

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

2004 ACCESSORIES & EQUIPMENT

Wipers/Washer Systems - C/K SUV

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Plenum Reinforcement Panel Bolts	9 N.m	80 lb in
Washer Solvent Container Bolts	9 N.m	80 lb in
Wiper Arm to the Shaft Nut	30 N.m	22 lb ft
Wiper Motor Assembly Bolts	8 N.m	71 lb in
Wiper Motor Cover Screws	2.6 N.m	23 lb in
Wiper Transmission to the Vehicle Bolts	9 N.m	80 lb in

SCHEMATIC AND ROUTING DIAGRAMS

WIPER/WASHER SYSTEM SCHEMATICS

Refer to Wiper/Washer in System Wiring Diagrams .

COMPONENT LOCATOR

WIPER/WASHER SYSTEM COMPONENT VIEWS

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

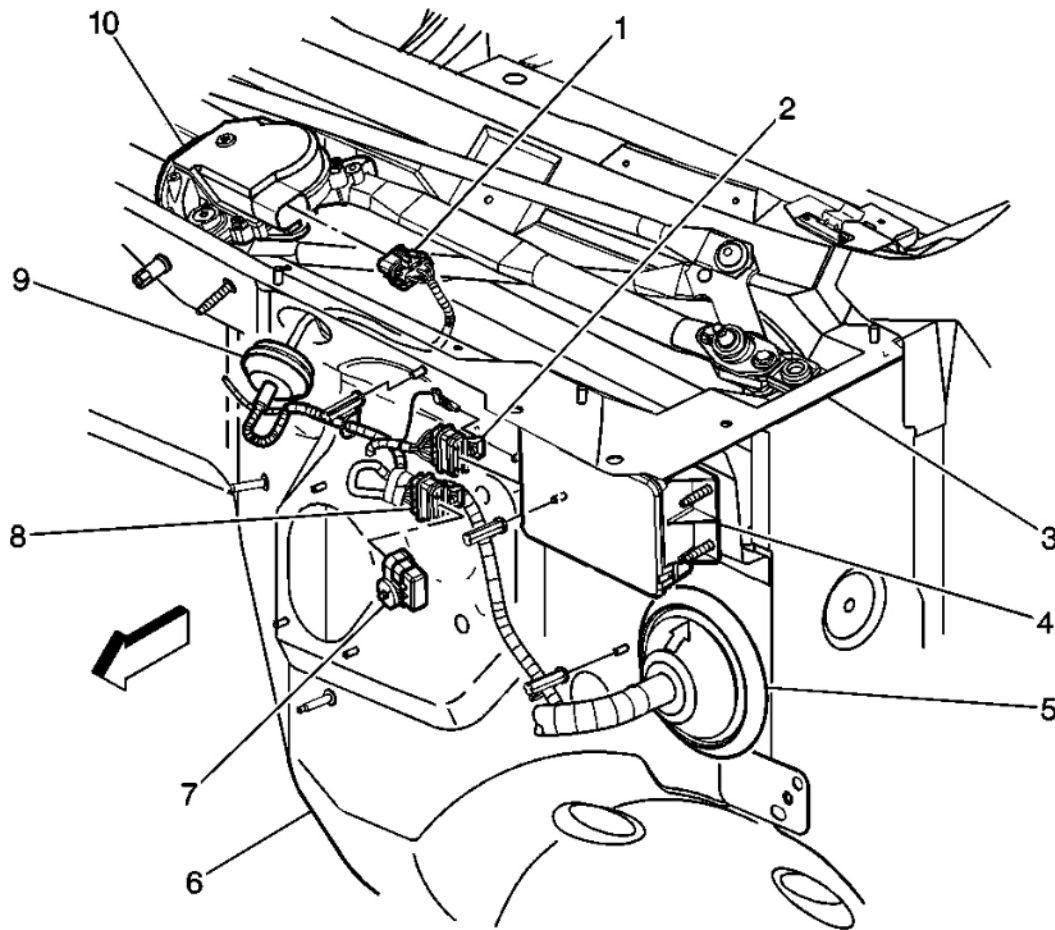


Fig. 1: Left Rear Underhood Component View - Front Of Dash
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 1

Callout	Component Name
1	Windshield Wiper Motor Module Electrical Connector
2	Cruise Control Module (CCM) Connector
3	Plenum Panel
4	Cruise Control Module
5	P100
6	Dash Panel
7	Cap For Connector, Without Cruise Control
8	Cruise Control Module (CCM) Connector
9	Harness Pass Through
10	Windshield Wiper Motor Module

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

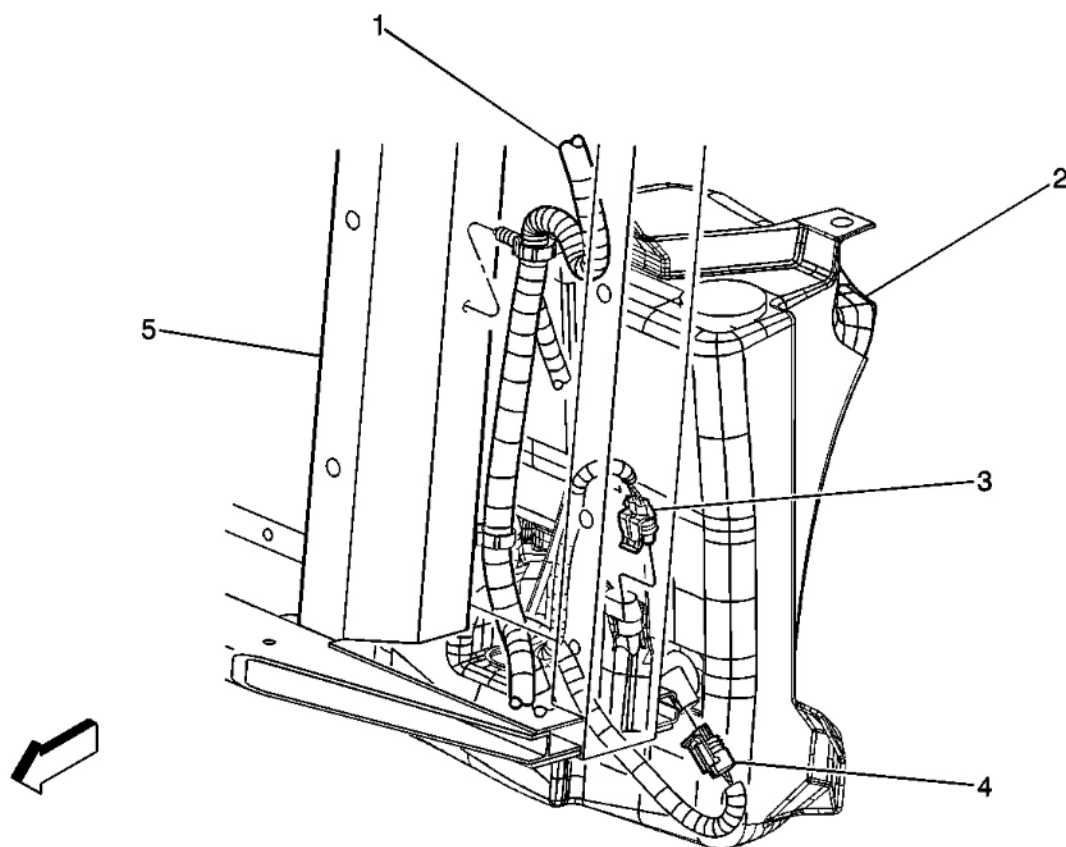


Fig. 2: LF Corner Of Vehicle Component View - Wiper/Washer Components
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 2

Callout	Component Name
1	Forward Lamp Harness
2	Windshield Washer Reservoir
3	Windshield Washer Fluid Pump Connector
4	Washer Fluid Level Sensor Connector
5	Radiator Support

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

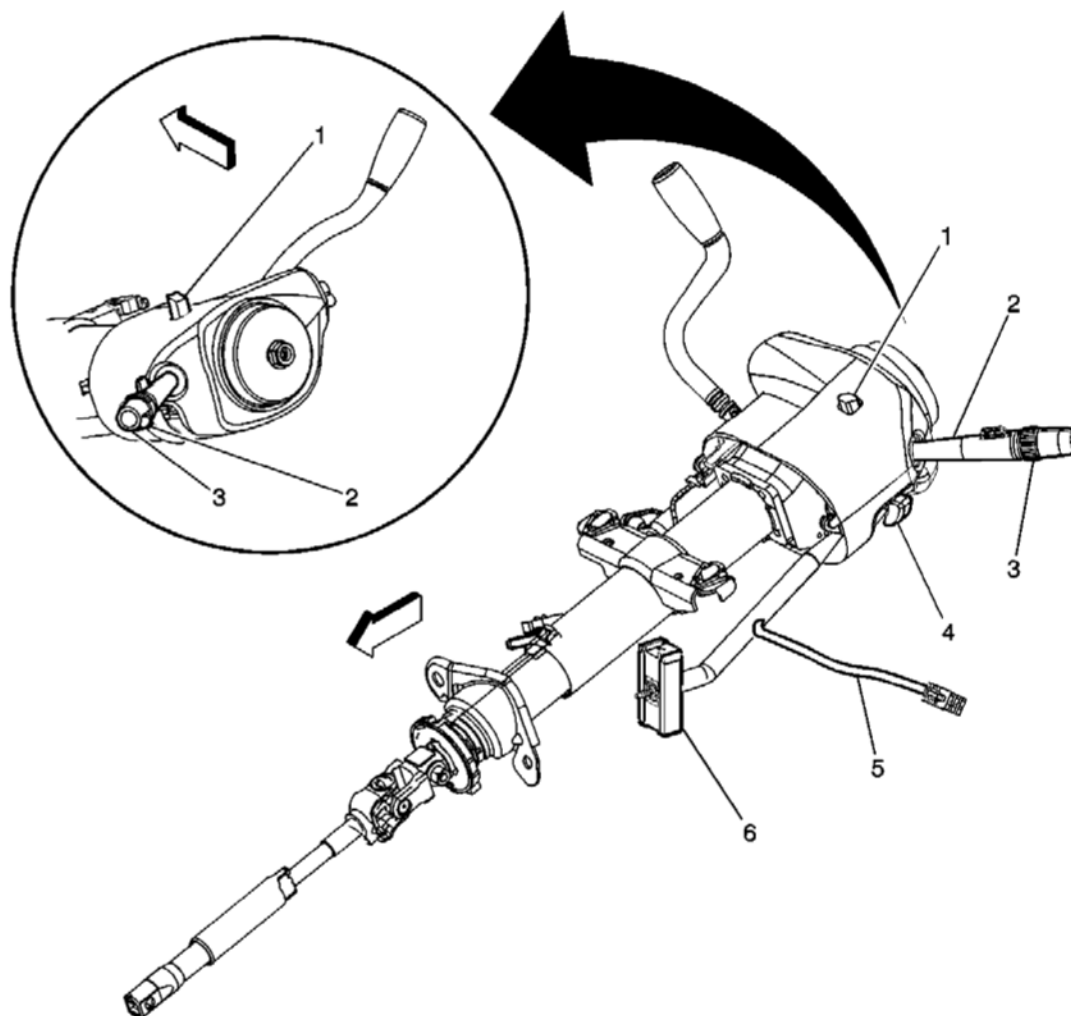


Fig. 3: Steering Column Components View
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 3

Callout	Component Name
1	Hazard Button
2	High Beams/Cruise/Wiper/Washer
3	Cruise Control Switches
4	Tilt Steering Actuator
5	Inflatable Restraint Harness
6	C201 Inline Connector

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

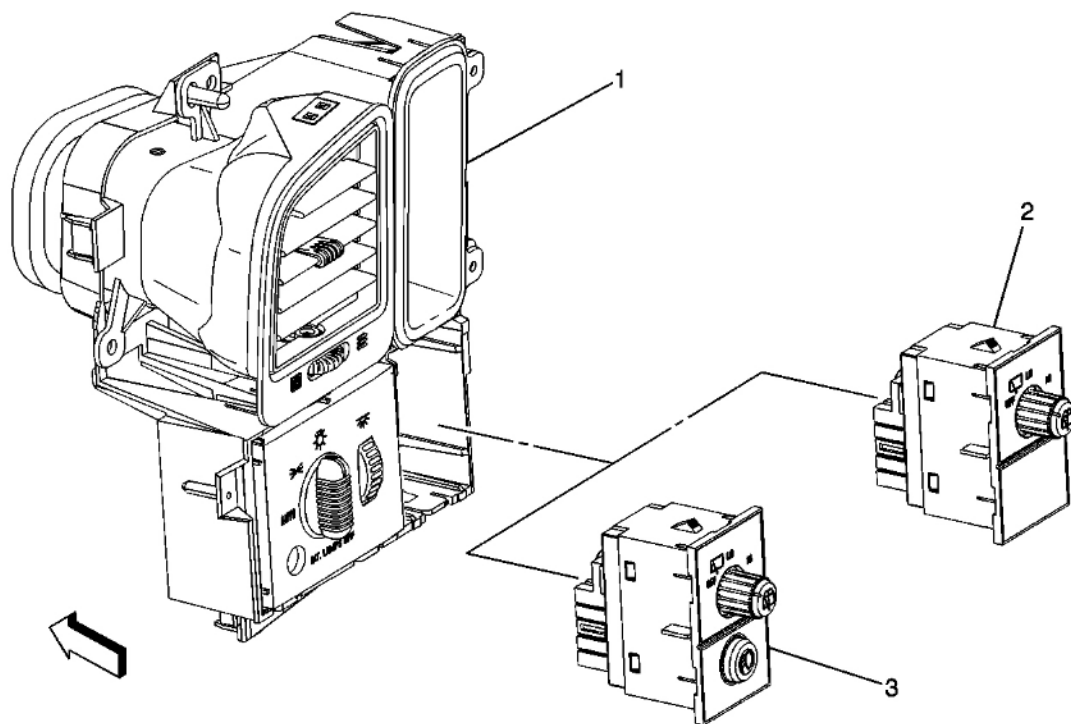


Fig. 4: Rear Window Wiper Switch Component View
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 4

Callout	Component Name
1	Air Deflector Housing
2	Rear Wiper/Washer Switch
3	Multifunction Accessory Switch

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

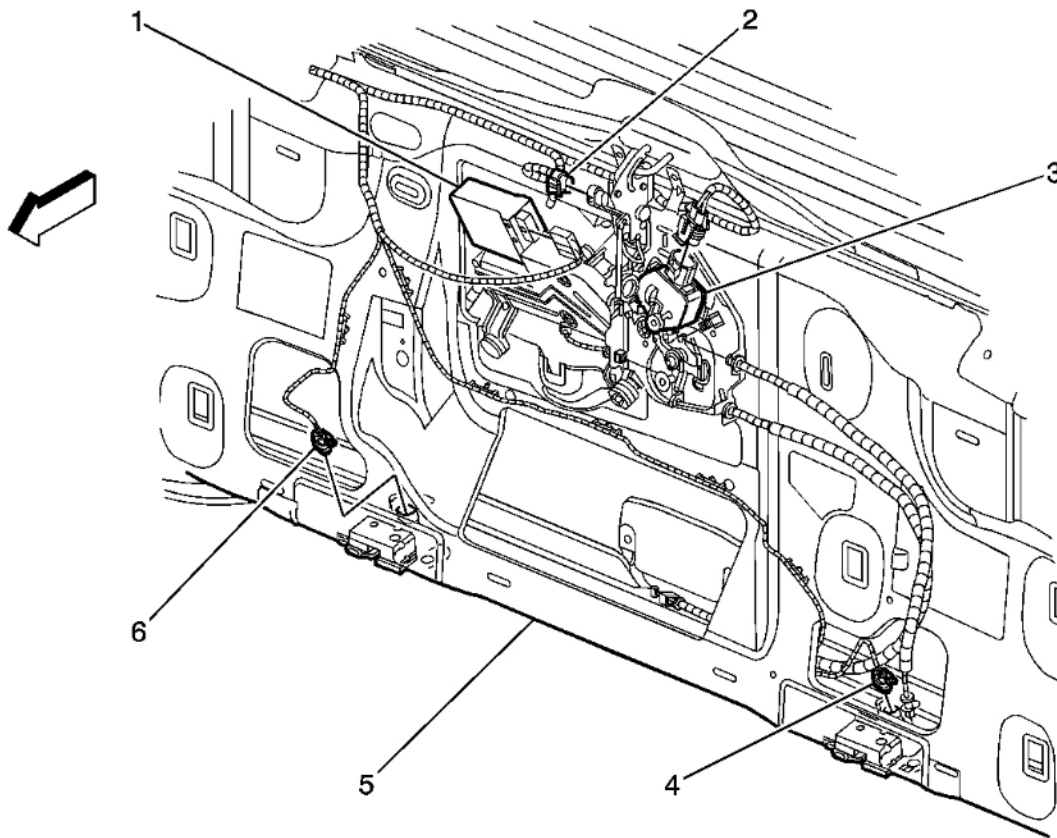


Fig. 5: Liftgate Component View (E52)
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 5

Callout	Component Name
1	Rear Window Wiper Module
2	Liftglass Ajar Switch
3	Door Lock Actuator - Liftgate
4	Liftgate Ajar Switch - Left Connector
5	Liftgate
6	Liftgate Ajar Switch - Right Connector

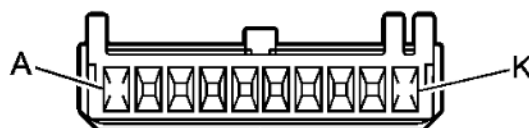
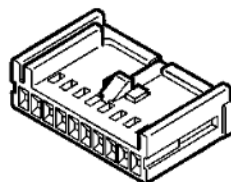
WIPER/WASHER SYSTEM CONNECTOR END VIEWS

Fog/Rear Wiper Switch Connector End View



2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

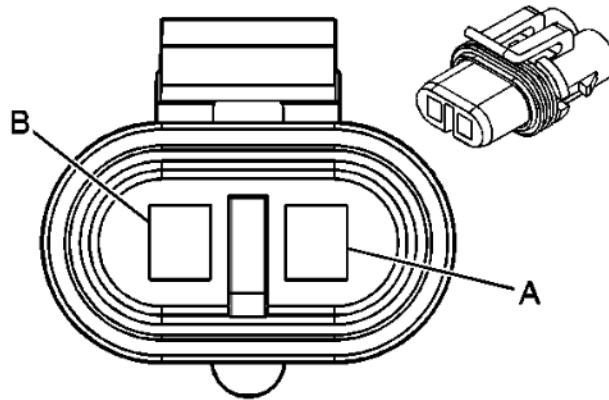


Connector Part Information		15393435 10-Way F Micro 64 (GRY)	
Pin	Wire Color	Circuit No.	Function
A	PPL/WHT	1382	LED Dimming Supply
B	DK GRN/ WHT	1317	Fog Lamp Relay Control (w/T96)
C	ORN	192	Front Fog Lamp Switch Signal (w/T96)
D	BLK/WHT	1851	Ground (w/T96)
E	BRN/WHT	230	Instrument Panel Lamps Dimming Control (w/T96)
F	GRY	391	Rear Window Wiper Switch Signal
G	YEL	343	Accessory Voltage
H	DK GRN/ WHT	266	Rear Window Washer Pump Supply Voltage
J	DK GRN	392	Rear Window Washer Pump Control
K	-	-	Not Used

Rear Window Washer Fluid Pump Connector End View

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

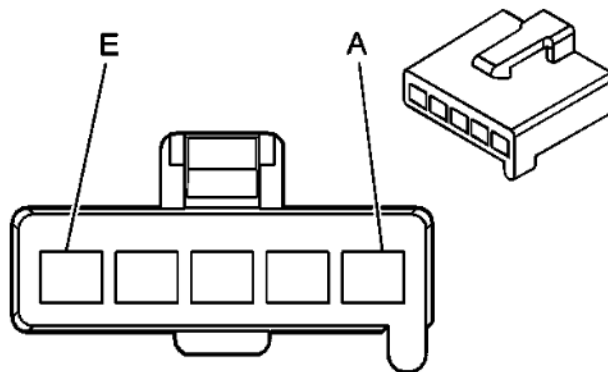


Connector Part Information

- 12020599
- 2-Way F Metri-Pack-280 Series (BLK)

Pin	Wire Color	Circuit No.	Function
A	BLK	150	Ground
B	DK GRN/ WHT	266	Rear Window Washer Pump Supply Voltage

Rear Window Wiper Module Connector End View



Connector Part Information

- 12041429
- 5-Way F Metri-Pack 280 Series (BLK)

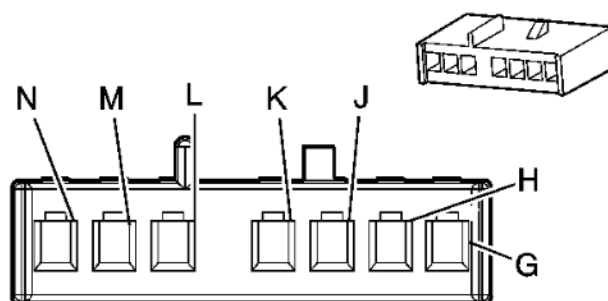
Pin	Wire Color	Circuit No.	Function
A	PNK/BLK	1303	Liftgate Ajar Switch Signal
B	ORN	2040	Battery Positive Voltage
C	GRY	391	Rear Window Wiper Switch Signal

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

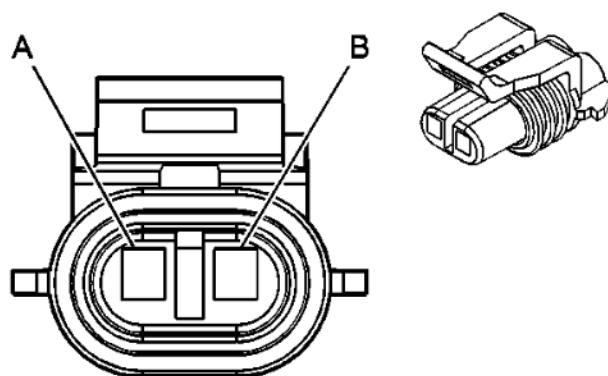
D	DK GRN	392	Rear Window Washer Pump Control
E	BLK	1450	Ground

Turn Signal Multifunction Switch - C3 (Wiper Switch) Connector End View



Connector Part Information		15339058 7-Way F Metri-Pack 150 Series (BLK)	
Pin	Wire Color	Circuit No.	Function
G	-	-	Not Used
H	PNK	94	Windshield Wiper Switch Signal 1
J	GRY	478	Windshield Wiper Switch Supply Voltage
K	DK BLU	477	Windshield Wiper Switch High Signal
L-N	-	-	Not Used

Washer Fluid Level Sensor Connector End View



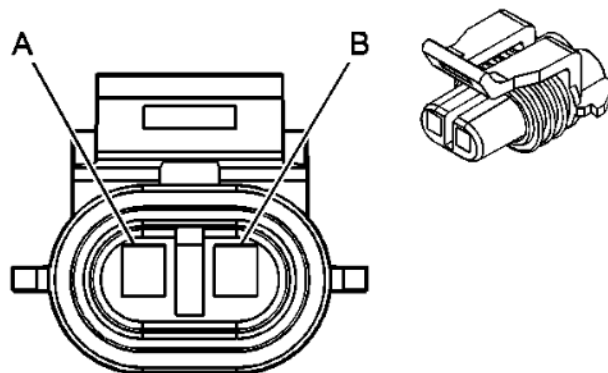
Connector Part Information		12052641 2-Way F Metri-Pack 150 Series (BLK)	

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

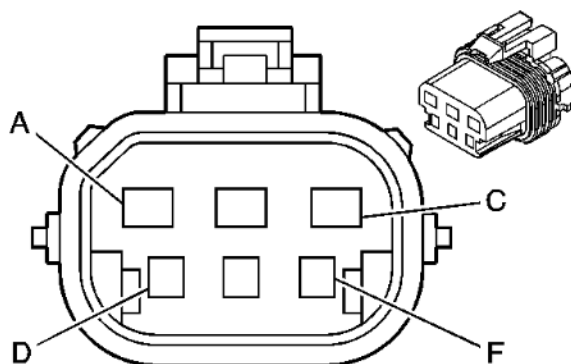
Pin	Wire Color	Circuit No.	Function
A	BLK/WHT	174	Low Washer Fluid Indicator Signal
B	BLK	150	Ground

Windshield Washer Fluid Pump Connector End View



Connector Part Information		• 12052641 • 2-Way F Metri-Pack 150 Series (BLK)	
Pin	Wire Color	Circuit No.	Function
A	RED	228	Windshield Washer Pump Control
B	BLK	150	Ground

Windshield Wiper Motor Module Connector End View



Connector Part Information		• 12186347 • 6-Way F Metri-Pack 150 (BLK)	

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

Pin	Wire Color	Circuit No.	Function
A	BLK	1050	Ground
B	YEL	143	Accessory Voltage
C	DK BLU	477	Windshield Wiper Switch High Signal
D	PNK	94	Windshield Wiper Switch Signal
E	ORN	2268	Windshield Washer Relay Control
F	GRY	478	Windshield Wiper Switch Supply Voltage

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC STARTING POINT - WIPER/WASHER SYSTEMS

Begin the system diagnosis by reviewing the system Description and Operation. Reviewing the Description and Operation information will help you determine the correct symptom diagnostic procedure when a malfunction exists. Reviewing the Description and Operation information will also help you determine if the condition described by the customer is normal operation. Refer to **Symptoms - Wiper/Washer Systems** in order to identify the correct procedure for diagnosing the system and where the procedure is located.

SYMPTOMS - WIPER/WASHER SYSTEMS

IMPORTANT: Refer to the system description and operation from the following list in order to familiarize yourself with the system functions.

- **Wiper/Washer System Description and Operation**
- **Rear Wiper/Washer System Description and Operation**

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the Windshield Wiper/Washer System. Refer to **Checking Aftermarket Accessories** in Wiring Systems.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.
- Inspect the washer fluid reservoir for the proper fluid level.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems.

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- **Low Washer Fluid Indicator Malfunction**

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

- Washers Always On
- Washers Inoperative
- Wipers Always On
- Wipers Inoperative - All Modes
- Wipers Inoperative - One or More Modes
- Washer Inoperative - Rear
- Wiper Always On - Rear
- Wiper Inoperative - Rear

LOW WASHER FLUID INDICATOR MALFUNCTION

Low Washer Fluid Indicator Malfunction

Step	Action	Yes	No
Schematic Reference: <u>Wiper/Washer System Schematics</u> Connector End View Reference: <u>Wiper/Washer System Connector End Views</u> DEFINITION: The low washer fluid indicator always indicates low washer fluid or does not turn on with low washer fluid.			
1	Did you review the Wiper/Washer System Description and Operation and perform the necessary inspections?	Go to Step 2	Go to <u>Symptoms - Wiper/Washer Systems</u>
2	Verify the fault is present. Does the system operate normally?	Go to <u>Testing for Intermittent Conditions and Poor Connections</u> in Wiring Systems	Go to Step 3
3	1. Turn the ignition OFF. 2. Disconnect the washer fluid level switch connector. 3. Turn the ignition ON, with the engine OFF. 4. Wait for about 15 seconds. Does the low washer fluid indicator illuminate?	Go to Step 6	Go to Step 4
4	1. Turn the ignition OFF. 2. Connect a fused jumper wire from the low washer fluid indicator signal circuit terminal in the washer fluid level switch connector to a good ground. 3. Turn the ignition ON, with the engine OFF.		

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

	4. Wait for about 15 seconds. Does the low washer fluid indicator illuminate?	Go to Step 5	Go to Step 7
5	1. Turn the ignition OFF. 2. Connect a fused jumper wire across the washer fluid level switch harness connector terminals. 3. Turn the ignition ON, with the engine OFF. 4. Wait for about 15 seconds. Does the low washer fluid indicator illuminate?	Go to Step 9	Go to Step 8
6	Test the low washer fluid indicator signal circuit for a short to ground. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 13	Go to Step 11
7	Test the low washer fluid indicator signal circuit for an open or high resistance. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 13	Go to Step 11
8	Repair the washer fluid level switch ground circuit for an open or high resistance. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you complete the replacement?	Go to Step 13	-
9	Inspect for poor connections at the washer fluid level switch. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 13	Go to Step 10
10	Replace the washer fluid level switch. Refer to <u>Washer Pump/Reservoir Replacement</u>. Did you complete the replacement?	Go to Step 13	-
11	Inspect for poor connections at the instrument panel cluster. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 13	Go to Step 12
	Replace the instrument panel cluster. Refer		

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

12	to <u>Instrument Panel Cluster (IPC) Replacement</u> in Instrument Panel, Gages, and Console. Did you complete the replacement?	Go to Step 13	-
13	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

WASHERS ALWAYS ON

Washers Always On

Step	Action	Yes	No
Schematic Reference: <u>Wiper/Washer System Schematics</u> Connector End View Reference: <u>Wiper/Washer System Connector End Views</u> DEFINITION: The windshield washer pump is always on.			
1	Did you review the Wiper/Washer System Description and Operation and perform the necessary inspections?	Go to Step 2	Go to <u>Symptoms - Wiper/Washer Systems</u>
2	1. Turn the windshield wiper/washer switch to the OFF position. 2. Turn the ignition ON, with the engine OFF. Is the windshield washer pump always ON?	Go to Step 3	Go to <u>Testing for Intermittent Conditions and Poor Connections</u> in Wiring Systems
3	Are the windshield wipers always ON, also?	Go to Step 4	Go to Step 6
4	1. Turn the ignition OFF. 2. Disconnect the windshield wiper motor module connector. 3. Turn the ignition ON, with the engine OFF. 4. Connect a test lamp from the windshield wiper switch signal circuit terminal to ground. Does the test lamp illuminate?	Go to Step 5	Go to Step 12
5	Test the windshield wiper switch signal circuit for a short to voltage. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 16	Go to Step 10
6	1. Turn the ignition OFF. 2. Disconnect the windshield washer relay. 3. Turn the ignition ON, with the engine OFF.		

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

	Is the windshield washer pump ON?	Go to Step 8	Go to Step 7
7	Connect a test lamp from battery positive voltage to the windshield washer relay control circuit terminal in the underhood fuse block. Does the test lamp illuminate?	Go to Step 9	Go to Step 14
8	Repair the windshield washer pump control circuit for a short to voltage. Refer to <u>Wiring Repairs</u> in Wiring Systems. Is the repair complete?	Go to Step 16	-
9	Test the windshield washer relay control circuit for a short to ground. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 16	Go to Step 12
10	Inspect for poor connections at the windshield wiper/washer switch. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 16	Go to Step 11
11	Replace the windshield wiper/washer switch. Refer to <u>Multifunction, Turn Signal Switch Replacement</u> in Steering Wheel and Column. Did you complete the replacement?	Go to Step 16	-
12	Inspect for poor connections at the windshield wiper motor module. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 16	Go to Step 13
13	Replace the windshield wiper motor module. Refer to <u>Wiper Motor Replacement</u> . Did you complete the replacement?	Go to Step 16	-
14	Inspect for poor connections at the windshield washer relay. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 16	Go to Step 15
15	Replace the windshield washer relay. Did you complete the replacement?	Go to Step 16	-
16	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

WASHERS INOPERATIVE

Washers Inoperative

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

Step	Action	Values	Yes	No
Schematic Reference: <u>Wiper/Washer System Schematics</u> Connector End View Reference: <u>Wiper/Washer System Connector End Views</u> DEFINITION: The windshield washer pump is inoperative.				
1	Did you review the Wiper/Washer System Description and Operation and perform the necessary inspections?	-	Go to Step 2	Go to <u>Symptoms - Wiper/Washer Systems</u>
2	1. Turn the ignition ON, with the engine OFF. 2. Press the windshield washer switch. Do the windshield washers operate normally?	-	Go to <u>Testing for Intermittent Conditions and Poor Connections</u> in Wiring Systems	Go to Step 3
3	Do the windshield washer wipers operate when the windshield washer switch is pressed?	-	Go to Step 6	Go to Step 4
4	1. Turn the ignition OFF. 2. Disconnect the windshield wiper motor connector. 3. Turn the ignition ON, with the engine OFF. 4. Test the resistance from the windshield wiper switch supply voltage circuit terminal to the windshield wiper switch signal circuit terminal in the windshield wiper motor harness connector. 5. Press the windshield washer switch. Is the resistance near the specified value?	0.5 ohms	Go to Step 15	Go to Step 5
5	Test the following circuits for open or high resistance. • Windshield wiper switch supply voltage circuit • Windshield wiper switch signal circuit	-		

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

	Refer to Circuit Testing and to Wiring Repairs in Wiring Systems. Did you find and correct the condition?		Go to Step 20	Go to Step 13
6	1. Turn the ignition OFF. 2. Disconnect the windshield washer relay. 3. Turn the ignition ON, with the engine OFF. 4. Connect a test lamp test from each of the windshield washer relay battery positive voltage supply circuit terminals in the underhood fuse block to ground. Does the test lamp illuminate on both terminals?	-	Go to Step 7	Go to Step 9
7	1. Connect a test lamp from battery positive voltage to the windshield washer relay control circuit terminal in the underhood fuse block. 2. Press the windshield washer switch. Does the test lamp illuminate?	-	Go to Step 8	Go to Step 10
8	1. Turn the ignition OFF. 2. Connect the windshield washer relay. 3. Disconnect the windshield washer pump connector. 4. Turn the ignition ON, with the engine OFF. 5. Connect a test lamp across the windshield washer pump harness connector terminals. 6. Press the windshield washer switch. Does the test lamp illuminate?	-	Go to Step 18	Go to Step 11
	Replace the underhood fuse block. Refer to Underhood Electrical			

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

9	<u>Center or Junction Block Replacement</u> in Wiring Systems. Did you complete the replacement?	-	Go to Step 20	-
10	Test the windshield washer relay control circuit for an open or high resistance. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 20	Go to Step 15
11	Test the windshield washer pump control circuit for an open or high resistance. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 20	Go to Step 12
12	Test the windshield washer pump ground circuit for an open or high resistance. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 20	Go to Step 17
13	Inspect for poor connections at the windshield wiper/washer switch. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 20	Go to Step 14
14	Replace the windshield wiper/washer switch. Refer to <u>Multifunction, Turn Signal Switch Replacement</u> in Steering Wheel and Column. Did you complete the replacement?	-	Go to Step 20	-
15	Inspect for poor connections at the windshield wiper motor module. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 20	Go to Step 16
	Replace the windshield wiper motor			

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

16	module. Refer to <u>Wiper Motor Replacement</u> . Did you complete the replacement?	-	Go to Step 20	-
17	Replace the windshield washer relay. Did you complete the replacement?	-	Go to Step 20	-
18	Inspect for poor connections at the windshield washer pump. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 20	Go to Step 19
19	Replace the windshield washer pump. Refer to <u>Washer Pump Replacement</u> . Did you complete the replacement?	-	Go to Step 20	-
20	Operate the system in order to verify the repair. Did you correct the condition?	-	System OK	Go to Step 3

WIPERS ALWAYS ON

Wipers Always On

Step	Action	Yes	No
Schematic Reference: <u>Wiper/Washer System Schematics</u> Connector End View Reference: <u>Wiper/Washer System Connector End Views</u> <u>Lighting Systems Connector End Views</u> DEFINITION: Windshield wipers are always ON at low or high speed.			
1	Did you review the Wiper/Washer System Description and Operation and perform the necessary inspections?	Go to Step 2	Go to <u>Symptoms - Wiper/Washer Systems</u>
2	1. Turn the windshield wiper/washer switch OFF. 2. Turn the ignition ON, with the engine OFF. Are the windshield wipers always on?	Go to Step 3	Go to <u>Testing for Intermittent Conditions and Poor Connections</u> in Wiring Systems
3	1. Turn the ignition OFF. 2. Disconnect the turn signal multifunction switch connector C3. 3. Turn the ignition ON, with the engine OFF.		

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

	Are the windshield wipers always on?	Go to Step 4	Go to Step 7
4	Are the windshield wipers always ON at high speed?	Go to Step 5	Go to Step 6
5	Test the windshield wiper switch high signal circuit for a short to ground. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 9
6	Test the windshield wiper switch signal circuit for a short to voltage. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 9
7	Inspect for poor connections at the windshield wiper/washer switch. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 8
8	Replace the windshield wiper/washer switch. Refer to <u>Multifunction, Turn Signal Switch Replacement</u> in Steering Wheel and Column. Did you complete the replacement?	Go to Step 11	-
9	Inspect for poor connections at the windshield wiper motor module. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 10
10	Replace the windshield wiper motor module. Refer to <u>Wiper Motor Replacement</u> . Did you complete the replacement?	Go to Step 11	-
11	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

WIPERS INOPERATIVE - ALL MODES

Wipers Inoperative - All Modes

Step	Action	Yes	No
Schematic Reference: <u>Wiper/Washer System Schematics</u> Connector End View Reference: <u>Wiper/Washer System Connector End Views</u> DEFINITION: Wipers are inoperative in all modes.			
1	Did you perform the Wiper/Washer System Description and Operation and perform the necessary inspections?	Go to Step 2	Go to <u>Symptoms - Wiper/Washer Systems</u>

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

2	1. Turn the ignition ON, with the engine OFF. 2. Attempt to operate the windshield wipers in all modes. Does the system operate normally?	Go to Step 3	Go to <u>Testing for Intermittent Conditions and Poor Connections</u> in Wiring Systems
3	Do the windshield wipers operate in any mode?	Go to <u>Wipers Inoperative - One or More Modes</u>	Go to Step 4
4	1. Disconnect the multifunction turn signal harness connector C3. 2. Connect a fused jumper wire from the windshield wiper switch high signal circuit terminal in the multifunction turn signal harness connector to a good ground. 3. Turn the ignition ON. Do the windshield wipers operate at high speed?	Go to Step 9	Go to Step 5
5	1. Disconnect the windshield wiper motor module connector. 2. Connect a test lamp from the accessory voltage supply circuit terminal in the windshield wiper motor harness connector to a good ground. 3. Turn the ignition ON. Does the test lamp illuminate?	Go to Step 6	Go to Step 7
6	Connect a test lamp from battery positive voltage to the windshield wiper motor ground circuit terminal in the windshield wiper motor harness connector. Does the test lamp illuminate?	Go to Step 11	Go to Step 8
7	Repair the accessory voltage supply circuit to the windshield wiper motor for an open or short to ground. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Is the repair complete?	Go to Step 13	-
8	Repair the windshield wiper motor ground circuit for an open or high resistance. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Is the repair complete?	Go to Step 13	-

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

9	Inspect for poor connections at the windshield wiper/washer switch. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 13	Go to Step 10
10	Replace the windshield wiper/washer switch. Refer to <u>Multifunction, Turn Signal Switch Replacement</u> in Steering Wheel and Column. Did you complete the replacement?	Go to Step 13	-
11	Inspect for poor connections at the windshield wiper motor. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 13	Go to Step 12
12	Replace the windshield wiper motor. Refer to <u>Wiper Motor Replacement</u> . Did you complete the replacement?	Go to Step 13	-
13	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 4

WIPERS INOPERATIVE - ONE OR MORE MODES

Test Description

The numbers below refer to the step numbers on the diagnostic table.

5: This step tests for continuity through the 390 ohms resistor in the windshield wiper/washer switch.

6: This step tests for continuity through the delay resistors in the windshield wiper/washer switch. The measured resistance will change in sequence from low to high as the delay speed is increased.

Wipers Inoperative - One or More Modes

Step	Action	Values	Yes	No
Schematic Reference: <u>Wiper/Washer System Schematics</u> Connector End View Reference: <u>Wiper/Washer System Connector End Views</u> DEFINITION: Windshield wipers are inoperative in one or more modes.				
1	Did you perform the Wiper/Washer System Description and Operation and perform the necessary inspections?	-	Go to Step 2	Go to <u>Symptoms - Wiper/Washer Systems</u>
	1. Turn the ignition ON, with the engine OFF. 2. Attempt to operate the		Go to Testing for	

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

2	windshield wipers in all modes. Does the system operate normally?	-	<u>Intermittent Conditions and Poor Connections</u> in Wiring Systems	Go to Step 3
3	Do the windshield wipers operate in the high speed mode?	-	Go to Step 5	Go to Step 4
4	1. Turn the ignition OFF. 2. Disconnect the multifunction turn signal harness connector C3. 3. Connect a fused jumper wire from the windshield wiper switch high signal circuit terminal in the body harness connector half to a good ground. 4. Turn the ignition ON, with the engine OFF. Do the windshield wipers operate at high speed?	-	Go to Step 8	Go to Step 7
5	1. Turn the ignition OFF. 2. Disconnect the windshield wiper motor module connector. 3. Test the resistance from the windshield wiper switch voltage supply circuit terminal to the windshield wiper switch signal circuit terminal in the windshield wiper motor harness connector. 4. Operate the windshield wiper/washer switch in the following positions: • MIST • LO Is the resistance near the specified value in all of the listed switch positions?	390 ohms	Go to Step 6	Go to Step 9
	1. Test the resistance from the windshield wiper switch			

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

6	voltage supply circuit terminal to the windshield wiper switch signal circuit terminal in the windshield wiper motor harness connector. 2. Operate the windshield wiper/washer switch in all of the delay positions. Does the resistance remain within the specified values from low to high as the delay speed is increased?	1000 ohms- 10K ohms	Go to Step 13	Go to Step 11
7	Test the windshield wiper switch high signal circuit for an open or high resistance. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 15	Go to Step 13
8	Repair the wiper switch ground circuit for an open or high resistance. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Is the repair complete?	-	Go to Step 15	-
9	Test the windshield wiper switch voltage supply circuit for an open or short to ground. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 15	Go to Step 10
10	Test the windshield wiper switch signal circuit for an open or short to ground. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 15	Go to Step 11
11	Inspect for poor connections at the windshield wiper/washer switch. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 15	Go to Step 12

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

12	Replace the windshield wiper/washer switch. Refer to <u>Multifunction, Turn Signal Switch Replacement</u> in Steering Wheel and Column. Did you complete the replacement?	-	Go to Step 15	-
13	Inspect for poor connections at the windshield wiper motor module. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 15	Go to Step 14
14	Replace the windshield wiper motor module. Refer to <u>Wiper Motor Replacement</u> . Did you complete the replacement?	-	Go to Step 15	-
15	Operate the system in order to verify the repair. Did you correct the condition?	-	System OK	Go to Step 3

WASHER INOPERATIVE - REAR

Washer Inoperative - Rear

Step	Action	Yes	No
Schematic Reference: <u>Wiper/Washer System Schematics</u> Connector End View Reference: <u>Wiper/Washer System Connector End Views</u> DEFINITION: The rear washers are inoperative. The rear wipers operate normally.			
1	Did you review the Rear Wiper/Washer System Description and Operation and perform the necessary inspections?	Go to Step 2	Go to <u>Symptoms - Wiper/Washer Systems</u>
2	1. Turn the ignition ON. 2. Press the rear washer switch. Does the rear washer operate normally?	Go to <u>Testing for Intermittent Conditions and Poor Connections</u> in Wiring Systems	Go to Step 3
3	Press the rear washer switch. Does the rear wiper motor operate when the washer switch is pressed?	Go to Step 4	Go to Step 8
4	1. Disconnect the rear washer pump connector. 2. Connect a test lamp from the rear washer pump supply circuit terminal in the washer pump harness connector to a good ground.		

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

	3. Turn the ignition ON. 4. Press the rear washer switch. Does the test lamp illuminate when the rear washer switch is pressed?	Go to Step 5	Go to Step 6
5	1. Connect a test lamp from the rear washer pump supply circuit terminal to the ground circuit terminal in the washer pump harness connector. 2. Press the rear washer switch. Does the test lamp illuminate when the rear washer switch is pressed?	Go to Step 10	Go to Step 7
6	Test the rear washer pump supply circuit for an open or high resistance. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 12	Go to Step 8
7	Repair the rear washer pump ground circuit for an open or high resistance. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Is the repair complete?	Go to Step 12	-
8	Inspect for poor connections at the rear wiper/washer switch. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 12	Go to Step 9
9	Replace the rear wiper/washer switch. Refer to <u>Wiper/Washer Switch Replacement - Rear</u> . Is the repair complete?	Go to Step 12	-
10	Inspect for poor connections at the rear washer pump. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 12	Go to Step 11
11	Replace the rear washer pump. Refer to <u>Washer Pump Replacement</u> . Is the repair complete?	Go to Step 12	-
12	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 1

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

WIPER ALWAYS ON - REAR

Wiper Always On - Rear

Step	Action	Yes	No
Schematic Reference: <u>Wiper/Washer System Schematics</u> Connector End View Reference: <u>Wiper/Washer System Connector End Views</u> DEFINITION: Rear wiper is always ON.			
1	Did you review the Rear Wiper/Washer System Description and Operation and perform the necessary inspections?	Go to Step 2	Go to Symptoms - Wiper/Washer Systems
2	1. Turn the ignition ON. 2. Turn the rear wiper/washer switch to the OFF position. Is the rear wiper always on?	Go to Step 3	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems
3	1. Turn the ignition OFF. 2. Disconnect the rear wiper/washer switch. 3. Turn the ignition ON. Is the rear wiper always on?	Go to Step 4	Go to Step 6
4	1. Turn the ignition OFF. 2. Disconnect the window wiper module-rear. 3. Turn the ignition ON. Test the rear wiper switch signal circuit for a short to voltage. Refer to Circuit Testing and to Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 5
5	Test the rear window washer switch signal circuit for a short to voltage. Refer to Circuit Testing and to Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 9
6	Test the rear window washer pump supply voltage circuit for a short to voltage. Refer to Circuit Testing and to Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 7
7	Inspect for poor connections at the rear wiper/washer switch. Refer to Testing for Intermittent Conditions and Poor Connections and to Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 8
8	Replace the rear wiper/washer switch. Refer to Wiper/Washer Switch Replacement - Rear .		

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

	Is the repair complete?	Go to Step 11	-
9	Inspect for poor connections at the window wiper module-rear. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 10
10	Replace the window wiper module-rear. Refer to <u>Wiper Motor Replacement - Rear</u> . Is the repair complete?	Go to Step 11	-
11	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

WIPER INOPERATIVE - REAR

Wiper Inoperative - Rear

Step	Action	Yes	No
Schematic Reference: <u>Wiper/Washer System Schematics</u> Connector End View Reference: <u>Wiper/Washer System Connector End Views</u> DEFINITION: The rear wiper motor is inoperative in one or more modes, the rear washer pump may or may not operate.			
1	Did you review the Rear Wiper/Washer System Description and Operation and perform the necessary inspections?	Go to Step 2	Go to <u>Symptoms - Wiper/Washer Systems</u>
2	1. Turn the ignition ON. 2. Operate the rear wiper/washer system in all the switch positions, including the washer position. Does the rear wiper/washer system operate normally?	Go to <u>Testing for Intermittent Conditions and Poor Connections</u> in Wiring Systems	Go to Step 3
3	Did the rear wipers operate in any of the rear wiper/washer switch position?	Go to Step 12	Go to Step 4
4	Does the rear washer pump operate when the rear washer switch is pressed?	Go to Step 5	Go to Step 10
5	1. Install a scan tool. 2. Turn the ignition ON, with the engine OFF. 3. Observe the Cargo Door Ajar Switch parameter in body control module (BCM) inputs display screen, with the liftgate closed and opened. Did the parameter displayed Open and the Closed accordingly?	Go to Step 6	Go to <u>Courtesy Lamps Always On</u> in Lighting Systems
	1. Disconnect the window wiper module-rear connector. 2. Connect a test lamp from the battery voltage		

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

6	circuit terminal in the wiper motor harness connector to a good ground. Does the test lamp illuminate?	Go to Step 7	Go to Step 9
7	Connect a test lamp from the battery voltage circuit terminal to the ground circuit terminal in the wiper motor harness connector. Does the test lamp illuminate?	Go to Step 20	Go to Step 8
8	Repair the rear wiper motor ground circuit for an open or high resistance. Refer to Circuit Testing and to Wiring Repairs in Wiring Systems. Is the repair complete?	Go to Step 22	-
9	Repair the battery voltage supply circuit for an open or short to ground. Refer to Circuit Testing and to Wiring Repairs in Wiring Systems. Is the repair complete?	Go to Step 22	-
10	1. Turn the ignition OFF. 2. Disconnect the rear wiper/washer switch. 3. Connect a test lamp from the accessory voltage circuit terminal in the rear wiper/washer switch harness connector to a good ground. 4. Turn the ignition ON, with the engine OFF. Does the test lamp illuminate?	Go to Step 18	Go to Step 11
11	Repair the accessory voltage circuit for an open or short to ground. Refer to Circuit Testing and to Wiring Repairs in Wiring Systems. Is the repair complete?	Go to Step 22	-
12	Does the rear wipers operate when the rear washer switch is pressed?	Go to Step 13	Go to Step 16
13	1. Turn the ignition OFF. 2. Disconnect the window wiper module-rear connector. 3. Connect a test lamp from the rear window wiper switch signal circuit terminal in the wiper motor harness connector to a good ground. 4. Turn the ignition ON, with the engine OFF. 5. Turn the rear wiper switch to the 1 and 2 positions. Does the test lamp illuminate for both rear wiper switch positions?	Go to Step 20	Go to Step 14
14	Did the test lamp illuminate in any of the rear wiper		

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

	switch position?	Go to Step 18	Go to Step 15
15	1. Turn the ignition OFF. 2. Disconnect the rear wiper/washer switch. 3. Test the rear window wiper switch signal circuit for an open or short to ground. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 22	Go to Step 18
16	1. Turn the ignition OFF. 2. Disconnect the window wiper module-rear connector. 3. Connect a test lamp from the rear window washer switch signal circuit terminal in the wiper motor harness connector to a good ground. 4. Turn the ignition ON, with the engine OFF. 5. Press the rear washer switch. Does the test lamp illuminate?	Go to Step 20	Go to Step 17
17	1. Turn the ignition OFF. 2. Disconnect the rear wiper/washer switch. 3. Test the rear window washer switch signal circuit for an open or short to ground. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 22	Go to Step 18
18	Inspect for poor connections at the rear wiper/washer switch. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 22	Go to Step 19
19	Replace the rear wiper/washer switch. Refer to <u>Wiper/Washer Switch Replacement - Rear</u>. Is the repair complete?	Go to Step 22	-
20	Inspect for poor connections at the rear wiper motor. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and to <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 22	Go to Step 21
21	Replace the rear wiper motor. Refer to <u>Wiper Motor Replacement - Rear</u>.		

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

	Is the repair complete?	Go to Step 22	-
22	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 1

WIPER ARM TIP PRESSURE CHECK

1. Run the wiper arms to the mid-wipe position.
2. Remove the wiper blades from the wiper arms. Refer to **Wiper Arm Blade Replacement**.
3. Attach a scale to the end of the wiper arm and measure the force required to lift the wiper arm perpendicular to the windshield to normal working height with the blade attached.
4. Replace the wiper arm if the measurement is not within the specification. Refer to **Wiper Arm Replacement**.

Tip Pressure:

- Driver Side - 8.1-9.5 Newtons (29- 34 Ounces)
- Passenger Side - 5.8-7.0 Newtons (21- 25 Ounces)

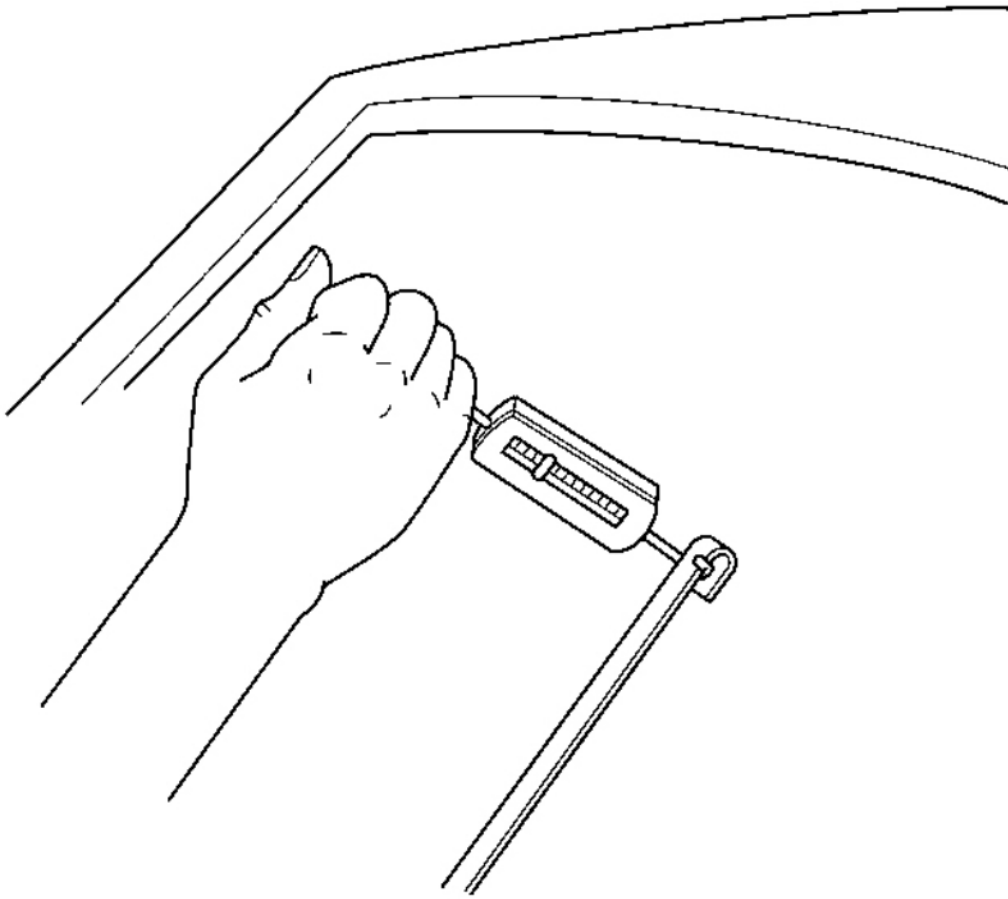


Fig. 6: Measuring Required Wiper Arm Force
Courtesy of GENERAL MOTORS CORP.

WIPER BLADE ELEMENT CHECK

1. Remove the wiper blades from the wiper arms. Refer to **Wiper Arm Blade Replacement**.
2. Look down the length of the blade element.
3. Replace the wiper blade element if the rubber element which contacts the glass is not on the centerline of the blade ± 15 degrees. Refer to **Wiper Blade Element Replacement**.
4. Install the wiper blades on the wiper arms. Refer to **Wiper Arm Blade Replacement**.

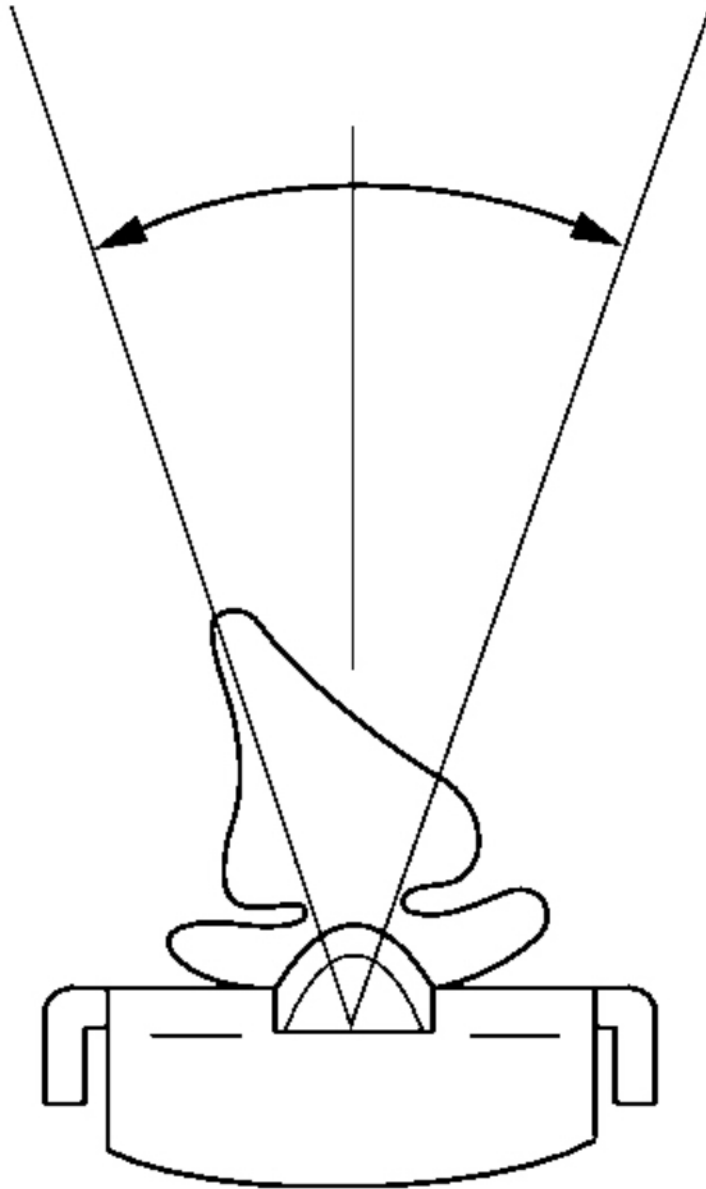


Fig. 7: Measuring Wiper Blade Element Centerline Contact
Courtesy of GENERAL MOTORS CORP.

REPAIR INSTRUCTIONS

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

WASHER SOLVENT CONTAINER LEVEL SENSOR REPLACEMENT

Removal Procedure

1. Remove the washer solvent container. Refer to **Washer Pump/Reservoir Replacement**.
2. Using a small flat-bladed tool, remove the washer solvent container level sensor (1) and seal (2) from the container.

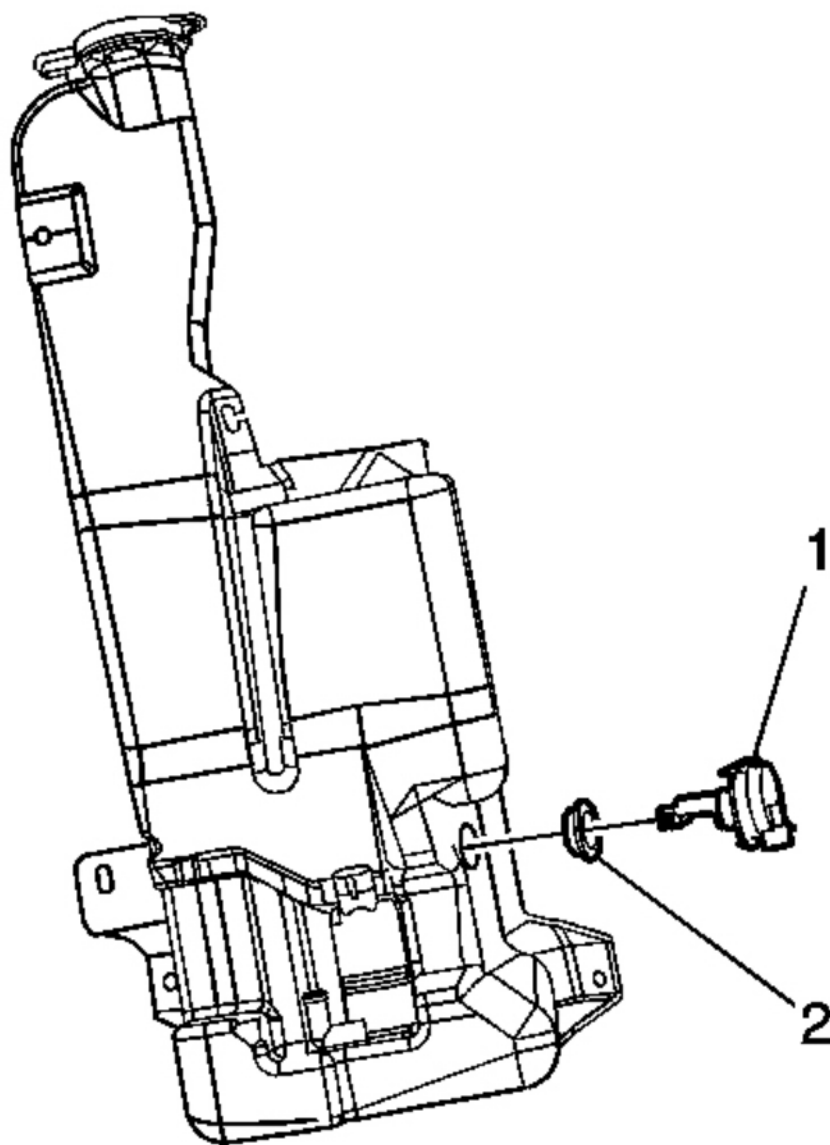


Fig. 8: View Of Washer Solvent Container Level Sensor & Seal
Courtesy of GENERAL MOTORS CORP.

Installation Procedure

1. Position the washer solvent container level sensor (1) and the seal (2) to the container by pressing in until fully seated.

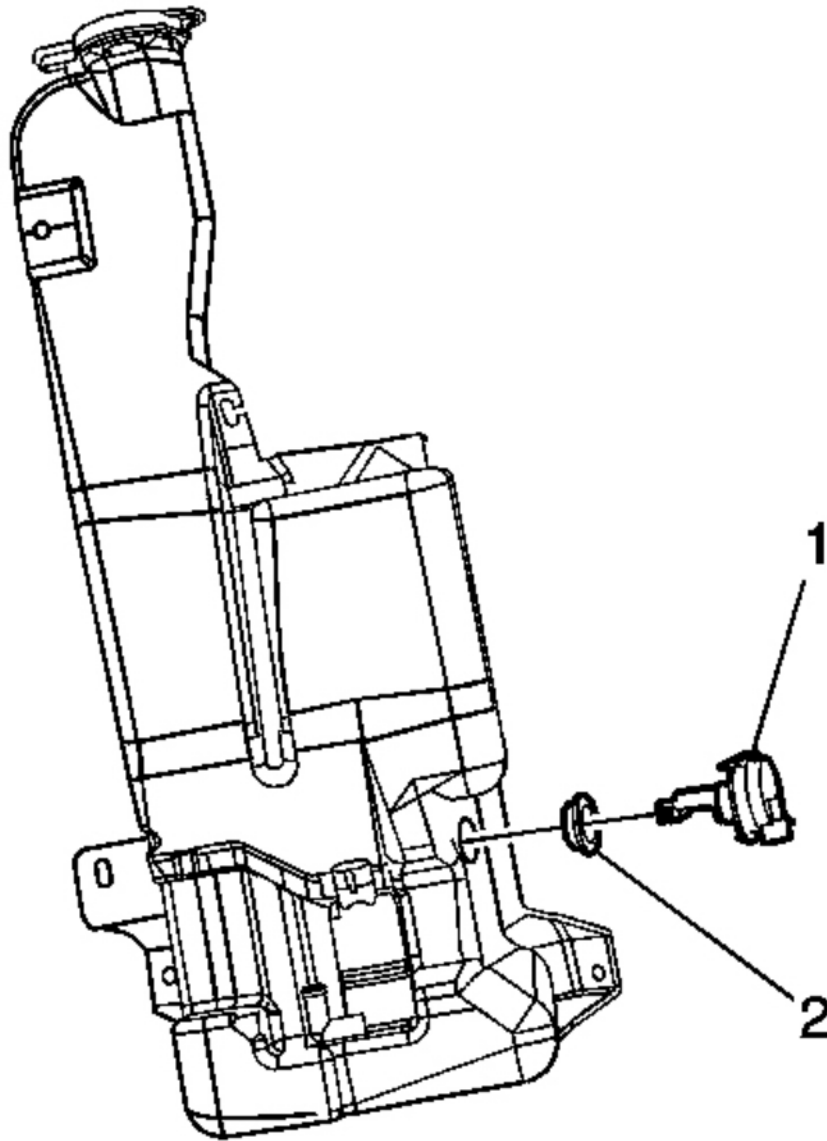


Fig. 9: View Of Washer Solvent Container Level Sensor & Seal
Courtesy of GENERAL MOTORS CORP.

2. Install the washer solvent container. Refer to Washer Pump/Reservoir Replacement.

WASHER PUMP/RESERVOIR REPLACEMENT

Removal Procedure

1. Remove the battery and battery tray from the vehicle. Refer to **Battery Tray Replacement** in Engine Electrical.
2. Remove the inner wheel housing from the vehicle. Refer to **Wheelhouse Panel Replacement** in Body Front End.
3. Disconnect the electrical connector from the washer pump.
4. Disconnect the electrical connector from the washer solvent level sensor.
5. Disconnect the washer hose from the washer pump.
6. Remove the upper bolt from the washer solvent container.

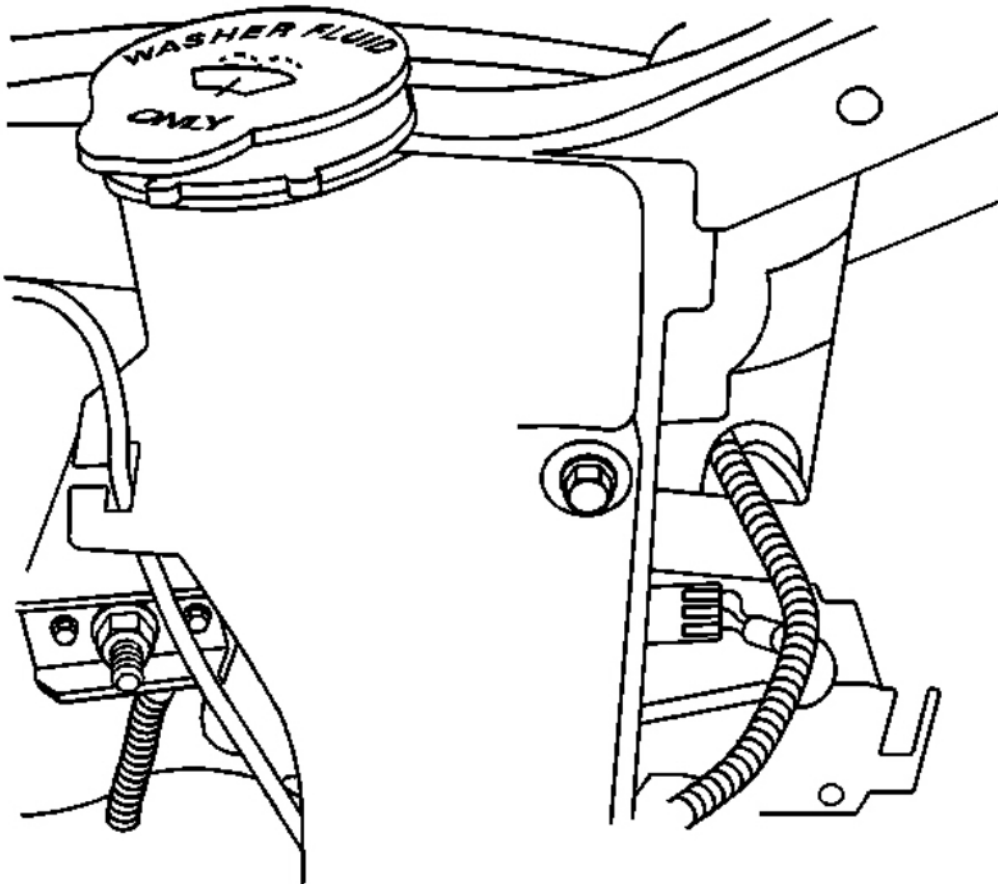


Fig. 10: View Of Washer Solvent Container Upper Bolt
Courtesy of GENERAL MOTORS CORP.

7. Remove the lower bolts from the washer solvent container.
8. Remove the washer solvent container from the vehicle.

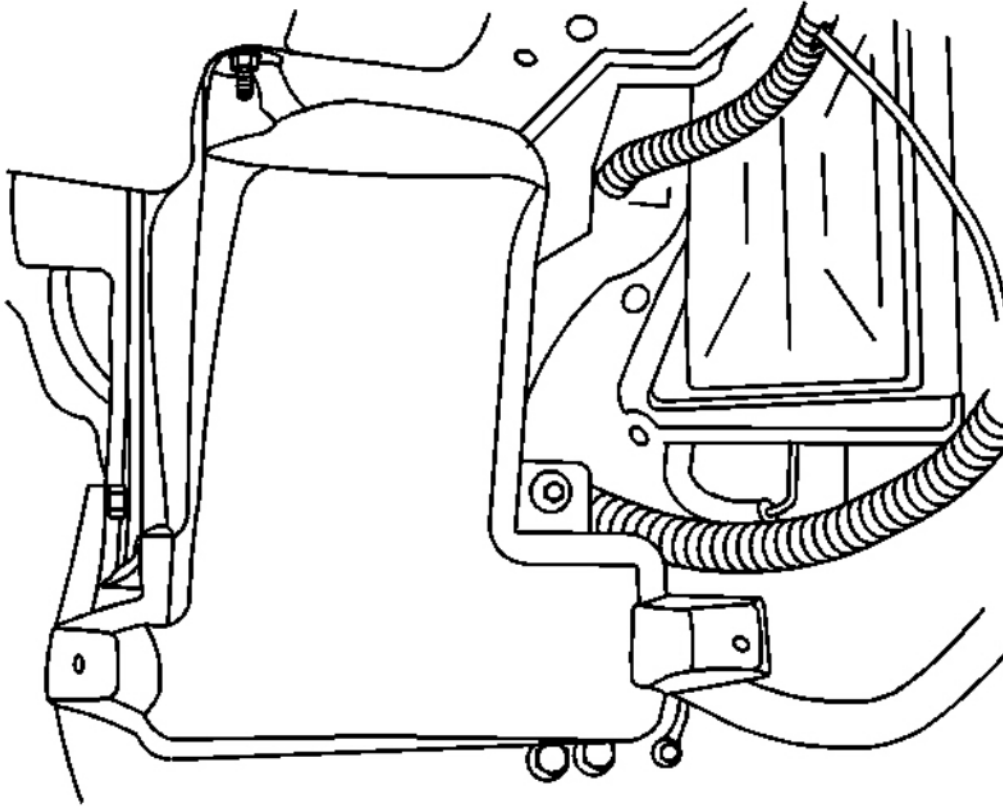


Fig. 11: View Of Washer Solvent Container & Lower Bolts
Courtesy of GENERAL MOTORS CORP.

Installation Procedure

1. Install the washer solvent container into the vehicle.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the lower bolts.

Tighten: Tighten the bolts to 9 N.m (80 lb in).

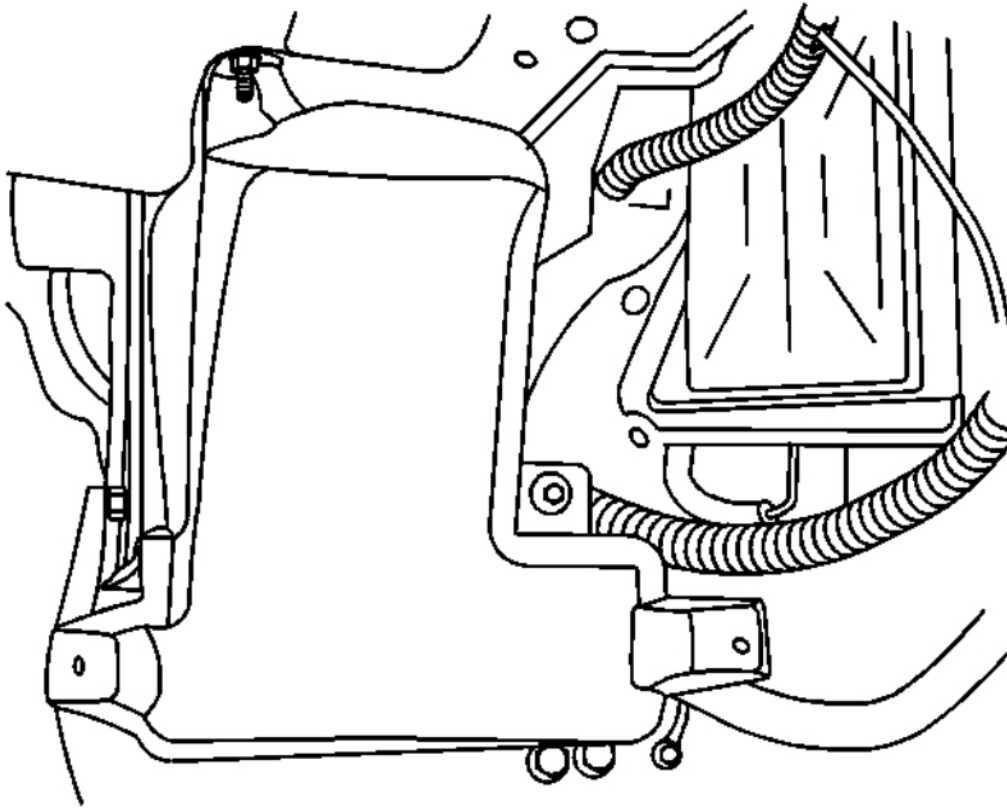


Fig. 12: View Of Washer Solvent Container & Lower Bolts
Courtesy of GENERAL MOTORS CORP.

3. Install the upper bolt.

Tighten: Tighten the bolt to 9 N.m (80 lb in).

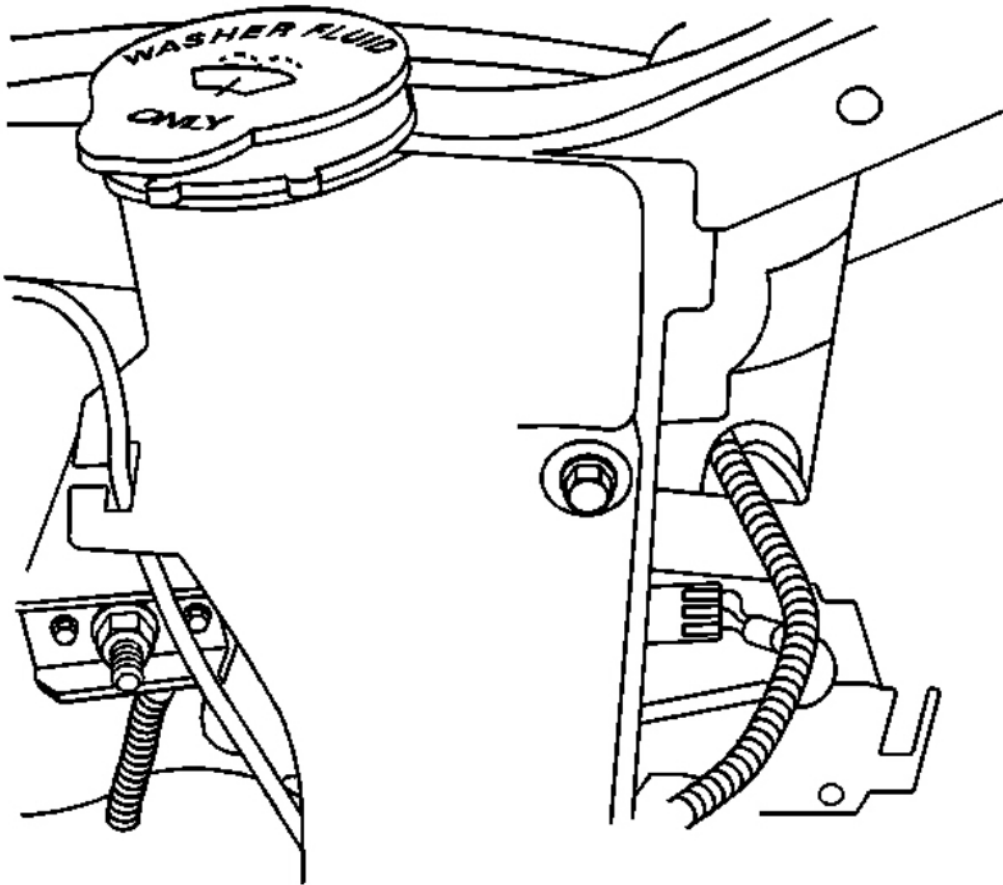


Fig. 13: View Of Washer Solvent Container Upper Bolt
Courtesy of GENERAL MOTORS CORP.

4. Connect the electrical connector to the washer pump.
5. Connect the electrical connector to the washer solvent level sensor.
6. Connect the washer hose to the washer pump.
7. Install the inner wheel housing. Refer to **Wheelhouse Panel Replacement** in Body Front End.
8. Install the battery and battery tray. Refer to **Battery Tray Replacement** in Engine Electrical.

WASHER PUMP REPLACEMENT

Removal Procedure

1. Remove the washer solvent container. Refer to **Washer Pump/Reservoir Replacement**.

2. Remove the washer pumps from the reservoir.

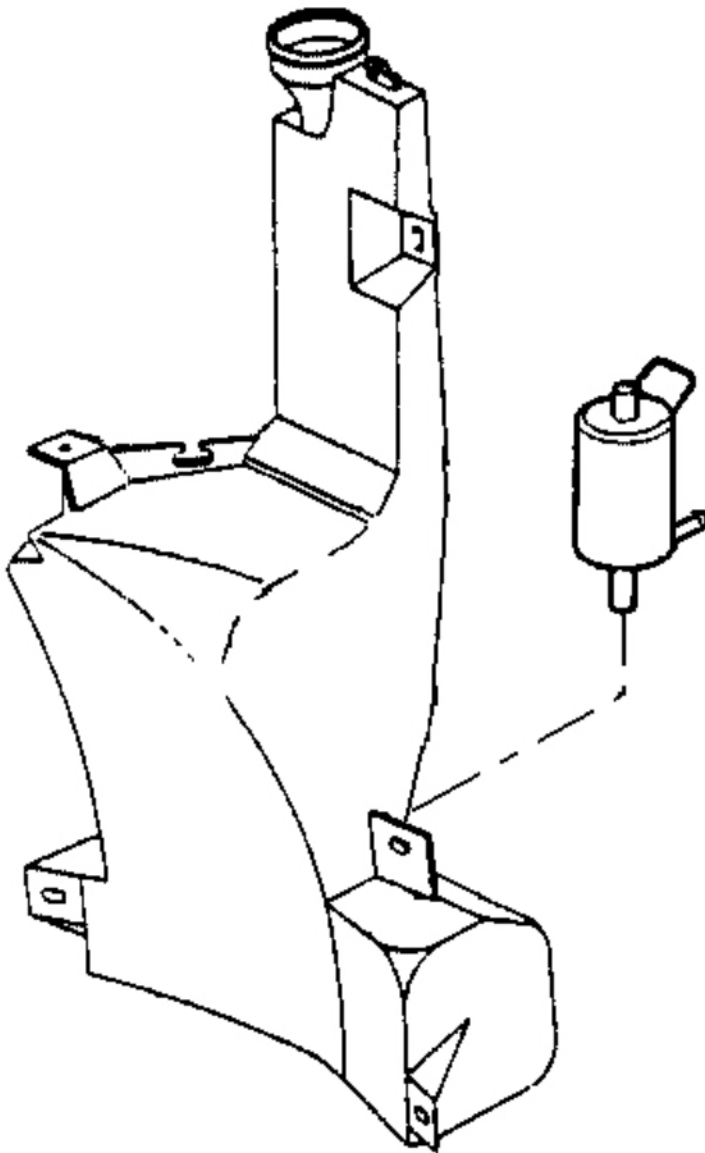


Fig. 14: View Of Washer Pump
Courtesy of GENERAL MOTORS CORP.

1. Install the washer pumps into the reservoir.

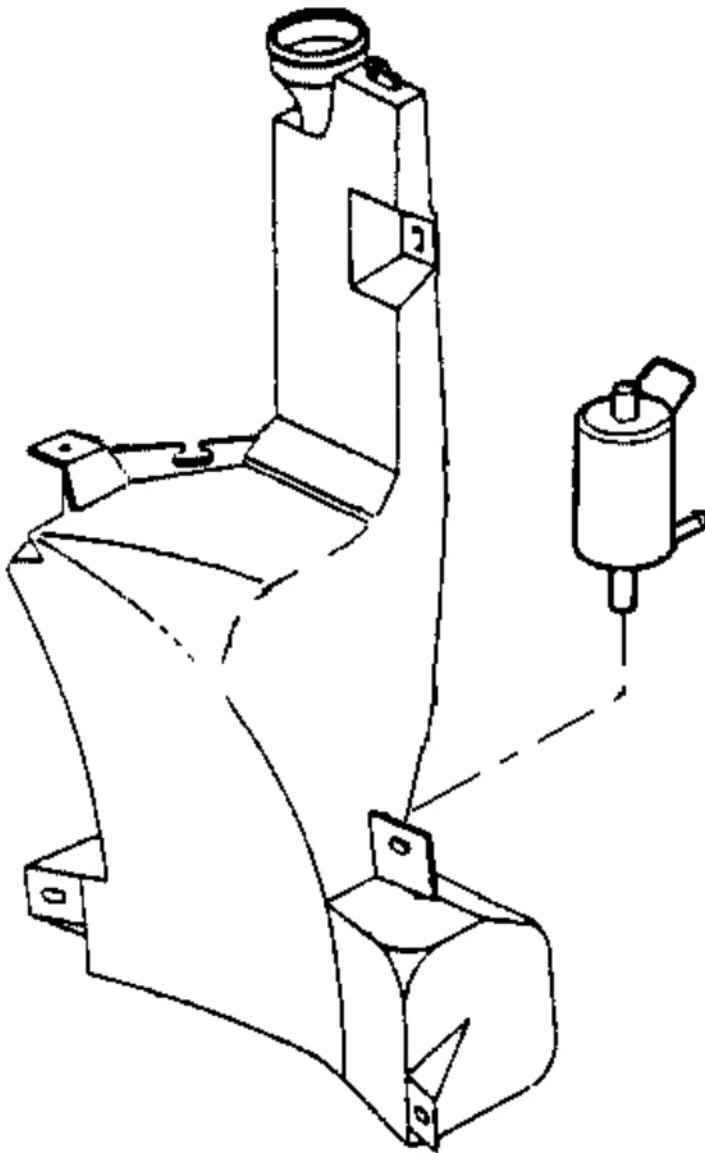


Fig. 15: View Of Washer Pump
Courtesy of GENERAL MOTORS CORP.

2. Install the washer solvent container. Refer to **Washer Pump/Reservoir Replacement**.

WIPER ARM REPLACEMENT

Removal Procedure

1. Mark the position of the wiper blade on the windshield with a suitable marker or a piece of masking tape.
2. Disconnect the washer hose.
3. Remove the cover from the nut on the wiper arm.
4. Remove the nut from the wiper arm.

IMPORTANT: Use a battery terminal puller to remove the wiper arm from the drive shaft.

5. Remove the wiper arm from the drive shaft.

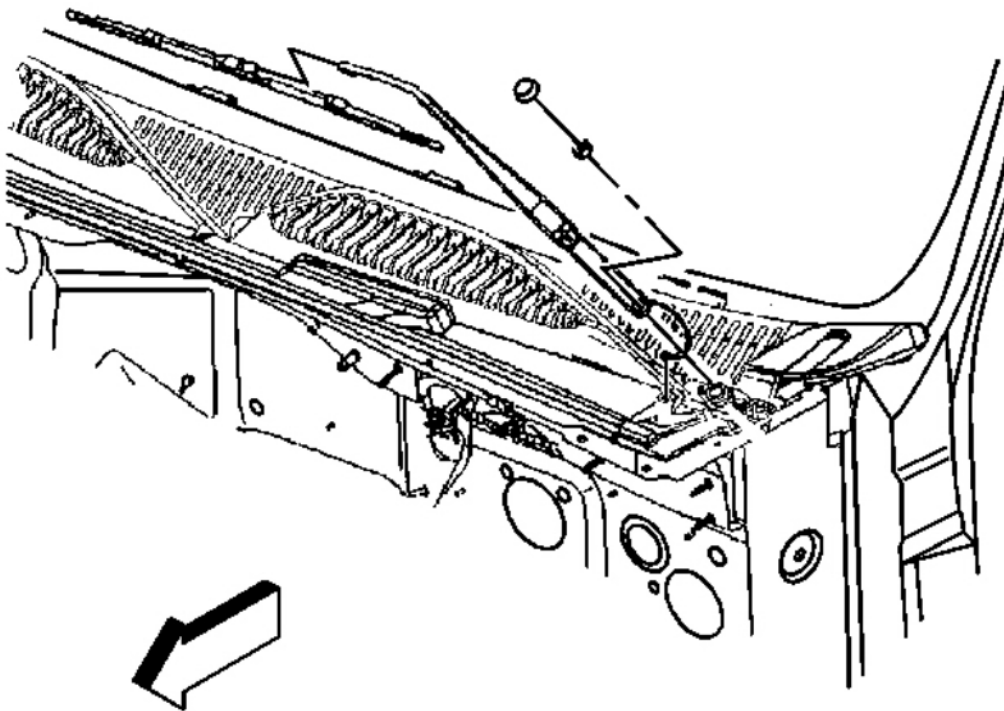


Fig. 16: View Of Wiper Arm & Nut
Courtesy of GENERAL MOTORS CORP.

6. Clean the knurls of the drive shaft with a wire brush.

Installation Procedure

1. Position the wiper arm so that the wiper blade aligns with the mark made on the windshield before removal.
2. Install the wiper arm onto the drive shaft.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install the nut on the drive shaft.

Tighten: Tighten the nut to 30 N.m (22 lb ft).

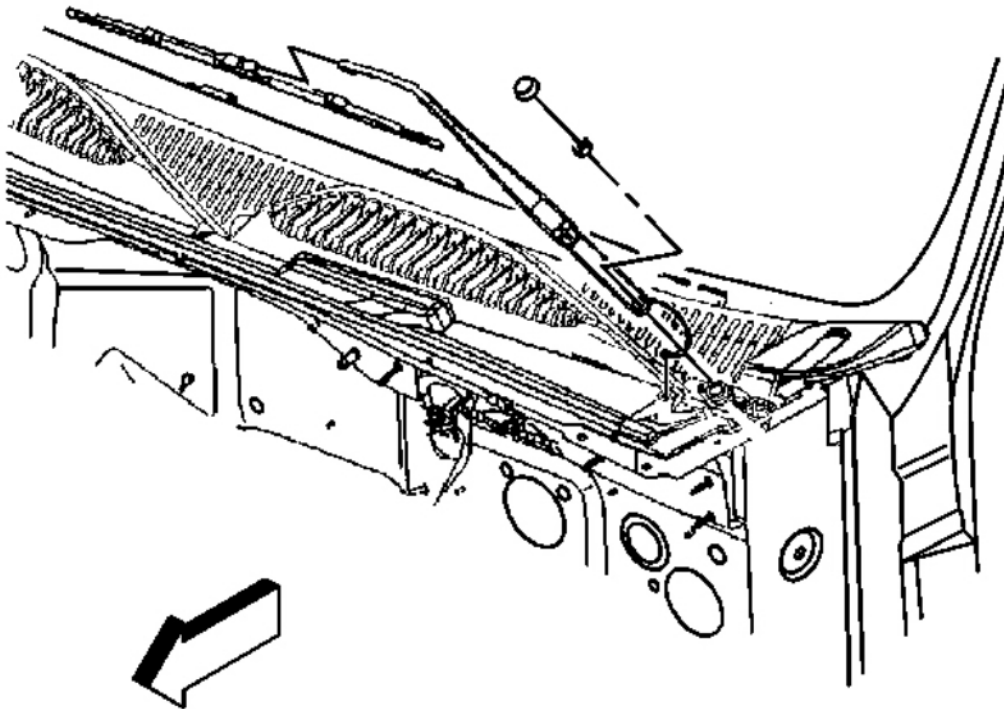


Fig. 17: View Of Wiper Arm & Nut
Courtesy of GENERAL MOTORS CORP.

4. Install the cover on the nut.
5. Connect the washer hose.
6. Clean the locating mark or masking tape from the windshield.
7. Operate the wipers and inspect for proper operation.

Removal Procedure

1. Turn the ignition switch to the ACCY position.
2. Set the wiper switch to the PULSE position.
3. Turn the ignition OFF when the wipers are in the innerwipe position and not moving.
4. Push in the button of the wiper blade clip and remove the wiper blade from the inside radius of the wiper arm.

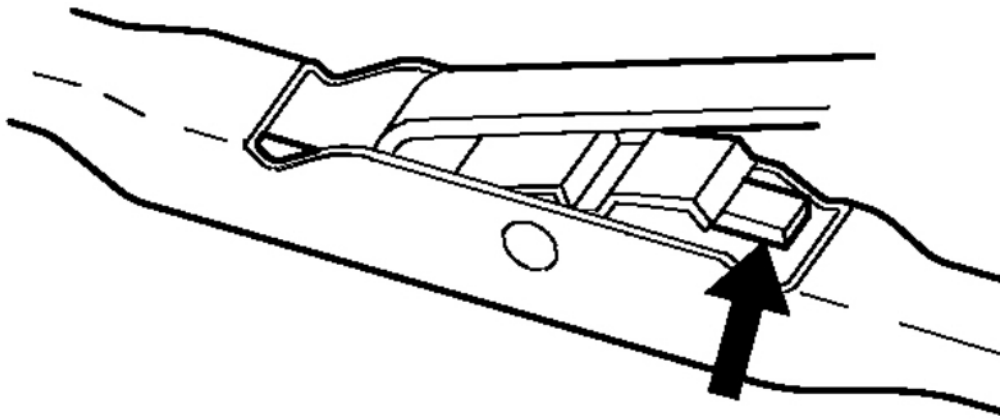


Fig. 18: Identifying Wiper Blade Release Clip
Courtesy of GENERAL MOTORS CORP.

5. Bring the wiper arm out through the opening in the wiper blade.

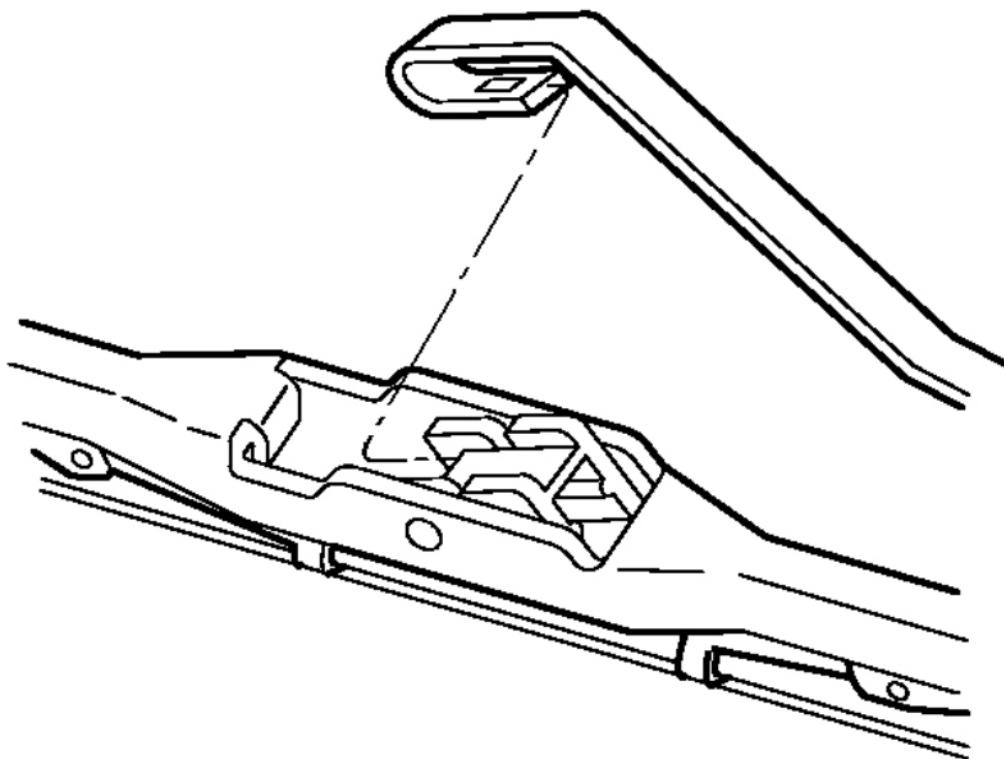


Fig. 19: Removing & Installing Wiper Blade At Wiper Arm Hook
Courtesy of GENERAL MOTORS CORP.

Installation Procedure

1. Insert the hook of the wiper arm through the opening in the wiper blade.

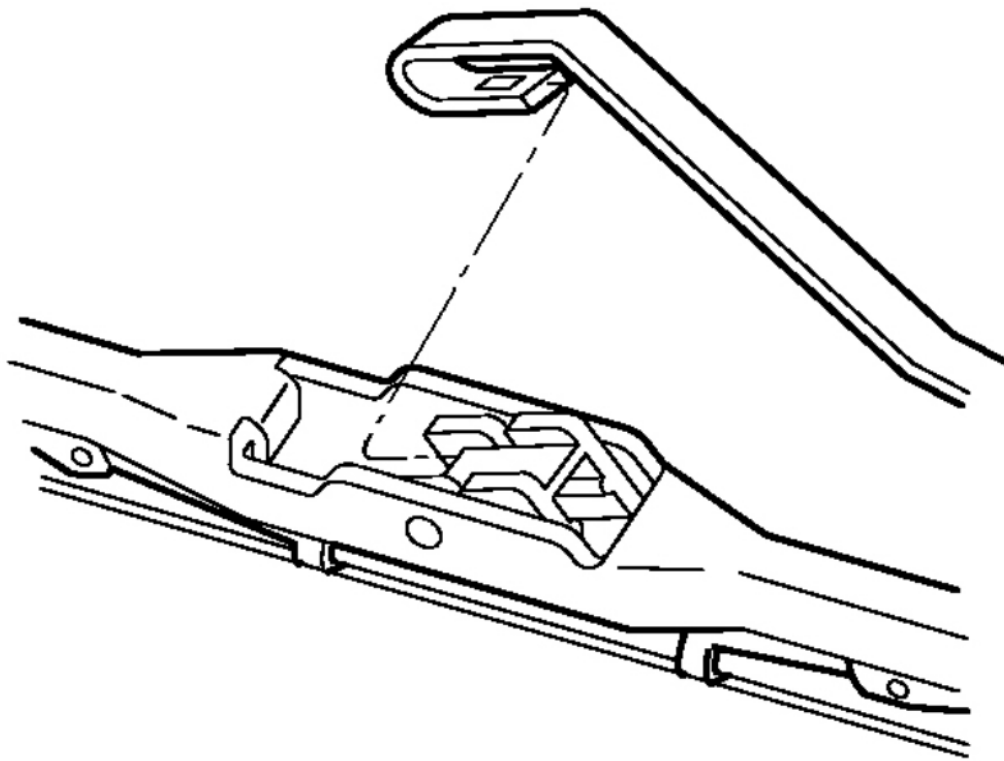


Fig. 20: Removing & Installing Wiper Blade At Wiper Arm Hook
Courtesy of GENERAL MOTORS CORP.

2. Position the wiper blade pivot in the inside radius of the wiper arm hook.
3. Pull the wiper blade pivot into the wiper arm hook until the pivot locks into the hook.

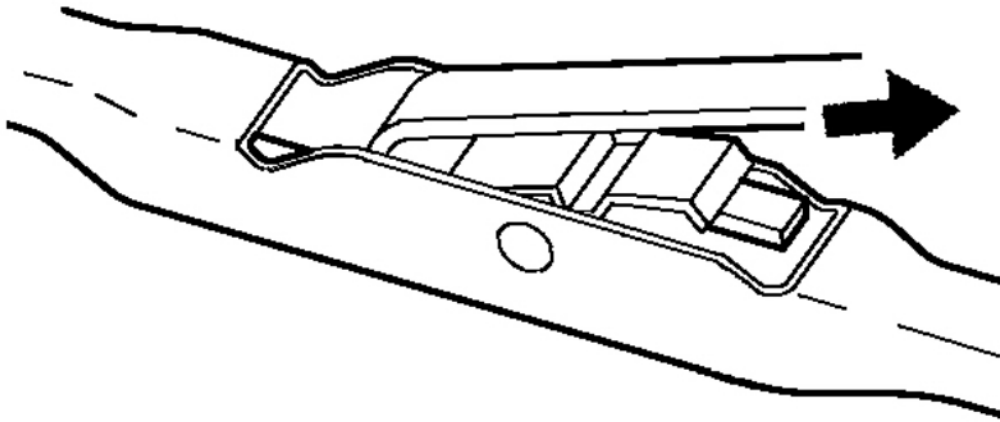


Fig. 21: View Of Wiper Blade Clip
Courtesy of GENERAL MOTORS CORP.

4. Operate the wipers and inspect for proper operation.

WIPER BLADE ELEMENT REPLACEMENT

Removal Procedure

IMPORTANT: Replace the wiper blade element if it is removed from the wiper blade.

1. Remove the wiper blade from the wiper arm. Refer to Wiper Arm Blade Replacement.
2. Remove the bottom claws (2) of the wiper blade (1) from the notches in the wiper blade element (3).
3. Pull the wiper blade element (3) out through the wiper blade claws (2).

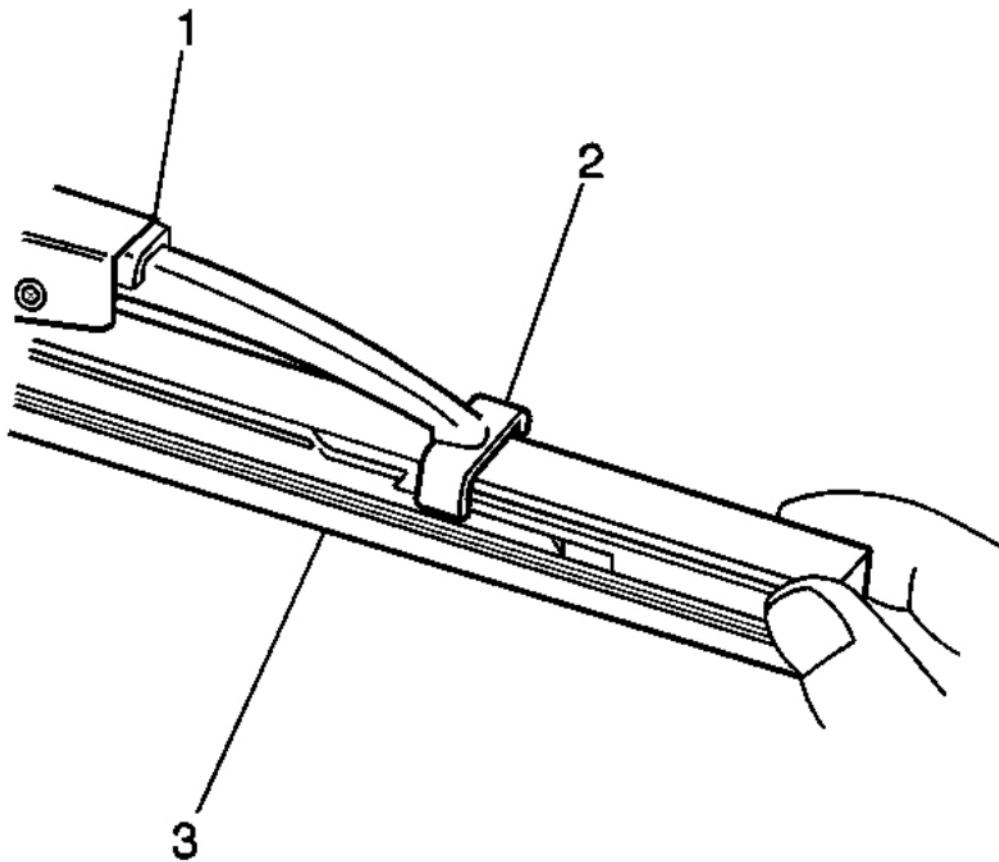


Fig. 22: Identifying Wiper Blade & Components
Courtesy of GENERAL MOTORS CORP.

Installation Procedure

IMPORTANT: Keep the wiper blade claws in the rubber claw channel of the wiper blade element. Do not allow the claws of the wiper blade to contact the metal spline of the wiper blade element.

1. Insert the open end of the wiper blade element (3) into the bottom claws of the wiper blade (2).
2. Guide the wiper blade element (3) through the wiper blade (1) claw sets.
3. Engage the bottom claw (2) of the wiper blade (1) into the notches in wiper blade element (3).

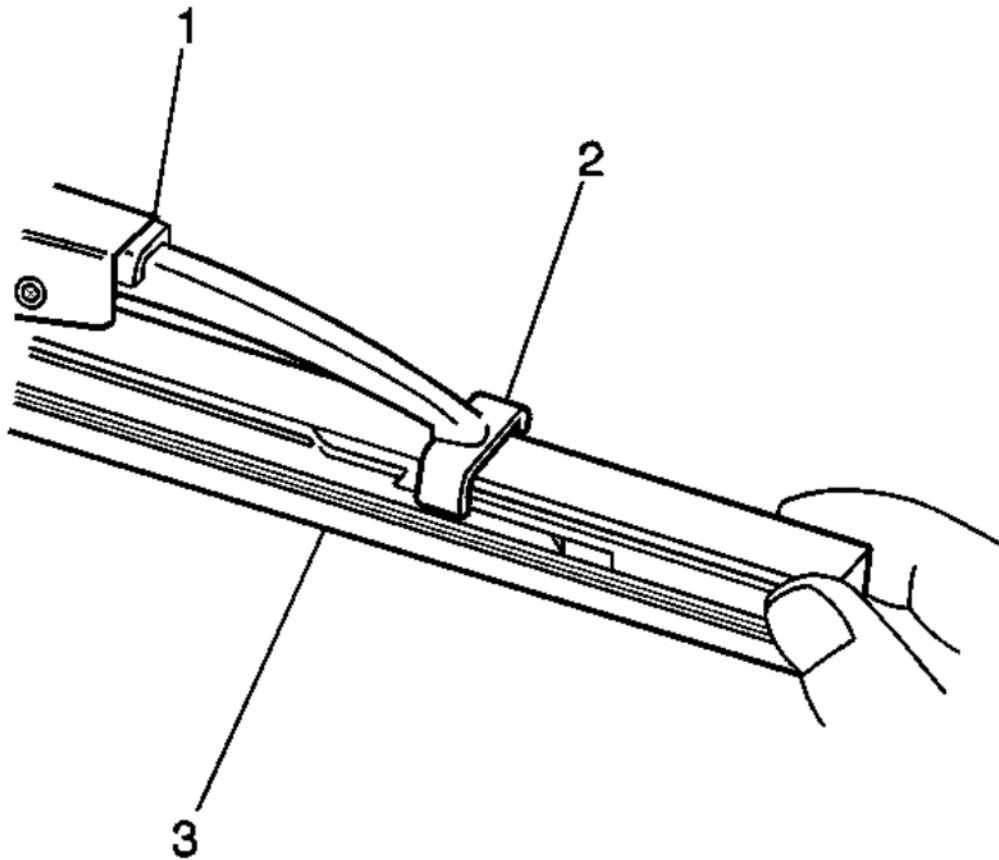


Fig. 23: Identifying Wiper Blade & Components
Courtesy of GENERAL MOTORS CORP.

4. Install the wiper blade onto the wiper arm. Refer to **Wiper Arm Blade Replacement**.

WIPER MOTOR COVER REPLACEMENT

Removal Procedure

1. Turn the ignition key to the OFF position.
2. Open the hood.
3. Remove the radio antenna. Refer to **Fixed Antenna Replacement** in Entertainment.
4. Remove the wiper arms. Refer to **Wiper Arm Replacement**.
5. Remove the air inlet panel. Refer to **Air Inlet Grille Panel Replacement** in Body Front End.
6. Remove the connector position assurance (CPA) connector (1).

7. Disconnect the electrical connector (2) from the wiper motor cover (4).
8. Remove the 4 screws (3) that secure the cover to the motor.
9. Remove the cover (4) from the vehicle.

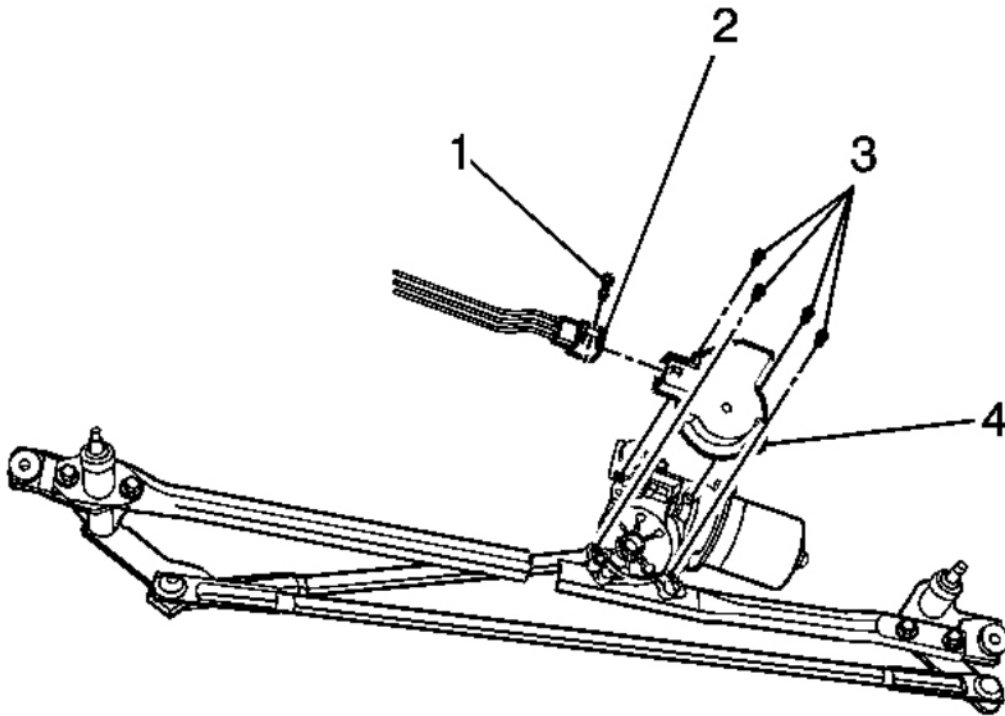


Fig. 24: View Of Wiper Motor Cover, Connectors & Screws
Courtesy of GENERAL MOTORS CORP.

Installation Procedure

1. Position the cover (4) to the wiper motor.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the 4 screws (3) to the cover.

Tighten: Tighten the 4 screws equally to 2.6 N.m (23 lb in).

3. Connect the electrical connector (2) and install the CPA.

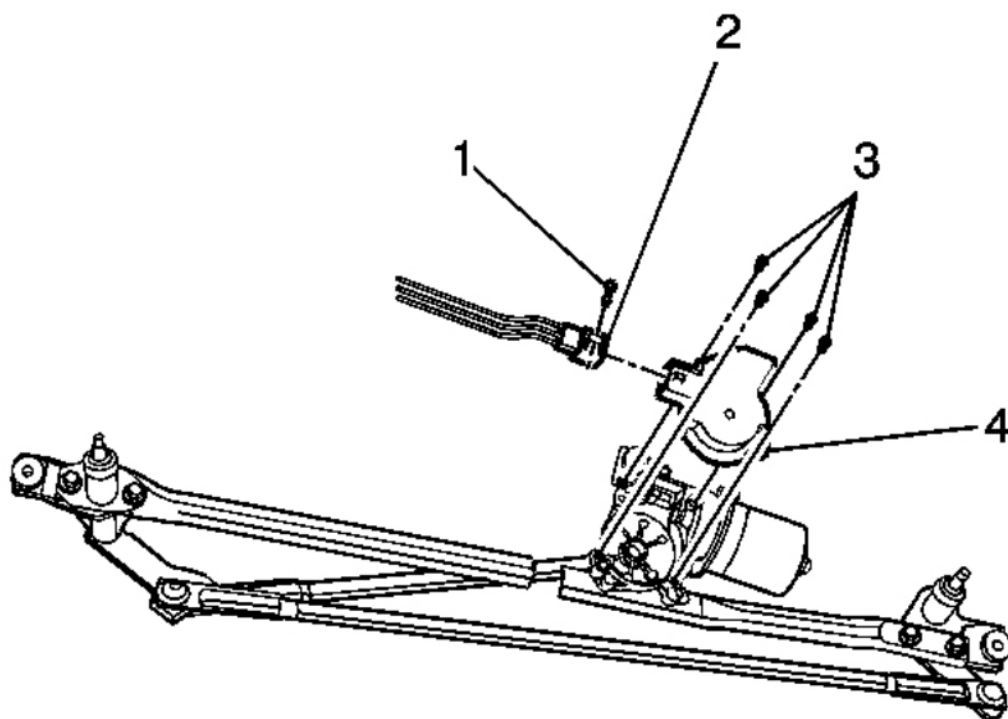


Fig. 25: View Of Wiper Motor Cover, Connectors & Screws
Courtesy of GENERAL MOTORS CORP.

4. Install the air inlet panel. Refer to **Air Inlet Grille Panel Replacement** in Body Front End.
5. Install the wiper arms. Refer to **Wiper Arm Replacement**.
6. Install the radio antenna. Refer to **Fixed Antenna Replacement** in Entertainment.
7. Connect the negative battery cable. Refer to **Battery Negative Cable Disconnect/Connect Procedure** in Engine Electrical.
8. Close the hood.

WIPER MOTOR REPLACEMENT

Tools Required

- J 39232 Wiper Transmission Separator. See **Special Tools and Equipment**.
- J 39529 Wiper Transmission Installer. See **Special Tools and Equipment**.

Removal Procedure

1. Remove the wiper arms. Refer to **Wiper Arm Replacement**.
2. Remove the air inlet grille panel. Refer to **Air Inlet Grille Panel Replacement** in Body Front End.
3. Remove the 4 bolts and the reinforcement panel.

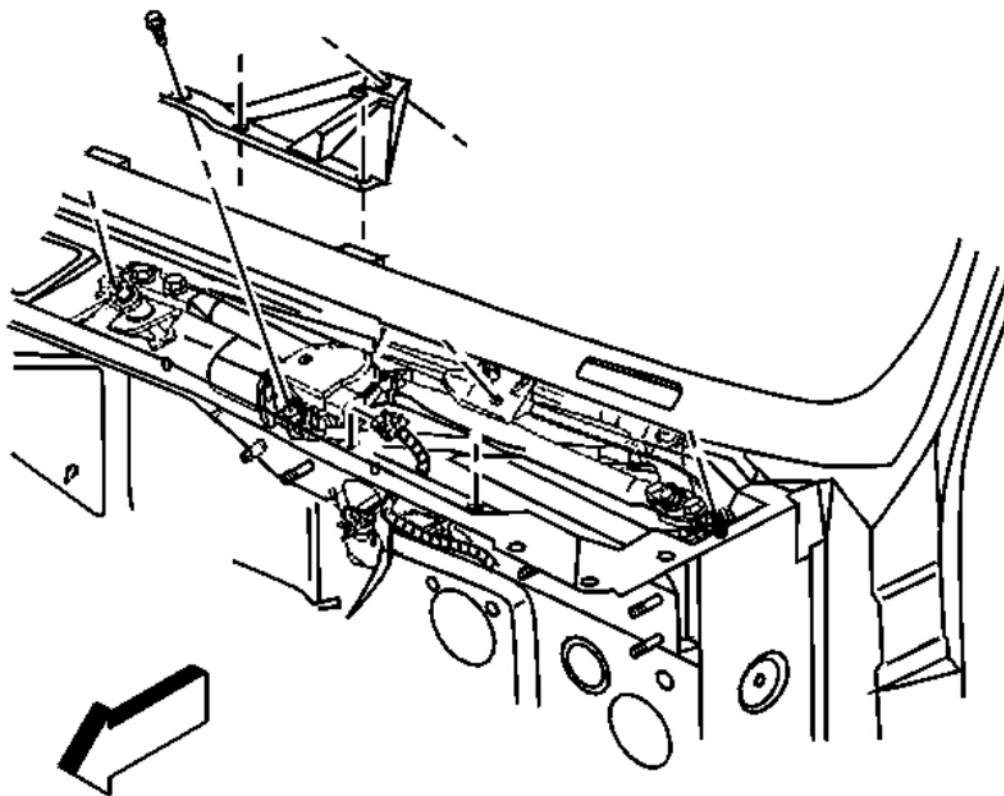


Fig. 26: View Of Reinforcement Panel
Courtesy of GENERAL MOTORS CORP.

4. Disconnect the electrical connector from the wiper motor.

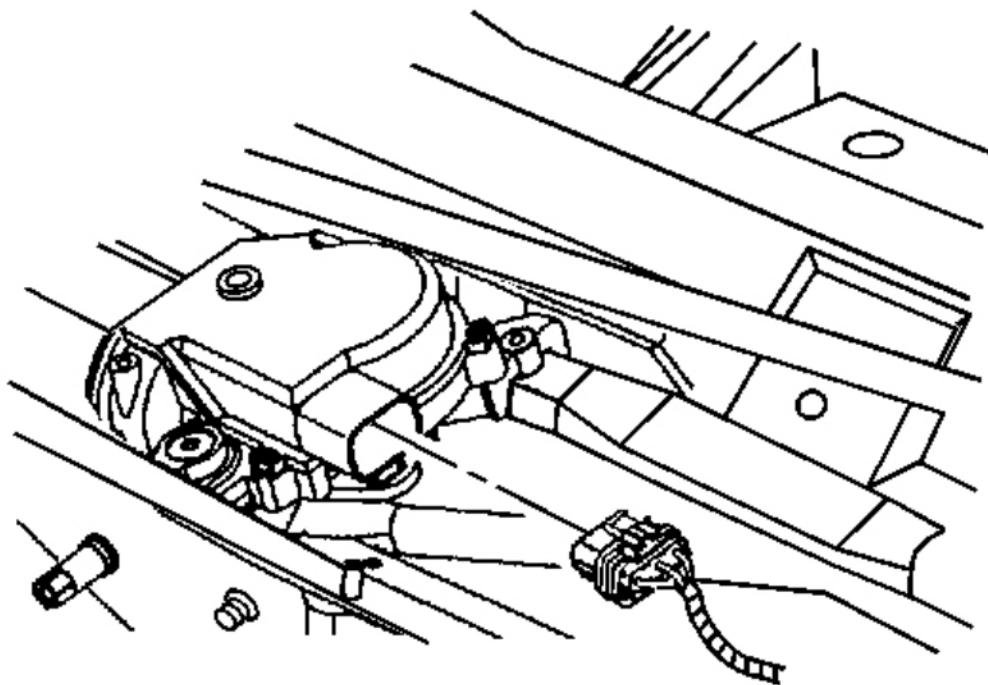


Fig. 27: View Of Wiper Motor Electrical Connector
Courtesy of GENERAL MOTORS CORP.

5. Remove the 2 bolts from the wiper transmission assembly.
6. Remove the wiper transmission assembly from the vehicle.

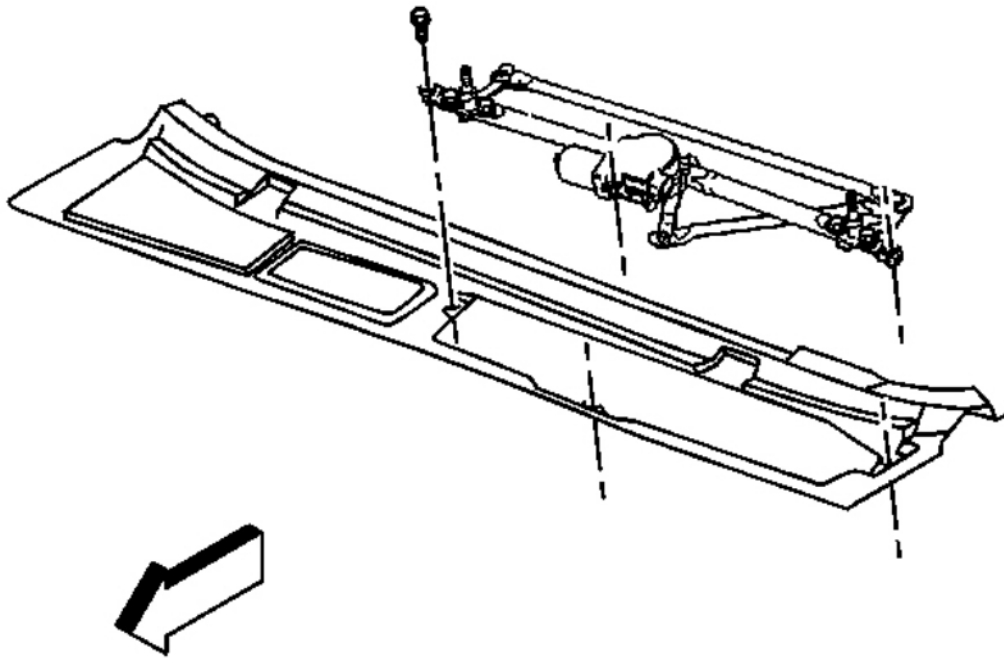


Fig. 28: View Of Wiper Transmission Assembly
Courtesy of GENERAL MOTORS CORP.

7. Remove the drive link from the wiper motor crank arm with the J 39232 . See **Special Tools and Equipment**.

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

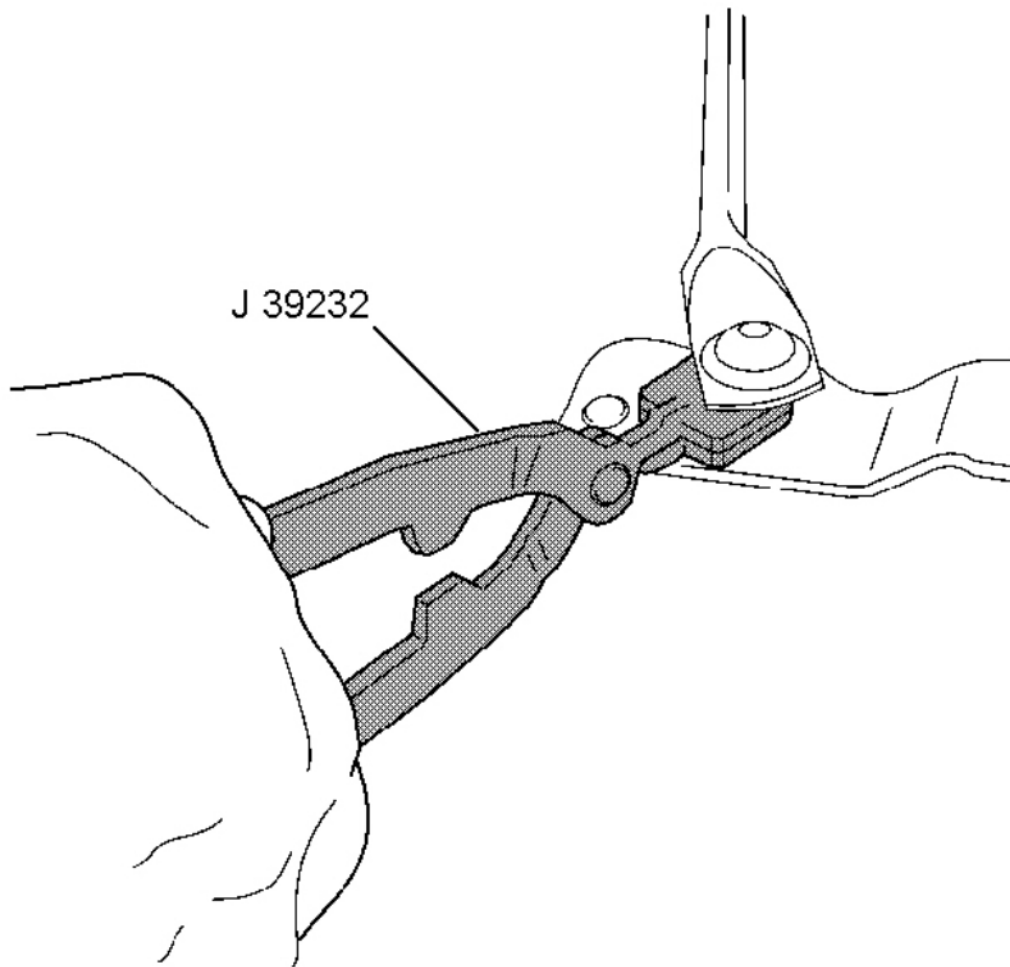


Fig. 29: Disconnecting Wiper Transmission From Wiper Motor Crank Arm
Courtesy of GENERAL MOTORS CORP.

8. Remove the 2 bolts retaining the wiper motor.
9. Remove the wiper motor from the wiper transmission assembly.

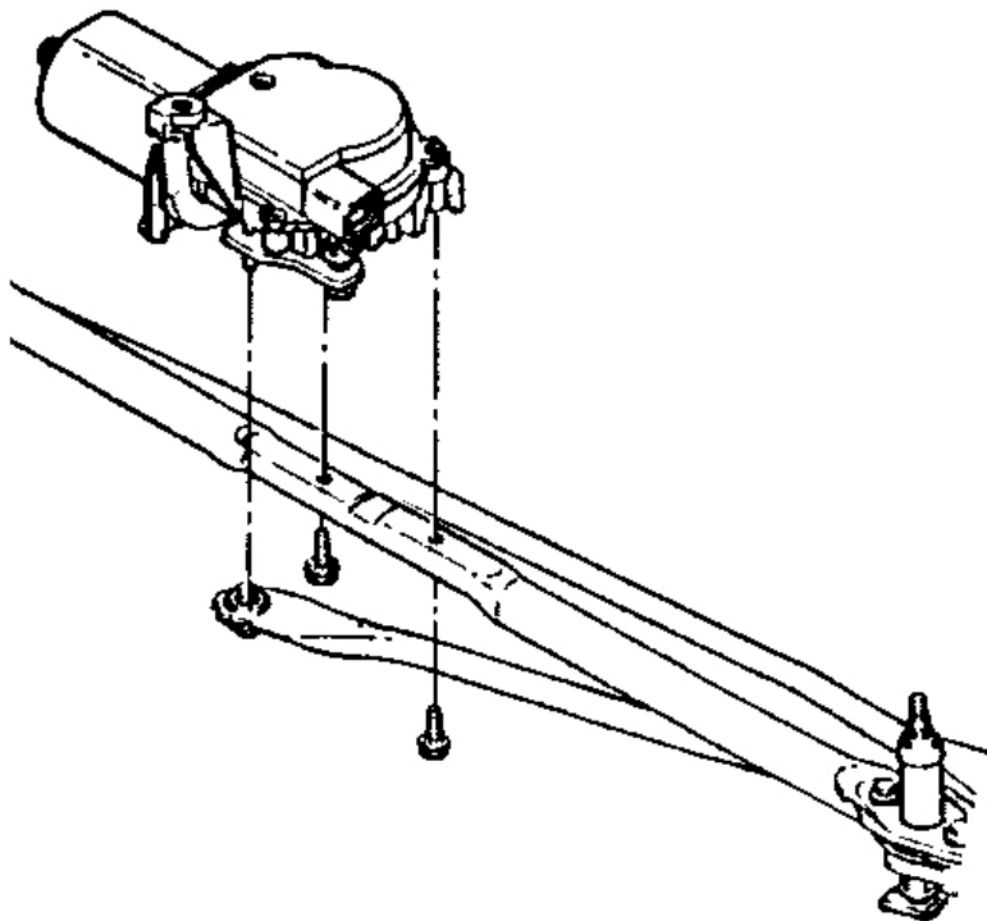


Fig. 30: View Of Wiper Motor & Bolts
Courtesy of GENERAL MOTORS CORP.

Installation Procedure

NOTE: Refer to Fastener Notice in Cautions and Notices.

1. Install the wiper motor onto the wiper transmission assembly with the 2 bolts.

Tighten: Tighten the 2 bolts to 8 N.m (71 lb in).

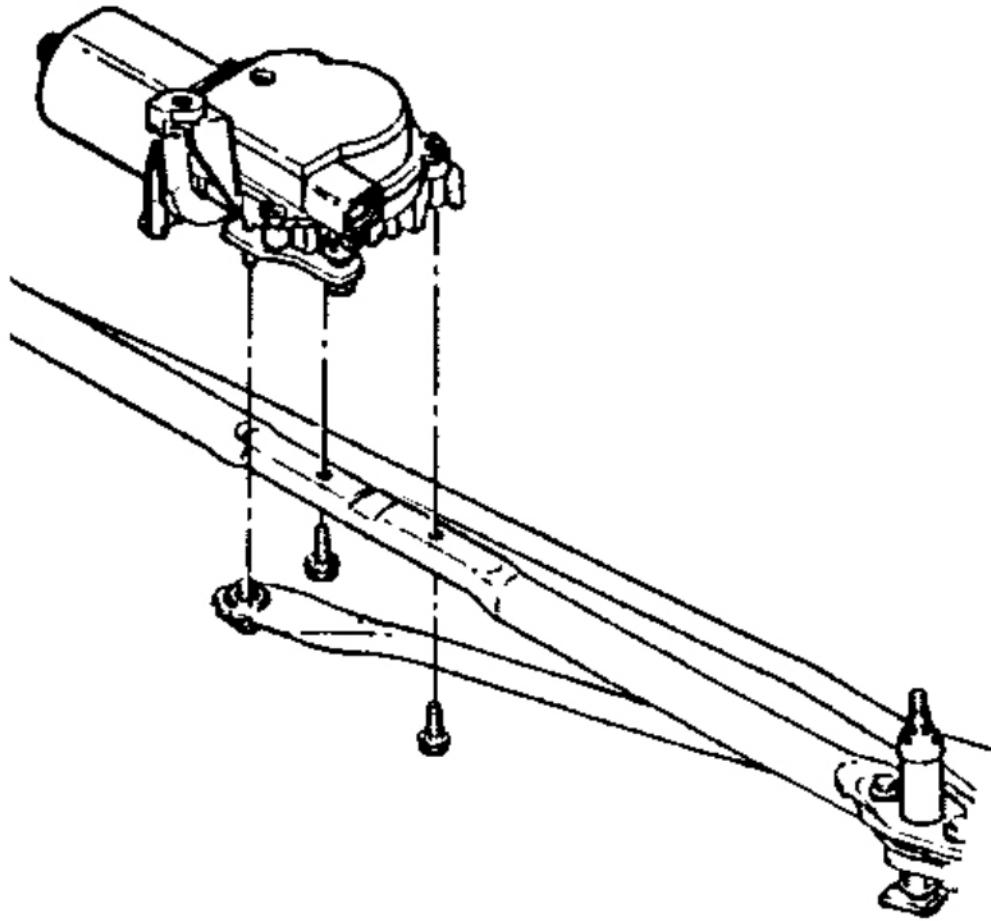


Fig. 31: View Of Wiper Motor & Bolts
Courtesy of GENERAL MOTORS CORP.

2. Install the drive link onto the wiper motor crank arm with the **J 39529** . See **Special Tools and Equipment**.

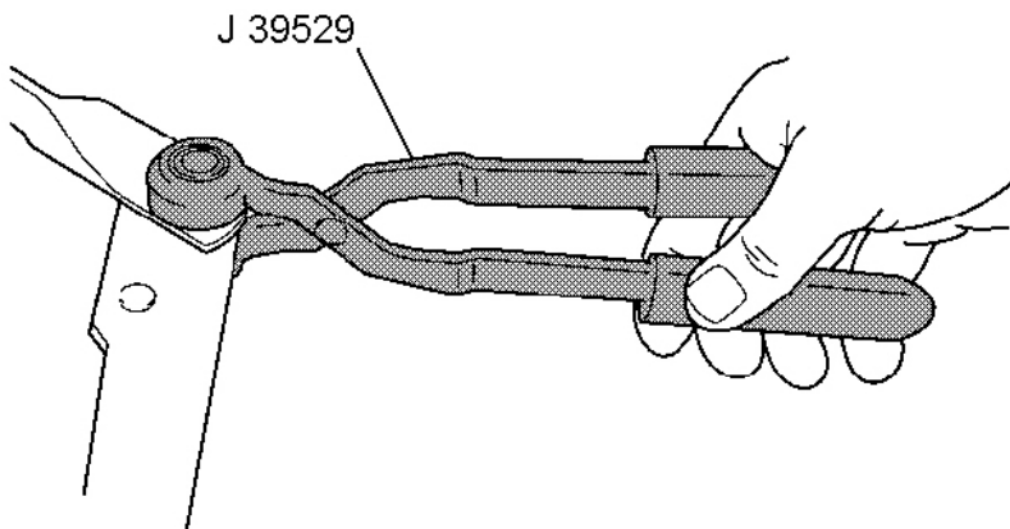


Fig. 32: Installing Wiper Transmission To Wiper Motor Crank Arm
Courtesy of GENERAL MOTORS CORP.

3. Install the wiper transmission assembly on the vehicle with the 2 bolts.

Tighten: Tighten the 2 bolts to 9 N.m (80 lb in).

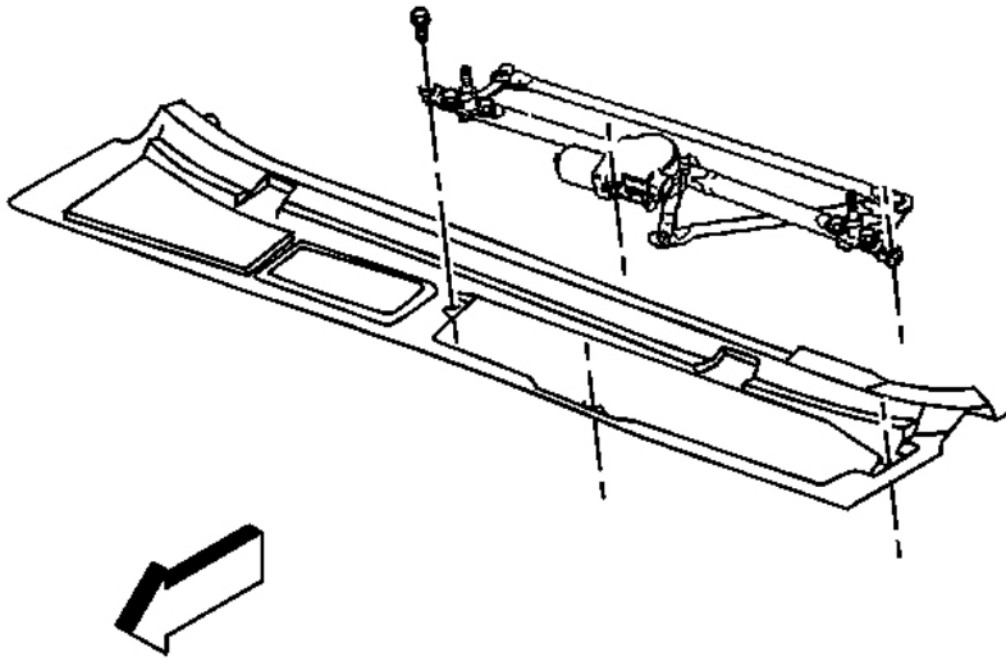


Fig. 33: View Of Wiper Transmission Assembly
Courtesy of GENERAL MOTORS CORP.

4. Connect the electrical connector to the wiper motor.

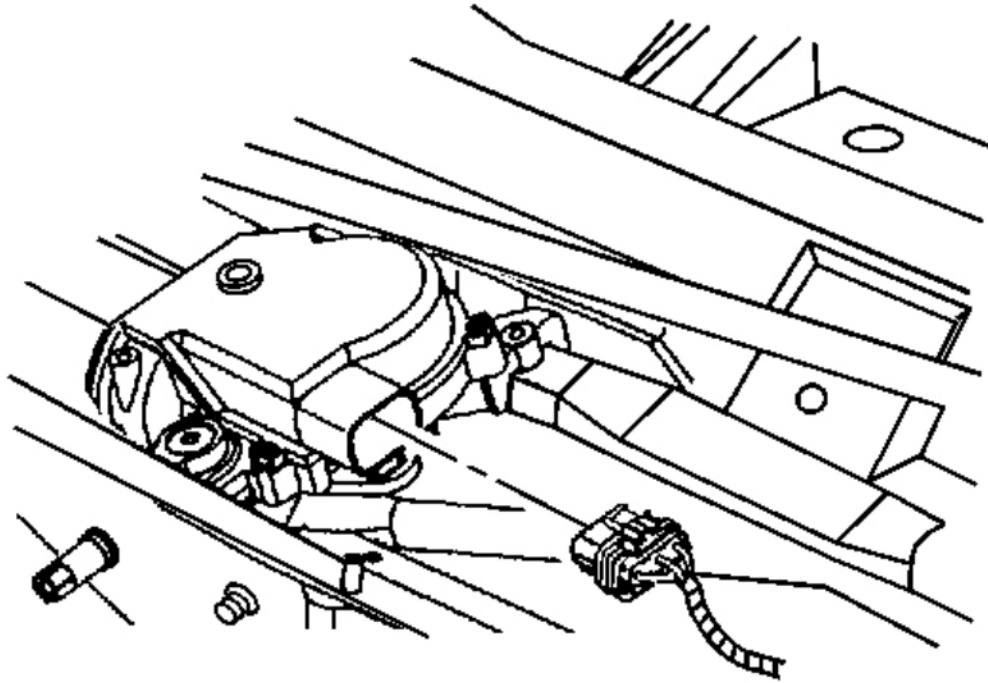


Fig. 34: View Of Wiper Motor Electrical Connector
Courtesy of GENERAL MOTORS CORP.

5. Install the reinforcement panel with the 4 bolts.

Tighten: Tighten the 4 bolts to 9 N.m (80 lb in).

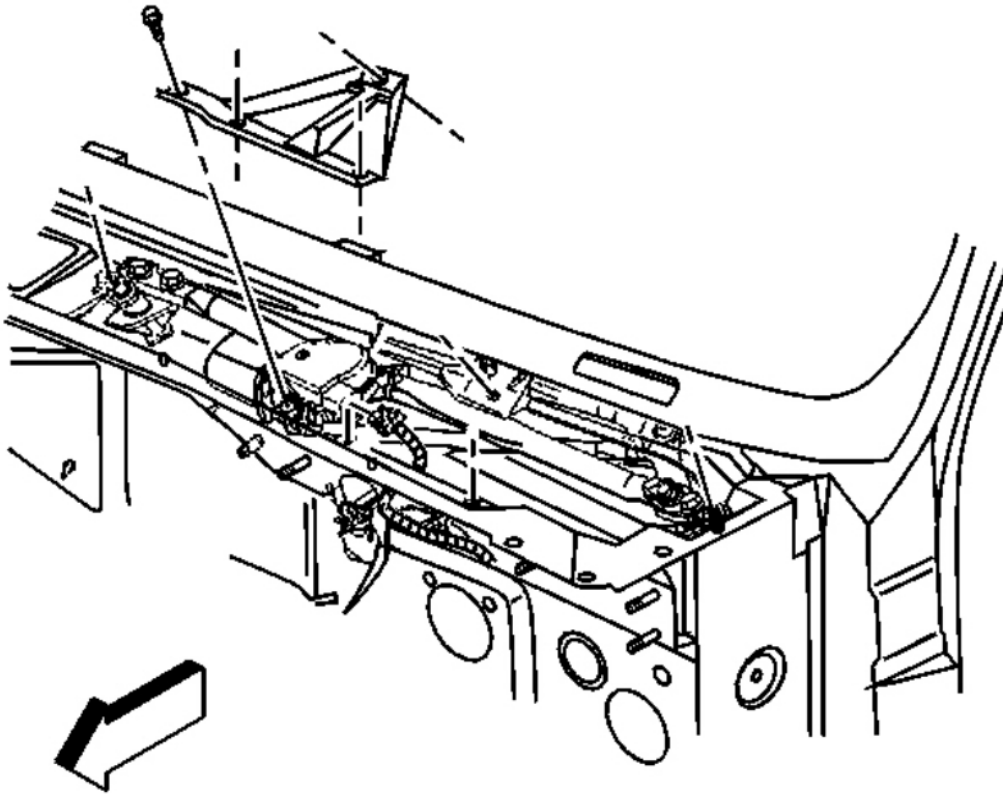


Fig. 35: View Of Reinforcement Panel
Courtesy of GENERAL MOTORS CORP.

6. Install the air inlet grille panel. Refer to **Air Inlet Grille Panel Replacement** in Body Front End.
7. Install the wiper arms. Refer to **Wiper Arm Replacement**.
8. Operate the wipers and check for proper operation.

WIPER TRANSMISSION REPLACEMENT

Tools Required

- **J 39232** Wiper Transmission Separator. See **Special Tools and Equipment**.
- **J 39529** Wiper Transmission Installer. See **Special Tools and Equipment**.

Removal Procedure

1. Remove the wiper arms. Refer to **Wiper Arm Replacement**.

2. Remove the air inlet grille panel. Refer to **Air Inlet Grille Panel Replacement** in Body Front End.
3. Remove the 4 bolts and the reinforcement panel.

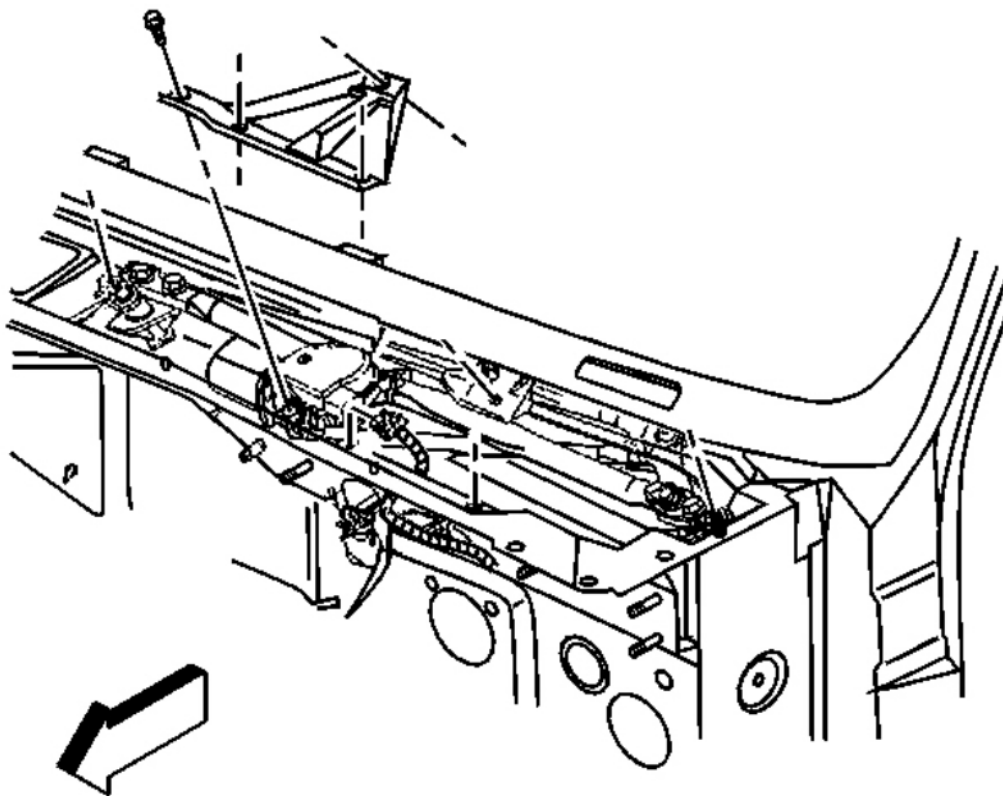


Fig. 36: View Of Reinforcement Panel
Courtesy of GENERAL MOTORS CORP.

4. Disconnect the electrical connector from the wiper motor.

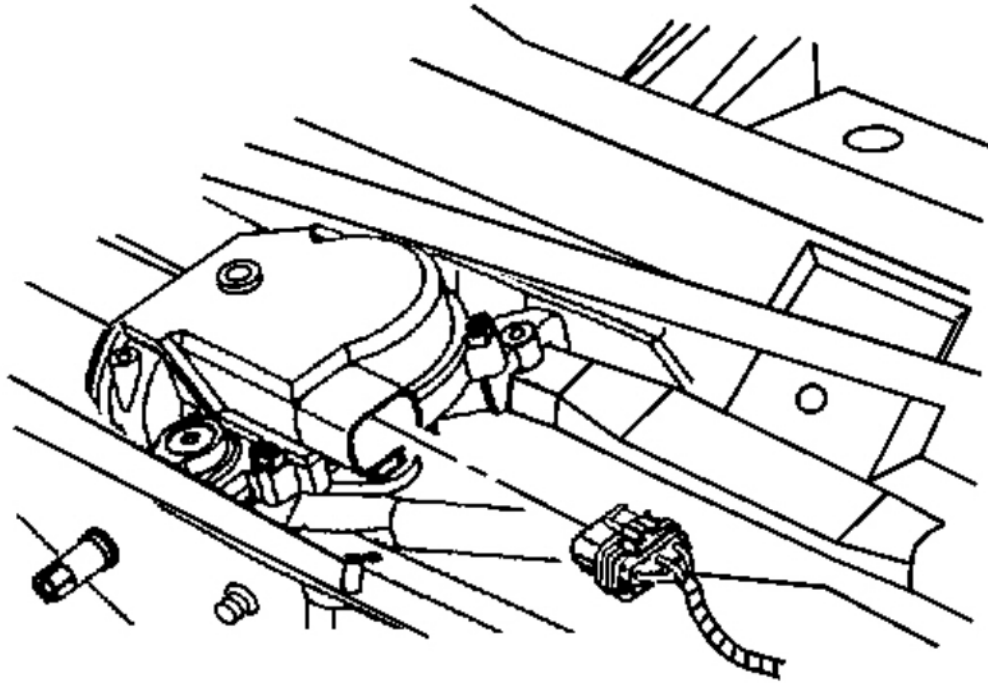


Fig. 37: View Of Wiper Motor Electrical Connector
Courtesy of GENERAL MOTORS CORP.

5. Remove the 2 bolts from the wiper transmission assembly.
6. Remove the wiper transmission assembly from the vehicle.

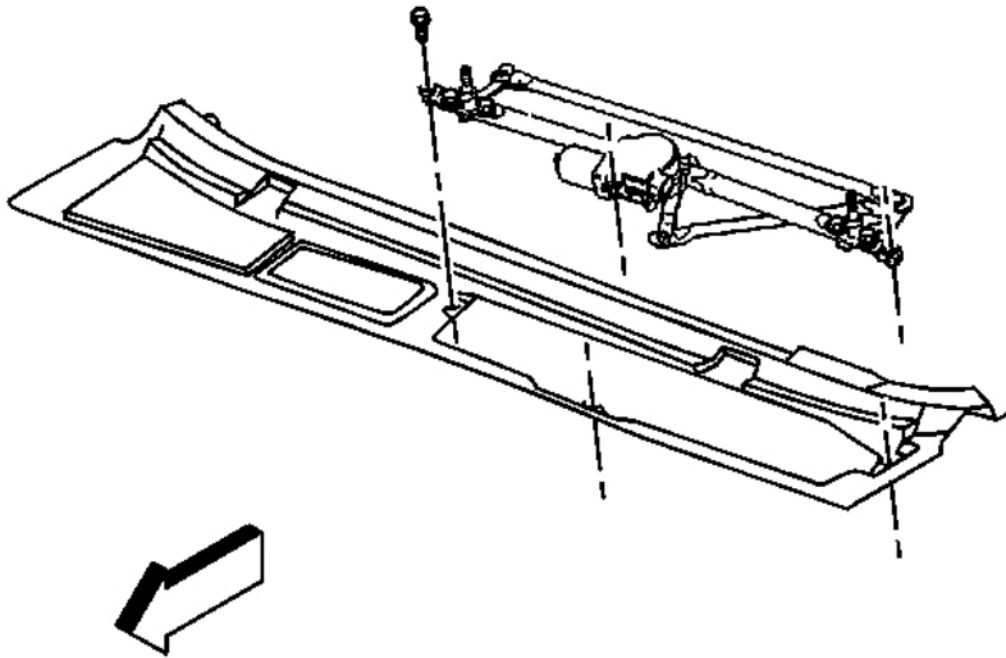


Fig. 38: View Of Wiper Transmission Assembly
Courtesy of GENERAL MOTORS CORP.

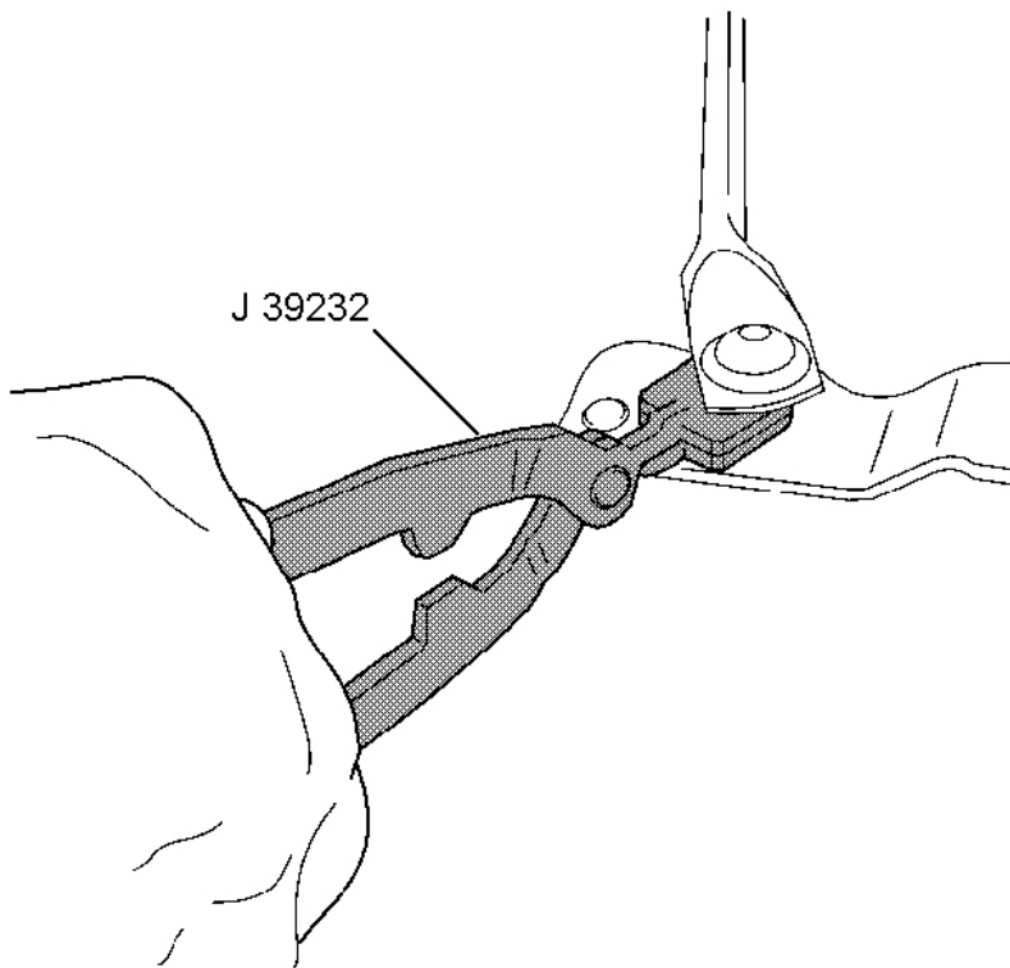


Fig. 39: Disconnecting Wiper Transmission From Wiper Motor Crank Arm
Courtesy of GENERAL MOTORS CORP.

7. Remove the drive link from the wiper motor crank arm with the **J 39232** . See **Special Tools and Equipment**.
8. Remove the 2 bolts retaining the wiper motor.
9. Remove the wiper motor from the wiper transmission assembly.

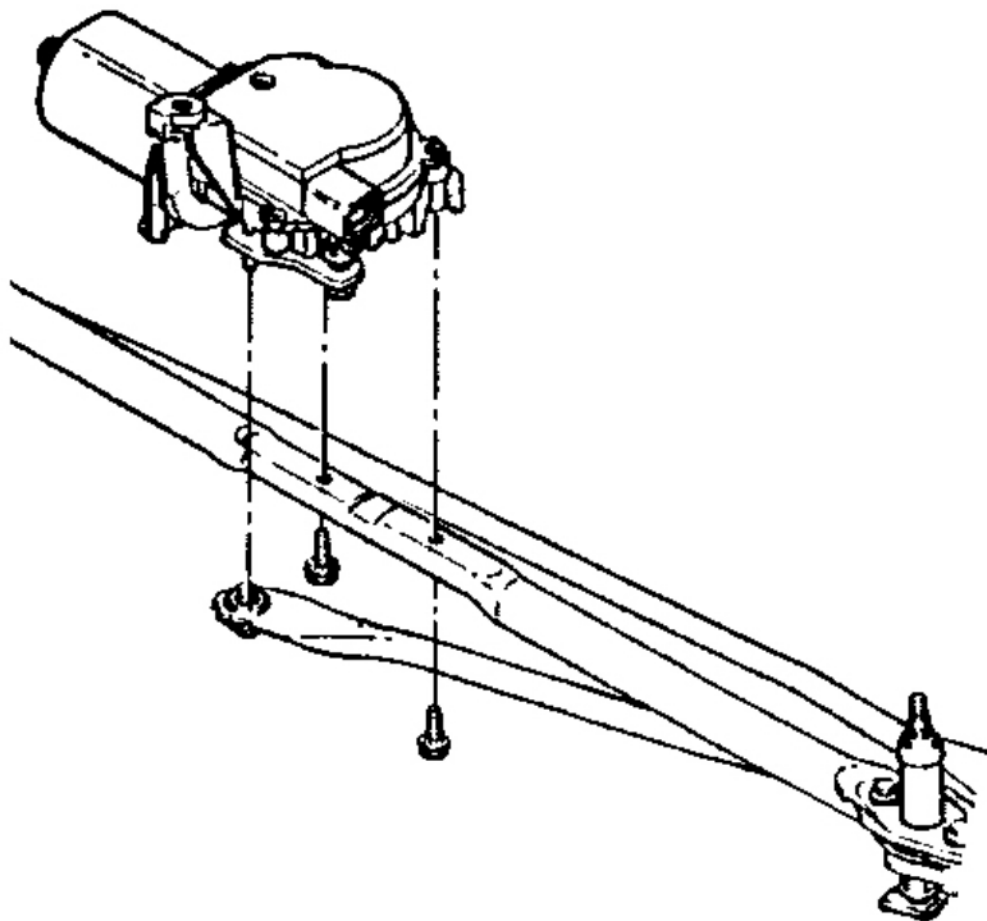


Fig. 40: View Of Wiper Motor & Bolts
Courtesy of GENERAL MOTORS CORP.

Installation Procedure

NOTE: Refer to Fastener Notice in Cautions and Notices.

1. Install the wiper motor onto the wiper transmission assembly with the 2 bolts.

Tighten: Tighten the 2 bolts to 8 N.m (71 lb in).

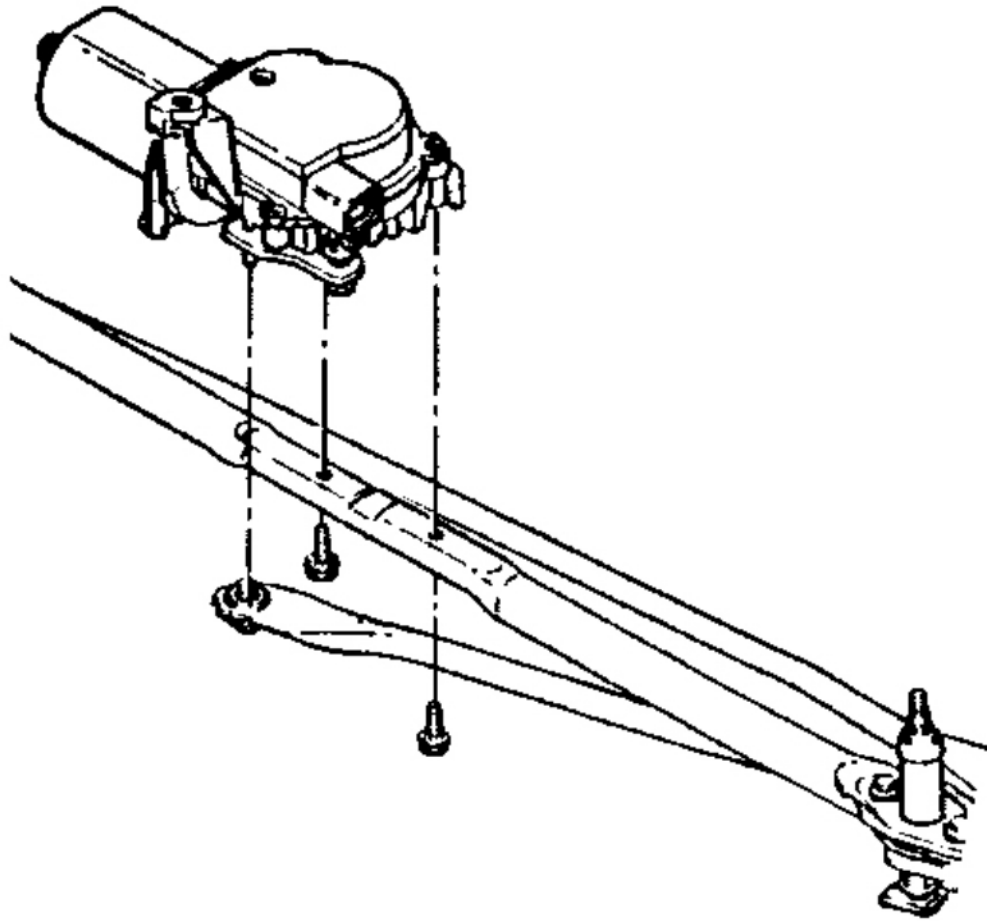


Fig. 41: View Of Wiper Motor & Bolts
Courtesy of GENERAL MOTORS CORP.

2. Install the drive link onto the wiper motor crank arm with the **J 39529** . See **Special Tools and Equipment**.

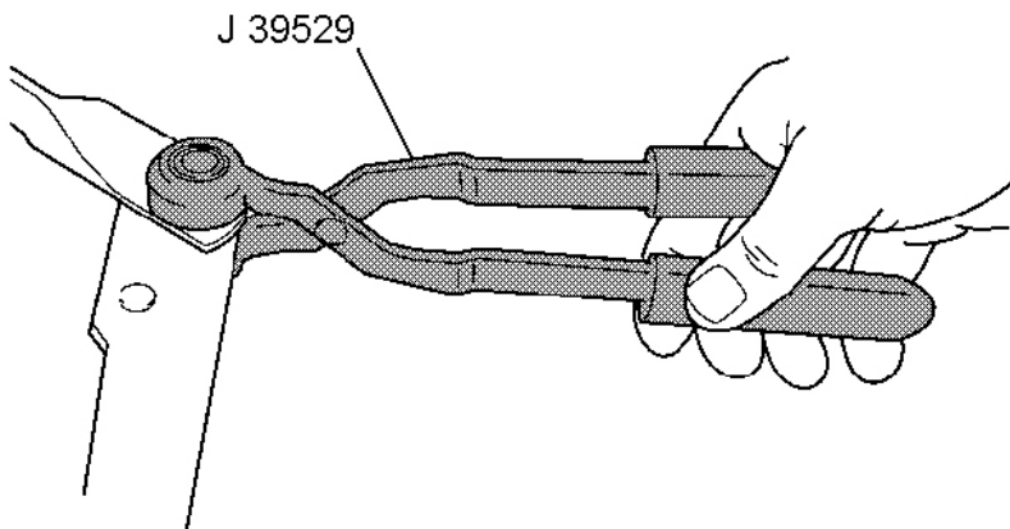


Fig. 42: Installing Wiper Transmission To Wiper Motor Crank Arm
Courtesy of GENERAL MOTORS CORP.

3. Install the wiper transmission assembly on the vehicle with the 2 bolts.

Tighten: Tighten the 2 bolts to 9 N.m (80 lb in).

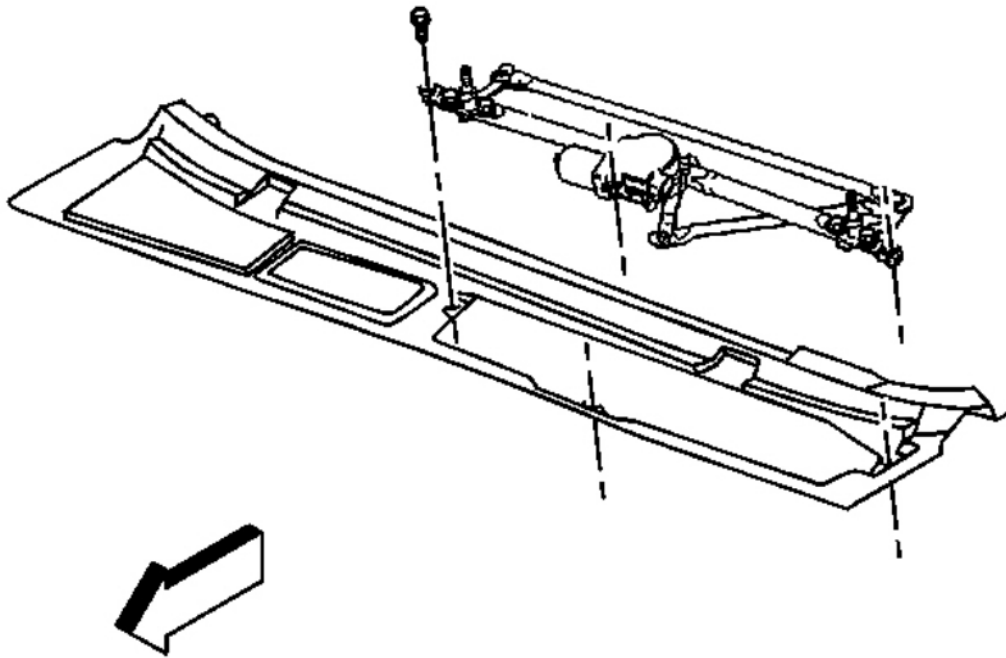


Fig. 43: View Of Wiper Transmission Assembly
Courtesy of GENERAL MOTORS CORP.

4. Connect the electrical connector to the wiper motor.

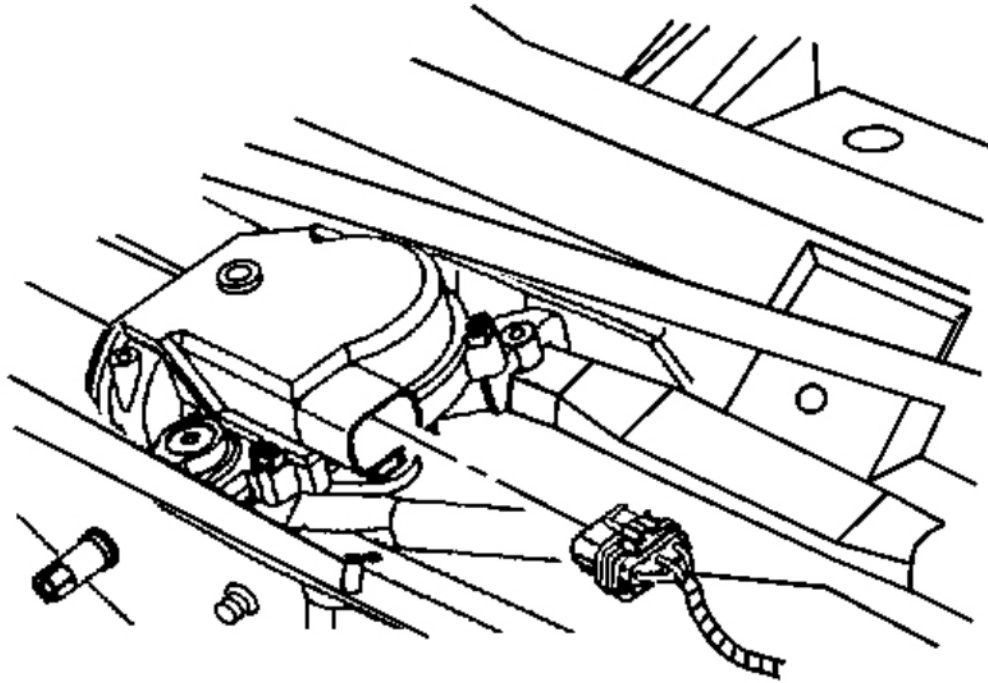


Fig. 44: View Of Wiper Motor Electrical Connector
Courtesy of GENERAL MOTORS CORP.

5. Install the reinforcement panel with the 4 bolts.

Tighten: Tighten the 4 bolts to 9 N.m (80 lb in).

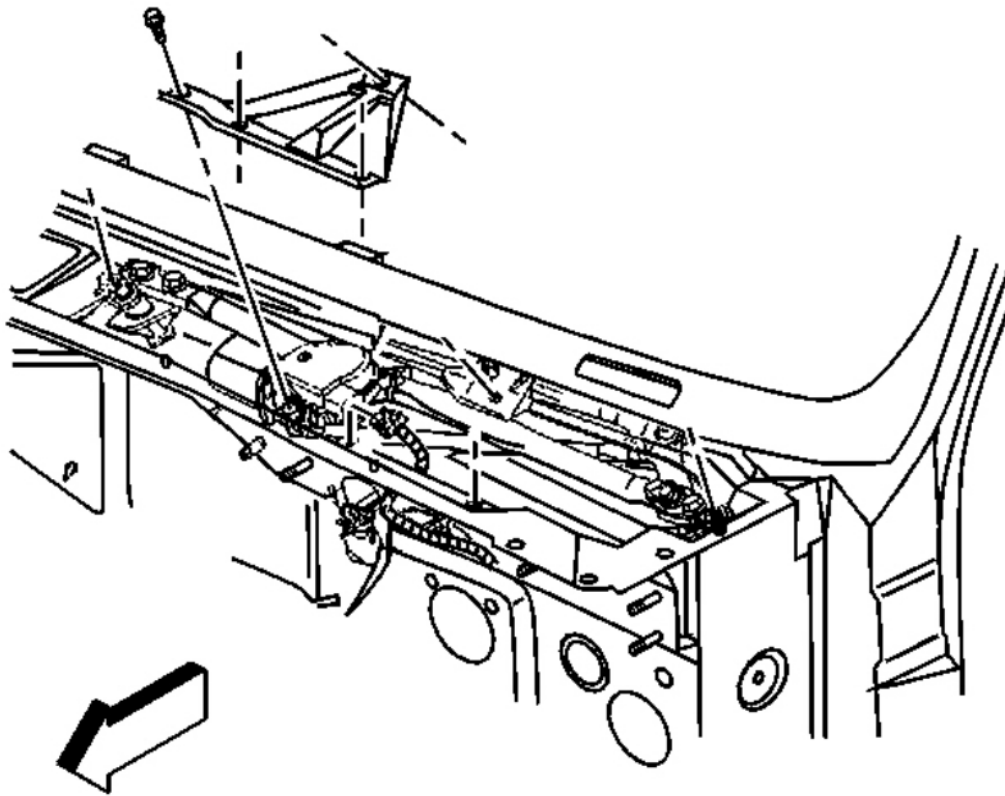


Fig. 45: View Of Reinforcement Panel
Courtesy of GENERAL MOTORS CORP.

6. Install the air inlet grille panel. Refer to **Air Inlet Grille Panel Replacement** in Body Front End.
7. Install the wiper arms. Refer to **Wiper Arm Replacement**.
8. Operate the wipers and inspect for proper operation.

WIPER CHATTER REPAIR

Some vehicles may exhibit a condition where the windshield wiper blades chatter or wipe unevenly. Several different conditions can cause the wiper blade chatter. To completely repair wiper blade chatter, all of the following should be checked and repaired as necessary:

- The windshield glass must be clean.
- The wiper blade element must be clean.
- The wiper arm tip pressure must be within specifications.
- The wiper blade element set must be within specifications.

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

WINDSHIELD GLASS CLEANING

Clean the windshield glass with windshield cleaner. The cleaner used should be one that will not harm the paint finish or scratch the glass. The windshield glass is clean when water no longer beads, but sheets across the entire glass surface.

BLADE ELEMENT CLEANING

1. Lift the wiper blade assemblies off of the windshield glass.
2. Clean the wiper blade element with a clean cloth saturated with full strength washer solution.
3. Rinse the wiper blade assemblies with water.
4. Place the wiper blade assemblies back onto the windshield glass.

WIPER ARM REPLACEMENT - REAR

Removal Procedure

IMPORTANT: Note the location of the wiper on the glass before removal.

1. Disconnect the washer hose.
2. Swivel the wiper arm cover open.
3. Remove the nut retaining the wiper arm to the wiper motor.
4. Remove the wiper arm from the liftgate.

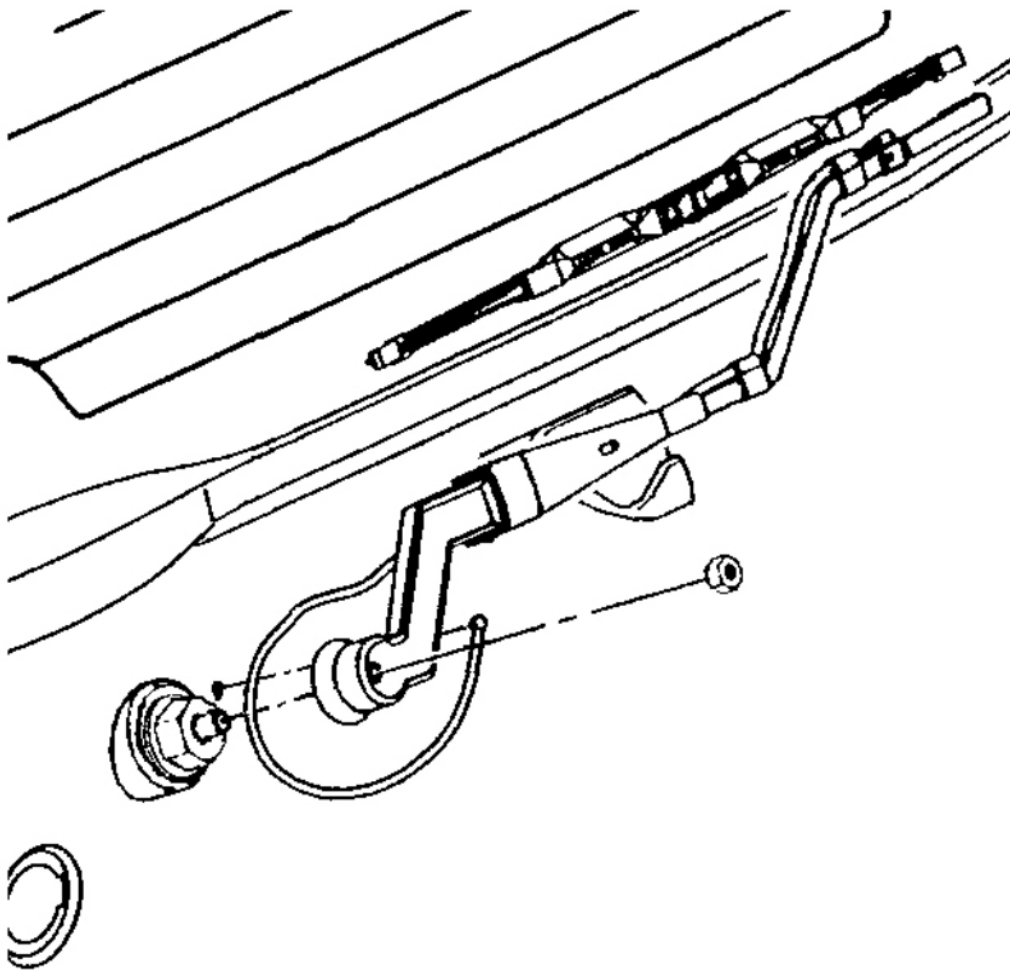


Fig. 46: View Of Rear Wiper Arm Components
Courtesy of GENERAL MOTORS CORP.

Installation Procedure

1. Align the wiper arm to the vehicle.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the nut retaining the wiper arm to the wiper motor.

Tighten: Tighten the nut to 23 N.m (17 lb ft).

3. Swivel the wiper arm cover closed.
4. Connect the washer hose to the wiper arm.
5. Check the rear wiper for proper operation.

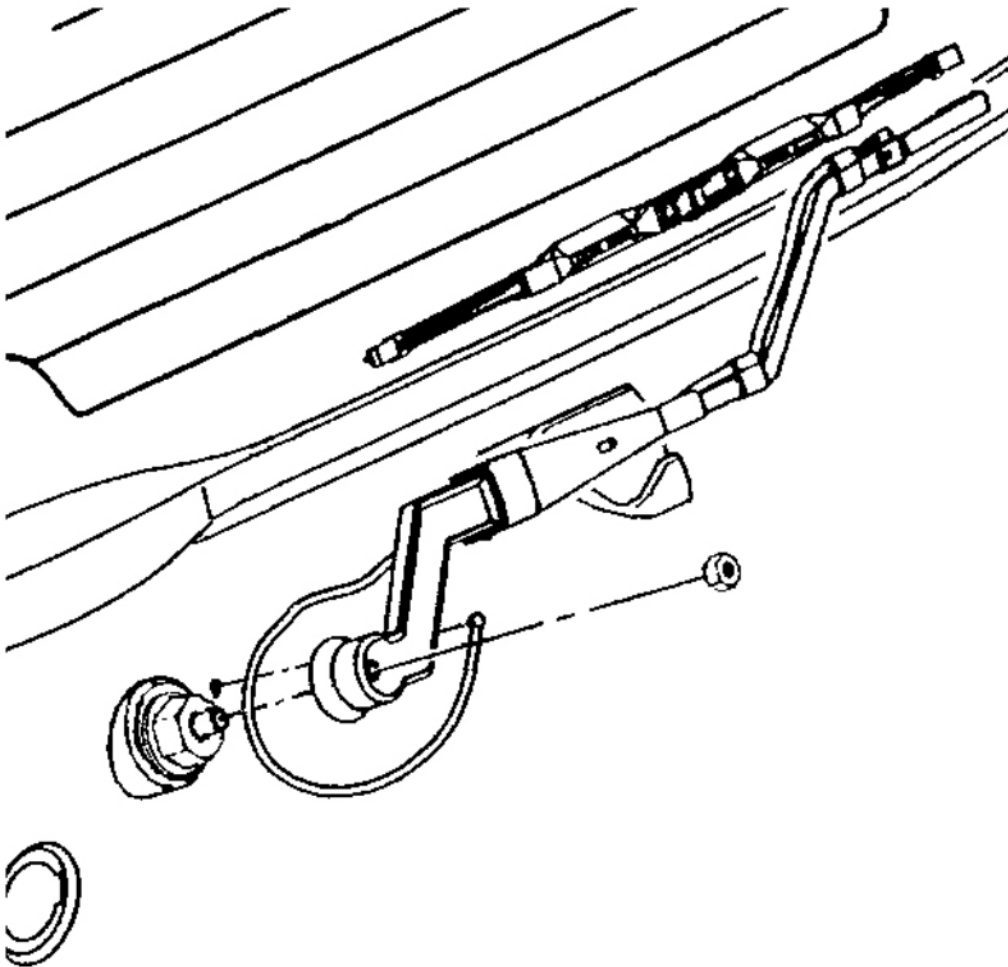


Fig. 47: View Of Rear Wiper Arm Components
Courtesy of GENERAL MOTORS CORP.

WIPER ARM BLADE REPLACEMENT - REAR

Removal Procedure

1. Push in the button of the wiper blade clip and remove the wiper blade from the inside radius of the wiper arm.

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

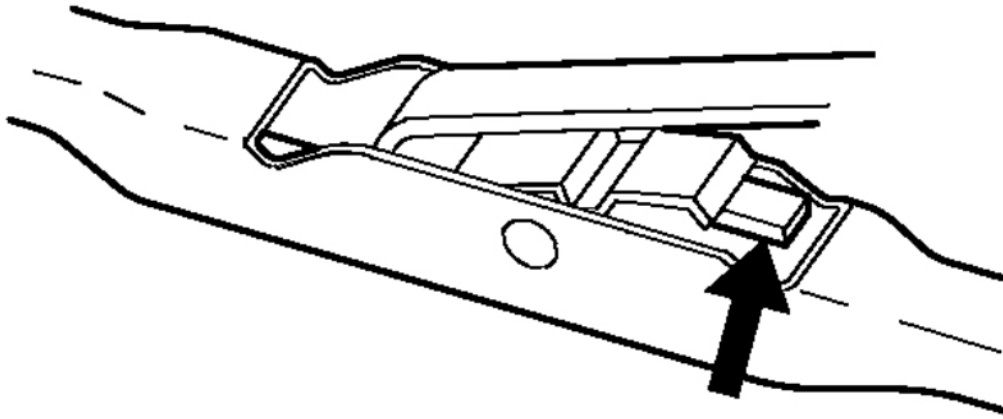


Fig. 48: Identifying Wiper Blade Release Clip
Courtesy of GENERAL MOTORS CORP.

2. Bring the wiper arm out through the opening in the wiper blade.

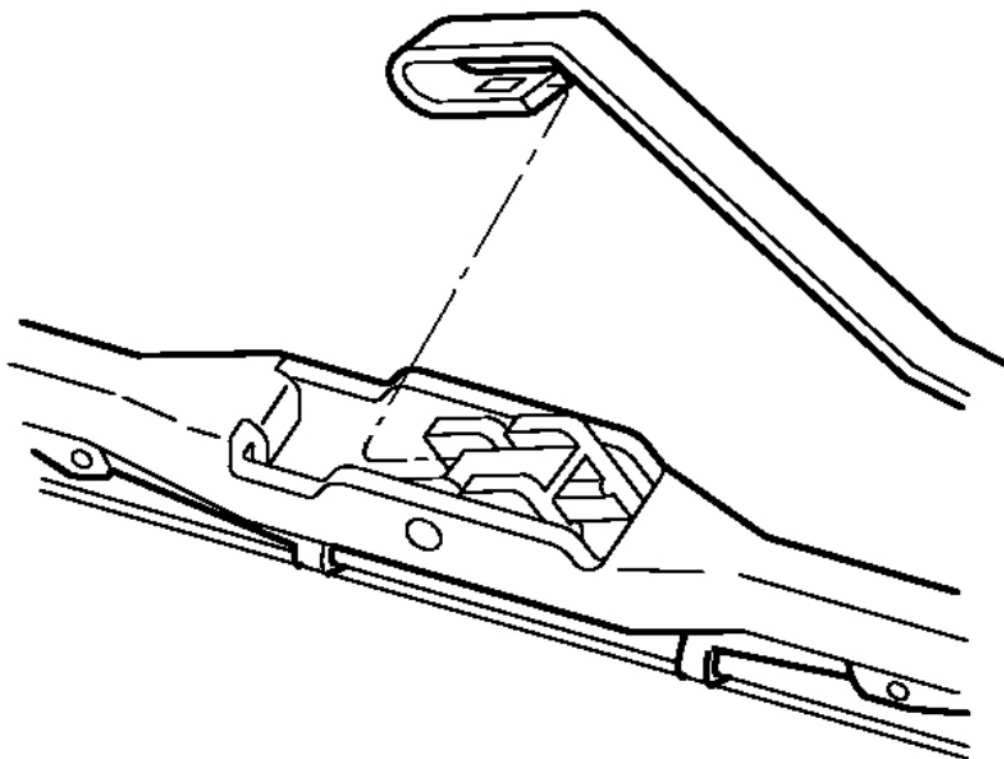


Fig. 49: Removing & Installing Wiper Blade At Wiper Arm Hook
Courtesy of GENERAL MOTORS CORP.

Installation Procedure

1. Insert the hook of the wiper arm through the opening in the wiper blade.

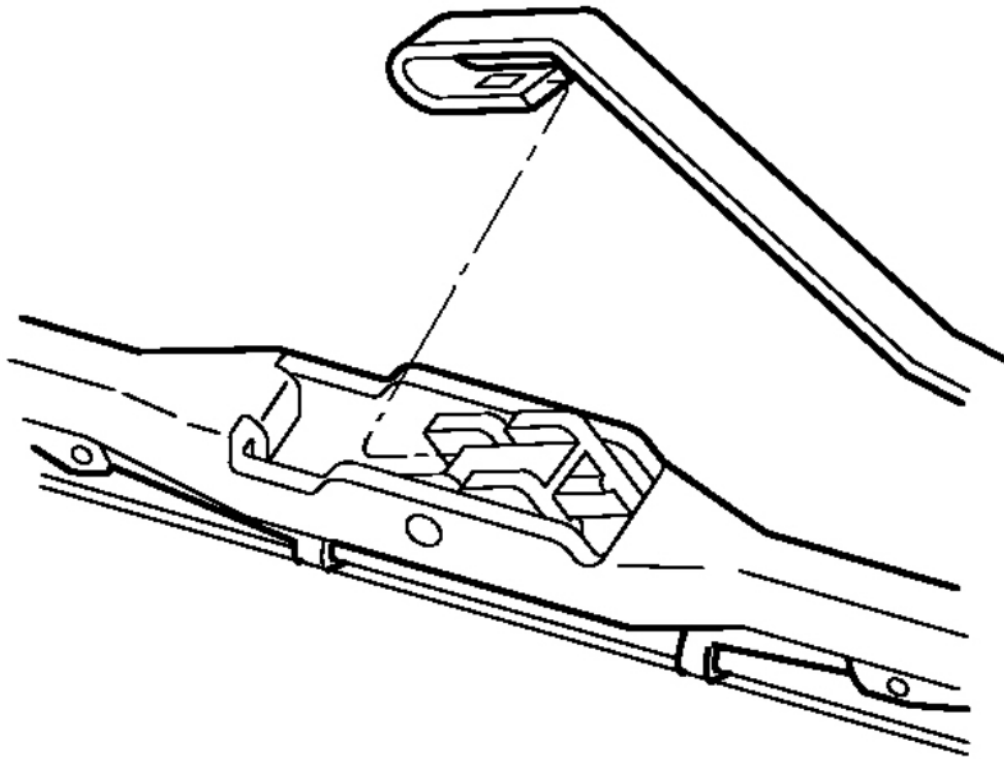


Fig. 50: Removing & Installing Wiper Blade At Wiper Arm Hook
Courtesy of GENERAL MOTORS CORP.

2. Position the wiper blade pivot in the inside radius of the wiper arm hook.
3. Pull the wiper blade pivot into the wiper arm hook until the pivot locks into the hook.

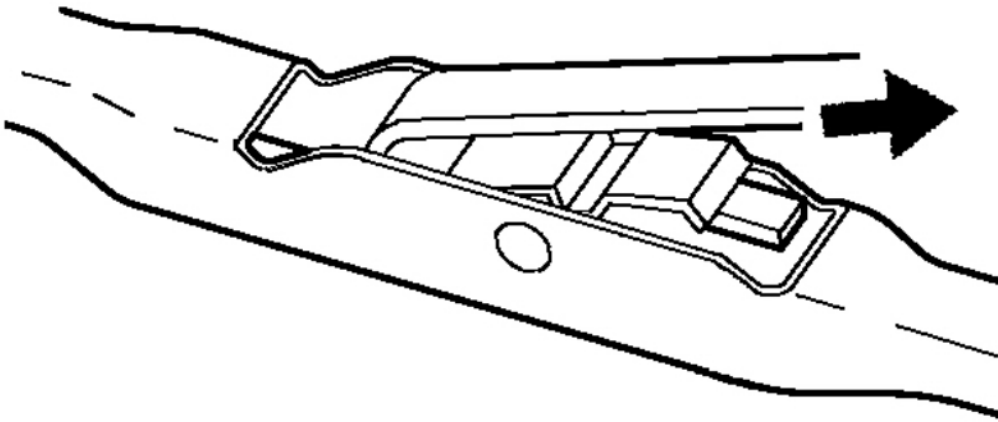


Fig. 51: View Of Wiper Blade Clip
Courtesy of GENERAL MOTORS CORP.

4. Operate the wipers and inspect for proper operation.

BLADE ELEMENT REPLACEMENT - REAR

Removal Procedure

IMPORTANT: Replace the wiper blade element if it is removed from the wiper blade.

1. Remove the wiper blade from the wiper arm. Refer to **Wiper Arm Blade Replacement - Rear.**
2. Remove the bottom claws (2) of the wiper blade (1) from the notches in the wiper blade element (3).
3. Pull the wiper blade element (3) out through the wiper blade claws (2).

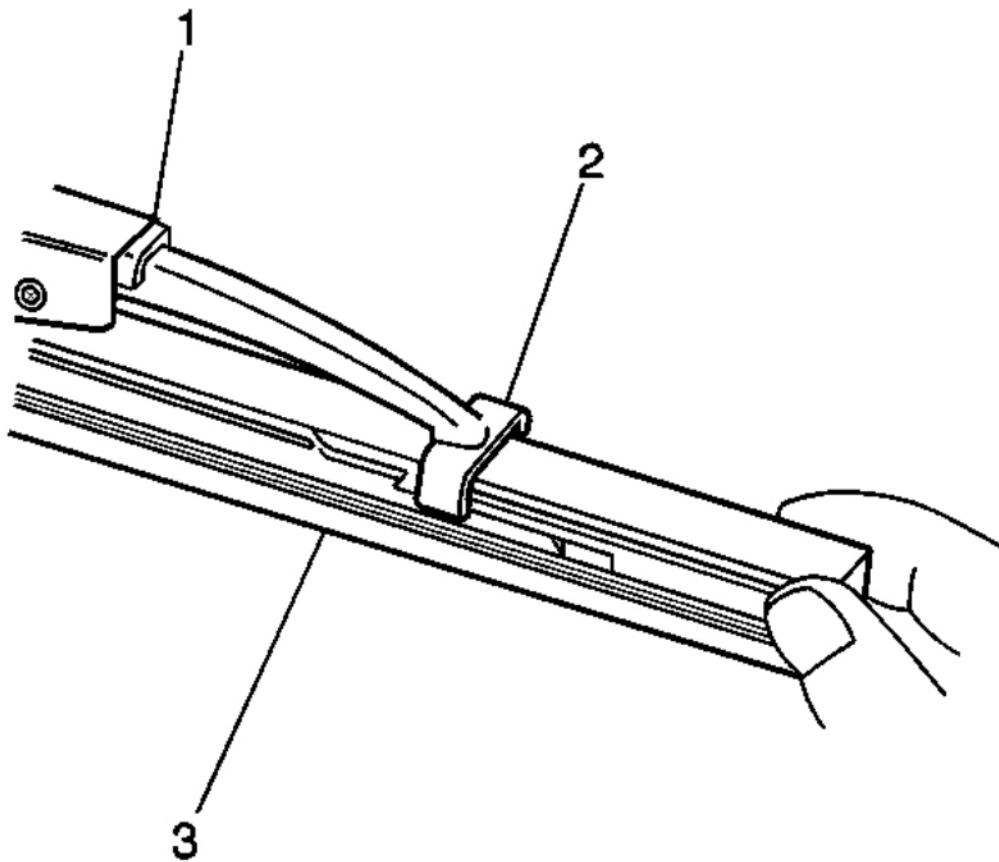


Fig. 52: Identifying Wiper Blade & Components
Courtesy of GENERAL MOTORS CORP.

Installation Procedure

IMPORTANT: Keep the wiper blade claws in the rubber claw channel of the wiper blade element. Do not allow the claws of the wiper blade to contact the metal spline of the wiper blade element.

1. Insert the open end of the wiper blade element (3) into the bottom claws of the wiper blade (2).
2. Guide the wiper blade element (3) through the wiper blade (1) claw sets.
3. Engage the bottom claw (2) of the wiper blade (1) into the notches in wiper blade element (3).

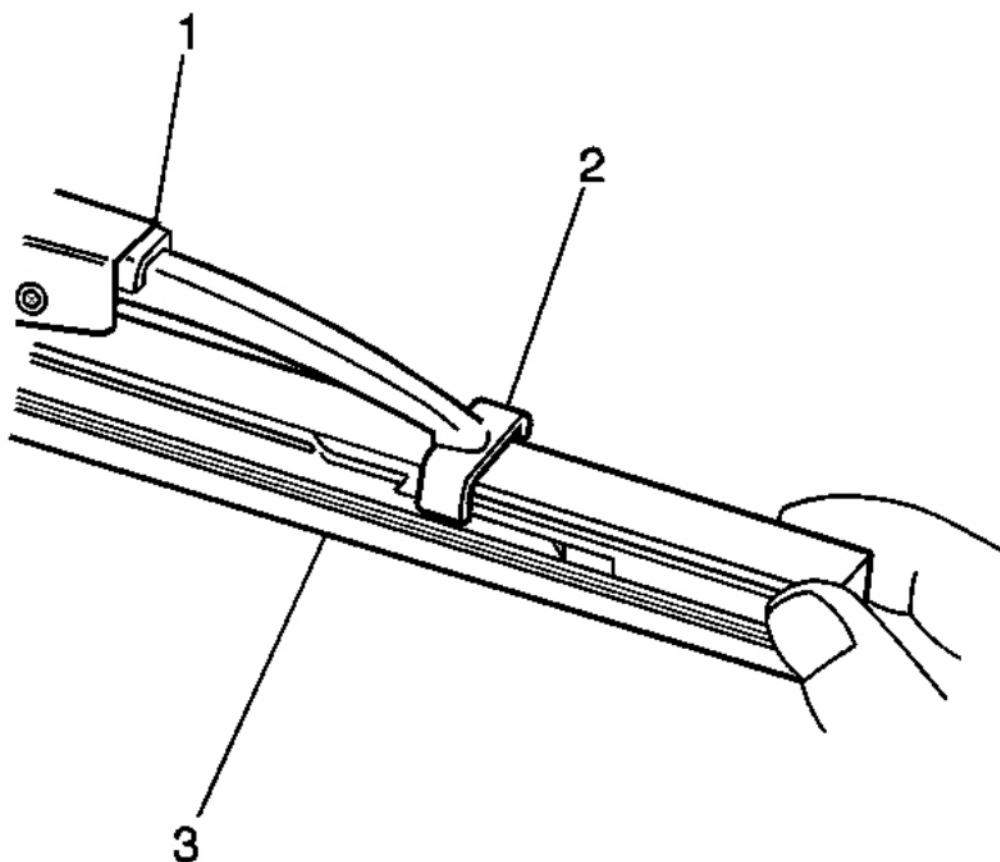


Fig. 53: Identifying Wiper Blade & Components
Courtesy of GENERAL MOTORS CORP.

4. Install the wiper blade onto the wiper arm. Refer to **Wiper Arm Blade Replacement - Rear**.

WIPER MOTOR REPLACEMENT - REAR

Removal Procedure

1. Remove the wiper arm. Refer to **Wiper Arm Replacement - Rear**.
2. Remove the nut and spacer from the wiper motor shaft.
3. Remove the interior trim panel. Refer to **Trim Panel Replacement - Liftgate** in Body Rear End.
4. Disconnect the wiper motor electrical connector.
5. Remove the two screws.
6. Remove the wiper motor.

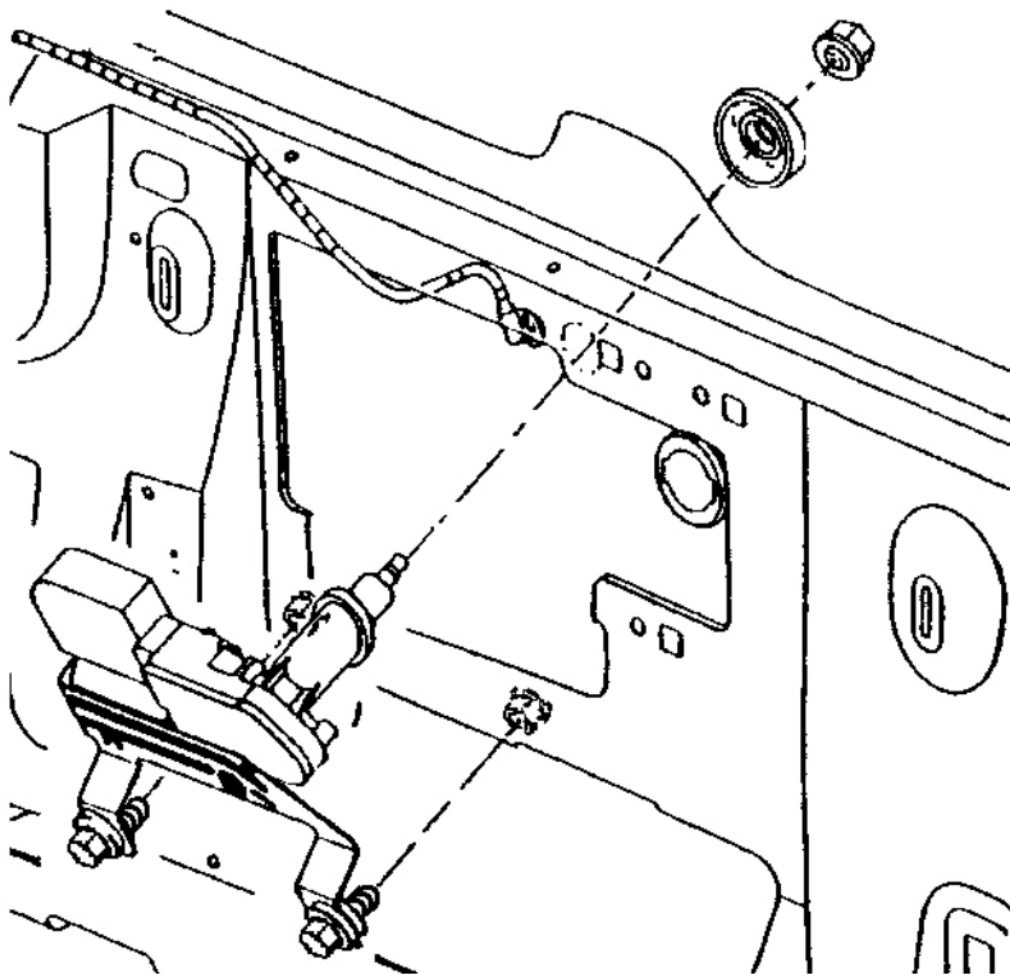


Fig. 54: View Of Rear Wiper Motor Components
Courtesy of GENERAL MOTORS CORP.

Installation Procedure

1. Install the wiper motor.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the two screws.

Tighten: Tighten the screws to 19 N.m (14 lb ft).

3. Connect the wiper motor electrical connector.
4. Install the interior trim panel. Refer to **Trim Panel Replacement - Liftgate** in Body Rear End.
5. Install the spacer and the nut on the wiper motor drive shaft.

Tighten: Tighten the nut to 8 N.m (71 lb in).

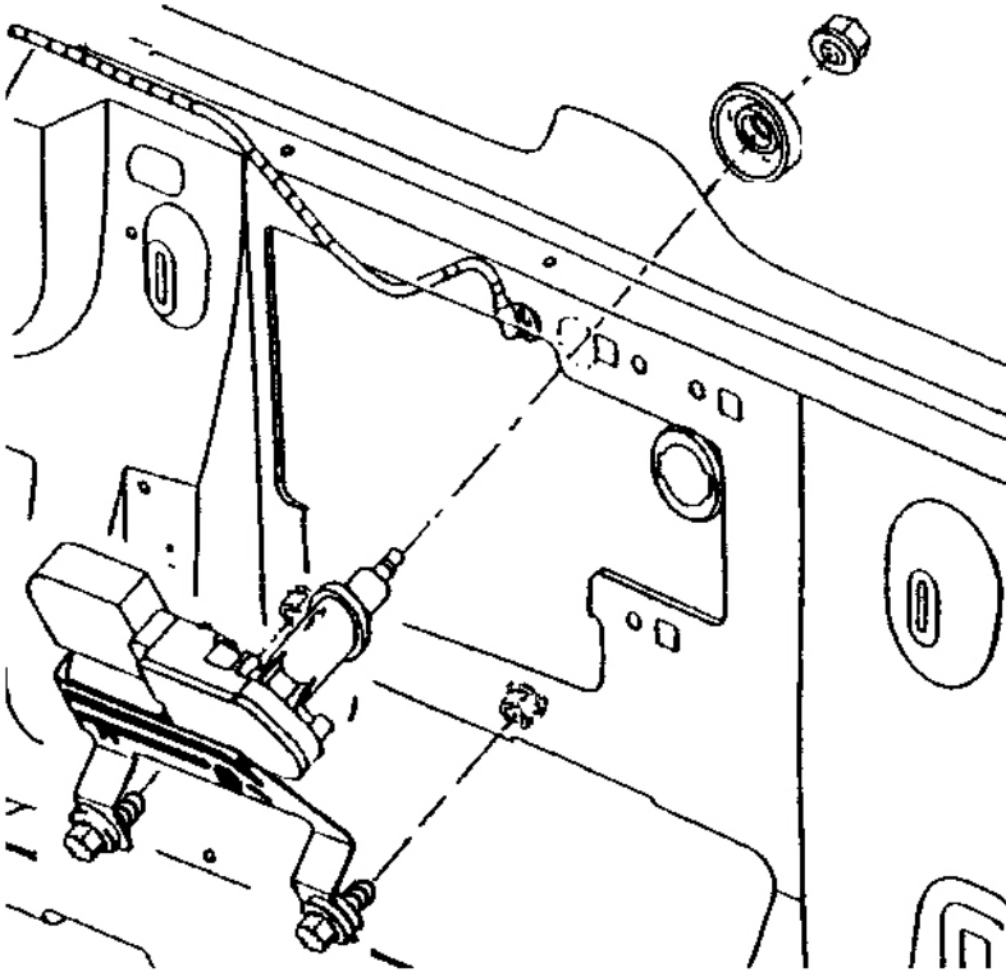


Fig. 55: View Of Rear Wiper Motor Components
Courtesy of GENERAL MOTORS CORP.

6. Install the wiper arm.

Removal Procedure

1. Remove the I/P cluster trim bezel. Refer to **Bezel Replacement - Instrument Panel (I/P) Cluster** in Instrument Panel, Gages and Console.
2. Insert a flat bladed tool at the top and bottom of the switch assembly as shown in the graphic in order to pry it out.
3. Pull out the switch assembly in order to gain access to the connector.
4. Disconnect the wire connector.
5. Remove the switch from the I/P.

The rear wiper switch (1) is replaced as an assembly if the vehicle is equipped with front fog lamps.

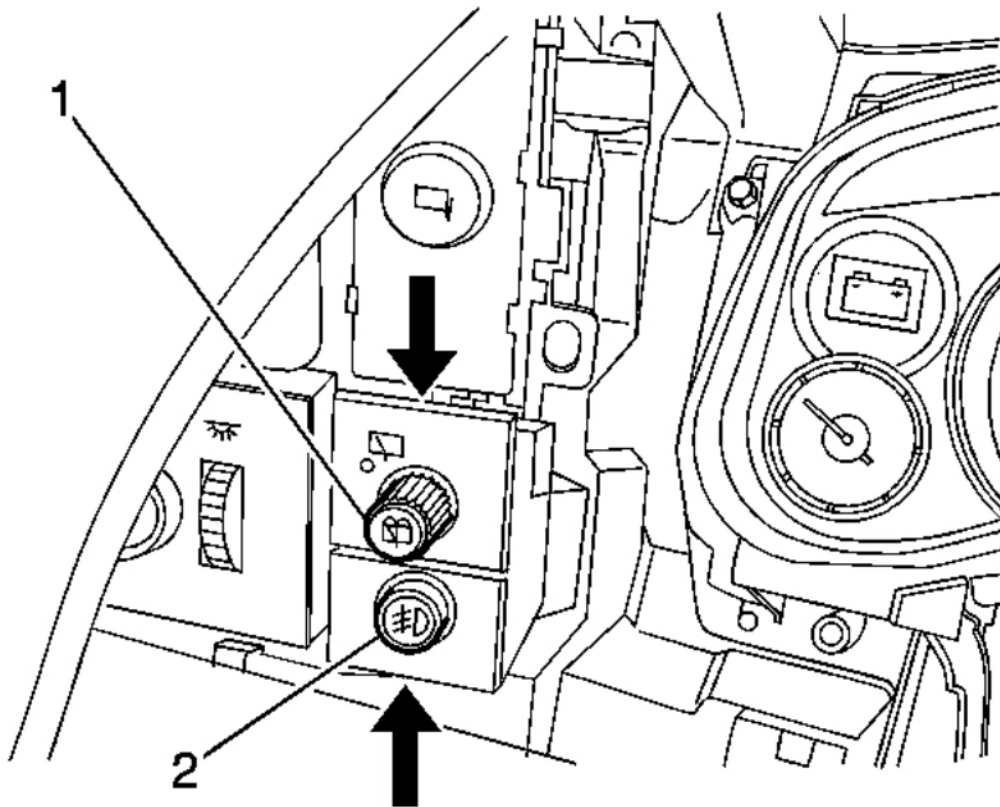


Fig. 56: View Of Wiper/Washer Switch Assembly
Courtesy of GENERAL MOTORS CORP.

Installation Procedure

1. Connect the wire connector to the switch assembly.
2. Push in the switch assembly (1,2) until both tabs click in place.

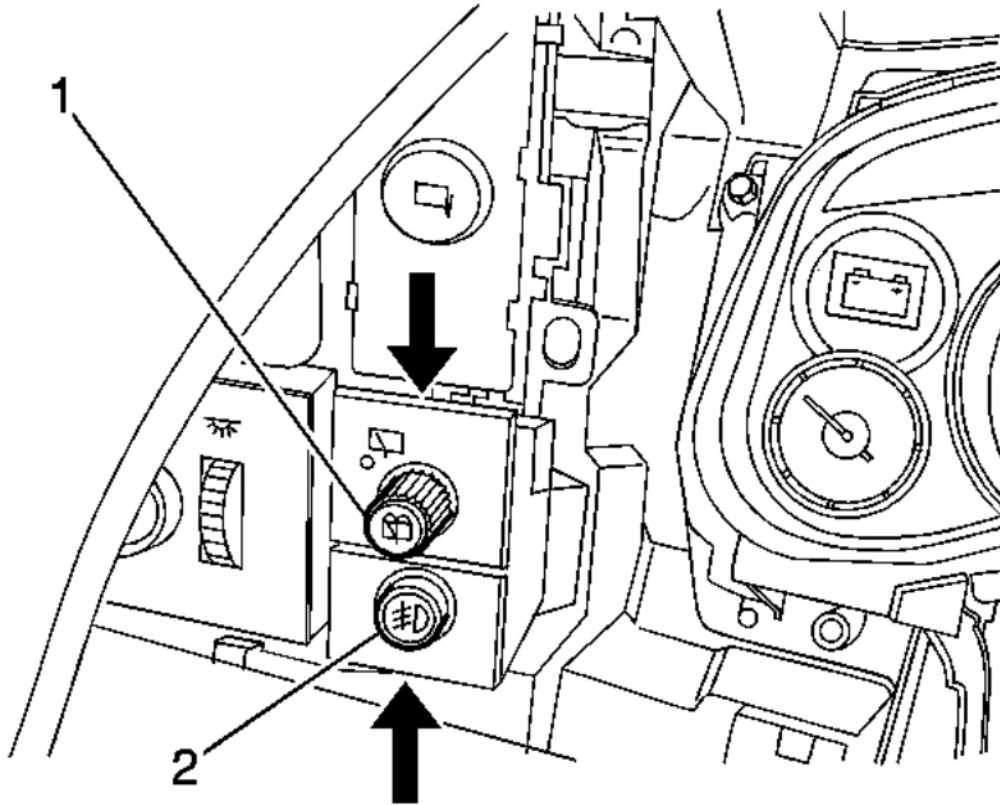


Fig. 57: View Of Wiper/Washer Switch Assembly
Courtesy of GENERAL MOTORS CORP.

3. Install the I/P cluster trim bezel. Refer to **Bezel Replacement - Instrument Panel (I/P) Cluster** in Instrument Panel, Gages and Console.

DESCRIPTION AND OPERATION

WIPER/WASHER SYSTEM DESCRIPTION AND OPERATION

Windshield Wiper/Washer System Components

The windshield wiper/washer system consists of the following components:

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

- Windshield wiper/washer switch
- Windshield wiper motor module
- Windshield washer pump
- Windshield washer relay
- W/S WIPER 25A fuse
- W/S WASH 15A fuse

Wiper/Washer System Operation

The windshield wiper motor module controls the windshield wiper motor and washer pump operation. The windshield wiper motor is a 2 speed motor and is operated at low speed in all modes except HIGH. The accessory voltage supply circuit to the windshield wiper motor provides the power for operating the wiper motor module. The windshield wiper switch supply voltage circuit is a 12-volt reference from the wiper motor module to the wiper/washer switch. The WASH, MIST, LOW, and DELAY modes are controlled by the windshield wiper/washer switch through a series of internal resistors, and the switch position determines the point on the resistor assembly where the reference voltage is applied. The windshield wiper switch signal circuit supplies the signal voltage from the switch assembly to the wiper motor module which determines the operating mode. Windshield wiper motor high speed operation is controlled by the windshield wiper/washer switch through the windshield wiper switch high signal circuit. The windshield wiper switch high signal circuit is supplied 12 volts by the wiper motor module and when the wiper/washer switch is turned to the HIGH position the windshield wiper switch high signal circuit is grounded. The windshield washer pump is controlled by the wiper motor module through the windshield washer relay. The windshield washer relay coil and switch is supplied battery positive voltage, and during WASH mode the wiper motor module grounds the washer relay control circuit energizing the relay. While the relay coil is energized battery positive voltage to the switch side of the relay is supplied to the washer pump control circuit.

Check Washer Fluid Message

The Check Washer Fluid message is controlled by the instrument panel cluster using an input from the washer fluid level switch. The washer fluid level signal circuit is supplied ignition voltage through a resistor then monitored within the instrument cluster. The washer fluid level switch is normally open so the instrument cluster detects ignition voltage on the washer fluid level signal circuit whenever the washer fluid level is not low. When the washer fluid reaches the point where the driver should be informed that the washer fluid is low, the washer fluid level switch closes. When the washer fluid level switch is closed the washer fluid level signal circuit voltage is pulled low, and the instrument panel displays the Check Washer Fluid message on the driver information center. In order to prevent the Check Washer Fluid message from being displayed while sloshing is occurring in the washer fluid container, the instrument cluster is programmed with a 1 minute delay before changing states of the Check Washer Fluid message during an ignition cycle.

REAR WIPER/WASHER SYSTEM DESCRIPTION AND OPERATION

Rear Wiper/Washer System Components

The rear wiper/washer system consists of the following components:

- Rear wiper/washer switch

2004 Cadillac Escalade

2004 ACCESSORIES & EQUIPMENT Wipers/Washer Systems - C/K SUV

- Window wiper module-rear
- Window washer pump-rear
- RR WIPER 15A fuse
- RR WPRB 25A fuse

Rear Wiper/Washer System Operation

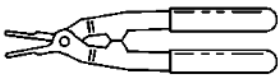
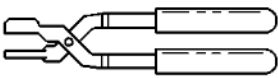
The rear wiper module controls rear wiper motor operation. Battery voltage supplied to the module is used to operate the wiper motor in all modes and to return the rear wiper arm to the park position after the ignition is turned off. Accessory voltage supplied to the rear wiper/washer switch is used to supply the rear window wiper and washer switch signal circuits. In wiper switch positions 1 and 2 the wiper switch signal circuit voltage level to the wiper motor module determines the wiper motor delay interval. The rear window washer pump supply voltage circuit is used to provide the operating voltage for the rear washer pump for as long as the rear washer switch is pressed. The rear window washer switch signal circuit is used as a wash signal to the rear wiper motor module to operate the wipers during the rear wash operation.

The liftgate ajar switch signal circuit provides information to the rear window wiper module about the status of the liftgate. If the liftgate or liftglass is open the rear wiper operation is not performed.

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Special Tools

Illustration	Tool Number/ Description
	J 39232 Wiper Transmission Separator
	J 39529 Wiper Transmission Installer