2007 ACCESSORIES AND EQUIPMENT

Lamps/Lighting - Exterior - Service Information - Nitro

LAMPS/LIGHTING - EXTERIOR

DESCRIPTION

LAMPS/LIGHTING - EXTERIOR

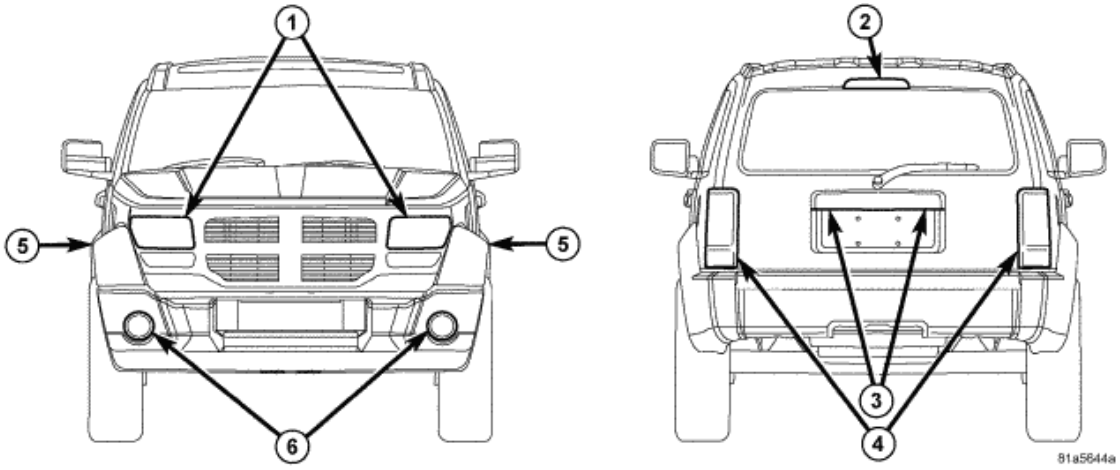

Fig. 1: Identifying Exterior Lamp Units
Courtesy of CHRYSLER LLC

The exterior lighting system for this vehicle includes the following exterior lamp units:

- **Center High Mounted Stop Lamp (2)** - A standard equipment Center High Mounted Stop Lamp (CHMSL) is centered on the upper liftgate header above the liftgate glass opening at the rear of the vehicle.
- **Front Fog Lamps (6)** - Optional equipment front fog lamp units are mounted near each outboard end of the front fascia, below the front headlamp units.
- **Front Lamp Units (1)** - A standard equipment front lamp unit is located at each outboard end of the grille assembly in the front end module.
- **License Plate Lamps (3)** - Two standard equipment rear license plate lamp units are integral to the light bar assembly, just above the license plate tub formation in the outer liftgate panel.
- **Rear Lamp Units (4)** - A standard equipment rear lamp unit is mounted to the rear of each quarter panel on either side of the liftgate opening.
- **Repeater Lamps (5)** - A repeater lamp is mounted to each front fender just behind the front wheel opening on vehicles manufactured for certain markets where they are required.

These exterior lighting lamp units and their controls are combined to provide the following exterior lighting features:

- **Backup Lamps** - The backup (or reverse) lamps include a clear bulb, reflector and clear lens that are integral to each rear lamp unit.
- **Brake Lamps** - The brake (or stop) lamps include a clear bulb, reflector and red lens that are integral to each rear lamp unit, and the red lens and multiple Light-Emitting Diode (LED) units of the CHMSL.
- **Daytime Running Lamps** - Vehicles manufactured for sale in Canada illuminate the high beam headlamp bulb in each front lamp unit at a reduced intensity to serve as the Daytime Running Lamps (DRL). United States fleet vehicles illuminate the low beam headlamp bulb in each front lamp unit to serve as DRL.
- **Exterior Lamp Fail-Safe Operation** - The Electro Mechanical Instrument Cluster (EMIC) (also known as the Cab Compartment Node/CCN) and the Totally Integrated Power Module (TIPM) provide a fail-safe feature which will automatically turn ON the low beam headlamps and all park lamps when the ignition switch is in the ON position and there is no detected input from the Steering Control Module (SCM), or when there is no communication over the Local Interface Network (LIN) or Controller Area Network (CAN) data buses.
- **Exterior Lamp Load Shedding** - The TIPM provides a battery saver feature which will automatically turn OFF all exterior lamps (except park lamps in certain markets) that remain ON with the ignition switch in the LOCK position after a timed interval of about eight minutes.
- **Front Fog Lamps** - The optional equipment front fog lamps include the clear bulb, reflector and clear lens of each adjustable front fog lamp unit.
- **Hazard Warning Lamps** - The hazard warning lamps include the bulbs, reflectors and lenses of each lamp in the right and left, front and rear turn signal circuits.
- **Headlamp Delay** - The standard equipment low or high beam headlamps remain illuminated for a customer-programmable delay period of 0 (disabled), 30, 60 or 90 seconds when the headlamps are turned OFF after the ignition switch has been turned to the OFF position.
- **Headlamps** - The headlamps include a single, dual filament halogen bulb, an adjustable reflector and a clear lens integral to each front lamp unit.
- **Headlamp Leveling** - Headlamp leveling is available only in certain markets where it is required equipment. A headlamp leveling actuator motor on each headlamp unit and a headlamp leveling switch integral to the switch pod in the instrument panel allow the headlamp beam pattern to be adjusted by the vehicle operator from the interior of the vehicle to compensate for passenger or cargo loads.
- **Optical Horn** - Also known as flash-to-pass, the beam selection function of the left (lighting) multi-function switch control stalk has a momentary intermediate position that allows the headlamp high beams to be flashed momentarily, without changing the headlamp beam selection.
- **Park Lamps** - The front park lamps include the amber bulbs, the reflectors and the clear lenses of the front lamp units as well as either the clear bulbs and the amber lenses of the front side marker lamps or the clear position lamp bulb integral to each headlamp. The rear park lamps include a clear bulb, a reflector and a red lens integral to each rear lamp unit as well as the clear bulb and lens of the license plate lamp units.
- **Rear Fog Lamps** - Rear fog lamps are available only in certain markets where they are required equipment. The rear fog lamps include a clear bulb, a reflector and a red lens that are integral to each rear lamp unit.
- **Turn Signal Lamps** - The front turn signal lamps include an amber bulb, a reflector, and a clear lens that are integral to each front lamp unit and the front side marker lamps. In certain markets where required, the repeater lamps on each front fender replace the front side marker lamps in the front turn signal

circuits. The rear turn signal lamps include a clear bulb, a reflector and a red lens integral to each rear lamp unit for domestic market vehicles, or an amber bulb and a clear lens for export market vehicles.

Other components of the exterior lighting system for this vehicle include:

- **Backup Lamp Switch** - A plunger-type backup lamp switch is installed through the transmission housing of vehicles equipped with a manual transmission and is actuated by the shifter mechanism within the transmission when REVERSE gear is selected. On vehicles with an optional automatic transmission a stand-alone Transmission Range Sensor (TRS) performs the backup lamp switch function.
- **Brake Lamp Switch** - A plunger-type brake lamp switch is located on the brake pedal support bracket under the instrument panel and is actuated by the brake pedal arm when the brake pedal is depressed.
- **Clockspring** - The clockspring includes an integral turn signal cancel cam, which provides automatic turn signal cancellation as the steering wheel is rotated back to its centered position following a vehicle turning maneuver. The clockspring is located near the top of the steering column, directly beneath the steering wheel. Refer to **DESCRIPTION** .
- **Hazard Switch** - A latching push button-actuated hazard switch is integral to the switch pod located just below the heater and air conditioner controls in the center stack area of the instrument panel.
- **Headlamp Leveling Switch** - A four mode push button-actuated headlamp leveling switch is integral to the switch pod located just below the heater and air conditioner controls in the center stack area of the instrument panel of vehicles manufactured for certain markets where the headlamp leveling feature is required.
- **Instrument Cluster** - The Electro Mechanical Instrument Cluster (EMIC) is also known as the Cab Compartment Node (CCN) in this vehicle. The EMIC/CCN is located in the instrument panel above the steering column opening, directly in front of the driver. Refer to **DESCRIPTION** .
- **Instrument Panel Switch Pod** - The instrument panel switch pod contains the hazard switch and, on vehicles so equipped, the headlamp leveling switch. The switch pod is located just below the heater and air conditioner controls in the center stack area of the instrument panel. Refer to **DESCRIPTION** .
- **Left Multi-Function Switch** - The left (lighting) multi-function switch is located on the steering column, just below the steering wheel. A control stalk that extends from the left side of the switch is used to select the turn signal lamps (right or left) and to select the headlamp beam (low, high or optical horn). A control knob on the control stalk is used to select the park lamps, headlamps or fog lamps.
- **Park Brake Switch** - A park brake switch is located on the park brake lever mechanism on the floor panel transmission tunnel between the two front seats.
- **Steering Control Module** - The Steering Control Module (SCM) is located within the left multi-function switch housing on the top of the steering column, just below the steering wheel. Refer to **DESCRIPTION** .
- **Totally Integrated Power Module** - The Totally Integrated Power Module (TIPM) is located in the engine compartment, near the battery. Refer to **DESCRIPTION** .
- **Trailer Tow Wiring Adapter** - Vehicles equipped with a factory-installed trailer towing package have a wiring adapter provided that adapts the factory-installed heavy duty 7-way trailer tow connector to a conventional 4-way light duty connector.
- **Trailer Tow Connector** - Vehicles equipped with a factory-installed trailer towing package have a heavy duty 7-way trailer tow connector installed in a bracket on the trailer hitch receiver.

Hard wired circuitry connects the exterior lighting system components to the electrical system of the vehicle. These hard wired circuits are integral to several wire harnesses, which are routed throughout the vehicle and retained by many different methods. These circuits may be connected to each other, to the vehicle electrical system and to the exterior lighting components through the use of a combination of soldered splices, splice block connectors, and many different types of wire harness terminal connectors and insulators. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, further details on wire harness routing and retention, as well as pin-out and location views for the various wire harness connectors, splices and grounds.

OPERATION

LAMPS/LIGHTING - EXTERIOR

Following are paragraphs that briefly describe the operation of each of the major exterior lighting systems. The lamps and the hard wired circuits between components related to the exterior lighting system may be diagnosed using conventional diagnostic tools and procedures. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

However, conventional diagnostic methods will not prove conclusive in the diagnosis of the exterior lighting system or the electronic controls or communication between modules and other devices that provide some features of the exterior lighting system. The most reliable, efficient, and accurate means to diagnose the exterior lighting system or the electronic controls and communication related to exterior lighting system operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

BACKUP LAMPS

The backup (or reverse) lamps have a path to ground at all times through a takeout and eyelet terminal of the unibody wire harness that is secured by a nut to a ground stud on the body sheet metal within the passenger compartment. On vehicles with a manual transmission, the backup lamp switch provides a hard wired input to the Totally Integrated Power Module (TIPM) through a reverse switch signal circuit and the TIPM provides battery voltage to the backup lamps on the backup lamp feed circuit whenever the ignition switch is not in the LOCK position and the REVERSE position is selected with the transmission shift linkage.

On vehicles with an automatic transmission the Powertrain Control Module (PCM) or the Transmission Control Module (TCM) monitors a multiplex input from the Transmission Range Sensor (TRS), then sends the proper electronic **transmission gear selector status** messages to the TIPM over the Controller Area Network (CAN) data bus. Whenever the ignition switch is not in the LOCK position and the TIPM receives an electronic message indicating the status of the transmission gear selector is REVERSE, it provides a battery voltage output through a high side driver to the backup lamps on the backup lamp feed circuit.

BRAKE LAMPS

The brake (or stop) lamps and the Center High Mounted Stop Lamp (CHMSL) each have a path to ground at all times through a takeout and eyelet terminal of the body wire harness that is secured by a nut to a ground stud on the body sheet metal within the passenger compartment. The CHMSL receives battery voltage directly on the brake lamp switch output circuit when the brake lamp switch is closed by the brake pedal arm. The TIPM also

receives battery voltage on the brake lamp switch output circuit, which it uses as a logic input to energize the brake lamps. The TIPM provides battery voltage to the brake lamps through two high side drivers on the tail/stop lamp rear feed circuit when it receives the proper input from the closed brake lamp switch.

DAYTIME RUNNING LAMPS

Vehicles manufactured for sale in Canada illuminate the high beam filament of both headlamp bulbs at a reduced intensity when the engine is running, the parking brake is released, the headlamps are turned OFF, and the optional automatic transmission gear selector lever is in any position except PARK. The park lamps may be ON or OFF for DRL to operate. For vehicles with a manual transmission, the Daytime Running Lamps (DRL) will operate in any transmission gear selector lever position. In fleet vehicles manufactured for the U. S. and Mexican markets, DRL operates in the same manner, but the low beam filament of both headlamp bulbs is used rather than the high beam filament. The TIPM must be programmed appropriately for this feature to be enabled.

Once enabled, anytime the TIPM receives electronic messages over the CAN data bus from the Powertrain Control Module (PCM) indicating the engine is running, from the Electro Mechanical Instrument Cluster (EMIC) (also known as the Cab Compartment Node/CCN) indicating the status of the left (lighting) multi-function switch is in any position except headlamps ON and the parking brake lever is released, and from the Powertrain Control Module (PCM) or the Transmission Control Module (TCM) indicating the automatic transmission gear selector lever is in any position except PARK, the TIPM provides a pulse width modulated voltage output to the headlamp high beam bulb filaments through high side drivers on the right and left high or low beam feed circuits to produce illumination at a reduced intensity.

FRONT FOG LAMPS

The front fog lamps have a path to ground at all times through their connection to the engine compartment wire harness. The engine compartment wire harness has takeouts with eyelet terminals that are secured by nuts to ground studs on the front end sheet metal within the engine compartment. The Steering Control Module (SCM) monitors a hard wired multiplex input from the left multi-function switch to determine whether the fog lamps are selected, then sends an electronic **front fog lamp switch status** message to the EMIC over the Local Interface Network (LIN) data bus and the EMIC relays an electronic **front fog lamp request** message to the TIPM over the CAN data bus.

When the TIPM receives a **front fog lamp request** message it then controls front fog lamp operation by controlling a battery voltage output through high side drivers on right and left fog lamp feed circuits. The TIPM also sends the appropriate electronic message back to the EMIC to illuminate or extinguish the front fog lamp indicator. In certain markets where required, the TIPM will automatically de-energize the front fog lamps any time the headlamp high beams are selected.

The TIPM also provides a battery saver (load shedding) feature for the front fog lamps, which will turn these lamps OFF if they are left ON for more than about eight minutes with the ignition switch in the LOCK position or if there is a charging system failure.

Each front fog lamp includes an integral adjustment screw to be used for static aiming of the fog lamp beams.

HAZARD WARNING LAMPS

The hazard warning system includes the EMIC, the TIPM and the hazard switch in the switch pod located in the

center stack area of the instrument panel, below the air conditioner and heater controls. The hazard switch provides a hard wired input to the TIPM. When the TIPM receives an input from the hazard switch it controls hazard warning system operation and flash rate by controlling battery voltage outputs through high side drivers on the right and left turn signal feed circuits.

The TIPM also sends the appropriate electronic messages back to the EMIC over the CAN data bus to control the illumination and flash rate of the right and left turn signal indicators, as well as to control the click rate of an electromechanical relay soldered onto the EMIC electronic circuit board that emulates the sound emitted by a conventional hazard warning flasher.

HEADLAMPS

The headlamp system includes the SCM, the EMIC, the TIPM, and the left (lighting) multi-function switch on the steering column. The headlamp bulbs have a path to ground at all times through their connection to the engine compartment wire harness. The engine compartment harness has takeouts with eyelet terminals that are secured by nuts to ground studs on the front end sheet metal within the engine compartment. The TIPM will store a Diagnostic Trouble Code (DTC) for any shorts or opens in the headlamp circuits.

The SCM monitors a hard wired multiplex input to determine the status of the left multi-function switch and whether the headlamp high or low beams are selected. The SCM then sends the appropriate electronic **headlamp switch** and **headlamp beam select switch status** messages to the EMIC over the LIN data bus. The EMIC then sends the appropriate electronic **headlamp request** and **headlamp beam request** messages to the TIPM over the CAN data bus. The TIPM responds to these messages by providing a pulse width modulated voltage output to the headlamps through high side drivers on the right and left low and high beam feed circuits to illuminate the selected headlamp filaments. The TIPM also sends the appropriate electronic messages to the EMIC to control the illumination of the high beam indicator. When the optical horn feature is selected, the low beams will shut OFF about 200 milliseconds after the high beams are activated.

The TIPM also remembers which beams (LOW or HIGH) were selected when the headlamps were last turned OFF, and energizes those beams again the next time the headlamps are turned ON. The TIPM provides a battery saver (load shedding) feature for the headlamps, which will turn these lamps OFF if they are left ON for more than about eight minutes with the ignition switch in the LOCK position. The SCM and the EMIC each provide a fail-safe feature for the headlamps, which will cause the TIPM to turn the low beam headlamps ON automatically if there is no input available from the left multi-function switch. The TIPM also provides a fail-safe feature for the headlamps that will turn the headlamps ON automatically whenever a loss of CAN bus communication is detected with the ignition switch in the ON position.

Each headlamp includes an integral reflector adjustment screw (domestic markets) or screws (export markets) to be used for static aiming of the headlamps.

HEADLAMP DELAY

The headlamp delay feature includes the left (lighting) multi-function switch, the SCM, the EMIC and the TIPM. This feature has customer programmable delay intervals of 0 seconds (disabled), 30 seconds, 60 seconds and 90 seconds. If the left multi-function switch remains in the headlamp ON position until after the ignition switch is turned to the OFF position, then the headlamps will remain illuminated until after the selected delay interval has elapsed. The park lamps will not stay ON during the headlamp delay interval. The default delay interval is zero seconds (disabled), but can be reprogrammed by the customer using the customer programmable

features function of the EMIC.

HEADLAMP LEVELING

In certain markets where required, a headlamp leveling system is provided on the vehicle. The headlamp leveling system includes unique front headlamp units each connected to a headlamp leveling actuator motor, and a rocker-actuated headlamp leveling switch integral to the switch pod in the instrument panel center stack. The headlamp leveling system allows the headlamp beams to be adjusted to one of four vertical positions to compensate for changes in inclination caused by the loading of the vehicle suspension. The leveling motors are mechanically connected through an integral pushrod to the adjustable headlamp mounting collar.

Each time the headlamp leveling switch is depressed the circuitry of the switch pod provides an electronic **select status up** or **select status down** message input to the EMIC over the LIN data bus. The EMIC then sends the appropriate electronic **select request up** or **select request down** messages to the TIPM over the CAN data bus. The TIPM responds to these messages by providing a voltage output to the headlamp leveling motors through high side drivers on the headlamp leveling motor right and left signal circuits to move the headlamp reflectors to the selected position based upon the voltage input received from the TIPM. The TIPM also sends the appropriate electronic messages back to the EMIC and the EMIC relays the message back to the switch to control the illumination of the **1** , **2** , or **3** Light Emitting Diode (LED) selected position indicator in the leveling switch button. The EMIC and TIPM logic will only allow the headlamp leveling system to operate while the ignition switch is in the ON position and the exterior lighting is turned ON.

PARK LAMPS

The park lamps system includes the left (lighting) multi-function switch, the SCM, the EMIC and the TIPM. The front park/turn lamp and the position lamp bulbs each have a path to ground at all times through their connection to the engine compartment wire harness. The engine compartment wire harness has takeouts with eyelet terminals that are secured by nuts to ground studs on the front end sheet metal within the engine compartment. The rear lamp units and license plate lamp bulbs have a path to ground at all times through a takeout and eyelet terminal of the body wire harness that is secured by a nut to a ground stud on the body sheet metal within the passenger compartment.

The SCM monitors a hard wired multiplex input from the left multi-function switch, then sends the appropriate electronic **headlamp switch status** messages to the EMIC over the LIN data bus. Then the EMIC relays the appropriate electronic message to the TIPM over the CAN data bus. The TIPM responds to these messages by providing a battery voltage output to the appropriate lamp bulbs through high side drivers on the proper park/tail/license/running lamp right and left circuits. The TIPM and the SCM also send the appropriate electronic messages to the EMIC to control the illumination and lighting level of the panel lamps.

The TIPM provides a battery saver (load shedding) feature for the park lamps, which will turn these lamps OFF if they are left ON for more than about eight minutes with the ignition switch in the LOCK position. The SCM and the EMIC each provide a fail-safe feature for the park lamps, which will send an electronic message to the TIPM to turn these lamps ON automatically if there is no input available from the left multi-function switch. The TIPM also provides a fail-safe feature for the park lamps that will turn these lamps ON automatically whenever a loss of CAN bus communication is detected with the ignition switch in the ON position.

REAR FOG LAMPS

Rear fog lamps are installed on vehicles manufactured for all export markets. The rear fog lamp system includes the left (lighting) multi-function switch, the SCM, the EMIC and the TIPM. The rear fog lamp bulbs have a path to ground at all times through a takeout and eyelet terminal of the body wire harness that is secured by a nut to a ground stud on the body sheet metal within the passenger compartment.

The SCM monitors a hard wired multiplex input from the left multi-function switch to determine whether the rear fog lamps are selected, then sends electronic **rear fog lamp switch status** messages to the EMIC over the LIN data bus. Then the EMIC relays an electronic **rear fog lamp request** message to the TIPM over the CAN data bus. The TIPM responds to this message by providing a battery voltage output to the rear fog lamp bulbs through high side drivers on the fog lamp relay control rear circuit. The TIPM also sends the appropriate electronic message back to the EMIC to control the rear fog lamp indicator.

The TIPM will automatically energize and de-energize the front fog lamps in concert with the rear fog lamps. The TIPM also provides a battery saver (load shedding) feature for the rear fog lamps, which will turn these lamps OFF if they are left ON for more than about eight minutes with the ignition switch in the LOCK position.

TRAILER TOW WIRING

Domestic market vehicles equipped with an optional trailer tow package include a trailer tow take out of the body wire harness connected to a molded, seven-way trailer tow connector and an integral cover that are snapped into a bracket on the trailer hitch receiver platform.

TURN SIGNAL LAMPS

The turn signal lamps system includes the left (lighting) multi-function switch, the SCM, the EMIC and the TIPM. The front turn signal lamp bulbs each have a path to ground at all times through their connection to the engine compartment wire harness. The engine compartment wire harness has a takeout with an eyelet terminal that is secured by a nut to a ground stud on the body sheet metal within the engine compartment. The rear turn signal lamp bulbs have a path to ground at all times through a takeout and eyelet terminal of the body wire harness that is secured by a nut to a ground stud on the body sheet metal within the passenger compartment.

The SCM monitors a hard wired multiplex input from the left multi-function switch to determine the status of the turn signal switch, then sends the appropriate electronic **turn signal switch status** messages to the EMIC over the LIN data bus. Then the EMIC relays an electronic **turn signal request** message to the TIPM over the CAN data bus. The TIPM responds to these messages by controlling a battery voltage output and the flash rate for either the right or left turn signal lamps through high side drivers on the appropriate right or left turn signal feed circuits. The TIPM also sends the appropriate electronic messages back to the EMIC to control the illumination and flash rate of the right or left turn signal indicators, as well as to control the click rate of an electromechanical relay soldered onto the EMIC electronic circuit board that emulates the sound emitted by a conventional turn signal flasher.

The EMIC also provides a **turn signal ON warning** that will generate repetitive chimes to indicate that a turn signal has been active continuously for 1.6 kilometers (1 mile) with the vehicle speed greater than 22 kilometers-per-hour (15 miles-per hour). Vehicles built for markets other than the United States and Canada have a revised distance threshold of 4 kilometers (2.49 miles) for this feature. The chime will continue until the turn signal input becomes inactive or until the vehicle speed message indicates that the speed is less than 22 kilometers-per-hour (15 miles-per-hour), whichever occurs first.

WARNING

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WARNING: To avoid serious or fatal injury eye protection should be used when servicing any glass components.

CAUTION: Do not contaminate the glass of halogen bulbs with fingerprints or allow contact with other possibly oily surfaces. Reduced bulb life will result.

CAUTION: Do not use bulbs with higher candle power than indicated in the Bulb Application table. See SPECIFICATIONS. In addition, do not use fuses, circuit breakers or relays having greater amperage value than indicated on the fuse panel or in the Owner's Manual. Damage to lamps, lenses, wiring and other related electrical components can result.

DIAGNOSIS AND TESTING

LAMPS/LIGHTING - EXTERIOR

WARNING: To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

NOTE: When diagnosing the exterior lighting circuits, remember that high generator output can burn out bulbs rapidly and repeatedly; and, that dim or flickering bulbs can be caused by low generator output or poor battery condition. If one of these symptoms is a problem on the vehicle, be certain to diagnose the battery and charging system, then repair as necessary.

NOTE: A good ground is necessary for proper lighting operation. If a lighting problem is being diagnosed that involves multiple symptoms, systems, or components, the problem can often be traced to a loose, corroded, or open ground.

The lamps and the hard wired circuits between components related to the exterior lighting system may be diagnosed using conventional diagnostic tools and procedures. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness

connectors, splices and grounds.

However, conventional diagnostic methods will not prove conclusive in the diagnosis of the exterior lighting system or the electronic controls or communication between modules and other devices that provide some features of the exterior lighting system. The most reliable, efficient, and accurate means to diagnose the exterior lighting system or the electronic controls and communication related to exterior lighting system operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

BACKUP LAMPS

CONDITION	POSSIBLE CAUSES	CORRECTION
BACKUP LAMP DOES NOT ILLUMINATE	1. Ineffective or missing bulb.	1. Test and replace backup lamp bulb if required.
	2. Ineffective ground circuit.	2. Test and repair open backup lamp ground circuit if required.
	3. Ineffective feed circuit.	3. Test and repair open backup lamp feed circuit if required.
	4. Ineffective switch.	4. Test and replace backup lamp switch (manual transmission) or transmission range sensor (automatic transmission) if required.
	5. Ineffective TIPM inputs or outputs.	5. Use a diagnostic scan tool to test the TIPM inputs and outputs. Refer to the appropriate diagnostic information.
BACKUP LAMP DOES NOT EXTINGUISH	1. Ineffective feed circuit.	1. Test and repair shorted backup lamp feed circuit if required.
	2. Ineffective switch.	2. Test and replace backup lamp switch (manual transmission) or transmission range sensor (automatic transmission) if required.
	3. Ineffective TIPM inputs or outputs.	3. Use a diagnostic scan tool to test the TIPM inputs and outputs. Refer to the appropriate diagnostic information.

BRAKE LAMPS

NOTE: The Center High Mounted Stop Lamp (CHMSL) is illuminated by several Light-Emitting Diode (LED) units that are soldered to the electronic circuit board within the lamp housing. The CHMSL is hard wired to the output of the brake lamp switch, while the brake lamps are powered by high side drivers within the TIPM based upon an input from the brake lamp switch. If the brake lamps and all of the LED units within the CHMSL fail to operate, diagnose and repair the brake lamps before attempting to repair the CHMSL. If the brake lamps operate but none of the CHMSL LED units illuminate, test and repair the CHMSL ground or feed circuit if required. If some of the CHMSL LED units operate and others do not, the CHMSL assembly must be replaced with a new unit.

CONDITION	POSSIBLE CAUSES	CORRECTION
BRAKE LAMP DOES NOT ILLUMINATE	1. Ineffective or missing bulb.	1. Test and replace brake lamp bulb if required.
	2. Ineffective ground circuit.	2. Test and repair open brake lamp ground circuit if required.
	3. Ineffective fuse.	3. Test and replace the fuse in the TIPM if required.
	4. Ineffective feed circuit.	4. Test and repair open brake lamp switch output circuit or stop lamp output circuit if required.
	5. Ineffective switch.	5. Test and replace brake lamp switch if required.
	6. Ineffective TIPM inputs or outputs.	6. Use a diagnostic scan tool to test the TIPM inputs and outputs. Refer to the appropriate diagnostic information.
BRAKE LAMP DOES NOT EXTINGUISH	1. Ineffective feed circuit.	1. Test and repair shorted brake lamp switch output circuit or stop lamp output circuit if required.
	2. Improperly adjusted switch.	2. Adjust the brake lamp switch if required.
	3. Ineffective switch.	3. Test and replace brake lamp switch if required.
	4. Ineffective TIPM inputs or outputs.	4. Use a diagnostic scan tool to test the TIPM inputs and outputs. Refer to the appropriate diagnostic information.

DAYTIME RUNNING LAMPS

NOTE: Before performing the following tests, determine whether the headlamp low and high beams operate. If the headlamp low and high beams are also ineffective, diagnose and repair that problem before attempting to repair the Daytime Running Lamps.

CONDITION	POSSIBLE CAUSES	CORRECTION
DAYTIME RUNNING LAMPS WILL NOT ILLUMINATE	1. Incorrect TIPM programming.	1. Use a diagnostic scan tool to check and configure TIPM if required.
	2. Automatic transmission in PARK position.	2. Place the transmission gear selector lever in any position except PARK.
	3. Parking brake applied.	3. Release the parking brake.
	4. Engine not running.	4. Start the engine.
	5. Ineffective TIPM inputs or outputs.	5. Use a diagnostic scan tool to test the TIPM inputs and outputs. Refer to the appropriate diagnostic information.

FRONT FOG LAMPS

NOTE: The front fog lamp switch is integral to the left multi-function switch/Steering Control Module (SCM), which communicates with the Electro Mechanical Instrument Cluster (EMIC)/Cab Compartment Node (CCN) over the Local Interface Network (LIN) data bus. Before performing any of the following tests, determine whether the other functions of the left multi-function switch/SCM are operational. If the other left multi-function switch/SCM functions are ineffective, diagnose and repair that problem before attempting to repair the Front Fog Lamps.

CONDITION	POSSIBLE CAUSES	CORRECTION
FRONT FOG LAMP DOES NOT ILLUMINATE	1. Ineffective or missing bulb.	1. Test and replace front fog lamp bulb if required.
	2. Ineffective ground circuit.	2. Test and repair open front fog lamp ground circuit if required.
	3. Ineffective feed circuit.	3. Test and repair open front fog lamp feed circuit if required.
	4. Ineffective EMIC (CCN) inputs or outputs.	4. Use a diagnostic scan tool to test the EMIC (CCN) inputs and outputs. Refer to the appropriate diagnostic information.
	5. Ineffective TIPM inputs or outputs.	5. Use a diagnostic scan tool to test the TIPM inputs and outputs. Refer to the appropriate diagnostic information.
FRONT FOG LAMP DOES NOT EXTINGUISH	1. Ineffective feed circuit.	1. Test and repair shorted front fog lamp feed circuit if required.
	2. Ineffective EMIC (CCN) inputs or outputs.	2. Use a diagnostic scan tool to test the EMIC (CCN) inputs and outputs. Refer to the appropriate diagnostic information.
	3. Ineffective TIPM inputs or outputs.	3. Use a diagnostic scan tool to test the TIPM inputs and outputs. Refer to the appropriate diagnostic information.

HAZARD WARNING LAMPS

NOTE: The hazard switch is integral to the instrument panel switch bank, which communicates with the EMIC/CCN over the LIN data bus. Before performing any of the following tests, confirm whether the left and right turn signals operate satisfactorily. Then determine whether the other functions of the instrument panel switch bank are operational. If the turn signals are ineffective or operate improperly, or if the other instrument panel switch bank functions are ineffective, diagnose and repair those problems before attempting to repair the Hazard Warning Lamps.

CONDITION	POSSIBLE CAUSES	CORRECTION
HAZARD WARNING LAMPS DO NOT FLASH	1. Ineffective EMIC (CCN) inputs or outputs.	1. Use a diagnostic scan tool to test the EMIC (CCN) inputs and outputs. Refer to

		the appropriate diagnostic information.
	2. Ineffective TIPM inputs or outputs.	2. Use a diagnostic scan tool to test the TIPM inputs and outputs. Refer to the appropriate diagnostic information.
HAZARD WARNING LAMPS DO NOT STOP FLASHING	1. Ineffective EMIC (CCN) inputs or outputs.	1. Use a diagnostic scan tool to test the EMIC (CCN) inputs and outputs. Refer to the appropriate diagnostic information.
	2. Ineffective TIPM inputs or outputs.	2. Use a diagnostic scan tool to test the TIPM inputs and outputs. Refer to the appropriate diagnostic information.

HEADLAMPS

NOTE: As part of the exterior lighting fail-safe feature, upon ignition ON, all exterior park lamps and the headlamp low beams will illuminate regardless of the left multi-function switch control knob position if the SCM cannot detect an input from the left multi-function switch, or if there is a loss of communication between the left multi-function switch/SCM and the EMIC or between the EMIC and the TIPM. Diagnose and repair those problems before attempting to repair the Headlamps. In addition, the TIPM will store a Diagnostic Trouble Code (DTC) for an open or shorted headlamp circuit.

CONDITION	POSSIBLE CAUSES	CORRECTION
HEADLAMP DOES NOT ILLUMINATE	1. Ineffective or missing bulb.	1. Test and replace headlamp bulb if required.
	2. Ineffective ground circuit.	2. Test and repair open headlamp ground circuit if required.
	3. Ineffective feed circuit.	3. Test and repair open headlamp low beam or high beam feed circuit if required.
	4. Ineffective EMIC (CCN) inputs or outputs.	4. Use a diagnostic scan tool to test the EMIC (CCN) inputs and outputs. Refer to the appropriate diagnostic information.
	5. Ineffective TIPM inputs or outputs.	5. Use a diagnostic scan tool to test the TIPM inputs and outputs. Refer to the appropriate diagnostic information.
HEADLAMP DOES NOT EXTINGUISH	1. Ineffective feed circuit.	1. Test and repair shorted headlamp low beam or high beam feed circuit if required.
	2. Ineffective EMIC (CCN) inputs or outputs.	2. Use a diagnostic scan tool to test the EMIC (CCN) inputs and outputs. Refer to the appropriate diagnostic information.
	3. Ineffective TIPM inputs or outputs.	3. Use a diagnostic scan tool to test the TIPM inputs and outputs. Refer to the appropriate diagnostic information.

HEADLAMPS ILLUMINATE WITH IGNITION ON AND HEADLAMP SWITCH OFF (FAIL-SAFE OPERATION)	1. Loss of LIN or CAN data bus communication.	1. Test and repair the LIN or CAN data bus if required. Refer to the appropriate diagnostic information.
HEADLAMPS WILL NOT SWITCH FROM HIGH TO LOW BEAMS, OR FROM LOW TO HIGH BEAMS	1. Ineffective EMIC (CCN) inputs or outputs. 2. Ineffective TIPM inputs or outputs.	1. Use a diagnostic scan tool to test the EMIC (CCN) inputs and outputs. Refer to the appropriate diagnostic information. 2. Use a diagnostic scan tool to test the TIPM inputs and outputs. Refer to the appropriate diagnostic information.

HEADLAMP LEVELING

NOTE: The headlamp leveling switch is integral to the instrument panel switch bank, which communicates with the EMIC/CCN over the LIN data bus. Before performing any of the following tests, confirm whether the park lamps operate satisfactorily. Then determine whether the other functions of the instrument panel switch bank are operational. If the park lamps are ineffective or operate improperly, or if the other instrument panel switch bank functions are ineffective, diagnose and repair those problems before attempting to repair the Headlamp Leveling function.

CONDITION	POSSIBLE CAUSES	CORRECTION
ONE LEVELING MOTOR IS INEFFECTIVE	1. Ineffective ground circuit. 2. Ineffective feed circuit. 3. Ineffective signal circuit. 4. Ineffective motor.	1. Test and repair open leveling motor ground circuit if required. 2. Test and repair open leveling motor feed circuit if required. 3. Test and repair open headlamp leveling motor signal circuit if required. 4. Test and replace headlamp leveling motor if required.
BOTH LEVELING MOTORS ARE INEFFECTIVE	1. Ineffective EMIC (CCN) inputs or outputs. 2. Ineffective motor ground circuit. 3. Ineffective motor feed circuit. 4. Ineffective signal circuit. 5. Ineffective TIPM inputs or outputs. 6. Ineffective motors.	1. Use a diagnostic scan tool to test the EMIC (CCN) inputs and outputs. Refer to the appropriate diagnostic information. 2. Test and repair open leveling motor ground circuit if required. 3. Test and repair open leveling motor feed circuit if required. 4. Test and repair open or shorted headlamp leveling motor signal circuit if required. 5. Use a diagnostic scan tool to test the TIPM inputs and outputs. Refer to the appropriate diagnostic information. 6. Test and replace leveling motors if

		required.

PARK LAMPS

NOTE: As part of the exterior lighting fail-safe feature, upon ignition ON, all exterior park lamps and the headlamp low beams will illuminate regardless of the left multi-function switch control knob position if the SCM cannot detect an input from the left multi-function switch, or if there is a loss of communication between the left multi-function switch/SCM and the EMIC or between the EMIC and the TIPM. Diagnose and repair those problems before attempting to repair the Park Lamps.

CONDITION	POSSIBLE CAUSES	CORRECTION
PARK LAMP DOES NOT ILLUMINATE	1. Ineffective or missing bulb.	1. Test and replace park lamp bulb if required.
	2. Ineffective ground circuit.	2. Test and repair open park lamp ground circuit if required.
	3. Ineffective feed circuit.	3. Test and repair open park lamp feed circuit if required.
	4. Ineffective EMIC (CCN) inputs or outputs.	4. Use a diagnostic scan tool to test the EMIC (CCN) inputs and outputs. Refer to the appropriate diagnostic information.
	5. Ineffective TIPM inputs or outputs.	5. Use a diagnostic scan tool to test the TIPM inputs and outputs. Refer to the appropriate diagnostic information.
PARK LAMP DOES NOT EXTINGUISH	1. Ineffective feed circuit.	1. Test and repair shorted park lamp feed circuit if required.
	2. Ineffective EMIC (CCN) inputs or outputs.	2. Use a diagnostic scan tool to test the EMIC (CCN) inputs and outputs. Refer to the appropriate diagnostic information.
	3. Ineffective TIPM inputs or outputs.	3. Use a diagnostic scan tool to test the TIPM inputs and outputs. Refer to the appropriate diagnostic information.

REAR FOG LAMPS

NOTE: The rear fog lamp switch is integral to the left multi-function switch/SCM, which communicates with the EMIC/CCN over the LIN data bus. Before performing any of the following tests, determine whether the other functions of the left multi-function switch/SCM are operational. If the other left multi-function switch/SCM functions are ineffective, diagnose and repair that problem before attempting to repair the Rear Fog Lamps.

CONDITION	POSSIBLE CAUSES	CORRECTION
REAR FOG LAMP DOES	1. Ineffective or missing bulb.	1. Test and replace rear fog lamp bulb if

NOT ILLUMINATE		required.
	2. Ineffective ground circuit.	2. Test and repair open rear fog lamp ground circuit if required.
	3. Ineffective feed circuit.	3. Test and repair open fog lamp relay control rear circuit if required.
	4. Ineffective EMIC (CCN) inputs or outputs.	4. Use a diagnostic scan tool to test the EMIC (CCN) inputs and outputs. Refer to the appropriate diagnostic information.
	5. Incorrect TIPM configuration.	5. Use a diagnostic scan tool to check and correct the TIPM configuration settings if required. Refer to the appropriate diagnostic information.
	6. Ineffective TIPM inputs or outputs.	6. Use a diagnostic scan tool to test the TIPM inputs and outputs. Refer to the appropriate diagnostic information.
REAR FOG LAMP DOES NOT EXTINGUISH	1. Ineffective feed circuit.	1. Test and repair shorted fog lamp relay control rear circuit if required.
	2. Ineffective EMIC (CCN) inputs or outputs.	2. Use a diagnostic scan tool to test the EMIC (CCN) inputs and outputs. Refer to the appropriate diagnostic information.
	3. Ineffective TIPM inputs or outputs.	3. Use a diagnostic scan tool to test the TIPM inputs and outputs. Refer to the appropriate diagnostic information.

TURN SIGNAL LAMPS

NOTE: The turn signal switch is integral to the left multi-function switch/SCM, which communicates with the EMIC/CCN over the LIN data bus. Before performing any of the following tests, determine whether the other functions of the left multi-function switch/SCM are operational. If the other left multi-function switch/SCM functions are ineffective, diagnose and repair that problem before attempting to repair the Turn Signal Lamps.

CONDITION	POSSIBLE CAUSES	CORRECTION
ONE TURN SIGNAL LAMP DOES NOT ILLUMINATE	1. Ineffective or missing bulb.	1. Test and replace turn signal bulb if required.
	2. Ineffective ground circuit.	2. Test and repair open ground circuit if required.
	3. Ineffective feed circuit.	3. Test and repair open right or left turn signal feed circuit if required.
	4. Ineffective TIPM inputs or outputs.	4. Use a diagnostic scan tool to test the TIPM inputs and outputs. Refer to the appropriate diagnostic information.
ALL RIGHT SIDE OR ALL LEFT SIDE TURN SIGNAL	1. Ineffective feed circuit.	1. Test and repair open right or left turn signal feed circuit if required.

LAMPS (OR BOTH SIDES) DO NOT FLASH	2. Ineffective EMIC (CCN) inputs or outputs. 3. Ineffective TIPM inputs or outputs.	2. Use a diagnostic scan tool to test the EMIC (CCN) inputs and outputs. Refer to the appropriate diagnostic information. 3. Use a diagnostic scan tool to test the TIPM inputs and outputs. Refer to the appropriate diagnostic information.
ALL RIGHT SIDE OR ALL LEFT SIDE TURN SIGNALS FLASH TOO RAPIDLY (MORE THAN 100 FLASHES PER MINUTE)	1. Ineffective or missing bulb. 2. Ineffective ground circuit. 3. Ineffective feed circuit.	1. Test and replace turn signal bulb if required. 2. Test and repair open bulb ground circuit if required. 3. Test and repair open right or left turn signal feed circuit if required.
TURN SIGNALS DO NOT AUTOMATICALLY CANCEL -	1. Ineffective cancel cam. 2. Ineffective cancel actuator.	1. Inspect and replace the turn signal cancel cam (clockspring) if required. 2. Inspect and replace the turn signal cancel actuator (left multi-function switch) if required.

STANDARD PROCEDURE

FRONT LAMP AIMING

VEHICLE PREPARATION FOR LAMP ALIGNMENT

1. Check for and correct any burnt out bulbs.
2. If the vehicle is equipped with headlamp leveling, be certain that the headlamp leveling switch is in the **0** position.
3. Repair or replace any ineffective, worn or damaged body or suspension components that could hinder proper lamp alignment.
4. Verify proper tire inflation pressures.
5. Remove any accumulations of mud, snow or ice from the vehicle underbody and clean the front lamp lenses.
6. Verify that there is no load in the vehicle (cargo or passengers), except for the driver.
7. The fuel tank should be FULL. Add 2.94 kilograms (6.5 pounds) of weight over the fuel tank for each estimated gallon of missing fuel.
8. Verify correct vehicle suspension height.

LAMP ALIGNMENT SCREEN PREPARATION

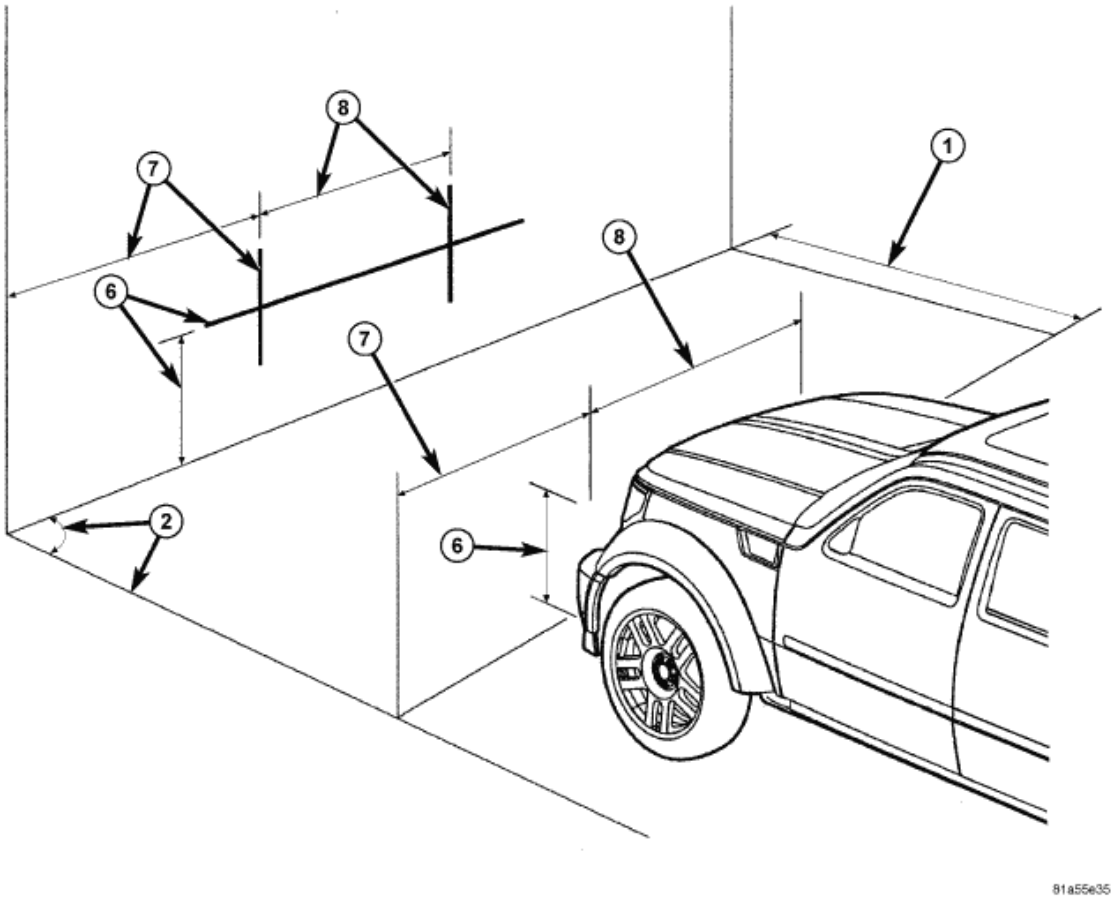

Fig. 2: Lamp Alignment Screen Preparation
Courtesy of CHRYSLER LLC

The procedure that follows will prepare a suitable front lamp alignment screen.

1. Tape a line on a level floor 7.62 meters (25 feet) away from and parallel to the flat wall that will be used as the lamp alignment screen. The level floor will be used as the horizontal zero reference.
2. An adjacent wall or floor member that is perpendicular to the alignment screen can be used as the vertical zero reference. If there is no adjacent wall or floor member that is perpendicular to the screen, tape a second line on the floor perpendicular to both the alignment screen and the first line, and outboard of either side of where the vehicle will be positioned. This will be used as the vertical zero reference.
3. Position the vehicle so that the side of the vehicle is parallel to the vertical zero reference, and so that the front of the lamp lenses are in the vertical plane of the parallel line taped on the floor 7.62 meters (25 feet) away from the screen.
4. Rock the vehicle side-to-side three times to allow the suspension to stabilize.
5. Jounce the front suspension three times by pushing downward on the front bumper and releasing.
6. Measure the distance between the optical center of one of the lamps being aimed (head or fog) and the floor (horizontal zero reference). Transfer this measurement to the alignment screen with a piece of tape placed horizontally to the floor. This line will be used as the lamp horizontal reference.

7. Measure the distance between the vertical zero reference and the optical center of the nearest lamp being aimed (head or fog). Transfer this measurement to the alignment screen with a piece of tape placed vertically across the appropriate (head or fog) lamp horizontal reference. This is the centerline reference for the first lamp.
8. Measure the distance on center between the first and the second lamp being aimed. Transfer this measurement to the alignment screen with a second piece of tape placed vertically across the appropriate (head or fog) lamp horizontal reference. This is the centerline reference for the second lamp.

HEADLAMP ALIGNMENT

NOTE: Due to the linear nature of the headlamp cutoff, a properly aimed low beam headlamp will project the top edge of the high intensity pattern on the alignment screen from the horizontal line to 50 millimeters (2 inches) below the horizontal line for domestic market vehicles, or to 125 millimeters (5 inches) below the horizontal line for export market vehicles. No horizontal (right/left) adjustment is required for this headlamp beam pattern in domestic market vehicles. Export market vehicles have a second horizontal (right/left) adjustment screw provided. The high beam pattern will be correct when the low beams are properly aimed.

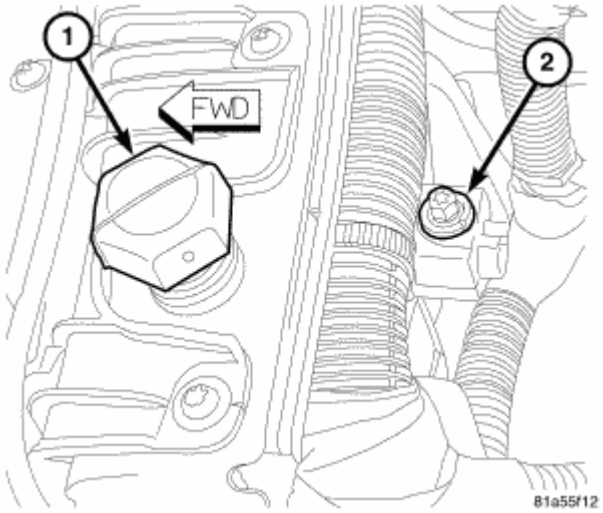

Fig. 3: Lamp Alignment Screen Preparation
Courtesy of CHRYSLER LLC

1. Turn the headlamps ON and select the LOW beams for vehicles in all markets.
2. On all vehicles except those with headlamp leveling, use a screwdriver to rotate the headlamp vertical adjustment screw (2) on the back of the front lamp unit just inboard of the hood bumper (1) to adjust the beam height as required.
3. For export markets only, use a screwdriver to rotate the headlamp horizontal adjustment screw on each headlamp to adjust the beam right or left as required.

FOG LAMP ALIGNMENT

NOTE: A properly aimed front fog lamp will project a pattern on the alignment screen 100 millimeters (4 inches) below the fog lamp centerline and straight ahead of the lamp.

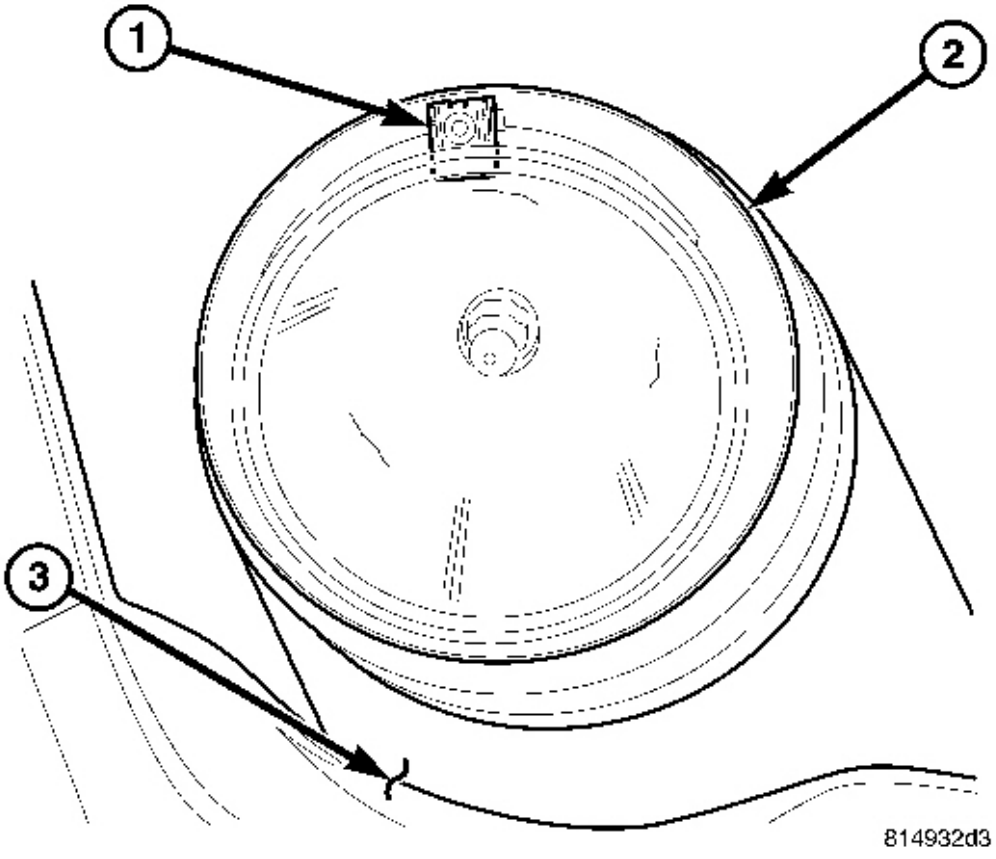

Fig. 4: Identifying Clearance Notch, Front Fog Lamp & Front Fascia
Courtesy of CHRYSLER LLC

1. Turn the fog lamps ON.
2. Insert a screwdriver through the clearance notch (1) at the top of the front fog lamp (2) seat of the front fascia (3) to rotate the vertical adjustment screw on each lamp to adjust the beam height as required.

SPECIFICATIONS

LAMPS/LIGHTING - EXTERIOR

BULB APPLICATION TABLE

LAMP	BULB
BACKUP	921 (W16W)
BRAKE	3157 (P27W/7W)
CENTER HIGH MOUNTED STOP	LIGHT-EMITTING DIODES SERVICED IN ASSEMBLY
FRONT FOG	9145 (H10)
FRONT PARK	3157AK - DOMESTIC 3757AK (PY27W/7W) - EXPORT
FRONT SIDE MARKER (DOMESTIC ONLY)	168
FRONT TURN SIGNAL	3157AK - DOMESTIC 3757AK (PY27W/7W) - EXPORT
HEADLAMP	9008 (H13) - DOMESTIC 9003 (H4 60/55W) - EXPORT
LICENSE PLATE	W5W
POSITION (EXPORT ONLY)	W5W
REAR FOG (EXPORT ONLY)	3157 (P27W/7W)
REAR PARK	3157 (P27W/7W)
REAR SIDE MARKER	3157 (P27W/7W)
REAR TURN SIGNAL	3757A (PY27W/7W)
REPEATER (EXPORT ONLY)	WY5W

TORQUE SPECIFICATIONS

DESCRIPTION	N.m	Ft. Lbs.	In. Lbs.
Center High Mounted Stop Lamp (CHMSL) Mounting Screws	2.5	-	20
Front Fog Lamp Mounting Screws	2	-	18
Front Lamp Unit Mounting Nuts	3	-	23
Left Multi-Function Switch Mounting Screw	1	-	10
Park Brake Switch Mounting Screw	2.5	-	24
Rear Lamp Unit Socket Plate Mounting Screws	1	-	12

SWITCH-BACKUP LAMP

DESCRIPTION

BACKUP LAMP SWITCH

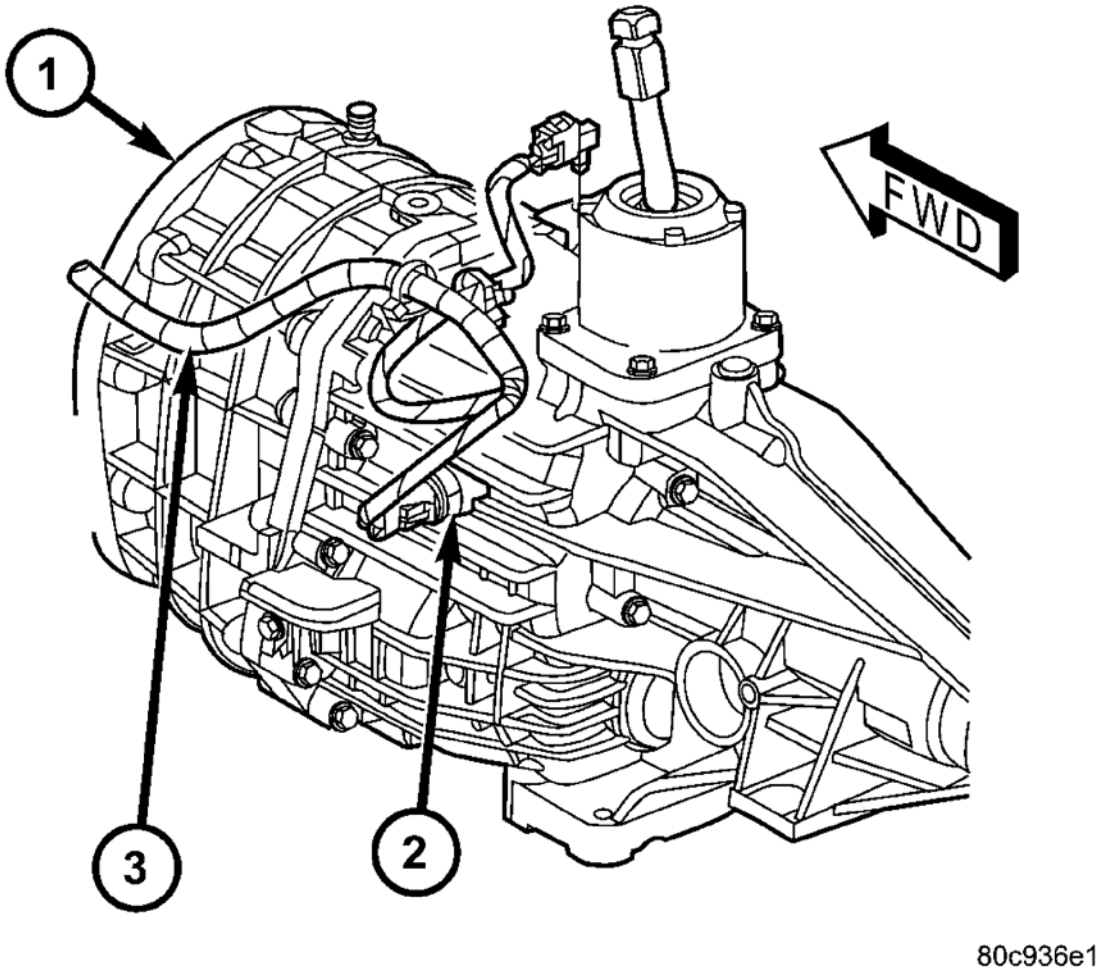

Fig. 5: Identifying Backup Lamp Switch
Courtesy of CHRYSLER LLC

Vehicles equipped with a manual transmission (1) have a normally open, spring-loaded plunger type backup lamp switch (2). Vehicles with an optional electronic automatic transmission have a Transmission Range Sensor (TRS) that is used to perform several functions, including that of the backup lamp switch. The TRS is described in further detail elsewhere in this service information. Refer to the service and diagnostic information for the automatic transmission type installed in the vehicle.

The backup lamp switch is located in a threaded hole on the side of the manual transmission housing. The switch has a threaded body and a hex formation near the plunger end of the switch. An integral connector receptacle at the end of the switch opposite the plunger connects the switch to the vehicle electrical system through a take out and connector of the engine wire harness. When installed, only the switch connector and the hex formation are visible on the outside of the transmission housing.

The backup lamp switch cannot be adjusted or repaired and, if ineffective or damaged, the entire switch unit must be replaced.

OPERATION

BACKUP LAMP SWITCH

The backup lamp switch controls a path to ground for the Totally Integrated Power Module (TIPM) on the reverse switch signal circuit. The TIPM reads this input through an internal pull-up, then controls an output through a high side driver that regulates the flow of battery voltage to the backup lamp bulbs as appropriate on the backup lamp feed circuit. The switch plunger is mechanically actuated by the gearshift mechanism within the transmission, which will depress the switch plunger and close the switch contacts whenever the REVERSE gear has been selected. The switch receives ground at all times through a take out and eyelet terminal of the engine wire harness that is secured by a nut to a ground stud on the body sheet metal within the engine compartment of the vehicle.

The backup lamp switch as well as the hard wired inputs and outputs of the switch may be diagnosed using conventional diagnostic tools and procedures. Refer to the appropriate wiring information.

DIAGNOSIS AND TESTING

BACKUP LAMP SWITCH

1. Disconnect and isolate the battery negative cable.
2. Raise and support the vehicle.
3. Locate and disconnect the engine wire harness connector from the backup lamp switch connector receptacle.
4. Check for continuity between the two terminal pins in the backup lamp switch connector receptacle.
    - With the gear selector lever in the REVERSE position, there should be continuity.
    - With the gear selector lever in any position other than REVERSE, there should be no continuity.
5. If the switch fails either of these two continuity tests, replace the ineffective backup lamp switch.

BRAKE LAMP SWITCH

DESCRIPTION

BRAKE LAMP SWITCH

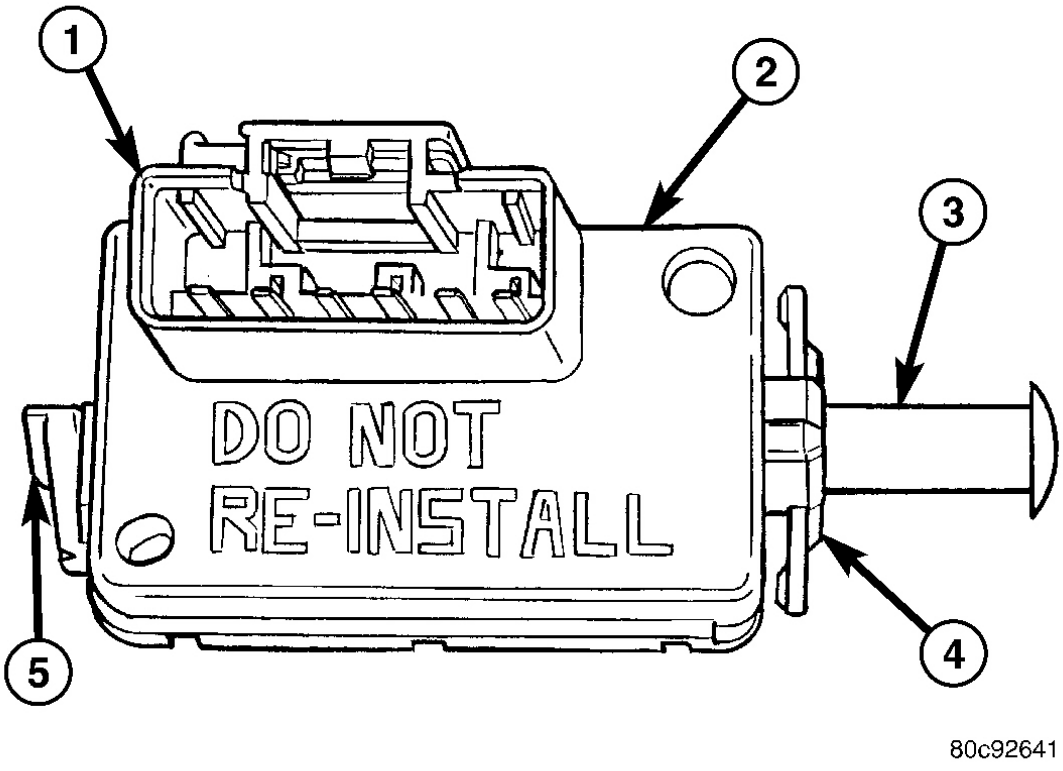

Fig. 6: Brake Lamp Switch
Courtesy of CHRYSLER LLC

The brake lamp switch (2) is a three circuit, spring-loaded plunger actuated switch that is secured to the steering column support bracket under the instrument panel on the driver side of the vehicle. The molded plastic switch housing has an integral connector receptacle (1) containing six terminal pins and featuring a Connector Position Assurance (CPA) lock. The switch is connected to the vehicle electrical system through a dedicated take out of the instrument panel wire harness.

The switch plunger (3) extends through a mounting collar (4) on one end of the switch housing. The plunger has a one time telescoping self-adjustment feature that is activated after the switch is installed by moving an adjustment release lever (5) on the opposite end of the switch housing clockwise, until it locks into a position that is parallel to the connector receptacle.

An installed brake lamp switch cannot be readjusted or repaired. If the switch is damaged, ineffective, or removed from its mounting position for any reason, it must be replaced with a new unit.

OPERATION

BRAKE LAMP SWITCH

The brake lamp switch controls three independent circuits. These circuits are described as follows:

- **Brake Lamp Switch Circuit** - A normally open brake lamp switch circuit receives a battery voltage input, and supplies this battery voltage to the brake lamps and the Controller Antilock Brake (CAB) on a brake lamp switch output circuit only when the brake pedal is depressed (brake lamp switch plunger released).
- **Brake Lamp Switch Signal Circuit** - A normally closed brake lamp switch signal circuit receives a direct path to ground, and supplies this ground input to the Powertrain Control Module (PCM) on a brake lamp switch sense circuit only when the brake pedal is released (brake lamp switch plunger is depressed).
- **Speed Control Circuit** - A normally closed speed control circuit receives a battery voltage input from the PCM on a speed control supply circuit, and supplies this battery voltage to the speed control servo solenoids (dump, vacuum, and vent) on a speed control brake switch output circuit only when the speed control system is turned ON and the brake pedal is released (brake lamp switch plunger is depressed).

The components of the self-adjusting brake switch plunger consist of a two-piece telescoping plunger, a split plunger locking collar, and a release wedge. The release lever has a shaft with a wedge that spreads the plunger locking collar to an open or released position. After the switch is installed and the brake pedal is released, the plunger telescopes to the correct adjustment position. When the release lever is moved to the release position, the wedge is disengaged from the locking collar causing the collar to apply a clamping pressure to the two plunger halves, fixing the plunger length.

The brake lamp switch as well as the hard wired inputs and outputs of the switch may be diagnosed using conventional diagnostic tools and procedures. Refer to the appropriate wiring information.

DIAGNOSIS AND TESTING

BRAKE LAMP SWITCH

WARNING: To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

CAUTION: Do not remove the brake lamp switch from the mounting bracket. The self-adjusting switch plunger is a one time only feature. If the switch is removed from the mounting bracket, it MUST be replaced with a new switch.

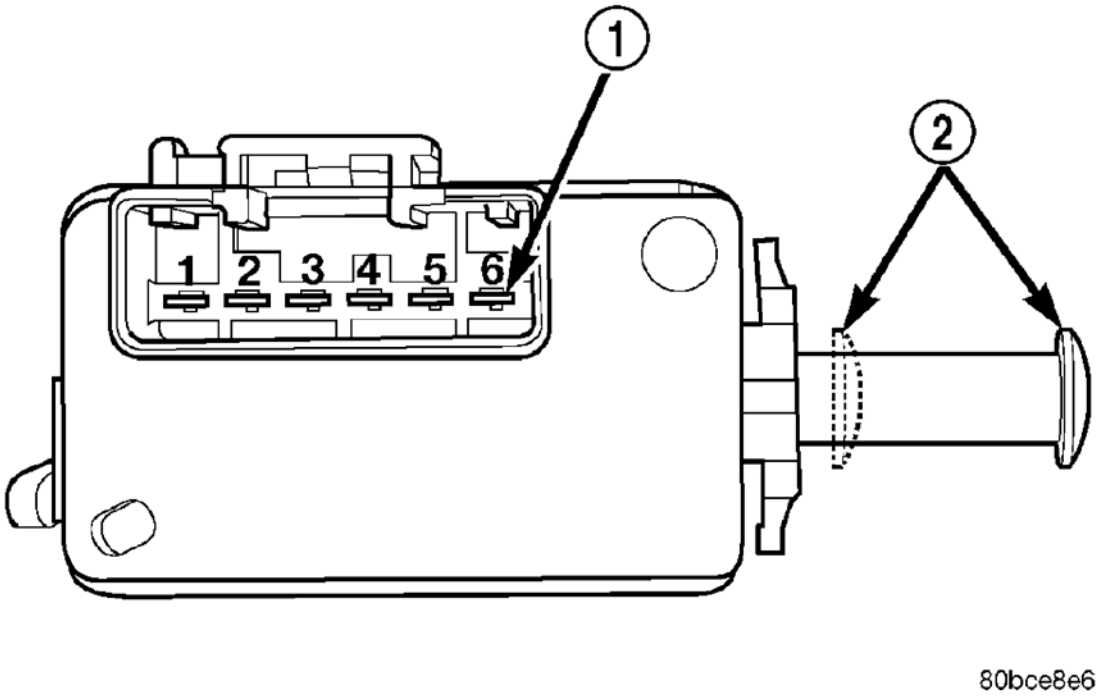

Fig. 7: Brake Lamp Switch Terminal Identification
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Disconnect the wire harness connector from the brake lamp switch.
3. Using an ohmmeter, perform the continuity tests at the terminal pins (1) in the brake lamp switch connector receptacle as shown in the Brake Lamp Switch Tests table.

BRAKE LAMP SWITCH TESTS TABLE

BRAKE LAMP SWITCH TESTS	
PLUNGER POSITION (2)	**CONTINUITY BETWEEN (1)**
Released (Extended)	Pins 1 and 2
Compressed (Depressed)	Pins 3 and 4, 5 and 6

4. If the switch fails any of the continuity tests, replace the ineffective brake lamp switch as required.

REMOVAL

BRAKE LAMP SWITCH

WARNING: To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component

diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

CAUTION: The brake lamp switch self-adjusting switch plunger is a one time only feature. If the switch is removed from the mounting bracket, it MUST be replaced with a new switch.

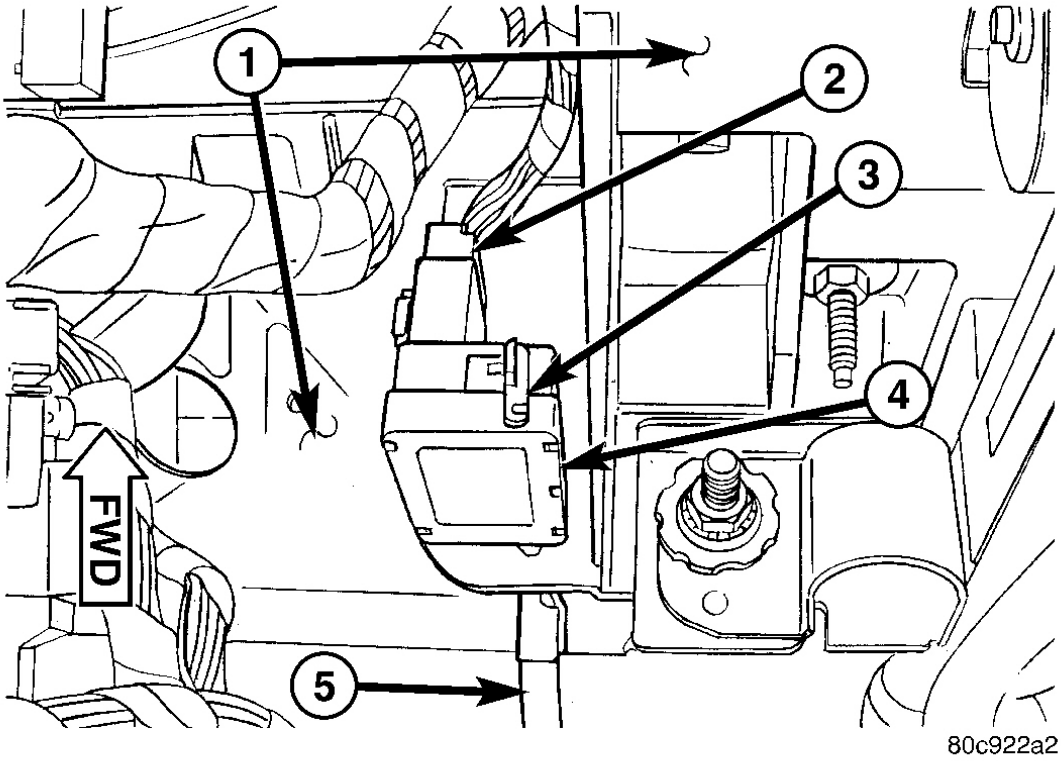

Fig. 8: Identifying Support Bracket, Wire Harness Connector, Plunger Adjustment Release Lever, Brake Lamp Switch & Brake Pedal
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Remove the steering column opening cover from the instrument panel. Refer to **REMOVAL** .
3. Locate the brake lamp switch (4) near the support bracket (1) on the lower steering column.
4. Disconnect the wire harness connector (2) from the brake lamp switch.
5. Rotate the brake lamp switch housing counterclockwise about 30 degrees to align the tabs on the switch locking collar with the keyed mounting hole in the switch mounting bracket.

6. Pull the switch straight back from the keyed hole to remove it from the bracket.
7. Discard the removed brake lamp switch.

INSTALLATION

BRAKE LAMP SWITCH

WARNING: To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

CAUTION: The brake lamp switch self-adjusting switch plunger is a one time only feature. If the switch is removed from the mounting bracket, it MUST be replaced with a new switch.

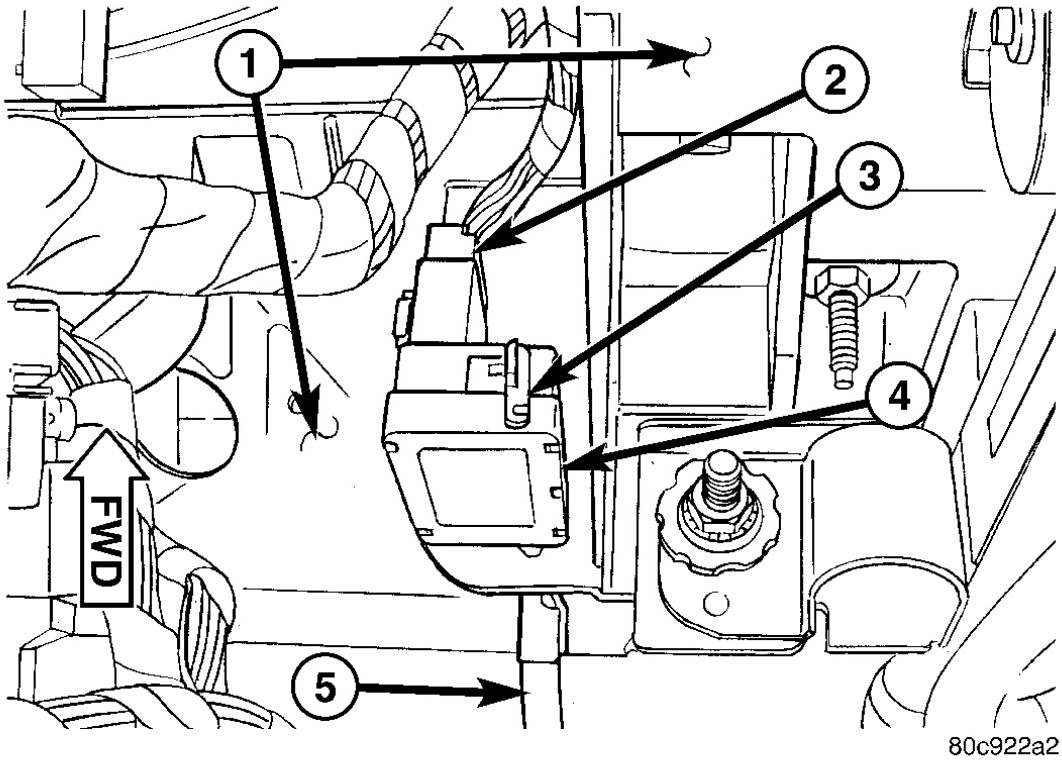

Fig. 9: Identifying Support Bracket, Wire Harness Connector, Plunger Adjustment Release Lever, Brake Lamp Switch & Brake Pedal
Courtesy of CHRYSLER LLC

1. Depress and hold the brake pedal (5) in the depressed position.
2. Align the tabs on the brake lamp switch (4) locking collar with the keyed hole in the switch mounting bracket.
3. Insert the tabs on the brake lamp switch locking collar through the keyed hole in the switch mounting bracket until the switch housing is firmly seated against the bracket.
4. Rotate the switch clockwise about 30 degrees to engage the tabs on the locking collar with the switch mounting bracket.
5. Release the brake pedal.

CAUTION: Do not release or pull up on the brake pedal before the switch plunger adjustment has been completed.

6. Release the brake pedal, but do not pull it upward.
7. Rotate the plunger adjustment release lever (3) clockwise until it locks into place. The lever should be parallel to the brake lamp switch connector receptacle. This action will set the switch plunger length to a final adjustment position and cannot be undone. If not performed properly the first time, a new brake lamp switch **must** be installed.
8. Reconnect the wire harness connector (2) to the brake lamp switch.
9. Reinstall the steering column opening cover onto the instrument panel. Refer to **INSTALLATION** .
10. Reconnect the battery negative cable.

LAMP-HIGH MOUNTED STOP

REMOVAL

CENTER HIGH MOUNTED STOP LAMP

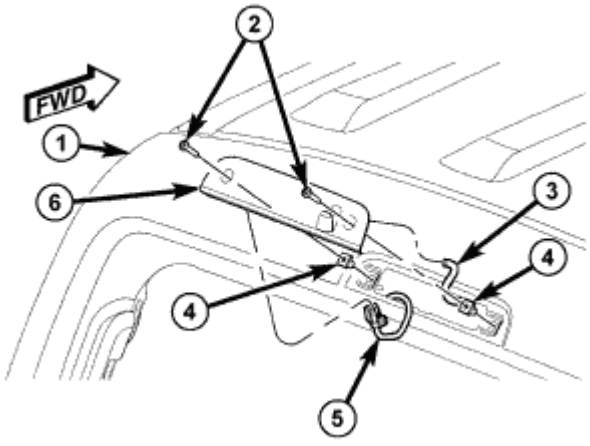

Fig. 10: Identifying Liftgate Outer Panel, Screws, Washer Supply Hose, Plastic Nuts, Liftgate Wire Harness Connector & Center High Mounted Stop Lamp (CHMSL)
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Remove the two screws (2) that secure the Center High Mounted Stop Lamp (CHMSL) (6) to the upper header of the liftgate outer panel (1).
3. Pull the CHMSL down and away from the liftgate far enough to access and disconnect the washer supply hose (3) from the barbed nipple of the rear washer nozzle at the back of the lamp housing.
4. Disconnect the liftgate wire harness connector (5) from the back of the lamp housing.
5. Remove the CHMSL from the liftgate.

INSTALLATION

CENTER HIGH MOUNTED STOP LAMP

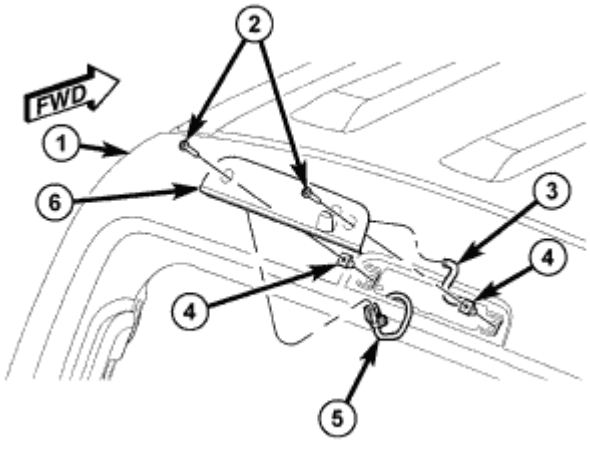

Fig. 11: Identifying Liftgate Outer Panel, Screws, Washer Supply Hose, Plastic Nuts, Liftgate Wire

Harness Connector & Center High Mounted Stop Lamp (CHMSL)
Courtesy of CHRYSLER LLC

1. Check to be certain that the two plastic nuts (4) are properly installed and in good condition on each side of the Center High Mounted Stop Lamp (CHMSL) (6) opening in the upper header of the liftgate outer panel (1).
2. Position the CHMSL near the liftgate opening.
3. Reconnect the liftgate wire harness connector (5) to the back of the lamp housing.
4. Reconnect the washer supply hose (3) to the barbed nipple of the rear washer nozzle at the back of the lamp housing.
5. Position the CHMSL into the liftgate opening with the lower edge slightly away from the liftgate.
6. Move the CHMSL left-to-right to align the temporary locator on the back of the CHMSL with the locator notch in the liftgate opening.
7. Slide the CHMSL slightly upward then rock the lower edge into the opening so that the retention feature holds the CHMSL to the liftgate without fasteners.
8. Install and tighten the right side screw (2) that secures the CHMSL to the liftgate, followed by the left side screw. Tighten the screws to 2.5 N.m (20 in. lbs.).
9. Reconnect the battery negative cable.

FRONT FOG LAMP

REMOVAL

FRONT FOG LAMP

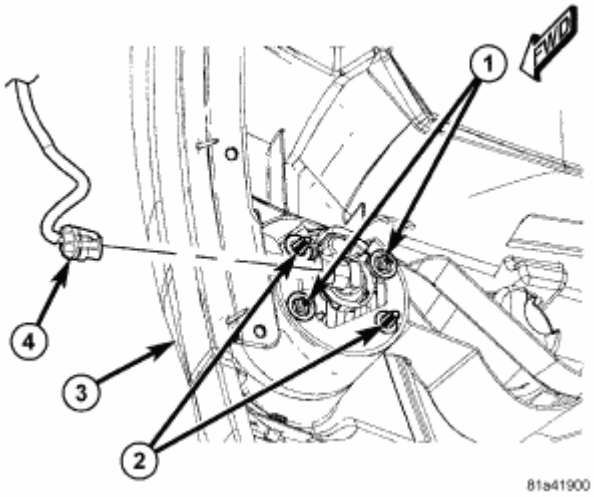

Fig. 12: Identifying Screws, Alignment Pins, Front Bumper Fascia & Front End Module Wire Harness Connector
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Reach up between the lower edge of the front fascia (3) and the front of the front wheel house splash

shield to access and disconnect the front end module wire harness connector (4) from the front fog lamp bulb connector receptacle.

3. Remove the two screws (1) that secure the lamp to the back of the front bumper fascia.
4. Remove the lamp from the front of the fascia.

FRONT FOG LAMP BULB

CAUTION: Do not contaminate the bulb glass by touching it with your fingers or by allowing it to contact other oily surfaces. Shortened bulb life will result.

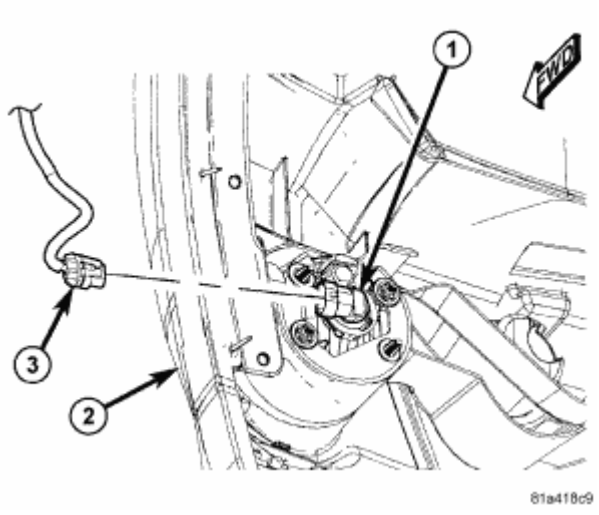

Fig. 13: Front Fog Lamp Bulb, Front Fascia & Front End Module Wire Harness Connector
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Reach up between the lower edge of the front fascia (2) and the front of the front wheel house splash shield to access and disconnect the front end module wire harness connector (3) from the front fog lamp bulb (1) connector receptacle.
3. Firmly grasp the bulb on the back of the front fog lamp housing and rotate it counterclockwise about 30 degrees to unlock it.
4. Pull the bulb straight out from the keyed opening in the housing.

INSTALLATION

FRONT FOG LAMP

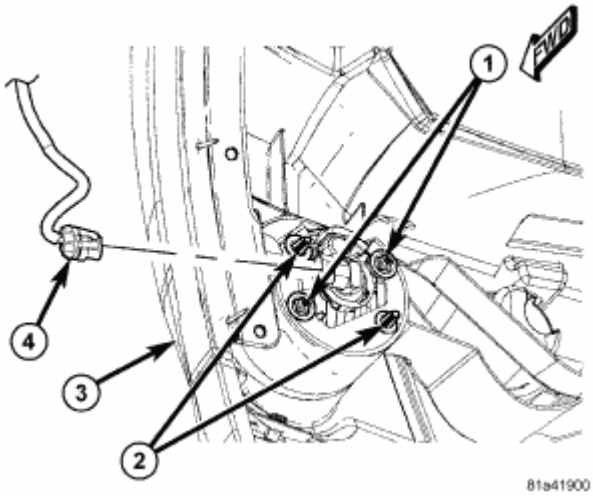

Fig. 14: Identifying Screws, Alignment Pins, Front Bumper Fascia & Front End Module Wire Harness Connector
Courtesy of CHRYSLER LLC

1. Position the front fog lamp to the receptacle from the front of the front bumper fascia (3). Be certain that the two alignment pins (2) on the back of the lamp housing are engaged in the alignment holes in the fascia receptacle.
2. Reach up between the lower edge of the front fascia and the front of the front wheel house splash shield to install and tighten the two screws (1) that secure the lamp to the back of the fascia. Tighten the screws to 2 N.m (18 in. lbs.).
3. Reconnect the front end module wire harness connector (4) to the front fog lamp bulb connector receptacle.
4. Reconnect the battery negative cable.
5. Confirm proper front fog lamp alignment. See **FRONT LAMP AIMING**.

FRONT FOG LAMP BULB

CAUTION: Always use the correct bulb size and type for replacement. An incorrect bulb size or type may overheat and cause damage to the lamp, the socket or the lamp wiring.

CAUTION: Do not contaminate the bulb glass by touching it with your fingers or by allowing it to contact other oily surfaces. Shortened bulb life will result.

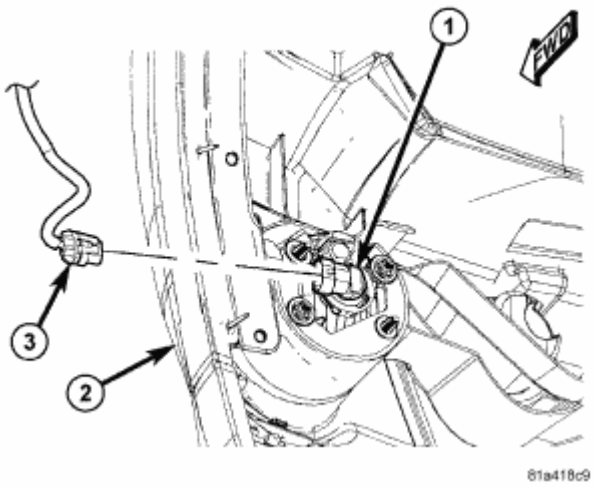

Fig. 15: Front Fog Lamp Bulb, Front Fascia & Front End Module Wire Harness Connector
Courtesy of CHRYSLER LLC

1. Reach up between the lower edge of the front fascia (2) and the front of the front wheel house splash shield to access and align the front fog lamp bulb (1) with the keyed opening on the back of the front fog lamp housing.
2. Insert the bulb into the housing until it is firmly seated.
3. Rotate the bulb clockwise about 30 degrees to lock it into place. The bulb connector receptacle should be horizontal in orientation.
4. Reconnect the front end module wire harness connector (3) to the front fog lamp bulb connector receptacle.
5. Reconnect the battery negative cable.

FRONT LAMP UNIT

STANDARD PROCEDURE

FRONT LAMP MOISTURE CLEARING

Some occasional moisture accumulation inside a vented front lamp unit is normal and appears as a fogging on the inside of the lamp lens, similar to the fog that sometimes appears on the inside of a windshield. This condition is caused by rapidly changing temperature and humidity levels between the air internal and external to the lamp, and will usually dissipate once the temperature and humidity conditions have been allowed to stabilize. Accelerated removal of such moisture may be accomplished by activating the headlamps on HIGH beam for about 15 minutes.

However, water droplets larger than 1 millimeter (0.039 inch) in size accumulated on the inside of the lamp lens, water droplets visible on most internal lamp surfaces or large quantities of water within the lamp indicates a problem with the lamp sealing that has allowed excessive amounts of water to enter the lamp. Once such excessive moisture has entered the lamp, it will always be present and will never disappear. A lamp with permanent internal moisture should be replaced.

REMOVAL

FRONT SIDE MARKER BULB

NOTE: The following procedure applies only to vehicles manufactured for domestic markets. Vehicles manufactured for export markets do not have a bulb, socket or wiring provided to illuminate the front side marker compartment of the front lamp unit. The front side marker lens is present, but serves only as a reflector on export market vehicles.

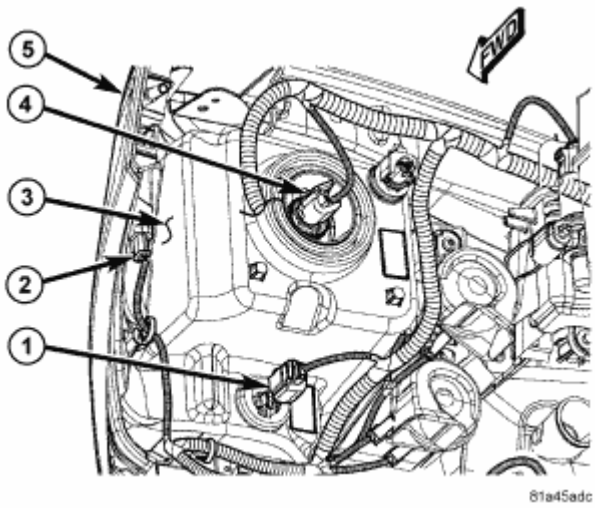

Fig. 16: Identifying Front Lamp Unit Housing, Wire Harness Connector, Front End Module Grille, Front Lamp Unit Housing & Wire Harness Connector
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Partially remove the grille and both front lamp units from the face of the front end module as a unit. Refer to **REMOVAL** .
3. Disconnect the wire harness connector (2) from the connector receptacle integral to the side marker bulb socket on the back of the front lamp unit housing (3) located on the back of the front end module grille (5).
4. Firmly grasp the front side marker bulb socket on the back of the housing and rotate it counterclockwise about 30 degrees to unlock it.
5. Pull the socket and bulb straight out from the keyed opening in the housing.
6. Pull the base of the bulb straight out of the socket.

FRONT LAMP UNIT

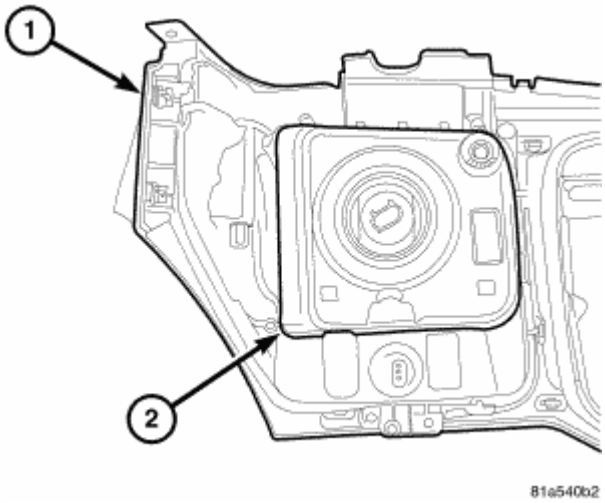

Fig. 17: Identifying Grille & Front Lamp Units
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Remove the grille (1) and both front lamp units (2) from the face of the front end module as a unit. Refer to **REMOVAL** .
3. Remove the screws that secure the front lamp unit to the back of the grille.
4. Remove the front lamp unit from the back of the grille.

FRONT PARK/TURN SIGNAL BULB

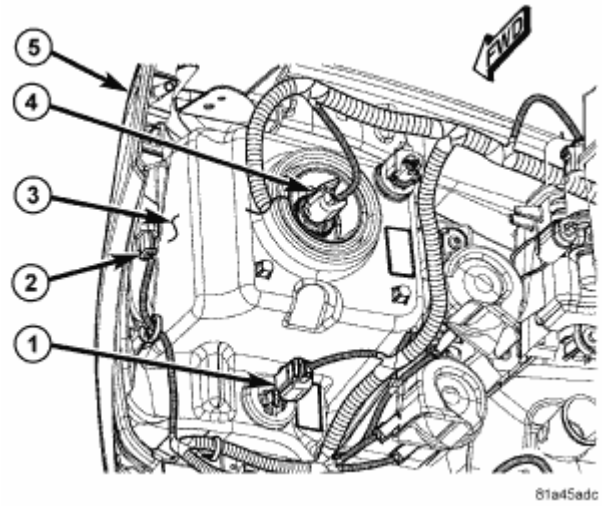

Fig. 18: Identifying Front Lamp Unit Housing, Wire Harness Connector, Front End Module Grille, Front Lamp Unit Housing & Wire Harness Connector
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Disconnect the wire harness connector (1) from the connector receptacle integral to the park/turn signal

bulb socket on the back of the front lamp unit housing (3) located on the back of the front end module (5).

3. Firmly grasp the socket and rotate it counterclockwise about 30 degrees to unlock it.
4. Pull the socket and bulb straight out from the keyed opening in the housing.
5. Pull the base of the bulb straight out of the socket.

HEADLAMP BULB - EXPORT

CAUTION: Do not contaminate the bulb glass by touching it with your fingers or by allowing it to contact other oily surfaces. Shortened bulb life will result.

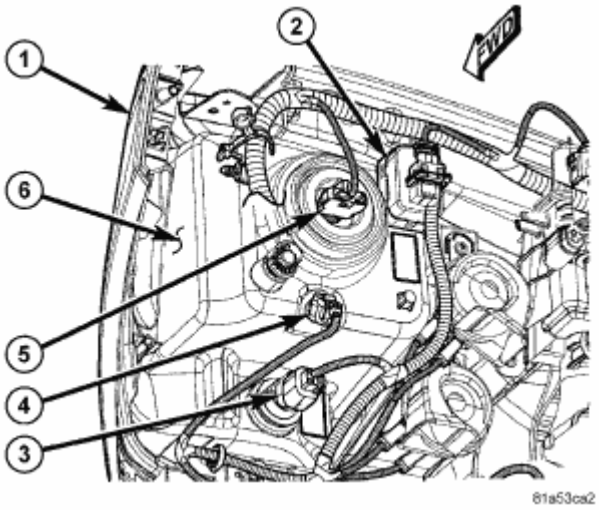

Fig. 19: Identifying Front End Module, Wire Harness Connectors, Front Lamp Unit Housing, Front End Module Grille & Headlamp Leveling Motor
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Disconnect the wire harness connector (5) from the headlamp bulb base on the back of the front lamp unit housing (6) located on the back of the front end module (1).
3. Remove the rubber boot seal from the back of the front lamp unit housing and the headlamp bulb base.
4. Pinch the two ends of the wire bulb retainer together and disengage them from the hooks that secure them to the bulb flange on the reflector.
5. Pivot the wire retainer up off of the flange of the headlamp bulb base and out of the way.
6. Pull the bulb straight out of the keyed opening in the headlamp reflector.

HEADLAMP BULB - DOMESTIC

CAUTION: Do not contaminate the bulb glass by touching it with your fingers or by allowing it to contact other oily surfaces. Shortened bulb life will result.

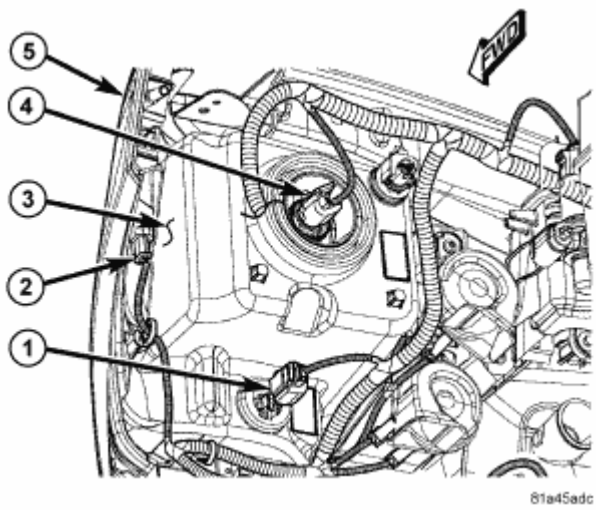

Fig. 20: Identifying Front Lamp Unit Housing, Wire Harness Connector, Front End Module Grille, Front Lamp Unit Housing & Wire Harness Connector
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Disconnect the wire harness connector (4) from the connector receptacle integral to the headlamp bulb on the back of the front lamp unit housing (3) located on the back of the front end module (5).
3. Firmly grasp the bulb base and rotate it counterclockwise about 30 degrees to unlock it.
4. Pull the bulb and base straight out from the keyed opening in the reflector.

POSITION LAMP BULB

NOTE: The following procedure applies only to vehicles manufactured for export markets. Vehicles manufactured for domestic markets do not have a position lamp bulb, socket or wiring provided in the front lamp unit.

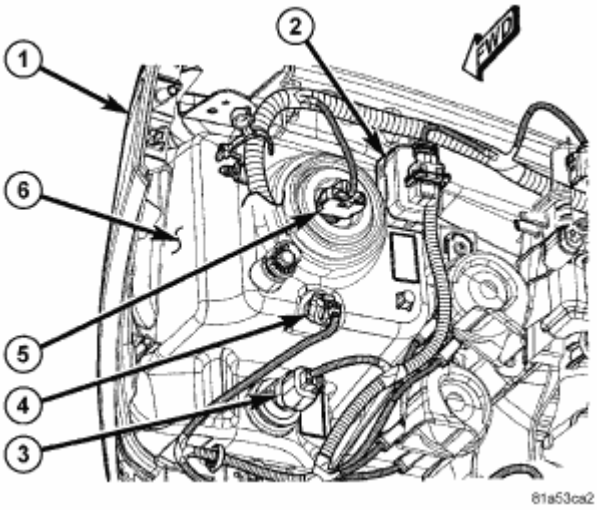

Fig. 21: Identifying Front End Module, Wire Harness Connectors, Front Lamp Unit Housing, Front End

Module Grille & Headlamp Leveling Motor
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Partially remove the grille and both front lamp units from the face of the front end module as a unit. Refer to **REMOVAL** .
3. Disconnect the wire harness connector (4) from the connector receptacle integral to the position lamp bulb socket on the back of the front lamp unit housing (6) located on the back of the front end module grille (1).
4. Firmly grasp the position lamp bulb socket on the back of the housing and rotate it counterclockwise about 30 degrees to unlock it.
5. Pull the socket and bulb straight out from the keyed opening in the housing.
6. Pull the base of the bulb straight out of the socket.

INSTALLATION

FRONT SIDE MARKER BULB

CAUTION: Always use the correct bulb size and type for replacement. An incorrect bulb size or type may overheat and cause damage to the lamp, the socket or the lamp wiring.

NOTE: The following procedure applies only to vehicles manufactured for domestic markets. Vehicles manufactured for export markets do not have a bulb, socket or wiring provided to illuminate the front side marker compartment of the front lamp unit. The front side marker lens is present, but serves only as a reflector on export market vehicles.

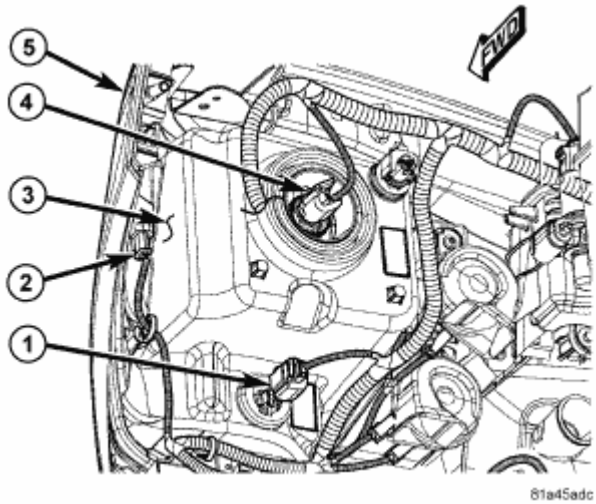

Fig. 22: Identifying Front Lamp Unit Housing, Wire Harness Connector, Front End Module Grille, Front Lamp Unit Housing & Wire Harness Connector
Courtesy of CHRYSLER LLC

1. Align the base of the bulb with the front side marker bulb socket.
2. Push the bulb straight into the socket until the base is firmly seated.
3. Align the socket and bulb with the keyed opening on the back of the front lamp unit housing (3) located on the back of the front end module grille (5).
4. Insert the socket and bulb into the housing until the socket is firmly seated.
5. Rotate the socket clockwise about 30 degrees to lock it into place.
6. Reconnect the wire harness connector (2) to the connector receptacle integral to the side marker bulb socket.
7. Reinstall the grille and both front lamp units to the face of the front end module as a unit. Refer to **INSTALLATION** .
8. Reconnect the battery negative cable.

FRONT PARK/TURN SIGNAL BULB

CAUTION: Always use the correct bulb size and type for replacement. An incorrect bulb size or type may overheat and cause damage to the lamp, the socket or the lamp wiring.

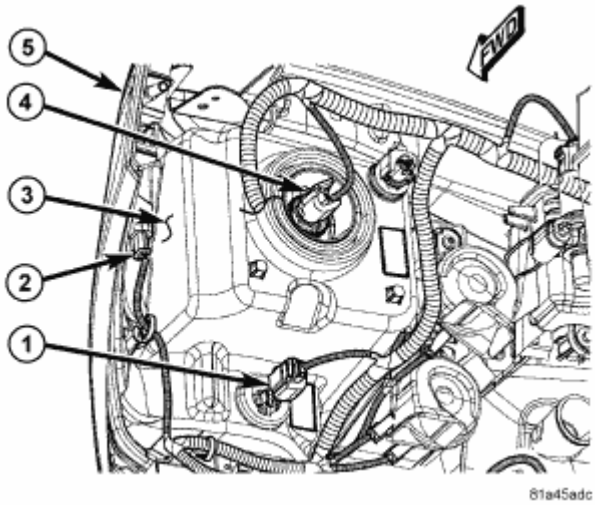

Fig. 23: Identifying Front Lamp Unit Housing, Wire Harness Connector, Front End Module Grille, Front Lamp Unit Housing & Wire Harness Connector
Courtesy of CHRYSLER LLC

1. Align the base of the bulb with the park/turn signal bulb socket.
2. Push the bulb straight into the socket until the base is firmly seated.
3. Align the socket and bulb with the keyed opening in the back of the front lamp unit housing (3) located on the back of the front end module (5).
4. Insert the socket and bulb into the housing until the socket is firmly seated.
5. Rotate the socket clockwise about 30 degrees to lock it into place.
6. Reconnect the wire harness connector (1) to the connector receptacle integral to the park/turn signal bulb

socket on the back of the housing.

7. Reconnect the battery negative cable.

HEADLAMP BULB - DOMESTIC

CAUTION: Always use the correct bulb size and type for replacement. An incorrect bulb size or type may overheat and cause damage to the lamp, the socket or the lamp wiring.

CAUTION: Do not contaminate the bulb glass by touching it with your fingers or by allowing it to contact other oily surfaces. Shortened bulb life will result.

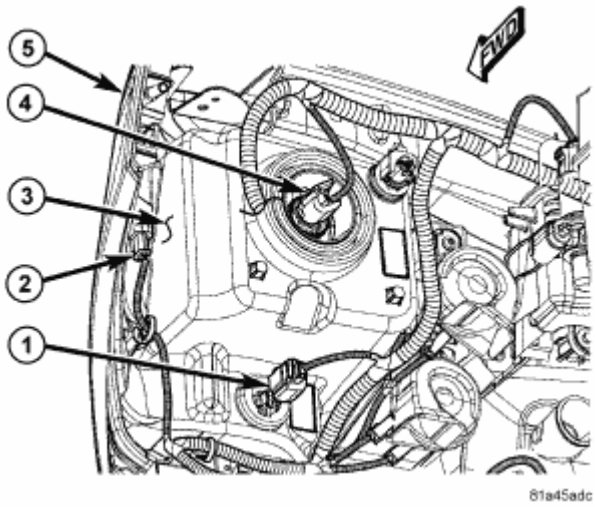

Fig. 24: Identifying Front Lamp Unit Housing, Wire Harness Connector, Front End Module Grille, Front Lamp Unit Housing & Wire Harness Connector
Courtesy of CHRYSLER LLC

1. Align the bulb base with the keyed opening on the back of the front lamp unit (3) reflector.
2. Insert the bulb and base into the reflector until the base is firmly seated.
3. Rotate the base clockwise about 30 degrees to lock it into place.
4. Reconnect the wire harness connector to the connector receptacle integral to the bulb base on the back of the front lamp unit housing.
5. Reconnect the battery negative cable.

POSITION LAMP BULB

CAUTION: Always use the correct bulb size and type for replacement. An incorrect bulb size or type may overheat and cause damage to the lamp, the socket or the lamp wiring.

NOTE: The following procedure applies only to vehicles manufactured for export

markets. Vehicles manufactured for domestic markets do not have a position lamp bulb, socket or wiring provided in the front lamp unit.

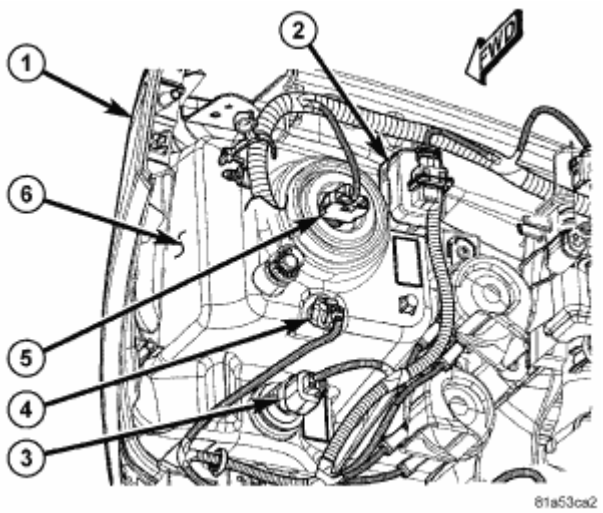

Fig. 25: Identifying Front End Module, Wire Harness Connectors, Front Lamp Unit Housing, Front End Module Grille & Headlamp Leveling Motor
Courtesy of CHRYSLER LLC

1. Align the base of the bulb with the position lamp bulb socket.
2. Push the bulb straight into the socket until the base is firmly seated.
3. Align the socket and bulb with the keyed opening on the back of the front lamp unit housing (6) located on the back of the front end module grille (1).
4. Insert the socket and bulb into the housing until the socket is firmly seated.
5. Rotate the socket clockwise about 30 degrees to lock it into place.
6. Reconnect the wire harness connector (4) to the connector receptacle integral to the position lamp bulb socket.
7. Reinstall the grille and both front lamp units to the face of the front end module as a unit. Refer to **INSTALLATION** .
8. Reconnect the battery negative cable.

HEADLAMP BULB - EXPORT

CAUTION: Always use the correct bulb size and type for replacement. An incorrect bulb size or type may overheat and cause damage to the lamp, the socket or the lamp wiring.

CAUTION: Do not contaminate the bulb glass by touching it with your fingers or by allowing it to contact other oily surfaces. Shortened bulb life will result.

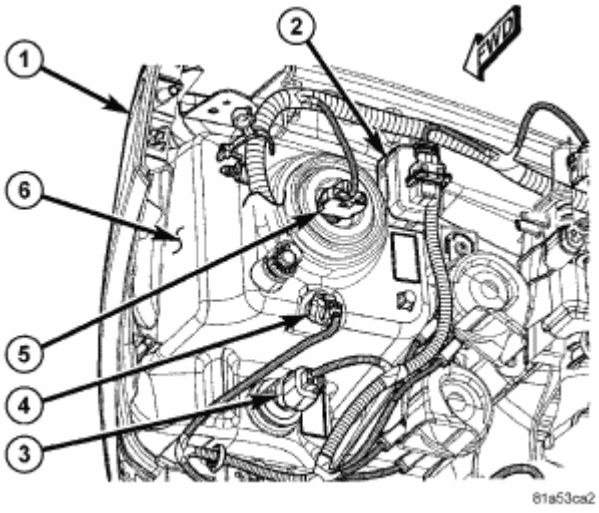

Fig. 26: Identifying Front End Module, Wire Harness Connectors, Front Lamp Unit Housing, Front End Module Grille & Headlamp Leveling Motor
Courtesy of CHRYSLER LLC

1. Position the headlamp bulb through the opening in the back of the front lamp unit housing (6) into the keyed opening in the headlamp reflector.
2. Be certain the bulb is fully seated in the reflector, then pivot the wire bulb retainer back over the bulb flange.
3. Pinch the two ends of the wire bulb retainer together and engage them under the hooks to secure them to the bulb flange of the reflector.
4. Position the center opening of the rubber boot seal over the base of the headlamp bulb and push it fully over the bulb base.
5. Position the outer circumference of the boot seal over the flange on the back of the front lamp unit housing and pull it over the housing flange until the seal is fully engaged.
6. Reconnect the front end module wire harness connector (5) to the headlamp bulb base on the back of the front lamp unit housing.
7. Reconnect the battery negative cable.

FRONT LAMP UNIT

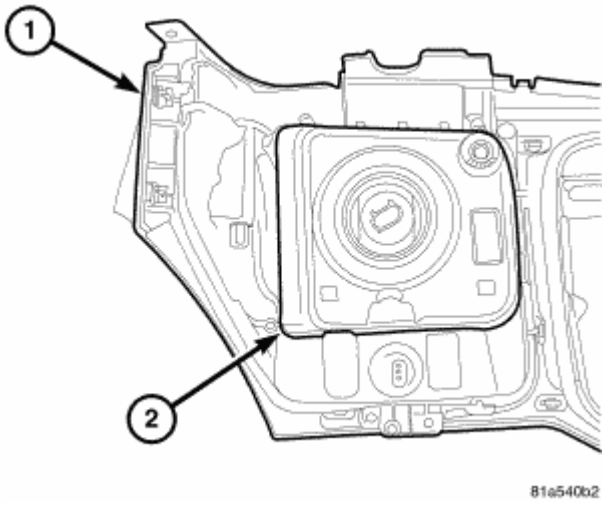

Fig. 27: Identifying Grille & Front Lamp Units
Courtesy of CHRYSLER LLC

1. Position the front lamp unit to the back of the front end module grille.
2. Install and tighten the screws that secure the front lamp unit to the back of the grille. Tighten the screws to 3 N.m (23 in. lbs.).
3. Reinstall the grille and both front lamp units to the face of the front end module as a unit. Refer to **INSTALLATION** .
4. Reconnect the battery negative cable.
5. Confirm proper headlamp alignment. See **FRONT LAMP AIMING**.

HAZARD SWITCH

DESCRIPTION

HAZARD SWITCH

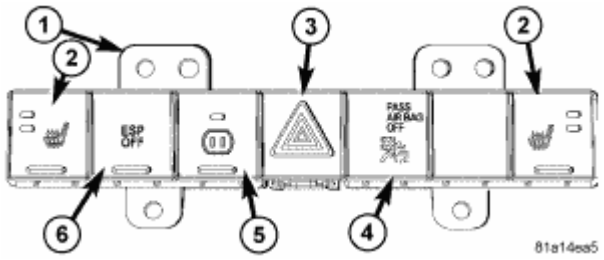

Fig. 28: Identifying Occupant Classification System Switches & Indicators
Courtesy of CHRYSLER LLC

The hazard switch (3) is integral to the instrument panel switch pod (1), which is secured to the instrument panel center bezel just below the heater and air conditioner controls. A red, stencil-like International Control and Display Symbol icon for **Hazard Warning** identifies the hazard switch button. The remainder of the hazard switch circuitry is concealed within the instrument panel switch pod.

The hazard switch button has panel lamps dimmer controlled illumination for night visibility. The switch button latches to a slightly lowered position when the hazard warning system is activated and the icon on the switch button will illuminate at an increased intensity while the turn signals and turn signal indicators are flashing. The switch button unlatches to a position flush with the other push buttons in the switch pod when the hazard warning is deactivated.

All of the circuitry and components of the hazard switch are contained within a molded black plastic instrument panel switch pod housing. A single connector receptacle is integral to the back of the switch pod housing. The switch is connected to the vehicle electrical system through a dedicated take out and connector of the instrument panel wire harness.

The hazard switch cannot be adjusted or repaired and, if ineffective or damaged, the entire instrument panel switch pod unit must be replaced. Refer to **REMOVAL** .

OPERATION

HAZARD SWITCH

The status of the hazard switch is continually monitored by the circuitry within the instrument panel switch pod. The switch pod receives battery voltage at all times on a fused battery feed circuit, and a path to ground at all times through the instrument panel wire harness. The only other inputs to the switch pod consists of electronic communication with the Electro Mechanical Instrument Cluster (EMIC) (also known as the Cab Compartment Node/CCN) over the single wire Local Interface Network (LIN) data bus.

Whenever the hazard switch is in its unlatched and raised position, the hazard warning system is selected and the switch pod circuitry sends a hard wired output to the Totally Integrated Power Module (TIPM) over the CAN data bus. When the TIPM receives a hazard switch input it then controls hazard warning system operation and flash rate by controlling battery voltage outputs through high side drivers on the right and left turn signal feed circuits. The TIPM also sends the appropriate electronic messages back to the EMIC to control the illumination and flash rate of the right and left turn signal indicators, as well as to control the click rate of an electromechanical relay soldered onto the EMIC electronic circuit board that emulates the sound emitted by a conventional hazard warning flasher. The EMIC then sends messages back to the switch pod to control the illumination of the hazard switch push button.

The hard wired circuits for the instrument panel switch pod may be diagnosed using conventional diagnostic tools and procedures. Refer to the appropriate wiring information. However, conventional diagnostic methods will not prove conclusive in the diagnosis of the hazard warning switch or the electronic controls and communication between other modules and devices that provide some features of the hazard warning system. The most reliable, efficient, and accurate means to diagnose the hazard switch or the electronic controls and communication related to hazard warning system operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

HEADLAMP LEVELING MOTOR

DESCRIPTION

HEADLAMP LEVELING MOTOR

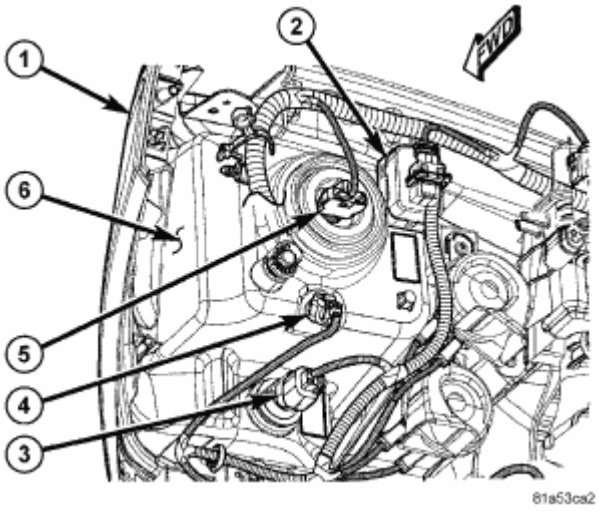

Fig. 29: Identifying Front End Module, Wire Harness Connectors, Front Lamp Unit Housing, Front End Module Grille & Headlamp Leveling Motor
Courtesy of CHRYSLER LLC

The headlamp leveling motor (2) is located on the rear inboard side of each front lamp unit housing (6) on vehicles equipped with the headlamp leveling system, which is available only in certain markets where it is required equipment. The motor is encased within a molded plastic housing and is secured by an integral wedge-type mounting boss to a keyed flange on the back of the front lamp unit housing. A rubber seal around the circumference of the mounting boss seals the motor to the lamp housing.

The outside of the motor housing features an integral molded connector on its rearward surface and a plastic pushrod with a ball formation on its free end extends from the motor mounting boss. Within the motor housing is a 12-volt Direct Current (DC) servo motor, an electronic controller board that includes the motor logic circuits, and an integral screw-drive transmission. The headlamp leveling motor is connected to the vehicle electrical system through a dedicated take out and connector of the front end module wire harness.

The headlamp leveling motor is serviced as a unit with the front lamp unit. The motor cannot be repaired and, if ineffective or damaged, the entire front lamp unit must be replaced.

OPERATION

HEADLAMP LEVELING MOTOR

The controller board and logic circuitry of the headlamp leveling motor controls motor operation based upon a voltage signal input received from the Totally Integrated Power Module (TIPM). The TIPM uses electronic messages received over the Controller Area Network (CAN) data bus from the Electro Mechanical Instrument Cluster (EMIC) (also known as the Cab Compartment Node/CCN) to determine the correct voltage signal to provide the leveling motor, while the EMIC uses electronic messages received over the Local Interface Network (LIN) data bus from the instrument panel switch pod to monitor the headlamp leveling switch selection.

The headlamp leveling motors have a path to ground at all times. The motors operate on battery voltage received through the headlamp low beam feed circuits so that the system will only operate when the headlamp low beams are turned ON. When the motor is energized it will extend or retract the motor pushrod through an

integral screw-drive transmission. The ball on the end of the pushrod is snapped into a socket on the back of the reflector within the front lamp unit housing, which will cause the reflector to move as the pushrod is extended or retracted, changing the angle at which the light is projected from the headlamp low beam bulb filaments.

The hard wired circuits for the headlamp leveling motors may be diagnosed using conventional diagnostic tools and procedures. Refer to the appropriate wiring information. However, conventional diagnostic methods will not prove conclusive in the diagnosis of the active electronic elements within the headlamp leveling motors or the electronic controls and communication between other modules and devices that provide some features of the headlamp leveling system. The most reliable, efficient, and accurate means to diagnose the headlamp leveling motor or the electronic controls and communication related to headlamp leveling system operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

SWITCH-HEADLAMP LEVELING

DESCRIPTION

HEADLAMP LEVELING SWITCH

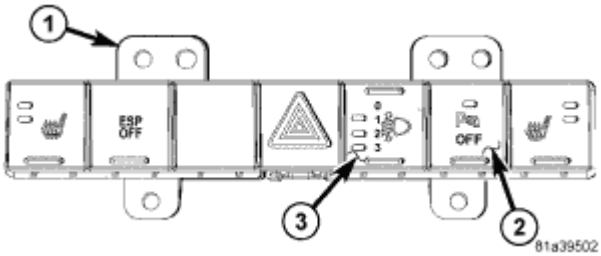

Fig. 30: Identifying Headlamp Leveling Switch
Courtesy of CHRYSLER LLC

The headlamp leveling switch (3) is used only on vehicles manufactured for certain markets where the headlamp leveling system is required. The headlamp leveling switch is integral to the switch pod (1) on the instrument panel. A stencil-like International Control and Display Symbol icon for **Headlamp Levelling Control** identifies the headlamp leveling switch button. The switch push button is also marked with the numbers **0** , **1** , **2** , and **3** , which indicates each of the four headlamp leveling positions. Each higher number represents a lower aiming position of the headlamp beam relative to the road surface.

The headlamp leveling switch button has panel lamps dimmer controlled illumination for night visibility. The switch button also features a jewel like Light Emitting Diode (LED) indicator adjacent to the numbers **1** , **2** , and **3** . The appropriate LED is illuminated when that headlamp position is currently selected. The momentary switch push button is operated by depressing, then releasing the top or bottom of the button in a rocker manner to enable the selection of a sequentially higher or lower position with each button press.

All of the circuitry and components of the headlamp leveling switch are contained within a molded black plastic instrument panel switch pod housing. A single connector receptacle is integral to the back of the switch pod housing. The switch is connected to the vehicle electrical system through a dedicated take out and connector of the instrument panel wire harness.

The headlamp leveling switch cannot be adjusted or repaired and, if ineffective or damaged, the entire

instrument panel switch pod unit must be replaced. Refer to **REMOVAL** .

OPERATION

HEADLAMP LEVELING SWITCH

The status of the headlamp leveling switch is continually monitored by the circuitry within the instrument panel switch pod. The switch pod receives battery voltage at all times on a fused battery feed circuit, and a path to ground at all times through the instrument panel wire harness. The only other inputs to and outputs from the switch pod consist of electronic communication with the Electro Mechanical Instrument Cluster (EMIC) (also known as the Cab Compartment Node/CCN) over the single wire Local Interface Network (LIN) data bus.

Whenever the headlamp leveling switch push button is depressed the switch pod circuitry sends an electronic **select status up** or **select status down** message input to the EMIC over the LIN data bus. The EMIC then sends the appropriate electronic **select request up** or **select request down** message to the TIPM over the CAN data bus.

The TIPM responds to these messages by providing a voltage output to the headlamp leveling motors through high side drivers on the headlamp leveling motor right and left signal circuits to move the headlamp reflectors to the selected position based upon the voltage input received from the TIPM. The TIPM also sends the appropriate electronic messages back to the EMIC and the EMIC relays the messages back to the switch pod to control the illumination of the **1** , **2** , or **3** Light Emitting Diode (LED) selected position indicator in the leveling switch button. The EMIC and TIPM logic will only allow the headlamp leveling system to operate while the ignition switch is in the ON position and the exterior lighting is turned ON.

The hard wired circuits for the instrument panel switch pod may be diagnosed using conventional diagnostic tools and procedures. Refer to the appropriate wiring information. However, conventional diagnostic methods will not prove conclusive in the diagnosis of the headlamp leveling switch or the electronic controls and communication between other modules and devices that provide some features of the headlamp leveling system. The most reliable, efficient, and accurate means to diagnose the headlamp leveling switch or the electronic controls and communication related to headlamp leveling system operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

LEFT MULTI-FUNCTION SWITCH

DESCRIPTION

LEFT MULTI- FUNCTION SWITCH

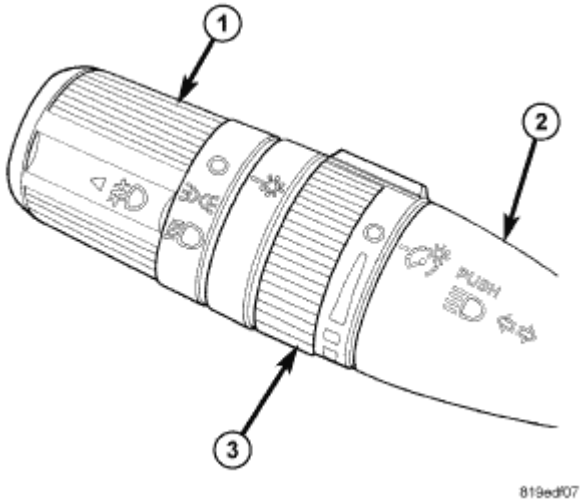

Fig. 31: Identifying Control Knob, Control Stalk & Control Sleeve
Courtesy of CHRYSLER LLC

The left (lighting) multi-function switch is located on the left side of the steering column, just below the steering wheel. This switch is the primary control for the interior and exterior lighting systems. The only visible components of the switch are the control stalk (2), control knob (1) and control sleeve (3) that extend through the steering column shrouds on the left side of the column. The remainder of the switch including its mounting provisions, its electrical connection, and the turn signal cancel actuator are concealed beneath the shrouds.

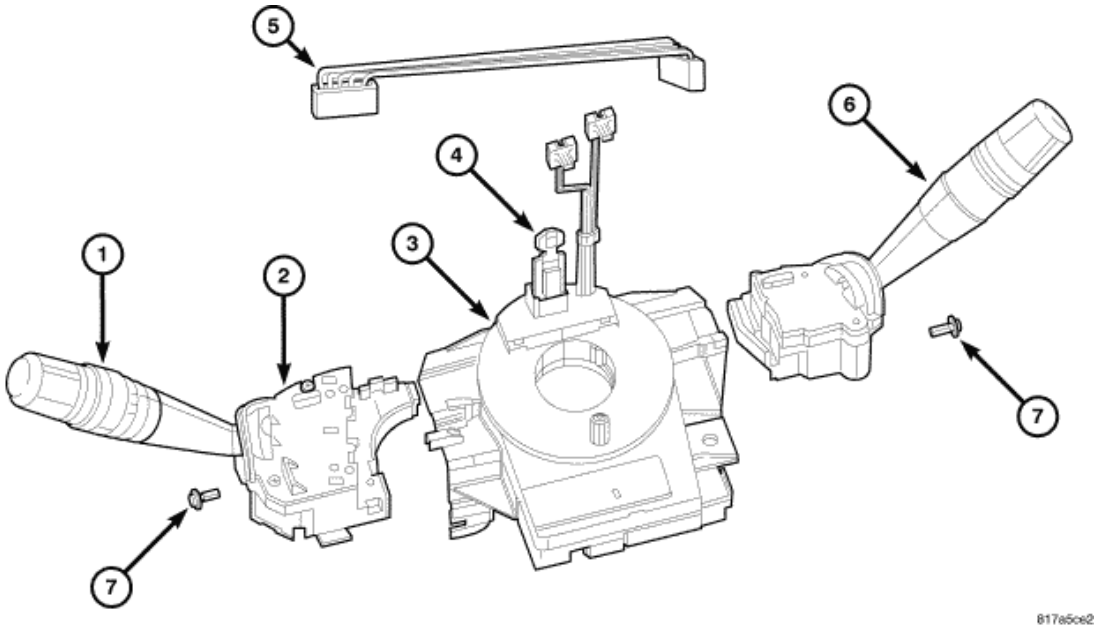

Fig. 32: Steering Control Module Components
Courtesy of CHRYSLER LLC

The switch housing (2) and controls (1) are constructed of molded black plastic. Each of the switch controls has white International Control and Display Symbol graphics applied to it, which clearly identify its many functions. A single screw (7) through a mounting tab integral to the back of the switch housing, and a slide tab

integral to the bottom of the switch housing secure the switch to the mounting bracket integral to the clockspring (3).

The Steering Control Module (SCM) is internal to the switch housing. The switch outputs are internally connected directly to the SCM. A single connector receptacle containing seven terminal pins is integral to the inboard end of the switch housing and connects the right multi-function switch (6) through a jumper wire harness (5) directly to the SCM. An integral connector receptacle on the back of the switch housing connects the SCM to the vehicle electrical system through a dedicated take out and connector of the instrument panel wire harness.

The left multi-function switch provides the vehicle operator with a control interface for the following exterior lighting system functions:

- **Front Fog Lamps** - For vehicles so equipped, the left multi-function switch control knob provides detent switching for the optional front fog lamps.
- **Headlamps** - The left multi-function switch control knob provides detent switching for the headlamps.
- **Headlamp Beam Selection** - The left multi-function switch control stalk provides detent switching for selection of the headlamp high or low beams.
- **Headlamp Optical Horn** - The left multi-function switch control stalk includes momentary switching of the headlamp high beam circuits to provide an optical horn feature (sometimes referred to as flash-to-pass), which allows the vehicle operator to momentarily flash the headlamp high beams as an optical signalling device.
- **Park Lamps** - The left multi-function switch control knob provides detent switching for the park lamps.
- **Rear Fog Lamps** - For vehicles so equipped, the left multi-function switch control knob provides detent switching for the optional rear fog lamps. Rear fog lamps are optional only for vehicles manufactured for certain markets, where they are required.
- **Turn Signal Control** - The left multi-function switch control stalk provides both momentary non-detent switching and detent switching with automatic cancellation for both the left and right turn signal lamps.

The left multi-function switch also provides the vehicle operator with a control interface for the following interior lighting functions:

- **Interior Lamps Defeat** - The left multi-function switch control ring provides detent switching to DEFEAT the illumination of all interior courtesy lamps when a door, the rear flip-up glass, or the liftgate are opened.
- **Interior Lamps On** - The left multi-function switch control ring provides detent switching to simultaneously illuminate all interior courtesy lamps.
- **Panel Lamps Dimming** - The left multi-function switch control ring provides simultaneous adjustable control of the illumination intensity of all instrument panel lighting at one of five available illumination intensity levels.
- **Parade Mode** - The left multi-function switch control ring provides detent switching for a PARADE mode that maximizes the illumination intensity of all instrument panel lighting for visibility when driving in daylight with the exterior lamps turned ON.

The left multi-function switch cannot be adjusted or repaired. If any function of the switch is ineffective, or if

the switch is damaged, the entire switch unit must be replaced. The clockspring (with the multi-function switch mounting bracket), the left multi-function switch (with the SCM), the right multi-function switch and the jumper wire harness are each available for separate service replacement.

OPERATION

LEFT MULTI- FUNCTION SWITCH

The left (lighting) multi-function switch uses resistor multiplexing to control the many functions and features it provides using a minimal number of hard wired circuits. The switch receives clean grounds from the Steering Control Module (SCM), then provides resistor multiplexed return outputs to the SCM to indicate the selected switch positions. The SCM then sends electronic **switch status** messages over a Local Interface Network (LIN) data bus to the Electro Mechanical Instrument Cluster (EMIC) (also known as the Cab Compartment Node/CCN), and the EMIC relays electronic **switch request** messages over the Controller Area Network (CAN) data bus to other electronic modules in the vehicle.

If the SCM detects no inputs from the left multi-function switch, it transmits an electronic **Signal Not Available (SNA)** status message over the LIN data bus. The SNA status signals the EMIC to request other electronic modules to implement a fail-safe mode of operation for the exterior lighting systems. The fail-safe mode automatically turns the exterior lighting ON when the ignition switch is in the ON position, and OFF when the ignition switch is in the OFF position.

The hard wired inputs and outputs of the left multi-function switch and SCM may be diagnosed using conventional diagnostic tools and procedures. Refer to the appropriate wiring information. However, the most reliable, efficient and accurate means to diagnose this component requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

EXTERIOR LIGHTING

Following are descriptions of how the left multi-function switch is operated to control the many exterior lighting functions and features it provides:

- **Front Fog Lamps** - The optional front fog lamps are requested when the left multi-function switch control knob is pulled outward to the front fog lamps detent position. The SCM reads the resistor multiplexed input from the left multi-function switch and sends an electronic **exterior lighting switch status** message over the LIN data bus to the EMIC, which relays an electronic **exterior lighting switch request** message over the CAN data bus to other electronic modules in the vehicle. The switch control knob incorporates an internal cam mechanism that will only allow the front fog lamps to be selected while the headlamp ON position is also selected, and will automatically move the control knob to the front fog lamps OFF position when the control knob is rotated to deselect the headlamps.
- **Headlamps** - The headlamps are requested when the left multi-function switch control knob is rotated to the headlamps ON detent position. The SCM reads the resistor multiplexed input from the left multi-function switch and sends an electronic **exterior lighting switch status** message over the LIN data bus to the EMIC, which relays an electronic **exterior lighting switch request** message over the CAN data bus to other electronic modules in the vehicle.
- **Headlamp Beam Selection** - The headlamp high beams are selected when the left multi-function switch control stalk is pushed forward to the high beam selection detent position. The low beams are selected

when the control stalk is pulled rearward to the low beam selection detent position. The SCM reads the resistor multiplexed input from the left multi-function switch and sends an electronic **beam select switch status** message over the LIN data bus to the EMIC, which relays an electronic **beam select switch request** message over the CAN data bus to other electronic modules in the vehicle.

- **Headlamp Optical Horn** - The headlamp optical horn is selected each time the left multi-function switch control stalk is pulled fully rearward to a momentary position. The headlamp high beams will remain illuminated for as long as the control stalk is held in this momentary position and the low beams will be restored when the control stalk is released. The SCM reads the resistor multiplexed input from the left multi-function switch and sends an electronic **beam select switch status** message over the LIN data bus to the EMIC, which relays an electronic **beam select switch request** message over the CAN data bus to other electronic modules in the vehicle.
- **Park Lamps** - The headlamps are requested when the left multi-function switch control knob is rotated to the park lamps ON detent position. The SCM reads the resistor multiplexed input from the left multi-function switch and sends an electronic **exterior lighting switch status** message over the LIN data bus to the EMIC, which relays an electronic **exterior lighting switch request** message over the CAN data bus to other electronic modules in the vehicle.
- **Rear Fog Lamps** - The optional rear fog lamps are requested when the left multi-function switch control knob is pulled outward to the front fog lamps detent position and then rotated to the rear fog lamps detent position. The SCM reads the resistor multiplexed input from the left multi-function switch and sends an electronic **exterior lighting switch status** message over the LIN data bus to the EMIC, which relays an electronic **exterior lighting switch request** message over the CAN data bus to other electronic modules in the vehicle. The switch control knob incorporates an internal cam mechanism that will only allow the rear fog lamps to be selected while the front fog lamps ON position is also selected, and will automatically move the control knob to the rear fog lamp OFF position when the control knob is pushed in to deselect the front fog lamps.
- **Turn Signal Control** - The turn signals are requested when the left multi-function switch control stalk is moved downward (left signal) or upward (right signal). The control stalk has a detent position in each direction that provides turn signals with automatic cancellation, and an intermediate, momentary position in each direction that automatically provides three turn signal blinks as a LANE CHANGE feature when the control stalk is tapped or will energize the turn signals for as long as the control stalk is held in the momentary position. When the control stalk is moved to a detent turn signal switch position, a cancel actuator extends through an opening in the side of the clockspring case toward the center of the steering column. A turn signal cancel cam that is integral to the clockspring rotor rotates with the steering wheel and the cam lobes contact the cancel actuator when it is extended from the left multi-function switch. When the steering wheel is rotated during a turning maneuver, one of the turn signal cancel cam lobes will contact the turn signal cancel actuator. The cancel actuator latches against the cancel cam rotation in the direction opposite that which is signaled. If the left turn signal detent is selected, the lobes of the cancel cam will ratchet past the cancel actuator when the steering wheel is rotated to the left, but will unlatch the cancel actuator as the steering wheel rotates to the right and returns to center, which will cancel the turn signal event and release the control stalk from the detent so it returns to the neutral OFF position. The SCM reads the resistor multiplexed input from the left multi-function switch and sends an electronic **exterior lighting switch status** message over the LIN data bus to the EMIC, which relays an electronic **exterior lighting switch request** message over the CAN data bus to other electronic modules in the vehicle.

INTERIOR LIGHTING

Following are descriptions of the how the left multi-function switch is operated to control the many interior lighting functions and features it provides:

- **Interior Lamps Defeat** - The interior lamps defeat feature is requested when the left multi-function switch control sleeve is rotated to the interior lamps DEFEAT detent position. The SCM reads the resistor multiplexed input from the left multi-function switch and sends an electronic **interior lighting switch status** message over the LIN data bus to the EMIC, which relays an electronic **interior lighting switch request** message over the CAN data bus to other electronic modules in the vehicle.
- **Interior Lamps On** - The interior lamps ON feature is requested when the left multi-function switch control sleeve is rotated to the interior lamps ON detent position. The SCM reads the resistor multiplexed input from the left multi-function switch and sends an electronic **interior lighting switch status** message over the LIN data bus to the EMIC, which relays an electronic **interior lighting switch request** message over the CAN data bus to other electronic modules in the vehicle.
- **Panel Lamps Dimming** - The panel lamps dimming function is active only when the left multi-function switch control knob is in any exterior lighting ON position. With the exterior lighting ON, the panel lamps dimming level is requested when the left multi-function switch control sleeve is rotated to any one of five minor detent positions. The SCM reads the resistor multiplexed input from the left multi-function switch and sends an electronic **interior lighting switch status** message over the LIN data bus to the EMIC, which relays an electronic **interior lighting switch request** message over the CAN data bus to other electronic modules in the vehicle.
- **Parade Mode** - The PARADE (or funeral) mode is active only when the left multi-function switch control knob is in any exterior lighting ON position. With the exterior lighting ON, the PARADE mode is requested when the left multi-function switch control sleeve is rotated to the PARADE mode detent position. The SCM reads the resistor multiplexed input from the left multi-function switch and sends an electronic **interior lighting switch status** message over the LIN data bus to the EMIC, which relays an electronic **interior lighting switch request** message over the CAN data bus to other electronic modules in the vehicle.

REMOVAL

LEFT MULTI-FUNCTION SWITCH

WARNING: To avoid serious or fatal injury on vehicles equipped with airbags, disable the supplemental restraint system before attempting any steering wheel, steering column, airbag, occupant classification system, seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the supplemental restraint system. Failure to take the proper precautions could result in accidental airbag deployment.

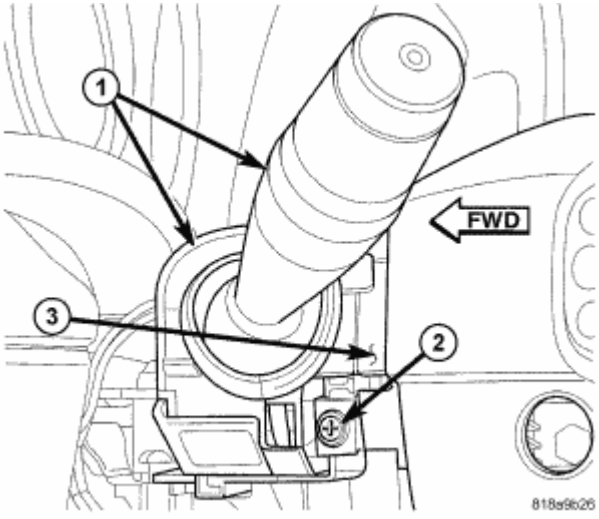

Fig. 33: Identifying Left Multi-Function Switch, Screw & Clockspring
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Remove both the upper and lower shrouds from the steering column. Refer to **REMOVAL** .
3. Disconnect the instrument panel wire harness connector from the connector receptacle on the back of the left multi-function switch.
4. Remove the screw (2) that secures the left multi-function switch (1) to the mounting bracket integral to the left side of the clockspring (3) on the steering column.
5. Slide the switch away from the clockspring far enough to disengage the slide tabs on the switch housing from the channel formations in the mounting bracket.
6. Disconnect the jumper wire harness connector from the connector receptacle on the inboard end of the left multi-function switch.
7. Remove the switch from the clockspring.

INSTALLATION

LEFT MULTI-FUNCTION SWITCH

WARNING: To avoid serious or fatal injury on vehicles equipped with airbags, disable the supplemental restraint system before attempting any steering wheel, steering column, airbag, occupant classification system, seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the supplemental restraint system. Failure to take the proper precautions could result in accidental airbag deployment.

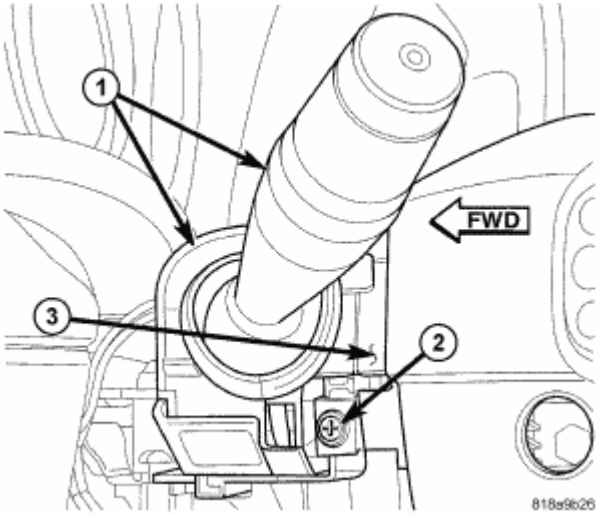

Fig. 34: Identifying Left Multi-Function Switch, Screw & Clockspring
Courtesy of CHRYSLER LLC

1. Position the left multi-function switch (1) close enough to the mounting bracket (3) integral to the left side of the clockspring to reconnect the jumper wire harness connector to the connector receptacle on the inboard side of the switch housing.
2. Align the slide tabs on the switch housing with the channel formations integral to the clockspring mounting bracket, then slide the switch into the bracket until it is firmly seated.
3. Install and tighten the screw (2) that secures the mounting tab on the front of the left multi-function switch to the mounting bracket on the clockspring. Tighten the screw to 1 N.m (10 in. lbs.).
4. Reconnect the instrument panel wire harness connector to the connector receptacle on the back of the switch housing.
5. Reinstall the upper and lower shrouds onto the steering column. Refer to **INSTALLATION** .
6. Reconnect the battery negative cable.

LICENSE PLATE LAMP

REMOVAL

LICENSE PLATE LAMP BULB

NOTE: The following procedure is for replacement of a license plate lamp bulb. The license plate lamps are integral to the liftgate handle and light bar unit. If any part of this unit is ineffective or damaged, the entire handle and light bar unit must be replaced.

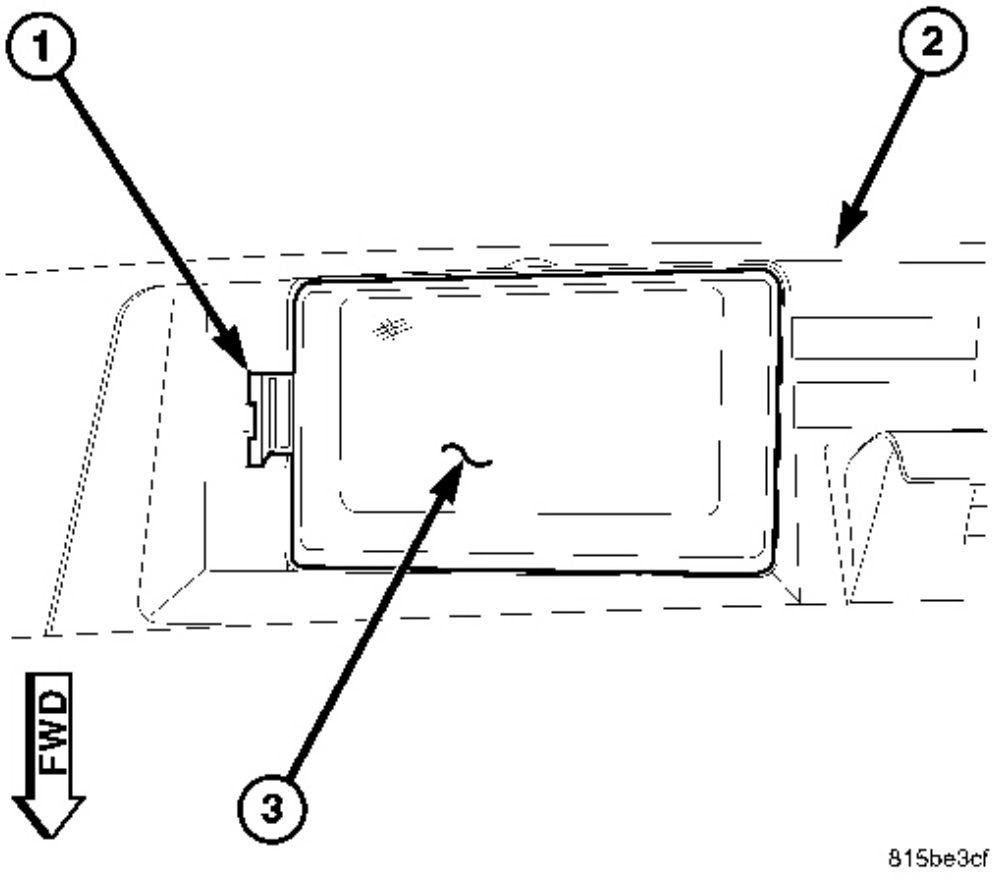

Fig. 35: Identifying Latch Tab, Light Bar Unit & Lens
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Reach under the liftgate handle and light bar unit (2) to access and depress the latch tab (1) on the outboard side of the license plate lamp lens toward the lens (3).
3. Pull the outboard side of the lens downward far enough to disengage the two tabs on the inboard side of the lens from the lamp housing.
4. Remove the lens from under the handle and light bar.

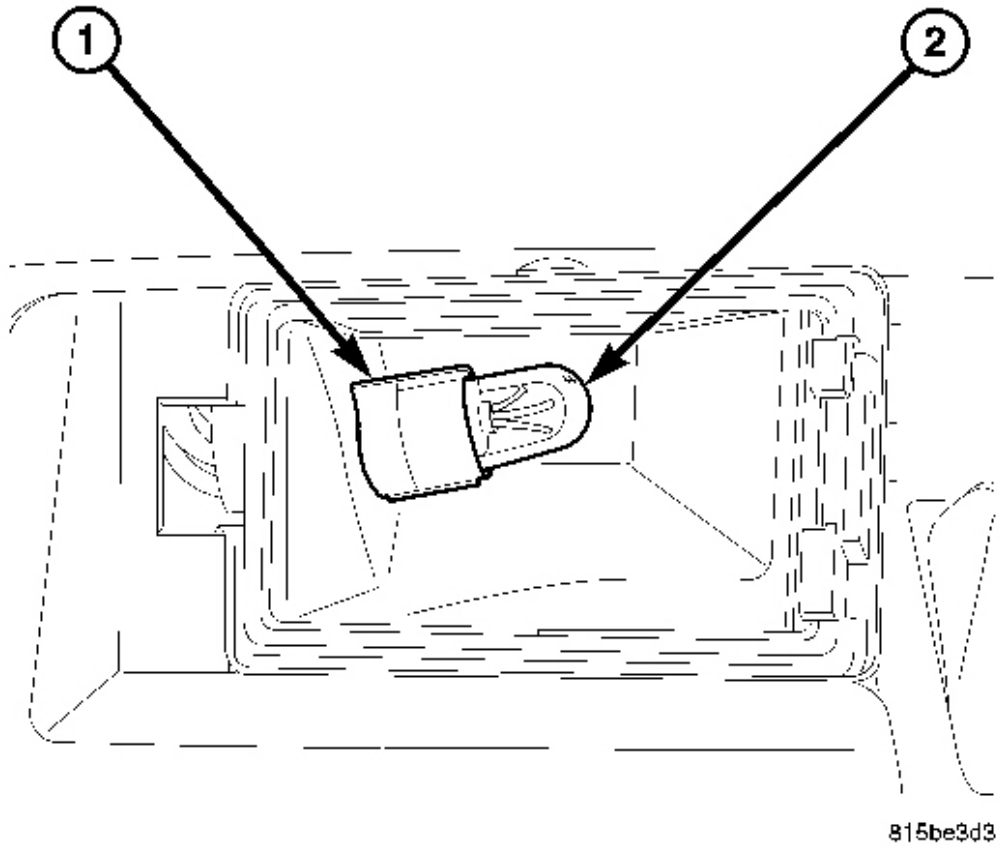

Fig. 36: Identifying Socket & Bulb
Courtesy of CHRYSLER LLC

5. Firmly grasp and pull the bulb (2) straight out of the socket (1) in the outboard side of the lamp housing.

INSTALLATION

LICENSE PLATE LAMP BULB

CAUTION: Always use the correct bulb size and type for replacement. An incorrect bulb size or type may overheat and cause damage to the lamp, the socket or the lamp wiring.

NOTE: The following procedure is for replacement of a license plate lamp bulb. The license plate lamps are integral to the liftgate handle and light bar unit. If any

part of this unit is ineffective or damaged, the entire handle and light bar unit must be replaced.

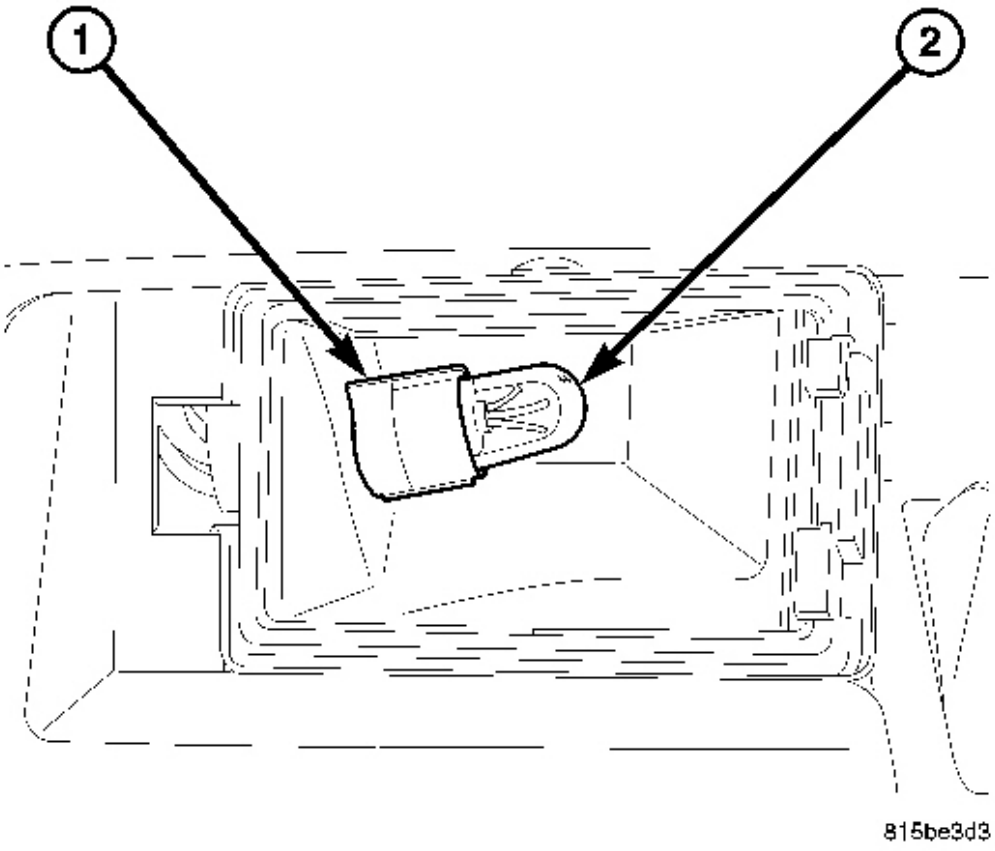

Fig. 37: Identifying Socket & Bulb
Courtesy of CHRYSLER LLC

1. Align the base of the bulb (2) with the socket (1) in the outboard side of the license plate lamp housing.
2. Push the bulb straight into the socket until the base is firmly seated.

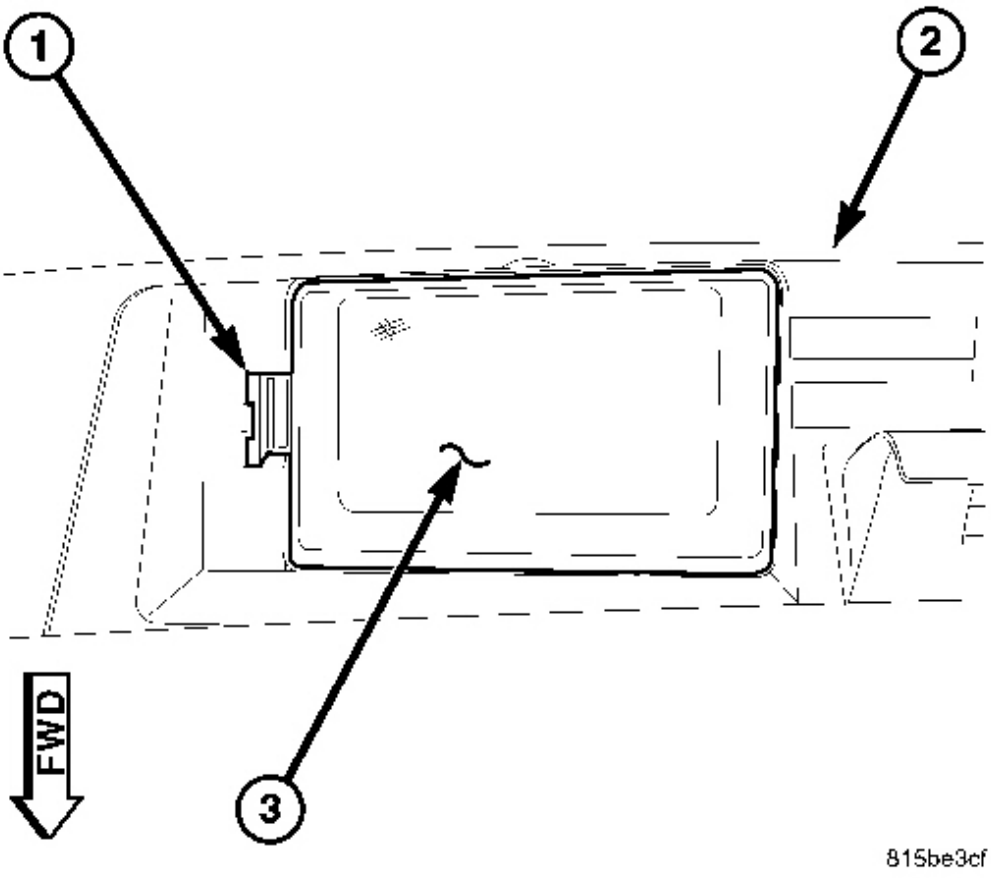

Fig. 38: Identifying Latch Tab, Light Bar Unit & Lens
Courtesy of CHRYSLER LLC

3. Position the lens (3) over the lamp housing under the handle and light bar unit (2).
4. Engage the two tabs on the inboard side of the lens into the slots on the inboard side of the lamp housing.
5. Push the outboard side of the lens upward until the lens latch tab (1) is fully engaged in the lamp housing.
6. Reconnect the battery negative cable.

PARK BRAKE SWITCH

DESCRIPTION

PARK BRAKE SWITCH

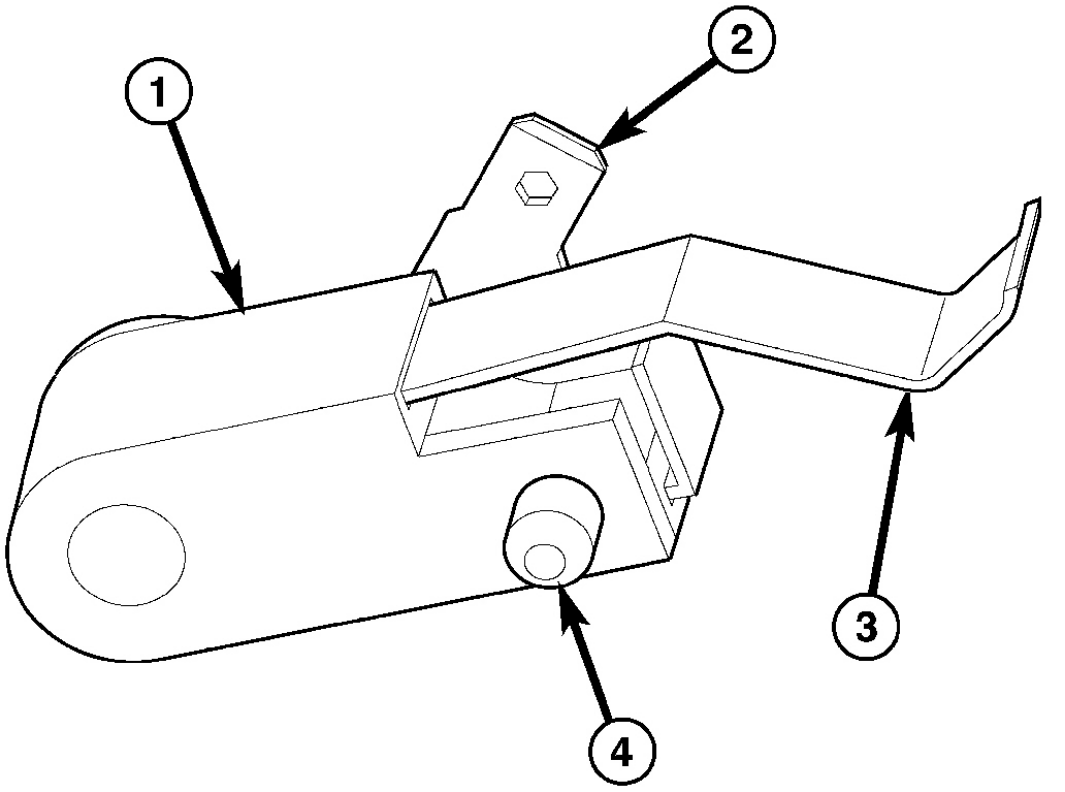

Fig. 39: Park Brake Switch
Courtesy of CHRYSLER LLC

The park brake switch (1) is located on the park brake lever mechanism on the floor panel transmission tunnel below the center floor console. This switch includes a spade-type output terminal (2) that connects the switch to the vehicle electrical system through a dedicated take out and connector of the body wire harness. The output terminal is integral to the stationary contact within a molded plastic insulator. A locating tab (4) on the insulator engages a slot in the park brake lever mechanism for positive switch location. External to the insulator is a movable leaf contact (3) with an integral grounding lug on one end and an integral actuating lever and follower on the opposite end. The switch is secured to and grounded by a single screw to the park brake lever mechanism.

The park brake switch cannot be adjusted or repaired and, if ineffective or damaged, it must be replaced.

OPERATION

PARK BRAKE SWITCH

The park brake switch is a normally closed, mechanically actuated leaf contact switch that is operated by the park brake lever mechanism. The switch is grounded through its mounting to the park brake lever mechanism

and provides a ground input to the Electro Mechanical Instrument Cluster (EMIC) (also known as the Cab Compartment Node/CCN) on a park brake switch sense circuit whenever the park brake is applied, and opens this circuit whenever the park brake is released. The park brake switch sense input to the EMIC is used for control of the brake indicator and may also be used as a logic input for other electronic features in the vehicle.

The park brake switch as well as the hard wired inputs and outputs of the switch may be diagnosed using conventional diagnostic tools and procedures. Refer to the appropriate wiring information.

DIAGNOSIS AND TESTING

PARK BRAKE SWITCH

WARNING: To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

NOTE: If the brake indicator stays ON with the ignition switch in the ON position and the park brake released, or comes ON while driving, the brake system must be diagnosed and repaired prior to performing the following tests. Refer to DIAGNOSIS AND TESTING . If no brake system problem is found, the following procedures will help to locate a shorted or open park brake switch sense circuit, or an ineffective park brake switch.

INDICATOR ILLUMINATES DURING BULB TEST, BUT DOES NOT WHEN PARK BRAKE APPLIED

1. Disconnect and isolate the battery negative cable. Disconnect the wire harness connector for the park brake switch from the switch terminal. Apply the parking brake. Check for continuity between the park brake switch terminal and a good ground. There should be continuity. If OK, go to step 2. If not OK, replace the ineffective park brake switch.
2. Disconnect the instrument panel wire harness connector from the cluster connector receptacle. Check for continuity between the park brake switch sense circuit cavities of the wire harness connector for the park brake switch and the wire harness connector for the instrument cluster. There should be continuity. If not OK, repair the open park brake switch sense circuit between the park brake switch and the instrument cluster as required.

INDICATOR REMAINS ILLUMINATED - BRAKE SYSTEM CHECKS OK

1. Disconnect and isolate the battery negative cable. Disconnect the wire harness connector for the park brake switch from the switch terminal. Check for continuity between the terminal of the park brake switch and a good ground. There should be no continuity with the park brake released, and continuity with the park brake applied. If OK, go to step 2. If not OK, replace the ineffective park brake switch.

2. Disconnect the instrument panel wire harness connector from the cluster connector receptacle. Check for continuity between the park brake switch sense circuit cavity of the wire harness connector for the park brake switch and a good ground. There should be no continuity. If not OK, repair the shorted park brake switch sense circuit between the park brake switch and the instrument cluster as required.

REMOVAL

PARK BRAKE SWITCH

WARNING: To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

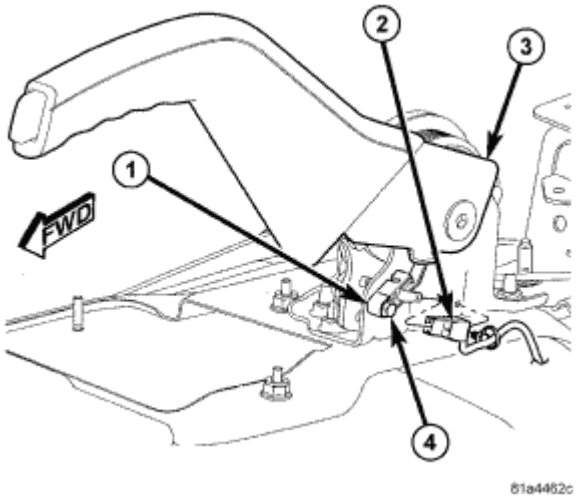

Fig. 40: Identifying Park Brake Switch, Wire Harness Connector, Parking Brake Lever Mechanism & Screw
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Remove the console from the floor panel transmission tunnel. Refer to **REMOVAL** .
3. Apply the parking brake lever mechanism (3).
4. Disconnect the wire harness connector (2) from the terminal of the park brake switch (1) located on the left side of the park brake lever mechanism.
5. Remove the screw (4) that secures the park brake switch to the park brake lever mechanism.
6. Remove the switch from the park brake lever mechanism.

INSTALLATION

PARK BRAKE SWITCH

WARNING: To avoid serious or fatal injury on vehicles equipped with airbags, disable the Supplemental Restraint System (SRS) before attempting any steering wheel, steering column, airbag, Occupant Classification System (OCS), seat belt tensioner, impact sensor, or instrument panel component diagnosis or service. Disconnect and isolate the battery negative (ground) cable, then wait two minutes for the system capacitor to discharge before performing further diagnosis or service. This is the only sure way to disable the SRS. Failure to take the proper precautions could result in accidental airbag deployment.

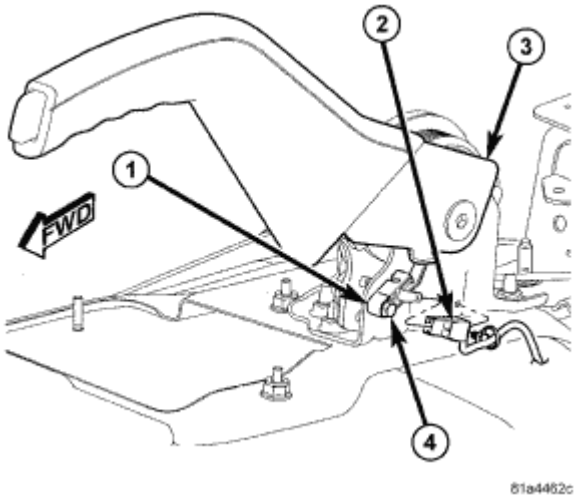

Fig. 41: Identifying Park Brake Switch, Wire Harness Connector, Parking Brake Lever Mechanism & Screw
Courtesy of CHRYSLER LLC

1. Position park brake switch (1) onto the left side of the park brake lever mechanism (3). Be certain to engage the locating pin on the back of the switch insulator into the locating slot in the lever mechanism bracket.
2. Install and tighten the screw (4) that secures the park brake switch to the park brake lever mechanism. Tighten the screw to 2.5 N.m (24 in. lbs.).
3. Reconnect the wire harness connector (2) to the terminal of the park brake switch.
4. Reinstall the console onto the floor panel transmission tunnel. Refer to **INSTALLATION** .
5. Reconnect the battery negative cable.
6. Turn the ignition switch to the On position and check for proper brake indicator operation with the parking brake applied, then release the parking brake and check that the brake indicator extinguishes.

REAR LAMP UNIT

REMOVAL

REAR LAMP UNIT

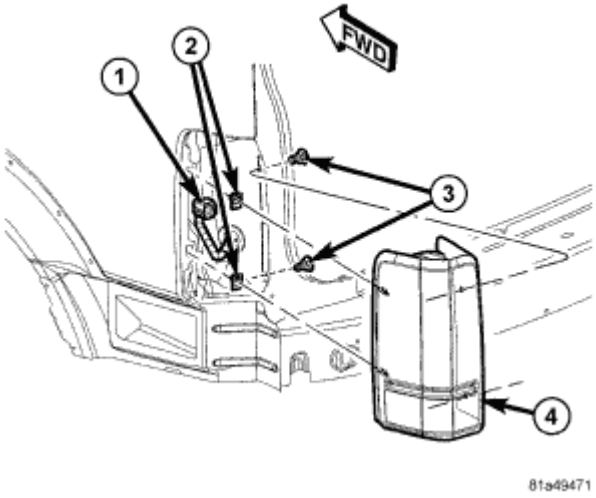

Fig. 42: Identifying Wire Harness Connector, Plastic Grommets, Plastic Push-Pin Fasteners & Rear Lamp Unit
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Open the liftgate to access and remove the two plastic push-pin fasteners (3) that secure the rear lamp unit (4) to the side jamb of the liftgate opening.
3. Pull the outboard side of the rear lamp unit rearward far enough to unsnap the two ball studs on the outboard side of the lamp housing from the two plastic grommets (2) in the rear body sheet metal.
4. Disconnect the wire harness connector (1) from the connector receptacle on the socket plate on the back of the lamp housing.
5. Remove the lamp from the vehicle.
6. Remove the two plastic grommets from the rear body sheet metal and discard.

REAR LAMP UNIT BULB

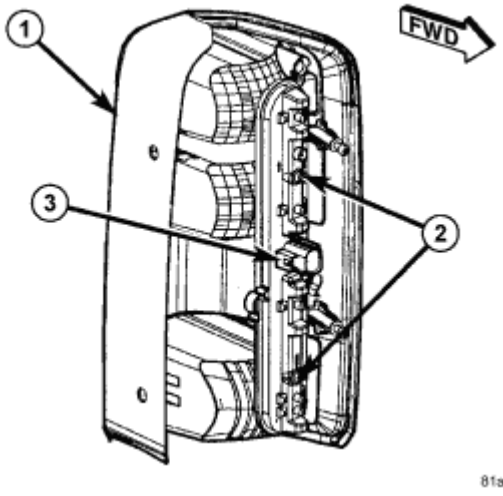

Fig. 43: Identifying Rear Lamp Unit, Two Screws, Socket Plate
Courtesy of CHRYSLER LLC

NOTE: The rear lamp unit may contain up to four bulbs, depending upon the market for which the vehicle was manufactured. The service procedures for each bulb are the same, only the bulb sizes and types may differ.

1. Disconnect and isolate the battery negative cable.
2. Remove the rear lamp unit (1) from the rear body sheet metal. See **REMOVAL**.
3. Remove the two screws (2) that secure the socket plate (3) to the back of the rear lamp unit housing.
4. Remove the socket plate from the rear lamp.
5. Pull the base of the bulb straight out of the socket plate.

INSTALLATION

REAR LAMP UNIT

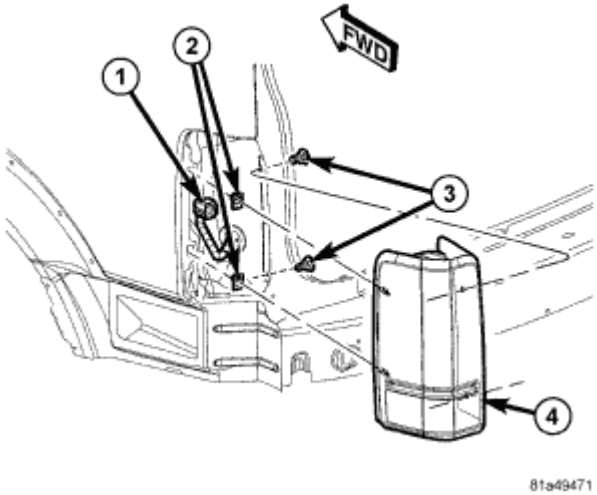

Fig. 44: Identifying Wire Harness Connector, Plastic Grommets, Plastic Push-Pin Fasteners & Rear Lamp Unit
Courtesy of CHRYSLER LLC

1. Install two new plastic grommets (2) into the rear body sheet metal.
2. Position the rear lamp unit (4) to the lamp opening in the rear body sheet metal.
3. Reconnect the wire harness connector (1) to the connector receptacle on the socket plate on the back of the lamp housing.
4. Align the two ball studs on the outboard side of the rear lamp housing with the two plastic grommets in the rear body sheet metal.
5. Using hand pressure, push firmly and evenly on the outboard side of the lamp until the two ball studs snap into the plastic grommets.
6. Install the two plastic push-pin fasteners (3) that secure the inboard side of the lamp housing to the side jamb of the liftgate opening.
7. Reconnect the battery negative cable.

REAR LAMP UNIT BULB

CAUTION: Always use the correct bulb size and type for replacement. An incorrect bulb size or type may overheat and cause damage to the lamp, the socket or the lamp wiring.

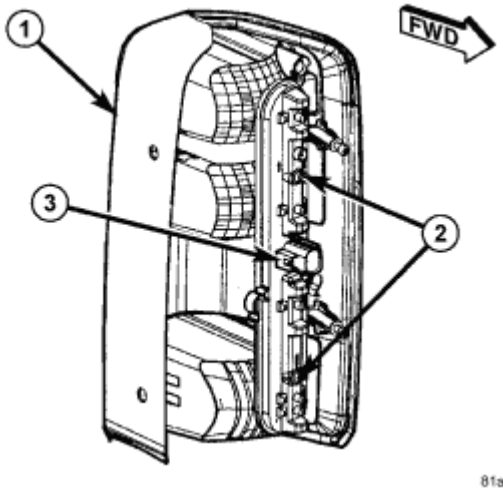

Fig. 45: Identifying Rear Lamp Unit, Two Screws, Socket Plate
Courtesy of CHRYSLER LLC

NOTE: The rear lamp unit may contain up to four bulbs, depending upon the market for which the vehicle was manufactured. The service procedures for each bulb are the same, only the bulb sizes and types may differ.

1. Align the base of the bulb with the socket in the rear lamp unit socket plate (3).

2. Push the bulb straight into the socket until the base is firmly seated.
3. Be certain that a rubber sealing washer is properly installed and in good condition around the base of each bulb on the socket plate.
4. Align the bulbs in the socket plate with the openings on the back of the rear lamp unit housing (1).
5. Insert the bulbs straight into the housing until the socket plate is firmly seated against the housing.
6. Install and tighten the two screws (2) that secure the socket plate to the housing. Tighten the screws to 1 N.m (12 in. lbs.).
7. Reinstall the rear lamp unit onto the end of the rear body sheet metal. See **INSTALLATION**.
8. Reconnect the battery negative cable.

REPEATER LAMP

REMOVAL

REPEATER LAMP

NOTE: Repeater lamps are used only on vehicles manufactured for certain markets where these lamps are required.

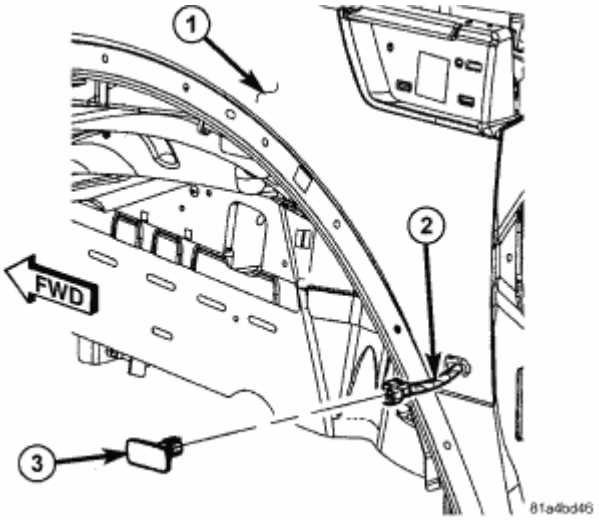

Fig. 46: Identifying Fender, Wire Harness Connector & Lamp Lens/Housing
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.

NOTE: The same repeater lamp is used on both sides of the vehicle. Regardless of which side of the vehicle the lamp is on, when properly oriented the fixed hook tab integral to the back of the lamp housing is on the right-hand side of the lamp and the latch feature is on the left-hand side.

2. Using hand pressure, press the right edge of the repeater lamp lens/housing (3) toward the left against the

spring pressure of the latch feature, then pull the right edge of the lamp outward far enough to disengage the hook tab from the right side of the mounting hole in the fender (1).

3. Pull the lamp out from the fender far enough to access and disconnect the wire harness connector (2) from the bulb socket on the back of the lamp lens/housing.
4. Remove the repeater lamp from the fender.

REPEATER LAMP BULB

NOTE: Repeater lamps are used only on vehicles manufactured for certain markets where these lamps are required.

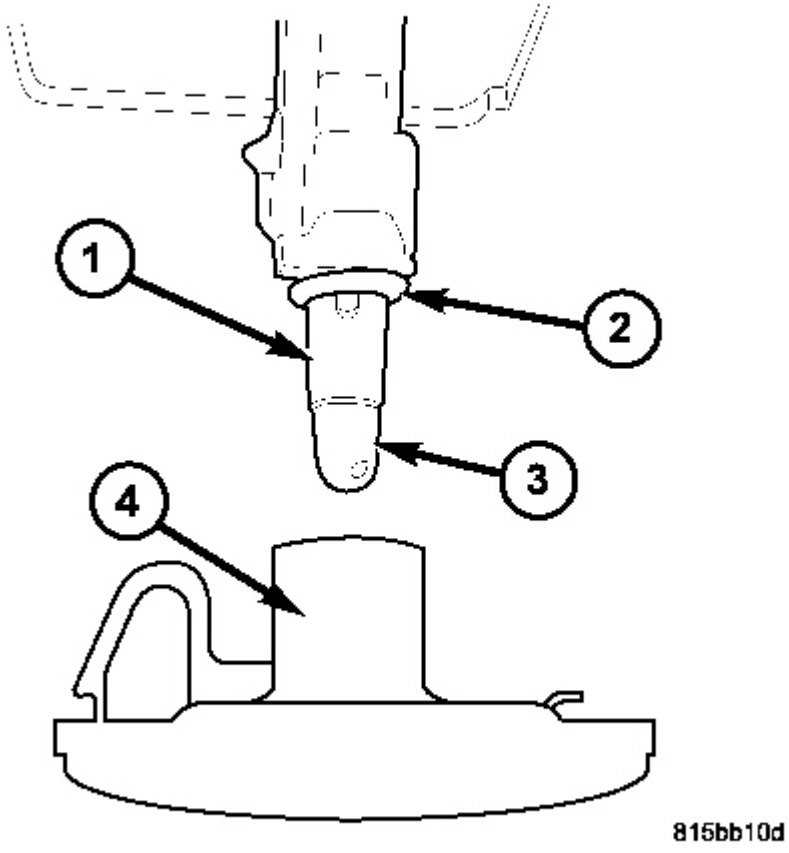

Fig. 47: Identifying Socket, Rubber O-Ring Seal, Bulb & Repeater Lamp Lens/Housing
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Remove the repeater lamp from the fender mounting hole, but do not disconnect the wire harness connector. See **REMOVAL**.
3. Firmly grasp the bulb socket (1) on the back of the lamp lens/housing (4) and rotate it counterclockwise about 30 degrees to unlock it.
4. Pull the socket and bulb straight out from the keyed opening in the housing.
5. Pull the base of the bulb (3) straight out of the socket.

INSTALLATION

REPEATER LAMP BULB

CAUTION: Always use the correct bulb size and type for replacement. An incorrect bulb size or type may overheat and cause damage to the lamp, the socket or the lamp wiring.

NOTE: Repeater lamps are used only on vehicles manufactured for certain markets where these lamps are required.

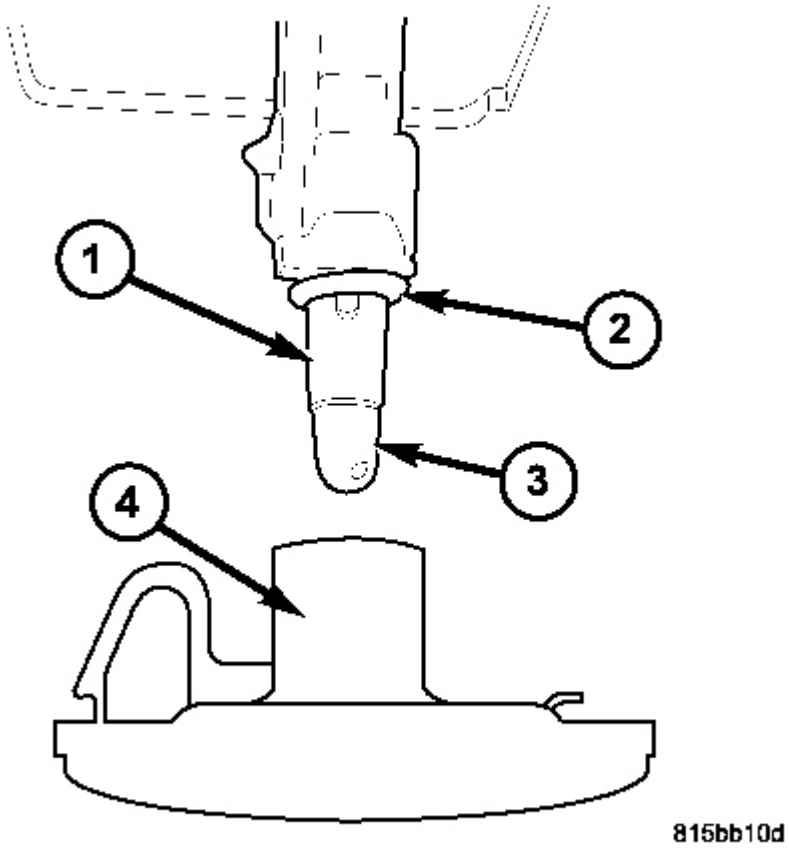

Fig. 48: Identifying Socket, Rubber O-Ring Seal, Bulb & Repeater Lamp Lens/Housing
Courtesy of CHRYSLER LLC

1. Align the base of the bulb (3) with the socket (1).
2. Push the bulb straight into the socket until the base is firmly seated.
3. Be certain that a rubber O-ring seal (2) is properly installed and in good condition around the base of the bulb socket.
4. Align the socket and bulb with the keyed opening on the back of the repeater lamp lens/housing (4).
5. Insert the socket and bulb into the housing until the socket is firmly seated.
6. Rotate the socket clockwise about 30 degrees to lock it into place.
7. Reinstall the repeater lamp into the fender mounting hole. See **INSTALLATION**.
8. Reconnect the battery negative cable.

REPEATER LAMP

NOTE: Repeater lamps are used only on vehicles manufactured for certain markets where these lamps are required.

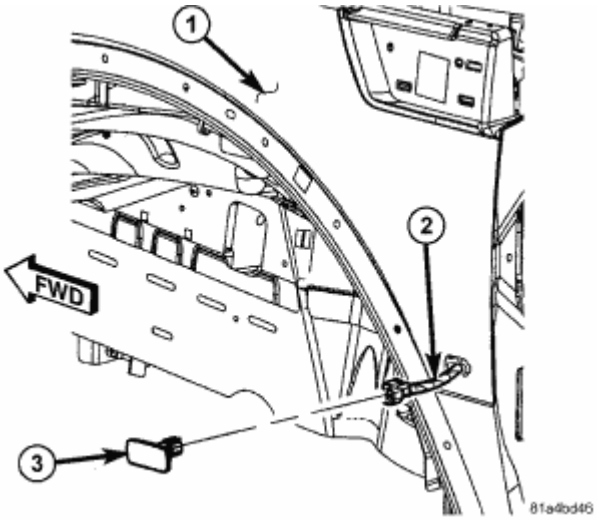

Fig. 49: Identifying Fender, Wire Harness Connector & Lamp Lens/Housing
Courtesy of CHRYSLER LLC

1. Position the repeater lamp lens/housing (3) close enough to the mounting hole in the fender (1) to access and reconnect the wire harness connector (2) to the bulb socket on the back of the lamp lens/housing.

NOTE: The same repeater lamp is used on both sides of the vehicle. Regardless of which side of the vehicle the lamp is on, when properly oriented the fixed hook tab integral to the back of the lamp housing is on the right-hand side of the lamp and the latch feature is on the left-hand side.

2. With the lamp lens/housing properly oriented, engage the hook tab on the back of the right side of the lamp with the right edge of the fender mounting hole.
3. Using hand pressure, press the left side of the lamp lens/housing into the mounting hole against the spring pressure of the latch feature until the latch snaps into place.
4. Reconnect the battery negative cable.

TRAILER TOW CONNECTOR

REMOVAL

TRAILER TOW CONNECTOR

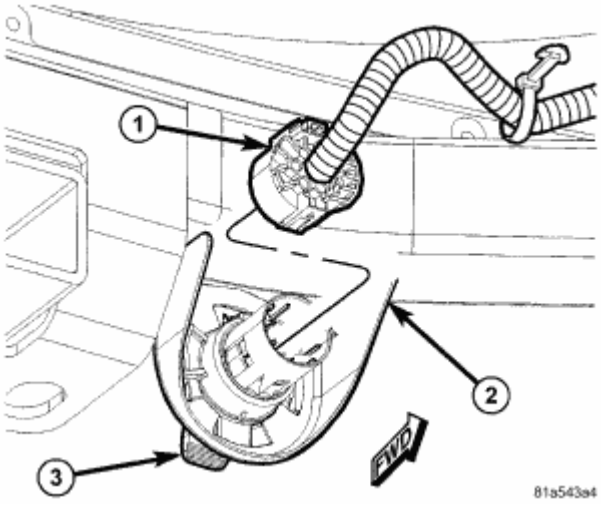

Fig. 50: Identifying Body Wire Harness Connector, Bracket & Trailer Tow Connector
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Reach underneath and behind the bracket (2) for the trailer tow connector (3) to access and disconnect the body wire harness connector (1).

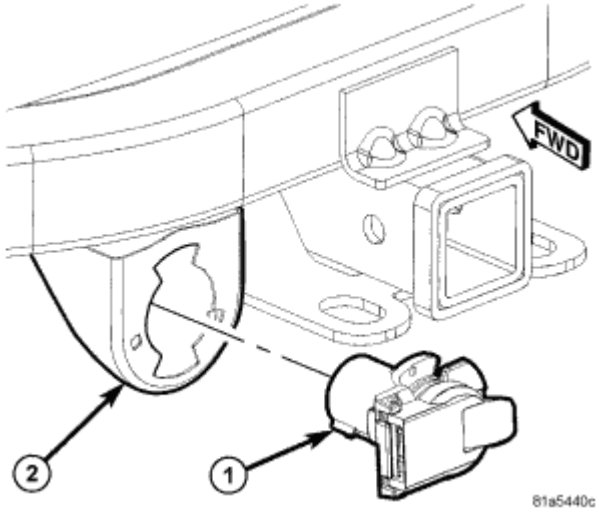

Fig. 51: Identifying Trailer Tow Connector & Bracket
Courtesy of CHRYSLER LLC

3. Grasp the trailer tow connector (1) firmly from the face of the bracket (2) and rotate it 90 degrees counterclockwise to unlock it.
4. Pull the trailer tow connector straight rearward to remove it from the hitch receiver bracket.

INSTALLATION

TRAILER TOW CONNECTOR

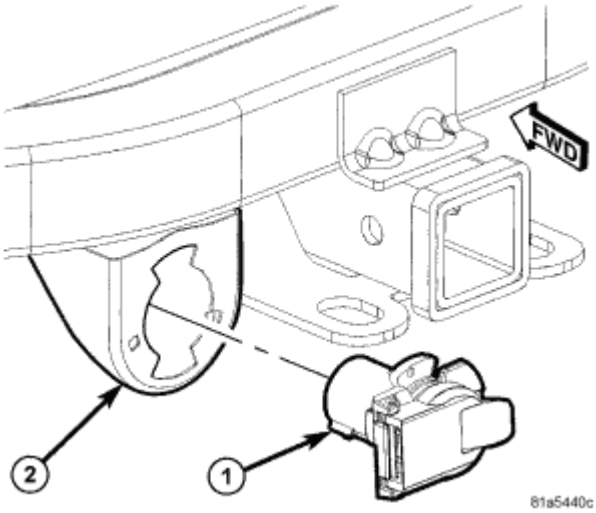

Fig. 52: Identifying Trailer Tow Connector & Bracket
Courtesy of CHRYSLER LLC

1. Align the trailer tow connector (1) to the keyed mounting hole in the bracket (2) of the trailer hitch receiver.
2. Insert the connector into the bracket until it is firmly seated.
3. Rotate the connector clockwise 90 degrees to lock it into place.

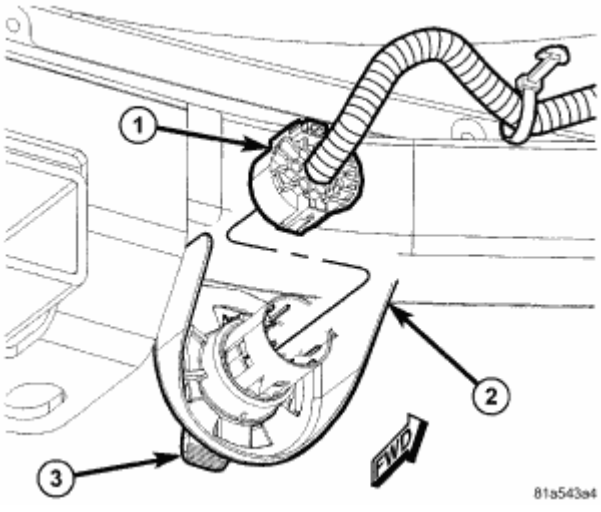

Fig. 53: Identifying Body Wire Harness Connector, Bracket & Trailer Tow Connector
Courtesy of CHRYSLER LLC

4. Reach underneath and behind the bracket (2) for the trailer tow connector (3) to access and reconnect the body wire harness connector (1).
5. Reconnect the battery negative cable.

TRAILER TOW WIRING

DESCRIPTION

TRAILER TOW WIRING

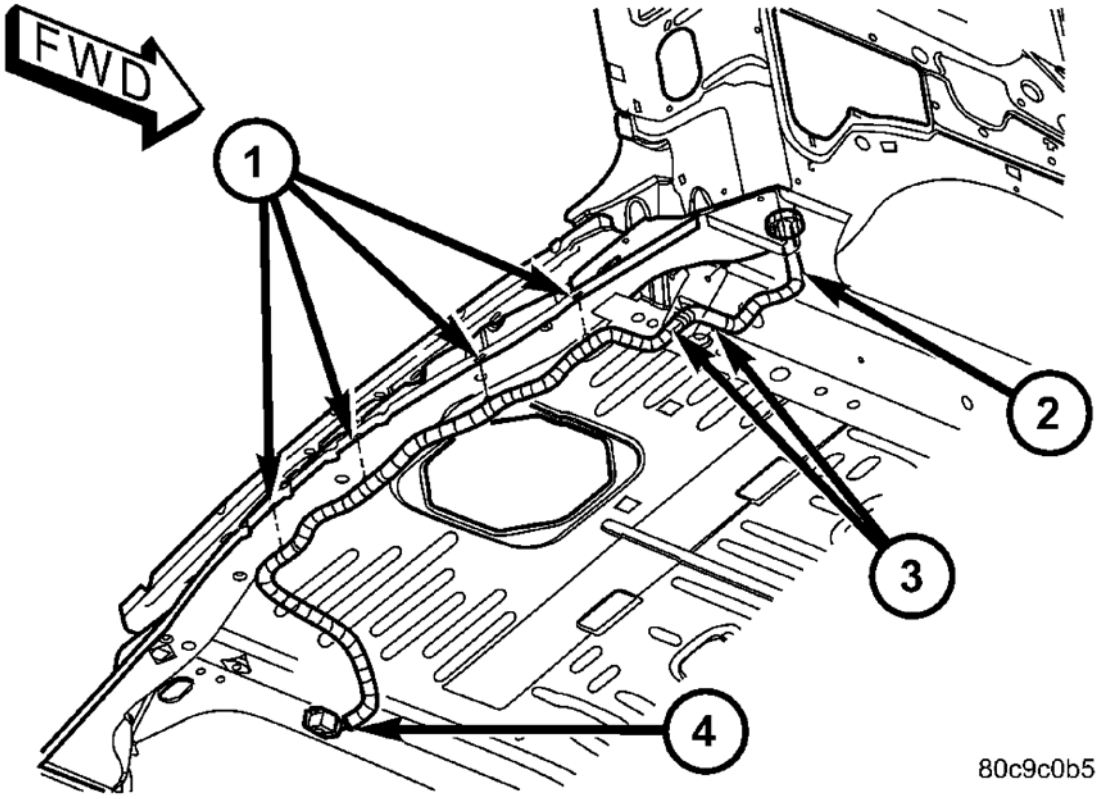

Fig. 54: Trailer Tow Wiring
Courtesy of CHRYSLER LLC

Vehicles equipped with an optional factory-installed trailer towing package have a rear body wire harness that includes a trailer tow wiring take out (2) secured beneath the rear underbody with retainer clips (1 and 3). A molded connector (4) at the end of the take out is connected to a heavy duty, sealed, 7-pin trailer tow connector located on a bracket on the trailer hitch receiver. The rear body harness includes a second take out with a trailer tow relay connector bank and the four trailer tow relays that isolate the right turn signal, left turn signal, and brake lamp circuits of the vehicle from the electrical system of the trailer. The fourth relay in the connector bank provides a fused ignition switch output (run) source of battery voltage to the trailer tow connector through a trailer tow relay output circuit.

The package also includes an adapter harness (stored beneath the left rear seat cushion of the vehicle when it is shipped from the factory) that adapts the 7-pin trailer tow connector to a standard, light-duty, 4-pin trailer tow connector. Refer to the appropriate wiring information.

TURN SIGNAL CANCEL CAM

DESCRIPTION

TURN SIGNAL CANCEL CAM

The turn signal cancel cam is concealed within the clockspring case on the steering column. The turn signal cancel cam consists of integral eccentrics on the outer circumference of the molded plastic clockspring rotor. The clockspring mechanism provides turn signal cancellation as well as a constant electrical connection between the horn switch, driver airbag, speed control switches, Electronic Vehicle Information Center (EVIC) switches and remote radio switches on the steering wheel and the instrument panel wire harness on the steering column. The housing of the clockspring is secured to the steering column and remains stationary. The rotor of the clockspring, including the turn signal cancel cam lobes rotate with the steering wheel.

The turn signal cancel cam is serviced as a unit with the clockspring and cannot be repaired. If ineffective or damaged, the entire clockspring unit must be replaced. Refer to **REMOVAL** .

OPERATION

TURN SIGNAL CANCEL CAM

When the left multi-function switch control stalk is moved to a latched turn signal ON position, a turn signal cancel actuator is extended from the inside surface of the switch housing through a small rectangular opening on the left side of the clockspring case toward the turn signal cancel cam. As the steering wheel is rotated to complete the turn, one of the cam eccentrics will contact the actuator, automatically cancelling the turn signal event and releasing the latched left multi-function switch control stalk to the neutral or OFF position.