MESSAGE SYSTEMS

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MESSAGE CENTER

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MESSAGE CENTER

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Using a trim stick (special tool #C-4755) or equivalent, gently pry up on the front side of the message center and lift out of instrument panel opening.

(3) Disconnect the wire connector from the back of message center.

(4) Remove message center from vehicle.

NOTE: If the message center lamp needs replacing, twist out defective bulb socket and replace with a known good bulb and socket.

INSTALLATION

(1) Connect the wiring connector to message center.

(2) Place message center in position on instrument panel and firmly snap into place.

(3) Connect battery negative cable.

OVERHEAD CONSOLE

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OVERHEAD CONSOLE

DESCRIPTION

Three overhead consoles options are available on this vehicle. These options are:
• The Electronic Vehicle Information Center (EVIC)
• The Compass Mini-Trip Computer (CMTC)

All consoles are equipped with two reading/courtesy lamps and if the vehicle is equipped with a power liftgate or power sliding door(s) the overhead console will also include switches for these features. The overhead console is mounted with one screw and two snap clips to a molded plastic retainer bracket located above the headliner.

DESCRIPTION - COMPASS

All overhead consoles include compass information. While in the compass/temperature mode, the compass will display the direction in which the vehicle is pointed using the eight major compass headings (Examples: north is N, northeast is NE). The self-calibrating compass unit requires no adjusting in normal use. The only calibration that may be necessary is to drive the vehicle in three complete circles at 5 to 8 kilometers-per-hour (3 to 5 miles-per-hour), on level ground, for a minimum of forty-eight seconds. This will reorient the compass unit to its vehicle.

OVERHEAD CONSOLE (Continued)

The compass unit will also compensate for magnetism the vehicle may acquire during normal use. However, avoid placing anything magnetic directly on the roof of the vehicle. Magnetic mounts for an antenna, a repair order hat, or a funeral procession flag can exceed the compensating ability of the compass unit if placed on the roof panel. The use of magnetic tools on the fasteners that hold the overhead console assembly to the roof header can also affect compass operation. If the compass operation is erratic and roof magnetization is suspected (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - STANDARD PROCEDURE - COMPASS DEMAGNETIZING).

DESCRIPTION - TEMPERATURE

All overhead consoles include temperature information. The temperature displays the outside ambient temperature in whole degrees. The temperature display can be toggled from Fahrenheit to Celsius by selecting the desired U.S./Metric option from the customer programmable features. The displayed temperature is not an instant reading of conditions, but an average temperature. It may take the temperature display several minutes to respond to a major temperature change, such as driving out of a heated garage into winter temperatures.

When the ignition switch is turned to the Off position, the last displayed temperature reading stays in the electronic control modules (CMTC, EVIC) memory. When the ignition switch is turned to the On position again, the electronic module will display the memory temperature for one minute; then update the display to the current average temperature reading within five minutes.

The temperature function is supported by an ambient temperature sensor. The sensor is mounted near the front and center of the vehicle, and is hard wired to the Powertrain Control Module (PCM). The PCM sends temperature status messages to the module over the Programmable Communication Interface (PCI) data bus circuit.

DIAGNOSIS AND TESTING

OVERHEAD CONSOLE

Any diagnosis of the overhead console should begin with the use of the DRB III® diagnostic tool. For information on the use of the DRB III®, refer to the appropriate Diagnostic Procedures information.

If the problem with the overhead console is an inaccurate or dashed (- -) display, refer to SELF-DIAGNOSTIC TEST. If the problem with the overhead console is incorrect Vacuum Fluorescent Display (VFD) dimming levels, use a DRB III® scan tool and the proper diagnostic procedures information to test for the correct dimming message inputs being received from the Body Control Module (BCM) or Front Control Module (FCM) over the Programmable Communications Interface (PCI) data bus circuit. If the problem is a no-display condition, use the following procedures.

Inspect the related wiring harness connectors for broken, bent, pushed out, or corroded terminals. Refer to the appropriate wiring information.

(1) Check the fused B(+) fuse in the integrated power module. If OK, go to Step 2. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(2) Check for battery voltage at the fused B(+) fuse in the integrated power module. If OK, go to Step 3. If not OK, repair the open fused B(+) circuit to the fused B(+) fuse in the integrated power module as required.

(3) Check the fused ignition switch output (run/start) fuse in the integrated power module. If OK, go to Step 4. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(4) Turn the ignition switch to the On position. Check for battery voltage at the fused ignition switch output (run/start) fuse in the integrated power module. If OK, go to Step 5. If not OK, repair the open fused ignition switch output (run/start) circuit to the ignition switch as required.

(5) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Remove the overhead console. Check for continuity between the ground circuit cavity of the roof wire harness connector for the electronics module and a good ground. There should be continuity. If OK, go to Step 6. If not OK, repair the open ground circuit as required.

(6) Connect the battery negative cable. Check for battery voltage at the fused B(+) circuit cavity of the roof wire harness connector for the electronics module. If OK, go to Step 7. If not OK, repair the open fused B(+) circuit to the fused B(+) fuse in the integrated power module as required.

(7) Turn the ignition switch to the On position. Check for battery voltage at the fused ignition switch output (run/start) circuit cavity of the roof wire harness connector for the electronics module. If OK, refer to SELF-DIAGNOSTIC TEST. If not OK, repair the open fused ignition switch output (run/start) circuit to the fuse in the integrated power module as required.

OVERHEAD CONSOLE (Continued)

SELF-DIAGNOSTIC TEST

A self-diagnostic test is used to determine that the electronics module is operating properly, and that all the PCI data bus messages are being received for initial operation. Initiate the self-diagnostic test as follows:

(1) With the ignition switch in the Off position, on Electronic Vehicle Information Center (EVIC) and Compass Mini-Trip Computer (CMTC) equipped vehicles simultaneously depress and hold the **STEP** and the **RESET** buttons. On Compass Temperature Module (CT) equipped vehicles depress the **C/T** and the **US/M** push buttons.

(2) Turn the ignition switch to the On position.

(3) Following completion of these tests, the electronics module will display one of the following messages:

a. **Pass Self Test (EVIC only), PASS (CT, CMTC)** - The electronics module is working properly.

b. **Failed Self Test (EVIC only), FAIL (CT, CMTC)** - The electronics module has an internal failure. The electronics module is faulty and must be replaced.

NOTE: If the compass functions, but accuracy is suspect, it may be necessary to perform a variation adjustment. This procedure allows the compass unit to accommodate variations in the earth's magnetic field strength, based on geographic location. (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - STANDARD PROCEDURE - COMPASS VARIATION ADJUSTMENT).

NOTE: If the compass reading display is blank and only "CAL" appears in the display, demagnetizing may be necessary to remove excessive residual magnetic fields from the vehicle. (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - STANDARD PROCEDURE - COMPASS DEMAGNETIZING).

STANDARD PROCEDURE

COMPASS CALIBRATION

CAUTION: Do not place any external magnets, such as magnetic roof mount antennas, in the vicinity of the compass. Do not use magnetic tools when servicing the overhead console.

The electronic compass unit features a self-calibrating design, which simplifies the calibration procedure. This feature automatically updates the compass calibration while the vehicle is being driven. This allows the compass unit to compensate for small changes in the residual magnetism the vehicle may acquire during normal use. If the compass readings appear to be erratic or out of calibration, perform the following calibration procedure. Also, new service replacement Electronic Modules (EVIC, CMTC, CT) must have their compass calibrated using this procedure. Do not attempt to calibrate the compass near large metal objects such as other vehicles, large buildings, or bridges; or, near overhead or underground power lines.

NOTE: Whenever the compass is calibrated manually, the variance number must also be reset. (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - STANDARD PROCEDURE - COMPASS VARIATION ADJUSTMENT).

Calibrate the compass manually as follows:

(1) Turn the ignition switch to the On position. If the compass/thermometer data is not currently being displayed, momentarily depress and release the C/T push button to reach the compass/thermometer display.

(2) On Electronic Vehicle Information Center (EVIC) and Compass Mini-Trip Computer (CMTC) equipped vehicles depress the Reset push button and hold the button until "CAL" appears in the display. This takes about ten seconds, and appears about five seconds after "VAR = XX" is displayed. On Compass Temperature Module (CT) equipped vehicles depress the C/T push button and US/M push button down until "CAL" appears in the display. This takes about ten seconds, and appears about five seconds after "VAR = XX" is displayed.

(3) Release the push button(s).

(4) Drive the vehicle on a level surface, away from large metal objects and power lines, through three or more complete circles at between five and eight kilometers-per-hour (three and five miles-per-hour) for a minimum of 48 seconds. The "CAL" message will disappear from the display to indicate that the compass is now calibrated.

NOTE: If the "CAL" message remains in the display, either there is excessive magnetism near the compass, or the unit is faulty. Repeat the calibration procedure one more time.

OVERHEAD CONSOLE (Continued)

NOTE: If the wrong direction is still indicated in the compass display, the area selected for calibration may be too close to a strong magnetic field. Repeat the calibration procedure in another location.

COMPASS DEMAGNETIZING

A degaussing tool (Special Tool 6029) is used to demagnetize, or degauss, the overhead console forward mounting screw and the roof panel above the overhead console. Equivalent units must be rated as continuous duty for 110/115 volts and 60 Hz. They must also have a field strength of over 350 gauss at 7 millimeters (0.25 inch) beyond the tip of the probe.

To demagnetize the roof panel and the overhead console forward mounting screw, proceed as follows:

(1) Be certain that the ignition switch is in the Off position, before you begin the demagnetizing procedure.

(2) Connect the degaussing tool (Fig. 1) to an electrical outlet, while keeping the tool at least 61 centimeters (2 feet) away from the compass unit.
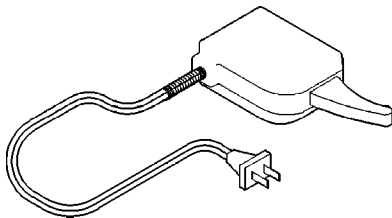

Fig. 1 DEGAUSSING TOOL 6029

(3) Slowly approach the head of the overhead console forward mounting screw with the degaussing tool connected.

(4) Contact the head of the screw with the plastic coated tip of the degaussing tool for about two seconds.

(5) With the degaussing tool still energized, slowly back it away from the screw. When the tip of the tool is at least 61 centimeters (2 feet) from the screw head, disconnect the tool.

(6) Place a piece of paper approximately 22 by 28 centimeters (8.5 by 11 inches), oriented on the vehicle lengthwise from front to rear, on the center line of the roof at the windshield header (Fig. 2). The purpose of the paper is to protect the roof panel from scratches, and to define the area to be demagnetized.

(7) Connect the degaussing tool to an electrical outlet, while keeping the tool at least 61 centimeters (2 feet) away from the compass unit.

(8) Slowly approach the center line of the roof panel at the windshield header, with the degaussing tool connected.
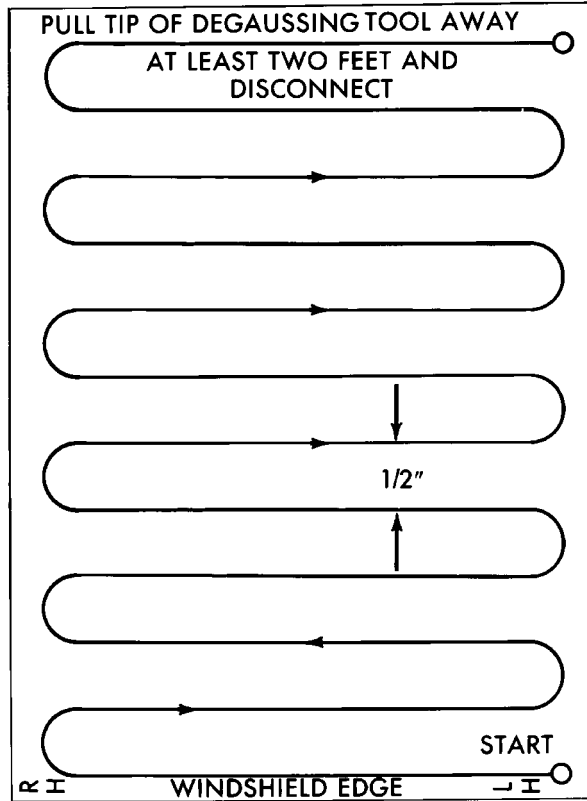

J908E-27

Fig. 2 ROOF DEMAGNETIZING PATTERN

(9) Contact the roof panel with the plastic coated tip of the degaussing tool. Be sure that the template is in place to avoid scratching the roof panel. Using a slow, back-and-forth sweeping motion, and allowing 13 millimeters (0.50 inch) between passes, move the tool at least 11 centimeters (4 inches) to each side of the roof center line, and 28 centimeters (11 inches) back from the windshield header.

(10) With the degaussing tool still energized, slowly back it away from the roof panel. When the tip of the tool is at least 61 centimeters (2 feet) from the roof panel, disconnect the tool.

(11) Calibrate the compass and adjust the compass variance (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - STANDARD PROCEDURE).

COMPASS VARIATION ADJUSTMENT

Compass variance, also known as magnetic declination, is the difference in angle between magnetic north and true geographic north. In some geographic locations, the difference between magnetic and geographic north is great enough to cause the compass to give false readings. If this problem occurs, the compass variance setting may need to be changed.

To set the compass variance:

OVERHEAD CONSOLE (Continued)
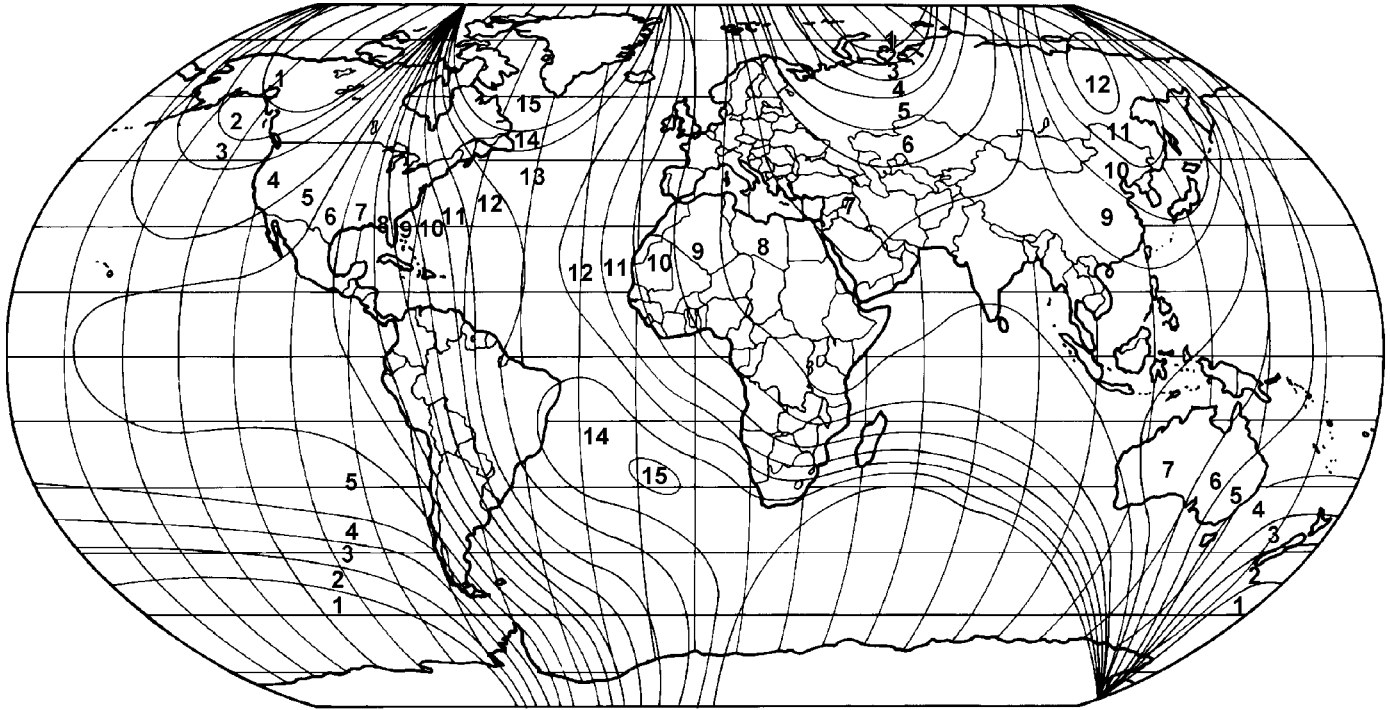
Fig. 3 Variance Settings

(1) Using the Variance Settings map, find your geographic location and note the zone number (Fig. 3).

(2) Turn the ignition switch to the On position. If the compass/thermometer data is not currently being displayed, momentarily depress and release the C/T push button to reach the compass/thermometer display.

(3) On Electronic Vehicle Information Center (EVIC) and Compass Mini-Trip Computer (CMTC) equipped vehicles depress the Reset push button and hold the button down until "VAR = XX" appears in the display. This takes about five seconds. On Compass Temperature Module (CT) equipped vehicles depress the C/T push button and US/M push button down until "VAR = XX" appears in the display. This takes about five seconds.

(4) Release the push button(s). "VAR =XX " will remain in the display. "XX" equals the current variance zone setting.

(5) On Electronic Vehicle Information Center (EVIC) and Compass Mini-Trip Computer (CMTC) equipped vehicles momentarily depress and release the **STEP** button to step through the zone numbers, until the zone number for your geographic location appears in the display. On Compass Temperature Module (CT) equipped vehicles depress the **US/M** push button to step through the zone numbers, until the zone number for your geographic location appears in the display.

(6) On Electronic Vehicle Information Center (EVIC) and Compass Mini-Trip Computer (CMTC) equipped vehicles momentarily depress and release the **RESET** push button to enter the displayed zone number into the EVIC/CMTC module memory. On Compass Temperature Module (CT) equipped vehicles depress the **C/T** push button to enter the displayed zone number into the electronic module memory.

(7) Confirm that the correct directions are now indicated by the compass.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove the overhead console retaining screw, located in the front of console.

(3) Grasp the sides of the overhead console and pull straight down evenly to disengage the two snap clips at the rear of the unit.

(4) Lower the overhead console far enough to access the wire harness connectors.

(5) Disconnect the EVIC, CMTC or CT electronic module and the reading/courtesy lamps electrical connector.

(6) Remove the overhead console from the vehicle.

INSTALLATION

(1) Position the overhead console in the vehicle.

OVERHEAD CONSOLE (Continued)

(2) Connect the EVIC, CMTC or CT electronic module and the reading/courtesy lamps electrical connector.

(3) Using your fingertips, grasp the sides of the overhead console and push straight up evenly to engage the two snap clips at the rear of the unit.
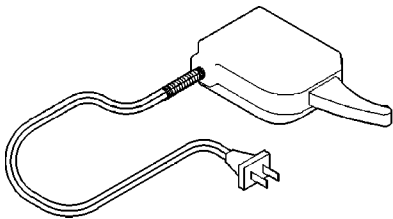
CAUTION: DO NOT PRESS ON THE SUNGLASS STORAGE BIN DOOR. DAMAGE TO THE DOOR MAY RESULT.

(4) Install the overhead console retaining screw, located in the front of console. Torque the screw to 1.2 N·m (10 in. lbs.).

(5) Connect the remote negative battery cable.

SPECIAL TOOLS

OVERHEAD CONSOLE

DEGAUSSING TOOL #6029

ELECTRONIC VEHICLE INFO CENTER

DESCRIPTION

The Electronic Vehicle Information Center (EVIC) is located in the overhead console. The EVIC features a large Vacuum Fluorescent Display (VFD) screen for displaying information, and back-lit push button switches labeled C/T (compass/thermometer), RESET, STEP, and MENU. The EVIC module contains a central processing unit and interfaces with other electronic modules in the vehicle over the Programmable Communications Interface (PCI) data bus circuit.

The EVIC "Menu" push button provides the vehicle operator with a user interface, which allows the selection of several optional customer programmable electronic features to suit individual preferences. (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE/ ELECTRONIC VEHICLE INFO CENTER - STANDARD PROCEDURE - ELECTRONIC VEHICLE INFORMATION CENTER PROGRAMMING).

If the vehicle is equipped with the optional universal transmitter transceiver, the EVIC will also display messages and an icon indicating when the universal transmitter transceiver is being trained, which of the three transmitter buttons is transmitting, and when the transceiver is cleared.

Data input for all EVIC functions, including VFD dimming level, is received through the PCI data bus circuit. The EVIC module uses its internal programming and all of its data inputs to calculate and display the requested data. If the data displayed is incorrect, perform the SELF - DIAGNOSTIC TEST (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - DIAGNOSIS AND TESTING). If these tests prove inconclusive, the use of a DRBIII® scan tool and the proper diagnostic procedures information are recommended for further testing of the EVIC module and the PCI data bus circuit.

The EVIC module cannot be repaired, and is available for service only as a unit. This unit includes the plastic module and display lens. If any of these components is faulty or damaged, the complete EVIC module must be replaced.

OPERATION

The Electronic Vehicle Information Center (EVIC) uses both non-switched and ignition switched sources of battery current so that some of its features remain operational at any time, while others may only operate with the ignition switch in the On position. When the ignition switch is turned to the On position, the EVIC module Vacuum Fluorescent Display (VFD) will return to the last function being displayed before the ignition was turned to the Off position.

The compass/thermometer display is the normal EVIC display. With the ignition switch in the On position, momentarily depressing and releasing the C/T (compass/thermometer) push button switch will cause the EVIC to return to the compass/thermometer/trip computer display mode from any other mode. While in the compass/thermometer/trip computer display mode, momentarily depressing and releasing the Step push button will step through the available trip computer display options.

The EVIC trip computer features several functions that can be reset. The functions that can be reset are:

- Average fuel economy
- Trip odometer
- Elapsed time

With the ignition switch in the On position and with one of the functions of the trip computer that can be reset currently displayed, depressing the Reset push button twice within four seconds will perform a global reset, and all of the trip computer information that can be reset will be reset to zero. With the ignition switch in the On position and the function that is to be reset currently displayed, momentarily depressing and holding the Reset push button for one second will perform a local reset, and only the value of the displayed function will be reset to zero. A global or local reset will only occur if the

ELECTRONIC VEHICLE INFO CENTER (Continued)

function currently displayed is a function that can be reset. The distance to service function can also be reset using the local reset method, but it will reset back to the Service Interval distance that is set in the EVIC programmable features mode. (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE/ELECTRONIC VEHICLE INFO CENTER - STANDARD PROCEDURE).

DIAGNOSIS AND TESTING

ELECTRONIC VEHICLE INFORMATION CENTER

Electronic Vehicle Information Center (EVIC) data is obtained from the Body Control Module (BCM) on the Programmable Communications Interface (PCI) Data Bus circuit. The EVIC will display dashes (- -) for any of the screens it did not receive the bus messages. The label corresponding to the missing information will be lit. If no EVIC data is displayed, check the PCI Data Bus circuit communications and the BCM. If the dimming level is improper check the PCI Data Bus circuit.

The use of a DRBIII® scan tool and the proper diagnostic procedures information are recommended for further testing of the EVIC module and the PCI data bus circuit. Perform the SELF-DIAGNOSTIC TEST before replacing the EVIC module (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - DIAGNOSIS AND TESTING).

STANDARD PROCEDURE

ELECTRONIC VEHICLE INFORMATION CENTER PROGRAMMING

EVIC PROGRAMMING MODE

Some vehicles are equipped with a Electronic Vehicle Information Center (EVIC) equipped overhead console. The Electronic Vehicle Information Center (EVIC) provides the vehicle operator with a user interface, which allows the selection of several optional customer programmable electronic features to suit individual preferences. The EVIC must be placed into its programming mode in order to view or change the programmable features. To enter the EVIC programming mode and to view or change the selected programmable features options, proceed as follows:

(1) Turn the ignition switch to the On position.
(2) Depress and release the Menu push button. The first item in the programmable features menu list will appear in the EVIC display.

(3) Momentarily depress and release the Menu push button to step through the programmable features list. Each programmable feature and its currently selected option will appear on the EVIC display in the sequence shown in the Programmable Features list that follows.

(4) Momentarily depress and release the Step push button to step through the available options for the programmable feature being displayed.

(5) The option that last appears in the display with a programmable feature before exiting the programming mode, becomes the newly selected programmable feature option.

(6) The EVIC exits the programming mode and returns to its normal operating mode when the C/T push button is depressed or when the end of the programmable features menu list is reached, whichever occurs first.

PROGRAMMABLE FEATURES

NOTE: Tire pressure monitoring (TPM) system information is not covered in this section of the service manual. Refer to the tires/wheels section of this manual for detailed tire pressure monitoring system information.

• **LANGUAGE?** - The options include English, Francaise, Deutsch, Italiana, or Espanol. The default is English. All EVIC display nomenclature, including the trip computer functions, warning messages and the programmable features appear in the selected language.

• **DISPLAY U.S. OR METRIC?** - The options include U.S. and M. The default is U.S. This feature toggles the trip computer temperature, fuel economy and odometer display readings between U.S. and metric units of measure. It also changes the odometer display in the instrument cluster.

• **SERVICE INTV. =** - The options include from 3200 to 12000 kilometers in 800 kilometer increments (2000 to 7500 miles in 500 mile increments). The default is 12000 kilometers (7500 miles). The selected distance becomes the interval at which the Perform Service warning message will be displayed by the EVIC. If a new distance is selected, a second programmable feature appears, **RESET SERVICE DISTANCE?** - The options include No and Yes. The default is Yes. When Yes is selected, the accumulated distance since the last previous Perform Service warning message will be reset to zero because the service interval has been changed. When No is selected, the distance until the next Perform Service warning message is reduced by the accumulated distance since the last previous message.

ELECTRONIC VEHICLE INFO CENTER (Continued)

• **RETRAIN TIRE SENSORS?** - This programmable feature only applies to vehicles equipped with the optional Tire Pressure Monitoring System. The options include Yes and No. The default is No. When Yes is selected, and the menu button is depressed the EVIC will enter the training mode, starting with the left front tire.

• **USE FACTORY SETTINGS?** - The options include Yes and No. The default is Yes. When yes is selected all the programmable features will return to there defaults and the rest of the programmable features will not be displayed. If No is selected the rest of the programmable features will be displayed at there current chosen values. This feature will automatically return to the Yes default under two conditions. First, if no programmable features are changed from there defaults. Second, if all the programmable features equal there defaults.

• **AUTO DOOR LOCKS?** - The options include Yes and No. The default is Yes. When Yes is selected, all doors and the liftgate lock automatically when vehicle speed reaches 25 kilometers-per-hour (15 miles-per-hour). If YES is selected, a second programmable feature appears, **AUTO UNLOCK ON EXIT?** - The options again include Yes and No. The default is No. When Yes is selected, following each Auto Door Lock event all doors and the liftgate will automatically unlock when the driver door is opened, if the vehicle is stopped and the transmission gear selector is in Park or Neutral. The Auto Door Unlock event will only occur once following each Auto Door Lock event.

• **REMOTE UNLOCK** - The options include Driver Door 1st and All Doors. The default is Driver Door 1st. When Diver Door 1st is selected, only the driver door unlocks when the Unlock button of the Remote Keyless Entry (RKE) transmitter is depressed once. The Unlock button of the RKE transmitter must be depressed twice to unlock all doors. When All Doors is selected, all doors unlock when the Unlock button of the RKE transmitter is depressed once.

• **REMOTE LINKED TO MEMORY?** - This programmable feature only applies to vehicles equipped with the optional memory / heated system. The options include Yes and No. The default is No. When Yes is selected, the memory system will recall the Driver 1 or Driver 2 memory settings assigned to the RKE transmitter being used to unlock the vehicle. When No is selected, the memory system will only recall memory settings when the Driver 1 or Driver 2 push buttons of the memory switch on the driver side front door trim panel are depressed.

• **SOUND HORN ON LOCK?** - The options include Yes and No. The default is No. When Yes is selected, a short horn chirp will provide an audible confirmation when the RKE receiver recognizes a valid Lock signal from an RKE transmitter. When No is selected, no horn chirp will occur with the RKE Lock event. This feature may be selected independent of the **FLASH LIGHTS WITH LOCKS?** programmable feature.

• **FLASH LIGHTS WITH LOCKS?** - The options include Yes and No. The default is Yes. When Yes is selected, a single flash of the hazard warning lamps will provide an optical confirmation when the RKE receiver recognizes a valid Lock signal from an RKE transmitter, and two flashes of the same lamps will occur when the RKE receiver recognizes a valid Unlock signal from an RKE transmitter. When No is selected, no lamp flash will occur with the RKE Lock or Unlock event. This feature may be selected independent of the **SOUND HORN ON LOCK?** programmable feature.

• **HEADLAMP DELAY =** - The options include Off, 30 Sec, 60 Sec, and 90 Sec. The default is 90 Sec. When a time interval is selected, the headlamps will remain on for that length of time when the headlamps are turned off after the ignition is turned off, or if the Auto mode is selected on vehicles with the Auto Headlamps option. When Off is selected, the headlamp delay feature is disabled.

• **HEADLAMPS ON WITH WIPERS?** - This programmable feature only applies to vehicles equipped with the optional Auto Headlamps. The options include Yes and No. The default is No. When Yes is selected, the headlamps will turn on automatically when the windshield wipers are turned on. The headlamps will turn off when the wipers are turned off, as long as the headlamp switch is in the Auto or Off positions. When No is selected, the headlamps will only turn on if manually selected or if the Auto mode is selected and the outside ambient light levels dictate that they should be on.

• **POWER ACCESSORY DELAY?** - The options include Yes and No. The default is Yes. When No is selected, the accessory powered components will turn off automatically when the ignition key is turned off. When Yes is selected, the accessory powered components will remain on for 45 seconds when the ignition key is turned off.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove overhead console. (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - REMOVAL).

(3) Remove the ten screws holding the Electronic Vehicle Information Center (EVIC) module in the overhead console.

(4) Remove EVIC module from console assembly.

ELECTRONIC VEHICLE INFO CENTER (Continued)

NOTE: If the EVIC module is being replaced, the tire pressure monitoring system (if equipped) must be retrained. (Refer to 22 - TIRES/WHEELS/TIRE PRESSURE MONITORING/SENSOR - STANDARD PROCEDURE)

INSTALLATION

(1) Position the Electronic Vehicle Information Center (EVIC) module in the overhead console.

(2) Install the ten screws holding the EVIC module in the overhead console.

(3) Install the overhead console (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - INSTALLATION).

(4) Connect the battery negative cable.

NOTE: If the EVIC module is being replaced, the tire pressure monitoring system (if equipped) must be retrained. (Refer to 22 - TIRES/WHEELS/TIRE PRESSURE MONITORING/SENSOR - STANDARD PROCEDURE).

NOTE: If a new EVIC module has been installed, the compass will have to be calibrated and the variance set. (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - STANDARD PROCEDURE - COMPASS CALIBRATION).

COMPASS/MINI-TRIP COMPUTER

DESCRIPTION

The Compass Mini-Trip Computer (CMTC) module is located in the overhead console. The CMTC consists of a electronic control module with a vacuum fluorescent display (VFD) and function switches. The CMTC consists of a electronic module that displays compass, trip computer, and temperature features. Actuating the STEP push button will cause the CMTC to change mode of operation when the ignition is ON. Example:

- Average miles per gallon (ECO)
- Distance to empty (DTE)
- Instant miles per gallon (ECO)
- Trip odometer (ODO)
- Elapsed time (ET)
- Blank

Actuating the C/T push button will cause the CMTC to change to the Compass/Temperature display.

OPERATION

The Compass Mini-Trip Computer (CMTC) module in the overhead console has buttons used to select various functions. The CMTC selector buttons will not operate until the ignition is in the RUN position.

When the ignition switch is first turned to the RUN position the CMTC display;

- Blanks momentarily
- All segments of the VFD will light for one second
- Blanks momentarily
- Returns to the last mode setting selected before the ignition was last switched OFF.

DIAGNOSIS AND TESTING

COMPASS MINI-TRIP COMPUTER

Any diagnosis of the compass mini-trip computer should begin with the use of the DRB III® diagnostic tool. For information on the use of the DRB III®, refer to the appropriate Diagnostic Procedures information.

Compass Mini-Trip Computer (CMTC) data is obtained from the Body Control Module (BCM) on the Programmable Communications Interface (PCI) Data Bus circuit. The CMTC will display dashes (- -) for any of the screens it did not receive the bus messages. The label corresponding to the missing information will be lit. If no CMTC data is displayed, check the PCI Data Bus circuit communications and the BCM. If the dimming level is improper check the PCI Data Bus circuit.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove overhead console(Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - REMOVAL).

(3) Remove the screws holding Compass Mini-Trip Computer (CMTC) module in the overhead console.

(4) Remove CMTC module from the console assembly.

INSTALLATION

(1) Position the compass mini-trip computer (CMTC) module in the overhead console.

(2) Install the ten screws holding the CMTC module in the overhead console.

(3) Install the overhead console (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - INSTALLATION).

(4) Connect the battery negative cable.

COMPASS/MINI-TRIP COMPUTER (Continued)

NOTE: If a new CMTC module has been installed, the compass will have to be calibrated and the variance set. (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - STANDARD PROCEDURE - COMPASS CALIBRATION).

UNIVERSAL TRANSMITTER

DESCRIPTION

A Universal Transmitter transceiver is available on some vehicles. The universal transmitter transceiver is integral to the Electronic Vehicle Information Center (EVIC) and the Compass Mini-Trip Computer (CMTC) modules, which are located in the overhead console. The only visible component of the universal transmitter are the three transmitter push buttons centered between the modules push buttons located just rearward of the display screen in the overhead console. The three universal transmitter push buttons are identified with one, two or three light indicators so that they can be easily identified.

Each of the three universal transmitter push buttons controls an independent radio transmitter channel. Each of these three channels can be trained to transmit a different radio frequency signal for the remote operation of garage door openers, motorized gate openers, home or office lighting, security systems or just about any other device that can be equipped with a radio receiver in the 286 to 399 MegaHertz (MHz) frequency range for remote operation. The universal transmitter is capable of operating systems using either rolling code or non-rolling code technology.

The electronics module displays messages and a small house-shaped icon with one, two or three dots corresponding to the three transmitter buttons to indicate the status of the universal transmitter. The EVIC messages are:

• **Cleared Channels** - Indicates that all of the transmitter codes stored in the universal transmitter have been successfully cleared.

• **Training** - Indicates that the universal transmitter is in its transmitter learning mode.

• **Trained** - Indicates that the universal transmitter has successfully acquired a new transmitter code.

• **Transmit** - Indicates that a trained universal transmitter button has been depressed and that the universal transmitter is transmitting.

The universal transmitter cannot be repaired, and is available for service only as a unit with the EVIC or CMTC modules. If any of these components is faulty or damaged, the complete EVIC or CMTC module must be replaced.

DIAGNOSIS AND TESTING

UNIVERSAL TRANSMITTER

If both the Universal Transmitter and the Electronic Vehicle Information Center (EVIC) are inoperative, (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE/ELECTRONIC VEHICLE INFO CENTER - DIAGNOSIS AND TESTING). If the Universal Transmitter is inoperative, but the EVIC is operating normally, retrain the Transmitter with a known good transmitter (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE/UNIVERSAL TRANSMITTER - STANDARD PROCEDURE - SETTING TRANSMITTER CODES). If the unit is still inoperative, test the universal transmitter with the Radio Frequency Detector special tool as described below (Fig. 4):

(1) Turn the Radio Frequency (RF) Detector ON. A "chirp" will sound and the green power LED will light. If the green LED does not light, replace the battery.

(2) Hold the RF detector within one inch of the TRAINED universal transmitter and press any of the transmitters buttons.

(3) The red signal detection LEDs will light and the tool will beep if a radio signal is detected. Repeat this test three times.
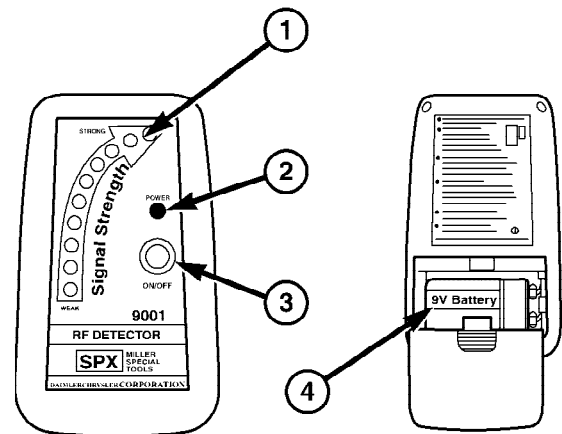
80f230cb

Fig. 4 RADIO FREQUENCY DETECTOR

1 - SIGNAL DETECTION LED'S
2 - POWER LED
3 - ON/OFF SWITCH
4 - 9V BATTERY

UNIVERSAL TRANSMITTER (Continued)

STANDARD PROCEDURE

SETTING TRANSMITTER CODES

(1) Turn off the engine.

(2) Erase the codes by pressing the two outside buttons. Release the buttons when the display confirms the operation (about 20 seconds).

(3) Choose one of the three buttons to train. Place the hand-held transmitter within one inch of the universal transmitter and push the buttons on both transmitters.

(4) Release both buttons. Your universal transmitter is now "trained". To train the other buttons, repeat Step 3 and Step 4. Be sure to keep your hand-held transmitter in case you need to retrain the universal transmitter.

ERASING TRANSMITTER CODES

To erase the universal transmitter codes, simply hold down the two outside buttons until the display confirms the operation.

NOTE: Individual channels cannot be erased. Erasing the transmitter codes will erase ALL programmed codes.

REMOVAL

(1) For the universal transmitter removal procedure, (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE/COMPASS/MINI-TRIP COMPUTER - REMOVAL.

AMBIENT TEMP SENSOR

DESCRIPTION

Ambient air temperature is monitored by the overhead console through ambient temperature messages received from the Powertrain Control Module (PCM) over the Programmable Communications Interface (PCI) data bus circuit. The PCM receives a hard wired input from the ambient temperature sensor. The ambient temperature sensor is a variable resistor mounted to a bracket that is secured with a screw to the right side of the headlamp mounting module grille opening, behind the radiator grille and in front of the engine compartment.

For additional information on the PCM, (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/POWERTRAIN CONTROL MODULE - DESCRIPTION).

OPERATION

The ambient temperature sensor is a variable resistor that operates on a five-volt reference signal sent by the Powertrain Control Module (PCM). The resistance in the sensor changes as temperature changes, changing the temperature sensor signal circuit voltage to the PCM. Based upon the resistance in the sensor, the PCM senses a specific voltage on the temperature sensor signal circuit, which it is programmed to correspond to a specific temperature. The PCM then sends the proper ambient temperature messages to the Electronic Vehicle Information Center (EVIC)/Compass Mini-Trip Computer (CMTC) over the Programmable Communication Interface (PCI) data bus.

The thermometer function is supported by the ambient temperature sensor, a wiring circuit, the PCM, the PCI data bus, and the Electronics module. If any portion of the ambient temperature sensor circuit fails, the PCM will self-diagnose the circuit.

The ambient temperature sensor circuit can also be diagnosed manually (Refer to 8 - ELECTRICAL/ OVERHEAD CONSOLE/AMBIENT TEMP SENSOR - DIAGNOSIS AND TESTING - AMBIENT TEMPERATURE SENSOR CIRCUIT). If the temperature sensor and circuit are confirmed to be OK, but the temperature display is inoperative or incorrect, (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - DIAGNOSIS AND TESTING) to determine the cause. For complete circuit diagrams, refer to the appropriate wiring information.

DIAGNOSIS AND TESTING

AMBIENT TEMPERATURE SENSOR

(1) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Disconnect the ambient temperature sensor wire harness connector.

(2) Measure the resistance of the ambient temperature sensor. At room temperature (approx. 68°F), the sensor resistance should be between 10-13 Kilohms. The sensor resistance should be between these two values at 68°F. If the resistance is out of range replace the ambient temperature sensor.

AMBIENT TEMPERATURE SENSOR CIRCUIT

(1) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Disconnect the ambient temperature sensor wire harness connector and the Powertrain Control Module (PCM) wire harness connector.

AMBIENT TEMP SENSOR (Continued)

(2) Connect a jumper wire between the two terminals in the body half of the ambient temperature sensor wire harness connector.

(3) Check for continuity between the sensor return circuit and the ambient temperature sensor signal circuit cavities of the PCM wire harness connector. There should be continuity. If OK, go to Step 4. If not OK, repair the open sensor return circuit or ambient temperature sensor signal circuit to the ambient temperature sensor as required.

(4) Remove the jumper wire from the body half of the ambient temperature sensor wire harness connector. Check for continuity between the sensor return circuit cavity of the PCM wire harness connector and a good ground. There should be no continuity. If OK, go to Step 5. If not OK, repair the shorted sensor return circuit as required.

(5) Check for continuity between the ambient temperature sensor signal circuit cavity of the PCM wire harness connector and a good ground. There should be no continuity. If OK, (Refer to **8** - ELECTRICAL/ OVERHEAD CONSOLE - DIAGNOSIS AND TEST-

ING) to determine the cause. If not OK, repair the shorted ambient temperature sensor signal circuit as required.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) From behind the front bumper fascia, remove the screw holding the sensor to the radiator closure panel.

(3) Disconnect the sensor electrical connector.

(4) Remove the sensor from vehicle.

INSTALLATION

(1) Position the sensor in the vehicle and connect the sensor electrical connector.

(2) From behind the front bumper fascia, install the sensor mounting screw.

(3) Connect the battery negative cable.