

ANTI-THEFT SYSTEM

1993 Jeep Cherokee

1993 ACCESSORIES & EQUIPMENT
Chrysler Corp. Anti-Theft System

Jeep; Cherokee

DESCRIPTION & OPERATION

The Vehicle Theft Alarm (VTA) Module is a logic controlled device that monitors vehicle doors, hood, liftgate and ignition tampering. Alarm activates by sounding horn, flashing all external lights and preventing vehicle engine from running. VTA system arms during normal vehicle lock-up procedure (ignition off, all doors locked with power locks). Security light flashes for 15 seconds during arming process. Security light remains lit during arming process if no signal is received from hood switch.

When the VTA is triggered, horn sounds for 3 minutes while flashing all external lights. Headlights, park and taillights continue to flash for an additional 15 minutes after horn stops. VTA system features a tamper alert function that notifies if vehicle has been tampered with by sounding horn 3 times once a front door is unlocked. The VTA will not arm if door is locked using key or manual lock control.

NOTE: If vehicle battery is disconnected and reconnected, the VTA system enters a power up alarm mode. The headlights, park and taillights will flash. The engine will not run. To exit this mode, the VTA system must be disarmed using key or keyless entry transmitter.

TROUBLE SHOOTING

NOTE: VTA system or VTA system self-test will be inoperative if Powertrain Control Module (PCM), has been replaced within last 20 ignition cycles.

1) System operation may be verified by entering self-test mode. To enter self-test, cycle ignition key to accessory position 3 times, leaving switch in accessory position. Once in self-test mode, headlights, park and taillights will begin flashing and horn will sound twice, verifying their operation.

NOTE: Vehicles equipped with VTA are also equipped with illuminated entry. Unless illuminated entry system is disabled, it is necessary to wait 30 seconds after each door opening or closure before testing can occur.

2) In self-test mode, horn will sound once after each of the following tests, indicating proper operation.

- * Beginning with all doors closed, open and close each individual door. The horn will sound each time a door is opened or closed. Allow one second between opening and closing.
- * Open, then close hood. Horn will sound upon opening and closing hood.
- * Operate power door locks in both directions.
- * Rotate key in both door lock cylinders to unlock position. Horn will sound as switch closes, and again when it opens. Allow at least one second between close and open position.

- * Cycle ignition switch to RUN position. Horn will sound and also take VTA out of self-test mode.
- * Activate remote keyless entry in both lock and unlock directions.

3) Horn not sounding after any of the above operations indicates a switch failure, lack of input signal to VTA module or internal failure of module.

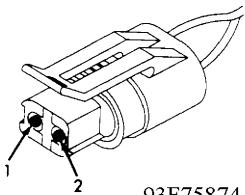
4) Check for continuity at switch. Check for open or shorted wire between switch and alarm module. See appropriate wiring diagram in the WIRING DIAGRAMS article in the ENGINE PERFORMANCE section. Check if PCM has been replaced. When PCM is replaced, it is necessary to cycle ignition switch through 20 engine starts to initialize system.

5) Whenever a VTA system malfunction occurs, verify wire harness is properly connected to all connectors before starting normal diagnosis and repair procedures. If security lamp comes on and remains on after ignition is turned on, CCD bus communication signal with PCM has been lost.

CONNECTOR IDENTIFICATION

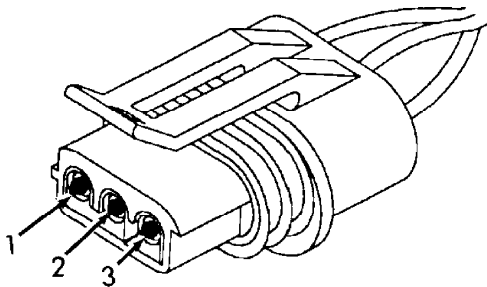
CONNECTOR IDENTIFICATION DIRECTORY TABLE

Connector	Go to Figure
Front Door Key Cylinder Switch	See Fig. 1.
Liftgate Key Cylinder Switch	See Fig. 2.
Mechanical Instrument Cluster	See Fig. 3.
Powertrain Control Module	See Fig. 4.
Remote Keyless Entry Module	See Fig. 5.
Vehicle Fuse Block	See Fig. 6.
Vehicle Relay Center	See Fig. 7.
Vehicle Theft Alarm Module	See Fig. 8.



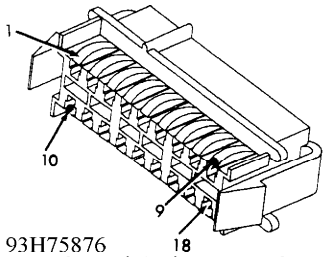
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Fig. 1: Identifying Front Door Key Cylinder Switch Connector
Courtesy of Chrysler Corp.



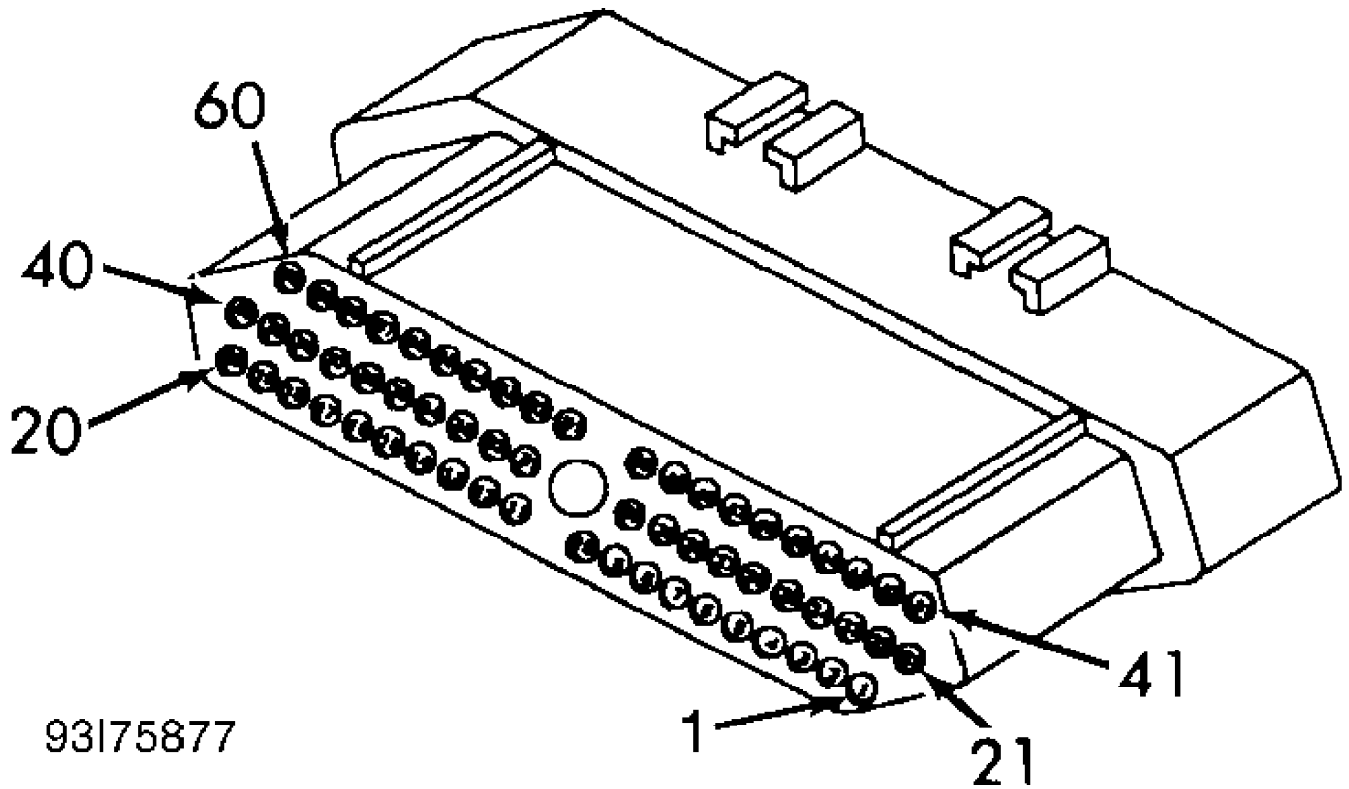
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Fig. 2: Identifying Liftgate Key Cylinder Switch Connector
Courtesy of Chrysler Corp.



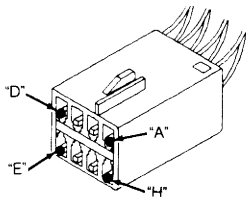
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Fig. 3: Identifying Mechanical Instrument Cluster Connector
 Courtesy of Chrysler Corp.



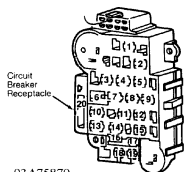
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Fig. 4: Identifying Powertrain Control Module Connector
 Courtesy of Chrysler Corp.



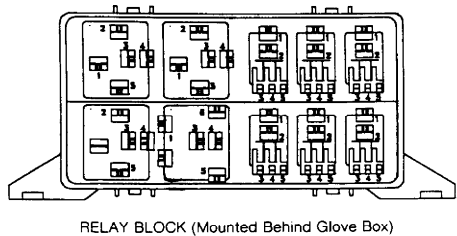
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Fig. 5: Identifying Remote Keyless Entry Module Connector
 Courtesy of Chrysler Corp.



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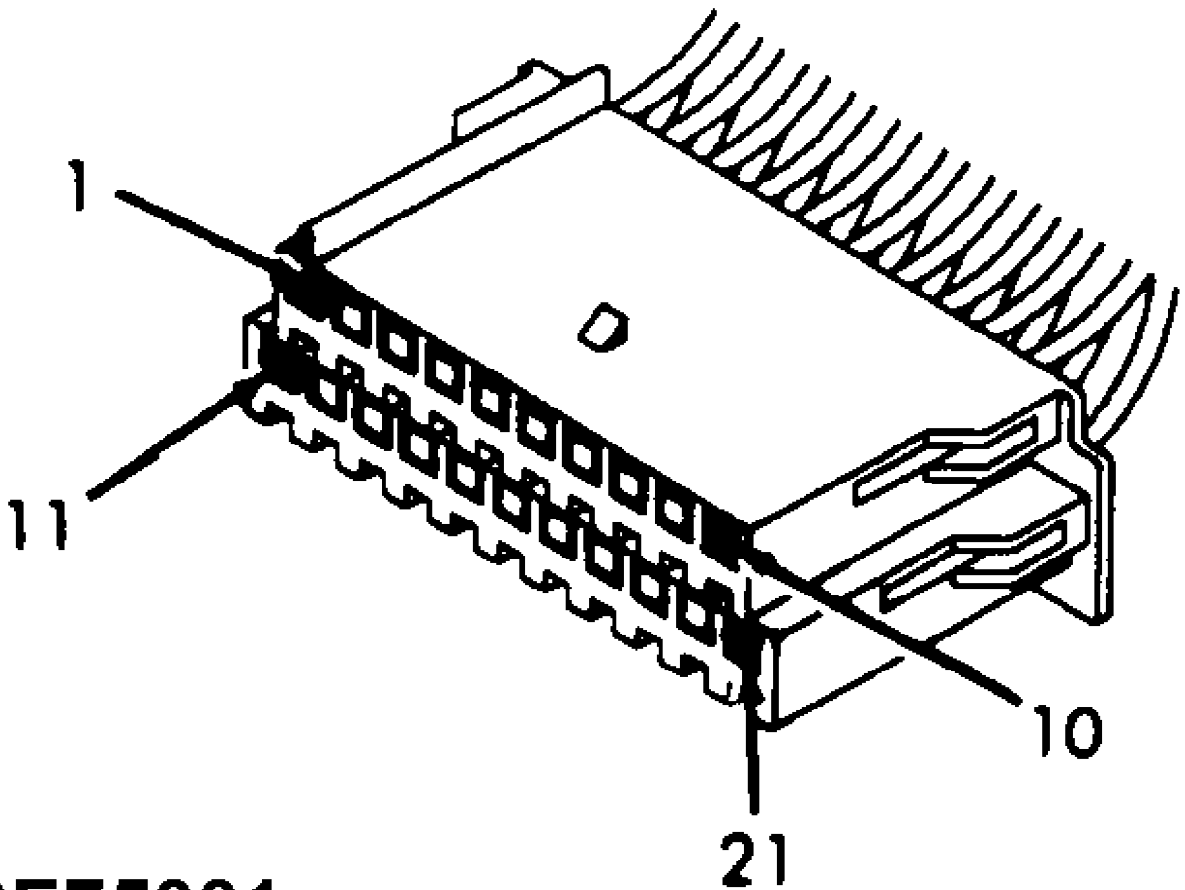
Fig. 6: Identifying Vehicle Fuse Block
 Courtesy of Chrysler Corp.



RELAY BLOCK (Mounted Behind Glove Box)

93D75880

Fig. 7: Identifying Vehicle Relay Center
Courtesy of Chrysler Corp.



93E75881

Fig. 8: Identifying Vehicle Theft Alarm Module Connector
Courtesy of Chrysler Corp.

TESTING

NOTE: In the following tests, illustrations are courtesy of Chrysler Corp. For connector terminal identification, see the CONNECTOR IDENTIFICATION table. For wiring diagrams, the appropriate chassis wiring diagram in WIRING DIAGRAMS article in ENGINE PERFORMANCE section.

CAUTION: Always turn ignition switch to OFF position prior to

disconnecting or connecting any module connector. Once connector is disconnected, ignition can be turned on.

NOTE: There are no diagnostic or trouble codes for Vehicle Theft Alarm system. Only symptom diagnosis and repair are provided by the manufacturer.

USING DRB-II

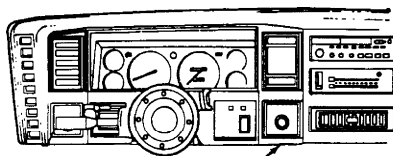
NOTE: Although other scan testers are available, manufacturer recommends using DRB-II (Diagnostic Readout Box II) to diagnose system.

WARNING: DO NOT probe connector with an ohmmeter unless specifically instructed in testing procedure. There is a possibility of air bag deployment.

Ensure DRB-II is connected to CCD data link connector located in behind dash on right side of steering column. See Fig. 9. Ensure correct cartridge is installed in DRB-II for vehicle and system being diagnosed. Menu selections will vary depending on vehicle and system being diagnosed. Follow DRB-II screen prompts to actuate, adjust, monitor, reset, test and diagnose system as necessary.

DRB-II is grounded through CCD data link connector, only one volt-ohmmeter test lead is required when using volt-ohmmeter option. DRB-II volt-ohmmeter should only be used when self-diagnostic tests require the use of this option.

If DRB-II has a blank screen or displays RAM TEST FAILURE, CARTRIDGE ERROR, KEY PAD TEST FAILURE, LOW BATTERY or HIGH BATTERY, this indicates a DRB-II failure. To diagnose and correct these conditions, see BODY CONTROL COMPUTER - VEHICLE COMMUNICATIONS article in ENGINE PERFORMANCE.



CCD DATA LINK CONNECTOR
(Mounted Behind Dash, Right Side Of Column)

93C75871

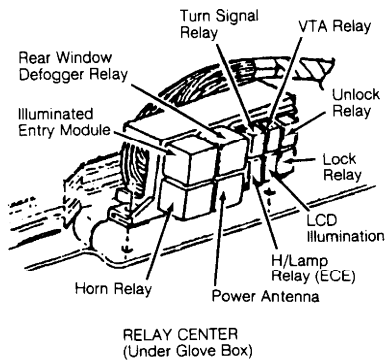
Fig. 9: Identifying Location Of CCD Data Link Connector
Courtesy of Chrysler Corp.

TEST 1A - TESTING SYSTEM FUNCTION

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Connect DRB-II to data link connector. See Fig. 9. If DRB-II displays SELECT SYSTEM, select VTA MODULE. If DRB-II is blank or displays anything other than SELECT SYSTEM, see BODY CONTROL COMPUTER - VEHICLE COMMUNICATIONS article in the ENGINE PERFORMANCE section.

2) If after selecting VTA MODULE the DRB-II displays NO RESPONSE, go to TEST 2A. If after selecting VTA MODULE the DRB-II screen does not display NO RESPONSE, disconnect the illuminated entry module. See Fig. 10. Ensure all doors, hood and liftgate are fully closed.



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Fig. 10: Identifying Relay Center Location

3) If security light flashes constantly, go to TEST 3A. If security light does not flash, switch VTA status to diagnostic using DRB-II. If DRB-II does not display TURN IGNITION KEY TO ACC. POSITION, go to TEST 4A. If DRB-II displays TURN IGNITION KEY TO ACC. POSITION, turn ignition switch to ACC. position.

4) If DRB-II displays NO RESPONSE after turning key to ACC. position, go to TEST 5A. If after turning key to ACC. position horn does not sound, go to TEST 6A. If horn does sound, check if security light is flashing. If security light is flashing, check if park and headlights are flashing.

5) Go to TEST 7A if security light is not flashing. Go to TEST 8A if exterior lights are not flashing. If exterior lights are flashing, turn ignition off and open left front door. Close door. If horn does not sound, go to TEST 9A.

6) If horn does sound, open right front door. Close door. If horn does not sound, go to TEST 9A. If horn does sound, open right rear door. Close door. If horn does not sound, go to TEST 9A. If horn does sound, open left rear door. Close door. If horn does not sound, go to TEST 9A.

7) If horn does sound, open hood. Close hood. If horn does not sound, go to TEST 10A. If horn does sound, open liftgate. Close liftgate. If horn does not sound, go to TEST 11A. If horn does sound, push power door lock switch to LOCK position.

8) If horn does not sound, go to TEST 12A. If horn does sound, push power door lock switch to UNLOCK position. If horn does not sound, go to TEST 13A. If horn does sound, rotate key in left front door lock to UNLOCK position. If horn does not sound, proceed to TEST 14A.

9) If horn does sound, rotate key in right front door lock to UNLOCK position. If horn does not sound, go to TEST 15A. If horn does sound, rotate key in liftgate to UNLOCK position. If horn does not sound, go to TEST 16A.

10) If horn does sound, turn ignition on. If horn does not sound, go to TEST 4A. If horn does sound, read vehicle theft alarm status with DRB-II. If the DRB-II does not display CURRENT MODE DISARMED, go to TEST 1B. If DRB-II does display CURRENT MODE DISARMED, DRB-II screen should display ENGINE CONTROLLER: 1) NO RESPONSE, 2) NO RESPONSE ?. If message is displayed, go to TEST 17A.

11) If DRB-II displays the message, ENGINE CONTROLLER: 1) OK TO RUN ARM VTA, 2) OK TO RUN ENGINE ?, go to TEST 18A if malfunction is caused by keyless entry, arm or disarm. If message is not displayed, replace Powertrain Control Module (PCM).

12) If keyless entry is working properly, determine if engine controller has been replaced. If engine controller has not been replaced, system is functioning properly. Engine has to cycle through 20 ignition starts before VTA becomes operational (assembly plant alarm override feature).

TEST 1B - TESTING SYSTEM FUNCTION

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

Ensure ignition is off. Turn left door lock to UNLOCK position and turn ignition on. Using DRB-II, read VTA status. If DRB-II displays CURRENT MODE DISARMED, system is functioning properly. Perform TEST VER-1. If screen does not display CURRENT MODE DISARMED, replace VTA module. Perform TEST VER-1.

TEST 2A - REPAIRING NO RESPONSE

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Ensure ignition switch is off. Disconnect VTA module. See Fig. 11. Using DRB-II in ohmmeter mode, test system ground circuit for resistance at VTA module connector.

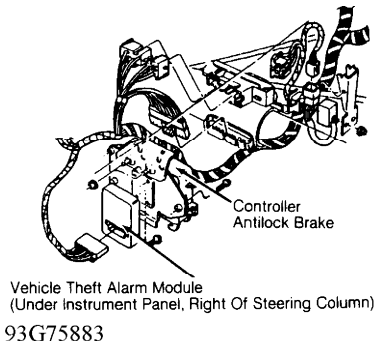


Fig. 11: Identifying Vehicle Theft Alarm Location

2) Check resistance at terminal No. 21 (Black wire). If resistance is more than 0-15 ohms, repair open circuit. Perform TEST VER-1. If resistance is less than 0-15 ohms, turn ignition on.

3) Using DRB-II in voltmeter mode, check voltage at terminal No. 8 (Dark Blue/White wire) of VTA module connector. If voltage is less than 10 volts, go to TEST 2B. If voltage is more than 10 volts, check ignition voltage at terminal No. 12 (Dark Blue wire). If voltage is less than 10 volts, go to TEST 2C. If voltage is more than 10 volts, disconnect DRB-II.

4) Using external ohmmeter, check resistance between pin No. 4 (Violet/Brown wire) of CCD data link connector and terminal No. 9 (Violet/Brown wire) of VTA module connector. If resistance is more than 5 ohms, repair open circuit. Perform TEST VER-1. If resistance is less than 5 ohms, check resistance between pin No. 3 (White/Black wire) of CCD data link connector and terminal No. 10 (White/Black wire) of VTA module connector. If resistance is more than 5 ohms, repair open circuit. Perform TEST VER-1. If resistance is less than 5 ohms, replace VTA module. Perform TEST VER-1.

TEST 2B - REPAIRING NO RESPONSE

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate

wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Remove fuse No. 4 from fuse block and inspect. If fuse is open (NG), check resistance between terminal No. 8 (Dark Blue/ White wire) of VTA module connector using DRB-II. If resistance is less than 5 ohms, repair shorted wire. If resistance is more than 5 ohms, replace No. 4 fuse. Perform TEST VER-1.

2) If No. 4 fuse is good when removed, check voltage feed circuit with DRB-II. Connect DRB-II to voltage feed terminal of No. 4 fuse (right side of connector) receptacle. If voltage is less than 10 volts, repair open circuit between fuse receptacle and terminal No. 8 (Dark Blue/White wire) of VTA module connector. Perform TEST VER-1. If voltage is more than 10 volts, repair open circuit between terminal No. 12 (Dark Blue wire) of VTA module connector and terminal No. 4 (Violet/Brown wire) of wiper circuit breaker receptacle of fuse block. Perform TEST VER-1.

TEST 2C - REPAIRING NO RESPONSE

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Remove wiper circuit breaker from fuse block. Using DRB-II, check voltage at ignition voltage feed, terminal No. 4 (Violet/Brown wire) of circuit breaker receptacle. If voltage is less than 10 volts, repair open ignition voltage feed circuit (Violet/Brown wire). Perform TEST VER-1.

2) If voltage is more than 10 volts, check circuit resistance with DRB-II. Check resistance at terminal No. 12 (Dark Blue wire) of VTA module connector. If resistance is less than 5 ohms, repair ignition voltage feed circuit (Dark Blue wire) for short to ground. Replace wiper circuit breaker. Perform TEST VER-1.

3) If resistance is more than 5 ohms, check resistance between terminal No. 12 (Dark Blue) of VTA module connector and terminal No. 2 of circuit breaker receptacle of fuse block. If resistance is less than 5 ohms, replace circuit breaker. If resistance is more than 5 ohms, repair open ignition feed circuit (Dark Blue wire). Perform TEST VER-1.

TEST 3A - REPAIRING SECURITY LIGHT FLASHING CONSTANTLY

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Disconnect VTA module. See Fig. 11 in TEST 2A. Using DRB-II, check voltage at arm sense terminal No. 6 (Pink/Orange wire) of VTA module connector. If voltage is less than one volt, replace VTA module. Perform TEST VER-1. If voltage is more than one volt, disconnect remote keyless entry module. See Fig. 12.

Remote Keyless Entry Module Connector

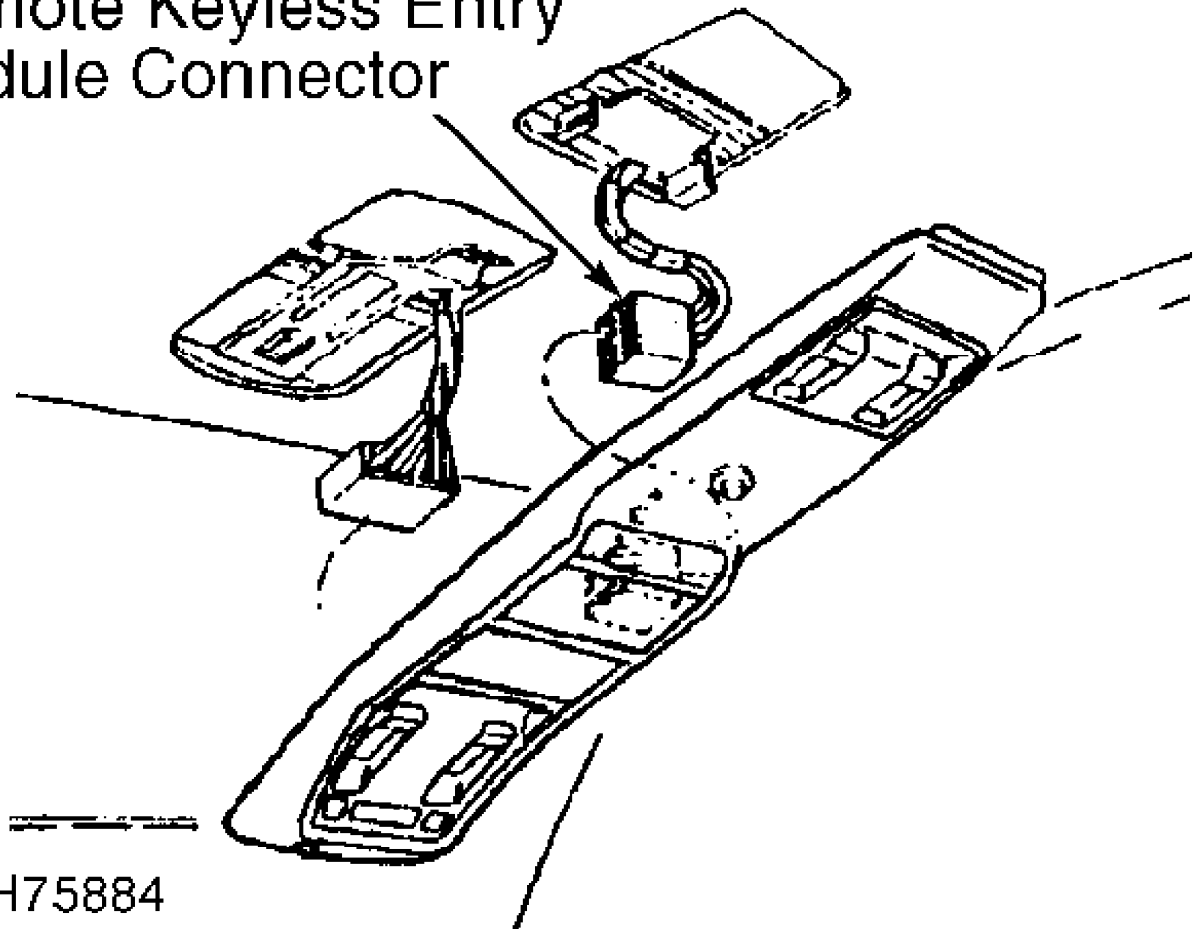


Fig. 12: Identifying Remote Keyless Entry Module Location

2) Using DRB-II, check voltage at arm sense circuit terminal No. 6 (Pink/Orange wire). If voltage is more than one volt, repair shorted arm sense (Pink/Orange wire). Perform TEST VER-1. If voltage is less than one volt, replace remote keyless entry module. Perform TEST VER-1.

TEST 4A - REPAIRING IGNITION INPUT CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Ensure ignition is turned off. Disconnect VTA module. Turn ignition on. Using DRB-II, check voltage at terminal No. 8 (Dark Blue/White wire) of VTA module connector. If voltage is more than 10 volts, replace VTA module. Perform TEST VER-1.

2) If voltage is less than 10 volts, remove No. 4 fuse and inspect. If fuse is open (NG), check resistance at terminal No. 8 (Dark Blue/White wire) of VTA module connector with DRB-II. If resistance is less than 5 ohms, repair ignition voltage feed circuit terminal No. 8 (Dark Blue/White wire) shorted to ground. Perform TEST VER-1.

3) If resistance is more than 5 ohms, replace fuse. If fuse No. 4 is not open (good), check voltage feed circuit at fuse No. 4

(right side of receptacle) with DRB-II. If voltage is less than 10 volts, repair open circuit between fuse receptacle and terminal No. 8 (Dark Blue/White wire) of VTA module connector. Perform TEST VER-1. If voltage is more than 10 volts, repair open circuit between pin No. 12 (Dark Blue wire) of VTA module connector and terminal No. 4 (Violet/Brown wire) of wiper circuit breaker of fuse block. Perform TEST VER-1.

TEST 5A - REPAIRING IGNITION INPUT CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Ensure ignition is off. Disconnect VTA module. Turn ignition on. Using DRB-II, check voltage at terminal No. 12 (Dark Blue wire) of VTA module connector. If voltage is more than 10 volts, replace VTA module. Perform TEST VER-1. If voltage is less than 10 volts, remove wiper circuit breaker.

2) Using DRB-II, check voltage at terminal No. 4 (Light Green/Black wire) of circuit breaker receptacle. If voltage is less than 10 volts, repair open voltage feed circuit (Light Green/Black wire). If voltage is more than 10 volts, check resistance at terminal No. 2 (Light Green/Black wire) of wiper circuit breaker receptacle and terminal No. 12 (Dark Blue wire) of VTA module connector.

3) If resistance is less than 5 ohms, repair shorted circuit. Perform TEST VER-1. Replace circuit breaker. If resistance is more than 5 ohms, repair open voltage feed circuit. Perform TEST VER-1.

TEST 6A - REPAIRING HORN CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Push horn button on steering wheel. If horn sounds, disconnect VTA module. Using DRB-II, check voltage at terminal No. 5 (Black/Red wire) of VTA module connector. If voltage is less than 10 volts, repair open horn relay control circuit (Black/Red wire).

2) If voltage is more than 10 volts, check voltage on fused battery feed circuit, terminal No. 2 (Gray/Pink wire) of VTA module connector. If voltage is less than 10 volts, repair open fused battery voltage feed wire. If voltage is more than 10 volts, replace VTA module. Perform TEST VER-1.

3) If horn did not sound when pushing steering wheel button, disconnect VTA module. Connect jumper wire between horn relay control wire (terminal No. 5 of VTA module connector) and ground. If horn sounds, replace VTA module. See the appropriate STEERING COLUMN SWITCHES article in the ACCESSORIES/SAFETY EQUIP section for horn button/wiring repair.

4) If horn does not sound, remove horn relay. See Fig. 10 in TEST 1A. Using DRB-II, check fused battery feed voltage at terminal No. 1 of horn relay receptacle. If voltage is less than 10 volts, go to TEST 6B.

5) If voltage is more than 10 volts, check voltage at fused battery feed terminal No. 5 (Gray/Pink wire) of horn relay receptacle. If voltage is less than 10 volts, repair open fused battery feed circuit (Gray/Pink wire). Perform TEST VER-1.

6) If voltage is more than 10 volts, check resistance between terminal No. 2 (Black/Red wire) of horn relay receptacle and terminal No. 5 (Black/Red wire) of VTA module connector with external ohmmeter.

If resistance is more than 5 ohms, repair open horn control circuit (Black/Red wire). Perform TEST VER-1.

7) If resistance is less than 5 ohms, connect a jumper wire between terminals No. 1 (Pink/Light Green wire) and No. 4 (Dark Green/Red wire) of horn relay receptacle. If horn sounds, replace horn relay. Perform TEST VER-1. If horn does not sound, repair open horn feed circuit (Dark Green/Red wire). Perform TEST VER-1.

TEST 6B - REPAIRING HORN CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Remove and inspect fuse No. 11. If fuse is open (NG), check resistance of fused battery feed at terminal No. 2 (Gray/Pink wire) of VTA module connector with DRB-II. If resistance is less than 5 ohms, repair fused battery feed circuit (Gray/Pink wire) for short to vehicle ground. Replace fuse. Perform TEST VER-1. If resistance is more than 5 ohms, replace fuse. Perform TEST VER-1.

2) If fuse No. 11 is not open (good), check voltage on battery feed side of fuse receptacle (Red/Yellow wire on left side of receptacle) using DRB-II. If voltage is more than 10 volts, repair open fused battery feed wire. Perform TEST VER-1. If voltage is less than 10 volts, repair open battery feed wire. Perform TEST VER-1. Both wires are Gray/Pink.

TEST 7A - REPAIRING SECURITY INDICATOR LIGHT CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Turn ignition on. If security indicator light is constantly on, go to TEST 7B. If security light is not on constantly, disconnect VTA module. Connect jumper wire between security light control circuit terminal No. 17 (Black/Orange wire) of VTA module connector and vehicle ground.

2) If security light illuminates, replace VTA module. If security light does not illuminate, disconnect Mechanical Instrument Cluster (MIC) Natural color connector. Remove instrument cluster. See appropriate INSTRUMENT PANELS article in the ACCESSORIES/SAFETY EQUIP section. Visually inspect condition of instrument cluster circuit board. Replace circuit board if damaged. Perform TEST VER-1.

3) If circuit board is okay, inspect security indicator light bulb. Replace bulb if open (NG). Perform TEST VER-1. If security indicator light bulb is good, check fused battery feed voltage at terminal No. 10 (Pink wire) of MIC Natural color connector.

4) If voltage is less than 10 volts, repair open fused battery feed circuit (Pink wire). Perform TEST VER-1. If voltage is more than 10 volts, repair open security indicator light control (Black/Orange wire). Perform TEST VER-1.

TEST 7B - REPAIRING SECURITY INDICATOR LIGHT CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

Disconnect VTA module. See Fig. 11 in TEST 2A. If security

indicator light illuminates, repair security indicator light control (Black/Orange wire) for short to ground. Perform TEST VER-1. If security indicator light does not illuminate, replace VTA module. Perform TEST VER-1.

TEST 8A - REPAIRING PARKING LIGHT CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) If headlights do not flash, go to TEST 8B. If headlights do flash, turn parking lights on. If parking lights do not illuminate, see appropriate STEERING COLUMN SWITCHES article in the ACCESSORIES/SAFETY EQUIP section for repair. If parking lights do illuminate, disconnect VTA module. See Fig. 11 in TEST 2A.

2) Using DRB-II, check voltage of park/taillight control circuit at terminal No. 4 (Dark Blue/Red wire) of VTA module connector. If voltage is less than 10 volts, repair open park/taillight control (Dark Blue/Red wire).

3) If voltage is more than 10 volts, check voltage of fused battery feed circuit at terminal No. 2 (Gray/Pink wire) of VTA module connector using DRB-II. If voltage is less than 10 volts, go to TEST 8D. If voltage is more than 10 volts, check voltage of fused battery feed circuit at terminal No. 11 (Pink/Light Green wire) of VTA module connector using DRB-II. If voltage is less than 10 volts, go to TEST 8C. If voltage is more than 10 volts, replace VTA module. Perform TEST VER-1.

TEST 8B - REPAIRING HEADLIGHT CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Switch headlights on to high beam. If high beam headlights fail to illuminate, see appropriate STEERING COLUMN SWITCHES article in ACCESSORIES/SAFETY EQUIP section for repair. If high beam headlights illuminate, disconnect VTA relay. See Fig. 10 in TEST 1A. DO NOT turn off high beam headlights.

2) Check VTA relay output voltage at terminal No. 2 (Red/Orange wire) of VTA relay receptacle using DRB-II. If voltage is less than 10 volts, repair open VTA relay output circuit (Red/Orange wire). Perform TEST VER-1. If voltage is more than 10 volts, check fused battery feed voltage at terminal No. 1 (Pink/Light Green wire) of VTA relay receptacle using DRB-II.

3) If voltage is less than 10 volts, go to TEST 8C. If voltage is more than 10 volts, check resistance of relay ground (Black wire) at terminal No. 3 of VTA relay receptacle using DRB-II. If resistance is more than 20 ohms, repair open VTA relay ground. Perform TEST VER-1.

4) If resistance is less than 20 ohms, disconnect VTA module. See Fig. 11 in TEST 2A. Using DRB-II, check fused battery feed voltage at terminal No. 11 (Pink/Light Green wire) of VTA module connector. If voltage is less than 10 volts, repair open fused battery feed circuit (Pink/Light Green wire). Perform TEST VER-1.

5) If voltage is more than 10 volts, check fused battery feed circuit voltage at terminal No. 2 (Gray/Pink wire) of VTA module connector using DRB-II. If voltage is less than 10 volts, go to TEST 8D. If voltage is more than 10 volts, check VTA relay control circuit resistance at terminal No. 18 (Tan/Pink wire) of VTA module connector

using DRB-II.

6) If resistance is less than 5 ohms, repair VTA relay control circuit wire for short to vehicle ground. If resistance is more than 5 ohms, check resistance between terminal No. 5 (Tan/Pink wire) of VTA relay control receptacle and terminal No. 18 (Tan/Pink wire) of VTA module connector using external ohmmeter.

7) If resistance is more than 5 ohms, repair open VTA relay control circuit (Tan/Pink wire). Perform TEST VER-1. If resistance is less than 5 ohms, reconnect VTA relay. Connect jumper wire between terminal No. 11 (Pink/Light Green wire) and terminal No. 18 (Tan/Pink wire) of VTA module connector. If headlights illuminate, replace VTA module. Perform TEST VER-1. If headlight do not illuminate, replace VTA relay. Perform TEST VER-1.

TEST 8C - REPAIRING BATTERY SUPPLY INPUT CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Remove and inspect fuse No. 3. If fuse is open (NG), check fused battery feed circuit resistance at terminal No. 2 (Pink/Light Green) of VTA module connector using DRB-II. If resistance is less than 5 ohms, repair fused battery feed wire for short to ground. Replace fuse. If resistance is more than 5 ohms, replace fuse. Perform TEST VER-1.

2) If No. 3 fuse is good, check fuse No. 3 receptacle (left side of receptacle) feed voltage using DRB-II. If voltage is less than 10 volts, repair open battery feed wire. Perform TEST VER-1. If voltage is more than 10 volts, repair open fused battery feed wire. Perform TEST VER-1.

TEST 8D - REPAIRING BATTERY SUPPLY INPUT CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Remove and inspect fuse No. 11. If fuse is open (NG), check fused battery feed circuit resistance at terminal No. 11 (Gray/Pink wire) of VTA module connector using DRB-II. If resistance is less than 5 ohms, repair fused battery feed wire for short to ground. Perform TEST VER-1. Replace fuse. If resistance is more than 5 ohms, replace fuse. Perform TEST VER-1.

2) If No. 11 fuse is good, check fuse No. 11 receptacle (left side of receptacle) feed voltage using DRB-II. If voltage is less than 10 volts, repair open battery feed wire. Perform TEST VER-1. If voltage is more than 10 volts, repair open fused battery feed wire. Perform TEST VER-1.

TEST 9A - REPAIRING DOOR JAMB SENSE CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

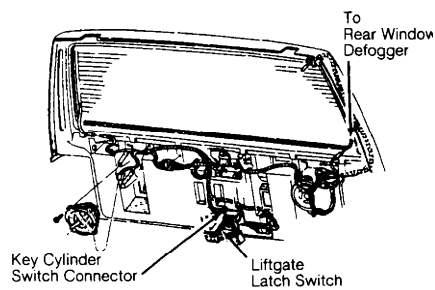
1) Ensure all doors, hood and liftgate are closed. Ensure all courtesy, dome and cargo lights function properly. Repair any interior lights that are not functioning.

2) Using DRB-II, read DOOR AJAR status. If status screen does

not display closed (CLSD), go to TEST 9B. If DRB-II displays closed (CLSD) status, disconnect left front door jamb switch. If status screen does not display closed (CLSD), replace door jamb switch. Perform TEST VER-1.

3) If DRB-II displays closed (CLSD) status, disconnect left rear door jamb switch. If status screen does not display closed (CLSD), replace door jamb switch. Perform TEST VER-1. If DRB-II displays closed (CLSD) status, disconnect right front door jamb switch. If status screen does not display closed (CLSD), replace door jamb switch. Perform TEST VER-1.

4) If DRB-II displays closed (CLSD) status, disconnect right rear door jamb switch. If status screen does not display closed (CLSD), replace door jamb switch. Perform TEST VER-1. If DRB-II displays closed (CLSD) status, disconnect liftgate latch sense switch. See Fig. 13. If status screen does not display closed (CLSD), replace liftgate latch sense switch. Perform TEST VER-1.



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Fig. 13: Identifying Liftgate Latch Switch Location

5) If DRB-II displays closed (CLSD) status, disconnect VTA module. See Fig. 11 in TEST 2A. Using DRB-II, check door jamb sense circuit voltage at terminal No. 3 (Yellow wire) of VTA module. If voltage is less than 10 volts, repair open door jamb sense wire. Perform TEST VER-1.

6) If voltage is more than 10 volts, check resistance of liftgate latch sense (Violet/Yellow wire) at terminal No. 1 of VTA module connector using DRB-II. If resistance is less than 5 ohms, repair liftgate latch sense wire for short to ground. Perform TEST VER-1.

7) If resistance is more than 5 ohms, determine if any previous repairs were done. Replace VTA module if no repairs were done. Perform TEST VER-1. If repairs were done, perform TEST VER-1.

TEST 9B - REPAIRING DOOR JAMB SENSE CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

Disconnect VTA module. See Fig. 11 in TEST 2A. Using DRB-II, check door jamb sense circuit voltage at terminal No. 3 (Yellow wire) of VTA module connector. If voltage is less than 10 volts, repair open door jamb sense wire. Perform TEST VER-1. If voltage is more than 10 volts, replace VTA module. Perform TEST VER-1. See Fig. 11 in TEST 2A.

TEST 10A - REPAIRING HOOD AJAR SENSE CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram

in the WIRING DIAGRAMS section.

1) Ensure hood is closed and aligned properly. Using DRB-II, read HOOD AJAR status. If DRB-II does not display closed (CLSD) status, go to TEST 10B. If displays closed (CLSD) status, disconnect hood ajar switch. Using DRB-II, check resistance of hood ajar sense circuit at terminal No. 20 (Brown/Tan wire) of VTA module connector.

2) If resistance is less than 5 ohms, repair hood ajar sense wire for short to ground. Perform TEST VER-1. If resistance is more than 5 ohms, replace VTA module. Perform TEST VER-1.

TEST 10B - REPAIRING HOOD AJAR CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Disconnect hood ajar switch. Connect jumper wire between hood ajar sense wire (at switch) and vehicle ground. Using DRB-II, read HOOD AJAR switch status. If screen displays closed (CLSD), replace switch. If DRB-II screen does not display closed (CLSD), connect jumper wire between hood ajar sense wire (at VTA module connector) and vehicle ground.

2) Ensure connector is connected to VTA module. Using DRB-II, read HOOD AJAR switch status. If status screen displays closed, repair open hood ajar sense wire. Perform TEST VER-1. If screen does not display closed, replace VTA module. Perform TEST VER-1.

TEST 11A - REPAIRING LIFTGATE LATCH SENSE CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Ensure all doors, hood and liftgate are properly closed and aligned. VTA system should still be diagnostic mode.

2) Using DRB-II, read DOOR AJAR status screen. If screen displays closed (CLSD), go to TEST 9A. If status screen does not display closed (CLSD), open liftgate and turn on cargo light. If horn sounds, system is functioning properly. Cargo light switch must be in ON position to fully arm VTA system. Return back to TEST 1A.

3) If horn does not sound, disconnect liftgate latch switch connectors. Using DRB-II, check resistance of latch switch ground wire. If resistance is more than 5 ohms, repair open latch switch ground wire. Perform TEST VER-1. If resistance is less than 5 ohms, connect jumper wire between liftgate latch switch connectors.

4) Using DRB-II, read DOOR AJAR status. If status screen displays closed (CLSD), replace liftgate latch switch. Perform TEST VER-1. If status screen does not display closed (CLSD), connect jumper wire between ground (Black wire) and latch switch sense (Violet/Yellow wire).

5) Using DRB-II, read DOOR AJAR status. If screen does not display closed (CLSD), replace VTA module. If status screen does display closed (CLSD), disconnect VTA module. Using DRB-II, check liftgate latch sense circuit voltage at terminal No. 1 (Violet/Yellow wire) of VTA module connector. If voltage is more than 10 volts, replace cargo light switch. Perform TEST VER-1. If voltage is less than 10 volts, repair open liftgate latch sense wire. Perform TEST VER-1.

TEST 12A - REPAIRING DOOR LOCK SENSE CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Determine that power doors locks are functioning properly. Repair door locks that are not functioning properly.

2) Disconnect VTA module. See Fig. 11 in TEST 2A. Using DRB-II, check lock switch sense (Orange/Violet wire) voltage at terminal No. 15 of VTA module connector. While measuring voltage, push power lock switch to LOCK position.

3) If voltage is more than 10 volts, replace VTA module. Perform TEST VER-1. If voltage is less than 10 volts, repair open lock switch sense circuit (Orange/Violet wire). Perform TEST VER-1.

TEST 13A - REPAIRING DOOR UNLOCK SENSE CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Determine that power doors locks are functioning properly. Repair door locks that are not functioning properly.

2) Disconnect VTA module. See Fig. 11 in TEST 2A. Using DRB-II, check unlock switch sense voltage at terminal No. 16 (Pink/Violet wire) of VTA module connector. While measuring voltage, push power lock switch to UNLOCK position.

3) If voltage is more than 10 volts, replace VTA module. Perform TEST VER-1. If voltage is less than 10 volts, repair open unlock switch sense circuit (Pink/Violet wire). Perform TEST VER-1.

TEST 14A - REPAIRING LEFT DOOR KEY CYLINDER CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Using DRB-II, read DOOR KEY CYLINDER SWITCH (DR KEY CYL:) status. If DRB-II status screen displays CIRCUIT CLOSED (CLSD), go to TEST 15B. If screen does not display CIRCUIT CLOSED (CLSD), disconnect left front door switch connector.

2) Connect jumper wire across both terminals of connector. Using DRB-II, read DOOR KEY CYLINDER SWITCH (DR KEY CYL:) status. If status screen displays CIRCUIT CLOSED (CLSD), replace left front door key cylinder switch. Perform TEST VER-1.

3) If DRB-II screen does not display CIRCUIT CLOSED (CLSD), connect jumper wire between right terminal No. 2 (Light Green/Orange wire) of left front door switch connector and vehicle ground. Using DRB-II, read DOOR KEY CYLINDER SWITCH (DR KEY CYL:) status.

4) If screen displays CIRCUIT CLOSED (CLSD), repair switch ground wire for open to ground. Perform TEST VER-1. If DRB-II screen does not display CIRCUIT CLOSED (CLSD), connect jumper wire between terminal No. 7 (Light Green/Orange wire) of VTA module connector and vehicle ground. DO NOT disconnect VTA module connector.

5) Using DRB-II, read DOOR KEY CYLINDER SWITCH (DR KEY CYL:) status. If screen displays CIRCUIT CLOSED (CLSD), repair open disarm sense circuit (Light Green/Orange wire). Perform TEST VER-1. If DRB-II screen does not display CIRCUIT CLOSED (CLSD), replace VTA module. Perform TEST VER-1.

TEST 15A - REPAIRING RIGHT DOOR KEY CYLINDER CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Using DRB-II, read DOOR KEY CYLINDER SWITCH (DR KEY CYL:) status. If DRB-II status screen displays CIRCUIT CLOSED (CLSD), go to TEST 15B. If screen does not display CIRCUIT CLOSED (CLSD), disconnect right front door switch connector.

2) Connect jumper wire across both terminals of connector. Using DRB-II, read DOOR KEY CYLINDER SWITCH (DR KEY CYL:) status. If status screen displays CIRCUIT CLOSED (CLSD), replace right front door key cylinder switch. Perform TEST VER-1.

3) If DRB-II screen does not display CIRCUIT CLOSED (CLSD), connect jumper wire between right terminal No. 2 (Dark Green/Orange wire) of right front door switch connector and vehicle ground. Using DRB-II, read DOOR KEY CYLINDER SWITCH (DR KEY CYL:) status.

4) If screen displays CIRCUIT CLOSED (CLSD), repair switch ground wire for open to ground. Perform TEST VER-1. If DRB-II screen does not display CIRCUIT CLOSED (CLSD), connect jumper wire between terminal No. 14 (Dark Green/Orange wire) of VTA module connector and vehicle ground. DO NOT disconnect VTA module connector.

5) Using DRB-II, read DOOR KEY CYLINDER SWITCH (DR KEY CYL:) status. If screen displays CIRCUIT CLOSED (CLSD), repair open disarm sense circuit (Dark Green/Orange wire). Perform TEST VER-1. If DRB-II screen does not display CIRCUIT CLOSED (CLSD), replace VTA module. Perform TEST VER-1.

TEST 15B - REPAIRING DOOR KEY CYLINDER CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Disconnect left front door key cylinder switch connector. Using DRB-II, read DOOR KEY CYLINDER SWITCH (DR KEY CYL:) status. If DRB-II status screen does not display CIRCUIT CLOSED (CLSD), replace left front door key cylinder switch. If DRB-II screen displays CIRCUIT CLOSED (CLSD), disconnect liftgate key cylinder switch.

2) Using DRB-II, read DOOR KEY CYLINDER SWITCH (DR KEY CYL:) status. If status screen does not display CIRCUIT CLOSED (CLSD), replace liftgate key cylinder switch. Perform TEST VER-1. If DRB-II screen displays CIRCUIT CLOSED (CLSD), disconnect right front door key cylinder switch.

3) Using DRB-II, read DOOR KEY CYLINDER SWITCH (DR KEY CYL:) status. If DRB-II screen does not display CIRCUIT CLOSED (CLSD), replace right front door key cylinder switch. Perform TEST VER-1. If screen displays CIRCUIT CLOSED (CLSD), disconnect remote keyless entry module. See Fig. 12 in TEST 3A.

4) Using DRB-II, read DOOR KEY CYLINDER SWITCH (DR KEY CYL:) status. If screen does not display CIRCUIT CLOSED (CLSD), replace remote keyless entry module. Perform TEST VER-1. If DRB-II screen displays CIRCUIT CLOSED (CLSD), disconnect VTA module. See Fig. 11 in TEST 2A.

5) Using DRB-II, check resistance of disarm sense circuit at terminal No. 7 (Light Green/Orange wire) of VTA module connector. If resistance is less than 5 ohms, repair disarm sense (Light Green/Orange wire) for short to ground. Perform TEST VER-1.

6) If resistance is more than 5 ohms, check resistance of disarm sense circuit (right front) at terminal No. 14 (Dark

Green/Orange wire) of VTA module connector. If resistance is less than 5 ohms, repair disarm sense (Dark Green/Orange wire) for short to ground. Perform TEST VER-1. If resistance is more than 5 ohms, replace VTA module. Perform TEST VER-1.

TEST 16A - REPAIRING LIFTGATE KEY CYLINDER CIRCUIT

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Using DRB-II, read DOOR KEY CYLINDER SWITCH (DR KEY CYL:) status. If DRB-II status screen displays CIRCUIT CLOSED (CLSD), go to TEST 15B. If screen does not display CIRCUIT CLOSED (CLSD), disconnect liftgate key cylinder switch connector.

2) Connect jumper wire across terminals No. 1 and 3 of connector. Using DRB-II, read DOOR KEY CYLINDER SWITCH (DR KEY CYL:) status. If status screen displays CIRCUIT CLOSED (CLSD), replace liftgate key cylinder switch. Perform TEST VER-1.

3) If DRB-II screen does not display CIRCUIT CLOSED (CLSD), connect jumper wire between right terminal No. 3 (Light Green/Orange wire) of liftgate key cylinder switch connector and vehicle ground. Using DRB-II, read DOOR KEY CYLINDER SWITCH (DR KEY CYL:) status.

4) If screen displays CIRCUIT CLOSED (CLSD), repair switch ground wire for open to ground. Perform TEST VER-1. If DRB-II screen does not display CIRCUIT CLOSED (CLSD), connect jumper wire between terminal No. 7 (Light Green/Orange wire) of VTA module connector and vehicle ground. DO NOT disconnect VTA module connector.

5) Using DRB-II, read DOOR KEY CYLINDER SWITCH (DR KEY CYL:) status. If screen displays CIRCUIT CLOSED (CLSD), repair open disarm sense wire (Light Green/Orange). Perform TEST VER-1. If DRB-II screen does not display CIRCUIT CLOSED (CLSD), replace VTA module. Perform TEST VER-1.

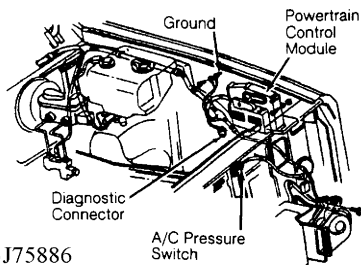
TEST 17A - REPAIRING NO RESPONSE FROM PCM

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Turn ignition to OFF. Disconnect the PCM module connector. See Fig. 14. Disconnect the VTA module connector as shown in TEST 2A, Fig. 11. Using an external ohmmeter, check resistance of CCD (+) bus circuit between terminal No. 26 (Violet/Brown wire) of PCM module connector and terminal No. 9 (Violet/Brown wire) of VTA module connector.

2) If resistance is more than 5 ohms, repair open CCD (+) bus (Violet/Brown wire). If resistance is less than 5 ohms, check resistance of CCD (-) bus circuit between terminal No. 46 (White/Black wire) of PCM module connector and terminal No. 10 (White/Black wire) of VTA module connector.

3) If resistance is more than 5 ohms, repair open CCD (-) bus (White/Black wire). Perform TEST VER-1. If resistance is less than 5 ohms, replace PCM module. See Fig. 14. Perform TEST VER-1.



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Fig. 14: Identifying Powertrain Control Module Location

TEST 18A - REPAIRING ARM SENSE CIRCUIT FROM REMOTE KEYLESS ENTRY MODULE

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) If malfunction is with disarm system, go to TEST 18B. Disconnect Remote Keyless Entry (RKE) module. See Fig. 12 in TEST 3A. Using DRB-II, check fused battery feed voltage at terminal "A" (Pink wire) of RKE module connector. If less than 10 volts, repair open fused battery feed circuit (Pink wire). Perform TEST VER-1.

2) If voltage is more than 10 volts, check resistance of system ground at terminal "H" (Black wire) of RKE module connector using DRB-II. If resistance is more than 15 ohms, repair open system ground (Black wire). Perform TEST VER-1. If resistance is less than 15 ohms, check resistance of arm sense circuit at terminal "F" (Pink/Orange wire) of RKE module connector using DRB-II.

3) If resistance is less than 5 ohms, repair arm sense circuit (Pink/Orange wire) for short to ground. Perform TEST VER-1. If resistance is more than 5 ohms, connect jumper wire between fused battery feed terminal "A" (Pink wire) and arm sense terminal "F" (Pink/Orange wire) of RKE module connector. If security light flashes, replace RKE module. Perform TEST VER-1.

4) If security light does not flash, disconnect VTA module. Using external ohmmeter, check resistance of arm sense circuit. Connect ohmmeter between terminal No. 6 (Pink/Orange wire) of VTA module connector and terminal "F" of RKE module connector. If resistance is more than 5 ohms, repair open arm sense (Pink/Orange wire). Perform TEST VER-1. If resistance is less than 5 ohms, replace VTA module. Perform TEST VER-1.

TEST 18B - REPAIRING DISARM SENSE CIRCUIT FROM REMOTE KEYLESS ENTRY MODULE

NOTE: For connector terminal identification, refer to the CONNECTOR IDENTIFICATION table. For appropriate wiring diagram, see appropriate chassis wiring diagram in the WIRING DIAGRAMS section.

1) Determine if all courtesy, dome and cargo lights are functioning properly. Repair interior lights that are not functioning properly.

2) Disconnect Remote Keyless Entry (RKE) module. See Fig. 12 in TEST 3A. Using DRB-II, check courtesy light control circuit voltage at terminal "C" (Violet/Orange wire) of RKE module connector. If voltage is less than 10 volts, repair open courtesy light control circuit (Violet/Orange wire). Perform TEST VER-1. If voltage is more than 10 volts, replace RKE module. Perform TEST VER-1.

TEST VER-1 - VERIFICATION TEST

1) Verify system operation. Ensure all doors, hood and liftgate are closed. Open driver's door. Remove ignition key from vehicle. Lock all doors with power door lock switch. Close driver's door. If instrument panel theft alarm "SET" light flashed, system is operational and verified. If "SET" light did not flash, 20 engine start cycles have not occurred or theft alarm system is malfunctioning.

2) Determine if security light is flashing. If light is not flashing, go to TEST 1A. If light is flashing, system is functioning properly

REMOVAL & INSTALLATION

Information is not provided from manufacturer.

WIRING DIAGRAM

See appropriate wiring diagram in the WIRING DIAGRAMS article in the ENGINE PERFORMANCE section.