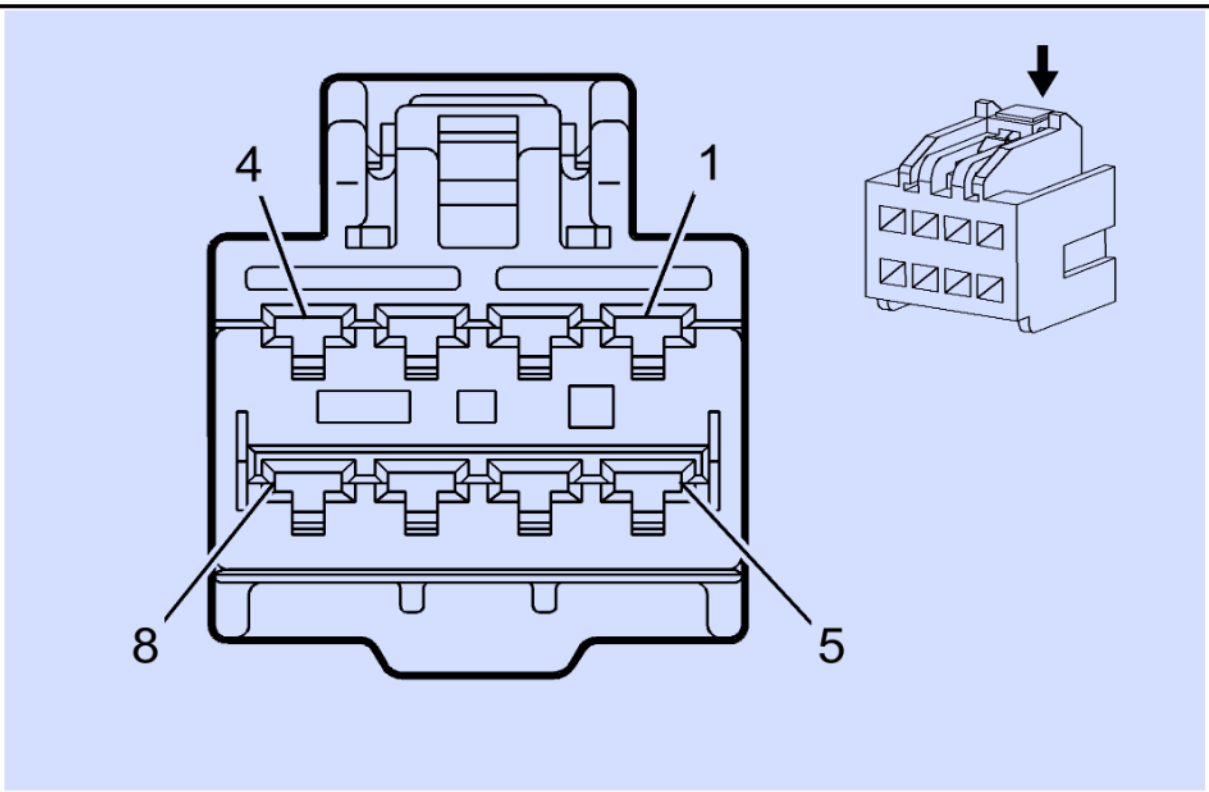
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
12	0.35	BU/BN	6807	DC To AC Inverter Control	II	-

T3 AUDIO AMPLIFIER X1 (UQA/UQG+D07)



Connector Part Information

- Harness Type: Body
- OEM Connector: 15491286
- Service Connector: 13580111
- Description: 8-Way F 2.8 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	D-BU/GY	346	Left/Rear Subwoofer Speaker Control (+)	I	-
2	1	YE	200	Right Front Speaker Control (+) 1	I	-
3	1	D-BU	201	Left Front Speaker Control (+) 1	I	-

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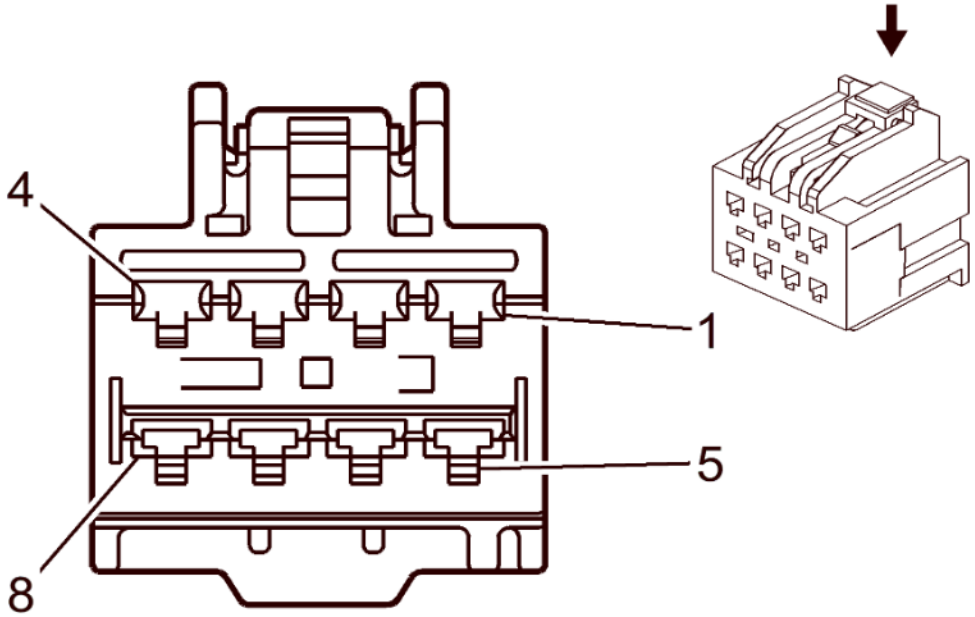
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
4	2.5	RD/YE	3740	Battery Positive Voltage	I	-
5	2.5	GY/BK	315	Right Subwoofer Speaker (-) Low Reference	I	-
6	1	YE/BK	117	Right Front Speaker Signal (-) 1	I	-
7	1	BN/D-BU	118	Left Front Speaker Signal (-) 1	I	-
8	2.5	BK	2550	Ground	I	-

T3 AUDIO AMPLIFIER X1 (UQA/UQG-D07)



Connector Part Information

- Harness Type: Body
- OEM Connector: 15491289
- Service Connector: 19115652
- Description: 8-Way F 2.8 Series (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-35 (VT)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option

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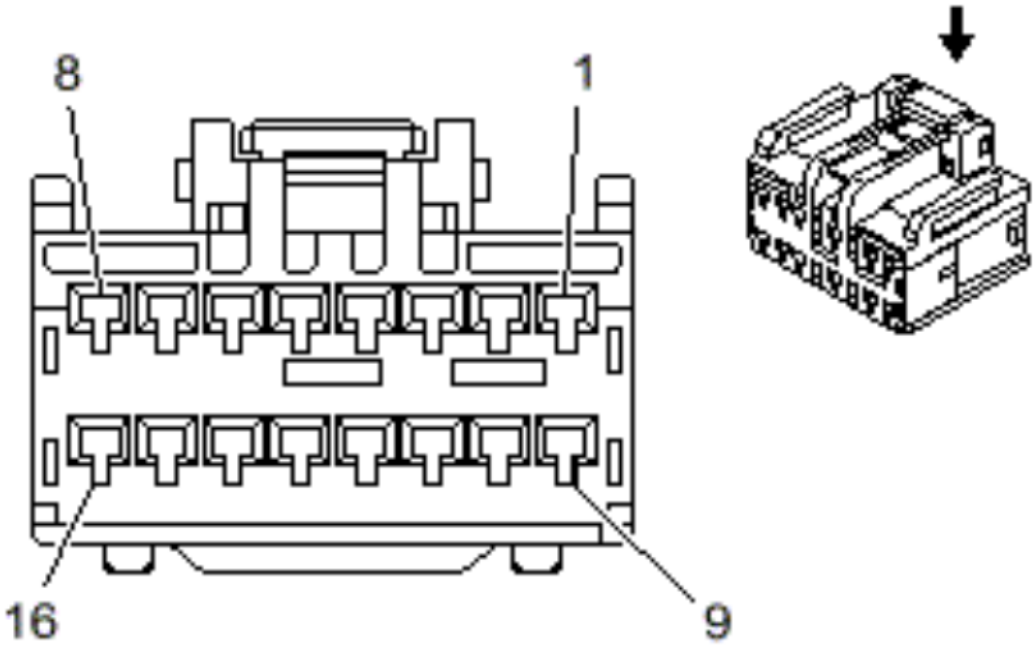
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	YE	200	Right Front Speaker Control (+) 1	I	-
2	-	-	-	Not Occupied	-	-
3	2.5	D-BU	201	Left Front Speaker Control (+) 1	I	-
4	2.5	RD/YE	3740	Battery Positive Voltage	I	-
5	2.5	YE/BK	117	Right Front Speaker Signal (-) 1	I	-
6	-	-	-	Not Occupied	-	-
7	2.5	BN/D-BU	118	Left Front Speaker Signal (-) 1	I	-
8	2.5	BK	2550	Ground	I	-

T3 AUDIO AMPLIFIER X2



Connector Part Information

- Harness Type: Body
- OEM Connector: 15489823
- Service Connector: 15134091
- Description: 16-Way F 1.5 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575790	J-35616-2A (GY)	J-38125-553	15496302	Delphi 5	2	A

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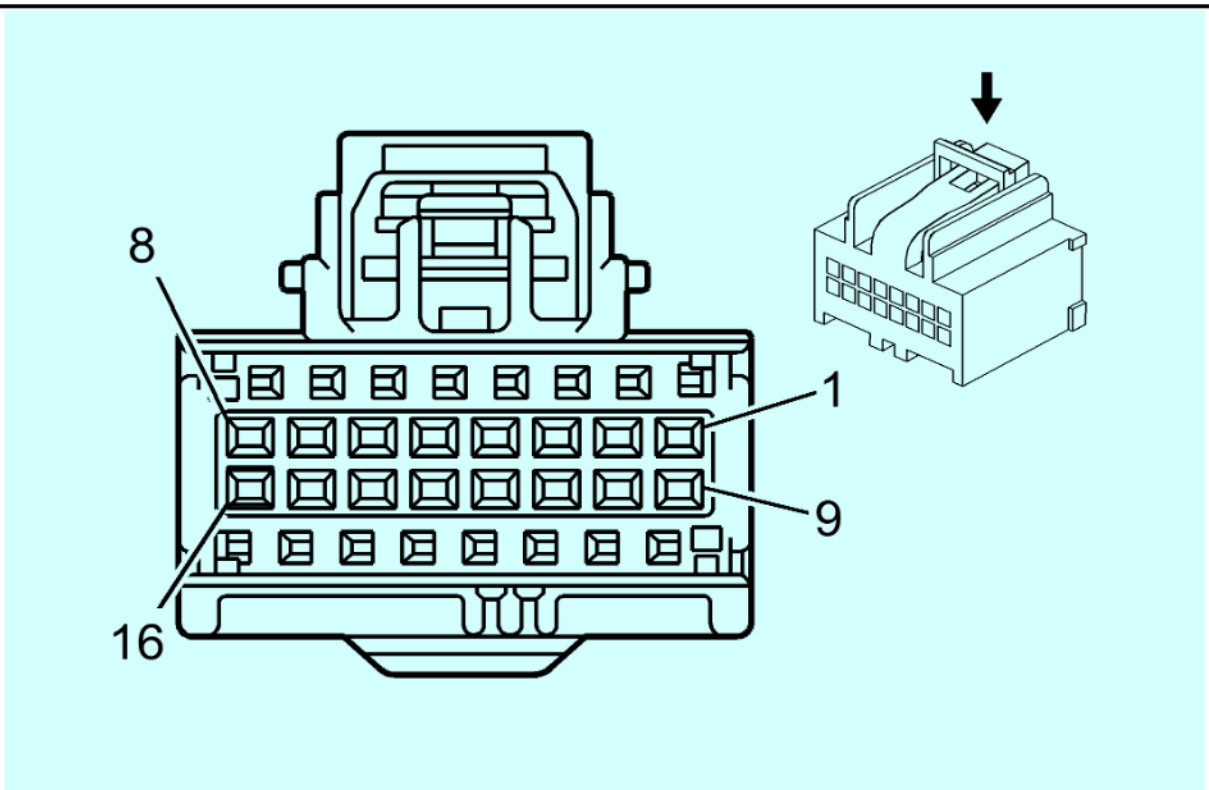
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 3	-	-	-	Not Occupied	-	-
4	0.75	BN/GN	1852	Right Front Tweeter Speaker Control (+)	I	-
5	0.75	YE/BU	1856	Left Front Tweeter Speaker Control (+)	I	-
6	1	WH	46	Right Rear Speaker Control (+)	I	-
7	1	GN	199	Left Rear Speaker Control (+)	I	-
8 - 11	-	-	-	Not Occupied	-	-
12	0.75	VT/BN	1952	Right Front Tweeter Speaker (-) Low Reference	I	-
13	0.75	YE/GY	1956	Left Front Tweeter Speaker (-) Low Reference	I	-
14	1	BU/BK	115	Right Rear Speaker Signal (-)	I	-
15	1	GN/BK	116	Left Rear Speaker Signal (-)	I	-
16	-	-	-	Not Occupied	-	-

T3 AUDIO AMPLIFIER X3



Connector Part Information

- Harness Type: Body
- OEM Connector: 15491285
- Service Connector: 15136073
- Description: 16-Way F 0.64 Kaizen Series (BK)

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Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575845	J-35616-64B (LT BU)	J-38125-215A	SAIT-A03T-M064	Yazaki 14	P	P
II	13579944	J-35616-64B (LT BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75 0.5	GY/GN GY/GN	1102 1102	Low Speed GMLAN Serial Data #2 Low Speed GMLAN Serial Data #2	I II	UQA/UQS /UQG/UQH+UVH UQA/UQS /UQG/UQH-UVH
2	0.35	VT/BU	6091	Crankshaft Position Sensor Replicated Signal	I	-
3	-	-	-	Not Occupied	-	-
4	0.35	GN/BN	3005	Noise Reduction Microphone 1 Signal	I	-
5	0.35	BU/YE	3006	Noise Reduction Microphone 2 Signal	I	-
6	0.35	GY/BU	3007	Noise Reduction Microphone 3 Signal	I	-
7 - 11	-	-	-	Not Occupied	-	-
12	0.35	GN/BK	3008	Noise Reduction Microphone 1 Low Reference	I	-
13	0.35	BU/BK	3009	Noise Reduction Microphone 2 Low Reference	I	-
14	0.35	GY/BN	3010	Noise Reduction Microphone 3 Low Reference	I	-
15 - 16	-	-	-	Not Occupied	-	-

T3 AUDIO AMPLIFIER X4

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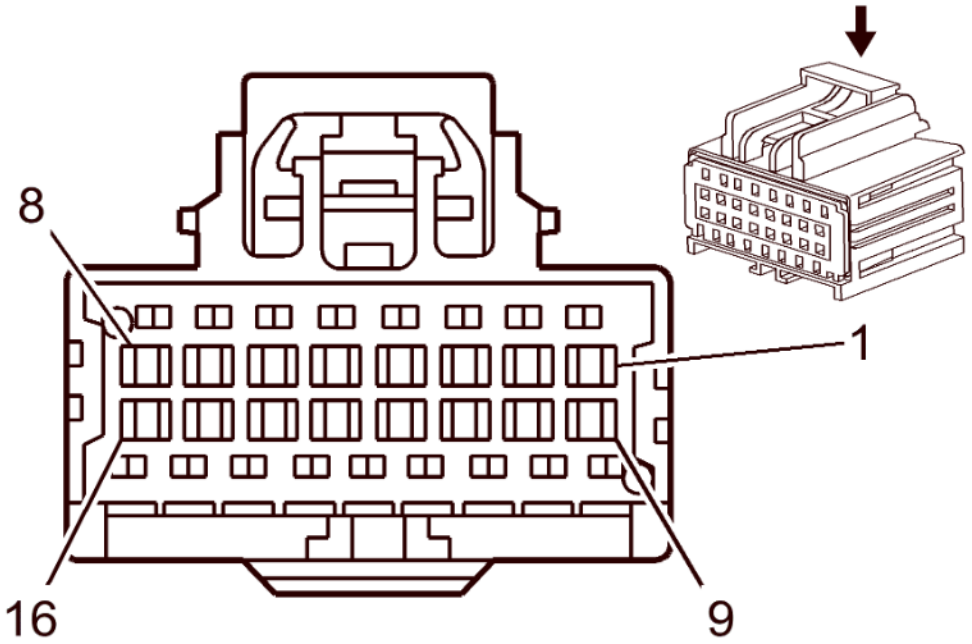

Connector Part Information

- Harness Type: Body
- OEM Connector: 15466054
- Service Connector: 15136074
- Description: 16-Way F 0.64 Kaizen Series (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575845	J-35616-64B (LT BU)	J-38125-215A	SAIT-A03T-M064	Yazaki 14	P	P

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 2	-	-	-	Not Occupied	-	-
3	0.5	WH/L-GN	3997	MOST Serial Data (-)	I	-
4	0.5	GY/VT	3998	MOST Serial Data (+)	I	-
5	0.5	YE	3997	MOST Serial Data (-)	I	-
6	0.5	L-GN	3998	MOST Serial Data (+)	I	-
7 - 13	-	-	-	Not Occupied	-	-
14	0.35	WH/VT	3999	MOST Control	I	-
15 - 16	-	-	-	Not Occupied	-	-

T8A IGNITION COIL 1 (L96/LC8)

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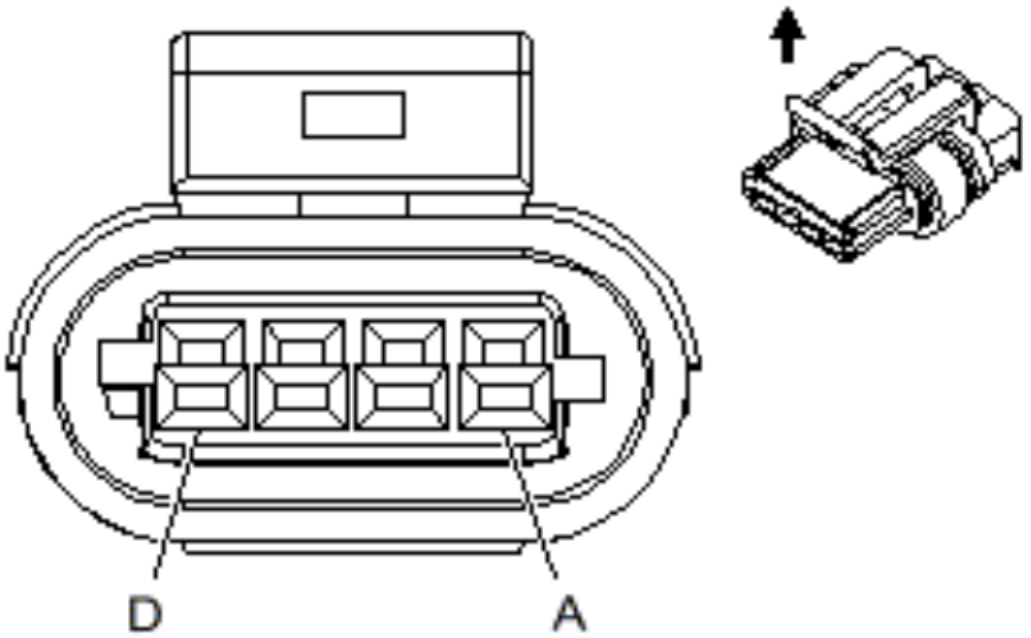

Connector Part Information

- Harness Type: Ignition Coil Jumper
- OEM Connector: 15439568
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.8	BK	350	Signal Ground	I	-
B	0.5	BN	2129	Ignition Control Low Reference Bank 1	I	-
C	0.5	VT	2121	Ignition Control 1	I	-
D	0.8	PK	39	Run/Crank Ignition 1 Voltage	I	-

T8A IGNITION COIL 1 (LV3)

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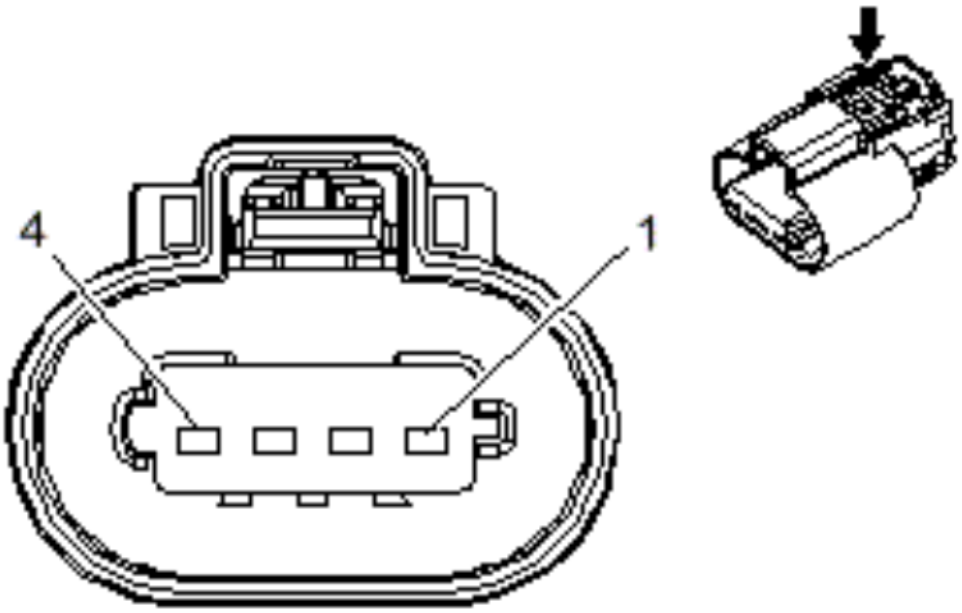

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13863211
- Service Connector: 19301722
- Description: 4-Way F 150 MX Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	350	Ground	I	-
2	0.5	BK/D-BU	2129	Ignition Control Low Reference Bank 1	I	-
3	0.5	D-BU/VT	2121	Ignition Control 1	I	-
4	0.75	VT/D-BU	5291	Powertrain Main Relay Fused Supply 2	I	-

T8B IGNITION COIL 2 (LV3/L8B/L83/L86)

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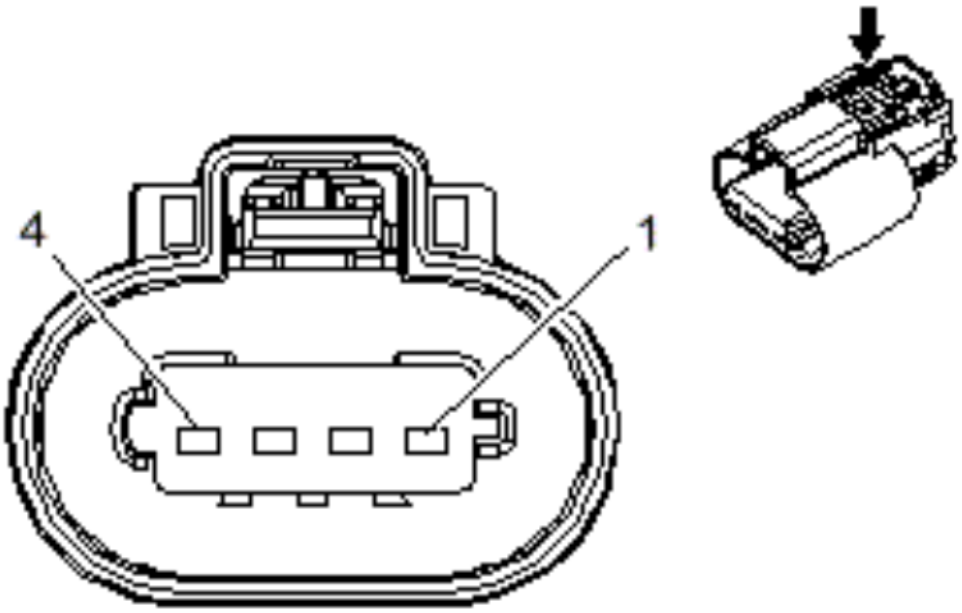

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13863211
- Service Connector: 19301722
- Description: 4-Way F 150 MX Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	350	Ground	I	-
2	0.5	BK/GY	2130	Ignition Control Low Reference Bank 2	I	-
3	0.5	BU/WH	2122	Ignition Control 2	I	-
4	0.75	VT/BU	5292	Powertrain Main Relay Fused Supply 3	I	-

T8C IGNITION COIL 3 (L96/LC8)

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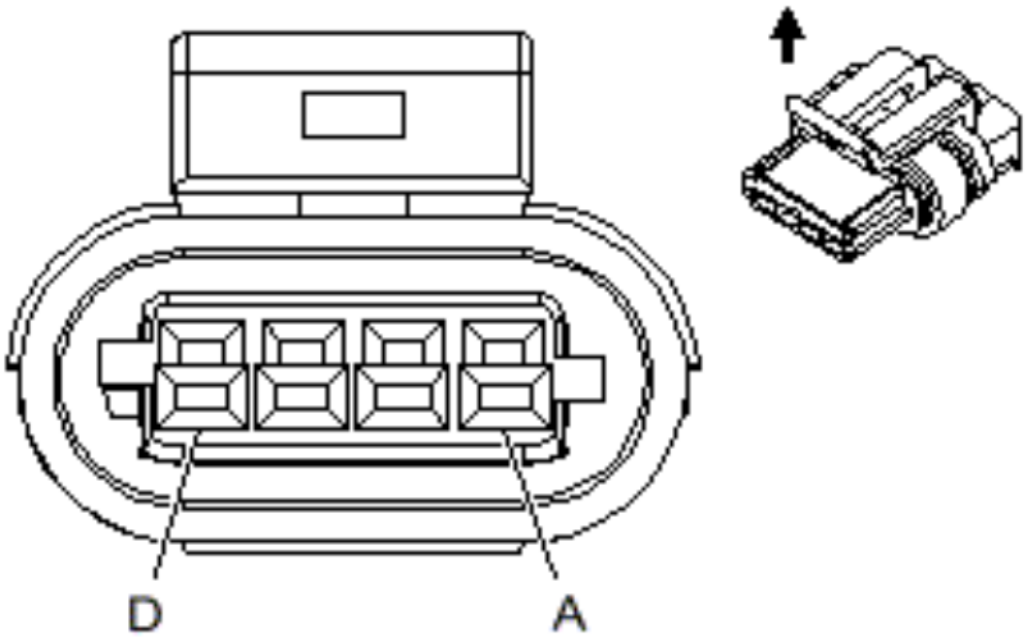

Connector Part Information

- Harness Type: Ignition Coil Jumper
- OEM Connector: 15439568
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.8	BK	151	Signal Ground	I	-
B	0.5	BN	2129	Ignition Control Low Reference Bank 1	I	-
C	0.5	BU	2123	Ignition Control 3	I	-
D	0.8	PK	39	Run/Crank Ignition 1 Voltage	I	-

T8C IGNITION COIL 3 (LV3/L8B/L83/L86)

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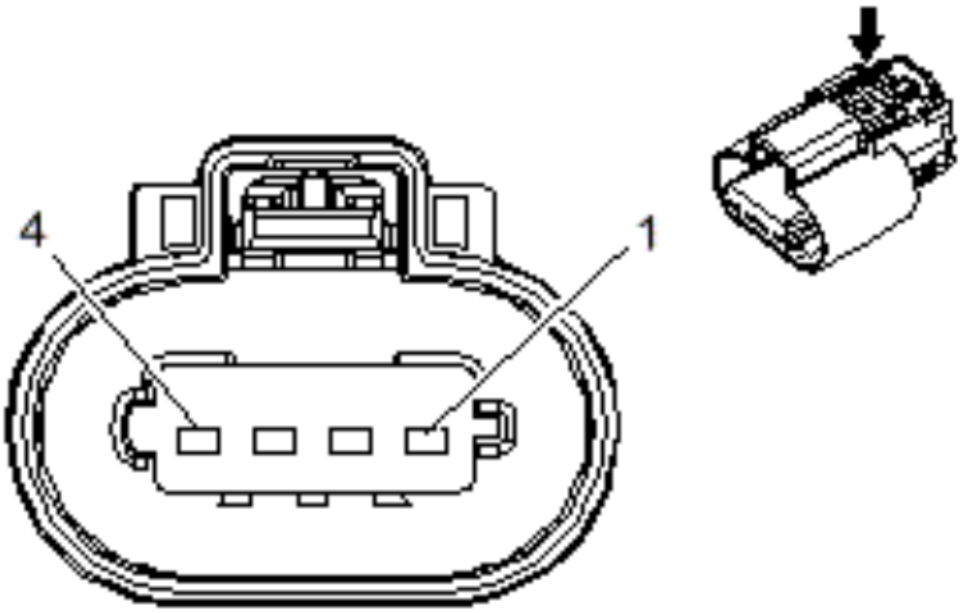

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13863211
- Service Connector: 19301722
- Description: 4-Way F 150 MX Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	350	Ground	I	-
2	0.5	BK/BU	2129	Ignition Control Low Reference Bank 1	I	-
3	0.5	GN/BU	2123	Ignition Control 3	I	-
4	0.75	VT/BU	5291	Powertrain Main Relay Fused Supply 2	I	-

T8D IGNITION COIL 4 (LV3)

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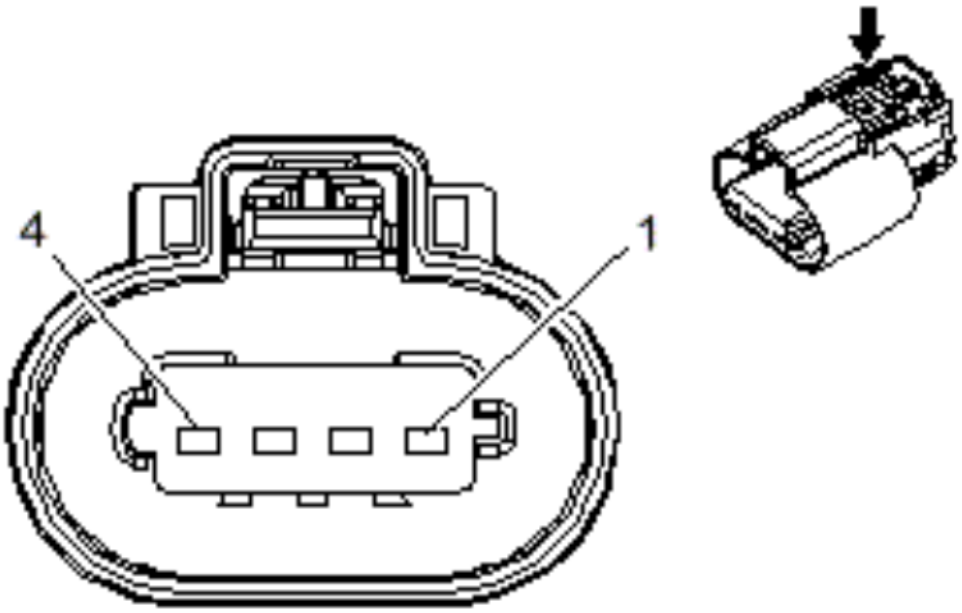

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13863211
- Service Connector: 19301722
- Description: 4-Way F 150 MX Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	350	Ground	I	-
2	0.5	BK/GY	2130	Ignition Control Low Reference Bank 2	I	-
3	0.5	YE/D-BU	2124	Ignition Control 4	I	-
4	0.75	VT/D-BU	5292	Powertrain Main Relay Fused Supply 3	I	-

T8D IGNITION COIL 4 (L96/LC8)

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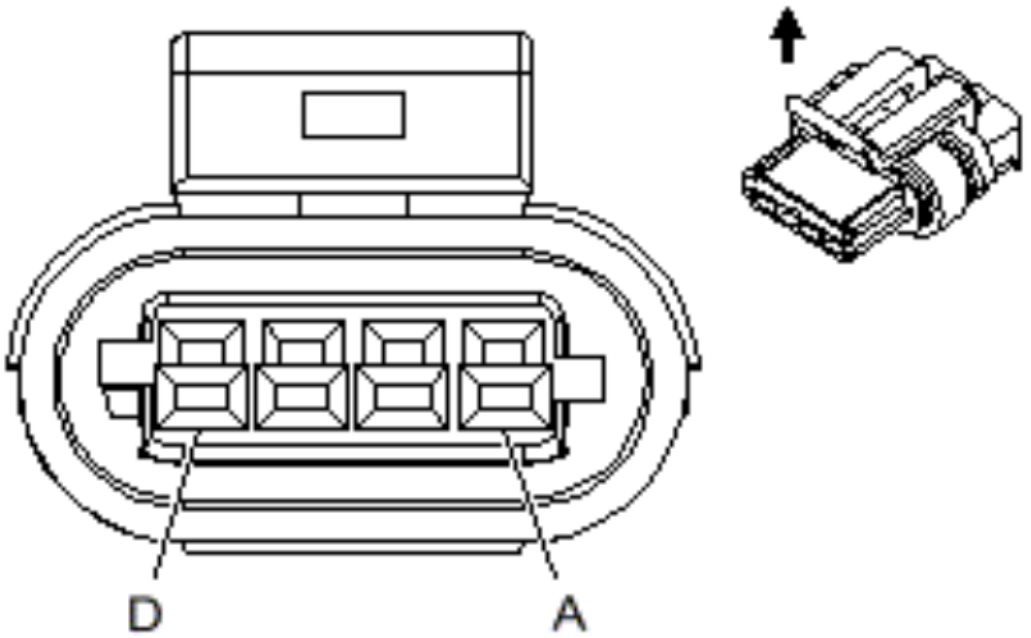

Connector Part Information

- Harness Type: Ignition Coil Jumper
- OEM Connector: 15439568
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.8	BK	151	Signal Ground	I	-
B	0.5	BN	2129	Ignition Control Low Reference Bank 1	I	-
C	0.5	GN	2125	Ignition Control 5	I	-
D	0.8	PK	39	Run/Crank Ignition 1 Voltage	I	-

T8E IGNITION COIL 5 (L96/LC8)

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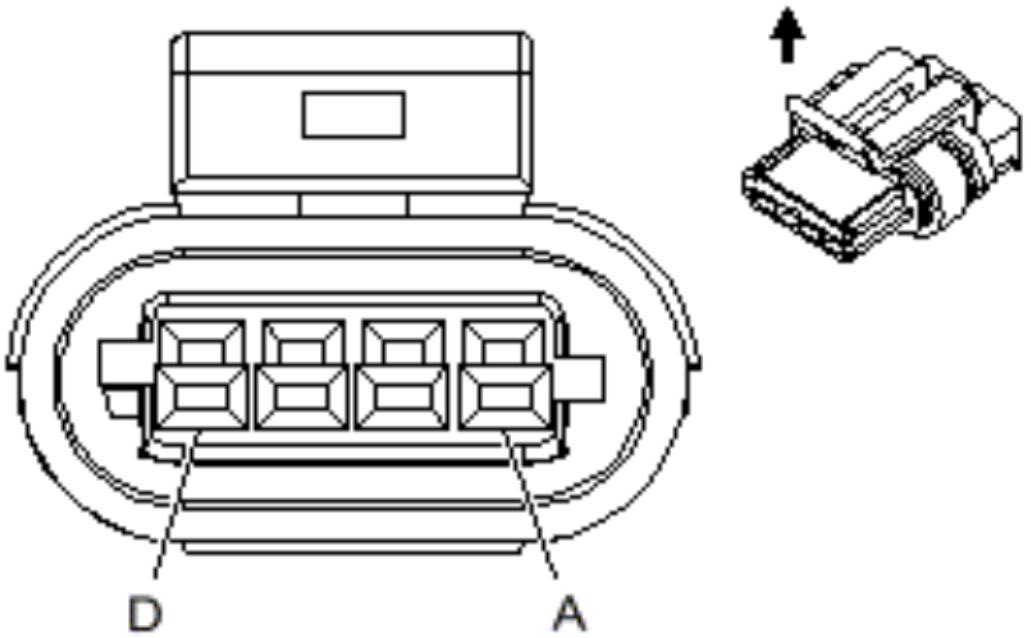

Connector Part Information

- Harness Type: Ignition Coil Jumper
- OEM Connector: 15439568
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.8	BK	350	Signal Ground	I	-
B	0.5	BN	2129	Ignition Control Low Reference Bank 1	I	-
C	0.5	D-GN	2125	Ignition Control 5	I	-
D	0.8	PK	39	Run/Crank Ignition 1 Voltage	I	-

T8E IGNITION COIL 5 (LV3)

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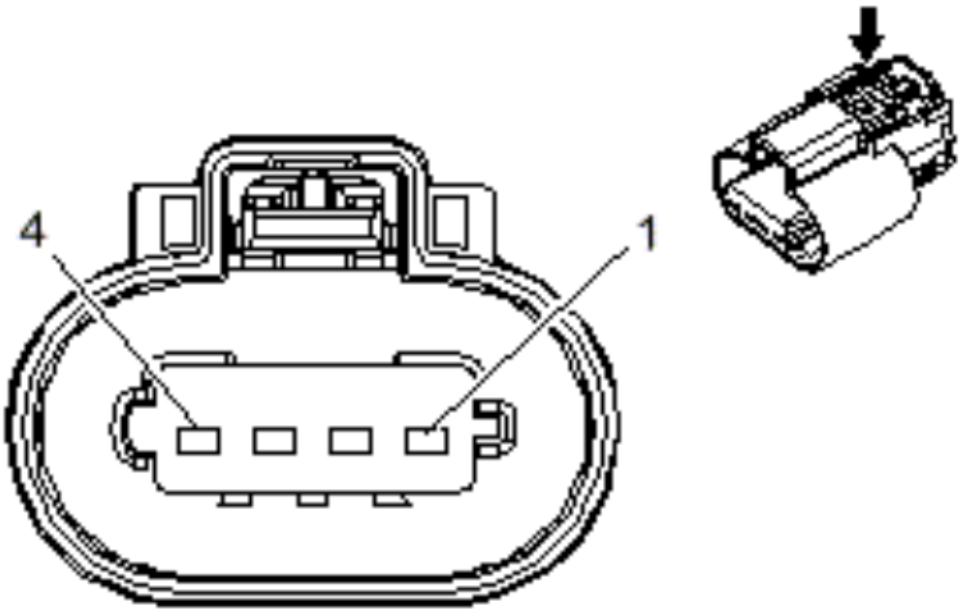

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13863211
- Service Connector: 19301722
- Description: 4-Way F 150 MX Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	350	Ground	I	-
2	0.5	BK/D-BU	2129	Ignition Control Low Reference Bank 1	I	-
3	0.5	D-BU/GY	2125	Ignition Control 5	I	-
4	0.75	VT/D-BU	5291	Powertrain Main Relay Fused Supply 2	I	-

T8F IGNITION COIL 6 (LV3/L8B/L83/L86)

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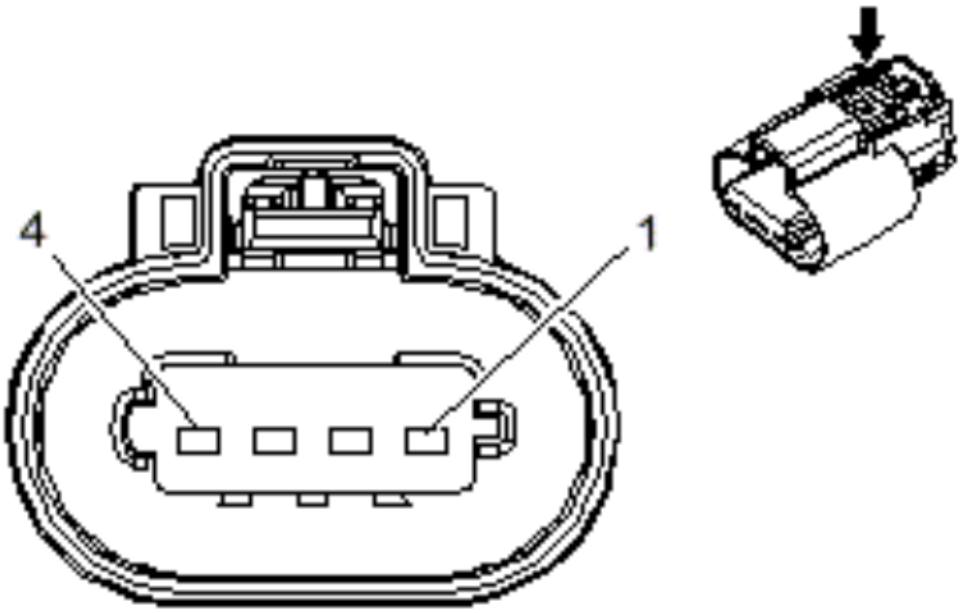

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13863211
- Service Connector: 19301722
- Description: 4-Way F 150 MX Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	350	Ground	I	-
2	0.5	BK/GY	2130	Ignition Control Low Reference Bank 2	I	-
3	0.5	BN/BU	2126	Ignition Control 6	I	-
4	0.75	VT/BU	5292	Powertrain Main Relay Fused Supply 3	I	-

T8G IGNITION COIL 7 (LV3/L8B/L83/L86)

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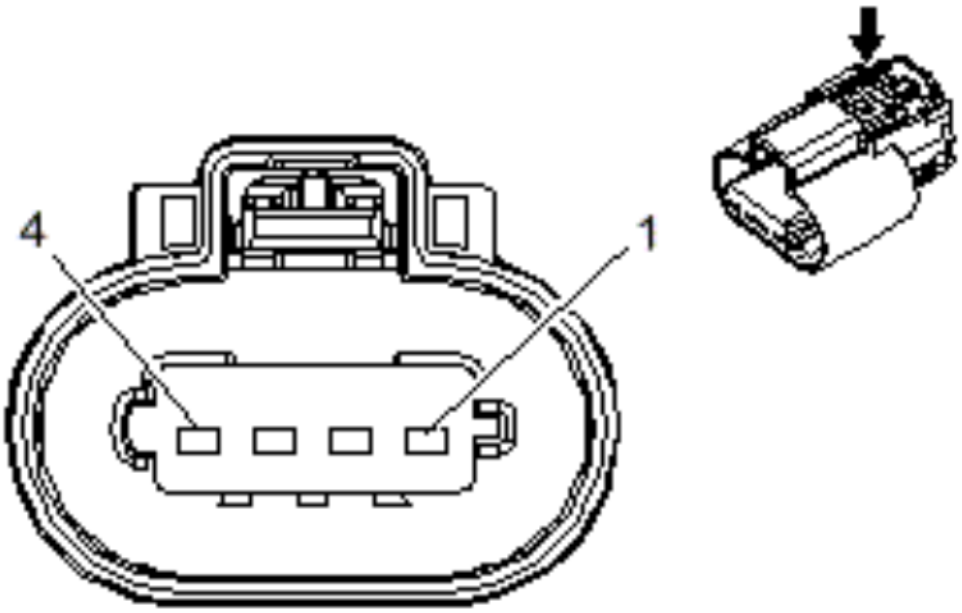

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13863211
- Service Connector: 19301722
- Description: 4-Way F 150 MX Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	350	Ground	I	-
2	0.5	BK/BU	2129	Ignition Control Low Reference Bank 1	I	-
3	0.5	GN/GY	2127	Ignition Control 7	I	-
4	0.75	VT/BU	5291	Powertrain Main Relay Fused Supply 2	I	-

T8G IGNITION COIL 7 (L96/LC8)

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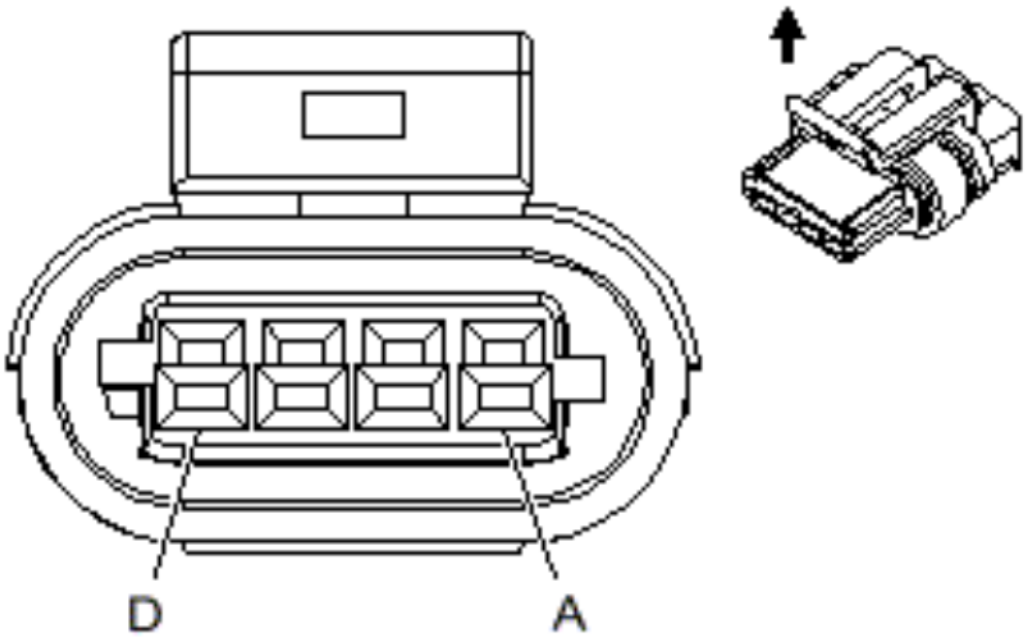

Connector Part Information

- Harness Type: Ignition Coil Jumper
- OEM Connector: 15439568
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.8	BK	151	Signal Ground	I	-
B	0.5	BN	2129	Ignition Control Low Reference Bank 1	I	-
C	0.5	RD	2127	Ignition Control 7	I	-
D	0.8	PK	39	Run/Crank Ignition 1 Voltage	I	-

T8H IGNITION COIL 8 (L8B/L83/L86)

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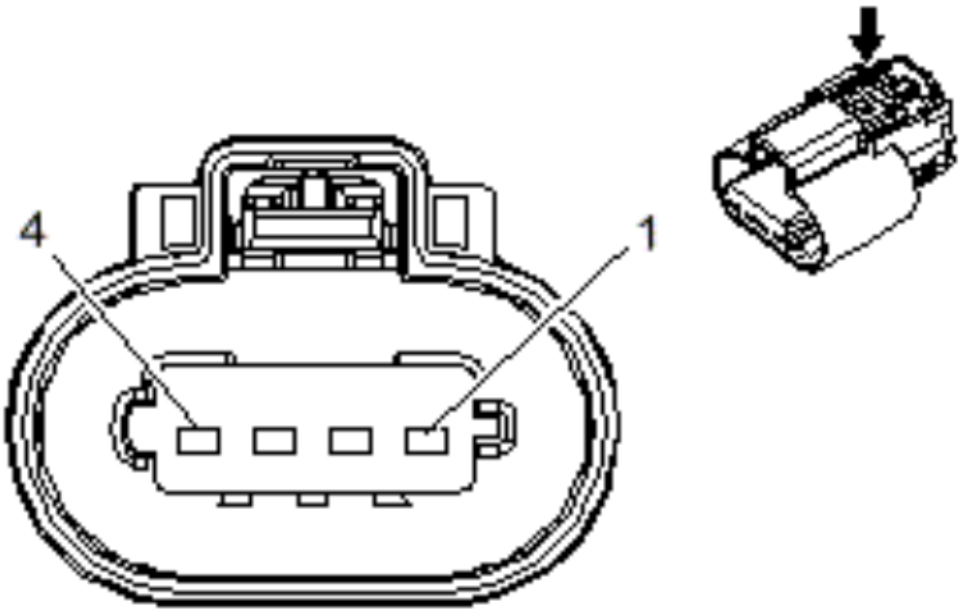

Connector Part Information

- Harness Type: Engine
- OEM Connector: 13863211
- Service Connector: 19301722
- Description: 4-Way F 150 MX Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-2A (GY)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	350	Ground	I	-
2	0.5	BK/GY	2130	Ignition Control Low Reference Bank 2	I	-
3	0.5	VT/WH	2128	Ignition Control 8	I	-
4	0.75	VT/BU	5292	Powertrain Main Relay Fused Supply 3	I	-

T8H IGNITION COIL 8 (L96/LC8)

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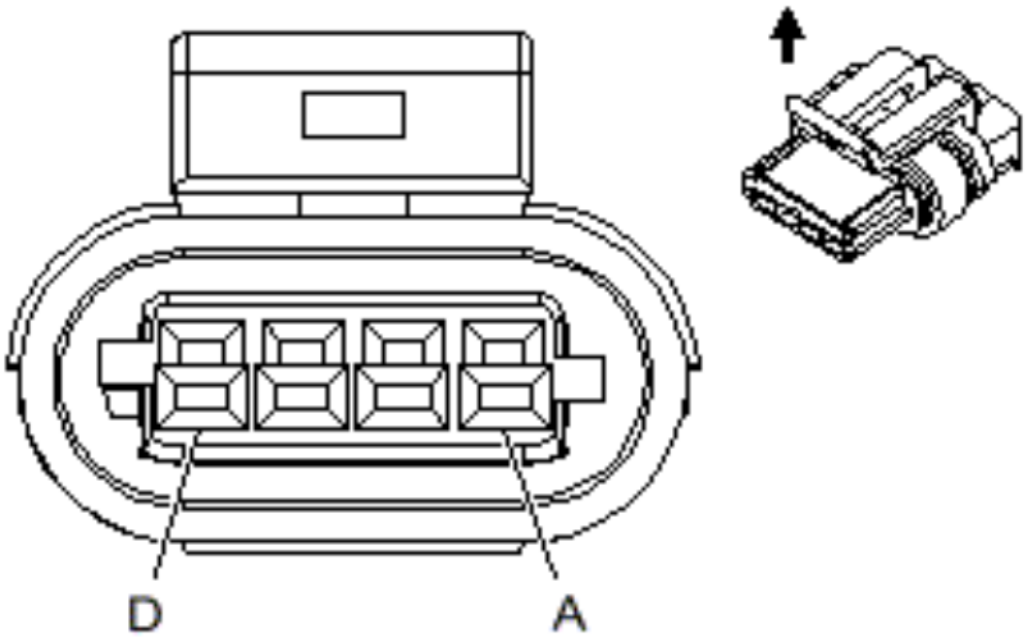

Connector Part Information

- Harness Type: Ignition Coil Jumper
- OEM Connector: 15439568
- Service Connector: Service by Harness - See Part Catalog
- Description: 4-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.8	BK	151	Signal Ground	I	-
B	0.5	BN	2129	Ignition Control Low Reference Bank 1	I	-
C	0.5	VT	2121	Ignition Control 1	I	-
D	0.8	PK	39	Run/Crank Ignition 1 Voltage	I	-

T22 MOBILE DEVICE WIRELESS CHARGER MODULE

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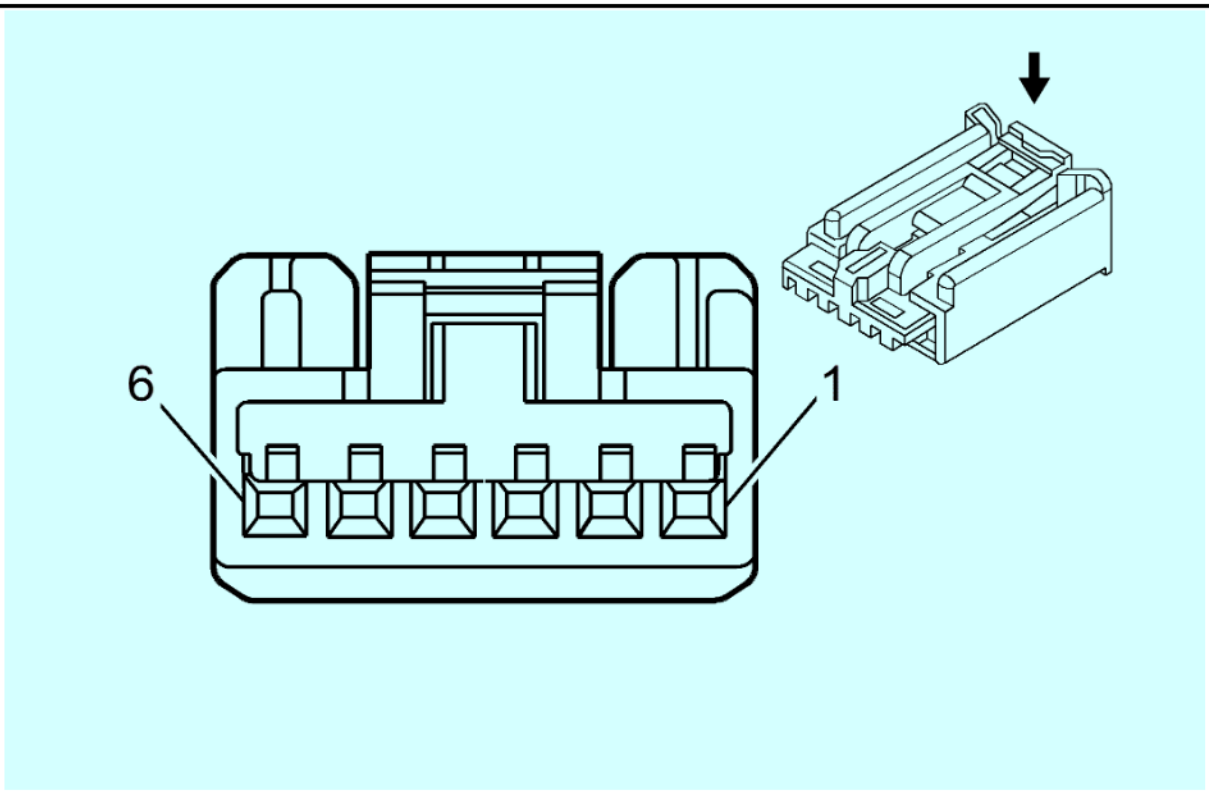

Connector Part Information

- Harness Type: Power Mat Jumper
- OEM Connector: 13595475
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way F 0.64 Series (NA)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	VT/YE	43	Accessory Ignition Voltage	I	-
2	0.75	BK	1050	Ground	I	-
3	0.35	GN	4512	Wireless Charging System Charge Indicator Control	I	-
4 - 6	-	-	-	Not Occupied	-	-

X80D ACCESSORY POWER RECEPTACLE - CENTER CONSOLE COMPARTMENT (-(AE7/AZ3 /B3F))

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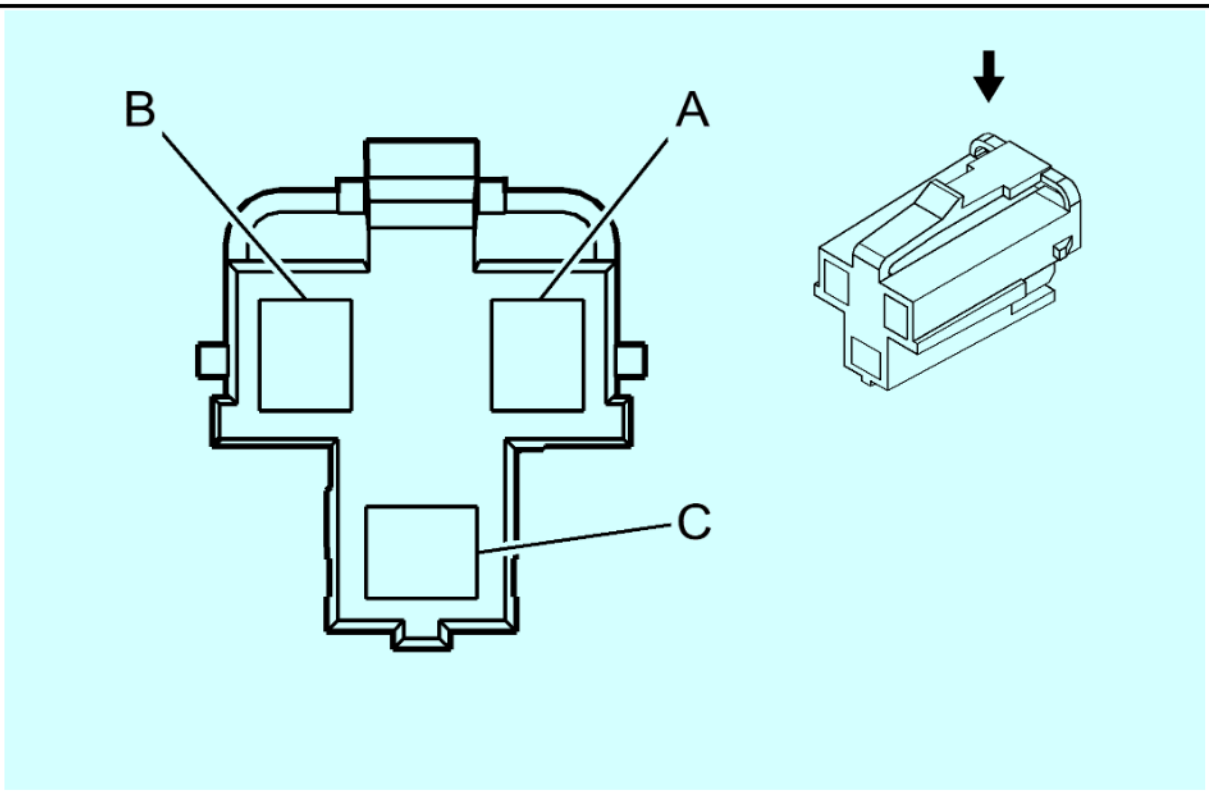

Connector Part Information

- Harness Type: Floor Console
- OEM Connector: 12176836
- Service Connector: Service by Harness - See Part Catalog
- Description: 3-Way F 280 Metri-Pack Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	VT/YE	143	Accessory Ignition Voltage	I	-
B	-	-	-	Not Occupied	-	-
C	1.5	BK	1050	Ground	I	-

X80D ACCESSORY POWER RECEPTACLE - CENTER CONSOLE COMPARTMENT (AE7/AZ3/B3F)

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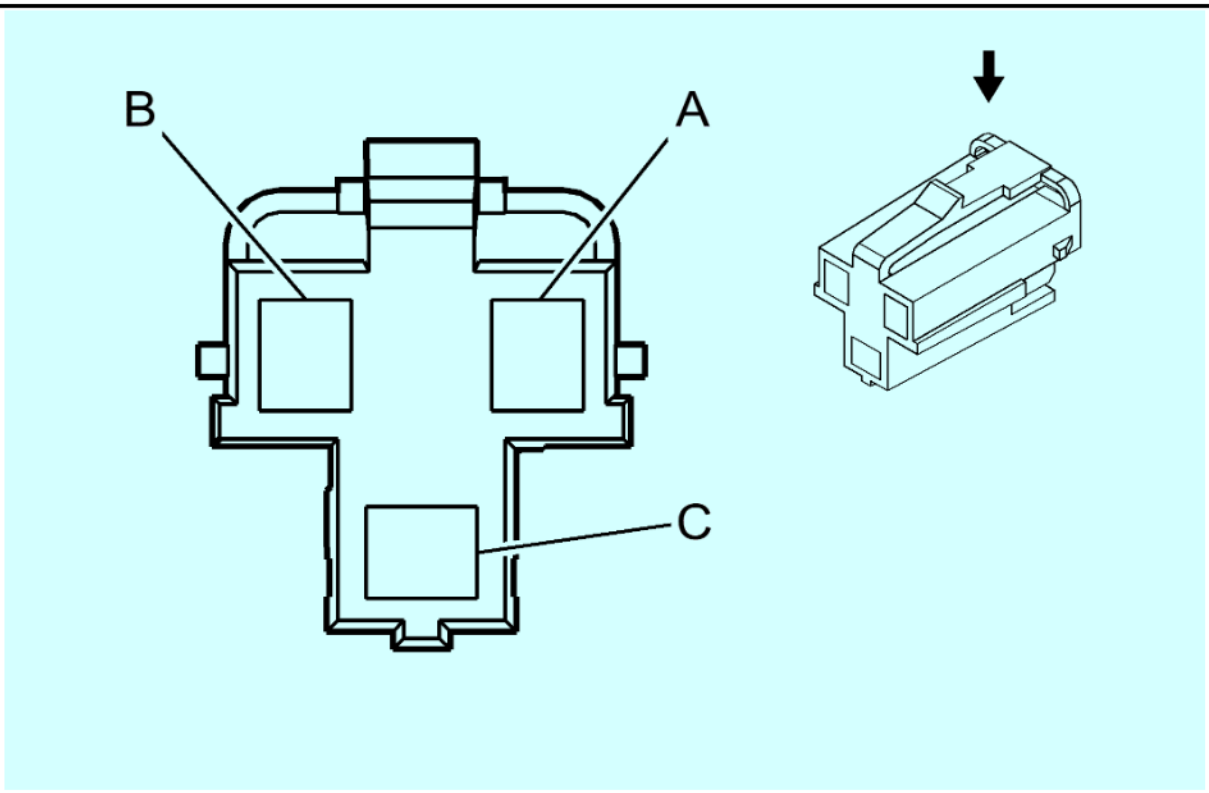

Connector Part Information

- Harness Type: Center Seat Assist
- OEM Connector: 12176836
- Service Connector: Service by Harness - See Part Catalog
- Description: 3-Way F 280 Metri-Pack Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	VT/YE	243	Accessory Ignition Voltage	I	-
B	-	-	-	Not Occupied	-	-
C	1.5	BK	1250	Ground	I	-

X80E ACCESSORY POWER RECEPTACLE - CENTER SEAT

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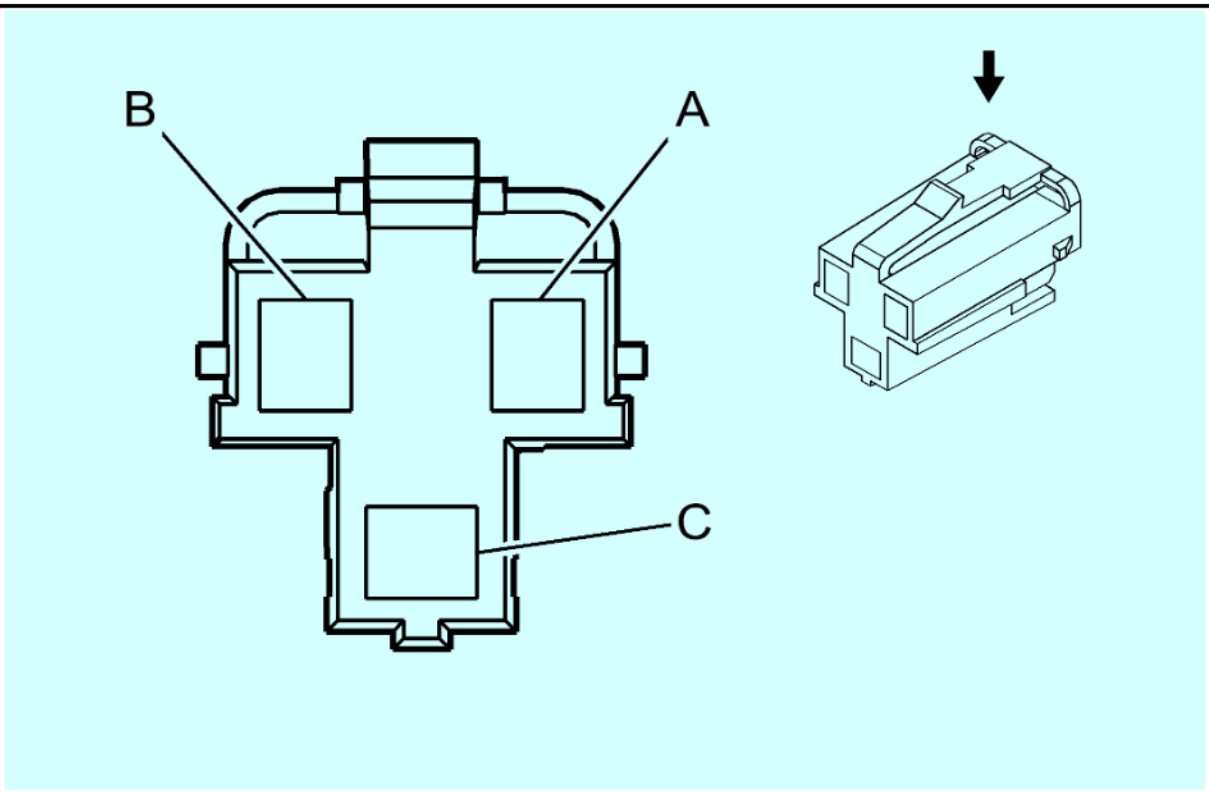

Connector Part Information

- Harness Type: Center Seat
- OEM Connector: 12176836
- Service Connector: Service by Harness - See Part Catalog
- Description: 3-Way F 280 Metri-Pack Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	VT/YE	143	Accessory Ignition Voltage	I	-
B	-	-	-	Not Occupied	-	-
C	1.5	BK	1250	Ground	I	-

X80G ACCESSORY POWER RECEPTACLE - INSTRUMENT PANEL

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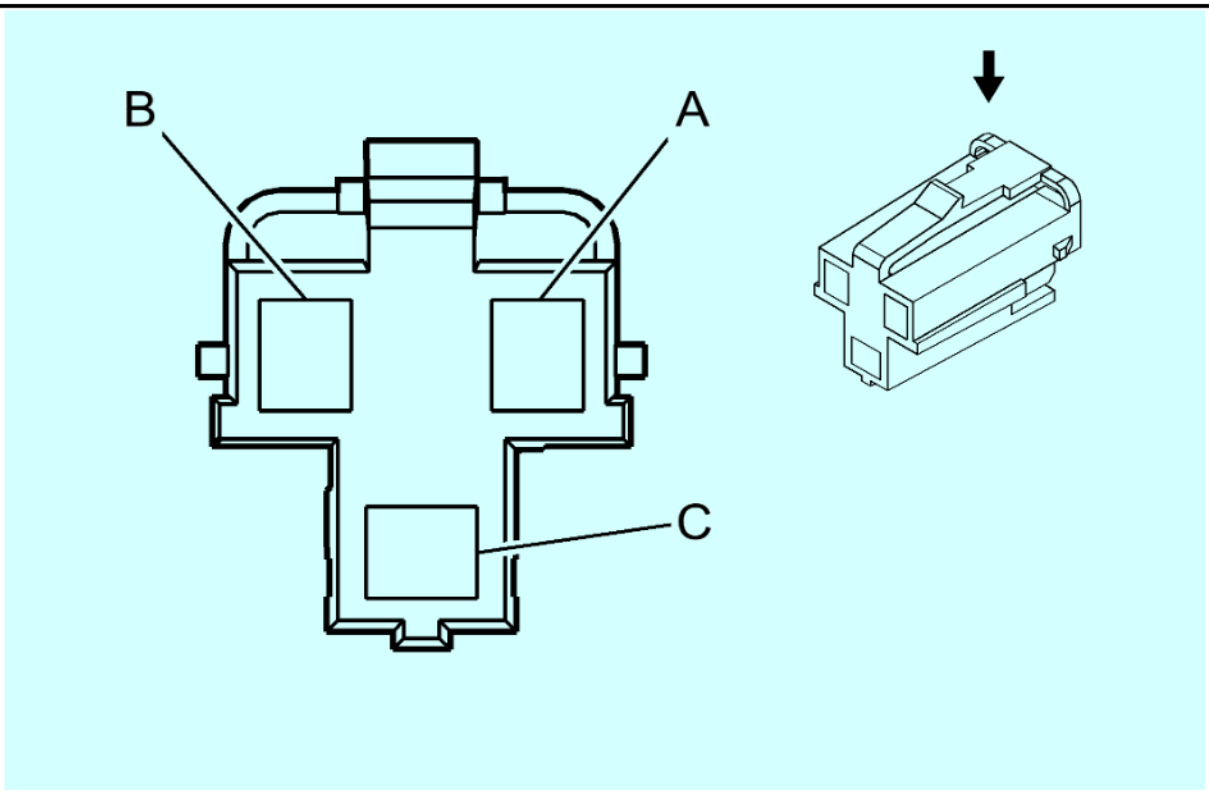

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 12176836
- Service Connector: 19257374
- Description: 3-Way F 280 Metri-Pack Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	RD/BN	4240	Battery Positive Voltage	I	-
B	-	-	-	Not Occupied	-	-
C	1.5	BK	1050	Ground	I	-

X80J ACCESSORY POWER RECEPTACLE - INSTRUMENT PANEL 1

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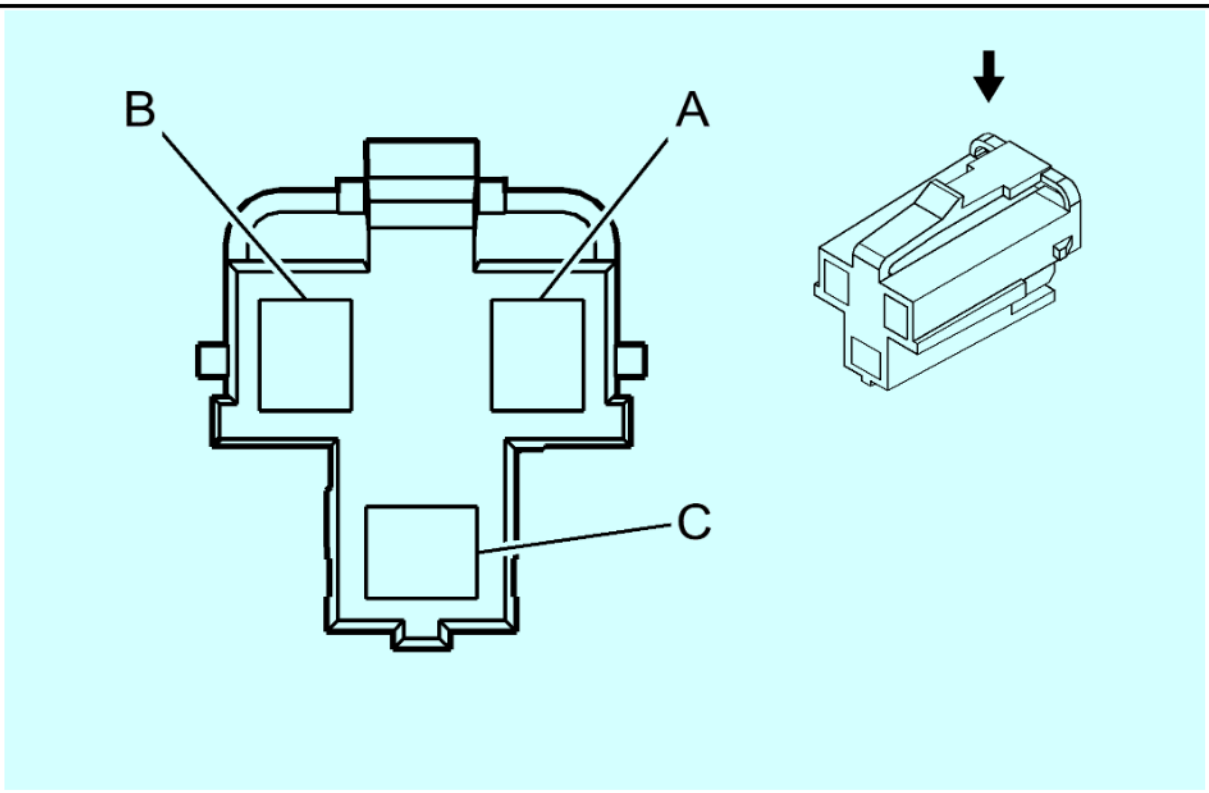

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 12176836
- Service Connector: 19257374
- Description: 3-Way F 280 Metri-Pack Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	RD/WH	1040	Battery Positive Voltage	I	-
B	-	-	-	Not Occupied	-	-
C	1.5	BK	1050	Ground	I	-

X80K ACCESSORY POWER RECEPTACLE - INSTRUMENT PANEL 2

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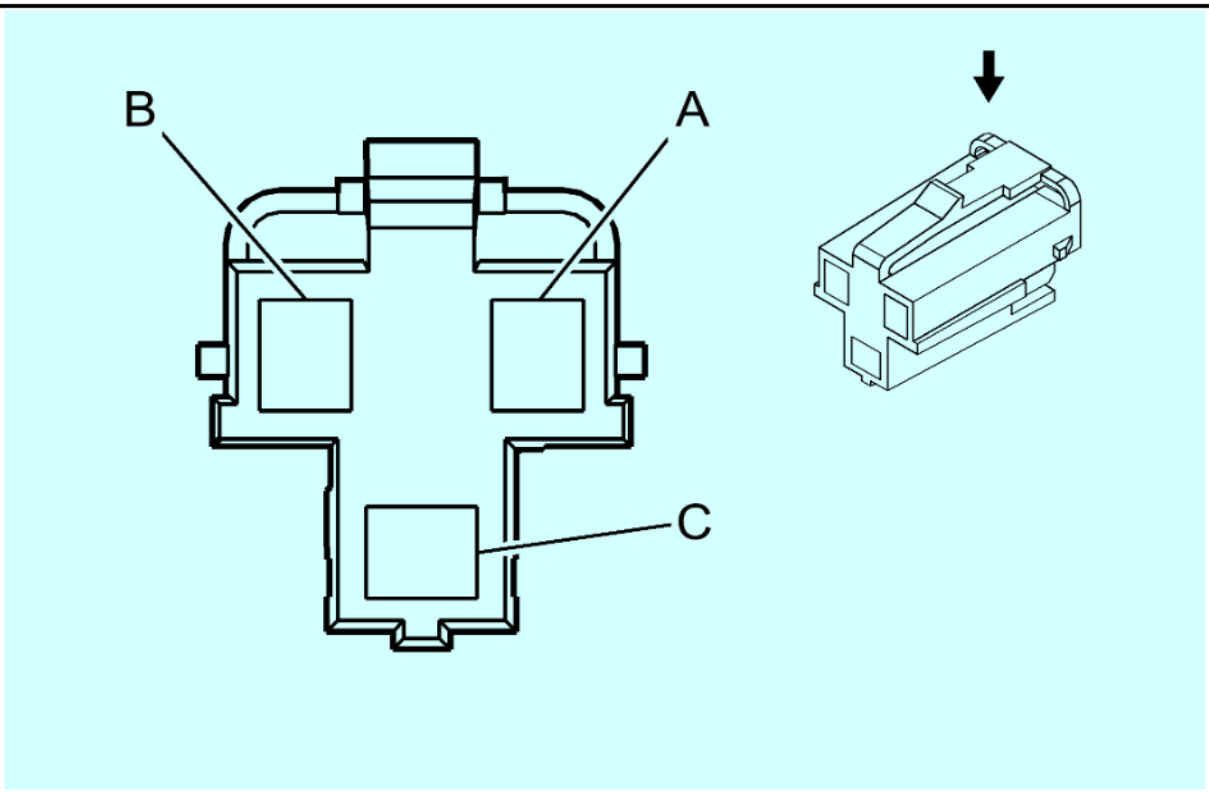

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 12176836
- Service Connector: 19257374
- Description: 3-Way F 280 Metri-Pack Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	RD/BN	4240	Battery Positive Voltage	I	-
B	-	-	-	Not Occupied	-	-
C	1.5	BK	1050	Ground	I	-

X80L ACCESSORY POWER RECEPTACLE - CENTER CONSOLE REAR

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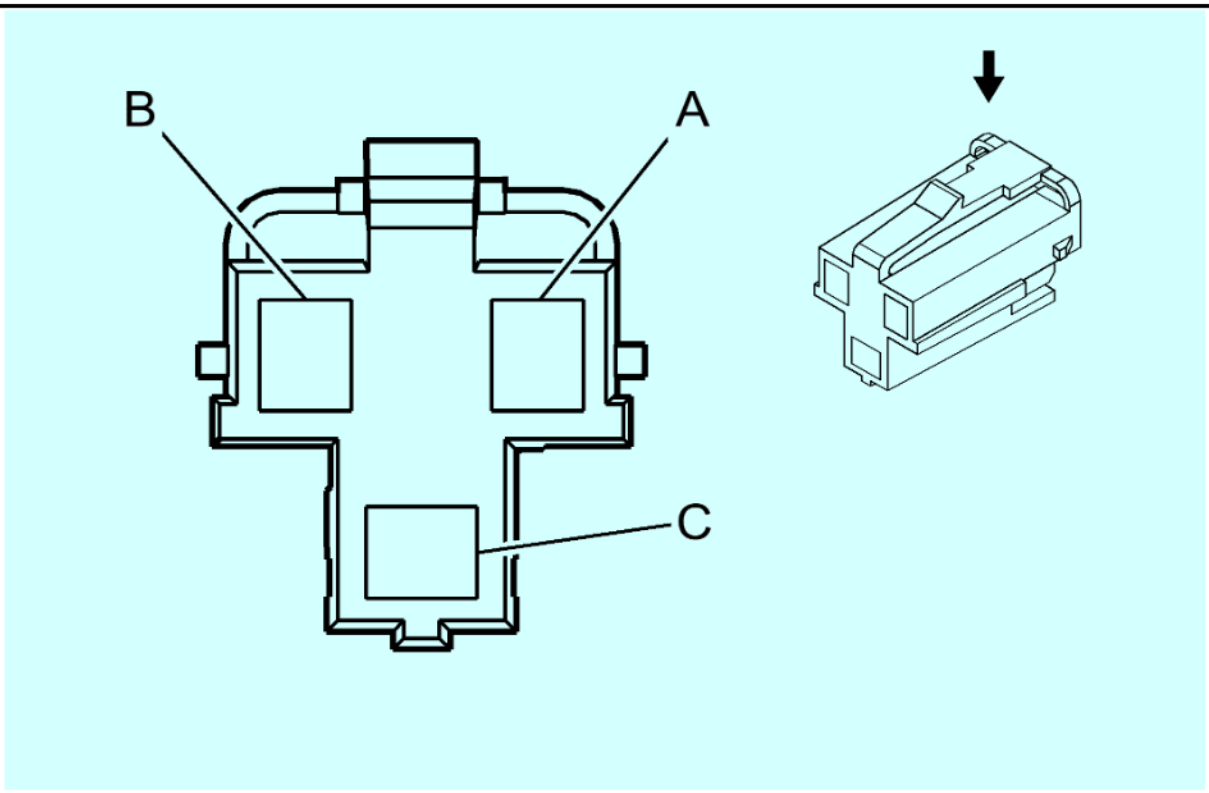

Connector Part Information

- Harness Type: Floor Console
- OEM Connector: 12176836
- Service Connector: Service by Harness - See Part Catalog
- Description: 3-Way F 280 Metri-Pack Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	VT/YE	243	Accessory Ignition Voltage	I	-
B	-	-	-	Not Occupied	-	-
C	1.5	BK	1050	Ground	I	-

X81B ACCESSORY POWER RECEPTACLE - 220V AC X1

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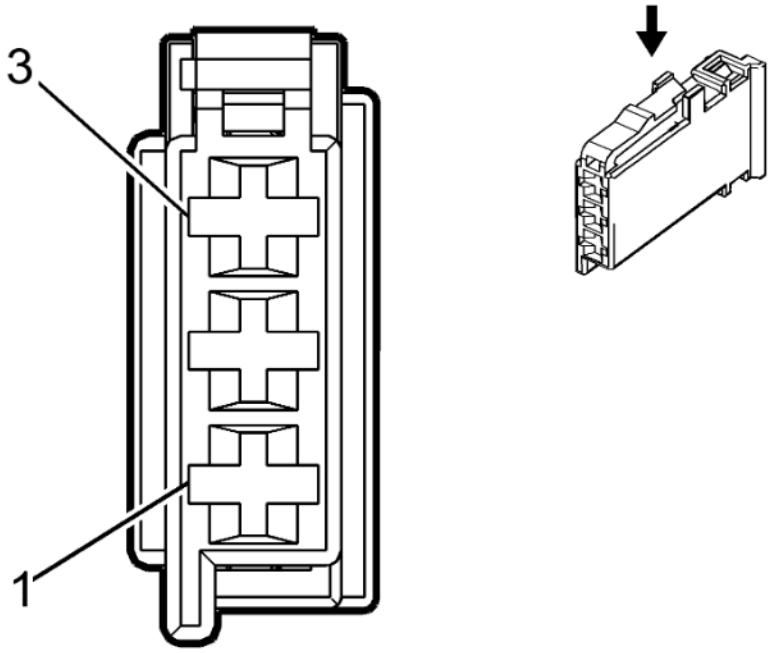

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 10865339
- Service Connector: 93186706
- Description: 3-Way F 1.6 Micro-Timer Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	VT/BN	300	Run Ignition 3 Voltage	I	-
2	-	-	-	Not Occupied	-	-
3	1.5	BK	5683	120 V AC Phase A	I	-

X81B ACCESSORY POWER RECEPTACLE - 220V AC X2

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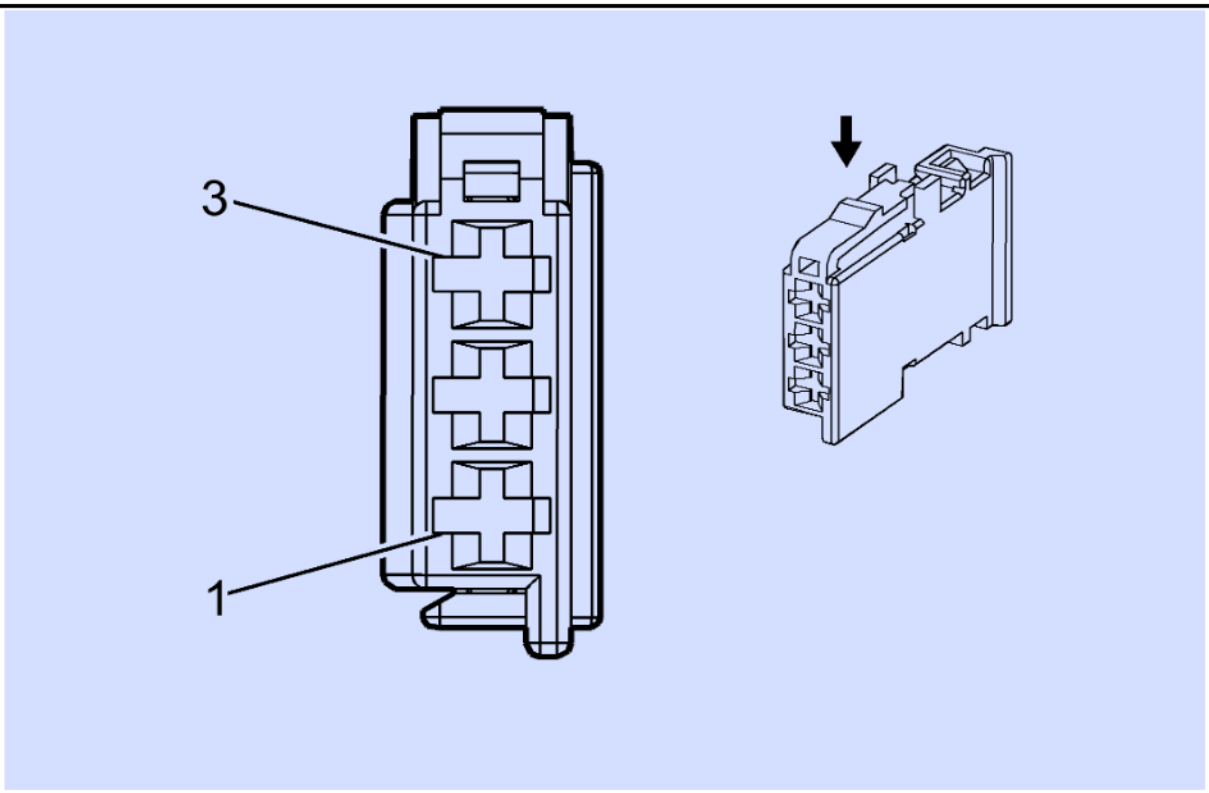

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13648774
- Service Connector: 13583924
- Description: 3-Way F 1.6 Timer Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BU/BN	6807	DC To AC Inverter Control	I	-
2	-	-	-	Not Occupied	-	-
3	1.5	RD	5684	120 V AC Phase B	I	-

X81 ACCESSORY POWER RECEPTACLE - 110V AC X1

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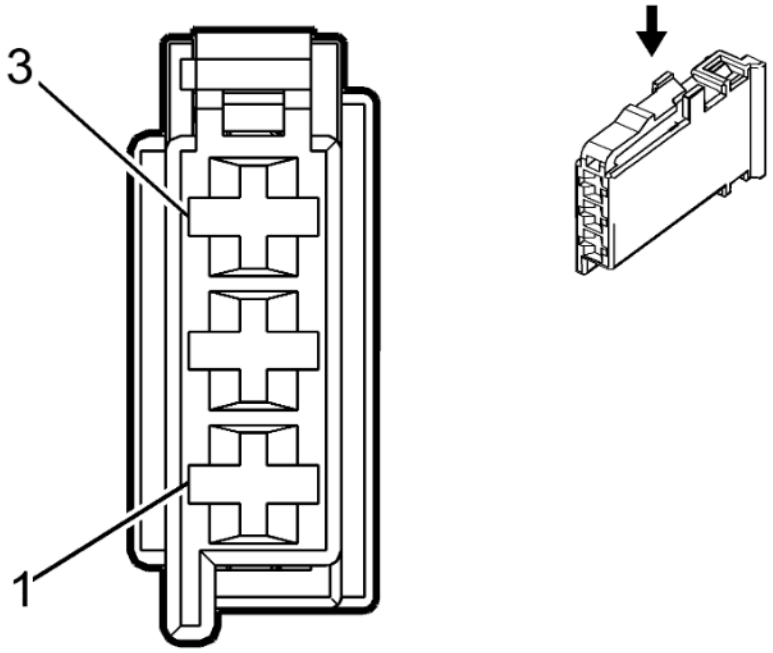

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 10865339
- Service Connector: 93186706
- Description: 3-Way F 1.6 Micro-Timer Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	VT/BN	300	Run Ignition 3 Voltage	I	-
2	-	-	-	Not Occupied	-	-
3	1.5	BK	5683	120 V AC Phase A	I	-

X81 ACCESSORY POWER RECEPTACLE - 110V AC X2

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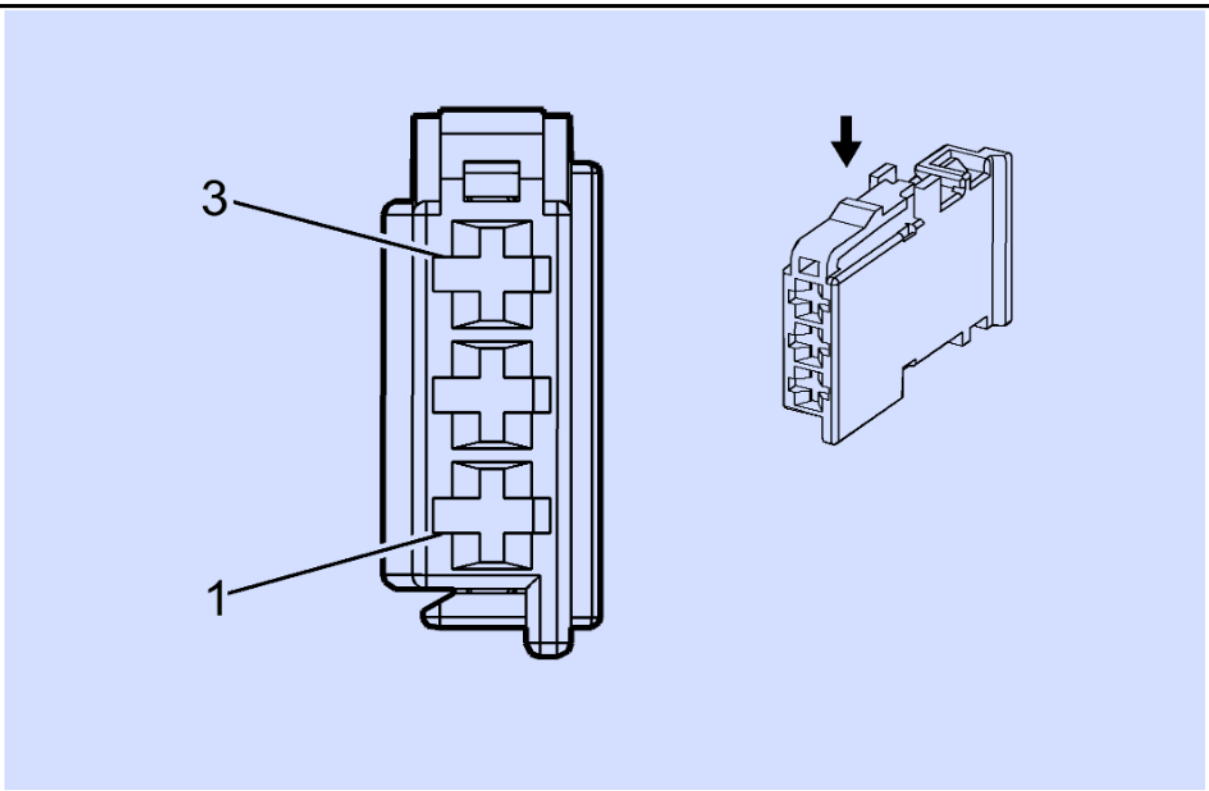

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13648774
- Service Connector: 13583924
- Description: 3-Way F 1.6 Timer Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	D-BU/BN	6807	DC To AC Inverter Control	I	-
2	-	-	-	Not Occupied	-	-
3	1.5	RD	5684	120 V AC Phase B	I	-

X82 AUDIO/VIDEO INPUT ADAPTER

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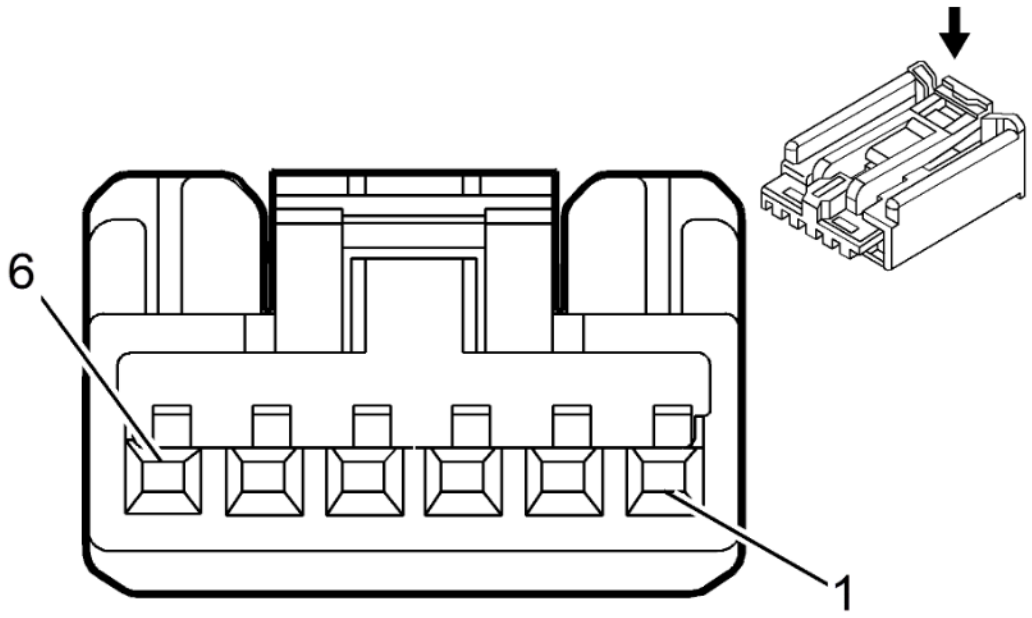

Connector Part Information

- Harness Type: Floor Console
- OEM Connector: 13595476
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way F 0.64 Kaizen Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GN/WH	3355	Left Rear Seat Audio Headphone Signal	I	-
2	0.35	BN/GY	3357	Right Rear Seat Audio Headphone Signal	I	-
3	0.35	BU/VT	3356	Rear Seat Audio Headphone Common Signal	I	-
4	0.35	BK	2550	Ground	I	-
5	-	-	-	Not Occupied	-	-
6	0.75	RD/VT	340	Battery Positive Voltage	I	-

X83 AUXILIARY AUDIO INPUT (A31)

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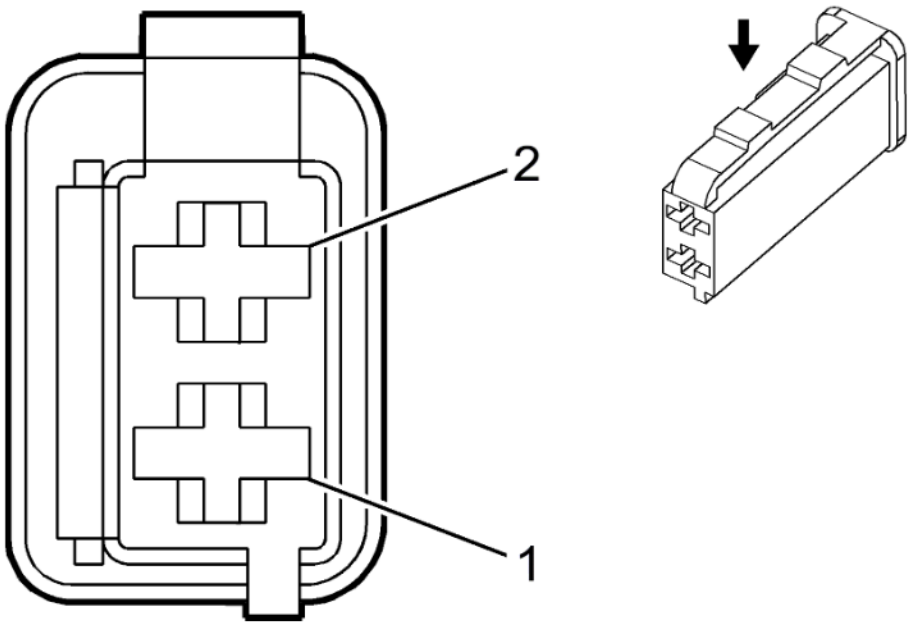

Connector Part Information

- Harness Type: Passenger Door Trim
- OEM Connector: 13670097
- Service Connector: Service by Harness - See Part Catalog
- Description: 2-Way F 1.6 Timer Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-14 (GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	WH/YE	7557	LED Ambient Lighting Control 1	I	-
2	0.35	BK	1250	Ground	I	-

X83 AUXILIARY AUDIO INPUT (AZ3/AE7)

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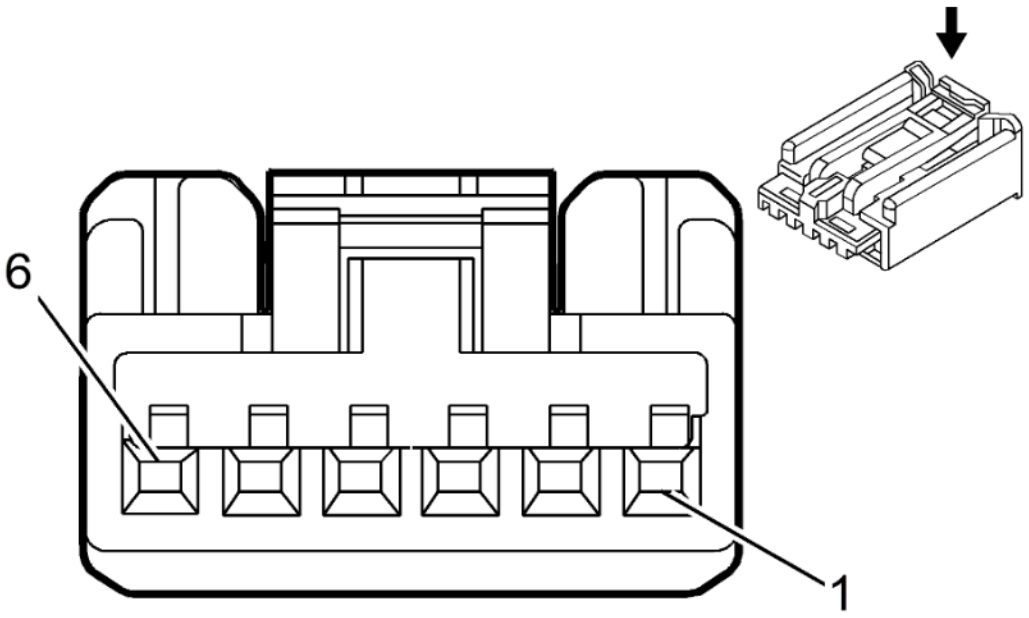

Connector Part Information

- Harness Type: Center Seat Assist
- OEM Connector: AIT2PB-06-1AK
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way F 0.64 Kaizen Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY	5839	Left Auxiliary Audio Signal 2	I	-
2	0.35	GN	5841	Right Auxiliary Audio Signal 2	I	-
3	0.35	VT	5843	Auxiliary Audio Common Signal	I	-
4	0.35	BK	2550	Ground	I	-
5	0.35	BU	2060	Auxiliary Detection Signal	I	-
6	0.75	RD/VT	340	Battery Positive Voltage	I	-

X83 AUXILIARY AUDIO INPUT (D07)

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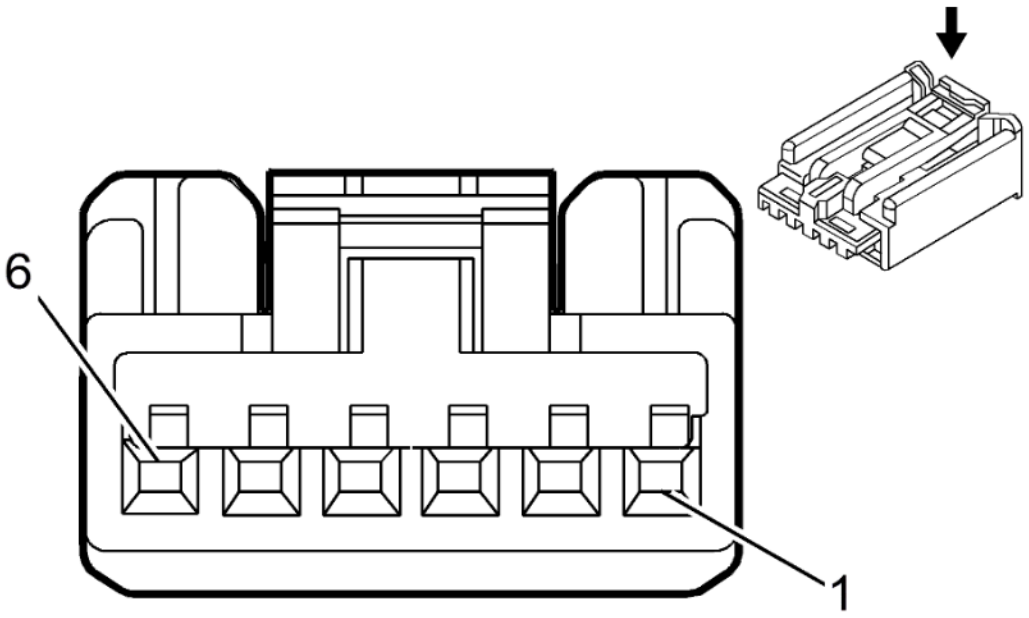

Connector Part Information

- Harness Type: Floor Console
- OEM Connector: 13595476
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way F 0.64 Kaizen Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY	5839	Left Auxiliary Audio Signal 2	I	-
2	0.35	GN	5841	Right Auxiliary Audio Signal 2	I	-
3	0.35	VT	5843	Auxiliary Audio Common Signal	I	-
4	0.35	BK	2550	Ground	I	-
5	0.35	BU	2060	Auxiliary Detection Signal	I	-
6	0.75	RD/VT	340	Battery Positive Voltage	I	-

X84 DATA LINK CONNECTOR

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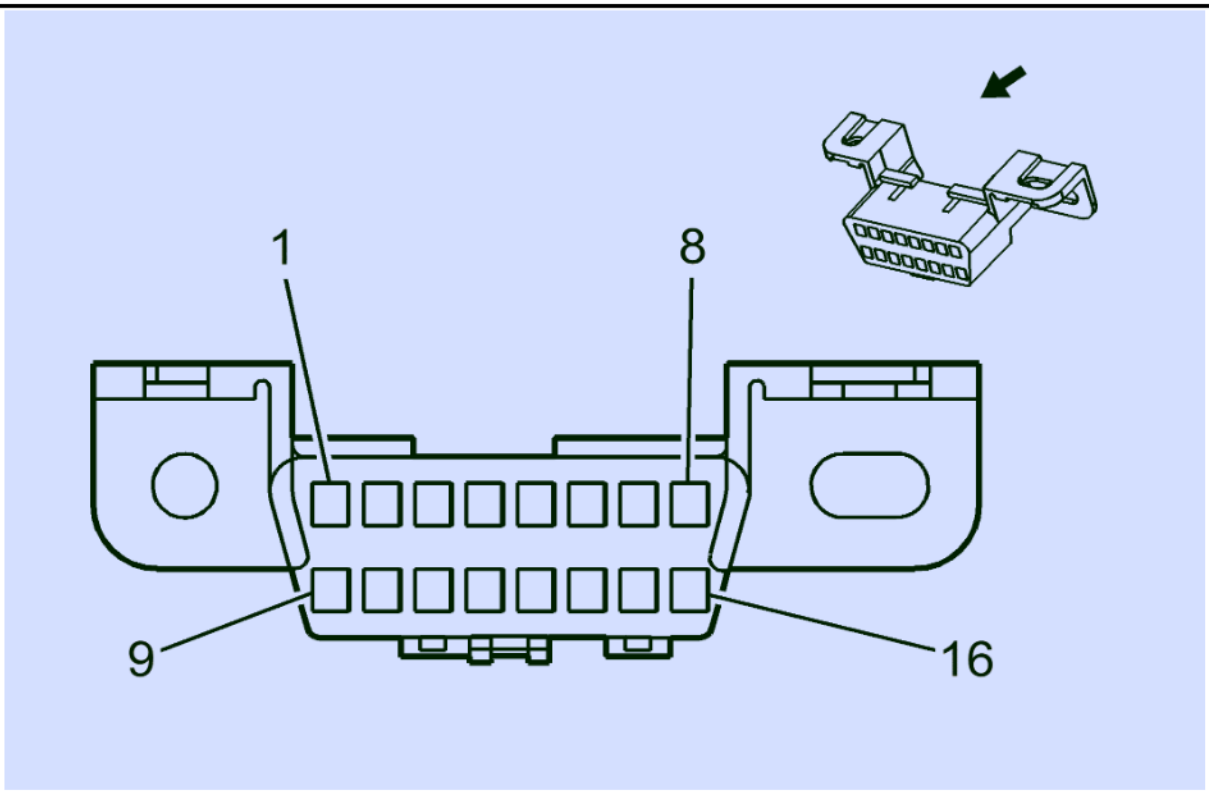

Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 12110250
- Service Connector: 12110250
- Description: 16-Way F 150 Metri-Pack Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575725	J-35616-14 (GN)	J-38125-12A	12129484	Delphi 19	E	A
II	13575725	J-35616-14 (GN)	J-38125-12A	12129484	Delphi 19	E	C

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GN	5060	Low Speed GMLAN Serial Data	II	-
2 - 3	-	-	-	Not Occupied	-	-
4	0.5	BK	1050	Ground	II	-
5	0.75	BK/WH	1851	Signal Ground	I	-
6	0.5	BU	2500	High Speed GMLAN Serial Data (+) 1	II	-
7 - 11	-	-	-	Not Occupied	-	-
12	0.5	BU/YE	6105	High Speed GMLAN Serial Data (+) 2	II	-

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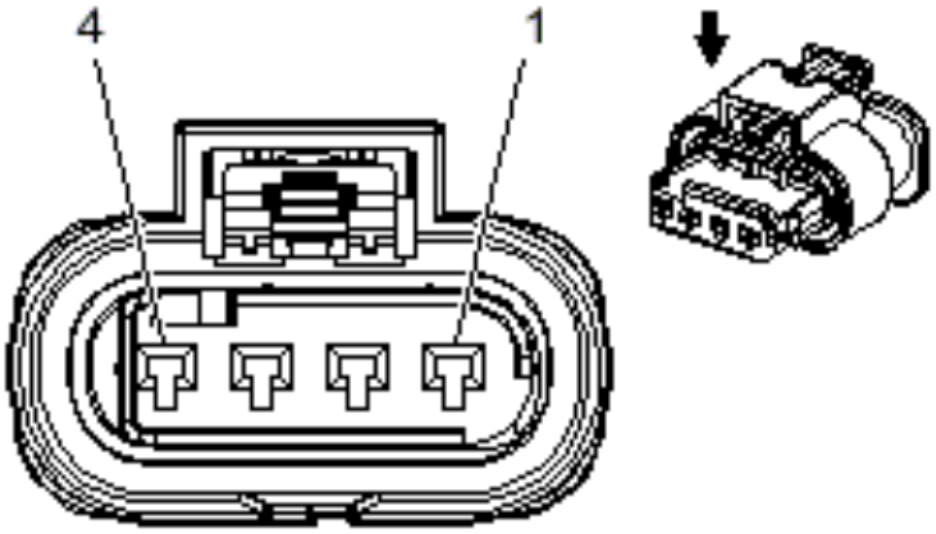
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
13	0.5	WH	6106	High Speed GMLAN Serial Data (-) 2	II	-
14	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	II	-
15	-	-	-	Not Occupied	-	-
16	0.35	RD/WH	640	Battery Positive Voltage	II	-

X85 STEERING WHEEL AIR BAG COIL



Connector Part Information

- Harness Type: Body
- OEM Connector: 13854531
- Service Connector: 13586137
- Description: 4-Way F 1.2 Series, Sealed (YE)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option

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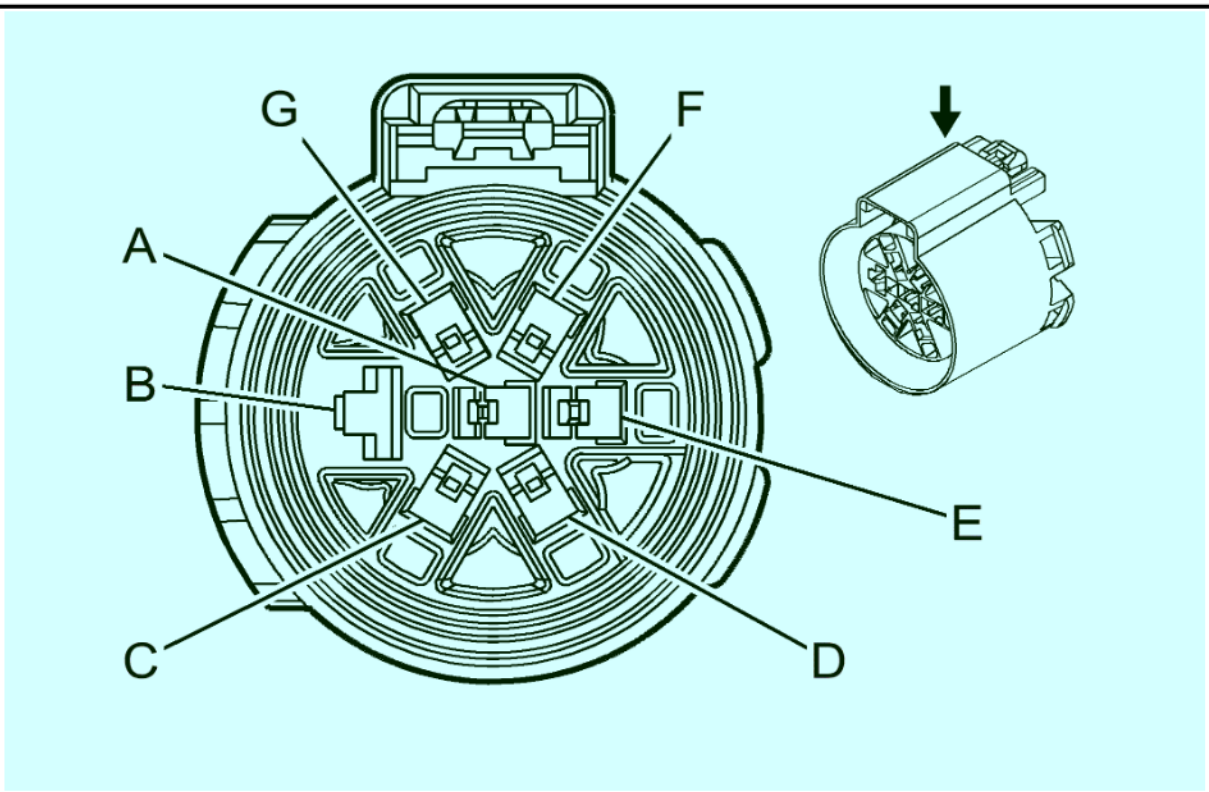
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	OG/VT	3021	Steering Wheel Module Stage 1 High Control	I	-
2	0.35	BN/OG	3020	Steering Wheel Module Stage 1 Low Control	I	-
3	0.35	OG/GN	3023	Steering Wheel Module Stage 2 High Control	I	-
4	0.35	WH/OG	3022	Steering Wheel Module Stage 2 Low Control	I	-

X88 TRAILER CONNECTOR (8S3)



Connector Part Information

- Harness Type: Back up Alarm
- OEM Connector: 13857223
- Service Connector: Service by Harness - See Part Catalog
- Description: 7-Way F 280, 630 Metri-Pack Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-42 (RD)	No Tool Required	Not Required	Not Required	Not Required	Not Required

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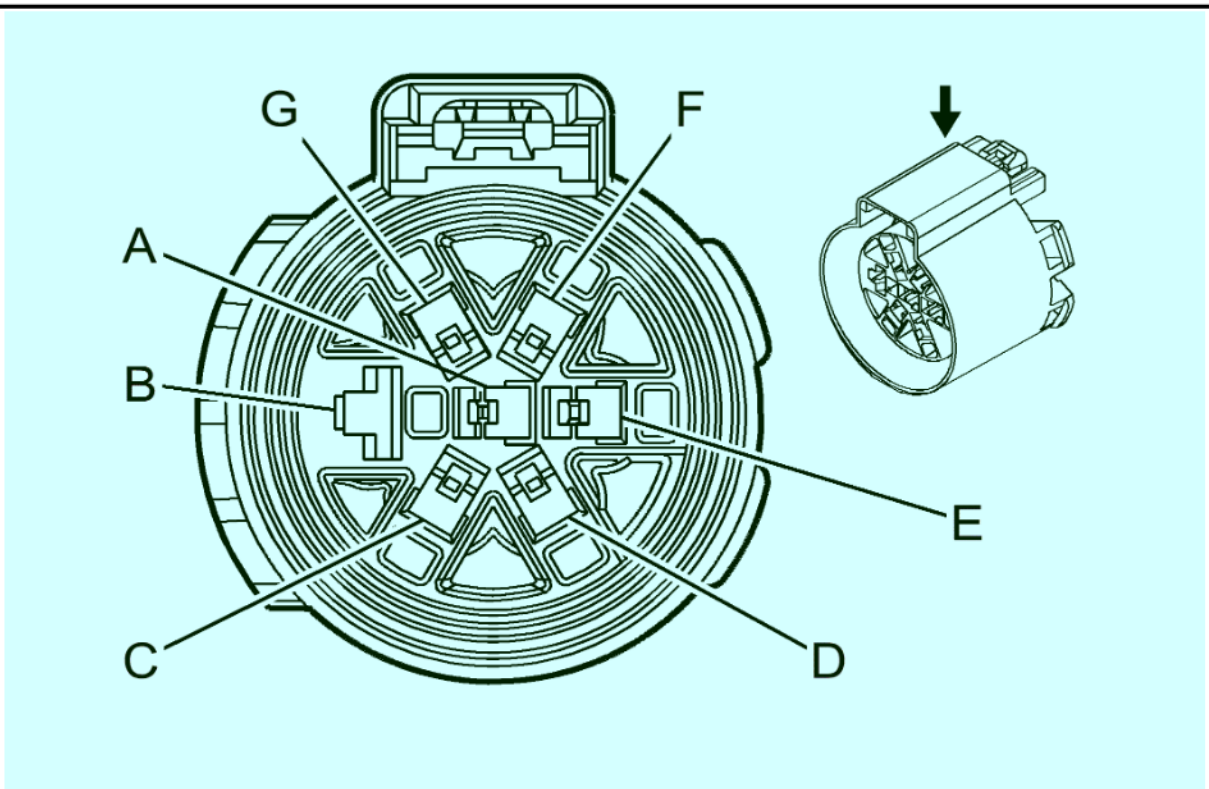
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
II	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1	L-GN	1624	Trailer Backup Lamp Control	II	-
B	5	WH	22	Trailer Ground	I	-
C	3	D-BU	47	Trailer Auxiliary Control	II	-
D	0.8	D-GN	1619	Right Rear Trailer Stop/Turn Lamp Control	II	-
E	3	RD/BK	742	Battery Positive Voltage	II	-
F	1	BN	2109	Trailer Park Lamp Control	II	-
G	0.8	YE	1618	Left Rear Trailer Stop/Turn Lamp Control	II	-

X88 TRAILER CONNECTOR (UY2)



Connector Part Information

- Harness Type: Camper
- OEM Connector: 13857223
- Service Connector: Service by Harness - See Part Catalog
- Description: 7-Way F 280, 630 Metri-Pack Series, Sealed (BK)

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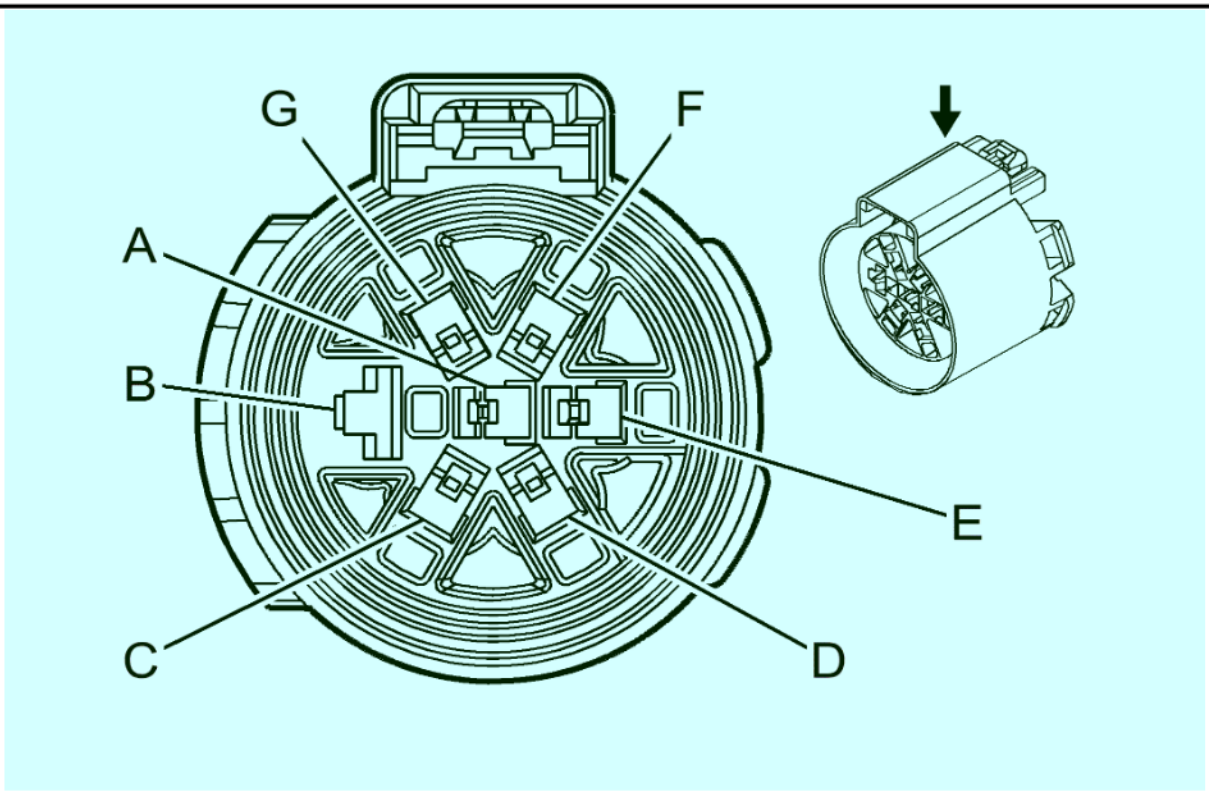
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-42 (RD)	No Tool Required	Not Required	Not Required	Not Required	Not Required
II	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.75	WH/L-GN	1624	Trailer Backup Lamp Control	II	-
B	6	WH	22	Trailer Ground	I	-
C	2.5 5	D-BU D-BU	47 47	Trailer Auxiliary Control Trailer Auxiliary Control	II II	8S3 -8S3
D	0.75	L-GN/VT	1619	Right Rear Trailer Stop/Turn Lamp Control	II	-
E	4	RD/L-GN	742	Battery Positive Voltage	II	-
F	1.5	GY/BN	2109	Trailer Park Lamp Control	II	-
G	0.75	YE/GY	1618	Left Rear Trailer Stop/Turn Lamp Control	II	-

X88 TRAILER CONNECTOR (-UY2-8S3)



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 13857223

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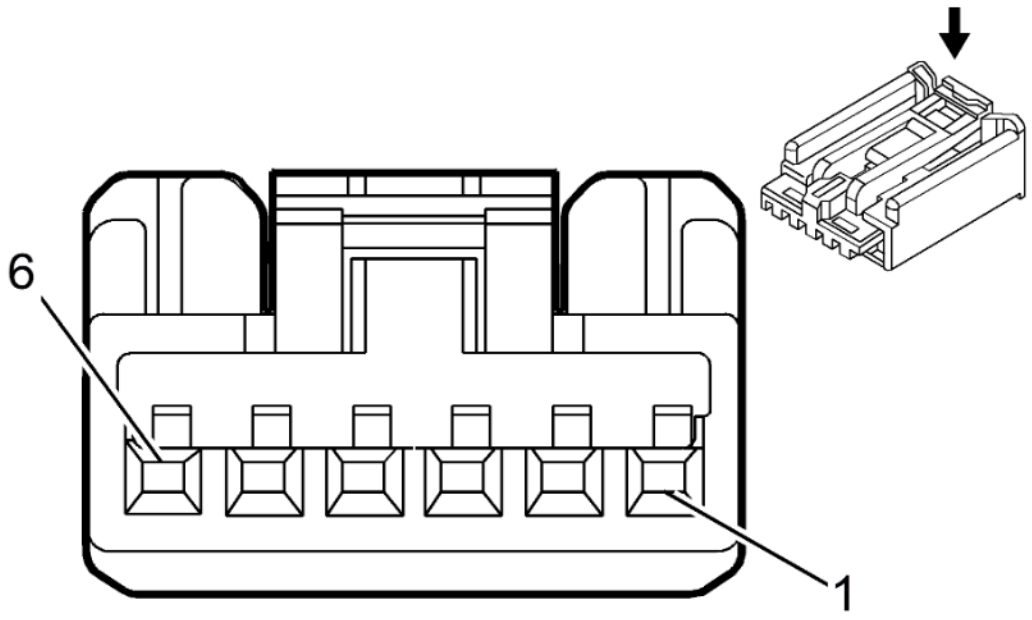
- Service Connector: 13583927
- Description: 7-Way F 280, 630 Metri-Pack Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-42 (RD)	No Tool Required	Not Required	Not Required	Not Required	Not Required
II	Not Required	J-35616-4A (PU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.75	WH/L-GN	1624	Trailer Backup Lamp Control	II	-
B	5	WH	22	Trailer Ground	I	-
C	2.5	D-BU	47	Trailer Auxiliary Control	II	-
D	0.75	L-GN/VT	1619	Right Rear Trailer Stop/Turn Lamp Control	II	-
E	4	RD/L-GN	742	Battery Positive Voltage	II	-
F	1.5	GY/BN	2109	Trailer Park Lamp Control	II	-
G	0.75	YE/GY	1618	Left Rear Trailer Stop/Turn Lamp Control	II	-

X92 USB RECEPTACLE



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Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 13595476
- Service Connector: 19167753
- Description: 6-Way F 0.64 Kaizen Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-64B (LT BU)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1 - 3	-	-	-	Not Occupied	-	-
4	0.35	BK	2550	Ground	I	-
5	-	-	-	Not Occupied	-	-
6	0.75	RD/VT	340	Battery Positive Voltage	I	-

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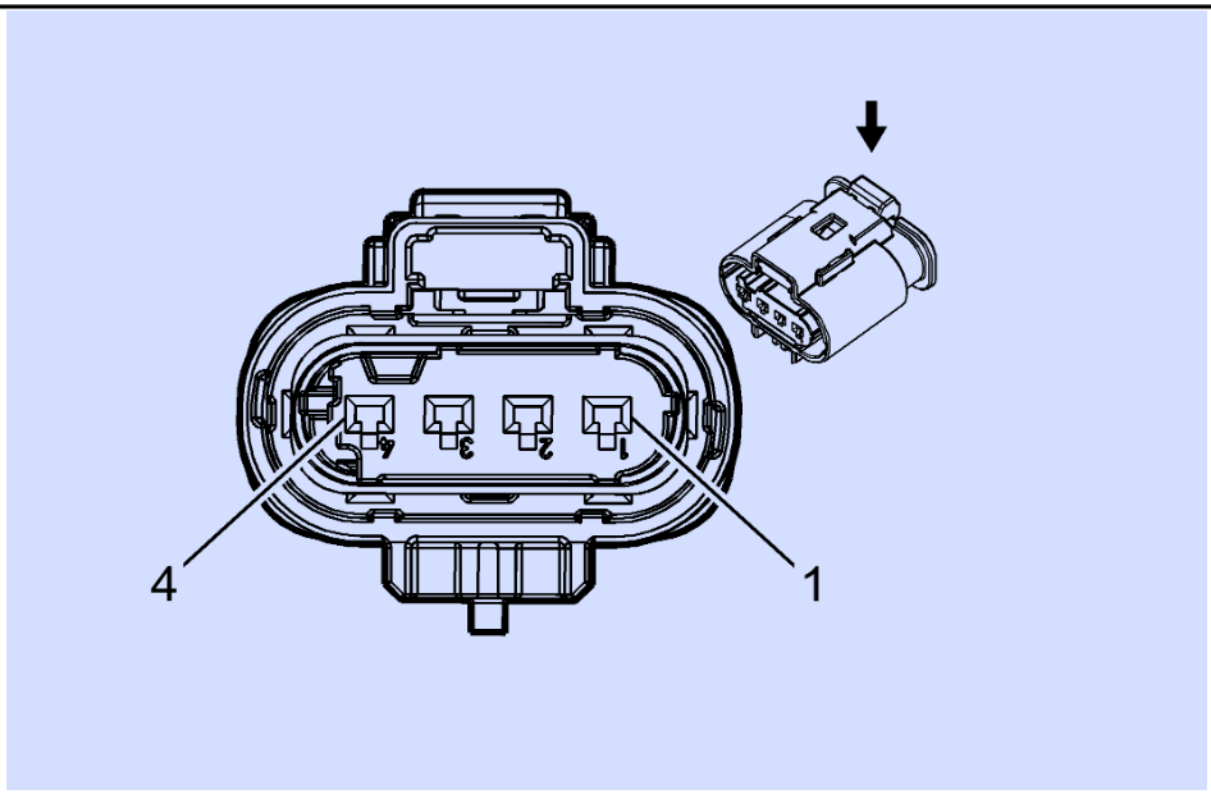
COMPONENT CONNECTOR END VIEWS AND COMPONENT LOCATIONS - MISCELLANEOUS

COMPONENT CONNECTOR END VIEWS

B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (L96)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13815341
- Service Connector: 13587299
- Description: 4-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal	Option

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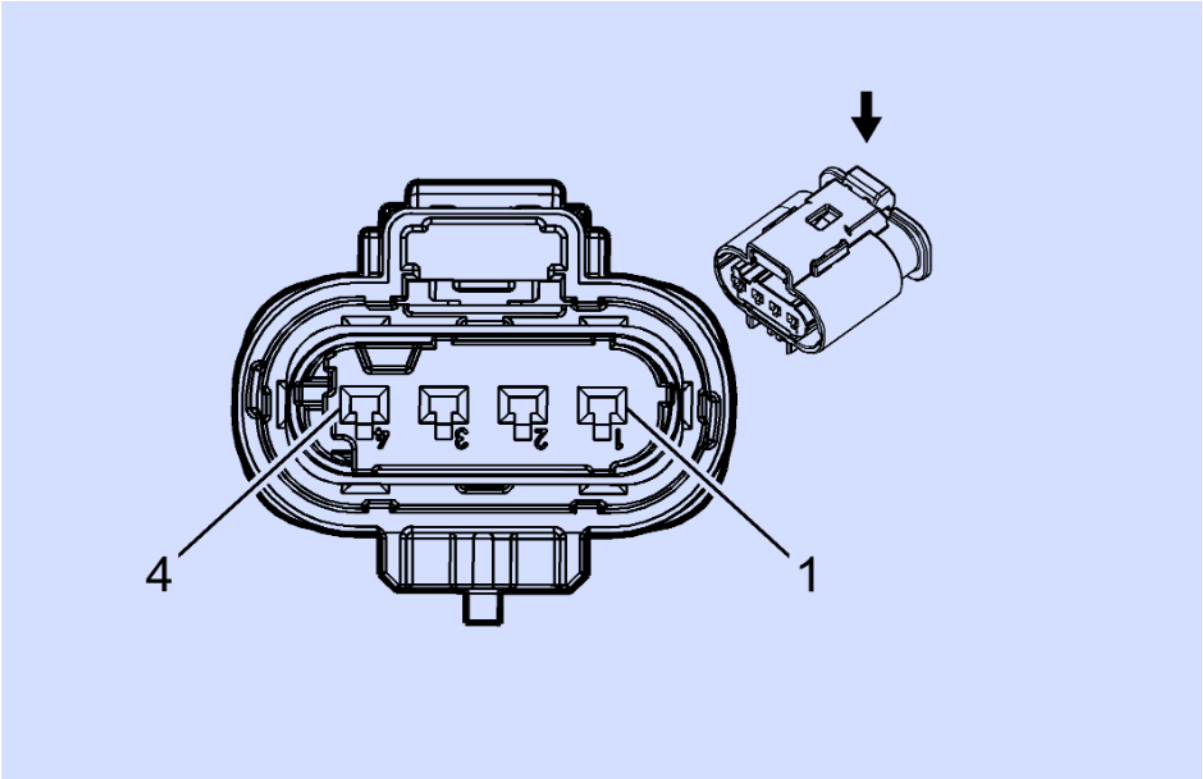
					Type ID	
1	0.5	GY/WH	3113	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 1	I	-
2	0.75	VT/D-BU	5293	Powertrain Main Relay Fused Supply 4	I	-
3	0.5	WH/BK	3111	Heated Oxygen Sensor Low Signal Bank 1 Sensor 1	I	-
4	0.5	VT/GY	3110	Heated Oxygen Sensor High Signal Bank 1 Sensor 1	I	-

B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (LC8)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13815341
- Service Connector: 13587299
- Description: 4-Way F 1.2 Multilock Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal	Option

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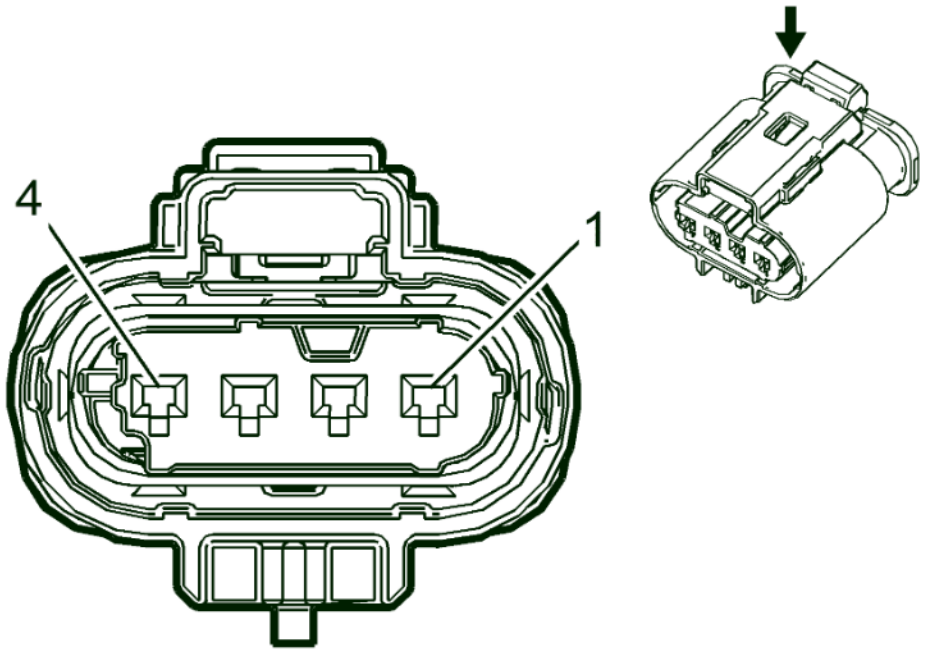
					Type ID	
1	0.5	GY/WH	3113	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 1	I	-
2	0.75	VT/D-BU	5293	Powertrain Main Relay Fused Supply 4	I	-
3	0.5	WH/BK	3111	Heated Oxygen Sensor Low Signal Bank 1 Sensor 1	I	-
4	0.5	VT/GY	3110	Heated Oxygen Sensor High Signal Bank 1 Sensor 1	I	-

B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (LV1)



Connector Part Information

- Harness Type: Engine
- OEM Connector: 13869004
- Service Connector: 19301716
- Description: 4-Way F 1.2 Multilock Series, Sealed (D-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-16 (LT GN)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal	Option

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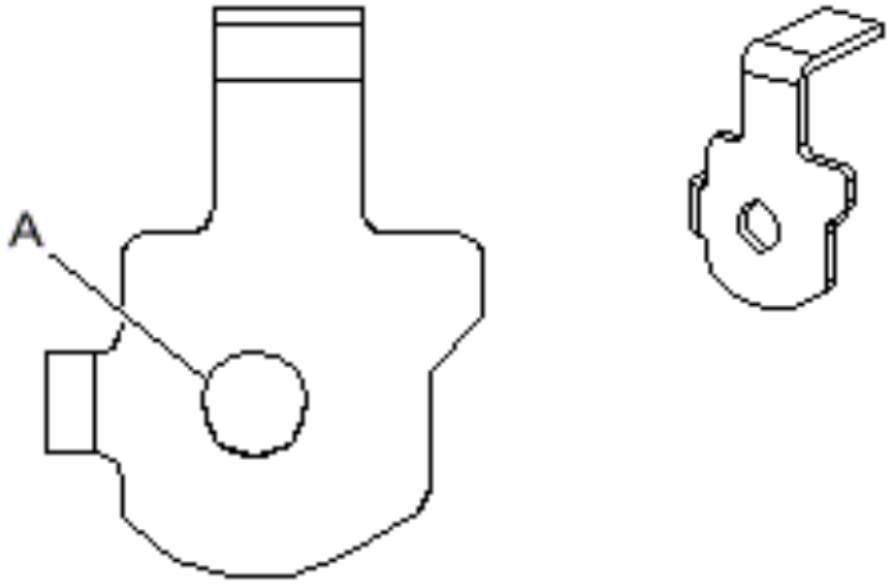
					Type ID	
1	0.5	GY/WH	3113	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 1	I	-
2	0.5	VT/D-BU	5293	Powertrain Main Relay Fused Supply 4	I	-
3	0.5	WH/BK	3111	Heated Oxygen Sensor Low Signal Bank 1 Sensor 1	I	-
4	0.5	VT/GY	3110	Heated Oxygen Sensor High Signal Bank 1 Sensor 1	I	-

C4B Hybrid/EV Battery Section 2 (HP5 (NEGATIVE))



Connector Part Information

- Harness Type: High Voltage Battery Manual Service Disconnect
- OEM Connector: 15544776
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 1-Way Ring Terminal

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal	Option

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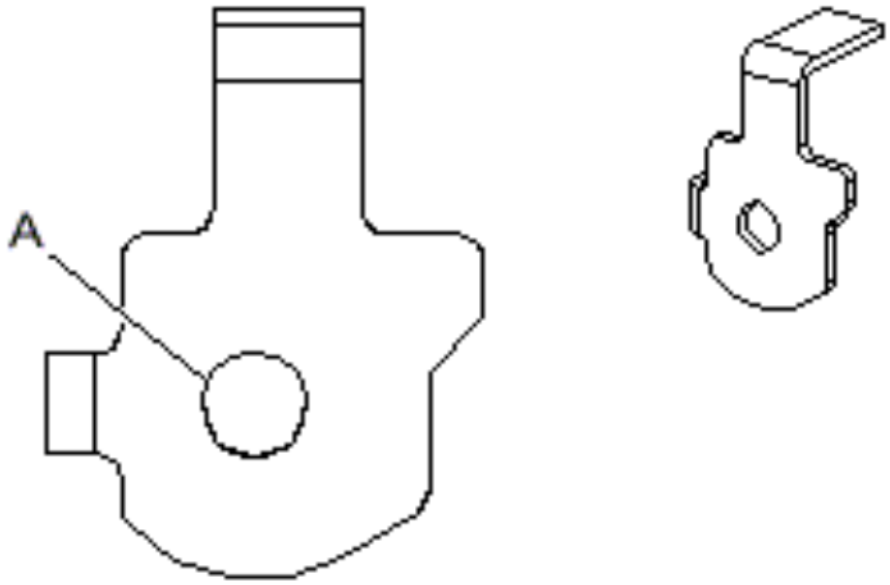
					Type ID	
1	12	OG	3970	High Voltage Battery 4 (+)	I	-

C4B Hybrid/EV Battery Section 2 (HP5 (POSITIVE))



Connector Part Information

- Harness Type: High Voltage Battery Positive
- OEM Connector: 15544776
- Service Connector: Service by Cable Assembly - See Part Catalog
- Description: 1-Way Ring Terminal

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	No Tool Required	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	12	OG	5084	High Voltage Battery (+)	I	-

K38 Chassis Control Module (Light Duty)

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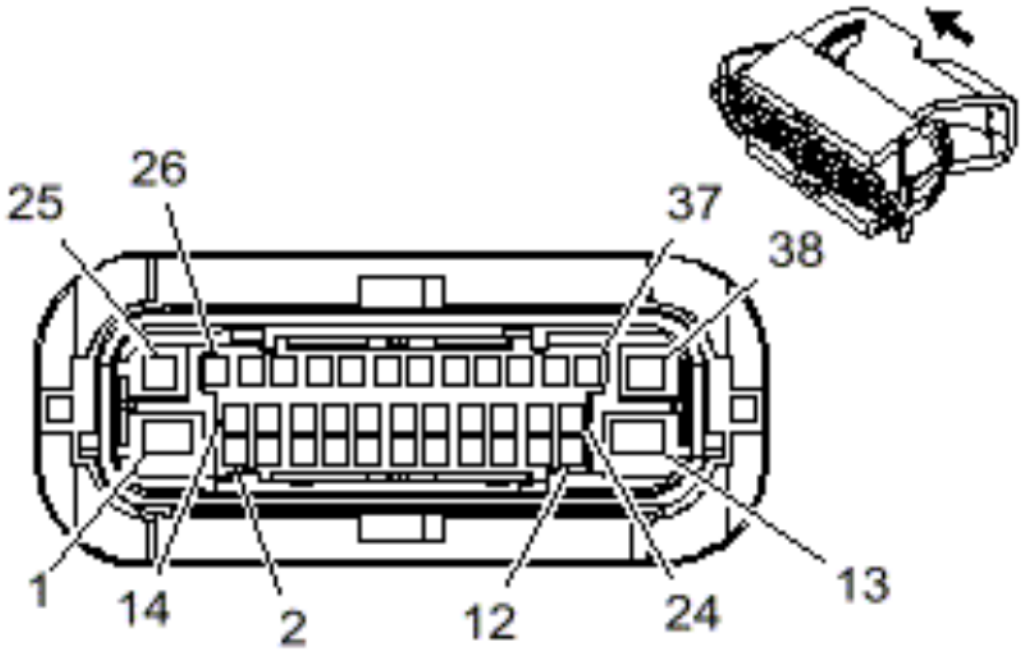

Connector Part Information

- Harness Type: Chassis
- OEM Connector: 33102981
- Service Connector: 19329471
- Description: 38-Way F 1.5 CTS, 2.8 MCP, 4.8 MCP Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	19119381	J-35616-14 (GN)	J-38125-215A	Not Available	Not Available	Not Available	Not Available
II	19119772	J-35616-35 (VT)	J-38125-557	1241388-1	Lear 17	E	C
III	19353101	J-35616-40 (BU)	J-38125-556	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	RD/WH	2040	Battery Positive Voltage	III	-
2 - 12	-	-	-	Not Occupied	-	-
13	0.75	BK	1750	Ground	III	-
14	0.5	VT/YE	5985	Accessory Wakeup Serial Data	I	-
15	-	-	-	Not Occupied	-	-
16	0.5	D-BU/RD	7632	Integrated Trailer Brake Controller Switch 5V Reference	I	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
17	-	-	-	Not Occupied	-	-
18	0.5	BN	7634	Integrated Trailer Brake Controller Redundant Manual Apply Signal	I	-
19	0.5	BK/BN	7631	Integrated Trailer Brake Controller Switch Low Reference	I	-
20	0.5	YE	7635	Integrated Trailer Brake Controller Manual Apply Signal	I	-
21	0.5	L-GN/BK	7633	Integrated Trailer Brake Controller User Gain Signal	I	-
22	0.5	YE/BK	2224	Trailer Brake Enable Signal	I	-
23	0.5	WH/BK	2223	Trailer Brake Control Signal	I	-
24	-	-	-	Not Occupied	-	-
25	0.75	VT/L-GN	439	Run/Crank Ignition 1 Voltage	II	-
26	0.5	D-BU	2500	High Speed GMLAN Serial Data (+) 1	I	-
27	0.5	D-BU	2500	High Speed GMLAN Serial Data (+) 1	I	-
28	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-
29	0.5	WH	2501	High Speed GMLAN Serial Data (-) 1	I	-
30	0.5	L-GN/VT	4114	Local Interconnect Network Serial Data Bus 14	I	-
31 - 38	-	-	-	Not Occupied	-	-

COMPONENT LOCATIONS (M/T)

Manual Transmission Components (MXW)

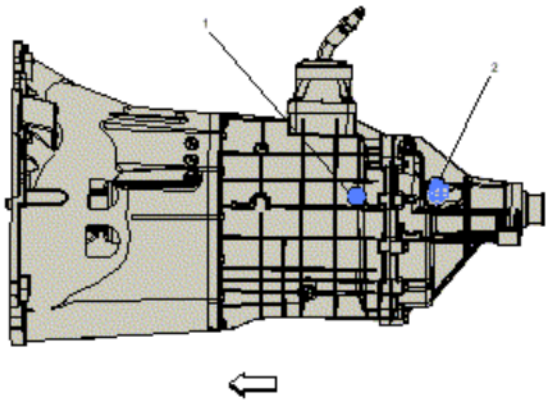

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Fig. 1: Manual Transmission Components (MXW)
Courtesy of GENERAL MOTORS COMPANY

Items
B16 Backup Lamp Switch (M2P, MQ7 or MXW) **B16 Backup Lamp Switch (L96+ZW9)** **B16 Backup Lamp Switch (LV1+(C42/C67))**
B115 Vehicle Speed Sensor (NQF, NQG or NQH) **B115 Vehicle Speed Sensor (L5P+MW7(-NQF/NQG))** **B115 Vehicle Speed Sensor (L5P+NQF+MW7)** **B115 Vehicle Speed Sensor (L5P+NQG+MW7)** **B115 Vehicle Speed Sensor (L96+ZW9)** **B115 Vehicle Speed Sensor (LC8/L96&NQF)** **B115 Vehicle Speed Sensor (LC8/L96&NQG)** **B115 Vehicle Speed Sensor (LV3)**

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DOOR COMPONENT VIEWS

DRIVER DOOR COMPONENTS

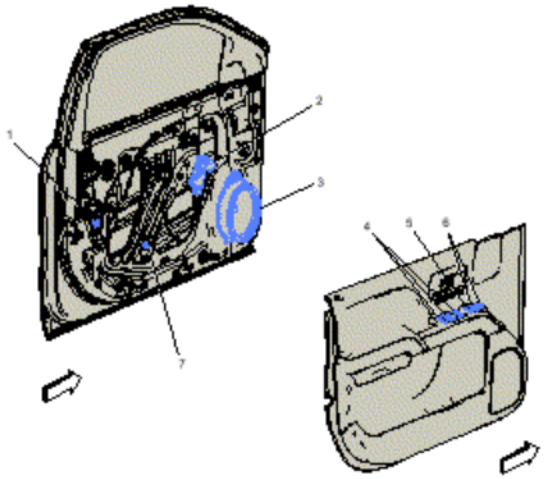

Fig. 1: Driver Door Components
Courtesy of GENERAL MOTORS COMPANY

Items
1. A23D Door Latch Assembly - Driver **A23D Door Latch Assembly - Driver**
2. M74D Window Motor - Driver (A31) **M74D Window Motor - Driver**
3. P19AG Speaker - Left Front Door **P19AG Speaker - Left Front Door**
4. S79D Window Switch - Driver (A31) **S79D Window Switch - Driver**
5. S13D Door Lock Switch - Driver **S13D Door Lock Switch - Driver (-A31)** **S13D Door Lock Switch - Driver (A31)**
6. S52 Outside Rearview Mirror Switch (DL3, DL8, DPN or DQS) **S52 Outside Rearview Mirror Switch (-A45)**
7. B63LF Side Impact Sensor - Left Front (AY0) **B63LF Side Impact Sensor - Left Front**

PASSENGER DOOR COMPONENTS

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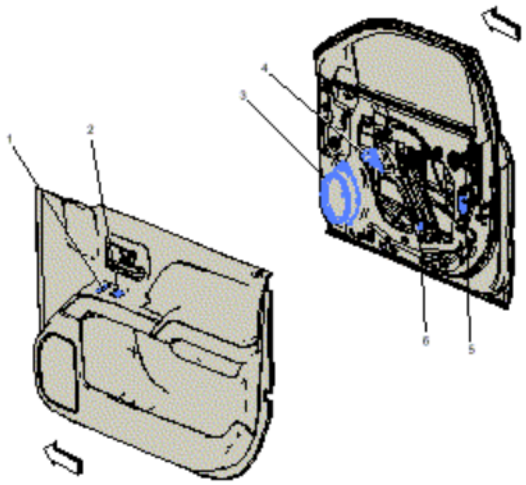

Fig. 2: Passenger Door Components
Courtesy of GENERAL MOTORS COMPANY

Items
1. S13P Door Lock Switch - Passenger **S13P Door Lock Switch - Passenger (-A31)** **S13P Door Lock Switch - Passenger (A31)**
2. S79P Window Switch - Passenger (A31) **S79P Window Switch - Passenger X1** **S79P Window Switch - Passenger X2**
3. P19AH Speaker - Right Front Door **P19AH Speaker - Right Front Door**
4. M74P Window Motor - Passenger (A31) **M74P Window Motor - Passenger**
5. A23P Door Latch Assembly - Passenger **A23P Door Latch Assembly - Passenger**
6. B63RF Side Impact Sensor - Right Front (4 Door with AY0) **B63RF Side Impact Sensor - Right Front**

LEFT REAR DOOR COMPONENTS

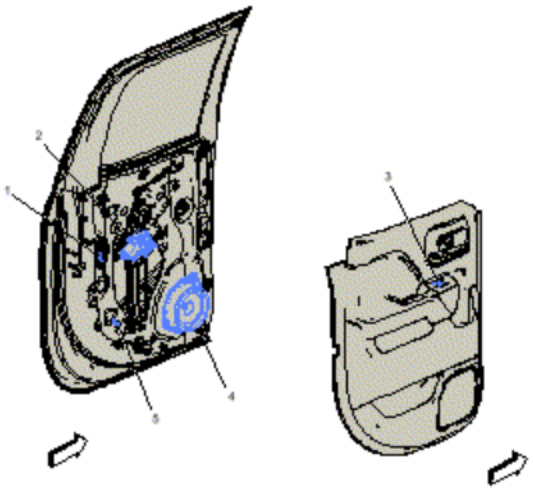

Fig. 3: Left Rear Door Components
Courtesy of GENERAL MOTORS COMPANY

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Items
1. A23LR Door Latch Assembly - Left Rear (Extended Cab or Crew Cab) **A23LR Door Latch Assembly - Left Rear**
2. M74LR Window Motor - Left Rear (Extended or Crew Cab) **M74LR Window Motor - Left Rear**
3. S79LR Window Switch - Left Rear (Extended or Crew Cab) **S79LR Window Switch - Left Rear**
4. P19AL Speaker - Left Rear Door (Extended or Crew Cab) **P19AL Speaker - Left Rear Door**
5. B63LR Side Impact Sensor - Left Rear (4 Door with AY0) **B63LR Side Impact Sensor - Left Rear**

RIGHT REAR DOOR COMPONENTS

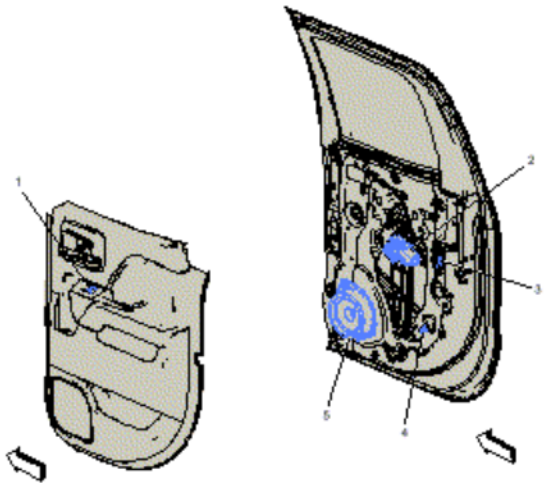

Fig. 4: Right Rear Door Components
Courtesy of GENERAL MOTORS COMPANY

Items
1. S79RR Window Switch - Right Rear (Extended or Crew Cab) **S79RR Window Switch - Right Rear**
2. M74RR Window Motor - Right Rear (Extended or Crew Cab) **M74RR Window Motor - Right Rear**
3. A23RR Door Latch Assembly - Right Rear (Extended Cab or Crew Cab) **A23RR Door Latch Assembly - Right Rear**
4. B63RR Side Impact Sensor - Right Rear (AY0) **B63RR Side Impact Sensor - Right Rear**
5. P19AM Speaker - Right Rear Door (Extended or Crew Cab) **P19AM Speaker - Right Rear Door**

Article GUID: A00854596

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ELECTRICAL CENTER IDENTIFICATION VIEWS

X50A FUSE BLOCK - UNDERHOOD LABEL (EXCEPT HP5/L5P)

Fig. 1: X50A Fuse Block - Underhood Label (except HP5/L5P)
Courtesy of GENERAL MOTORS COMPANY

X50A FUSE BLOCK - UNDERHOOD FUSE AND RELAY IDENTIFICATION LEGEND (EXCEPT HP5/L5P)

No.	Device Label Name	Device Assigned Name	Rating	Description
Micro J-Case Fuses				
1	TRLR BRK	F1UA	30A	• W24 Blunt Cut - Trailer Brakes Provision (E29) • X61A Junction Clock-Instrument Panel (-E29) • K133 Trailer Brake Power Control Module (JL1)
2	TRLR BATT	F2UA	30A	• X88 Trailer Connector (Z82 without K4B)
74	ELC RNG BDS	F74UA	30A	• K4 Assist Step Control Module (BRS)
J-Case Fuses				

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No.	Device Label Name	Device Assigned Name	Rating	Description
3	ABS PUMP	F3UA	60A	• K17 Electronic Brake Control Module
4	I/P BEC 1	F4UA	60A	• X51L Fuse Block - Instrument Panel Left
5	MSB PASS	F5UA	40A	• Not Used
6	4WD TREC	F6UA	30A	• A16 Transfer Case Motor (NQH) • K69 Transfer Case Control Module (NQF/NQH)
7	ELEC PRK BRK	F7UA	40A	• Not Used
8	I/P BEC 2	F8UA	60A	• X51L Fuse Block - Instrument Panel Left
9	MSB DRVR	F9UA	40A	• Not Used
10	REAR DEFOG	F10UA	30A	• E18 Rear Defogger Grid (C49)
11	STRTR	F11UA	40A	• KR27 Starter Relay
12	COOL FAN 1	F12UA	40A	• G10L Cooling Fan Motor-Left
13	COOL FAN 2	F13UA	40A	• G10R Cooling Fan Motor-Right
Mini Fuses 2 Pin				
14	TRLR STOP TRN LT	F14UA	10A	• X88 Trailer Connector (Z82)
15	TRLR PRK LAMP	F15UA	20A	• X88 Trailer Connector (Z82)
16	REV LAMP	F16UA	10A	• X88 Trailer Connector (Z82)
17	TRLR STOP TRN RT	F17UA	10A	• X88 Trailer Connector (Z82)
Micro Fuses 2 Pin				
18	FUEL PUMP	F18UA	20A	• KR23A Fuel Pump Relay (LC8)
19	ICCM	F19UA	10A	• K38 Chassis Control Module (JL1)
20	ESC ELC EXH	F20UA	30A	• K19 Suspension Control Module (1500)

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X50A FUSE BLOCK - UNDERHOOD LABEL (HP5)

Fig. 2: X50A Fuse Block - Underhood Label (HP5)
Courtesy of GENERAL MOTORS COMPANY

X50A FUSE BLOCK - UNDERHOOD FUSE AND RELAY IDENTIFICATION LEGEND (HP5)

No.	Device Label Name	Device Assigned Name	Rating	Description
Micro J-Case Fuses				
1	TRLR BRK	F1UA	30A	• W24 Blunt Cut - Trailer Brakes Provision (E29) • X61A Junction Clock-Instrument Panel (-E29) • K133 Trailer Brake Power Control Module (JL1)
2	TRLR BATT	F2UA	30A	• X88 Trailer Connector (Z82 without K4B)
74	ELC RNG BDS	F74UA	30A	• K4 Assist Step Control Module (BRS)
J-Case Fuses				
3	ABS PUMP	F3UA	60A	• K17 Electronic Brake Control Module
4	I/P BEC 1	F4UA	60A	• X51L Fuse Block - Instrument Panel Left
5	MSB PASS	F5UA	40A	• Not Used
6	4WD TREC	F6UA	30A	• A16 Transfer Case Motor (NQH) • K69 Transfer Case Control Module (NQH)

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X50A FUSE BLOCK - UNDERHOOD LABEL (L5P)

Fig. 3: X50A Fuse Block - Underhood Label (L5P)
Courtesy of GENERAL MOTORS COMPANY

X50A FUSE BLOCK - UNDERHOOD FUSE AND RELAY IDENTIFICATION LEGEND (L5P)

No.	Device Label Name	Device Assigned Name	Rating	Description
Micro J-Case Fuses				
1	TRLR BRK	F1UA	30A	• W24 Blunt Cut - Trailer Brakes Provision (E29) • X61A Junction Clock-Instrument Panel (-E29) • K133 Trailer Brake Power Control Module (JL1)
2	TRLR BATT	F2UA	30A	• X88 Trailer Connector (Z82 without K4B)
74	ELC RNG BDS	F74UA	30A	• K4 Assist Step Control Module (BRS)
J-Case Fuses				
3	ABS PUMP	F3UA	60A	• K17 Electronic Brake Control Module
4	I/P BEC 1	F4UA	60A	• X51L Fuse Block - Instrument Panel Left
5	MSB PASS	F5UA	40A	• Not Used

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No.	Device Label Name	Device Assigned Name	Rating	Description
6	4WD TREC	F6UA	30A	• A16 Transfer Case Motor (NQH) • K69 Transfer Case Control Module (NQF/NQH)
7	ELEC PRK BRK	F7UA	40A	• Not Used
8	I/P BEC 2	F8UA	60A	• X51L Fuse Block - Instrument Panel Left
9	MSB DRVR	F9UA	40A	• Not Used
10	REAR DEFOG	F10UA	30A	• E18 Rear Defogger Grid (C49)
11	STRTR	F11UA	40A	• KR27 Starter Relay
12	COOL FAN 1	F12UA	40A	• G10L Cooling Fan Motor-Left
13	COOL FAN 2	F13UA	40A	• G10R Cooling Fan Motor-Right
85	FUEL HEATER	F85UA	50A	• KR22 Fuel Heater Relay (L5P)
Mini Fuses 2 Pin				
14	TRLR STOP TRN LT	F14UA	10A	• X88 Trailer Connector (Z82)
15	TRLR PRK LAMP	F15UA	20A	• X88 Trailer Connector (Z82)
16	REV LAMP	F16UA	10A	• X88 Trailer Connector (Z82)
17	TRLR STOP TRN RT	F17UA	10A	• X88 Trailer Connector (Z82)
Micro Fuses 2 Pin				
18	FUEL PUMP	F18UA	20A	• KR23A Fuel Pump Relay (N2N)
19	ICCM	F19UA	10A	• K38 Chassis Control Module (JL1)
20	ESC ELC EXH	F20UA	30A	• K19 Suspension Control Module (1500)
21	FPPM	F21UA	30A	• K38 Chassis Control Module (XFE)
22	UPFTR SW1	F22UA	5A	• KR161A Configurable Provision Relay 1 (9L7) • KR161B Configurable Provision

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No.	Device Label Name	Device Assigned Name	Rating	Description
				Relay 2 (9L7)
23	UPFTR 2	F23UA	30A	• W25 Blunt Cut - Configurable Provision (9L7 with E29) • X61A Junction Block - Instrument Panel (9L7 without E29)
24	FRT/WPR	F24UA	25A	• KR12B Windshield Wiper Relay • KR12C Windshield Wiper Speed Control Relay
25	ABS VLV	F25UA	25A	• K17 electronic Brake Control Module
26	UPFTR SW2	F26UA	5A	• KR161A Configurable Provision Relay 1 (9L7) • KR161B Configurable Provision Relay 2 (9L7)
27	UPFTR SW3	F27UA	5A	• KR161C Configurable Provision Relay 3 • (9L7),KR161D Configurable Provision Relay 4
28	PRK LAMP RT	F28UA	15A	• E4T Park/Turn Signal Lamp - Right Upper (Chevrolet/X88) • E4R Park/Turn Signal Lamp - Right Lower (Chevrolet/X88) • E4N Park/Turn Signal Lamp - Left (GMC/Z88) • K166L Multifunction LED Control Module - Left Headlamp (GMC/Z88 with SLT) • E2RM Side Marker Lamp - Right Middle (DPN or DQS) • E2A Marker Lamp - Endgate (DRW) • E3RR Rear Fender Clearance Lamp - Right Rear (DRW) • E3RF Rear Fender Clearance Lamp - Right Front (DRW) • E5AH Tail/Stop and Turn Signal Lamp - Right Upper (without ZW9) • E5V Tail/Stop and Turn Signal Lamp - Right Lower (without ZW9)

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No.	Device Label Name	Device Assigned Name	Rating	Description
				• E2RR Side Marker Lamp - Right Rear (Z88 without ZW9) • E5T Tail/Stop and Turn Signal Lamp - Right (ZW9)
29	PRK LAMP LT	F29UA	15A	• E4S Park/Turn Signal Lamp - Left Upper (Chevrolet/X88) • E4Q Park/Turn Signal Lamp - Left Lower (Chevrolet/X88) • E3LF Rear Fender Clearance Lamp-Left Front (DRW) • E3A Roof Clearance Lamp-Left front Outer (U01) • E3C Roof Clearance Lamp-Front Middle (U01) • E3E Clearance Lamp-Right Front Outer (U01) • E3LR Rear Fender Clearance Lamp-Left Rear (DRW) • E4N Park/Turn Signal Lamp - Left (GMC/Z88) • K166L Multifunction LED Control Module - Left Headlamp (GMC/Z88 with SLT) • E2LM Side Marker Lamp - Left Middle (DPN/DQS) • E5AG Tail/Stop and Turn Signal Lamp - Left Upper (without ZW9) • E5U Tail/Stop and Turn Signal Lamp - Left Lower (without ZW9) • E2LR Side Marker Lamp - Left Rear (Z88 without ZW9) • E5S Tail/Stop and Turn Signal Lamp - Left (ZW9)
30	UPFTR 3	F30UA	30A	• W25 Blunt Cut - Configurable Provision (9L7 with E29) • X61A Junction Block - Instrument Panel (9L7 without E29)
31	UPFTR SW4	F31UA	5A	• KR161C Configurable Provision Relay 3 (9L7) • KR161D Configurable Provision

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No.	Device Label Name	Device Assigned Name	Rating	Description
				Relay 4 (9L7)
32	UPFTR 4	F32UA	30A	• W25 Blunt Cut - Configurable Provision (9L7 with E29) • X61A Junction Block - Instrument Panel (9L7 without E29)
33	BCK UP LAMP	F33UA	10A	• A10 Inside Rearview Mirror • B87 Rearview Camera (UVC without E29) • E5A Backup Lamp - Left • E5B Backup Lamp - Right
34	ECM IGN	F34UA	15A	• K20 Engine Control Module • K38 Chassis Control Module • K111 Fuel Pump Driver Control Module (1500)
35	A/C CLTCH	F35UA	10A	• KR29 A/C Compressor Clutch Relay
36	HTD MIR	F36UA	15A	• E17D Outside Rearview Mirror Glass-Driver (DL8/DL3/DPN/DQS) • E17P Outside Rearview Mirror Glass-Passenger (DL8/DL3 /DPN/DQS)
37	UPFTR 1	F37UA	30A	• W25 Blunt Cut - Configurable Provision (9L7 with E29) • X61A Junction Block - Instrument Panel (9L7 without E29)
38	CHMSL	F38UA	10A	• E6 Center High Mounted Stop Lamp
39	MISC IGN	F39UA	10A	• Not Used
40	TRANS IGN	F40UA	15A	• T12 Automatic Transmission Assembly (MYC/MYD) • M26 Front Axle Engagement Actuator • K71 Transmission Control Module
41	FUEL PUMP 2	F41UA	20A	• KR23B Fuel Pump Relay - Secondary

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X50A FUSE BLOCK - UNDERHOOD TOP VIEW (EXCEPT HP5/L5P)

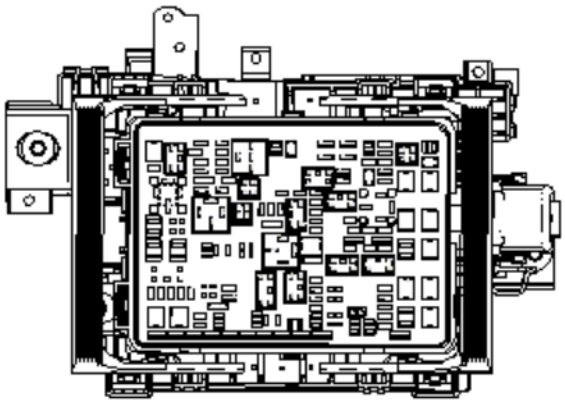

Fig. 4: X50A Fuse Block - Underhood Top View (except HP5/L5P)
Courtesy of GENERAL MOTORS COMPANY

X50A FUSE BLOCK - UNDERHOOD TOP VIEW (HP5)

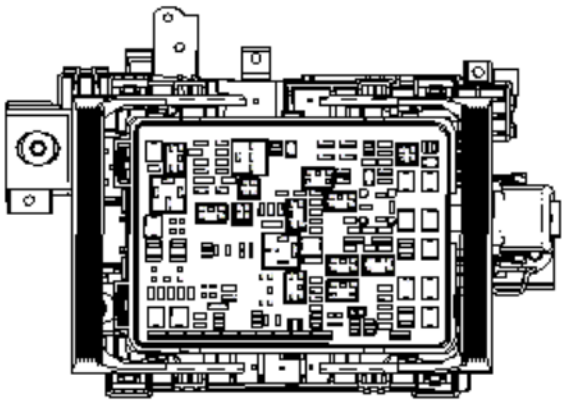

Fig. 5: X50A Fuse Block -- Underhood Label Usage (HP5)
Courtesy of GENERAL MOTORS COMPANY

X50A FUSE BLOCK - UNDERHOOD TOP VIEW (L5P)

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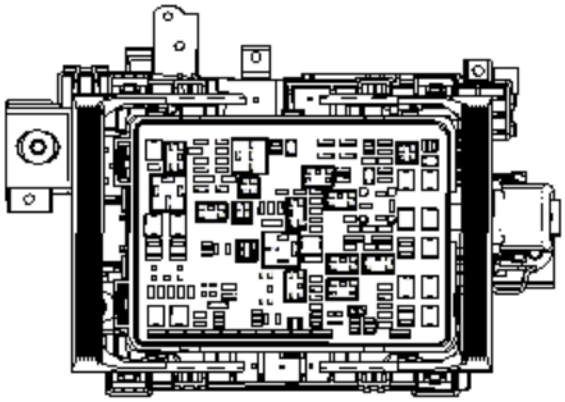

Fig. 6: X50A Fuse Block - Underhood Top View (L5P)
Courtesy of GENERAL MOTORS COMPANY

X50A FUSE BLOCK - UNDERHOOD BOTTOM VIEW

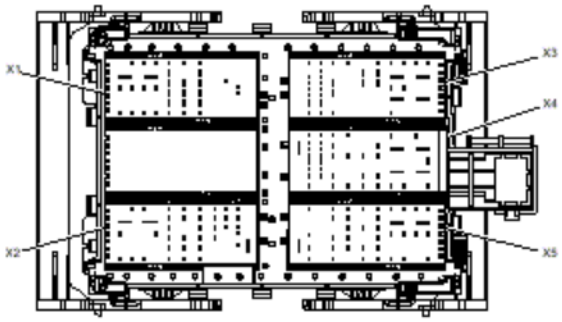

Fig. 7: X50A Fuse Block - Underhood Bottom View
Courtesy of GENERAL MOTORS COMPANY

X50A FUSE BLOCK - UNDERHOOD X1

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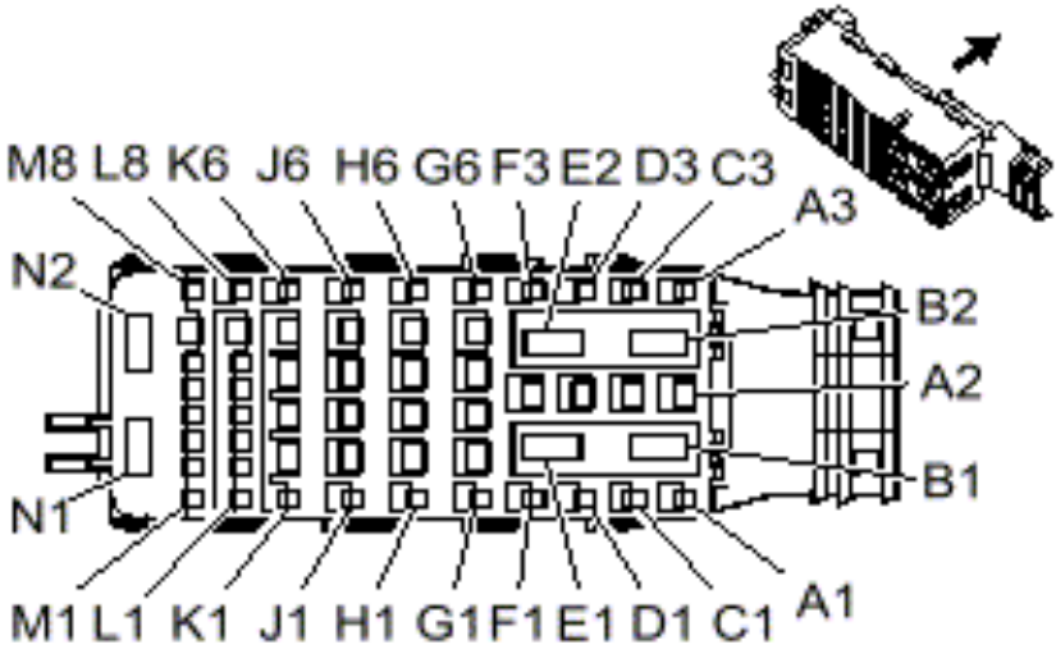

Connector Part Information

- Harness Type: Forward Lamp
- OEM Connector: 33116190
- Service Connector: 19329923
- Description: 58-Way F 1.5, 2.8, 800 Metri-Pack Series (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575718	J-35616-44 (YE)	J-38125-558	12110127	Delphi 19	F	G
II	19301761	J-35616-35 (VT)	J-38125-11A	Not Available	Not Available	Not Available	Not Available
III	19301767	J-35616-2A (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A1 - B1	-	-	-	Not Occupied	-	-
B2	4	RD/GY	642	Battery Positive Voltage	I	-
C1 - C3	-	-	-	Not Occupied	-	-
D1	0.75	YE	712	Left Headlamp Low Beam Control	III	-
D2	-	-	-	Not Occupied	-	-
D3	0.75	L-GN/VT	1315	Right Front Turn Signal Lamp Control	III	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
E1	-	-	-	Not Occupied	-	-
E2	4	RD/WH	342	Battery Positive Voltage	I	-
F1	0.5	GY/BN	309	Right Park Lamp Control	III	-
F2	0.75	GY/VT	228	Windshield Washer Pump Control	II	-
F3	0.75	D-BU/WH	1314	Left Front Turn Signal Lamp Control	III	-
G1	0.5	VT/GY	709	Left Park Lamp Control	III	-
G2	-	-	-	Not Occupied	-	-
G3	0.5	VT/GY	3139	Run/Crank Ignition 1 Voltage	II	-
G4	0.5	BK	150	Ground	II	-
G5 - H1	-	-	-	Not Occupied	-	-
H2	0.75	GY/D-BU	7538	Left Front DRL Control	II	-
H3	-	-	-	Not Occupied	-	-
H4	0.5	WH	311	Right Headlamp High Beam Control	II	-
H5	-	-	-	Not Occupied	-	-
H6	0.75	D-BU/BN	7539	Right Front DRL Control	III	-
J1	-	-	-	Not Occupied	-	-
J2	0.75	BN/GY	29	Horn Control	II	-
J3	0.5	BN/VT	2234	Front Fog Lamp Control	II	-
J4	0.5	WH	711	Left Headlamp High Beam Control	II	-
J5	0.75	YE	312	Right Headlamp Low Beam Control	II	-
J6 - L5	-	-	-	Not Occupied	-	-
L6	0.5	GY/D-BU	3769	MGU Coolant Pump Control	III	-
L7 - M3	-	-	-	Not Occupied	-	-
M4	0.5	WH/D-BU	3203	Right Headlamp Bulb Outage Signal	III	-
M5	0.5	D-BU/VT	3204	Left Headlamp Bulb Outage Signal	III	-
M6 - N2	-	-	-	Not Occupied	-	-

X50A FUSE BLOCK - UNDERHOOD X2

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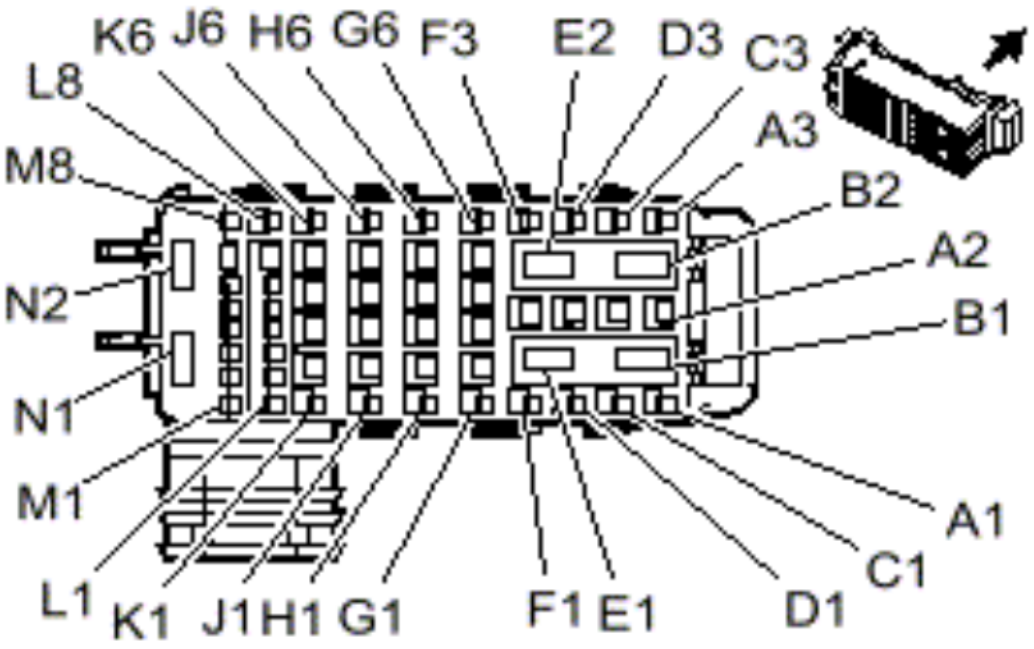

Connector Part Information

- Harness Type: Engine
- OEM Connector: 33116191
- Service Connector: 19332891
- Description: 58-Way F 1.5, 2.8, 800 Metri-Pack Series (GN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575718	J-35616-44 (YE)	J-38125-558	12110127	Delphi 19	F	G
II	19301761	J-35616-35 (VT)	J-38125-11A	Not Available	Not Available	Not Available	Not Available
III	19301767	J-35616-2A (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A1	0.5	WH/GY	459	A/C Compressor Clutch Relay Control	III	-
A2	0.5	YE/BU	5126	After Boil Heater Pump Control	II	-
A3	0.5 0.5	GN/BU VT/GN	3889 439	DEF Power Module Relay Control Run/Crank Ignition 1 Voltage	III III	L5P LV3/L83/L86

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
B1 - B2	-	-	-	Not Occupied	-	-
C1	0.75	BN/GN	59	A/C Compressor Clutch Control	III	-
C2	-	-	-	Not Occupied	-	-
C3	0.5	BU/GN	7071	Heater Fuel Control	III	-
D1	0.5	GN/BU	3889	DEF Power Module Relay Control	II	-
D2	-	-	-	Not Occupied	-	-
D3	0.5	YE/BK	625	Starter Enable Relay Control	III	-
E1	2.5	BN/VT	1470	Brake Booster Pump Motor Control	I	-
E2	4 3	YE YE/VT	6 6	Starter Solenoid Crank Ignition Voltage Starter Solenoid Crank Ignition Voltage	I I	(L86-L83)/L83 /L8B/LV3/(L96-LV1-LV3-L83-L86) L5P
F1	-	-	-	Not Occupied	-	-
F2	2.5	BK	550	Ground	II	-
F3	0.5 0.5	WH/BN GY/BN	1089 2410	Coolant Pump Motor Relay Control Fuel Pump Prime Control	III III	L5P LV3/L83/L86
G1	0.5	WH	2368	Cooling Fan Control Signal	III	-
G2	2.5	BU	3921	DEF Heater Supply 1	II	-
G3	0.75 0.5	VT/BU VT/BU	5293 5293	Powertrain Main Relay Fused Supply 4 Powertrain Main Relay Fused Supply 4	II II	L96 LV3/L83 /L86/L8B/L8X
G4	2.5	VT/BU	5290	Powertrain Main Relay Fused Supply 1	II	-
G5	1.5 0.75	RD/GN RD/GN	1840 1840	Battery Positive Voltage Battery Positive Voltage	II II	M5U/M5X/MW7 ML9/MYC/MYD
G6	0.5 0.75	RD/WH RD/WH	3440 3440	Battery Positive Voltage Battery Positive Voltage	III III	K4B/K4D/5W4/9C1 L5P
H1	-	-	-	Not Occupied	-	-
H2	0.75 1.5	VT/BU VT/BU	5291 5291	Powertrain Main Relay Fused Supply 2 Powertrain Main Relay Fused Supply 2	II II	L83/L86 /L8B/L8X/LV3 L96
H3	0.75	VT/BU	5293	Powertrain Main Relay Fused Supply 4	II	-
H4	-	-	-	Not Occupied	-	-
H5	0.5	RD/BN	440	Battery Positive Voltage	II	-
H6	0.5	YE	5991	Powertrain Relay Coil Control	III	-
J1	-	-	-	Not Occupied	-	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
J2	0.5	VT/BU	5294	Powertrain Main Relay Fused Supply 5	II	-
J3	0.75	VT/BU	5291	Powertrain Main Relay Fused Supply 2	II	-
J4	0.75 1.5	VT/BU VT/BU	5292 5292	Powertrain Main Relay Fused Supply 3 Powertrain Main Relay Fused Supply 3	II II	L83/L86 /L8B/L8X/LV3 L96
J5	0.5 0.5	YE/BU VT/BU	5126 5294	After Boil Heater Pump Control Powertrain Main Relay Fused Supply 5	II II	L5P LV3/L83/L86
J6	0.75	VT/BU	5290	Powertrain Main Relay Fused Supply 1	III	-
K1 - K2	-	-	-	Not Occupied	-	-
K3	0.75	VT/BU	5291	Powertrain Main Relay Fused Supply 2	II	-
K4	0.75	VT/BU	5292	Powertrain Main Relay Fused Supply 3	II	-
K5	2.5 0.75	VT/BU VT/BU	3674 5292	NOx Sensor 1 Control Powertrain Main Relay Fused Supply 3	II II	L5P LV3/L83/L86
K6	0.5	VT/GN	4320	Selective Catalytic Reduction Power Module Wake-Up Signal	III	-
L1 - L5	-	-	-	Not Occupied	-	-
L6	0.5	RD/WH	2740	Battery Positive Voltage	III	-
L7	0.5	VT/BK	2139	Run/Crank Ignition 1 Voltage	II	-
L8	-	-	-	Not Occupied	-	-
M1	0.5	YE/BU	1465	Secondary Fuel Pump Relay Control	III	-
M2	-	-	-	Not Occupied	-	-
M3	0.5 0.5	WH/BK VT/YE	2366 3854	Cooling Fan Control Relay Speed Signal Cabin Heater Coolant Motor Control	III III	L5P LV3/L83/L86
M4	0.5	WH/BN	3768	MGU Coolant Pump Relay Control	III	-
M5	0.5 0.5	GN/GY GY	465 5660	Fuel Pump Primary Relay Control Fuel Pump Controller Data Out Signal	III III	L5P LV3/L83/L86
M6	0.75	BK/WH	451	Signal Ground	III	-
M7	0.5	VT/GN	439	Run/Crank Ignition 1 Voltage	II	-

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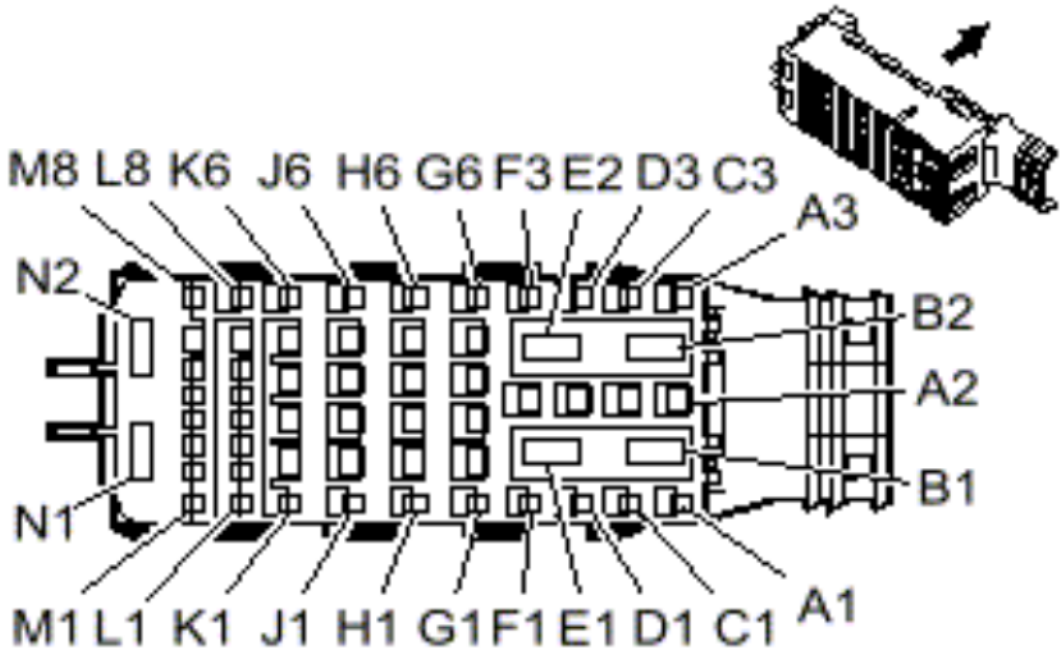
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
M8	0.5	VT/WH	239	Run/Crank Ignition 1 Voltage	III	-
N1	2.5	RD/GN	742	Battery Positive Voltage	I	-
N2	-	-	-	Not Occupied	-	-

X50A FUSE BLOCK - UNDERHOOD X3



Connector Part Information

- Harness Type: Body
- OEM Connector: 33116188
- Service Connector: 19332892
- Description: 58-Way F 1.5, 2.8, 800 Metri-Pack Series (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575718	J-35616-44 (YE)	J-38125-558	12092445	Delphi 18	G	G
II	13575718	J-35616-44 (YE)	J-38125-558	12110127	Delphi 19	F	G
III	19301761	J-35616-35 (VT)	J-38125-11A	Not Available	Not Available	Not Available	Not Available
IV	19301761	J-35616-35 (VT)	J-38125-557	Not Available	Not Available	Not Available	Not Available

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Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
V	19301767	J-35616-2A (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A1	0.5	YE/D-BU	18	Left Rear Stop/Turn Lamp Control	V	-
A2 - A3	-	-	-	Not Occupied	-	-
B1	4	RD/GY	1342	Battery Positive Voltage	I	-
B2	2.5	RD/D-BU	1842	Battery Positive Voltage	II	-
C1	0.5	BN/L-GN	19	Right Rear Stop/Turn Lamp Control	V	-
C2 - C3	-	-	-	Not Occupied	-	-
D1	0.75	L-GN/VT	1315	Right Front Turn Signal Lamp Control	V	-
D2	0.35	D-BU/VT	1124	Door Lock Key Switch Unlock Signal	III	-
D3 - E2	-	-	-	Not Occupied	-	-
F1	0.75	D-BU/WH	1314	Left Front Turn Signal Lamp Control	V	-
F2	0.35	WH/VT	3270	Driver Door Lock Motor Status Signal	III	-
F3	0.5	YE/WH	962	-	V	-
G1	0.75	D-BU/BN	7539	Right Front DRL Control	V	-
G2 - H1	-	-	-	Not Occupied	-	-
H2	1	BK	550	Ground	III	-
H3 - H6	-	-	-	Not Occupied	-	-
J1	0.35	WH/VT	860	Front Windshield Wiper Switch High Signal	V	-
J2 - J6	-	-	-	Not Occupied	-	-
K1	0.5	VT/WH	5065	Stop Lamp Relay Coil Control	V	-
K2	-	-	-	Not Occupied	-	-
K3	1	YE/BN	95	Windshield Wiper Motor Low Speed Control	III	-
K4	1	WH	92	Windshield Wiper Motor High Speed Control	III	-
K5	-	-	-	Not Occupied	-	-
K6	0.35	BN/GY	2268	Windshield Washer Relay Control	V	-
L1	-	-	-	Not Occupied	-	-
L2	0.35	BN/VT	1969	Headlamp High Beam Relay Control	V	-
L3	-	-	-	Not Occupied	-	-

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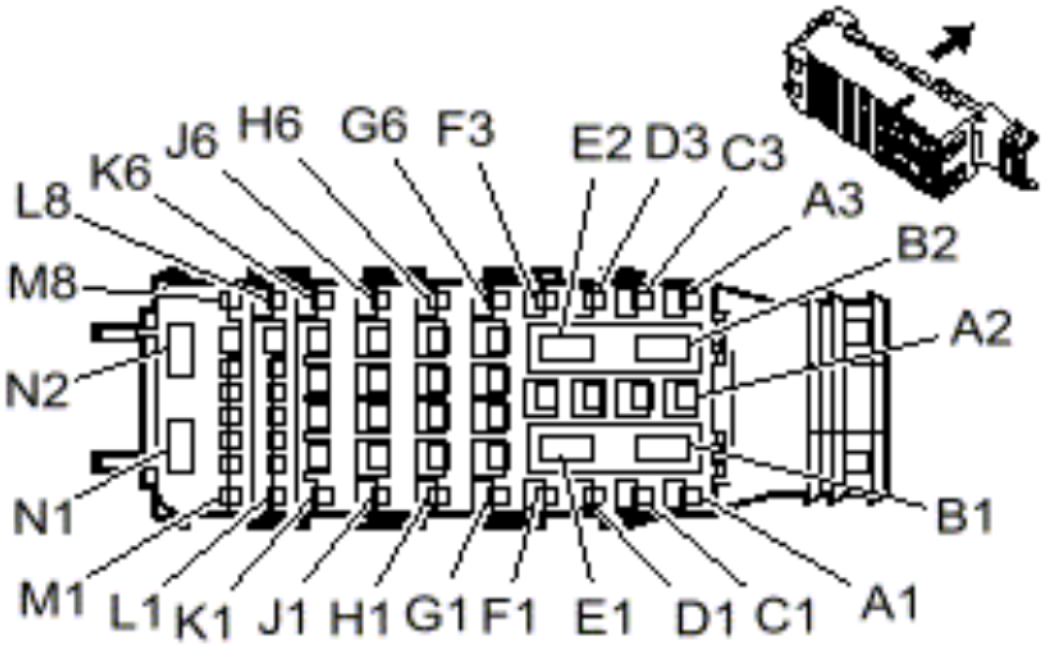
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
L4	0.35	GY	91	Windshield Wiper Motor Relay Coil Control	V	-
L5	0.5	BN	1317	Fog Lamp Relay Control	V	-
L6	0.35	BN/WH	28	Horn Relay Control	V	-
L7	0.5	BN/YE	2267	Mirror Heating Element Control	III	-
L8	-	-	-	Not Occupied	-	-
M1	0.75	YE	312	Right Headlamp Low Beam Control	V	-
M2 - M4	-	-	-	Not Occupied	-	-
M5	0.5	RD/WH	961	-	V	-
M6	0.5	VT/GY	1054	Stop Lamp Control	V	-
M7	2.5	D-BU	965	-	IV	-
M8 - N2	-	-	-	Not Occupied	-	-

X50A FUSE BLOCK - UNDERHOOD X4



Connector Part Information

- Harness Type: Body
- OEM Connector: 33116186
- Service Connector: 19332893
- Description: 58-Way F 1.5, 2.8, 800 Metri-Pack Series (BK)

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Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575718	J-35616-44 (YE)	J-38125-558	12110127	Delphi 19	F	G
II	19301761	J-35616-35 (VT)	J-38125-11A	Not Available	Not Available	Not Available	Not Available
III	19301767	J-35616-2A (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A1 - A2	-	-	-	Not Occupied	-	-
A3	0.5	GN/WH	24	Backup Lamp Control	III	-
B1	-	-	-	Not Occupied	-	-
B2	5	RD/VT	842	Battery Positive Voltage	I	-
C1 - D2	-	-	-	Not Occupied	-	-
D3	0.35	VT/GN	1739	Run/Crank Ignition 1 Voltage	III	-
E1	-	-	-	Not Occupied	-	-
E2	5	RD/BU	42	Battery Positive Voltage	I	-
F1 - F2	-	-	-	Not Occupied	-	-
F3	0.35	GN/WH	24	Backup Lamp Control	II	-
G1	-	-	-	Not Occupied	-	-
G2	2.5	GY/BK	966	-	II	-
G3 - G5	-	-	-	Not Occupied	-	-
G6	0.5	YE/BK	5356	Left Tail Lamp Outage Detection Signal	III	-
H1 - H4	-	-	-	Not Occupied	-	-
H5	2.5	RD/GN	242	Battery Positive Voltage	II	-
H6	0.5	VT/YE	5357	Right Tail Lamp Outage Detection Signal	III	-
J1	0.75	GY/BU	7538	Left Front DRL Control	III	-
J2 - J5	-	-	-	Not Occupied	-	-
J6	0.75	BK/WH	451	Signal Ground	III	-
K1	0.75	YE	712	Left Headlamp Low Beam Control	III	-
K2	0.75 2.5	RD/GN RD/GN	968 968	- -	II II	43+ZYD 9L7/9C1/5W4-E29
K3 - K4	-	-	-	Not Occupied	-	-
K5	0.75 2.5	YE/BN YE/BN	967 967	- -	II II	43+ZYD 9L7/9C1/5W4-E29
K6	0.5	VT/GY	709	Left Park Lamp Control	III	-
L1	0.5	WH/BU	964	-	III	-

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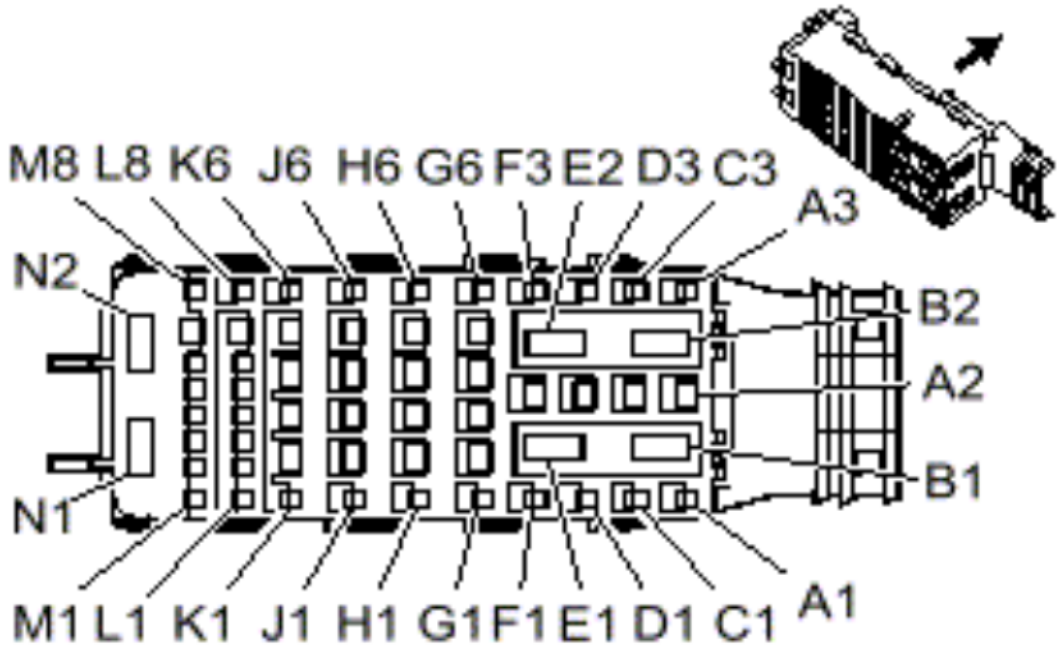
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
L2	0.35	YE/GY	5187	Right Trailer Turn Signal Lamp Control	III	-
L3	0.35	BU/BN	38	Backup Lamp Relay Control	III	-
L4	0.35	BU/WH	5186	Left Trailer Turn Signal Lamp Control	III	-
L5	0.35	BU	45	Park Lamp Relay Control	III	-
L6	0.5	GN/GY	963	-	III	-
L7	0.5	VT/BK	2139	Run/Crank Ignition 1 Voltage	II	-
L8	-	-	-	Not Occupied	-	-
M1	0.75	RD/YE	2340	Battery Positive Voltage	III	-
M2	0.35	BN/VT	193	Rear Defog Relay Control	III	-
M3 - M4	-	-	-	Not Occupied	-	-
M5	0.35	GN/VT	5199	Run/Crank Relay Coil Control	III	-
M6 - M8	-	-	-	Not Occupied	-	-
N1	2.5	BN/VT	293	Rear Defog Element Control	I	-
N2	-	-	-	Not Occupied	-	-

X50A FUSE BLOCK - UNDERHOOD X5



Connector Part Information

- Harness Type: Chassis
- OEM Connector: 33116189

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- Service Connector: 19332894
- Description: 58-Way F 1.5, 2.8, 800 Metri-Pack Series (NA)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575718	J-35616-44 (YE)	J-38125-558	12110127	Delphi 19	F	G
II	13575808	J-35616-2A (GY)	J-38125-217	Not Available	Not Available	Not Available	Not Available
III	13575832	J-35616-35 (VT)	J-38125-11A	7116-4112-02	Yazaki 9	C	D
IV	19301761	J-35616-35 (VT)	J-38125-11A	Not Available	Not Available	Not Available	Not Available
V	19301761	J-35616-35 (VT)	J-38125-557	Not Available	Not Available	Not Available	Not Available
VI	19301767	J-35616-2A (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A1	-	-	-	Not Occupied	-	-
A2	0.75	YE/D-BU	18	Left Rear Stop/Turn Lamp Control	IV	-
A3	0.75	BN/L-GN	19	Right Rear Stop/Turn Lamp Control	VI	-
B1	5	RD/YE	442	Battery Positive Voltage	I	-
B2	-	-	-	Not Occupied	-	-
C1	0.75	L-GN/WH	24	Backup Lamp Control	VI	-
C2	2.5	RD/YE	1142	Battery Positive Voltage	V	-
C3	-	-	-	Not Occupied	-	-
D1	0.5	VT/L-GN	1739	Run/Crank Ignition 1 Voltage	VI	-
D2 - E2	-	-	-	Not Occupied	-	-
F1	0.5	L-GN	24	Backup Lamp Control	VI	-
F2 - F3	-	-	-	Not Occupied	-	-
G1	0.5	YE/BK	5356	Left Tail Lamp Outage Detection Signal	VI	-
G2	2.5	RD/VT	1940	Battery Positive Voltage	V	-
G3	3	RD/L-GN	2440	Battery Positive Voltage	III	-
G4	0.75	RD/WH	2040	Battery Positive Voltage	IV	-
G5 - G6	-	-	-	Not Occupied	-	-
H1	0.5	VT/YE	5357	Right Tail Lamp Outage Detection Signal	VI	-
H2	-	-	-	Not Occupied	-	-
H3	0.5	RD/L-GN	1840	Battery Positive Voltage	IV	-

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Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
H4	-	-	-	Not Occupied	-	-
H5	2.5	VT/L-GN	355	Fuel Filter Heater Voltage	V	-
H6 - J1	-	-	-	Not Occupied	-	-
J2	2.5	RD/L-GN	242	Battery Positive Voltage	V	-
J3	1.5	GY/BN	2109	Trailer Park Lamp Control	V	-
J4	2.5	RD/VT	1640	Battery Positive Voltage	V	-
J5	0.75 0.75 0.5	VT/L-GN VT/L-GN VT/L-GN	439 439 439	Run/Crank Ignition 1 Voltage Run/Crank Ignition 1 Voltage Run/Crank Ignition 1 Voltage	IV IV IV	JL1 L96/L5P LV1/ LV3/L83/ L86/ L8B
J6 - K1	-	-	-	Not Occupied	-	-
K2	0.75	VT/GY	709	Left Park Lamp Control	IV	-
K3	-	-	-	Not Occupied	-	-
K4	0.5	GY/BN	309	Right Park Lamp Control	IV	-
K5	0.75	YE/GY	1618	Left Rear Trailer Stop/Turn Lamp Control	IV	-
K6	0.75	L-GN/VT	1619	Right Rear Trailer Stop/Turn Lamp Control	VI	-
L1 - L4	-	-	-	Not Occupied	-	-
L5	0.5	BN	6305	Brake Vacuum Switch Signal	VI	-
L6	-	-	-	Not Occupied	-	-
L7	2.5	GY	120	Fuel Pump Control	V	-
L8	-	-	-	Not Occupied	-	-
M1	0.5	VT/GY	1054	Stop Lamp Control	VI	-
M2 - M4	-	-	-	Not Occupied	-	-
M5	0.5 0.5	GY L-GN/GY	5660 465	Fuel Pump Controller Data Out Signal Fuel Pump Primary Relay Control	II VI	FPPM L5P/L96
M6	-	-	-	Not Occupied	-	-
M7	0.5	VT/D-BU	5294	Powertrain Main Relay Fused Supply 5	IV	-
M8	0.75	WH/L-GN	1624	Trailer Backup Lamp Control	VI	-
N1	-	-	-	Not Occupied	-	-
N2	4	RD/L-GN	742	Battery Positive Voltage	I	-

X50D FUSE BLOCK - BATTERY USAGE

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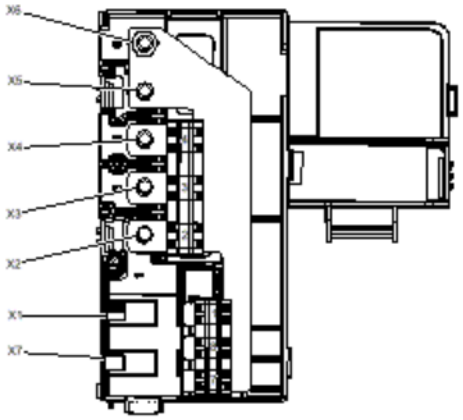

Fig. 8: X50D Fuse Block - Battery Top View
Courtesy of GENERAL MOTORS COMPANY

X50D FUSE BLOCK - BATTERY FUSE IDENTIFICATION

No.	Device Label Name	Device Assigned Name	Rating	Description
1	-	F1UD	100A	• KR79 Auxiliary Battery Relay 2 (5W4 or 9C1)
2	-	F2UD	175A	• G13 Generator • X50A Fuse Block - Underhood
3	-	F3UD	-	• Not Occupied
4	-	F4UD	175A	• K43 Power Steering Control Module
5	-	F7UD	60A	• X51R Fuse Block - Instrument Panel Right
6	-	F8UD	60A	• X51R Fuse Block - Instrument Panel Right

X50D FUSE BLOCK - BATTERY X1

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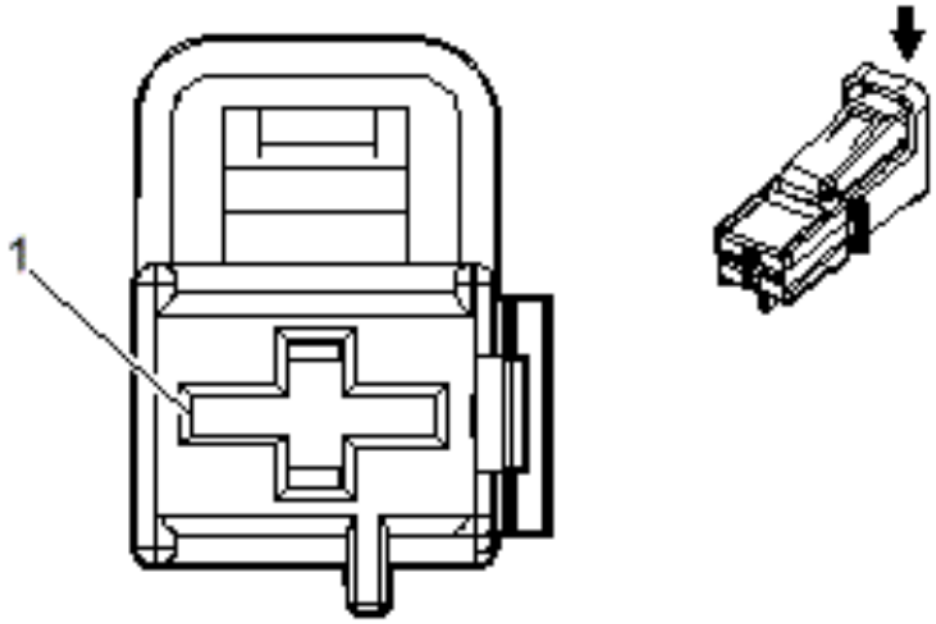

Connector Part Information

- Harness Type: Body
- OEM Connector: 13629098
- Service Connector: Service by Harness - See Part Catalog
- Description: 1-Way F 8.0 Series (BU)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-21 (RD)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	10	RD/GY	642	Battery Positive Voltage	I	-

X50D FUSE BLOCK - BATTERY X7

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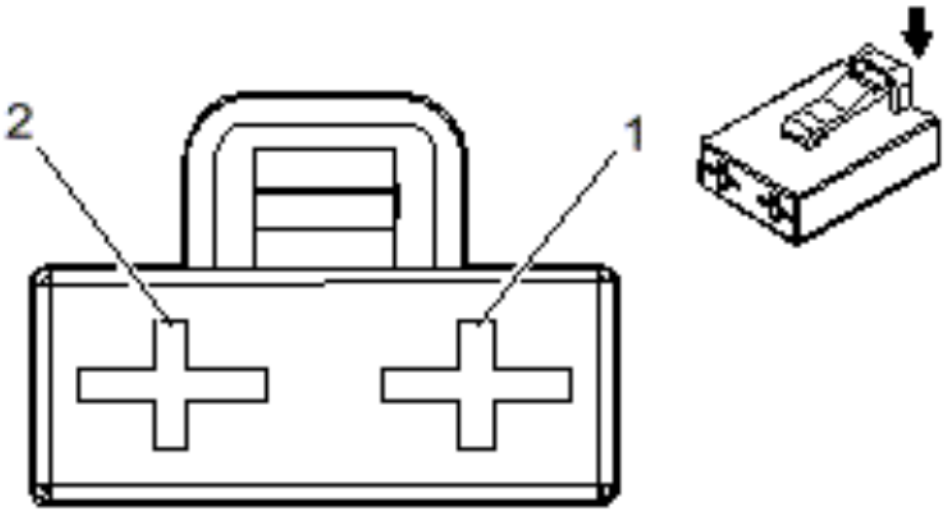

Connector Part Information

- Harness Type: Body
- OEM Connector: 13627842
- Service Connector: 19329484
- Description: 2-Way F 8.0 Series (BU)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	Not Required	J-35616-44 (YE)	No Tool Required	Not Required	Not Required	Not Required	Not Required

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	6	RD/GY	142	Battery Positive Voltage	I	-
2	6	RD/GN	242	Battery Positive Voltage	I	-

X50E FUSE BLOCK - AUXILIARY BATTERY TOP VIEW (K4B OR K4D)

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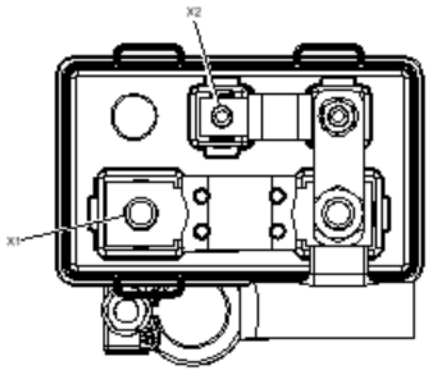

Fig. 9: X50E Fuse Block -- Auxiliary Battery Top View (K4B or K4D)
Courtesy of GENERAL MOTORS COMPANY

X50E FUSE BLOCK - AUXILIARY BATTERY FUSE IDENTIFICATION (K4B OR K4D)

No.	Device Label Name	Device Assigned Name	Rating	Description
Enter Type of Device Name Here and Insert this Type of Row before Every Different Type of Device within the Block				
1	-	F1UE	125A	• KR79 Auxiliary Battery Relay 2
2	-	F2UE	30A	• W1 Blunt Cut - Camper Trailer Provision (UY2) • X88 Trailer Connector (Z82)

X50E FUSE BLOCK - AUXILIARY BATTERY TOP VIEW (L5P)

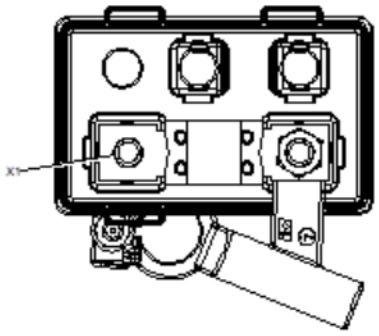

Fig. 10: X50E Fuse Block -- Auxiliary Battery Top View (L5P)
Courtesy of GENERAL MOTORS COMPANY

X50E FUSE BLOCK - AUXILIARY BATTERY FUSE IDENTIFICATION (L5P)

No.	Device Label Name	Device Assigned Name	Rating	Description
Fuses				

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No.	Device Label Name	Device Assigned Name	Rating	Description
1	-	F1UE	175A	• G13E Generator - Auxiliary (KH5 or KHB)

X51L FUSE BLOCK - INSTRUMENT PANEL LEFT LABEL

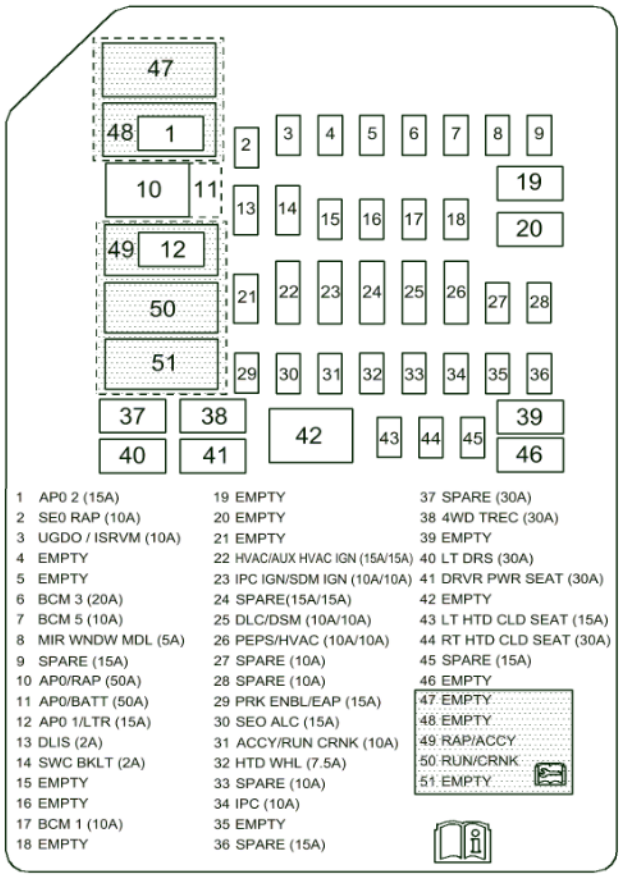

Fig. 11: X51L Fuse Block - Instrument Panel Left Label
Courtesy of GENERAL MOTORS COMPANY

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GROUND VIEWS

G100, G110 AND G120 (L96 OR LC8)

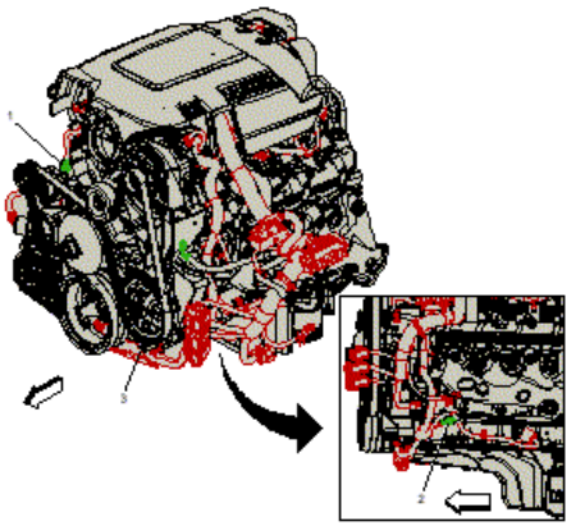

Fig. 1: G100, G110 and G120 (L96 or LC8)
Courtesy of GENERAL MOTORS COMPANY

Items
1. G120 Engine Harness
2. G110 Engine Harness
3. G100 Auxiliary Battery Cable (K4B or K4D)

G101

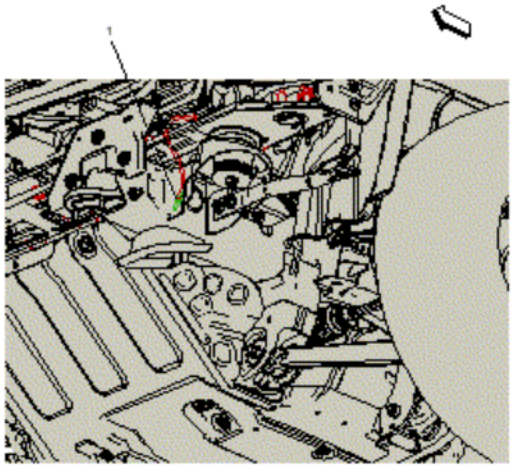

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Fig. 2: G101
Courtesy of GENERAL MOTORS COMPANY

Items
1. G101 Forward Lamp Harness

G102

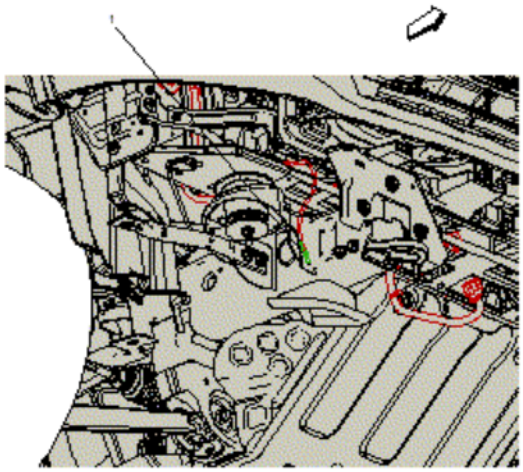

Fig. 3: G102
Courtesy of GENERAL MOTORS COMPANY

Items
1. G102 Forward Lamp Harness

G103 (L96 OR LC8)

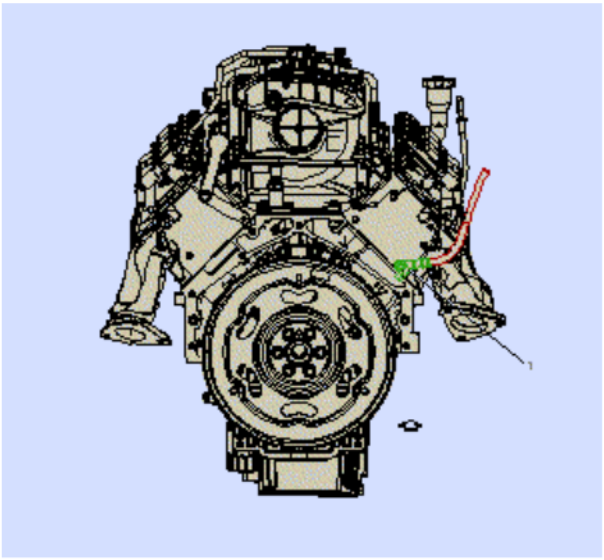

Fig. 4: G103 (L96 or LC8)
Courtesy of GENERAL MOTORS COMPANY

Items

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Items
1. G103 Battery Cable

G103 AND G125 (L83/L86/L8B)

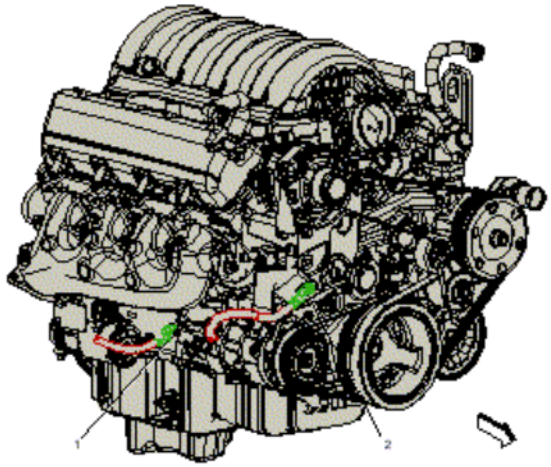

Fig. 5: G103 and G125 (L83/L86/L8B)
Courtesy of GENERAL MOTORS COMPANY

Items
1. G103 Battery Cable
2. G125 Power Steering Jumper (1500)

G103, G130 AND G140 (LV3)

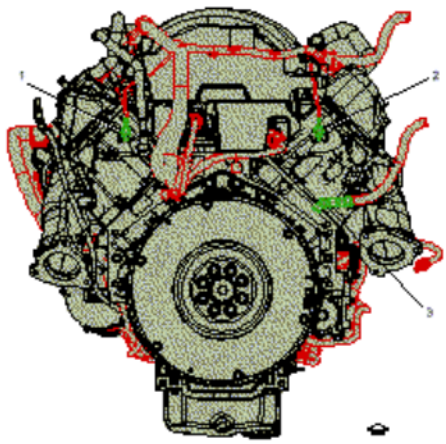

Fig. 6: G103, G130 and G140 (LV3)
Courtesy of GENERAL MOTORS COMPANY

Items
1. G130 Engine Harness (1500)

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Items
2. G140 Engine Harness (1500)
3. G103 Battery Cable

G109 AND G110 (L5P)

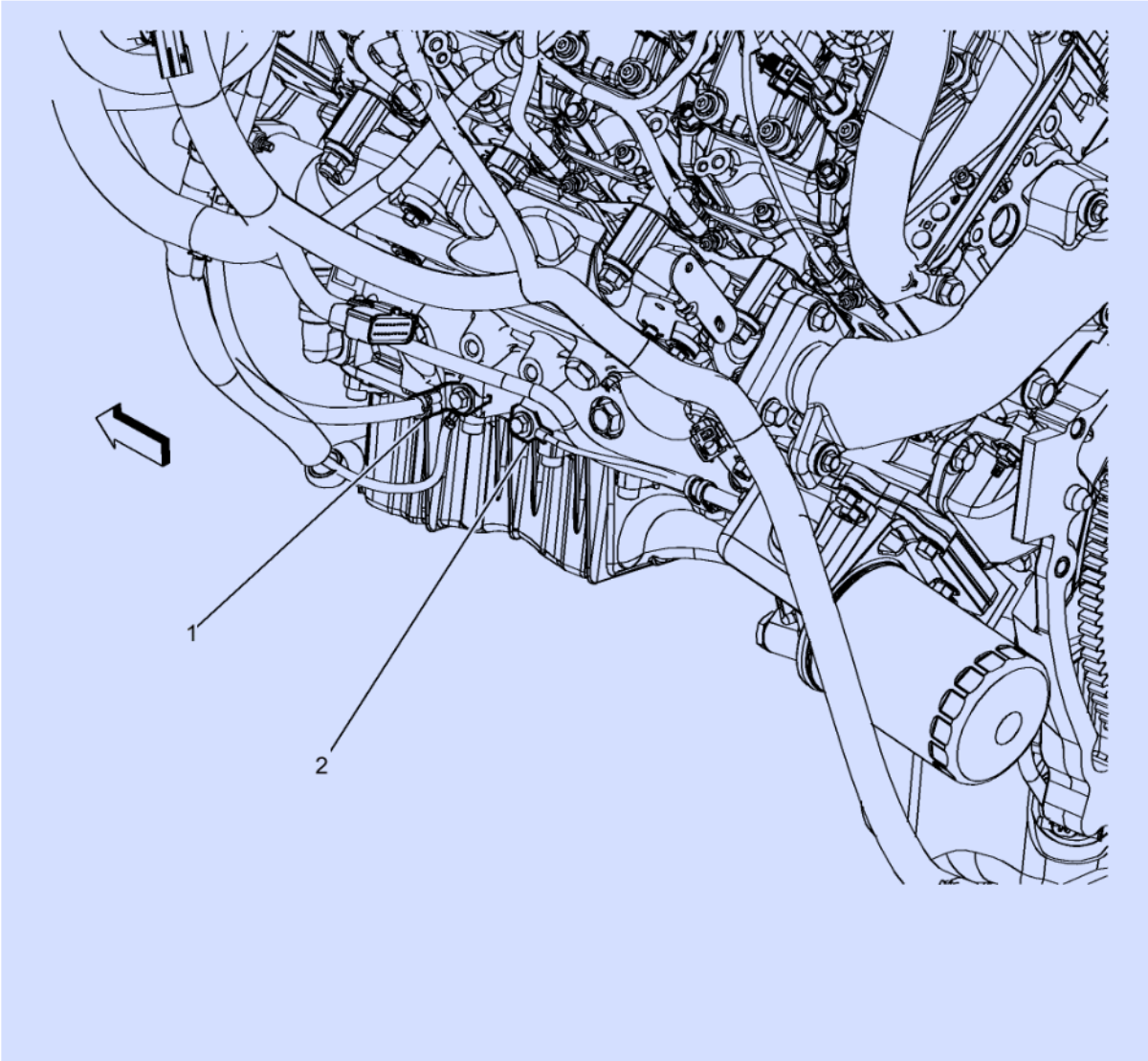

Fig. 7: G109 and G110 (L5P)
Courtesy of GENERAL MOTORS COMPANY

Items
1. G110 Engine Harness
2. G109 Engine Jumper Harness (L5P)

G110 (1500)

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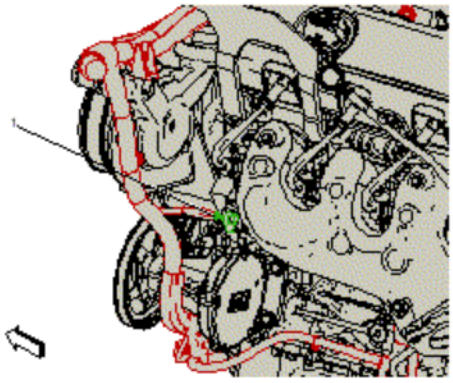

Fig. 8: G110 (1500)
Courtesy of GENERAL MOTORS COMPANY

Items
1. G110 Engine Harness

G120 AND G122 (L5P)

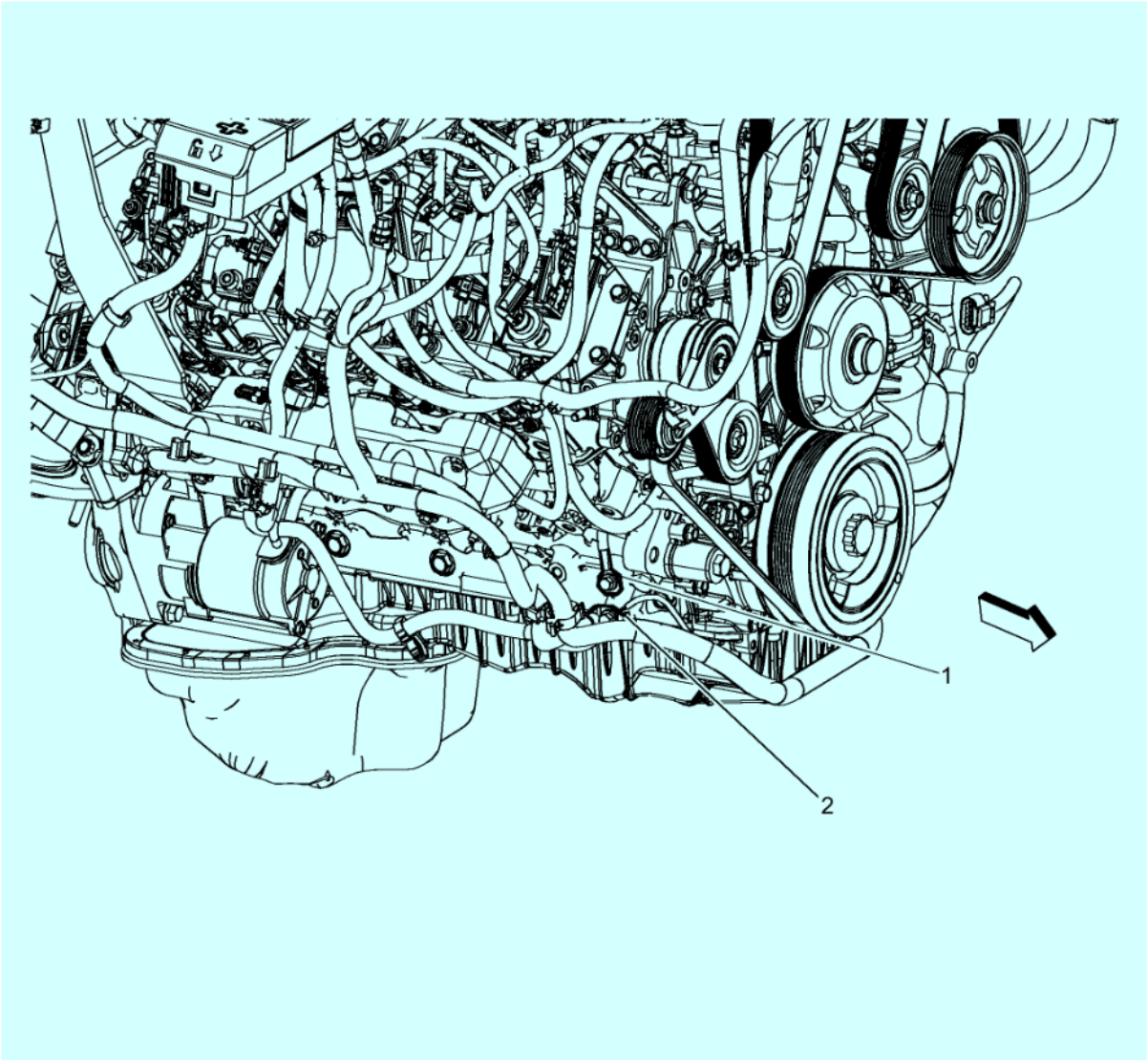

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Fig. 9: G120 and G122 (L5P)
Courtesy of GENERAL MOTORS COMPANY

Items
1. G122 Engine Harness (L5P)
2. G120 Engine Harness

G121

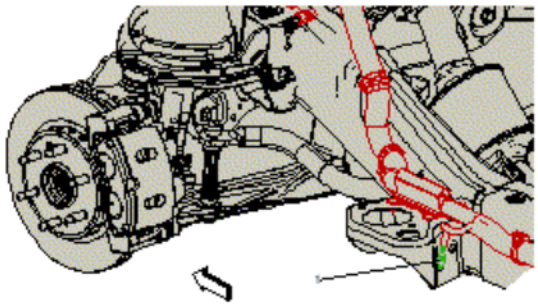

Fig. 10: G121
Courtesy of GENERAL MOTORS COMPANY

Items
1. G121 Chassis Harness

G125 (LV3)

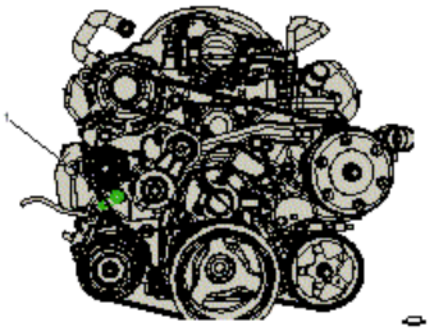

Fig. 11: G125 (LV3)
Courtesy of GENERAL MOTORS COMPANY

Items
1. G125 Power Steering Jumper (1500)

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G130 AND G140 (L83/L86/L8B)

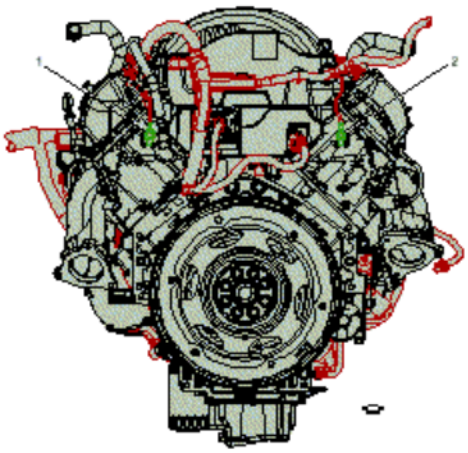

Fig. 12: G130 and G140 (L83/L86/L8B)
Courtesy of GENERAL MOTORS COMPANY

Items
1. G130 Engine Harness (1500)
2. G140 Engine Harness (1500)

G141

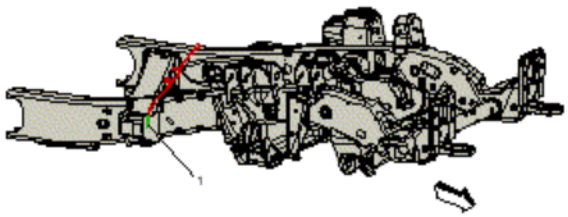

Fig. 13: G141
Courtesy of GENERAL MOTORS COMPANY

Items
1. G141 Battery Cable

G210 AND G218

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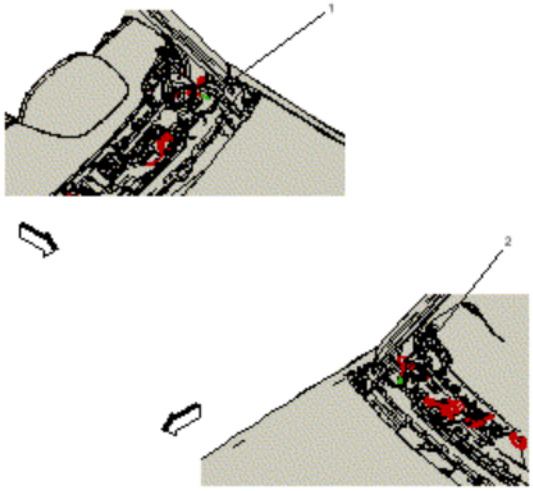

Fig. 14: G210 and G218
Courtesy of GENERAL MOTORS COMPANY

Items
1. G218 Instrument Panel Harness
2. G210 Instrument Panel Harness

G311 AND G325

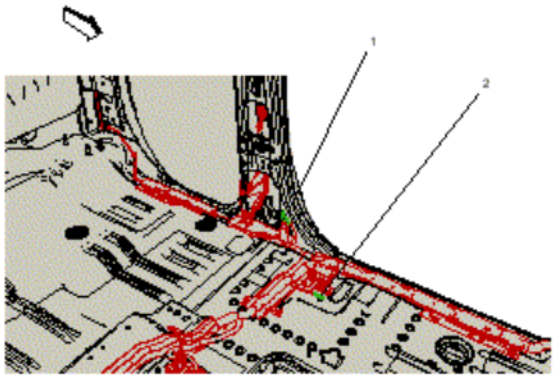

Fig. 15: G311 and G325
Courtesy of GENERAL MOTORS COMPANY

Items
1. G311 Body Harness
2. G325 Body Harness

G312 AND G327

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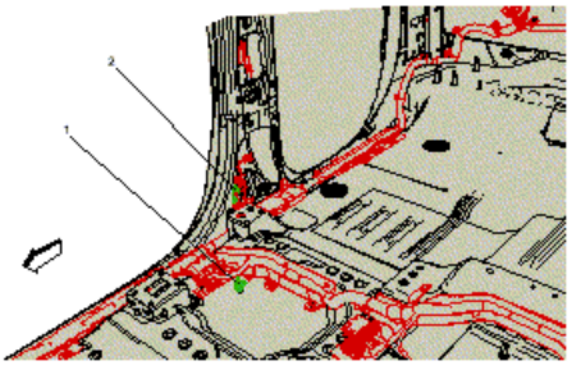

Fig. 16: G312 and G327
Courtesy of GENERAL MOTORS COMPANY

Items
1. G327 Body Harness
2. G312 Body Harness

G400

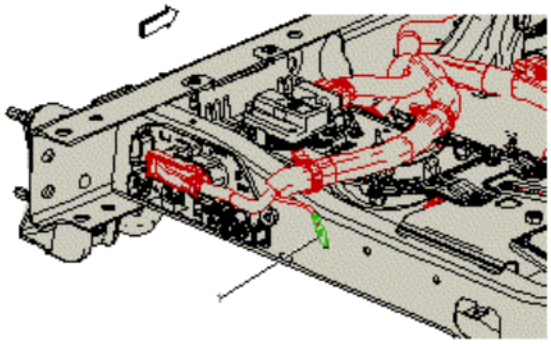

Fig. 17: G400
Courtesy of GENERAL MOTORS COMPANY

Items
1. G400 Chassis Harness

G407 (HP5)

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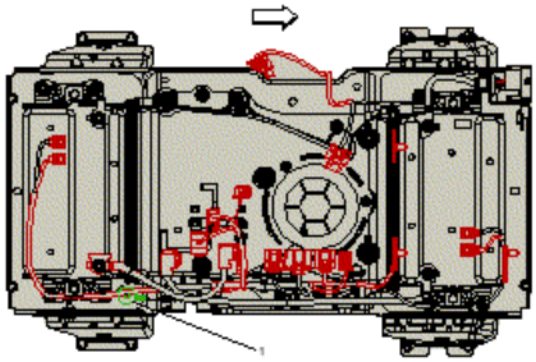

Fig. 18: G407 (HP5)
Courtesy of GENERAL MOTORS COMPANY

Items
1. G407 High Voltage Battery Monitoring (HP5)

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DESCRIPTION AND OPERATION

POWER MODE DESCRIPTION AND OPERATION

Serial Data Power Mode Master

Fig. 1: Serial Data Power Mode Block Diagram
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
S39	S39 Ignition Switch
K9	K9 Body Control Module
KR76B	KR76B Retained Accessory Power Relay 2
KR76A	KR76A Retained Accessory Power Relay 1
KR73	KR73 Ignition Main Relay
K20	K20 Engine Control Module
KR75	KR75 Engine Controls Ignition Relay
KR73	KR73 Ignition Main Relay

Power to many of this vehicles circuits is controlled by the module that is designated the power mode master. This vehicles power mode master is the body control module (BCM). The BCM has multiple B+ circuits that feed into it. Each of those circuits are partitioned within the controller to drive certain outputs of the vehicle's body functions. An open or short in any one of the B+ circuits may induce multiple codes/or a section of non-functionality within the BCM with the rest of the BCM functioning normally. In this case it is useful to refer to the power distribution schematics to determine if the non-functional partition of the controller shares a common B+ circuit. The ignition switch is a low current switch with multiple discrete ignition switch signals to the power mode master for determination of the power mode that will be sent over the serial data circuits to the other modules that need this information. The power mode master will also activate relays and other direct outputs of the power mode master as needed. The power mode master determines which power mode (Off, Accessory, Run, Crank Request) is required, and reports this information to other modules via serial data.

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Modules which have switched voltage inputs may operate in a default mode if the power mode serial data message does not match what the individual module can see from its own connections.

The power mode master receives ignition switch signals to identify the operators desired power mode. The Power Mode Parameter tables below illustrate the correct state of these input parameters (circuits) in correspondence to the ignition switch position:

Power Mode Parameters

Ignition Switch Position	Power Mode Transmitted	Ign. Off/Run /Crank (Off/Run Crank Voltage Circuit)	Ignition Accessory/Run (Accessory Voltage Circuit)	Ignition Run/Crank (Ignition 1 Voltage Circuit)
Off Key Out	Off	Key Out / ACC	Inactive	Inactive
Off Key IN	Off	Key In / Off	Inactive	Inactive
Accessory	Accessory	Key Out / ACC	Active	Inactive
Run	Run	Run	Active	Active
Start	Crank Request	Crank	Inactive	Active

Relay Controlled Power Mode

The BCM uses the discrete ignition switch inputs Off/Run/Crank Voltage, Accessory Voltage, and Ignition 1 Voltage, to distinguish the correct power mode. The BCM, after determining the desired power mode, will activate the appropriate relays for that power mode.

The retained accessory power relay 1 and retained accessory power relay 2 remain on for a timed period after the Ignition key is removed. Refer to **Retained Accessory Power Description and Operation** for more information on the retained accessory power function.

Battery Saver Mode (Transport Mode)

Battery saver mode (transport mode) reduces the parasitic load of some modules during overseas shipment or during vehicle storage conditions. This improves the drain time on the battery (up to 70 days without the battery going dead). When a vehicle is in transport/storage, some features may have reduced functionality while in the battery saver mode, such as disabling keyless entry, afterblow, and content theft features. Battery saver mode is initiated by turning on the hazard flashers, applying the brake pedal, and then turning the ignition key to the start position or pushing the ignition mode switch with the foot on the brake for greater than 15 seconds. The mode is disengaged by repeating the previous process. The driver information center (if equipped) will display Transport Mode is On when battery saver mode is enabled and Transport Mode is Off when battery saver mode is disabled. For vehicles not equipped with a driver information center, the battery indicator light will constantly flash on the Instrument Cluster when battery saver mode is enabled. This feature can be used as many times as necessary if the vehicle is to be stored for an extended period of time.

BCM Awake/Sleep States

The BCM is able to control or perform all of the BCM functions in the awake state. The BCM enters the sleep state when active control or normal monitoring of system functions has stopped and a time limit has passed. The BCM must detect certain wake-up inputs before entering the awake state. The BCM monitors for these inputs during the sleep state.

The BCM will enter the awake state if any of the following wake-up inputs are detected:

- Activity on the serial data line

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- Detection of a battery reconnect
- Any door open signal
- Headlamps ON
- Key-in-ignition
- Ignition ON
- Park lamps ON
- Keyless entry or remote start message

The BCM will enter a sleep state when all of the following conditions exist:

- The ignition switch is OFF, key out.
- Ignition OFF, transmitter is out of range
- No activity exists on the serial data line.
- No outputs are commanded.
- No delay timers are actively counting.
- No wake-up inputs are present.

If all these conditions are met, the BCM will enter a low power or sleep condition.

RETAINED ACCESSORY POWER DESCRIPTION AND OPERATION

Retained Accessory Power

Fig. 2: RAP Description and Operation Block Diagram
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
A11	A11 Radio
K73	K73 Telematics Communication Interface Control Module
K9	K9 Body Control Module
KR76A	KR76A Retained Accessory Power Relay 1
KR76B	KR76B Retained Accessory Power Relay 2

The body control module (BCM) monitors the ignition switch position, battery condition, and each door ajar/open switch status to determine whether the retained accessory power should be initiated or terminated. Retained accessory power is controlled by two different methods; relay control and serial data. Some modules

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receive a retained accessory power message from the BCM over the serial data circuits. Serial data controlled retained accessory power is deactivated as required by their modules retained accessory power mode operation. Other subsystems are activated directly by the BCM through a relay. Components and systems that are active in retained accessory power are also activated anytime the ignition is any position other than OFF regardless of the door switch signals.

Relay Controlled Retained Accessory Power

The BCM keeps the retained accessory power relay 1 and retained accessory power relay 2 energized during all power modes, except Off-Awake and Crank. The retained accessory power relay 1 and retained accessory power relay 2 are also energized for approximately 10 minutes after shutting the ignition OFF and removing the key, providing no door is opened.

Relay controlled retained accessory power will end when one of the following conditions is met:

- The BCM receives an input from any door ajar or open switch indicating the opening of any door after the ignition key is out of the ignition.

  NOTE: If the BCM is receiving any door ajar or open signal from those switches when the ignition key is turned OFF, retained accessory power will not initiate.

- The BCM internal timer for the retained accessory power expires after approximately 10 minutes.
- The BCM detects a decrease in battery capacity below a prescribed limit.

Systems powered by the retained accessory power relay 1 and retained accessory power relay 2 during the retained accessory power mode are as follows:

NOTE: The vehicle may not be equipped with all components as listed below.

-
- Accessory Power Receptacle
- Cigarette Lighter Receptacle
- Sunroof Control Module
- Sunroof Switch
- Sliding Rear Window Switch
- Mobile Device Wireless Charger Module

Serial Data Controlled Retained Accessory Power

Retained accessory power systems controlled by serial data are as follows:

Radio

Radio retained accessory power activation / termination is the same as relay operation with one exception; the only door switch that will turn off the radio during retained accessory power is the driver door open switch.

Vehicle Communication Interface Module (VCIM) (OnstarÂ®) (If Equipped)

VCIM RAP activation/termination is the same as radio operation with 1 exception; if there is an active call when the ignition key is turned off the VCIM will remain in RAP mode, and keep the radio in RAP mode until

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the call is terminated.

Article GUID: A00854649

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DIAGNOSTIC INFORMATION AND PROCEDURES

DTC B1370: CONTROL MODULE IGNITION ON AND START (INSTRUMENT CLUSTER)

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptors

DTC B1370

Control Module Ignition On and Start Circuit

For symptom byte information refer to **Symptom Byte List**

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Instrument Cluster Ignition (Instrument Cluster terminal 8)	B1370 06	B1370 06	B1370 01	-

Circuit/System Description

The vehicle power mode master is the body control module (BCM). The BCM monitors switch inputs and will activate relays and other direct outputs of the power mode master as needed according to the calculated power mode.

The instrument cluster has a switched voltage input and may operate in a default mode if the power mode master serial data message does not match what the individual module can see from its own connections.

Conditions for Running the DTC

B1370 01

Ignition is in the Accessory position.

B1370 06

Ignition is in the Accessory, Run, or Crank positions.

Conditions for Setting the DTC

B1370 01

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Ignition circuit is shorted to voltage.

B1370 06

- Ignition circuit is open.
- Ignition circuit is shorted to ground.

Action Taken When the DTC Sets

The instrument cluster still functions except check engine light is always off.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 50 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

Instrument Cluster Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

- **Instrument Cluster Description and Operation**
- **Power Mode Description and Operation**

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Verify that DTC B144B or B1380 is not set.
   - **If DTC B144B or B1380 is set**

     Refer to **Diagnostic Trouble Code (DTC) List - Vehicle** .

   - **If DTC B144B or B1380 is not set**
2. Refer to Circuit/System Testing.

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Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the P16 Instrument Cluster.
2. Verify that a test lamp does not illuminate between the ignition circuit terminal 8 and ground.
    - **If the test lamp illuminates**

      Repair the short to voltage on the ignition circuit.

    - **If the test lamp does not illuminate**
3. Ignition ON.
4. Verify that a test lamp illuminates between the ignition terminal 8 and ground.
    - **If the test lamp does not illuminate and the Ignition fuse is good**
    1. Ignition OFF, remove the test lamp.
    2. Test for less than 2 Ω in the ignition circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, refer to **Power Mode Mismatch**.
    - **If the test lamp does not illuminate and the Ignition fuse is open**
    1. Ignition OFF, remove the test lamp.
    2. Test for infinite resistance between the ignition circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the P16 Instrument Cluster.
    - **If the test lamp illuminates**
5. Replace the P16 Instrument Cluster.

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

- **Control Module References** for control module replacement, programming and setup.

DTC B1370, B1380, OR B1441: CONTROL MODULE IGNITION ON AND START/IGNITION ACCESSORY/IGNITION OFF, RUN AND START

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptors

DTC B1370

Control Module Ignition ON and Start Circuit

DTC B1380

Control Module Ignition Accessory Circuit

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DTC B1441

Control Module Ignition OFF, Run, and Start Circuit

For symptom byte information refer to **Symptom Byte List**

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B+	B1370 04, B1380 04	B1370 04, B1380 04	-	-
Ignition Terminal 2	B1370 04, B1380 04	B1370 04, B1380 04	B1370 01	-
Ignition Terminal 3	B1370 04, B1380 04	B1380 04	B1380 01	-
Ignition Terminal 5	B1370 04, B1380 04, B1441 04	B1441 04	B1441 04	-
5 V Reference	-	1	-	-
1. Power Mode Mismatch				

Circuit/System Description

The vehicle power mode master is the body control module (BCM). The ignition switch is a low current switch with multiple discrete circuits to the BCM. The BCM logic uses the ignition switch positions to identify the operator's desired power mode and activate specific discrete signals, and serial data messages for the operation of different subsystems as necessary. Other modules which have switched voltage inputs may operate in a default mode if the power mode master serial data message does not match what the individual module can detect from its own connections.

The power mode master will activate relays and other direct outputs of the power mode master as needed according to the calculated power mode. Some relays controlled by the BCM are switched ignition voltage outputs that are pass through circuits within the BCM directly from the ignition switch. If these circuits short to ground, the B+ circuit fuse to the ignition switch will open.

Conditions for Running the DTC

B1370 01, B1370 04

Ignition switch is in the RUN or CRANK positions.

B1380 01, B1380 04

Ignition switch is in the RUN or ACCESSORY positions.

B1441 01, B1441 04

Ignition switch is in the CRANK position.

Conditions for Setting the DTC

B1370 01

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Ignition circuit is shorted to voltage.

B1370 04

- Ignition circuit is open.
- Ignition, accessory, or off/run/crank circuit shorted to ground.
- B+ circuit of the ignition switch is open or shorted to ground.
- Ignition relay control circuit open, including relay coil and ground.

B1380 01

Ignition, accessory circuit is shorted to voltage.

B1380 04

- Ignition, accessory circuit is open.
- Ignition, accessory, or off/run/crank circuit shorted to ground.
- B+ circuit of the ignition switch is open or shorted to ground.

B1441 01

Ignition, off/run/crank signal circuit is shorted to voltage.

B1441 04

Ignition, off/run/crank signal circuit is open.

Actions Taken When the DTC Sets

- The BCM operates in a fail-safe power mode dependent on the last valid power mode detected and the state of the engine run flag data on the serial data communications circuits.
- The other modules on the vehicle operate in a fail-safe power mode dependent on the last valid power mode transmitted by the BCM and the state of the engine run flag on the serial data communications circuits.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 50 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

Power Distribution Schematics (1500) Power Distribution Schematics ((2500/3500))

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

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Power Mode Description and Operation

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Verify DTC U1814 is not set.
    - **If DTC is set**

      Refer to **Diagnostic Trouble Code (DTC) List - Vehicle** .

    - **If DTC is not set**
2. Ignition ON.
3. Verify the scan tool power mode parameters change when cycling the S39 Ignition Switch between OFF, Accessory, ON, and Start.
    - **If the power mode parameters do not change**

      Refer to Circuit/System Testing.

    - **If the power mode parameters change**
4. All OK.

Circuit/System Testing

1. Ignition OFF, disconnect the S39 Ignition Switch.
2. Verify a test lamp illuminates between the B+ circuit terminal 4 and ground.
    - **If the test lamp does not illuminate and the circuit fuse is good**
    1. Remove the test lamp.
    2. Test for less than 2 Ω in the B+ circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, verify the fuse is good and there is voltage at the fuse.
    - **If the test lamp does not illuminate and the circuit fuse is open**
    1. Remove the test lamp.
    2. Test for infinite resistance between the B+ circuit and ground.
        - If less than infinite resistance, repair the short to ground on one of the following circuits listed below:

          NOTE: **To help isolate a short to ground, it may be necessary to disconnect modules that are connected to the following**

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circuits:

-
- B+ circuit terminal 4
- Ignition circuit terminal 2
- Ignition circuit terminal 3
- Ignition circuit terminal 5

- **If the test lamp illuminates**

3. Connect the S39 Ignition Switch.
4. Ignition ON, disconnect the harness connector at the S39 Ignition Switch while the ignition is ON.
5. Test for 4.8-5.2 V between the 5 V reference circuit terminal 6 and ground.
   - **If less than 4.8 V**
   1. Connect the S39 Ignition Switch.
   2. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module and S39 Ignition Switch.
   3. Test for infinite resistance between the 5 V reference circuit and ground.
      - If less than infinite resistance, repair the short to ground on the circuit.
      - If infinite resistance
   4. Test for less than 2 Ω in the 5 V reference circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, replace the K9 Body Control Module.
   - **If greater than 5.2 V**
   1. Connect the S39 Ignition Switch.
   2. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module.
   3. Ignition ON, disconnect the harness connector at the S39 Ignition Switch while the ignition is ON.
   4. Test for less than 1 V between the 5 V reference circuit and ground.
      - If 1 V or greater, repair the short to voltage on the circuit.
      - If less than 1 V, replace the K9 Body Control Module.
   - **If between 4.8-5.2 V**
6. Connect the S39 Ignition Switch.
7. Ignition OFF.
8. Disconnect the X3 harness connector at the K9 Body Control Module, ignition ON.
9. Verify a test lamp illuminates between each of the ignition circuits listed below and ground:
   - Ignition circuit terminal 5
   - Ignition circuit terminal 6
   - **If the test lamp does not illuminate and the circuit fuse is good**
   1. Ignition OFF remove the test lamp.
   2. Test for less than 2 Ω in the ignition circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, verify the fuse is good and there is voltage at the fuse.
   - **If the test lamp does not illuminate and the circuit fuse is open**

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1. Ignition OFF remove the test lamp.
2. Test for infinite resistance between the ignition circuit and ground.
    - If less than infinite resistance, repair the short to ground on the circuit.
    - If infinite resistance, replace the K9 Body Control Module.

- **If the test lamp illuminates**

10. Ignition OFF with the key in.
11. Verify a test lamp illuminates between ignition circuit terminal 15 and ground.

- **If the test lamp does not illuminate and the circuit fuse is good**

1. Ignition OFF with the key out, remove the test lamp.
2. Test for less than 2 Ω in the ignition circuit end to end.
    - If 2 Ω or greater, repair the open/high resistance in the circuit.
    - If less than 2 Ω, verify the fuse is good and there is voltage at the fuse.

- **If the test lamp does not illuminate and the circuit fuse is open**

1. Ignition OFF with the key out remove the test lamp.
2. Test for infinite resistance between the ignition circuit terminal 15 and ground.
    - If less than infinite resistance, repair the short to ground on the circuit.
    - If infinite resistance, replace the K9 Body Control Module.

- **If the test lamp illuminates**

12. Connect the X3 harness connector at the K9 Body Control Module, ignition ON.
13. Disconnect the S39 Ignition Switch.
14. Test for less than 1 V between each of the ignition circuits listed below and ground.
    - Ignition circuit terminal 2
    - Ignition circuit terminal 3
    - Ignition circuit terminal 5
    - **If 1 V or greater**

      Repair the short to voltage on the circuit.

    - **If less than 1 V**
15. Test or replace the S39 Ignition Switch.

Component Testing

1. Ignition OFF, disconnect the harness connector at the S39 Ignition Switch.
2. Using the Resistance Test below, verify the resistance between the terminals listed below match for each S39 Ignition Switch position.
    - **If any reading is other than specified**

      Replace the S39 Ignition Switch.

    - **If the readings match**
3. All OK.

Resistance Test

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Ignition Switch Position	Terminals 6 and 5	Terminals 6 and 4	Terminals 4 and 5	Terminals 2 and 4	Terminals 3 and 4
OFF Key Out	Infinite	Infinite	Infinite	Infinite	Infinite
OFF Key In	Infinite	Infinite	<5.0 Ω	Infinite	Infinite
Accessory	Infinite	Infinite	Infinite	Infinite	<5.0 Ω
Run	<5.0 Ω	Infinite	Infinite	<5.0 Ω	<5.0 Ω
Start	1275-1325 Ω	Infinite	Infinite	<5.0 Ω	Infinite

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

- **Ignition and Start Switch Replacement**
- **Control Module References** for the appropriate control module replacement, programming and setup.

DTC B1445: CONTROL MODULE VOLTAGE OUTPUT

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptor

DTC B1445

Control Module Voltage Output Circuit

For symptom byte information refer to **Symptom Byte List**

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
BCM Fuse B+ (BCM 6)	1	1	-	Â
Relay Coil Control	B1445 02	B1445 04	1	-
Ground	-	B1445 04	-	Â
1. Retained accessory power malfunction				

Circuit/System Description

The body control module (BCM) controls the retained accessory power relay 1 and retained accessory power relay 2 through their control circuits by applying voltage to the retained accessory power relay coil control circuit. The retained accessory power relay 1 and retained accessory power relay 2 are energized when the ignition switch is in the ACCESSORY or the ON position.

Conditions for Running the DTC

- The system voltage is between 9-16 V.
- The DTC can only set when the output is actively being requested by the module.

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Conditions for Setting the DTC

B1445 02

The DTC will set only when the module requests the output and there is a short to ground in the ignition voltage circuit.

B1445 04

The ignition output is not active and an open is detected 20 consecutive times on the ignition voltage circuit.

Action Taken When the DTC Sets

B1445 02

The module output driver will be shut down and not supply voltage to the circuit.

B1445 04

No action is taken.

Conditions for Clearing the DTC

- The current DTC will clear when the malfunction is no longer present.
- A history DTC clears when the module ignition cycle counter reaches the reset threshold of 50, without a repeat of the malfunction.

Reference Information

Schematic Reference

Power Distribution Schematics (1500) Power Distribution Schematics ((2500/3500))

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Retained Accessory Power Description and Operation

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Relay Replacement (Attached to Wire Harness) Relay Replacement (Within an Electrical Center)**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References for scan tool information

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Circuit/System Verification

1. Ignition ON.
2. Verify the KR76A Retained Accessory Power Relay 1 and KR76B Retained Accessory Power Relay 2 turn ON and OFF when commanding the Accessory/Retained Accessory Power Relay On and Off with a scan tool.
    - **If the KR76A Retained Accessory Power Relay 1 and KR76B Retained Accessory Power Relay 2 do not turn ON and OFF**

      Refer to Circuit/System Testing.

    - **If the KR76A Retained Accessory Power Relay 1 and KR76B Retained Accessory Power Relay 2 turn ON and OFF**
3. All OK.

Circuit/System Testing

1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the B+ circuit terminal 4 and ground.
    - **If the test lamp does not illuminate and the circuit fuse is good**
    1. Ignition OFF, remove the test lamp.
    2. Test for less than 2 Ω in the B+ circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, verify the fuse is not open and there is voltage at the fuse.
    - **If the test lamp does not illuminate and the circuit fuse is open**
    1. Ignition OFF, remove the test lamp.
    2. Test for infinite resistance between the B+ circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the K9 Body Control Module
    - **If the test lamp illuminates**
3. Ignition OFF, Connect the X5 harness connector at the K9 Body Control Module.
4. Ignition OFF and all vehicle systems OFF, disconnect the KR76A Retained Accessory Power Relay 1 and KR76B Retained Accessory Power Relay 2. It may take up to 2 min for all vehicle systems to power down.
5. Test for less than 10 Ω between the ground circuits listed below and ground.
    - KR76A Retained Accessory Power Relay 1 - Ground circuit terminal 85
    - KR76B Retained Accessory Power Relay 2 - Ground circuit terminal 85
    - **If 10 Ω or greater**
    1. Ignition OFF.
    2. Test for less than 2 Ω in the ground circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, repair the open/high resistance in the ground connection.
    - **If less than 10 Ω**
6. Ignition ON, connect a test lamp between the control circuits listed below and ground.

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- KR76A Retained Accessory Power Relay 1 - Control circuit terminal 86
- KR76B Retained Accessory Power Relay 2 - Control circuit terminal 86

7. Verify the test lamp turns ON and OFF when commanding the Accessory/Retained Accessory Power Relay On and Off with a scan tool.
   - **If the test lamp is always OFF**
   1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module.
   2. Test for infinite resistance between the control circuit and ground.
      - If less than infinite resistance, repair the short to ground on the circuit.
      - If infinite resistance
   3. Test for less than 2 Ω in the control circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, replace the K9 Body Control Module.
   - **If the test lamp is always ON**
   1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module, ignition ON.
   2. Test for less than 1 V between the control circuit and ground.
      - If 1 V or greater, repair the short to voltage on the circuit.
      - If less than 1 V, replace the K9 Body Control Module.
   - **If the test lamp turns ON and OFF**
8. Test or replace the appropriate KR76A Retained Accessory Power Relay 1 or the KR76B Retained Accessory Power Relay 2.

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

- **Control Module References** for control module replacement, programming and setup.

DTC B144A: RUN POWER RELAY

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptor

DTC B144A

Run Power Relay Circuit

For symptom byte information refer to **Symptom Byte List**

Diagnostic Fault Information

Circuit	Short to	Open/High	Short to	Signal

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	Ground	Resistance	Voltage	Performance
Relay Coil Control	B144A 02	B144A 01, B144A 04	B144A 01, B144A 04	-

Circuit/System Description

The body control module (BCM) feeds the ignition circuit by applying voltage when the ignition is in the ON position.

Conditions for Running the DTC

- The system voltage is between 9-16 V.
- The DTC can only run when the output is activated.

Conditions for Setting the DTC

B144A 01

The ignition output is not active and a short to battery is detected 3 consecutive times on the ignition voltage circuit.

B144A 02

A short to ground is detected on the ignition run relay coil control circuit.

B144A 04

The ignition output is not active and an open is detected 20 consecutive times on the ignition voltage circuit.

Action Taken When the DTC Sets

B144A 01, B144A 04

No action is taken.

B144A 02

The module output driver will be shut down and not supply voltage to the ignition run relay control circuit.

Conditions for Clearing the DTC

- The current DTC will clear when the module request for the output is removed or the malfunction is no longer present.
- A history DTC clears when the module ignition cycle counter reaches the reset threshold of 50, without a repeat of the malfunction.

Reference Information

Schematic Reference

- **Transfer Case Control Schematics**
- **Cigar Lighter/Power Outlet Schematics**

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Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Mode Description and Operation

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Relay Replacement (Attached to Wire Harness)** **Relay Replacement (Within an Electrical Center)**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Testing

NOTE: **The vehicle may not be equipped with all components as listed below.**

1. Ignition OFF, disconnect the harness connector at the S77 Transfer Case Control Switch, X81 Accessory Power Receptacle - 110V AC, X81B Accessory Power Receptacle - 220V AC, or KR81 Auxiliary Battery Relay 1.
2. Connect a test lamp between the ignition circuits listed below and ground.
   - S77 Transfer Case Control Switch - Ignition circuit terminal 2
   - X81 Accessory Power Receptacle - 110V AC - Ignition circuit terminal 1 X1
   - X81B Accessory Power Receptacle - 220V AC - Ignition circuit terminal 1 X1
   - KR81 Auxiliary Battery Relay 1 - Ignition circuit terminal 86
3. Verify the test lamp turns ON and OFF when cycling the ignition between ON and OFF.
   - **If the test lamp is always OFF**
   1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module.
   2. Test for infinite resistance between the ignition circuit and ground.
      - If less than infinite resistance, repair the short to ground on the circuit.
      - If infinite resistance
   3. Test for less than 2 Ω in the ignition circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, replace the K9 Body Control Module.
   - **If the test lamp is always ON**
   1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.
   2. Test for less than 1 V between the ignition circuit and ground.
      - If 1 V or greater, repair the short to voltage on the circuit.

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- If less than 1 V, replace the K9 Body Control Module.
- **If the test lamp turns ON and OFF**

4. Test or replace the appropriate S77 Transfer Case Control Switch, X81 Accessory Power Receptacle - 110V AC, X81B Accessory Power Receptacle - 220V AC, or KR81 Auxiliary Battery Relay 1.

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

- **Transfer Case Selector Switch Replacement**
- **120-Volt Accessory Power Receptacle Replacement**
- **Control Module References** for control module replacement, programming and setup.

DTC B144B: RUN/CRANK POWER RELAY

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptors

DTC B144B

Run/Crank Power Relay Circuit

For symptom byte information refer to **Symptom Byte List**

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Relay coil control	B144B 02	B144B 04	B144B 01	-

Circuit/System Description

The body control module (BCM) controls the ignition main relay (underhood) and the ignition main relay (instrument panel left) through their control circuits by applying voltage to the ignition run/crank relay coil control circuit. The ignition main relay (underhood) and ignition main relay (instrument panel left) are energized when the ignition switch is in the RUN or the CRANK position, or when a remote start is requested

Conditions for Running the DTC

System voltage greater than 9 V.

Conditions for Setting the DTC

B144B 01

The ignition output is not active and a short to battery is detected 3 consecutive times on the ignition voltage circuit.

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B144B 02

A short to ground is detected on the ignition run/crank relay coil control circuit.

B144B 04

The ignition output is not active and an open is detected 20 consecutive times on the ignition voltage circuit.

Action Taken When the DTC Sets

B144B 01, B144B 04

No action is taken.

B144B 02

The ignition main relay (underhood) and the ignition main relay (instrument panel left) are deactivated when the fault is set. After 100 ms, the ignition main relay (underhood) and the ignition main relay (instrument panel left) will be activated. If the fault is still set, the relays will be deactivated. The ignition main relay (underhood) and the ignition main relay (instrument panel left) will again be activated after 100 ms. If this also results in a fault, the ignition main relay (underhood) and the ignition main relay (instrument panel left) will be deactivated until a new ignition request is received.

Conditions for Clearing the DTC

- The current DTC will clear when the malfunction is no longer present and an ignition request is received.
- A history DTC will clear after 40 malfunction-free ignition cycles.

Diagnostic Aids

A short to voltage on the ignition run/crank relay coil control will cause the engine to remain running after the ignition mode is changed to OFF.

Reference Information

Schematic Reference

Power Moding Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Mode Description and Operation

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

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Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON.
2. Verify the KR73 Ignition Main Relay (underhood) and the KR73 Ignition Main Relay (instrument panel left) click ON and OFF when commanding the Run/Crank relay On and Off with a scan tool.
    - **If the KR73 Ignition Main Relay (underhood) or the KR73 Ignition Main Relay (instrument panel left) do not click ON and OFF**

      Refer to Circuit/System Testing.

    - **If the KR73 Ignition Main Relay (underhood) and the KR73 Ignition Main Relay (instrument panel left) click ON and OFF**
3. All OK.

Circuit/System Testing

1. Ignition OFF, disconnect the KR73 Ignition Main Relay (underhood) and the KR73 Ignition Main Relay (instrument panel left). It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuits listed below and ground.
    - KR73 Ignition Main Relay (underhood) - Ground circuit terminal 86
    - KR73 Ignition Main Relay (instrument panel left) - Ground circuit terminal 86
    - **If 10 Ω or greater**
    1. Ignition OFF.
    2. Test for less than 2 Ω in the ground circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, repair the open/high resistance in the ground connection.
    - **If less than 10 Ω**
3. Ignition ON, connect a test lamp between the control circuits listed below and ground.
    - KR73 Ignition Main Relay (underhood) - Control circuit terminal 85
    - KR73 Ignition Main Relay (instrument panel left) - Control circuit terminal 85
4. Verify the test lamp turns ON and OFF when commanding the Run/Crank relay On and Off with a scan tool.
    - **If the test lamp is always OFF**
    1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module.
    2. Test for infinite resistance between the control circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance
    3. Test for less than 2 Ω in the control circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the K9 Body Control Module.

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- **If the test lamp is always ON**

1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the control circuit and ground.
    - If 1 V or greater, repair the short to voltage on the circuit.
    - If less than 1 V, replace the K9 Body Control Module.

- **If the test lamp turns ON and OFF**

5. Test or replace the appropriate KR73 Ignition Main Relay (underhood) or the KR73 Ignition Main Relay (instrument panel left).

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

- **Relay Replacement (Attached to Wire Harness)** **Relay Replacement (Within an Electrical Center)**
- **Control Module References** for body control module replacement, programming and setup.

DTC P2534 OR P2535: IGNITION ON/START SWITCH

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptors

DTC P2534

Ignition On/Start Switch Circuit Low Voltage

DTC P2535

Ignition On/Start Switch Circuit High Voltage

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Ignition	P2534	P2535	P2535	-
Ground	-	P2534	-	-

Circuit/System Description

The body control module (BCM) controls the ignition main relay through the control circuit by applying voltage to the circuit. The control module samples the system voltage on the Ignition 1 voltage circuit from the ignition main relay every 0.1 s.

Conditions for Running the DTC

P2534

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The control module ignition voltage signal is valid, with the ignition ON.

P2535

The control module ignition voltage signal is valid, with the ignition OFF.

Conditions for Setting the DTC

P2534

The control module detects 6 V or less on the ignition voltage circuit, with the ignition turned ON.

P2535

The control module detects greater than 6 V or greater on the ignition voltage circuit, with the ignition turned OFF.

Action Taken When the DTC Sets

DTCs P2534 and P2535 are Type A DTCs.

Conditions for Clearing the DTC

DTCs P2534 and P2535 are Type A DTCs.

Diagnostic Aids

A short to voltage in the ignition circuit will keep the vehicle modules awake, which can drain the vehicle's battery.

Reference Information

Schematic Reference

Power Distribution Schematics (1500) Power Distribution Schematics ((2500/3500))

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Description and Operation

Power Mode Description and Operation

DTC Type Reference

Powertrain Diagnostic Trouble Code (DTC) Type Definitions

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Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Engine running.
2. Verify DTC B144B is not set.
    - **If the DTC is set**

      Refer to **DTC B144B**.

    - **If the DTC is not set**
3. Verify the scan tool control module Ignition 1 Signal parameter is between 12.6-15 V.
    - **If not between 12.6-15 V**

      Refer to Circuit/System Testing.

    - **If between 12.6-15 V**
4. Verify that the DTC does not reset by operating the vehicle within the Conditions for Running the DTC. You may also operate the vehicle within the conditions you observe from the Freeze Frame/Failure Records data. If the vehicle passes the Circuit/System Verification procedure, then STOP. Do not perform the Circuit/System Testing or Component Testing as this may result in an unnecessary part replacement. Refer to **Testing for Intermittent Conditions and Poor Connections**.

Circuit/System Testing

1. Ignition OFF, and all vehicle systems OFF, disconnect the appropriate harness connector at the control module setting the DTC.
2. Test for less than 1 V between the ignition circuit terminal and ground.
    - **If 1 V or greater**

      Repair the short to voltage on the circuit.

    - **If less than 1 V**
3. Ignition ON.
4. Verify a test lamp illuminates between the ignition circuit terminal and ground.
    - **If the test lamp does not illuminate and the circuit fuse is good**
    1. Ignition OFF remove the test lamp.
    2. Test for less than 2 Ω in the ignition circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, refer to **Power Mode Mismatch**.
    - **If the test lamp does not illuminate and the circuit fuse is open**
    1. Ignition OFF remove the test lamp
    2. Test for infinite resistance between the ignition circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
    - **If the test lamp illuminates**

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5. Replace the control module setting the DTC.

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

Refer to **Control Module References** for control module replacement, programming, and setup.

DTC P2536: IGNITION ACCESSORY SWITCH

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptor

DTC P2536

Ignition Accessory Switch Circuit

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Ignition	P2536, U1814, U2099	P2536	-	-

Circuit/System Description

The control module continuously monitors the voltage on the Ignition Accessory/Run circuit from the body control module (BCM). When the ignition is in the ACCESSORY or RUN position, the BCM sends a 12 V wake up signal to the control module. This wake up signal allows the control module to power up and start functioning before the engine is started.

Conditions for Running the DTC

The ignition is in the ACCESSORY or RUN position.

Conditions for Setting the DTC

The control module detects the Ignition Accessory/Run circuit is less than 6 V for 1 min.

Action Taken When the DTC Sets

DTC P2536 is a Type B DTC.

Conditions for Clearing the DTC

DTC P2536 is a Type B DTC.

Reference Information

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Schematic Reference

Data Communication Schematics

Connector End View Reference

- **COMPONENT CONNECTOR END VIEWS - INDEX**
- **INLINE HARNESS CONNECTOR END VIEWS - INDEX**

Description and Operation

Data Link Communications Description and Operation

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

DTC Type Reference

Powertrain Diagnostic Trouble Code (DTC) Type Definitions

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Verify DTC U1814 or U2099 is not set.
    - **If any of the DTCs are set**

      Refer to **Diagnostic Trouble Code (DTC) List - Vehicle** .

    - **If none of the DTCs are set**
2. Refer to Circuit/System Testing.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the control module setting the DTC.
2. Ignition ON.
3. Verify a test lamp illuminates between the accessory wake up serial data circuit and ground.
    - **If the test lamp does not illuminate.**
    1. Ignition OFF remove the test lamp, disconnect the X4 connector at the K9 Body Control Module.
    2. Test for less than 2 Ω on the ignition circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the K9 Body Control Module.
    - **If the test lamp illuminates**
4. Replace the control module setting the DTC.

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Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

Refer to **Control Module References** for control module replacement, programming, and setup.

DTC P2537: IGNITION ACCESSORY SWITCH

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptor

DTC P2537

Ignition Accessory Switch Circuit Low Voltage

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Ignition	P2537, U1814, U2099	P2537	-	-

Circuit/System Description

The control module continuously monitors the voltage on the Ignition Accessory/Run circuit from the body control module (BCM). When the ignition is in the ACCESSORY or RUN position, the BCM sends a 12 V wake up signal to the control module. This wake up signal allows the control module to power up and start functioning before the engine is started.

Conditions for Running the DTC

The ignition is in the ACCESSORY or RUN position.

Conditions for Setting the DTC

The control module detects the Ignition Accessory/Run circuit is less than 6 V for 1 min.

Action Taken When the DTC Sets

DTC P2537 is a Type B DTC.

Conditions for Clearing the DTC

DTC P2537 is a Type B DTC.

Reference Information

Schematic Reference

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Data Communication Schematics

Connector End View Reference

- **COMPONENT CONNECTOR END VIEWS - INDEX**
- **INLINE HARNESS CONNECTOR END VIEWS - INDEX**

Description and Operation

Data Link Communications Description and Operation

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

DTC Type Reference

Powertrain Diagnostic Trouble Code (DTC) Type Definitions

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Verify DTC U1814 or U2099 is not set.
    - **If any of the DTCs are set**

      Refer to **Diagnostic Trouble Code (DTC) List - Vehicle** .

    - **If none of the DTCs are set**
2. Refer to Circuit/System Testing.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the control module setting the DTC.
2. Ignition ON.
3. Verify a test lamp illuminates between the accessory wake up serial data circuit and ground.
    - **If the test lamp does not illuminate.**
    1. Ignition OFF remove the test lamp, disconnect the X4 connector at the K9 Body Control Module.
    2. Test for less than 2 Ω on the ignition circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the K9 Body Control Module.
    - **If the test lamp illuminates**
4. Replace the control module setting the DTC.

Repair Instructions

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Perform the **Diagnostic Repair Verification** after completing the repair.

Refer to **Control Module References** for control module replacement, programming, and setup.

SYMPTOMS - WIRING SYSTEMS

NOTE: **The following steps must be completed before using the symptom tables.**

1. Perform the **Diagnostic System Check - Vehicle** before using the symptom tables in order to verify that all of the following are true:
   - There are no DTCs set.
   - The control modules can communicate via the serial data links.
2. Review the system operation in order to familiarize yourself with the system functions. Refer to:
   - **Power Mode Description and Operation**
   - **Retained Accessory Power Description and Operation**

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the systems. Refer to **Checking Aftermarket Accessories**.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to **Testing for Intermittent Conditions and Poor Connections**.

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- **Power Mode Mismatch**
- **Retained Accessory Power Malfunction**
- **Vehicle Will Not Change Power Mode**

POWER MODE MISMATCH

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

Circuit/System Description

The body control module (BCM) controls the ignition main (underhood), ignition main (instrument panel left), and retained accessory power relays by applying voltage to their individual relay control circuits. The ignition main relay (underhood) and ignition main relay (instrument panel left) are energized when the ignition switch is in the ON or the CRANK position. The retained accessory power relays are energized during all power modes, except OFF-awake and CRANK. The relays are also energized for approximately 10 min after shutting the

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ignition OFF and removing the key, providing no door is opened.

The engine control module (ECM) controls the engine controls the ignition relay by providing ground to the engine controls relay control circuit.

Diagnostic Aids

A short to voltage on the ignition run/crank relay coil control will cause the engine to remain running after the mode is changed to OFF.

Reference Information

Schematic Reference

- **Power Moding Schematics**
- **Engine Controls Schematics**

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Mode Description and Operation

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Relay Replacement (Attached to Wire Harness)** **Relay Replacement (Within an Electrical Center)**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

NOTE: **Use schematics to determine which ignition relay supplies the ignition feed for the appropriate devices. Use the connector end view to identify the ignition circuit terminal for each of those devices.**

1. Ignition ON.
2. Verify that the appropriate devices controlled by the KR73 Ignition Main Relay (underhood) and KR73 Ignition Main Relay (instrument panel left) turn ON and OFF when commanding the Run/Crank Relay On and Off with a scan tool.
    - **If the devices do not turn ON and OFF**

      Refer to Circuit/System Testing - Diagnostic A.

    - **If the devices turn ON and OFF**

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3. Verify that the appropriate devices controlled by the KR75 Engine Controls Ignition Relay turn ON and OFF when switching the ignition between ON and OFF.
    - **If the devices do not turn ON and OFF**

      Refer to Circuit/System Testing - Diagnostic B.

    - **If the devices turn ON and OFF**
4. Verify that the appropriate devices controlled by the KR76A Retained Accessory Power Relay 1 and KR76B Retained Accessory Power Relay 2 turn ON and OFF when commanding the Accessory/Retained Accessory Power Relay On and Off with a scan tool.
    - **If the devices do not turn ON and OFF**

      Refer to Circuit/System Testing - Diagnostic C.

    - **If the devices turn ON and OFF**
5. Verify that the appropriate devices controlled by the KR81 Auxiliary Battery Relay 1 turn ON and OFF when cycling the ignition between ON and OFF.
    - **If the devices do not turn ON and OFF**

      Refer to Circuit/System Testing - Diagnostic D.

    - **If the devices turn ON and OFF**
6. All OK.

Circuit/System Testing

Diagnostic A

1. Ignition OFF and all vehicle systems OFF, disconnect the KR73 Ignition Main Relay (underhood) and KR73 Ignition Main Relay (instrument panel left). It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuits listed below and ground.
    - KR73 Ignition Main Relay (underhood) - Ground circuit terminal 86
    - KR73 Ignition Main Relay (instrument panel left) - Ground circuit terminal 86
    - **If 10 Ω or greater**
    1. Ignition OFF.
    2. Test for less than 2 Ω in the ground circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, repair the open/high resistance in the ground connection.
    - **If less than 10 Ω**
3. Ignition ON.
4. Verify a test lamp illuminates between the B+ circuits below and ground.
    - KR73 Ignition Main Relay (underhood) - B+ circuit terminal 30
    - KR73 Ignition Main Relay (instrument panel left) - B+ circuit terminal 30
    - **If the test lamp does not illuminate**

      Replace the appropriate fuse block.

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- **If the test lamp illuminates**

5. Connect a test lamp between the control circuits listed below and ground
    - KR73 Ignition Main Relay (underhood) - Control circuit terminal 85
    - KR73 Ignition Main Relay (instrument panel left) - Control circuit terminal 85
6. Verify the test lamp turns ON and OFF when commanding the Run/Crank Relay On and Off with a scan tool.
    - **If the test lamp is always OFF**
    1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module.
    2. Test for infinite resistance between the control circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance
    3. Test for less than 2 Ω in the control circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the K9 Body Control Module.
    - **If the test lamp is always ON**
    1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module, ignition ON.
    2. Test for less than 1 V between the control circuit and ground.
        - If 1 V or greater, repair the short to voltage on the circuit.
        - If less than 1 V, replace the K9 Body Control Module.
    - **If the test lamp turns ON and OFF**
7. Verify that a test lamp does not illuminate between the ignition circuits below and ground.
    - KR73 Ignition Main Relay (underhood) - Ignition circuit terminal 87
    - KR73 Ignition Main Relay (instrument panel left) - Ignition circuit terminal 87
    - **If the test lamp illuminates**

      Repair the short to voltage on the ignition circuit

    - **If the test lamp does not illuminate**
8. Ignition ON, connect a 40 A fused jumper wire between the circuits listed below.
    - KR73 Ignition Main Relay (underhood) - B+ circuit Terminal 30 and ignition control circuit terminal 87
    - KR73 Ignition Main Relay (instrument panel left) - B+ circuit Terminal 30 and ignition control circuit terminal 87
9. Verify device is activated.
    - **If the device does not activate**
    1. Ignition OFF, disconnect the harness connector at the device.
    2. Test for infinite resistance between the ignition circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance
    3. Test for less than 2 Ω in the ignition circuit end to end.

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- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω, replace the device.

- **If the device activates**

10. Test or replace the appropriate KR73 Ignition Main Relay (underhood) or KR73 Ignition Main Relay (instrument panel left).

Diagnostic B

1. Ignition OFF and all vehicle systems OFF, disconnect the KR75 Engine Controls Ignition Relay, ignition ON.
2. Verify a test lamp illuminates between the B+ circuit terminal 30 and ground.
   - **If the test lamp does not illuminate**

     Replace the X50A Fuse Block Underhood

   - **If the test lamp illuminates**
3. Verify a test lamp illuminates between the B+ circuit terminal 86 and ground.
   - **If the test lamp does not illuminate**

     Replace the X50A Fuse Block Underhood

   - **If the test lamp illuminates**
4. Connect a test lamp between the B+ circuit terminal 86 and the control circuit terminal 85.
5. Verify the test lamp turns ON and OFF when cycling the ignition ON and OFF.
   - **If the test lamp is always OFF**
   1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K20 Engine Control Module, ignition ON.
   2. Test for less than 1 V between the control circuit and ground.
      - If 1 V or greater, repair the short to voltage on the circuit.
      - If less than 1 V
   3. Ignition OFF.
   4. Test for less than 2 Ω in the control circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, replace the K20 Engine Control Module.
   - **If the test lamp is always ON**
   1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K20 Engine Control Module.
   2. Test for infinite resistance between the control circuit and ground.
      - If less than infinite resistance, repair the short to ground on the circuit.
      - If infinite resistance, replace the K20 Engine Control Module.
   - **If the test lamp turns ON and OFF**
6. Verify a test lamp does not illuminate between the ignition circuit terminal 87 and ground.
   - **If the test lamp illuminates**

     Repair the short to voltage on the circuit.

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- **If the test lamp does not illuminate**

7. Ignition ON, connect a 40 A fused jumper wire between the B+ circuit terminal 30 and the ignition circuit terminal 87.
8. Verify device is activated.
    - **If the device does not activate**
    1. Ignition OFF, disconnect the harness connector at the device.
    2. Test for infinite resistance between the ignition circuit terminal 87 and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance
    3. Test for less than 2 Ω in the ignition circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the device.
    - **If the device activates**
9. Test or replace the KR75 Engine Controls Ignition Relay.

Diagnostic C

1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the B+ circuit terminal 4 and ground.
    - **If the test lamp does not illuminate and the circuit fuse is good**
    1. Ignition OFF, remove the test lamp.
    2. Test for less than 2 Ω in the B+ circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, verify the fuse is not open and there is voltage at the fuse.
    - **If the test lamp does not illuminate and the circuit fuse is open**
    1. Ignition OFF, remove the test lamp.
    2. Test for infinite resistance between the B+ circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the K9 Body Control Module
    - **If the test lamp illuminates**
3. Ignition OFF, Connect the X5 harness connector at the K9 Body Control Module.
4. Ignition OFF and all vehicle systems OFF, disconnect the KR76A Retained Accessory Power Relay 1 and KR76B Retained Accessory Power Relay 2. It may take up to 2 min for all vehicle systems to power down.
5. Test for less than 10 Ω between the ground circuits listed below and ground.
    - KR76A Retained Accessory Power Relay 1 - Ground circuit terminal 85
    - KR76B Retained Accessory Power Relay 2 - Ground circuit terminal 85
    - **If 10 Ω or greater**
    1. Ignition OFF.
    2. Test for less than 2 Ω in the ground circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, repair the open/high resistance in the ground connection.

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- **If less than 10 Ω**

6. Ignition ON.
7. Verify a test lamp illuminates between the B+ circuits below and ground.
   - KR76A Retained Accessory Power Relay 1 - B+ circuit terminal 30
   - KR76B Retained Accessory Power Relay 2 - B+ circuit terminal 30
   - **If the test lamp does not illuminate**

     Replace the appropriate fuse block.

   - **If the test lamp illuminates**
8. Connect a test lamp between the control circuits listed below and ground
   - KR76A Retained Accessory Power Relay 1 - Control circuit terminal 86
   - KR76B Retained Accessory Power Relay 2 - Control circuit terminal 86
9. Verify the test lamp turns ON and OFF when commanding the Accessory/Retained Accessory Power Relay On and Off with a scan tool.
   - **If the test lamp is always OFF**
   1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module.
   2. Test for infinite resistance between the control circuit and ground.
      - If less than infinite resistance, repair the short to ground on the circuit.
      - If infinite resistance
   3. Test for less than 2 Ω in the control circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, replace the K9 Body Control Module.
   - **If the test lamp is always ON**
   1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module, ignition ON.
   2. Test for less than 1 V between the control circuit and ground.
      - If 1 V or greater, repair the short to voltage on the circuit.
      - If less than 1 V, replace the K9 Body Control Module.
   - **If the test lamp turns ON and OFF**
10. Verify that a test lamp does not illuminate between the ignition circuits below and ground.
    - KR76A Retained Accessory Power Relay 1 - Ignition circuit terminal 87
    - KR76B Retained Accessory Power Relay 2 - Ignition circuit terminal 87
    - **If the test lamp illuminates**

      Repair the short to voltage on the ignition circuit

    - **If the test lamp does not illuminate**
11. Ignition ON, connect a 40 A fused jumper wire between the circuits listed below.
    - KR76A Retained Accessory Power Relay 1 - B+ circuit Terminal 30 and ignition control circuit terminal 87
    - KR76B Retained Accessory Power Relay 2 - B+ circuit Terminal 30 and ignition control circuit

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terminal 87

12. Verify device is activated.
    - **If the device does not activate**
    1. Ignition OFF, disconnect the harness connector at the device.
    2. Test for infinite resistance between the ignition circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance
    3. Test for less than 2 Ω in the ignition circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the device.
    - **If the device activates**
13. Test or replace the appropriate KR76A Retained Accessory Power Relay 1 or KR76B Retained Accessory Power Relay 2.

Diagnostic D

1. Ignition OFF and all vehicle systems OFF, disconnect the KR81 Auxiliary Battery Relay 1. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 85 and ground.
    - **If 10 Ω or greater**
    1. Ignition OFF.
    2. Test for less than 2 Ω in the ground circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, repair the open/high resistance in the ground connection.
    - **If less than 10 Ω**
3. Ignition ON.
4. Verify a test lamp illuminates between the B+ circuit terminal 30 and ground.
    - **If the test lamp does not illuminate and the circuit fuse is good**
    1. Ignition OFF, remove the test lamp.
    2. Test for less than 2 Ω in the B+ circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, verify the fuse is not open and there is voltage at the fuse.
    - **If the test lamp does not illuminate and the circuit fuse is open**
    1. Ignition OFF, remove the test lamp.
    2. Test for infinite resistance between the B+ circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, test or replace the KR81 Auxiliary Battery Relay 1.
    - **If the test lamp illuminates**
5. Connect a test lamp between the control circuit terminal 86 and the ground circuit terminal 85.
6. Verify the test lamp turns ON and OFF when cycling the ignition ON and OFF.
    - **If the test lamp is always OFF**
    1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control

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Module.

2. Test for infinite resistance between the control circuit and ground.
    - If less than infinite resistance, repair the short to ground on the circuit.
    - If infinite resistance
3. Test for less than 2 Ω in the control circuit end to end.
    - If 2 Ω or greater, repair the open/high resistance in the circuit.
    - If less than 2 Ω, replace the K9 Body Control Module.

- **If the test lamp is always ON**

1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the control circuit and ground.
    - If 1 V or greater, repair the short to voltage on the circuit.
    - If less than 1 V, replace the K9 Body Control Module.

- **If the test lamp turns ON and OFF**

7. Verify that a test lamp does not illuminate between the ignition circuit terminal 87 and ground.
    - **If the test lamp illuminates**

      Repair the short to voltage on the ignition circuit.

    - **If the test lamp does not illuminate**
8. Ignition ON, connect a 10 A fused jumper wire between the B+ circuit terminal 30 and the ignition control circuit terminal 87.
9. Verify the device is activated.
    - **If the device does not activate**
    1. Ignition OFF, disconnect the harness connector at the device.
    2. Test for infinite resistance between the ignition circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance
    3. Test for less than 2 Ω in the ignition circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, replace the device.
    - **If the device activates**
10. Test or replace the KR81 Auxiliary Battery Relay 1.

Component Testing

Relay Test

1. Ignition OFF, disconnect the appropriate relay.
2. Test for 70-150 Ω between terminals (85 or 1) and (86 or 2).
    - **If less than 70 or greater than 150 Ω**

      Replace the relay.

    - **If between 70-150 Ω**

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3. Test for infinite resistance between the terminals listed below:
    - (30 or 3) and (86 or 2)
    - (30 or 3) and (87 or 5)
    - (30 or 3) and (85 or 1)
    - (85 or 1) and (87 or 5)
    - (86 or 2) and (87 or 5)
    - **If less than infinite resistance**

      Replace the relay.

    - **If infinite resistance**
4. Install a 3 A fused jumper wire between relay terminal (85 or 1) and 12 V. Install a jumper wire between relay terminal (86 or 2) and ground.
5. Test for less than 5.0 Ω between terminals (30 or 3) and (87 or 5).
    - **If 5.0 Ω or greater**

      Replace the relay.

    - **If less than 5.0 Ω**
6. All OK

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

- **Control Module References** for control module replacement, programming and setup.

RETAINED ACCESSORY POWER MALFUNCTION

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Relay Switch B+	1	1	1	-
Relay Switch Ignition	1	1	1, 2	-
Relay Coil Control	B1445 02	1	1	-
Relay Coil Ground	-	1	-	-
1. Retained Accessory Power Malfunction 2. Retained Accessory Power Relay Always On				

Circuit/System Description

The body control module (BCM) control the retained accessory power relay 1 and retained accessory power

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relay 2 through their control circuits by applying voltage to the retained accessory power relay coil control circuit. The retained accessory power relay 1 and retained accessory power relay 2 are energized when the ignition switch is in the ACCESSORY or the ON position.

Reference Information

Schematic Reference

- **Power Distribution Schematics (1500) Power Distribution Schematics ((2500/3500))**
- **Power Moding Schematics**

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Retained Accessory Power Description and Operation

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Relay Replacement (Attached to Wire Harness) Relay Replacement (Within an Electrical Center)**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

NOTE: **Use schematics to determine which devices are controlled by the KR76A Retained Accessory Power Relay 1 and KR76 Retained Accessory Power Relay 2. Use the connector end view to identify the ignition circuit terminal for each of those devices.**

1. Ignition ON.
2. Verify the appropriate devices controlled by the KR76 Retained Accessory Power Relay turn ON and OFF when commanding the Accessory/Retained Accessory Power Relay On and Off with a scan tool.
   - **If the devices do not turn ON and OFF**

     Refer to Circuit/System Testing

   - **If the devices turn ON and OFF**
3. All OK.

Circuit/System Testing

1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.

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2. Verify a test lamp illuminates between the B+ circuit terminal 4 and ground.
    - **If the test lamp does not illuminate and the circuit fuse is good**
    1. Ignition OFF, remove the test lamp.
    2. Test for less than 2 Ω in the B+ circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, verify the fuse is not open and there is voltage at the fuse.
    - **If the test lamp does not illuminate and the circuit fuse is open**
    1. Ignition OFF, remove the test lamp.
    2. Test for infinite resistance between the B+ circuit and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the K9 Body Control Module
    - **If the test lamp illuminates**
3. Ignition OFF, Connect the X5 harness connector at the K9 Body Control Module.
4. Ignition OFF and all vehicle systems OFF, disconnect the KR76A Retained Accessory Power Relay 1 and KR76B Retained Accessory Power Relay 2. It may take up to 2 min for all vehicle systems to power down.
5. Test for less than 10 Ω between the ground circuits listed below and ground.
    - KR76A Retained Accessory Power Relay 1 - Ground circuit terminal 85
    - KR76B Retained Accessory Power Relay 2 - Ground circuit terminal 85
    - **If 10 Ω or greater**
    1. Ignition OFF.
    2. Test for less than 2 Ω in the ground circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, repair the open/high resistance in the ground connection.
    - **If less than 10 Ω**
6. Ignition ON.
7. Verify a test lamp illuminates between the B+ circuits below and ground.
    - KR76A Retained Accessory Power Relay 1 - B+ circuit terminal 30
    - KR76B Retained Accessory Power Relay 2 - B+ circuit terminal 30
    - **If the test lamp does not illuminate**

      Replace the appropriate fuse block.

    - **If the test lamp illuminates**
8. Connect a test lamp between the control circuits listed below and ground
    - KR76A Retained Accessory Power Relay 1 - Control circuit terminal 86
    - KR76B Retained Accessory Power Relay 2 - Control circuit terminal 86
9. Verify the test lamp turns ON and OFF when commanding the Accessory/Retained Accessory Power Relay On and Off with a scan tool.
    - **If the test lamp is always OFF**
    1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module.

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2. Test for infinite resistance between the control circuit and ground.
    - If less than infinite resistance, repair the short to ground on the circuit.
    - If infinite resistance
3. Test for less than 2 Ω in the control circuit end to end.
    - If 2 Ω or greater, repair the open/high resistance in the circuit.
    - If less than 2 Ω, replace the K9 Body Control Module.

- **If the test lamp is always ON**

1. Ignition OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the control circuit and ground.
    - If 1 V or greater, repair the short to voltage on the circuit.
    - If less than 1 V, replace the K9 Body Control Module.

- **If the test lamp turns ON and OFF**

10. Connect the KR76A Retained Accessory Power Relay 1 and KR76B Retained Accessory Power Relay 2.
11. Disconnect the appropriate X80 Accessory Power Receptacle, T22 Mobile Device Wireless Charger Module, S68 Sliding Rear Window Switch, S63 Roof Beacon Switch, S25 Garage Door Opener, or M69 Sunroof Module.
12. Ignition OFF.
13. Verify that a test lamp does not illuminate between each of the ignition circuits listed below and ground.
    - X80A Accessory Power Receptacle - Center Console 1 - Ignition circuit terminal A
    - X80B Accessory Power Receptacle - Center Console 2 - Ignition circuit terminal A
    - X80D Accessory Power Receptacle - Center Console Compartment - Ignition circuit terminal A
    - X80E Accessory Power Receptacle - Center Seat - Ignition circuit terminal A
    - X80G Accessory Power Receptacle - Instrument Panel - Ignition circuit terminal A
    - X80J Accessory Power Receptacle - Instrument Panel 1 - Ignition circuit terminal A
    - X80K Accessory Power Receptacle - Instrument Panel 2 - Ignition circuit terminal A
    - X80L Accessory Power Receptacle - Center Console Rear - Ignition circuit terminal A
    - X32 Cigarette Lighter Receptacle - Ignition circuit terminal A
    - T22 Mobile Device Wireless Charger Module - Ignition circuit terminal 1
    - S68 Sliding Rear Window Switch - Ignition circuit terminal A
    - M69 Sunroof Module - Ignition circuit terminal 1
    - S63 Roof Beacon Switch - Ignition circuit terminal 3
    - S25 Garage Door Opener - Ignition circuit terminal 1
    - **If the test lamp illuminates**

      Repair the short to voltage on the ignition circuit.

    - **If the test lamp does not illuminate**
14. Ignition ON.
15. Verify that a test lamp illuminates between each of the ignition circuits listed below and ground.
    - X80A Accessory Power Receptacle - Center Console 1 - Ignition circuit terminal A
    - X80B Accessory Power Receptacle - Center Console 2 - Ignition circuit terminal A

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- X80D Accessory Power Receptacle - Center Console Compartment - Ignition circuit terminal A
- X80E Accessory Power Receptacle - Center Seat - Ignition circuit terminal A
- X80G Accessory Power Receptacle - Instrument Panel - Ignition circuit terminal A
- X80J Accessory Power Receptacle - Instrument Panel 1 - Ignition circuit terminal A
- X80K Accessory Power Receptacle - Instrument Panel 2 - Ignition circuit terminal A
- X80L Accessory Power Receptacle - Center Console Rear - Ignition circuit terminal A
- X32 Cigarette Lighter Receptacle - Ignition circuit terminal A
- T22 Mobile Device Wireless Charger Module - Ignition circuit terminal 1
- S68 Sliding Rear Window Switch - Ignition circuit terminal A
- M69 Sunroof Module - Ignition circuit terminal 1
- S63 Roof Beacon Switch - Ignition circuit terminal 3
- S25 Garage Door Opener - Ignition circuit terminal 1
- **If the test lamp does not illuminate and the circuit fuse is good**

1. Ignition OFF, remove the test lamp.
2. Test for less than 2 Ω in the ignition circuit end to end.
    - If 2 Ω or greater, repair the open/high resistance in the circuit.
    - If less than 2 Ω, test or replace the appropriate KR76A Retained Accessory Power Relay 1 or KR76B Retained Accessory Power Relay 2.

- **If the test lamp does not illuminate and the circuit fuse is open**

1. Ignition OFF.
2. Test for infinite resistance between the ignition circuit and ground.
    - If less than infinite resistance, repair the short to ground on the circuit.
    - If infinite resistance, test or replace the appropriate X80 Accessory Power Receptacle, T22 Mobile Device Wireless Charger Module, S68 Sliding Rear Window Switch, S63 Roof Beacon Switch, S25 Garage Door Opener, or M69 Sunroof Module.

- **If the test lamp illuminates**

16. Test or replace the appropriate X80 Accessory Power Receptacle, T22 Mobile Device Wireless Charger Module, S68 Sliding Rear Window Switch, S63 Roof Beacon Switch, S25 Garage Door Opener, or M69 Sunroof Module.

Component Testing

Relay Test

1. Ignition OFF, disconnect the appropriate relay.
2. Test for 70-150 Ω between terminals (85 or 1) and (86 or 2).
    - **If less than 70 or greater than 150 Ω**

      Replace the relay.

    - **If between 70-150 Ω**
3. Test for infinite resistance between the terminals listed below:
    - (30 or 3) and (86 or 2)
    - (30 or 3) and (87 or 5)

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- (30 or 3) and (85 or 1)
- (85 or 1) and (87 or 5)
- (86 or 2) and (87 or 5)
- **If less than infinite resistance**

  Replace the relay.

- **If infinite resistance**

4. Install a 3 A fused jumper wire between relay terminal (85 or 1) and 12 V. Install a jumper wire between relay terminal (86 or 2) and ground.
5. Test for less than 5.0 Ω between terminals (30 or 3) and (87 or 5).
   - **If 5.0 Ω or greater**

     Replace the relay.

   - **If less than 5.0 Ω**
6. All OK

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

- **Accessory Power Receptacle Replacement**
- **Control Module References** for body control module replacement, programming and setup.

VEHICLE WILL NOT CHANGE POWER MODE

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptors

DTC B1370

Control Module Ignition ON and Start Circuit

DTC B1380

Control Module Ignition Accessory Circuit

DTC B1441

Control Module Ignition OFF, Run, and Start Circuit

For symptom byte information refer to **Symptom Byte List**

Diagnostic Fault Information

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Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B+	B1370 04, B1380 04	B1370 04, B1380 04	-	-
Ignition Terminal 2	B1370 04, B1380 04	B1370 04, B1380 04	B1370 01	-
Ignition Terminal 3	B1370 04, B1380 04	B1380 04	B1380 01	-
Ignition Terminal 5	B1370 04, B1380 04, B1441 04	B1441 04	B1441 04	-
5 V Reference	-	1	-	-
1. Power Mode Mismatch				

Circuit/System Description

The vehicle power mode master is the body control module (BCM). The ignition switch is a low current switch with multiple discrete circuits to the BCM. The BCM logic uses the ignition switch positions to identify the operator's desired power mode and activate specific discrete signals, and serial data messages for the operation of different subsystems as necessary. Other modules which have switched voltage inputs may operate in a default mode if the power mode master serial data message does not match what the individual module can detect from its own connections.

The power mode master will activate relays and other direct outputs of the power mode master as needed according to the calculated power mode. Some relays controlled by the BCM are switched ignition voltage outputs that are pass through circuits within the BCM directly from the ignition switch. If these circuits short to ground, the B+ circuit fuse to the ignition switch will open.

Conditions for Running the DTC

B1370 01, B1370 04

Ignition switch is in the RUN or CRANK positions.

B1380 01, B1380 04

Ignition switch is in the RUN or ACCESSORY positions.

B1441 01, B1441 04

Ignition switch is in the CRANK position.

Conditions for Setting the DTC

B1370 01

Ignition circuit is shorted to voltage.

B1370 04

- Ignition circuit is open.
- Ignition, accessory, or off/run/crank circuit shorted to ground.

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- B+ circuit of the ignition switch is open or shorted to ground.
- Ignition relay control circuit open, including relay coil and ground.

B1380 01

Ignition, accessory circuit is shorted to voltage.

B1380 04

- Ignition, accessory circuit is open.
- Ignition, accessory, or off/run/crank circuit shorted to ground.
- B+ circuit of the ignition switch is open or shorted to ground.

B1441 01

Ignition, off/run/crank signal circuit is shorted to voltage.

B1441 04

Ignition, off/run/crank signal circuit is open.

Actions Taken When the DTC Sets

- The BCM operates in a fail-safe power mode dependent on the last valid power mode detected and the state of the engine run flag data on the serial data communications circuits.
- The other modules on the vehicle operate in a fail-safe power mode dependent on the last valid power mode transmitted by the BCM and the state of the engine run flag on the serial data communications circuits.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 50 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

Power Distribution Schematics (1500) Power Distribution Schematics ((2500/3500))

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Mode Description and Operation

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**

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- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Verify DTC U1814 is not set.
   - **If DTC is set**

     Refer to **Diagnostic Trouble Code (DTC) List - Vehicle** .

   - **If DTC is not set**
2. Ignition ON.
3. Verify the scan tool power mode parameters change when cycling the S39 Ignition Switch between OFF, Accessory, ON, and Start.
   - **If the power mode parameters do not change**

     Refer to Circuit/System Testing.

   - **If the power mode parameters change**
4. All OK.

Circuit/System Testing

1. Ignition OFF, disconnect the S39 Ignition Switch.
2. Verify a test lamp illuminates between the B+ circuit terminal 4 and ground.
   - **If the test lamp does not illuminate and the circuit fuse is good**
   1. Remove the test lamp.
   2. Test for less than 2 Ω in the B+ circuit end to end.
      - If 2 Ω or greater, repair the open/high resistance in the circuit.
      - If less than 2 Ω, verify the fuse is good and there is voltage at the fuse.
   - **If the test lamp does not illuminate and the circuit fuse is open**
   1. Remove the test lamp.
   2. Test for infinite resistance between the B+ circuit and ground.
      - If less than infinite resistance, repair the short to ground on one of the following circuits listed below:

        NOTE: **To help isolate a short to ground, it may be necessary to disconnect modules that are connected to the following circuits:**

        -
        - B+ circuit terminal 4
        - Ignition circuit terminal 2

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- Ignition circuit terminal 3
- Ignition circuit terminal 5

- **If the test lamp illuminates**

3. Connect the S39 Ignition Switch.
4. Ignition ON, disconnect the harness connector at the S39 Ignition Switch while the ignition is ON.
5. Test for 4.8-5.2 V between the 5 V reference circuit terminal 6 and ground.

- **If less than 4.8 V**

1. Connect the S39 Ignition Switch.
2. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module and S39 Ignition Switch.
3. Test for infinite resistance between the 5 V reference circuit and ground.
    - If less than infinite resistance, repair the short to ground on the circuit.
    - If infinite resistance
4. Test for less than 2 Ω in the 5 V reference circuit end to end.
    - If 2 Ω or greater, repair the open/high resistance in the circuit.
    - If less than 2 Ω, replace the K9 Body Control Module.

- **If greater than 5.2 V**

1. Connect the S39 Ignition Switch.
2. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module.
3. Ignition ON, disconnect the harness connector at the S39 Ignition Switch while the ignition is ON.
4. Test for less than 1 V between the 5 V reference circuit and ground.
    - If 1 V or greater, repair the short to voltage on the circuit.
    - If less than 1 V, replace the K9 Body Control Module.

- **If between 4.8-5.2 V**

6. Connect the S39 Ignition Switch.
7. Ignition OFF.
8. Disconnect the X3 harness connector at the K9 Body Control Module, ignition ON.
9. Verify a test lamp illuminates between each of the ignition circuits listed below and ground:
    - Ignition circuit terminal 5
    - Ignition circuit terminal 6
    - **If the test lamp does not illuminate and the circuit fuse is good**

1. Ignition OFF remove the test lamp.
2. Test for less than 2 Ω in the ignition circuit end to end.
    - If 2 Ω or greater, repair the open/high resistance in the circuit.
    - If less than 2 Ω, verify the fuse is good and there is voltage at the fuse.

- **If the test lamp does not illuminate and the circuit fuse is open**

1. Ignition OFF remove the test lamp.
2. Test for infinite resistance between the ignition circuit and ground.
    - If less than infinite resistance, repair the short to ground on the circuit.
    - If infinite resistance, replace the K9 Body Control Module.

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- **If the test lamp illuminates**

10. Ignition OFF with the key in.
11. Verify a test lamp illuminates between ignition circuit terminal 15 and ground.
    - **If the test lamp does not illuminate and the circuit fuse is good**
    1. Ignition OFF with the key out, remove the test lamp.
    2. Test for less than 2 Ω in the ignition circuit end to end.
        - If 2 Ω or greater, repair the open/high resistance in the circuit.
        - If less than 2 Ω, verify the fuse is good and there is voltage at the fuse.
    - **If the test lamp does not illuminate and the circuit fuse is open**
    1. Ignition OFF with the key out remove the test lamp.
    2. Test for infinite resistance between the ignition circuit terminal 15 and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the K9 Body Control Module.
    - **If the test lamp illuminates**
12. Connect the X3 harness connector at the K9 Body Control Module, ignition ON.
13. Disconnect the S39 Ignition Switch.
14. Test for less than 1 V between each of the ignition circuits listed below and ground.
    - Ignition circuit terminal 2
    - Ignition circuit terminal 3
    - Ignition circuit terminal 5
    - **If 1 V or greater**

      Repair the short to voltage on the circuit.

    - **If less than 1 V**
15. Test or replace the S39 Ignition Switch.

Component Testing

1. Ignition OFF, disconnect the harness connector at the S39 Ignition Switch.
2. Using the Resistance Test below, verify the resistance between the terminals listed below match for each S39 Ignition Switch position.
    - **If any reading is other than specified**

      Replace the S39 Ignition Switch.

    - **If the readings match**
3. All OK.

Resistance Test

Ignition Switch Position	Terminals 6 and 5	Terminals 6 and 4	Terminals 4 and 5	Terminals 2 and 4	Terminals 3 and 4
OFF Key Out	Infinite	Infinite	Infinite	Infinite	Infinite
OFF Key In	Infinite	Infinite	<5.0 Ω	Infinite	Infinite
Accessory	Infinite	Infinite	Infinite	Infinite	<5.0 Ω

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Ignition Switch Position	Terminals 6 and 5	Terminals 6 and 4	Terminals 4 and 5	Terminals 2 and 4	Terminals 3 and 4
Run	<5.0 Ω	Infinite	Infinite	<5.0 Ω	<5.0 Ω
Start	1275-1325 Ω	Infinite	Infinite	<5.0 Ω	Infinite

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

- **Ignition and Start Switch Replacement**
- **Control Module References** for the appropriate control module replacement, programming and setup.

GENERAL ELECTRICAL DIAGNOSIS

Basic Knowledge Required

Without a basic knowledge of electricity, it will be difficult to use the diagnostic procedures contained in the service manual. You should understand the basic theory of electricity, and know the meaning of voltage (V), current (A), and resistance (Ω). You should also be able to read and understand a wiring diagram, as well as understand what happens in a circuit with an open or a shorted wire.

CHECKING AFTERMARKET ACCESSORIES

WARNING: Refer to SIR Warning .

Do not connect aftermarket accessories into the SIR circuits, all such circuits are indicated on circuit diagrams with the SIR symbol.

Always check for aftermarket accessories (non-OEM) as the first step in diagnosing electrical problems. If the vehicle is so equipped, disconnect the system to verify that these add-on accessories are not the cause of the problems.

Possible causes of vehicle problems related to aftermarket accessories include:

- Power feeds connected to points other than the battery
- Antenna location
- Transceiver wiring located too close to vehicle electronic modules or wiring
- Poor shielding or poor connectors on antenna feed line
- Check for recent service bulletins detailing installation guidelines for aftermarket accessories.

CIRCUIT TESTING

The Circuit Testing section contains the following diagnostic testing information. Using this information along with the diagnostic procedures will identify the cause of the electrical malfunction.

- **Using Connector Test Adapters**
- **Probing Electrical Connectors**
- **Troubleshooting with a Digital Multimeter**
- **Troubleshooting with a Test Lamp**
- **Using Fused Jumper Wires**

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- Measuring Voltage
- Measuring Voltage Drop
- Measuring Frequency
- Testing Ground and Low Reference Circuits
- Testing for Continuity
- Testing for Short to Ground
- Testing for a Short to Voltage
- Testing for Intermittent Conditions and Poor Connections
- Inducing Intermittent Fault Conditions
- Testing for Electrical Intermittents
- Scan Tool Snapshot Procedure
- Circuit Protection - Fuses
- Circuit Protection - Circuit Breakers
- Circuit Protection - Fusible Links

USING CONNECTOR TEST ADAPTERS

Special Tools

- **EL-35616** Terminal Test Probe Kit
- **EL-38125-550** Terminal Release Tool Kit

For equivalent regional tools, refer to **Special Tools** .

CAUTION: **Do not insert test equipment probes (DMM etc.) into any connector or fuse block terminal. The diameter of the test probes will deform most terminals. A deformed terminal will cause a poor connection, which will result in a system failure. Always use the EL-35616 GM Approved Terminal Test Probe Kit in order to front probe terminals. Do not use paper clips or other substitutes to probe terminals.**

When using the EL-35616 GM Approved Terminal Test Probe Kit, ensure the terminal test adapter choice is the correct size for the connector terminal. Do not visually choose the terminal test adapter because some connector terminal cavities may appear larger than the actual terminal in the cavity. Using a larger terminal test adapter will damage the terminal. Refer to the EL-35616 GM Approved Terminal Test Probe Kit label on the inside of the EL-35616 GM Approved Terminal Test Probe Kit for the correct adapter along with the connector end view.

PROBING ELECTRICAL CONNECTORS

Special Tools

EL-35616 Terminal Test Probe Kit

For equivalent regional tools, refer to **Special Tools** .

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NOTE: **Always be sure to reinstall the connector position assurance (CPA) and terminal position assurance (TPA) when reconnecting connectors or replacing terminals.**

Front probe

Disconnect the connector and probe the terminals from the mating side (front) of the connector.

CAUTION: **Refer to Test Probe Caution .**

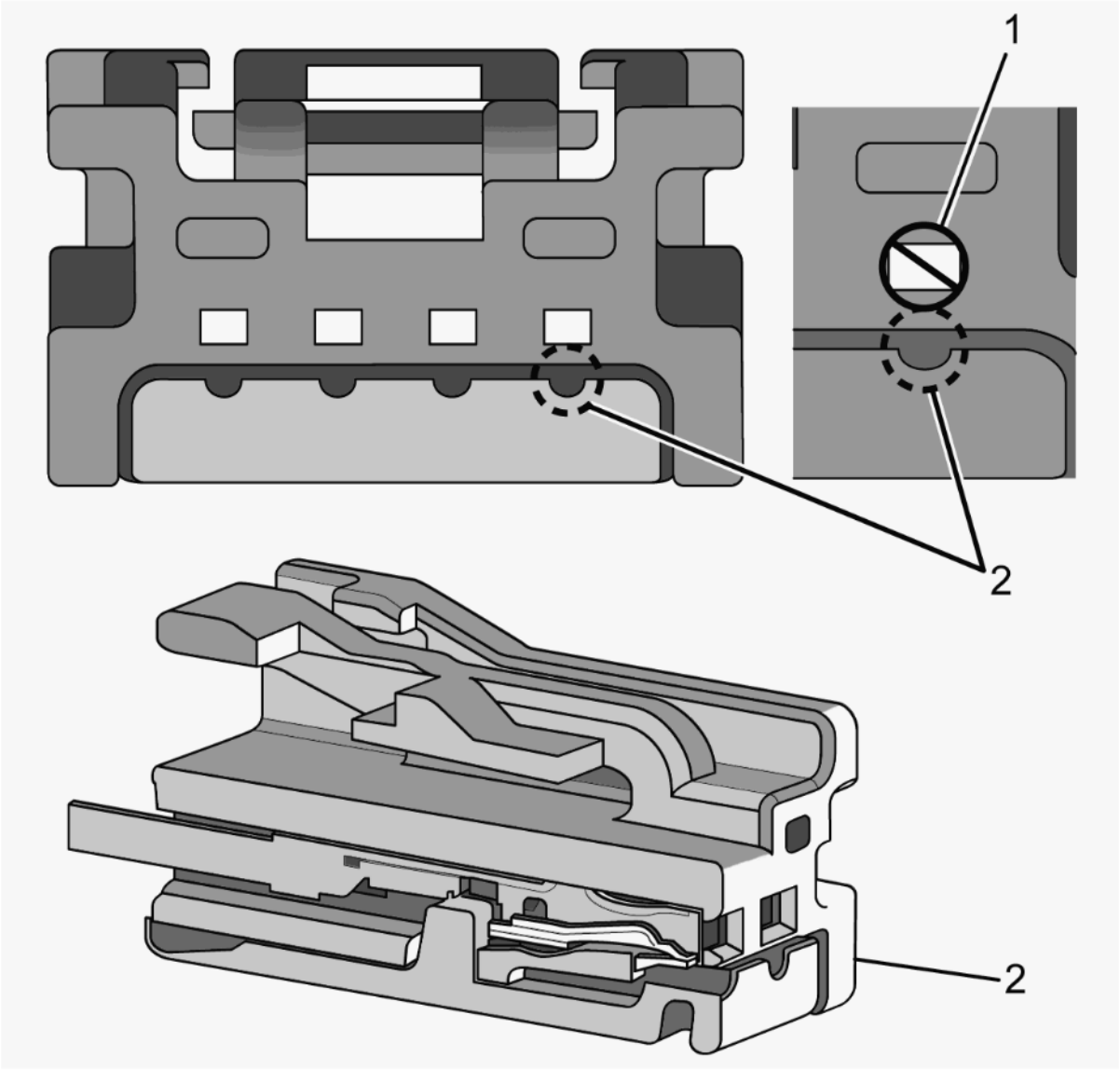

Fig. 1: Probing Terminal
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Connectors with 0.50 terminals should not be probed within the female terminal (1). Damage may occur to the terminal and result in improper diagnosis. There is a test point on the connector (2) next to the terminal where testing should be performed.**

NOTE: **When probing female 0.64 terminals, it is important to use the correct adapter. There have been some revisions to the test adapter for 0.64 terminals. The**

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proper adapter for 0.64 terminals is the J-35616-64B which has a gold terminal and a black wire between the base and tip. Failure to use the proper test adapter may result in damage to the terminal being tested and improper diagnosis.

NOTE: **The proper adapter for probing the terminals for fuses, relays, or diodes in an electrical center is J-35616-35. Using any other tool or adapter may damage the terminal being tested.**

Refer to the following table as a guide in selecting the correct test adapter for front probing connectors:

Test Adapter	Description
J-35616-2A	150 Male Probe Adapter (gray)
J-35616-3	150 Female Probe Adapter (gray)
J-35616-4A	280 Male Probe Adapter (purple)
J-35616-5	280 Female Probe Adapter (purple)
J-35616-6	100W Male (round) Probe Adapter (brown)
J-35616-7	100W Female (round) Probe Adapter (brown)
J-35616-8	Weather Pack Male Probe Adapter (orange)
J-35616-9	Weather Pack Female Probe Adapter (orange)
J-35616-10	100W Male (round) Probe Adapter (green)
J-35616-11	100W Female (round) Probe Adapter (green)
J-35616-12	130 Male Probe Adapter (blue)
J-35616-13	130 Female Probe Adapter (blue)
J-35616-14	150 Male Probe Adapter (green)
J-35616-16	100 Male Probe Adapter (lt green)
J-35616-17	100 Female Probe Adapter (lt green)
J-35616-18	220 Male Probe Adapter (black)
J-35616-19	220 Female Probe Adapter (black)
J-35616-21	950 Female Probe Adapter (red)
J-35616-22	950 Male Probe Adapter (red)
J-35616-31	500 Male Probe Adapter (orange)
J-35616-32	500 Female Probe Adapter (orange)
J-35616-33	160/180 Male Probe Adapter (yellow)
J-35616-34	160/180 Female Probe Adapter (yellow)
J-35616-35	280 Male Probe Adapter (violet)
J-35616-40	480 Male Probe Adapter (dk blue)
J-35616-41	480 Female Probe Adapter (dk blue)
J-35616-42	630 Male Probe Adapter (red)
J-35616-43	630 Female Probe Adapter (red)
J-35616-44	800 Male Probe Adapter (yellow)
J-35616-45	800 Female Probe Adapter (yellow)
J-35616-54	280 Male (round) Probe Adapter (tan)
J-35616-55	280 Female (round) Probe Adapter (tan)
J-35616-64B	0.64 Male Probe Adapter (lt blue)
J-35616-65B	0.64 Female Probe Adapter (lt blue)

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Test Adapter	Description
J-35616-66	150 Male (round) Probe Adapter (yellow)
J-35616-67	150 Female (round) Probe Adapter (yellow)

Backprobe

NOTE:

- **Backprobe connector terminals only when specifically required in diagnostic procedures.**
- **Do not backprobe a sealed (Weather PackÂ®) connector, less than a 280 series Metri-Pack connector, a Micro-Pack connector, or a flat wire connector.**
- **Backprobing can be a source of damage to connector terminals. Use care in order to avoid deforming the terminal, either by forcing the test probe too far into the cavity or by using too large of a test probe.**
- **After backprobing any connector, inspect for terminal damage. If terminal damage is suspected, test for proper terminal contact.**

Do not disconnect the connector and probe the terminals from the harness side (back) of the connector.

TROUBLESHOOTING WITH A DIGITAL MULTIMETER

Special Tools

EL-39200 Digital Multimeter (DMM)

For equivalent regional tools, refer to **Special Tools** .

CAUTION: **Refer to Test Probe Caution .**

Digital Multimeter (DMM) Basic Requirements

Service information is validated using digital multimeters that meet or exceed the following requirements. Using a multimeter that does not meet these basic requirements may give inaccurate readings which could lead to an incorrect diagnosis.

Display and Settings

1. Four digits displayed
2. Voltage, current, resistance, frequency, diode test settings, and min-max function
3. Display positive and negative values

Voltage

1. Have at least 10 MΩ input impedance
2. Test a DC voltage range of 0.1-1000 V.
3. Test an AC voltage range of 0.1-1000 V.

Current

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1. Test a DC current range of 0.1 µA-10 A.
2. Test an AC current range of 0.1 µA-10 A.

Resistance

Test a resistance range of 0.1 Ω-40 MΩ and displays infinite for a value greater than 40 MΩ (O.L. (Over-load))

Frequency

Test for a frequency range of 0.5 Hz-199 k Hz

Diode Test

1. Apply at least 1 mA when performing the diode bias test
2. Display the break over voltage drop (0-3 V) of a forward biased diode
3. Display infinite (O.L. (Over-load)) when a diode is reverse biased

Min-Max Readings

1. Can update at a 25 ms sample rate
2. Saves and displays minimum and maximum values

NOTE: Circuits which include any solid state control modules, such as the engine control module (ECM), should only be tested with a 10 MΩ or higher impedance digital multimeter such as the EL-39200.

The DMM instruction manual is a good source of information and should be read thoroughly upon receipt of the DMM as well as kept on hand for future reference.

A DMM should be used instead of a test lamp in order to test for voltage in high impedance circuits. While a test lamp shows whether voltage is present if the impedance is low enough, a DMM indicates how much voltage is present. In other words, if there is not enough current, the test lamp will not illuminate even though voltage is present.

The ohmmeter function on a DMM shows how much resistance exists between 2 points along a circuit. Low resistance in a circuit means good continuity.

NOTE: Disconnect the power feed from the suspect circuit when measuring resistance with a DMM. This prevents incorrect readings. DMMs apply such a small voltage to measure resistance that the presence of voltages can upset a resistance reading.

Diodes and solid state components in a circuit can cause a DMM to display a false reading. To find out if a component is affecting a measurement take a reading once, then reverse the leads and take a second reading. If the readings differ the solid state component is affecting the measurement.

Following are examples of the various methods of connecting the DMM to the circuit to be tested:

- Probe both ends of the connector and either hold the leads in place while manipulating the connector or tape the leads to the harness for continuous monitoring while you perform other operations or test driving. Refer to **Probing Electrical Connectors**.

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- Disconnect the harness at both ends of the suspected circuit where it connects either to a component or to other harnesses.
- If the system that is being diagnosed has a specified pinout or breakout box, it may be used in order to simplify connecting the DMM to the circuit or for testing multiple circuits quickly.

TROUBLESHOOTING WITH A TEST LAMP

Special Tools

EL-35616-210 Test Light - Probe Kit

NOTE: **Always use the proper replacement bulb (*6614F* Test Light Bulb (not LED)).**

For equivalent regional tools, refer to **Special Tools** .

CAUTION: **Refer to Test Probe Caution .**

A test lamp can simply and quickly test a low impedance circuit for voltage. A Digital Multimeter (DMM) should be used instead of a test lamp in order to test for voltage in high impedance circuits. While a test lamp shows whether voltage is present if the impedance is low enough, a DMM indicates how much voltage is present. In other words, if there is not enough current, the test lamp will not illuminate even though voltage is present.

The **EL-35616-210** kit is Micro-Pack compatible and includes a 12 V test lamp.

To properly operate this tool use the following procedures.

When testing for voltage:

1. Attach one lead to ground.
2. Touch the other lead to various points along the circuit where voltage should be present.
3. When the bulb illuminates, there is voltage at the point being tested.

When testing for ground:

1. Attach one lead to battery positive voltage.
2. Touch the other lead to various points along the circuit where ground should be present.
3. When the bulb illuminates, there is ground at the point being tested.

USING FUSED JUMPER WIRES

Special Tools

EL 35616-20F Fused Jumper Wire

For equivalent regional tools, refer to **Special Tools** .

NOTE: **A fused jumper may not protect solid state components from being damaged.**

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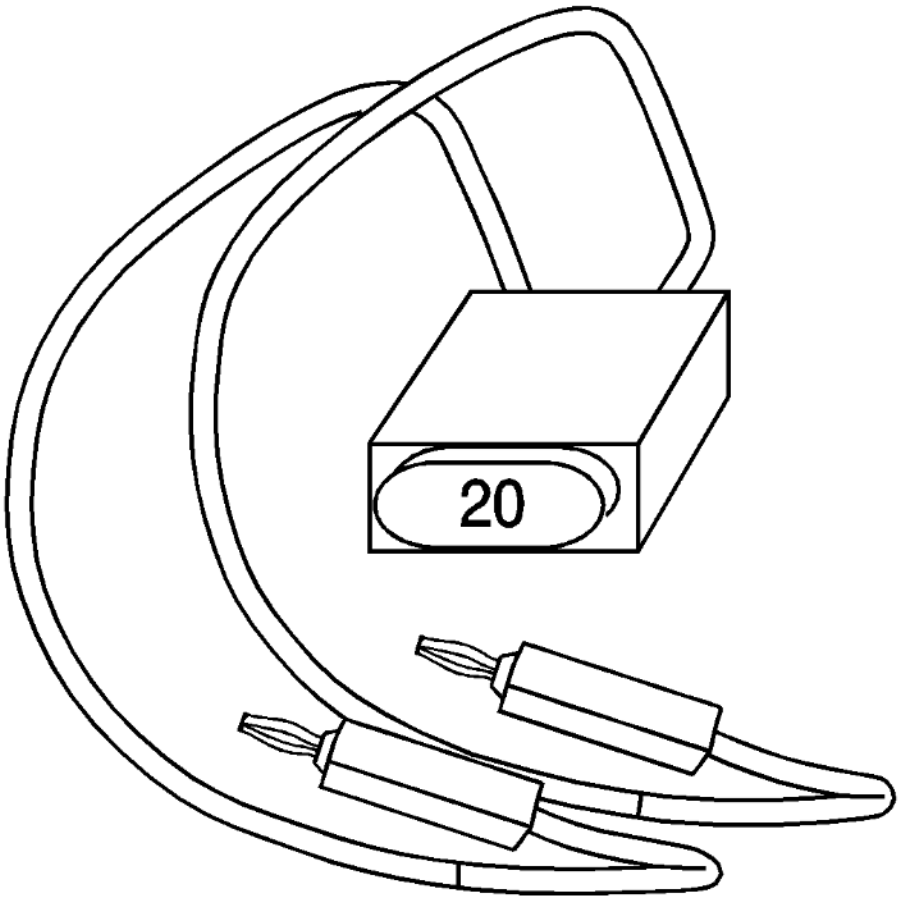

Fig. 2: Fused Jumper Wire
Courtesy of GENERAL MOTORS COMPANY

The **EL 35616-20F** Fused Jumper Wire includes banana jack connectors that provide adaptation to most connectors without damage. This fused jumper wire is supplied with a 20 A fuse which may not be suitable for some circuits. Do not use a fuse with a higher rating than the fuse that protects the circuit being tested.

MEASURING VOLTAGE

Special Tools

EL-39200 Digital Multimeter (DMM)

For equivalent regional tools, refer to **Special Tools** .

CAUTION: Refer to Test Probe Caution .

The following procedure measures the voltage at a selected point in a circuit.

1. Disconnect the electrical harness connector for the circuit being tested, if necessary.
2. Enable the circuit and/or system being tested. Use the following methods:

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- Turn ON the ignition, with the engine OFF.
- Turn ON the engine.
- Turn ON the circuit and/or system with a scan tool in Output Controls.
- Turn ON the switch for the circuit and/or system being tested.

3. Select the V (AC) or V (DC) position on the Digital Multimeter (DMM).
4. Connect the positive lead of the DMM to the point of the circuit to be tested.
5. Connect the negative lead of the DMM to a good ground.
6. The DMM displays the voltage measured at that point.

MEASURING VOLTAGE DROP

Special Tools

EL-39200 Digital Multimeter (DMM)

For equivalent regional tools, refer to **Special Tools** .

CAUTION: Refer to Test Probe Caution .

The following procedure determines the difference in voltage potential between 2 points.

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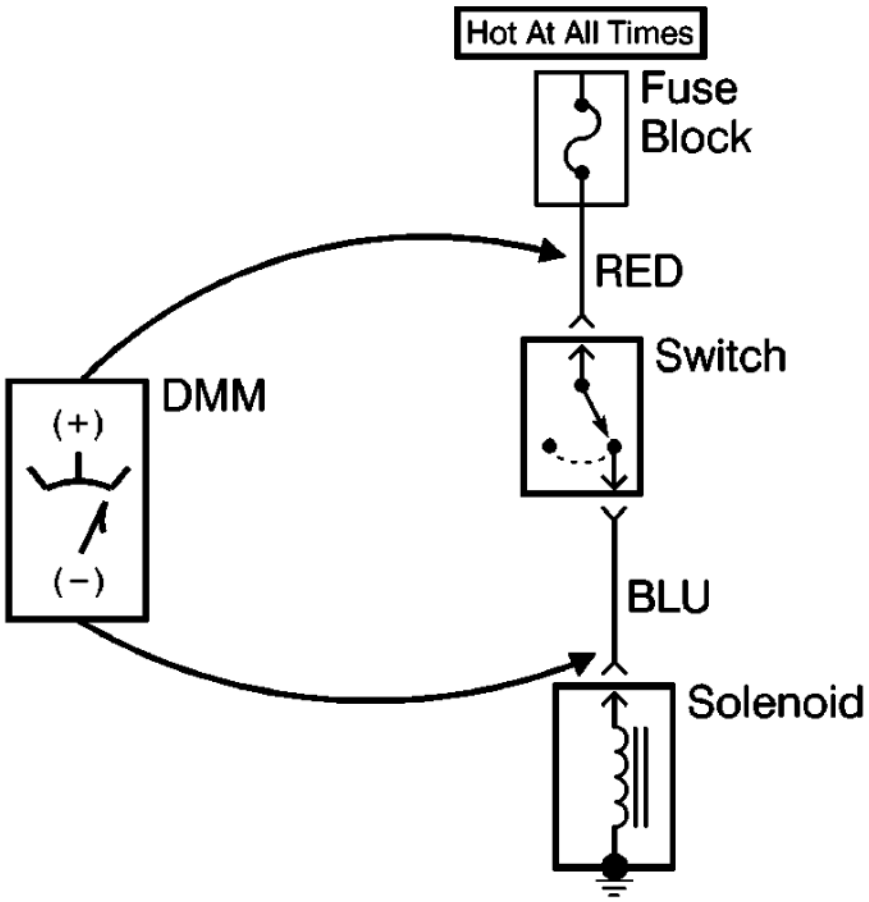

Fig. 3: Measuring Voltage Drop
Courtesy of GENERAL MOTORS COMPANY

1. Set the Digital Multimeter (DMM) to the V (DC) position.
2. Connect the positive lead of the DMM to one point of the circuit to be tested.
3. Connect the negative lead of the DMM to the other point of the circuit.
4. Operate the circuit.
5. The DMM displays the difference in voltage between the 2 points.

MEASURING FREQUENCY

Special Tools

EL-39200 Digital Multimeter (DMM)

For equivalent regional tools, refer to **Special Tools** .

CAUTION: Refer to Test Probe Caution .

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The following procedure determines the frequency of a signal.

NOTE: **Connecting the Digital Multimeter (DMM) to the circuit before pressing the Hz button will allow the DMM to autorange to an appropriate range.**

1. Apply power to the circuit.
2. Set the DMM to the V (AC) position.
3. Connect the positive lead of the DMM to the circuit to be tested.
4. Connect the negative lead of the DMM to a good ground.
5. Set to Hz on the DMM.
6. The DMM will display the frequency measured.

TESTING GROUND AND LOW REFERENCE CIRCUITS

Because a test lamp can light with up to 200 Ω in a ground or low reference circuit they are not recommended to be used for this type of test. A low impedance test lamp can light and indicate the circuit is good when there is as much as 20-30 Ω present, while a high impedance test lamp can light with up to 200 Ω present in the circuit. This is why the Digital Multi-Meter (DMM) is used when validating a ground or low reference circuit continuity.

When using the DMM there are many vehicle conditions that can affect the ground and low reference continuity testing. If these conditions are not met, a ground or low reference circuit test can fail on a good circuit. This may cause longer diagnosis time and incorrect component replacement.

Any current flow through a ground or low reference circuit, while being tested, will skew the DMM continuity reading, or display a reading higher than when there is no current flowing. Performing a ground or low reference circuit continuity test, in reference to the vehicles battery negative terminal, will have the highest risk of failing a good ground or low reference circuit test than any other ground reference point. The best ground test points would be a control module housing (if the control modules housing is metal and grounded), under dash metal frame work, engine block, or body ground studs (other than where the negative battery cable is attached).

A typical DMM ground or low reference circuit continuity reading can be as high as 100 Ω with the ignition ON, and drop to 15-25 Ω after the ignition is turned OFF. The reading will drop below 10 Ω after 30-40 seconds, then below 5 Ω after 60 seconds. Once the vehicle completely goes to sleep (generally 3-10 minutes) the reading will drop below 0.3 Ω.

The following list of conditions may need to be met to ensure a valid continuity reading on a ground or low reference circuit:

- Ignition OFF
- Key out of the ignition switch (when not equipped with keyless entry and remote start)
- Retained Accessory Power (RAP) OFF (open and close the driver door after ignition OFF)
- Battery charger set at a 2 A or less charge rate
- Scan tool not communicating with any vehicle control module (in some cases it may need to be disconnected from the DLC)
- All entry doors closed
- Headlamps OFF (auto headlamps disabled)
- Any delay lighting OFF

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- HVAC after blow OFF
- Any accessory that can work when the ignition is OFF
- Wait up to 60 seconds (after all other listed conditions are met)

Activating the DOOR LOCK function with a key fob can greatly reduce the time to achieve a valid ground or low reference continuity test result.

TESTING FOR CONTINUITY

Special Tools

EL-39200 Digital Multimeter (DMM)

For equivalent regional tools, refer to **Special Tools** .

CAUTION: Refer to Test Probe Caution .

The following procedures verify good continuity in a circuit.

With a Digital Multimeter (DMM)

1. Set the DMM to the Ω position.
2. Disconnect the power feed (i.e. fuse, control module) from the suspect circuit.
3. Disconnect the load.
4. Select the MIN MAX function on the DMM.
5. Connect one lead of the DMM to one end of the circuit to be tested.
6. Connect the other lead of the DMM to the other end of the circuit.
7. If the DMM displays low or no resistance, the circuit has good continuity.

With a Test Lamp

NOTE: Only use the test lamp procedure on low impedance power and ground circuits.

1. Remove the power feed (i.e. fuse, control module) from the suspect circuit.
2. Disconnect the load.
3. Connect one lead of the test lamp to one end of the circuit to be tested.
4. Connect the other lead of the test lamp to battery positive voltage.
5. Connect the other end of the circuit to ground.
6. If the test lamp illuminates (full intensity), then the circuit has good continuity.

TESTING FOR SHORT TO GROUND

CAUTION: Refer to Test Probe Caution .

The following procedures test for a short to ground in a circuit.

With a Digital Multimeter (DMM)

1. Remove the power feed (i.e. fuse, control module) from the suspect circuit.

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2. Disconnect the load.
3. Set the rotary dial of the DMM to the Ω position.
4. Connect one lead of the DMM to one end of the circuit to be tested.
5. Connect the other lead of the DMM to a good ground.
6. If the DMM does NOT display infinite resistance (OL), there is a short to ground in the circuit.

With a Test Lamp

1. Remove the power feed (i.e. fuse, control module) from the suspect circuit.
2. Disconnect the load.
3. Connect one lead of the test lamp to battery positive voltage.
4. Connect the other lead of the test lamp to one end of the circuit to be tested.
5. If the test lamp illuminates, there is a short to ground in the circuit.

Fuse Powering Several Loads

1. Review the system schematic and locate the fuse that is open.
2. Open the first connector or switch leading from the fuse to each load.
3. Connect a DMM across the fuse terminals (be sure that the fuse is powered).
    - When the DMM displays voltage the short is in the wiring leading to the first connector or switch.
    - If the DMM does not display voltage refer to the next step.
4. Close each connector or switch until the DMM displays voltage in order to find which circuit is shorted.

TESTING FOR A SHORT TO VOLTAGE

Special Tools

EL-39200 Digital Multimeter (DMM)

For equivalent regional tools, refer to **Special Tools** .

CAUTION: Refer to Test Probe Caution .

The following procedure tests for a short to voltage in a circuit.

1. Remove the power feed (i.e. fuse, control module) from the suspect circuit.
2. Disconnect the load.
3. Set the Digital Multimeter (DMM) to the V (DC) position.
4. Connect the positive lead of the DMM to one end of the circuit to be tested.
5. Connect the negative lead of the DMM to a good ground.
6. Turn ON the ignition and operate all accessories.
7. If the voltage measured is greater than 1 V, there is a short to voltage in the circuit.

TESTING FOR INTERMITTENT CONDITIONS AND POOR CONNECTIONS

Special Tools

EL-35616 Terminal Test Probe Kit

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For equivalent regional tools, refer to **Special Tools** .

When the condition is not currently present, but is indicated in DTC history, the cause may be intermittent. An intermittent may also be the cause when there is a customer complaint, but the symptom cannot be duplicated. Refer to the Symptom Table of the system that is suspect of causing the condition before trying to locate an intermittent condition.

Most intermittent conditions are caused by faulty electrical connections or wiring. Inspect for the following items:

- Loose, corroded, or painted terminal stud/fastener
- Wiring broken inside the insulation
- Poor connection between the male and female terminal at a connector
- A terminal not seated all the way into the connector body
- Poor terminal to wire connection - Some conditions which fall under this description are poor crimps, poor solder joints, crimping over the wire insulation rather than the wire itself, and corrosion in the wire to terminal contact area, etc.
- Pierced or damaged insulation can allow moisture to enter the wiring causing corrosion. The conductor can corrode inside the insulation, with little visible evidence. Look for swollen and stiff sections of wire in the suspect circuits.
- Wiring which has been pinched, cut, or its insulation rubbed through may cause an intermittent open or short as the bare area touches other wiring or parts of the vehicle.
- Wiring that comes in contact with hot or exhaust components
- Refer to **Inducing Intermittent Fault Conditions** in order to duplicate the conditions required, in order to verify the customer concern.
- Refer to **Testing for Electrical Intermittents** for test procedures to detect intermittent open, high resistance, short to ground, and short to voltage conditions.
- Refer to **Scan Tool Snapshot Procedure** for advanced intermittent diagnosis and Vehicle Data Recorder operation.

Testing for Terminal Fretting

Some intermittent conditions can be caused by wire terminal fretting corrosion. Fretting corrosion is a build-up of insulating, oxidized wear debris that can form when there is a small motion between electrical contacts. The oxidized wear debris can pile up enough at the electrical contact spots that the electrical resistance across the connection increases. Movement between the contacting surfaces as small as 10 to 100 microns can cause fretting. To put this in perspective, a sheet of paper is about 100 microns thick, so fretting motion is small and hard to see. Vibration and thermal expansion/contraction are the main sources that create fretting motion. Since vehicles vibrate and can experience large temperature swings, they are a good source for fretting motion. Tin, copper, nickel, and iron surfaces are all susceptible to fretting corrosion. Fretting corrosion can be difficult to see but it looks like small, dark smudges on the terminals contact surface.

To correct a fretting condition disconnect the suspect connector and add dielectric grease / lubricant (Nyogel 760G or equivalent, meeting GM specification 9986087) to both sides of the connector terminals. Then reconnect the connector and wipe away any excess lubricant. This will correct the additional terminal contact resistance due to the terminal fretting corrosion.

Testing for Proper Terminal Contact

It is important to test terminal contact at the component and any inline connectors before replacing a suspect

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component. Mating terminals must be inspected to ensure good terminal contact. A poor connection between the male and female terminal at a connector may be the result of contamination or deformation.

Contamination may be caused by the connector halves being improperly connected. A missing or damaged connector seal, damage to the connector itself, or exposing the terminals to moisture and dirt can also cause contamination. Contamination, usually in the underhood or underbody connectors, leads to terminal corrosion, causing an open circuit or intermittently open circuit.

Deformation is caused by probing the mating side of a connector terminal without the proper adapter. Always use the **EL-35616** kit when probing connectors. Other causes of terminal deformation are improperly joining the connector halves, or repeatedly separating and joining the connector halves. Deformation, usually to the female terminal contact tang, can result in poor terminal contact causing an open or intermittently open circuit.

Testing for Proper Terminal Contact in Bussed Electrical Centers

It is very important to use the correct test adapter when testing for proper terminal contact of fuses and relays in a bussed electrical center. Use the **EL-35616** kit to test for proper terminal contact. Failure to use the **EL-35616** kit can result in improper diagnosis of the bussed electrical center.

Follow the procedure below in order to test terminal contact:

1. Separate the connector halves.
2. Visually inspect the connector halves for contamination. Contamination may result in a white or green build-up within the connector body or between terminals. This causes high terminal resistance, intermittent contact, or an open circuit. An underhood or underbody connector that shows signs of contamination should be replaced in its entirety: terminals, seals, and connector body.
3. Using an equivalent male terminal/terminated lead, verify that the retention force is significantly different between a known good terminal and the suspect terminal. Replace the female terminal in question.

Flat Wire Connectors

There are no serviceable parts for flat wire connectors on the harness side or the component side.

Follow the procedure below in order to test terminal contact:

1. Remove the component in question.
2. Visually inspect each side of the connector for signs of contamination. Avoid touching either side of the connector as oil from your skin may be a source of contamination as well.
3. Visually inspect the terminal bearing surfaces of the flat wire circuits for splits, cracks, or other imperfections that could cause poor terminal contact. Visually inspect the component side connector to ensure that all of the terminals are uniform and free of damage or deformation.
4. Insert the appropriate adapter into the flat wire harness connector in order to test the circuit in question.

Control Module/Component Voltage and Grounds

Poor voltage or ground connections can cause widely varying symptoms.

- Test all control module voltage supply circuits. Many vehicles have multiple circuits supplying voltage to a control module. Other components in the system may have separate voltage supply circuits that may also need to be tested. Inspect connections at the module/component connectors, fuses, and any intermediate connections between the voltage source and the module/component. A test lamp or a DMM may indicate that voltage is present, but neither tests the ability of the circuit to carry sufficient current.

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Operate the component to test the ability of the circuit to carry sufficient current. Refer to **Circuit Testing**, and **Power Distribution Schematics (1500)** **Power Distribution Schematics ((2500/3500))** .

- Test all control module ground and system ground circuits. The control module may have multiple ground circuits. Other components in the system may have separate grounds that may also need to be tested. Inspect grounds for clean and tight connections at the grounding point (screw or stud). Inspect the connections at the component and in splice packs, where applicable. Operate the component to test the ability of the circuit to carry sufficient current. Refer to **Circuit Testing**, and **Ground Distribution Schematics (1500)** **Ground Distribution Schematics ((2500/3500))** .

Temperature Sensitivity

- An intermittent condition may occur when a component/connection reaches normal operating temperature. The condition may occur only when the component/connection is cold, or only when the component/connection is hot.
- Freeze Frame, Failure Records, Snapshot, or Vehicle Data Recorder data may help with this type of intermittent condition, where applicable.
- If the intermittent is related to heat, review the data for a relationship with the following:
  - High ambient temperatures
  - Underhood/engine generated heat
  - Circuit generated heat due to a poor connection, or high electrical load
  - Higher than normal load conditions, towing, etc.
- If the intermittent is related to cold, review the data for the following:
  - Low ambient temperatures - In extremely low temperatures, ice may form in a connection or component. Inspect for water intrusion.
  - The condition only occurs on a cold start.
  - The condition goes away when the vehicle warms up.
- Information from the customer may help to determine if the trouble follows a pattern that is temperature related.
- If temperature is suspected of causing an intermittent fault condition, attempt to duplicate the condition. Refer to **Inducing Intermittent Fault Conditions** in order to duplicate the conditions required.

Electromagnetic Interference and Electrical Noise

Some electrical components/circuits are sensitive to electromagnetic interference or other types of electrical noise. Inspect for the following conditions:

- A mis-routed harness that is too close to high voltage/high current devices such as secondary ignition components, motors, generator etc. - These components may induce electrical noise on a circuit that could interfere with normal circuit operation.
- Electrical system interference caused by a malfunctioning relay, or a control module driven solenoid or switch - These conditions can cause a sharp electrical surge. Normally, the condition will occur when the malfunctioning component is operating.
- Installation of non-factory or aftermarket add on accessories such as lights, 2-way radios, amplifiers, electric motors, remote starters, alarm systems, cell phones, etc. - These accessories may create interference in other circuits while operating and the interference would disappear when the accessory is not operating. Refer to **Checking Aftermarket Accessories**.
- Test for an open diode across the A/C compressor clutch and for other open diodes. Some relays may contain a clamping diode.

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- The generator may be allowing AC noise into the electrical system.

Incorrect Control Module

- There are only a few situations where reprogramming a control module is appropriate:
  - A new service control module is installed.
  - A control module from another vehicle is installed.
  - Revised software/calibration files have been released for this vehicle.

NOTE: **DO NOT re-program the control module with the SAME software/calibration files that are already present in the control module. This is not an effective repair for any type of concern.**

- Verify that the control module contains the correct software/calibration. If incorrect programming is found, reprogram the control module with the most current software/calibration. Refer to **Control Module References** for replacement, setup, and programming.

INDUCING INTERMITTENT FAULT CONDITIONS

Special Tools

J-25070 Heat Gun

For equivalent regional tools, refer to **Special Tools** .

Many intermittent open or shorted circuits are affected by harness/connector movement that is caused by vibration, engine torque, bumps/rough pavement, etc. In order to duplicate the customer's concern, it may be necessary to manipulate the wiring harness if the malfunction appears to be vibration related. Manipulation of a circuit can consist of a wide variety of actions, including:

- Wiggling the harness
- Disconnecting a connector and reconnecting
- Stressing the mechanical connection of a connector
- Pulling on the harness or wire in order to identify a separation/break inside the insulation
- Relocating a harness or wires

All these actions should be performed with some goal in mind. For instance, with a scan tool connected, wiggling the wires may uncover a faulty input to the control module. The snapshot option would be appropriate here. Refer to **Scan Tool Snapshot Procedure**. Another option is, with the component commanded ON and OFF by the scan tool, to move related connectors and wiring and observe the component operation. With the engine running, move related connectors and wiring while monitoring engine operation. If harness or connector movement affects the data displayed, component/system operation, or engine operation, inspect and repair the harness/connections as necessary.

You may need to load the vehicle in order to duplicate the concern. This may require the use of weights, floor jacks, jackstands, frame machines, etc. In these cases you are attempting to duplicate the concern by manipulating the suspension or frame. This method is useful in finding harnesses that are too short and their connectors pull apart enough to cause a poor connection. A DMM set to the Min/Max mode and connected to the suspect circuit while testing can yield desirable results. Refer to **Testing for Electrical Intermittents**.

Certainly, using the senses of sight, smell, and hearing while manipulating the circuit can provide good results

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as well.

There may be instances where circuit manipulation alone will not meet the required criteria for the fault condition to appear. In such cases it may be necessary to expose the suspect circuit to other conditions while manipulating the harness. Such conditions would include high moisture conditions, along with exceptionally high or low temperatures. The following discusses how to expose the circuit to these kinds of conditions.

High Temperature Conditions

If the complaint tends to be heat related, you can simulate the condition using the **J-25070** heat gun.

Using the heat gun, you can heat up the suspected area or component. Manipulate the harnesses under high temperature conditions while monitoring the scan tool or DMM to locate the fault condition.

The high temperature condition may be achieved simply by test driving the vehicle at normal operating temperature. If a heat gun is unavailable, consider this option to enhance your diagnosis. This option does not allow for the same control, however.

Low Temperature Conditions

Depending on the nature of the fault condition, placing a fan in front of the vehicle while the vehicle is in the shade can have the desired effect.

If this is unsuccessful, use local cooling treatments such as ice or a venturi type nozzle (one that provides hot or cold air). This type of tool is capable of producing air stream temperatures down to -18Â°C (0Â°F) from one end and +71Â°C (160Â°F) from the other. This is ideally suited for localized cooling needs. In addition, circuit cooling spray can be used to cool down a component or circuit.

Once the vehicle, component, or harness has been sufficiently cooled, manipulate the harness or components in an effort to duplicate the concern.

Duplicating Failure Conditions

- If none of the previous tests are successful, attempt to duplicate and/or capture the failure conditions.
- Freeze Frame/Failure Records data, where applicable, contains the conditions that were present when the DTC set.
    1. Review and record Freeze Frame/Failure Records data.
    2. Clear the DTCs using the scan tool.
    3. Turn the key to OFF and wait 15 seconds.
    4. Operate the vehicle under the same conditions that were noted in Freeze Frame/Failure Records data, as closely as possible. The vehicle must also be operating within the Conditions for Running the DTC. Refer to Conditions for Running the DTC in the supporting text if a DTC is being diagnosed.
    5. Monitor DTC Status for the DTC being tested. The scan tool will indicate Ran, when the enabling conditions have been satisfied long enough for the DTC to run. The scan tool will also indicate whether the DTC passed or failed.
- An alternate method is to drive the vehicle with the DMM connected to a suspected circuit. An abnormal reading on the DMM when the concern occurs, may help you locate the concern.

TESTING FOR ELECTRICAL INTERMITTENTS

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Special Tools

EL-39200 Digital Multimeter

For equivalent regional tools, refer to **Special Tools** .

Perform the following procedures while wiggling the harness from side to side. Continue this at convenient points (about 6 inches apart) while watching the test equipment.

- **Testing for Short to Ground**
- **Testing for Continuity**
- **Testing for a Short to Voltage**

If the fault is not identified, perform the procedure below using the MIN MAX feature on the **EL-39200** digital multimeter (DMM). This feature allows you to manipulate the circuit without having to watch the DMM. The DMM will generate an audible tone when a change is detected.

NOTE: **The DMM must be used in order to perform the following procedure since the DMM can monitor current, resistance or voltage while recording the minimum (MIN), and maximum (MAX) values measured.**

1. Connect the DMM to both sides of a suspected connector (still connected), or from one end of a suspected circuit to the other. Refer to **Troubleshooting with a Digital Multimeter** for information on connecting the DMM to the circuit.
2. Set the DMM to the V (AC) or V (DC) position.
3. Select the voltage range feature of the DMM in order to select the desired voltage range.

   NOTE: **The 100 ms RECORD mode is the length of time an input must stay at a new value in order to record the full change.**

4. Select the MIN MAX function of the DMM. The DMM displays the 100 ms RECORD and emits an audible tone (beep).
5. Simulate the condition that is potentially causing the intermittent connection, either by wiggling the connections or the wiring, test driving, or performing other operations. Refer to **Inducing Intermittent Fault Conditions**.
6. Listen for the audible Min Max Alert which indicates that a new minimum or maximum value has been recorded.
7. Press the MIN MAX button until the MAX value is displayed and note the value.
8. Press the MIN MAX button until the MIN value is displayed and note the value.
9. Determine the difference between the MIN and MAX values.
   - If the variation between the recorded MIN and MAX voltage values is 1 V or greater an intermittent open or high resistance condition exists. Repair the condition as necessary.
   - If the variation between the recorded MIN and MAX voltage values is less than 1 V, an intermittent open or high resistance condition does not exist.

SCAN TOOL SNAPSHOT PROCEDURE

Reviewing Stored Data in Global Diagnostic System (GDS)

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Overview

A snapshot is a recording of what a control module on the vehicle was receiving for information while the snapshot is being made. A snapshot is used to analyze the data during the time a vehicle condition is current. In GDS 2 there is not a traditional snapshot as there has been in the past. GDS 2 saves all past VIN and diagnostic data for future viewing. GDS 2 automatically records data whenever the user views Module Diagnostics, Vehicle Diagnostics and/or Systems Diagnostics. Module Diagnostics includes DTC Data, Identification Information, Data Display, Control Functions and Configuration/Reset Functions. Vehicle Diagnostics includes Vehicle Wide DTCs. Systems Diagnostics includes Inspection/Maintenance Status and Inspection/Maintenance Information.

Reviewing Stored Data

The Review Stored Data function allows viewing and playing of previously recorded vehicle data. This information can be used in analysis of vehicle problems and detection of trigger error conditions. The graph function can be used to compare multiple parameters to see if a component is functioning properly. Recorded sessions can be selected for viewing by the following two methods:

- From the Home Page, click on Review Stored Data. In the Review Stored Data page, highlight a vehicle in the Sessions screen located in the upper pane and highlight the desired Stored Data in the lower pane, then click the Review button.
- The user can view stored data without ending a current on-vehicle diagnostic session by clicking the Vehicle Menu button (when active) or Back button until the Session Manager is displayed in the menu. This is used when a user is viewing live data and wants the quickest way to review the data. Click on the Session Manager button. Highlight the desired Stored Data in the lower pane and click the Review button.

Stored Data Review Selections

The following information can be selected in the tabs at the top of the screen:

- Graphical Data Display - Allows a detailed review of parameter data. The buttons on the right side modify the graph data
- Diagnostic Data Display - Displays incoming information from the file. The current value of the parameters is displayed on the screen.
- Line Graph - Allows selected locked parameters to be graphed with parameters overlaid for data comparison. The current value of the parameters is displayed on the screen. Use the buttons on the right side to modify the graph data.
- Bookmarks - If bookmarks are present, this displays the Type, Description and Time of automatic and manually generated bookmarks.
- System Information - Displays the GDS 2 Software Version and MDI Serial Number used when the session was recorded.
- Selected Vehicle Configuration - Displays vehicle identifiers, such as transmission type, for the vehicle selected on the Stored Data Review screen in the Sessions field.
- RPO - Displays vehicle build information.

Graphical Data Display

On the Graphical Data Display tab there are multiple selections at the top of the page. The selections available are:

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- Create Report - Opens and internet browser page where a data display report can be printed or saved for future reference.
- Unit Switch - Toggles graph units between English and metric.
- Lock - When a parameter is selected, clicking the lock button locks a selected parameter for viewing in the Line Graph tab. In the Line Graph tab, locked parameters are isolated and overlaid for data comparison.
- Up Arrow - Click the up arrow to move a highlighted parameter up a position on the list.
- Down Arrow - Click the down arrow to move a highlighted parameter down a position on the list.
- Save As - This selection is available in the Graphical Data Display and Diagnostic Data Display tabs. This allows the user to export the graph data to a worksheet for in depth analysis and to timestamp data.

Review Stored Data Functions

To review the session there are buttons at the bottom of the window to control the cursor. From left to right the buttons are:

- Insert Bookmark - This button allows the user to insert bookmarks anywhere along the timeline. This provision allows the user to record notes regarding the inserted bookmark.
- Return Bookmark - This button moves the cursor to the previous bookmark.
- Back - This button moves the cursor back 1 frame.
- Timeline Slider Control - This allows the user to slide and select any position on the Timeline required.
- Forward - This button moves the cursor forward 1 frame.
- Forward Bookmark - This button moves the cursor forward 1 bookmark.
- Bookmarks - Allows the user to toggle bookmark visibility ON and OFF.

Graphical Preference Selections

The vertical side bar on the right side of the screen in the Graphical Data Display and Line Graph tabs toggles the Graphical Selection Panel from hidden to visible. The graphical preference selections available are:

- Reset - Resets the graph display back to the initial standard GDS 2 setting.
- Grid Line Toggle - This toggle reverses the current state of showing or removing grid lines.
- Hash Mark Toggle - This toggle reverses the current state of showing or removing data acquisition points or hash marks.
- Horizontal Graph Compression - Compresses the scale of the graph horizontally.
- Horizontal Graph Expansion - Expands the scale of the graph horizontally.
- Vertical Graph Compression - Compresses the scale of the graph vertically.
- Vertical Graph Expansion - Expands the scale of the graph vertically.
- Move Centerline of Graph Up - Moves the centerline of the graph up incrementally.
- Move Centerline of Graph Down - Moves the centerline of the graph down incrementally.

CIRCUIT PROTECTION - FUSES

Special Tools

EL-39200 Digital Multimeter (DMM)

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For equivalent regional tools, refer to **Special Tools** .

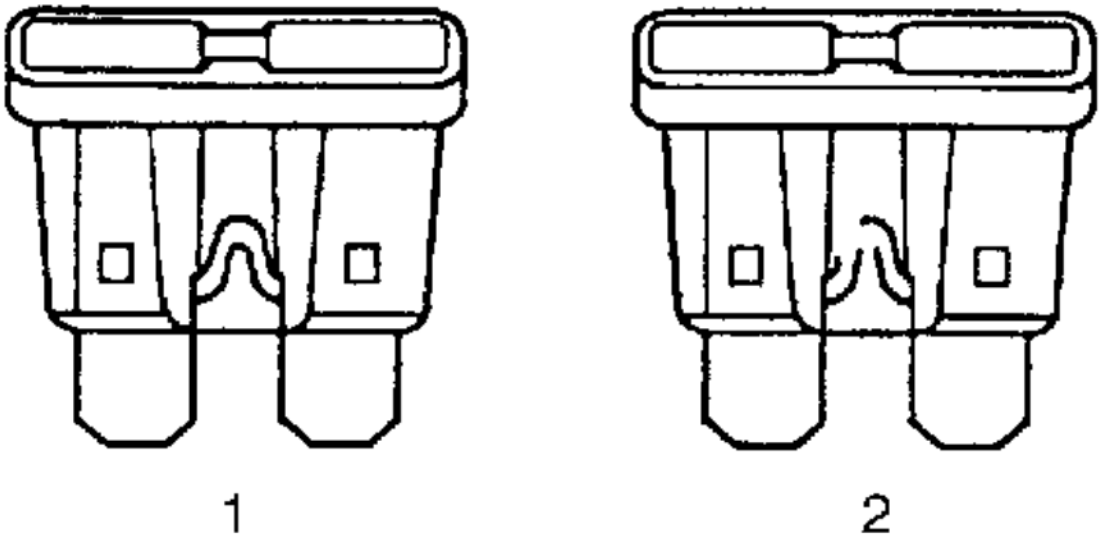

Fig. 4: Identifying Open Fuse Element
Courtesy of GENERAL MOTORS COMPANY

The fuse is the most common method of an automotive wiring circuit protection. Whenever there is an excessive amount of current flowing through a circuit the fusible element will melt and create an open or incomplete circuit. Fuses are a one time protection device and must be replaced each time the circuit is overloaded. To determine if a fuse is open, remove the suspected fuse and examine if the element in the fuse is broken (2). If not broken (1), also check for continuity using a Digital Multimeter (DMM) or a continuity tester. If the element is broken or continuity is suspect, replace the fuse with one of equal current rating.

Fuse Types

Current Rating Amperes	Color
Auto Fuses, Mini Fuses	
2	Gray
3	Violet
5	Tan

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Current Rating Amperes	Color
7.5	Brown
10	Red
15	Blue
20	Yellow
25	White or Natural
30	Green
Maxi Fuses	
20	Yellow
30	Light Green
40	Orange or Amber
60	Blue
50	Red
J-Case Fuses	
20	Blue
30	Pink
40	Green
50	Red
60	Yellow
Midi Fuses	
80	Black
Mega Fuses	
100	Black
150	Black
200	Black

CIRCUIT PROTECTION - CIRCUIT BREAKERS

A circuit breaker is a protective device that is designed to open the circuit when a current load is in excess of the rated breaker capacity. If there is a short or other type of overload condition in the circuit, the excessive current will open the circuit between the circuit breaker terminals. Two types of circuit breakers are used.

Circuit Breaker

This type opens when excessive current passes through it for a period of time. It closes again after a few seconds, and if the cause of the high current is still present, it will open again. The circuit breaker will continue to cycle open and closed until the condition causing the high current is removed.

Positive Temperature Coefficient (PTC) Circuit Breaker

This type greatly increases its resistance when excessive current passes through it. The excessive current heats the PTC device, as the device heats its resistance increases. Eventually the resistance gets so high that the circuit is effectively open. Unlike the ordinary circuit breaker the PTC unit will not reset until the circuit is opened, by removing the voltage from its terminals. Once the voltage is removed the circuit breaker will re-close within a second or 2.

CIRCUIT PROTECTION - FUSIBLE LINKS

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Special Tools

EL-39200 Digital Multimeter (DMM)

For equivalent regional tools, refer to **Special Tools** .

NOTE: **When repairing a fusible link, fusible links cut longer than 225 mm (approximately 9 in) will not provide sufficient overload protection.**

Fusible link is wire designed to melt and break continuity when excessive current is applied. It is often located between or near the battery and starter or electrical center. Use a continuity tester or a Digital Multimeter (DMM) at each end of the wire containing the fusible link in order to determine if it is broken. If broken, it must be replaced with fusible link of the same gauge size.

IGNITION KEY CANNOT BE INSERTED, ROTATED, OR REMOVED FROM THE IGNITION LOCK CYLINDER

Step	Action	Yes	No
1	1. Ensure the transmission shift lever is in the PARK position and the steering column is NOT in the locked position. 2. Verify the ignition key cannot be removed from the ignition lock cylinder. Can the ignition key be removed from the ignition lock cylinder?	Go to **Step 4**	Go to **Step 2**
2	Verify the ignition key cannot be turned to the OFF position. Can the ignition key be turned to the OFF position?	Go to **Step 3**	Go to **Step 7**
3	Verify the ignition key cannot be removed from the ignition lock cylinder. Can the ignition key be removed from the ignition lock cylinder?	Go to **Step 7**	Go to **Step 9**
4	Verify the ignition key cannot be fully inserted and rotated without sticking in any position. Can the ignition key be fully inserted into the ignition lock cylinder and be rotated without sticking in any position?	Go to **Step 7**	Go to **Step 5**
5	Inspect for an incorrect, worn, or damaged ignition key. Is the ignition key incorrect, worn, or damaged?	Go to **Step 10**	Go to **Step 6**
6	Inspect the ignition key. Clean the entire middle groove area of the side milled ignition key. Can the cleaned key be fully inserted into the ignition lock cylinder and be rotated without sticking in any position?	Go to **Step 11**	Go to **Step 10**
7	Verify the adjustment of the shift control cable. Refer to **Range Selector Lever Cable Adjustment** . Can the ignition key be turned to the OFF position and be removed?	Go to **Step 12**	Go to **Step 8**

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Step	Action	Yes	No
8	Attempt to override the ignition lock solenoid on the ignition and start switch housing. Can the ignition key be turned to the OFF position and be removed?	Go to **Step 9**	Go to **Step 11**
9	Inspect the electrical system for improper operation. Refer to **Testing for Intermittent Conditions and Poor Connections**. Can the ignition key be turned to the OFF position and be removed?	Go to **Step 12**	Go to **Step 11**
10	Replace the ignition key. Refer to **Programming Additional Keys** . Did you complete the repair?	Go to **Step 12**	-
11	Replace the ignition lock cylinder. Refer to **Ignition Lock Cylinder Replacement** . Did you complete the repair?	Go to **Step 12**	-
12	Operate the system in order to verify the repair. Did you correct the condition?	System OK	-

WIRING REPAIRS

The Wiring Repairs section contains the following types of wiring repair information. Using these elements together will make wiring repair faster and easier:

- **Flat Wire Repairs**
- **Serial Data Circuit Wiring Repairs**
- **High Temperature Wiring Repairs**
- **Heated Oxygen Sensor Wiring Repairs**
- **Wire to Wire Repair**
- **Splicing Inline Harness Diodes**
- **Splicing Twisted or Shielded Cable**
- **SIR/SRS Wiring Repairs**

CONNECTOR REPAIRS

Connector Repairs contains a list of all connector repairs. The connector repairs are listed by the connector manufacturer and then by connector type. If the technician cannot identify the manufacturer of the connector, refer to Identifying Connectors below. Knowing the connector manufacturer will assist in finding the correct connector repair from the following list:

- **Connector Position Assurance Locks**
- **Terminal Position Assurance Locks**
- **AFL/EPC Connectors**
- **Bosch Connectors (BSK)** **Bosch Connectors (0.64)** **Bosch Connectors (2.8 JPT)** **Bosch Connectors (ECM)**
- **Delphi Connectors (Weather Pack)** **Delphi Connectors (Push To Seat)** **Delphi Connectors (Pull To Seat)** **Delphi Connectors (Micro-Pack 100W)** **Delphi Connectors (Micro .64)** **Delphi Connectors (12-Way)** **Delphi Connectors (Steering Gear)**

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- FCI Connectors (Lever Lock) FCI Connectors (SIR)
- FEP Connectors (Steering Gear)
- JST Connectors
- Kostal Connectors (Glow Plug Control Module) Kostal Connectors (Transmission)
- Molex Connectors (Lever Lock) Molex Connectors (SIR)
- Sumitomo Connectors
- Tyco/AMP Connectors (CM 42-Way) Tyco/AMP Connectors (Sensor) Tyco/AMP Connectors (0.25 Cap) Tyco/AMP Connectors (43-Way) Tyco/AMP Connectors (Door Module) Tyco/AMP Connectors (Seat) Tyco/AMP Connectors (102-Way Inline) Tyco/AMP Connectors (SIR)
- Yazaki Connectors (2-Way) Yazaki Connectors (16-Way)
- Repairing Connector Terminals (Terminated Lead Repair) Repairing Connector Terminals (Terminal Repair)

Connector Anatomy

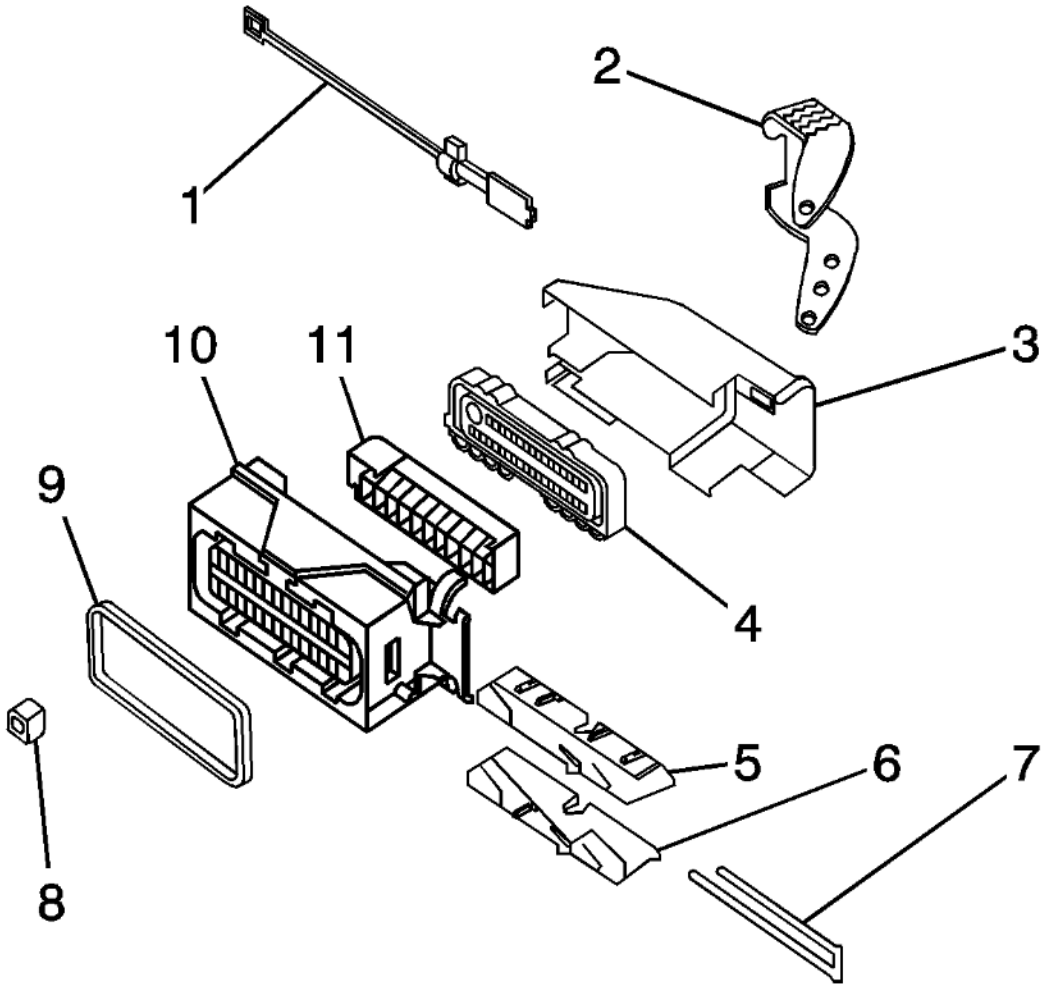

Fig. 5: Identifying Typical Connector Components
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name

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Callout	Component Name
1	Connector Positive Assurance (CPA)
2	Assist Lever
3	Wiredress Cover
4	Seal Strain/Relief
5	Slide Left Hand
6	Slide Right Hand
7	Terminal Positive Assurance (TPA)
8	Terminal Positive Assurance (TPA)
9	Connector Seal
10	Connector Housing
11	Inner Connector

Identifying Connectors

Knowing the connector manufacturer is helpful when trying to locating the correct connector repair procedure. There are many different connector designs used on GM vehicles and it is sometimes difficult to identify the connector manufacturer. The information in this document should help with the identification of connector manufactures.

The following connector manufacturers make most of the connectors found in GM vehicles:

- AFL/EPC (Alcoa Fujikura Ltd./Engineered Plastics Components)
- Bosch
- Delphi
- FCI (Framatome Connectors International)
- JAE (Japan Aviation Electronics)
- JST (Japan Solderless Terminals)
- Kostal
- Molex
- Sumitomo
- Tyco/AMP
- Yazaki

Identifying the manufacturer of a connector is often difficult. When trying to determine the manufacturer of a connector, look for specific identifying marks that are unique to that connector supplier. Most of these identify marks are hard to find or see. Check the connector carefully and refer to the information below for pictures and descriptions of connector identification markings.

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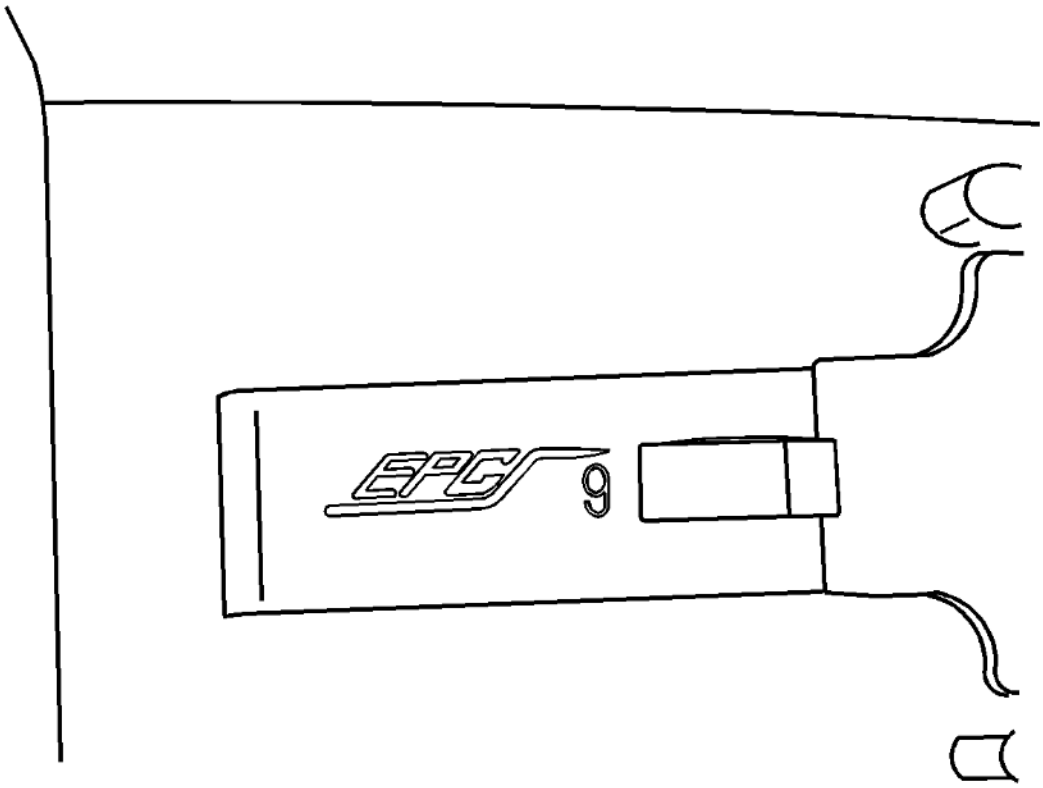

Fig. 6: View Of EPC Identification On Connector Body
Courtesy of GENERAL MOTORS COMPANY

- Most of AFL's connectors have EPC on their connector body. Some of the smaller connectors will not have any markings on them.

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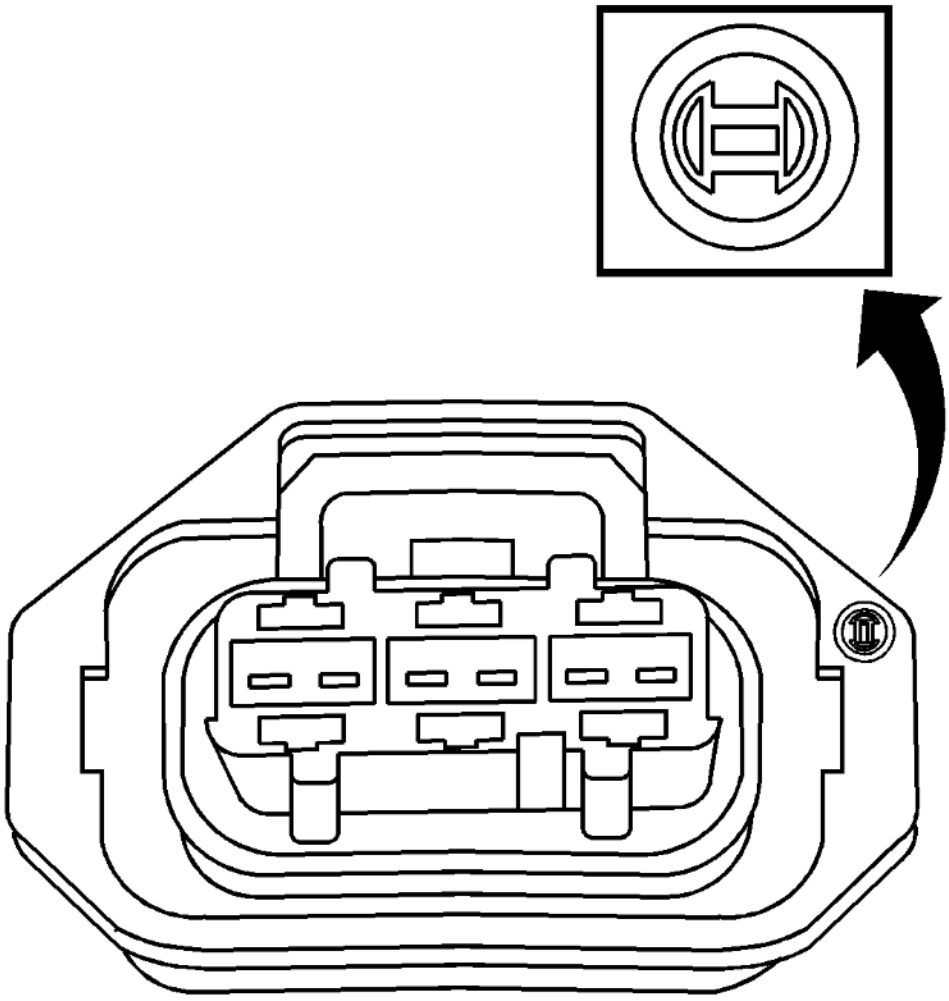

Fig. 7: View Of Bosch Identification On Connector Body
Courtesy of GENERAL MOTORS COMPANY

- In some cases Bosch will actually be printed on the connector. If Bosch does not appear on the connector, look for the Bosch logo. The Bosch logo is a circle with a blunted arrow inside. This logo can appear anywhere on the connector and is often very small.

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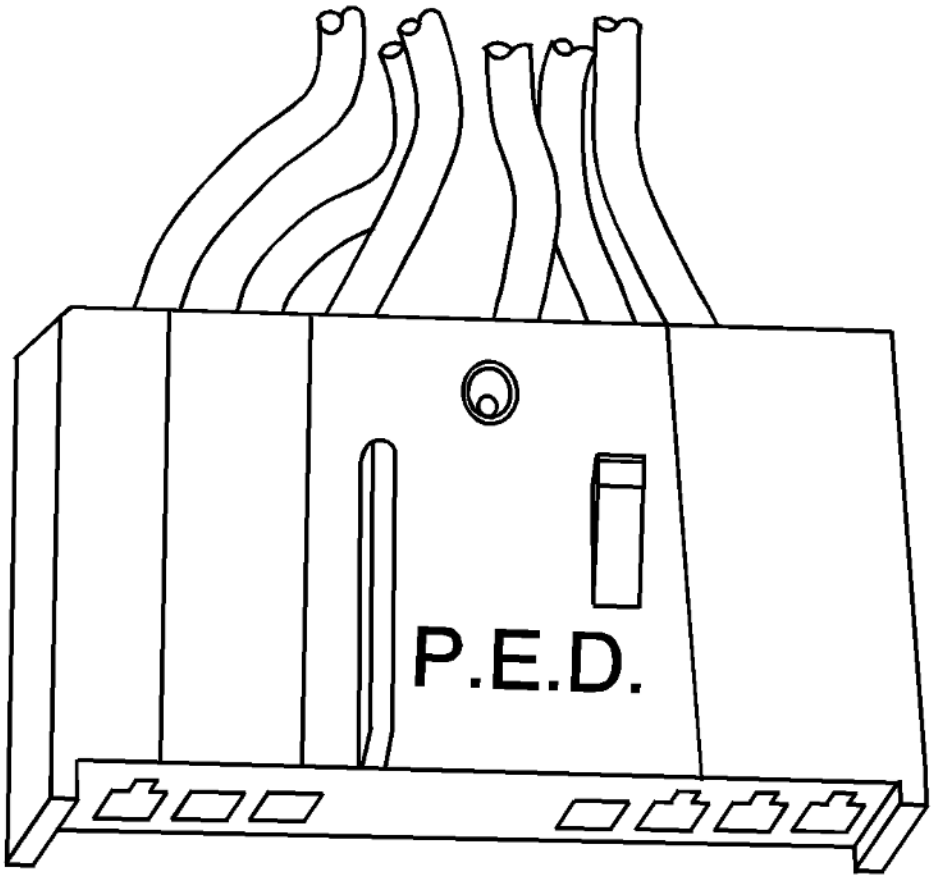

Fig. 8: View Of PED Identification On Connector Body
Courtesy of GENERAL MOTORS COMPANY

- In some cases Delphi will actually be printed on the connector. If Delphi is not printed on the connector, look for PED. In both cases there is no specific orientation for Delphi or PED and they can appear anywhere on the connector.

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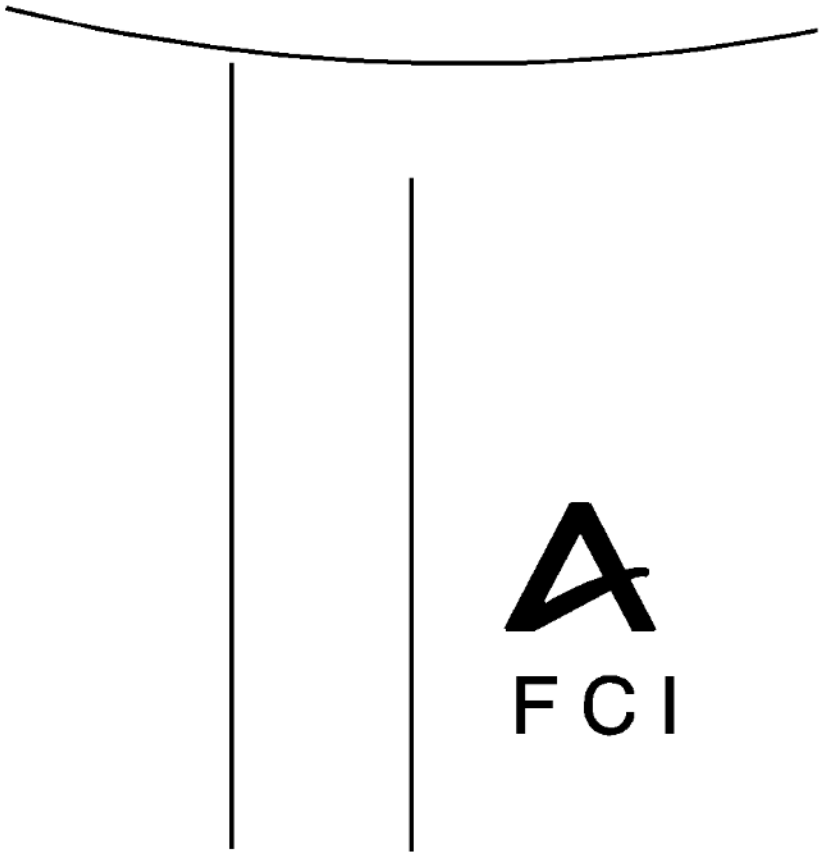

Fig. 9: View Of FCI Identification On Connector Body
Courtesy of GENERAL MOTORS COMPANY

- FCI connectors may have the FCI logo on their connectors. The logo is the letters FCI with an "A" above it.

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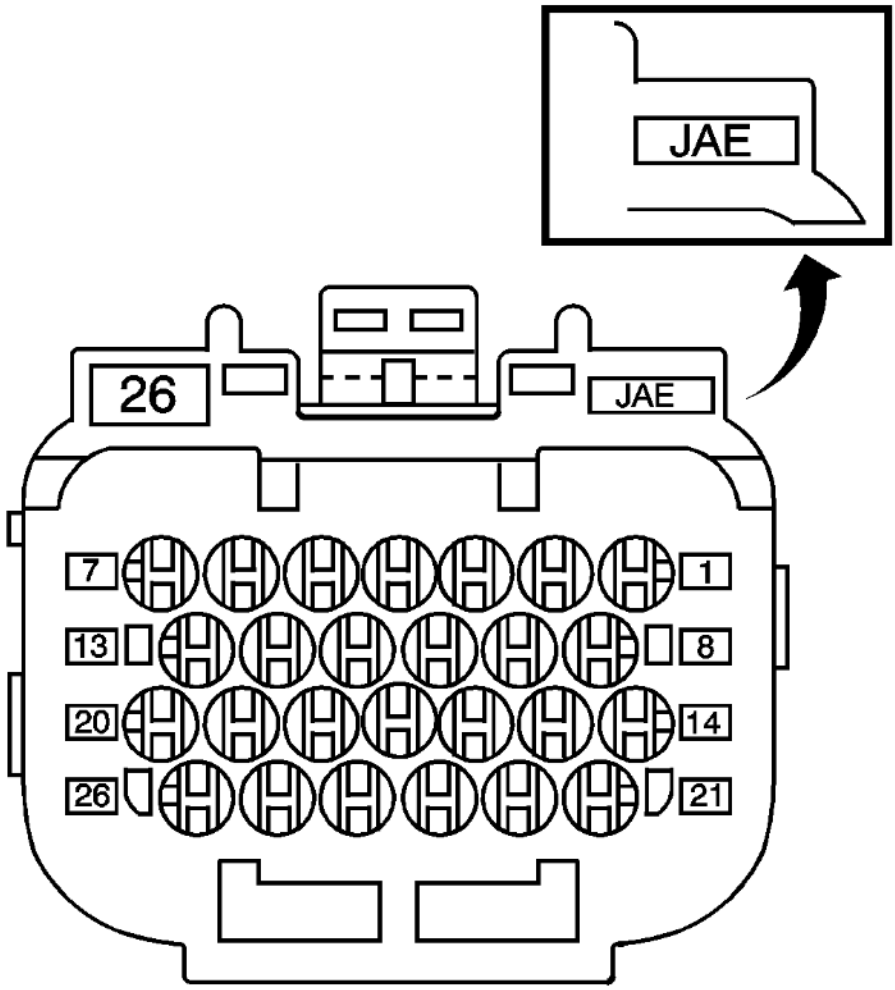

Fig. 10: View Of JAF Identification On Connector Body
Courtesy of GENERAL MOTORS COMPANY

- JAE connector have JAE in small letters on their connectors.

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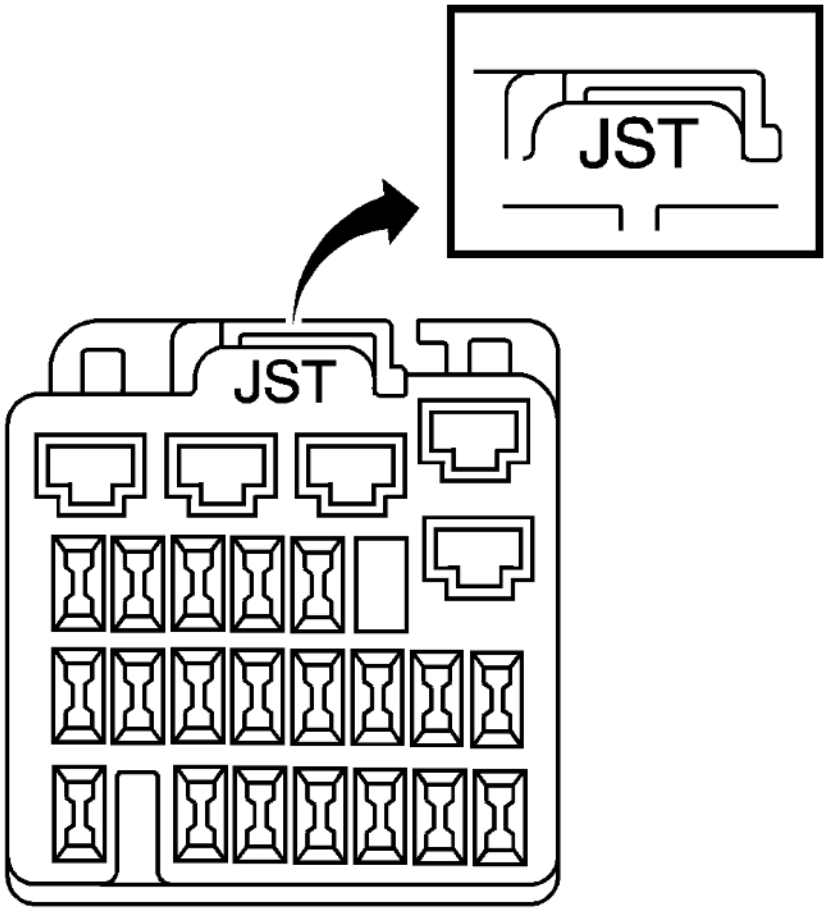

Fig. 11: View Of JST Identification On Connector Body
Courtesy of GENERAL MOTORS COMPANY

- JST connectors have JST in small letters on their connectors, similar to that above. The location of the logo will vary with the connector size and style.

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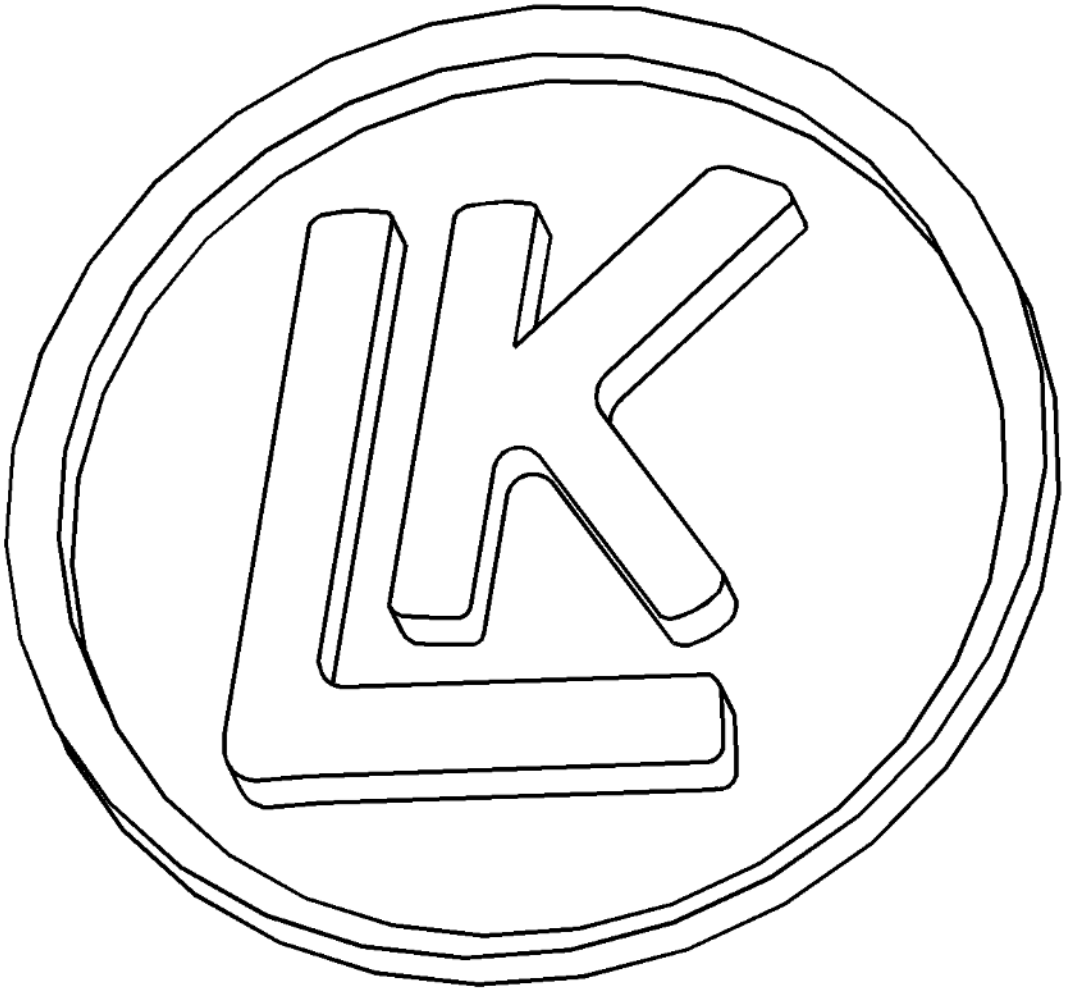

Fig. 12: View Of Kostel Connector Identifier
Courtesy of GENERAL MOTORS COMPANY

- Kostel has an "LK" with a circle around it. These connector are usually used as a transmissions connection.

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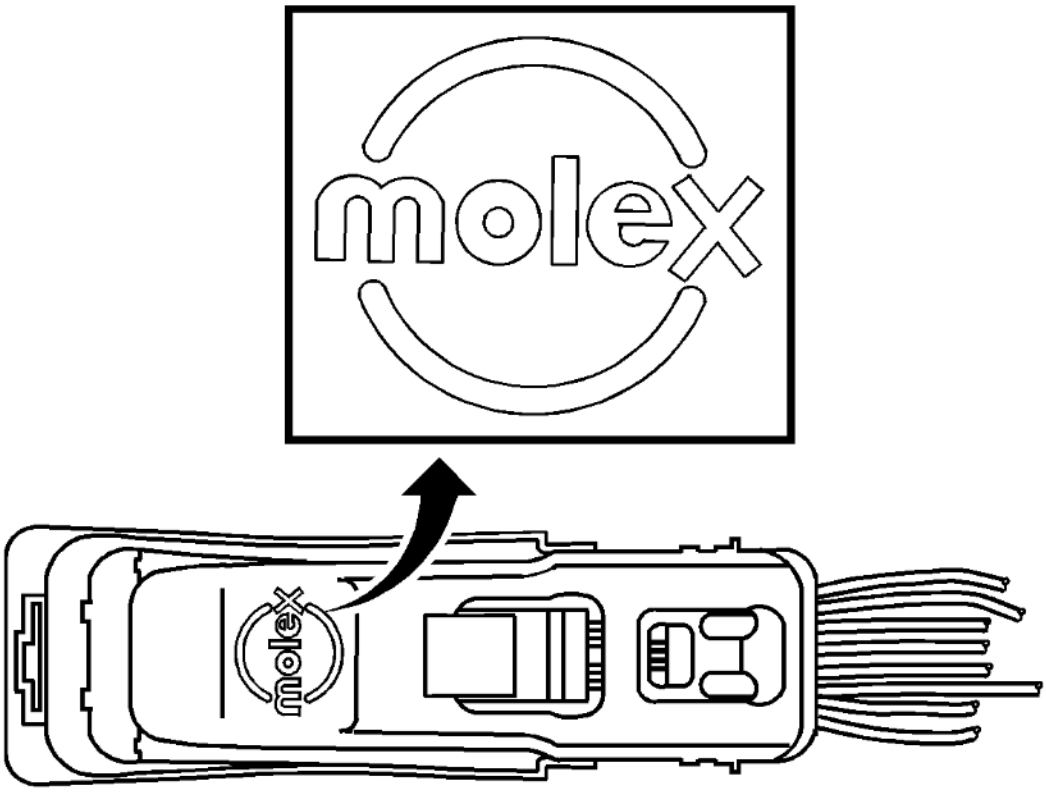

Fig. 13: View Of Molex Identification On Connector Body
Courtesy of GENERAL MOTORS COMPANY

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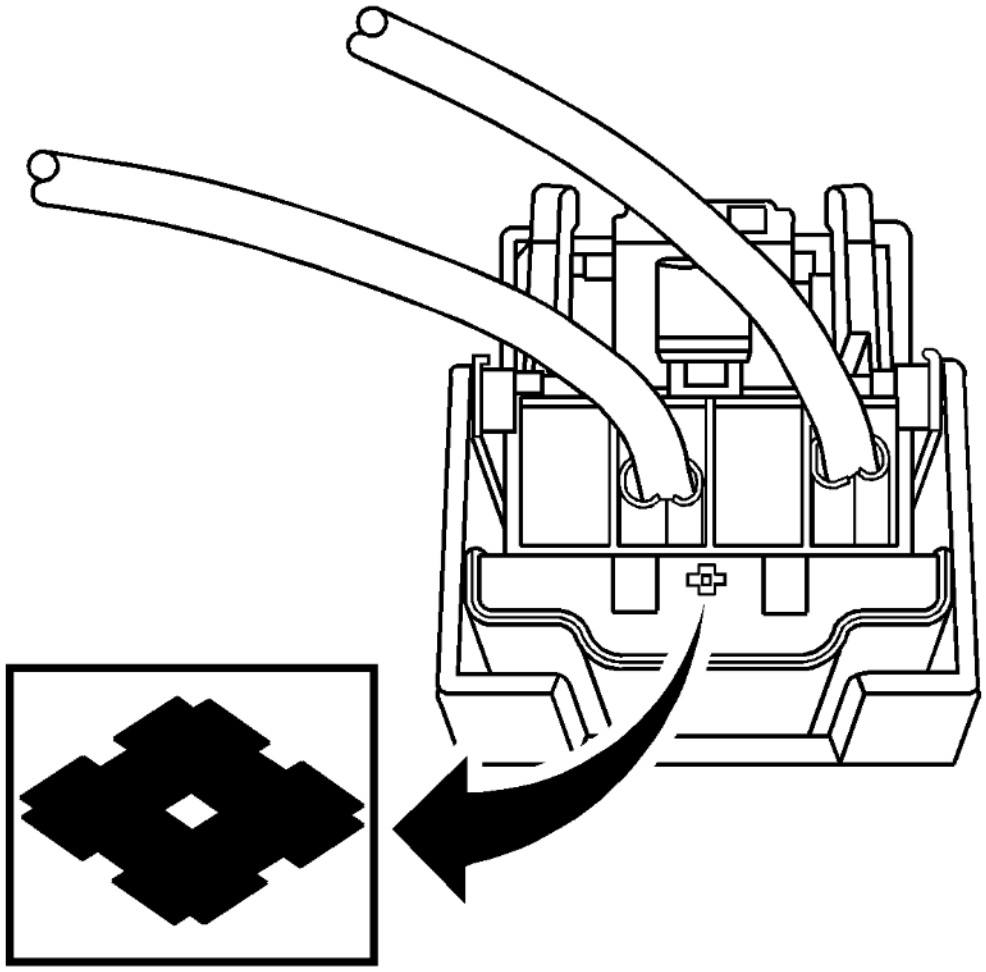

Fig. 14: View Of Sumitono Identification On Connector Body
Courtesy of GENERAL MOTORS COMPANY

- Most Molex connectors will have the Molex logo on the dresscover of the connector. In some cases the connectors may have MX followed by another letter. The third letter indicates where the connector was made. A connector with MXD is a Molex connector made in Detroit.

  Sumitomo has a unique symbol on their connector and possibly a part number. The symbol is similar to that of a diamond lying on its side, similar to that shown. The logo could appear anywhere but the most common place is at the wire side of the housing.

- Tyco/AMP has many different and unique connector designs. Some may or may not have identifiable marks on them.

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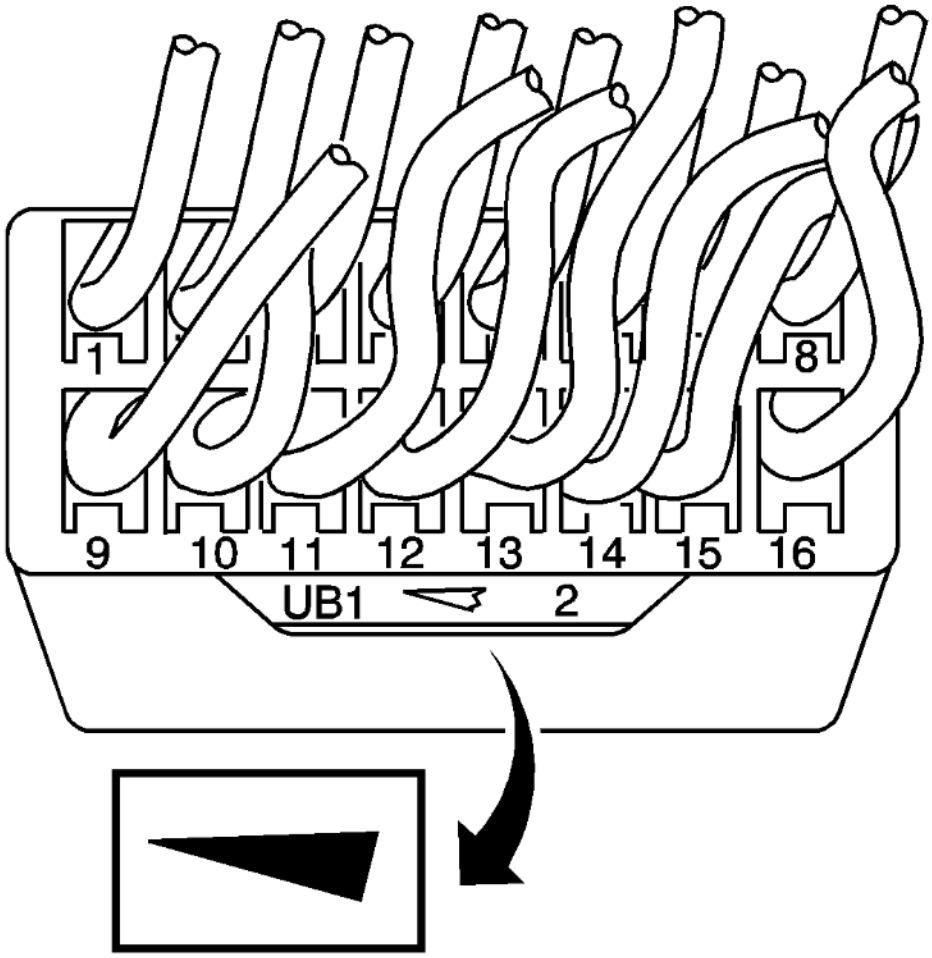

Fig. 15: View Of Yazaki Identification On Connector Body
Courtesy of GENERAL MOTORS COMPANY

- Yazaki has a wedge or arrow shape, similar to that shown.

Article GUID: A00854482

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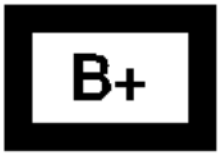
WIRING SYSTEMS AND POWER MANAGEMENT

ELECTRICAL SCHEMATIC SYMBOLS

Voltage Indicators

Symbol	Description
	Battery Voltage

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Symbol	Description
	Ignition Switch- Off Position

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Symbol	Description
	Ignition Switch-Accessory Position

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Symbol	Description
	Ignition Switch- Run Position

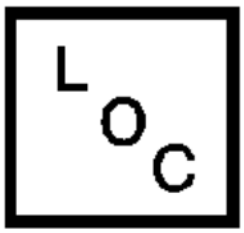
cardiagn.com

Symbol	Description
	Ignition Switch-Start Position

General Icons

Symbol	Description

cardiagn.com

Symbol	Description
	Master Component List Icon This icon is used on the schematic to link to the Master Electrical Component List.

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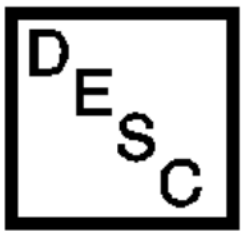
Symbol	Description
	Description and Operation Icon This icon is used on the schematic to link to the Description and Operation of that particular system.

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Symbol	Description
	Computer Programming Icon This icon is used on the schematic to link to Control Module References, which identifies which components need programming upon replacement.

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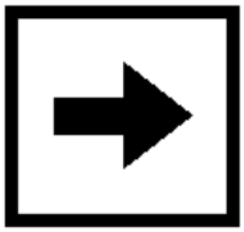
Symbol	Description
	Next Schematic Page Icon This icon is used on the schematic to navigate to the next schematic in the subsystem.

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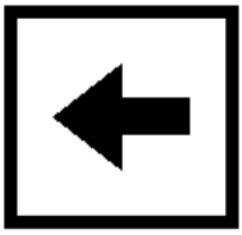
Symbol	Description
	Previous Schematic Page Icon This icon is used on the schematic to navigate to the previous schematic in the subsystem.

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Symbol	Description
	Supplemental Inflatable Restraint (SIR) or Supplemental Restraint System (SRS) Icon This icon is used to alert the technician that the system contains SIR/SRS components that require certain precautions before servicing.

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Symbol	Description
	Information Icon This icon is used to alert the technician that there is additional information that will aid in servicing a system.

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Symbol	Description
	Danger Icon This icon is intended to alert the technician that a component within the system contains labeling with the same icon. This icon is used when a source component has potential for 60 volts DC or greater or has potential for 42 volts AC or greater.

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Symbol	Description
	High Voltage Icon This icon is intended to alert the technician that a component within the system contains labeling with the same icon. This icon is used when a component/circuit has potential for 60 volts DC or greater or has potential for 42 volts AC or greater.

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Symbol	Description
	Caution Icon This icon is used to advise the technician to use caution when servicing this component. This icon may be used when a component/circuit has a voltage range potential between 30-60 volts DC or 15-42 volts AC.

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Symbol	Description
	Functional Serial Data Communication This icon is used to show the technician that the serial data circuit detail is shown incomplete. It also provides an active link to the Data Communication Schematics were the circuit is shown complete.

Switch Position Icons

Symbol	Description

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Symbol	Description
	Generic Up Arrows

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Symbol	Description
	Generic Down Arrows

cardiagn.com

Symbol	Description
	Generic Left Arrows

cardiagn.com

Symbol	Description
	Generic Right Arrows

cardiagn.com

Symbol	Description
	Generic Express Down Arrows

cardiagn.com

Symbol	Description
	On/Off Icon

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Symbol	Description
	Generic Lock Icon

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Symbol	Description
	Generic Unlock Icon

cardiagn.com

Symbol	Description
	Generic Window Switch Positions- 4 Door

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Symbol	Description
	Generic Window Switch Positions- 2 Door

Module Circuit Function Icons

Symbol	Description

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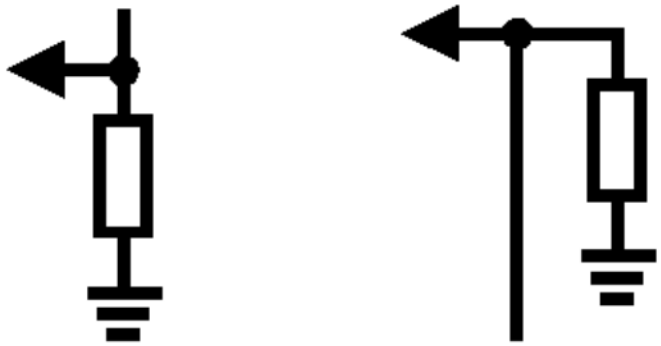
Symbol	Description
	I/O Pull-Down Resistors (-)

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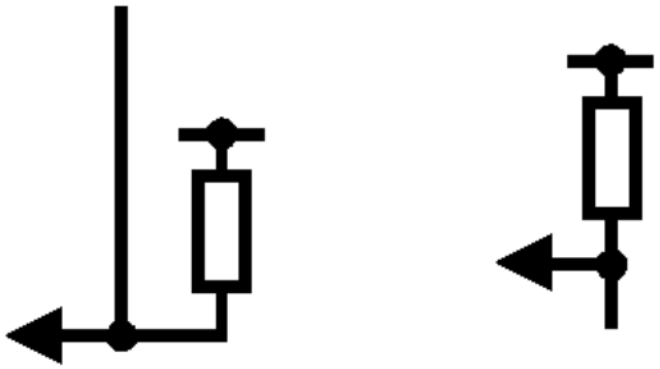
Symbol	Description
	I/O Pull-Up Resistors (+)

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Symbol	Description
	I/O High-Side Drive Switch (+)

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Symbol	Description
	I/O Low-Side Drive Switch (+)

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Symbol	Description
	I/O Bidirectional Switch (+/-)

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Symbol	Description
	Pulse-Width Modulation Symbol

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Symbol	Description
B+	Battery Voltage

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Symbol	Description
IGN	Ignition Voltage

cardiagn.com

Symbol	Description
5V	Voltage Reference

cardiagn.com

Symbol	Description
5V AC	A/C Voltage

cardiagn.com

Symbol	Description
	Low Reference

cardiagn.com

Symbol	Description
	Ground

cardiagn.com

Symbol	Description
	Serial Data

cardiagn.com

Symbol	Description
	Antenna Signal- In

cardiagn.com

Symbol	Description
	Antenna Signal- Out

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Symbol	Description
	Brake Apply

Harness Components

Symbol	Description

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Symbol	Description
	Fuse

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Symbol	Description
	Fuse Supplied by a Relay

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Symbol	Description
	Circuit Breaker

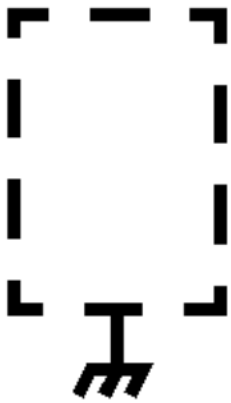
cardiagn.com

Symbol	Description
	Fusible Link

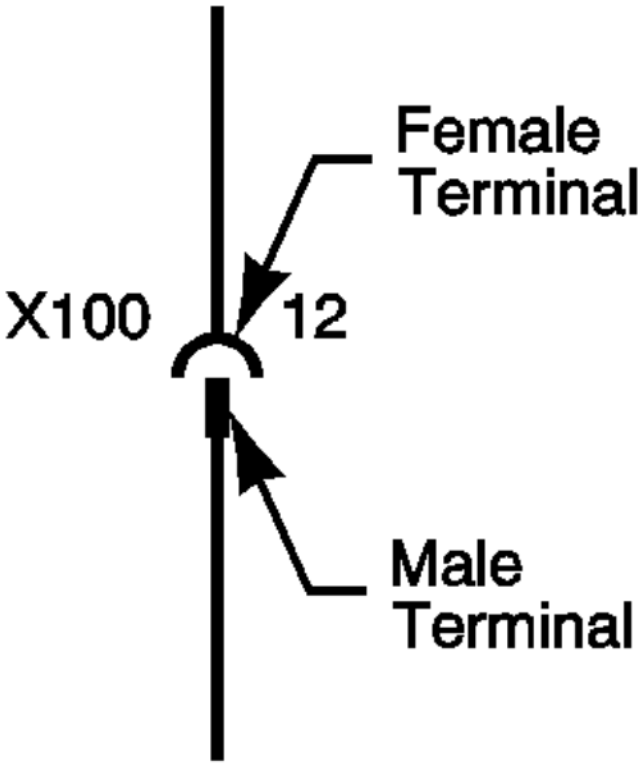
cardiagn.com

Symbol	Description
	Ground

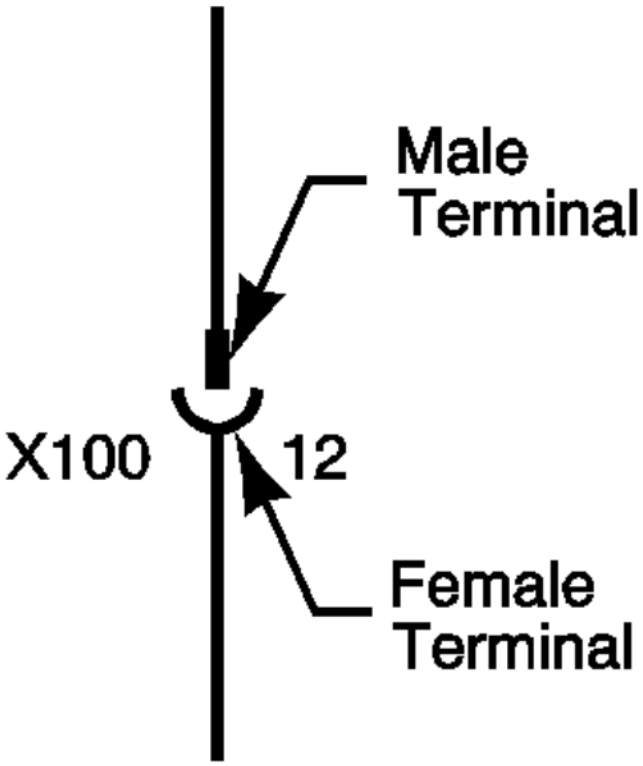
cardiagn.com

Symbol	Description
	Case Ground

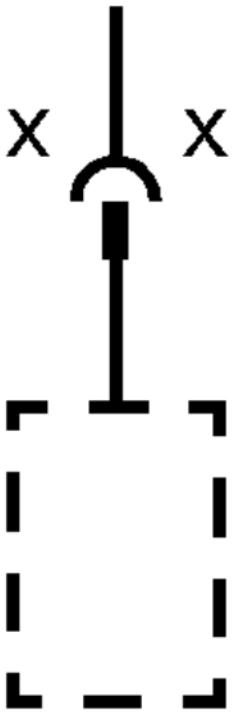
cardiagn.com

Symbol	Description
	Inline Harness Connector

cardiagn.com

Symbol	Description
	Inline Harness Connector

cardiagn.com

Symbol	Description
	Pigtail Connection

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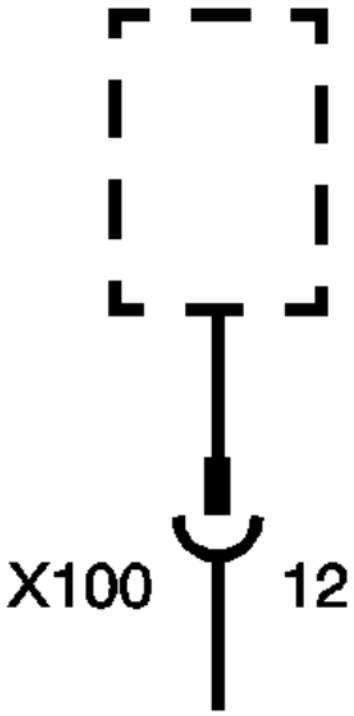
Symbol	Description
	Pigtail Connection

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Symbol	Description
	Provisional or Diagnostic Connector

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Symbol	Description
	Blunt Cut Wire

cardiagn.com

Symbol	Description
	Incomplete Physical Splice

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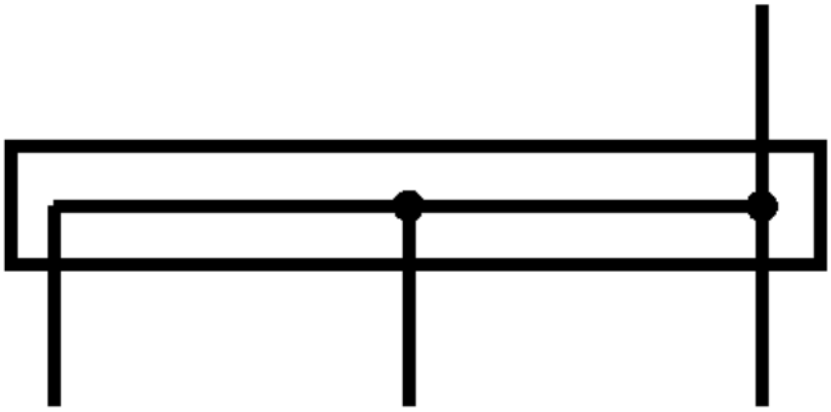
Symbol	Description
	Complete Physical Splice- 2 Wires

cardiagn.com

Symbol	Description
	Complete Physical Splice- 3 or more wires

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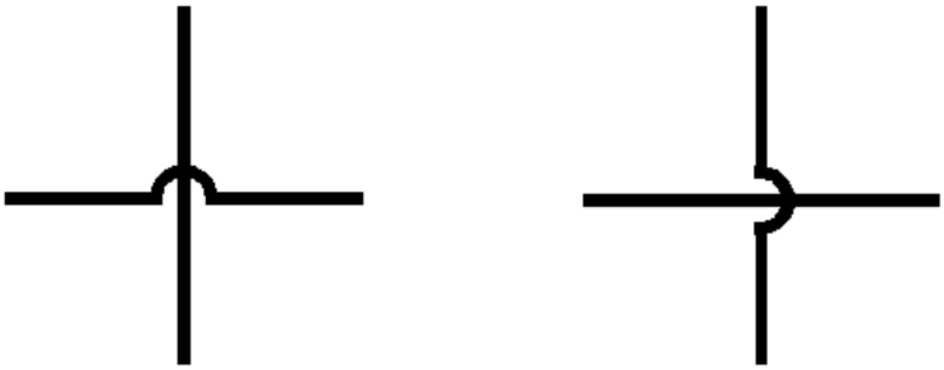
Symbol	Description
	Wire Crosses

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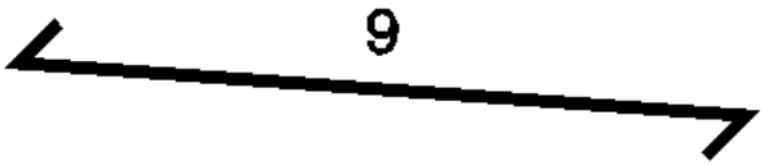
Symbol	Description
	Twisted Wires

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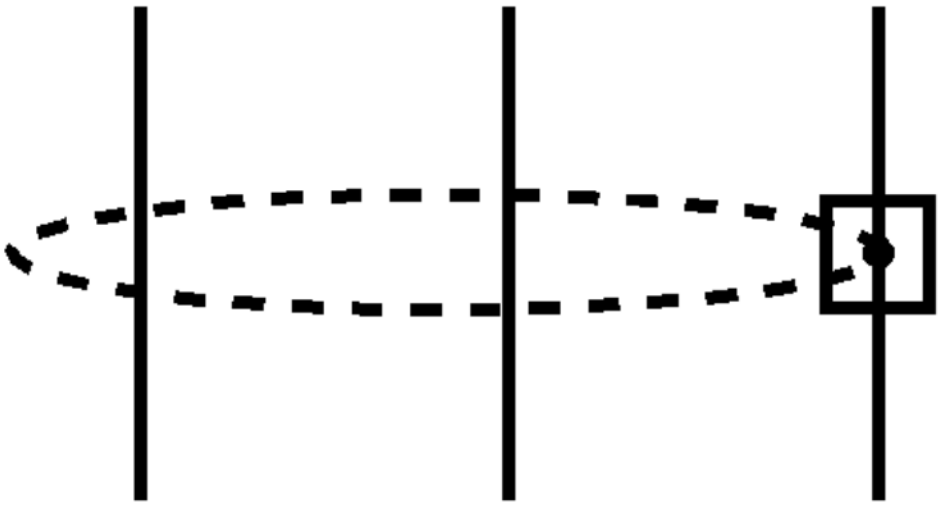
Symbol	Description
	Shield

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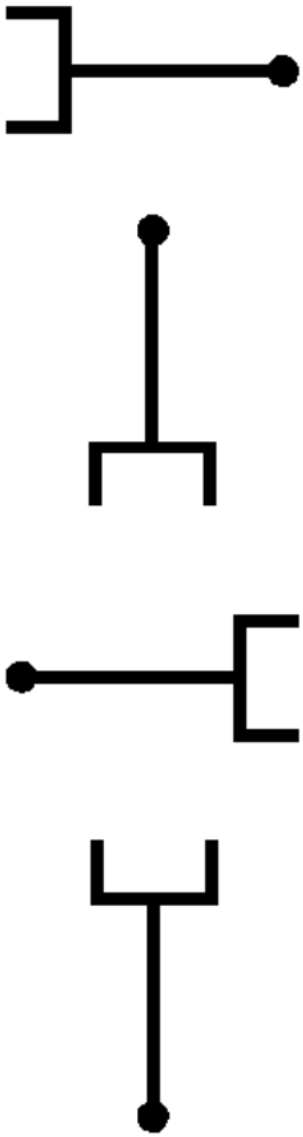
Symbol	Description
	Circuit References

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Symbol	Description
	Circuit Continuation Arrowheads

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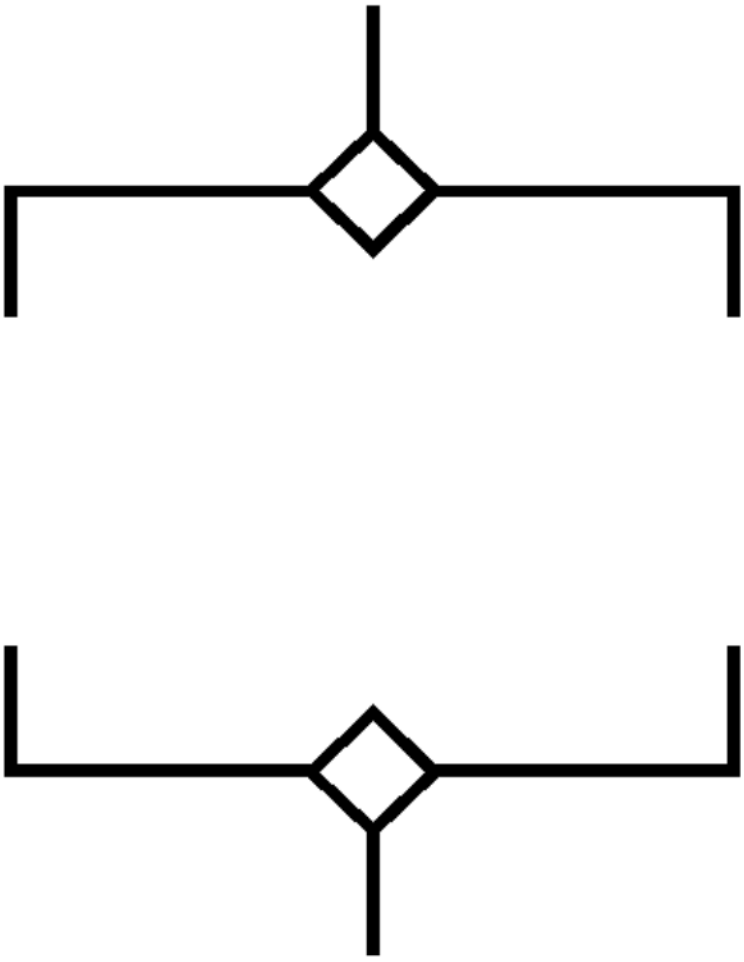
Symbol	Description
	Option Breakpoint

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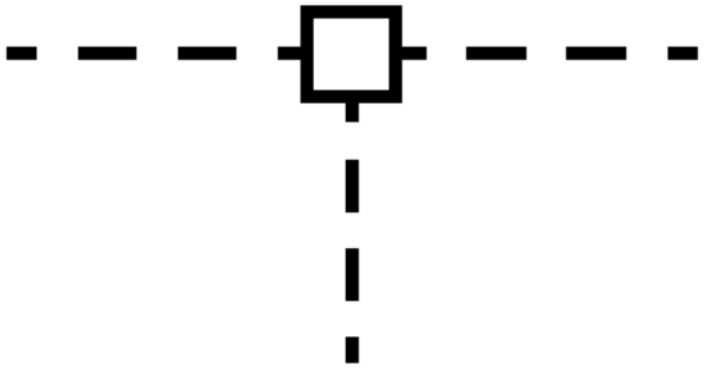
Symbol	Description
	Ground Circuit Connection

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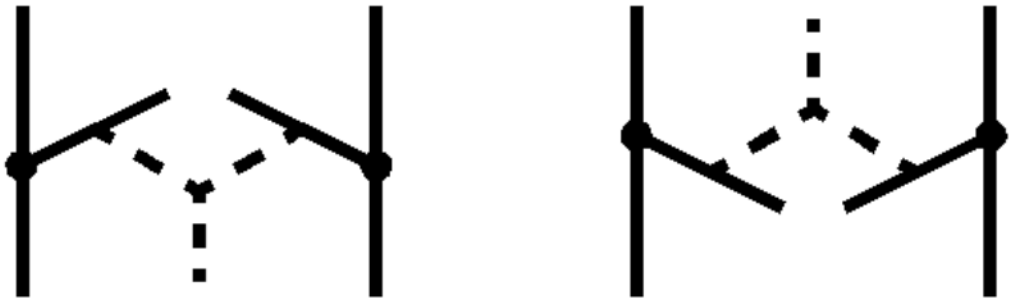
Symbol	Description
	Connector Shorting Clip

Component Parts

Symbol	Description

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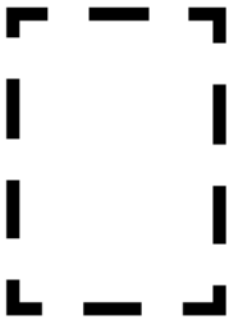
Symbol	Description
	Partial Component When a component is represented in a dashed box, the component or its wiring is not shown in its entirety.

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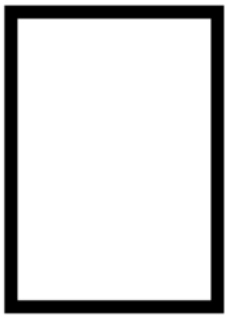
Symbol	Description
	Entire Component When a component is represented in a solid box the component or its wiring is shown in its entirety.

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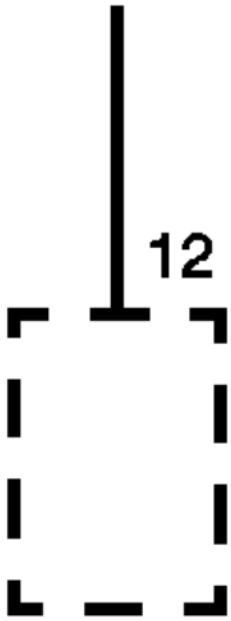
Symbol	Description
	Connector Directly Attached to Component

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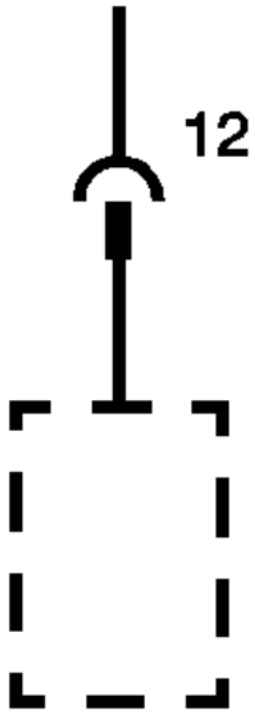
Symbol	Description
	Pigtail Connector

Switches and Relays

Symbol	Description

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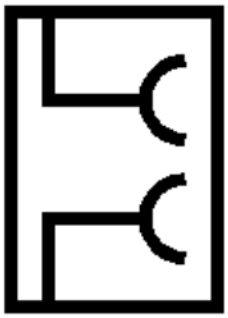
Symbol	Description
	Accessory Power Outlet

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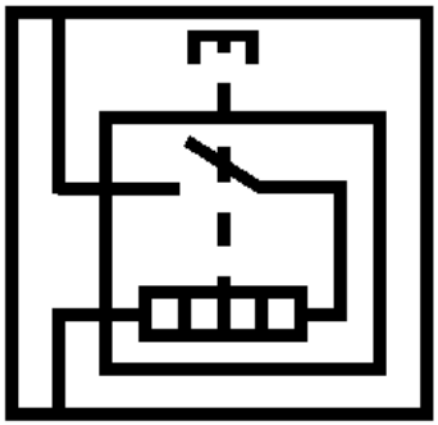
Symbol	Description
	Cigar Lighter

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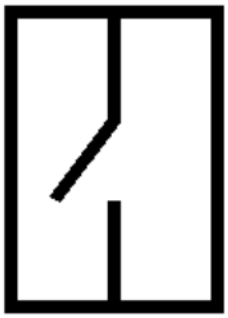
Symbol	Description
	Switch- 2 Position Normally Open

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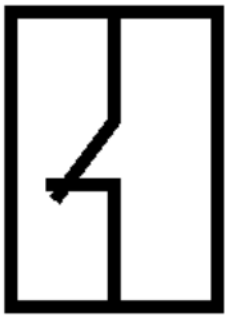
Symbol	Description
	Switch- 2 Position Normally Closed

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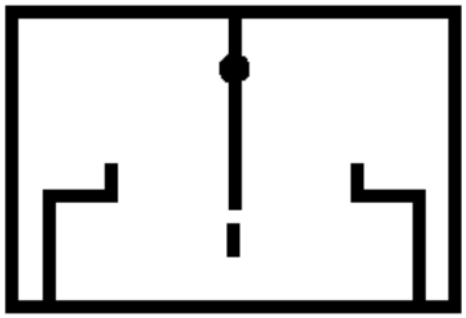
Symbol	Description
	Switch-Rocker

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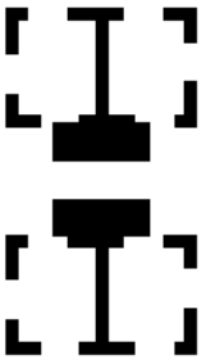
Symbol	Description
	Switch-Contact Plate (1 Wire)

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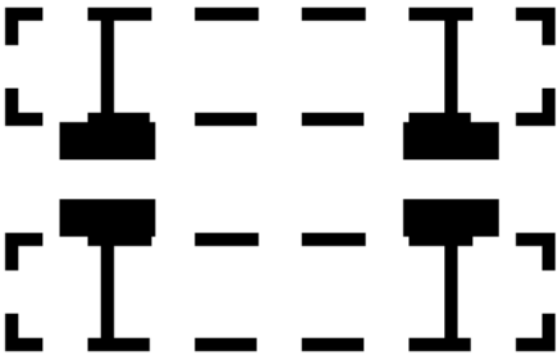
Symbol	Description
	Switch-Contact Plate (2 Wire)

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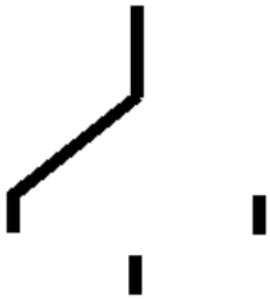
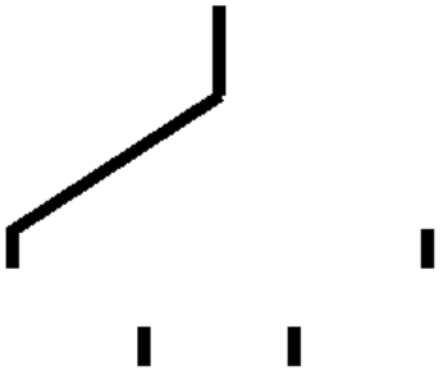
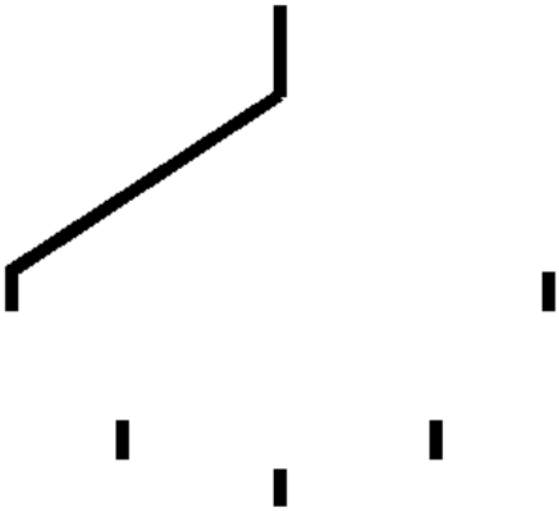
Symbol	Description
	Switch- 3 Position

cardiagn.com

Symbol	Description
	Switch- 4 Position

cardiagn.com

Symbol	Description
	Switch- 5 Position

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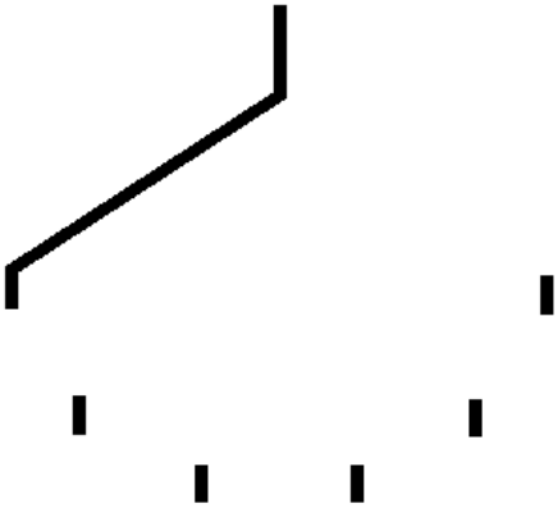
Symbol	Description
	Switch- 6 Position

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Symbol	Description
	Switch Actuator- Push (Momentary)

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Symbol	Description
	Switch Actuator- Push (Latching)

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Symbol	Description
	Switch Actuator- Pull (Momentary)

cardiagn.com

Symbol	Description
	Switch Actuator-Pull (Latching)

cardiagn.com

Symbol	Description
	Switch Actuator-Rotate (Momentary)

cardiagn.com

Symbol	Description
	Switch Actuator- Rotate (Latching)

cardiagn.com

Symbol	Description
	Switch Actuator-Slide (Momentary)

cardiagn.com

Symbol	Description
	Switch Actuator-Slide (Latching)

cardiagn.com

Symbol	Description
	Switch Actuator-Pressure (Momentary)

cardiagn.com

Symbol	Description
	Switch Actuator-Temperature (Momentary)

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Symbol	Description
	Switch Actuator-Volume (Latching)

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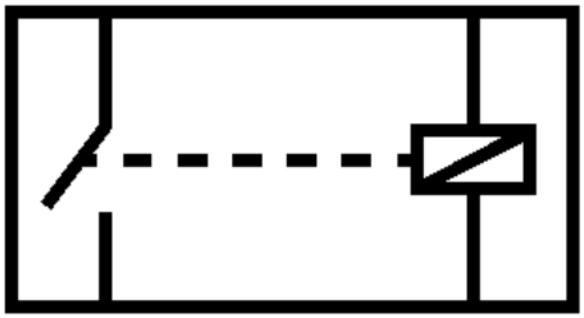
Symbol	Description
	4-Pin Single Pole/Throw Relay- Normally Open

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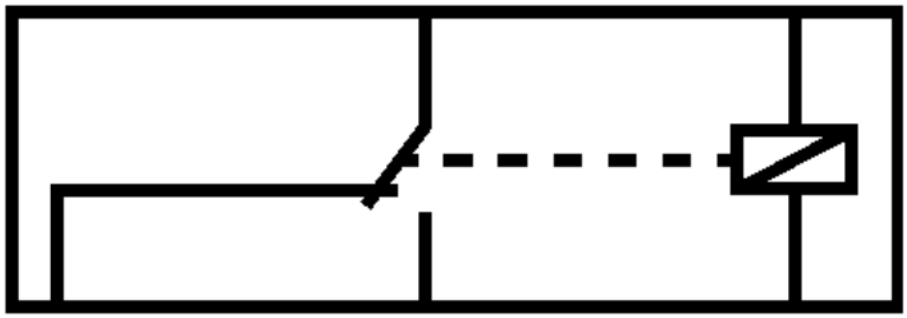
Symbol	Description
	5-Pin Relay-Normally Closed

Devices and Sensors

Symbol	Description

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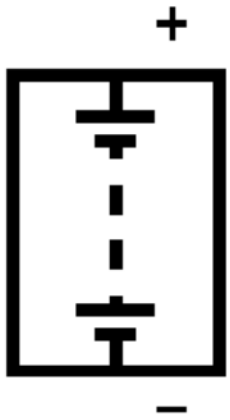
Symbol	Description
	Battery

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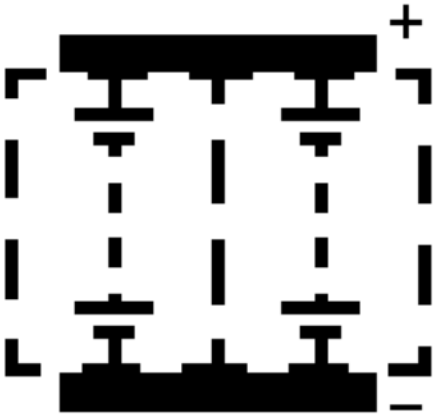
Symbol	Description
	Battery Assembly-Hybrid

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Symbol	Description
	Single Filament Light Bulb

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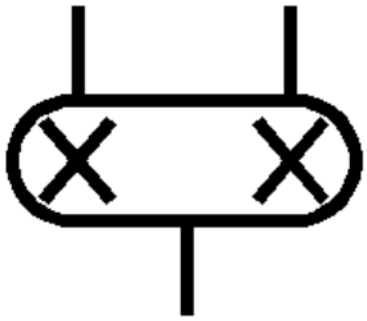
Symbol	Description
	Double Filament Light Bulb

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Symbol	Description
	Light Emitting Diode (LED)

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Symbol	Description
	Photo Sensor

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Symbol	Description
	Gauge

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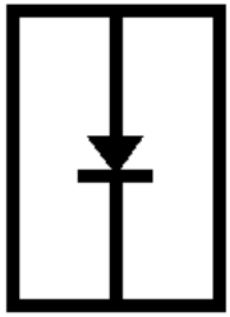
Symbol	Description
	Diode

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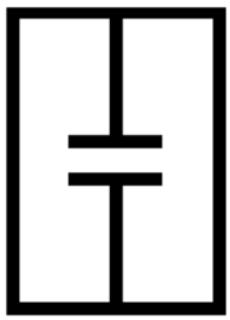
Symbol	Description
	Capacitor

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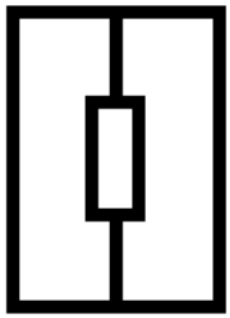
Symbol	Description
	Resistor

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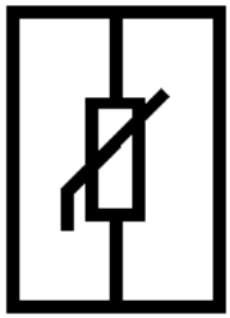
Symbol	Description
	Variable Resistor

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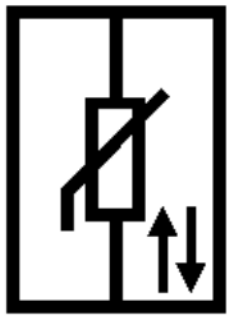
Symbol	Description
	Variable Resistor-NTC

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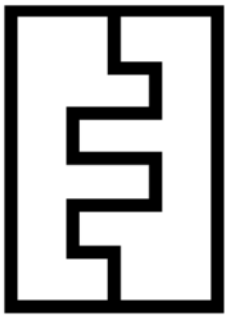
Symbol	Description
	Breakable Wire

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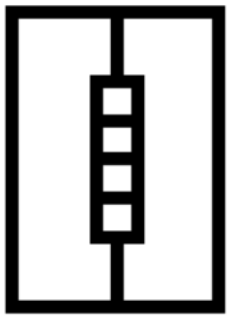
Symbol	Description
	Heating Element

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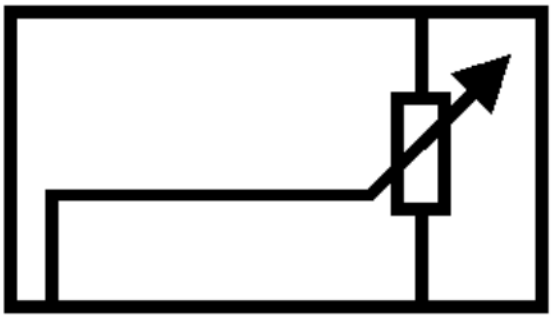
Symbol	Description
	Position Sensor

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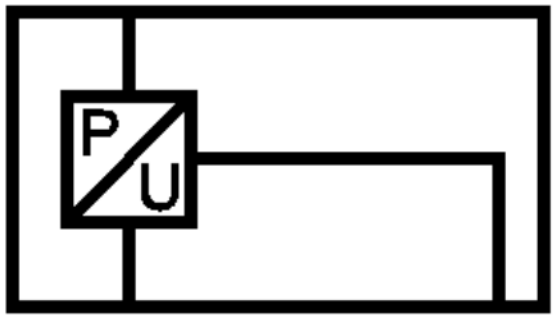
Symbol	Description
	Pressure Sensor

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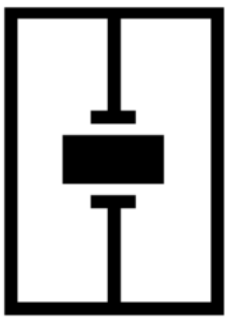
Symbol	Description
	Knock Sensor

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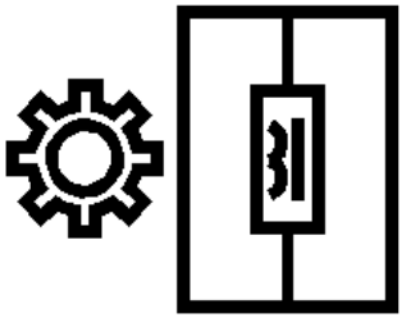
Symbol	Description
	Inductive Type Sensor- 2-Wire

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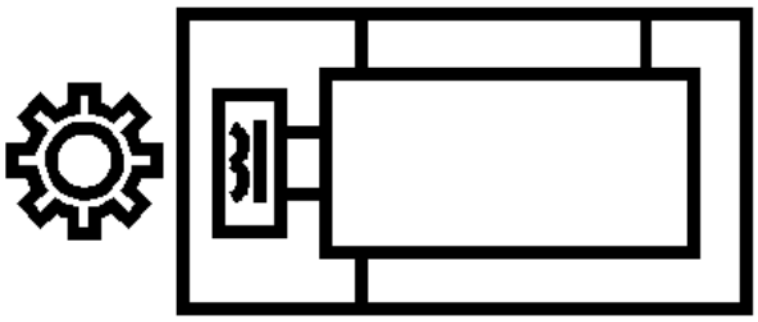
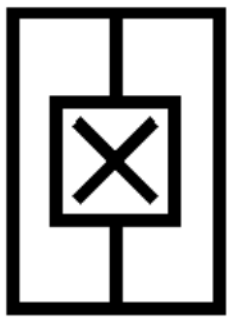
Symbol	Description
	Inductive Type Sensor- 3-Wire

cardiagn.com

Symbol	Description
	Hall Effect Sensor- 2-Wire

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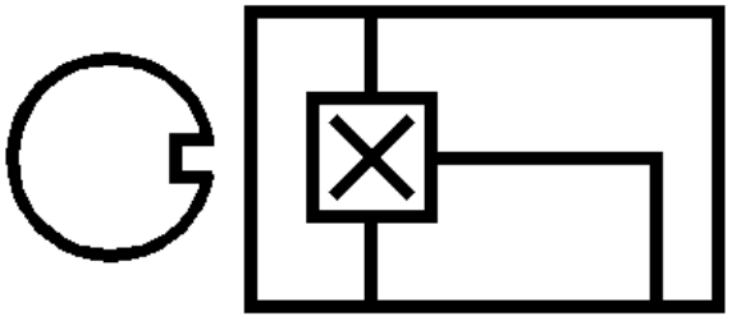
Symbol	Description
	Hall Effect Sensor- 3-Wire

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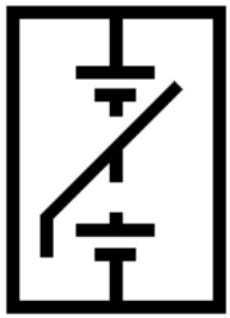
Symbol	Description
	Oxygen Sensor- 2-Wire

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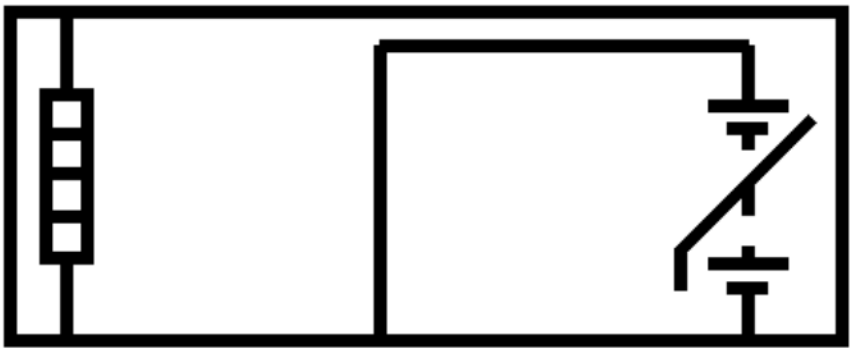
Symbol	Description
	Heated Oxygen Sensor- 4-Wire

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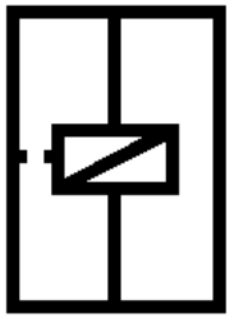
Symbol	Description
	Solenoid-Actuator

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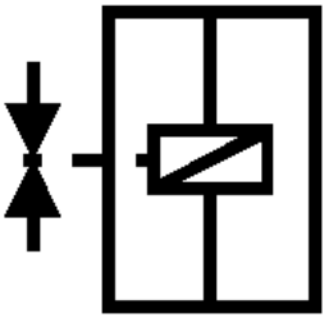
Symbol	Description
	Solenoid-Valve

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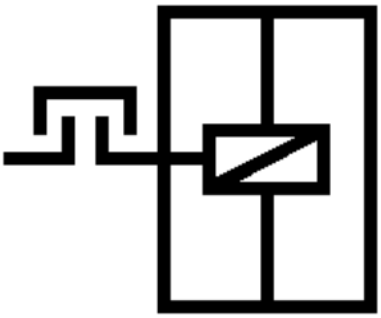
Symbol	Description
	Clutch

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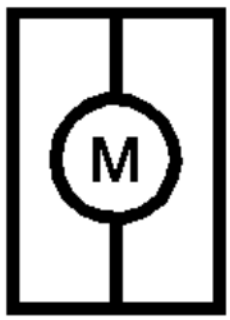
Symbol	Description
	Motor

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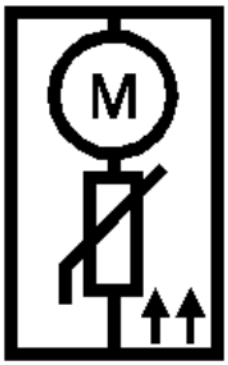
Symbol	Description
	Motor with PTC

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Symbol	Description
	Antenna

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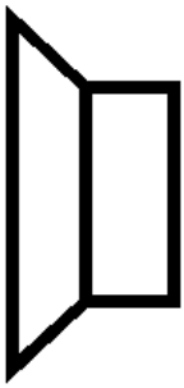
Symbol	Description
	Speaker

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Symbol	Description
	Horn

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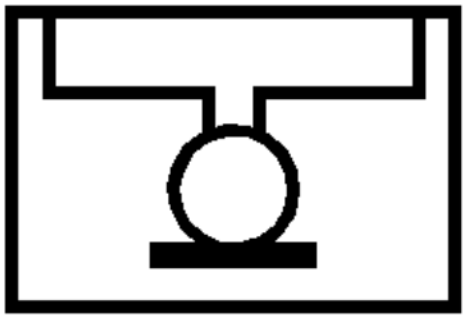
Symbol	Description
	Microphone

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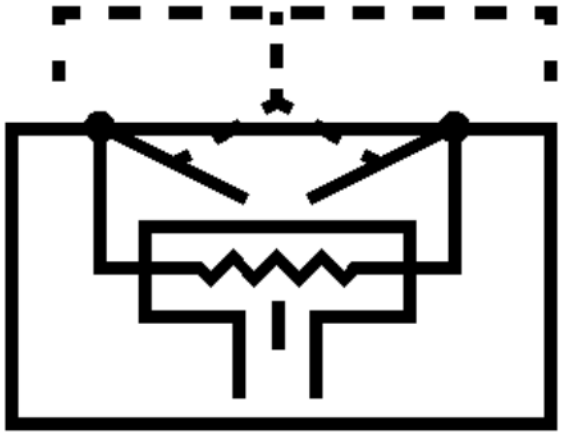
Symbol	Description
	Airbag

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Symbol	Description
	SIR Coil

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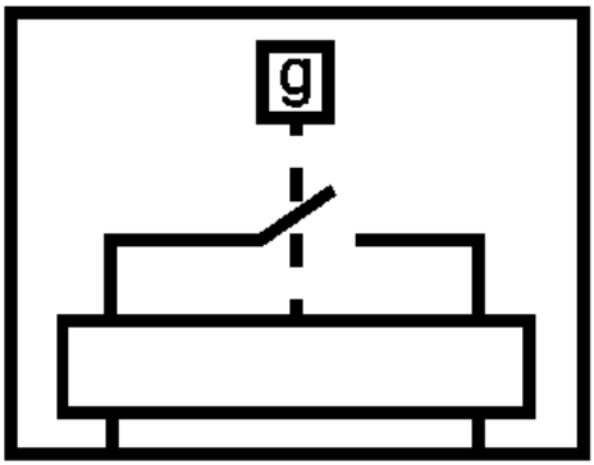
Symbol	Description
	SIR Impact Sensor

Article GUID: A00854698

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SPECIFICATIONS

FASTENER SPECIFICATIONS

Reusable Threaded Fastener Tightening Specifications

NOTE:

All fasteners listed in this table can be reused after removal.

Application	Specification
	Metric (English)
Ignition Lock Cylinder Case Bolt	7 N.m (62 lb in)
M6 Nut	8 N.m (71 lb in)
M7 Nut	9 N.m (80 lb in)
M8 Nut	22 N.m (16 lb ft)
M10 Nut	45 N.m (33 lb ft)
Underhood Electrical Center/Junction Block Bracket Screw	9 N.m (80 lb in)

Article GUID: A00854693

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SCHEMATIC WIRING DIAGRAMS

POWER DISTRIBUTION WIRING SCHEMATICS (2500/3500)

X50D Fuse Block - Battery (2500/3500 with L96 or LC8)

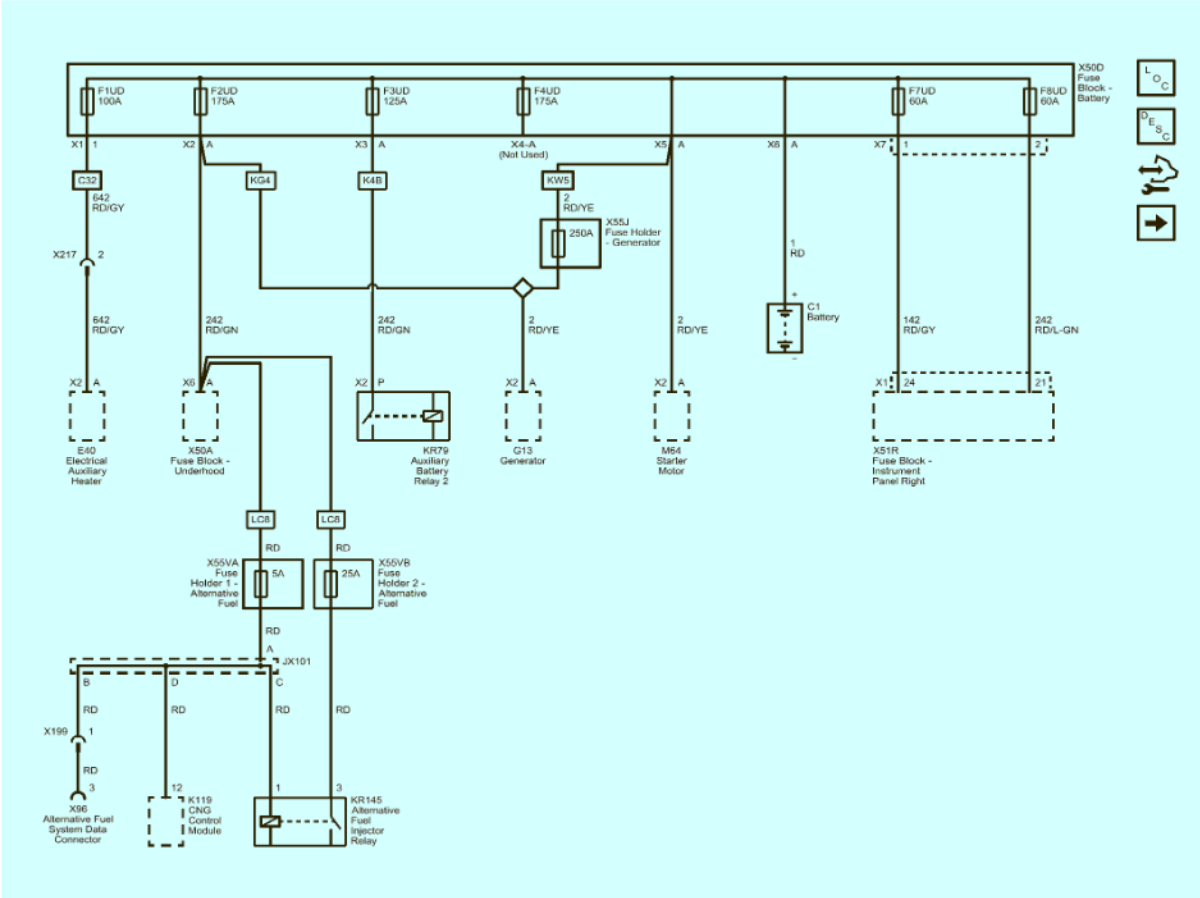

Fig. 1: X50D Fuse Block - Battery (2500/3500 with L96 or LC8)
Courtesy of GENERAL MOTORS COMPANY

X50D Fuse Block - Battery (2500/3500 with L5P)

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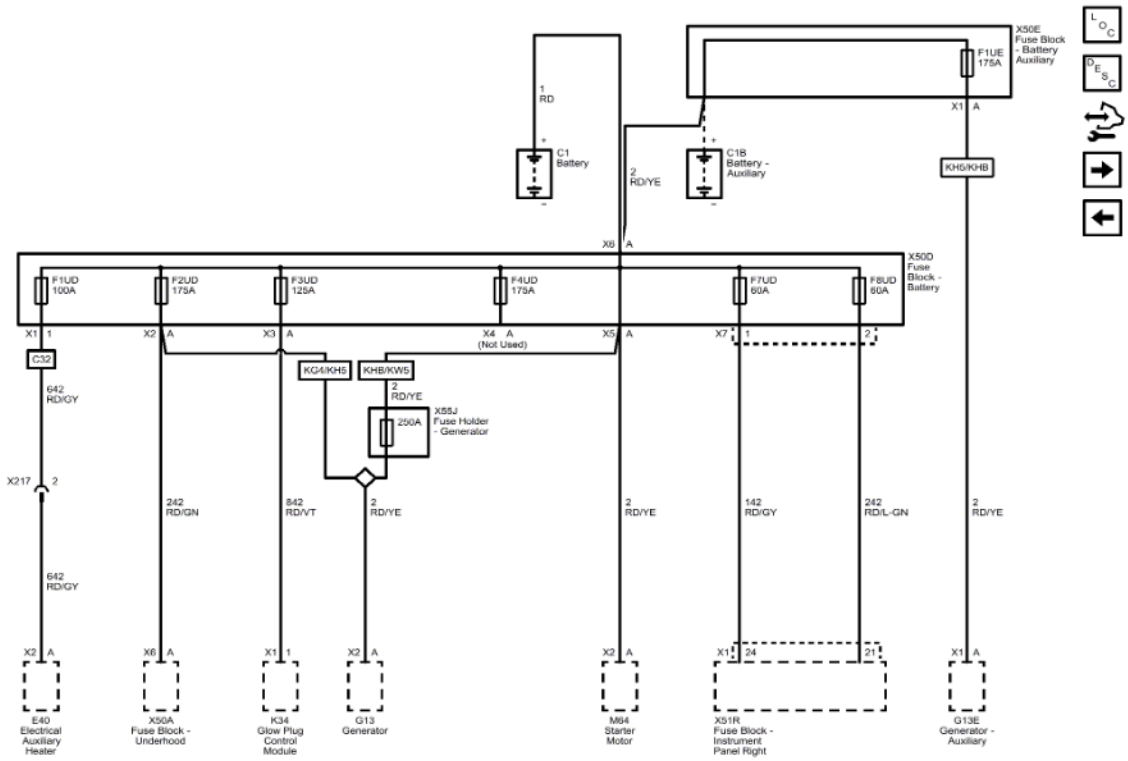

Fig. 2: X50D Fuse Block - Battery (2500/3500 with L5P)
Courtesy of GENERAL MOTORS COMPANY

B+ Bus X50A Fuse Block - Underhood 1 of 2 (2500/3500)

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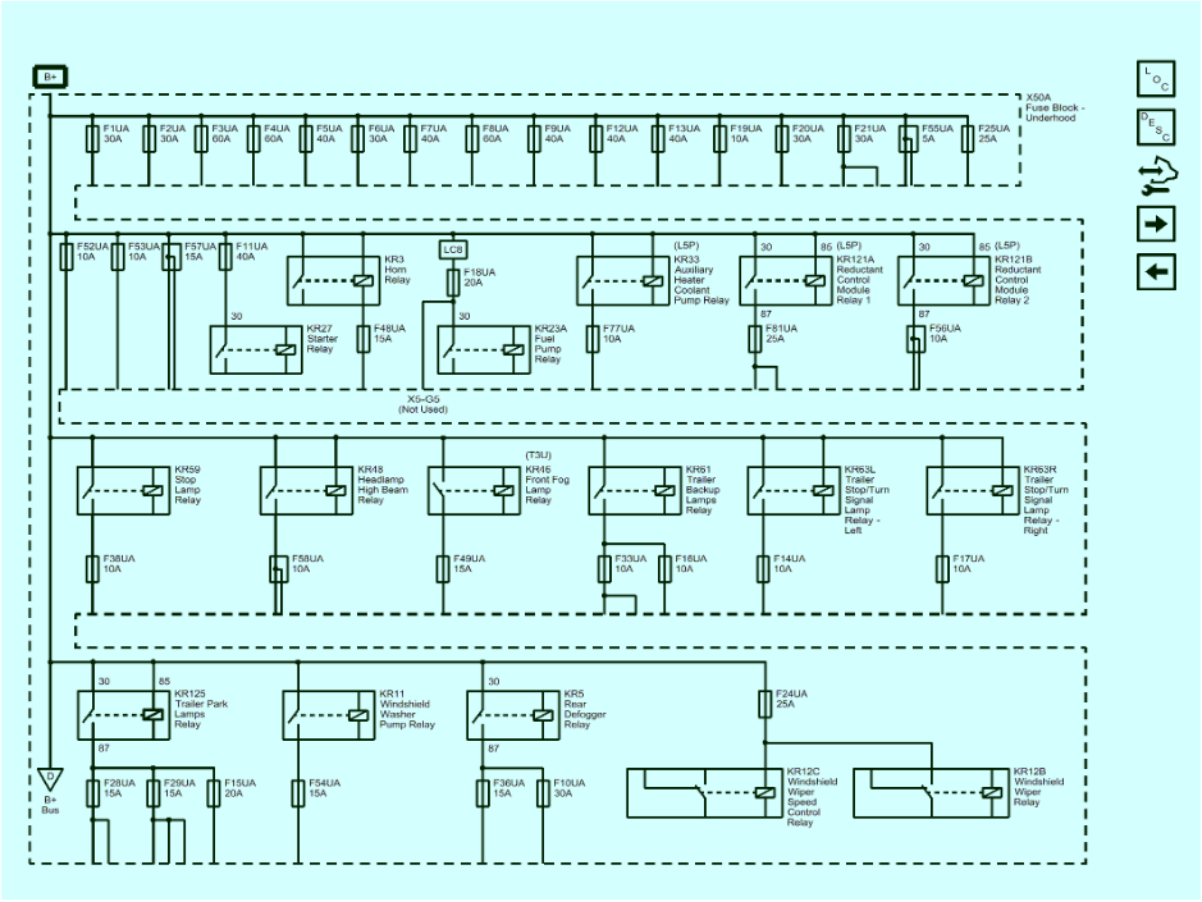

Fig. 3: B+ Bus X50A Fuse Block - Underhood 1 of 2 (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

B+ Bus X50A Fuse Block - Underhood 2 of 2 (2500/3500)

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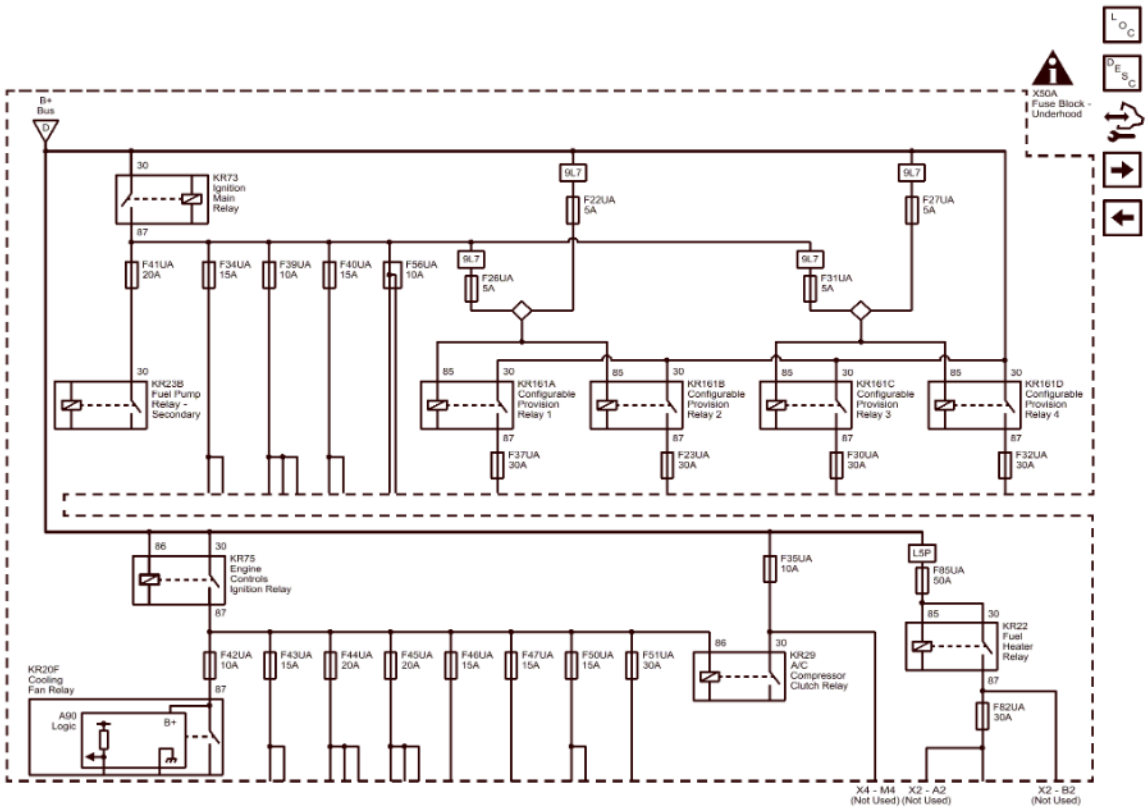

Fig. 4: B+ Bus X50A Fuse Block - Underhood 2 of 2 (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

F1UA, F1UE, F2UA, F2UE, F19UA, F21UA, and F55UA Fuses (2500/3500)

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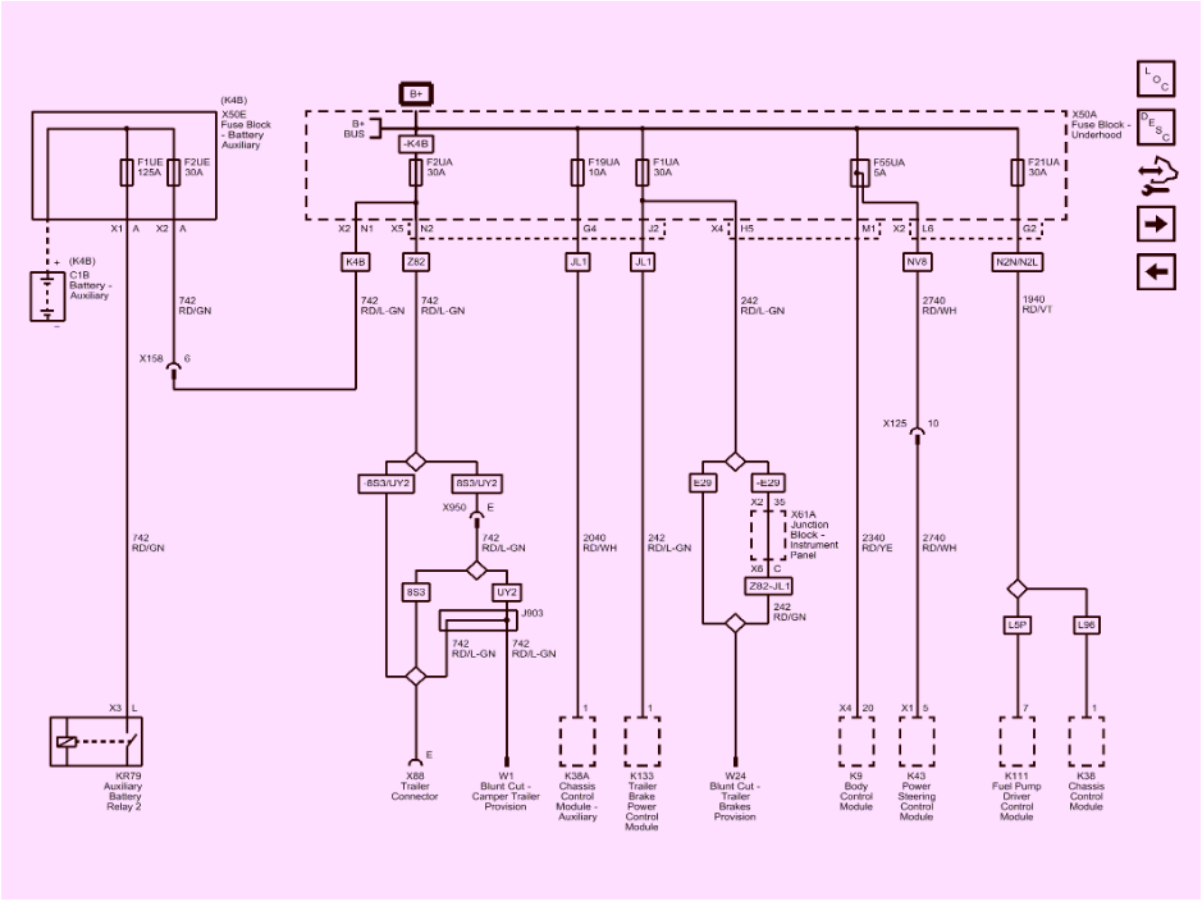

Fig. 5: F1UA, F1UE, F2UA, F2UE, F19UA, F21UA, and F55UA Fuses (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

F3UA, F4UA, F8UA, F25UA F52UA and F57UA Fuses (2500/3500)

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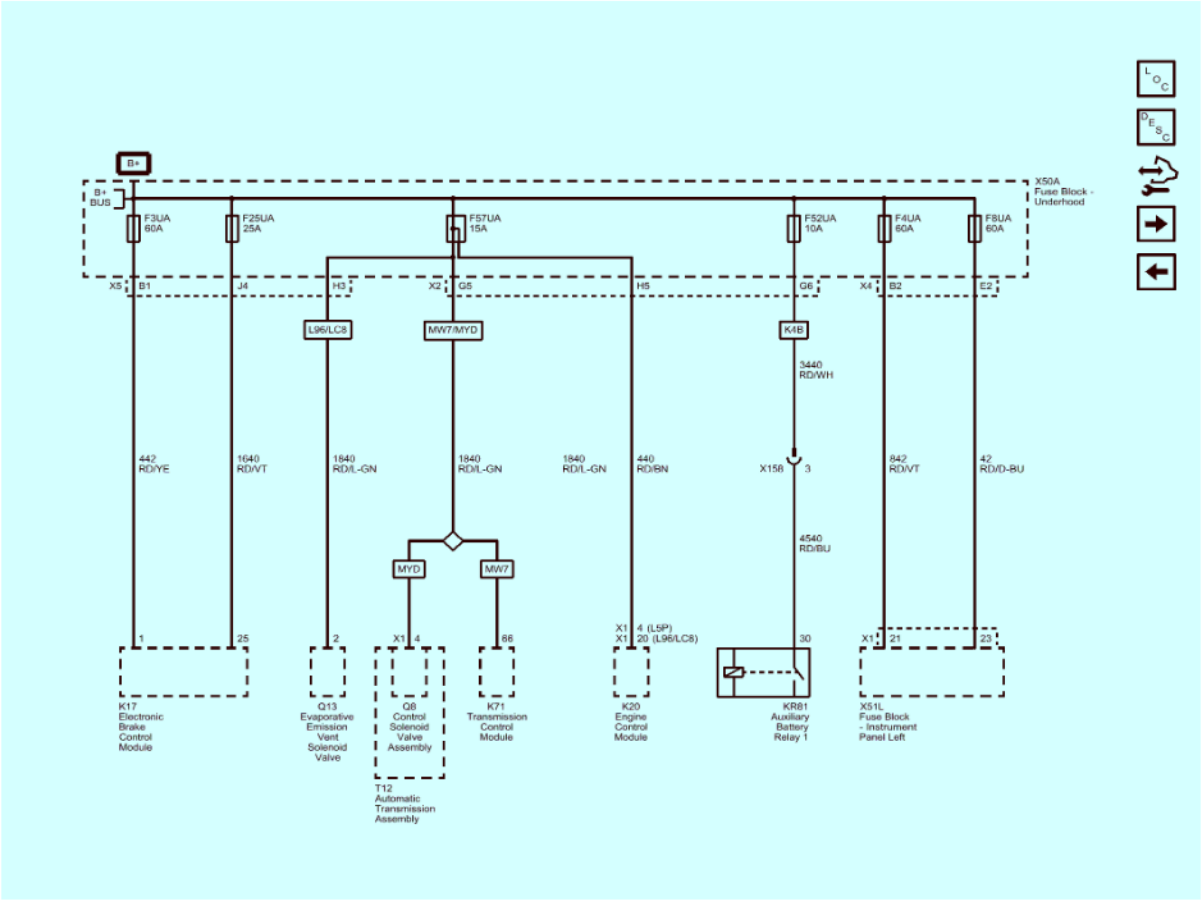

Fig. 6: F3UA, F4UA, F8UA, F25UA F52UA and F57UA Fuses (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

F6UA, F10UA, F36UA, F48UA and F54UA Fuses (2500/3500)

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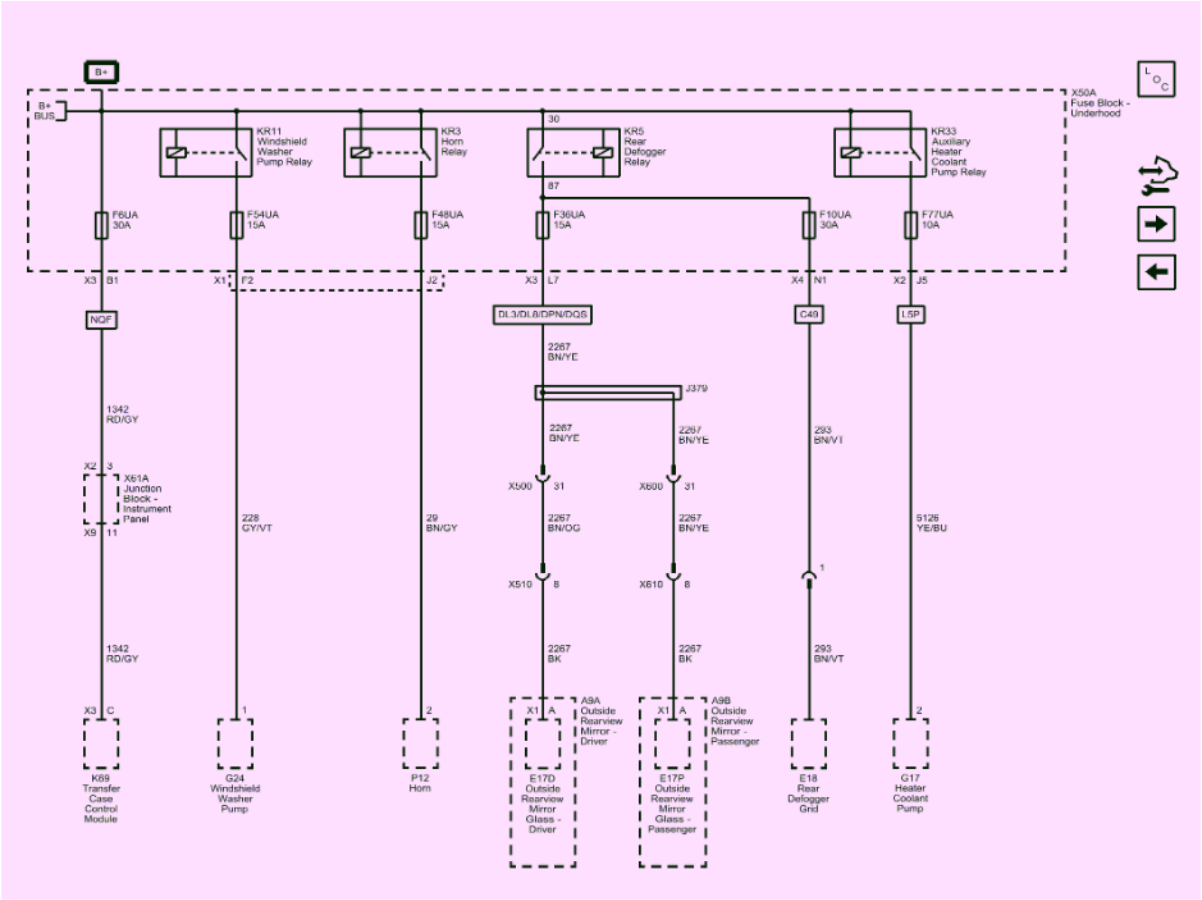

Fig. 7: F6UA, F10UA, F36UA, F48UA and F54UA Fuses (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

F14UA, F17UA and F58UA Fuses (2500/3500)

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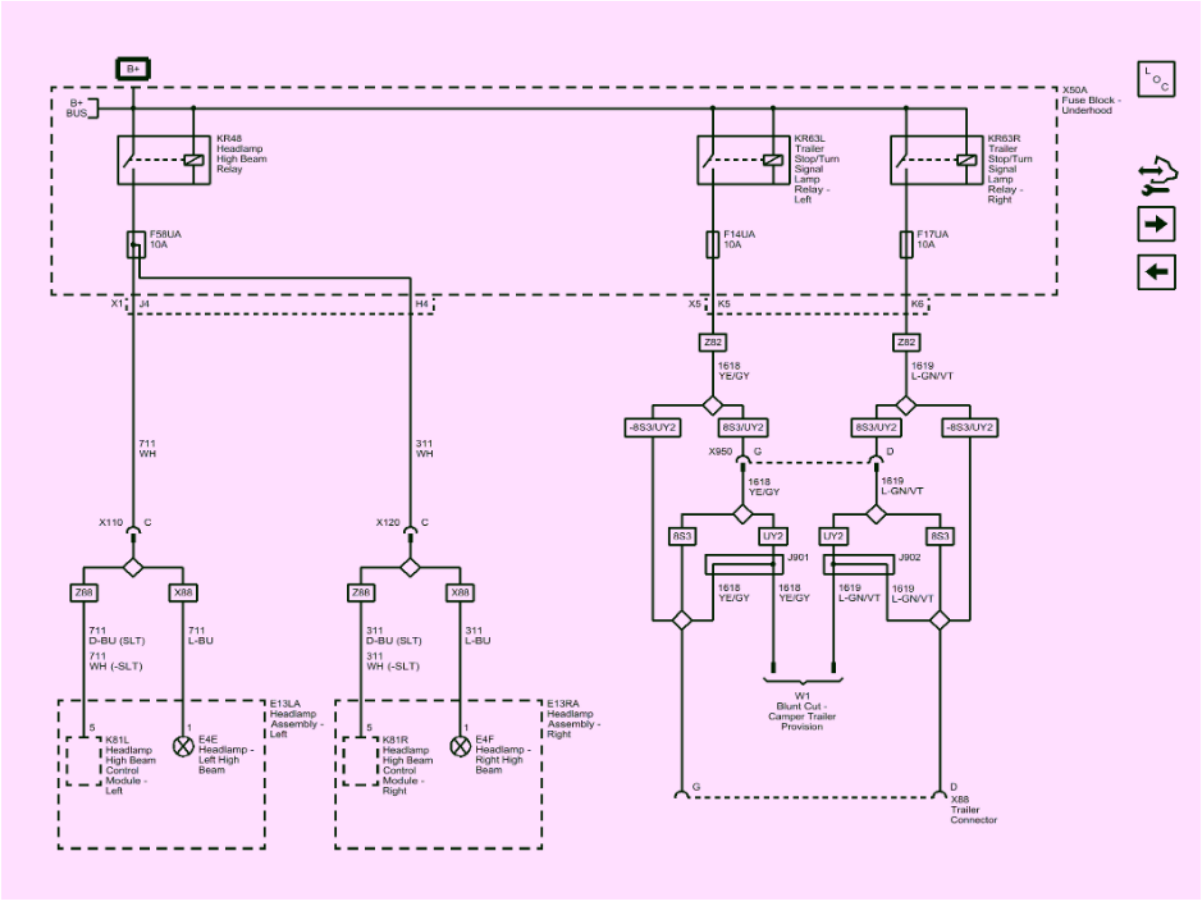

Fig. 8: F14UA, F17UA and F58UA Fuses (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

F15UA and F28UA Fuses (2500/3500)

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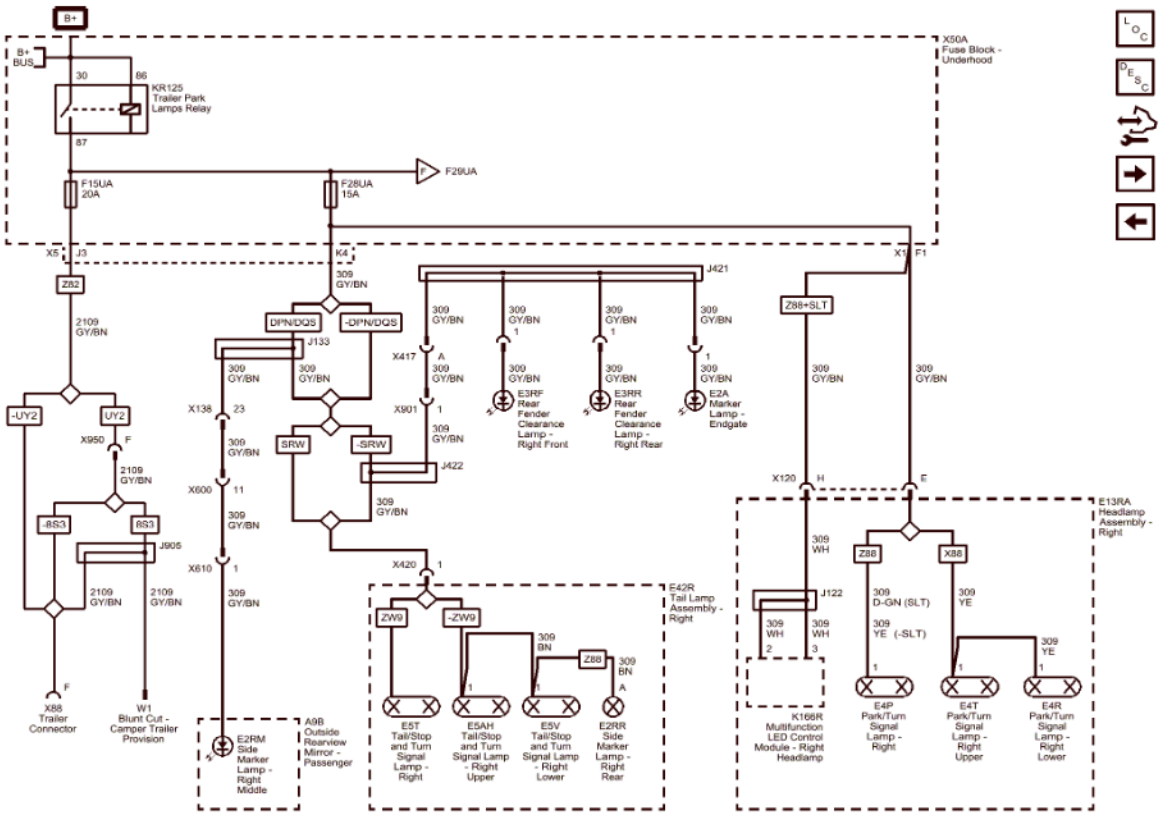

Fig. 9: F15UA and F28UA Fuses (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

F29UA Fuse (2500/3500)

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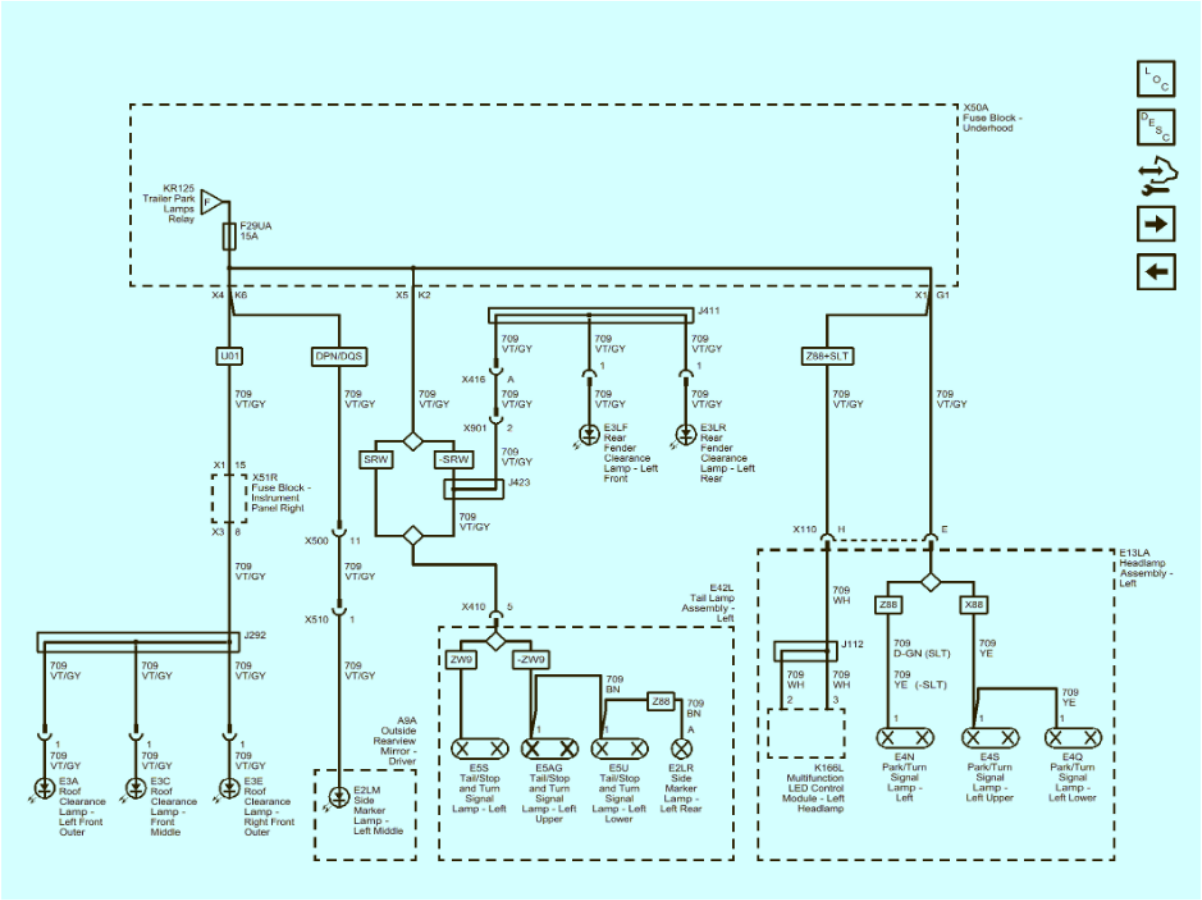

Fig. 10: F29UA Fuse (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

F16UA, F33UA, F38UA and F49UA Fuses (2500/3500)

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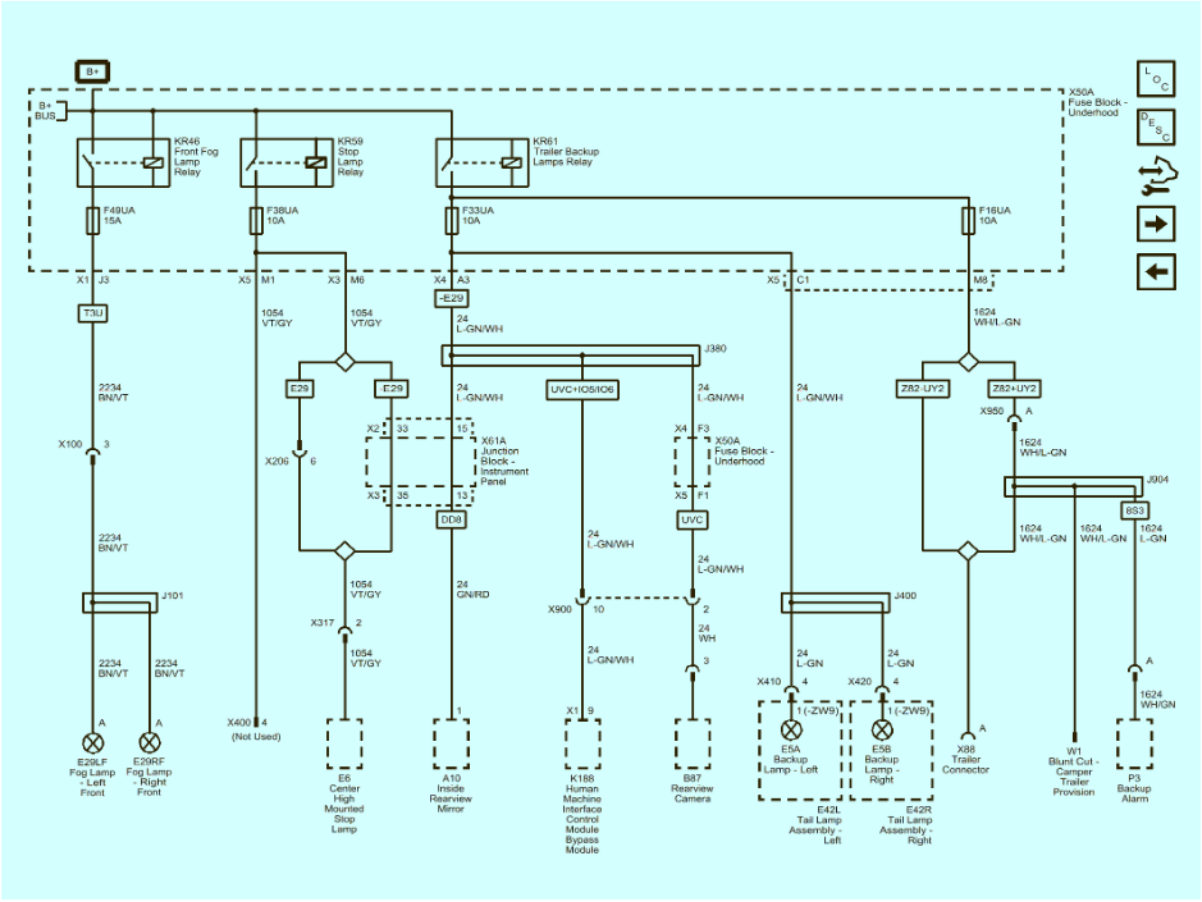

Fig. 11: F16UA, F33UA, F38UA and F49UA Fuses (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

F22UA, F23UA, F26UA, F27UA, F30UA, F31UA, F32UA, F34UA, F37UA, F39UA and F40UA Fuses (2500/3500)

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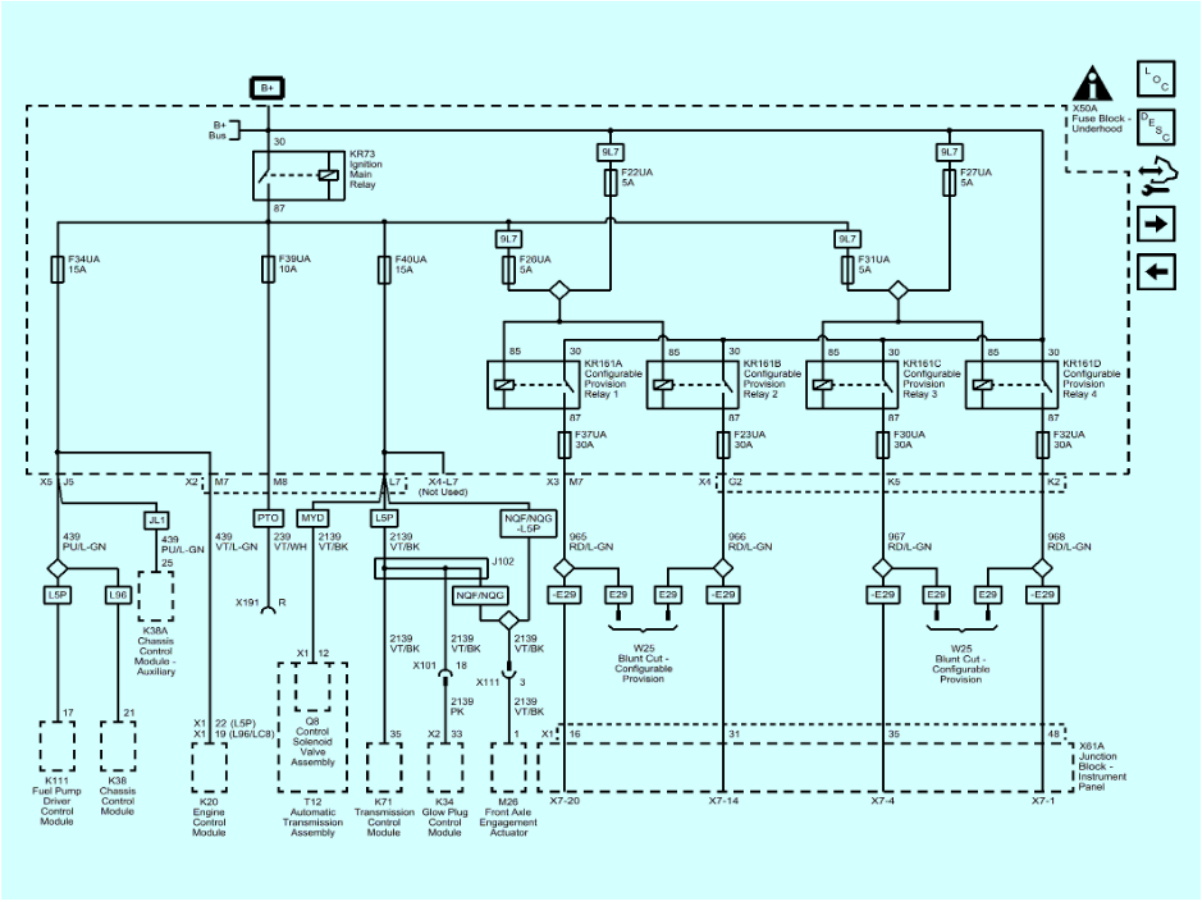

Fig. 12: F22UA, F23UA, F26UA, F27UA, F30UA, F31UA, F32UA, F34UA, F37UA, F39UA and F40UA Fuses (2500/3500)

Courtesy of GENERAL MOTORS COMPANY

F35UA, F42UA, F43UA, F46UA, F47UA, F50UA and F51UA Fuses (2500/3500)

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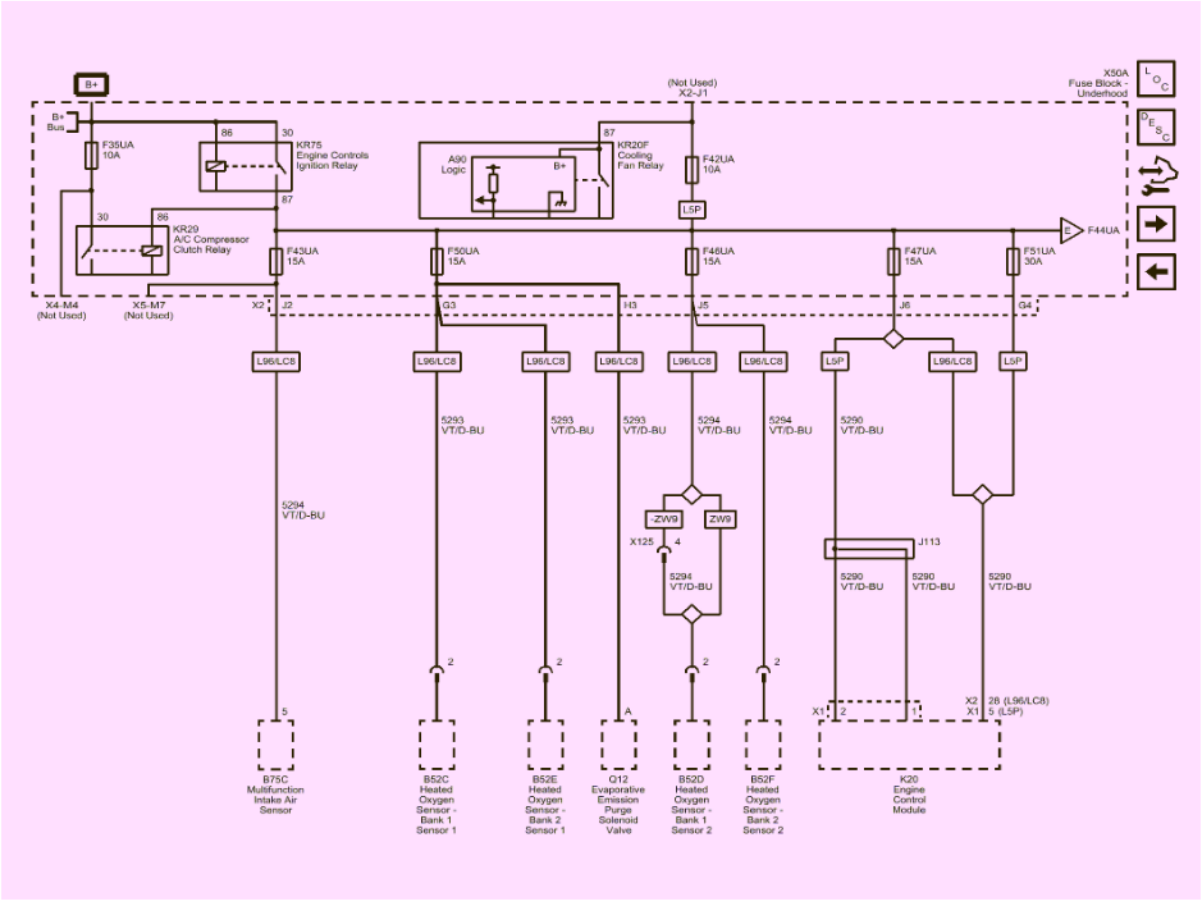

Fig. 13: F35UA, F42UA, F43UA, F46UA, F47UA, F50UA and F51UA Fuses (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

F44UA and F45UA Fuses (2500/3500 with L96)

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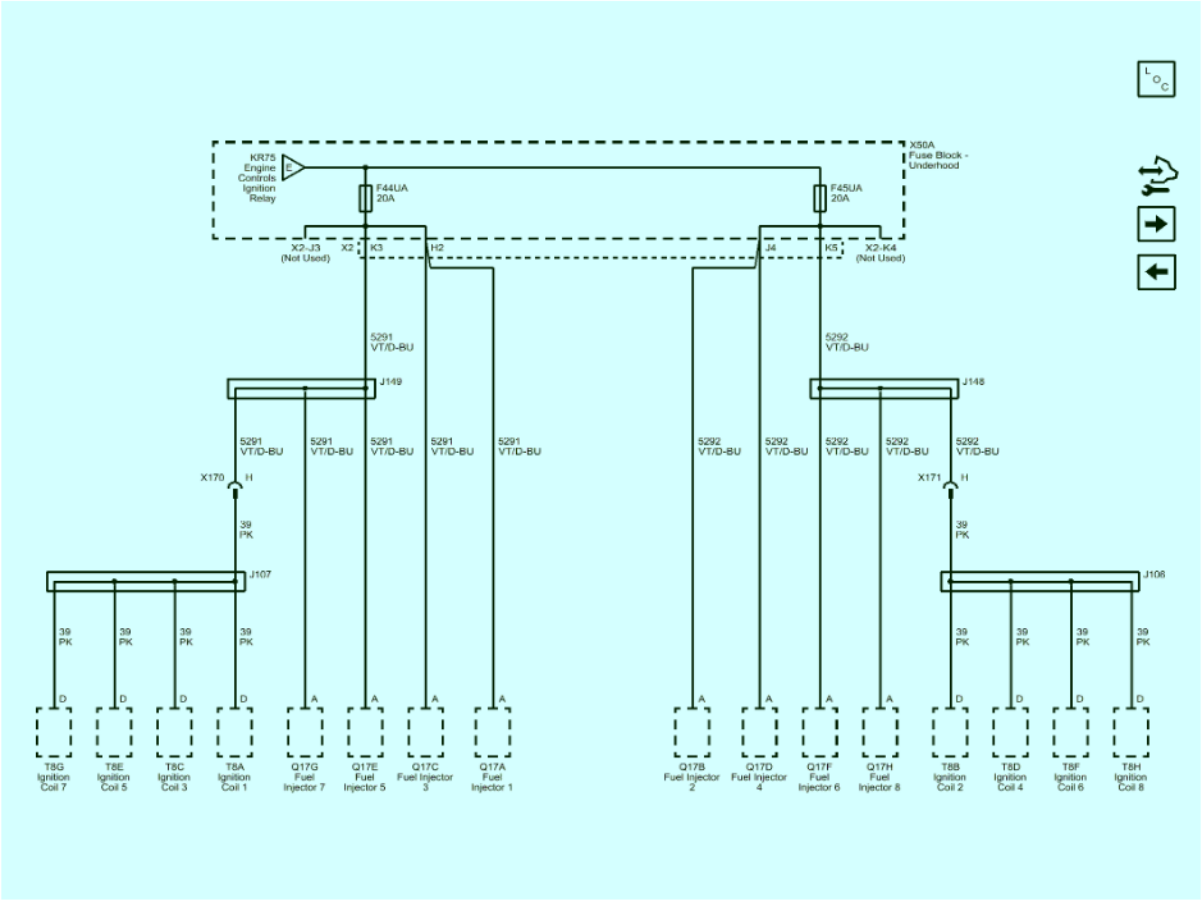

Fig. 14: F44UA and F45UA Fuses (2500/3500 with L96)
Courtesy of GENERAL MOTORS COMPANY

F44UA and F45UA Fuses (2500/3500 with LC8)

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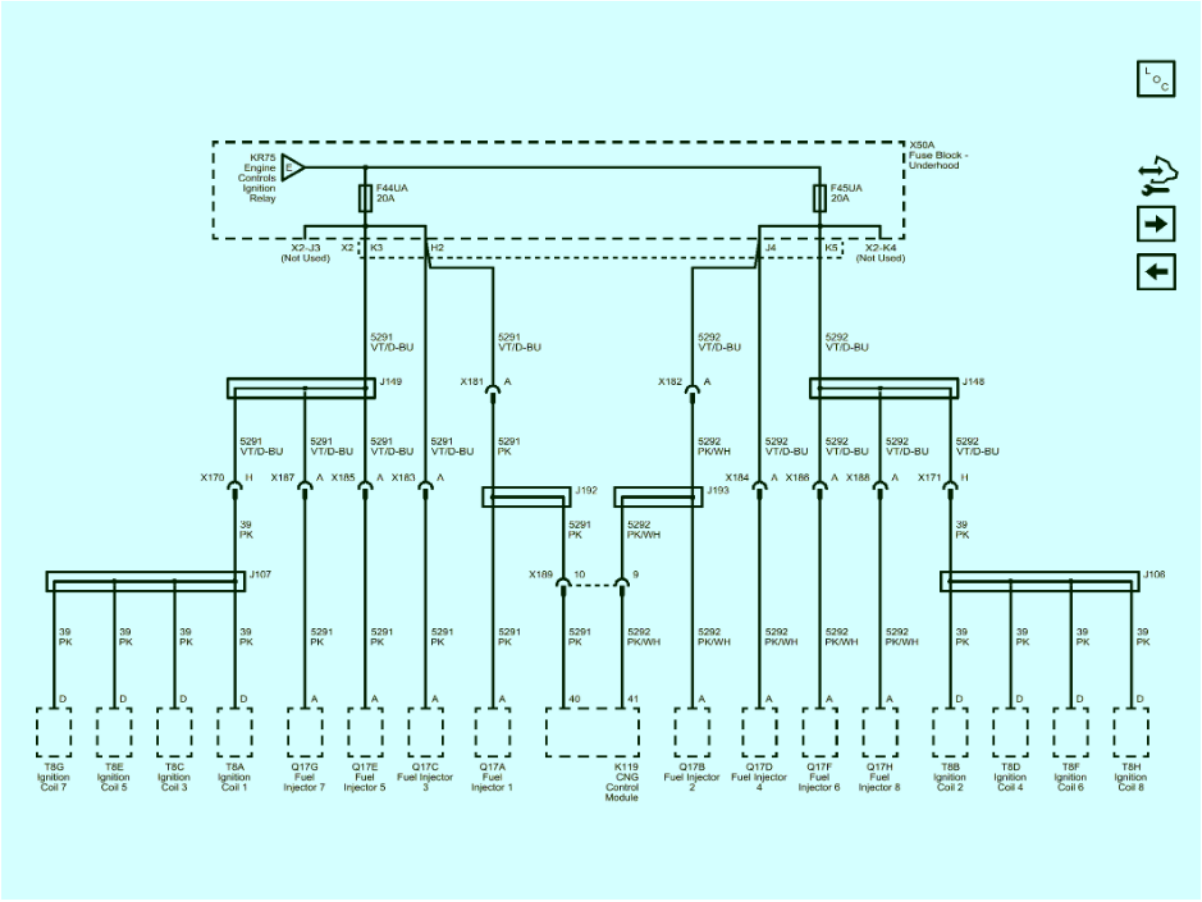

Fig. 15: F44UA and F45UA Fuses (2500/3500 with LC8)
Courtesy of GENERAL MOTORS COMPANY

F56UA, F81UA, F82UA, and F85UA Fuses (L5P)

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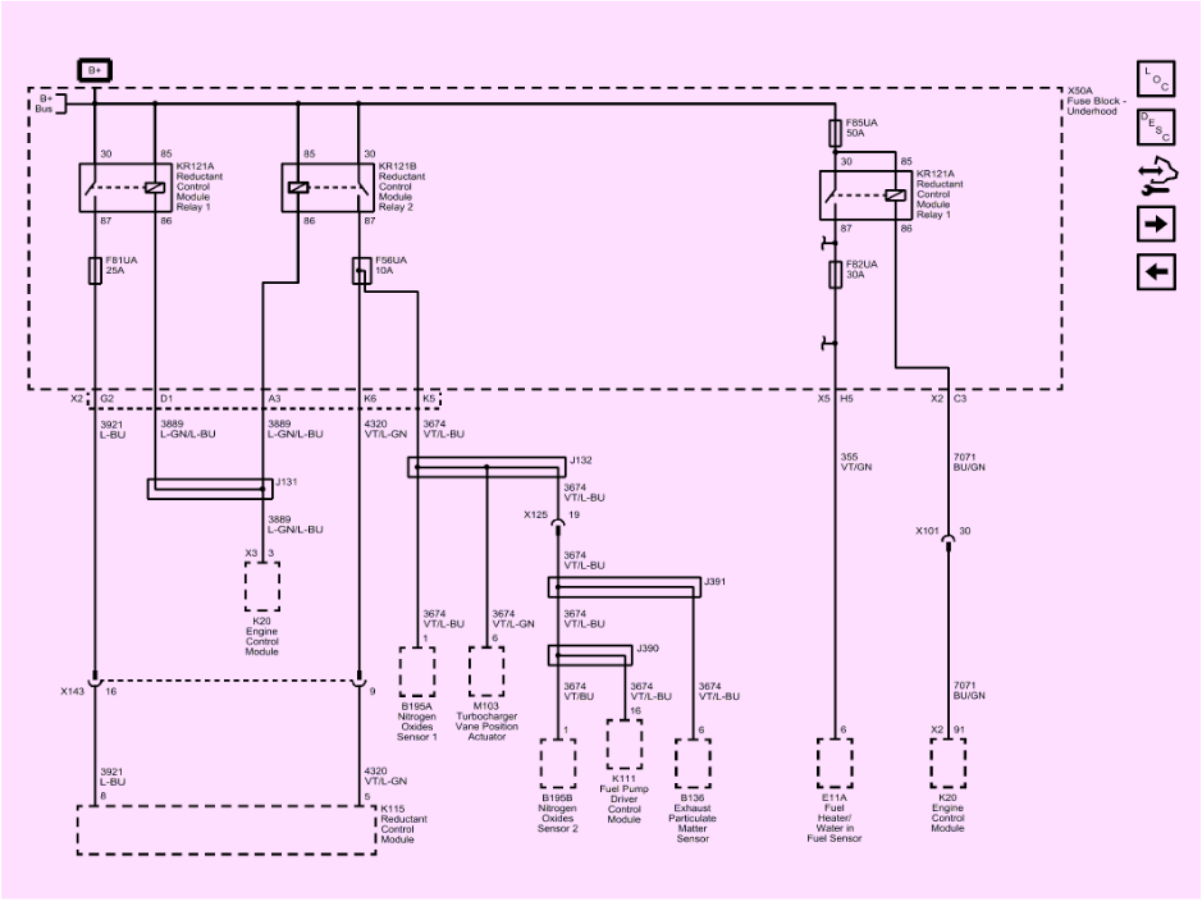

Fig. 16: F56UA, F81UA, F82UA, and F85UA Fuses (L5P)
Courtesy of GENERAL MOTORS COMPANY

B+ Bus X51L Fuse Block - Instrument Panel Left (2500/3500)

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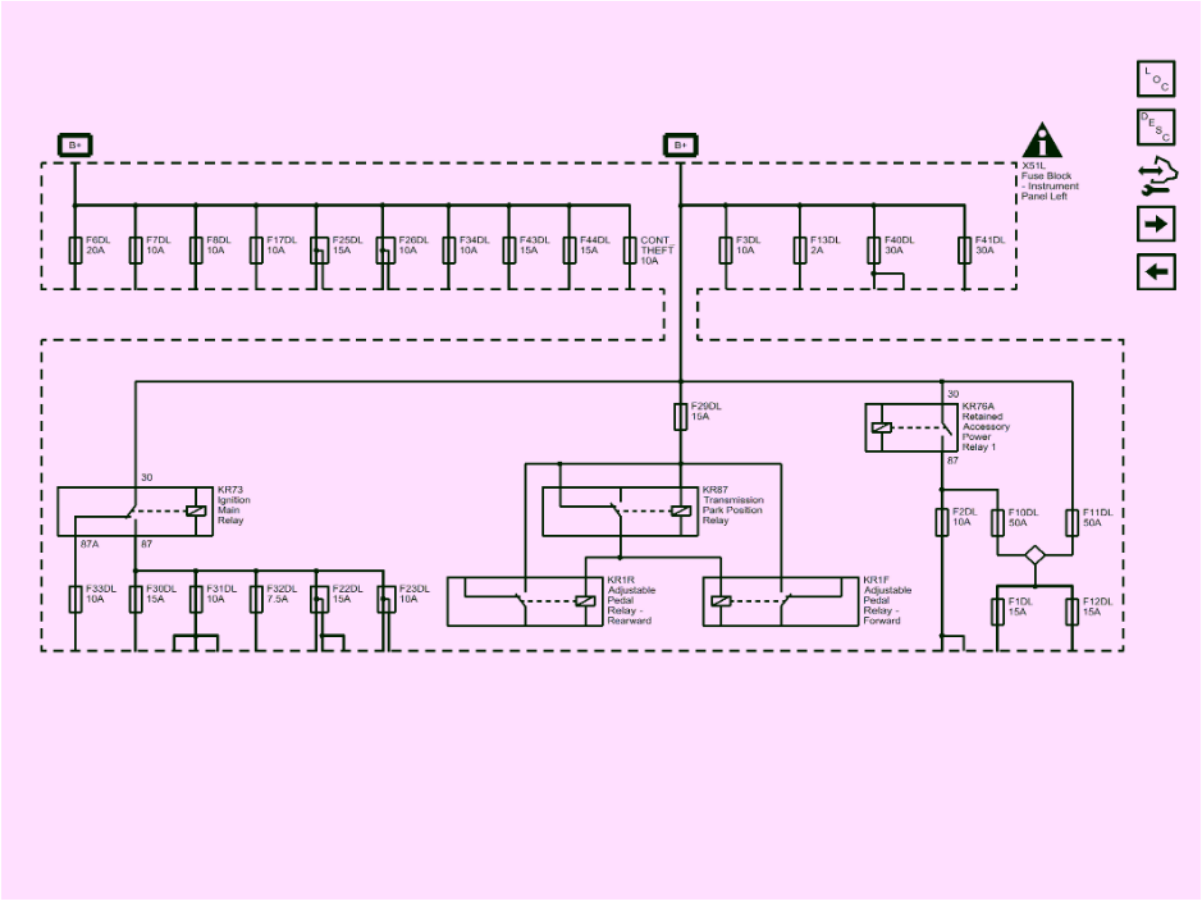

Fig. 17: B+ Bus X51L Fuse Block - Instrument Panel Left (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

F6DL, F7DL, F8DL, F17DL, F25DL, F26DL, F34DL, F43DL and F44DL Fuses (2500/3500)

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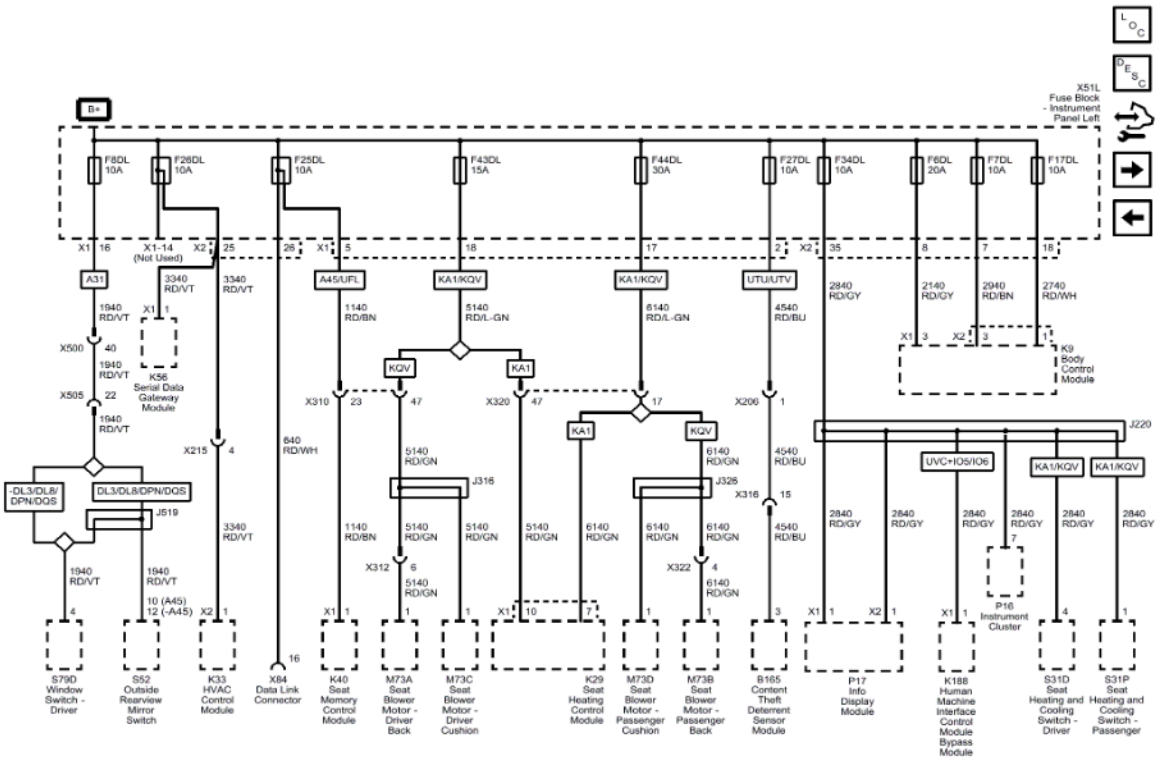

Fig. 18: F6DL, F7DL, F8DL, F17DL, F25DL, F26DL, F34DL, F43DL and F44DL Fuses (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

F14DL, F22DL, F23DL, F30DL, F31DL, F32DL and F33DL Fuses (2500/3500)

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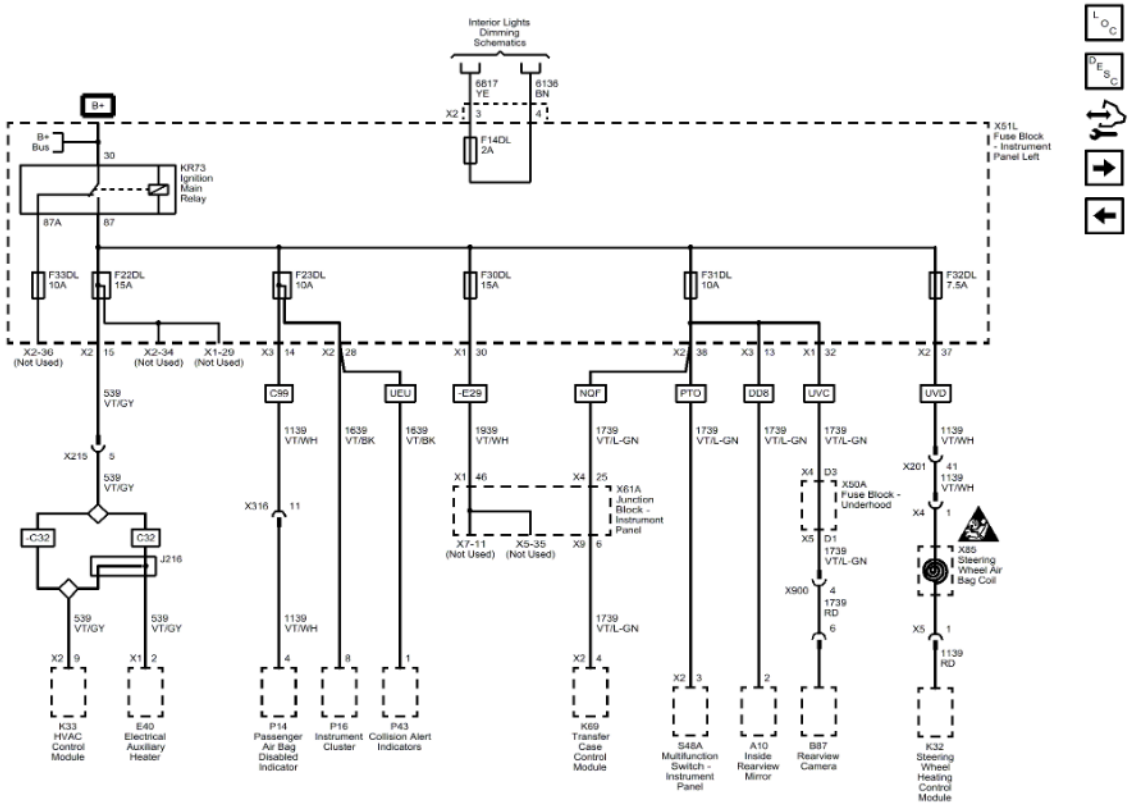

Fig. 19: F14DL, F22DL, F23DL, F30DL, F31DL, F32DL and F33DL Fuses (2500/3500)
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F1DL, F2DL, F3DL, F10DL, F11DL, F12DL, F13DL, F40DL and F41DL Fuses (2500/3500)

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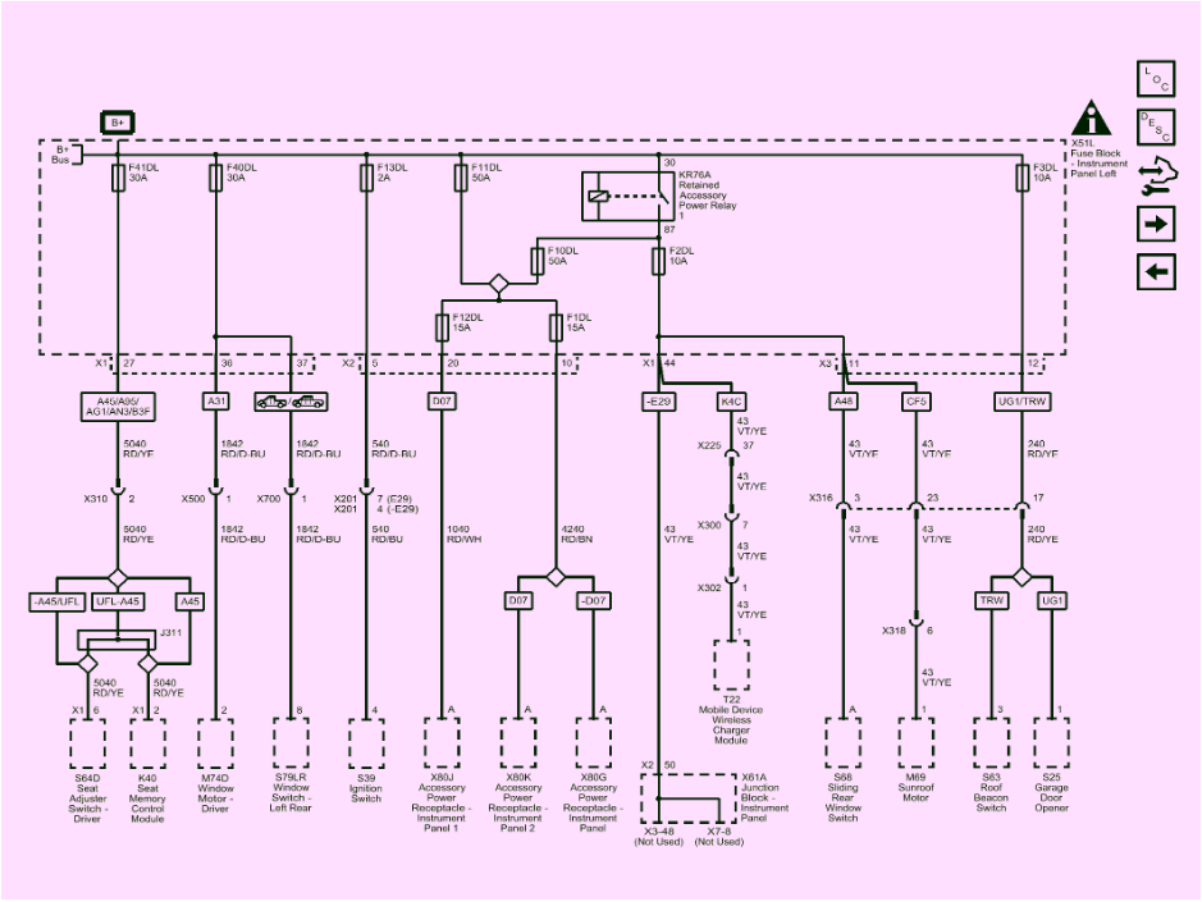

Fig. 20: F1DL, F2DL, F3DL, F10DL, F11DL, F12DL, F13DL, F40DL and F41DL Fuses (2500/3500)
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B+ Bus X51R Fuse Block - Instrument Panel Right (2500/3500)

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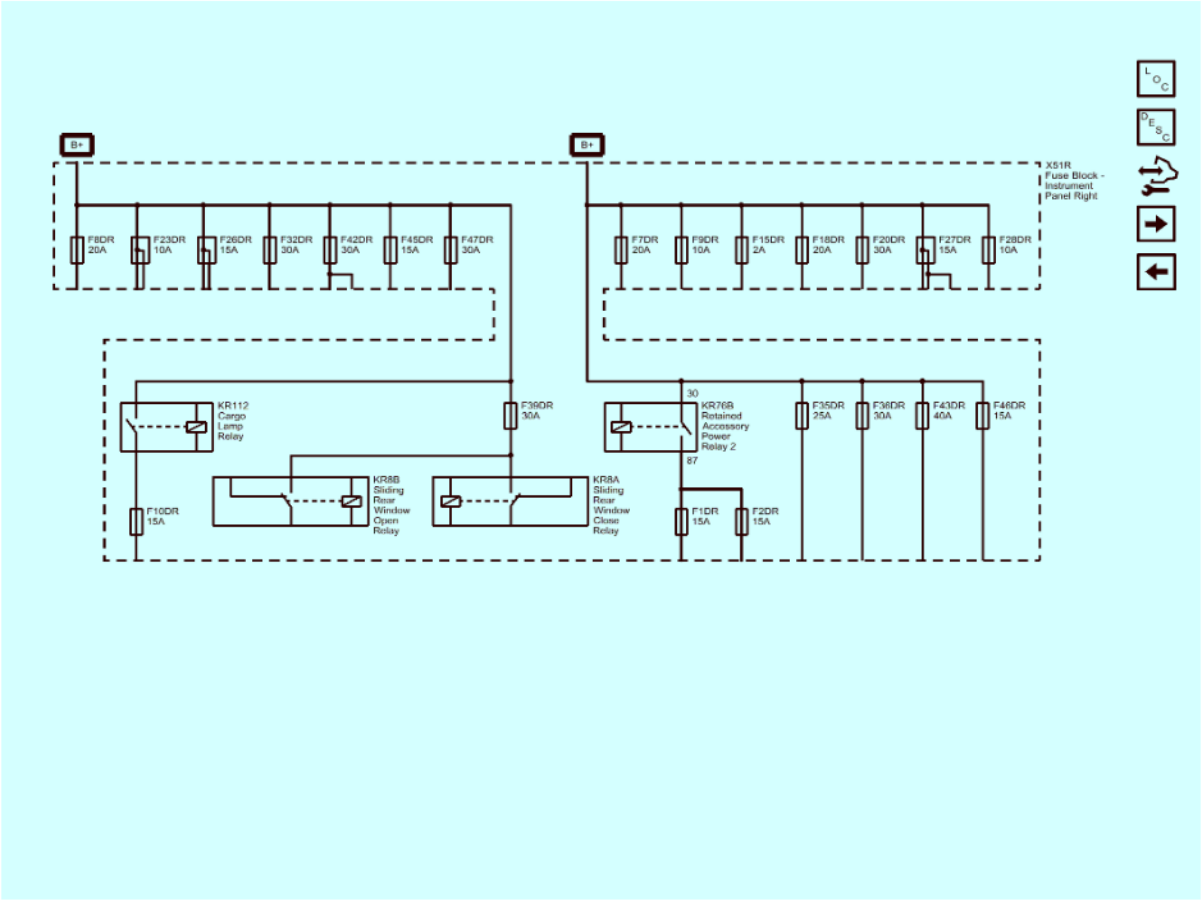

Fig. 21: B+ Bus X51R Fuse Block - Instrument Panel Right (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

F8DR, F23DR, F26DR, F32DR, F42DR, F45DR and F47DR Fuses (2500/3500)

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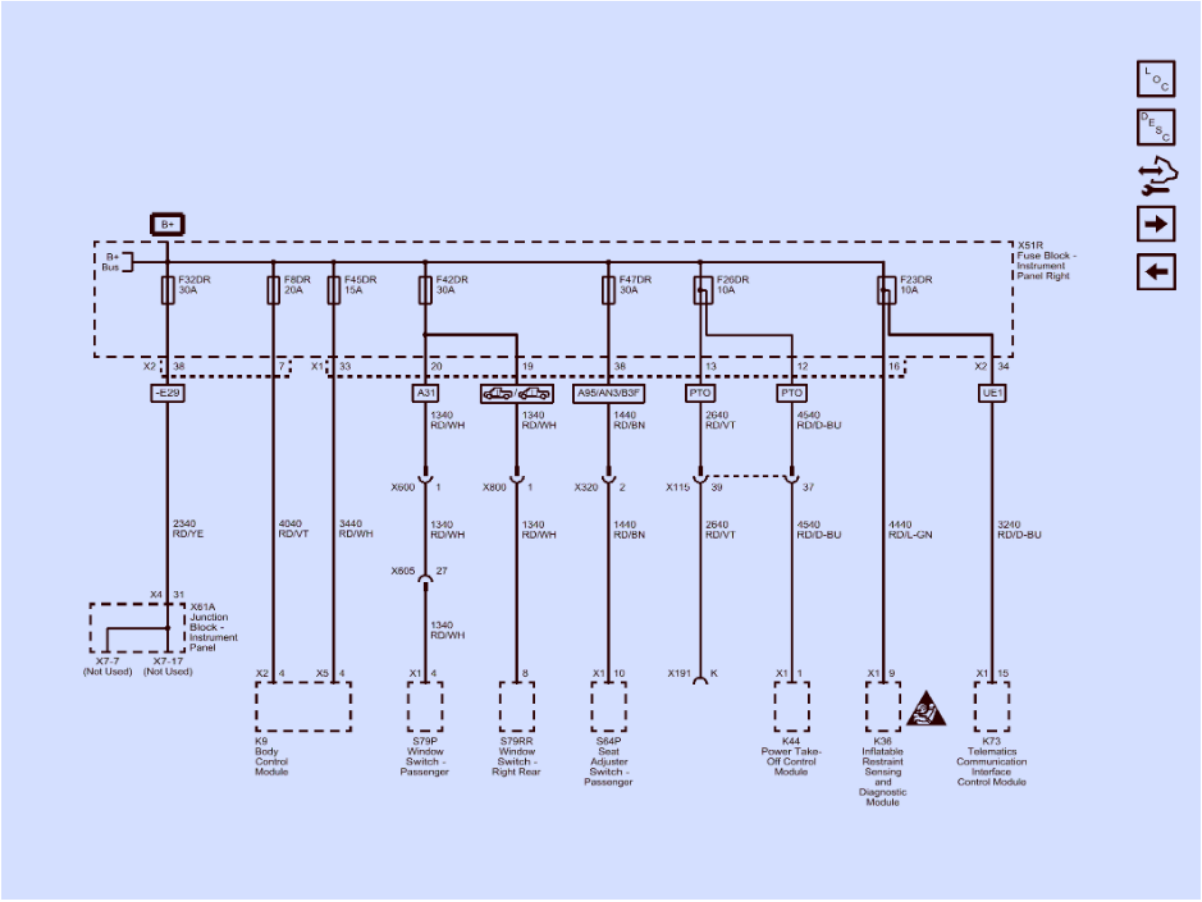

Fig. 22: F8DR, F23DR, F26DR, F32DR, F42DR, F45DR and F47DR Fuses (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

F1DR, F2DR, F7DR, F9DR, F20DR, F28DR, F35DR, F36DR, F43DR and F46DR Fuses (2500/3500)

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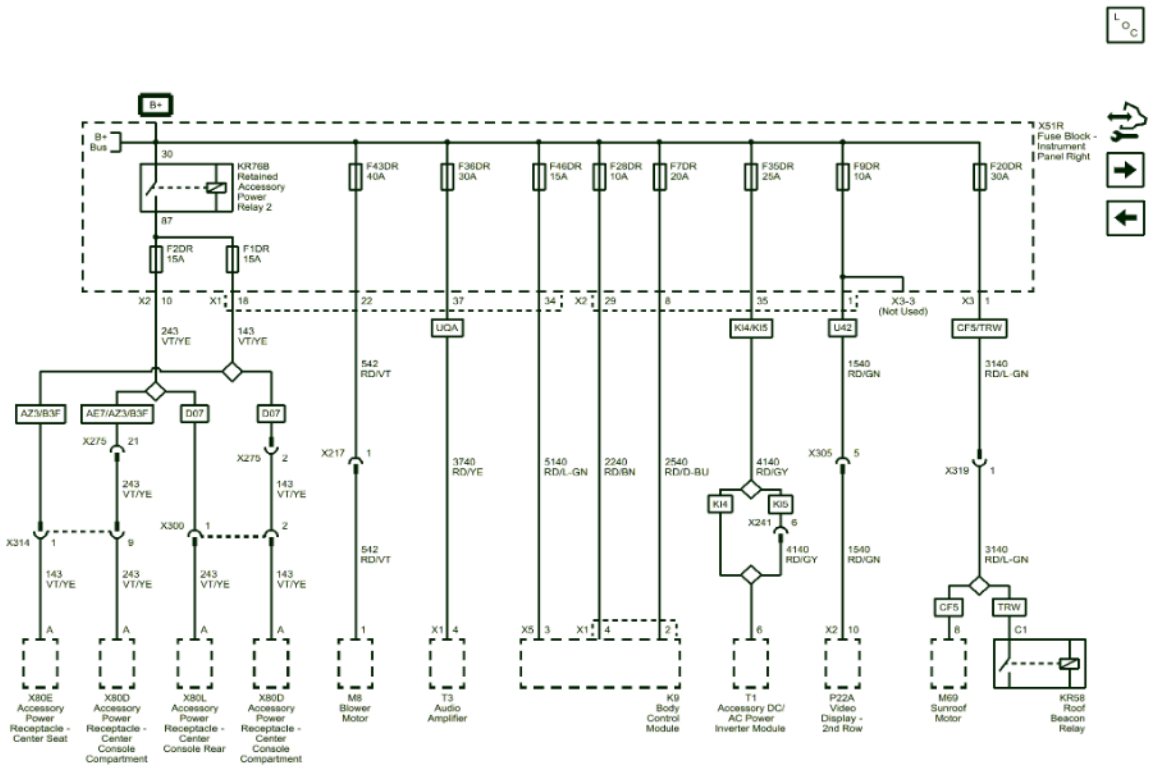

Fig. 23: F1DR, F2DR, F7DR, F9DR, F20DR, F28DR, F35DR, F36DR, F43DR and F46DR Fuses (2500/3500)

Courtesy of GENERAL MOTORS COMPANY

F15DR, F18DR, F27DR and F44DR Fuses (2500/3500)

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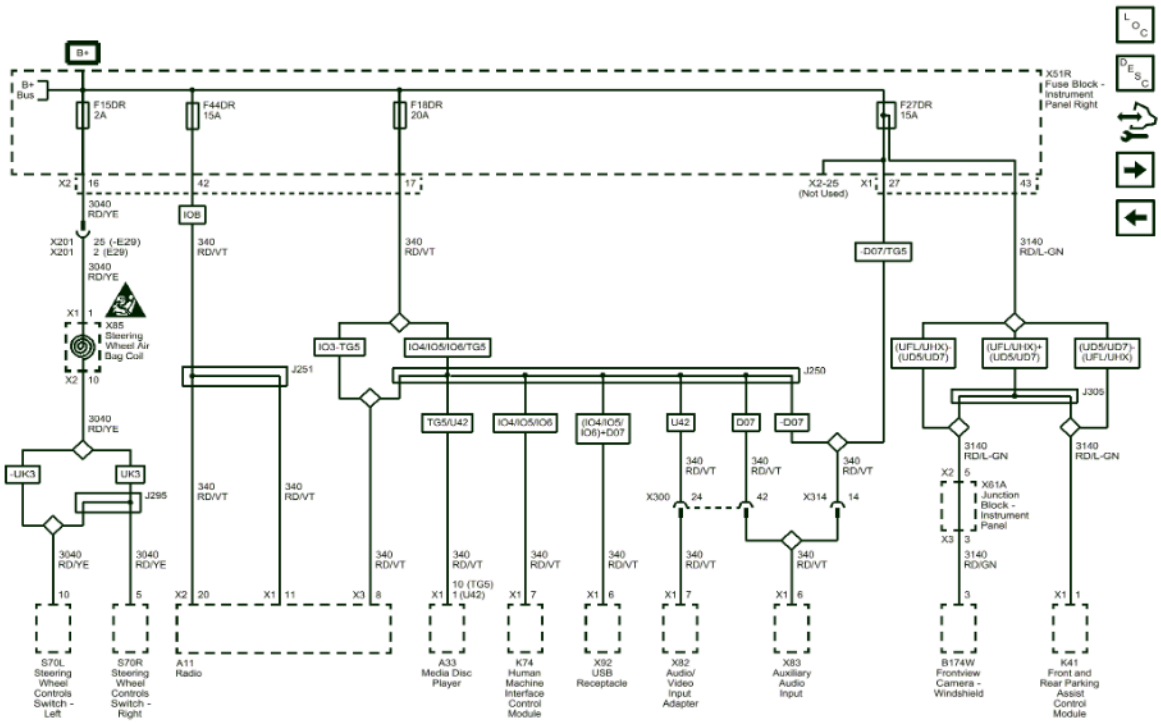

Fig. 24: F15DR, F18DR, F27DR and F44DR Fuses (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

F10DR Fuse (2500/3500)

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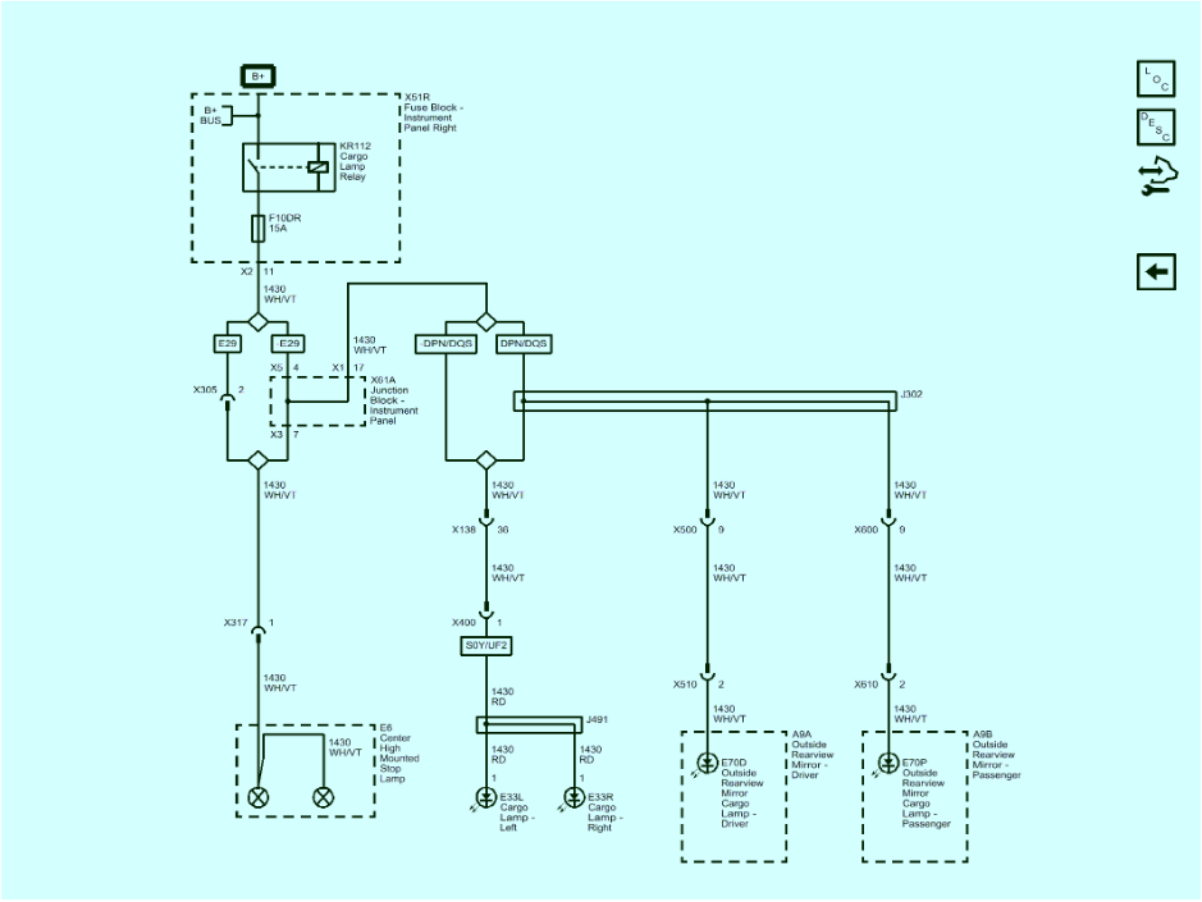

Fig. 25: F10DR Fuse (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

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REPAIR INSTRUCTIONS

REPAIRING DAMAGED WIRE INSULATION

If the wire insulation has been chafed, or broken, enough to show the conductive portion of the wire, and the wire is not damaged, determine the length of insulation that needs to be repaired. If the repair is less than 280 mm (11 in), cut the wire within the damaged area. Then slide the appropriate heat shrink tubing (listed below) over the wire, and repair the wire by splicing the wires together. Refer to **Wire to Wire Repair**. Once the wire is spliced together slide heat shrink tubing over the damaged area and apply heat to seal the repaired wire.

If the wire is damaged, or the damaged area is larger than 280 mm (11 in), then replace the damaged wire by splicing in a new section of wire. Refer to **Wire to Wire Repair**.

Heat Shrink Tubing Selection

GM Part Number	Diameter		Description	Color	Length	
	Metric	English			Metric	English
12355010	3.2 mm	0.125 in	Tubing, Shrink 1/8	Black	305 mm	12 in
12355003	9.5 mm	0.375 in	Tubing, Shrink 3/8	Black	305 mm	12 in
12355005	12.7 mm	0.5 in	Tubing, Shrink 1/2	Black	305 mm	12 in
12355011	19.1 mm	0.75 in	Tubing, Shrink 3/4	Black	305 mm	12 in
12355008	25.4 mm	1.0 in	Tubing, Shrink 1.00	Black	305 mm	12 in

Wire Size Conversion

Metric Wire Sizes (mm 2)	AWG Sizes
0.13	26
0.21	24
0.35	22
0.5	20
0.8	18
1.31	16
2.09	14
3.31	12
5.27	10
8.37	8
13.3	6
21.2	4
33.6	2
53.5	1/0

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COAXIAL CABLE REPAIRS

The GM global coaxial (coax) cable repair strategy uses coaxial cables, connectors and jumpers to repair coaxial cables. The intent is to install the new service cable in vehicle, but removal of the old cable is not necessary. There are several repair scenarios:

- New cables, jumpers, and connector housing are required.
- Only new cables are required while it is possible to reuse the existing connector housing in vehicle. A jumper may or may not be needed.
- Only new connector housing are required, while it is possible to reuse the existing cable in the vehicle.
- A new cable would need to be installed from source to destination and by-pass the inline connector in some cases when an inline connector is unrepairable (Example: a cracked male end of a 1-way connector).

Coaxial Cable Kits

Four different kits will be available to repair coaxial cables. Components of each kit cannot be ordered separately from the kit.

- **Communication Interface Module Antenna Cable Kit** (Kit # 13581174) is used to repair Cellular coaxial cables. This kit uses RG58 low loss coaxial cables that are available in four lengths. The coaxial cables can be attached together in various lengths to closely match the length of the faulty/damaged coaxial cable.
- **Digital Radio and Vehicle Locator Antenna Coaxial Cable Kit** (Kit # 13581173) is used to repair XM and GPS coaxial cables. For vehicles that have a combined GPS and Cellular/OnStar signal on one cable, use Kit # 13581174. This kit uses RG316 low loss coaxial cables that are available in three lengths. The coaxial cables can be attached together in various lengths to closely match the length of the faulty/damaged coaxial cable.
- **Digital Radio, Mobile Telephone and Vehicle Locator Antenna Coaxial Cable Kit** (Kit # 19119056) is used with OnStar, XM, and GPS cables. This kit consists of jumpers and connectors. The jumpers are used to adapt different types of connectors together (to attach 2-way and 3-way connector onto the long 7, 5, and 3 foot cables). The connectors are used to replace existing connectors. The 1-way and 2-way connectors in the kit are in water-blue color (different than what the vehicle is built with) and are non-keyed (universal fit). The 3-way connectors in the kit are in the same color as in the vehicle.
- **Communication Interface Module Antenna Cable Kit** (Kit # 22803854) is used for the OnStar module on some vehicles built before the 2011 model year.

Coaxial Cable Repair Kits

Repair Kit Name	Description
Communication Interface Module Antenna Cable Kit (Kit # 13581174)	RG58 coaxial cable with female/female connectors - 7ft/2.1m
	RG58 coaxial cable with female/male connectors - 5ft/1.5m
	RG58 coaxial cable with female/male connectors - 3.5ft/1.1m
	RG58 coaxial cable with female/male connectors - 3.5ft/1.1m
Digital Radio and Vehicle Locator Antenna Coaxial Cable Kit (Kit # 13581173)	RG316 coaxial cable with female/female connectors - 7ft/2.1m

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Repair Kit Name		Description
Digital Radio, Mobile Telephone and Vehicle Locator Antenna Coaxial Cable Kit (Kit # 19119056)		RG316 coaxial cable with female/male connectors - 5ft/1.5m
		RG316 coaxial cable with female/male connectors - 3.5ft/1.1m
	3-way Gen 1 sub-kit	1-way to 3-way Gen 1 jumper for female connector - Part # 13581154 - 4in/10cm 1-way to 3-way Gen 1 jumper for male connector - Part # 19119052 - 4in/10cm
		White female connector
		White male connector
		Blue female connector
		Blue male connector
	3-way Gen 2 sub-kit	1-way to 3-way Gen 2 jumper for female connector - Part # 13581155 - 4in/10cm 1-way to 3-way Gen 2 jumper for male connector - Part # 19119058 - 4in/10cm
		Tan female connector
		Tan male connector
		Gray female connector
		Gray male connector
	2-way Gen 1 sub-kit	1-way to 2-way Gen 1 jumper for female connector - Part # 13581156 - 4in/10cm
		Water-blue female connector
	2-way Gen 2 sub-kit (wide)	1-way to 2-way Gen 2 jumper for female connector - Part # 13581157 - 4in/10cm
		1-way to 2-way Gen 2 jumper for male connector - Part # 13581158 - 4in/10cm
		Water-blue female connector
		Water-blue male connector
	2-way Gen 2 and 3 sub-kit (narrow)	1-way to 2-way Gen 2 and 3 jumper for female connector - Part # 13582468 - 4in/10cm
		Use the 1-way to 2-way Gen 2 jumper for female connector 19119058 - 4in/10cm from the 2-way Gen 2 sub-kit.
		Water-blue female connector
		Water-blue male connector

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Repair Kit Name	Description
	Right-angle jumper with water-blue universal 1-way connector - 4in/10cm
Communication Interface Module Antenna Cable Kit (Kit # 22803854)	1-way to mini UHF jumper - 4in/10cm

Connector Housing Repair Procedure

The connector housings (available in Digital Radio, Mobile Telephone and Vehicle Locator Antenna Coaxial Cable Kit) are available for 1-way housings, 2-way housings and 3-way housings. Determine the connector housing required:

1-way housing

No change to the service coaxial cable is necessary in order to install the new coaxial cable into the vehicle.

2-way housing

A 4-inch jumper is required.

1. Determine the appropriate generation (1, 2, or 3) and/or size (12.7mm or 8mm) of the 2-way housing that is in the vehicle.
2. Remove the faulty/damaged coaxial cable from the 2-way connector housing by removing the terminal position assurance (TPA) from the connector housing and then slide the cable out of the connector.

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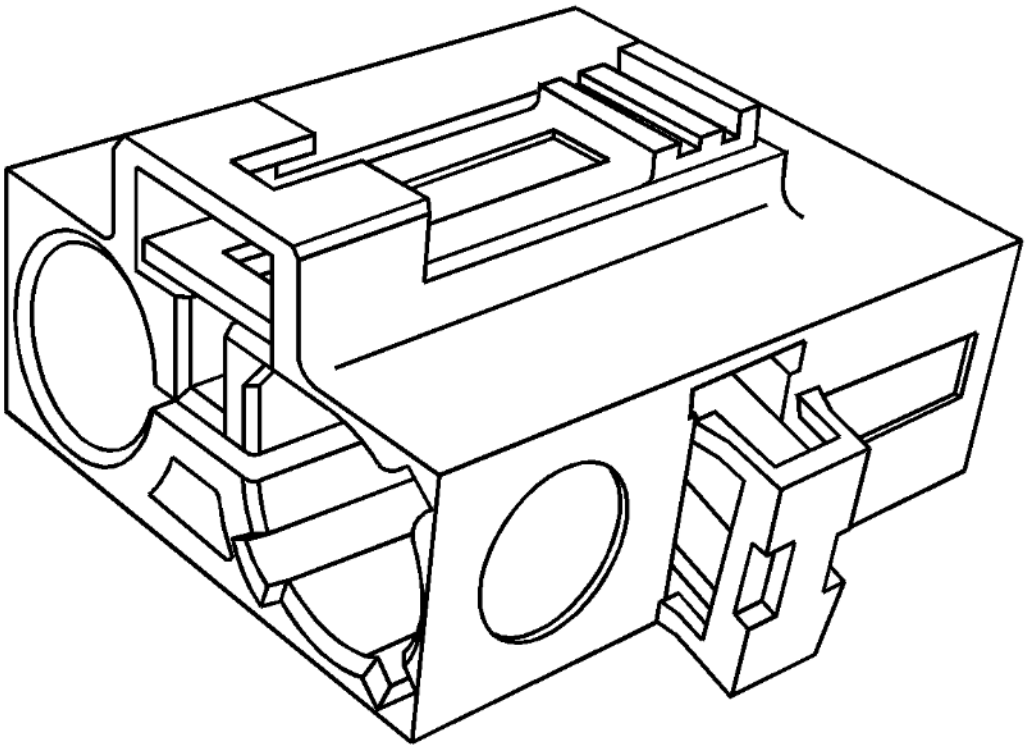

Fig. 1: Connector Housing
Courtesy of GENERAL MOTORS COMPANY

3. Install the new service coaxial cable into the vehicle. Use the 4-inch jumper for the appropriate 2-way connector housing to connect the new service coaxial cable to the connector housing.
4. If the issue is found to be the connector housing and not cable, a new connector housing may be installed while reusing all other components.

3-way housing

A 4-inch jumper is required.

1. Determine the appropriate generation (1 or 2) and keyed 3-way connector housing based on the connector housing color.
2. Note the locations of each of the cables in 3-way housing, as it is important for new cables be placed in the appropriate terminal location in the new connector. The connector housing colors are not interchangeable.
3. Remove the faulty/damaged coaxial cable from the 3-way connector housing by using a pair of side/diagonal cutters to nip and break away the housing.

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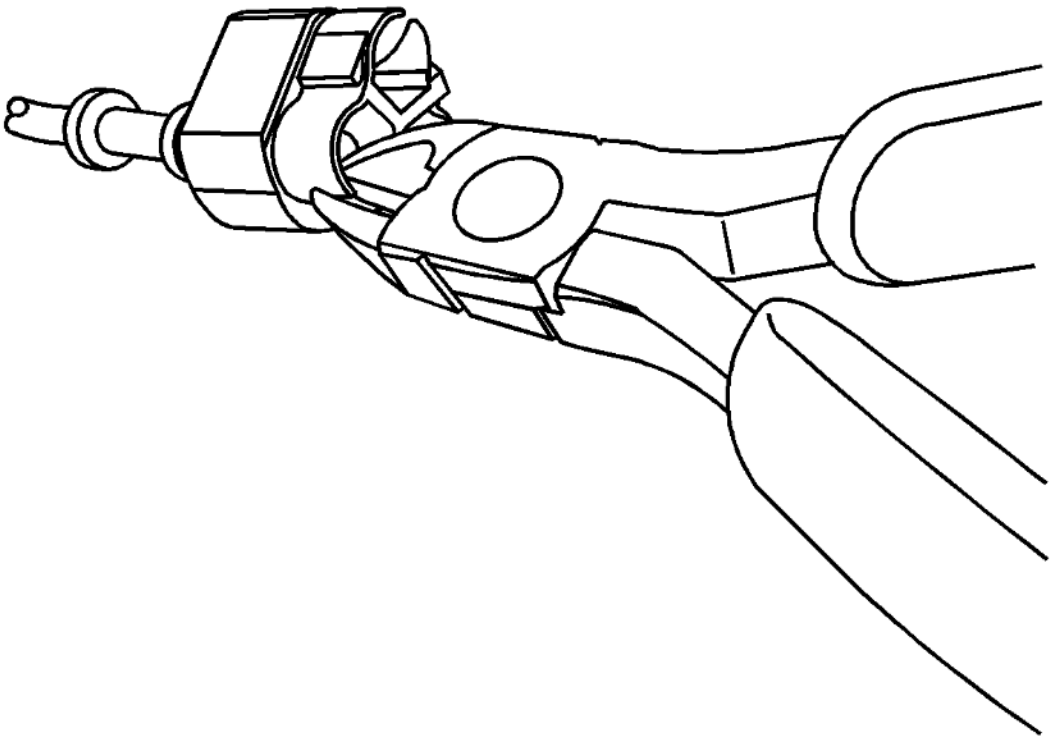

Fig. 2: Using Side/Diagonal Cutters To Nip And Break Away Connector Housing
Courtesy of GENERAL MOTORS COMPANY

4. Use caution not to damage the conductive ends of the coaxial cables inside the connector housing. Do not bend or force the terminal out or it could be damaged.

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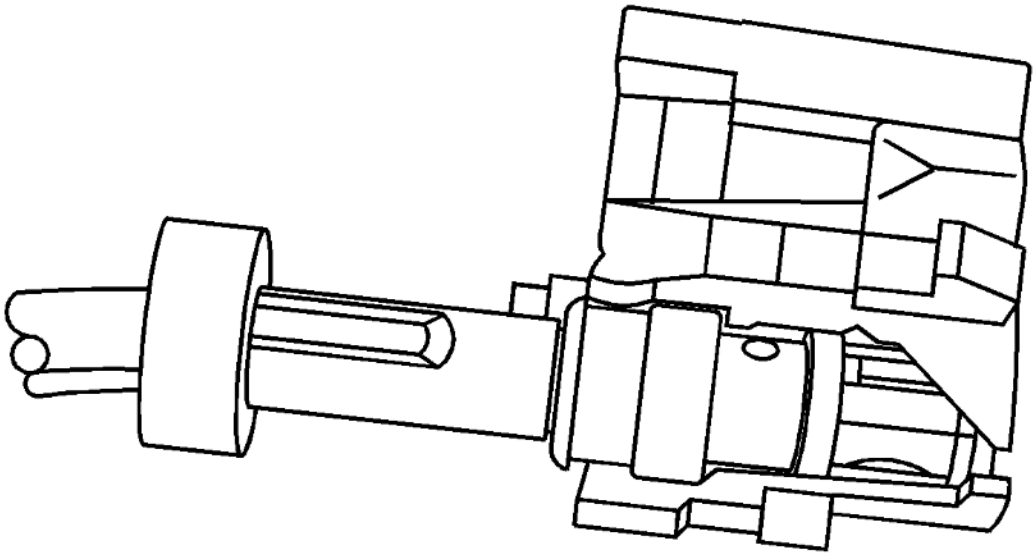

Fig. 3: Connecting New Service Coaxial Cable To New 3-Way Connector Housing
Courtesy of GENERAL MOTORS COMPANY

5. Install the new service coaxial cable into the vehicle. Use the 4-inch jumper for the appropriate color 3-way connector housing to connect the new service coaxial cable to the new 3-way connector housing.
6. If the issue is found to be the connector housing and not cable, a new connector housing may be installed while reusing all other components.

Coaxial Cable Repair Procedure

1. Identify the faulty/damaged coaxial cable.
2. Disconnect the faulty/damaged coaxial cable and leave it in the vehicle.
3. Identify the type of coaxial cable to be replaced and match up with the appropriate pieces to repair the damaged coaxial cable. Match up the type of coaxial cable, cable length and connector types. In some cases there may be extra length of cable left over.

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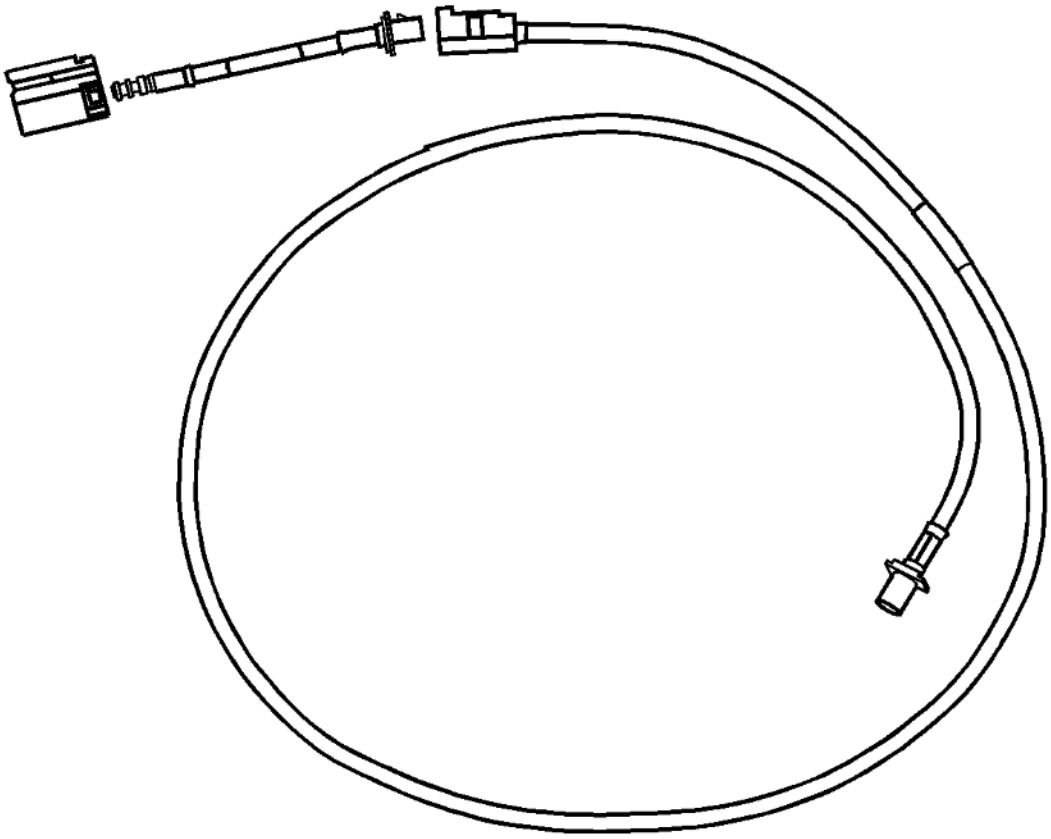

Fig. 4: Coaxial Cable
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Avoid routing the new coaxial cable near sharp edges that can damage the new coaxial cable.**

4. Install the new coaxial cable in the vehicle.

   Use tie-straps to attach the new service coaxial cable to existing harnesses or brackets. Use felt tape/foam to reduce rattles, as necessary.

   NOTE: **To avoid permanent damage, do not pinch the cable or bend it tighter than a 2 inch (5 centimeter) radius.**

5. Remove the faulty/damaged connectors, if applicable.
6. Install new connectors or jumpers, as needed. Refer to Connector Housing Repair Procedure.
7. Verify the repair by operating the system with the engine running.

FLAT WIRE REPAIRS

The flat wire within the flex wiring harness is not serviceable. If an open or short exists within the flex wiring

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harness the complete harness must be replaced.

FOLDED-OVER WIRE REPAIR

Special Tools

- **EL-38125-10** Splice Sleeve Crimping Tool (non GMNA)
- **J-38125-5A** Ultra Torch Special Tool
- **J-38125-8** Splice Sleeve Crimping Tool (GMNA)

For equivalent regional tools, refer to **Special Tools** .

The GM global wire repair strategy uses connector assemblies (pigtails) and terminated leads to repair wiring harnesses.

To reduce and manage GM Service Parts proliferation, the service pigtails and terminated leads are designed with the largest wire gauge size that can be held by either the terminal or the connector housing.

The folded over wire repair technique, in which the copper wire strands are folded over before being installed into a splice sleeve, allows the service part to be used when repairing a smaller gauge size wire in a vehicle. This technique has passed all GM testing standards.

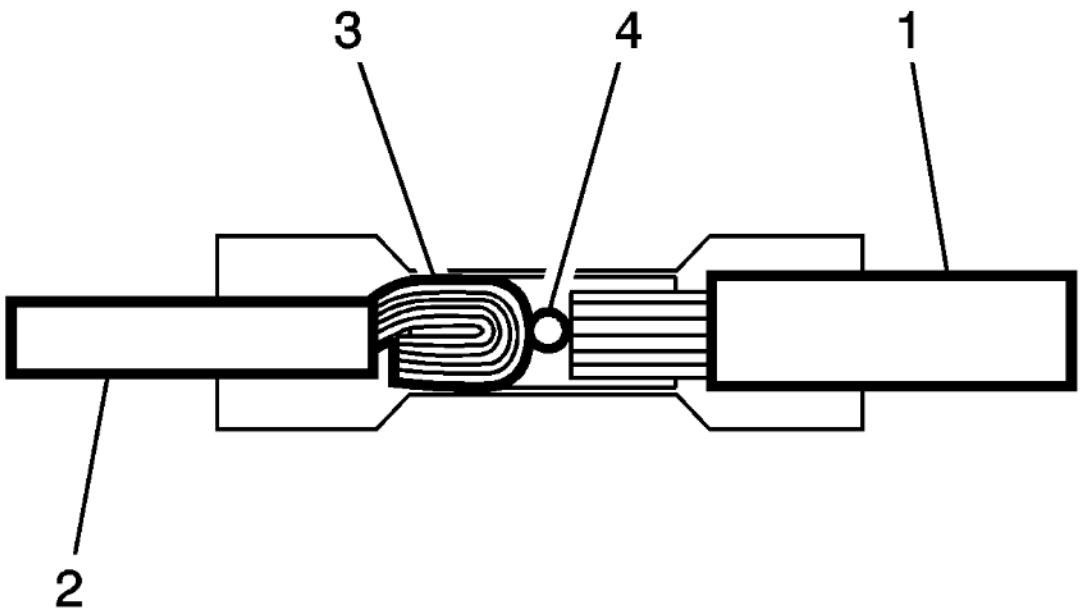

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Fig. 5: View Of Stripped Wires In Splice Sleeve Connector
Courtesy of GENERAL MOTORS COMPANY

The larger harness size wires (1) will be placed in one side of the splice sleeve and match the splice sleeve closely in size. The wires are moved into the splice sleeve until they hit the stop (4) in the splice sleeve. The smaller harness size wires (2) will be placed in the other side of the splice sleeve. The smaller harness size wires will be folded over (3) to match up with the splice sleeve size.

Use the folded over wire repair for:

NOTE: **Increasing the amount of copper strands in the smaller gauge size will allow for a better crimp**

- Splicing wires of 0.35 mm or less (22, 24, 26 gauge sizes)

NOTE: **Vehicle side needs to be of same or less gauge size (not greater than the service part's gauge size)**

- Splicing wires of different gauges

Use the Service Information (SI) connector end-views to determine:

- Gauge size of wiring harness
- Recommended Repair: Terminated Lead or Pigtail

The following table lists the acceptable variance within the gauge size

Folded-Over Wire Selection Table

Harness Wire Gauge		Connector Assembly (Pigtail) or Terminated Lead Wire Gauge Size			
-		Salmon Color Splice Sleeve		Blue Color Splice Sleeve	Yellow Color Splice Sleeve
Metric	-	0.35 mm	0.5-0.8 mm	1.0-2.0 mm	3.0-6.0 mm
-	Wire Gauge (AWG)	22	20-18	16-14	12-10
0.13 mm	26	Fold Over Wire	Double Fold Over Wire	Not Acceptable	Not Acceptable
0.22 mm	24	Fold Over Wire	Fold Over Wire	Not Acceptable	Not Acceptable
0.35 mm	22	Wire to Wire	Fold Over Wire	Double Fold Over Wire	Not Acceptable
0.5 mm	20	Not Acceptable	Wire to Wire	Fold Over Wire	Not Acceptable
0.75 mm	-	Not Acceptable	Wire to Wire	Fold Over Wire	Double Fold Over Wire
0.8 mm	18	Not Acceptable	Wire to Wire	Fold Over Wire	Double Fold Over Wire
1.0 mm	16	Not Acceptable	Not Acceptable	Wire to Wire	Double Fold Over Wire
1.5 mm	-	Not Acceptable	Not Acceptable	Wire to Wire	Fold Over Wire
2.0 mm	14	Not Acceptable	Not Acceptable	Wire to Wire	Fold Over Wire
2.5 mm	-	Not Acceptable	Not Acceptable	Wire to Wire	Fold Over Wire

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Harness Wire Gauge		Connector Assembly (Pigtail) or Terminated Lead Wire Gauge Size			
3.0-6.0 mm	12-10	Not Acceptable	Not Acceptable	Not Acceptable	Wire to Wire

Example

For an IP Harness of 0.22 mm (24 gauge on left side of table) wire size, the SI connector end-view recommends a pigtail with leads of 0.8 mm (18 gauge on the top of the table) with a salmon colored DuraSeal splice sleeve of 0.5-1.0 mm (20-16 gauge).

Follow these steps to use the folded over wire (1) technique on an IP Harness.

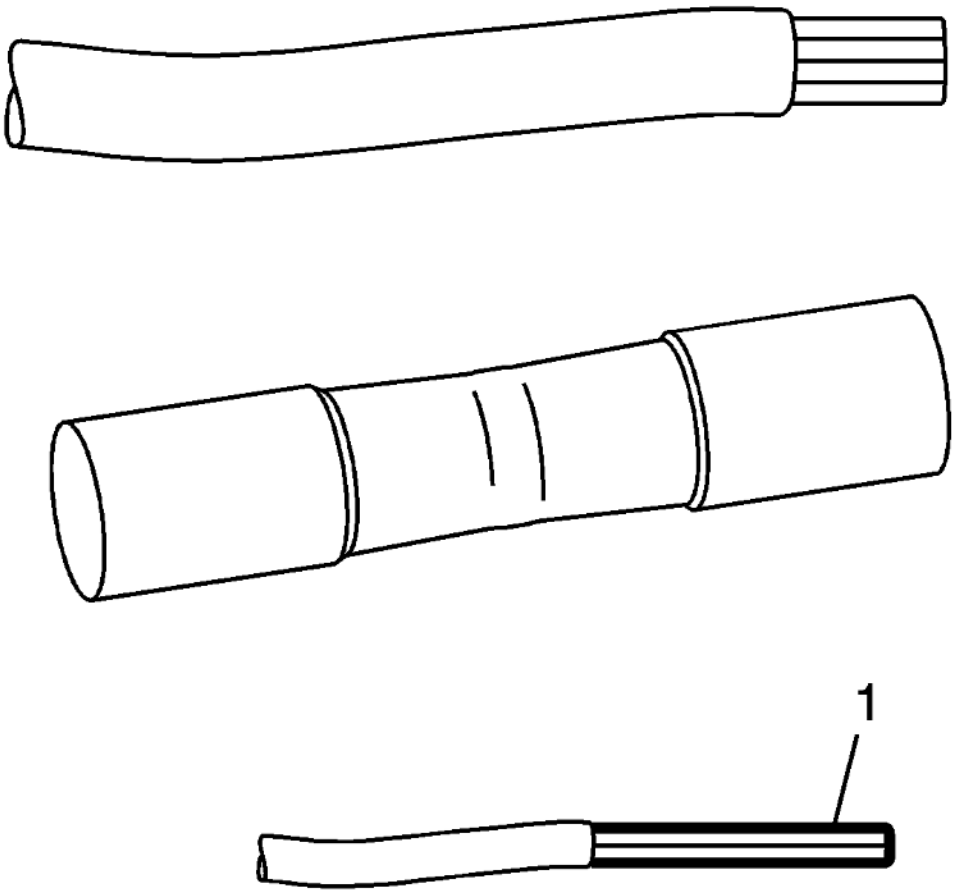

Fig. 6: View Of Stripped Wires
Courtesy of GENERAL MOTORS COMPANY

Strip twice the amount of insulation on the smaller (1) wire (IP Harness is the lower wire) than normally required. Normally, the terminated leads have 5 mm of insulation stripped off the wire.

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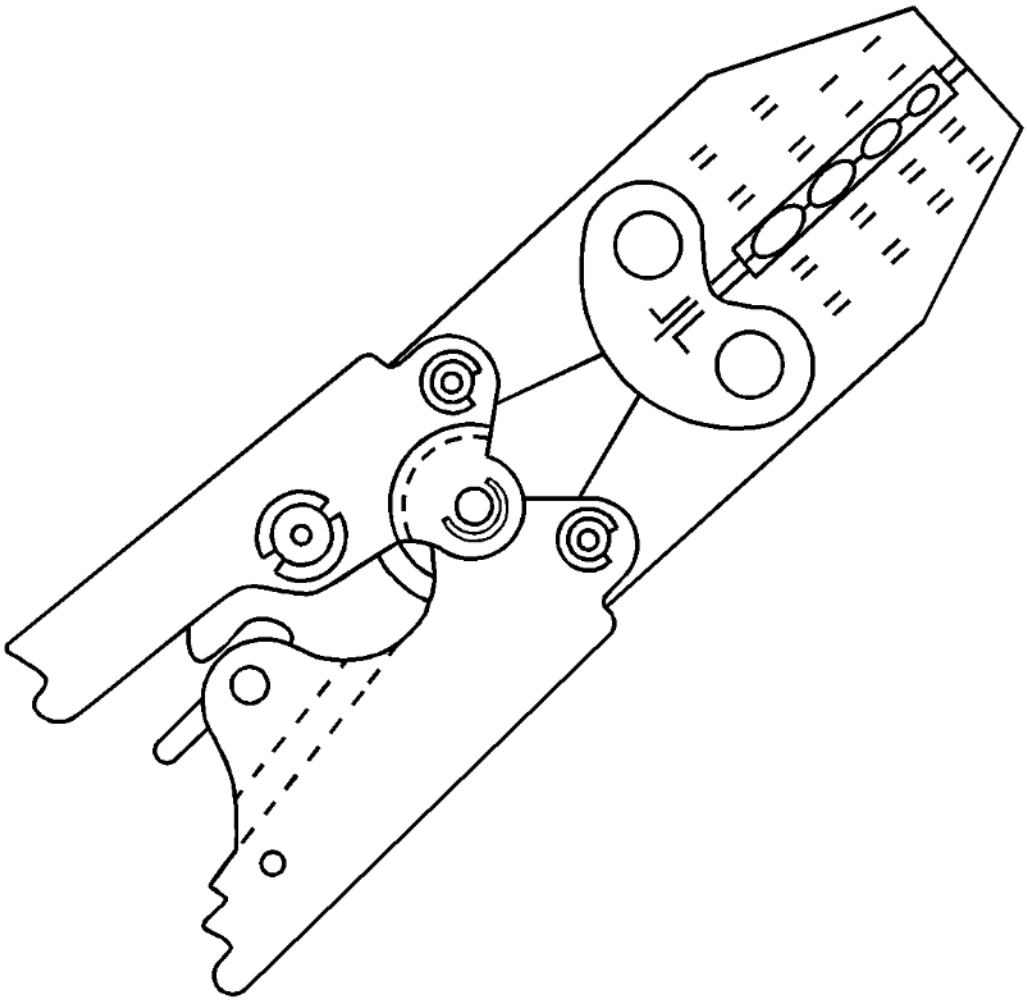

Fig. 7: Splice Sleeve Crimping Tool
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Use EL-38125-10 splice sleeve crimping tool (non GMNA) or J-38125-8 splice sleeve crimping tool (GMNA).**

1. For wiring repair, refer to **Wire to Wire Repair**.

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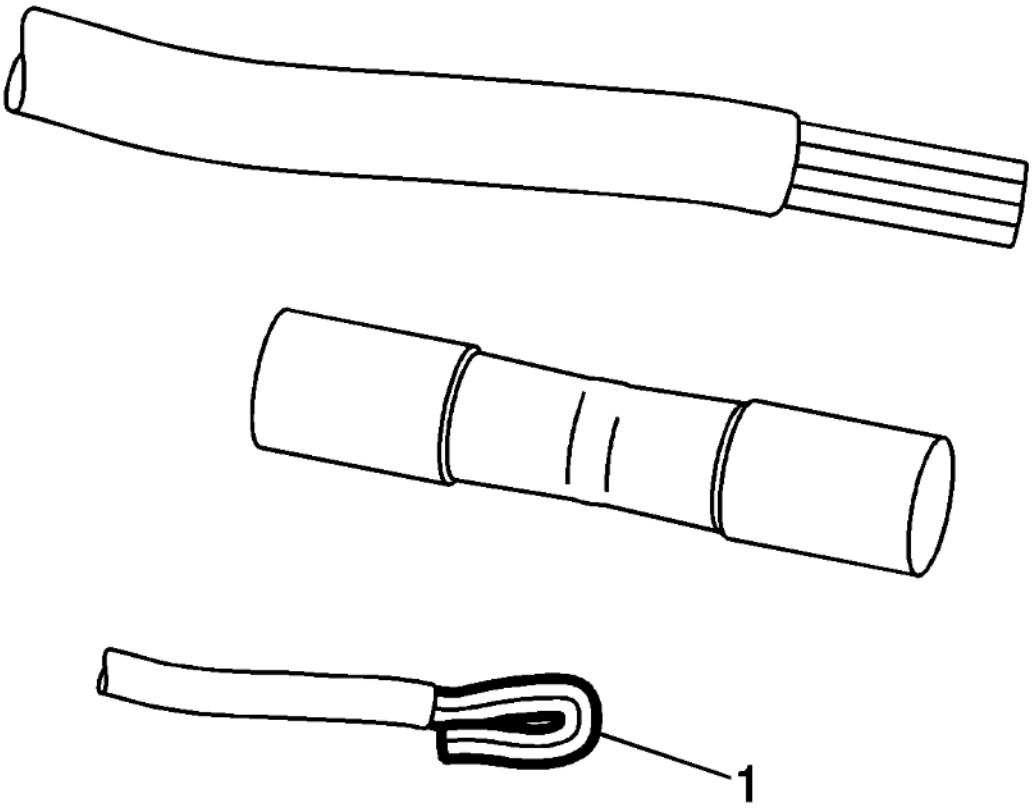

Fig. 8: View Of Twisted And Folded Wire To Length
Courtesy of GENERAL MOTORS COMPANY

2. Twist the wires before you fold them over to prevent the wire strands from opening up. Fold over the copper wire strands of the smaller (1) gauge wire so that it is the same length as the non-folded wire.

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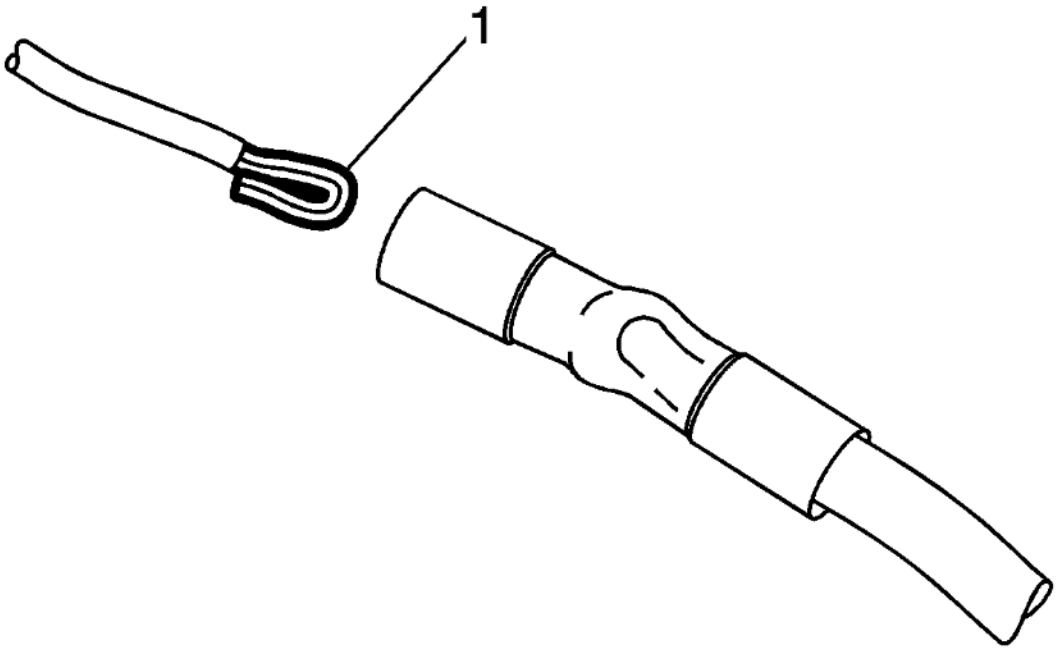

Fig. 9: View Of Folded Wire & Splice Sleeve
Courtesy of GENERAL MOTORS COMPANY

3. Insert the folded over wire (1) into the splice sleeve.

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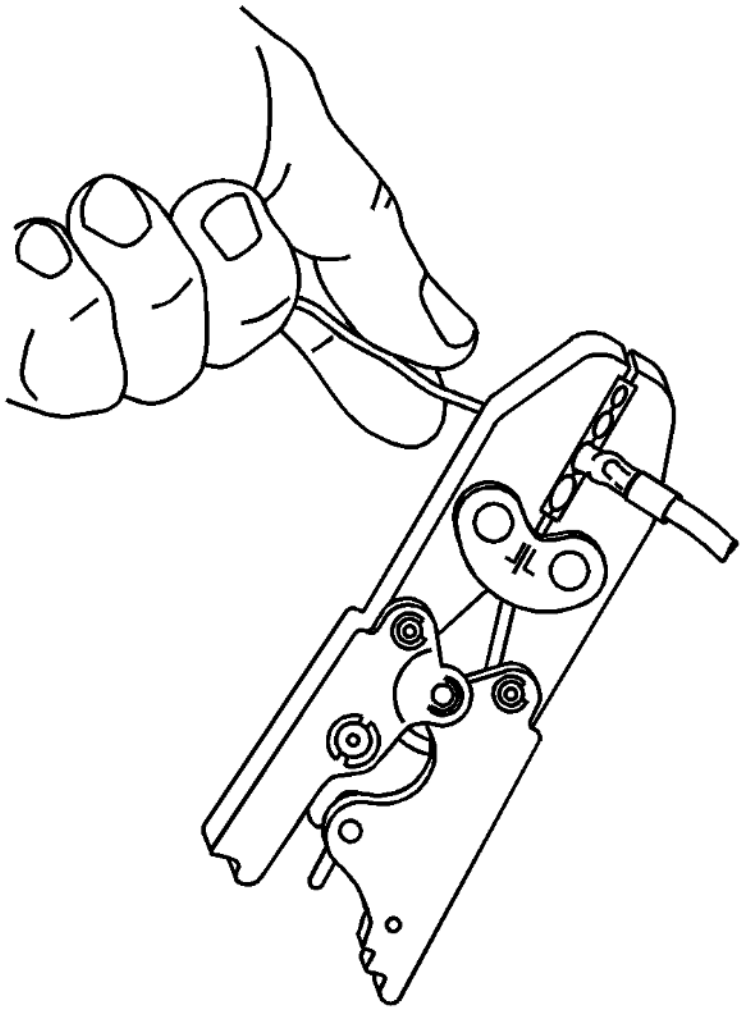

Fig. 10: Crimping The Splice Sleeve
Courtesy of GENERAL MOTORS COMPANY

4. Use the proper crimp tool to crimp the splice sleeve to the smaller wire (harness side of repair). Complete the crimp as usual (using the heat tool to shrink the tube).

SERIAL DATA CIRCUIT WIRING REPAIRS

Special Tools

- **EL-38125-10** Splice Sleeve Crimping Tool
- DuraSeal splice sleeves
- A wire stripping tool

For equivalent regional tools, refer to **Special Tools** .

The DuraSeal splice sleeves have the following 2 critical features:

- A special heat shrink sleeve environmentally seals the splice. The heat shrink sleeve contains a sealing adhesive inside.
- A cross hatched (knurled) core crimp provides necessary contact integrity for the sensitive, low energy

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circuits.

The GM Local Area Network (GMLAN) System requires special wiring repair procedures due to the sensitive nature of the circuitry. Follow the specific procedures and instructions when working on GMLAN connectors and terminals.

GMLAN Repairs

NOTE: **When making a repair to any GMLAN network, the original wire length after the repair must be the same length as before the repair. If the network is a twisted pair, the twist must be maintained after the repair is completed.**

GMLAN has 2 types of networks, low speed and high speed. Low speed GMLAN has a single wire and works at slow speeds. High speed GMLAN has 2 wires in a twisted pair and works at higher speeds. For more information on GMLAN, refer to **Data Link Communications Description and Operation** .

GMLAN Connector Terminal Repair

NOTE: **A terminated lead can be used to replace damaged connector terminals for both high speed and low speed GMLAN systems. When making a connector terminal repair on a GMLAN high speed system with twisted pair wires, do not untwist the wires more than necessary to make the repair.**

If the individual terminals are damaged on any GMLAN connection, use the appropriate connector repair procedure in order to repair the terminal. Refer to **Connector Repairs** for the appropriate connector repair procedure.

GMLAN Wire Repair

NOTE: **Refer to Wiring Repairs in the service information connector end views or the vehicle schematics in order to determine the correct wire size for the circuit you are repairing. You must obtain this information in order to ensure circuit integrity.**

If any wire except the pigtail is damaged, repair the wire by splicing in a new section of wire of the same gauge size (0.5 mm^2 , 0.8 mm^2 , 1.0 mm^2 etc.). Use the DuraSeal splice sleeves and **EL-38125-10** tool. For wiring repair, refer to **Wire to Wire Repair**.

Media Oriented Systems Transport (MOST) Wiring Repair

NOTE: **If harness repair/analysis is performed, MOST bus Twist Pair unshielded wire should be 0.35 mm^2 (22 AWG) wire with at least one twist per each 1 45/64 inch (45 mm) and must not be untwisted for more than 3 15/16 of an inch (10 cm).**

The following conditions need to be met to ensure a valid continuity:

- Untwisted length for all MOST 50 circuits at each wire harness connector should be no longer 50 mm max (25 mm preferred).
- When wire repairs are made, a minimum 25 twists/meter for all MOST 50 circuits.
- MOST 50 has specific receive and transmit I/O.

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The transmit of one module is connected to receive of the next module in ring topology.

HEATED OXYGEN SENSOR WIRING REPAIRS

CAUTION: Do not solder repairs under any circumstances as this could result in the air reference being obstructed.

If the heated oxygen sensor pigtail wiring, connector, or terminal is damaged the entire oxygen sensor assembly must be replaced. Do not attempt to repair the wiring, connector, or terminals. In order for the sensor to function properly it must have a clean air reference. This clean air reference is obtained by way of the oxygen sensor signal and heater wires. Any attempt to repair the wires, connectors or terminals could result in the obstruction of the air reference and degrade oxygen sensor performance.

The following guidelines should be used when servicing the heated oxygen sensor:

- Do not apply contact cleaner or other materials to the sensor or vehicle harness connectors. These materials may get into the sensor, causing poor performance. Also, the sensor pigtail and harness wires must not be damaged in such a way that the wires inside are exposed. This could provide a path for foreign materials to enter the sensor and cause performance problems.
- Neither the sensor nor vehicle lead wires should be bent sharply or kinked. Sharp bends, kinks, etc., could block the reference air path through the lead wire.
- Do not remove or defeat the oxygen sensor ground wire (where applicable). Vehicles that utilize the ground wire sensor may rely on this ground as the only ground contact to the sensor. Removal of the ground wire will also cause poor engine performance.
- To prevent damage due to water intrusion, be sure that the peripheral seal remains intact on the vehicle harness connector.

HIGH TEMPERATURE WIRING REPAIRS

NOTE: All wiring repairs need to be 200 mm from the heat zone. Areas of consideration would be any area located near the exhaust manifolds, catalytic converter, exhaust pipes, and turbocharged engines.

Items Required

- DuraSeal splice sleeves to crimp and seal connections
- High temperature SCT1 shrink tubing to protect the splice sleeves
- Terminated leads or pigtails
- The correct tools to remove the terminals from the connectors

Use high temperature bulk wire rated at 150Â°C (302Â°F) continuous temperature of the same or larger gauge size as the original wire when repair damage wire. Also replace any reflective tape that you remove during the repair.

High Temperature Wiring

Wiring that is exposed to high temperatures, 135Â°C (275Â°F) or higher, for prolonged periods of time may use materials i.e. wires, connectors, and shielding that has a higher heat rating than typical wiring. When making a repair in a high temperature area observe the following:

- Use high temperature bulk wire rated at 150Â°C (302Â°F) continuous temperature to replace any

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damaged wire.

- Replace any heat shielding that is removed.
- Cover any DuraSeal splice sleeves with SCT1 shrink tubing.
- After making a wiring repair, ensure that the location of the wiring is not moved closer to the heat source.

Identifying High Temperature Wiring

NOTE: **High temperature areas would be areas located near exhaust manifolds, catalytic converters, exhaust pipes, and turbocharged engines.**

Wiring that is exposed to high temperature, 135Â°C (275Â°F) or higher, for prolonged periods of time need special considerations when making wiring repairs. Areas that may be exposed to higher temperatures can be identified by heat resistant materials that are being used in those areas. These materials may include heat reflective tape and high temperature shrink tubing. Also conduit and other protective coverings may be used. Because conduit or similar coverings are used throughout the vehicle regardless of the temperature, it may be necessary for the technician to determine if an area is exposed to excessive heat before making a wiring repair.

SIR/SRS WIRING REPAIRS

NOTE: **Refer to SIR Service Precautions .**

For European Regions

CAUTION: **If the SIR/SRS wiring, connector, or terminal is damaged, the affected wiring harness must be replaced. Do not attempt to repair the wiring, connector, or terminals. Any attempt to repair the wires, connectors, or terminals could result in performance problems of the SIR/SRS System. Operations on restraint systems must only be performed by trained and qualified personnel.**

For Non-European Regions

Special Tools

Splice Sleeve Crimping Tool, refer to **Special Tools** .

The Supplemental Inflatable Restraint (SIR) System/Supplemental Restraint System (SRS) requires special wiring repair procedures due to the sensitive nature of the circuitry. Follow the specific procedures and instructions when working with the SIR/SRS, and the wiring components, such as connectors and terminals.

SIR/SRS Connector Repair (Plastic Body and Terminal Metal Pin)

NOTE: **Do not use the terminals in the kit in order to replace damaged SIR/SRS system terminals. Use either an SIR/SRS pigtail or a terminated lead from the SIR Repair Kit Tray.**

The terminals in the SIR/SRS system are made with a special plating. This plating provides the necessary contact integrity for the sensitive, low energy circuits.

Pigtail repair packs are available for SIR/SRS connectors with eight or less terminals. Only the connector body is available for connectors with more than eight terminals. Terminated leads can be used to replace damaged terminals when replacing the connector body.

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SIR/SRS Component Wire Pigtail Repair

NOTE: **Do not make wire, connector, or terminal repairs on components with wire pigtails.**

A wire pigtail is a wire or wires attached directly to the device, not by a connector. If a wiring pigtail is damaged, you must replace the entire component, with pigtail. The inflatable restraint steering wheel module coil is an example of a pigtail component.

SIR/SRS Wire Repair

CAUTION: **Do not install more than 2 DuraSeal splice sleeves per SIR deployment loop. A deployment loop consists of both wires from the K36 Inflatable Restraint Sensing and Diagnostic Module to the deployable component. If more than 2 DuraSeal splice sleeves are required for any SIR deployment loop, the complete circuit of the loop must be replaced. More than 2 DuraSeal splice sleeves per deployment loop may increase the resistance in the circuit causing a DTC to be set.**

NOTE: **Refer to Wiring Repairs in the service information connector end views or the vehicle schematics in order to determine the correct wire size for the circuit you are repairing. You must obtain this information in order to ensure circuit integrity.**

If any wire except the pigtail is damaged, repair the wire by splicing in a new section of wire of the same gauge size (0.5 mm, 0.8 mm, 1.0 mm etc.). Use the DuraSeal splice sleeves and the appropriate splice sleeve crimping tool. For wiring repair, refer to **Wire to Wire Repair**.

For connector position assurance (CPA), refer to **Connector Position Assurance Locks**.

For terminal position assurance (TPA), refer to **Terminal Position Assurance Locks**.

SPLICING INLINE HARNESS DIODES

Many vehicle electrical systems use a diode to isolate circuits and protect the components from voltage spikes. When installing a new diode use the following procedure.

1. Open the harness.
   - If the harness is taped, remove the tape.
   - To avoid wiring insulation damage, use a sewing seam ripper (available from sewing supply stores) in order to cut open the harness.
   - If the harness has a black plastic conduit, pull out the diode.
2. If the diode is taped to the harness, remove all of the tape.
3. Check and record the current flow direction and orientation of diode.
4. Remove the inoperative diode from the harness with a suitable soldering tool.

   NOTE: **If the diode is located next to a connector terminal remove the terminal(s) from the connector to prevent damage from the soldering tool.**

5. Carefully strip away a section of insulation next to the old soldered portion of the wire(s). Do not remove

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any more than is needed to attach the new diode.

6. Check current flow direction of the new diode, being sure to install the diode with correct bias. Reference the appropriate service manual wiring schematic to obtain the correct diode installation position.
7. Attach the new diode to the wire(s) using 60/40 rosin core solder. Before soldering attach some heat sinks (aluminum alligator clips) across the diode wire ends to protect the diode from excessive heat. Follow the manufacturer's instruction for the soldering equipment.
8. Reinstall terminal(s) into the connector body if previously removed.

NOTE: **To prevent shorts to ground and water intrusion, completely cover all exposed wire and diode attachment points with tape.**

9. Tape the diode to the harness or connector using electrical tape.

SPLICING TWISTED OR SHIELDED CABLE

Twisted/shielded cable is used in order to protect wiring from electrical noise. Two-conductor cable of this construction is used between the radio and the Delco-BoseÂ® speaker/amplifier units and other applications where low level, sensitive signals must be carried. Follow the instructions below in order to repair the twisted/shielded cable.

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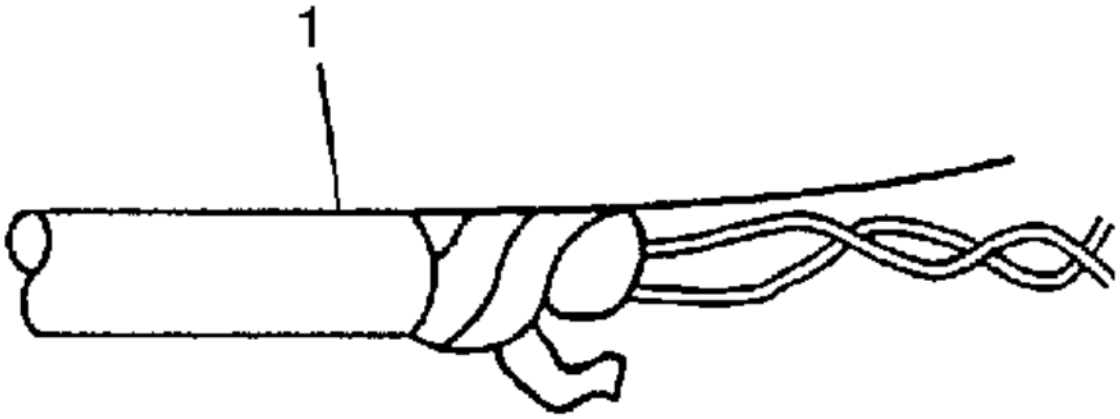

Fig. 11: View Of Outer Wiring Jacket
Courtesy of GENERAL MOTORS COMPANY

1. Remove the outer jacket (1). Use care not to cut into the drain wire of the mylar tape.
2. Unwrap the tape. Do not remove the tape. Use the tape in order to rewrap the twisted conductors after the splice is made.

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Fig. 12: Preparing The Splice
Courtesy of GENERAL MOTORS COMPANY

3. Prepare the splice. Untwist the conductors and follow the instructions for **Wire to Wire Repair**. Staggering the splices by 65 mm (2.5 in) is recommended.

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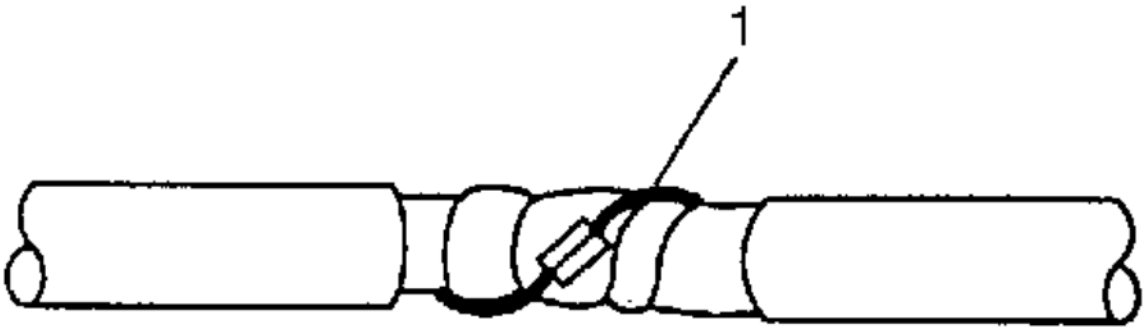

Fig. 13: Identifying Diode On Wire
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Apply the mylar tape with the aluminum side inward. This ensures good electrical contact with the drain wire.**

4. Re-assemble the cable.
    - Rewrap the conductors with the mylar tape. If the mylar tape is damaged, use 3M product AL-36FR to replace the damaged mylar tape.
    - Use caution not to wrap the drain wire in the tape (1).
    - Follow the splicing instructions for copper wire and splice the drain wire.
    - Wrap the drain wire around the conductors and tape with electrical tape to replace the outer insulation.

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Fig. 14: View Of Repaired Wire Covered With Electrical Tape
Courtesy of GENERAL MOTORS COMPANY

5. Tape over the entire cable. Use a winding motion when you apply the tape.

WIRE TO WIRE REPAIR

Special Tools

- **EL-38125-10** Splice Sleeve Crimping Tool (non GMNA)
- **J-38125-5A** Ultra Torch Special Tool
- **J-38125-8** Splice Sleeve Crimping Tool (GMNA)

For equivalent regional tools, refer to **Special Tools** .

WARNING: In order to reduce the risk of personal injury, loss of high voltage isolation to ground and higher system impedance, do not attempt to repair any HV wiring, connector, or terminal that is damaged. High voltage coaxial type cables are not

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repairable. Never attempt to repair a coaxial type cable. The entire cable/harness or component must be replaced. In order to maintain system integrity and personal safety, never attempt to repair any high voltage wiring, cables, or terminals. Performing this procedure on high voltage circuits may result in serious injury or death.

NOTE: **If the wiring harness internal to the transmission is damaged, the wiring harness must be replaced. The use of splice sleeves in an attempt to repair the internal transmission wires, connectors, or terminals could result in performance issues.**

NOTE: **Do not splice wires in Door Harness Grommets.**

NOTE: **The DuraSeal splice sleeves have the following 2 critical features:**

- **A special heat shrink sleeve environmentally seals the splice. The heat shrink sleeve contains a sealing adhesive inside.**
- **A cross hatched (knurled) core crimp provides the necessary low resistance contact integrity for these sensitive, low energy circuits.**

Use only DuraSeal splice sleeves to form a one-to-one splice on all types of insulation except high voltage and specialty cables. Use DuraSeal splice sleeves where there are special requirements such as moisture sealing. Follow the instructions below in order to splice copper wire using DuraSeal splice sleeves.

Splice Sleeve Selection

Splice Sleeve Color	Crimp Tool Nest Color		Wire Gauge mm^2 / (AWG)
	3 Crimp Nests	4 Crimp Nests	
Salmon (Yellow-Pink) 19300089	Red (1) or Red/Green (1)	Red (2)	0.22-0.8/(18-26)
Blue 19168447	Blue (2)	Blue (3)	1.0-2.0/(14-16)
Yellow 19168448	Yellow (3)	Yellow (4)	3.0-5.0/(10-12)

NOTE: **You must perform the following procedures in the listed order. Repeat the procedure if any wire strands are damaged. You must obtain a clean strip with all of the wire strands intact.**

1. Open the harness by removing any tape:
   - Use a sewing seam ripper, available from sewing supply stores, in order to cut open the harness in order to avoid wire insulation damage.
   - Use the DuraSeal splice sleeves on all types of insulation except Tefzel and coaxial.
   - Do not use the crimp and DuraSeal splice sleeve to form a splice with more than 2 wires coming together.
2. Cut as little wire off the harness as possible. You may need the extra length of wire in order to change the location of a splice.

   Adjust splice locations so that each splice is at least 40 mm (1.5 in) away from the other splices, harness

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branches, or connectors.

3. Strip the insulation:
    - When adding a length of wire to the existing harness, use the same size wire as the original wire.
    - Perform one of the following items in order to find the correct wire size:
        - Find the wire on the schematic and convert to regional wiring gauge size.
        - If you are unsure of the wire size, begin with the largest opening in the wire stripper and work down until achieving a clean strip of the insulation.
    - Strip approximately 5.0 mm (0.20 in) of insulation from each wire to be spliced.
    - Do not nick or cut any of the strands. Inspect the stripped wire for nicks or cut strands.
    - If the wire is damaged, repeat this procedure after removing the damaged section.
4. For high temperature wiring, slide a section of high temperature SCT1 shrink tubing down the length of wire to be spliced. Ensure that the shrink tubing will not interfere with the splice procedure.
5. Select the proper DuraSeal splice sleeve according to the wire size. Refer to the above table at the beginning of the repair procedure for the color coding of the DuraSeal splice sleeves and the crimp tool nests.

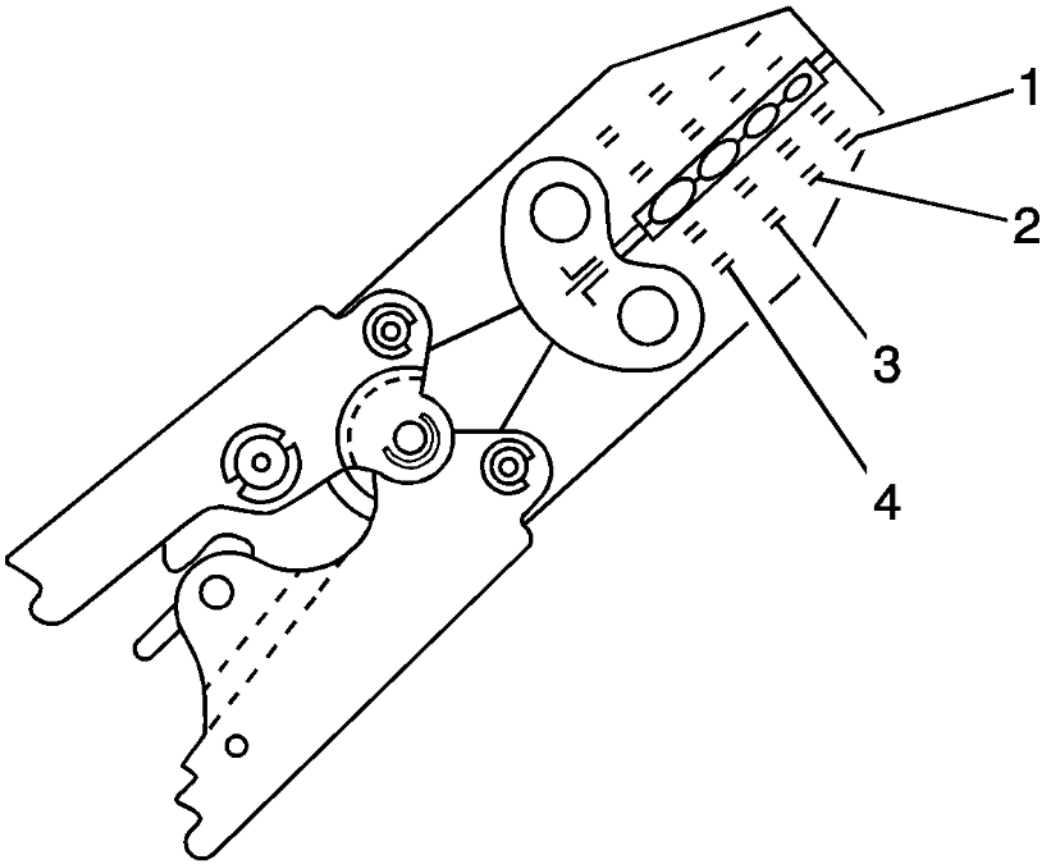

Fig. 15: Crimping Tool
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6. The **EL-38125-10** splice sleeve crimping tool has four crimp nests. The largest crimp nest (4) is used for crimping 10 and 12 gauge wires. The second largest crimp nest (3) is used for crimping 14 and 16 gauge wires. The third largest crimp nest (2) is used for crimping 18 and 20 gauge wires. The smallest crimp nest (1) is used for crimping 22 to 26 gauge wires. The crimp nests are referenced in the table (farther above) under the crimp tool nest color.

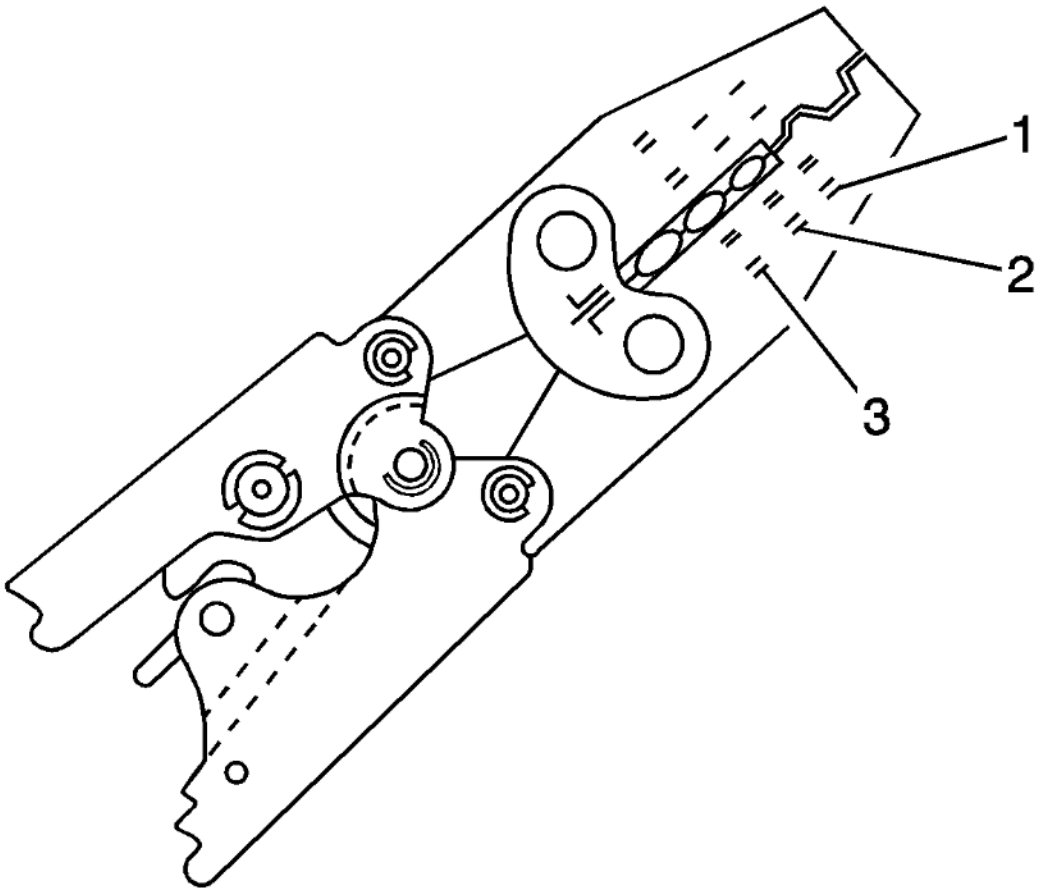

Fig. 16: Identifying Splice Crimp Tool Nests Terminal Identification
Courtesy of GENERAL MOTORS COMPANY

7. The **J-38125-8** splice sleeve crimping tool has three crimp nests. The largest crimp nest (3) is used for crimping 10 and 12 gauge wires. The second largest crimp nest (2) is used for crimping 14 and 16 gauge wires. The smallest crimp nest (1) is used for crimping 18 to 20 gauge wires. The crimp nests are referenced in the table (farther above) under the crimp tool nest color.
8. Use the splice sleeve crimp tool in order to position the DuraSeal splice sleeve in the proper color nest of the splice sleeve crimp tool. For the four crimp nest tool, use the three largest crimp nests to crimp the splice sleeves. For the three crimp nest tool, use all three crimp nests to crimp the splice sleeves. Use the four and three crimp tool diagrams (above) and the table (farther above) to match the splice sleeve with the correct crimp nest. The crimp tool diagram callout numbers match the numbers in the table (under crimp tool nest color).

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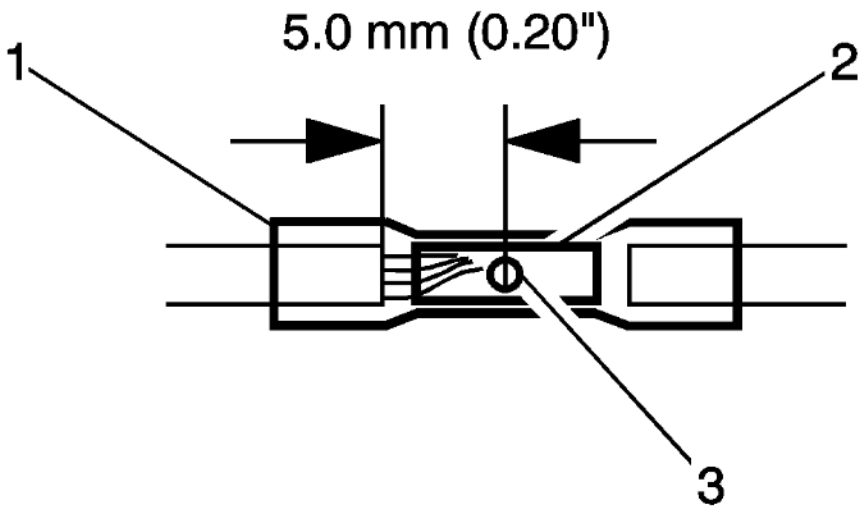

Fig. 17: Identifying Duraseal Splice Sleeve
Courtesy of GENERAL MOTORS COMPANY

9. Place the DuraSeal splice sleeve in the nest. Ensure that the crimp falls midway between the end of the barrel and the stop. The sleeve has a stop (3) in the middle of the barrel (2) in order to prevent the wire (1) from going further. Close the hand crimper handles slightly in order to firmly hold the DuraSeal splice sleeve in the proper nest.

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Fig. 18: Crimped Duraseal Splice Sleeve
Courtesy of GENERAL MOTORS COMPANY

10. Insert the wire into the splice sleeve barrel until the wire hits the barrel stop. Refer to **Folded-Over Wire Repair** for splicing wires of 0.35 mm or less (22, 24, 26 gauge sizes) and for splicing wires of different gauges.
11. Tightly close the handles of the crimp tool until the crimper handles open when released.

    The crimper handles will not open until you apply the proper amount of pressure to the DuraSeal splice sleeve. Repeat steps 4 and 6 for the opposite end of the splice.

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Fig. 19: Crimped Duraseal Splice Sleeve
Courtesy of GENERAL MOTORS COMPANY

12. Using the heat torch, apply heat to the crimped area of the barrel.
13. Start in the middle and gradually move the heat barrel to the open ends of the tubing:
    - The tubing will shrink completely as the heat is moved along the insulation.
    - A small amount of sealant will come out of the end of the tubing when sufficient shrinkage is achieved.

Weatherpack™ Wiring Repair

NOTE: **Some replacement pigtail connectors may be delivered without the terminated leads installed into the connector. For Weatherpack™ connectors, all terminated leads included in the package should to be installed into the connector. If the connector end view shows that a terminal is not occupied, the extra terminated lead(s) need to be installed and the end(s) sealed using a DuraSeal splice sleeve and taped back into the harness.**

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1. Insert the wire into the splice sleeve barrel until the wire hits the barrel stop. Refer to **Folded-Over Wire Repair** for splicing wires of 0.35 mm or less (22, 24, 26 gauge sizes) and for splicing wires of different gauges.

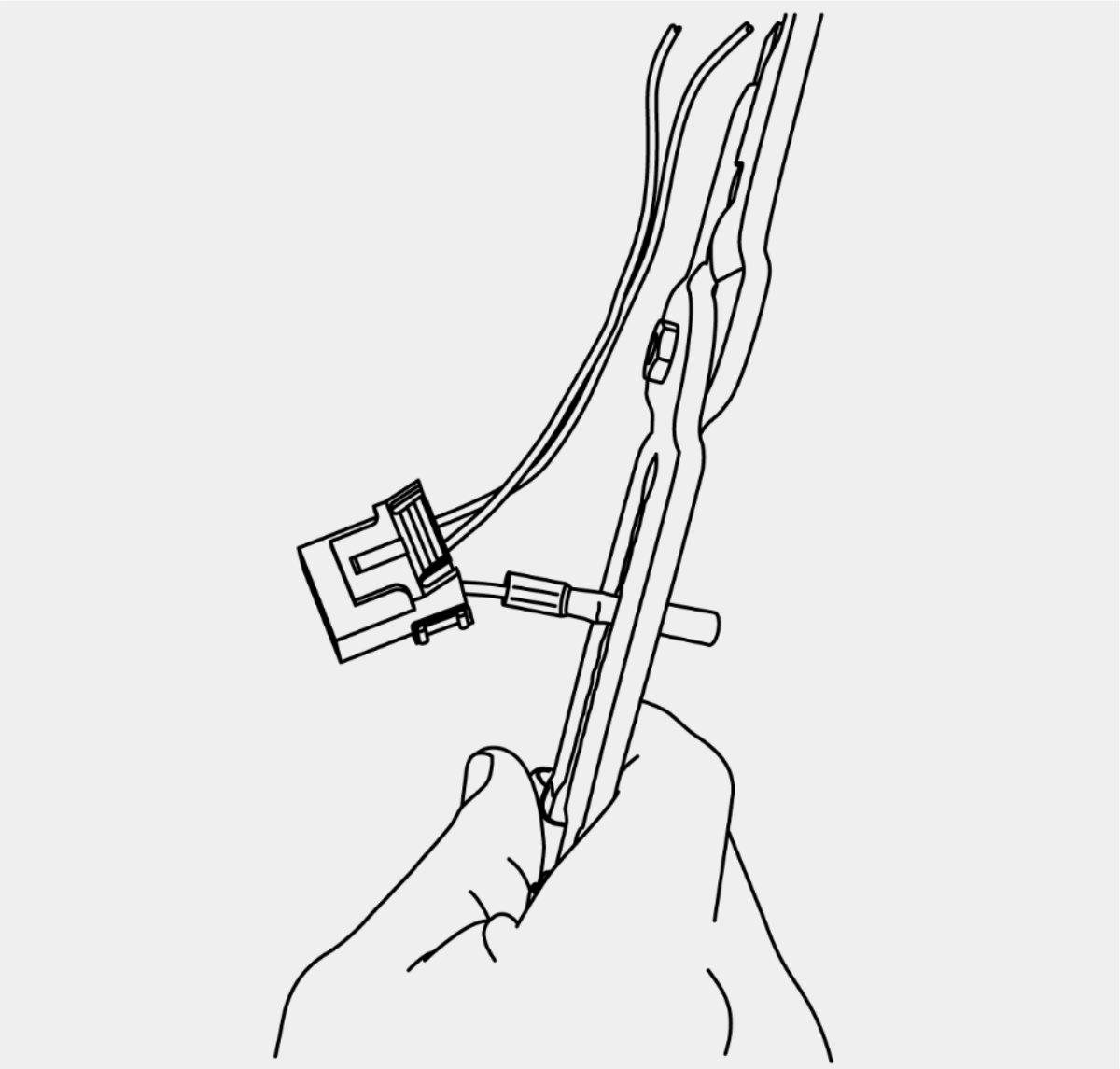

Fig. 20: Tightly Close Handles Of Crimp Tool
Courtesy of GENERAL MOTORS COMPANY

2. Tightly close the handles of the crimp tool until the crimper handles open when released.

   The crimper handles will not open until you apply the proper amount of pressure to the DuraSeal splice sleeve. Holding the DuraSEAL with one hand gently tug on the wire to ensure it is crimped in the DuraSeal.

3. Using the heat torch, apply heat to the crimped area of the barrel.

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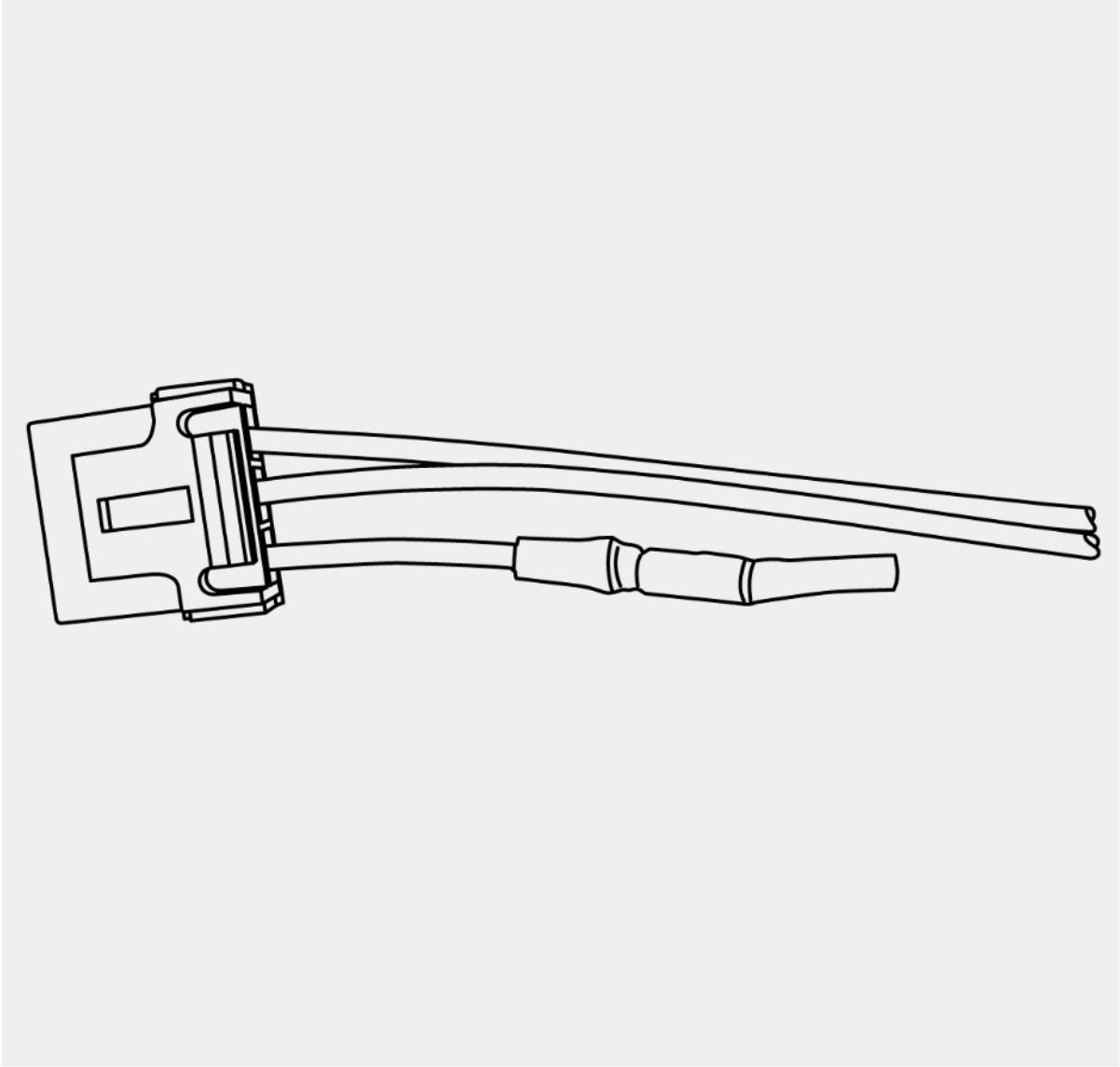

Fig. 21: Heat To Crimped Area Of Barrel
Courtesy of GENERAL MOTORS COMPANY

4. Start in the middle and gradually move the heat barrel to the open ends of the tubing:
    - The tubing will shrink completely as the heat is moved along the insulation.
    - A small amount of sealant will come out of the end of the tubing when sufficient shrinkage is achieved.

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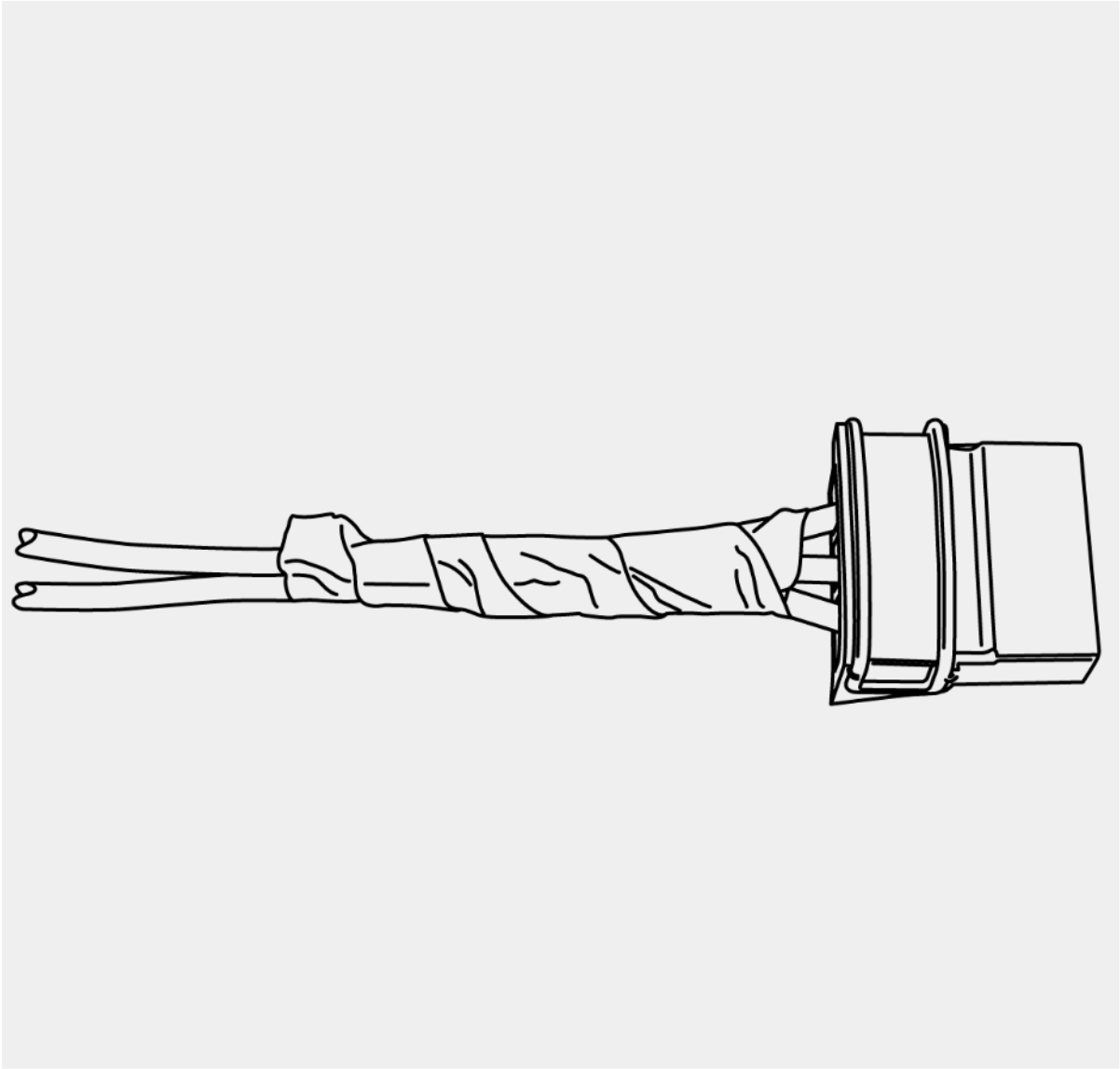

Fig. 22: Taping Extra Terminated Leads Back Into Harness
Courtesy of GENERAL MOTORS COMPANY

5. Tape the extra terminated lead(s) back into the harness.

High Temperature Wiring Repairs

Use the following procedures to perform high temperature wiring repairs:

1. Center the high temperature SCT1 shrink tube over the DuraSeal splice sleeve.
2. Using the heat torch, apply heat to the high temperature heat shrink tubing.
3. Gradually move the heat from the center to the open end of the tubing:
    - The tubing will shrink completely as the heat is moved along the insulation.
    - A small amount of sealant will come out of the end of the tubing when sufficient shrinkage is achieved.
4. Replace any reflective tape and clips that may have been removed during the repair.

CONNECTOR POSITION ASSURANCE LOCKS

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The connector position assurance (CPA) is a small plastic insert that fits through the locking tabs of the connector. CPAs are used in various connectors throughout the vehicle. CPAs are also used in all SIR system electrical connectors. The CPA ensures that the connector halves cannot vibrate apart. You must have the CPA in place in order to ensure good contact between the mating terminals of the connector.

TERMINAL POSITION ASSURANCE LOCKS

The terminal position assurance (TPA) insert resembles the plastic combs used in the control module connectors. The TPA keeps the terminal securely seated in the connector body. Do not remove the TPA from the connector body unless you remove a terminal for replacement. If the TPA is removed, be sure to reinstall it before reconnecting the connector.

AFL/EPC CONNECTORS

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-12A** Terminal Release Tool
- **J-38125-216** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

Follow the steps below in order to remove terminals from the connector.

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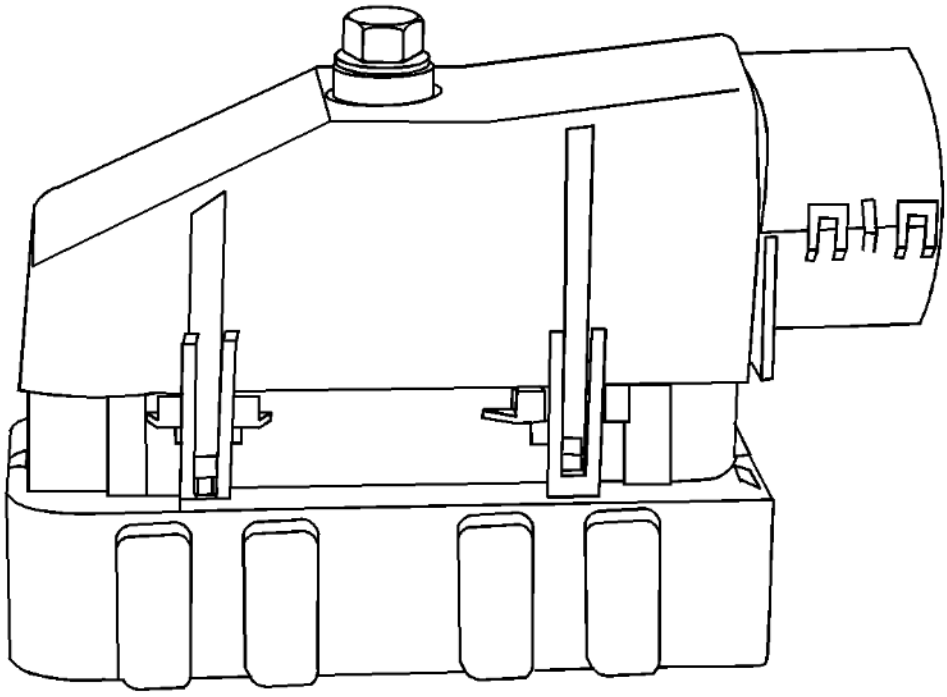

Fig. 23: View Of Bolt On Connector Cover
Courtesy of GENERAL MOTORS COMPANY

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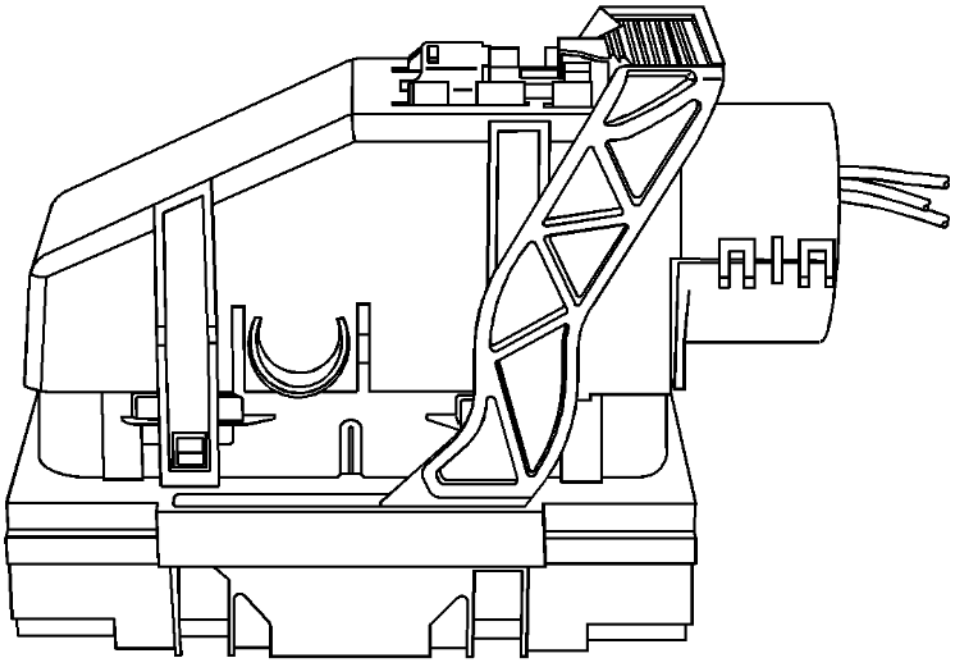

Fig. 24: Identifying Connector Position Assurance (CPA)
Courtesy of GENERAL MOTORS COMPANY

1. For connectors with a bolt in the dress cover, turn the bolt counterclockwise to remove the connector from the component.
2. Locate the connector position assurance (CPA) on the top of the wire dress cover. Slide the CPA forward.

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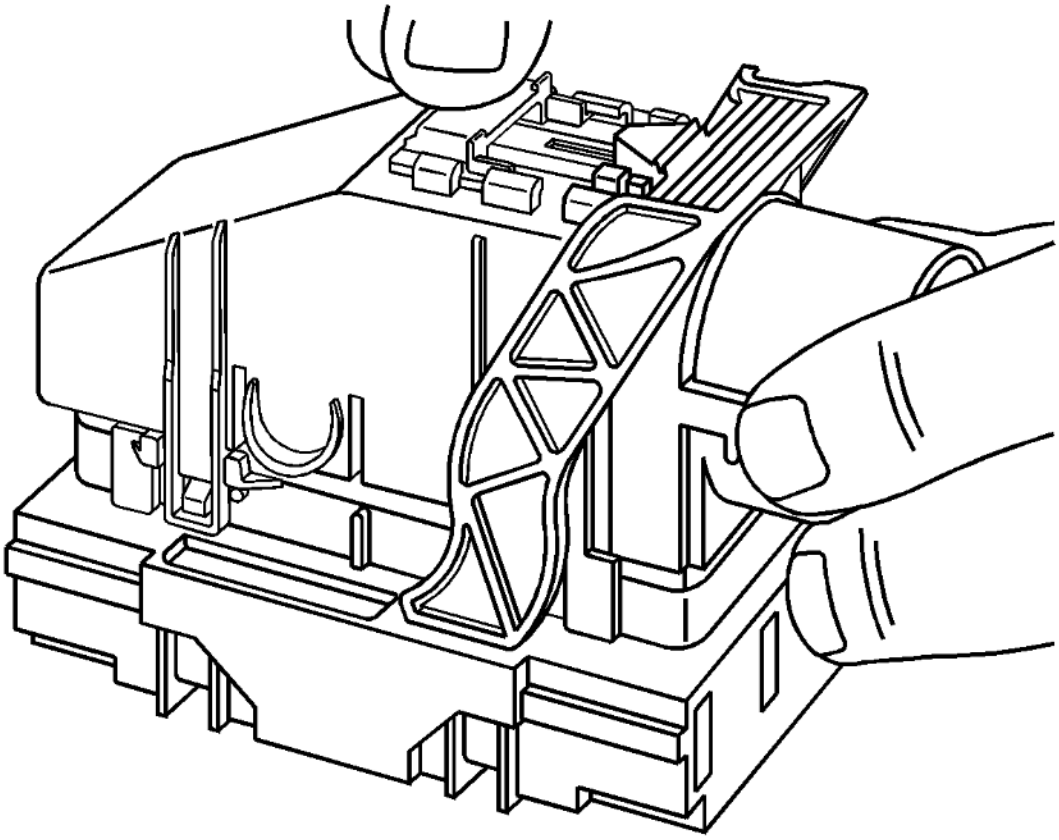

Fig. 25: Identifying Lever Lock & Lever Lock Release Tab
Courtesy of GENERAL MOTORS COMPANY

3. Slide the lever lock forward while pressing down on the lever lock release tab.

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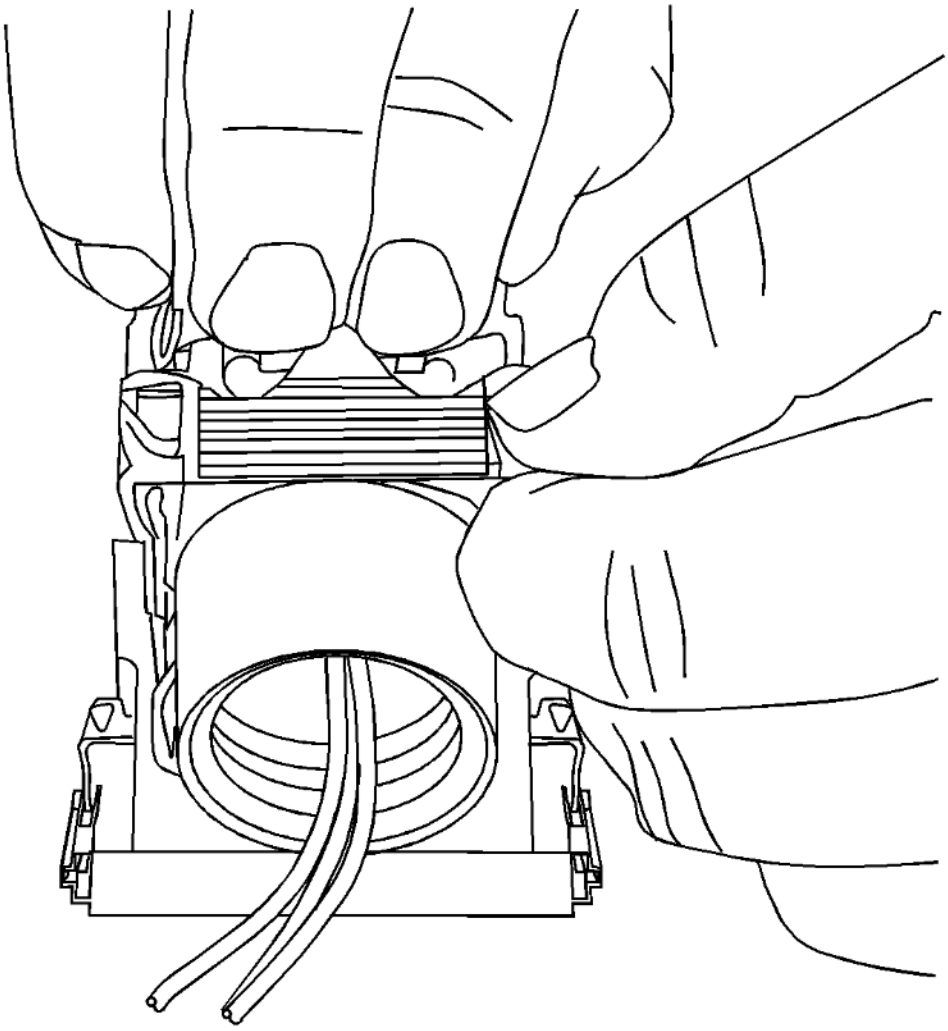

Fig. 26: View Showing Depressing Lever Lock Release Tab
Courtesy of GENERAL MOTORS COMPANY

4. View showing depressing of the lever lock release tab.

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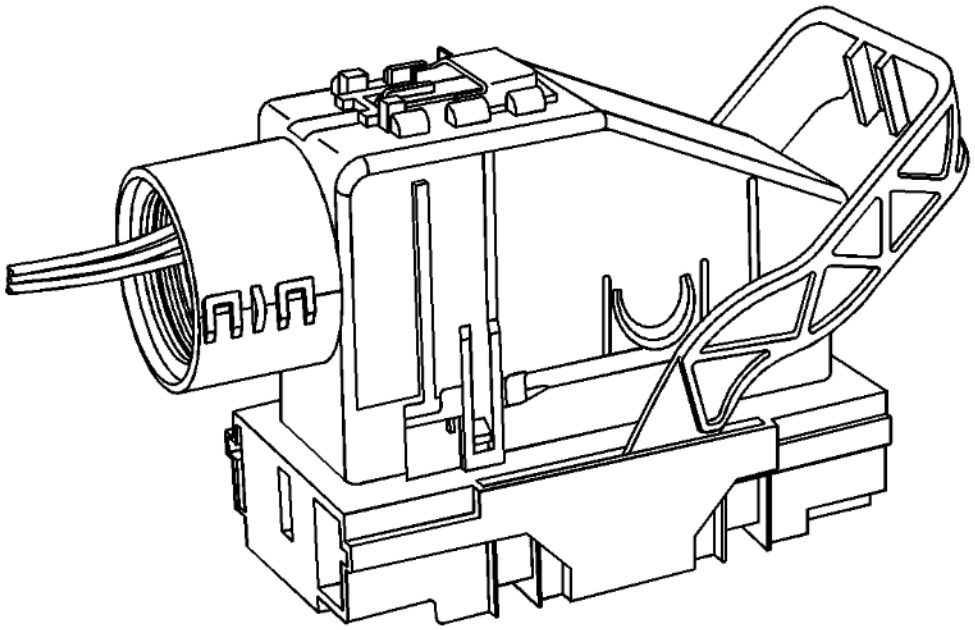

Fig. 27: View of connector in released position
Courtesy of GENERAL MOTORS COMPANY

5. View of connector in released position.
6. Disconnect the connector from the component.
7. Locate the dress cover locking tabs at the corners of the dress cover. Use a small flat-blade tool to release the locking tabs and remove the dress cover.

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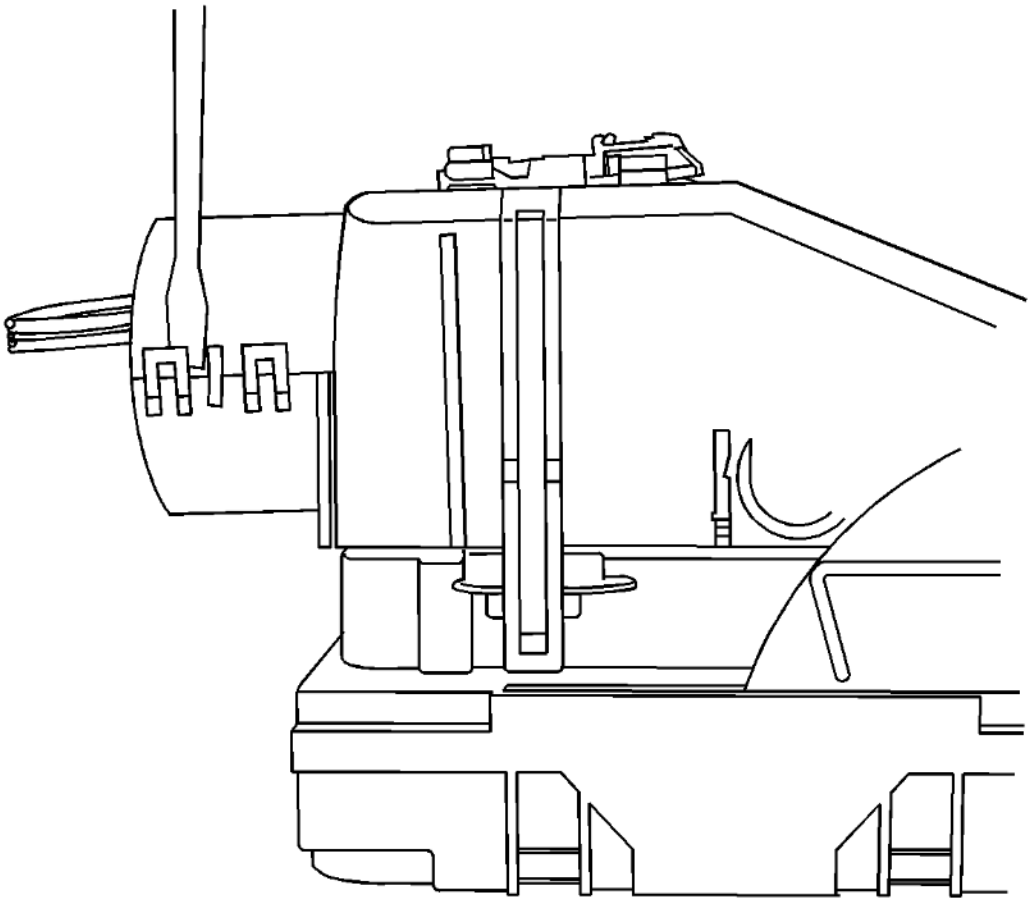

Fig. 28: View Of Connector In Released Position
Courtesy of GENERAL MOTORS COMPANY

8. Release the rear lower half of the wiredress cover.

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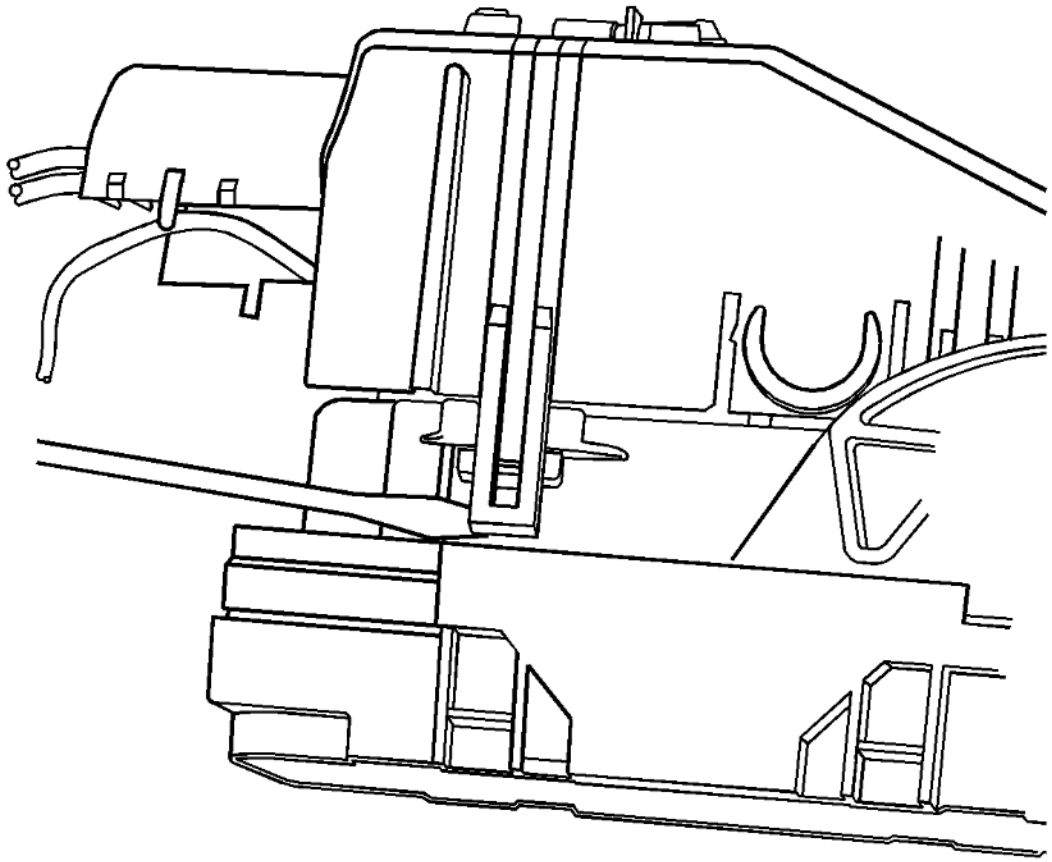

Fig. 29: Identifying Tabs Holding Wiredress Cover
Courtesy of GENERAL MOTORS COMPANY

9. Release the tabs that are holding the wiredress cover to the connector body.
10. Remove the nose piece by inserting a small flat-blade tool into the slots on both ends of the connector body. Gently pry the nose piece out of the connector. J-38125-216 can also be used to remove the nose piece.

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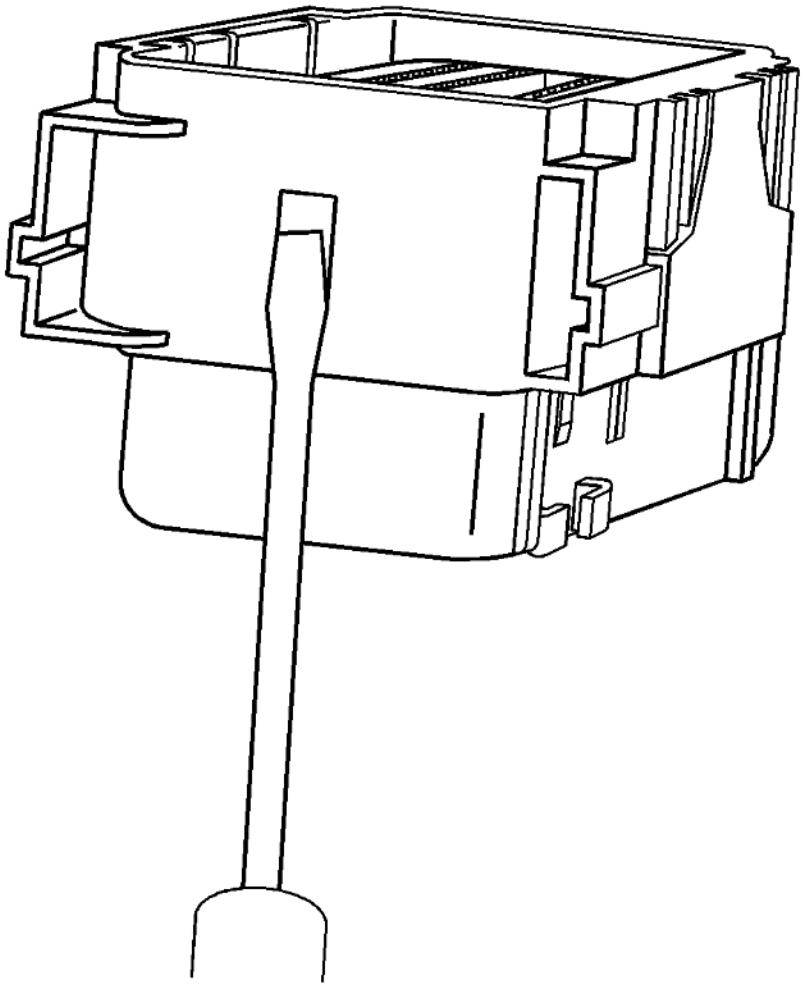

Fig. 30: Lifting Terminal Retaining Tabs
Courtesy of GENERAL MOTORS COMPANY

11. Use the J-38125-12A tool to release the terminals by lifting the terminal retaining tabs on the inside of the connector.

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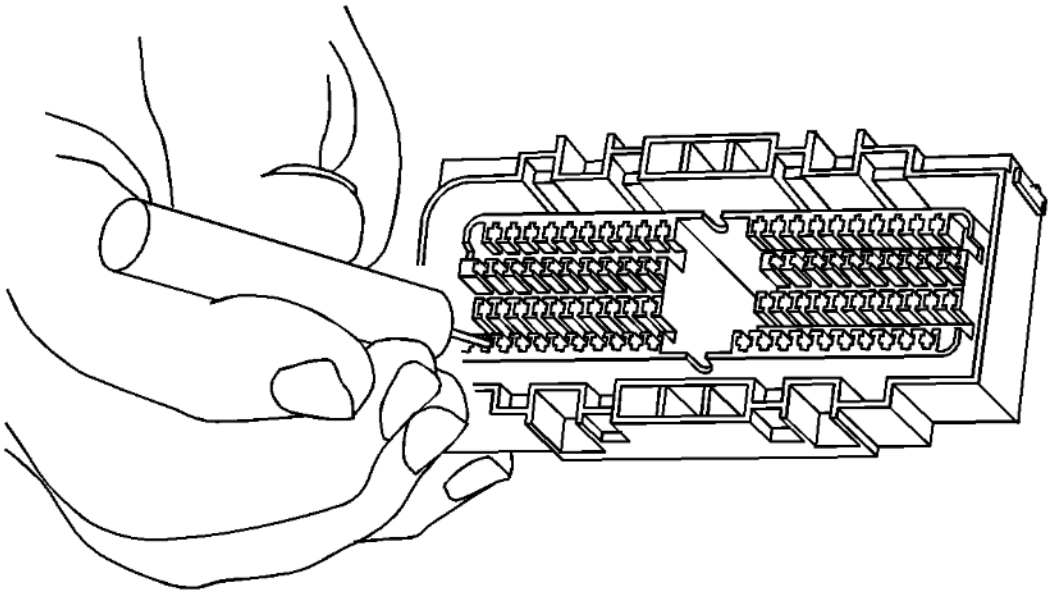

Fig. 31: Pulling Wire Out Of Back Of Connector
Courtesy of GENERAL MOTORS COMPANY

12. While holding the removal tool in place, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
13. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
14. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

BOSCH CONNECTORS (BSK)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-561** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

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1. Disconnect the connector from the component.
2. Remove the wire dress cover, if necessary.
3. Push the wire side of the terminal that is being removed toward the connector and hold it in position.

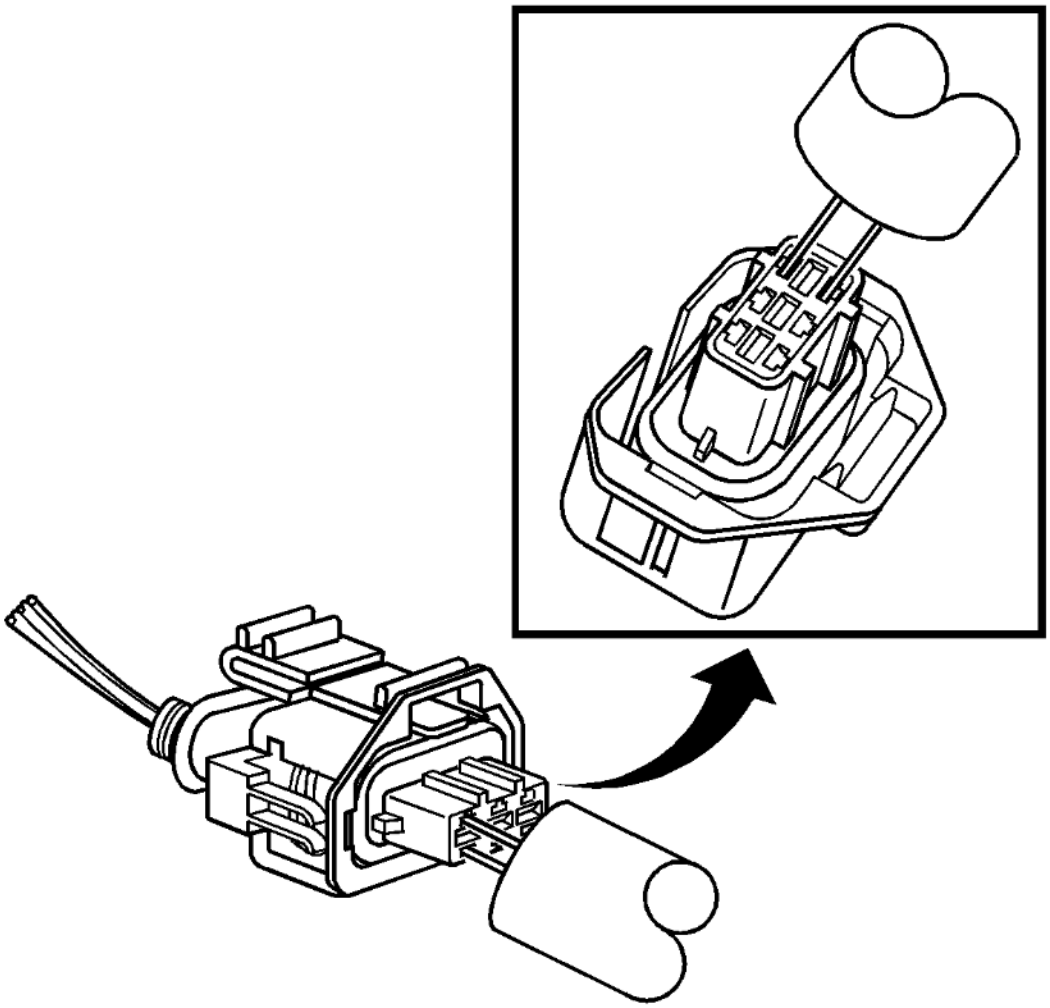

Fig. 32: View Of Bosch Connector Terminals (BSK)
Courtesy of GENERAL MOTORS COMPANY

4. Insert the J-38125-561 tool into the 2 cavities on each side of the terminal at the front of the connector and push until you feel the tool disengage the terminal retainers.
5. Carefully pull the terminal out of the connector. Always remember never use force when pulling a terminal out of a connector. If the terminal is difficult to remove, repeat the entire procedure.
6. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
7. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

BOSCH CONNECTORS (0.64)

Special Tools

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- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-560** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

1. Locate the lever lock on the wire dress cover. While pressing the lock, pull the lever over and past the lock until the lever is at the end of its travel.
2. Disconnect the connector from the component.
3. Pull the rubber boot that covers the wires back to expose the end of the connector dress cover.
4. Place the connector locking lever in the center of the connector.

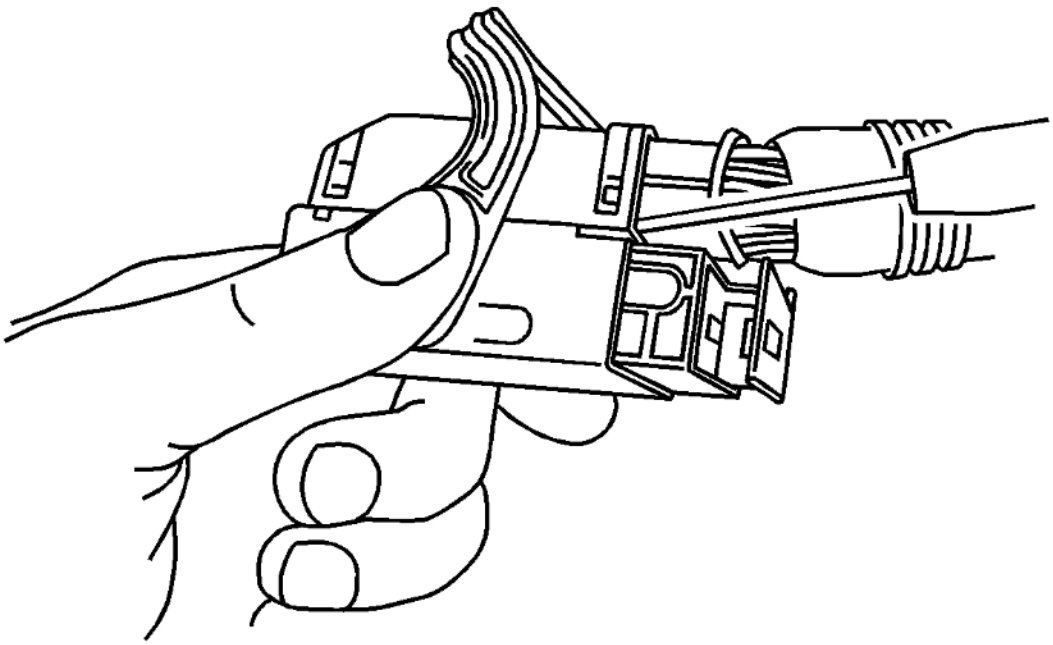

Fig. 33: View Of Flat-Bladed Tool Being Inserted Between Cover & Connector Body
Courtesy of GENERAL MOTORS COMPANY

5. Locate the 2 dress cover locking tabs that are on the wire end of the connector. Insert a small flat-bladed tool between the cover and connector body and pry up.

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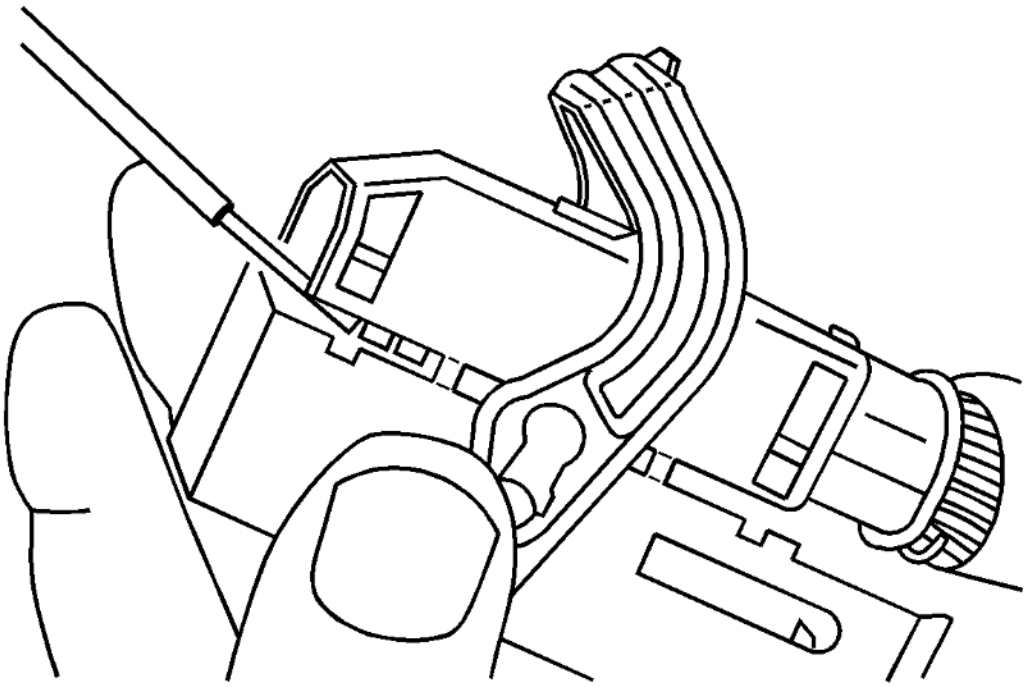

Fig. 34: View Of Flat-Bladed Tool Between Cover & Connector End
Courtesy of GENERAL MOTORS COMPANY

6. Locate the 2 dress cover locking tabs located on the opposite side of the connector. Insert a small flat-bladed tool between the cover at the connector end and pry up.
7. Remove the dress cover.
8. Cut the tie wrap on the wire bundle.

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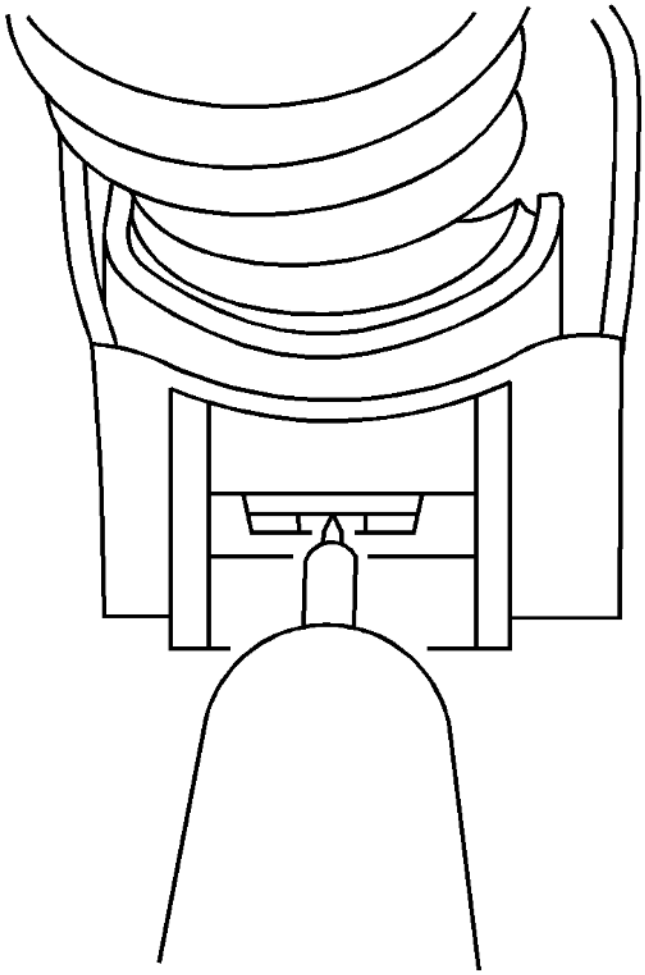

Fig. 35: View Of Terminal Position Assurance (TPA)
Courtesy of GENERAL MOTORS COMPANY

9. Remove the terminal position assurance (TPA) by inserting a small flat-bladed tool into the small slot in the end of the slider and pushing on the TPA until it comes out of the connector. When the TPA exits the opposite side of the connector, gasp the TPA and pull it completely out of the connector.
10. Push the wire side of the terminal that is being removed toward the connector and hold it in position.

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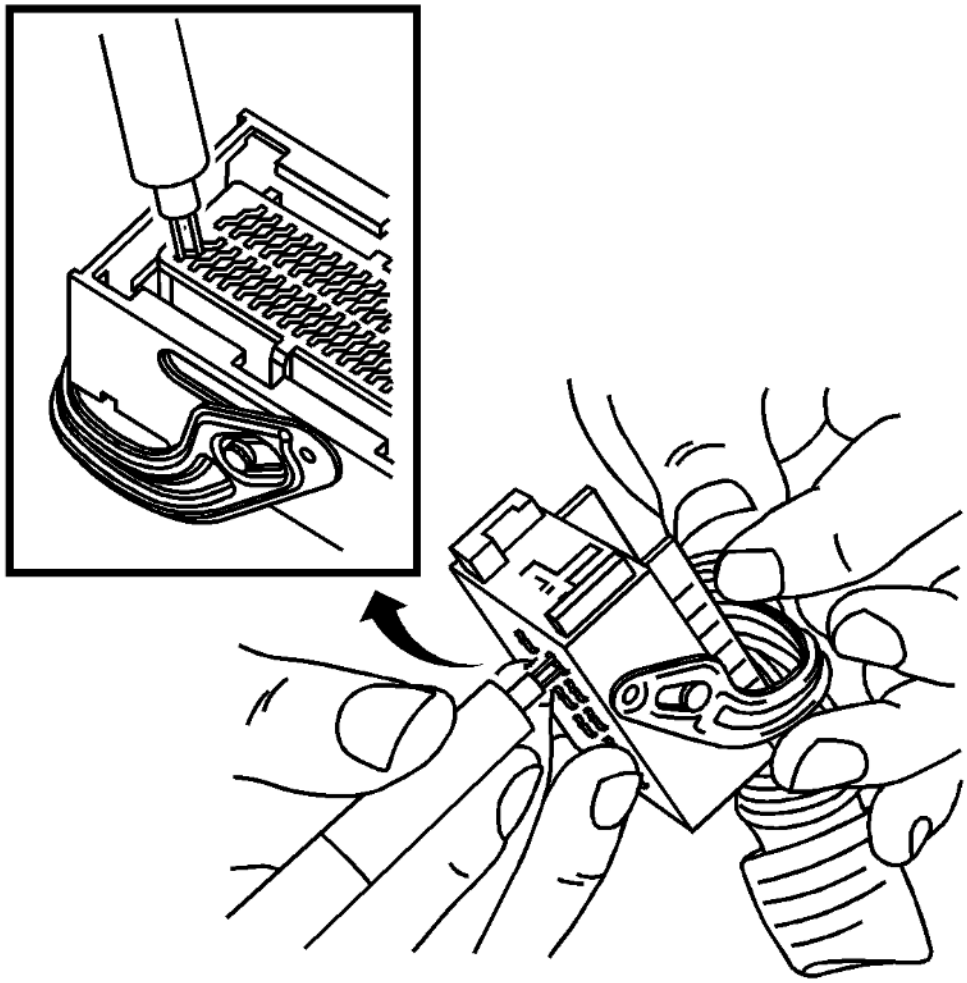

Fig. 36: View Of J 38125-560 Being Inserted Into Triangular Cavities
Courtesy of GENERAL MOTORS COMPANY

11. Insert the J-38125-560 into the 2 triangular cavities on each side of the terminal at the front of the connector.
12. Carefully pull the terminal out of the connector. Always remember never use force when pulling a terminal out of a connector. If the terminal is difficult to remove, repeat the entire procedure.
13. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
14. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

Terminal Insertion Procedure

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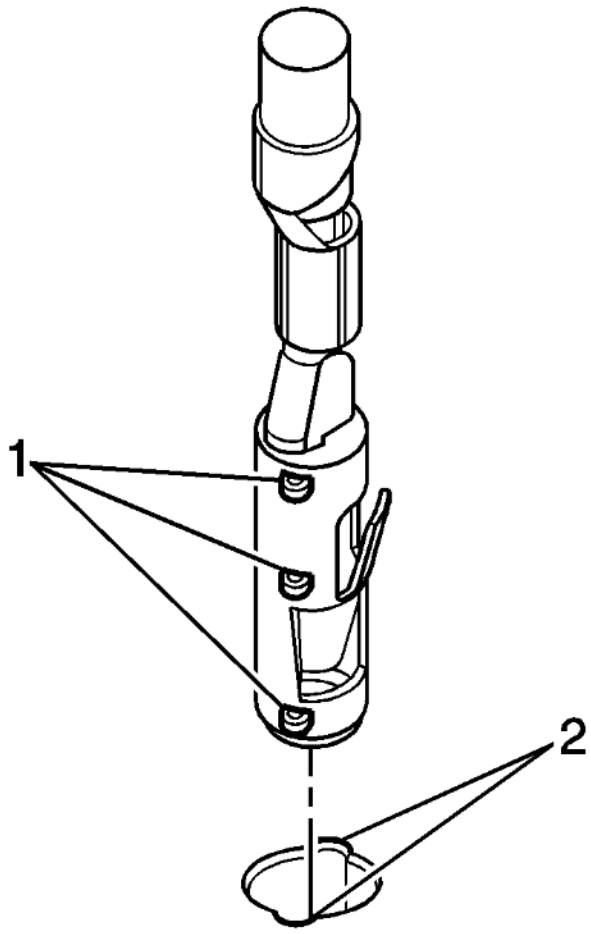

Fig. 37: Aligning Coding Lugs With Connector Coding Grooves
Courtesy of GENERAL MOTORS COMPANY

1. Prior to installation the terminal must be aligned so the (1) coding lugs align with the (2) coding grooves on the connector.
2. Once the terminal is aligned, slide the terminal into the cavity until the retainer has engaged in the cavity of the connector.
3. Slide the TPA in the connector body and seat it using a small flat bladed tool. The TPA is seated when it is flush with the contact housing.
4. Secure the wires to the connector body using a tie wrap and replace the dress cover and grommet.

BOSCH CONNECTORS (2.8 JPT)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-557** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

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Terminal Removal Procedure

1. Pull out the slider on the connector position assurance (CPA) until it is at the end of its travel.
2. Disconnect the connector from the component.
3. Remove the wire dress cover, if necessary.
4. Push the wire side of the terminal that is being removed toward the connector and hold it in position.

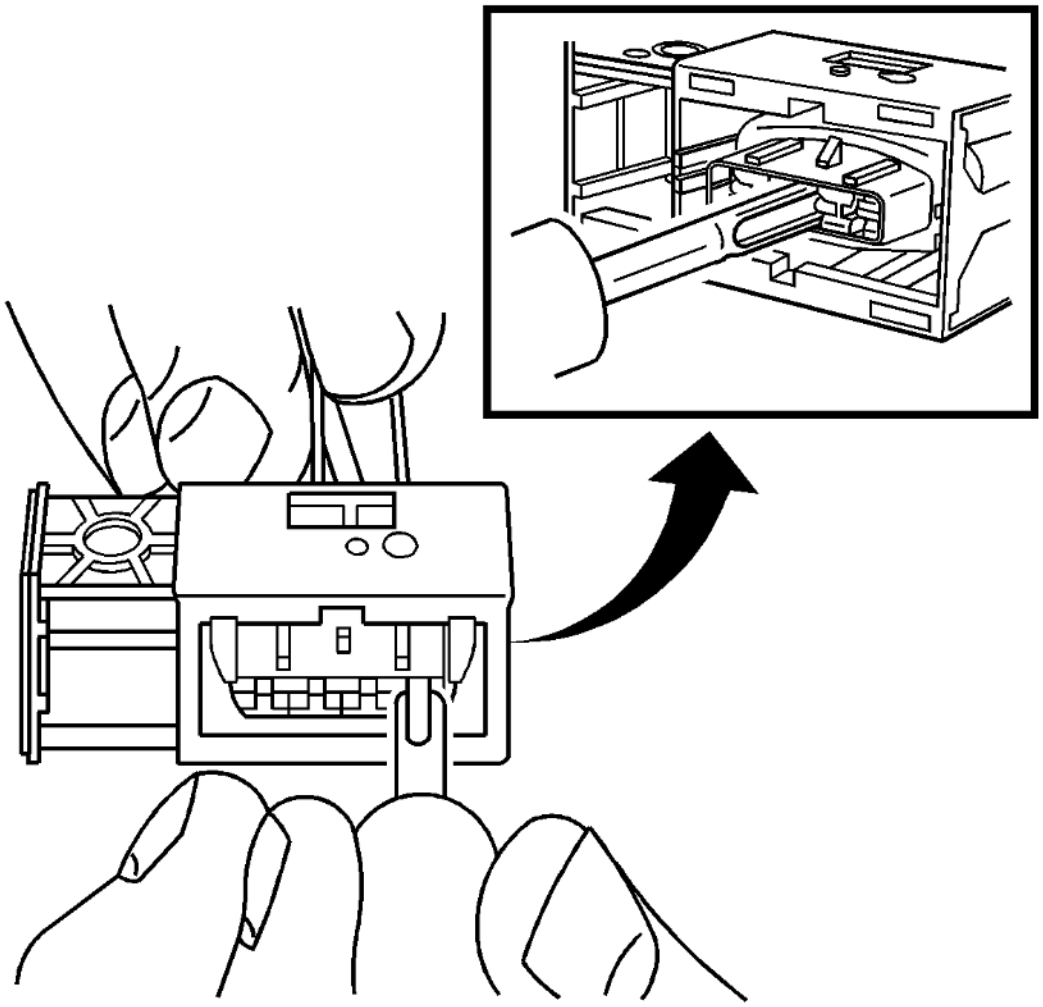

Fig. 38: View Of Bosch Connector Terminals (2.8 JPT)
Courtesy of GENERAL MOTORS COMPANY

5. Insert the J-38125-557 into the 2 cavities on each side of the terminal at the front of the connector and push until you feel the tool disengage the terminal retainers.
6. Carefully pull the terminal out of the connector. Always remember never use force when pulling a terminal out of a connector. If the terminal is difficult to remove, repeat the entire procedure.
7. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
8. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

BOSCH CONNECTORS (ECM)

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Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-213** Terminal Release Tool
- **J-38125-556** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

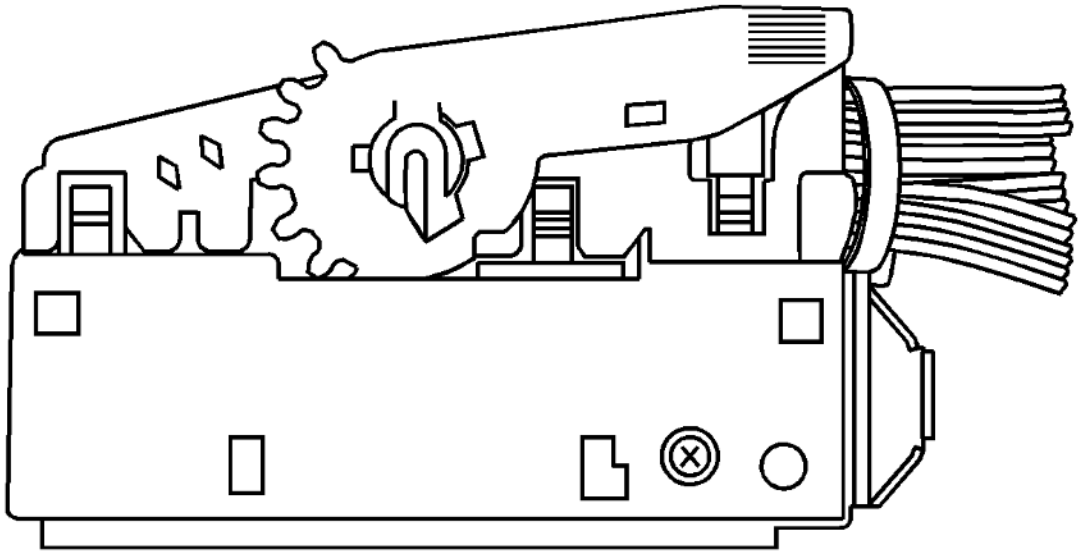

Fig. 39: View Of Bosch Connectors
Courtesy of GENERAL MOTORS COMPANY

1. Locate the assist lever on the top of the connector. Move the assist lever to the forward position.

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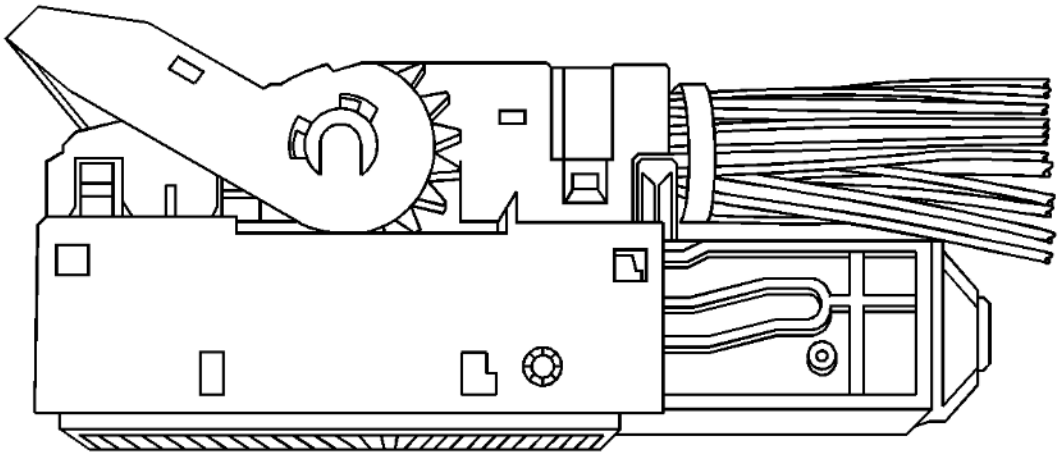

Fig. 40: Identifying Assist Lever In Forward Position
Courtesy of GENERAL MOTORS COMPANY

2. Disconnect the connector from the component.

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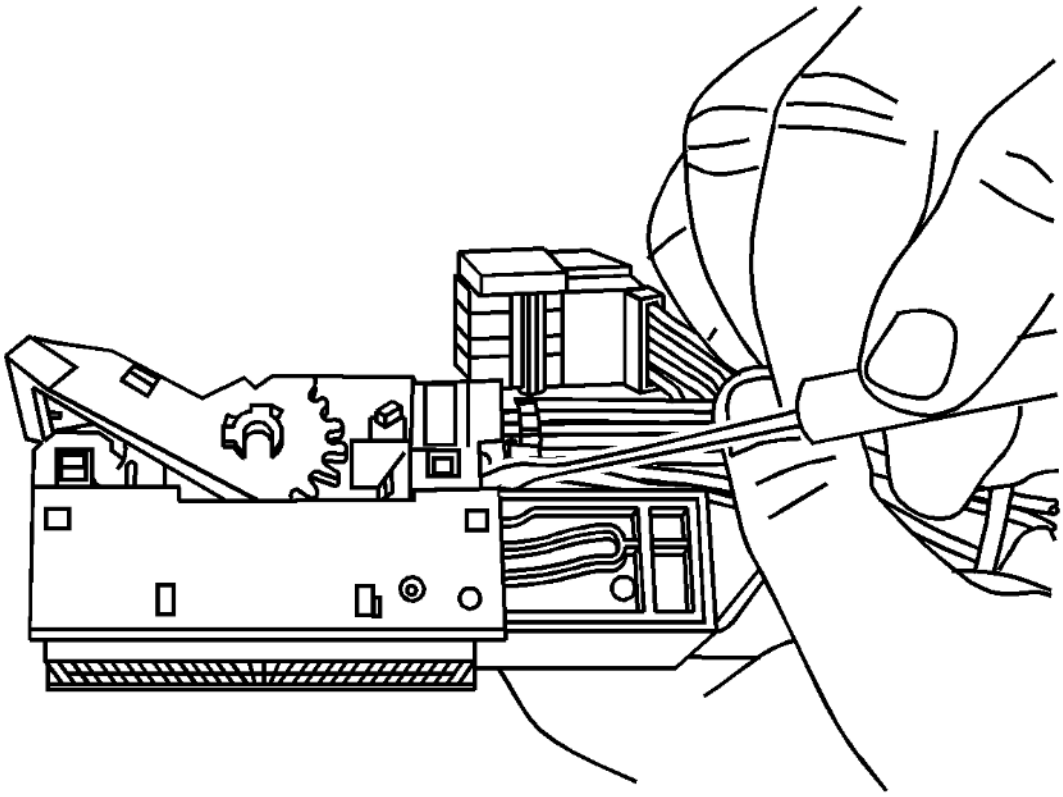

Fig. 41: View Of Releasing Locking Tabs
Courtesy of GENERAL MOTORS COMPANY

3. Locate the dress cover locking tabs at the corners of the connector. Use a small flat-blade tool to release the locking tabs and remove the dress cover.

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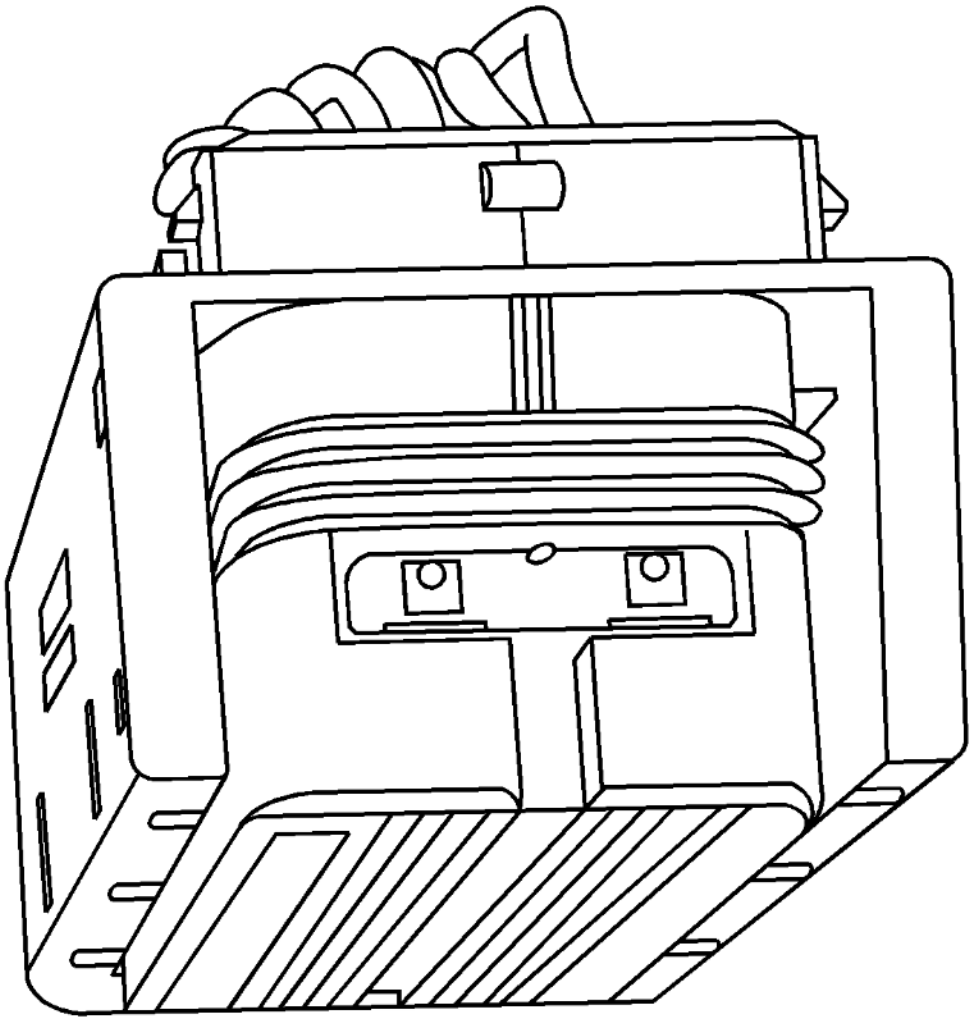

Fig. 42: View Of Terminal Positive Assurance (TPA) Connector
Courtesy of GENERAL MOTORS COMPANY

4. The terminal positive assurance (TPA) is located in the front of the connector.

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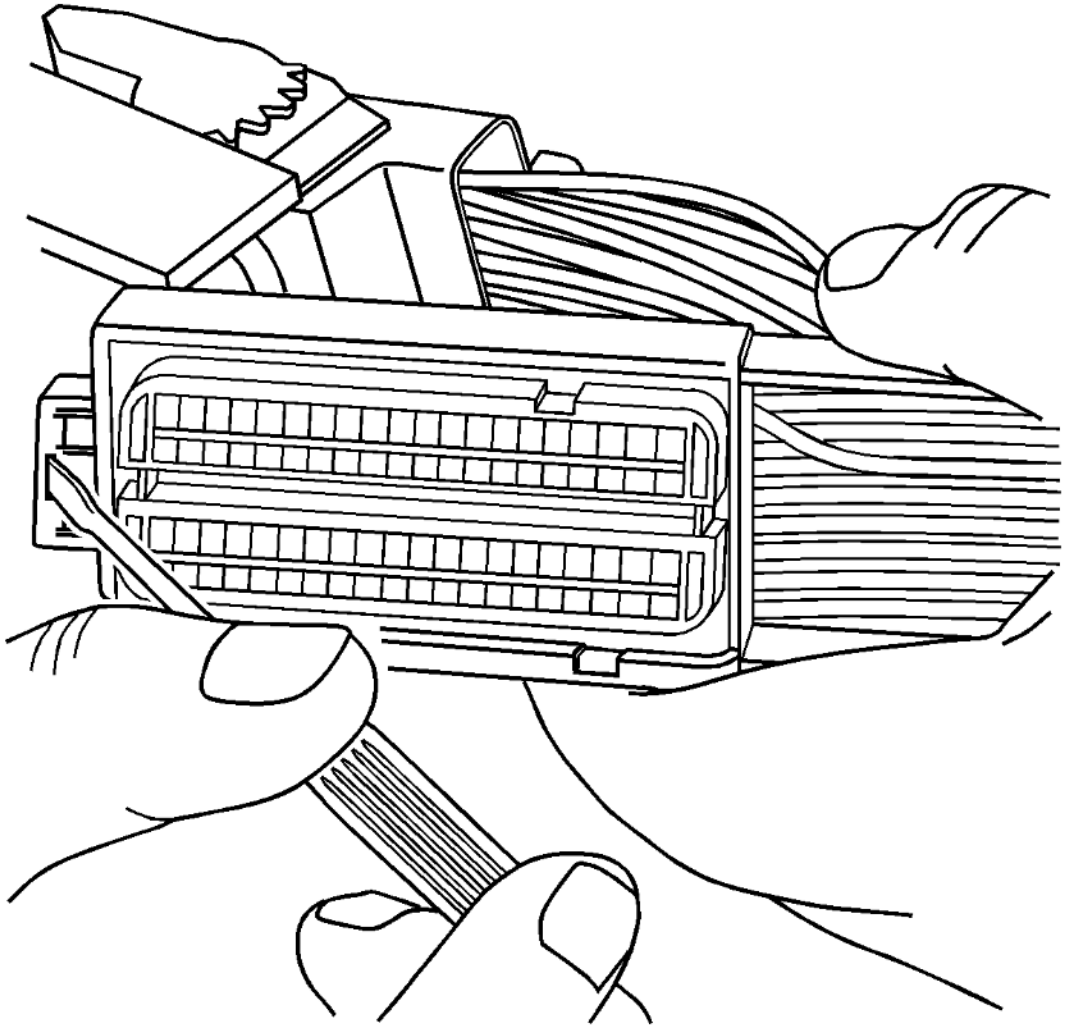

Fig. 43: View Of Removing TPA From Connector
Courtesy of GENERAL MOTORS COMPANY

5. Use a small flat-blade tool to remove TPA from the connector.

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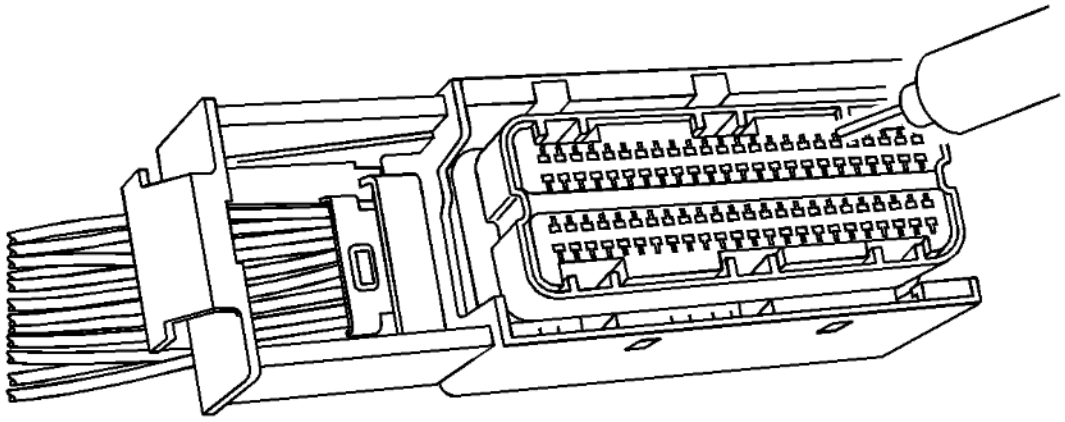

Fig. 44: View Of Special Tools And Terminals
Courtesy of GENERAL MOTORS COMPANY

6. Use the J-38125-213 or the J-38125-556 tool to release the terminals by inserting the tool into the terminal release cavity.
7. While holding the removal tool in place, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
8. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
9. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

NOTE: **Ensure that the dress cover and connector body are both in the released position before reassembling. Failure to do so may cause damage to the connector and component.**

10. Reconnect the connector bodies.

CPA CONNECTORS

Connector Removal Procedure

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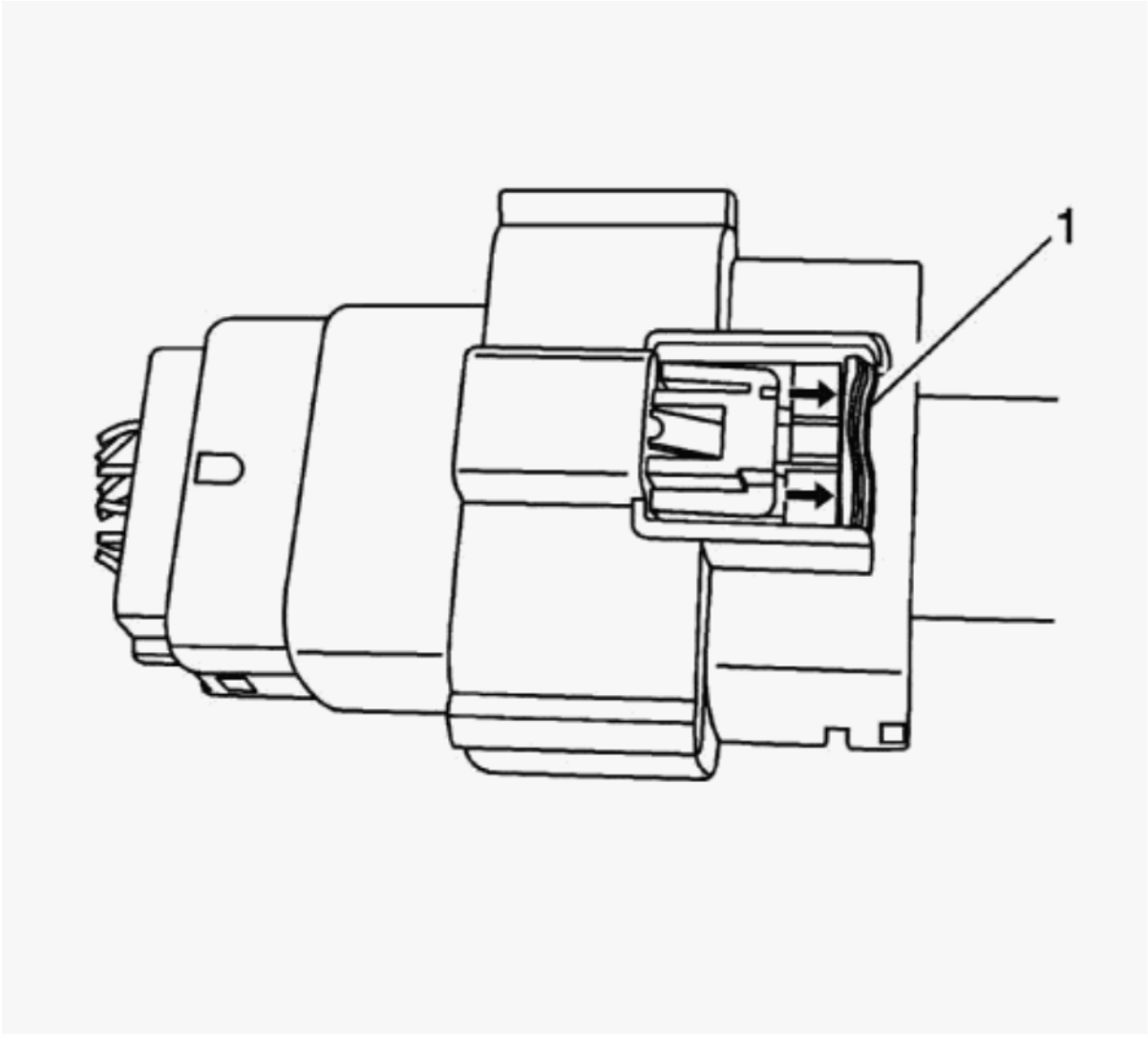

Fig. 45: Pulling Out Red CPA (Connector Position Assurance) On Female Chassis Harness Signal Connector
Courtesy of GENERAL MOTORS COMPANY

1. Pull out the red CPA (Connector Position Assurance) [1] on the female chassis harness signal connector.

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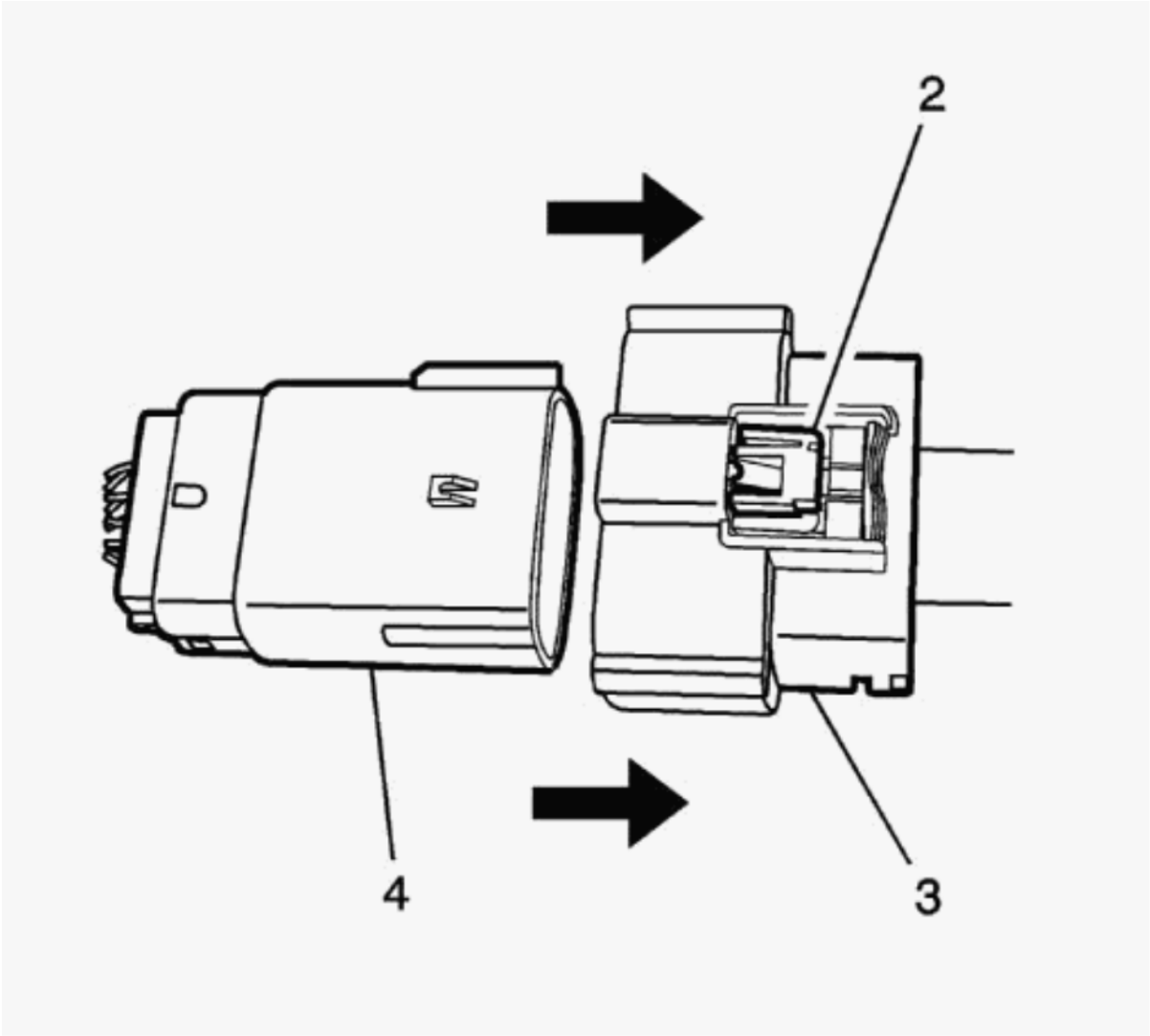

Fig. 46: Locking Tab (Pump Arm) And Male Pigtail Connector
Courtesy of GENERAL MOTORS COMPANY

2. Depress the connector locking tab (pump arm) [2] of this connector [3] to allow it to disengage from the male pigtail connector [4].
3. Pull on the female connector [3] to separate it from the male connector [4].

Connector Installation Procedure

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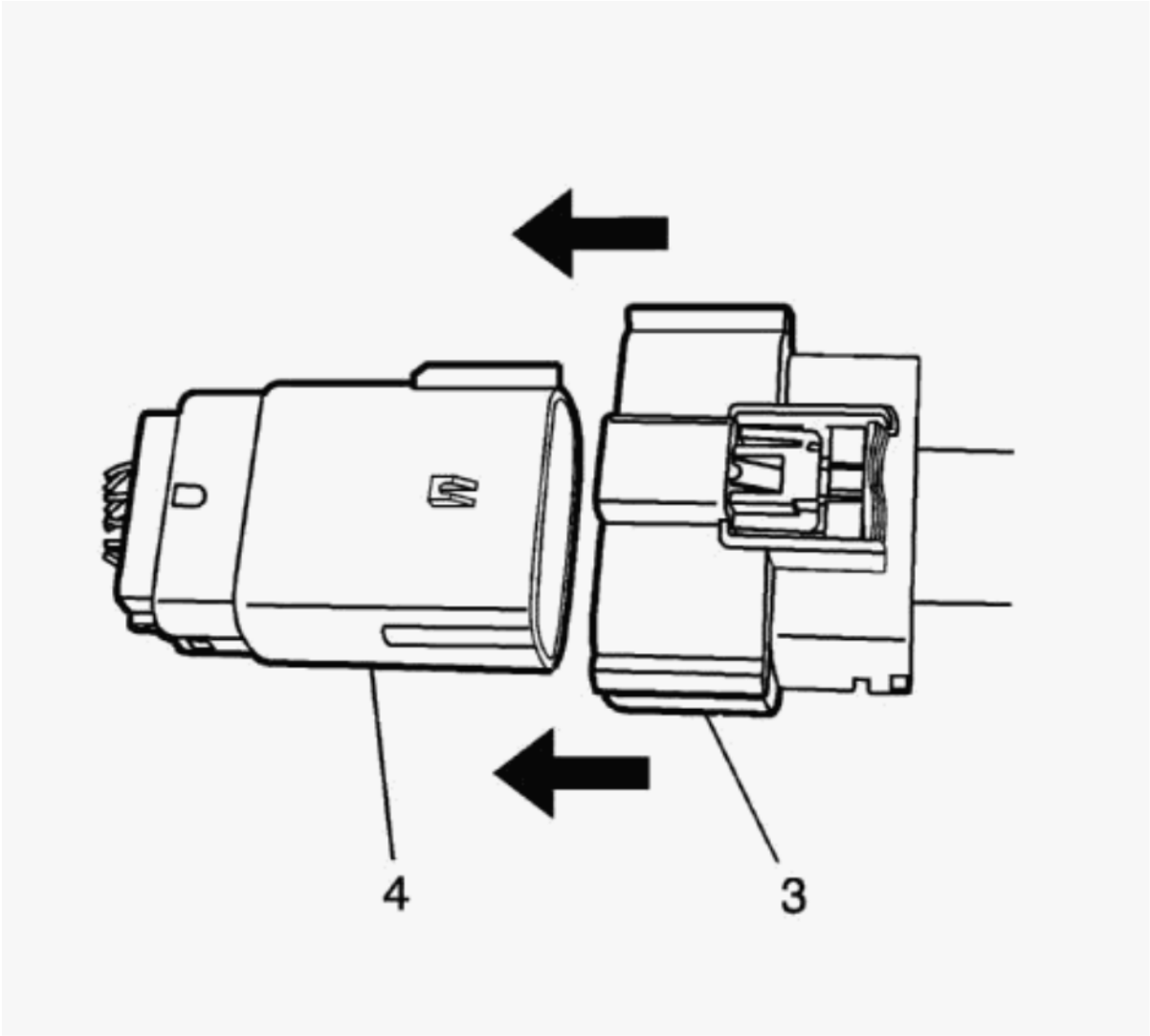

Fig. 47: Female Connector And Male Connector
Courtesy of GENERAL MOTORS COMPANY

1. Align the female connector [3] to the male connector [4] locking feature and push them together until fully engaged.

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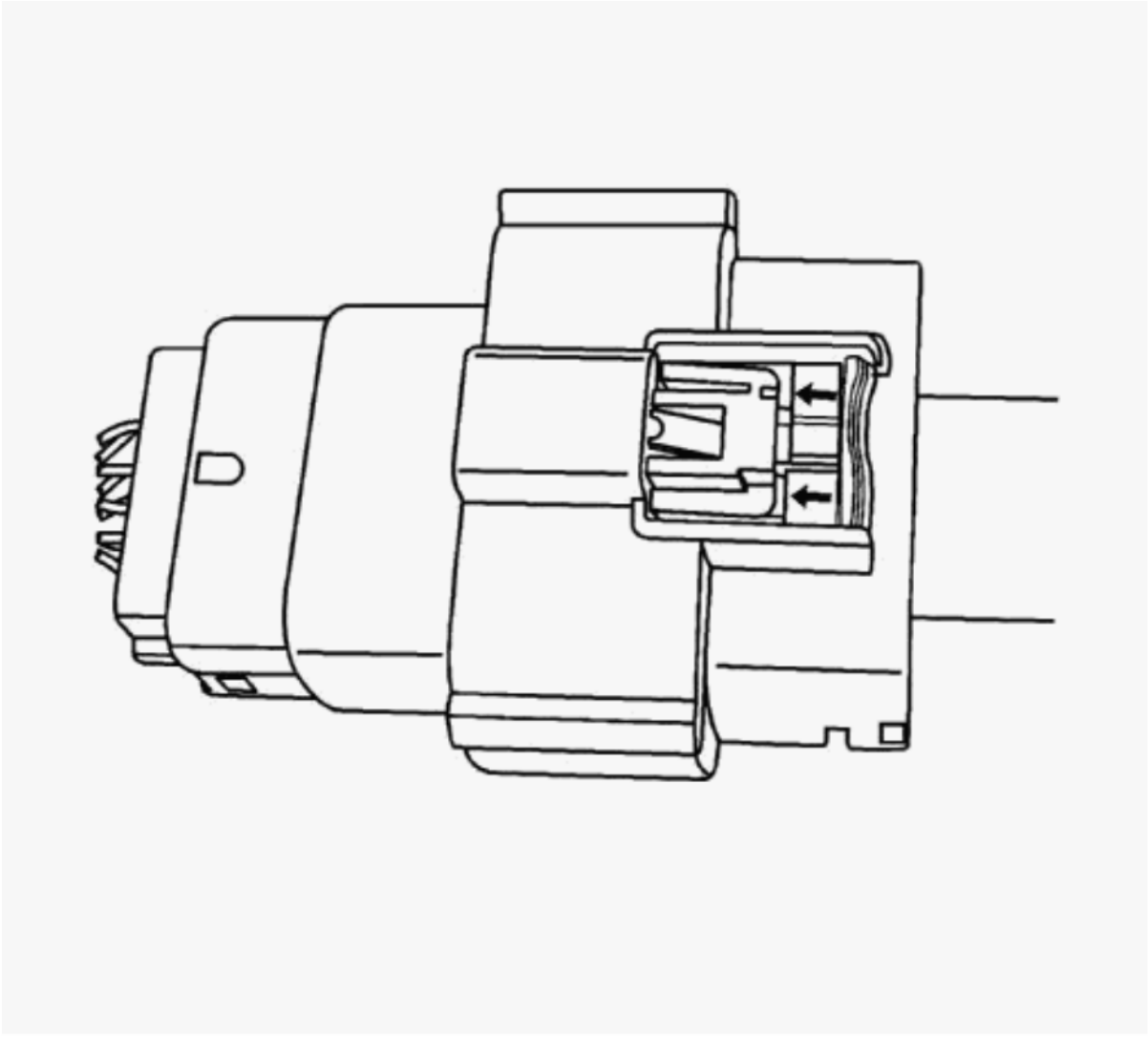

Fig. 48: Red CPA (Connector Position Assurance)
Courtesy of GENERAL MOTORS COMPANY

2. Push in the red CPA (Connector Position Assurance) on the female chassis harness signal connector to lock them securely.

DELPHI CONNECTORS (WEATHER PACK)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-10A** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

The following is the proper procedure for the repair of Weather PackÂ® Connectors.

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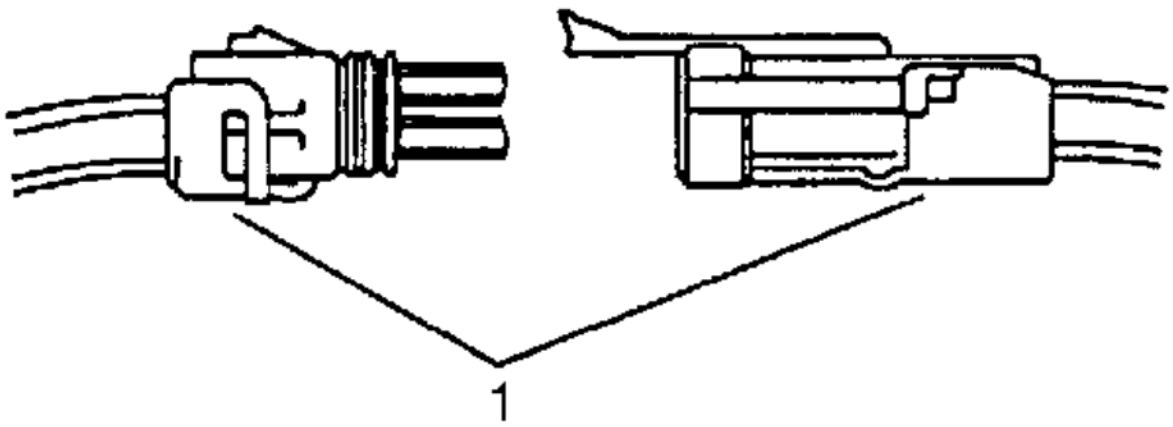

Fig. 49: View Of Connector Halves
Courtesy of GENERAL MOTORS COMPANY

1. Separate the connector halves (1).
2. Open the secondary lock. A secondary lock aids in terminal retention and is usually molded to the connector (1).
3. Grasp the wire and push the terminal to the forward most position. Hold the wire in this position.

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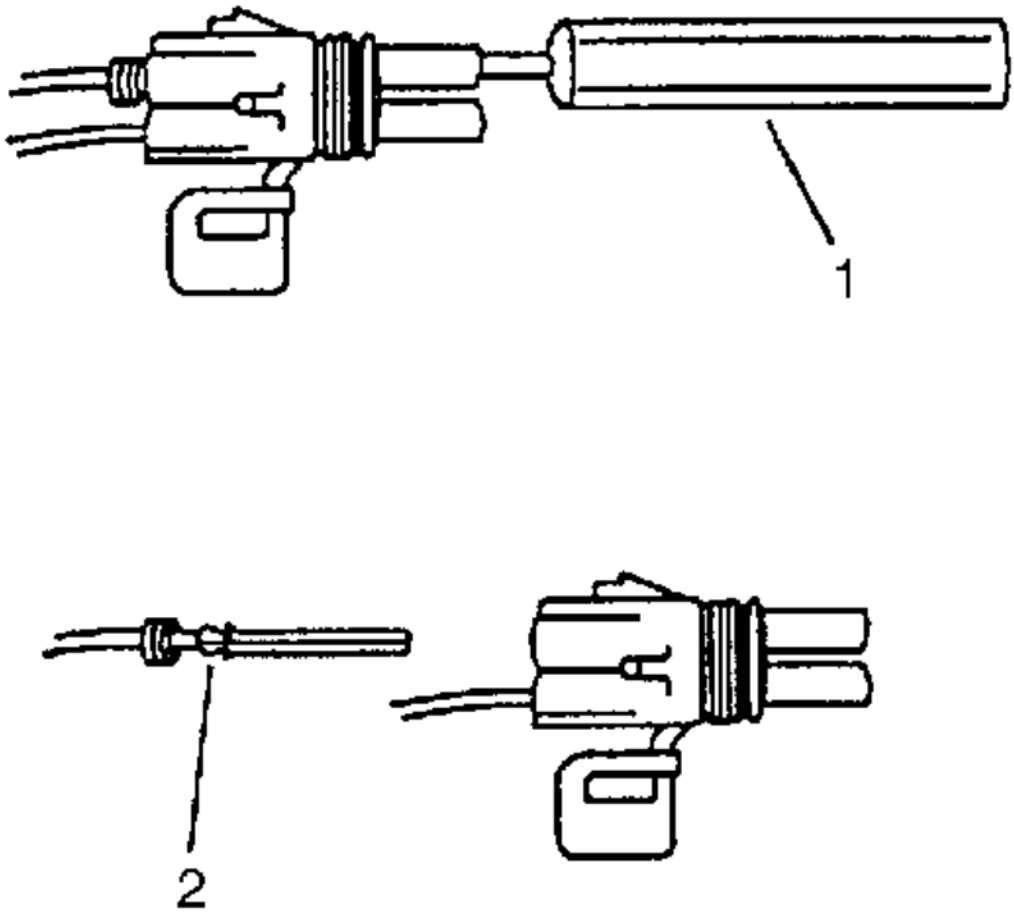

Fig. 50: Identifying Removal Tool & Terminal
Courtesy of GENERAL MOTORS COMPANY

4. Insert the Weather PackÂ® terminal removal tool J-38125-10A into the front (mating end) of the connector cavity until it rests on the cavity shoulder (1).
5. Gently pull on the wire to remove the terminal through the back of the connector (2).

NOTE: **Never use force to remove a terminal from a connector.**

6. Inspect the terminal and connector for damage. Repair as necessary. Refer to **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)**.
7. Reform the lock tang (2) and reset terminal in connector body.
8. Close secondary locks and join connector halves.
9. Verify that circuit is complete and working satisfactorily.
10. Perform system check.
11. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead**

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Repair)Repairing Connector Terminals (Terminal Repair) procedure.

12. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

DELPHI CONNECTORS (PUSH TO SEAT)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

Follow the steps below in order to repair push to seat connectors.

1. Remove the terminal position assurance (TPA) device, the connector position assurance (CPA) device, and/or the secondary lock.

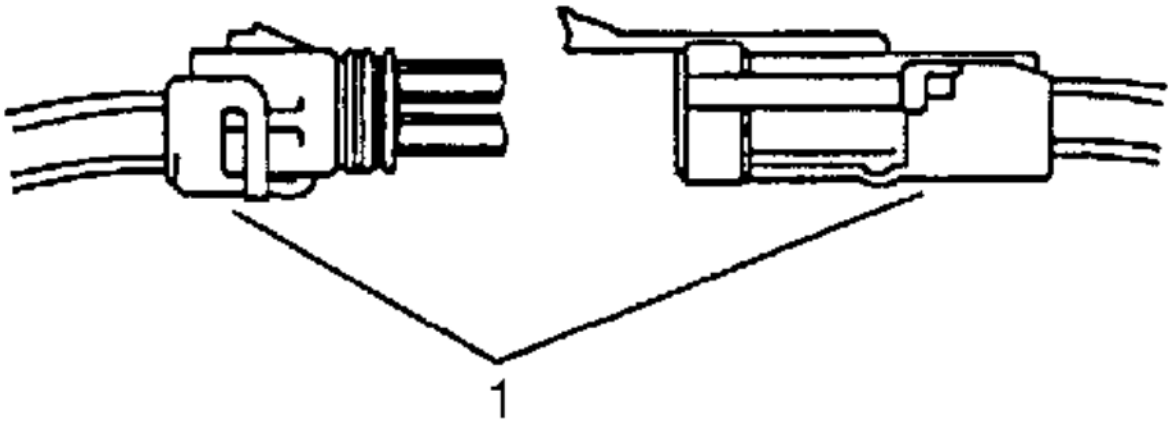

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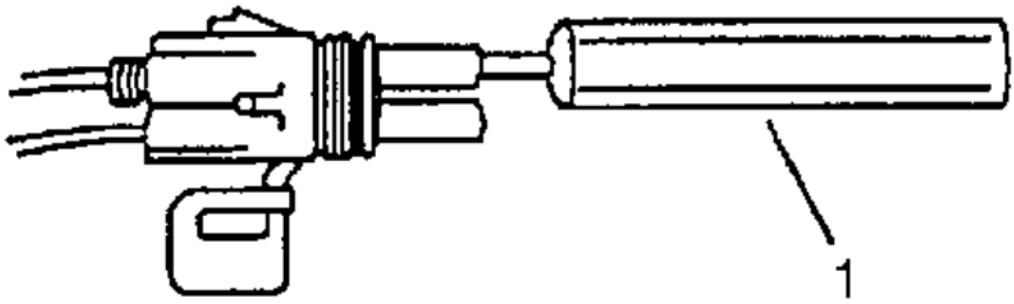
Fig. 51: View Of Connector Halves
Courtesy of GENERAL MOTORS COMPANY

2. Separate the connector halves (1).



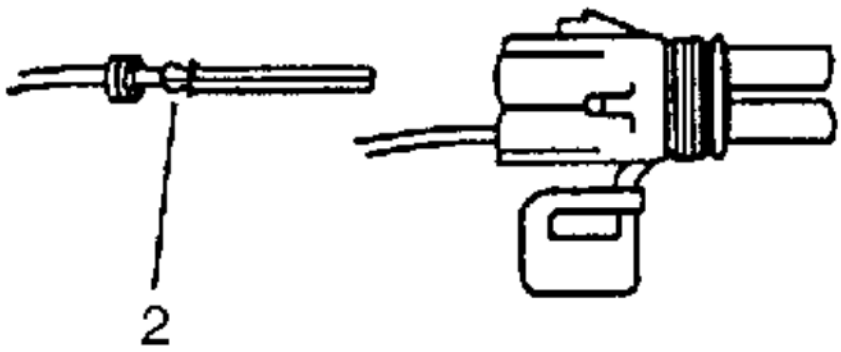


Fig. 52: Identifying Removal Tool & Terminal
Courtesy of GENERAL MOTORS COMPANY

3. Use the proper pick or removal tool (1) in order to release the terminal.
4. Gently pull the cable and the terminal (2) out of the back of the connector.

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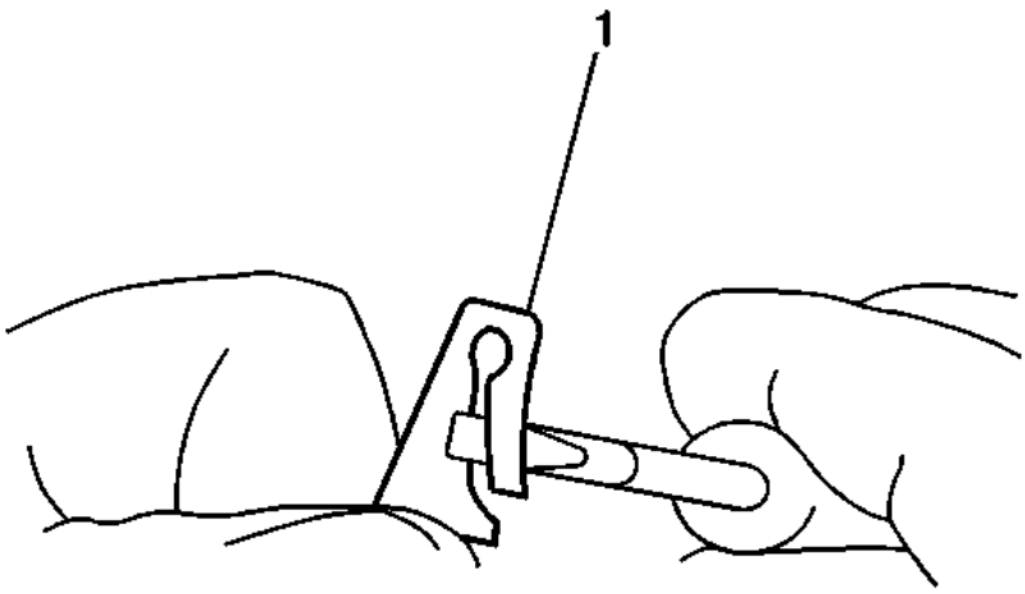

Fig. 53: Identifying Locking Device
Courtesy of GENERAL MOTORS COMPANY

5. Re-form the locking device if you are going to reuse the terminal (1).
6. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
7. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

Terminal Insertion Procedure

1. In order to reuse a terminal or lead assembly, refer to **Wiring Repairs** .
2. Ensure that the cable seal is kept on the terminal side of the splice.
3. Insert the lead from the back until it catches.
4. Install the TPA, CPA, and/or the secondary locks.

DELPHI CONNECTORS (PULL TO SEAT)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit

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- **EL-38125-580** Terminal Release Tool Kit

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

If the terminal is visibly damaged or is suspected of having a faulty connection, the terminal should be replaced.

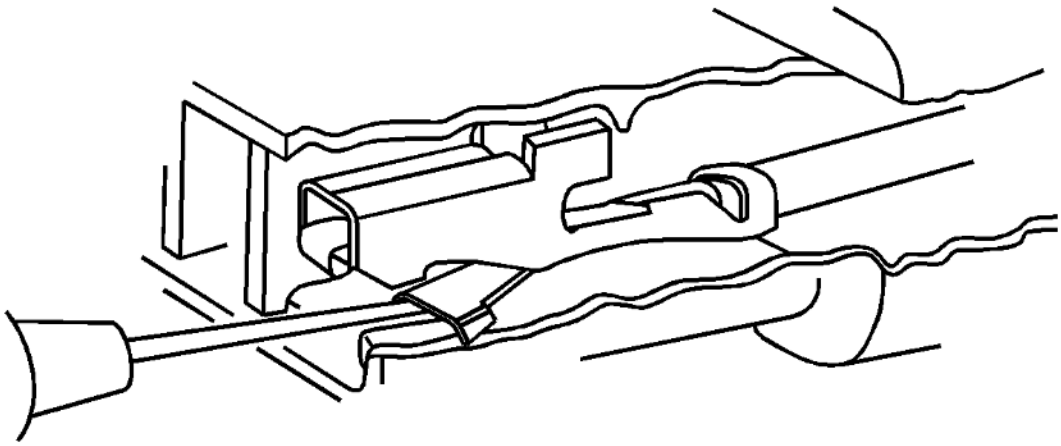

Fig. 54: Aligning Removal Tool - Delphi (Pull To Seat)
Courtesy of GENERAL MOTORS COMPANY

Follow the steps below in order to repair pull-to-seat connectors:

1. Remove the connector position assurance (CPA) device and/or the secondary lock.
2. Disconnect the connector from the component or separate the connectors for in-line connectors.
3. Remove the terminal position assurance (TPA) device.
4. Review the connector end view to determine the proper test probe and release tool.
5. Insert the release tool into the front of the connector body.
6. Grasp the wire at the back of the connector body and gently push the terminal out the front of the connector body.

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7. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
8. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

Terminal Insertion Procedure

1. Align the terminal and pull the wire from the back of the connector in order to seat the terminal.
2. If the connector is outside of the passenger compartment, apply dielectric grease to the connector.
3. Install the TPA, CPA, and/or the secondary locks.

DELPHI CONNECTORS (MICRO-PACK 100W)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-12A** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

There are 2 styles of Micro-Pack 100W connectors. These connectors are very similar but use different terminals and have some minor physical differences also.

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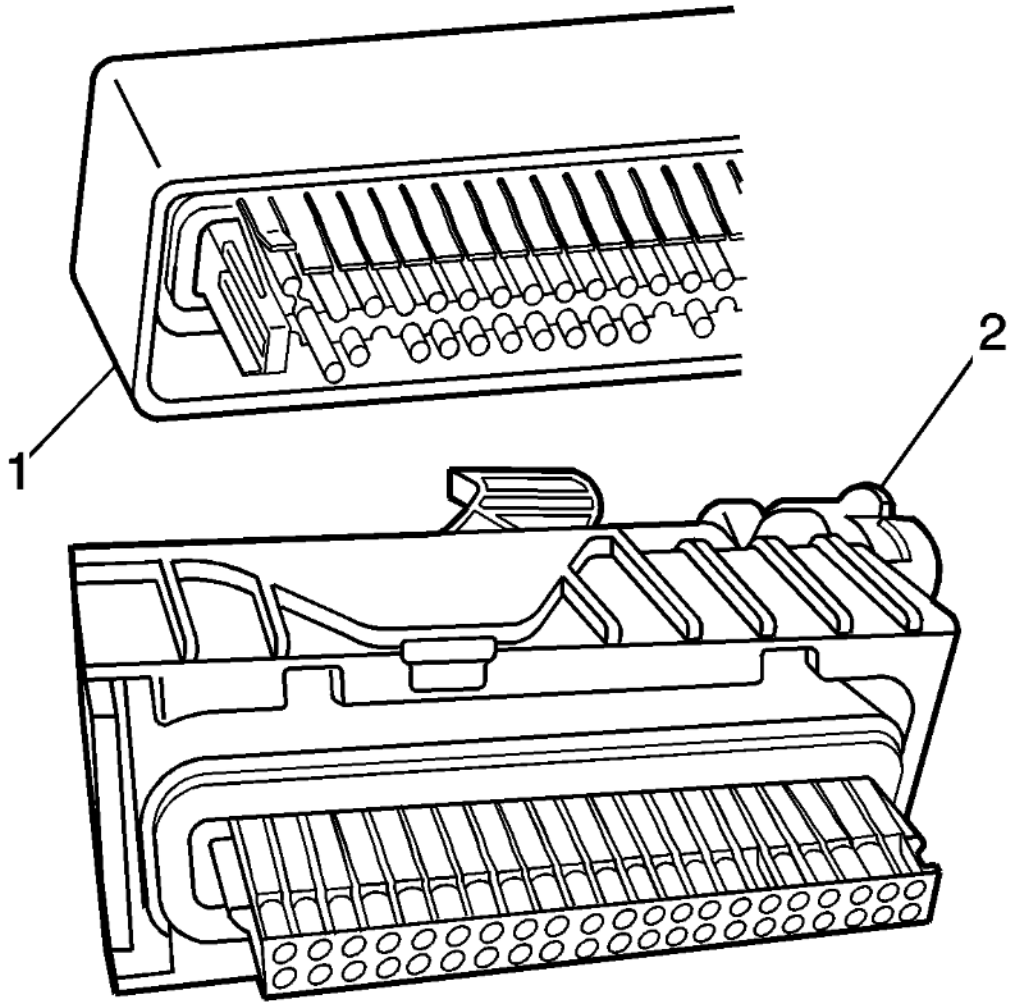

Fig. 55: Identifying Micro-Pack 100W First & Second Connector Designs
Courtesy of GENERAL MOTORS COMPANY

The first connector design of the Micro-Pack 100W (1) has a white connector interface that holds the terminals. The second design of the Micro-Pack 100W (2) has a gray interface to hold the terminals. Also, the first design has terminal cavities that are further apart (3 mm centerline) and offset from the other row of terminal cavities in the connector. The second design has terminals cavities that are closer together (2.54 mm centerline) and aligned vertically. One other way to identify the second design is the thin strip of material that runs along the outside of the cavities.

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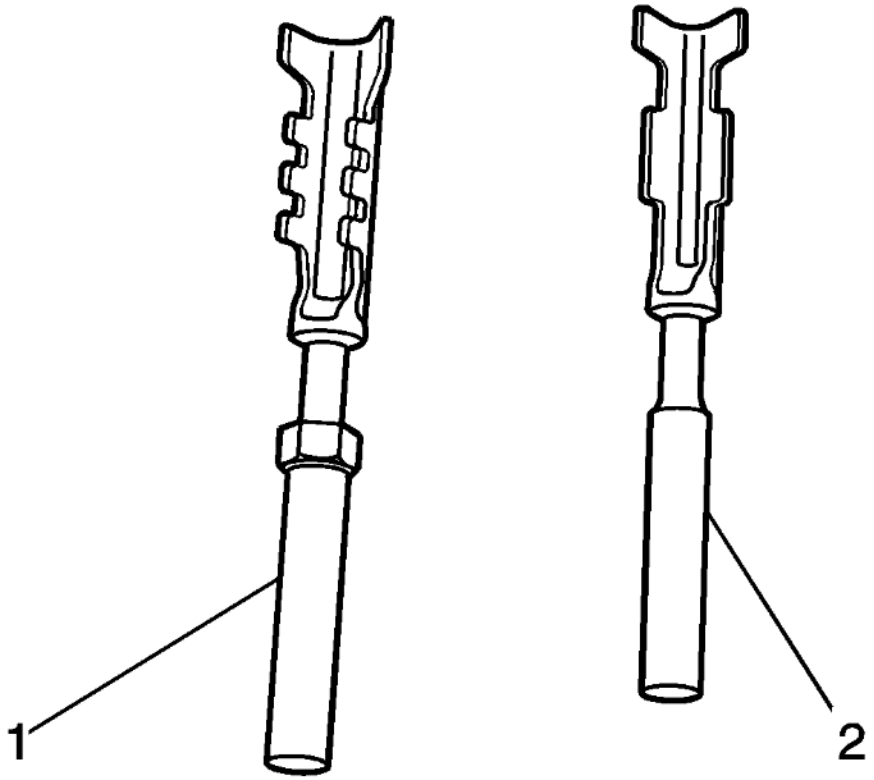

Fig. 56: Identifying Micro-Pack 100W Short & Long Terminals
Courtesy of GENERAL MOTORS COMPANY

NOTE: **There are 2 styles of Micro-Pack 100W terminals which are very similar. Ensure that you have the correct terminal before crimping the new terminal to the wire. The first design connector uses the longer terminal (1) that has a raised area in front of the recess in the terminal. The second design connector uses the shorter terminal without the raised area.**

Follow the steps below in order to remove terminals from Micro-Pack 100W connectors. Some Micro-Pack 100W connector disassembly procedures will vary. Use this procedure as a guide.

1. Disconnect the connector from the component.

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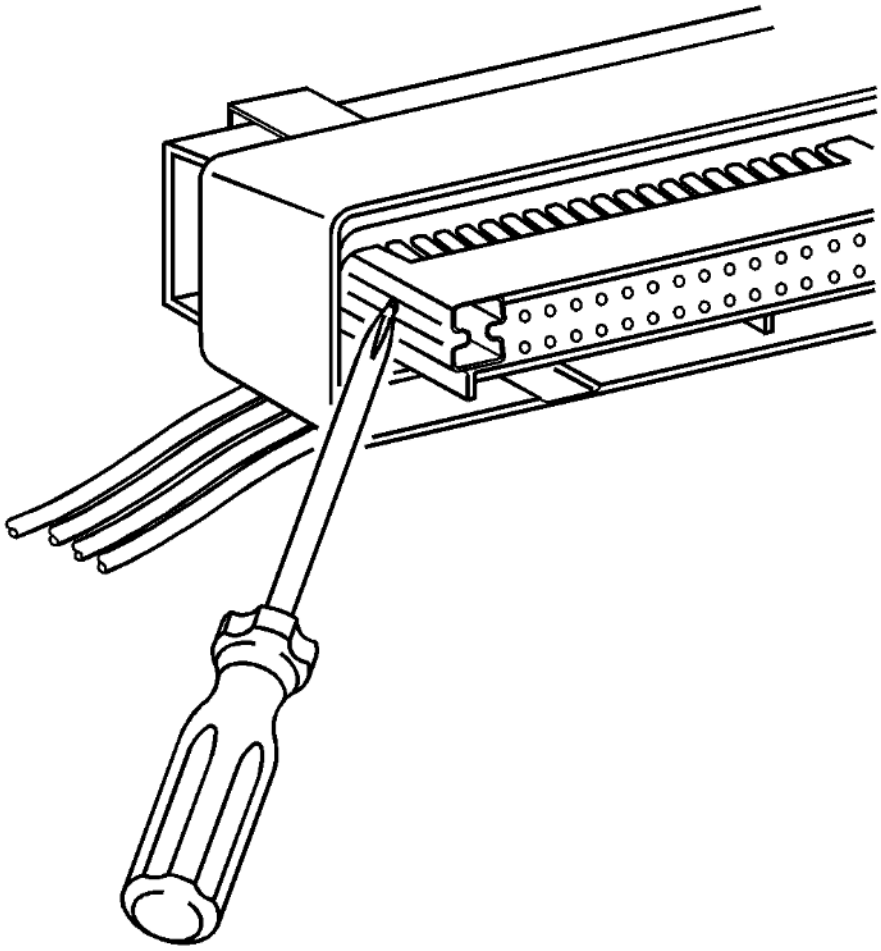

Fig. 57: Locating Nose Piece Locking Tabs
Courtesy of GENERAL MOTORS COMPANY

2. Locate the nose piece locking tabs that are positioned on the side of the connector nose piece. The connector nose piece acts as a terminal positive assurance (TPA) and may be referred to as such.

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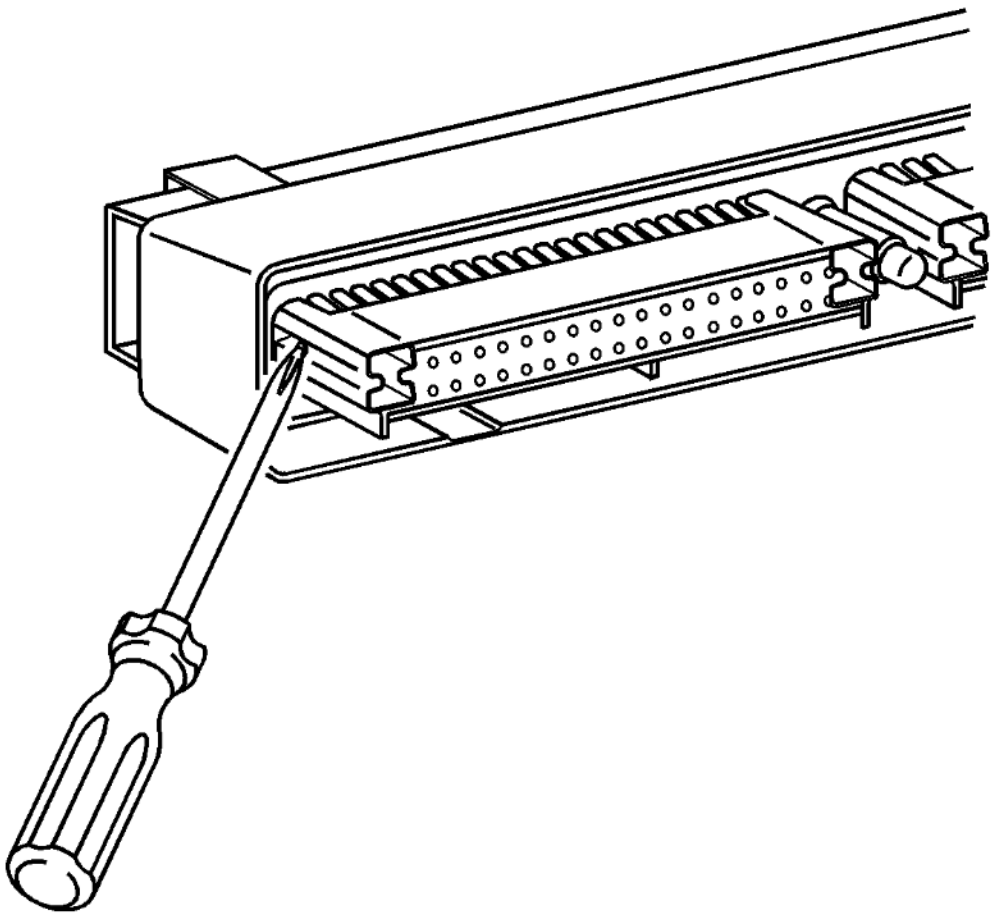

Fig. 58: Loosening Nose Piece Locking Tabs
Courtesy of GENERAL MOTORS COMPANY

3. Use a small flat-blade tool to push in one of the locking tabs while gently pulling on the same side of the nose piece.
4. Repeat the procedure for the other locking tab and remove the nose piece.
5. Remove the wire dress cover. The following is a general procedure for wire dress cover removal. Use this procedure as a guide, some dress cover removal procedures may vary.

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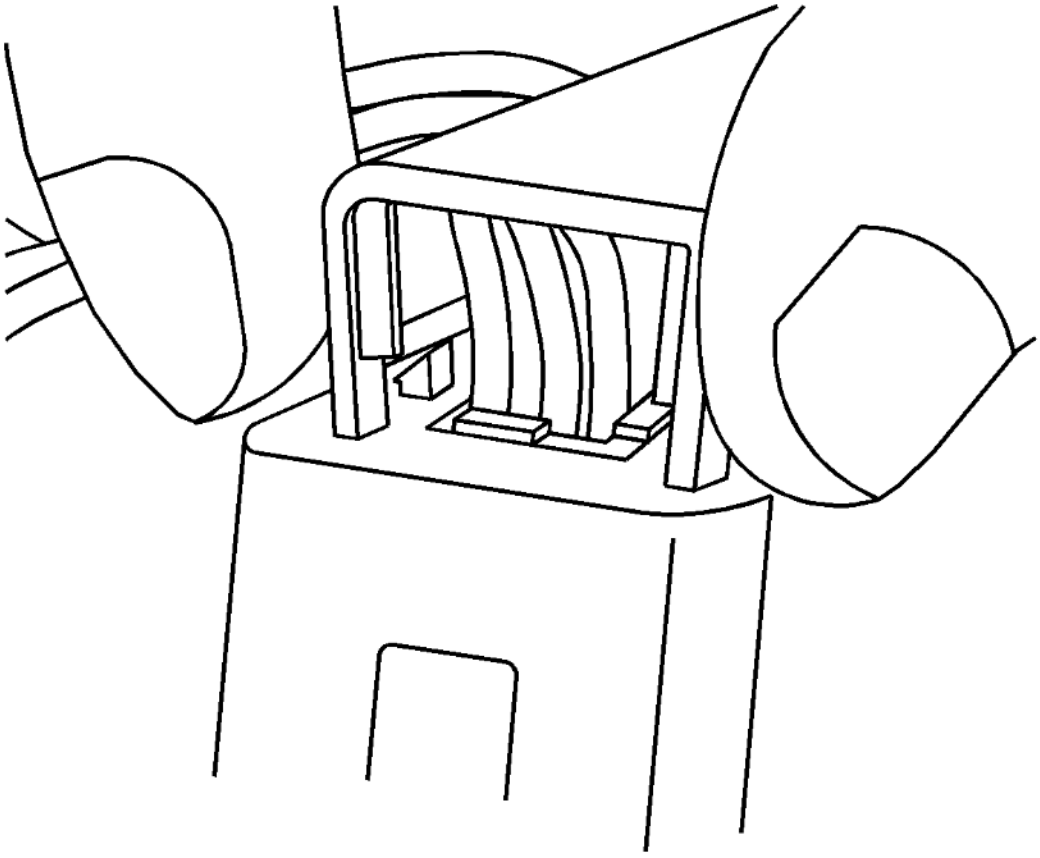

Fig. 59: Squeezing Cover Locking Legs
Courtesy of GENERAL MOTORS COMPANY

6. Use fingers to squeeze the 2 locking legs of the cover.

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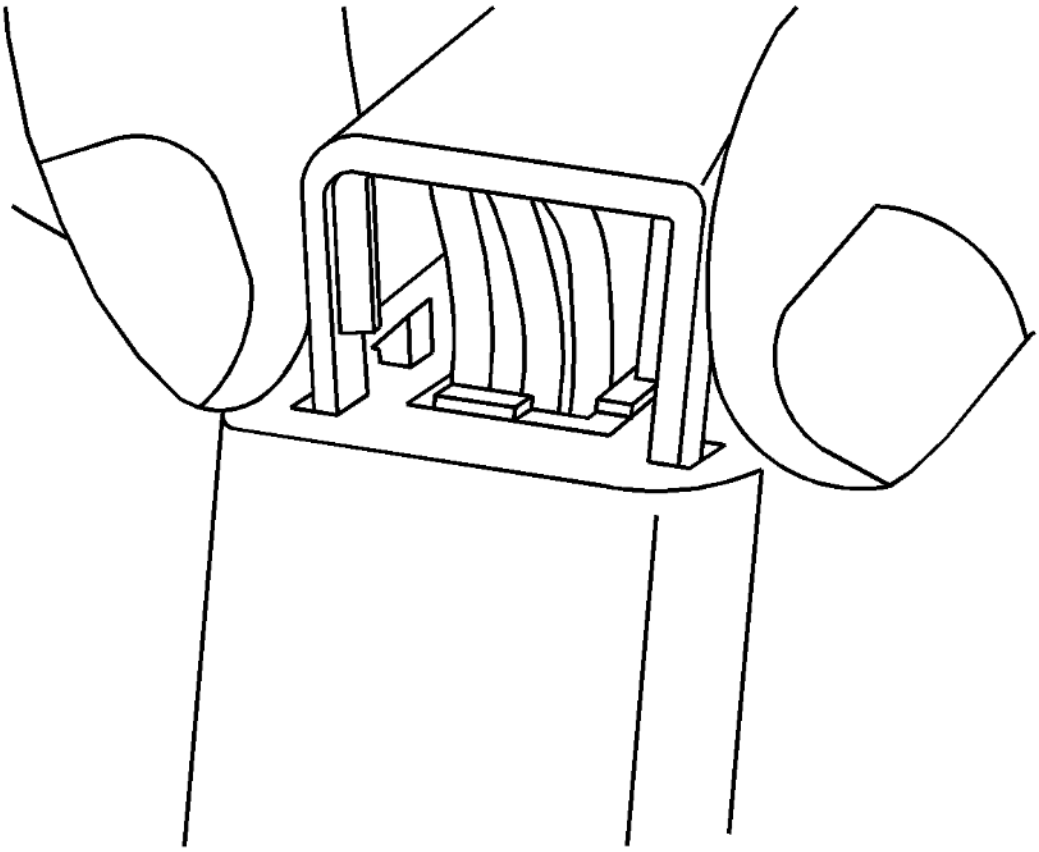

Fig. 60: Unseating Locking Leg
Courtesy of GENERAL MOTORS COMPANY

7. Apply pressure and gently rock the cover until one locking leg is unseated.

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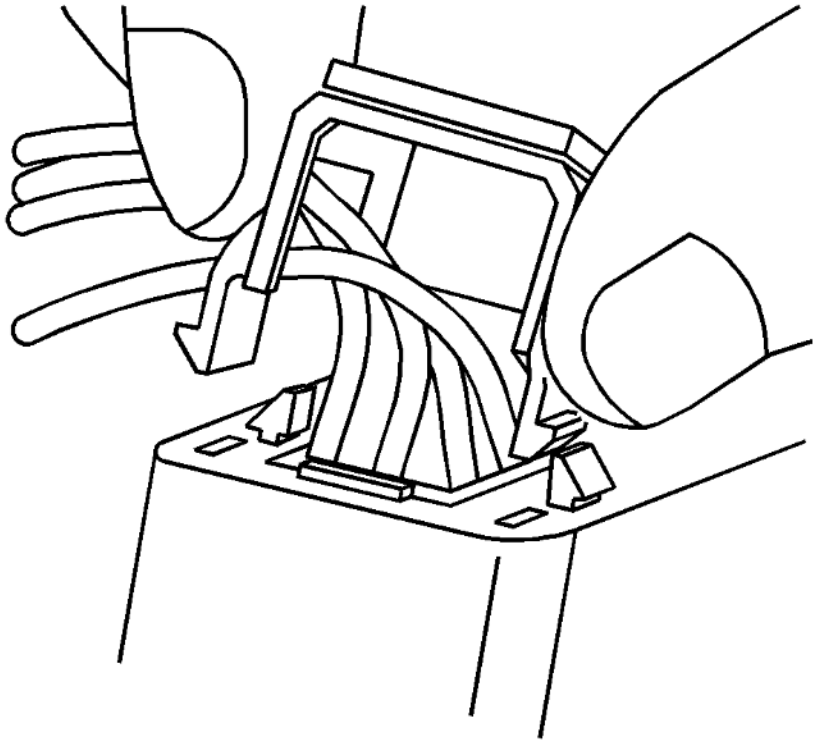

Fig. 61: Removing Cover
Courtesy of GENERAL MOTORS COMPANY

8. Continue to apply pressure and rock the cover until the second locking leg is unseated. Repeat procedure for the other side of the dress cover and remove the cover.

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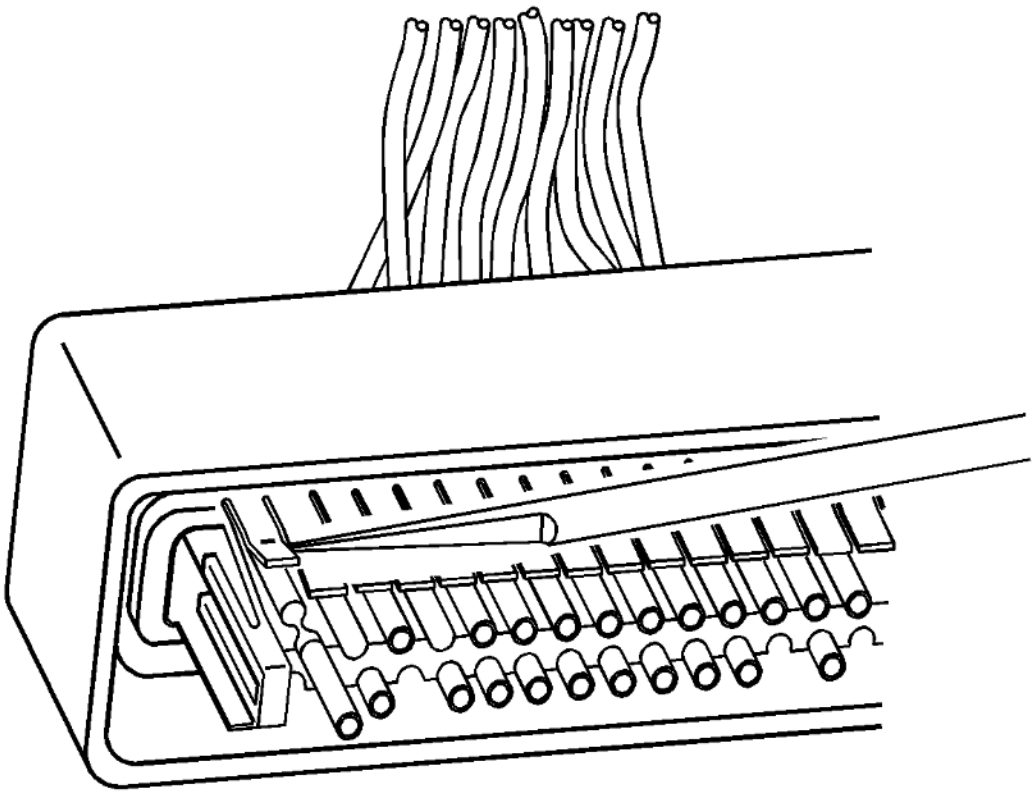

Fig. 62: Identifying Terminal Retaining Tab
Courtesy of GENERAL MOTORS COMPANY

9. Use J-38125-12A to gently lift the terminal retaining tab while gently pulling the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
10. If the terminal is severely bent or damaged, it may be possible on some connectors to push the wire out of the front of the connector instead of pulling it through. This will prevent damage to the internal seals of the connector. Once the terminal is pushed out of the connector, cut the wire as close to the terminal as possible and pull the wire through the connector.
11. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
12. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

Terminal Insertion Procedure

After the terminal is crimped to the wire perform the following procedure in order to replace Micro-Pack 100 terminals.

1. Slide the new terminal into the correct cavity at the back of the connector.
2. Push the terminal into the connector until it locks into place. The new terminal should be even with the

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other terminals. Ensure that the terminal is locked in place by gently pulling on the wire.

3. To assemble the connector, reverse the Terminal Removal Procedure.

DELPHI CONNECTORS (MICRO .64)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-21** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

Follow the steps below in order to remove terminals from Micro .64 connectors.

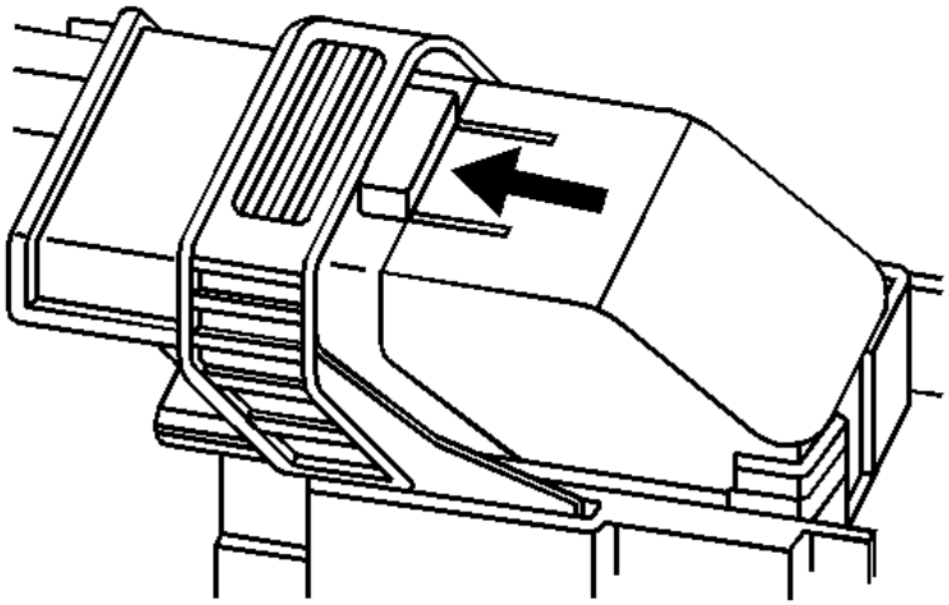

Fig. 63: Identifying Wire Dress Cover Lever Lock
Courtesy of GENERAL MOTORS COMPANY

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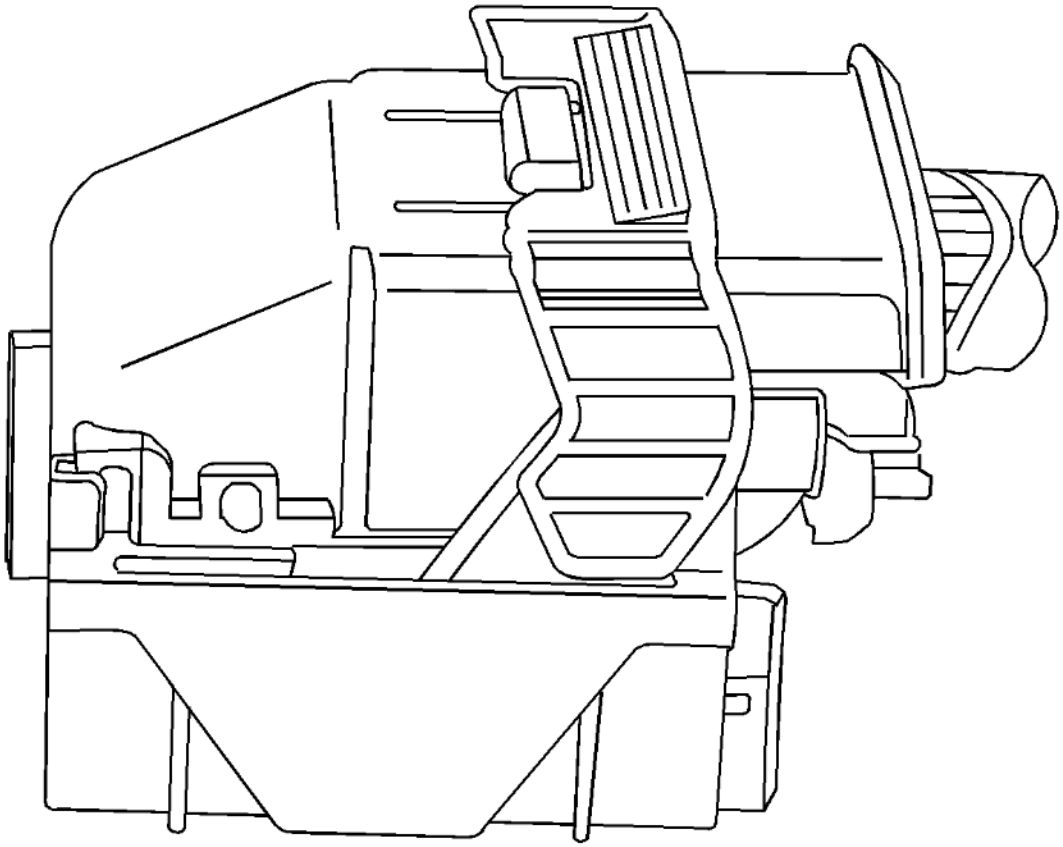

Fig. 64: View Of Typical Micro 64 Connector
Courtesy of GENERAL MOTORS COMPANY

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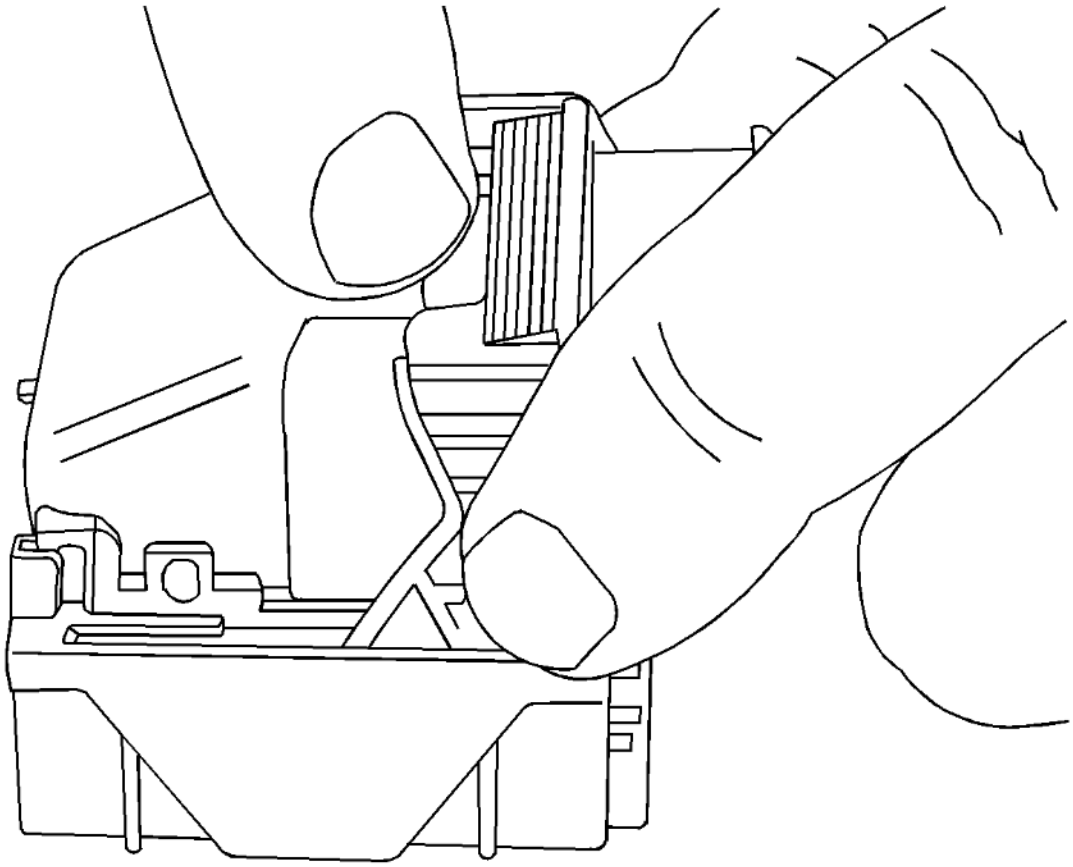

Fig. 65: Depressing Lock And Pulling Lever
Courtesy of GENERAL MOTORS COMPANY

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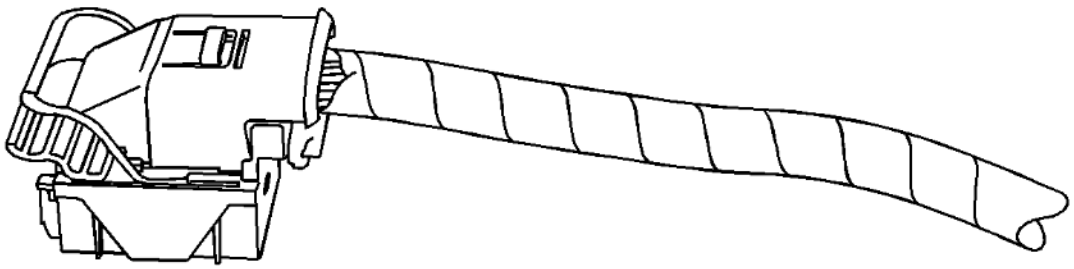

Fig. 66: View Of Connector When Released From Component
Courtesy of GENERAL MOTORS COMPANY

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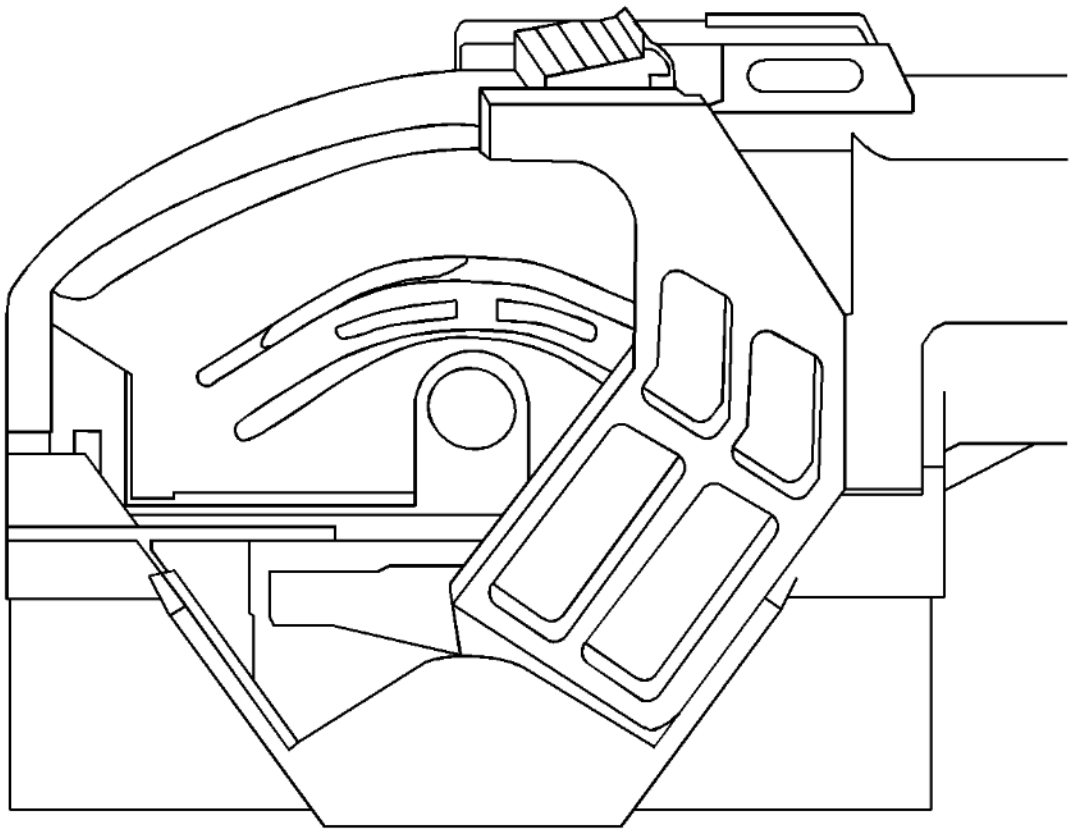

Fig. 67: View Of Another Type Of Micro 64 Connector
Courtesy of GENERAL MOTORS COMPANY

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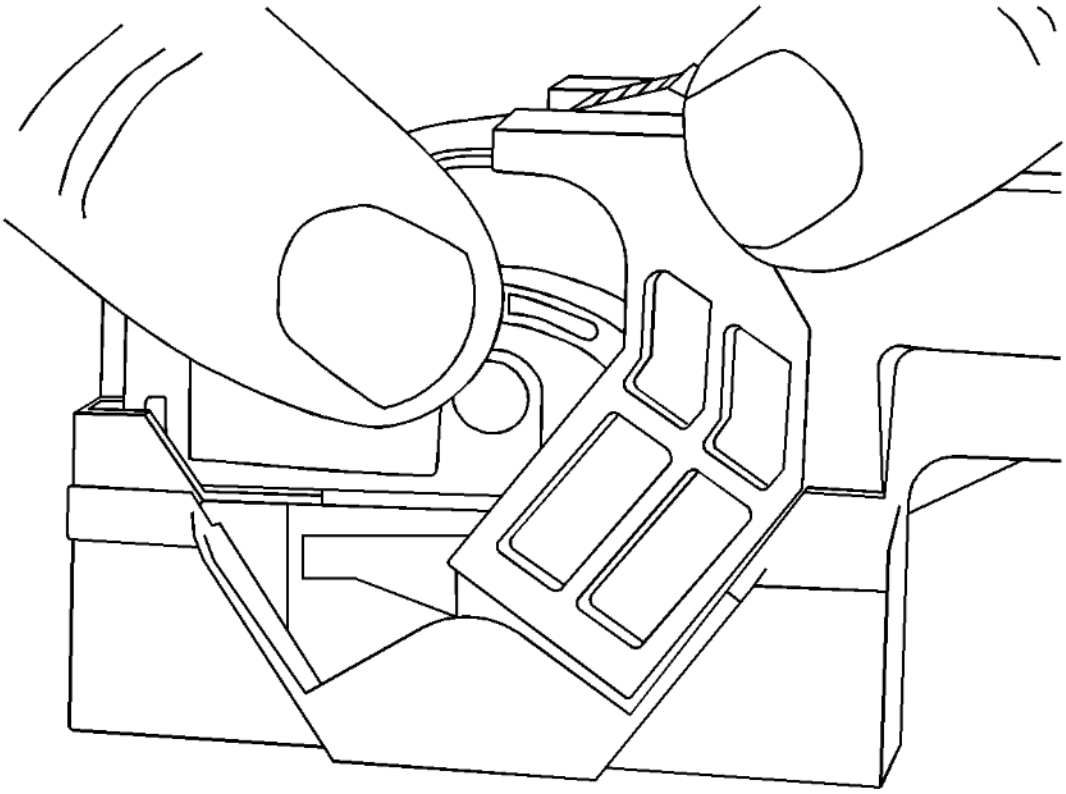

Fig. 68: Locating Locks On Both Sides Of Wiredress Cover
Courtesy of GENERAL MOTORS COMPANY

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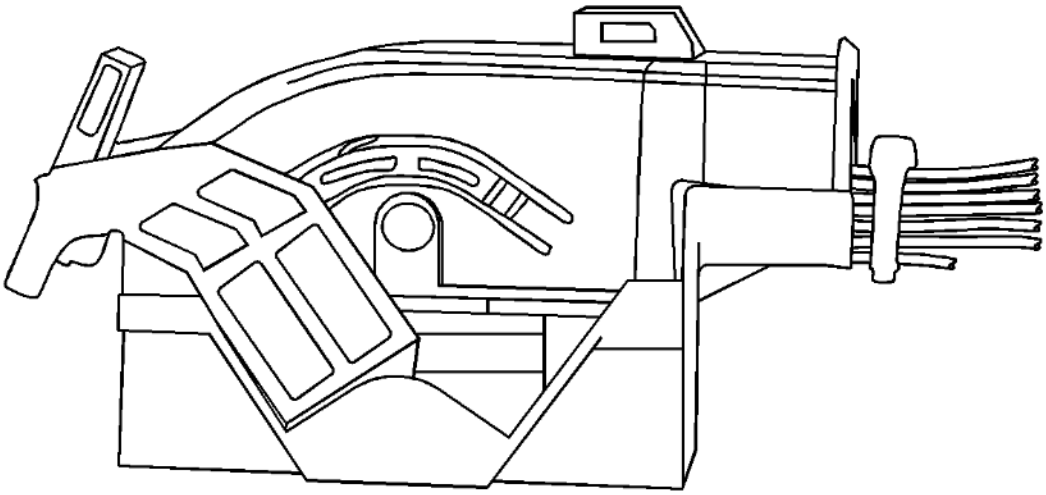

Fig. 69: View Of Connector When Released From Component
Courtesy of GENERAL MOTORS COMPANY

1. Locate the lever lock on the wire dress cover. While depressing the lock, pull the lever over and past the lock. The lever lock may be located on the top or sides of the wire dress cover.

   View of a typical Micro 64 connector.

   Depress the lock and pull the lever over and past the lock.

   View of the connector when released from the component.

   View of another type of Micro 64 connector.

   Depress the locks that are located on both sides of the wire dress cover and pull the lever over and past the locks.

   View of the connector when released from the component.

2. Disconnect the connector from the component.

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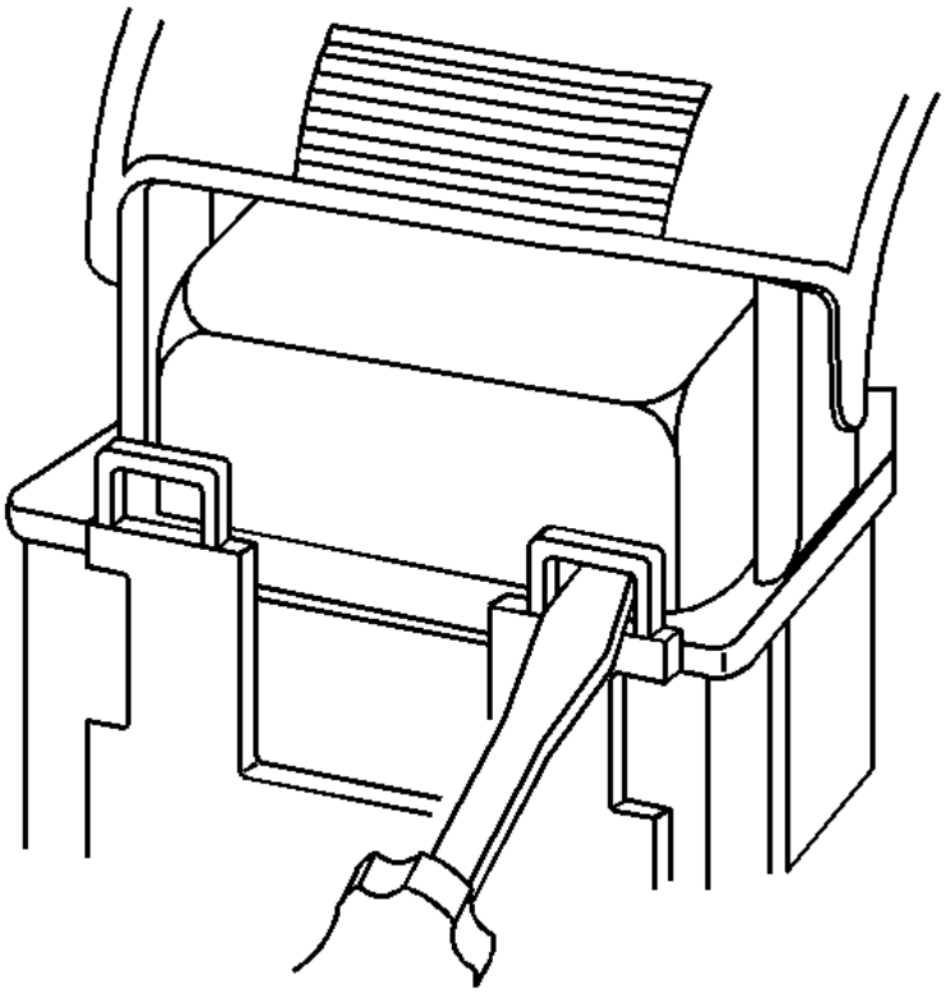

Fig. 70: View Of Releasing Locking Tabs
Courtesy of GENERAL MOTORS COMPANY

3. Locate the dress cover locking tabs at the front of the connector. Using a small flat-blade tool push down on one of the locking tabs and pull the cover up until the dress cover releases. Repeat this procedure for the other locking tab.
4. Once the front 2 locks are unlocked, lift the front of the dress cover and pull it forward.

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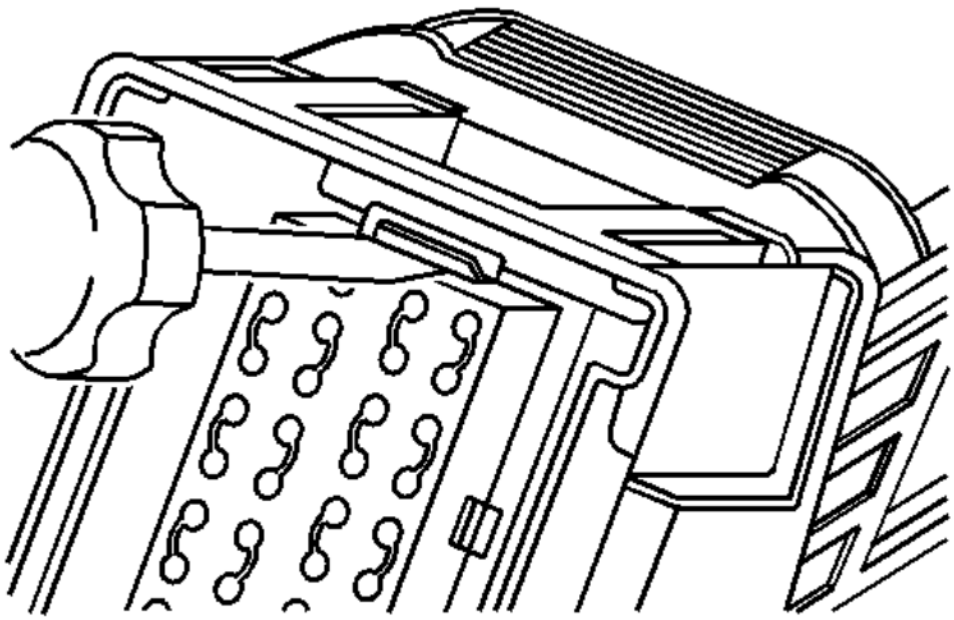

Fig. 71: View Of Removing Terminal Position Assurance
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Always use care when removing a terminal position assurance (TPA) in order to avoid damaging it.**

5. Remove the TPA by inserting a small flat-blade tool into the small slot on the TPA and pushing down until the TPA releases. Gently pry the TPA out of the connector.

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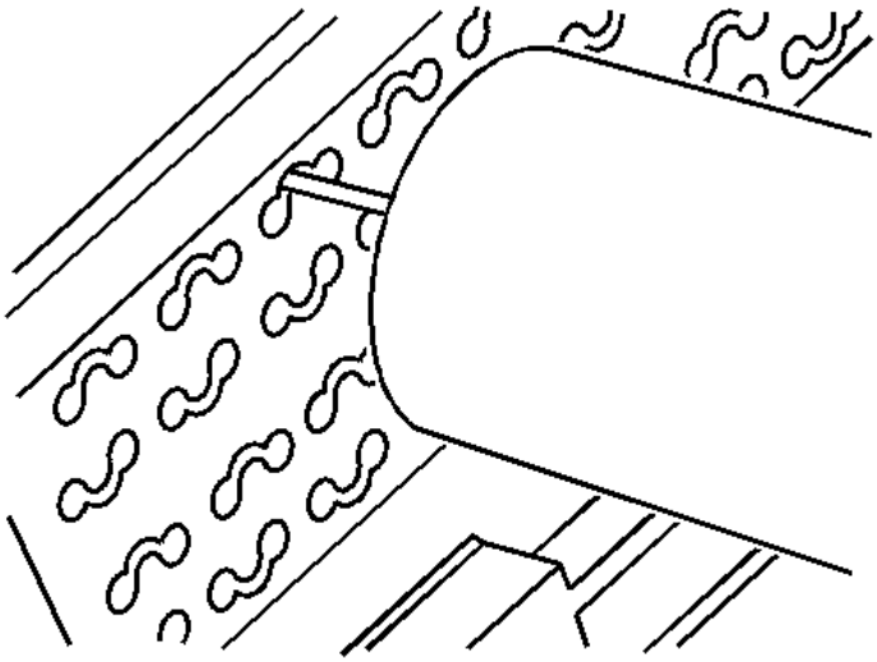

Fig. 72: Identifying Terminal Release Tool
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Be careful not to angle or rock the J-38125-21 tool when inserting it into the connector or the tool may break.**

6. Insert the J-38125-21 tool into the round canal between the terminals cavities at the front of the connector.

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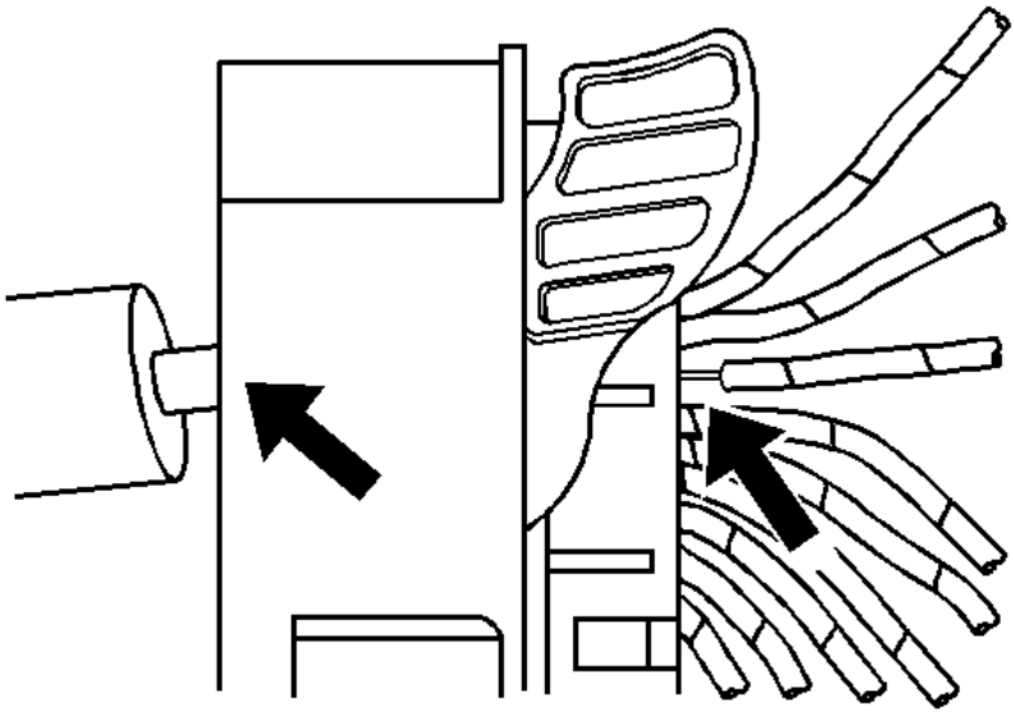

Fig. 73: Removing Wire From Back Of Connector
Courtesy of GENERAL MOTORS COMPANY

7. While holding the removal tool in place, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
8. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
9. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

DELPHI CONNECTORS (12-WAY)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-12A** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

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Follow the steps below in order to remove terminals from the connector.

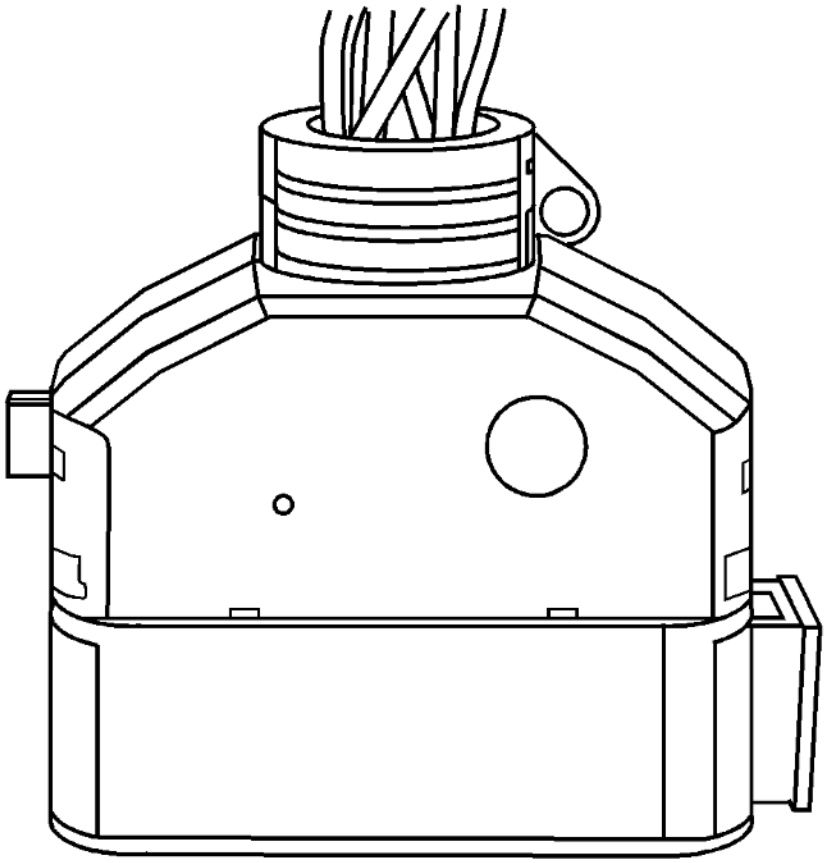

Fig. 74: Identifying Lever Lock
Courtesy of GENERAL MOTORS COMPANY

1. Locate the lever lock on the wire dress cover. Remove the connector position assurance (CPA) and slide the lever lock away from the connector body.
2. Disconnect the connector from the component.

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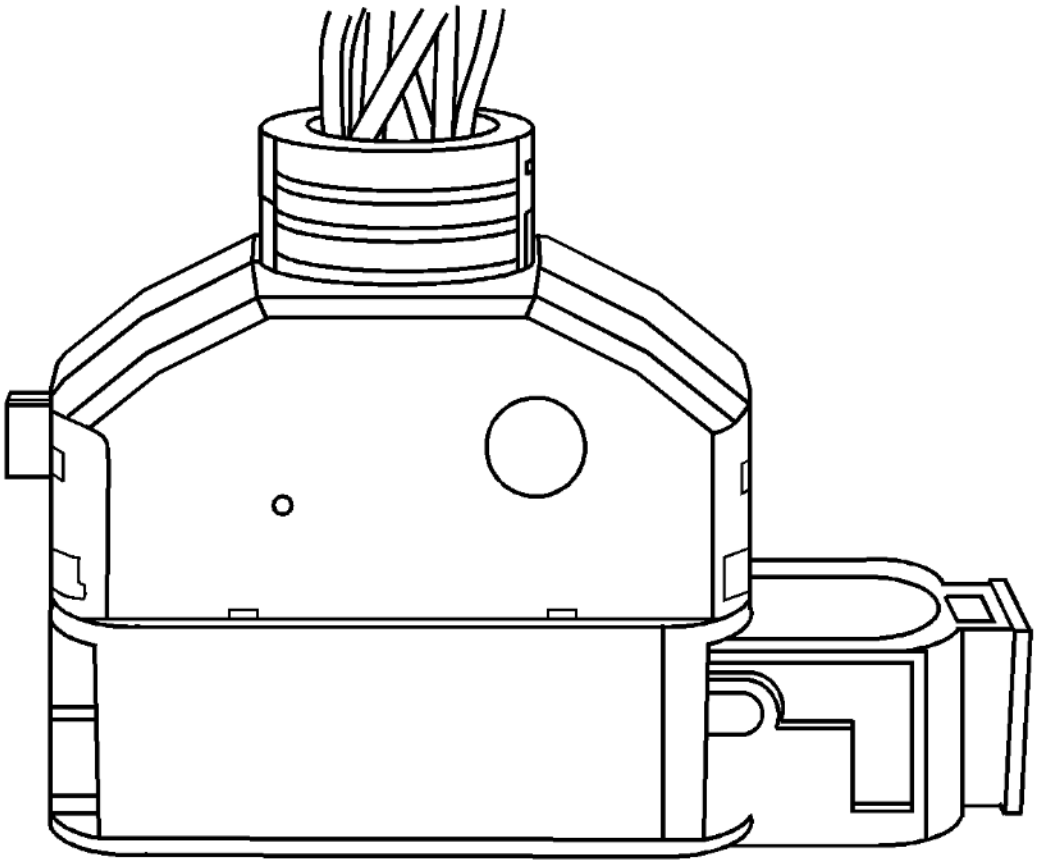

Fig. 75: Identifying Dress Cover Locking Tabs
Courtesy of GENERAL MOTORS COMPANY

3. Locate the dress cover locking tabs on the dress cover of the connector. Using a small flat-blade tool release all of the locking tabs.

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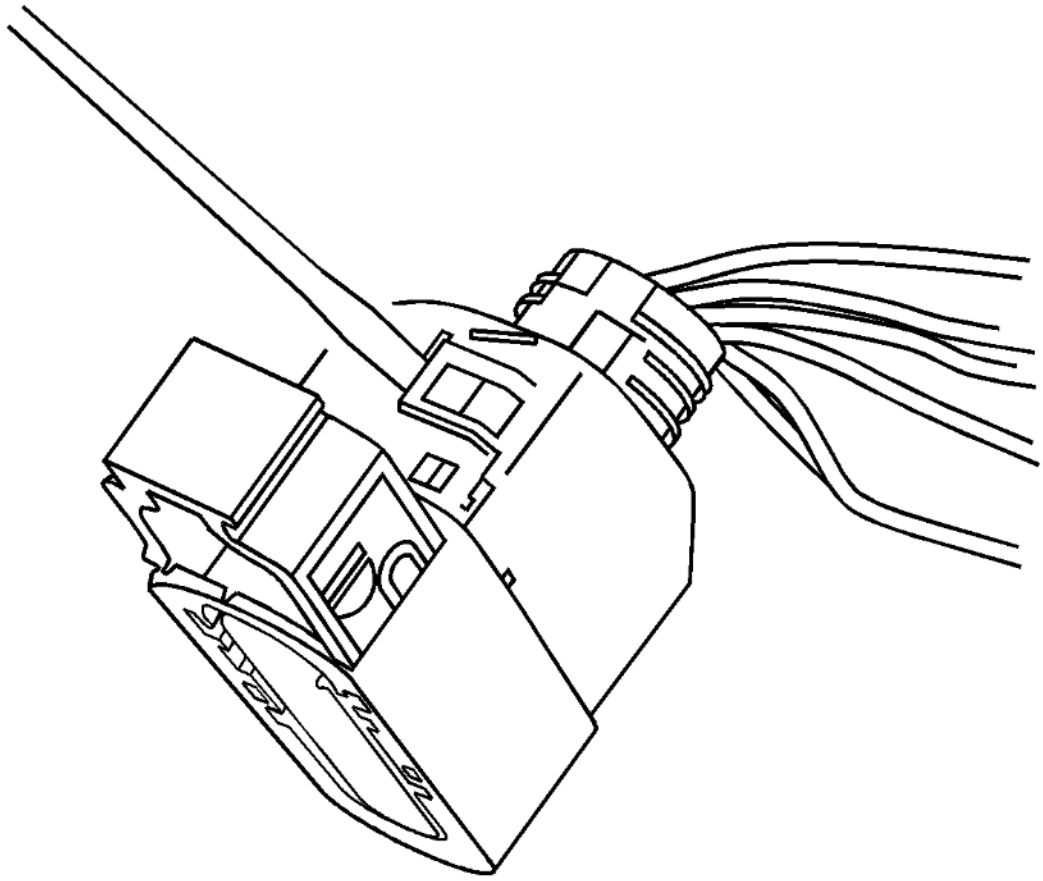

Fig. 76: Identifying Lower Wire Dress Cover Locking Tab
Courtesy of GENERAL MOTORS COMPANY

4. Release the lower wire dress cover locking tab.

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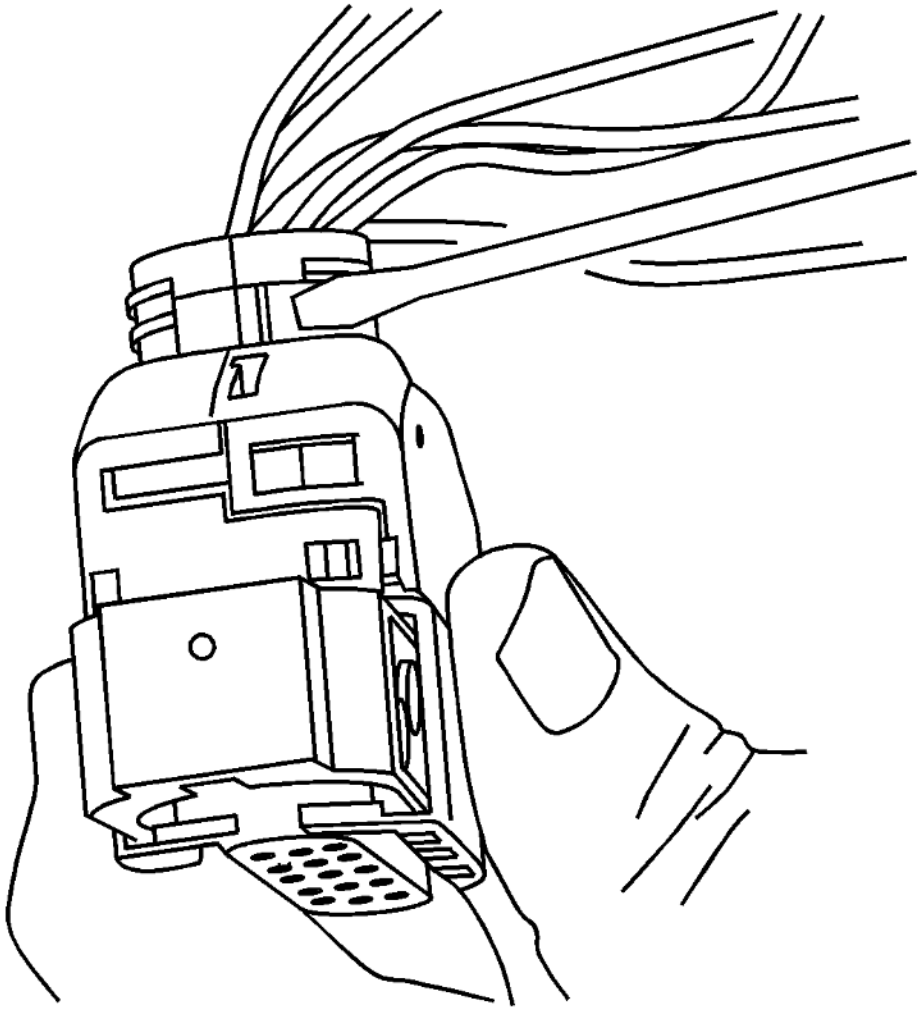

Fig. 77: Identifying Upper Wire Dress Cover Locking Tab
Courtesy of GENERAL MOTORS COMPANY

5. Release the upper wire dress cover locking tab.
6. Once the locks are unlocked, lift the dress cover off.

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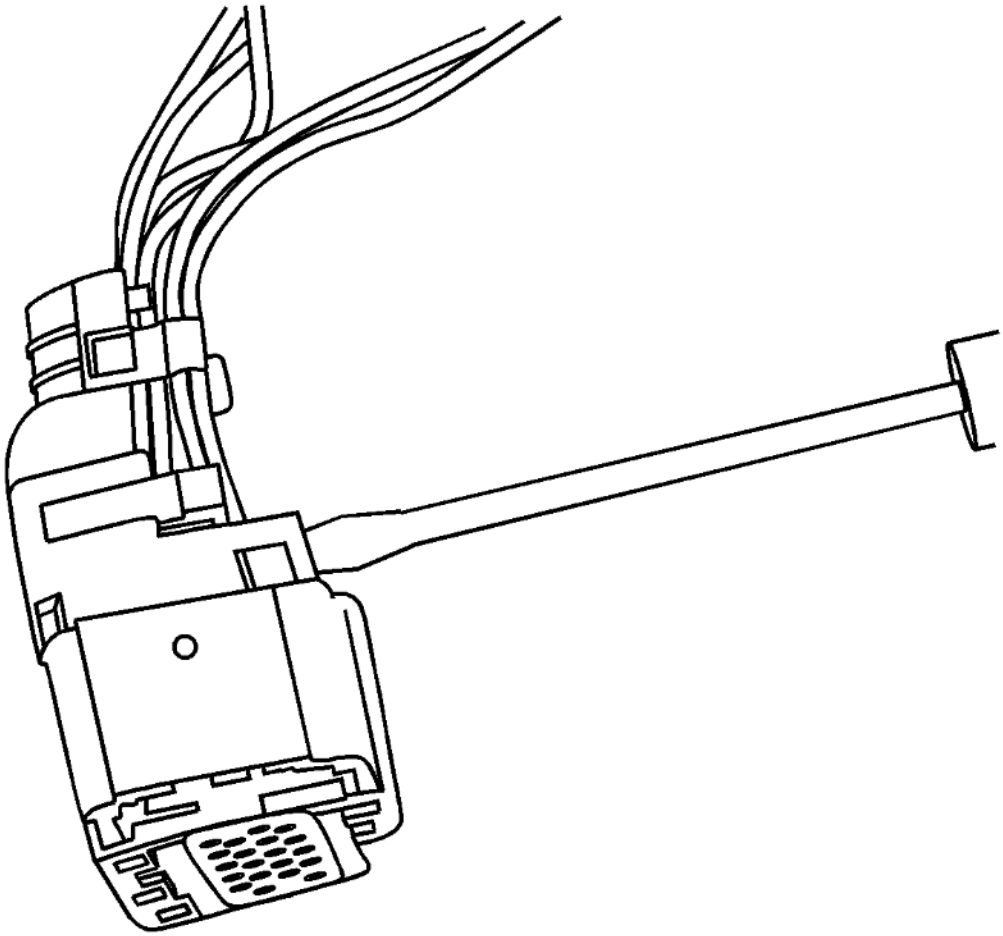

Fig. 78: View Of TPA Being Pried Out Of Connector
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Always use care when removing a terminal position assurance (TPA) in order to avoid damaging it.**

7. Remove the TPA by inserting a small flat-blade tool into the locking tabs on both sides of the TPA . Gently pry the TPA out of the connector.

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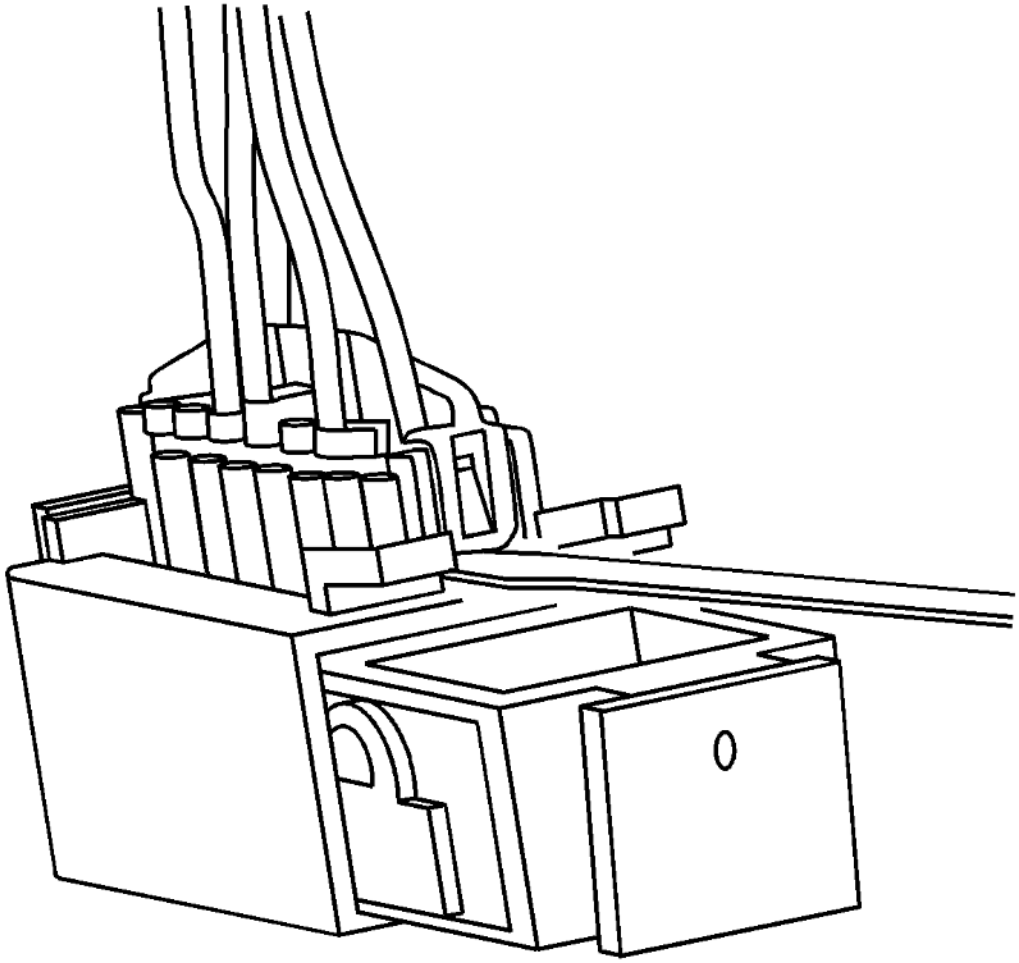

Fig. 79: Removing Nose Piece
Courtesy of GENERAL MOTORS COMPANY

8. Remove the nose piece by inserting a small flat-blade tool into the locking tabs on both sides of the nose piece. Gently pry the nose piece out of the connector.

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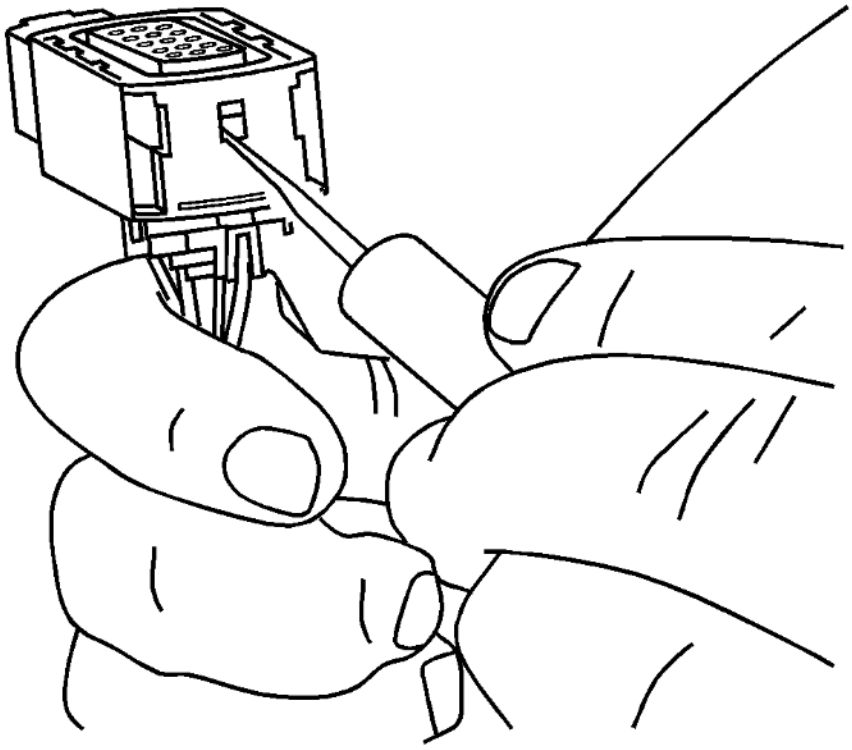

Fig. 80: Inserting Special Tool Into Terminal Release Cavity
Courtesy of GENERAL MOTORS COMPANY

9. Insert the J-38125-12A tool to release the terminals by inserting the tool into the terminal release cavity.

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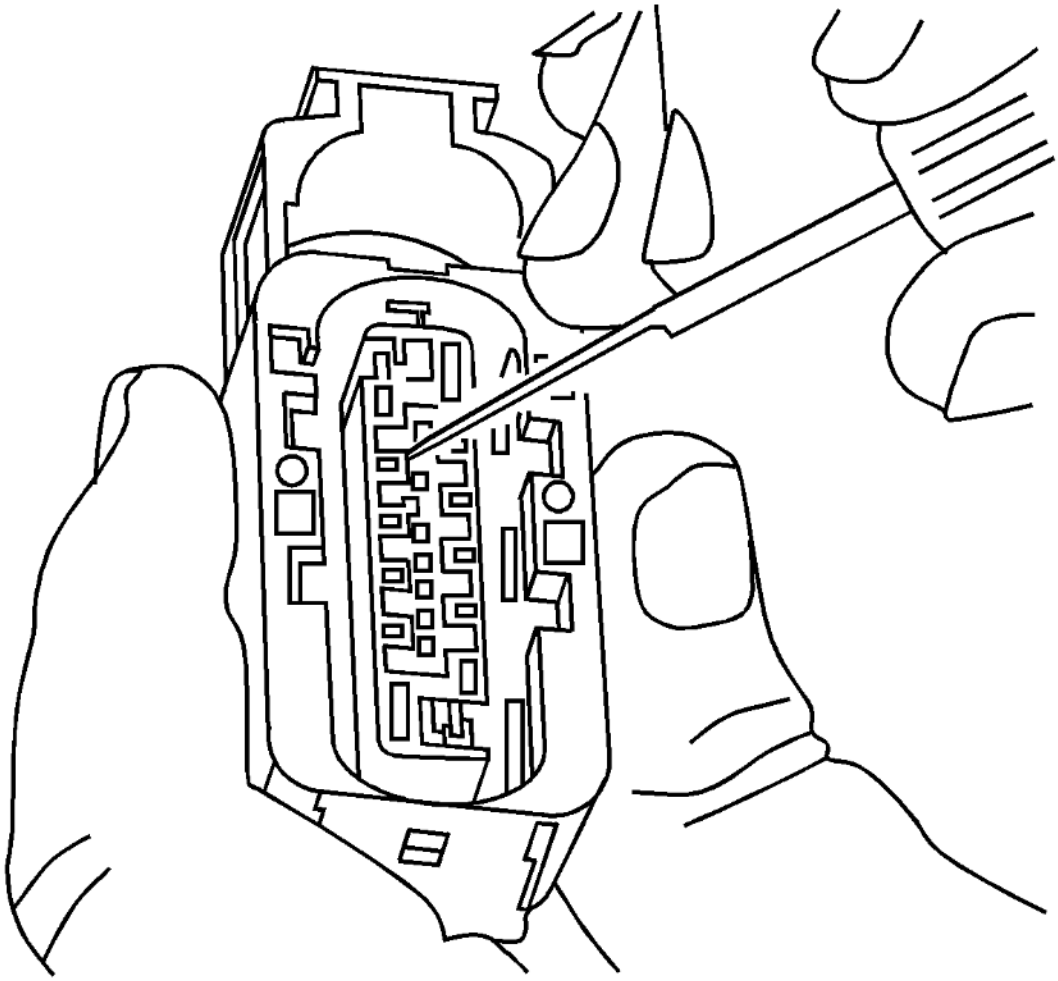

Fig. 81: Pulling Wire Out Of Back Of Connector
Courtesy of GENERAL MOTORS COMPANY

10. While holding the removal tool in place, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
11. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
12. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

DELPHI CONNECTORS (STEERING GEAR)

Removal Procedure

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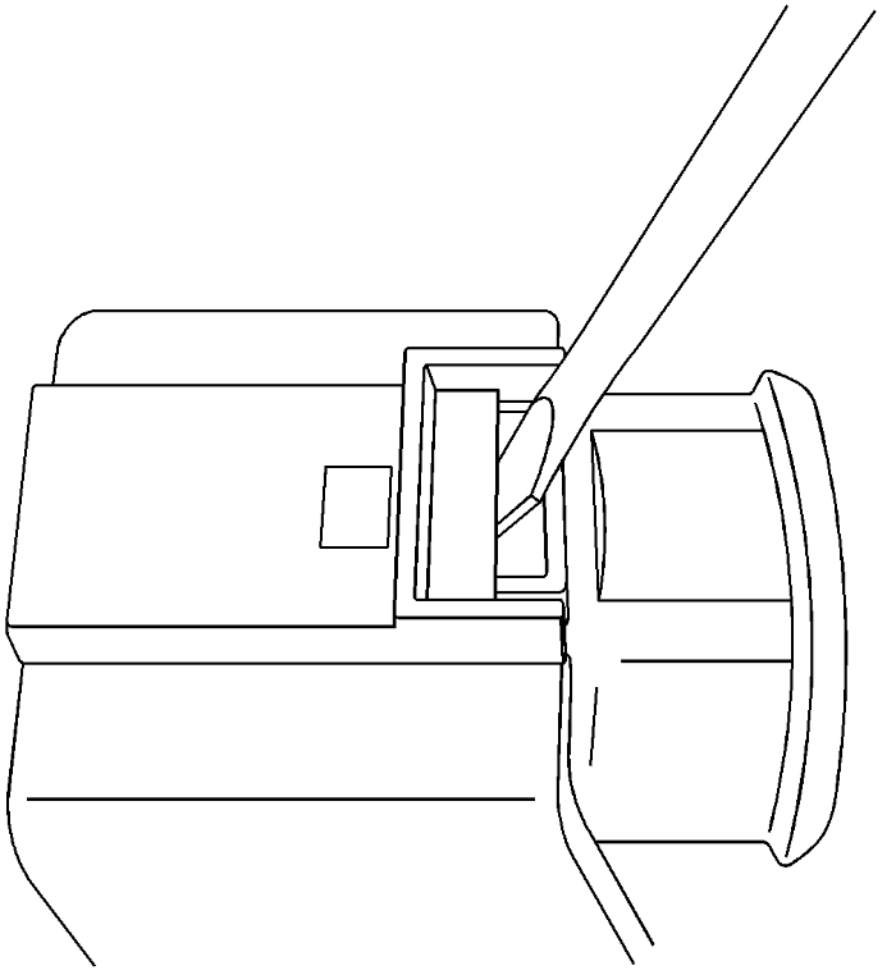

Fig. 82: Releasing Locking Tab On Connector
Courtesy of GENERAL MOTORS COMPANY

1. Use a small flat-bladed tool to release the locking tab on the connector.

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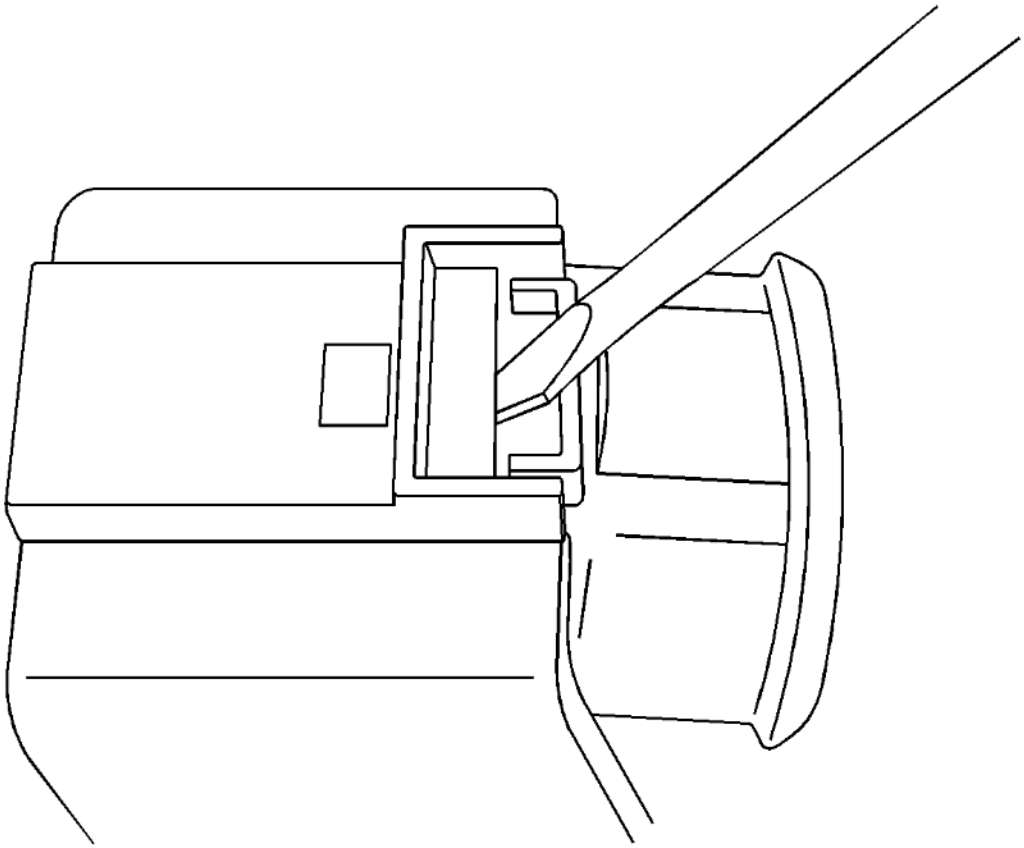

Fig. 83: Releasing Connector
Courtesy of GENERAL MOTORS COMPANY

2. Push down the locking tab to release the connector. The small flat-bladed tool may need to be pushed down and angled back slightly to depress the locking tab. Pull on the connector body while releasing the locking tab to disconnect the connector.

FCI CONNECTORS (LEVER LOCK)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-556** Terminal Release Tool
- **J-38125-560** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

Follow the steps below in order to remove terminals from the connector.

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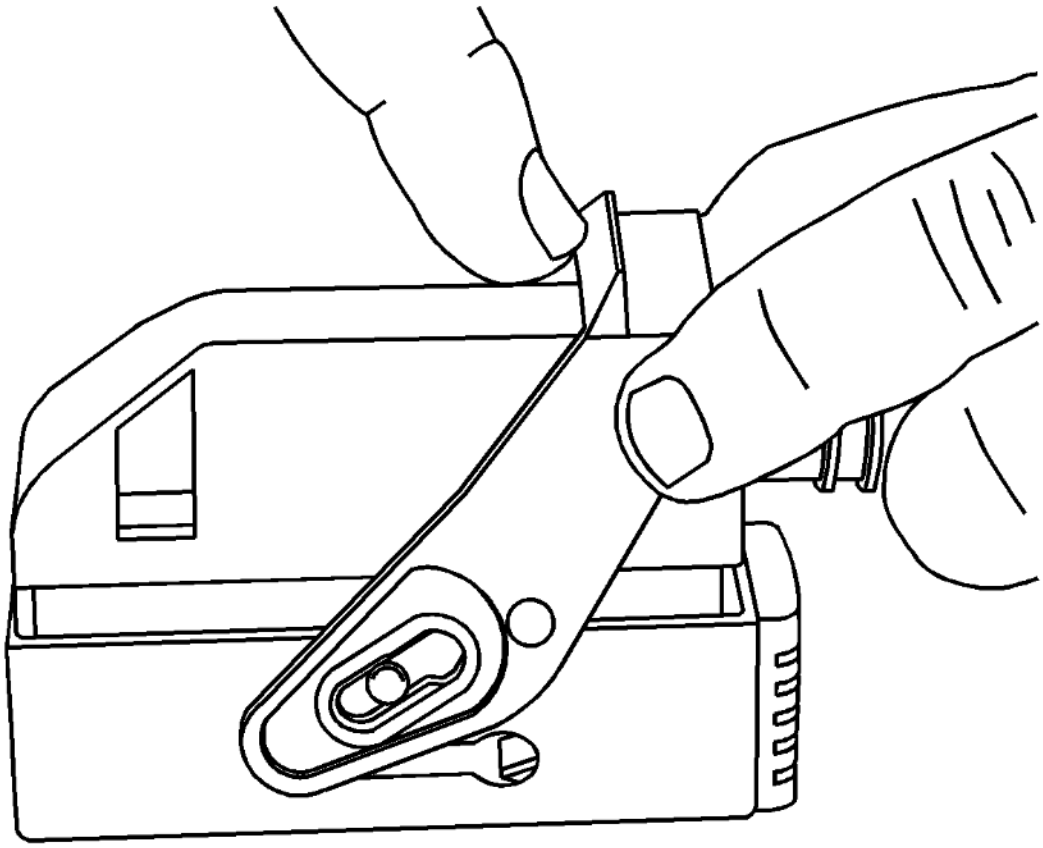

Fig. 84: Identifying Release Tab
Courtesy of GENERAL MOTORS COMPANY

1. Slide the lever lock forward while pressing down on the lever lock release tab.
2. The release tab is located on the top of the wiredress cover.

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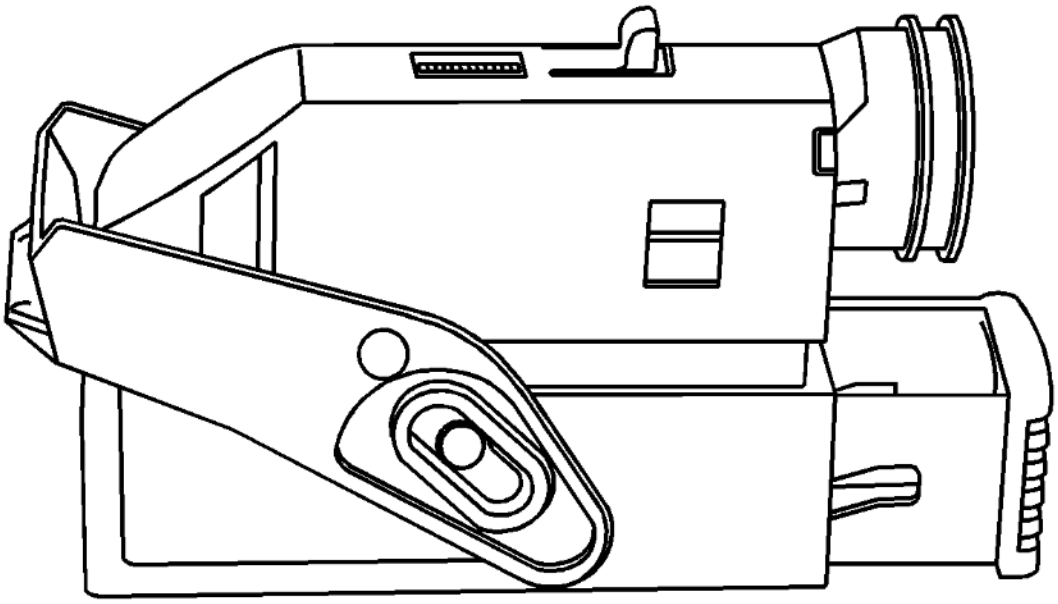

Fig. 85: View Of Connector In Released Position
Courtesy of GENERAL MOTORS COMPANY

3. View of connector in released position.
4. Disconnect the connector from the component.
5. Locate the dress cover locking tabs at the corners of the dress cover. Use a small flat-blade tool to release the locking tabs and remove the dress cover.

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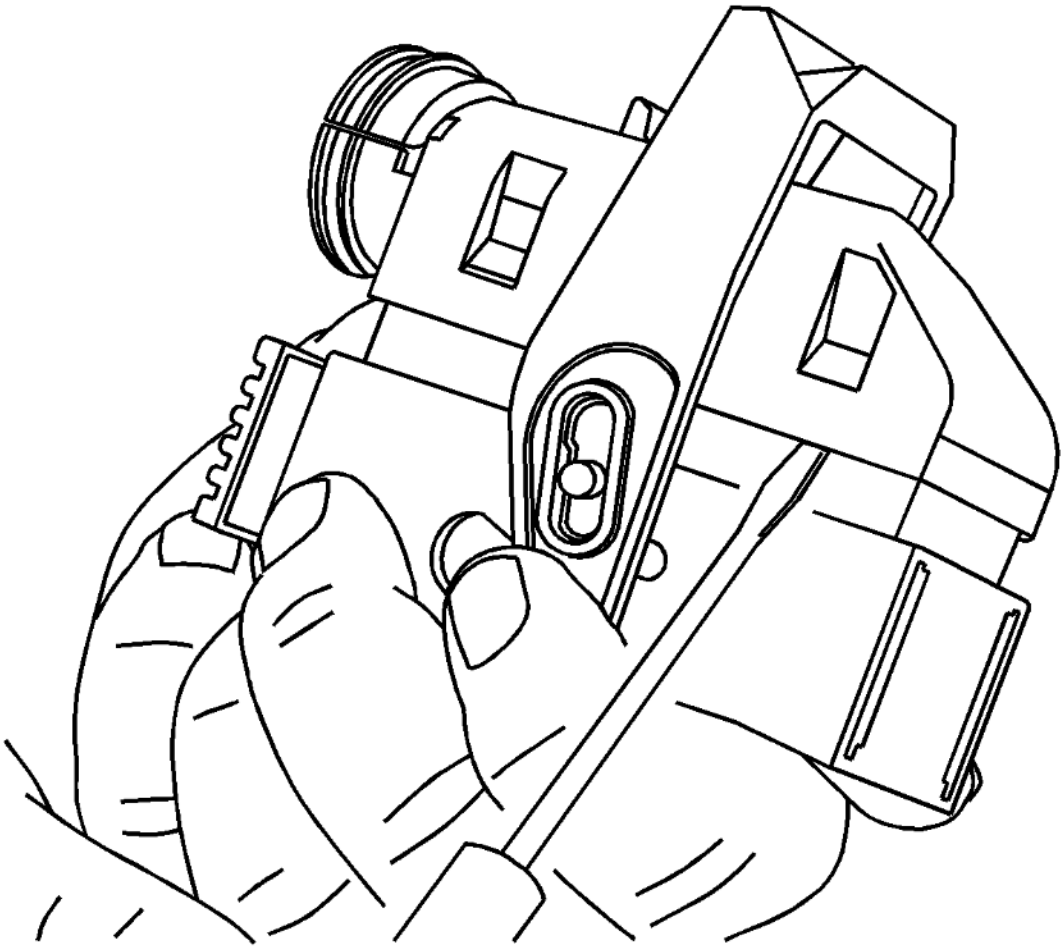

Fig. 86: View Of Sliding Terminal Position Assurance (TPA) Up One Notch
Courtesy of GENERAL MOTORS COMPANY

6. Use a small flat-blade tool to slide the terminal position assurance (TPA) up one notch on both ends of the connector. The TPA is located underneath the wire dress cover.

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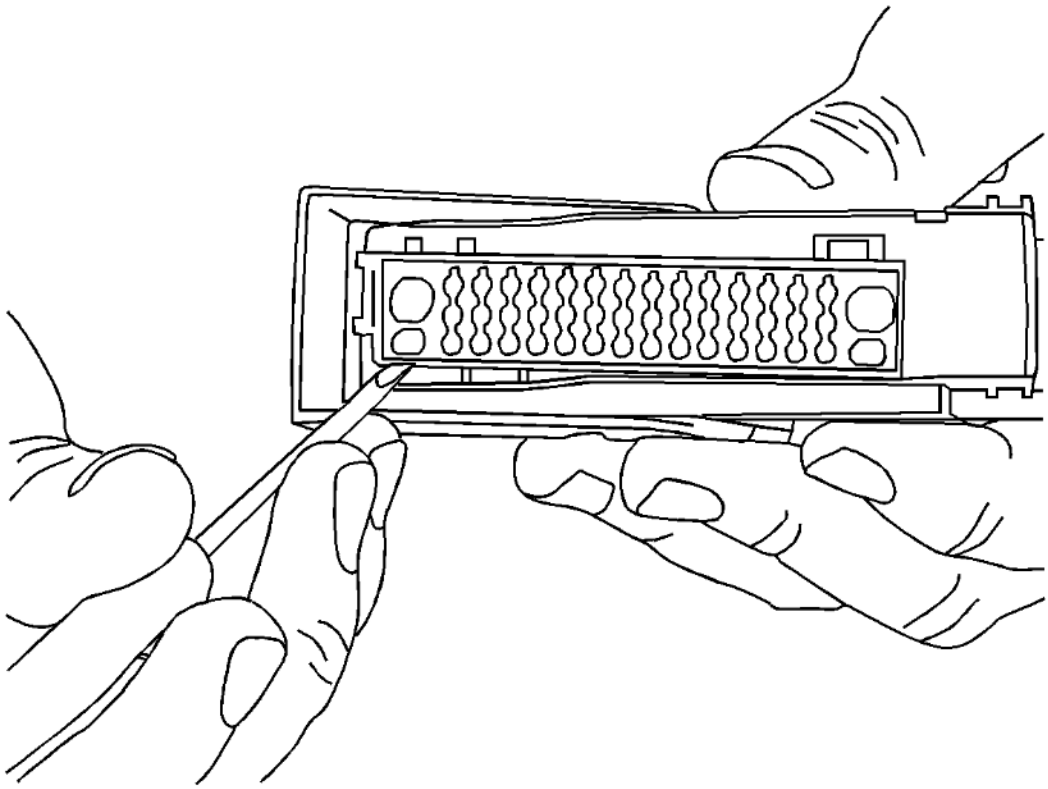

Fig. 87: View Of Releasing Terminals
Courtesy of GENERAL MOTORS COMPANY

7. For the larger terminals insert the J-38125-556 tool to release the terminals by inserting the tool into the terminal release cavity. For the smaller terminals insert the J-38125-560 tool to release the terminals by inserting the tool into the terminal release cavity.

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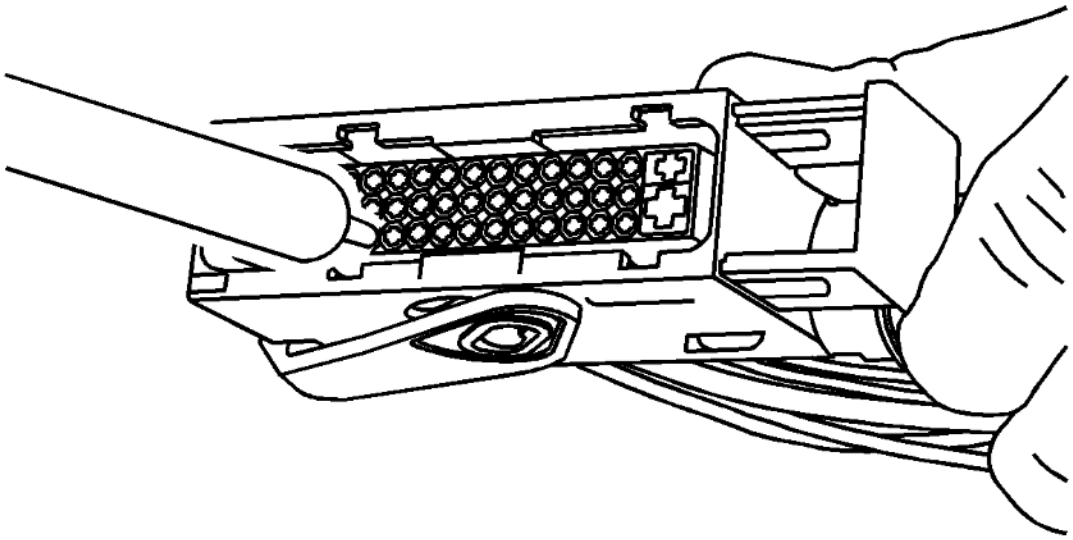

Fig. 88: View Of Wire Being Pulled Out Of Back Of Connector While Holding Removal Tool In Place
Courtesy of GENERAL MOTORS COMPANY

8. While holding the removal tool in place, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
9. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
10. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

FCI CONNECTORS (SIR)

Removal Procedure

NOTE: **The orange or yellow connector position assurance (CPA) must be released first to disconnect or to connect the connector.**

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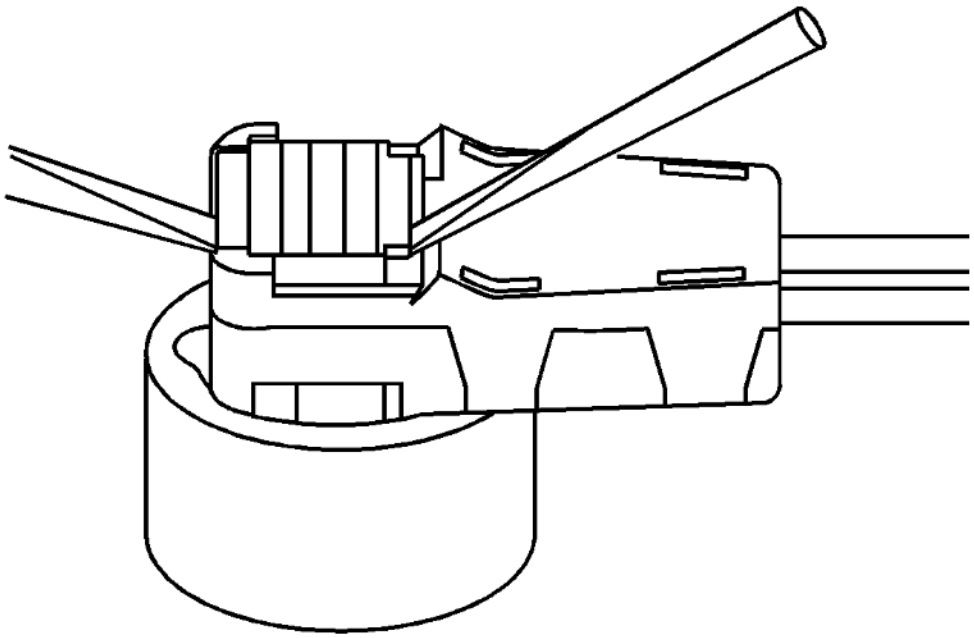

Fig. 89: Lifting Orange CPA
Courtesy of GENERAL MOTORS COMPANY

1. Lift the orange or yellow CPA vertically (avoid lifting on an angle to the connector) approximately 4 mm to release the connector. Use a small flat-bladed tool to help release the CPA. The CPA may also be released manually without any tools.

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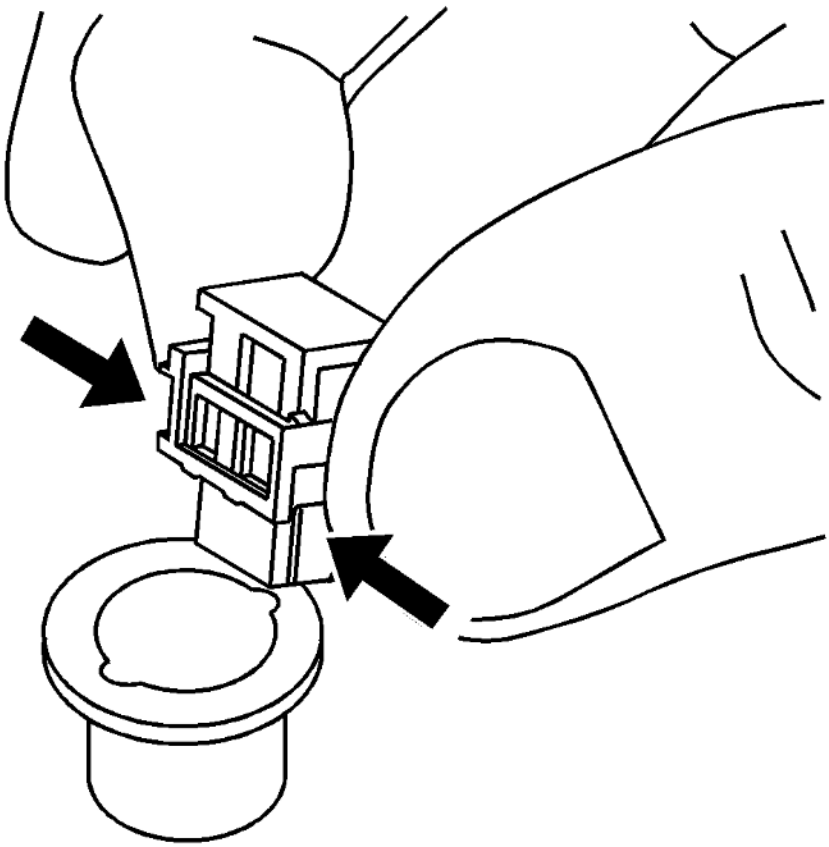

Fig. 90: Grabbing Connector On Both Sides
Courtesy of GENERAL MOTORS COMPANY

2. Grab the connector on both sides and lift vertically to disconnect the connector.

Installation Procedure

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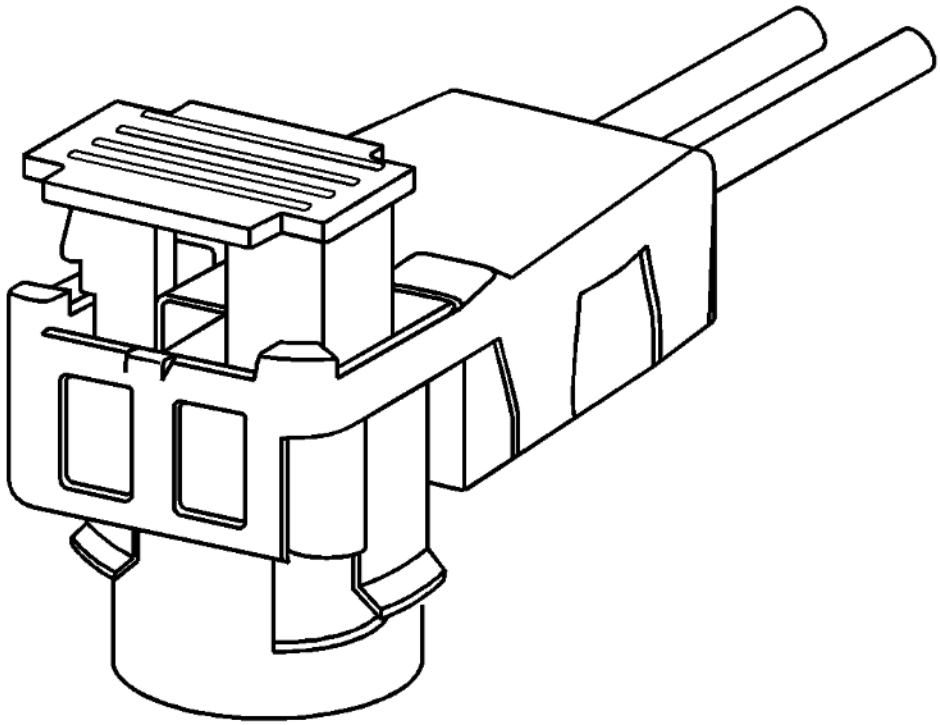

Fig. 91: Lifting Orange CPA
Courtesy of GENERAL MOTORS COMPANY

1. The CPA should be approximately 4 mm above the yellow cover before installing the connector. If not, use a small flat-bladed tool to help release the CPA. The CPA may also be released manually without any tools.

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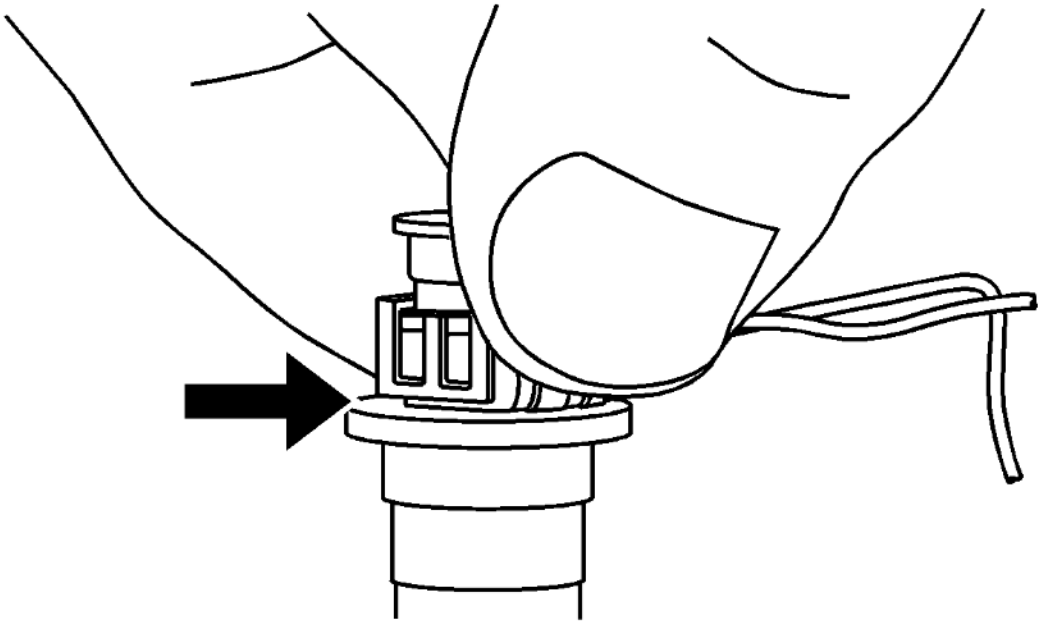

Fig. 92: Seating Connector Sub-Assembly
Courtesy of GENERAL MOTORS COMPANY

2. Line up the connector key tabs with the initiator key slots. Grab the connector on both sides and push down into the initiator connector sub assembly until fully seated.

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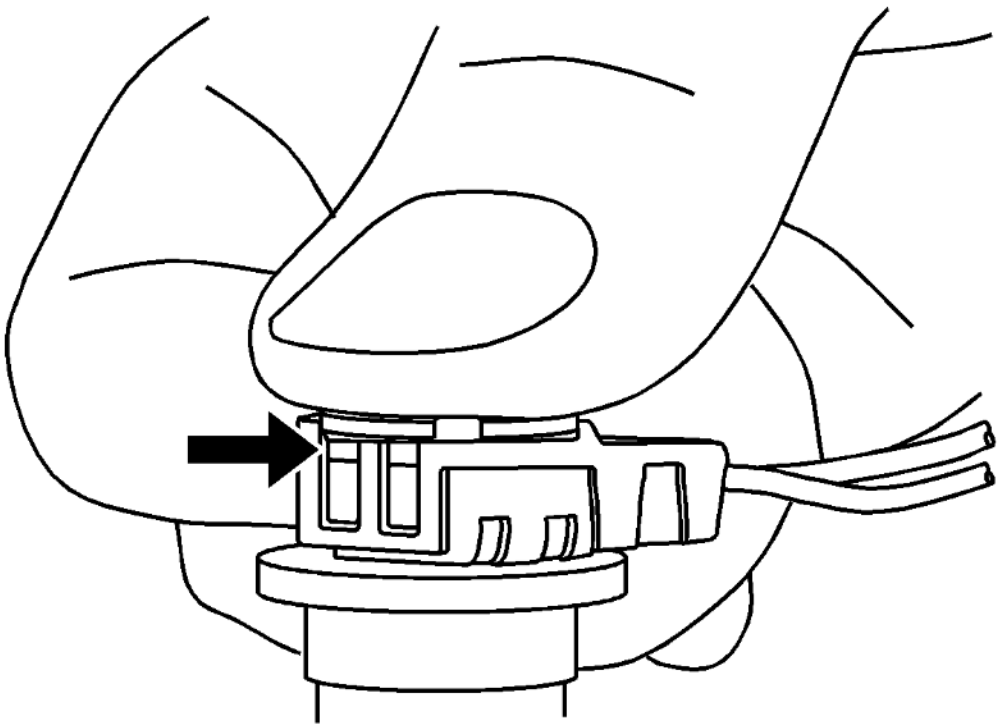

Fig. 93: Pushing CPA Down
Courtesy of GENERAL MOTORS COMPANY

3. After the connector is fully seated, push the CPA down with your thumb until the CPA is touching the yellow cover on the connector.
4. After the CPA is seated, lightly pull on the connector, it should not pull off if the connector and CPA are properly engaged.

FEP CONNECTORS (STEERING GEAR)

Removal Procedure

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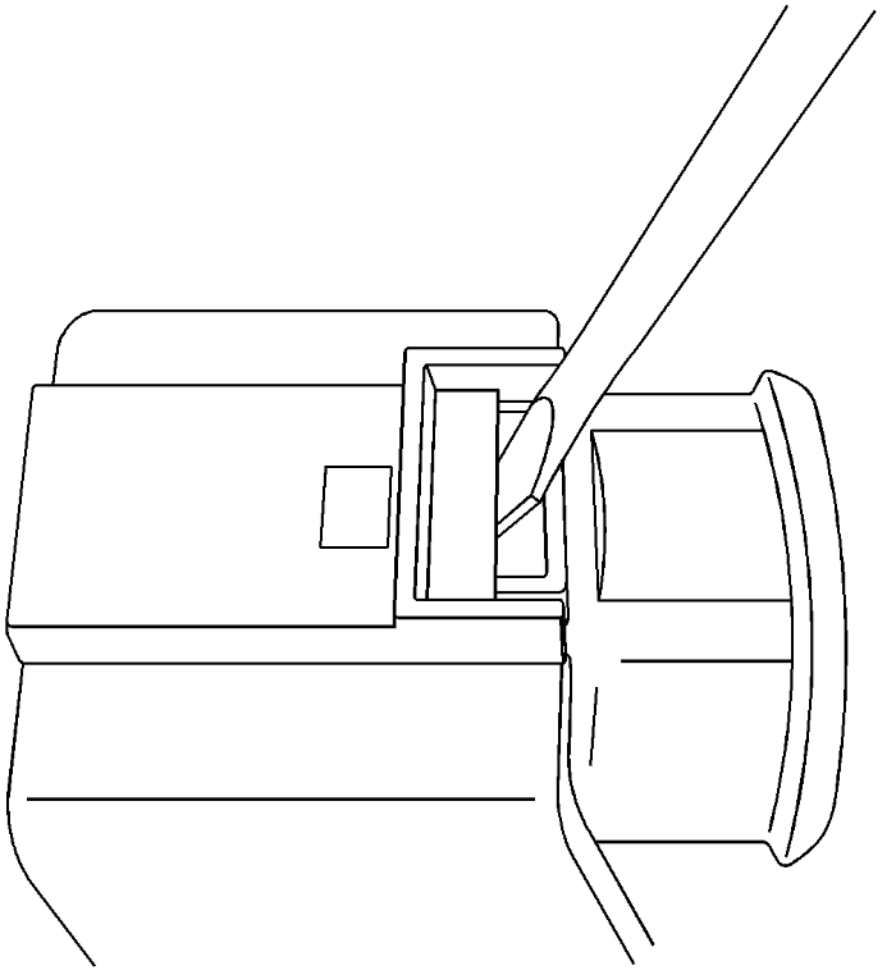

Fig. 94: Releasing Locking Tab On Connector
Courtesy of GENERAL MOTORS COMPANY

1. Use a flat-bladed tool to release the locking tab on the connector.

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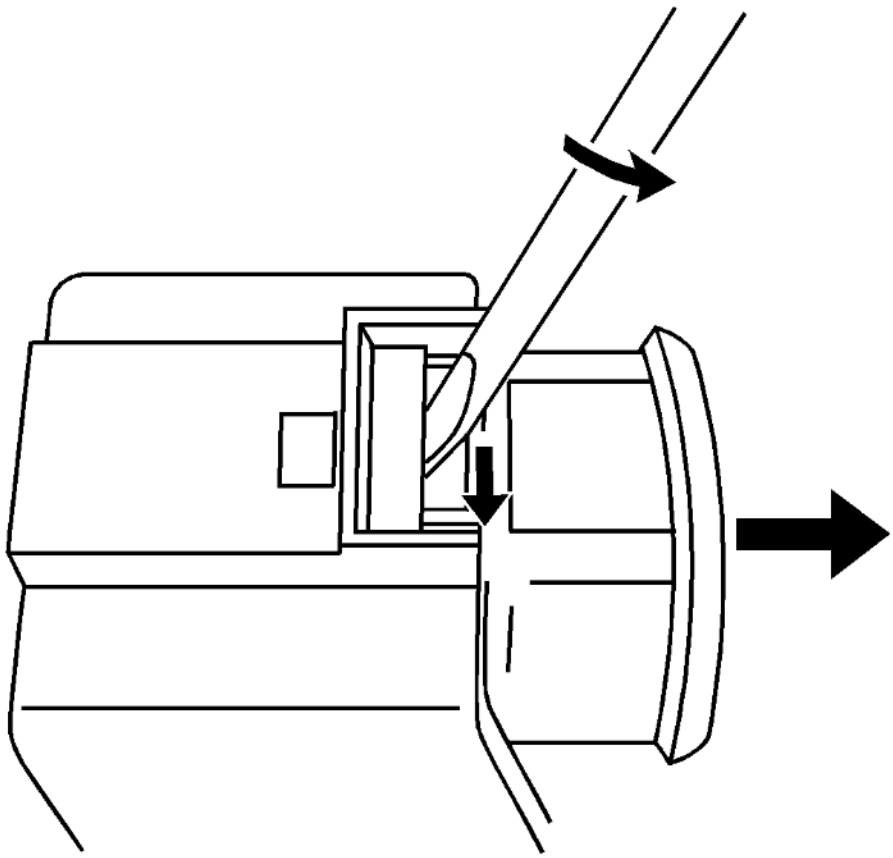

Fig. 95: Twisting Flat-Bladed Tool To Push Top Of Locking Tab Inward
Courtesy of GENERAL MOTORS COMPANY

2. Option 1: Twist the flat-bladed tool to push the top of the locking tab inward while pulling the connector body out.

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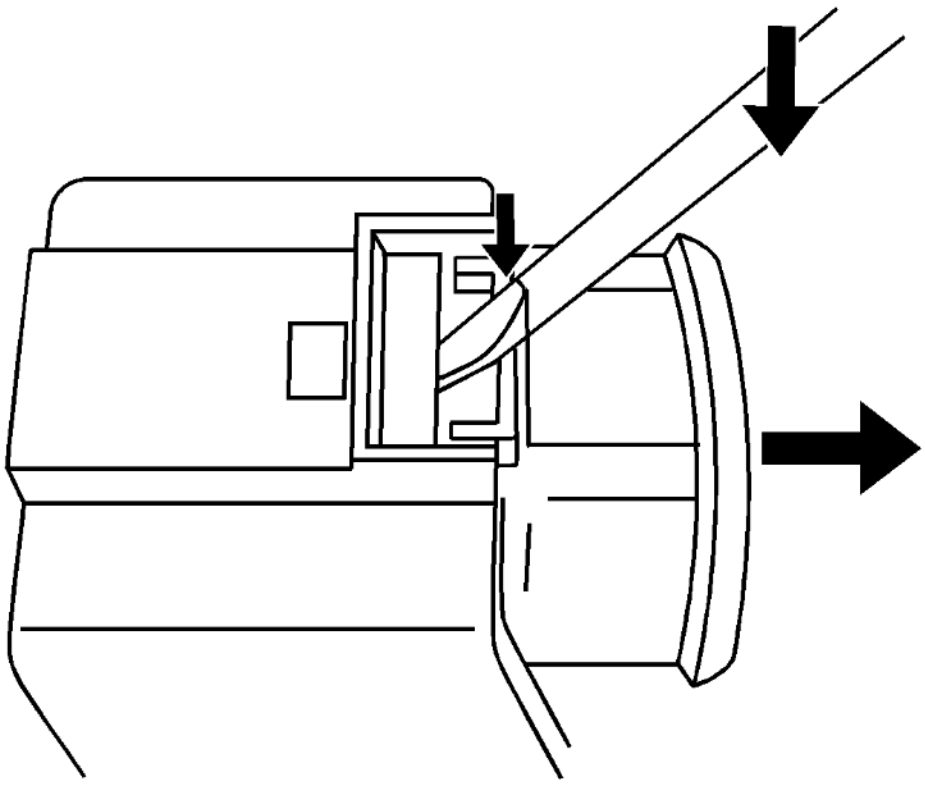

Fig. 96: Using Flat-Bladed Tool To Depress Locking Tab
Courtesy of GENERAL MOTORS COMPANY

3. Option 2: Pry using the flat-bladed tool to depress the locking tab while pulling the connector body out.

JST CONNECTORS

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-553** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

The JST connector family consists of seven unique connector housings differentiated by color and keying. This connector family is designed to use both 0.64 and 2.8 sized terminals.

JST BCM Connector

GM Service Part #	Color

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GM Service Part #	Color
88988806	Gray
88988837	Brown
88988838	Lt Green
88988839	Natural
88988840	Lt Blue
88988841	Black
88988842	Pink

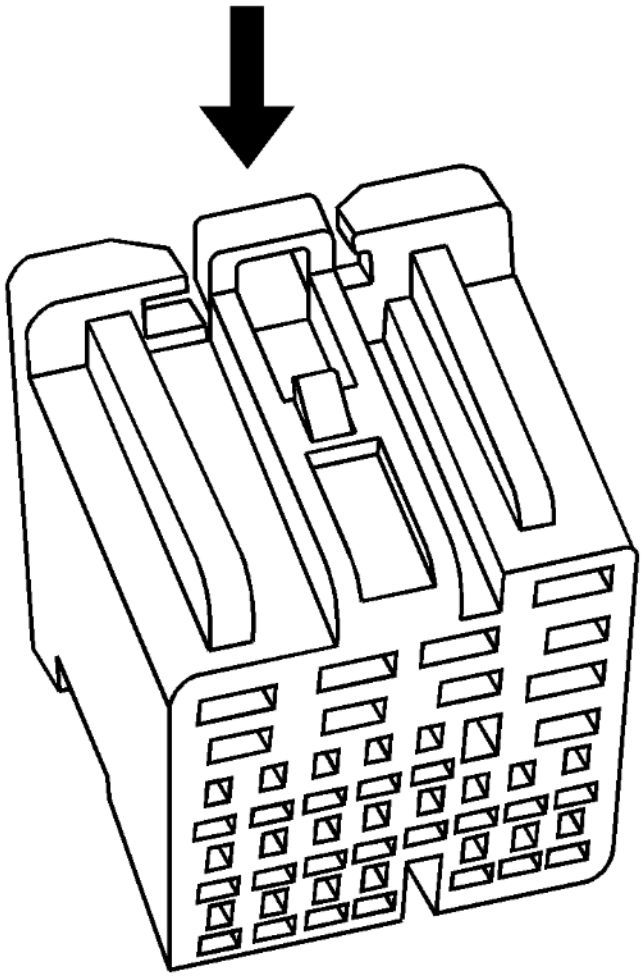

Fig. 97: Identifying Terminal Position Assurance (TPA)
Courtesy of GENERAL MOTORS COMPANY

1. While depressing the lock, remove the connector from the component.

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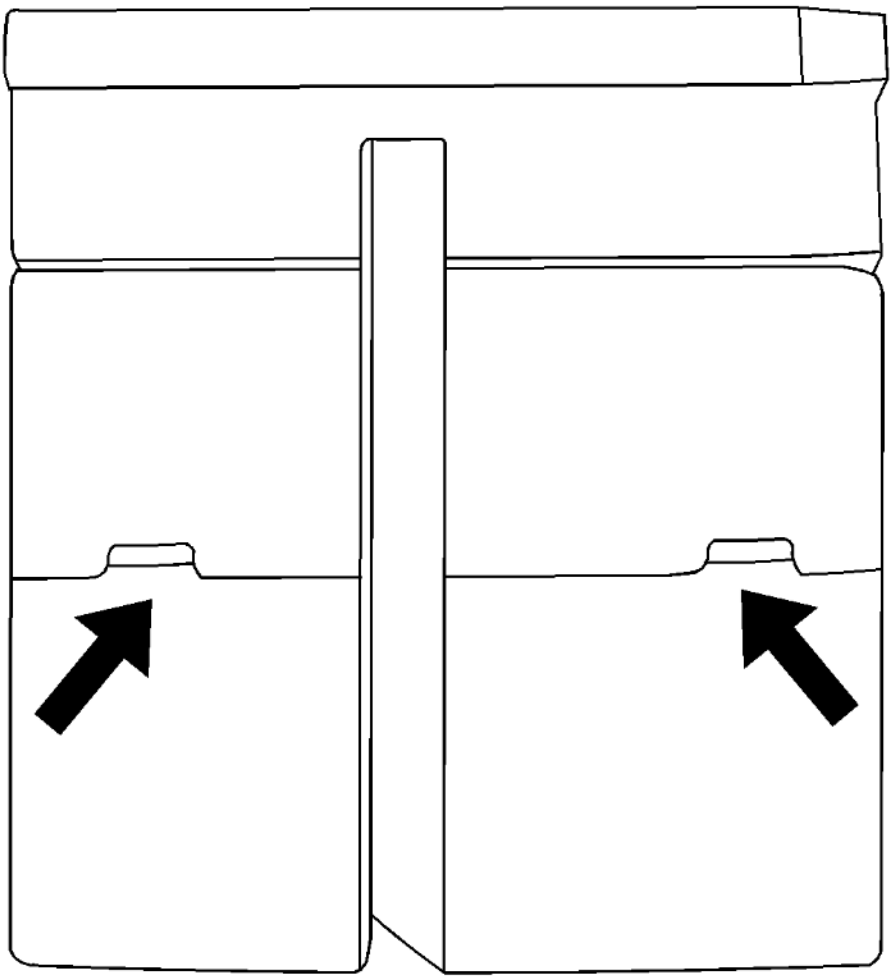

Fig. 98: Identifying TPA On Both Sides Of Connector
Courtesy of GENERAL MOTORS COMPANY

2. Unlock the terminal position assurance (TPA):
    - Position connector as shown (above) and locate TPA staging cavities.

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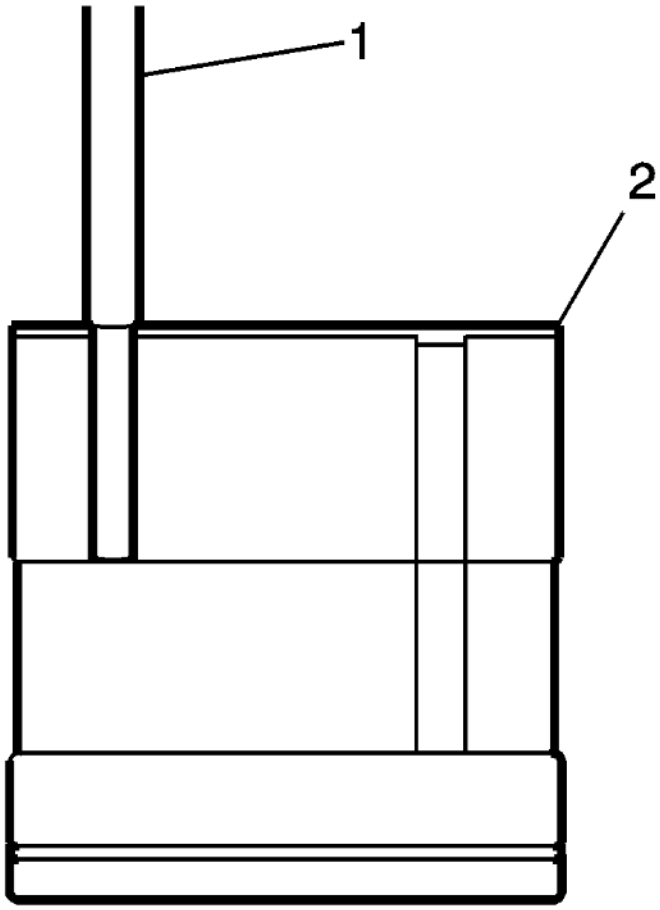

Fig. 99: Terminal Release Tool
Courtesy of GENERAL MOTORS COMPANY

- Using connector terminal release tool J-38125-553 (1) lift the TPA into the staged position. Perform this step on both sides of the TPA.

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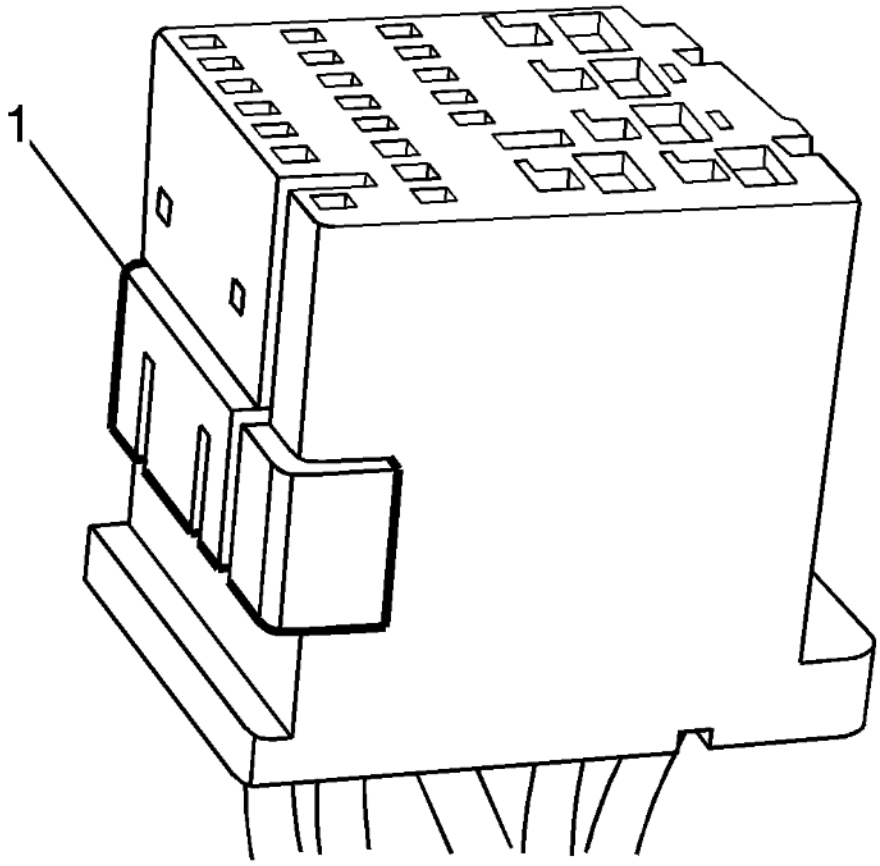

Fig. 100: TPA In Staged Position
Courtesy of GENERAL MOTORS COMPANY

- You will feel the TPA click into place when fully extended into the staged position. The figure above shows the TPA (1) in the staged position.

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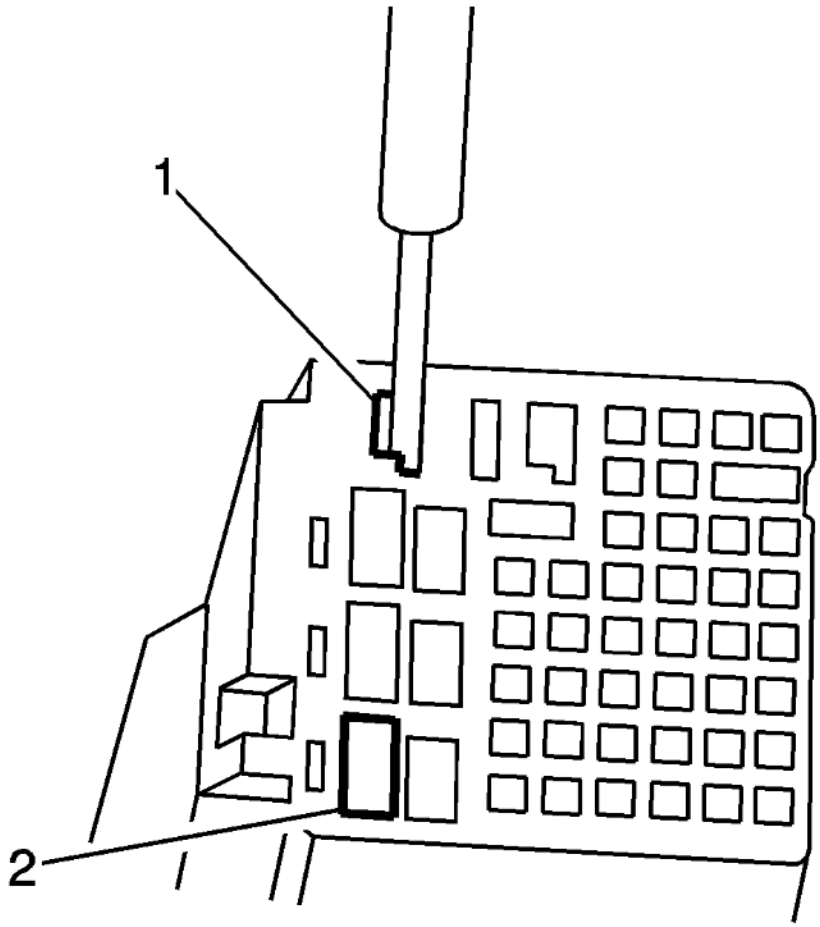

Fig. 101: Connector Terminal Release Tool
Courtesy of GENERAL MOTORS COMPANY

3. Release the terminal from the connector:
    - Position the connector as shown (above) and locate the terminal release entry canal (1) of the suspect terminal.
    - Insert the connector terminal release tool J-38125-553 into the entry canal with the angled side of the tool facing the connector wall containing cavity 4 (2).

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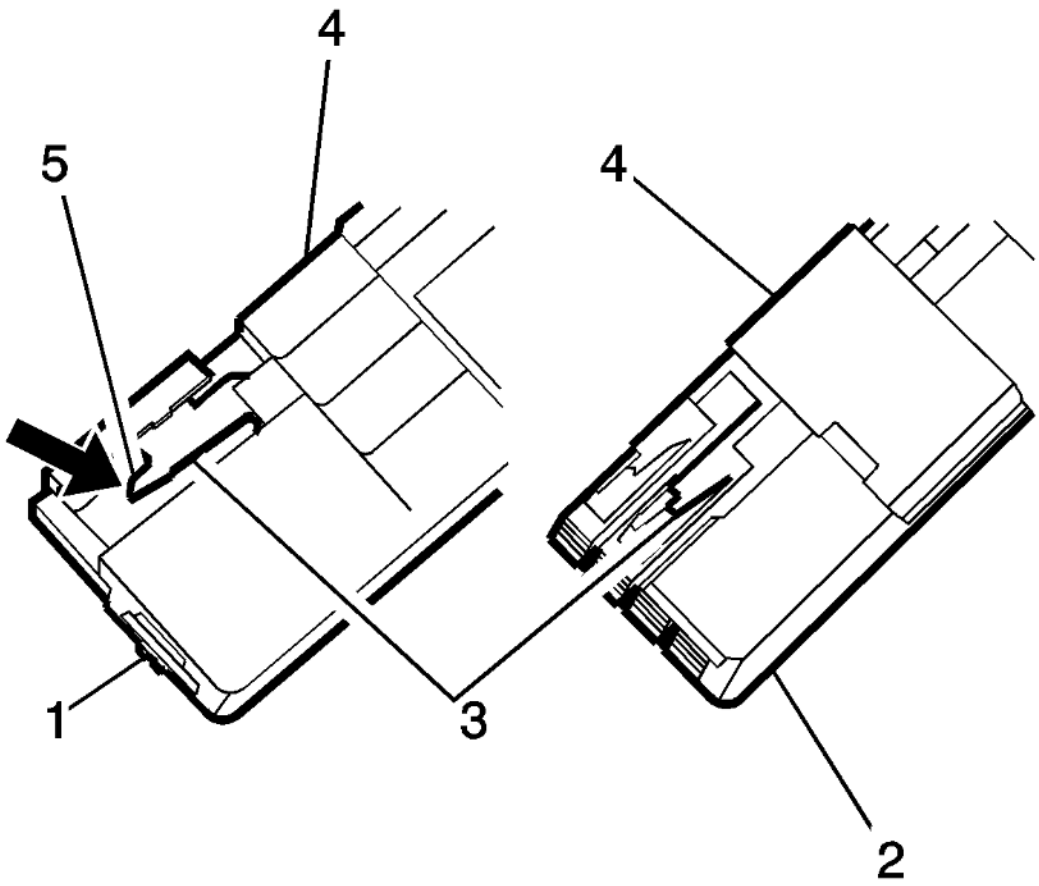

Fig. 102: Connector Lance And TPA
Courtesy of GENERAL MOTORS COMPANY

- The cavity on the left (1) is a 2.8 mm^2 cavity and the cavity on the right (2) is a 0.64 mm^2 cavity.
- Place the tip of the connector terminal release tool onto the connector lance (3) and deflect the lance to the right (5) to release the lock. Hold this released position.
- Holding the lance in the released position, slightly pull on the suspect terminal to remove it from the connector housing. The side TPA (4) is a secondary lock.

4. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
5. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

KOSTAL CONNECTORS (GLOW PLUG CONTROL MODULE)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-24** Terminal Release Tool

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- **J-38125-560** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

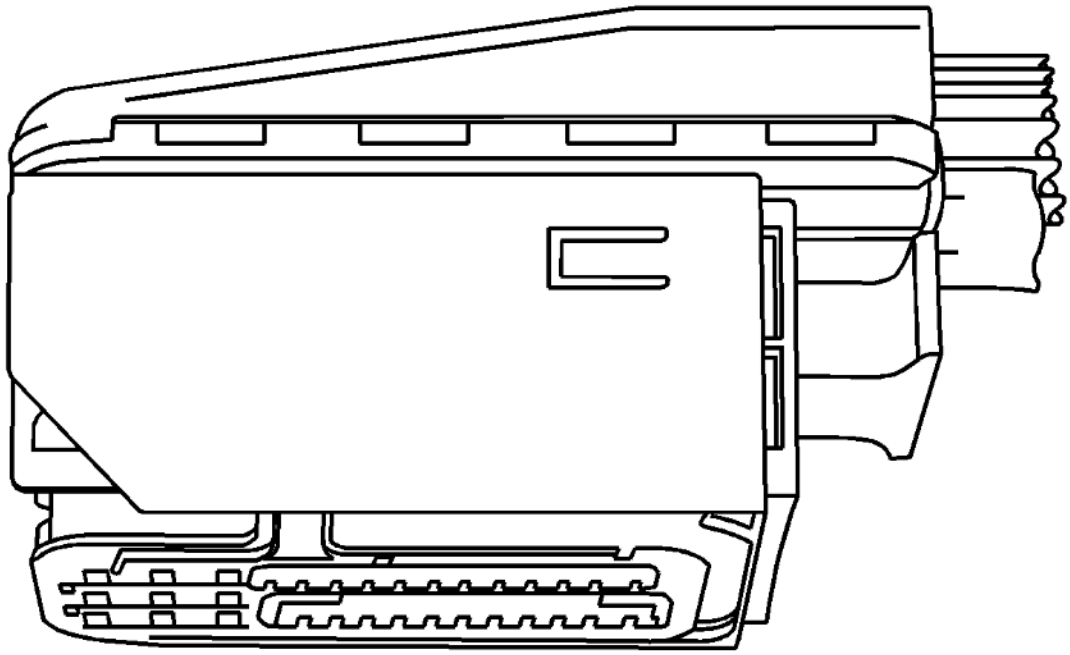

Fig. 103: View Of Typical Kostal Connector
Courtesy of GENERAL MOTORS COMPANY

View of typical connector.

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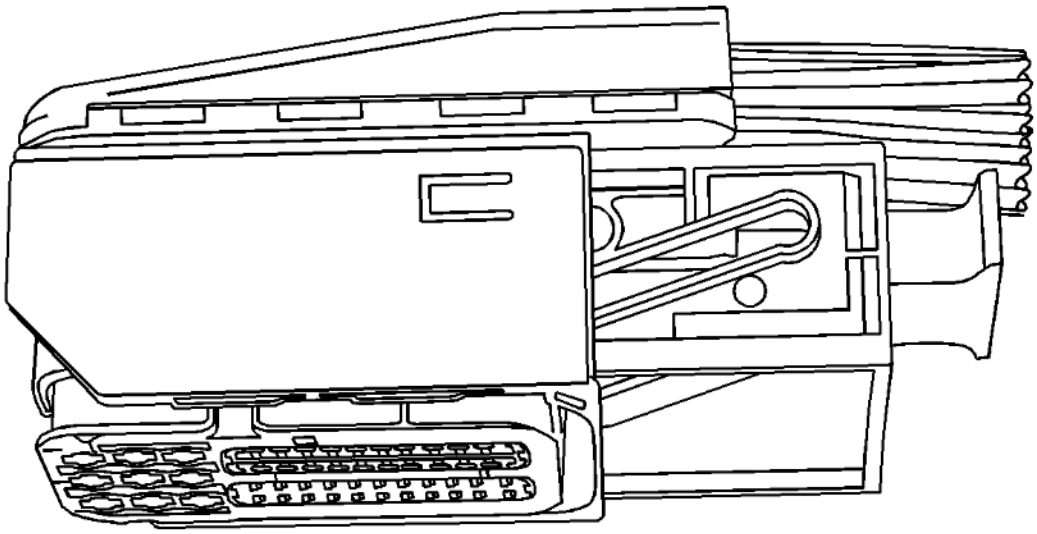

Fig. 104: View Of Connector In Released Position
Courtesy of GENERAL MOTORS COMPANY

View of connector in released position.

1. Locate the assist lever at the back of the connector. Move the assist lever to the rear position.
2. Disconnect the connector from the component.

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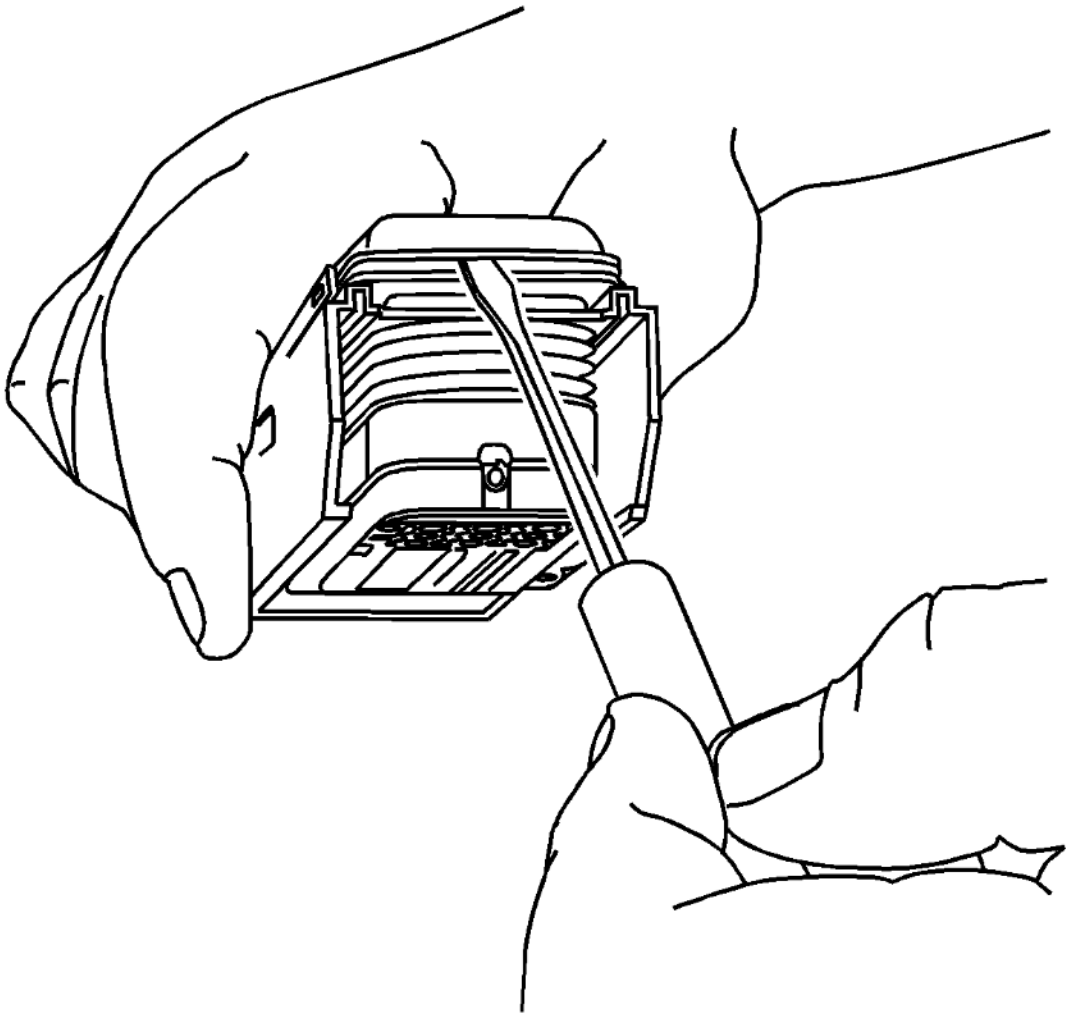

Fig. 105: Using Small Flat-Blade Tool To Remove Dress Cover
Courtesy of GENERAL MOTORS COMPANY

3. Use a small flat-blade tool to remove the dress cover.

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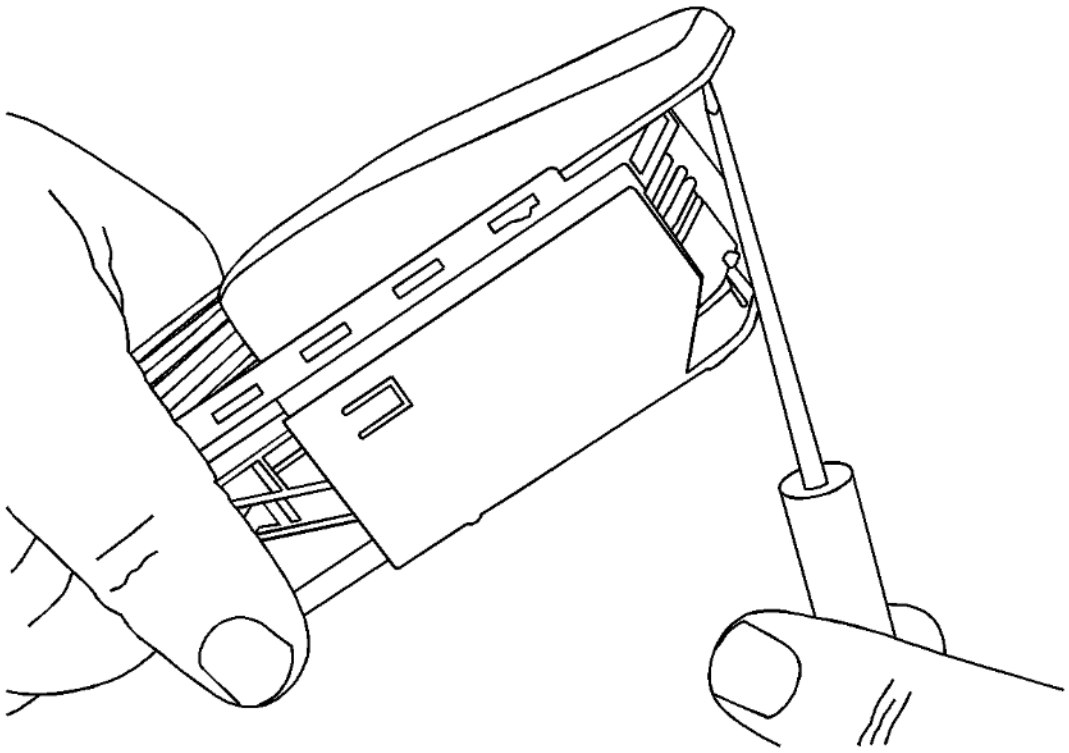

Fig. 106: Sliding Dress Cover Forward & Off Of Kostal Connector (Glow Plug Control Module)
Courtesy of GENERAL MOTORS COMPANY

4. Slide the dress cover forward and off of the connector.

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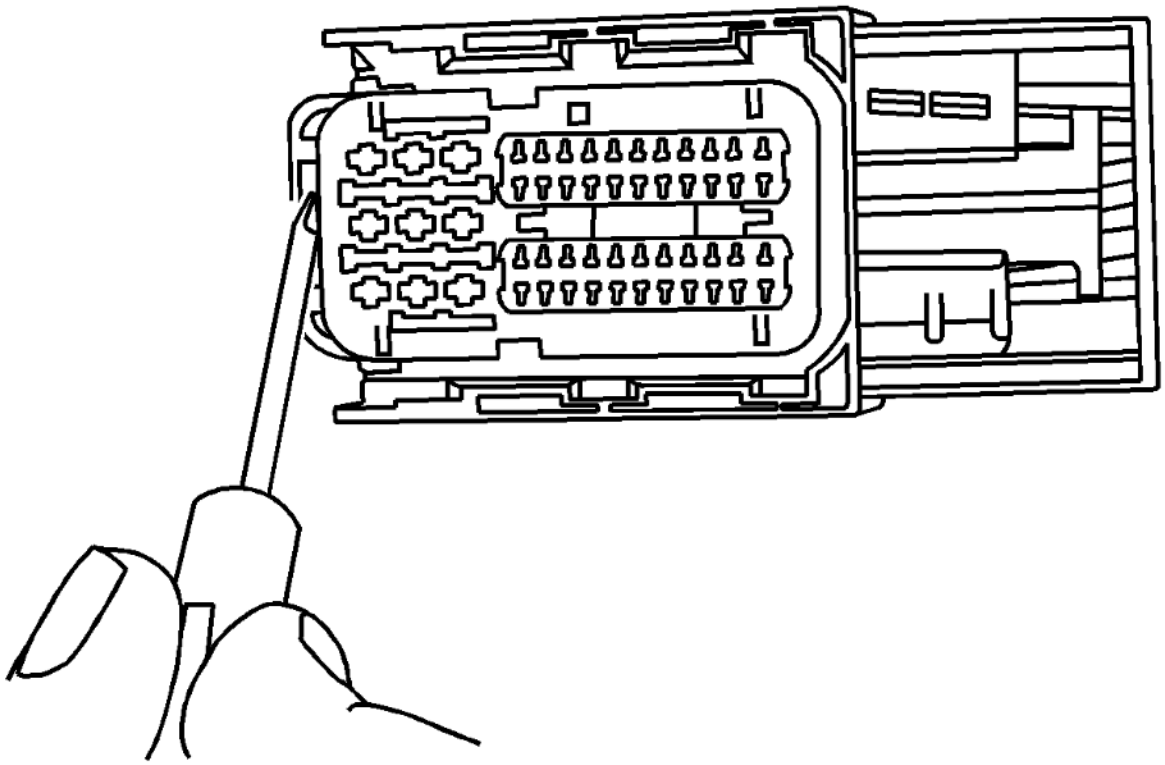

Fig. 107: Locating TPA In Front & Rear Of Connector
Courtesy of GENERAL MOTORS COMPANY

5. The terminal positive assurance (TPA) is located in the front and rear of the connector.

NOTE: **The front TPA cannot be removed from the connector. Only move it to the preset position.**

6. Use a small flat-blade tool to move the front TPA to the preset position, outboard approximately 0.125 in. (3 mm).

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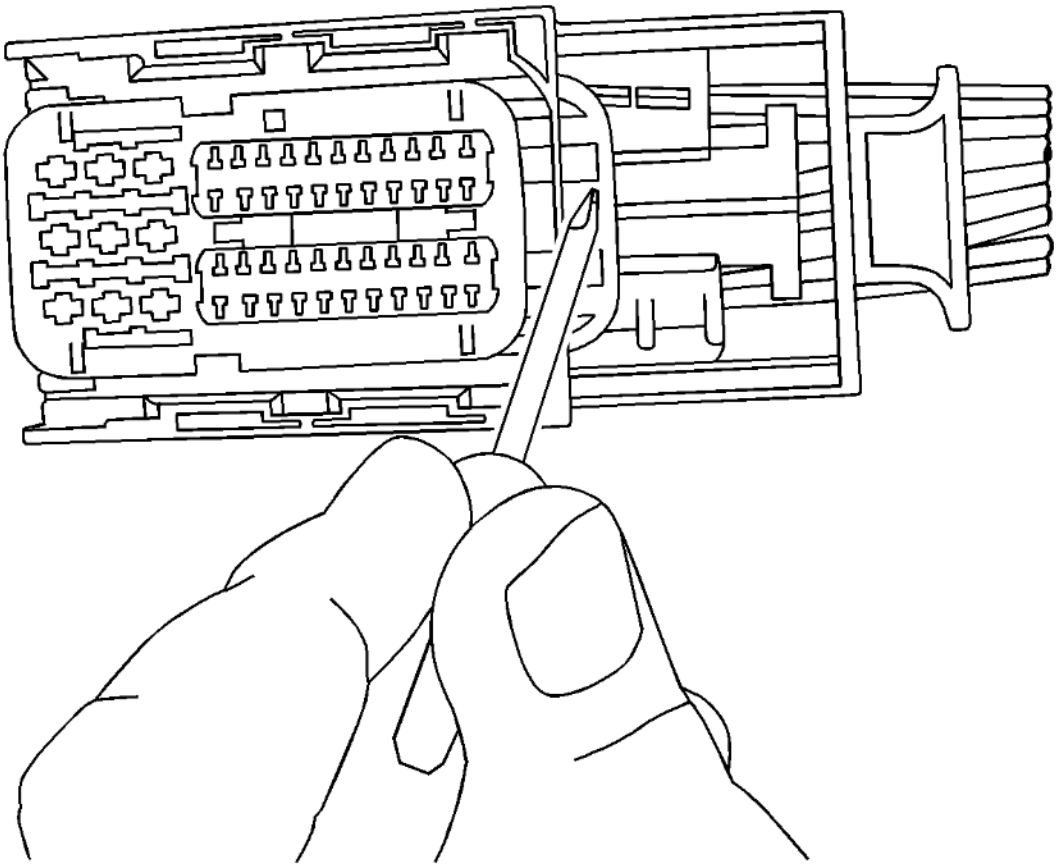

Fig. 108: Using Small Flat-Blade Tool To Remove Rear TPA
Courtesy of GENERAL MOTORS COMPANY

7. Use a small flat-blade tool to completely remove the rear TPA from the connector.

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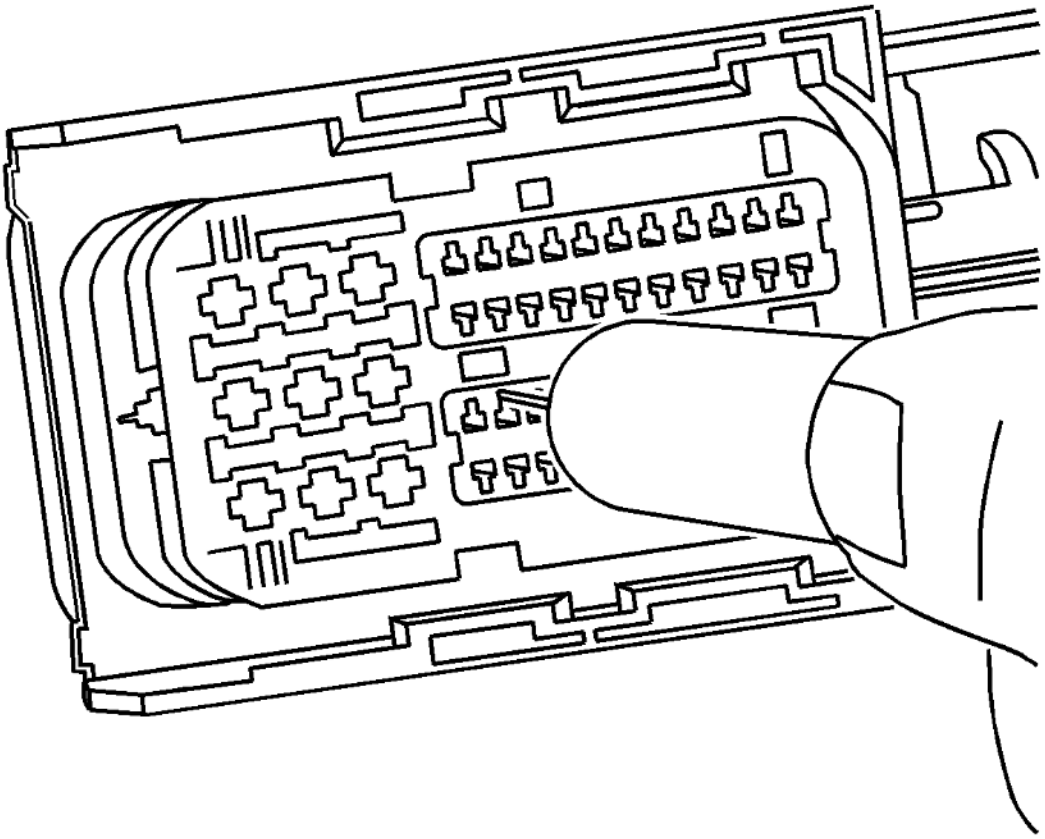

Fig. 109: Using Special Tool To Release Terminals
Courtesy of GENERAL MOTORS COMPANY

8. Use the J-38125-24 or the J-38125-560 tool to release the terminals by inserting the tool into the terminal release cavity.
9. While holding the removal tool in place, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
10. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.

KOSTAL CONNECTORS (TRANSMISSION)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-28** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

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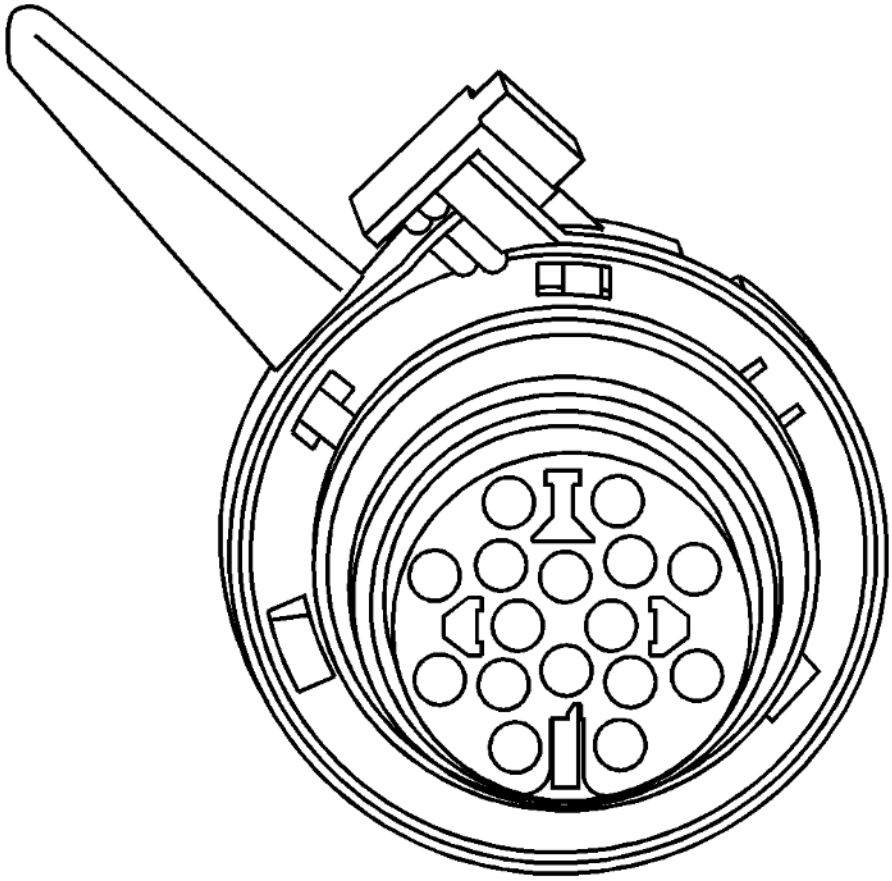

Fig. 110: View Of Connector & Lock
Courtesy of GENERAL MOTORS COMPANY

1. While depressing the lock, twist and remove the connector from the component.

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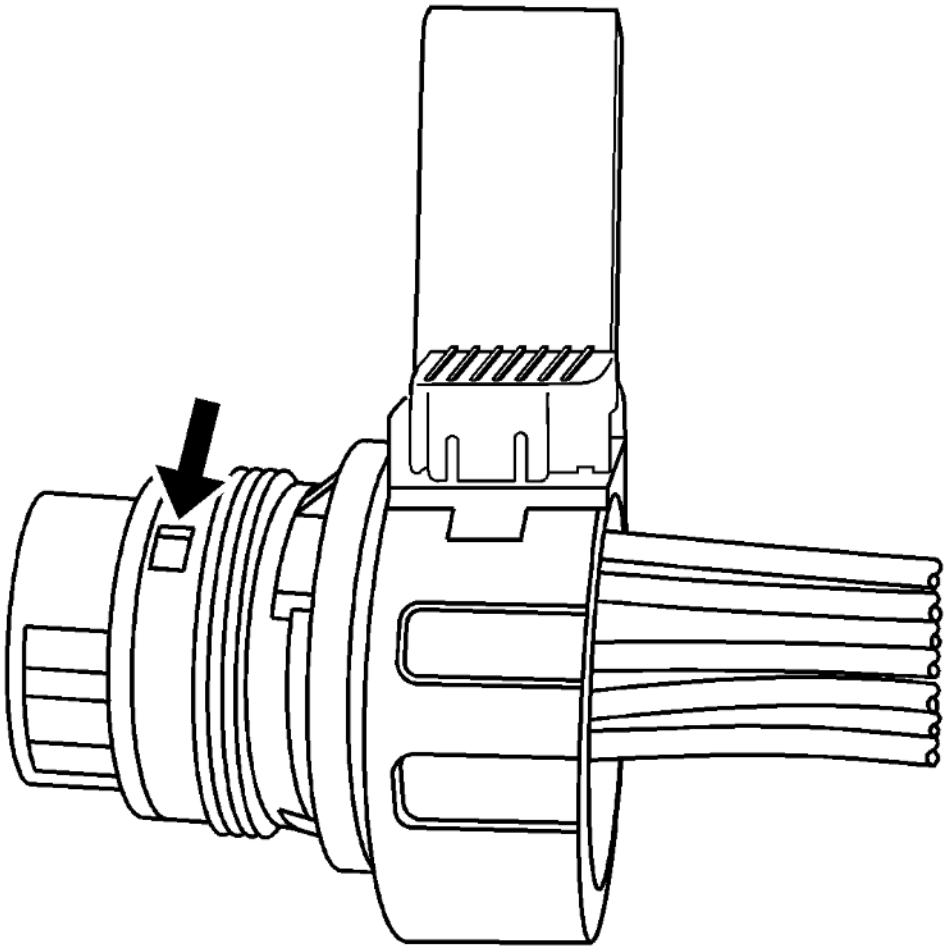

Fig. 111: View Of Terminal Position Assurance (TPA)
Courtesy of GENERAL MOTORS COMPANY

2. Locate the terminal position assurance (TPA).

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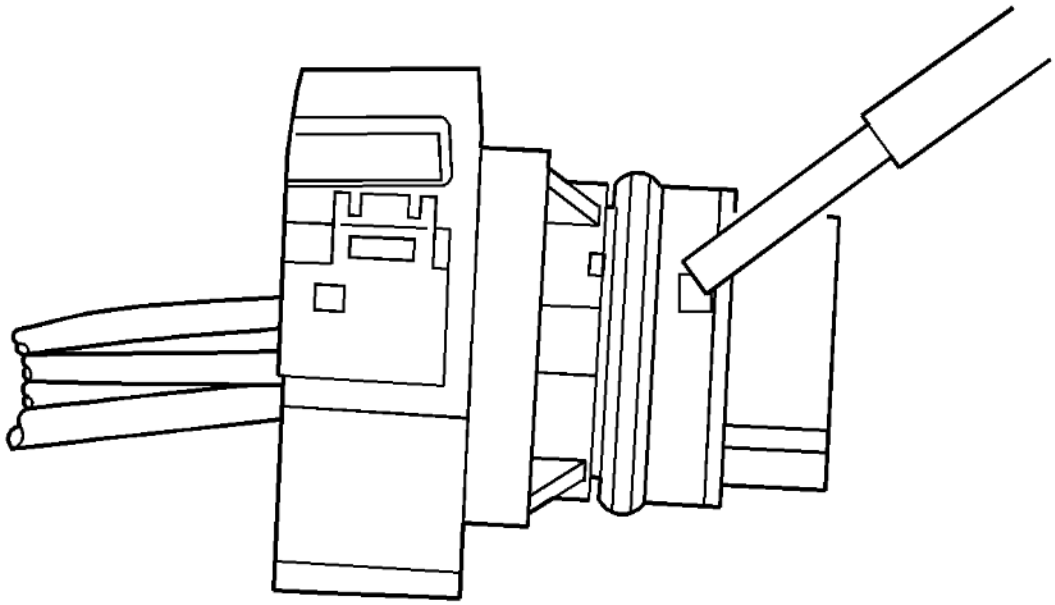

Fig. 112: View Of TPA & Flat-Bladed Tool
Courtesy of GENERAL MOTORS COMPANY

NOTE: **The TPA cannot be removed from the connector while there are terminals present in the connector body.**

3. Use a small flat-blade tool to push the TPA until it bottoms out.

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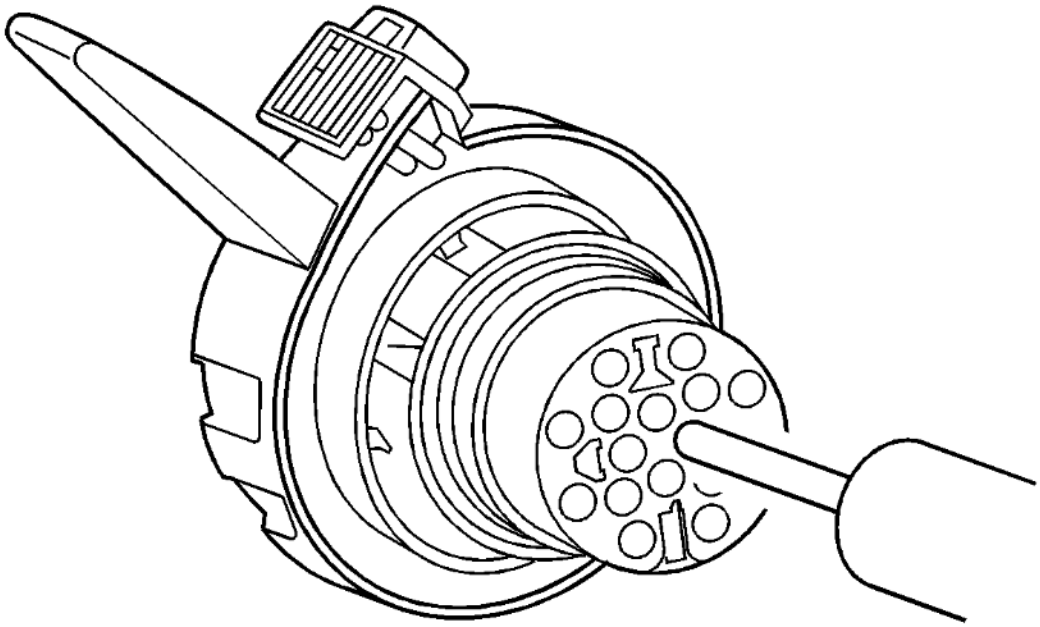

Fig. 113: Using J 38125-28 Tool To Release Terminals
Courtesy of GENERAL MOTORS COMPANY

4. Use the J-38125-28 tool to release the terminals by inserting the tool into the terminal cavity as shown in the graphic.
5. While holding the removal tool in place, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
6. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.

Terminal Insertion Procedure

After the terminal is replaced, perform the following procedure in order to insert the terminal.

1. Slide the new terminal into the correct cavity at the back of the connector.
2. Push the terminal into the connector until it locks into place. The new terminal should be even with the other terminals. Ensure that the terminal is locked in place by gently pulling on the wire.

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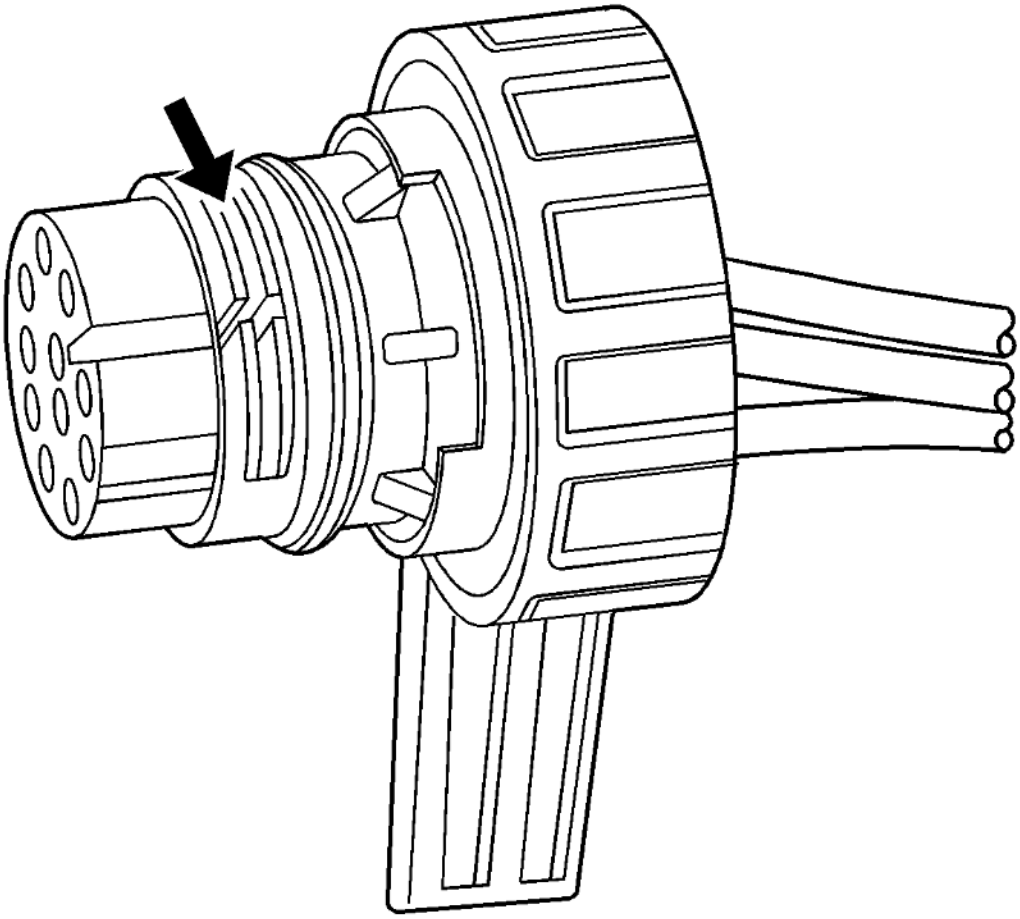

Fig. 114: Locating Terminal Position Assurance (TPA)
Courtesy of GENERAL MOTORS COMPANY

3. Locate the TPA.

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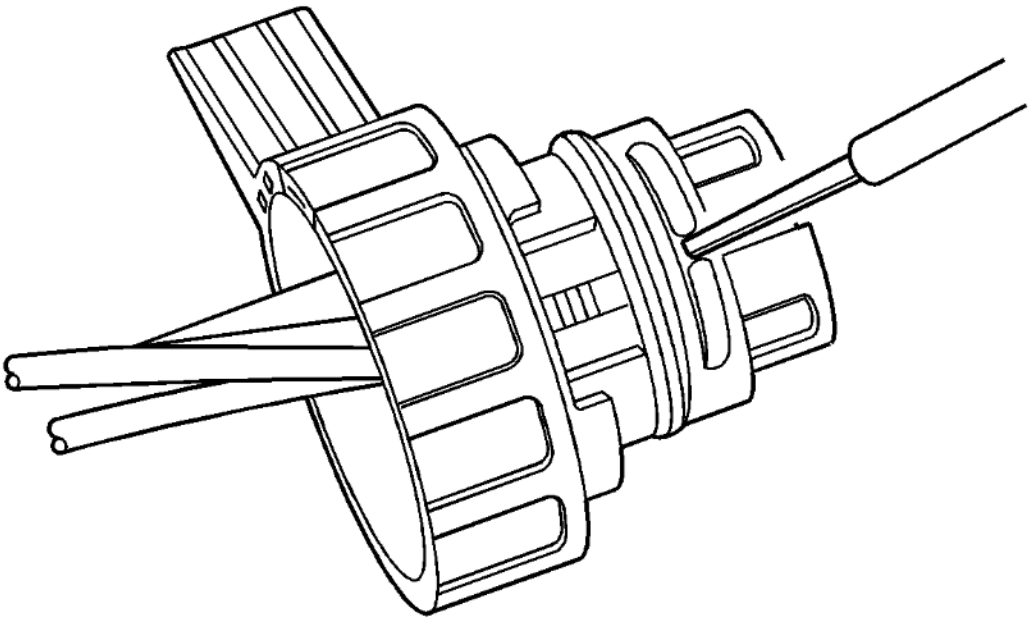

Fig. 115: View Of TPA & Flat-Bladed Tool
Courtesy of GENERAL MOTORS COMPANY

4. Use a small flat-blade tool to push the TPA until it bottoms out.

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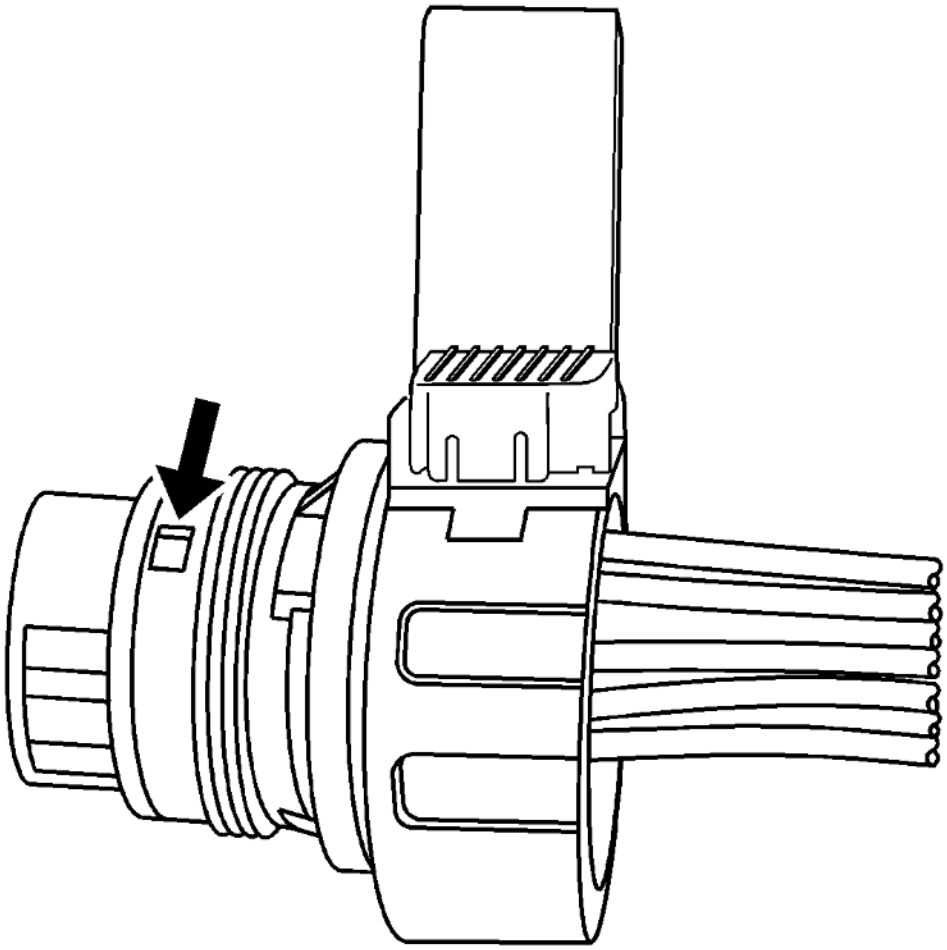

Fig. 116: View Of Terminal Position Assurance (TPA)
Courtesy of GENERAL MOTORS COMPANY

5. Ensure the TPA is fully seated. The TPA should be centered and flush with the connector body when viewed.

MOLEX CONNECTORS (LEVER LOCK)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-213** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

1. Locate the connector position assurance (CPA) on the top of the wire dress cover. Slide the CPA forward.

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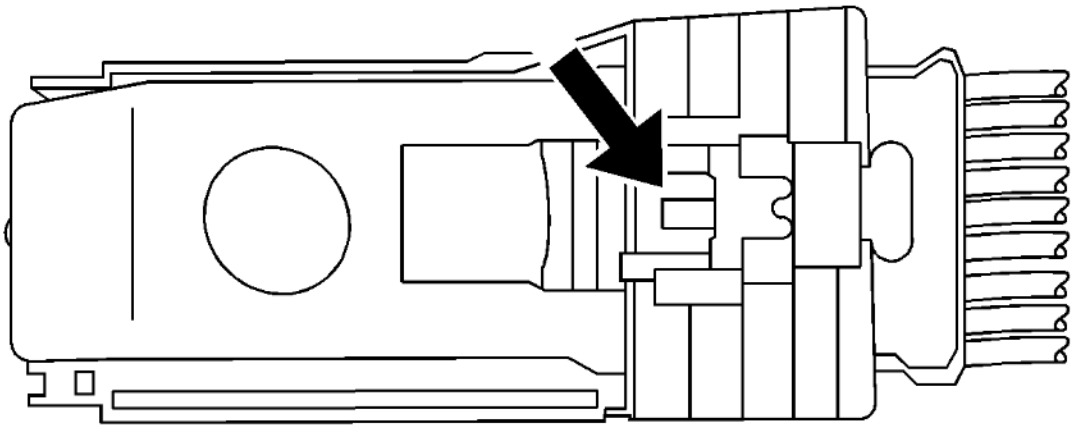

Fig. 117: Identifying Lever Lock Release Tab
Courtesy of GENERAL MOTORS COMPANY

2. Slide the lever lock forward while pressing down on the lever lock release tab.

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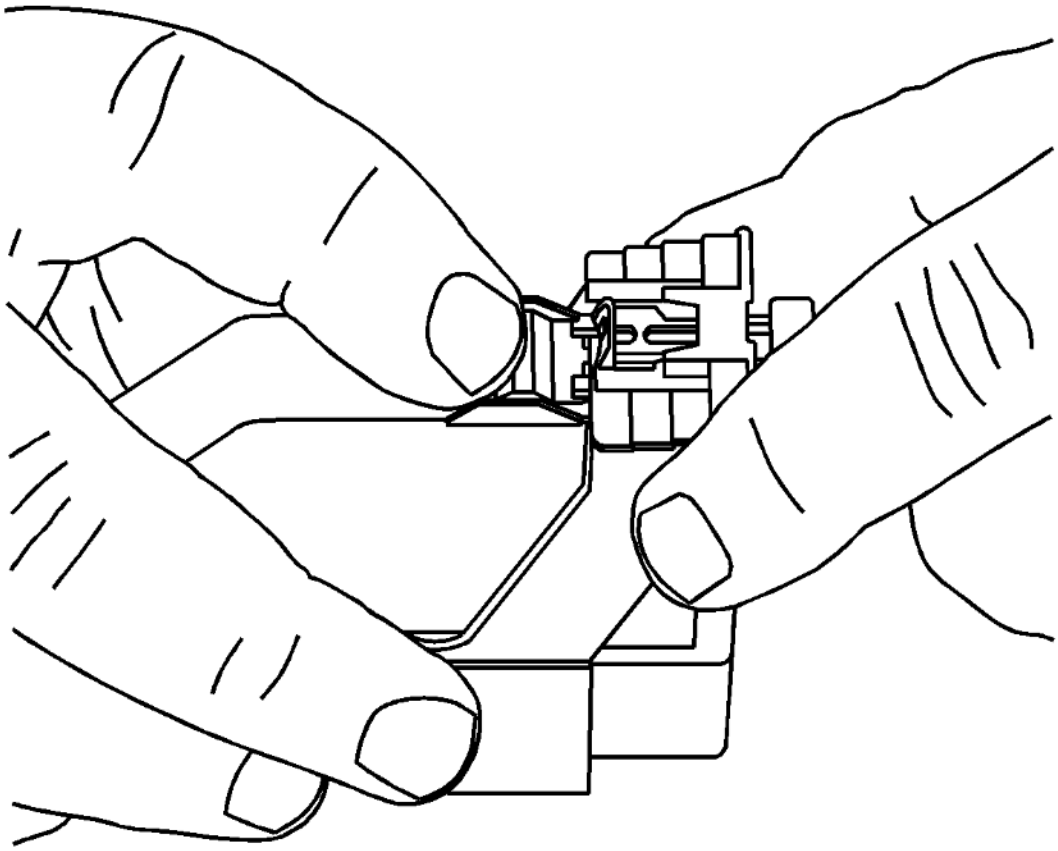

Fig. 118: View Of Lever In Full Forward Position
Courtesy of GENERAL MOTORS COMPANY

3. The lever should be in the full forward position.

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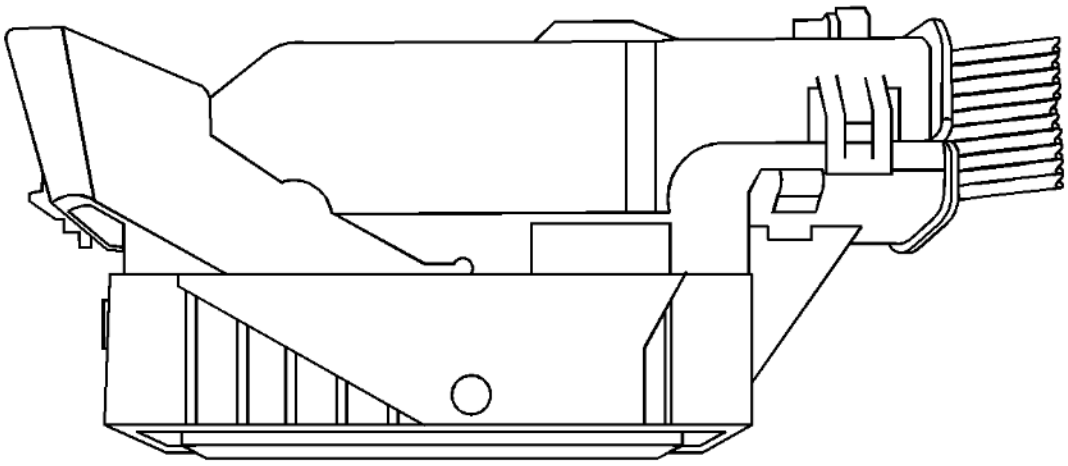

Fig. 119: View Of CPA Connector
Courtesy of GENERAL MOTORS COMPANY

4. Disconnect the connector from the component.

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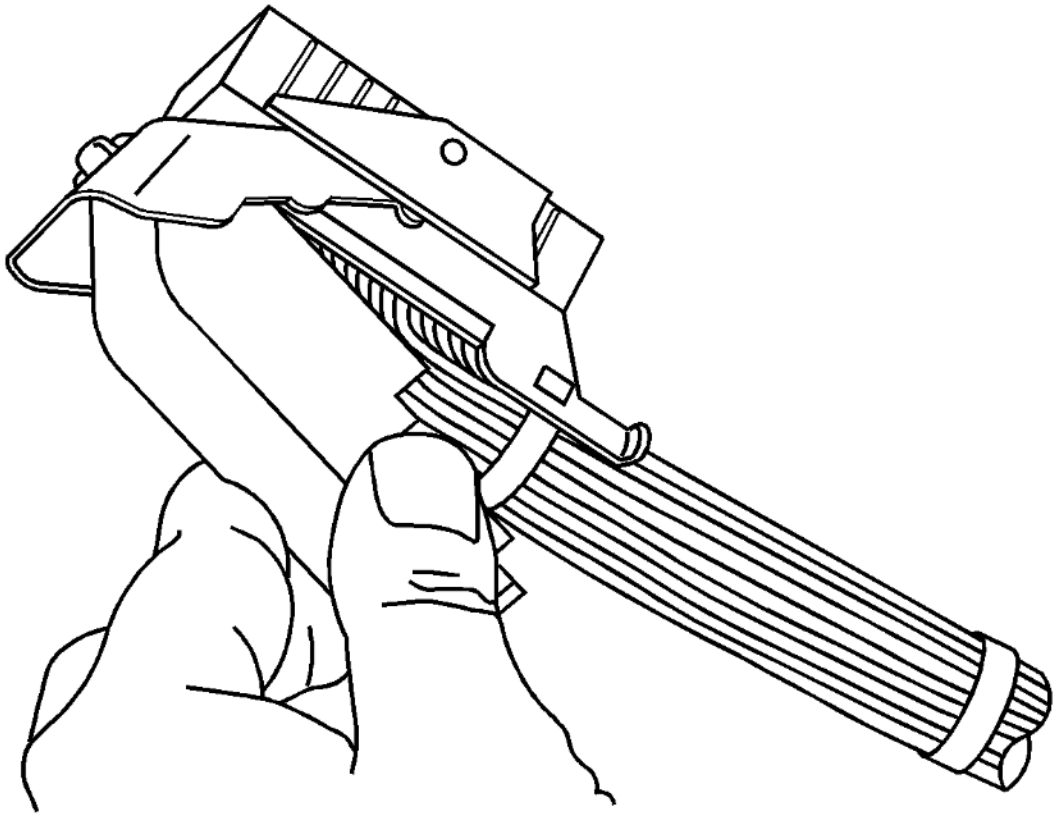

Fig. 120: View Of Dress Cover
Courtesy of GENERAL MOTORS COMPANY

5. Remove the dress cover by using a flat bladed tool to release the dress cover locking tabs and lift up on the dress cover.
6. Cut the tie wrap that holds the wires to the connector body.

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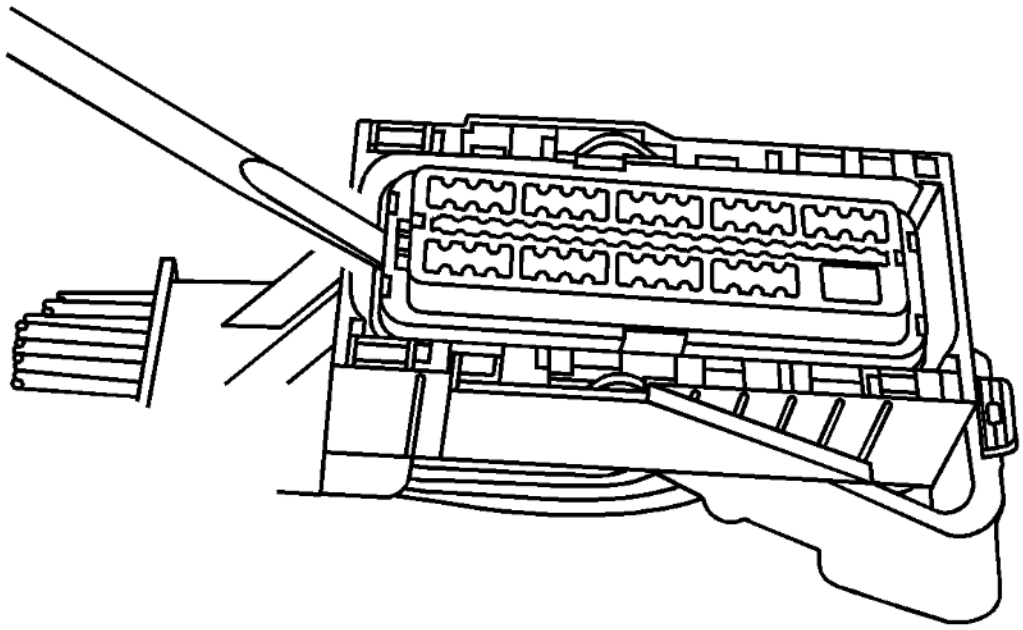

Fig. 121: Prying One Side Of Nose Piece
Courtesy of GENERAL MOTORS COMPANY

7. Use a small flat-blade tool to pry one side of the nose piece up to the pre-stage position. When the nose piece is in the pre-staged position, the nose piece will be raised above the connector body the length of the step in the nose piece.

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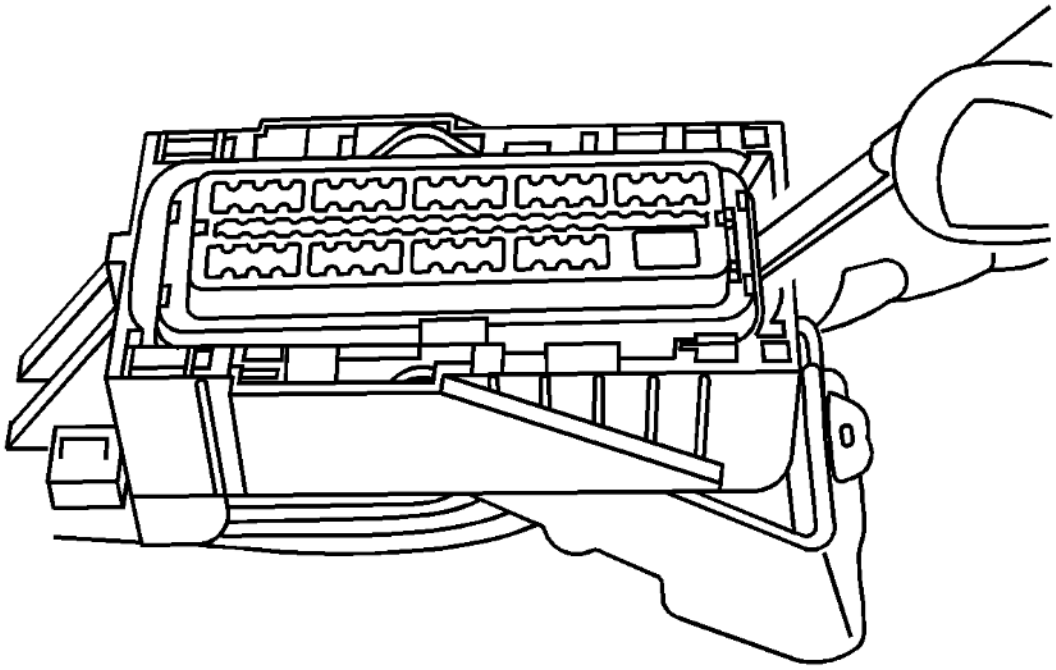

Fig. 122: Prying Side Of Nose Piece
Courtesy of GENERAL MOTORS COMPANY

8. Use a small flat-blade tool to pry the other side of the piece to the pre-stage position. If the nose piece is higher than the first step in the nose piece, gently push down on the nose piece until it meets with resistance from the connector body, you should feel the nose piece click into position.

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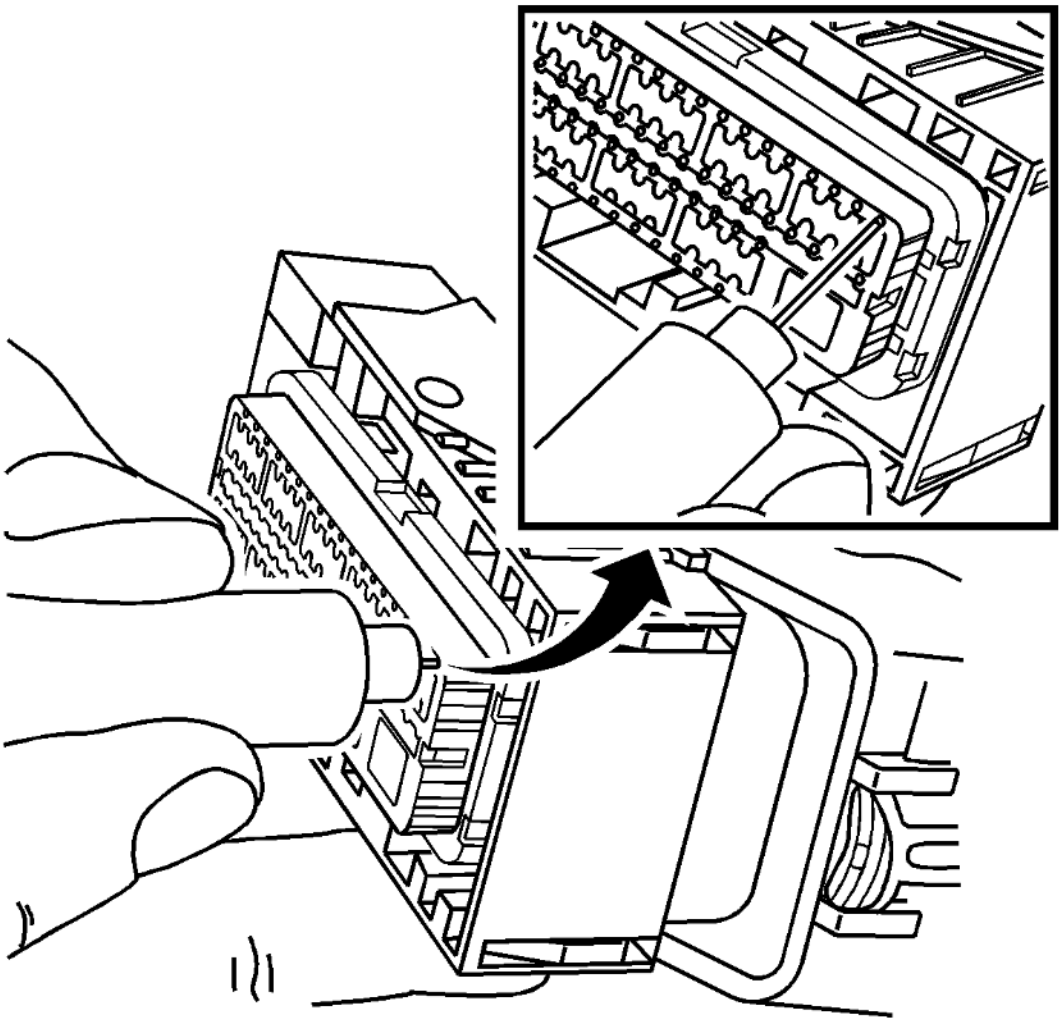

Fig. 123: Releasing Terminal
Courtesy of GENERAL MOTORS COMPANY

9. Insert the J-38125-213 into the small terminal release hole on the nose piece and gently pull on the back of the wire.
10. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
11. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

Terminated Lead Repair

1. Remove the terminal.
2. Find the appropriate terminated lead.
3. Use the appropriate splice sleeves depending on the gauge size.
4. Refer to **Wire to Wire Repair**.

Terminal Insertion Procedure

After the terminal is replaced, perform the following procedure in order to insert the terminal.

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1. Slide the new terminal into the correct cavity at the back of the connector.
2. Push the terminal into the connector until it locks into place. The new terminal should be even with the other terminals. Insure that the terminal is locked in place by gently pulling on the wire.
3. To assemble the connector, reverse the connector disassembly procedure.

MOLEX CONNECTORS (SIR)

Removal Procedure

NOTE: **The orange or yellow connector position assurance (CPA) must be released first to disconnect or to connect the connector.**

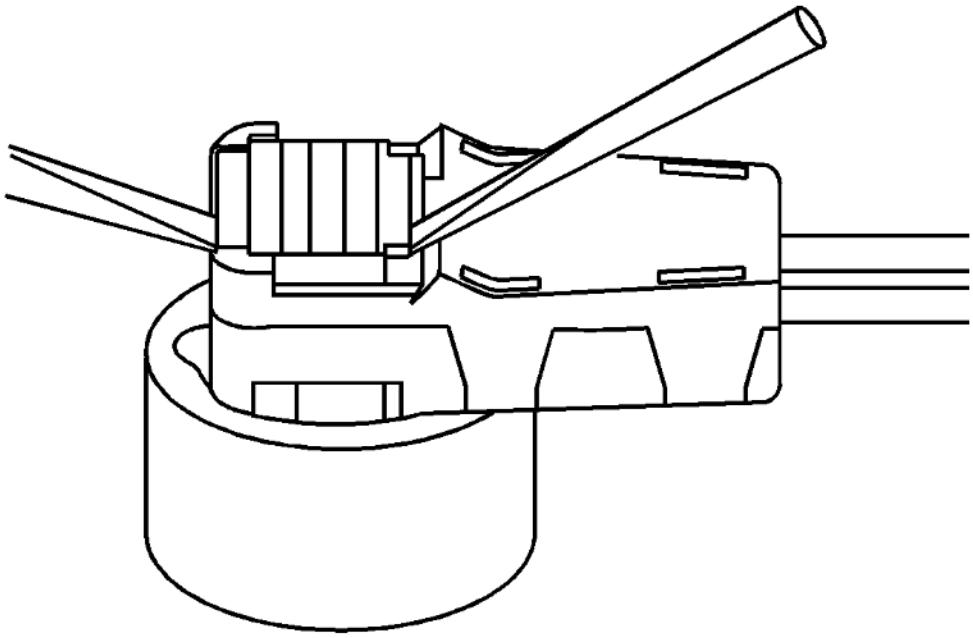

Fig. 124: Lifting Orange CPA
Courtesy of GENERAL MOTORS COMPANY

1. Lift the orange or yellow CPA vertically (avoid lifting on an angle to the connector) approximately 4 mm to release the connector. Use a small flat-bladed tool to help release the CPA. The CPA may also be released manually without any tools.

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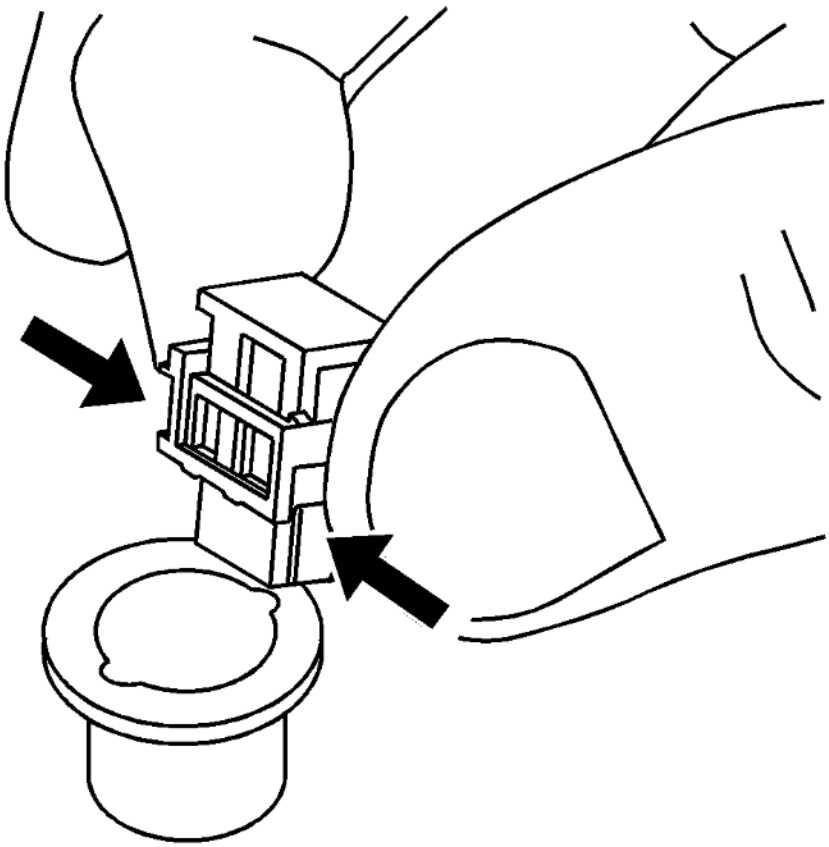

Fig. 125: Grabbing Connector On Both Sides
Courtesy of GENERAL MOTORS COMPANY

2. Grab the connector on both sides and lift vertically to disconnect the connector.

Installation Procedure

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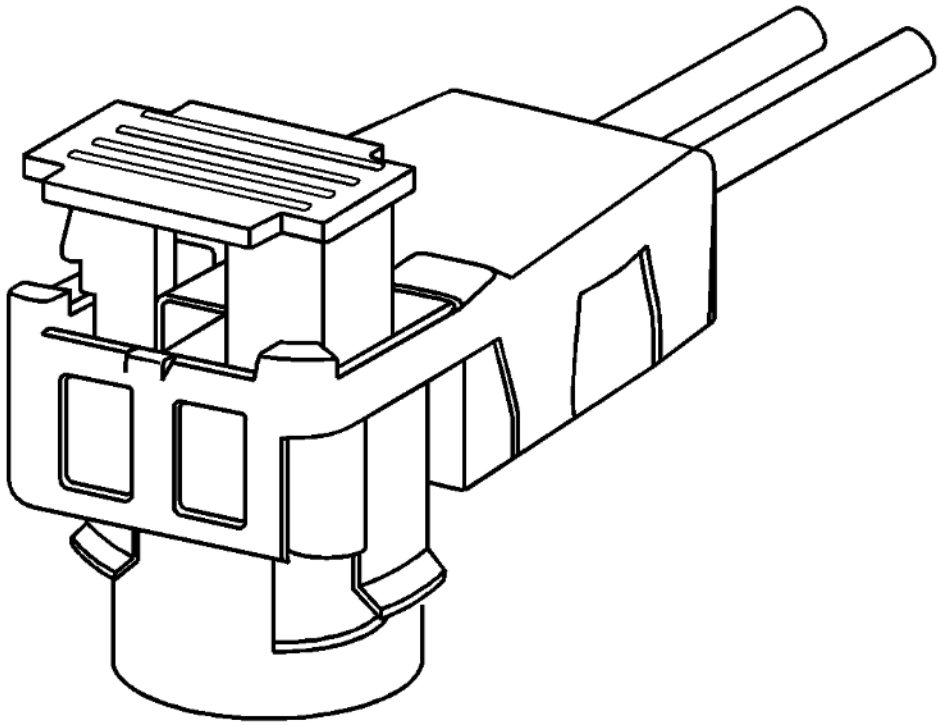

Fig. 126: Lifting Orange CPA
Courtesy of GENERAL MOTORS COMPANY

1. The CPA should be approximately 4 mm above the yellow cover before installing the connector. If not, use a small flat-bladed tool to help release the CPA. The CPA may also be released manually without any tools.

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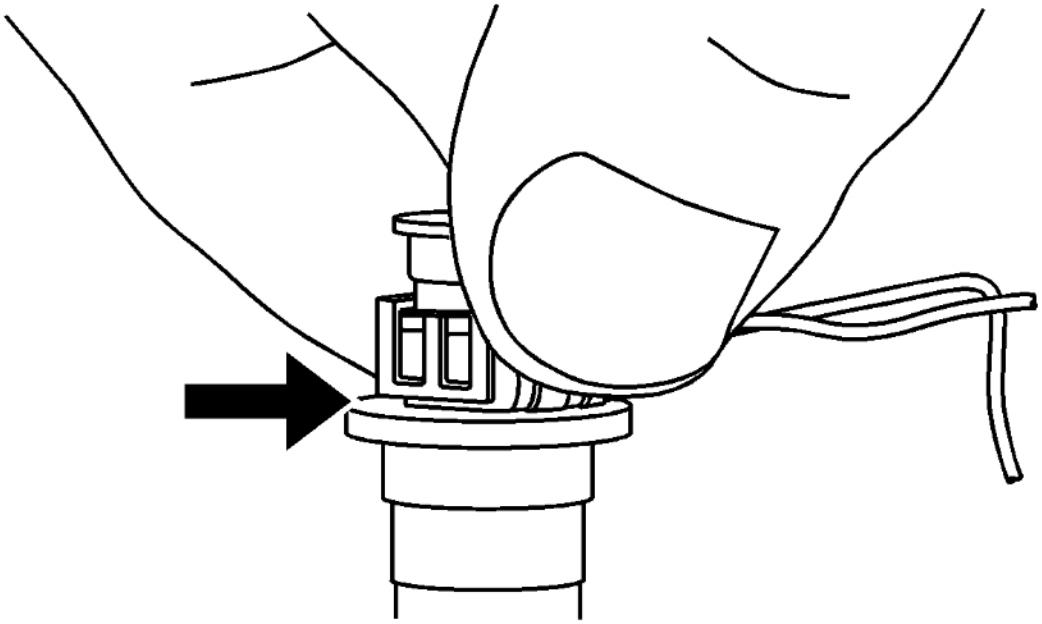

Fig. 127: Seating Connector Sub-Assembly
Courtesy of GENERAL MOTORS COMPANY

2. Line up the connector key tabs with the initiator key slots. Grab the connector on both sides and push down into the initiator connector sub assembly until fully seated.

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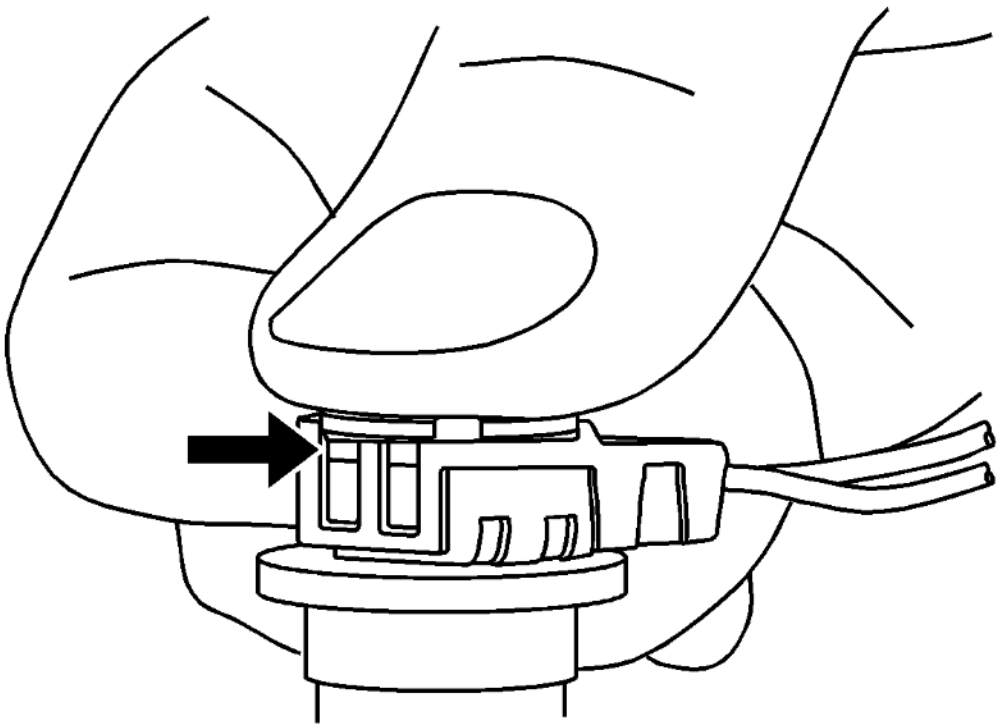

Fig. 128: Pushing CPA Down
Courtesy of GENERAL MOTORS COMPANY

3. After the connector is fully seated, push the CPA down with your thumb until the CPA is touching the yellow cover on the connector.

SUMITOMO CONNECTORS

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-12A** Terminal Release Tool
- **J-38125-552** Terminal Release Tool
- **J-38125-553** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

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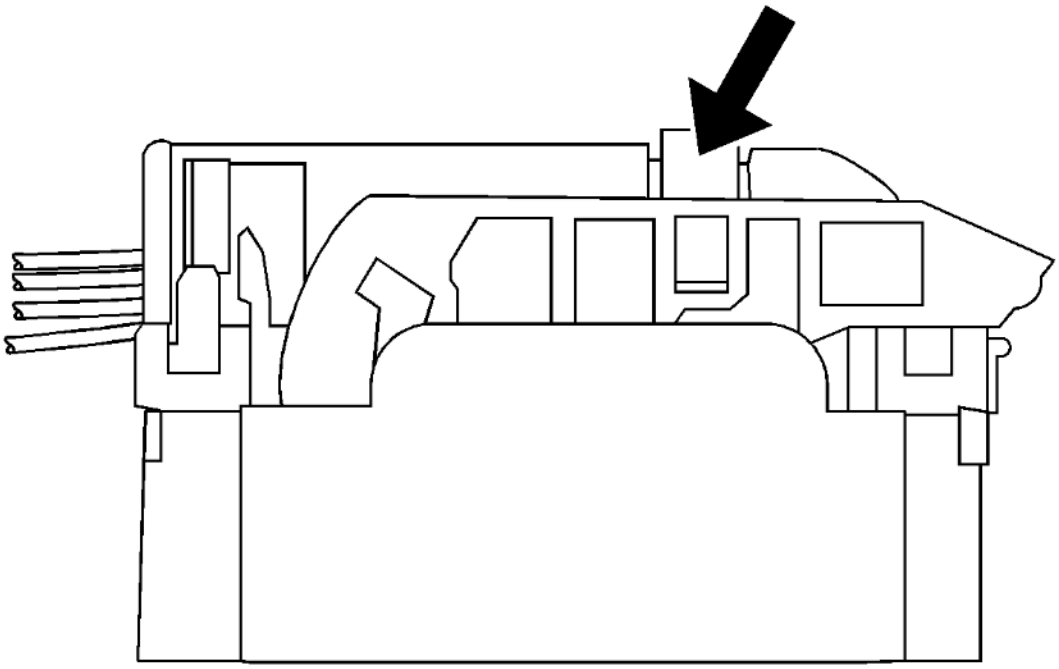

Fig. 129: Identifying Lever Lock
Courtesy of GENERAL MOTORS COMPANY

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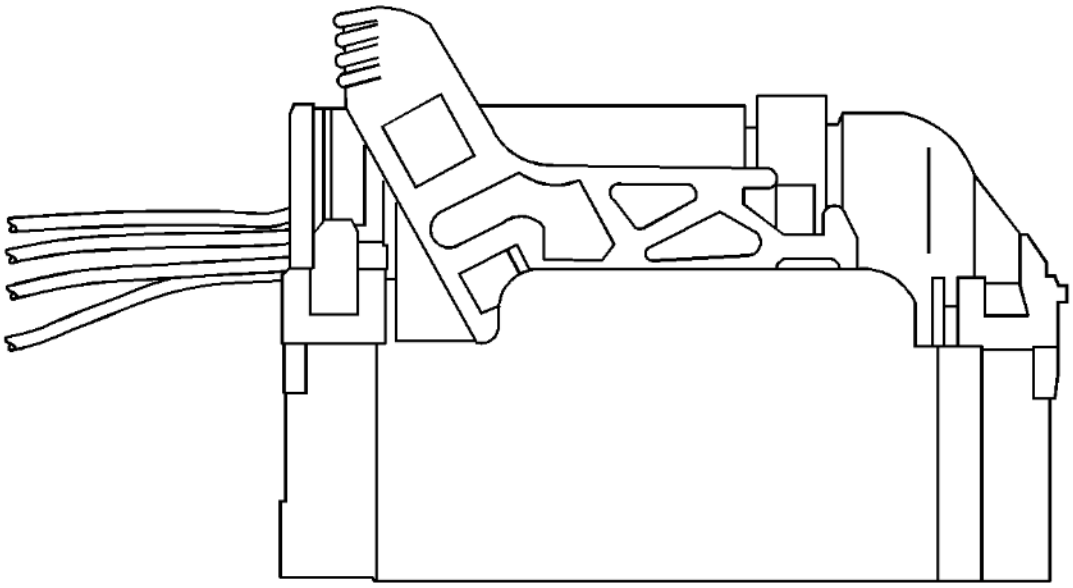

Fig. 130: View Of Lever Lock In Forward Position
Courtesy of GENERAL MOTORS COMPANY

1. Slide the lever lock forward while pressing down on the lever lock release tab.
2. Disconnect the connector from the component.

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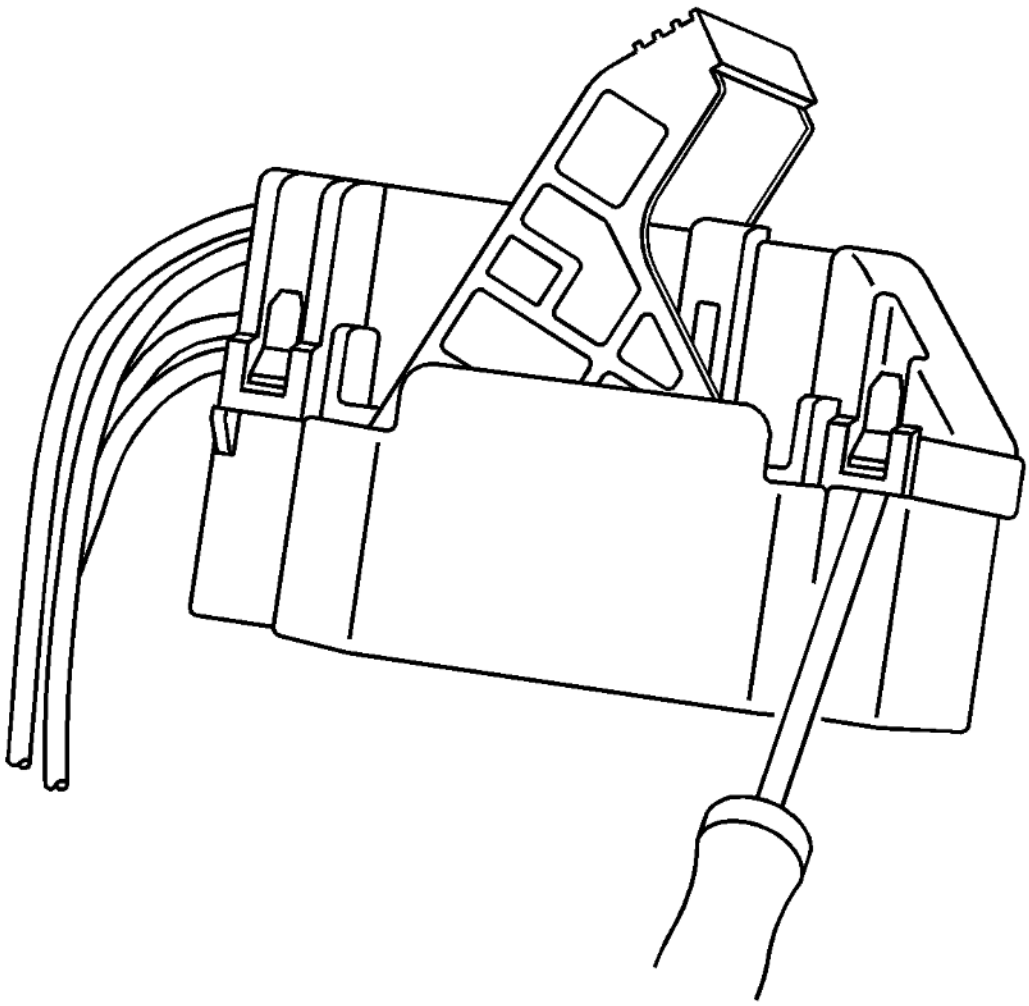

Fig. 131: View Of Connector Locking Tabs
Courtesy of GENERAL MOTORS COMPANY

3. Remove the dress cover by using a flat-blade tool to release the connector locking tabs and pulling off the dress cover.

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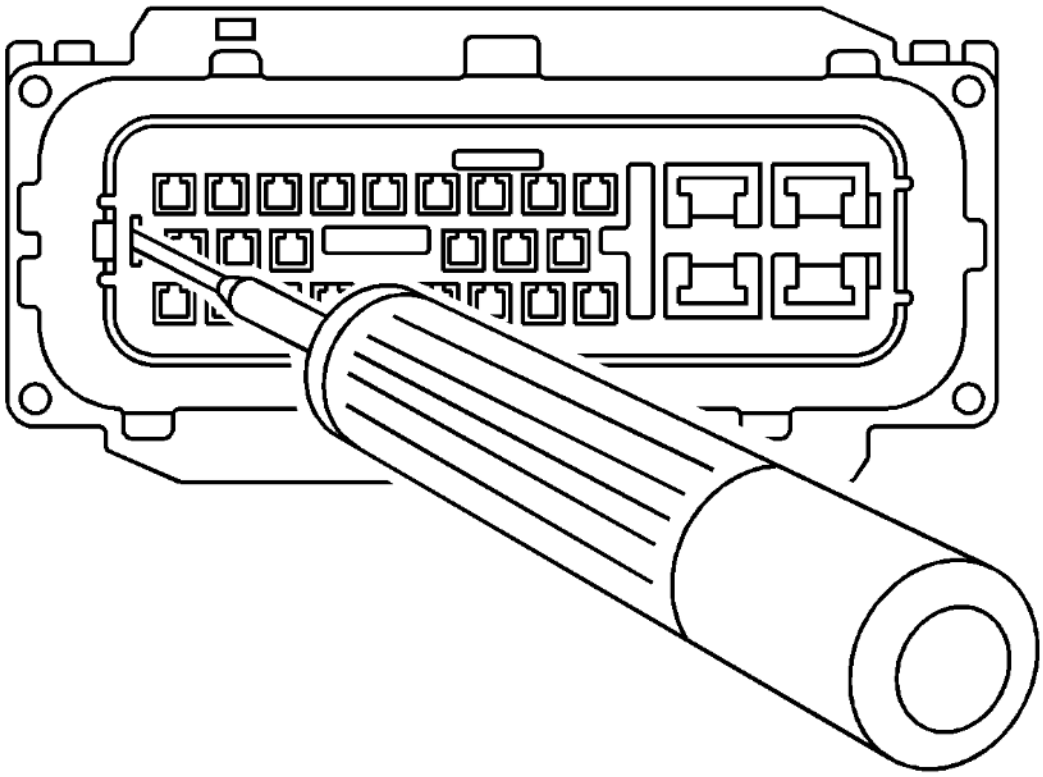

Fig. 132: Identifying Nose Piece Locking Tabs
Courtesy of GENERAL MOTORS COMPANY

4. Relieve the tension on the nose piece retainers by inserting J-38125-12A into the single retainer slot on the end of the nose piece and gently prying out the locking tab. Repeat the process for both of the nose piece locking tabs on the opposite side of the nose piece.

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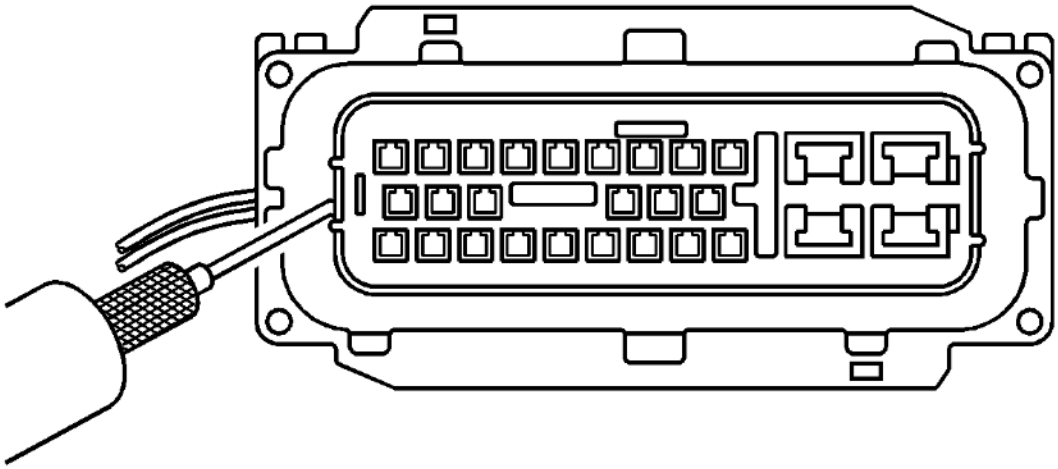

Fig. 133: Pulling Up One End Of Nose Piece (1st Side)
Courtesy of GENERAL MOTORS COMPANY

5. Once the nose piece retainers are relaxed, use the J-38125-552 to pull up the nose piece by hooking the tool under the nose piece and pulling up. The nose piece should raise slightly.

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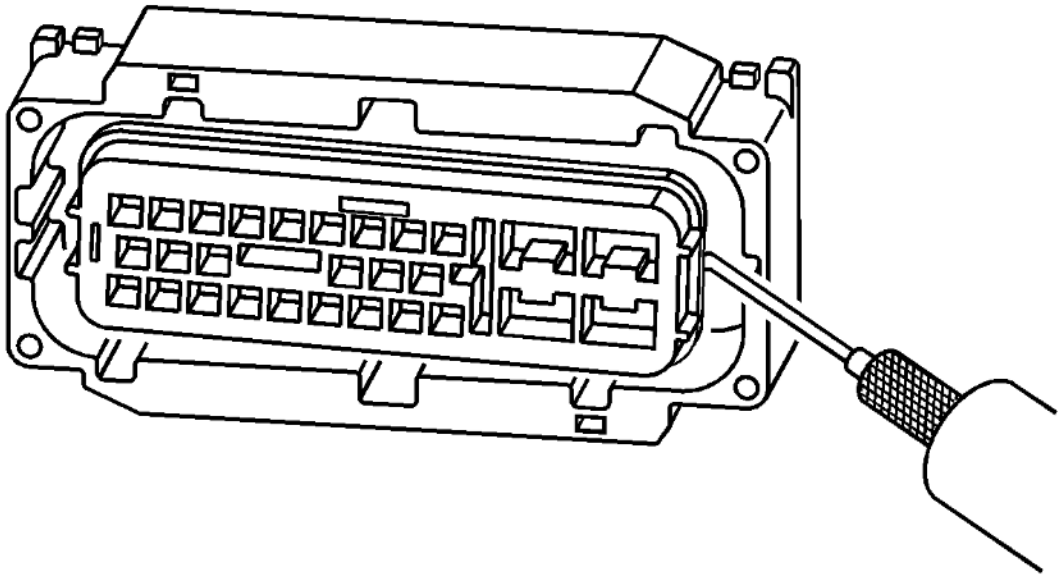

Fig. 134: Pulling Up One End Of Nose Piece (2nd Side)
Courtesy of GENERAL MOTORS COMPANY

6. On the opposite side of the nose piece, use the J-38125-552 pull up the nose piece by hooking the tool under the nose piece and pulling up. The nose piece should release completely. If the nose piece does not come off, repeat the procedure on the opposite side.

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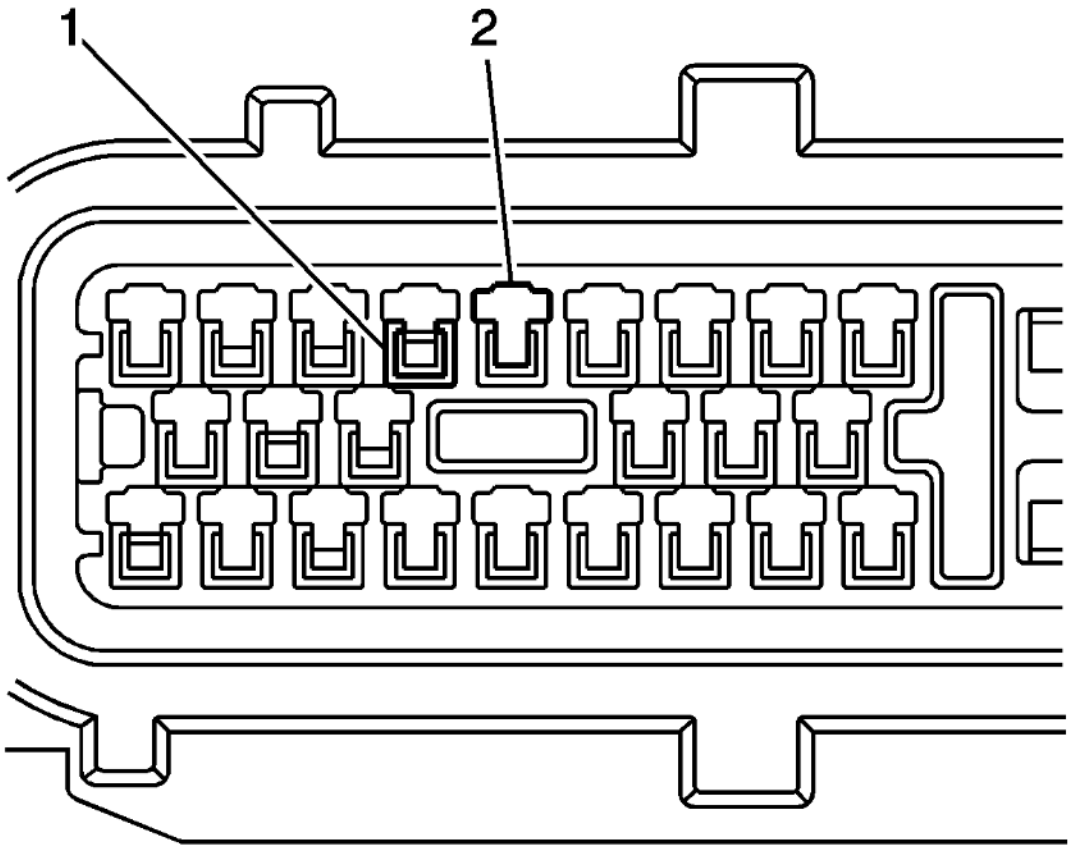

Fig. 135: View Of Terminal & Entry Canal
Courtesy of GENERAL MOTORS COMPANY

7. The illustration above identifies the entry canal where the terminal release tool will be inserted, and the terminal cavity.
    - Terminal (1)
    - Entry Canal (2)

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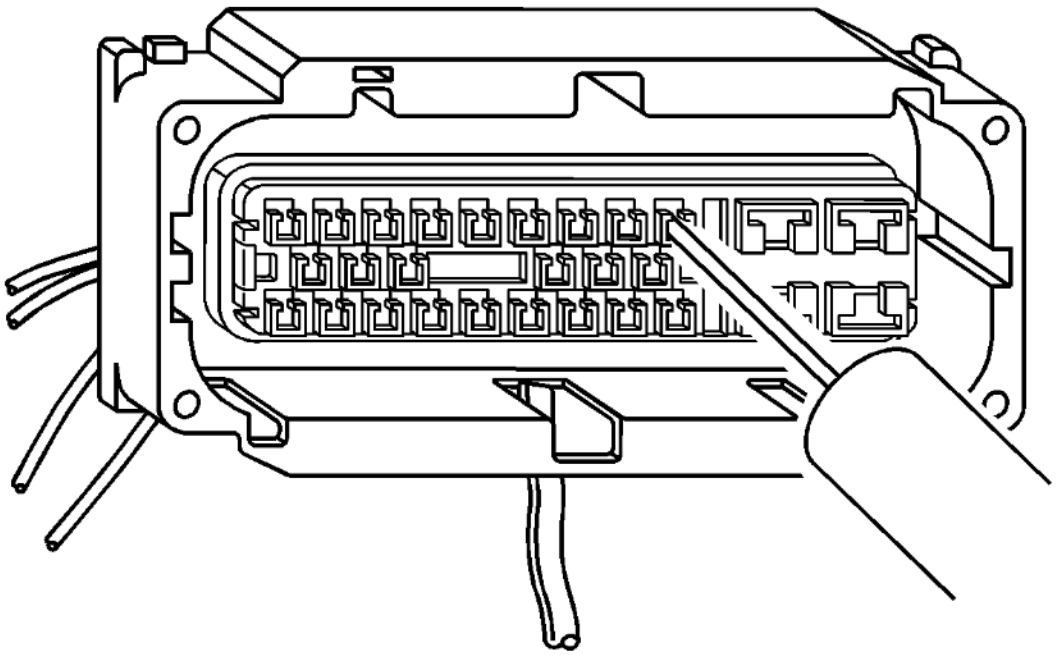

Fig. 136: Inserting J-38125-553 (15315247) Tool Into Entry Canal
Courtesy of GENERAL MOTORS COMPANY

8. Insert the J-38125-553 tool into the entry canal and pry up on the terminal retainer. The terminal retainer is a small plastic piece on the top of the terminal. The terminal retainer must be held up while the terminal is pulled out of the connector.

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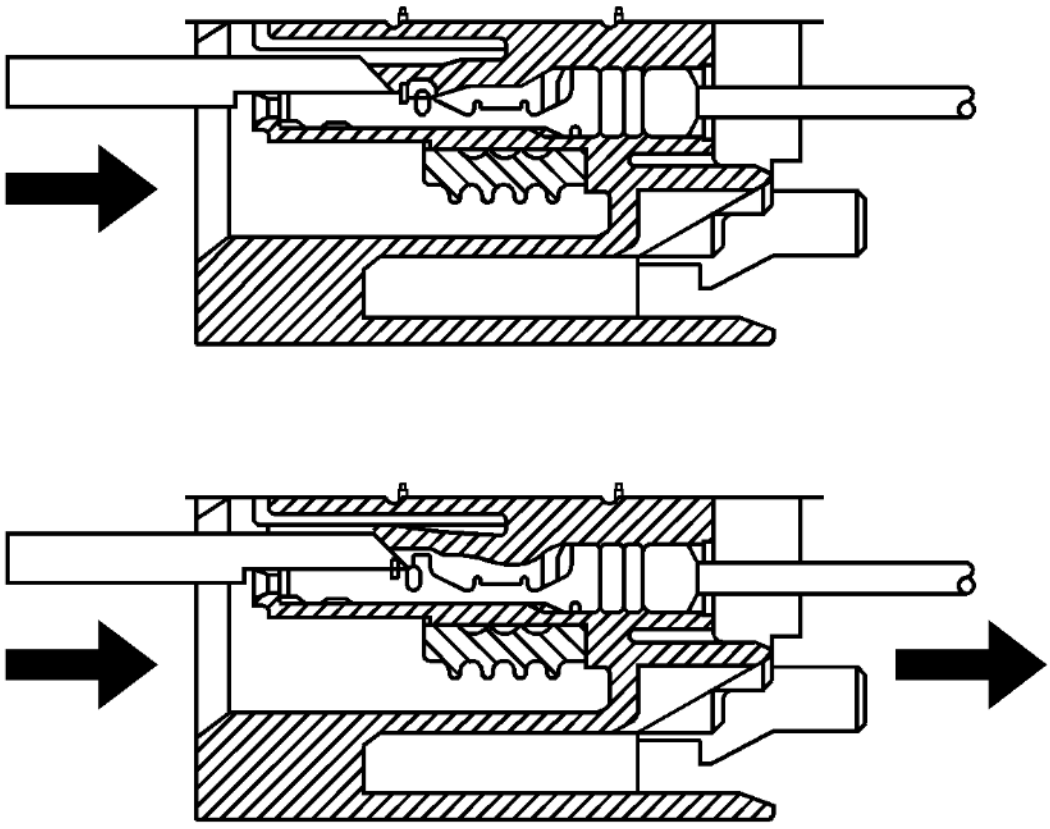

Fig. 137: Cutaway View Of Connector
Courtesy of GENERAL MOTORS COMPANY

9. The illustration shows a cutaway view of the connector to aid the technician in releasing the terminal retainer.
10. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
11. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

Terminal Insertion Procedure

After the terminal is replaced, perform the following procedure in order to insert the terminal.

1. Slide the new terminal into the correct cavity at the back of the connector.
2. Push the terminal into the connector until it locks into place. The new terminal should be even with the other terminals. Ensure that the terminal is locked in place by gently pulling on the wire.
3. To assemble the connector, reverse the connector disassembly procedure.

TYCO/AMP CONNECTORS (CM 42-WAY)

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Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-12A** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

1. Locate the connector position assurance (CPA) on the connector body and pull the CPA out. The CPA is on the wire harness side of connector.
2. Disconnect the connector from the component.

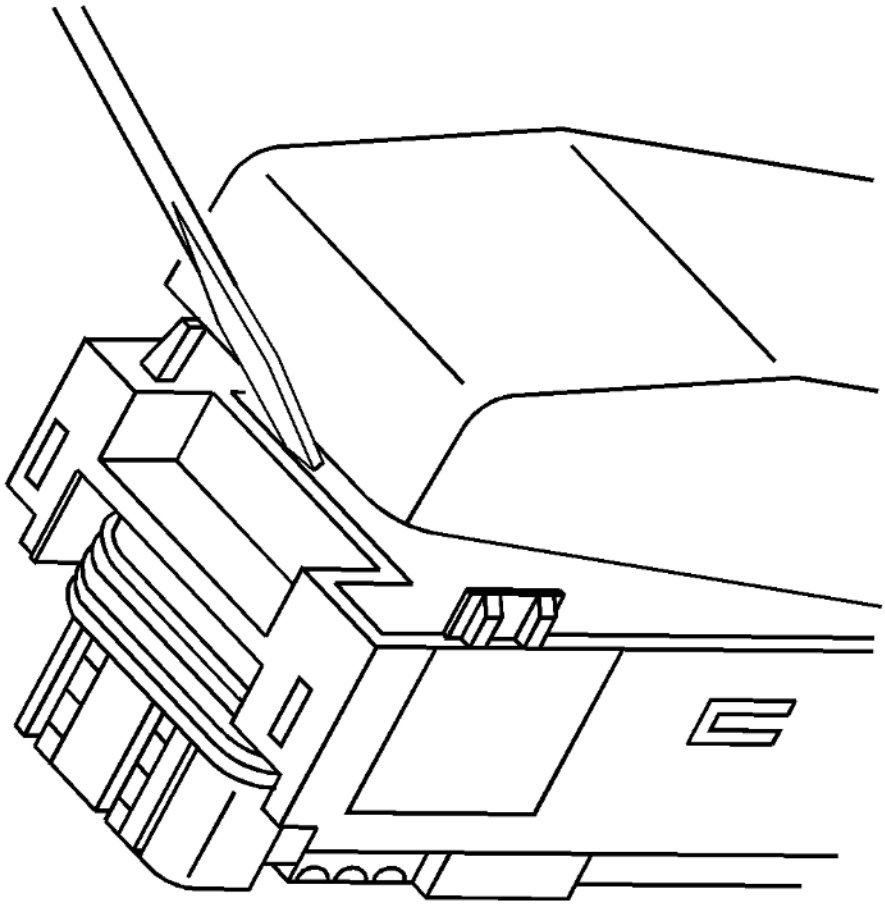

Fig. 138: View Of Dress Cover
Courtesy of GENERAL MOTORS COMPANY

3. Use a small flat-bladed tool to gently pry off the dress cover by inserting the tool under the cover opposite the harness side and prying up.
4. Remove the cover.

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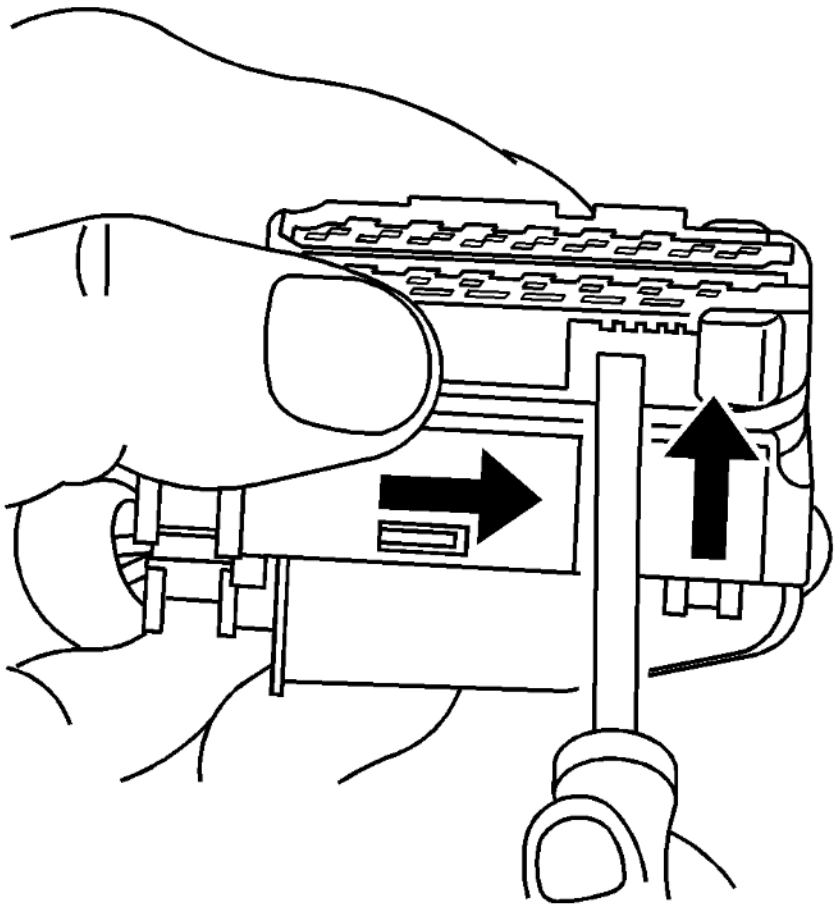

Fig. 139: View Of Terminal Position Assurance (TPA)
Courtesy of GENERAL MOTORS COMPANY

5. Using a small flat-bladed tool, push on the side of the nose piece retainer while pushing the nose piece forward with your thumb. This will release the terminal position assurance (TPA).

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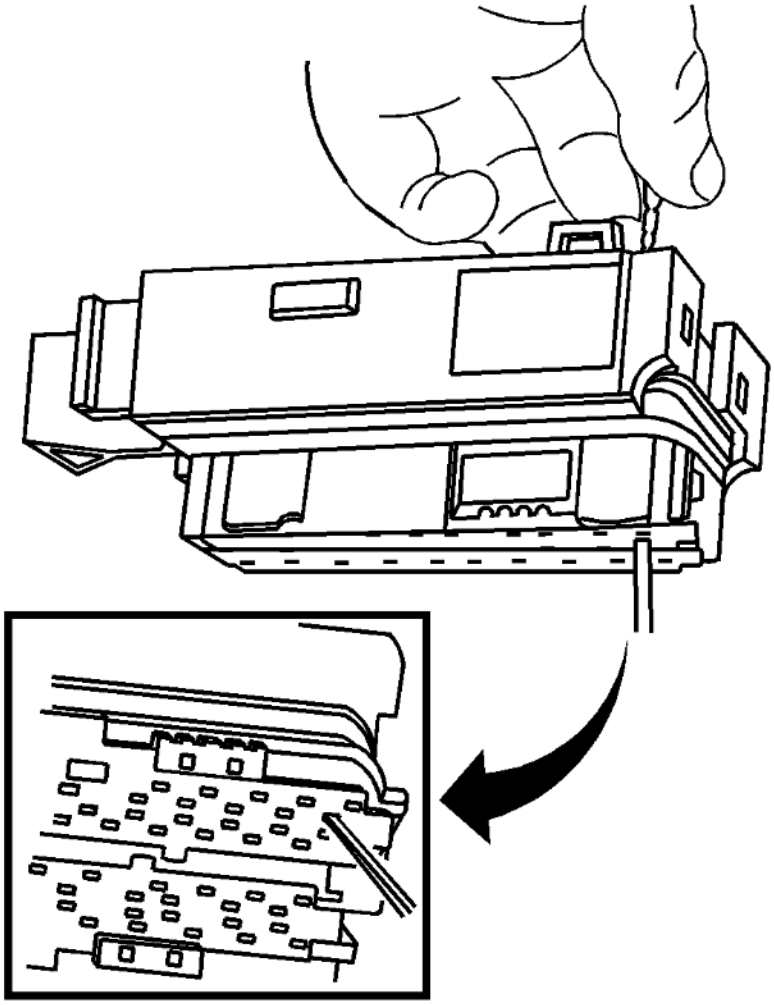

Fig. 140: Inserting Special Tool Into Terminal Release Cavity
Courtesy of GENERAL MOTORS COMPANY

6. Insert the **J-38125-12A** tool into the corresponding terminal release cavity. The release cavities are the 2 center rows of cavities on one half of the connector.

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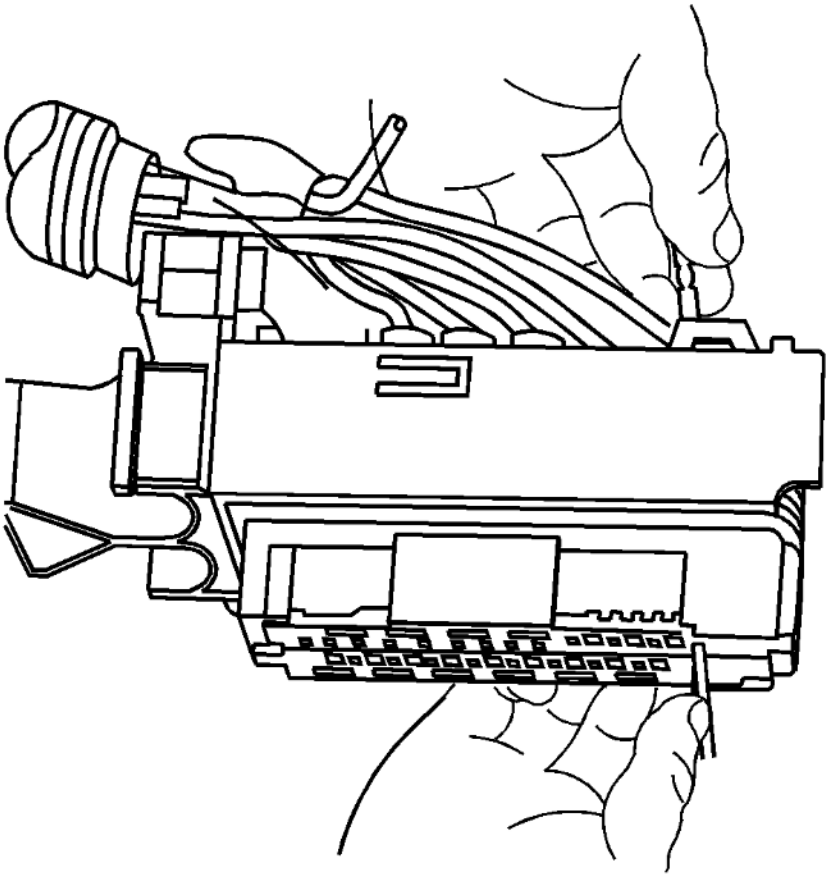

Fig. 141: Identifying Special Tool & Release Cavity
Courtesy of GENERAL MOTORS COMPANY

7. Pressing the **J-38125-12A** tool in the release cavity of the terminal you are removing, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
8. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
9. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

TYCO/AMP CONNECTORS (SENSOR)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-11A** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

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Terminal Removal Procedure

1. Disconnect the connector from the component.

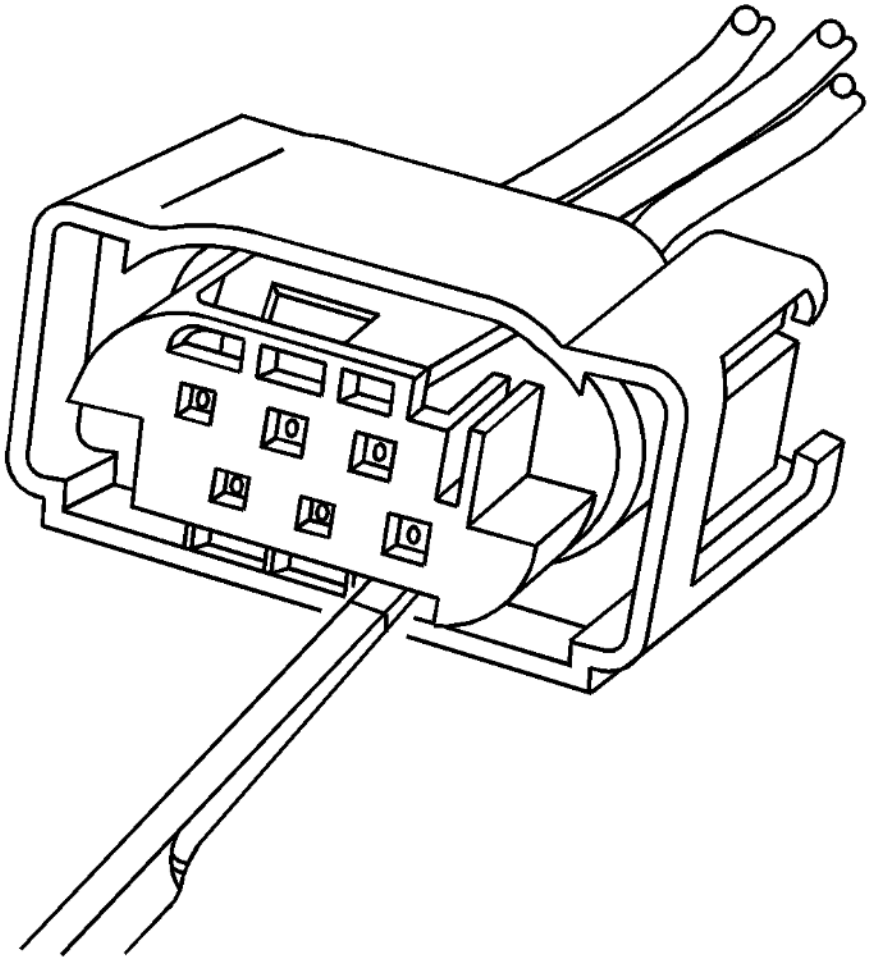

Fig. 142: View Of Inserting Special Tool Into Lower Right Face Cavity
Courtesy of GENERAL MOTORS COMPANY

2. Insert the J-38125-11A tool into the cavity on the lower right hand face of the connector until the terminal release tang access panel slides over.

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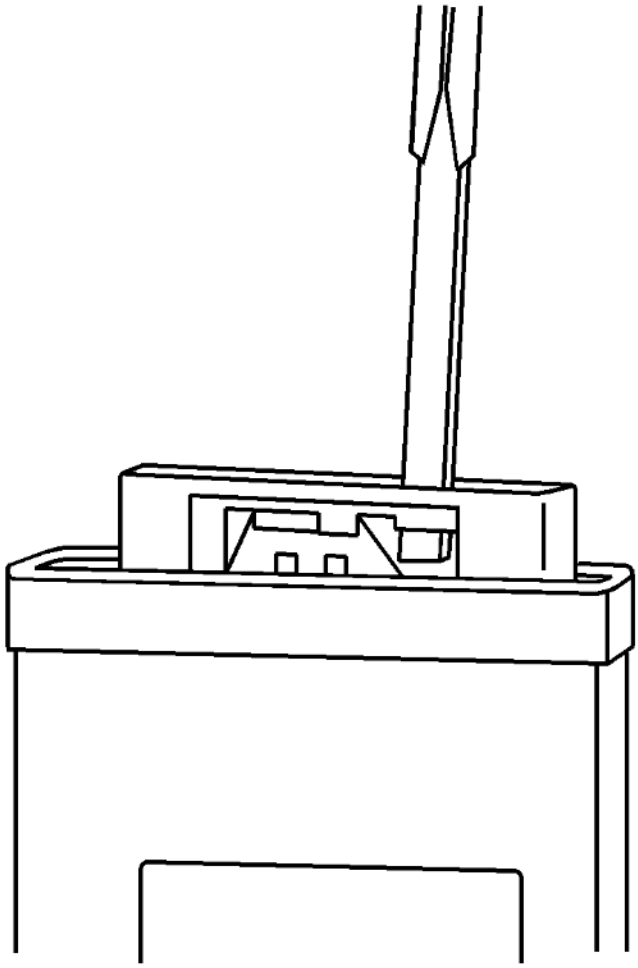

Fig. 143: Pushing Wire Side Of Terminal Toward Connector
Courtesy of GENERAL MOTORS COMPANY

3. Ensure that the terminal release tang access panel is in the correct location to access the terminals.
4. Push the wire side of the terminal that is being removed toward the connector and hold it in position.

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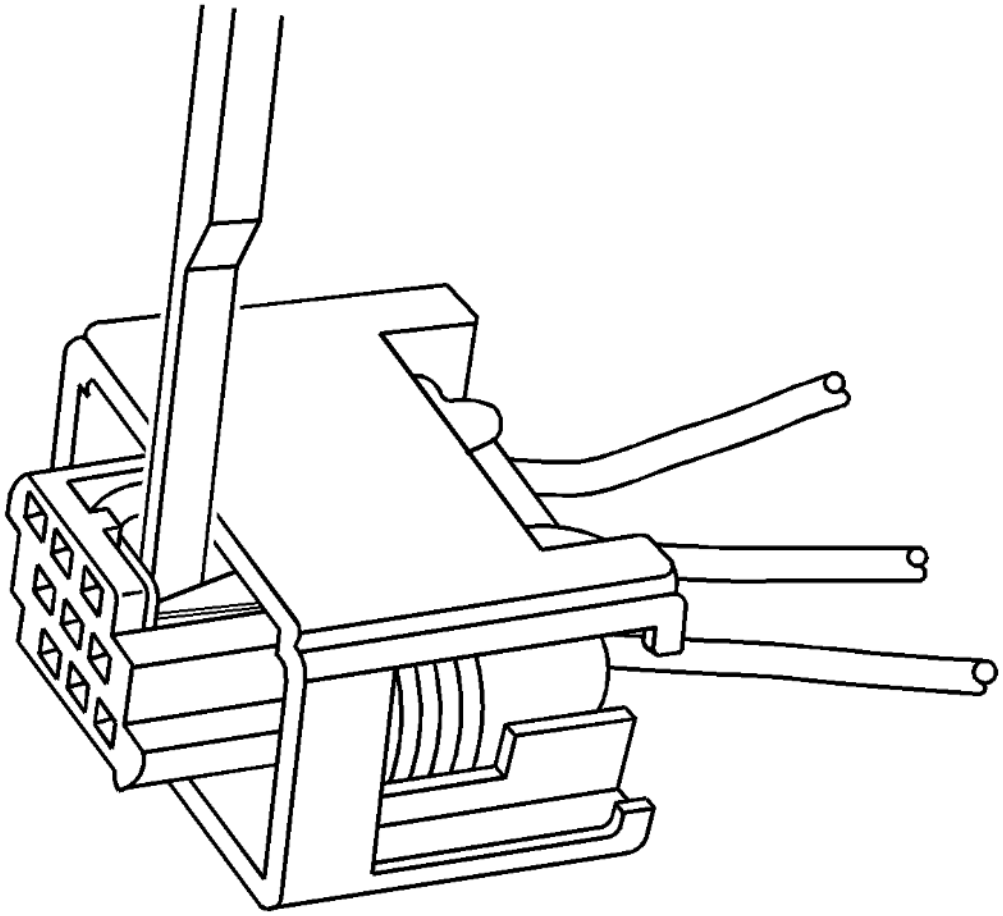

Fig. 144: View Of Inserting Tool Into Terminal Release Tang Access Slot (Sensor)
Courtesy of GENERAL MOTORS COMPANY

5. Insert the J-38125-11A into the terminal release tang access slot located behind the access panel of the connector and press down on the terminal while carefully pulling the terminal out of the connector. Always remember never use force when pulling a terminal out of a connector. If the terminal is difficult to remove, repeat the entire procedure.
6. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
7. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

TYCO/AMP CONNECTORS (0.25 CAP)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-24** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

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Terminal Removal Procedure

1. Disconnect the connector from the component by pressing down on the connector position assurance (CPA).

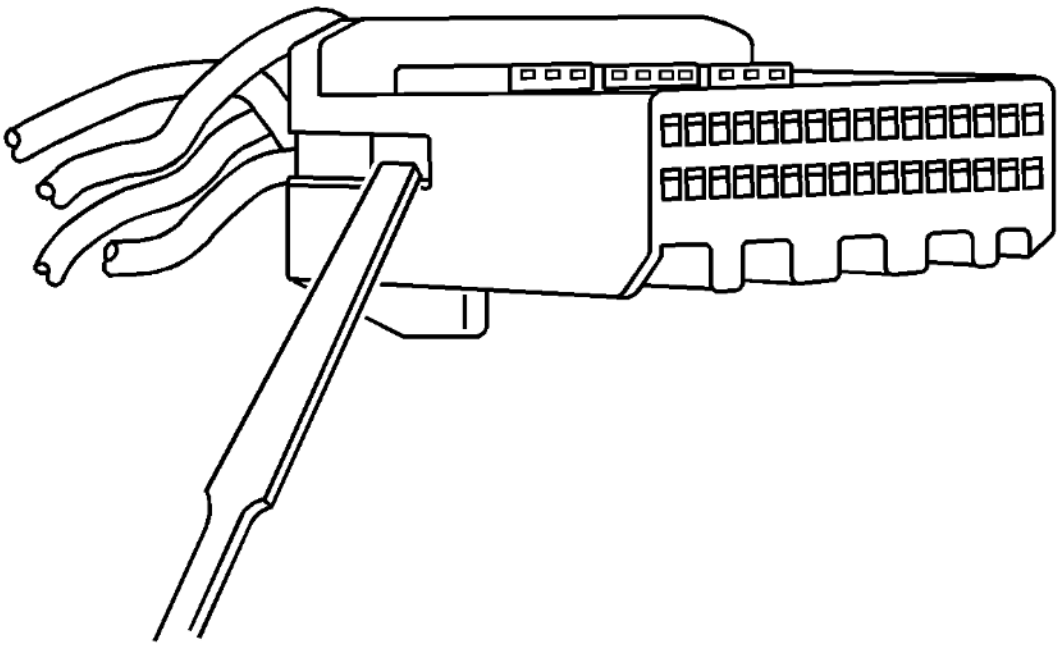

Fig. 145: Releasing TPA Using Small Flat-Bladed Tool
Courtesy of GENERAL MOTORS COMPANY

NOTE: **The TPA on this connector cannot be removed unless the terminals are removed first. The TPA will come out of the connector body, but only slightly. When the TPA is slightly raised the terminals can be removed. Using excessive force to remove the TPA with the terminals still in the connector will damage the connector.**

2. Use a small flat-bladed tool to release the terminal position assurance (TPA) by inserting the tool in the small recess on the side of the connector and pushing up until the TPA releases from the connector body. The TPA should raise just slightly. Do not try to remove the TPA.
3. Repeat the process for the other side of the connector.

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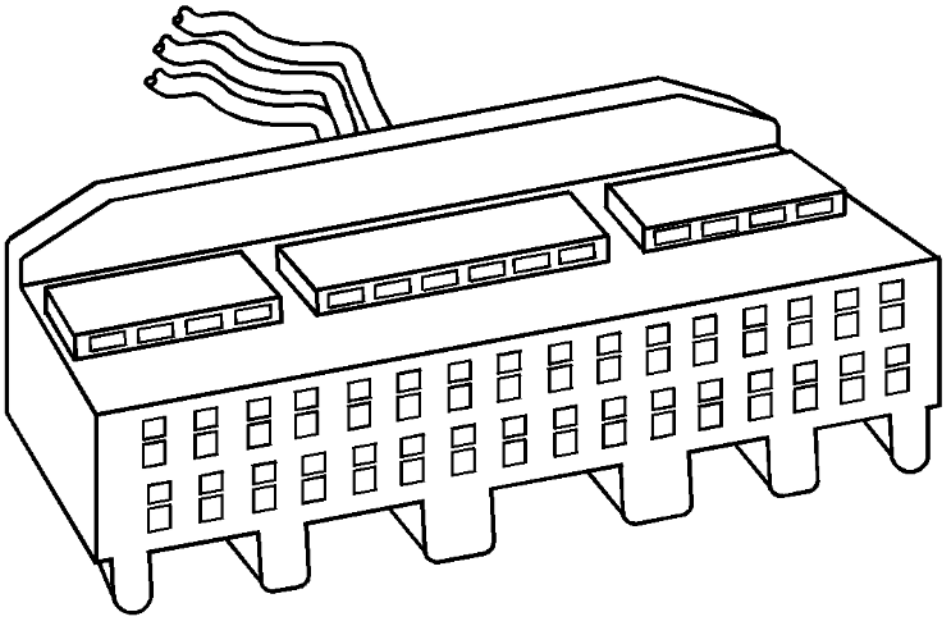

Fig. 146: View Of Terminal Position Assurance
Courtesy of GENERAL MOTORS COMPANY

4. Ensure that the TPA is in the proper position to remove the terminals.

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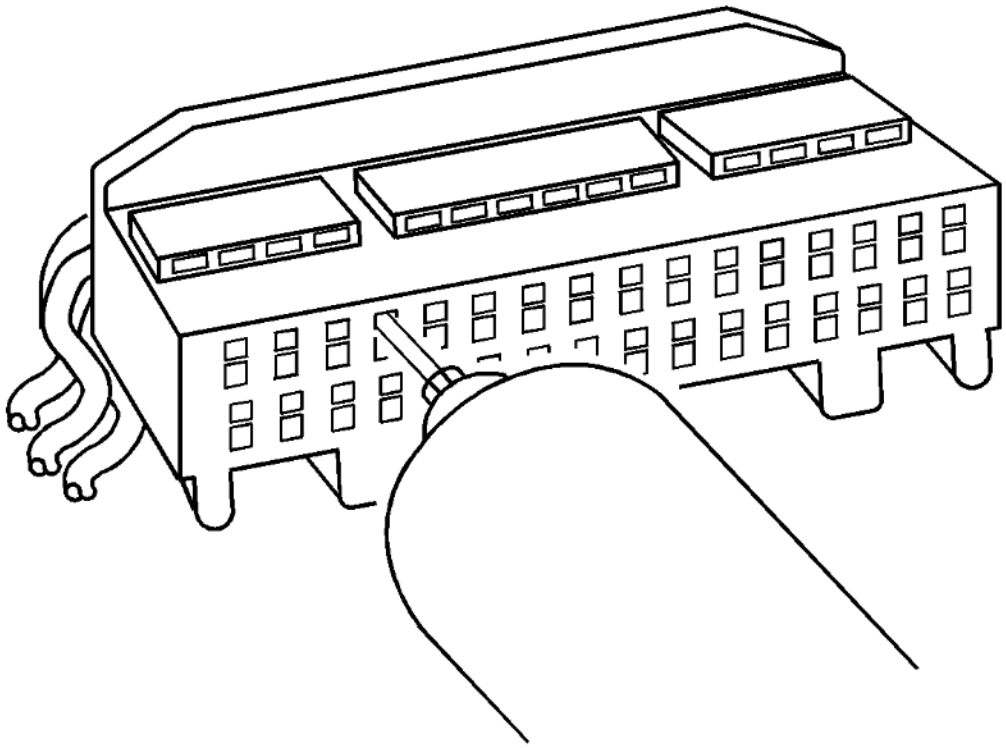

Fig. 147: Identifying Special Tool & Release Cavity
Courtesy of GENERAL MOTORS COMPANY

5. While pushing the terminal forward, insert the J-38125-24 in the release cavity above the terminal you are removing, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
6. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
7. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

TYCO/AMP CONNECTORS (43-WAY)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-12A** Terminal Release Tool
- **J-38125-13A** Terminal Release Tool

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For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

Follow the steps below in order to remove terminals from the connector.

1. Locate the lever lock on the wire dress cover. Slide the lever lock away from the connector body.
2. Disconnect the connector from the component.
3. Locate the dress cover locking tabs on the dress cover of the connector. Using a small flat-bladed tool release all of the locking tabs.
4. Once the locks are unlocked, lift the dress cover off.

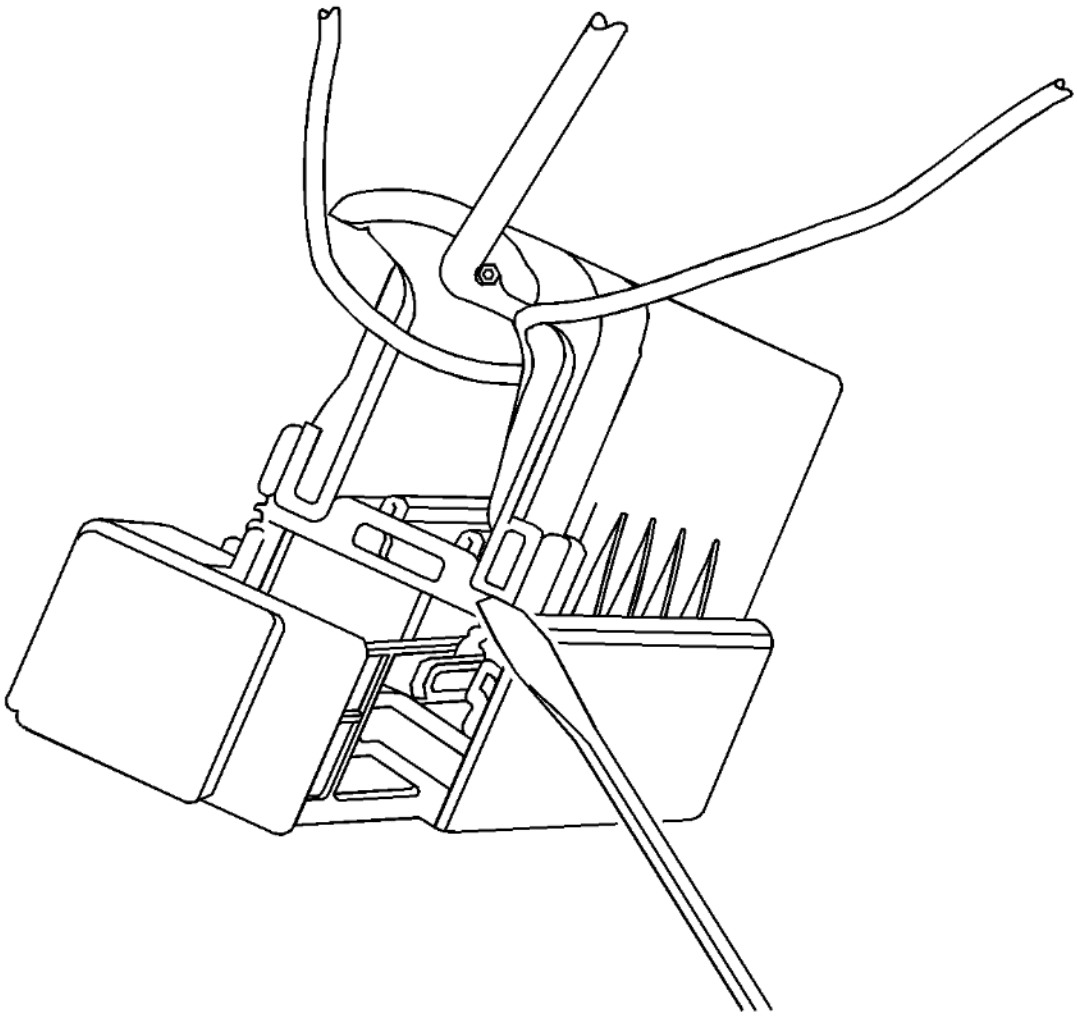

Fig. 148: Releasing TPA
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Always use care when removing a terminal position assurance (TPA) in order to avoid damaging it.**

5. Release the TPA by inserting a small flat-bladed tool into the blue locking tabs on both ends of the connector. Gently slide the TPA up to the released position on both ends.

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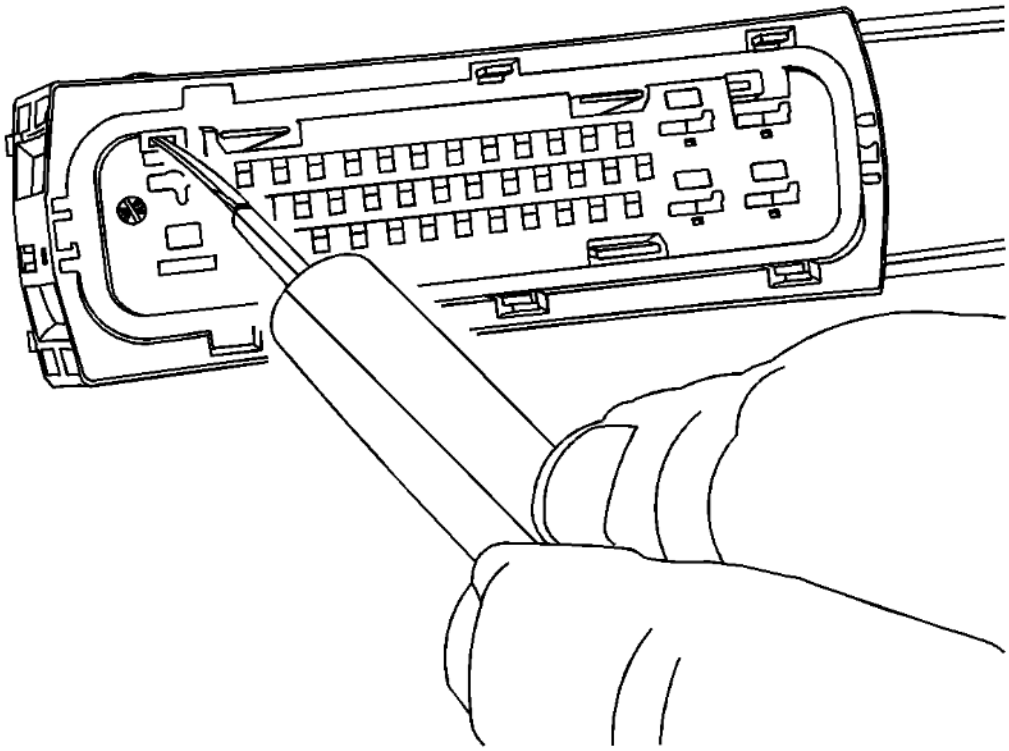

Fig. 149: View Of Inserting Tool Into Terminal Release Cavity
Courtesy of GENERAL MOTORS COMPANY

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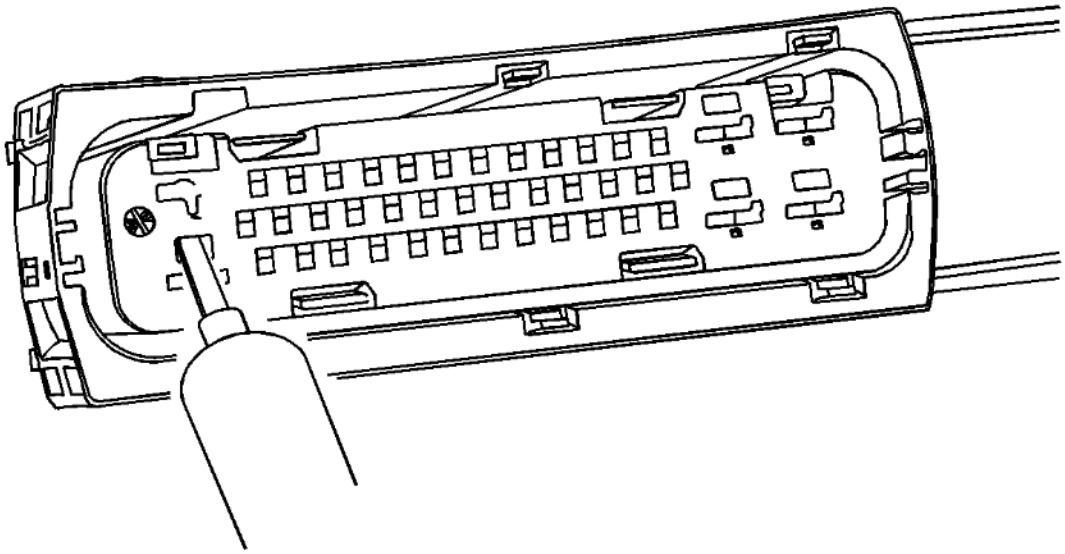

Fig. 150: View Of Release Tool Being Used For Larger Terminals
Courtesy of GENERAL MOTORS COMPANY

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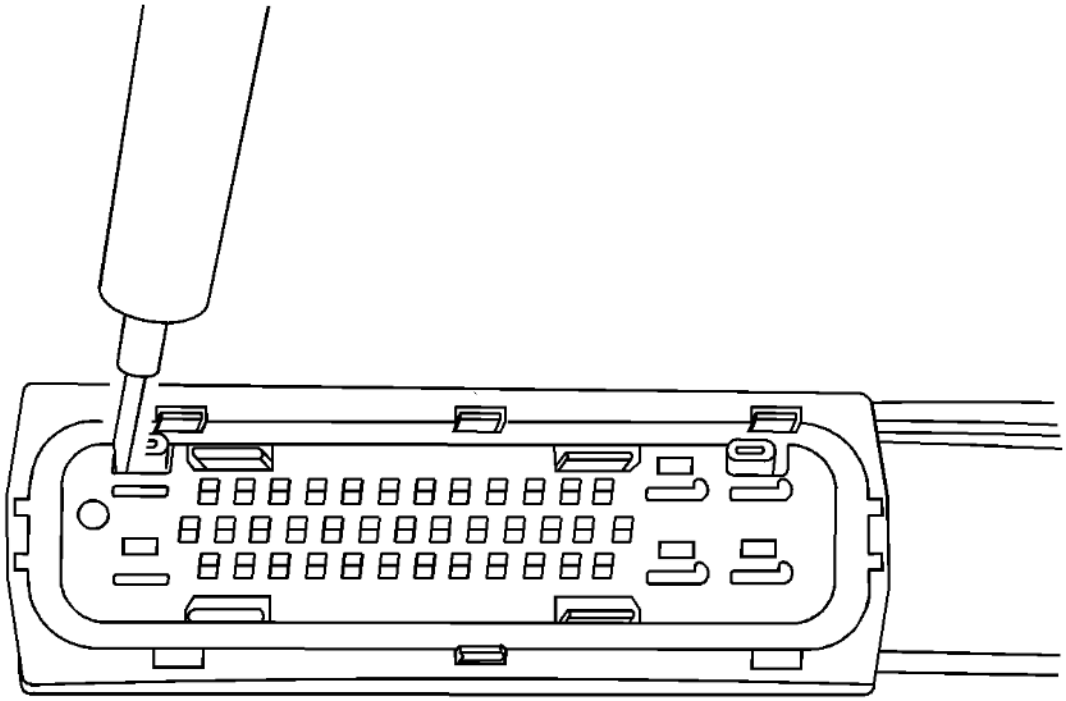

Fig. 151: View Of Release Tool Being Used For Larger Terminals
Courtesy of GENERAL MOTORS COMPANY

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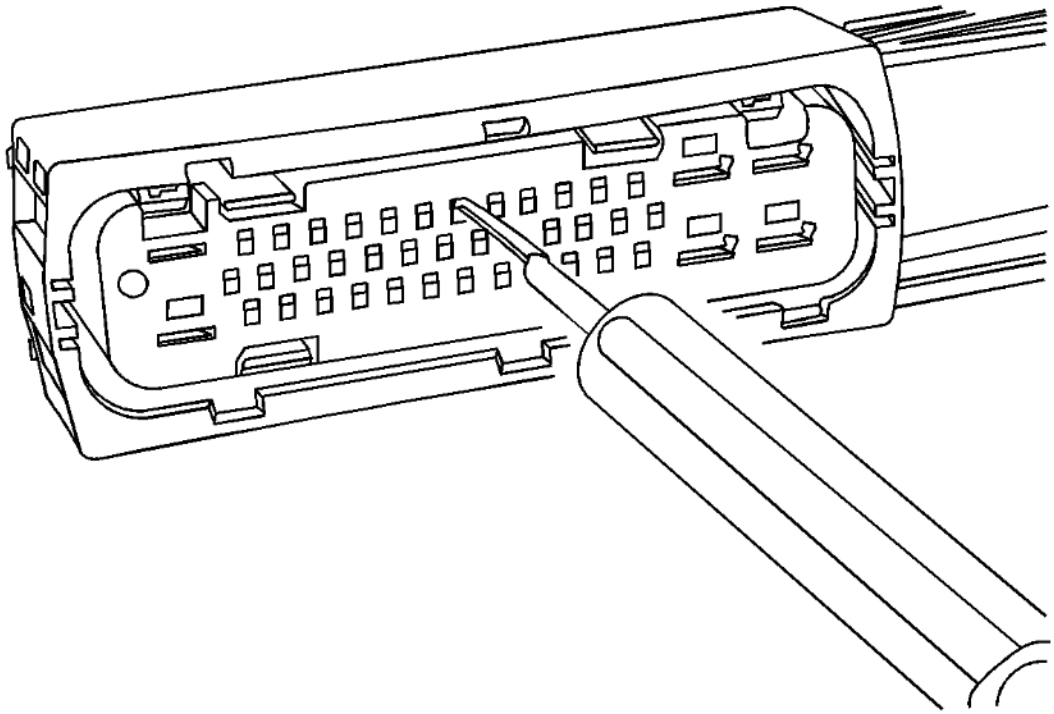

Fig. 152: View Of Release Tool Being Used For Smaller Terminals
Courtesy of GENERAL MOTORS COMPANY

6. For the larger terminals insert the **J-38125-13A** tool to release the terminals by inserting the tool into the terminal release cavity. For the smaller terminals insert the **J-38125-12A** tool to release the terminals by inserting the tool into the terminal release cavity.

   View of the release tool being used for the larger terminals.

   View of the release tool being used for the larger terminals.

   View of the release tool being used for the smaller terminals.

7. While holding the removal tool in place, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
8. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
9. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

TYCO/AMP CONNECTORS (DOOR MODULE)

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Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-12A** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

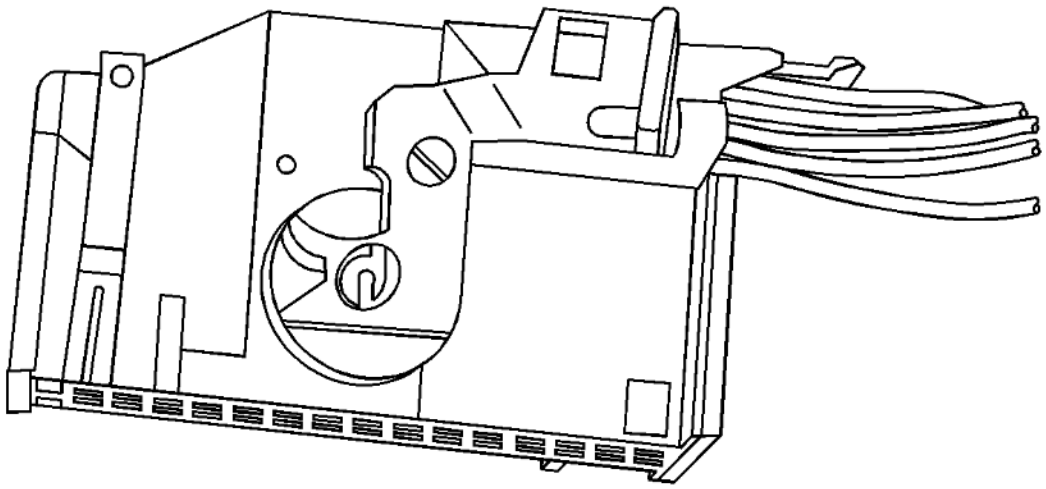

Fig. 153: Side View Of Tyco/AMP Connector
Courtesy of GENERAL MOTORS COMPANY

Side view of connector.

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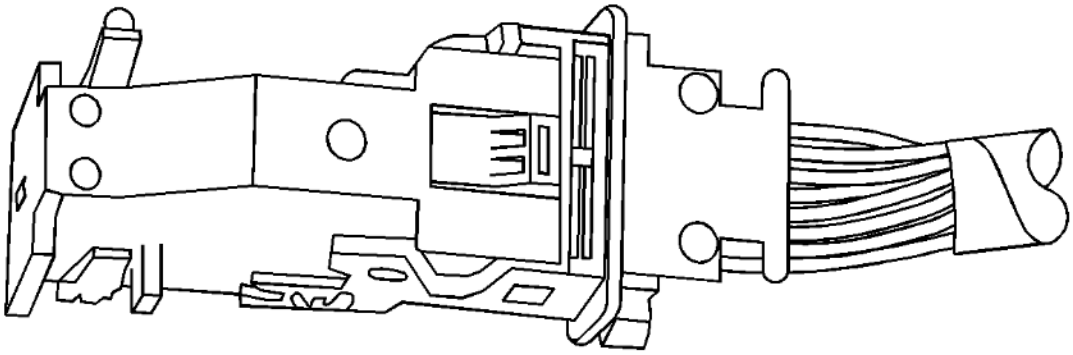

Fig. 154: Top View Of Tyco/AMP Connector
Courtesy of GENERAL MOTORS COMPANY

View of top of connector.

1. Locate the assist lever and lock on the top of the connector.

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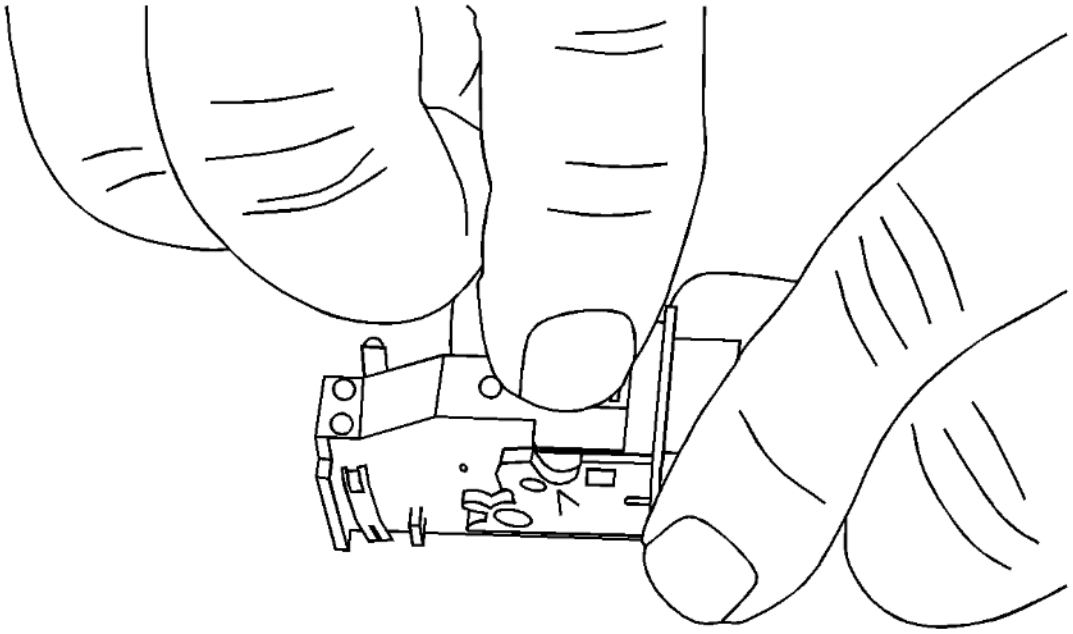

Fig. 155: View Of Depressing Lock & Pulling Assist Lever
Courtesy of GENERAL MOTORS COMPANY

2. While depressing the lock, pull the lever over and past the lock.

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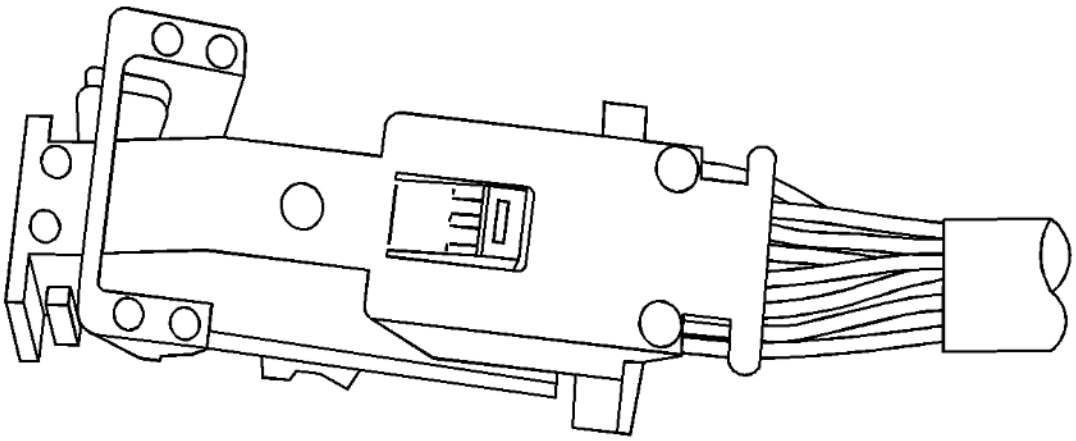

Fig. 156: View Of Component Connector
Courtesy of GENERAL MOTORS COMPANY

3. Disconnect the connector from the component.

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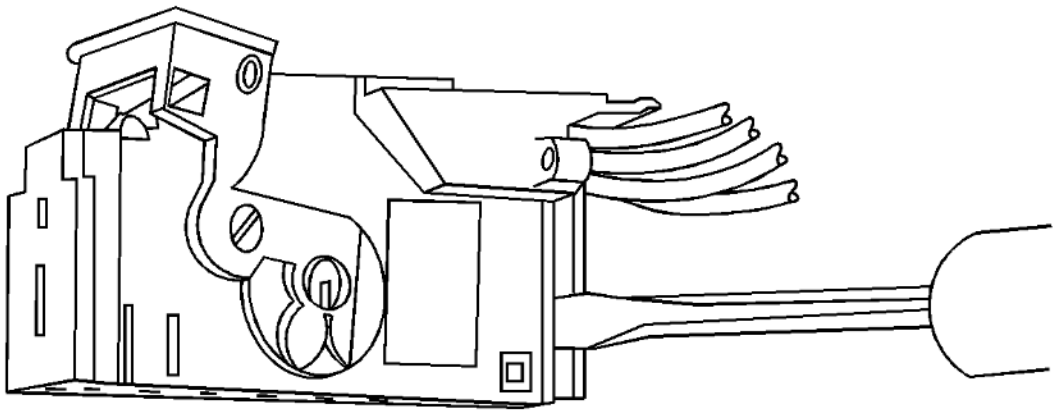

Fig. 157: Identifying Locking Tabs
Courtesy of GENERAL MOTORS COMPANY

4. Locate the dress cover locking tabs at the rear of the connector. Use a small flat-blade tool to release the locking tabs. Repeat this procedure for the other locking tab.

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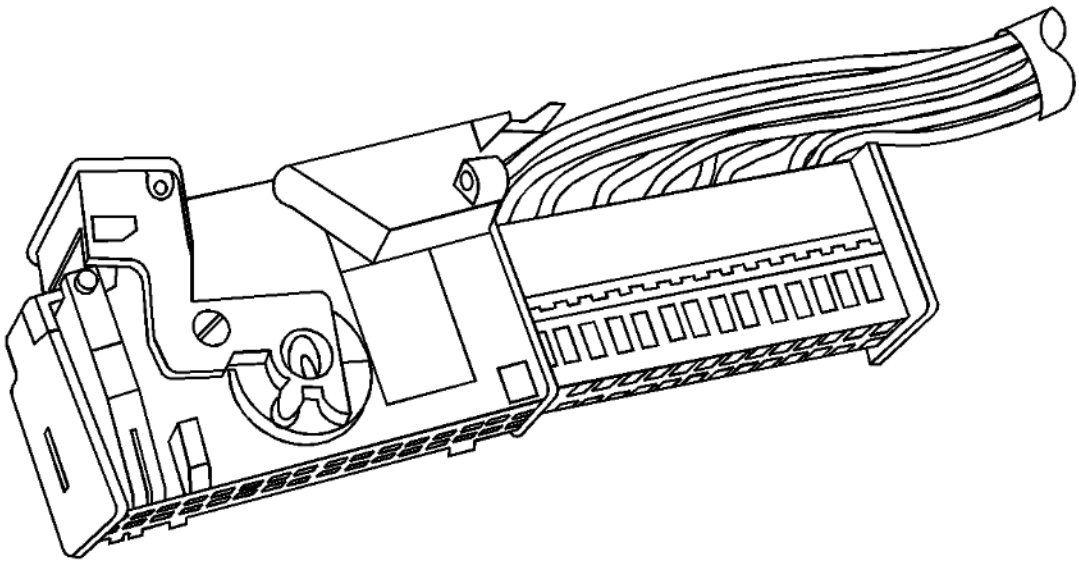

Fig. 158: Sliding Inner Connector Out Of Connector Housing
Courtesy of GENERAL MOTORS COMPANY

5. Once the locking tabs are unlocked, slide the inner connector out of the rear of the connector housing.

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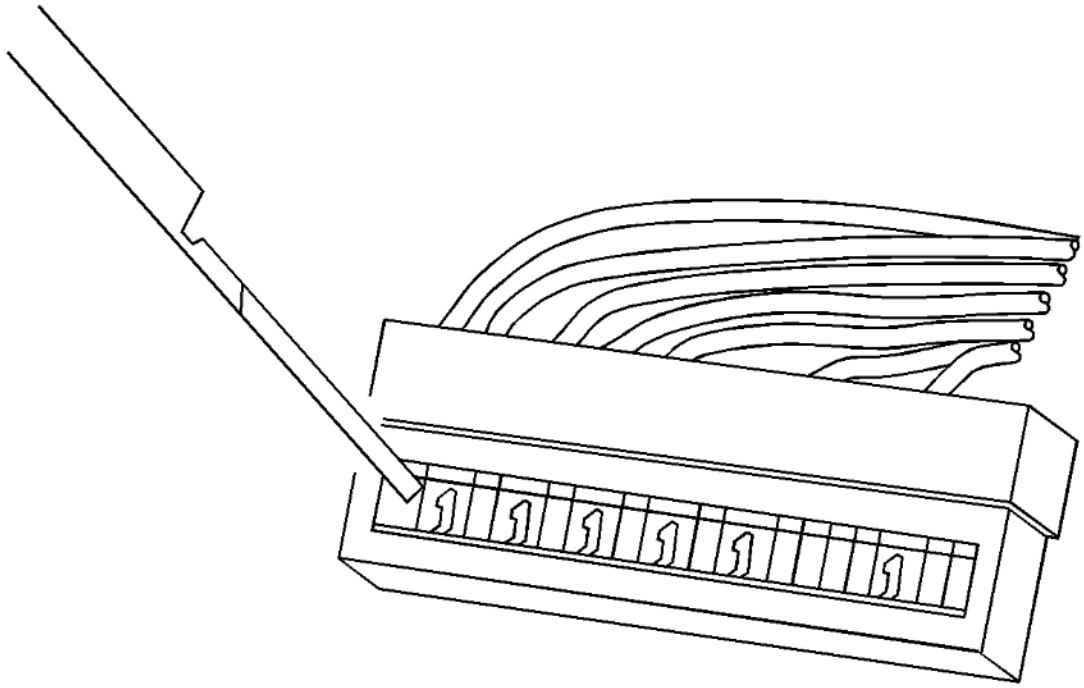

Fig. 159: Using Special Tool To Release Terminals
Courtesy of GENERAL MOTORS COMPANY

6. Use the J-38125-12A tool to release the terminals by pressing on the tang.
7. While holding the removal tool in place, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
8. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
9. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

TYCO/AMP CONNECTORS (SEAT)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-11A** Terminal Release Tool
- **J-38125-212** Terminal Release Tool
- **J-38125-556** Terminal Release Tool

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- **J-38125-560** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

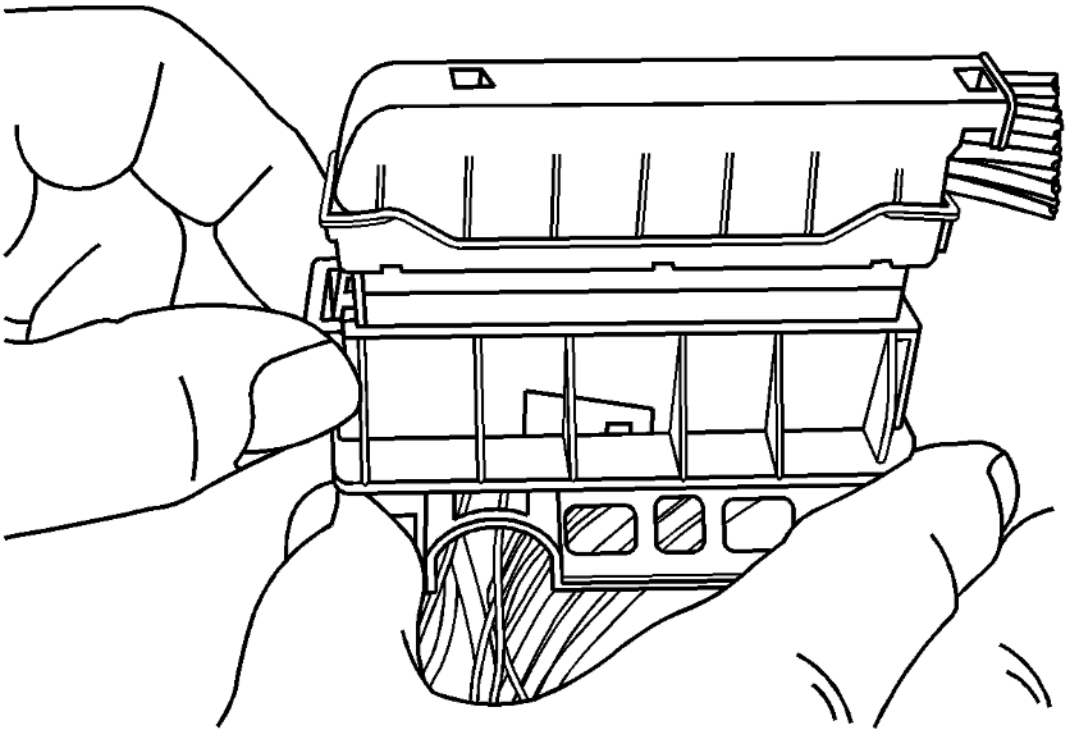

Fig. 160: Locating Locking Slide Lever
Courtesy of GENERAL MOTORS COMPANY

1. Grasp the locking slide lever and pull outward from the end of the connector.

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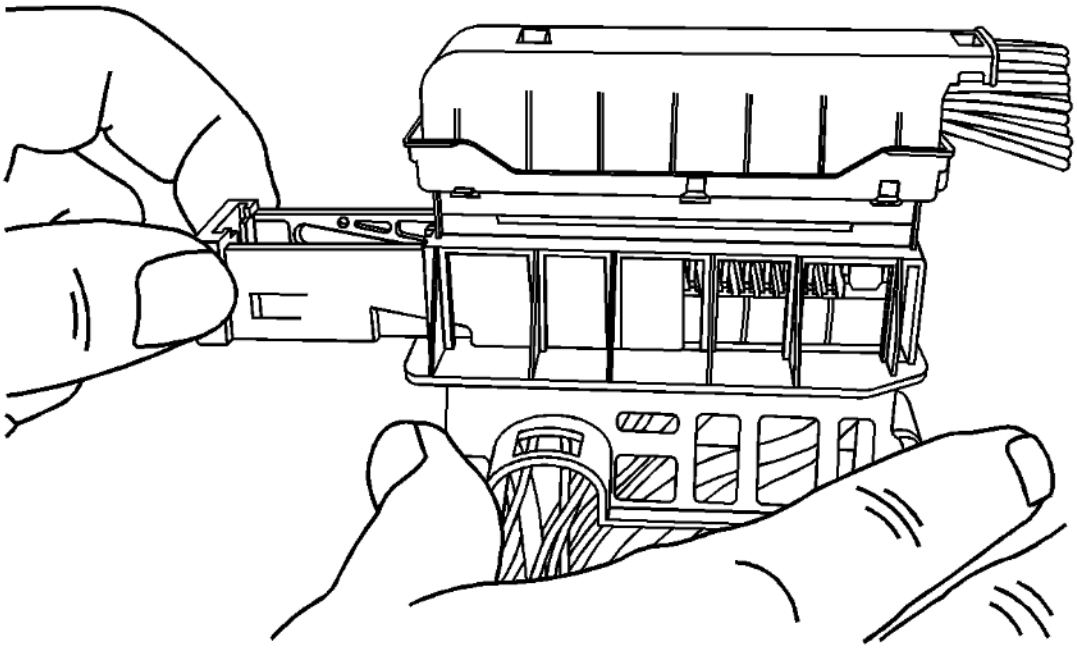

Fig. 161: Pulling Slide Lever Out Of Mating Connector
Courtesy of GENERAL MOTORS COMPANY

2. As the slide lever is pulled out the mating connector is lifted from the seated position.

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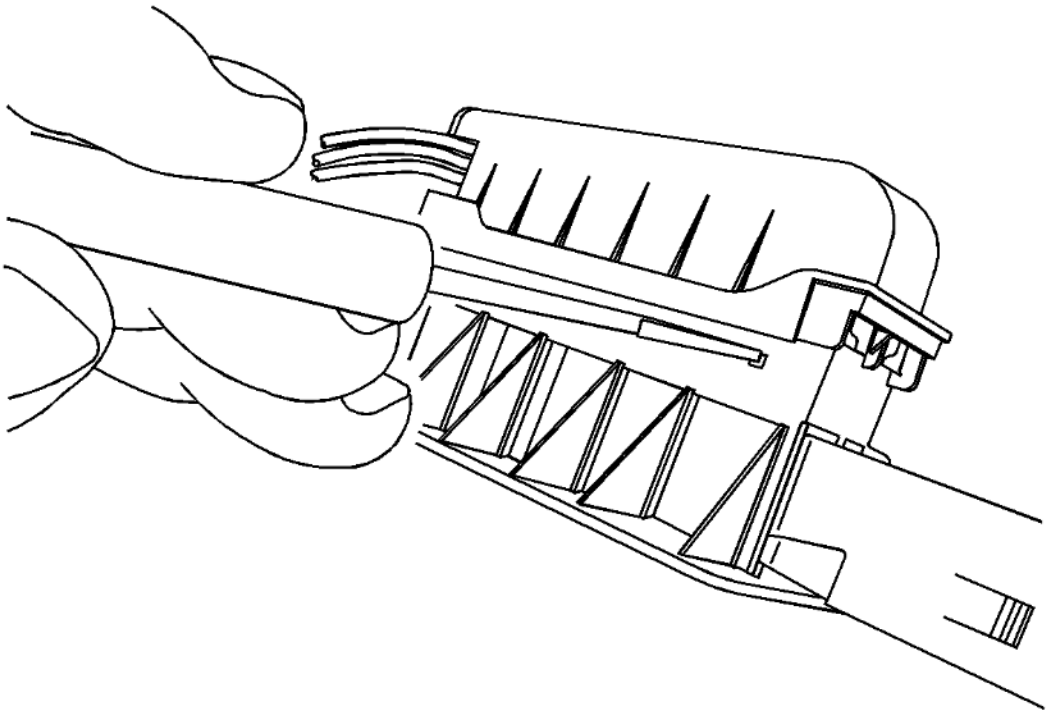

Fig. 162: Pushing TPA Tabs Into Connector Body
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Terminal position assurance (TPA) is keyed and can only be inserted in one direction.**

3. Using terminal release tool J-38125-11A or equivalent, push the TPA tabs into the connector body.

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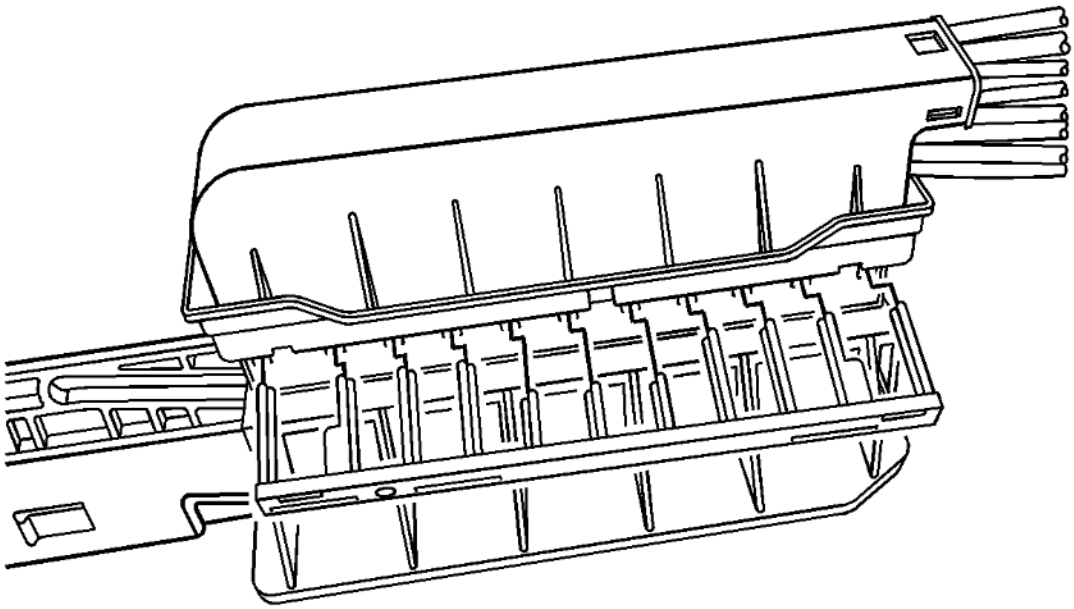

Fig. 163: Pulling TPA From Connector Body
Courtesy of GENERAL MOTORS COMPANY

4. Pull the TPA from the connector body.

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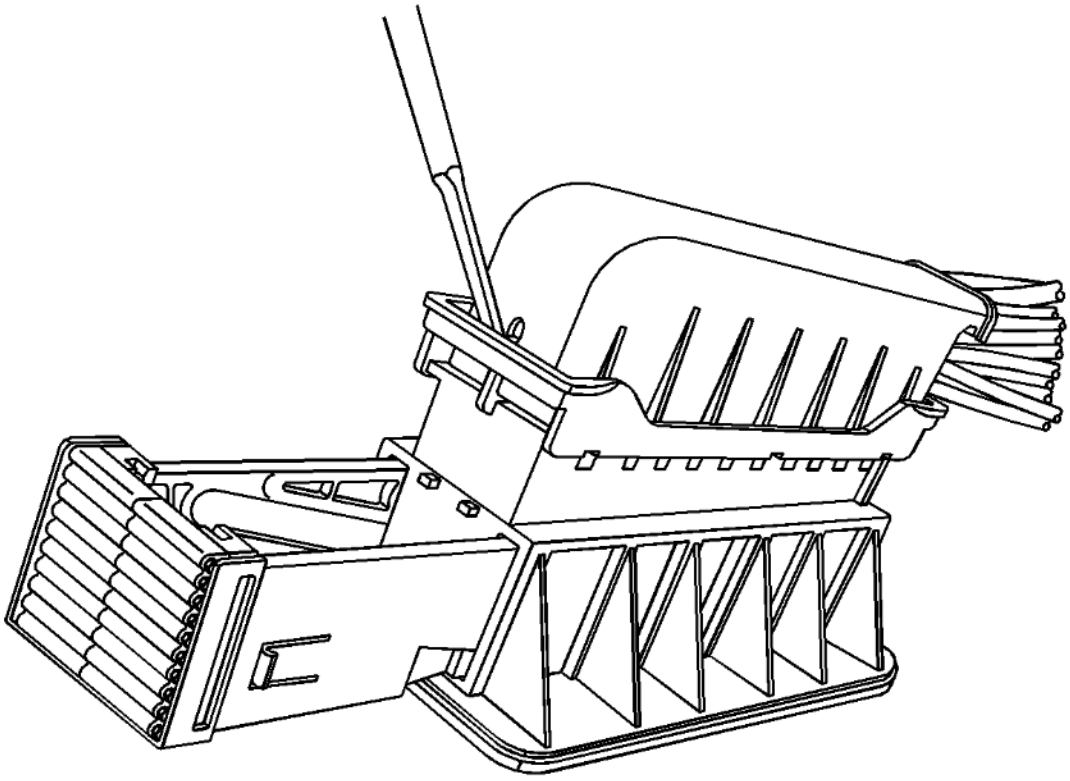

Fig. 164: Releasing Connector Wire Dress Cover Locking Tab
Courtesy of GENERAL MOTORS COMPANY

5. Using terminal release tool J-38125-11A or equivalent, release the connector wire dress cover locking tab.

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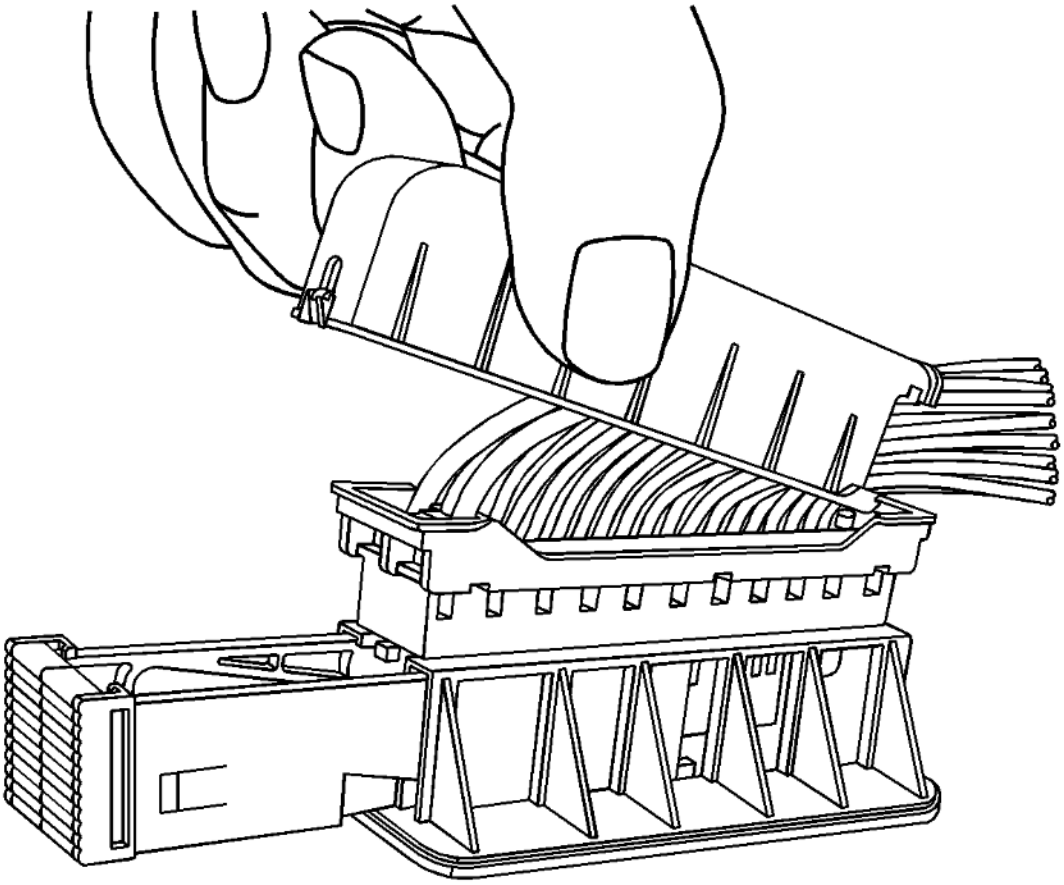

Fig. 165: Lifting Connector Wire Dress Cover From Connector Body
Courtesy of GENERAL MOTORS COMPANY

6. With the lock tab released, lift the connector wire dress cover from the connector body.

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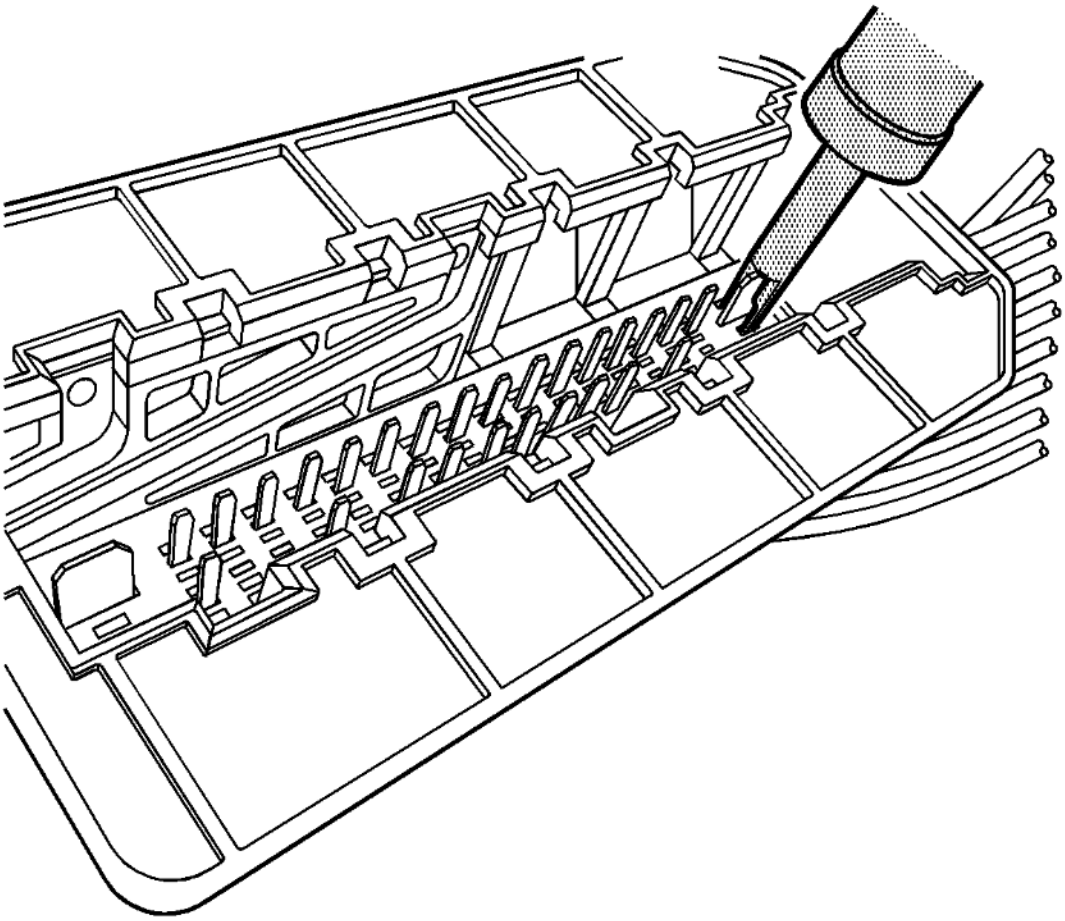

Fig. 166: Using Terminal Release Tool
Courtesy of GENERAL MOTORS COMPANY

7. Using terminal release tool J-38125-212, press the prongs into the holes each side of the terminal to be removed to release the lock tabs and pull the terminal out of the connector body.

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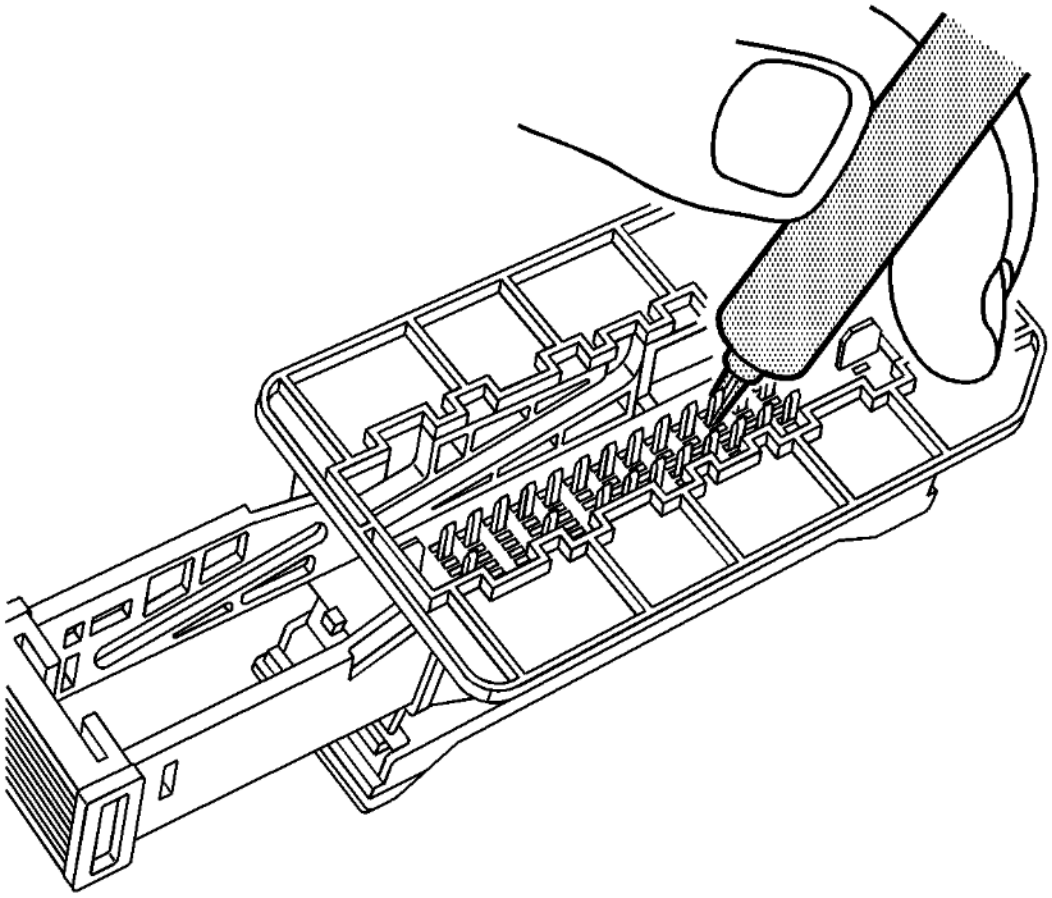

Fig. 167: Using Terminal Release Tool
Courtesy of GENERAL MOTORS COMPANY

8. Using terminal release tool J-38125-560, press the prongs into the holes on each side of the terminal to be removed to release the lock tabs and pull the terminal out of the connector body.

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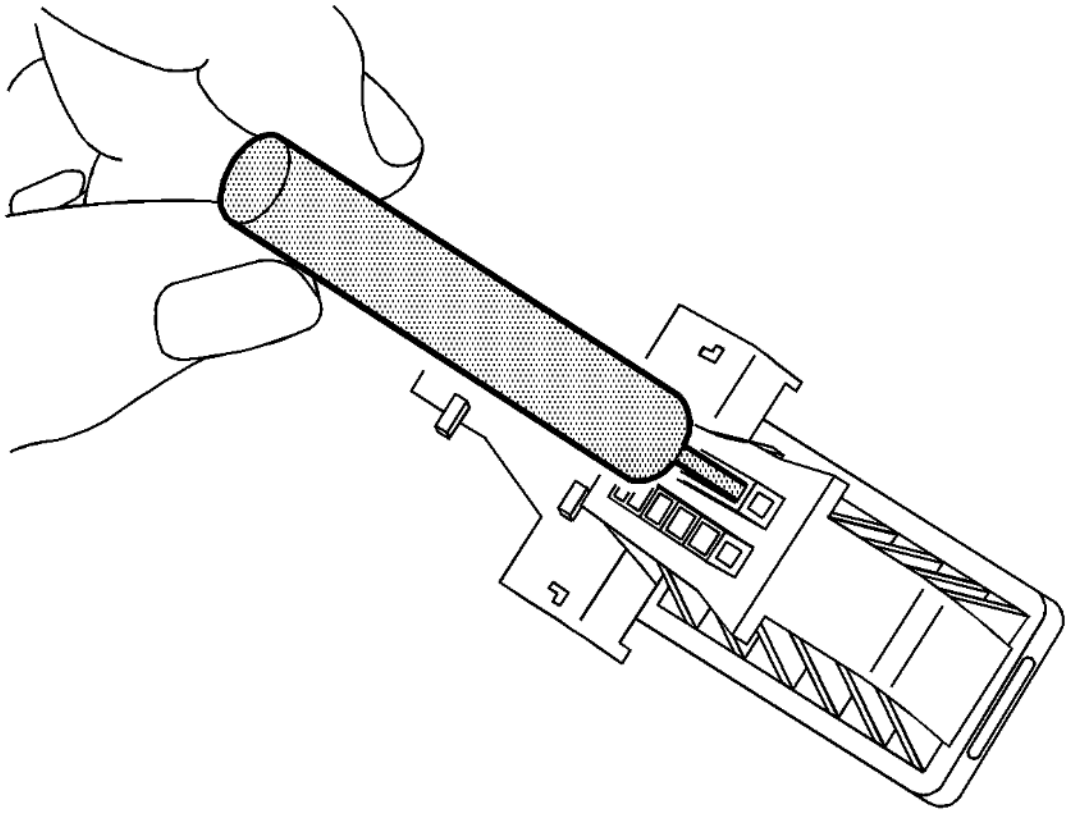

Fig. 168: Using Terminal Release Tool
Courtesy of GENERAL MOTORS COMPANY

9. Using terminal release tool J-38125-556, press the prongs into the holes on each side of the terminal to be removed to release the lock tabs and pull the terminal out of the connector body.
10. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
11. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

TYCO/AMP CONNECTORS (102-WAY INLINE)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-11A** Terminal Release Tool
- **J-38125-212** Terminal Release Tool
- **J-38125-216** Terminal Release Tool
- **J-38125-221** Terminal Release Tool

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- **J-38125-560** Terminal Release Tool
- **J-38125-566** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

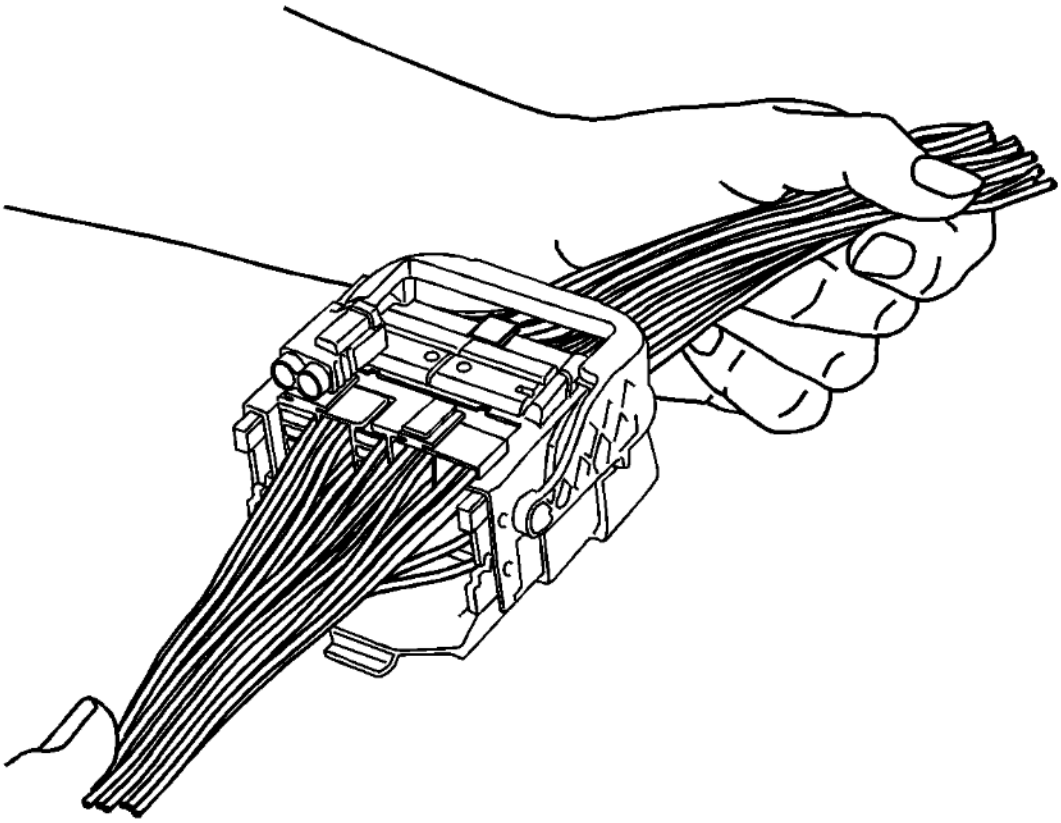

Fig. 169: View Of Typical Connector In Assembled Position
Courtesy of GENERAL MOTORS COMPANY

View of a typical connector in the assembled position.

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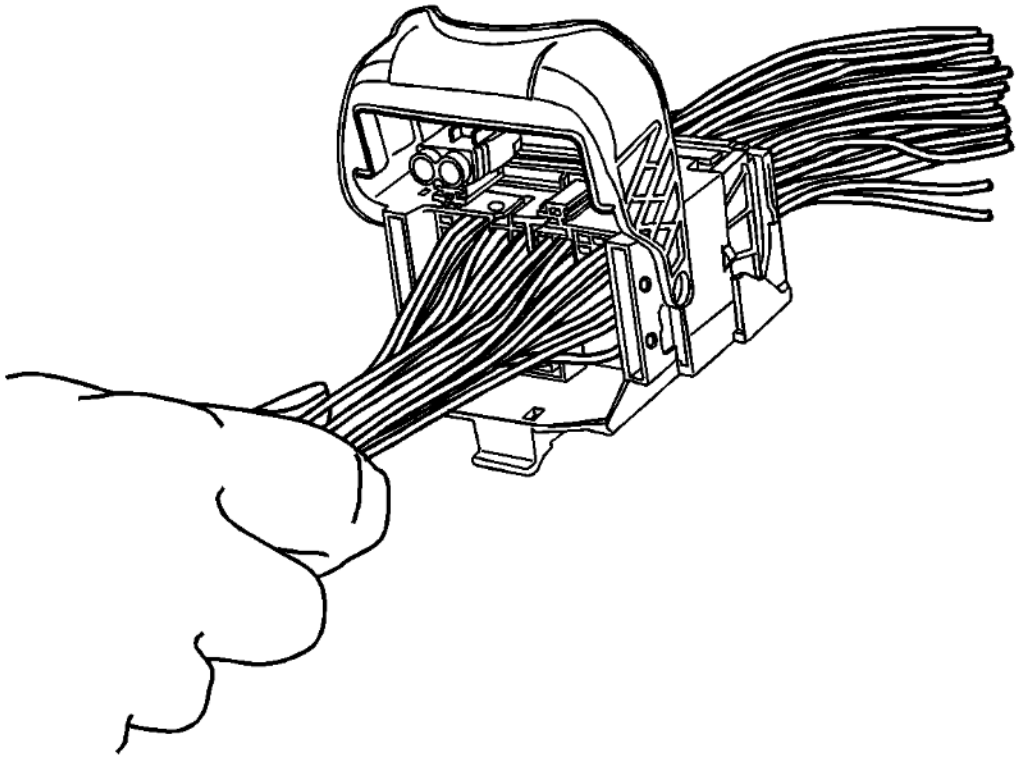

Fig. 170: View Of Locking Lever At 90 Degrees From Connector Body
Courtesy of GENERAL MOTORS COMPANY

1. Pull the locking lever to the 90 degree position from the connector body.

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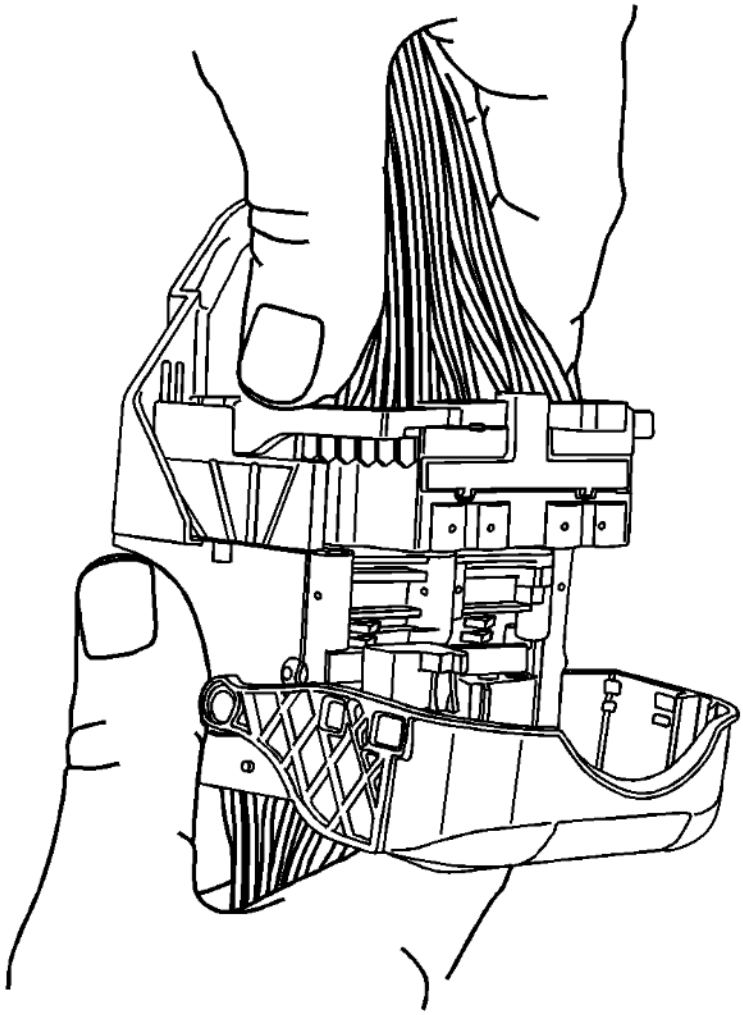

Fig. 171: Assembled View Of Connector - Tyco/AMP (102-Way Inline)
Courtesy of GENERAL MOTORS COMPANY

2. With the locking lever in the 90 degree position and the male connector body separated, it can be slid outward for removal.

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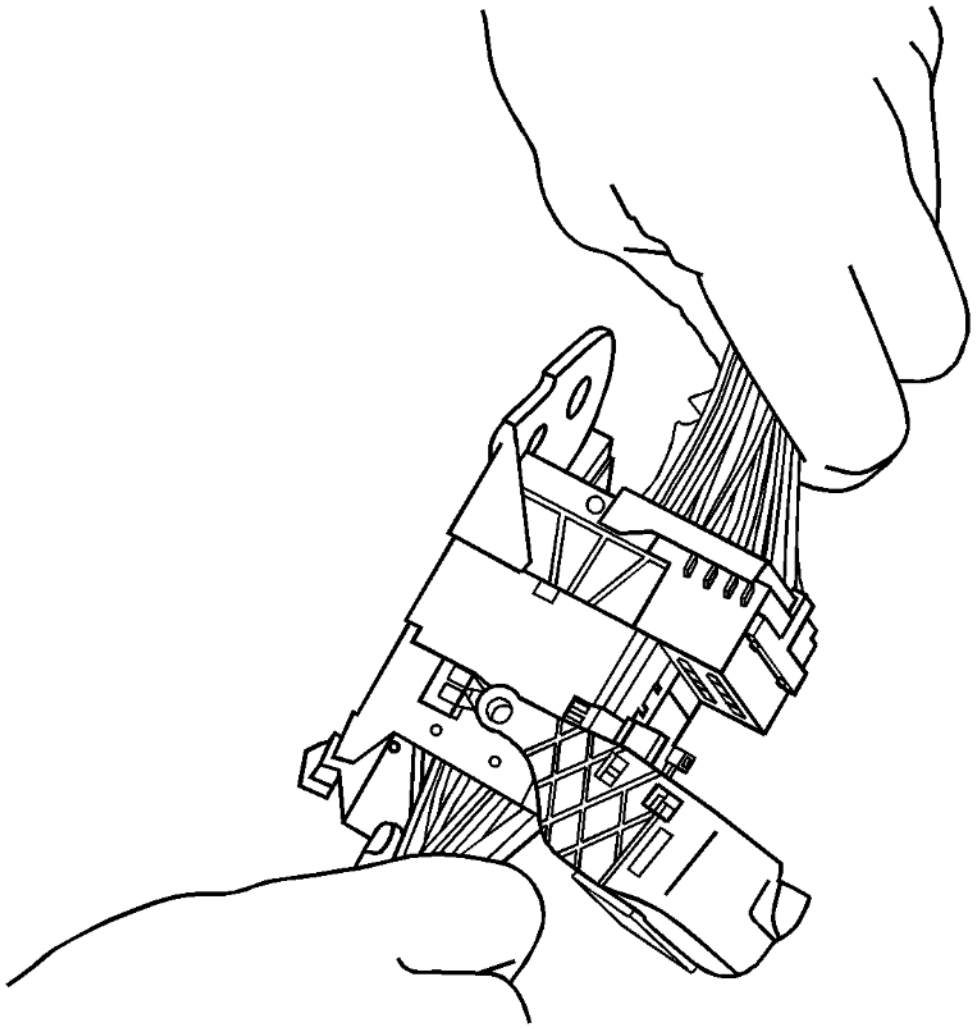

Fig. 172: Sliding Male Connector Body Away From Guide Plates
Courtesy of GENERAL MOTORS COMPANY

3. Slide the male connector body out away from the guide plates.

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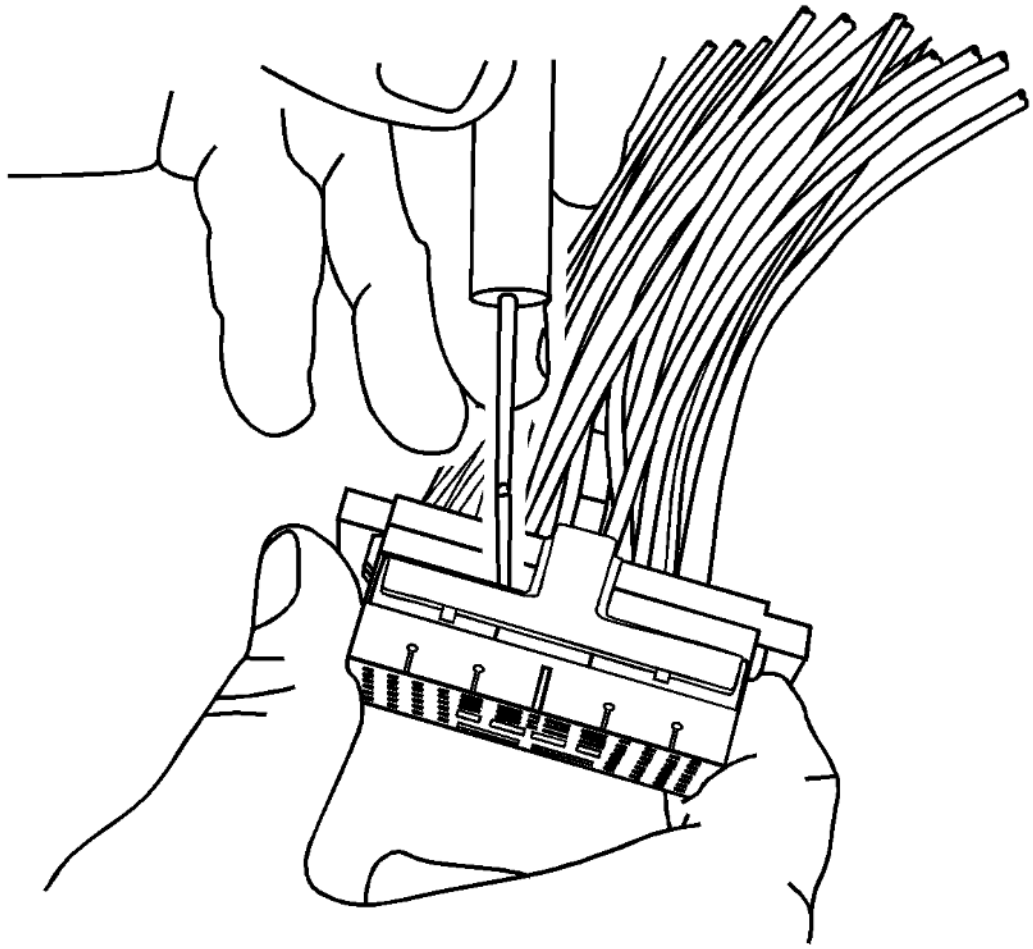

Fig. 173: View of Terminal Release Tool And TPA
Courtesy of GENERAL MOTORS COMPANY

NOTE: **During assembly the terminal position assurance (TPA) will not fully seat if any terminal is not fully seated.**

4. Using terminal release tool J-38125-11A or equivalent, remove the TPA from the connector body.

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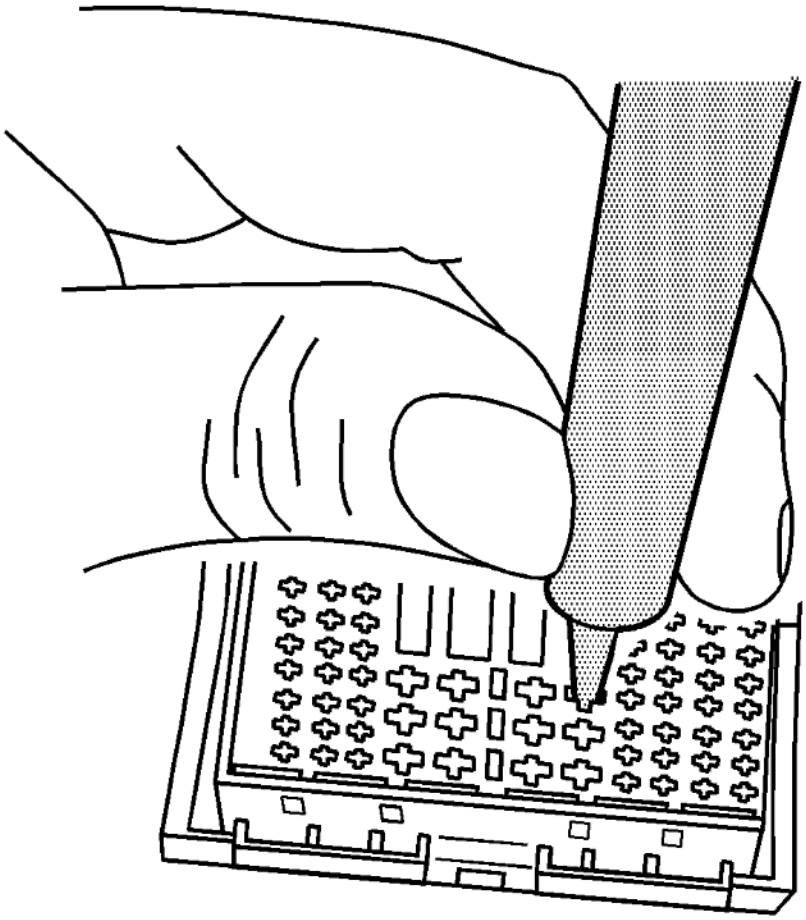

Fig. 174: Releasing Lock Tabs
Courtesy of GENERAL MOTORS COMPANY

5. Using terminal release tool J-38125-566, press the prongs into the holes on each side of the terminal to be removed to release the lock tabs and pull the terminal out of the connector body.

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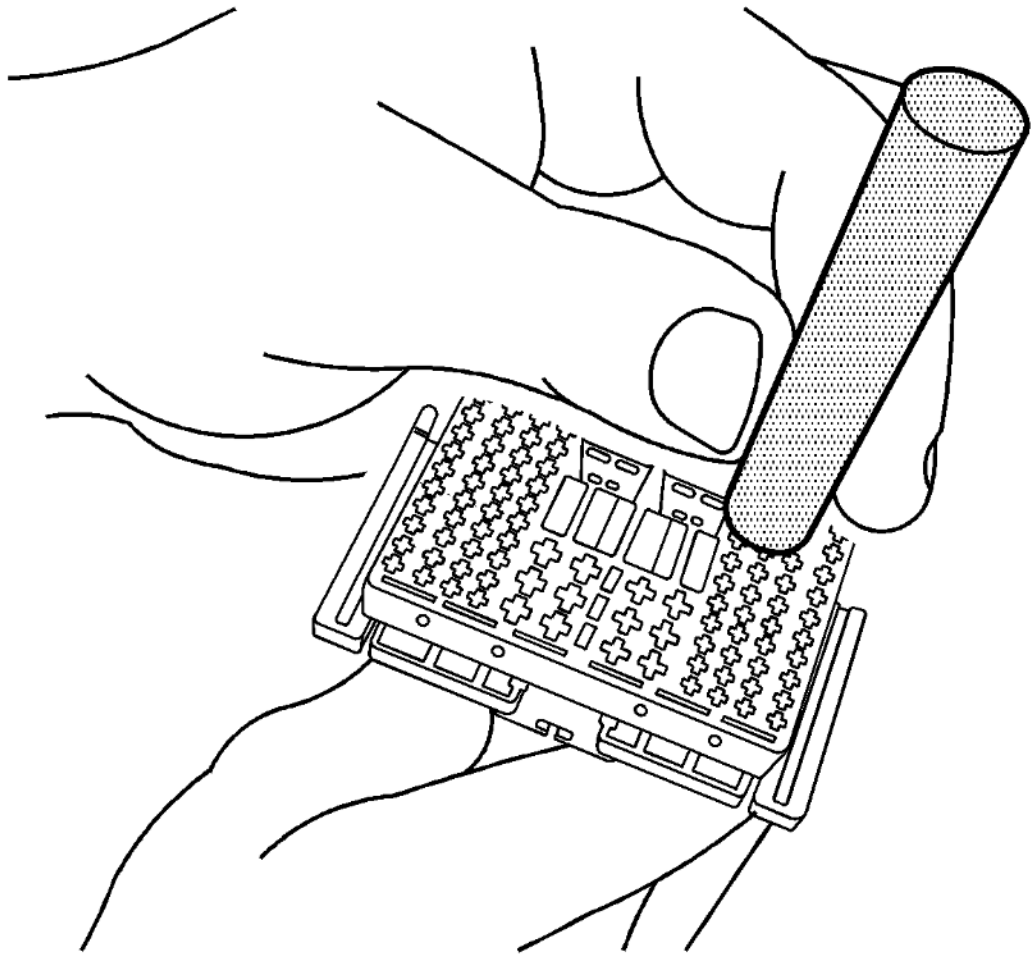

Fig. 175: Using Terminal Release Tool
Courtesy of GENERAL MOTORS COMPANY

6. Using terminal release tool J-38125-560, press the prongs into the holes on each side of the terminal to be removed to release the lock tabs and pull the terminal out of the connector body.

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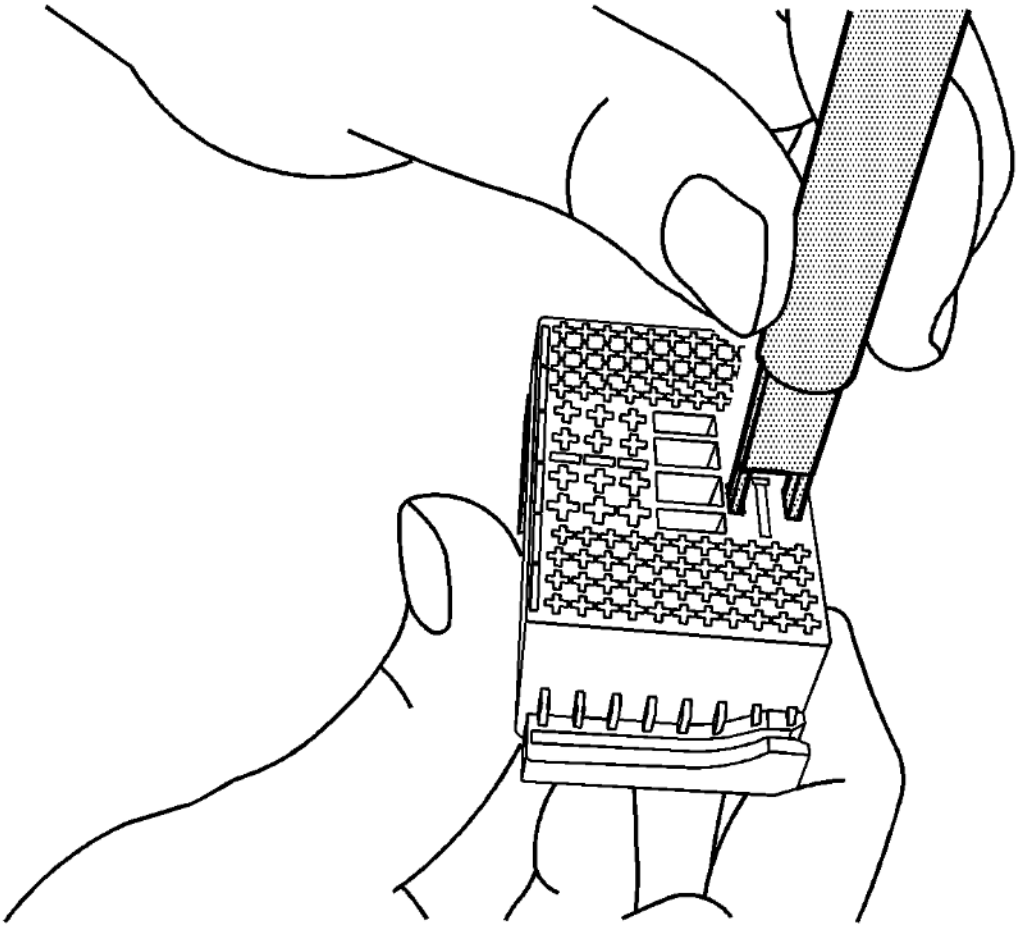

Fig. 176: Releasing Lock Tabs - Tyco/AMP (102-Way Inline)
Courtesy of GENERAL MOTORS COMPANY

7. Using terminal release tool J-38125-221, press the prongs into the holes on each side of the terminal to be removed to release the lock tabs and pull the terminal out of the connector body.

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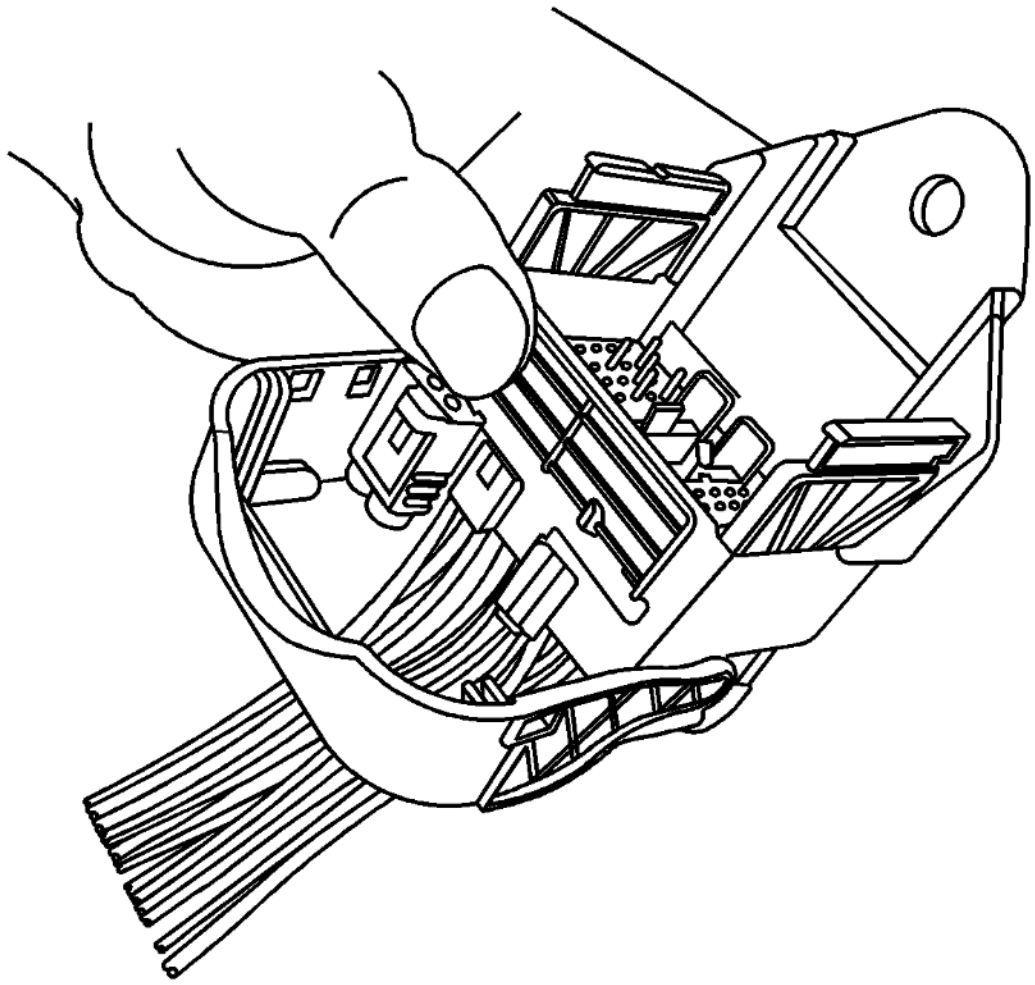

Fig. 177: View Of Female Connector Body - Tyco/AMP (102-Way Inline)
Courtesy of GENERAL MOTORS COMPANY

8. The female connector body may have an additional connector hooked to the edge of the body. Use terminal release tool J-38125-11A or equivalent to release the locking tab and slide the connector off the female body.

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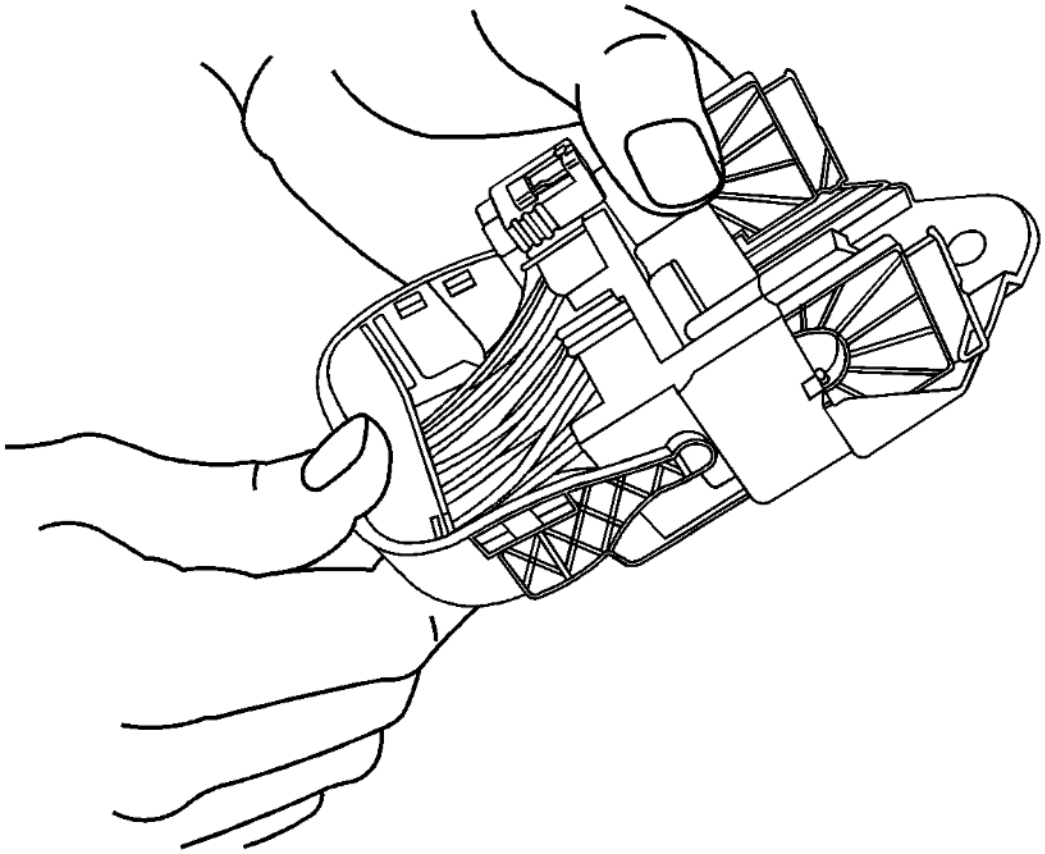

Fig. 178: Moving Locking Lever
Courtesy of GENERAL MOTORS COMPANY

9. Move the locking lever 180 degrees from the connected position.

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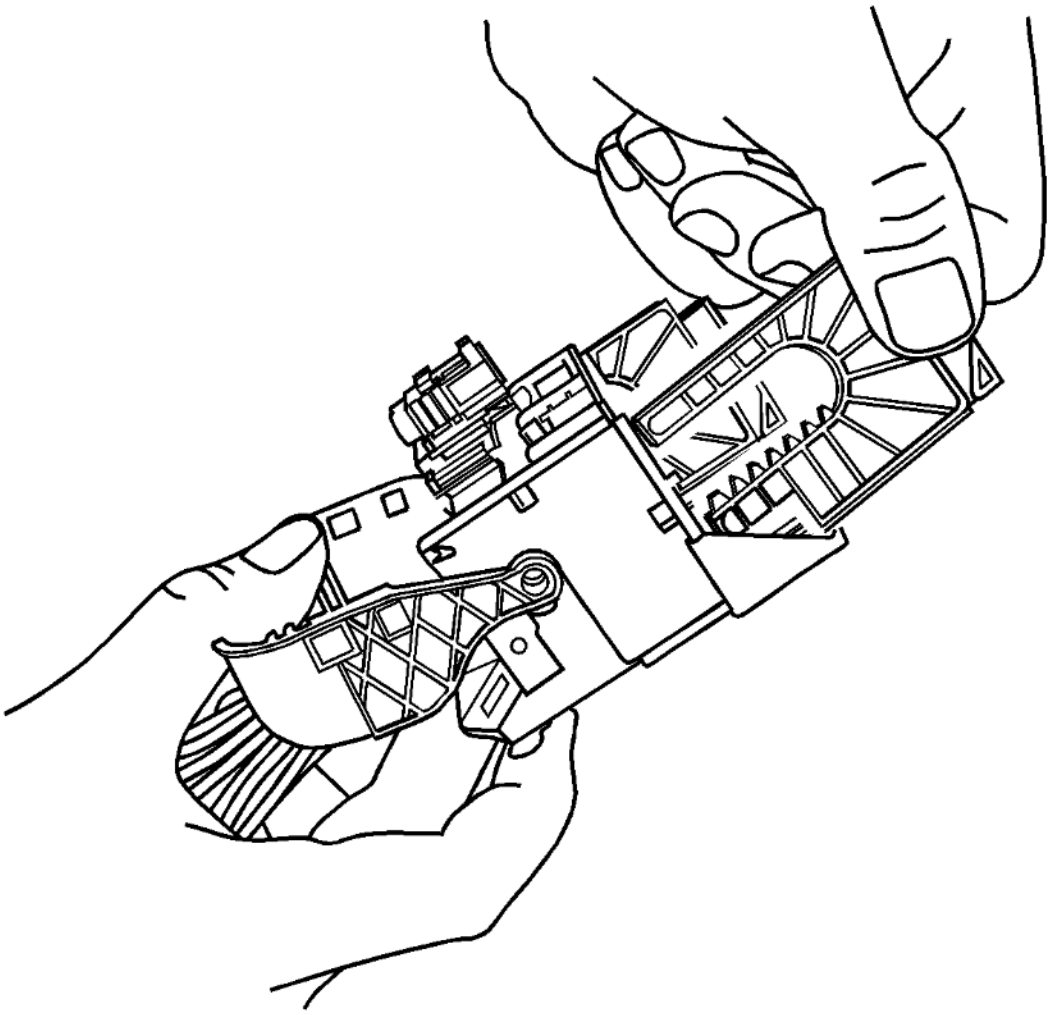

Fig. 179: Removing Guide Plates From Connector Body
Courtesy of GENERAL MOTORS COMPANY

10. With the locking lever in the 180 degree position the guide plates can be removed from the connector body.

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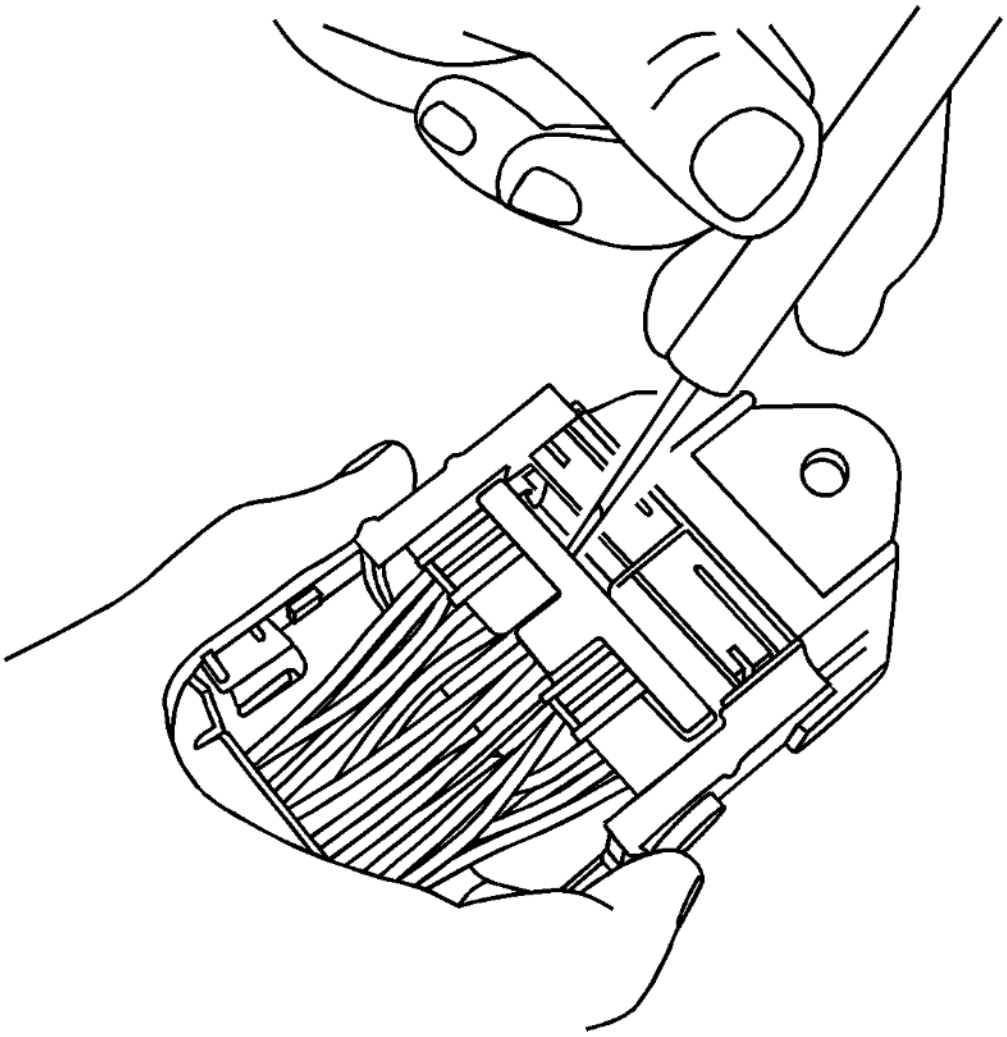

Fig. 180: Removing TPA
Courtesy of GENERAL MOTORS COMPANY

NOTE: **During assembly the TPA will not fully seat if any terminal is not fully seated.**

11. Using terminal release tool J-38125-11A or equivalent, remove the TPA from the connector body.

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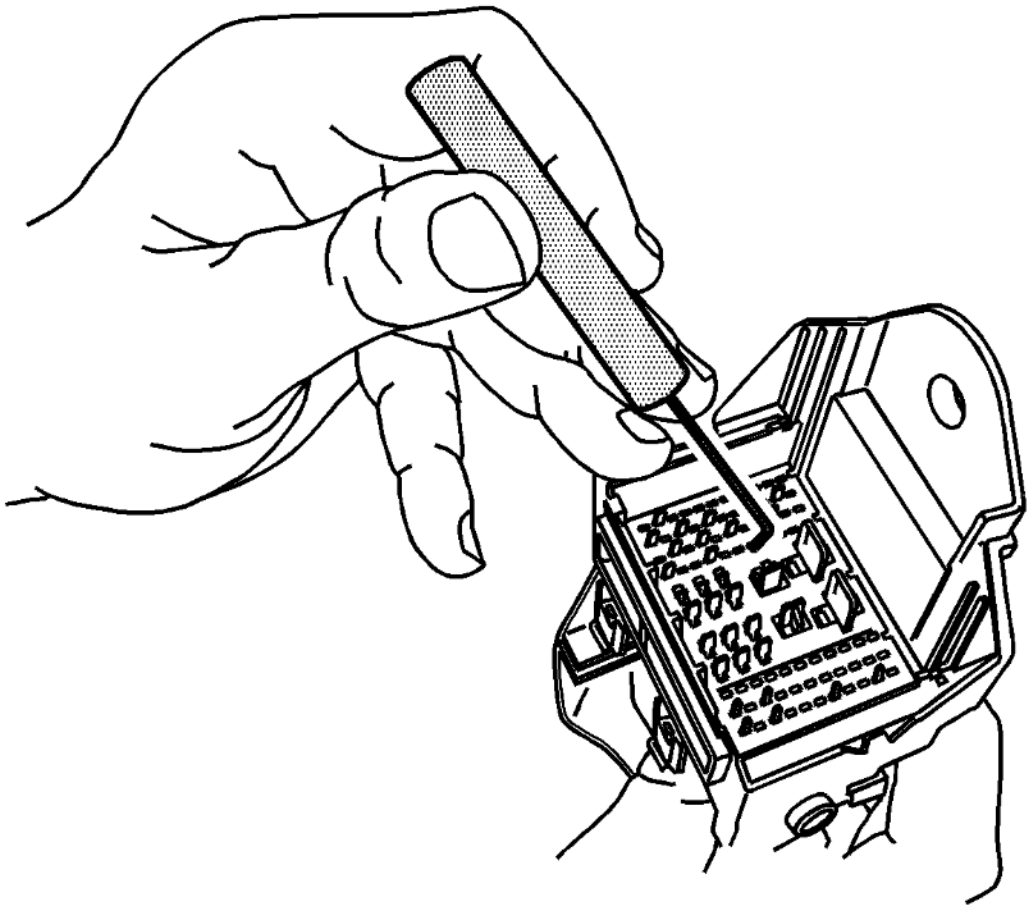

Fig. 181: Lifting Terminal Plate Past The Terminals
Courtesy of GENERAL MOTORS COMPANY

12. Using terminal release tool J-38125-216, lift the terminal plate past the terminals and out of the connector body cavity.

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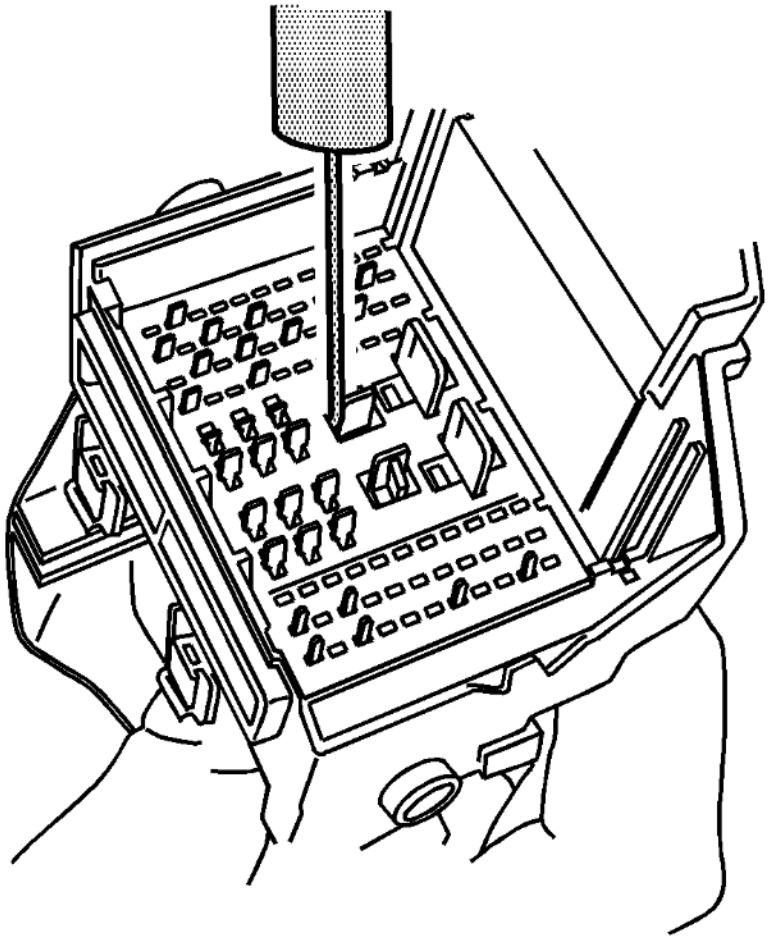

Fig. 182: View Of Terminal Plate
Courtesy of GENERAL MOTORS COMPANY

13. Terminal plate will bind slightly on each corner.

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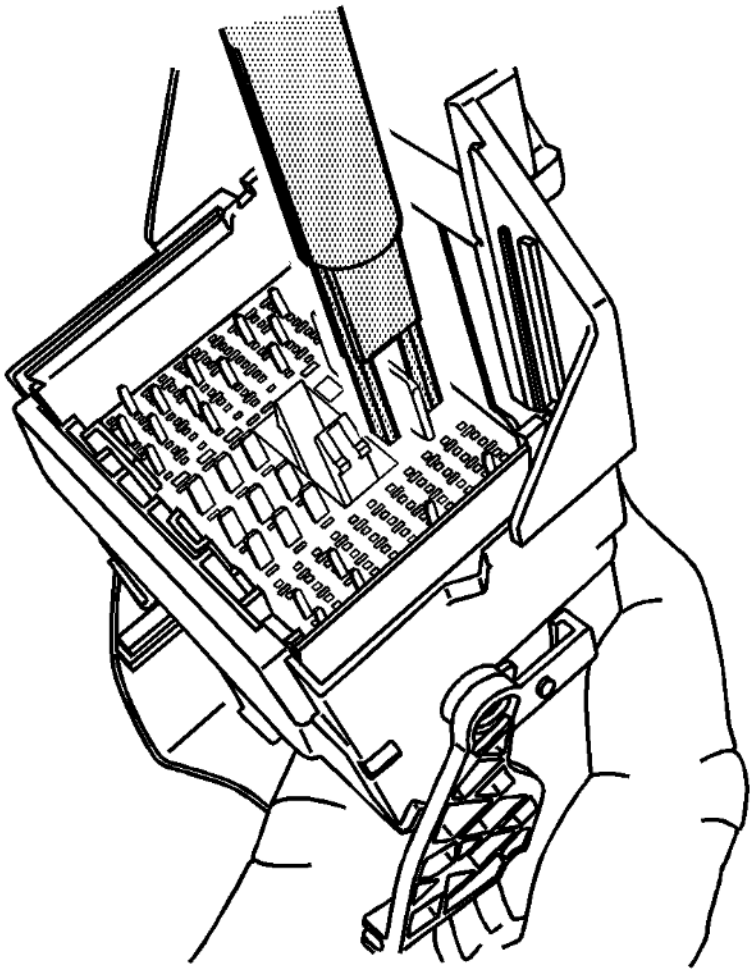

Fig. 183: Releasing Lock Tabs
Courtesy of GENERAL MOTORS COMPANY

14. Using terminal release tool J-38125-221, press the prongs into the holes on each side of the terminal to be removed to release the lock tabs and pull the terminal out of the connector body.

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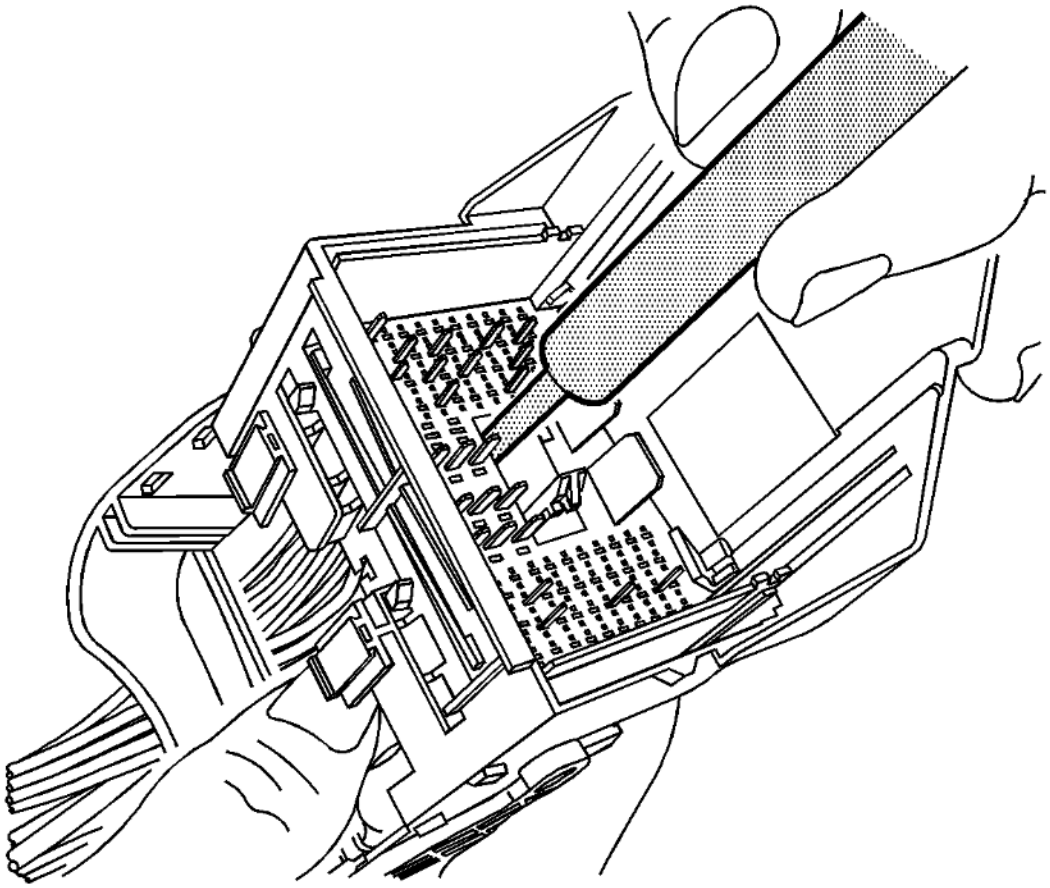

Fig. 184: View of Pressing Prongs On Each Side Of Terminal
Courtesy of GENERAL MOTORS COMPANY

15. Using terminal release tool J-38125-212, press the prongs into the holes on each side of the terminal to be removed to release the lock tabs and pull the terminal out of the connector body.

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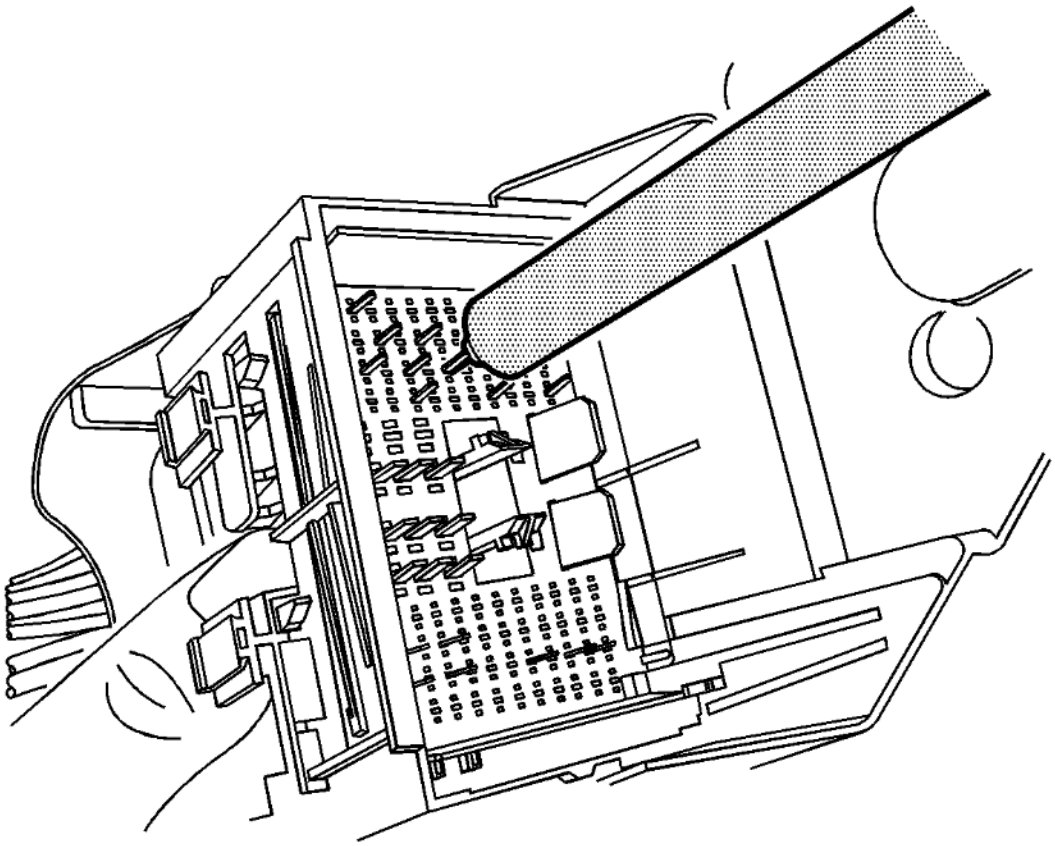

Fig. 185: Pressing Prongs On Each Side Of Terminal - Tyco/AMP (102-Way Inline)
Courtesy of GENERAL MOTORS COMPANY

16. Using terminal release tool J-38125-560, press the prongs into the holes on each side of the terminal to be removed to release the lock tabs and pull the terminal out of the connector body.

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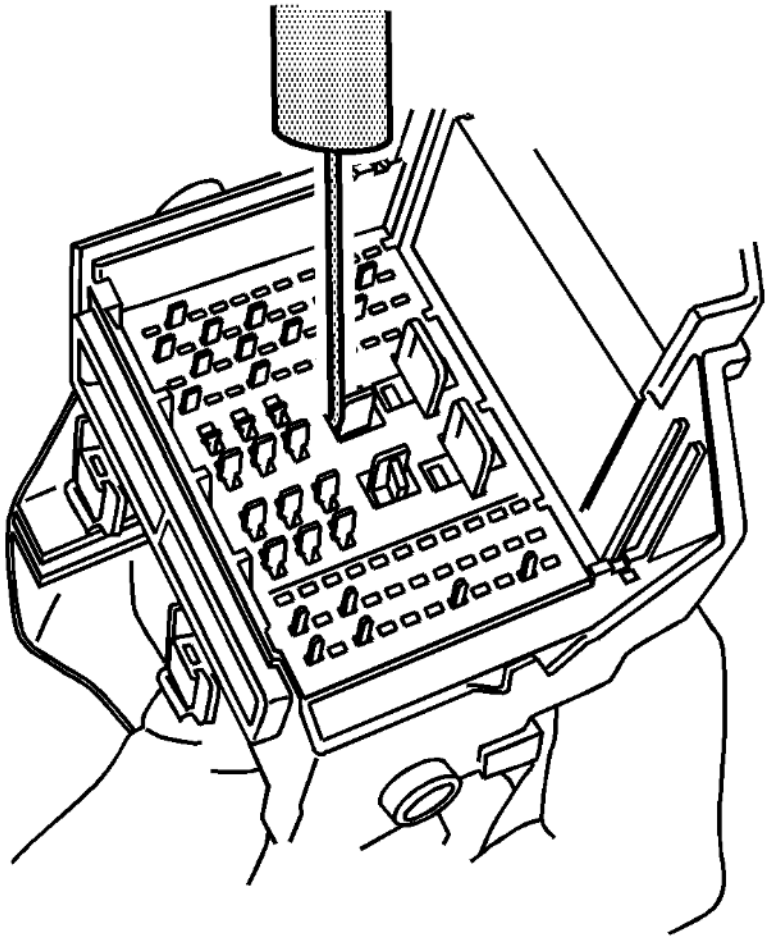

Fig. 186: View Of Terminal Plate
Courtesy of GENERAL MOTORS COMPANY

17. Press the terminal plate back into the female connector to the preset position. The plate will bind slightly on each corner.

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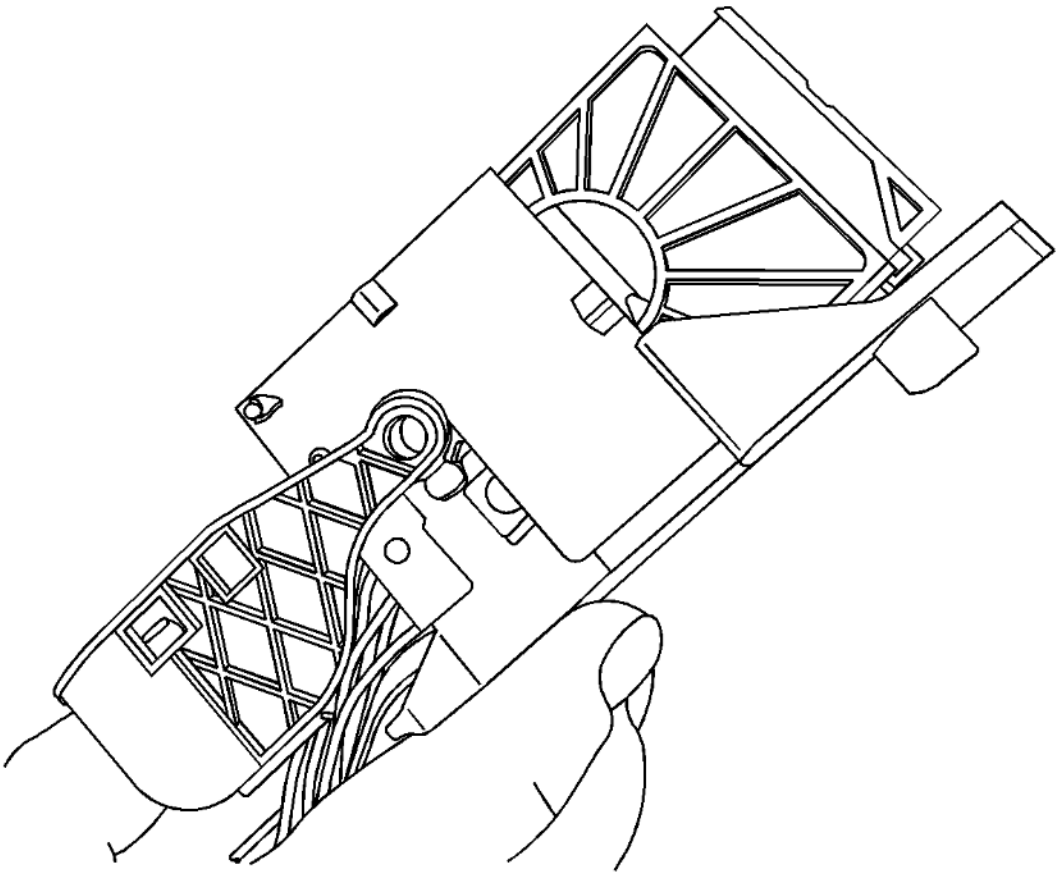

Fig. 187: Aligning Guide Plates To Mesh With Locking Lever Gears
Courtesy of GENERAL MOTORS COMPANY

18. With the locking lever in the 180 degree position, align the guide plates to mesh with the gears on the locking lever.

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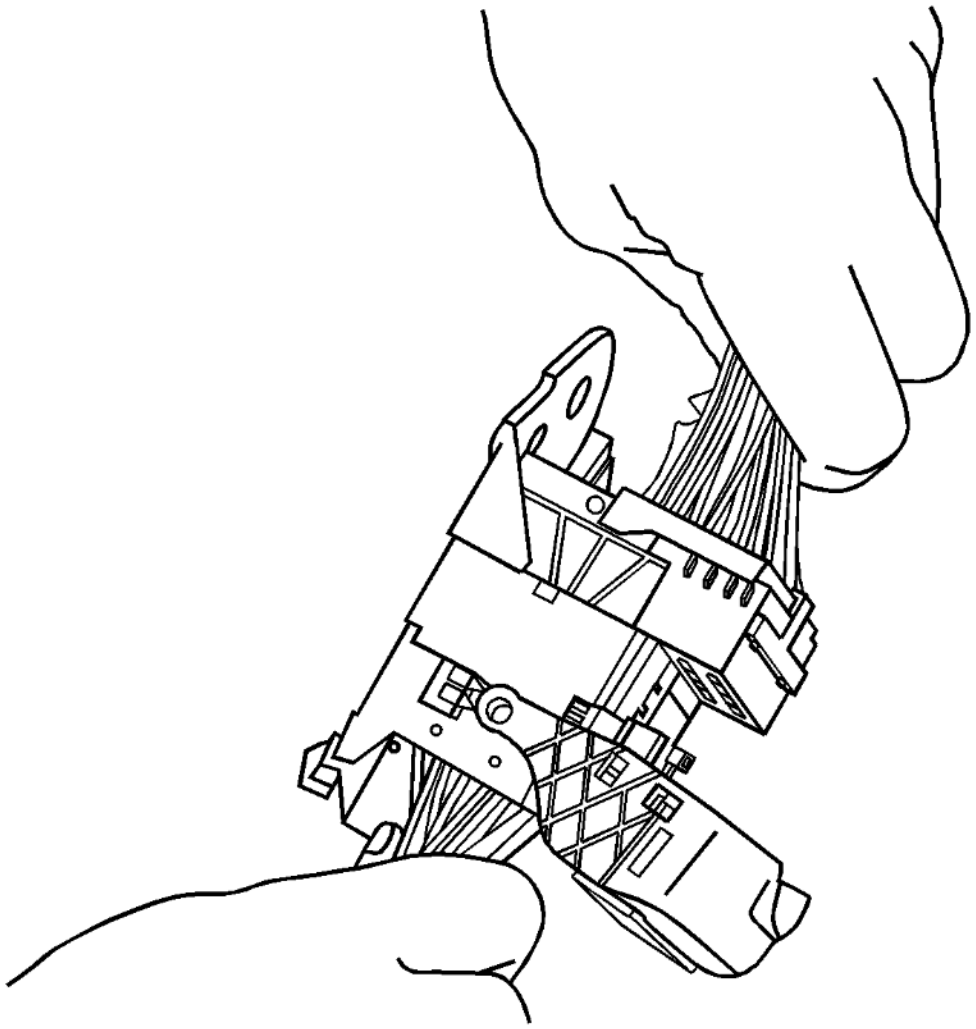

Fig. 188: Sliding Male Connector Body Away From Guide Plates
Courtesy of GENERAL MOTORS COMPANY

19. Slide the male connector body back inward toward the guide plates.

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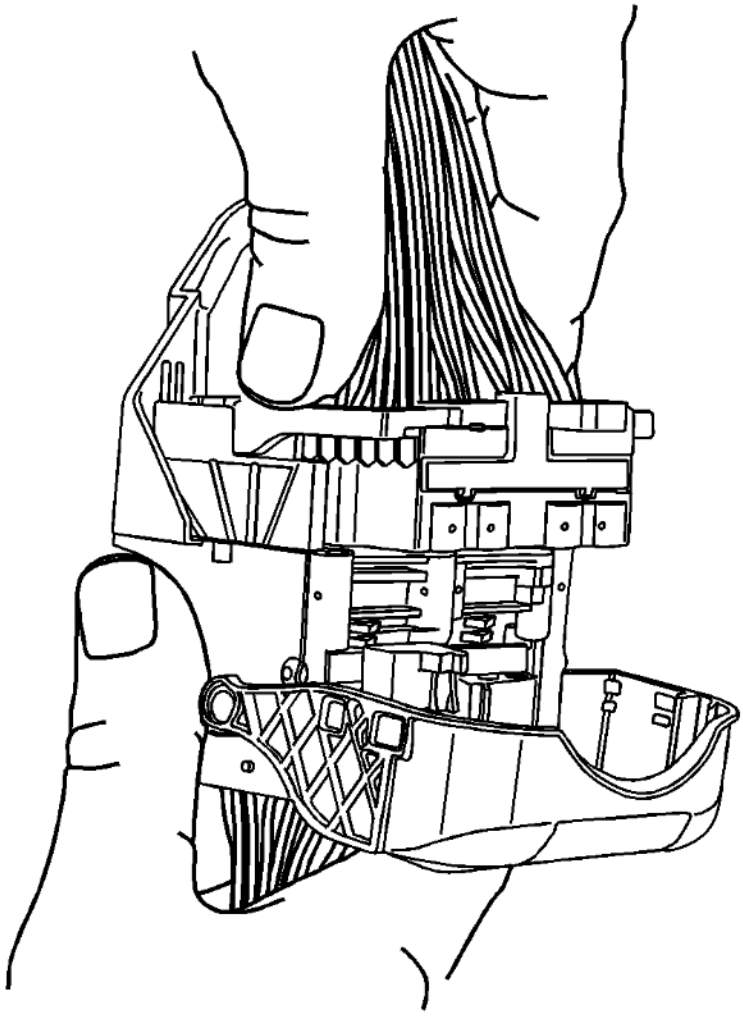

Fig. 189: Assembled View Of Connector - Tyco/AMP (102-Way Inline)
Courtesy of GENERAL MOTORS COMPANY

20. With the locking lever in the 90 degree position and the male connector body connected, it can be slid inward for assembly.

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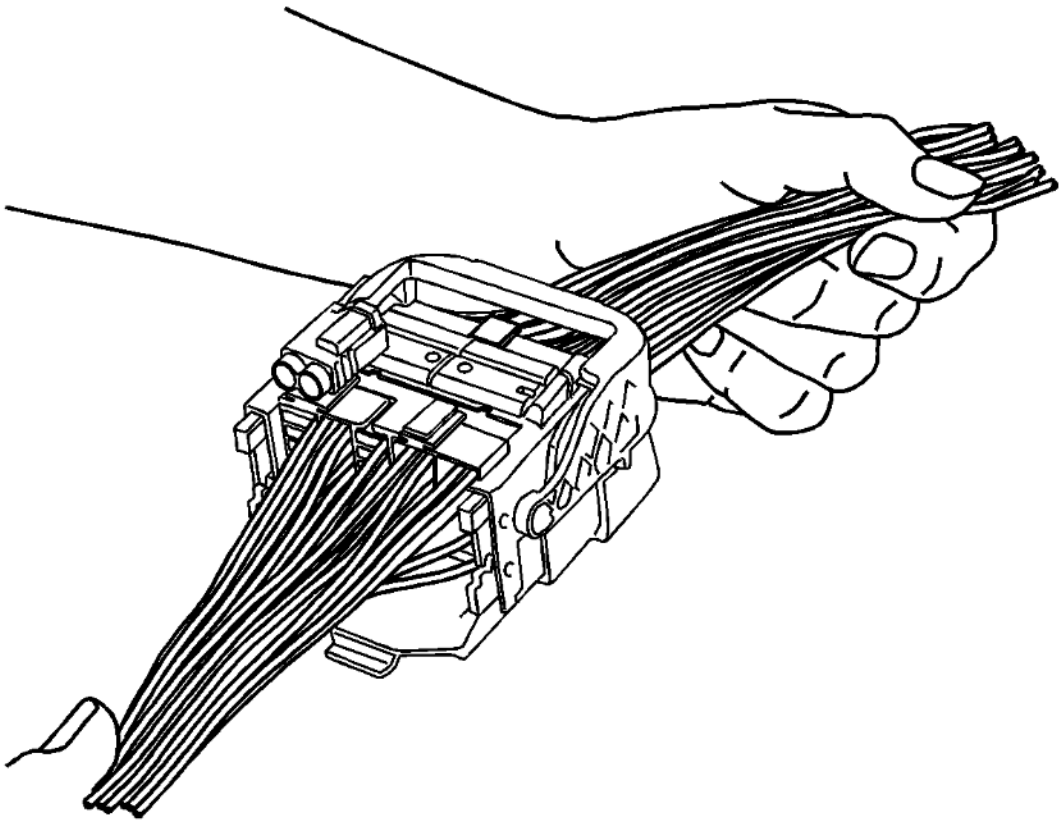

Fig. 190: View Of Typical Connector In Assembled Position
Courtesy of GENERAL MOTORS COMPANY

21. Move the lever into the locked position or in the assembled position. This will pull the male connector down into the female connector.
22. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
23. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

TYCO/AMP CONNECTORS (SIR)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-11A** Terminal Release Tool
- **J-38125-215A** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

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Removal Procedure

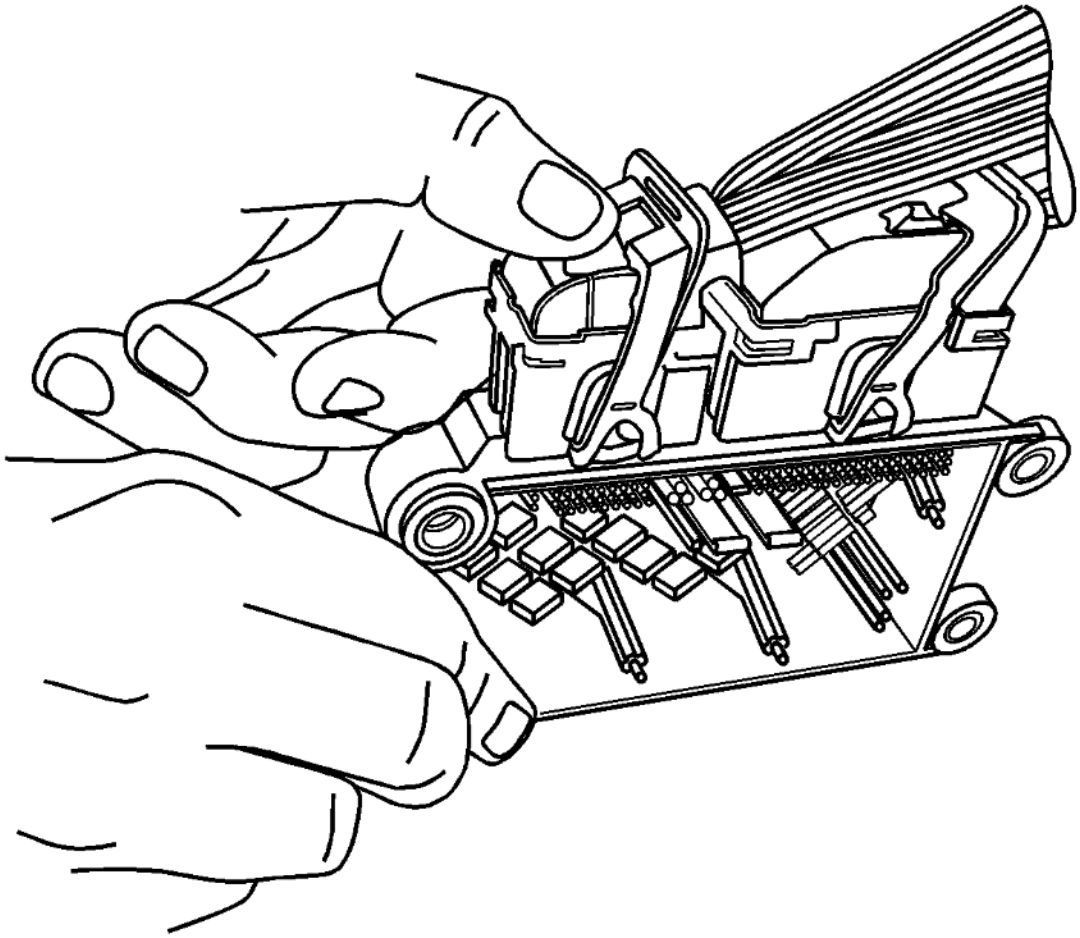

Fig. 191: Sliding Red CPA Away From Connector Lever
Courtesy of GENERAL MOTORS COMPANY

1. Using your thumbs press down and slide the red CPA away from the connector lever.

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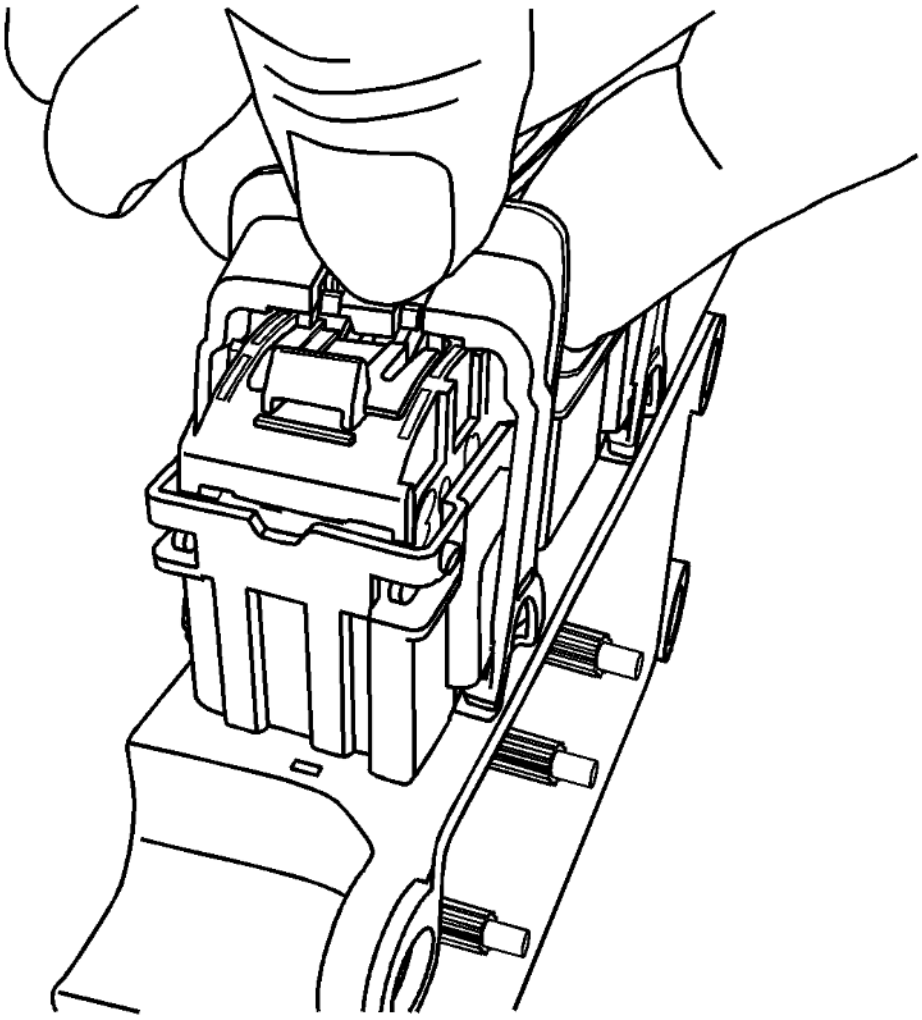

Fig. 192: Pressing Down On Locking Tab - Tyco/AMP Connectors (SIR)
Courtesy of GENERAL MOTORS COMPANY

2. Using your thumb press down on the locking tab and move the lever to the released position.

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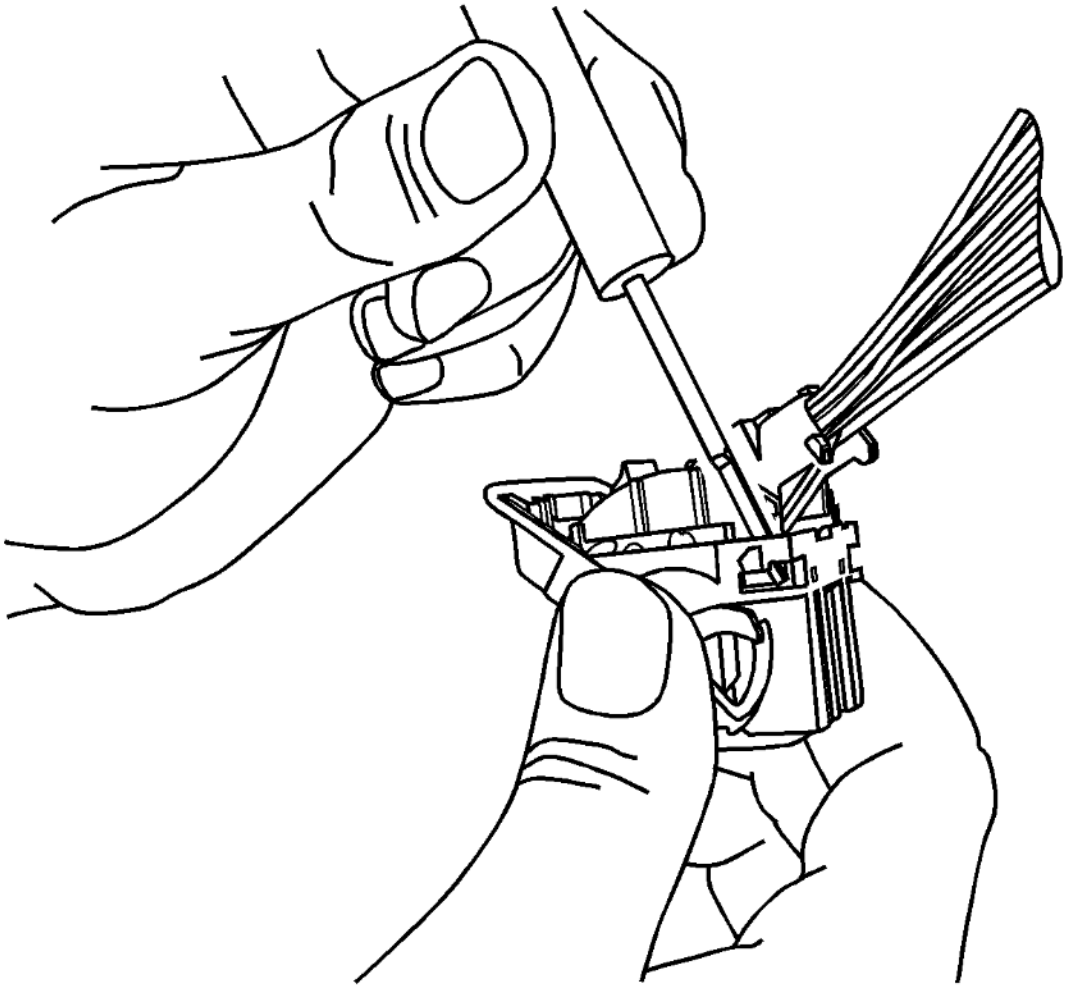

Fig. 193: Releasing Wire Dress Cover Locking Tabs
Courtesy of GENERAL MOTORS COMPANY

3. Using terminal tool J-38125-11A or equivalent, release the wire dress cover locking tabs.

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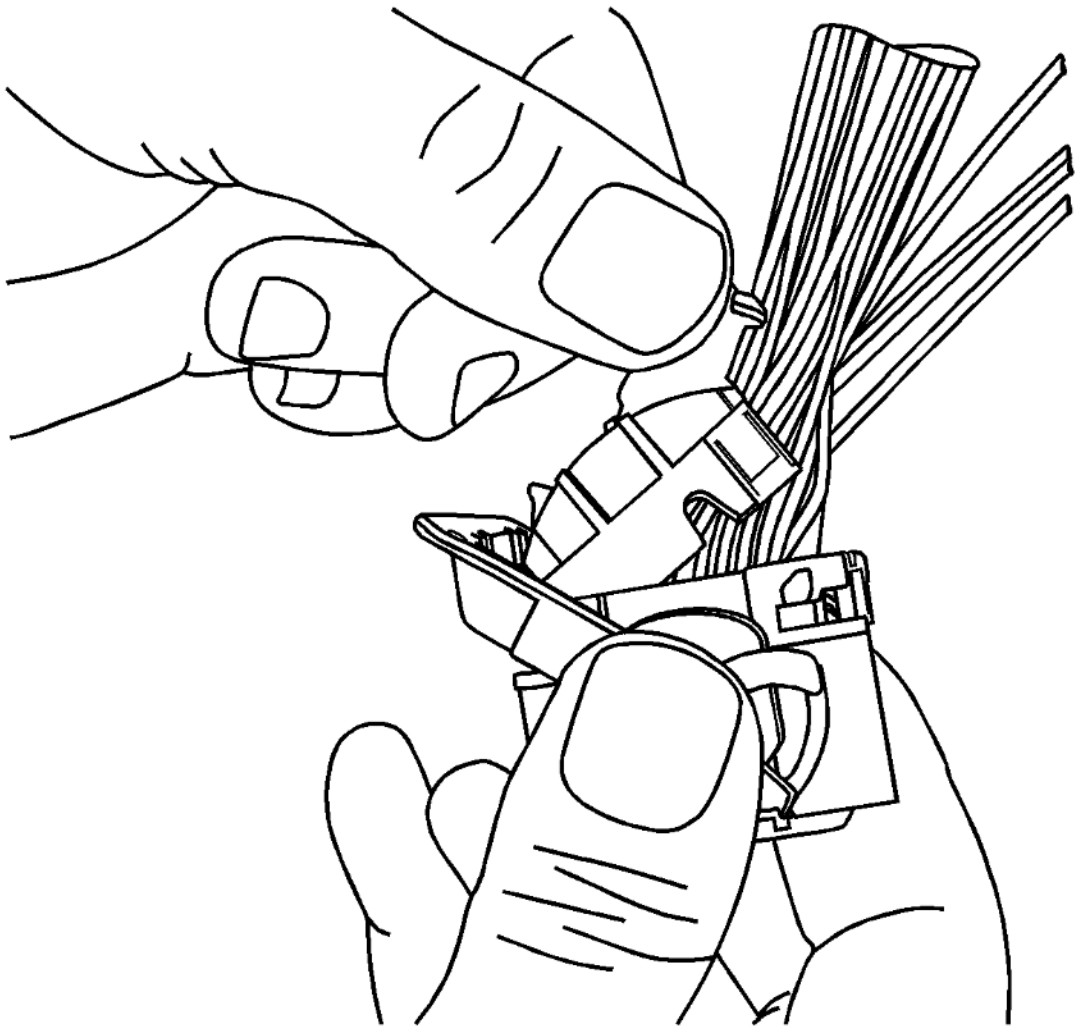

Fig. 194: Pivoting Connector Wire Dress Cover
Courtesy of GENERAL MOTORS COMPANY

4. Pivot connector wire dress cover while removing from the connector body.

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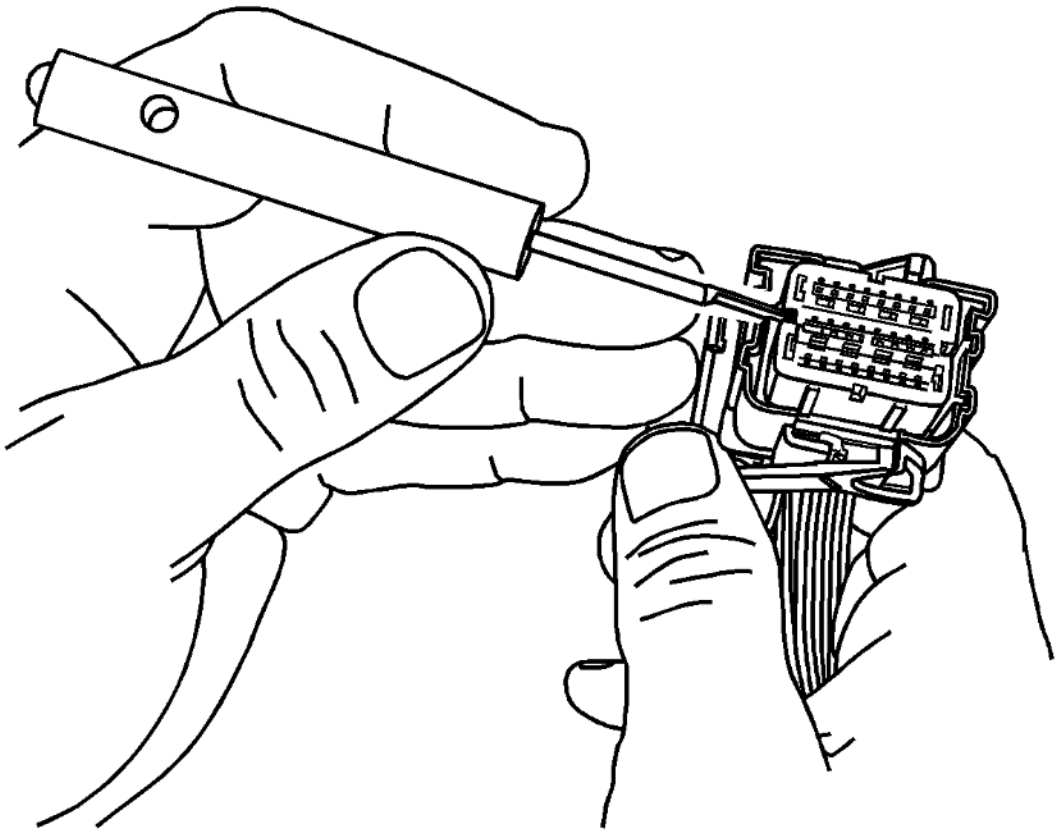

Fig. 195: Removing TPA
Courtesy of GENERAL MOTORS COMPANY

5. Using terminal tool J-38125-11A or equivalent, remove the TPA by lifting straight off the connector body.

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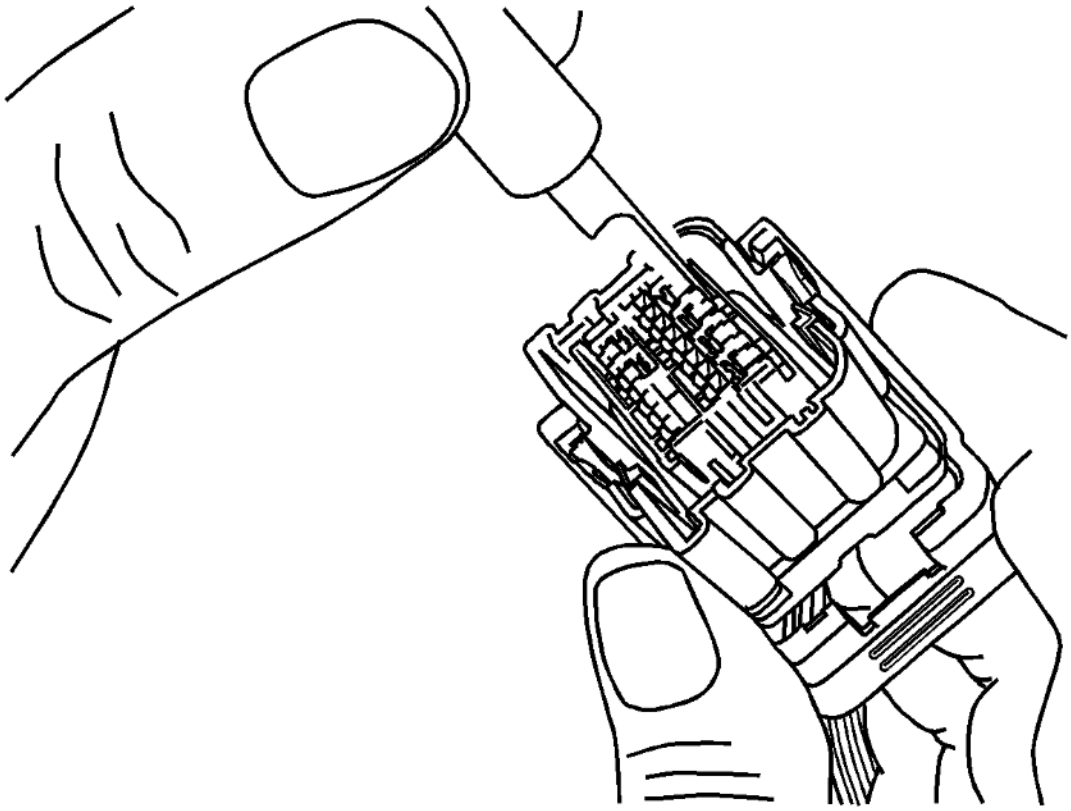

Fig. 196: View of Terminal Release Tool & Rear of Connector Body
Courtesy of GENERAL MOTORS COMPANY

6. Using terminal release tool J-38125-215A, place the tip of the tool on the outside edge next to the terminal and depress the lock tab and remove the rear of the connector body.

Terminal Repair Procedure

Use the appropriate terminal and crimper in order to replace the terminal.

YAZAKI CONNECTORS (2-WAY)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-553** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

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1. Disconnect the connector from the component.

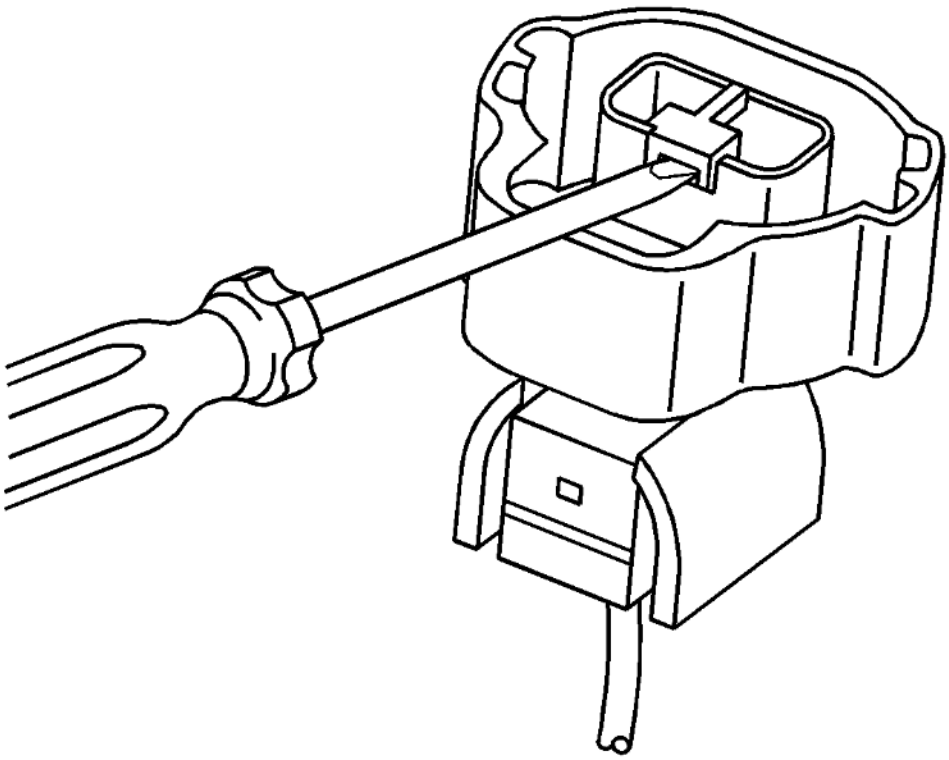

Fig. 197: Identifying Terminal Position Assurance (Yakazi)
Courtesy of GENERAL MOTORS COMPANY

2. Insert a small flat-blade tool in the slot below the front loaded terminal position assurance (TPA) and pry up.
3. Remove the TPA by pulling it out of the connector.
4. Push the wire side of the terminal that is being removed toward the connector and hold it in position.

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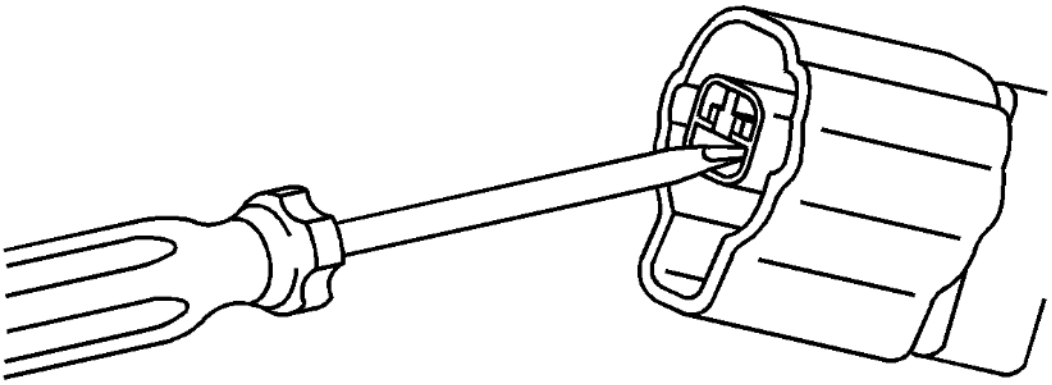

Fig. 198: View Of Inserting Tool Into Terminal Cavity (Yakazi)
Courtesy of GENERAL MOTORS COMPANY

5. Insert the J-38125-553 on a slight upward angle into the cavity below the terminal to be removed. Ensure that the pointed on the end of the tool is facing the bottom of the terminal and it stays in contact with the terminal until it stops on the plastic terminal retainer.

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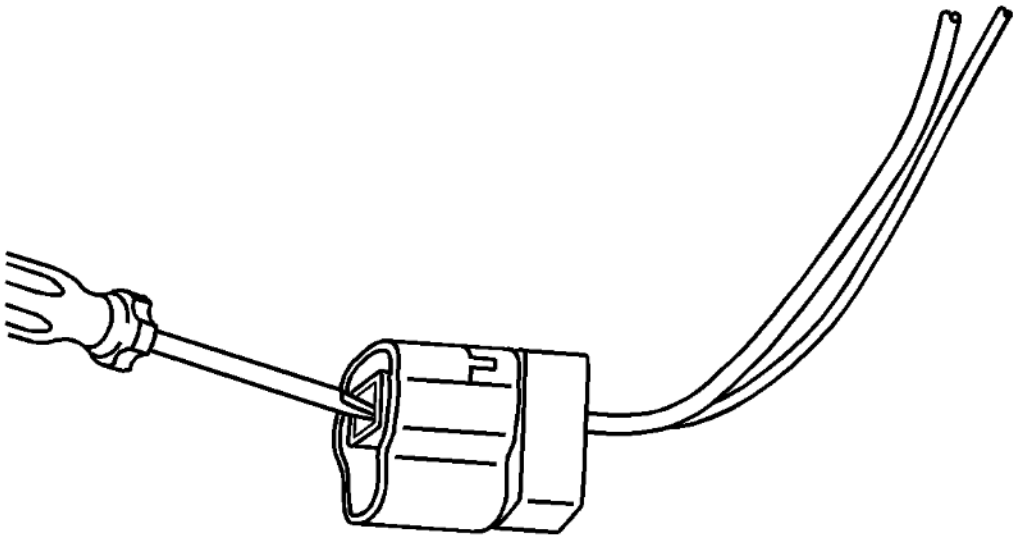

Fig. 199: View Of Pulling Terminal Out Of Connector (Yakazi)
Courtesy of GENERAL MOTORS COMPANY

6. Gently pry the plastic terminal retainer down and carefully pull the terminal out of the connector. Always remember never use force when pulling a terminal out of a connector. If the terminal is difficult to remove, repeat the entire procedure.
7. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
8. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

YAZAKI CONNECTORS (16-WAY)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-215** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

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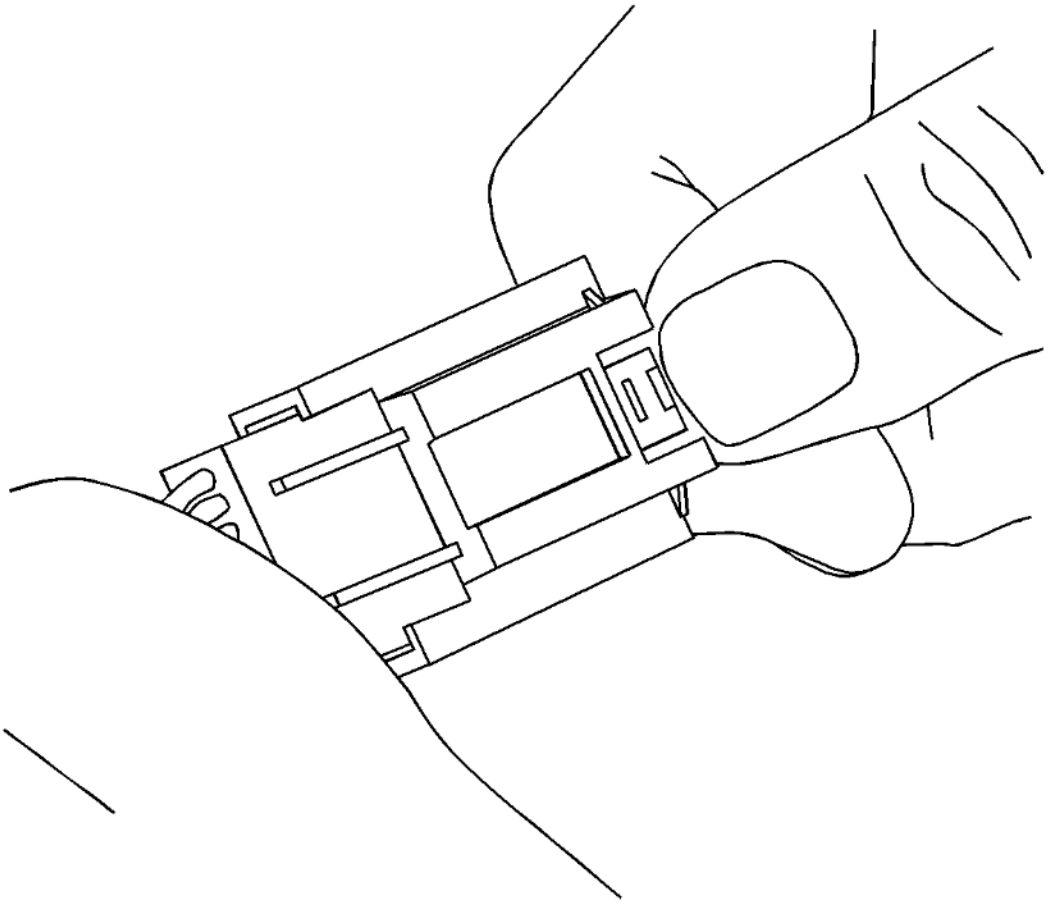

Fig. 200: Pulling Two Connector Halves Apart
Courtesy of GENERAL MOTORS COMPANY

1. While depressing the lock, pull the two connector halves apart.

NOTE: **The terminal position assurance (TPA) is fragile and may break if not done carefully.**

2. Use a small flat-blade tool to very carefully push the TPA towards the face of the connector on both sides of the connector.

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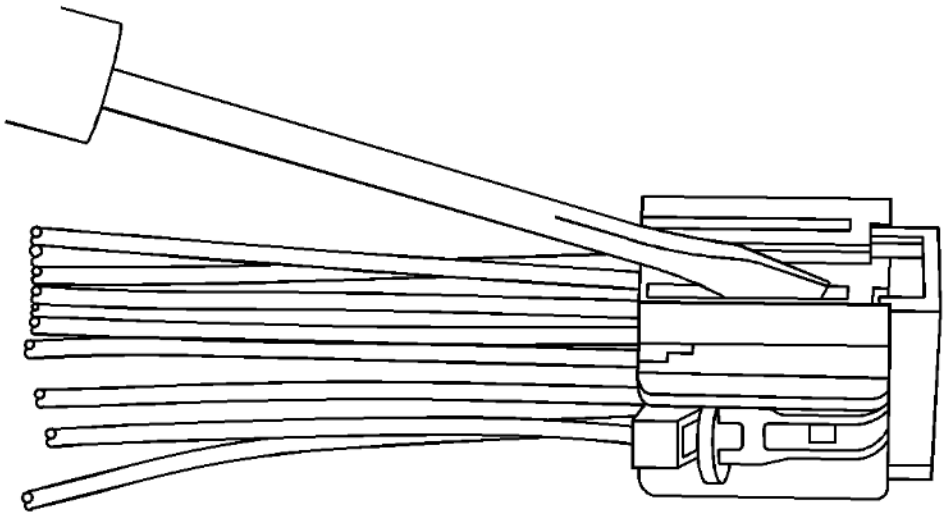

Fig. 201: View Of Male Connector Half & Female Terminals
Courtesy of GENERAL MOTORS COMPANY

3. View of the male half of the connector with female terminals.

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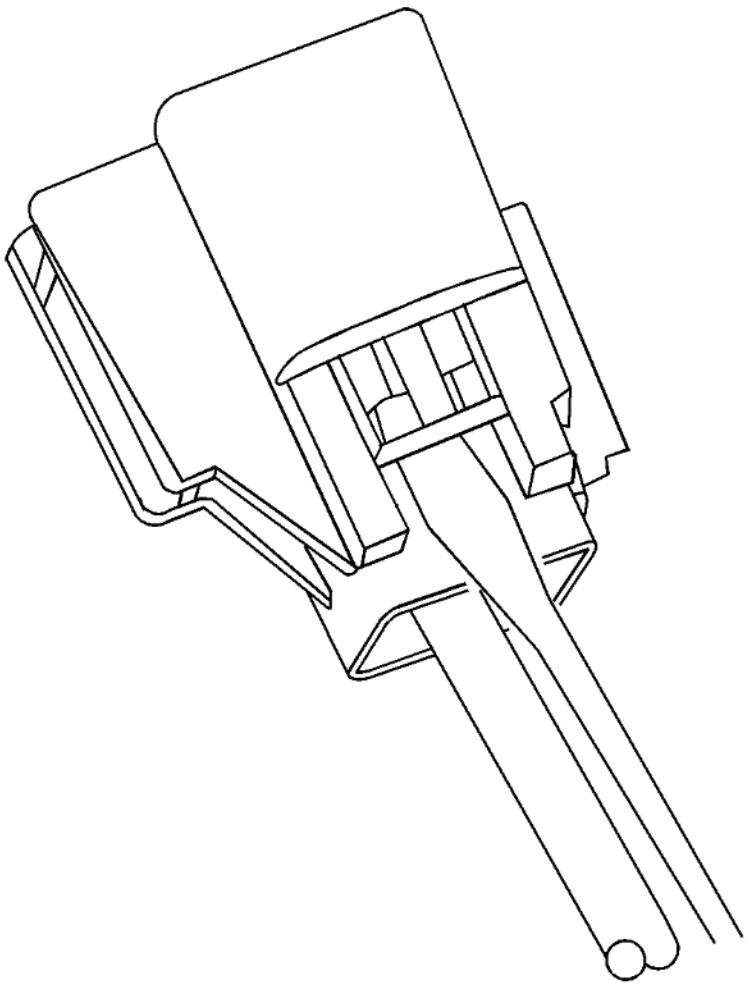

Fig. 202: View Of Female Half Of Connector With Male Terminals
Courtesy of GENERAL MOTORS COMPANY

4. View of the female half of the connector with male terminals.
5. Use the J-38125-215 tool to release the terminals by inserting the tool into the terminal release cavity.

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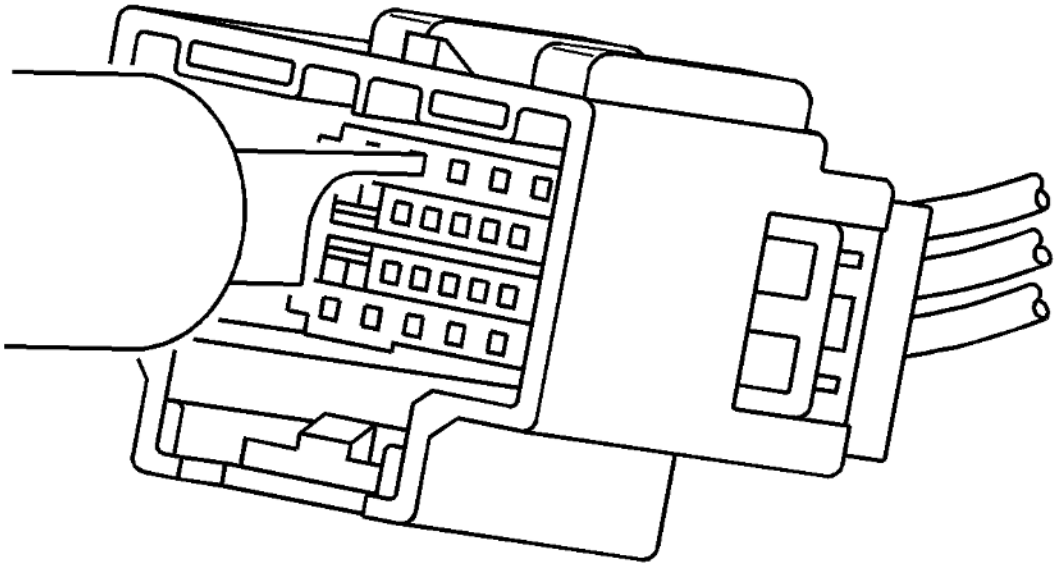

Fig. 203: Using Removal Tool On Female Half Of Connector
Courtesy of GENERAL MOTORS COMPANY

6. View of the female half of the connector with male terminals.

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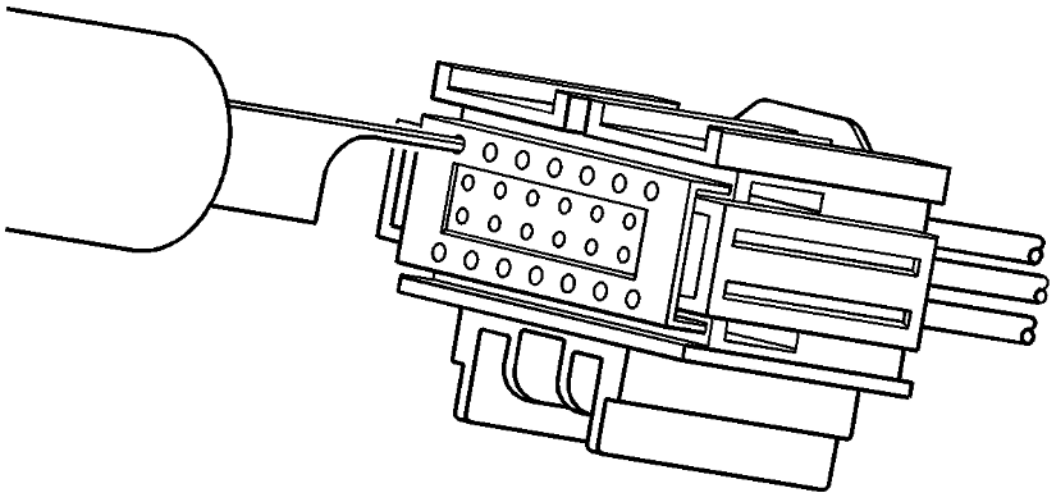

Fig. 204: Using Removal Tool On Male Half Of Connector
Courtesy of GENERAL MOTORS COMPANY

7. View of the male half of the connector with female terminals.
8. While holding the removal tool in place, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
9. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
10. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

REPAIRING CONNECTOR TERMINALS (TERMINATED LEAD REPAIR)

Special Tools

EL-38125-10 Splice Sleeve Crimp Tool

For equivalent regional tools, refer to **Special Tools** .

NOTE: **All repairs near the engine manifold, turbo engine and all exhaust pipes should follow the High Temperature Wiring Repairs procedures.**

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For high temperature wiring repairs, refer to **High Temperature Wiring Repairs**.

Terminated leads are terminals that are crimped onto wires. The terminated lead can be used throughout the vehicle since it is designed for temperatures up to 150Â°C. The length of the wire is 450 mm.

1. Use the connector end view to identify the correct terminated lead.
2. The terminated lead package should include a DuraSeal splice sleeve. If not, use the chart to in Splicing Copper Wire Using Splice Sleeves to identify the correct DuraSeal splice sleeve, refer to **Wire to Wire Repair**.

REPAIRING CONNECTOR TERMINALS (TERMINAL REPAIR)

Special Tools

- **J-38125-580** Terminal Repair Kit
- **J-38125-6** Crimp Tool
- **J-38125-7** Crimp Tool
- **J-38125-8** Crimp Tool
- **J-38125-64** Crimp Tool
- **J-38125-101** Crimp Tool
- **J-38125-641** Crimp Tool
- **J-38125-642** Crimp Tool
- **J-38125-643** Crimp Tool

For equivalent regional tools, refer to **Special Tools** .

Use the following repair procedures to repair each type of terminal:

- For push to seat terminals, refer to **Delphi Connectors (Weather Pack)Delphi Connectors (Push To Seat)Delphi Connectors (Pull To Seat)Delphi Connectors (Micro-Pack 100W)Delphi Connectors (Micro .64)Delphi Connectors (12-Way)Delphi Connectors (Steering Gear)**.
- For pull to seat terminals, refer to **Delphi Connectors (Weather Pack)Delphi Connectors (Push To Seat)Delphi Connectors (Pull To Seat)Delphi Connectors (Micro-Pack 100W)Delphi Connectors (Micro .64)Delphi Connectors (12-Way)Delphi Connectors (Steering Gear)**.

NOTE: **The first step for all terminal repairs is to find the connector end view in SI.**

Cable Seal Terminals

1. Cut off the terminal between the core and the insulation crimp to minimize any wire loss.
2. Remove the old seal.
3. Apply the correct cable seal, per the wire gauge size, from the kit. Slide the seal back along the wire to enable removal of the insulation.
4. To minimize wire loss, remove only the insulation required.
5. Using the connector end view, determine the correct crimp tool and crimp jaw.
6. Align the seal with the end of the cable insulation.
7. Position the stripped wire and seal in the terminal.
8. Hand Crimp the core wings first.

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9. Hand Crimp the insulation wings around the seal and the cable.

Unsealed Terminals

1. Cut off the terminal between the core and the insulation crimp to minimize any wire loss.
2. To minimize wire loss, remove only the insulation required.
3. Position the stripped wire in the terminal.
4. Hand Crimp the core wings first.
5. Hand Crimp the insulation wings around the cable.

Micro-Pack 100W Size Terminal

The Micro-Pack 100W connectors have small terminals that are difficult to handle and hold when crimping. In order to aid the technician when crimping these terminals, a new crimping tool was developed. The J 38125-101 (W jaw) crimping tool was developed to crimp Micro-Pack 100W terminals. The J 38125-101 (W jaw) crimping tool has a terminal holding block that will hold the terminal in place while the terminal is being crimped. After the terminal is removed from the connector perform the following procedure in order to repair Micro-Pack 100 terminals.

1. Cut the wire as close to the terminal as possible.

NOTE: **After cutting the damaged terminal from the wire, determine if the remaining wire is long enough to reach the connector without putting a strain on the wire. If the wire is not long enough, splice a small length of the same gauge wire to the existing wire, then crimp the new terminal on the added wire.**

2. Strip 5 mm (3/16 in) of insulation from the wire.

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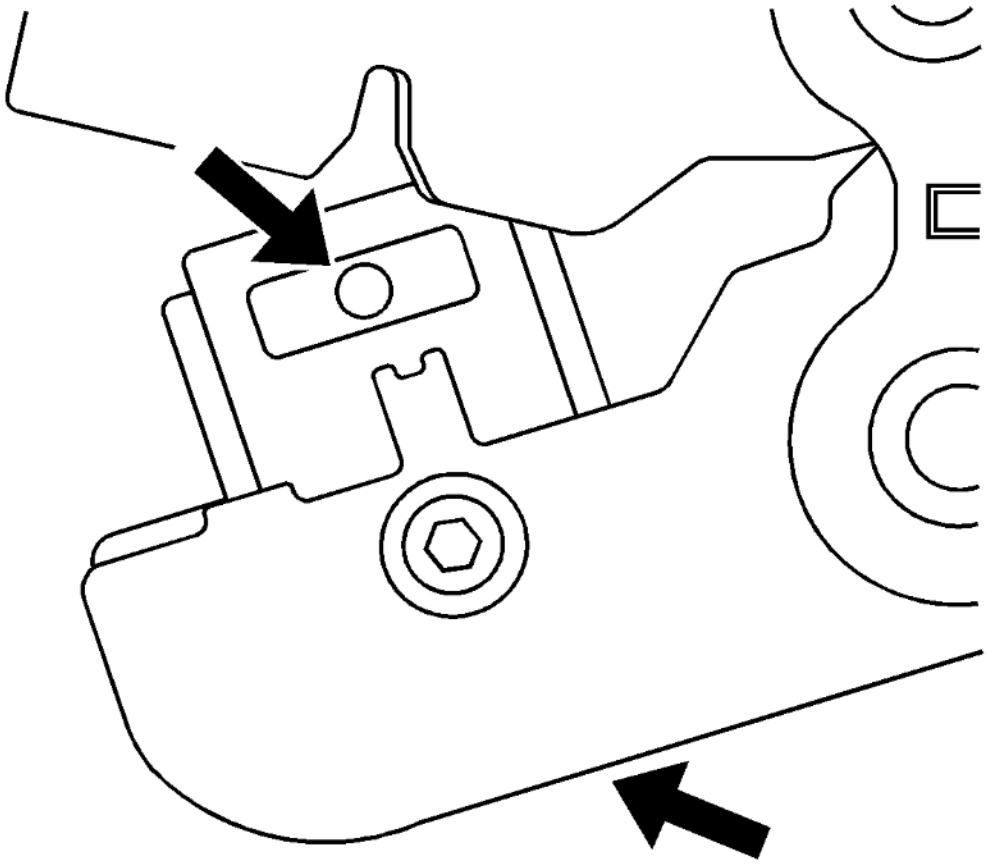

Fig. 205: Identifying Crimping Tool Spring Loaded Locator
Courtesy of GENERAL MOTORS COMPANY

3. Depress the spring loaded locator of the J 38125-101 (W jaw) crimping tool until the terminal holder is completely visible.

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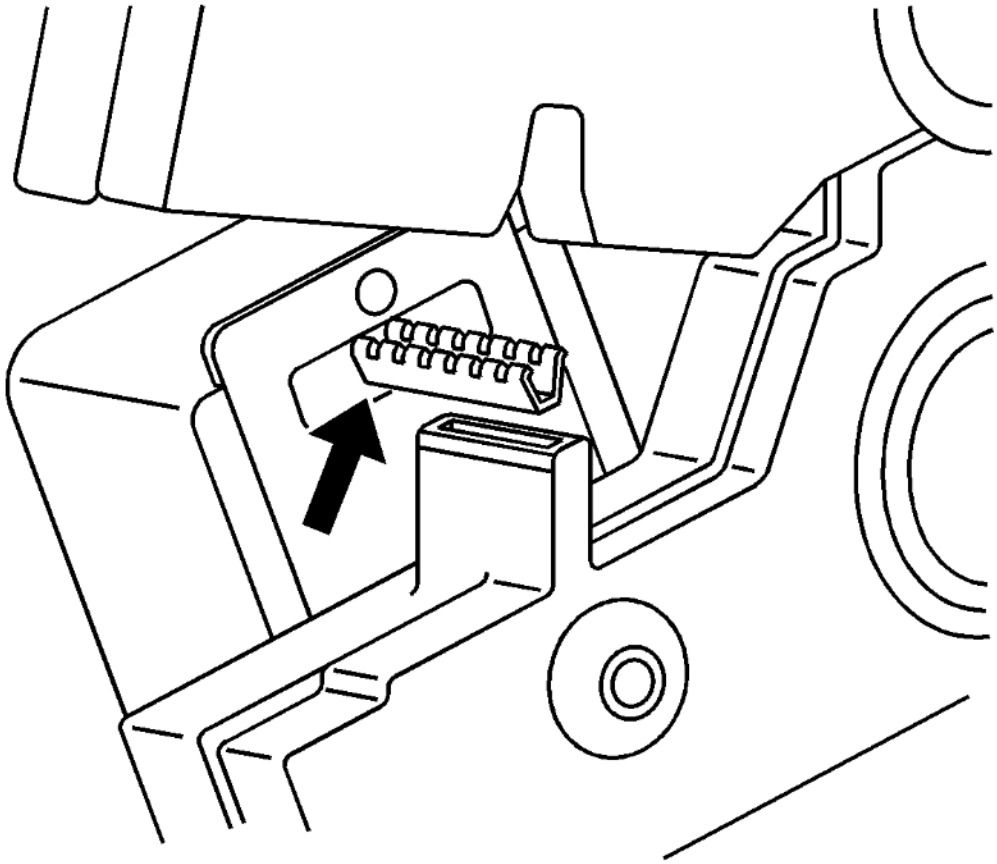

Fig. 206: Locating Terminal In Crimping Tool
Courtesy of GENERAL MOTORS COMPANY

4. Insert the terminal into the crimp tool until the core wings are flush with the anvil on the crimp tool. Be sure that the wings are pointed toward the crimp tool former and release the spring locator. The locator will hold the terminal in place. Inspect the alignment of the terminal wings with the crimp tool former. If the terminal wings are wider than the crimp tool former, remove the terminal and bend the terminal wings in slightly.
5. Place stripped wire into terminal.
6. Crimp the new terminal to the wire. If a jam occurs, press the emergency release to open applicator.

Micro 0.64 Size Terminal

The Micro 64 connectors have small terminals that are difficult to handle and hold when crimping. In order to aid the technician when crimping these terminals, a new crimping tool was developed. The J 38125-64 (M jaw) was developed to crimp Micro 64 terminals. The J-38125-64 crimping tool has a terminal holding block that will hold the terminal in place while the terminal is being crimped. The J-38125-64 crimping tool is also designed to crimp both the wire and the insulation at the same time.

After the terminal is removed from the connector perform the following procedure in order to repair Micro 64 terminals.

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NOTE: **After cutting the damaged terminal from the wire, determine if the remaining wire is long enough to reach the connector without putting a strain on the wire. If the wire is not long enough, splice a small length of the same gauge wire to the existing wire, then crimp the new terminal on the added wire.**

1. Cut the wire as close to the damaged terminal as possible.
2. Strip 5 mm (3/16 in) of insulation from the wire.

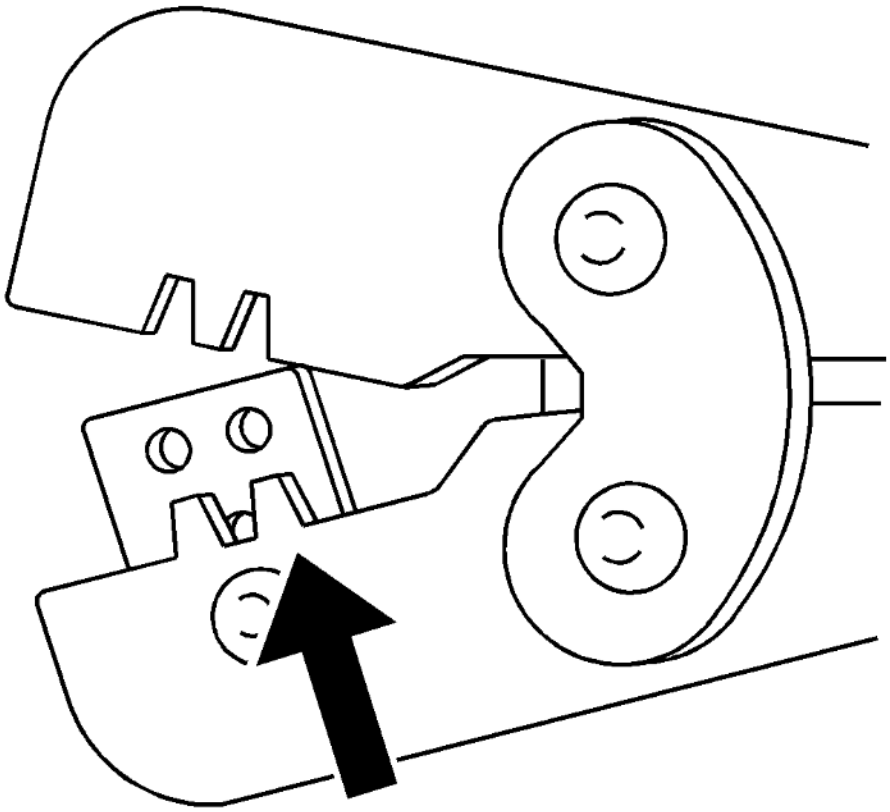

Fig. 207: Identifying Crimping Tool Spring Loaded Locator
Courtesy of GENERAL MOTORS COMPANY

3. Depress the spring loaded locator of the crimping tool until the terminal holder is completely visible.

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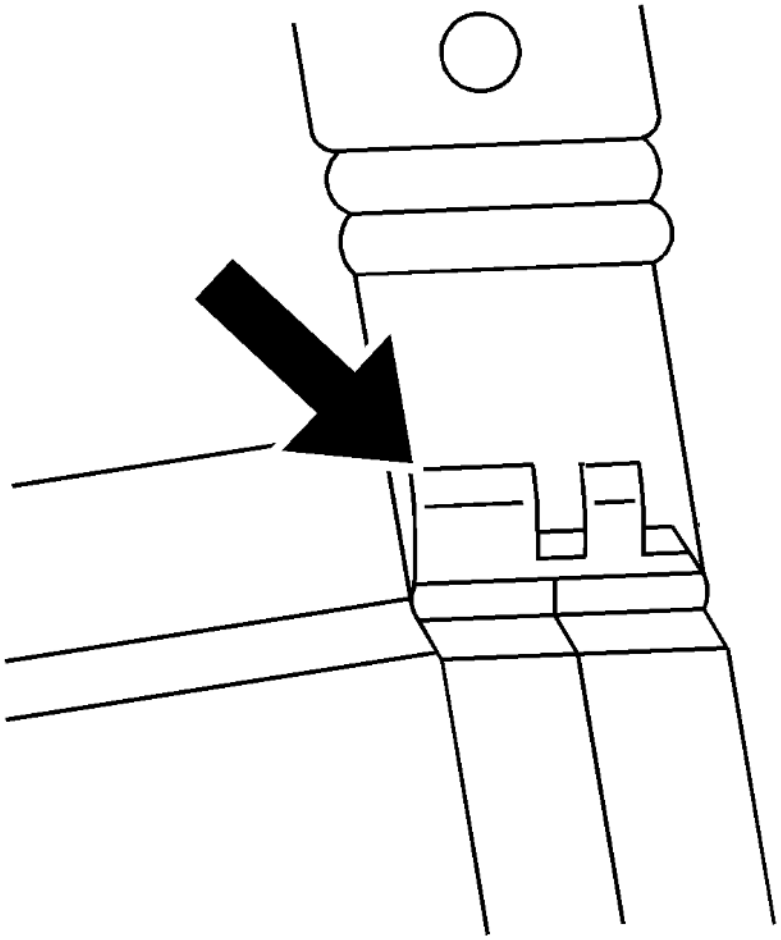

Fig. 208: Identifying Terminal Holder
Courtesy of GENERAL MOTORS COMPANY

4. Insert terminal into the appropriate terminal holder until it hits bottom and stops. The correct terminal holder is determined by the wire size. Also ensure that the terminals wings are pointing towards the former on the tool and the release locator.
5. Insert the stripped cable into the terminal. Insulation should be visible on both sides of the terminal insulation wings.
6. Compress the handles until the ratchet automatically releases.
7. Place the terminal into the appropriate cavity and assemble the connector.

TERMINAL REMOVAL

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **EL-35616** Terminal Test Probe Kit

For equivalent regional tools, refer to **Special Tools** .

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NOTE: **All repairs near the engine manifold, turbo engine and all exhaust pipes should follow the High Temperature Wiring Repair procedures.**

1. Find the appropriate connector end view within the connector end view section. The connector end view has the following information:
   - Diagnostic probe tool
   - Terminal release tool
   - Terminal/terminated lead part numbers

   NOTE: **Not using the proper test kit probe may cause damage to the terminal(s) that are probed.**

2. Determine if a terminal is damaged.
   1. Locate the diagnostic probe tool from the connector end view. The connector end view describes the color and part number to help the technician find and use the correct tool.
   2. Connect the probe tool to the Digital Multimeter.
   3. Insert the probe tool into the cavity and follow the procedures from the **Troubleshooting with a Digital Multimeter** .
3. Disconnect the connector body to perform the repair.
4. Use the following procedure to remove the terminal from the connector body.

   NOTE: **Several procedures for specific connector bodies are called out in the Wiring Repairs section.**

   1. The terminal position assurance (TPA) and connector position assurance (CPA) should be removed before releasing the terminal for the connector body.
   2. Look at the connector end view to locate the cavity of the damaged terminal and find the proper terminal release tool from the terminal release tool kit.

      NOTE: **Using the incorrect terminal release tool can damage the connector body.**

      NOTE: **Some terminals have a lever that must be disengaged before the terminal can be released.**

   3. Insert the terminal release tool into the cavity.

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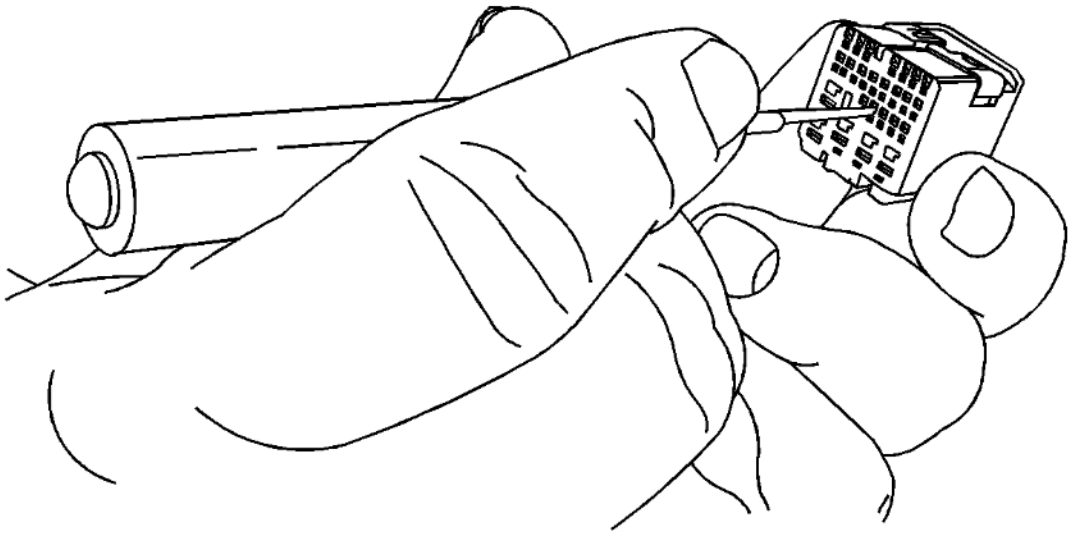

Fig. 209: Gently Pulling Wire Out Of Back Of Connector
Courtesy of GENERAL MOTORS COMPANY

5. Gently pull the wire out of the back of the connector.
6. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
7. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

DELPHI 40-WAY SEALED INLINE CONNECTOR REMOVAL

NOTE: **This procedure can also be used to remove the yellow Delphi 48-way sealed inline connector.**

Connector Removal Procedure

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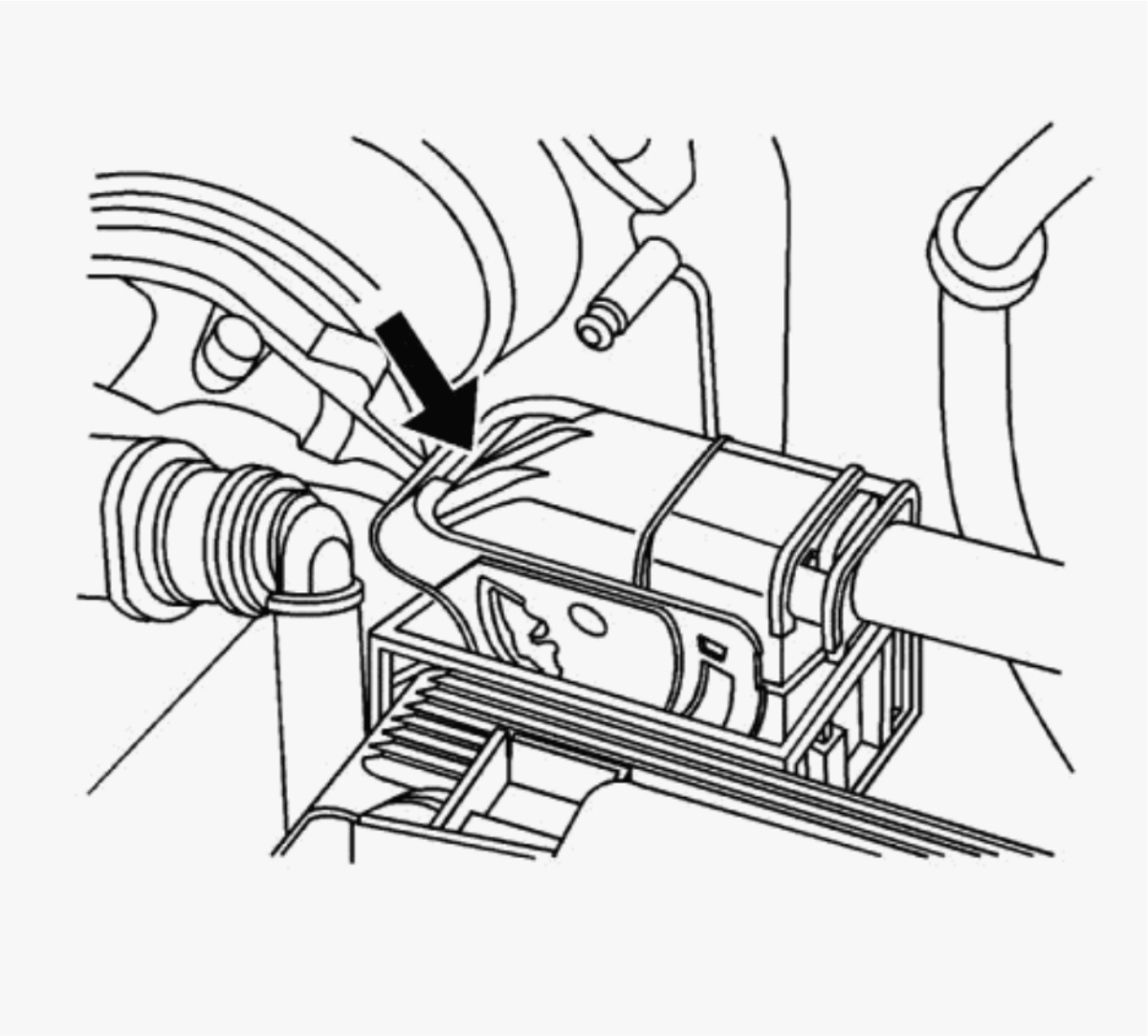

Fig. 210: CPA (Connector Position Assurance) Clip Down
Courtesy of GENERAL MOTORS COMPANY

1. Push CPA (Connector Position Assurance) clip down.

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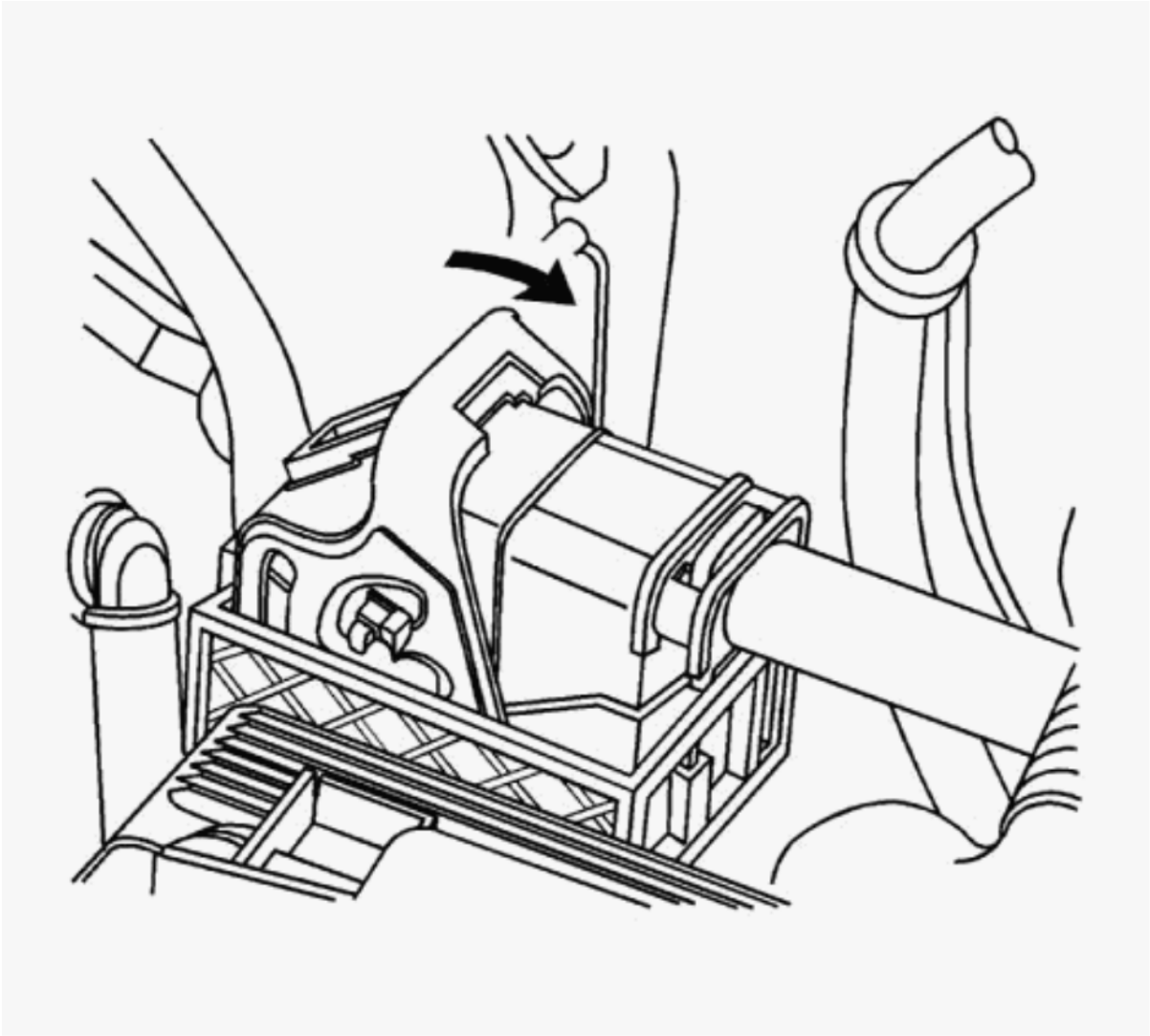

Fig. 211: Pulling Cam Lever Up Until Female Connector Is Disengaged From Its Mating Male Connector

Courtesy of GENERAL MOTORS COMPANY

2. Pull cam lever up until the female connector is disengaged from its mating male connector.

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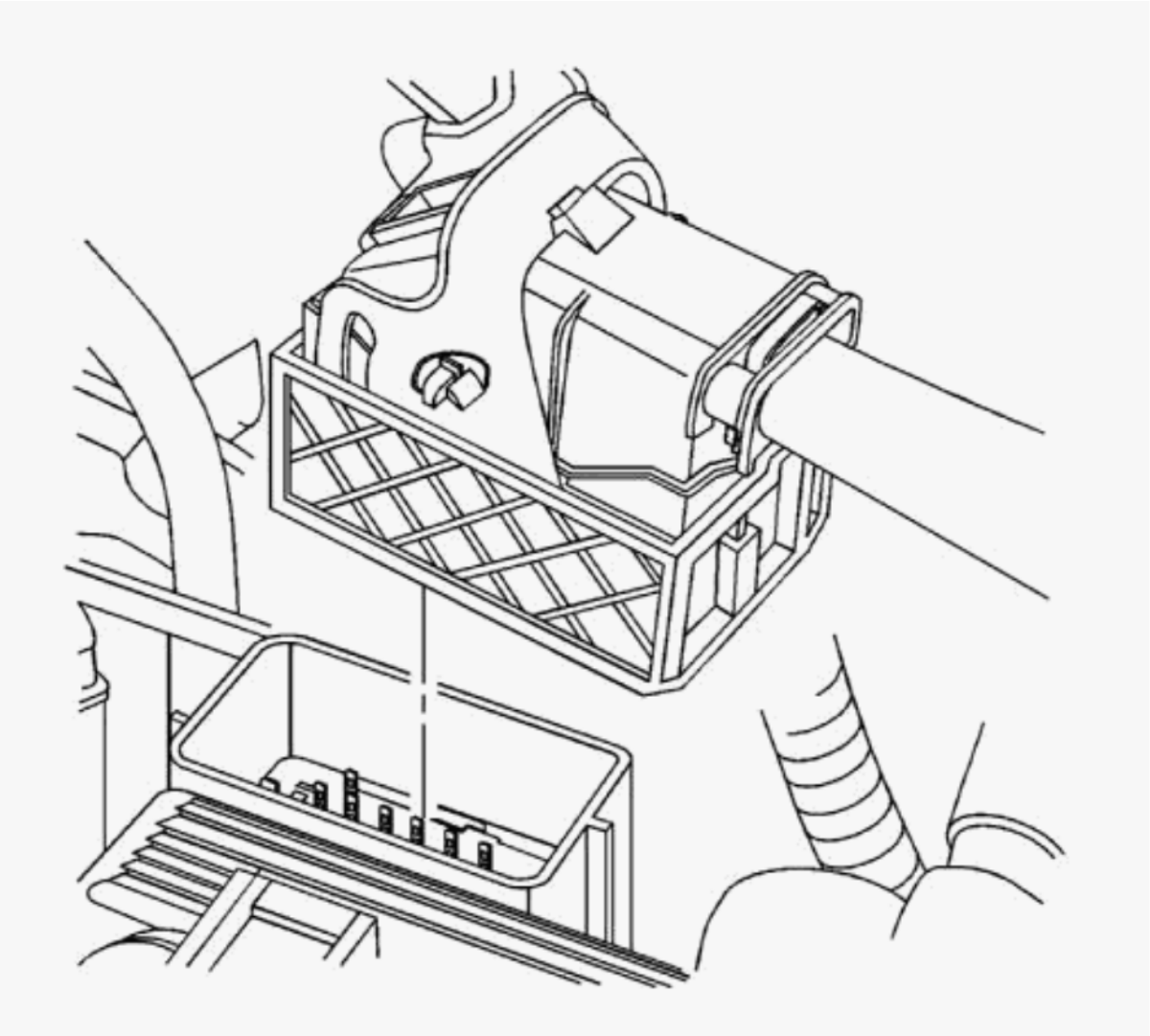

Fig. 212: Removing Female Connector From Male Connector
Courtesy of GENERAL MOTORS COMPANY

3. Remove the female connector from the male connector.

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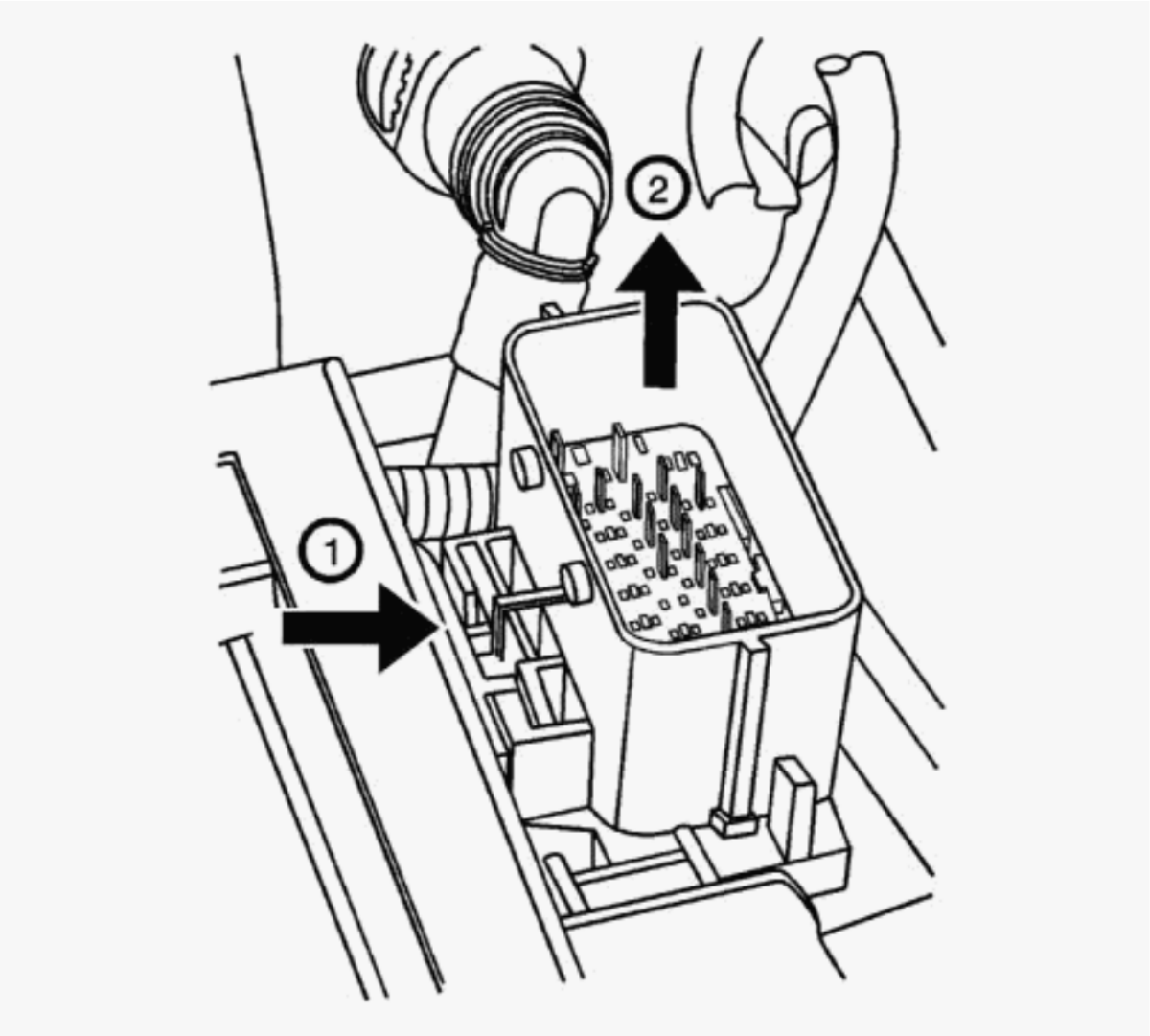

Fig. 213: Pulling Male Connector Up
Courtesy of GENERAL MOTORS COMPANY

4. Push tab in (1) and pull the male connector up (2).

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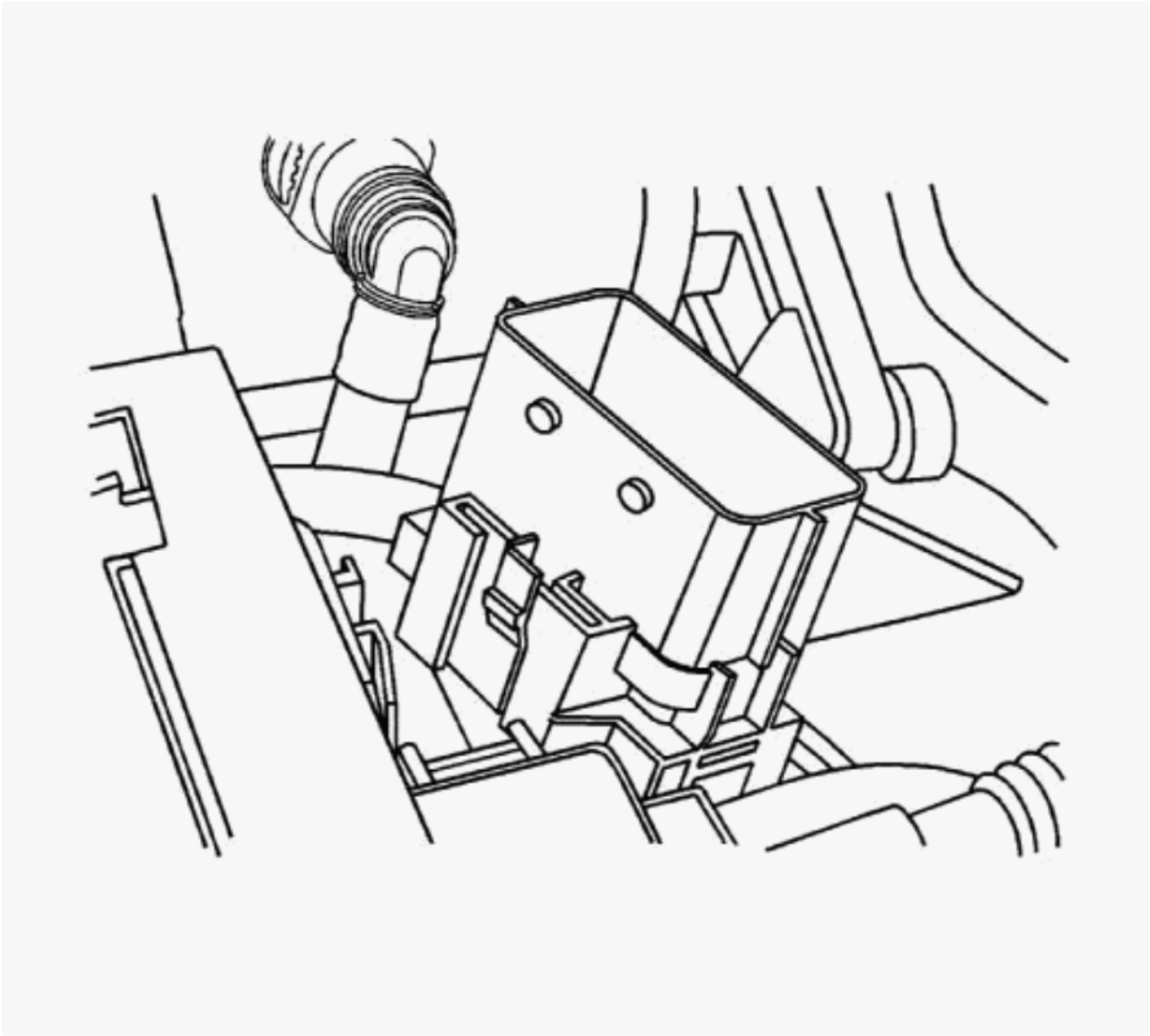

Fig. 214: Male connector is now detached from UBEC
Courtesy of GENERAL MOTORS COMPANY

5. Male connector is now detached from UBEC.

RELAY REPLACEMENT (ATTACHED TO WIRE HARNESS)

Removal Procedure

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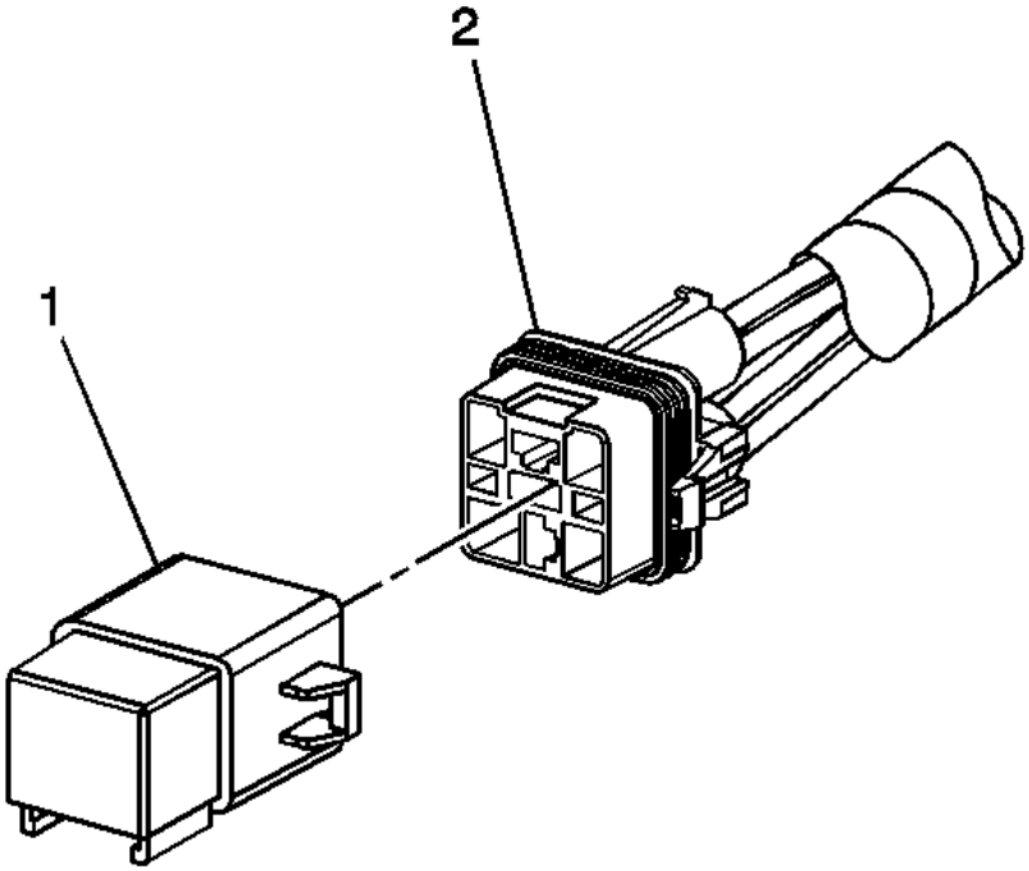

Fig. 215: Identifying Relay & Wire Harness Connector
Courtesy of GENERAL MOTORS COMPANY

1. Locate the relay. Refer to the **Master Electrical Component List** to locate the relay in the vehicle.
2. Remove any fasteners which hold the relay in place.
3. Remove any connector position assurance (CPA) devices or secondary locks.

NOTE: **Use care when removing a relay in a wiring harness when the relay is secured by fasteners or tape.**

4. Separate the relay (1) from the wire harness connector (2).

Installation Procedure

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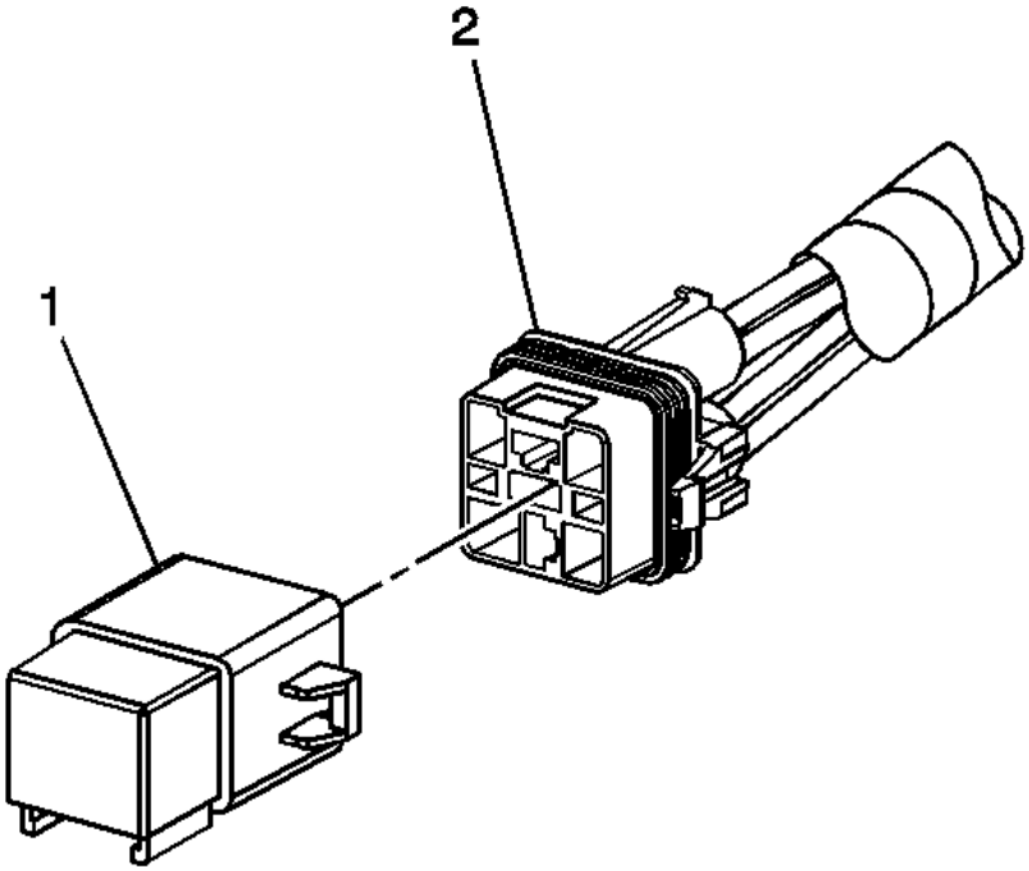

Fig. 216: Identifying Relay & Wire Harness Connector
Courtesy of GENERAL MOTORS COMPANY

1. Connect the relay (1) to the wire harness connector (2).
2. Install any connector position assurance (CPA) devices or secondary locks.
3. Install the relay using any fasteners or tape that originally held the relay in place.

RELAY REPLACEMENT (WITHIN AN ELECTRICAL CENTER)

Special Tools

EL-43244 Relay Puller Pliers

Removal Procedure

1. Remove the electrical center cover.

NOTE:

- **Always note the orientation of the relay.**
- **If equipped with a notch style relay; observe the location of the notch on the old relay to verify the new relay is installed with the notch in the same location.**

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- **Ensure that the electrical center is secure, as not to put added stress on the wires or terminals.**

2. Locate the relay. Refer to **Electrical Center Identification Views** **Electrical Center Identification Views** to locate the electrical center where the relay exists.

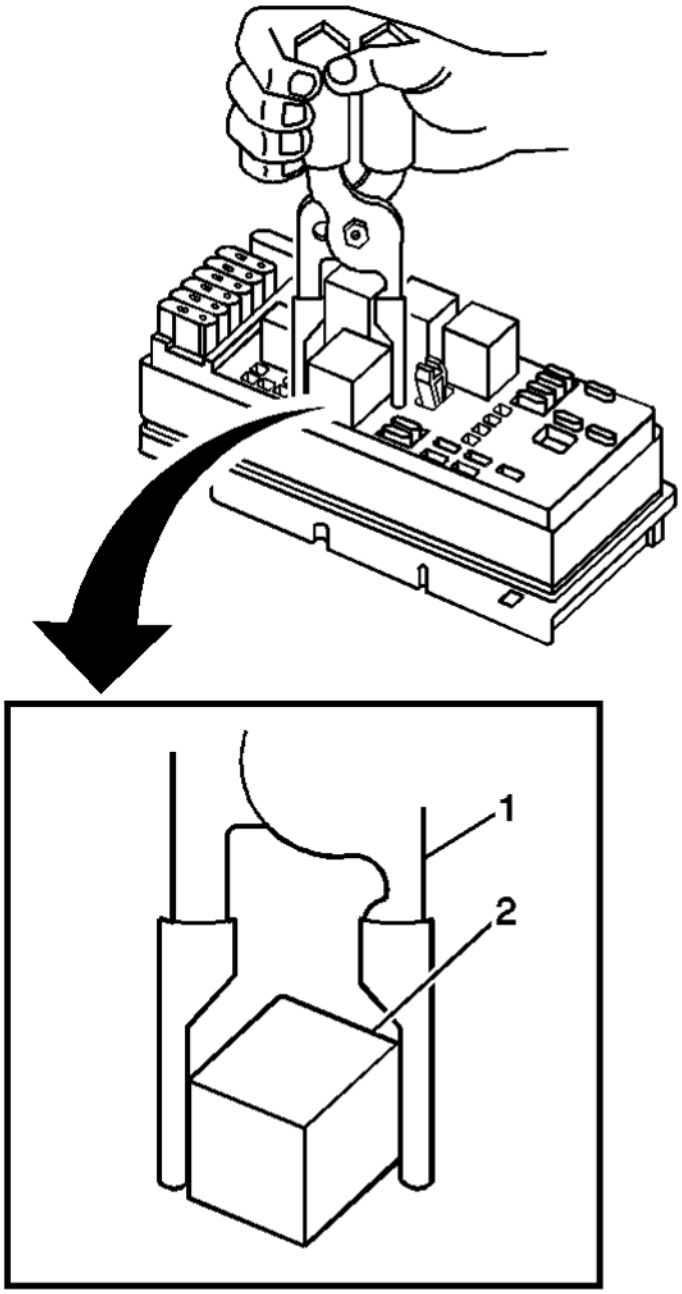

Fig. 217: Removing/Installing Relay

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3. Using the EL-43244 (1) position the tool on opposing corners of the relay (2).

CAUTION: Use EL-43244 to pull the relay straight out from the electrical center terminals. The use of pliers or a flat bladed tool could damage the electrical center.

4. Remove the relay (2) from the electrical center.

Installation Procedure

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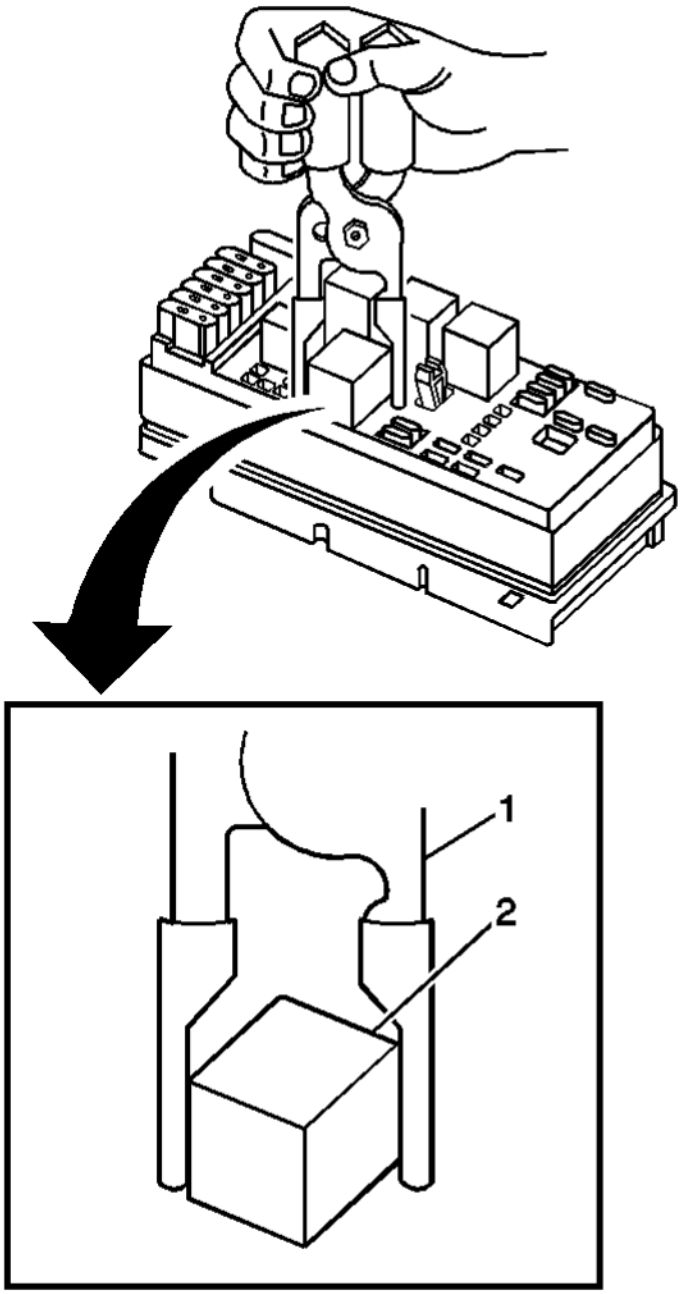

Fig. 218: Removing/Installing Relay
Courtesy of GENERAL MOTORS COMPANY

1. Install the relay (2) in the same position as removed.
2. Install the electrical center cover.

GROUND REPAIR

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Electrical Grounds

Proper electrical system function relies on secure, positive, corrosion-free ground connections. Loose, stripped, or corroded connections increase the possibility of improper system function and loss of module communication. These conditions may also lead to unnecessary repairs and component replacements.

In general, electrical ground connections are accomplished using one, or a combination of, three attachment methods:

- Welded M6 stud and nut
- Welded M6 nut and bolt
- Welded M8 nut and bolt

CAUTION: Use GM approved replacement fasteners with conductive finish for electrical ground repair.

Determine which attachment method is used, and carry out the appropriate repair.

M6 Weld Stud Replacement

1. Select a location adjacent the damaged or missing M6 ground stud having 20 mm (0.79 in) clearance behind the panel surface and 20 mm (0.79 in) clearance surrounding the M6 rivet stud flange.
2. Using GM approved residue-free solvent or equivalent, remove any grease from the repair site and allow to dry.

NOTE: Ensure 20 mm (0.79 in) clearance is maintained behind the panel to be drilled.

3. Drill a 10 mm (0.40 in) diameter hole through the panel.
4. Carefully remove paint and primer from the area surrounding the rivet stud flange until bare metal is visible.

CAUTION: Use GM approved replacement fasteners with conductive finish for electrical ground repair.

5. Select a replacement conductive M6 rivet stud. Reference the GM parts catalog for the correct part number and application.
6. Using a rivet stud installer, install the replacement conductive M6 rivet stud.
7. Ensure the new rivet stud is securely fastened, with no detectable movement.

NOTE: The rivet stud and surrounding panel area must be properly refinished prior to the installation of the ground terminal and nut to maintain positive electrical grounding.

8. Completely wrap the threads of the rivet stud with painters tape or equivalent.
9. Refinish the repair area using an anti-corrosion primer.
10. Allow the refinished repair area to cure sufficiently before removing the protective material applied to the rivet stud threads.
11. Remove the painters tape or equivalent from the rivet stud threads.

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12. Using GM approved residue-free solvent or equivalent, thoroughly clean the rivet stud threads to remove any adhesive and allow to dry.
13. Carefully remove any corrosion from the electrical ground wire terminal. **Testing for Intermittent Conditions and Poor Connections**
14. Using a small brush, apply Dielectric Lubricant GM P/N 12377900 (Canadian P/N 10953529) to the new conductive M6 rivet stud threads.
15. Install the ground terminal to the new rivet stud.
16. Select a new, conductive M6 nut. Reference the GM parts catalog for the correct part number and application.

CAUTION: **Fastener Caution**

17. Install the conductive M6 nut and tighten to 8 (71 lb in).
18. Check for proper system operation.

M6 Weld Nut

CAUTION: **Use GM approved replacement fasteners with conductive finish for electrical ground repair.**

1. If the M6 weld nut at the electrical ground location is damaged or stripped, a new, conductive self-threading M7 bolt may be used to secure the ground terminal. Reference the GM parts catalog for the correct part number and application.
2. Using GM approved residue-free solvent or equivalent, remove any grease from the surface surrounding the weld nut and allow to dry.
3. Remove any loose metal particles from the damaged or stripped weld nut with a stiff brush.
4. Using a small brush, apply Dielectric Lubricant GM P/N 12377900 (Canadian P/N 10953529) to the new, conductive, self-threading M7 bolt threads.
5. Carefully remove any corrosion from the electrical ground terminal. **Testing for Intermittent Conditions and Poor Connections**
6. Install the electrical ground terminal to the new, conductive M7 bolt.

CAUTION: **Fastener Caution**

7. Install the conductive M7 bolt and tighten to 9 (80 lb in).
8. Check for proper system operation.

M6 Weld Nut (Alternative Repair)

CAUTION: **Use GM approved replacement fasteners with conductive finish for electrical ground repair.**

1. If the electrical ground location is accessible from both sides of the panel, a conductive M6 bolt and a conductive M6 nut may be used to secure the electrical ground terminal. Reference the GM parts catalog for the correct part number and application.
2. Select a location adjacent the damaged M6 weld nut having 20 mm (0.79) clearance behind the panel surface and 20 mm (0.79 in) clearance surrounding the new electrical ground site.
3. Using GM approved residue-free solvent or equivalent, remove any grease from the surface surrounding

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the ground location and allow to dry.

NOTE: **Ensure 20 mm (0.79 in) clearance is maintained behind the panel to be drilled.**

4. Drill a 10 mm (0.40 in) diameter hole through the panel.
5. Carefully remove paint and primer from the area surrounding the new ground site until bare metal is visible.
6. Using a small brush, apply Dielectric Lubricant GM P/N 12377900 (Canadian P/N 10953529) to the new, conductive M6 bolt threads.
7. Carefully remove any corrosion from the electrical ground terminal. **Testing for Intermittent Conditions and Poor Connections**
8. Install the electrical ground terminal and new, conductive M6 bolt to the ground location.

CAUTION: **Fastener Caution**

9. Install the conductive M6 nut and tighten to 8 (71 lb in).

NOTE: **The repair area must be properly refinished to maintain positive electrical grounding.**

10. Refinish the repair area using an anti-corrosion primer.
11. Check for proper system operation.

M8 Weld Nut

CAUTION: **Use GM approved replacement fasteners with conductive finish for electrical ground repair.**

1. If the M8 weld nut electrical ground location is accessible from both sides of the panel, a conductive M8 bolt and a conductive M8 nut may be used to secure the ground terminal. Reference the GM parts catalog for the correct part number and application.
2. Select a location adjacent to M8 weld nut having 20 mm (0.79 in) clearance behind the panel surface and 20 mm (0.79 in) clearance surrounding the new electrical ground site.
3. Using GM approved residue-free solvent or equivalent, remove any grease from the surface surrounding the ground location and allow to dry.

NOTE: **Ensure 20 mm (0.79 in) clearance is maintained behind the panel to be drilled.**

4. Drill a 10 mm (0.40 in) diameter hole through the panel.
5. Carefully remove paint and primer from the area surrounding the new ground site until bare metal is visible.
6. Using a small brush, apply Dielectric Lubricant GM P/N 12377900 (Canadian P/N 10953529) to the new, conductive M8 bolt threads.
7. Carefully remove any corrosion from the electrical ground terminal. **Testing for Intermittent Conditions and Poor Connections**
8. Install the electrical ground terminal and new, conductive M8 bolt to the ground location.

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CAUTION: **Fastener Caution**

9. Install the conductive M8 nut and tighten to 22 (16 lb ft).

NOTE: **The repair area must be properly refinished to maintain positive electrical grounding.**

10. Refinish the repair area using an anti-corrosion primer.
11. Check for proper system operation.

M8 Weld Nut (Alternative Repair)

CAUTION: **Use GM approved replacement fasteners with conductive finish for electrical ground repair.**

1. If the M8 weld nut electrical ground location is not accessible from both sides of the panel, a conductive M6 rivet stud and a conductive M6 nut may be used to secure the ground terminal. Reference the GM parts catalog for the correct part number and application.
2. Select a location adjacent the damaged M8 weld nut having 20 mm (0.79 in) clearance behind the panel surface and 20 mm (0.79 in) clearance surrounding the new, conductive M6 rivet stud flange.
3. Using GM approved residue-free solvent or equivalent, remove any grease from the repair site and allow to dry.

NOTE: **Ensure 20 mm (0.79 in) clearance is maintained behind the panel to be drilled.**

4. Drill a 10 mm (0.40 in) diameter hole through the panel.
5. Carefully remove paint and primer from the area surrounding the rivet stud flange until bare metal is visible.
6. Using a rivet stud installer, install the replacement conductive M6 rivet stud.
7. Ensure the new rivet stud is securely fastened, with no detectable movement.

NOTE: **The rivet stud and surrounding panel area must be properly refinished prior to the installation of the ground terminal and nut to maintain positive electrical grounding.**

8. Completely wrap the threads of the rivet stud with painters tape or equivalent.
9. Refinish the repair area using an anti-corrosion primer.
10. Allow the refinished repair area to cure sufficiently before removing the protective material applied to the rivet stud threads.
11. Remove the painters tape or equivalent from the rivet stud threads.
12. Using GM approved residue-free solvent or equivalent, thoroughly clean the rivet stud threads to remove any adhesive and allow to dry.
13. Carefully remove any corrosion from the electrical ground wire terminal. **Testing for Intermittent Conditions and Poor Connections**
14. Using a small brush, apply Dielectric Lubricant GM P/N 12377900 (Canadian P/N 10953529) to the new conductive M6 rivet stud threads.

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15. Install the ground terminal to the new, conductive M6 rivet stud.

CAUTION: **Fastener Caution**

16. Install the conductive M6 nut and tighten to 8 (71 lb in).
17. Check for proper system operation.

Securing Loose Electrical Ground Connections

If the electrical ground connection is loose and the ground attachments are not damaged, properly securing the loose electrical ground may be all that is necessary. Carry out the following procedure to secure loose electrical ground connections.

CAUTION: **Use GM approved replacement fasteners with conductive finish for electrical ground repair.**

1. Using GM approved residue-free solvent or equivalent, thoroughly clean the ground stud threads and allow to dry.
2. Carefully remove any corrosion from the electrical ground wire terminal. **Testing for Intermittent Conditions and Poor Connections**
3. Using a small brush, apply Dielectric Lubricant GM P/N 12377900 (Canadian P/N 10953529) to the ground stud threads.
4. Install the ground wire terminal to the ground stud.

CAUTION: **Fastener Caution**

5. Install the appropriate conductive nut.
   - Conductive M6 nut: Tighten to 8 (71 lb in)
   - Conductive M8 nut: Tighten to 22 (16 lb ft)
   - Conductive M10 nut: Tighten to 45 (33 lb ft)
6. Check for proper system operation.

BATTERY DISTRIBUTION ENGINE COMPARTMENT FUSE BLOCK REPLACEMENT (DIESEL)

Removal Procedure

1. Disconnect the battery negative cable. **Battery Negative Cable Disconnection and Connection (Dual Battery)** **Battery Negative Cable Disconnection and Connection (L5P)**
2. Remove the right hand front fender rear upper brace. **Front Fender Rear Upper Brace Replacement (L5P)**

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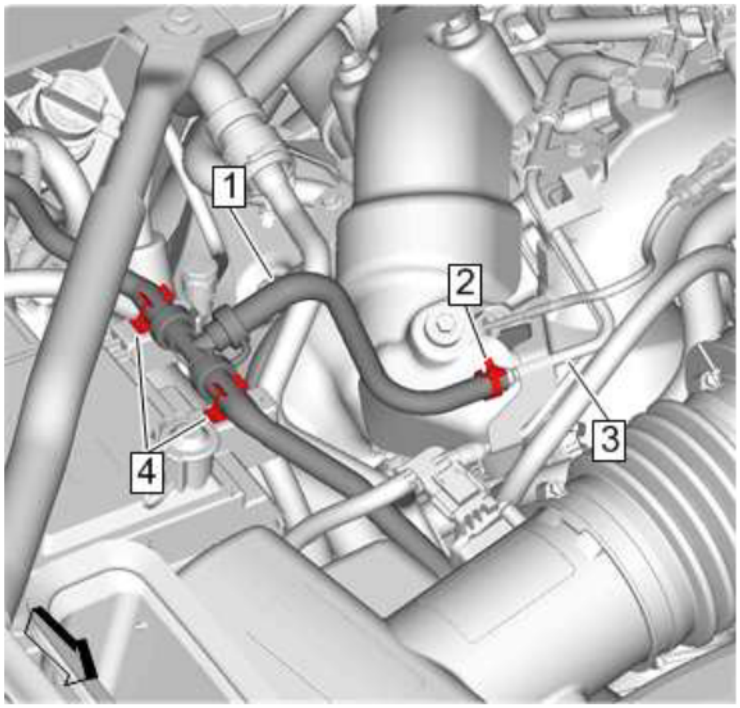

Fig. 219: Radiator Surge Tank Inlet Hose And Retainers
Courtesy of GENERAL MOTORS COMPANY

3. Retainer<p01> - Disengage
4. Radiator Surge Tank Inlet Hose<p01> - Reposition

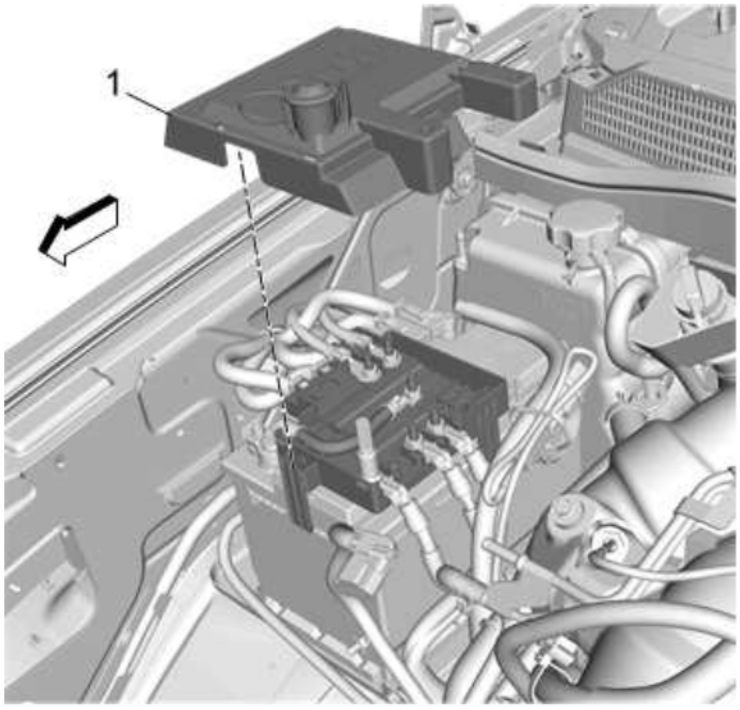

Fig. 220: Fuse Block Cover
Courtesy of GENERAL MOTORS COMPANY

5. Fuse Block Cover<p01> - Remove

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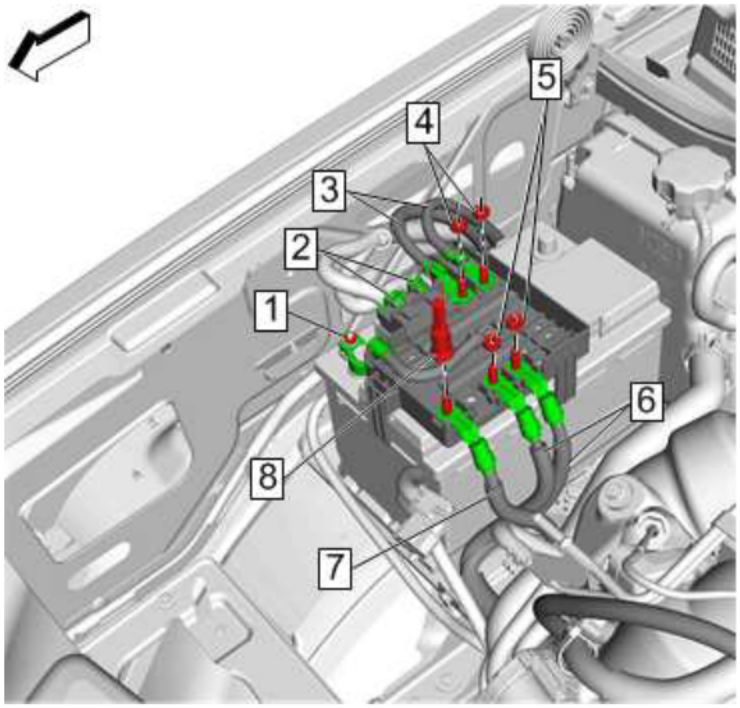

Fig. 221: NO CONTENT
Courtesy of GENERAL MOTORS COMPANY

6. Remove the following from the battery distribution engine compartment fuse block:
    - Battery Positive Junction Block Cable Nut<p01><p01>
    - Battery Positive Cable<p01><p01>
    - Battery Positive Junction Block Cable Nut<p01><p01>
    - Generator Battery Control Wiring Harness<p01><p01>
    - Battery Positive Junction Block Cable Barrel Nut <p01>
    - Starter Solenoid Cable<p01>
    - { If equipped }Electrical Connector<p01><p01>
7. Battery Positive Post Clamp Nut<p01> - Loosen

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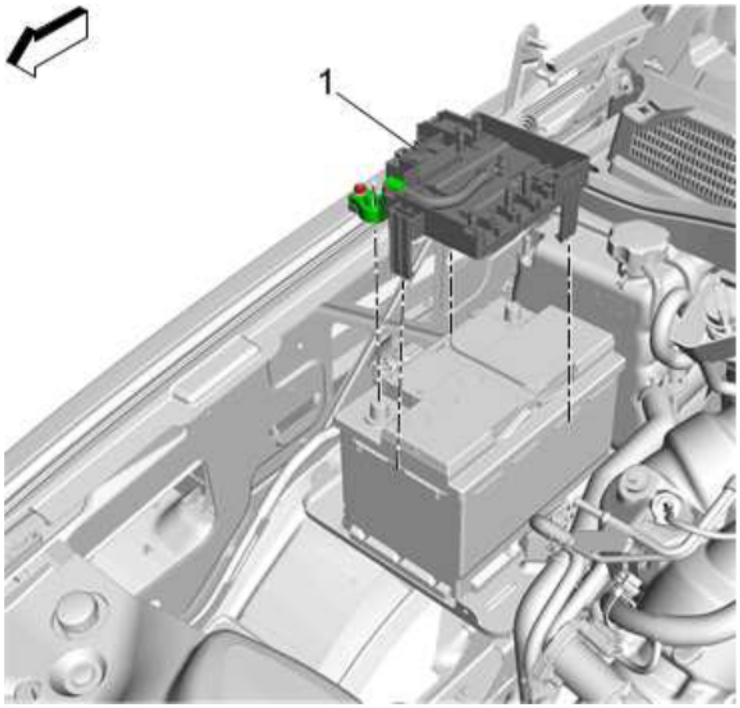

Fig. 222: Battery Distribution Engine Compartment Fuse Block
Courtesy of GENERAL MOTORS COMPANY

8. Unclip the battery distribution engine compartment fuse block retainers and remove the battery distribution engine compartment fuse block. <p01>

Installation Procedure

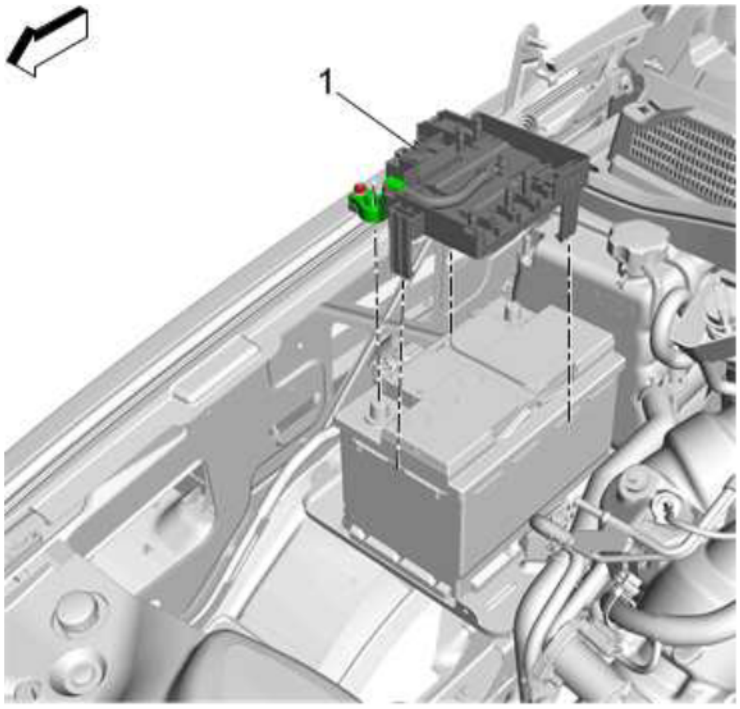

Fig. 223: Battery Distribution Engine Compartment Fuse Block
Courtesy of GENERAL MOTORS COMPANY

1. Battery Distribution Engine Compartment Fuse Block<p01> - Install

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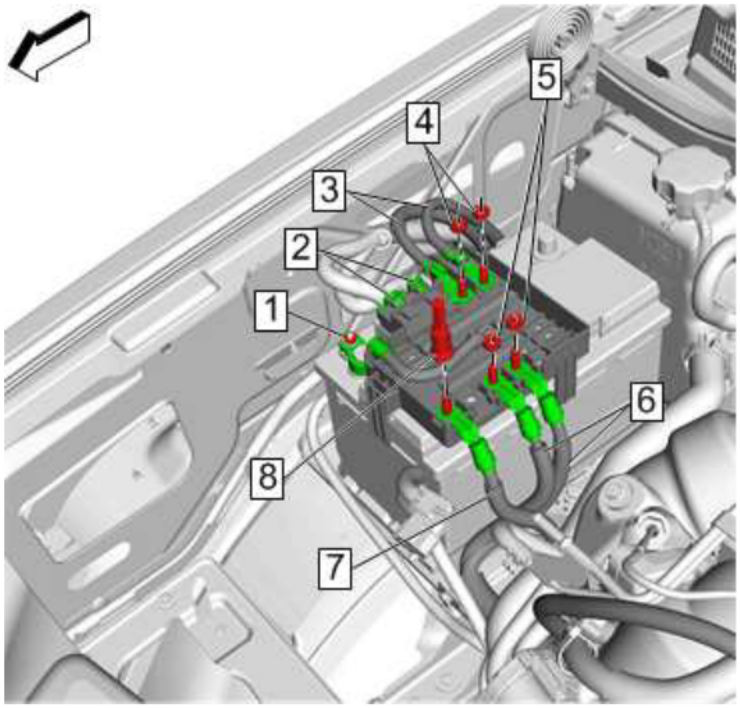

Fig. 224: NO CONTENT
Courtesy of GENERAL MOTORS COMPANY

CAUTION: **Refer to Fastener Caution**

2. Install the following to the battery distribution engine compartment fuse block:
    - Battery Positive Cable<p01><p01>
    - Battery Positive Junction Block Cable Nut<p01>Tighten <p01> 15 (11 lb ft)
    - Generator Battery Control Wiring Harness<p01><p01>
    - Battery Positive Junction Block Cable Nut<p01>Tighten <p01>15 (11 lb ft)
    - Starter Solenoid Cable<p01>
    - Battery Positive Junction Block Cable Barrel Nut <p01>Tighten 15 (11 lb ft)
    - { If equipped }Electrical Connector<p01><p01>
3. Battery Positive Post Clamp Nut<p01> - Tighten 6 (53 lb in)

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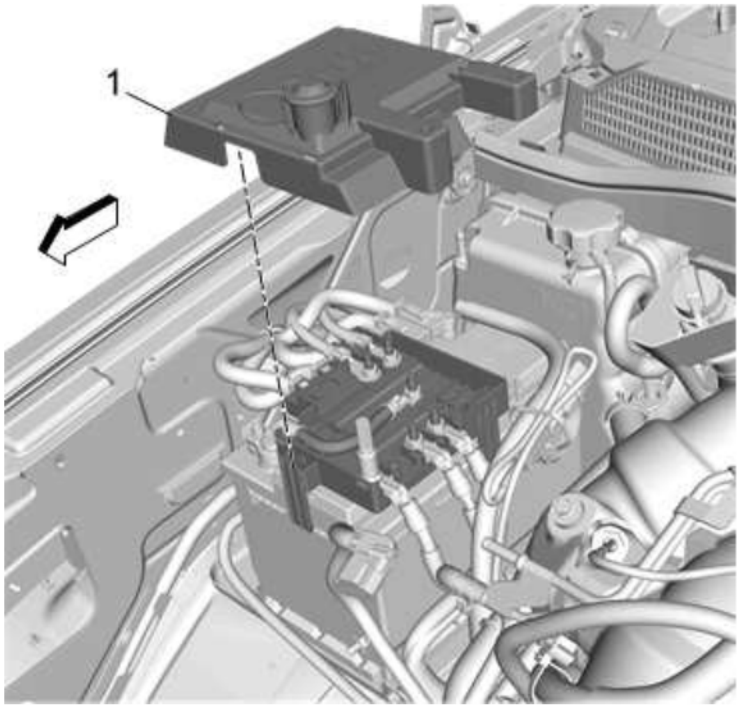

Fig. 225: Fuse Block Cover
Courtesy of GENERAL MOTORS COMPANY

4. Fuse Block Cover<p01> - Install

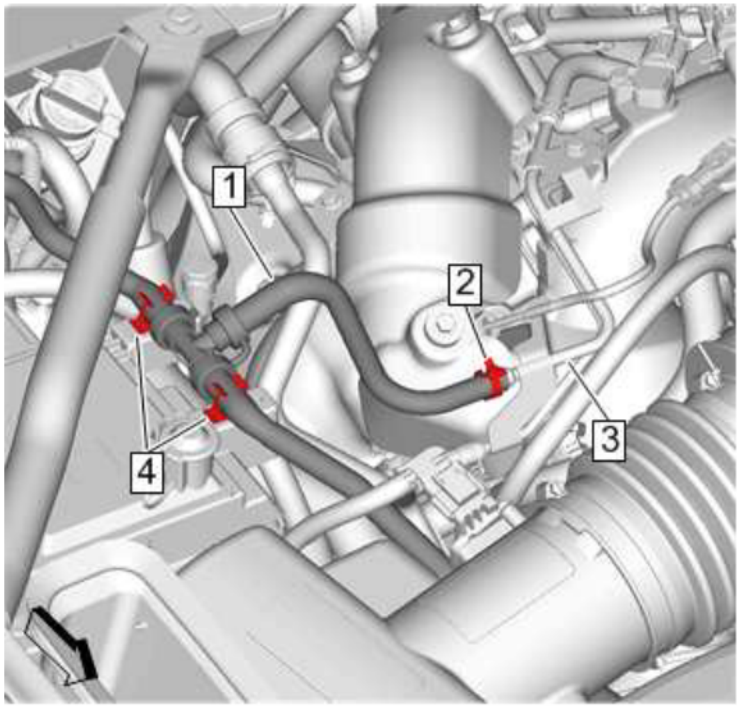

Fig. 226: Radiator Surge Tank Inlet Hose And Retainers
Courtesy of GENERAL MOTORS COMPANY

5. Retainer<p01> - Engage <p01>
6. Install the right hand front fender rear upper brace. **Front Fender Rear Upper Brace Replacement (L5P)**
7. Connect the negative battery cable. **Battery Negative Cable Disconnection and Connection (Dual**

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Battery) Battery Negative Cable Disconnection and Connection (L5P)

BATTERY DISTRIBUTION ENGINE COMPARTMENT FUSE BLOCK REPLACEMENT (GAS)

Removal Procedure

1. Disconnect the battery negative cable. Battery Negative Cable Disconnection and Connection (L96 LC8) Battery Negative Cable Disconnection and Connection (L83, L8B, LV3) Battery Negative Cable Disconnection and Connection (Dual Battery)
2. Remove the right hand front fender rear upper brace. Front Fender Rear Upper Brace Replacement (LV3, L96, LC8, lL83, L8B, L86)

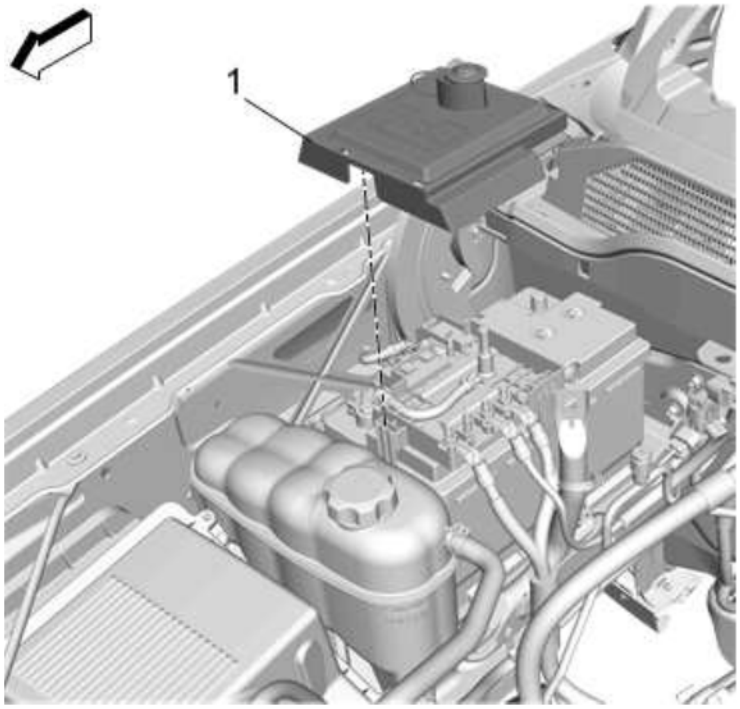

Fig. 227: Fuse Block Cover
Courtesy of GENERAL MOTORS COMPANY

3. Fuse Block Cover<p01> - Remove

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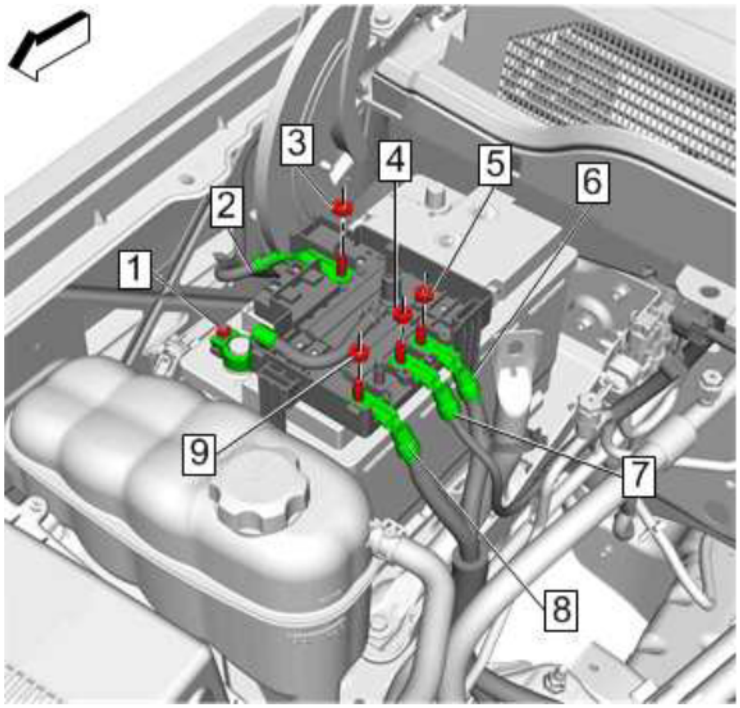

Fig. 228: NO CONTENT
Courtesy of GENERAL MOTORS COMPANY

4. Remove the following from the battery distribution engine compartment fuse block:
    - Battery Positive Junction Block Cable Nut<p01>
    - Battery Positive Cable<p01>
    - Battery Positive Junction Block Cable Nut<p01>
    - Generator Battery Control Wiring Harness<p01>
    - Battery Positive Junction Block Cable Nut<p01>
    - Battery Positive Cable<p01>
    - Battery Positive Junction Block Cable Nut<p01>
    - Generator Battery Control Wiring Harness<p01>
5. Battery Positive Post Clamp Nut<p01> - Loosen

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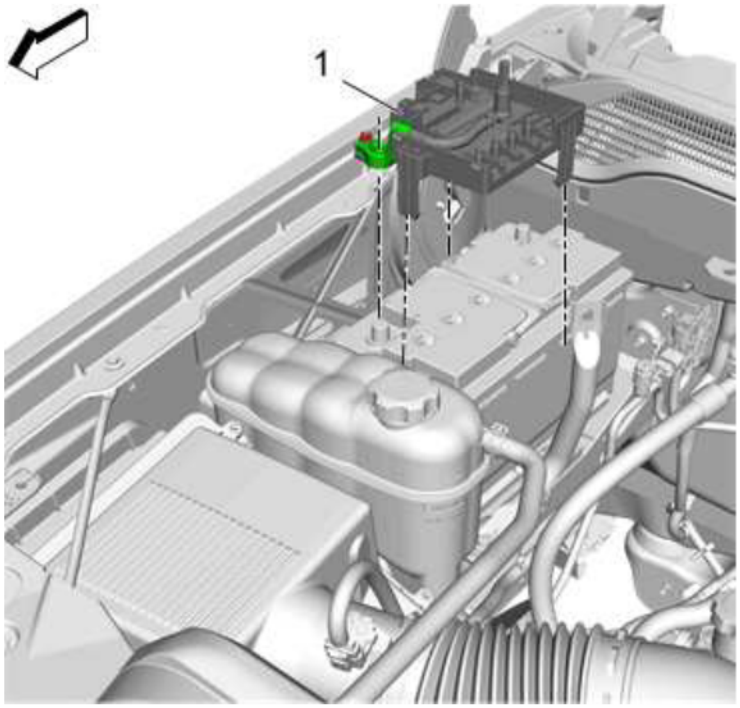

Fig. 229: Battery Distribution Engine Compartment Fuse Block
Courtesy of GENERAL MOTORS COMPANY

6. Unclip the battery distribution engine compartment fuse block retainers and remove the battery distribution engine compartment fuse block. <p01>

Installation Procedure

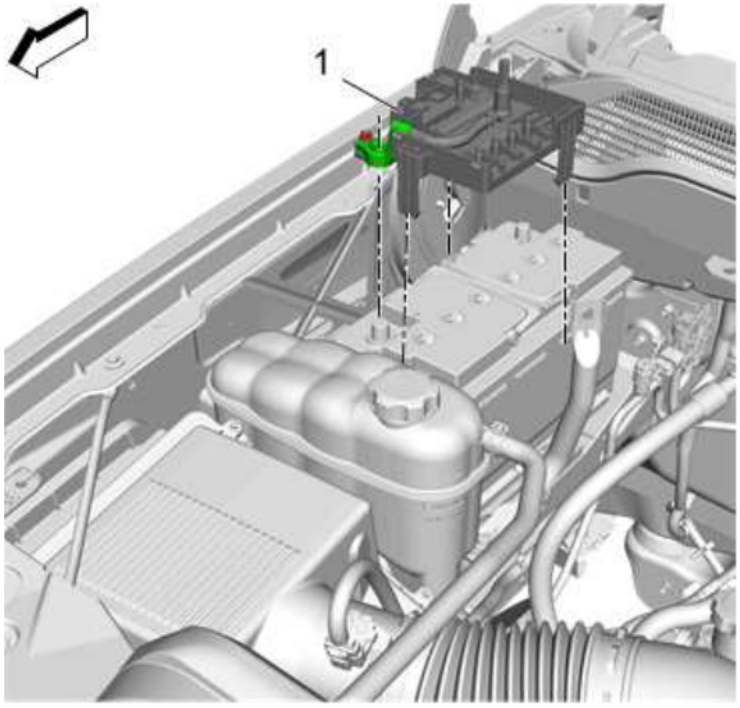

Fig. 230: Battery Distribution Engine Compartment Fuse Block
Courtesy of GENERAL MOTORS COMPANY

1. Battery Distribution Engine Compartment Fuse Block<p01> - Install

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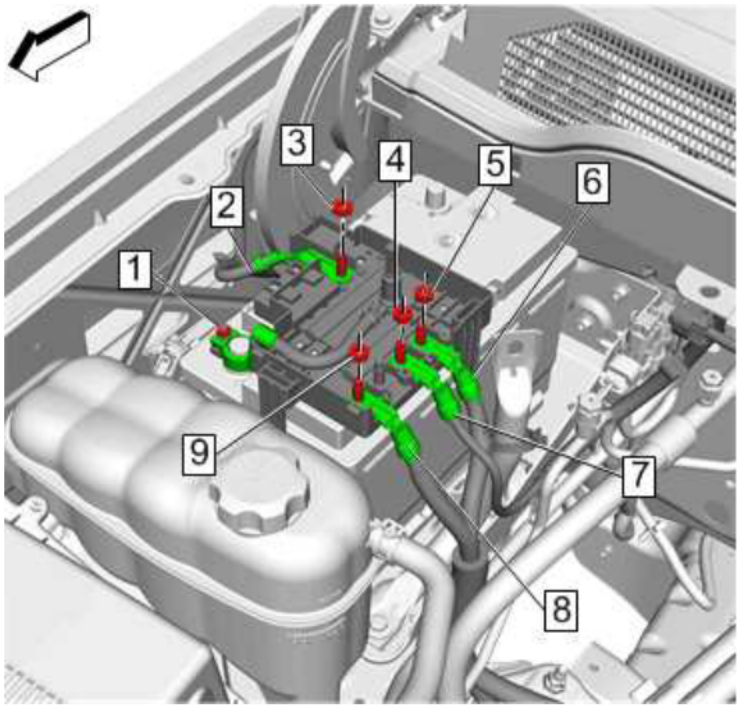

Fig. 231: NO CONTENT
Courtesy of GENERAL MOTORS COMPANY

CAUTION: **Refer to Fastener Caution**

2. Install the following to the battery distribution engine compartment fuse block:
    - Battery Positive Cable<p01>
    - Battery Positive Junction Block Cable Nut<p01>Tighten 15 (11 lb ft)
    - Generator Battery Control Wiring Harness<p01>
    - Battery Positive Junction Block Cable Nut<p01>Tighten 15 (11 lb ft)
    - Battery Positive Cable<p01>
    - Battery Positive Junction Block Cable Nut<p01>Tighten 15 (11 lb ft)
    - Battery Positive Cable<p01>
    - Battery Positive Junction Block Cable Nut<p01>Tighten 15 (11 lb ft)
3. Battery Positive Post Clamp Nut<p01> - Tighten 6 (53 lb in)

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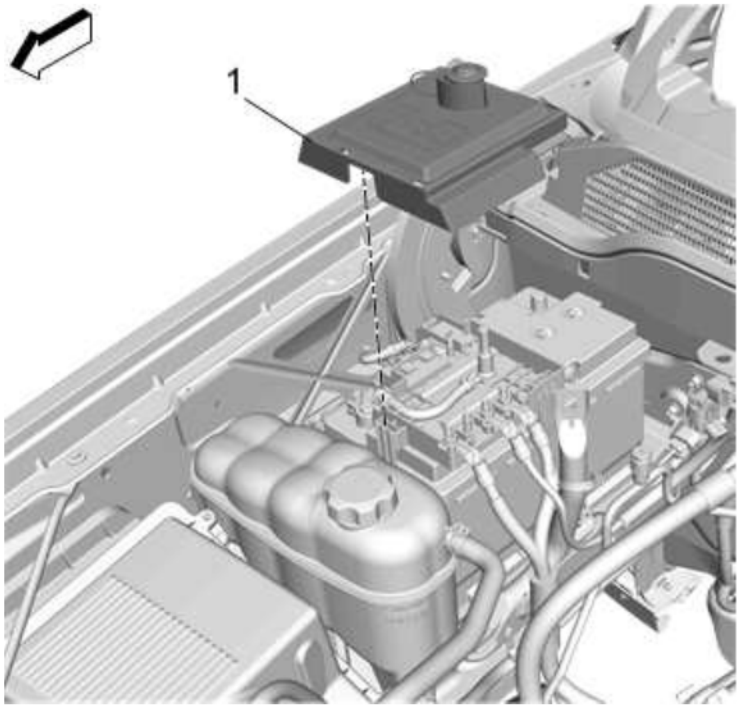

Fig. 232: Fuse Block Cover
Courtesy of GENERAL MOTORS COMPANY

4. Fuse Block Cover<p01> - Install
5. Install the right hand front fender rear upper brace. **Front Fender Rear Upper Brace Replacement (LV3, L96, LC8, lL83, L8B, L86)**
6. Connect the negative battery cable. **Battery Negative Cable Disconnection and Connection (L96 LC8) Battery Negative Cable Disconnection and Connection (L83, L8B, LV3) Battery Negative Cable Disconnection and Connection (Dual Battery)**

BATTERY DISTRIBUTION ENGINE COMPARTMENT FUSE BLOCK REPLACEMENT (HP5)

Removal Procedure

1. Disable the high voltage system. **High Voltage Disabling**
2. Front Fender Rear Upper Brace - Remove — **Front Fender Rear Upper Brace Replacement (LV3, L96, LC8, lL83, L8B, L86)**

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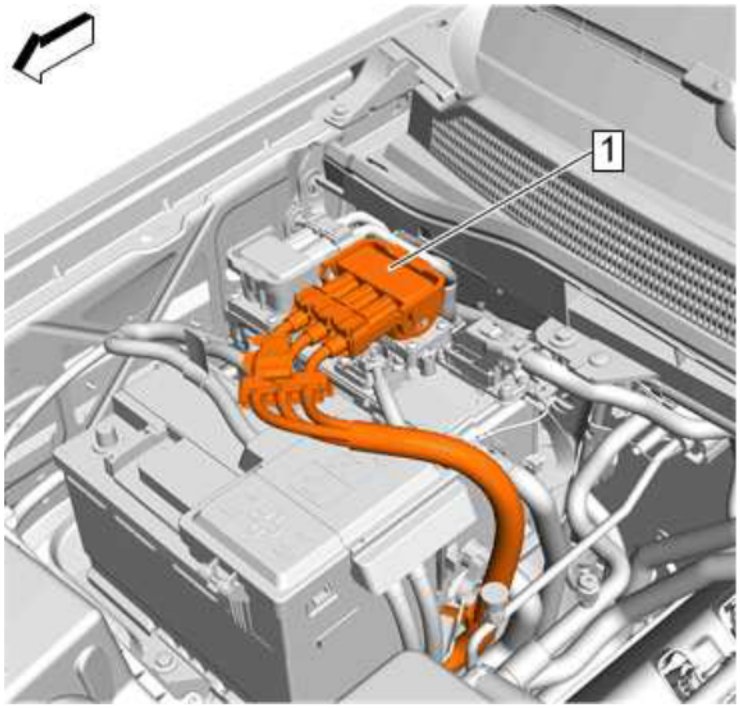

Fig. 233: High Voltage Connector
Courtesy of GENERAL MOTORS COMPANY

3. High Voltage Connector <p01> - Disconnect and position aside

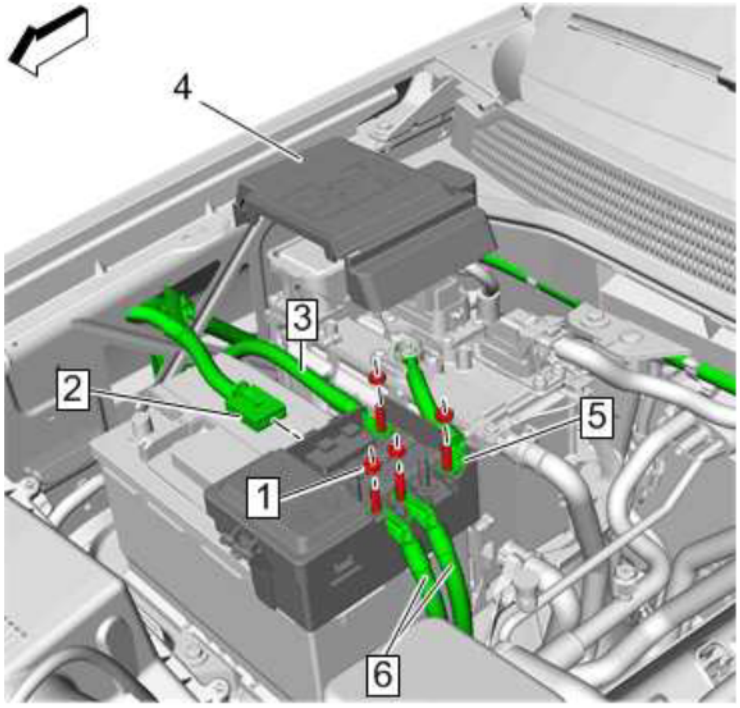

Fig. 234: Battery Connections
Courtesy of GENERAL MOTORS COMPANY

4. Fuse Block Cover<p01> - Remove
5. Electrical Connector<p01> - Disconnect
6. Battery Distribution Engine Compartment Fuse Block Nut <p01> - Remove <p01>

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7. Battery Positive Cable<p01> - Remove
8. Battery Positive Cable<p01> - Remove
9. Generator Battery Control Wiring Harness<p01> - Remove <p01>

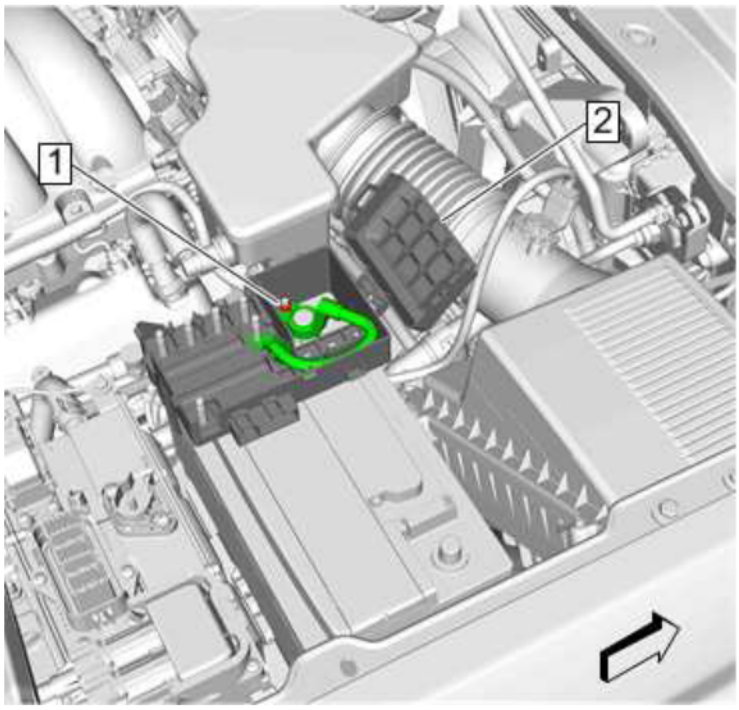

Fig. 235: Battery Positive Post Cover And Nut
Courtesy of GENERAL MOTORS COMPANY

10. Battery Positive Post Cover <p01> - Open
11. Battery Positive Post Clamp Nut<p01> - Loosen

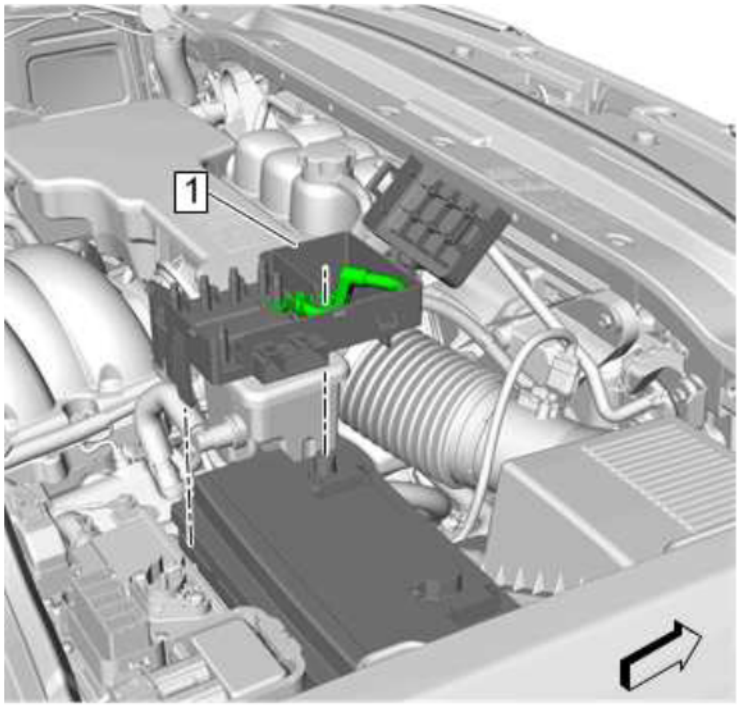

Fig. 236: Battery Distribution Engine Compartment Fuse Block

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Courtesy of GENERAL MOTORS COMPANY

12. Release the retaining tabs and remove the battery distribution engine compartment fuse block (1).

Installation Procedure

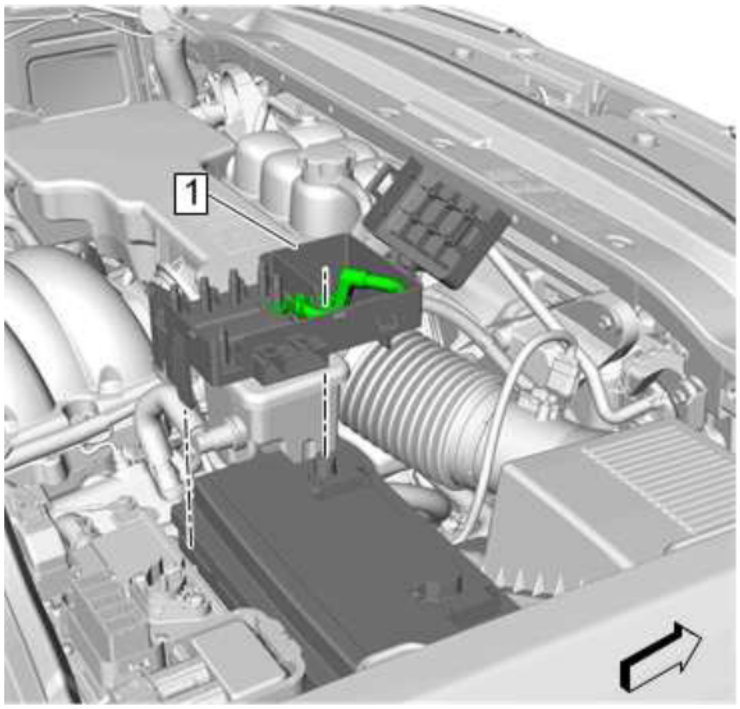

Fig. 237: Battery Distribution Engine Compartment Fuse Block
Courtesy of GENERAL MOTORS COMPANY

1. Battery Distribution Engine Compartment Fuse Block<p01> - Install

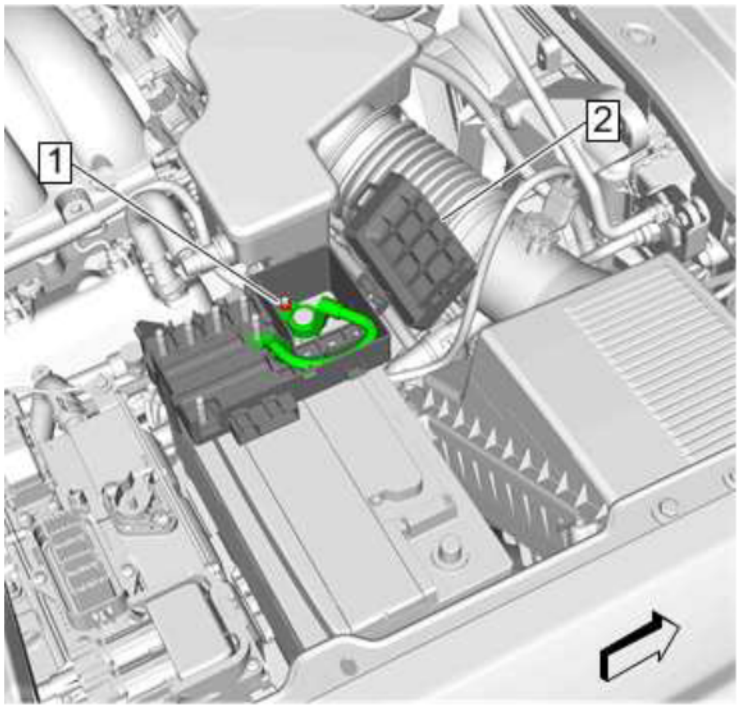

Fig. 238: Battery Positive Post Cover And Nut
Courtesy of GENERAL MOTORS COMPANY

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CAUTION: **Refer to Fastener Caution .**

2. Battery Positive Post Clamp Nut<p01> - Tighten 5 (44 lb in)
3. Battery Positive Post Cover <p01> - Close

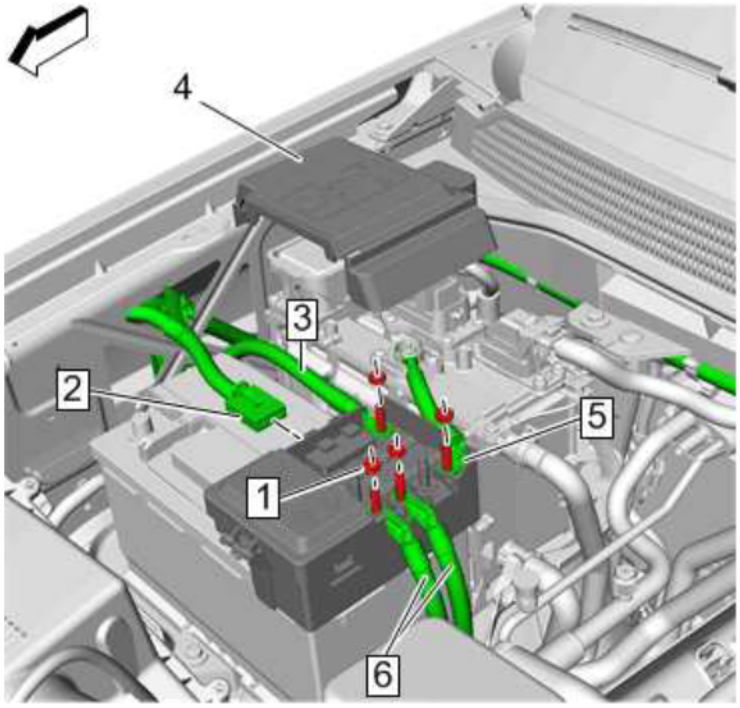

Fig. 239: Battery Connections
Courtesy of GENERAL MOTORS COMPANY

4. Generator Battery Control Wiring Harness<p01> - Install <p01>
5. Battery Positive Cable<p01> - Install
6. Battery Positive Cable<p01> - Install
7. Battery Distribution Engine Compartment Fuse Block Nut <p01> - Install and tighten <p01>15 (11 lb ft)
8. Electrical Connector<p01> - Connect
9. Fuse Block Cover<p01> - Install

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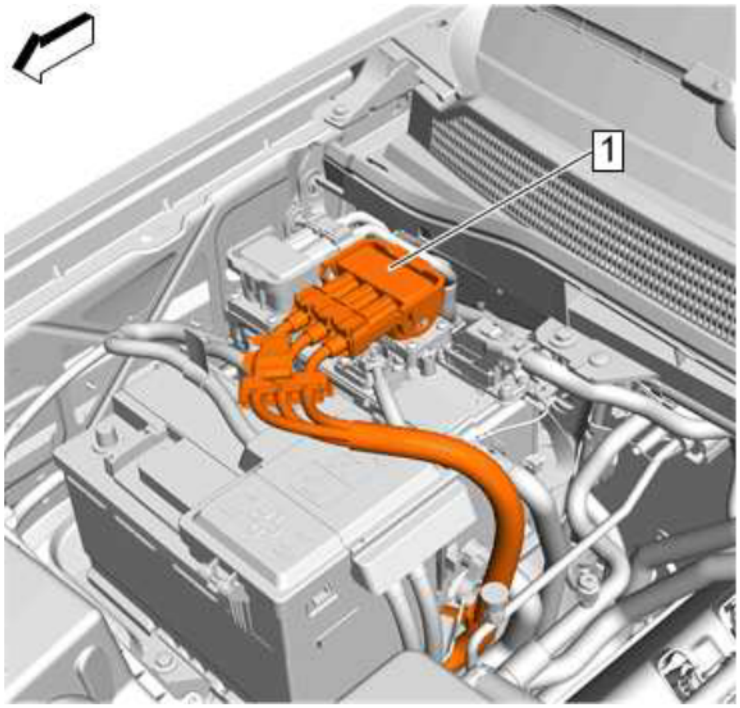

Fig. 240: High Voltage Connector
Courtesy of GENERAL MOTORS COMPANY

10. High Voltage Connector <p01> - Connect
11. Front Fender Rear Upper Brace - Install — **Front Fender Rear Upper Brace Replacement (LV3, L96, LC8, lL83, L8B, L86)**
12. Enable the high voltage system. **High Voltage Enabling**

UNDERHOOD ELECTRICAL CENTER OR JUNCTION BLOCK REPLACEMENT

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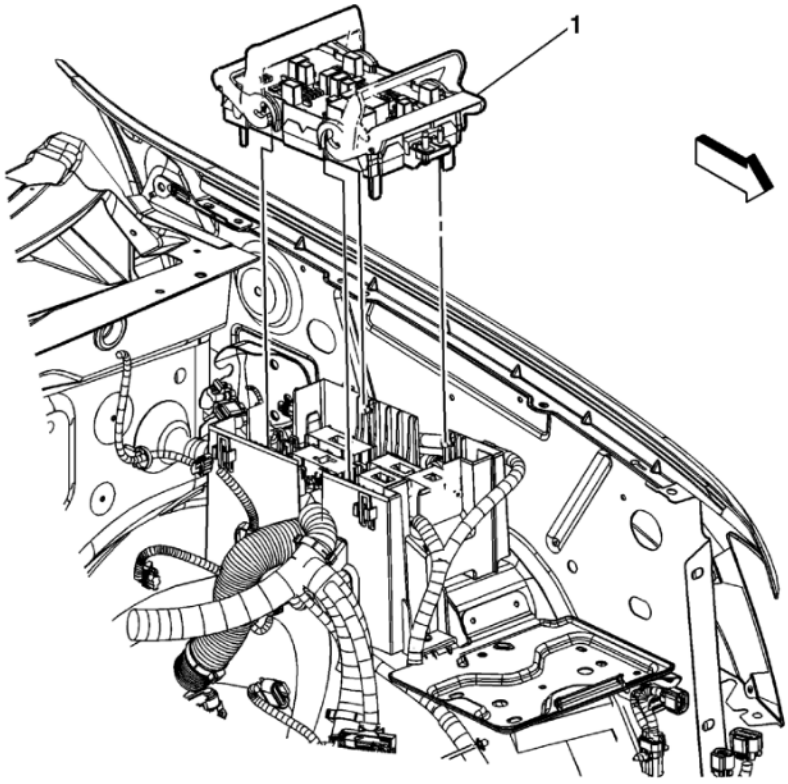

Fig. 241: View Of Underhood Electrical Center/Junction Block
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure 1. Disconnect the battery. Refer to **Battery Negative Cable Disconnection and Connection (L96 LC8)** **Battery Negative Cable Disconnection and Connection (L83, L8B, LV3)** **Battery Negative Cable Disconnection and Connection (Dual Battery)** **Battery Negative Cable Disconnection and Connection (L5P)** . 2. Remove the auxiliary battery positive cable if equipped. Refer to **Auxiliary Battery Positive Cable Replacement - Battery to Battery Relay (K4B)**	
1	Underhood Electrical Center/Junction Block **NOTE:** • **Remove the cover.** • **Release the locks securing the junction block handles.** • **Rotate both handles upward**

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Callout	Component Name
	disengaging the junction block from the base and the connectors. • Lift the junction block away from the base and remove it from the vehicle.

UNDERHOOD ELECTRICAL CENTER OR JUNCTION BLOCK BRACKET REPLACEMENT

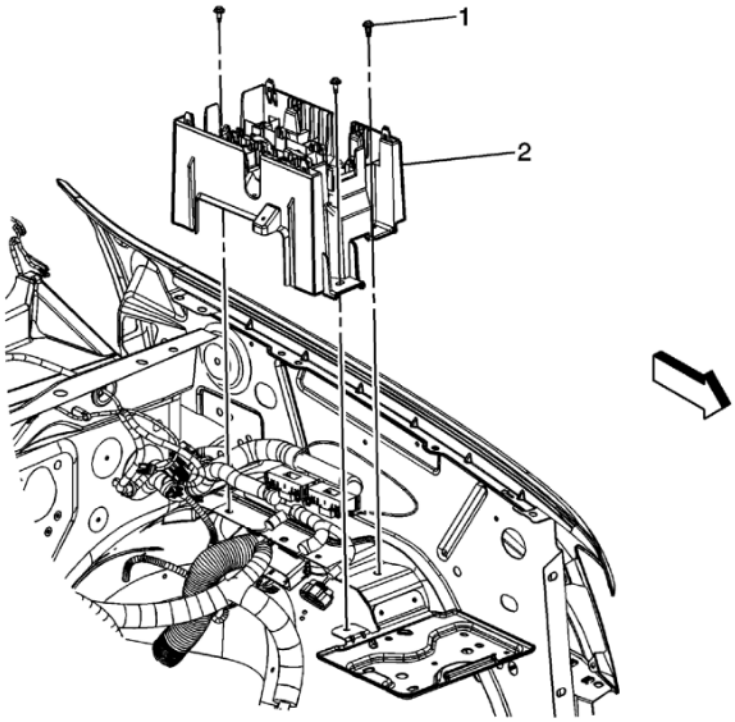

Fig. 242: View Of Underhood Electrical Center/Junction Block Bracket & Screws
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the underhood electrical center/junction block. Refer to **Underhood Electrical Center or Junction Block Replacement**.	

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Callout	Component Name
1	Underhood Electrical Center/Junction Block Bracket Screws (Qty: 3) **CAUTION:** **Refer to** **Fastener Caution** . **Tighten** 9 N.m (80 lb in)
2	Underhood Electrical Center/Junction Block Bracket **Procedure** Unclip and reposition wiring harnesses and connectors from the junction block bracket as necessary.

INSTRUMENT PANEL WIRING HARNESS JUNCTION BLOCK REPLACEMENT

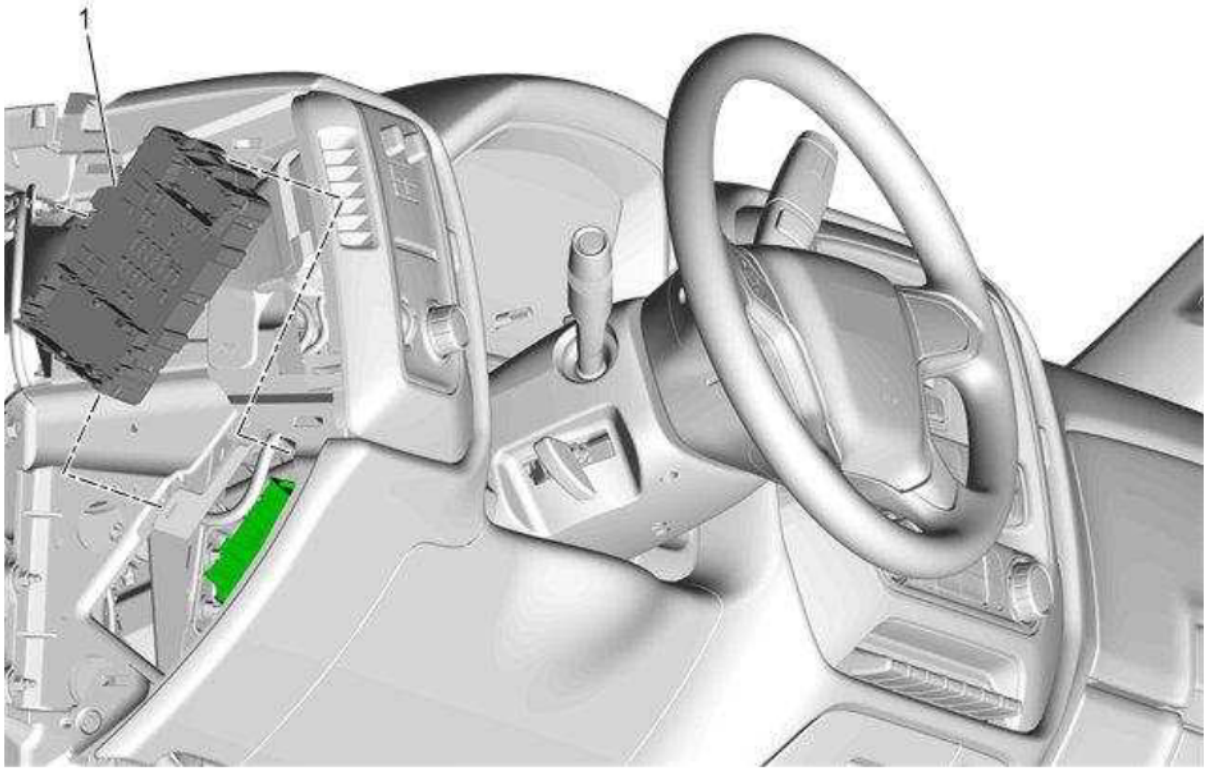

Fig. 243: Instrument Panel Wiring Harness Junction Block
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure **Instrument Panel Fuse Block Access Hole Cover Replacement**	
1	Instrument Panel Wiring Harness Junction Block **NOTE:**

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Callout	Component Name
	Left side instrument panel wiring harness junction block shown, right side similar. **Procedure** 1. Disconnect all electrical connections. 2. Release the two integral retainers on the block from the instrument panel carrier tabs.

TOW VEHICLE ELECTRICAL RECEPTACLE REPLACEMENT

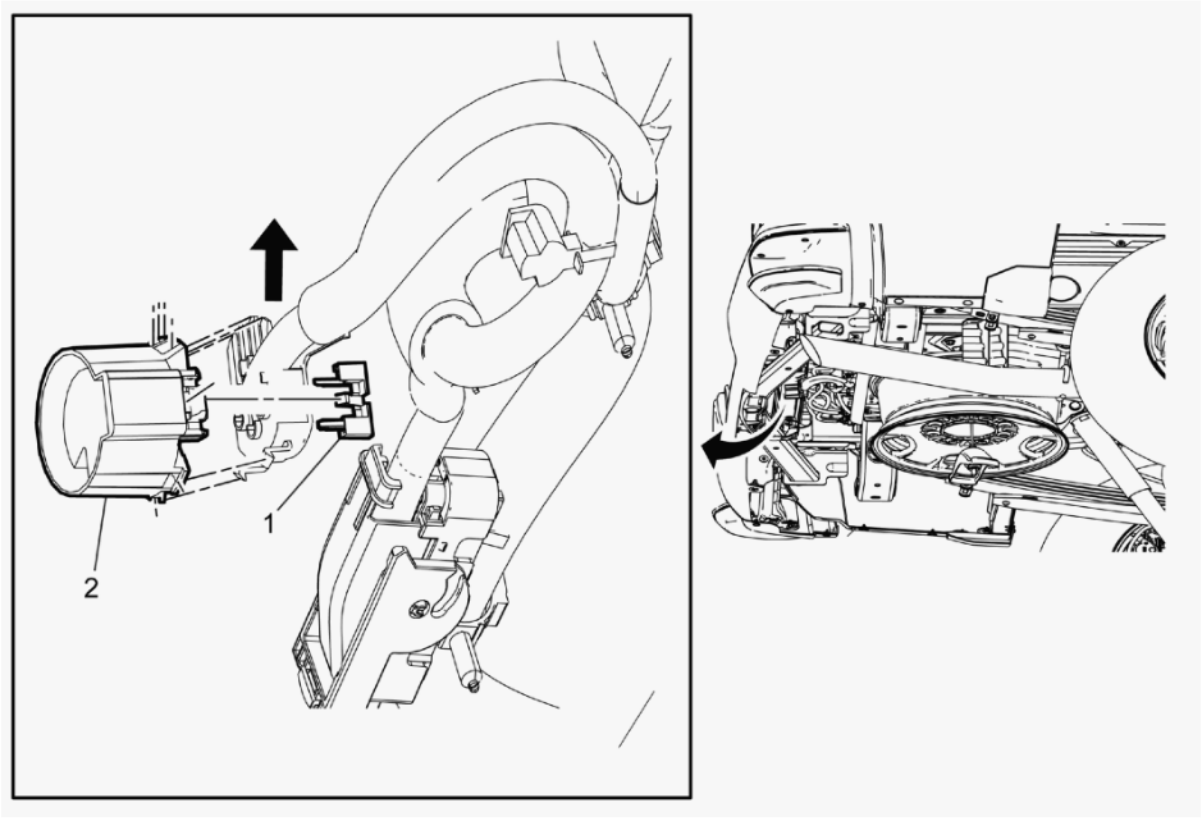

Fig. 244: Tow Vehicle Electrical Receptacle
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Tow Vehicle Electrical Receptacle Lock
2	Tow Vehicle Electrical Receptacle **Procedure** Release the two lower retainers tabs. Rotate the bottom of tow vehicle electrical receptacle slightly up wards and push the receptacle off the upper connector tabs.

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IGNITION LOCK CYLINDER REPLACEMENT

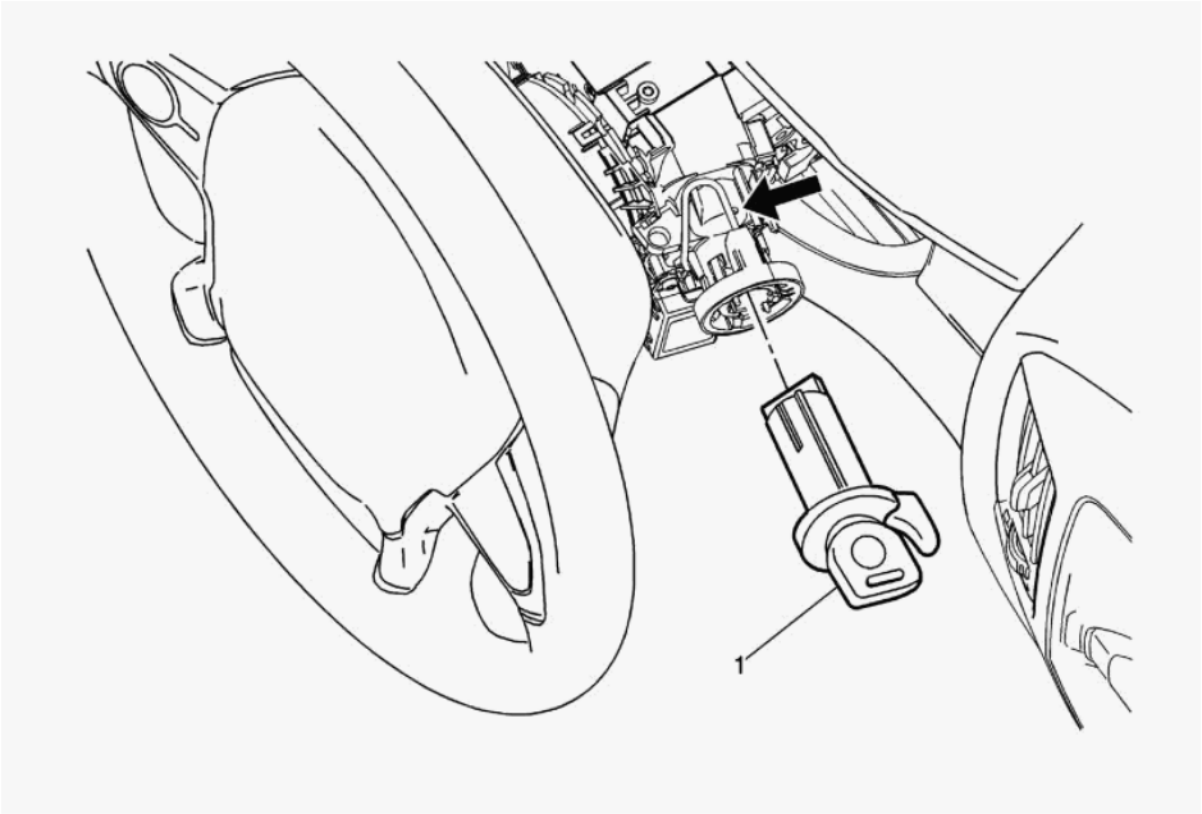

Fig. 245: Ignition Lock Cylinder
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. **Battery Negative Cable Disconnection and Connection (L96 LC8) Battery Negative Cable Disconnection and Connection (L83, L8B, LV3) Battery Negative Cable Disconnection and Connection (Dual Battery) Battery Negative Cable Disconnection and Connection (L5P)** 2. **Steering Column Shroud Replacement (Manual Tilt) Steering Column Shroud Replacement (Manual Tilt and Telescope)**	
1	Ignition Lock Cylinder **Procedure** 1. Turn the ignition lock cylinder to the START position. 2. Insert an allen wrench or other suitable tool into the access hole on the ignition lock cylinder case and press the lock tab down. 3. Pull the ignition lock cylinder out of the ignition lock cylinder case. 4. Use a screwdriver to rotate the ignition lock cylinder case gear clockwise to the START position and then release the tool to allow the cylinder to return under spring tension back to the RUN position. 5. Install the ignition lock cylinder into the ignition lock cylinder case.

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Callout	Component Name
	NOTE:

The gears between the ignition and

IGNITION AND START SWITCH REPLACEMENT

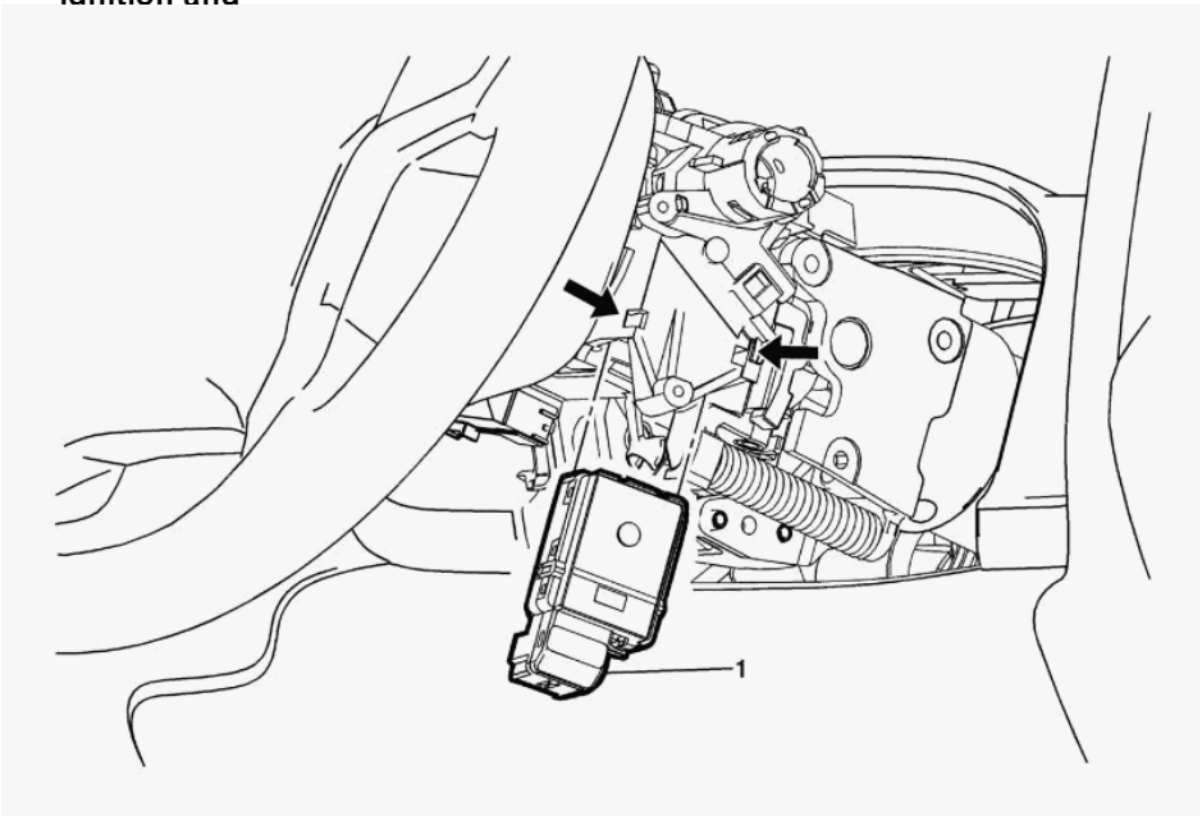

Fig. 246: Ignition and Start Switch
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure **Theft Deterrent Module Replacement**	
1	Ignition and Start Switch **Procedure** 1. Disconnect the electrical connector. 2. Remove the Passlock and key buzzer from the ignition lock cylinder case. 3. Use the **EL-42759** release tool to release the plastic retaining tabs on the ignition and start switch. 4. Pull the ignition and start switch out of the ignition lock cylinder case. **Special Tools<!--Title-->** **EL-42759** Ignition Switch Connector Release Tool Equivalent regional tools:**Special Tools**

IGNITION LOCK CYLINDER CASE REPLACEMENT

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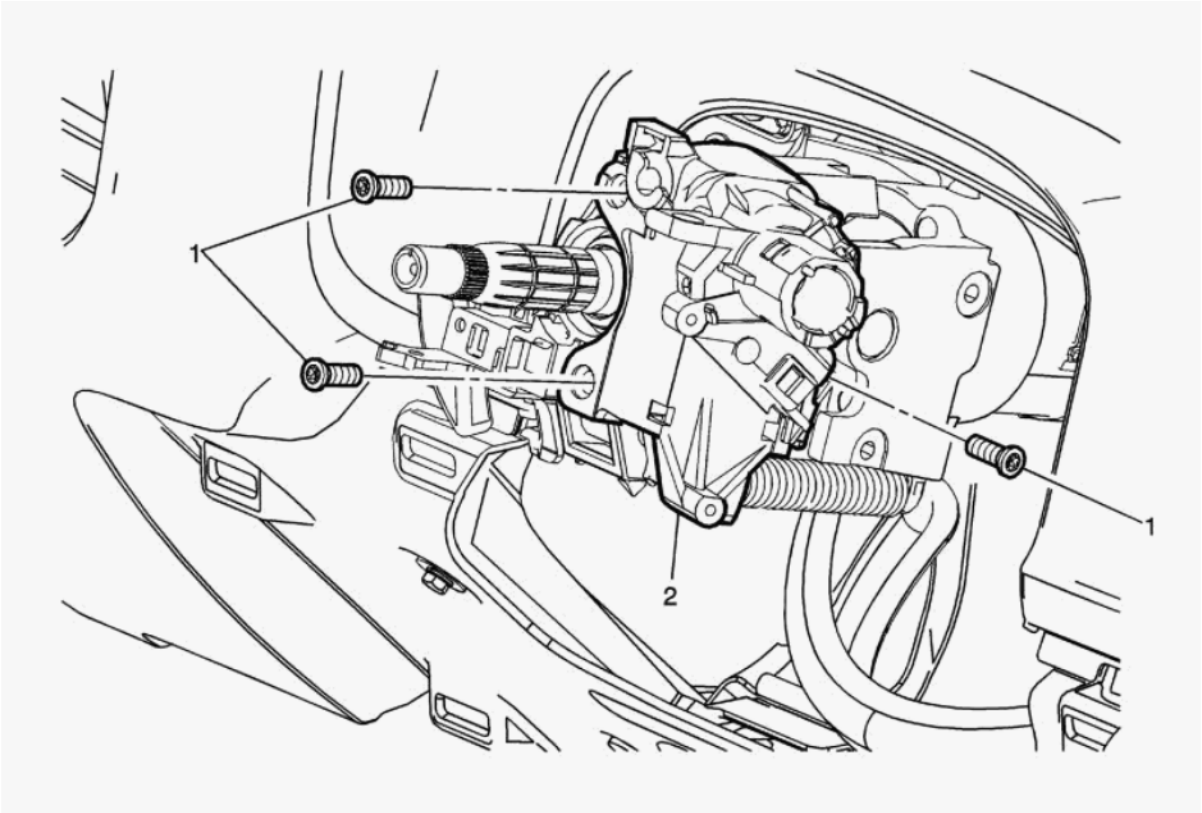

Fig. 247: Ignition Lock Cylinder Case
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. If equipped, disconnect the park lock cable from the ignition lock cylinder case. **Transmission Control Replacement** 2. **Theft Deterrent Module Replacement** 3. **Ignition and Start Switch Replacement** 4. **Turn Signal Switch Cancel Cam Replacement** 5. **Turn Signal Switch Replacement**	
1	Ignition Lock Cylinder Case Bolt <p01> **CAUTION:** **Refer to** **Fastener Caution** . **Tighten** 7 (62 lb in)
2	Ignition Lock Cylinder Case

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REPAIR INSTRUCTIONS

REPAIRING DAMAGED WIRE INSULATION

If the wire insulation has been chafed, or broken, enough to show the conductive portion of the wire, and the wire is not damaged, determine the length of insulation that needs to be repaired. If the repair is less than 280 mm (11 in), cut the wire within the damaged area. Then slide the appropriate heat shrink tubing (listed below) over the wire, and repair the wire by splicing the wires together. Refer to **Wire to Wire Repair**. Once the wire is spliced together slide heat shrink tubing over the damaged area and apply heat to seal the repaired wire.

If the wire is damaged, or the damaged area is larger than 280 mm (11 in), then replace the damaged wire by splicing in a new section of wire. Refer to **Wire to Wire Repair**.

Heat Shrink Tubing Selection

GM Part Number	Diameter		Description	Color	Length	
	Metric	English			Metric	English
12355010	3.2 mm	0.125 in	Tubing, Shrink 1/8	Black	305 mm	12 in
12355003	9.5 mm	0.375 in	Tubing, Shrink 3/8	Black	305 mm	12 in
12355005	12.7 mm	0.5 in	Tubing, Shrink 1/2	Black	305 mm	12 in
12355011	19.1 mm	0.75 in	Tubing, Shrink 3/4	Black	305 mm	12 in
12355008	25.4 mm	1.0 in	Tubing, Shrink 1.00	Black	305 mm	12 in

Wire Size Conversion

Metric Wire Sizes (mm 2)	AWG Sizes
0.13	26
0.21	24
0.35	22
0.5	20
0.8	18
1.31	16
2.09	14
3.31	12
5.27	10
8.37	8
13.3	6
21.2	4
33.6	2
53.5	1/0

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COAXIAL CABLE REPAIRS

The GM global coaxial (coax) cable repair strategy uses coaxial cables, connectors and jumpers to repair coaxial cables. The intent is to install the new service cable in vehicle, but removal of the old cable is not necessary. There are several repair scenarios:

- New cables, jumpers, and connector housing are required.
- Only new cables are required while it is possible to reuse the existing connector housing in vehicle. A jumper may or may not be needed.
- Only new connector housing are required, while it is possible to reuse the existing cable in the vehicle.
- A new cable would need to be installed from source to destination and by-pass the inline connector in some cases when an inline connector is unrepairable (Example: a cracked male end of a 1-way connector).

Coaxial Cable Kits

Four different kits will be available to repair coaxial cables. Components of each kit cannot be ordered separately from the kit.

- **Communication Interface Module Antenna Cable Kit** (Kit # 13581174) is used to repair Cellular coaxial cables. This kit uses RG58 low loss coaxial cables that are available in four lengths. The coaxial cables can be attached together in various lengths to closely match the length of the faulty/damaged coaxial cable.
- **Digital Radio and Vehicle Locator Antenna Coaxial Cable Kit** (Kit # 13581173) is used to repair XM and GPS coaxial cables. For vehicles that have a combined GPS and Cellular/OnStar signal on one cable, use Kit # 13581174. This kit uses RG316 low loss coaxial cables that are available in three lengths. The coaxial cables can be attached together in various lengths to closely match the length of the faulty/damaged coaxial cable.
- **Digital Radio, Mobile Telephone and Vehicle Locator Antenna Coaxial Cable Kit** (Kit # 19119056) is used with OnStar, XM, and GPS cables. This kit consists of jumpers and connectors. The jumpers are used to adapt different types of connectors together (to attach 2-way and 3-way connector onto the long 7, 5, and 3 foot cables). The connectors are used to replace existing connectors. The 1-way and 2-way connectors in the kit are in water-blue color (different than what the vehicle is built with) and are non-keyed (universal fit). The 3-way connectors in the kit are in the same color as in the vehicle.
- **Communication Interface Module Antenna Cable Kit** (Kit # 22803854) is used for the OnStar module on some vehicles built before the 2011 model year.

Coaxial Cable Repair Kits

Repair Kit Name	Description
Communication Interface Module Antenna Cable Kit (Kit # 13581174)	RG58 coaxial cable with female/female connectors - 7ft/2.1m
	RG58 coaxial cable with female/male connectors - 5ft/1.5m
	RG58 coaxial cable with female/male connectors - 3.5ft/1.1m
	RG58 coaxial cable with female/male connectors - 3.5ft/1.1m
Digital Radio and Vehicle Locator Antenna Coaxial Cable Kit (Kit # 13581173)	RG316 coaxial cable with female/female connectors - 7ft/2.1m

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Repair Kit Name		Description
Digital Radio, Mobile Telephone and Vehicle Locator Antenna Coaxial Cable Kit (Kit # 19119056)		RG316 coaxial cable with female/male connectors - 5ft/1.5m
		RG316 coaxial cable with female/male connectors - 3.5ft/1.1m
	3-way Gen 1 sub-kit	1-way to 3-way Gen 1 jumper for female connector - Part # 13581154 - 4in/10cm 1-way to 3-way Gen 1 jumper for male connector - Part # 19119052 - 4in/10cm
		White female connector
		White male connector
		Blue female connector
		Blue male connector
	3-way Gen 2 sub-kit	1-way to 3-way Gen 2 jumper for female connector - Part # 13581155 - 4in/10cm 1-way to 3-way Gen 2 jumper for male connector - Part # 19119058 - 4in/10cm
		Tan female connector
		Tan male connector
		Gray female connector
		Gray male connector
	2-way Gen 1 sub-kit	1-way to 2-way Gen 1 jumper for female connector - Part # 13581156 - 4in/10cm
		Water-blue female connector
	2-way Gen 2 sub-kit (wide)	1-way to 2-way Gen 2 jumper for female connector - Part # 13581157 - 4in/10cm
		1-way to 2-way Gen 2 jumper for male connector - Part # 13581158 - 4in/10cm
		Water-blue female connector
		Water-blue male connector
	2-way Gen 2 and 3 sub-kit (narrow)	1-way to 2-way Gen 2 and 3 jumper for female connector - Part # 13582468 - 4in/10cm
		Use the 1-way to 2-way Gen 2 jumper for female connector 19119058 - 4in/10cm from the 2-way Gen 2 sub-kit.
		Water-blue female connector
		Water-blue male connector

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Repair Kit Name	Description
	Right-angle jumper with water-blue universal 1-way connector - 4in/10cm
Communication Interface Module Antenna Cable Kit (Kit # 22803854)	1-way to mini UHF jumper - 4in/10cm

Connector Housing Repair Procedure

The connector housings (available in Digital Radio, Mobile Telephone and Vehicle Locator Antenna Coaxial Cable Kit) are available for 1-way housings, 2-way housings and 3-way housings. Determine the connector housing required:

1-way housing

No change to the service coaxial cable is necessary in order to install the new coaxial cable into the vehicle.

2-way housing

A 4-inch jumper is required.

1. Determine the appropriate generation (1, 2, or 3) and/or size (12.7mm or 8mm) of the 2-way housing that is in the vehicle.
2. Remove the faulty/damaged coaxial cable from the 2-way connector housing by removing the terminal position assurance (TPA) from the connector housing and then slide the cable out of the connector.

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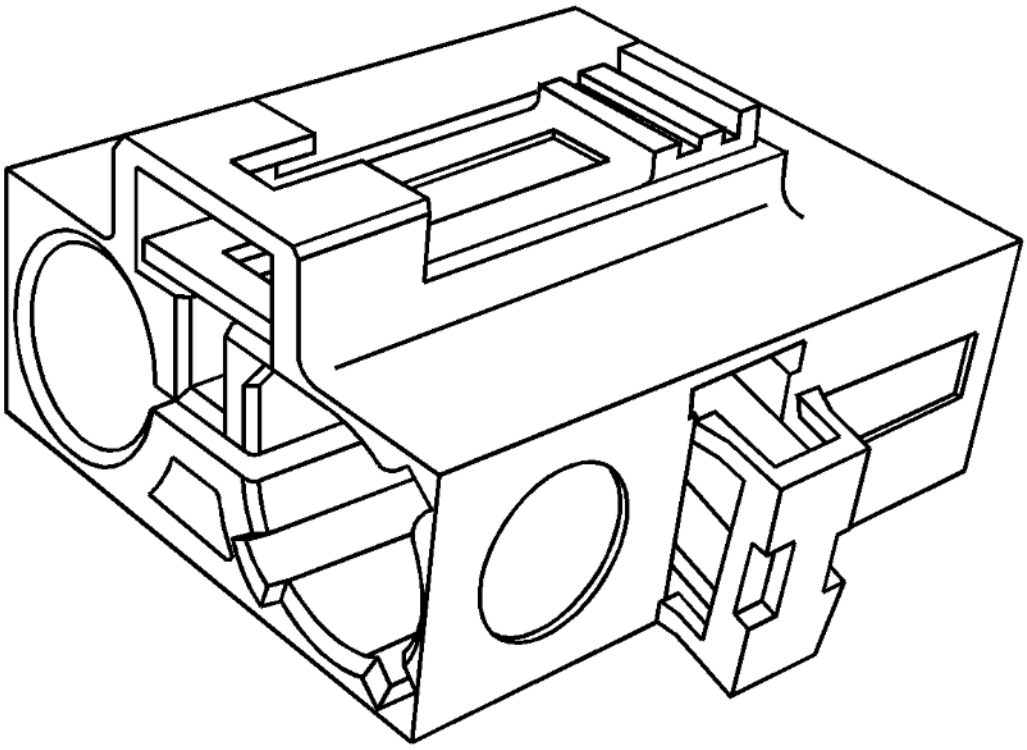

Fig. 1: Connector Housing
Courtesy of GENERAL MOTORS COMPANY

3. Install the new service coaxial cable into the vehicle. Use the 4-inch jumper for the appropriate 2-way connector housing to connect the new service coaxial cable to the connector housing.
4. If the issue is found to be the connector housing and not cable, a new connector housing may be installed while reusing all other components.

3-way housing

A 4-inch jumper is required.

1. Determine the appropriate generation (1 or 2) and keyed 3-way connector housing based on the connector housing color.
2. Note the locations of each of the cables in 3-way housing, as it is important for new cables be placed in the appropriate terminal location in the new connector. The connector housing colors are not interchangeable.
3. Remove the faulty/damaged coaxial cable from the 3-way connector housing by using a pair of side/diagonal cutters to nip and break away the housing.

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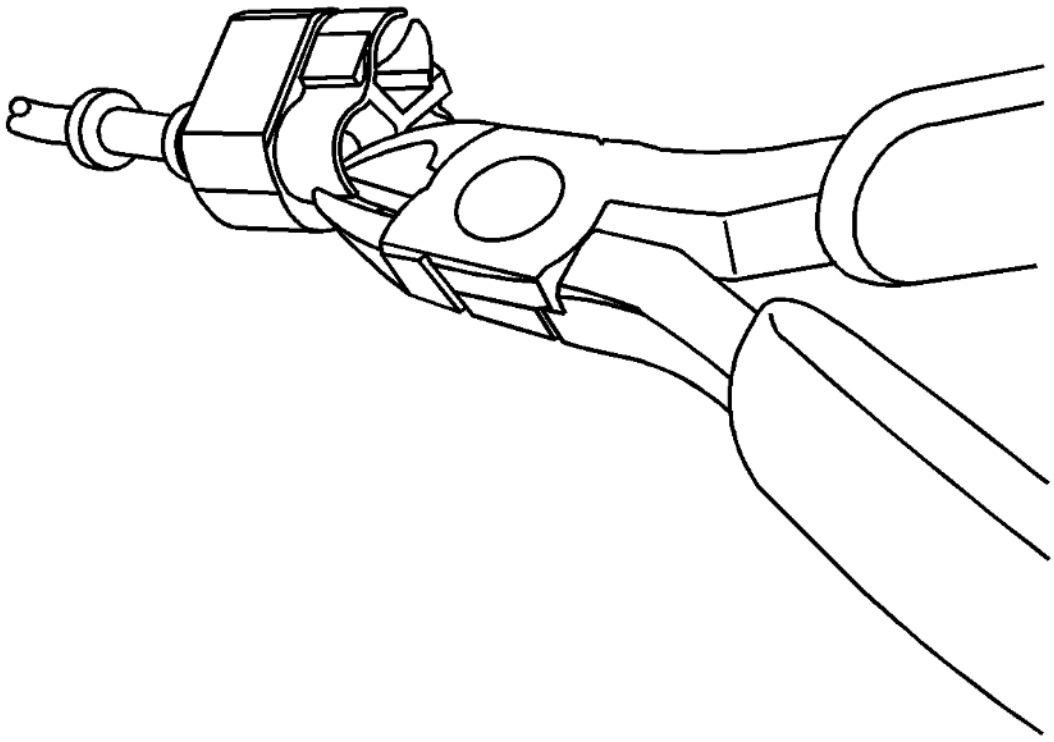

Fig. 2: Using Side/Diagonal Cutters To Nip And Break Away Connector Housing
Courtesy of GENERAL MOTORS COMPANY

4. Use caution not to damage the conductive ends of the coaxial cables inside the connector housing. Do not bend or force the terminal out or it could be damaged.

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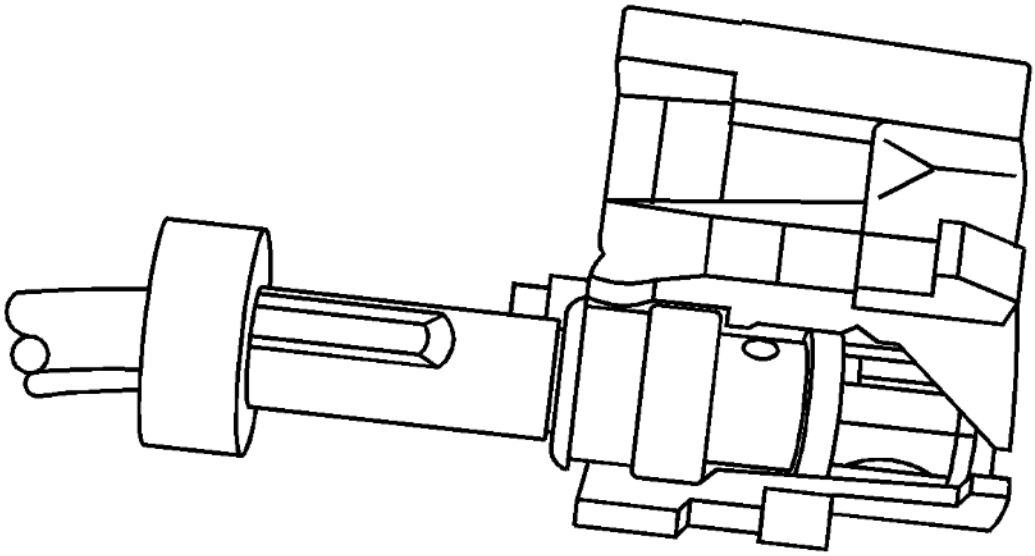

Fig. 3: Connecting New Service Coaxial Cable To New 3-Way Connector Housing
Courtesy of GENERAL MOTORS COMPANY

5. Install the new service coaxial cable into the vehicle. Use the 4-inch jumper for the appropriate color 3-way connector housing to connect the new service coaxial cable to the new 3-way connector housing.
6. If the issue is found to be the connector housing and not cable, a new connector housing may be installed while reusing all other components.

Coaxial Cable Repair Procedure

1. Identify the faulty/damaged coaxial cable.
2. Disconnect the faulty/damaged coaxial cable and leave it in the vehicle.
3. Identify the type of coaxial cable to be replaced and match up with the appropriate pieces to repair the damaged coaxial cable. Match up the type of coaxial cable, cable length and connector types. In some cases there may be extra length of cable left over.

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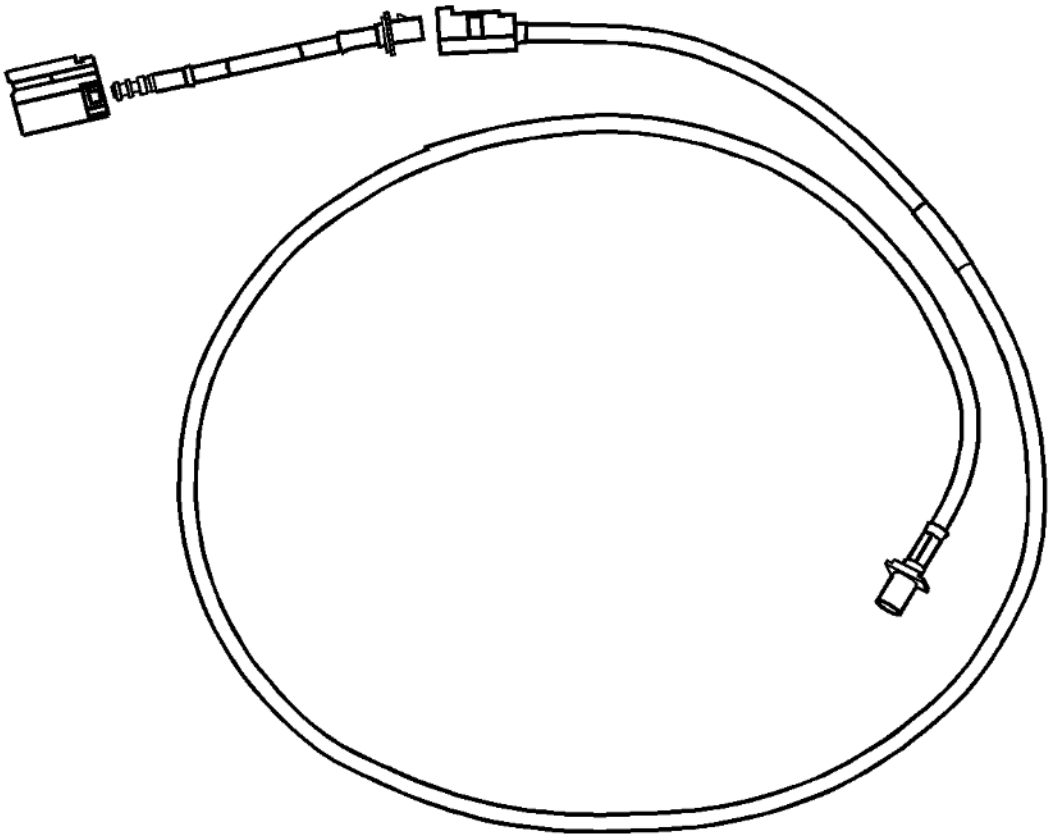

Fig. 4: Coaxial Cable
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Avoid routing the new coaxial cable near sharp edges that can damage the new coaxial cable.**

4. Install the new coaxial cable in the vehicle.

   Use tie-straps to attach the new service coaxial cable to existing harnesses or brackets. Use felt tape/foam to reduce rattles, as necessary.

   NOTE: **To avoid permanent damage, do not pinch the cable or bend it tighter than a 2 inch (5 centimeter) radius.**

5. Remove the faulty/damaged connectors, if applicable.
6. Install new connectors or jumpers, as needed. Refer to Connector Housing Repair Procedure.
7. Verify the repair by operating the system with the engine running.

FLAT WIRE REPAIRS

The flat wire within the flex wiring harness is not serviceable. If an open or short exists within the flex wiring

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harness the complete harness must be replaced.

FOLDED-OVER WIRE REPAIR

Special Tools

- **EL-38125-10** Splice Sleeve Crimping Tool (non GMNA)
- **J-38125-5A** Ultra Torch Special Tool
- **J-38125-8** Splice Sleeve Crimping Tool (GMNA)

For equivalent regional tools, refer to **Special Tools** .

The GM global wire repair strategy uses connector assemblies (pigtails) and terminated leads to repair wiring harnesses.

To reduce and manage GM Service Parts proliferation, the service pigtails and terminated leads are designed with the largest wire gauge size that can be held by either the terminal or the connector housing.

The folded over wire repair technique, in which the copper wire strands are folded over before being installed into a splice sleeve, allows the service part to be used when repairing a smaller gauge size wire in a vehicle. This technique has passed all GM testing standards.

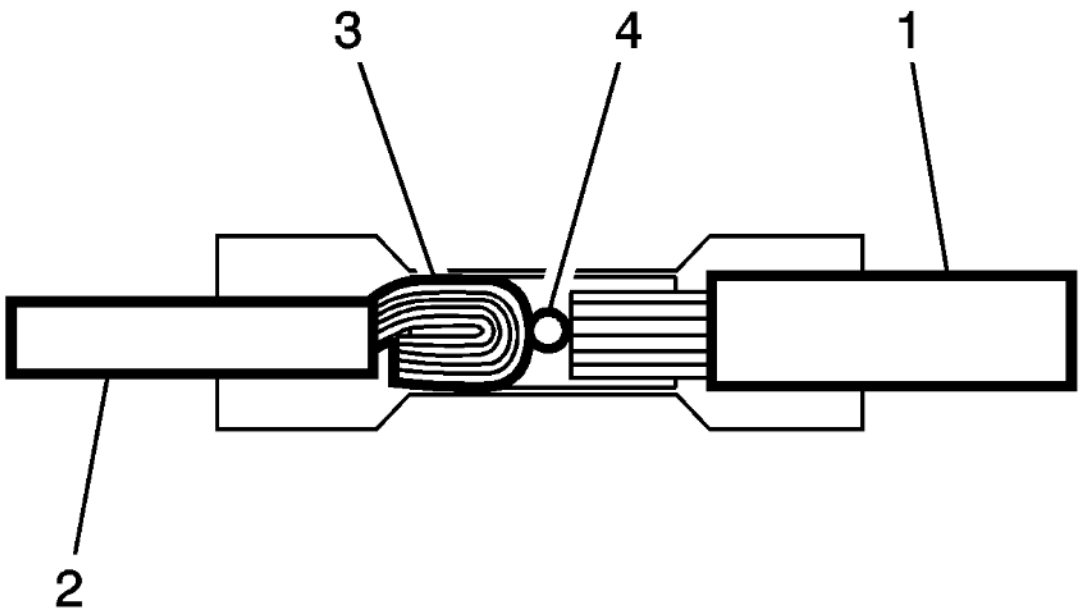

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Fig. 5: View Of Stripped Wires In Splice Sleeve Connector
Courtesy of GENERAL MOTORS COMPANY

The larger harness size wires (1) will be placed in one side of the splice sleeve and match the splice sleeve closely in size. The wires are moved into the splice sleeve until they hit the stop (4) in the splice sleeve. The smaller harness size wires (2) will be placed in the other side of the splice sleeve. The smaller harness size wires will be folded over (3) to match up with the splice sleeve size.

Use the folded over wire repair for:

NOTE: **Increasing the amount of copper strands in the smaller gauge size will allow for a better crimp**

- Splicing wires of 0.35 mm or less (22, 24, 26 gauge sizes)

NOTE: **Vehicle side needs to be of same or less gauge size (not greater than the service part's gauge size)**

- Splicing wires of different gauges

Use the Service Information (SI) connector end-views to determine:

- Gauge size of wiring harness
- Recommended Repair: Terminated Lead or Pigtail

The following table lists the acceptable variance within the gauge size

Folded-Over Wire Selection Table

Harness Wire Gauge		Connector Assembly (Pigtail) or Terminated Lead Wire Gauge Size			
-		Salmon Color Splice Sleeve		Blue Color Splice Sleeve	Yellow Color Splice Sleeve
Metric	-	0.35 mm	0.5-0.8 mm	1.0-2.0 mm	3.0-6.0 mm
-	Wire Gauge (AWG)	22	20-18	16-14	12-10
0.13 mm	26	Fold Over Wire	Double Fold Over Wire	Not Acceptable	Not Acceptable
0.22 mm	24	Fold Over Wire	Fold Over Wire	Not Acceptable	Not Acceptable
0.35 mm	22	Wire to Wire	Fold Over Wire	Double Fold Over Wire	Not Acceptable
0.5 mm	20	Not Acceptable	Wire to Wire	Fold Over Wire	Not Acceptable
0.75 mm	-	Not Acceptable	Wire to Wire	Fold Over Wire	Double Fold Over Wire
0.8 mm	18	Not Acceptable	Wire to Wire	Fold Over Wire	Double Fold Over Wire
1.0 mm	16	Not Acceptable	Not Acceptable	Wire to Wire	Double Fold Over Wire
1.5 mm	-	Not Acceptable	Not Acceptable	Wire to Wire	Fold Over Wire
2.0 mm	14	Not Acceptable	Not Acceptable	Wire to Wire	Fold Over Wire
2.5 mm	-	Not Acceptable	Not Acceptable	Wire to Wire	Fold Over Wire

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Harness Wire Gauge		Connector Assembly (Pigtail) or Terminated Lead Wire Gauge Size			
3.0-6.0 mm	12-10	Not Acceptable	Not Acceptable	Not Acceptable	Wire to Wire

Example

For an IP Harness of 0.22 mm (24 gauge on left side of table) wire size, the SI connector end-view recommends a pigtail with leads of 0.8 mm (18 gauge on the top of the table) with a salmon colored DuraSeal splice sleeve of 0.5-1.0 mm (20-16 gauge).

Follow these steps to use the folded over wire (1) technique on an IP Harness.

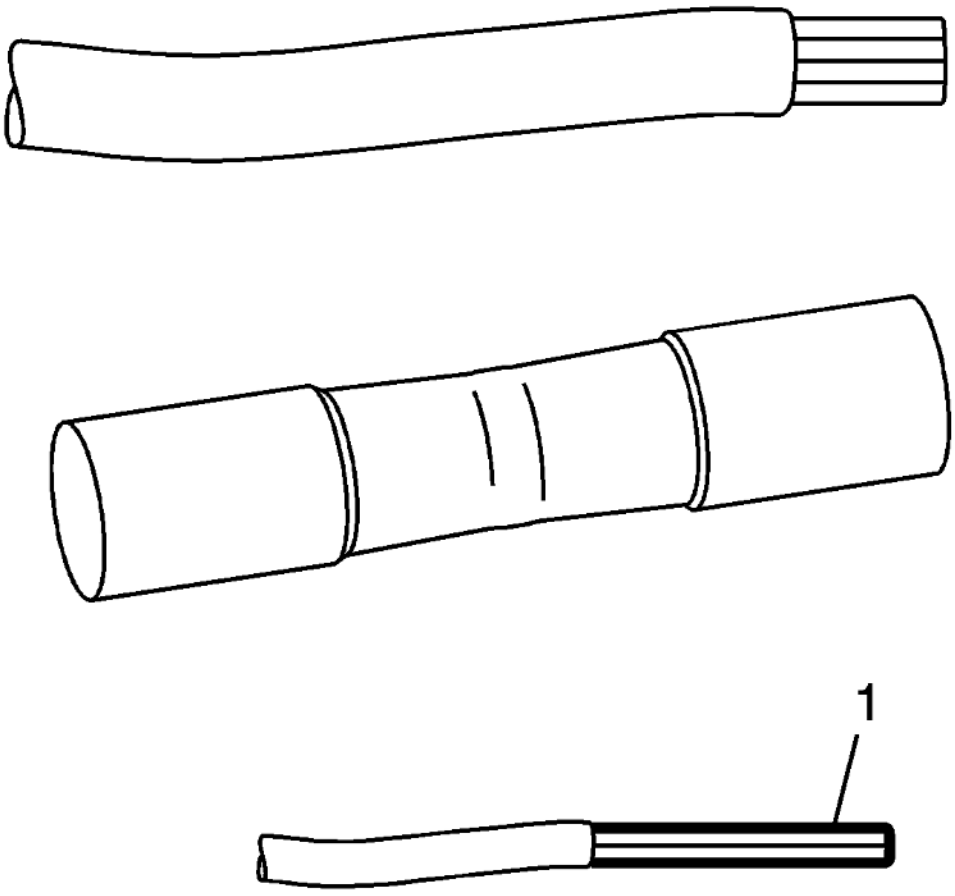

Fig. 6: View Of Stripped Wires
Courtesy of GENERAL MOTORS COMPANY

Strip twice the amount of insulation on the smaller (1) wire (IP Harness is the lower wire) than normally required. Normally, the terminated leads have 5 mm of insulation stripped off the wire.

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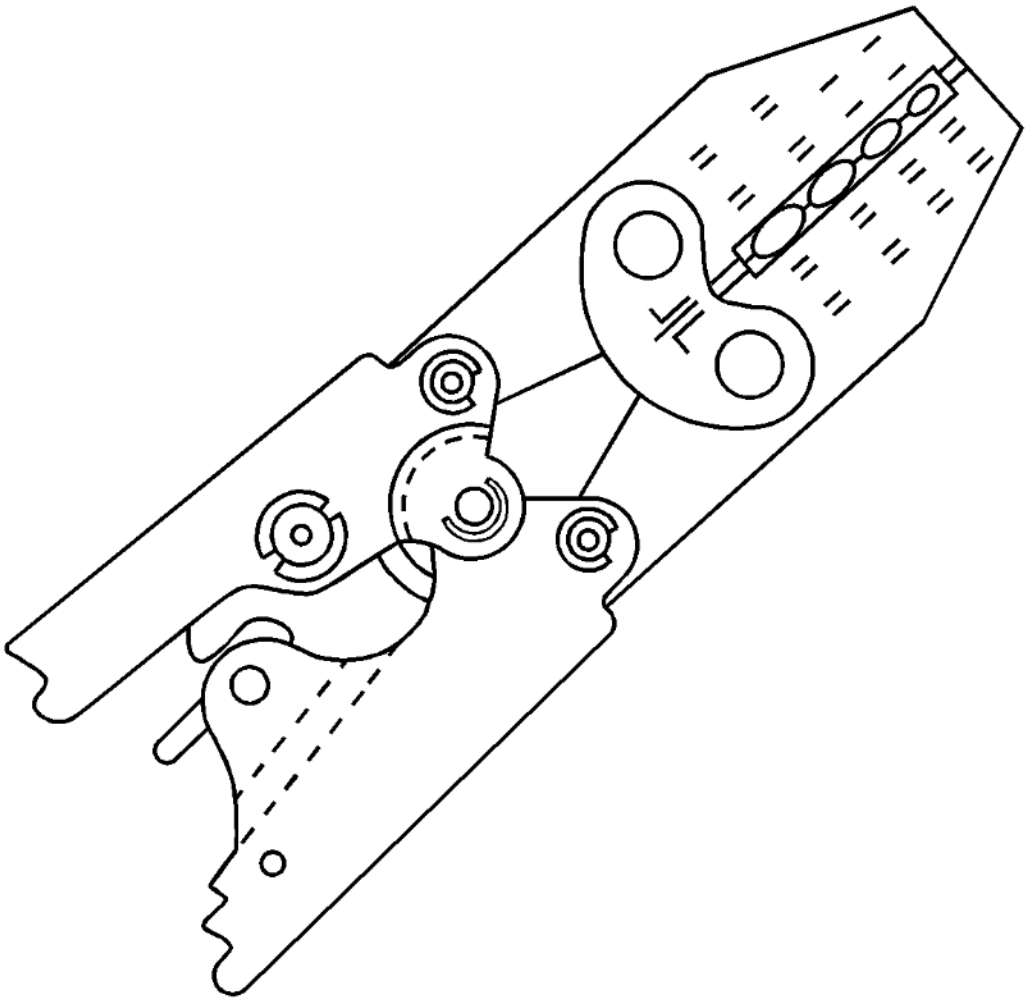

Fig. 7: Splice Sleeve Crimping Tool
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Use EL-38125-10 splice sleeve crimping tool (non GMNA) or J-38125-8 splice sleeve crimping tool (GMNA).**

1. For wiring repair, refer to **Wire to Wire Repair**.

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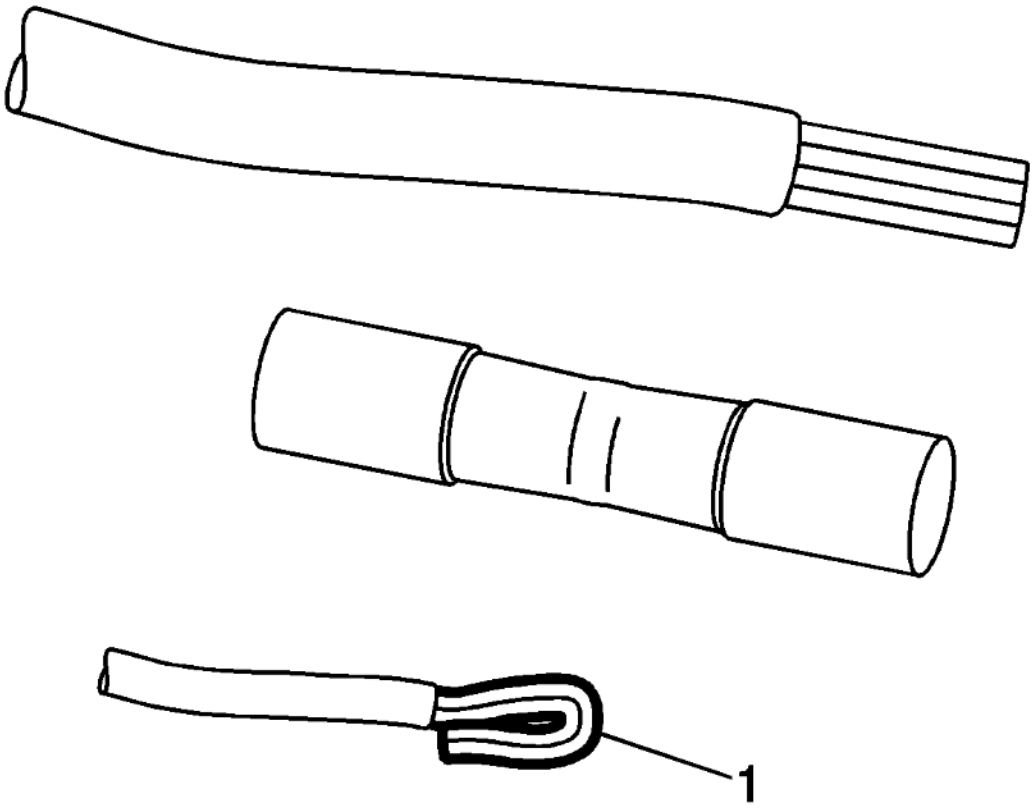

Fig. 8: View Of Twisted And Folded Wire To Length
Courtesy of GENERAL MOTORS COMPANY

2. Twist the wires before you fold them over to prevent the wire strands from opening up. Fold over the copper wire strands of the smaller (1) gauge wire so that it is the same length as the non-folded wire.

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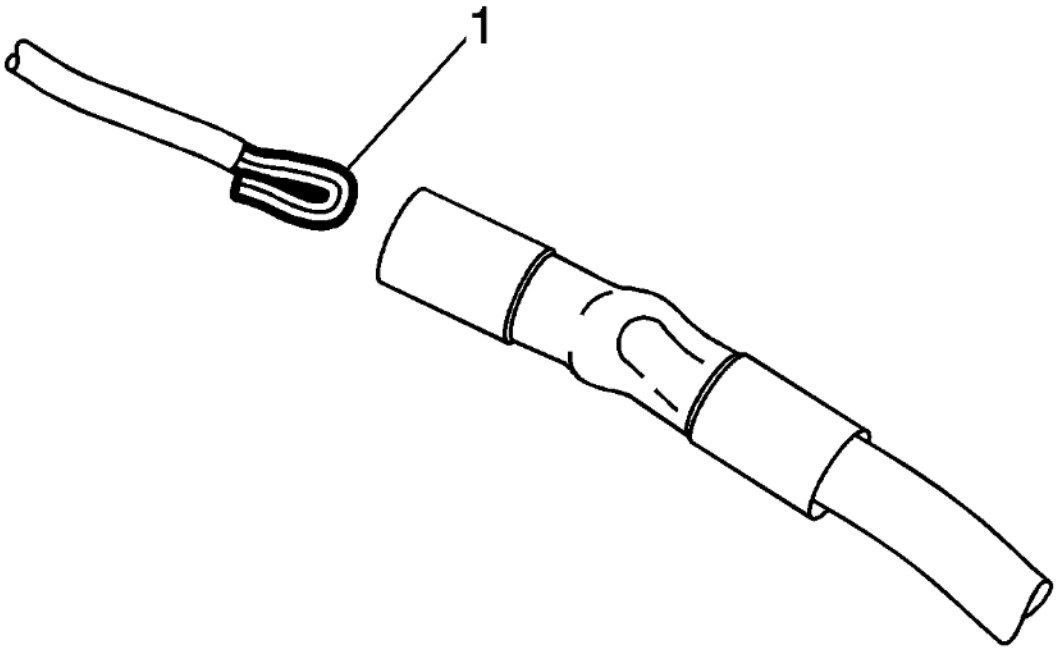

Fig. 9: View Of Folded Wire & Splice Sleeve
Courtesy of GENERAL MOTORS COMPANY

3. Insert the folded over wire (1) into the splice sleeve.

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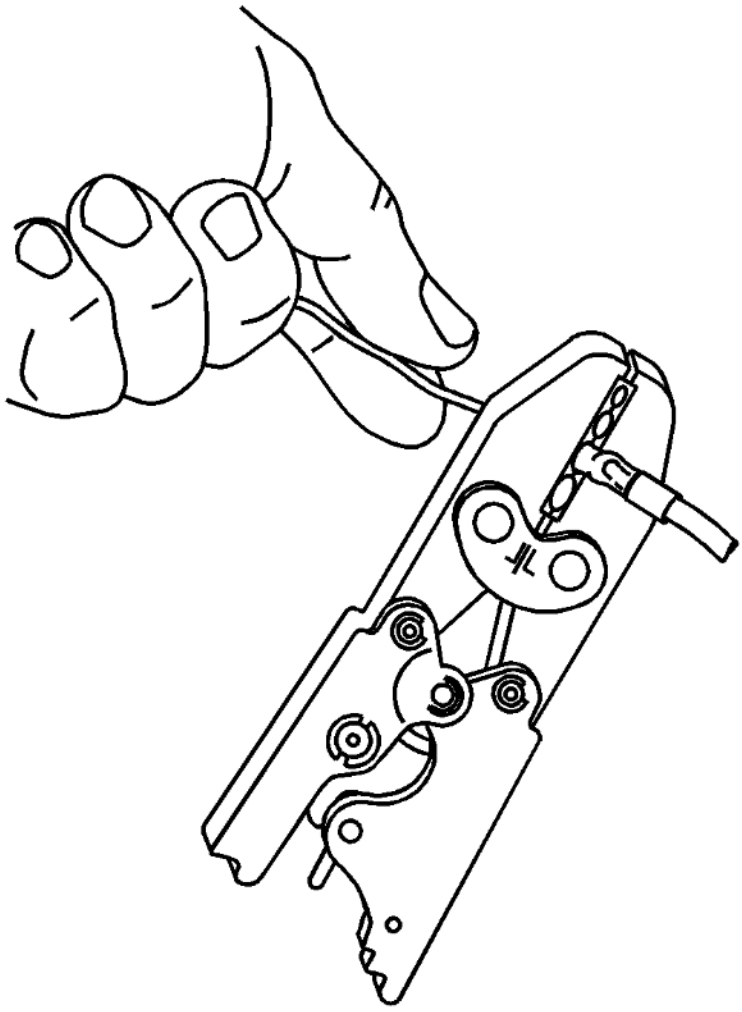

Fig. 10: Crimping The Splice Sleeve
Courtesy of GENERAL MOTORS COMPANY

4. Use the proper crimp tool to crimp the splice sleeve to the smaller wire (harness side of repair). Complete the crimp as usual (using the heat tool to shrink the tube).

SERIAL DATA CIRCUIT WIRING REPAIRS

Special Tools

- **EL-38125-10** Splice Sleeve Crimping Tool
- DuraSeal splice sleeves
- A wire stripping tool

For equivalent regional tools, refer to **Special Tools** .

The DuraSeal splice sleeves have the following 2 critical features:

- A special heat shrink sleeve environmentally seals the splice. The heat shrink sleeve contains a sealing adhesive inside.
- A cross hatched (knurled) core crimp provides necessary contact integrity for the sensitive, low energy

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circuits.

The GM Local Area Network (GMLAN) System requires special wiring repair procedures due to the sensitive nature of the circuitry. Follow the specific procedures and instructions when working on GMLAN connectors and terminals.

GMLAN Repairs

NOTE: **When making a repair to any GMLAN network, the original wire length after the repair must be the same length as before the repair. If the network is a twisted pair, the twist must be maintained after the repair is completed.**

GMLAN has 2 types of networks, low speed and high speed. Low speed GMLAN has a single wire and works at slow speeds. High speed GMLAN has 2 wires in a twisted pair and works at higher speeds. For more information on GMLAN, refer to **Data Link Communications Description and Operation** .

GMLAN Connector Terminal Repair

NOTE: **A terminated lead can be used to replace damaged connector terminals for both high speed and low speed GMLAN systems. When making a connector terminal repair on a GMLAN high speed system with twisted pair wires, do not untwist the wires more than necessary to make the repair.**

If the individual terminals are damaged on any GMLAN connection, use the appropriate connector repair procedure in order to repair the terminal. Refer to **Connector Repairs** for the appropriate connector repair procedure.

GMLAN Wire Repair

NOTE: **Refer to Wiring Repairs in the service information connector end views or the vehicle schematics in order to determine the correct wire size for the circuit you are repairing. You must obtain this information in order to ensure circuit integrity.**

If any wire except the pigtail is damaged, repair the wire by splicing in a new section of wire of the same gauge size (0.5 mm^2 , 0.8 mm^2 , 1.0 mm^2 etc.). Use the DuraSeal splice sleeves and **EL-38125-10** tool. For wiring repair, refer to **Wire to Wire Repair**.

Media Oriented Systems Transport (MOST) Wiring Repair

NOTE: **If harness repair/analysis is performed, MOST bus Twist Pair unshielded wire should be 0.35 mm^2 (22 AWG) wire with at least one twist per each 1 45/64 inch (45 mm) and must not be untwisted for more than 3 15/16 of an inch (10 cm).**

The following conditions need to be met to ensure a valid continuity:

- Untwisted length for all MOST 50 circuits at each wire harness connector should be no longer 50 mm max (25 mm preferred).
- When wire repairs are made, a minimum 25 twists/meter for all MOST 50 circuits.
- MOST 50 has specific receive and transmit I/O.

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The transmit of one module is connected to receive of the next module in ring topology.

HEATED OXYGEN SENSOR WIRING REPAIRS

CAUTION: Do not solder repairs under any circumstances as this could result in the air reference being obstructed.

If the heated oxygen sensor pigtail wiring, connector, or terminal is damaged the entire oxygen sensor assembly must be replaced. Do not attempt to repair the wiring, connector, or terminals. In order for the sensor to function properly it must have a clean air reference. This clean air reference is obtained by way of the oxygen sensor signal and heater wires. Any attempt to repair the wires, connectors or terminals could result in the obstruction of the air reference and degrade oxygen sensor performance.

The following guidelines should be used when servicing the heated oxygen sensor:

- Do not apply contact cleaner or other materials to the sensor or vehicle harness connectors. These materials may get into the sensor, causing poor performance. Also, the sensor pigtail and harness wires must not be damaged in such a way that the wires inside are exposed. This could provide a path for foreign materials to enter the sensor and cause performance problems.
- Neither the sensor nor vehicle lead wires should be bent sharply or kinked. Sharp bends, kinks, etc., could block the reference air path through the lead wire.
- Do not remove or defeat the oxygen sensor ground wire (where applicable). Vehicles that utilize the ground wire sensor may rely on this ground as the only ground contact to the sensor. Removal of the ground wire will also cause poor engine performance.
- To prevent damage due to water intrusion, be sure that the peripheral seal remains intact on the vehicle harness connector.

HIGH TEMPERATURE WIRING REPAIRS

NOTE: All wiring repairs need to be 200 mm from the heat zone. Areas of consideration would be any area located near the exhaust manifolds, catalytic converter, exhaust pipes, and turbocharged engines.

Items Required

- DuraSeal splice sleeves to crimp and seal connections
- High temperature SCT1 shrink tubing to protect the splice sleeves
- Terminated leads or pigtails
- The correct tools to remove the terminals from the connectors

Use high temperature bulk wire rated at 150Â°C (302Â°F) continuous temperature of the same or larger gauge size as the original wire when repair damage wire. Also replace any reflective tape that you remove during the repair.

High Temperature Wiring

Wiring that is exposed to high temperatures, 135Â°C (275Â°F) or higher, for prolonged periods of time may use materials i.e. wires, connectors, and shielding that has a higher heat rating than typical wiring. When making a repair in a high temperature area observe the following:

- Use high temperature bulk wire rated at 150Â°C (302Â°F) continuous temperature to replace any

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damaged wire.

- Replace any heat shielding that is removed.
- Cover any DuraSeal splice sleeves with SCT1 shrink tubing.
- After making a wiring repair, ensure that the location of the wiring is not moved closer to the heat source.

Identifying High Temperature Wiring

NOTE: **High temperature areas would be areas located near exhaust manifolds, catalytic converters, exhaust pipes, and turbocharged engines.**

Wiring that is exposed to high temperature, 135Â°C (275Â°F) or higher, for prolonged periods of time need special considerations when making wiring repairs. Areas that may be exposed to higher temperatures can be identified by heat resistant materials that are being used in those areas. These materials may include heat reflective tape and high temperature shrink tubing. Also conduit and other protective coverings may be used. Because conduit or similar coverings are used throughout the vehicle regardless of the temperature, it may be necessary for the technician to determine if an area is exposed to excessive heat before making a wiring repair.

SIR/SRS WIRING REPAIRS

NOTE: **Refer to SIR Service Precautions .**

For European Regions

CAUTION: **If the SIR/SRS wiring, connector, or terminal is damaged, the affected wiring harness must be replaced. Do not attempt to repair the wiring, connector, or terminals. Any attempt to repair the wires, connectors, or terminals could result in performance problems of the SIR/SRS System. Operations on restraint systems must only be performed by trained and qualified personnel.**

For Non-European Regions

Special Tools

Splice Sleeve Crimping Tool, refer to **Special Tools** .

The Supplemental Inflatable Restraint (SIR) System/Supplemental Restraint System (SRS) requires special wiring repair procedures due to the sensitive nature of the circuitry. Follow the specific procedures and instructions when working with the SIR/SRS, and the wiring components, such as connectors and terminals.

SIR/SRS Connector Repair (Plastic Body and Terminal Metal Pin)

NOTE: **Do not use the terminals in the kit in order to replace damaged SIR/SRS system terminals. Use either an SIR/SRS pigtail or a terminated lead from the SIR Repair Kit Tray.**

The terminals in the SIR/SRS system are made with a special plating. This plating provides the necessary contact integrity for the sensitive, low energy circuits.

Pigtail repair packs are available for SIR/SRS connectors with eight or less terminals. Only the connector body is available for connectors with more than eight terminals. Terminated leads can be used to replace damaged terminals when replacing the connector body.

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SIR/SRS Component Wire Pigtail Repair

NOTE: **Do not make wire, connector, or terminal repairs on components with wire pigtails.**

A wire pigtail is a wire or wires attached directly to the device, not by a connector. If a wiring pigtail is damaged, you must replace the entire component, with pigtail. The inflatable restraint steering wheel module coil is an example of a pigtail component.

SIR/SRS Wire Repair

CAUTION: **Do not install more than 2 DuraSeal splice sleeves per SIR deployment loop. A deployment loop consists of both wires from the K36 Inflatable Restraint Sensing and Diagnostic Module to the deployable component. If more than 2 DuraSeal splice sleeves are required for any SIR deployment loop, the complete circuit of the loop must be replaced. More than 2 DuraSeal splice sleeves per deployment loop may increase the resistance in the circuit causing a DTC to be set.**

NOTE: **Refer to Wiring Repairs in the service information connector end views or the vehicle schematics in order to determine the correct wire size for the circuit you are repairing. You must obtain this information in order to ensure circuit integrity.**

If any wire except the pigtail is damaged, repair the wire by splicing in a new section of wire of the same gauge size (0.5 mm, 0.8 mm, 1.0 mm etc.). Use the DuraSeal splice sleeves and the appropriate splice sleeve crimping tool. For wiring repair, refer to **Wire to Wire Repair**.

For connector position assurance (CPA), refer to **Connector Position Assurance Locks**.

For terminal position assurance (TPA), refer to **Terminal Position Assurance Locks**.

SPLICING INLINE HARNESS DIODES

Many vehicle electrical systems use a diode to isolate circuits and protect the components from voltage spikes. When installing a new diode use the following procedure.

1. Open the harness.
   - If the harness is taped, remove the tape.
   - To avoid wiring insulation damage, use a sewing seam ripper (available from sewing supply stores) in order to cut open the harness.
   - If the harness has a black plastic conduit, pull out the diode.
2. If the diode is taped to the harness, remove all of the tape.
3. Check and record the current flow direction and orientation of diode.
4. Remove the inoperative diode from the harness with a suitable soldering tool.

   NOTE: **If the diode is located next to a connector terminal remove the terminal(s) from the connector to prevent damage from the soldering tool.**

5. Carefully strip away a section of insulation next to the old soldered portion of the wire(s). Do not remove

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any more than is needed to attach the new diode.

6. Check current flow direction of the new diode, being sure to install the diode with correct bias. Reference the appropriate service manual wiring schematic to obtain the correct diode installation position.
7. Attach the new diode to the wire(s) using 60/40 rosin core solder. Before soldering attach some heat sinks (aluminum alligator clips) across the diode wire ends to protect the diode from excessive heat. Follow the manufacturer's instruction for the soldering equipment.
8. Reinstall terminal(s) into the connector body if previously removed.

NOTE: **To prevent shorts to ground and water intrusion, completely cover all exposed wire and diode attachment points with tape.**

9. Tape the diode to the harness or connector using electrical tape.

SPLICING TWISTED OR SHIELDED CABLE

Twisted/shielded cable is used in order to protect wiring from electrical noise. Two-conductor cable of this construction is used between the radio and the Delco-BoseÂ® speaker/amplifier units and other applications where low level, sensitive signals must be carried. Follow the instructions below in order to repair the twisted/shielded cable.

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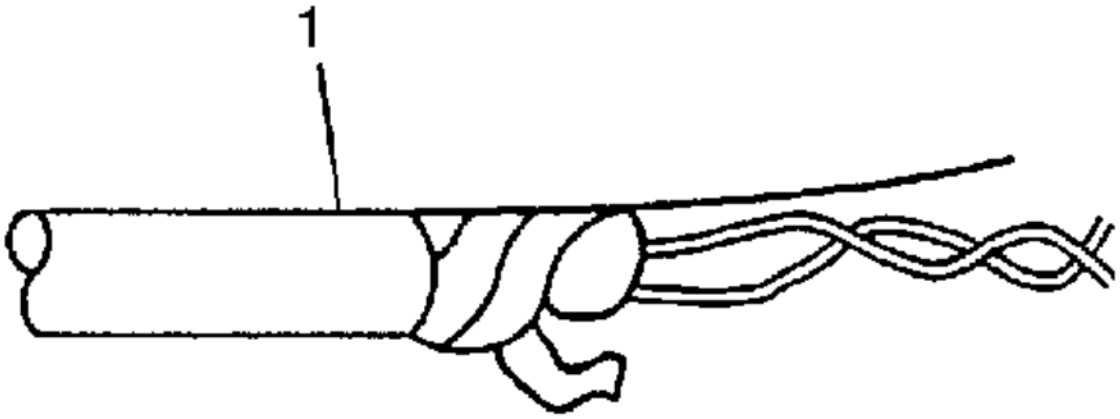

Fig. 11: View Of Outer Wiring Jacket
Courtesy of GENERAL MOTORS COMPANY

1. Remove the outer jacket (1). Use care not to cut into the drain wire of the mylar tape.
2. Unwrap the tape. Do not remove the tape. Use the tape in order to rewrap the twisted conductors after the splice is made.

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Fig. 12: Preparing The Splice
Courtesy of GENERAL MOTORS COMPANY

3. Prepare the splice. Untwist the conductors and follow the instructions for **Wire to Wire Repair**. Staggering the splices by 65 mm (2.5 in) is recommended.

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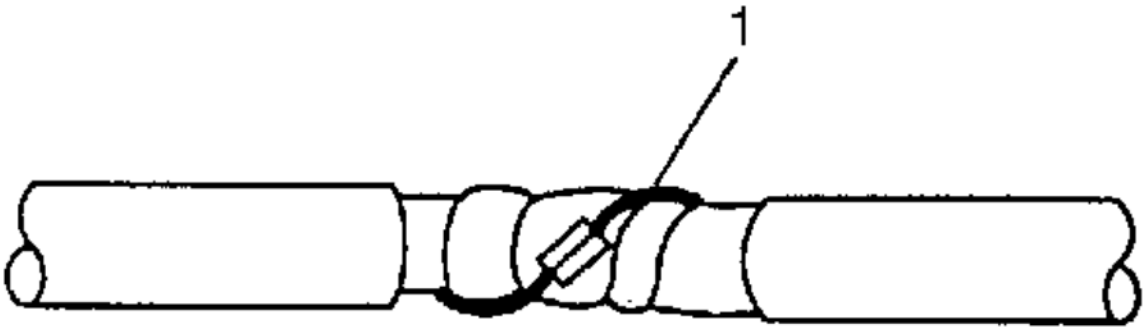

Fig. 13: Identifying Diode On Wire
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Apply the mylar tape with the aluminum side inward. This ensures good electrical contact with the drain wire.**

4. Re-assemble the cable.
   - Rewrap the conductors with the mylar tape. If the mylar tape is damaged, use 3M product AL-36FR to replace the damaged mylar tape.
   - Use caution not to wrap the drain wire in the tape (1).
   - Follow the splicing instructions for copper wire and splice the drain wire.
   - Wrap the drain wire around the conductors and tape with electrical tape to replace the outer insulation.

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Fig. 14: View Of Repaired Wire Covered With Electrical Tape
Courtesy of GENERAL MOTORS COMPANY

5. Tape over the entire cable. Use a winding motion when you apply the tape.

WIRE TO WIRE REPAIR

Special Tools

- **EL-38125-10** Splice Sleeve Crimping Tool (non GMNA)
- **J-38125-5A** Ultra Torch Special Tool
- **J-38125-8** Splice Sleeve Crimping Tool (GMNA)

For equivalent regional tools, refer to **Special Tools** .

WARNING: In order to reduce the risk of personal injury, loss of high voltage isolation to ground and higher system impedance, do not attempt to repair any HV wiring, connector, or terminal that is damaged. High voltage coaxial type cables are not

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repairable. Never attempt to repair a coaxial type cable. The entire cable/harness or component must be replaced. In order to maintain system integrity and personal safety, never attempt to repair any high voltage wiring, cables, or terminals. Performing this procedure on high voltage circuits may result in serious injury or death.

NOTE: **If the wiring harness internal to the transmission is damaged, the wiring harness must be replaced. The use of splice sleeves in an attempt to repair the internal transmission wires, connectors, or terminals could result in performance issues.**

NOTE: **Do not splice wires in Door Harness Grommets.**

NOTE: **The DuraSeal splice sleeves have the following 2 critical features:**

- **A special heat shrink sleeve environmentally seals the splice. The heat shrink sleeve contains a sealing adhesive inside.**
- **A cross hatched (knurled) core crimp provides the necessary low resistance contact integrity for these sensitive, low energy circuits.**

Use only DuraSeal splice sleeves to form a one-to-one splice on all types of insulation except high voltage and specialty cables. Use DuraSeal splice sleeves where there are special requirements such as moisture sealing. Follow the instructions below in order to splice copper wire using DuraSeal splice sleeves.

Splice Sleeve Selection

Splice Sleeve Color	Crimp Tool Nest Color		Wire Gauge mm^2 / (AWG)
	3 Crimp Nests	4 Crimp Nests	
Salmon (Yellow-Pink) 19300089	Red (1) or Red/Green (1)	Red (2)	0.22-0.8/(18-26)
Blue 19168447	Blue (2)	Blue (3)	1.0-2.0/(14-16)
Yellow 19168448	Yellow (3)	Yellow (4)	3.0-5.0/(10-12)

NOTE: **You must perform the following procedures in the listed order. Repeat the procedure if any wire strands are damaged. You must obtain a clean strip with all of the wire strands intact.**

1. Open the harness by removing any tape:
   - Use a sewing seam ripper, available from sewing supply stores, in order to cut open the harness in order to avoid wire insulation damage.
   - Use the DuraSeal splice sleeves on all types of insulation except Tefzel and coaxial.
   - Do not use the crimp and DuraSeal splice sleeve to form a splice with more than 2 wires coming together.
2. Cut as little wire off the harness as possible. You may need the extra length of wire in order to change the location of a splice.

   Adjust splice locations so that each splice is at least 40 mm (1.5 in) away from the other splices, harness

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branches, or connectors.

3. Strip the insulation:
    - When adding a length of wire to the existing harness, use the same size wire as the original wire.
    - Perform one of the following items in order to find the correct wire size:
        - Find the wire on the schematic and convert to regional wiring gauge size.
        - If you are unsure of the wire size, begin with the largest opening in the wire stripper and work down until achieving a clean strip of the insulation.
    - Strip approximately 5.0 mm (0.20 in) of insulation from each wire to be spliced.
    - Do not nick or cut any of the strands. Inspect the stripped wire for nicks or cut strands.
    - If the wire is damaged, repeat this procedure after removing the damaged section.
4. For high temperature wiring, slide a section of high temperature SCT1 shrink tubing down the length of wire to be spliced. Ensure that the shrink tubing will not interfere with the splice procedure.
5. Select the proper DuraSeal splice sleeve according to the wire size. Refer to the above table at the beginning of the repair procedure for the color coding of the DuraSeal splice sleeves and the crimp tool nests.

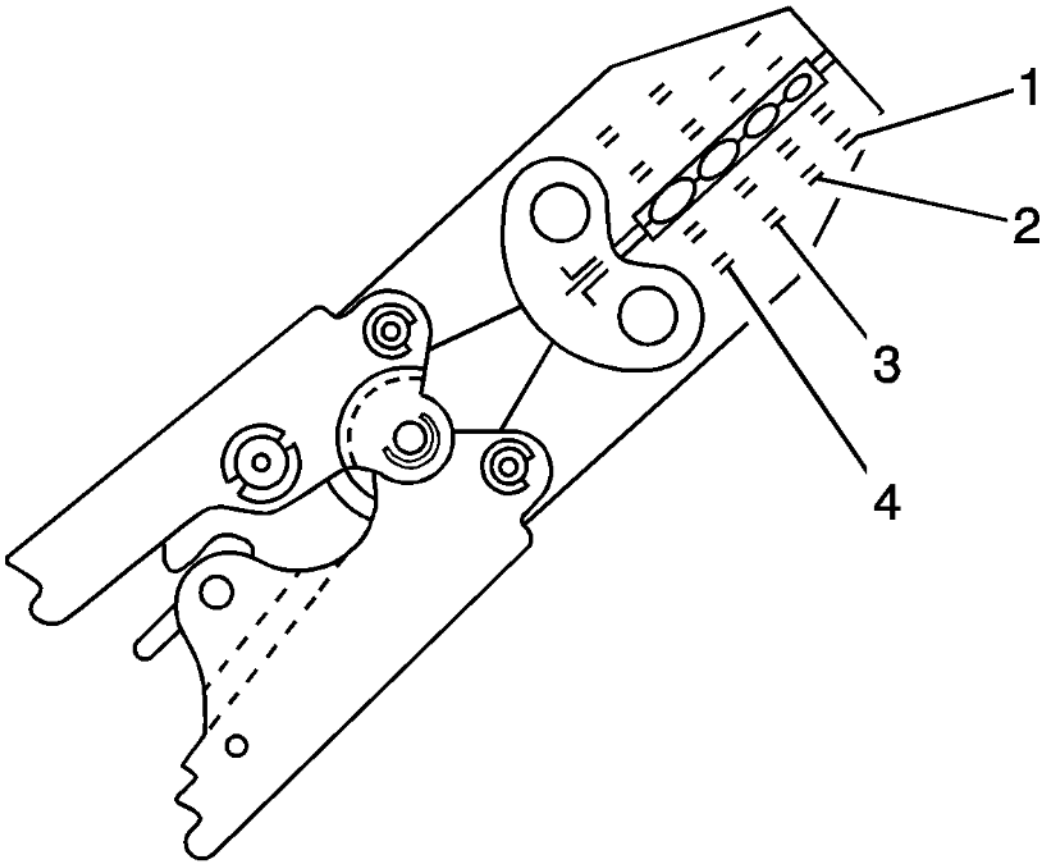

Fig. 15: Crimping Tool
Courtesy of GENERAL MOTORS COMPANY

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6. The **EL-38125-10** splice sleeve crimping tool has four crimp nests. The largest crimp nest (4) is used for crimping 10 and 12 gauge wires. The second largest crimp nest (3) is used for crimping 14 and 16 gauge wires. The third largest crimp nest (2) is used for crimping 18 and 20 gauge wires. The smallest crimp nest (1) is used for crimping 22 to 26 gauge wires. The crimp nests are referenced in the table (farther above) under the crimp tool nest color.

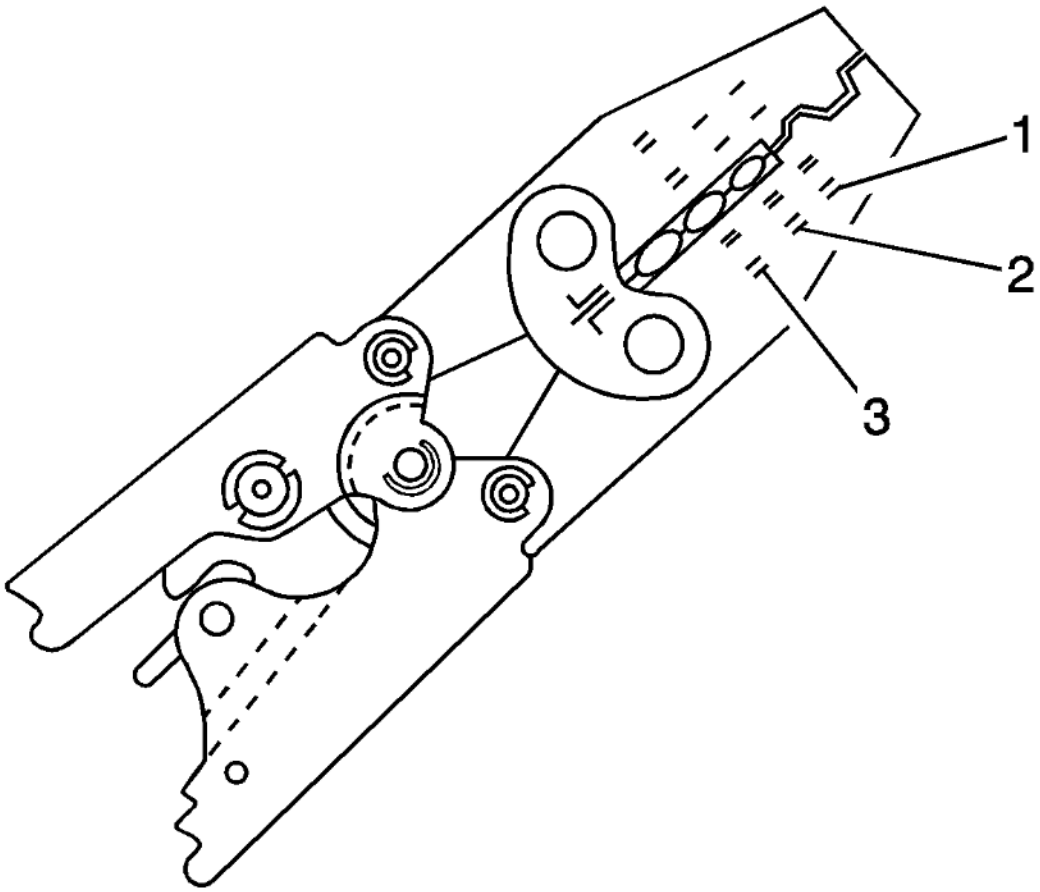

Fig. 16: Identifying Splice Crimp Tool Nests Terminal Identification
Courtesy of GENERAL MOTORS COMPANY

7. The **J-38125-8** splice sleeve crimping tool has three crimp nests. The largest crimp nest (3) is used for crimping 10 and 12 gauge wires. The second largest crimp nest (2) is used for crimping 14 and 16 gauge wires. The smallest crimp nest (1) is used for crimping 18 to 20 gauge wires. The crimp nests are referenced in the table (farther above) under the crimp tool nest color.
8. Use the splice sleeve crimp tool in order to position the DuraSeal splice sleeve in the proper color nest of the splice sleeve crimp tool. For the four crimp nest tool, use the three largest crimp nests to crimp the splice sleeves. For the three crimp nest tool, use all three crimp nests to crimp the splice sleeves. Use the four and three crimp tool diagrams (above) and the table (farther above) to match the splice sleeve with the correct crimp nest. The crimp tool diagram callout numbers match the numbers in the table (under crimp tool nest color).

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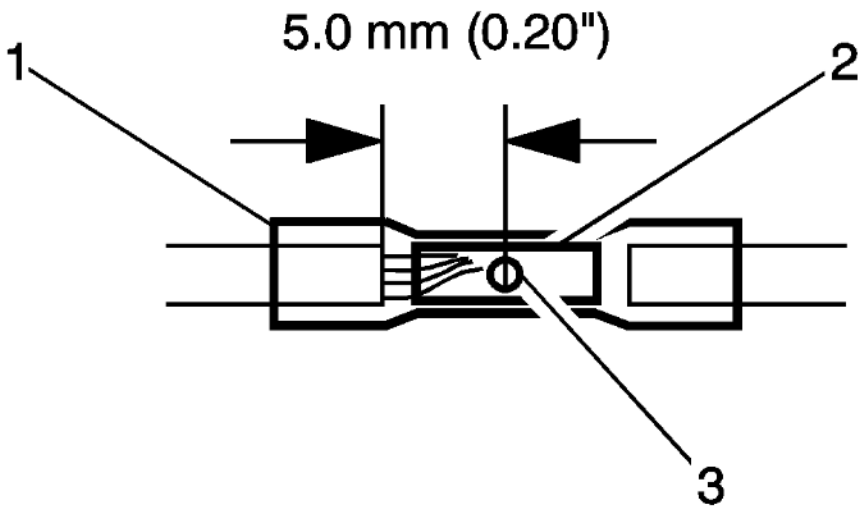

Fig. 17: Identifying Duraseal Splice Sleeve
Courtesy of GENERAL MOTORS COMPANY

9. Place the DuraSeal splice sleeve in the nest. Ensure that the crimp falls midway between the end of the barrel and the stop. The sleeve has a stop (3) in the middle of the barrel (2) in order to prevent the wire (1) from going further. Close the hand crimper handles slightly in order to firmly hold the DuraSeal splice sleeve in the proper nest.

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Fig. 18: Crimped Duraseal Splice Sleeve
Courtesy of GENERAL MOTORS COMPANY

10. Insert the wire into the splice sleeve barrel until the wire hits the barrel stop. Refer to **Folded-Over Wire Repair** for splicing wires of 0.35 mm or less (22, 24, 26 gauge sizes) and for splicing wires of different gauges.
11. Tightly close the handles of the crimp tool until the crimper handles open when released.

    The crimper handles will not open until you apply the proper amount of pressure to the DuraSeal splice sleeve. Repeat steps 4 and 6 for the opposite end of the splice.

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Fig. 19: Crimped Duraseal Splice Sleeve
Courtesy of GENERAL MOTORS COMPANY

12. Using the heat torch, apply heat to the crimped area of the barrel.
13. Start in the middle and gradually move the heat barrel to the open ends of the tubing:
    - The tubing will shrink completely as the heat is moved along the insulation.
    - A small amount of sealant will come out of the end of the tubing when sufficient shrinkage is achieved.

Weatherpack™ Wiring Repair

NOTE: **Some replacement pigtail connectors may be delivered without the terminated leads installed into the connector. For Weatherpack™ connectors, all terminated leads included in the package should to be installed into the connector. If the connector end view shows that a terminal is not occupied, the extra terminated lead(s) need to be installed and the end(s) sealed using a DuraSeal splice sleeve and taped back into the harness.**

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1. Insert the wire into the splice sleeve barrel until the wire hits the barrel stop. Refer to **Folded-Over Wire Repair** for splicing wires of 0.35 mm or less (22, 24, 26 gauge sizes) and for splicing wires of different gauges.

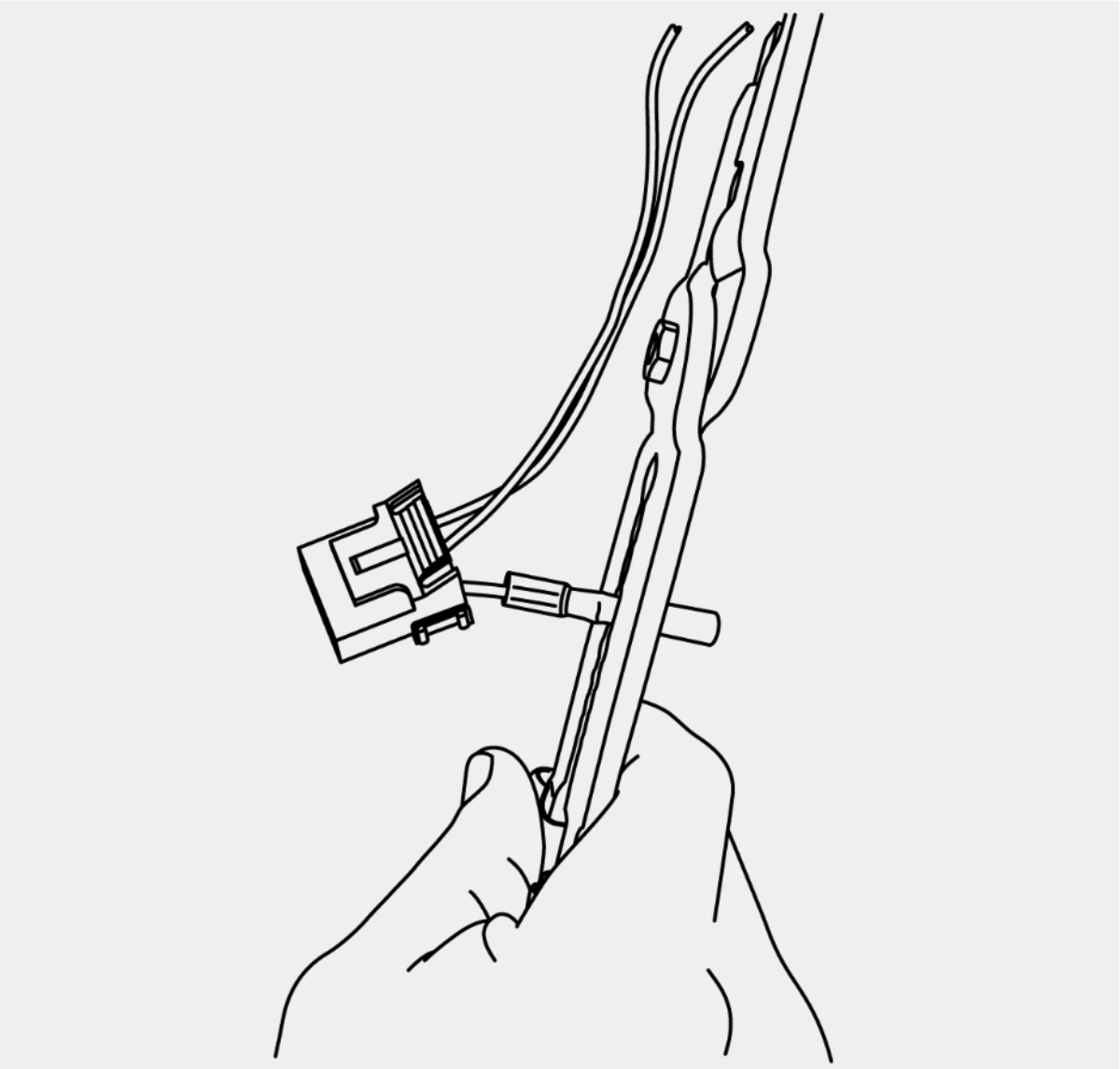

Fig. 20: Tightly Close Handles Of Crimp Tool
Courtesy of GENERAL MOTORS COMPANY

2. Tightly close the handles of the crimp tool until the crimper handles open when released.

   The crimper handles will not open until you apply the proper amount of pressure to the DuraSeal splice sleeve. Holding the DuraSEAL with one hand gently tug on the wire to ensure it is crimped in the DuraSeal.

3. Using the heat torch, apply heat to the crimped area of the barrel.

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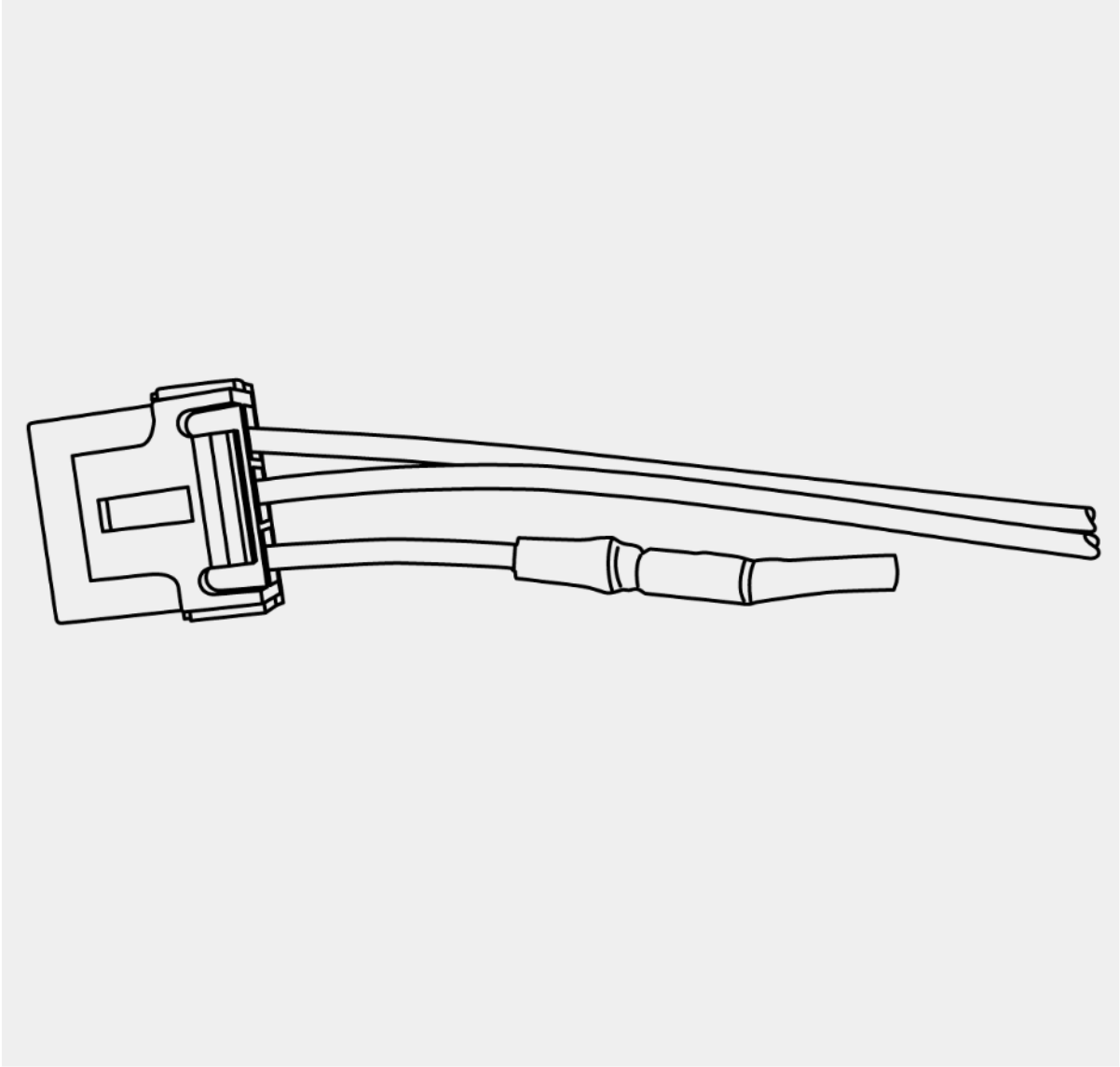

Fig. 21: Heat To Crimped Area Of Barrel
Courtesy of GENERAL MOTORS COMPANY

4. Start in the middle and gradually move the heat barrel to the open ends of the tubing:
    - The tubing will shrink completely as the heat is moved along the insulation.
    - A small amount of sealant will come out of the end of the tubing when sufficient shrinkage is achieved.

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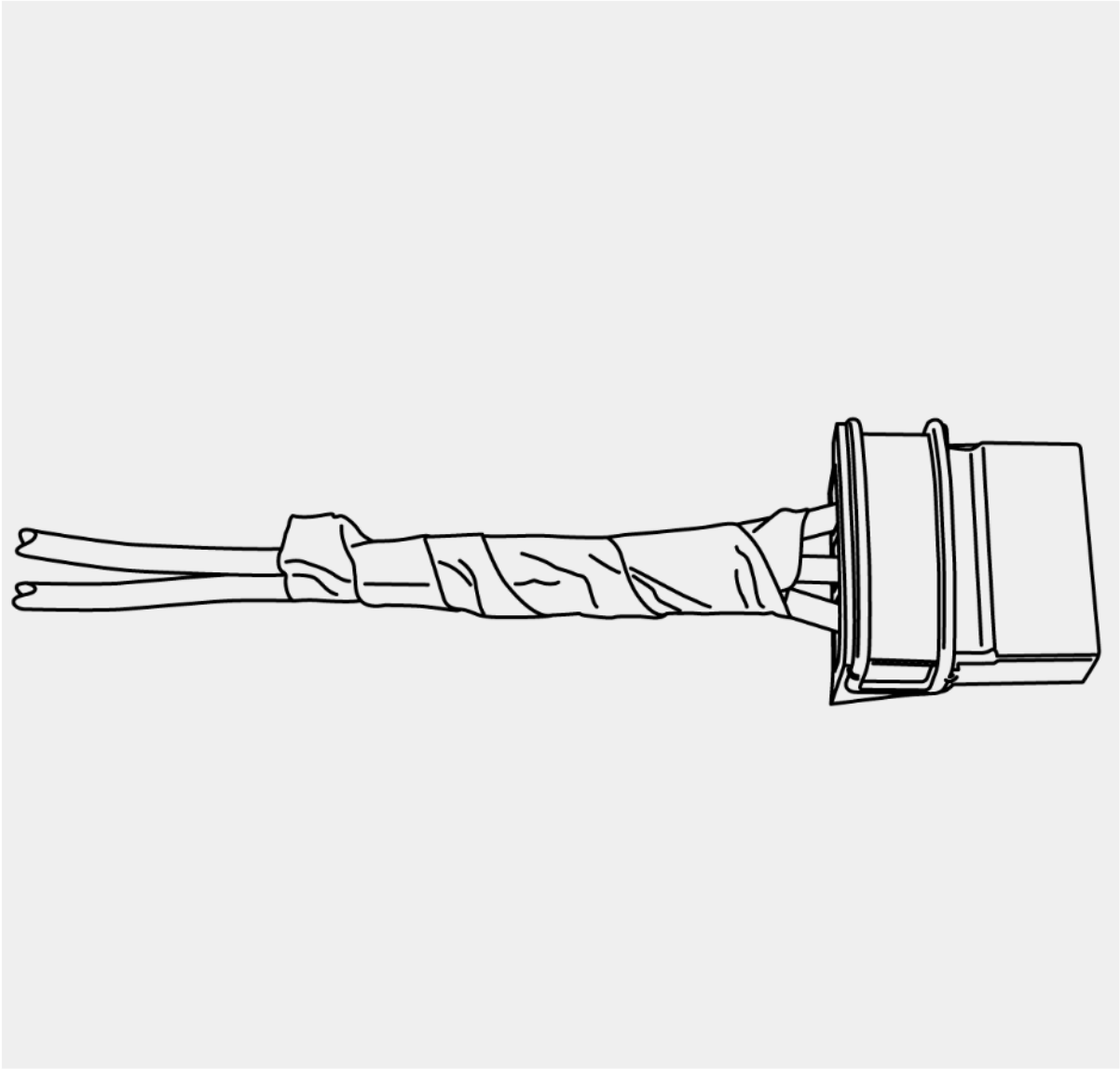

Fig. 22: Taping Extra Terminated Leads Back Into Harness
Courtesy of GENERAL MOTORS COMPANY

5. Tape the extra terminated lead(s) back into the harness.

High Temperature Wiring Repairs

Use the following procedures to perform high temperature wiring repairs:

1. Center the high temperature SCT1 shrink tube over the DuraSeal splice sleeve.
2. Using the heat torch, apply heat to the high temperature heat shrink tubing.
3. Gradually move the heat from the center to the open end of the tubing:
    - The tubing will shrink completely as the heat is moved along the insulation.
    - A small amount of sealant will come out of the end of the tubing when sufficient shrinkage is achieved.
4. Replace any reflective tape and clips that may have been removed during the repair.

CONNECTOR POSITION ASSURANCE LOCKS

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The connector position assurance (CPA) is a small plastic insert that fits through the locking tabs of the connector. CPAs are used in various connectors throughout the vehicle. CPAs are also used in all SIR system electrical connectors. The CPA ensures that the connector halves cannot vibrate apart. You must have the CPA in place in order to ensure good contact between the mating terminals of the connector.

TERMINAL POSITION ASSURANCE LOCKS

The terminal position assurance (TPA) insert resembles the plastic combs used in the control module connectors. The TPA keeps the terminal securely seated in the connector body. Do not remove the TPA from the connector body unless you remove a terminal for replacement. If the TPA is removed, be sure to reinstall it before reconnecting the connector.

AFL/EPC CONNECTORS

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-12A** Terminal Release Tool
- **J-38125-216** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

Follow the steps below in order to remove terminals from the connector.

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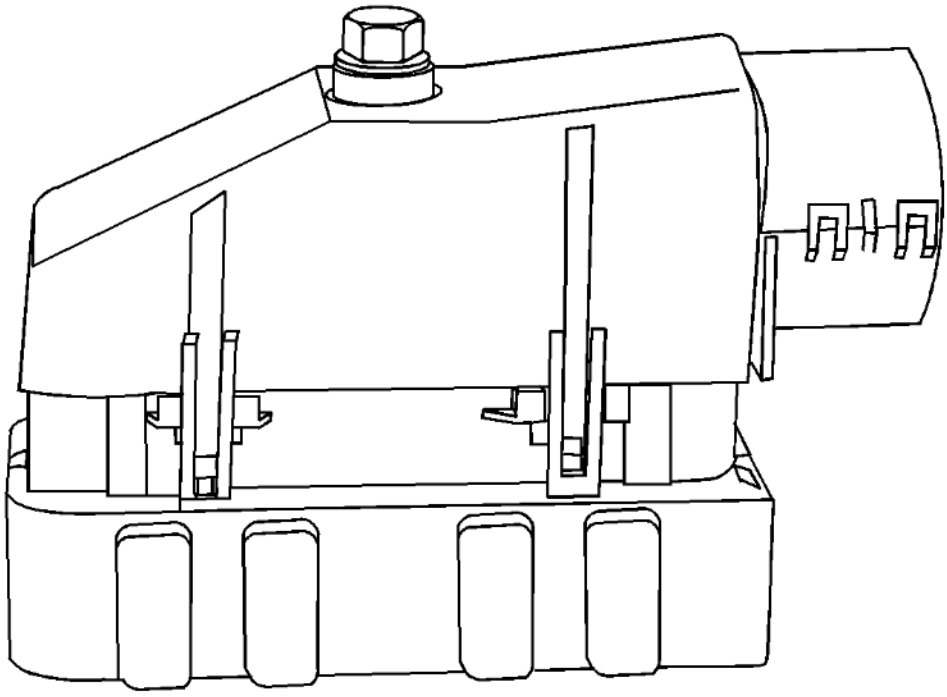

Fig. 23: View Of Bolt On Connector Cover
Courtesy of GENERAL MOTORS COMPANY

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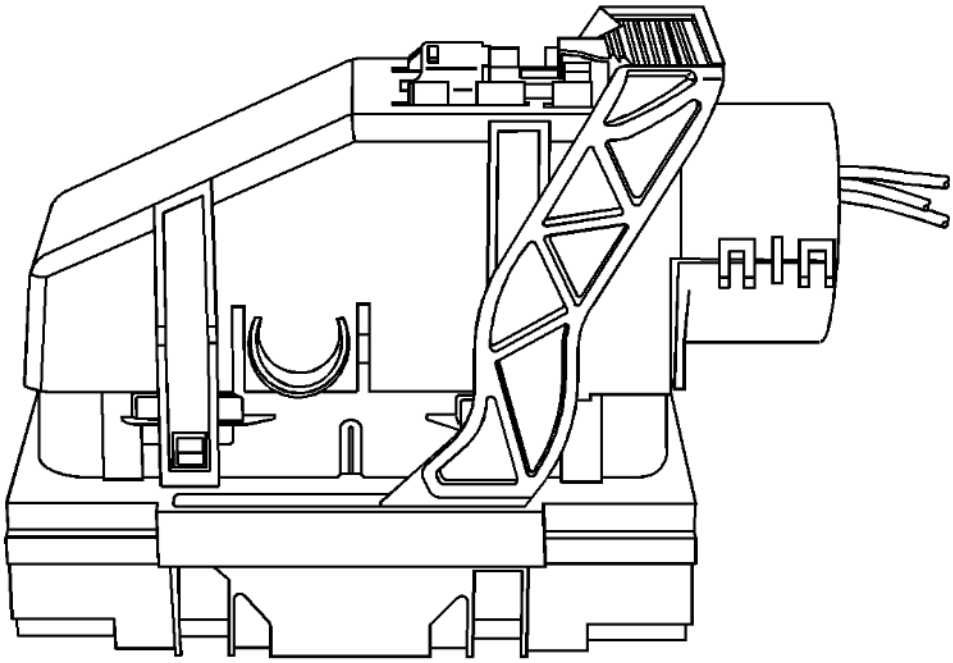

Fig. 24: Identifying Connector Position Assurance (CPA)
Courtesy of GENERAL MOTORS COMPANY

1. For connectors with a bolt in the dress cover, turn the bolt counterclockwise to remove the connector from the component.
2. Locate the connector position assurance (CPA) on the top of the wire dress cover. Slide the CPA forward.

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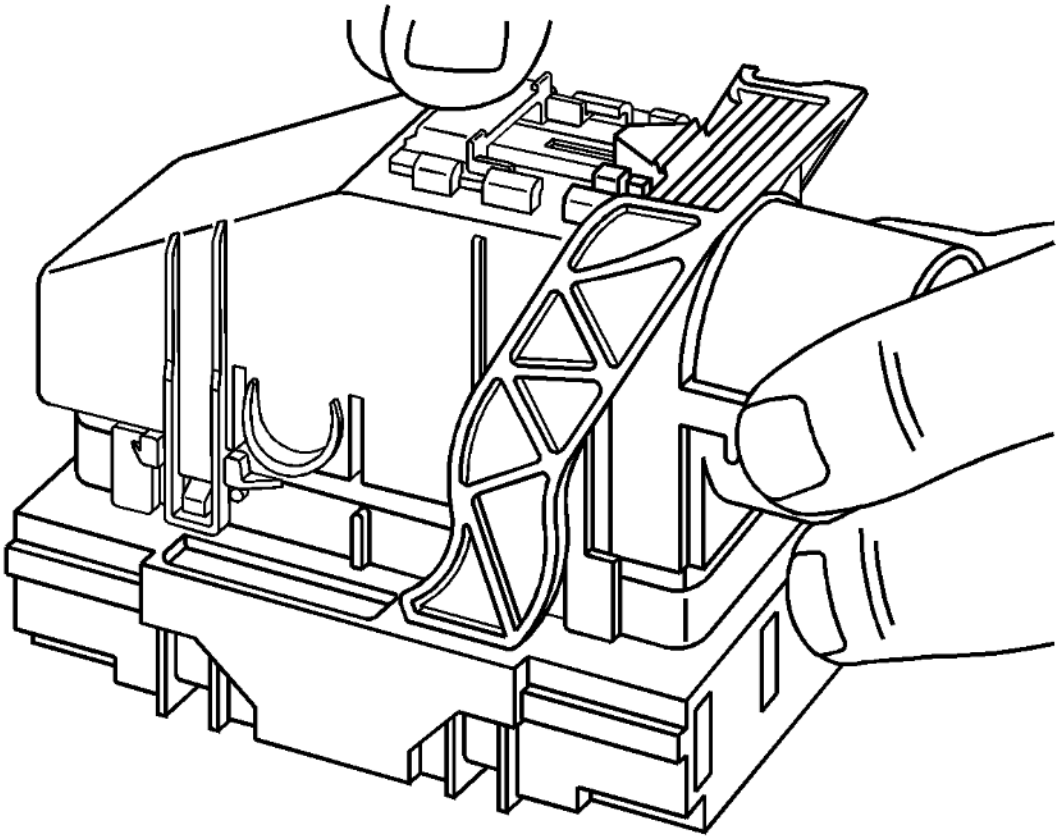

Fig. 25: Identifying Lever Lock & Lever Lock Release Tab
Courtesy of GENERAL MOTORS COMPANY

3. Slide the lever lock forward while pressing down on the lever lock release tab.

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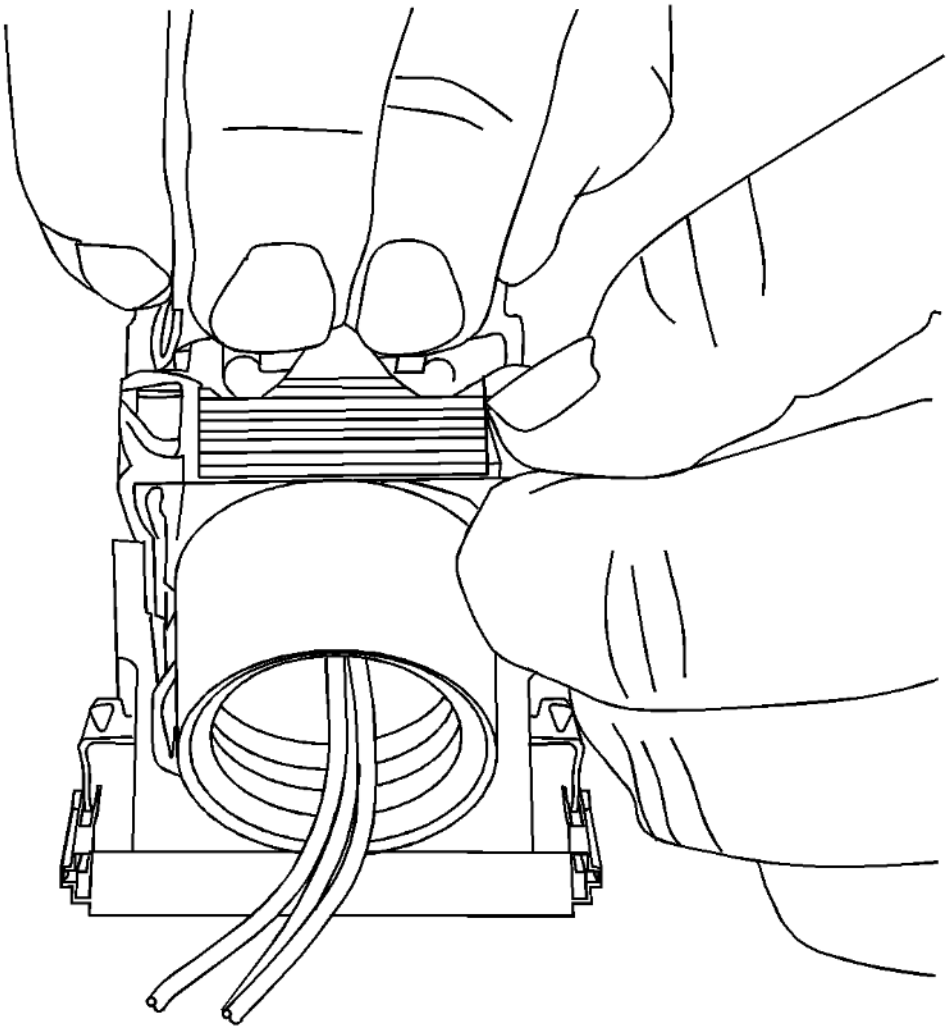

Fig. 26: View Showing Depressing Lever Lock Release Tab
Courtesy of GENERAL MOTORS COMPANY

4. View showing depressing of the lever lock release tab.

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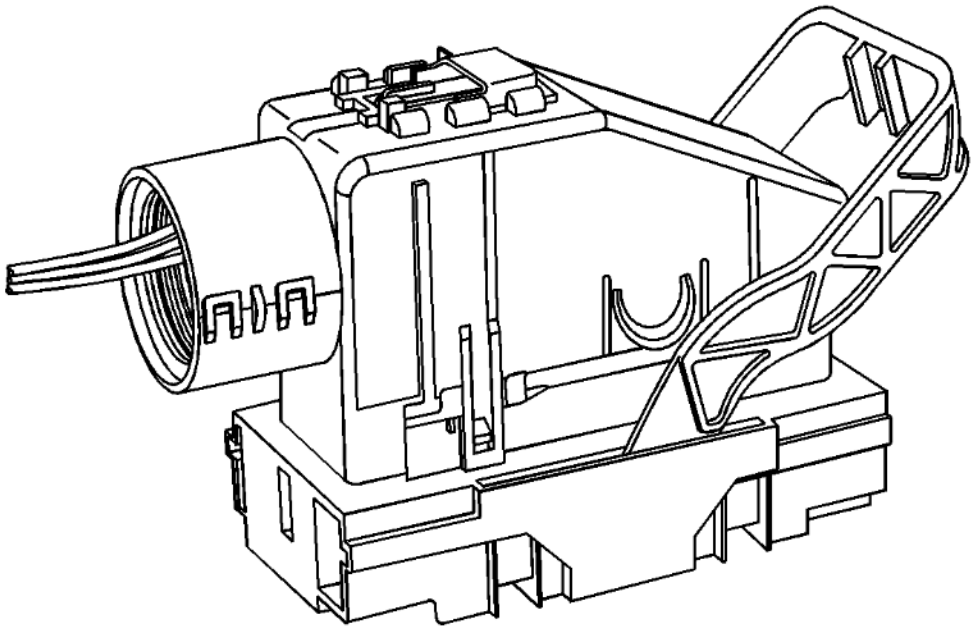

Fig. 27: View of connector in released position
Courtesy of GENERAL MOTORS COMPANY

5. View of connector in released position.
6. Disconnect the connector from the component.
7. Locate the dress cover locking tabs at the corners of the dress cover. Use a small flat-blade tool to release the locking tabs and remove the dress cover.

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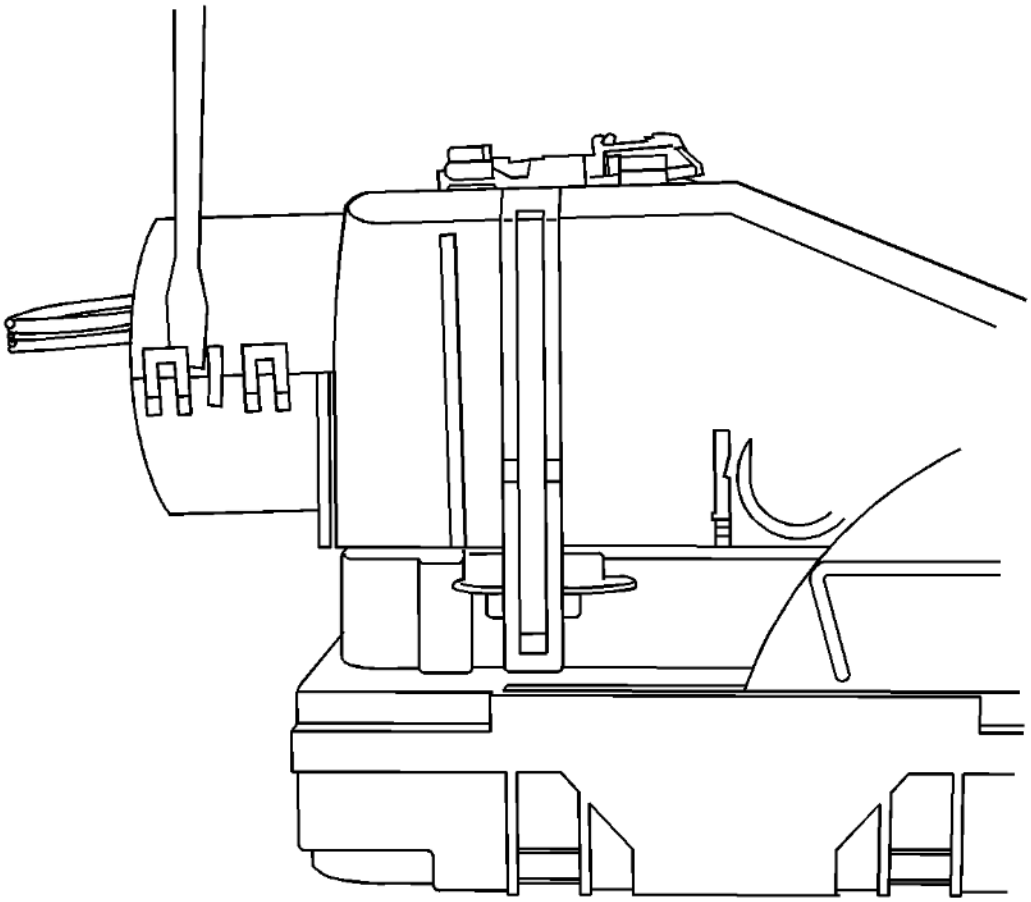

Fig. 28: View Of Connector In Released Position
Courtesy of GENERAL MOTORS COMPANY

8. Release the rear lower half of the wiredress cover.

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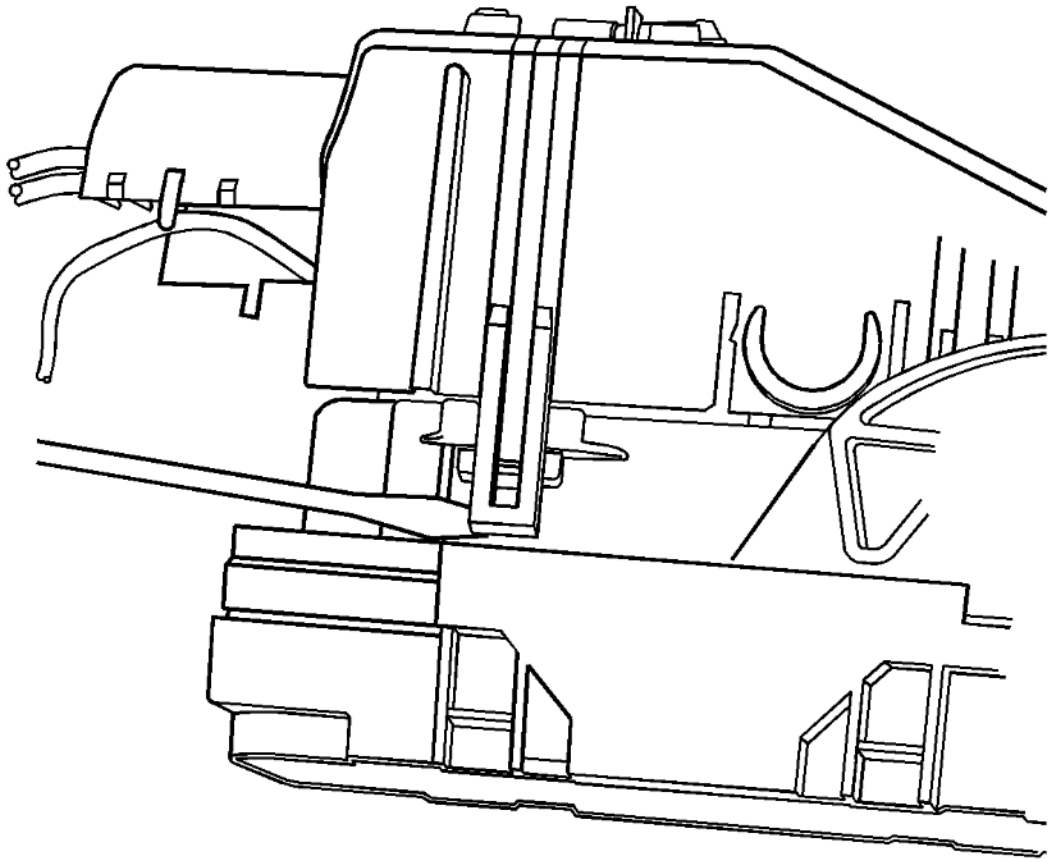

Fig. 29: Identifying Tabs Holding Wiredress Cover
Courtesy of GENERAL MOTORS COMPANY

9. Release the tabs that are holding the wiredress cover to the connector body.
10. Remove the nose piece by inserting a small flat-blade tool into the slots on both ends of the connector body. Gently pry the nose piece out of the connector. J-38125-216 can also be used to remove the nose piece.

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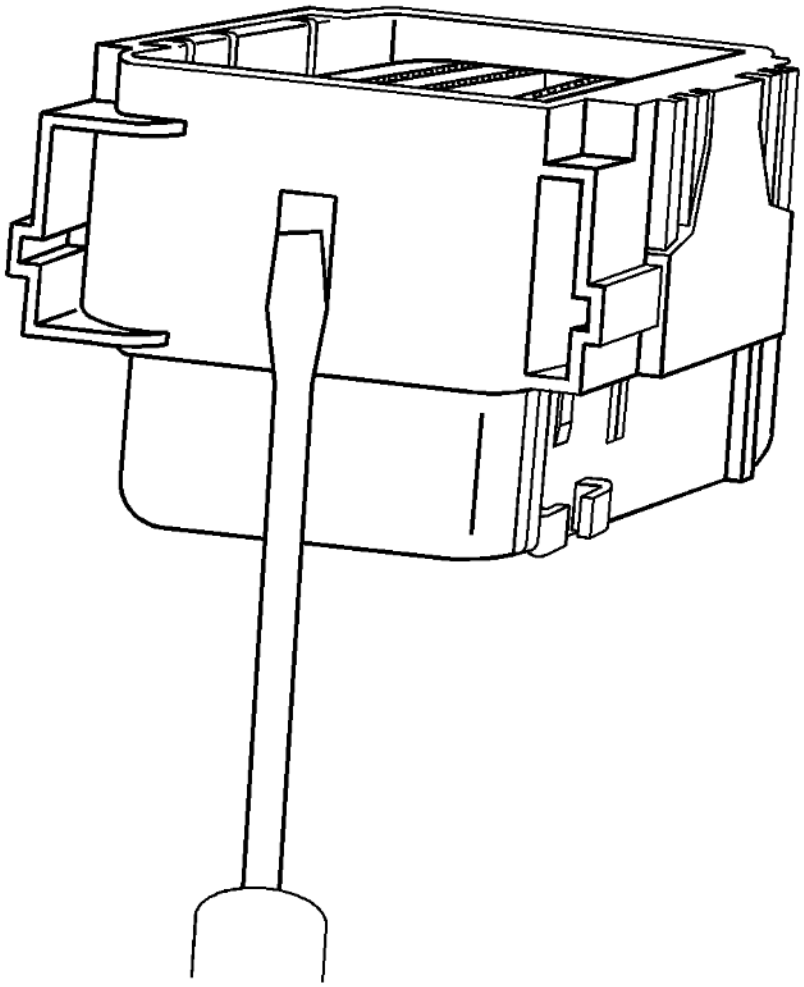

Fig. 30: Lifting Terminal Retaining Tabs
Courtesy of GENERAL MOTORS COMPANY

11. Use the J-38125-12A tool to release the terminals by lifting the terminal retaining tabs on the inside of the connector.

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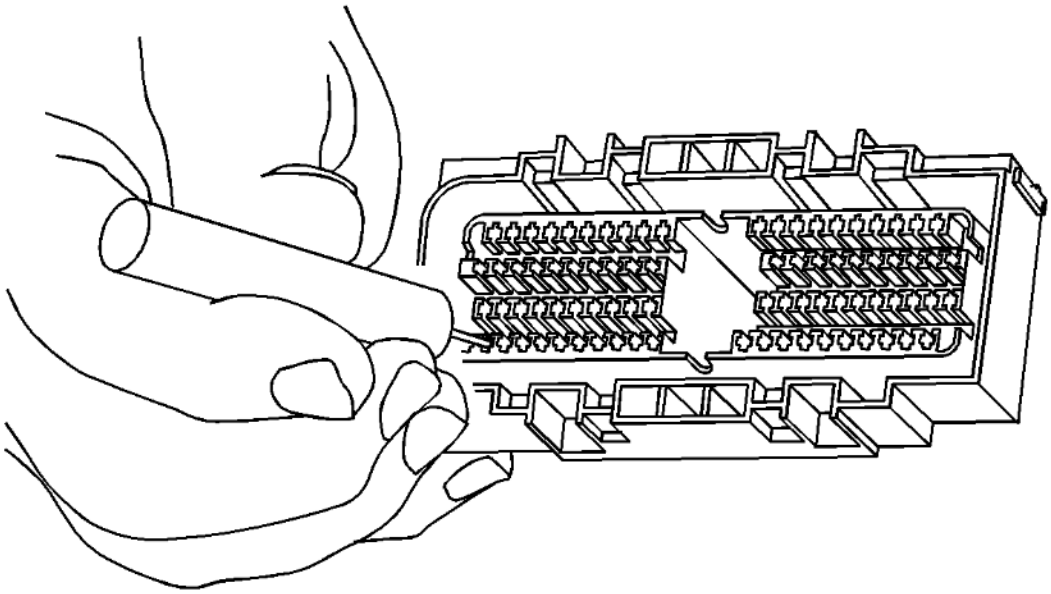

Fig. 31: Pulling Wire Out Of Back Of Connector
Courtesy of GENERAL MOTORS COMPANY

12. While holding the removal tool in place, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
13. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
14. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

BOSCH CONNECTORS (BSK)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-561** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

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1. Disconnect the connector from the component.
2. Remove the wire dress cover, if necessary.
3. Push the wire side of the terminal that is being removed toward the connector and hold it in position.

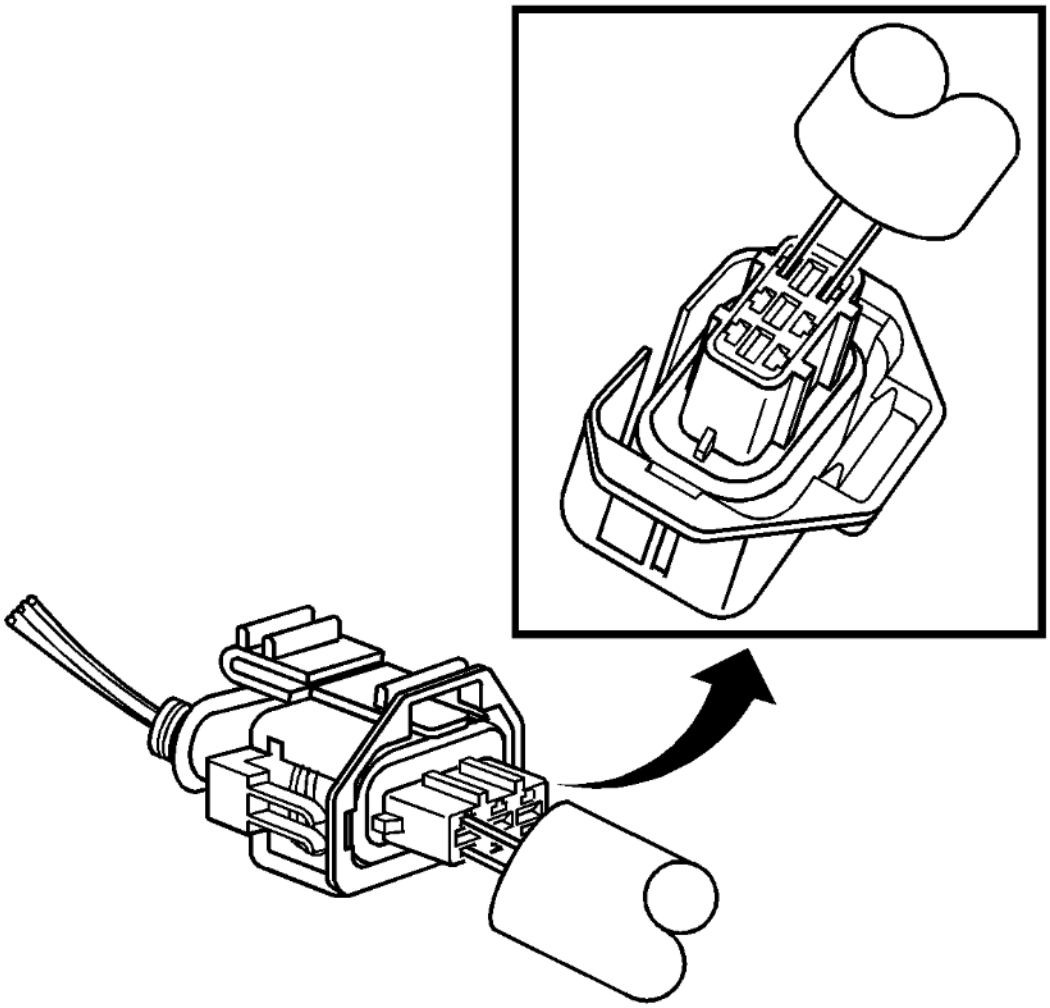

Fig. 32: View Of Bosch Connector Terminals (BSK)
Courtesy of GENERAL MOTORS COMPANY

4. Insert the J-38125-561 tool into the 2 cavities on each side of the terminal at the front of the connector and push until you feel the tool disengage the terminal retainers.
5. Carefully pull the terminal out of the connector. Always remember never use force when pulling a terminal out of a connector. If the terminal is difficult to remove, repeat the entire procedure.
6. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
7. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

BOSCH CONNECTORS (0.64)

Special Tools

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- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-560** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

1. Locate the lever lock on the wire dress cover. While pressing the lock, pull the lever over and past the lock until the lever is at the end of its travel.
2. Disconnect the connector from the component.
3. Pull the rubber boot that covers the wires back to expose the end of the connector dress cover.
4. Place the connector locking lever in the center of the connector.

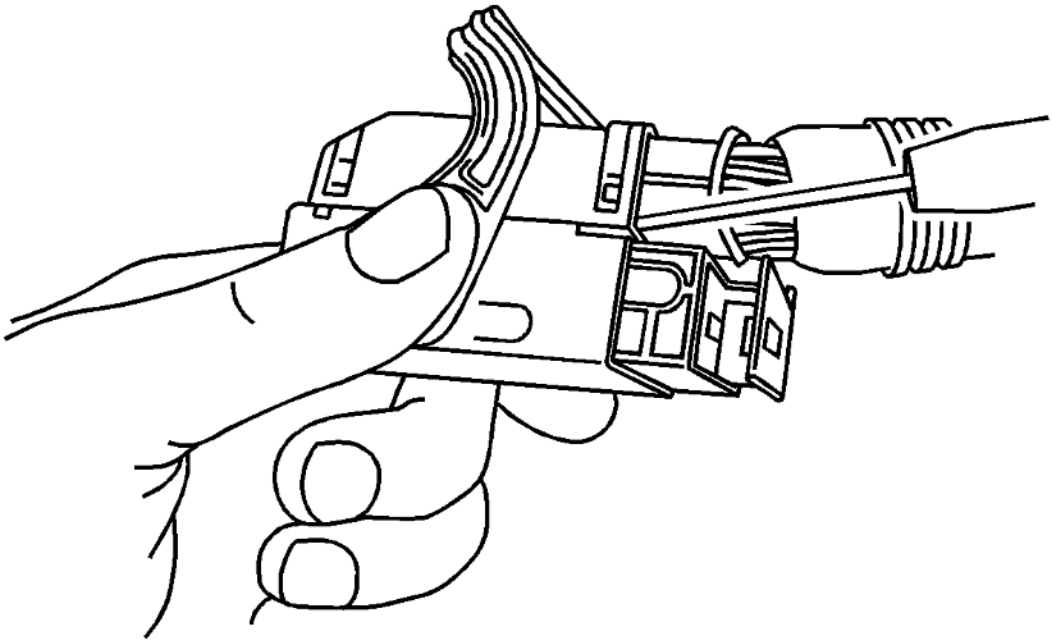

Fig. 33: View Of Flat-Bladed Tool Being Inserted Between Cover & Connector Body
Courtesy of GENERAL MOTORS COMPANY

5. Locate the 2 dress cover locking tabs that are on the wire end of the connector. Insert a small flat-bladed tool between the cover and connector body and pry up.

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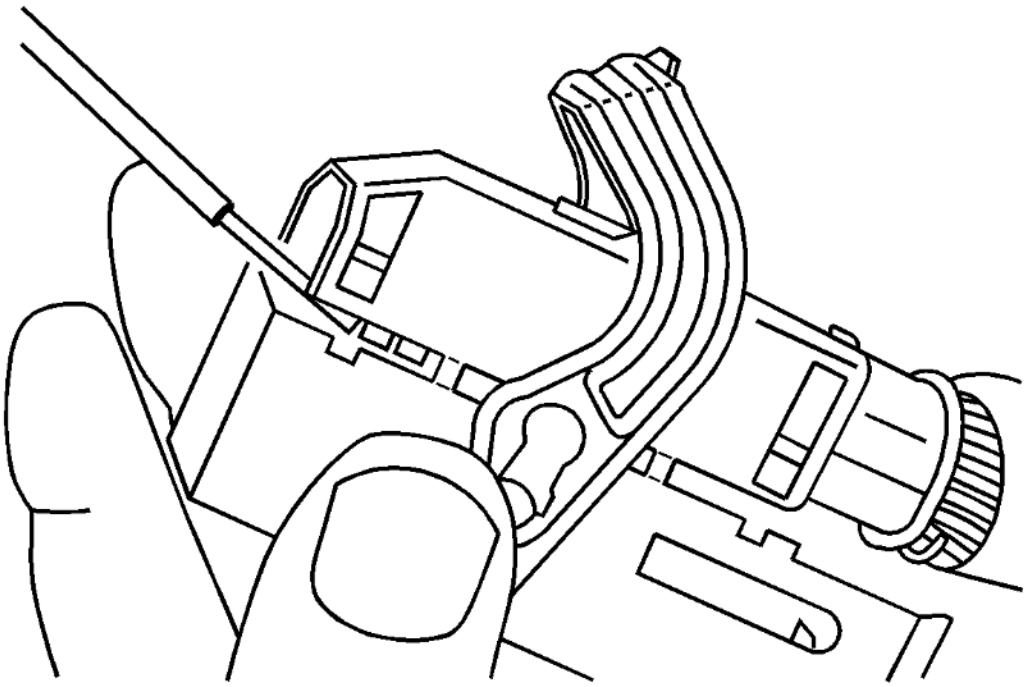

Fig. 34: View Of Flat-Bladed Tool Between Cover & Connector End
Courtesy of GENERAL MOTORS COMPANY

6. Locate the 2 dress cover locking tabs located on the opposite side of the connector. Insert a small flat-bladed tool between the cover at the connector end and pry up.
7. Remove the dress cover.
8. Cut the tie wrap on the wire bundle.

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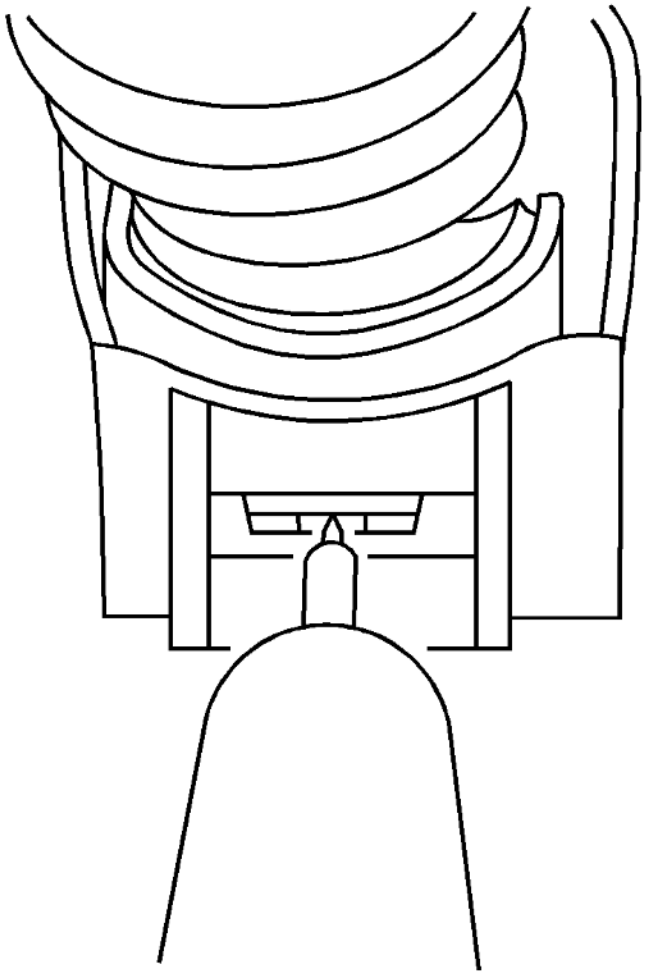

Fig. 35: View Of Terminal Position Assurance (TPA)
Courtesy of GENERAL MOTORS COMPANY

9. Remove the terminal position assurance (TPA) by inserting a small flat-bladed tool into the small slot in the end of the slider and pushing on the TPA until it comes out of the connector. When the TPA exits the opposite side of the connector, gasp the TPA and pull it completely out of the connector.
10. Push the wire side of the terminal that is being removed toward the connector and hold it in position.

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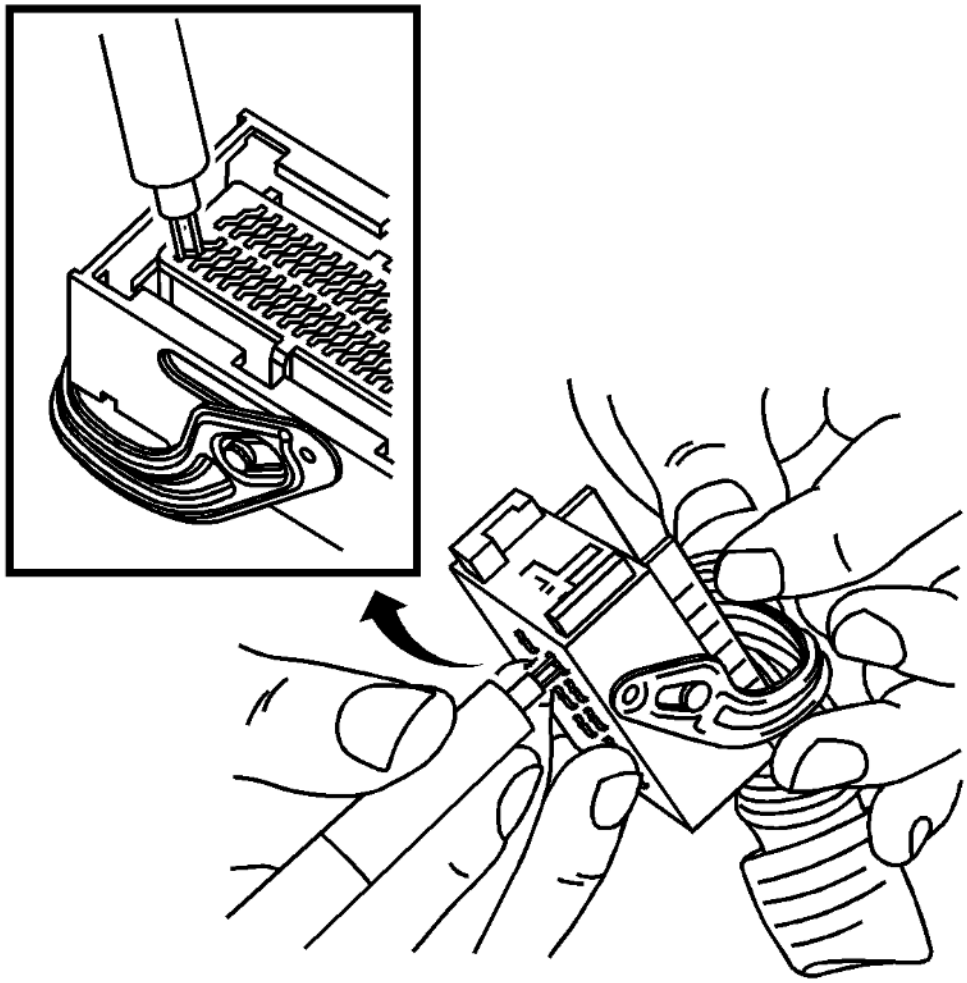

Fig. 36: View Of J 38125-560 Being Inserted Into Triangular Cavities
Courtesy of GENERAL MOTORS COMPANY

11. Insert the J-38125-560 into the 2 triangular cavities on each side of the terminal at the front of the connector.
12. Carefully pull the terminal out of the connector. Always remember never use force when pulling a terminal out of a connector. If the terminal is difficult to remove, repeat the entire procedure.
13. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
14. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

Terminal Insertion Procedure

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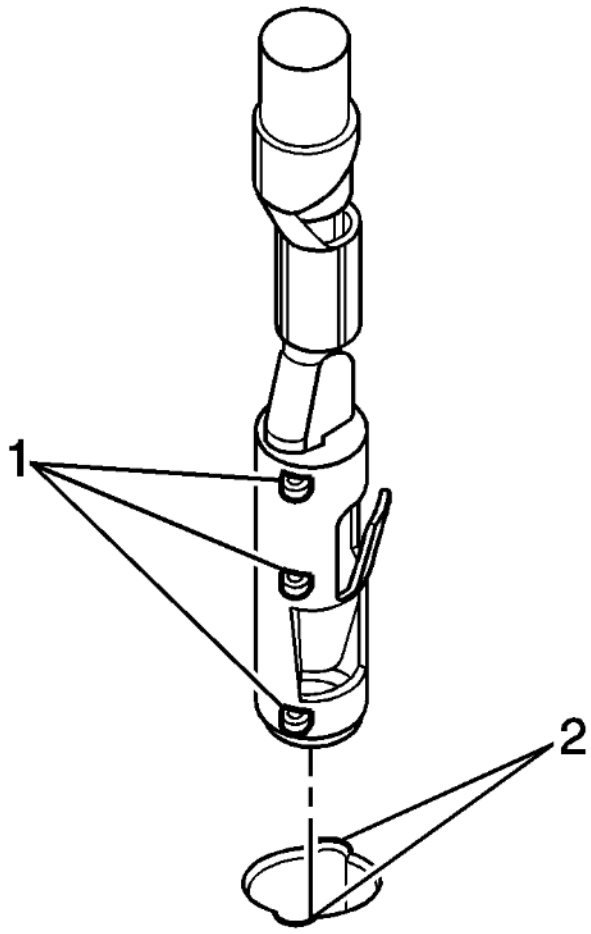

Fig. 37: Aligning Coding Lugs With Connector Coding Grooves
Courtesy of GENERAL MOTORS COMPANY

1. Prior to installation the terminal must be aligned so the (1) coding lugs align with the (2) coding grooves on the connector.
2. Once the terminal is aligned, slide the terminal into the cavity until the retainer has engaged in the cavity of the connector.
3. Slide the TPA in the connector body and seat it using a small flat bladed tool. The TPA is seated when it is flush with the contact housing.
4. Secure the wires to the connector body using a tie wrap and replace the dress cover and grommet.

BOSCH CONNECTORS (2.8 JPT)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-557** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

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Terminal Removal Procedure

1. Pull out the slider on the connector position assurance (CPA) until it is at the end of its travel.
2. Disconnect the connector from the component.
3. Remove the wire dress cover, if necessary.
4. Push the wire side of the terminal that is being removed toward the connector and hold it in position.

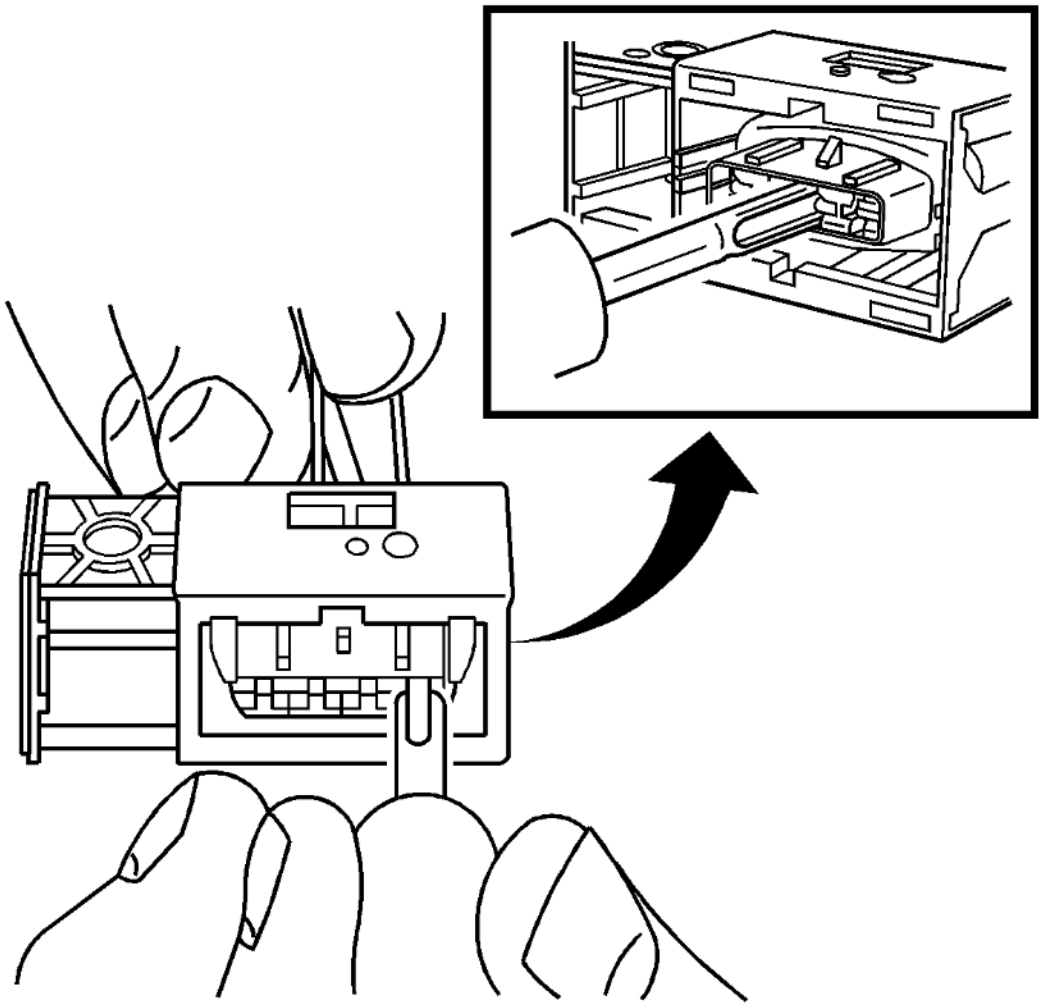

Fig. 38: View Of Bosch Connector Terminals (2.8 JPT)
Courtesy of GENERAL MOTORS COMPANY

5. Insert the J-38125-557 into the 2 cavities on each side of the terminal at the front of the connector and push until you feel the tool disengage the terminal retainers.
6. Carefully pull the terminal out of the connector. Always remember never use force when pulling a terminal out of a connector. If the terminal is difficult to remove, repeat the entire procedure.
7. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
8. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

BOSCH CONNECTORS (ECM)

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Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-213** Terminal Release Tool
- **J-38125-556** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

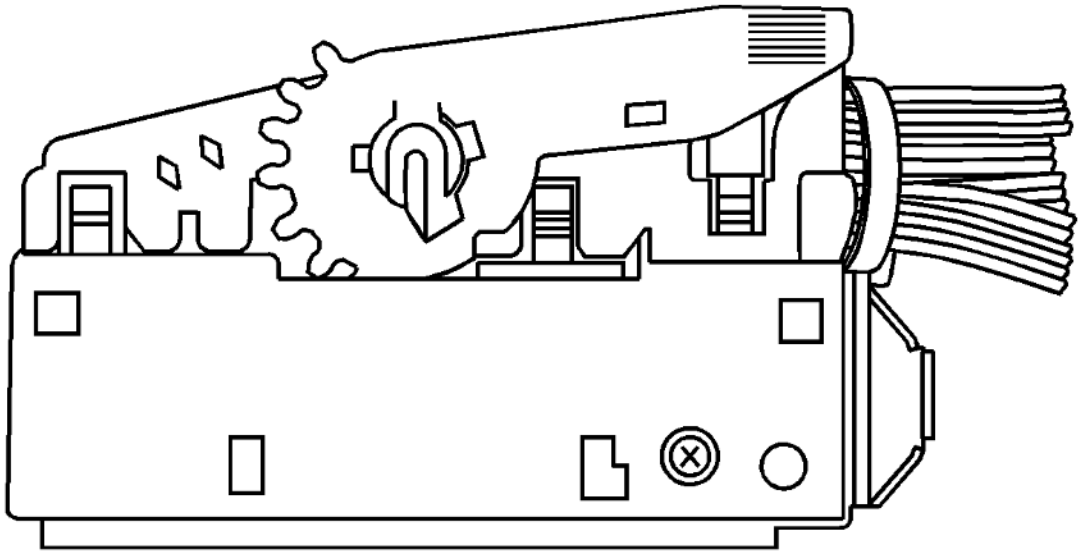

Fig. 39: View Of Bosch Connectors
Courtesy of GENERAL MOTORS COMPANY

1. Locate the assist lever on the top of the connector. Move the assist lever to the forward position.

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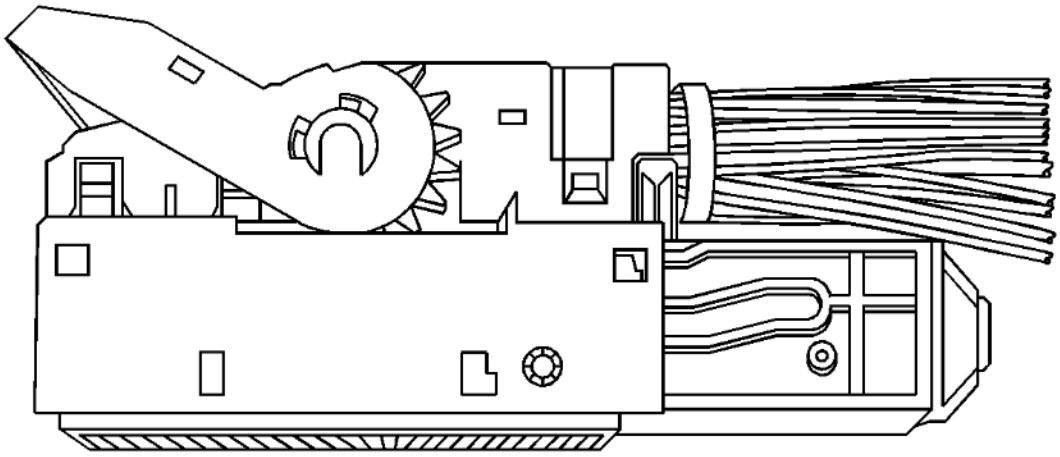

Fig. 40: Identifying Assist Lever In Forward Position
Courtesy of GENERAL MOTORS COMPANY

2. Disconnect the connector from the component.

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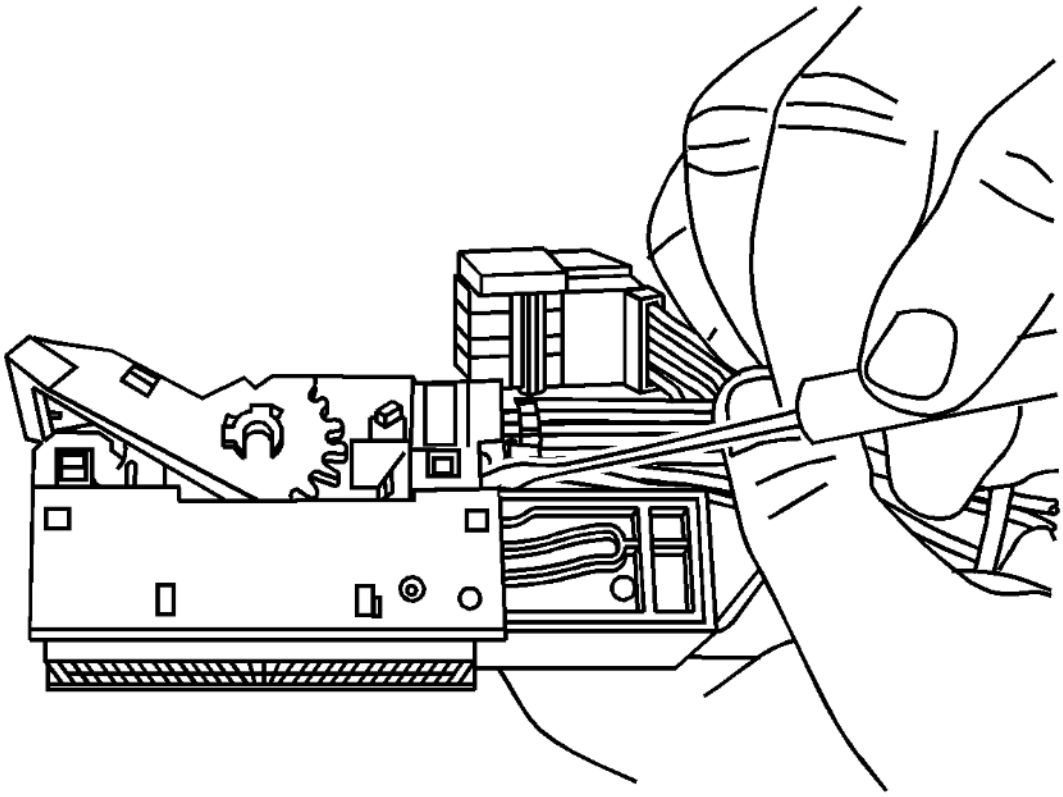

Fig. 41: View Of Releasing Locking Tabs
Courtesy of GENERAL MOTORS COMPANY

3. Locate the dress cover locking tabs at the corners of the connector. Use a small flat-blade tool to release the locking tabs and remove the dress cover.

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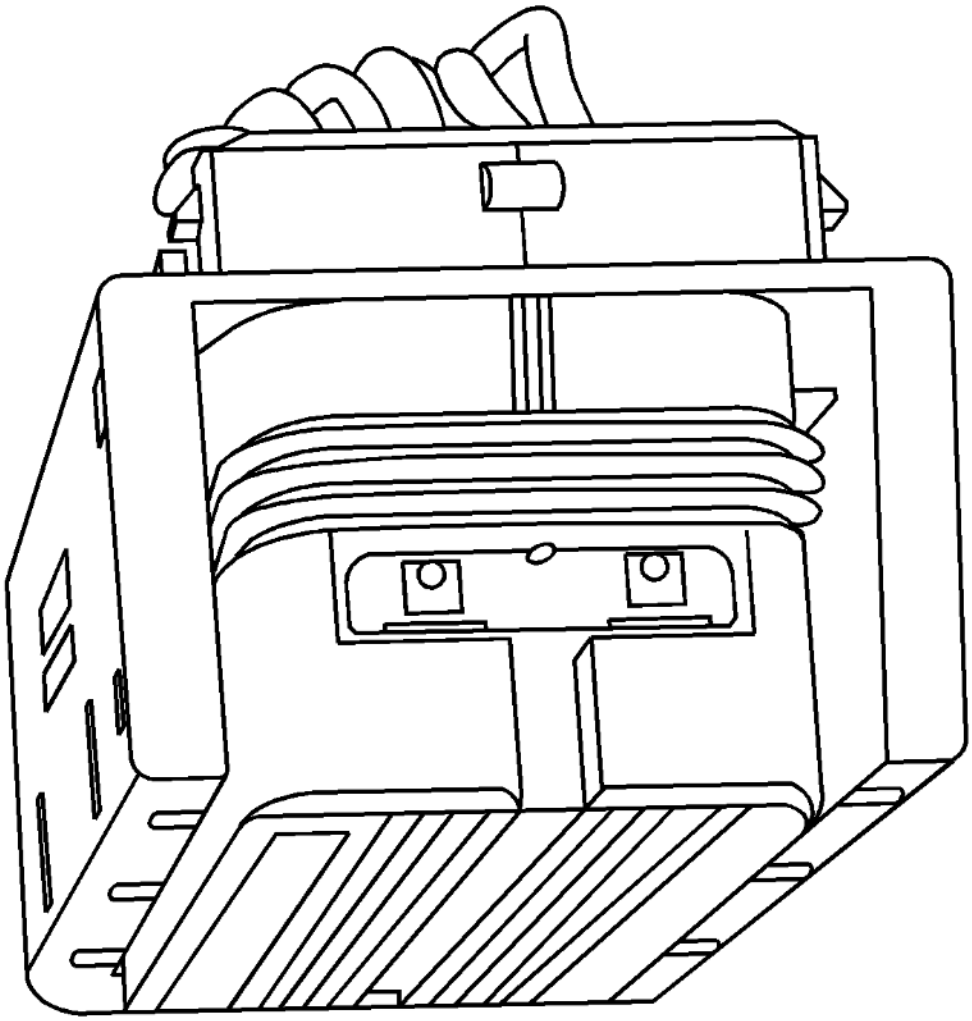

Fig. 42: View Of Terminal Positive Assurance (TPA) Connector
Courtesy of GENERAL MOTORS COMPANY

4. The terminal positive assurance (TPA) is located in the front of the connector.

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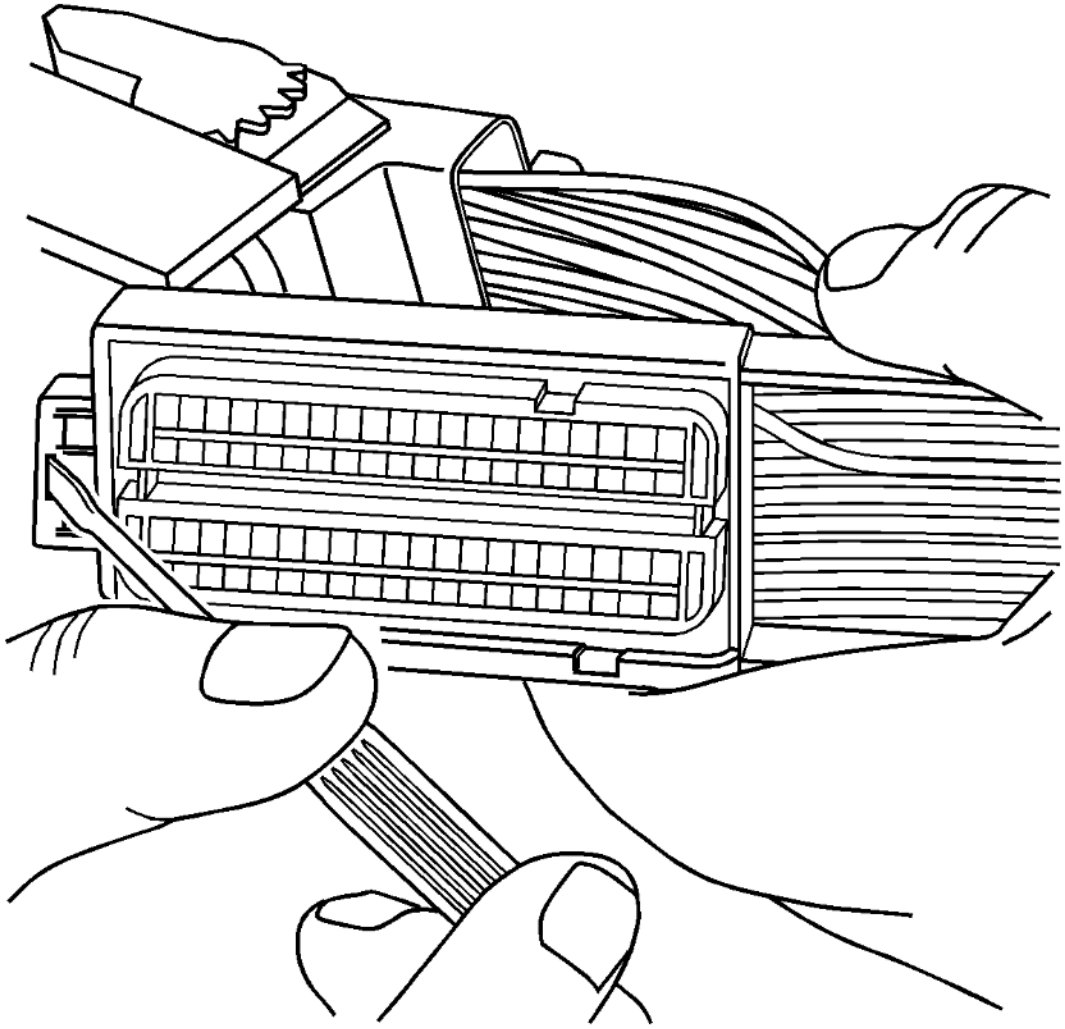

Fig. 43: View Of Removing TPA From Connector
Courtesy of GENERAL MOTORS COMPANY

5. Use a small flat-blade tool to remove TPA from the connector.

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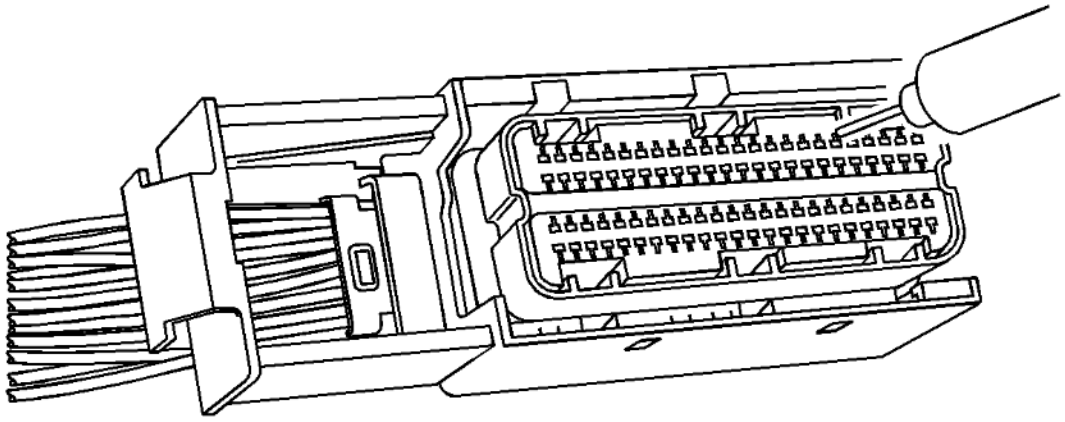

Fig. 44: View Of Special Tools And Terminals
Courtesy of GENERAL MOTORS COMPANY

6. Use the J-38125-213 or the J-38125-556 tool to release the terminals by inserting the tool into the terminal release cavity.
7. While holding the removal tool in place, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
8. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
9. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

NOTE: **Ensure that the dress cover and connector body are both in the released position before reassembling. Failure to do so may cause damage to the connector and component.**

10. Reconnect the connector bodies.

CPA CONNECTORS

Connector Removal Procedure

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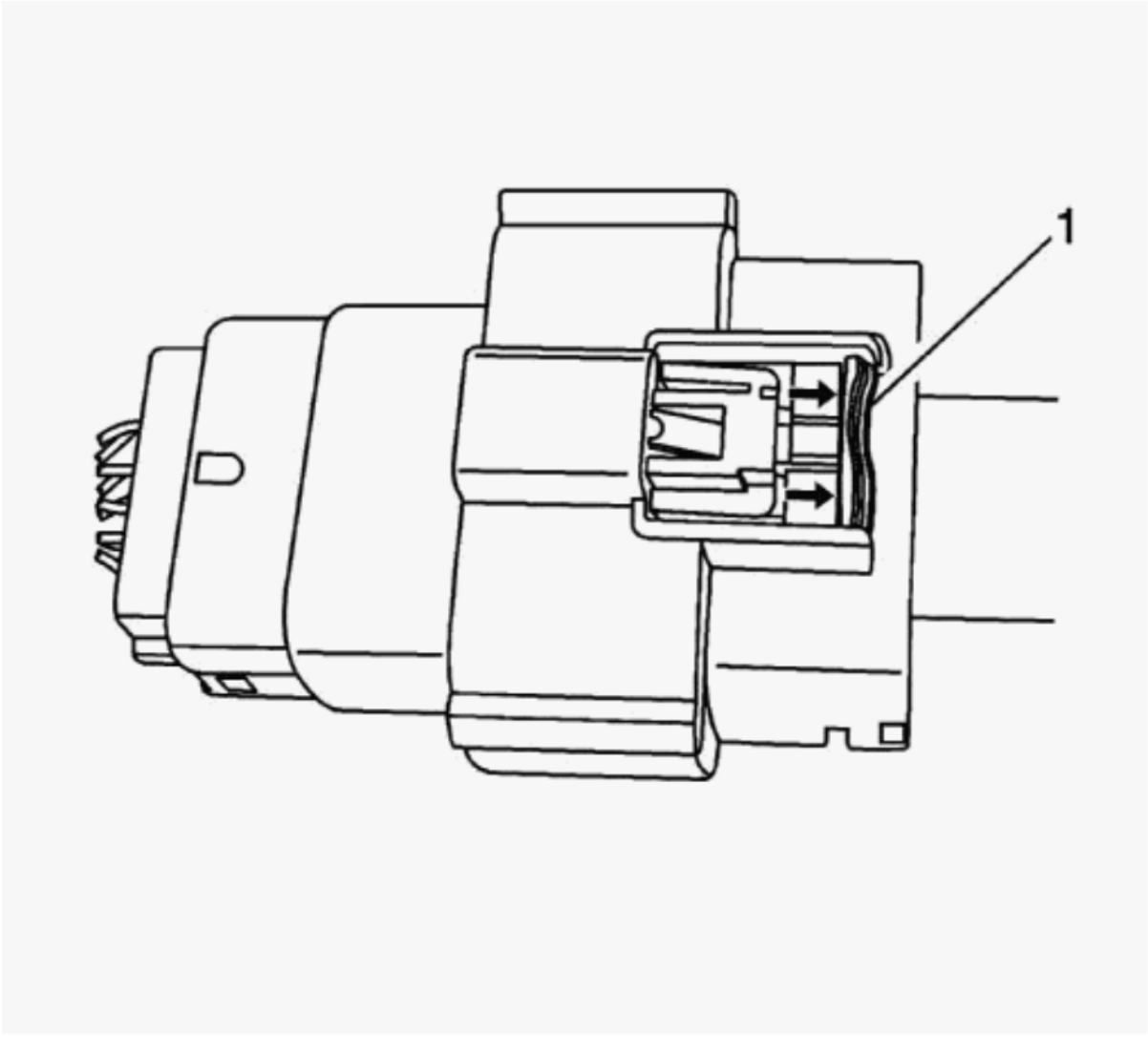

Fig. 45: Pulling Out Red CPA (Connector Position Assurance) On Female Chassis Harness Signal Connector
Courtesy of GENERAL MOTORS COMPANY

1. Pull out the red CPA (Connector Position Assurance) [1] on the female chassis harness signal connector.

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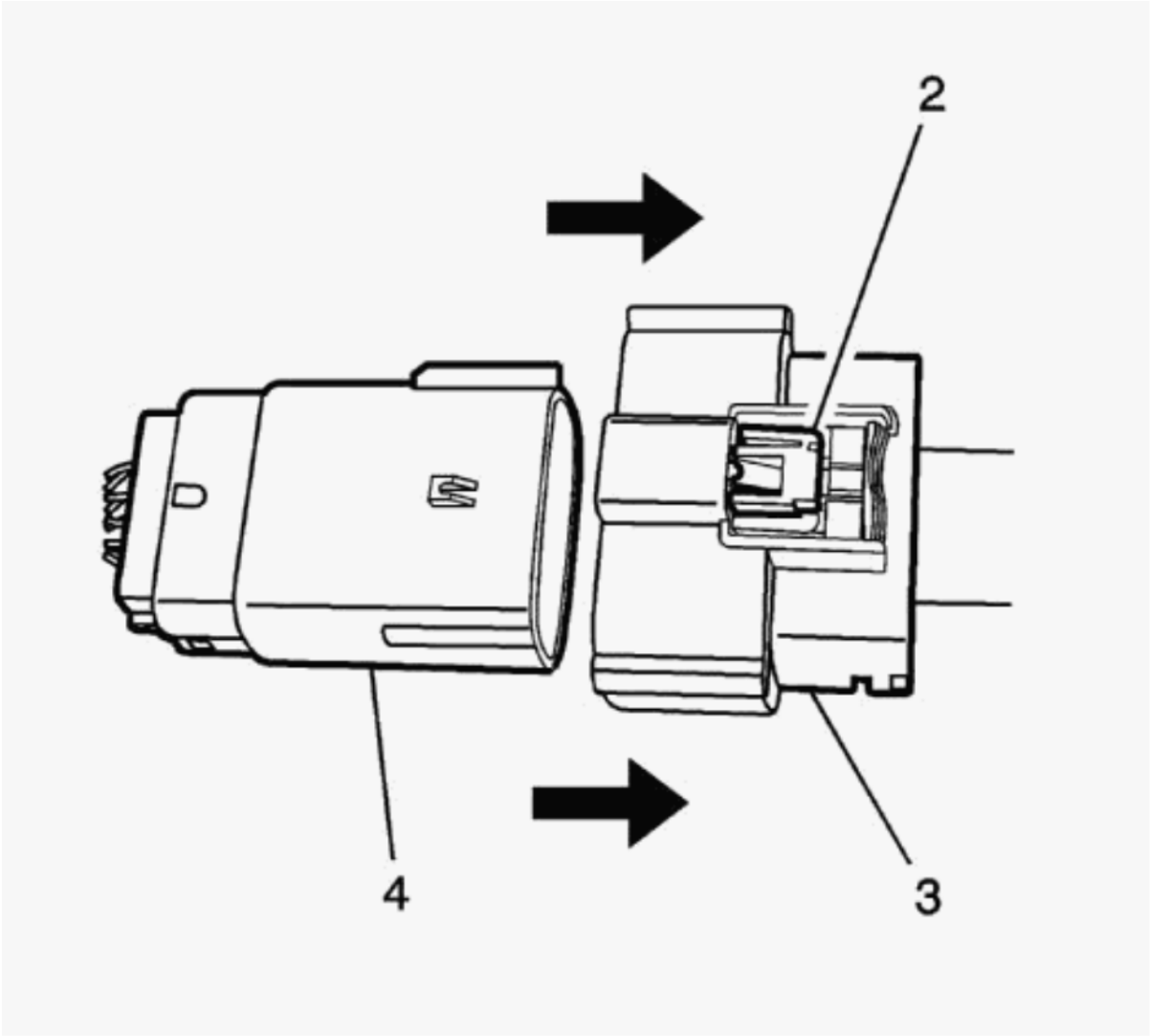

Fig. 46: Locking Tab (Pump Arm) And Male Pigtail Connector
Courtesy of GENERAL MOTORS COMPANY

2. Depress the connector locking tab (pump arm) [2] of this connector [3] to allow it to disengage from the male pigtail connector [4].
3. Pull on the female connector [3] to separate it from the male connector [4].

Connector Installation Procedure

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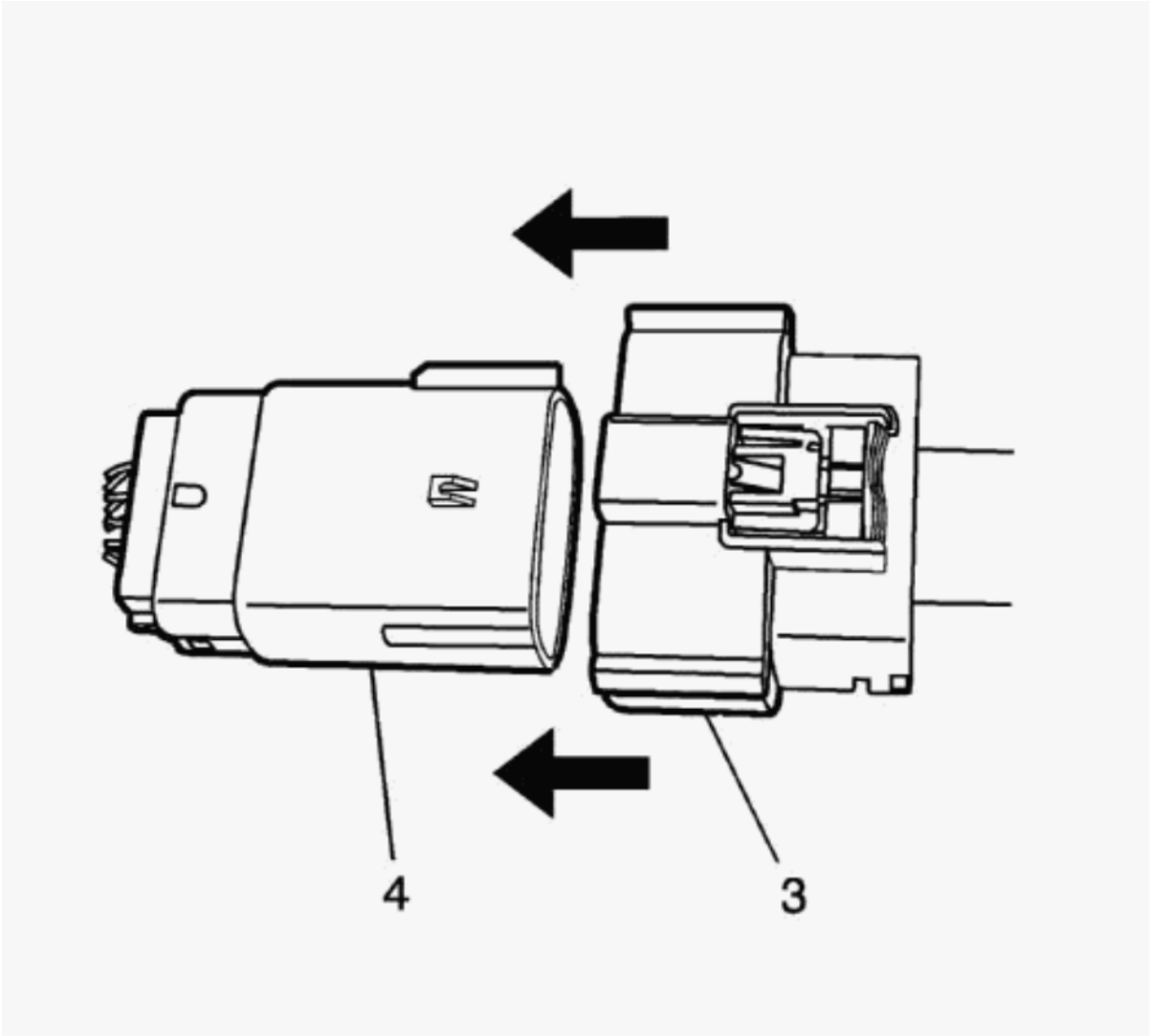

Fig. 47: Female Connector And Male Connector
Courtesy of GENERAL MOTORS COMPANY

1. Align the female connector [3] to the male connector [4] locking feature and push them together until fully engaged.

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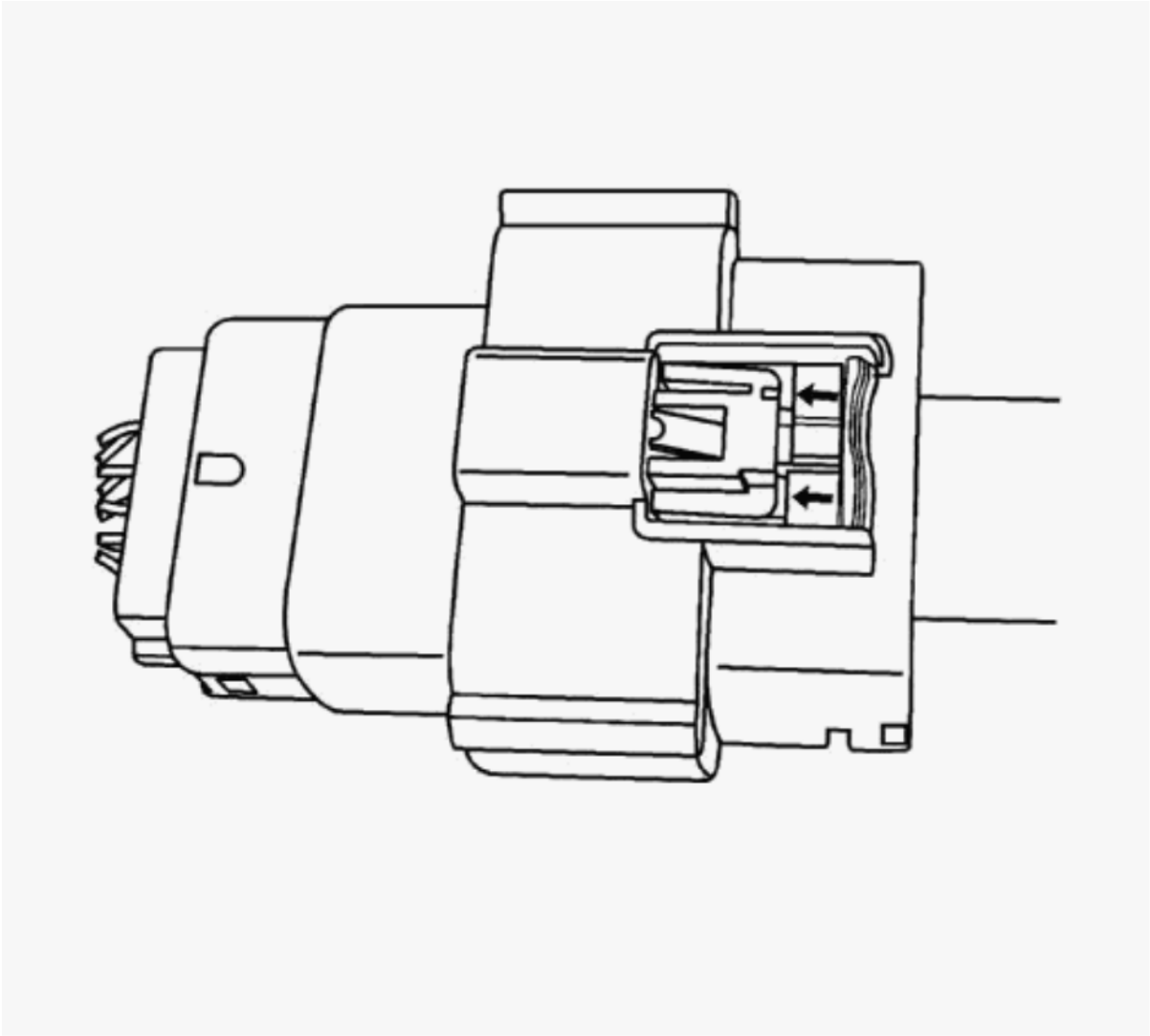

Fig. 48: Red CPA (Connector Position Assurance)
Courtesy of GENERAL MOTORS COMPANY

2. Push in the red CPA (Connector Position Assurance) on the female chassis harness signal connector to lock them securely.

DELPHI CONNECTORS (WEATHER PACK)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-10A** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

The following is the proper procedure for the repair of Weather PackÂ® Connectors.

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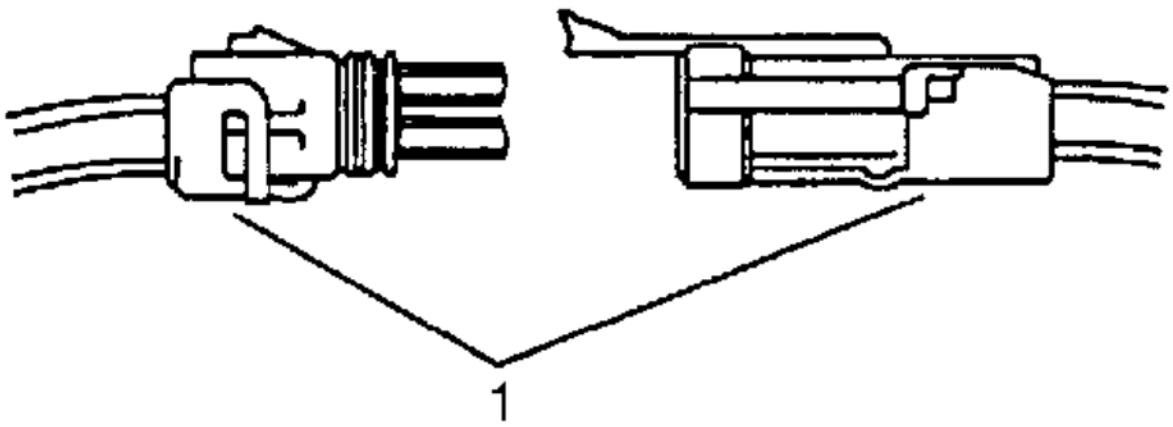

Fig. 49: View Of Connector Halves
Courtesy of GENERAL MOTORS COMPANY

1. Separate the connector halves (1).
2. Open the secondary lock. A secondary lock aids in terminal retention and is usually molded to the connector (1).
3. Grasp the wire and push the terminal to the forward most position. Hold the wire in this position.

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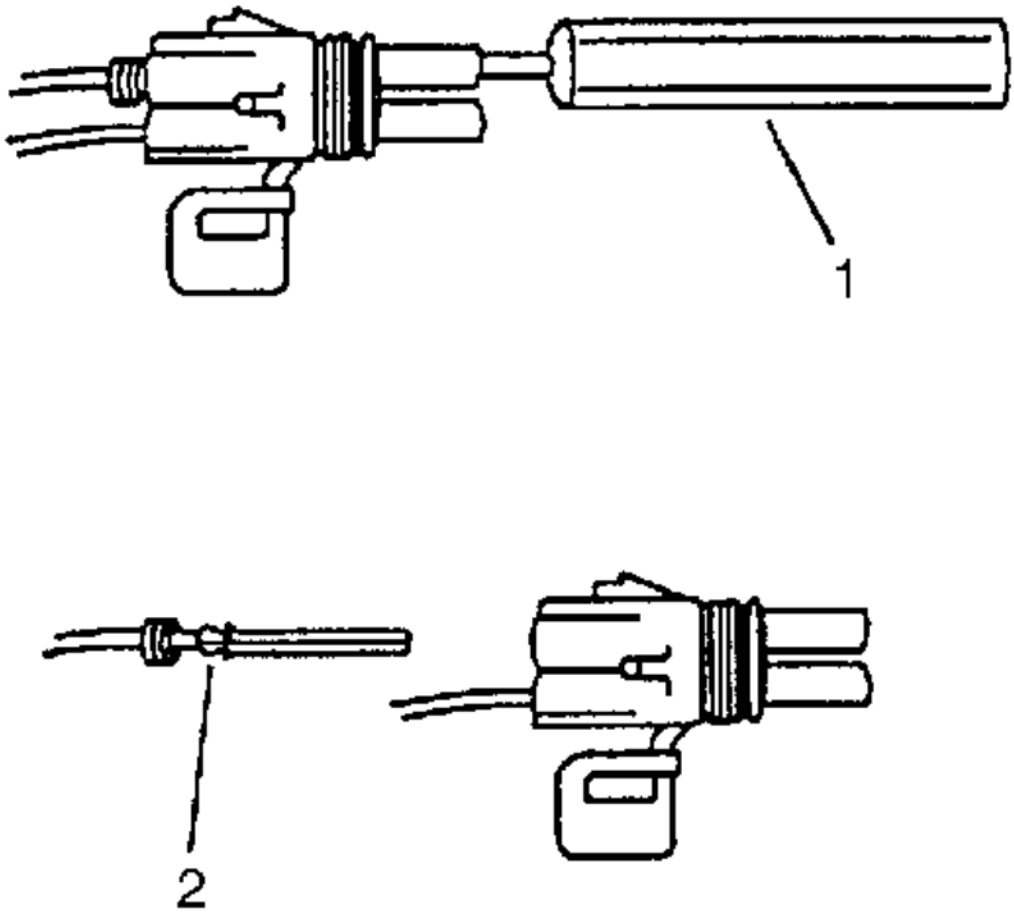

Fig. 50: Identifying Removal Tool & Terminal
Courtesy of GENERAL MOTORS COMPANY

4. Insert the Weather PackÂ® terminal removal tool J-38125-10A into the front (mating end) of the connector cavity until it rests on the cavity shoulder (1).
5. Gently pull on the wire to remove the terminal through the back of the connector (2).

NOTE: **Never use force to remove a terminal from a connector.**

6. Inspect the terminal and connector for damage. Repair as necessary. Refer to **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)**.
7. Reform the lock tang (2) and reset terminal in connector body.
8. Close secondary locks and join connector halves.
9. Verify that circuit is complete and working satisfactorily.
10. Perform system check.
11. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead**

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Repair)Repairing Connector Terminals (Terminal Repair) procedure.

12. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

DELPHI CONNECTORS (PUSH TO SEAT)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

Follow the steps below in order to repair push to seat connectors.

1. Remove the terminal position assurance (TPA) device, the connector position assurance (CPA) device, and/or the secondary lock.

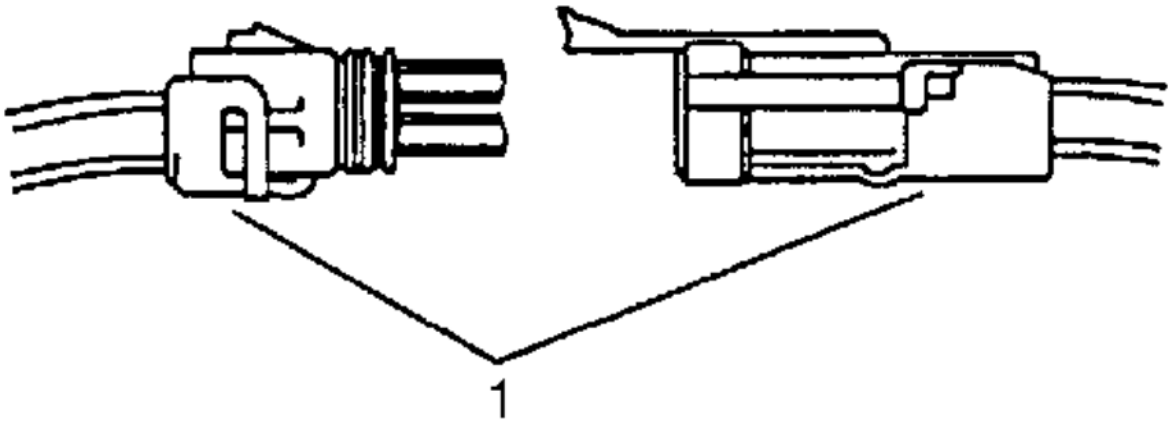

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Fig. 51: View Of Connector Halves
Courtesy of GENERAL MOTORS COMPANY

2. Separate the connector halves (1).

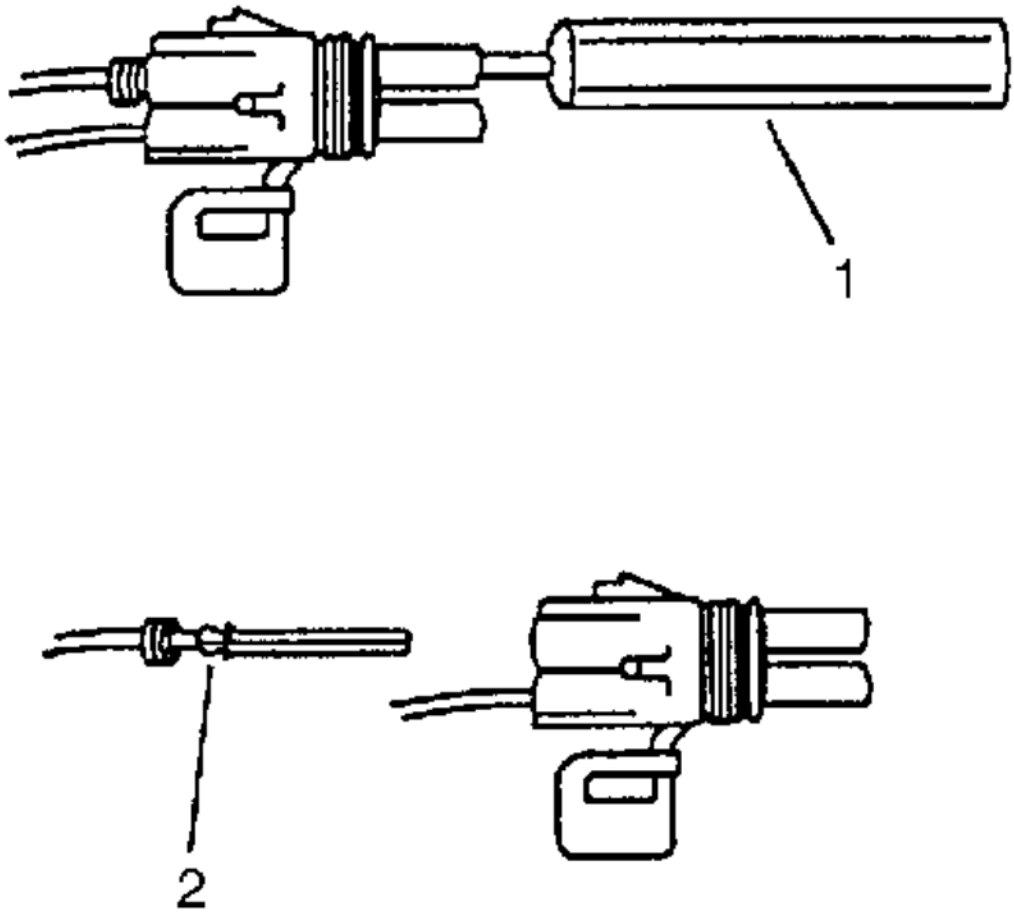

Fig. 52: Identifying Removal Tool & Terminal
Courtesy of GENERAL MOTORS COMPANY

3. Use the proper pick or removal tool (1) in order to release the terminal.
4. Gently pull the cable and the terminal (2) out of the back of the connector.

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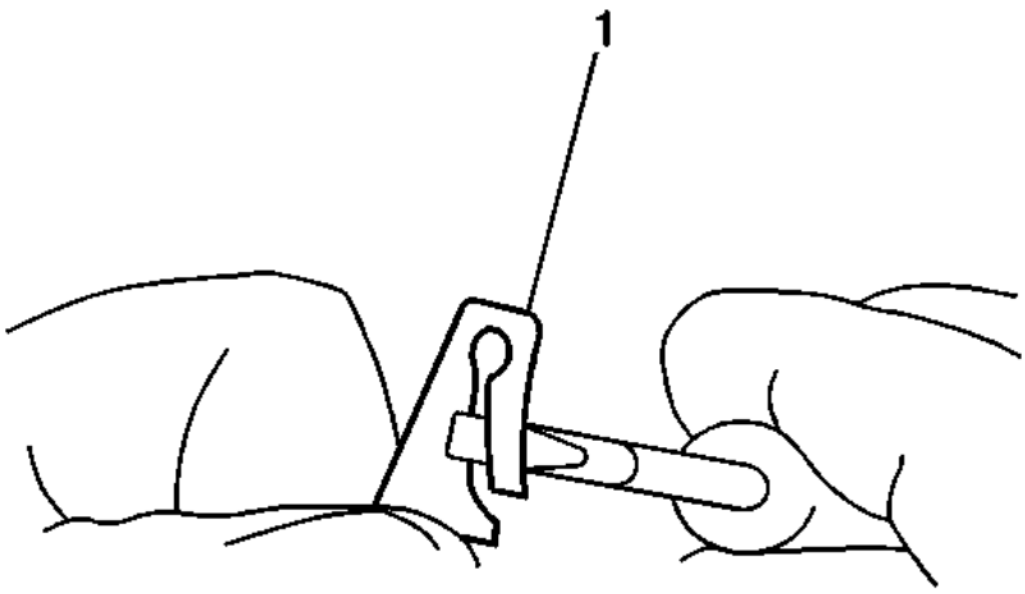

Fig. 53: Identifying Locking Device
Courtesy of GENERAL MOTORS COMPANY

5. Re-form the locking device if you are going to reuse the terminal (1).
6. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
7. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

Terminal Insertion Procedure

1. In order to reuse a terminal or lead assembly, refer to **Wiring Repairs** .
2. Ensure that the cable seal is kept on the terminal side of the splice.
3. Insert the lead from the back until it catches.
4. Install the TPA, CPA, and/or the secondary locks.

DELPHI CONNECTORS (PULL TO SEAT)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit

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- **EL-38125-580** Terminal Release Tool Kit

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

If the terminal is visibly damaged or is suspected of having a faulty connection, the terminal should be replaced.

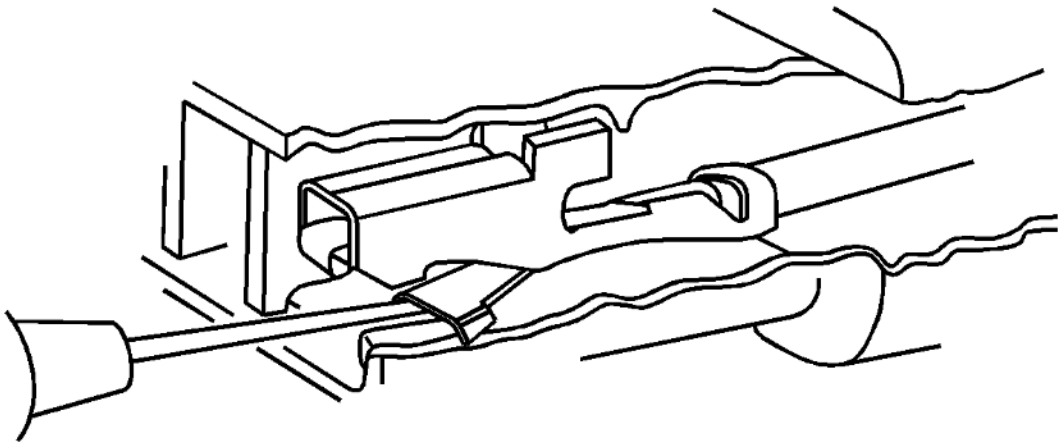

Fig. 54: Aligning Removal Tool - Delphi (Pull To Seat)
Courtesy of GENERAL MOTORS COMPANY

Follow the steps below in order to repair pull-to-seat connectors:

1. Remove the connector position assurance (CPA) device and/or the secondary lock.
2. Disconnect the connector from the component or separate the connectors for in-line connectors.
3. Remove the terminal position assurance (TPA) device.
4. Review the connector end view to determine the proper test probe and release tool.
5. Insert the release tool into the front of the connector body.
6. Grasp the wire at the back of the connector body and gently push the terminal out the front of the connector body.

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7. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
8. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

Terminal Insertion Procedure

1. Align the terminal and pull the wire from the back of the connector in order to seat the terminal.
2. If the connector is outside of the passenger compartment, apply dielectric grease to the connector.
3. Install the TPA, CPA, and/or the secondary locks.

DELPHI CONNECTORS (MICRO-PACK 100W)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-12A** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

There are 2 styles of Micro-Pack 100W connectors. These connectors are very similar but use different terminals and have some minor physical differences also.

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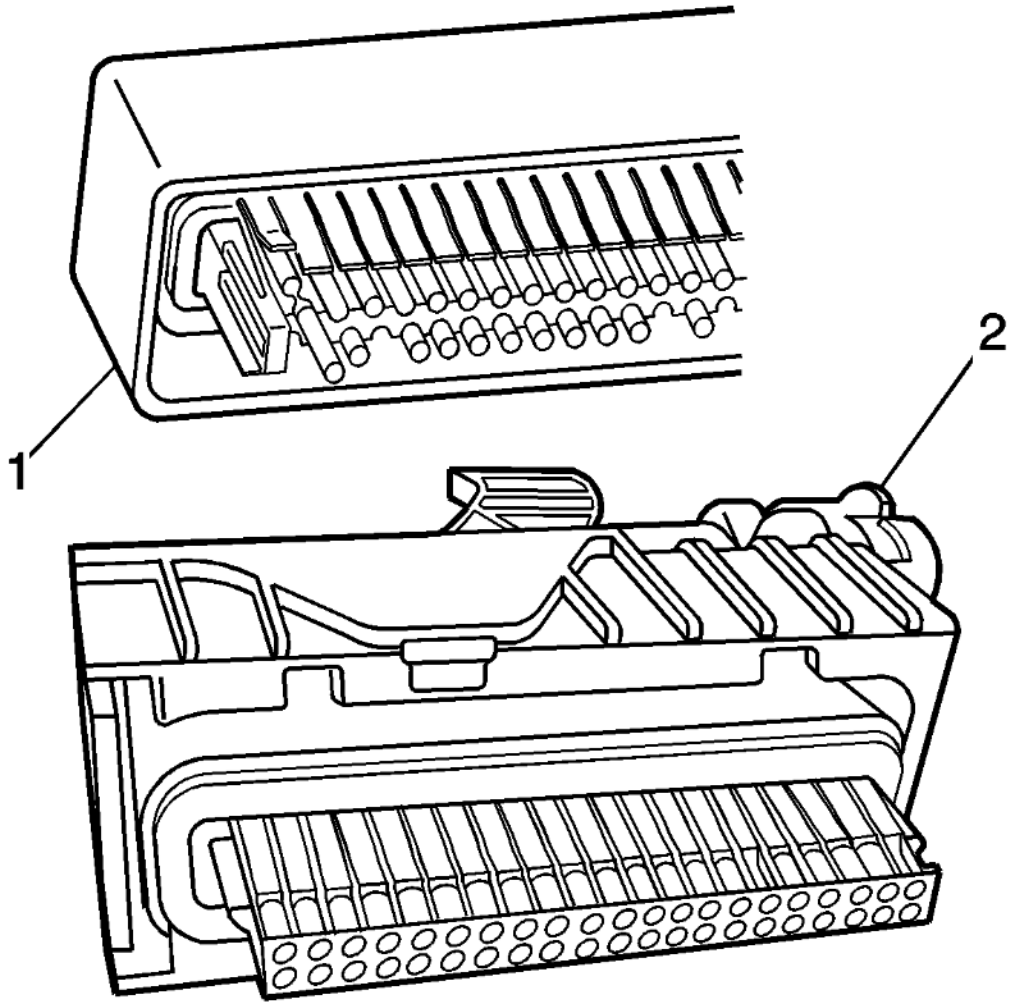

Fig. 55: Identifying Micro-Pack 100W First & Second Connector Designs
Courtesy of GENERAL MOTORS COMPANY

The first connector design of the Micro-Pack 100W (1) has a white connector interface that holds the terminals. The second design of the Micro-Pack 100W (2) has a gray interface to hold the terminals. Also, the first design has terminal cavities that are further apart (3 mm centerline) and offset from the other row of terminal cavities in the connector. The second design has terminals cavities that are closer together (2.54 mm centerline) and aligned vertically. One other way to identify the second design is the thin strip of material that runs along the outside of the cavities.

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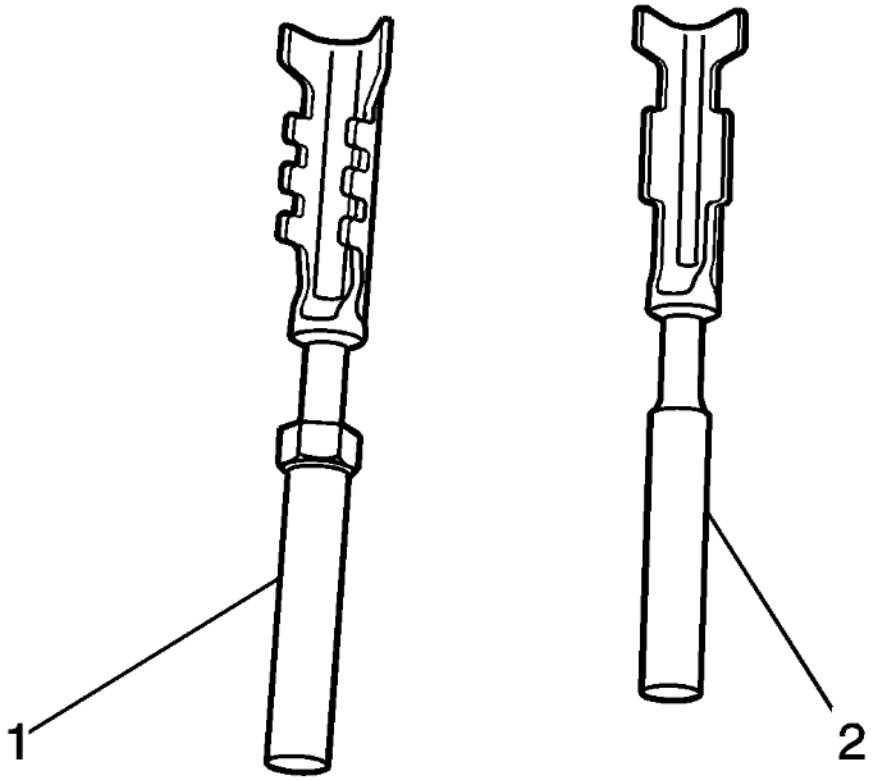

Fig. 56: Identifying Micro-Pack 100W Short & Long Terminals
Courtesy of GENERAL MOTORS COMPANY

NOTE: **There are 2 styles of Micro-Pack 100W terminals which are very similar. Ensure that you have the correct terminal before crimping the new terminal to the wire. The first design connector uses the longer terminal (1) that has a raised area in front of the recess in the terminal. The second design connector uses the shorter terminal without the raised area.**

Follow the steps below in order to remove terminals from Micro-Pack 100W connectors. Some Micro-Pack 100W connector disassembly procedures will vary. Use this procedure as a guide.

1. Disconnect the connector from the component.

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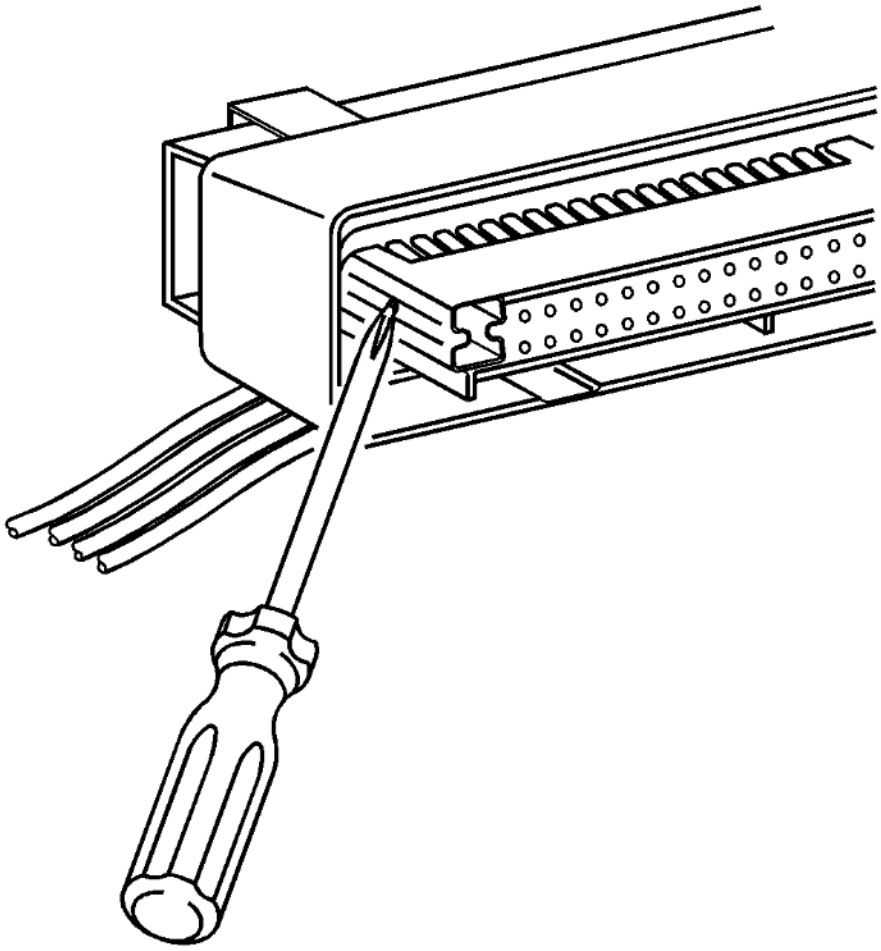

Fig. 57: Locating Nose Piece Locking Tabs
Courtesy of GENERAL MOTORS COMPANY

2. Locate the nose piece locking tabs that are positioned on the side of the connector nose piece. The connector nose piece acts as a terminal positive assurance (TPA) and may be referred to as such.

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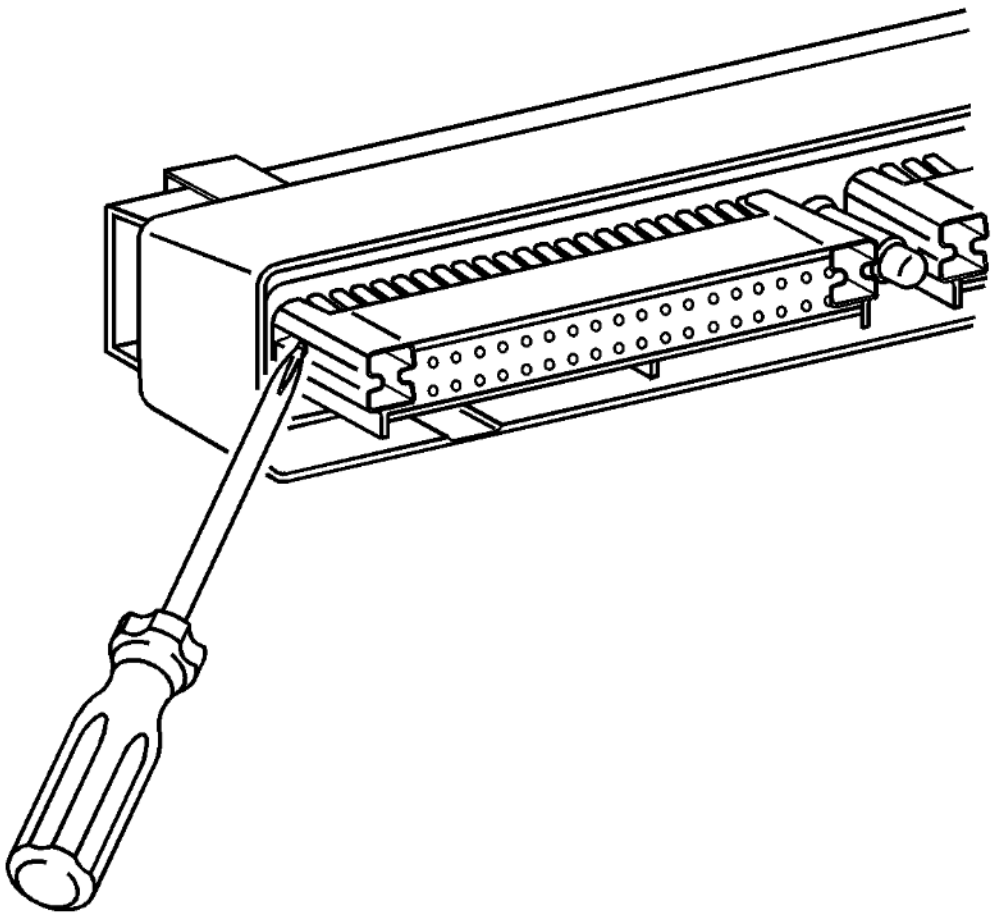

Fig. 58: Loosening Nose Piece Locking Tabs
Courtesy of GENERAL MOTORS COMPANY

3. Use a small flat-blade tool to push in one of the locking tabs while gently pulling on the same side of the nose piece.
4. Repeat the procedure for the other locking tab and remove the nose piece.
5. Remove the wire dress cover. The following is a general procedure for wire dress cover removal. Use this procedure as a guide, some dress cover removal procedures may vary.

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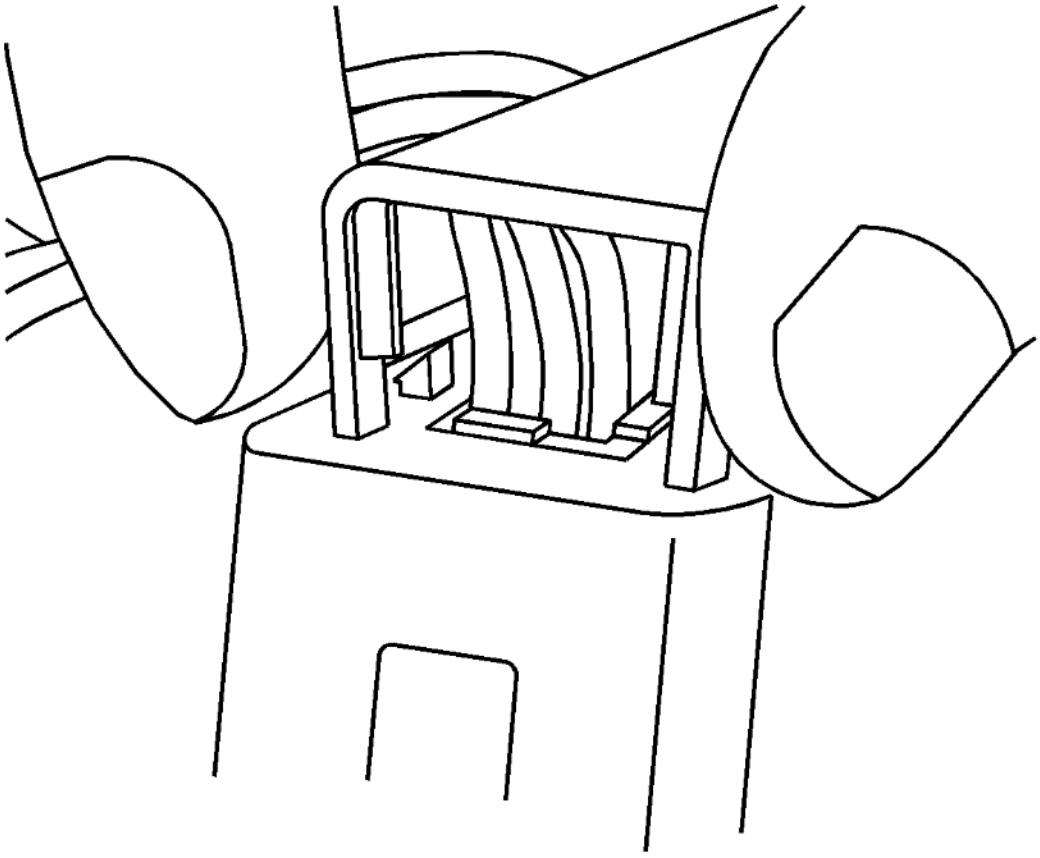

Fig. 59: Squeezing Cover Locking Legs
Courtesy of GENERAL MOTORS COMPANY

6. Use fingers to squeeze the 2 locking legs of the cover.

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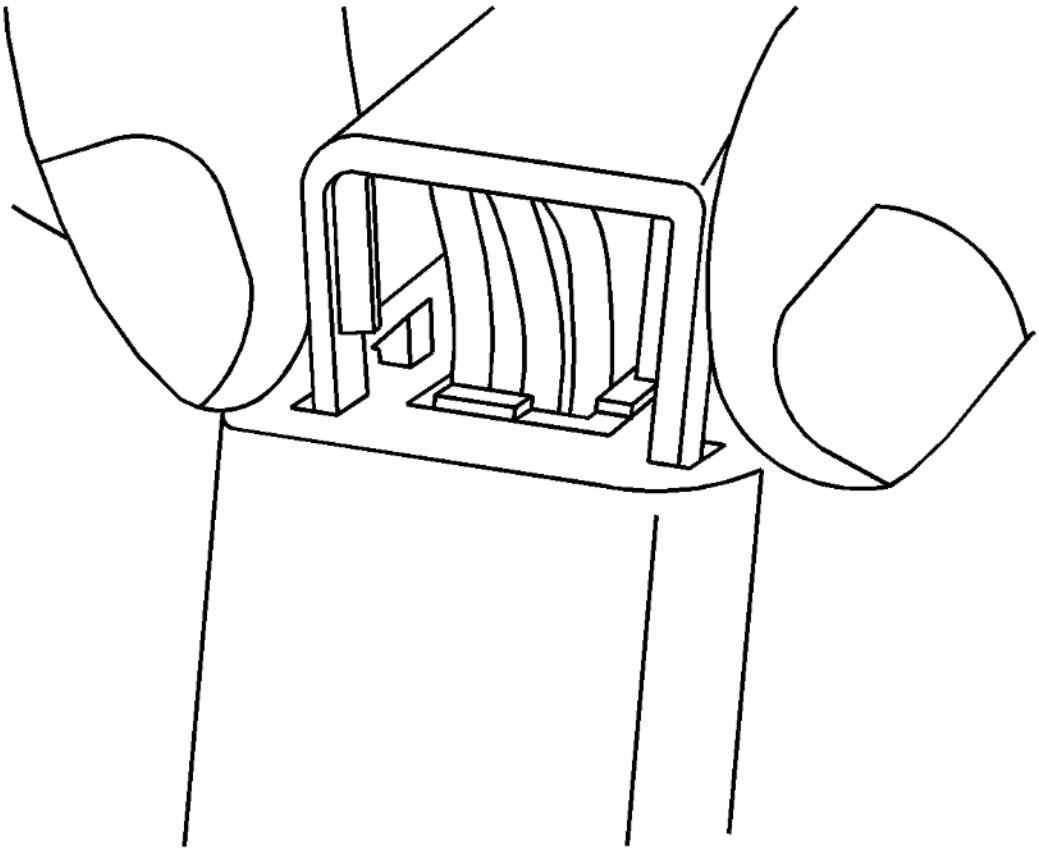

Fig. 60: Unseating Locking Leg
Courtesy of GENERAL MOTORS COMPANY

7. Apply pressure and gently rock the cover until one locking leg is unseated.

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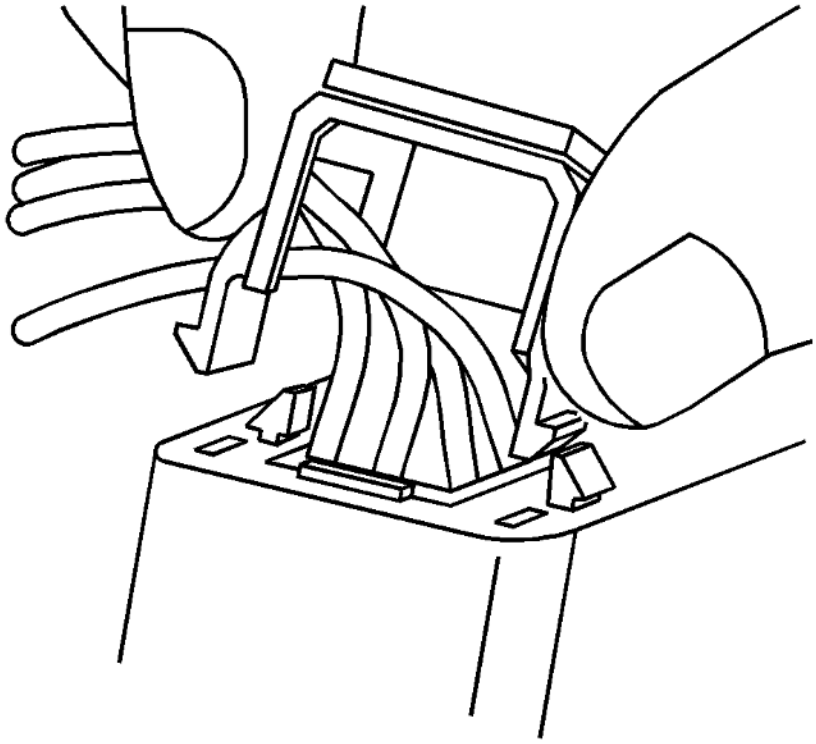

Fig. 61: Removing Cover
Courtesy of GENERAL MOTORS COMPANY

8. Continue to apply pressure and rock the cover until the second locking leg is unseated. Repeat procedure for the other side of the dress cover and remove the cover.

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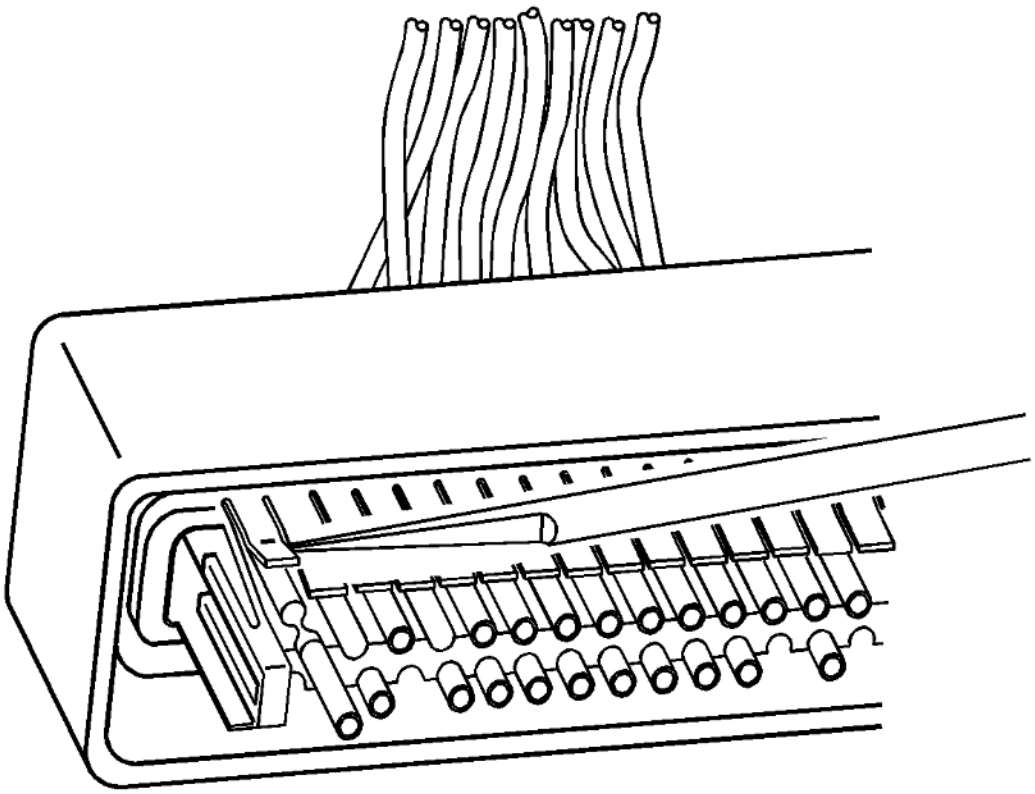

Fig. 62: Identifying Terminal Retaining Tab
Courtesy of GENERAL MOTORS COMPANY

9. Use J-38125-12A to gently lift the terminal retaining tab while gently pulling the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
10. If the terminal is severely bent or damaged, it may be possible on some connectors to push the wire out of the front of the connector instead of pulling it through. This will prevent damage to the internal seals of the connector. Once the terminal is pushed out of the connector, cut the wire as close to the terminal as possible and pull the wire through the connector.
11. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
12. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

Terminal Insertion Procedure

After the terminal is crimped to the wire perform the following procedure in order to replace Micro-Pack 100 terminals.

1. Slide the new terminal into the correct cavity at the back of the connector.
2. Push the terminal into the connector until it locks into place. The new terminal should be even with the

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other terminals. Ensure that the terminal is locked in place by gently pulling on the wire.

3. To assemble the connector, reverse the Terminal Removal Procedure.

DELPHI CONNECTORS (MICRO .64)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-21** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

Follow the steps below in order to remove terminals from Micro .64 connectors.

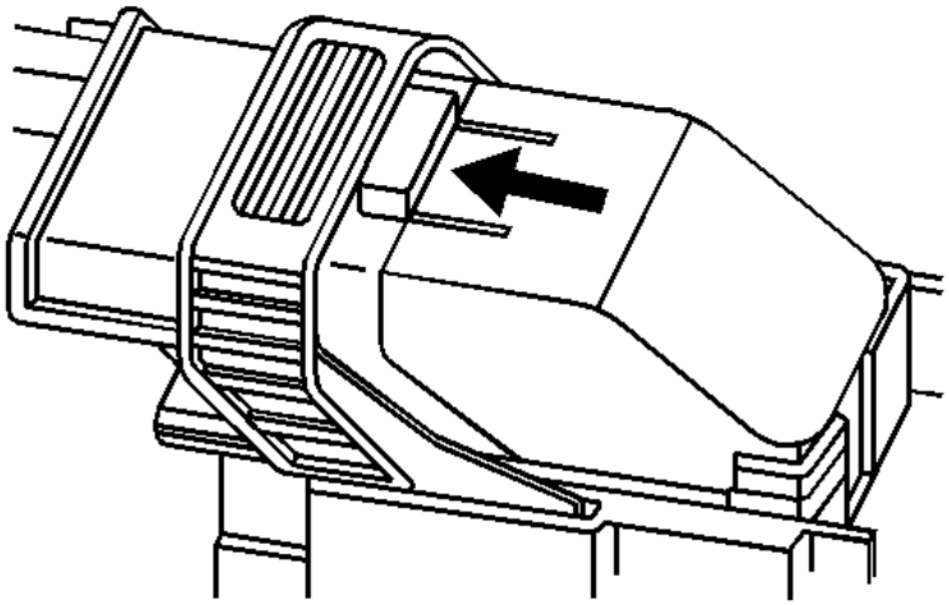

Fig. 63: Identifying Wire Dress Cover Lever Lock
Courtesy of GENERAL MOTORS COMPANY

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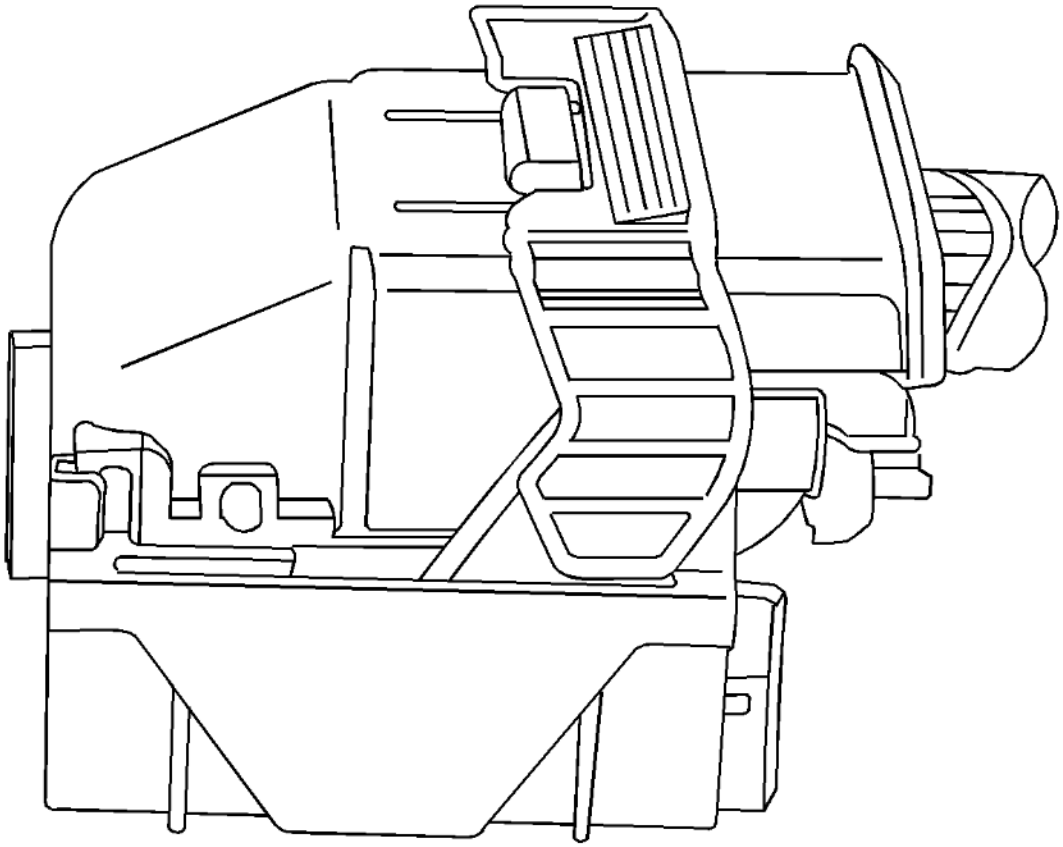

Fig. 64: View Of Typical Micro 64 Connector
Courtesy of GENERAL MOTORS COMPANY

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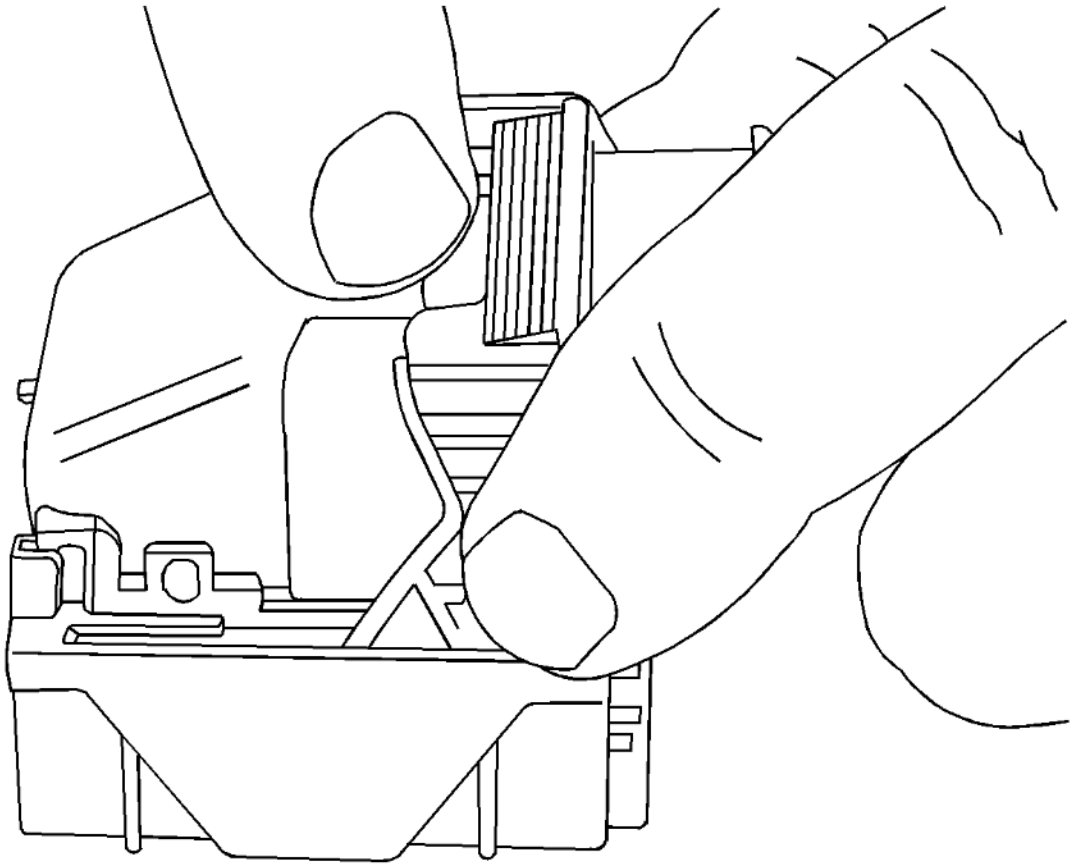

Fig. 65: Depressing Lock And Pulling Lever
Courtesy of GENERAL MOTORS COMPANY

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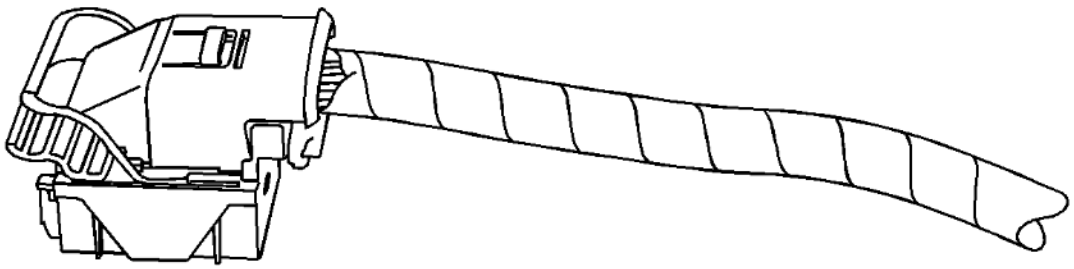

Fig. 66: View Of Connector When Released From Component
Courtesy of GENERAL MOTORS COMPANY

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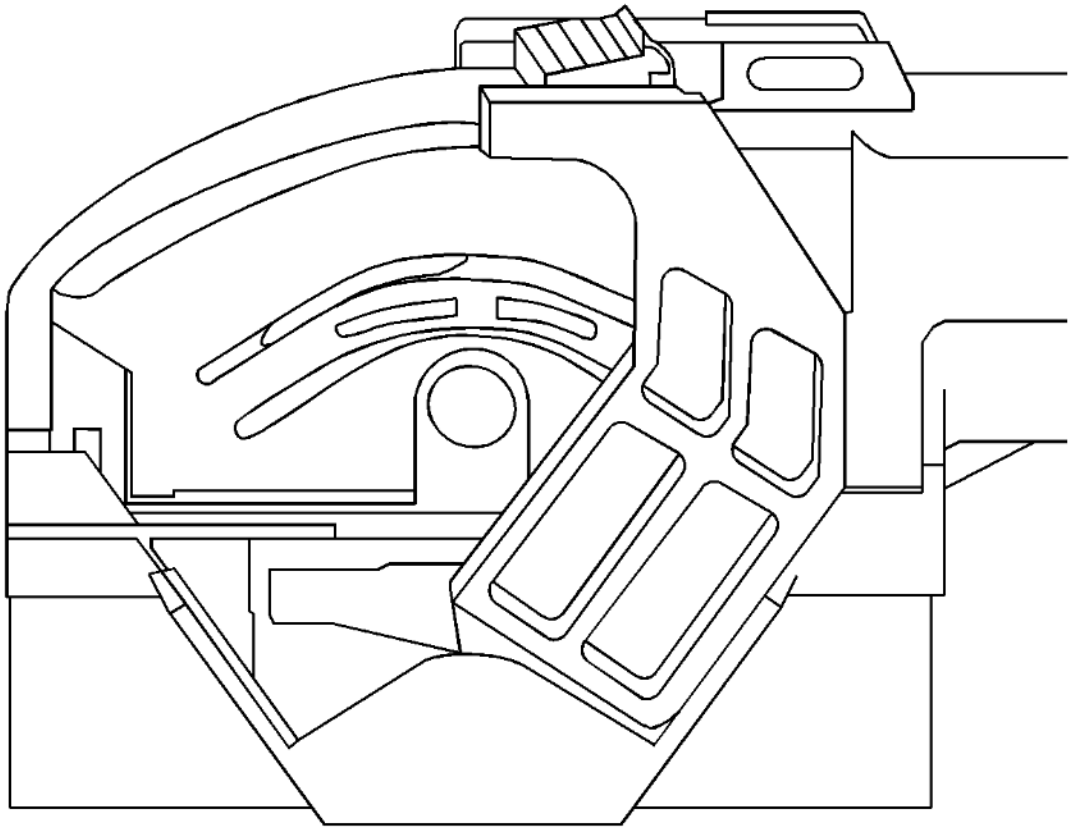

Fig. 67: View Of Another Type Of Micro 64 Connector
Courtesy of GENERAL MOTORS COMPANY

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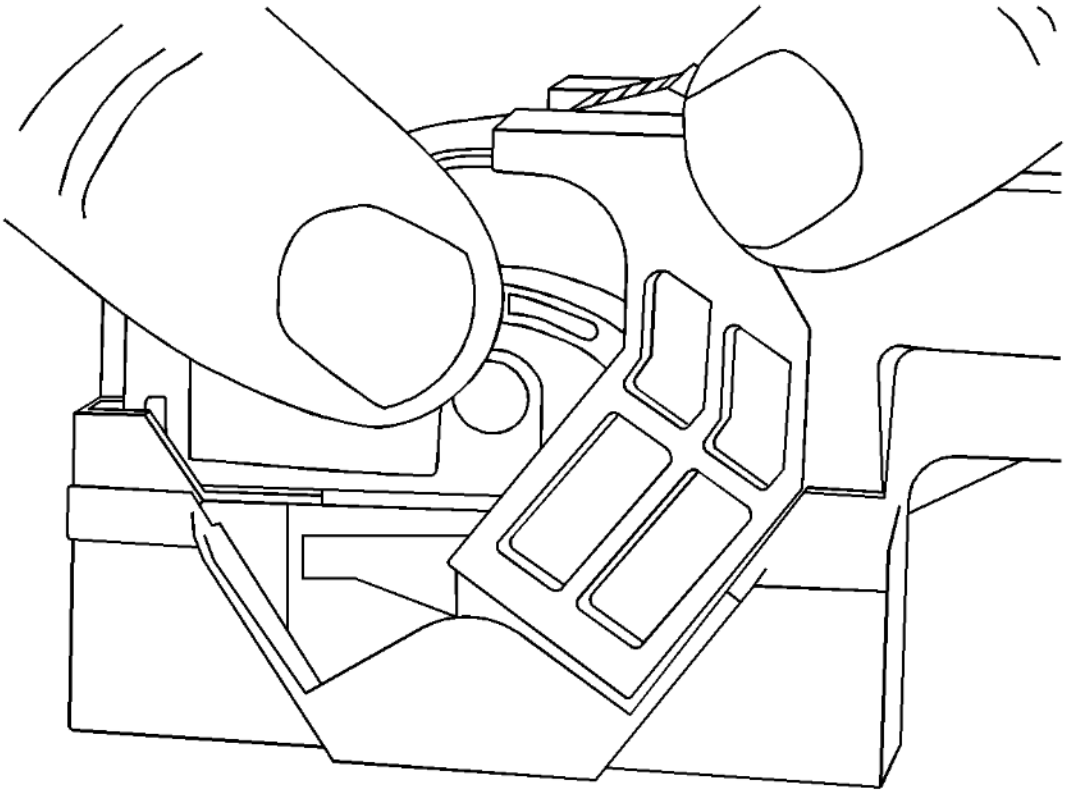

Fig. 68: Locating Locks On Both Sides Of Wiredress Cover
Courtesy of GENERAL MOTORS COMPANY

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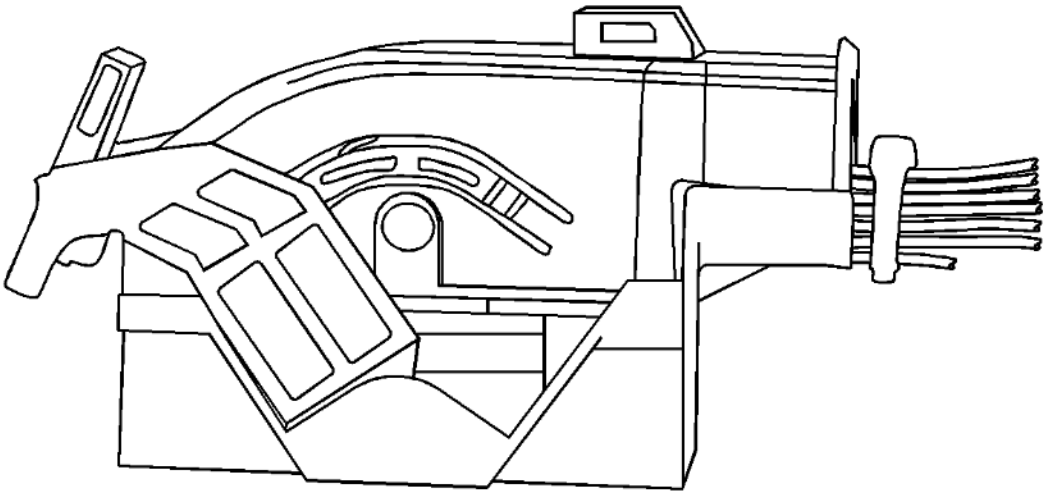

Fig. 69: View Of Connector When Released From Component
Courtesy of GENERAL MOTORS COMPANY

1. Locate the lever lock on the wire dress cover. While depressing the lock, pull the lever over and past the lock. The lever lock may be located on the top or sides of the wire dress cover.

   View of a typical Micro 64 connector.

   Depress the lock and pull the lever over and past the lock.

   View of the connector when released from the component.

   View of another type of Micro 64 connector.

   Depress the locks that are located on both sides of the wire dress cover and pull the lever over and past the locks.

   View of the connector when released from the component.

2. Disconnect the connector from the component.

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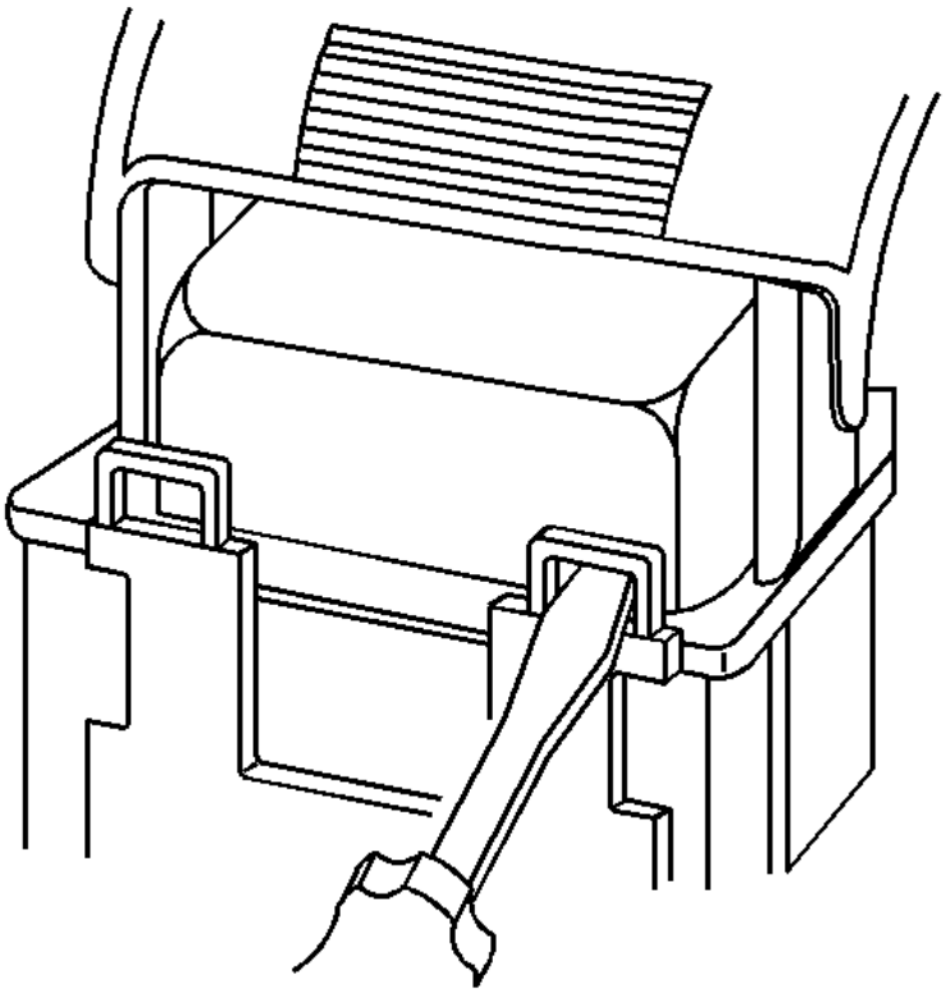

Fig. 70: View Of Releasing Locking Tabs
Courtesy of GENERAL MOTORS COMPANY

3. Locate the dress cover locking tabs at the front of the connector. Using a small flat-blade tool push down on one of the locking tabs and pull the cover up until the dress cover releases. Repeat this procedure for the other locking tab.
4. Once the front 2 locks are unlocked, lift the front of the dress cover and pull it forward.

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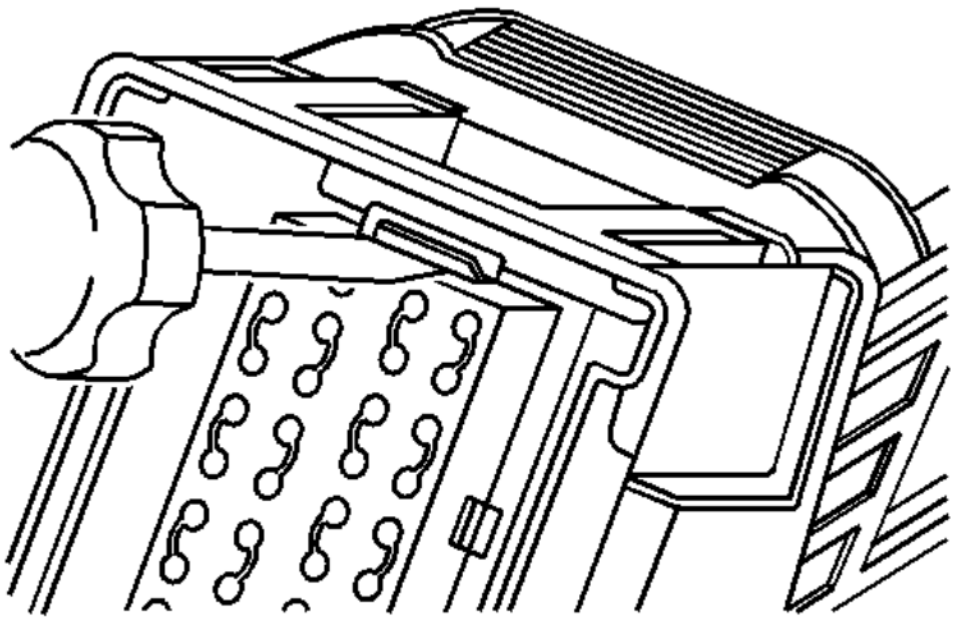

Fig. 71: View Of Removing Terminal Position Assurance
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Always use care when removing a terminal position assurance (TPA) in order to avoid damaging it.**

5. Remove the TPA by inserting a small flat-blade tool into the small slot on the TPA and pushing down until the TPA releases. Gently pry the TPA out of the connector.

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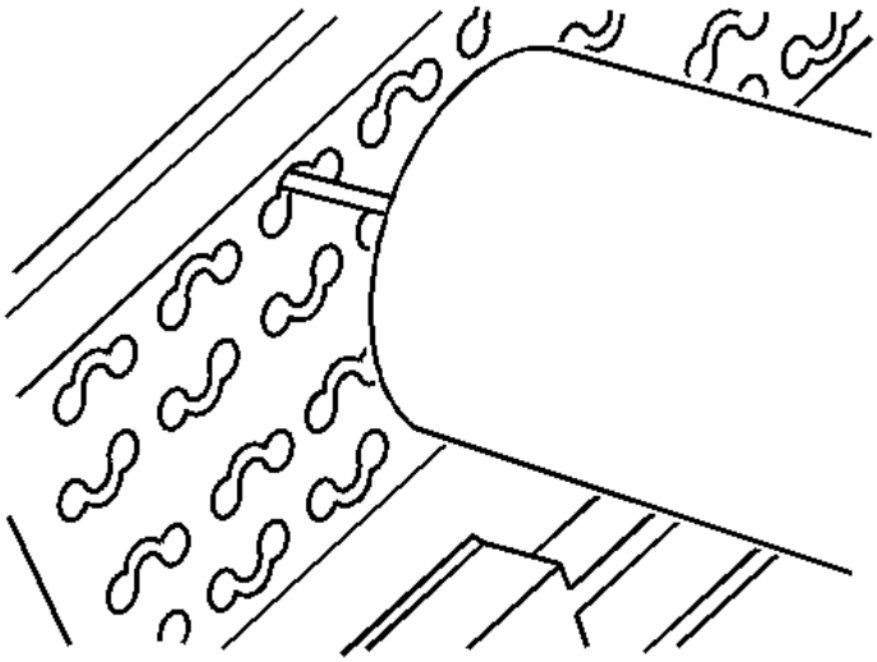

Fig. 72: Identifying Terminal Release Tool
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Be careful not to angle or rock the J-38125-21 tool when inserting it into the connector or the tool may break.**

6. Insert the J-38125-21 tool into the round canal between the terminals cavities at the front of the connector.

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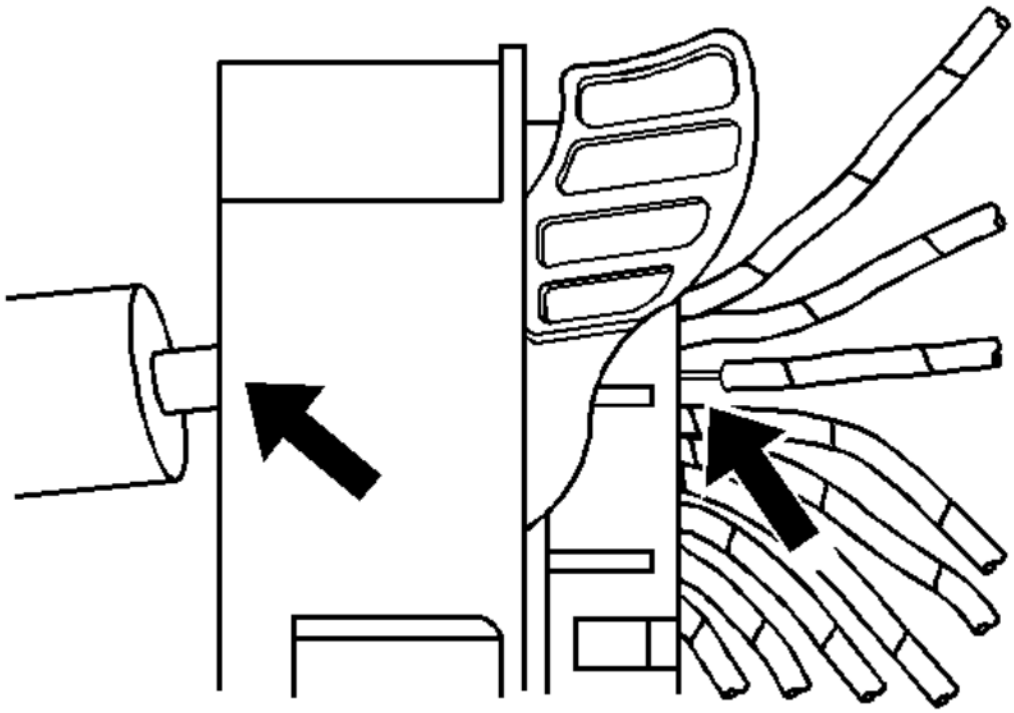

Fig. 73: Removing Wire From Back Of Connector
Courtesy of GENERAL MOTORS COMPANY

7. While holding the removal tool in place, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
8. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
9. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

DELPHI CONNECTORS (12-WAY)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-12A** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

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Follow the steps below in order to remove terminals from the connector.

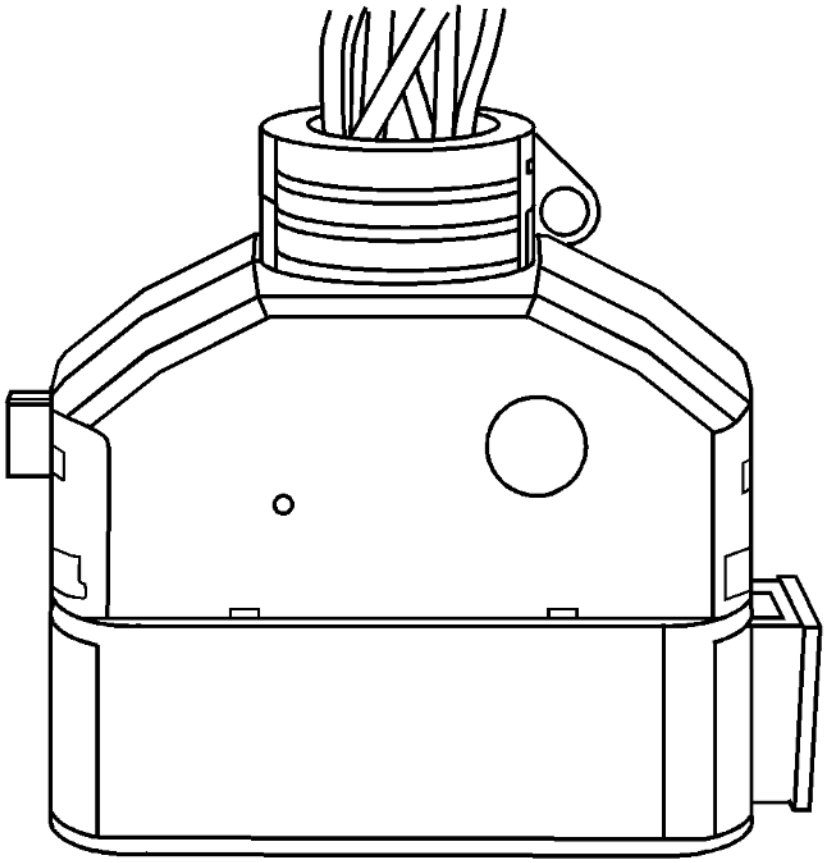

Fig. 74: Identifying Lever Lock
Courtesy of GENERAL MOTORS COMPANY

1. Locate the lever lock on the wire dress cover. Remove the connector position assurance (CPA) and slide the lever lock away from the connector body.
2. Disconnect the connector from the component.

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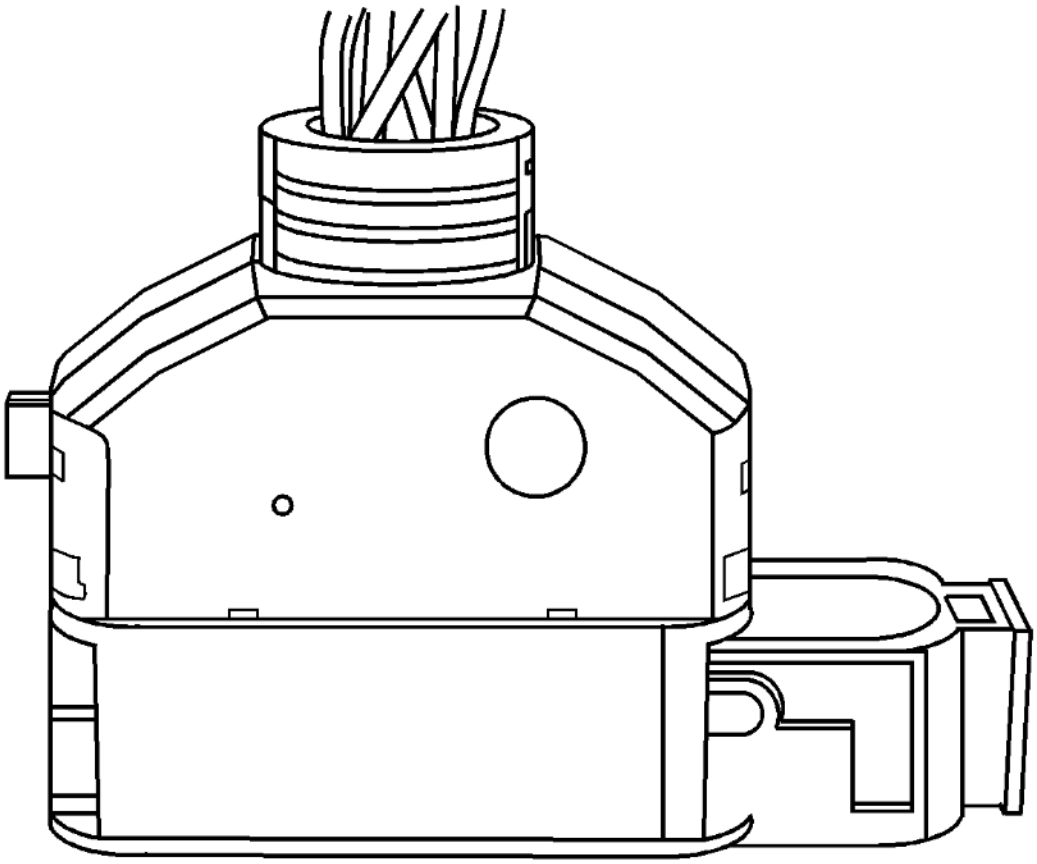

Fig. 75: Identifying Dress Cover Locking Tabs
Courtesy of GENERAL MOTORS COMPANY

3. Locate the dress cover locking tabs on the dress cover of the connector. Using a small flat-blade tool release all of the locking tabs.

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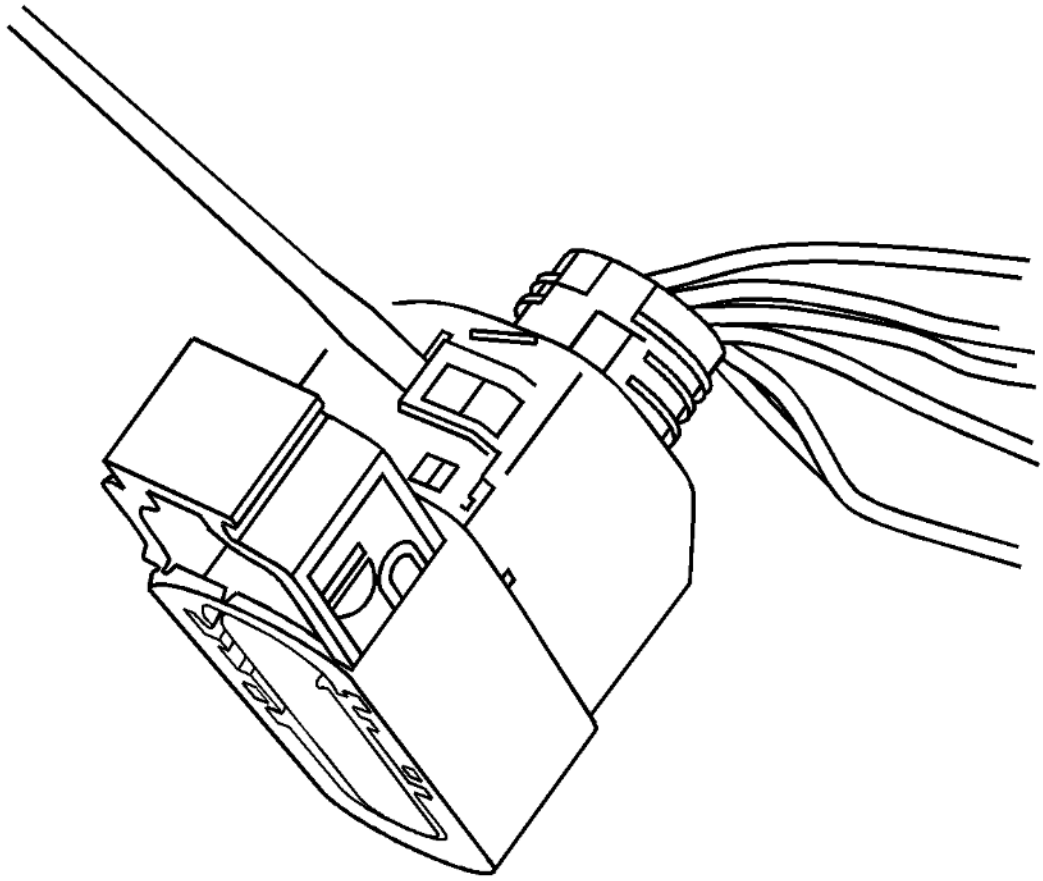

Fig. 76: Identifying Lower Wire Dress Cover Locking Tab
Courtesy of GENERAL MOTORS COMPANY

4. Release the lower wire dress cover locking tab.

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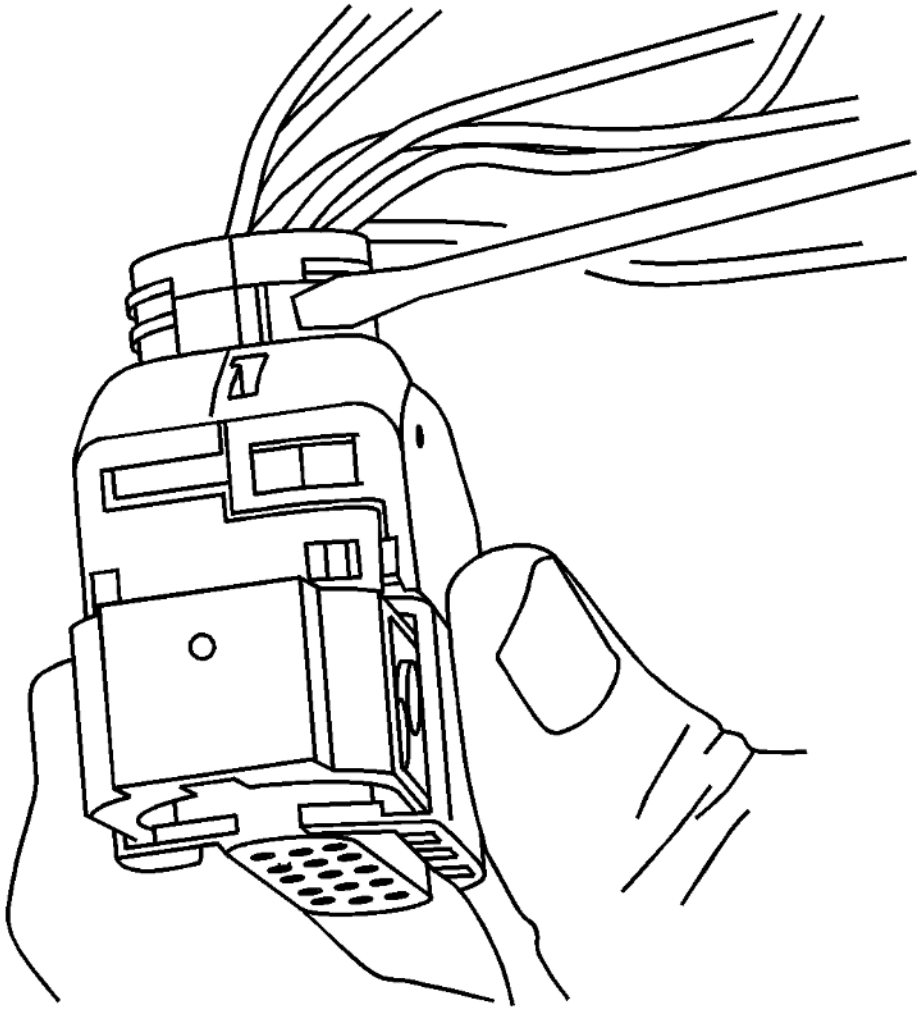

Fig. 77: Identifying Upper Wire Dress Cover Locking Tab
Courtesy of GENERAL MOTORS COMPANY

5. Release the upper wire dress cover locking tab.
6. Once the locks are unlocked, lift the dress cover off.

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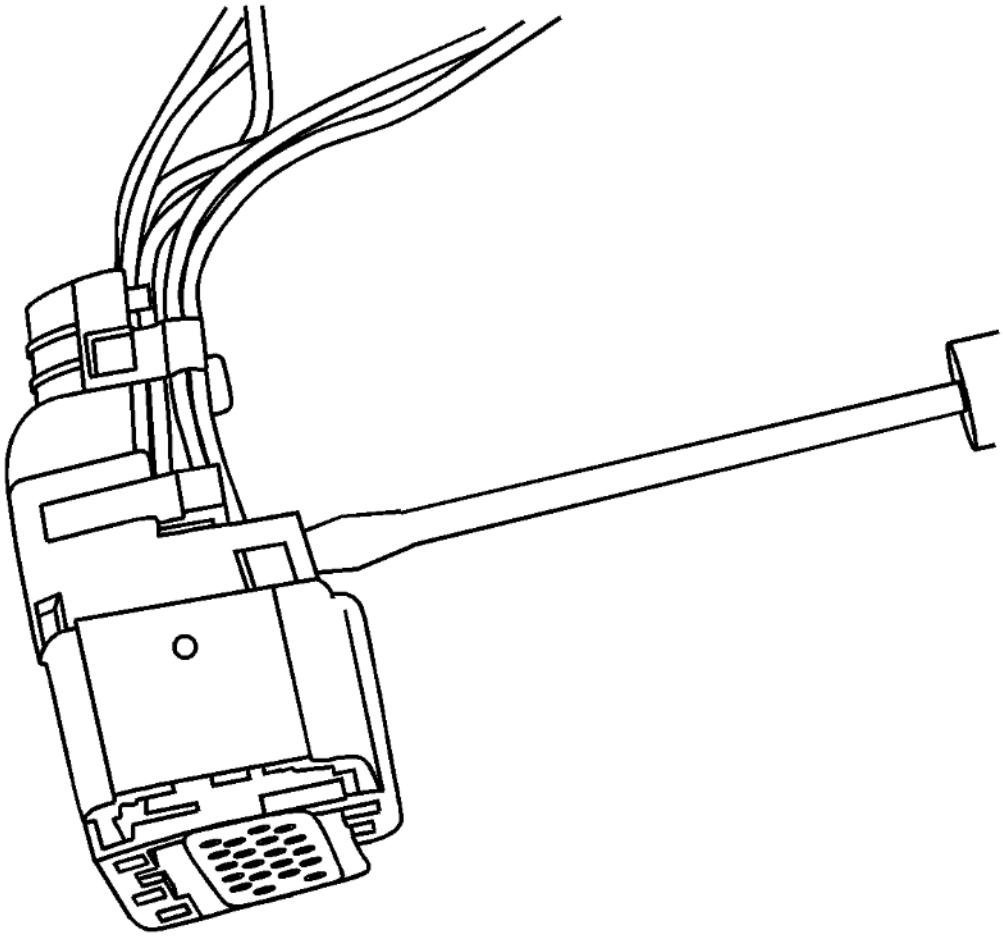

Fig. 78: View Of TPA Being Pried Out Of Connector
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Always use care when removing a terminal position assurance (TPA) in order to avoid damaging it.**

7. Remove the TPA by inserting a small flat-blade tool into the locking tabs on both sides of the TPA . Gently pry the TPA out of the connector.

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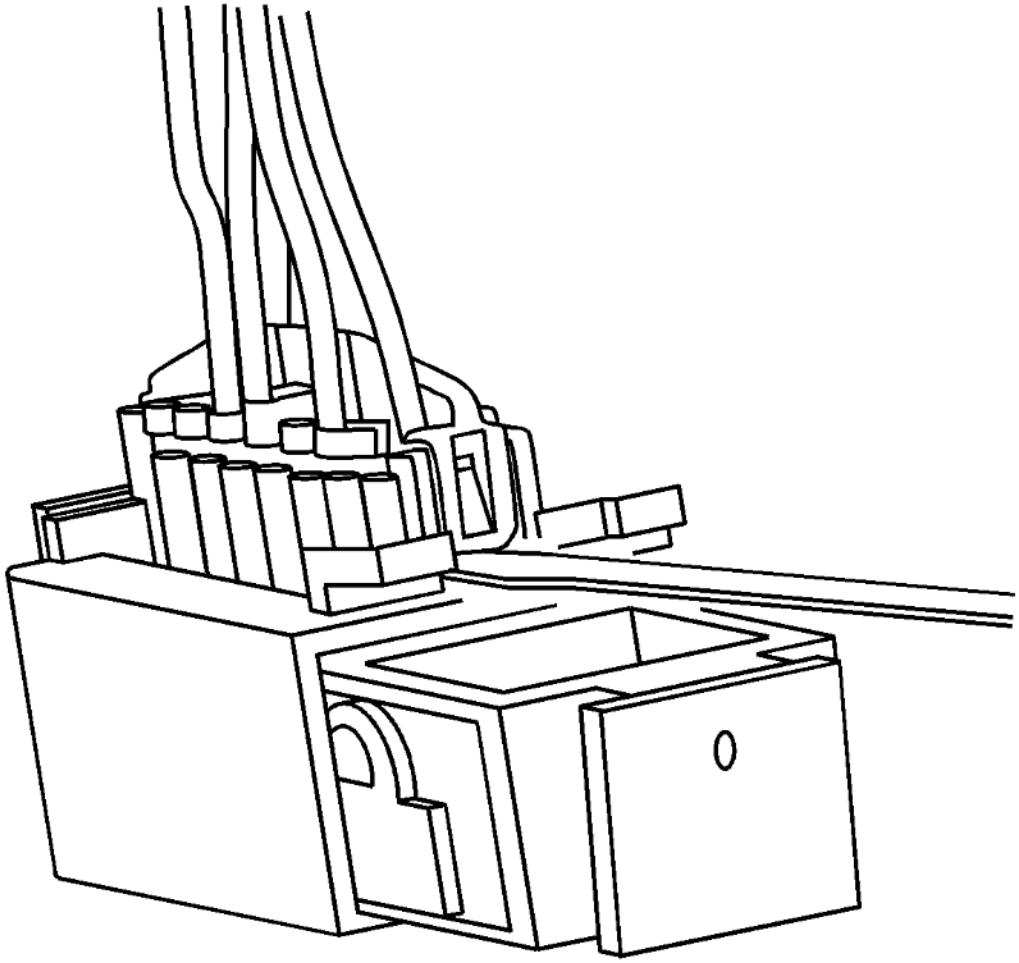

Fig. 79: Removing Nose Piece
Courtesy of GENERAL MOTORS COMPANY

8. Remove the nose piece by inserting a small flat-blade tool into the locking tabs on both sides of the nose piece. Gently pry the nose piece out of the connector.

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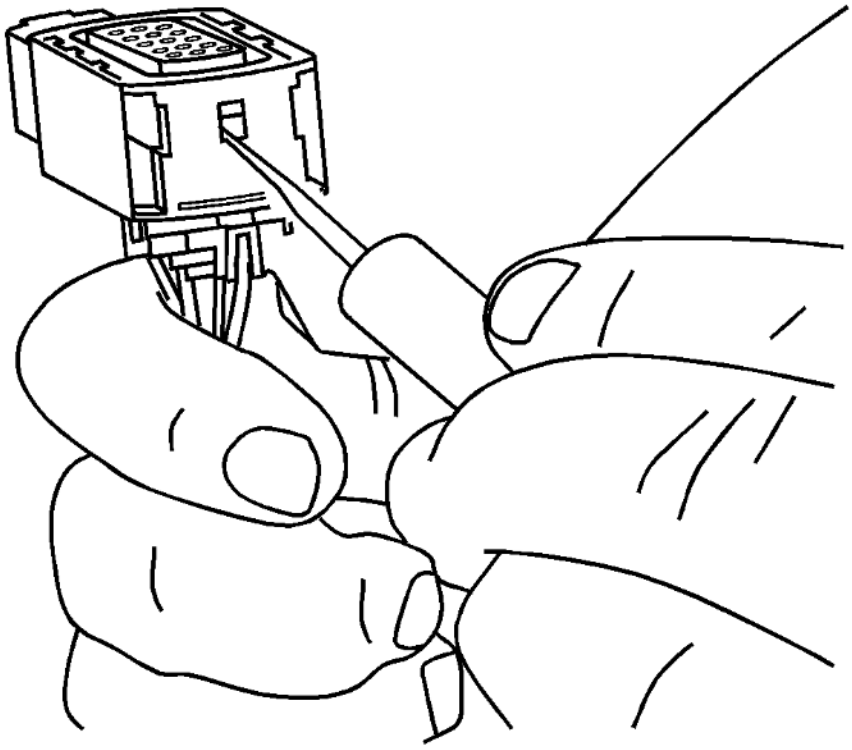

Fig. 80: Inserting Special Tool Into Terminal Release Cavity
Courtesy of GENERAL MOTORS COMPANY

9. Insert the J-38125-12A tool to release the terminals by inserting the tool into the terminal release cavity.

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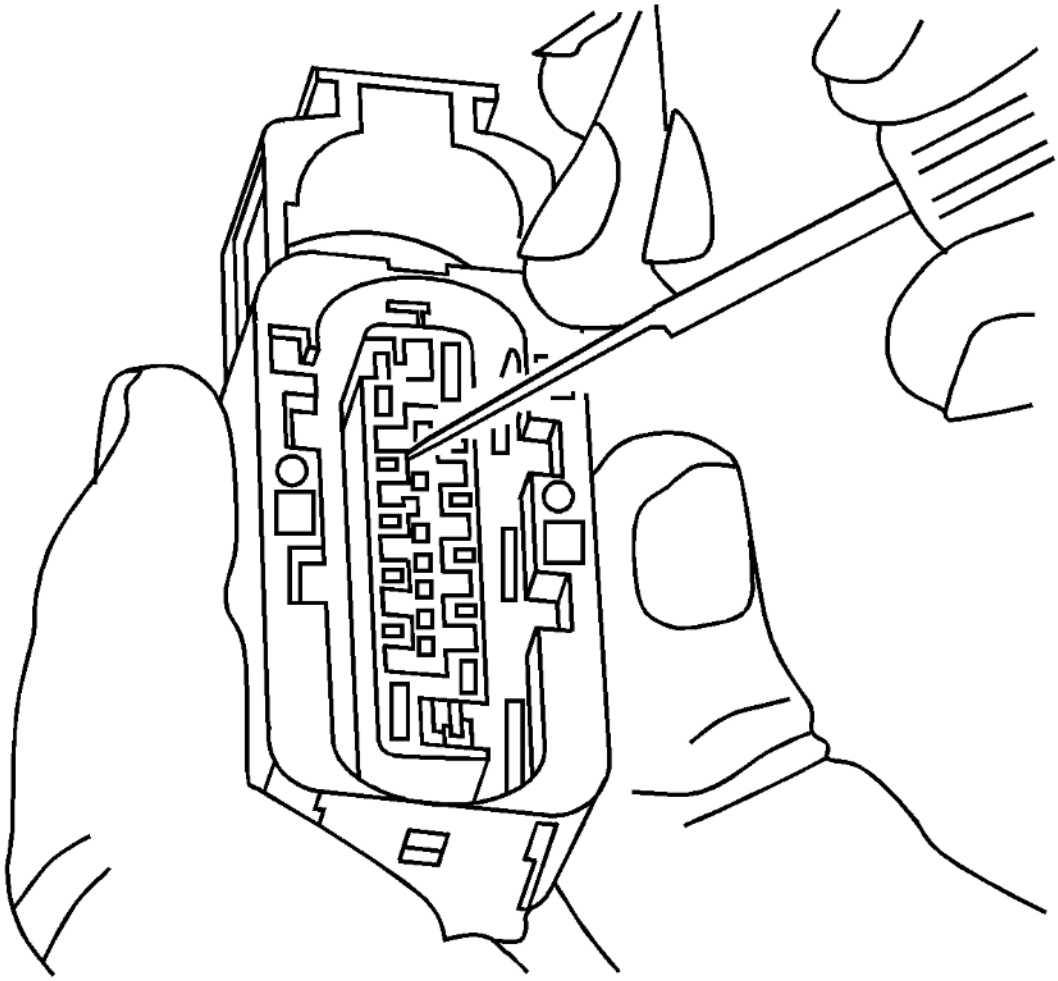

Fig. 81: Pulling Wire Out Of Back Of Connector
Courtesy of GENERAL MOTORS COMPANY

10. While holding the removal tool in place, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
11. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
12. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

DELPHI CONNECTORS (STEERING GEAR)

Removal Procedure

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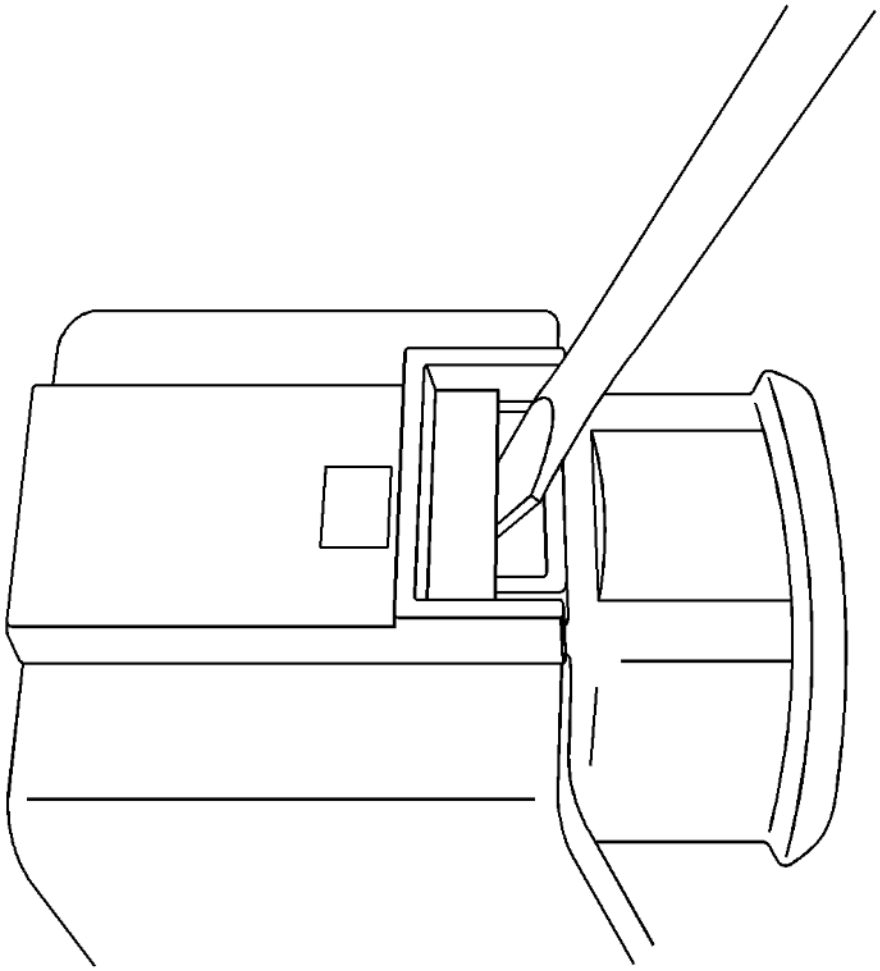

Fig. 82: Releasing Locking Tab On Connector
Courtesy of GENERAL MOTORS COMPANY

1. Use a small flat-bladed tool to release the locking tab on the connector.

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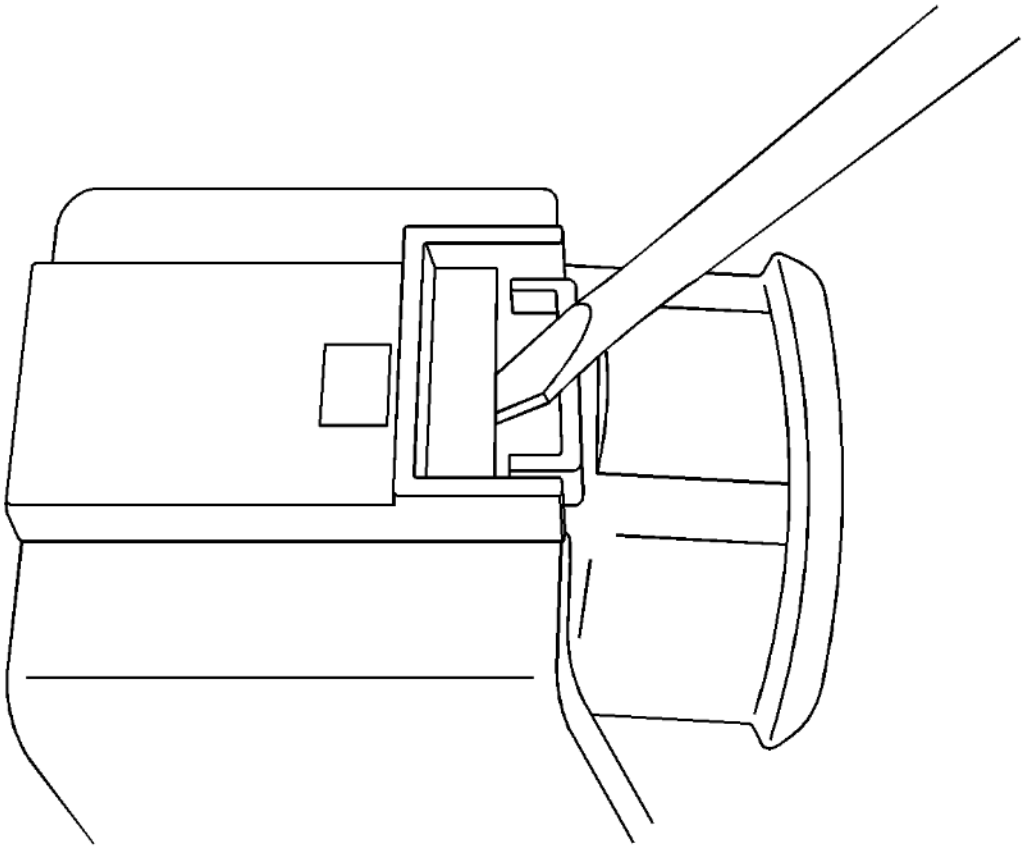

Fig. 83: Releasing Connector
Courtesy of GENERAL MOTORS COMPANY

2. Push down the locking tab to release the connector. The small flat-bladed tool may need to be pushed down and angled back slightly to depress the locking tab. Pull on the connector body while releasing the locking tab to disconnect the connector.

FCI CONNECTORS (LEVER LOCK)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-556** Terminal Release Tool
- **J-38125-560** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

Follow the steps below in order to remove terminals from the connector.

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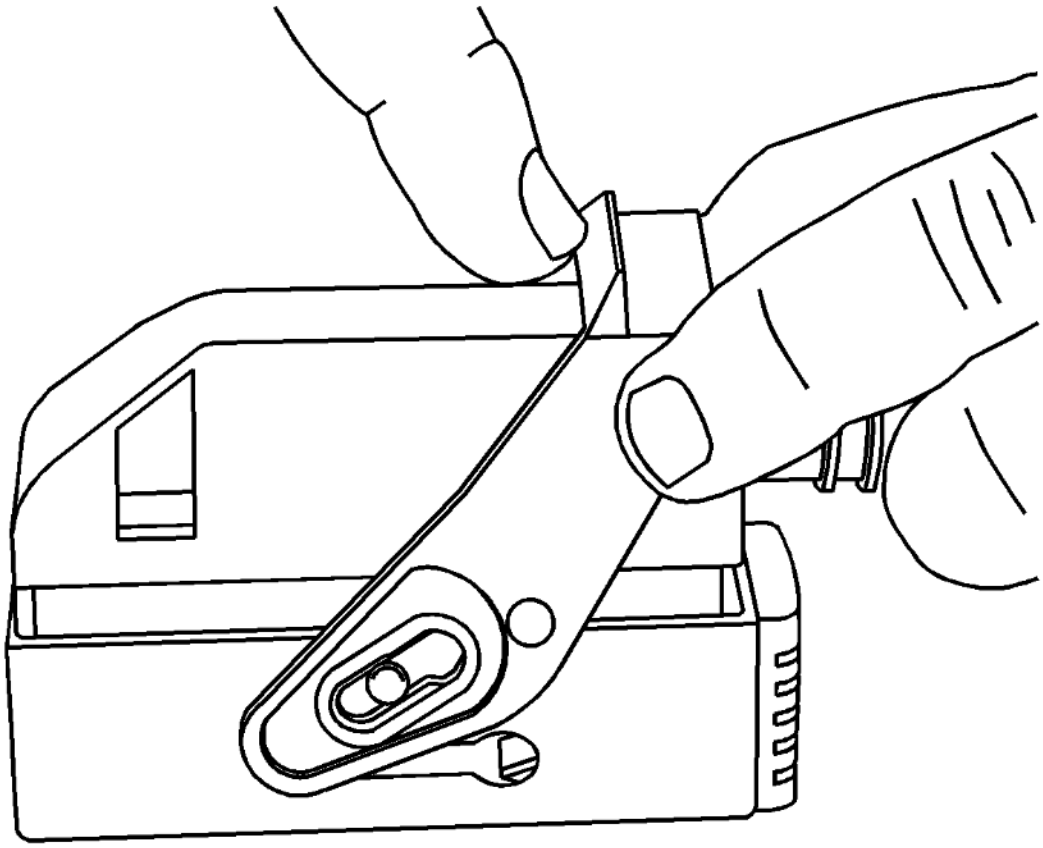

Fig. 84: Identifying Release Tab
Courtesy of GENERAL MOTORS COMPANY

1. Slide the lever lock forward while pressing down on the lever lock release tab.
2. The release tab is located on the top of the wiredress cover.

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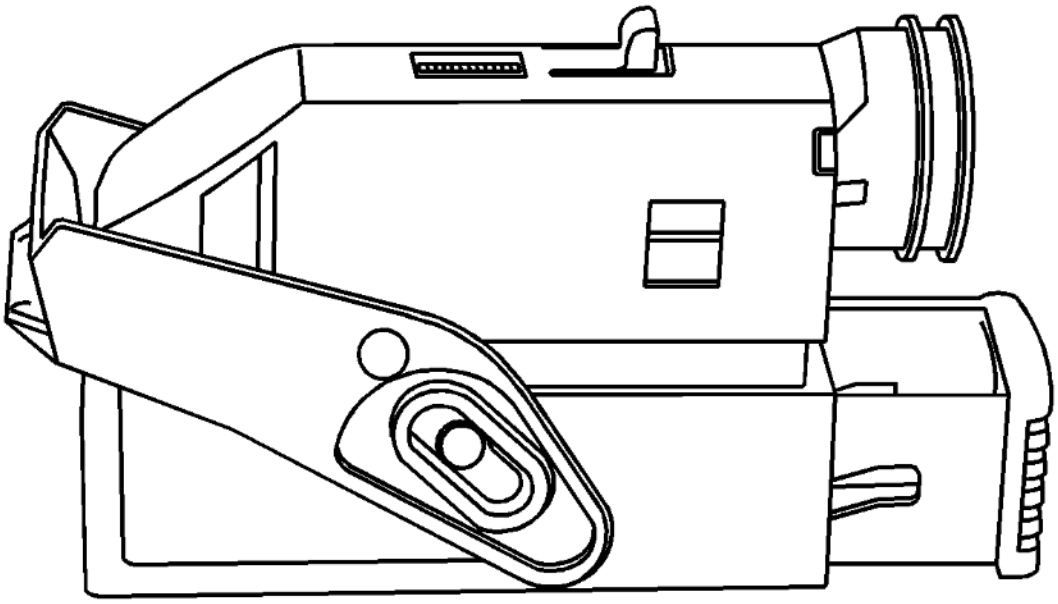

Fig. 85: View Of Connector In Released Position
Courtesy of GENERAL MOTORS COMPANY

3. View of connector in released position.
4. Disconnect the connector from the component.
5. Locate the dress cover locking tabs at the corners of the dress cover. Use a small flat-blade tool to release the locking tabs and remove the dress cover.

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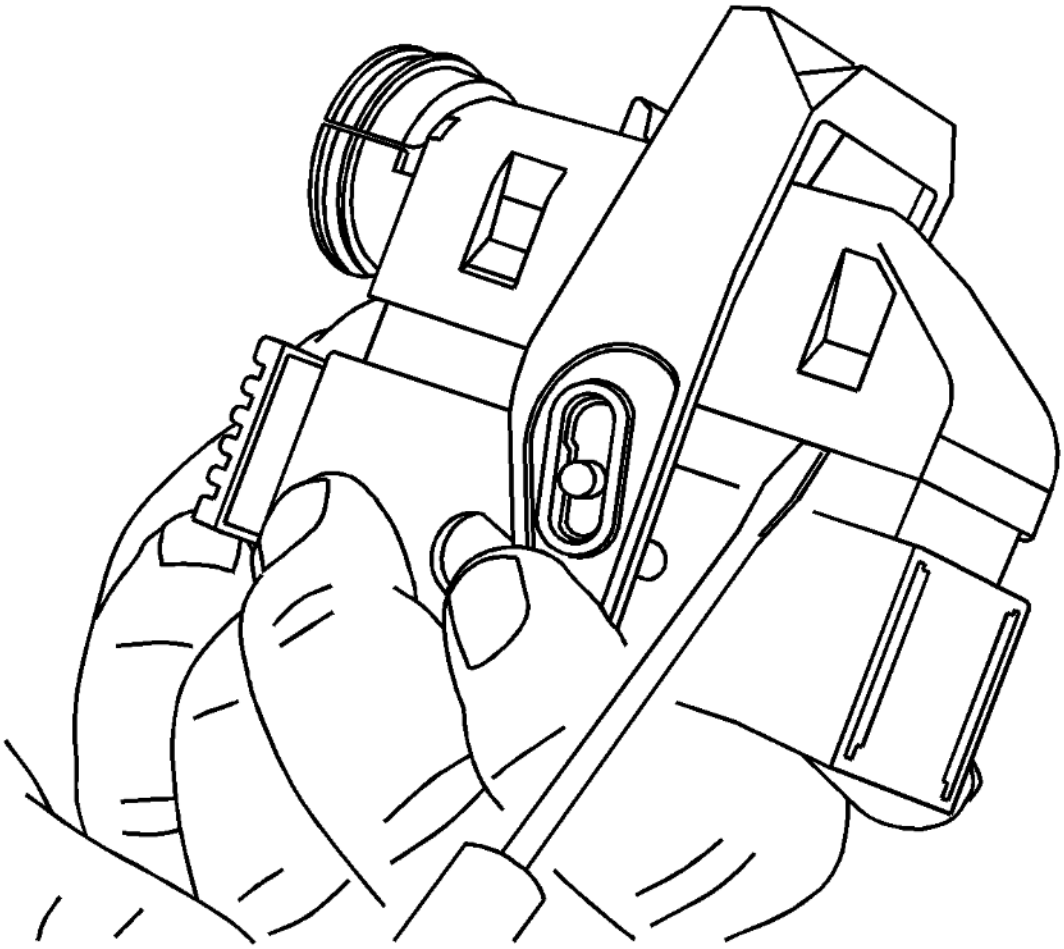

Fig. 86: View Of Sliding Terminal Position Assurance (TPA) Up One Notch
Courtesy of GENERAL MOTORS COMPANY

6. Use a small flat-blade tool to slide the terminal position assurance (TPA) up one notch on both ends of the connector. The TPA is located underneath the wire dress cover.

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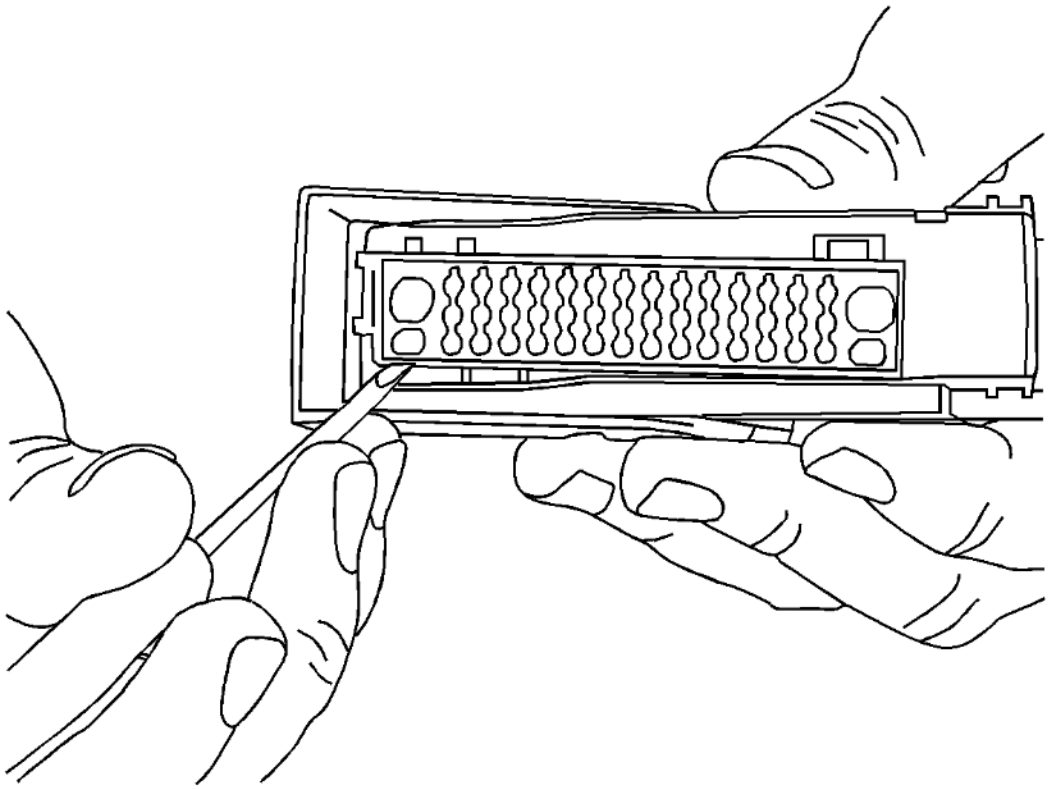

Fig. 87: View Of Releasing Terminals
Courtesy of GENERAL MOTORS COMPANY

7. For the larger terminals insert the J-38125-556 tool to release the terminals by inserting the tool into the terminal release cavity. For the smaller terminals insert the J-38125-560 tool to release the terminals by inserting the tool into the terminal release cavity.

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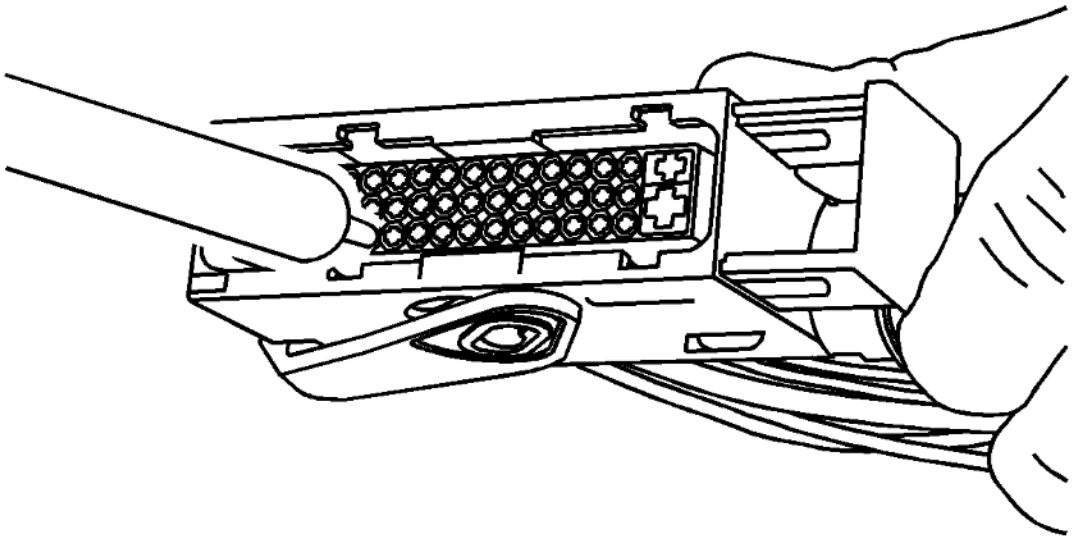

Fig. 88: View Of Wire Being Pulled Out Of Back Of Connector While Holding Removal Tool In Place
Courtesy of GENERAL MOTORS COMPANY

8. While holding the removal tool in place, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
9. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
10. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

FCI CONNECTORS (SIR)

Removal Procedure

NOTE: **The orange or yellow connector position assurance (CPA) must be released first to disconnect or to connect the connector.**

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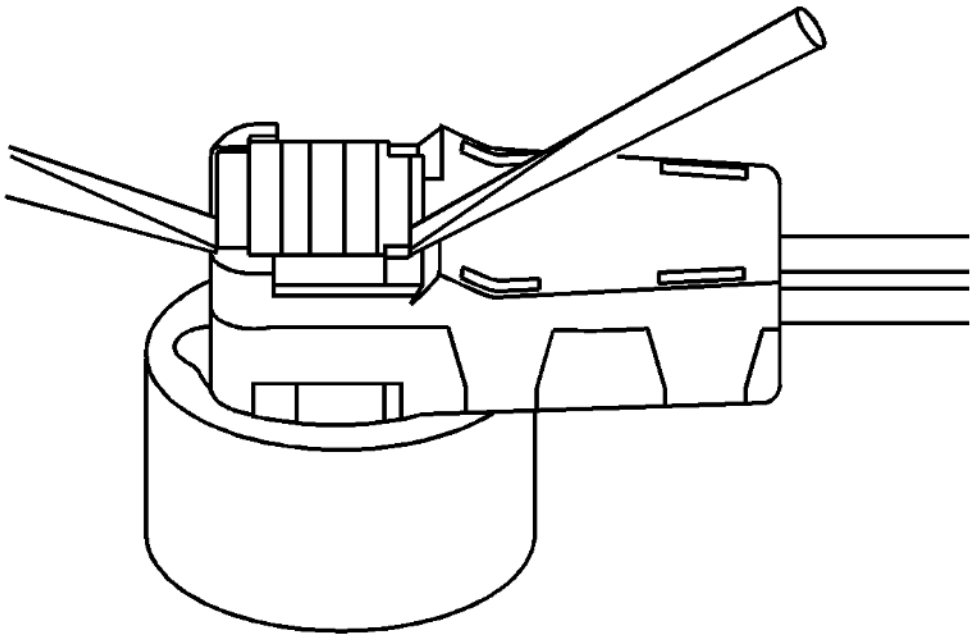

Fig. 89: Lifting Orange CPA
Courtesy of GENERAL MOTORS COMPANY

1. Lift the orange or yellow CPA vertically (avoid lifting on an angle to the connector) approximately 4 mm to release the connector. Use a small flat-bladed tool to help release the CPA. The CPA may also be released manually without any tools.

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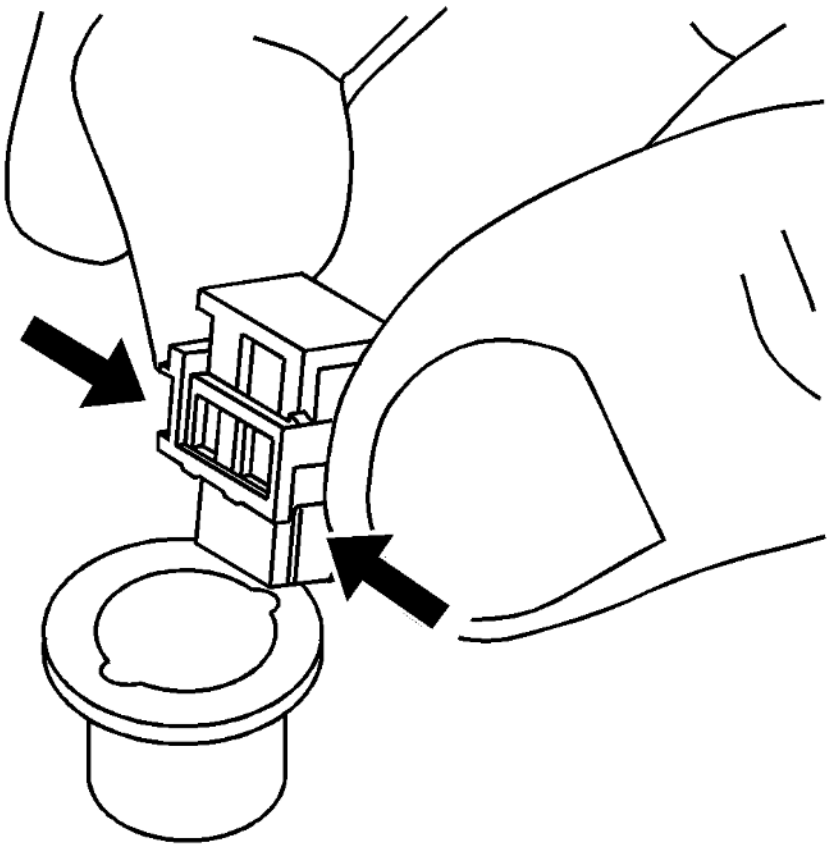

Fig. 90: Grabbing Connector On Both Sides
Courtesy of GENERAL MOTORS COMPANY

2. Grab the connector on both sides and lift vertically to disconnect the connector.

Installation Procedure

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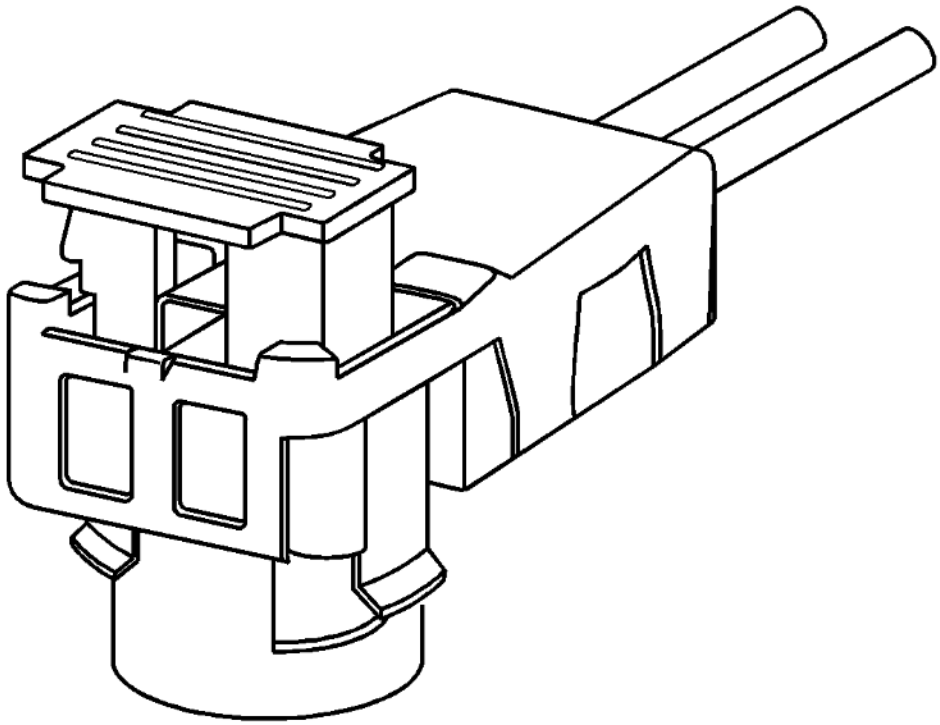

Fig. 91: Lifting Orange CPA
Courtesy of GENERAL MOTORS COMPANY

1. The CPA should be approximately 4 mm above the yellow cover before installing the connector. If not, use a small flat-bladed tool to help release the CPA. The CPA may also be released manually without any tools.

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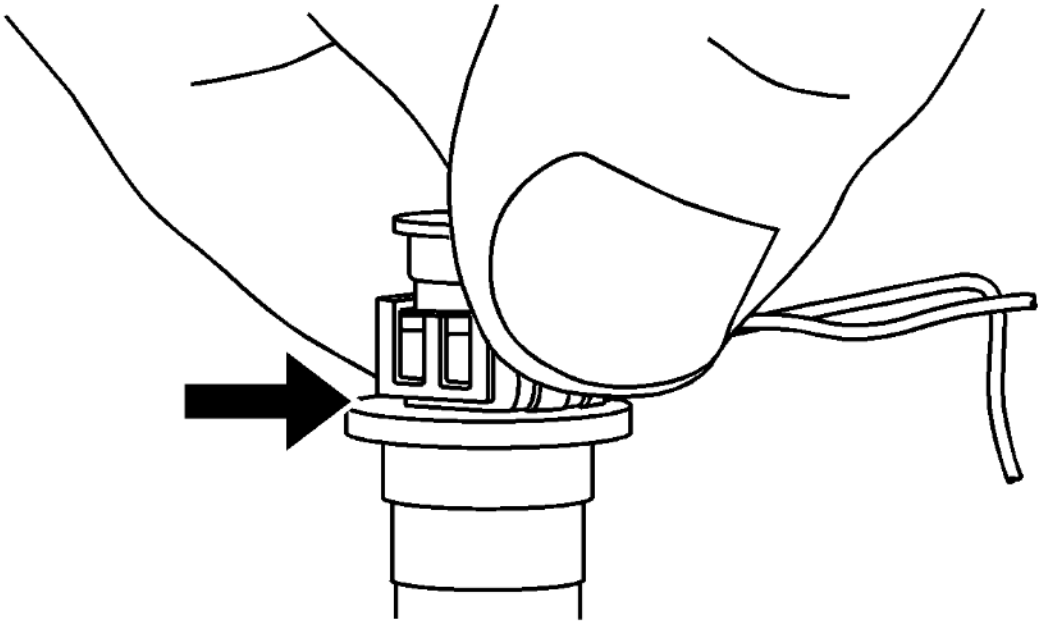

Fig. 92: Seating Connector Sub-Assembly
Courtesy of GENERAL MOTORS COMPANY

2. Line up the connector key tabs with the initiator key slots. Grab the connector on both sides and push down into the initiator connector sub assembly until fully seated.

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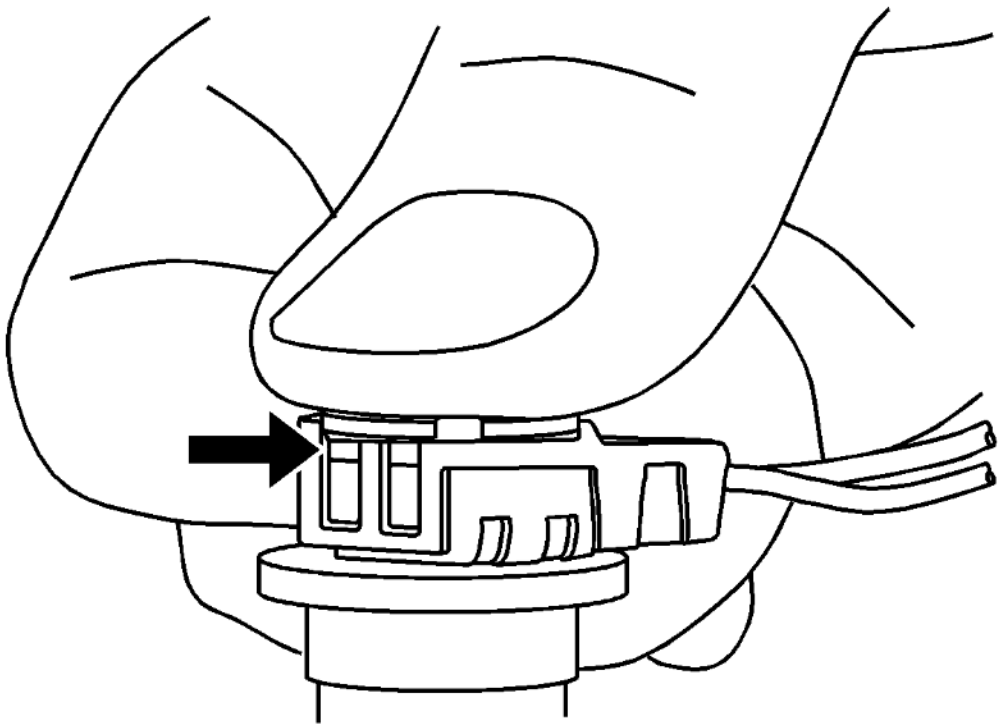

Fig. 93: Pushing CPA Down
Courtesy of GENERAL MOTORS COMPANY

3. After the connector is fully seated, push the CPA down with your thumb until the CPA is touching the yellow cover on the connector.
4. After the CPA is seated, lightly pull on the connector, it should not pull off if the connector and CPA are properly engaged.

FEP CONNECTORS (STEERING GEAR)

Removal Procedure

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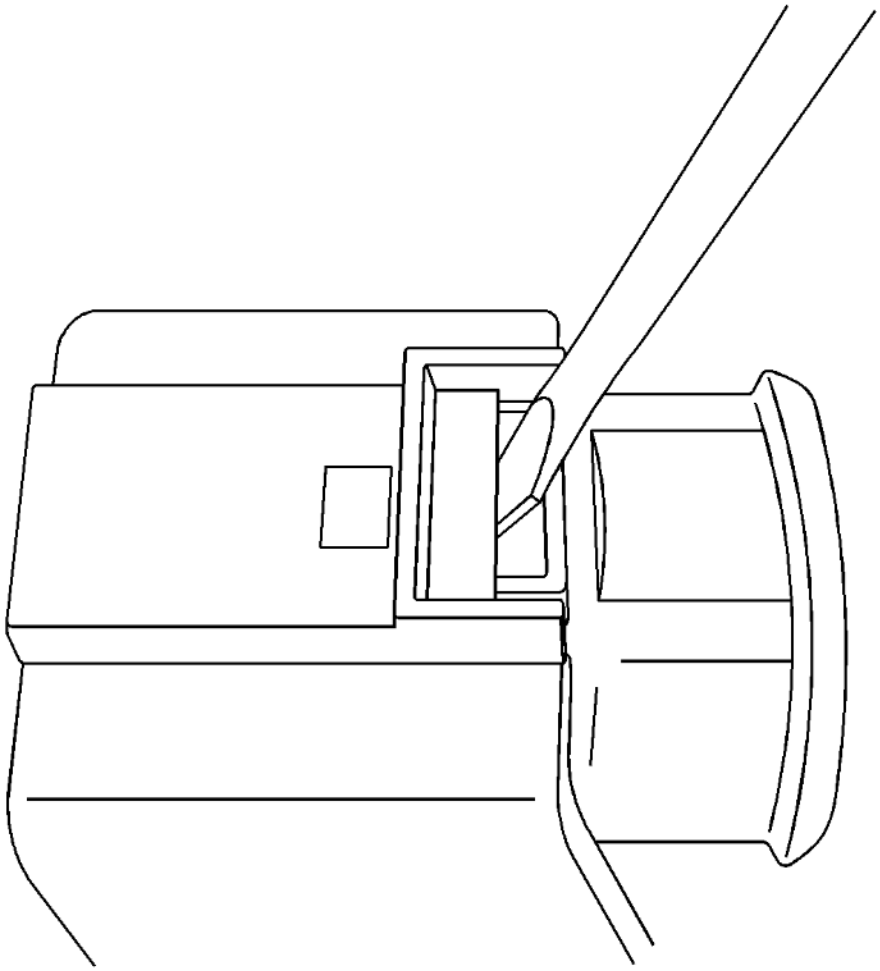

Fig. 94: Releasing Locking Tab On Connector
Courtesy of GENERAL MOTORS COMPANY

1. Use a flat-bladed tool to release the locking tab on the connector.

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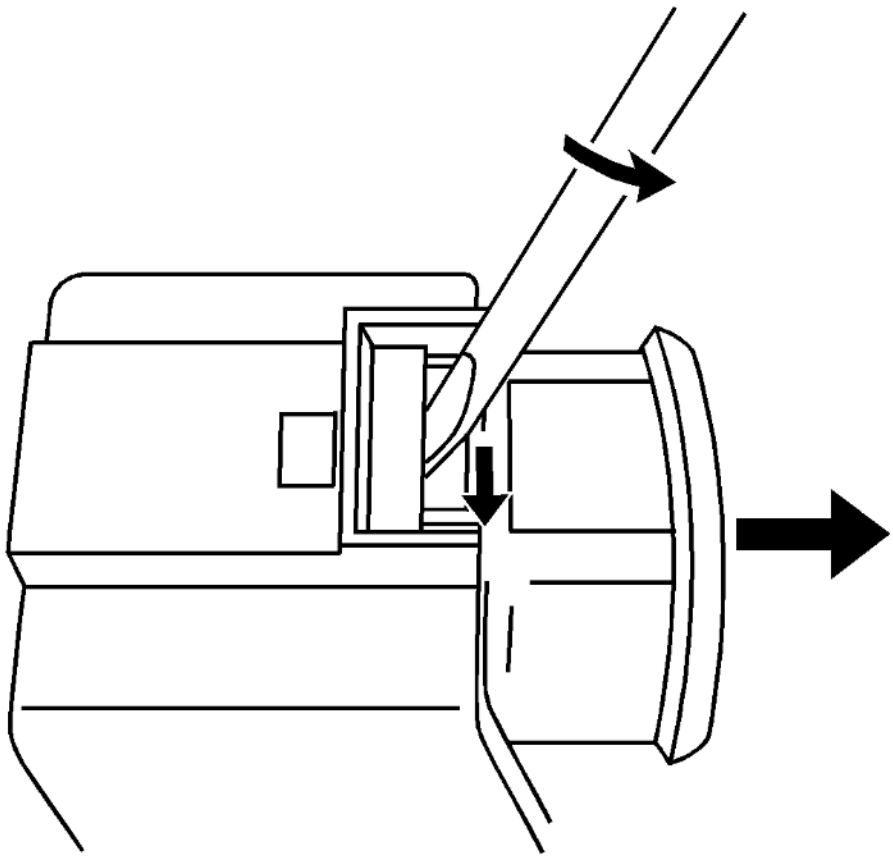

Fig. 95: Twisting Flat-Bladed Tool To Push Top Of Locking Tab Inward
Courtesy of GENERAL MOTORS COMPANY

2. Option 1: Twist the flat-bladed tool to push the top of the locking tab inward while pulling the connector body out.

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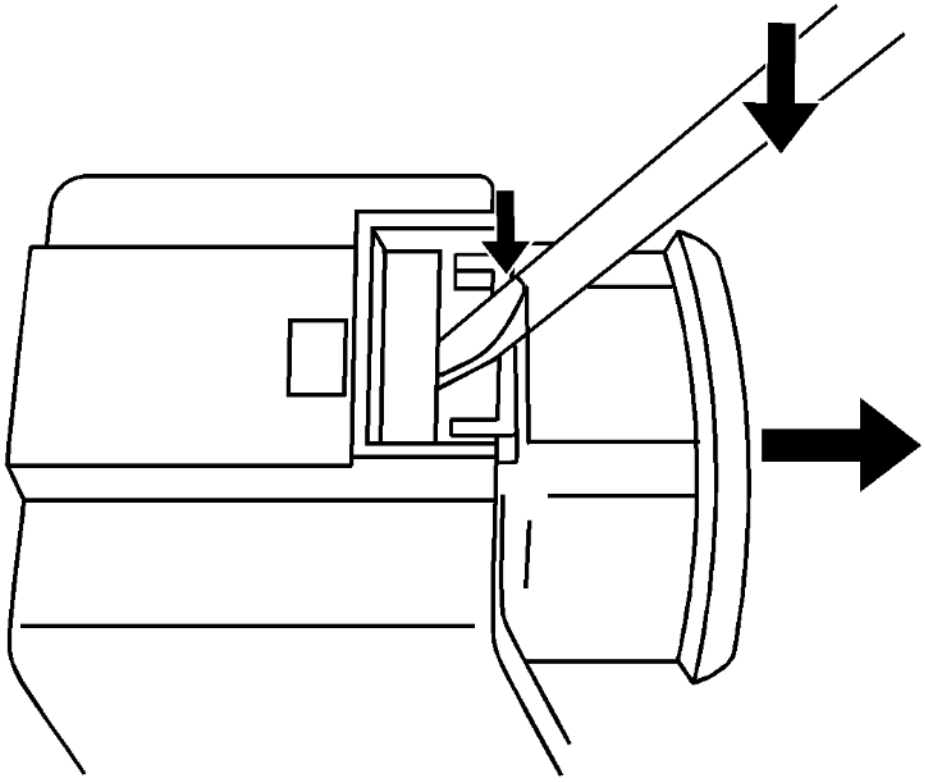

Fig. 96: Using Flat-Bladed Tool To Depress Locking Tab
Courtesy of GENERAL MOTORS COMPANY

3. Option 2: Pry using the flat-bladed tool to depress the locking tab while pulling the connector body out.

JST CONNECTORS

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-553** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

The JST connector family consists of seven unique connector housings differentiated by color and keying. This connector family is designed to use both 0.64 and 2.8 sized terminals.

JST BCM Connector

GM Service Part #	Color

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GM Service Part #	Color
88988806	Gray
88988837	Brown
88988838	Lt Green
88988839	Natural
88988840	Lt Blue
88988841	Black
88988842	Pink

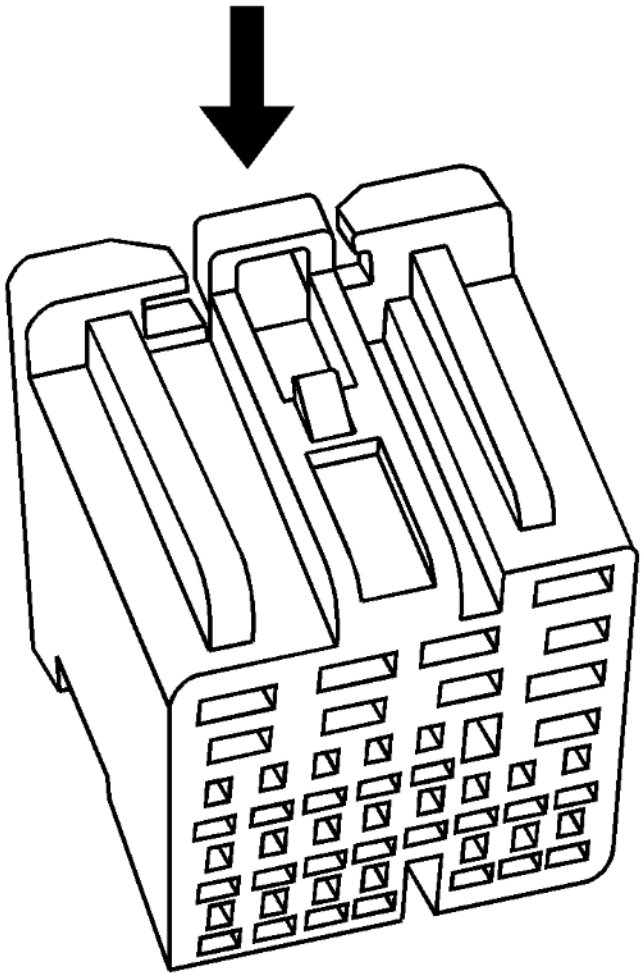

Fig. 97: Identifying Terminal Position Assurance (TPA)
Courtesy of GENERAL MOTORS COMPANY

1. While depressing the lock, remove the connector from the component.

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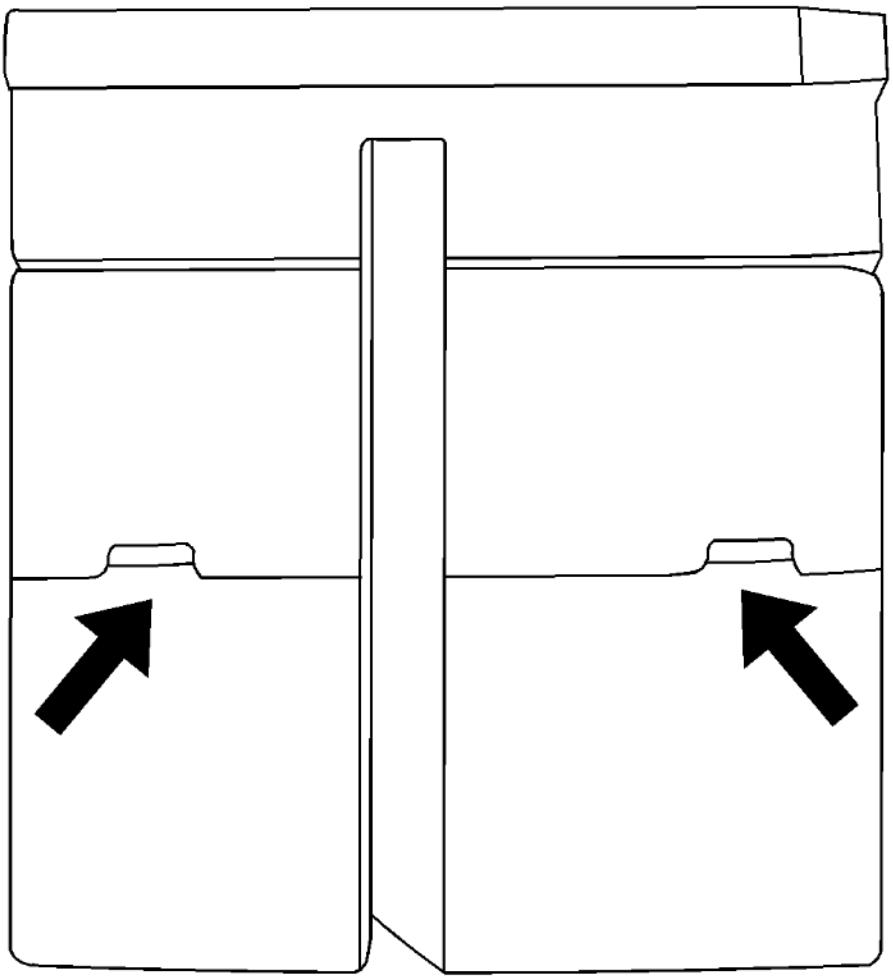

Fig. 98: Identifying TPA On Both Sides Of Connector
Courtesy of GENERAL MOTORS COMPANY

2. Unlock the terminal position assurance (TPA):
    - Position connector as shown (above) and locate TPA staging cavities.

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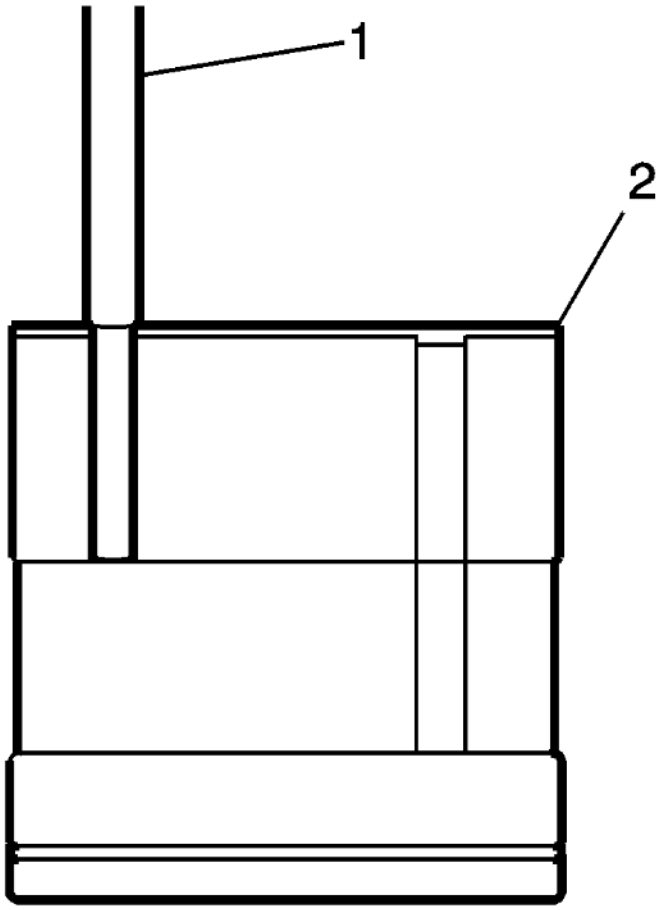

Fig. 99: Terminal Release Tool
Courtesy of GENERAL MOTORS COMPANY

- Using connector terminal release tool J-38125-553 (1) lift the TPA into the staged position. Perform this step on both sides of the TPA.

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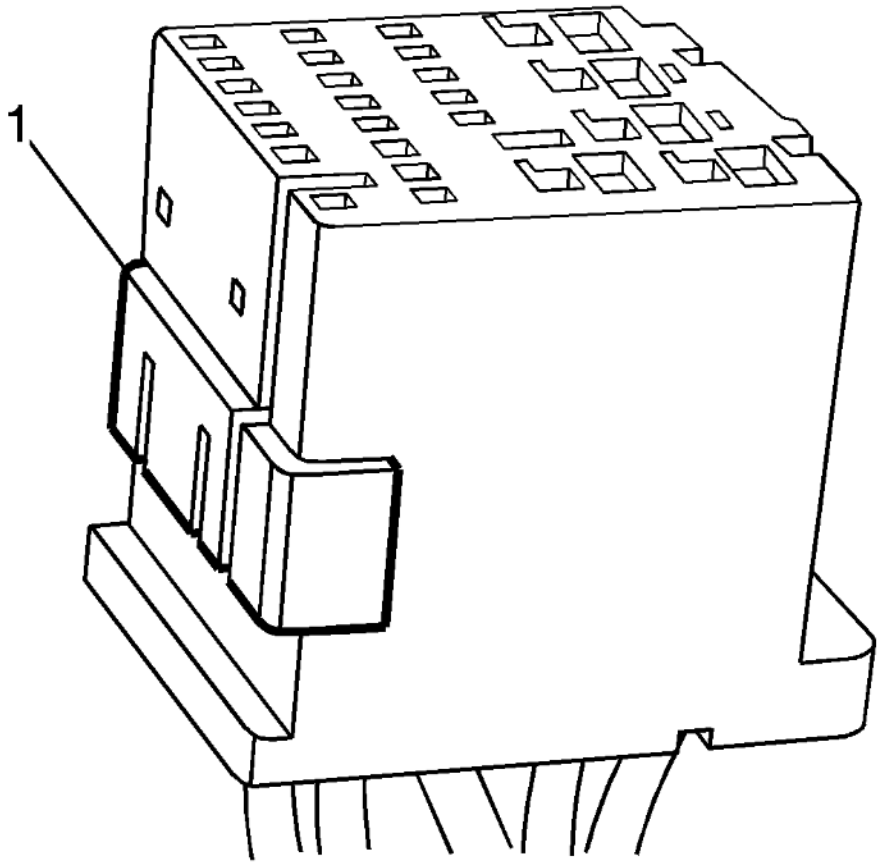

Fig. 100: TPA In Staged Position
Courtesy of GENERAL MOTORS COMPANY

- You will feel the TPA click into place when fully extended into the staged position. The figure above shows the TPA (1) in the staged position.

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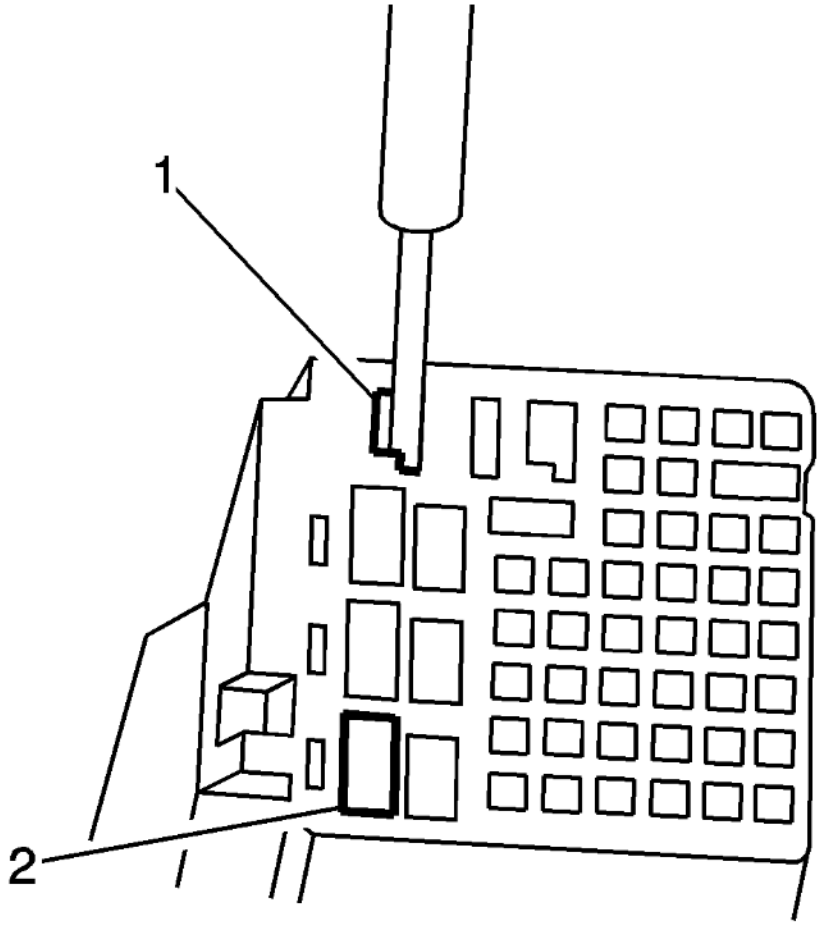

Fig. 101: Connector Terminal Release Tool
Courtesy of GENERAL MOTORS COMPANY

3. Release the terminal from the connector:
    - Position the connector as shown (above) and locate the terminal release entry canal (1) of the suspect terminal.
    - Insert the connector terminal release tool J-38125-553 into the entry canal with the angled side of the tool facing the connector wall containing cavity 4 (2).

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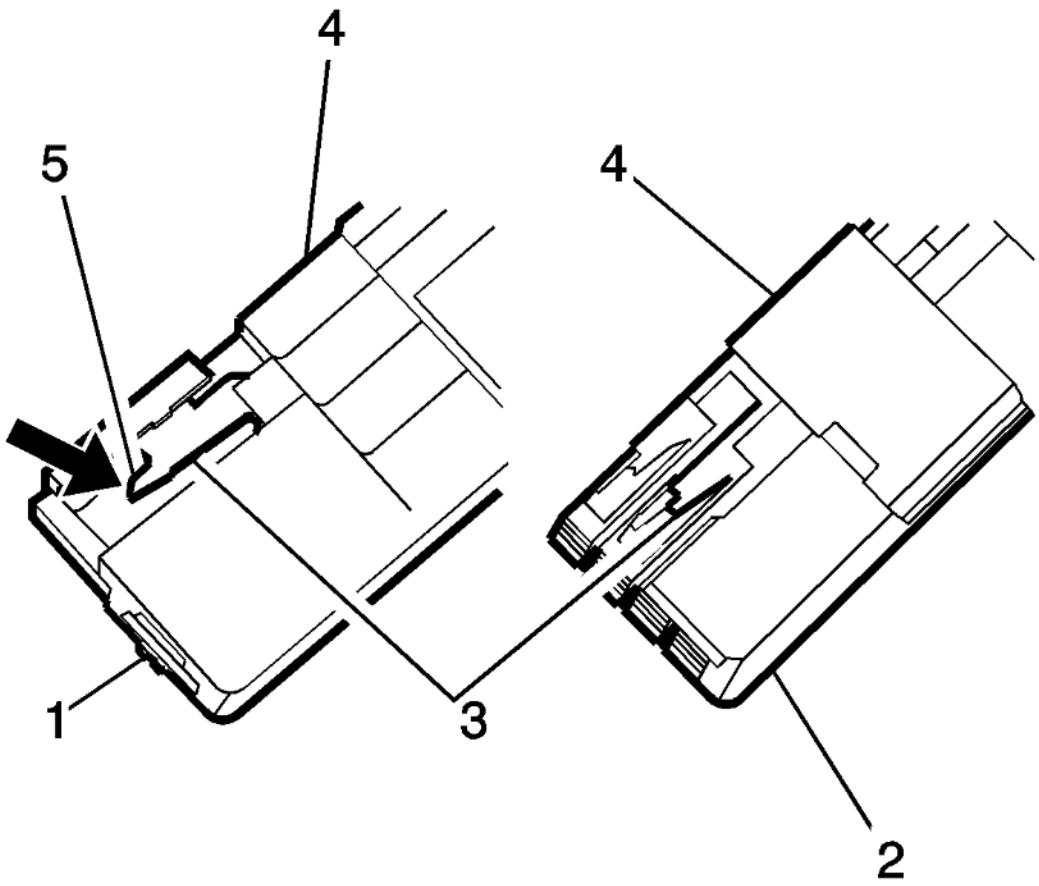

Fig. 102: Connector Lance And TPA
Courtesy of GENERAL MOTORS COMPANY

- The cavity on the left (1) is a 2.8 mm^2 cavity and the cavity on the right (2) is a 0.64 mm^2 cavity.
- Place the tip of the connector terminal release tool onto the connector lance (3) and deflect the lance to the right (5) to release the lock. Hold this released position.
- Holding the lance in the released position, slightly pull on the suspect terminal to remove it from the connector housing. The side TPA (4) is a secondary lock.

4. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
5. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

KOSTAL CONNECTORS (GLOW PLUG CONTROL MODULE)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-24** Terminal Release Tool

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- **J-38125-560** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

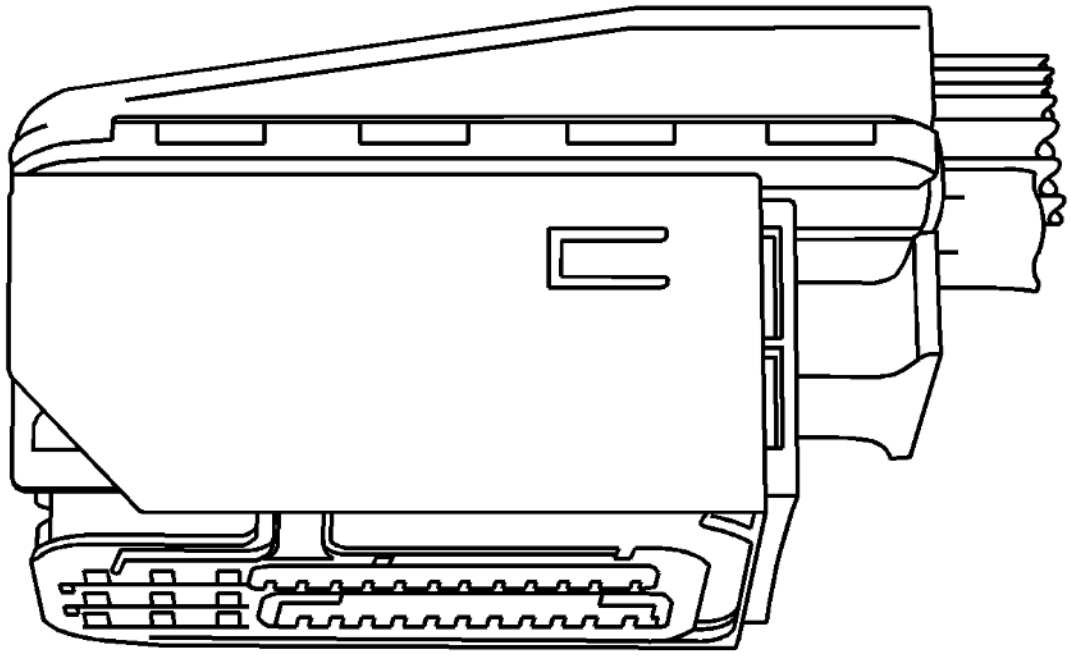

Fig. 103: View Of Typical Kostal Connector
Courtesy of GENERAL MOTORS COMPANY

View of typical connector.

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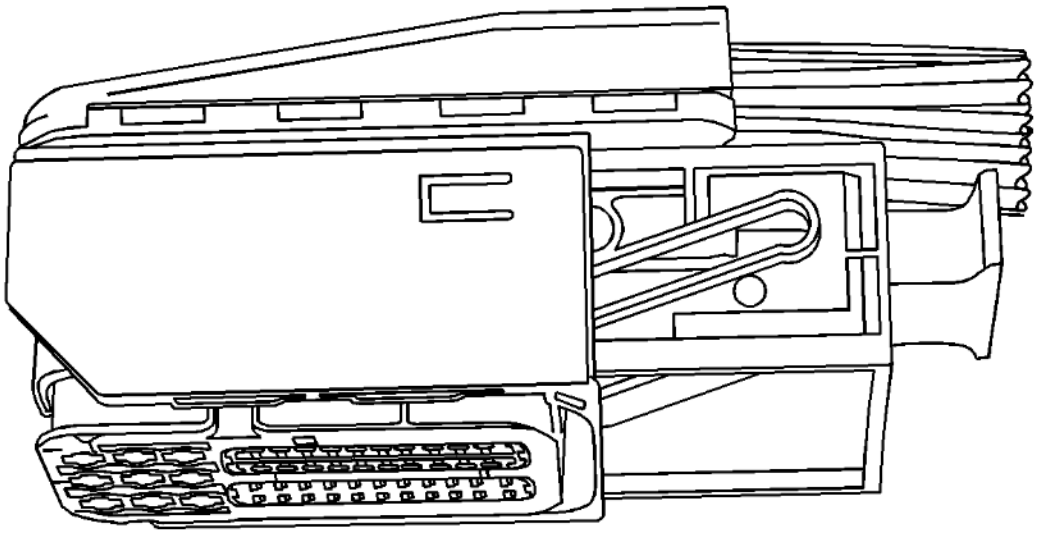

Fig. 104: View Of Connector In Released Position
Courtesy of GENERAL MOTORS COMPANY

View of connector in released position.

1. Locate the assist lever at the back of the connector. Move the assist lever to the rear position.
2. Disconnect the connector from the component.

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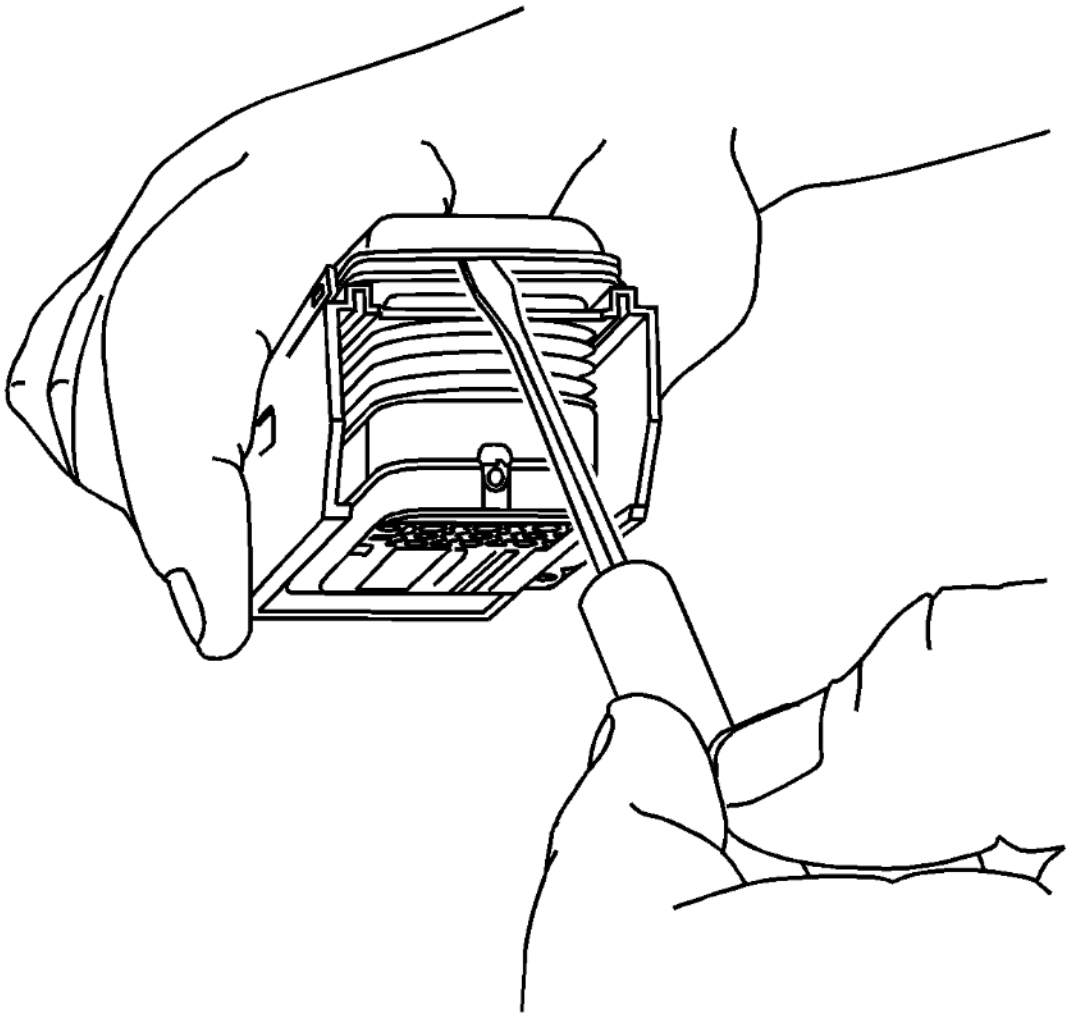

Fig. 105: Using Small Flat-Blade Tool To Remove Dress Cover
Courtesy of GENERAL MOTORS COMPANY

3. Use a small flat-blade tool to remove the dress cover.

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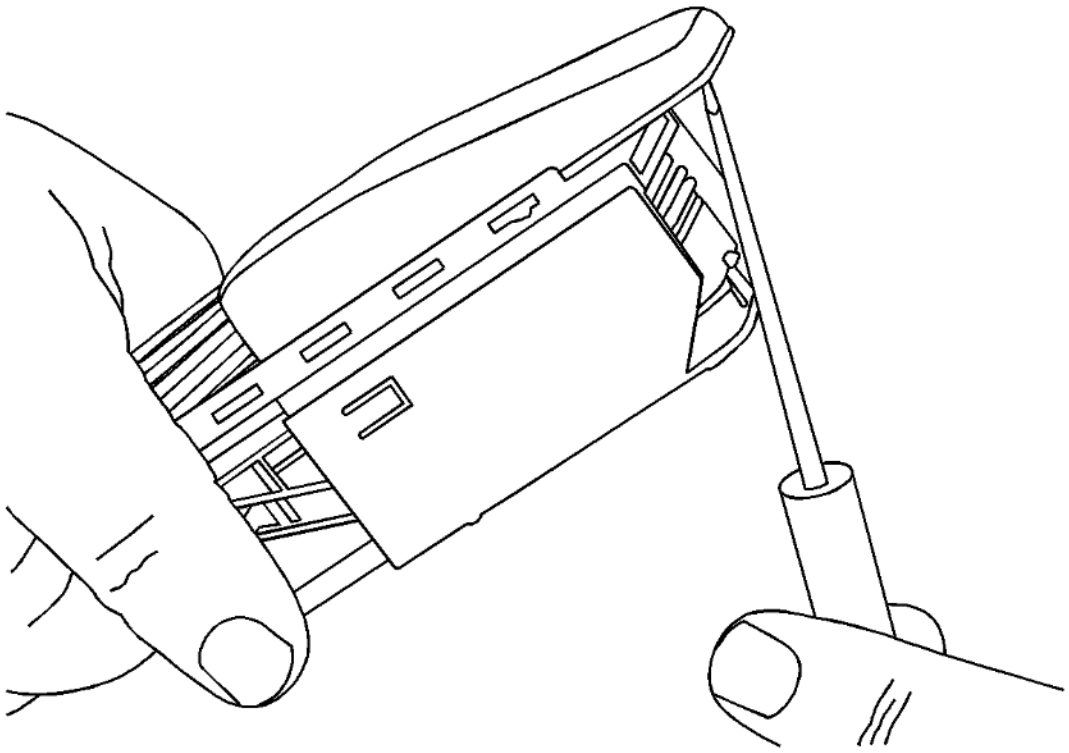

Fig. 106: Sliding Dress Cover Forward & Off Of Kostal Connector (Glow Plug Control Module)
Courtesy of GENERAL MOTORS COMPANY

4. Slide the dress cover forward and off of the connector.

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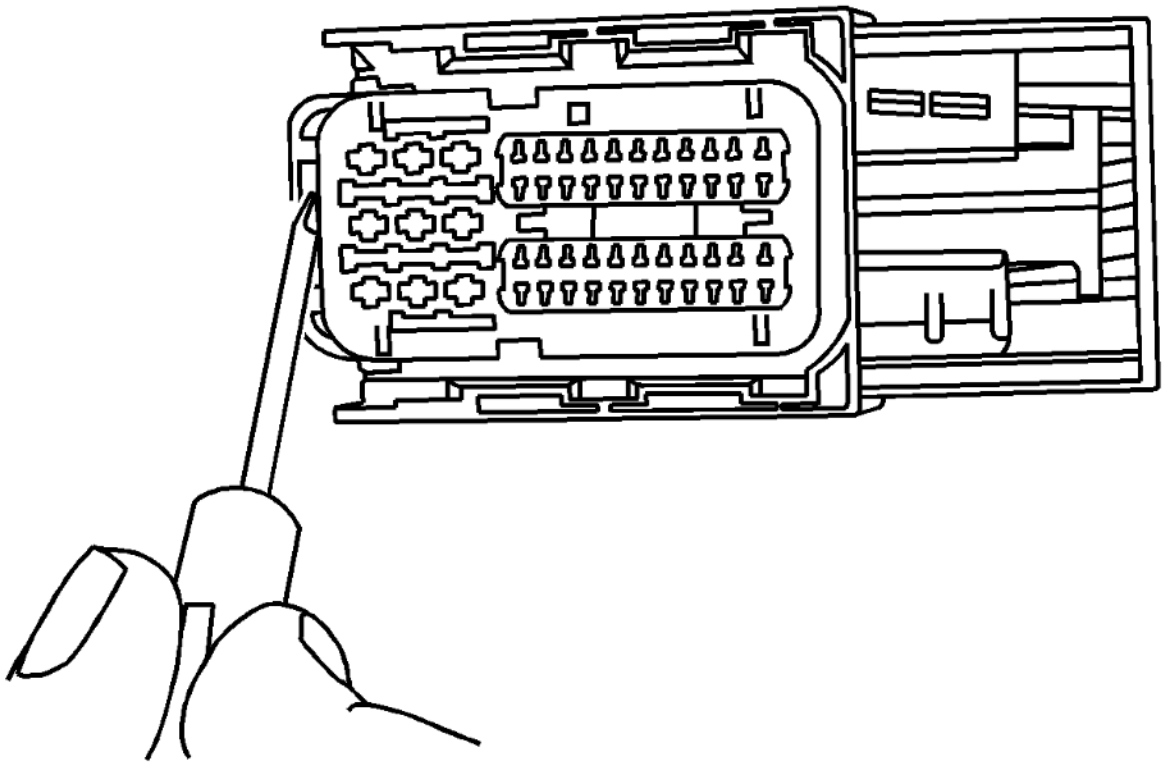

Fig. 107: Locating TPA In Front & Rear Of Connector
Courtesy of GENERAL MOTORS COMPANY

5. The terminal positive assurance (TPA) is located in the front and rear of the connector.

NOTE: **The front TPA cannot be removed from the connector. Only move it to the preset position.**

6. Use a small flat-blade tool to move the front TPA to the preset position, outboard approximately 0.125 in. (3 mm).

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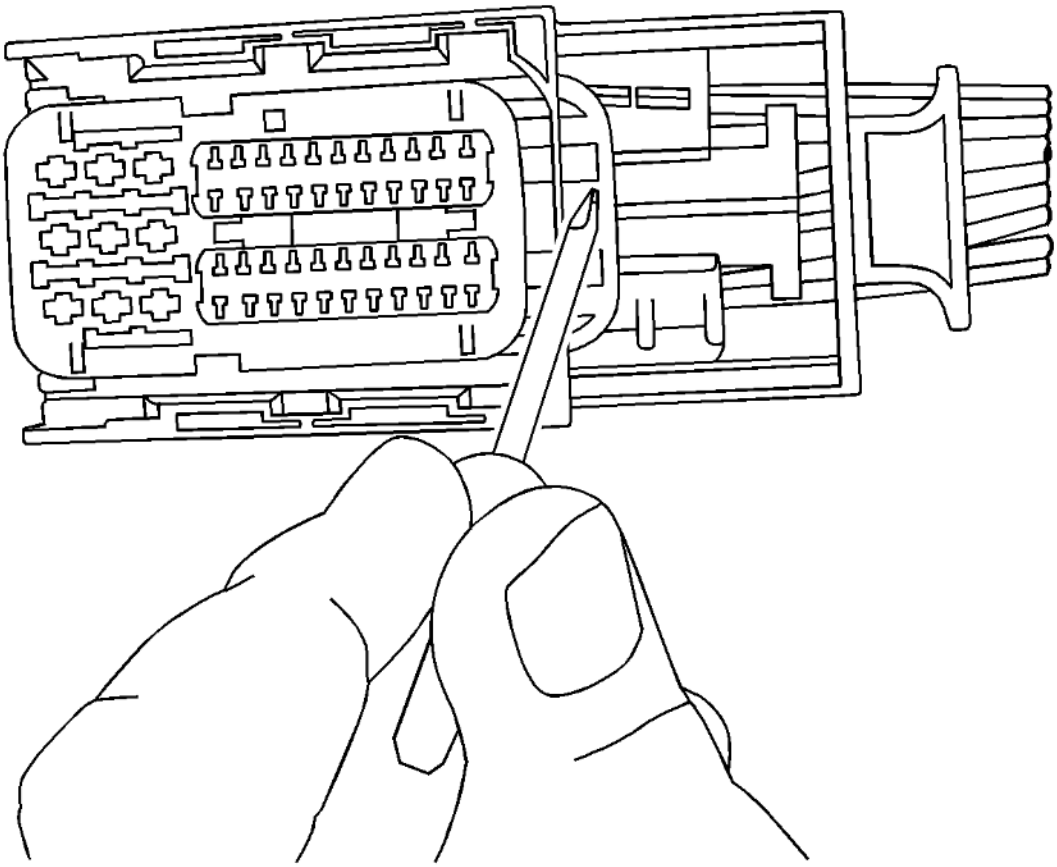

Fig. 108: Using Small Flat-Blade Tool To Remove Rear TPA
Courtesy of GENERAL MOTORS COMPANY

7. Use a small flat-blade tool to completely remove the rear TPA from the connector.

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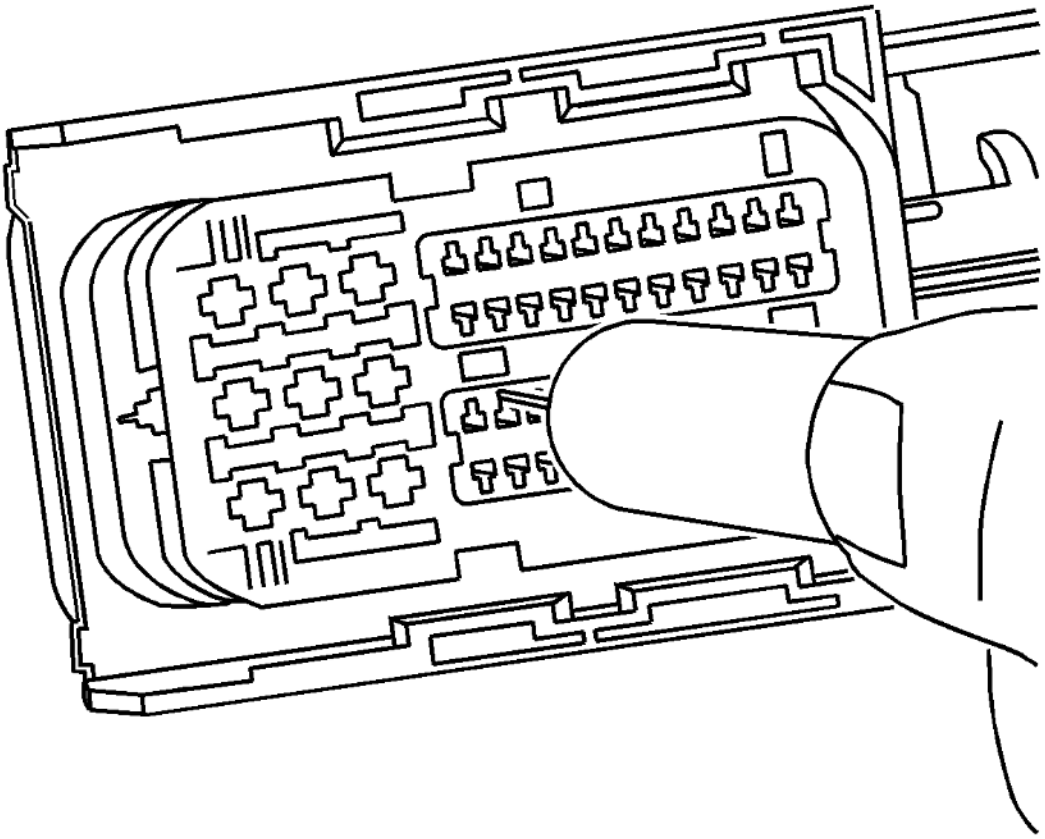

Fig. 109: Using Special Tool To Release Terminals
Courtesy of GENERAL MOTORS COMPANY

8. Use the J-38125-24 or the J-38125-560 tool to release the terminals by inserting the tool into the terminal release cavity.
9. While holding the removal tool in place, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
10. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.

KOSTAL CONNECTORS (TRANSMISSION)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-28** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

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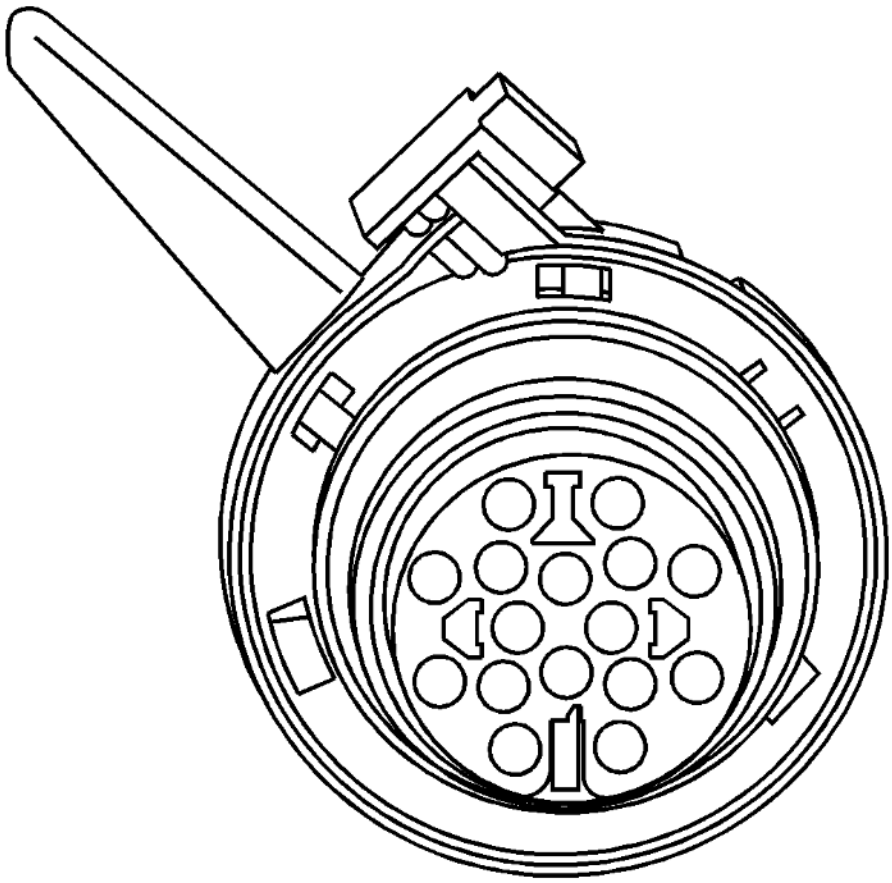

Fig. 110: View Of Connector & Lock
Courtesy of GENERAL MOTORS COMPANY

1. While depressing the lock, twist and remove the connector from the component.

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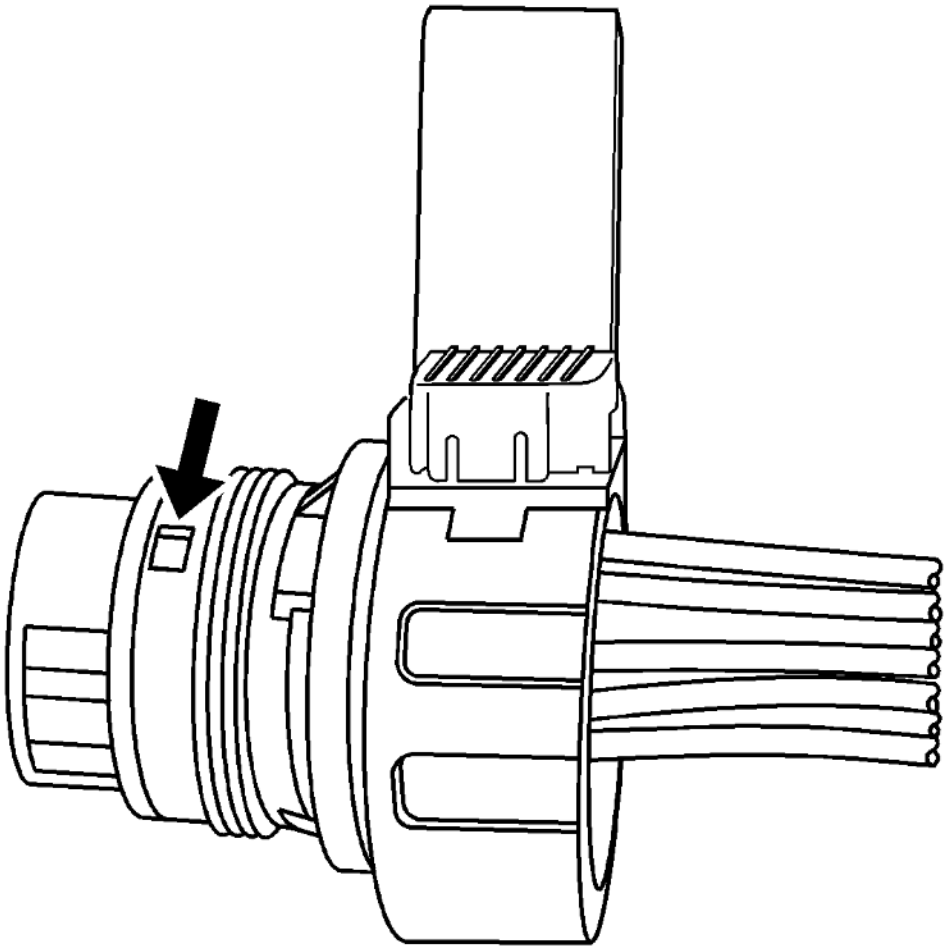

Fig. 111: View Of Terminal Position Assurance (TPA)
Courtesy of GENERAL MOTORS COMPANY

2. Locate the terminal position assurance (TPA).

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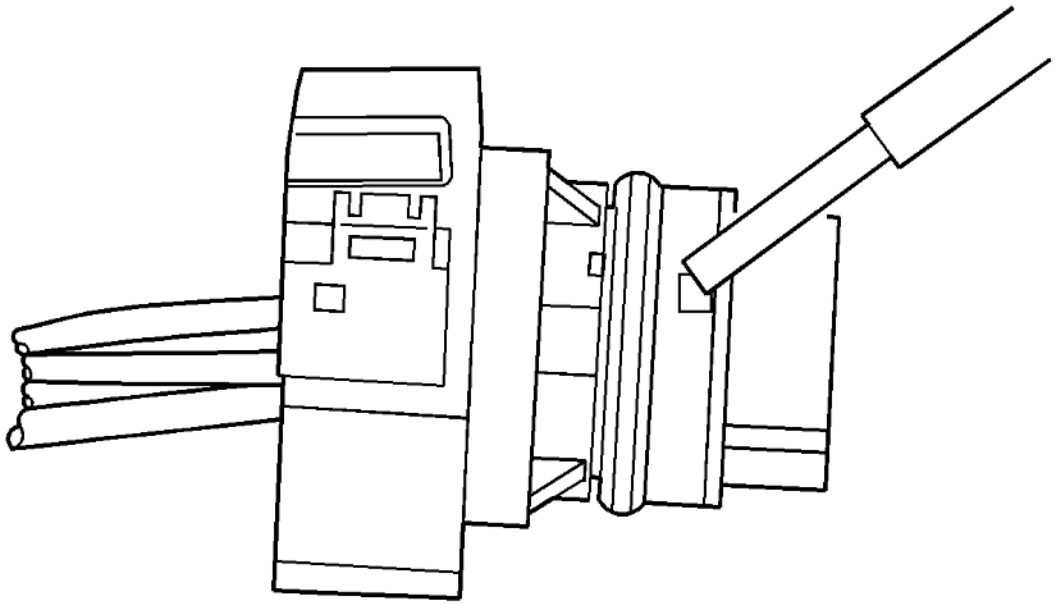

Fig. 112: View Of TPA & Flat-Bladed Tool
Courtesy of GENERAL MOTORS COMPANY

NOTE: **The TPA cannot be removed from the connector while there are terminals present in the connector body.**

3. Use a small flat-blade tool to push the TPA until it bottoms out.

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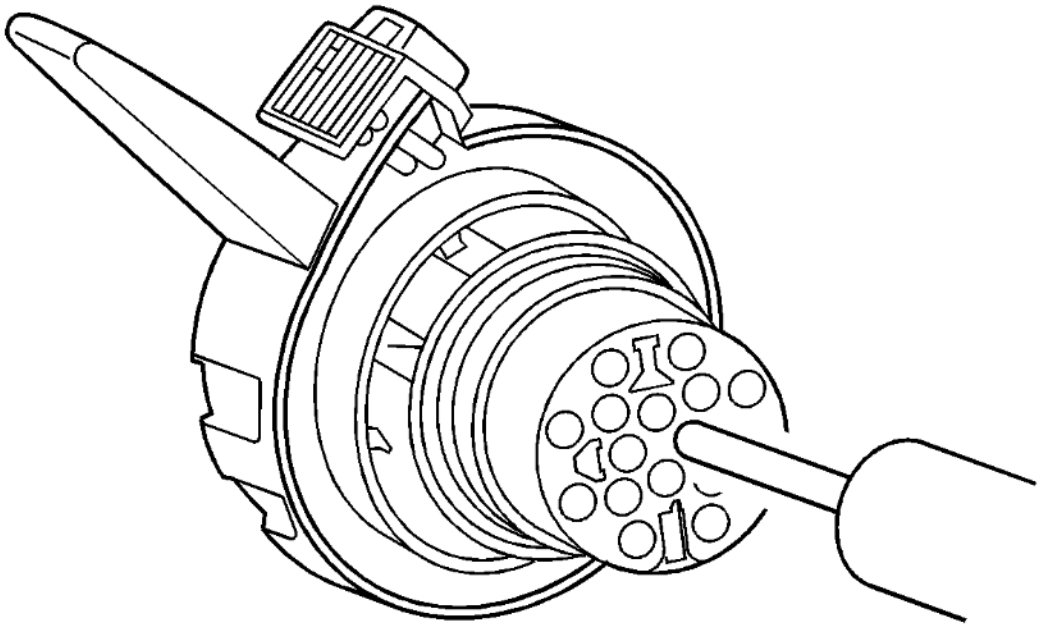

Fig. 113: Using J 38125-28 Tool To Release Terminals
Courtesy of GENERAL MOTORS COMPANY

4. Use the J-38125-28 tool to release the terminals by inserting the tool into the terminal cavity as shown in the graphic.
5. While holding the removal tool in place, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
6. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.

Terminal Insertion Procedure

After the terminal is replaced, perform the following procedure in order to insert the terminal.

1. Slide the new terminal into the correct cavity at the back of the connector.
2. Push the terminal into the connector until it locks into place. The new terminal should be even with the other terminals. Ensure that the terminal is locked in place by gently pulling on the wire.

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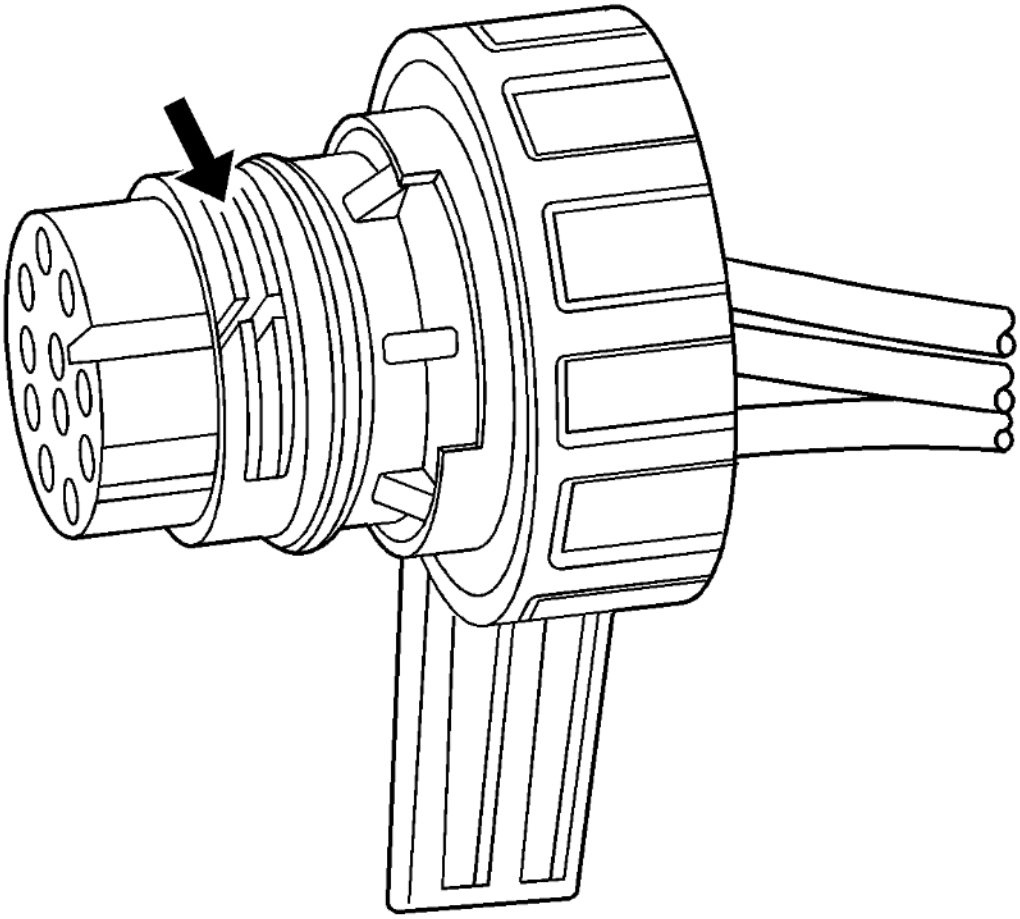

Fig. 114: Locating Terminal Position Assurance (TPA)
Courtesy of GENERAL MOTORS COMPANY

3. Locate the TPA.

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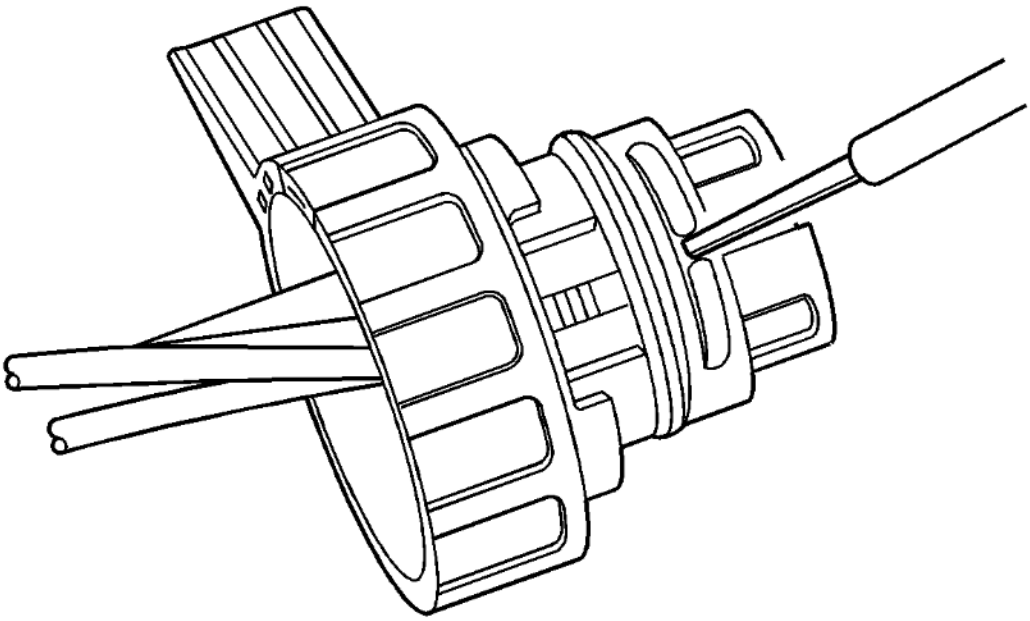

Fig. 115: View Of TPA & Flat-Bladed Tool
Courtesy of GENERAL MOTORS COMPANY

4. Use a small flat-blade tool to push the TPA until it bottoms out.

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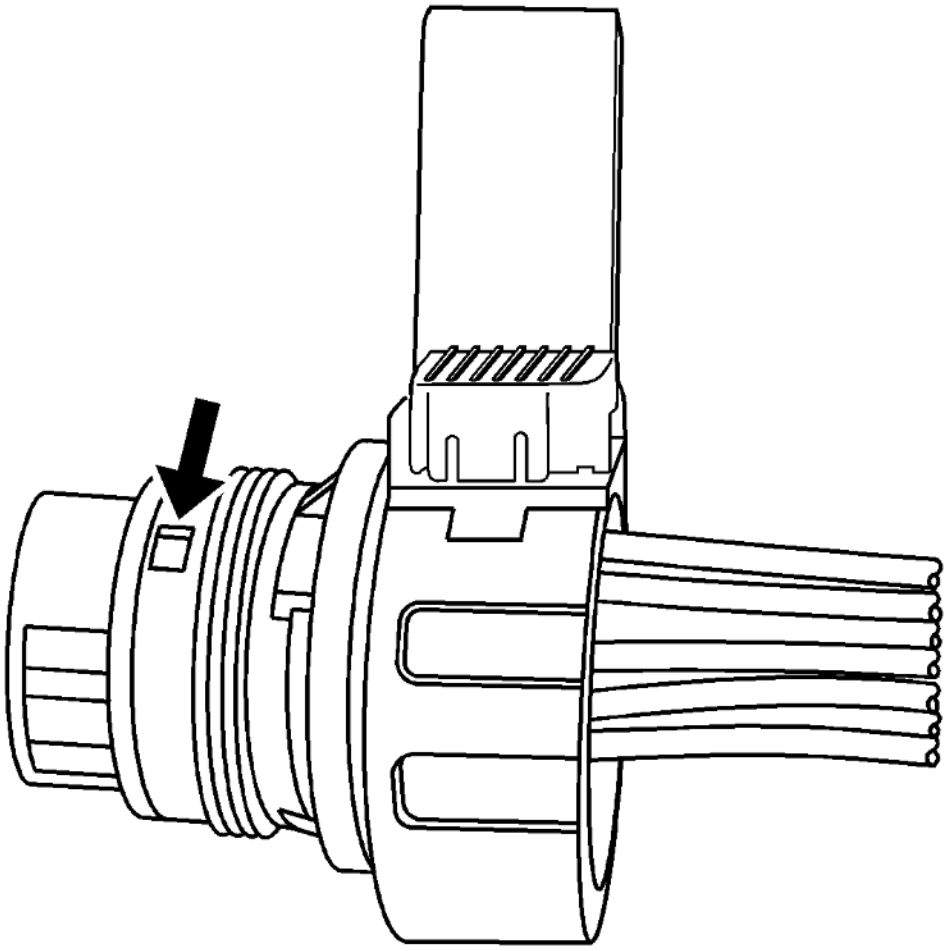

Fig. 116: View Of Terminal Position Assurance (TPA)
Courtesy of GENERAL MOTORS COMPANY

5. Ensure the TPA is fully seated. The TPA should be centered and flush with the connector body when viewed.

MOLEX CONNECTORS (LEVER LOCK)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-213** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

1. Locate the connector position assurance (CPA) on the top of the wire dress cover. Slide the CPA forward.

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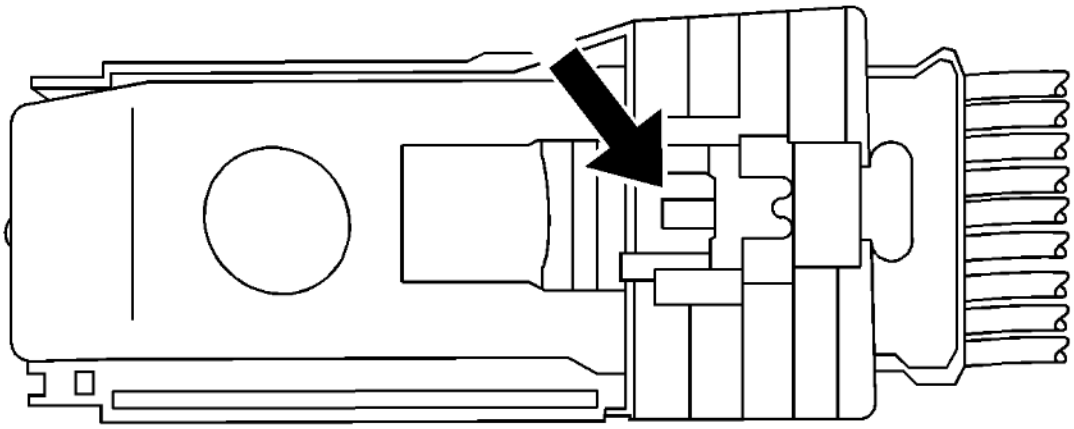

Fig. 117: Identifying Lever Lock Release Tab
Courtesy of GENERAL MOTORS COMPANY

2. Slide the lever lock forward while pressing down on the lever lock release tab.

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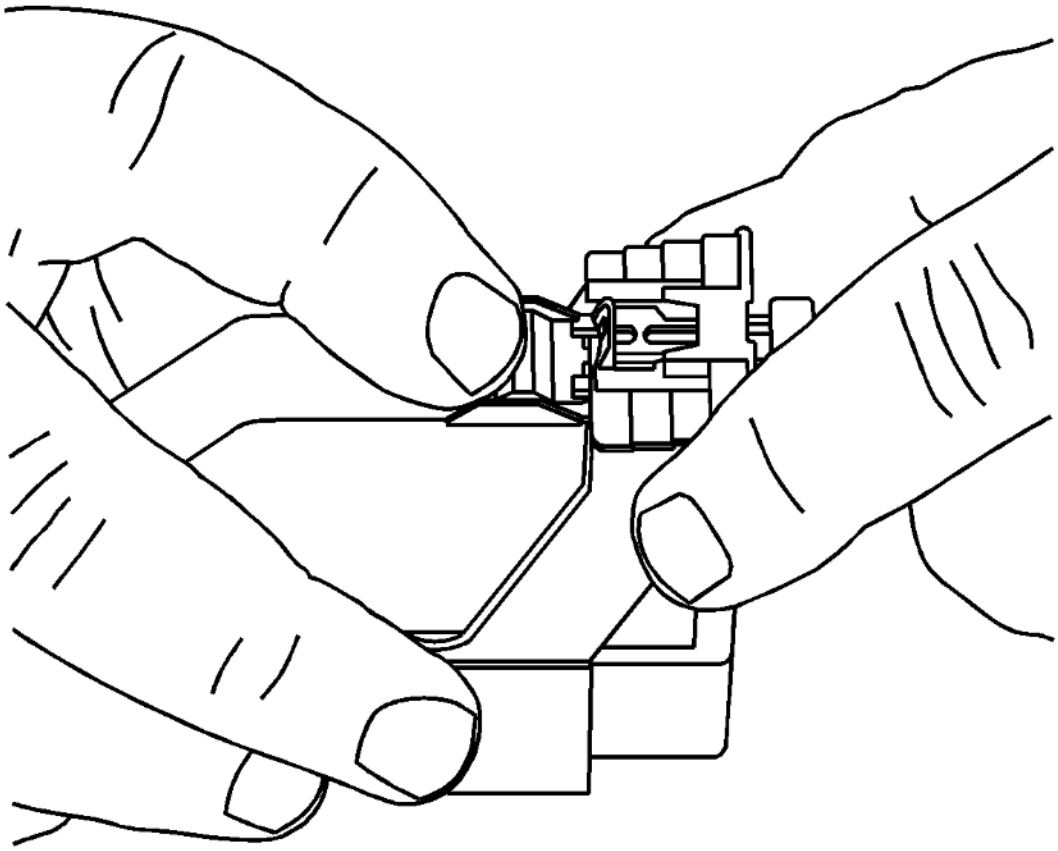

Fig. 118: View Of Lever In Full Forward Position
Courtesy of GENERAL MOTORS COMPANY

3. The lever should be in the full forward position.

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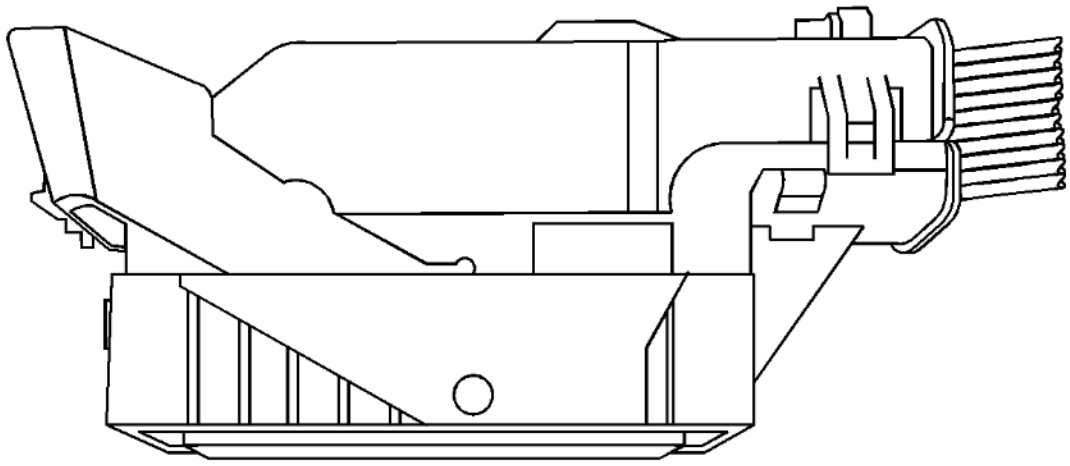

Fig. 119: View Of CPA Connector
Courtesy of GENERAL MOTORS COMPANY

4. Disconnect the connector from the component.

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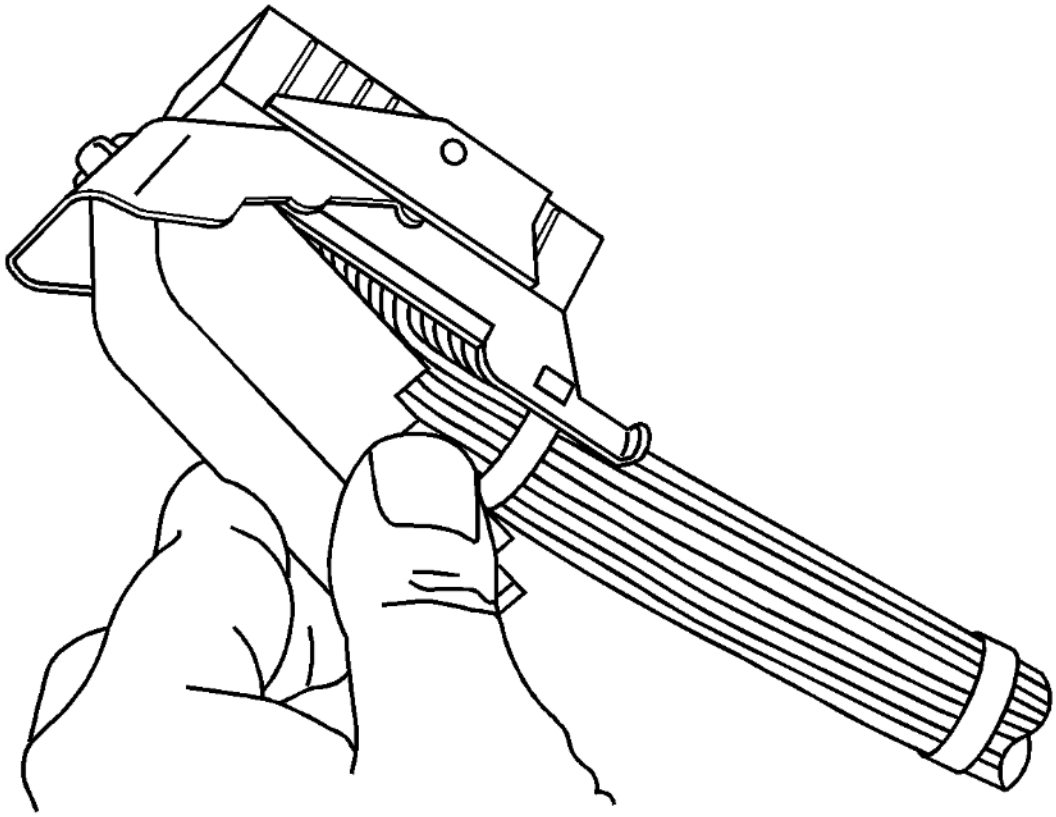

Fig. 120: View Of Dress Cover
Courtesy of GENERAL MOTORS COMPANY

5. Remove the dress cover by using a flat bladed tool to release the dress cover locking tabs and lift up on the dress cover.
6. Cut the tie wrap that holds the wires to the connector body.

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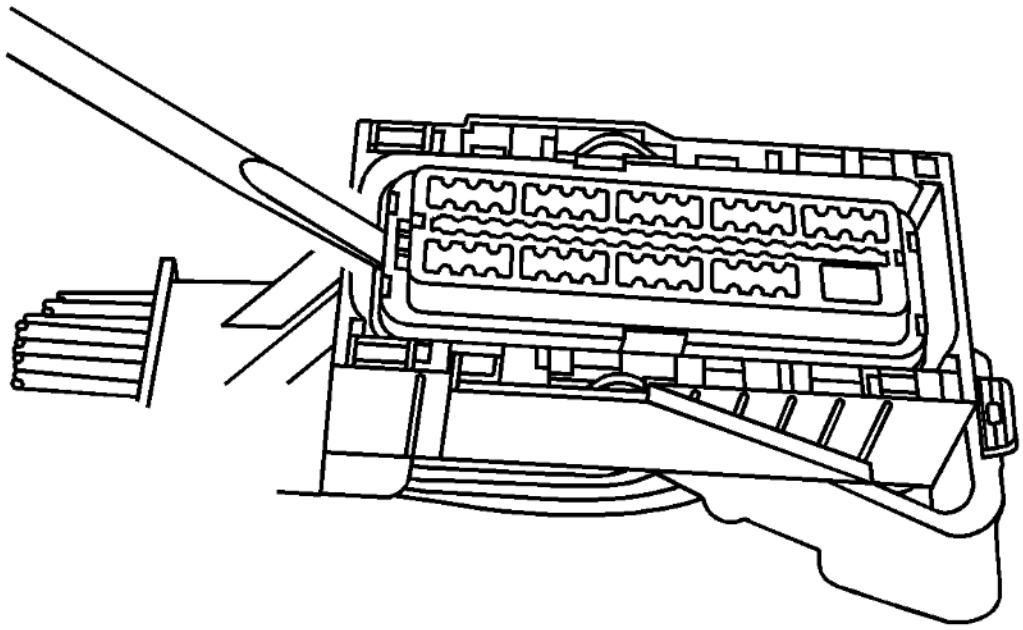

Fig. 121: Prying One Side Of Nose Piece
Courtesy of GENERAL MOTORS COMPANY

7. Use a small flat-blade tool to pry one side of the nose piece up to the pre-stage position. When the nose piece is in the pre-staged position, the nose piece will be raised above the connector body the length of the step in the nose piece.

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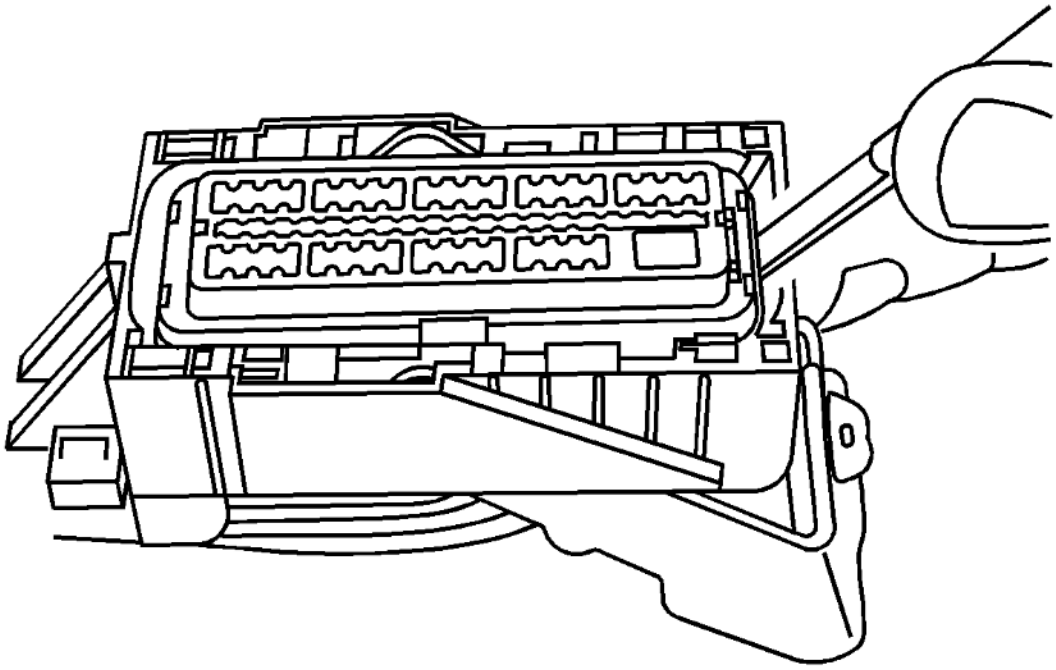

Fig. 122: Prying Side Of Nose Piece
Courtesy of GENERAL MOTORS COMPANY

8. Use a small flat-blade tool to pry the other side of the piece to the pre-stage position. If the nose piece is higher than the first step in the nose piece, gently push down on the nose piece until it meets with resistance from the connector body, you should feel the nose piece click into position.

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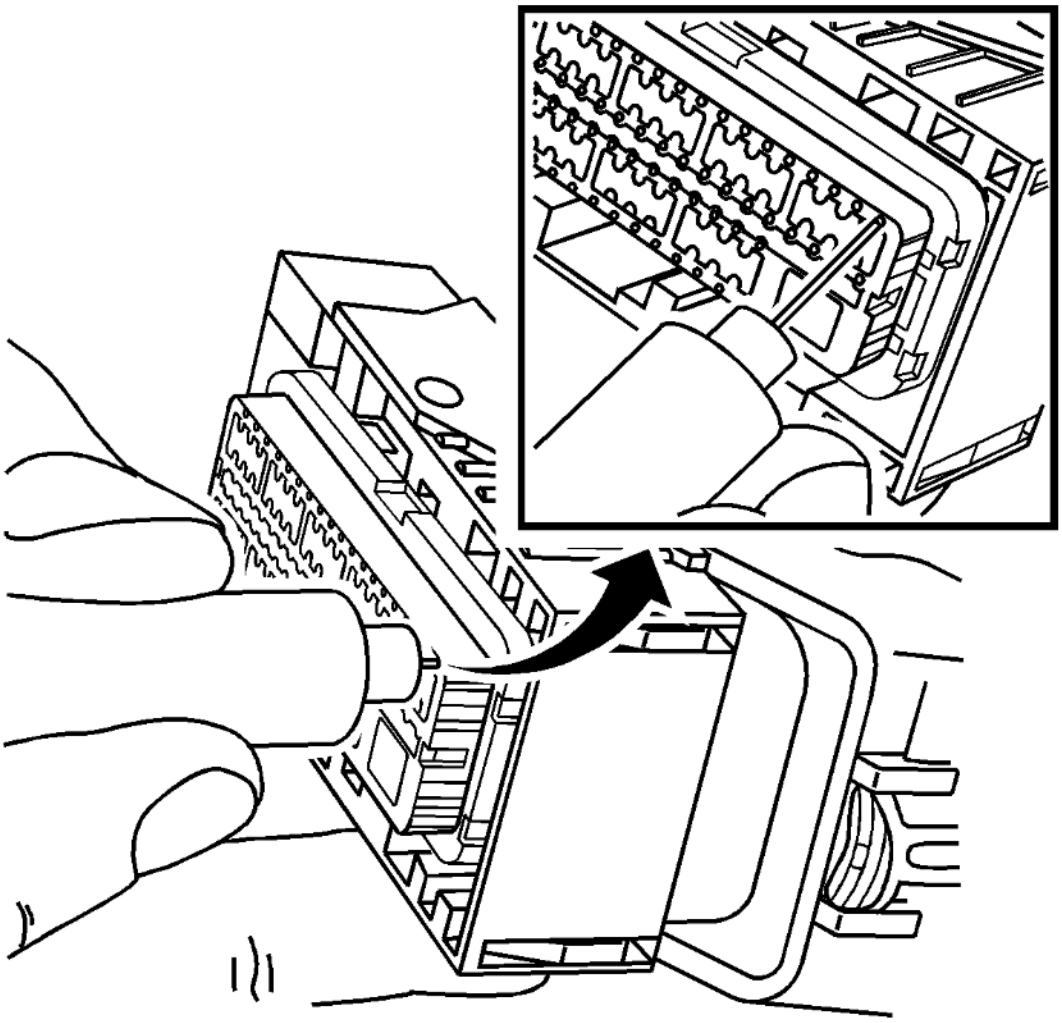

Fig. 123: Releasing Terminal
Courtesy of GENERAL MOTORS COMPANY

9. Insert the J-38125-213 into the small terminal release hole on the nose piece and gently pull on the back of the wire.
10. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
11. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

Terminated Lead Repair

1. Remove the terminal.
2. Find the appropriate terminated lead.
3. Use the appropriate splice sleeves depending on the gauge size.
4. Refer to **Wire to Wire Repair**.

Terminal Insertion Procedure

After the terminal is replaced, perform the following procedure in order to insert the terminal.

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1. Slide the new terminal into the correct cavity at the back of the connector.
2. Push the terminal into the connector until it locks into place. The new terminal should be even with the other terminals. Insure that the terminal is locked in place by gently pulling on the wire.
3. To assemble the connector, reverse the connector disassembly procedure.

MOLEX CONNECTORS (SIR)

Removal Procedure

NOTE: **The orange or yellow connector position assurance (CPA) must be released first to disconnect or to connect the connector.**

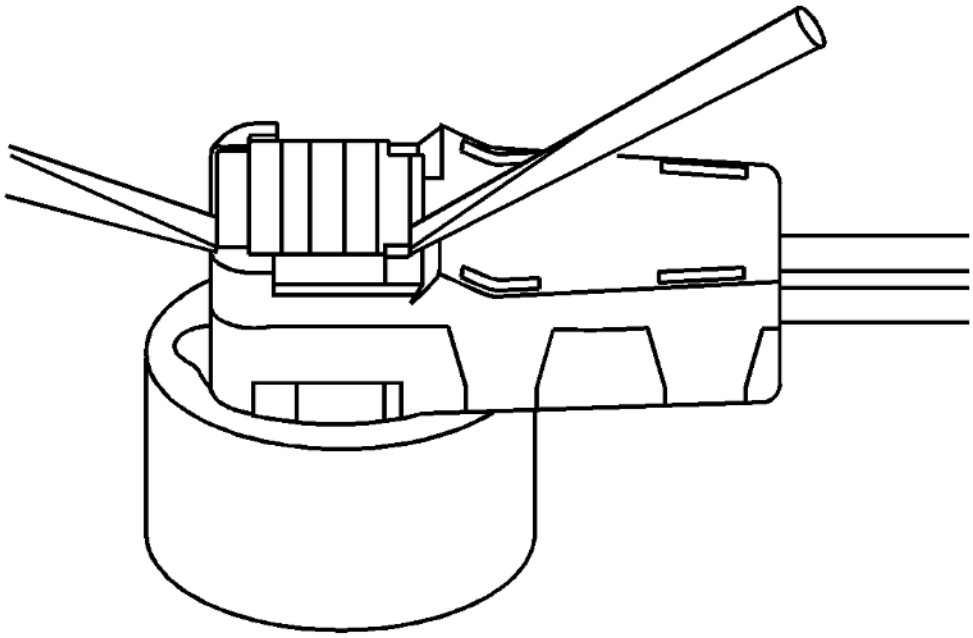

Fig. 124: Lifting Orange CPA
Courtesy of GENERAL MOTORS COMPANY

1. Lift the orange or yellow CPA vertically (avoid lifting on an angle to the connector) approximately 4 mm to release the connector. Use a small flat-bladed tool to help release the CPA. The CPA may also be released manually without any tools.

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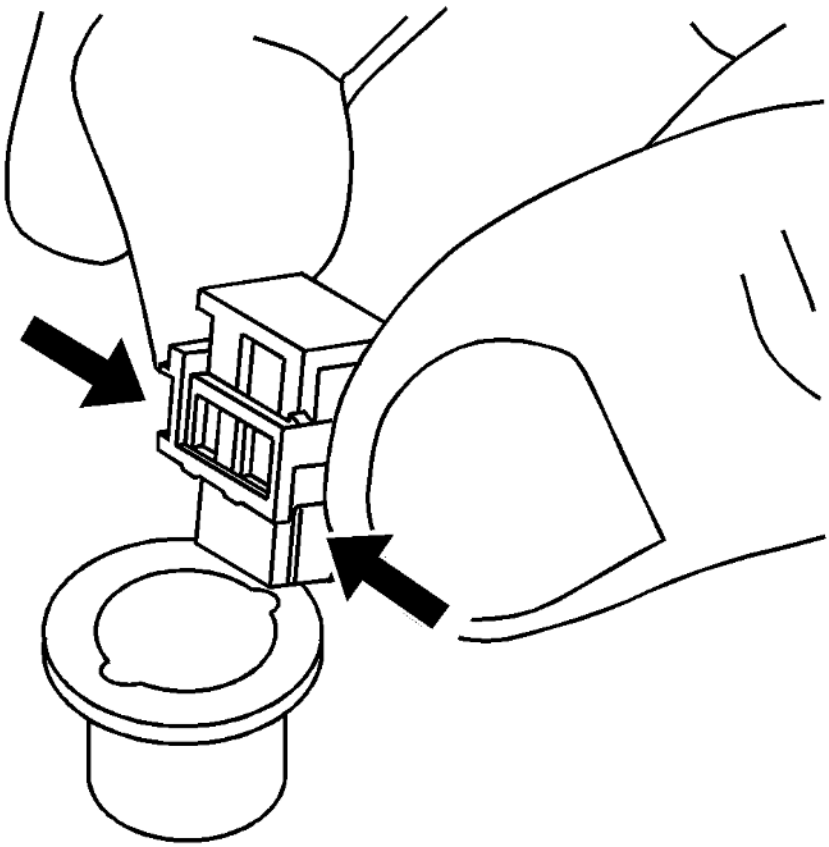

Fig. 125: Grabbing Connector On Both Sides
Courtesy of GENERAL MOTORS COMPANY

2. Grab the connector on both sides and lift vertically to disconnect the connector.

Installation Procedure

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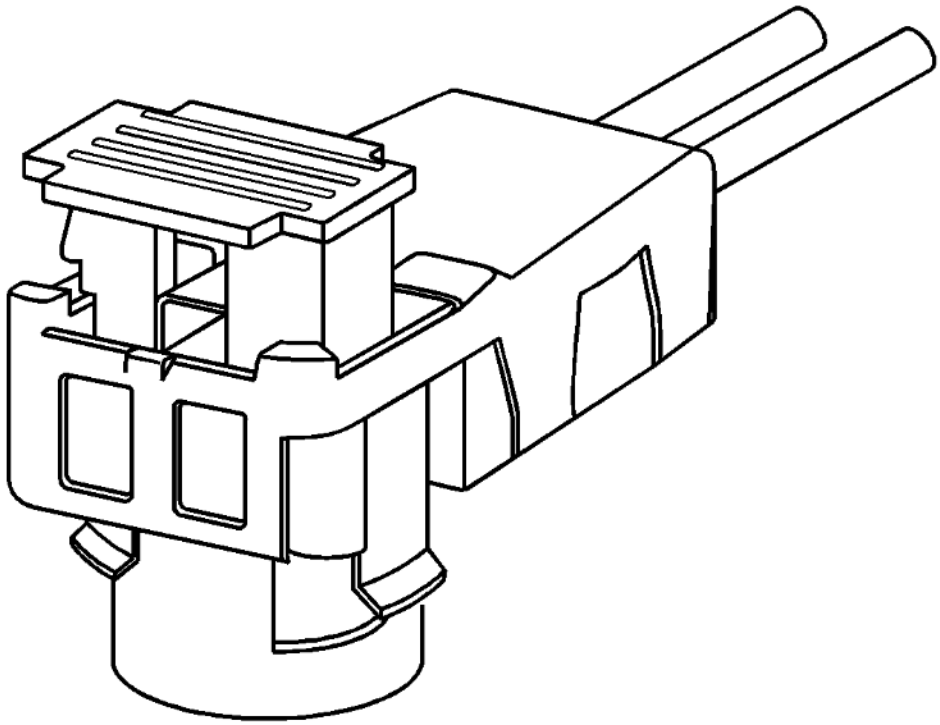

Fig. 126: Lifting Orange CPA
Courtesy of GENERAL MOTORS COMPANY

1. The CPA should be approximately 4 mm above the yellow cover before installing the connector. If not, use a small flat-bladed tool to help release the CPA. The CPA may also be released manually without any tools.

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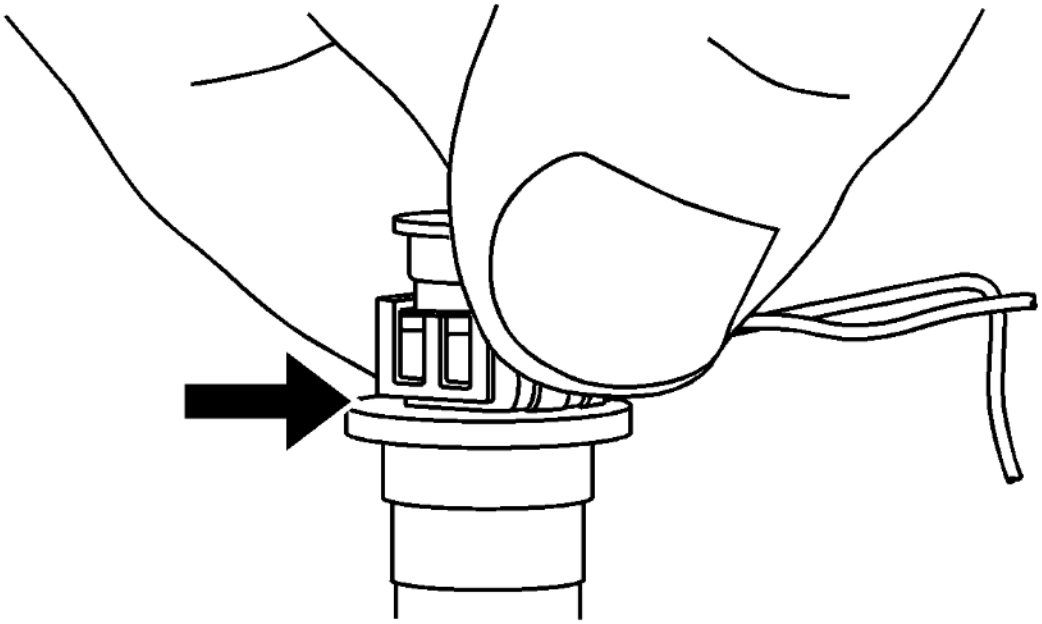

Fig. 127: Seating Connector Sub-Assembly
Courtesy of GENERAL MOTORS COMPANY

2. Line up the connector key tabs with the initiator key slots. Grab the connector on both sides and push down into the initiator connector sub assembly until fully seated.

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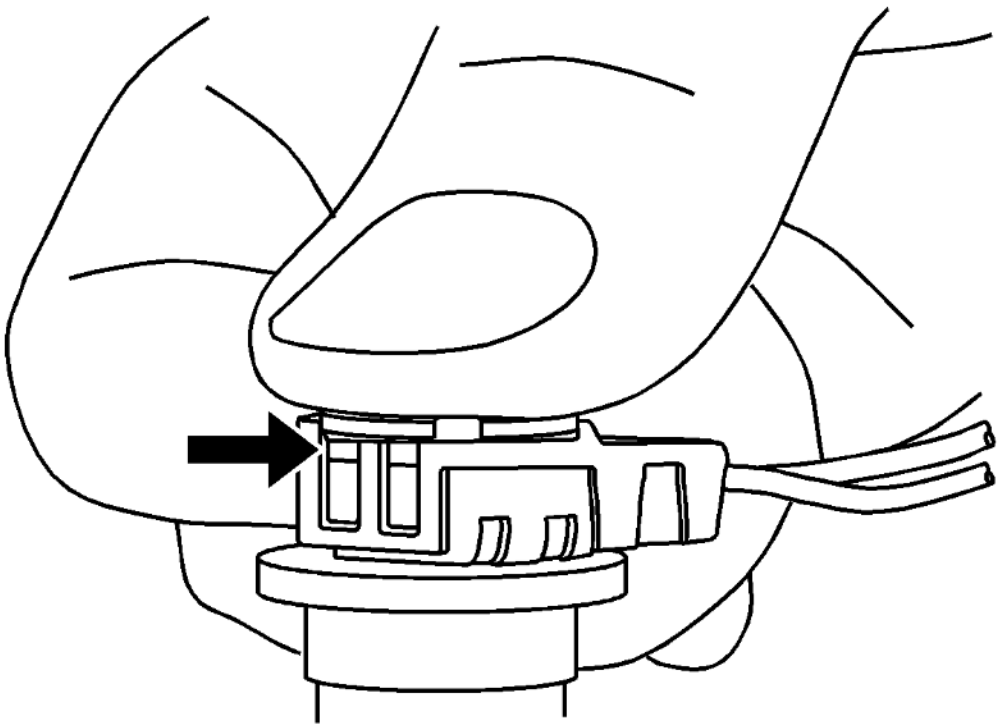

Fig. 128: Pushing CPA Down
Courtesy of GENERAL MOTORS COMPANY

3. After the connector is fully seated, push the CPA down with your thumb until the CPA is touching the yellow cover on the connector.

SUMITOMO CONNECTORS

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-12A** Terminal Release Tool
- **J-38125-552** Terminal Release Tool
- **J-38125-553** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

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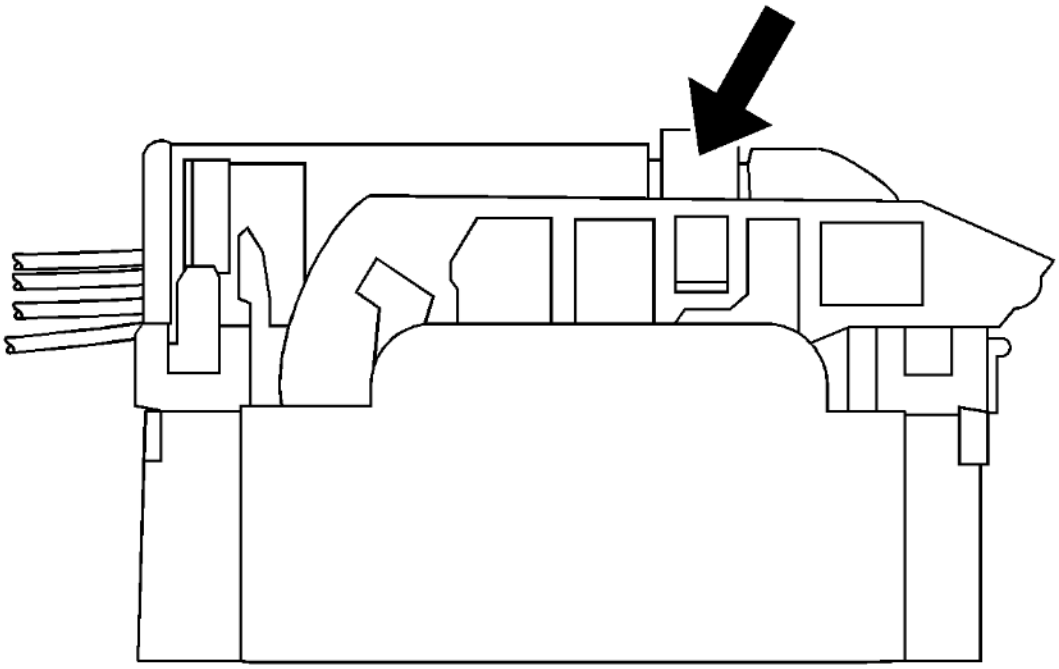

Fig. 129: Identifying Lever Lock
Courtesy of GENERAL MOTORS COMPANY

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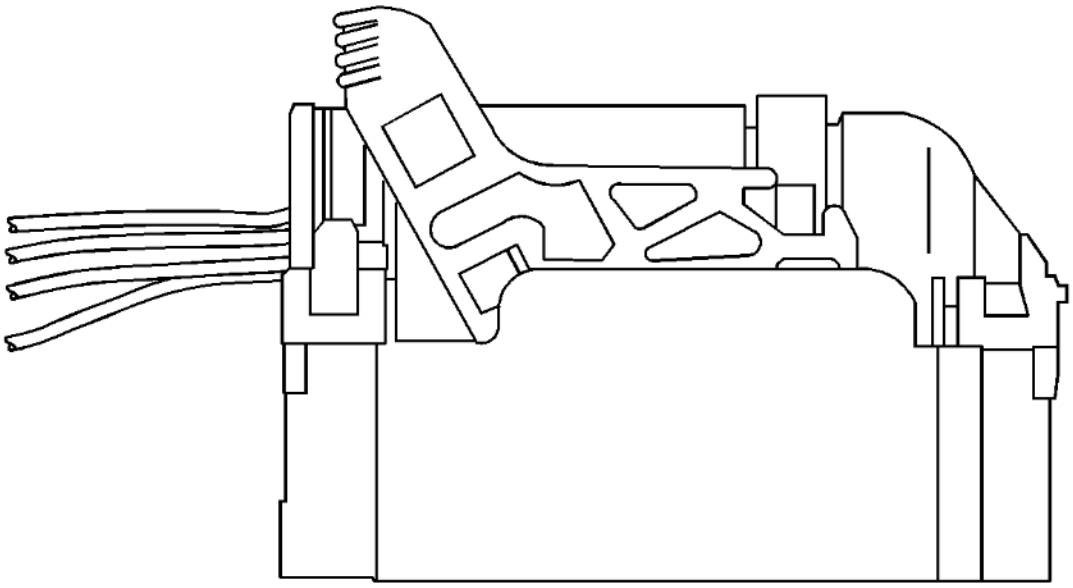

Fig. 130: View Of Lever Lock In Forward Position
Courtesy of GENERAL MOTORS COMPANY

1. Slide the lever lock forward while pressing down on the lever lock release tab.
2. Disconnect the connector from the component.

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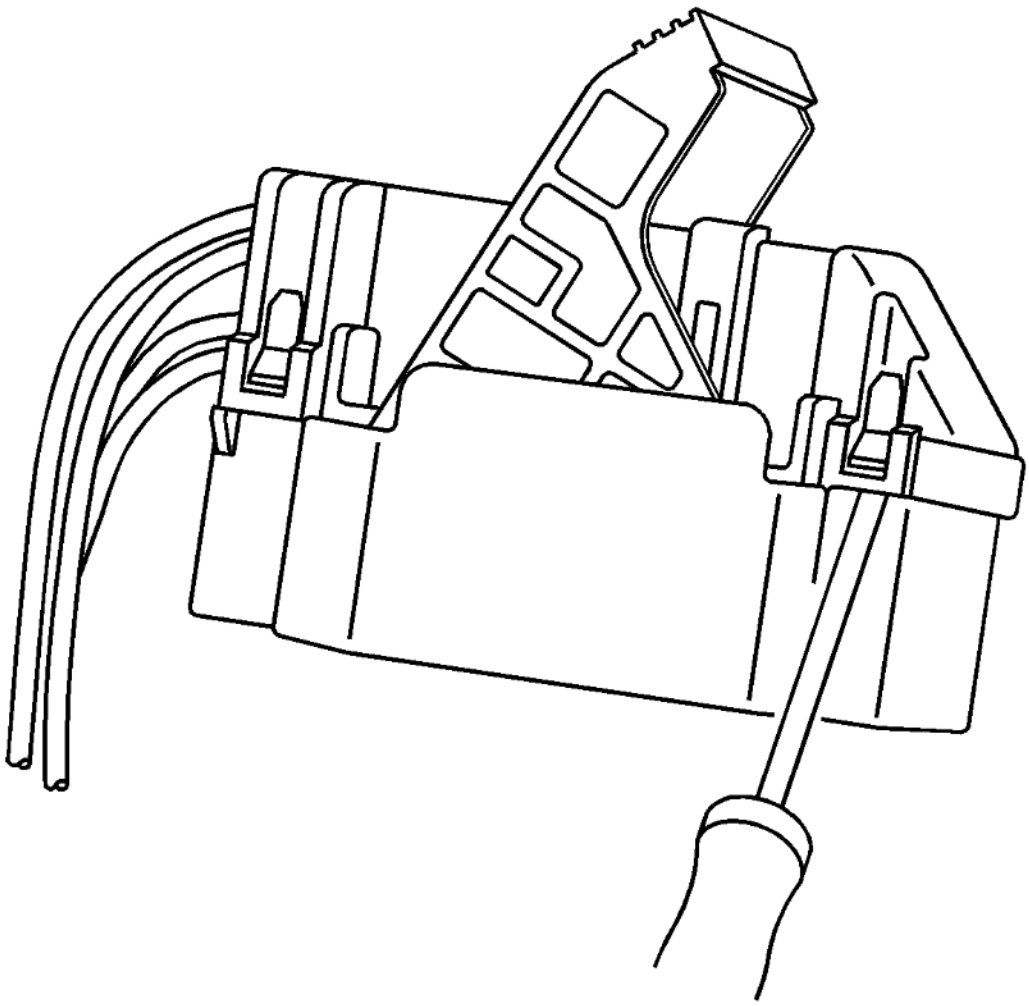

Fig. 131: View Of Connector Locking Tabs
Courtesy of GENERAL MOTORS COMPANY

3. Remove the dress cover by using a flat-blade tool to release the connector locking tabs and pulling off the dress cover.

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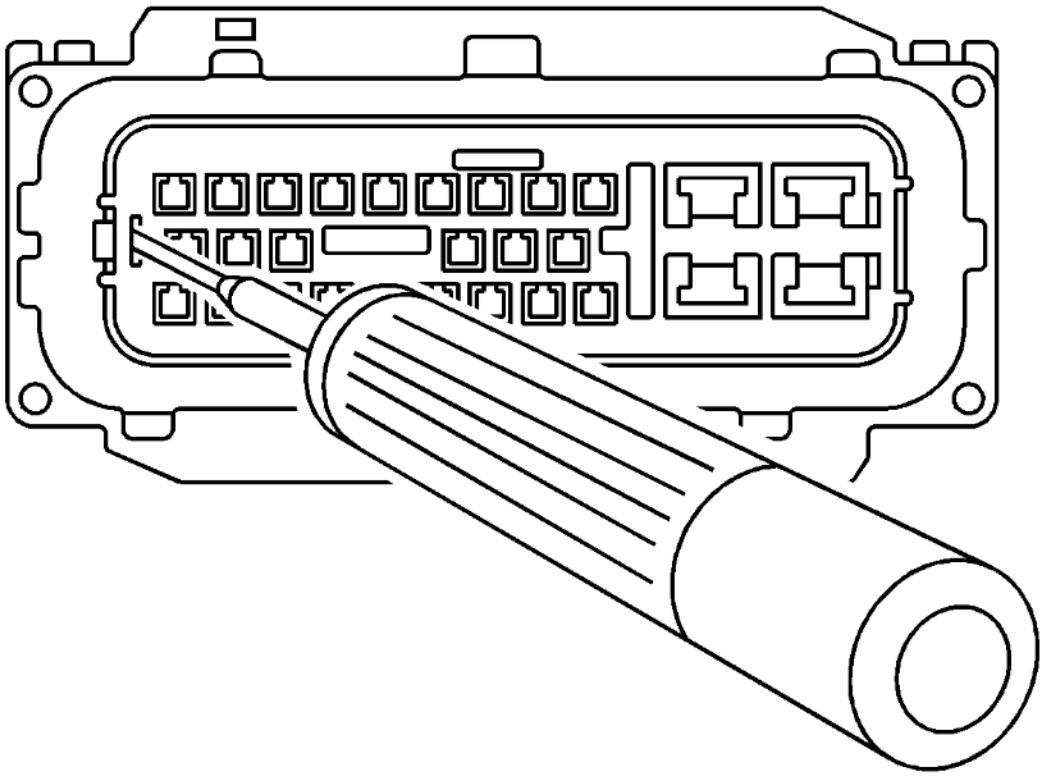

Fig. 132: Identifying Nose Piece Locking Tabs
Courtesy of GENERAL MOTORS COMPANY

4. Relieve the tension on the nose piece retainers by inserting J-38125-12A into the single retainer slot on the end of the nose piece and gently prying out the locking tab. Repeat the process for both of the nose piece locking tabs on the opposite side of the nose piece.

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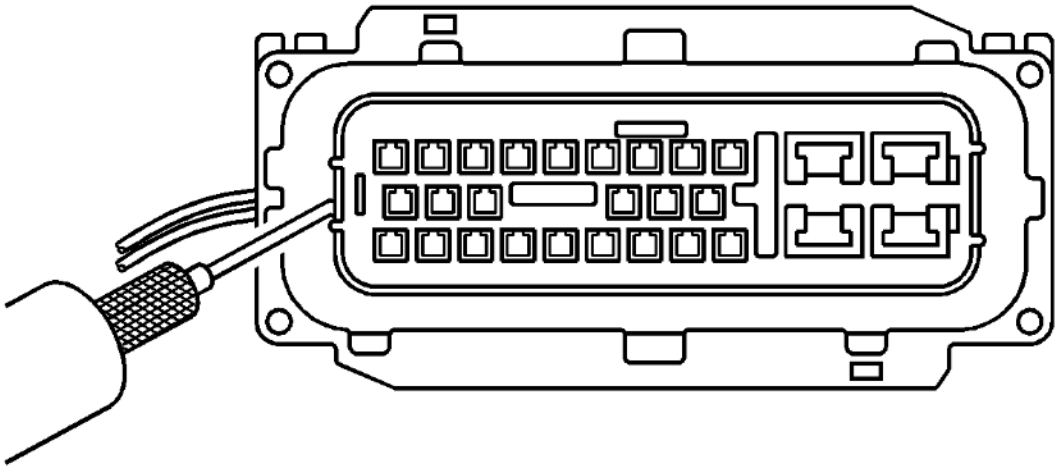

Fig. 133: Pulling Up One End Of Nose Piece (1st Side)
Courtesy of GENERAL MOTORS COMPANY

5. Once the nose piece retainers are relaxed, use the J-38125-552 to pull up the nose piece by hooking the tool under the nose piece and pulling up. The nose piece should raise slightly.

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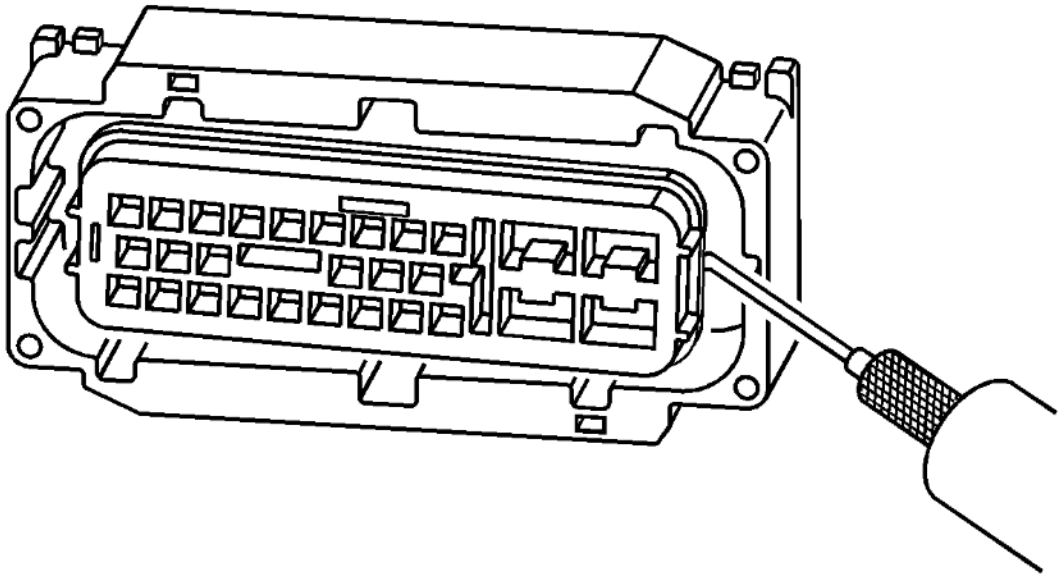

Fig. 134: Pulling Up One End Of Nose Piece (2nd Side)
Courtesy of GENERAL MOTORS COMPANY

6. On the opposite side of the nose piece, use the J-38125-552 pull up the nose piece by hooking the tool under the nose piece and pulling up. The nose piece should release completely. If the nose piece does not come off, repeat the procedure on the opposite side.

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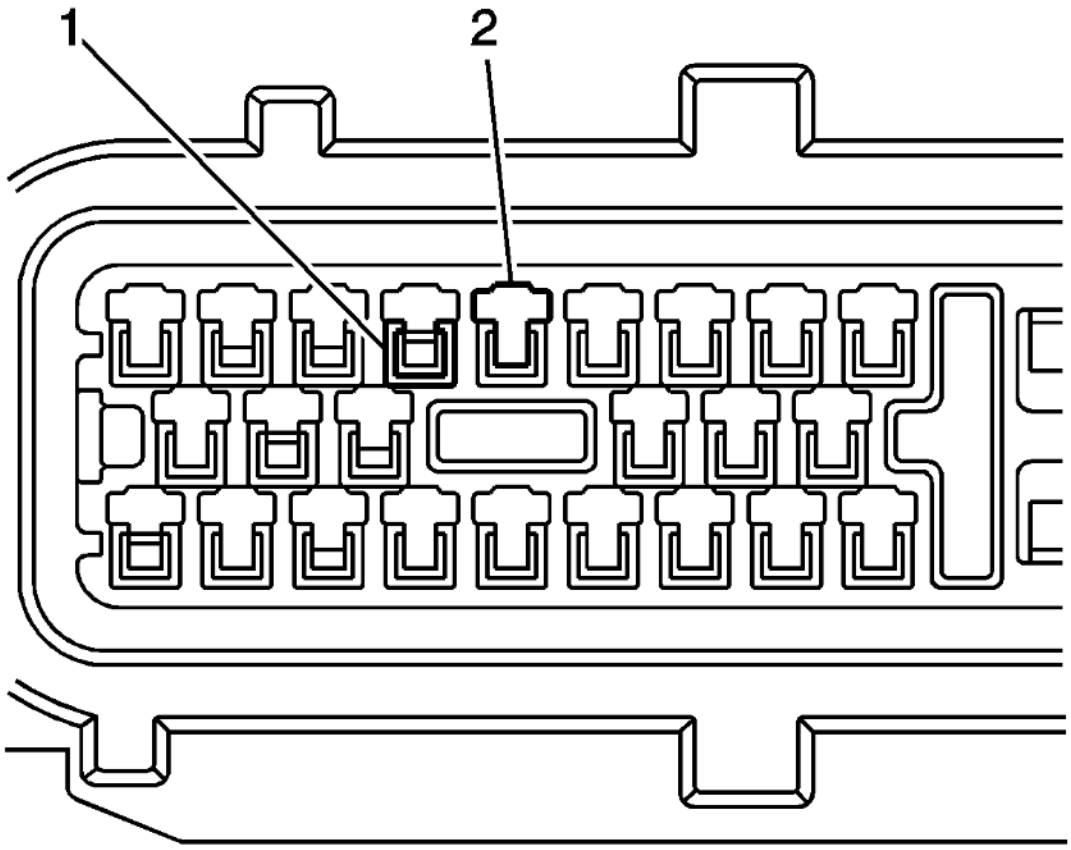

Fig. 135: View Of Terminal & Entry Canal
Courtesy of GENERAL MOTORS COMPANY

7. The illustration above identifies the entry canal where the terminal release tool will be inserted, and the terminal cavity.
    - Terminal (1)
    - Entry Canal (2)

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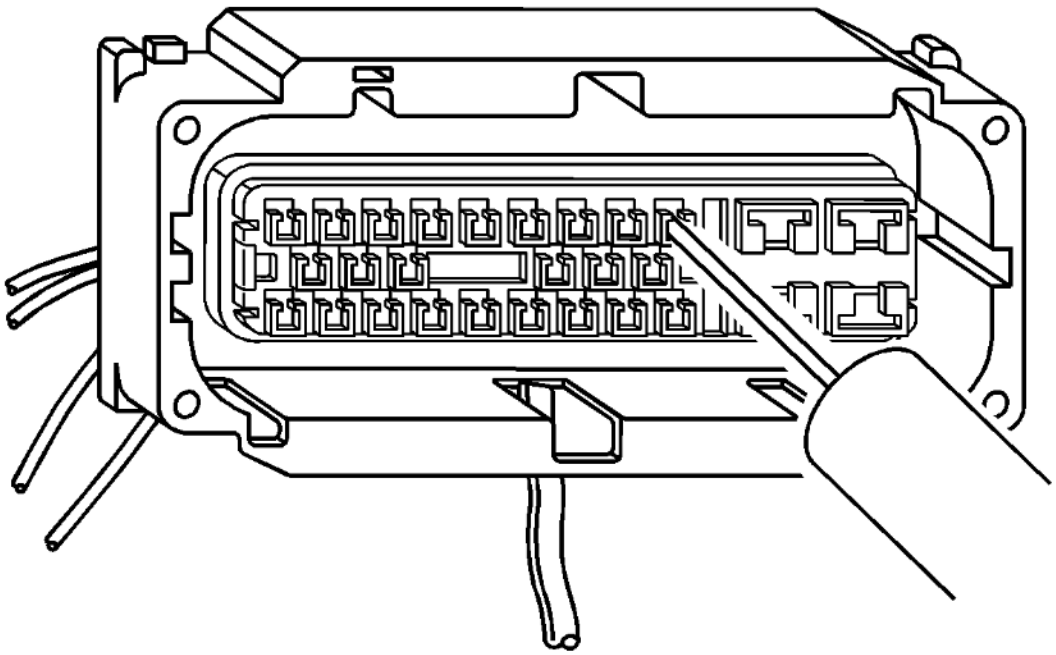

Fig. 136: Inserting J-38125-553 (15315247) Tool Into Entry Canal
Courtesy of GENERAL MOTORS COMPANY

8. Insert the J-38125-553 tool into the entry canal and pry up on the terminal retainer. The terminal retainer is a small plastic piece on the top of the terminal. The terminal retainer must be held up while the terminal is pulled out of the connector.

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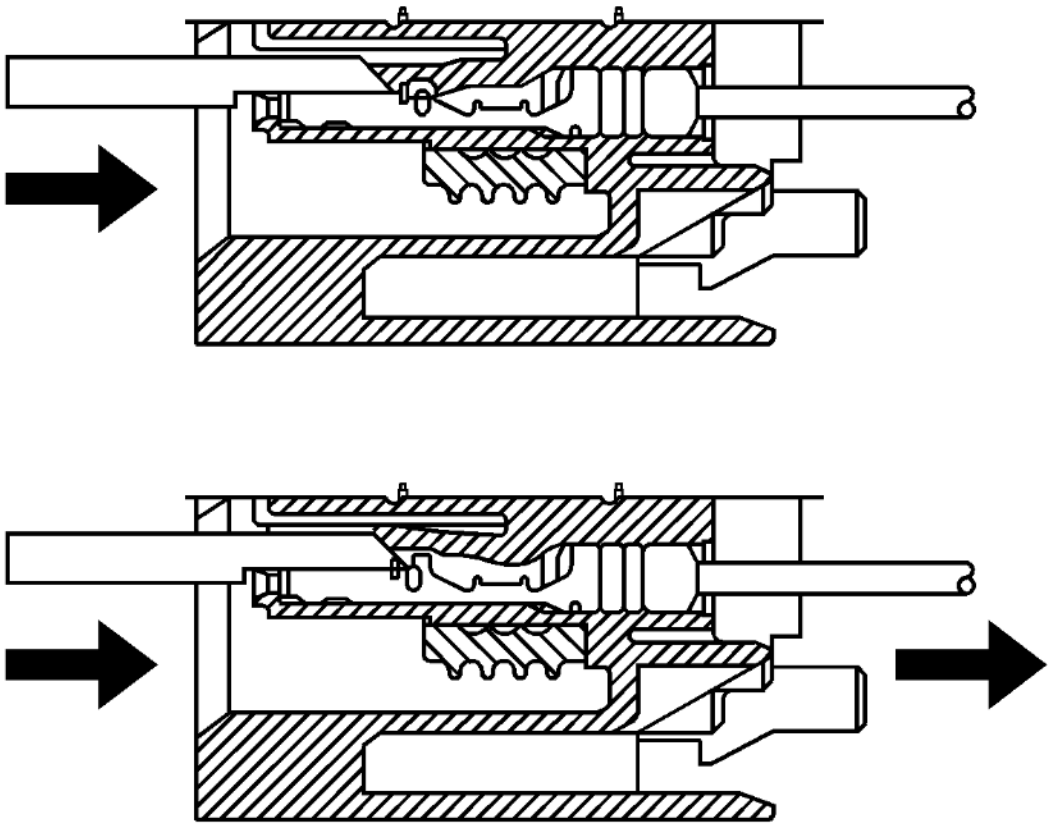

Fig. 137: Cutaway View Of Connector
Courtesy of GENERAL MOTORS COMPANY

9. The illustration shows a cutaway view of the connector to aid the technician in releasing the terminal retainer.
10. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
11. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

Terminal Insertion Procedure

After the terminal is replaced, perform the following procedure in order to insert the terminal.

1. Slide the new terminal into the correct cavity at the back of the connector.
2. Push the terminal into the connector until it locks into place. The new terminal should be even with the other terminals. Ensure that the terminal is locked in place by gently pulling on the wire.
3. To assemble the connector, reverse the connector disassembly procedure.

TYCO/AMP CONNECTORS (CM 42-WAY)

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Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-12A** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

1. Locate the connector position assurance (CPA) on the connector body and pull the CPA out. The CPA is on the wire harness side of connector.
2. Disconnect the connector from the component.

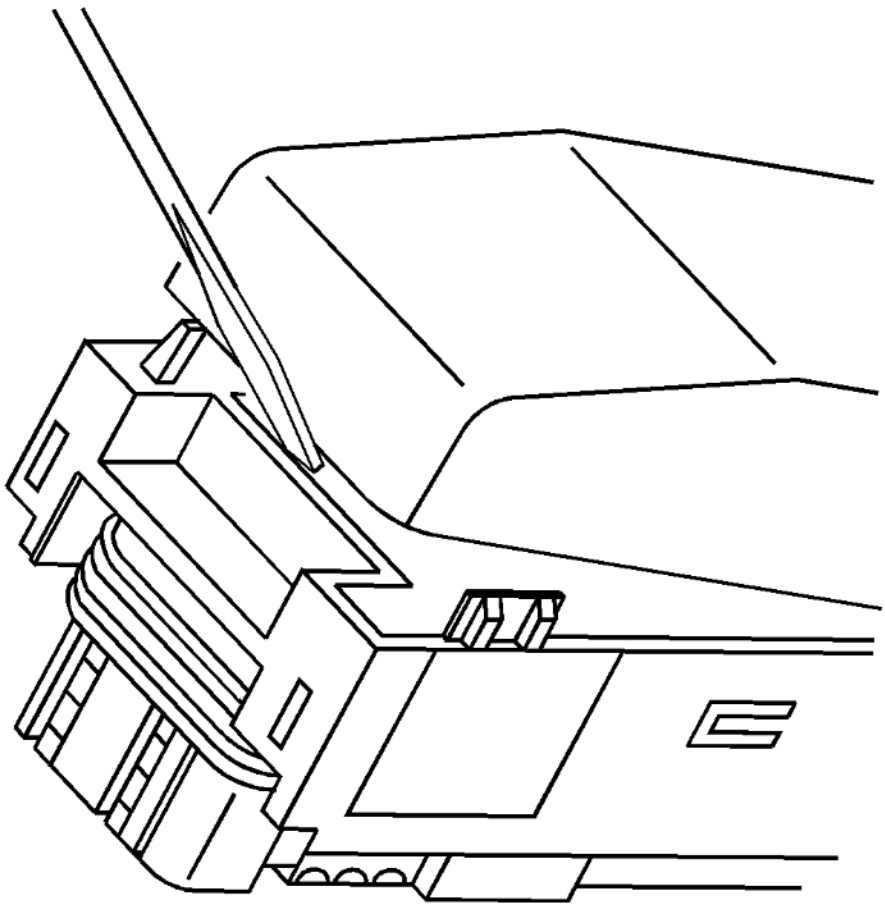

Fig. 138: View Of Dress Cover
Courtesy of GENERAL MOTORS COMPANY

3. Use a small flat-bladed tool to gently pry off the dress cover by inserting the tool under the cover opposite the harness side and prying up.
4. Remove the cover.

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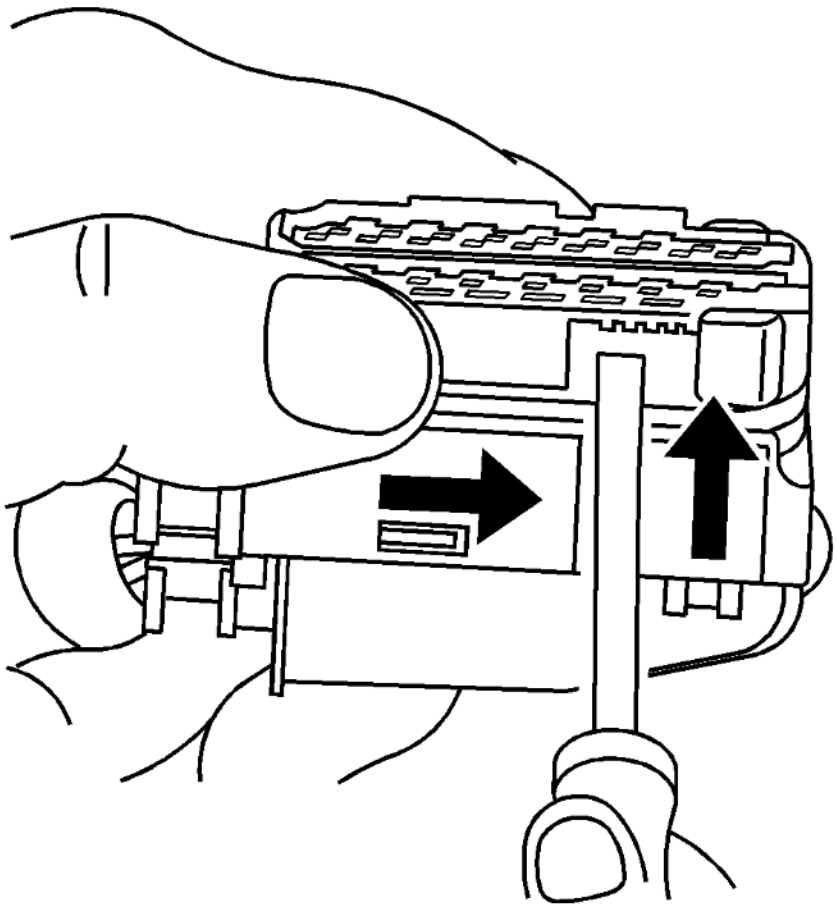

Fig. 139: View Of Terminal Position Assurance (TPA)
Courtesy of GENERAL MOTORS COMPANY

5. Using a small flat-bladed tool, push on the side of the nose piece retainer while pushing the nose piece forward with your thumb. This will release the terminal position assurance (TPA).

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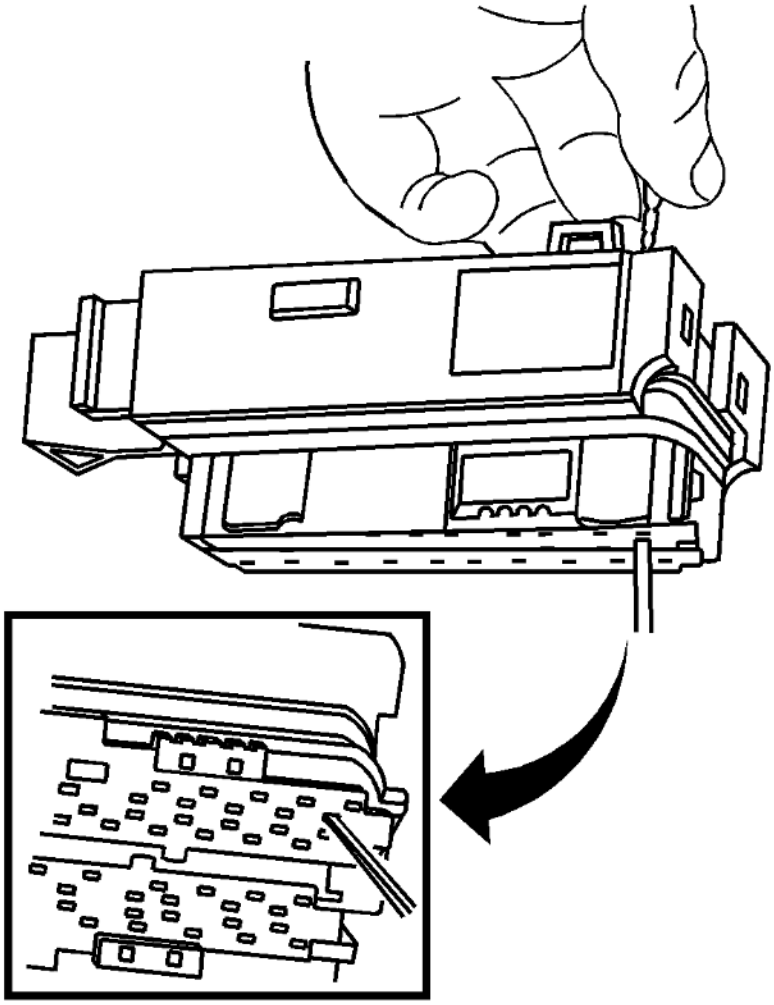

Fig. 140: Inserting Special Tool Into Terminal Release Cavity
Courtesy of GENERAL MOTORS COMPANY

6. Insert the **J-38125-12A** tool into the corresponding terminal release cavity. The release cavities are the 2 center rows of cavities on one half of the connector.

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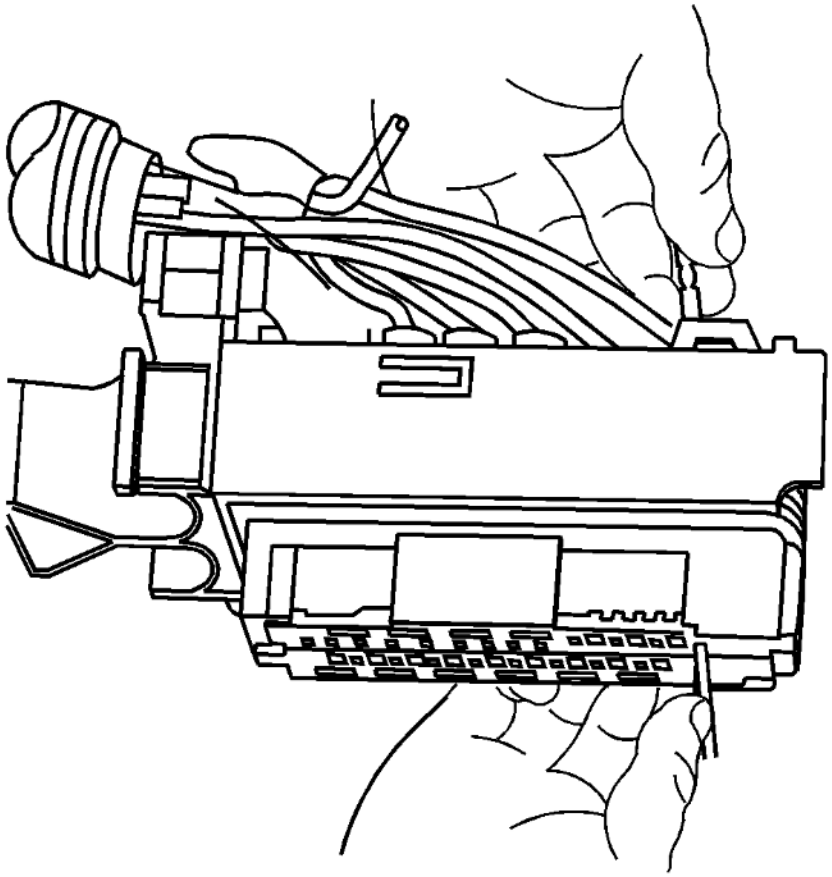

Fig. 141: Identifying Special Tool & Release Cavity
Courtesy of GENERAL MOTORS COMPANY

7. Pressing the **J-38125-12A** tool in the release cavity of the terminal you are removing, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
8. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
9. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

TYCO/AMP CONNECTORS (SENSOR)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-11A** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

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Terminal Removal Procedure

1. Disconnect the connector from the component.

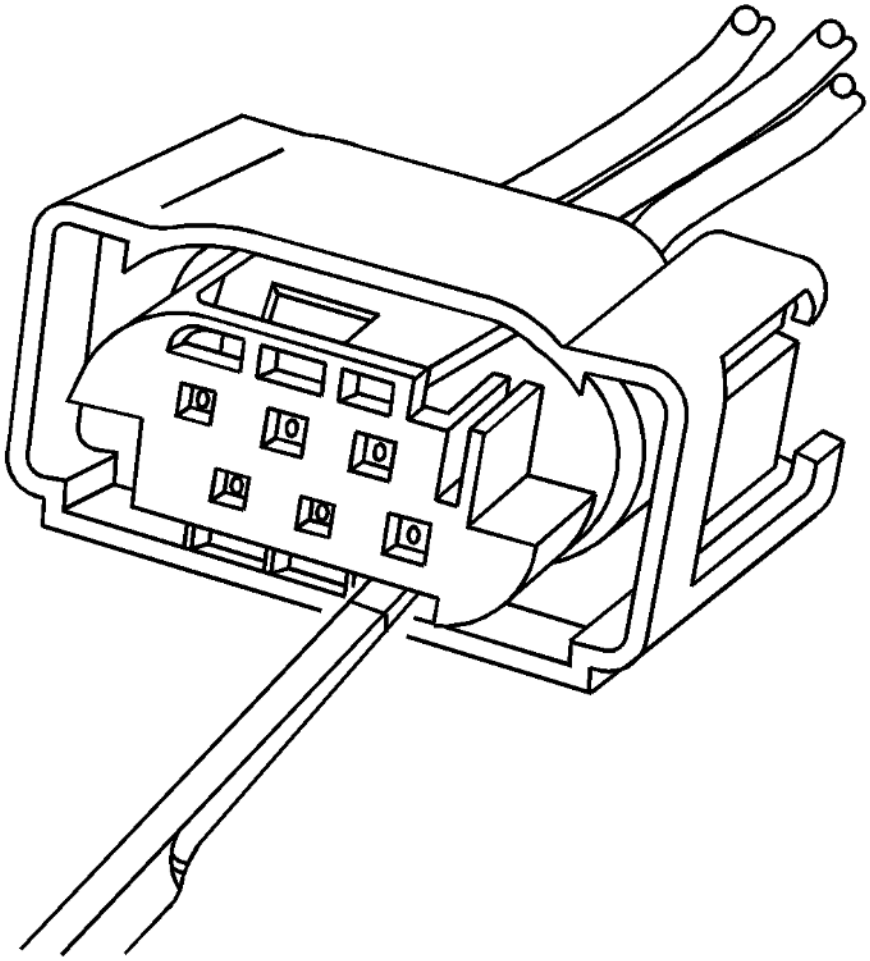

Fig. 142: View Of Inserting Special Tool Into Lower Right Face Cavity
Courtesy of GENERAL MOTORS COMPANY

2. Insert the J-38125-11A tool into the cavity on the lower right hand face of the connector until the terminal release tang access panel slides over.

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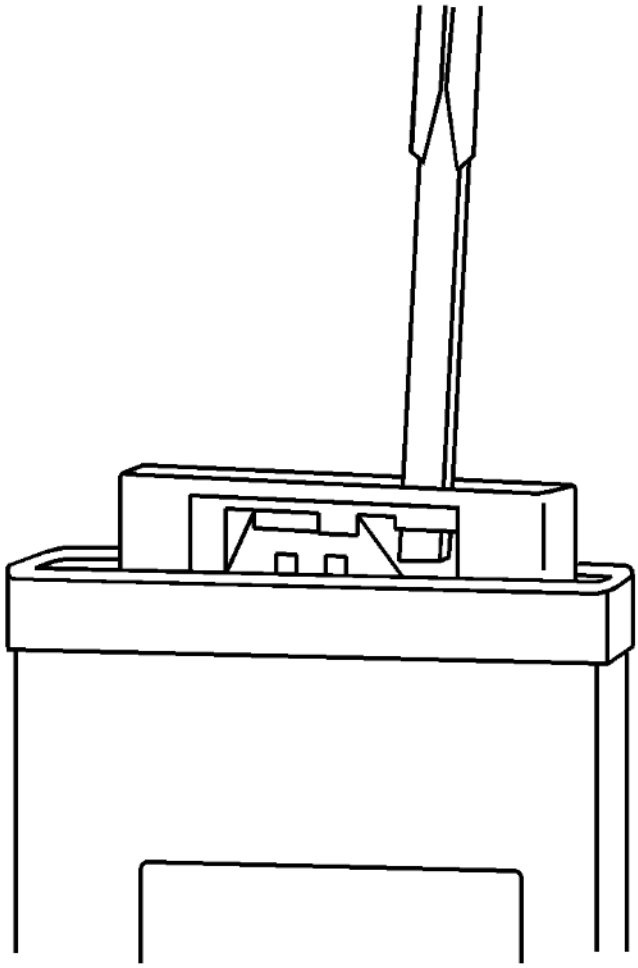

Fig. 143: Pushing Wire Side Of Terminal Toward Connector
Courtesy of GENERAL MOTORS COMPANY

3. Ensure that the terminal release tang access panel is in the correct location to access the terminals.
4. Push the wire side of the terminal that is being removed toward the connector and hold it in position.

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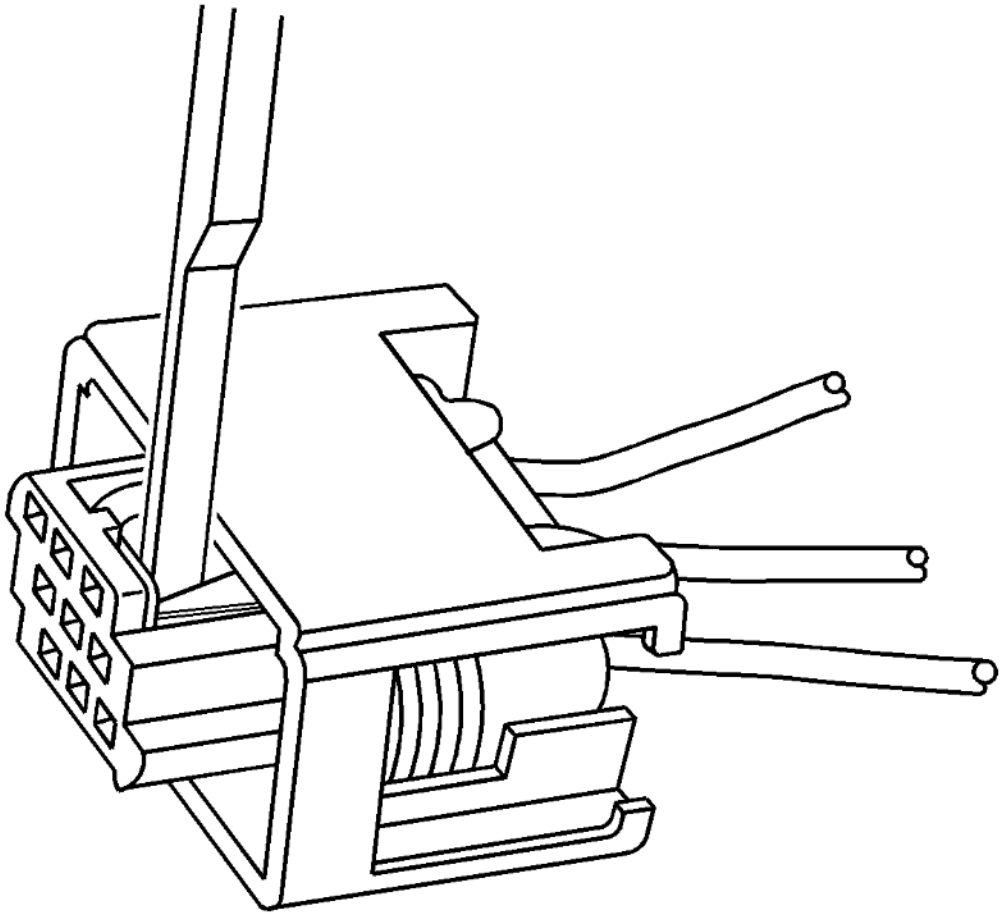

Fig. 144: View Of Inserting Tool Into Terminal Release Tang Access Slot (Sensor)
Courtesy of GENERAL MOTORS COMPANY

5. Insert the J-38125-11A into the terminal release tang access slot located behind the access panel of the connector and press down on the terminal while carefully pulling the terminal out of the connector. Always remember never use force when pulling a terminal out of a connector. If the terminal is difficult to remove, repeat the entire procedure.
6. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
7. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

TYCO/AMP CONNECTORS (0.25 CAP)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-24** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

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Terminal Removal Procedure

1. Disconnect the connector from the component by pressing down on the connector position assurance (CPA).

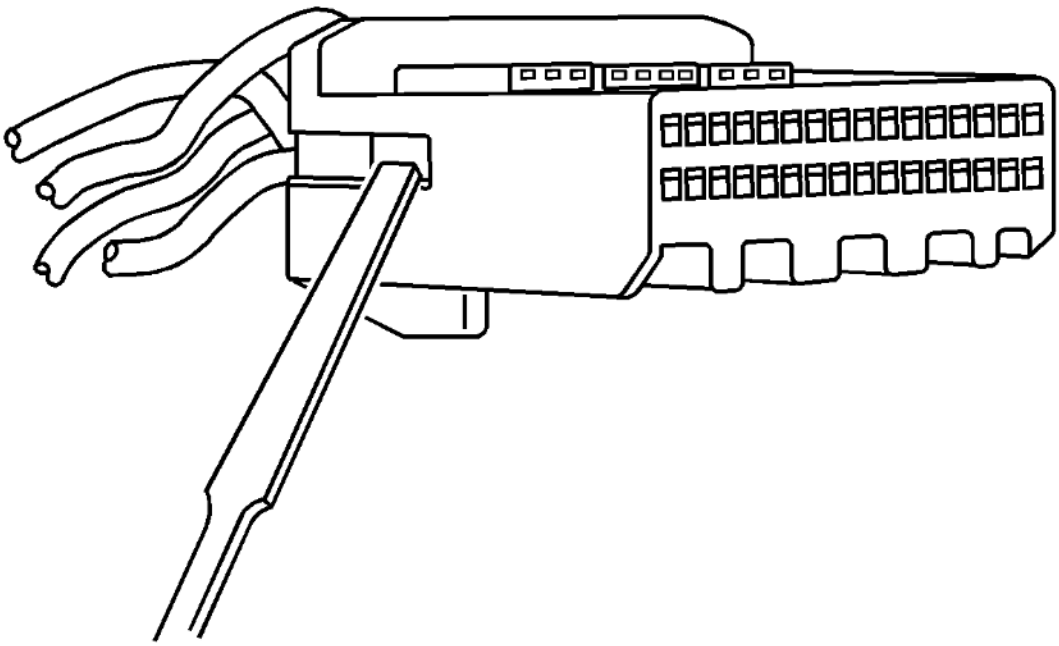

Fig. 145: Releasing TPA Using Small Flat-Bladed Tool
Courtesy of GENERAL MOTORS COMPANY

NOTE: **The TPA on this connector cannot be removed unless the terminals are removed first. The TPA will come out of the connector body, but only slightly. When the TPA is slightly raised the terminals can be removed. Using excessive force to remove the TPA with the terminals still in the connector will damage the connector.**

2. Use a small flat-bladed tool to release the terminal position assurance (TPA) by inserting the tool in the small recess on the side of the connector and pushing up until the TPA releases from the connector body. The TPA should raise just slightly. Do not try to remove the TPA.
3. Repeat the process for the other side of the connector.

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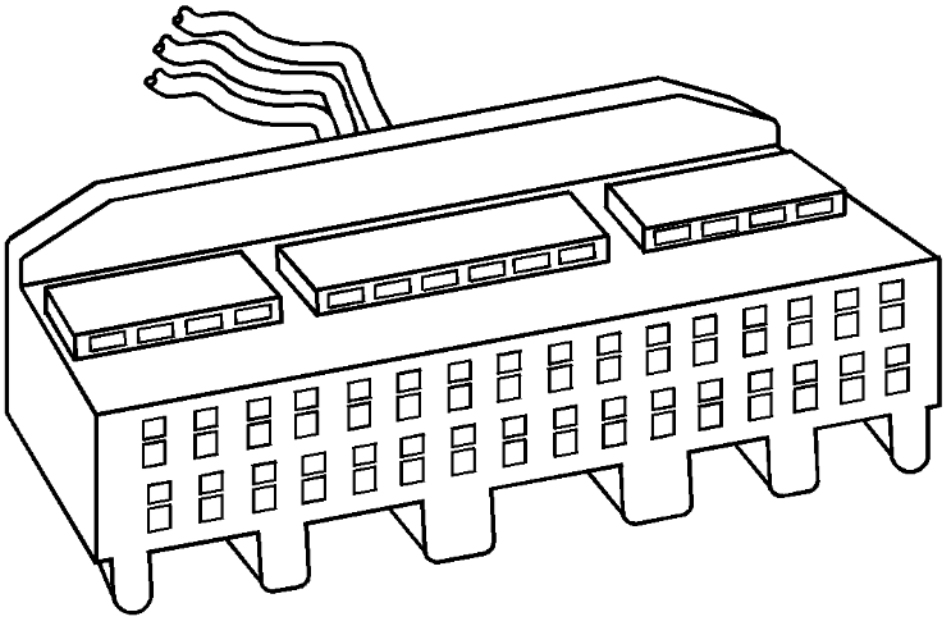

Fig. 146: View Of Terminal Position Assurance
Courtesy of GENERAL MOTORS COMPANY

4. Ensure that the TPA is in the proper position to remove the terminals.

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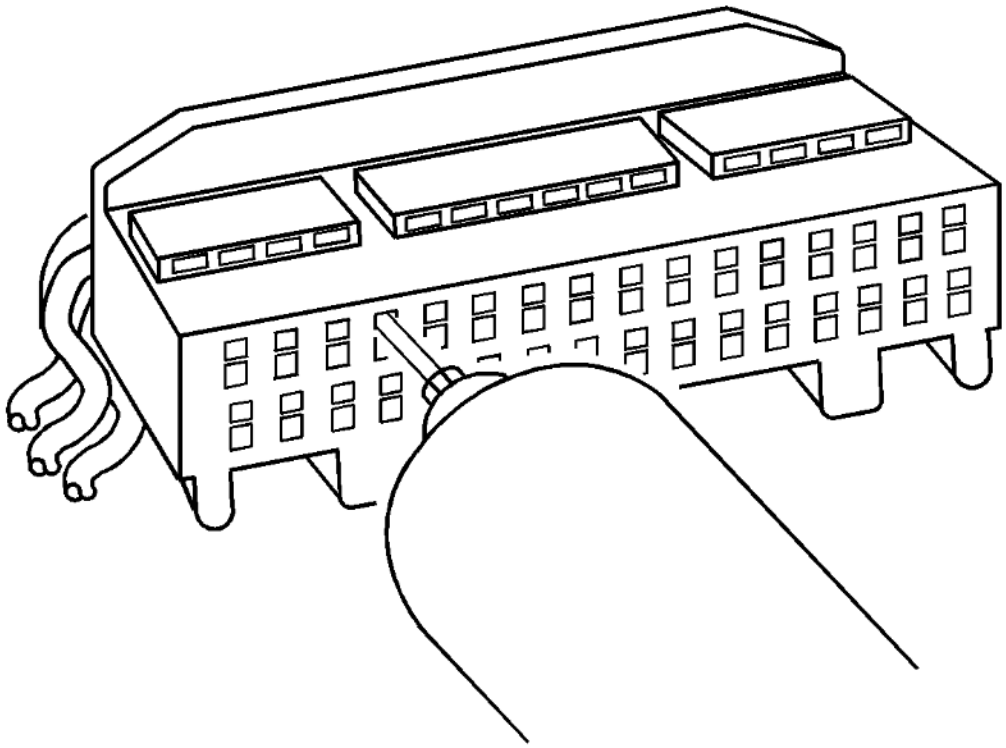

Fig. 147: Identifying Special Tool & Release Cavity
Courtesy of GENERAL MOTORS COMPANY

5. While pushing the terminal forward, insert the J-38125-24 in the release cavity above the terminal you are removing, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
6. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
7. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

TYCO/AMP CONNECTORS (43-WAY)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-12A** Terminal Release Tool
- **J-38125-13A** Terminal Release Tool

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For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

Follow the steps below in order to remove terminals from the connector.

1. Locate the lever lock on the wire dress cover. Slide the lever lock away from the connector body.
2. Disconnect the connector from the component.
3. Locate the dress cover locking tabs on the dress cover of the connector. Using a small flat-bladed tool release all of the locking tabs.
4. Once the locks are unlocked, lift the dress cover off.

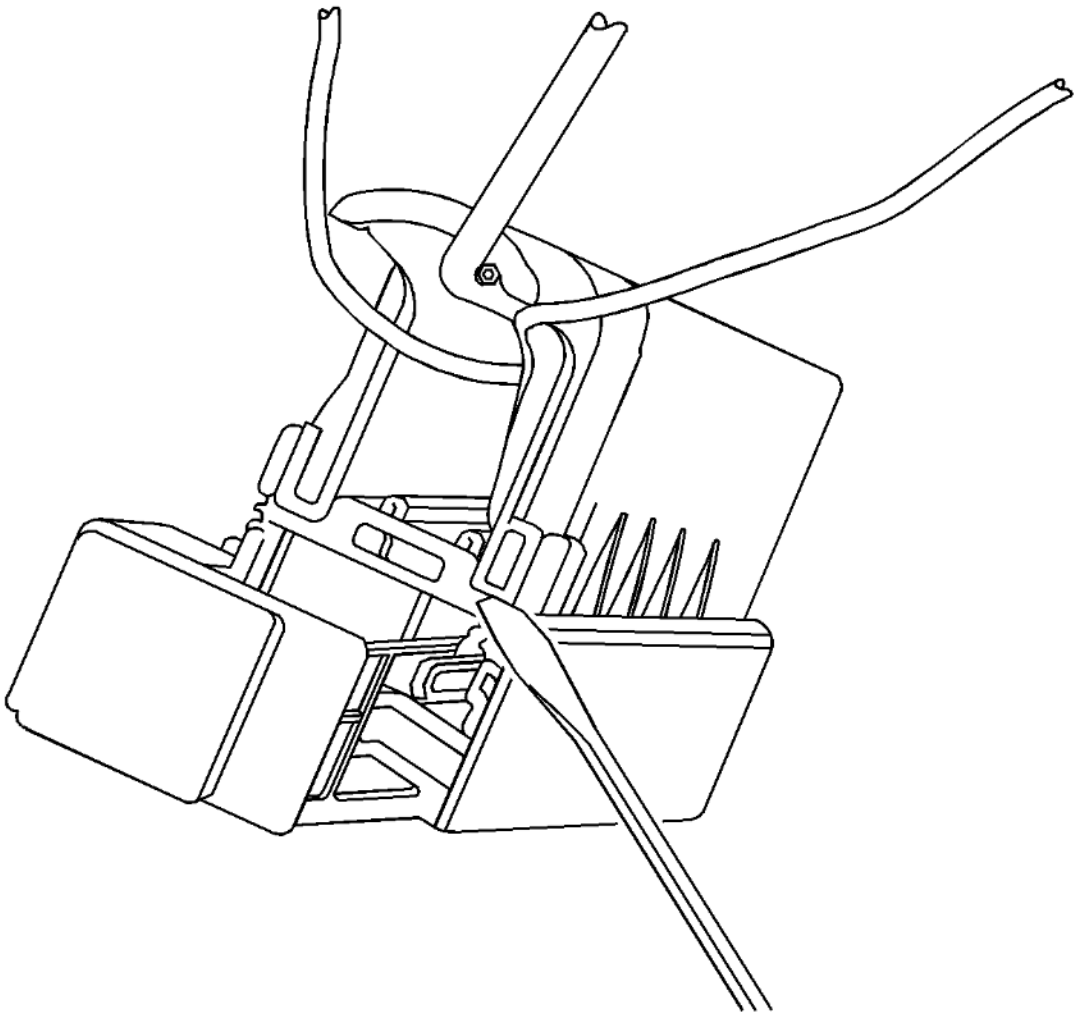

Fig. 148: Releasing TPA
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Always use care when removing a terminal position assurance (TPA) in order to avoid damaging it.**

5. Release the TPA by inserting a small flat-bladed tool into the blue locking tabs on both ends of the connector. Gently slide the TPA up to the released position on both ends.

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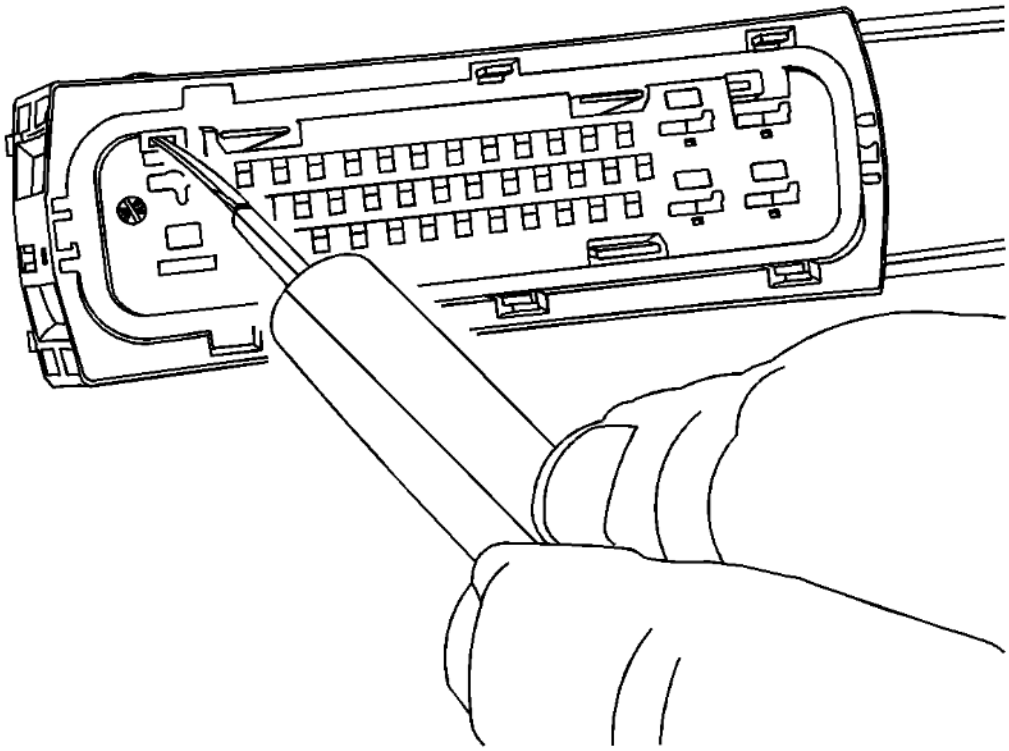

Fig. 149: View Of Inserting Tool Into Terminal Release Cavity
Courtesy of GENERAL MOTORS COMPANY

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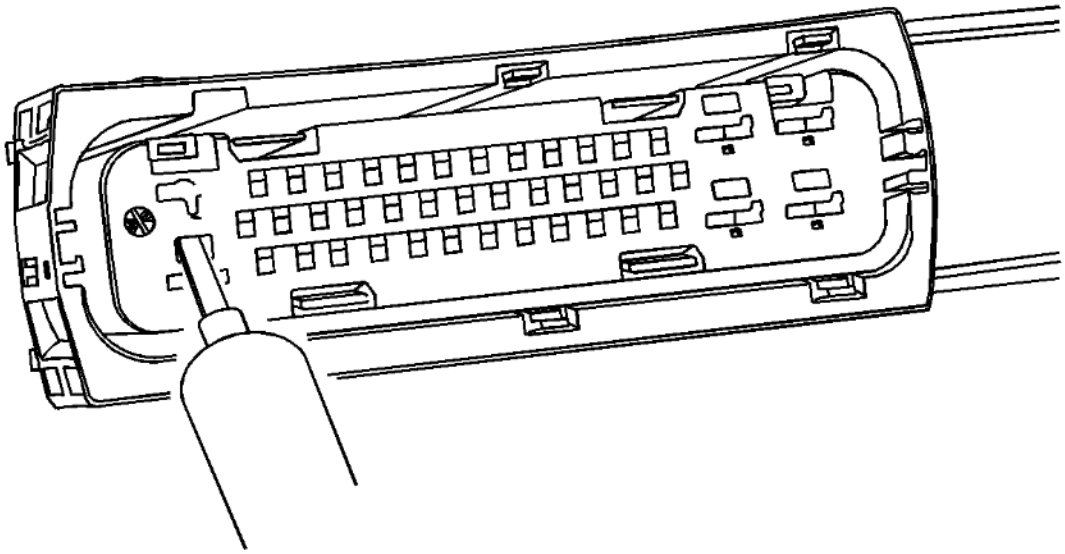

Fig. 150: View Of Release Tool Being Used For Larger Terminals
Courtesy of GENERAL MOTORS COMPANY

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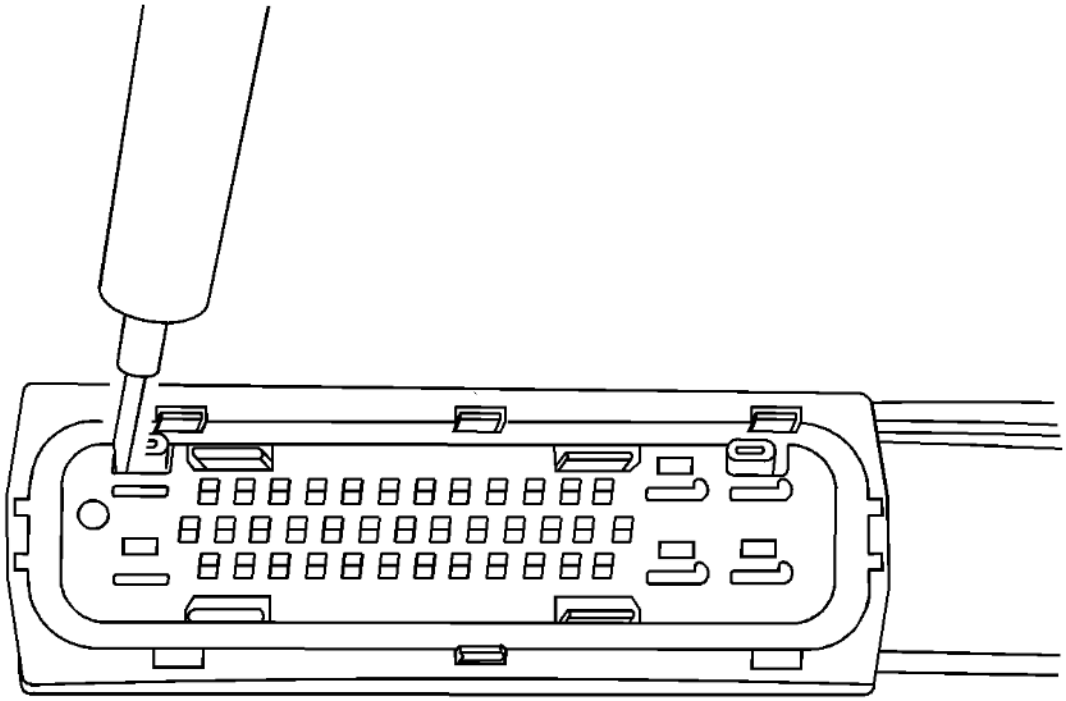

Fig. 151: View Of Release Tool Being Used For Larger Terminals
Courtesy of GENERAL MOTORS COMPANY

cardiagn.com

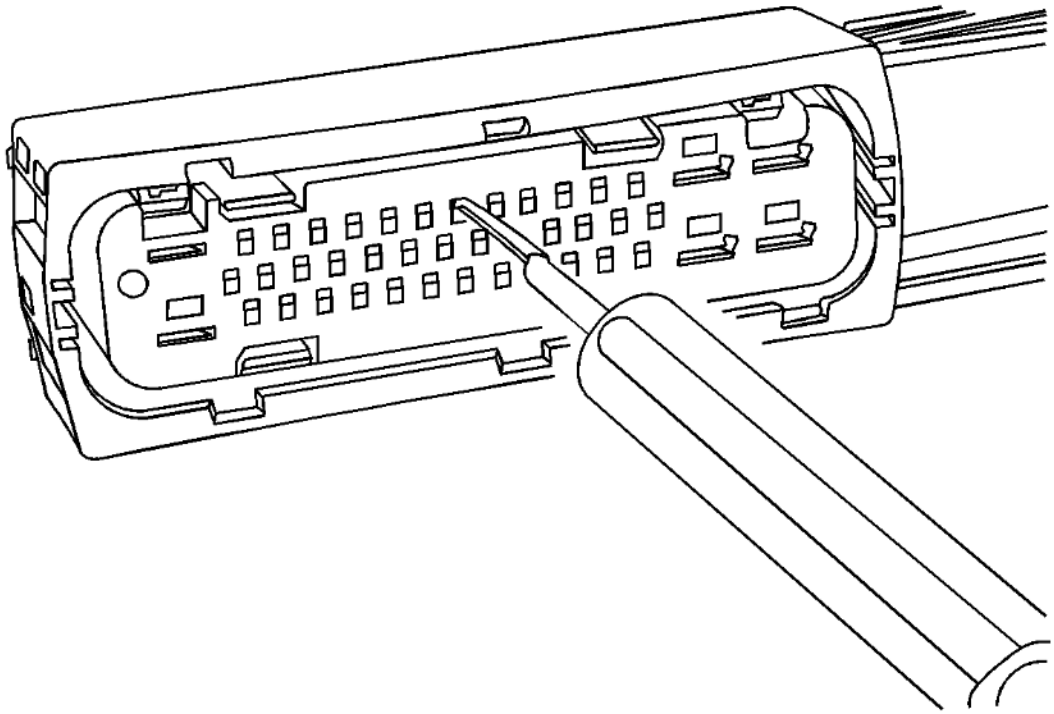

Fig. 152: View Of Release Tool Being Used For Smaller Terminals
Courtesy of GENERAL MOTORS COMPANY

6. For the larger terminals insert the **J-38125-13A** tool to release the terminals by inserting the tool into the terminal release cavity. For the smaller terminals insert the **J-38125-12A** tool to release the terminals by inserting the tool into the terminal release cavity.

   View of the release tool being used for the larger terminals.

   View of the release tool being used for the larger terminals.

   View of the release tool being used for the smaller terminals.

7. While holding the removal tool in place, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
8. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
9. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

TYCO/AMP CONNECTORS (DOOR MODULE)

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Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-12A** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

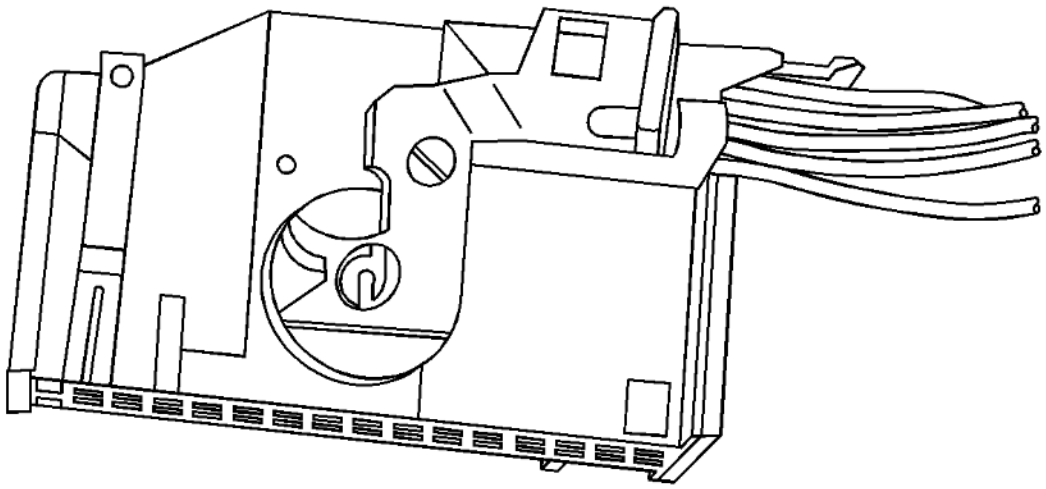

Fig. 153: Side View Of Tyco/AMP Connector
Courtesy of GENERAL MOTORS COMPANY

Side view of connector.

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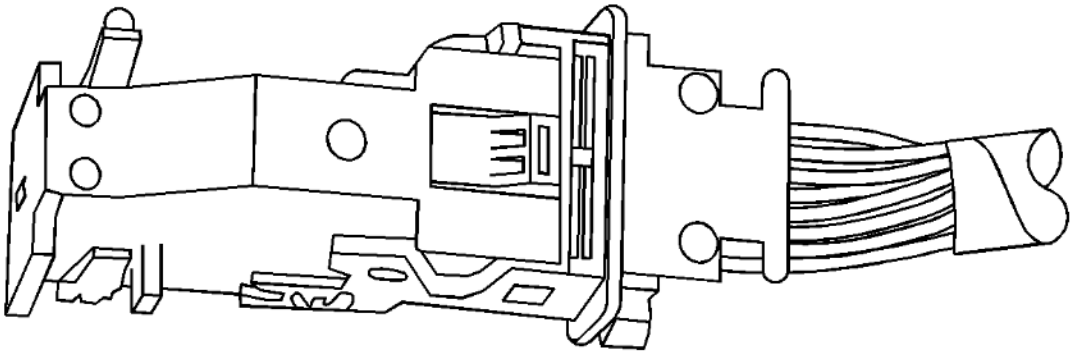

Fig. 154: Top View Of Tyco/AMP Connector
Courtesy of GENERAL MOTORS COMPANY

View of top of connector.

1. Locate the assist lever and lock on the top of the connector.

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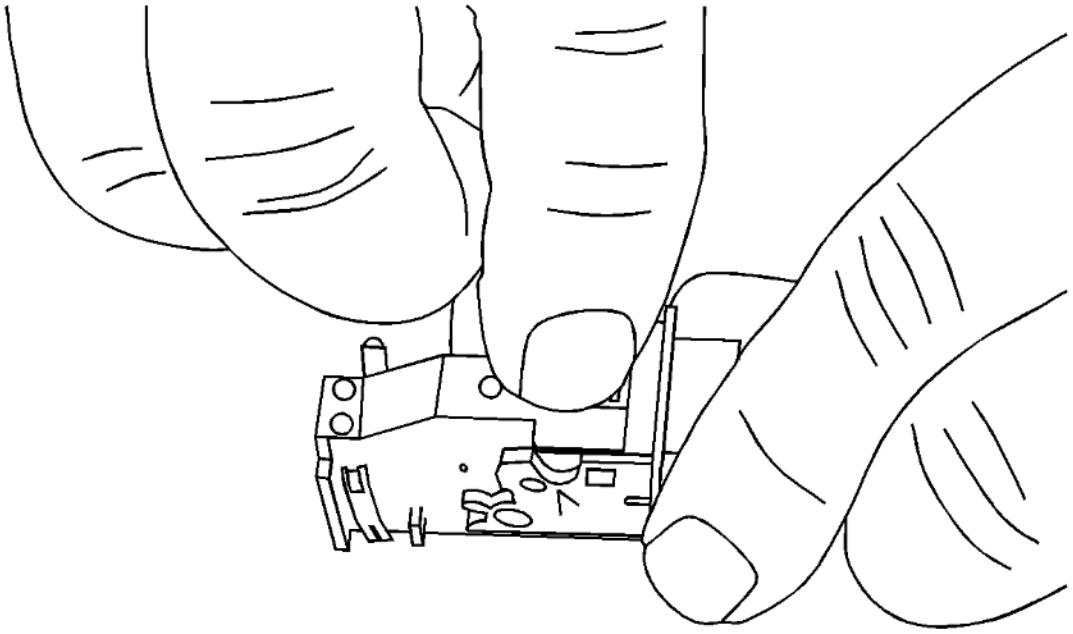

Fig. 155: View Of Depressing Lock & Pulling Assist Lever
Courtesy of GENERAL MOTORS COMPANY

2. While depressing the lock, pull the lever over and past the lock.

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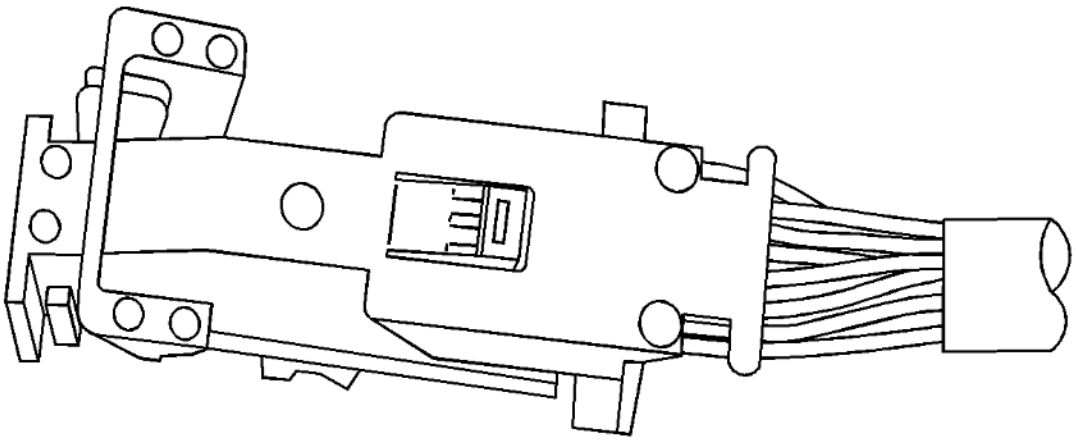

Fig. 156: View Of Component Connector
Courtesy of GENERAL MOTORS COMPANY

3. Disconnect the connector from the component.

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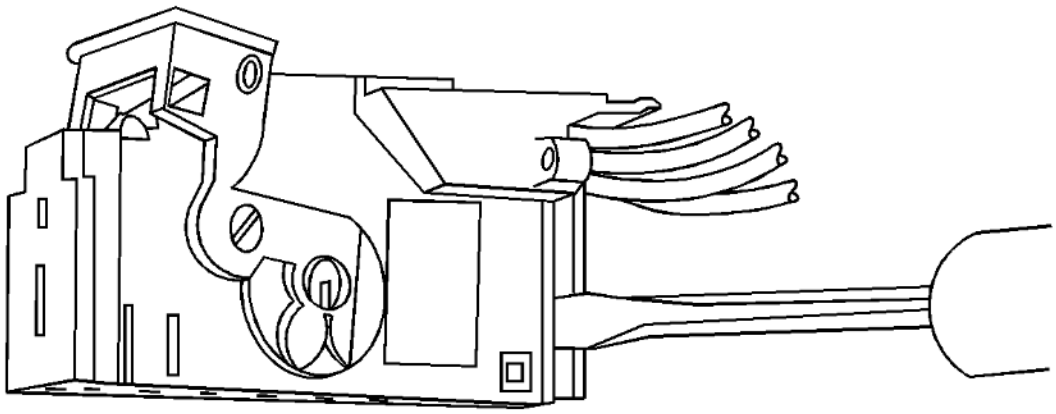

Fig. 157: Identifying Locking Tabs
Courtesy of GENERAL MOTORS COMPANY

4. Locate the dress cover locking tabs at the rear of the connector. Use a small flat-blade tool to release the locking tabs. Repeat this procedure for the other locking tab.

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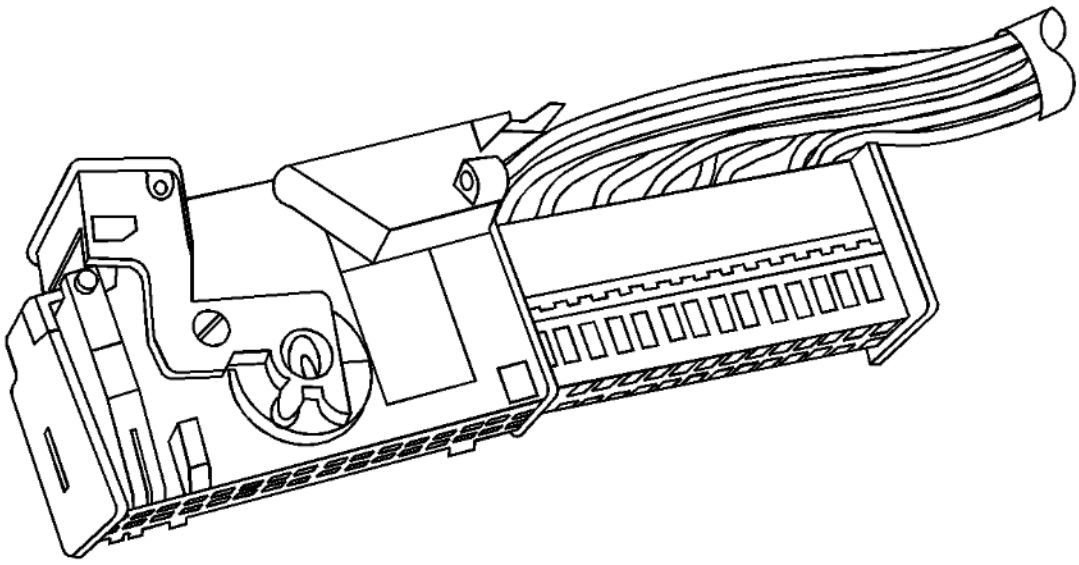

Fig. 158: Sliding Inner Connector Out Of Connector Housing
Courtesy of GENERAL MOTORS COMPANY

5. Once the locking tabs are unlocked, slide the inner connector out of the rear of the connector housing.

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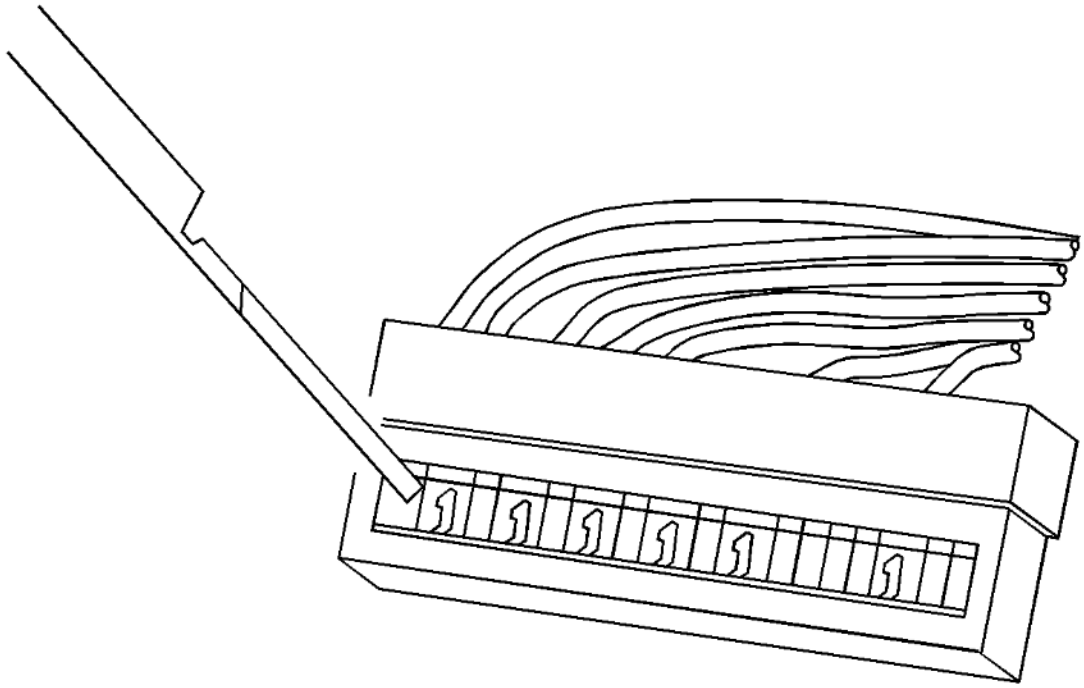

Fig. 159: Using Special Tool To Release Terminals
Courtesy of GENERAL MOTORS COMPANY

6. Use the J-38125-12A tool to release the terminals by pressing on the tang.
7. While holding the removal tool in place, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
8. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
9. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

TYCO/AMP CONNECTORS (SEAT)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-11A** Terminal Release Tool
- **J-38125-212** Terminal Release Tool
- **J-38125-556** Terminal Release Tool

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- **J-38125-560** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

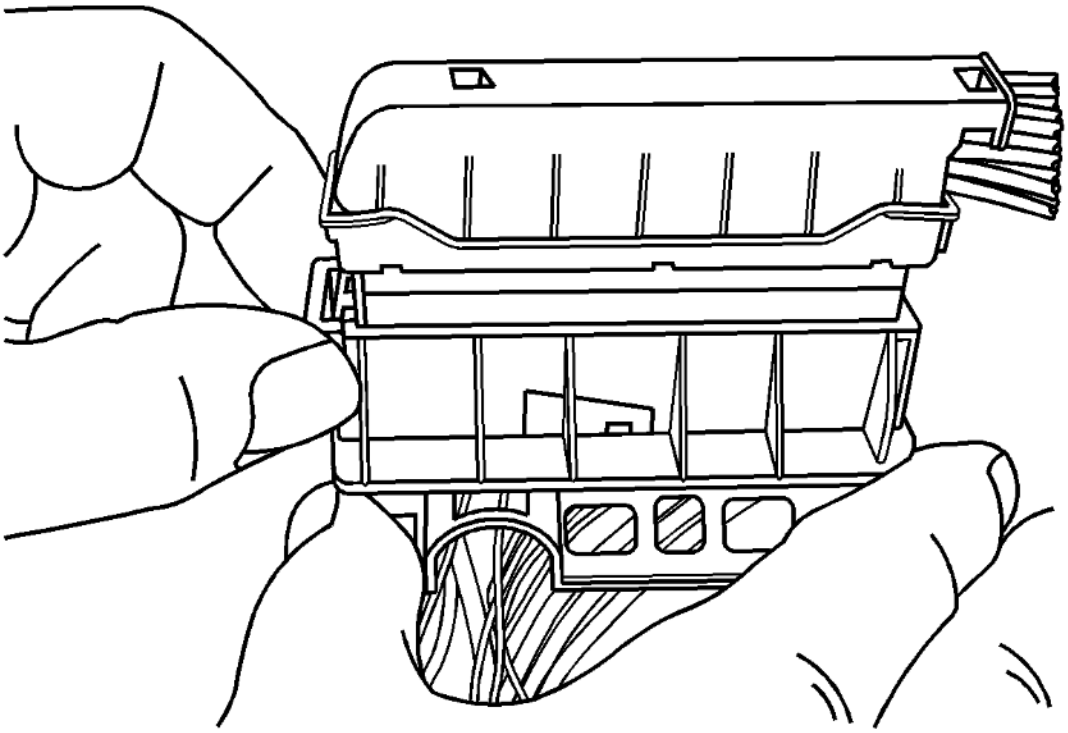

Fig. 160: Locating Locking Slide Lever
Courtesy of GENERAL MOTORS COMPANY

1. Grasp the locking slide lever and pull outward from the end of the connector.

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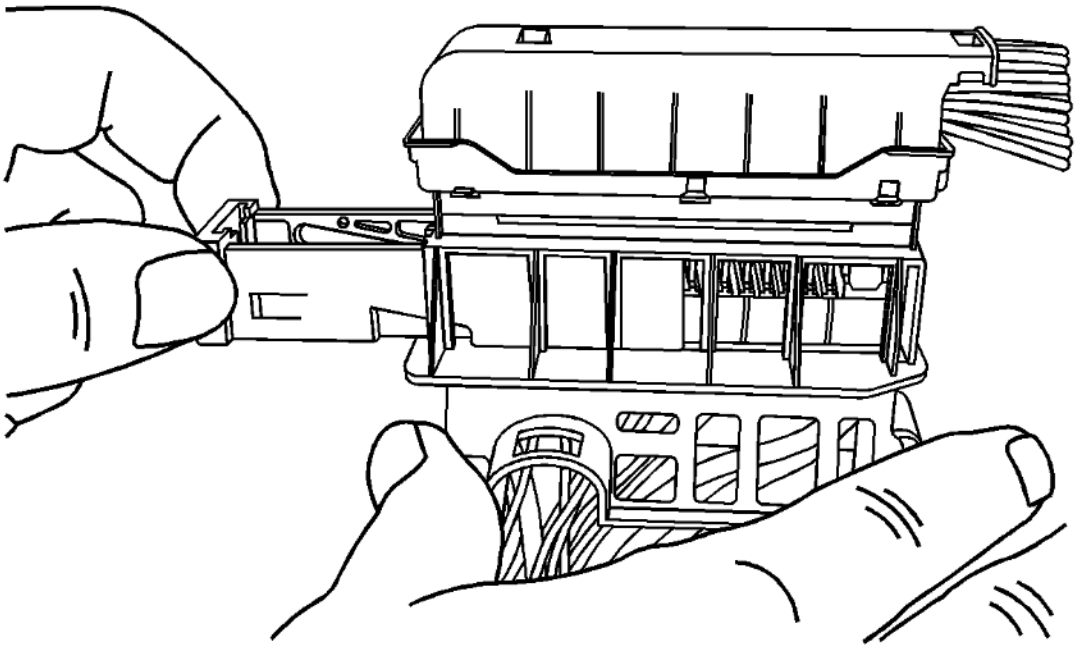

Fig. 161: Pulling Slide Lever Out Of Mating Connector
Courtesy of GENERAL MOTORS COMPANY

2. As the slide lever is pulled out the mating connector is lifted from the seated position.

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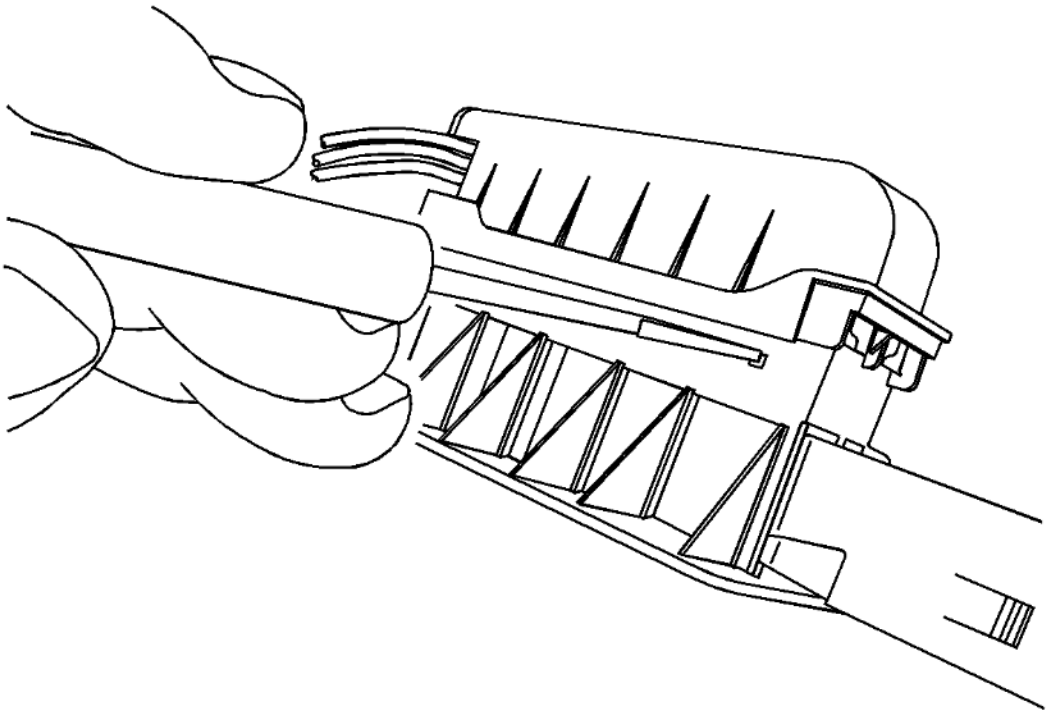

Fig. 162: Pushing TPA Tabs Into Connector Body
Courtesy of GENERAL MOTORS COMPANY

NOTE: **Terminal position assurance (TPA) is keyed and can only be inserted in one direction.**

3. Using terminal release tool J-38125-11A or equivalent, push the TPA tabs into the connector body.

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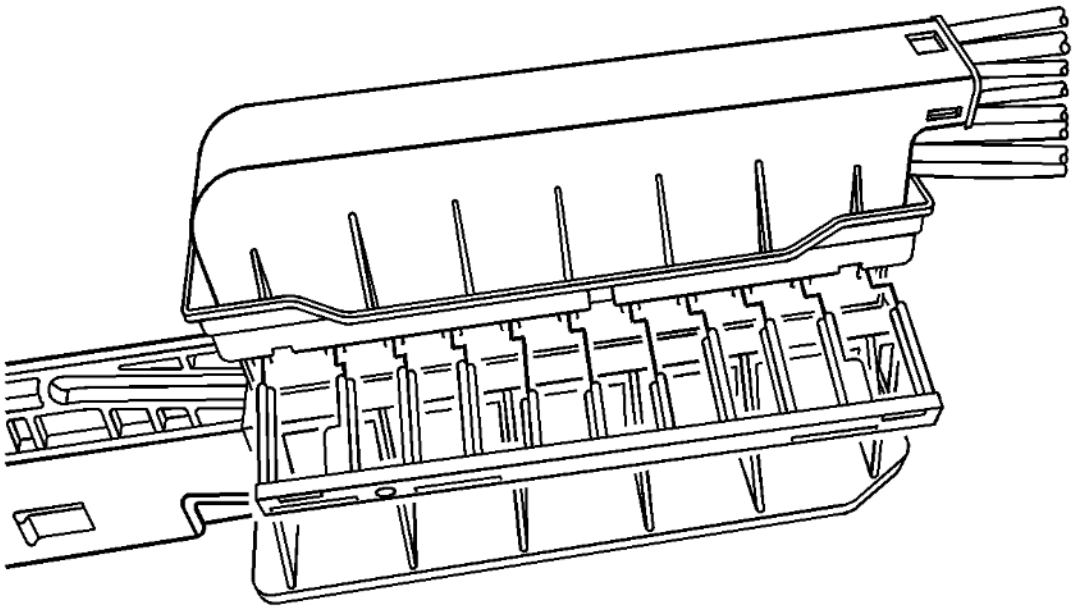

Fig. 163: Pulling TPA From Connector Body
Courtesy of GENERAL MOTORS COMPANY

4. Pull the TPA from the connector body.

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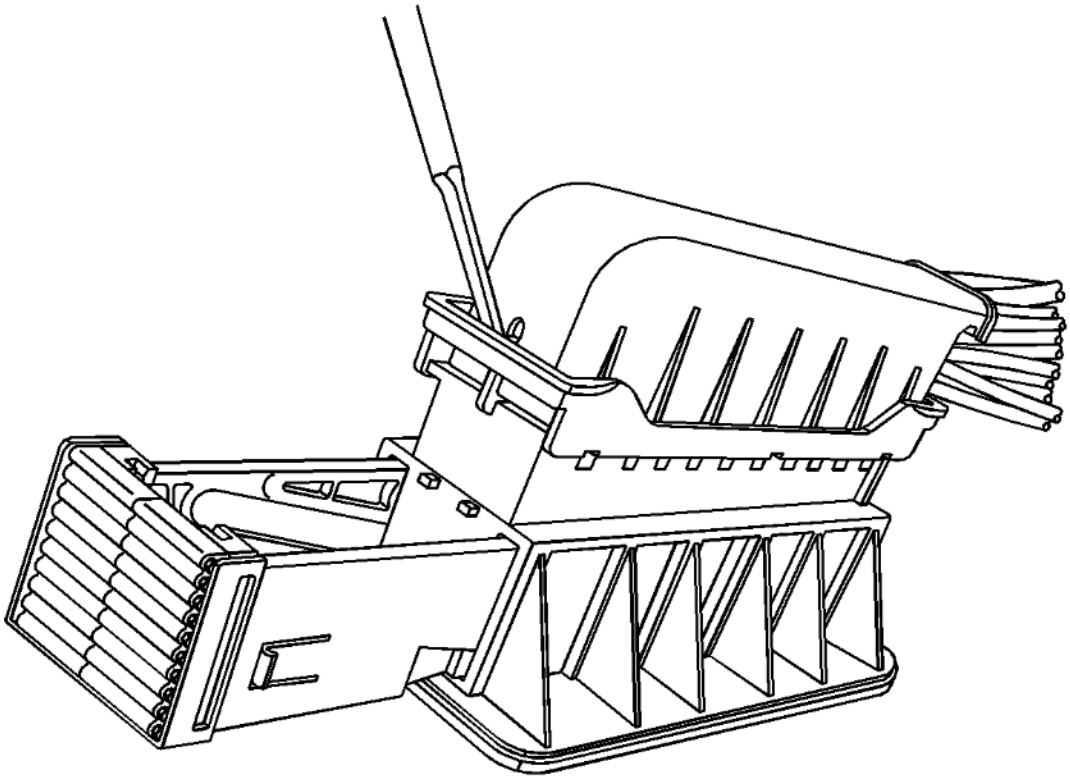

Fig. 164: Releasing Connector Wire Dress Cover Locking Tab
Courtesy of GENERAL MOTORS COMPANY

5. Using terminal release tool J-38125-11A or equivalent, release the connector wire dress cover locking tab.

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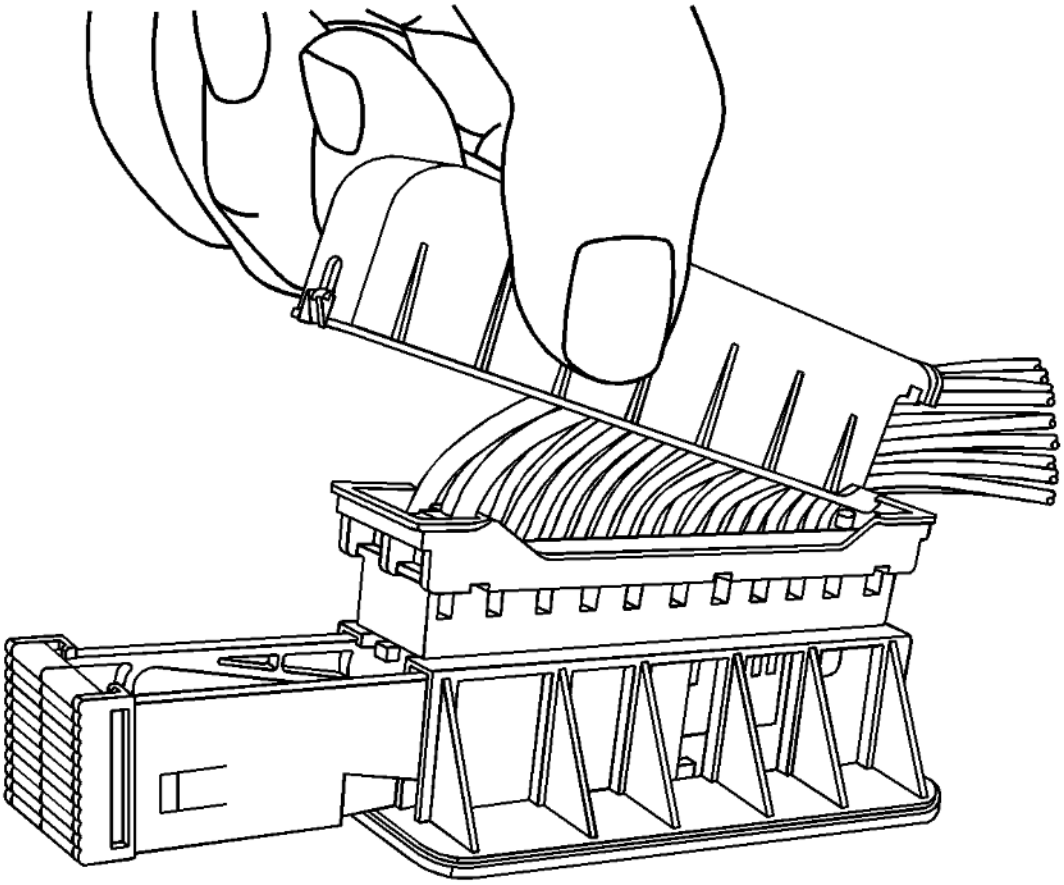

Fig. 165: Lifting Connector Wire Dress Cover From Connector Body
Courtesy of GENERAL MOTORS COMPANY

6. With the lock tab released, lift the connector wire dress cover from the connector body.

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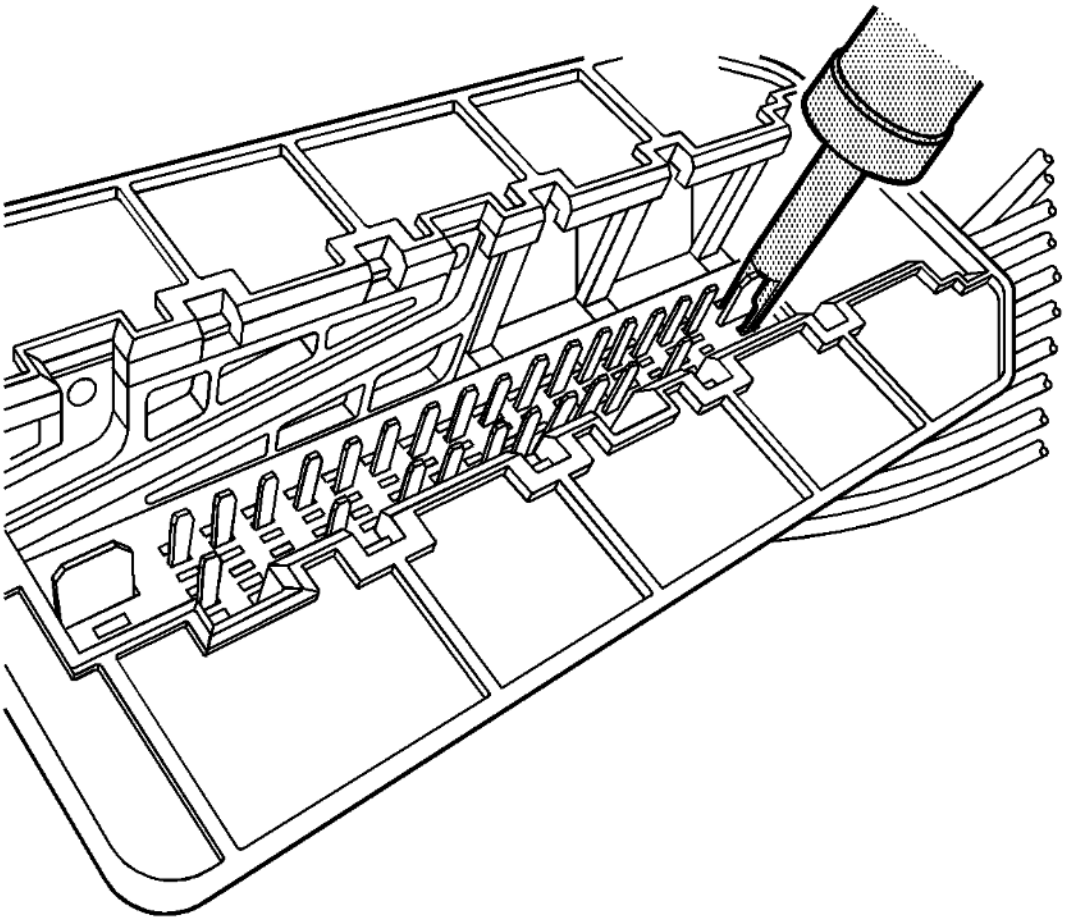

Fig. 166: Using Terminal Release Tool
Courtesy of GENERAL MOTORS COMPANY

7. Using terminal release tool J-38125-212, press the prongs into the holes each side of the terminal to be removed to release the lock tabs and pull the terminal out of the connector body.

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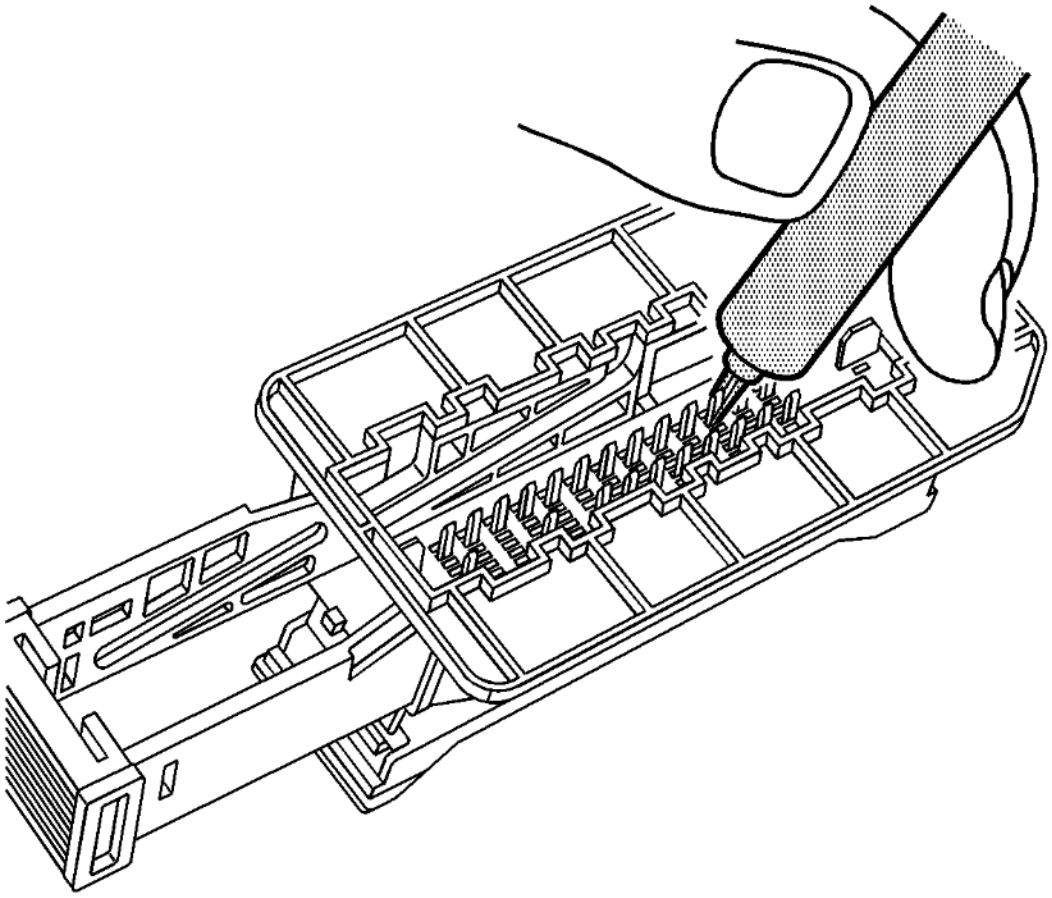

Fig. 167: Using Terminal Release Tool
Courtesy of GENERAL MOTORS COMPANY

8. Using terminal release tool J-38125-560, press the prongs into the holes on each side of the terminal to be removed to release the lock tabs and pull the terminal out of the connector body.

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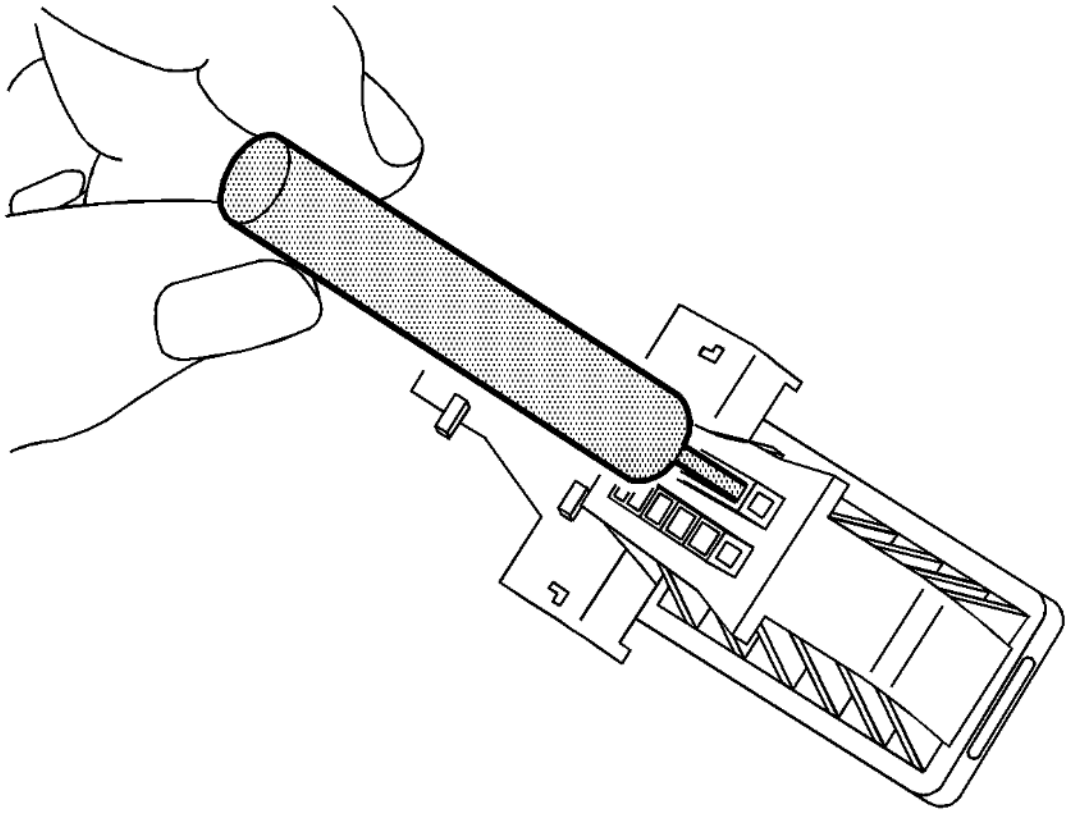

Fig. 168: Using Terminal Release Tool
Courtesy of GENERAL MOTORS COMPANY

9. Using terminal release tool J-38125-556, press the prongs into the holes on each side of the terminal to be removed to release the lock tabs and pull the terminal out of the connector body.
10. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
11. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

TYCO/AMP CONNECTORS (102-WAY INLINE)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-11A** Terminal Release Tool
- **J-38125-212** Terminal Release Tool
- **J-38125-216** Terminal Release Tool
- **J-38125-221** Terminal Release Tool

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- **J-38125-560** Terminal Release Tool
- **J-38125-566** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

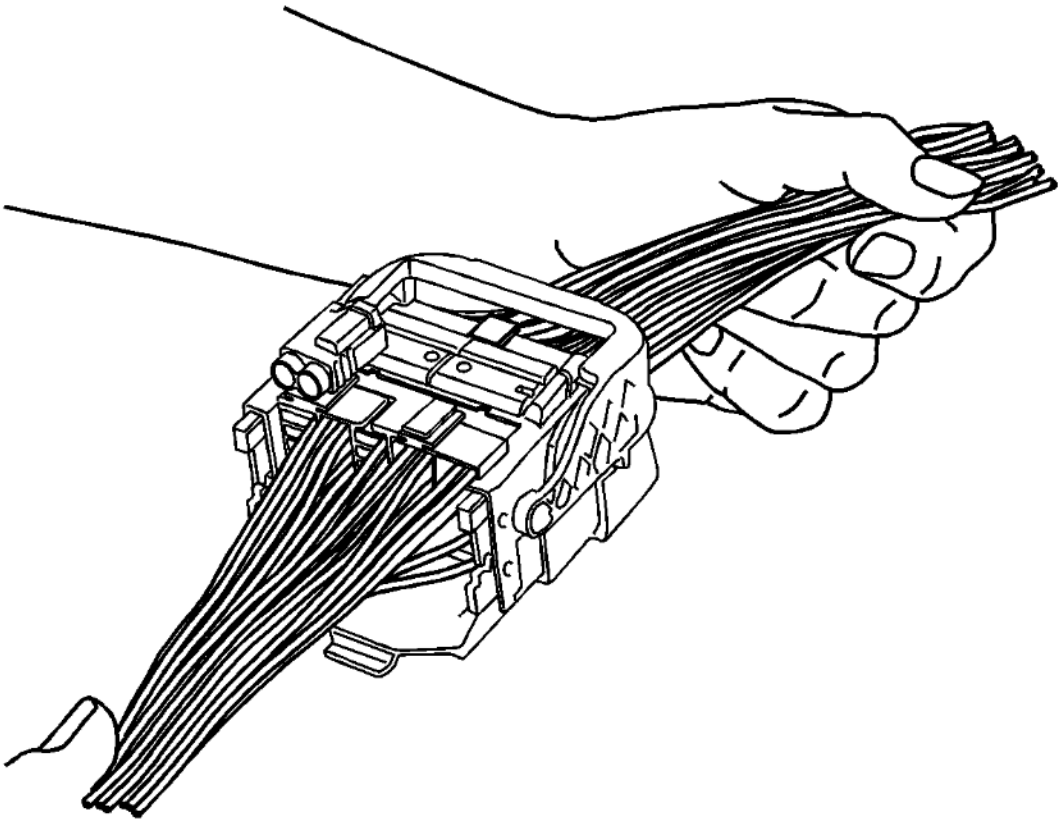

Fig. 169: View Of Typical Connector In Assembled Position
Courtesy of GENERAL MOTORS COMPANY

View of a typical connector in the assembled position.

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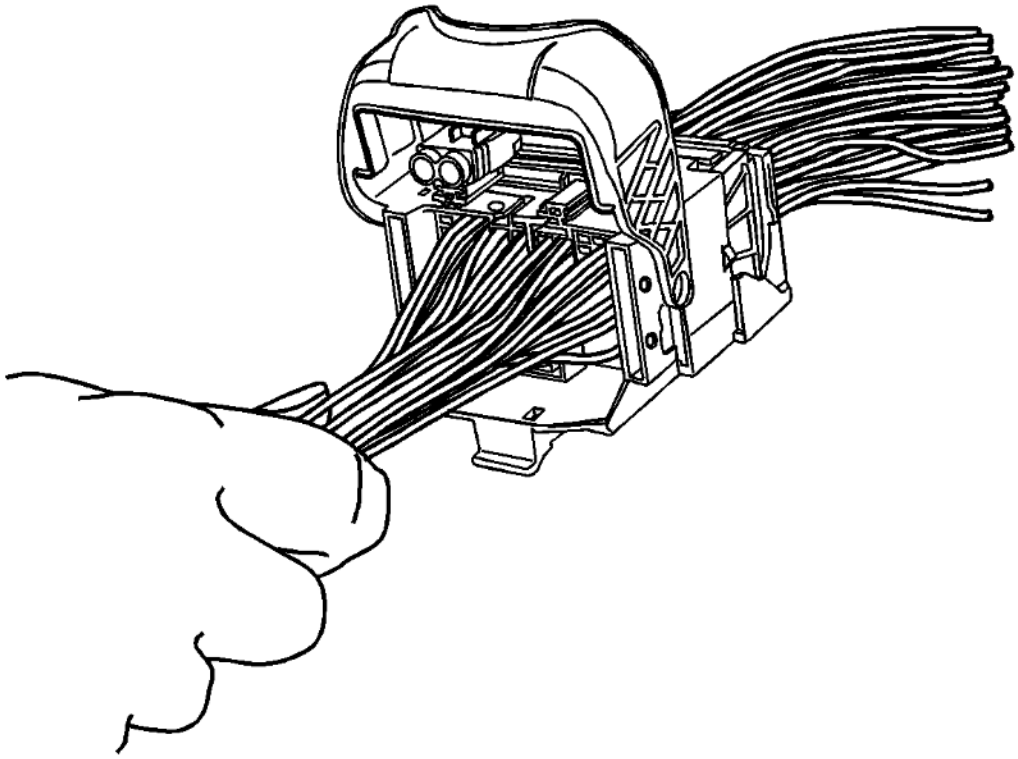

Fig. 170: View Of Locking Lever At 90 Degrees From Connector Body
Courtesy of GENERAL MOTORS COMPANY

1. Pull the locking lever to the 90 degree position from the connector body.

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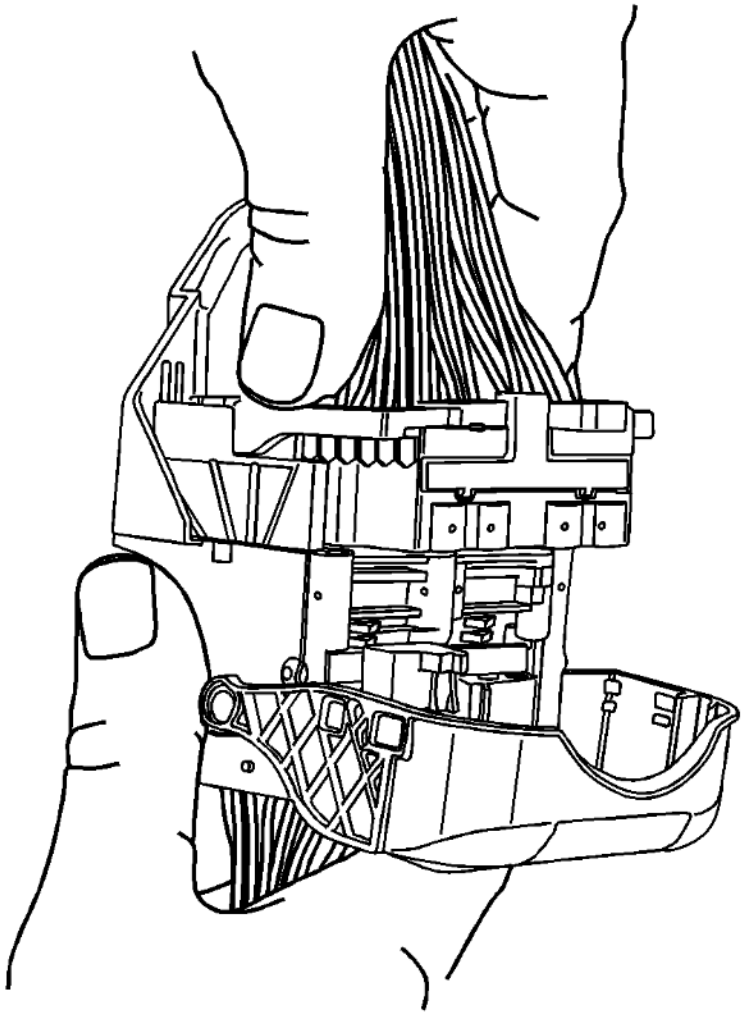

Fig. 171: Assembled View Of Connector - Tyco/AMP (102-Way Inline)
Courtesy of GENERAL MOTORS COMPANY

2. With the locking lever in the 90 degree position and the male connector body separated, it can be slid outward for removal.

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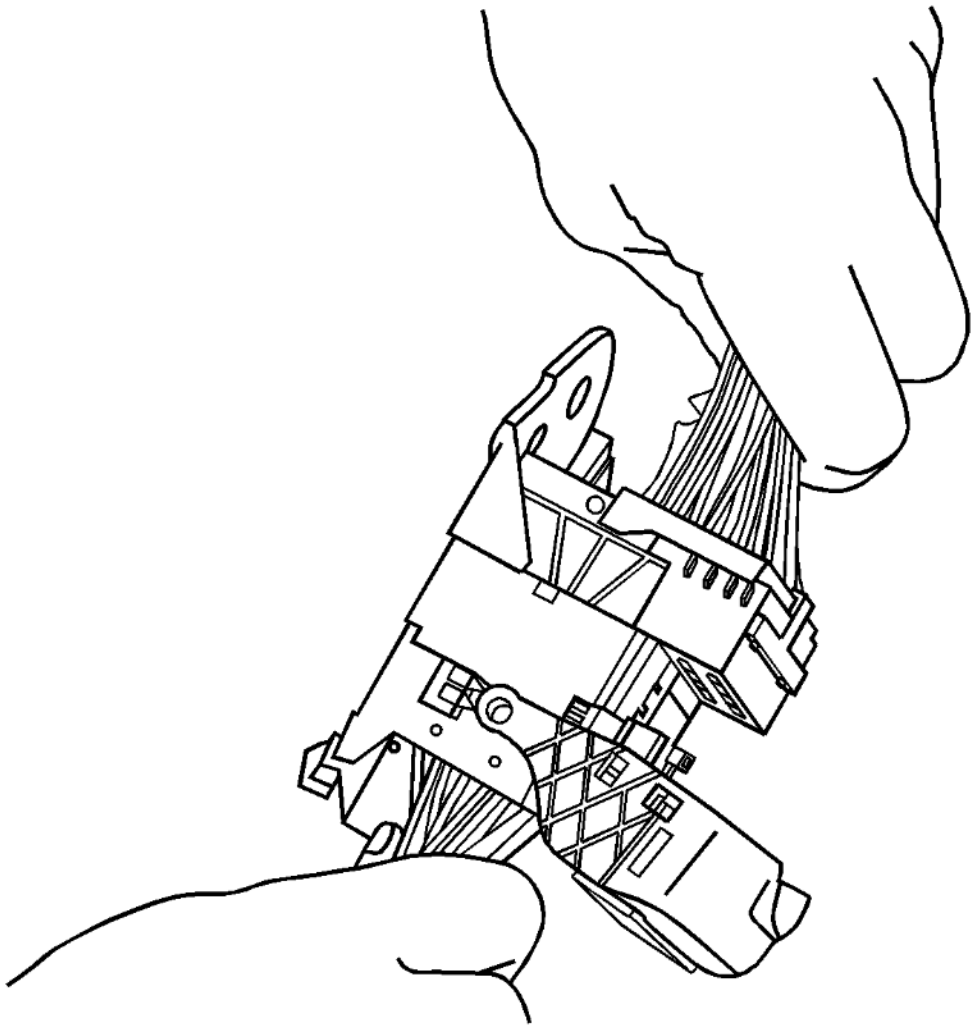

Fig. 172: Sliding Male Connector Body Away From Guide Plates
Courtesy of GENERAL MOTORS COMPANY

3. Slide the male connector body out away from the guide plates.

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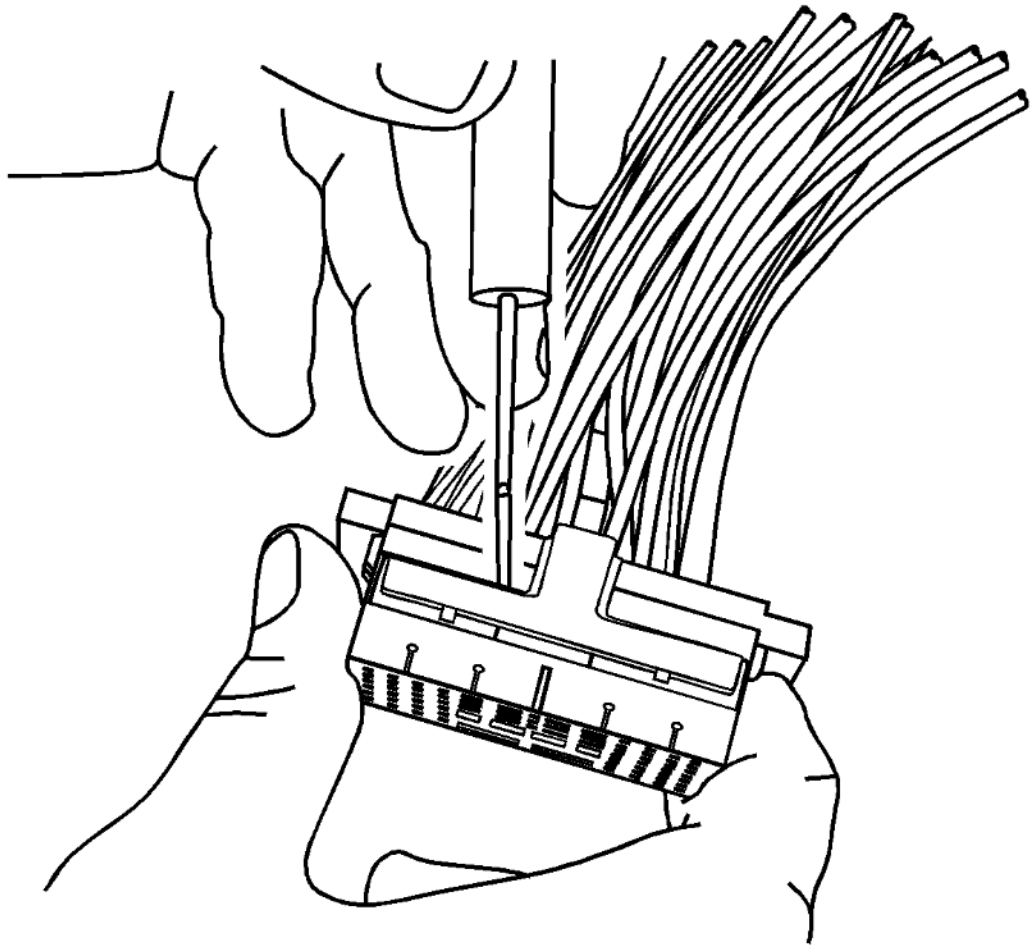

Fig. 173: View of Terminal Release Tool And TPA
Courtesy of GENERAL MOTORS COMPANY

NOTE: **During assembly the terminal position assurance (TPA) will not fully seat if any terminal is not fully seated.**

4. Using terminal release tool J-38125-11A or equivalent, remove the TPA from the connector body.

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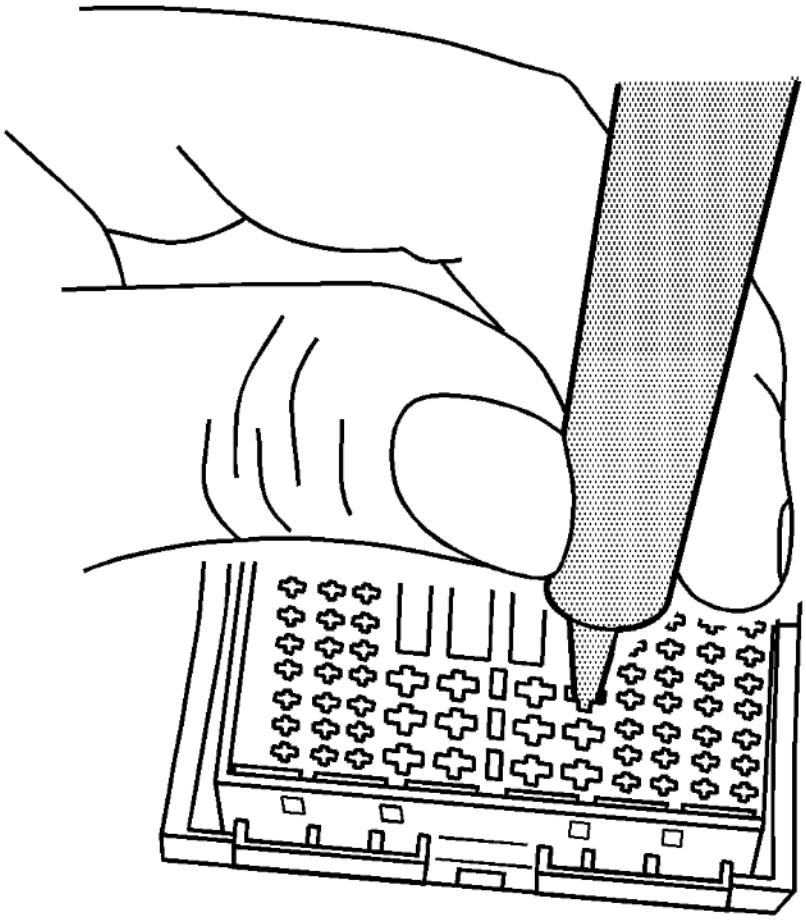

Fig. 174: Releasing Lock Tabs
Courtesy of GENERAL MOTORS COMPANY

5. Using terminal release tool J-38125-566, press the prongs into the holes on each side of the terminal to be removed to release the lock tabs and pull the terminal out of the connector body.

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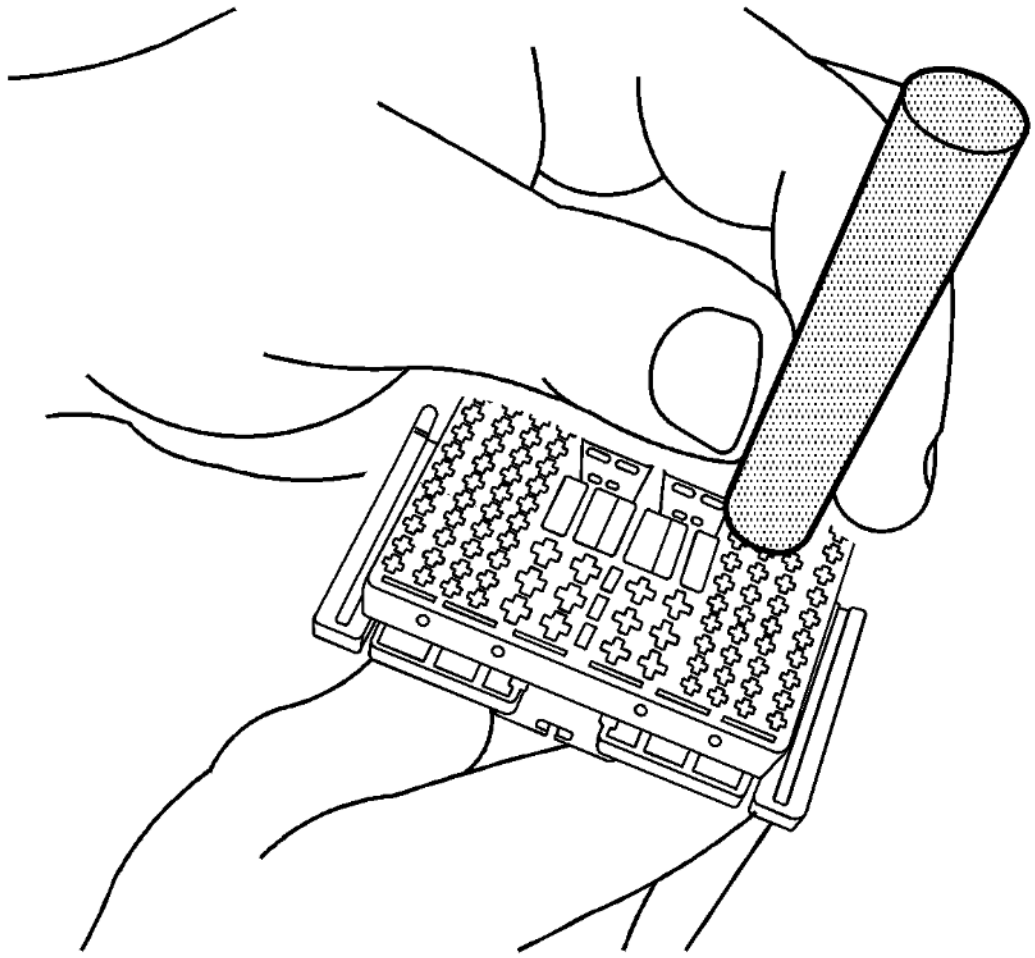

Fig. 175: Using Terminal Release Tool
Courtesy of GENERAL MOTORS COMPANY

6. Using terminal release tool J-38125-560, press the prongs into the holes on each side of the terminal to be removed to release the lock tabs and pull the terminal out of the connector body.

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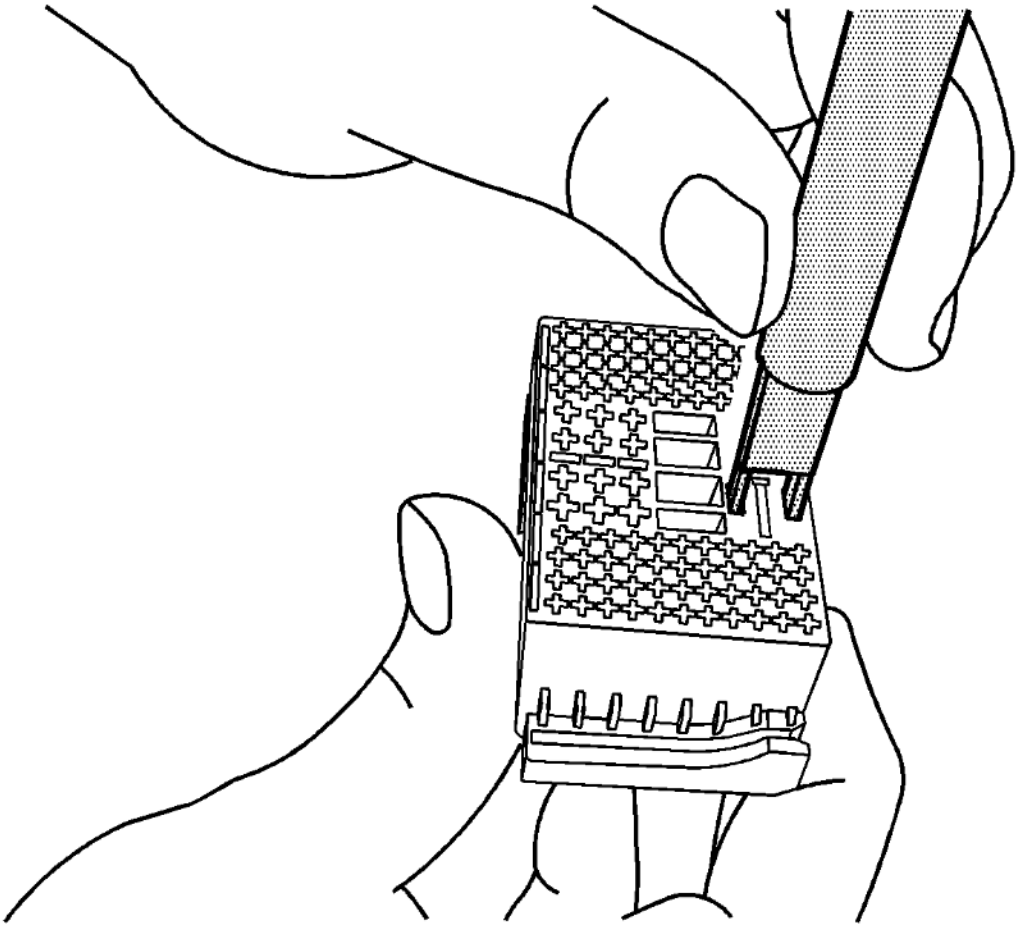

Fig. 176: Releasing Lock Tabs - Tyco/AMP (102-Way Inline)
Courtesy of GENERAL MOTORS COMPANY

7. Using terminal release tool J-38125-221, press the prongs into the holes on each side of the terminal to be removed to release the lock tabs and pull the terminal out of the connector body.

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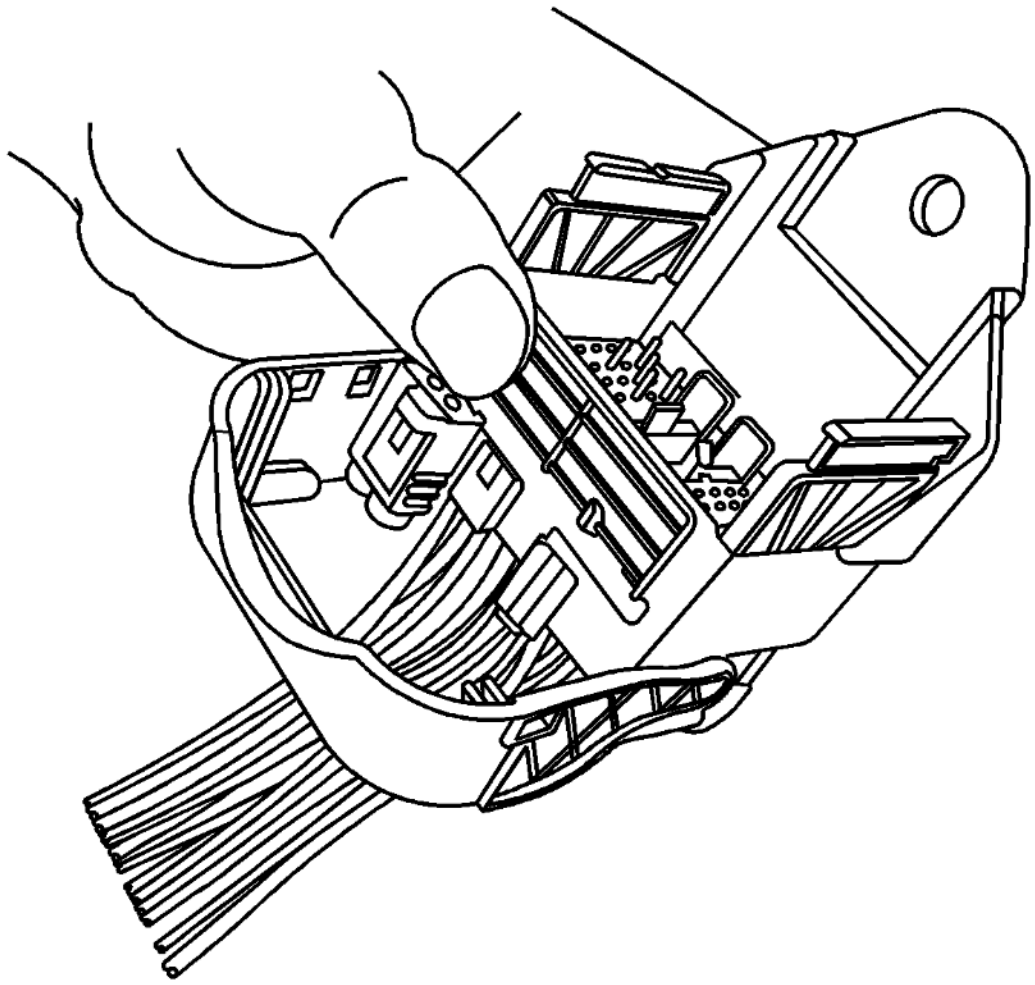

Fig. 177: View Of Female Connector Body - Tyco/AMP (102-Way Inline)
Courtesy of GENERAL MOTORS COMPANY

8. The female connector body may have an additional connector hooked to the edge of the body. Use terminal release tool J-38125-11A or equivalent to release the locking tab and slide the connector off the female body.

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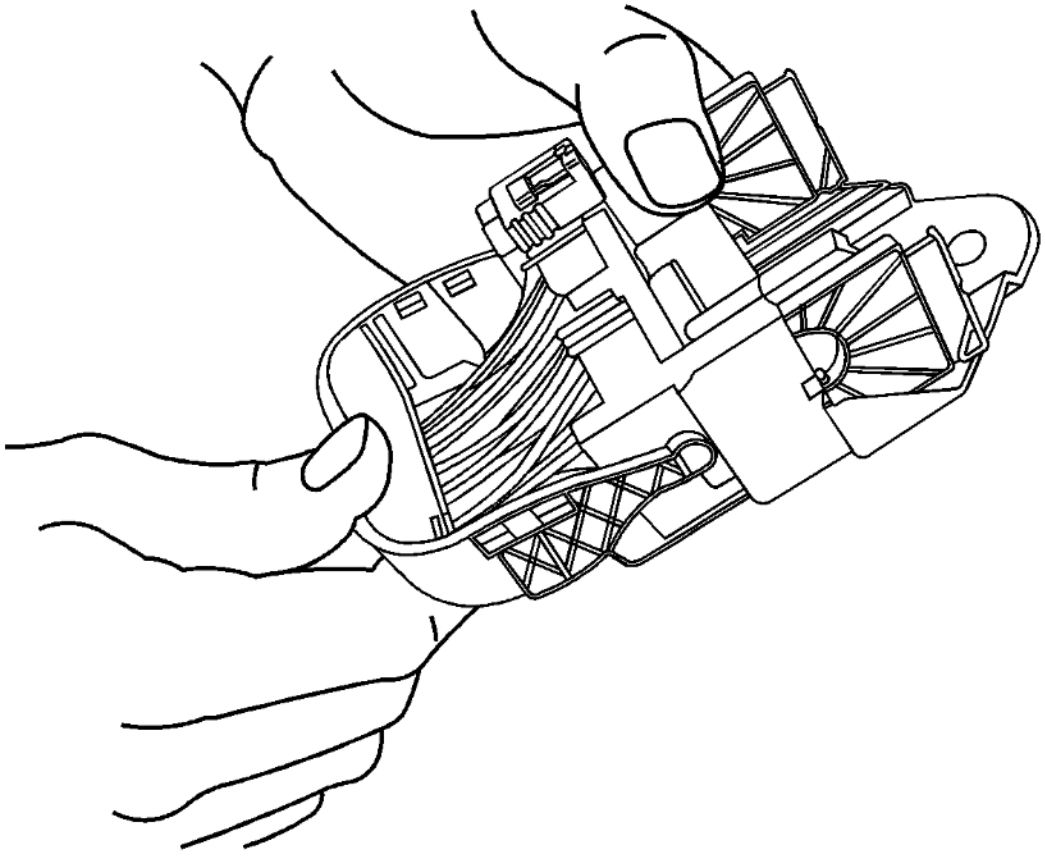

Fig. 178: Moving Locking Lever
Courtesy of GENERAL MOTORS COMPANY

9. Move the locking lever 180 degrees from the connected position.

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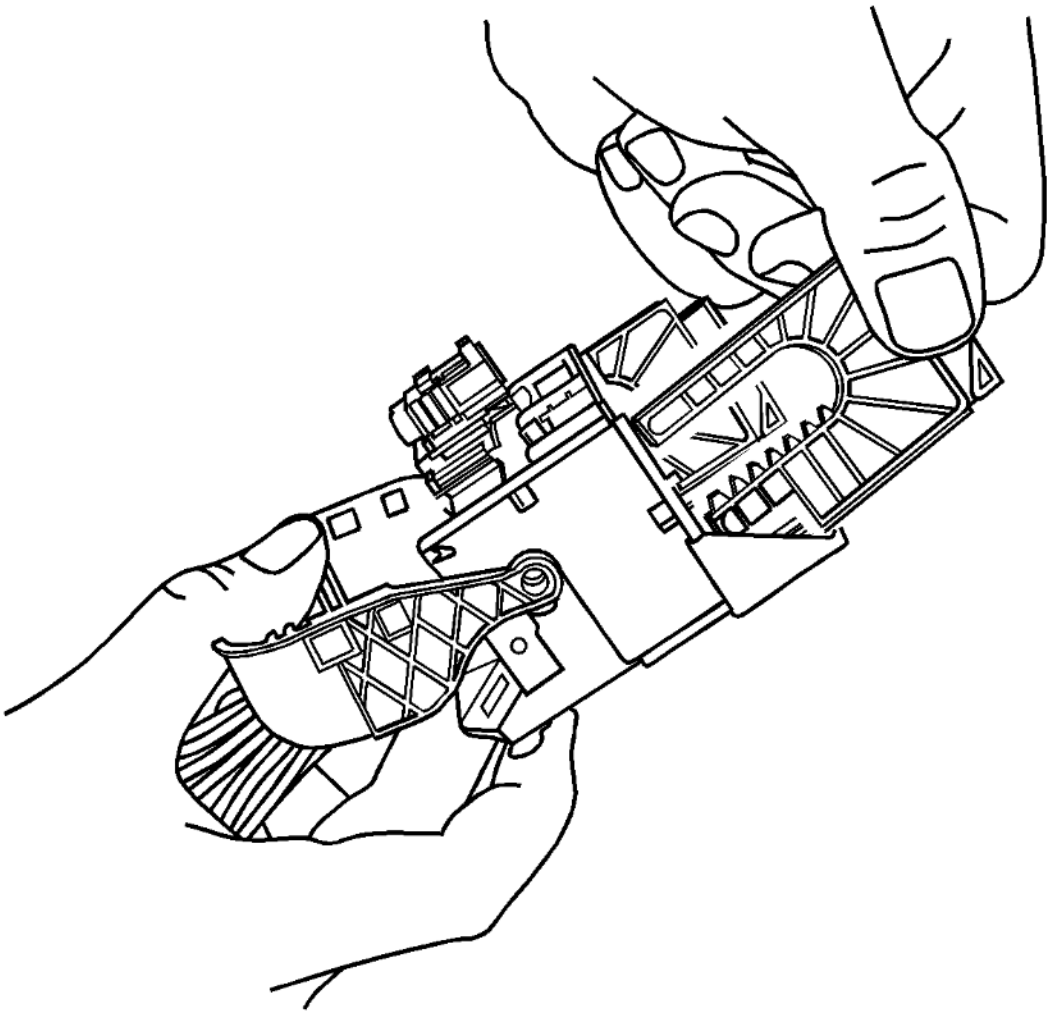

Fig. 179: Removing Guide Plates From Connector Body
Courtesy of GENERAL MOTORS COMPANY

10. With the locking lever in the 180 degree position the guide plates can be removed from the connector body.

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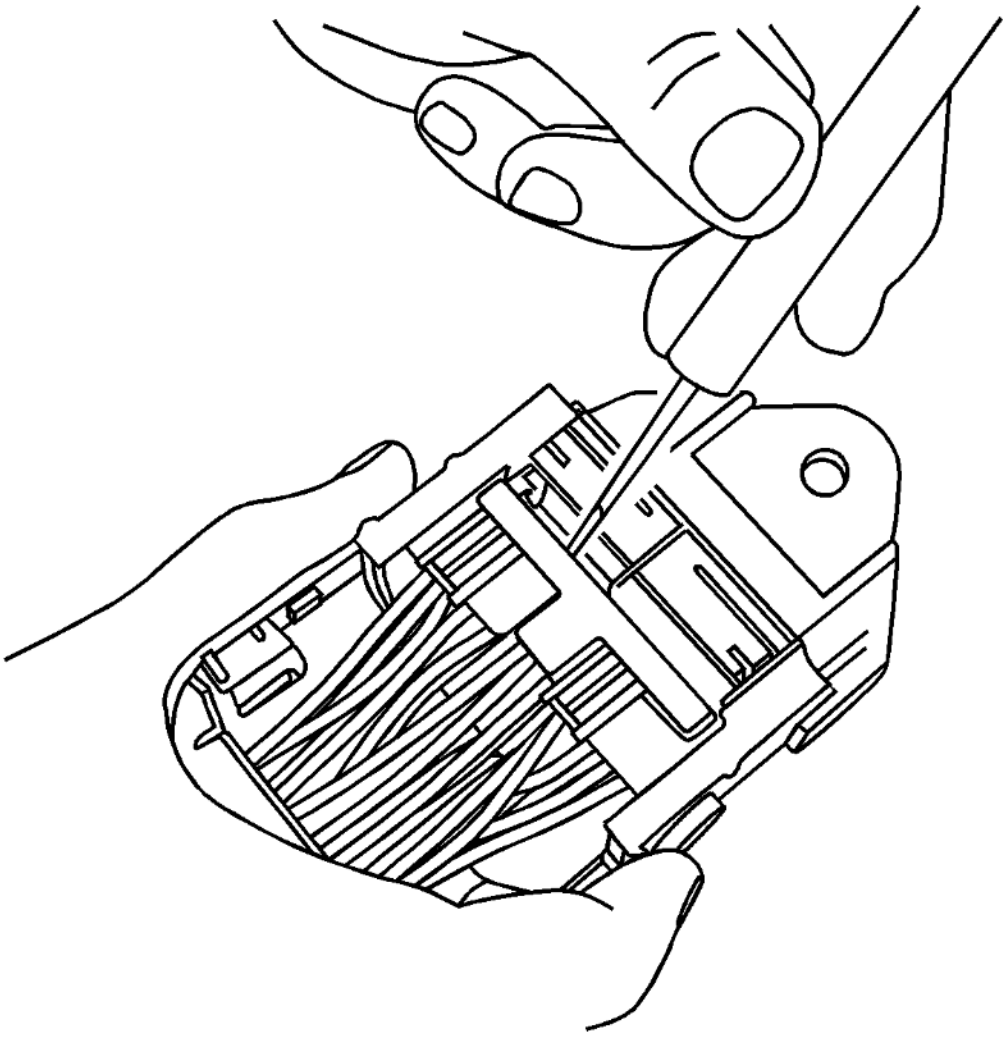

Fig. 180: Removing TPA
Courtesy of GENERAL MOTORS COMPANY

NOTE: **During assembly the TPA will not fully seat if any terminal is not fully seated.**

11. Using terminal release tool J-38125-11A or equivalent, remove the TPA from the connector body.

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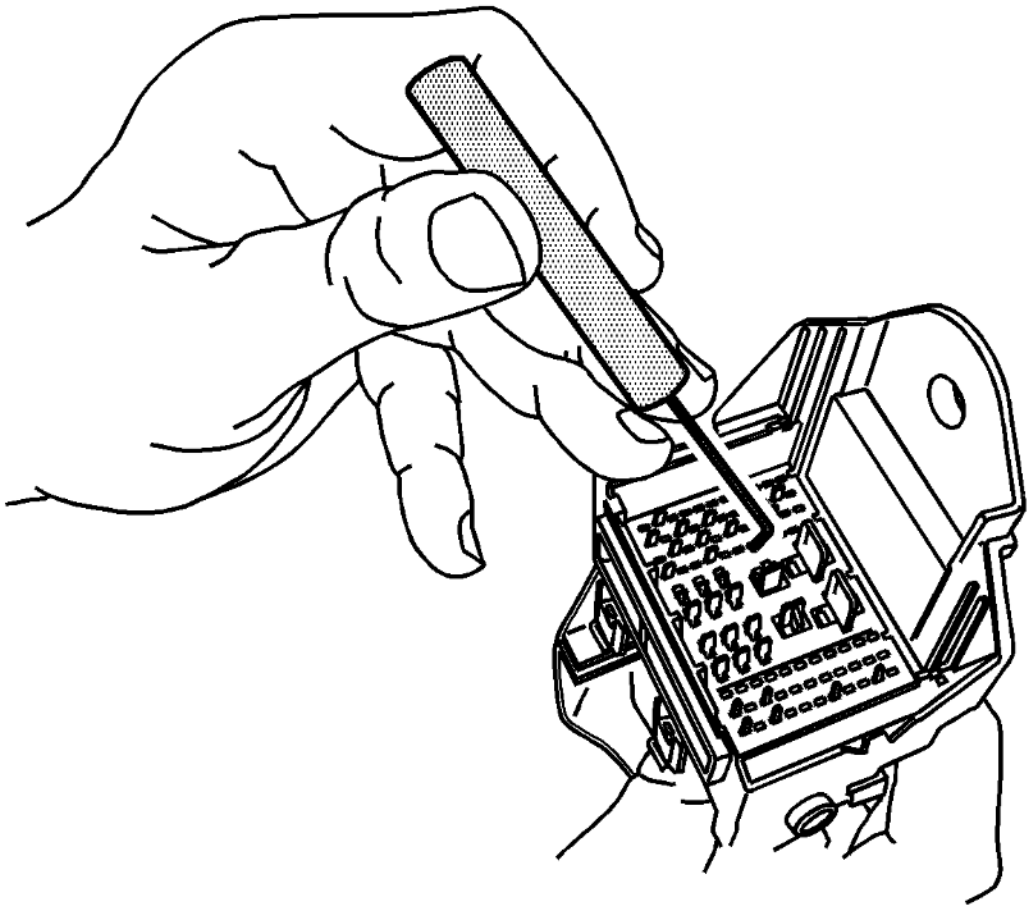

Fig. 181: Lifting Terminal Plate Past The Terminals
Courtesy of GENERAL MOTORS COMPANY

12. Using terminal release tool J-38125-216, lift the terminal plate past the terminals and out of the connector body cavity.

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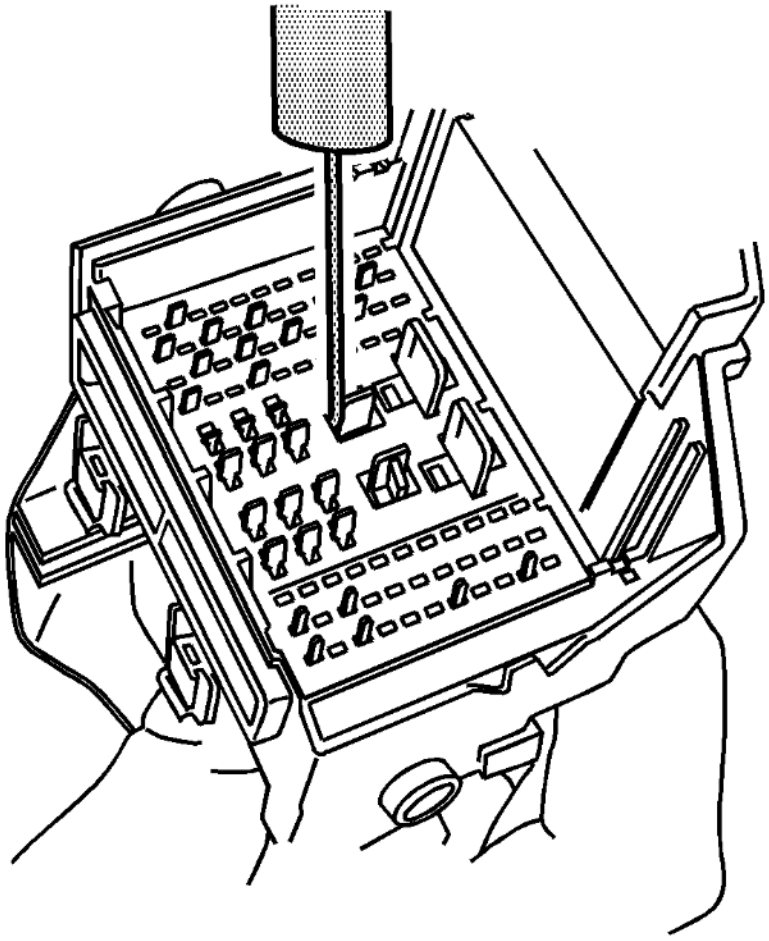

Fig. 182: View Of Terminal Plate
Courtesy of GENERAL MOTORS COMPANY

13. Terminal plate will bind slightly on each corner.

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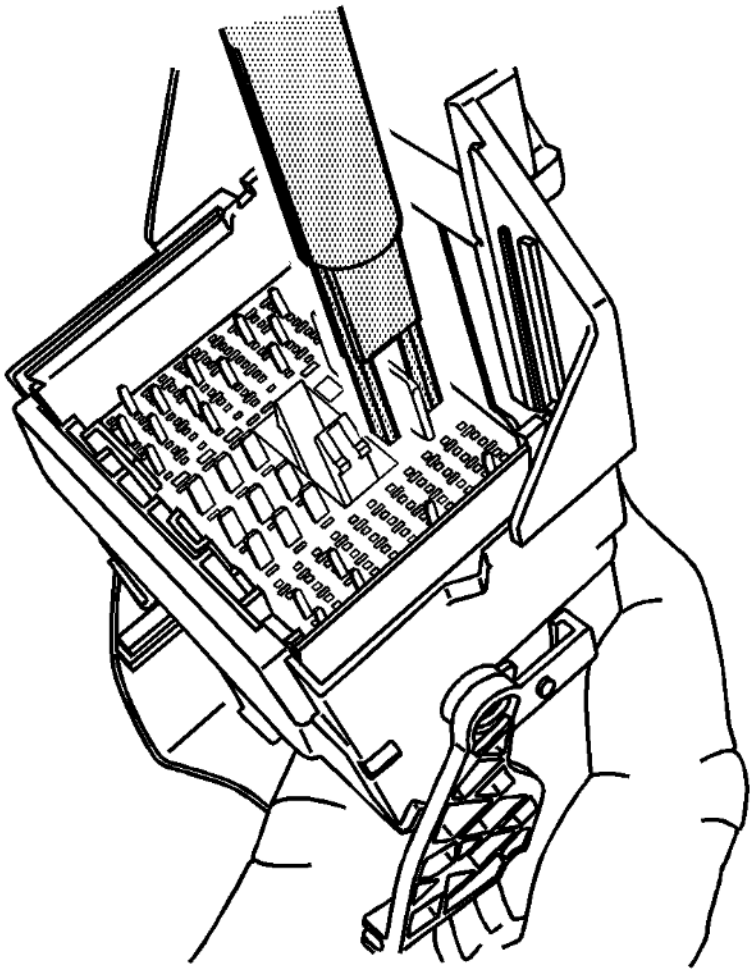

Fig. 183: Releasing Lock Tabs
Courtesy of GENERAL MOTORS COMPANY

14. Using terminal release tool J-38125-221, press the prongs into the holes on each side of the terminal to be removed to release the lock tabs and pull the terminal out of the connector body.

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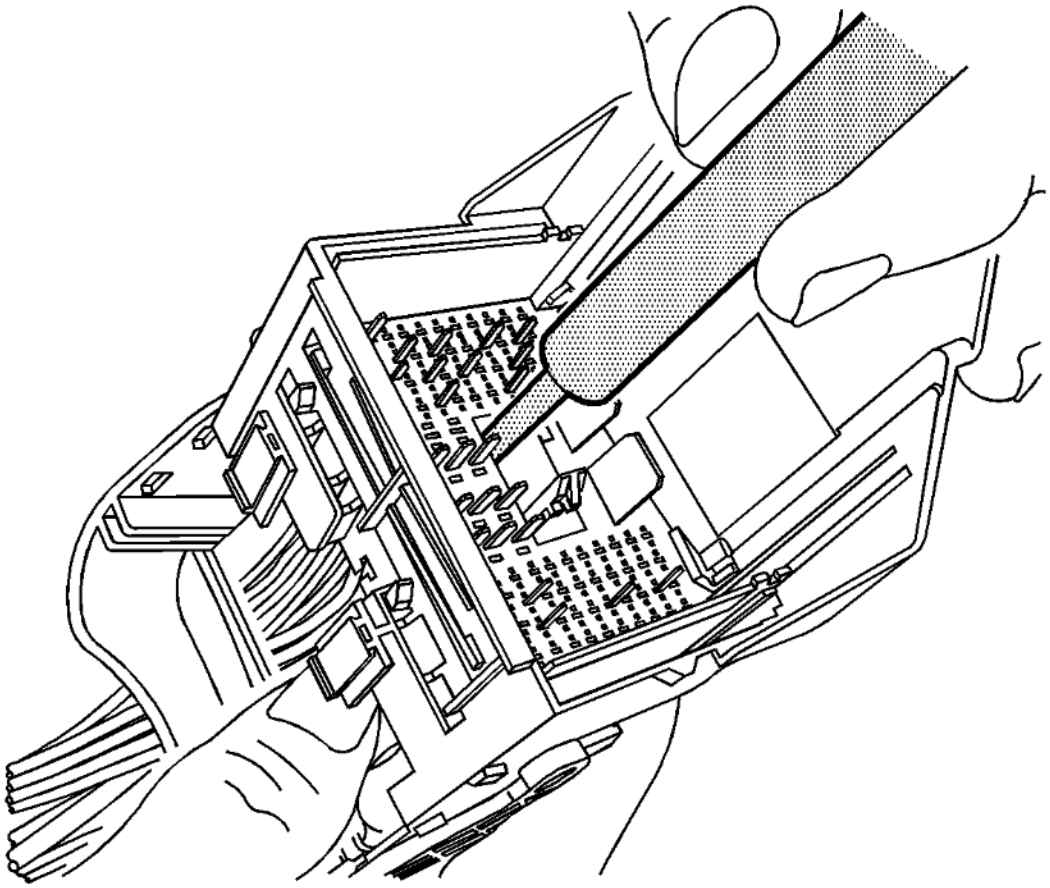

Fig. 184: View of Pressing Prongs On Each Side Of Terminal
Courtesy of GENERAL MOTORS COMPANY

15. Using terminal release tool J-38125-212, press the prongs into the holes on each side of the terminal to be removed to release the lock tabs and pull the terminal out of the connector body.

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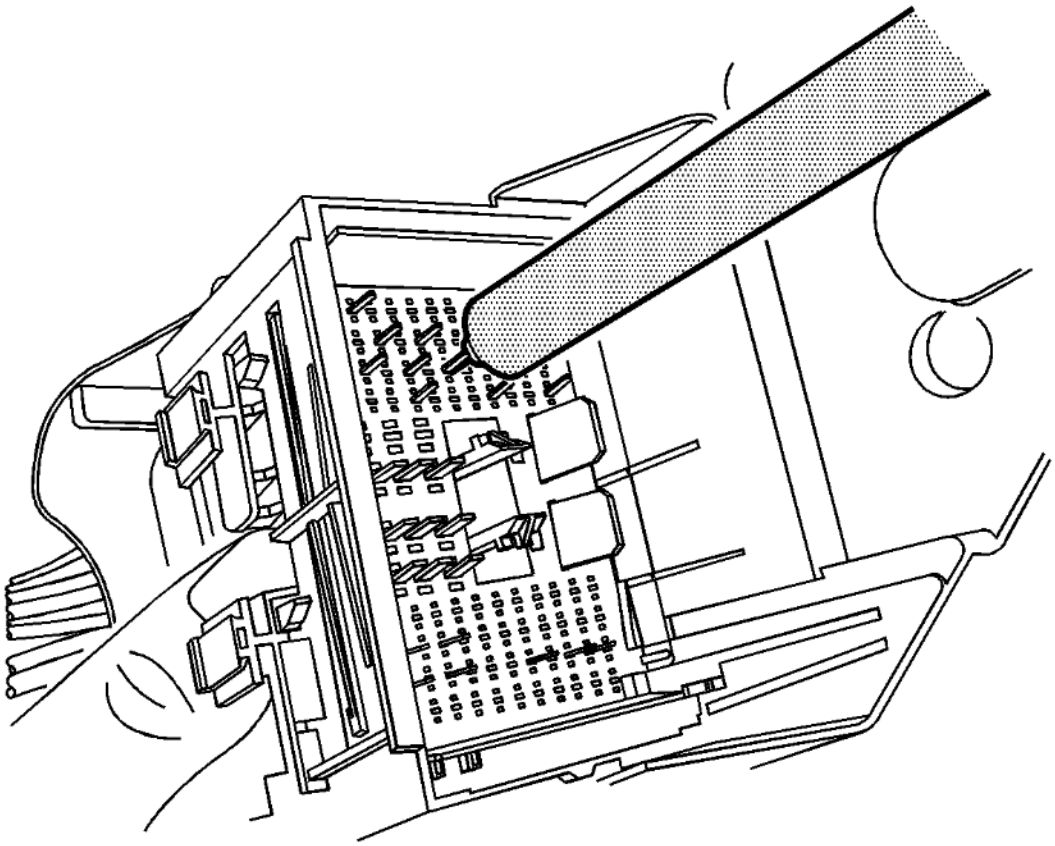

Fig. 185: Pressing Prongs On Each Side Of Terminal - Tyco/AMP (102-Way Inline)
Courtesy of GENERAL MOTORS COMPANY

16. Using terminal release tool J-38125-560, press the prongs into the holes on each side of the terminal to be removed to release the lock tabs and pull the terminal out of the connector body.

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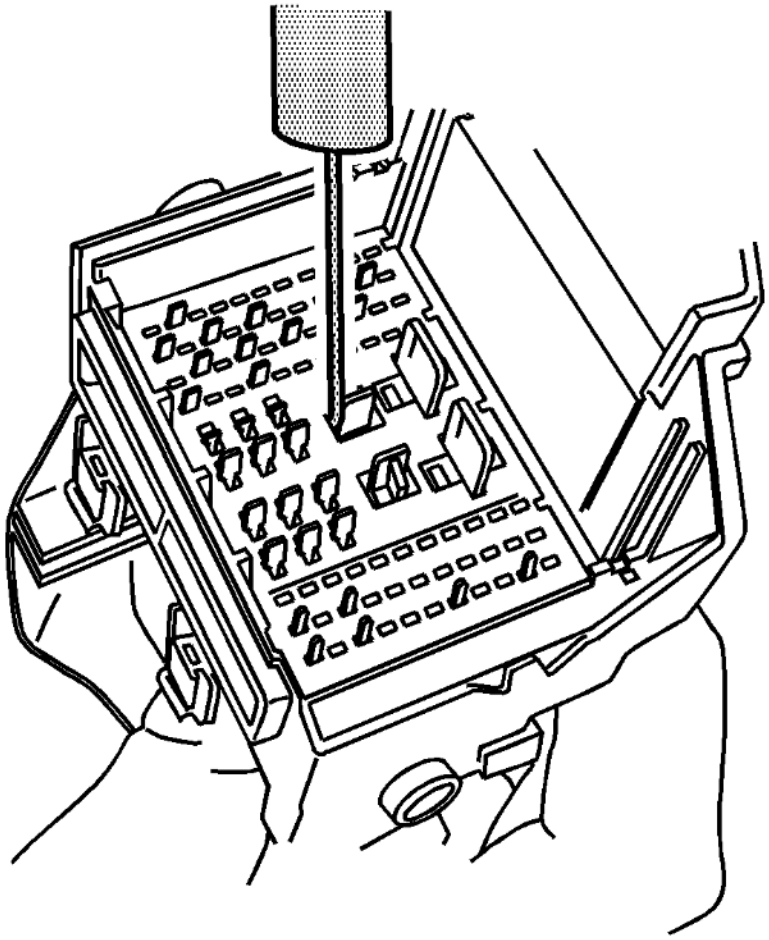

Fig. 186: View Of Terminal Plate
Courtesy of GENERAL MOTORS COMPANY

17. Press the terminal plate back into the female connector to the preset position. The plate will bind slightly on each corner.

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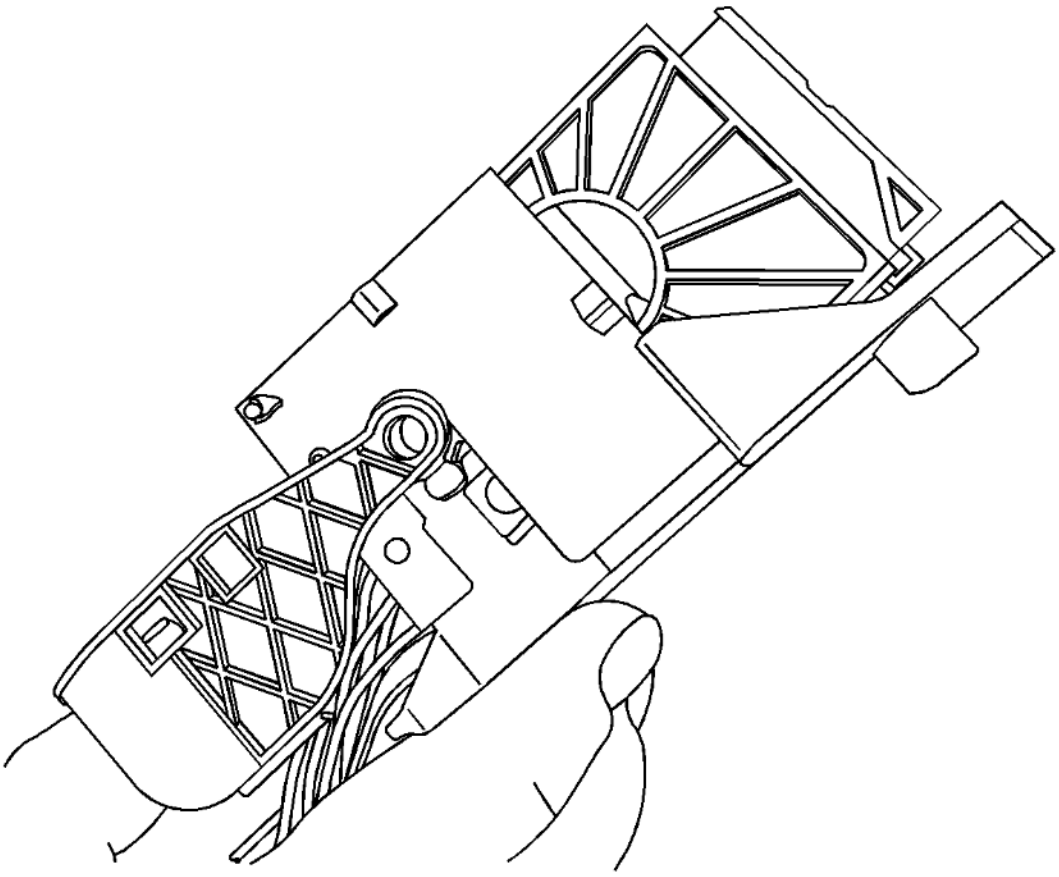

Fig. 187: Aligning Guide Plates To Mesh With Locking Lever Gears
Courtesy of GENERAL MOTORS COMPANY

18. With the locking lever in the 180 degree position, align the guide plates to mesh with the gears on the locking lever.

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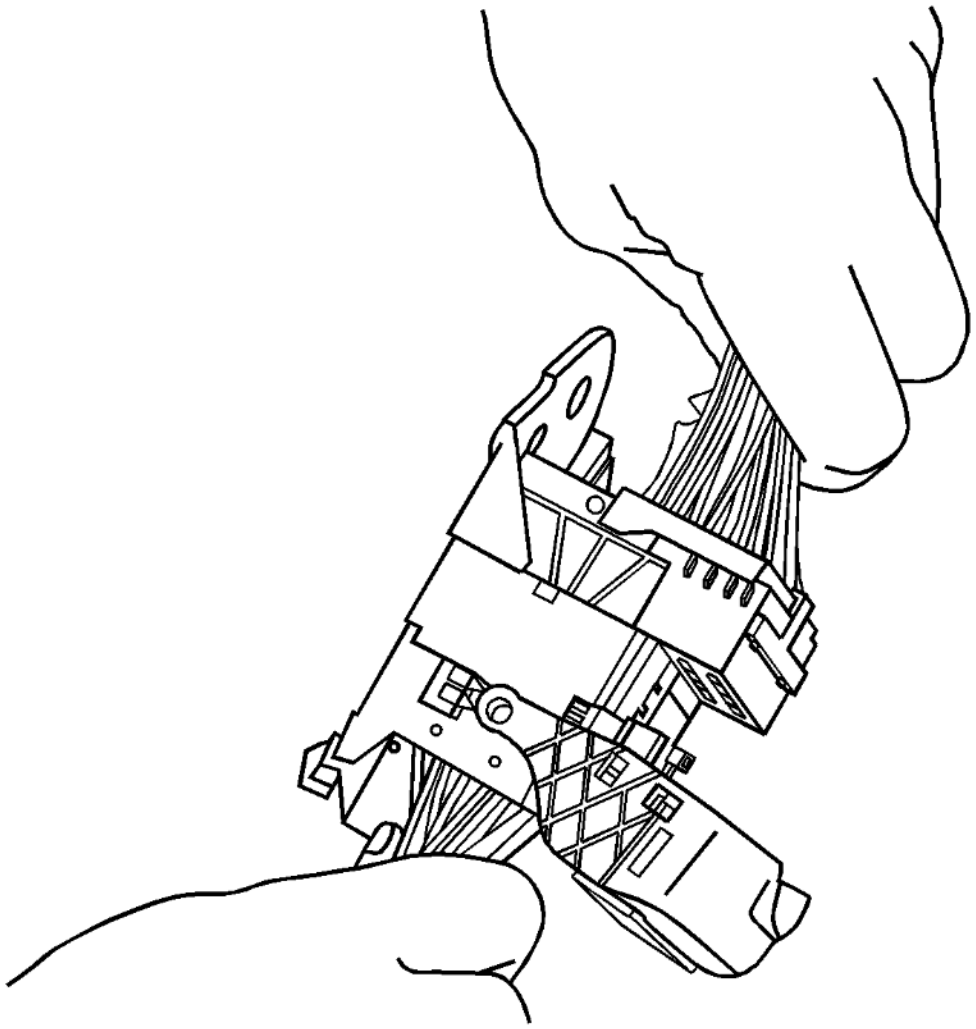

Fig. 188: Sliding Male Connector Body Away From Guide Plates
Courtesy of GENERAL MOTORS COMPANY

19. Slide the male connector body back inward toward the guide plates.

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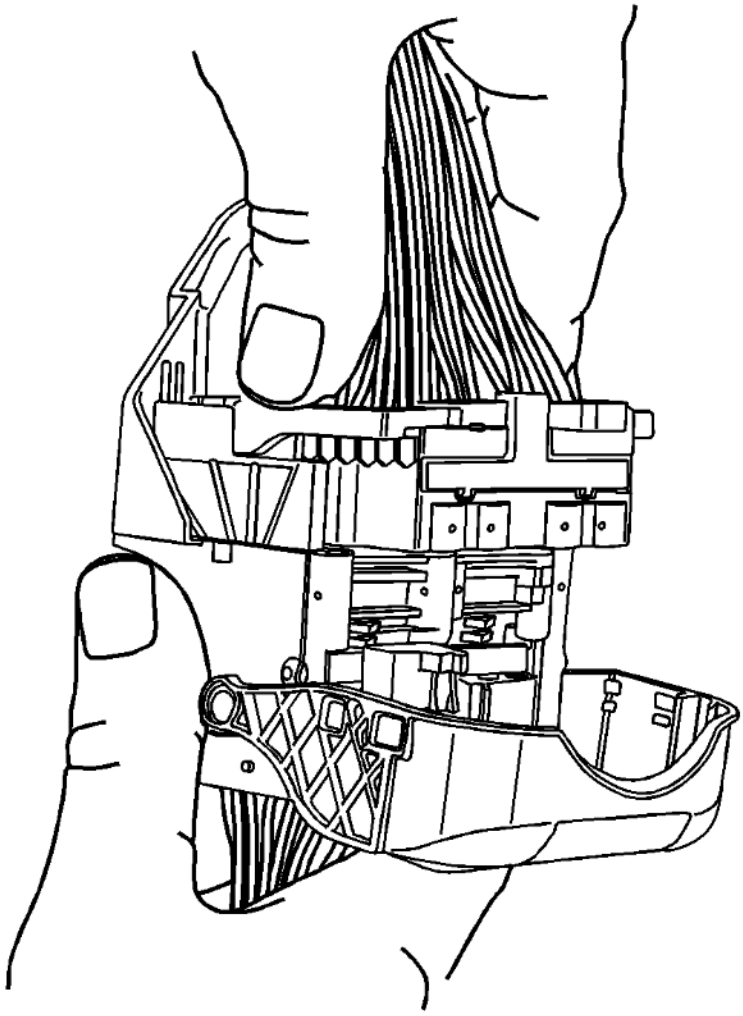

Fig. 189: Assembled View Of Connector - Tyco/AMP (102-Way Inline)
Courtesy of GENERAL MOTORS COMPANY

20. With the locking lever in the 90 degree position and the male connector body connected, it can be slid inward for assembly.

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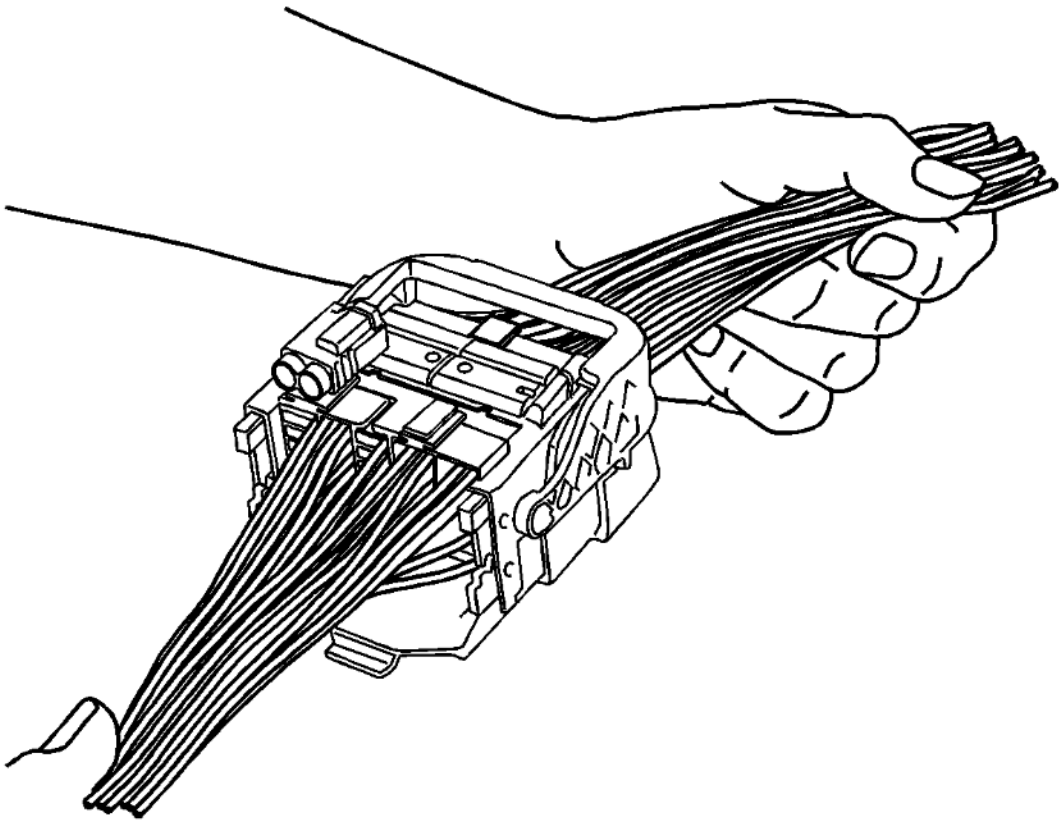

Fig. 190: View Of Typical Connector In Assembled Position
Courtesy of GENERAL MOTORS COMPANY

21. Move the lever into the locked position or in the assembled position. This will pull the male connector down into the female connector.
22. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
23. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

TYCO/AMP CONNECTORS (SIR)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-11A** Terminal Release Tool
- **J-38125-215A** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

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Removal Procedure

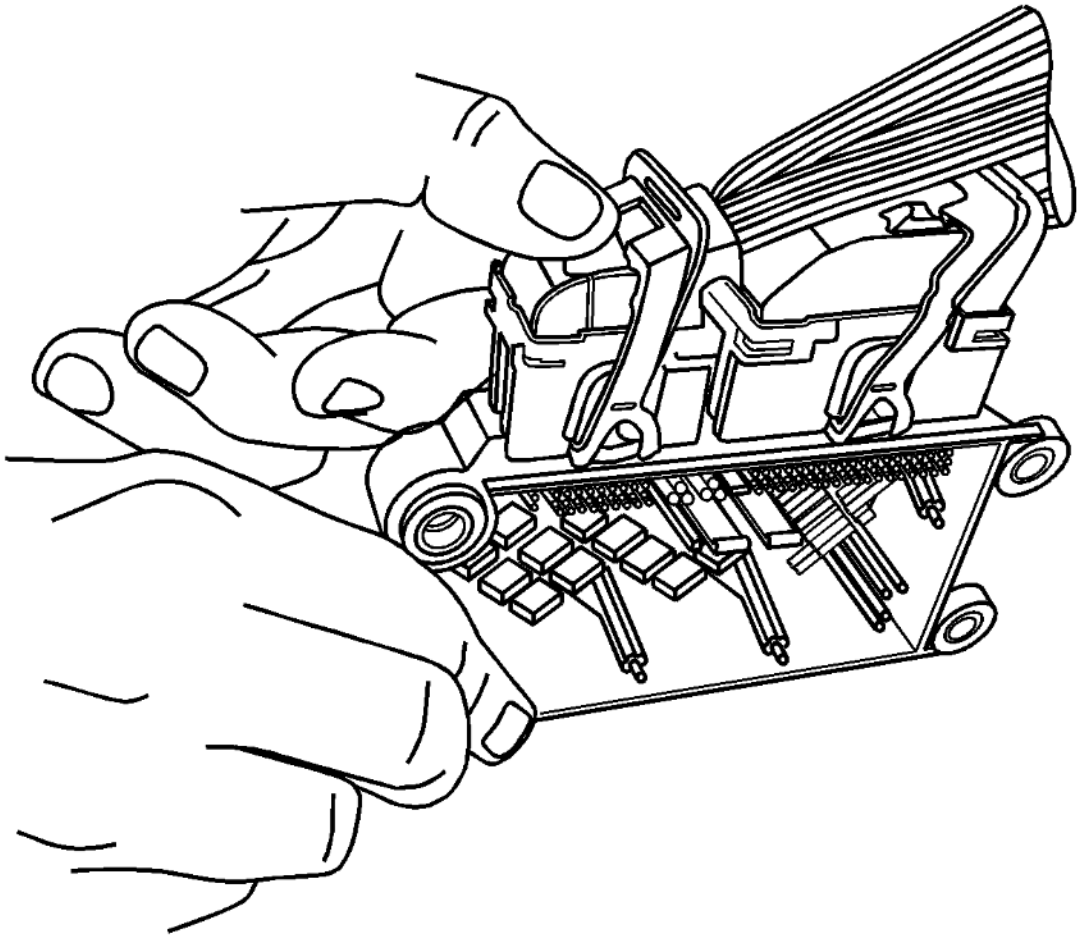

Fig. 191: Sliding Red CPA Away From Connector Lever
Courtesy of GENERAL MOTORS COMPANY

1. Using your thumbs press down and slide the red CPA away from the connector lever.

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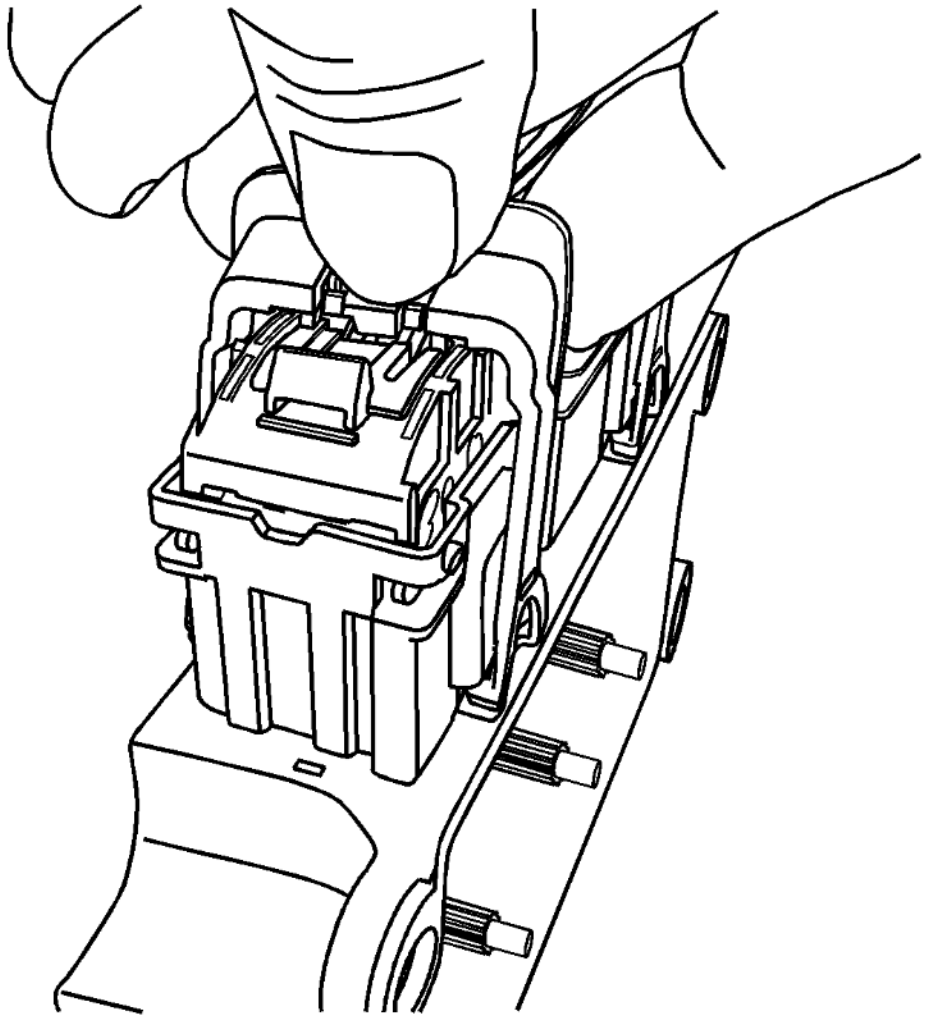

Fig. 192: Pressing Down On Locking Tab - Tyco/AMP Connectors (SIR)
Courtesy of GENERAL MOTORS COMPANY

2. Using your thumb press down on the locking tab and move the lever to the released position.

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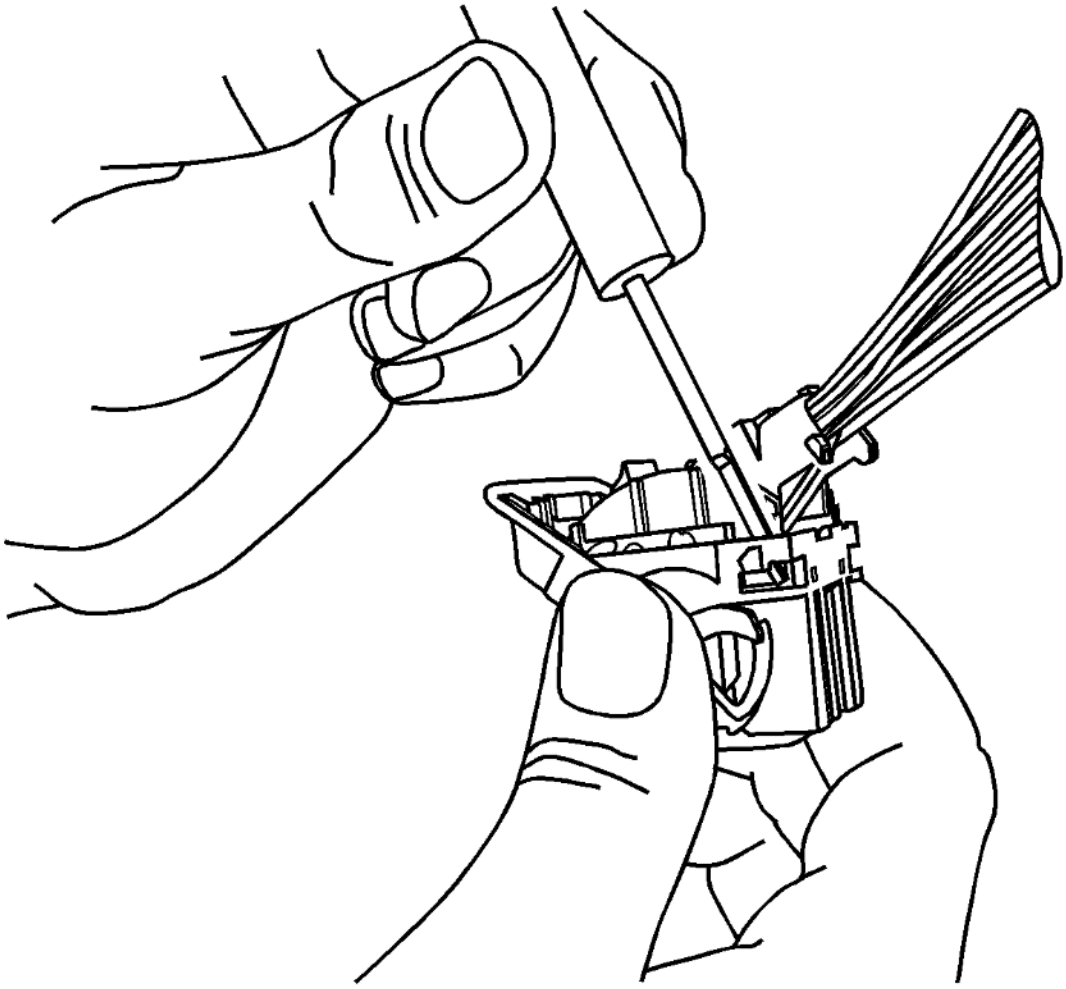

Fig. 193: Releasing Wire Dress Cover Locking Tabs
Courtesy of GENERAL MOTORS COMPANY

3. Using terminal tool J-38125-11A or equivalent, release the wire dress cover locking tabs.

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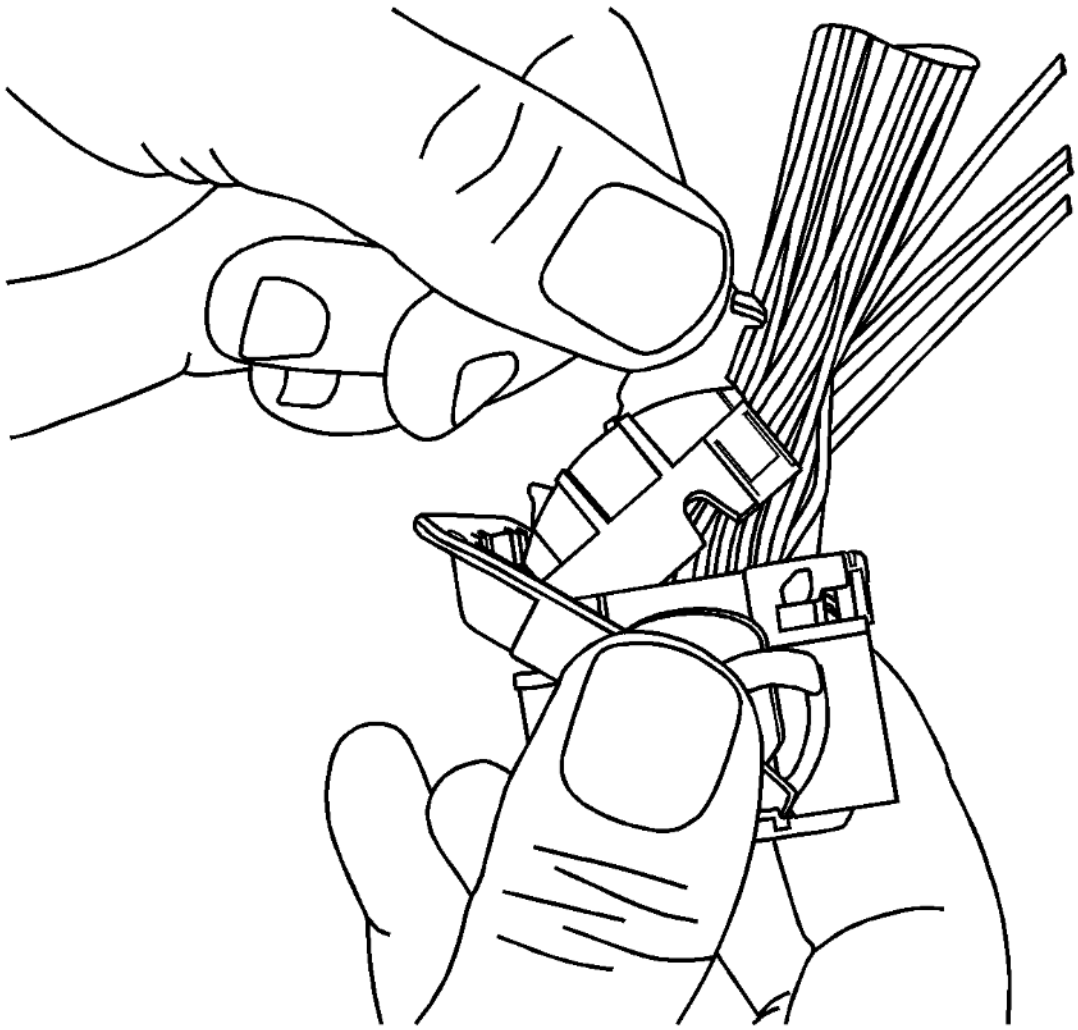

Fig. 194: Pivoting Connector Wire Dress Cover
Courtesy of GENERAL MOTORS COMPANY

4. Pivot connector wire dress cover while removing from the connector body.

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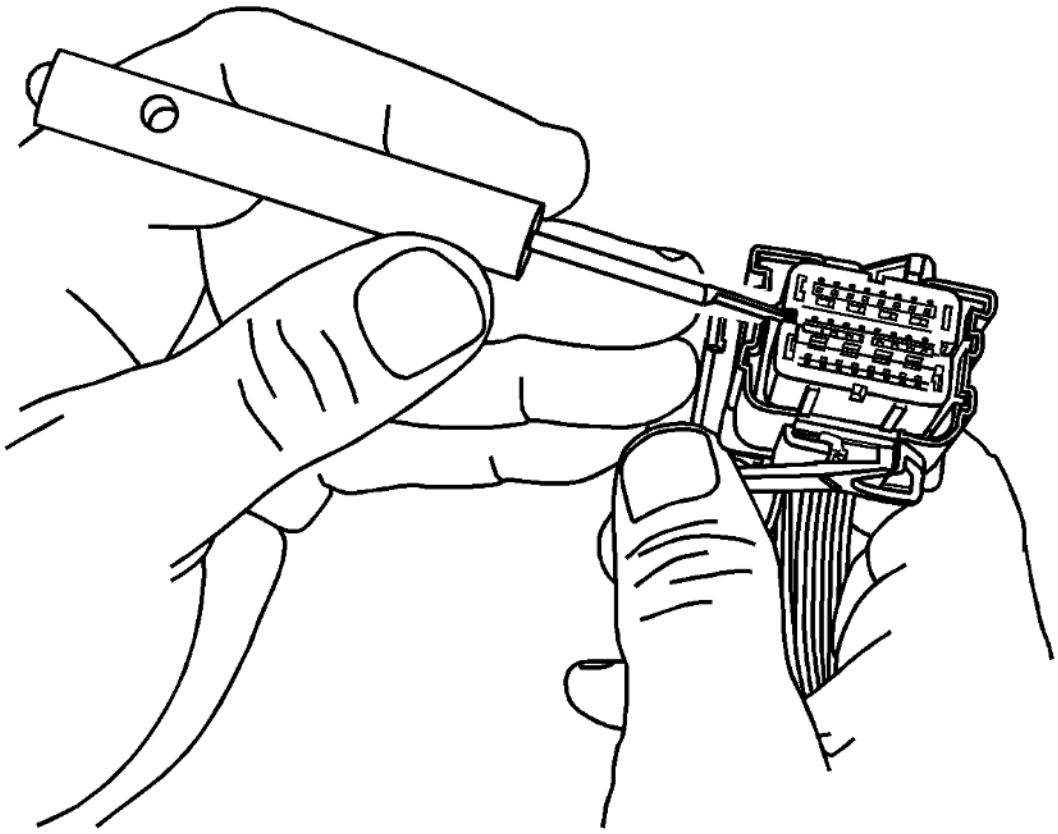

Fig. 195: Removing TPA
Courtesy of GENERAL MOTORS COMPANY

5. Using terminal tool J-38125-11A or equivalent, remove the TPA by lifting straight off the connector body.

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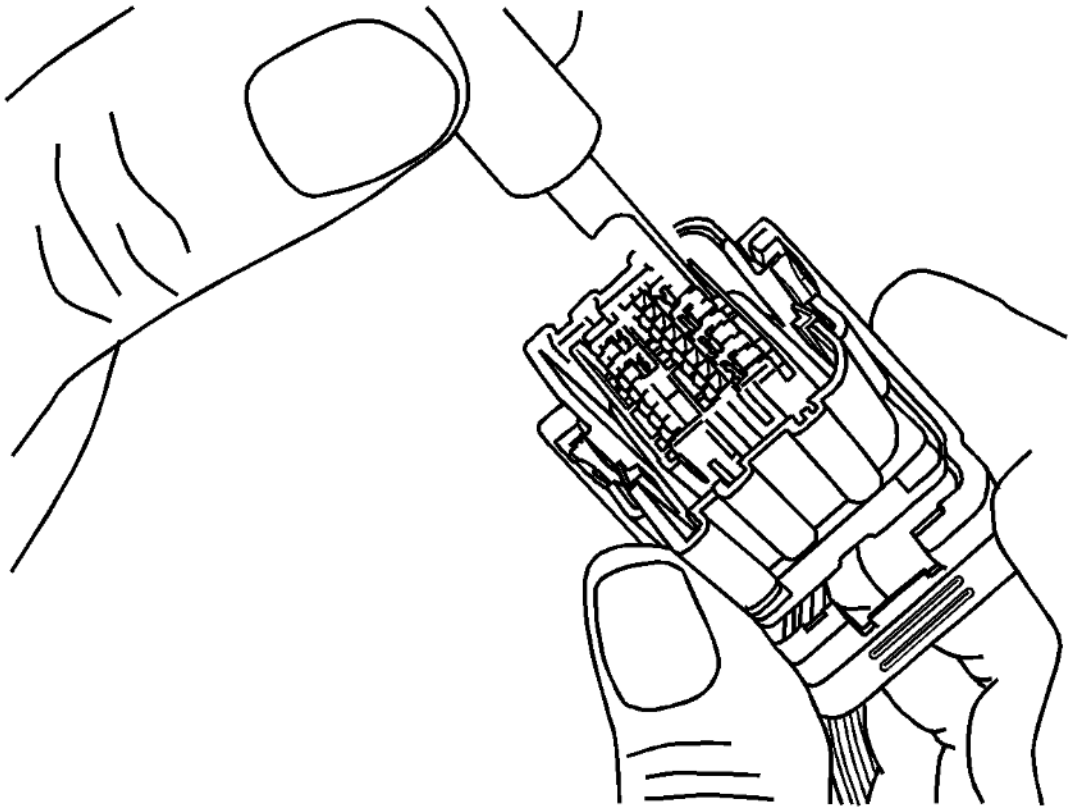

Fig. 196: View of Terminal Release Tool & Rear of Connector Body
Courtesy of GENERAL MOTORS COMPANY

6. Using terminal release tool J-38125-215A, place the tip of the tool on the outside edge next to the terminal and depress the lock tab and remove the rear of the connector body.

Terminal Repair Procedure

Use the appropriate terminal and crimper in order to replace the terminal.

YAZAKI CONNECTORS (2-WAY)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-553** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

Terminal Removal Procedure

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1. Disconnect the connector from the component.

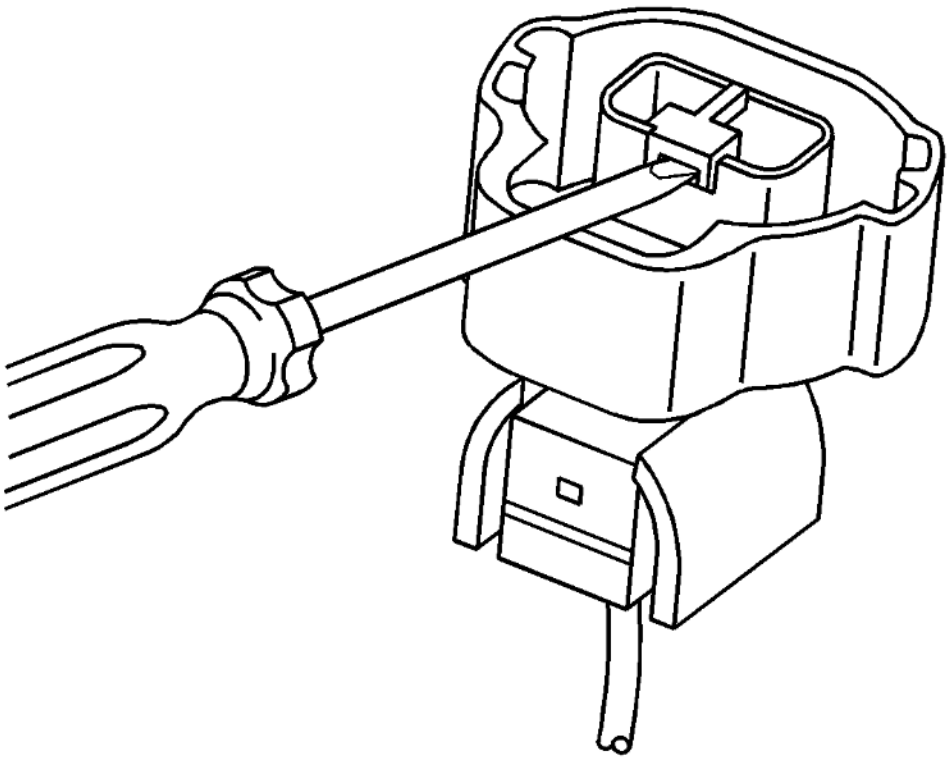

Fig. 197: Identifying Terminal Position Assurance (Yakazi)
Courtesy of GENERAL MOTORS COMPANY

2. Insert a small flat-blade tool in the slot below the front loaded terminal position assurance (TPA) and pry up.
3. Remove the TPA by pulling it out of the connector.
4. Push the wire side of the terminal that is being removed toward the connector and hold it in position.

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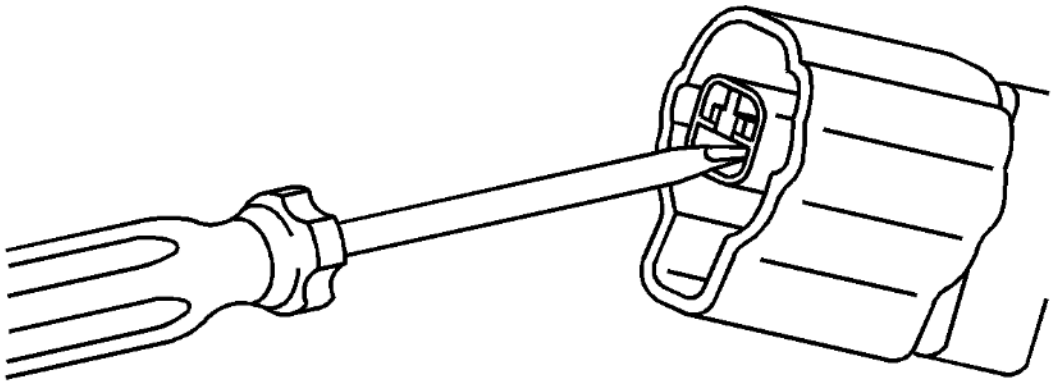

Fig. 198: View Of Inserting Tool Into Terminal Cavity (Yakazi)
Courtesy of GENERAL MOTORS COMPANY

5. Insert the J-38125-553 on a slight upward angle into the cavity below the terminal to be removed. Ensure that the pointed on the end of the tool is facing the bottom of the terminal and it stays in contact with the terminal until it stops on the plastic terminal retainer.

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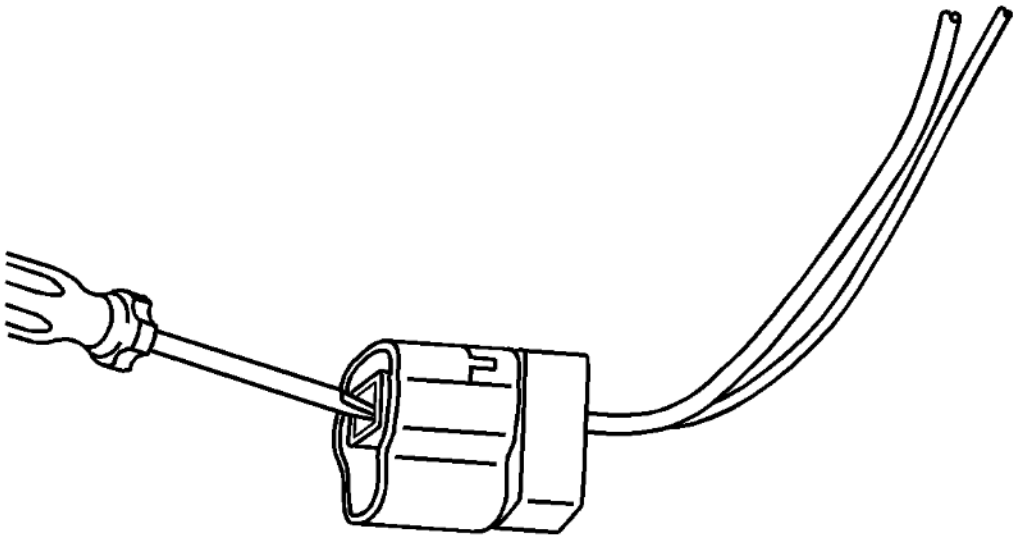

Fig. 199: View Of Pulling Terminal Out Of Connector (Yakazi)
Courtesy of GENERAL MOTORS COMPANY

6. Gently pry the plastic terminal retainer down and carefully pull the terminal out of the connector. Always remember never use force when pulling a terminal out of a connector. If the terminal is difficult to remove, repeat the entire procedure.
7. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
8. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

YAZAKI CONNECTORS (16-WAY)

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **J-38125-215** Terminal Release Tool

For equivalent regional tools, refer to **Special Tools** .

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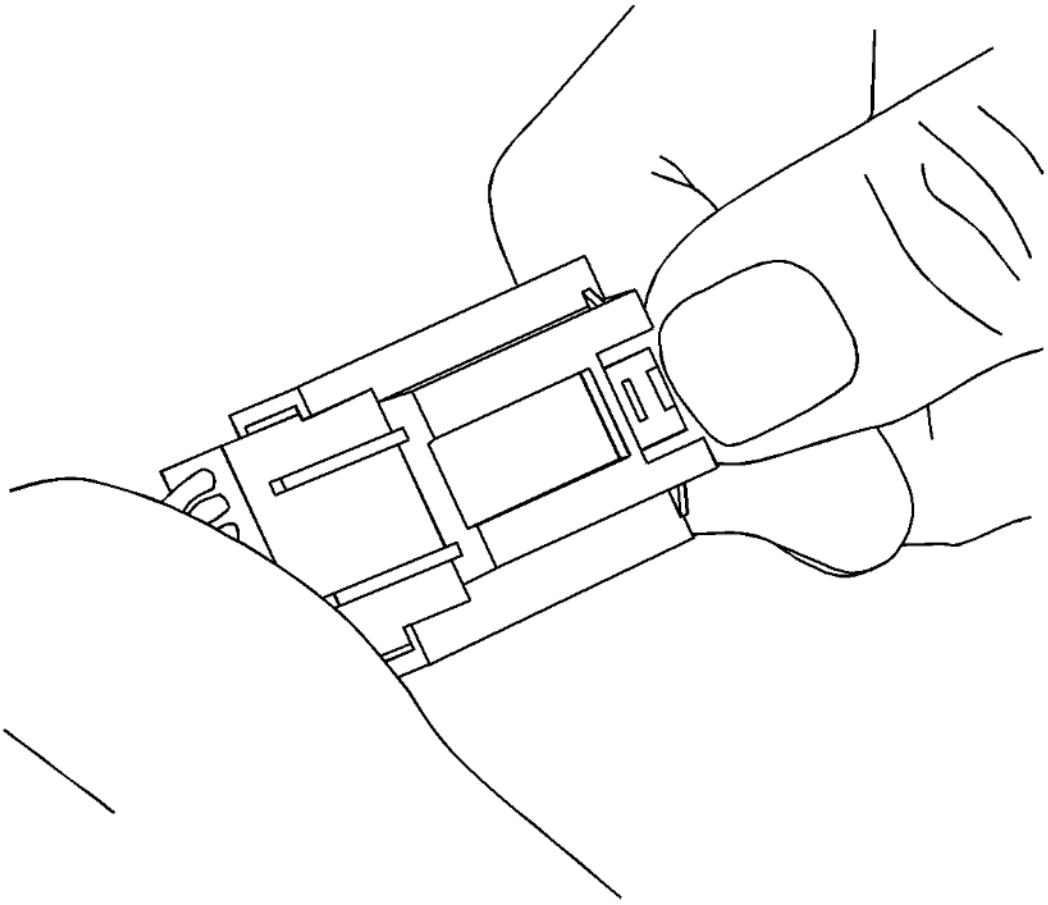

Fig. 200: Pulling Two Connector Halves Apart
Courtesy of GENERAL MOTORS COMPANY

1. While depressing the lock, pull the two connector halves apart.

NOTE: **The terminal position assurance (TPA) is fragile and may break if not done carefully.**

2. Use a small flat-blade tool to very carefully push the TPA towards the face of the connector on both sides of the connector.

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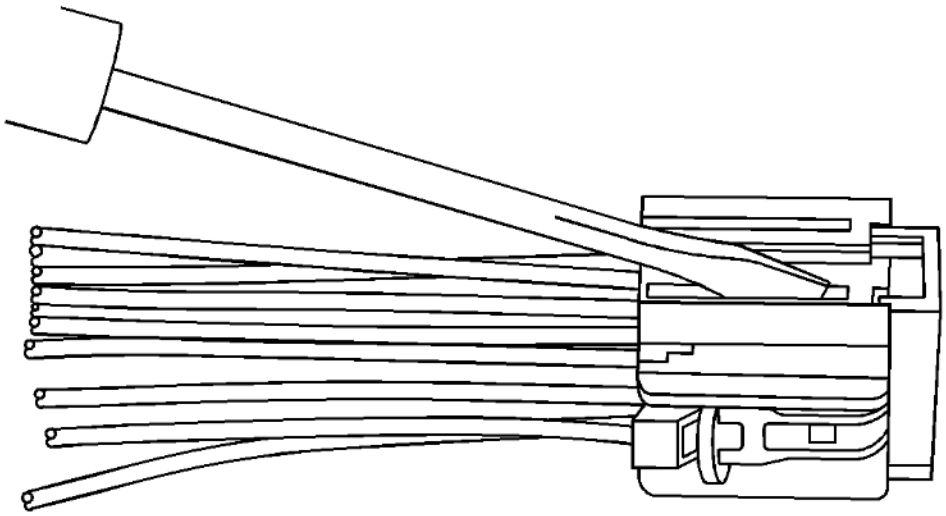

Fig. 201: View Of Male Connector Half & Female Terminals
Courtesy of GENERAL MOTORS COMPANY

3. View of the male half of the connector with female terminals.

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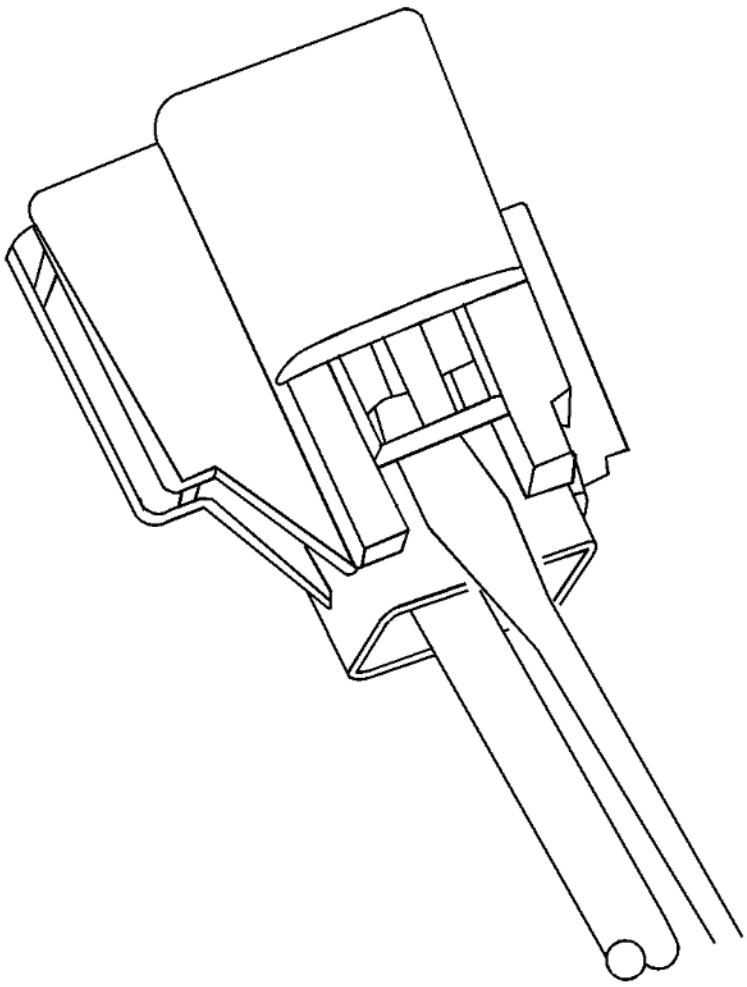

Fig. 202: View Of Female Half Of Connector With Male Terminals
Courtesy of GENERAL MOTORS COMPANY

4. View of the female half of the connector with male terminals.
5. Use the J-38125-215 tool to release the terminals by inserting the tool into the terminal release cavity.

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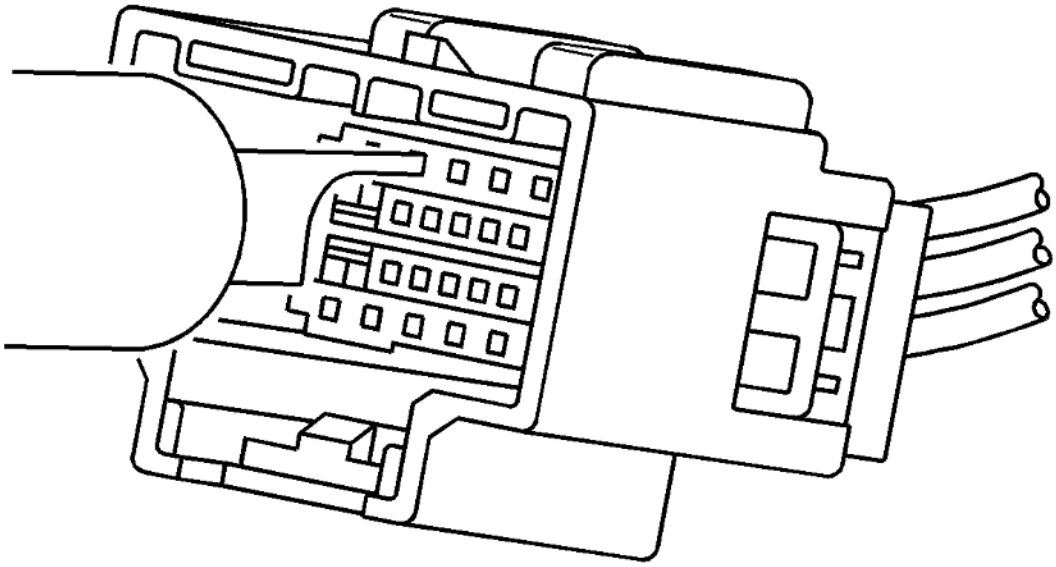

Fig. 203: Using Removal Tool On Female Half Of Connector
Courtesy of GENERAL MOTORS COMPANY

6. View of the female half of the connector with male terminals.

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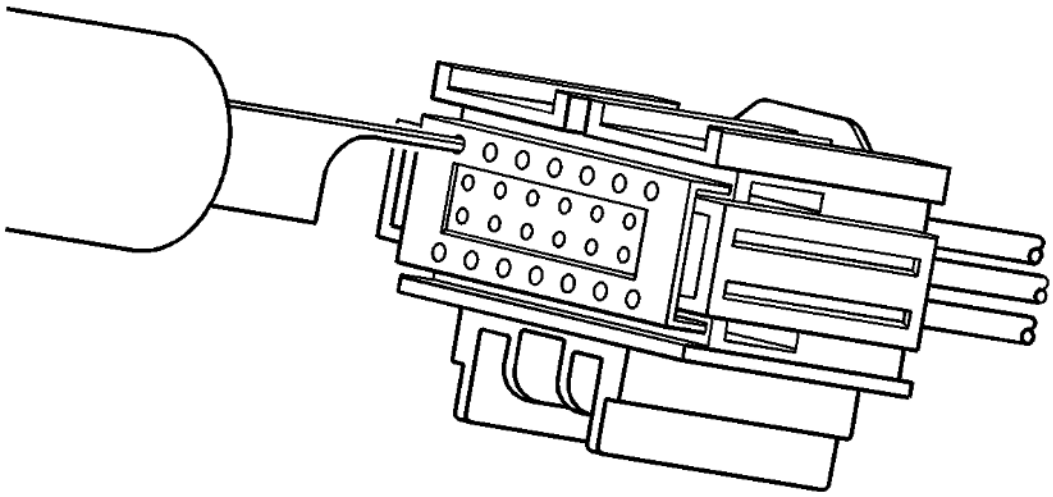

Fig. 204: Using Removal Tool On Male Half Of Connector
Courtesy of GENERAL MOTORS COMPANY

7. View of the male half of the connector with female terminals.
8. While holding the removal tool in place, gently pull the wire out of the back of the connector. Always remember never use force when pulling a terminal out of a connector.
9. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
10. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

REPAIRING CONNECTOR TERMINALS (TERMINATED LEAD REPAIR)

Special Tools

EL-38125-10 Splice Sleeve Crimp Tool

For equivalent regional tools, refer to **Special Tools** .

NOTE: **All repairs near the engine manifold, turbo engine and all exhaust pipes should follow the High Temperature Wiring Repairs procedures.**

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For high temperature wiring repairs, refer to **High Temperature Wiring Repairs**.

Terminated leads are terminals that are crimped onto wires. The terminated lead can be used throughout the vehicle since it is designed for temperatures up to 150Â°C. The length of the wire is 450 mm.

1. Use the connector end view to identify the correct terminated lead.
2. The terminated lead package should include a DuraSeal splice sleeve. If not, use the chart to in Splicing Copper Wire Using Splice Sleeves to identify the correct DuraSeal splice sleeve, refer to **Wire to Wire Repair**.

REPAIRING CONNECTOR TERMINALS (TERMINAL REPAIR)

Special Tools

- **J-38125-580** Terminal Repair Kit
- **J-38125-6** Crimp Tool
- **J-38125-7** Crimp Tool
- **J-38125-8** Crimp Tool
- **J-38125-64** Crimp Tool
- **J-38125-101** Crimp Tool
- **J-38125-641** Crimp Tool
- **J-38125-642** Crimp Tool
- **J-38125-643** Crimp Tool

For equivalent regional tools, refer to **Special Tools** .

Use the following repair procedures to repair each type of terminal:

- For push to seat terminals, refer to **Delphi Connectors (Weather Pack)Delphi Connectors (Push To Seat)Delphi Connectors (Pull To Seat)Delphi Connectors (Micro-Pack 100W)Delphi Connectors (Micro .64)Delphi Connectors (12-Way)Delphi Connectors (Steering Gear)**.
- For pull to seat terminals, refer to **Delphi Connectors (Weather Pack)Delphi Connectors (Push To Seat)Delphi Connectors (Pull To Seat)Delphi Connectors (Micro-Pack 100W)Delphi Connectors (Micro .64)Delphi Connectors (12-Way)Delphi Connectors (Steering Gear)**.

NOTE: **The first step for all terminal repairs is to find the connector end view in SI.**

Cable Seal Terminals

1. Cut off the terminal between the core and the insulation crimp to minimize any wire loss.
2. Remove the old seal.
3. Apply the correct cable seal, per the wire gauge size, from the kit. Slide the seal back along the wire to enable removal of the insulation.
4. To minimize wire loss, remove only the insulation required.
5. Using the connector end view, determine the correct crimp tool and crimp jaw.
6. Align the seal with the end of the cable insulation.
7. Position the stripped wire and seal in the terminal.
8. Hand Crimp the core wings first.

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9. Hand Crimp the insulation wings around the seal and the cable.

Unsealed Terminals

1. Cut off the terminal between the core and the insulation crimp to minimize any wire loss.
2. To minimize wire loss, remove only the insulation required.
3. Position the stripped wire in the terminal.
4. Hand Crimp the core wings first.
5. Hand Crimp the insulation wings around the cable.

Micro-Pack 100W Size Terminal

The Micro-Pack 100W connectors have small terminals that are difficult to handle and hold when crimping. In order to aid the technician when crimping these terminals, a new crimping tool was developed. The J 38125-101 (W jaw) crimping tool was developed to crimp Micro-Pack 100W terminals. The J 38125-101 (W jaw) crimping tool has a terminal holding block that will hold the terminal in place while the terminal is being crimped. After the terminal is removed from the connector perform the following procedure in order to repair Micro-Pack 100 terminals.

1. Cut the wire as close to the terminal as possible.

NOTE: **After cutting the damaged terminal from the wire, determine if the remaining wire is long enough to reach the connector without putting a strain on the wire. If the wire is not long enough, splice a small length of the same gauge wire to the existing wire, then crimp the new terminal on the added wire.**

2. Strip 5 mm (3/16 in) of insulation from the wire.

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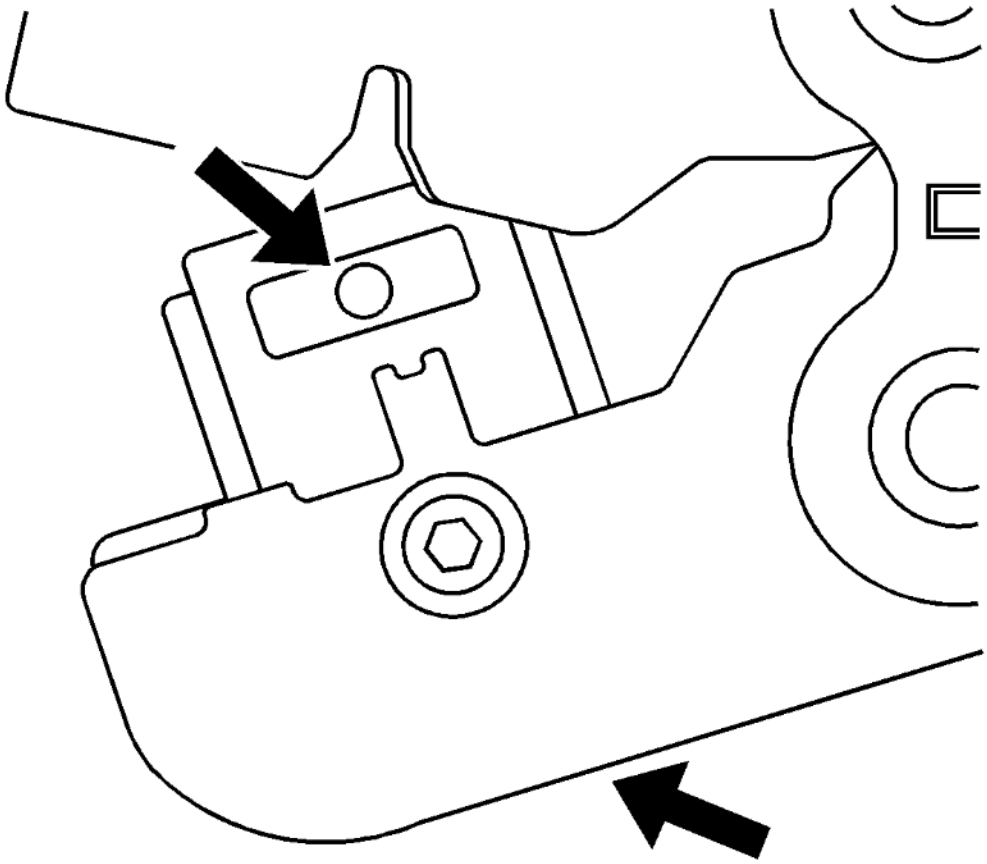

Fig. 205: Identifying Crimping Tool Spring Loaded Locator
Courtesy of GENERAL MOTORS COMPANY

3. Depress the spring loaded locator of the J 38125-101 (W jaw) crimping tool until the terminal holder is completely visible.

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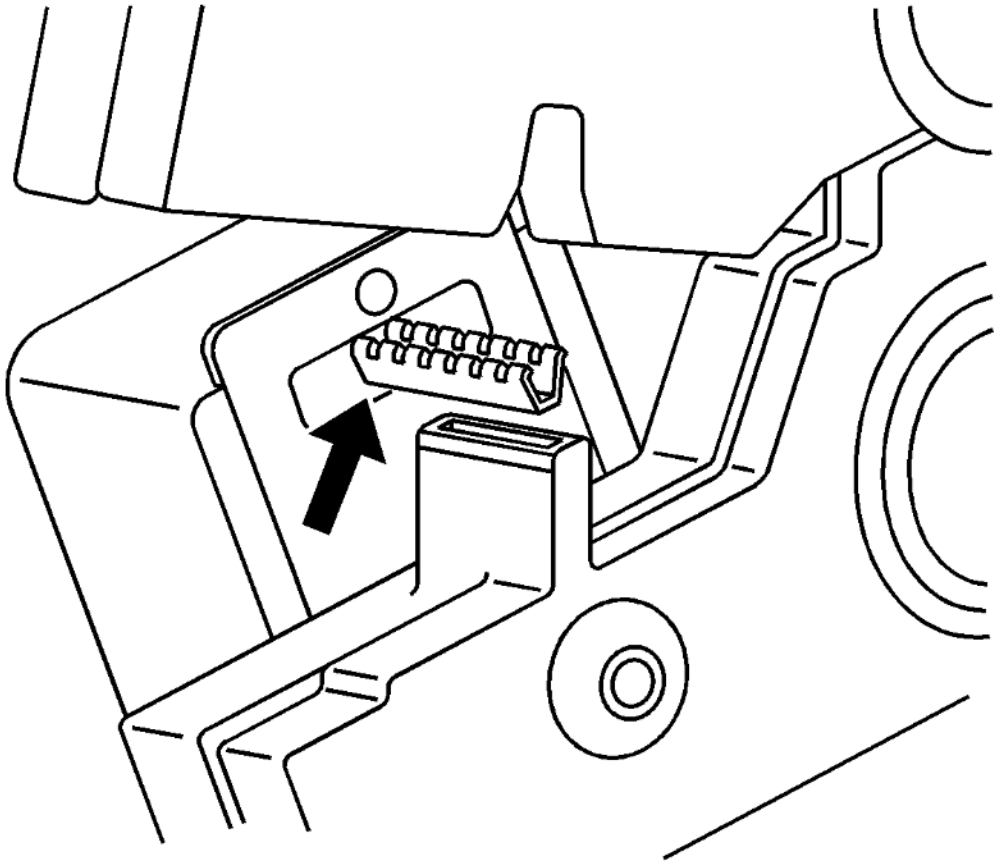

Fig. 206: Locating Terminal In Crimping Tool
Courtesy of GENERAL MOTORS COMPANY

4. Insert the terminal into the crimp tool until the core wings are flush with the anvil on the crimp tool. Be sure that the wings are pointed toward the crimp tool former and release the spring locator. The locator will hold the terminal in place. Inspect the alignment of the terminal wings with the crimp tool former. If the terminal wings are wider than the crimp tool former, remove the terminal and bend the terminal wings in slightly.
5. Place stripped wire into terminal.
6. Crimp the new terminal to the wire. If a jam occurs, press the emergency release to open applicator.

Micro 0.64 Size Terminal

The Micro 64 connectors have small terminals that are difficult to handle and hold when crimping. In order to aid the technician when crimping these terminals, a new crimping tool was developed. The J 38125-64 (M jaw) was developed to crimp Micro 64 terminals. The J-38125-64 crimping tool has a terminal holding block that will hold the terminal in place while the terminal is being crimped. The J-38125-64 crimping tool is also designed to crimp both the wire and the insulation at the same time.

After the terminal is removed from the connector perform the following procedure in order to repair Micro 64 terminals.

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NOTE: **After cutting the damaged terminal from the wire, determine if the remaining wire is long enough to reach the connector without putting a strain on the wire. If the wire is not long enough, splice a small length of the same gauge wire to the existing wire, then crimp the new terminal on the added wire.**

1. Cut the wire as close to the damaged terminal as possible.
2. Strip 5 mm (3/16 in) of insulation from the wire.

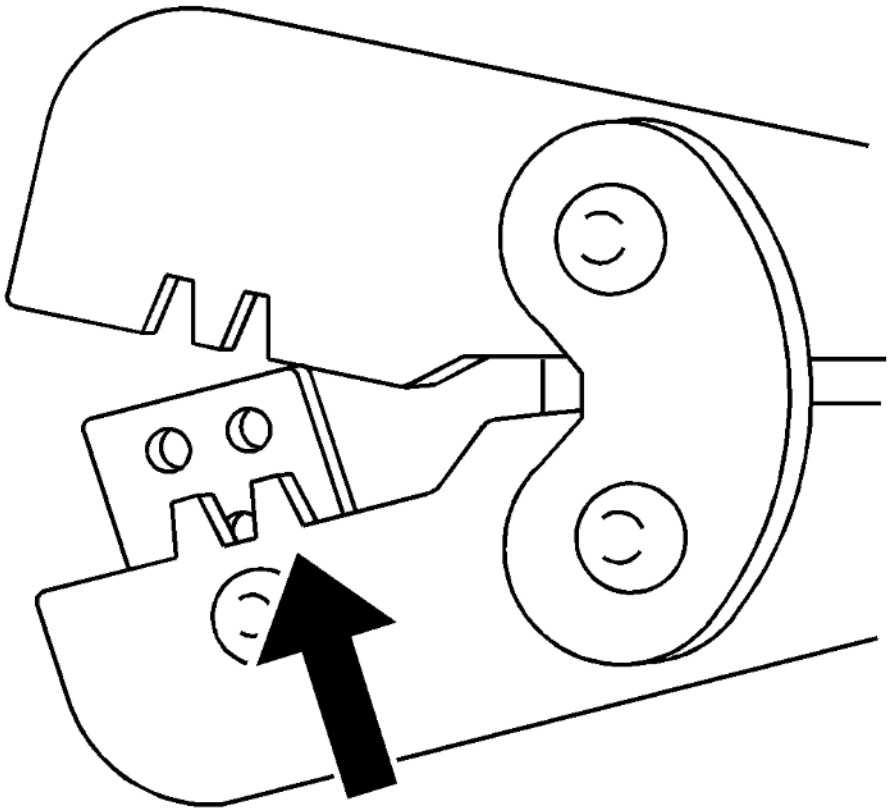

Fig. 207: Identifying Crimping Tool Spring Loaded Locator
Courtesy of GENERAL MOTORS COMPANY

3. Depress the spring loaded locator of the crimping tool until the terminal holder is completely visible.

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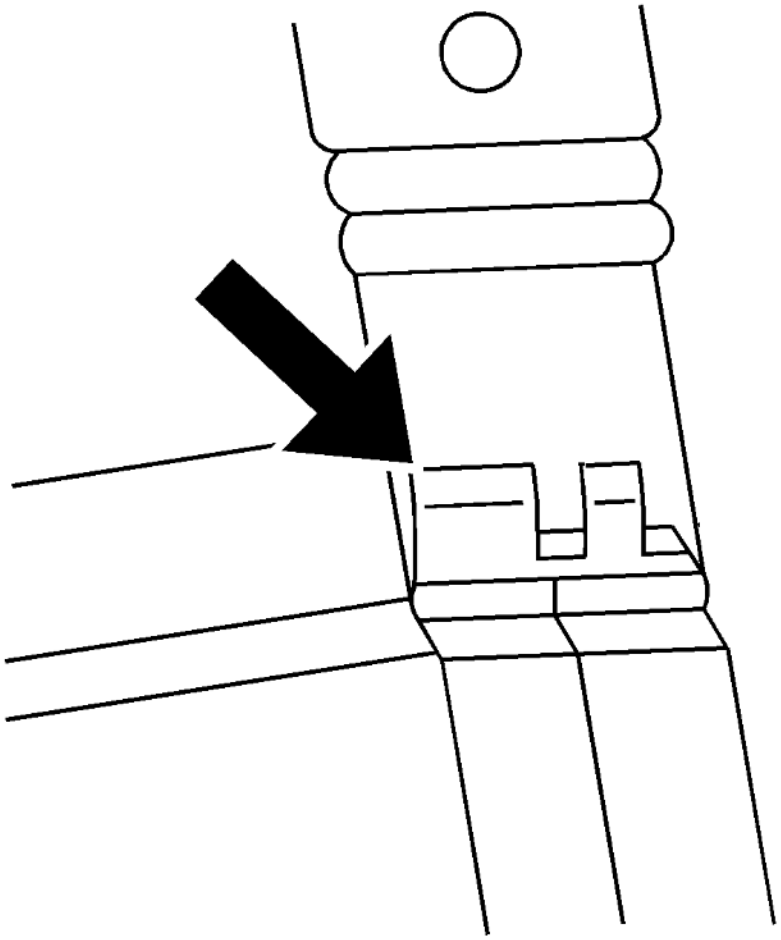

Fig. 208: Identifying Terminal Holder
Courtesy of GENERAL MOTORS COMPANY

4. Insert terminal into the appropriate terminal holder until it hits bottom and stops. The correct terminal holder is determined by the wire size. Also ensure that the terminals wings are pointing towards the former on the tool and the release locator.
5. Insert the stripped cable into the terminal. Insulation should be visible on both sides of the terminal insulation wings.
6. Compress the handles until the ratchet automatically releases.
7. Place the terminal into the appropriate cavity and assemble the connector.

TERMINAL REMOVAL

Special Tools

- **EL-38125-550** Terminal Release Tool Kit
- **EL-38125-580** Terminal Release Tool Kit
- **EL-35616** Terminal Test Probe Kit

For equivalent regional tools, refer to **Special Tools** .

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NOTE: **All repairs near the engine manifold, turbo engine and all exhaust pipes should follow the High Temperature Wiring Repair procedures.**

1. Find the appropriate connector end view within the connector end view section. The connector end view has the following information:
   - Diagnostic probe tool
   - Terminal release tool
   - Terminal/terminated lead part numbers

   NOTE: **Not using the proper test kit probe may cause damage to the terminal(s) that are probed.**

2. Determine if a terminal is damaged.
   1. Locate the diagnostic probe tool from the connector end view. The connector end view describes the color and part number to help the technician find and use the correct tool.
   2. Connect the probe tool to the Digital Multimeter.
   3. Insert the probe tool into the cavity and follow the procedures from the **Troubleshooting with a Digital Multimeter** .
3. Disconnect the connector body to perform the repair.
4. Use the following procedure to remove the terminal from the connector body.

   NOTE: **Several procedures for specific connector bodies are called out in the Wiring Repairs section.**

   1. The terminal position assurance (TPA) and connector position assurance (CPA) should be removed before releasing the terminal for the connector body.
   2. Look at the connector end view to locate the cavity of the damaged terminal and find the proper terminal release tool from the terminal release tool kit.

      NOTE: **Using the incorrect terminal release tool can damage the connector body.**

      NOTE: **Some terminals have a lever that must be disengaged before the terminal can be released.**

   3. Insert the terminal release tool into the cavity.

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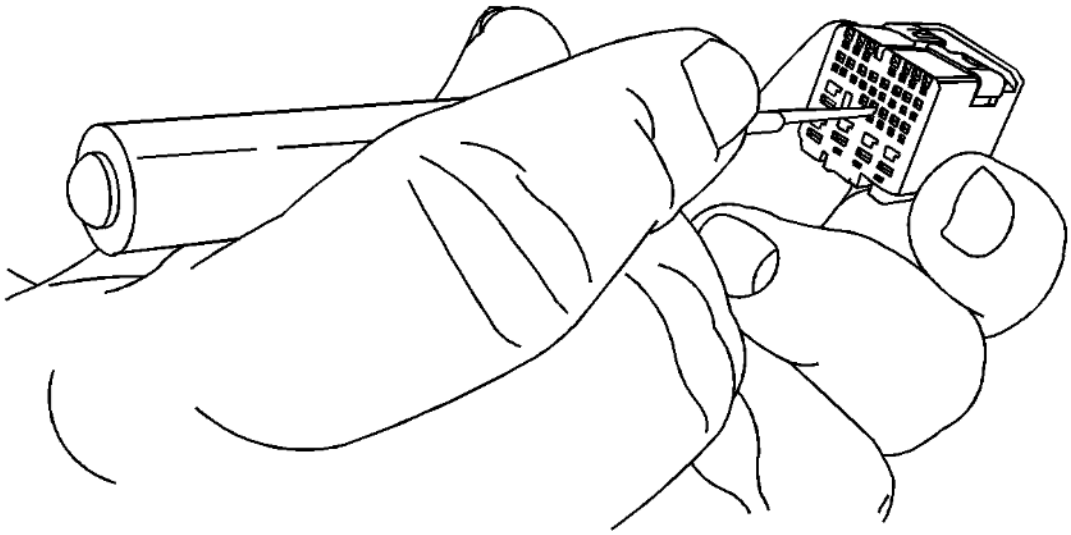

Fig. 209: Gently Pulling Wire Out Of Back Of Connector
Courtesy of GENERAL MOTORS COMPANY

5. Gently pull the wire out of the back of the connector.
6. Repair the terminal by following the **Repairing Connector Terminals (Terminated Lead Repair)Repairing Connector Terminals (Terminal Repair)** procedure.
7. Insert the repaired terminal back into the cavity. Repeat the diagnostic procedure to verify the repair and reconnect the connector bodies.

DELPHI 40-WAY SEALED INLINE CONNECTOR REMOVAL

NOTE: **This procedure can also be used to remove the yellow Delphi 48-way sealed inline connector.**

Connector Removal Procedure

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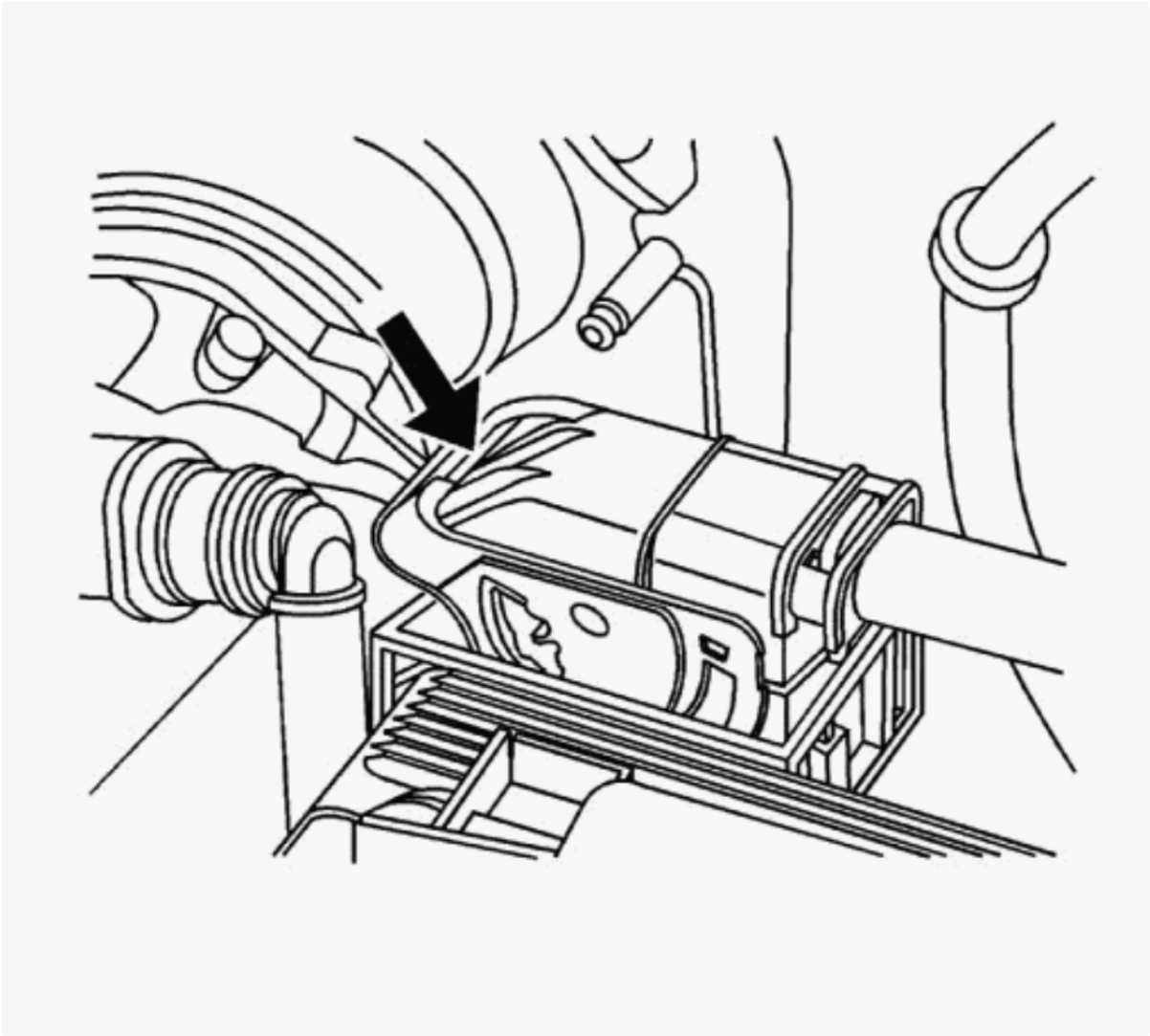

Fig. 210: CPA (Connector Position Assurance) Clip Down
Courtesy of GENERAL MOTORS COMPANY

1. Push CPA (Connector Position Assurance) clip down.

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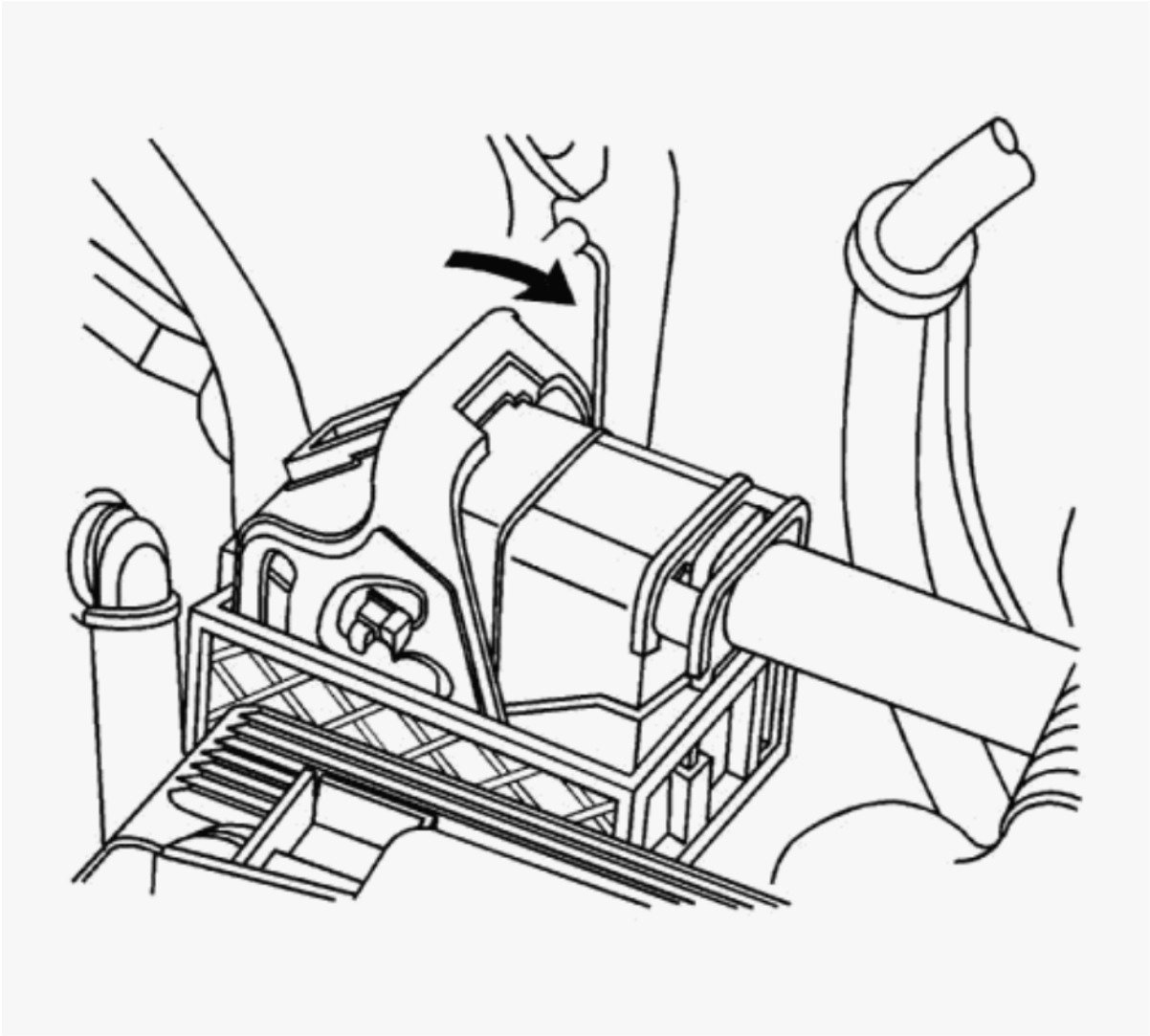

Fig. 211: Pulling Cam Lever Up Until Female Connector Is Disengaged From Its Mating Male Connector

Courtesy of GENERAL MOTORS COMPANY

2. Pull cam lever up until the female connector is disengaged from its mating male connector.

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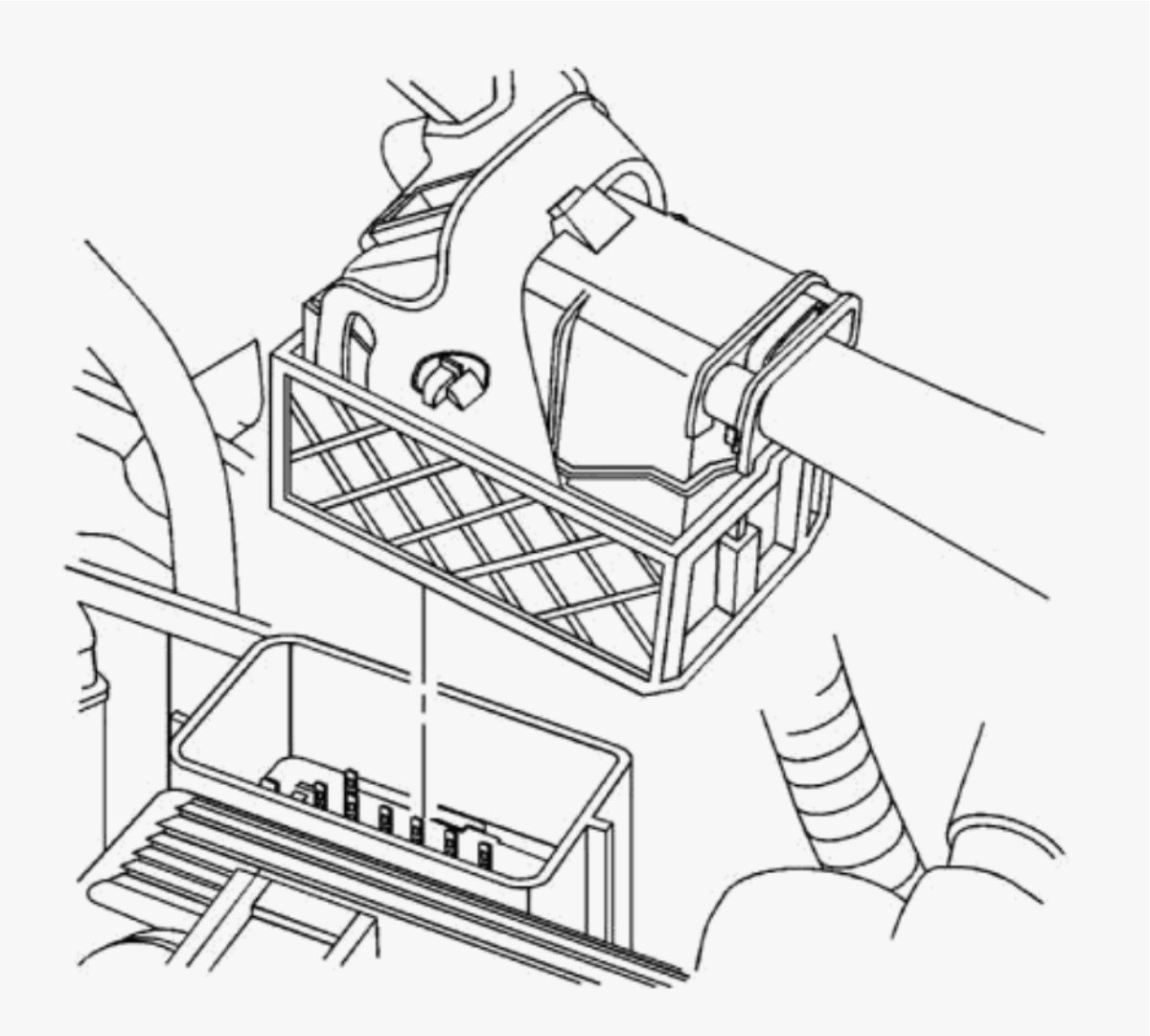

Fig. 212: Removing Female Connector From Male Connector
Courtesy of GENERAL MOTORS COMPANY

3. Remove the female connector from the male connector.

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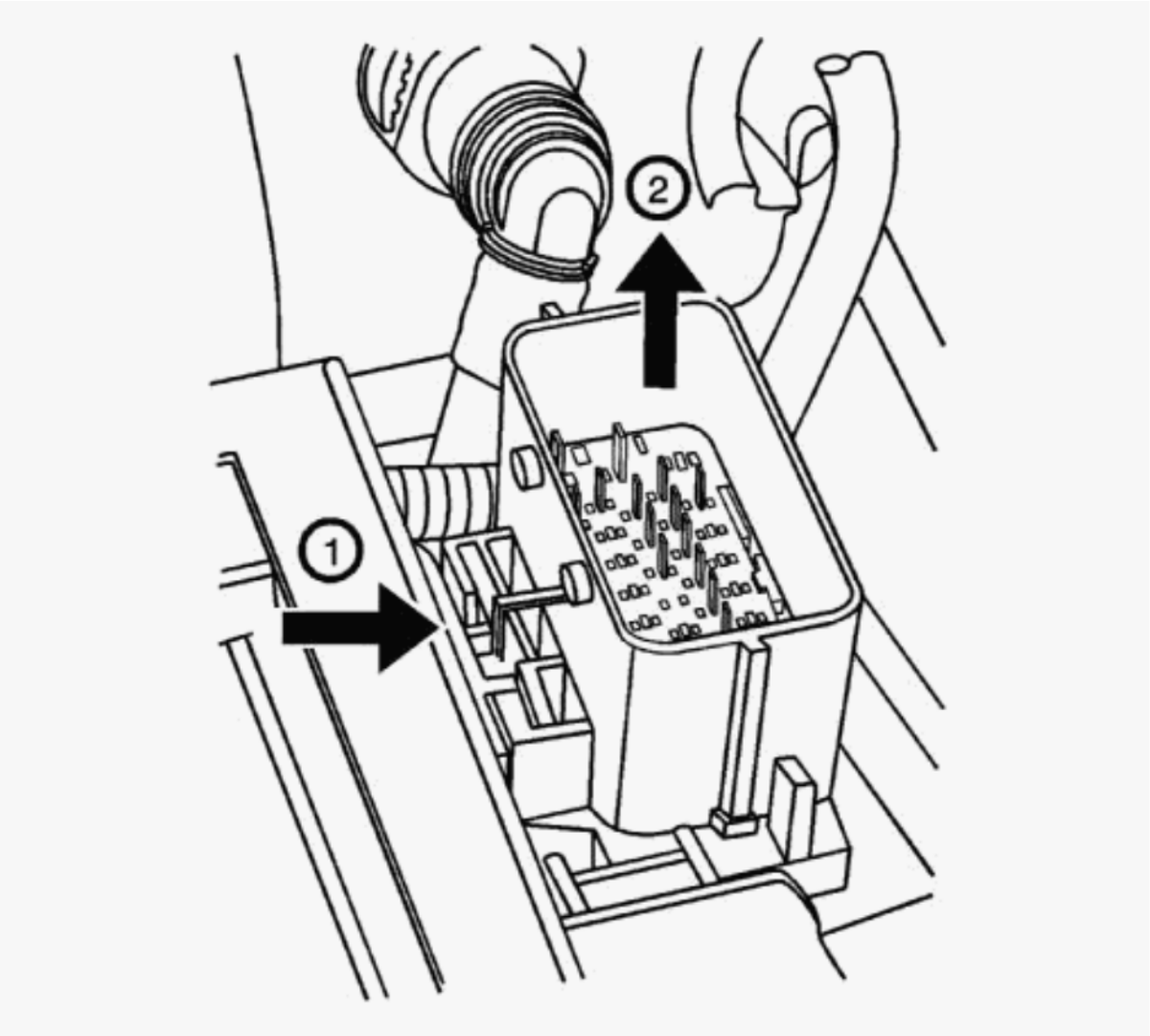

Fig. 213: Pulling Male Connector Up
Courtesy of GENERAL MOTORS COMPANY

4. Push tab in (1) and pull the male connector up (2).

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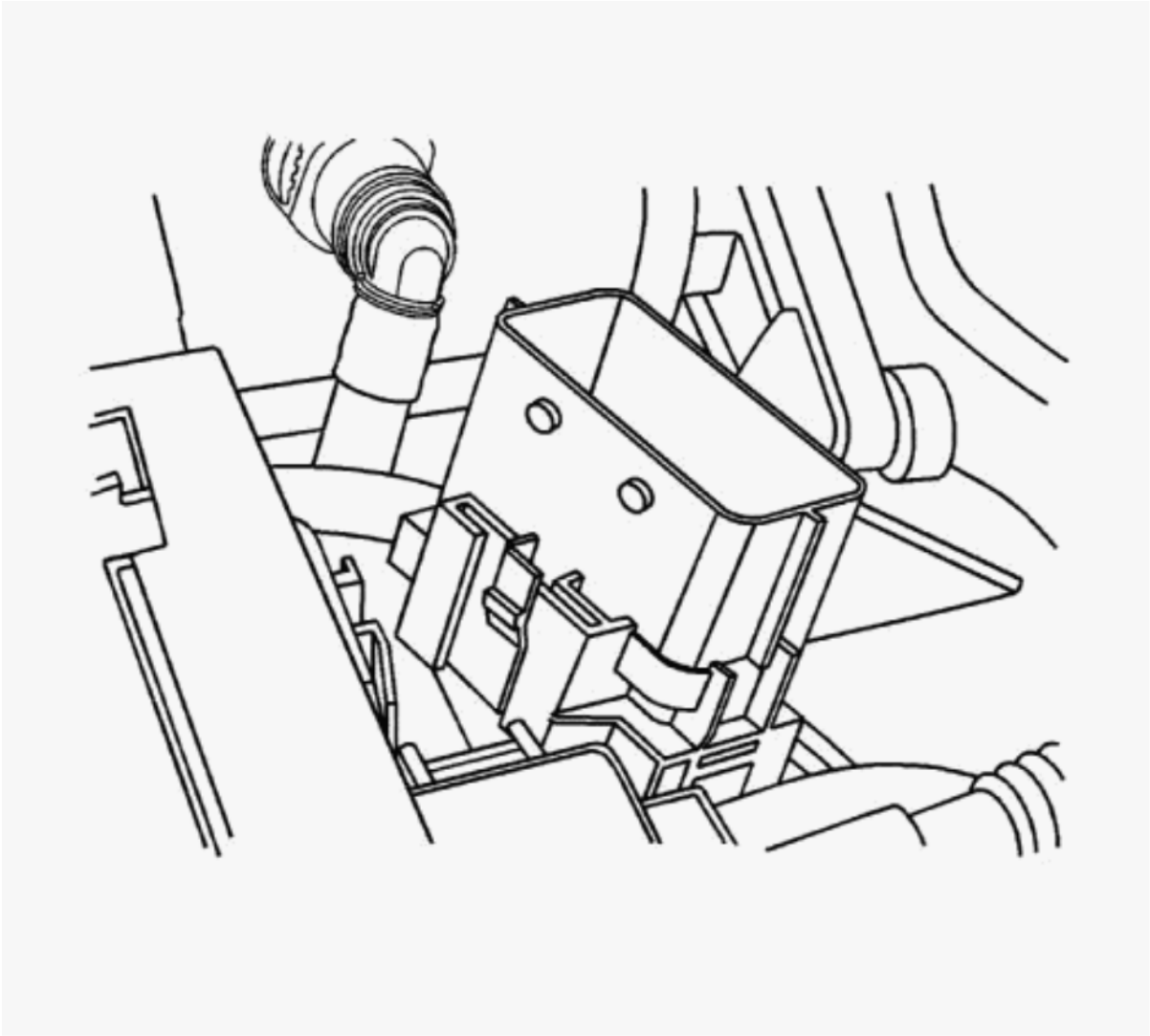

Fig. 214: Male connector is now detached from UBEC
Courtesy of GENERAL MOTORS COMPANY

5. Male connector is now detached from UBEC.

RELAY REPLACEMENT (ATTACHED TO WIRE HARNESS)

Removal Procedure

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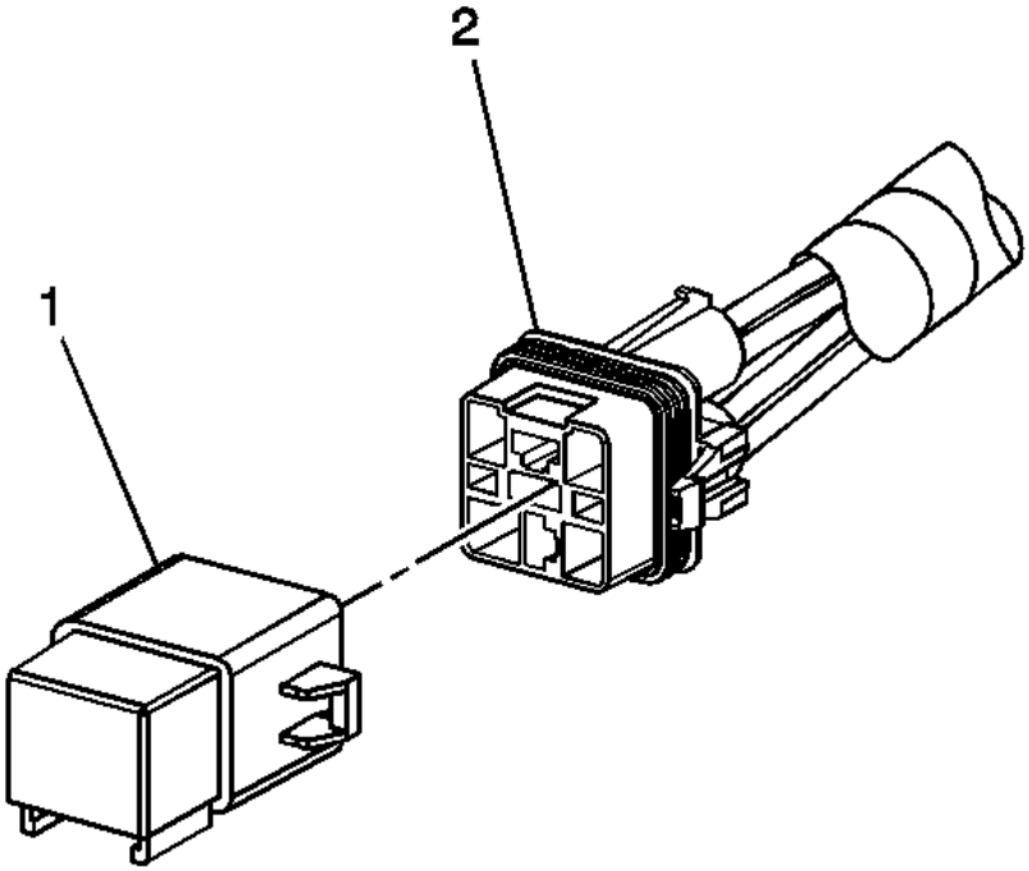

Fig. 215: Identifying Relay & Wire Harness Connector
Courtesy of GENERAL MOTORS COMPANY

1. Locate the relay. Refer to the **Master Electrical Component List** to locate the relay in the vehicle.
2. Remove any fasteners which hold the relay in place.
3. Remove any connector position assurance (CPA) devices or secondary locks.

NOTE: **Use care when removing a relay in a wiring harness when the relay is secured by fasteners or tape.**

4. Separate the relay (1) from the wire harness connector (2).

Installation Procedure

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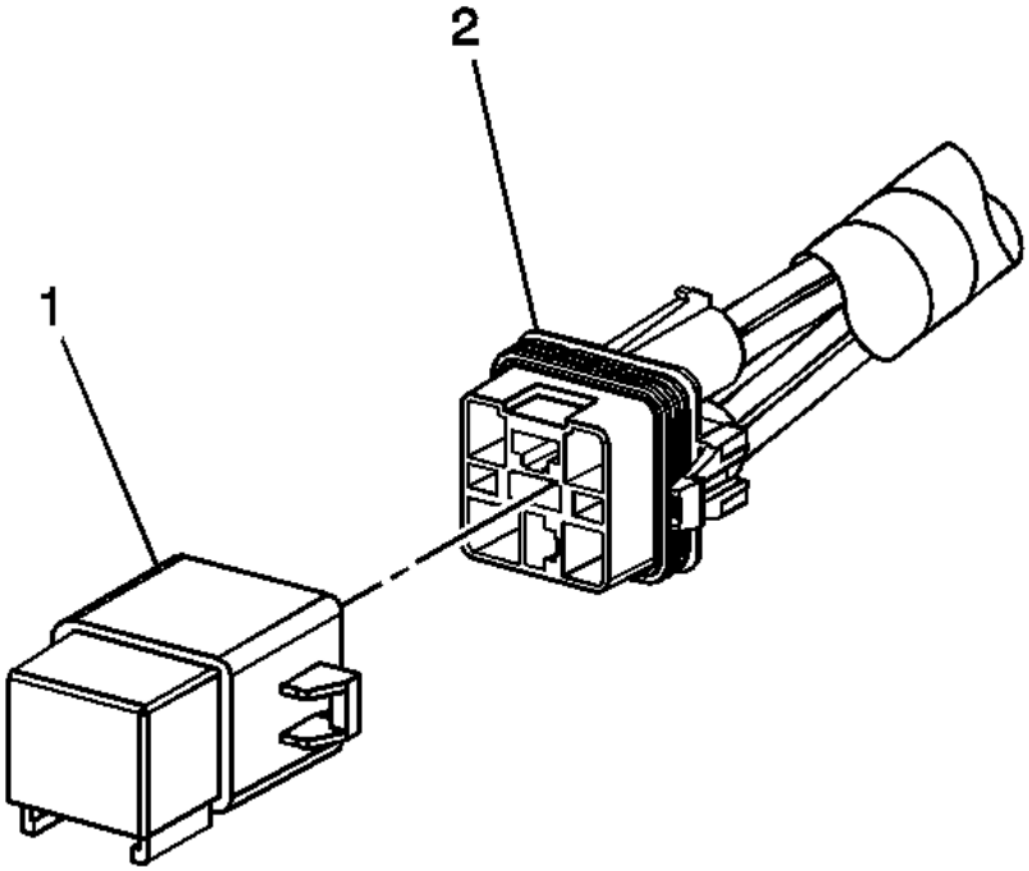

Fig. 216: Identifying Relay & Wire Harness Connector
Courtesy of GENERAL MOTORS COMPANY

1. Connect the relay (1) to the wire harness connector (2).
2. Install any connector position assurance (CPA) devices or secondary locks.
3. Install the relay using any fasteners or tape that originally held the relay in place.

RELAY REPLACEMENT (WITHIN AN ELECTRICAL CENTER)

Special Tools

EL-43244 Relay Puller Pliers

Removal Procedure

1. Remove the electrical center cover.

NOTE:

- **Always note the orientation of the relay.**
- **If equipped with a notch style relay; observe the location of the notch on the old relay to verify the new relay is installed with the notch in the same location.**

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- **Ensure that the electrical center is secure, as not to put added stress on the wires or terminals.**

2. Locate the relay. Refer to **Electrical Center Identification Views** **Electrical Center Identification Views** to locate the electrical center where the relay exists.

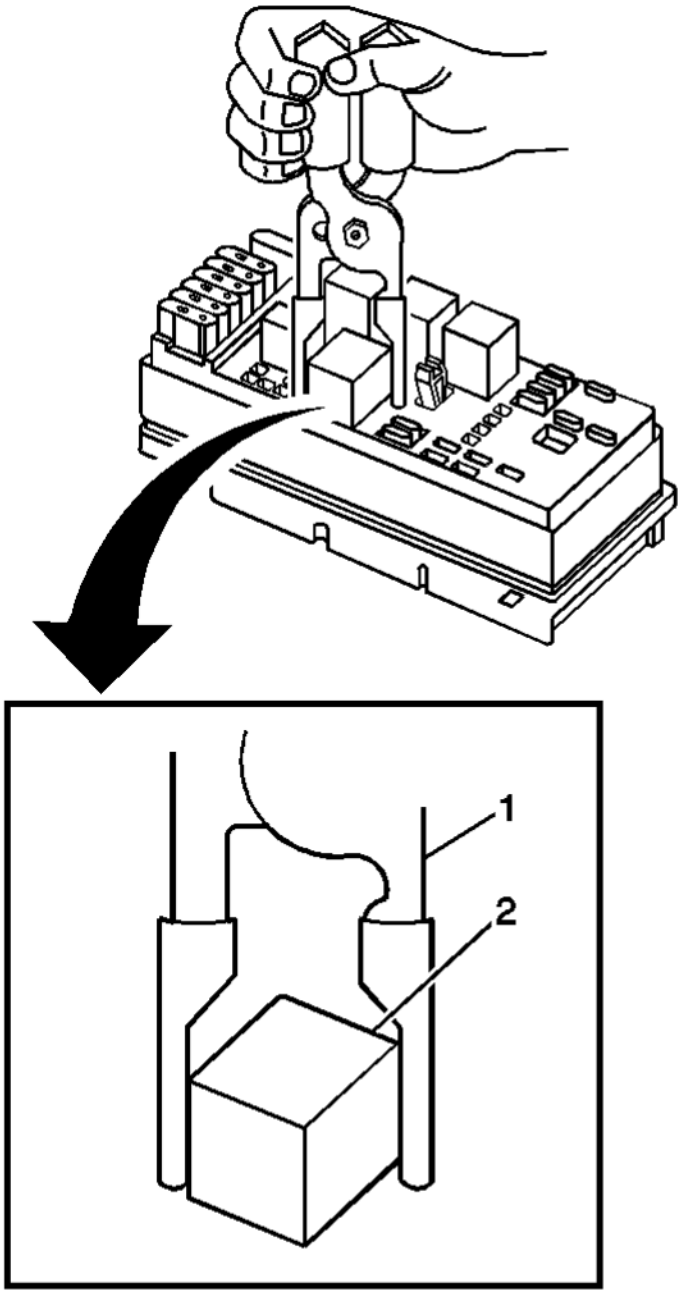

Fig. 217: Removing/Installing Relay

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3. Using the EL-43244 (1) position the tool on opposing corners of the relay (2).

CAUTION: Use EL-43244 to pull the relay straight out from the electrical center terminals. The use of pliers or a flat bladed tool could damage the electrical center.

4. Remove the relay (2) from the electrical center.

Installation Procedure

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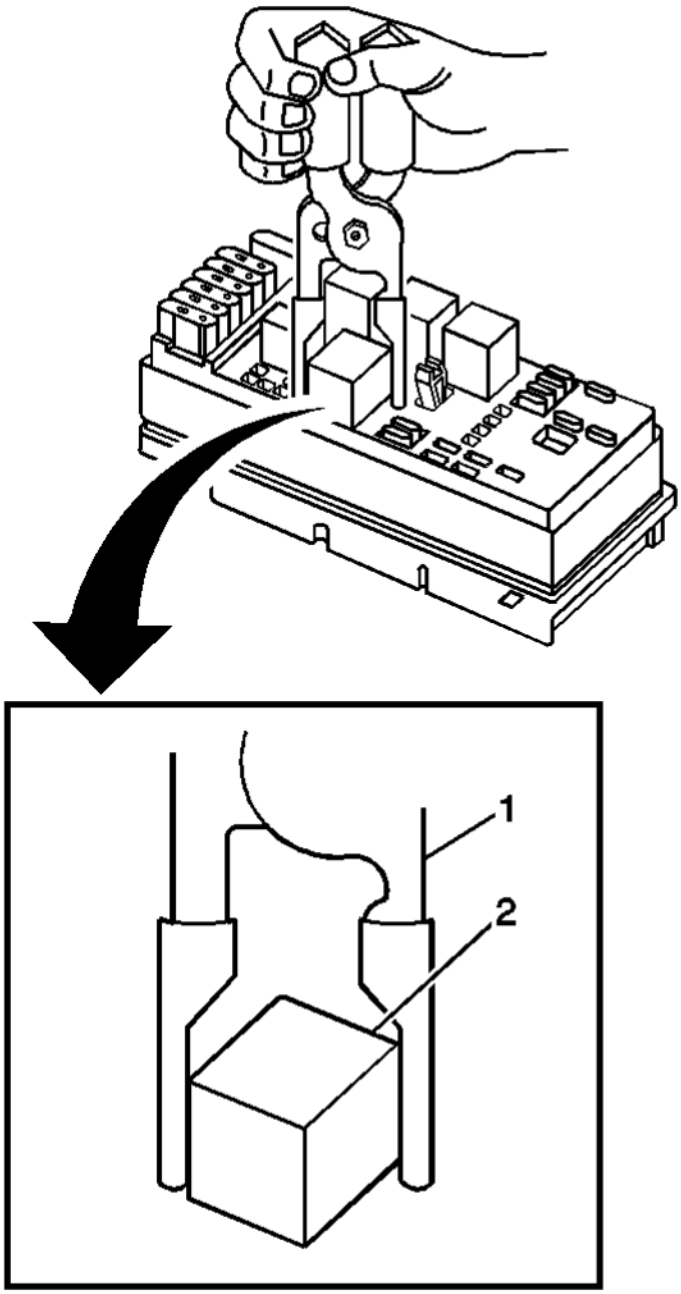

Fig. 218: Removing/Installing Relay
Courtesy of GENERAL MOTORS COMPANY

1. Install the relay (2) in the same position as removed.
2. Install the electrical center cover.

GROUND REPAIR

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Electrical Grounds

Proper electrical system function relies on secure, positive, corrosion-free ground connections. Loose, stripped, or corroded connections increase the possibility of improper system function and loss of module communication. These conditions may also lead to unnecessary repairs and component replacements.

In general, electrical ground connections are accomplished using one, or a combination of, three attachment methods:

- Welded M6 stud and nut
- Welded M6 nut and bolt
- Welded M8 nut and bolt

CAUTION: Use GM approved replacement fasteners with conductive finish for electrical ground repair.

Determine which attachment method is used, and carry out the appropriate repair.

M6 Weld Stud Replacement

1. Select a location adjacent the damaged or missing M6 ground stud having 20 mm (0.79 in) clearance behind the panel surface and 20 mm (0.79 in) clearance surrounding the M6 rivet stud flange.
2. Using GM approved residue-free solvent or equivalent, remove any grease from the repair site and allow to dry.

   NOTE: Ensure 20 mm (0.79 in) clearance is maintained behind the panel to be drilled.

3. Drill a 10 mm (0.40 in) diameter hole through the panel.
4. Carefully remove paint and primer from the area surrounding the rivet stud flange until bare metal is visible.

   CAUTION: Use GM approved replacement fasteners with conductive finish for electrical ground repair.

5. Select a replacement conductive M6 rivet stud. Reference the GM parts catalog for the correct part number and application.
6. Using a rivet stud installer, install the replacement conductive M6 rivet stud.
7. Ensure the new rivet stud is securely fastened, with no detectable movement.

   NOTE: The rivet stud and surrounding panel area must be properly refinished prior to the installation of the ground terminal and nut to maintain positive electrical grounding.

8. Completely wrap the threads of the rivet stud with painters tape or equivalent.
9. Refinish the repair area using an anti-corrosion primer.
10. Allow the refinished repair area to cure sufficiently before removing the protective material applied to the rivet stud threads.
11. Remove the painters tape or equivalent from the rivet stud threads.

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12. Using GM approved residue-free solvent or equivalent, thoroughly clean the rivet stud threads to remove any adhesive and allow to dry.
13. Carefully remove any corrosion from the electrical ground wire terminal. **Testing for Intermittent Conditions and Poor Connections**
14. Using a small brush, apply Dielectric Lubricant GM P/N 12377900 (Canadian P/N 10953529) to the new conductive M6 rivet stud threads.
15. Install the ground terminal to the new rivet stud.
16. Select a new, conductive M6 nut. Reference the GM parts catalog for the correct part number and application.

CAUTION: **Fastener Caution**

17. Install the conductive M6 nut and tighten to 8 (71 lb in).
18. Check for proper system operation.

M6 Weld Nut

CAUTION: **Use GM approved replacement fasteners with conductive finish for electrical ground repair.**

1. If the M6 weld nut at the electrical ground location is damaged or stripped, a new, conductive self-threading M7 bolt may be used to secure the ground terminal. Reference the GM parts catalog for the correct part number and application.
2. Using GM approved residue-free solvent or equivalent, remove any grease from the surface surrounding the weld nut and allow to dry.
3. Remove any loose metal particles from the damaged or stripped weld nut with a stiff brush.
4. Using a small brush, apply Dielectric Lubricant GM P/N 12377900 (Canadian P/N 10953529) to the new, conductive, self-threading M7 bolt threads.
5. Carefully remove any corrosion from the electrical ground terminal. **Testing for Intermittent Conditions and Poor Connections**
6. Install the electrical ground terminal to the new, conductive M7 bolt.

CAUTION: **Fastener Caution**

7. Install the conductive M7 bolt and tighten to 9 (80 lb in).
8. Check for proper system operation.

M6 Weld Nut (Alternative Repair)

CAUTION: **Use GM approved replacement fasteners with conductive finish for electrical ground repair.**

1. If the electrical ground location is accessible from both sides of the panel, a conductive M6 bolt and a conductive M6 nut may be used to secure the electrical ground terminal. Reference the GM parts catalog for the correct part number and application.
2. Select a location adjacent the damaged M6 weld nut having 20 mm (0.79) clearance behind the panel surface and 20 mm (0.79 in) clearance surrounding the new electrical ground site.
3. Using GM approved residue-free solvent or equivalent, remove any grease from the surface surrounding

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the ground location and allow to dry.

NOTE: **Ensure 20 mm (0.79 in) clearance is maintained behind the panel to be drilled.**

4. Drill a 10 mm (0.40 in) diameter hole through the panel.
5. Carefully remove paint and primer from the area surrounding the new ground site until bare metal is visible.
6. Using a small brush, apply Dielectric Lubricant GM P/N 12377900 (Canadian P/N 10953529) to the new, conductive M6 bolt threads.
7. Carefully remove any corrosion from the electrical ground terminal. **Testing for Intermittent Conditions and Poor Connections**
8. Install the electrical ground terminal and new, conductive M6 bolt to the ground location.

CAUTION: **Fastener Caution**

9. Install the conductive M6 nut and tighten to 8 (71 lb in).

NOTE: **The repair area must be properly refinished to maintain positive electrical grounding.**

10. Refinish the repair area using an anti-corrosion primer.
11. Check for proper system operation.

M8 Weld Nut

CAUTION: **Use GM approved replacement fasteners with conductive finish for electrical ground repair.**

1. If the M8 weld nut electrical ground location is accessible from both sides of the panel, a conductive M8 bolt and a conductive M8 nut may be used to secure the ground terminal. Reference the GM parts catalog for the correct part number and application.
2. Select a location adjacent to M8 weld nut having 20 mm (0.79 in) clearance behind the panel surface and 20 mm (0.79 in) clearance surrounding the new electrical ground site.
3. Using GM approved residue-free solvent or equivalent, remove any grease from the surface surrounding the ground location and allow to dry.

NOTE: **Ensure 20 mm (0.79 in) clearance is maintained behind the panel to be drilled.**

4. Drill a 10 mm (0.40 in) diameter hole through the panel.
5. Carefully remove paint and primer from the area surrounding the new ground site until bare metal is visible.
6. Using a small brush, apply Dielectric Lubricant GM P/N 12377900 (Canadian P/N 10953529) to the new, conductive M8 bolt threads.
7. Carefully remove any corrosion from the electrical ground terminal. **Testing for Intermittent Conditions and Poor Connections**
8. Install the electrical ground terminal and new, conductive M8 bolt to the ground location.

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CAUTION: Fastener Caution

9. Install the conductive M8 nut and tighten to 22 (16 lb ft).

NOTE: **The repair area must be properly refinished to maintain positive electrical grounding.**

10. Refinish the repair area using an anti-corrosion primer.
11. Check for proper system operation.

M8 Weld Nut (Alternative Repair)

CAUTION: **Use GM approved replacement fasteners with conductive finish for electrical ground repair.**

1. If the M8 weld nut electrical ground location is not accessible from both sides of the panel, a conductive M6 rivet stud and a conductive M6 nut may be used to secure the ground terminal. Reference the GM parts catalog for the correct part number and application.
2. Select a location adjacent the damaged M8 weld nut having 20 mm (0.79 in) clearance behind the panel surface and 20 mm (0.79 in) clearance surrounding the new, conductive M6 rivet stud flange.
3. Using GM approved residue-free solvent or equivalent, remove any grease from the repair site and allow to dry.

NOTE: **Ensure 20 mm (0.79 in) clearance is maintained behind the panel to be drilled.**

4. Drill a 10 mm (0.40 in) diameter hole through the panel.
5. Carefully remove paint and primer from the area surrounding the rivet stud flange until bare metal is visible.
6. Using a rivet stud installer, install the replacement conductive M6 rivet stud.
7. Ensure the new rivet stud is securely fastened, with no detectable movement.

NOTE: **The rivet stud and surrounding panel area must be properly refinished prior to the installation of the ground terminal and nut to maintain positive electrical grounding.**

8. Completely wrap the threads of the rivet stud with painters tape or equivalent.
9. Refinish the repair area using an anti-corrosion primer.
10. Allow the refinished repair area to cure sufficiently before removing the protective material applied to the rivet stud threads.
11. Remove the painters tape or equivalent from the rivet stud threads.
12. Using GM approved residue-free solvent or equivalent, thoroughly clean the rivet stud threads to remove any adhesive and allow to dry.
13. Carefully remove any corrosion from the electrical ground wire terminal. Testing for Intermittent Conditions and Poor Connections
14. Using a small brush, apply Dielectric Lubricant GM P/N 12377900 (Canadian P/N 10953529) to the new conductive M6 rivet stud threads.

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15. Install the ground terminal to the new, conductive M6 rivet stud.

CAUTION: **Fastener Caution**

16. Install the conductive M6 nut and tighten to 8 (71 lb in).
17. Check for proper system operation.

Securing Loose Electrical Ground Connections

If the electrical ground connection is loose and the ground attachments are not damaged, properly securing the loose electrical ground may be all that is necessary. Carry out the following procedure to secure loose electrical ground connections.

CAUTION: **Use GM approved replacement fasteners with conductive finish for electrical ground repair.**

1. Using GM approved residue-free solvent or equivalent, thoroughly clean the ground stud threads and allow to dry.
2. Carefully remove any corrosion from the electrical ground wire terminal. **Testing for Intermittent Conditions and Poor Connections**
3. Using a small brush, apply Dielectric Lubricant GM P/N 12377900 (Canadian P/N 10953529) to the ground stud threads.
4. Install the ground wire terminal to the ground stud.

CAUTION: **Fastener Caution**

5. Install the appropriate conductive nut.
   - Conductive M6 nut: Tighten to 8 (71 lb in)
   - Conductive M8 nut: Tighten to 22 (16 lb ft)
   - Conductive M10 nut: Tighten to 45 (33 lb ft)
6. Check for proper system operation.

BATTERY DISTRIBUTION ENGINE COMPARTMENT FUSE BLOCK REPLACEMENT (DIESEL)

Removal Procedure

1. Disconnect the battery negative cable. **Battery Negative Cable Disconnection and Connection (Dual Battery)** **Battery Negative Cable Disconnection and Connection (L5P)**
2. Remove the right hand front fender rear upper brace. **Front Fender Rear Upper Brace Replacement (L5P)**

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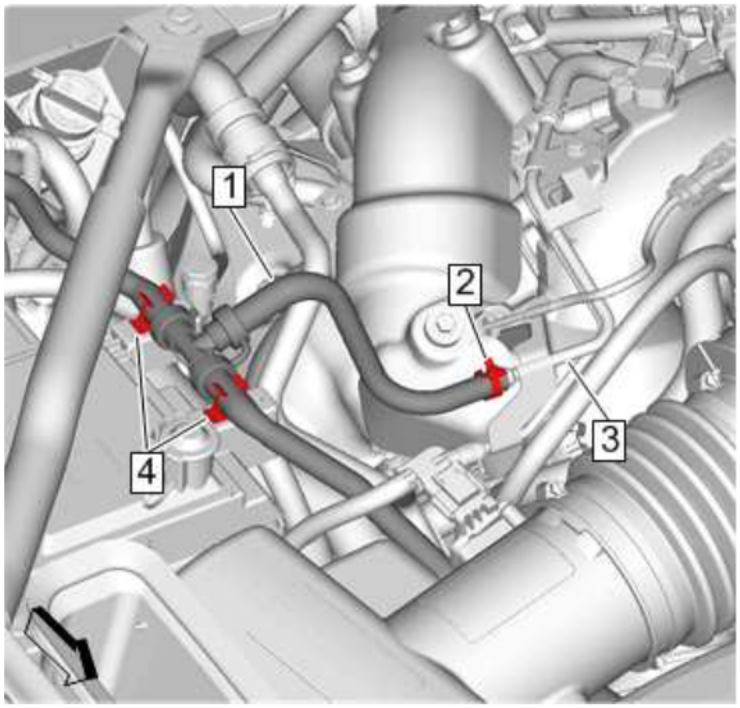

Fig. 219: Radiator Surge Tank Inlet Hose And Retainers
Courtesy of GENERAL MOTORS COMPANY

3. Retainer<p01> - Disengage
4. Radiator Surge Tank Inlet Hose<p01> - Reposition

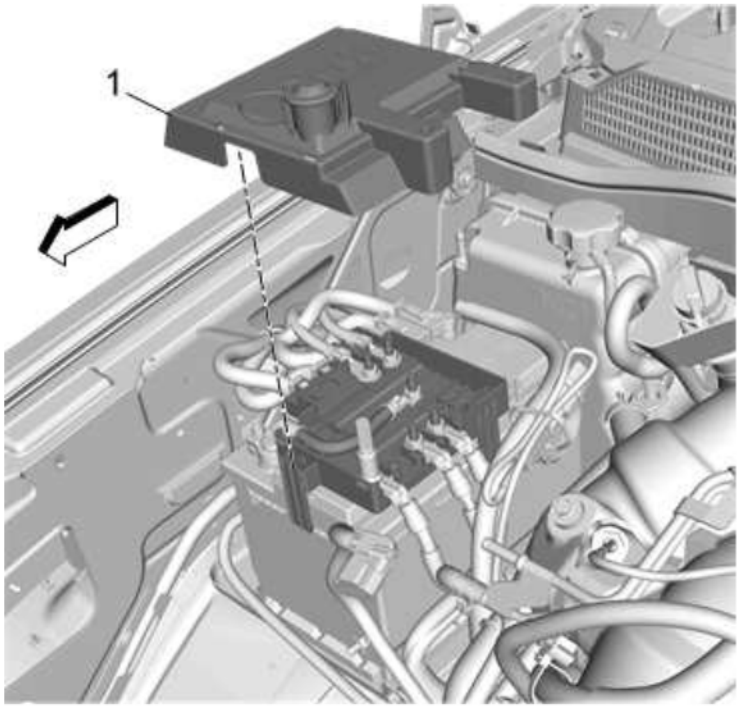

Fig. 220: Fuse Block Cover
Courtesy of GENERAL MOTORS COMPANY

5. Fuse Block Cover<p01> - Remove

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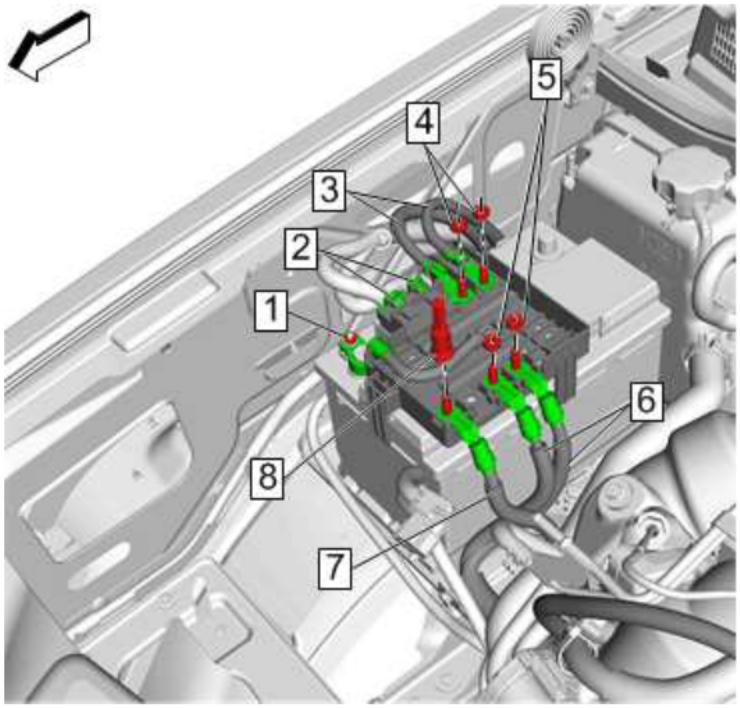

Fig. 221: NO CONTENT
Courtesy of GENERAL MOTORS COMPANY

6. Remove the following from the battery distribution engine compartment fuse block:
    - Battery Positive Junction Block Cable Nut<p01><p01>
    - Battery Positive Cable<p01><p01>
    - Battery Positive Junction Block Cable Nut<p01><p01>
    - Generator Battery Control Wiring Harness<p01><p01>
    - Battery Positive Junction Block Cable Barrel Nut <p01>
    - Starter Solenoid Cable<p01>
    - { If equipped }Electrical Connector<p01><p01>
7. Battery Positive Post Clamp Nut<p01> - Loosen

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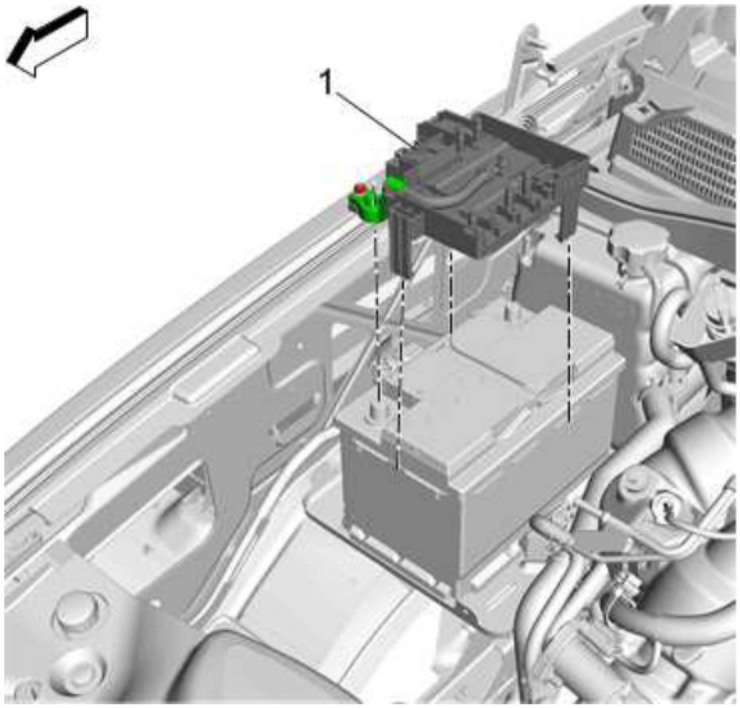

Fig. 222: Battery Distribution Engine Compartment Fuse Block
Courtesy of GENERAL MOTORS COMPANY

8. Unclip the battery distribution engine compartment fuse block retainers and remove the battery distribution engine compartment fuse block. <p01>

Installation Procedure

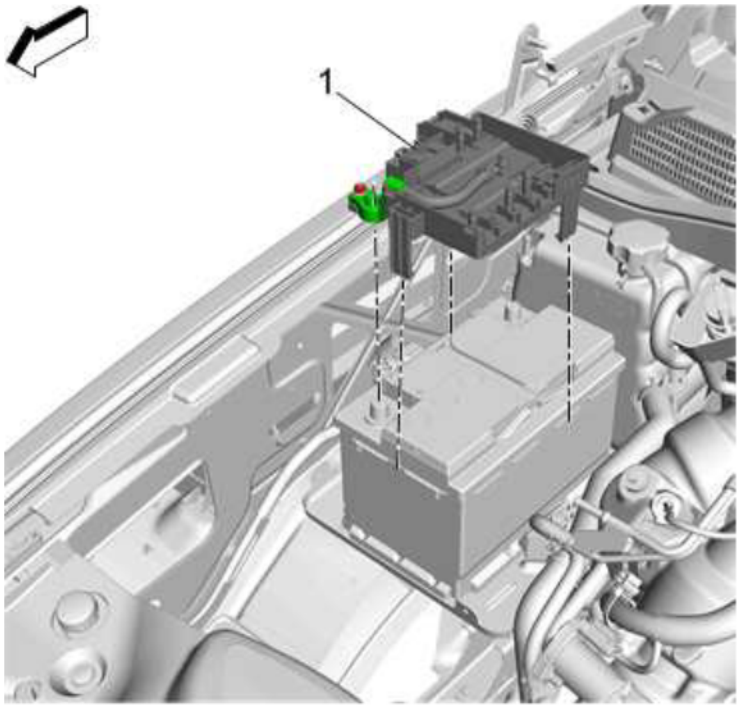

Fig. 223: Battery Distribution Engine Compartment Fuse Block
Courtesy of GENERAL MOTORS COMPANY

1. Battery Distribution Engine Compartment Fuse Block<p01> - Install

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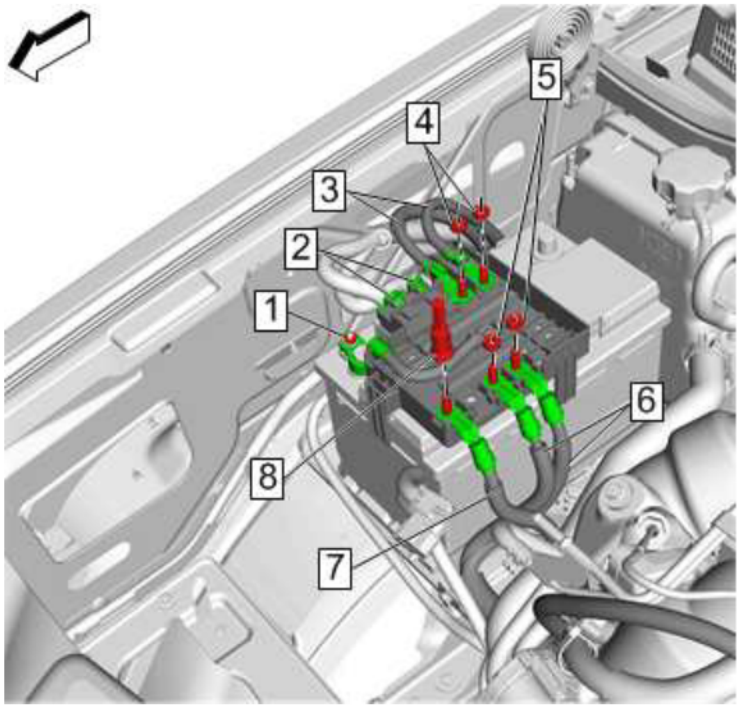

Fig. 224: NO CONTENT
Courtesy of GENERAL MOTORS COMPANY

CAUTION: **Refer to Fastener Caution**

2. Install the following to the battery distribution engine compartment fuse block:
    - Battery Positive Cable<p01><p01>
    - Battery Positive Junction Block Cable Nut<p01>Tighten <p01> 15 (11 lb ft)
    - Generator Battery Control Wiring Harness<p01><p01>
    - Battery Positive Junction Block Cable Nut<p01>Tighten <p01>15 (11 lb ft)
    - Starter Solenoid Cable<p01>
    - Battery Positive Junction Block Cable Barrel Nut <p01>Tighten 15 (11 lb ft)
    - { If equipped }Electrical Connector<p01><p01>
3. Battery Positive Post Clamp Nut<p01> - Tighten 6 (53 lb in)

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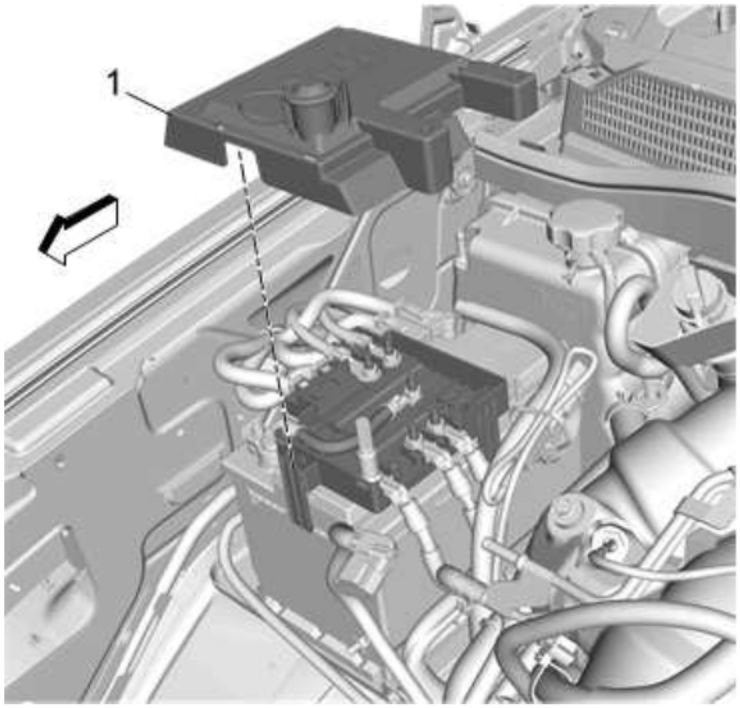

Fig. 225: Fuse Block Cover
Courtesy of GENERAL MOTORS COMPANY

4. Fuse Block Cover<p01> - Install

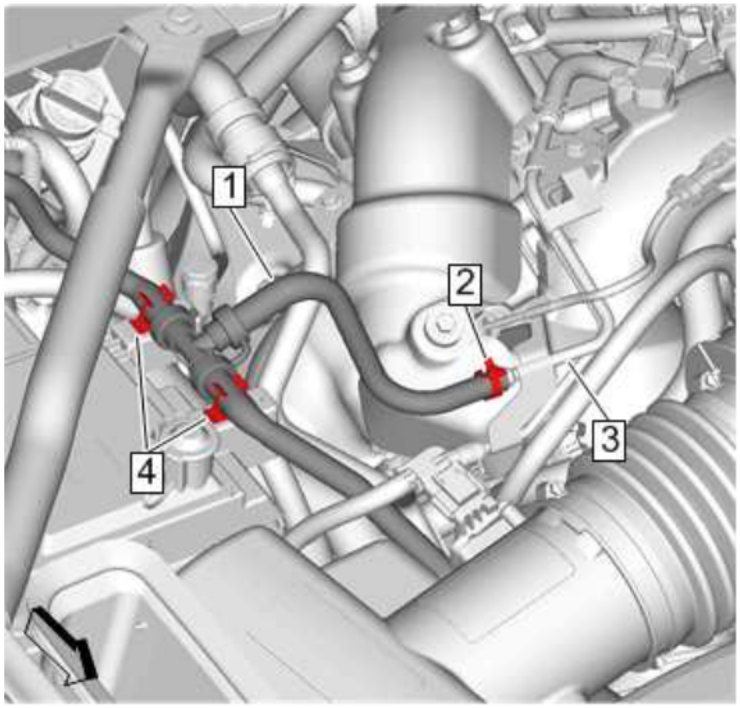

Fig. 226: Radiator Surge Tank Inlet Hose And Retainers
Courtesy of GENERAL MOTORS COMPANY

5. Retainer<p01> - Engage <p01>
6. Install the right hand front fender rear upper brace. **Front Fender Rear Upper Brace Replacement (L5P)**
7. Connect the negative battery cable. **Battery Negative Cable Disconnection and Connection (Dual**

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Battery) Battery Negative Cable Disconnection and Connection (L5P)

BATTERY DISTRIBUTION ENGINE COMPARTMENT FUSE BLOCK REPLACEMENT (GAS)

Removal Procedure

1. Disconnect the battery negative cable. Battery Negative Cable Disconnection and Connection (L96 LC8) Battery Negative Cable Disconnection and Connection (L83, L8B, LV3) Battery Negative Cable Disconnection and Connection (Dual Battery)
2. Remove the right hand front fender rear upper brace. Front Fender Rear Upper Brace Replacement (LV3, L96, LC8, lL83, L8B, L86)

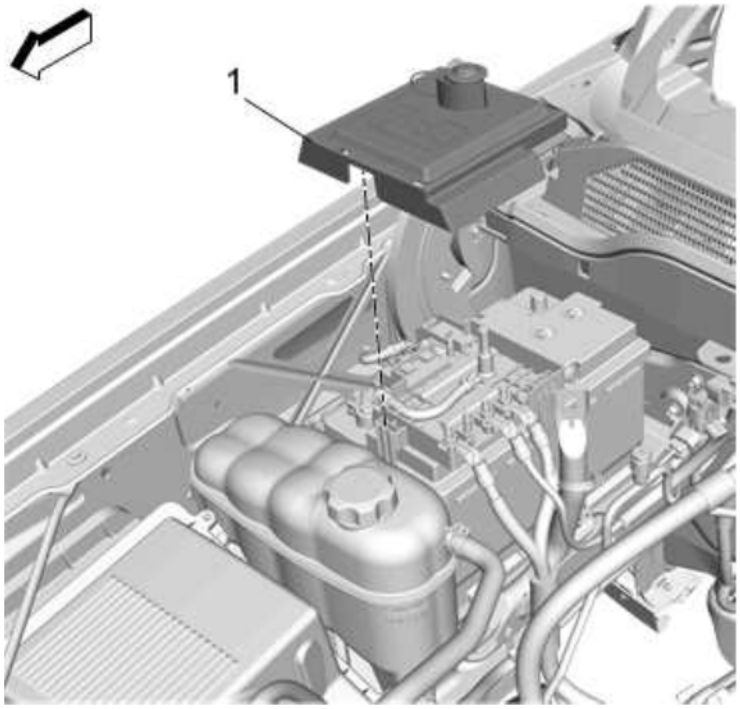

Fig. 227: Fuse Block Cover
Courtesy of GENERAL MOTORS COMPANY

3. Fuse Block Cover<p01> - Remove

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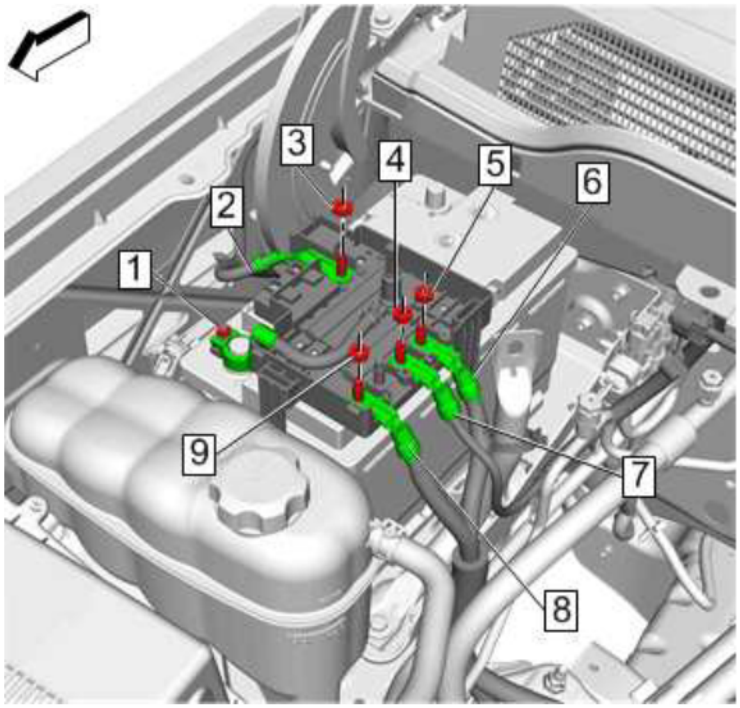

Fig. 228: NO CONTENT
Courtesy of GENERAL MOTORS COMPANY

4. Remove the following from the battery distribution engine compartment fuse block:
    - Battery Positive Junction Block Cable Nut<p01>
    - Battery Positive Cable<p01>
    - Battery Positive Junction Block Cable Nut<p01>
    - Generator Battery Control Wiring Harness<p01>
    - Battery Positive Junction Block Cable Nut<p01>
    - Battery Positive Cable<p01>
    - Battery Positive Junction Block Cable Nut<p01>
    - Generator Battery Control Wiring Harness<p01>
5. Battery Positive Post Clamp Nut<p01> - Loosen

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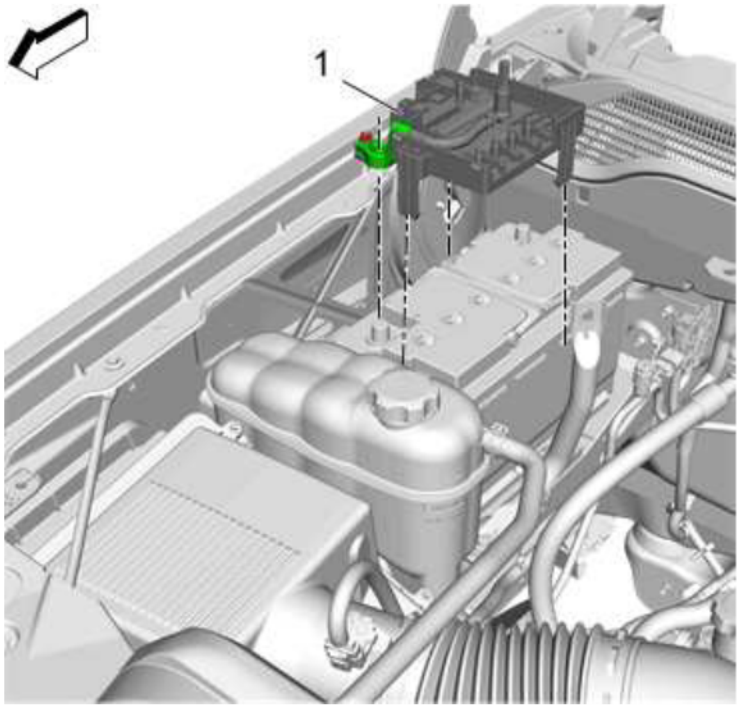

Fig. 229: Battery Distribution Engine Compartment Fuse Block
Courtesy of GENERAL MOTORS COMPANY

6. Unclip the battery distribution engine compartment fuse block retainers and remove the battery distribution engine compartment fuse block. <p01>

Installation Procedure

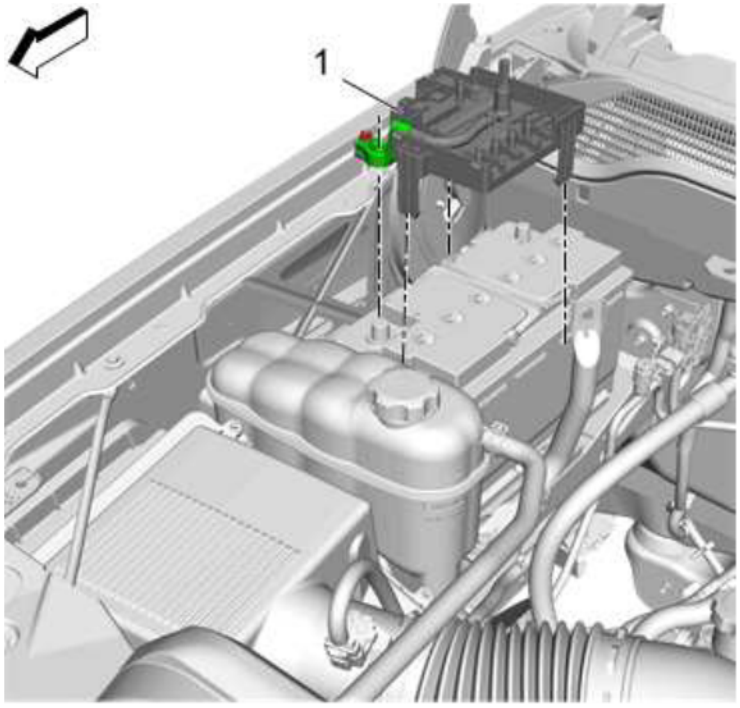

Fig. 230: Battery Distribution Engine Compartment Fuse Block
Courtesy of GENERAL MOTORS COMPANY

1. Battery Distribution Engine Compartment Fuse Block<p01> - Install

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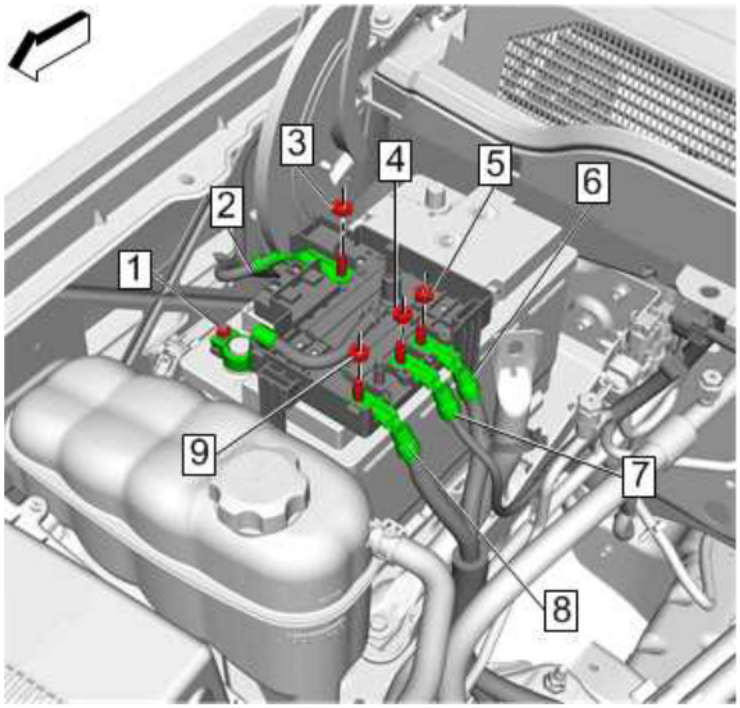

Fig. 231: NO CONTENT
Courtesy of GENERAL MOTORS COMPANY

CAUTION: **Refer to Fastener Caution**

2. Install the following to the battery distribution engine compartment fuse block:
    - Battery Positive Cable<p01>
    - Battery Positive Junction Block Cable Nut<p01>Tighten 15 (11 lb ft)
    - Generator Battery Control Wiring Harness<p01>
    - Battery Positive Junction Block Cable Nut<p01>Tighten 15 (11 lb ft)
    - Battery Positive Cable<p01>
    - Battery Positive Junction Block Cable Nut<p01>Tighten 15 (11 lb ft)
    - Battery Positive Cable<p01>
    - Battery Positive Junction Block Cable Nut<p01>Tighten 15 (11 lb ft)
3. Battery Positive Post Clamp Nut<p01> - Tighten 6 (53 lb in)

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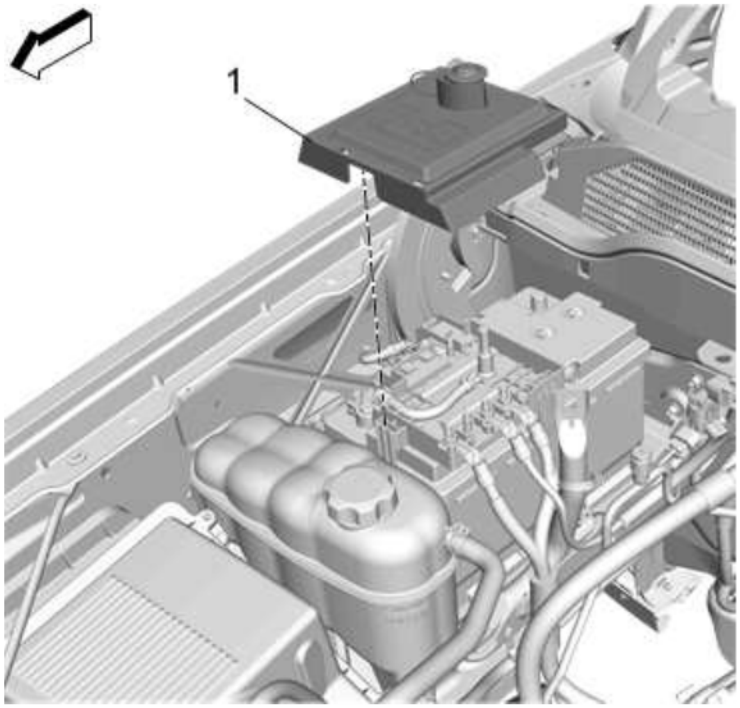

Fig. 232: Fuse Block Cover
Courtesy of GENERAL MOTORS COMPANY

4. Fuse Block Cover<p01> - Install
5. Install the right hand front fender rear upper brace. **Front Fender Rear Upper Brace Replacement (LV3, L96, LC8, lL83, L8B, L86)**
6. Connect the negative battery cable. **Battery Negative Cable Disconnection and Connection (L96 LC8) Battery Negative Cable Disconnection and Connection (L83, L8B, LV3) Battery Negative Cable Disconnection and Connection (Dual Battery)**

BATTERY DISTRIBUTION ENGINE COMPARTMENT FUSE BLOCK REPLACEMENT (HP5)

Removal Procedure

1. Disable the high voltage system. **High Voltage Disabling**
2. Front Fender Rear Upper Brace - Remove — **Front Fender Rear Upper Brace Replacement (LV3, L96, LC8, lL83, L8B, L86)**

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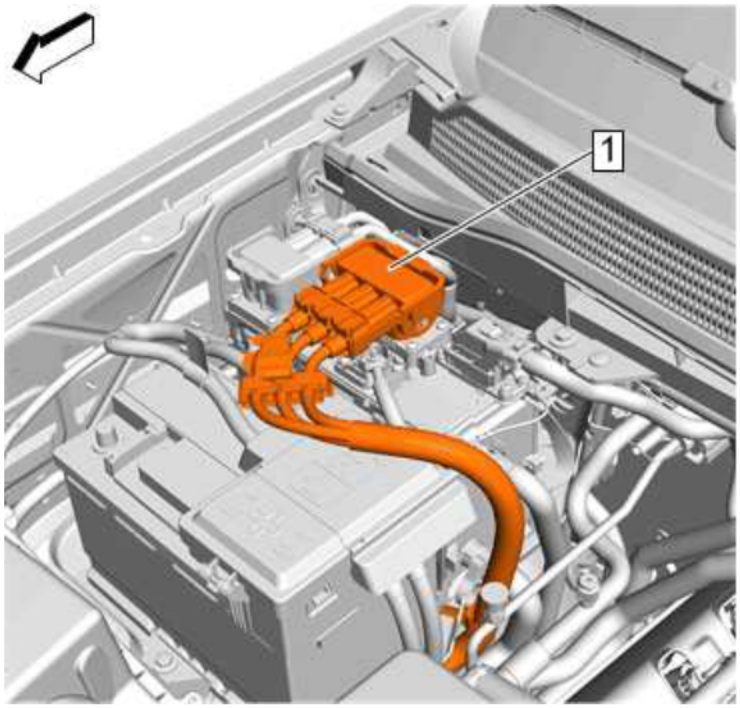

Fig. 233: High Voltage Connector
Courtesy of GENERAL MOTORS COMPANY

3. High Voltage Connector <p01> - Disconnect and position aside

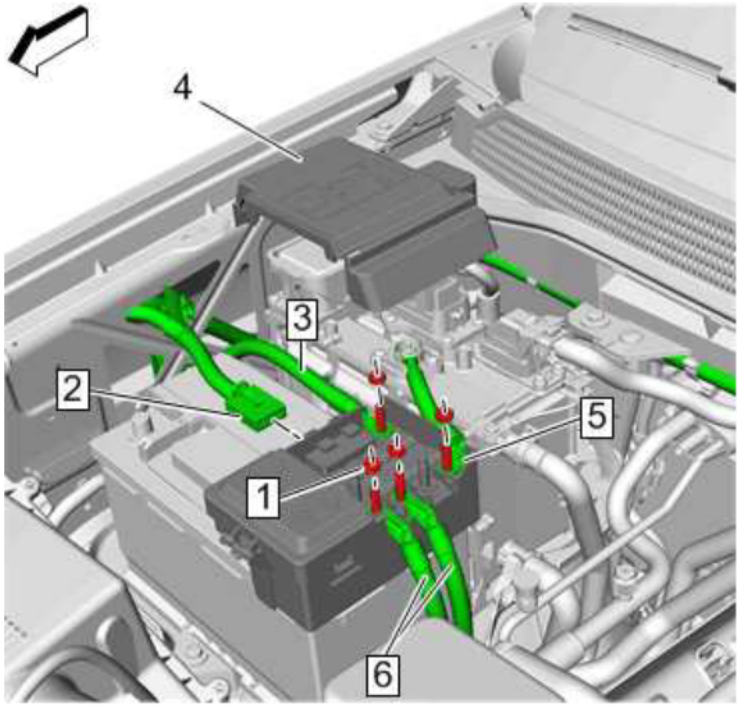

Fig. 234: Battery Connections
Courtesy of GENERAL MOTORS COMPANY

4. Fuse Block Cover<p01> - Remove
5. Electrical Connector<p01> - Disconnect
6. Battery Distribution Engine Compartment Fuse Block Nut <p01> - Remove <p01>

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7. Battery Positive Cable<p01> - Remove
8. Battery Positive Cable<p01> - Remove
9. Generator Battery Control Wiring Harness<p01> - Remove <p01>

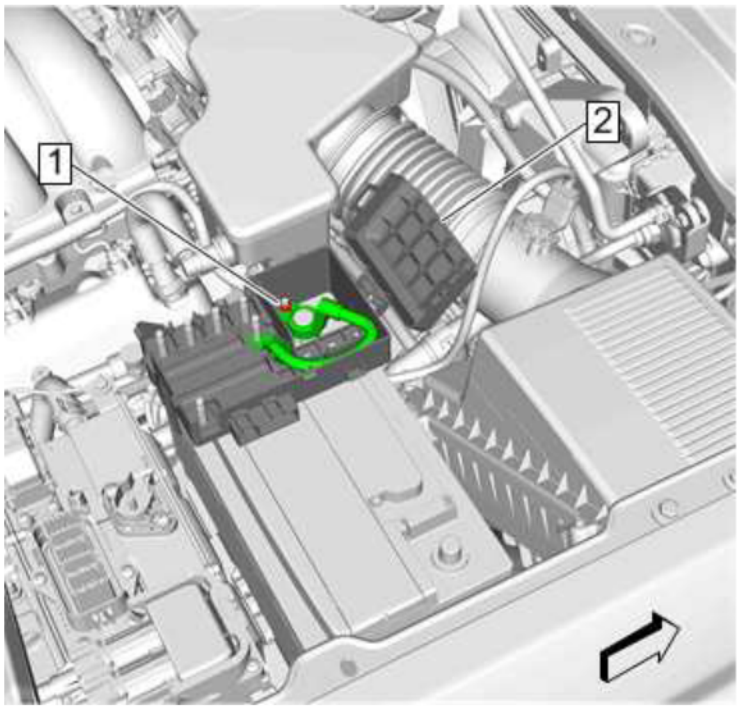

Fig. 235: Battery Positive Post Cover And Nut
Courtesy of GENERAL MOTORS COMPANY

10. Battery Positive Post Cover <p01> - Open
11. Battery Positive Post Clamp Nut<p01> - Loosen

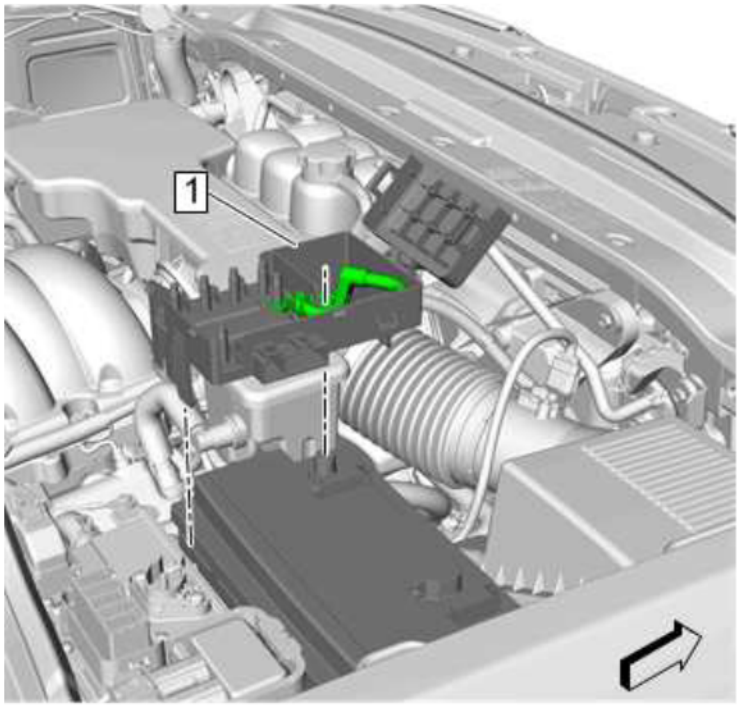

Fig. 236: Battery Distribution Engine Compartment Fuse Block

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Courtesy of GENERAL MOTORS COMPANY

12. Release the retaining tabs and remove the battery distribution engine compartment fuse block (1).

Installation Procedure

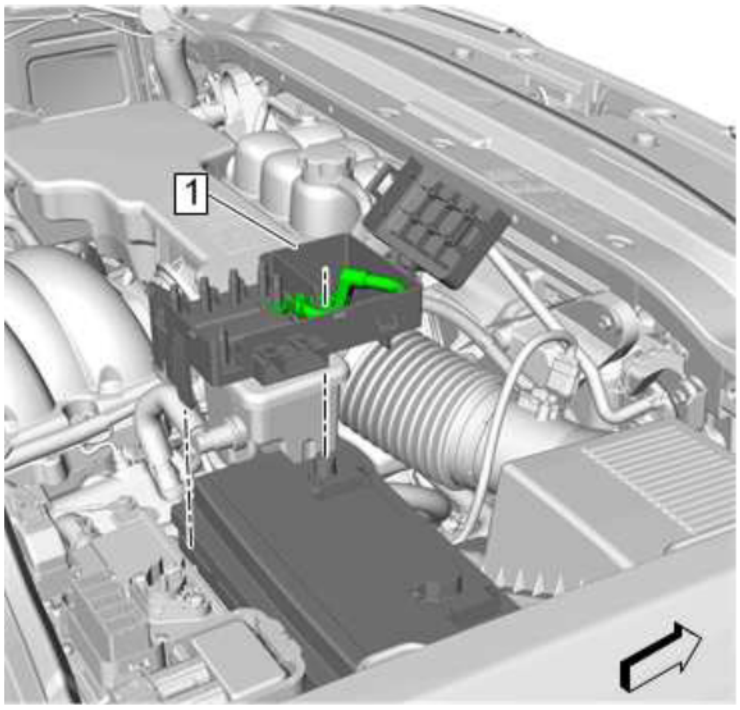

Fig. 237: Battery Distribution Engine Compartment Fuse Block
Courtesy of GENERAL MOTORS COMPANY

1. Battery Distribution Engine Compartment Fuse Block<p01> - Install

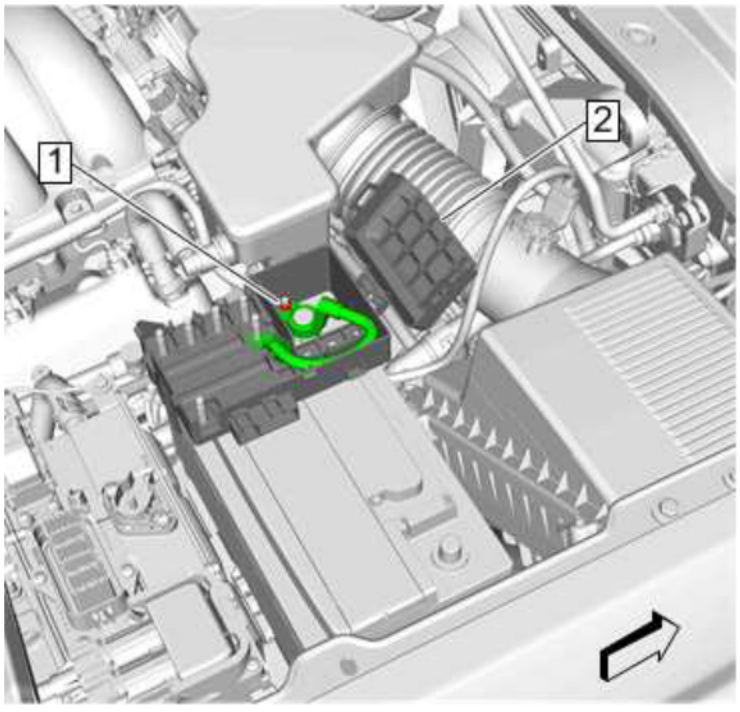

Fig. 238: Battery Positive Post Cover And Nut
Courtesy of GENERAL MOTORS COMPANY

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CAUTION: **Refer to Fastener Caution .**

2. Battery Positive Post Clamp Nut<p01> - Tighten 5 (44 lb in)
3. Battery Positive Post Cover <p01> - Close

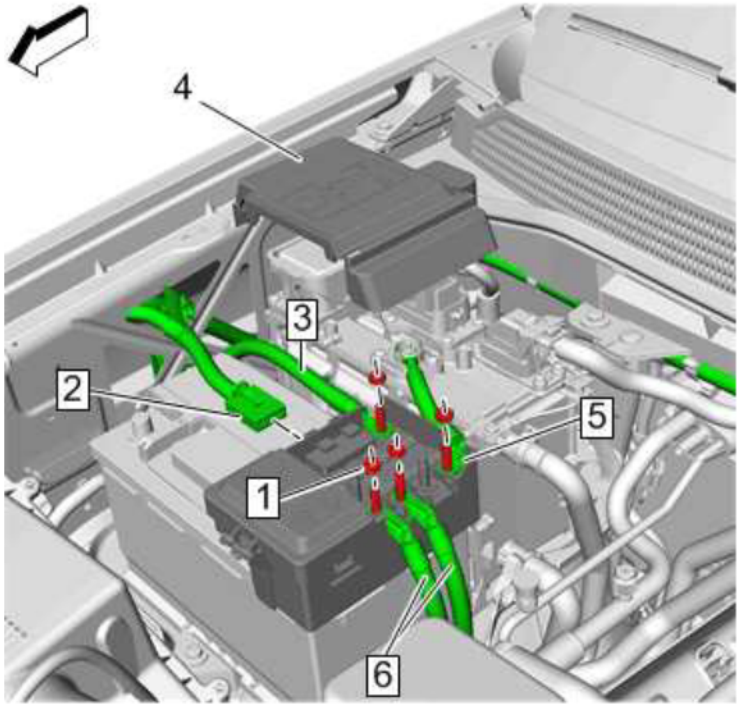

Fig. 239: Battery Connections
Courtesy of GENERAL MOTORS COMPANY

4. Generator Battery Control Wiring Harness<p01> - Install <p01>
5. Battery Positive Cable<p01> - Install
6. Battery Positive Cable<p01> - Install
7. Battery Distribution Engine Compartment Fuse Block Nut <p01> - Install and tighten <p01>15 (11 lb ft)
8. Electrical Connector<p01> - Connect
9. Fuse Block Cover<p01> - Install

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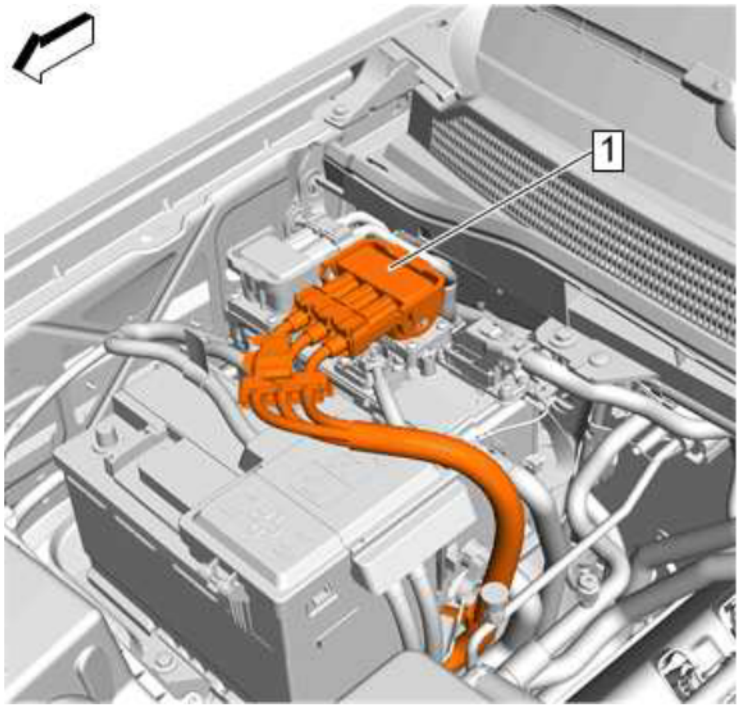

Fig. 240: High Voltage Connector
Courtesy of GENERAL MOTORS COMPANY

10. High Voltage Connector <p01> - Connect
11. Front Fender Rear Upper Brace - Install — **Front Fender Rear Upper Brace Replacement (LV3, L96, LC8, lL83, L8B, L86)**
12. Enable the high voltage system. **High Voltage Enabling**

UNDERHOOD ELECTRICAL CENTER OR JUNCTION BLOCK REPLACEMENT

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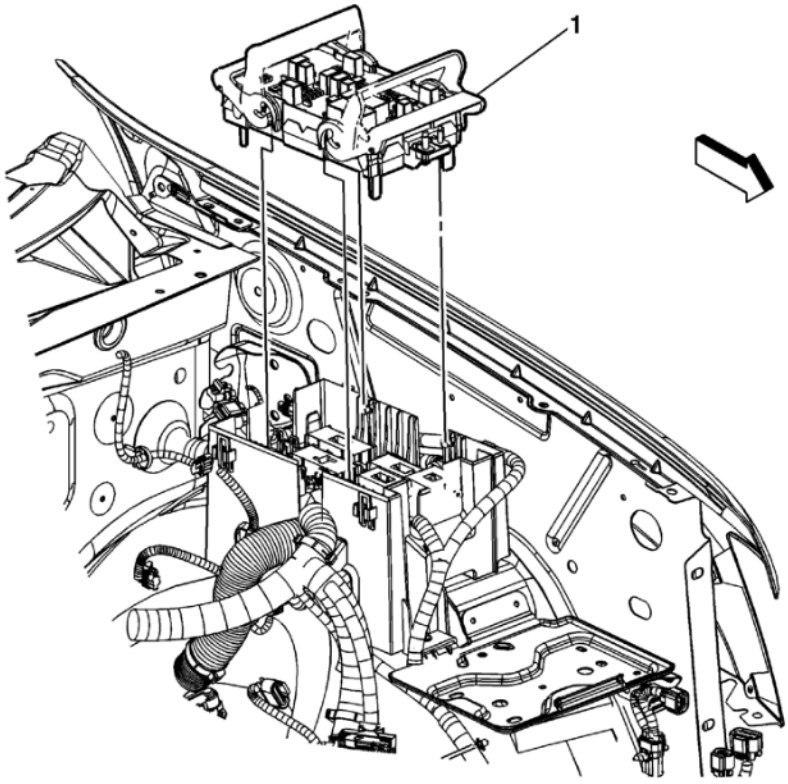

Fig. 241: View Of Underhood Electrical Center/Junction Block
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure 1. Disconnect the battery. Refer to **Battery Negative Cable Disconnection and Connection (L96 LC8)** **Battery Negative Cable Disconnection and Connection (L83, L8B, LV3)** **Battery Negative Cable Disconnection and Connection (Dual Battery)** **Battery Negative Cable Disconnection and Connection (L5P)** . 2. Remove the auxiliary battery positive cable if equipped. Refer to **Auxiliary Battery Positive Cable Replacement - Battery to Battery Relay (K4B)**	
1	Underhood Electrical Center/Junction Block **NOTE:** • **Remove the cover.** • **Release the locks securing the junction block handles.** • **Rotate both handles upward**

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Callout	Component Name
	disengaging the junction block from the base and the connectors. • Lift the junction block away from the base and remove it from the vehicle.

UNDERHOOD ELECTRICAL CENTER OR JUNCTION BLOCK BRACKET REPLACEMENT

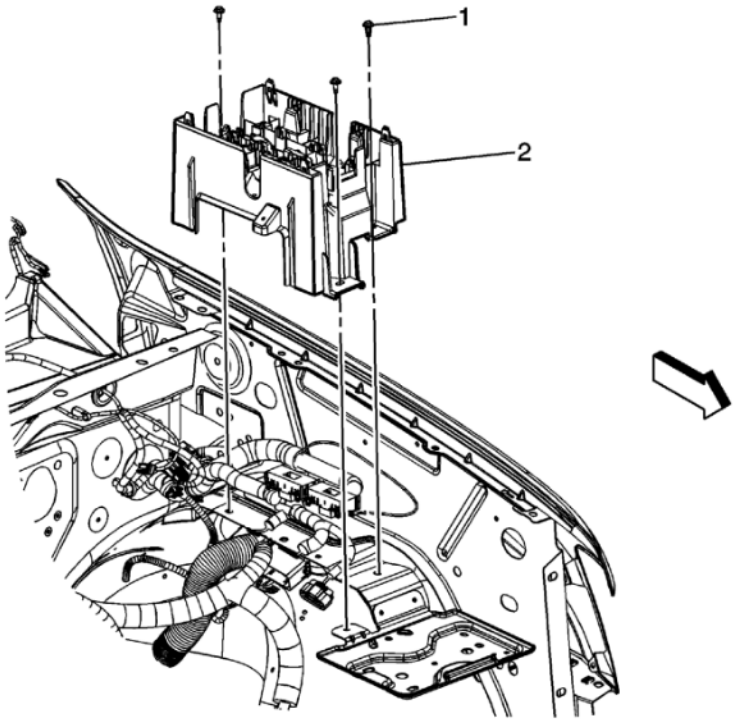

Fig. 242: View Of Underhood Electrical Center/Junction Block Bracket & Screws
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the underhood electrical center/junction block. Refer to **Underhood Electrical Center or Junction Block Replacement**.	

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Callout	Component Name
1	Underhood Electrical Center/Junction Block Bracket Screws (Qty: 3) **CAUTION:** **Refer to** **Fastener Caution** . **Tighten** 9 N.m (80 lb in)
2	Underhood Electrical Center/Junction Block Bracket **Procedure** Unclip and reposition wiring harnesses and connectors from the junction block bracket as necessary.

INSTRUMENT PANEL WIRING HARNESS JUNCTION BLOCK REPLACEMENT

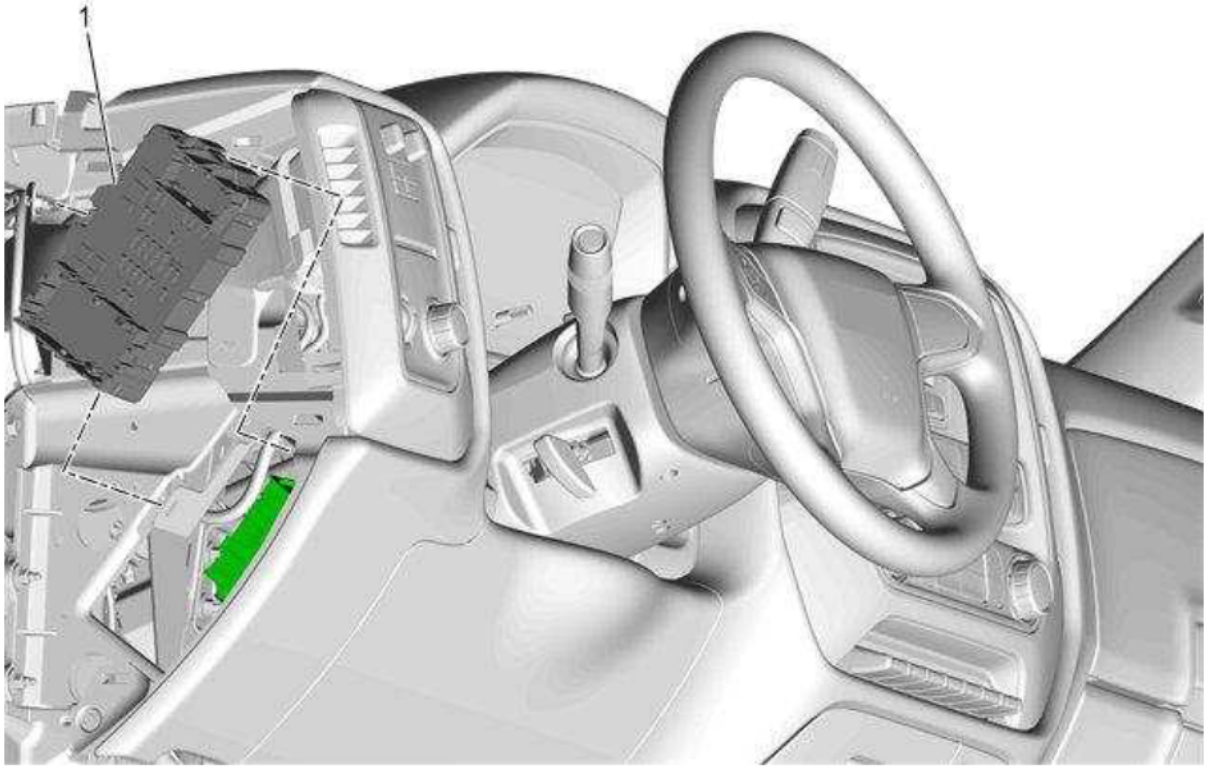

Fig. 243: Instrument Panel Wiring Harness Junction Block
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure **Instrument Panel Fuse Block Access Hole Cover Replacement**	
1	Instrument Panel Wiring Harness Junction Block **NOTE:**

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Callout	Component Name
	Left side instrument panel wiring harness junction block shown, right side similar. **Procedure** 1. Disconnect all electrical connections. 2. Release the two integral retainers on the block from the instrument panel carrier tabs.

TOW VEHICLE ELECTRICAL RECEPTACLE REPLACEMENT

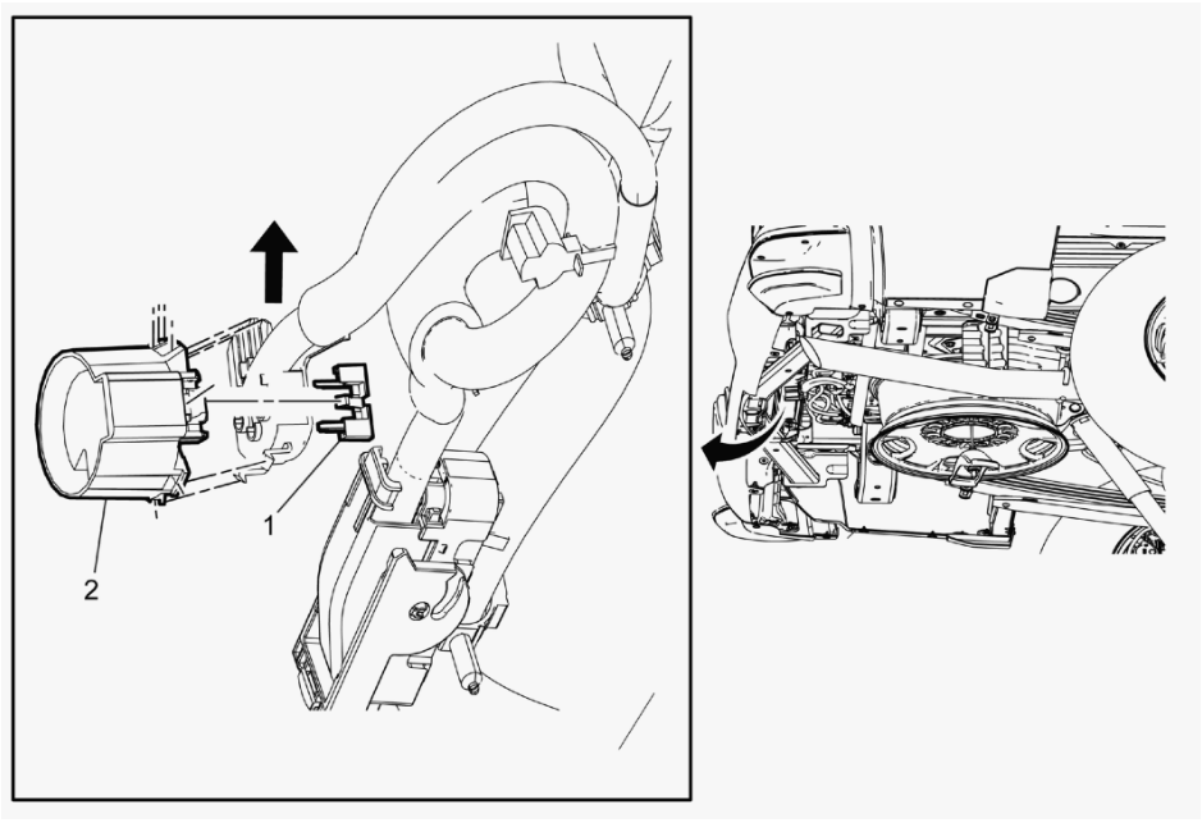

Fig. 244: Tow Vehicle Electrical Receptacle
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Tow Vehicle Electrical Receptacle Lock
2	Tow Vehicle Electrical Receptacle **Procedure** Release the two lower retainers tabs. Rotate the bottom of tow vehicle electrical receptacle slightly up wards and push the receptacle off the upper connector tabs.

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IGNITION LOCK CYLINDER REPLACEMENT

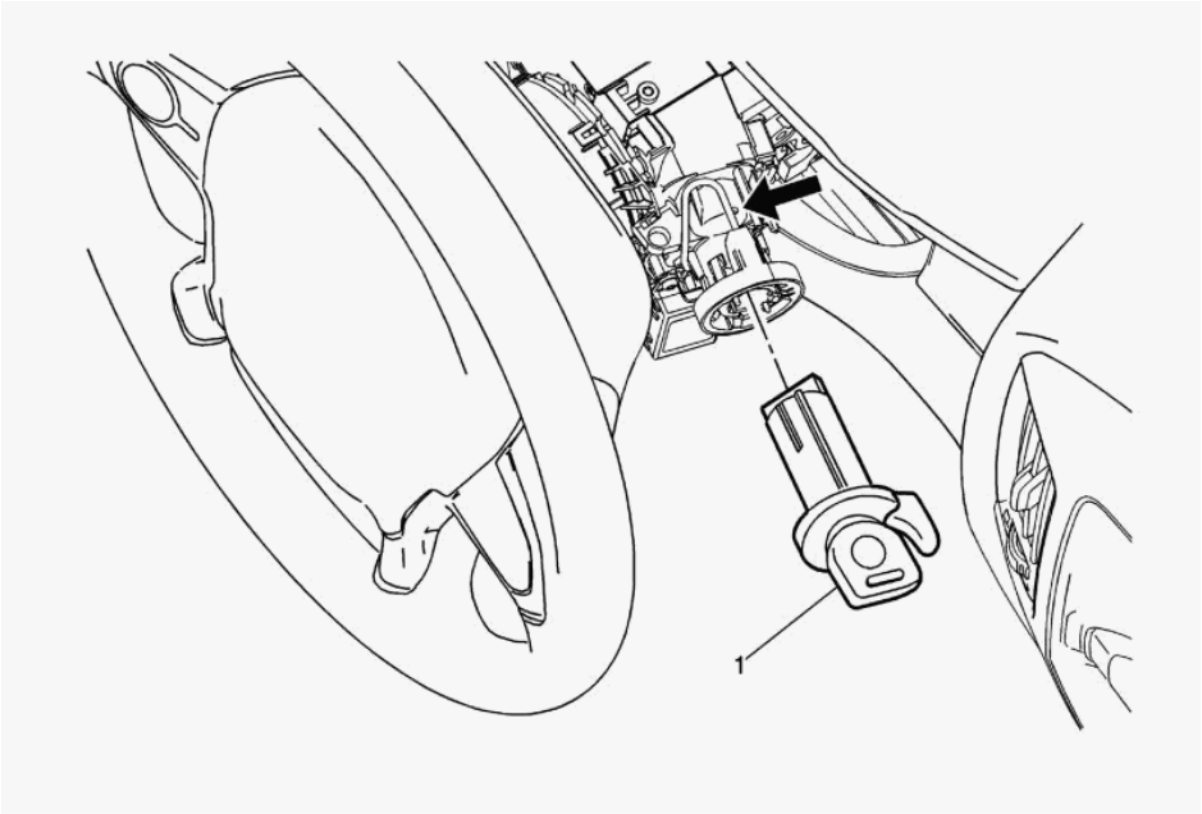

Fig. 245: Ignition Lock Cylinder
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. **Battery Negative Cable Disconnection and Connection (L96 LC8) Battery Negative Cable Disconnection and Connection (L83, L8B, LV3) Battery Negative Cable Disconnection and Connection (Dual Battery) Battery Negative Cable Disconnection and Connection (L5P)** 2. **Steering Column Shroud Replacement (Manual Tilt) Steering Column Shroud Replacement (Manual Tilt and Telescope)**	
1	Ignition Lock Cylinder **Procedure** 1. Turn the ignition lock cylinder to the START position. 2. Insert an allen wrench or other suitable tool into the access hole on the ignition lock cylinder case and press the lock tab down. 3. Pull the ignition lock cylinder out of the ignition lock cylinder case. 4. Use a screwdriver to rotate the ignition lock cylinder case gear clockwise to the START position and then release the tool to allow the cylinder to return under spring tension back to the RUN position. 5. Install the ignition lock cylinder into the ignition lock cylinder case.

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Callout	Component Name
	NOTE:

The gears between the ignition and

IGNITION AND START SWITCH REPLACEMENT

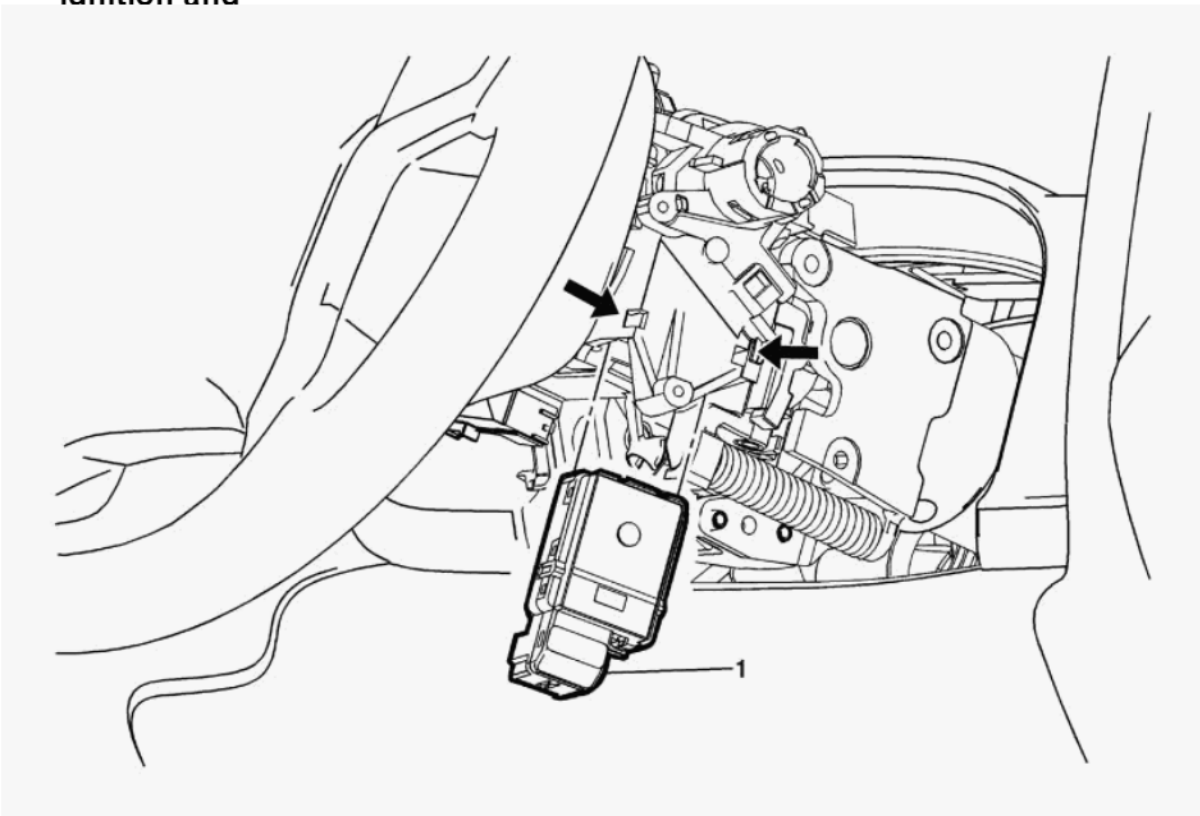

Fig. 246: Ignition and Start Switch
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure **Theft Deterrent Module Replacement**	
1	Ignition and Start Switch **Procedure** 1. Disconnect the electrical connector. 2. Remove the Passlock and key buzzer from the ignition lock cylinder case. 3. Use the **EL-42759** release tool to release the plastic retaining tabs on the ignition and start switch. 4. Pull the ignition and start switch out of the ignition lock cylinder case. **Special Tools<!--Title-->** **EL-42759** Ignition Switch Connector Release Tool Equivalent regional tools:**Special Tools**

IGNITION LOCK CYLINDER CASE REPLACEMENT

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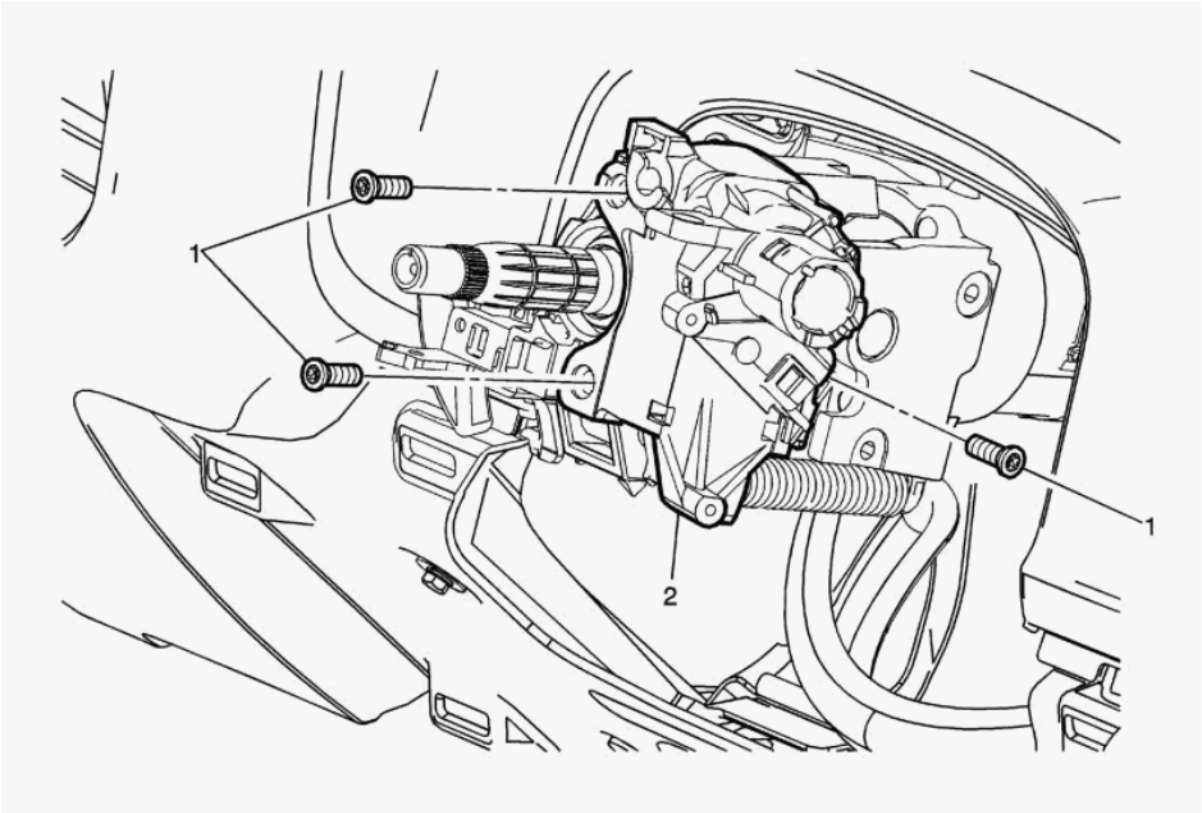

Fig. 247: Ignition Lock Cylinder Case
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. If equipped, disconnect the park lock cable from the ignition lock cylinder case. **Transmission Control Replacement** 2. **Theft Deterrent Module Replacement** 3. **Ignition and Start Switch Replacement** 4. **Turn Signal Switch Cancel Cam Replacement** 5. **Turn Signal Switch Replacement**	
1	Ignition Lock Cylinder Case Bolt <p01> **CAUTION:** **Refer to** **Fastener Caution** . **Tighten** 7 (62 lb in)
2	Ignition Lock Cylinder Case

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SCHEMATIC WIRING DIAGRAMS

GROUND DISTRIBUTION WIRING SCHEMATICS (2500/3500)

G100, G103, G104, G141, G327, and G380 (2500/3500)

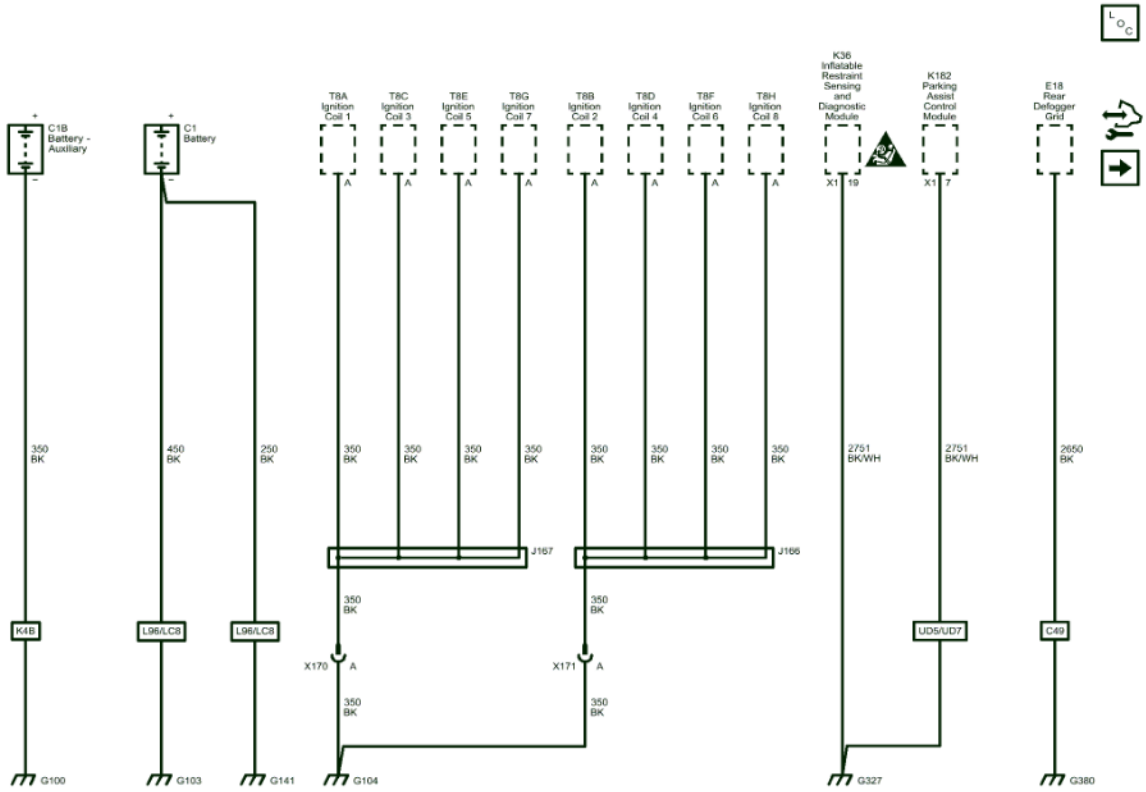

Fig. 1: G100, G103, G104, G141, G327, and G380 (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

G101 and G102 (2500/3500)

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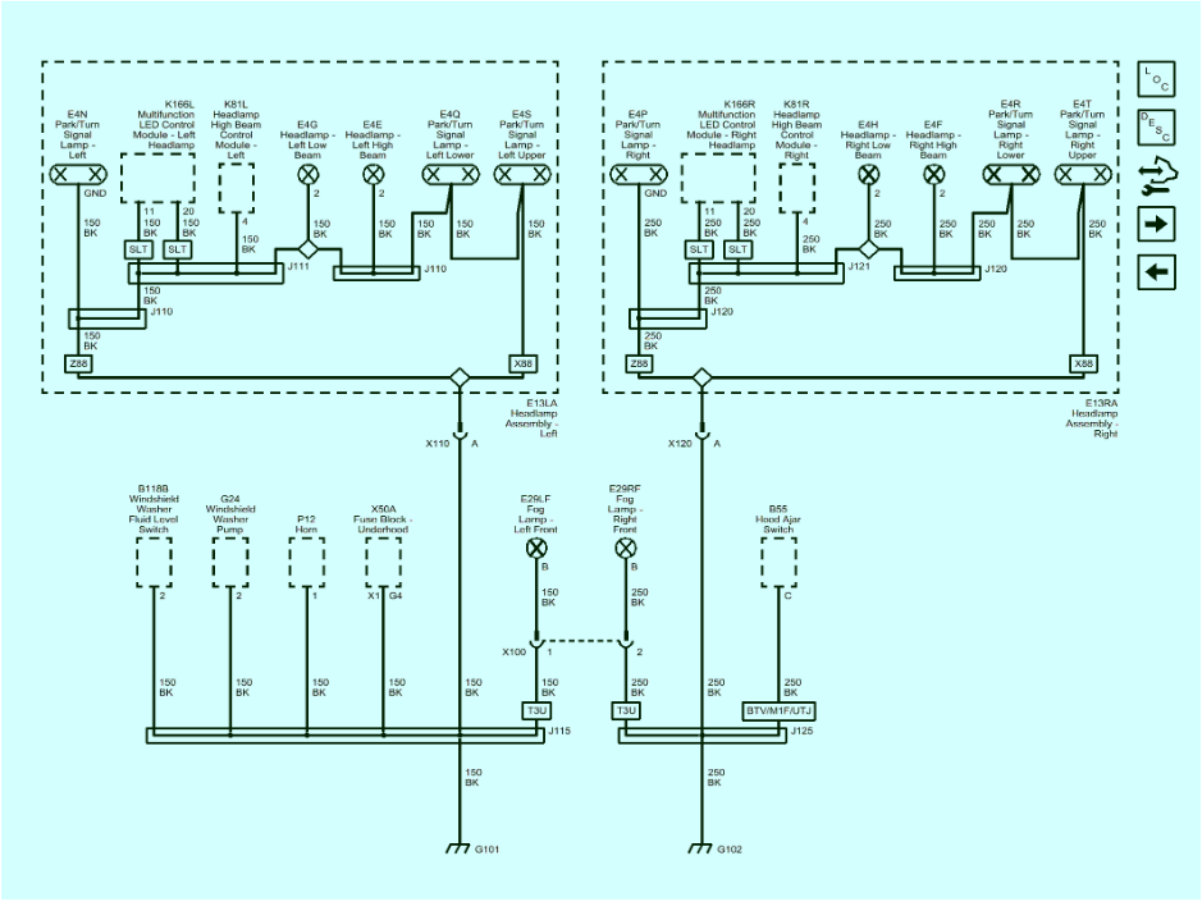

Fig. 2: G101 and G102 (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

G110 (2500/3500 with L96 or LC8)

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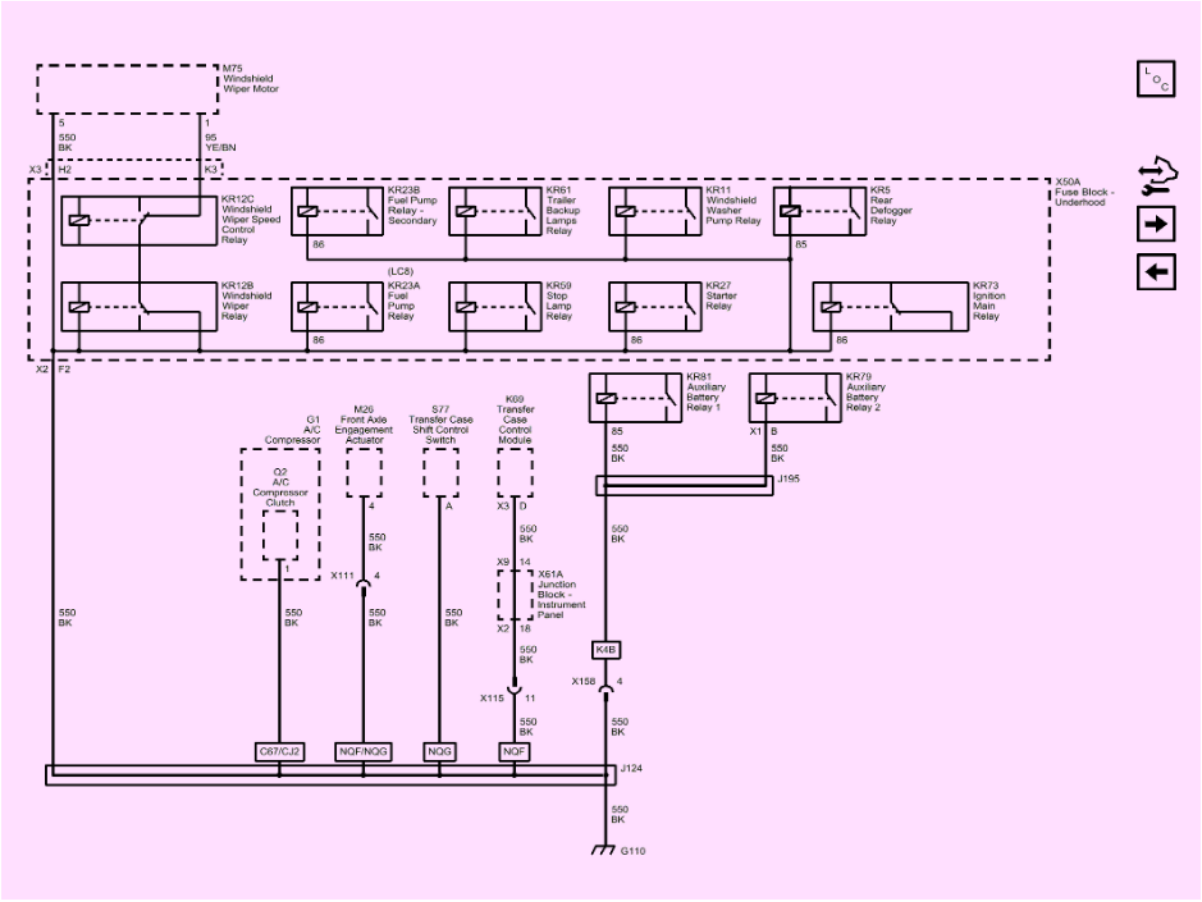

Fig. 3: G110 (2500/3500 with L96 or LC8)
Courtesy of GENERAL MOTORS COMPANY

G110 (2500/3500 with L5P)

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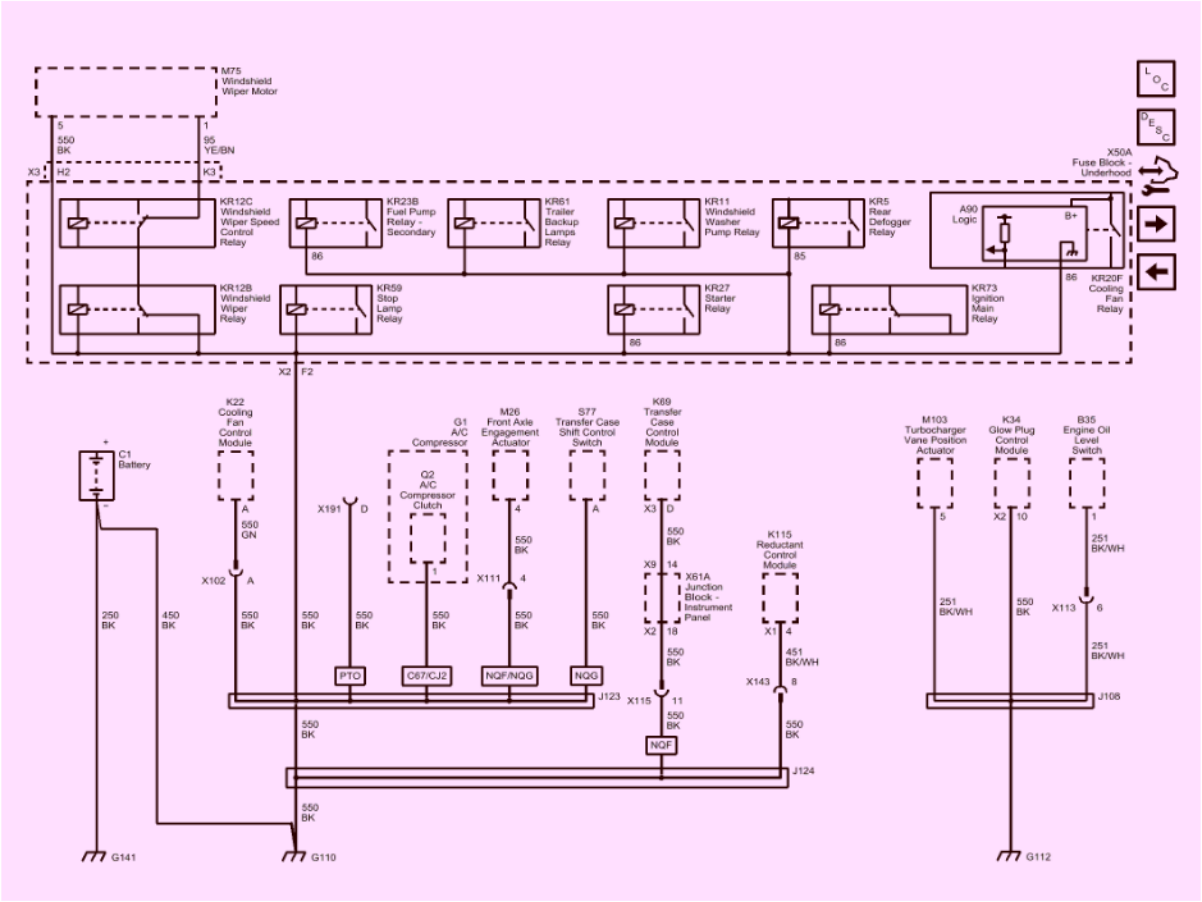

Fig. 4: G110 (2500/3500 with L5P)
Courtesy of GENERAL MOTORS COMPANY

G120 (2500/3500 with L96 or LC8)

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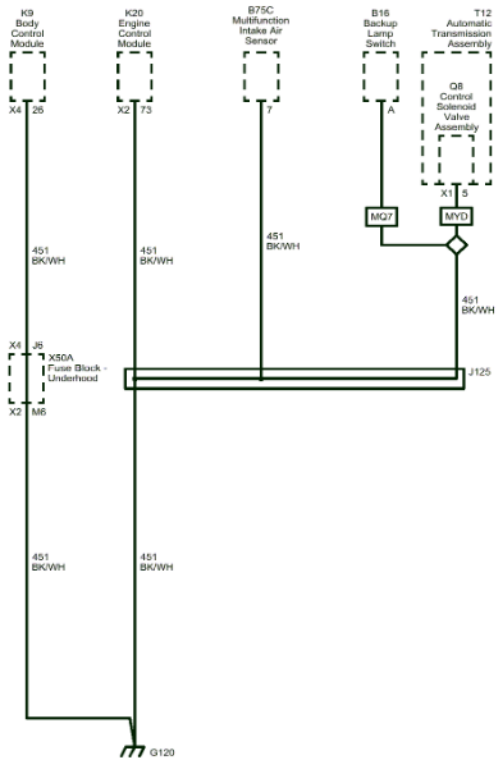

Fig. 5: G120 (2500/3500 with L96 or LC8)
Courtesy of GENERAL MOTORS COMPANY

G120 (2500/3500 with L5P)

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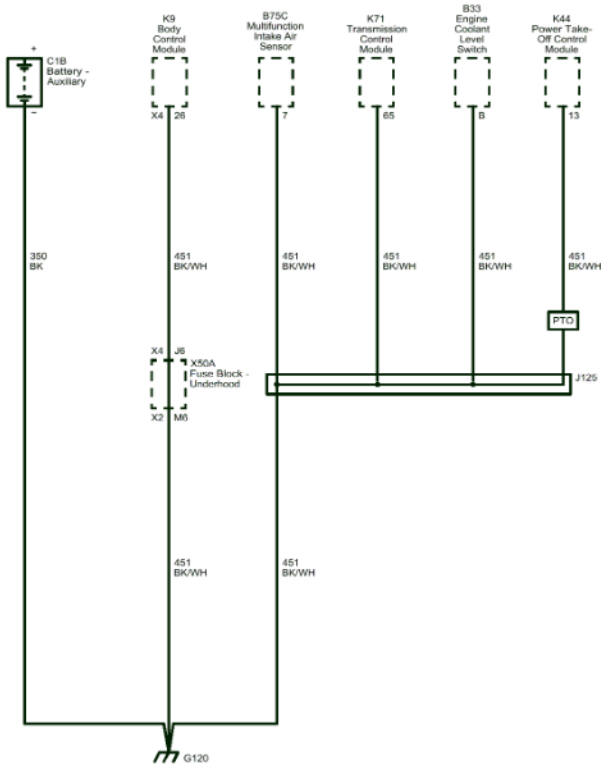

Fig. 6: G120 (2500/3500 with L5P)
Courtesy of GENERAL MOTORS COMPANY

G111 (2500/3500 with LC8)

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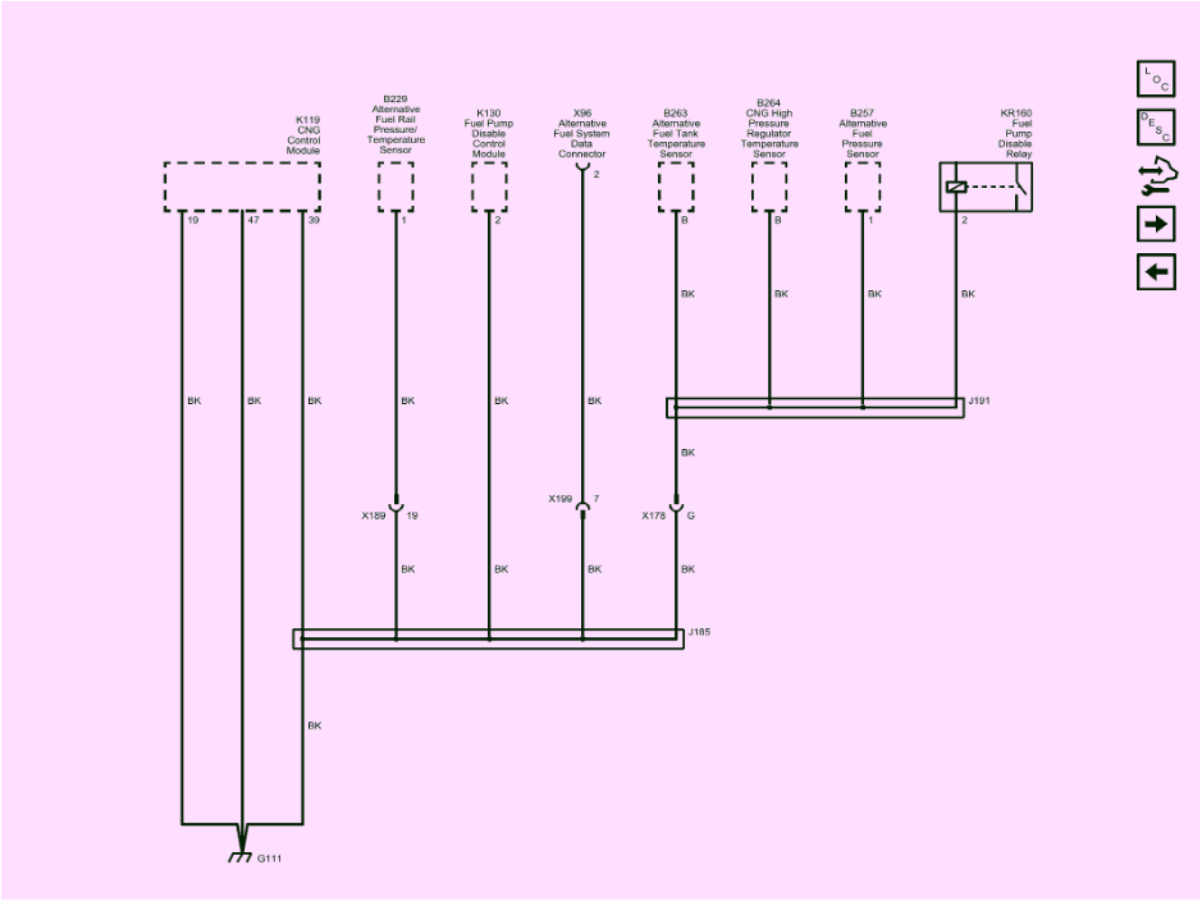

Fig. 7: G111 (2500/3500 with LC8)
Courtesy of GENERAL MOTORS COMPANY

G121 (2500/3500)

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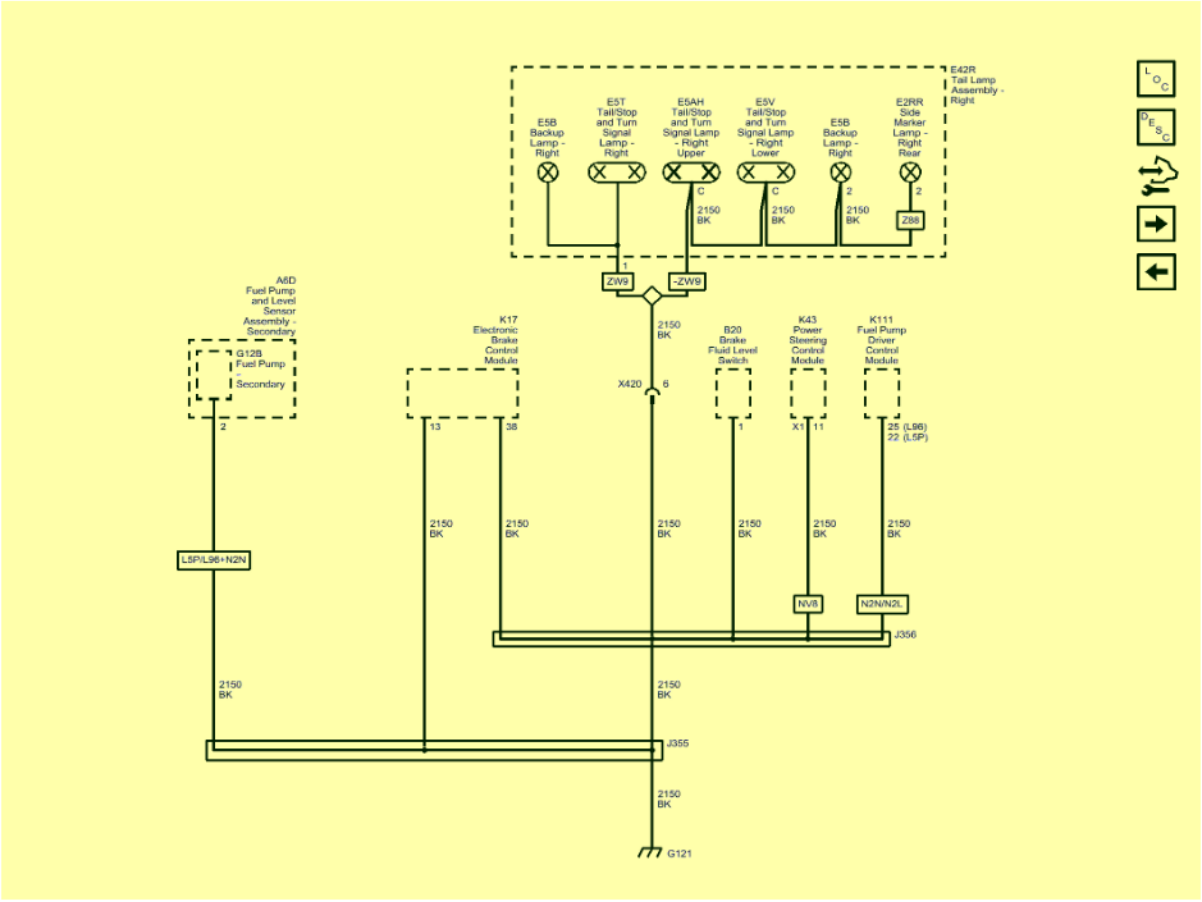

Fig. 8: G121 (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

G210 1 of 3 (2500/3500)

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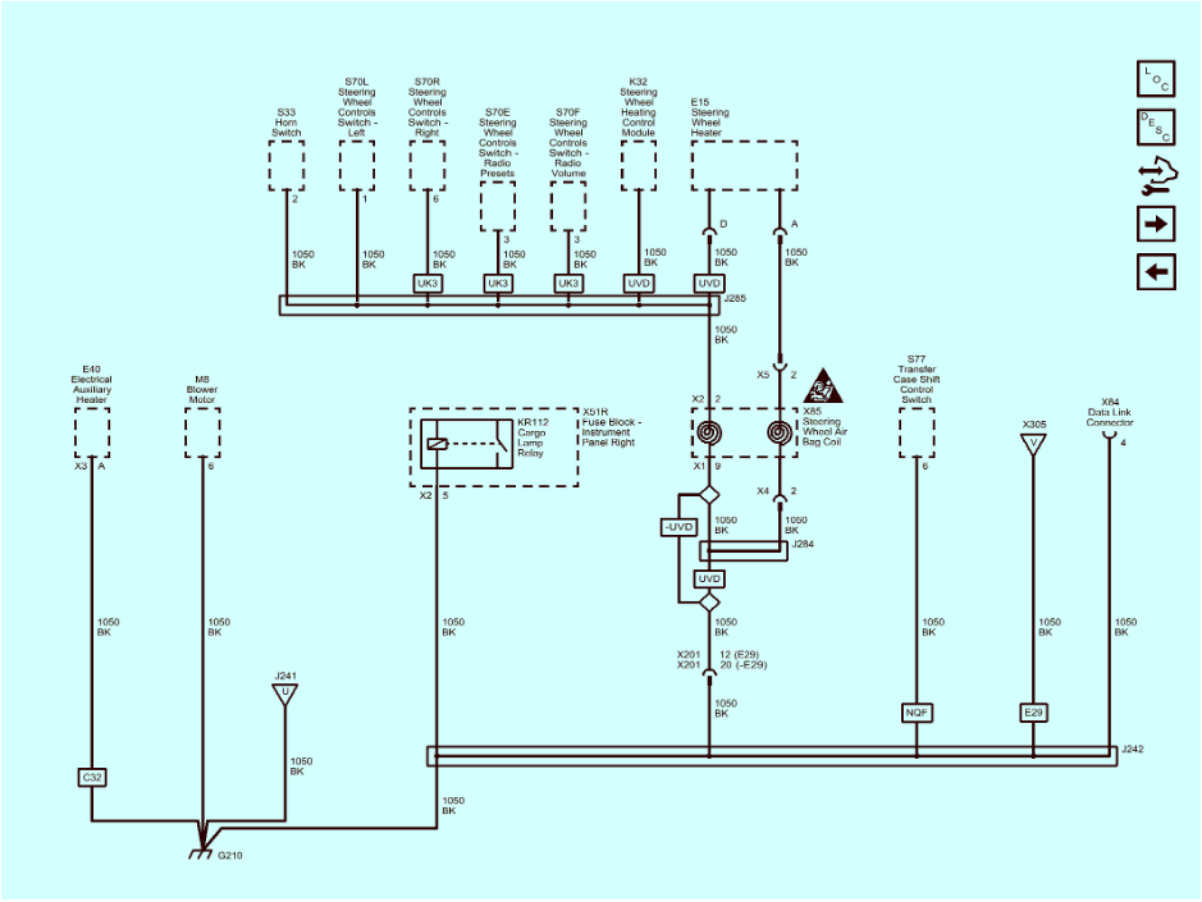

Fig. 9: G210 1 of 3 (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

G210 2 of 3 (2500/3500)

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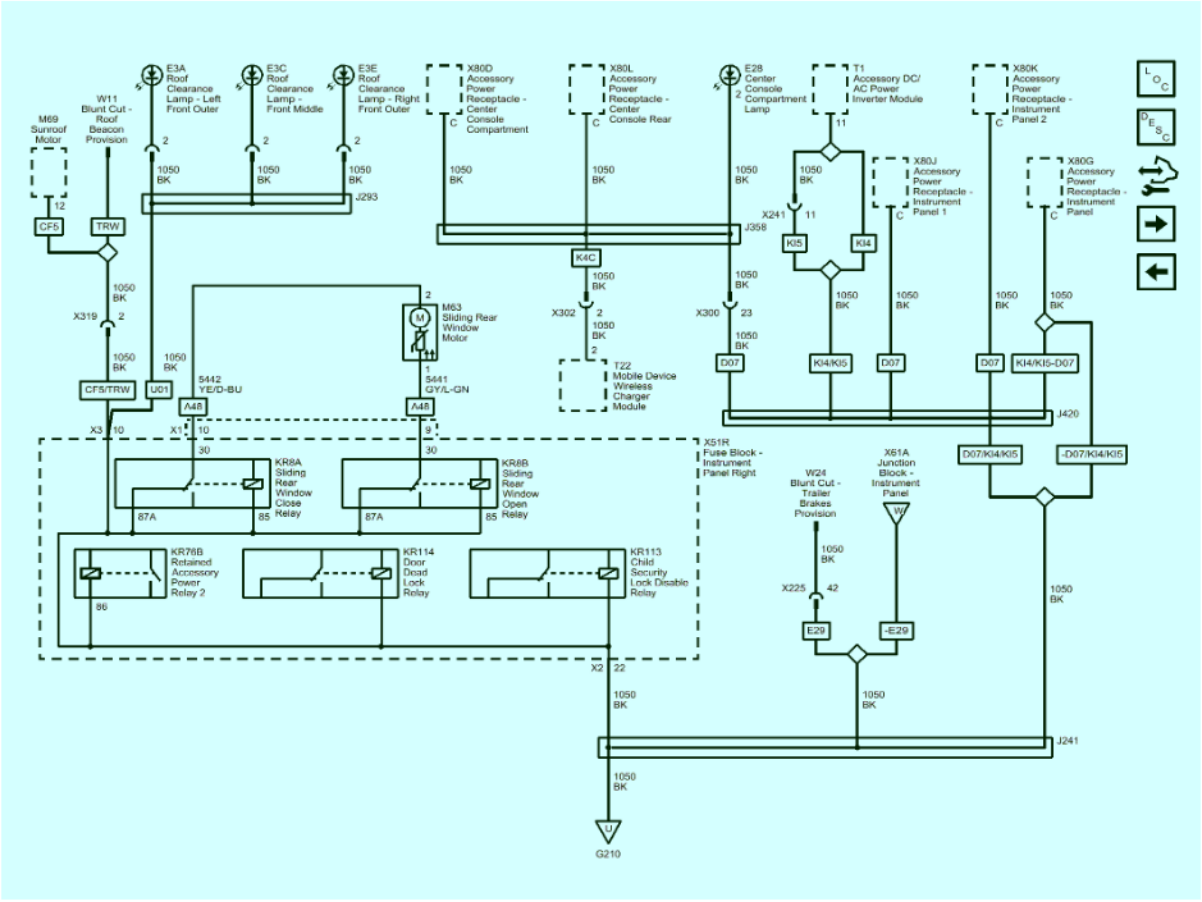

Fig. 10: G210 2 of 3 (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

G210 (2500/3500)

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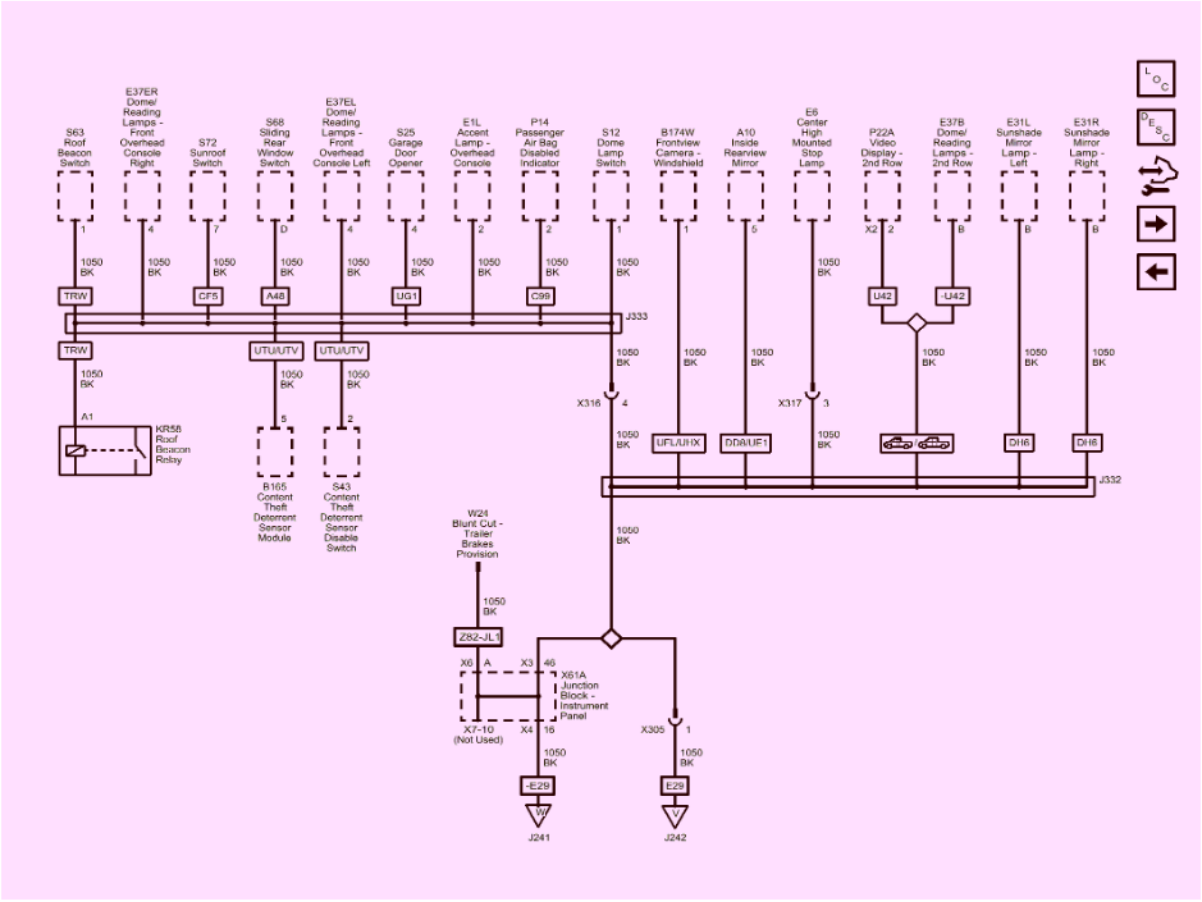

Fig. 11: G210 (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

G218 (2500/3500 except E29)

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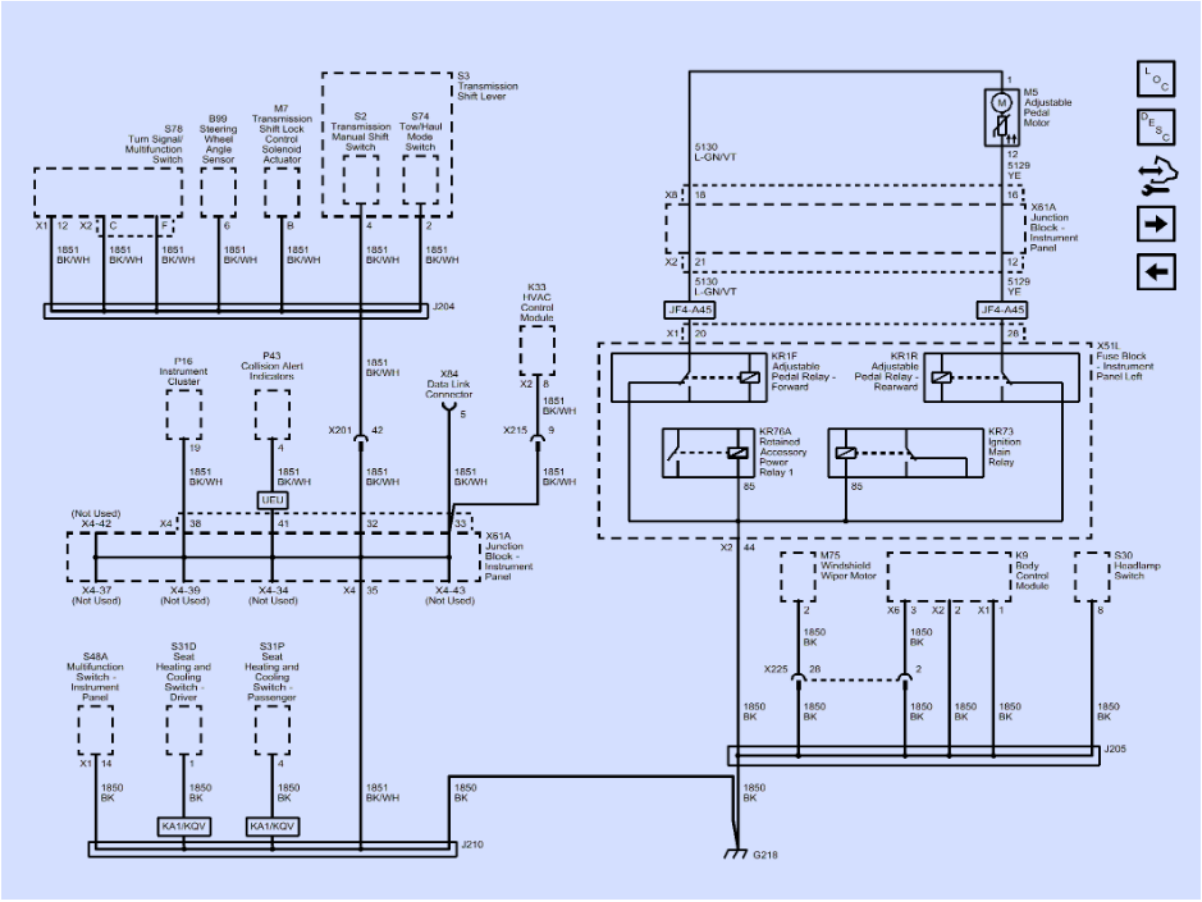

Fig. 12: G218 (2500/3500 except E29)
Courtesy of GENERAL MOTORS COMPANY

G218 (2500/3500 with E29)

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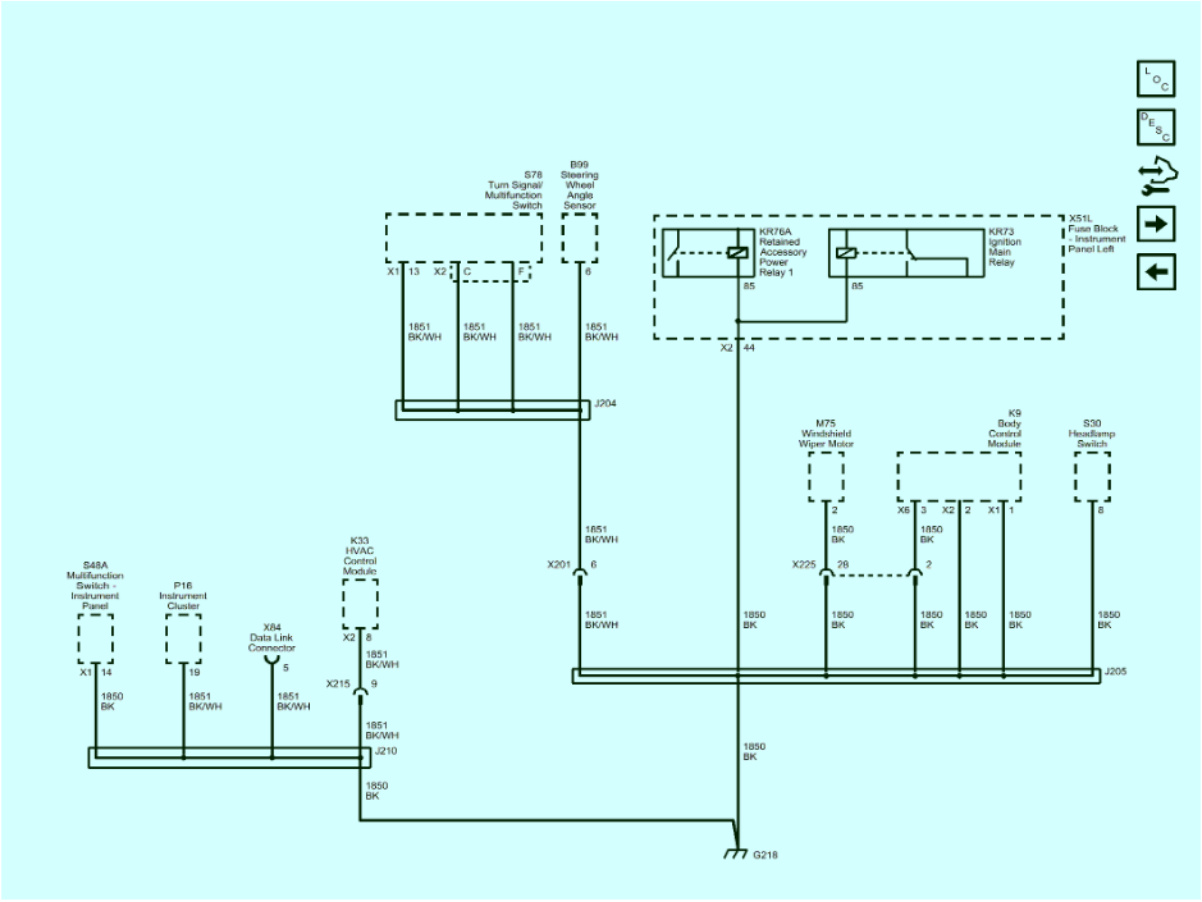

Fig. 13: G218 (2500/3500 with E29)
Courtesy of GENERAL MOTORS COMPANY

G311 (2500/3500)

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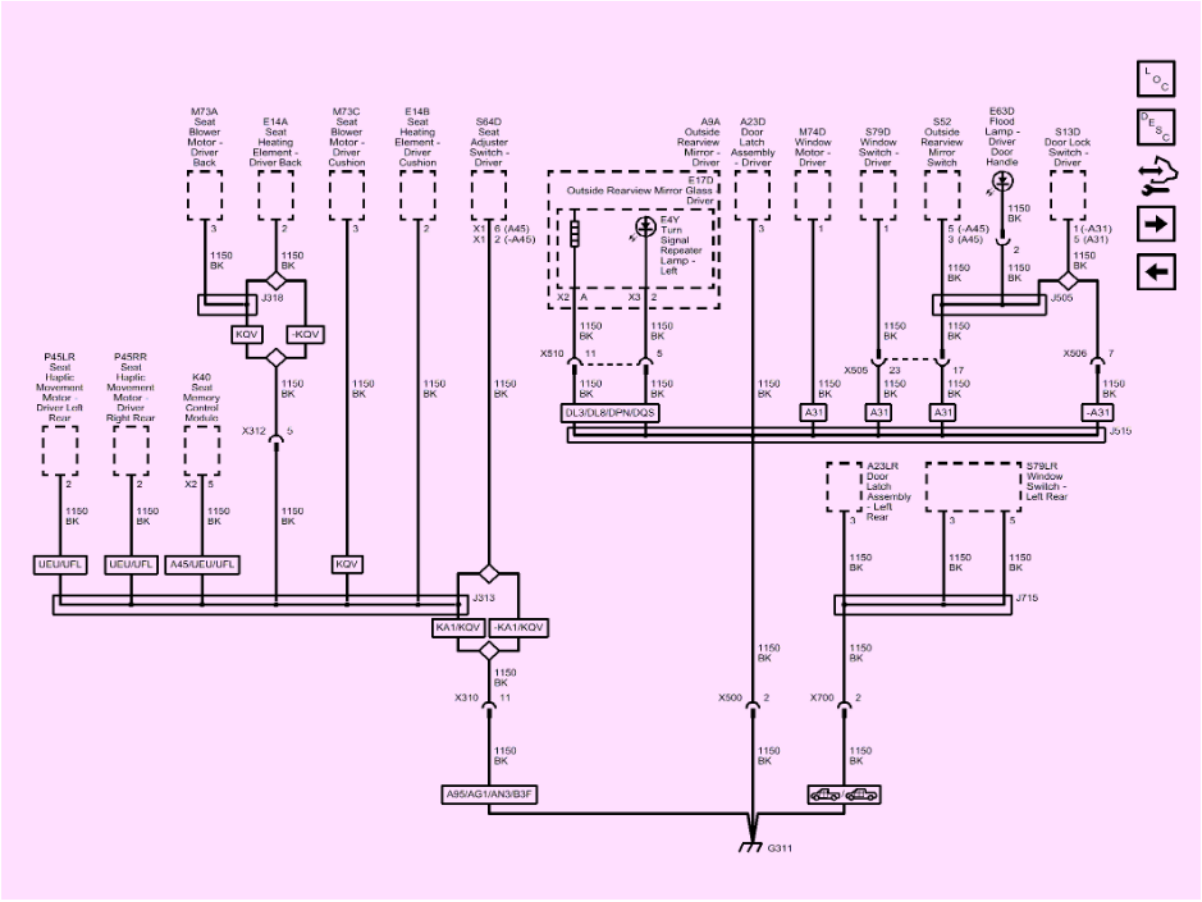

Fig. 14: G311 (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

G312 (2500/3500)

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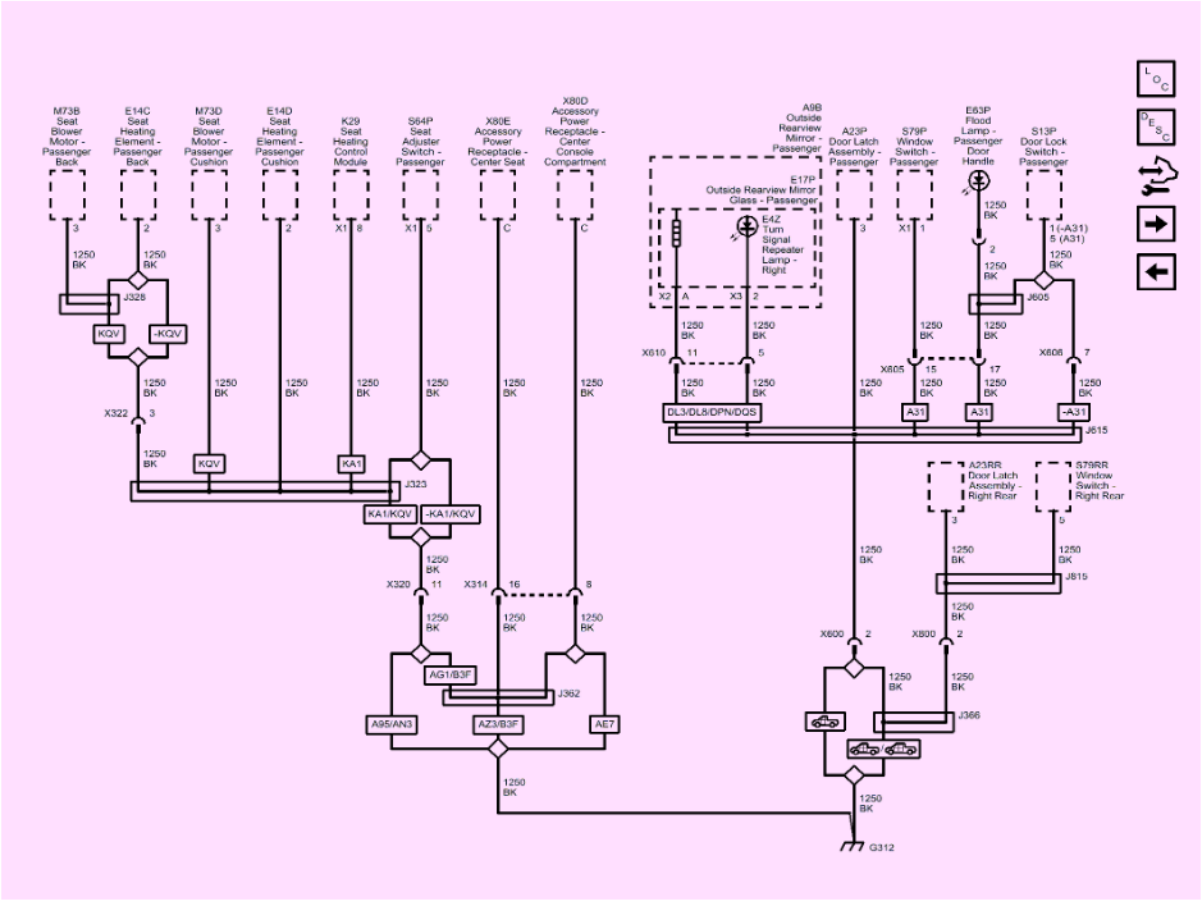

Fig. 15: G312 (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

G325 (2500/3500)

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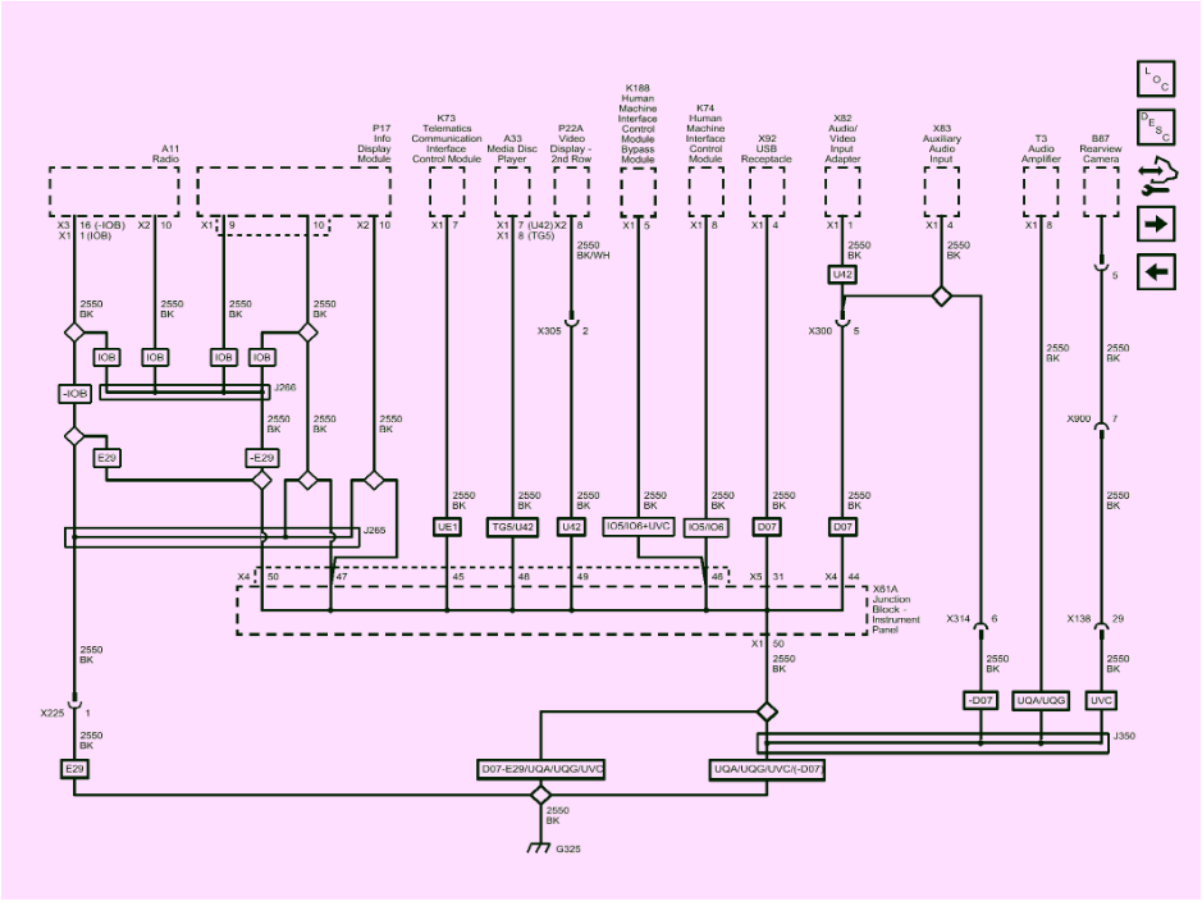

Fig. 16: G325 (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

G400 (2500/3500)

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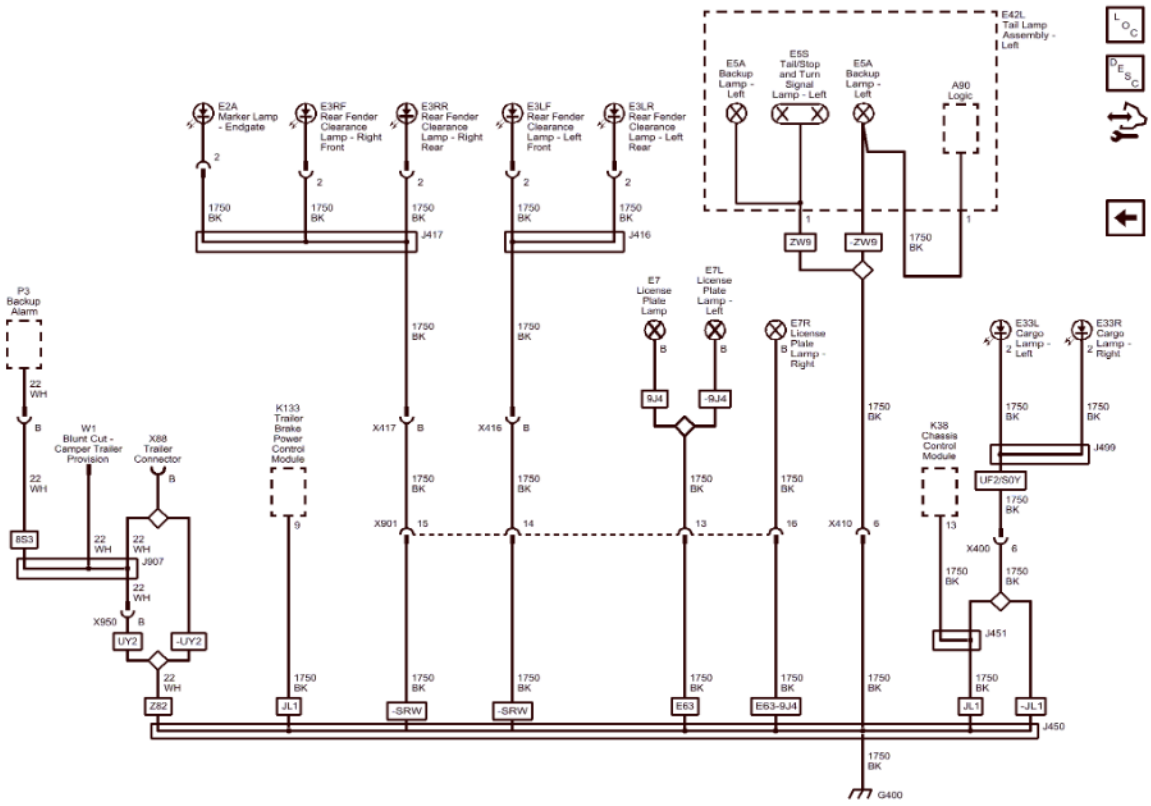

Fig. 17: G400 (2500/3500)
Courtesy of GENERAL MOTORS COMPANY

Article GUID: A00854494

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SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

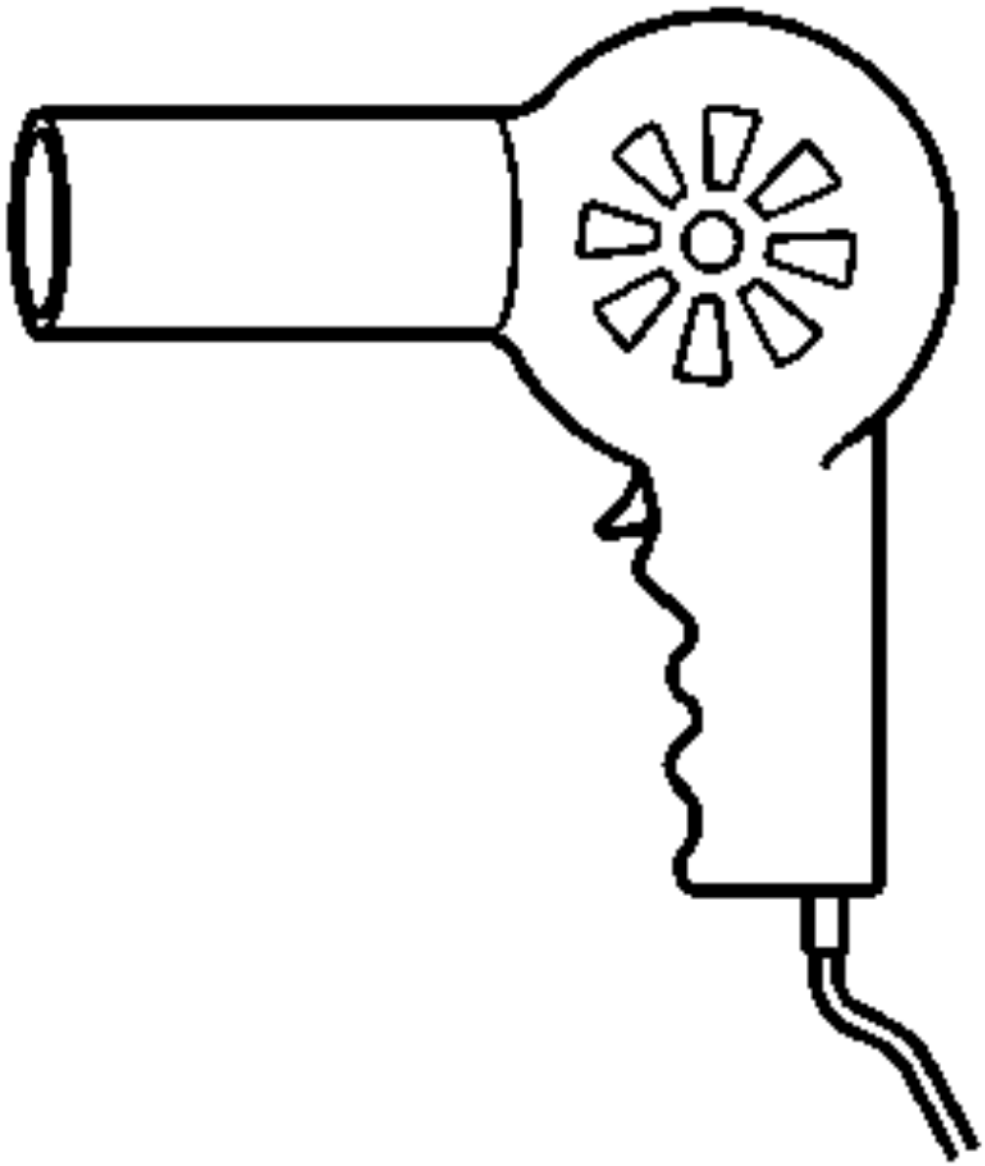
Illustration	Tool Number / Description
	EL-25070 EL-38125-5A EL-38125-5 J-38125-5A Heat Gun 500-700 F

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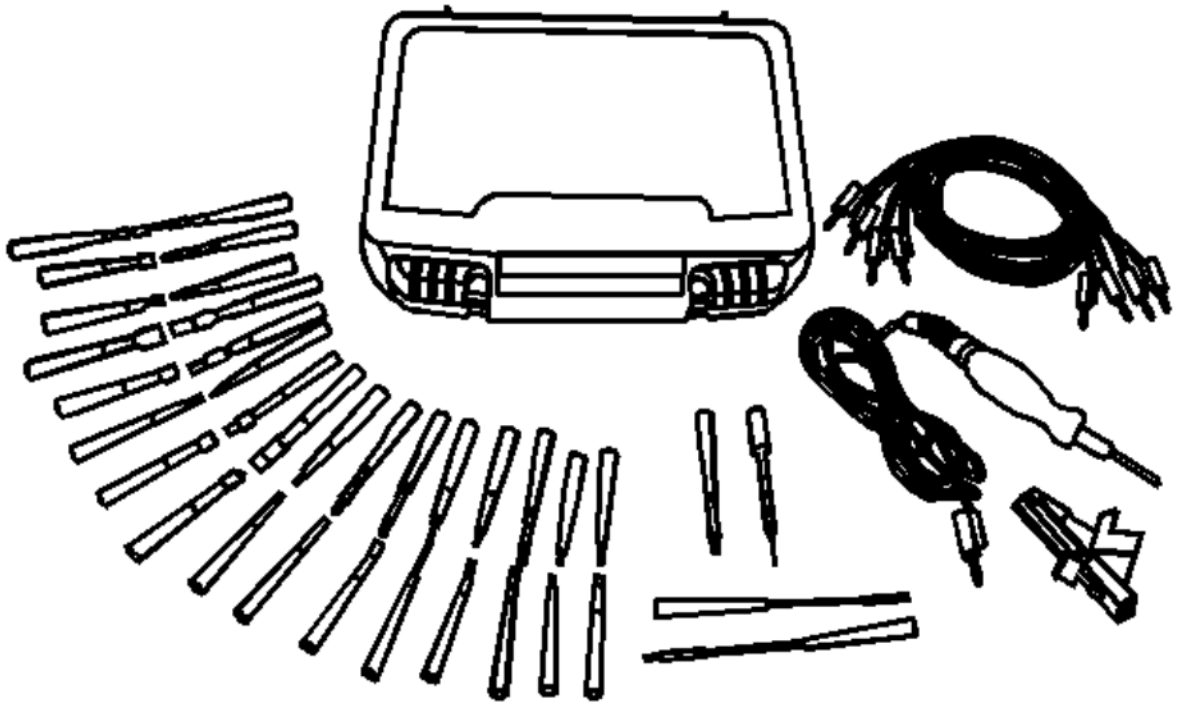
Illustration	Tool Number / Description
	EL-35616 KM-609 Tyco Electronic Tool (5-1579007-3) Terminal Test Probe Kit

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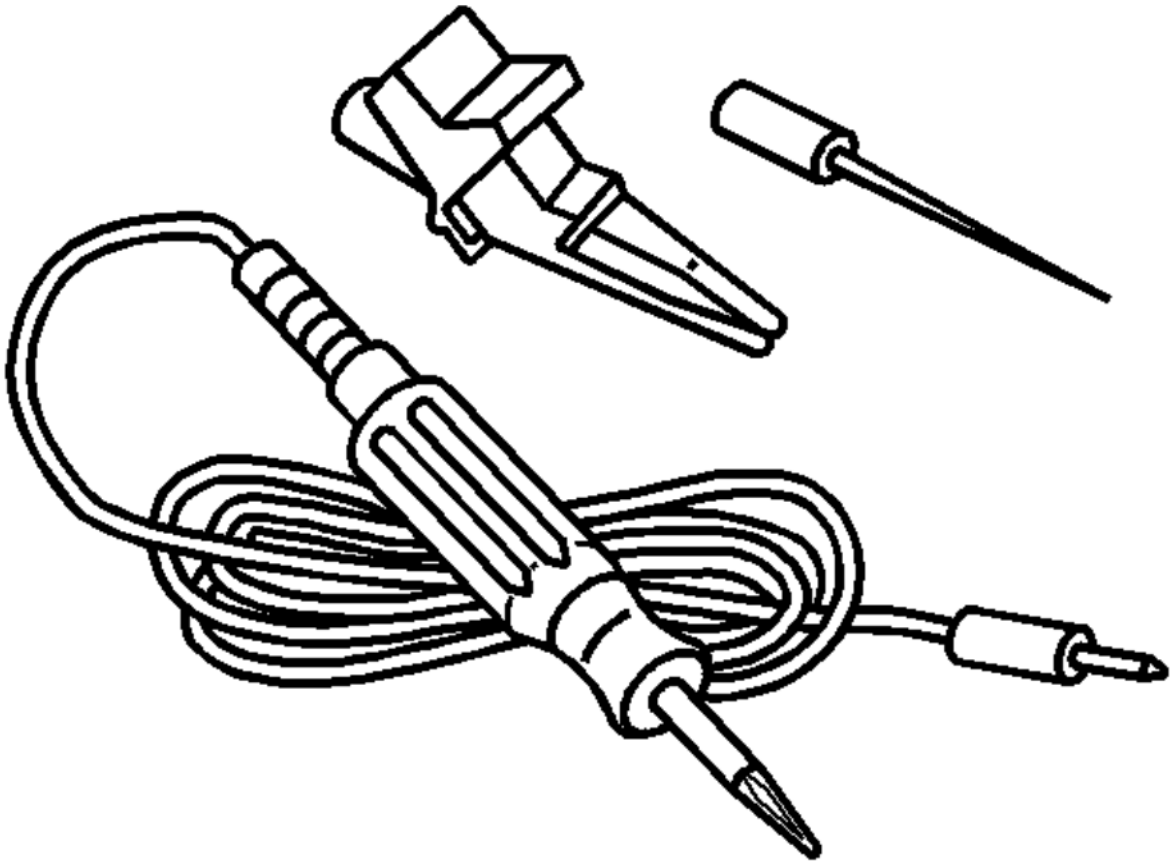
Illustration	Tool Number / Description
	EL-35616-200 KM-J-34142-B Test Light-Probe Kit

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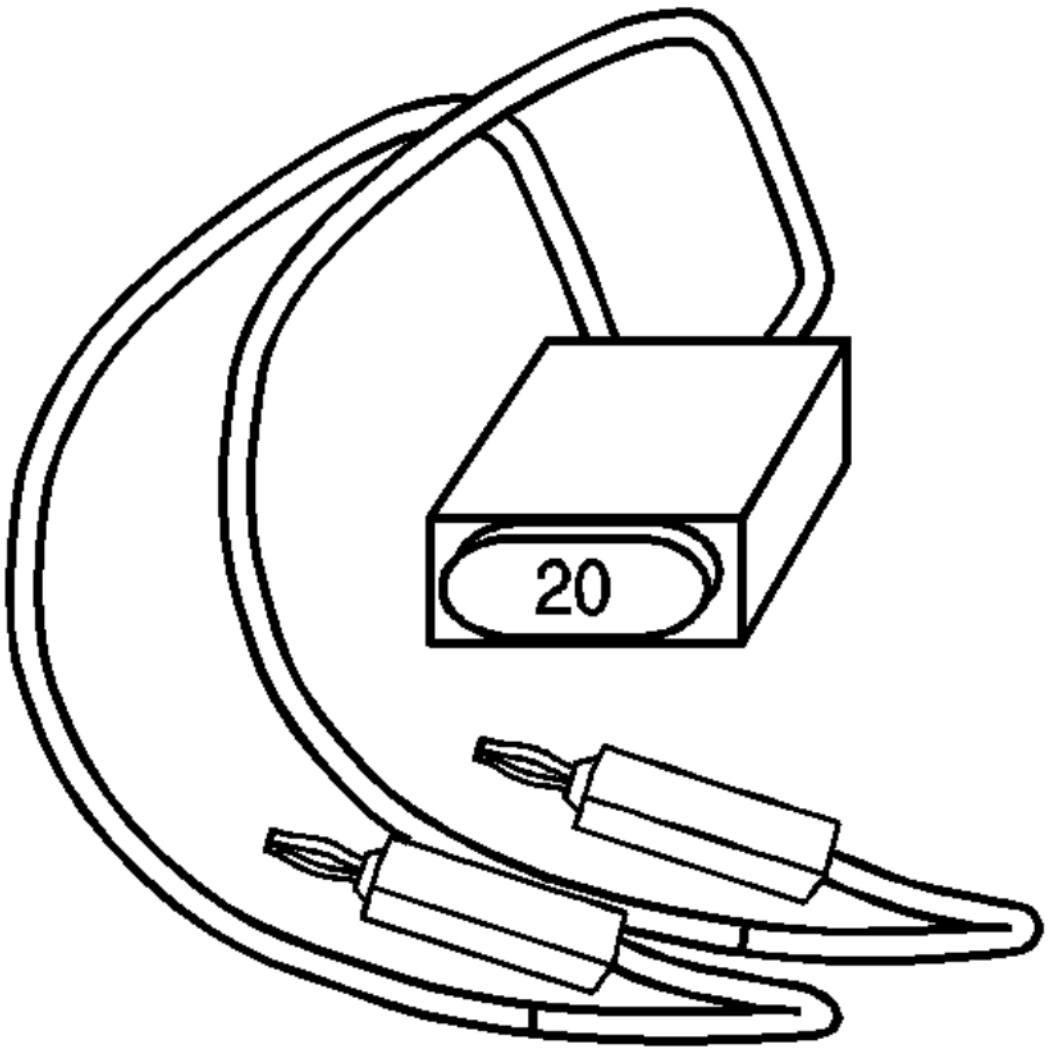
Illustration	Tool Number / Description
	EL-35616-20F KM-963 Fused Jumper Wire

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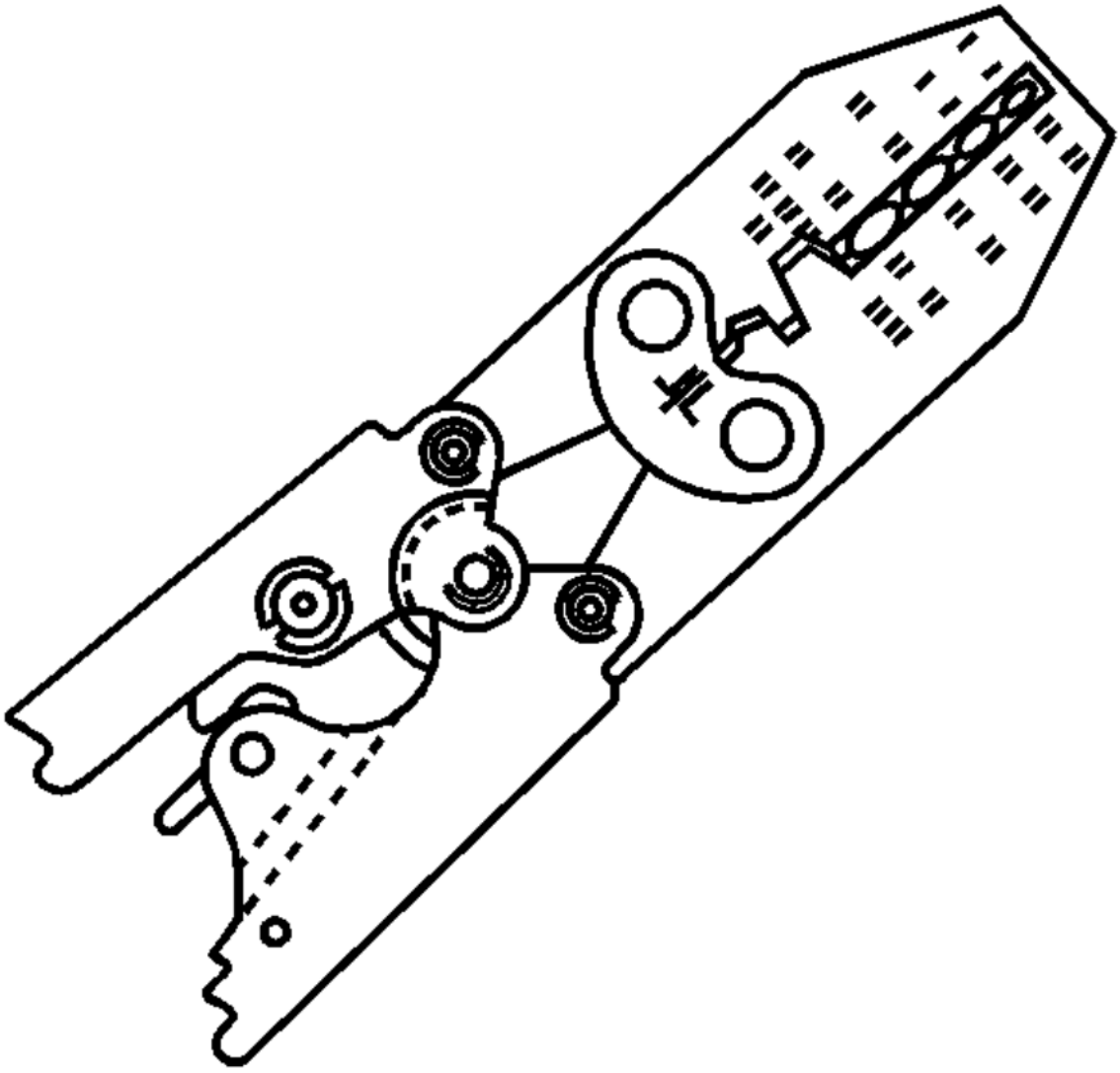
Illustration	Tool Number / Description
	EL-38125-EU (Europe) J-38125-8 (North America Only) EL-38125-10 (Non-North America/Non Europe) Splice Sleeve Crimp Tool

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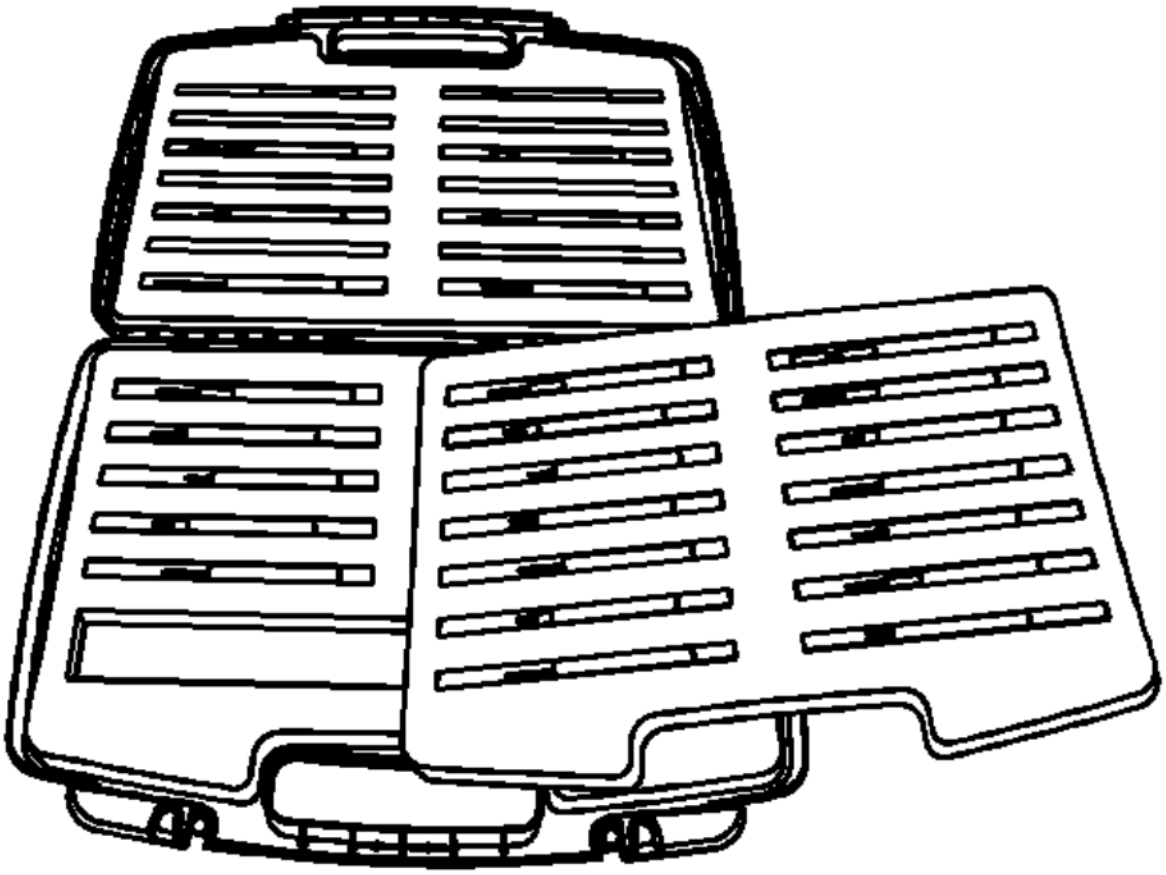
Illustration	Tool Number / Description
	EL-38125-550 (North America Only) Terminal Release Tool Kit

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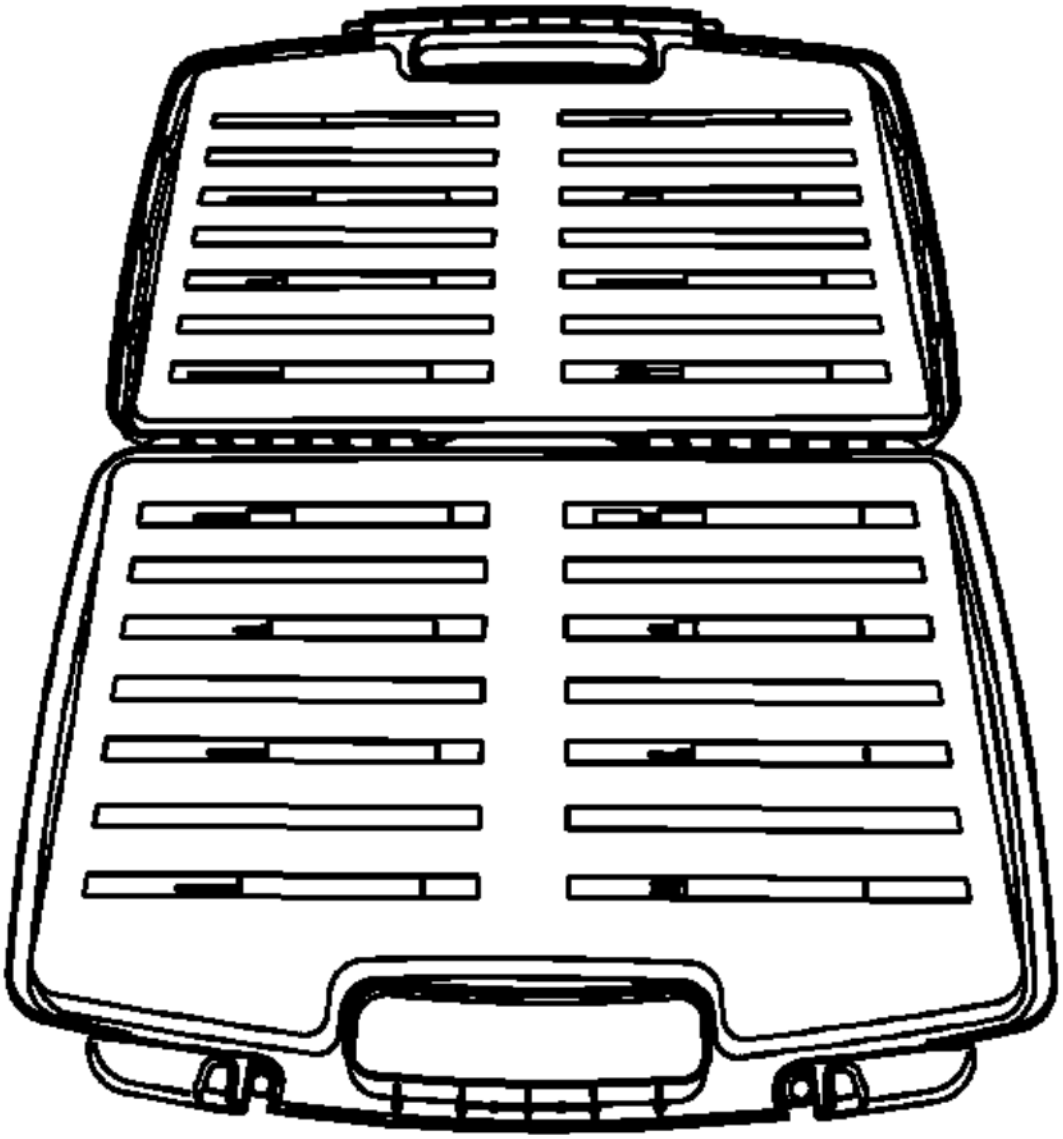
Illustration	Tool Number / Description
	EL-38125-580 (Non-North America) Terminal Release Tool Kit

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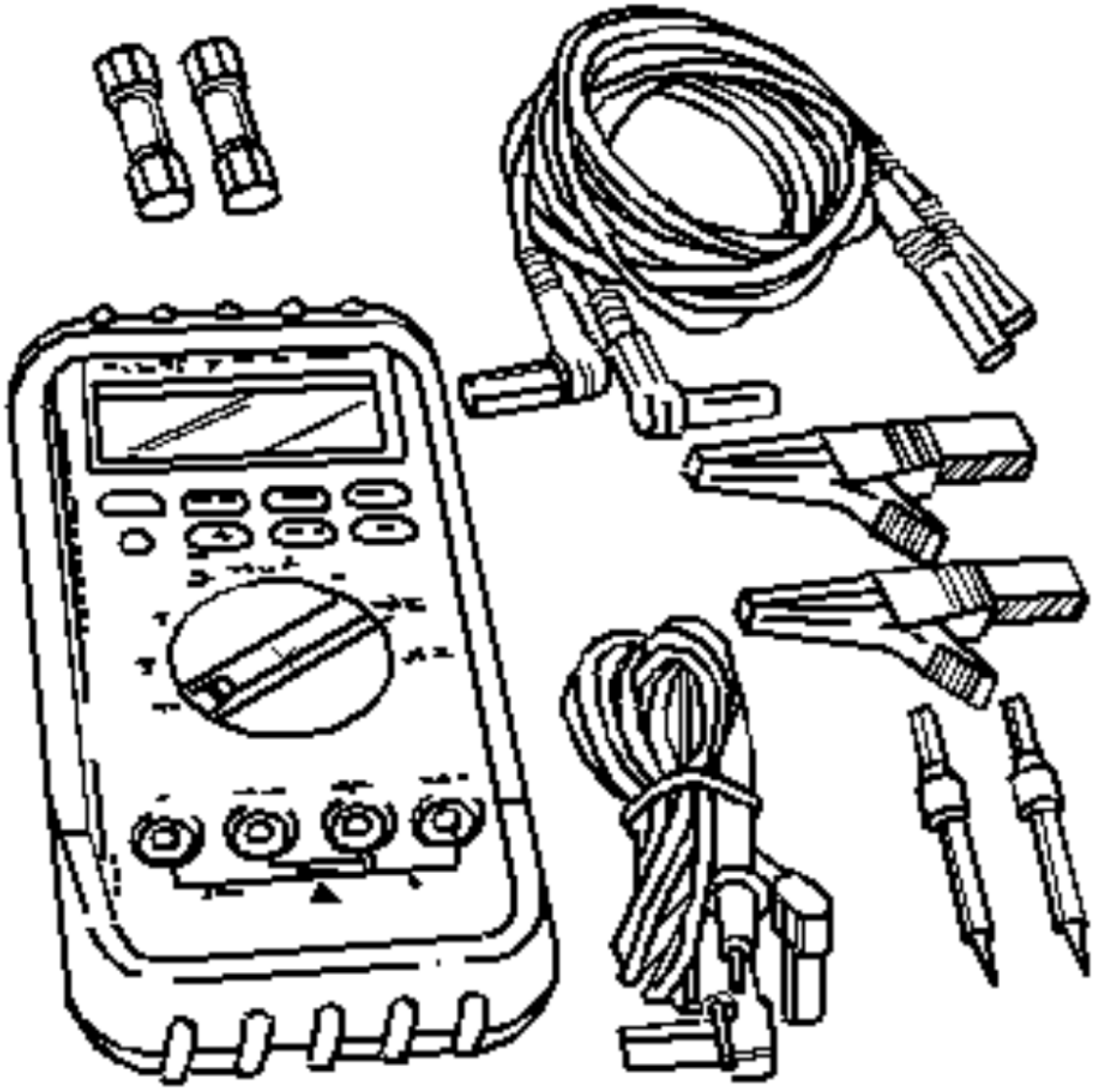
Illustration	Tool Number / Description
	EL-39200 Digital Multimeter

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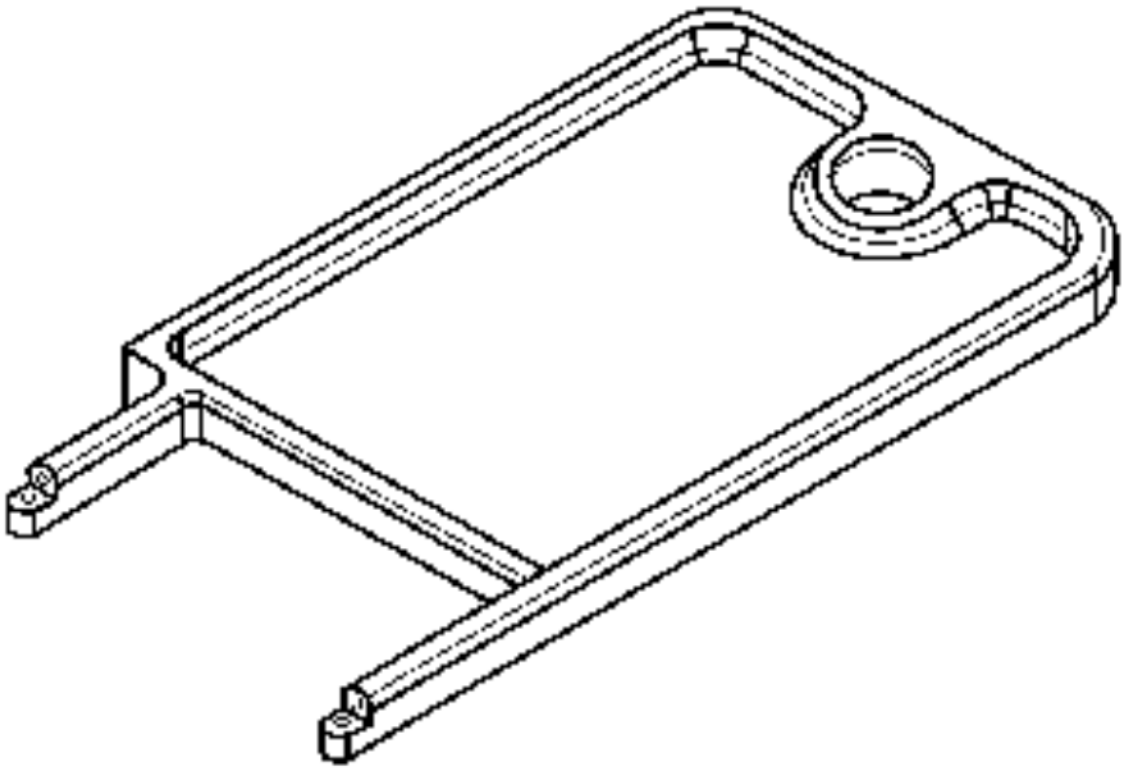
Illustration	Tool Number / Description
	EL-42759 Ignition Switch Connector Release Tool

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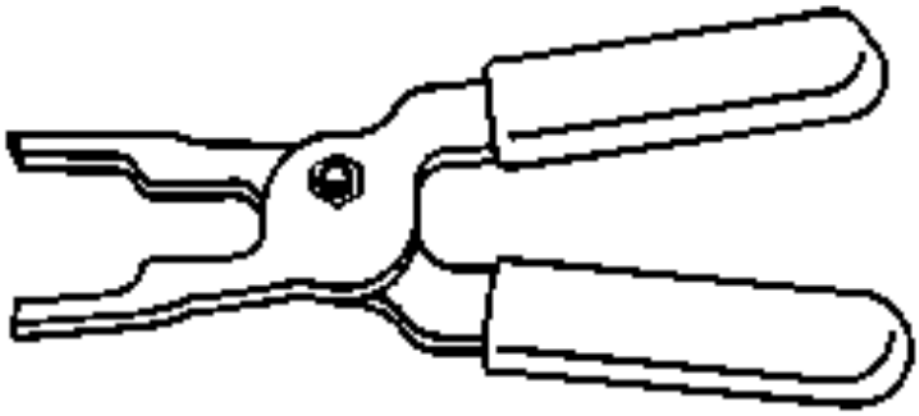
Illustration	Tool Number / Description
	EL-43244 Relay Puller Pliers

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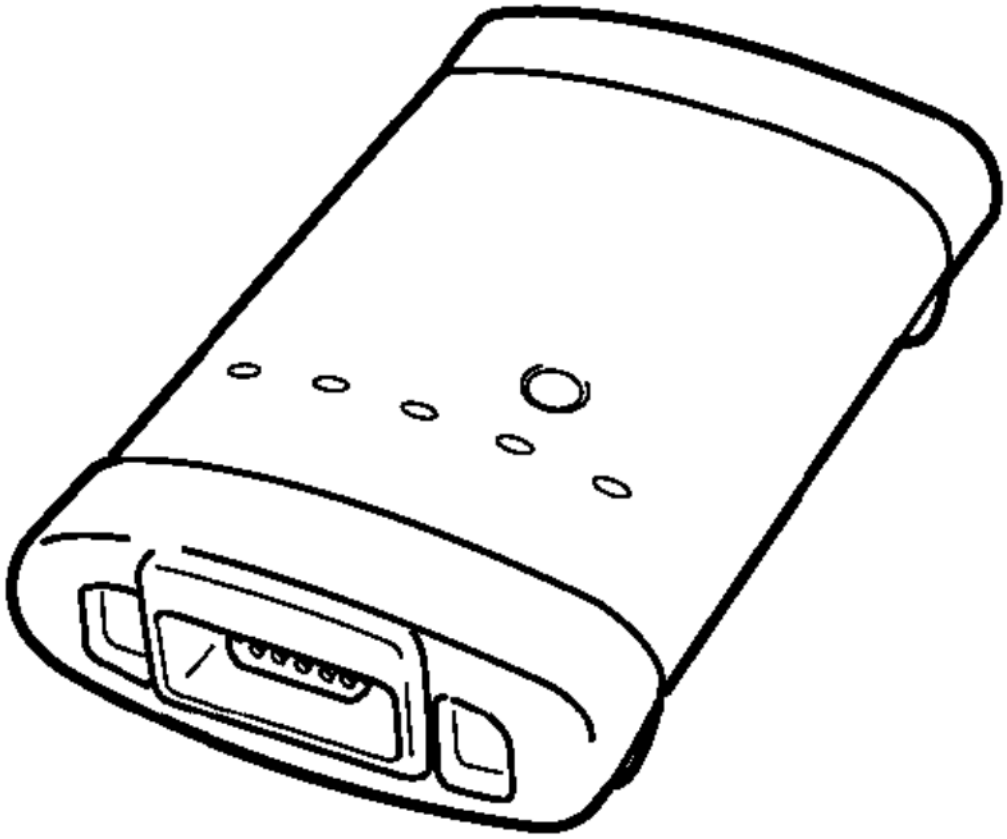
Illustration	Tool Number / Description
	EL-47955 J-2534 Multi Diagnostic Interface MDI

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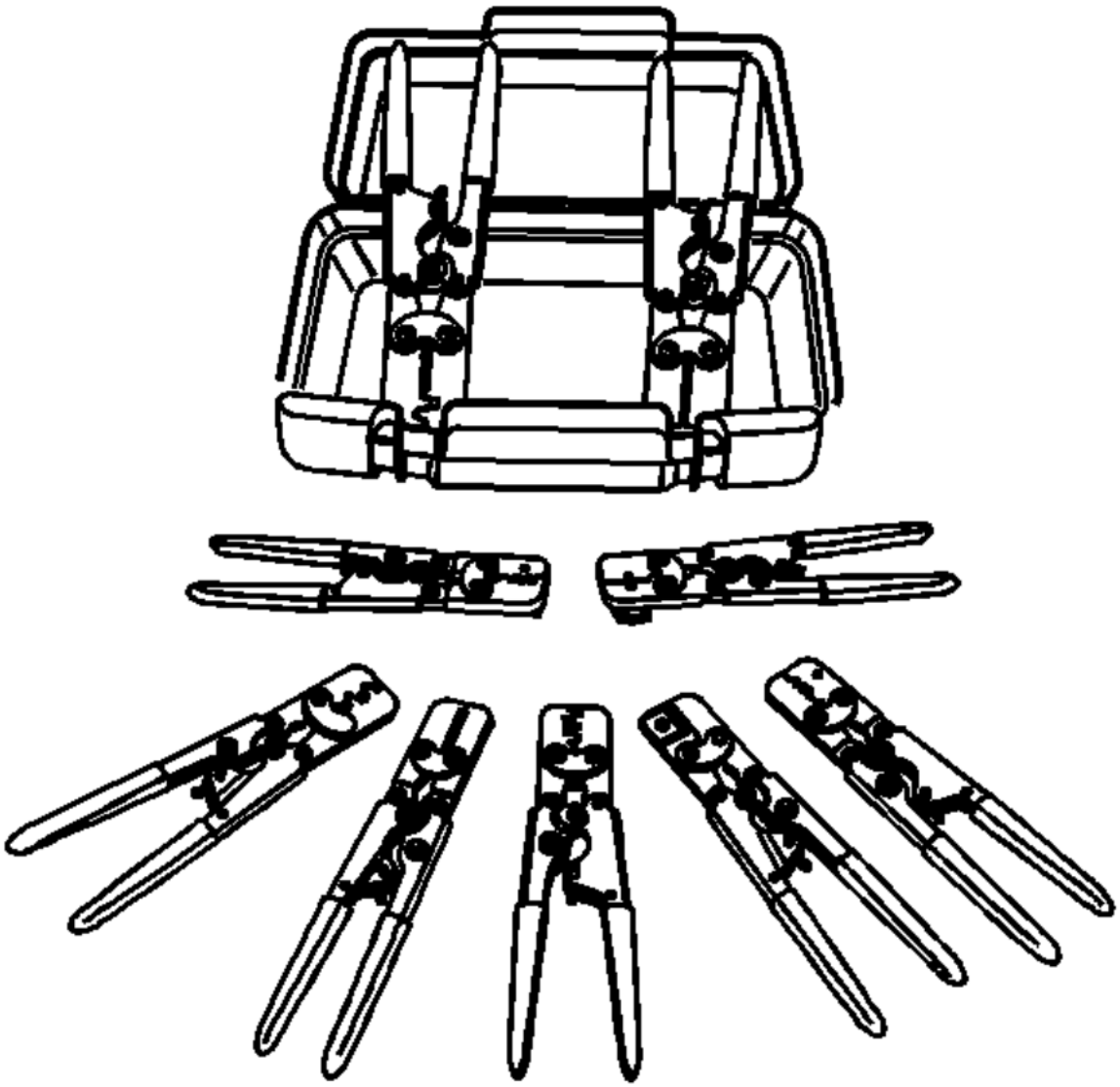
Illustration	Tool Number / Description
	EL-50040 (Holden Only) Crimping Tool Kit

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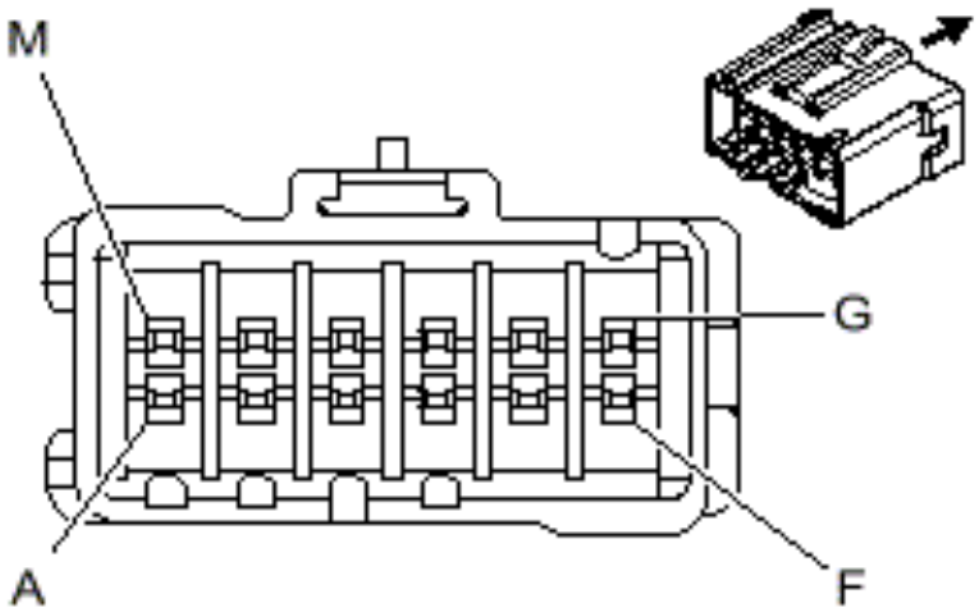
SPLICE PACK CONNECTOR END VIEWS

JX200 SPLICE PACK



Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 15305291
- Service Connector: 15305291
- Description: 12-Way F 280 Metri-Pack Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575721	J-35616-4A (PU)	J-38125-553	12110844	Delphi 4	E	4
II	13575721	J-35616-4A (PU)	J-38125-553	12110844	Delphi 4	E	A

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	L-GN	5060	Low Speed GMLAN Serial Data	II	-
B - D	-	-	-	Not Occupied	-	-

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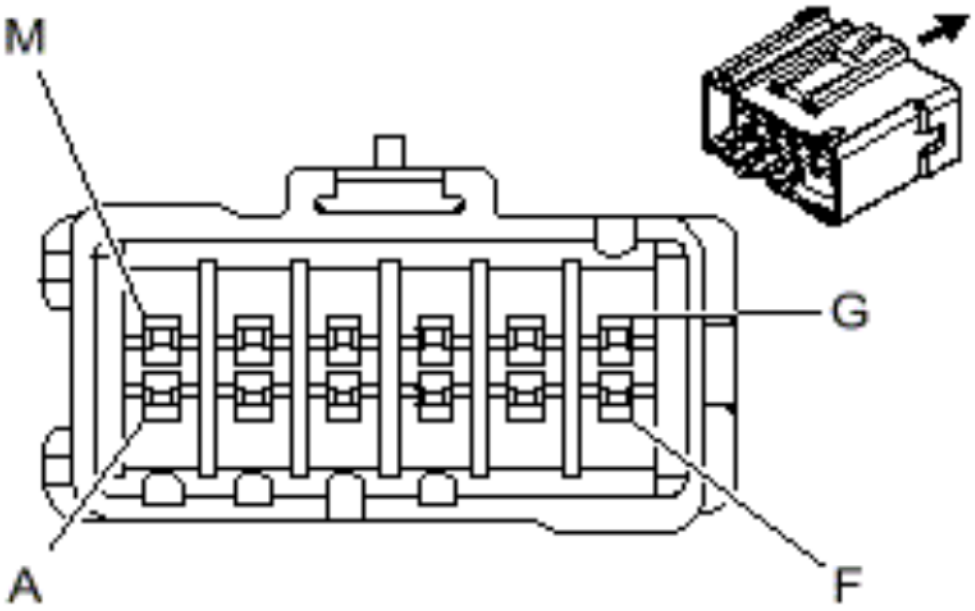
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
E	0.35	L-GN	5060	Low Speed GMLAN Serial Data	I	-
F - H	-	-	-	Not Occupied	-	-
J	0.5	L-GN	5060	Low Speed GMLAN Serial Data	II	-
K	0.35	L-GN	5060	Low Speed GMLAN Serial Data	I	-
L	-	-	-	Not Occupied	-	-
M	0.5	L-GN	5060	Low Speed GMLAN Serial Data	II	-

JX300 SPLICE PACK



Connector Part Information

- Harness Type: Body
- OEM Connector: 15305291
- Service Connector: 15305291
- Description: 12-Way F 280 Metri-Pack Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray Name	Core Crimp	Insulation Crimp
I	13575721	J-35616-4A (PU)	J-38125-553	12110844	Delphi 4	E	4
II	13575721	J-35616-4A (PU)	J-38125-553	12110844	Delphi 4	E	A

Pin	Size	Color	Circuit	Function	Terminal	Option

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					Type ID	
A	0.5	L-GN	5060	Low Speed GMLAN Serial Data	II	-
B - C	-	-	-	Not Occupied	-	-
D	0.35	L-GN	5060	Low Speed GMLAN Serial Data	I	-
E	-	-	-	Not Occupied	-	-
F	0.35 0.5	L-GN L-GN	5060 5060	Low Speed GMLAN Serial Data Low Speed GMLAN Serial Data	I II	AL0 HP5
G - H	-	-	-	Not Occupied	-	-
J	0.5	L-GN	5060	Low Speed GMLAN Serial Data	II	-
K	0.5	L-GN	5060	Low Speed GMLAN Serial Data	II	-
L	0.5	L-GN	5060	Low Speed GMLAN Serial Data	II	-
M	0.5	L-GN	5060	Low Speed GMLAN Serial Data	II	-

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