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P0500 - P0504: Testing and InspectionP0500 (P 0500)

For diagnosis of P0500 refer to the system experiencing the problem.

Computers and Control Systems or Transmission Control System

Refer to pinpoint test DP1. See: Powertrain Management/Computers and Control Syst

For complete Engine Control diagnostic information, See: Powertrain Managemen

Transfer Case

ESOF - Electronic Shift on the Fly

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DTC	Description	DTC Caused By	Actio
B1432	Wiper RUN/PARK Relay Coil Circuit Short to Power	GEM	REFER to Wipers and Washer
B1434	Wiper HI/LO Speed Relay Coil Circuit Open or Short to Ground	GEM	REFER to Wipers and Washer
B1436	Wiper HI/LO Speed Relay Coil Circuit Short to Power	GEM	REFER to Wipers and Washer
B1438	Wiper Mode Select Switch Open or Short to Power	GEM	REFER to Wipers an
B1441	Wiper Mode Select Switch Circuit Short to Ground	GEM	REFER to Wipers and Washer
B1446	Wiper Motor PARK Sense Circuit Short to Ground	GEM	REFER to Wipers an
B1450	Wiper Interval Delay Switch Circuit Open or Short to Power	GEM	REFER to Wipers and Washer
B1453	Wiper Interval Delay Switch Circuit Short to Ground	GEM	REFER to Wipers and Washer
B1458	Washer Pump Motor Relay Coil Circuit Open or Short to Ground	GEM	REFER to Wipers and Washer
B1460	Washer Pump Motor Relay Coil Short to Power	GEM	REFER to Wipers an
B1462	Safety Belt Switch Circuit Open	GEM	REFER to Gauges an
B1466	Wiper HI/LO Speed Not Switching	GEM	REFER to Wipers an
B1467	Wiper HI/LO Speed Motor Circuit Short to Power	GEM	REFER to Wipers an
B1473	Wiper LO Speed Motor Circuit Failure (Wiper Energized and Park Sense Not Seen)	GEM	REFER to Wipers and Washer
B1476	Wiper LO Speed Motor Circuit Failure (Wiper Energized and Park Sense Not Seen)	GEM	REFER to Wipers and Washer
B1483	Brake Pedal Input Open Circuit (No Brake Input Seen For 8 Ignition Cycles)	GEM	GO to Pinpoint Tes
B1485	Brake Pedal Input Circuit Short to Battery	GEM	GO to Pinpoint Tes
B1577	Headlamp/Parking Lamp Input Circuit Short to Power	GEM	REFER to Exterior
B1610	Illuminated Entry Input Short to Ground	GEM	REFER to Interior
B1840	Wiper Power Circuit Failure	GEM	REFER to Wipers an
P0500	Vehicle Speed Signal Not Detected	GEM	GO to Pinpoint Tes
P1804	4-Wheel Drive HI Indicator Open or Short to Ground	GEM	GO to Pinpoint Tes
P1806	4-Wheel Drive HI Indicator Short to Power	GEM	GO to Pinpoint Tes
P1808	4-Wheel Drive LO Indicator Open or Short to Ground	GEM	GO to Pinpoint Tes
P1810	4-Wheel Drive LO Indicator Short to Power	GEM	GO to Pinpoint Tes
P1812	4-Wheel Drive Mode Select Switch Open or Short to Power	GEM	GO to Symptom C
P1815	4-Wheel Drive Mode Select Switch Circuit Short to Ground	GEM	GO to Symptom C
P1819	Neutral Safety Switch Input Short to Ground	GEM	GO to Pinpoint Tes
P1820	Transfer Case LO to HI Shift Relay Coil Open or Short to Ground	GEM	GO to Pinpoint Tes

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

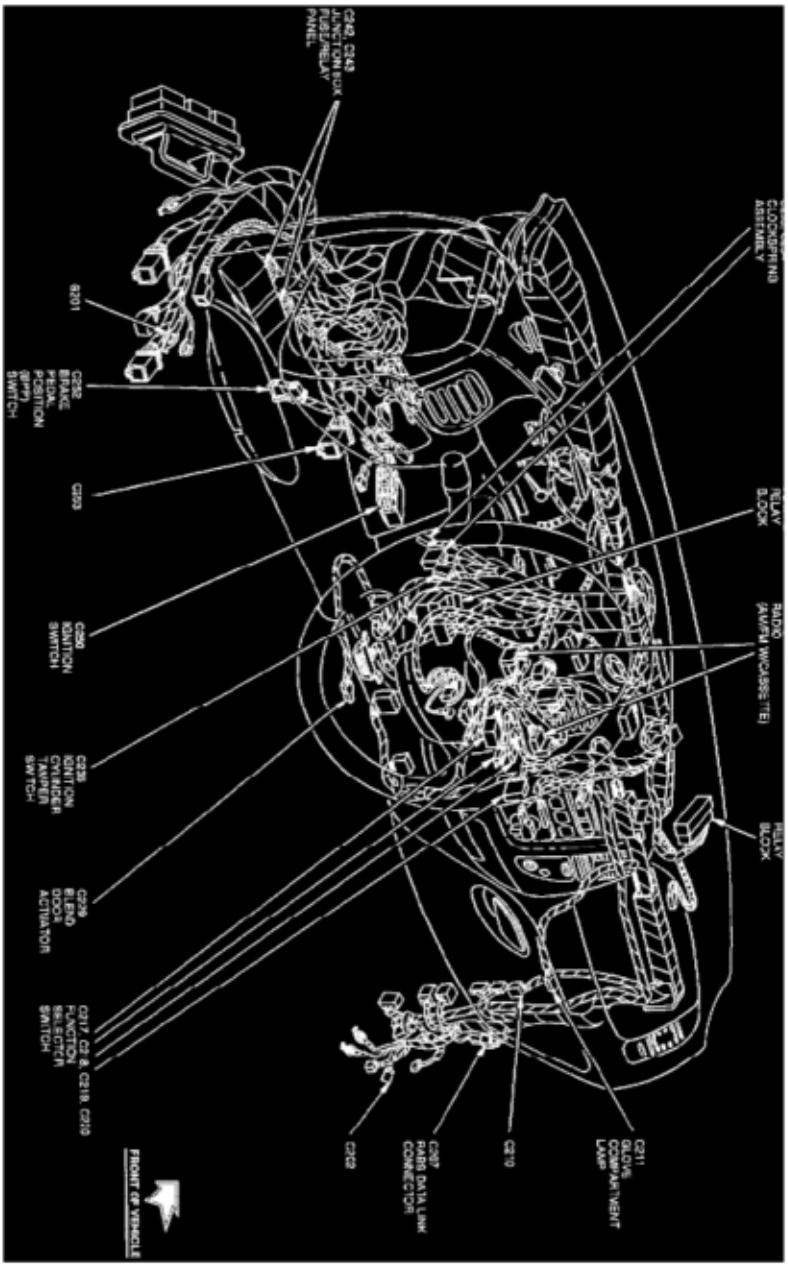
https://www.auto-manual.com/

DTC	Description	DTC Caused By	Actio
B1450	Wiper Interval Delay Switch Circuit Open or Short to Power	GEM	REFER to Wiper and Washer Sy
B1453	Wiper Interval Delay Switch Circuit Short to Ground	GEM	REFER to Wiper and Washer Sy
B1458	Washer Pump Motor Relay Coil Circuit Open or Short to Ground	GEM	REFER to Wiper and Washer Sy
B1460	Washer Pump Motor Relay Coil Short to Power	GEM	REFER to Wiper and
B1462	Seat Belt Switch Circuit Open	GEM	REFER to Gauges and
B1466	Wiper HI/LO Speed Not Switching	GEM	REFER to Wiper and
B1467	Wiper HI/LO Speed Motor Circuit Short to Power	GEM	REFER to Wiper and
B1473	Wiper LO Speed Motor Circuit Failure (Wiper Energized and Park Sense Not Seen)	GEM	REFER to Wiper and
B1476	Wiper LO Speed Motor Circuit Failure (Wiper Energized and Park Sense Not Seen)	GEM	REFER to Wiper and
B1483	Brake Pedal Input Open Circuit (No Brake Input Seen For 8 Ignition Cycles)	GEM	REFER to Transfer ESOF.
B1485	Brake Pedal Input Circuit Short to Battery	GEM	REFER to Transfer ESOF.
B1577	Headlamp/Parking Lamp Input Circuit Short to Power	GEM	REFER toExterior L
B1610	Illuminated Entry Input Short to Ground	GEM	REFER to Interior Li
B1840	Wiper Power Circuit Failure	GEM	REFER to Wiper and
P0500	Vehicle Speed Signal Not Detected For 21 Ignition START Cycles	GEM	REFER to Transfer ESOF.
P1804	4-Wheel Drive HI Indicator Open or Short to Ground	GEM	GO to Pinpoint Tes
P1806	4-Wheel Drive HI Indicator Short to Power	GEM	GO to Pinpoint Tes
P1808	4-Wheel Drive LO Indicator Open or Short to Ground	GEM	REFER to Transfer ESOF.
P1810	4-Wheel Drive LO Indicator Short to Power	GEM	REFER to Transfer ESOF.
P1812	4-Wheel Drive Mode Select Switch Open or Short to Power	GEM	REFER to Transfer ESOF.
P1815	4-Wheel Drive Mode Select Switch Circuit Short to Ground	GEM	REFER to Transfer ESOF.
P1819	Neutral Safety Switch Input Short to Ground	GEM	REFER to Transfer ESOF.
P1820	Transfer Case LO to HI Shift Relay Coil Open or Short to Ground	GEM	REFER to Transfer ESOF.
P1822	Transfer Case LO to HI Shift Relay Coil Short to Power	GEM	REFER to Transfer ESOF.
P1824	4-Wheel Drive Electric Clutch Relay Open or Short to Ground	GEM	GO to Pinpoint Tes
P1826	4-Wheel Drive Electric Clutch Relay Short to Power	GEM	GO to Pinpoint Tes
P1828	Transfer Case HI to LO Shift Relay Open or Short to Ground	GEM	REFER to Transfer ESOF.

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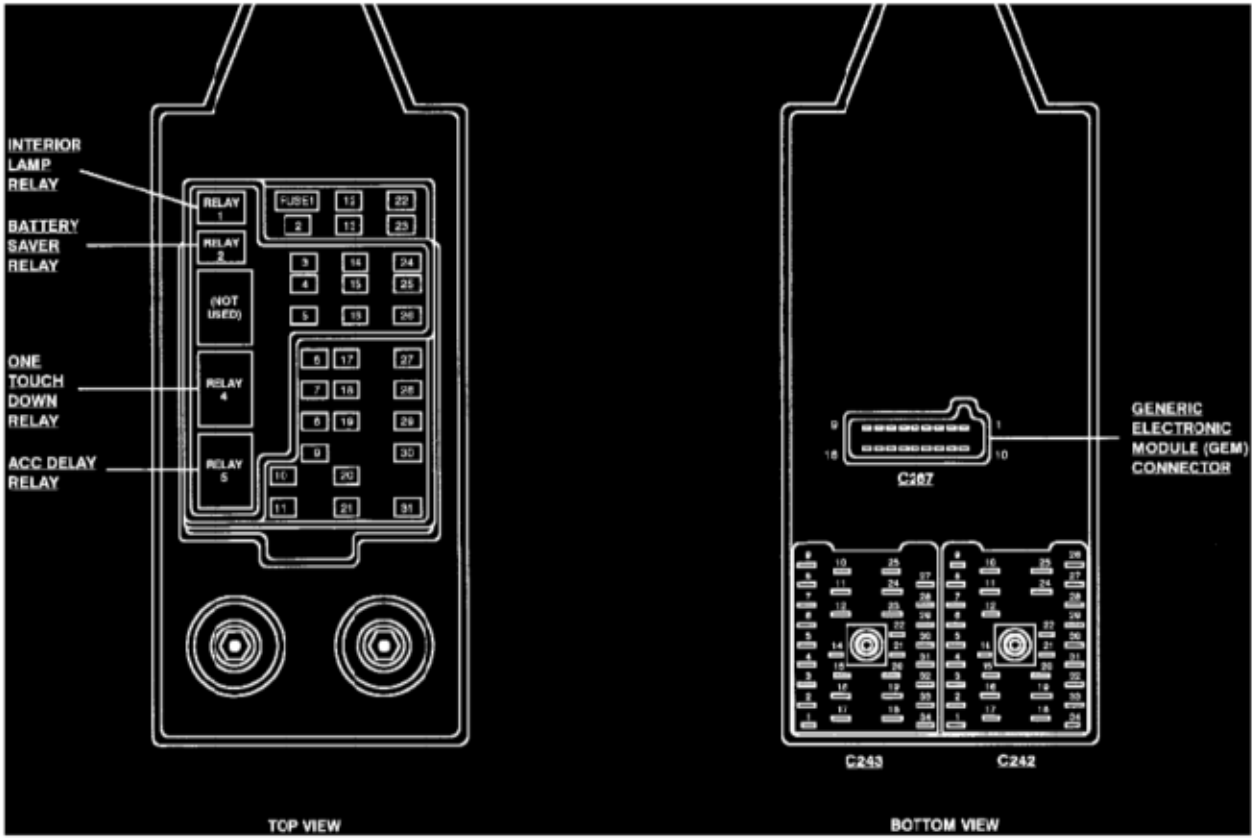
For complete Transfer Case diagnostic information,

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The Accessory Delay Relay is located in the junction box fuse/relay panel.

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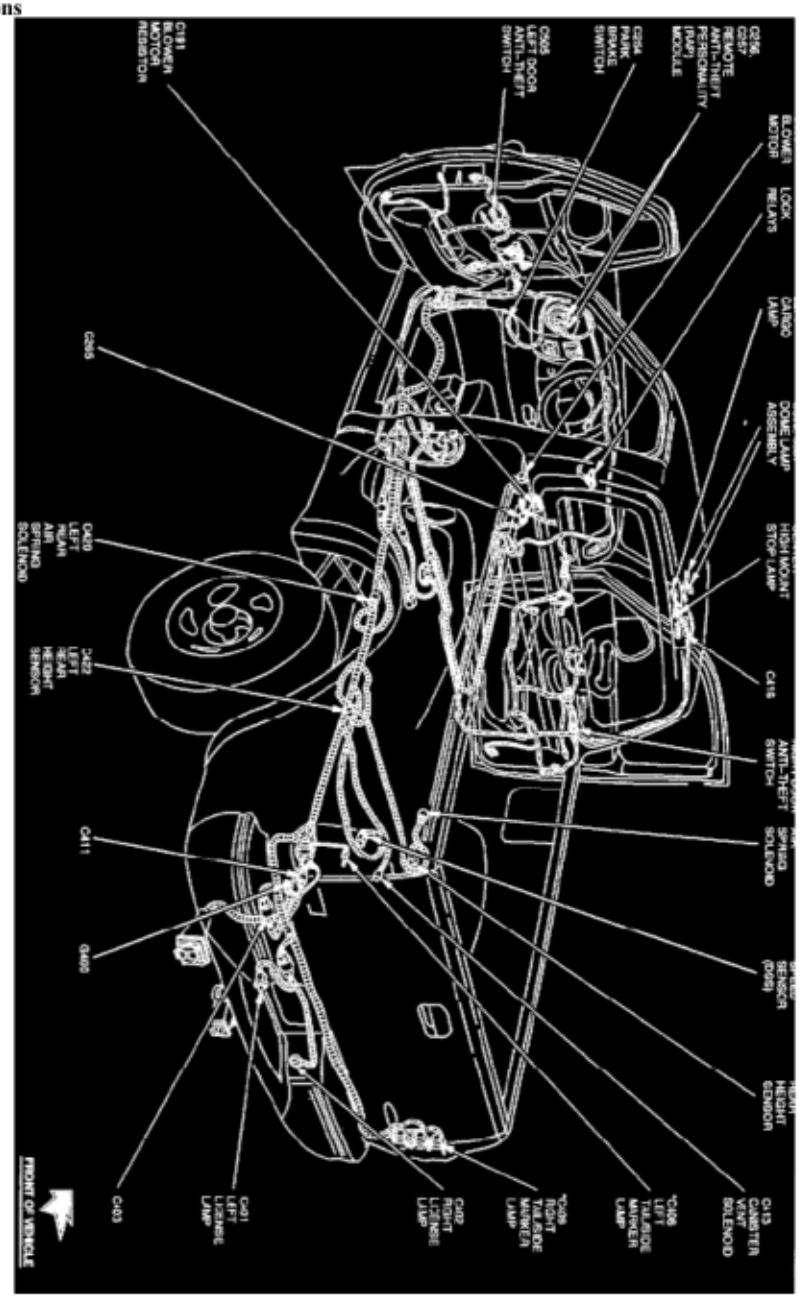
Alarm Module: Specifications

Remote Anti-Theft Personality Module Nuts .....

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Alarm Module: Locations



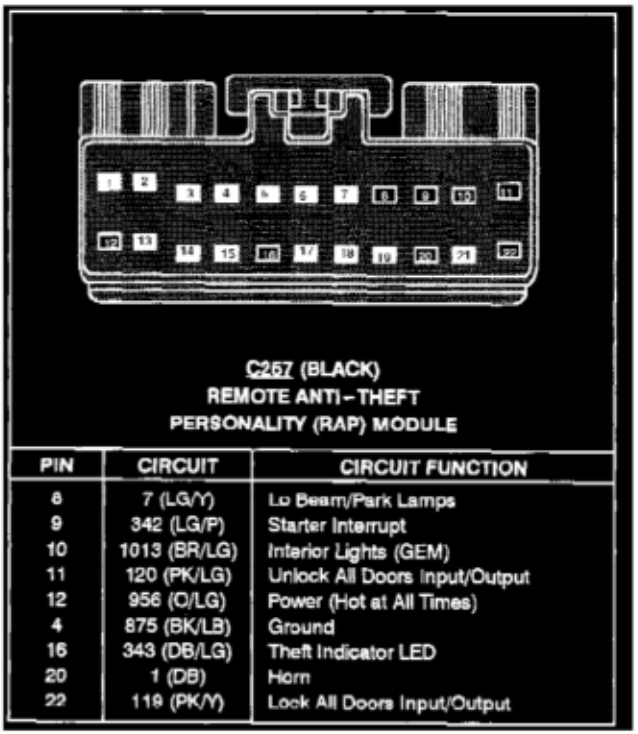
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Body View

The Remote Anti-Theft Personality Module is located behind left side of the instrument panel.

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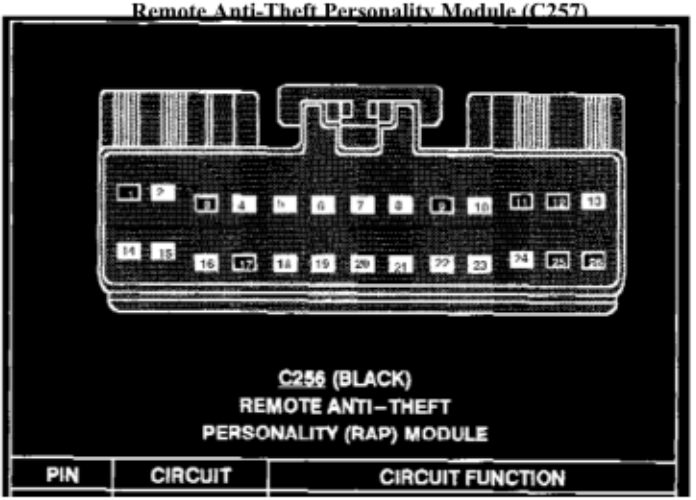
Alarm Module: Diagrams



C257 (BLACK)
REMOTE ANTI-THEFT
PERSONALITY (RAP) MODULE

PIN	CIRCUIT	CIRCUIT FUNCTION
8	7 (LG/Y)	Lo Beam/Park Lamps
9	342 (LG/P)	Starter Interrupt
10	1013 (BR/LG)	Interior Lights (GEM)
11	120 (PK/LG)	Unlock All Doors Input/Output
12	956 (O/LG)	Power (Hot at All Times)
4	875 (BK/LB)	Ground
16	343 (DB/LG)	Theft Indicator LED
20	1 (DB)	Horn
22	119 (PK/Y)	Lock All Doors Input/Output

Remote Anti-Theft Personality Module (C257)



C256 (BLACK)
REMOTE ANTI-THEFT
PERSONALITY (RAP) MODULE

PIN	CIRCUIT	CIRCUIT FUNCTION

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1	164 (P/LB)	Unlock Drivers Door
3	70 (LB/W)	Module Data Link Connector (DLC)
9	25 (DG/P)	Door Disarm Input
11	999 (LB/W)	Door Ajar (GEM)
12	140 (BK/PK)	Transmission Input (Reverse)
17	936 (DG/W)	Ignition Tamper Switch
25	1002 (BK/PK)	Power (Hot in Acc or Run)
26	511 (LG)	Brake Pedal Position (BPP) Switch

Remote Anti-Theft Personality Module (C256)

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Alarm Module: Description and Operation

The RAP module controls the anti-theft system and the keyless entry system. The RAP module communicates

(RAP)
The ignition lock anti-theft switch detects if the ignition key cylinder is broken or "slam pulled" during a theft.

(GEM)
The door open warning lamp switch communicates with the RAP module through the Generic Electronic Modu

The door disarm switches are attached to both the LH and RH lock cylinder. The door disarm switch must be tr

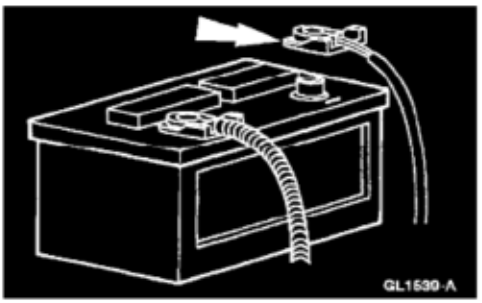
In addition to the perimeter alarm that uses the door open warning lamp switch, the RAP module also uses the i

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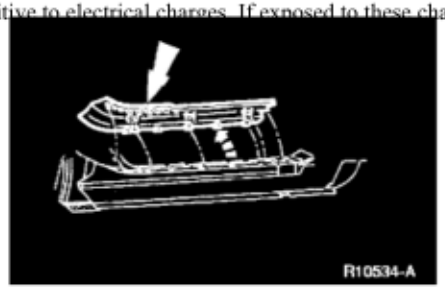
Alarm Module: Service and Repair

REMOVAL

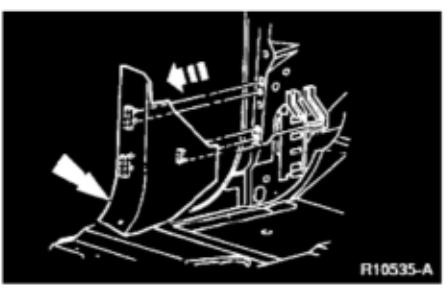


1. Disconnect the battery ground cable.

CAUTION: Electronic modules are sensitive to electrical charges. If exposed to these charges, damage n



2. Remove the LH front door scuff plate.



3. Remove the LH cowl side trim panel.



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(RAP) 4. Disconnect the two Remote Anti-theft Personality module electrical connectors.
1 Disconnect C257.
2 Disconnect C256.

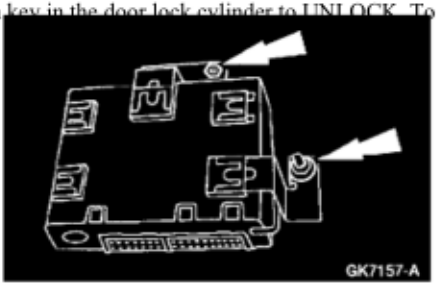
NOTE: If C256 is disconnected first, an inadvertent IGNTAM alarm event (AL_EVT) will be stored and

> Relays and Modules > Relays and Modules - Accessories and Optional Equipment > Alarm Module, (Vehicle Antitheft) > Component Information > Specifications > Page 25

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

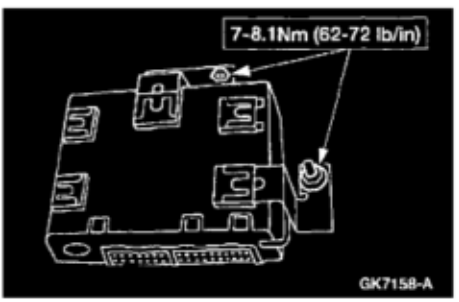
https://www.auto-manual.com/

disarmed by the remote unlock button or a key in the door lock cylinder to UNLOCK. To avoid this cond



5. Remove the RAP module nuts and the RAP module.

INSTALLATION



1. To install, reverse the removal procedure.

16 km (10 mi) When the battery is disconnected and reconnected, some abnormal drive symptoms ma
^ To avoid inadvertent alarm activation, reconnect C256 first.

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NOTE: ^

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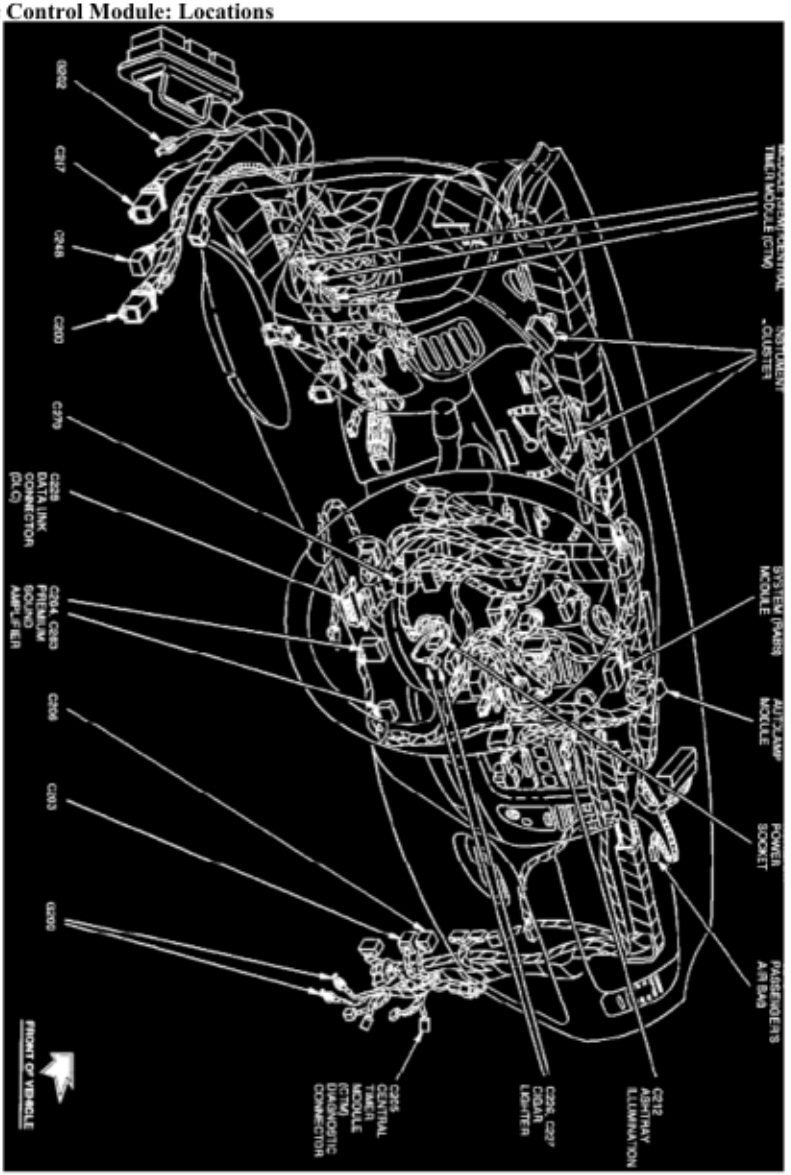
Multifunction Electronic Control Module: Specifications

GEM/CTM Screws .....

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Multifunction Electronic Control Module: Locations

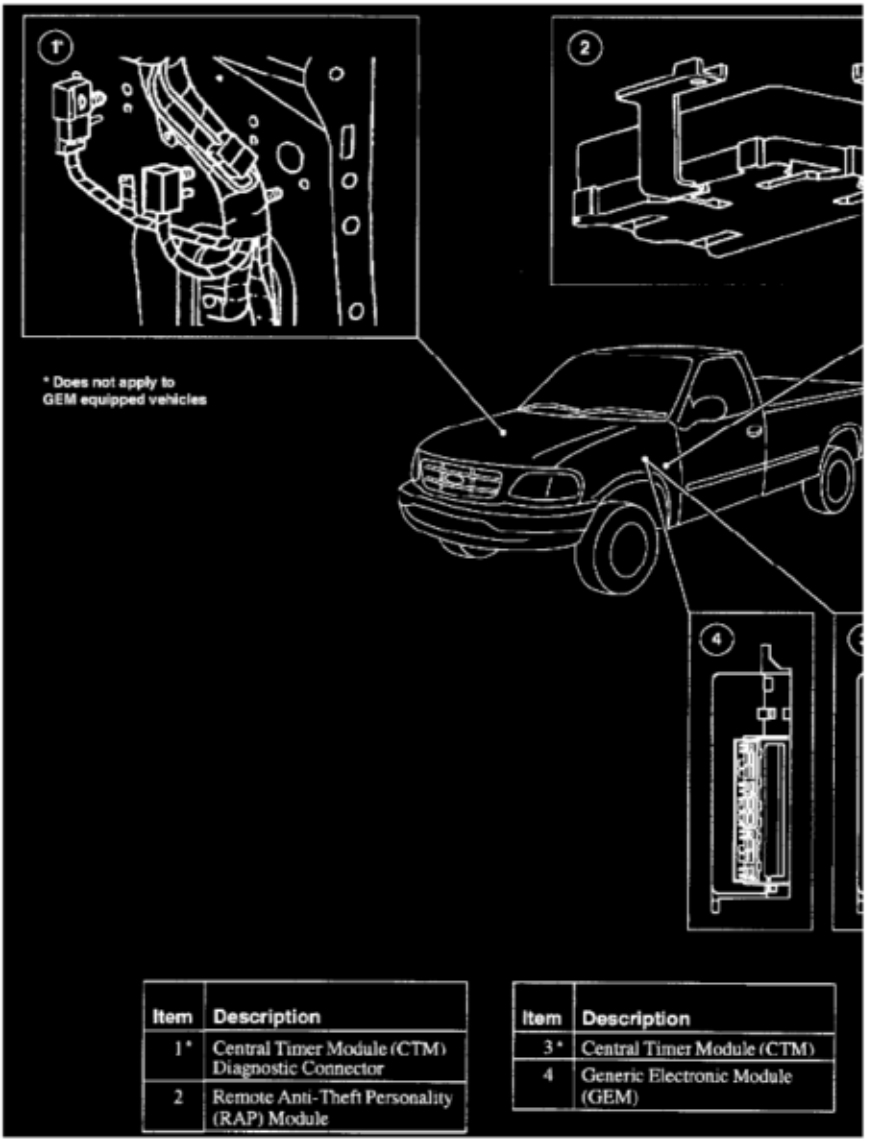


Instrument Panel View

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Item	Description
1 *	Central Timer Module (CTM) Diagnostic Connector
2	Remote Anti-Theft Personality (RAP) Module

Item	Description
3 *	Central Timer Module (CTM)
4	Generic Electronic Module (GEM)

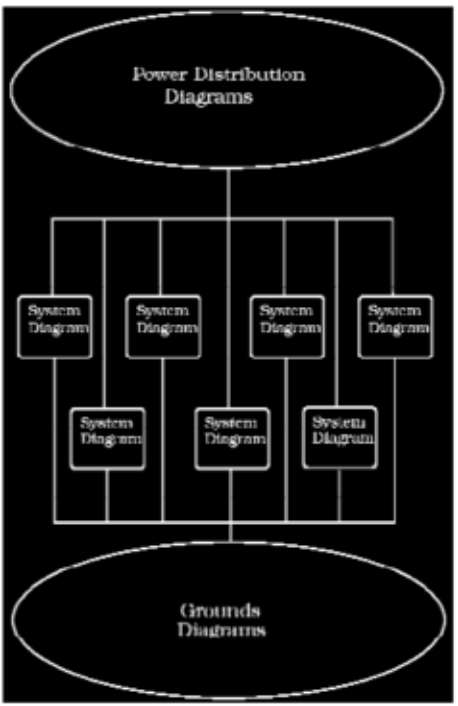
The Generic Electronic Module is located behind center of the instrument panel.

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Multifunction Electronic Control Module: Diagram Information and Instructions

How to Find and Use These Diagrams



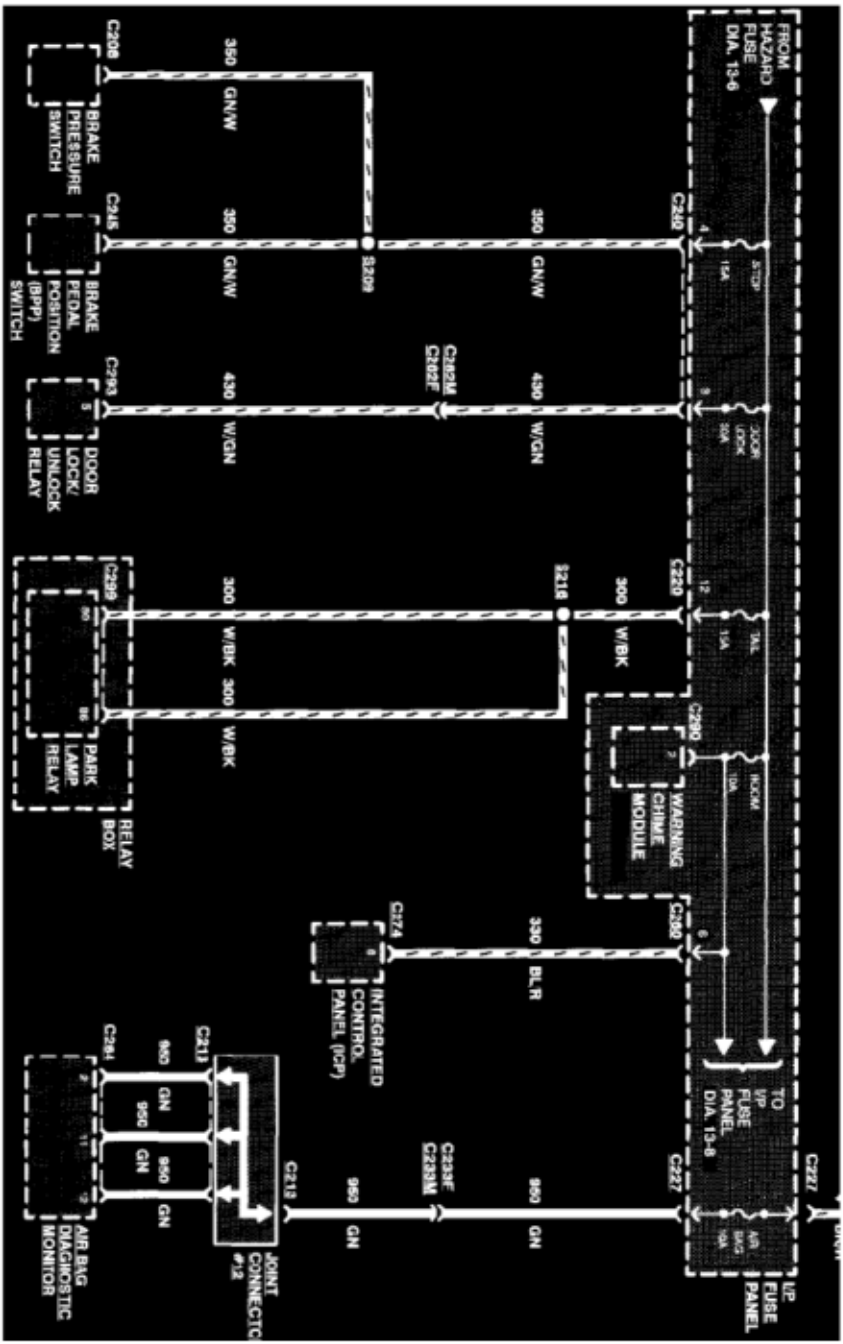
Diagrams are presented in three main categories:

- Power Distribution Diagrams
- System Diagrams
- Grounds Diagrams

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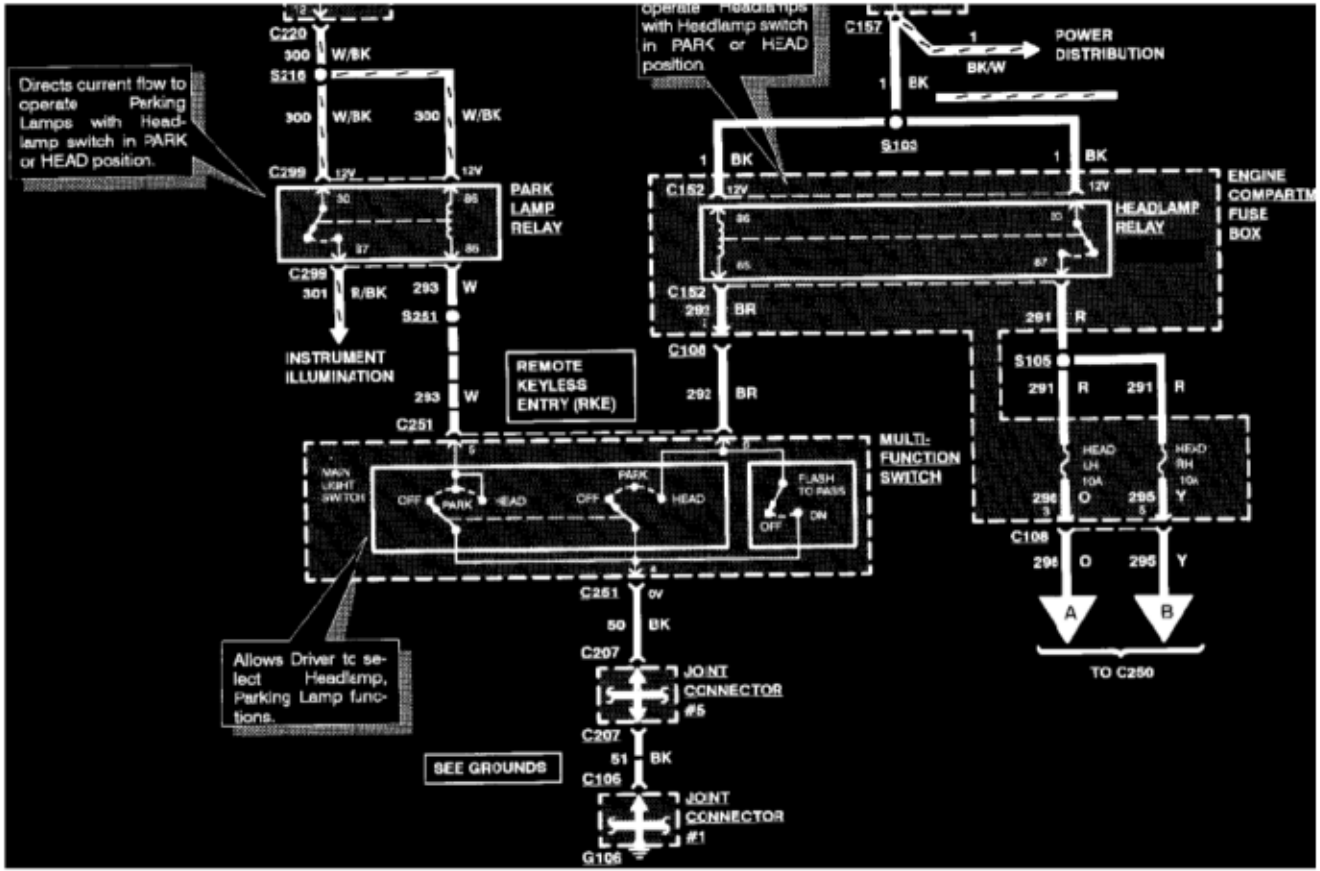
Sample Power Distribution Diagram

Power Distribution Diagrams

Provide the circuit details of how the system diagrams are powered. The power distribution source is shown at The power distribution diagrams can be found at Starting and Charging/Power and Ground Distribution.

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Sample System Diagram

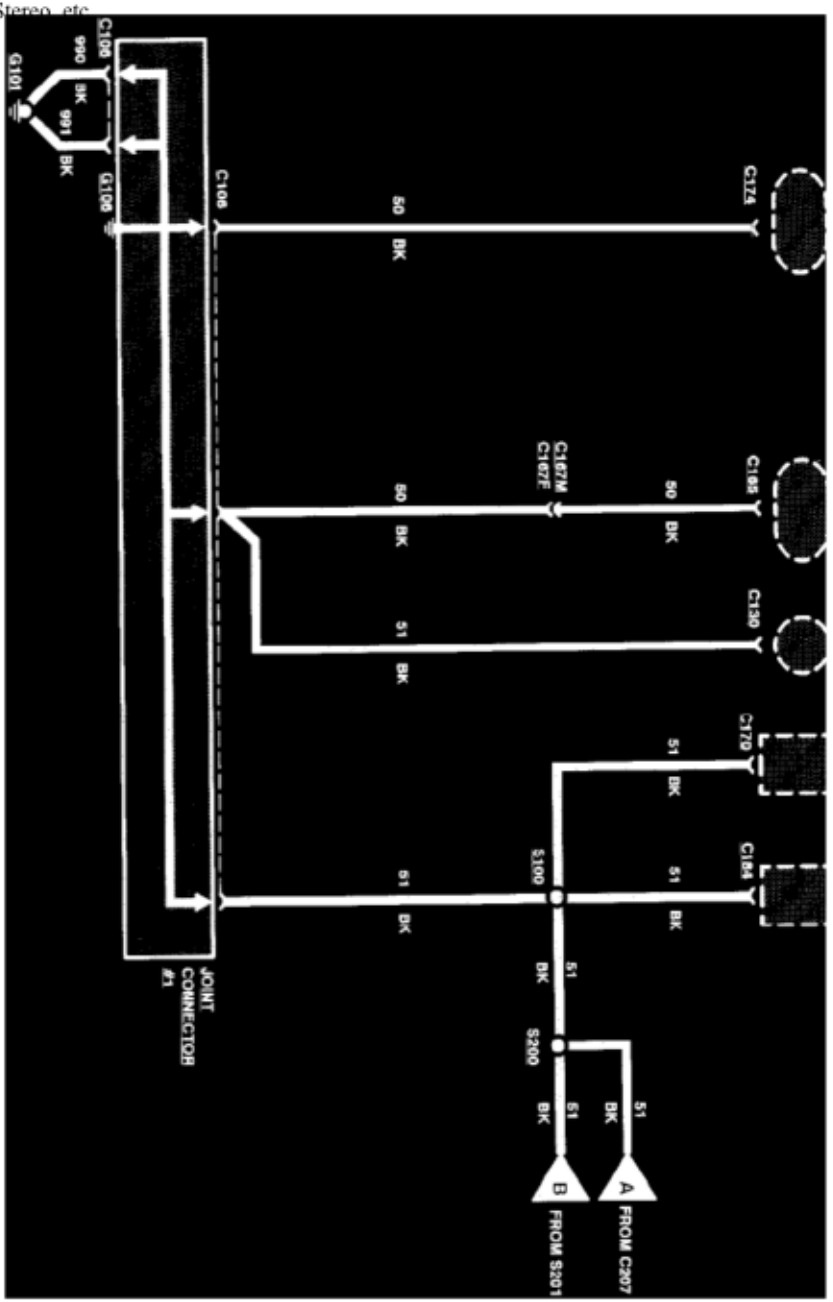
System Diagrams

Components that work together are shown together in a system/subsystem diagram or set of diagrams. The sys

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Management, Radio/Stereo, etc.



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Sample Grounds Diagram

Grounds Diagrams

Provide the circuit details of how the system diagrams are grounded. This information is useful for checking in

The grounds diagrams can be found at Starting and Charging/Power and Ground Distribution.

Symbol Identification

> Relays and Modules > Relays and Modules - Accessories and Optional Equipment > Multifunction Electronic Control Module <--> [General Module] > Component Information > Diagrams > Diagram Information and Instructions > Page 36

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ELECTRICAL SYMBOLS

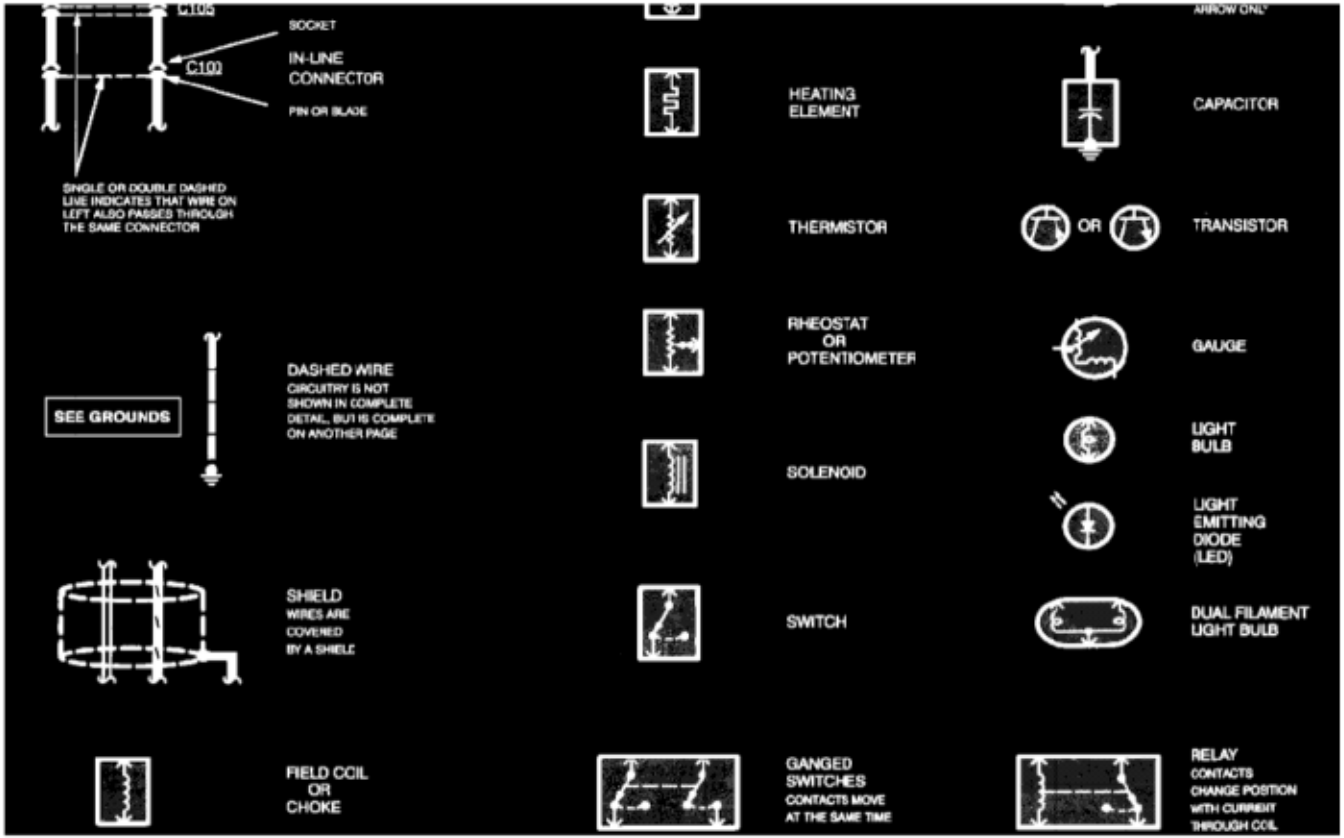
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Electrical Symbols

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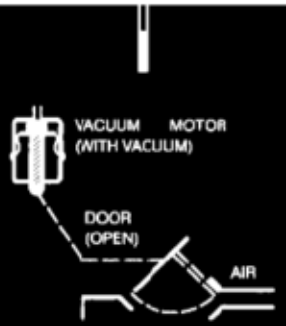
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VACUUM SYMBOLS

> Relays and Modules > Relays and Modules - Accessories and Optional Equipment > Multifunction Electronic Control Module <--> [General Module] > Component Information > Diagrams > Diagram Information and Instructions > Page 38

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

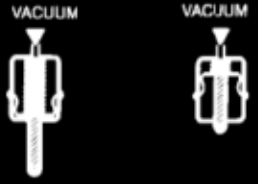
https://www.auto-manual.com/



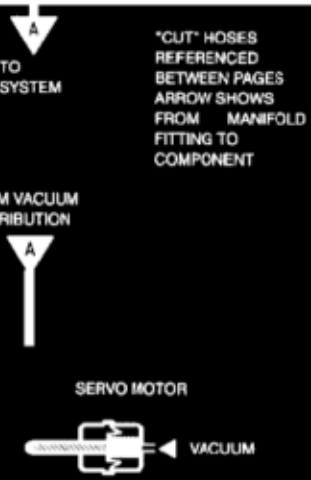
VACUUM ON VACUUM MOTOR PULLS DOOR OPEN TO LET AIR PASS THROUGH

VACUUM MOTOR OPERATIONS

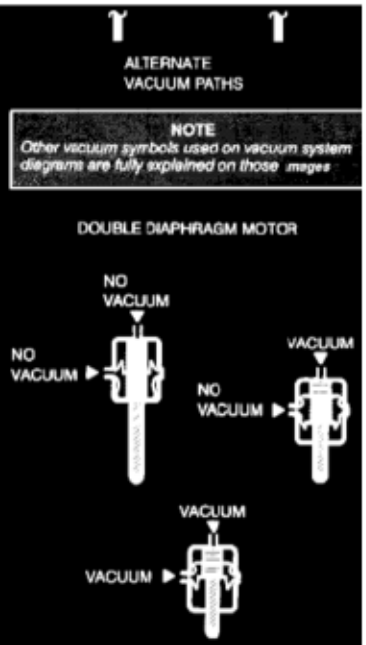
SINGLE DIAPHRAGM MOTOR



Vacuum motors operate like electrcal solenoids, mechanically pushing or pulling a shaft between two fixed positions. When vacuum is not applied, the shift is pushed all the way out by a spring.



Some vacuum motors, such as the Servo Motor in the Speed Control, can position the actuating arm at any position between fully extended and fully retracted. The Servo is operated by a control valve that applies varying amounts of vacuum to the motor. The higher the vacuum level, the greater the retraction of the motor arm. Servo Motors work nearly the same way as two-position motors, except for the way the vacuum is applied. Servo Motors are generaly larger and provide a calibrated control.



A double diaphragm motor has three tions (it is actually two motors in one hou When the top port gets vacuum, the shaft half-way in. When both ports get vacuum shaft pulls all the way in.

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Vacuum Symbols

Wire Color Code Identification

BK
BL
BR
DB: Black: Blue: Brown: Dark Blue

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DG
GY
GN
LB
LG
PK
O
P
R
T
V
W
: Dark Green: Gray: Green: Light Blue: Light Green: Pink: Orange: Purple: Red: Tan: Violet: White: Yellow

NOTE:

Whenever a wire is labeled with two colors, the first color listed is the basic color of the wire, and the second c

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Multifunction Electronic Control Module: Connector Views

PIN	CIRCUIT	CIRCUIT FUNCTION
1	—	NOT USED
2	603 (W/LB)	CTM Diagnostic Input
3	—	NOT USED
4	—	NOT USED
5	—	NOT USED
6	—	NOT USED
7	345 (BK/PK)	Right Door Ajar Input
8	344 (BK/Y)	Left Door Ajar Input
9	433 (DG/O)	Door Ajar Indicator Control
10	158 (BK/PK)	Key Warning Switch Input
11	257 (W/R)	Park/Head Lamps On Input
12	450 (DG/LG)	Fasten Seat Belt Indicator Control
13	680 (LB/O)	Windshield Wiper Interval Delay/Wash
14	875 (BK/LB)	Ground
15	671 (LB)	Front Wiper Motor Position Input
16	*784 (LB/BK)	4x4 Low Range Output to FCM
17	—	NOT USED
18	647 (GY/LB)	Windshield Wiper Hi/Lo Relay Control
19	646 (Y/W)	Wiper/Brake/Run Relay Control
20	—	NOT USED
21	682 (DB)	Signal Return
22	684 (PK/Y)	Windshield Wiper Mode Select Switch
23	85 (BR/LB)	Seat Belt Warning Switch Input
24	836 (T/R)	Windshield Washer Pump Relay Cont
25	70 (LB/W)	Diagnostic Input
26	875 (BK/LB)	Ground

* GEN FUNCTION

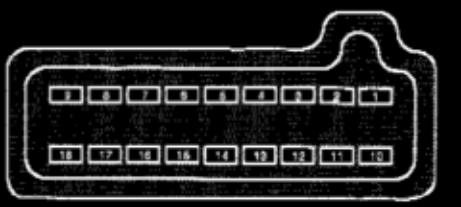
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Generic Electronic Module/Central Timer Module

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C267
GENERIC ELECTRONIC MODULE (GEM)

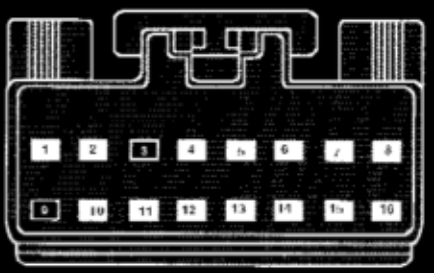
PIN	CIRCUIT FUNCTION
1	Battery Saver Relay Coil Control
*2	One Touch Down Relay Coil Control
3	Power (Hot In Run)
4	Power (Hot At All Times)
5	(Hot In Start)/Ground With Clutch Depressed Input
*6	LH Window Up Input
*7	LH Window Motor Current Sense (Low)
*8	LH Window Down Input
*9	One Touch Down Input
10	Vehicle Speed (−) Input
11	Accessory Delay Relay Coil Control
12	NOT USED
13	(Hot In Acc or Run) Input
14	NOT USED
15	Interior Lamp Relay Coil Control
16	Power (Hot At All Times)
*17	LH Window Motor Current Sense (High)
18	Vehicle Speed (+) Input

Generic Electronic Module (C267)

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C240 (GRAY)
GENERIC ELECTRONIC MODULE (GEM)

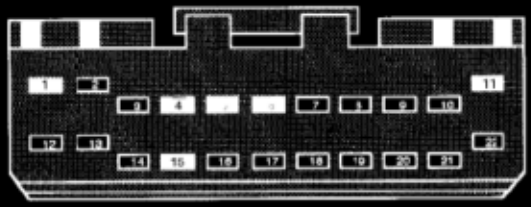
PIN	CIRCUIT	CIRCUIT FUNCTION
1	—	NOT USED
2	—	NOT USED
3	989 (LB/W)	Door Ajar Output
4	—	NOT USED
5	—	NOT USED
6	—	NOT USED
7	—	NOT USED
8	—	NOT USED
9	1013 (BR/LG)	Illuminated Entry Input
10	—	NOT USED
11	—	NOT USED
12	—	NOT USED
13	—	NOT USED
14	—	NOT USED
15	—	NOT USED
16	—	NOT USED

Generic Electronic Module (C240)

https://www.auto-manual.com/

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/



C241 (GRAY)

GENERIC ELECTRONIC MODULE (GEM)

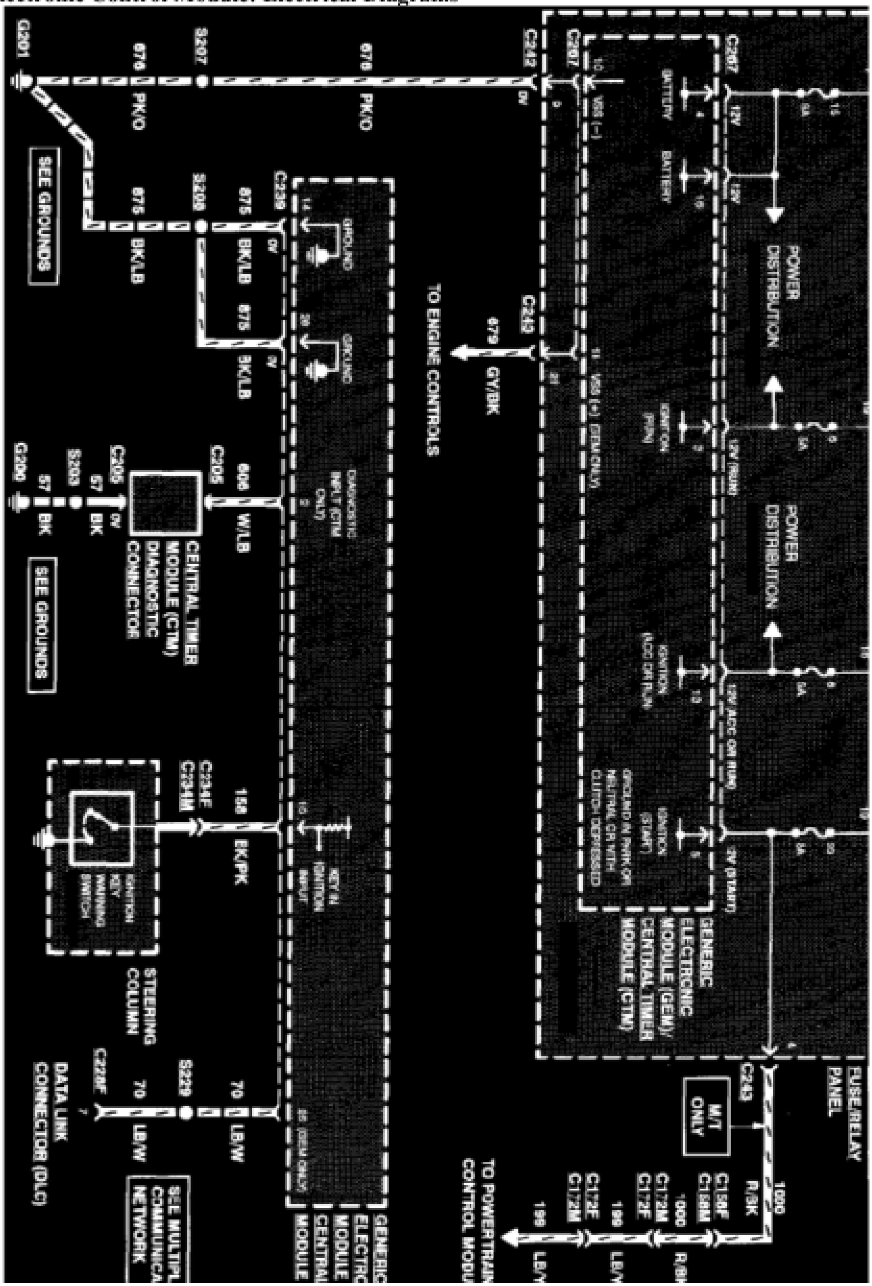
PIN	CIRCUIT	CIRCUIT FUNCTION
1	—	NOT USED
2	145 (GY/BK)	4X2 Center Axle Solenoid Control
3	783 (GY)	4X4 Switch Input (Mechanical)
4	—	NOT USED
5	—	NOT USED
6	—	NOT USED
7	605 (R)	4X4 Center Axle Solenoid Control
*8	780 (DB)	4X4 Mode Switch Input
9	210 (LB)	4X4 (High Range) Indicator Control
10	975 (BK/Y)	(4X4) Low Range Indicator Control
11	—	NOT USED
*12	762 (Y/W)	4WD Contact Plate Ground Output
*13	511 (LG)	Brake Pedal Position (BPP) Switch Input
14	976 (O)	Transfer Case Electric Clutch Relay Output
15	—	NOT USED
*16	782 (BR/W)	4 Low to 4 High Relay Control
*17	781 (O/LB)	4 High to 4 Low Relay Control
*18	763 (O/W)	Contact Plate D
*19	764 (BR/W)	Contact Plate C
*20	770 (W)	Contact Plate B
*21	771 (P/Y)	Contact Plate A
*22	463 (R/W)	Neutral Sense Input

* ESOF ONLY

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Multifunction Electronic Control Module: Electrical Diagrams



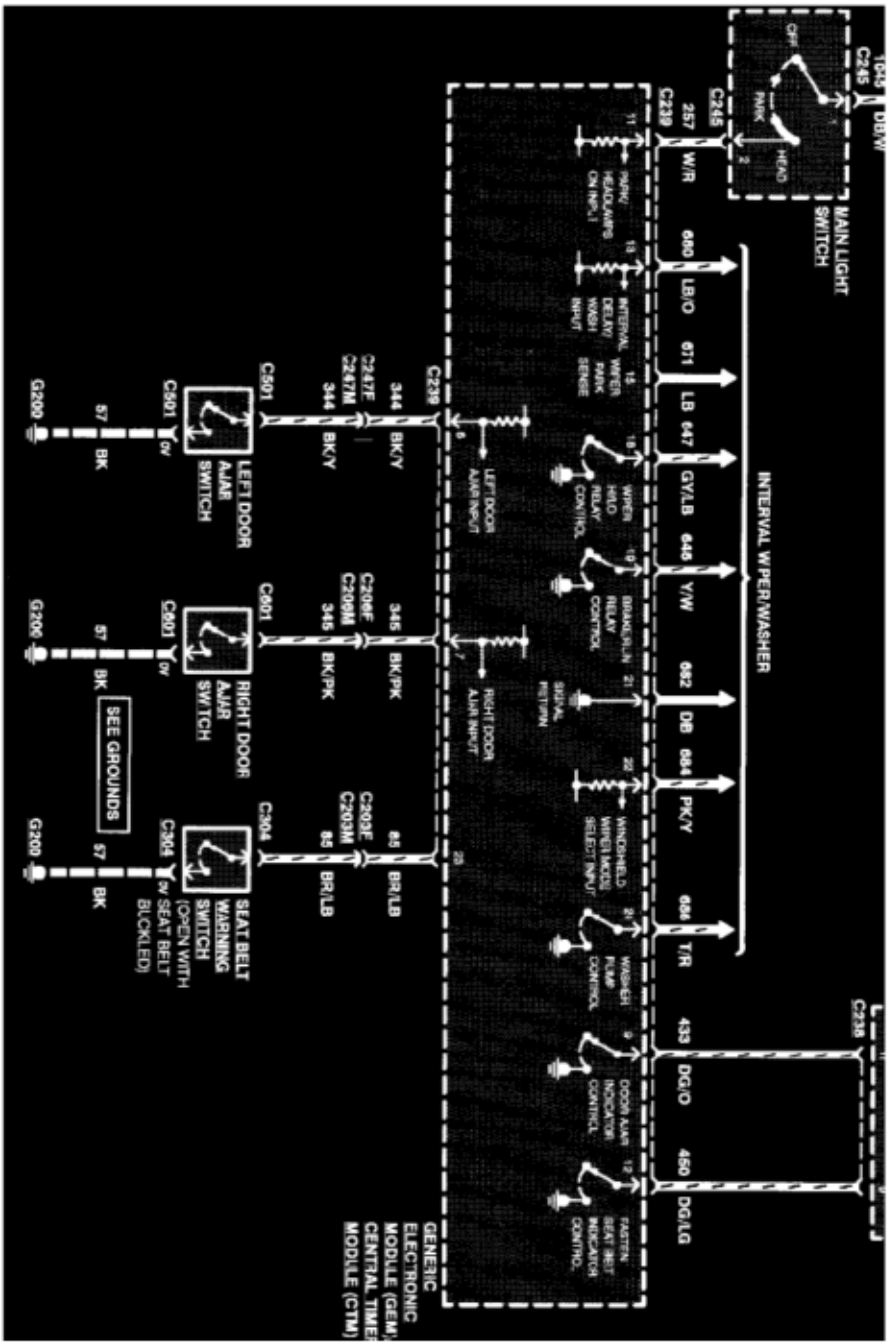
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Generic Electronic Module (Part 1 Of 4)

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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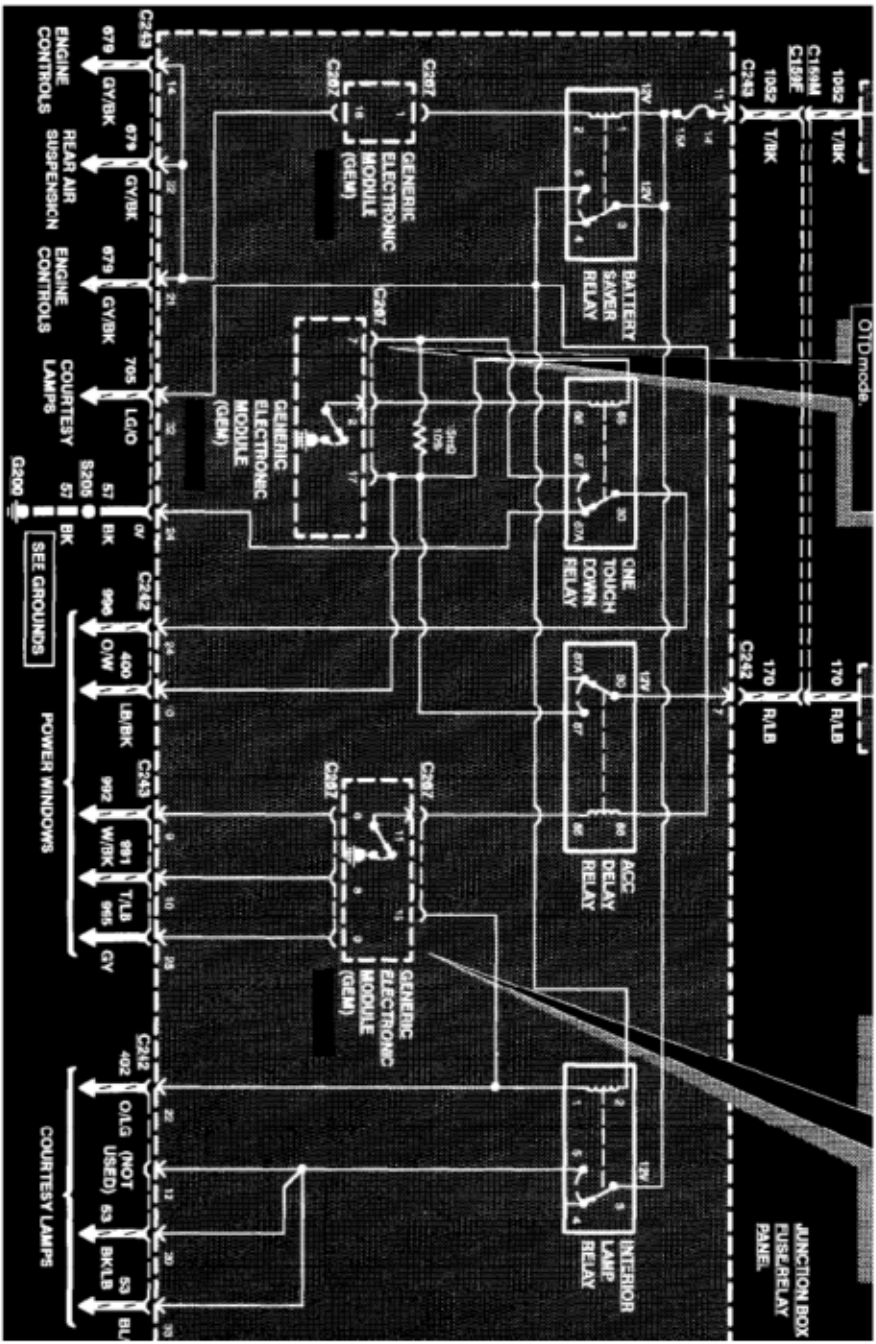


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Generic Electronic Module (Part 2 Of 4)

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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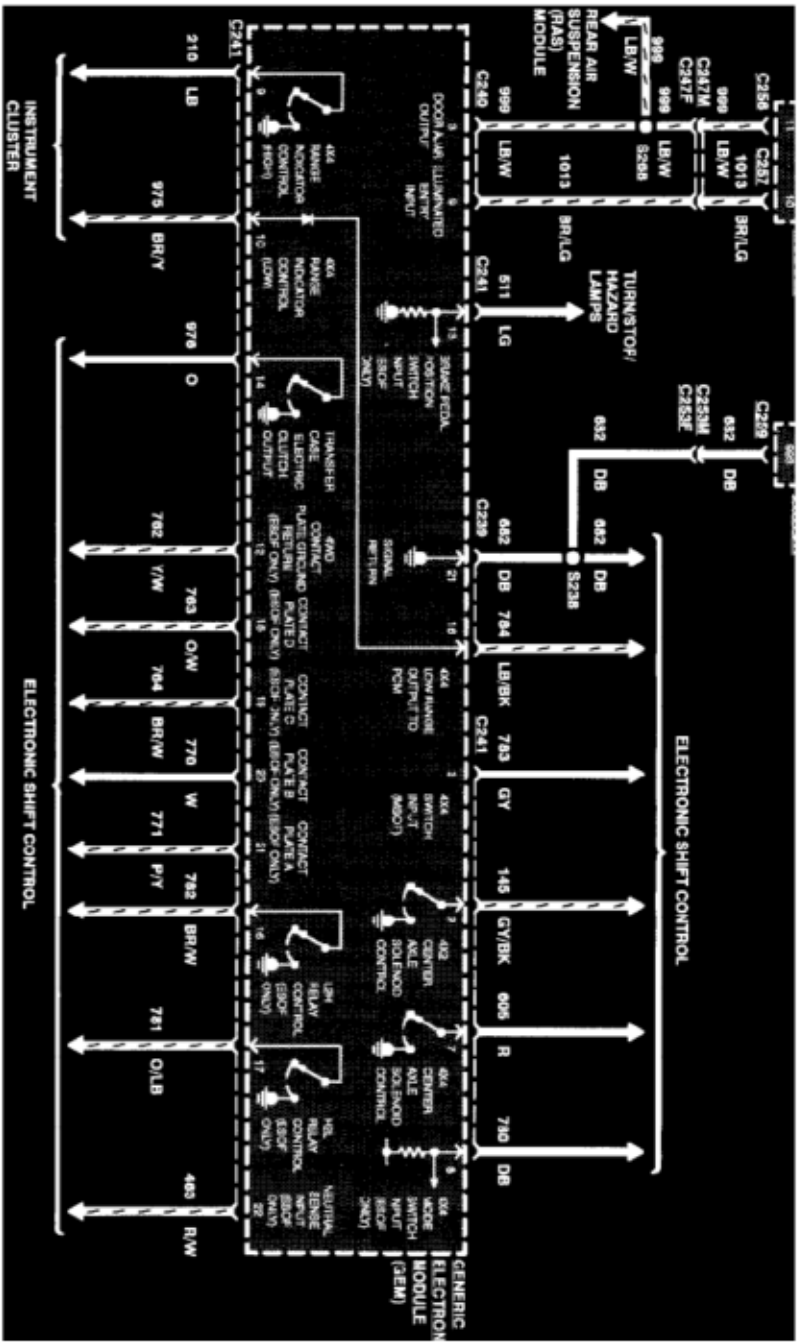
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Generic Electronic Module

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

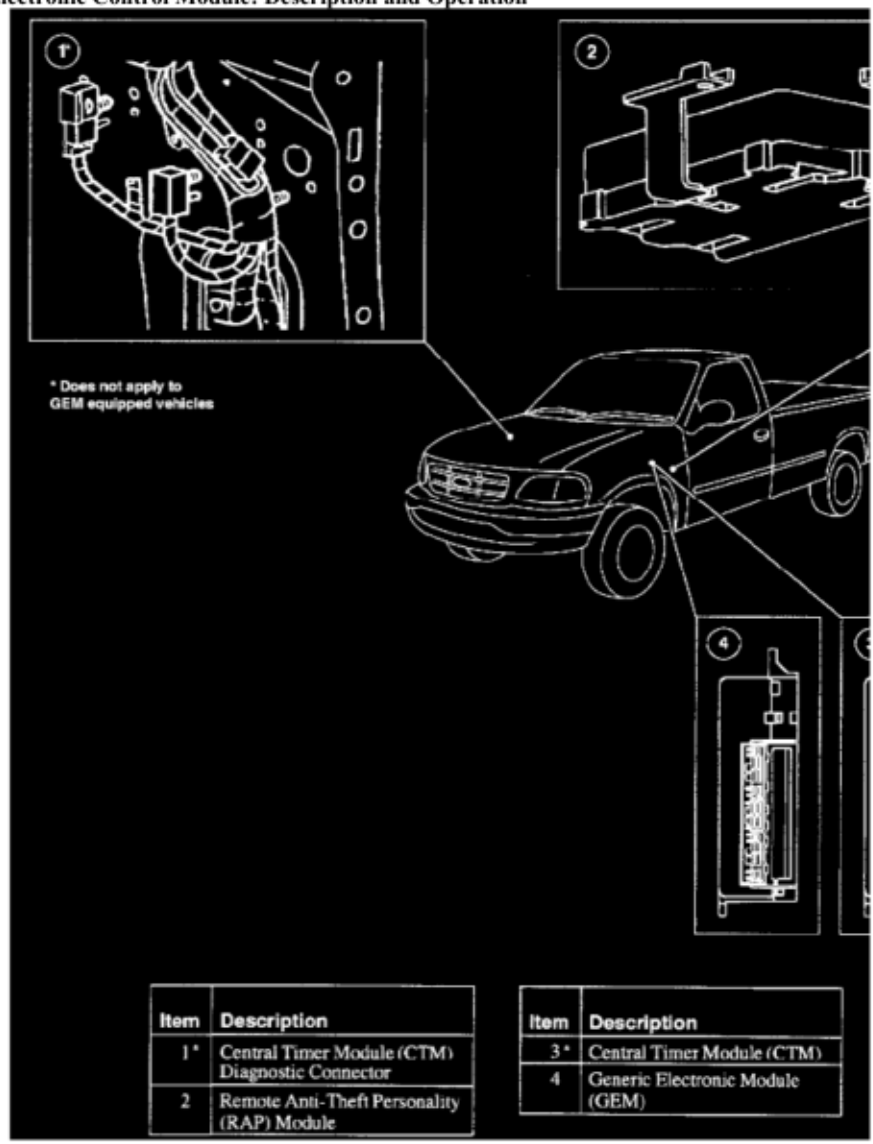
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Multifunction Electronic Control Module: Description and Operation



Item	Description
1 *	Central Timer Module (CTM) Diagnostic Connector
2	Remote Anti-Theft Personality (RAP) Module

Item	Description
3 *	Central Timer Module (CTM)
4	Generic Electronic Module (GEM)

(CTMs)
(GEM) Central Timer Modules are equipped on two-wheel drive vehicles without power windows. All other ve

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NOTE: (NGS)

CTM diagnostics are not compatible with the New Generation STAR Tester; instead, the diagnostics are intern

The GEM inputs and outputs are designed to withstand continuous exposure to a short circuit to ground or batte

GEM Diagnostics

(SBDS)

(DTC) The GEM diagnostics are accessible with the New Generation Star Tester and the Service Bay Diagnosti

There are three areas of diagnostic information useful when diagnosing the GEM.

^ DTCs A record of past or present system problems.

> Relays and Modules > Relays and Modules - Accessories and Optional Equipment > Multifunction Electronic Control Module <--> [General Module] > Component Information > Diagrams > Page 49

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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^ PIDs - The present state of an input or output.
^ Active Commands Gives the ability to turn on GEM outputs without activating the inputs normally assoc

Ignition Switch Positions

The position of the ignition switch is very important to proper GEM operation. Often times, erratic or unexpect

When the ignition switch is in the RUN position, battery voltage should be present at the GEM/CTM RUN and

When the ignition switch is in the START position, battery voltage should be present at the GEM/CTM start/cl

The GEM module does not have an OFF or LOCK Switch State input. The GEM will assume the OFF or LOCI

GEM Features and Functions

Feature	CTM	4x2 GEM	MSOF GEM
Safety Belt Warning*	X	X	X
Key-In-Ignition Warning**	X	X	X
Headlamp-On Warning Indicator**	X	X	X
Door Ajar Warning*	X	X	X
Windshield Wiper/Washer Control	X	X	X
Interior Courtesy Lamp Control	X	X	X
Illuminated Entry		X	X
Battery Saver	X	X	X
One-Touch-Down Window		X	X
Delayed Accessory		X	X
4x4 - MSOF			X
4x4 - ESOF			

* This feature provides an audible warning and an indicator lamp.
** This feature provides an audible warning.

GEM Feature Matrix

The GEM controls the following features:
^ Wipers/washers.
^ Warning chimes.
^ Battery saver.
^ Illuminated entry and courtesy lamps.
^ Driver power window
^ Accessory delay.
^ 4-wheel drive

Wiper/Washer Control and Interval Timer

https://www.auto-manual.com/

16 and 105 km/h (10 and 65 mph) There are four modes of operation for the wipers: interval (standard CTM a

Chime Warning

There are four warning chimes and lamps that are controlled by the GEM and CTM: headlamps operating with

Battery Saver

40 minutes

The battery saver feature removes extended interior lamp power drains from the battery. The GEM and CTM w

> Relays and Modules > Relays and Modules - Accessories and Optional Equipment > Multifunction Electronic Control Module <--> [General Module] > Component Information > Diagrams > Page 50

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

- ^ Any door becomes ajar or is closed.
- ^ The key is inserted or removed.
- ^ The ignition switch is turned to ACC or RUN.
- ^ The doors are unlocked with the keyless entry remote transmitter.

Courtesy Lamps/Illuminated Entry

(RAP) The GEM/CTM illuminates the interior courtesy lamps when any door is ajar. The GEM also receives a

- ^ **Twenty-five seconds** have elapsed since the illuminated entry feature was activated.
- ^ The ignition switch is turned to RUN.
- ^ **25 km/h (15 mph) 16 km/h (10 mph)**
  Vehicle speed is over (a new ajar signal will turn on courtesy lamps only if the vehicle speed is less than

Delayed Accessory (GEM only)

ten minutes
ten-minute The delayed accessory feature provides power to the power windows for after the ignition switch is

One-Touch Down Window (GEM only)

The power switch for the driver window control has two detents for the down window control. With the ignitio

Transfer Case (4-Wheel Drive - GEM Only)

(MSOF) (ESOF) Two types of 4-wheel drive systems are offered: the Mechanical Shift-On-the-Fly and the Ele

RAP-Controlled Functions

The RAP module controls the door locks through three external relays located under the instrument panel relay

- ^ Driver unlock relay.
- ^ All unlock relay.
- ^ All lock relay.

The RAP module receives input from the following components for electronic door lock system operation:

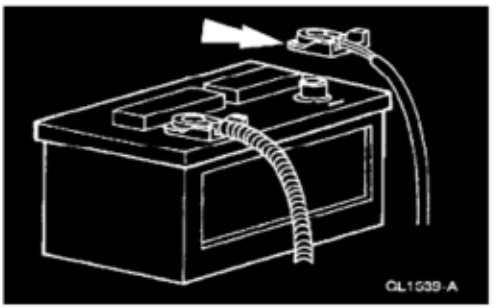
- ^ Keyless entry remote transmitters.
- ^ Door ajar output from the GEM.
- ^ Door unlock switches (LH/RH).
- ^ **(BPP)** Brake Pedal Position switch.
- ^ **(DTR)** Digital Transmission Range sensor.

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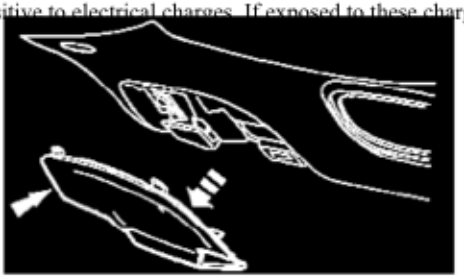
Multifunction Electronic Control Module: Service and Repair
GENERIC ELECTRONIC MODULE

REMOVAL

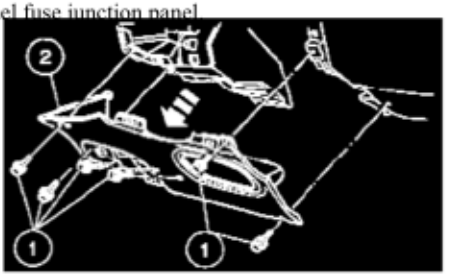


1. Disconnect the battery ground cable.

CAUTION: Electronic modules are sensitive to electrical charges. If exposed to these charges, damage n



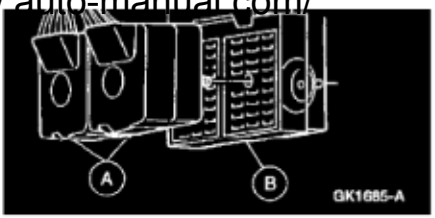
2. Remove the cover from the instrument panel fuse junction panel.



3. Remove the lower instrument panel steering column cover.
   1 Remove the lower instrument panel steering column cover bolts.
   2 Remove the lower instrument panel steering column cover.



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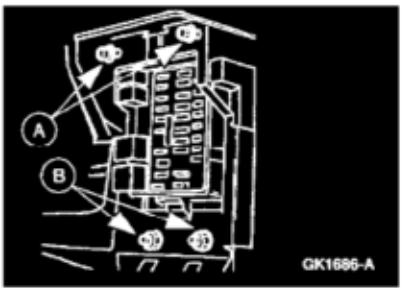


4. Remove the (A) bulkhead electrical connectors from the (B) instrument panel fuse junction panel.

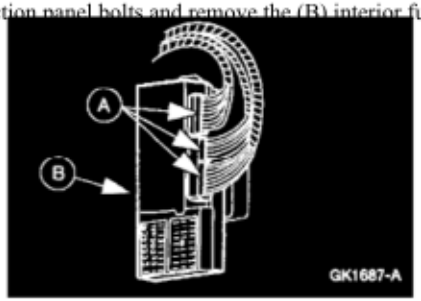
> Relays and Modules > Relays and Modules - Accessories and Optional Equipment > Multifunction Electronic Control Module <--> [General Module] > Component Information > Diagrams > Page 52

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

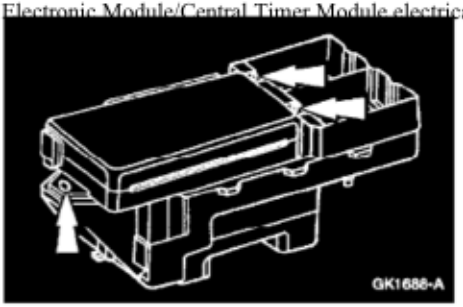
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5 Remove the (A) instrument panel fuse junction panel bolts and remove the (B) interior fuse junction pane



(GEM/CTM) 6. Disconnect the (A) Generic Electronic Module/Central Timer Module electrical connectors f



7. Remove the GEM/CTM screws and the GEM/CTM.

INSTALLATION

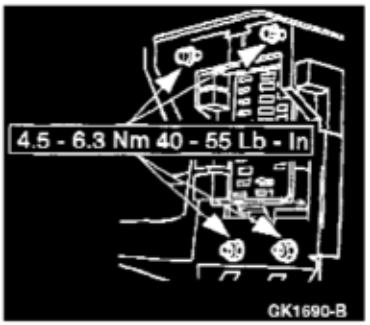


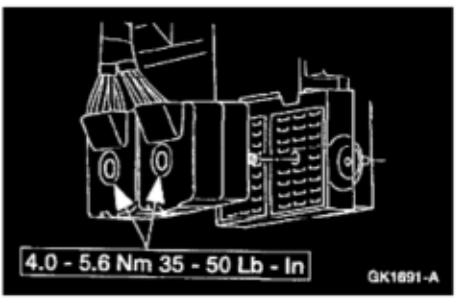
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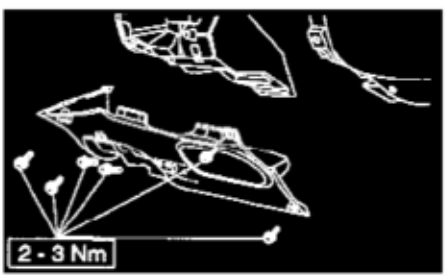


F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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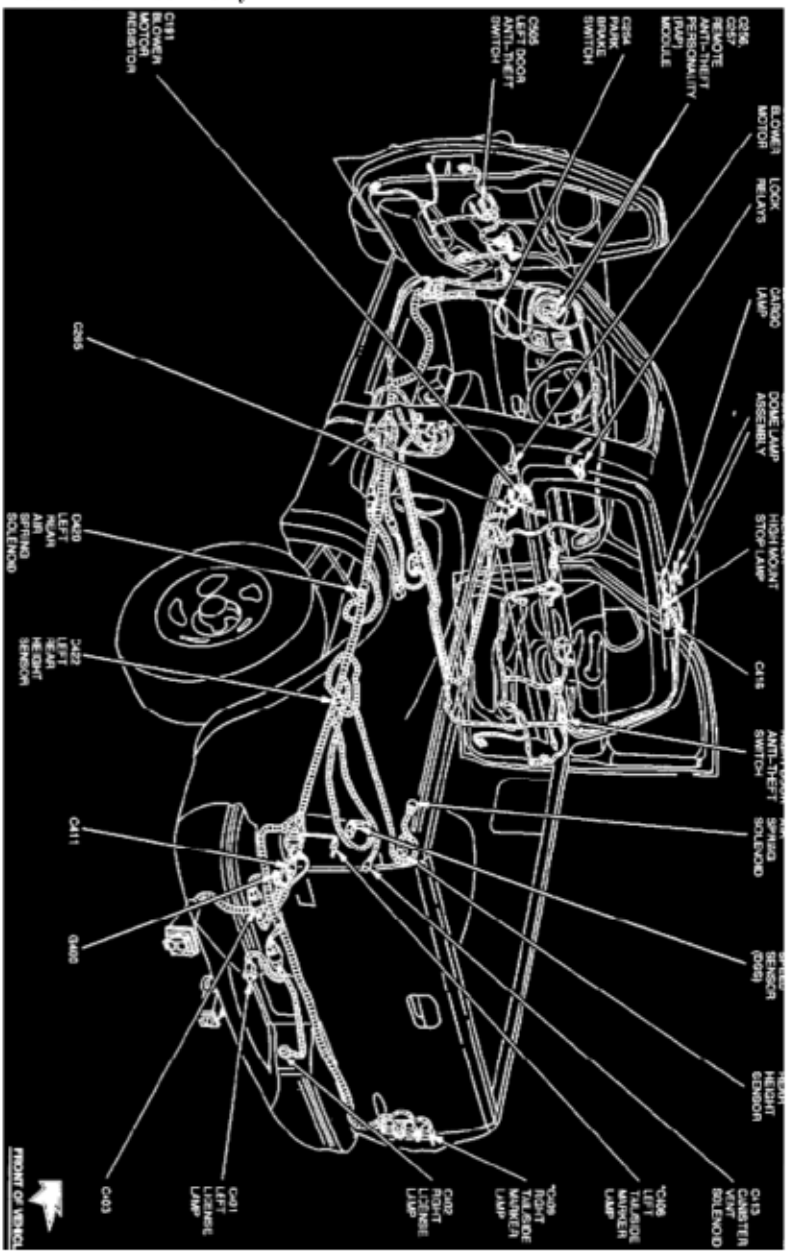
1. To install, reverse the removal procedure.
   ^ Check for proper operation.

NOTE:
16 km (10 mi) When the battery is disconnected and reconnected, some abnormal drive symptoms may c

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Power Door Lock Relay: LocationsAll Lock Relay

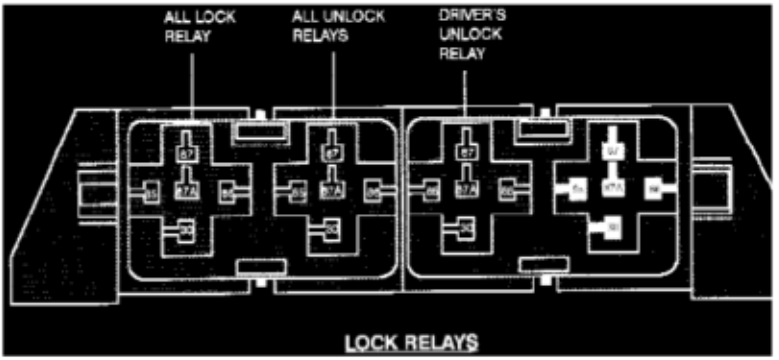


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Body View

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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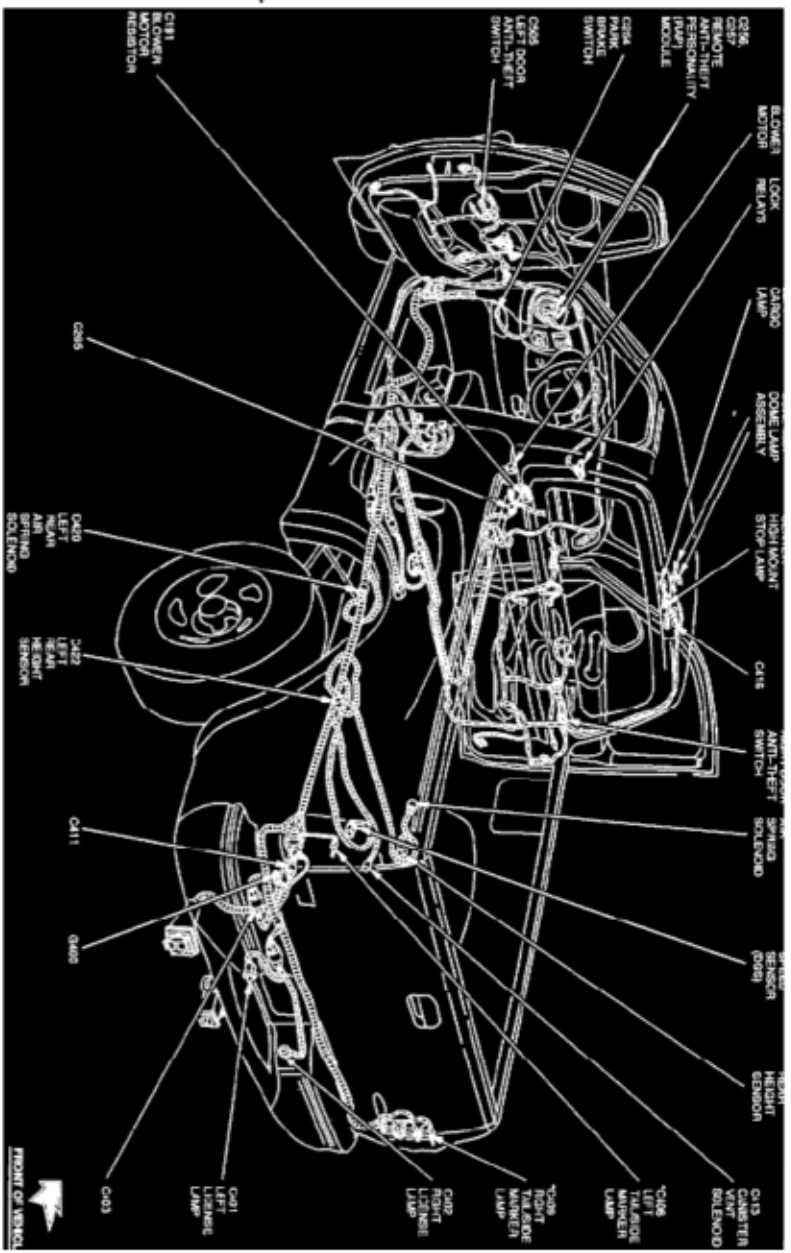
Lock Relays

The All Lock Relay is located in the lock relays, behind the right hand side of the instrument panel.

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Power Door Lock Relay: LocationsAll Unlock Relay



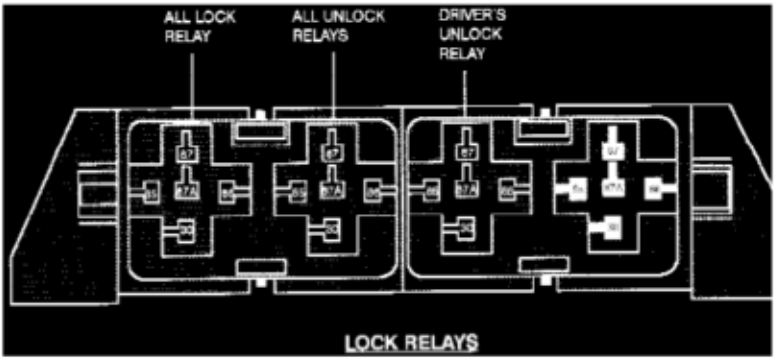
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Body View

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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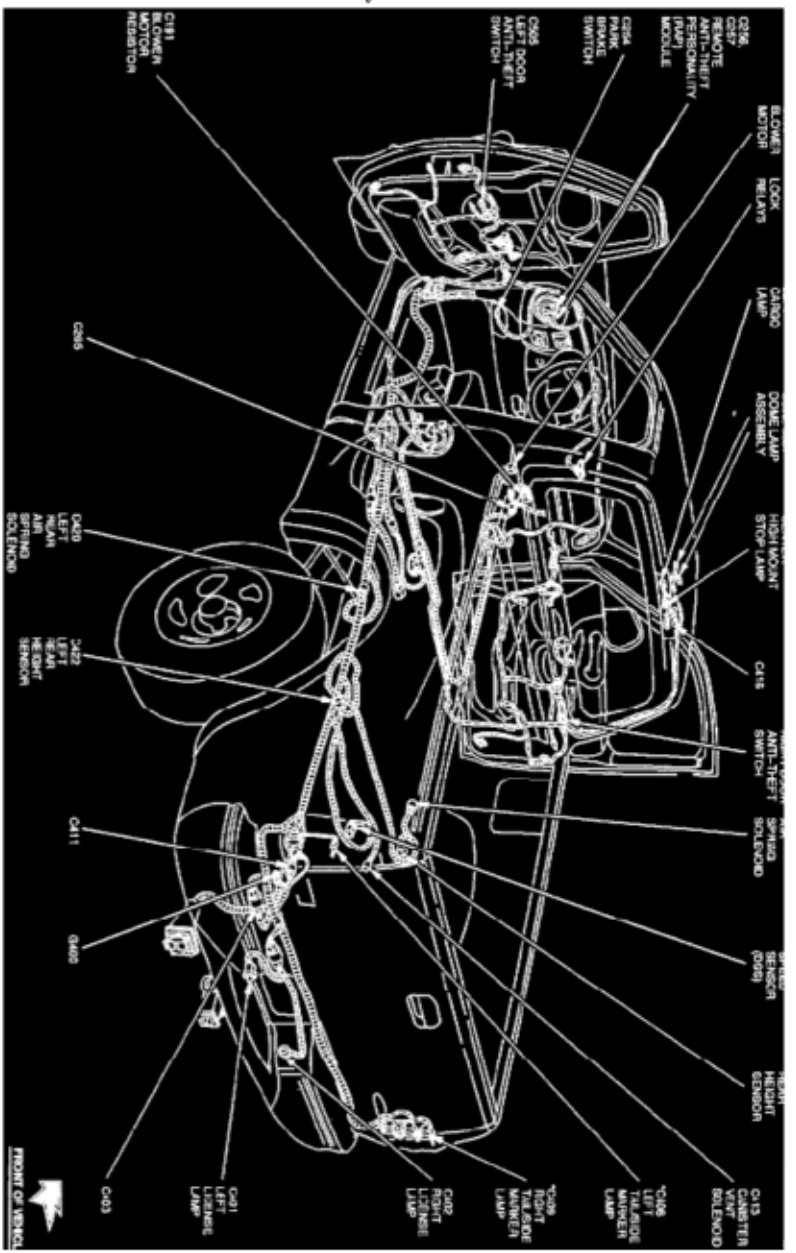
Lock Relays

The All Unlock Relay is located in the lock relays, behind the right hand side of the instrument panel.

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Power Door Lock Relay: LocationsDriver's Door Unlock Relay



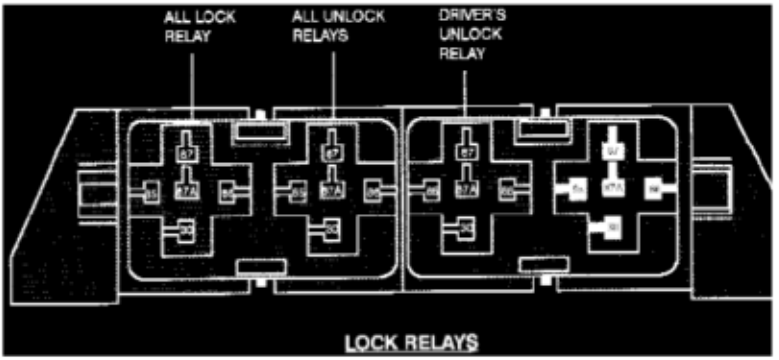
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Body View

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Lock Relays

The Driver's Unlock Relay is located in lock relays, behind the right hand side of the instrument panel.

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Electronic Brake Control Module: Customer InterestABS - Lamp ON/DTC B1342 Stored

Article No.98-9-15

05/11/98

^

BRAKES - 4WABS - ABS LAMP ILLUMINATED WITHDIAGNOSTIC TROUBLE CODE (DTC) B134

^

LAMP - ABS LAMP ILLUMINATED WITHDIAGNOSTIC TROUBLE CODE (DTC) B1342STORED I

LIGHT TRUCK:1997-98 EXPEDITION, F-150, F-250 LD 1998 NAVIGATOR

ISSUEThe Anti-lock Brake System (ABS) lamp may illuminate and Diagnostic Trouble Code (DTC) B1342 m

ACTIONReplace the anti-lock brake control module. Modules with a build date of 2/19/98 or later have been r

PART NUMBER	PART NAME
F75Z-2C065-AA	Anti-lock Brake Control Module(F-150)
F75Z-20065-BA	Anti-lock Brake Control Module (F-250 LD)
F7SZ-2C065-CA	Anti-lock Brake Control Module(Expedition, Navigator)

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under The Provisions Of Bumper To Bumper Warranty Coverage

OPERATION	DESCRIPTION	TIME
980915A	Diagnose And Replace ABS Module - F-Series,Expedition, And Navigator	0.6 Hr.

https://www.auto-manual.com/

DEALER CODING	CONDITION
BASIC PART NO.	CODE
2C065	42

OASIS CODES: 206000, 301000

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Electronic Brake Control Module: All Technical Service BulletinsABS - Lamp ON/DTC B1342 Stored

Article No.98-9-15

05/11/98

^

BRAKES - 4WABS - ABS LAMP ILLUMINATED WITHDIAGNOSTIC TROUBLE CODE (DTC) B134

^

LAMP - ABS LAMP ILLUMINATED WITHDIAGNOSTIC TROUBLE CODE (DTC) B1342STORED I

LIGHT TRUCK:1997-98 EXPEDITION, F-150, F-250 LD 1998 NAVIGATOR

ISSUEThe Anti-lock Brake System (ABS) lamp may illuminate and Diagnostic Trouble Code (DTC) B1342 m

ACTIONReplace the anti-lock brake control module. Modules with a build date of 2/19/98 or later have been r

PART NUMBER	PART NAME
F75Z-2C065-AA	Anti-lock Brake Control Module(F-150)
F75Z-20065-BA	Anti-lock Brake Control Module (F-250 LD)
F7SZ-2C065-CA	Anti-lock Brake Control Module(Expedition, Navigator)

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under The Provisions Of Bumper To Bumper Warranty Coverage

OPERATION	DESCRIPTION	TIME
980915A	Diagnose And Replace ABS Module - F-Series,Expedition, And Navigator	0.6 Hr.

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DEALER CODING	CONDITION
BASIC PART NO.	CODE
2C065	42

OASIS CODES: 206000, 301000

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Electronic Brake Control Module: Specifications

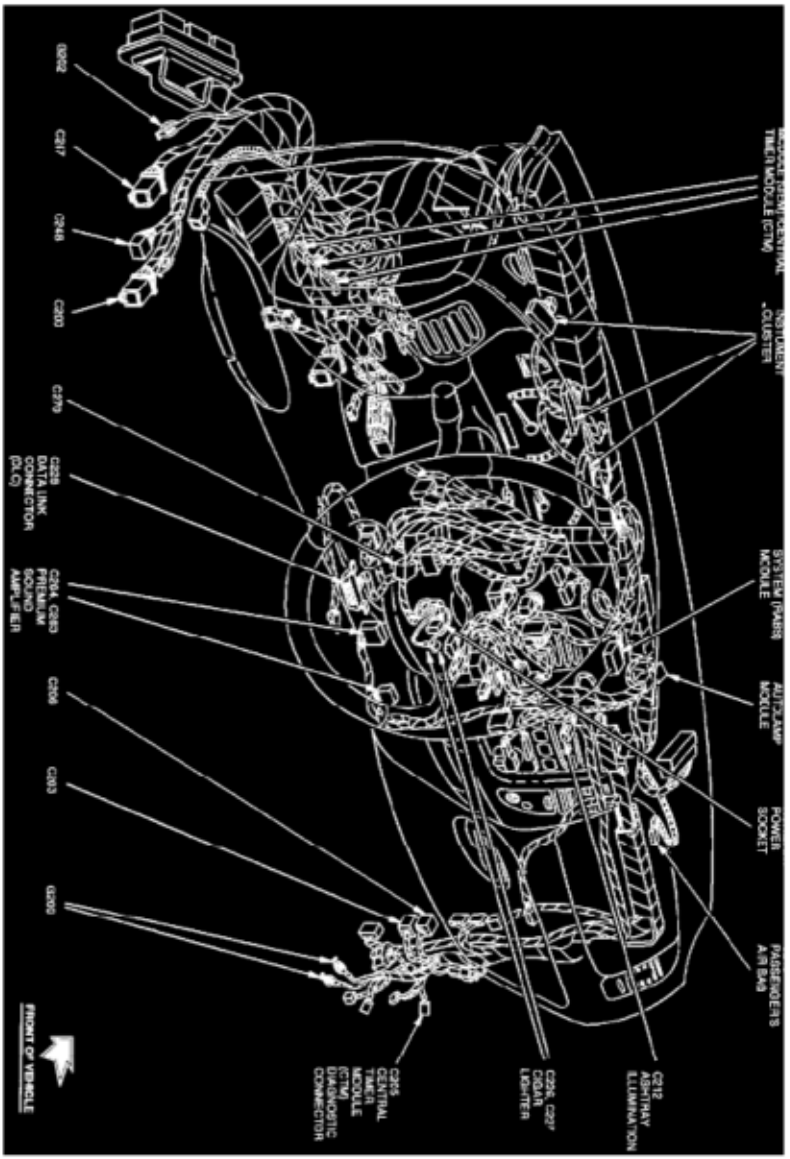
TORQUE SPECIFICATIONS

Rear Wheel Anti-Lock Control Module Screws .....

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https://www.auto-manual.com/

Electronic Brake Control Module: LocationsRear Antilock Brake (RABS) Module

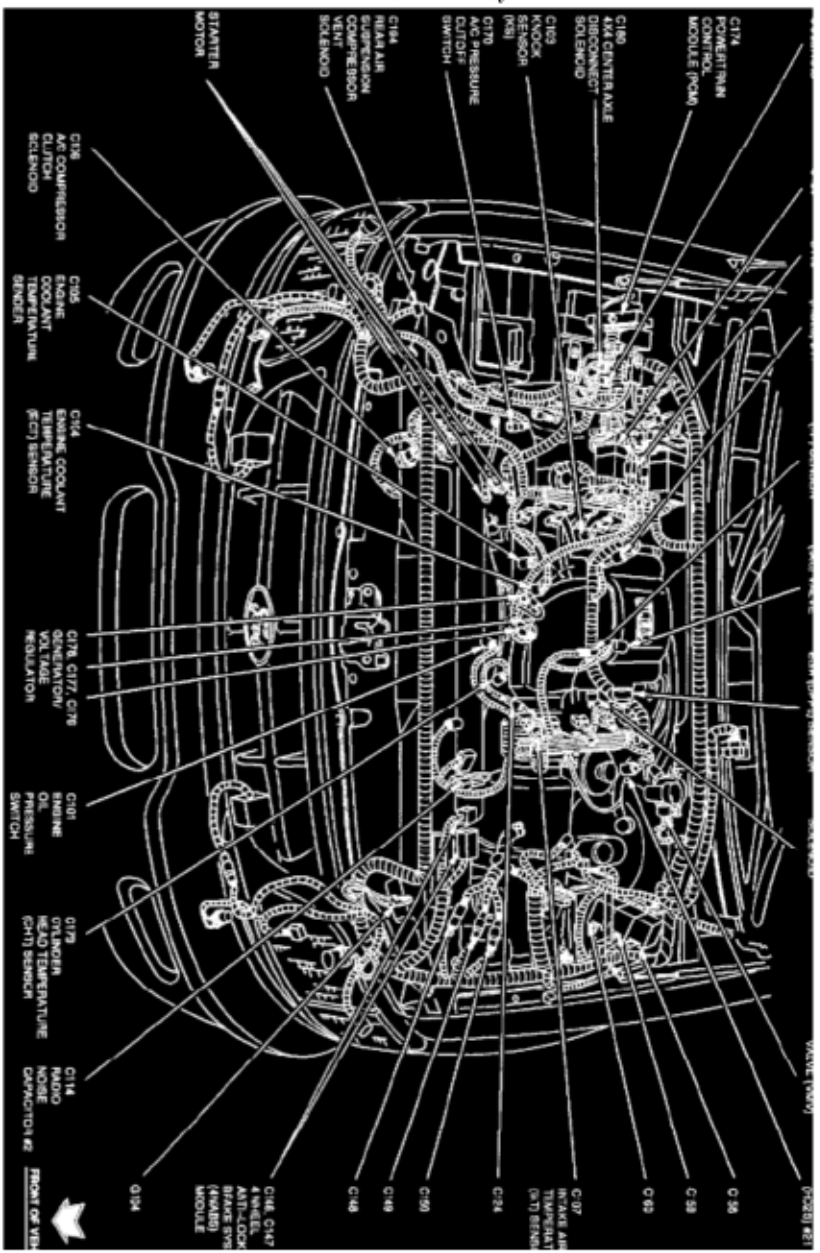


Instrument Panel View

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The Rear Anti-Lock Brake System Module is located behind right side of the instrument panel.

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Electronic Brake Control Module: Locations4 Wheel Anti-Lock Brake System Module

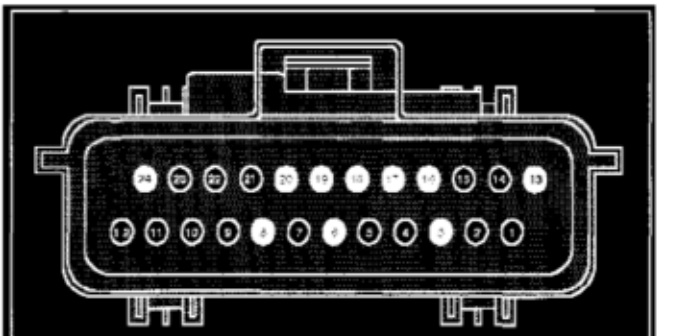


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The 4 Wheel Anti-Lock Brake System Module is located at the left side of the engine compartment.

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Electronic Brake Control Module: DiagramsFour Wheel Antilock Brakes



C146 (BLACK)
4 WHEEL ANTI-LOCK BRAKE SYSTEM (4WABS) MODULE

PIN	CIRCUIT	CIRCUIT FUNCTION
1	603 (DG)	4WABS Indicator Control
2	112 (BK/Y)	4WABS Relay Coil (−)
3	—	NOT USED
4	977 (P/W)	Park Brake Switch Input
5	70 (LB/W)	Diagnostic Trigger Circuit
6	—	NOT USED
7	531 (DG/Y)	Brake Fluid Level Signal
8	—	NOT USED
9	523 (R/PK)	Rear Sensor (High)
10	514 (Y/R)	Right Front Sensor (High)
11	521 (T/O)	Left Front Sensor (High)
12	210 (LB)	4 Wheel Drive Input
13	—	NOT USED
14	533 (T/R)	Ignition Feed
15	511 (LG)	Brake Pedal Position (BPP) Switch
16	—	NOT USED
17	—	NOT USED
18	—	NOT USED
19	—	NOT USED
20	—	NOT USED
21	519 (LG/BK)	Rear Sensor (Low)
22	516 (Y/BK)	Right Front Sensor (Low)
23	522 (T/BK)	Left Front Sensor (Low)
24	—	NOT USED

4 Wheel Anti-Lock Brake System Module (C146)

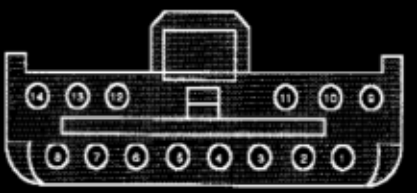


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C147 (BLACK) 4 WHEEL ANTI-LOCK BRAKE SYSTEM (4WABS) MODULE		
PIN	CIRCUIT	CIRCUIT FUNCTION
1	530 (LG/Y)	Ground
2	532 (O/Y)	Vehicle Power (12V)

4 Wheel Anti-Lock Brake System Module (C147)

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C222 (BLACK)
REAR ANTI-LOCK BRAKE SYSTEM (RABS) MODULE

PIN	CIRCUIT	CIRCUIT FUNCTION
1	601 (LB/PK)	Power Input
2	512 (T/LG)	Brake Fluid Level Signal
3	519 (LG/BK)	Differential Speed Sensor–Low
4	530 (LG/Y)	Ground
5	210 (LB)	4X4 Input Signal
6	535 (LB/R)	Valve Reset Input
7	603 (DG)	Warning Lamp Output
8	664 (Y/LG)	Dump Solenoid Output
9	601 (LB/PK)	Power Input
10	523 (R/PK)	Differential Speed Sensor (DSS)–High
11	511 (LG)	Brake Pedal Position (BPP) Switch Input Power Input
12	571 (BK/O)	Diagnostic Test Input/Keep Alive Input
13	599 (PK/LG)	Isolation Solenoid Output
14	664 (Y/LG)	Dump Solenoid Output

Rear Anti-Lock Brake System Module

https://www.auto-manual.com/

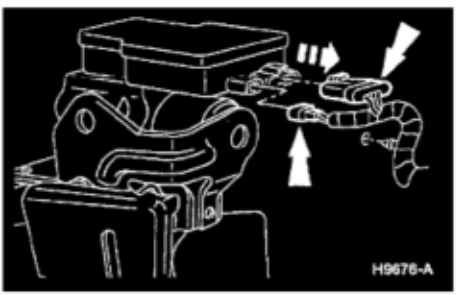
https://www.auto-manual.com/

Electronic Brake Control Module: Service and RepairFour Wheel Anti-Lock Brake System (4WABS)

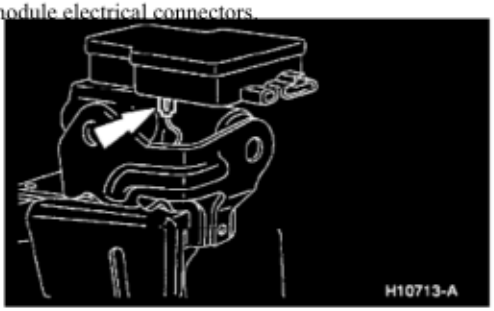
Removal

CAUTION: 1. Electronic modules are sensitive to static electrical charges. If exposed to these charges, dama

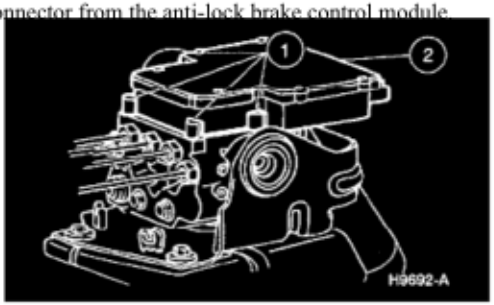
Disconnect the battery ground cable.



2. Disconnect the anti-lock brake control module electrical connectors.



3. Disconnect the pump motor electrical connector from the anti-lock brake control module.



4. Remove the anti-lock brake control module.
   1 Remove the screws.

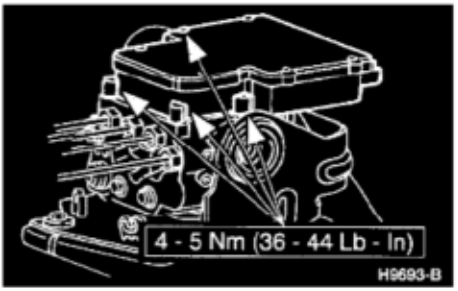
https://www.auto-manual.com/

2 Remove the anti-lock brake control module.

Installation

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/



NOTE: 1. When the battery is disconnected and reconnected, some abnormal drive symptoms may occur whi strategy. The vehicle may need to be driven 16 km (10 miles) or more to relearn the strategy.

To install, reverse the removal procedure.

https://www.auto-manual.com/

https://www.auto-manual.com/

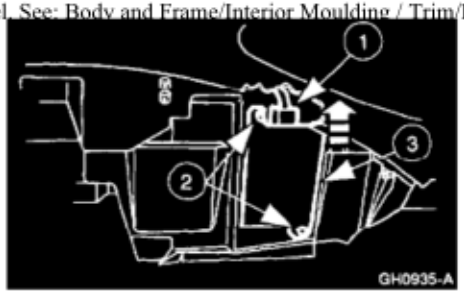
Electronic Brake Control Module: Service and RepairRear Antilock Brake System (RABS)

Removal

CAUTION: 1. Electronic modules are sensitive to static electrical charges. If exposed to these charges, dama

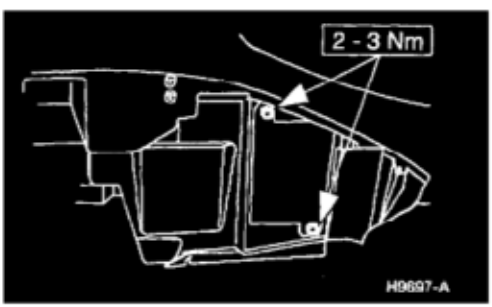
Disconnect the battery ground cable.

2. Remove the instrument panel cluster panel. See: Body and Frame/Interior Moulding / Trim/Dashboard / In



3. Remove the anti-lock brake control module,
   1 Disconnect the anti-lock brake control module electrical connector.
   2 Remove the bolts.
   3 Remove the anti-lock brake control module.

Installation

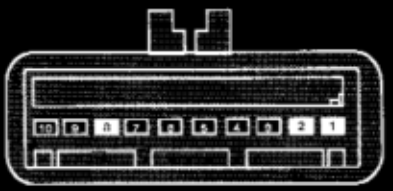


NOTE: 1. When the battery is disconnected and reconnected, some abnormal drive symptoms may occur whi strategy. The vehicle may need to be driven 16 km (10 miles) or more to relearn, the strategy.

To install, reverse the removal procedure.

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C157 (BLACK)
SPEED CONTROL SERVO/AMPLIFIER ASSEMBLY

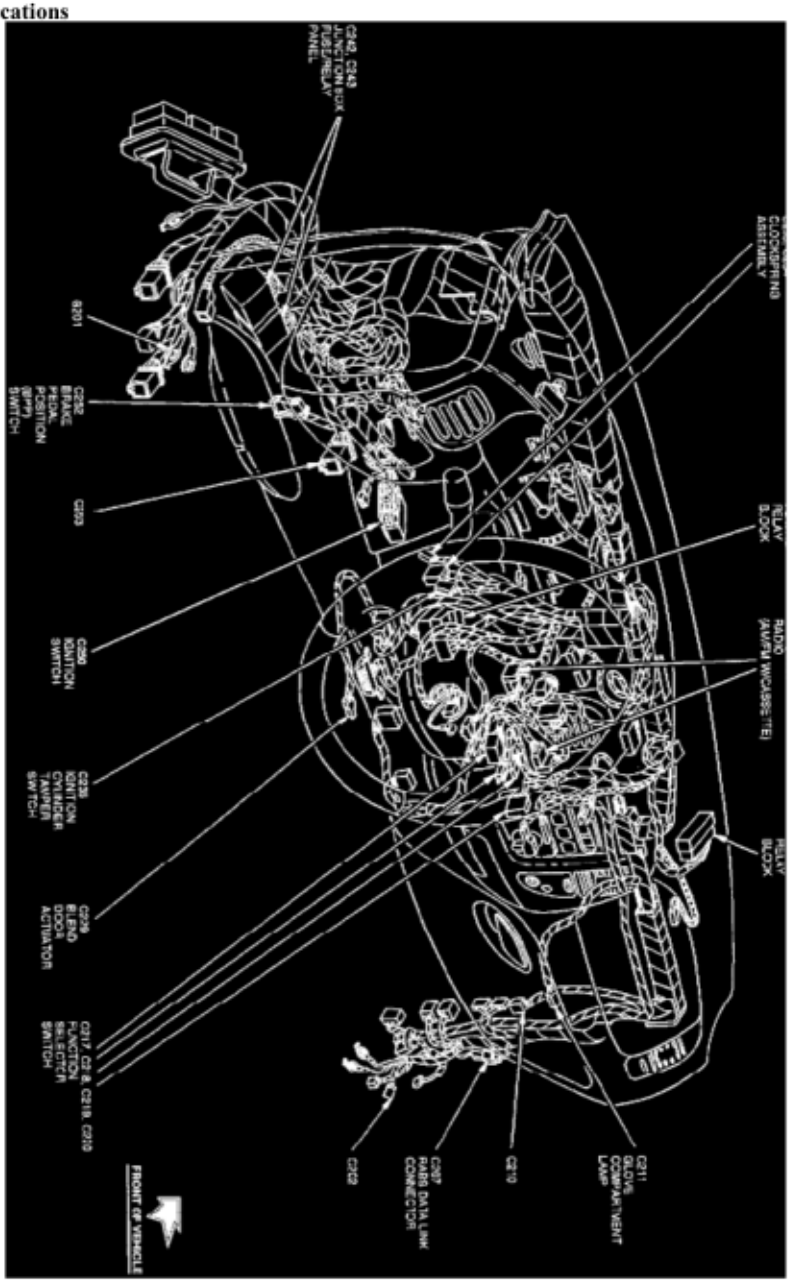
PIN	CIRCUIT	CIRCUIT FUNCTION
1	—	NOT USED
2	—	NOT USED
3	679 (GY/BK)	Vehicle Speed Input
4	306 (T/LB)	Brake Applied Input
5	151 (LB/BK)	Control Switch Input
6	848 (DG/O)	Control Switch Ground
7	295 (LB/PK)	Power (Hot in Run)
8	—	NOT USED
9	307 (BK/Y)	Brake Pressure Switch Input
10	57 (BK)	Ground

Speed Control Servo/Amplifier Assembly

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https://www.auto-manual.com/

Blower Motor Relay: Locations

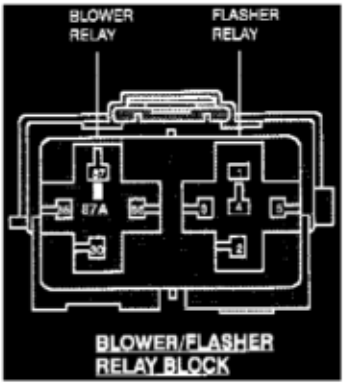


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Instrument Panel View

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/



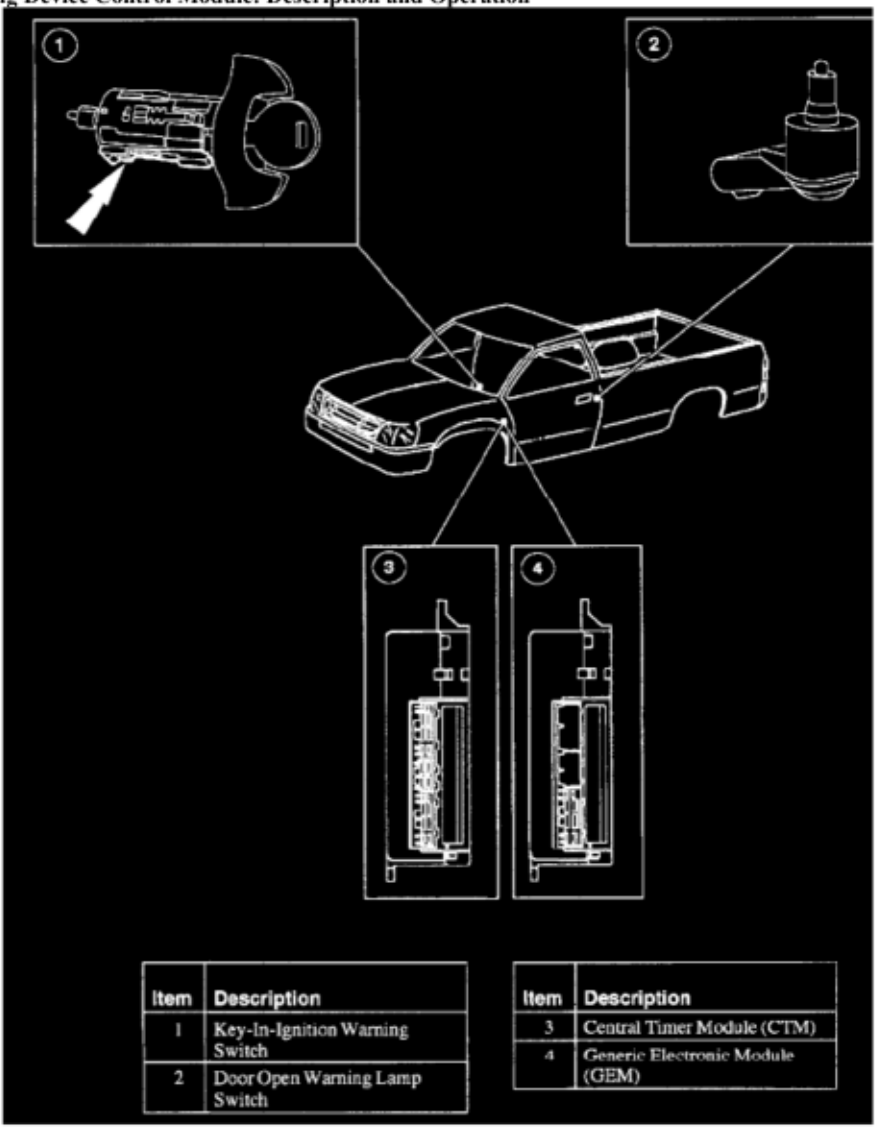
Blower/Flasher Relay Block

The Blower Relay is located in the blower/flasher relay block.

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https://www.auto-manual.com/

Audible Warning Device Control Module: Description and Operation



Item	Description
1	Key-In-Ignition Warning Switch
2	Door Open Warning Lamp Switch

Item	Description
3	Central Timer Module (CTM)
4	Generic Electronic Module (GEM)

(GEM) (CTM) The Generic Electronic Module and Central Timer Module control the following warnings and
- ^ Driver safety belt not fastened (warning lamp and repetitive chime).
- ^ Key-in-ignition (repetitive chime).
- ^ Headlamp-on warning (repetitive chime).

https://www.auto-manual.com/

- Door ajar (warning lamp and single tone).

The following four distinct chime rates are used to indicate warning:

- Safety belt warning chime is one chime per second.
- Key-in-ignition warning is two chimes per second.
- Headlamp-on warning is four chimes per second.
- Door ajar warning is a single chime.

Safety Belt Warning Chime

The safety belt warning chime warns that the safety belt is not fastened. The safety belt warning chime will sou

> Relays and Modules > Relays and Modules - Instrument Panel > Audible Warning Device Control Module > Component Information > Description and Operation > Page 102

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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The safety belt warning chime will stop sounding when:
- ^ The safety belt is fastened.
- ^ The ignition switch is switched from the RUN or START to the OFF/LOCK or ACC position.
- ^ **six seconds.**The chime has sounded for

The safety belt warning chime inputs are:
- ^ Ignition switch START position (battery potential on the START [clutch depressed] input).
- ^ Ignition switch RUN position (battery potential on RUN and RUN/ACC inputs).
- ^ Driver safety belt switch (grounded when not fastened, open circuit when fastened).

Door Ajar Warning Chime

one second
The door ajar warning chime warns that a door has become ajar. The door ajar warning chime is a single tone w
- ^ GEM: Driver or passenger door initially becomes ajar while the ignition switch is in the RUN position.
- ^ CTM: Passenger door initially becomes ajar while the ignition switch is in the RUN position.

The door ajar warning chime inputs are:
- ^ Ignition switch RUN position (battery potential on both RUN and RUN/ACC inputs).
- ^ Door ajar switches (open circuit with door closed, grounded with door ajar).

Key-In-Ignition Warning Chime

The key-in-ignition chime warns that the key is still in the ignition when the driver door is ajar. The key-in-igni
- ^ GEM: Driver door is ajar, the ignition switch is in the OFF/LOCK or ACC position and the key is in the i
- ^ CTM: Driver door is ajar, the ignition switch is in the OFF/LOCK, ACC or RUN position and the key is i

The key-in-ignition warning chime will stop sounding when:
- ^ The driver door is closed.
- ^ The key is removed from the ignition.
- ^ GEM: Ignition switch is switched to the RUN position.

The key-in-ignition warning chime inputs are:
- ^ Ignition switch RUN position (battery potential on both RUN and RUN/ACC inputs).
- ^ Ignition switch ACC position (battery potential on RUN/ACC input only).
- ^ Key-in-ignition switch (grounded with key-in-ignition, open circuit with key-out).
- ^ LH door ajar switch (open circuit with door closed, grounded with door ajar).

Headlamps Warning Chime

The headlamps warning chime warns that the headlamps are on while the driver door is ajar. The headlamps wa
- ^ The driver door is ajar.
- ^ The headlamp switch is in the PARK or HEAD position.
- ^ The ignition switch state is in the OFF/LOCK position.
- ^ Key-out.

The headlamps warning chime will stop sounding when any one of the conditions above are removed. The heac
- ^ Ignition switch OFF/LOCK (open circuit on all ignition inputs).
- ^ Headlamp switch (battery potential when in PARK or HEAD position, open circuit when in OFF position
- ^ Driver door ajar switch (open circuit with door closed, grounded with door ajar).
- ^ Key-in-ignition switch (grounded with key-in-ignition, open circuit with key-out).

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Safety Belt Warning Lamp

The safety belt warning lamp warns that the safety belt is not fastened. The safety belt warning lamp illuminate

The safety belt warning lamp will turn off when:

- The safety belt is fastened.
- The ignition switch is switched from the RUN or START to the OFF/LOCK or ACC position.
- **61 seconds.**After the lamp is illuminated for

The safety belt warning lamp inputs are:

> Relays and Modules > Relays and Modules - Instrument Panel > Audible Warning Device Control Module > Component Information > Description and Operation > Page 103

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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- ^ Ignition switch START position (battery potential when in START).
- ^ Ignition switch RUN position (battery potential on both RUN and RUN/ACC inputs).
- ^ Driver safety belt switch (grounded when not fastened, open circuit when fastened).

Door Ajar Warning Lamp

The door ajar warning lamp warns that a door is ajar. The door ajar warning lamp illuminates when it is ground

The door ajar warning lamp will turn off when all doors are closed or the ignition switch is turned to the OFF/L

- ^ Ignition switch START position (battery potential when in START).
- ^ Ignition switch RUN position (battery potential on both RUN and RUN/ACC inputs).
- ^ Door open warning lamp switches (grounded with door ajar, open circuit with door closed).

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https://www.auto-manual.com/

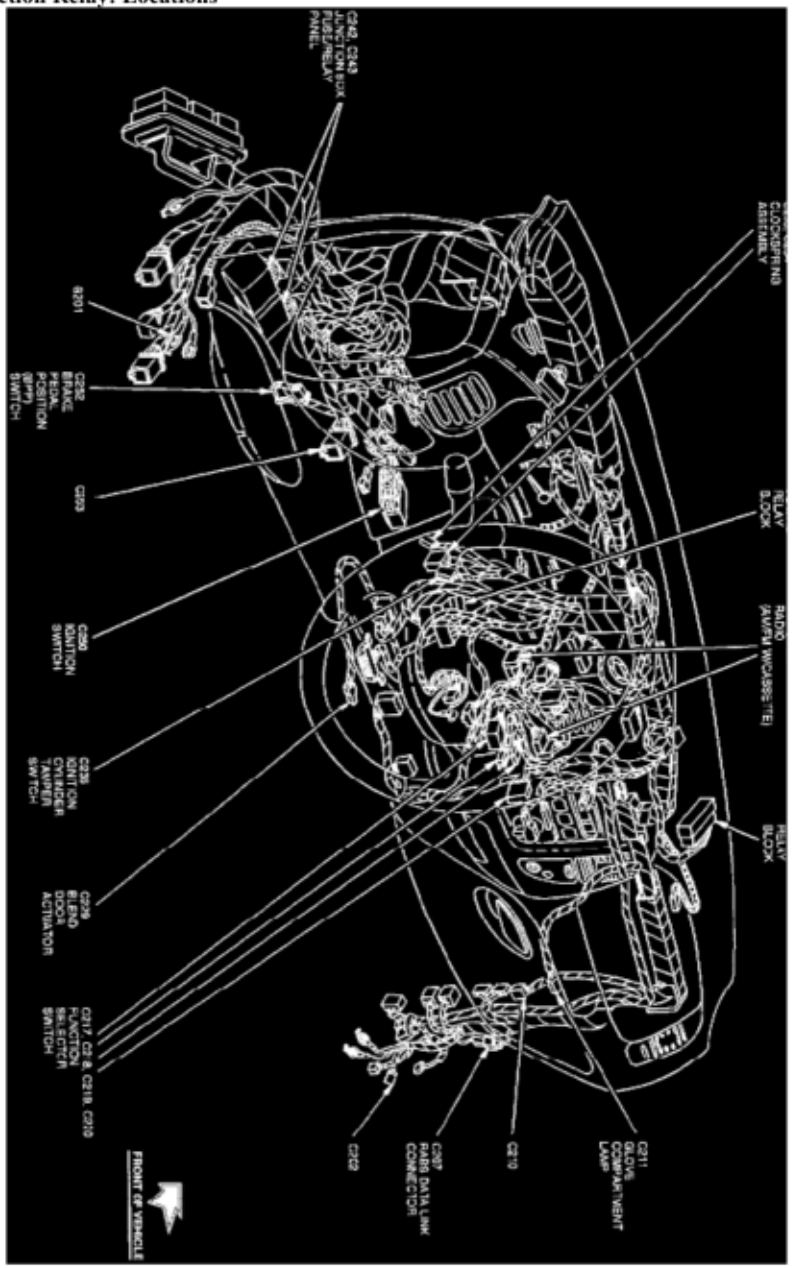
Speedometer Module: Testing and Inspection

Refer to Instrument Panel/Testing and Inspection/Procedures.

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https://www.auto-manual.com/

Battery Discharge Protection Relay: Locations

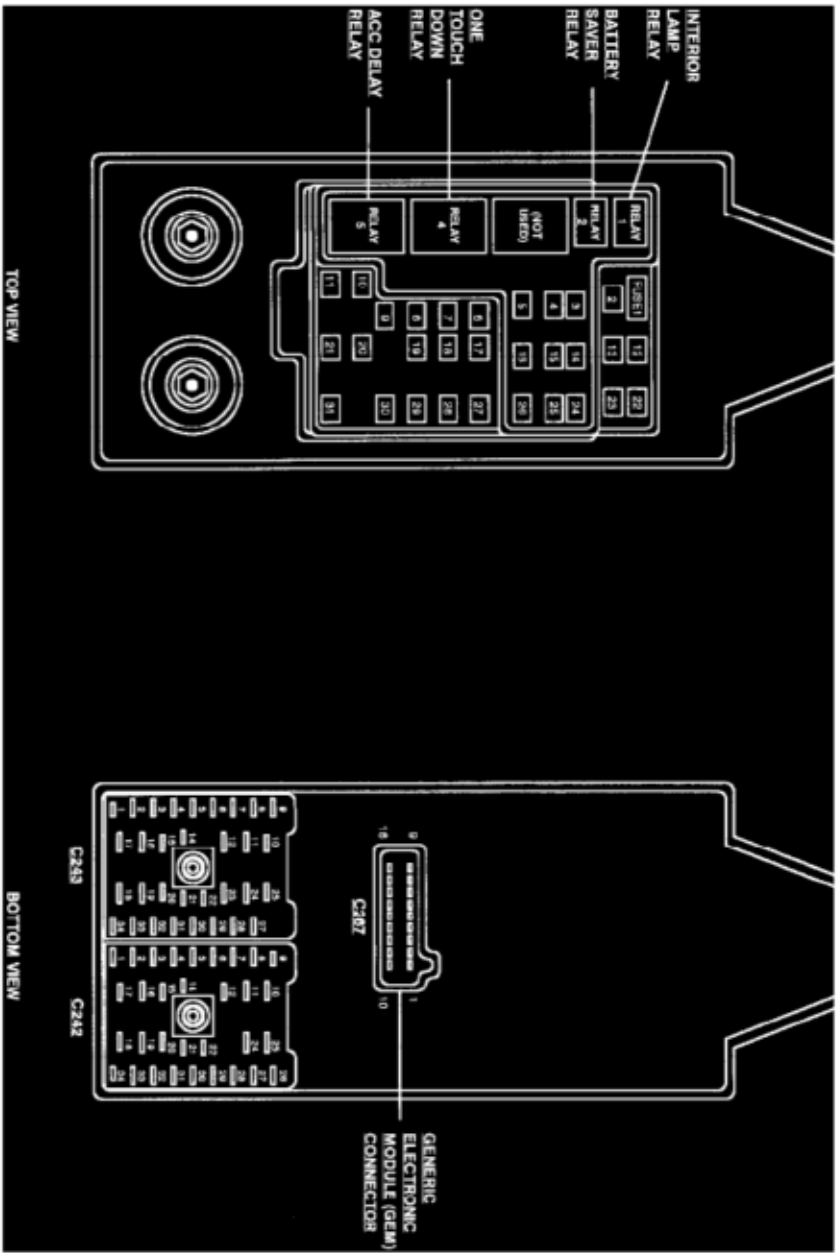


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Instrument Panel View

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Junction Box Fuse/Relay Panel (Part 1 Of 2)

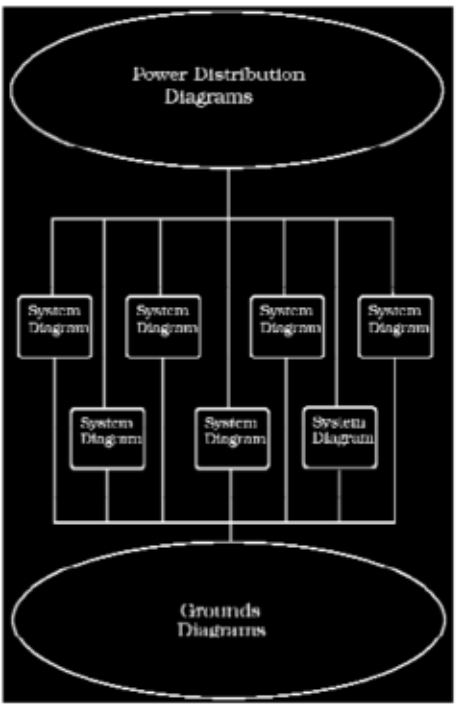
https://www.auto-manual.com/

The Battery Saver Relay is located in the junction box fuse/relay panel.

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Battery Discharge Protection Relay: Diagram Information and Instructions

How to Find and Use These Diagrams



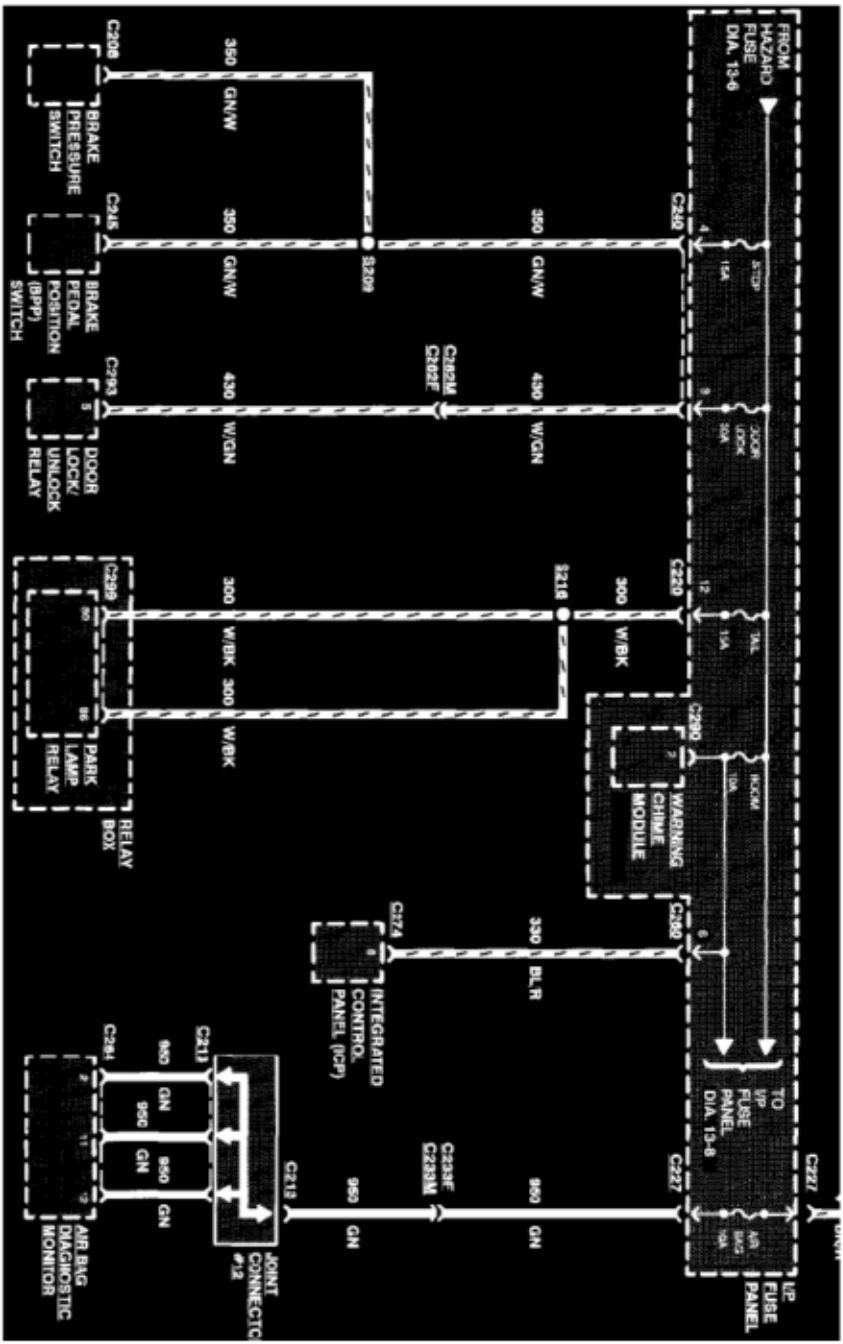
Diagrams are presented in three main categories:

- Power Distribution Diagrams
- System Diagrams
- Grounds Diagrams

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/



https://www.auto-manual.com/

Sample Power Distribution Diagram

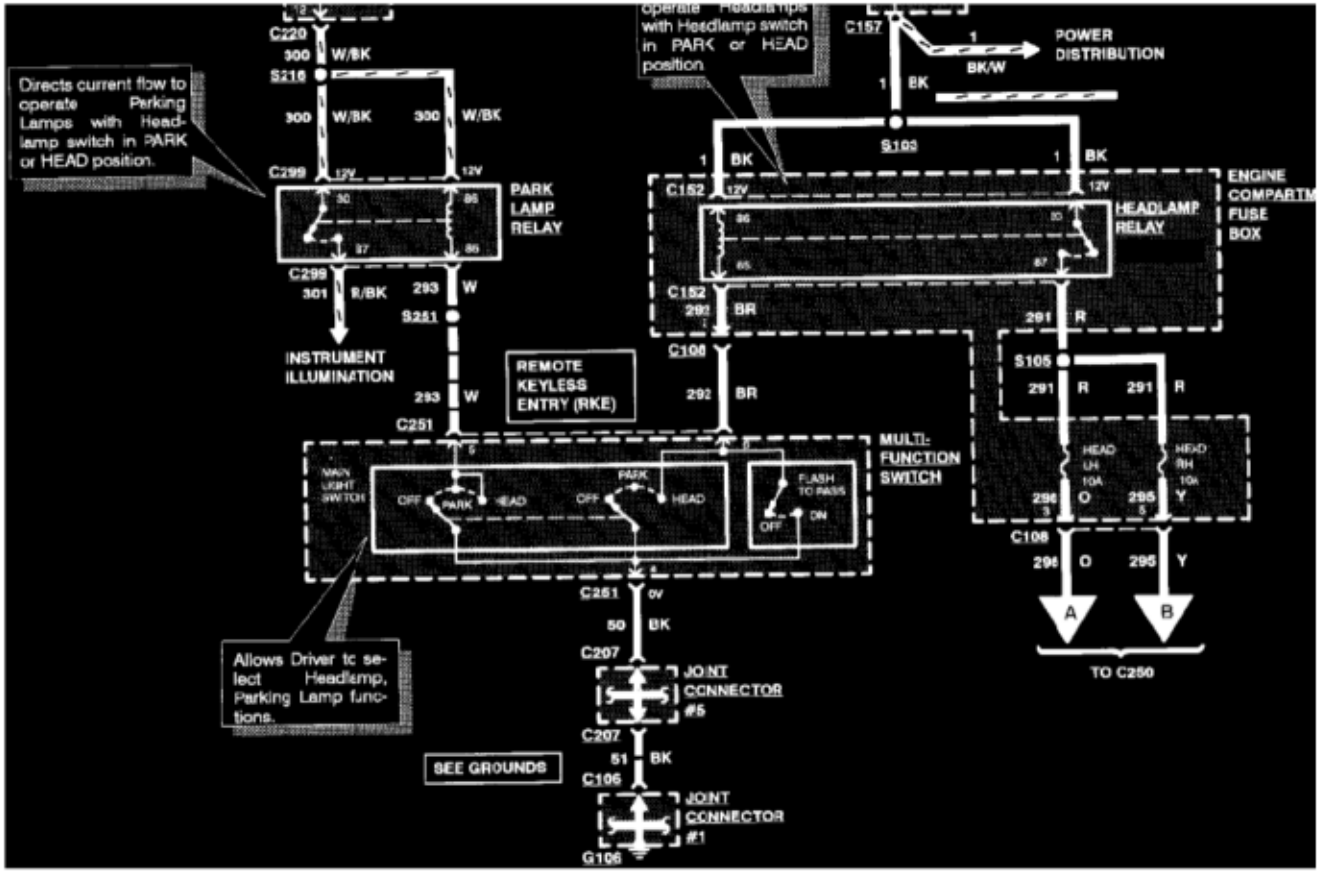
Power Distribution Diagrams

Provide the circuit details of how the system diagrams are powered. The power distribution source is shown at The power distribution diagrams can be found at Starting and Charging/Power and Ground Distribution.

> Relays and Modules > Relays and Modules - Lighting and Horns > Battery Discharge Protection Relay, Lighting > Component Information > Diagrams > Diagram Information and Instructions > Page 115

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/



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Sample System Diagram

System Diagrams

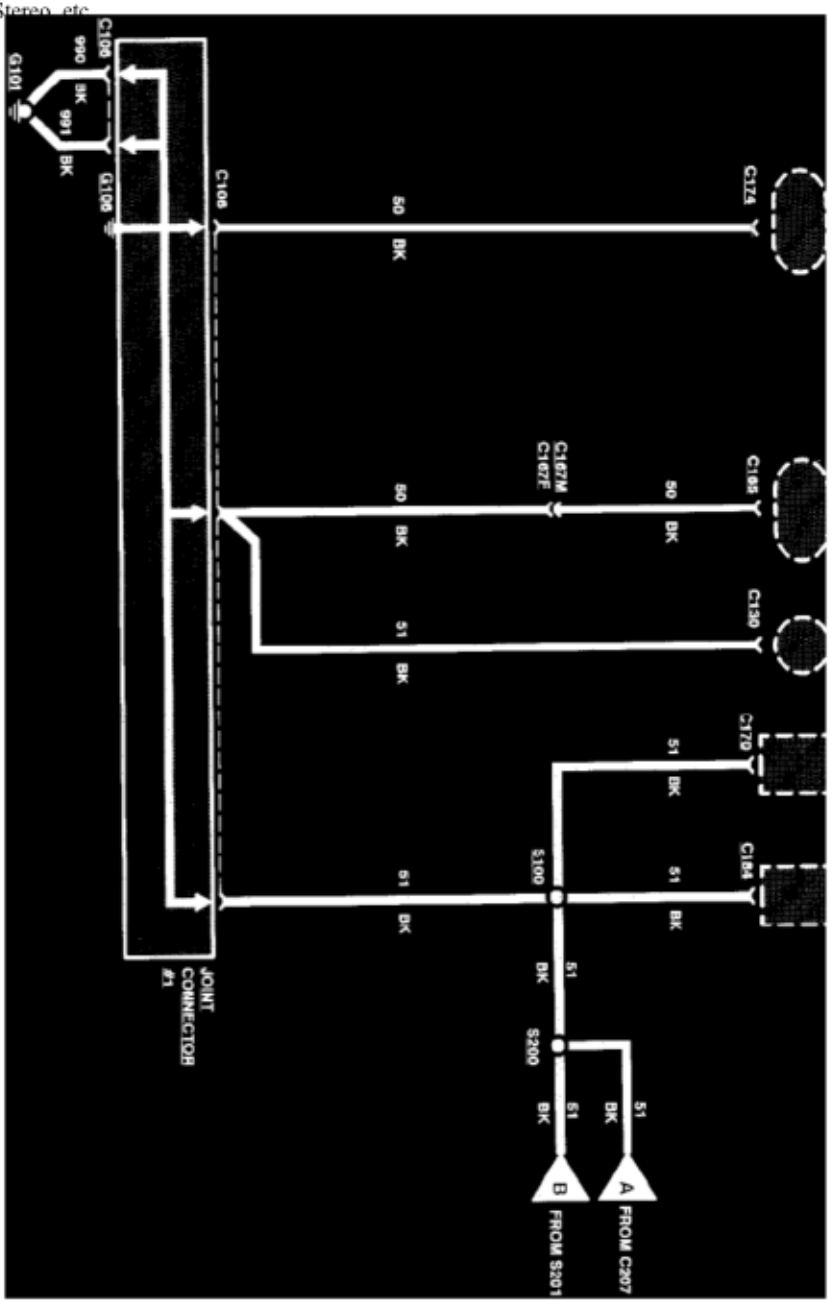
Components that work together are shown together in a system/subsystem diagram or set of diagrams. The sys

> Relays and Modules > Relays and Modules - Lighting and Horns > Battery Discharge Protection Relay, Lighting > Component Information > Diagrams > Diagram Information and Instructions > Page 116

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

Management, Radio/Stereo, etc.



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Sample Grounds Diagram

Grounds Diagrams

Provide the circuit details of how the system diagrams are grounded. This information is useful for checking in

The grounds diagrams can be found at Starting and Charging/Power and Ground Distribution.

Symbol Identification

> Relays and Modules > Relays and Modules - Lighting and Horns > Battery Discharge Protection Relay, Lighting > Component Information > Diagrams > Diagram Information and Instructions > Page 117

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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ELECTRICAL SYMBOLS

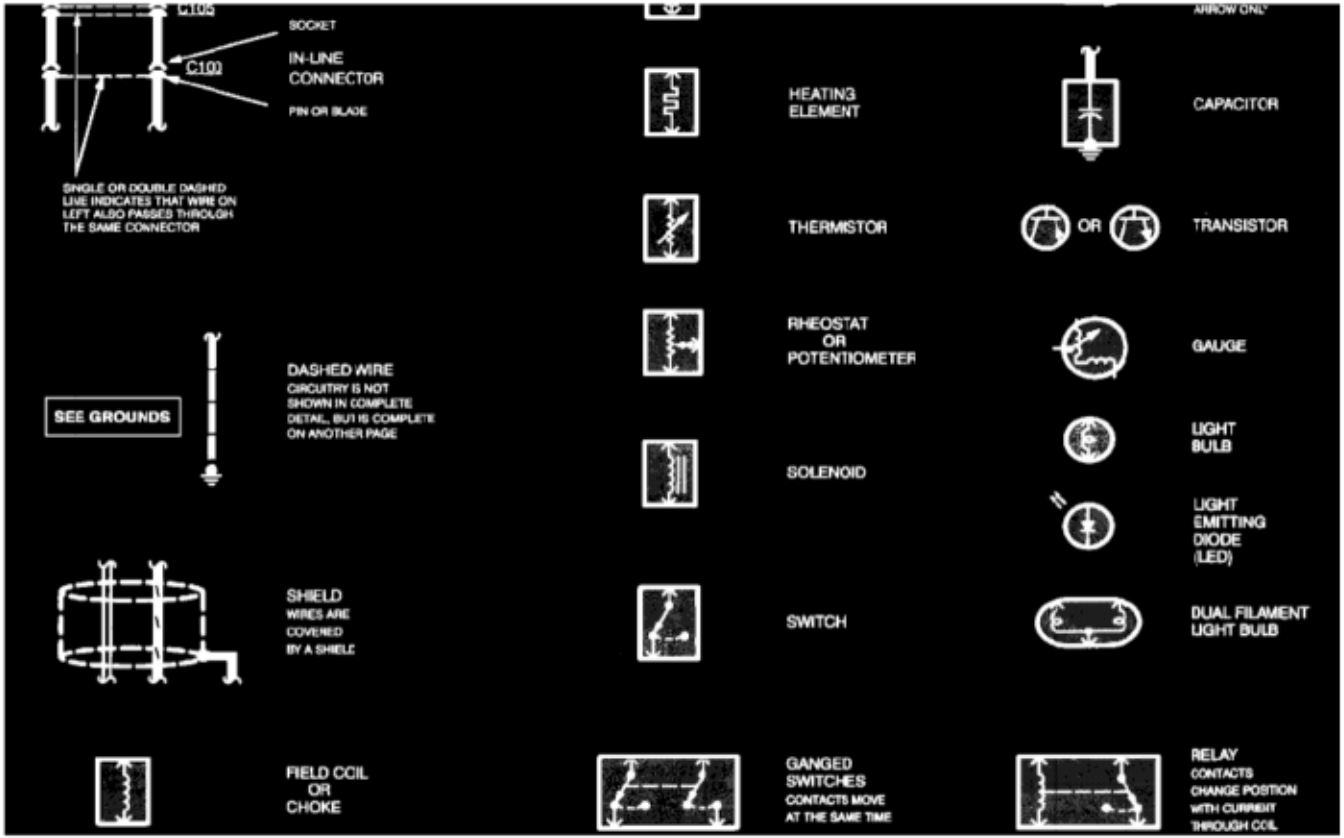
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Electrical Symbols

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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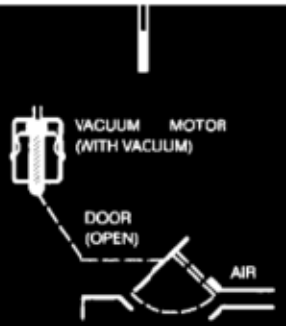
https://www.auto-manual.com/

VACUUM SYMBOLS

> Relays and Modules > Relays and Modules - Lighting and Horns > Battery Discharge Protection Relay, Lighting > Component Information > Diagrams > Diagram Information and Instructions > Page 119

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

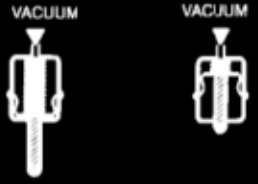
https://www.auto-manual.com/



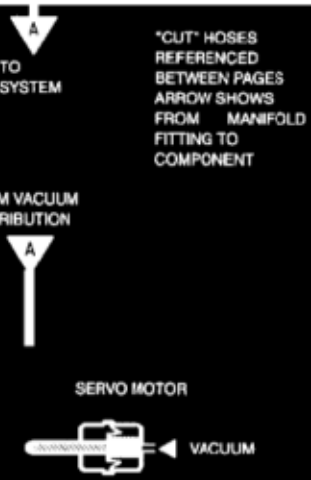
VACUUM ON VACUUM MOTOR PULLS DOOR OPEN TO LET AIR PASS THROUGH

VACUUM MOTOR OPERATIONS

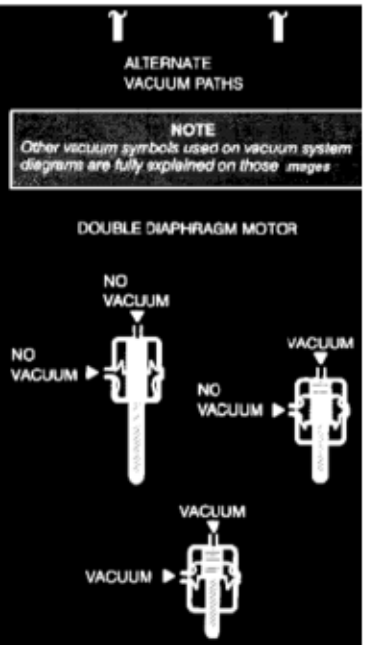
SINGLE DIAPHRAGM MOTOR



Vacuum motors operate like electrcal solenoids, mechanically pushing or pulling a shaft between two fixed positions. When vacuum is not applied, the shift is pushed all the way out by a spring.



Some vacuum motors, such as the Servo Motor in the Speed Control, can position the actuating arm at any position between fully extended and fully retracted. The Servo is operated by a control valve that applies varying amounts of vacuum to the motor. The higher the vacuum level, the greater the retraction of the motor arm. Servo Motors work nearly the same way as two-position motors, except for the way the vacuum is applied. Servo Motors are generaly larger and provide a calibrated control.



A double diaphragm motor has three tions (it is actually two motors in one hou When the top port gets vacuum, the shaft half-way in. When both ports get vacuum shaft pulls all the way in.

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Vacuum Symbols

Wire Color Code Identification

BK
BL
BR
DB: Black: Blue: Brown: Dark Blue

> Relays and Modules > Relays and Modules - Lighting and Horns > Battery Discharge Protection Relay, Lighting > Component Information > Diagrams > Diagram Information and Instructions > Page 120

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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DG
GY
GN
LB
LG
PK
O
P
R
T
V
W
: Dark Green: Gray: Green: Light Blue: Light Green: Pink: Orange: Purple: Red: Tan: Violet: White: Yellow

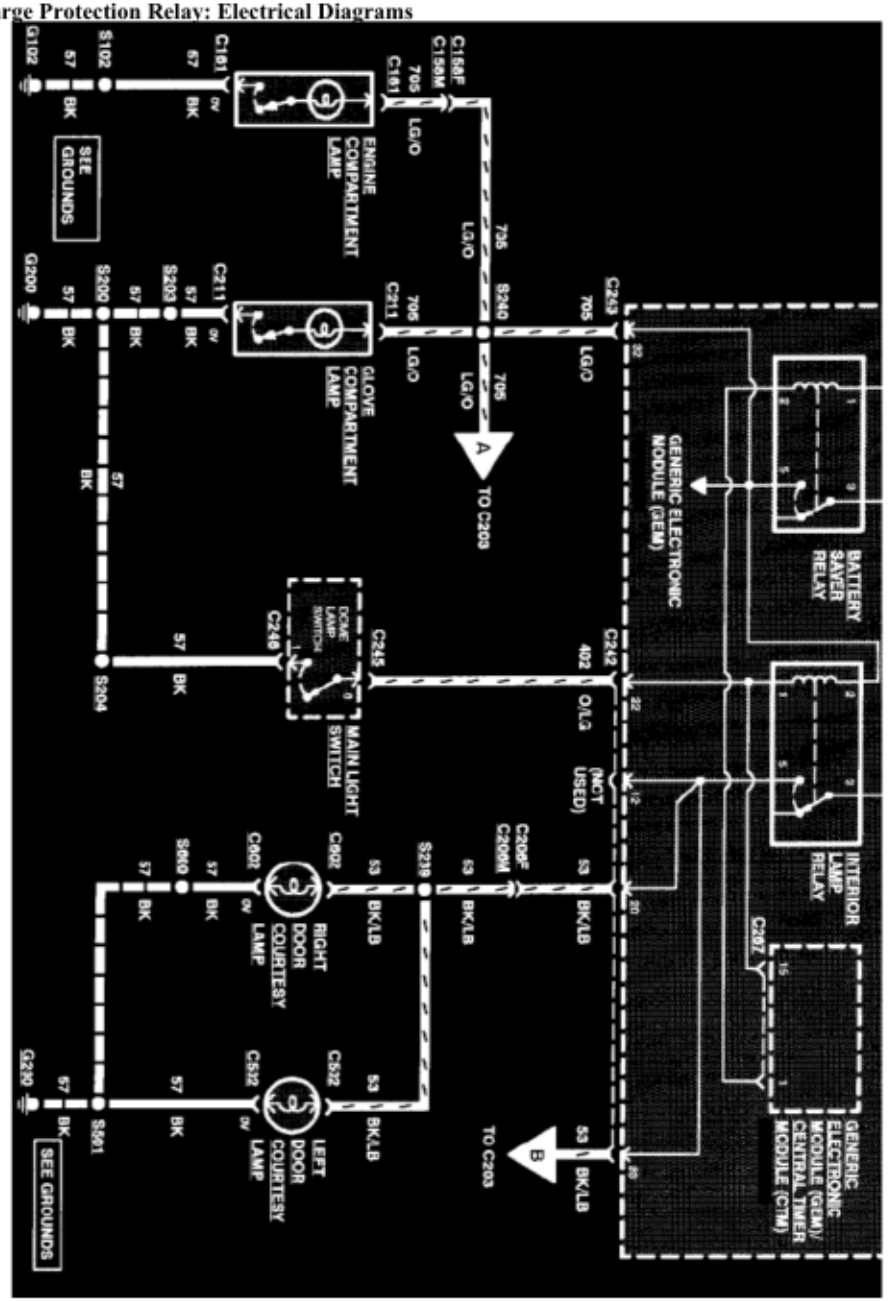
NOTE:

Whenever a wire is labeled with two colors, the first color listed is the basic color of the wire, and the second c

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https://www.auto-manual.com/

Battery Discharge Protection Relay: Electrical Diagrams

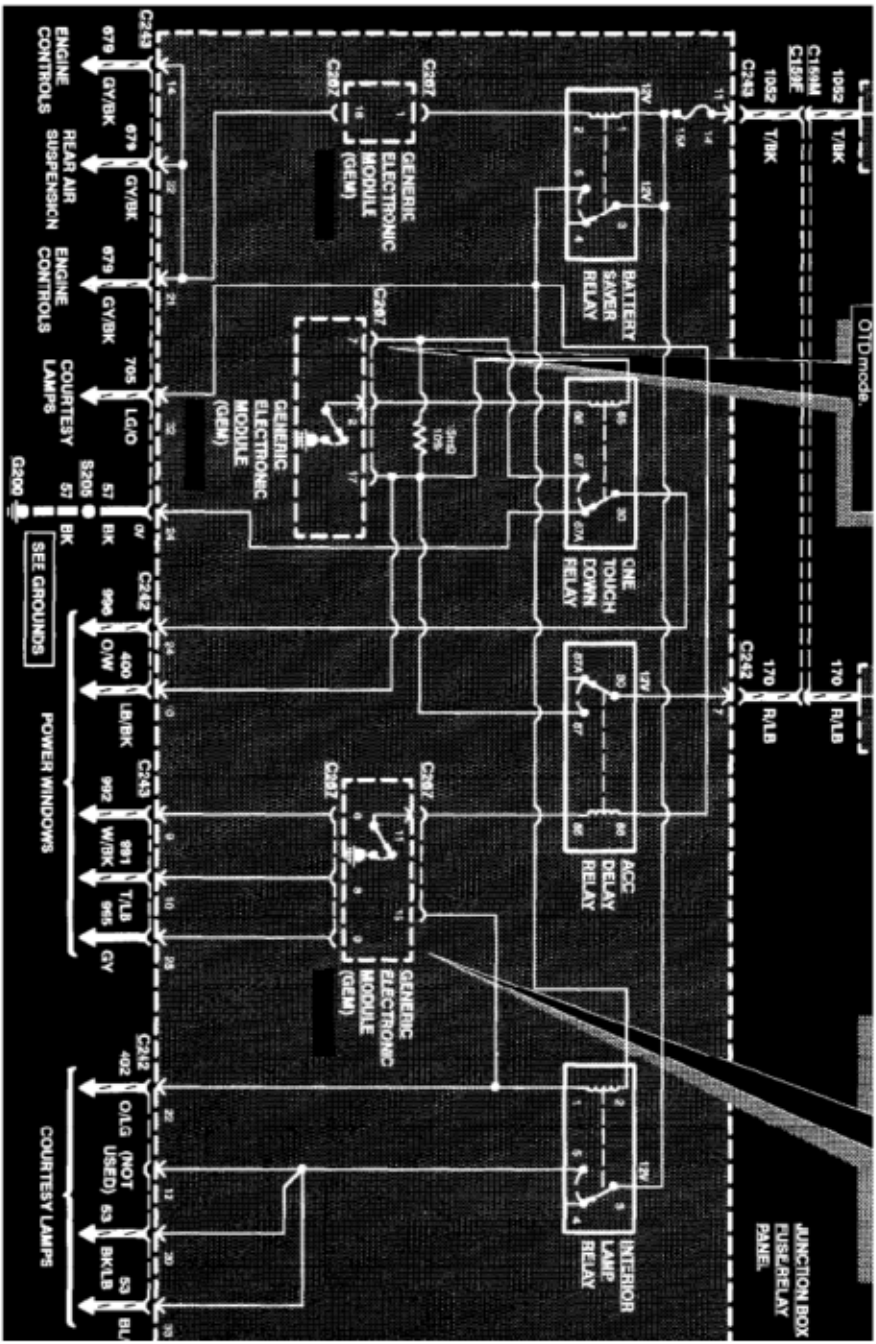


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Courtesy Lamps

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Battery Discharge Protection Relay: Description and Operation
Battery Saver Relay

The following components are under the control of the battery saver relay:

- Delayed accessory relay.
- Overhead interior lamp with map lamps.
- Underhood lamp switch.
- Glove box lamp switch.
- Overhead interior lamp switch.
- Interior lamp relay coil.

The battery saver relay becomes active (relay coil is energized) when the GEM is in awake mode and is deac

The battery saver will remain active until the ignition state is not ACC or RUN and 45 minutes have passed s

Five minutes after the battery saver relay has become deactivated, the GEM will go into a lower power state

Logical characteristics of the GEM battery saver mode are as follows:

Feature Inputs:

- Sleep/Awake mode status.

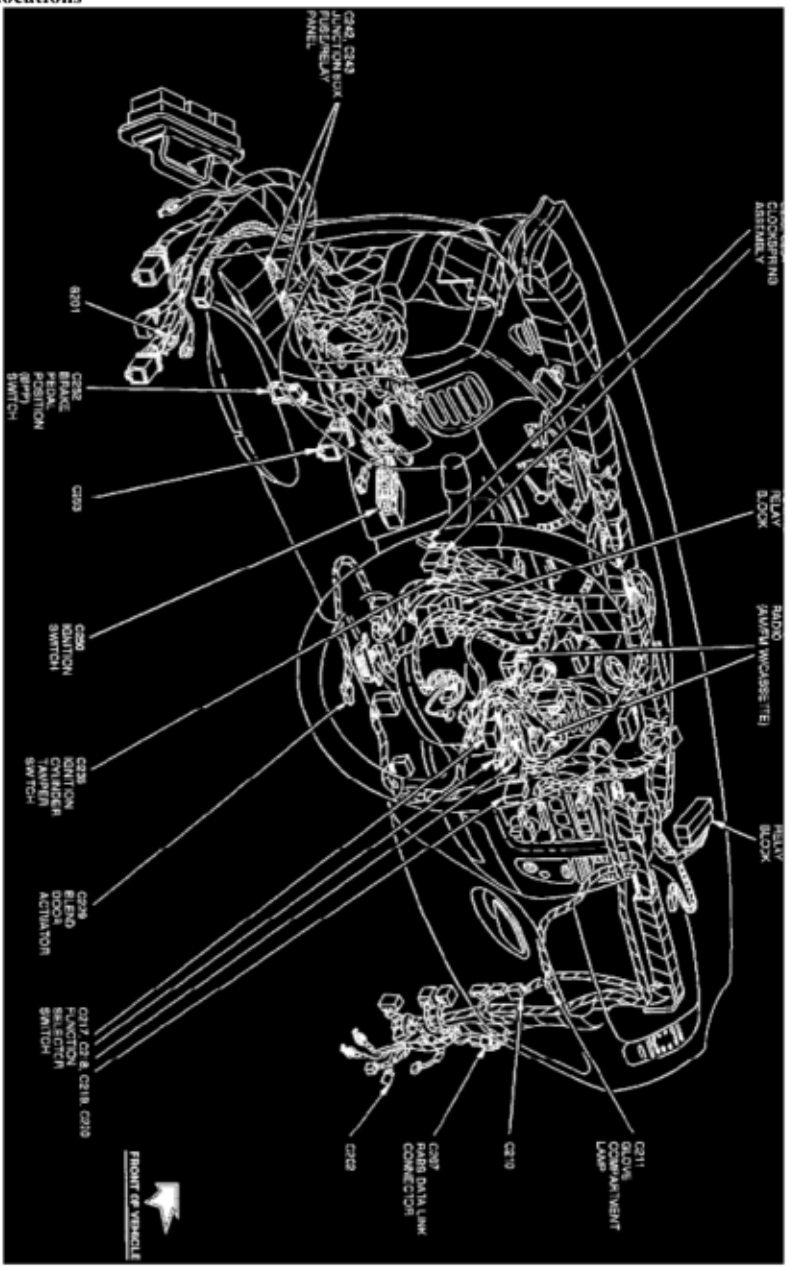
Feature Outputs:

- Battery saver relay control (Open circuit in sleep mode, grounded when awake).

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https://www.auto-manual.com/

Courtesy Lamp Relay: Locations

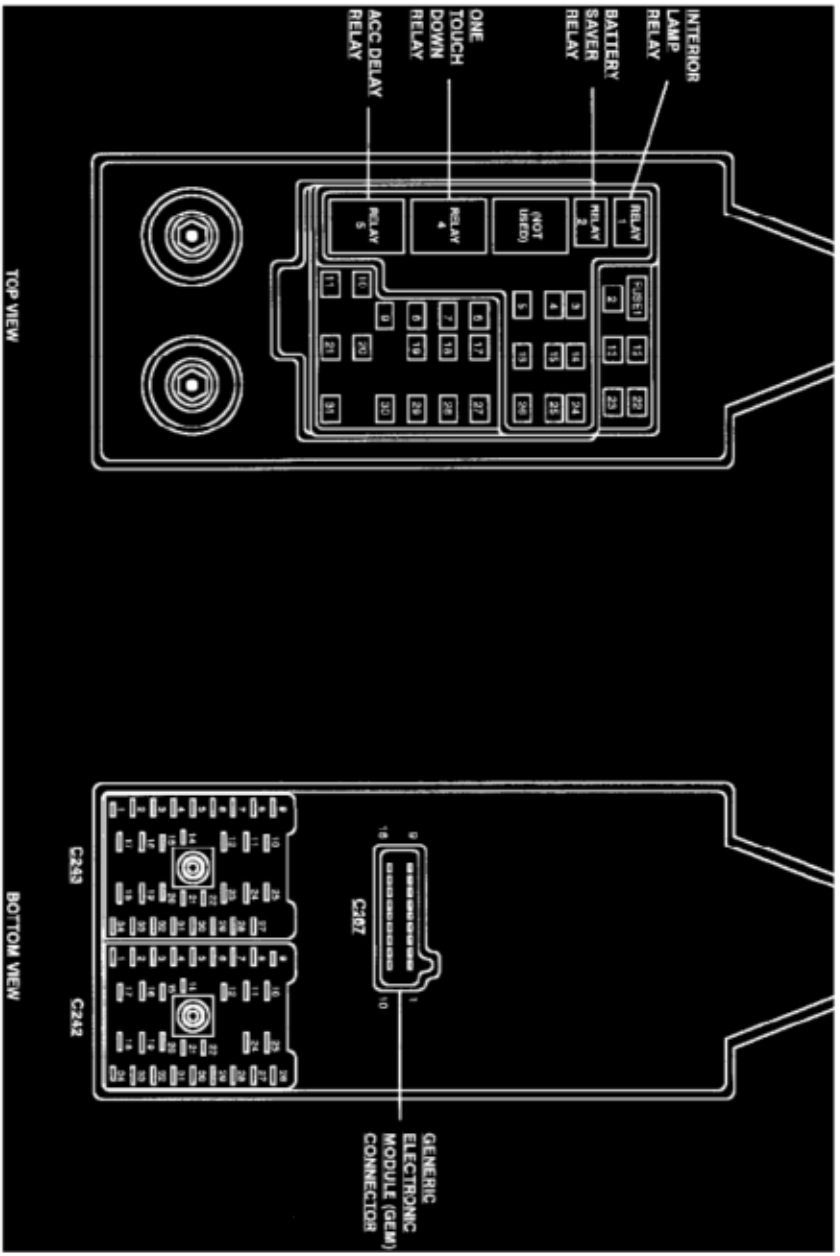


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Instrument Panel View

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Junction Box Fuse/Relay Panel (Part 1 Of 2)

https://www.auto-manual.com/

The Interior Lamp Relay is located in the junction box fuse/relay panel.

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Daytime Running Lamp Control Unit: Specifications

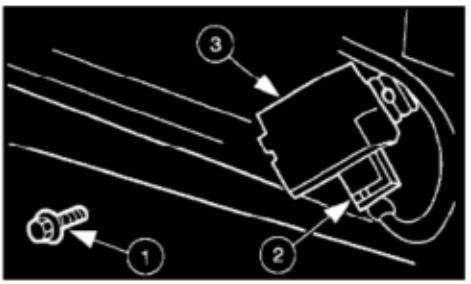
Daytime Running Lamps Control Module Bolt .....

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https://www.auto-manual.com/

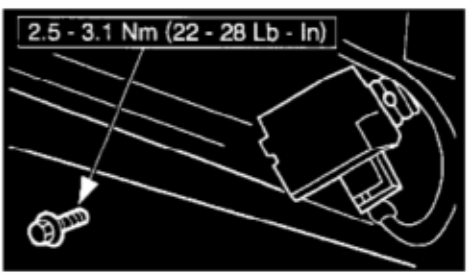
Daytime Running Lamp Control Unit: Service and Repair

REMOVAL



1. Remove the daytime running lamps control from the radiator support.
   1 Remove the bolt.
   2 Disconnect the electrical connector.
   3 Remove the daytime running lamps control module.

INSTALLATION



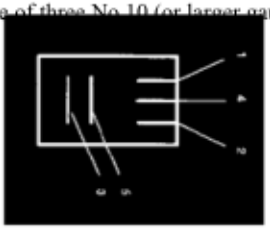
1. To install, reverse the removal procedure.

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https://www.auto-manual.com/

Exterior Lighting Relay: Testing and Inspection
Relay Component Test

Testing an ISO relay can be accomplished through the use of three No.10 (or larger gauge) jumper wires and 7



Terminals

Micro ISO Relay

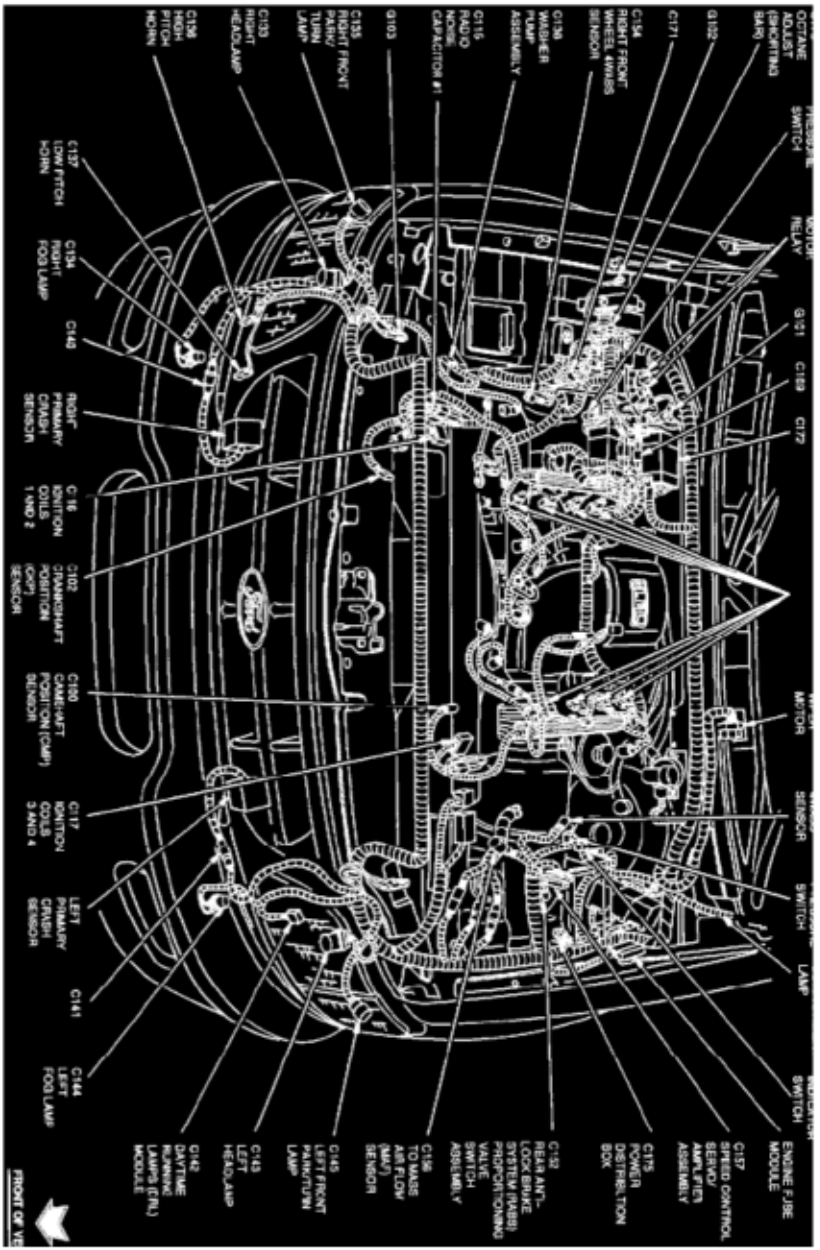
5 ohms
5 ohms

Use 73 Digital Multimeter to check for continuity between terminal 2 and all other terminals. If resistance is or

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Fog/Driving Lamp Relay: LocationsWith Rear Air Suspension

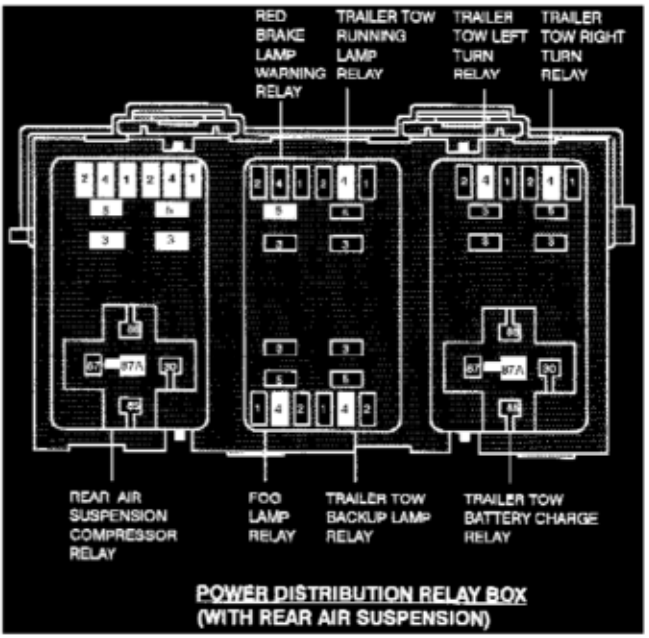


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Engine Views

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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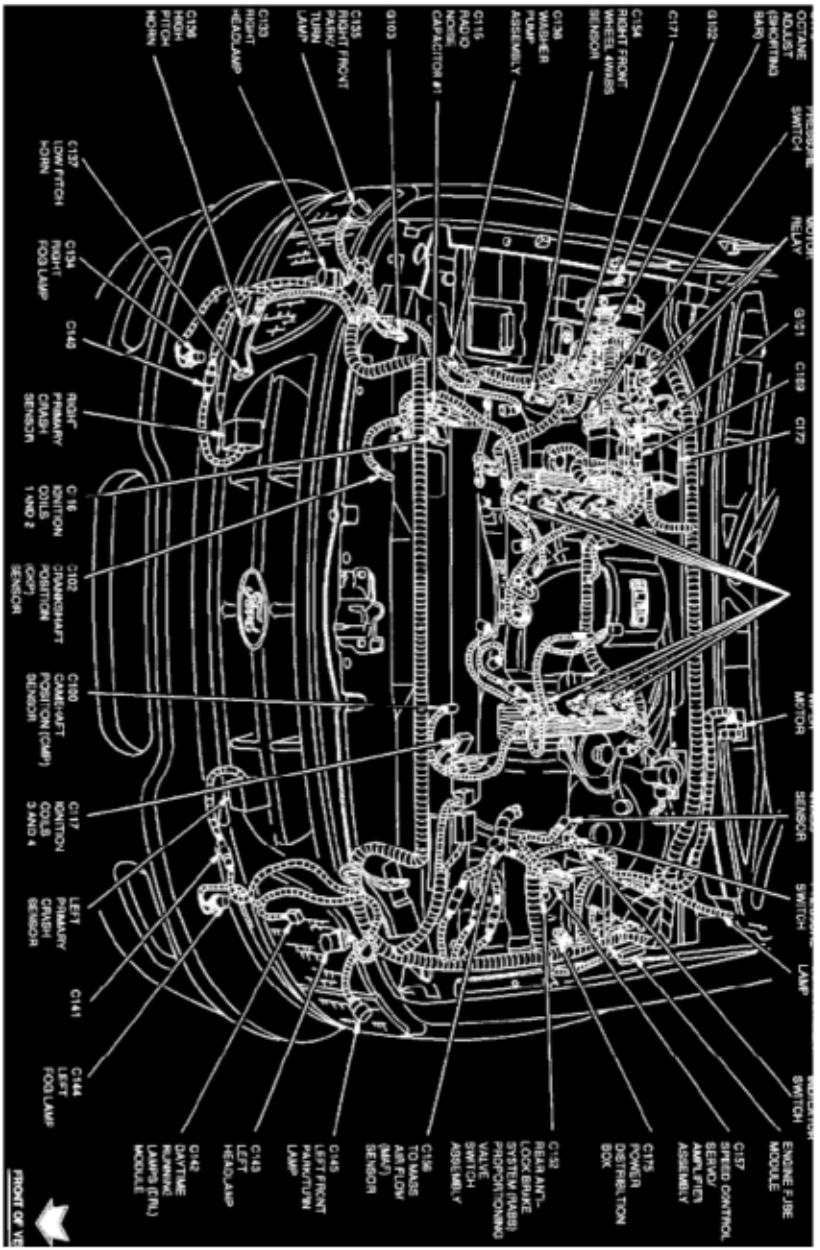
Power Distribution Relay Box (With Rear Air Suspension)

The Fog Lamp Relay is located in the power distribution relay box.

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https://www.auto-manual.com/

Fog/Driving Lamp Relay: LocationsWithout Rear Air Suspension

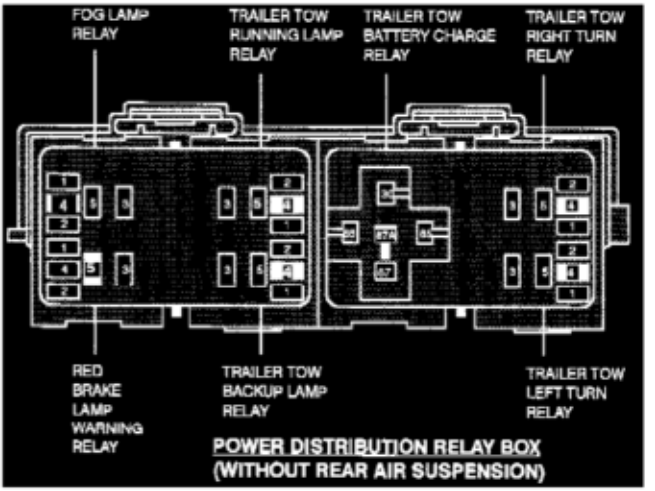


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Engine Views

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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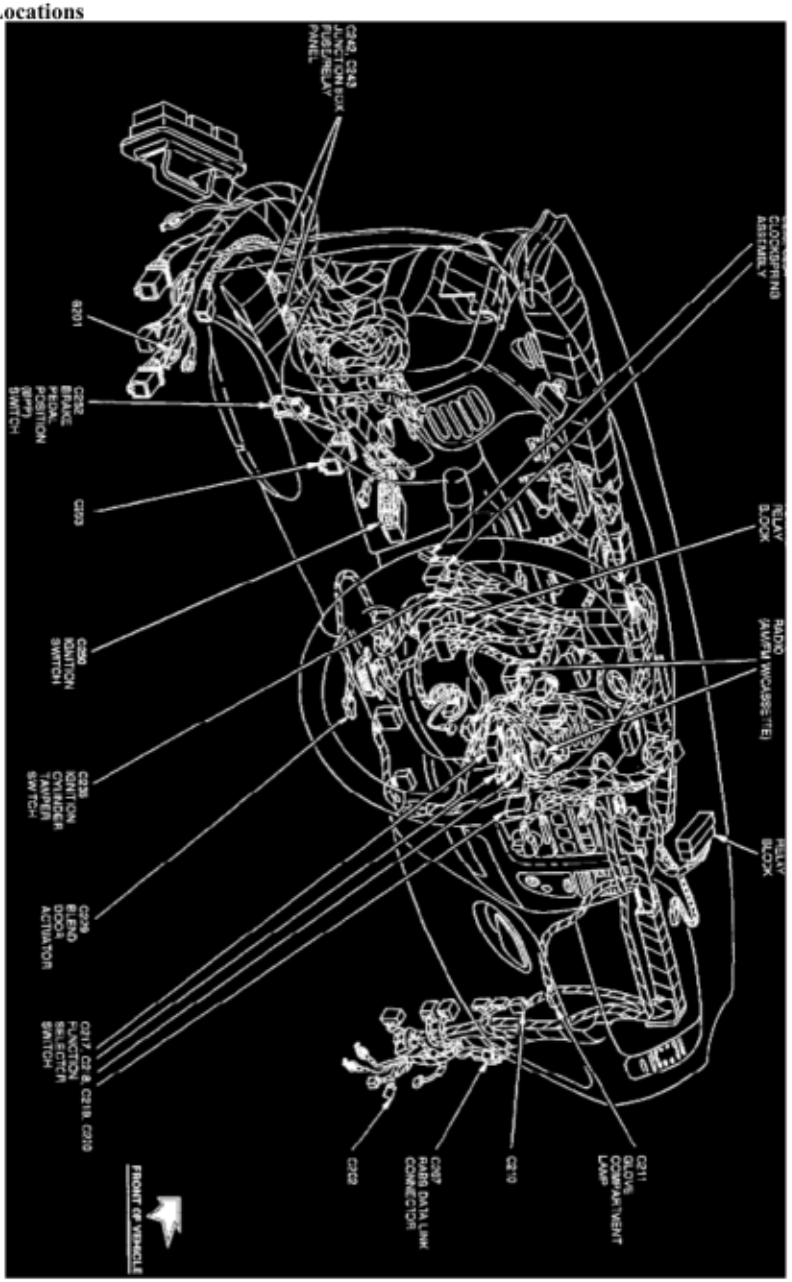
Power Distribution Relay Box (Without Rear Air Suspension)

The Fog Lamp Relay is located in the power distribution relay box.

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https://www.auto-manual.com/

Hazard Flasher Relay: Locations

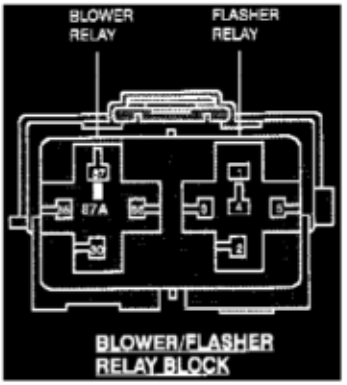


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Instrument Panel View

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/



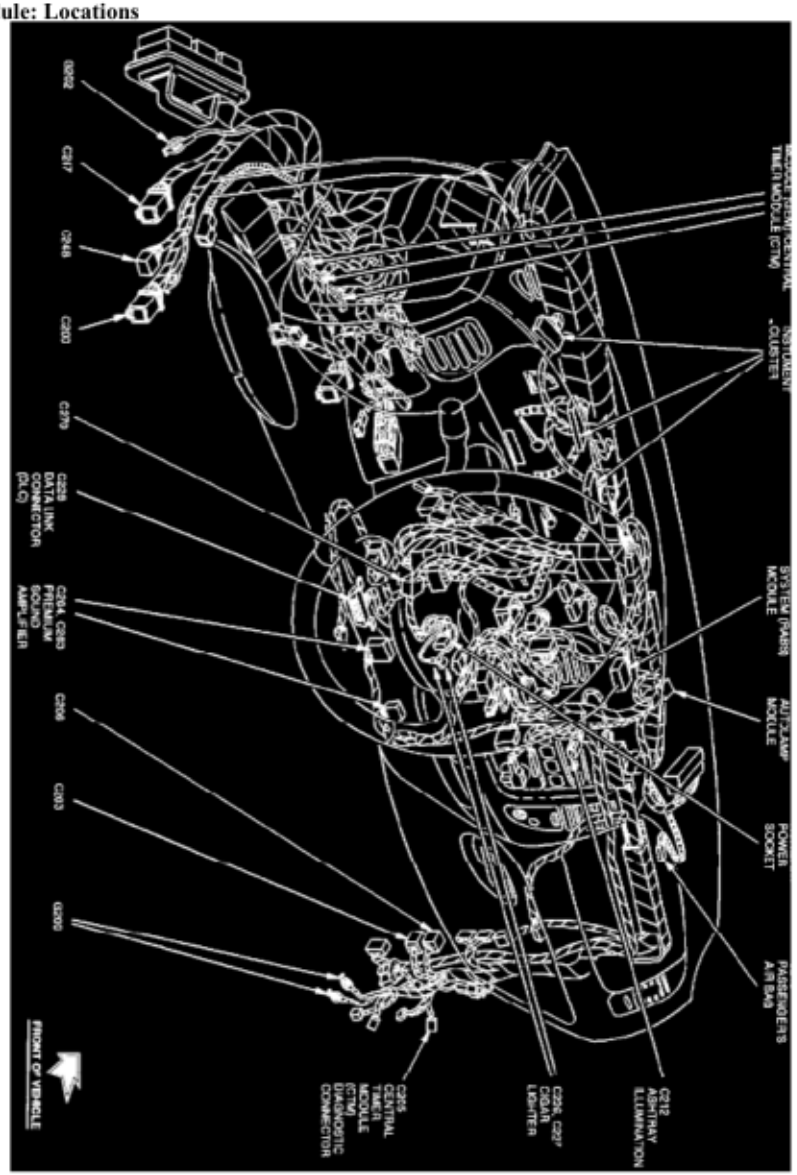
Blower/Flasher Relay Block

The Flasher Relay is located in the blower/flasher relay block, behind the center of the instrument panel.

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Headlamp Control Module: Locations

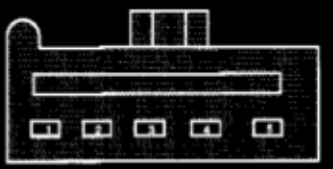


Instrument Panel View

https://www.auto-manual.com/

The Autolamp Module is located behind center of the instrument panel.

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C216 (BLACK)
AUTOLAMP MODULE

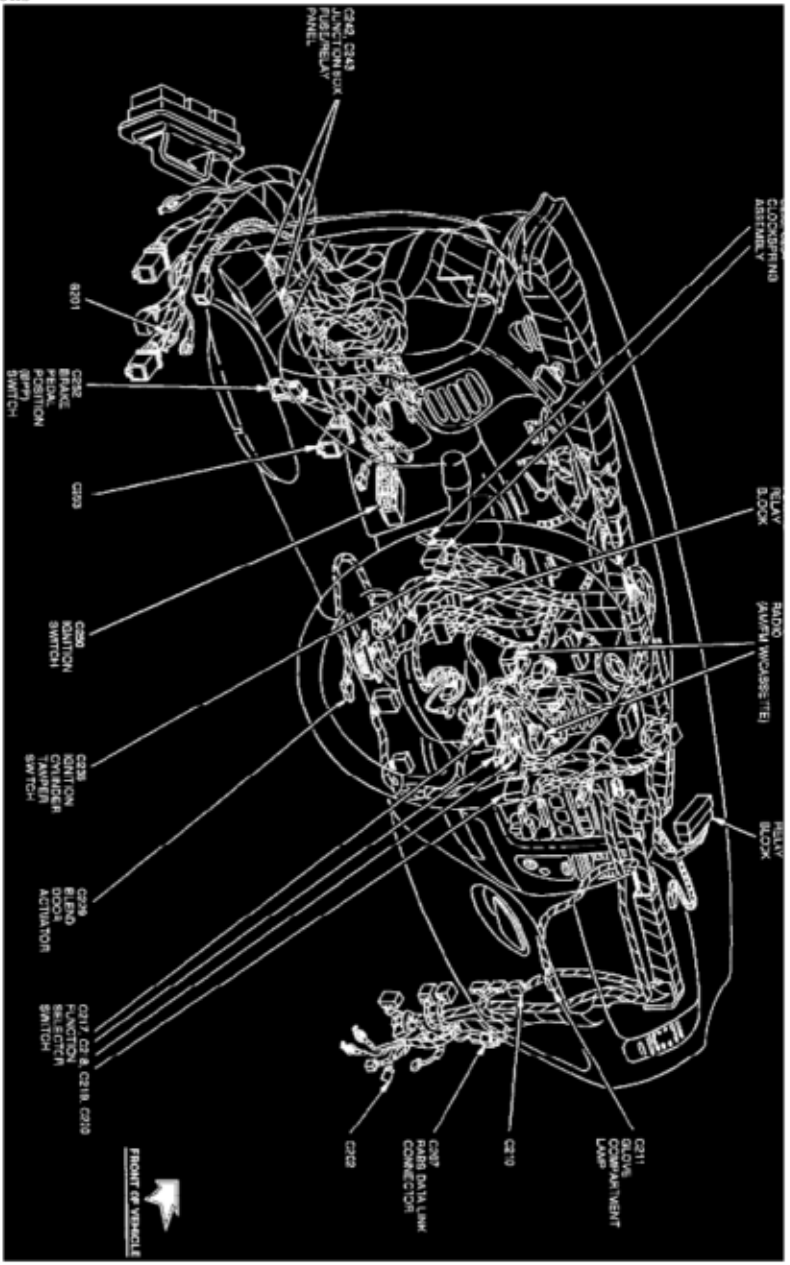
PIN	CIRCUIT	CIRCUIT FUNCTION
1	640 (R/Y)	Power (Hot in Start or Run)
2	220 (P/O)	Output to Control Switch
3	7 (LG/Y)	Relay Output
4	956 (O/LG)	Power (Hot at All Times)
5	217 (DB/O)	Output to Rheostat

Autolamp Module

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Headlamp Relay: Locations

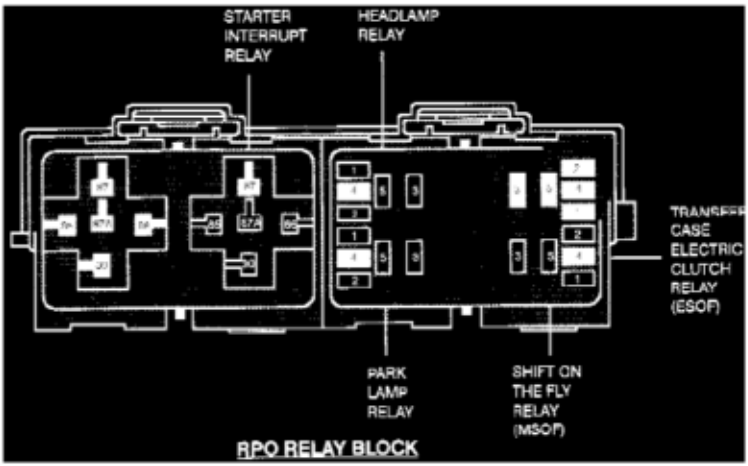


https://www.auto-manual.com/

Instrument Panel View

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/



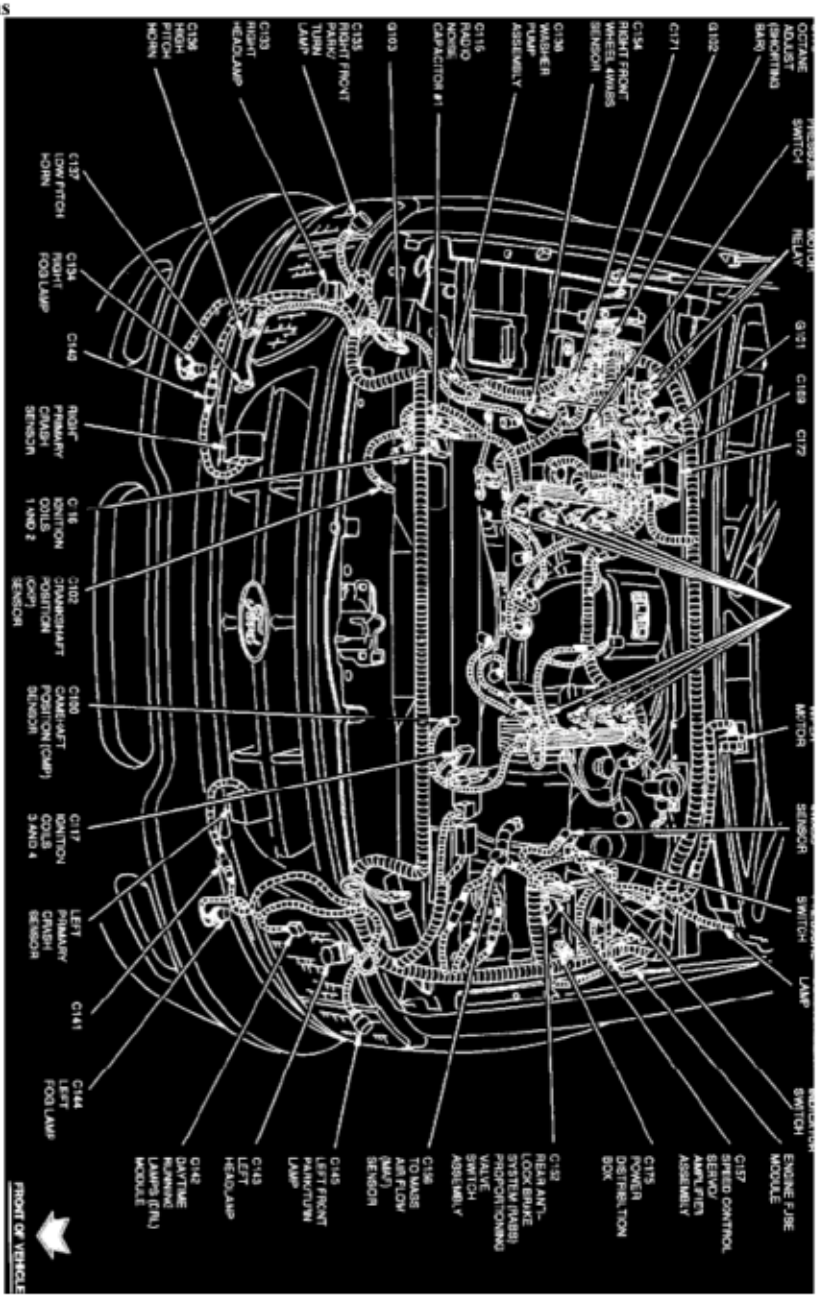
Regular Production Option Relay Block

(RPO) The Headlamp Relay is located in the Regular Production Option relay block, behind the right side of th

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https://www.auto-manual.com/

Horn Relay: Locations

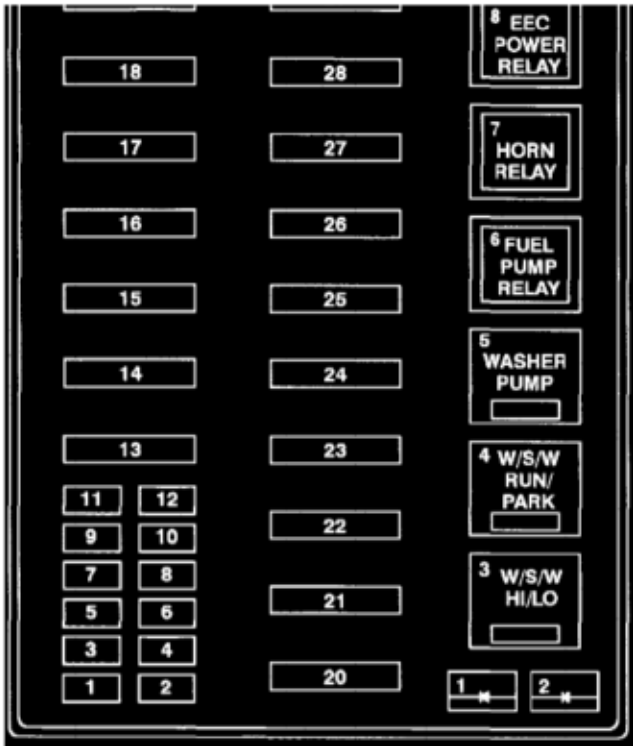


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Engine Views

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Position	Amps	Circuits Protected
1	20 (MINI)	Trailer Tow Running Lamp Relay, Trailer Tow Backup Lamp Relay
2	10 (MINI)	Airbag Diagnostic Monitor
3	15 (MINI)	All Unlock Relay, All Lock Relay, Driver Unlock Relay, LH Power Door Lock Switch, RH Power Door Lock Switch
4	15 (MINI)	Rear Air Suspension (RAS)
5	20 (MINI)	Horn Relay
6	15 (MINI)	Radio, Premium Sound Amplifier, CD Changer
7	15 (MINI)	Main Light Switch, Park Lamp Relay
8	30 (MINI)	Main Light Switch, Headlamp Relay, Multi-function Switch
9	15 (MINI)	Daytime Running Lamps (DRL) Module, Fog Lamp Relay
10	25 (MINI)	Auxiliary Power Socket
11	–	NOT USED
12	–	NOT USED
13	–	NOT USED
14	60 (MAXI)	4 Wheel Anti-Lock Brake System (4WABS) Module
14	20 (MAXI)	Ignition Switch (B2) (W/RABS Only)
15	50 (MAXI)	Rear Air Suspension Compressor
16	40 (MAXI)	Trailer Tow Battery Charge Relay, Engine Fuse Module (Fuse 2)
17	30 (MAXI)	Shift on the Fly Relay, Transfer Case Shift Relay
18	30 (MAXI)	Power Seat Control Switch
19	20 (MAXI)	Fuel Pump Relay
20	50 (MAXI)	Ignition Switch (B4 & B5)
21	50 (MAXI)	Ignition Switch (B1 & B3)
22	50 (MAXI)	Junction Box Fuse/Relay Panel Battery Feed
23	40 (MAXI)	Blower Relay
24	30 (MAXI)	PCM Power Relay, Engine Fuse Module (Fuse 1)
25	30 (MAXI)	Junction Box Fuse/Relay Panel, Acc Delay Relay
26	–	NOT USED
27	–	NOT USED
28	30 (MAXI)	Trailer Electronic Brake Controller
29	–	NOT USED

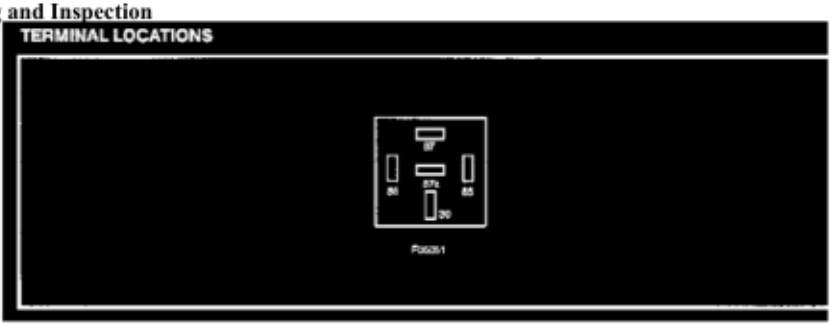
https://www.auto-manual.com/

Power Distribution Box

The Horn Relay is located in the power distribution box.

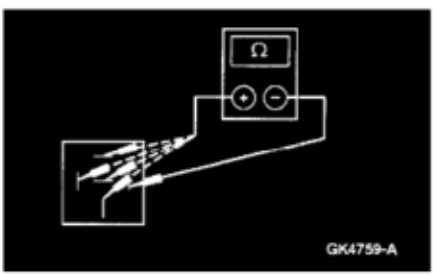
https://www.auto-manual.com/

Horn Relay: Testing and Inspection



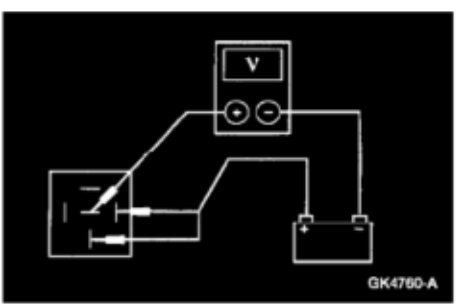
Horn Relay Terminal Location

Check Relay Continuity



5 ohms 1. Measure the resistance between relay terminal 85 and all other terminals. If any resistance is or les: with the test.

Apply Power to the Relay



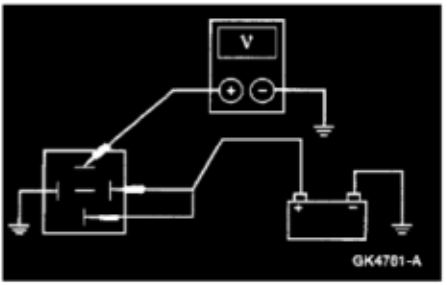
10 volts2. Use jumper wires to apply battery voltage to terminals 30 and 85. Measure voltage at terminal 87A relay. Otherwise, continue with the test.

Check Relay Operation

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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10 volts 3. Use a jumper wire to apply ground to terminal 86. Measure the voltage at terminal 87. If the voltag
Otherwise, return to the pinpoint tests.

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Interior Lighting Module: Description and OperationGEM Sleep Mode

45 minutes 5.0 mA
The GEM and the CTM sleep mode deactivate all outputs to conserve battery power. Sleep mode is entered wh
- ^ Both front door open warning lamp switches.
- ^ Ignition switch in the key-in, ACC and RUN position.
- ^ RAP illuminated entry request.

The GEM sleep mode outputs are:
- ^ None. (All circuits are deactivated during sleep mode.)

If a change in any of the above inputs occur while the GEM is asleep, the GEM will wake up and monitor all ot

The following components are under the control of the battery saver relay:
- ^ Interior lamp.
- ^ Under hood lamp.
- ^ Glove compartment lamp.
- ^ Panel dimmer switch.
- ^ Interior lamp relay.

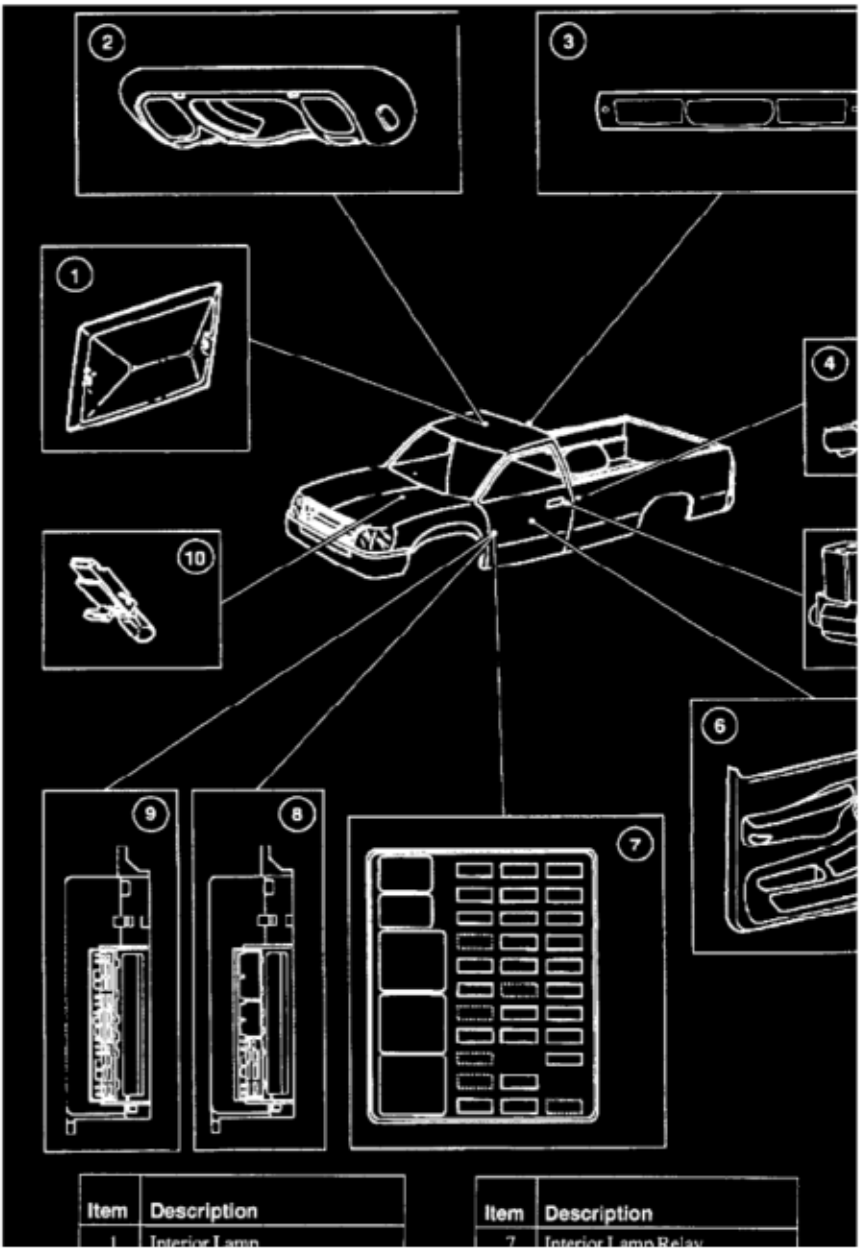
40 minutes
The battery saver relay becomes active (relay coil is energized) when the GEM is in the awake mode, and is de

The battery saver inputs are the GEM sleep mode inputs.

The battery saver output is the battery saver relay.

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Item	Description
1	Interior Lamp

Item	Description
7	Interior Lamp Relay

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- **25 seconds** have elapsed since the illuminated entry feature was activated and the courtesy lamp feature i
- The GEM receives a request from the RAP module (remote transmitter lock button pressed) and the court
- The ignition is in the RUN or START position and the courtesy lamp feature is not activated.

The illuminated entry inputs are:

- RAP illuminated entry request. (Grounded pulse of varying length.)
- Ignition switch in the RUN position. (Battery voltage on both the RUN and RUN/ACC inputs.)

The illuminated entry outputs are:

- Interior lamp relay coil output. (Grounded when activated; an open circuit when deactivated.)

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2	Interior Lamp with Map Lamp
3	Cargo Lamp
4	Door Open Warning Lamp Switch
5	Interior Lamp Switch
6	Door Courtesy Lamp

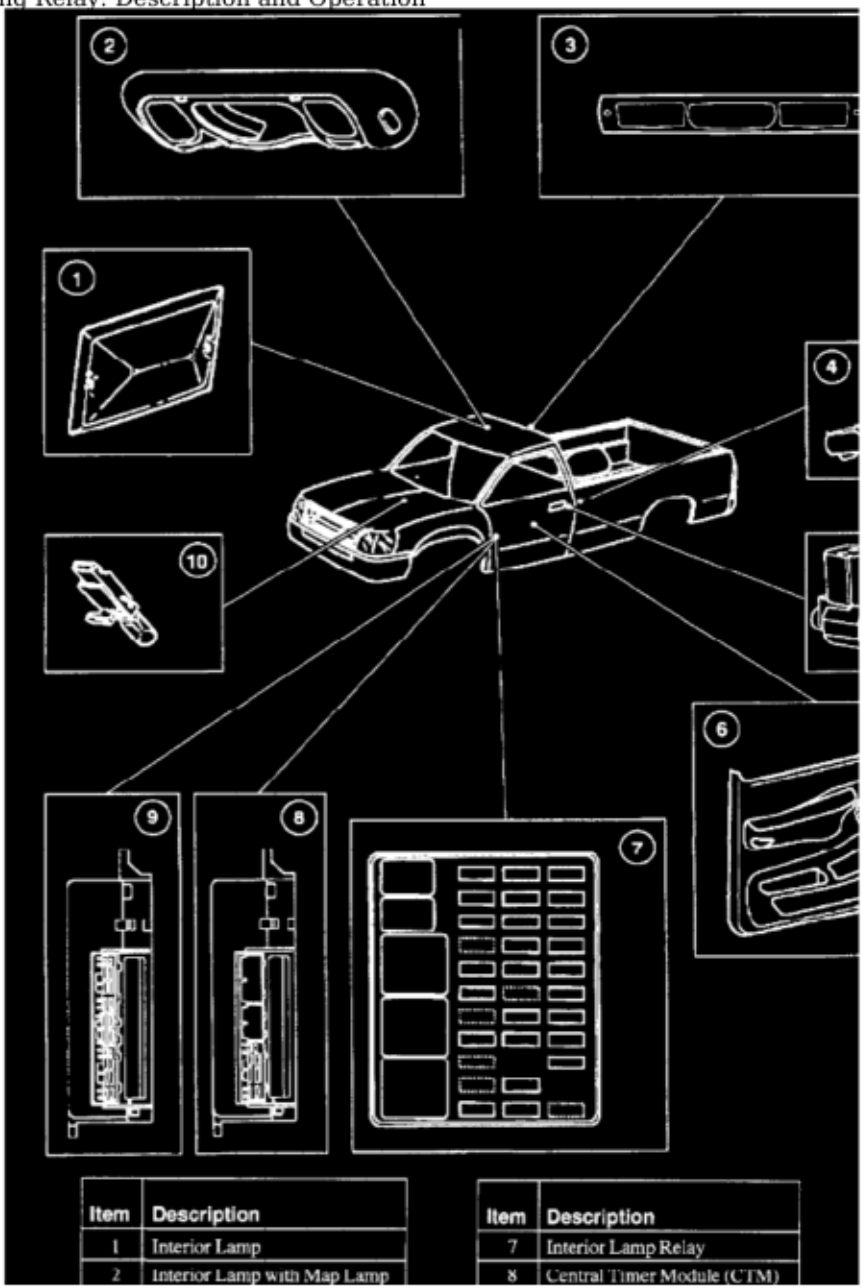
8	Central Timer Module (CTM)
9	Generic Electronic Module (GEM)
10	Under Hood Lamp
11	Glove Compartment Lamp

The RAP module sends a signal to the GEM on the illuminated entry request circu

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Interior Lighting Relay: Description and Operation

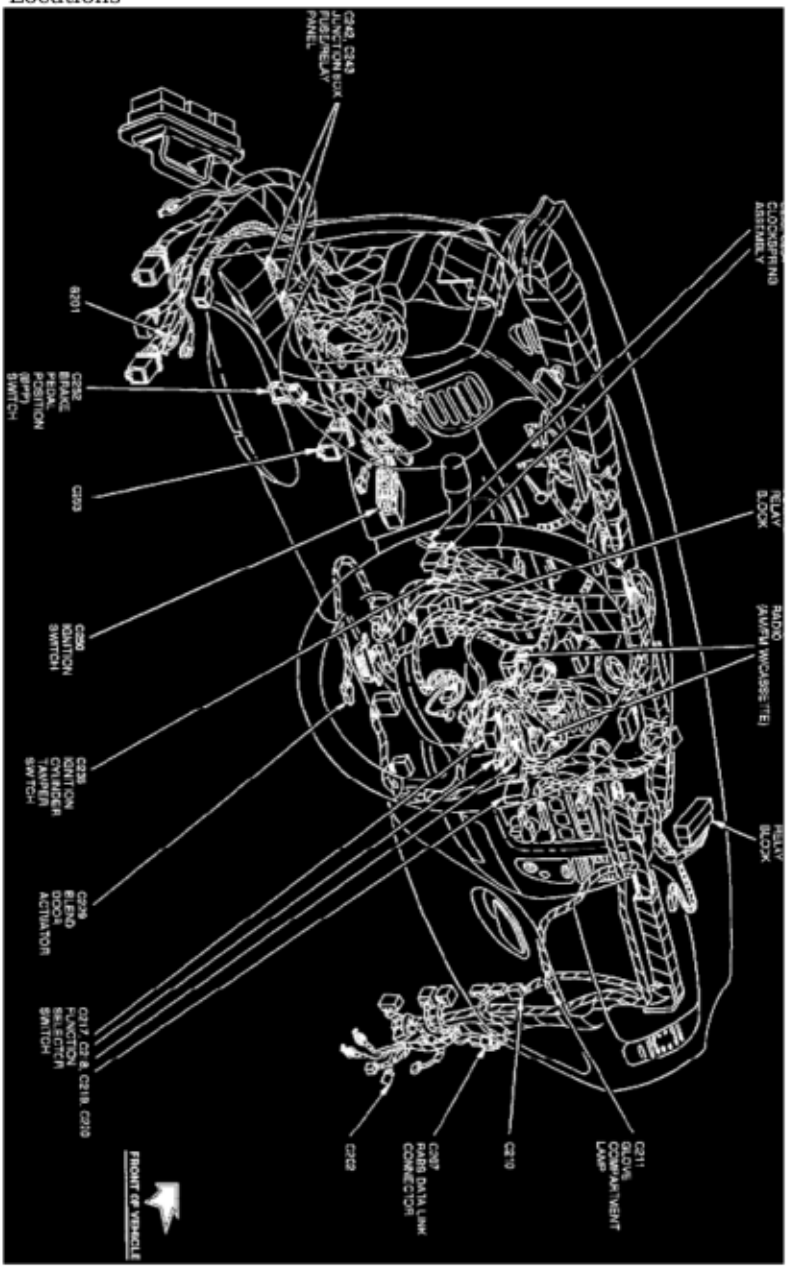


Item	Description
1	Interior Lamp
2	Interior Lamp with Map Lamp

Item	Description
7	Interior Lamp Relay
8	Central Timer Module (CTM)

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Parking Lamp Relay: Locations



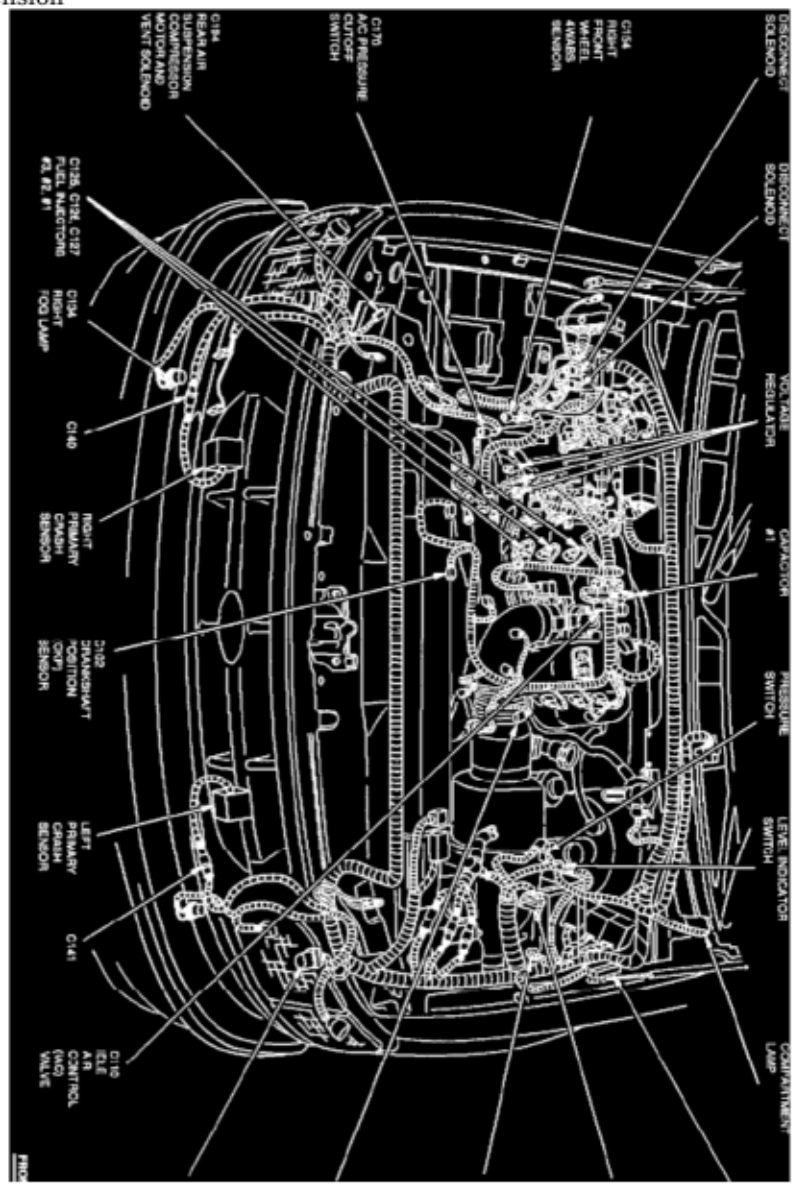
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https://www.auto-manual.com/

Power Distribution Relay: LocationsTrailer Tow Backup Lamp Relay

With Rear Air Suspension



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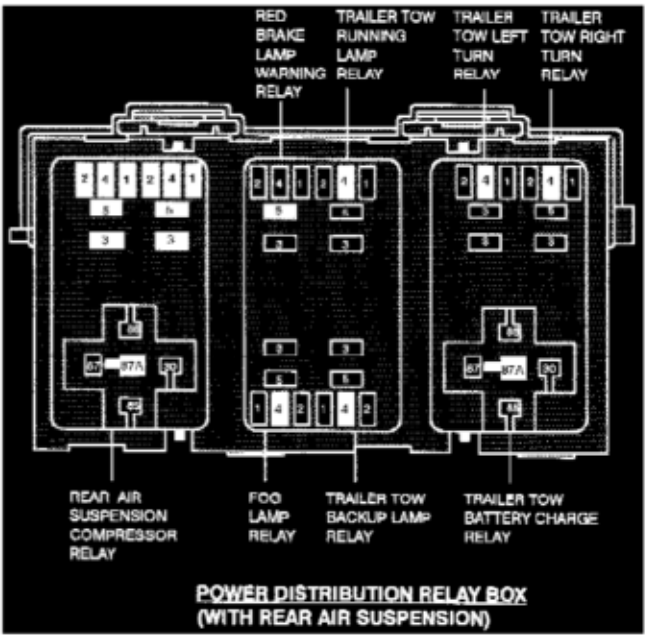


Engine Views

> Relays and Modules > Relays and Modules - Power and Ground Distribution > Power Distribution Relay > Component Information > Loc
Lamp Relay > Page 186

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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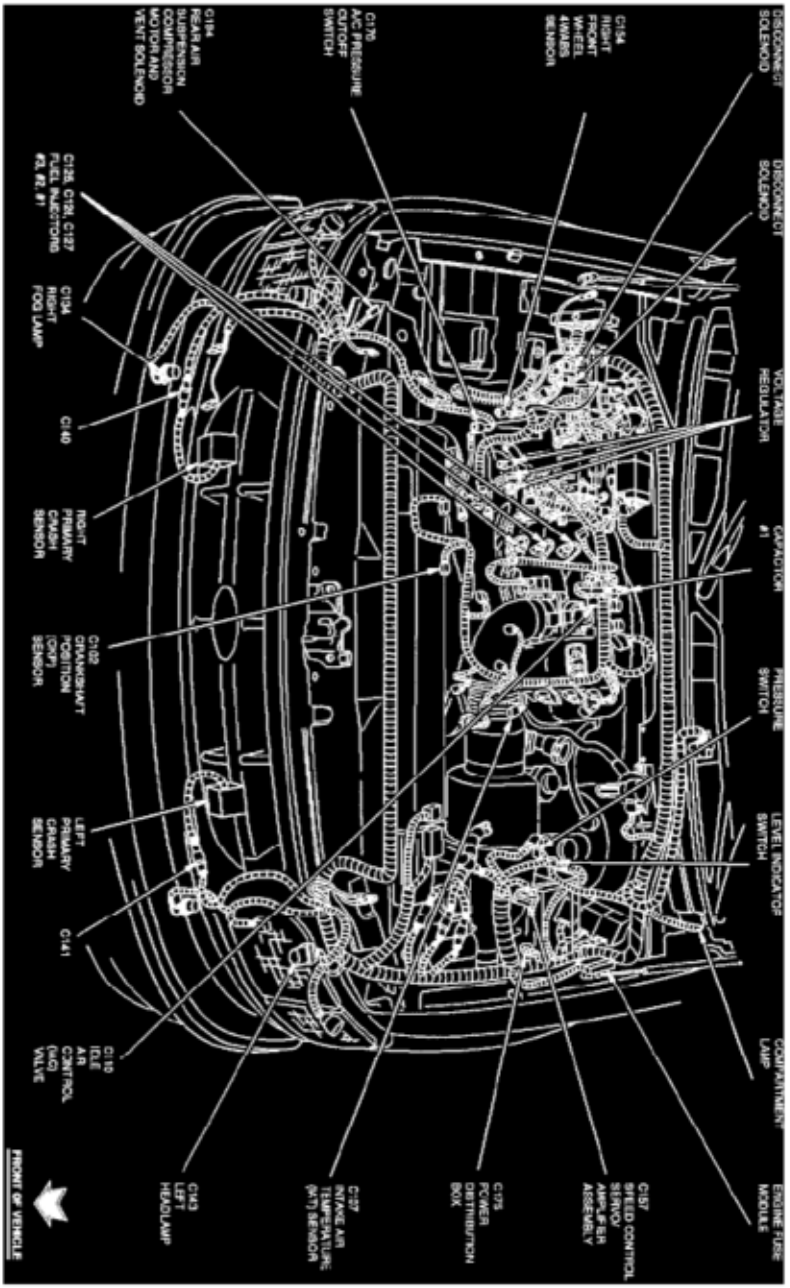
Power Distribution Relay Box (With Rear Air Suspension)

The Trailer Tow Backup Lamp Relay is located in the power distribution relay box.

Without Rear Air Suspension

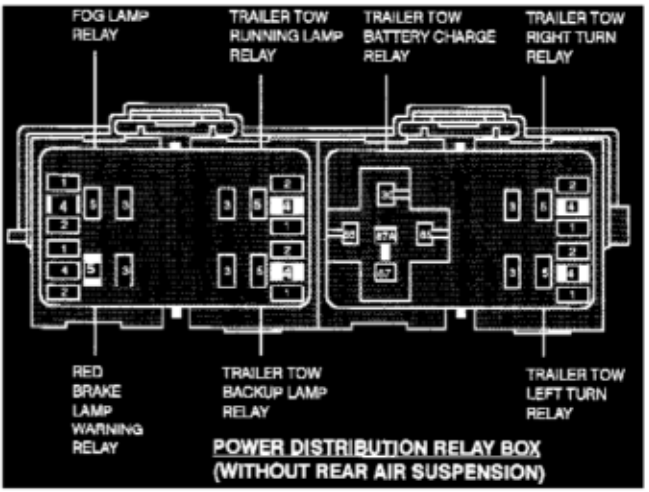
https://www.auto-manual.com/

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Power Distribution Relay Box (Without Rear Air Suspension)

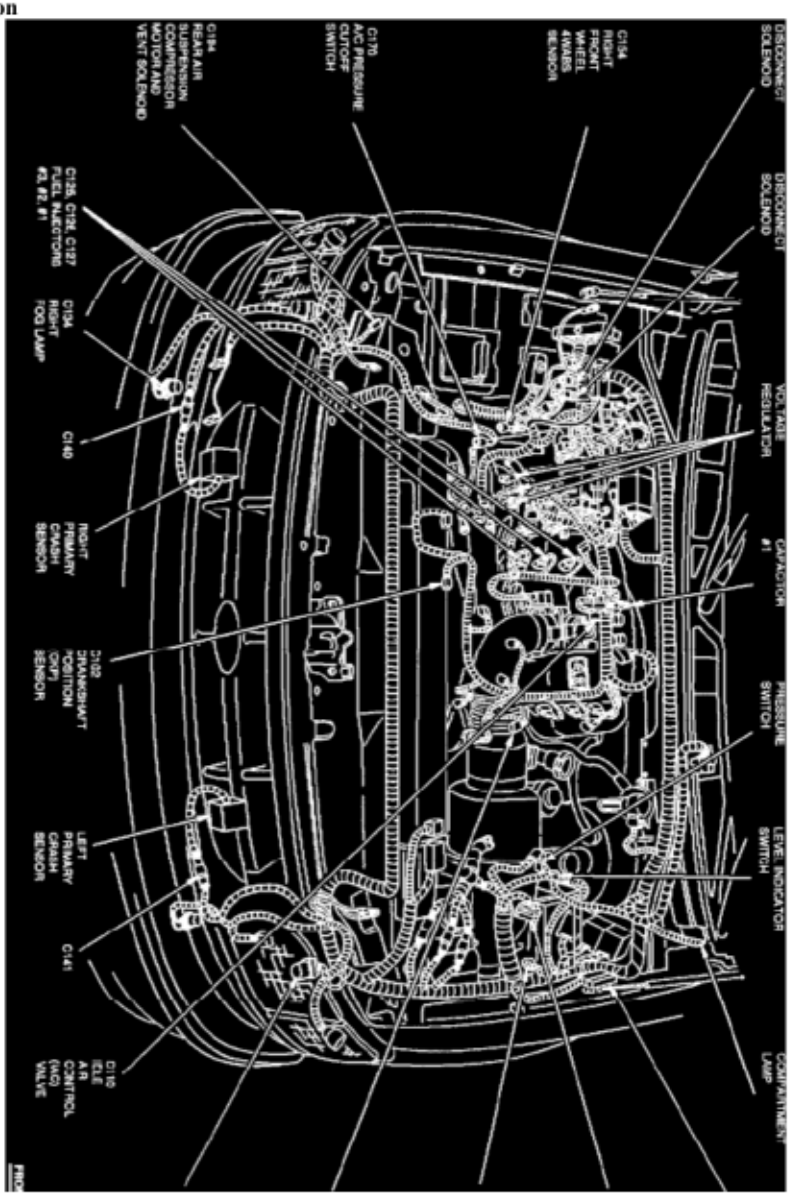
The Trailer Tow Backup Lamp Relay is located in the power distribution relay box.

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Power Distribution Relay: LocationsTrailer Tow Battery Charge Relay

With Rear Air Suspension



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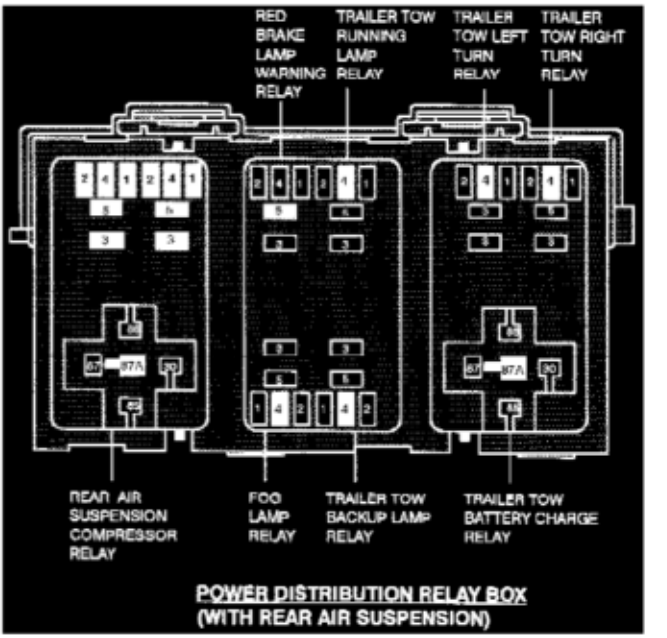


Engine Views

> Relays and Modules > Relays and Modules - Power and Ground Distribution > Power Distribution Relay > Component Information > Locations > Trailer Tow Backup Lamp Relay > Page 190

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Power Distribution Relay Box (With Rear Air Suspension)

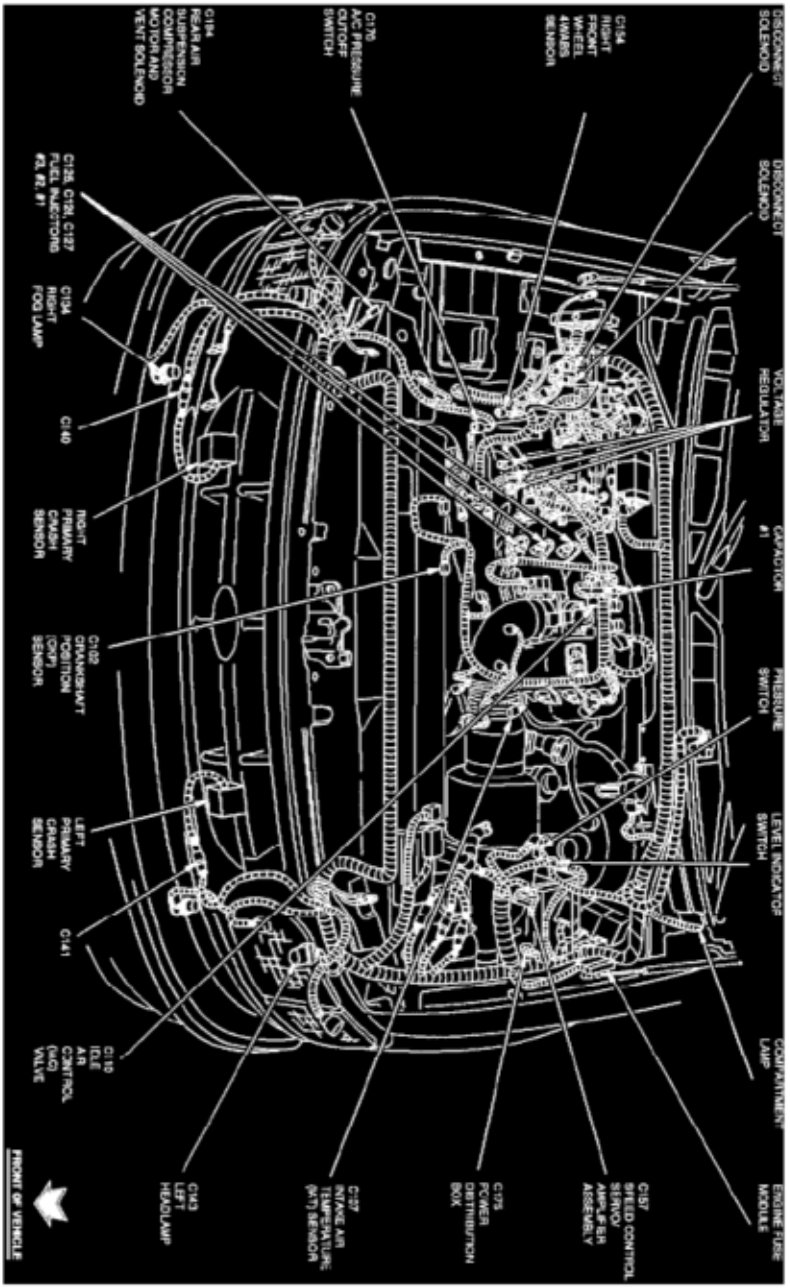
The Trailer Tow Battery Charge Relay is located in the power distribution relay box.

Without Rear Air Suspension

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

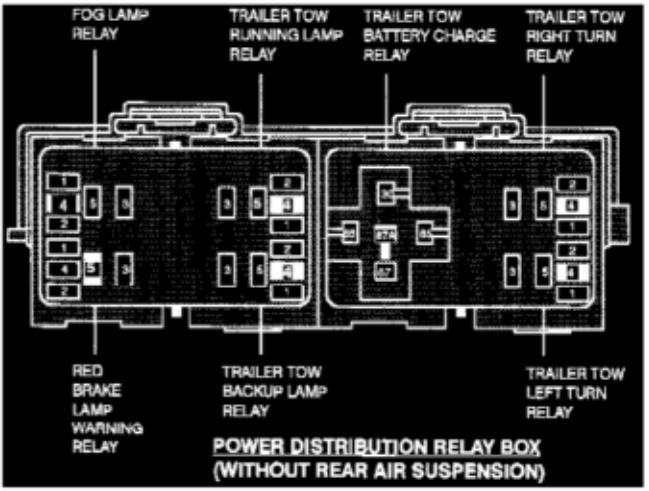


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Engine Views

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Power Distribution Relay Box (Without Rear Air Suspension)

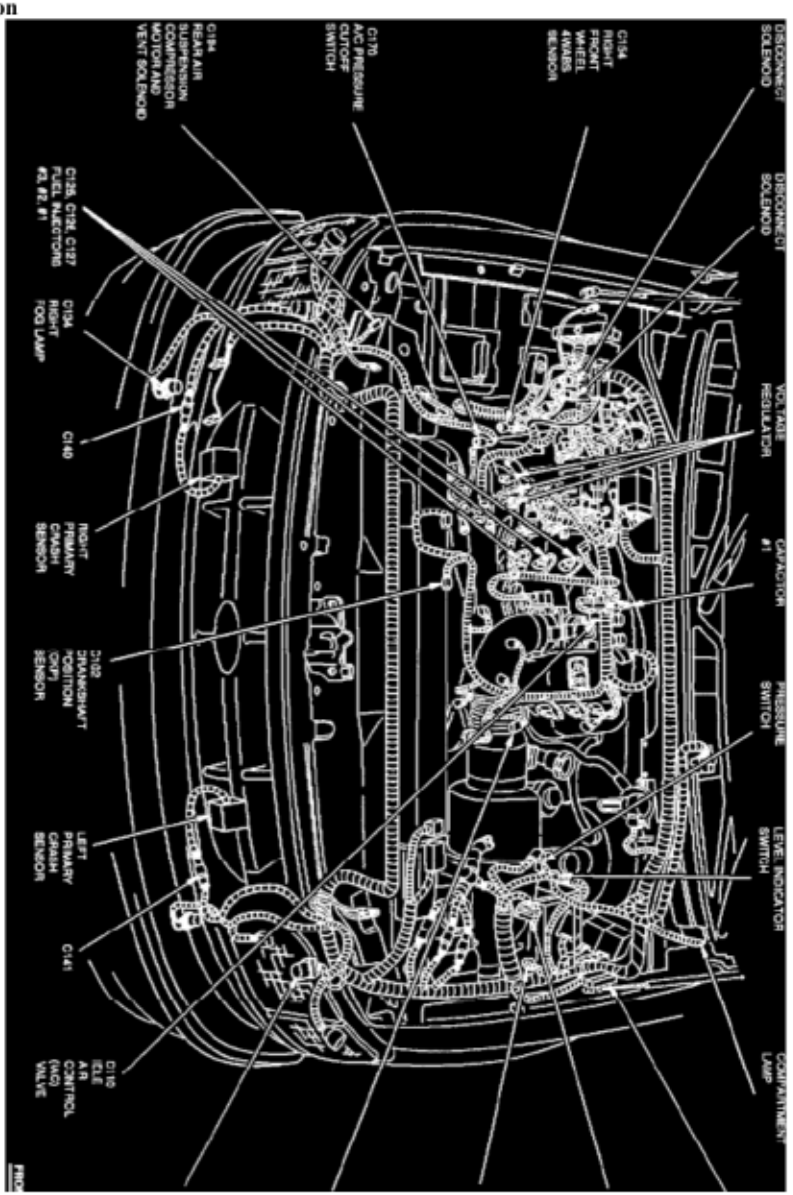
The Trailer Tow Battery Charge Relay is located in the power distribution relay box.

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Power Distribution Relay: LocationsTrailer Tow Left Turn Relay

With Rear Air Suspension



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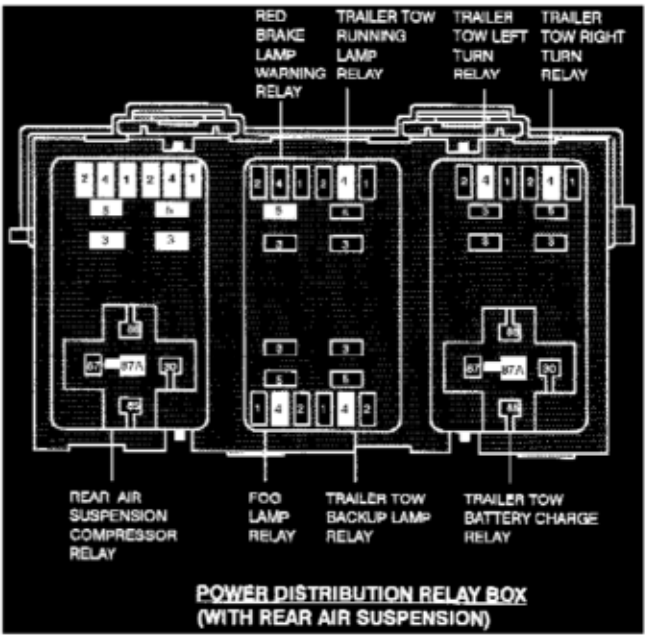


Engine Views

> Relays and Modules > Relays and Modules - Power and Ground Distribution > Power Distribution Relay > Component Information > Locations > Trailer Tow Backup Lamp Relay > Page 194

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Power Distribution Relay Box (With Rear Air Suspension)

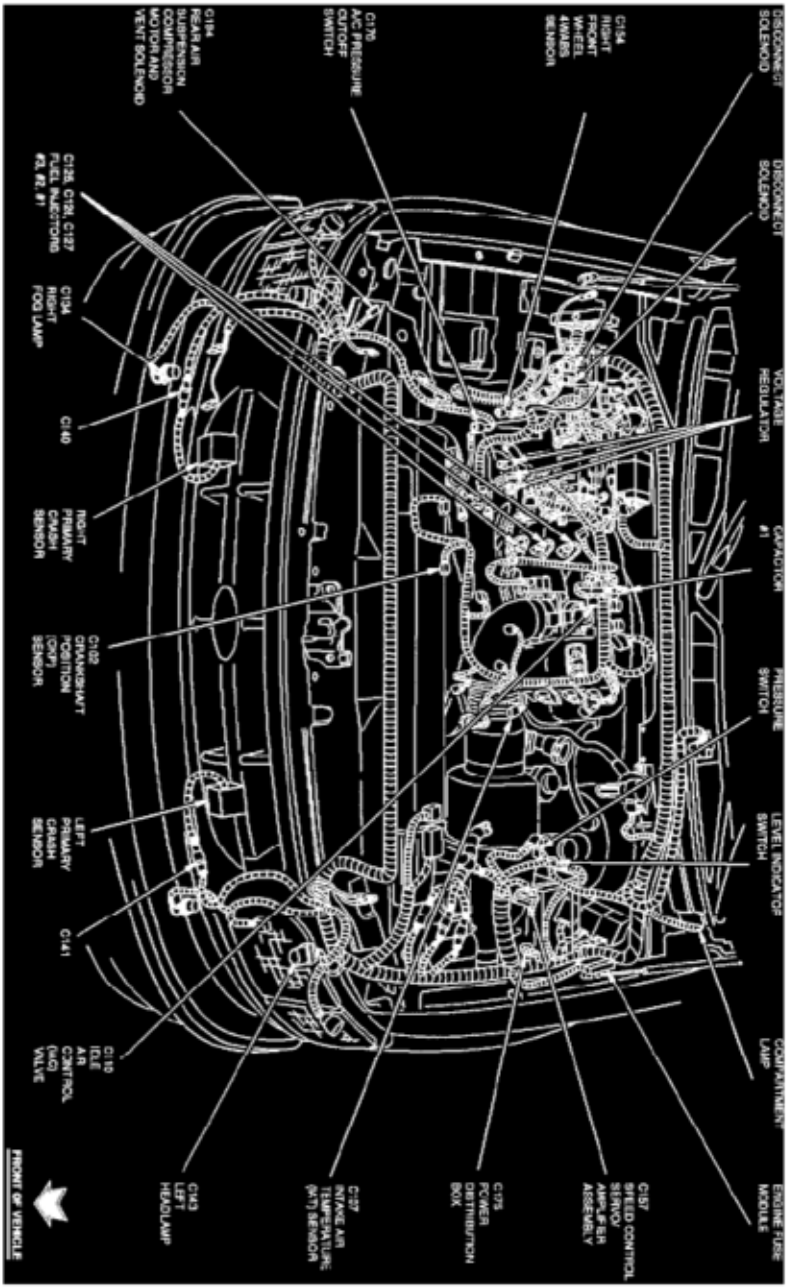
The Trailer Tow Left Turn Relay is located in the power distribution relay box.

Without Rear Air Suspension

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

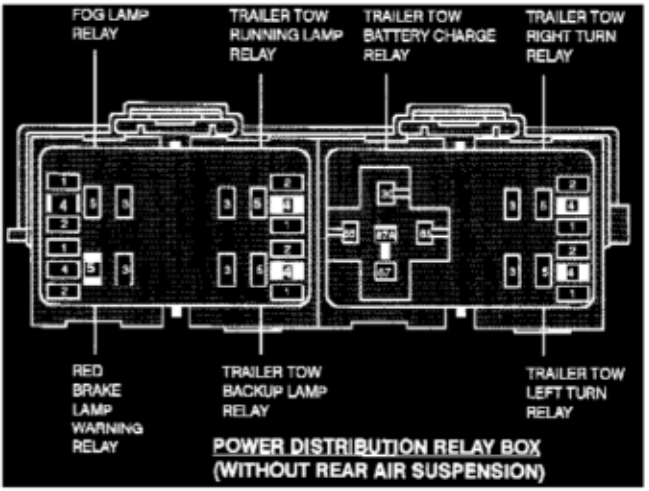


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Engine Views

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Power Distribution Relay Box (Without Rear Air Suspension)

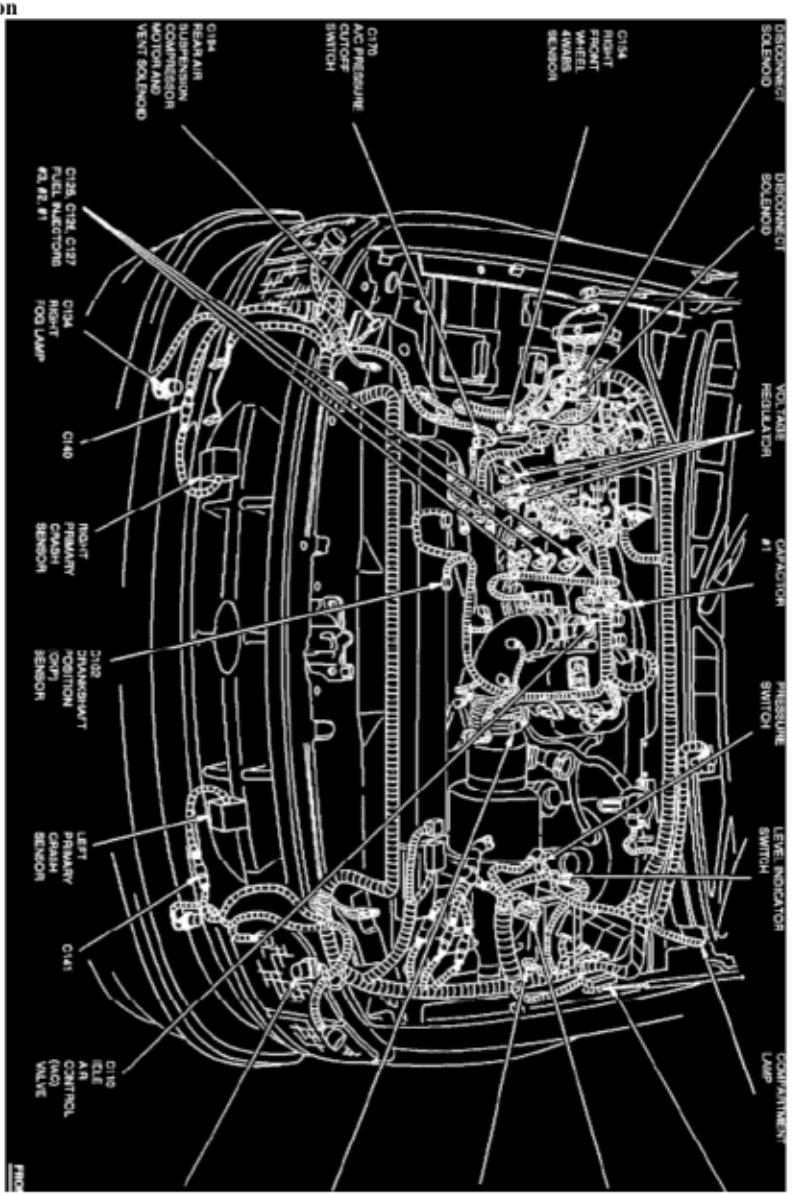
The Trailer Tow Left Turn Relay is located in the power distribution relay box.

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Power Distribution Relay: LocationsTrailer Tow Right Turn Relay

With Rear Air Suspension



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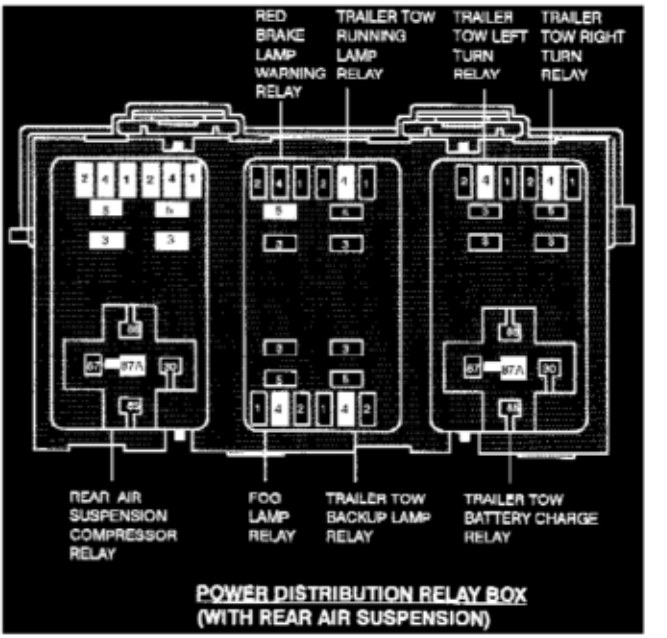


Engine Views

> Relays and Modules > Relays and Modules - Power and Ground Distribution > Power Distribution Relay > Component Information > Locations > Trailer Tow Backup Lamp Relay > Page 198

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Power Distribution Relay Box (With Rear Air Suspension)

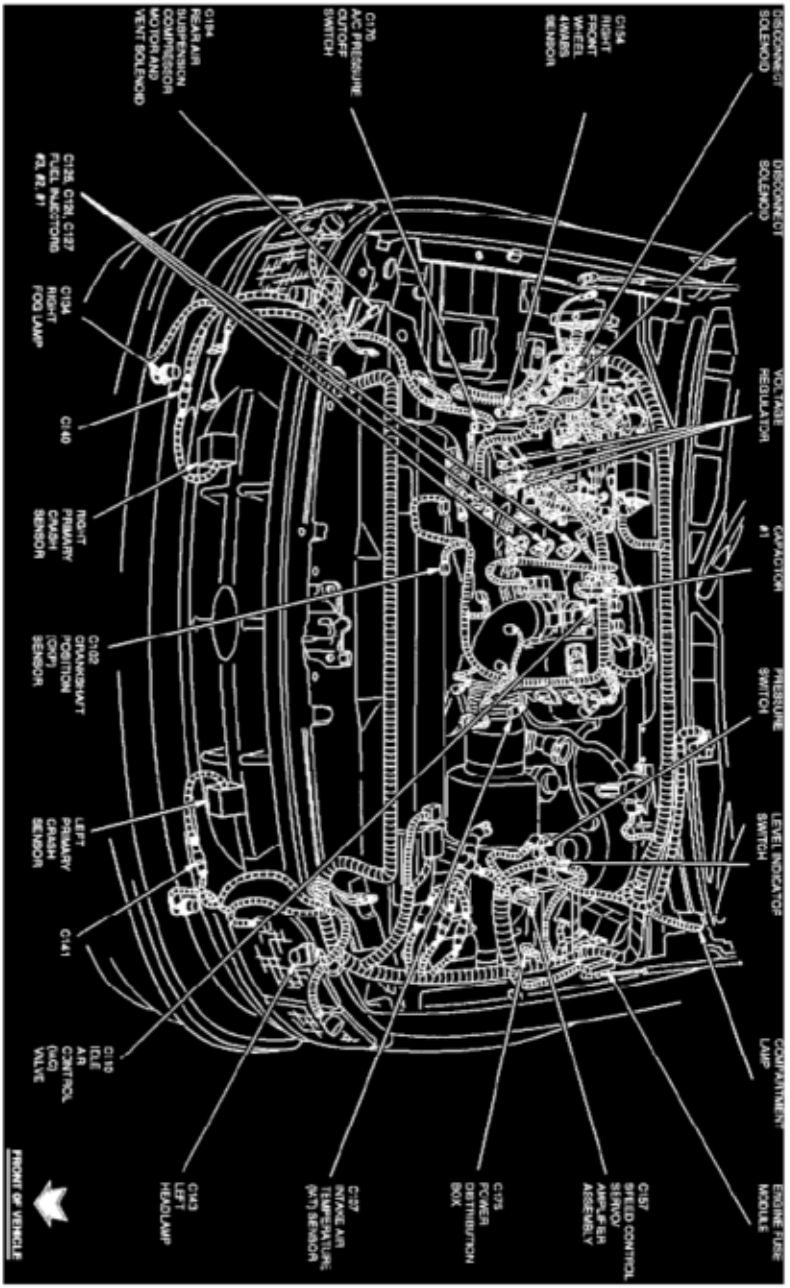
The Trailer Tow Right Turn Relay is located in the power distribution relay box.

Without Rear Air Suspension

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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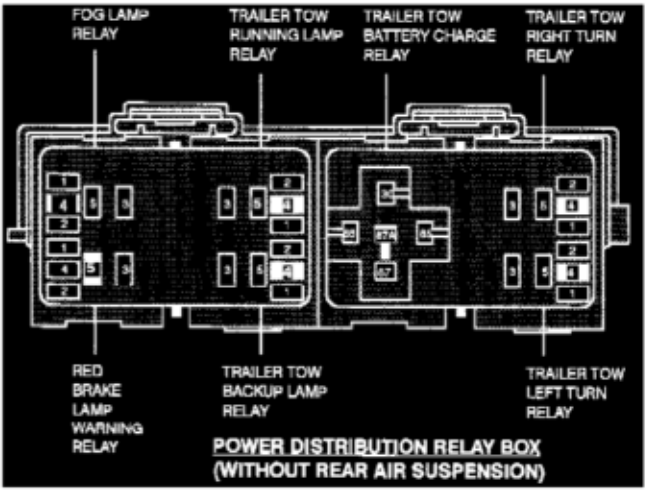


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Engine Views

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Power Distribution Relay Box (Without Rear Air Suspension)

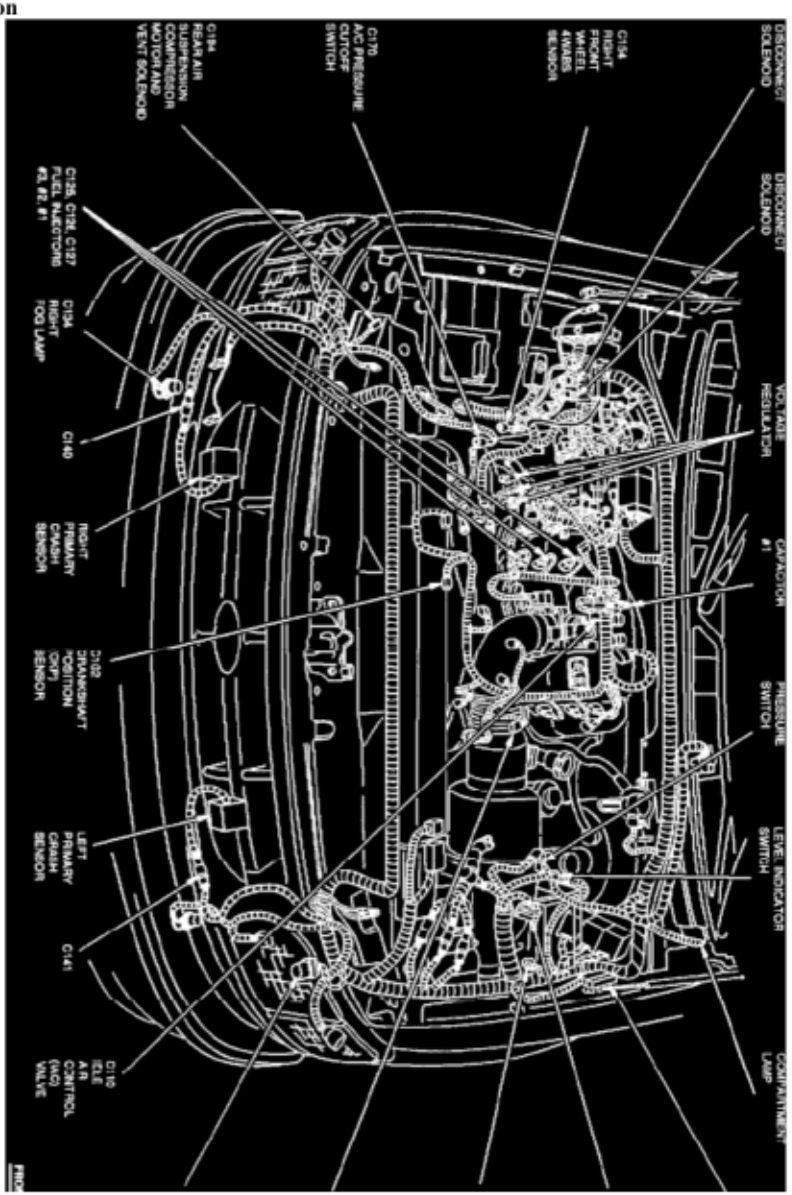
The Trailer Tow Right Turn Relay is located in the power distribution relay box.

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https://www.auto-manual.com/

Power Distribution Relay: LocationsTrailer Tow Running Lamp Relay

With Rear Air Suspension



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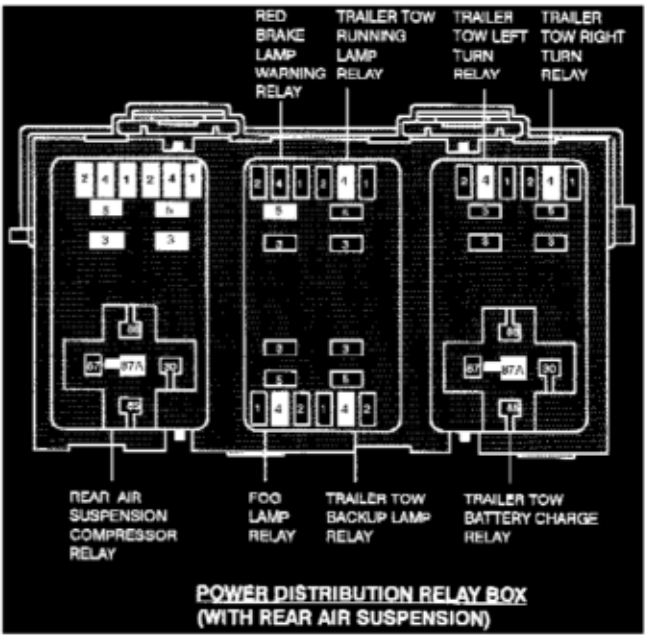


Engine Views

> Relays and Modules > Relays and Modules - Power and Ground Distribution > Power Distribution Relay > Component Information > Locations > Trailer Tow Backup Lamp Relay > Page 202

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Power Distribution Relay Box (With Rear Air Suspension)

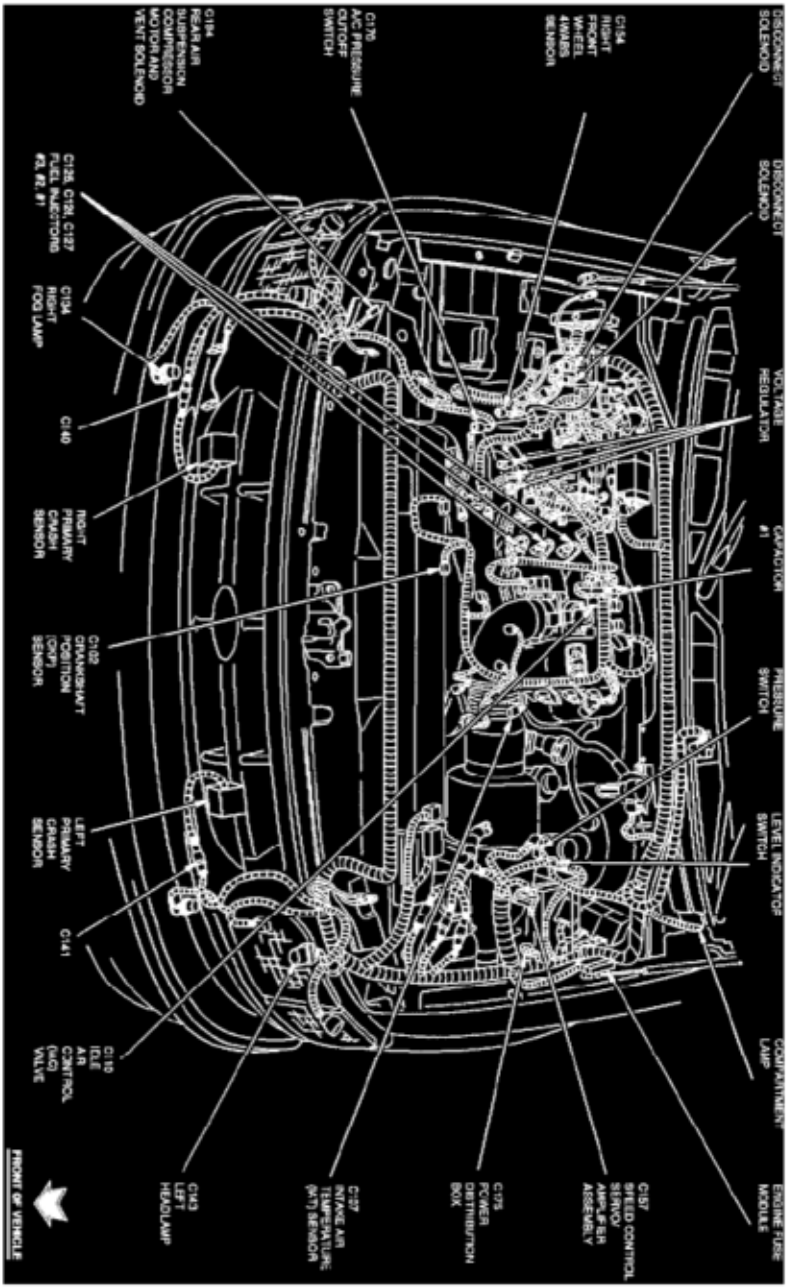
The Trailer Tow Running Lamp Relay is located in the power distribution relay box.

Without Rear Air Suspension

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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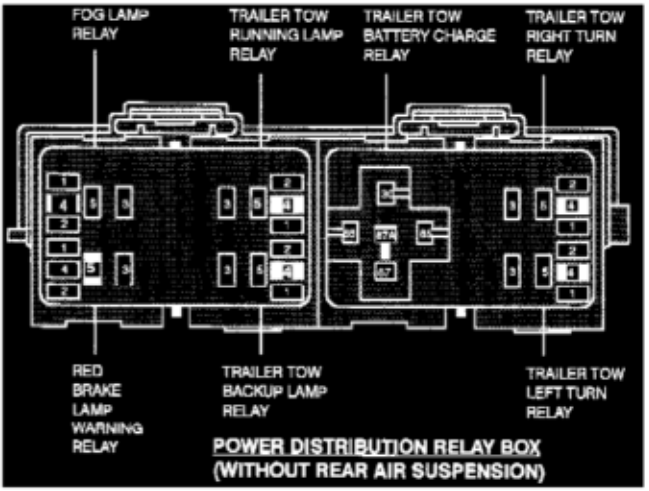


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Engine Views

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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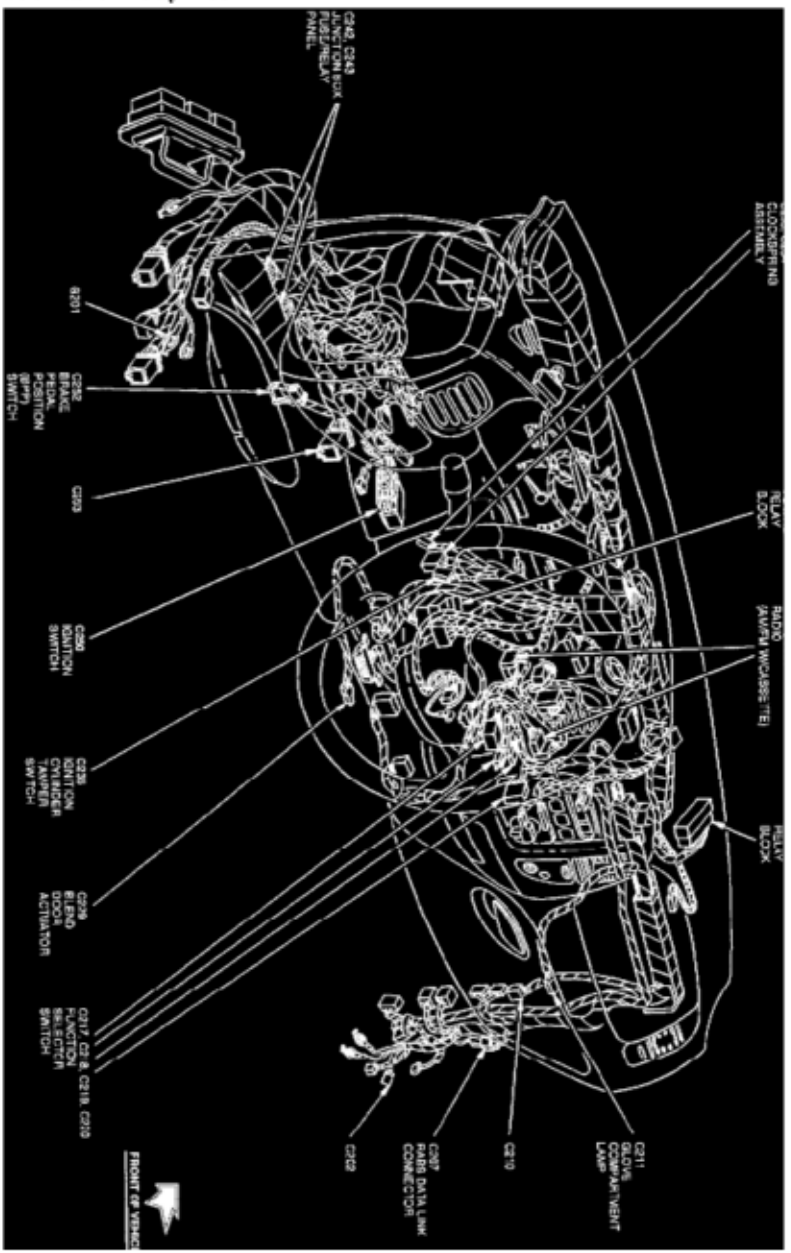
Power Distribution Relay Box (Without Rear Air Suspension)

The Trailer Tow Running Lamp Relay is located in the power distribution relay box.

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Relay Box: LocationsBlower/Flasher Relay Block

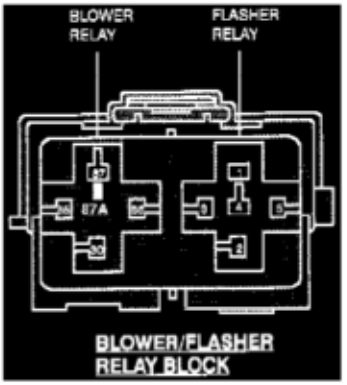


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Instrument Panel View

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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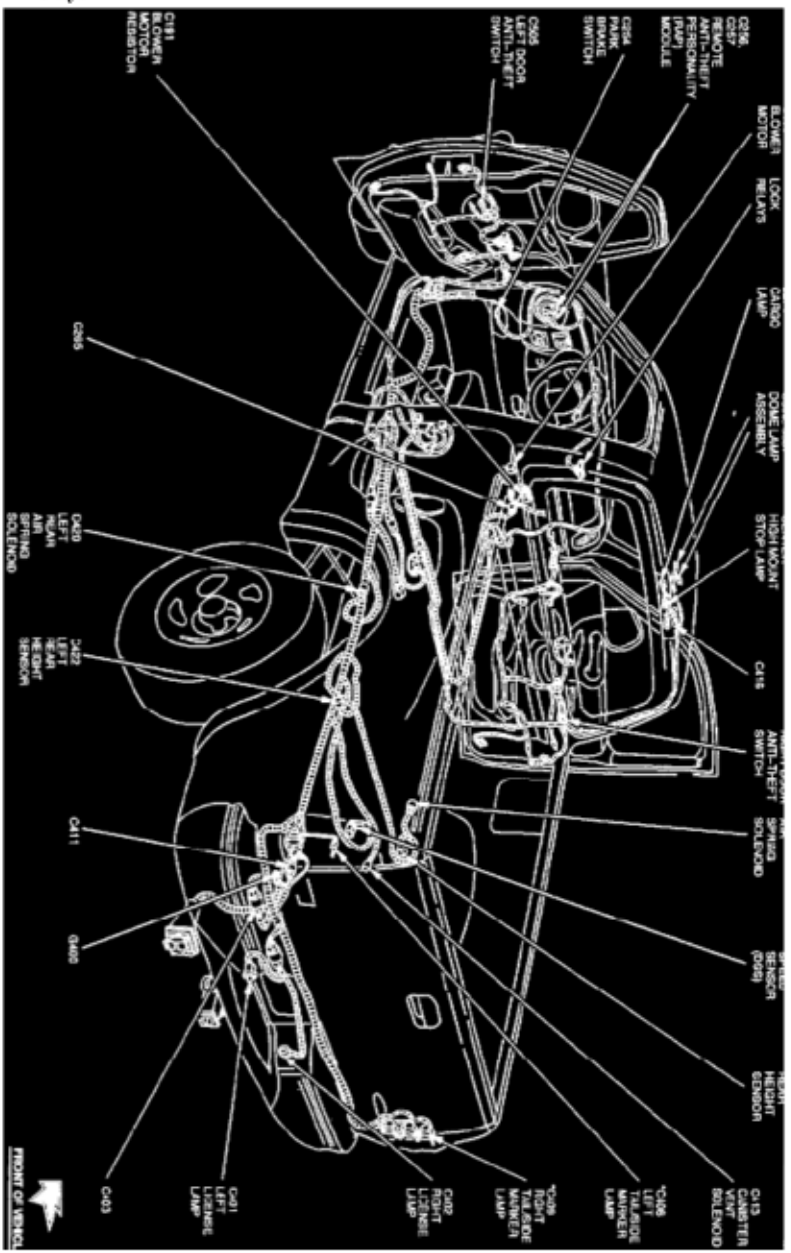
Blower/Flasher Relay Block

The Blower/Flasher Relay Block is located behind center of the instrument panel.

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Relay Box: LocationsLock Relays



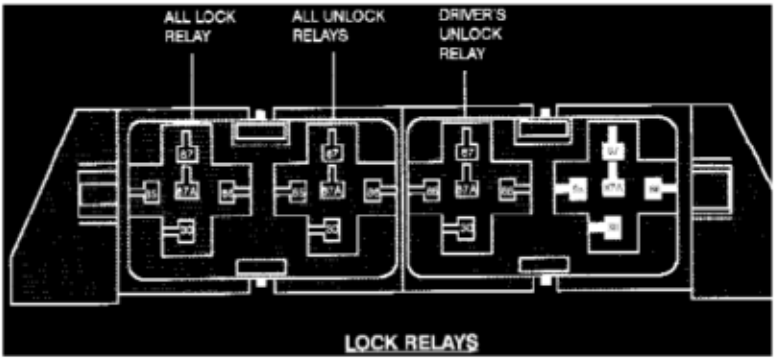
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Body View

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Lock Relays

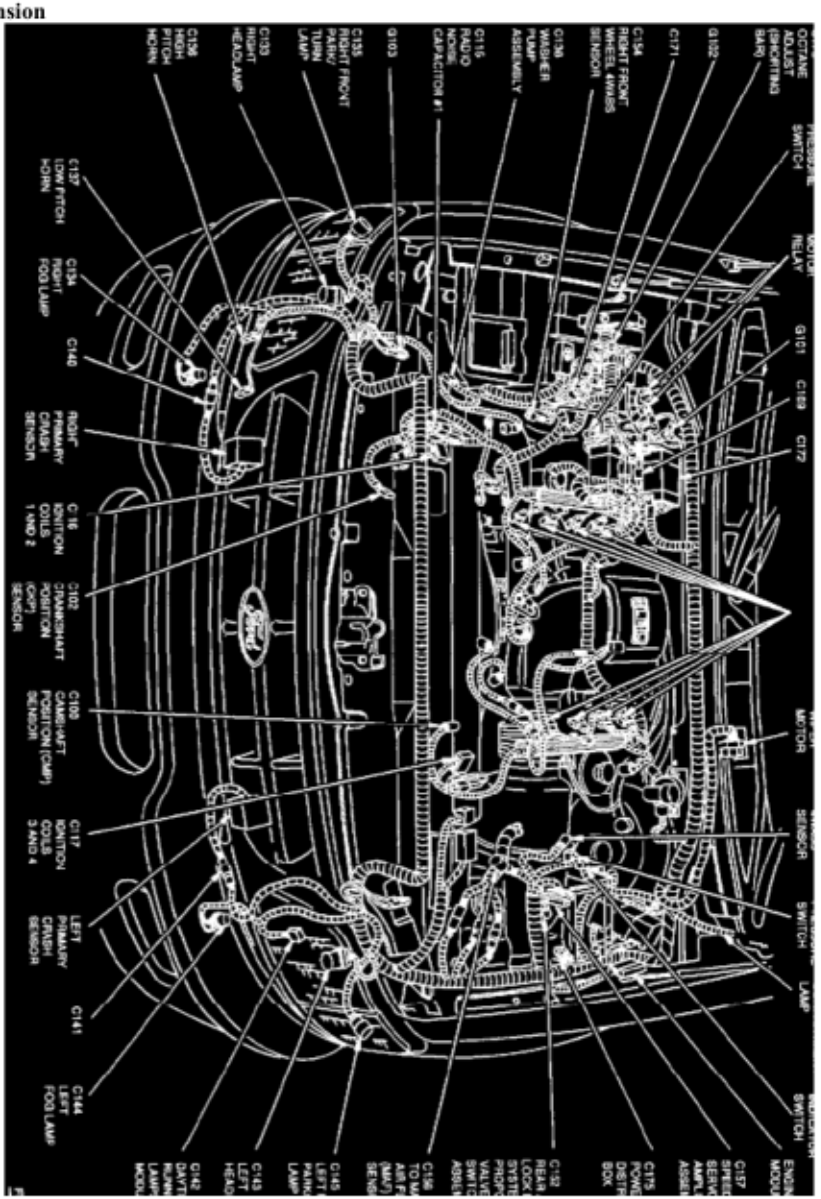
The Lock Relays are located behind right side of the instrument panel.

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https://www.auto-manual.com/

Relay Box: LocationsPower Distribution Relay Box

With Rear Air Suspension



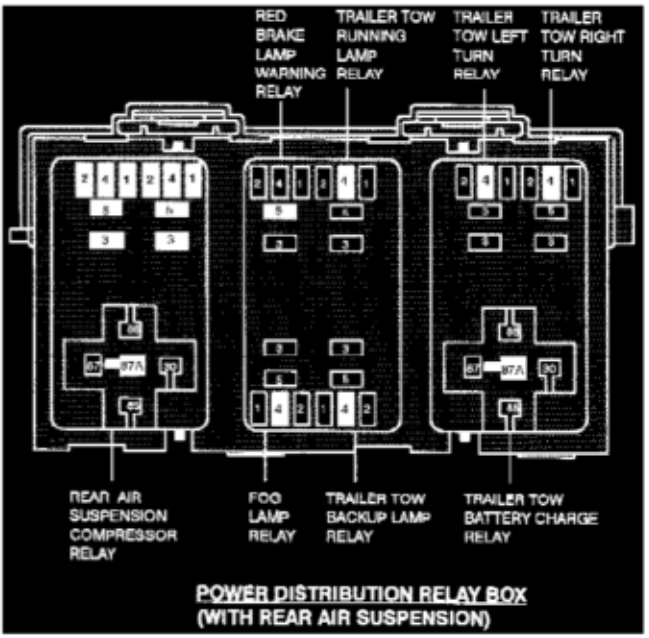
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Engine Views

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Power Distribution Relay Box (With Rear Air Suspension)

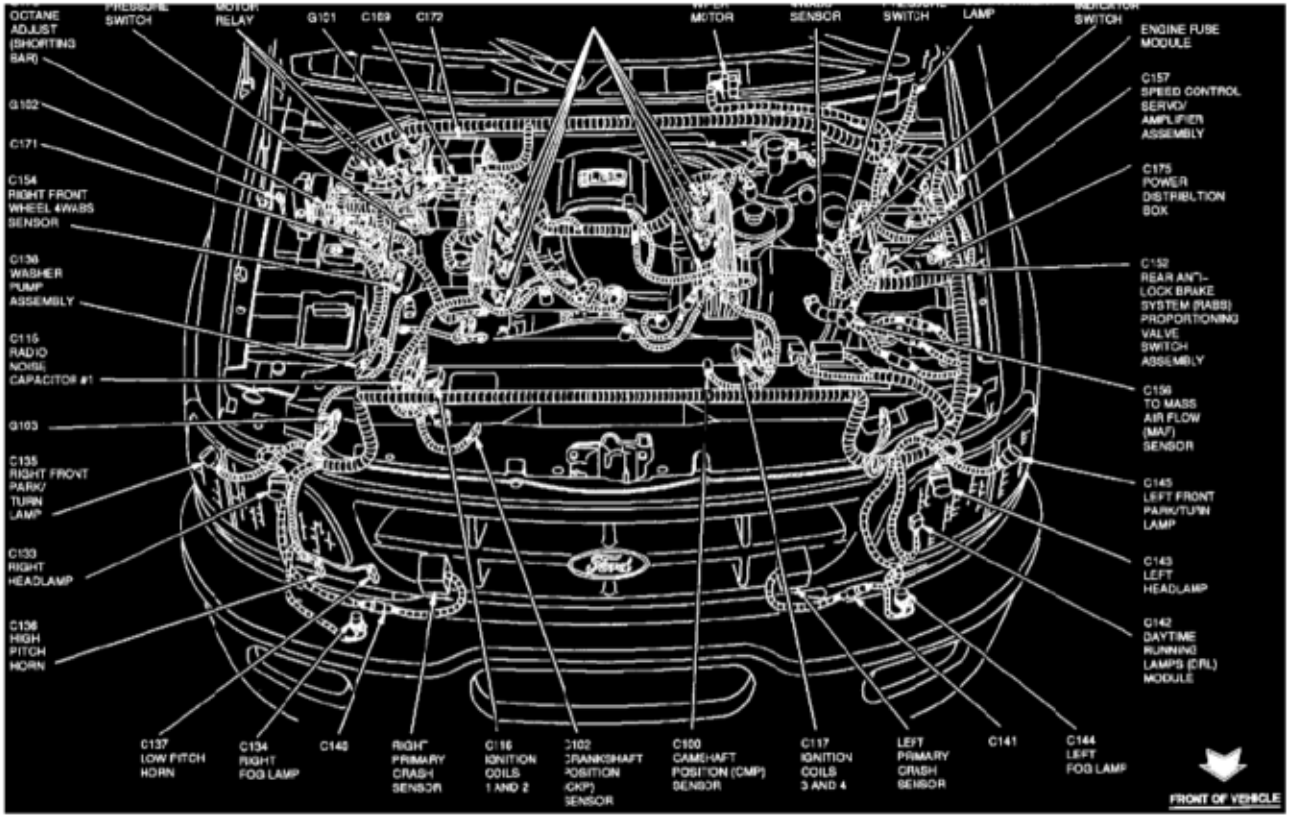
The Power Distribution Relay Box is located at the left side of the engine compartment next to the Power Distr

Without Rear Air Suspension

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

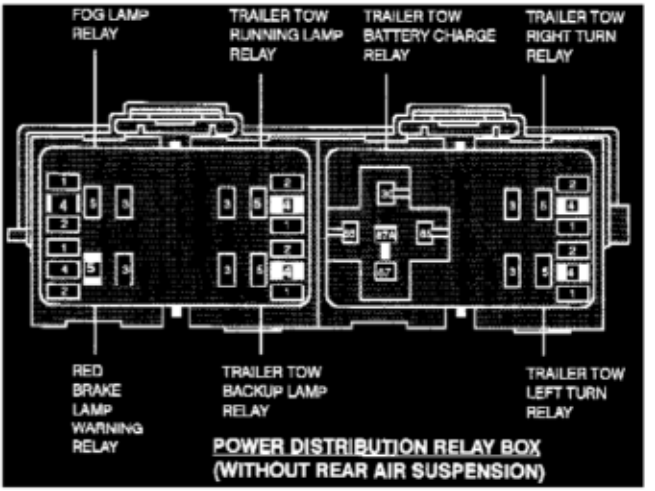


https://www.auto-manual.com/

Engine Views

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

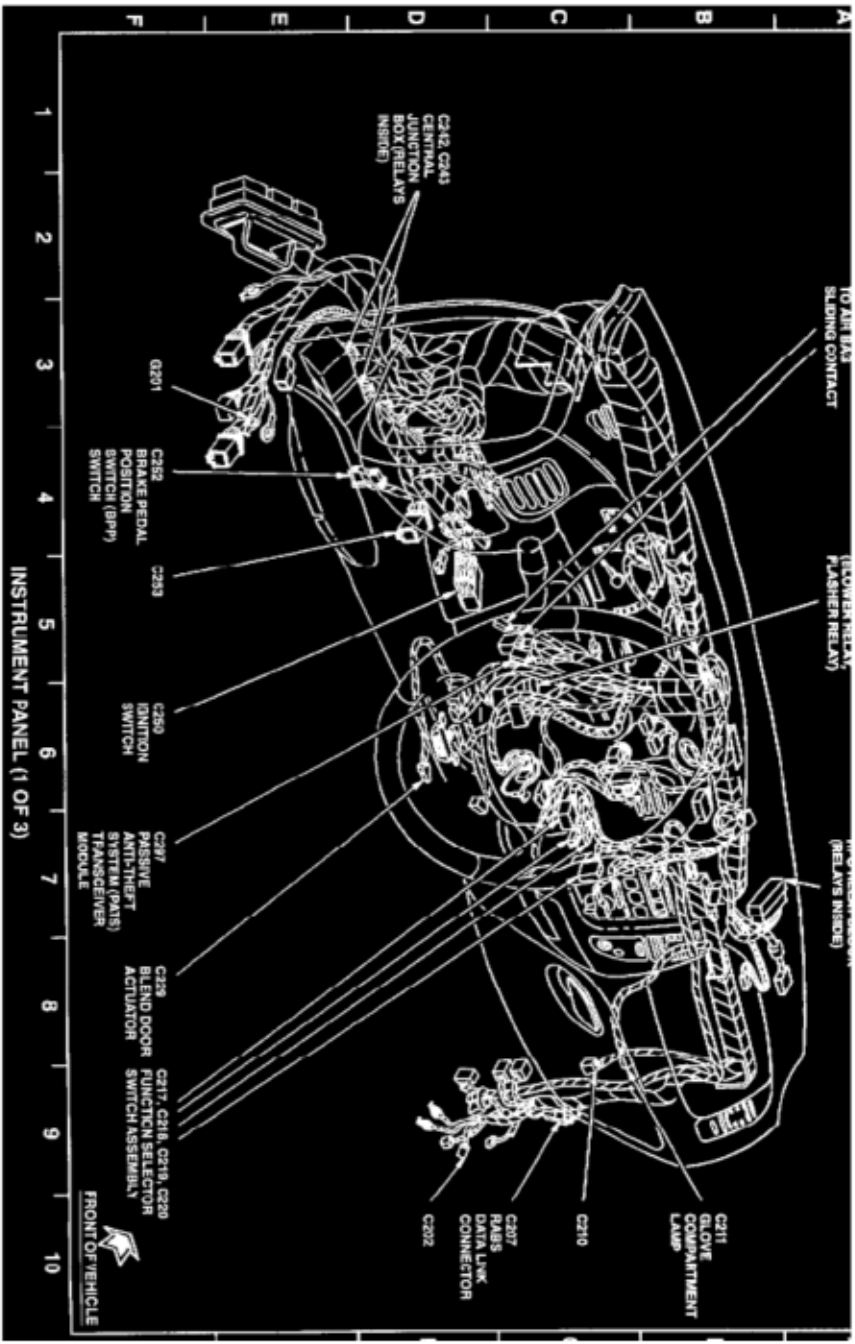


Power Distribution Relay Box (Without Rear Air Suspension)

The Power Distribution Relay Box is located at the left side of the engine compartment next to the Power Distr

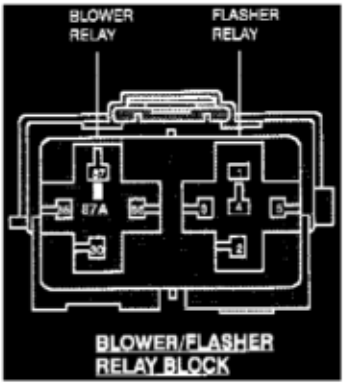
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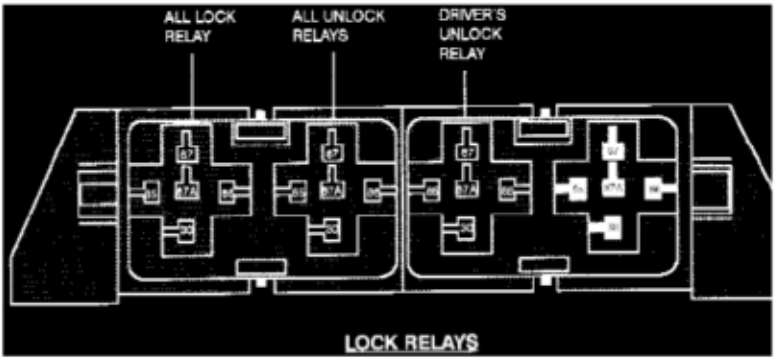
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Blower/Flasher Relay Block

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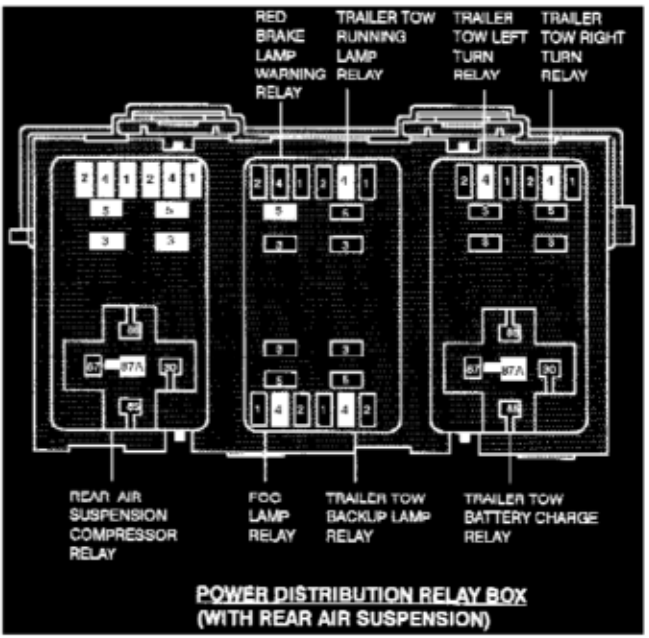


Lock Relays

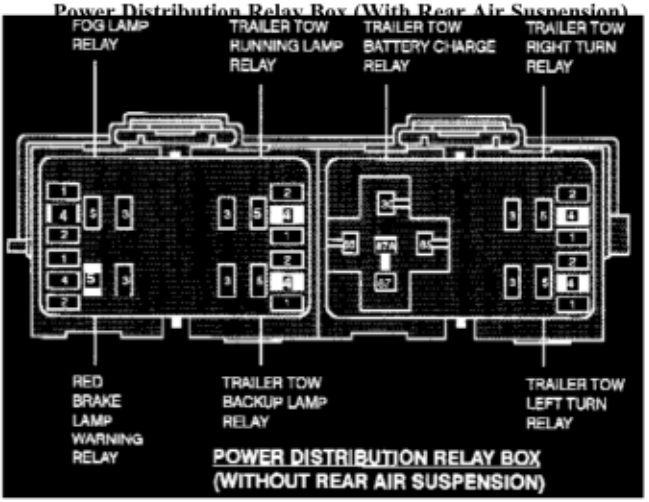
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Relay Box: DiagramsPower Distribution Relay Box



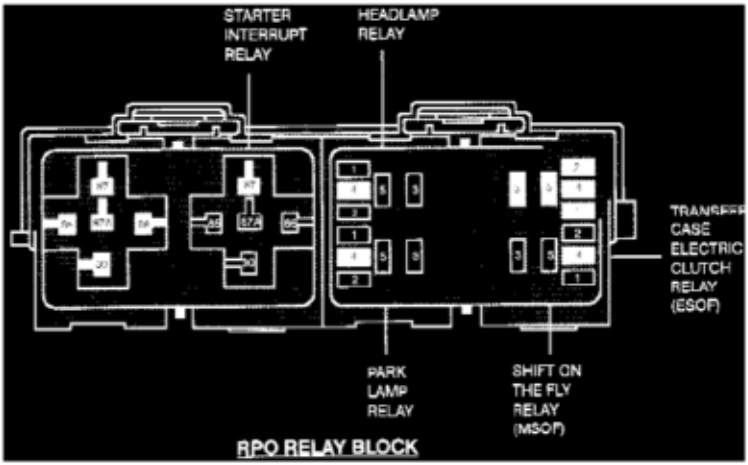
Power Distribution Relay Box (With Rear Air Suspension)



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Power Distribution Relay Box (Without Rear Air Suspension)

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Regular Production Option Relay Block

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Alternative Fuel Control Module: Technical Service BulletinsBi-Fuel System - Compuvalve Replacemen

Article No.01-10-6

05/28/01

DRIVEABLITY - BI-FUEL - COMPUVALVEPRE-REPLACEMENT CHECK LIST - SERVICE TIPS

FORD:1996-2000 CONTOUR1994-2001 F-150, F-250 LD1995-2001 E-250, E-3501999-2001 SUPER DUTY

ISSUE

This article will be used as an aid in diagnosis to avoid unnecessary replacement of the compuvalve on bi-fuel

ACTION

Complete the normal diagnostic methods and pinpoint tests. Should the conclusion be after normal diagnosis to

SERVICE INFORMATION

Glossary Of Terms

^ ALT - Alternate Fuel Mode

^ FAP - Fuel Absolute Pressure

^ HPS - High Pressure Solenoid

^ VCL - Vehicle Communications Link

^ AFCM - Alternate Fuel Control Module

^ WDS - Worldwide Diagnostic System

^ DTC - Diagnostic Trouble Code

^ MAP - Manifold Absolute Pressure

^ LPG - Liquid Propane Gas

^ EEC - Electronic Engine Control

NOTE
THE FOLLOWING IS A LIST OF KNOWN MIS-DIAGNOSIS OF THE COMPUVALVE REPLACEME

https://www.auto-manual.com/

1. MAP line loose.
2. High FAP from vaporizer breakdown.
3. Incorrect interpretation of DTCs.
4. VCL replacement due to harness faults.
5. Misfire due to leaking 0-rings.
6. Compuvalve replaced without checking HPS circuit for correct resistance.

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

7. Low FAP due to lockoff fault.
8. LPG fuel filter in backward.

COMPUVALVE PRE-REPLACEMENT CHECKLIST

1. Check communication ability with EEC, AFCM/compuvalve and VCL and compuvalve. Follow the Pow
2. Check MAP line. Follow normal diagnostic methods and visual checks.
3. Check harness and connection integrity. Follow normal diagnostic methods, basic circuit checks and harn
4. Check current bi-fuel EEC calibration code. Refer to WDS.
5. Check fuel gauge with fuel selector switch in ALT position for fuel level.
6. Check power to compuvalve. Power to the compuvalve is indicated by the following fuel selector switch
7. Check that the arrow on the LPG fuel filter is pointing in the direction of fuel flow.
8. Check base vehicle. Run vehicle in gas mode (e.g., borderline secondary ignition). Follow normal diagno
9. Check other applicable TSBs and special service messages.
10. Verify ALT fuel switch status. Refer to Section 1 of the appropriate PC/ED Workshop Manual.

OTHER APPLICABLE ARTICLES: NONEWARRANTY STATUS: INFORMATION ONLYOASIS CODES

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https://www.auto-manual.com/

Engine Control Module: Technical Service BulletinsEngine Controls - General PCM Programming Proc

TSB 04-24-14

12/13/04

FORD:1997 Thunderbird1997-2000 Contour1997-2002 Escort1997-2005 Crown Victoria, Mustang, Taurus20(

LINCOLN:1997-1998 Mark VIII1997-2002 Continental1997-2005 Town Car2000-2005 LS1997-2005 Naviga

MERCURY:1997-1999 Tracer1997-2000 Mystique1997-2002 Cougar1997-2005 Grand Marquis, Sable2005 M

This article supersedes TSB 04-21-07 to update the service procedure and to clarify this TSB applies to all pow

ISSUEPCMs may need to be reprogrammed or replaced as part of a repair. Additional vehicle concerns may be

ACTIONUse the following procedure to reprogram PCMs.

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Verify repair after reprogramming.

SERVICE PROCEDURE

PRELIMINARY STEPS - Existing PCM

Reprogramming Or PCM Replacement

1. Connect a battery charger to vehicle.
2. Use WDS if available.

> Relays and Modules > Relays and Modules - Powertrain Management > Relays and Modules - Computers and Control Systems > Engine Control Module > Component Information > Technical Service Bulletins > Engine Controls - General PCM Programming Procedures > Page 233

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

a. Make sure WDS is docked or attached to vehicle battery supply.

b. Verify WDS software is at the latest release level.

3. If there is a communication error, attempt to communicate with a different diagnostic scan tool, such as N

NOTE

IF COMMUNICATION STILL CANNOT BE ESTABLISHED, VOLTAGE DROP PCM POWERS, GRO

PCM REPLACEMENT - STANDARD

1. Open WDS vehicle session with original PCM installed in vehicle. If the original PCM is not able to com

2. Install the new PCM.

NOTE

IF WDS NEEDS TO BE USED ON A DIFFERENT VEHICLE WHILE THE NEW PCM IS BEING INST

3. Attempt to start the vehicle.

4. Run KOEO Self Test to check for diagnostic trouble codes (DTCs) in PCM.

5. Check for DTC P0602/P0605/P1639.

a. If DTC P0602/P0605/P1639 is present then Programmable Module Installation (PMI) procedure m

b. If DTC P0602/P0605/P1639 is not present, then verify Programmable Parameters are properly set s

6. Check for DTC B2900.

a. If DTC B2900 is present, perform PMI on the ABS module. Do Not replace ABS module for this p

b. If DTC B2900 is not present proceed to Step 7.

7. Diagnose all other DTCs following normal diagnostic procedures.

REPROGRAMMING DOES NOT COMPLETE OR FAILS - Existing PCM Reprogramming Or PCM Replac

1. Verify all cables are properly connected.

2. Verify vehicle battery is at proper charge level.

3. Verify scan tool battery is at proper charge level.

4. Attempt reprogramming procedure again.

5. If reprogramming still does not complete properly, save current session, reboot WDS, open previous sess

https://www.auto-manual.com/

6. If reprogramming still does not complete or you are now unable to communicate with PCM, proceed to th

BLANK PATH PROGRAMMING - Existing PCM Reprogramming Or PCM Replacement

Perform this procedure prior to PCM replacement if a vehicle comes in with a PCM that will not communicate,

1. Verify powers and grounds to PCM by loading and voltage drop testing circuits.
2. Follow Pin Point Tests to verify network integrity.

NOTE

IGNITION MUST REMAIN IN THE OFF POSITION UNTIL PERFORMING STEP 8. DO NOT TURN

> Relays and Modules > Relays and Modules - Powertrain Management > Relays and Modules - Computers and Control Systems > Engine Control Module > Component Information > Technical Service Bulletins > Engine Controls - General PCM Programming Procedures > Page 234

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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INITIALLY CONNECTED TO THE DLC.

3. Connect WDS to vehicle.
4. Select "16 pin", select "All others, except those below", press TICK.
5. Screen shows installation of cable, press TICK.
6. Screen shows to turn ignition ON. DO NOT TURN IGNITION ON. Press TICK.
7. Screen shows progress bar, then screen tells you "No communication can be established with the PCM" a
8. Screen shows to turn ignition ON. Turn ignition on, press TICK.
9. Screen shows "The PCM installed to this vehicle is blank". You will be prompted to select VIN from a lis
10. When previous sessions are shown select "None of the above".
11. Screen shows 'To enable WDS to reprogram the PCM with the correct calibration", enter one of the follo
12. Highlight the box next to the selection chosen, and enter ONLY ONE of the selections listed above. Press
13. Follow and answer correctly all remaining screens.
14. Once PCM is reprogrammed communication should be reestablished and PATS system can be reset (if n

WARRANTY STATUS: Information Only

NOTE: The information in Technical Service Bulletins is intended for use by trained, professional technicians with the knowledge, tools, a the job properly and safely. It informs these technicians of conditions that may occur on some vehicles, or provides information that could vehicle service. The procedures should not be performed by "do-it-yourselfers". Do not assume that a condition described affects your ca Ford, Lincoln, or Mercury dealership to determine whether the Bulletin applies to your vehicle.

Disclaimer

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Engine Control Module: Technical Service BulletinsPCM - Reprogramming Out of Vehicle

Article No.99-4-3

03/08/99

REPROGRAMMING POWERTRAIN CONTROL MODULES (PCMS) - OUT-OF-VEHICLE - EEC V VEH

FORD:1994-97 THUNDERBIRD1994-99 MUSTANG1995-99 CROWN VICTORIA1996-97 PROBE1996-9

LINCOLN-MERCURY:1994-97 COUGAR1995-99 CONTINENTAL, GRAND MARQUIS, TOWN CAR199

LIGHT TRUCK:1994-97 F SUPER DUTY, F-250 HD, F-3501995-99 ECONOLINE, RANGER, WINDSTAR
This TSB article is being republished in its entirety to update the affected vehicles and to include an Applicatio

ISSUEThe Federal Environmental Protection Agency (EPA) has mandated that all aftermarket service centers s

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APPLICATION		
Model Years	Vehicle	Engine
1996-97	Aerostar	All
1996	Bronco	All
1995-99	Continental	All
1996-99	Contour	All
1994-97	Cougar	4.6L
1996-97	Cougar	3.8L
1999	Cougar	All
1992-93	Crown Victoria	All
1997-99	Econoline	4.2L, 4.6L, 5.4L, 6.8L
1996	Econoline	4.9L, 5.0L, 5.8L, 7.5L
1995-99	Econoline	7.3L DIT
1998	Escort	1.9L
1997-99	Escort	2.0L
1997-99	Expedition	All
1996-99	Explorer	All
1997-99	F-Series	4.2L, 4.6L, 5.4L
1996-97	F-Series	5.8L, 7.5L
1996	F-Series	4.9L, 5.0L
1994-99	F-Series	7.3L DIT
1999	F-Series	6.8L
1995-99	Grand Marquis	All
1996-98	Mark VIII	All
1997-99	Mountaineer	All
1994-99	Mustang	3.8L
1996-99	Mustang	4.6L
1996-99	Mystique	All
1998-99	Navigator	All
1996-97	Probe	2.0L
1995-99	Ranger	All
1996-99	Sable	All
1996-99	Taurus	All
1994-97	Thunderbird	4.6L
1996-97	Thunderbird	3.8L
1995-99	Town Car	All
1996	Tracer	1.9L
1997-99	Tracer	2.0L
1995-99	Windstar	All

ACTIONRefer to the Application Chart in this article to use the new 15- to 104-Pin Flash Cable to handle all n

Currently, EEC V modules must be installed in a vehicle to reprogram a new calibration in the module. An afte

The 15- to 104-Pin Flash Cable connects between the NGS Tester and PCM 104-pin connector. The proper cali

The 15- to 104-Pin Flash Cable (007-00587) can be ordered from Rotunda by calling 1-800-ROTUNDA.

OTHER APPLICABLE ARTICLES: NONE

SUPERSEDES: 98-26-3

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WARRANTY STATUS: INFORMATION ONLY
OASIS CODES: 203000, 206000, 290000, 690000, 698298

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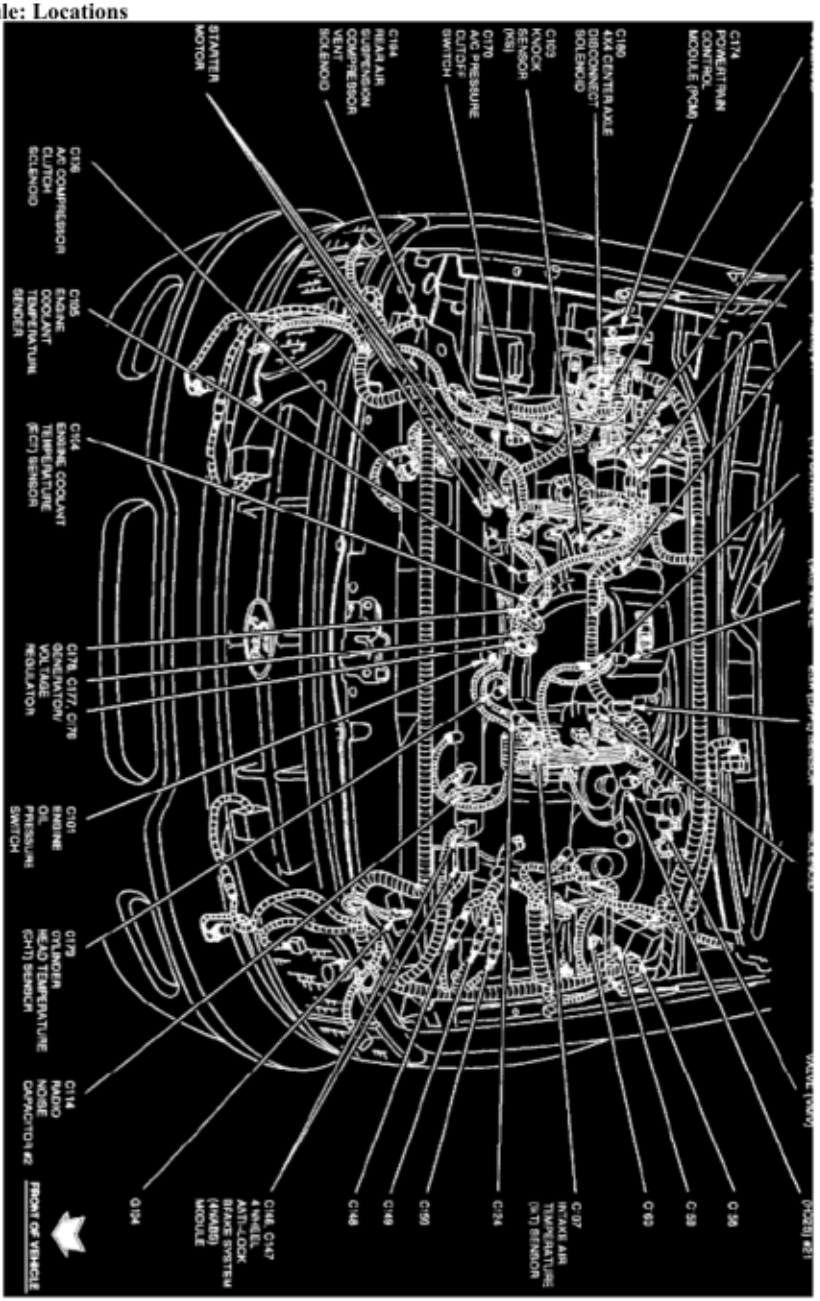
Engine Control Module: Specifications

Powertrain Control Module Connector Bolt .....

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Engine Control Module: Locations



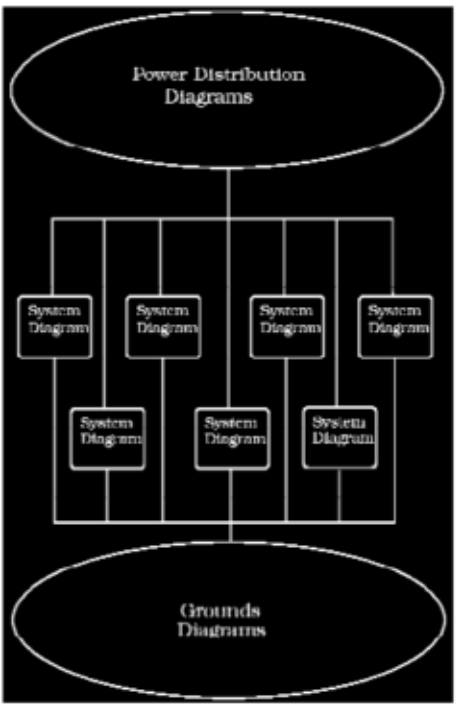
https://www.auto-manual.com/

The Powertrain Control Module is located at the right side of the engine compartment.

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Engine Control Module: Diagram Information and Instructions

How to Find and Use These Diagrams



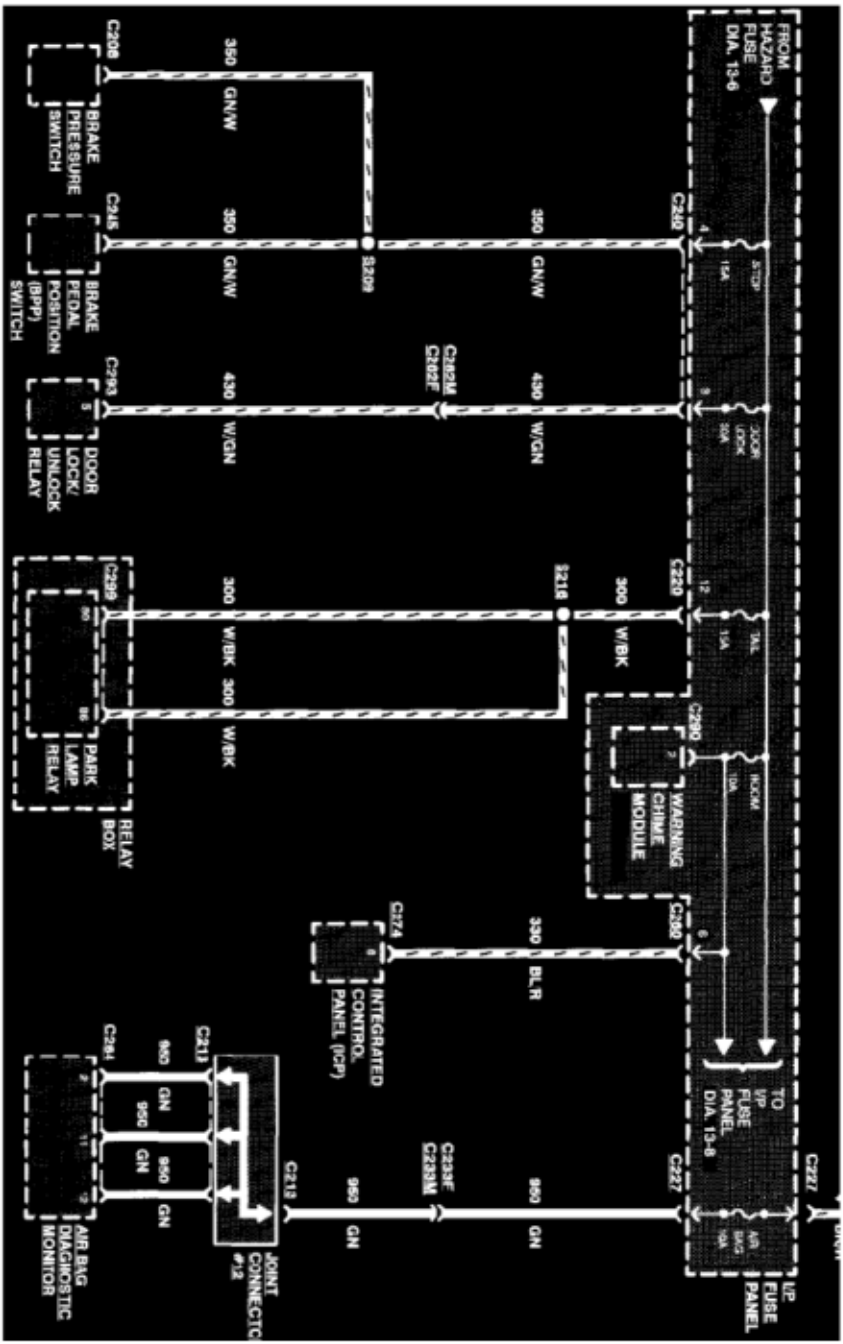
Diagrams are presented in three main categories:

- Power Distribution Diagrams
- System Diagrams
- Grounds Diagrams

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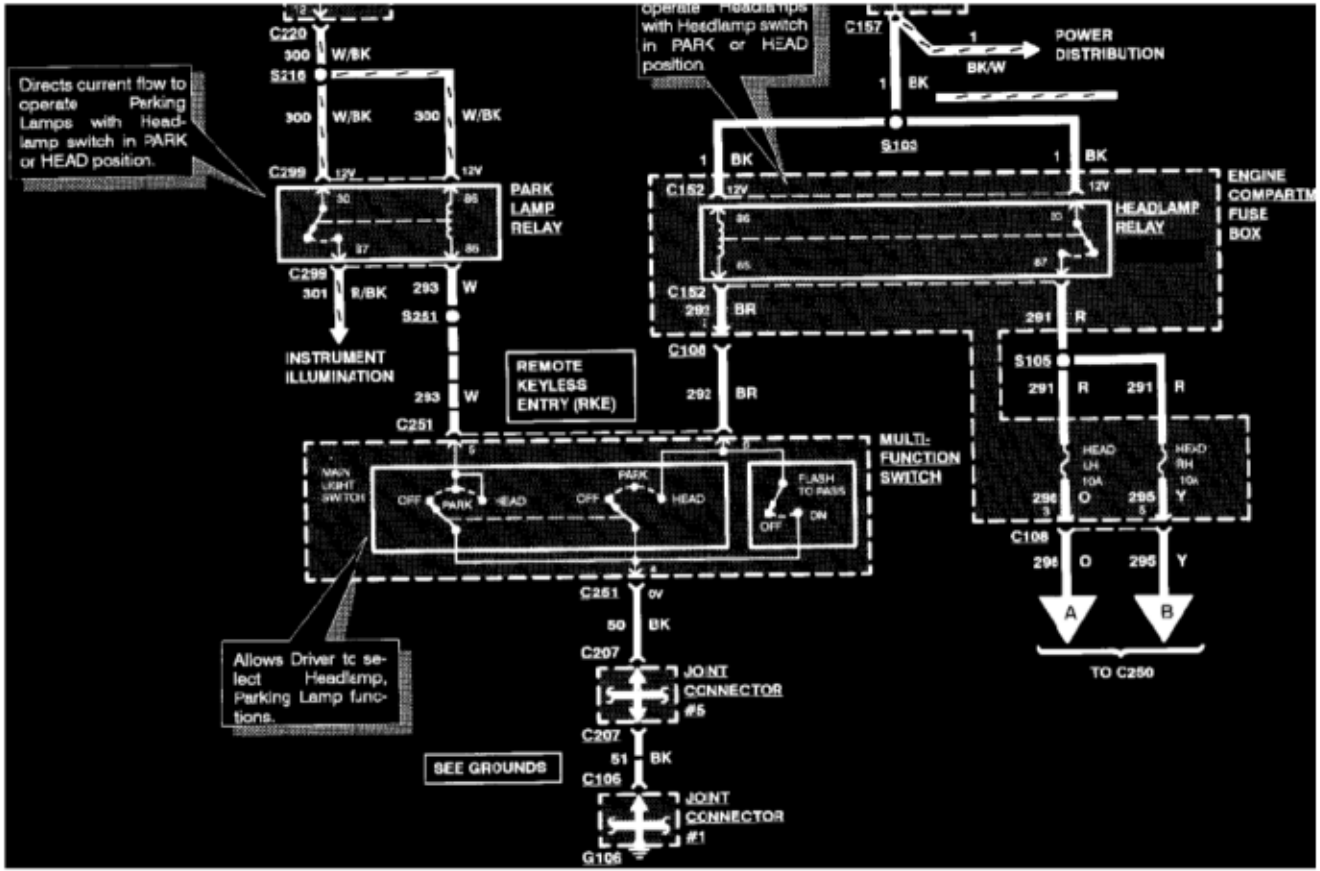
Sample Power Distribution Diagram

Power Distribution Diagrams

Provide the circuit details of how the system diagrams are powered. The power distribution source is shown at The power distribution diagrams can be found at Starting and Charging/Power and Ground Distribution.

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Sample System Diagram

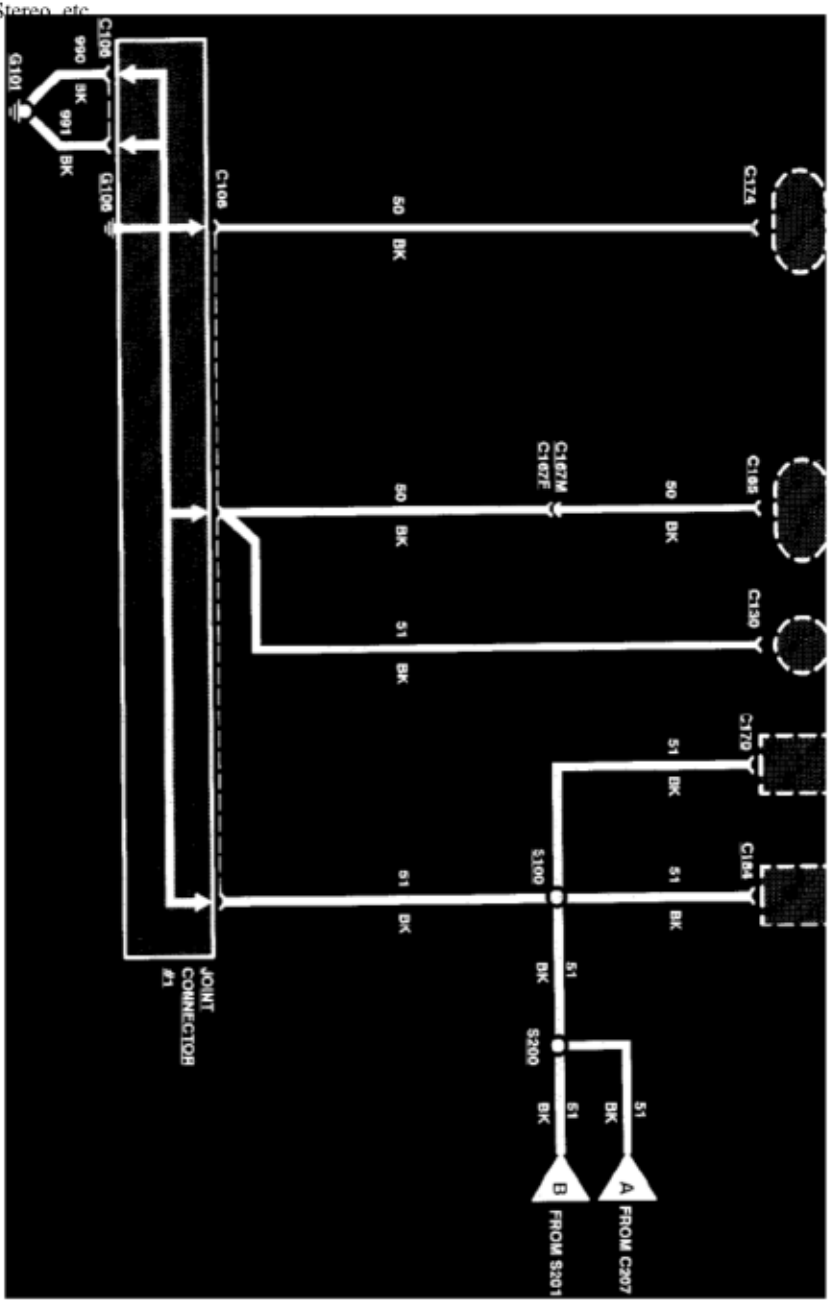
System Diagrams

Components that work together are shown together in a system/subsystem diagram or set of diagrams. The sys

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Management, Radio/Stereo, etc.



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Sample Grounds Diagram

Grounds Diagrams

Provide the circuit details of how the system diagrams are grounded. This information is useful for checking in

The grounds diagrams can be found at Starting and Charging/Power and Ground Distribution.

Symbol Identification

> Relays and Modules > Relays and Modules - Powertrain Management > Relays and Modules - Computers and Control Systems > Engine Control Module > Component Information > Diagrams > Diagram Information and Instructions > Page 244

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ELECTRICAL SYMBOLS

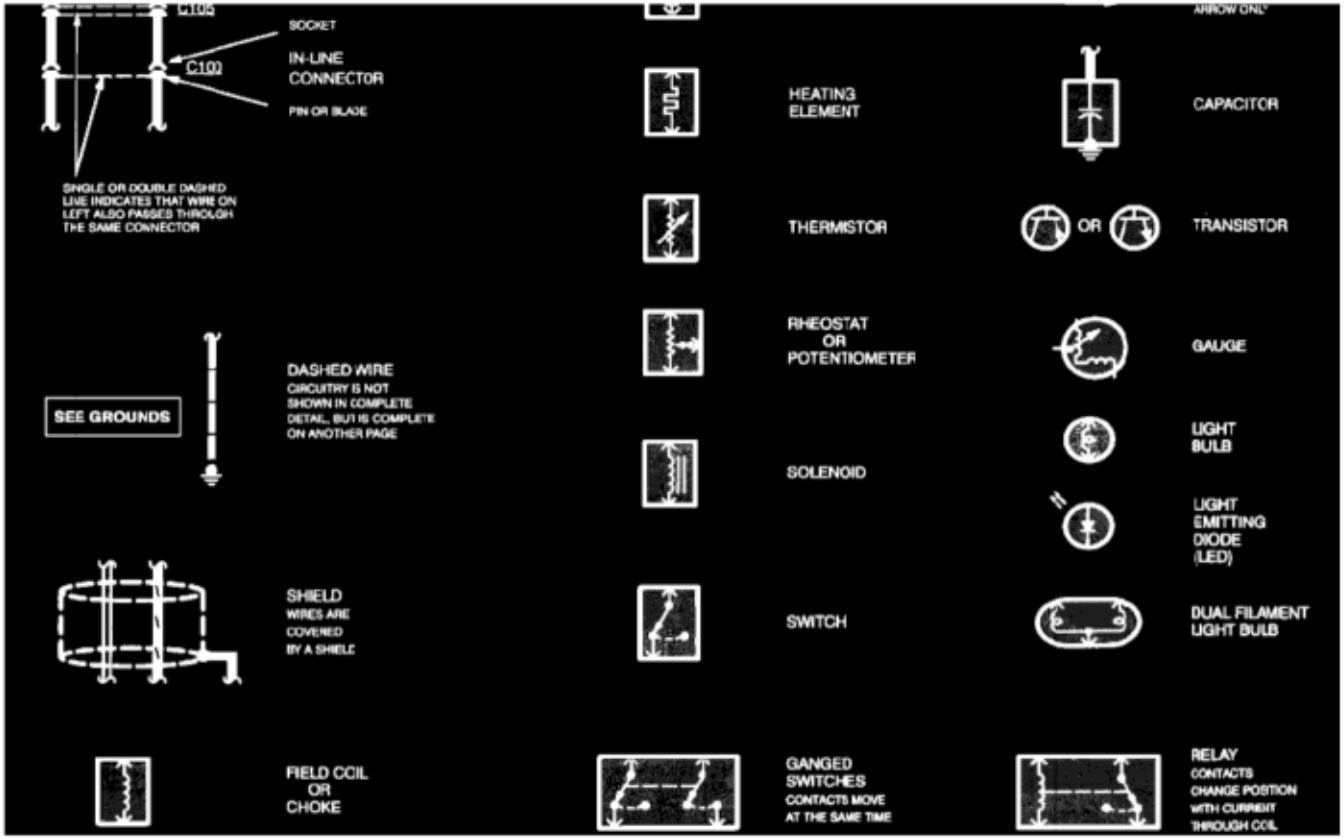
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Electrical Symbols

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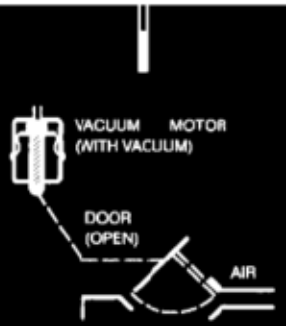


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VACUUM SYMBOLS

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

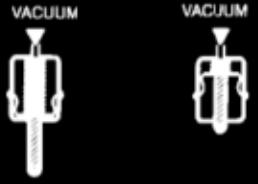
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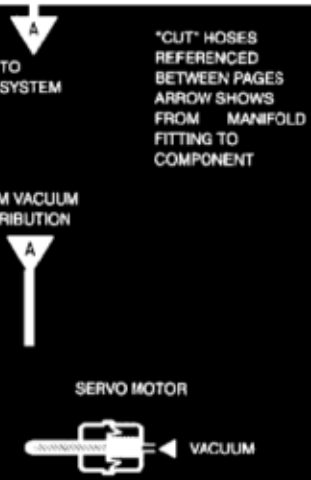
VACUUM ON VACUUM MOTOR PULLS DOOR OPEN TO LET AIR PASS THROUGH

VACUUM MOTOR OPERATIONS

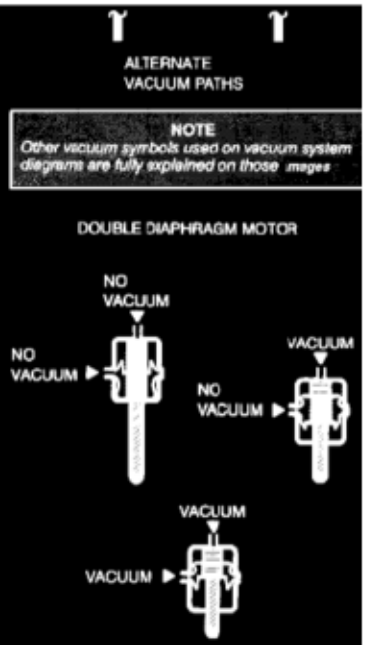
SINGLE DIAPHRAGM MOTOR



Vacuum motors operate like electrcal solenoids, mechanically pushing or pulling a shaft between two fixed positions. When vacuum is not applied, the shift is pushed all the way out by a spring.



Some vacuum motors, such as the Servo Motor in the Speed Control, can position the actuating arm at any position between fully extended and fully retracted. The Servo is operated by a control valve that applies varying amounts of vacuum to the motor. The higher the vacuum level, the greater the retraction of the motor arm. Servo Motors work nearly the same way as two-position motors, except for the way the vacuum is applied. Servo Motors are generaly larger and provide a calibrated control.



A double diaphragm motor has three tions (it is actually two motors in one hou When the top port gets vacuum, the shaft half-way in. When both ports get vacuum shaft pulls all the way in.

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Vacuum Symbols

Wire Color Code Identification

BK
BL
BR
DB: Black: Blue: Brown: Dark Blue

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DG
GY
GN
LB
LG
PK
O
P
R
T
V
W
: Dark Green: Gray: Green: Light Blue: Light Green: Pink: Orange: Purple: Red: Tan: Violet: White: Yellow

NOTE:

Whenever a wire is labeled with two colors, the first color listed is the basic color of the wire, and the second c

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Engine Control Module: Connector Views

C174 (GRAY)
POWERTRAIN CONTROL MODULE (PCM)

PIN	CIRCUIT	CIRCUIT FUNCTION
1	315 (P/O)	Shift Solenoid #2 (SS2)
2	658 (PK/LG)	Malfunction Indicator Lamp (MIL) Control
3	1144 (Y/BK)	TR1
4	—	NOT USED
5	—	NOT USED
6	—	NOT USED
7	—	NOT USED
8	190 (W/O)	NOT USED
9	200 (BR)	NOT USED
10	—	NOT USED
11	—	NOT USED
12	29 (Y/W)	Fuel Pump Sending Unit
13	107 (P)	Data Link Connector (DLC)
14	784 (LB/BK)	4 X 4 Low Indicator Switch
15	915 (PK/LB)	J1850 Bus (−)
16	914 (T/O)	J1850 Bus (+)
17	—	NOT USED
18	—	NOT USED
19	—	NOT USED
20	—	NOT USED
21	349 (DB)	Crankshaft Position (CKP) (+) Sensor
22	350 (GY)	Crankshaft Position (CKP) (−) Sensor
23	—	NOT USED
24	570 (BK/W)	Power Ground
25	48	Case Ground
26	526 (DB/LG)	Ignition Coil #1
27	237 (C/Y)	Shift Solenoid #1 (SS1)
28	—	NOT USED
29	224 (T/W)	Transmission Control Switch (TCS)
30	242 (DG)	Octane Adjust (Shorting Bar)
31	—	NOT USED
32	—	NOT USED
33	678 (PK/O)	Vehicle Speed Sensor (VSS) (−)
34	—	NOT USED
35	392 (R/LG)	Heated Oxygen Sensor #12 (HO2S) Inp

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Powertrain Control Module (Part 1 Of 3)

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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		Sensor	65	352 (BR/LG)	Differential Pressure Feedback EGR (DPFE) Sensor
38	354 (LG/R)	Engine Coolant Temperature (ECT) Sensor	66	1102 (Y/LG)	Cylinder Head Temperature (CHT) Sensor
39	743 (GY)	Intake Air Temperature (IAT) Sensor	67	91 (P/W)	Canister Vent
40	238 (DG/Y)	Fuel Pump Monitor	68	—	NOT USED
41	347 (BK/Y)	A/C High Pressure Cutoff Switch Input	69	—	NOT USED
42	367 (BR)	NOT USED	70	—	NOT USED
43	—	NOT USED	71	361 (R)	Vehicle Power (VPWR)
44	—	NOT USED	72	561 (T/R)	Fuel Injector #7 Control
45	39 (R/W)	Engine Coolant Temperature Gauge	73	559 (T/BK)	Fuel Injector #5 Control
46	367 (BR)	Intake Manifold Communicator Control (IMCC)	74	557 (BR/Y)	Fuel Injector #3 Control
			75	555 (T)	Fuel Injector #1 Control
47	360 (BR/PK)	EGR Vacuum Regulator (EVR) Control	76	570 (BK/W)	Power Ground
48	648 (W/PK)	Tachometer	77	570 (BK/W)	Power Ground
49	1145 (LB/BK)	TR2	78	528 (PK/W)	Ignition Coil #3
50	1143 (W/BK)	TR4	79	911 (W/LG)	Transmission Control Indicator Lamp (TCIL) Output
51	570 (BK/W)	Power Ground			
52	527 (R/LB)	Ignition Coil #2	80	926 (LB/O)	Fuel Pump Relay Control
53	—	NOT USED	81	925 (W/Y)	Electronic Pressure Control (EPC) Solenoid
54	480 (P/Y)	Torque Converter Clutch (TCC) Solenoid			
55	785 (BK/LG)	Keep Alive Power (KAPWR)	82	—	NOT USED
56	191 (LG/BK)	Vapor Management Valve (VMV)	83	264 (W/LB)	Idle Air Control (IAC) Valve Control
57	310 (Y/R)	Knock Sensor (KS)	84	136 (DB/Y)	Output Shaft Speed (OSS) Sensor
58	679 (GY/BK)	Vehicle Speed Sensor (VSS) (+)	85	795 (DG)	Camshaft Position (CMP) Sensor
59	—	NOT USED	86	—	NOT USED
60	74 (GY/LB)	Heated Oxygen Sensor #11 (HO2S) Input	87	94 (R/BK)	Heated Oxygen Sensor #21 (HO2S) Input
			88	967 (LB/R)	Mass Air Flow (MAF) Sensor
61	393 (P/LG)	Heated Oxygen Sensor #22 (HO2S) Input	89	355 (GY/W)	Throttle Position (TP) Sensor
62	791 (R/PK)	Fuel Tank Pressure (FTP) Sensor	90	351 (BR/W)	Reference Voltage
63	—	NOT USED	91	359 (GY/R)	Signal Return
			92	511 (LG)	Brake Pedal Position (BPP) Switch

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Powertrain Control Module (Part 2 Of 3)

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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PIN	CIRCUIT	CIRCUIT FUNCTION
93	387 (R/W)	Heated Oxygen Sensor #11 (HO2S) Heater
94	388 (Y/LB)	Heated Oxygen Sensor #21 (HO2S) Heater
95	389 (W/BK)	Heated Oxygen Sensor #12 (HO2S) Heater
96	390 (T/Y)	Heated Oxygen Sensor #22 (HO2S) Heater
97	361 (R)	Vehicle Power (VPWR)
98	562 (LB)	Fuel Injector #8 Control
99	560 (LG/O)	Fuel Injector #6 Control
100	558 (BR/LB)	Fuel Injector #4 Control
101	556 (W)	Fuel Injector #2 Control
102	—	NOT USED
103	570 (BK/W)	Power Ground
104	529 (R/Y)	Ignition Coil #4

Powertrain Control Module (Part 3 Of 3)

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Engine Control Module: Procedures

(PCMs) Powertrain Control Modules are reprogrammable to update calibration levels without having to replace

(SBTS). The reprogramming may be performed with the PCM installed in the vehicle using the Service Bay Te

(NGS)

The PCM may also be reprogrammed outside of the vehicle using the New Generation STAR and a 15- to 104-

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Engine Control Module: Reset Procedure

NOTE: Powertrain Control Module (PCM) reset All OBD II scan tools support the .

The PCM Reset allows the scan tool to command the PCM to clear all emission-related diagnostic inform

- The PCM Reset allows the scan tool to perform the following:
- (DTCs). Clears the number of Diagnostic Trouble Codes
- Clears the DTCs.
- Clears the freeze frame data.
- Clears oxygen sensor test data.
- Resets status of the OBD II system monitors.
- Sets DTC P1000.

NOTE: (NGS)
When using the New Generation STAR Scan Tool to perform a PCM reset, press the CLEAR button. Th

New Generation STAR and Generic Scan Tool
Refer to the scan tool manufacturer's manual for specific instructions on how to perform PCM reset.

Keep Alive Random Access Memory 5 minutes.
To reset , disconnect the battery ground cable for a minimum of Resetting Keep Alive RAM will clearlearned v

After Keep Alive RAM has been reset, the vehicle may exhibit certain driveability concerns. It will be necessar

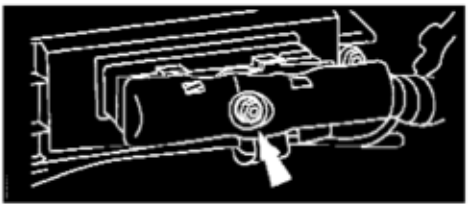
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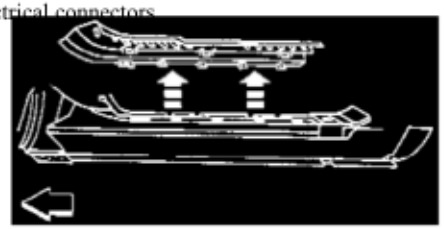
Engine Control Module: Removal and Replacement

REMOVAL

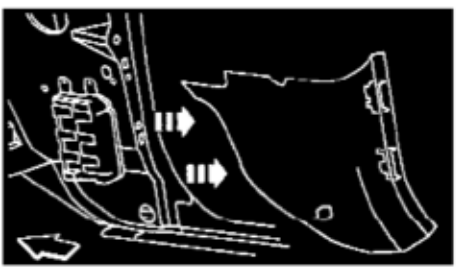
1. Remove the battery and battery tray.



2. Loosen the bolt and separate the PCM electrical connectors.



3. Remove the RH front door scuff plate.



4. Remove the RH cowl side trim panel.



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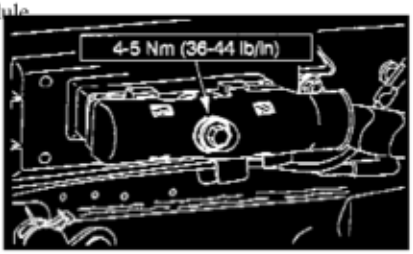
5. Remove the PCM bracket clip.

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(PCM)6. Remove the Powertrain Control Module



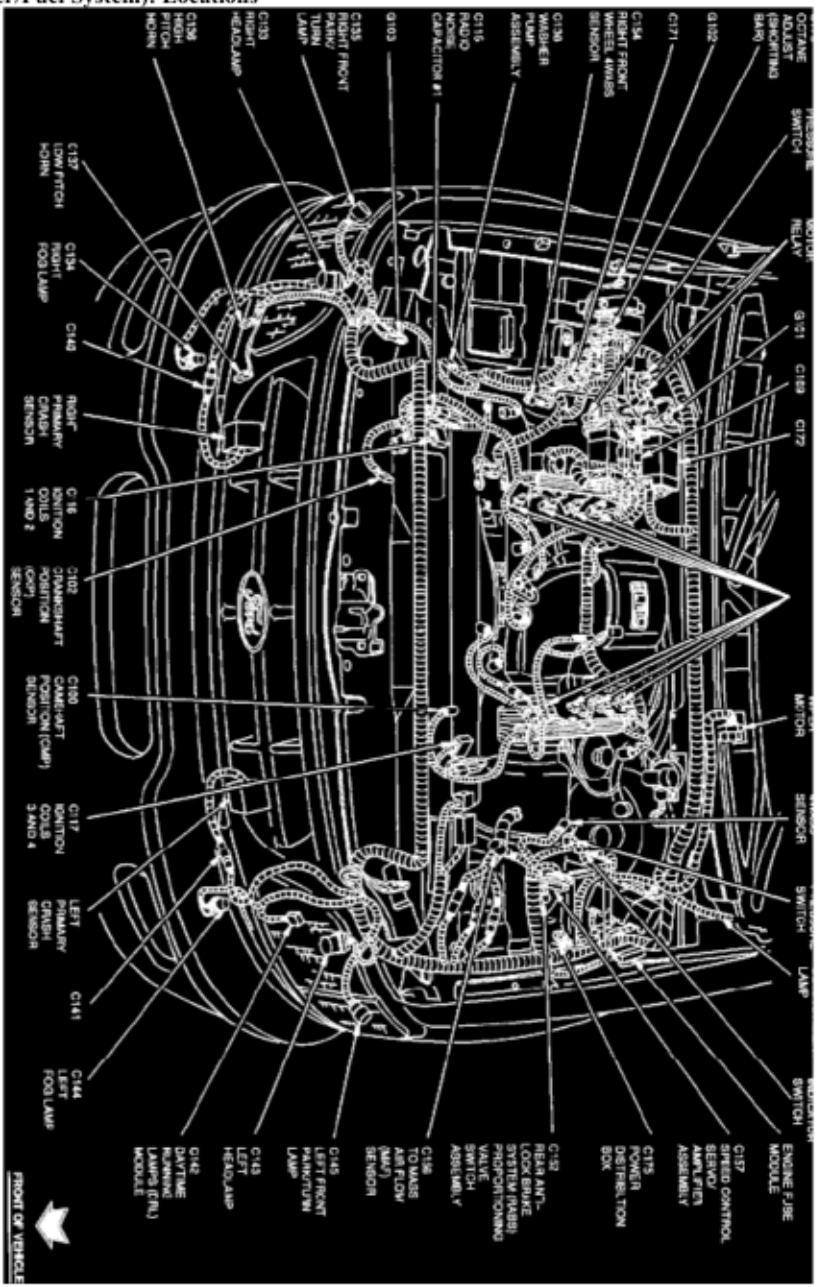
INSTALLATION

1. Follow the removal procedure in reverse order.

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Main Relay (Computer/Fuel System): Locations

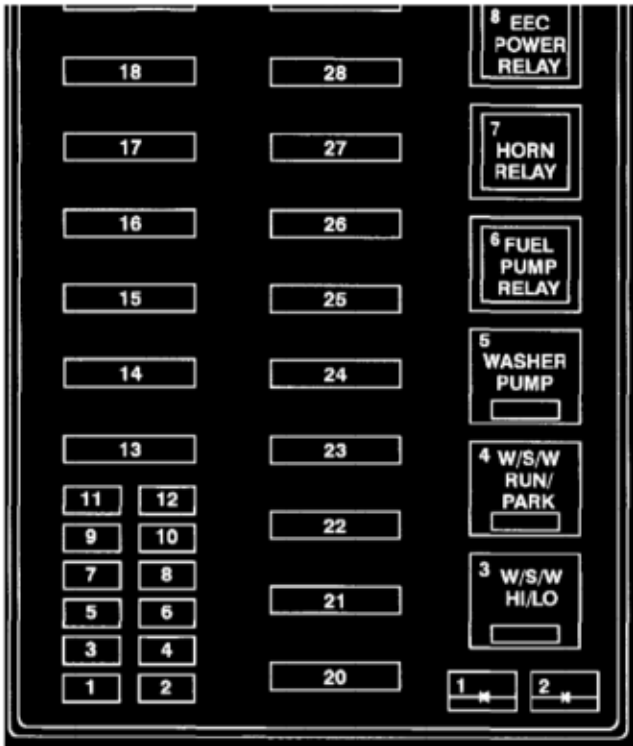


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Engine Views

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Position	Amps	Circuits Protected
1	20 (MINI)	Trailer Tow Running Lamp Relay, Trailer Tow Backup Lamp Relay
2	10 (MINI)	Airbag Diagnostic Monitor
3	15 (MINI)	All Unlock Relay, All Lock Relay, Driver Unlock Relay, LH Power Door Lock Switch, RH Power Door Lock Switch
4	15 (MINI)	Rear Air Suspension (RAS)
5	20 (MINI)	Horn Relay
6	15 (MINI)	Radio, Premium Sound Amplifier, CD Changer
7	15 (MINI)	Main Light Switch, Park Lamp Relay
8	30 (MINI)	Main Light Switch, Headlamp Relay, Multi-function Switch
9	15 (MINI)	Daytime Running Lamps (DRL) Module, Fog Lamp Relay
10	25 (MINI)	Auxiliary Power Socket
11	–	NOT USED
12	–	NOT USED
13	–	NOT USED
14	60 (MAXI)	4 Wheel Anti-Lock Brake System (4WABS) Module
14	20 (MAXI)	Ignition Switch (B2) (W/RABS Only)
15	50 (MAXI)	Rear Air Suspension Compressor
16	40 (MAXI)	Trailer Tow Battery Charge Relay, Engine Fuse Module (Fuse 2)
17	30 (MAXI)	Shift on the Fly Relay, Transfer Case Shift Relay
18	30 (MAXI)	Power Seat Control Switch
19	20 (MAXI)	Fuel Pump Relay
20	50 (MAXI)	Ignition Switch (B4 & B5)
21	50 (MAXI)	Ignition Switch (B1 & B3)
22	50 (MAXI)	Junction Box Fuse/Relay Panel Battery Feed
23	40 (MAXI)	Blower Relay
24	30 (MAXI)	PCM Power Relay, Engine Fuse Module (Fuse 1)
25	30 (MAXI)	Junction Box Fuse/Relay Panel, Acc Delay Relay
26	–	NOT USED
27	–	NOT USED
28	30 (MAXI)	Trailer Electronic Brake Controller
29	–	NOT USED

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Power Distribution Box

The PCM Power Relay is located in the power distribution box.

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Alternative Fuel Control Module: Technical Service BulletinsBi-Fuel System - Compuvalve Replacemen

Article No.01-10-6

05/28/01

DRIVEABLITY - BI-FUEL - COMPUVALVEPRE-REPLACEMENT CHECK LIST - SERVICE TIPS

FORD:1996-2000 CONTOUR1994-2001 F-150, F-250 LD1995-2001 E-250, E-3501999-2001 SUPER DUTY

ISSUE

This article will be used as an aid in diagnosis to avoid unnecessary replacement of the compuvalve on bi-fuel

ACTION

Complete the normal diagnostic methods and pinpoint tests. Should the conclusion be after normal diagnosis to

SERVICE INFORMATION

Glossary Of Terms

^ ALT - Alternate Fuel Mode

^ FAP - Fuel Absolute Pressure

^ HPS - High Pressure Solenoid

^ VCL - Vehicle Communications Link

^ AFCM - Alternate Fuel Control Module

^ WDS - Worldwide Diagnostic System

^ DTC - Diagnostic Trouble Code

^ MAP - Manifold Absolute Pressure

^ LPG - Liquid Propane Gas

^ EEC - Electronic Engine Control

NOTE
THE FOLLOWING IS A LIST OF KNOWN MIS-DIAGNOSIS OF THE COMPUVALVE REPLACEME

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1. MAP line loose.
2. High FAP from vaporizer breakdown.
3. Incorrect interpretation of DTCs.
4. VCL replacement due to harness faults.
5. Misfire due to leaking 0-rings.
6. Compuvalve replaced without checking HPS circuit for correct resistance.

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7. Low FAP due to lockoff fault.
8. LPG fuel filter in backward.

COMPUVALVE PRE-REPLACEMENT CHECKLIST

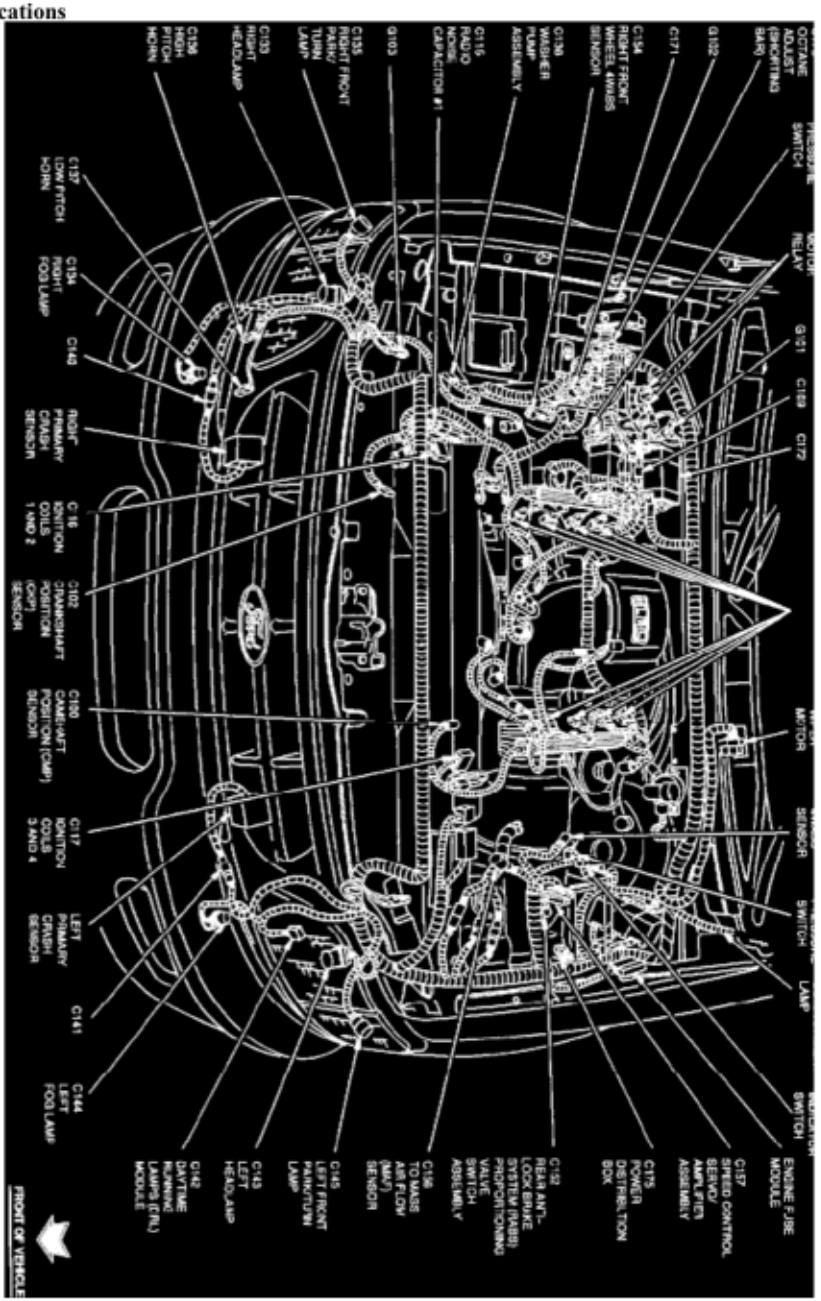
1. Check communication ability with EEC, AFCM/compuvalve and VCL and compuvalve. Follow the Pow
2. Check MAP line. Follow normal diagnostic methods and visual checks.
3. Check harness and connection integrity. Follow normal diagnostic methods, basic circuit checks and harn
4. Check current bi-fuel EEC calibration code. Refer to WDS.
5. Check fuel gauge with fuel selector switch in ALT position for fuel level.
6. Check power to compuvalve. Power to the compuvalve is indicated by the following fuel selector switch
7. Check that the arrow on the LPG fuel filter is pointing in the direction of fuel flow.
8. Check base vehicle. Run vehicle in gas mode (e.g., borderline secondary ignition). Follow normal diagno
9. Check other applicable TSBs and special service messages.
10. Verify ALT fuel switch status. Refer to Section 1 of the appropriate PC/ED Workshop Manual.

OTHER APPLICABLE ARTICLES: NONEWARRANTY STATUS: INFORMATION ONLYOASIS CODES

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Fuel Pump Relay: Locations

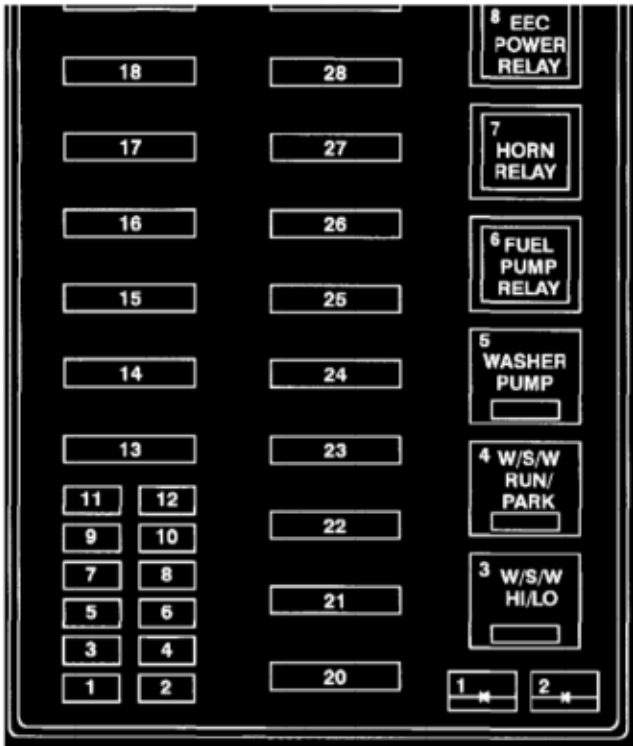


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Engine Views

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Position	Amps	Circuits Protected
1	20 (MINI)	Trailer Tow Running Lamp Relay, Trailer Tow Backup Lamp Relay
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10	25 (MINI)	Auxiliary Power Socket
11	–	NOT USED
12	–	NOT USED
13	–	NOT USED
14	60 (MAXI)	4 Wheel Anti-Lock Brake System (4WABS) Module
14	20 (MAXI)	Ignition Switch (B2) (W/RABS Only)
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24	30 (MAXI)	PCM Power Relay, Engine Fuse Module (Fuse 1)
25	30 (MAXI)	Junction Box Fuse/Relay Panel, Acc Delay Relay
26	–	NOT USED
27	–	NOT USED
28	30 (MAXI)	Trailer Electronic Brake Controller
29	–	NOT USED

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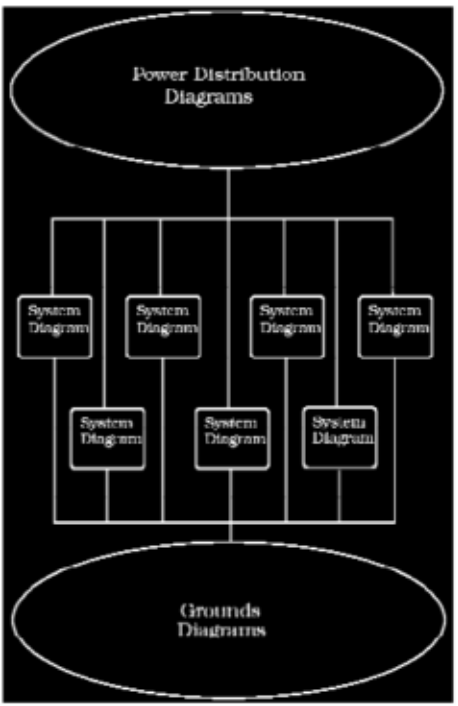
Power Distribution Box

The Fuel Pump Relay is located in the power distribution box.

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Fuel Pump Relay: Diagram Information and Instructions

How to Find and Use These Diagrams



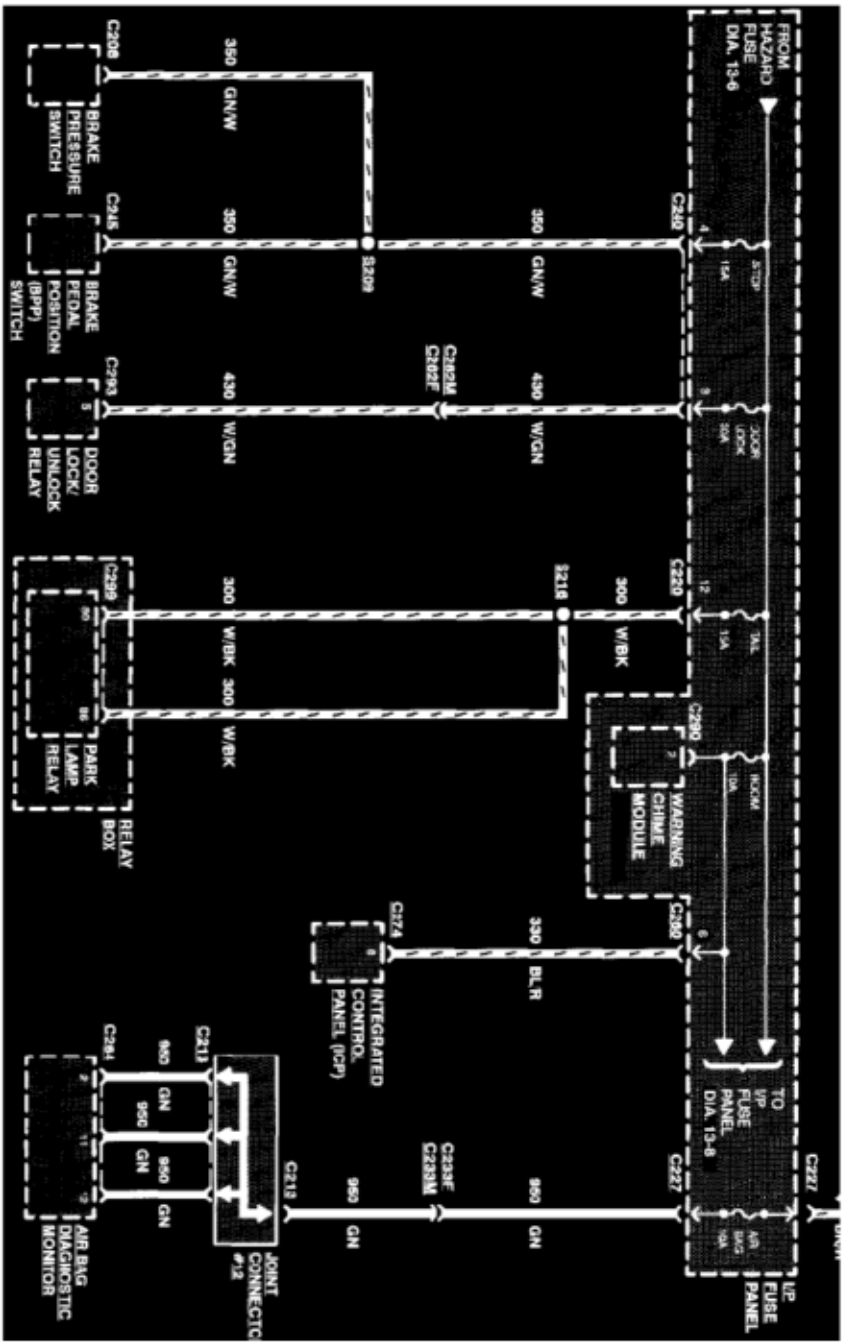
Diagrams are presented in three main categories:

- Power Distribution Diagrams
- System Diagrams
- Grounds Diagrams

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Sample Power Distribution Diagram

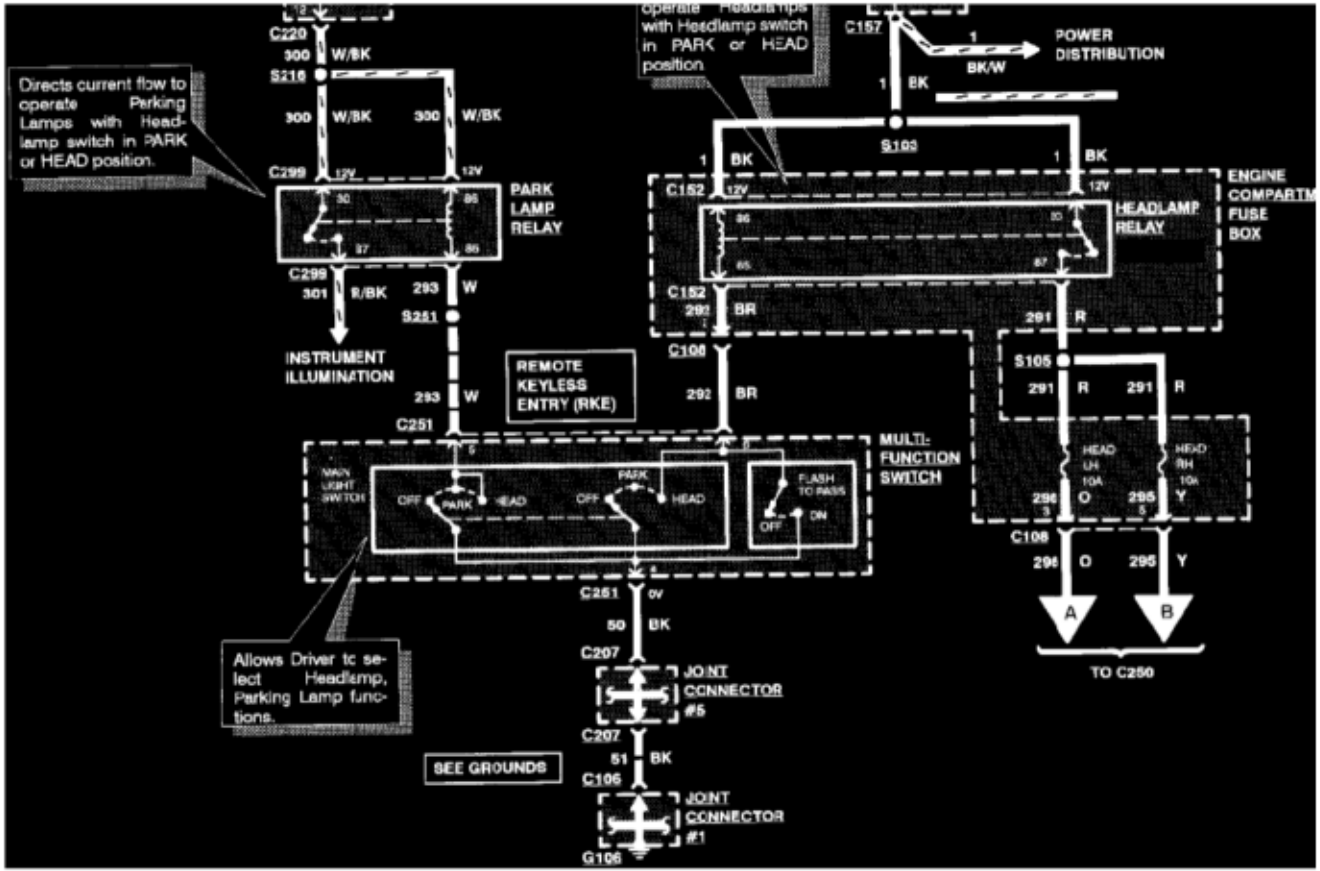
Power Distribution Diagrams

Provide the circuit details of how the system diagrams are powered. The power distribution source is shown at The power distribution diagrams can be found at Starting and Charging/Power and Ground Distribution.

> Relays and Modules > Relays and Modules - Powertrain Management > Relays and Modules - Fuel Delivery and Air Induction > Fuel Pump Relay > Component Information > Diagrams > Diagram Information and Instructions > Page 273

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Sample System Diagram

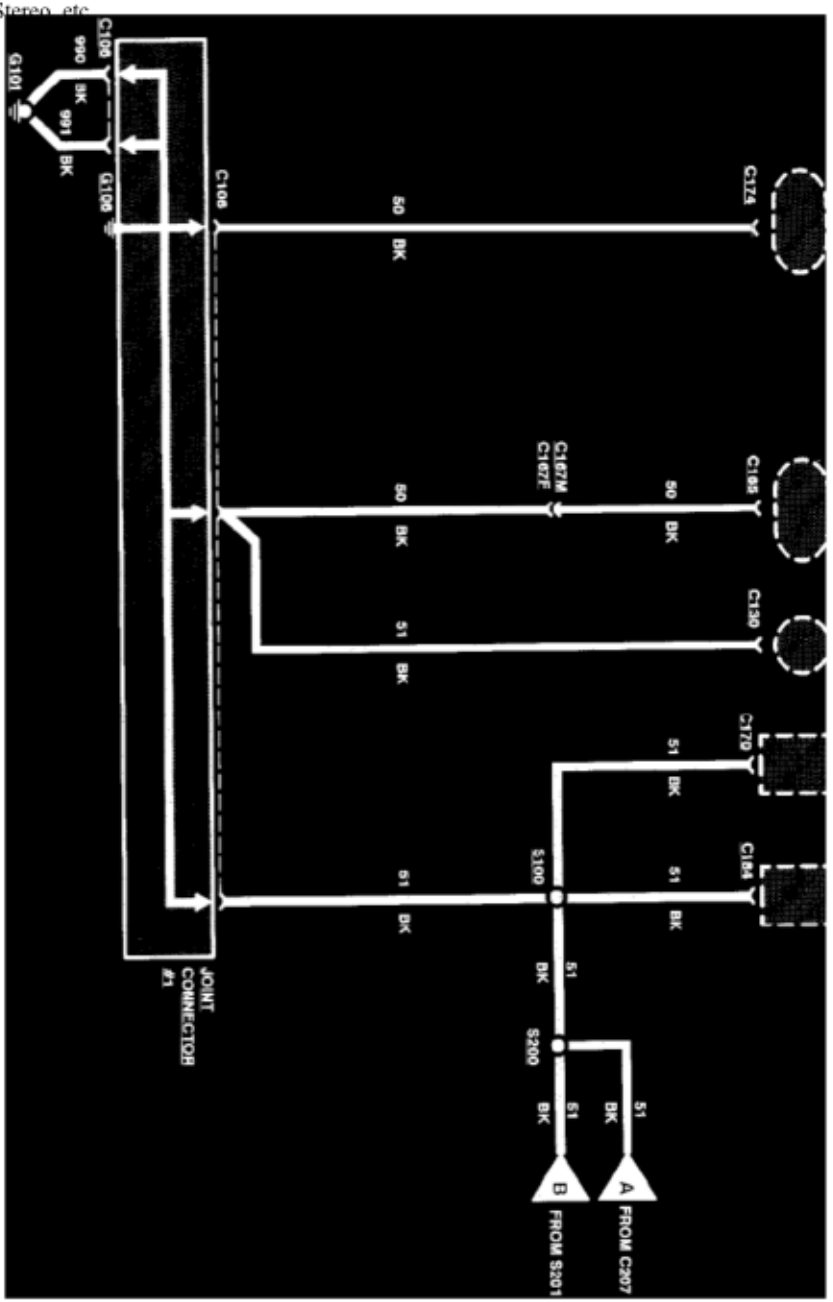
System Diagrams

Components that work together are shown together in a system/subsystem diagram or set of diagrams. The sys

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Management, Radio/Stereo, etc.



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Sample Grounds Diagram

Grounds Diagrams

Provide the circuit details of how the system diagrams are grounded. This information is useful for checking in

The grounds diagrams can be found at Starting and Charging/Power and Ground Distribution.

Symbol Identification

> Relays and Modules > Relays and Modules - Powertrain Management > Relays and Modules - Fuel Delivery and Air Induction > Fuel Pump Relay > Component Information > Diagrams > Diagram Information and Instructions > Page 275

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ELECTRICAL SYMBOLS

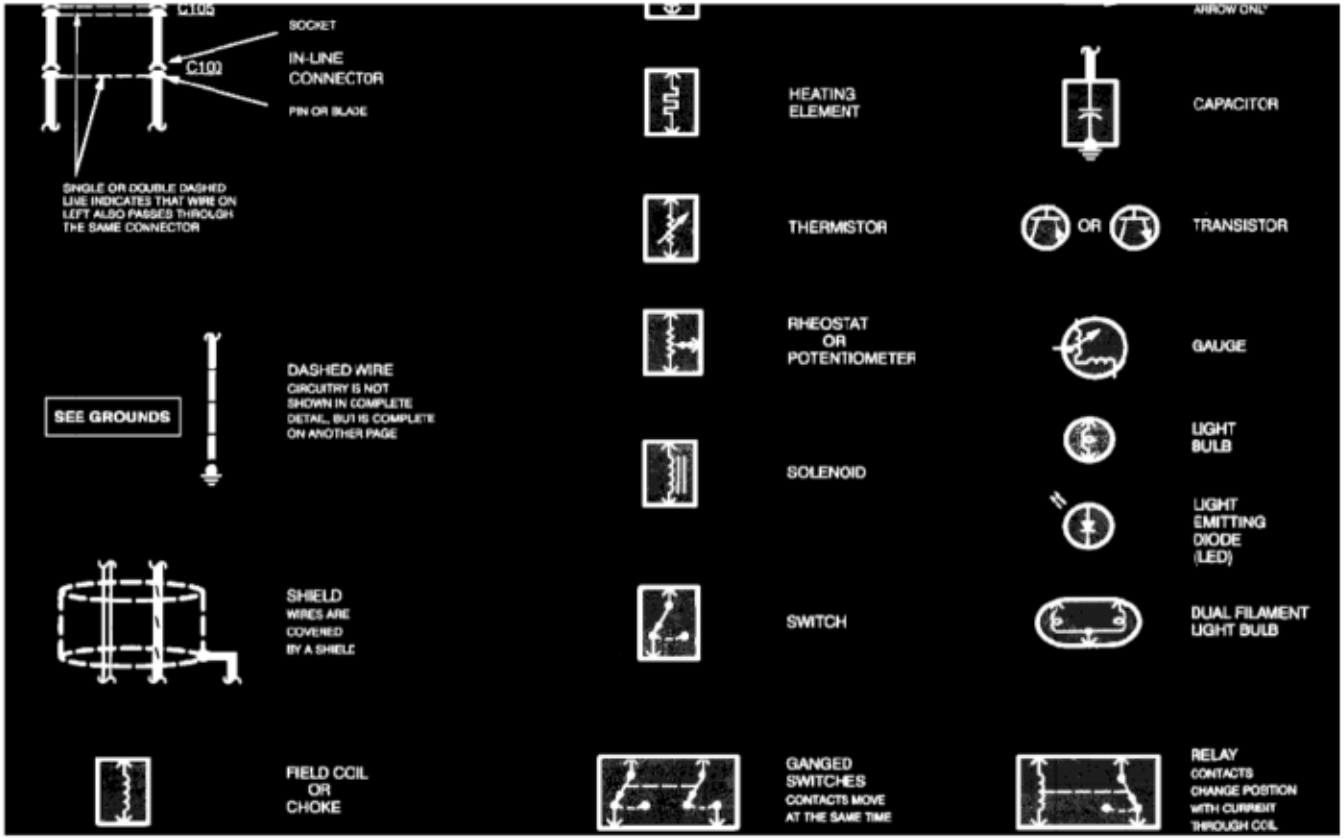
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Electrical Symbols

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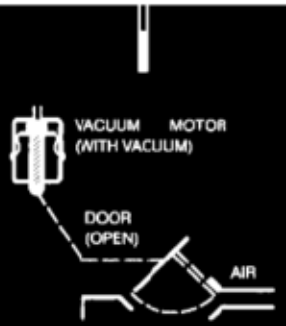


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VACUUM SYMBOLS

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

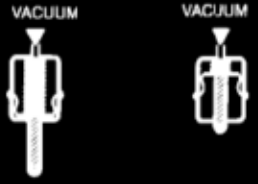
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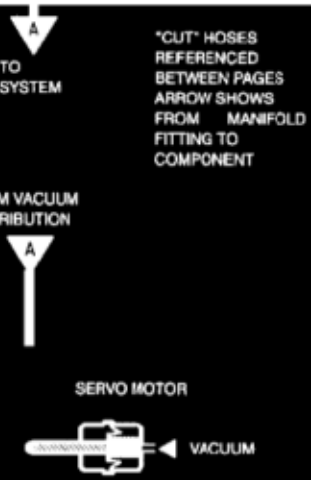
VACUUM ON VACUUM MOTOR PULLS DOOR OPEN TO LET AIR PASS THROUGH

VACUUM MOTOR OPERATIONS

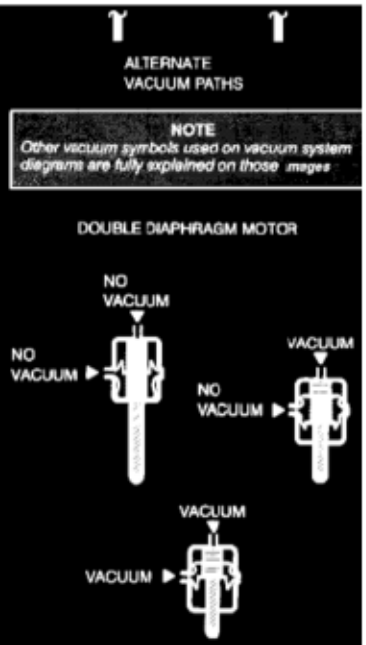
SINGLE DIAPHRAGM MOTOR



Vacuum motors operate like electrcal solenoids, mechanically pushing or pulling a shaft between two fixed positions. When vacuum is not applied, the shift is pushed all the way out by a spring.



Some vacuum motors, such as the Servo Motor in the Speed Control, can position the actuating arm at any position between fully extended and fully retracted. The Servo is operated by a control valve that applies varying amounts of vacuum to the motor. The higher the vacuum level, the greater the retraction of the motor arm. Servo Motors work nearly the same way as two-position motors, except for the way the vacuum is applied. Servo Motors are generaly larger and provide a calibrated control.



A double diaphragm motor has three tions (it is actually two motors in one hou When the top port gets vacuum, the shaft half-way in. When both ports get vacuum shaft pulls all the way in.

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Vacuum Symbols

Wire Color Code Identification

BK
BL
BR
DB: Black: Blue: Brown: Dark Blue

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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DG
GY
GN
LB
LG
PK
O
P
R
T
V
W
: Dark Green: Gray: Green: Light Blue: Light Green: Pink: Orange: Purple: Red: Tan: Violet: White: Yellow

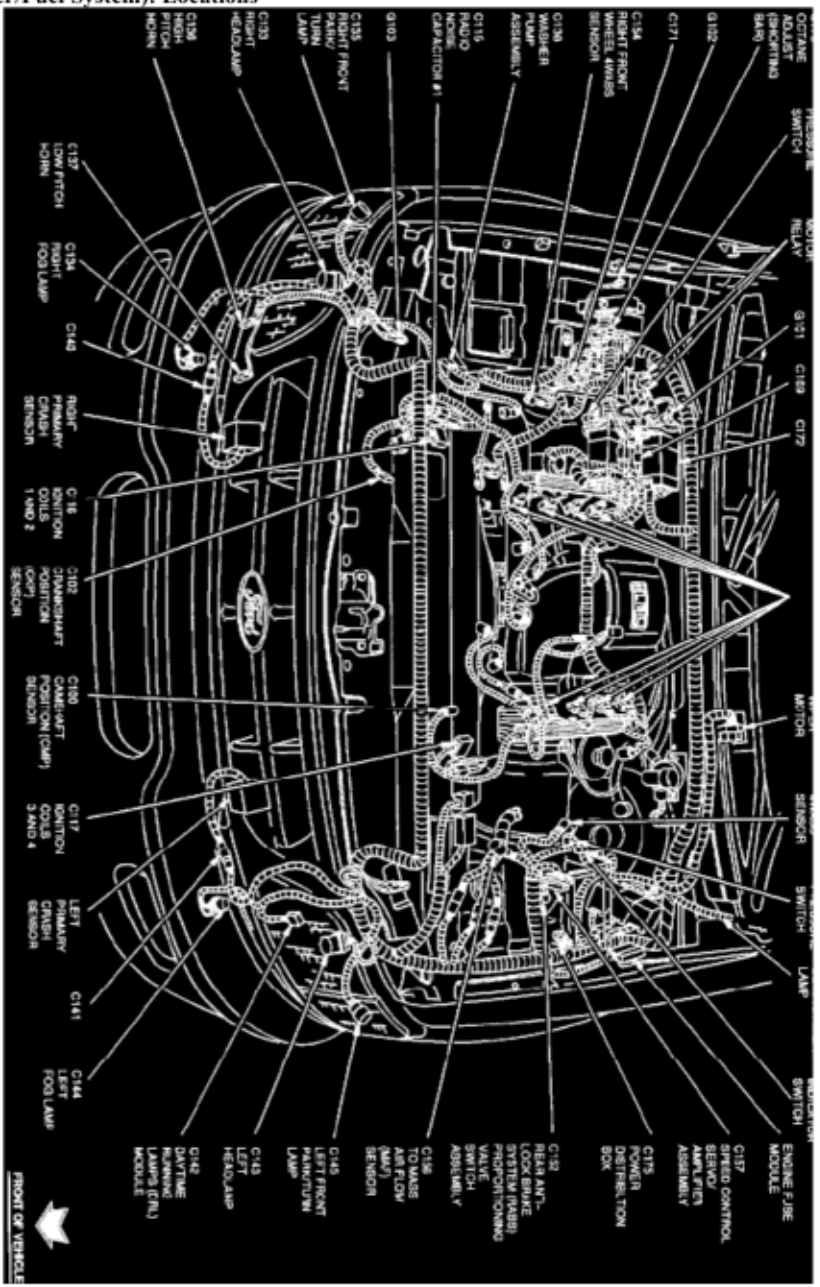
NOTE:

Whenever a wire is labeled with two colors, the first color listed is the basic color of the wire, and the second c

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https://www.auto-manual.com/

Main Relay (Computer/Fuel System): Locations

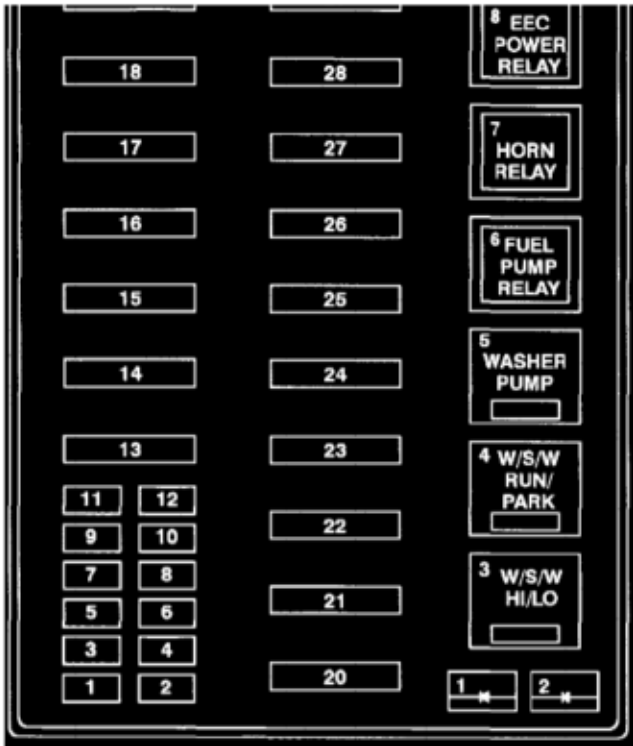


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Engine Views

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Position	Amps	Circuits Protected
1	20 (MINI)	Trailer Tow Running Lamp Relay, Trailer Tow Backup Lamp Relay
2	10 (MINI)	Airbag Diagnostic Monitor
3	15 (MINI)	All Unlock Relay, All Lock Relay, Driver Unlock Relay, LH Power Door Lock Switch, RH Power Door Lock Switch
4	15 (MINI)	Rear Air Suspension (RAS)
5	20 (MINI)	Horn Relay
6	15 (MINI)	Radio, Premium Sound Amplifier, CD Changer
7	15 (MINI)	Main Light Switch, Park Lamp Relay
8	30 (MINI)	Main Light Switch, Headlamp Relay, Multi-function Switch
9	15 (MINI)	Daytime Running Lamps (DRL) Module, Fog Lamp Relay
10	25 (MINI)	Auxiliary Power Socket
11	–	NOT USED
12	–	NOT USED
13	–	NOT USED
14	60 (MAXI)	4 Wheel Anti-Lock Brake System (4WABS) Module
14	20 (MAXI)	Ignition Switch (B2) (W/RABS Only)
15	50 (MAXI)	Rear Air Suspension Compressor
16	40 (MAXI)	Trailer Tow Battery Charge Relay, Engine Fuse Module (Fuse 2)
17	30 (MAXI)	Shift on the Fly Relay, Transfer Case Shift Relay
18	30 (MAXI)	Power Seat Control Switch
19	20 (MAXI)	Fuel Pump Relay
20	50 (MAXI)	Ignition Switch (B4 & B5)
21	50 (MAXI)	Ignition Switch (B1 & B3)
22	50 (MAXI)	Junction Box Fuse/Relay Panel Battery Feed
23	40 (MAXI)	Blower Relay
24	30 (MAXI)	PCM Power Relay, Engine Fuse Module (Fuse 1)
25	30 (MAXI)	Junction Box Fuse/Relay Panel, Acc Delay Relay
26	–	NOT USED
27	–	NOT USED
28	30 (MAXI)	Trailer Electronic Brake Controller
29	–	NOT USED

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Power Distribution Box

The PCM Power Relay is located in the power distribution box.

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Ignition Control Module: Locations

The ignition control module is integrated within the powertrain control module. It is not a separately replaceabl

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Ignition Control Module: Description and Operation

PURPOSE

- **(ICM) (PCM)**
  The Ignition Control Module is incorporated within the Powertrain Control Module . The ICM receives e

OPERATION

- The ICM synthesizes a profile ignition pick up signal and ignition diagnostic monitor signal for use withi
-
  The PCM uses this information to determine which ignition coil to fire, calculating the turn ON/OFF tim

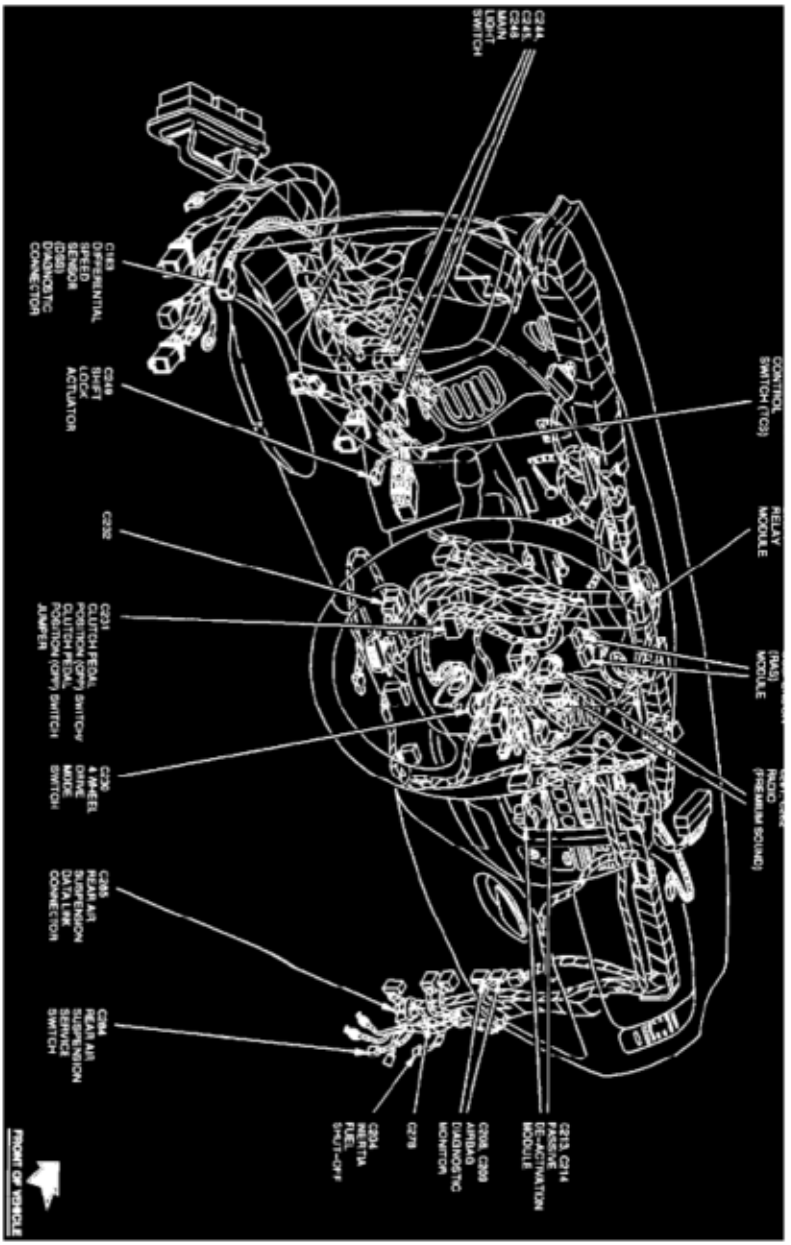
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https://www.auto-manual.com/

Air Bag Control Module: Specifications

10.2-13.8 N.m (90-122 Lb/In) Air Bag Diagnostic Monitor Screws.....

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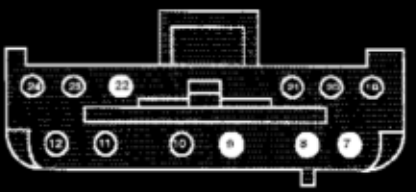
https://www.auto-manual.com/

Instrument Panel View

The Air Bag Diagnostic Monitor is located behind right side (Passenger Side) of the instrument panel.

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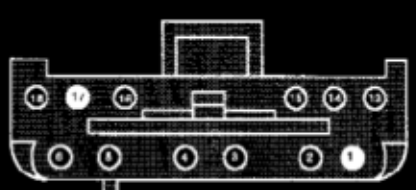
Air Bag Control Module: Diagrams



C208 (BLACK)
AIR BAG DIAGNOSTIC MONITOR

PIN	CIRCUIT	CIRCUIT FUNCTION
7	—	NOT USED
8	—	NOT USED
9	—	NOT USED
10	650 (BK/LB)	Ground
11	608 (BK/Y)	Air Bag Indicator Control
12	70 (LB/W)	Diagnostic Request
19	1044 (W/Y)	Power (Hot in Start or Run)
20	620 (P/LB)	Primary Crash Sensor Ground Monitor (LH)
21	618 (P/LG)	Primary Crash Sensor Ground Monitor (RH)
22	—	NOT USED
23	625 (Y/LG)	Primary Crash Sensor Feed Monitor (LH)
24	624 (Y/W)	Primary Crash Sensor Feed Monitor (RH)

Air Bags Diagnostic Monitor (C208)



C209 (GRAY)
AIR BAG DIAGNOSTIC MONITOR

PIN	CIRCUIT	CIRCUIT FUNCTION
1	—	NOT USED
2	614 (GY/O)	Driver's Air Bag Feed
3	615 (GY/W)	Driver's Air Bag Return
4	1113 (Y/LG)	Passive De-activation (PAD) Module Return
5	1112 (W/LB)	Passive De-activation (PAD) Module Feed
6	298 (P/O)	Vehicle Power (12V) (RUN)

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If the 10 Amp battery fuse has successfully been blown by the air bag diagnostic monitor, the air bag diagnostic

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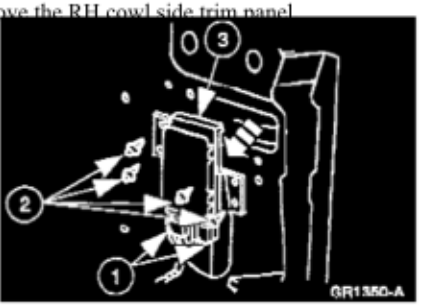
Air Bag Control Module: Service and Repair
REMOVAL

WARNING: TO AVOID ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY, THI

CAUTION: Electronic modules are sensitive to static electrical charges. If exposed to these charges, damage c

NOTE: The safing sensor is internal to the air bag diagnostic monitor and is not replaced separately.

1. Disconnect the battery ground cable.2. Remove the RH cowl side trim panel



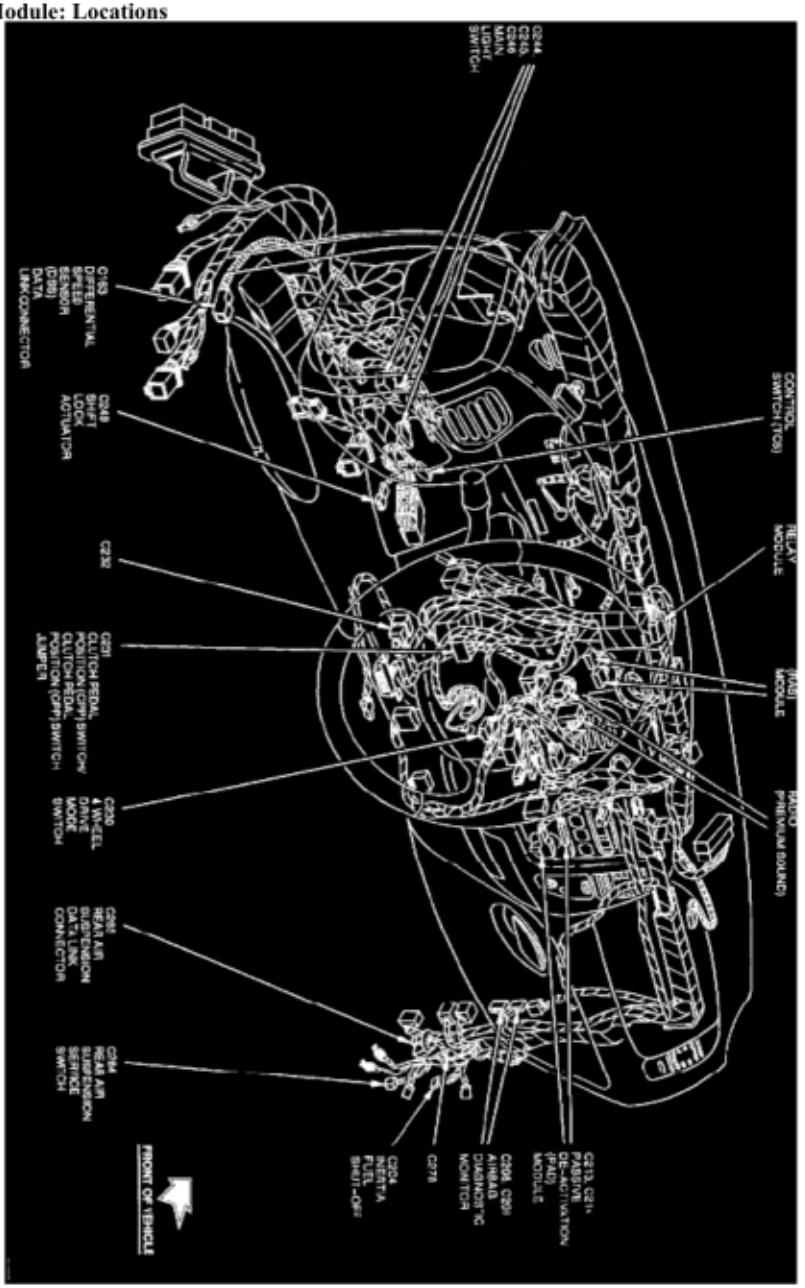
3. Remove the air bag diagnostic monitor.
   1 Disconnect the electrical connectors.
   2 Remove the screws.
   3 Remove the air bag diagnostic monitor.

INSTALLATION
1. Follow the removal procedure in reverse order.
   10.2-13.8 N.m (90-122 Lb/In) Tighten the Air Bag Diagnostic Monitor Screws to .

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Air Bag Deactivation Module: Locations



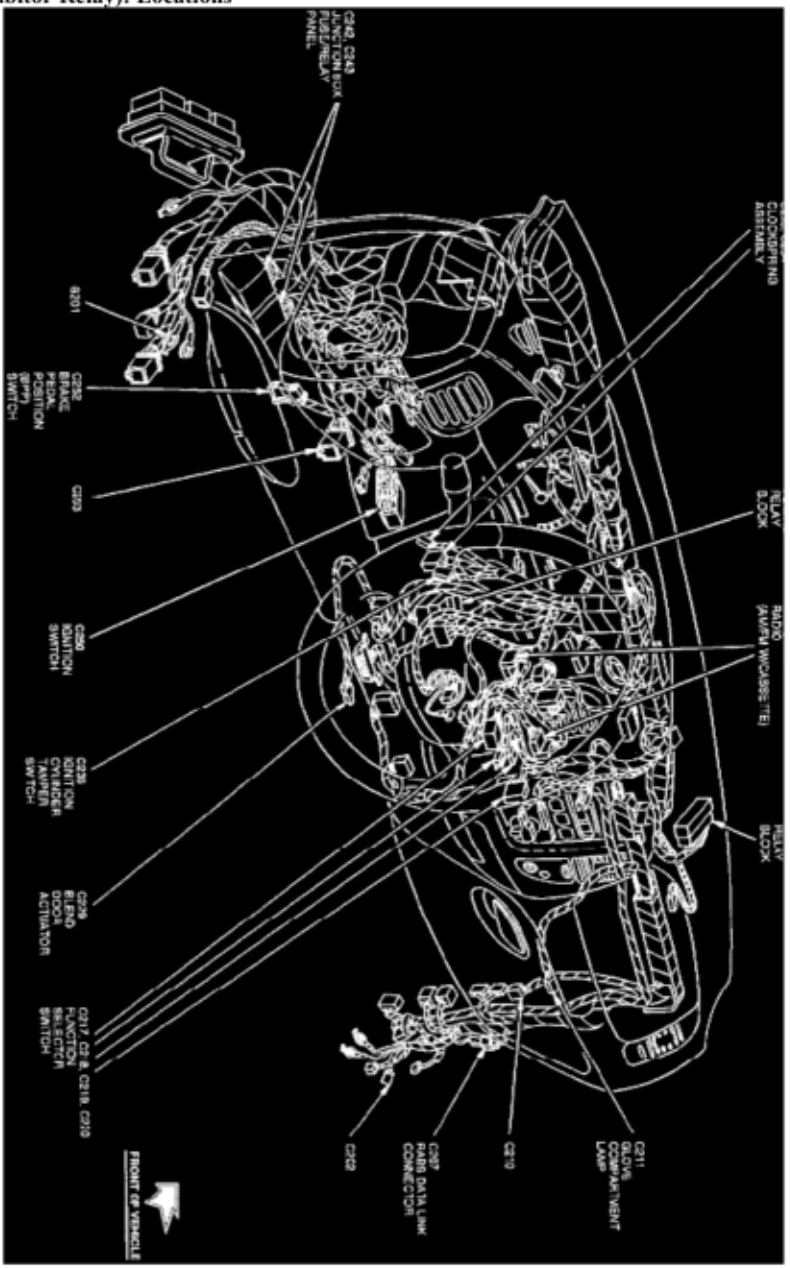
https://www.auto-manual.com/

Instrument Panel View

The Passive De-Activation Module is located behind right side of the instrument panel.

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Neutral Start Relay (Inhibitor Relay): Locations

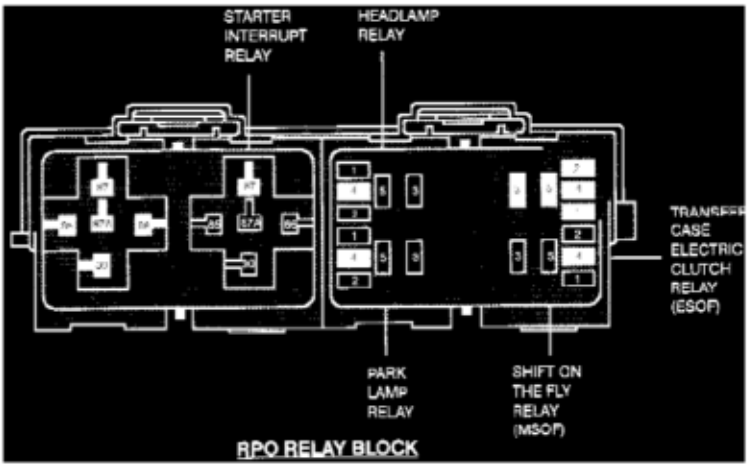


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Instrument Panel View

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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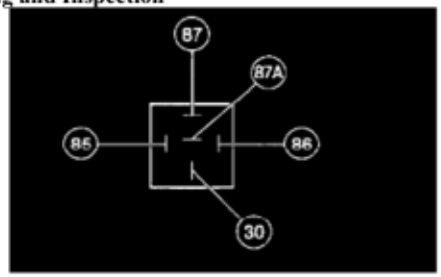
Regular Production Option Relay Block

(RPO) The Starter Interrupt Relay is located in the Regular Production Option Relay Block.

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Neutral Start Relay (Inhibitor Relay): Testing and Inspection



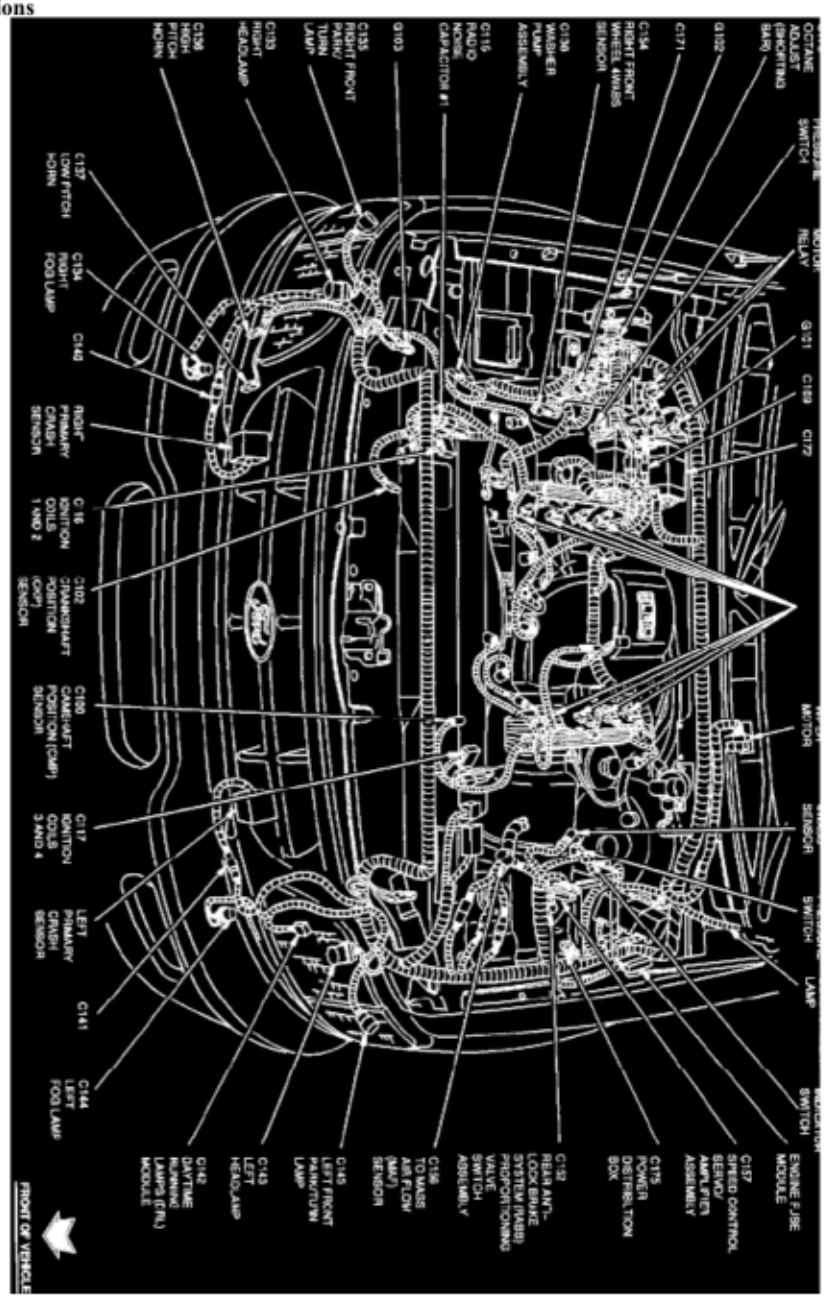
Relay Component Test
5 ohms
5 ohms

Use the 73 Digital Multimeter to check for continuity between terminal 85 and all other terminals. If resistance

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Starter Relay: Locations



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Engine Views

The Starter Motor Relay is located at right rear of the engine compartment.

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Starter Relay: Description and Operation

The starter motor solenoid relay switch:

- Controls current to the starter solenoid.
- Is engaged by the ignition switch.
- Connects the battery to the starter motor.

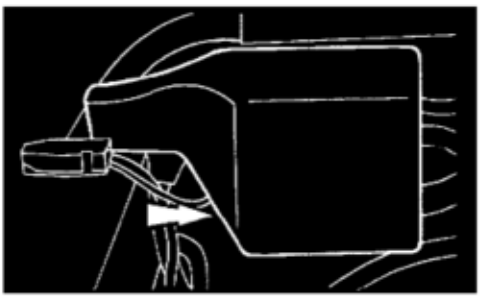
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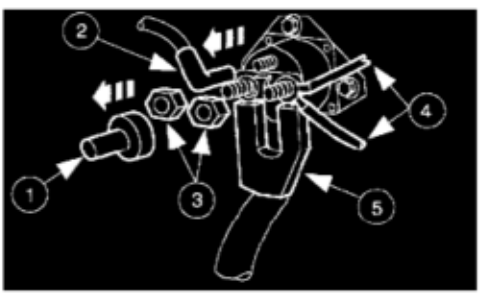
Starter Relay: Service and Repair
REMOVAL

WARNING: WHEN PERFORMING MAINTENANCE ON THE STARTING SYSTEM BE AWARE

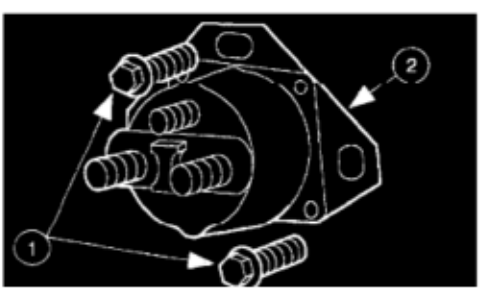
1. Disconnect the battery ground cable.



2. Remove the relay cover.



3. Disconnect the starter motor solenoid relay switch wires and cables.
   1 Remove the insulator.
   2 Disconnect the engine control sensor wiring terminal.
   3 Remove the starter motor solenoid relay switch terminal nuts.
   4 Remove the engine control sensor wire and the generator wire.
   5 Remove the battery cables.

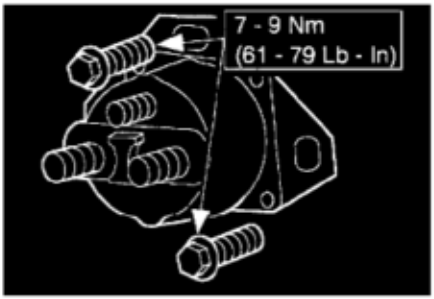


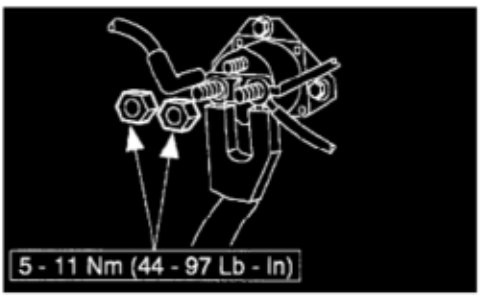
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4. Remove the starter motor solenoid relay switch.
   1 Remove the bolts.
   2 Remove the starter motor solenoid relay switch.

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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INSTALLATION

WARNING: WHEN PERFORMING MAINTENANCE ON THE STARTING SYSTEM BE AWARE

1. To install reverse the removal procedure.

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Power Window Control Module: Description and Operation

(GEM)

The Generic Electronic Module controls the opening of the LH driver side power window (window down motic

Down window motion operates in two modes. manual mode and auto mode. When the GEM detects the first dc

The power window system will operate only if:

- The ignition switch is in the RUN or ACC position, or
- The delayed accessory feature is in the active mode. There are two modes of operation for the power win

Manual Mode:

When the LH window regulator control switch is pressed to the first detent position, the window will move dov

- The LH window regulator control switch is no longer in the first detent position.
- **(OTD)** The LH window regulator control switch is pushed to the One Touch Down position causing the w

Feature Input:

- LH window regulator control switch, first detent position.

NOTE: Delayed accessory feature must be active.

Feature Output:

- One touch down relay coil output (grounded when activated, open circuit when deactivated).

Auto Mode:

Auto mode provides the One Touch Down feature (OTD feature). The OTD feature is activated when the LH w

Auto mode will be terminated when any of the follow conditions are met:

- The LH window regulator control switch is pushed to the up position.
- The LH window regulator control switch is released (OFF position) and then moved to the down position
- **Seven seconds** have elapsed since auto mode was initiated.
- A window regulator electric drive stall condition is detected on the one touch down sense line inputs.

Feature Inputs:

Switch Position	Input State			NGS Expected Respor	
	UP (C509-2/cir. 992)	DOWN (C509-3/cir. 991)	OTD (C509-1/cir. 995)	LFU_SW	LFD_SW
OFF	GND	GND	OPEN	OFF	OFF
UP	12V	GND	OPEN	UP	OFF
DOWN	GND	12V	OPEN	OFF	DOWN
AUTO (OTD)	GND	12V	12V	OFF	DOWN

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- LH window regulator control switch inputs; refer to the LH Window Regulator Control Switch Table.

  NOTE: Delayed accessory feature must be active.

- One touch down sense lines, high and low (voltage difference corresponds to window current).

Feature Output:

- Down window relay coil output (grounded when activated, open circuit when deactivated).

One Touch Down Relay

The GEM controls manual down and OTD window movement with the one touch down relay.

The relay is activated by applying ground directly to one side of the down window relay coil, and is deactivatec

> Relays and Modules > Relays and Modules - Windows and Glass > Power Window Control Module > Component Information > Description and Operation > Page 315

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Delayed Accessory

Features and Operation:

The delayed accessory feature of the GEM provides power for the power window system. The following compo
- LH window regulator electric drive.
- RH window regulator electric drive.

The delayed accessory feature is active when:
- The ignition is in the RUN position or ACC position, or
- The ignition switch makes a transition from RUN or ACC to OFF and both doors are closed (neither is aj

NOTE:

The LH driver or RH passenger door becomes ajar when the ignition switch is in the OFF or KEY OU
Delayed accessory is suspended only while the ignition is in the START position. The delayed accessory
- **Ten minutes** have elapsed since the ignition made a transition from RUN or ACC to OFF.

Feature Inputs:
- **12V** Ignition switch RUN position: on both RUN and RUN/ACC inputs.
- **12V** Ignition switch ACC position: on RUN/ACC input only.
- Door open warning lamp switches (grounded when door is ajar, open when door is closed).

Feature Outputs:

Delayed accessory relay coil output (grounded when active, open circuit when inactive).

Delayed Accessory Relay
The GEM controls the delayed accessory feature and power supply to the power windows through the delayed

The relay is activated by applying ground directly to one side of the delayed accessory relay coil and deactivate

Battery Saver Relay
The following components are under the control of the battery saver relay:
- Delayed accessory relay Overhead interior lamp with map lamps.
- Underhood lamp switch.
- Glove box lamp switch.
- Overhead interior lamp switch.
- Interior lamp relay coil.

The battery saver relay becomes active (relay coil is energized) when the GEM is in awake mode and is deactiv

40 minutes
The battery saver will remain active until the ignition state is not ACC or RUN and have passed since last activ

Five minutes
after the battery saver relay has become deactivated, the GEM will go into a lower power state known as sleep

Logical characteristics of the GEM battery saver mode are as follows.

Feature Inputs:

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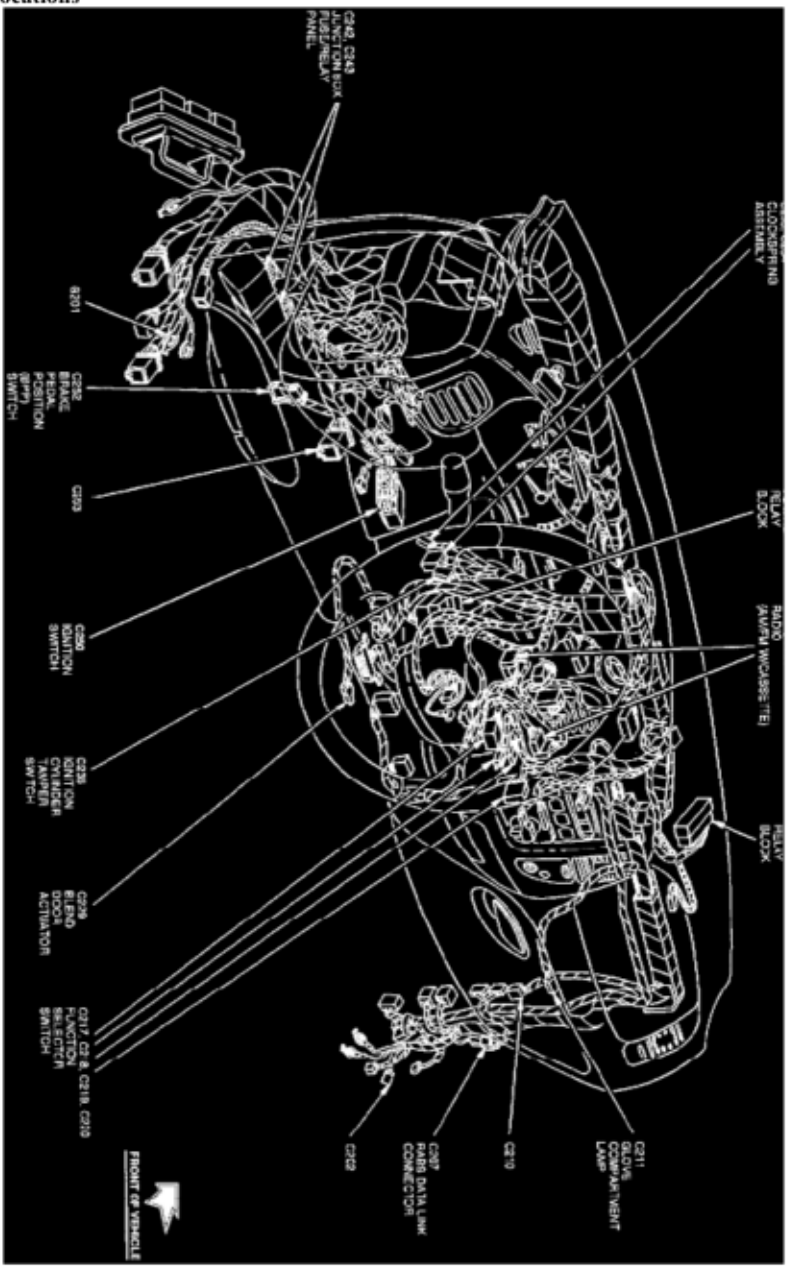
- Sleep/Awake mode status.

Feature Outputs:

- Battery saver relay control (Open circuit in sleep mode, grounded when awake).

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Power Window Relay: Locations

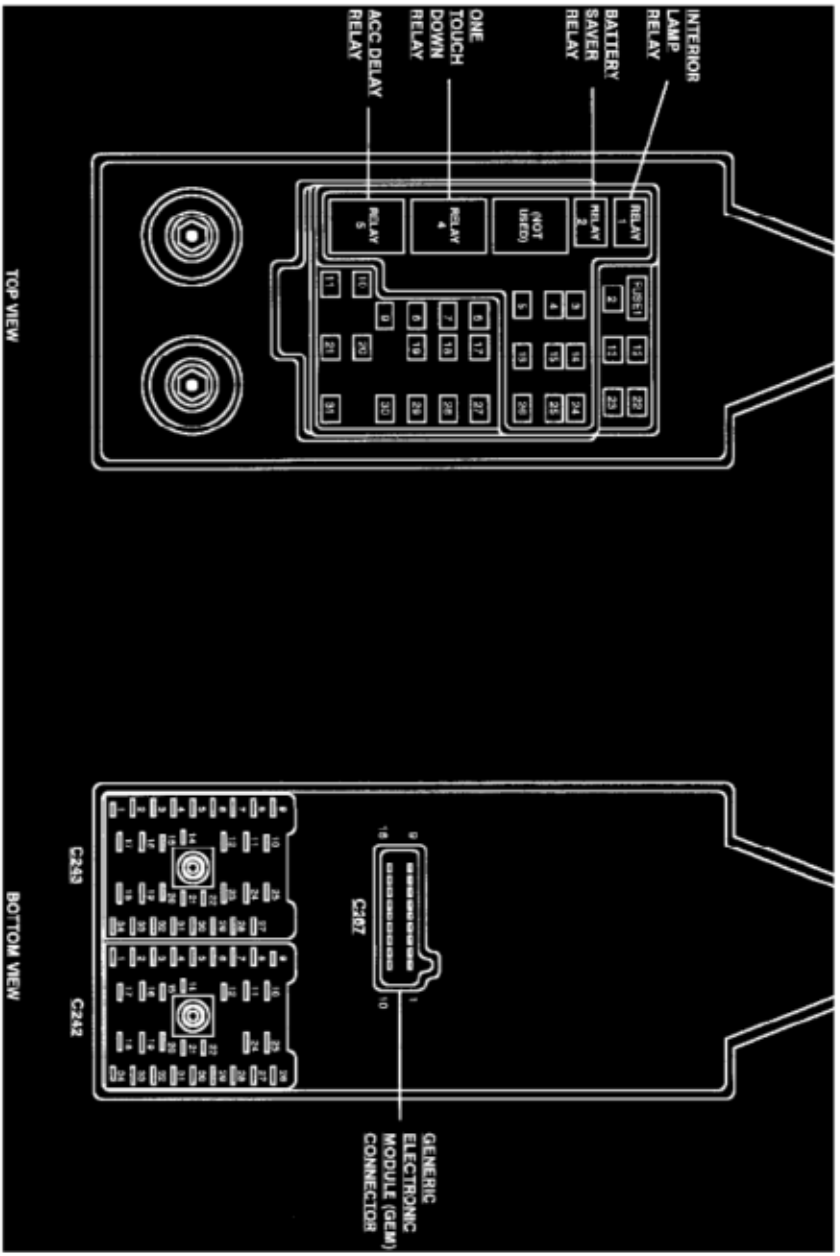


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Instrument Panel View

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Junction Box Fuse/Relay Panel (Part 1 Of 2)

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The One Touch Down Relay is located in the junction box fuse/relay panel.

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Power Window Relay: Description and OperationAccessory Delay Relay

The GEM controls the delayed accessory feature and power supply to the power windows through the delayed

The relay is activated by applying ground directly to one side of the delayed accessory relay coil and deactivate

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https://www.auto-manual.com/

Power Window Relay: Description and OperationBattery Saver Relay

The battery saver relay becomes active (relay coil is energized) when the GEM is in awake mode and is deactiv

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- Overhead interior lamp switch.
- Interior lamp relay coil.

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Five minutes
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Power Window Relay: Description and OperationOne Touch Down Relay

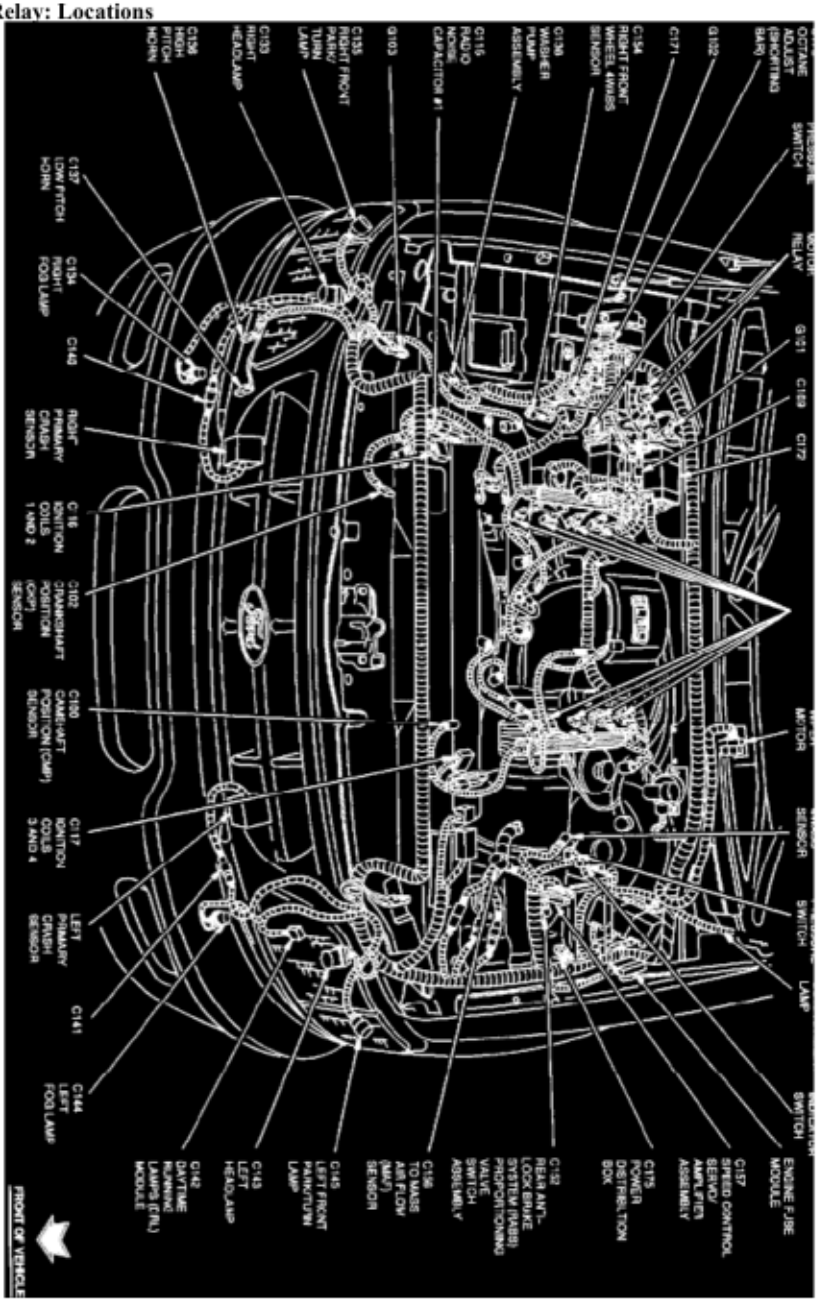
(OTD) The GEM controls manual down and One Touch Down window movement with the one touch down rel

The relay is activated by applying ground directly to one side of the down window relay coil, and is deactivatec

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Windshield Washer Relay: Locations

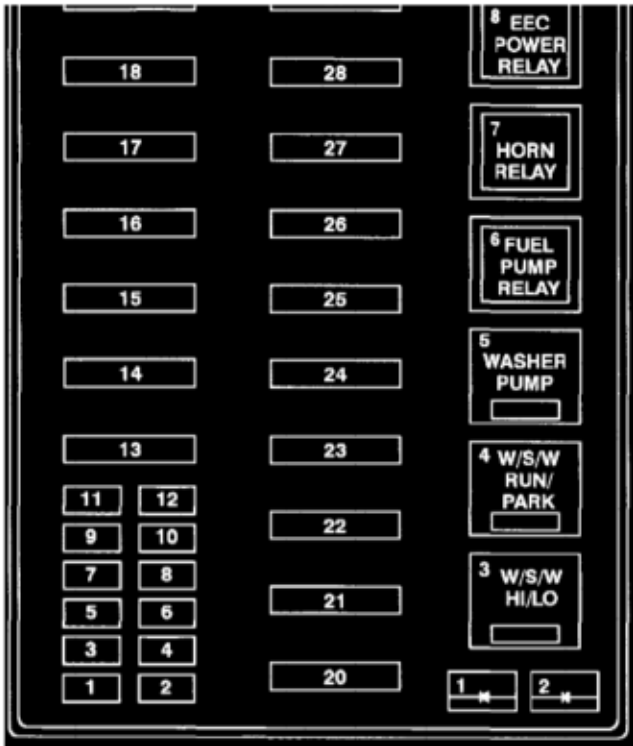


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Engine Views

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Position	Amps	Circuits Protected
1	20 (MINI)	Trailer Tow Running Lamp Relay, Trailer Tow Backup Lamp Relay
2	10 (MINI)	Airbag Diagnostic Monitor
3	15 (MINI)	All Unlock Relay, All Lock Relay, Driver Unlock Relay, LH Power Door Lock Switch, RH Power Door Lock Switch
4	15 (MINI)	Rear Air Suspension (RAS)
5	20 (MINI)	Horn Relay
6	15 (MINI)	Radio, Premium Sound Amplifier, CD Changer
7	15 (MINI)	Main Light Switch, Park Lamp Relay
8	30 (MINI)	Main Light Switch, Headlamp Relay, Multi-function Switch
9	15 (MINI)	Daytime Running Lamps (DRL) Module, Fog Lamp Relay
10	25 (MINI)	Auxiliary Power Socket
11	–	NOT USED
12	–	NOT USED
13	–	NOT USED
14	60 (MAXI)	4 Wheel Anti-Lock Brake System (4WABS) Module
14	20 (MAXI)	Ignition Switch (B2) (W/RABS Only)
15	50 (MAXI)	Rear Air Suspension Compressor
16	40 (MAXI)	Trailer Tow Battery Charge Relay, Engine Fuse Module (Fuse 2)
17	30 (MAXI)	Shift on the Fly Relay, Transfer Case Shift Relay
18	30 (MAXI)	Power Seat Control Switch
19	20 (MAXI)	Fuel Pump Relay
20	50 (MAXI)	Ignition Switch (B4 & B5)
21	50 (MAXI)	Ignition Switch (B1 & B3)
22	50 (MAXI)	Junction Box Fuse/Relay Panel Battery Feed
23	40 (MAXI)	Blower Relay
24	30 (MAXI)	PCM Power Relay, Engine Fuse Module (Fuse 1)
25	30 (MAXI)	Junction Box Fuse/Relay Panel, Acc Delay Relay
26	–	NOT USED
27	–	NOT USED
28	30 (MAXI)	Trailer Electronic Brake Controller
29	–	NOT USED

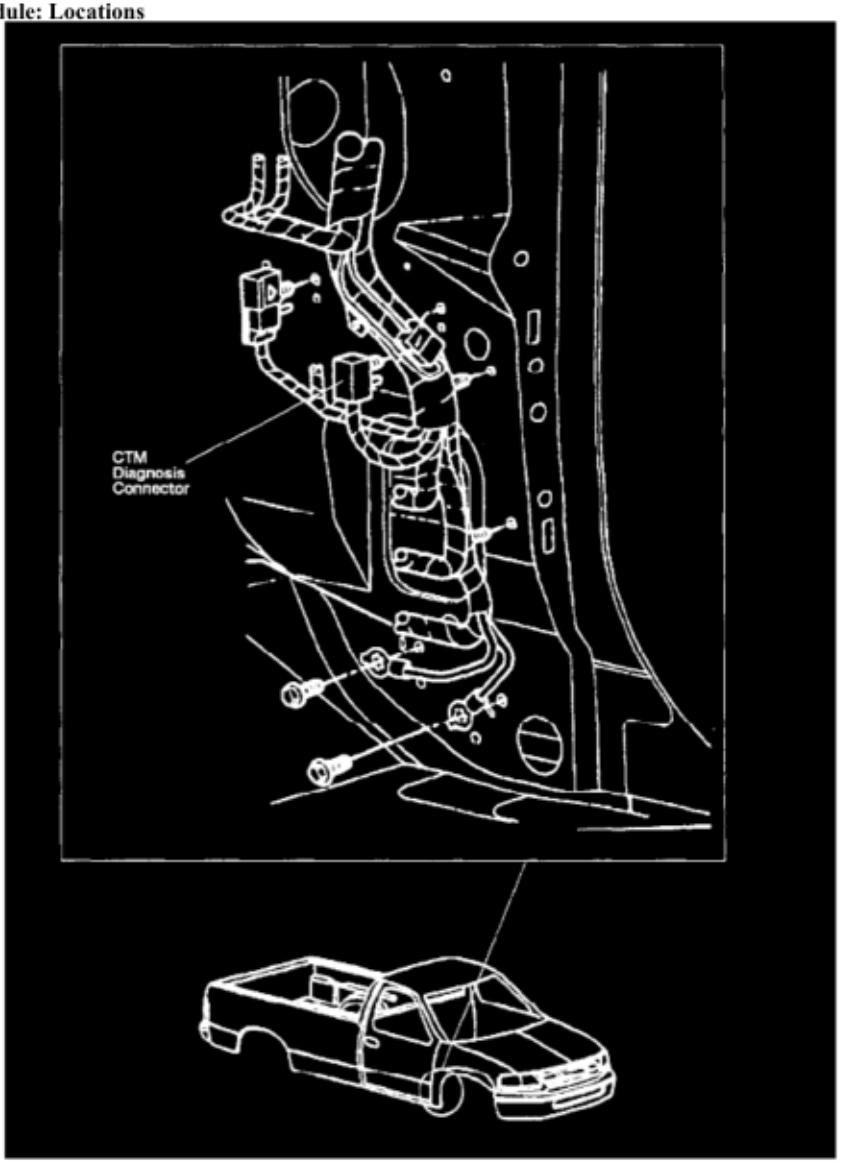
https://www.auto-manual.com/

Power Distribution Box

The Washer Pump Relay is located in the power distribution box.

https://www.auto-manual.com/

Wiper Control Module: Locations

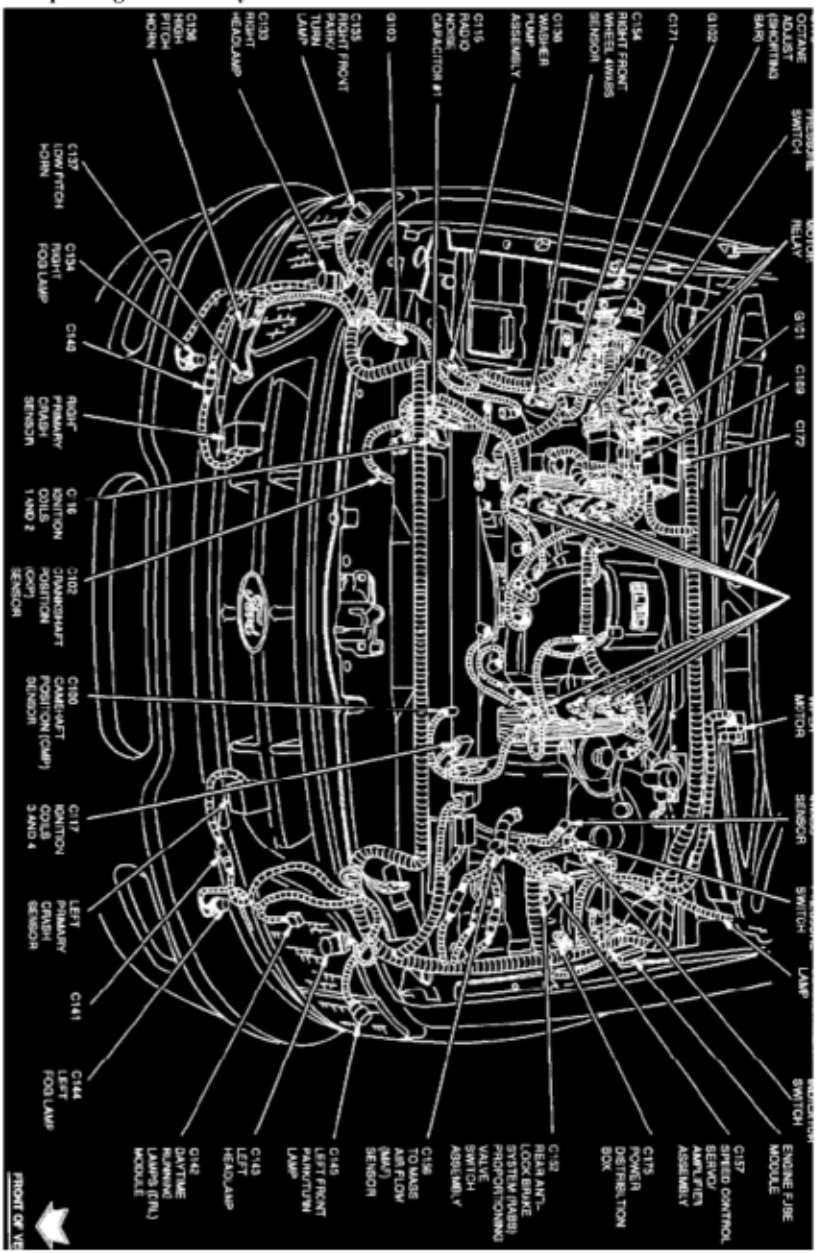


The pins of the diagnostic test mode connector is located behind the right side kick panel.

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https://www.auto-manual.com/

Wiper Relay: LocationsWiper High/Low Relay

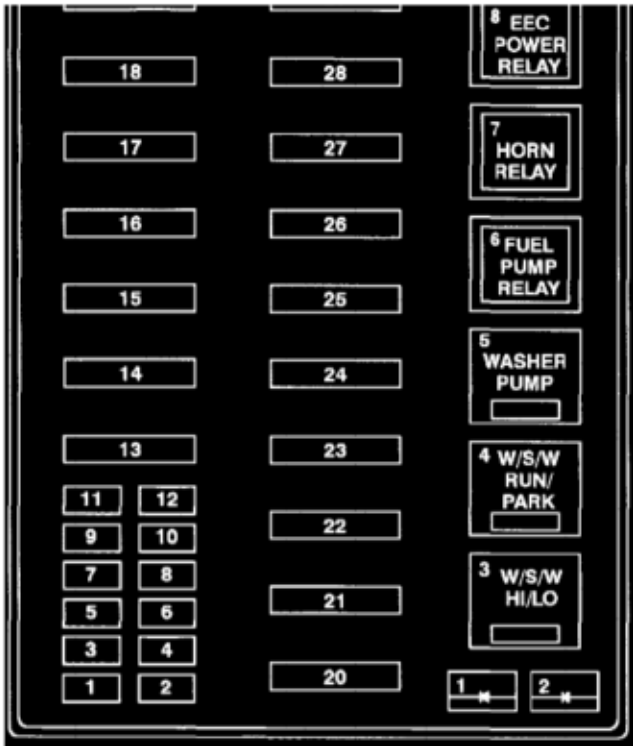


https://www.auto-manual.com/

Engine Views

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/



Position	Amps	Circuits Protected
1	20 (MINI)	Trailer Tow Running Lamp Relay, Trailer Tow Backup Lamp Relay
2	10 (MINI)	Airbag Diagnostic Monitor
3	15 (MINI)	All Unlock Relay, All Lock Relay, Driver Unlock Relay, LH Power Door Lock Switch, RH Power Door Lock Switch
4	15 (MINI)	Rear Air Suspension (RAS)
5	20 (MINI)	Horn Relay
6	15 (MINI)	Radio, Premium Sound Amplifier, CD Changer
7	15 (MINI)	Main Light Switch, Park Lamp Relay
8	30 (MINI)	Main Light Switch, Headlamp Relay, Multi-function Switch
9	15 (MINI)	Daytime Running Lamps (DRL) Module, Fog Lamp Relay
10	25 (MINI)	Auxiliary Power Socket
11	–	NOT USED
12	–	NOT USED
13	–	NOT USED
14	60 (MAXI)	4 Wheel Anti-Lock Brake System (4WABS) Module
14	20 (MAXI)	Ignition Switch (B2) (W/RABS Only)
15	50 (MAXI)	Rear Air Suspension Compressor
16	40 (MAXI)	Trailer Tow Battery Charge Relay, Engine Fuse Module (Fuse 2)
17	30 (MAXI)	Shift on the Fly Relay, Transfer Case Shift Relay
18	30 (MAXI)	Power Seat Control Switch
19	20 (MAXI)	Fuel Pump Relay
20	50 (MAXI)	Ignition Switch (B4 & B5)
21	50 (MAXI)	Ignition Switch (B1 & B3)
22	50 (MAXI)	Junction Box Fuse/Relay Panel Battery Feed
23	40 (MAXI)	Blower Relay
24	30 (MAXI)	PCM Power Relay, Engine Fuse Module (Fuse 1)
25	30 (MAXI)	Junction Box Fuse/Relay Panel, Acc Delay Relay
26	–	NOT USED
27	–	NOT USED
28	30 (MAXI)	Trailer Electronic Brake Controller
29	–	NOT USED

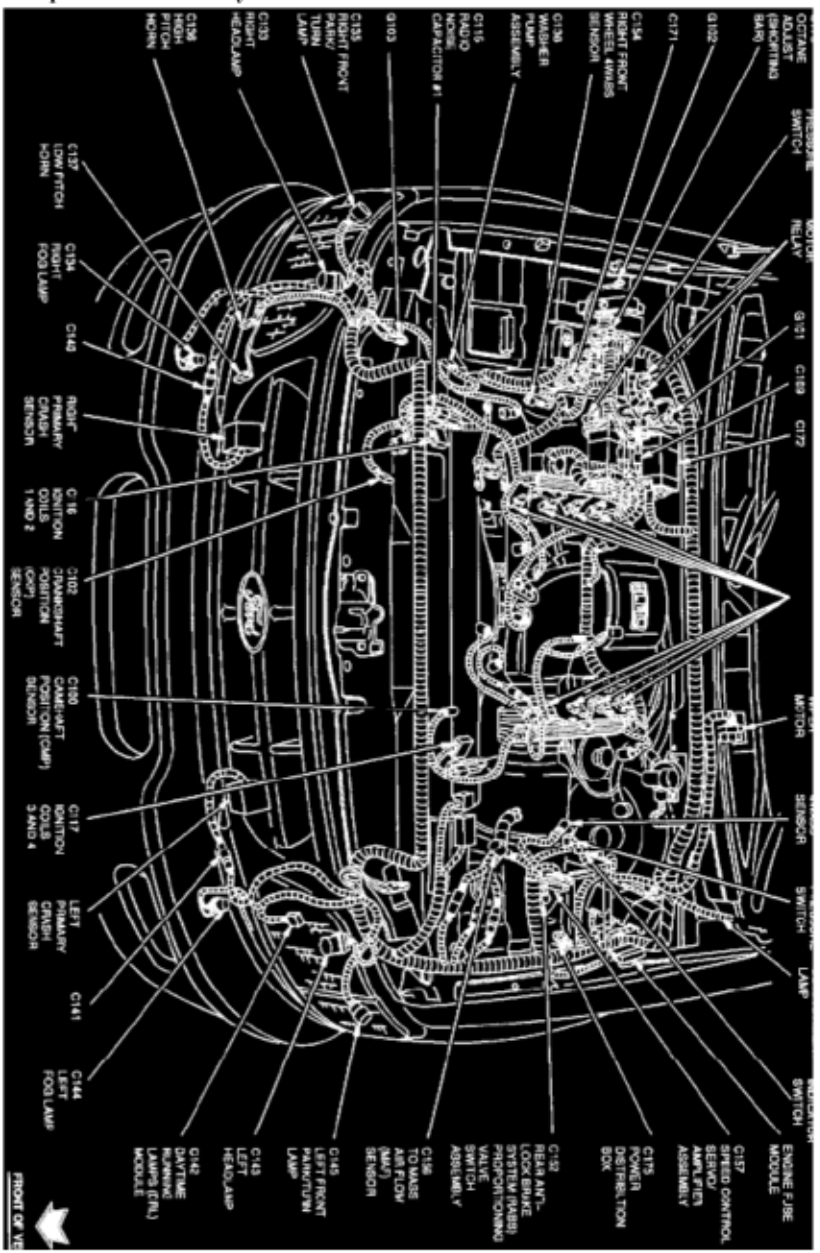
https://www.auto-manual.com/

Power Distribution Box

The Wiper High/Low Relay is located in the power distribution box.

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Wiper Relay: LocationsWiper Run/Park Relay

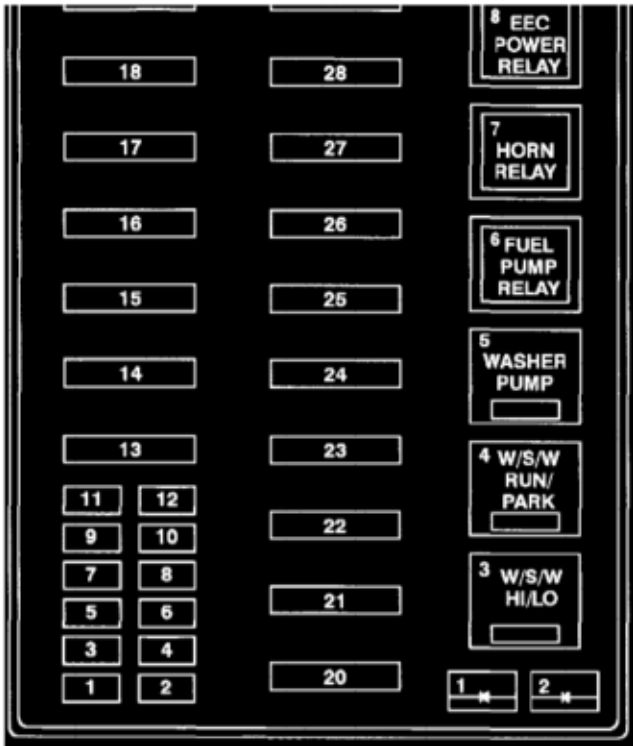


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Engine Views

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/



Position	Amps	Circuits Protected
1	20 (MINI)	Trailer Tow Running Lamp Relay, Trailer Tow Backup Lamp Relay
2	10 (MINI)	Airbag Diagnostic Monitor
3	15 (MINI)	All Unlock Relay, All Lock Relay, Driver Unlock Relay, LH Power Door Lock Switch, RH Power Door Lock Switch
4	15 (MINI)	Rear Air Suspension (RAS)
5	20 (MINI)	Horn Relay
6	15 (MINI)	Radio, Premium Sound Amplifier, CD Changer
7	15 (MINI)	Main Light Switch, Park Lamp Relay
8	30 (MINI)	Main Light Switch, Headlamp Relay, Multi-function Switch
9	15 (MINI)	Daytime Running Lamps (DRL) Module, Fog Lamp Relay
10	25 (MINI)	Auxiliary Power Socket
11	–	NOT USED
12	–	NOT USED
13	–	NOT USED
14	60 (MAXI)	4 Wheel Anti-Lock Brake System (4WABS) Module
14	20 (MAXI)	Ignition Switch (B2) (W/RABS Only)
15	50 (MAXI)	Rear Air Suspension Compressor
16	40 (MAXI)	Trailer Tow Battery Charge Relay, Engine Fuse Module (Fuse 2)
17	30 (MAXI)	Shift on the Fly Relay, Transfer Case Shift Relay
18	30 (MAXI)	Power Seat Control Switch
19	20 (MAXI)	Fuel Pump Relay
20	50 (MAXI)	Ignition Switch (B4 & B5)
21	50 (MAXI)	Ignition Switch (B1 & B3)
22	50 (MAXI)	Junction Box Fuse/Relay Panel Battery Feed
23	40 (MAXI)	Blower Relay
24	30 (MAXI)	PCM Power Relay, Engine Fuse Module (Fuse 1)
25	30 (MAXI)	Junction Box Fuse/Relay Panel, Acc Delay Relay
26	–	NOT USED
27	–	NOT USED
28	30 (MAXI)	Trailer Electronic Brake Controller
29	–	NOT USED

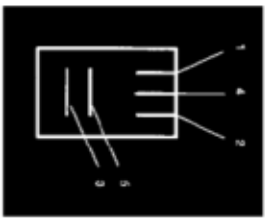
https://www.auto-manual.com/

Power Distribution Box

The Wiper Run/Park Relay is located in the power distribution box.

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Wiper Relay: Testing and Inspection
Mini ISO Relay



Terminals

5 ohms
5 ohms

Use 73 Digital Multimeter to check for the continuity between terminal 2 and all other terminals. If resistance i

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https://www.auto-manual.com/

Arm/Disarm Switch: Description and Operation

The door disarm switches are attached to both the LH and RH lock cylinder. The door disarm switch must be tr

(GEM)
The door open warning lamp switch communicates with the RAP module through the Generic Electronic Modu

In addition to the perimeter alarm that uses the door open warning lamp switch, the RAP module also uses the i

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https://www.auto-manual.com/

Arm/Disarm Switch: Testing and Inspection
ANTI-THEFT DOOR DISARM SWITCH

25,000 ohms Use 73 Digital Multimeter to measure door disarm switch resistance with key removed from

200 ohms Measure the door disarm switch resistance with the key fully rotated to the end of the travel in t

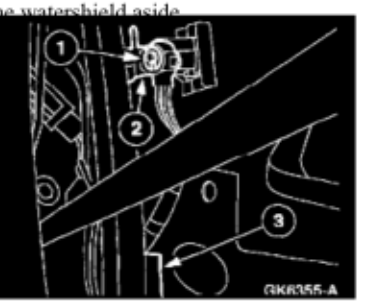
https://www.auto-manual.com/

https://www.auto-manual.com/

Arm/Disarm Switch: Service and Repair

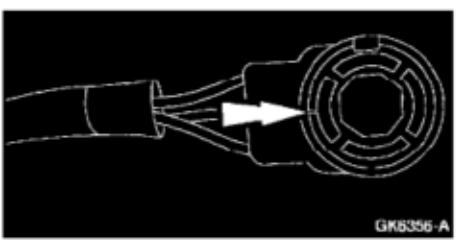
REMOVAL

1. Remove the driver door trim panel.2. Position the watershield aside.



3. Remove the door disarm switch.
   1 Remove the "E" clip.
   2 Remove the lock rod actuator.
   3 Disconnect the electrical connector.

INSTALLATION



1. To install reverse the removal procedure.

NOTE: The door disarm switch locator mark must be in the down position prior to installation.

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https://www.auto-manual.com/

Lock Cylinder Switch: Description and Operation

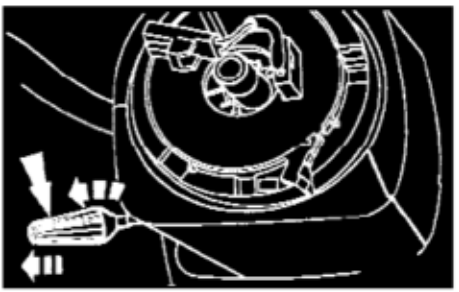
(RAP)
The ignition lock anti-theft switch detects if the ignition key cylinder is broken or "slam pulled" during a theft.

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https://www.auto-manual.com/

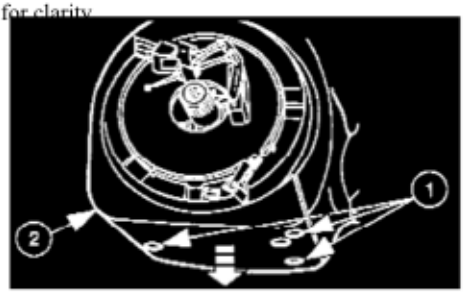
Lock Cylinder Switch: Service and Repair

REMOVAL

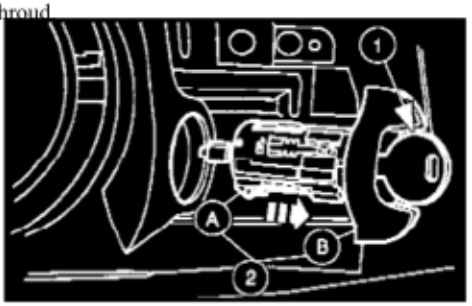


1. If equipped, twist the tilt wheel handle and shank and remove.

NOTE: Steering wheel shown removed for clarity.



2. Remove the lower steering column shroud.
   1 Remove the lower steering column shroud screws.
   2 Remove the lower steering column shroud.



3. Remove the ignition switch lock cylinder.
   1 Insert the ignition key into the ignition switch lock cylinder and turn to RUN position.
   2 Push the (A) ignition switch lock cylinder release tab with a punch while pulling out the (B) ignition s



https://www.auto-manual.com/

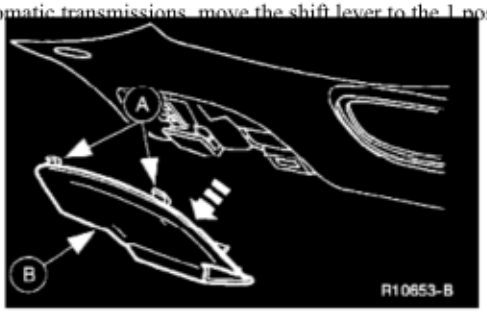


F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

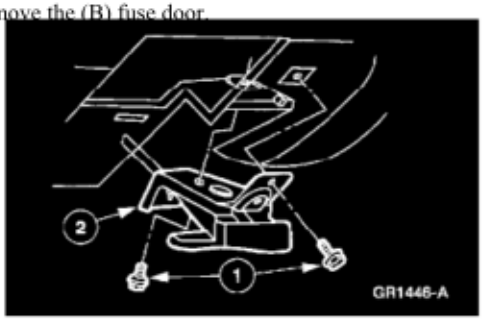
https://www.auto-manual.com/

4. Carefully pry to release the (A) four clips and remove the (B) steering column opening cover.

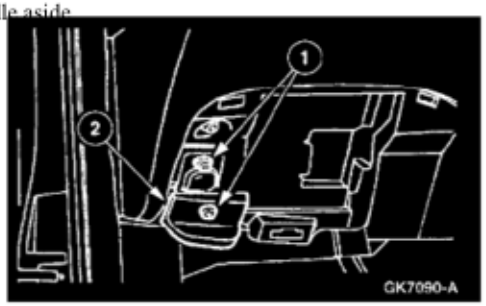
NOTE: On vehicles equipped with automatic transmissions, move the shift lever to the L position to ease



5. Pull to release the three (A) clips and remove the (B) fuse door.



6. Position the hood latch release handle aside.
   1 Remove the screws.
   2 Position the hood latch release handle aside.

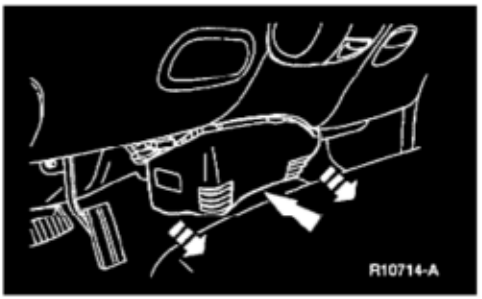


7. Position the parking brake release handle aside.
   1 Remove the screws.
   2 Position the parking brake release handle aside.

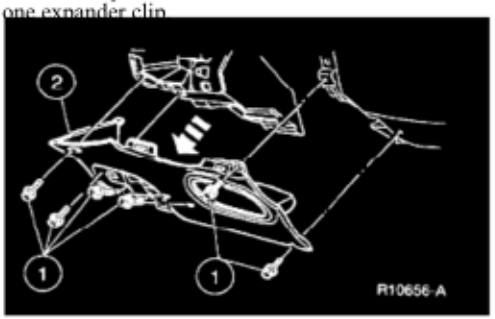
https://www.auto-manual.com/

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

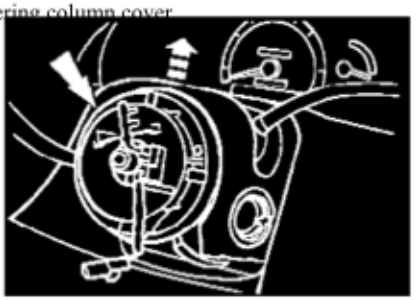
https://www.auto-manual.com/



8. If equipped, remove the instrument panel floor duct panel.
   ^ Remove two push clips and release one expander clip.



9. Remove the lower instrument panel steering column cover.
   1 Remove the bolts.
   2 Remove the lower instrument panel steering column cover.



10. Remove the upper steering column shroud.



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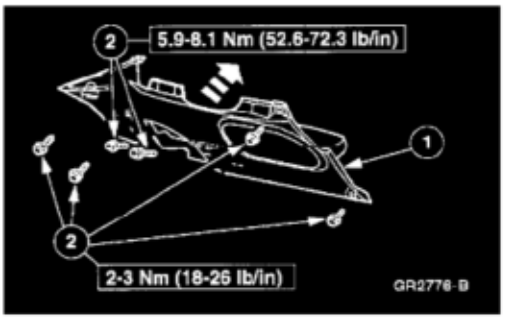
11. Remove the ignition lock anti-theft switch
    1 Disconnect the electrical connector.
    2 Remove the ignition lock anti-theft switch.

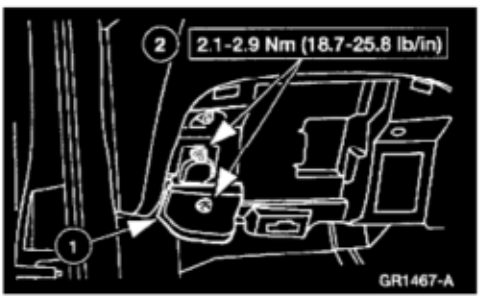
INSTALLATION

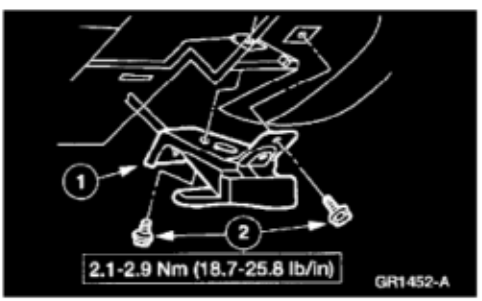
> Sensors and Switches > Sensors and Switches - Accessories and Optional Equipment > Lock Cylinder Switch > Component Information > Description and Operation > Page 353

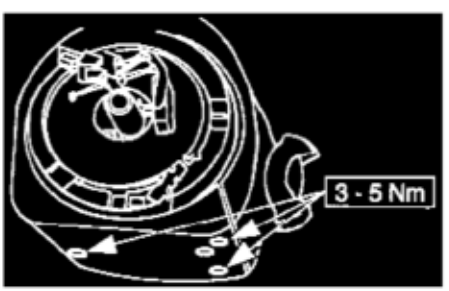
F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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1. To install, reverse the removal procedure.

> Sensors and Switches > Sensors and Switches - Accessories and Optional Equipment > Lock Cylinder Switch > Component Information > Description and Operation > Page 354

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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NOTE: Steering wheel shown removed for clarity.

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Underhood Lamp Switch: Technical Service BulletinsHood Lamp Switch - Revised

Article No.01-21-6

10/29/01

ELECTRICAL - REVISED MECHANICAL HOOD LAMPSWITCH TO REPLACE OLD STYLE MERCUR

FORD:1987-1995 TAURUS1988-1991 CROWN VICTORIA1989 THUNDERBIRD1989-1996 MUSTANG19

LINCOLN:1989-1994 CONTINENTAL1990-1992 MARK VII1990-1996 TOWN CAR1993-1995 MARK VII

MERCURY:1987-1995 SABLE1988-1991 GRAND MARQUIS1989 COUGAR1994-1996 COUGAR1997-20

ISSUE

This article is to provide information on replacement hood lamp switches. The 27 degree Mercury style hood sv

ACTION

Old Service Part Number	New Service Part Number
F6TZ-15702-AA E/DZ-15/05-A	1U5Z-15702-AA 1U5Z-15702-AA

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For vehicles requiring hood lamp switch rep ew 27 degre

PART NUMBER	PART NAME
1U5Z-15722-AA	27 degree Mechanical Hood Lamp Switch

Parts Block

OTHER APPLICABLE ARTICLES: NONEWARRANTY STATUS: INFORMATION ONLY

> Sensors and Switches > Sensors and Switches - Body and Frame > Hood Switch / Sensor > Underhood Lamp Switch > Component Information > Technical Service Bulletins > Hood Lamp Switch - Revised > Page 361

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

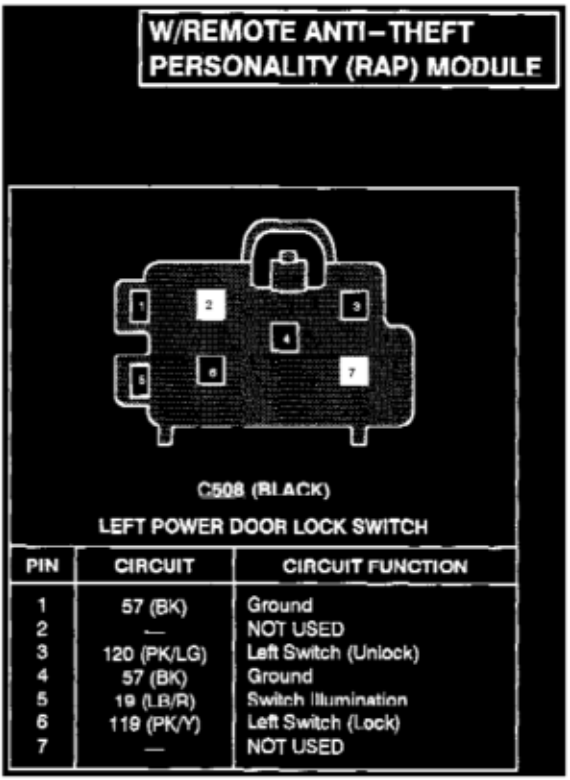
https://www.auto-manual.com/

OASIS CODES: 201000, 201200

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https://www.auto-manual.com/

Power Door Lock Switch: DiagramsLeft Door



PIN	CIRCUIT	CIRCUIT FUNCTION
1	57 (BK)	Ground
2	—	NOT USED
3	120 (PK/LG)	Left Switch (Unlock)
4	57 (BK)	Ground
5	19 (LB/R)	Switch Illumination
6	119 (PK/Y)	Left Switch (Lock)
7	—	NOT USED

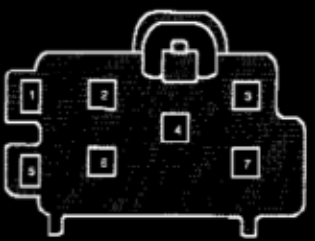
Left Power Door Lock Switch (Without Remote Anti-Theft Personality Modul

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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W/O REMOTE ANTI–THEFT PERSONALITY (RAP) MODULE



C508 (BLACK)

LEFT POWER DOOR LOCK SWITCH

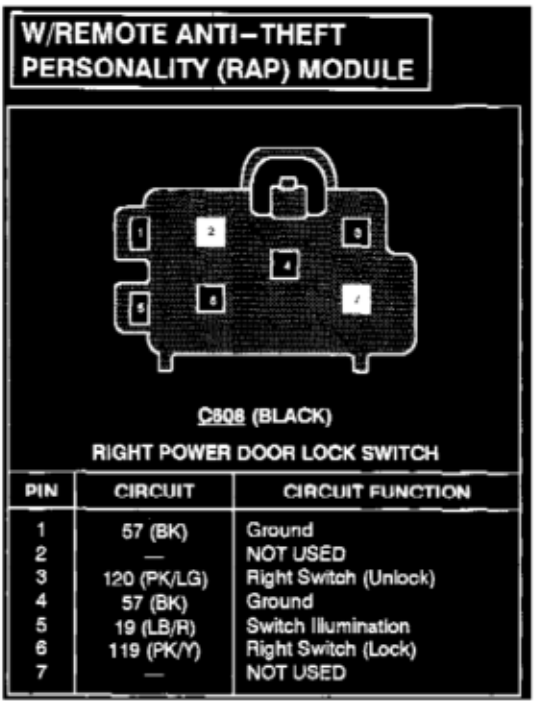
PIN	CIRCUIT	CIRCUIT FUNCTION
1	57 (BK)	Ground
2	57 (BK)	Ground
3	120 (PK/LG)	Left Switch to Motor Feed/Return (Unlock)
4	517 (BK/W)	Switch Power
5	19 (LB/R)	Switch Illumination
6	119 (PK/Y)	Left Switch to Motor Feed/Return (Lock)
7	57 (BK)	Ground

Right Power Door Lock Switch (Without Remote Anti-Theft Personality Modu

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https://www.auto-manual.com/

Power Door Lock Switch: DiagramsRight Door



PIN	CIRCUIT	CIRCUIT FUNCTION
1	57 (BK)	Ground
2	—	NOT USED
3	120 (PK/LG)	Right Switch (Unlock)
4	57 (BK)	Ground
5	19 (LB/R)	Switch Illumination
6	119 (PK/Y)	Right Switch (Lock)
7	—	NOT USED

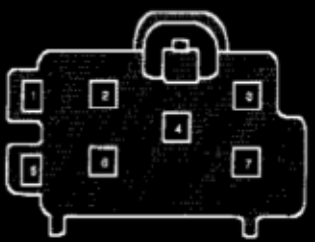
Right Power Door Lock Switch (With Out Remote Anti-Theft Personality Mod

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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W/O REMOTE ANTI–THEFT PERSONALITY (RAP) MODULE



C808 (BLACK)

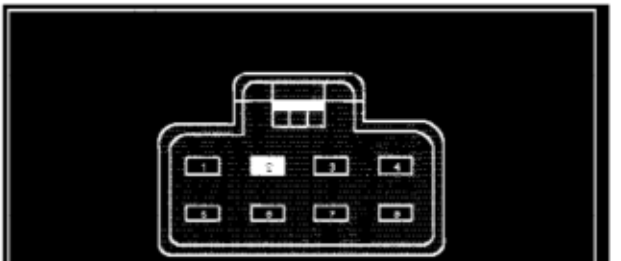
RIGHT POWER DOOR LOCK SWITCH

PIN	CIRCUIT	CIRCUIT FUNCTION
1	57 (BK)	Ground
2	120 (PK/LG)	Right Switch From Left Switch (Unlock)
3	118 (PK/O)	Lock Motor Feed/Return (Unlock)
4	517 (BK/W)	Switch Power
5	19 (LB/R)	Switch Illumination
6	117 (PK/BK)	Lock Motor Feed/Return (Lock)
7	119 (PK/Y)	Right Switch From Left Switch (Lock)

Right Power Door Lock Switch (Without Remote Anti-Theft Personality Modu

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C511 (NEUTRAL)
POWER MIRROR SWITCH

PIN	CIRCUIT	CIRCUIT FUNCTION
1	956 (O/LG)	Power (Hot At All Times)
2	—	NOT USED
3	543 (DG)	Right L/R Motor Control
4	540 (R)	Left L/R Motor Control
5	57 (BK)	Ground
6	542 (Y)	Left and Right Motor Control
7	541 (DB)	Left UP/DN Motor Control
8	544 (P)	Right UP/DN Motor Control

Power Mirror Switch

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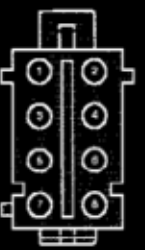
https://www.auto-manual.com/

Power Seat Switch: Specifications

Seat Regulator Control switch Screws .....

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https://www.auto-manual.com/



C311 (BLACK)
POWER SEAT CONTROL SWITCH

PIN	CIRCUIT	CIRCUIT FUNCTION
1	990 (Y/LB)	Switch to Front Motor Feed/Return (DOWN)
2	983 (R/LG)	Switch to Rear Motor Feed/Return (UP)
3	982 (Y/LG)	Switch to Rear Motor Feed/Return (DOWN)
4	566 (DG)	Power (Hot at All Times)
5	979 (R/LB)	Switch to Front Motor Feed/Return (UP)
6	981 (R/W)	Switch to Motor Feed/Return (FWD)
7	980 (Y/W)	Switch to Motor Feed/Return (RWD)
8	57 (BK)	Ground

Power Seat Control Switch (C311)

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Power Seat Switch: Testing and Inspection

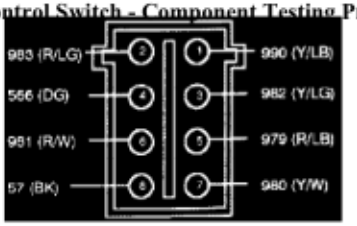
TO TEST	Connect Self-Powered Test Lamp or Ohmmeter to Terminals	Move Control to These Positions	A Good Switch Will Indicate
Power And Ground Checks Before Any Other Test	57 (BK) and all others except 566 (DG)	All 4 Switches at Rest	Closed Circuit
	57 (BK) and 566 (DG)	All 4 Switches at Rest	Open Circuit
Front Tilt Circuit	566 (DG) and 990 (Y/LB)	Up	Closed Circuit
	566 (DG) and 979 (R/LB)	Down	Closed Circuit
Rear Tilt Circuit	566 (DG) and 982 (Y/LG)	Up	Closed Circuit
	566 (DG) and 983 (R/LG)	Down	Closed Circuit

Left Front Seat Control Switch - Component Testing Procedure (Part 1 C

TO TEST	Connect Self-Powered Test Lamp or Ohmmeter to Terminals	Move Control to These Positions	A Good Switch Will Indicate
Entire Seat Circuit	566 (DG) and 980 Y/W)	Rearward	Closed Circuit
	566 (DG) and 981 (R/W)	Forward	Closed Circuit
	566 (DG) and 983 (R/LG)	Down	Closed Circuit
	566 (DG) and 979 (R/LB)	Down	Closed Circuit
	566 (DG) and 982 (Y/LG)	Up	Closed Circuit
	566 (DG) and 990 (Y/LB)	Up	Closed Circuit

https://www.auto-manual.com/

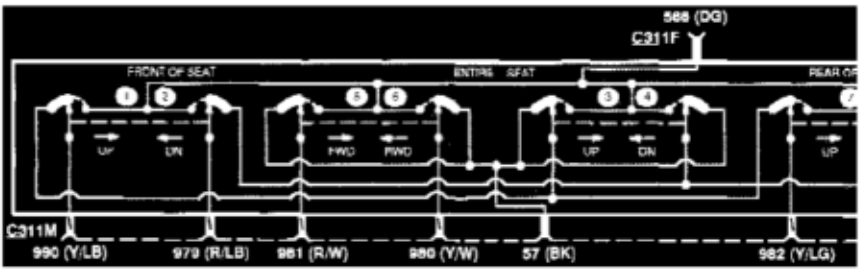
Left Front Seat Control Switch - Component Testing Procedure (Part 2 C



Left Front Seat Control Switch - Terminal Locations

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/



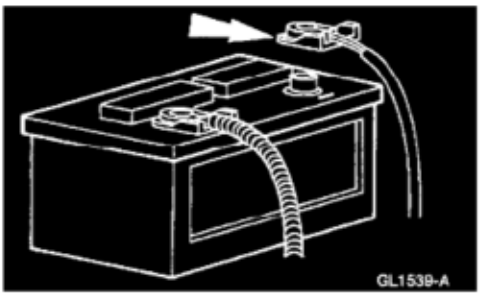
Left Front Seat Control Switch - Schematic

https://www.auto-manual.com/

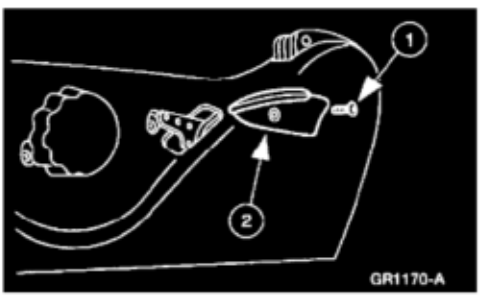
https://www.auto-manual.com/

Power Seat Switch: Service and Repair

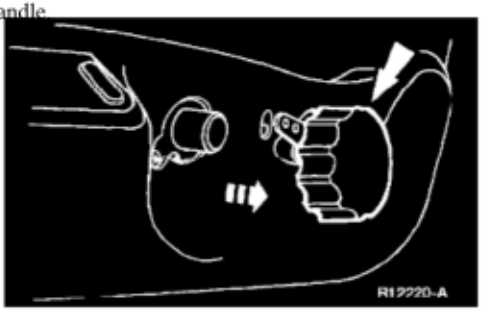
REMOVAL



1. Disconnect the battery ground cable.



2. Remove the front seat back adjust handle.
   1 Remove the screw.
   2 Remove the front seat back adjust handle.



3. Remove the front seat lumbar support handle.



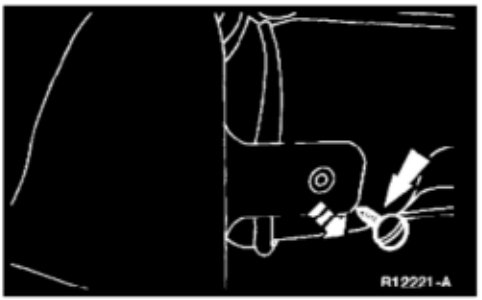
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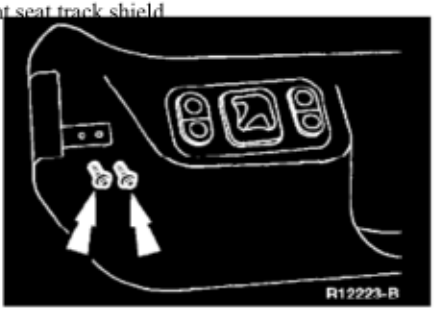
4. Remove the front seat track shield screws.

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

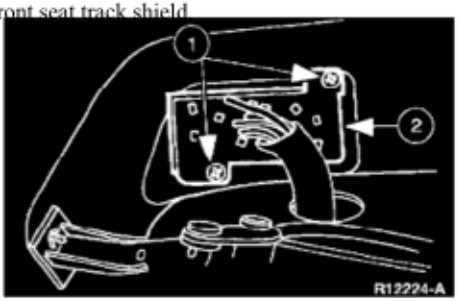
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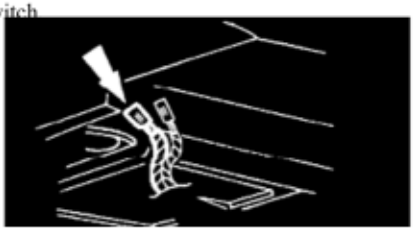
5. Remove the pushpin on the back of the front seat track shield.



6. Remove the screws on the bottom of the front seat track shield.



7. Disconnect the seat regulator control switch from the front seat track shield.
   1 Remove the screws.
   2 Disconnect the seat regulator control switch.



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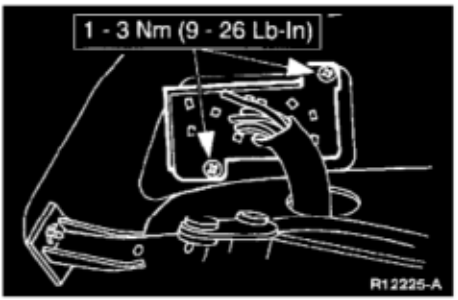


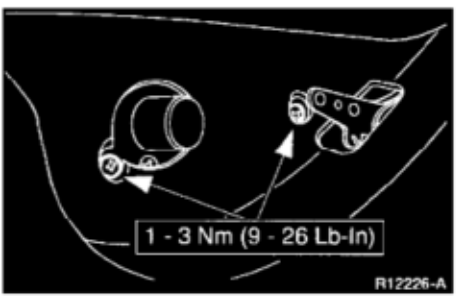
8. Disconnect the seat regulator control switch electrical connector and remove the seat regulator control swi

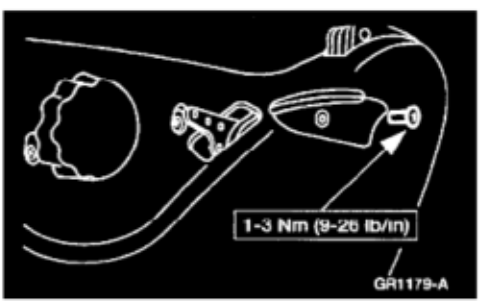
INSTALLATION

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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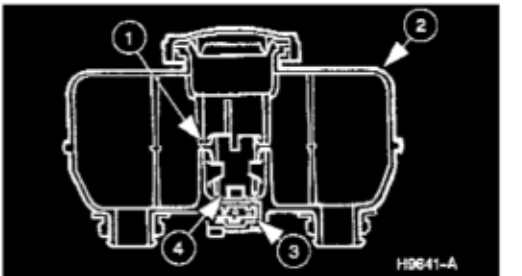


1. To install, reverse the removal procedure.

NOTE:
16 km (10 mi) When the battery is disconnected and reconnected, some abnormal drive symptoms may c

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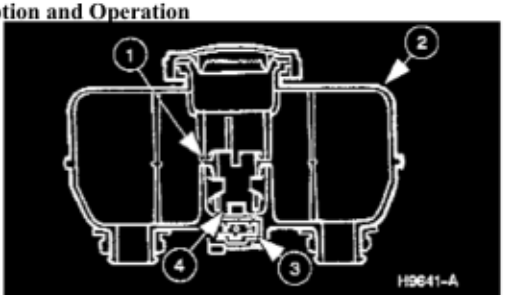


Item	Description
1	Float
2	Brake Master Cylinder Reservoir
3	Brake Fluid Level Warning Switch
4	Magnet

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https://www.auto-manual.com/

Brake Fluid Level Sensor/Switch: Description and Operation



Item	Description
1	Float
2	Brake Master Cylinder Reservoir
3	Brake Fluid Level Warning Switch
4	Magnet

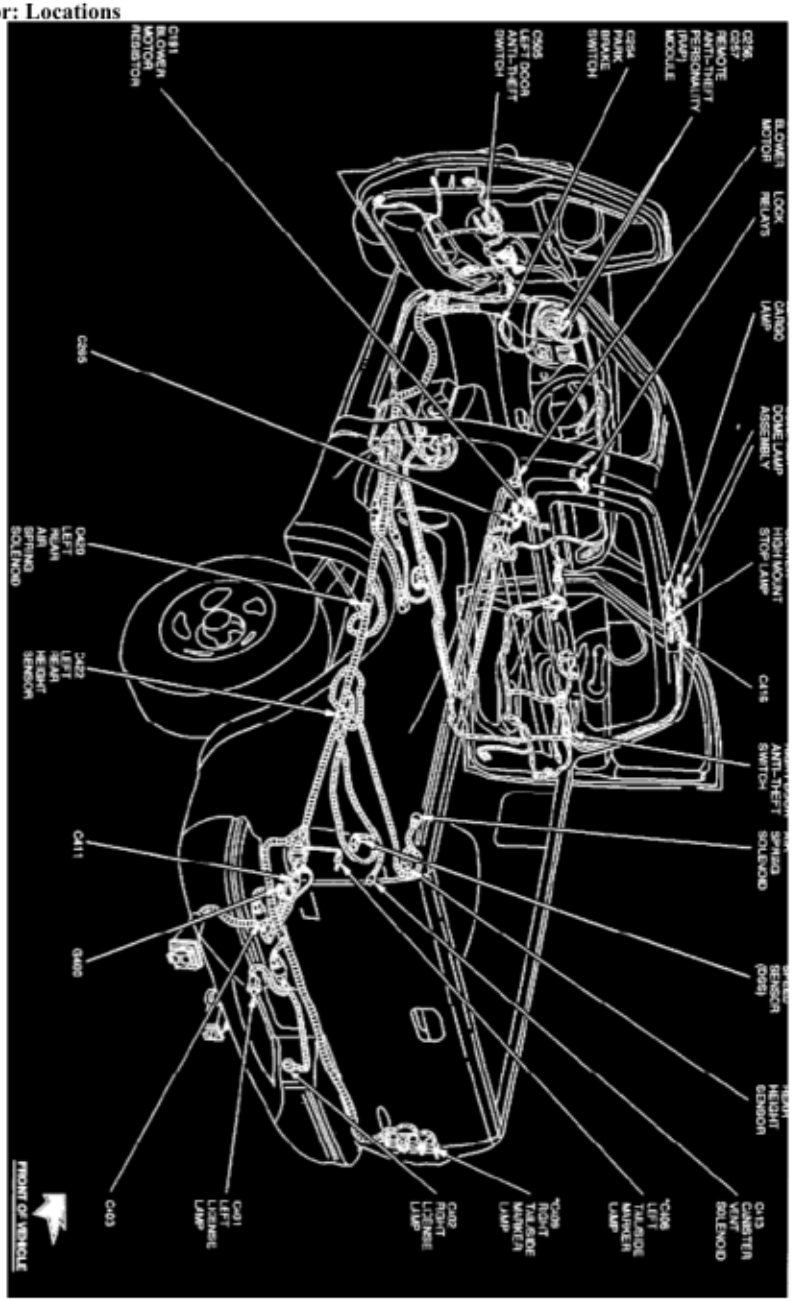
The brake master cylinder fluid level warning switch is an integral part of the brake master cylinder reservoir It

When the brake fluid in the brake master cylinder reservoir gets to a predetermined level, the floating magnet a

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Differential Speed Sensor: Locations



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Body View

The Differential Speed Sensor is located on rear axle.

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Parking Brake Release Switch: Specifications

TORQUE SPECIFICATIONS

Parking Brake Release Handle Screws .....

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https://www.auto-manual.com/

Wheel Speed Sensor: Customer InterestABS - Lamp ON/False ABS Cycling/High Brake Pedal Effort

Article No.99-13-13

06/28/99

^

ANTI-LOCK BRAKE SYSTEM (ABS) - ABS LAMP ILLUMINATED - 4X2 ONLY

^

ANTI-LOCK BRAKE SYSTEM (ABS) - FALSE ABS CYCLING AT LOW SPEEDS - 4X2 ONLY

^

ANTI-LOCK BRAKE SYSTEM (ABS) - INCREASED BRAKE PEDAL EFFORT AT LOW SPEEDS - 4

^

LAMP - ANTI-LOCK BRAKE LAMP ILLUMINATION - INCREASED BRAKE PEDAL EFFORT AND

FORD:1997-1999 EXPEDITION, F-150, F-250 LD

LINCOLN:1998-1999 NAVIGATOR

This TSB article is being republished in its entirety to state coverage for 4X2 vehicles only and revise Figure 1.

ISSUEIncreased brake pedal effort and/or false Anti-lock Braking System (ABS) cycling at low speeds, or ABS

ACTIONBe sure the front wheel speed sensor is properly installed and the wires are properly routed. Refer to t

SERVICE PROCEDURE

1 Retrieve and record any ABS diagnostic trouble codes and follow procedures detailed in the appropriate Se

https://www.auto-manual.com/

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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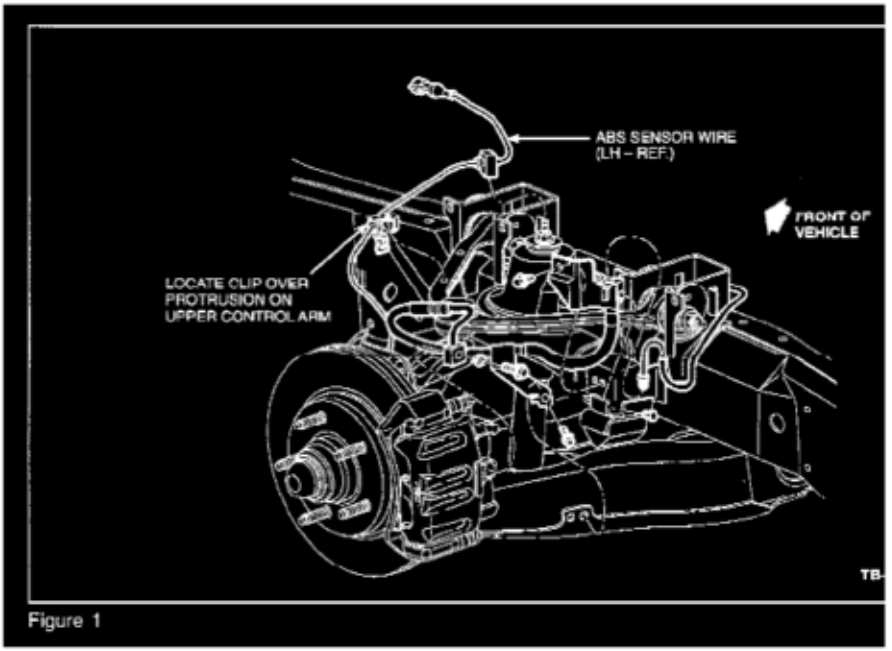


Figure 1

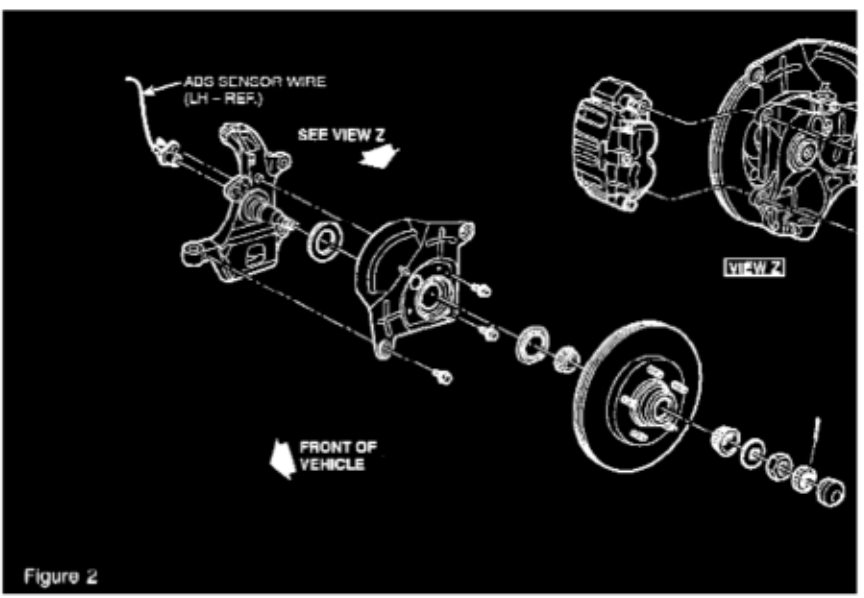


Figure 2

2.

https://www.auto-manual.com/

Inspect both front sensor wires for tension due to improper routing (Figures 1 and 2). Make sure that the

3. Carefully inspect the sensor wire at the sensor head. Look for any cracking or distress. Replace the sensor

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

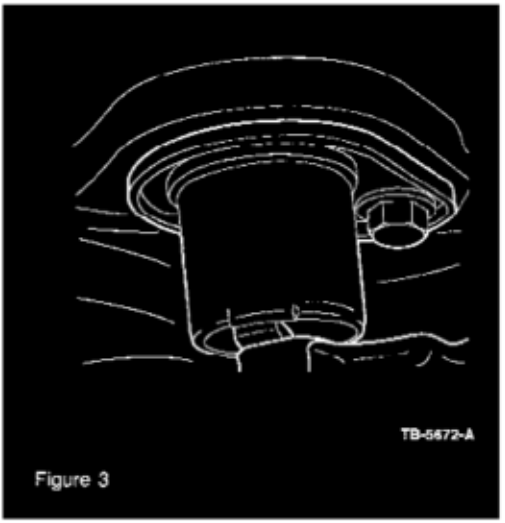


Figure 3

4.

Inspect both front sensor bodies for improper seating to the spindle housing. Inspect the tone ring for den

5.

If sensor replacement is required, all surfaces including the hole where the sensor body is inserted must b

PART NUMBER	PART NAME
XL3Z-2C204-BB	Front wheel Speed Sensor (RH)
XL3Z-2C205-AB	Front wheel Speed Sensor (LH)

OTHER APPLICABLE ARTICLES: NONE

SUPERSEDES: 99-4-11

WARRANTY STATUS: Eligible Under The Provisions Of Bumper To Bumper Warranty Coverage

OPERATION	DESCRIPTION	TIME
991313AB	Extra Time To Replace One (1) Front WheelSensor	0.2 Hr.
991313AC	Extra Time To Replace Two (2) Front WheelSensors	0.3 Hr.
991313A	Test ABS System And Inspect Both Front Sensors	0.7 Hr.

https://www.auto-manual.com/

DEALER CODING	CONDITION CODE
BASIC PART NO.	
2C204	07

OASIS CODES: 206000, 301000, 702000

https://www.auto-manual.com/

Wheel Speed Sensor: All Technical Service BulletinsABS - Lamp ON/False ABS Cycling/High Brake Pec

Article No.99-13-13

06/28/99

^

ANTI-LOCK BRAKE SYSTEM (ABS) - ABS LAMP ILLUMINATED - 4X2 ONLY

^

ANTI-LOCK BRAKE SYSTEM (ABS) - FALSE ABS CYCLING AT LOW SPEEDS - 4X2 ONLY

^

ANTI-LOCK BRAKE SYSTEM (ABS) - INCREASED BRAKE PEDAL EFFORT AT LOW SPEEDS - 4

^

LAMP - ANTI-LOCK BRAKE LAMP ILLUMINATION - INCREASED BRAKE PEDAL EFFORT AND

FORD:1997-1999 EXPEDITION, F-150, F-250 LD

LINCOLN:1998-1999 NAVIGATOR

This TSB article is being republished in its entirety to state coverage for 4X2 vehicles only and revise Figure 1.

ISSUEIncreased brake pedal effort and/or false Anti-lock Braking System (ABS) cycling at low speeds, or AB

ACTIONBe sure the front wheel speed sensor is properly installed and the wires are properly routed. Refer to t

SERVICE PROCEDURE

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https://www.auto-manual.com/

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

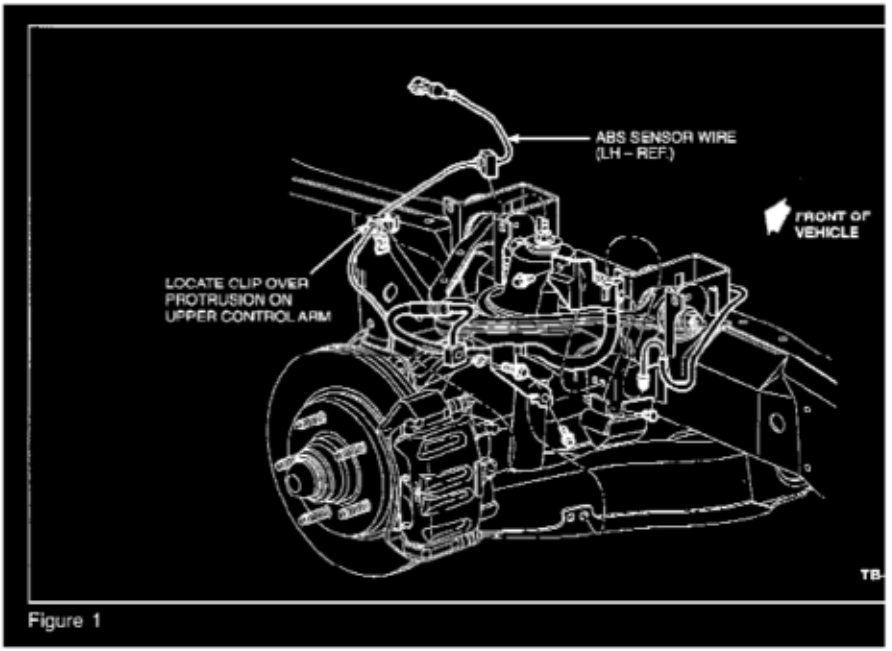


Figure 1

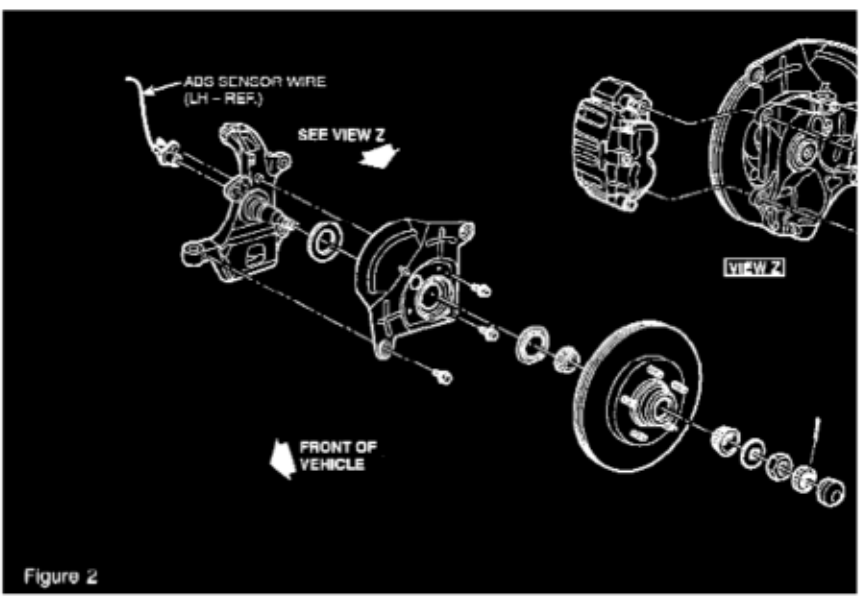


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https://www.auto-manual.com/

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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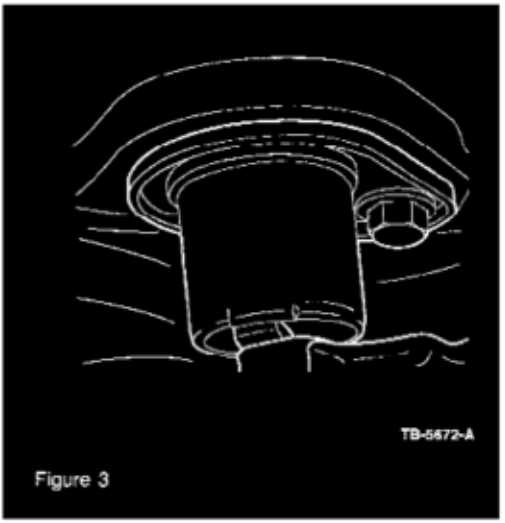


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Inspect both front sensor bodies for improper seating to the spindle housing. Inspect the tone ring for den

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If sensor replacement is required, all surfaces including the hole where the sensor body is inserted must b

PART NUMBER	PART NAME
XL3Z-2C204-BB	Front wheel Speed Sensor (RH)
XL3Z-2C205-AB	Front wheel Speed Sensor (LH)

OTHER APPLICABLE ARTICLES: NONE

SUPERSEDES: 99-4-11

WARRANTY STATUS: Eligible Under The Provisions Of Bumper To Bumper Warranty Coverage

OPERATION	DESCRIPTION	TIME
991313AB	Extra Time To Replace One (1) Front WheelSensor	0.2 Hr.
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https://www.auto-manual.com/

DEALER CODING	CONDITION CODE
BASIC PART NO.	
2C204	07

OASIS CODES: 206000, 301000, 702000

https://www.auto-manual.com/

Heat Shield: All Technical Service BulletinsExhaust System - Buzzing/Rattling Noise

Article No.98-20-10

10/12/98

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EXHAUST SYSTEM - LOOSE CATALYST ORMUFFLER HEAT SHIELDS

^

NOISE - "BUZZING" OR "RATTLING" - LOOSE CATALYST OR MUFFLER HEAT SHIELDS

FORD:1993 FESTIVA1993-94 TEMPO1993-97 PROBE, THUNDERBIRD1993-99 CROWN VICTORIA, ES

LINCOLN-MERCURY:1993-94 CAPRI, TOPAZ1993-99 CONTINENTAL, COUGAR, GRAND MARQUIS

LIGHT TRUCK:1993-96 BRONCO1993-97 F SUPER DUTY, F-35O1993-99 AEROSTAR, ECONOLINE, E
This TSB article is being republished in its entirety to include additional vehicles and to include 1999 model ye

ACTIONInstall worm clamps to secure loose heat shield attachments. Refer to the following Service Procedure

SERVICE PROCEDURE

1.

Inspect for loose shields. If shield(s) is missing, this TSB does not apply. Refer to the appropriate Service

NOTE

UNDER NO CIRCUMSTANCES SHOULD A HEAT SHIELD BE REMOVED WITHOUT REPLACEM

https://www.auto-manual.com/

ISSUEA "buzzing" or "rattling" noise from the exhaust system may be caused by a loose heat shield attachmen

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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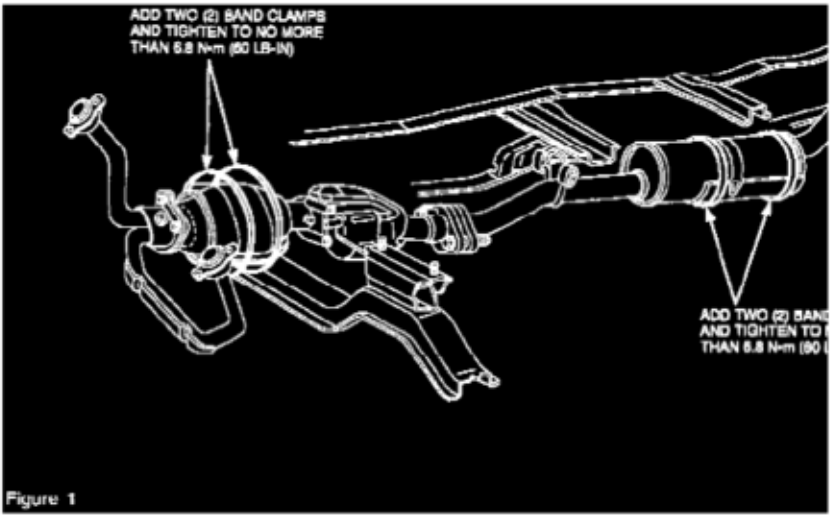


Figure 1

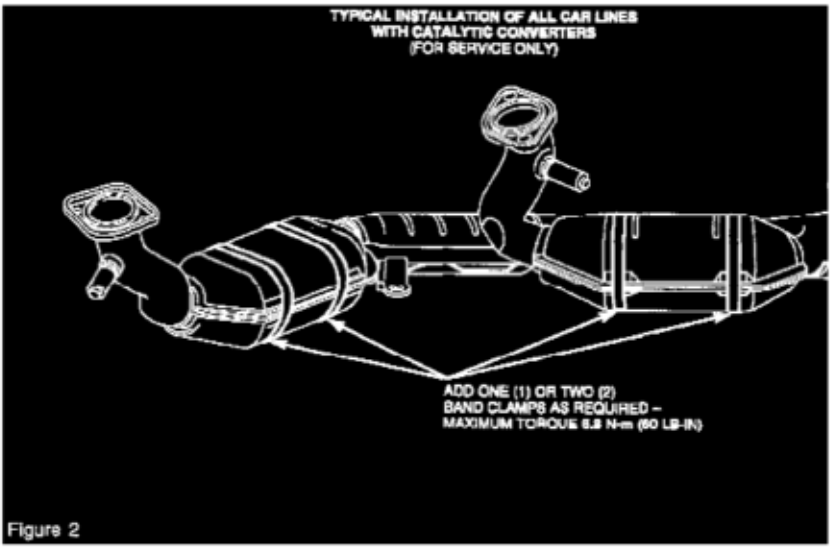


Figure 2

2. Install worm clamps to the catalytic converter, catalytic pipes, muffler pipes or muffler as shown in Figur
3. Align the clamps to secure the heat shield to the catalytic converter, catalytic pipes, muffler pipes or mufl
4. Tighten the clamps to 6.8 N.m (60 lb-in).
5. Trim the excess "ear" of the clamp to approximately 2.54 cm (1").

https://www.auto-manual.com/

PART NUMBER	PART NAME
FOTZ-5A231-A	Worm clamp (4-1/2" To 9-1/2")
W705949-S300	Worm clamp (3/4" To 4")

OTHER APPLICABLE ARTICLES: NONE

SUPERSEDES: 98-6-4

WARRANTY STATUS: Eligible Under Basic Warranty Coverage For 1991 And Prior Models Bumper To Bu

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

OPERATION	DESCRIPTION	TIME
982010A	Install One (1), Two (2), Or Four (4) Worm Clamps	0.3 Hr.

DEALER CODING

BASIC PART NO.	CONDITION CODE
5E258	33

OASIS CODES: 403000, 702000, 702100, 702200, 703000

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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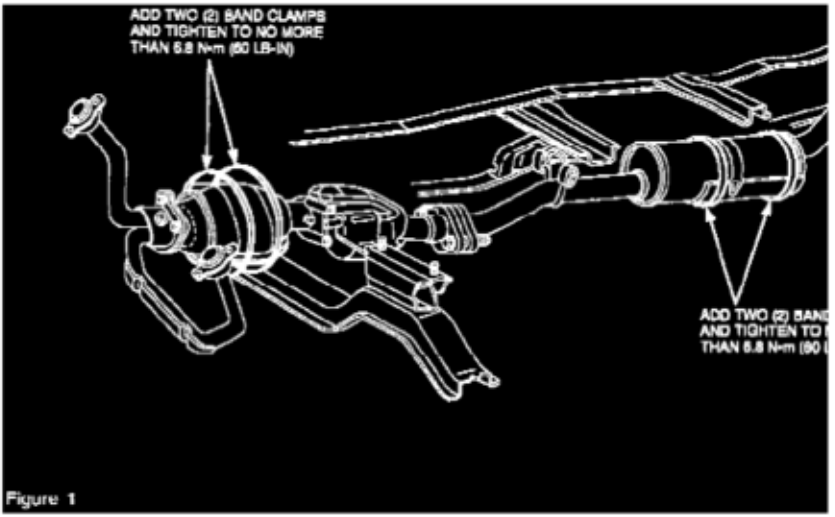


Figure 1

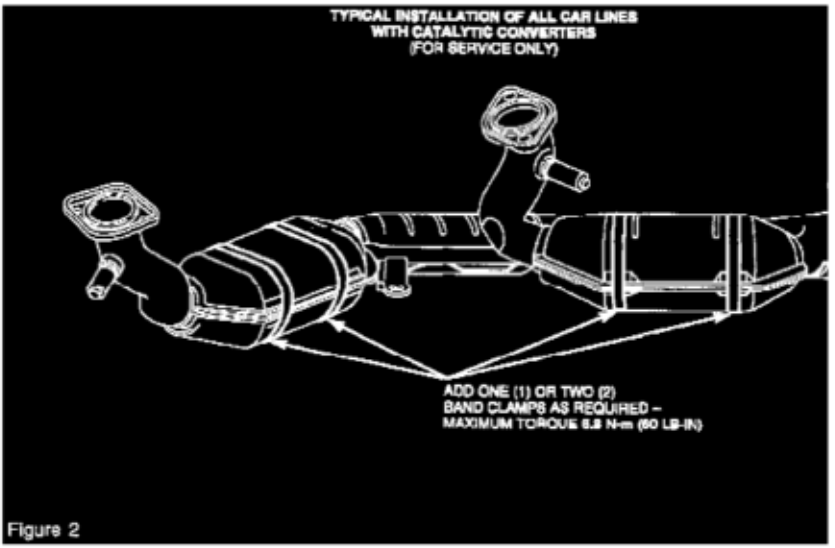


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PART NUMBER	PART NAME
FOTZ-5A231-A	Worm clamp (4-1/2" To 9-1/2")
W705949-S300	Worm clamp (3/4" To 4")

OTHER APPLICABLE ARTICLES: NONE

SUPERSEDES: 98-6-4

WARRANTY STATUS: Eligible Under Basic Warranty Coverage For 1991 And Prior Models Bumper To Bu

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

OPERATION	DESCRIPTION	TIME
982010A	Install One (1), Two (2), Or Four (4) Worm Clamps	0.3 Hr.

DEALER CODING

BASIC PART NO.	CONDITION CODE
5E258	33

OASIS CODES: 403000, 702000, 702100, 702200, 703000

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https://www.auto-manual.com/

Wheel Speed Sensor: SpecificationsRear Anti-Lock Brake Sensor

Rear Anti-Lock Brake Sensor	
Indicator Clearance	0.005-0.045 in

Rear Anti-Lock Brake Sensor Bol24-29 ft.lb

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https://www.auto-manual.com/

Wheel Speed Sensor: Specifications

Front Anti-Lock Brake Sensor Bolt	63-80 in.lb
Rear Anti-Lock Brake Sensor Bolt	25-29 ft.lb

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Wheel Speed Sensor: Service and RepairToothed Ring

Front

REMOVAL

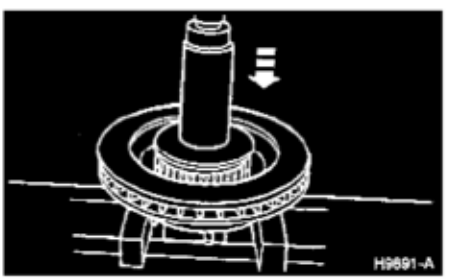
1. Remove the front disc brake rotor.



2. Use 2-3 Jaw Puller to remove the front brake anti-lock sensor indicator.

CAUTION: Discard the front brake anti-lock sensor indicator.

INSTALLATION



1. Install the new front brake anti-lock sensor indicator.
   1 Position the front brake anti-lock sensor indicator.
   2 Use an appropriate size cylinder and press to install the front brake anti-lock sensor indicator.

CAUTION: The front brake anti-lock sensor indicator must be pressed on straight.

2. Install the front disc brake rotor.

Rear

NOTE:

The rear anti-lock brake sensor indicator is attached to the differential case. It is necessary to remove the ring g

Rear Antilock Brake System (RABS)

NOTE:

The rear anti-lock brake sensor indicator is attached to the differential case. It is necessary to remove the ring g

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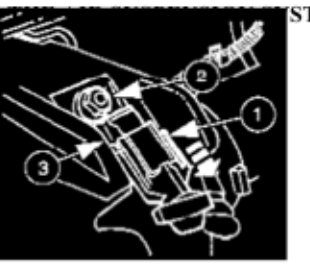
Wheel Speed Sensor: Service and RepairWheel Speed Sensor

Rear Antilock Brake System

REMOVAL

1. Raise and support the vehicle.

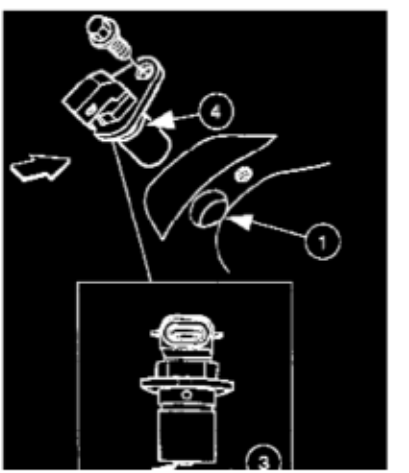
WARNING: THE ELECTRICAL POWER TO [illegible] STEM MUST BE SH



2. Remove the rear anti-lock brake sensor.
   1 Disconnect the rear anti-lock brake sensor electrical connector.
   2 Remove the bolt.
   3 Remove the rear anti-lock brake sensor.

CAUTION:
Before removing the rear anti-lock brake sensor, clean any dirt around the sensor to prevent the dirt from

INSTALLATION



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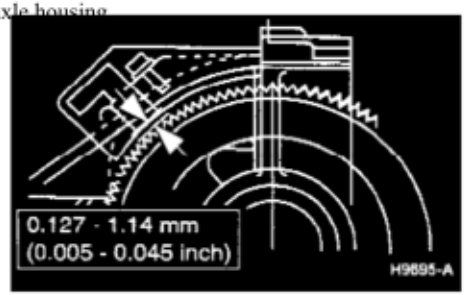
1. Clean and inspect the rear anti-lock brake sensor.
   1 Clean the axle mounting surface.
   2 Inspect and clean the magnetized rear anti-lock brake sensor pole piece.
   3 Inspect the rear anti-lock brake sensor for damage; replace if necessary.
   4 Lightly lubricate the rear anti-lock brake sensor O-ring with motor oil.

> Sensors and Switches > Sensors and Switches - Brakes and Traction Control > Wheel Speed Sensor > Component Information > Service and Repair > Toothed Ring > Page 429

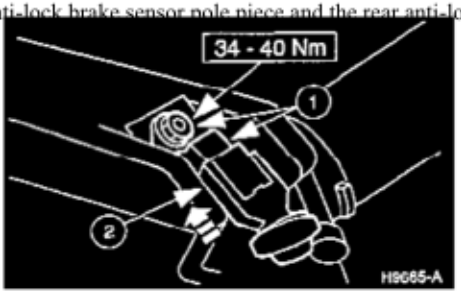
F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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CAUTION: Do not get dirt in the rear axle housing.



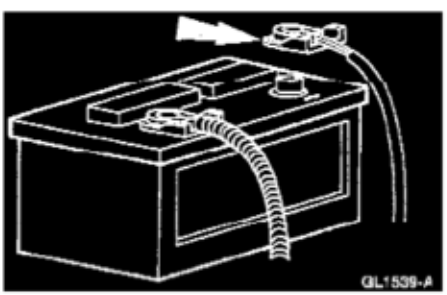
2. Measure the clearance between the rear anti-lock brake sensor pole piece and the rear anti-lock brake sens



3. Install the rear anti-lock brake sensor.
   1 Position the rear anti-lock brake sensor and install the bolt.
   2 Connect the electrical connector.

Front

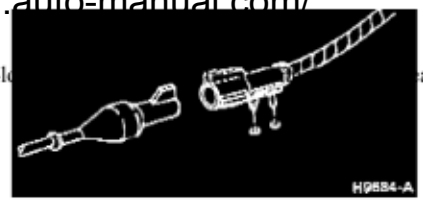
REMOVAL



1. Disconnect the battery ground cable.

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CAUTION:
Do not apply force to the plastic rear anti-l



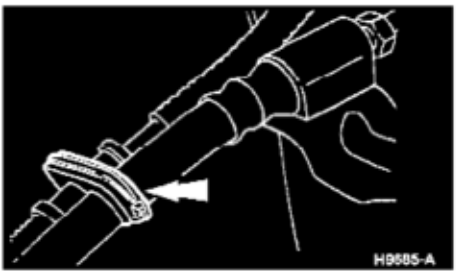
ar anti-lock brake

2. Disconnect the front brake anti-lock sensor electrical connector.

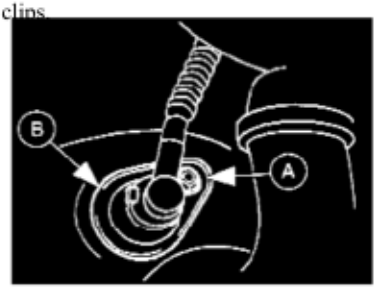
> Sensors and Switches > Sensors and Switches - Brakes and Traction Control > Wheel Speed Sensor > Component Information > Service and Repair > Toothed Ring > Page 430

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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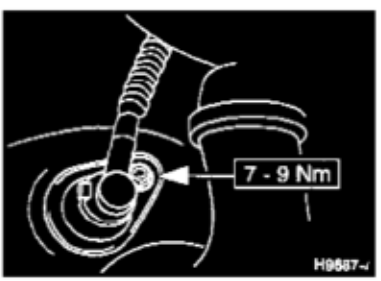


3. Separate the sensor cable from the brake hose clips.



4. Remove the (A) front brake anti-lock sensor bolt and the (B) front brake anti-lock sensor.

INSTALLATION



1. To install, reverse the removal procedure.

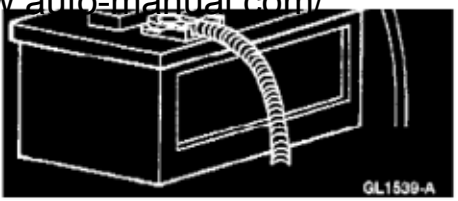
NOTE:
When the battery is disconnected and reconnected, some abnormal drive symptoms may occur while the

Rear

REMOVAL



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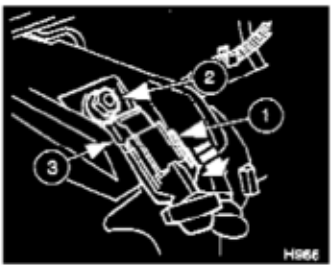


1. Disconnect the battery ground cable.

> Sensors and Switches > Sensors and Switches - Brakes and Traction Control > Wheel Speed Sensor > Component Information > Service and Repair > Toothed Ring > Page 431

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

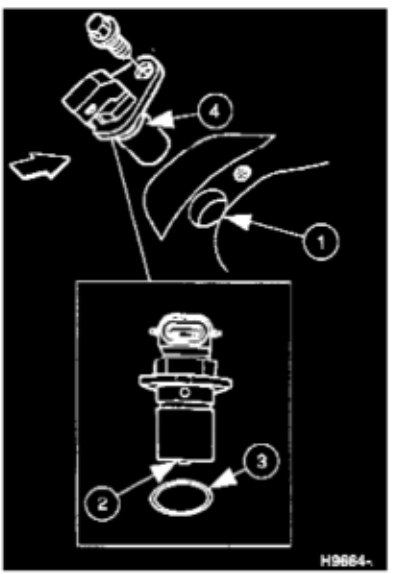
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2. Remove the rear brake anti-lock sensor.
   1 Disconnect the electrical connector.
   2 Remove the bolt.
   3 Remove the rear brake anti-lock sensor.

CAUTION:
Clean off dirt and debris that may have collected around the rear brake anti-lock sensor before removal t

INSTALLATION



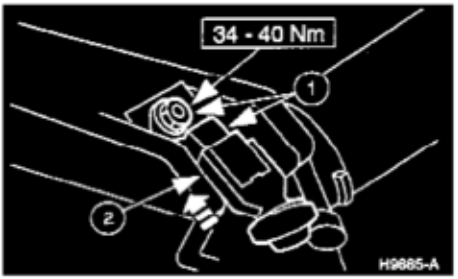
1. Clean and inspect the rear brake anti-lock sensor.
   1 Clean the axle mounting surface.
   2 Inspect and clean the magnetized rear brake anti-lock sensor pole piece.
   3 Inspect the rear anti-lock brake control o-ring for damage. Replace if necessary.
   4
   Lightly lubricate the rear anti-lock brake control o-ring with Motorcraft Synthetic Rear Axle Lubrican

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CAUTION: Use care not to get dirt in the rear axle housing.

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

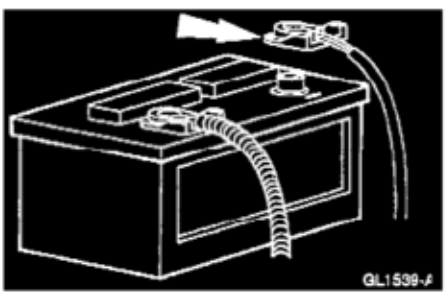
https://www.auto-manual.com/



2. Install the rear brake anti-lock sensor.
   1 Position the rear brake anti-lock sensor and install the rear brake anti-lock sensor bolt.

   NOTE: Do not apply force to the plastic rear brake anti-lock sensor connector.

   2 Connect the electrical connector.



3. Connect the battery ground cable.

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NOTE:

When the battery is disconnected and reconnected, some abnormal drive symptoms may occur while the

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 ST1184-A	2-3 Jaw Puller or equivalent 205-D027 (D80L-1013-A)
 ST1690-A	Step Plate Adapter Set or equivalent 205-DS011 (D80L-630-A)

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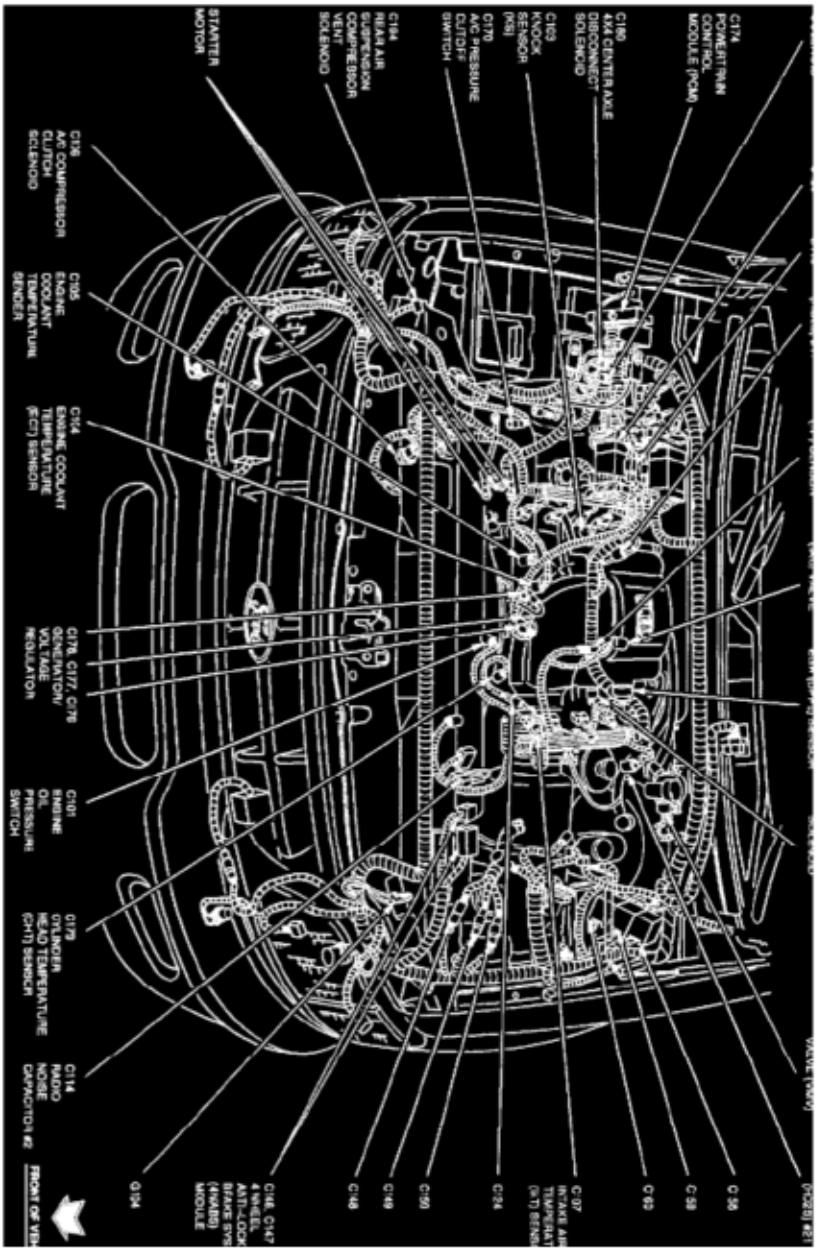
Coolant Temperature Sensor/Switch (For Computer): Specifications

Engine Coolant Temperature Sensor .....

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Coolant Temperature Sensor/Switch (For Computer): LocationsCoolant Temperature Sensor

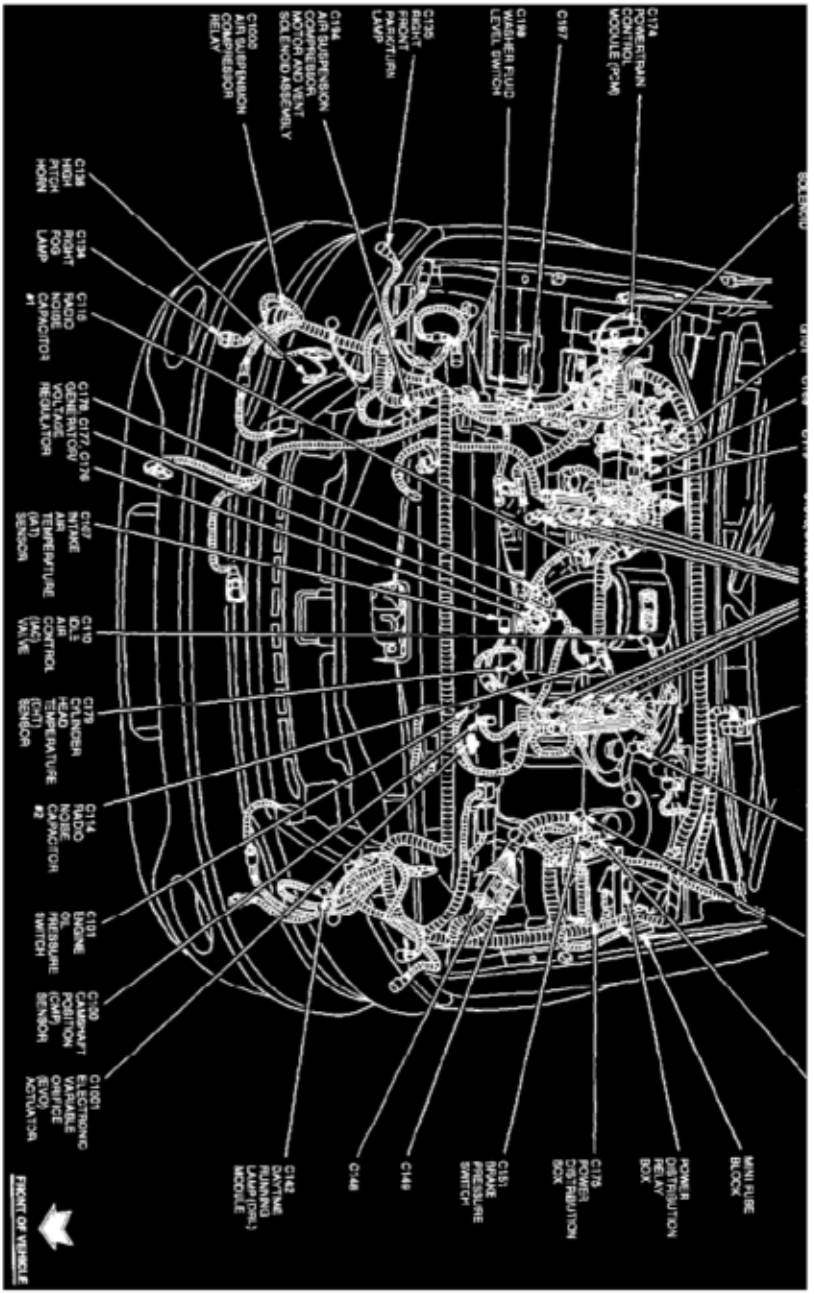


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The Engine Coolant Temperature (ECT) Sensor is located in front of the engine.

NOTE:
In some applications of the 4.6L engine, the Cylinder Head Temperature (CHT) sensor provides the signal u

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Coolant Temperature Sensor/Switch (For Computer): Description and Operation

The engine coolant temperature (ECT) sensor:

- sends the powertrain control module a signal indicating engine temperature.
- resistance decreases as coolant temperature increases.

NOTE:

In some applications of the 4.6L engine, the Cylinder Head Temperature (CHT) sensor provides the signal u

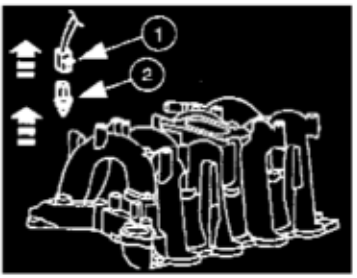
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Coolant Temperature Sensor/Switch (For Computer): Service and Repair

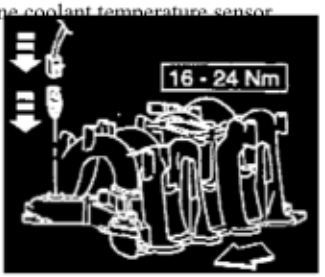
REMOVAL

1. Disconnect the battery ground cable.



ECT2. Remove the Engine Coolant Temperature sensor (sensor).

1. Disconnect the connector.2. Remove the engine coolant temperature sensor.



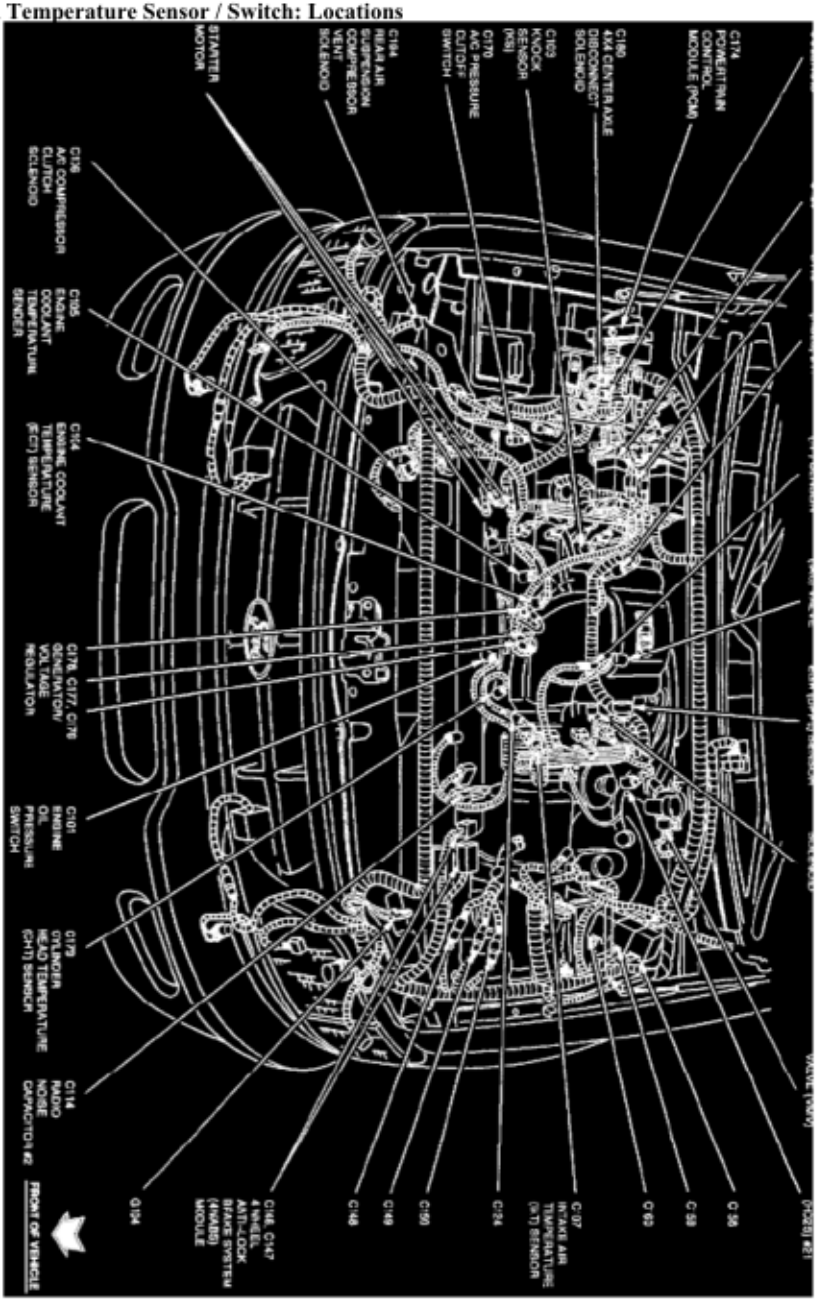
INSTALLATION

1. Follow the removal procedure in reverse order.

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Radiator Cooling Fan Temperature Sensor / Switch: Locations



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The Engine Coolant Temperature (ECT) Sensor is located in front of the engine.

NOTE:
In some applications of the 4.6L engine, the Cylinder Head Temperature (CHT) sensor provides the signal u

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Radiator Cooling Fan Temperature Sensor / Switch: Description and Operation

NOTE:

In some applications of the 4.6L engine, the Cylinder Head Temperature (CHT) sensor provides the signal u

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Engine Temperature Sensor: Specifications

Cylinder Head Temperature Sensor .....

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https://www.auto-manual.com/

Temperature Sensor (Gauge): Specifications

TORQUE SPECIFICATIONS

Water Temperature Indicator Sender Unit .....

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https://www.auto-manual.com/

If you are still having difficulty getting your vehicle repaired in a reasonable time or without charge, you may write the Administ National Highway Traffic Safety Administration, 1200 New Jers SE., Washington, D. C. 20590 or call the toll free Vehicle Safe 1-888-327-4236 (TTY: 1-800-424-9153) or go to http://www.sa

Thank you for your attention to this important matter.

Ford Customer Service Division

April 10, 2008

TO: All U.S. Ford and Lincoln Mercury Dealers

SUBJECT: **Safety Recall 05S28 - Supplement #15:** 1992-2004 Multiple Vehicle Lines - Speed Control System Modification

REF: Safety Recall Bulletin 05S28 Supplement #14 dated January 28, 2008

New ***REASONS FOR THIS SUPPLEMENT***

- *Inform dealers that service parts are now available to repair all affected vehicles.*
- *Inform dealers that a Universal Fused Jumper Harness (UFJH) is available to service all affected vehicles (with the exception of 1993 Mark VIII). The UFJH has universal polarity and electrical connectors that make it compatible with all affected vehicle wiring and SCDS connector configurations. This universal service part will replace/supersede all prior level Fused Jumper Harnesses, reduce complexity, and simplify the repair options.*
- *Provide dealers with revised service procedures, part applications and all new Labor Operations.*
- *Notify dealers that performing interim Speed Control System disconnect repairs are no longer authorized.*
- *Notify dealers that the use of Speed Control Deactivation Switches to service vehicles containing non-leaking Speed Control Deactivation Switches, is no longer authorized (with the exception of 1993 Mark VIII). All 1993 Mark VIII vehicles will be serviced with a new Speed Control Deactivation Switch, regardless of whether or not the SCDS is leaking.*
- *Inform dealers that initial shipments of the UFJH will be seed-stocked, and will begin to arrive at dealers in large quantities beginning on April 11, 2008.*
- *Inform dealers that seed-stock quantities for Speed Control Deactivation Switches will continue, and are based upon the car/truck break-down of the VINs assigned to their dealerships.*
- *Provide usage instructions to dealers that have remaining inventory of Fuse Jumper Harnesses 4W1Z-14A411-BC or 8W7Z-14A411-BB.*

Affected Vehicles

Year	Model	Notes
1992-1998	Crown Victoria / Grand Marquis	• 1992 MY built after February 4, 1992 • 1998 MY w/o Traction Assist built from Job #1 through October 31, 1997
1992-1998	Town Car	• 1992 MY built after November 4, 1991 • 1998 MY w/o Traction Assist built from Job #1 through October 31, 1997

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Affected Vehicles (Continued)

1993-1998	Mark VIII	
1993-1995	Taurus SHO A/T	
1994	Capri	
1998-2002	Ranger	Non-FX4 vehicles built prior to May 2, 2002
1998-2001	Explorer/Mountaineer	
2001-2002	Explorer Sport & Sport Trac	
1995-2002	F-53 Motorhome	
1993-1996	Bronco	
2003-2004	F-150 Lightning	
1993-2003	F-Series Under 8500 GVW	Built prior to October 31, 2002
1993-2003	F-Series Over 8500 GVW (All plants except Cuautitlan)	Built prior to November 4, 2002
1994-2003	F-Series Over 8500 GVW (Cuautitlan built only)	Built prior to January 7, 2003
1997-2002	Expedition	
1998-2002	Navigator	
2002-2003	Blackwood	
1992-2003	E-150/250/350	Built prior to January 1, 2003
1996-2003	E-450	Built prior to January 1, 2003
2002-2003	E-550	
2000-2003	Excursion	Built prior to November 4, 2002

Note: Diesel engine equipped vehicles are not affected.

Affected vehicles are identified in OASIS. In addition, for a list of vehicles assigned to your dealership, visit https://web.fsavinlists.dealerconnection.com.

REASON FOR THIS RECALL

The underhood Speed Control Deactivation Switch (SCDS) may overheat, smoke, or burn, which could result in an underhood fire. The potential for a fire exists regardless of whether speed control is being used or the engine is running.

SERVICE ACTION

At no charge to the vehicle owner, dealers are to inspect the Speed Control Deactivation Switch (SCDS) harness connector for the presence of brake fluid contamination on all affected vehicles. After the inspection, dealers are to perform the repairs as specified in the "Vehicle Parts Application & Labor Operation Chart" in Attachment II.

New! ***OWNER NOTIFICATION MAILING SCHEDULE***

CAR VEHICLES: Part availability letters were mailed to all car vehicle owners in the February through March, 2006 timeframe. The letters informed owners that service parts to perform permanent repairs on their vehicles were available, and encouraged them to contact their dealer to have the permanent repair performed at their earliest convenience.

TRUCK VEHICLES: Part availability letters will be mailed to all truck vehicle owners beginning in mid-April, 2006. The letters will inform owners that service parts to perform permanent repairs on their vehicles are available, and encourage them to contact their dealer to have the permanent repair performed at their earliest convenience. The letters will be mailed in phases through the end of May, 2006.

PLEASE NOTE:

Federal law requires dealers to complete this recall service before a new vehicle is delivered to the buyer or lessee. Violation of this requirement by a dealer could result in a civil penalty of up to $6,000 per vehicle. Correct all vehicles in your new vehicle inventory before delivery.

ATTACHMENTS

New! *Attachment I: Administrative Information*
New! *Attachment II: Labor Allowances, Parts Ordering Information, & Obsolete FJH Usage*
New! *Attachment III: Technical Information*
New! *Attachment IV: FJH Parts Application Chart*
New! *Attachment V: Dealer Q & A*
New! *Owner Communications*

QUESTIONS?

Special Service Support Center (Dealer Only) Questions:

Sincerely,

Michael A. Berardi

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OASIS ACTIVATED?
Yes, OASIS was activated August, 2007.

NOTE: This recall pertains to certain vehicles that have a factory installed speed control only. Ford offers a Genuine Accessory Speed Control kit that utilizes a production steering wheel identical to the factory-installed system. The Ford accessory kit does not use a master cylinder mounted deactivation switch and, as a result, vehicles with this kit are not included in this recall. If a customer inquires about Safety Recall 05S28, and the VIN of their vehicle is not listed in OASIS under 05S28, the vehicle is not involved in the program.

FSA VIN LIST ACTIVATED?
Yes. FSA VIN list is available through https://web.fsavinlists.dealerconnection.com.

NOTE: Your FSA VIN list may contain owner names and addresses obtained from motor vehicle registration records. The use of such motor vehicle registration data for any purpose other than in connection with this recall is a violation of law in several states, provinces, and countries. Accordingly, you must limit the use of this listing to the follow-up necessary to complete this recall action.

STOCK VEHICLES
Correct all affected units in your vehicle inventory before delivery.

SOLD VEHICLES
- Owners of affected vehicles will be directed to dealers for repairs.
- Correct other affected vehicles identified in OASIS which are brought to your dealership.

TITLE BRANDED / SALVAGED VEHICLES
Affected title branded and salvaged vehicles are eligible for this Field Service Action.

RELATED DAMAGE
If a related damage condition exists that you believe to be caused by the covered condition, call the Special Service Support Center to request approval **prior** to the repair of any related damage. Requests for approval after completion of the repair will not be granted. Ford Motor Company reserves the right to deny coverage for related damage in cases where the vehicle owner has not had this recall performed within a reasonable period of time after receiving notification.

ADDITIONAL LABOR TIME
If a condition exists that requires additional labor to complete the repair, call the Special Service Support Center to request approval **prior** to performing any additional labor. Requests for approval after completion of the repair will not be granted.

OWNER REFUNDS
- Ford Motor Company is offering a refund for owner-paid repairs covered by this recall if the repair was performed prior to the date indicated in the reimbursement plan, which is posted with this bulletin. This plan is also available to owners through the Customer Relationship Center (CRC). The CRC will direct owners to seek reimbursement through authorized dealers or, at their option, directly through Ford Motor Company at P.O. Box 6251, Dearborn, MI 48121-6251.
- Dealers are also authorized to refund owner-paid emergency repairs that were performed away from an authorized servicing dealer after the end date specified in the reimbursement plan. Non-covered repairs, or those judged by Ford to be excessive, will not be reimbursed.
- Multiple refunds should be submitted on one repair line and the invoice details for each repair should be detailed in the comments section of the claim. If a repair is performed on the same visit, the repair and refunds should be submitted on separate repair lines.
- **This safety recall must still be performed, even if the customer has paid for a previous repair. Claiming a refund will not close out the VIN for this recall.**
- Refund Claiming Information (Submit on separate repair line.)
  - Program Code: 05S28
  - Misc. Expense: REFUND
  - Misc. Expense: ADMIN
  - Misc. Expense: 0.2 Hrs.

RENTAL VEHICLES
The use of rental vehicles is not authorized for this program.

New! *CLAIMS PREPARATION AND SUBMISSION*
- *It is no longer necessary for dealers to manually enter labor operation times for vehicles built prior to the 1997 model year.*
- Enter claims using Direct Warranty Entry (DWE).
- Refund or related damage must be claimed on a repair line that is separate from the repair line on which the FSA is claimed. Related damage requires prior approval from Special Service Support Center.
- "MT" labor should be submitted on a separate repair line with the related damage flag checked. "MT" labor requires prior approval from the Special Service Support Center.
- Claiming Information for Electrical Grease II (Submit on same repair line as repair.)
  - Program Code: 05S28
  - Misc. Expense: OTHER
  - Misc. Expense: $6.07

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NOTE: Electrical Grease is can only be claimed when Labor Operation 05S28XE, 05S28XX, or 05S28XB is claimed. (Do not claim as "Normal Shop Supplies".)

- Refer to the ACES® manual for claims preparation and submission information.

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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LABOR ALLOWANCES

Vehicle Parts Application & Labor Operation Chart

	Repair Parts and Labor Operations			
	Dry Repair (Non-Leaking SCDS)		Wet Repair (Leaking SCDS)	
	Repair Part	Labor Op.	Repair Part	Labor Op.
All Truck Vehicle Lines Except: • 1992-1993 E-150/250/350 (Note: Gasoline engines only) **All Car Vehicle Lines Except:** • 1993-1998 Mark VIII • 1994 Capri	Install UFJH 8W7Z-14A411-C	05S26XD 0.2	Install SCDS 1L1Z-9F924-AA Install SCDS XW7Z-9F924-BA	05S26XE 0.4

Exceptions to Applications Specified Above

	Dry Repair (Non-Leaking SCDS)		Wet Repair (Leaking SCDS)	
	Repair Part	Labor Op.	Repair Part	Labor Op.
1992-1993 E-150/250/350 (Gasoline engines only)	Install UFJH 8W7Z-14A411-C	05S26XF 0.3	Install SCDS 1L1Z-9F924-AA	05S26XE 0.4
1993 Mark VIII	Install SCDS XW7Z-9F924-BA	05S26XS 0.6	Install SCDS XW7Z-9F924-BA	05S26XB 0.9
1994-1995 Mark VIII	Install UFJH 8W7Z-14A411-C	05S26XF 0.3	Install SCDS XW7Z-9F924-BA	05S26XX 0.6
1996-1998 Mark VIII	Install UFJH 8W7Z-14A411-C	05S26XF 0.3	Install SCDS 1L1Z-9F924-AA	05S26XX 0.6
1994 Capri	Install UFJH 8W7Z-14A411-C	05S26XD 0.2	Install SCDS XW7Z-9F924-CA	05S26XE 0.4

NOTE: For approved usage of remaining inventory of Fused Jumper Harness part numbers 4W1Z-14A411-BC and 8W7Z-14A411-BB, refer to Attachment IV. **To preserve the inventory of the Universal Fused Jumper Harnesses, dealers are encouraged to install these Fused Jumper Harnesses on the approved vehicle applications specified in Attachment IV until supplies are exhausted.**

Description of Labor Operations

Dry Repair (Non-Leaking SCDS)	Labor Operation	Labor Time
Inspect SCDS harness connector for presence of brake fluid and install Fused Jumper Harness.	05S26XD	0.2 Hours
Lift vehicle, inspect SCDS harness connector for presence of brake fluid, and install Fused Jumper Harness.	05S26XF	0.3 Hours
Lift vehicle, remove steering wheel intermediate shaft, inspect SCDS harness connector for presence of brake fluid, and install new SCDS.	05S26XS	0.6 Hours
Wet Repair (Leaking SCDS)		
Lift vehicle, if necessary, inspect SCDS harness connector for presence of brake fluid, inspect and apply electrical grease to the SCDS and servo electrical connectors, and replace SCDS.	05S26XE	0.4 Hours
Lift vehicle and reposition right front fender splash shield. Inspect SCDS harness connector for presence of brake fluid, inspect and apply electrical grease to the SCDS and servo electrical connectors, and replace SCDS.	05S26XX	0.6 Hours
Lift vehicle, remove steering wheel intermediate shaft. Inspect SCDS harness connector for presence of brake fluid, inspect and apply electrical grease to the SCDS and servo electrical connectors, and replace SCDS.	05S26XB	0.9 Hours

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New! PARTS REQUIREMENTS / ORDERING INFORMATION

FUSE JUMPER HARNESSES

Part Number	Description	Quantity
6W7Z-14A411-C Shipped in packages of 10. One package services 10 vehicles.	**Universal Fused Jumper Harness (UFJH):** • Universal polarity and electrical connectors • Approved for use on all affected vehicle populations (except 1993 Mark VIII) The UFJH will be seed-stocked – refer to the seed-stock chart in Attachment II.	1 part per repair
6W7Z-14A411-BB Shipped in packages of 10. One package services 10 vehicles. This FJH is available for order without restriction until the current inventory is exhausted. In the future, this part will be superseded by part number 6W7Z-14A411-C (UFJH).	**Fuse Jumper Harness (FJH):** • Polarity and electrical connectors are specific to certain vehicle applications • See Attachment IV for approved vehicle part applications **Dealers are encouraged to install this FJH on approved vehicle applications until the supply is exhausted to preserve the available inventory of the UFJH.**	1 part per repair
4W1Z-14A411-BC Shipped in packages of 10. One package services 10 vehicles. This FJH is no longer available for ordering. In the future, this part will be superseded by part number 6W7Z-14A411-C (UFJH).	**Fuse Jumper Harness (FJH):** • Polarity and electrical connectors are specific to certain vehicle applications • See Attachment IV for approved vehicle part applications **Dealers are encouraged to install this FJH on approved vehicle applications until dealer inventory is exhausted to preserve the available inventory of the UFJH.**	1 part per repair

PARTS REQUIREMENTS / ORDERING INFORMATION (Continued)

New! BRAKE REPAIR KITS (SCDS)

Part Number	Description	Quantity
1L1Z-9F924-AA Motorcraft Part # SW-6350	Brake Repair Kit (SCDS & Adapter Harness.) See "Vehicle Parts Application & Labor Operation Chart" in Attachment II for approved part applications. Part will be Seed Stocked - refer to seed stock chart below.	1 kit per repair
XW7Z-9F924-BA Motocraft Part # SW-6351	Brake Repair Kit (SCDS & Adapter Harness.) See "Vehicle Parts Application & Labor Operation Chart" in Attachment II for approved part applications. Part will be Seed Stocked - refer to seed stock chart below.	1 kit per repair
XW7Z-9F924-CA (For use on 1994 Capri only)	1994 Capri Brake Repair Kit (SCDS w/sealing washer and Adapter Harness.) If this part is needed before May 1, 2008, call SSSC at 1-800-325-5621.	1 kit per repair

RELATED PARTS

Part Number	Description	Quantity
Motocraft Part #: XG-15-A	Electrical Grease II - One 3 oz. tube Note: Must be used when servicing any affected vehicle that has a leaking SCDS.	One 3 ounce tube will service 10 vehicles.
N803942-S100	Intermediate Steering Shaft Bolts - 6 parts required per vehicle (1993 Mark VIII Only).	2 per repair (1 pkg = 3 bolts.)

New! SEED STOCK PLAN

6W7Z-14A411-C: Universal Fused Jumper Harness (UFJH)

The UFJH will be seed-stocked two (2) weeks, and may be extended for a third week if necessary. Dealers will be notified via DOES II message when open ordering begins or if seed stock quantities change. Orders for this part will be placed on Thursdays, for delivery on Fridays and Saturdays.

Dealer Involved Vehicles	Seed 1 Dealers will receive beginning on 4/11/08	Seed 2 Dealers will receive beginning on 4/18/08
1 to 999	40 pieces	40 pieces
1000 to 1999	70 pieces	70 pieces
2000 to 2999	120 pieces	120 pieces
3000 plus	200 pieces	200 pieces

https://www.auto-manual.com/

NOTE 1: Dealers will need to access https://www.fcaunlimited.dealerconnection.com to determine the total number of affected vehicles assigned to their dealership in order to calculate the number of FJH parts that they will receive under the Seed Stock Program.

NOTE 2: Each pack contains 10 pieces.

https://www.auto-manual.com/

New! *SEED STOCK PLAN (Continued)*

XW7Z-9F924-BA: Brake Kit - Speed Control Deactivation Switch (SCDS)

Dealer Involved Vehicles*	Seed 1 Week of 4/7/08	Seed 2 Week of 4/14/08	Seed 3 Week of 4/21/08	Seed 4 Week of 4/28/08
1 to 500	2 pieces	2 pieces	2 pieces	2 pieces
501 plus	5 pieces	5 pieces	5 pieces	5 pieces

1L1Z-9F924-AA: Brake Kit - Speed Control Deactivation Switch (SCDS)

Dealer Involved Vehicles*	Seed 1 Week of 4/7/08	Seed 2 Week of 4/14/08	Seed 3 Week of 4/21/08	Seed 4 Week of 4/28/08
1 to 500	0 pieces	2 pieces	0 pieces	2 pieces
501-1000	0 pieces	4 pieces	0 pieces	4 pieces
1001-2000	0 pieces	12 pieces	0 pieces	12 pieces
2001-3000	0 pieces	14 pieces	0 pieces	14 pieces
3001 plus	0 pieces	40 pieces	0 pieces	40 pieces

* Seed-stocking quantities for SCDS are based upon the break-down of car/truck vehicles within each dealer's assigned VINs.

NOTE: *The seed-stock schedules for part numbers XW7Z-9F924-BA and 1L1Z-9F924-AA are recurring patterns that will continue for an indefinite period of time. Dealers will be notified via DOES II message if seed-stocking quantities change or when open ordering begins.*

The DOR/COR number identifies parts ordered for this recall through the Special Service Support Center. The DOR/COR numbers for this program are as follows:

- *DOR/COR number for 8W7Z-14A411-C is 50394*
- *DOR/COR number for XW7Z-9F924-BA is 50387*
- *DOR/COR number for 1L1Z-9F924-AA is 50388*

NOTE: *If an emergency repair is required and any of the necessary parts are not available, contact the Special Service Support Center (1-800-325-5621). Please be prepared to provide your P&A Code, vehicle VIN, and vehicle owner name.*

NOTE: If a dealership wishes to discontinue their seed stock, contact the Special Service Support Center (800-325-5621). Please note that removing a dealership P&A Code from this seed stock program is a permanent action.

Questions regarding parts should be directed to the Special Service Support Center (800-325-5621) or E-mailed to: Ford@Renkim.com.

DEALER PRICE

For latest prices, refer to DOES II.

PARTS RETENTION AND RETURN

After the claim is submitted, the Ford Warranty Parts Analysis Center (WPAC) may initiate an FCS 700 tag for the return of Speed Control Deactivation Switches. Do not return any removed parts unless you receive notice from PEARS (Parts Entry And Return System). Refer to your daily PEARS register for part disposition and return instructions.

Follow the provisions of the Warranty and Policy Manual for "Parts Retention and Return Procedures".

New! *EXCESS STOCK RETURN*

To preserve the inventory of the Universal Fused Jumper Harness parts, dealers are requested to exhaust their existing inventories of the non-universal Fused Jumper Harness parts (4W1Z-14A411-BC and 8W7Z-14A411-BB) on the approved vehicle applications specified in Attachment IV, prior to using the Universal Fused Jumper Harness parts on those applications.

Excess stock returned for credit must have been purchased from Ford Customer Service Division in accordance with Policy Procedure Bulletin 4000.

Attachment III - Technical Information

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

SCDS Identification

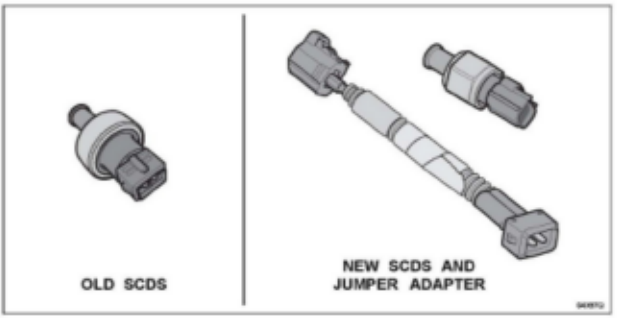


FIGURE 1

The Speed Control Deactivation Switch (SCDS) involved in Recall 05S28 and the revised SCDS is illustrated b

Note
that the revised SCDS has a different electrical connector. A jumper adapter (which is included in the parts kit)

SCDS Location

In most late model year vehicles involved in this recall, the SCDS is located on the master cylinder. In early mc

^ On early model year E-Series vehicles, the SCDS is located on the left frame rail.

^ On E-450 models only, remove the 3 screws and position the coolant degas bottle forward to allow access t

^

^

On 1993 MARK VIII vehicles, the steering wheel intermediate shaft needs to be disconnected from the insi

- When the intermediate steering shaft is disconnected, the steering wheel must be in the LOCK position t
- During installation of the intermediate steering shaft, new bolts must be installed. Tighten the bolts to 4

^

On 1994-1998 MARK VIII vehicles, the SCDS is located underneath the right front fender splash shield in

^

On all Mark VIII vehicles (except 1993), the speed control servo is located underneath the left front fender

FUSED JUMPER HARNESS (FJH) IDENTIFICATION

https://www.auto-manual.com/

On F-53 vehicles, if the SCDS is not located on the master cylinder, it may be located in a brake line junctic

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

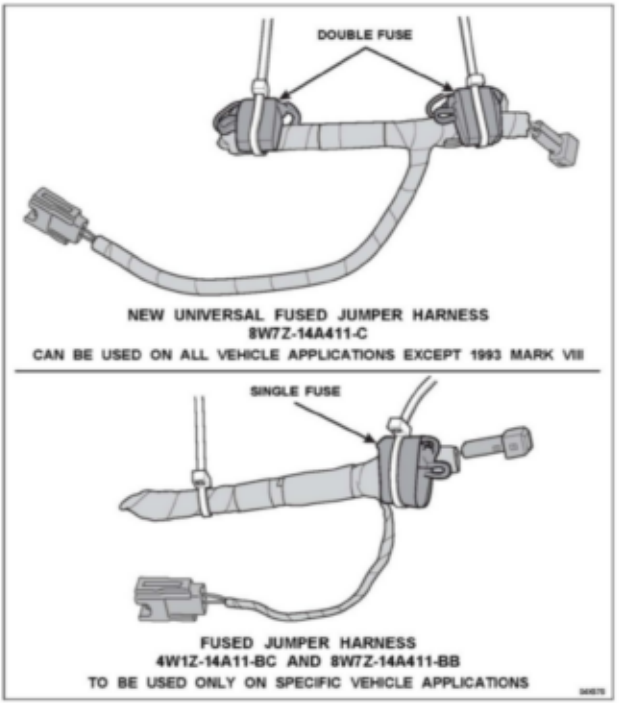


FIGURE 2

The new universal fused jumper harness has a double fuse instead of a single fuse. See Figure 2.

https://www.auto-manual.com/

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

Model	Year	(Dry) Non-leaking SCDS Repair	(Wet) Leaking SCDS Repair
Town Car	1992 - 1995	(UFJH) 6W7Z-14A411-C or (FJH) 8W7Z-14A411-BB	(SCDS) XW7Z-9F92
	1996 - 1998	(UFJH) 6W7Z-14A411-C	
Crown Victoria & Grand Marquis	1992 - 1998	(UFJH) 6W7Z-14A411-C or (FJH) 8W7Z-14A411-BB	
Mark VIII	1993	(SCDS) XW7Z-9F924-BA	
	1994 - 1995	(UFJH) 6W7Z-14A411-C	(SCDS) XW7Z-9F92
	1996- 1998	(UFJH) 6W7Z-14A411-C	(SCDS) 1L1Z-9F92
Taurus SHO	1993 - 1995	(UFJH) 6W7Z-14A411-C or (FJH) 8W7Z-14A411-BB	(SCDS) XW7Z-9F92
Capri	1994	(UFJH) 6W7Z-14A411-C	(SCDS) XW7Z-9F92
Ranger	1998 - 2002	(UFJH) 6W7Z-14A411-C or (FJH) 4W1Z-14A411-BC	(SCDS) 1L1Z-9F92
F-53 Motorhome	1995 - 1997	(UFJH) 6W7Z-14A411-C	
	1999 - 2002	(UFJH) 6W7Z-14A411-C or (FJH) 4W1Z-14A411-BC	
Bronco	1993	(UFJH) 6W7Z-14A411-C	
	1994 - 1996	(UFJH) 6W7Z-14A411-C or (FJH) 4W1Z-14A411-BC	
E-Series (Gasoline)	1992 - 2003	(UFJH) 6W7Z-14A411-C	
F-Series (Under 8500 GVW)	1993		
	1994 – 2003	(UFJH) 6W7Z-14A411-C or (FJH) 4W1Z-14A411-BC	
F-150 Lightning	2003 – 2004		
F-Series (Over 8500 GVW)	1993	(UFJH) 6W7Z-14A411-C	
	1994 - 2003	(UFJH) 6W7Z-14A411-C or (FJH) 4W1Z-14A411-BC	
Explorer/ Mountaineer	1998 - 2001		
Explorer Sport & Sport Trac	2001 - 2002		
Expedition	1997 - 2002		
Navigator	1998 - 2002		
Blackwood	2002 - 2003		
Excursion	2000 - 2003		

PARTS APPLICATION CHART

SPEED CONTROL DEACTIVATION SWITCH (SCDS) INSPECTION

NOTE:

On E-15012501350 and MARK VIII, it may be necessary to lift the vehicle to disconnect the SCDS.



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FIGURE 3

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Disconnect the SCDS and inspect the harness connector (See Figure 3) for the presence of brake fluid.

^ All vehicles except 1993 Mark VIII: If there is no evidence of brake fluid on the connector, install a Fused J

- On 1993 Mark VIII vehicles with no evidence of brake fluid on the SCDS harness connector, replace the

^ If there is evidence of brake fluid on the connector, replace the Speed Control Deactivation Switch, inspect

FUSED JUMPER HARNESS (FJH) INSTALLATION

1. Connect the fused jumper harness to the SCDS and the vehicle harness.

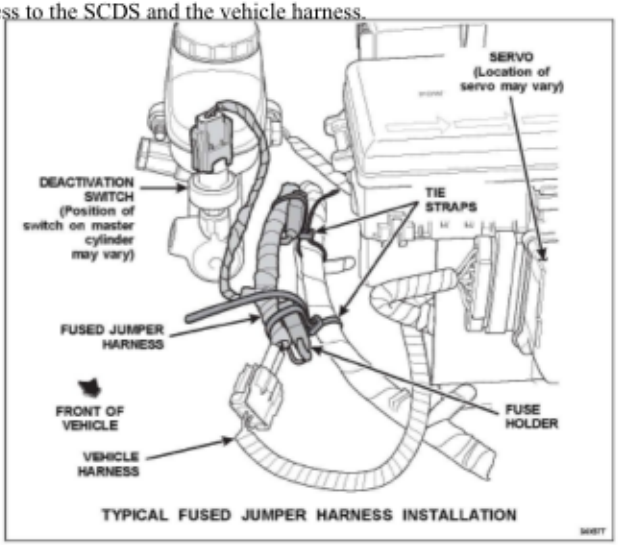


FIGURE 4

2. Secure the jumper harness to the existing harness with tie straps, making sure the fuse holders are positio

SPEED CONTROL DEACTIVATION SWITCH (SCDS) REPLACEMENT

NOTE:
The brake pedal must not be depressed during the removal and replacement of the SCDS.

1. Check the brake fluid level at the master cylinder and, if necessary, fill to maximum fluid level.

NOTICE:
DO NOT apply fluid to the electrical connector or damage to the connector may occur.

NOTICE:

https://www.auto-manual.com/
The 1994 Capri Brake Repair Kit contains a brass sealing washer. Install the brass washer onto the SCDS b

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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FIGURE 5

2.

Add a few drops of Motorcraft High Performance DOT 3 Motor Vehicle Brake Fluid, PM1-1 or PM-1-C

NOTICE:
Do not allow any foreign material to enter the master cylinder port once the SCDS is removed.

NOTE:
Call the Special Service Support Center for assistance if brake fluid does not flow from the SCDS fitting wh

NOTE:

If the new SCDS is not installed immediately after the original switch is removed, the master cylinder brake

3. Remove the SCDS.

4.

With the brake fluid reservoir cap removed, observe for brake fluid dripping/draining from the SCDS fitti

5. Tighten the new SCDS as follows:

^ 18 Nm (159 lb-in) - all vehicles except 1994 Capri.

^ 13 Nm (115 lb-in) - 1994 Capri.

6. Check the brake fluid level at the master cylinder, fill to maximum fluid level and install the brake fluid r

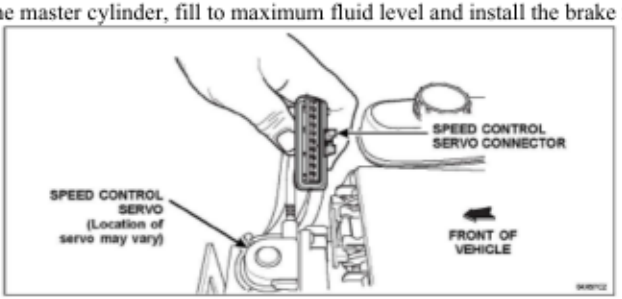


FIGURE 6

https://www.auto-manual.com/

7. Disconnect the speed control servo and inspect the vehicle harness connector for heat damage. See Figure

^ If no heat damage is found at the speed control servo connector (even if there is presence of brake flui

^ If the speed control servo connector is heat damaged, call the Special Service Support Center for furth

8. With the speed control servo disconnected, use shop air only to blow the SCDS harness electrical connec

> Sensors and Switches > Sensors and Switches - Cruise Control > Brake Switch (Cruise Control) > Component Information > Technical Service Bulletins > Recalls for Brake Switch (Cruise Control): > 05S28S15 > Apr > 08 > Recall - Cruise Control Deactivation Switch Inspection > Page 480

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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9. Cut approximately 3 mm (1/8 in) off the grease tube applicator tip.

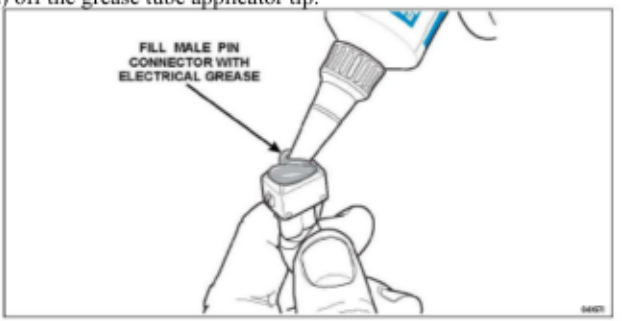


FIGURE 7

10. Before installing the jumper harness, fill the vehicle harness end of the jumper (male pin connector end) v

11. Install the adapter jumper harness by connecting it to both the SCDS and the vehicle harness. Using the p

NOTICE:

Be sure to apply and adequate amount of grease to the vehicle harness connector only. DO NOT apply the g

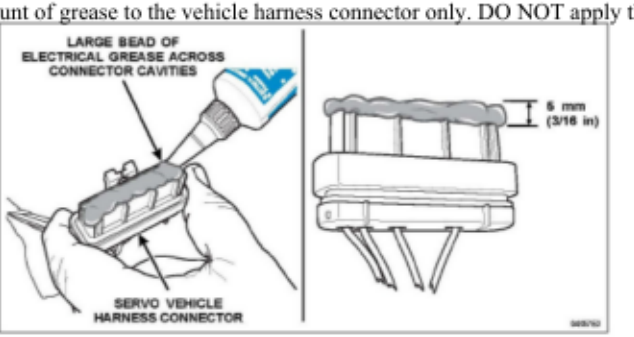


FIGURE 8

12. Apply a 5 mm (3/16 in) high bead of Motorcraft Electrical Grease II XG-15-A across the entire width and

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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New! ***FJH Parts Application Chart***

Remaining dealer inventories of the 8W7Z-14A411-BB and 4W1Z-14A411-BC non-universal Fused Jumper Harnesses are approved for use on only the vehicle applications identified below.

Model	Model Years	Fused Jumper Harness part number for Dry Repair (Non-leaking SCDS)
Town Car	1992-1995	*(FJH) 8W7Z-14A411-BB* *Labor Op 05S28XD*
Crown Victoria & Grand Marquis	1992-1998	
Taurus SHO	1993-1995	
Bronco	1994-1996	*(FJH) 4W1Z-14A411-BC* *Labor Op 05S28XD*
Ranger	1998-2002	
F-53 Motorhome	1999-2002	
F-Series (Under 8500 GVW)	1994-2003	
F-150 Lightning	2003-2004	
F-Series (Over 8500 GVW)	1994-2003	
Explorer & Mountaineer	1998-2001	
Explorer Sport & Sport Trac	2001-2002	
Expedition	1997-2002	
Navigator	1998-2002	
Blackwood	2002-2003	
Excursion	2000-2003	

DEALER Q & A **New!**

Q1. What is the Universal Fused Jumper Harness?

A. The Universal Fused Jumper Harness contains a fuse in each side of the circuit to accommodate polarity complexity across vehicle lines, and a connector hardshell that is compatible with all Speed Control Deactivation Switches.

Q2. Why are the Speed Control Deactivation Switches not interchangeable on all vehicle applications?

*A. Differences in Speed Control Deactivation Switch (SCDS) activation pressures make it **essential** that the correct SCDS is installed in the specified vehicle application.*

Q3. Can I just remove the fuse for the Speed Control System circuit?

A. No. Removing the fuse will disable more systems on the vehicle than just the Speed Control System.

Q4. Can the customer disconnect the Speed Control Deactivation Switch connector?

A. No. To ensure that the correct connector is disconnected, a dealership technician should perform this service.

Q5. Is the Speed Control Deactivation Switch located on the vehicle steering wheel?

A. No. The Speed Control Deactivation Switch is typically mounted to the brake master cylinder under the hood. On some of the earlier built vehicles, the SCDS was mounted to a junction block or brake proportioning valve located below the master cylinder on or near the frame rail.

Q6. Can customers avoid overheating the switch by not using the Speed Control System?

A. No. The electrical circuit to the Speed Control Deactivation Switch is always energized, so not using the Speed Control System doesn't reduce the potential for overheating of the switch.

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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Safety Recall 05S28-S14 – Car Vehicle Owners

Mr. John Sample
123 Main Street
Anywhere, USA 12345

Your Vehicle Identification Number: 12345678901234567

******* IMPORTANT REMINDER *******

Service parts are now available to perform the necessary repairs to your ve

This notice is sent to you in accordance with the requirements of the National Traffic and Vehicle Safety Act.

Ford Motor Company has previously sent you a letter indicating that a defect which relat vehicle safety exists in your speed control equipped vehicle. This condition may result in fire, even if the vehicle is parked even if you have never used your speed control. We a this situation and for our previous lack of repair parts and want to assure you that, with y assistance, we will correct this condition. Our commitment, together with Ford and Linco dealers, is to provide you with the highest level of service and support.

What is the issue?

Ford cannot be confident that over many years in service, the t Speed Control Deactivation Switch (SCDS) installed on your ve leak, posing the risk of an underhood fire. This condition may o when the vehicle is parked or when it is being operated, even if control is not in use.

What will Ford and your dealer do?

Ford Motor Company has authorized your dealer to perform the under this program free of charge (parts and labor). If you had Repair (Speed Control System disconnect) performed, the final restore operation of the speed control system. If your dealer ha completed the final repair on your vehicle for this recall, please this letter.

How long will it take?

Your dealer may be able to perform this repair while you wait; h due to scheduling requirements, your dealer may need your ve longer period of time.

https://www.auto-manual.com/

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

What are we asking you to do?

We urge you to contact your dealer as soon as possible to sch
appointment to have this service performed.

Provide the dealer with the Vehicle Identification Number (VIN)
vehicle. The VIN is printed near your name at the beginning of

Until you have the recall service performed, park your vehicle a
structures to prevent a potential underhood fire from spreading

The vehicle owner is responsible for having this service action
Ford Motor Company reserves the right to deny coverage for a
damage that may result from failure to have this recall perform
timely basis. Therefore, please have this recall performed as s
possible.

RETAIL OWNERS: If you do not already have a servicing deal
access http://www.genuineservice.com for dealer addresses, m
driving instructions.

FLEET OWNERS: If you do not already have a servicing deale
access our Dealer Locator on https://www.fleet.ford.com for de
addresses. maps, and driving instructions.

**Please note: Federal law requires that any vehicle lessor r
this recall notice must forward a copy of this notice to the
within ten days.**

Have you previously paid for this repair?

If you paid to remedy the issue addressed in this notice, you m
eligible for a refund.

To verify eligibility and expedite reimbursement, give your paid
receipt to your dealer.

Refund requests may be sent directly to Ford Motor Company.
your refund from Ford, send the refund request with all require
documentation, including your original repair receipt (no photoc
Ford Motor Company at P.O. Box 6251, Dearborn, Michigan 48
Refund requests mailed to this address may take up to 60 days
Your original receipt will be returned to you.

Detailed information regarding eligibility for Ford's reimburseme
and documentation requirements may be obtained by contactin
Customer Relationship Center at 1-888-222-2751.

Owners who have previously paid for this repair still need to ha
described in this letter performed.

What if you no longer own this vehicle?

If you no longer own this vehicle, and have an address for the
owner, please forward this letter to the new owner.

You received this notice because government regulations requ
notification be sent to the last known owner of record. Our reco
based primarily on state registration and title data, which indica
are the current owner.

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

Can we assist you further?

If you have difficulties getting your vehicle repaired promptly ar
charge, please contact your dealership's Service Manager for a

RETAIL OWNERS: If you still have concerns, please contact t
Motor Company Customer Relationship Center at 1-888-222-2
one of our representatives will be happy to assist you. For the
impaired call 1-800-232-5952 (TDD). Office Hours are Monday
Friday: 8AM – 5PM (Your Local Time).

If you wish to contact us through the Internet, our address is:
www.ownerconnection.com

FLEET OWNERS: If you still have concerns, please contact th
Customer Information Center at 1-800-34-FLEET, Option #3 a
our representatives will be happy to assist you. Representative
available 8:30AM to 5:00PM Monday through Friday (Eastern T

Or you may contact us through the internet at www.fleet.ford.c

If you are still having difficulty getting your vehicle repaired in a
reasonable time or without charge, you may write the Administ
National Highway Traffic Safety Administration, 1200 New Jers
SE., Washington, D. C. 20590 or call the toll free Vehicle Safet
1-888-327-4236 (TTY: 1-800-424-9153) or go to http://www.sa

Thank you for your attention to this important matter.

Ford Customer Service Division

https://www.auto-manual.com/

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

Fe

Safety Recall 05S28-S14 – Truck Vehicle Owners

Mr. John Sample
123 Main Street
Anywhere, USA 12345

Your Vehicle Identification Number: 12345678901234567

***** IMPORTANT REMINDER *****

Our records indicate that the required service has not yet been performed on you

This notice is sent to you in accordance with the requirements of the National Traffic and
Vehicle Safety Act.

Ford Motor Company has previously sent you a letter indicating that a defect which relate
vehicle safety exists in your speed control equipped vehicle. This condition may result in
fire, even if the vehicle is parked, even if you have never used your speed control. Althou
currently experiencing an unforeseen shortage of the service parts, we strongly encourag
contact your dealer to schedule an appointment to have the Speed Control System on yo
disconnected as an interim repair in order to eliminate the potential safety risk, until the fi
can be performed. We apologize for this situation and want to assure you that, with your
we will correct this condition. Our commitment, together with Ford and Lincoln Mercury d
provide you with the highest level of service and support.

What is the issue?

Ford cannot be confident that over many years in service, the typ
Speed Control Deactivation Switch (SCDS) installed on your veh
leak, posing the risk of an underhood fire. This condition may oc
when the vehicle is parked or when it is being operated, even if t
control is not in use.

What will Ford and your dealer do?

Ford Motor Company has authorized your dealer to perform the
under this program free of charge (parts and labor).

How long will it take?

In most cases, your dealer may be able to perform this repair wh
wait; however, due to scheduling requirements, your dealer may
vehicle for a longer period of time.

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

What are we asking you to do?

We urge you to contact your dealer as soon as possible to sche appointment to have an Interim Repair (Speed Control System c performed to eliminate the safety risk.

Parts to perform the final repairs on your vehicle will be availabl 2008. Provide the dealer with the Vehicle Identification Number your vehicle. The VIN is printed near your name at the beginnin letter.

Until you have the recall service performed, park your vehicle av structures to prevent a potential underhood fire from spreading.

The vehicle owner is responsible for having this service action p Ford Motor Company reserves the right to deny coverage for an damage that may result from failure to have this recall performe timely basis. Therefore, please have this recall performed as so possible.

RETAIL OWNERS: If you do not already have a servicing deale access http://www.genuineservice.com for dealer addresses, ma driving instructions.

FLEET OWNERS: If you do not already have a servicing dealer access our Dealer Locator on https://www.fleet.ford.com for dea addresses, maps, and driving instructions.

MOTORHOME OWNERS: To locate a dealer that services Mot call the Motorhome Customer Assistance Center toll free at 1-80 3311. Ford representatives are available 24 hours a day.

Please note: Federal law requires that any vehicle lessor re this recall notice must forward a copy of this notice to the l within ten days.

What if you no longer own this vehicle?

If you no longer own this vehicle, and have an address for the cu owner, please forward this letter to the new owner.

You received this notice because government regulations requir notification be sent to the last known owner of record. Our recor based primarily on state registration and title data, which indicat are the current owner.

https://www.auto-manual.com/

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

Can we assist you further?

If you have difficulties getting your vehicle repaired promptly and
charge, please contact your dealership's Service Manager for as

RETAIL OWNERS: If you still have concerns, please contact th
Motor Company Customer Relationship Center at 1-888-222-27
of our representatives will be happy to assist you. For the heari
impaired call 1-800-232-5952 (TDD). Office Hours are Monday t
Friday: 8AM – 5PM (Your Local Time).

If you wish to contact us through the Internet, our address is:
www.ownerconnection.com

FLEET OWNERS: If you still have concerns, please contact the
Customer Information Center at 1-800-34-FLEET, Option #3 an
our representatives will be happy to assist you. Representatives
available 8:30AM to 5:00PM Monday through Friday (Eastern Ti

Or you may contact us through the internet at www.fleet.ford.co

MOTORHOME OWNERS: If you still have concerns, please co
Motorhome Customer Assistance Center toll free at 1-800-444-3
representatives are available 24 hours a day.

If you are still having difficulty getting your vehicle repaired in a
time or without charge, you may write the Administrator, Nationa
Traffic Safety Administration, 1200 New Jersey Avenue, SE., W
D. C. 20590 or call the toll free Vehicle Safety Hotline at
1-888-327-4236 (TTY: 1-800-424-9153) or go to http://www.safe

Thank you for your attention to this important matter.

Ford Customer Service Division

Safety Recall 05S28 – Speed Control System
Your Dealer Has Parts For Your Ranger

Customer Name February, 2008

Parts to perform the necessary repairs on your vehicle are now available. We urge you to contact your dealer as soon as possible to schedule an appointment to have the repair performed. If you had the Interim Repair (disconnect) performed, the final repair will restore operation of the speed control system. There is no charge to vehicle owners for recall repairs performed by an authorized dealer. If your dealer has recently completed the final repair for this recall, please disregard this notice.

Year/Model: 2001 Ranger

Ford Customer Service Division **VIN#:** 1234567891012345 67

Safety Recall 05S28 – Speed Control System
Updated Part Availability Timing

Customer Name February, 2008

Ford would like to provide you with an update on the status of Safety Recall 05S28. We appreciate that you have taken your vehicle into your dealership to have the Speed Control disconnected. While we recognize the inconvenience this may have caused, we believe it is the prudent course of action. You will be notified by mail when the parts necessary to complete the final repairs to your vehicle are available, which is expected to be in June, 2008. The final repairs will restore the operation of the

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Speed Control System on your vehicle.

We apologize for the delay in service part availability, and want to assure you that we are working hard to resolve the issues. There is no charge to vehicle owners for recall repairs performed by an authorized dealer.

Ford Customer Service Division

Year/Model: 1999 Expedition

VIN#: 12345678910123456?

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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ERROR: stackunderflowOFFENDING COMMAND: begin

STACK:

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Brake Switch (Cruise Control): RecallsRecall 07V336000: Cruise Control Fire Hazard

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COMPONENT: Vehicle Speed Control

POTENTIAL NUMBER OF UNITS AFFECTED: 3000000 1993 Ford/Crown Victoria 1992-1998 Ford/E-150

SUMMARY: On certain pickup trucks, passenger vehicles, sport utility vehicles, and motor homes chassis, the

> Sensors and Switches > Sensors and Switches - Cruise Control > Brake Switch (Cruise Control) > Component Information > Technical Service Bulletins > Recalls for Brake Switch (Cruise Control): > NHTSA07V336000 > Aug > 07 > Recall 07V336000: Cruise Control Fire Hazard > Page 493

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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CONSEQUENCE: This could result in an underhood fire.

REMEDY: Dealers will install a fused wiring harness. Owners of the passenger cars included in this campaign

NOTES: Ford recall No. 05S28S11. Customers may also contact The National Highway Traffic Safety Admini

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Brake Switch (Cruise Control): RecallsRecall 05V388000: Cruise Control Switch Replacement

MAKE/MODELS: MODEL/BUILD YEARS: Ford/Bronco 1994-1996 Ford/Expedition 1997-2002 Ford/F150
COMPONENT: Vehicle Speed Control

POTENTIAL NUMBER OF UNITS AFFECTED: 3800000

SUMMARY: On certain pickup trucks and sport utility vehicles equipped with speed control, the speed control

CONSEQUENCE: A fire at the switch could occur.

REMEDY: As an interim repair, owners will be instructed to return their vehicles to their dealers to have the sp

NOTES: Ford recall No. 05S28. Customers can also contact The National Highway Traffic Safety Administrati

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05S28S15 Technical Service Bulletin #

Safety Recall 05S28-S15 – Truck Vehicle Owners

Mr. John Sample
123 Main Street
Anywhere, USA 12345

Your Vehicle Identification Number: 12345678901234567

********* IMPORTANT REMINDER *********

Service parts are now available to perform the necessary repairs to your vehi

This notice is sent to you in accordance with the requirements of the National Traffic and M
Vehicle Safety Act.

Ford Motor Company has previously sent you letters indicating that a defect which relates t
vehicle safety exists in your speed control equipped vehicle. This condition may result in a
fire, even if the vehicle is parked, even if you have never used your speed control. We apo
this situation and for our previous lack of repair parts and want to assure you that, with you
assistance, we will correct this condition. Our commitment, together with Ford and Lincoln
dealers, is to provide you with the highest level of service and support.

What is the issue?

Ford cannot be confident that over many years in service, the type
Speed Control Deactivation Switch (SCDS) installed on your vehic
leak, posing the risk of an underhood fire. This condition may occ
when the vehicle is parked or when it is being operated, even if the
control is not in use.

What will Ford and your dealer do?

Ford Motor Company has authorized your dealer to perform the re
under this program free of charge (parts and labor). If you had the
Repair (Speed Control System disconnect) performed, the final re
restore operation of the speed control system. If your dealer has
completed the final repair on your vehicle for this recall, please dis
this letter.

How long will it take?

Your dealer may be able to perform this repair while you wait; how
due to scheduling requirements, your dealer may need your vehicl
longer period of time.

What are we asking you to do?

We urge you to contact your dealer as soon as possible to schedu
appointment to have this service performed.

Provide the dealer with the Vehicle Identification Number (VIN) of
vehicle. The VIN is printed near your name at the beginning of thi

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Until you have the recall service performed, park your vehicle a structures to prevent a potential underhood fire from spreading.

The vehicle owner is responsible for having this service action p Ford Motor Company reserves the right to deny coverage for a damage that may result from failure to have this recall performe timely basis. Therefore, please have this recall performed as s possible.

RETAIL OWNERS: If you do not already have a servicing deal access http://www.genuineservice.com for dealer addresses, m driving instructions.

FLEET OWNERS: If you do not already have a servicing deale access our Dealer Locator on https://www.fleet.ford.com for de addresses, maps, and driving instructions.

MOTORHOME OWNERS: To locate a dealer that services Mo call the Motorhome Customer Assistance Center toll free at 1-8 3311. Ford representatives are available 24 hours a day.

Please note: Federal law requires that any vehicle lessor r this recall notice must forward a copy of this notice to the within ten days.

What if you no longer own this vehicle?

If you no longer own this vehicle, and have an address for the c owner, please forward this letter to the new owner.

You received this notice because government regulations requi notification be sent to the last known owner of record. Our reco based primarily on state registration and title data, which indica are the current owner.

Can we assist you further?

If you have difficulties getting your vehicle repaired promptly an charge, please contact your dealership's Service Manager for a

RETAIL OWNERS: If you still have concerns, please contact t Motor Company Customer Relationship Center at 1-888-222-27 of our representatives will be happy to assist you. For the hear impaired call 1-800-232-5952 (TDD). Office Hours are Monday Friday: 8AM – 5PM (Your Local Time).

If you wish to contact us through the Internet, our address is: www.ownerconnection.com

FLEET OWNERS: If you still have concerns, please contact th Customer Information Center at 1-800-34-FLEET, Option #3 an our representatives will be happy to assist you. Representative available 8:30AM to 5:00PM Monday through Friday (Eastern T

Or you may contact us through the internet at www.fleet.ford.co

MOTORHOME OWNERS: If you still have concerns, please co Motorhome Customer Assistance Center toll free at 1-800-444- representatives are available 24 hours a day.

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If you are still having difficulty getting your vehicle repaired in a reasonable time or without charge, you may write the Administ National Highway Traffic Safety Administration, 1200 New Jers SE., Washington, D. C. 20590 or call the toll free Vehicle Safe 1-888-327-4236 (TTY: 1-800-424-9153) or go to http://www.sa

Thank you for your attention to this important matter.

Ford Customer Service Division

April 10, 2008

TO: All U.S. Ford and Lincoln Mercury Dealers

SUBJECT: **Safety Recall 05S28 - Supplement #15:** 1992-2004 Multiple Vehicle Lines - Speed Control System Modification

REF: Safety Recall Bulletin 05S28 Supplement #14 dated January 28, 2008

New ***REASONS FOR THIS SUPPLEMENT***

- *Inform dealers that service parts are now available to repair all affected vehicles.*
- *Inform dealers that a Universal Fused Jumper Harness (UFJH) is available to service all affected vehicles (with the exception of 1993 Mark VIII). The UFJH has universal polarity and electrical connectors that make it compatible with all affected vehicle wiring and SCDS connector configurations. This universal service part will replace/supersede all prior level Fused Jumper Harnesses, reduce complexity, and simplify the repair options.*
- *Provide dealers with revised service procedures, part applications and all new Labor Operations.*
- *Notify dealers that performing interim Speed Control System disconnect repairs are no longer authorized.*
- *Notify dealers that the use of Speed Control Deactivation Switches to service vehicles containing non-leaking Speed Control Deactivation Switches, is no longer authorized (with the exception of 1993 Mark VIII). All 1993 Mark VIII vehicles will be serviced with a new Speed Control Deactivation Switch, regardless of whether or not the SCDS is leaking.*
- *Inform dealers that initial shipments of the UFJH will be seed-stocked, and will begin to arrive at dealers in large quantities beginning on April 11, 2008.*
- *Inform dealers that seed-stock quantities for Speed Control Deactivation Switches will continue, and are based upon the car/truck break-down of the VINs assigned to their dealerships.*
- *Provide usage instructions to dealers that have remaining inventory of Fuse Jumper Harnesses 4W1Z-14A411-BC or 8W7Z-14A411-BB.*

Affected Vehicles

Year	Model	Notes
1992-1998	Crown Victoria / Grand Marquis	• 1992 MY built after February 4, 1992 • 1998 MY w/o Traction Assist built from Job #1 through October 31, 1997
1992-1998	Town Car	• 1992 MY built after November 4, 1991 • 1998 MY w/o Traction Assist built from Job #1 through October 31, 1997

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Affected Vehicles (Continued)

1993-1998	Mark VIII	
1993-1995	Taurus SHO A/T	
1994	Capri	
1998-2002	Ranger	Non-FX4 vehicles built prior to May 2, 2002
1998-2001	Explorer/Mountaineer	
2001-2002	Explorer Sport & Sport Trac	
1995-2002	F-53 Motorhome	
1993-1996	Bronco	
2003-2004	F-150 Lightning	
1993-2003	F-Series Under 8500 GVW	Built prior to October 31, 2002
1993-2003	F-Series Over 8500 GVW (All plants except Cuautitlan)	Built prior to November 4, 2002
1994-2003	F-Series Over 8500 GVW (Cuautitlan built only)	Built prior to January 7, 2003
1997-2002	Expedition	
1998-2002	Navigator	
2002-2003	Blackwood	
1992-2003	E-150/250/350	Built prior to January 1, 2003
1996-2003	E-450	Built prior to January 1, 2003
2002-2003	E-550	
2000-2003	Excursion	Built prior to November 4, 2002

Note: Diesel engine equipped vehicles are not affected.

Affected vehicles are identified in OASIS. In addition, for a list of vehicles assigned to your dealership, visit https://web.fsavinlists.dealerconnection.com.

REASON FOR THIS RECALL

The underhood Speed Control Deactivation Switch (SCDS) may overheat, smoke, or burn, which could result in an underhood fire. The potential for a fire exists regardless of whether speed control is being used or the engine is running.

SERVICE ACTION

At no charge to the vehicle owner, dealers are to inspect the Speed Control Deactivation Switch (SCDS) harness connector for the presence of brake fluid contamination on all affected vehicles. After the inspection, dealers are to perform the repairs as specified in the "Vehicle Parts Application & Labor Operation Chart" in Attachment II.

New! ***OWNER NOTIFICATION MAILING SCHEDULE***

CAR VEHICLES: Part availability letters were mailed to all car vehicle owners in the February through March, 2006 timeframe. The letters informed owners that service parts to perform permanent repairs on their vehicles were available, and encouraged them to contact their dealer to have the permanent repair performed at their earliest convenience.

TRUCK VEHICLES: Part availability letters will be mailed to all truck vehicle owners beginning in mid-April, 2006. The letters will inform owners that service parts to perform permanent repairs on their vehicles are available, and encourage them to contact their dealer to have the permanent repair performed at their earliest convenience. The letters will be mailed in phases through the end of May, 2006.

PLEASE NOTE:

Federal law requires dealers to complete this recall service before a new vehicle is delivered to the buyer or lessee. Violation of this requirement by a dealer could result in a civil penalty of up to $6,000 per vehicle. Correct all vehicles in your new vehicle inventory before delivery.

ATTACHMENTS

New! *Attachment I: Administrative Information*
New! *Attachment II: Labor Allowances, Parts Ordering Information, & Obsolete FJH Usage*
New! *Attachment III: Technical Information*
New! *Attachment IV: FJH Parts Application Chart*
New! *Attachment V: Dealer Q & A*
New! *Owner Communications*

QUESTIONS?

Special Service Support Center (Dealer Only) Questions:

Sincerely,

Michael A. Berardi

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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OASIS ACTIVATED?
Yes, OASIS was activated August, 2007.

NOTE: This recall pertains to certain vehicles that have a factory installed speed control only. Ford offers a Genuine Accessory Speed Control kit that utilizes a production steering wheel identical to the factory-installed system. The Ford accessory kit does not use a master cylinder mounted deactivation switch and, as a result, vehicles with this kit are not included in this recall. If a customer inquires about Safety Recall 05S28, and the VIN of their vehicle is not listed in OASIS under 05S28, the vehicle is not involved in the program.

FSA VIN LIST ACTIVATED?
Yes. FSA VIN list is available through https://web.fsavinlists.dealerconnection.com.

NOTE: Your FSA VIN list may contain owner names and addresses obtained from motor vehicle registration records. The use of such motor vehicle registration data for any purpose other than in connection with this recall is a violation of law in several states, provinces, and countries. Accordingly, you must limit the use of this listing to the follow-up necessary to complete this recall action.

STOCK VEHICLES
Correct all affected units in your vehicle inventory before delivery.

SOLD VEHICLES
- Owners of affected vehicles will be directed to dealers for repairs.
- Correct other affected vehicles identified in OASIS which are brought to your dealership.

TITLE BRANDED / SALVAGED VEHICLES
Affected title branded and salvaged vehicles are eligible for this Field Service Action.

RELATED DAMAGE
If a related damage condition exists that you believe to be caused by the covered condition, call the Special Service Support Center to request approval **prior** to the repair of any related damage. Requests for approval after completion of the repair will not be granted. Ford Motor Company reserves the right to deny coverage for related damage in cases where the vehicle owner has not had this recall performed within a reasonable period of time after receiving notification.

ADDITIONAL LABOR TIME
If a condition exists that requires additional labor to complete the repair, call the Special Service Support Center to request approval **prior** to performing any additional labor. Requests for approval after completion of the repair will not be granted.

OWNER REFUNDS
- Ford Motor Company is offering a refund for owner-paid repairs covered by this recall if the repair was performed prior to the date indicated in the reimbursement plan, which is posted with this bulletin. This plan is also available to owners through the Customer Relationship Center (CRC). The CRC will direct owners to seek reimbursement through authorized dealers or, at their option, directly through Ford Motor Company at P.O. Box 6251, Dearborn, MI 48121-6251.
- Dealers are also authorized to refund owner-paid emergency repairs that were performed away from an authorized servicing dealer after the end date specified in the reimbursement plan. Non-covered repairs, or those judged by Ford to be excessive, will not be reimbursed.
- Multiple refunds should be submitted on one repair line and the invoice details for each repair should be detailed in the comments section of the claim. If a repair is performed on the same visit, the repair and refunds should be submitted on separate repair lines.
- **This safety recall must still be performed, even if the customer has paid for a previous repair. Claiming a refund will not close out the VIN for this recall.**
- Refund Claiming Information (Submit on separate repair line.)
  - Program Code: 05S28
  - Misc. Expense: REFUND
  - Misc. Expense: ADMIN
  - Misc. Expense: 0.2 Hrs.

RENTAL VEHICLES
The use of rental vehicles is not authorized for this program.

New! *CLAIMS PREPARATION AND SUBMISSION*
- *It is no longer necessary for dealers to manually enter labor operation times for vehicles built prior to the 1997 model year.*
- Enter claims using Direct Warranty Entry (DWE).
- Refund or related damage must be claimed on a repair line that is separate from the repair line on which the FSA is claimed. Related damage requires prior approval from Special Service Support Center.
- "MT" labor should be submitted on a separate repair line with the related damage flag checked. "MT" labor requires prior approval from the Special Service Support Center.
- Claiming Information for Electrical Grease II (Submit on same repair line as repair.)
  - Program Code: 05S28
  - Misc. Expense: OTHER
  - Misc. Expense: $6.07

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NOTE: Electrical Grease is can only be claimed when Labor Operation 05S28XE, 05S28XX, or 05S28XB is claimed. (Do not claim as "Normal Shop Supplies".)

- Refer to the ACES® manual for claims preparation and submission information.

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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LABOR ALLOWANCES

Vehicle Parts Application & Labor Operation Chart

	Repair Parts and Labor Operations			
	Dry Repair (Non-Leaking SCDS)		Wet Repair (Leaking SCDS)	
	Repair Part	Labor Op.	Repair Part	Labor Op.
All Truck Vehicle Lines Except: • 1992-1993 E-150/250/350 (Note: Gasoline engines only) **All Car Vehicle Lines Except:** • 1993-1998 Mark VIII • 1994 Capri	Install UFJH 8W7Z-14A411-C	05S26XD 0.2	Install SCDS 1L1Z-9F924-AA Install SCDS XW7Z-9F924-BA	05S26XE 0.4

Exceptions to Applications Specified Above

	Dry Repair (Non-Leaking SCDS)		Wet Repair (Leaking SCDS)	
	Repair Part	Labor Op.	Repair Part	Labor Op.
1992-1993 E-150/250/350 (Gasoline engines only)	Install UFJH 8W7Z-14A411-C	05S26XF 0.3	Install SCDS 1L1Z-9F924-AA	05S26XE 0.4
1993 Mark VIII	Install SCDS XW7Z-9F924-BA	05S26XS 0.6	Install SCDS XW7Z-9F924-BA	05S26XB 0.9
1994-1995 Mark VIII	Install UFJH 8W7Z-14A411-C	05S26XF 0.3	Install SCDS XW7Z-9F924-BA	05S26XX 0.6
1996-1998 Mark VIII	Install UFJH 8W7Z-14A411-C	05S26XF 0.3	Install SCDS 1L1Z-9F924-AA	05S26XX 0.6
1994 Capri	Install UFJH 8W7Z-14A411-C	05S26XD 0.2	Install SCDS XW7Z-9F924-CA	05S26XE 0.4

NOTE: For approved usage of remaining inventory of Fused Jumper Harness part numbers 4W1Z-14A411-BC and 8W7Z-14A411-BB, refer to Attachment IV. **To preserve the inventory of the Universal Fused Jumper Harnesses, dealers are encouraged to install these Fused Jumper Harnesses on the approved vehicle applications specified in Attachment IV until supplies are exhausted.**

Description of Labor Operations

Dry Repair (Non-Leaking SCDS)	Labor Operation	Labor Time
Inspect SCDS harness connector for presence of brake fluid and install Fused Jumper Harness.	05S26XD	0.2 Hours
Lift vehicle, inspect SCDS harness connector for presence of brake fluid, and install Fused Jumper Harness.	05S26XF	0.3 Hours
Lift vehicle, remove steering wheel intermediate shaft, inspect SCDS harness connector for presence of brake fluid, and install new SCDS.	05S26XS	0.6 Hours
Wet Repair (Leaking SCDS)		
Lift vehicle, if necessary, inspect SCDS harness connector for presence of brake fluid, inspect and apply electrical grease to the SCDS and servo electrical connectors, and replace SCDS.	05S26XE	0.4 Hours
Lift vehicle and reposition right front fender splash shield. Inspect SCDS harness connector for presence of brake fluid, inspect and apply electrical grease to the SCDS and servo electrical connectors, and replace SCDS.	05S26XX	0.6 Hours
Lift vehicle, remove steering wheel intermediate shaft. Inspect SCDS harness connector for presence of brake fluid, inspect and apply electrical grease to the SCDS and servo electrical connectors, and replace SCDS.	05S26XB	0.9 Hours

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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New! PARTS REQUIREMENTS / ORDERING INFORMATION

FUSE JUMPER HARNESSES

Part Number	Description	Quantity
6W7Z-14A411-C Shipped in packages of 10. One package services 10 vehicles.	**Universal Fused Jumper Harness (UFJH):** • Universal polarity and electrical connectors • Approved for use on all affected vehicle populations (except 1993 Mark VIII) The UFJH will be seed-stocked – refer to the seed-stock chart in Attachment II.	1 part per repair
6W7Z-14A411-BB Shipped in packages of 10. One package services 10 vehicles. This FJH is available for order without restriction until the current inventory is exhausted. In the future, this part will be superseded by part number 6W7Z-14A411-C (UFJH).	**Fuse Jumper Harness (FJH):** • Polarity and electrical connectors are specific to certain vehicle applications • See Attachment IV for approved vehicle part applications **Dealers are encouraged to install this FJH on approved vehicle applications until the supply is exhausted to preserve the available inventory of the UFJH.**	1 part per repair
4W1Z-14A411-BC Shipped in packages of 10. One package services 10 vehicles. This FJH is no longer available for ordering. In the future, this part will be superseded by part number 6W7Z-14A411-C (UFJH).	**Fuse Jumper Harness (FJH):** • Polarity and electrical connectors are specific to certain vehicle applications • See Attachment IV for approved vehicle part applications **Dealers are encouraged to install this FJH on approved vehicle applications until dealer inventory is exhausted to preserve the available inventory of the UFJH.**	1 part per repair

PARTS REQUIREMENTS / ORDERING INFORMATION (Continued)

New! BRAKE REPAIR KITS (SCDS)

Part Number	Description	Quantity
1L1Z-9F924-AA Motorcraft Part # SW-6350	Brake Repair Kit (SCDS & Adapter Harness.) See "Vehicle Parts Application & Labor Operation Chart" in Attachment II for approved part applications. Part will be Seed Stocked - refer to seed stock chart below.	1 kit per repair
XW7Z-9F924-BA Motocraft Part # SW-6351	Brake Repair Kit (SCDS & Adapter Harness.) See "Vehicle Parts Application & Labor Operation Chart" in Attachment II for approved part applications. Part will be Seed Stocked - refer to seed stock chart below.	1 kit per repair
XW7Z-9F924-CA (For use on 1994 Capri only)	1994 Capri Brake Repair Kit (SCDS w/sealing washer and Adapter Harness.) If this part is needed before May 1, 2008, call SSSC at 1-800-325-5621.	1 kit per repair

RELATED PARTS

Part Number	Description	Quantity
Motocraft Part #: XG-15-A	Electrical Grease II - One 3 oz. tube Note: Must be used when servicing any affected vehicle that has a leaking SCDS.	One 3 ounce tube will service 10 vehicles.
N803942-S100	Intermediate Steering Shaft Bolts - 6 parts required per vehicle (1993 Mark VIII Only).	2 per repair (1 pkg = 3 bolts.)

New! SEED STOCK PLAN

6W7Z-14A411-C: Universal Fused Jumper Harness (UFJH)

The UFJH will be seed-stocked two (2) weeks, and may be extended for a third week if necessary. Dealers will be notified via DOES II message when open ordering begins or if seed stock quantities change. Orders for this part will be placed on Thursdays, for delivery on Fridays and Saturdays.

Dealer Involved Vehicles	Seed 1 Dealers will receive beginning on 4/11/08	Seed 2 Dealers will receive beginning on 4/18/08
1 to 999	40 pieces	40 pieces
1000 to 1999	70 pieces	70 pieces
2000 to 2999	120 pieces	120 pieces
3000 plus	200 pieces	200 pieces

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NOTE 1: Dealers will need to access https://www.fjhmmis.dealerconnection.com to determine the total number of affected vehicles assigned to their dealership in order to calculate the number of FJH parts that they will receive under the Seed Stock Program.

NOTE 2: Each pack contains 10 pieces.

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

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New! *SEED STOCK PLAN (Continued)*

XW7Z-9F924-BA: Brake Kit - Speed Control Deactivation Switch (SCDS)

Dealer Involved Vehicles*	Seed 1 Week of 4/7/08	Seed 2 Week of 4/14/08	Seed 3 Week of 4/21/08	Seed 4 Week of 4/28/08
1 to 500	2 pieces	2 pieces	2 pieces	2 pieces
501 plus	5 pieces	5 pieces	5 pieces	5 pieces

1L1Z-9F924-AA: Brake Kit - Speed Control Deactivation Switch (SCDS)

Dealer Involved Vehicles*	Seed 1 Week of 4/7/08	Seed 2 Week of 4/14/08	Seed 3 Week of 4/21/08	Seed 4 Week of 4/28/08
1 to 500	0 pieces	2 pieces	0 pieces	2 pieces
501-1000	0 pieces	4 pieces	0 pieces	4 pieces
1001-2000	0 pieces	12 pieces	0 pieces	12 pieces
2001-3000	0 pieces	14 pieces	0 pieces	14 pieces
3001 plus	0 pieces	40 pieces	0 pieces	40 pieces

* Seed-stocking quantities for SCDS are based upon the break-down of car/truck vehicles within each dealer's assigned VINs.

NOTE: *The seed-stock schedules for part numbers XW7Z-9F924-BA and 1L1Z-9F924-AA are recurring patterns that will continue for an indefinite period of time. Dealers will be notified via DOES II message if seed-stocking quantities change or when open ordering begins.*

The DOR/COR number identifies parts ordered for this recall through the Special Service Support Center. The DOR/COR numbers for this program are as follows:

- *DOR/COR number for 8W7Z-14A411-C is 50394*
- *DOR/COR number for XW7Z-9F924-BA is 50387*
- *DOR/COR number for 1L1Z-9F924-AA is 50388*

NOTE: *If an emergency repair is required and any of the necessary parts are not available, contact the Special Service Support Center (1-800-325-5621). Please be prepared to provide your P&A Code, vehicle VIN, and vehicle owner name.*

NOTE: If a dealership wishes to discontinue their seed stock, contact the Special Service Support Center (800-325-5621). Please note that removing a dealership P&A Code from this seed stock program is a permanent action.

Questions regarding parts should be directed to the Special Service Support Center (800-325-5621) or E-mailed to: Ford@Renkim.com.

DEALER PRICE

For latest prices, refer to DOES II.

PARTS RETENTION AND RETURN

After the claim is submitted, the Ford Warranty Parts Analysis Center (WPAC) may initiate an FCS 700 tag for the return of Speed Control Deactivation Switches. Do not return any removed parts unless you receive notice from PEARS (Parts Entry And Return System). Refer to your daily PEARS register for part disposition and return instructions.

Follow the provisions of the Warranty and Policy Manual for "Parts Retention and Return Procedures".

New! *EXCESS STOCK RETURN*

To preserve the inventory of the Universal Fused Jumper Harness parts, dealers are requested to exhaust their existing inventories of the non-universal Fused Jumper Harness parts (4W1Z-14A411-BC and 8W7Z-14A411-BB) on the approved vehicle applications specified in Attachment IV, prior to using the Universal Fused Jumper Harness parts on those applications.

Excess stock returned for credit must have been purchased from Ford Customer Service Division in accordance with Policy Procedure Bulletin 4000.

Attachment III - Technical Information

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SCDS Identification

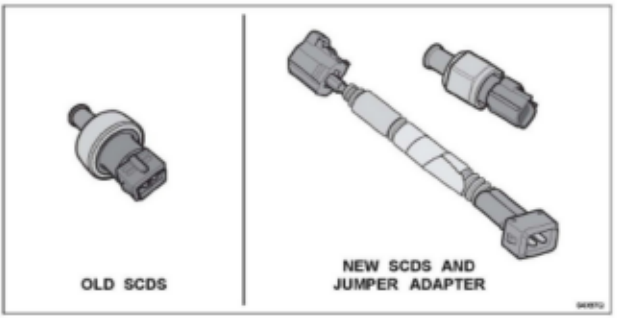


FIGURE 1

The Speed Control Deactivation Switch (SCDS) involved in Recall 05S28 and the revised SCDS is illustrated b

Note
that the revised SCDS has a different electrical connector. A jumper adapter (which is included in the parts kit)

SCDS Location

In most late model year vehicles involved in this recall, the SCDS is located on the master cylinder. In early mc

^ On early model year E-Series vehicles, the SCDS is located on the left frame rail.

^ On E-450 models only, remove the 3 screws and position the coolant degas bottle forward to allow access t

^

^

On 1993 MARK VIII vehicles, the steering wheel intermediate shaft needs to be disconnected from the insi

- When the intermediate steering shaft is disconnected, the steering wheel must be in the LOCK position t
- During installation of the intermediate steering shaft, new bolts must be installed. Tighten the bolts to 4

^

On 1994-1998 MARK VIII vehicles, the SCDS is located underneath the right front fender splash shield in

^

On all Mark VIII vehicles (except 1993), the speed control servo is located underneath the left front fender

FUSED JUMPER HARNESS (FJH) IDENTIFICATION

https://www.auto-manual.com/

On F-53 vehicles, if the SCDS is not located on the master cylinder, it may be located in a brake line junctic

F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)

https://www.auto-manual.com/

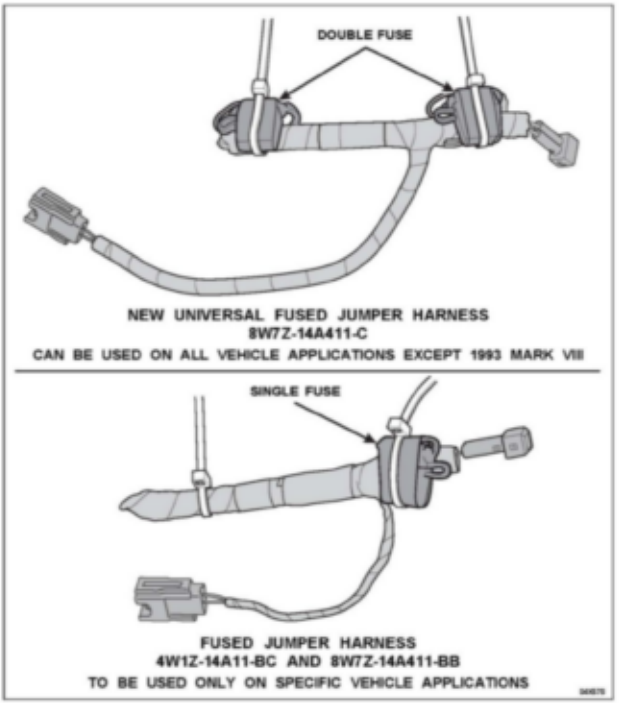


FIGURE 2

The new universal fused jumper harness has a double fuse instead of a single fuse. See Figure 2.

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F 150 2WD Pickup V8-4.6L SOHC VIN W (1998)