

MESSAGE SYSTEMS

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OVERHEAD CONSOLE

DESCRIPTION

Two different overhead consoles are available on DR models. The Electronic Vehicle Information Center (EVIC) (Fig. 1) or Compass Mini-Trip Computer (CMTc). All consoles are equipped with two reading/courtesy lamps. The overhead console is mounted with screws and two snap clips to a molded plastic retainer bracket located above the headliner.

COMPASS DISPLAY

All the available overhead consoles on this model 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 prove necessary is to drive the vehicle at 5 to 8 kilometers-per-hour (3 to 5 miles-per-hour), on level ground in a square shaped pattern. This will reorient the compass unit to its vehicle.

The compass unit also will compensate for magnetism the body of 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. Magnetic bit drivers used on the fasteners that hold the

OVERHEAD CONSOLE (Continued)

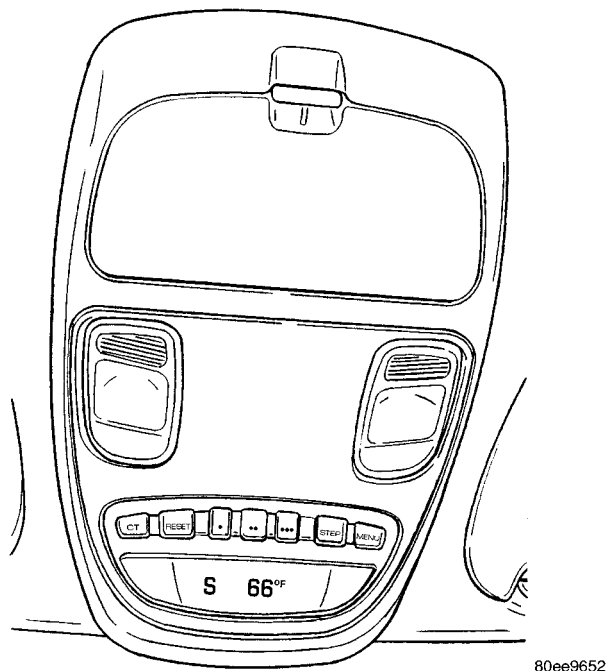


Fig. 1 DR OVERHEAD CONSOLE - EVIC

overhead console assembly to the roof header can also affect compass operation. If the vehicle roof should become magnetized, the demagnetizing and calibration procedures found in this section may be required to restore proper compass operation.

TEMPERATURE DISPLAY

All the available overhead consoles on this model 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. This sensor is mounted outside the passenger compartment near the front and center of the vehicle, and is hard wired to the Front Control Module (FCM). The FCM sends temperature status messages to the module over the J1850 PCI data bus circuit. For more information on the ambi-

ent temperature sensor, refer to Ambient Temperature Sensor later in this section.

Following are general descriptions of the major components used in the overhead console. Refer to Wiring Diagrams for complete circuit schematics.

OPERATION

Refer to the vehicle Owner's Manual for specific operation of each overhead console and its systems.

DIAGNOSIS AND TESTING - OVERHEAD CONSOLE

If the problem with the overhead console is an inaccurate or scrambled display, refer to **SELF-DIAGNOSTIC TEST** later in this text. 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 manual to test for the correct dimming message inputs being received from the Body Control Module (BCM) or Front Control Module (FCM) over the J1850 Programmable Communications Interface (PCI) data bus circuit. If the problem is a no-display condition, use the following procedure. For complete circuit diagrams, refer to **Overhead Console** in the Wiring Diagrams section of the service manual.

(1) Remove the overhead console from the headliner (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - REMOVAL).

(2) Check for battery voltage at the overhead console electrical connector. Refer to Wiring for connector information. If OK, go to Step 3. If not OK, Check for battery voltage at the appropriate B(+) fuse in the integrated power module, repair the open fused B(+) circuit as required.

(3) Turn the ignition switch to the On position. Check the fused ignition switch output circuit(s) at the overhead console electrical connector. If OK, go to Step 4. If not OK, repair the open or shorted circuit as required.

(4) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Check for continuity between the ground circuit cavity of the overhead console electrical connector and a good ground. There should be continuity. If OK, refer to **SELF-DIAGNOSTIC TEST** below for further diagnosis of the electronics module and the J1850 PCI data bus circuit. If not OK, repair the open ground circuit as required.

SELF-DIAGNOSTIC TEST

A self-diagnostic test is built-in to the module to determine that the electronics module is operating properly, and that all the J1850 PCI data bus messages are being received for proper operation. To perform the self-diagnostic test proceed as follows:

OVERHEAD CONSOLE (Continued)

(1) With the ignition switch in the Off position, simultaneously depress and hold the **STEP and RESET** buttons.

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

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

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

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

c. **Failed J1850 Communication (EVIC only), BUS (CMTC)** - The electronics module is not receiving proper message input through the J1850 PCI data bus circuit. This can result from one or more faulty electronic modules in the vehicle, or from a faulty PCI data bus. The use of a DRB III® scan tool and the proper Diagnostic Procedures manual are required for further diagnosis.

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 Compass Variation Adjustment in the Standard Procedures section of this group.

NOTE: If the compass reading displays dashes, and only "CAL" appears in the display, demagnetizing may be necessary to remove excessive residual magnetic fields from the vehicle. Refer to Compass Demagnetizing in the Standard Procedures section of this group.

STANDARD PROCEDURE

STANDARD PROCEDURE - READING/COURTESY LAMP REPLACEMENT

(1) Open hood, disconnect and isolate the negative battery cable.

(2) Remove the reading/courtesy lamp lens. Using a trim stick, gently pry the forward edge of the reading/courtesy lamp lens outward.

(3) Remove the reading/courtesy lamp socket from the overhead console. Rotate the reading/courtesy lamp socket one quarter turn counter clockwise.

(4) Remove the lamp and socket assembly.

(5) Reverse the above procedure to install.

STANDARD PROCEDURE - MODULE LENS REPLACEMENT

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

(2) Remove the electronics module from the overhead console. Refer to the procedure later in this section.

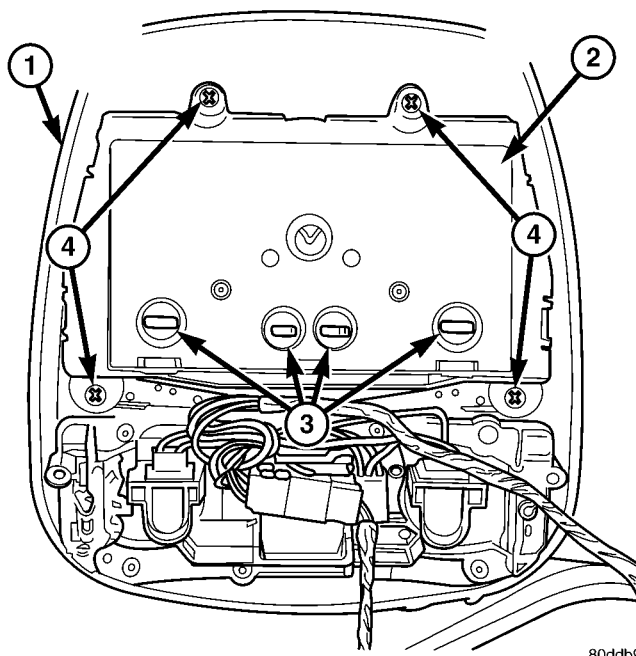
(3) Unsnap the lens from the module and replace lens as necessary.

STANDARD PROCEDURE - MODULE LAMP REPLACEMENT

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

(2) Using a flat blade screwdriver twist out socket/lamp (Fig. 2).

(3) Replace lamp(s) as necessary.



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Fig. 2 Top of Overhead Console

- 1 - OVERHEAD CONSOLE HOUSING
- 2 - EVIC/CMTC MODULE
- 3 - ILLUMINATION LAMPS
- 4 - MODULE RETAINING SCREWS

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.

OVERHEAD CONSOLE (Continued)

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 that 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) 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 Compass Variation Adjustment in this group.

To calibrate the compass manually proceed as follows:

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

(2) Depress the RESET push button and hold the 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 RESET push button.

(4) Drive the vehicle on a level surface, away from large metal objects and power lines, through three or more complete turns at between five and eight kilometers-per-hour (three and five miles-per-hour) in not less than 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.

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.

STANDARD PROCEDURE - 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 to an electrical outlet, while keeping the tool at least 61 centimeters (2 feet) away from the compass unit.

(3) Slowly approach the head of the overhead console 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. 3). 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.

(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.

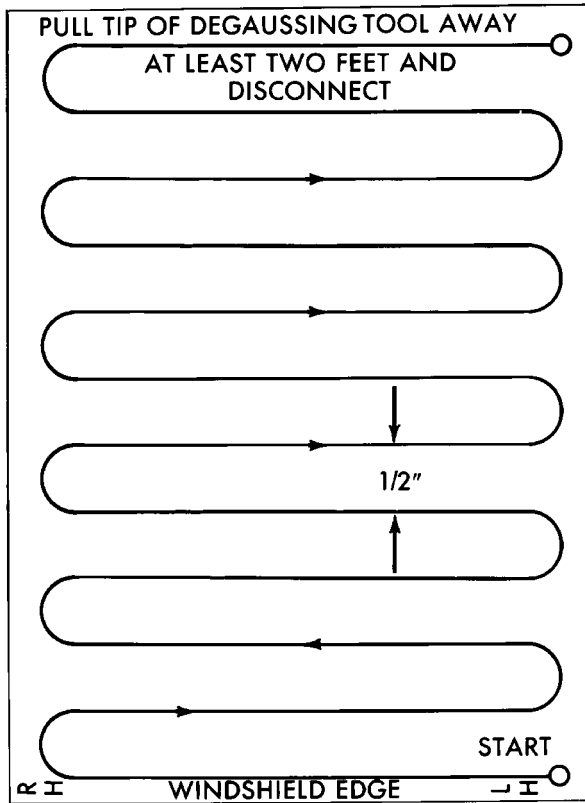
(10) With the degaussing tool still energized, slowly back it away from the roof panel. When the tip of the tool is at least 61 centimeters (2 feet) from the roof panel, disconnect the tool.

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

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 geo-

OVERHEAD CONSOLE (Continued)



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Fig. 3 Roof Demagnetizing Pattern

graphic 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:

(1) Using the Variance Settings map, find your geographic location and note the zone number (Fig. 4).

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

(3) Depress the **RESET** push button and hold the button down until "VAR = XX" appears in the display. This takes about five seconds.

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

(5) Depress and release the **STEP** push button to step through the zone numbers, until the zone number for your geographic location appears in the display.

(6) Depress and release the **RESET** push button to enter the displayed zone number into the EVIC/CMTC module memory.

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

REMOVAL**OVERHEAD CONSOLE REMOVAL**

(1) Disconnect and isolate the negative battery cable.

(2) Remove the overhead console retaining screws, located in the sunglass storage bin.

(3) Using your fingertips, grasp the sides of the overhead console and pull straight down evenly to disengage the two snap clips at the front of the unit.

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

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

(6) Remove the overhead console from the vehicle.

INSTALLATION

(1) Position the overhead console in the vehicle.

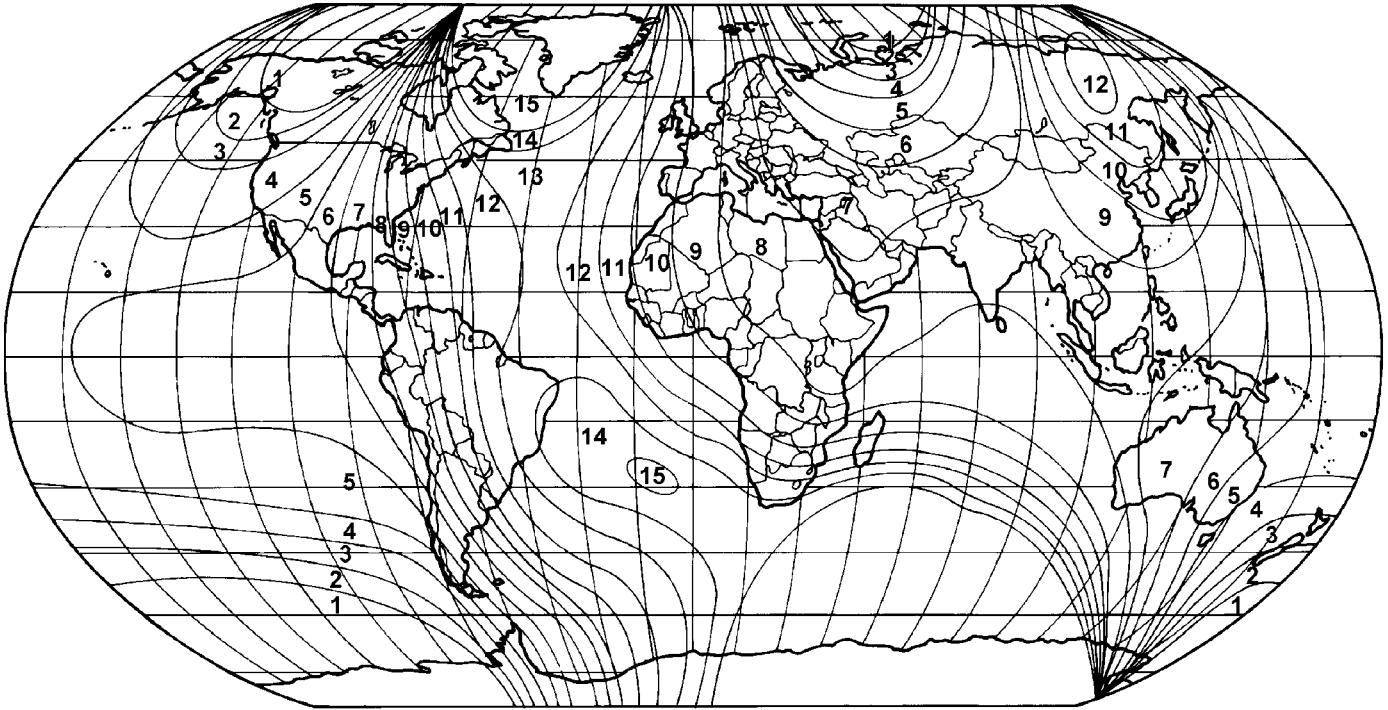
(2) Connect the EVIC, CMTC electronic module and the reading/courtesy lamps electrical connectors.

(3) Grasp the sides of the overhead console and push straight up evenly to engage the two snap clips at the rear of the unit.

(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 negative battery cable.

OVERHEAD CONSOLE (Continued)

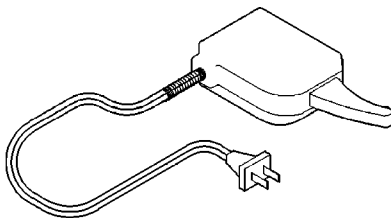


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Fig. 4 Variance Settings

SPECIAL TOOLS

OVERHEAD CONSOLE



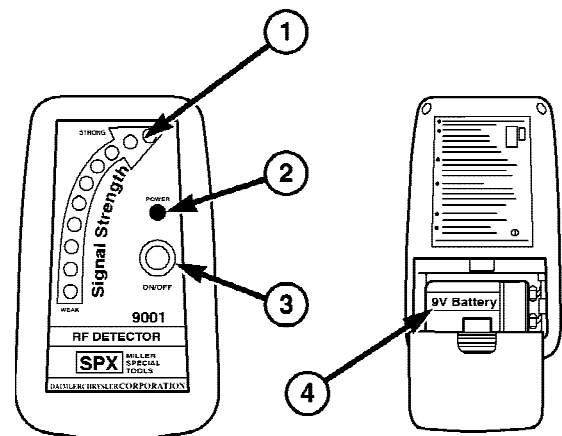
DEGAUSSING TOOL #6029

COMPASS/MINI-TRIP
COMPUTER

DESCRIPTION

The Compass Mini-Trip Computer (CMTC) is a module located in the overhead console. The CMTC is equipped with a mini-trip feature. 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)
- Trip odometer (ODO)



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RADIO FREQUENCY DETECTOR #9001

- Elapsed time (ET)
- Off

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

COMPASS/MINI-TRIP COMPUTER (Continued)

OPERATION

The Compass Mini-Trip Computer 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;

- Returns to the last mode setting selected before the ignition was last switched OFF.

DIAGNOSIS AND TESTING - COMPASS MINI-TRIP COMPUTER

Compass Mini-Trip Computer (CMTC) data is obtained from other electronic modules (CCN, FCM and JTEC) on the J1850 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 compass mini-trip computer data is displayed, check the J1850 Data Bus circuit communications and the other modules.

Refer to Overhead Console Diagnosis and Testing for instructions on performing a CMTC module Self-Diagnostic Test. The DRB III® is recommended for checking the J1850 Data Bus circuit and the other modules. Perform the CMTC self diagnosis before replacing the CMTC module.

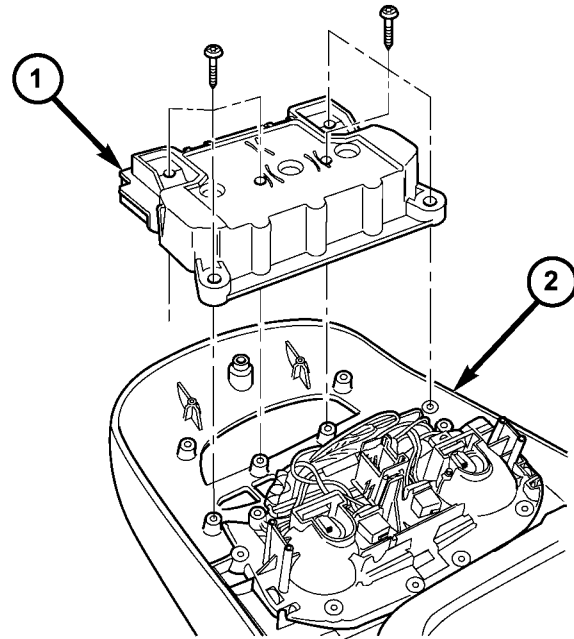
REMOVAL

- (1) Disconnect and isolate the negative battery cable.
- (2) Remove the overhead console from the headliner. (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - REMOVAL).
- (3) Remove the screws holding Compass Mini-Trip Computer module in the overhead console (Fig. 5).
- (4) Disconnect the CMTC module electrical connector. Depress the retaining tab and pull straight apart.
- (5) Remove CMTC module from console assembly.

INSTALLATION

- (1) Position the compass mini-trip computer module in the overhead console.
- (2) Install the screws holding the compass mini-trip computer module in the overhead console.
- (3) Connect the module electrical connector.
- (4) Install the overhead console on the headliner. (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - INSTALLATION).
- (5) Connect the negative battery cable.
- (6) Check CMTC module function.

NOTE: If a new module has been installed, the compass will have to be calibrated and the variance set. Refer to Compass Variation Adjustment and Com-



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Fig. 5 OVERHEAD CONSOLE MODULE REMOVAL

- 1 - COMPASS MINI-TRIP COMPUTER MODULE
2 - OVERHEAD CONSOLE

pass Calibration in the Standard Procedures section of this group for the procedures.

ELECTRONIC VEHICLE INFO CENTER**DESCRIPTION**

The Electronic Vehicle Information Center (EVIC) is a module located in the overhead console on some models. The EVIC module features a large Vacuum Fluorescent Display (VFD) screen for displaying information, and back-lit push button switches labeled C/T (compass/temperature), 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) J1850 data bus circuit. The PCI data bus circuit allows the sharing of sensor information. This helps to reduce wire harness complexity, reduce internal controller hardware, and reduce component sensor current loads. At the same time, this system provides increased reliability, enhanced diagnostics, and allows the addition of many new feature capabilities.

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.

ELECTRONIC VEHICLE INFO CENTER (Continued)

Refer to **ELECTRONIC VEHICLE INFORMATION CENTER PROGRAMMING** in the Standard Procedures section of this group for more information on the customer programmable feature options.

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 J1850 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 tests as described in this group. If these tests prove inconclusive, the use of a DRB III® scan tool and the proper Diagnostic Procedures manual are recommended for further testing of the EVIC module and the J1850 PCI data bus circuit.

The EVIC module cannot be repaired, and is available for service only as a unit. If any part is faulty or damaged, the complete EVIC module must be replaced.

OPERATION

The Electronic Vehicle Information Center is wired to both constant 12v 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 display will return to the last function being displayed before the ignition was turned to the Off position.

The compass/temperature display is the normal EVIC display. With the ignition switch in the On position, momentarily depressing and releasing the C/T (compass/temperature) push button switch will cause the EVIC to return to the compass/temperature display mode from any other mode. While in the compass/temperature 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 and 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 three 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 releasing the Reset push button once 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 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 **ELECTRONIC VEHICLE INFORMATION CENTER PROGRAMMING** in the Standard Procedures section of this group for more information on setting the Service Interval.

For more information on the features, control functions and setting procedures for the EVIC module, see the owner's manual in the vehicle glove box.

DIAGNOSIS AND TESTING - ELECTRONIC VEHICLE INFORMATION CENTER

Electronic Vehicle Information Center (EVIC) data is obtained from other electronic modules (CCN, FCM, JTEC) on the J1850 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 J1850 Data Bus circuit communications and the other modules. If the brightness level is improper check the J1850 Data Bus circuit.

Refer to Overhead Console Diagnosis and Testing for instructions on performing a EVIC module Self-Diagnostic Test. The DRB III® is recommended for checking the J1850 Data Bus circuit and other modules. Perform the EVIC self diagnosis before replacing the EVIC module.

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.

ELECTRONIC VEHICLE INFO CENTER (Continued)

(2) 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.

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

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

(5) 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

- **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.

- **SERVICE INTV. =** - The options include from 3200 to 12000 kilometers in 800 kilometer increments (2000 to 6000 miles in 500 mile increments). The default is 12000 kilometers (6000 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.

- **AUTO DOOR LOCKS?** - The options include Yes and No. The default is Yes. When Yes is selected, all doors 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 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.

- **SOUND HORN ON LOCK?** - The options include On and Off. 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.

- **TRAIN REMOTE** - When this feature is selected the driver can choose to train up to four remote keyless entry transmitters. The options include Yes and No. The default is No. When Yes is selected and the MENU button is pressed the EVIC will display "PRESS REMOTE LOCK & UNLOCK THEN PRESS UNLOCK", followed by a chime to indicate the training sequence can commence. You have approximately 30 seconds to train up to four transmitters, after each transmitter is trained a chime will sound indicating that the training was successful. If remote link to memory is "YES", the first transmitter trained will be associated with

ELECTRONIC VEHICLE INFO CENTER (Continued)

memory setting 1 and the second transmitter trained will be associated with memory setting 2. Additional transmitters will not be associated with a memory setting. When you have finished training the transmitters, press the menu button again and the EVIC will display "TRAIN DONE "X" TRAINED. If no transmitters are trained within approximately 30 seconds the EVIC will display "TRAIN TIMEOUT".

REMOVAL

(1) Disconnect and isolate the battery negative cable.

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

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

(5) Connect the battery negative cable.

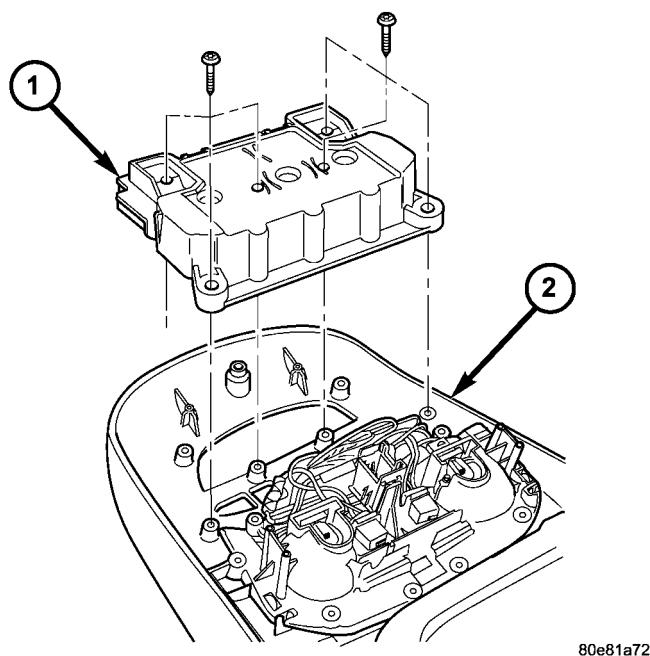
(6) Check EVIC module function.

NOTE: If a new EVIC module has been installed, the compass will have to be calibrated and the variance set. Refer to Compass Variation Adjustment and Compass Calibration in the Standard Procedures section of this group for the procedures.

AMBIENT TEMP SENSOR

DESCRIPTION

Ambient air temperature is monitored by the overhead console. The ambient temperature messages are received from the Front Control Module (FCM) over the Programmable Communications Interface (PCI) J1850 data bus circuit. The FCM receives a hard wired input from the ambient temperature sensor (Fig. 7). The ambient temperature sensor is a variable resistor mounted to the underside of the hood, in the engine compartment.



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Fig. 6 OVERHEAD CONSOLE MODULE REMOVAL

1 - ELECTRONIC VEHICLE INFORMATION MODULE
2 - OVERHEAD CONSOLE

(3) Disconnect the EVIC module electrical connector. Depress the retaining tab and pull straight apart.

(4) Remove the screws holding the EVIC module in the overhead console (Fig. 6).

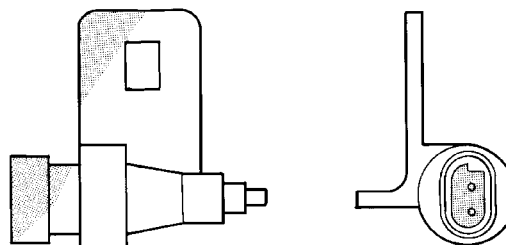
(5) Remove EVIC module from console assembly.

INSTALLATION

(1) Position the EVIC module in the overhead console.

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

(3) Connect the EVIC module electrical connector.



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Fig. 7 Ambient Temperature Sensor - Typical

For more information on the front control module, refer to **Front Control Module** in the Electronic Control Modules section of this manual. For complete circuit diagrams, refer to **Wiring**. The ambient temperature sensor cannot be adjusted or repaired and, if faulty or damaged, it must be replaced.

OPERATION

The ambient temperature sensor is a variable resistor that operates on a five-volt reference signal sent to it by the Front Control Module. The resistance in the sensor changes as temperature changes, changing the temperature sensor signal circuit voltage to the Front Control Module. Based upon the resistance in the sensor, the Front Control Module senses a specific voltage on the temperature sensor signal circuit, which it is programmed to correspond to a specific temperature. The Front Control Module

AMBIENT TEMP SENSOR (Continued)

then sends the proper ambient temperature messages to the EVIC, CMTC over the PCI J1850 data bus.

The temperature function is supported by the ambient temperature sensor, a wiring circuit, the Front Control Module, the Programmable Communications Interface (PCI) data bus, and a portion of the Electronics module. If any portion of the ambient temperature sensor circuit fails, the Front Control Module will self-diagnose the circuit.

For complete circuit diagrams, refer to **Wiring**.

DIAGNOSIS AND TESTING

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 24° C (75° F), the sensor resistance should be approximately 10.3 kilohms. At 30° C (86° F), the sensor resistance should be approximately 7.57 kilohms. The sensor resistance should decrease as the temperature rises. If OK, refer to **Diagnosis and Testing - Ambient Temperature Sensor Circuit** in this group. If not OK, replace the faulty ambient temperature sensor.

NOTE: The ambient temperature sensor is a very sensitive device. When testing, be certain the temperature sensor has had time to stabilize (room temperature) before attempting to read the sensor resistance. Failure to let the ambient temperature sensor temperature stabilize could result in a misleading test.

DIAGNOSIS AND TESTING - 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 Front Control Module wire harness connector.

(2) Connect a jumper wire between the two terminals 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 Front Control Module wire harness connector. There should be continuity. If OK, go to Step 4. If not OK, repair the open sensor return or signal circuit as required.

(4) Remove the jumper wire from the ambient temperature sensor wire harness connector. Check for continuity between the sensor return circuit cavity of the Front Control Module 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 Front Control Module wire harness connector and a good ground. There should be no continuity. If OK, refer to **Diagnosis and Testing - Overhead Console** in this group. If not OK, repair the shorted ambient temperature sensor signal circuit as required.

REMOVAL

- (1) Open the hood.
- (2) Disconnect and isolate the battery negative cable.
- (3) Working on the underside of the hood, remove screw holding sensor to hood panel.
- (4) Disconnect the sensor electrical connector and remove sensor from vehicle.

INSTALLATION

- (1) Connect the sensor electrical connector.
- (2) Working on the underside of the hood, install screw holding sensor to hood panel.
- (3) Connect the battery negative cable.
- (4) Close the hood.

UNIVERSAL TRANSMITTER

DESCRIPTION

Some DR models are equipped with a universal transmitter transceiver. The universal transmitter is integral to the Electronic Vehicle Information Center (EVIC) and the Compass Mini-Trip Computer (CMTC), which is 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 be easily identified.

Each of the three universal transmitter push buttons control 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 opera-

UNIVERSAL TRANSMITTER (Continued)

tion. 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:

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

- **Channel "X" Training** - Indicates that the universal transmitter is in its transmitter learning mode.

- **Channel "X" Trained** - Indicates that the universal transmitter has successfully acquired a new transmitter code.

- **Channel "X" Transmitting** - 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 part of the universal transmitter is faulty or damaged, the complete EVIC or CMTC module must be replaced.

OPERATION

The universal transmitter operates on a non-switched source of battery current so the unit will remain functional, regardless of the ignition switch position. For more information on the features, programming procedures and operation of the universal transmitter, see the owner's manual in the vehicle glove box.

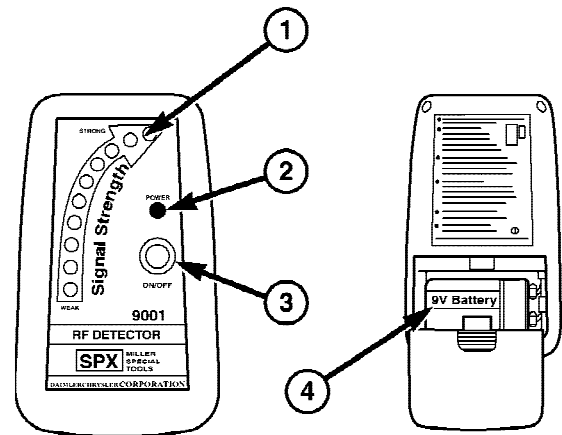
DIAGNOSIS AND TESTING - UNIVERSAL TRANSMITTER

If the Universal Transmitter is inoperative, but the Electronic Vehicle Information Center (EVIC) is operating normally, see the owner's manual in the vehicle glove box for instructions on training the Transmitter. Retrain the Transmitter with a known good transmitter as instructed in the owner's manual and test the Transmitter operation again. If the unit is still inoperative, test the universal transmitter with Radio Frequency Detector special tool. If both the Transmitter and the EVIC module are inoperative, refer to **Electronic Vehicle Information Center Diagnosis and Testing** in this group for further diagnosis. For complete circuit diagrams, refer to **Wiring Diagrams**. (Fig. 8) as described below:

(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.



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Fig. 8 RADIO FREQUENCY DETECTOR

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

STANDARD PROCEDURE

STANDARD PROCEDURE - 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.

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 uni-

UNIVERSAL TRANSMITTER (Continued)

versal 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.

REMOVAL

(1) For universal transmitter removal and installation procedure, (Refer to 8 - ELECTRICAL/OVER-HEAD CONSOLE/COMPASS/MINI-TRIP COMPUTER - REMOVAL and INSTALLATION).