

INSTRUMENT PANEL AND GAUGES

CONTENTS

	page		page
GRAPHIC DISPLAY MODULE	19	INSTRUMENT CLUSTER SERVICE	
INSTRUMENT CLUSTER DIAGNOSIS	3	PROCEDURES	5
INSTRUMENT CLUSTER GENERAL		INSTRUMENT PANEL SERVICE	
INFORMATION	1	PROCEDURES	22
		VEHICLE INFORMATION CENTER (VIC)	11

INSTRUMENT CLUSTER GENERAL INFORMATION

With the ignition switch in the RUN or START position, voltage applied to the instrument cluster is limited by the gauges fuse. The voltage applied to the instrument cluster is applied to all the gauges and indicators through the instrument cluster printed circuit.

With the ignition switch in the OFF position, voltage is not applied to the instrument cluster and the gauges do not indicate any vehicle condition.

VOLTMETER

The voltmeter measures the output of the generator when the engine is running. When the engine is not running the voltmeter measures battery voltage.

OIL PRESSURE GAUGE

The oil pressure gauge pointer position is controlled by a magnetic field created by electrical current flow through the coils within the gauge. A change in the amount of current flow will change the magnetic field which changes the pointer position. The oil pressure sender is a variable resistor that changes resistance with a change in oil pressure (calibration values shown in Specifications chart).

COOLANT TEMPERATURE GAUGE

The coolant temperature gauge pointer position is controlled by a magnetic field. This field is created by electrical current flowing through the coils within the gauge. A change in the amount of current flow will change the magnetic field which changes the pointer position. The coolant temperature sensor is a thermistor that provides a different electrical resistance for different temperatures of the coolant. As the resistance changes, the current changes and the pointer moves to a new position (calibration values shown in Specifications chart).

TACHOMETER

The tachometer displays the engine speed, (RPM). With the engine running, the tachometer receives an engine speed signal from the PCM pin 43 (calibration values shown in Specifications chart).

FUEL GAUGE

The fuel gauge pointer position is controlled by a magnetic field created by electrical current flow through the coils within the gauge. A change in the amount of current flow will change the magnetic field which changes the pointer position. The fuel level sender is a variable resistor that changes electrical resistance depending on the level of fuel in the tank. As the resistance changes, the current changes and the pointer moves to a new position (calibration values shown in Specifications chart).

LOW FUEL WARNING

The low fuel warning indicator glows when the fuel tank holds approximately 4 gallons. A low fuel warning module controls when the indicator will light. When the module senses 66.5 ohms or less from the fuel level sender for 10 continuous seconds, the indicator will light. The indicator will remain on until the module senses 63.5 ohms or more from the fuel sender for 20 continuous seconds.

UPSHIFT INDICATOR

Vehicles equipped with manual transmissions have an optional Up-Shift indicator lamp. The lamp is controlled by the PCM. The lamp illuminates to indicate when the driver should shift to the next highest gear for best fuel economy. The engine controller will turn the lamp OFF after 3 to 5 seconds if the shift of gears is not performed. The shift light will remain off until the vehicle stops accelerating and is brought back to the range of shift light operation or shifted into fifth gear.

The indicator lamp is normally illuminated when the ignition switch is turned ON and it is turned OFF when the engine is started up. The lamp will be illuminated during engine operation according to engine speed and load.

BRAKE INDICATOR

The brake indicator warns the driver that the parking brake is on or that the pressure in the brake system is unequal.

Voltage is applied through the brake indicator bulb to three switches. A path to ground for the current is available if:

- The brake warning switch is closed (with unequal brake system pressures), or
- The ignition switch is in START (to test the bulb), or
- The park brake switch is closed (with the park brake on).

MALFUNCTION INDICATOR (CHECK ENGINE LAMP)

The Check Engine Lamp illuminates at the bottom of the instrument cluster each time the ignition key is turned on. It will stay on for 3 seconds as a bulb test.

If the PCM receives an incorrect signal or no signal from certain sensors or emission related systems the lamp is turned on (pin 32 of PCM). This is a warning that the PCM has recorded a system or sensor malfunction. In some cases when a diagnostic trouble code is declared the PCM will go into a limp-in mode in an attempt to keep the system operating. It signals an immediate need for service.

The lamp can also be used to display diagnostic trouble codes. Cycle the ignition switch on, off, on, off, on within 5 seconds. This will allow any trouble codes stored in the control module memory to be displayed in a series of flashes representing digits.

SECURITY LAMP

The Security Lamp illuminates when the Security system has been properly armed. The lamp will flash for 15 seconds, indicating that arming is in progress. Note that this 15 second arming will start after the Illuminated Entry has timed out (courtesy lamps out). Refer to Group 8Q - Vehicle Theft Security System.

CHECK ANTI-LOCK LAMP

This light monitors the Anti-Lock Brake System. This light will come on when the ignition key is turned to the ON position and may stay on for as long as thirty seconds. If the Anti-Lock light remains on or comes on during driving, it indicates that the Anti-Lock portion of the brake system is not functioning. Refer to Group 5 - Brakes for further information.

AIR BAG

This red light monitors the Air Bag system. This light will come on when the ignition key is turned to the ON position and should light for 6 to 8 seconds. If the Air Bag light remains on or comes on during driving, it indicates that the Air Bag system is not functioning.

If air bag warning lamp either fails to light, or goes on and stays on, there is a system malfunction. Refer to the Passive Restraint Diagnostic Test Manual to diagnose the problem.

HAZARD FLASHER INDICATOR (CANADA)

Illuminates when the hazard switch on top of the steering column is depressed.

MASTER LIGHTING INDICATOR (CANADA)

Illuminates when the headlamps are turned ON.

INSTRUMENT CLUSTER DIAGNOSIS

If the entire cluster is inoperative check fuse 22 in the fuse panel. Replace as required.

SPEEDOMETER/OIL PRESSURE GAUGE/AIR BAG LAMP

UPSHIFT INDICATOR

MALFUNCTION INDICATOR (CHECK ENGINE)

BRAKE INDICATOR

CHECK ANTI-LOCK (ABS)

If all these are inoperative check for an open in the IGN line to cluster connector terminal C12.

If C12 has ignition voltage continue with the diagnostics of the appropriate item.

SPEEDOMETER

- (1) Raise the vehicle.
- (2) Disconnect the vehicle speed sensor connector.
- (3) Connect a voltmeter between the black wire pin of the connector and ground.
- (4) Turn the ignition key to the RUN position.
- (5) Check for approximately 5 volts. If OK, perform vehicle speed sensor test. Refer to the appropriate Vehicle Diagnostics Test Procedures Manual. If not OK, continue with step 6.
- (6) Turn ignition key to OFF position.
- (7) Check continuity between distance (speed) sensor connector and cluster connector terminal C7. If OK, replace speedometer. If not OK, repair open circuit.

OIL PRESSURE GAUGE INOPERATIVE

- (1) Turn ignition switch to RUN.
- (2) Disconnect Oil Pressure Sender connector. Needle goes to High. If not, go to step 2.

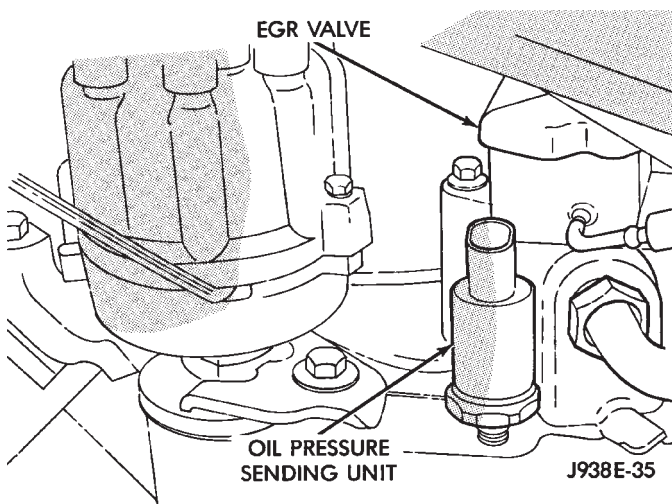


Fig. 1 Oil Pressure Sending Unit—5.2L

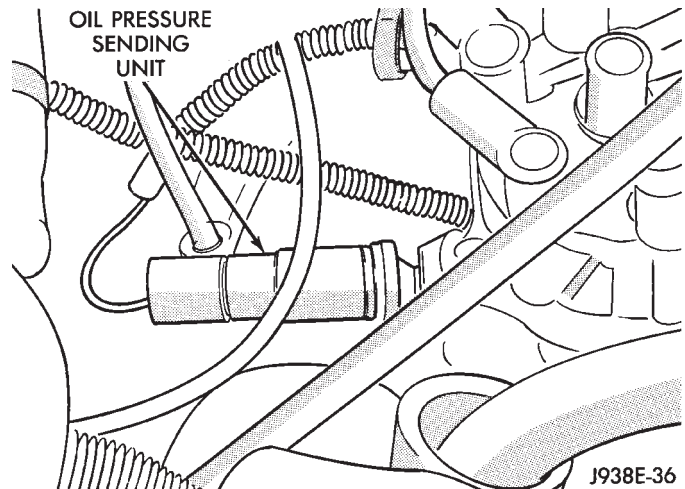


Fig. 2 Oil Pressure Sending Unit—4.0L

- (3) Touch Oil Pressure Sender connector to ground. Needle goes to Low.
- (4) If OK, replace sender. If not, check for an open to gauge (instrument cluster connector terminal C9). Repair open as required. If no open is found, replace gauge.

AIR BAG LAMP

- (1) Turn ignition switch to RUN.
- (2) Ground instrument cluster connector pin C11. Lamp should light. If not, replace bulb. If OK, continue with step 3.
- (3) Turn key to OFF. Disconnect and isolate the battery negative (ground) cable. Check for continuity between connector pin C11 and pin 3 of the air bag diagnostic module connector. If OK, replace ASDM (refer to Group 8M- Restraint Systems).

UPSHIFT INDICATOR

- (1) Turn ignition switch to RUN.
- (2) Ground instrument cluster connector pin C8. Lamp should light. If not, replace bulb. If OK, continue with step 3.
- (3) Turn Key to OFF. Check for continuity between connector pin C8 and pin 54 of the PCM. If OK, replace PCM. If not, repair open.

MALFUNCTION INDICATOR (CHECK ENGINE)

- (1) Turn ignition switch to RUN.
- (2) Jumper cluster connector terminal C5 to ground. Lamp should light. If bulb is OK, check for open circuit between C5 and powertrain control module pin 32. If OK, replace PCM.

BRAKE INDICATOR

Jumper cluster connector terminal C4 to ground. Lamp should light. If bulb is OK, check for continuity to brake pressure warning switch and park brake switch.

CHECK ANTI-LOCK (ABS)

- (1) Turn ignition switch to RUN.
- (2) Jumper instrument cluster connector terminal C3 to ground. Lamp should light. If bulb is OK, check for continuity between C3 and pin 53 of the ABS module. Refer to Group 5 - Brakes.

VOLTMETER/TACHOMETER/FUEL GAUGE/LOW FUEL INOPERATIVE

If all these are inoperative check for an open in the B+ line to cluster connector terminal D4.

If D4 has battery voltage continue with the diagnostics of the appropriate item.

VOLTMETER

If cluster connector terminal D4 has battery voltage, replace meter.

TACHOMETER INOPERATIVE

Tachometer input is from the powertrain control module (PCM) pin 43 to cluster connector terminal D5.

- (1) Check for continuity between D5 and PCM pin 43.
- (2) Use the DRB II Scan Tool to test pin 43.

FUEL GAUGE

- (1) Turn ignition switch to RUN.
- (2) Unplug Fuel Gauge sender connector at tank. Needle should go to E.
- (3) Connect a jumper between terminals 1 and 2 (PK/BK and BK/OR wires) on the fuel Gauge Sender connector. The gauge should move to F. If gauge is OK, replace sender. If not, go to step 4.
- (4) Measure resistance of sender. Meter should read 105 to 5 ohms. If OK, go to step 5. If not, replace sender.
- (5) Check for an open between sender connector terminal 1 and cluster connector terminal D6. If OK, replace gauge. If not, repair open to gauge. **If there is an open in the line to D6 the Low Fuel will be illuminated.**

LOW FUEL WARNING INOPERATIVE

- (1) Perform Fuel Gauge test. **The Fuel Gauge and Low Fuel use the same line. If one is not working properly the other must also be incorrect.**
- (2) If the Low Fuel is still inoperative, replace bulb. **To replace the Low Fuel Module, replace the Tachometer.**

COOLANT TEMPERATURE GAUGE INOPERATIVE

(1) Check for an open in the B+ line to cluster connector terminal D9. If D9 has battery voltage continue with the next step. If D9 has no voltage repair as required.

- (2) Turn ignition switch to RUN.
- (3) Disconnect Coolant Temperature Sender connector. Needle goes to Low. If not, go to step 3.
- (4) Touch Coolant Temperature Sender connector to ground. Needle goes to High. If OK, replace sender. If not, check for an open between sender and gauge. If OK, replace gauge.

SECURITY INDICATOR

- (1) Jumper cluster connector terminal D16 to ground. Lamp should light. If OK, test Security Alarm Module (refer to Group 8Q - Vehicle Theft Security System). If not, go to step 2.
- (2) Measure voltage at cluster connector terminal D15. Meter should read battery voltage with ignition OFF. If OK, test Security Alarm Module. If not, replace bulb.

SEAT BELT INDICATOR

Jumper instrument cluster connector terminal C14 to 12 volts. Lamp should light. If not, replace bulb. If OK, check wiring for an open to Convenience Center. Refer to Group 8U - Chime/Buzzer Warning Systems.

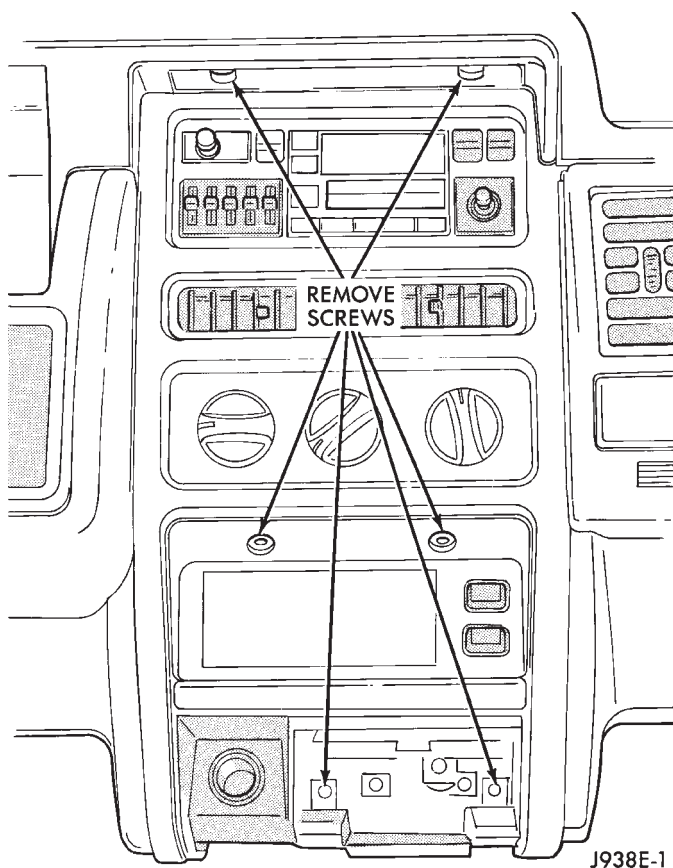
INSTRUMENT CLUSTER SERVICE PROCEDURES

INDEX

	page		page
Gauge Replacement—Instrument Cluster		Specifications	10
Removed	6	Speedometer Replacement—Instrument Cluster	
Instrument Cluster Replacement	5	Removed	6
Printed Circuit Replacement—Instrument Cluster		Tachometer Replacement—Instrument Cluster	
Removed	6	Removed	6

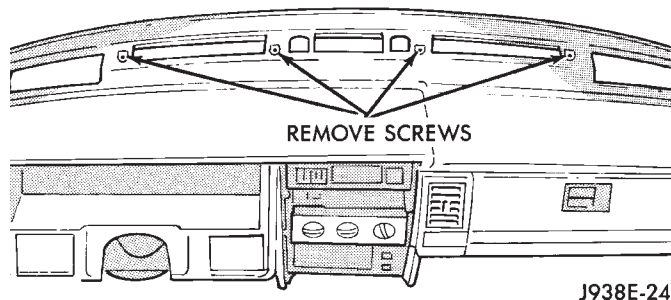
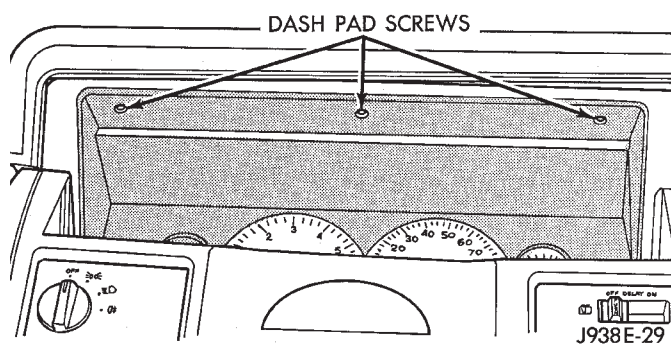
INSTRUMENT CLUSTER REPLACEMENT

- (1) Disconnect negative cable from battery.
- (2) Remove ash tray.
- (3) Remove 6 screws holding center cluster bezel

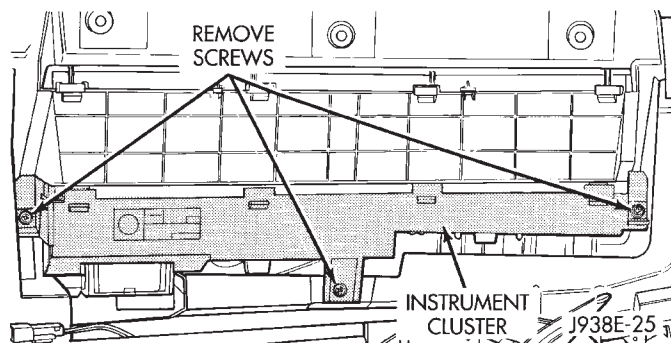
**Fig. 1 Remove Center Bezel Retaining Screws**

(Fig. 1).

- (4) Remove center bezel.
- (5) Remove 2 screws holding dash pad.
- (6) Gently pry defroster grille out of dash pad.
- (7) Unplug sensors (if equipped) and set defroster grille aside.
- (8) Remove 4 screws in defroster duct opening holding dash pad (Fig. 2).
- (9) Remove 3 screws above instrument panel cluster holding dash pad (Fig. 3).

**Fig. 2 Upper Dash Pad Attaching Screws****Fig. 3 Remove Screws Holding Dash Pad**

- (10) Open glove box and remove 2 screws holding dash pad.
- (11) Remove dash pad pulling up to unsnap end clips.

**Fig. 4 Instrument Cluster Attaching Screws**

- (12) Remove 3 screws from the top of the cluster (Fig. 4).
- (13) Lift cluster straight up far enough to allow access to connector. Unplug connector and remove cluster.

GAUGE REPLACEMENT—INSTRUMENT CLUSTER REMOVED

- (1) Remove 4 screws from bottom of lens.
- (2) Lift lens off from bottom.
- (3) Pull trip reset knob off.
- (4) Remove mask by lifting from bottom. Mask is snapped in along the top.

CAUTION: Do not touch the face of a gauge or the back of the lens with your finger. It will leave a permanent finger print.

- (5) Remove the required gauge set attaching screws from the rear of mounting bezel. Remove gauge set from front.
- (6) Install the gauge set. Install the attaching screws.
- (7) Install the mask.
- (8) Install lens with 4 screws.
- (9) Install knob on trip odometer push pin.

SPEEDOMETER REPLACEMENT—INSTRUMENT CLUSTER REMOVED

- (1) Remove 4 screws from bottom of lens (Fig. 5).
- (2) Lift lens off from bottom.
- (3) Pull trip reset knob off.
- (4) Remove mask by lifting from bottom. Mask is snapped in along the top.

CAUTION: Do not touch the face of a gauge or the back of the lens with your finger. It will leave a permanent finger print.

- (5) Remove 3 attaching screws from the rear of the mounting bezel (Fig. 6).
- (6) Remove the speedometer assembly including the circuit board.
- (7) Install the speedometer. Install the attaching screws.
- (8) Install the mask.
- (9) Install lens with four screws.
- (10) Install knob on trip odometer push pin.

TACHOMETER REPLACEMENT—INSTRUMENT CLUSTER REMOVED

- (1) Remove 4 screws from bottom of lens.
- (2) Lift lens off from bottom.
- (3) Pull trip reset knob off.
- (4) Remove mask by lifting from bottom. Mask is snapped in along the top.

CAUTION: Do not touch the face of a gauge or the back of the lens with your finger. It will leave a permanent finger print.

- (5) Remove 6 silver colored attaching screws from the rear of the mounting bezel (Fig. 6).
- (6) Remove the tachometer assembly including the circuit board.
- (7) Install the tachometer. Install the attaching screws.
- (8) Install the mask.
- (9) Install lens with 4 screws.
- (10) Install knob on trip odometer push pin.

PRINTED CIRCUIT REPLACEMENT—INSTRUMENT CLUSTER REMOVED**DISASSEMBLY**

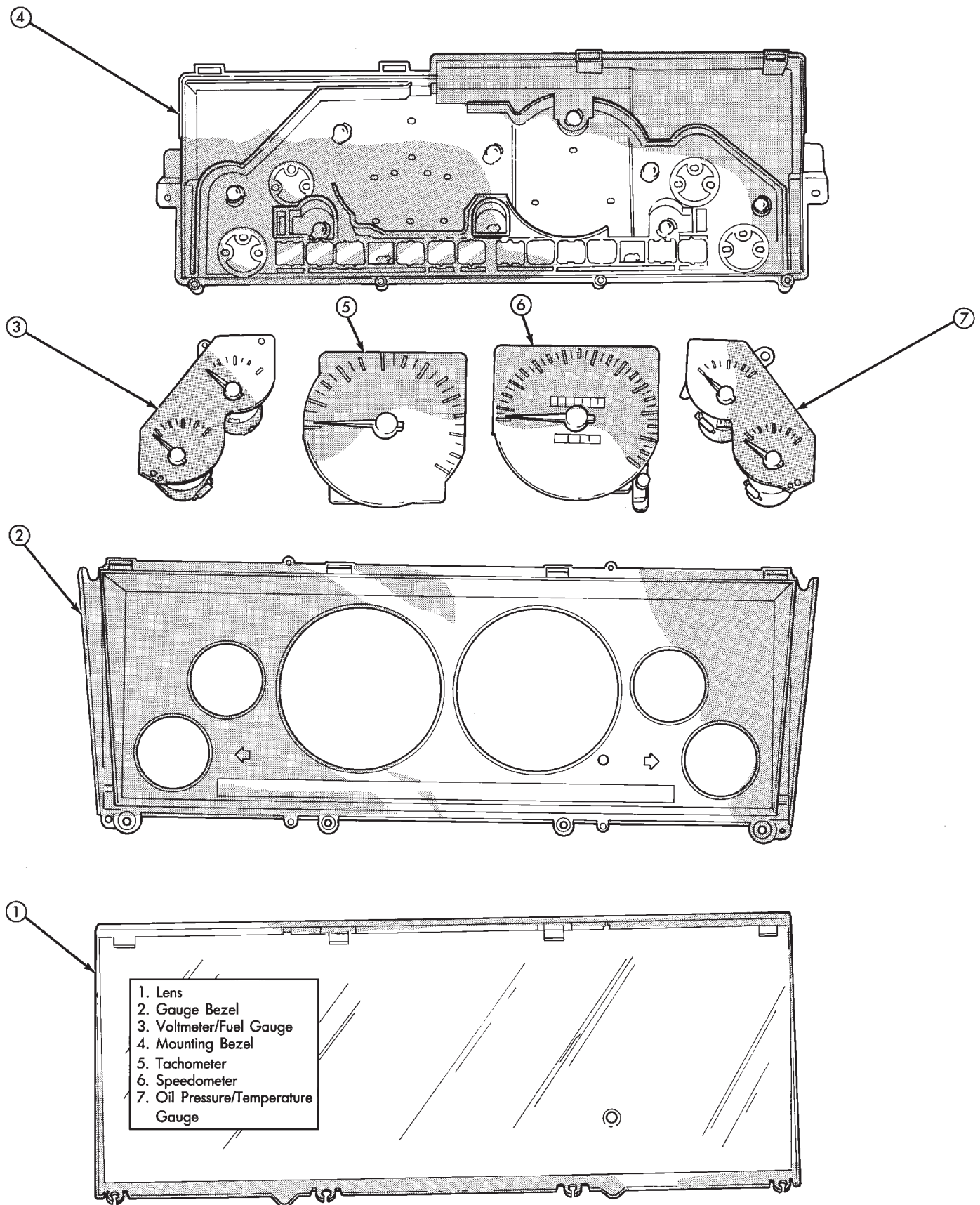
- (1) Remove 4 screws from bottom of lens.
- (2) Lift lens off from bottom.
- (3) Pull trip reset knob off.
- (4) Remove mask by lifting from bottom. Mask is snapped in along the top.

CAUTION: Do not touch the face of a gauge or the back of the lens with your finger. It will leave a permanent finger print.

- (5) Remove all attaching screws for gauges, tachometer, and speedometer that are contacting the printed circuit (Fig. 6).
- (6) Remove 2 screws holding the cluster connector to the bezel (Fig. 7).
- (7) Remove the lamp sockets from the circuit board.
- (8) Lift the connector up to unfold the printed circuit (Fig. 8). Remove the printed circuit including the connector.

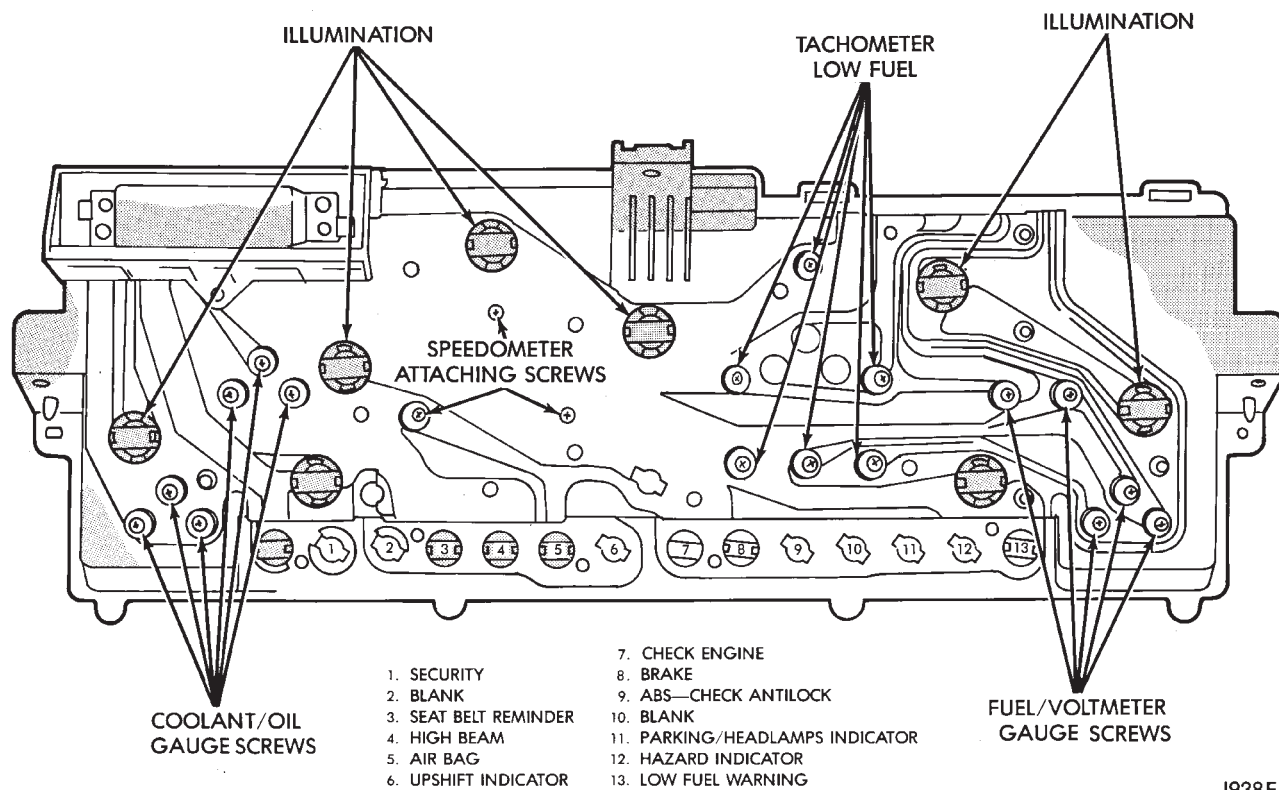
ASSEMBLY

- (1) Position the printed circuit, including connector, on the back of the instrument panel cluster.
- (2) Hold the components in place and install the screws.
- (3) Install the lamp sockets.
- (4) Pivot the connector into place and install two screws.
- (5) Install the mask.
- (6) Install lens with four screws.
- (7) Install knob on trip odometer push pin.

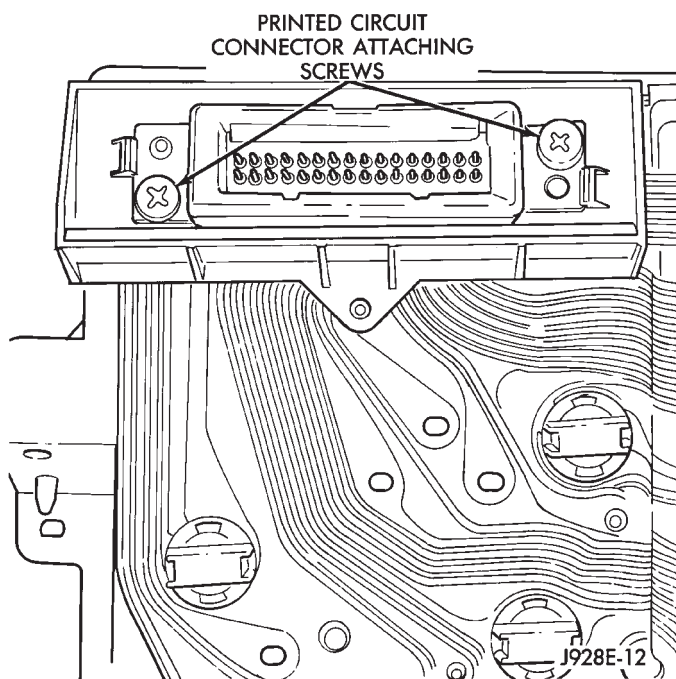
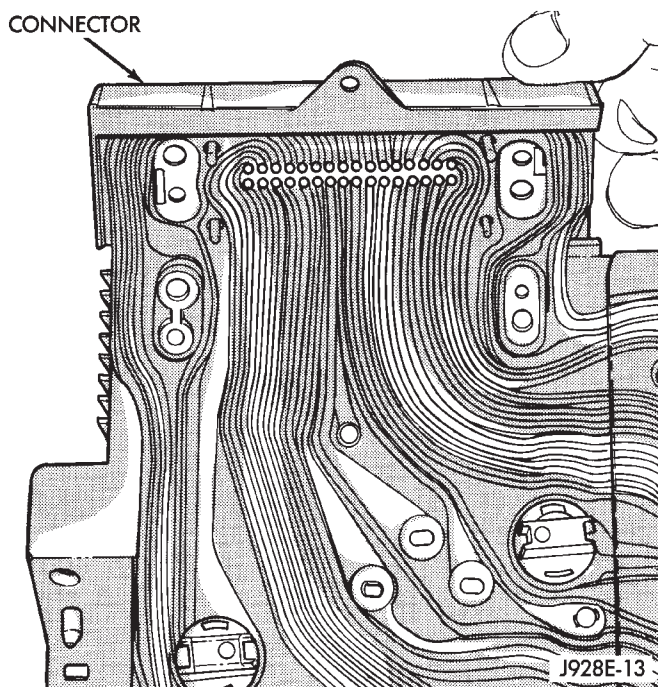


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Fig. 5 Instrument Cluster

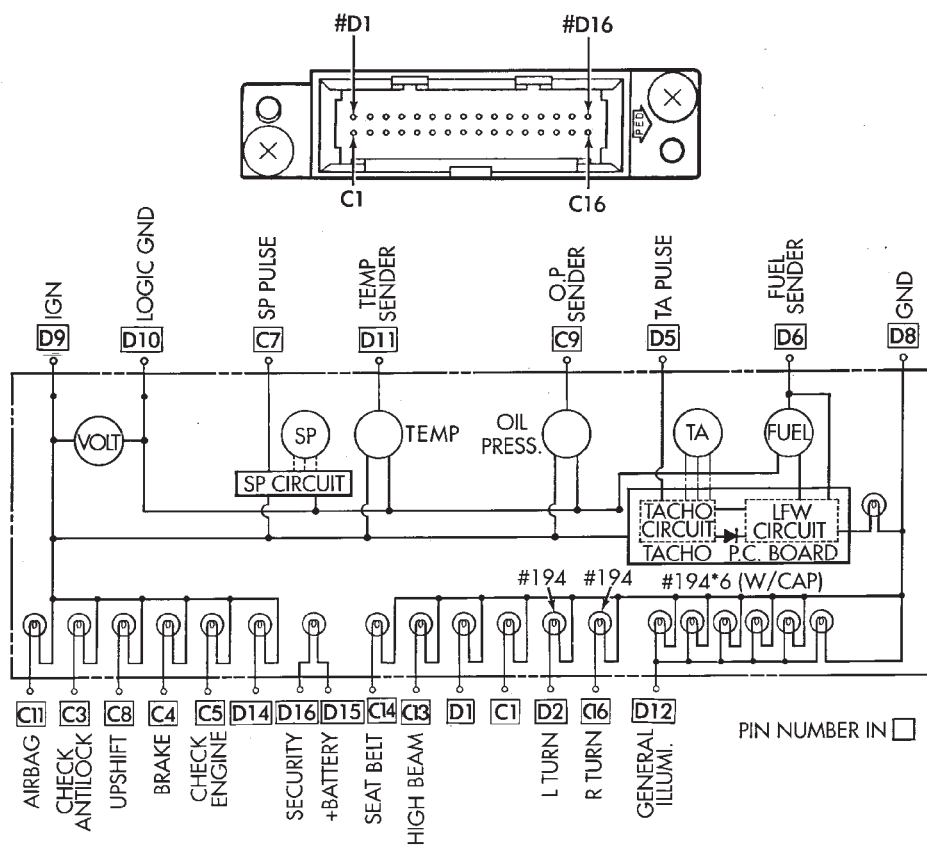
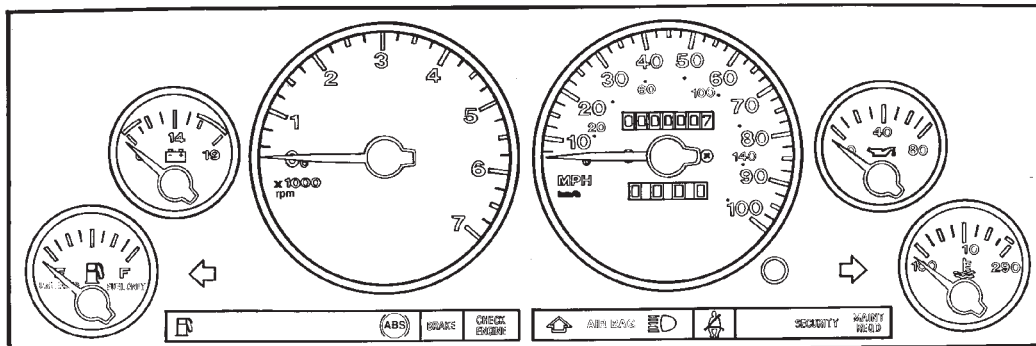


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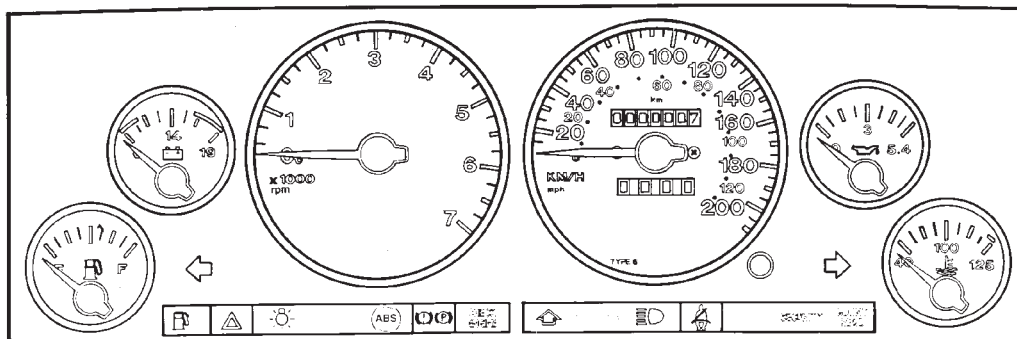
Fig. 6 Printed Circuit Removal/Installation**Fig. 7 Cluster Connector Retaining Screws****Fig. 8 Printed Circuit And Cluster Connector**

INSTRUMENT CLUSTER

U.S.A.



CANADA



SPECIFICATIONS

INSTRUMENT CLUSTER GAUGES

OIL PRESSURE GAUGE CALIBRATION

POINTER POSITION	RESISTANCE
0 psi Grad. $\pm 2^\circ$	1 ohm
40 psi Grad. $\pm 3\frac{1}{2}^\circ$	46.5 ohms
80 psi Grad. $\pm 3^\circ$	87 ohms

TEMPERATURE GAUGE CALIBRATION

POINTER POSITION	RESISTANCE
100°F Grad. $\pm 3\frac{1}{2}^\circ$	1365 ohms
210°F Grad. $\pm 2\frac{1}{2}^\circ$	115 ohms
260°F Grad. $\pm 2\frac{1}{2}^\circ$	55.1 ohms

FUEL GAUGE CALIBRATION

POINTER POSITION	RESISTANCE
Empty Grad. $+0^\circ -5^\circ$	105 ohm
1/2 Full Grad. $\pm 5^\circ$	32.5 ohms
Full Grad. $+5^\circ -0^\circ$	5 ohms

VOLTMETER CALIBRATION

VOLTAGE INPUT	POINTER POSITION
12V	12V Grad. $\pm 6^\circ$
16V	16V Grad. $\pm 3^\circ$

TACHOMETER CALIBRATION

FREQUENCY	INDICATION
66.7 HZ	2000 RPM ± 140
166.7 HZ	5000 RPM ± 140

SPEEDOMETER CALIBRATION

FREQUENCY	INDICATION
44.4 HZ	20 mph -1.5 $+4.5$
88.8 HZ	40 mph -1 $+4$
122.2 HZ	55 mph $-.3$ $+3.3$

J928E-7

VEHICLE INFORMATION CENTER (VIC)

INDEX

	page		page
4WD System Mode Displays	13	Operating System Messages	12
Clock/Calendar	12	Service Procedures	18
Controls	11	Setup	15
Coolant Level Sensor	19	VIC Diagnostics	13
General Information	11	Washer Fluid Level Sensor	19
Engine Oil Level Sensor	18		

GENERAL INFORMATION

A multi-colored vacuum fluorescent (VF) display screen and vehicle outline. The VIC will perform four functions with the use of the Select and Set buttons.

- Display time and date (clock/calendar feature)
- Monitor specific vehicle operating systems
- Display service reminder or distance to service
- Display 4wd transfer case modes of operation.

CLOCK/CALENDAR DISPLAY

The clock/calendar display consists of:

- Time (hours and minutes with AM and PM)
- Day of the week (Monday through Sunday)
- Date (Month and Day)

MONITORED SYSTEMS

The vehicle systems monitored by the Vehicle Information Center are:

- Right front door ajar
- Left front door ajar
- Right rear door ajar
- Left rear door ajar
- Liftgate open
- Tail lamps
- Engine oil level/sensor
- Windshield washer fluid level/sensor
- Engine coolant fluid level/sensor
- Turn Signal On
- Electrical system voltage
- Four/two wheel drive states

SERVICE REMINDERS

There are two service reminders:

- PERFORM SERVICE
- MILES (KM) TO SERVICE

FOUR WHEEL DRIVE DISPLAY

The VIC will illuminate the vehicle outline and telltale indicator lights exactly the same as the 4WD Graphic Display Module.

- Rear wheels illuminated (2WD)
- Front wheels illuminated (4WD)
- PART TIME (Part Time 4WD)
- FULL TIME (Full Time 4WD)
- LO (Lo Range 4WD)

When the ignition key is turned ON, the module will display the distance-to service message for 6 seconds. If the distance remaining to service is zero, the module will instead display the 0 MILES TO SERVICE message for 11 seconds. Then the TONE-OUT line will pulse low for 6 sequences of warning beeps. The 0 MILES TO SERVICE message will continue for an additional 2 seconds.

Next, if no monitored system faults exist and the time/date has been previously set, the module will display the current time and date. If a service fault exists, the module will begin to display the fault message. If more than one message has to be displayed, the module will display up to 2 messages. Then the clock function will pulse (unless a door is open and vehicle is at critical speed) in a continuous sequence at 3 second interval.

CONTROLS

- The SET button when depressed for 2 seconds initiates the time-setting mode. Once in the time-setting mode, pressing the SELECT button will cause the VIC to step to the next time/day function.
- Pressing the SELECT then the SET button for 2 seconds, will reset the service reminder back to service interval selected in set up mode.

At ignition ON, the module will display the distance to service message. If the distance to service is 0, 11 seconds after the display turns on, the module will beep a set of 6 beeps. Pressing SELECT then SET will reset the service reminder back to the service interval.

- If the time/date has been set, pressing the SELECT displays the service reminder.
- After ignition ON and the service reminder has been displayed, pressing SET for 2 seconds initiates the time/date setting mode.
- If the module has lost battery power, the clock/calendar display will flash the next time the ignition switch is turned ON or a button is pressed with the ignition off. The time display will continue to flash until the time is set.
- If both SELECT and SET buttons are depressed at ignition ON, the VIC will enter the Self-Test Mode.

If SET and/or SELECT is pressed with ignition OFF, the module will display the clock/calendar. This display will remain for the time the button(s) is/are pressed plus 6 seconds.

CLOCK/CALENDAR

Clock/Calendar function will be displayed during normal vehicle operation unless a warning or service system fault is detected. The clock/calendar display will include the following:

- Time (hours and minutes with AM and PM, except 24 hour clock mode)
- Day of Week (Monday through Sunday)
- Date (month and day)

OPERATING SYSTEM MESSAGES

The VIC monitors 11 vehicle operating systems. If a fault is detected, an area of the vehicle display outline will light-up and a message will appear. To alert the driver, an audio signal warning (Beeps) will occur the first time the message appears as indicated in the following paragraphs.

WARNING MESSAGES

The following warning messages will be displayed if detected:

- Driver door ajar
- Passenger door ajar
- Left rear door ajar
- Right rear door ajar
- Liftgate open
- Rear Lamp Failure
- Turn Signal On
- Check battery

DOOR AJAR/LIFTGATE OPEN

These messages are displayed when the switch is grounded. For the driver door only, whenever the door is open and the vehicle speed is greater than 10 MPH, the TONE-OUT will sound. This same warning will be enabled whenever the passenger doors are opened and the vehicle speed is greater than 2 MPH.

REAR LAMP FAILURE (LAMP OUTAGE MODULE)

Message is displayed when Lamp Out input is open for 1/2 second. This display is latched on until the ignition turns OFF. **If a bulb is replaced the ignition must be turned OFF to make the message clear.**

TURN SIGNAL ON

Message is turned on if 1 mile has elapsed with turn signal on.

CHECK BATTERY

Message is turned on when the ignition voltage is not between 11.5 and 15.1 volts. The reading is checked every 15 seconds for an over or under battery

voltage. It takes 2 consecutive 15 second average readings to turn the message on and 1 to remove it. **The message can be turned on anywhere between 15 and 30 seconds and removed within 15 seconds.**

LEVEL MESSAGES

The module monitors the following 3 fluid levels:

- Check oil level
- Washer fluid low
- Coolant level low

CHECK OIL LEVEL/OIL LEVEL SENSOR BAD

The module will test the oil sensor input immediately after ignition ON. If low oil is detected during the test or the oil level sensor is bad, the VIC will display this message. The engine on the vehicle outline will also be illuminated. Ignition must be OFF for 1 minute before the oil is checked. If the fault is found, the message will stay on until the ignition turns OFF. Unless the ignition has been off for one minute or longer and the oil fault fixed, the fault will appear again on the next ignition ON.

WASHER FLUID LOW/COOLANT LEVEL LOW

The module will test the washer and coolant input immediately after ignition ON and determine if there is a fault. Thereafter the inputs are checked every 1 second. It takes 30 consecutive low averaged samples to determine the washer or coolant is low. It takes 15 consecutive low averaged samples to determine the sensor is bad. The washer and coolant messages are latched until the ignition turns OFF.

SERVICE MESSAGES

The VIC system includes a distance-to-service counter and detects faulty sensors. The following service messages will be displayed if a fault is determined:

- Perform Service
- xxxxx Miles (KM) to Service
- Coolant sensor bad
- Oil level sensor bad
- Washer sensor bad

PERFORM SERVICE

The 0 Miles To Service message is displayed at ignition ON any time the distance-to-service counter is equal to zero. The distance-to-service counter is reset by pressing SELECT then SET buttons depressed. Refer to SETUP for information on changing the service interval.

XXX MILES (KM) TO SERVICE

The distance-to-service message is displayed at ignition ON or when SELECT is pressed after the time/date has been set. The distance-to-service counter must not equal zero for the message to dis-

play. The distance is expressed in MILES or KILOMETERS (km) depending on the state of the US/M (in overhead console) input.

After the ignition turns ON and while the service reminder is being displayed, pressing SELECT and the SET for 2 seconds resets the service reminder. **Even though the service reminder is being displayed, SELECT needs to be pressed before SET to reset the service reminder.**

There will be 6 beeps every time the service miles are reset. Refer to Setup.

SENSOR FAULTS

The module displays a message as part of the warning message when it detects an open circuit to the oil, washer or coolant sensor. Refer back to Level Messages.

4WD SYSTEM MODE DISPLAYS

The VIC System Display will also monitor 4WD transfer case modes of operation. The VIC will illuminate the vehicle outline and telltale indicator lights exactly the same as the 4WD Graphic Display Module.

- Rear wheels illuminated (2WD)
- Front wheels illuminated (4WD)
- PART TIME (Part Time 4WD)
- FULL TIME (Full Time 4WD)
- LO (Lo Range 4WD)

VIC DIAGNOSTICS

The module will perform certain self-tests without the use of special tools. To start the test mode, press the SELECT and SET switches simultaneously while turning the key to ON. The program will stay in diagnostics mode until all the tests pass or the ignition is turned off.

When the diagnostic routine begins the module will perform the following:

MICROCOMPUTER RAM/ROM/TIMER TEST - Failure in any of these tests causes the message MODULE FAILURE to be displayed until the ignition turns OFF.

DISPLAY TEST - Activate all display segments and beep 6 times. Pressing SET or SELECT will stop the beeps if they are going and the program will advance to monitor the inputs.

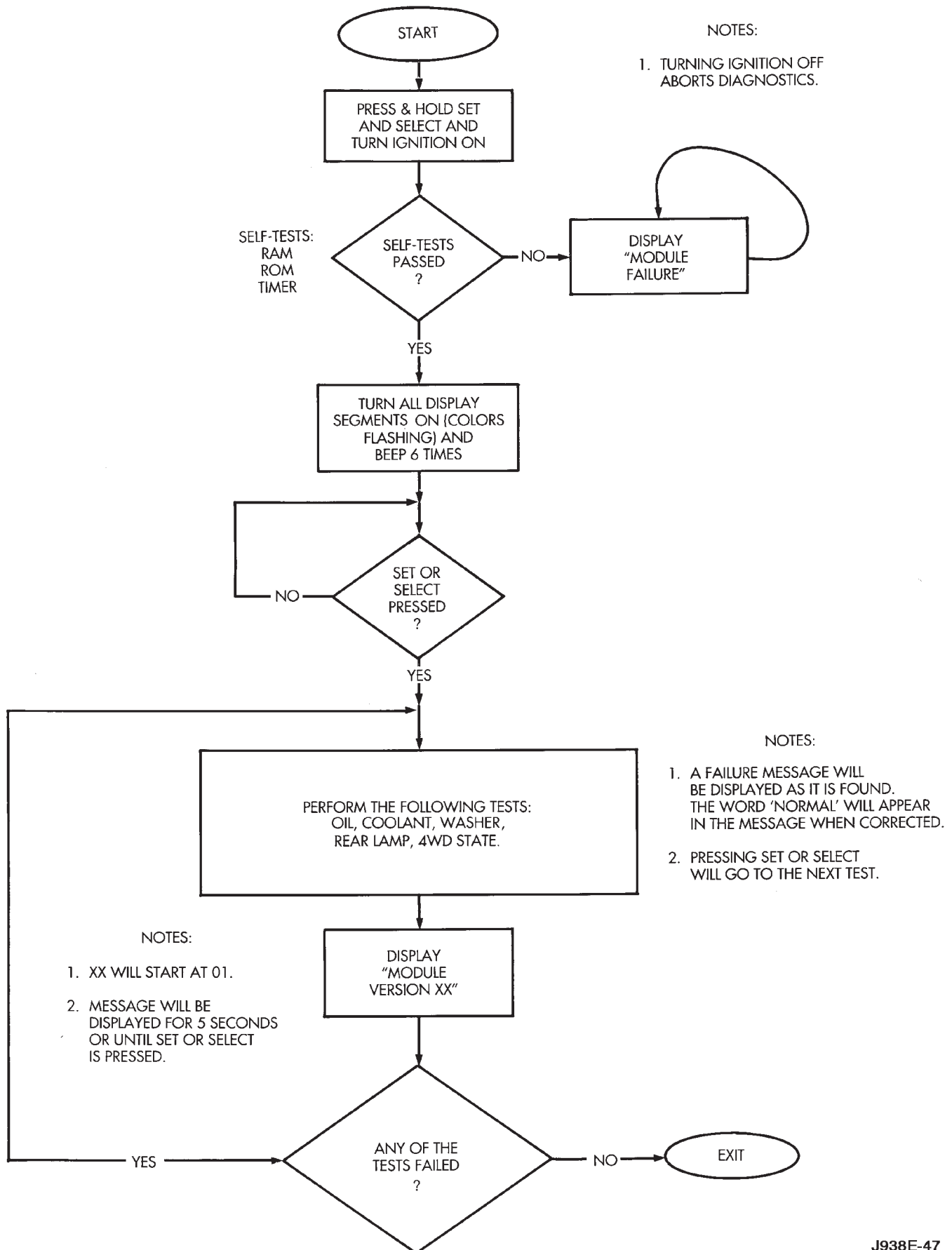
If a failure is detected, a corresponding error message will be displayed. The input will be monitored until SET or SELECT is pressed going on to the next step.

If the error is corrected while the error message is on the display, the word NORMAL will appear in the new message. Pressing SET or SELECT will continue to the next test.

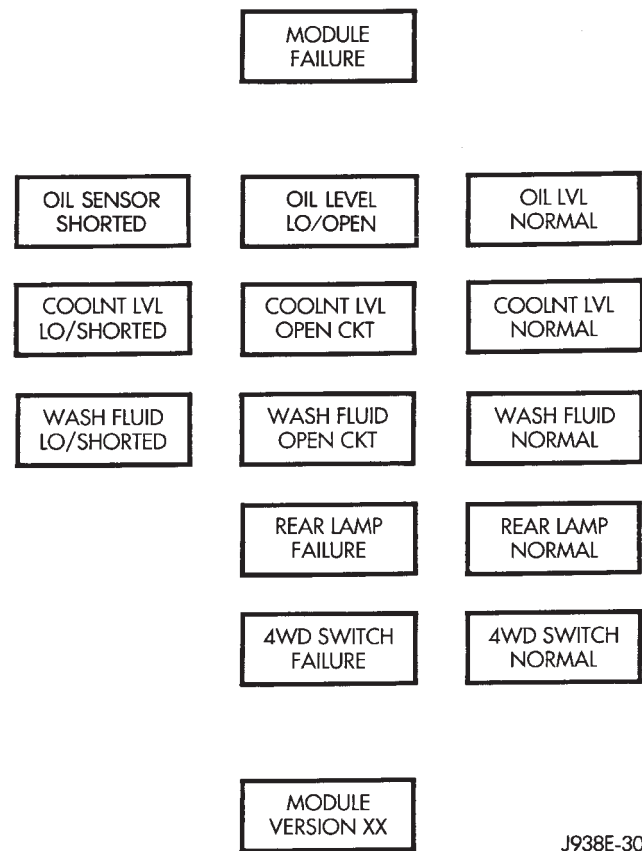
OIL/COOLANT/WASHER/REAR LAMP/FOUR WHEEL DRIVE - These inputs are monitored. Refer to Diagnostic Messages.

If the tests are successful, the message MODULE VERSION XX will be displayed for 5 seconds. XX represents the module software revision level. Pressing the SELECT switch causes the diagnostics to continue to Clock Display Select.

VIC DIAGNOSTICS CHART



VIC DIAGNOSTIC MESSAGES



J938E-30

If part of the module will not light or is not operating properly, use the schematic and Group 8 - Wiring Diagrams to check for continuity to the appropriate device. If there is continuity and the sending device is operating properly replace the Vehicle Information Center.

SETUP

LANGUAGE SELECT

This function allows the selection of an alternate language for the module message displays.

Pressing the SELECT switch will cause the module to toggle between the available languages. Pressing the SET switch will set the module to the chosen language and continue to the Sensor Test.

CLOCK DISPLAY SELECT

Allows the selection of either 12 hour or 24 hour clock display. The module will display:

- 12 HOUR CLOCK MODE
- 24 HR CLOCK MODE

Pressing the SELECT switch will cause the module to toggle between the 12 and 24 hour modes. Pressing the SET switch will set the module to the chosen clock display and continue into Language Select.

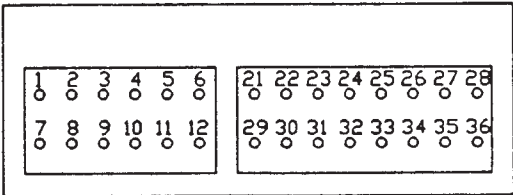
SERVICE INTERVAL

Controls the mileage of the service interval. The service interval can be set to a mileage between 2000 and 7500 miles in increments of 500 miles. Kilometers are displayed if US/M (in overhead console) is set to metric.

The miles to service displayed are always recalculated from whatever the interval is set to. For example:

- Service interval is set at 7500 miles and 3000 miles have elapsed. Service Reminder will show 4500 MILES TO SERVICE.
- If interval is reset to 5000 miles, the service reminder will show 2000 MILES TO SERVICE (5000-3000).

CONNECTOR IDENTIFICATION



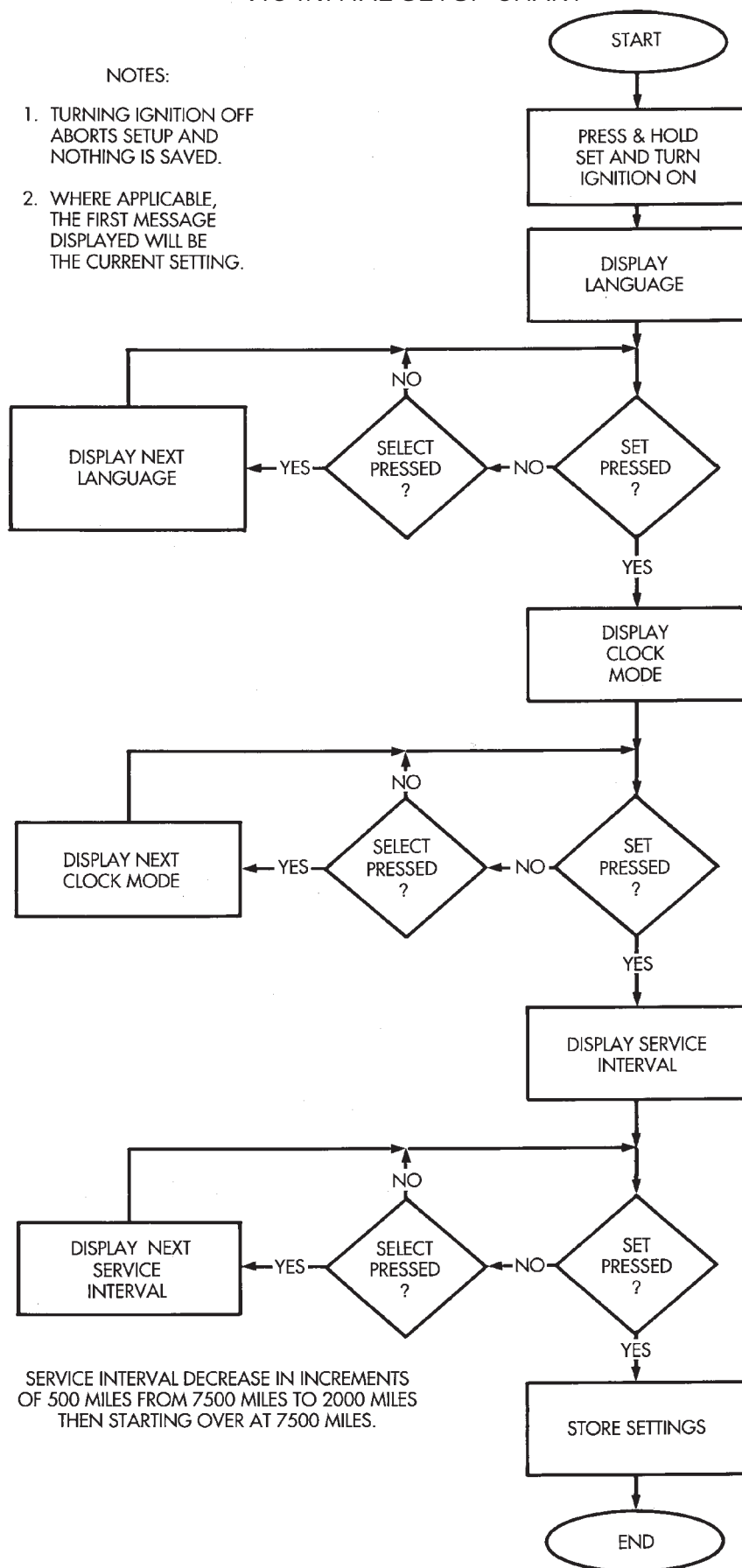
PIN #	SIGNAL	PIN #	SIGNAL
1	BATTERY	7	GROUND
2	GROUND	8	NOT CONNECTED
3	DRIVER DOOR	9	NOT CONNECTED
4	PASSENGER DOOR	10	NOT CONNECTED
5	RIGHT REAR DOOR	11	tone
6	TURN SIGNAL	12	SPEED
21	PARK LAMP	29	LIFT-GATE
22	COOLANT	30	WASHER
23	LAMP OUT	31	PART-TIME
24	US / M	32	FULL-TIME
25	LEFT REAR DOOR	33	IGNITION
26	OIL LEVEL	34	LO
27	ILLUMINATION	35	ALL-TIME
28	GROUND (GND)	36	2 WHEEL DRIVE (2WD)

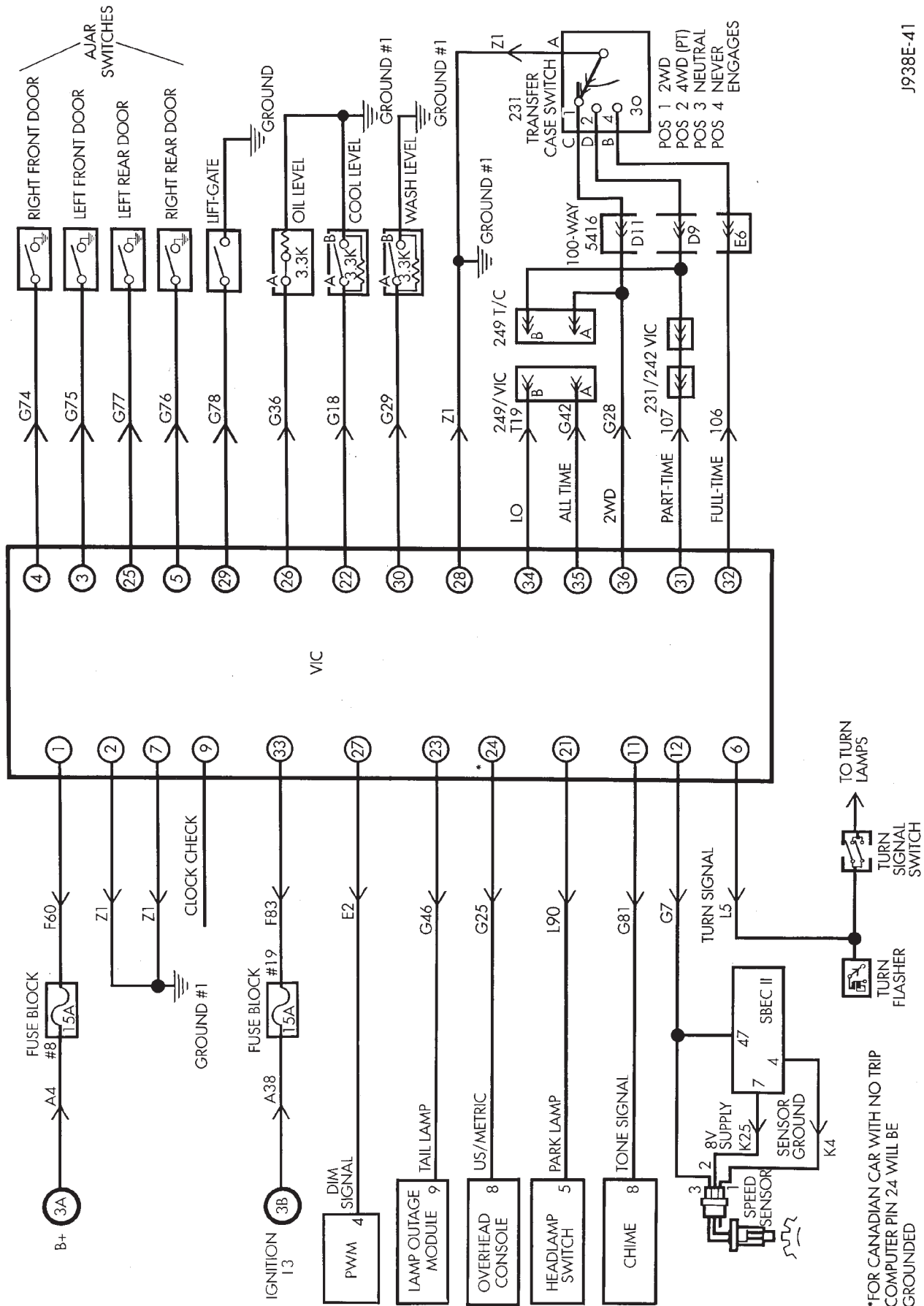
J938E-48

VIC INITIAL SETUP CHART

NOTES:

1. TURNING IGNITION OFF ABORTS SETUP AND NOTHING IS SAVED.
2. WHERE APPLICABLE, THE FIRST MESSAGE DISPLAYED WILL BE THE CURRENT SETTING.





J938E-41

VIC SYSTEM SCHEMATIC

SERVICE PROCEDURES

- (1) Disconnect negative cable from the battery.
- (2) Remove ash tray.
- (3) Remove 6 screws holding center cluster bezel (Fig. 1).

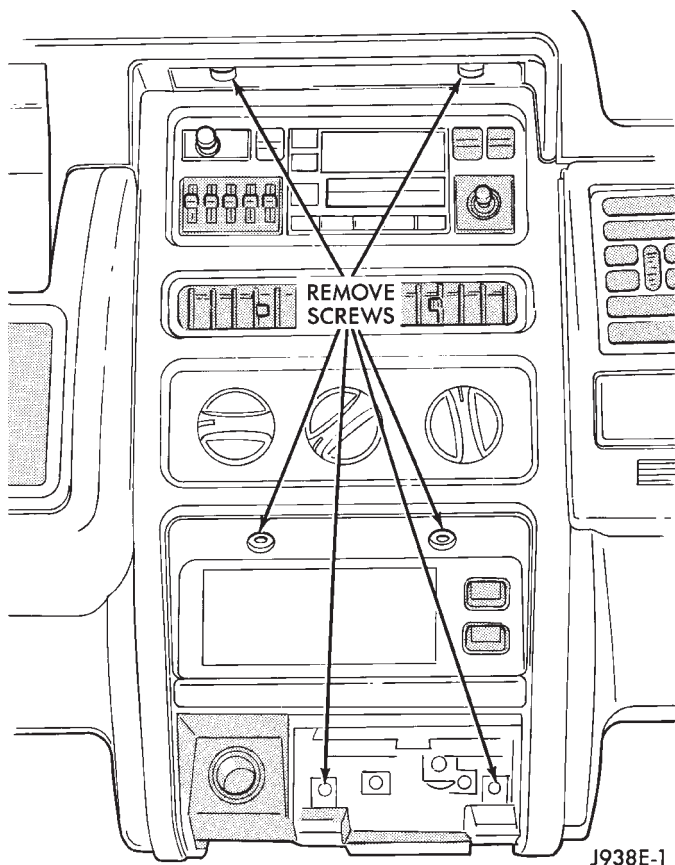


Fig. 1 Remove Center Bezel Retaining Screws

- (4) Remove center bezel.
- (5) Remove 3 screws holding VIC (Fig. 2).
- (6) Pull module out far enough to unplug connector. Remove module.

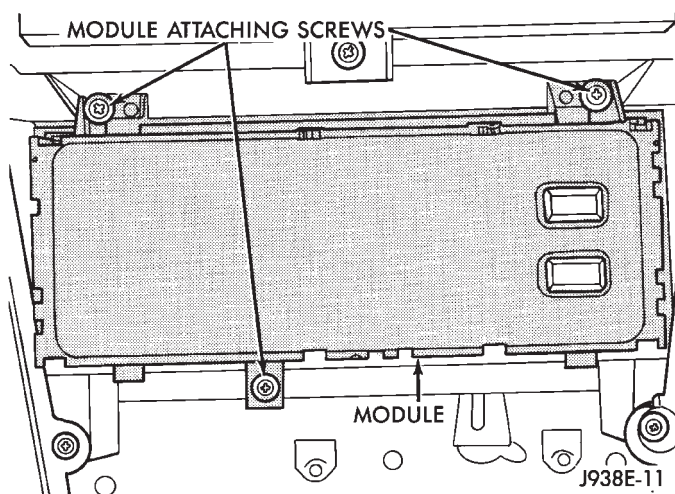


Fig. 2 Module Attaching Screws

ENGINE OIL LEVEL SENSOR

CAUTION: If the oil pan is being replaced, do NOT reuse the original engine oil sensor. Install a new sensor. The washer may not seal and is not serviced.

- (1) Raise vehicle on hoist and drain engine oil.

CAUTION: Do not break connector locking tab. The tab is needed to maintain circuit continuity. This is a 0.75 milliamp circuit.

- (2) Using a thin flat blade screwdriver or equivalent, release connector locking tab.
- (3) Remove sensor from engine oil pan (Fig. 3) and discard.
- (4) Install new sensor into oil pan. Torque to 41 N•m (30 ft. lbs.).
- (5) Attach sensor connector.
- (6) Lower vehicle and fill with specified amount of oil.

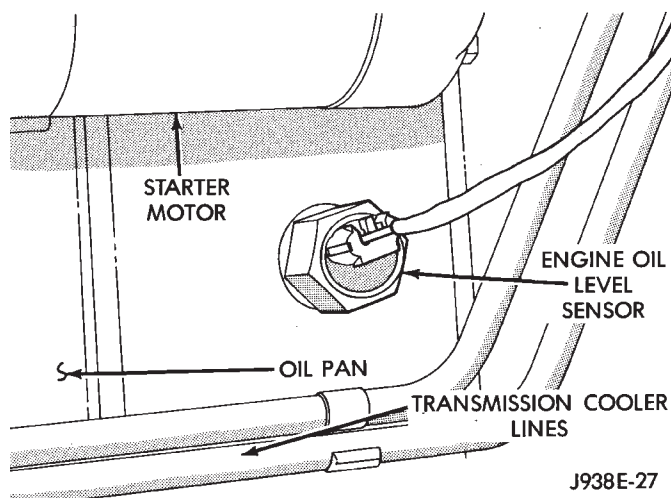
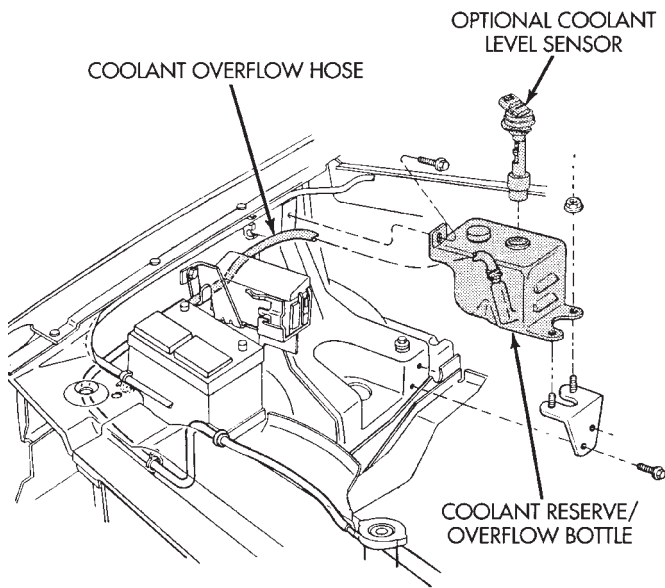
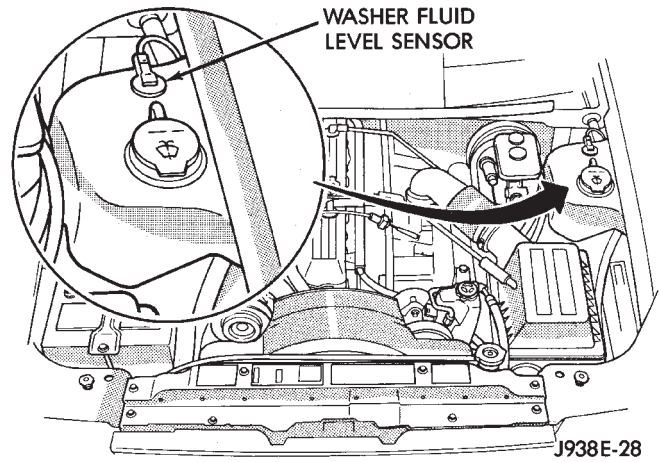


Fig. 3 Engine Oil Level Sensor

COOLANT LEVEL SENSOR

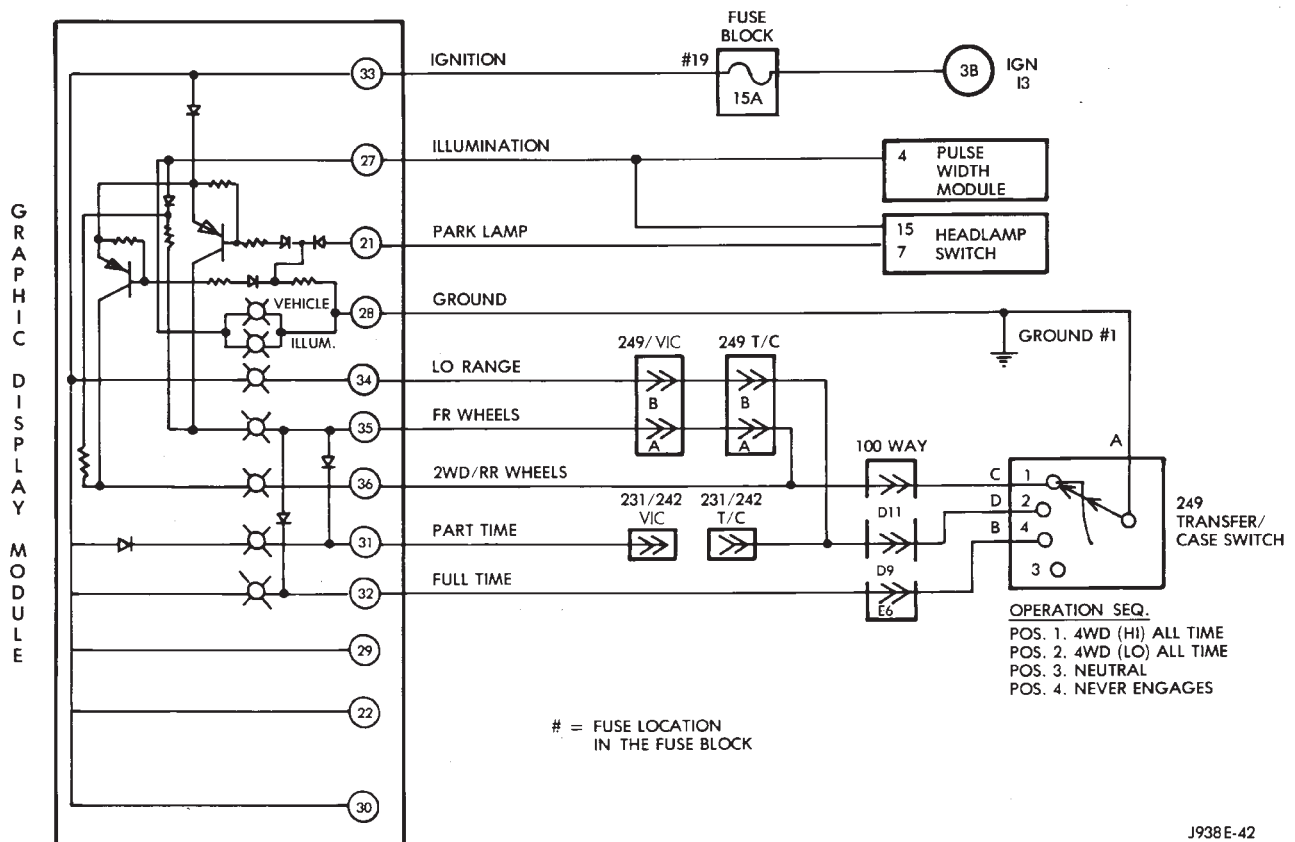


WASHER FLUID LEVEL SENSOR

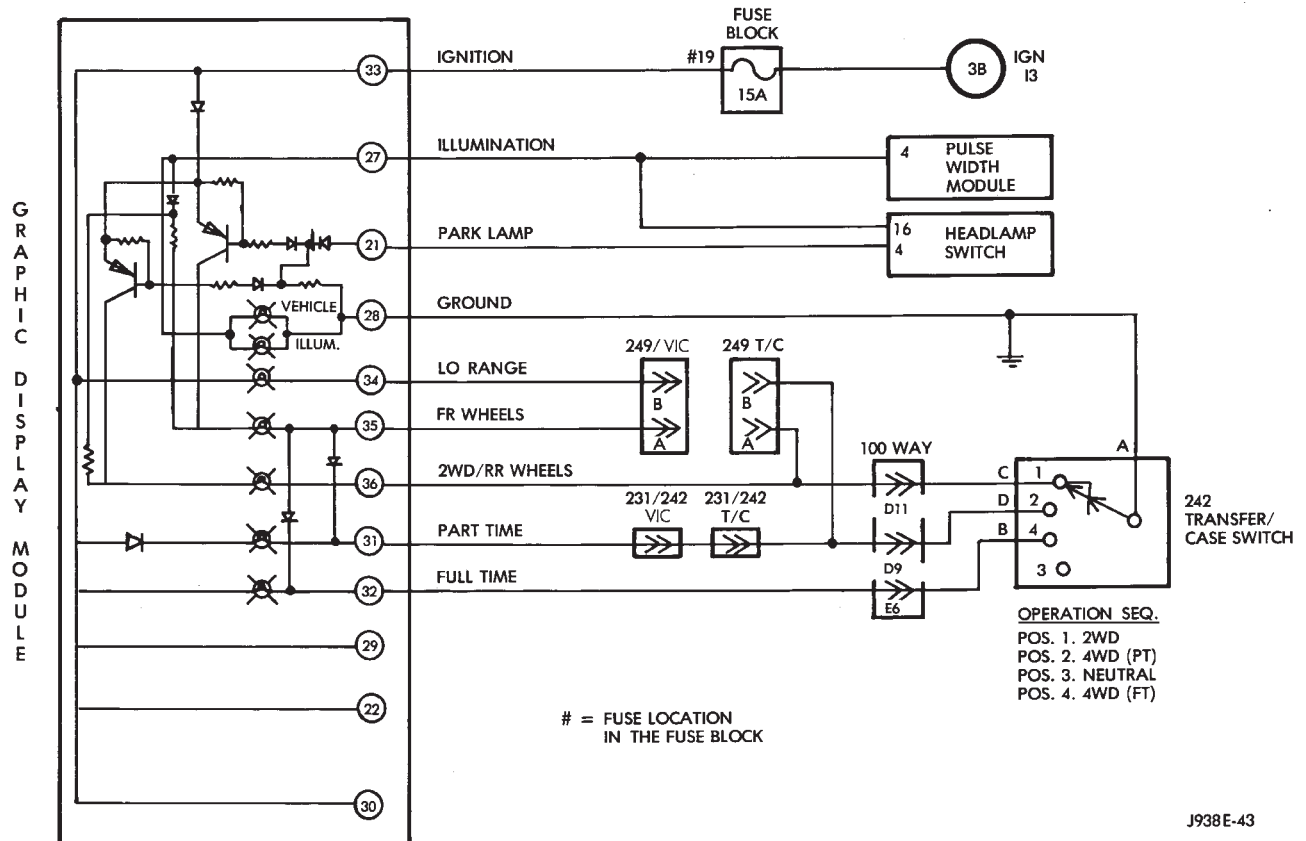


GRAPHIC DISPLAY MODULE

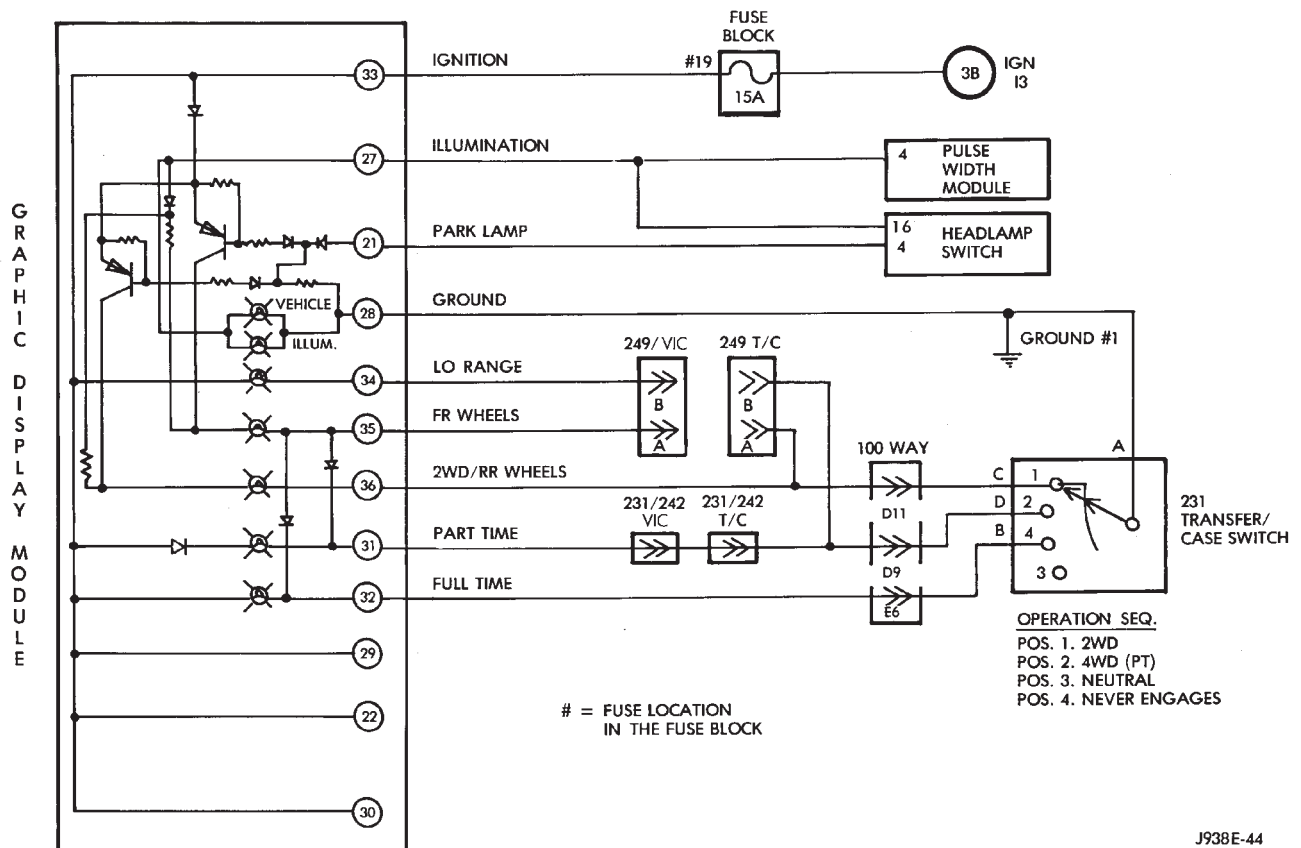
WIRING SCHEMATIC—249 TRANSFER CASE



WIRING SCHEMATIC—242 TRANSFER CASE



WIRING SCHEMATIC—231 TRANSFER CASE



DIAGNOSIS

If part of the module will not light or is not operating properly, use the schematics and Group 8 - Wiring Diagrams to check for continuity to the appropriate device. If there is continuity and the sending device is operating properly replace the Graphic Display Module.

SERVICE PROCEDURES

- (1) Disconnect negative cable from the battery.
 - (2) Remove ash tray.
 - (3) Remove 6 screws holding center cluster bezel (Fig. 1).
 - (4) Remove center bezel.
 - (5) Remove 3 screws holding GDM (Fig. 2).
 - (6) Pull module out far enough to unplug connector.
- Remove module.

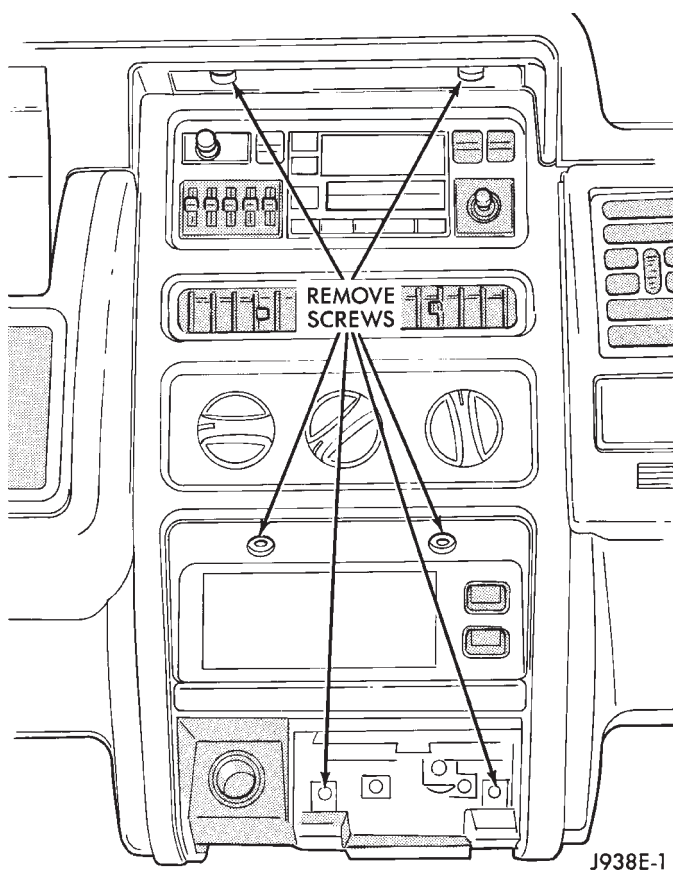


Fig. 1 Remove Center Bezel Retaining Screws

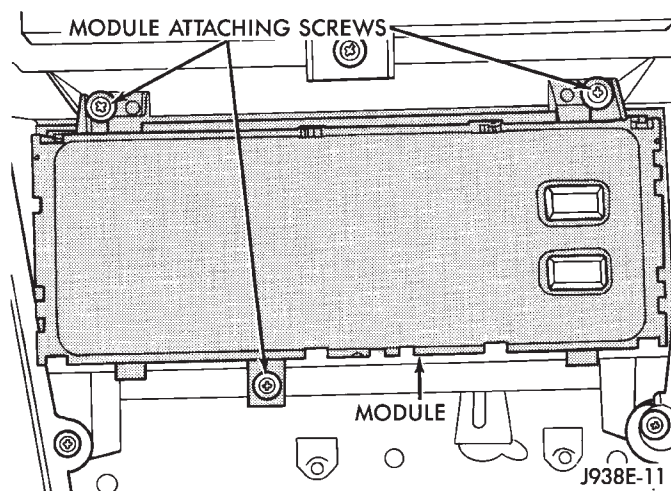
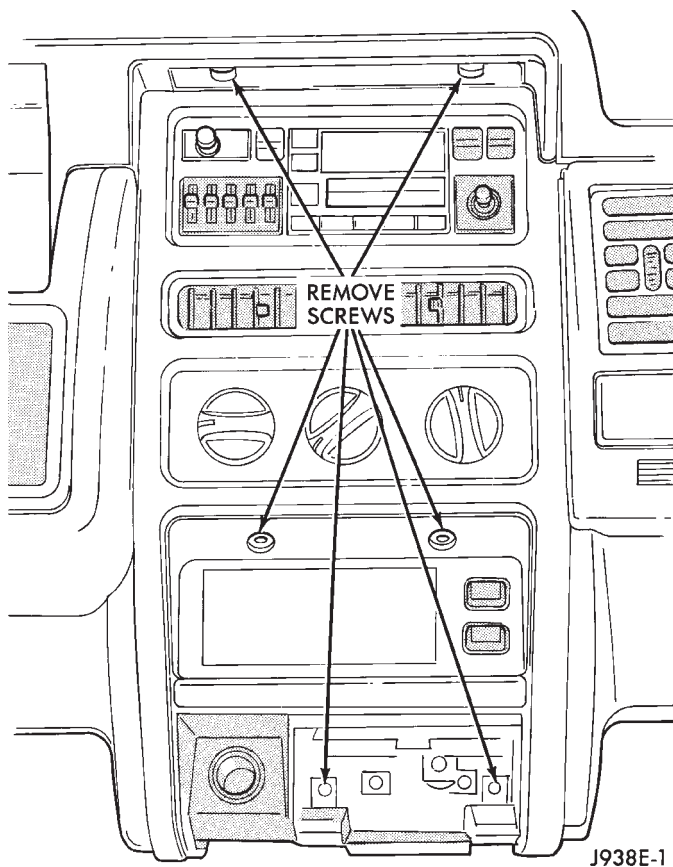


Fig. 2 Module Attaching Screws

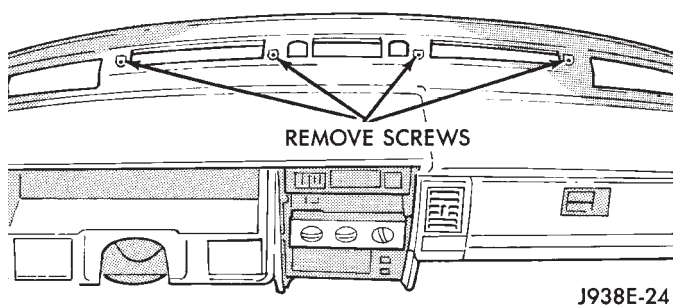
INSTRUMENT PANEL SERVICE PROCEDURES

SWITCH POD REPLACEMENT

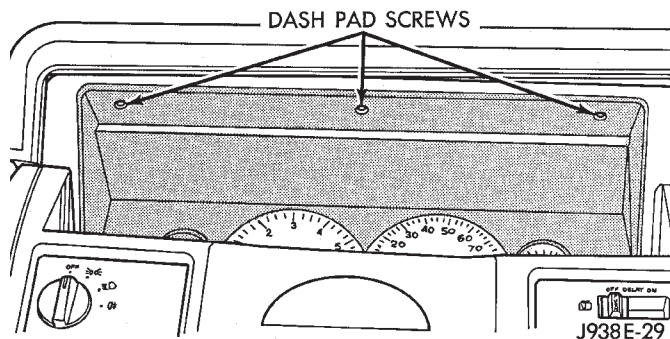
- (1) Disconnect negative cable from the battery.
- (2) Remove ash tray.
- (3) Remove 6 screws holding center cluster bezel (Fig. 1).

**Fig. 1 Remove Center Bezel Retaining Screws**

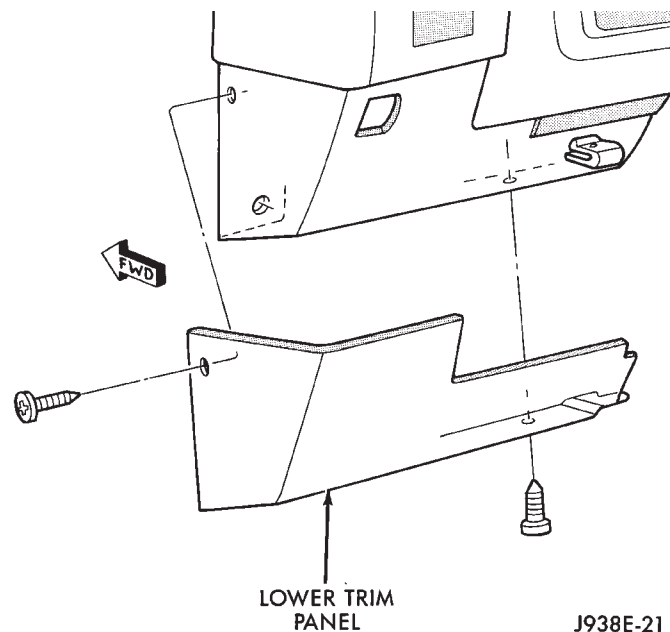
- (4) Remove center bezel.
- (5) Remove 2 screws holding dash pad located behind top of center bezel.
- (6) Gently pry defroster grille out of dash pad.
- (7) Unplug sensors (if equipped) and set defroster grille aside.
- (8) Remove 4 screws in defroster duct opening holding dash pad (Fig. 2).

**Fig. 2 Upper Dash Pad Attaching Screws**

- (9) Remove 3 screws above instrument panel cluster holding dash pad (Fig. 3).

**Fig. 3 Remove Screws Holding Dash Pad**

- (10) Open glove box and remove 2 screws holding dash pad.
- (11) Remove dash pad pulling up to unsnap end clips.
- (12) With driver's door open remove 1 screw from the side of the lower trim panel (Fig. 4).

**Fig. 4 Lower Trim Panel**

- (13) Remove 4 screws holding the steering column cover (Fig. 5).
- (14) Remove 1 screw from bottom of lower trim panel and pull panel off. There is also a clip holding the panel to the instrument panel.
- (15) Remove 6 screws holding knee blocker.
- (16) Remove steering column retaining nuts.
- (17) Remove 3 screws holding bottom of bezels (Fig. 6).
- (18) Remove 2 screws holding top of end and switch pod bezels (Fig. 7). The end bezel can now be removed.

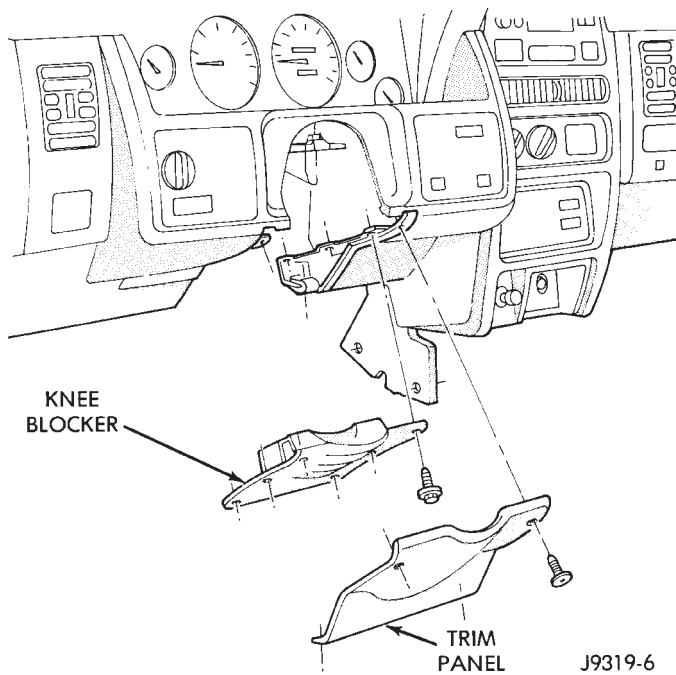


Fig. 5 Steering Column Cover and Knee Blocker

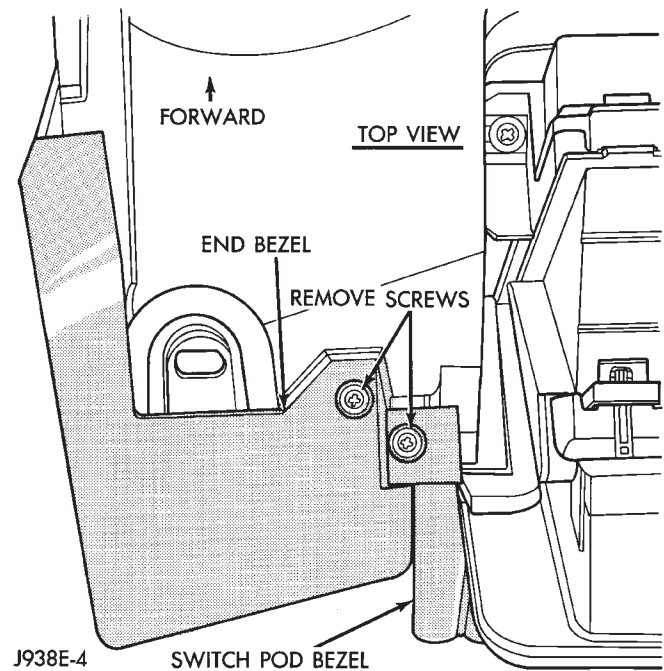


Fig. 7 Remove Screws Holding Top Of Bezels

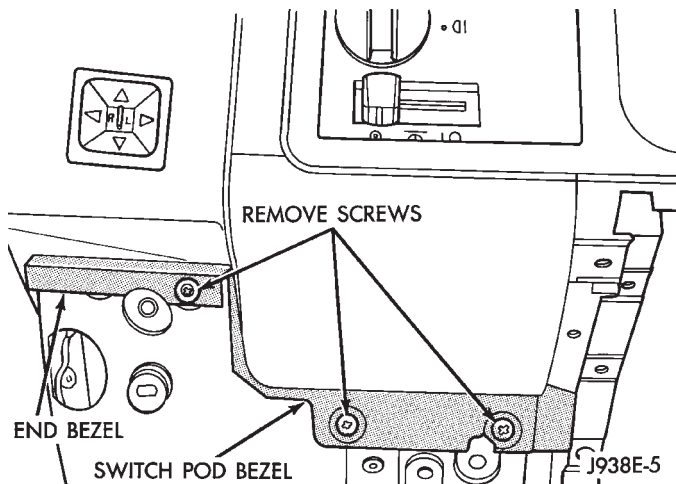


Fig. 6 Remove Screws Holding Bottom Of Bezels

(19) Remove 2 screws holding left side of switch pod bezel (Fig. 8).

(20) Remove 3 screws holding right hand side of switch pod bezel (Fig. 9).

(21) Pull switch pod bezel out far enough to remove switch connectors. Disconnect connectors from each switch pod and remove bezel (Fig. 10).

(22) Remove required switch attaching screws and switch.

(23) Reverse the removal procedures to install a new switch. Tighten steering column retaining nuts to 105 in. lbs.

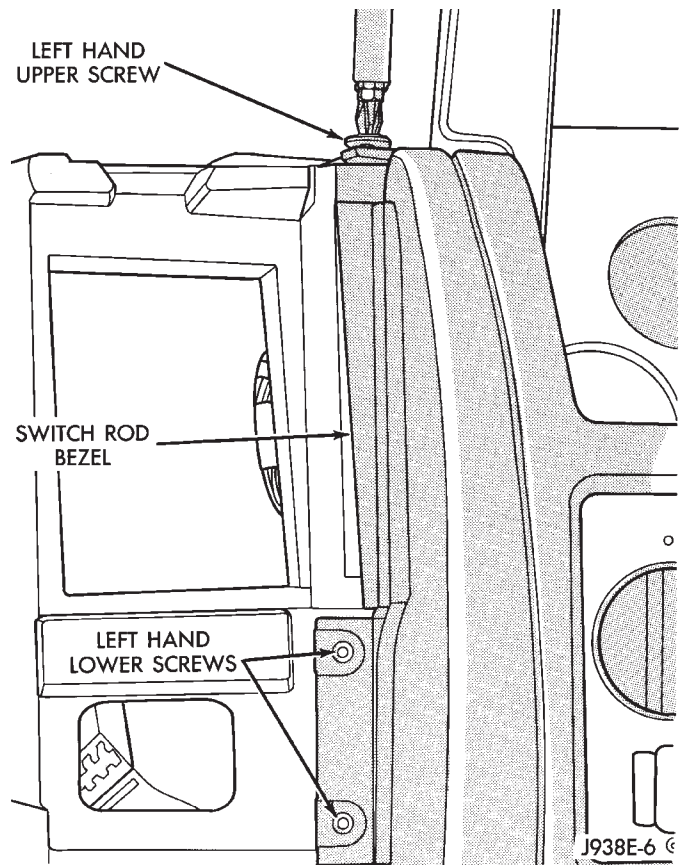
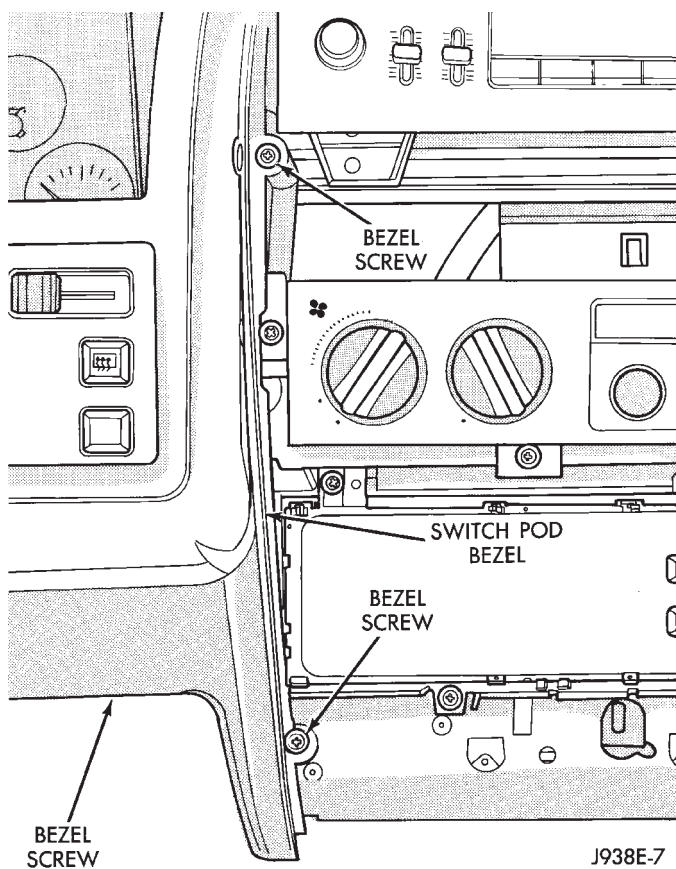
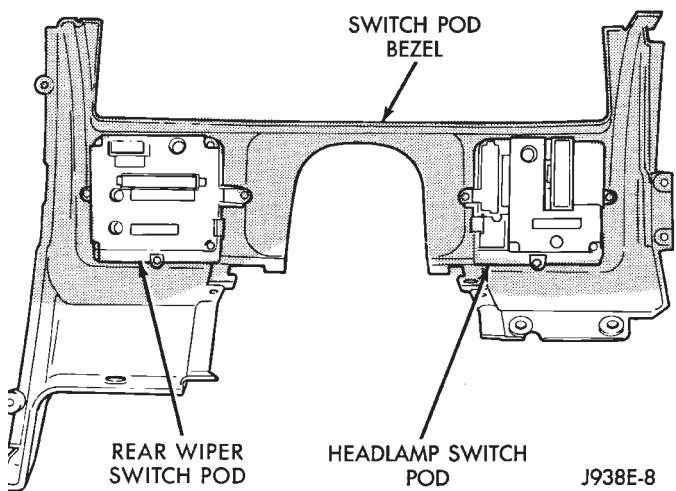


Fig. 8 Left Hand Switch Pod Bezel Screws



J938E-7

Fig. 9 Right Hand Switch Pod Bezel Screws

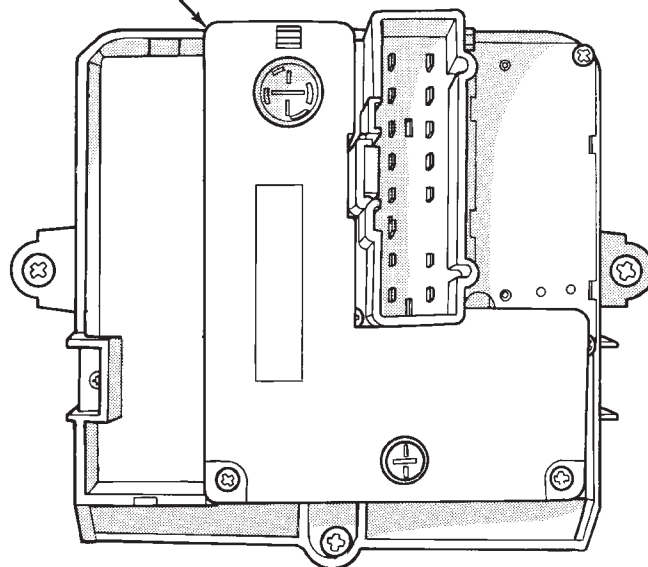


J938E-8

Fig. 10 Rear View of Switch Pod Bezel

LEFT HAND POD

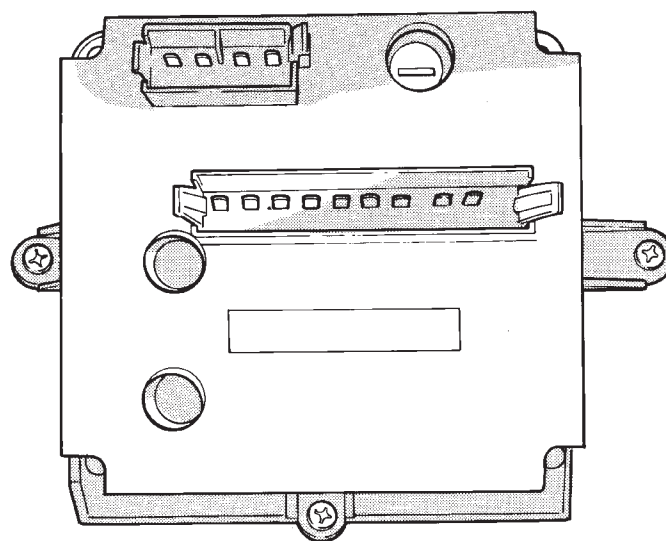
LEFT HAND SWITCH POD



J938E-10

Fig. 11 Rear View of Left Hand Switch Pod

RIGHT HAND POD



J938E-9

Fig. 12 Rear View of Right Hand Switch Pod