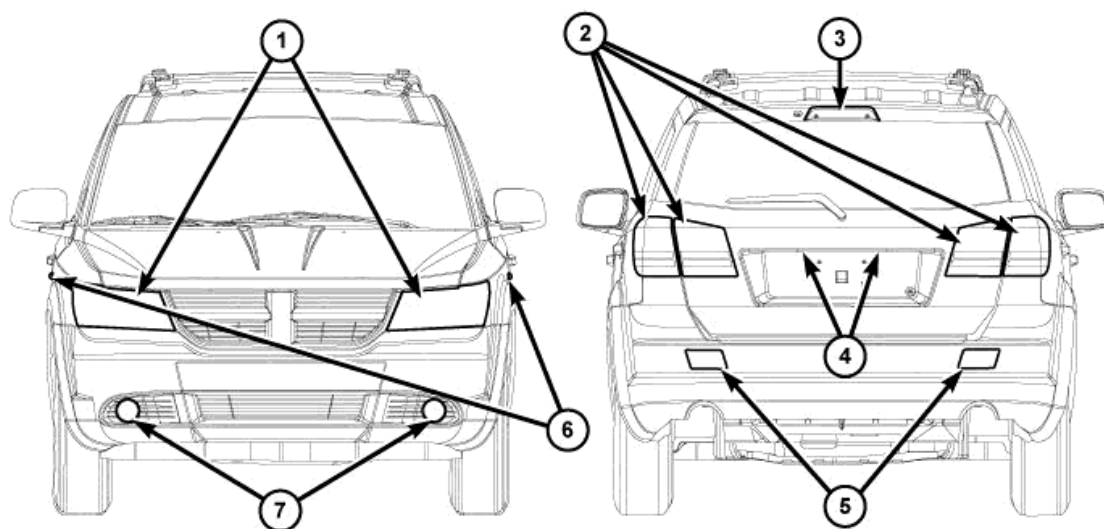


2009 ACCESSORIES AND EQUIPMENT

Lamps/Lighting - Exterior - Service Information - Journey

DESCRIPTION

DESCRIPTION



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Fig. 1: Exterior Lighting System
 Courtesy of CHRYSLER LLC

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

- **Center High Mounted Stop Lamp (3)** - 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 (7)** - Vehicles equipped with this option have a separate front fog lamp unit mounted near each outboard end of the front fascia, below each front lamp unit.
- **Front Lamp Units (1)** - A standard equipment front lamp unit with two, single-filament headlamp bulbs is located at each outboard side of the grille opening in the Front End Module (FEM).
- **Front Position Lamps** - A front position lamp is integral to each front lamp unit on vehicles manufactured for export markets where they are required.
- **License Plate Lamps (4)** - Two standard equipment rear license plate lamp units are integral to the liftgate handle assembly, just above the license plate tub formation on the outer liftgate panel.

- **Rear Fog Lamps (5)** - A rear fog lamp unit is mounted near each outboard end of the rear fascia, below each rear lamp unit on vehicles manufactured for export markets where they are required.
- **Rear Lamp Units (2)** - A standard equipment two-piece rear lamp unit is mounted on each side at the rear of the vehicle. One piece of the rear lamp is secured to the end of each quarter panel on either side of the liftgate opening and the second piece is secured to each side of the liftgate outer panel, adjacent to the first piece of the rear lamp when the liftgate is closed.
- **Repeater Lamps (6)** - A repeater lamp is mounted to each front fender just behind the front wheel opening on vehicles manufactured for export markets where they are required.

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

- **Automatic Headlamps** - Vehicles with the automatic headlamps option are equipped with a unique left (lighting) multi-function switch that includes an **AUTO** (Automatic) position and have an automatic headlamp sensor to sense ambient light levels. The automatic headlamp sensor is integral to the sun load sensor located on the top of the instrument panel. When the **AUTO** position of the headlamp switch is selected, the headlamps are turned ON and OFF automatically as ambient light levels dictate.
- **Backup Lamps** - The backup (or reverse) lamps include a clear bulb, reflector and clear lens that are integral to the liftgate portions of each rear lamp unit.
- **Brake Lamps** - The brake (or stop) lamps include a clear bulb, reflector and red lens that are integral to the quarter panel portions of each rear lamp unit, and the red lens and multiple Light-Emitting Diode (LED) units of the CHMSL.
- **Daytime Running Lamps** - Daytime Running Lamps (DRL) are standard equipment on vehicles manufactured for sale in Canada and optional on vehicles manufactured for the United States. Vehicles with the DRL feature enabled illuminate the high beam headlamp bulb in each front lamp unit at a reduced intensity to serve as the DRL.
- **Exterior Lamp Fail-Safe Operation** - The ElectroMechanical 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 communication from the Steering Control Module (SCM), or when the Local Interface Network (LIN) data bus or Controller Area Network (CAN) data bus are inoperative.
- **Exterior Lamp Load Shedding** - The TIPM provides a battery saver feature which will automatically turn OFF all exterior lamps (except the park/tail lamps in certain export 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 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.
- **Headlamps** - The headlamps include dual, single filament halogen bulbs, 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 center stack allows the headlamp beam pattern to be

adjusted by the vehicle operator from the interior of the vehicle to compensate for passenger or cargo loads.

- **Headlamp Time Delay** - On vehicles equipped with the automatic headlamps option, when this feature is enabled the low or high beam headlamps remain illuminated for a programmable delay interval of 0 (disabled), 30, 60 or 90 seconds after the ignition switch has been turned to the OFF position. If the vehicle is equipped with the optional Electronic Vehicle Information Center (EVIC), this feature is customer programmable through the EVIC.
- **Headlamps With Wipers** - Vehicles with the automatic headlamps option have an automatic headlamps-with-wipers feature. When this feature is enabled and the **AUTO** position of the headlamp switch is selected, the headlamps are turned ON automatically whenever the windshield wipers are turned ON; and, if the headlamps were turned ON automatically when the wipers were turned ON, they will also turn OFF automatically when the wipers are turned OFF if the appropriate ambient light conditions exist. If the vehicle is equipped with the optional EVIC, this feature is customer programmable through the EVIC.
- **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/Tail Lamps** - The front park lamps include the amber bulbs, reflectors and clear lenses integral to each front lamp unit and, if the vehicle is so equipped, the clear position lamp bulb integral to each front lamp unit. The rear tail lamps include the clear bulbs, reflectors and red lenses integral to both the quarter panel and liftgate portions of each rear lamp unit as well as the bulbs and lenses of the license plate lamp units.
- **Rear Fog Lamps** - Rear fog lamps are available only in certain export markets where they are required equipment. The rear fog lamps include a clear bulb, a red lens and a reflector that are integral to each rear fog 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. In certain export markets where they are required, the clear bulbs and lenses of the repeater lamps on each front fender will also be included in the front turn signal circuits. The rear turn signal lamps include an amber bulb, a reflector and a clear lens that are integral to the quarter panel portion of each rear lamp unit.

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 **Restraints/CLOCKSPRING - Description**.
- **Hazard Switch** - A latching push button-actuated hazard switch is integral to the switch pod located just above 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 above the heater and air conditioner controls in the center stack area of the instrument panel of vehicles manufactured for certain export markets where the headlamp leveling feature is required.

- **Instrument Cluster** - The ElectroMechanical 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 **Electrical - Instrument Cluster/Instrument Cluster - 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 above the heater and air conditioner controls in the center stack area of the instrument panel. Refer to **Electrical - Instrument Cluster/Instrument Cluster/POD, Switch - 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 mechanism. On vehicles with a manual transmission, a park brake hand lever mechanism is located on the side of the floor panel transmission tunnel between the two front seats. On vehicles with an automatic transmission, a park brake foot lever mechanism is located on the driver side cowl side inner panel below the instrument panel.
- **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 **Electrical - Electronic Control Modules/Electronic Control Modules/MODULE, Steering Column - Description** .
- **Stop Lamp Inhibit Relay** - A stop lamp inhibit relay (also known as a brake lamp relay, brake lamp activation relay or trailer tow damping relay) is located in a connector on the left rear quarter inner panel just forward of the shock tower within the passenger compartment.
- **Totally Integrated Power Module** - The Totally Integrated Power Module (TIPM) is located in the engine compartment, near the battery. Refer to **Electrical - Wiring/Power Distribution/MODULE, Totally Integrated Power (TIPM) - Description** .
- **Trailer Tow Wiring** - Vehicles equipped with an optional Trailer Tow Prep package include a wire harness, four relays, a conventional 4-way light duty trailer tow connector and an installation instruction sheet shipped loose in the glove box from the factory for installation by the vehicle owner or the dealer.

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 **SYSTEM WIRING DIAGRAMS** . 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

OPERATION

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 **SYSTEM WIRING DIAGRAMS**. 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.

AUTOMATIC HEADLAMPS

The optional automatic headlamp system includes the left (lighting) multi-function switch, the Steering Control Module (SCM), the ElectroMechanical Instrument Cluster (EMIC) (also known as the Cab Compartment Node/CCN), the Totally Integrated Power Module (TIPM), the heater and air conditioner control unit and the sun load sensor on the top of the instrument panel.

The sun load sensor provides an ambient light level input to the A/C - heater control whenever the ignition switch is in the ON position. The A/C - heater control responds to this input by sending the appropriate electronic **light level** messages to the TIPM over the Controller Area Network (CAN) data bus. When the **AUTO** (Automatic) position is selected with the left multi-function switch, the SCM responds to this input by sending the appropriate electronic **lighting switch status** messages to the EMIC over the Local Interface Network (LIN) data bus. The EMIC responds to this input by sending the appropriate electronic **lighting request** messages to the TIPM over the CAN data bus.

With the engine running, the TIPM responds to these messages by automatically controlling a pulse width modulated voltage output to the selected headlamp bulb filaments through the right and left low or high beam driver circuits to illuminate the headlamps. The TIPM also remembers which beams (low or high) were selected when the headlamps were last turned OFF, and energizes those beams and lamps again the next time it turns the headlamps ON.

BACKUP LAMPS

The backup (or reverse) lamps have a path to ground at all times through a takeout and eyelet terminal of the body wire harness that is secured to the body sheet metal within the passenger compartment. On vehicles with a manual transmission, the backup lamp switch provides an input to the TIPM through a backup lamp switch signal circuit, and the TIPM provides battery voltage to the backup lamps on the backup lamp control output circuit whenever the ignition switch is in the ON position and the REVERSE position is selected with the transmission shift linkage.

On vehicles with an automatic transmission, the Powertrain Control Module (PCM) continually monitors a hard wired multiplex input from the Transmission Range Sensor (TRS), then sends the appropriate electronic **transmission gear selector status** messages to other electronic modules over the Controller Area Network (CAN) data bus. Whenever the ignition switch is in the ON position and the TIPM receives an electronic message indicating the status of the transmission gear selector is REVERSE, it provides a battery voltage output

to the backup lamps on the backup lamp control output 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 ground screw to the body sheet metal within the passenger compartment. The TIPM and the CHMSL receive battery voltage on the brake lamp switch output circuit when the brake lamp switch is closed by the brake pedal arm. The brake lamps are then controlled by the TIPM through High Side Drivers (HSD) on the left and right stop lamp control circuits. A stop lamp inhibit relay (also known as a brake lamp relay, brake lamp activation relay or trailer tow damping relay) is used by the Controller Antilock Brake (CAB) to mitigate undesirable brake lamp operation when the CAB activates various brake hydraulic circuits as part of its Traction Control System (TCS) and Trailer Sway Control (TSC) functions. The brake lamp function of the trailer tow wiring is also controlled by an output from the TIPM based upon a hard wired input from the brake lamp switch.

DAYTIME RUNNING LAMPS

Vehicles equipped with this option or manufactured for sale in Canada illuminate the high beam filament of both headlamps at a reduced intensity when the engine is running, the parking brake is released and the exterior lamps are turned OFF. 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 PCM indicating the engine is running and from the EMIC indicating the status of the left multi-function switch exterior lighting switch input is OFF and that the parking brake is released, the TIPM provides a pulse width modulated voltage output to the proper headlamp bulb filaments through the right and left high beam feed circuits to produce illumination at a reduced intensity.

FRONT FOG LAMPS

Vehicles equipped with optional front fog lamps include a front fog lamp switch integral to the left (lighting) multi-function switch on the steering column. The front fog lamps have a path to ground at all times through their connection to the headlamp and dash wire harness and a takeout with an eyelet terminal that is secured to the body sheet metal. The SCM monitors a hard wired multiplex input from the left multi-function switch to determine whether the fog lamps are selected, then sends the appropriate electronic **front fog lamp switch status** messages to the EMIC over the LIN data bus. The EMIC then relays the appropriate electronic **front fog lamp switch request** messages to the TIPM over the CAN data bus.

When the TIPM receives a **front fog lamp switch request** message, it controls front fog lamp operation by providing a battery voltage output to the fog lamps through the right and left front fog lamp control circuits. The TIPM also sends the appropriate electronic messages back to the EMIC to illuminate or extinguish the front fog lamp indicator. The TIPM will automatically de-energize the front fog lamps any time the headlamp high beams are selected, except on vehicles manufactured for certain export markets.

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, if there is a charging system failure, or if the electrical system voltage falls below about 11.75 volts for more than about 30 seconds.

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, above the heater and air conditioner control unit. 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 front and rear, right and left turn signal control circuits. On vehicles manufactured for certain export markets where they are required, the TIPM provides battery voltage to the repeater lamps through right and left repeater lamp control output circuits based upon the hazard switch input.

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, the headlamp switch on the instrument panel 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 headlamp and dash wire harness. The headlamp and dash wire harness has takeouts with eyelet terminals that are secured to the body sheet metal. The TIPM will store a Diagnostic Trouble Code (DTC) for any shorts or opens in the headlamp circuits.

The SCM monitors hard wired multiplex inputs to determine the status of the exterior lighting switches in the left multi-function switch and whether the headlamp high or low beams are selected. The SCM then sends the appropriate electronic **lighting switch status** 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 (PWM) 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 back 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 SCM or 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 integral reflector adjustment screws 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. On vehicles equipped with an optional Electronic Vehicle Information Center (EVIC), this feature has customer programmable delay intervals of 0 seconds (disabled), 30 seconds, 60 seconds and 90 seconds. If the exterior lighting switch is in the **AUTO** (Automatic) position when the ignition switch is moved from the ON position to any position except ON, 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 90 seconds, but can be reprogrammed by the customer using the customer programmable features function of the EVIC, if the vehicle is so equipped.

HEADLAMP LEVELING

In certain export markets where required, a headlamp leveling system is provided on the vehicle. The headlamp leveling system includes unique front lamp units each equipped with 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 reflector.

Each time the headlamp leveling switch is depressed the circuitry of the switch pod provides the appropriate electronic **select status up** or **select status down** messages 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 a high side driver on the headlamp level sensor signal circuit 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 to control the illumination of the **1** , **2** , or **3** Light Emitting Diode (LED) selected position indicator in the headlamp 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 multi-function switch on the steering column, the SCM, the EMIC and the TIPM. The front park lamp, side marker lamp and, on vehicles manufactured for certain export markets, position lamp bulbs each have a path to ground at all times through their connection to the headlamp and dash wire harness. The headlamp and dash wire harness has takeouts with eyelet terminals that are secured to the body sheet metal. The rear park/tail lamp, side marker lamp and license plate lamp bulbs 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 ground screw to the body sheet metal.

The SCM monitors a hard wired multiplex input from the exterior lighting switch of the left multi-function switch, then sends the appropriate electronic **lighting switch status** messages to the EMIC over the LIN data bus. The EMIC then relays the appropriate electronic **lighting request** messages 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 front and rear, right and left lamp driver and control circuits.

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 cause the TIPM to turn the park lamps and low beam headlamps ON automatically if there is no input available from the SCM or the left multi-function switch. The TIPM also provides a fail-safe feature for the park lamps that will turn the park lamps and low beam headlamps 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 certain export markets where they are required. 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 to the body sheet metal.

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 the appropriate electronic **rear fog lamp switch status** messages to the EMIC over the LIN data bus. Then the EMIC relays the appropriate electronic **rear fog lamp request** messages to the TIPM over the CAN data bus. The TIPM responds to these messages by controlling a battery voltage output to the rear fog lamp bulbs through a high side driver on the rear fog lamp signal control circuit. The TIPM also sends the appropriate electronic messages 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

Vehicles equipped with an optional trailer tow preparation package are shipped from the factory with a trailer tow wiring harness and 4-pin trailer connector that is packaged with an instruction card and placed in the glove box of the vehicle. The trailer tow harness includes four relays designed to isolate the trailer turn signal and stop lamp lighting from the rear vehicle lighting and prevent overloading of the turn signal and stop lamp lighting drivers in the TIPM. These vehicles also include a dedicated park lamp control output circuit protected by a 15 ampere fuse located in the TIPM.

If the trailer lighting is connected directly to the vehicle wiring without using the necessary relays, the vehicle electrical system will become overloaded and the rear lighting of the vehicle will cease to function. The TIPM will store a Diagnostic Trouble Code (DTC) for this condition.

TURN SIGNAL LAMPS

The turn signal lamps system includes the left (lighting) multi-function switch on the steering column, 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 headlamp and dash wire harness. The headlamp and dash wire harness has takeouts with eyelet terminals that are secured to the body sheet metal. 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 ground screw to the body sheet metal.

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 the appropriate electronic **turn signal request** messages 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 front and rear, right or left turn signal control 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

WARNINGS

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 Electrical/Lamps/Lighting - Exterior - 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, 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 **SYSTEM WIRING DIAGRAMS** . 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 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. 2. Ineffective ground circuit. 3. Ineffective feed circuit. 4. Ineffective switch. 5. Ineffective TIPM inputs or outputs.	1. Test and replace backup lamp bulb if required. 2. Test and repair open backup lamp ground circuit if required. 3. Test and repair open backup lamp feed circuit if required. 4. Test and replace backup lamp switch (manual transmission) or transmission range sensor (automatic transmission) if required. 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. 2. Ineffective switch. 3. Ineffective TIPM inputs or	1. Test and repair shorted backup lamp feed circuit if required. 2. Test and replace backup lamp switch (manual transmission) or transmission range sensor (automatic transmission) if required. 3. Use a diagnostic scan tool to test the

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outputs.

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. 2. Ineffective ground circuit. 3. Ineffective fuse. 4. Ineffective feed circuit. 5. Ineffective switch. 6. Ineffective TIPM inputs or outputs.	1. Test and replace brake lamp bulb if required. 2. Test and repair open brake lamp ground circuit if required. 3. Test and replace the fuse in the TIPM if required. 4. Test and repair open brake lamp switch output circuit or stop lamp output circuit if required. 5. Test and replace brake lamp switch if required. 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. 2. Improperly adjusted switch. 3. Ineffective switch. 4. Ineffective TIPM inputs or outputs.	1. Test and repair shorted brake lamp switch output circuit or stop lamp output circuit if required. 2. Adjust the brake lamp switch if required. 3. Test and replace brake lamp switch if required. 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. 2. Automatic transmission in PARK position. 3. Parking brake applied. 4. Engine not running. 5. Ineffective TIPM inputs or outputs.	1. Use a diagnostic scan tool to check and configure TIPM if required. 2. Place the transmission gear selector lever in any position except PARK. 3. Release the parking brake. 4. Start the engine. 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 ElectroMechanical 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. 2. Ineffective ground circuit. 3. Ineffective feed circuit. 4. Ineffective EMIC (CCN) inputs or outputs. 5. Ineffective TIPM inputs or outputs.	1. Test and replace front fog lamp bulb if required. 2. Test and repair open front fog lamp ground circuit if required. 3. Test and repair open front fog lamp feed circuit if required. 4. Use a diagnostic scan tool to test the EMIC (CCN) inputs and outputs. Refer to the appropriate diagnostic information. 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. 2. Ineffective EMIC (CCN) inputs or outputs. 3. Ineffective TIPM inputs or	1. Test and repair shorted front fog lamp feed circuit if required. 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

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outputs.

TIPM inputs and outputs. Refer to the appropriate diagnostic information.

HAZARD WARNING LAMPS

NOTE: The hazard switch is integral to the upper instrument panel switch pod, which provides a hard wired output to the TIPM. 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 upper instrument panel switch pod are operational. If the turn signals are ineffective or operate improperly, or if the other instrument panel switch pod functions are ineffective, diagnose and repair those problems before attempting to repair the hazard warning lamps system.

CONDITION	POSSIBLE CAUSES	CORRECTION
HAZARD WARNING LAMPS DO NOT FLASH	1. Ineffective upper instrument panel switch pod. 2. Ineffective TIPM inputs or outputs.	1. Test and replace upper instrument panel switch pod if required. 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 upper instrument panel switch pod. 2. Ineffective TIPM inputs or outputs.	1. Test and replace upper instrument panel switch pod if required. 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. 2. Ineffective ground circuit. 3. Ineffective feed circuit.	1. Test and replace headlamp bulb if required. 2. Test and repair open headlamp ground circuit if required. 3. Test and repair open headlamp low beam or high beam feed circuit if required.

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	4. Ineffective EMIC (CCN) inputs or outputs. 5. Ineffective TIPM inputs or outputs.	4. Use a diagnostic scan tool to test the EMIC (CCN) inputs and outputs. Refer to the appropriate diagnostic information. 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. 2. Ineffective EMIC (CCN) inputs or outputs. 3. Ineffective TIPM inputs or outputs.	1. Test and repair shorted headlamp low beam or high beam feed circuit if required. 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.
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 pod, 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 pod are operational. If the park lamps are ineffective or operate improperly, or if the other instrument panel switch pod 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

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BOTH LEVELING MOTORS ARE INEFFECTIVE		motor if required.
	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 motor ground circuit.	2. Test and repair open leveling motor ground circuit if required.
	3. Ineffective motor feed circuit.	3. Test and repair open leveling motor feed circuit if required.
	4. Ineffective signal circuit.	4. Test and repair open or shorted headlamp leveling motor signal circuit 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.
	6. Ineffective motors.	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.

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

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. 2. Ineffective ground circuit. 3. Ineffective feed circuit. 4. Ineffective TIPM inputs or outputs.	1. Test and replace turn signal bulb if required. 2. Test and repair open ground circuit if required. 3. Test and repair open right or left turn signal feed circuit if required. 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 LAMPS (OR BOTH SIDES) DO NOT FLASH	1. Ineffective feed circuit. 2. Ineffective EMIC (CCN) inputs or outputs. 3. Ineffective TIPM inputs or outputs.	1. Test and repair open right or left turn signal feed circuit if required. 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

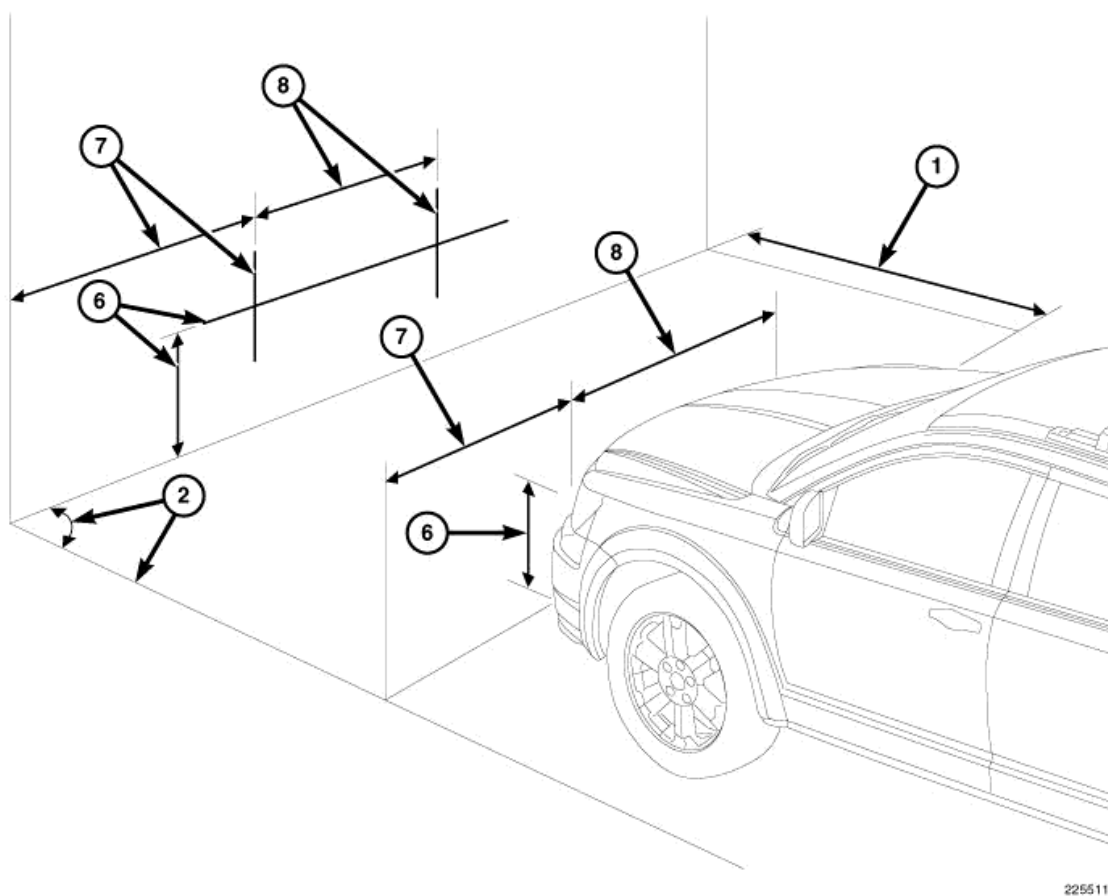
VEHICLE PREPARATION FOR LAMP ALIGNMENT

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 (zero) 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



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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 lamp (head or fog) 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 lamp (head or fog) 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 just below the horizontal line to 50 millimeters (2 inches) below the horizontal line for domestic market vehicles, or to 130 millimeters (5.12 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 on the outboard side of the headlamp unit rear housing. The high beam pattern will be correct when the low beams are properly aimed.

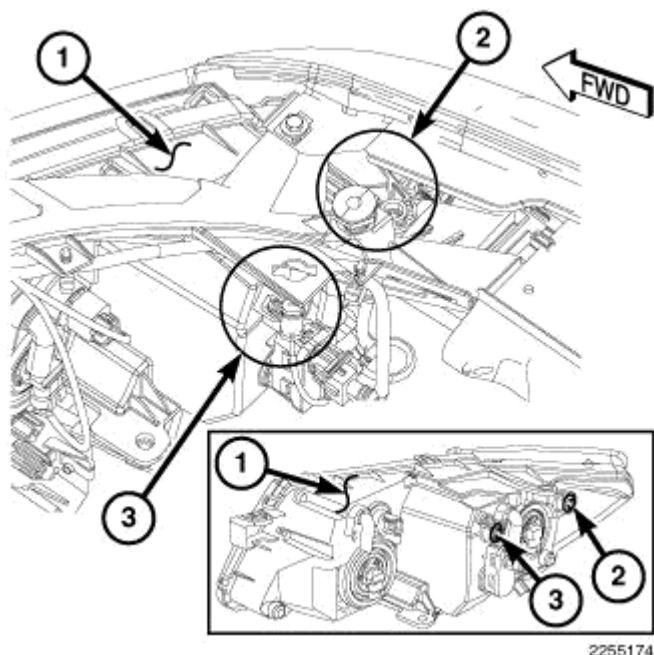


Fig. 3: Headlamp Alignment
Courtesy of CHRYSLER LLC

1. Turn the headlamps ON and select the LOW beams.
2. Rotate the vertical adjustment screw (3) on each front lamp unit (1) to adjust the beam height as required.
3. For export markets only, rotate the horizontal adjustment screw (2) on each lamp 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 for domestic market vehicles. On export market vehicles, a properly aimed fog lamp will project a pattern on the alignment screen 200 millimeters (8 inches) below the fog lamp centerline and straight ahead of the lamp.

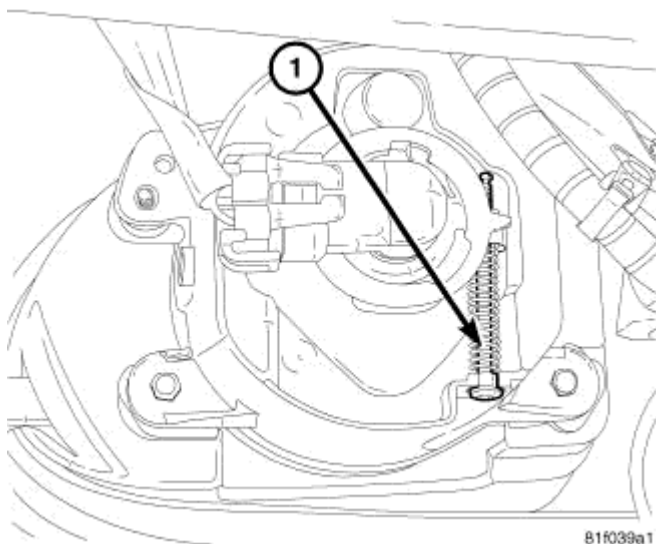


Fig. 4: Fog Lamp Alignment
 Courtesy of CHRYSLER LLC

1. Turn the fog lamps ON.
2. Raise the lower portion of the inner wheel house shield to gain access to the rear of the fog lamp unit.
3. Rotate the vertical adjustment screw (1) on each lamp to adjust the beam height as required.

SPECIFICATIONS

SPECIFICATIONS

BULB APPLICATION TABLE

LAMP	BULB
BACKUP	3157 (P27W/7W)
BRAKE	3157 (P27W/7W)
CENTER HIGH MOUNTED STOP	LIGHT-EMITTING DIODES SERVICED IN ASSEMBLY
FRONT FOG	9145 (H10)
FRONT PARK	3757AK (PY27W/7W)
FRONT SIDE MARKER	168
FRONT TURN SIGNAL	3757AK (PY27W/7W)
HEADLAMP (LOW BEAM)	9006 - DOMESTIC H11 - EXPORT
HEADLAMP (HIGH BEAM)	9005
LICENSE	168
POSITION (EXPORT ONLY)	W5W
REAR FOG (EXPORT ONLY)	PS19W
REAR PARK (TAIL)	3157 (P27W/7W)
REAR TURN SIGNAL	3757AK (PY27W/7W)

REPEATER (EXPORT ONLY)

W5W

CAM, TURN SIGNAL CANCEL

DESCRIPTION

DESCRIPTION

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 **Restraints/CLOCKSPRING - Removal**.

OPERATION

OPERATION

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.

LAMP, CENTER HIGH MOUNTED STOP

REMOVAL

REMOVAL

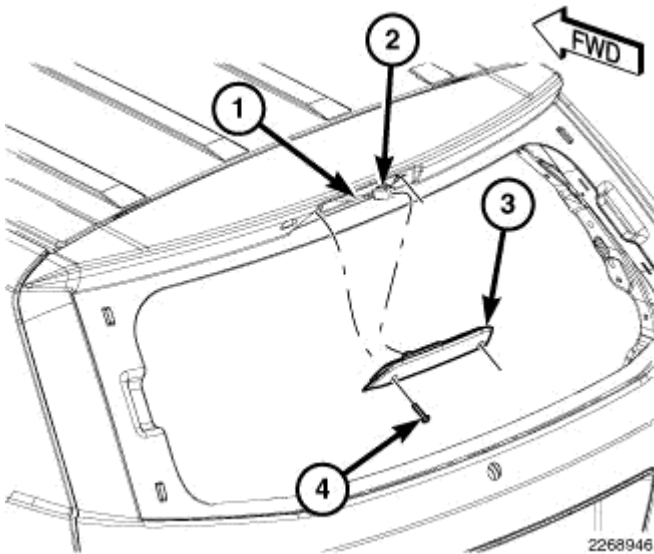


Fig. 5: Center High Mounted Stop Lamp
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Remove the two screws (4) that secure the Center High Mounted Stop Lamp (CHMSL) (3) to the liftgate header panel (1).
3. Pull the CHMSL away from the liftgate far enough to access and disconnect the connector (2) of the liftgate wire harness (1) from the connector receptacle on the back of the lamp.
4. Remove the CHMSL from the liftgate.

INSTALLATION

INSTALLATION

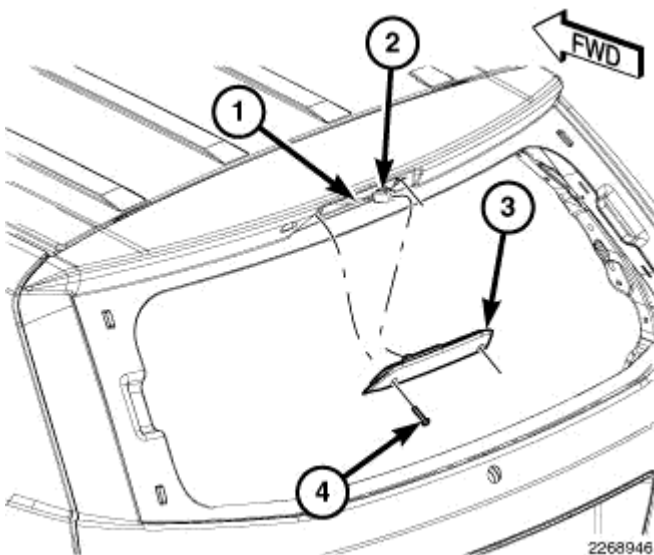


Fig. 6: Center High Mounted Stop Lamp

Courtesy of CHRYSLER LLC

1. Check to be certain that the two U-nuts in the Center High Mounted Stop Lamp (CHMSL) opening of the liftgate header panel are properly installed and in good condition.
2. Position the CHMSL (3) near the opening in the liftgate header panel.
3. Reconnect the connector (2) of the liftgate wire harness (1) to the connector receptacle on the back of the lamp.
4. Position the CHMSL into the liftgate header opening.
5. Install and tighten the two screws (4) that secure the CHMSL to the liftgate header panel. Tighten the screws to 1.5 N.m (15 in. lbs.).
6. Reconnect the battery negative cable.

LAMP, FOG, FRONT**REMOVAL****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.

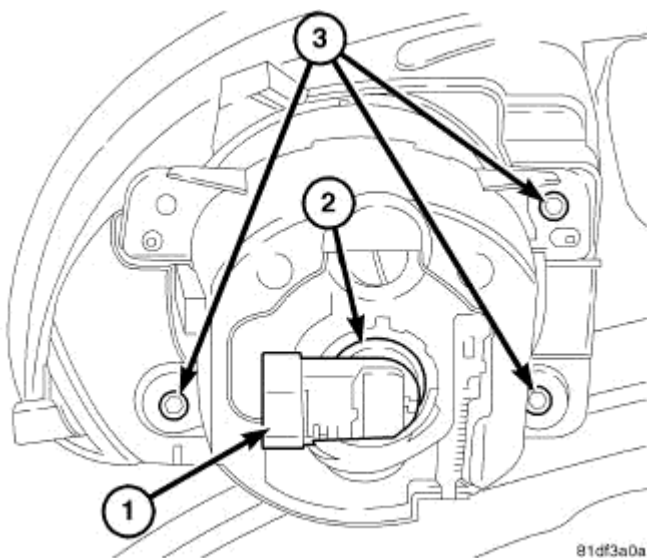


Fig. 7: Front Fog Lamp Bulb Connector Receptacle

Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Remove the lower inner front wheel house splash shield. Refer to **Body/Exterior/SHIELD, Splash - Installation**.
3. Disconnect the headlamp and dash wire harness connector from the front fog lamp bulb (2) connector receptacle (1).

4. Firmly grasp the bulb on the back of the front fog lamp housing and rotate it counterclockwise about 30 degrees to unlock it.
5. Pull the bulb straight out from the keyed opening in the housing.

LAMP

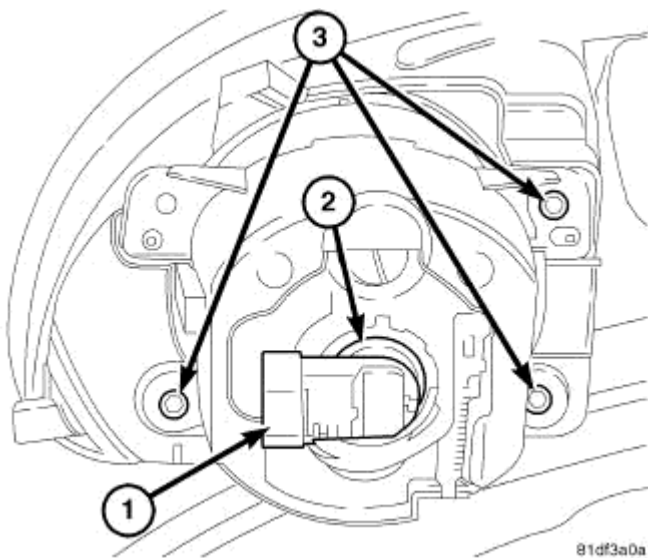


Fig. 8: Front Fog Lamp Bulb Connector Receptacle
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Remove the lower inner front wheel house splash shield. Refer to **Body/Exterior/SHIELD, Splash - Removal**.
3. Disconnect the headlamp and dash wire harness connector from the front fog lamp bulb (2) connector receptacle (1).
4. Remove the three screws (3) that secure the front fog lamp mounting bracket to the fog lamp bezel on the back of the lower front fascia.
5. Remove the front fog lamp from the vehicle.

INSTALLATION

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.

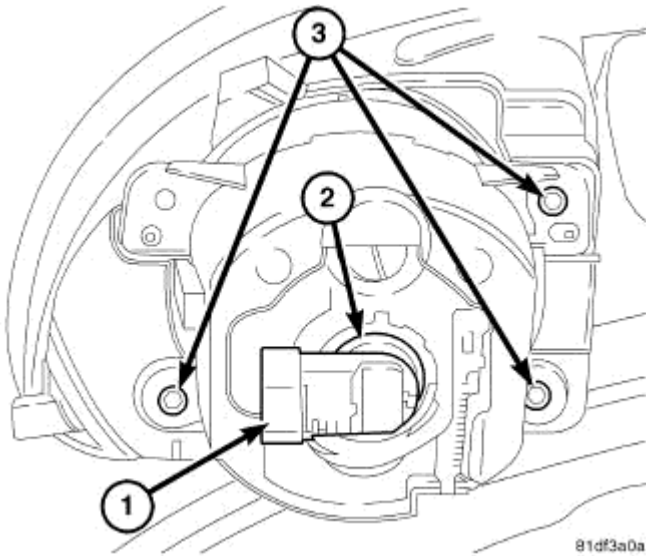


Fig. 9: Front Fog Lamp Bulb Connector Receptacle
Courtesy of CHRYSLER LLC

1. Align the front fog lamp bulb (2) 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 pointed outboard and horizontal in orientation.
4. Reconnect the headlamp and dash wire harness connector to the front fog lamp bulb connector receptacle (1).
5. Reinstall the lower inner front wheel house splash shield. Refer to **Body/Exterior/SHIELD, Splash - Installation**.
6. Reconnect the battery negative cable.

LAMP

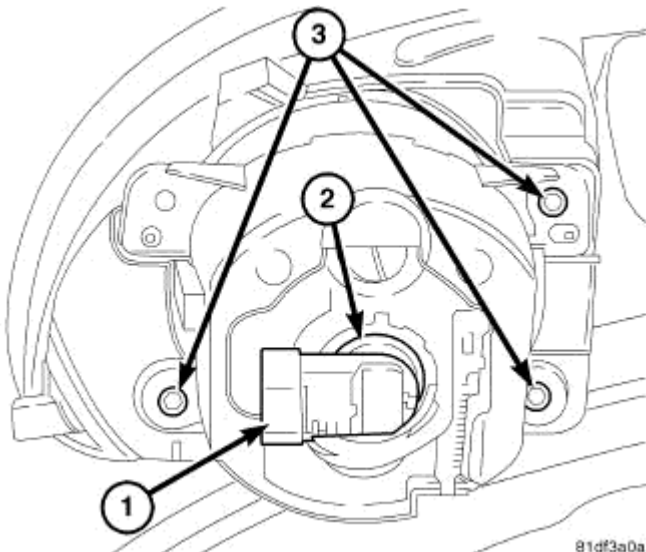


Fig. 10: Front Fog Lamp Bulb Connector Receptacle Screw
Courtesy of CHRYSLER LLC

1. Position the front fog lamp mounting bracket to the fog lamp bezel on the back of the lower front fascia.
2. Install and tighten the three screws (3) that secure the mounting bracket to the bezel. Tighten the screws securely.
3. Reconnect the headlamp and dash wire harness connector to the front fog lamp bulb (2) connector receptacle (1).
4. Reinstall the lower inner front wheel house splash shield. Refer to **Body/Exterior/SHIELD, Splash - Installation**.
5. Reconnect the battery negative cable.
6. Confirm proper fog lamp alignment. See **Electrical - Lamps and Lighting/Lamps/Lighting - Exterior - Standard Procedure**.

LAMP, FOG, REAR EXPORT

REMOVAL

BULB

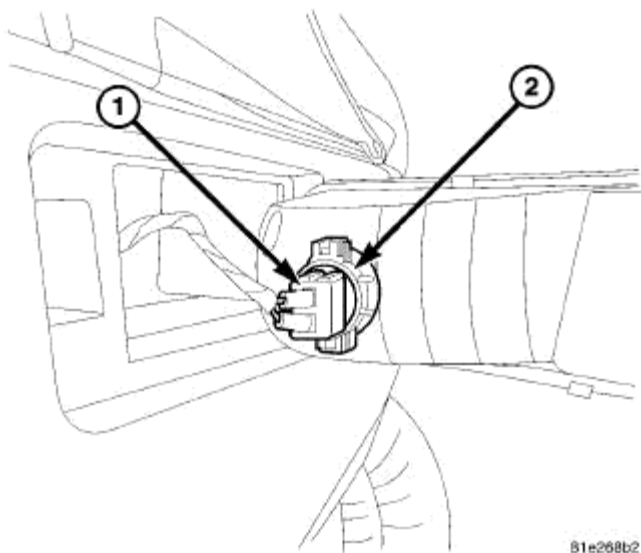


Fig. 11: Rear Fascia Wire Harness Connector
Courtesy of CHRYSLER LLC

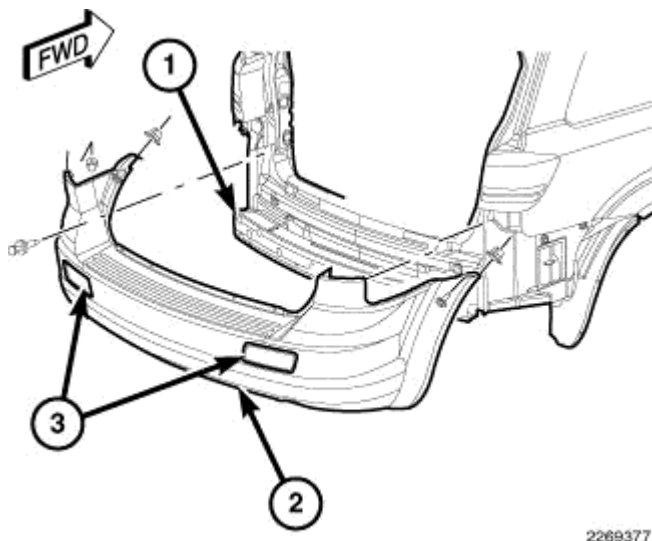
1. Disconnect and isolate the battery negative cable.
2. Remove the rear fog lamp from the rear fascia. See **Electrical - Lamps and Lighting/Lamps/Lighting - Exterior/LAMP, Fog - Removal**.
3. Disconnect the rear fascia wire harness connector (1) from the rear fog lamp bulb connector receptacle.
4. Firmly grasp the bulb (2) by the two latch features and squeeze them together to unlock the bulb from the

back of the rear fog lamp housing.

5. Pull the bulb straight out from the keyed opening in the housing.

LAMP

NOTE: The following procedure applies only to vehicles manufactured for certain export markets where rear fog lamps are optional or required equipment. Rear fog lamps are not available for vehicles manufactured for North American markets.



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Fig. 12: Rear Bumper Reinforcement
Courtesy of CHRYSLER LLC

NOTE: The rear fog lamps can be removed without removing the rear fascia. The graphic shows the fascia removed only to clearly identify the involved components.

1. Disconnect and isolate the battery negative cable.
2. From behind the rear fascia (2), reach between the body sheet metal and above the rear bumper reinforcement (1) to access the back of the rear fog lamp (3).

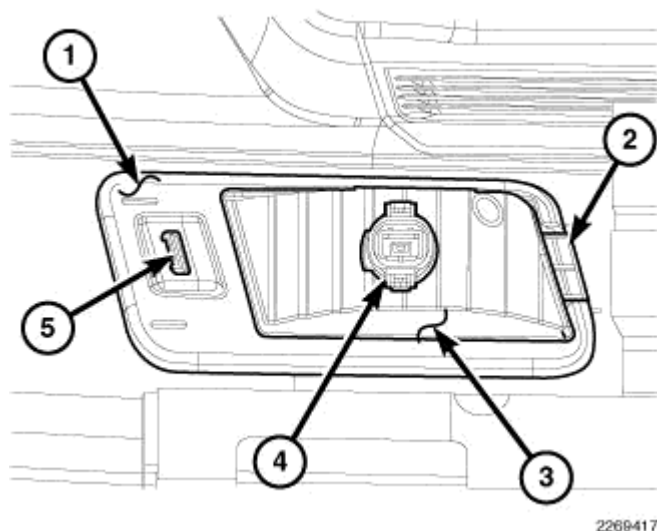


Fig. 13: Integral Latch Feature Of Rear Fog Lamp
Courtesy of CHRYSLER LLC

3. Locate the integral latch feature (5) of the rear fog lamp (3) protruding through the outboard side of the rear fog lamp seat (1) integral to the rear fascia.
4. Press the latch feature toward the center of the lamp and out through the face of the rear fog lamp seat of the rear fascia.
5. From the face of the rear fascia, pull the lamp outboard far enough to disengage the integral interlocking tab mounting feature (2) from behind the inboard side of the rear fog lamp seat of the fascia.
6. Pull the rear fog lamp out from the rear fascia far enough to access and disconnect the rear fascia wire harness connector from the rear fog lamp bulb connector receptacle (4) on the back of the lamp.
7. Remove the rear fog lamp from the vehicle.

INSTALLATION

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.

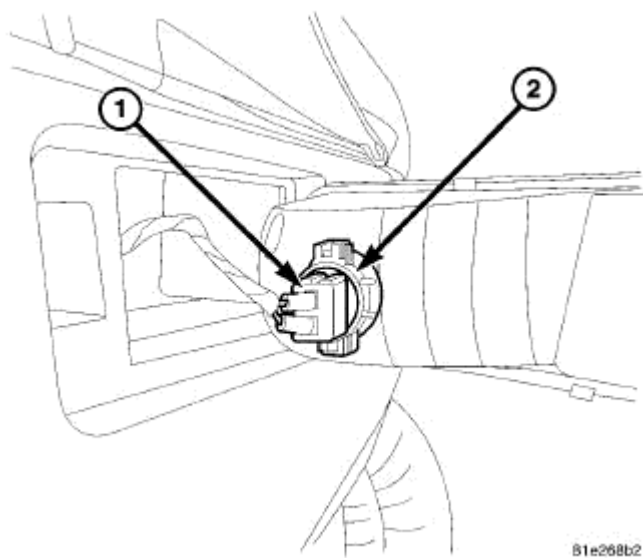


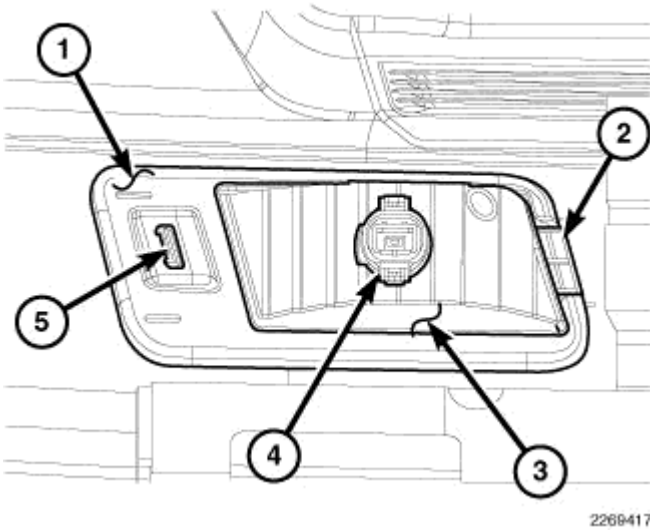
Fig. 14: Rear Fascia Wire Harness Connector

Courtesy of CHRYSLER LLC

1. Align the index tabs of the rear fog lamp bulb (2) with the slots in the collar of the bulb opening on the back of the rear fog lamp housing.
2. Insert the bulb into the housing until the index tabs are engaged in the slots of the collar.
3. Firmly and evenly push the bulb straight into the lamp housing until both bulb latch features snap into place and are fully engaged.
4. Reconnect the rear fascia wire harness connector (1) to the rear fog lamp bulb connector receptacle.
5. Reinstall the rear fog lamp into the rear fascia. See **Electrical - Lamps and Lighting/Lamps/Lighting - Exterior/LAMP, Fog - Installation**.
6. Reconnect the battery negative cable.

LAMP

NOTE: The following procedure applies only to vehicles manufactured for certain export markets where rear fog lamps are optional or required equipment. Rear fog lamps are not available for vehicles manufactured for North American markets.



2269417

Fig. 15: Integral Latch Feature Of Rear Fog Lamp

Courtesy of CHRYSLER LLC

1. From the face of the rear fascia, position the rear fog lamp (3) close enough to the rear fog lamp seat (1) to access and reconnect the rear fascia wire harness connector to the rear fog lamp bulb connector receptacle (4).
2. Engage the integral interlocking tab mounting feature (2) behind the inboard side of the rear fog lamp seat of the fascia.
3. Align the integral latch feature (5) on the outboard side of the rear fog lamp housing with the clearance hole in the rear fog lamp seat of the fascia.
4. Using hand pressure, push the outboard side of the rear fog lamp firmly and evenly into the seat until the latch engages the back of the rear fascia and the lamp is fully seated.
5. Reconnect the battery negative cable.

LAMP, LICENSE PLATE

REMOVAL

BULB

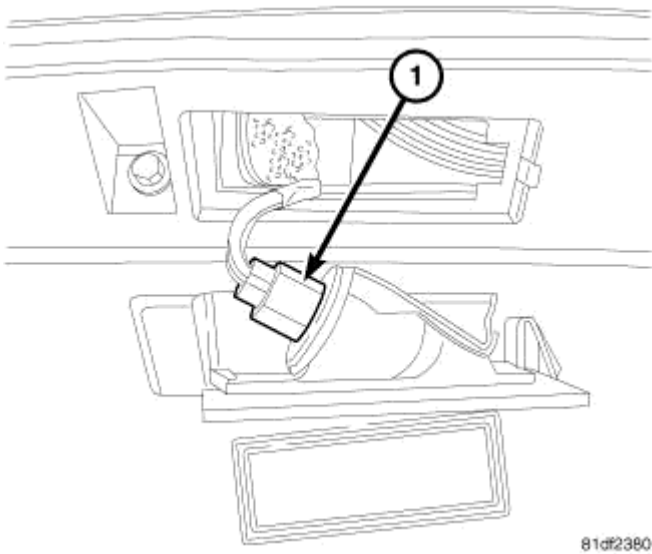


Fig. 16: License Plate Lamp Bulb Socket
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Remove the license plate lamp from the underside of the liftgate handle and light bar assembly. See **Electrical - Lamps and Lighting/Lamps/Lighting - Exterior/LAMP, License Plate - Removal**.
3. Pull the base of the bulb straight out of the license plate lamp bulb socket (1).

LAMP

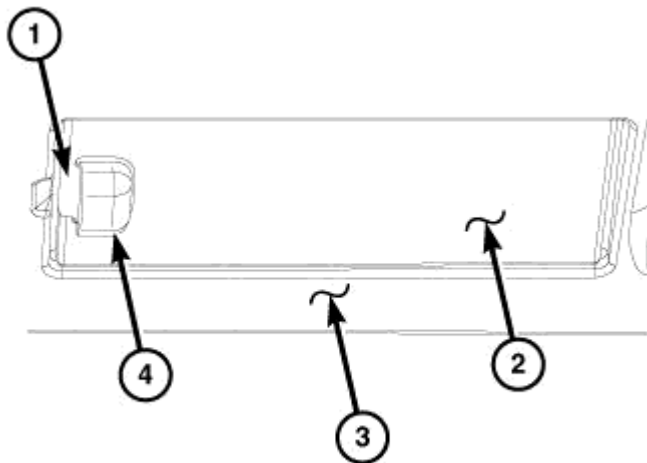


Fig. 17: License Plate Lamps
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Locate the two license plate lamps (2) on the underside of the liftgate handle and light bar assembly (3)

above the license plate tub on the liftgate outer panel.

3. Insert the end of a trim stick or a small screwdriver into the open end of the hood formation (4) on one end of the lamp lens to depress the latch tab (1) and pull that end of the lamp down from the handle and light bar assembly.
4. Pull the lamp towards the center of the vehicle far enough to disengage the lamp interlocking tab mounting feature from the outboard edge of the mounting hole.
5. Pull the lamp out of the mounting hole far enough to access the lamp wiring and bulb socket on the top of the lamp housing.
6. Firmly grasp the socket and rotate it counterclockwise about 30 degrees to unlock it.
7. Pull the socket and bulb straight out from the keyed opening in the lamp housing.
8. Remove the lamp from the vehicle.

INSTALLATION

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.

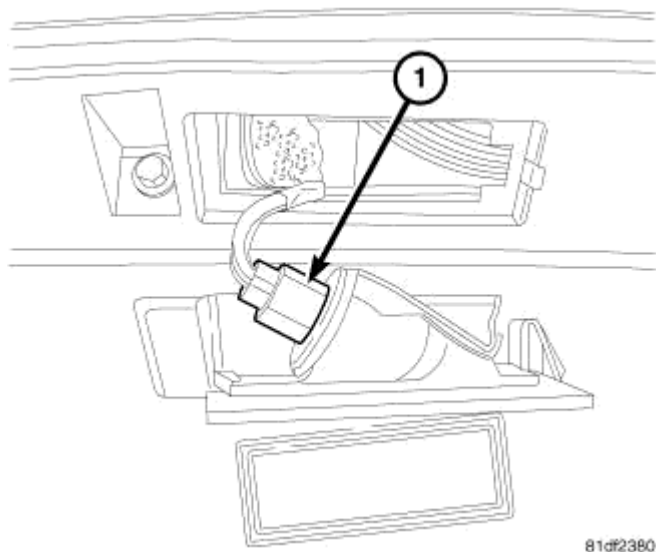
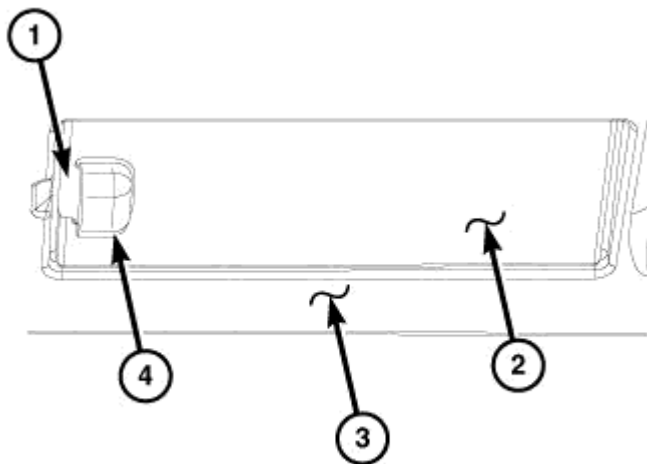


Fig. 18: License Plate Lamp Bulb Socket
Courtesy of CHRYSLER LLC

1. Align the base of the license plate lamp bulb with the socket (1).
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 top of the license plate lamp housing.
4. Insert the bulb and socket into the housing until the socket is firmly seated.
5. Rotate the socket clockwise about 30 degrees to lock it into place.

- Reinstall the lamp into the mounting hole on the underside of the liftgate handle and light bar assembly.
See **Electrical - Lamps and Lighting/Lamps/Lighting - Exterior/LAMP, License Plate - Installation**.

LAMP



2269978

Fig. 19: License Plate Lamps
Courtesy of CHRYSLER LLC

- Position the license plate lamp (2) to the underside of the liftgate handle and light bar assembly (3).
- Align the socket and bulb with the keyed opening on the top of the lamp housing.
- Insert the bulb and socket into the housing until the socket is firmly seated.
- Rotate the socket clockwise about 30 degrees to lock it into place.
- Engage the lamp interlocking tab mounting feature at the end of the lamp housing opposite from the hooded (4) latch (1) with the outboard edge of the mounting hole in the handle and light bar assembly.
- Push the lamp toward the outboard side of the vehicle while pushing the inboard end of the lamp firmly and evenly into the mounting hole until the lamp latch feature snaps into place.
- Reconnect the battery negative cable.

LAMP, SIDE REPEATER, EXPORT

REMOVAL

BULB

NOTE: Side repeater lamps are used only on vehicles manufactured for certain export markets where they are required.

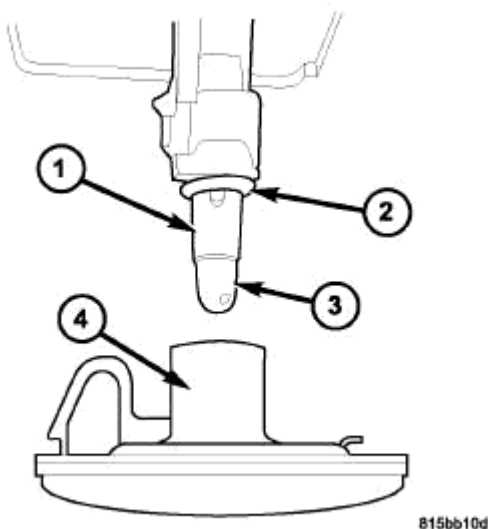


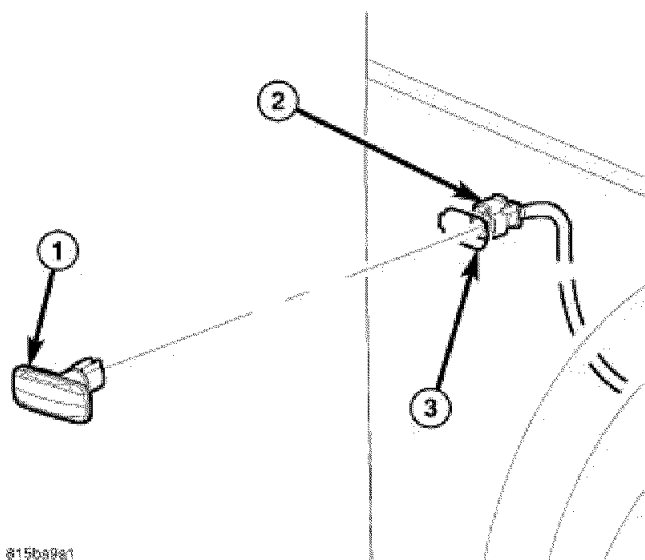
Fig. 20: Remove/Install Repeater Lamp Bulb

Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Remove the side repeater lamp from the fender mounting hole, but do not disconnect the wire harness connector. See **Electrical - Lamps and Lighting/Lamps/Lighting - Exterior/LAMP, Side Repeater - 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 lamp housing.
5. Pull the base of the bulb (3) straight out of the socket.

LAMP

NOTE: Side repeater lamps are used only on vehicles manufactured for certain export markets where they are required.



81568981

Fig. 21: Remove/Install Repeater Lamp
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 mounted on, when properly oriented the fixed hook interlock tab feature 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 (1) 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 fixed hook interlock tab feature from the right side of the fender mounting hole (3).
3. Pull the lamp out from the fender far enough to access and disconnect the wire harness connector (2) from the connector receptacle of the bulb socket on the back of the lamp lens/housing.
4. Remove the repeater lamp from the fender.

INSTALLATION

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: Side repeater lamps are used only on vehicles manufactured for certain export markets where they are required.

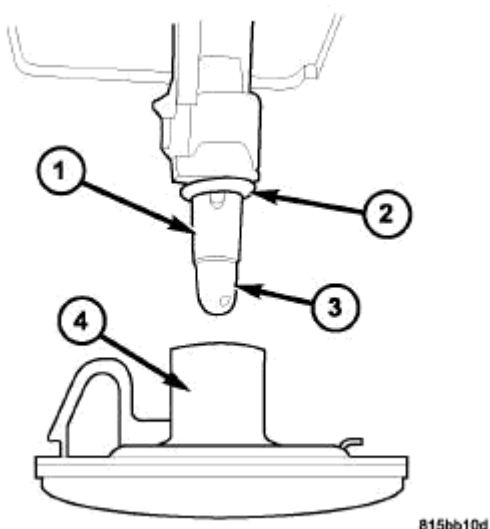


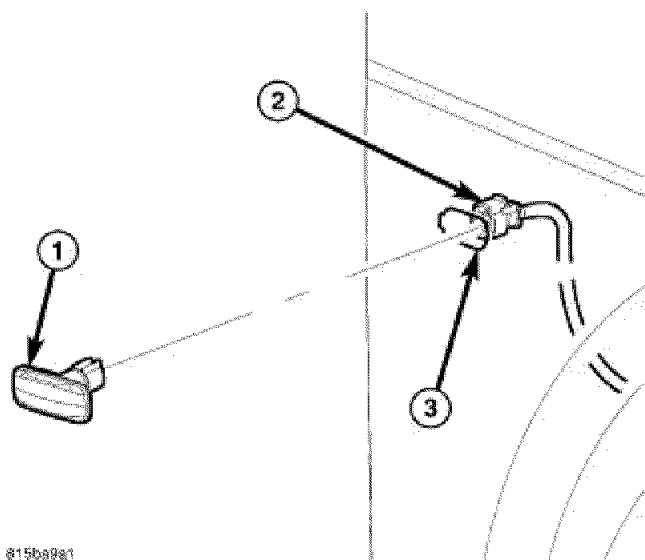
Fig. 22: Remove/Install Repeater Lamp Bulb

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 side 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 side repeater lamp into the fender mounting hole. See **Electrical - Lamps and Lighting/Lamps/Lighting - Exterior/LAMP, Side Repeater - Installation**.
8. Reconnect the battery negative cable.

LAMP

NOTE: Side repeater lamps are used only on vehicles manufactured for certain export markets where they are required.



81568981

Fig. 23: Remove/Install Repeater Lamp
 Courtesy of CHRYSLER LLC

1. Position the repeater lamp lens/housing (1) close enough to the fender mounting hole (3) 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 mounted on, when properly oriented the fixed hook interlock tab features 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 fixed hook interlock tab feature 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.

LAMP, TAIL STOP TURN

REMOVAL

BULB

Each rear lamp unit for this vehicle consists of two pieces. An outer rear lamp unit that is secured at the rear of each quarter panel includes bulbs for the park (or tail) lamps, the brake (or stop) lamps and the turn signal lamps. An inner rear lamp is secured on each outboard side of the liftgate outer panel adjacent to the outer lamp and also includes a bulb for the park (or tail) lamps as well as a bulb for the backup (or reverse) lamps.

OUTER LAMP

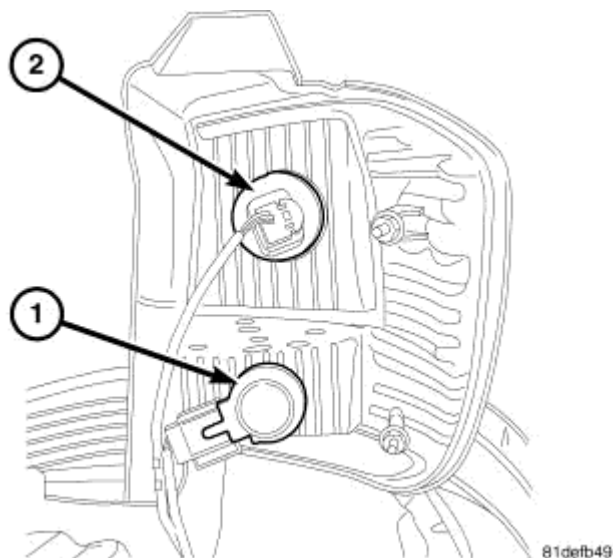


Fig. 24: Tail/Stop/Rear Side Marker And Turn Signal
Courtesy of CHRYSLER LLC

NOTE: The outer rear lamp unit contains two bulbs. They are the tail/stop/rear side marker (1) and the turn signal (2). The service procedures for each bulb are the same, only the bulb sizes and types may differ.

1. Disconnect and isolate battery negative cable.
2. Remove the outer rear lamp unit. See Electrical - Lamps and Lighting/Lamps/Lighting - Exterior/LAMP, Tail Stop Turn - Removal.
3. Firmly grasp the appropriate bulb socket (1 or 2) on the back of the lamp housing and rotate it counterclockwise about 30 degrees to unlock it.
4. Pull the socket and bulb straight out of the lamp.
5. Pull the base of the bulb straight out of the socket.

INNER LAMP

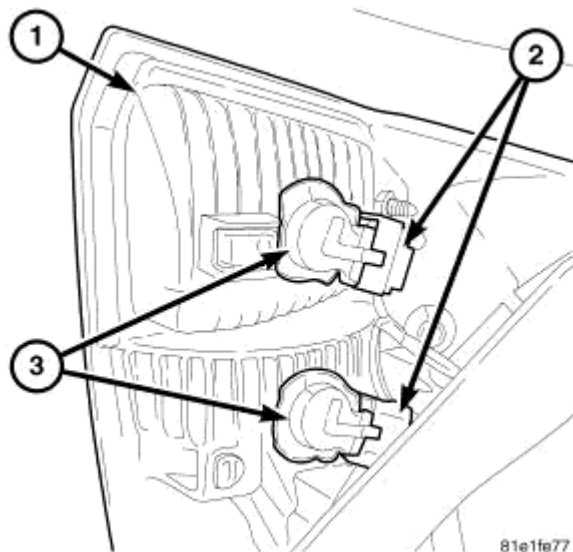


Fig. 25: Bulb Socket On Back Of Lamp Housing
Courtesy of CHRYSLER LLC

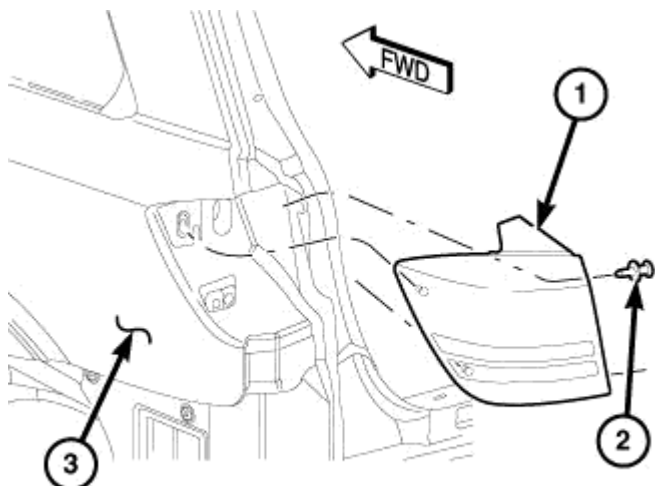
NOTE: The inner rear lamp unit contains two bulbs. The upper socket contains the tail lamp bulb, while the lower socket contains the backup lamp bulb. The service procedures for each bulb are the same, only the bulb sizes and types may differ.

1. Disconnect and isolate the battery negative cable.
2. Remove the inner rear lamp unit. See **Electrical - Lamps and Lighting/Lamps/Lighting - Exterior/LAMP, Tail Stop Turn - Removal**.
3. Firmly grasp the appropriate bulb socket (3) on the back of the lamp housing and rotate it counterclockwise about 30 degrees to unlock it.
4. Pull the socket and bulb straight out of the lamp.
5. Pull the base of the bulb straight out of the socket.

LAMP

Each rear lamp unit for this vehicle consists of two pieces. An outer rear lamp unit that is secured at the rear of each quarter panel includes bulbs for the park (or tail) lamps, the brake (or stop) lamps and the turn signal lamps. An inner rear lamp is secured on each outboard side of the liftgate outer panel adjacent to the outer lamp and also includes a bulb for the park (or tail) lamps as well as a bulb for the backup (or reverse) lamps. These lamp units are serviced individually as follows.

OUTER

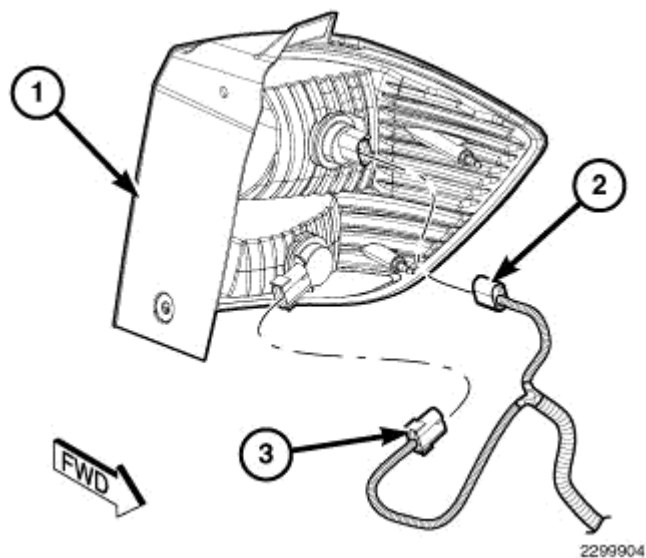


2278034

Fig. 26: Outer Rear Lamp Unit

Courtesy of CHRYSLER LLC

1. Disconnect and isolate battery negative cable.
2. Open the liftgate to access and remove the two push pin fasteners (2) that secure the inboard side of the outer rear lamp unit (1) to the side jamb of the liftgate opening.
3. Pull the outboard side of the outer rear lamp unit rearward far enough to disengage the two locating pins on the back of the lamp housing from the plastic grommets in the lamp opening of the body sheet metal (3).



2299904

Fig. 27: Body Wire Harness Connectors

Courtesy of CHRYSLER LLC

4. Pull the lamp (1) away from the vehicle far enough to access and disconnect the two body wire harness connectors (2 and 3) from the bulb socket connector receptacles on the back of the lamp housing.

5. Remove the lamp from the vehicle.

INNER

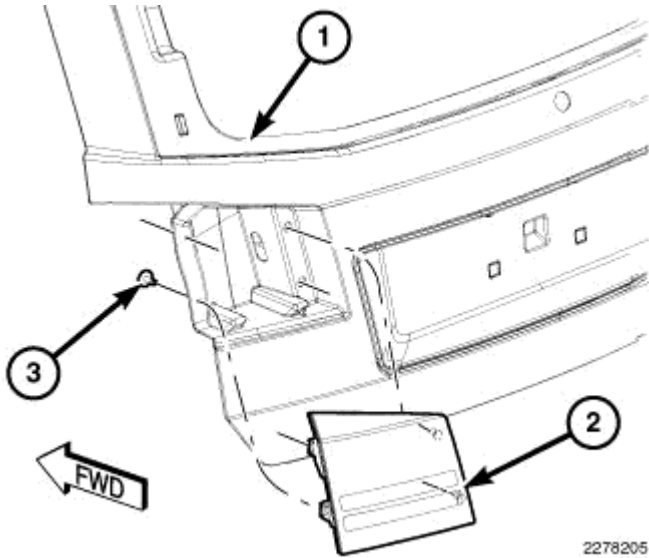


Fig. 28: Inner Rear Lamp Unit
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Open the liftgate (1) to access and remove the two screws (3) that secure the outboard side of the inner rear lamp unit (2) to the liftgate lamp opening.
3. Pull the inboard side of the inner rear lamp unit rearward far enough to disengage the two locating pins on the back of the lamp housing from the plastic grommets in the liftgate lamp opening.

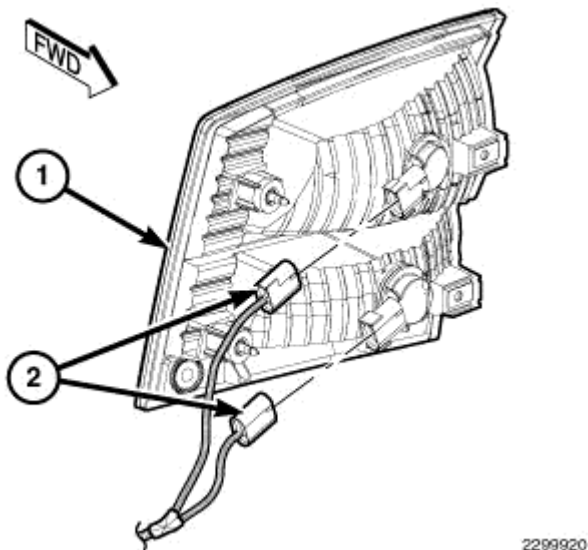


Fig. 29: Liftgate Wire Harness Connectors
Courtesy of CHRYSLER LLC

4. Pull the lamp (1) away from the vehicle far enough to access and disconnect the two liftgate wire harness connectors (2) from the bulb socket connector receptacles on the back of the lamp housing.
5. Remove the lamp from the vehicle.

INSTALLATION

BULB

Each rear lamp unit for this vehicle consists of two pieces. An outer rear lamp unit that is secured at the rear of each quarter panel includes bulbs for the park (or tail) lamps, the brake (or stop) lamps and the turn signal lamps. An inner rear lamp is secured on each outboard side of the liftgate outer panel adjacent to the outer lamp and also includes a bulb for the park (or tail) lamps as well as a bulb for the backup (or reverse) lamps.

OUTER LAMP

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.

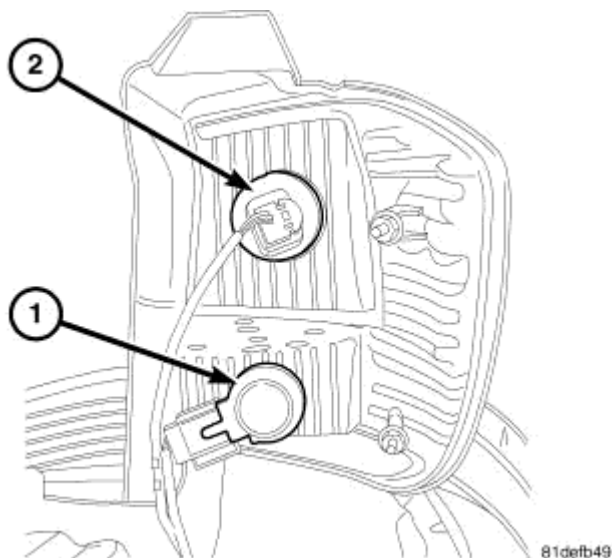


Fig. 30: Tail/Stop/Rear Side Marker And Turn Signal
Courtesy of CHRYSLER LLC

NOTE: The outer rear lamp unit contains two bulbs. They are the tail/stop/rear side marker (1) and the turn signal (2). 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 appropriate bulb socket (1 or 2).
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 outer rear lamp unit housing.
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. Reinstall the outer rear lamp unit. See **Electrical - Lamps and Lighting/Lamps/Lighting - Exterior/LAMP, Tail Stop Turn - Installation**.
7. Reconnect the battery negative cable.

INNER LAMP

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.

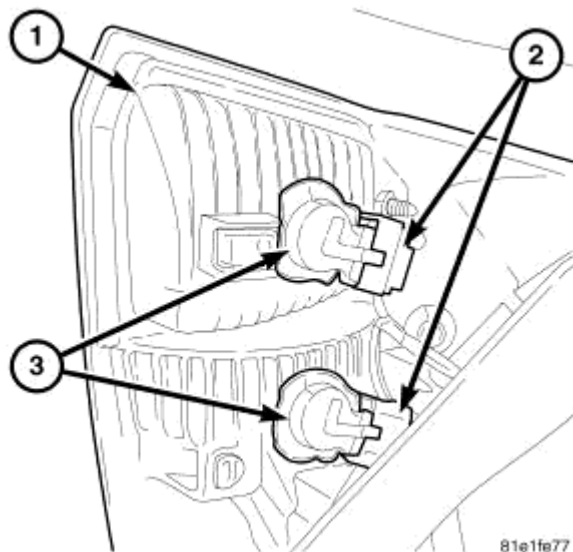


Fig. 31: Bulb Socket On Back Of Lamp Housing
Courtesy of CHRYSLER LLC

NOTE: The inner rear lamp unit contains two bulbs. The upper socket contains the tail lamp bulb, while the lower socket contains the backup lamp bulb. 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 appropriate bulb socket (3).
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 inner rear lamp unit housing.
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. Reinstall the inner rear lamp unit. See **Electrical - Lamps and Lighting/Lamps/Lighting - Exterior/LAMP, Tail Stop Turn - Installation**.
7. Reconnect the battery negative cable.

LAMP

Each rear lamp unit for this vehicle consists of two pieces. An outer rear lamp unit that is secured at the rear of each quarter panel includes bulbs for the park (or tail) lamps, the brake (or stop) lamps and the turn signal lamps. An inner rear lamp is secured on each outboard side of the liftgate outer panel adjacent to the outer lamp and also includes a bulb for the park (or tail) lamps as well as a bulb for the backup (or reverse) lamps. These lamp units are serviced individually as follows.

OUTER

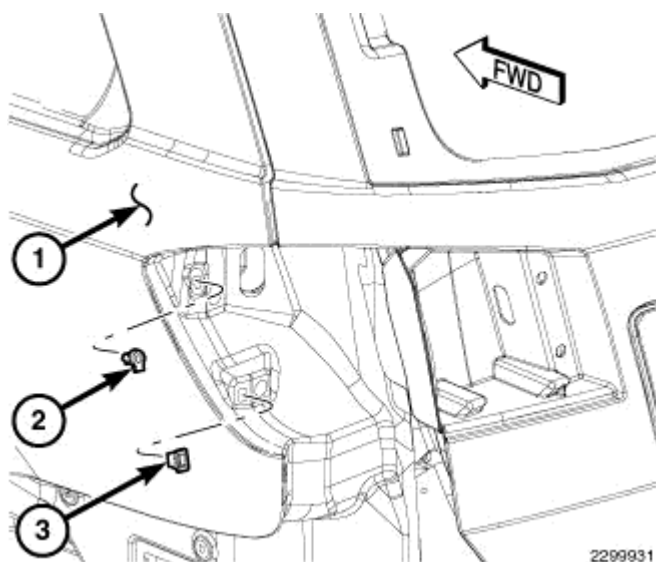


Fig. 32: Plastic Grommets

Courtesy of CHRYSLER LLC

1. Check to be certain that the two plastic grommets (2 and 3) are in good condition and properly installed in the outboard side of the lamp opening of the body sheet metal (1).

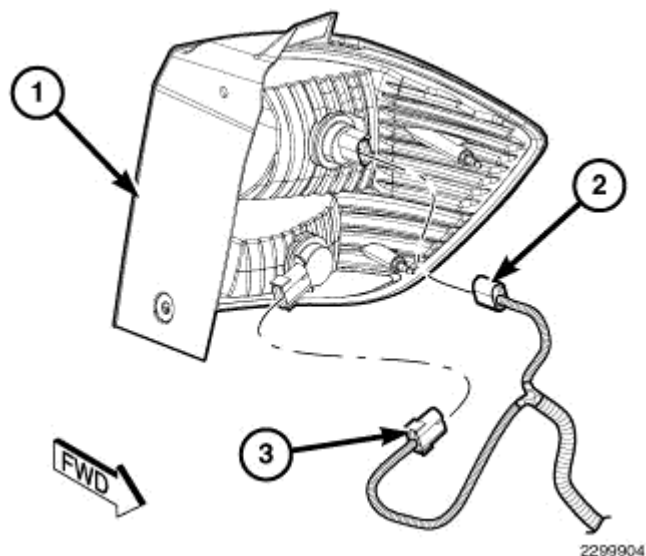
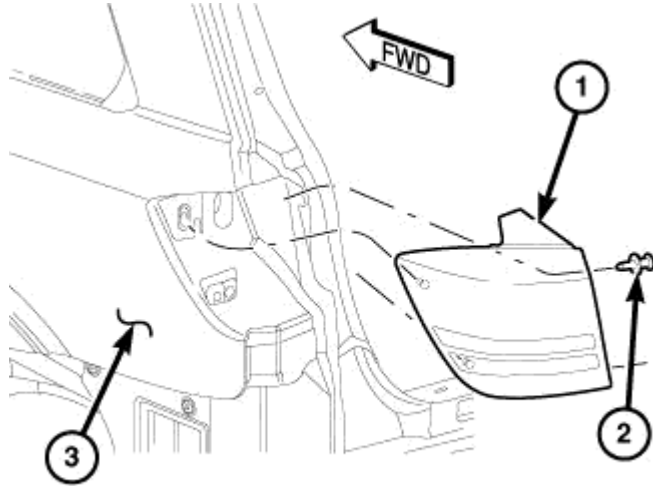


Fig. 33: Body Wire Harness Connectors

Courtesy of CHRYSLER LLC

2. Position the outer rear lamp unit (1) to the lamp opening of the body sheet metal.
3. Reconnect the two body wire harness connectors (2 and 3) to the bulb socket connector receptacles on the back of the lamp housing.



2278034

Fig. 34: Outer Rear Lamp Unit
Courtesy of CHRYSLER LLC

4. Align the two locating pins on the back of the lamp housing (1) with the plastic grommets in the lamp opening of the body sheet metal (3).
5. Using hand pressure, push firmly and evenly on the outboard top and bottom of the lamp until both alignment pins snap into the grommets.
6. Reinstall the two push pin fasteners (2) that secure the inboard side of the outer rear lamp unit to the side jamb of the liftgate opening.
7. Reconnect the battery negative cable.

INNER

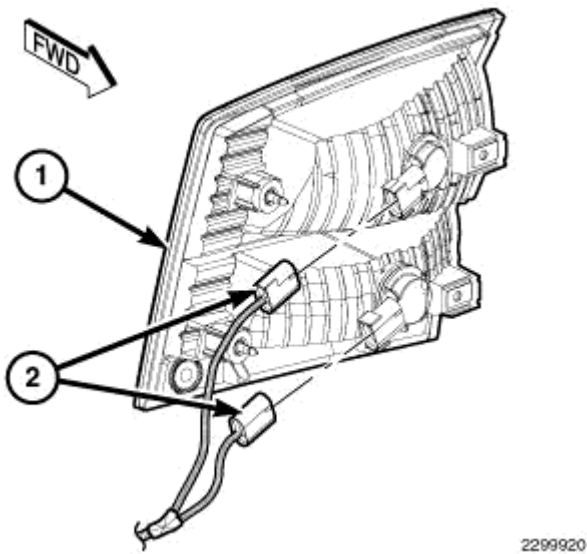


Fig. 35: Liftgate Wire Harness Connectors
Courtesy of CHRYSLER LLC

1. Check to be certain that the two plastic grommets are in good condition and properly installed on the inboard side of the liftgate lamp opening. If a grommet is removed, it must be replaced with a new unit.
2. Check to be certain that the two U-nuts are in good condition and properly installed on the outboard side of the inner rear lamp unit (1).
3. Position the lamp to the liftgate lamp opening.
4. Reconnect the two liftgate wire harness connectors (2) to the bulb socket connector receptacles on the back of the lamp housing.

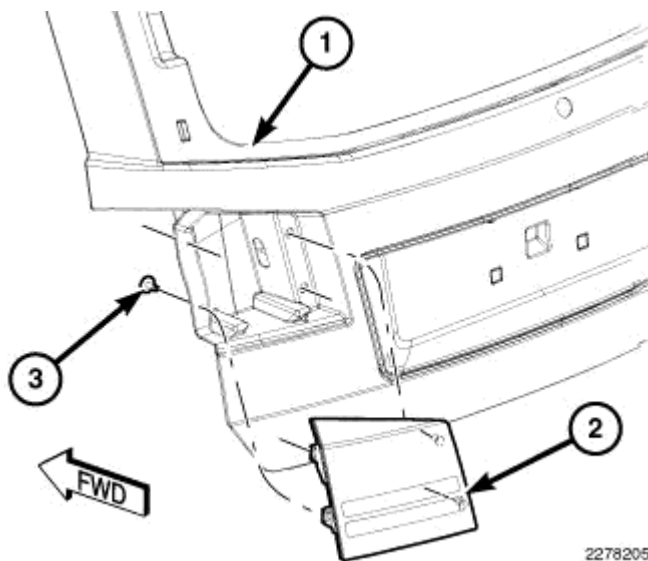


Fig. 36: Inner Rear Lamp Unit
Courtesy of CHRYSLER LLC

5. Align the two locating pins on the back of the lamp housing (2) with the plastic grommets in the liftgate

- (1) lamp opening.
6. Using hand pressure, push firmly and evenly on the inboard top and bottom of the lamp until both alignment pins snap into the grommets.
7. Install and tighten the two screws (3) that secure the outboard side of the inner rear lamp unit to the liftgate lamp opening. Tighten the screws to 1.5 N.m (15 in. lbs.).
8. Reconnect the battery negative cable.

MOTOR, HEADLAMP LEVELING, EXPORT

DESCRIPTION

DESCRIPTION

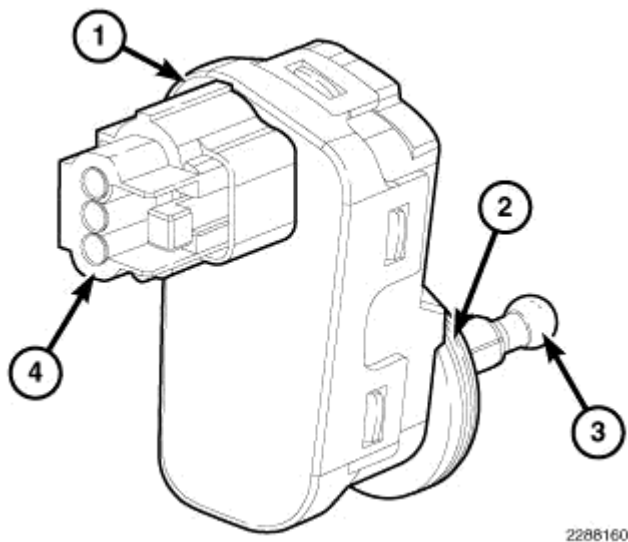


Fig. 37: Headlamp Leveling Motor
Courtesy of CHRYSLER LLC

The headlamp leveling motor (1) is located on the rear surface of each front lamp unit on vehicles equipped with the headlamp leveling system, which is available only in certain export markets where it is required equipment. The motor is encased within a molded plastic housing and is secured by an integral wedge-type mounting flange (2) 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 (4) on its upper rearward surface and a plastic pushrod with a ball formation (3) on its free end extends from the motor mounting flange. 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 headlamp and dash wire harness.

The headlamp leveling motor cannot be repaired and, if ineffective or damaged, the entire motor unit must be replaced.

OPERATION

OPERATION

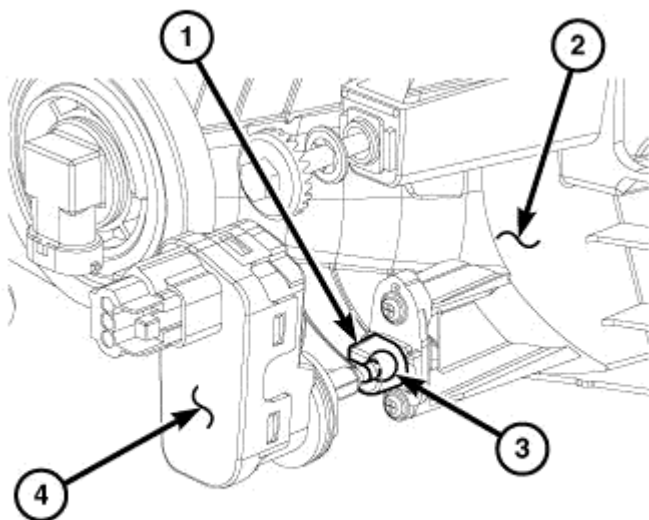
The controller board and logic circuitry of the headlamp leveling motor controls motor operation based upon a voltage signal input received from the Totally Integrated Power Module (TIPM). The TIPM uses electronic messages received over the Controller Area Network (CAN) data bus from the ElectroMechanical 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 saddle bracket 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 bulb filaments.

The hard wired circuits for the headlamp leveling motors may be diagnosed using conventional diagnostic tools and procedures. Refer to **SYSTEM WIRING DIAGRAMS** . 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.

REMOVAL

REMOVAL



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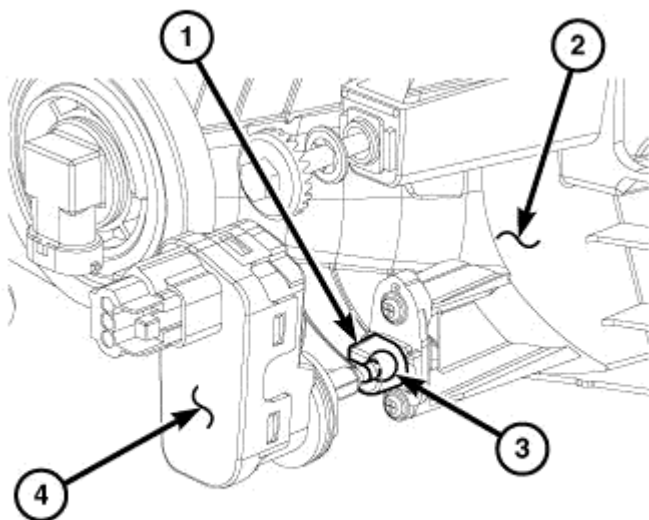
Fig. 38: Headlamp Leveling Motor On Back Of Lamp Housing
Courtesy of CHRYSLER LLC

NOTE: The graphic shows the right side front lamp unit as viewed from the back of the lamp with the housing removed. However, the housing cannot be removed from the lamp for service. This view was necessary in order to clearly illustrate the internal engagement of the headlamp leveling motor pushrod with the saddle bracket on the lamp reflector.

1. Disconnect and isolate the battery negative cable.
2. Remove front lamp unit from the vehicle. See **Electrical - Lamps and Lighting/Lamps/Lighting - Exterior/UNIT, Front Lamp - Removal**.
3. Rotate the headlamp leveling motor (4) on the back of the lamp housing counterclockwise about 30 degrees to unlock it from the housing.
4. Grasp the motor firmly with one hand and twist it toward the inboard side of the lamp far enough to disengage the ball on the end of the motor pushrod (3) from the saddle bracket (1) secured to the reflector (2) within the lamp housing.
5. Pull the motor and pushrod straight back and out of the front lamp unit housing.

INSTALLATION

INSTALLATION



2286363

Fig. 39: Headlamp Leveling Motor On Back Of Lamp Housing
Courtesy of CHRYSLER LLC

NOTE: The graphic shows the right side front lamp unit as viewed from the back of the lamp with the housing removed. However, the housing cannot be removed from the lamp for service. This view was necessary in order to clearly illustrate the internal engagement of the headlamp leveling motor pushrod with the saddle bracket on the lamp reflector.

1. Align and insert the headlamp leveling motor (4) and pushrod into the front lamp unit housing.
2. Grasp the motor firmly with one hand and twist it toward the inboard side of the lamp far enough to align the ball on the end of the motor pushrod (3) with the saddle bracket (1) secured to the reflector (2) within the lamp housing.

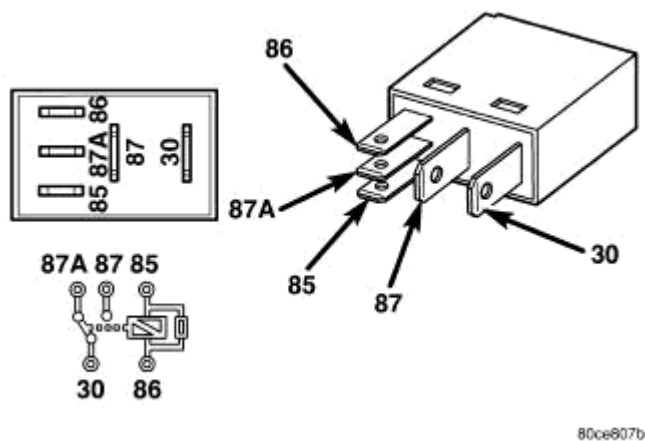
NOTE: It may be helpful to also remove a headlamp bulb from the lamp reflector and insert a finger through the bulb opening to move the reflector far enough to align the saddle bracket with the motor pushrod ball.

3. With the motor pushrod ball and reflector saddle bracket aligned, twist the motor back toward the outboard side of the lamp far enough to engage the pushrod ball into the reflector saddle bracket.
4. Insert the mounting flange of the headlamp leveling motor into the mounting boss on the back of the front lamp unit housing until the motor is firmly seated.
5. Rotate the motor clockwise about 30 degrees to lock it into place.
6. Reinstall the front lamp unit into the vehicle. See **Electrical - Lamps and Lighting/Lamps/Lighting - Exterior/UNIT, Front Lamp - Installation.**
7. Reconnect the battery negative cable.

RELAY, TRAILER TOW

DESCRIPTION

DESCRIPTION



80ce807b

Fig. 40: Identifying Relay & Terminals
Courtesy of CHRYSLER LLC

Vehicles equipped with an optional trailer tow preparation package have four trailer tow relays, one each for the trailer tow stop/turn right and left and one each for the trailer stop lamp right and left. The trailer tow relays are conventional International Standards Organization (ISO) micro relays. Relays conforming to the ISO specifications have common physical dimensions, current capacities, terminal patterns, and terminal functions. Each relay is contained within a small, rectangular, molded plastic housing and is connected to all of the required inputs and outputs through five integral male spade-type terminals that extend from the relay base plate.

The trailer tow relays are included with the trailer tow preparation wire harness that is shipped loose in the glove box for customer or dealer installation at the rear of the vehicle. A trailer tow stop/turn relay is located behind the rear fascia below each outer tail lamp, while a trailer stop lamp relay is located behind the rear fascia below each outboard end of the rear bumper reinforcement. Each relay and connector is wrapped within an isolator envelope for sound deadening and anti-rattle protection. Refer to **SYSTEM WIRING DIAGRAMS** for specific relay cavity assignment information.

Any of the trailer tow relays cannot be adjusted or repaired and, if ineffective or damaged, the affected unit must be replaced.

OPERATION

OPERATION

The trailer tow relays are electromechanical switches that use a low current input from the Totally Integrated Power Module (TIPM) to the tail lamps to control a high current output to the trailer brake and turn signal

lamps. Within each relay are an electromagnetic coil, a movable contact and two fixed contact points. A resistor is connected in parallel with the coil, and helps to dissipate voltage spikes and electromagnetic interference that can be generated as the field of the relay coil collapses.

The movable common supply contact point is held against the fixed normally closed contact point by spring pressure. When the relay coil is energized, an electromagnetic field is produced by the coil windings. This field draws the movable contact away from the normally closed contact, and holds it against the normally open contact. When the relay coil is de-energized, spring pressure returns the movable contact back against the normally closed contact.

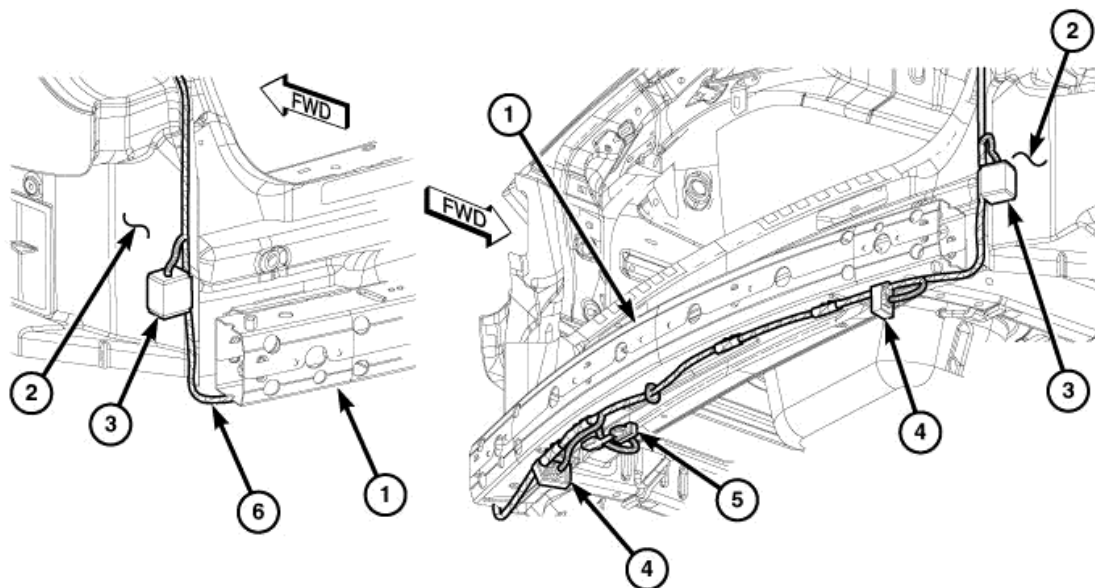
The inputs and outputs of the trailer tow relays include:

- **Common Supply Terminal (30)** - The common feed terminal of both the left and right trailer tow stop/turn relays is connected to their respective left or right trailer tow stop/turn signal pins of the 4-way trailer tow connector at all times. The common feed terminals of both the left and right trailer tow stop relays is connected to the normally closed (87A) terminal of their respective left or right trailer tow stop/turn relay at all times.
- **Coil Ground Terminal (85)** - The coil ground terminal of both the left and right trailer tow stop/turn relays is connected to their respective left or right rear turn signal control circuits from the TIPM at all times. The coil ground terminals of both the left and right trailer tow stop relays are connected to the stop lamp control circuit from the TIPM at all times.
- **Coil Battery Terminal (86)** - The coil battery terminal of both the left and right trailer tow stop/turn relays is connected to a path to ground at all times. The coil battery terminal of both the left and right trailer tow stop relays is connected to their respective left or right rear turn signal control circuits from the TIPM at all times.
- **Normally Open Terminal (87)** - The normally open terminal of both the left and right trailer tow stop/turn relays is connected to the stop lamp control circuit from the TIPM whenever that relay is energized. The normally open terminal of both the left and right trailer tow stop relays is connected to a path to ground whenever that relay is energized.
- **Normally Closed Terminal (87A)** - The normally closed terminal of both the left and right trailer tow stop/turn relays is connected are connected to the common supply (30) terminal of their respective left or right trailer tow stop relay whenever the relay is de-energized. The normally closed terminal of both the left and right trailer tow stop relays is not connected to any circuit in this application.

The trailer tow relays and the hard wired circuits for the relays may be diagnosed using conventional diagnostic tools and procedures. Refer to **SYSTEM WIRING DIAGRAMS** . However, conventional diagnostic methods will not prove conclusive in the diagnosis of the electronic controls and communication between other modules and devices that provide some features of the trailer tow turn and stop lamp lighting system. The most reliable, efficient, and accurate means to diagnose the electronic controls and communication related to trailer tow turn and stop lamp lighting operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

REMOVAL

REMOVAL



2291621

Fig. 41: Isolator Envelope

Courtesy of CHRYSLER LLC

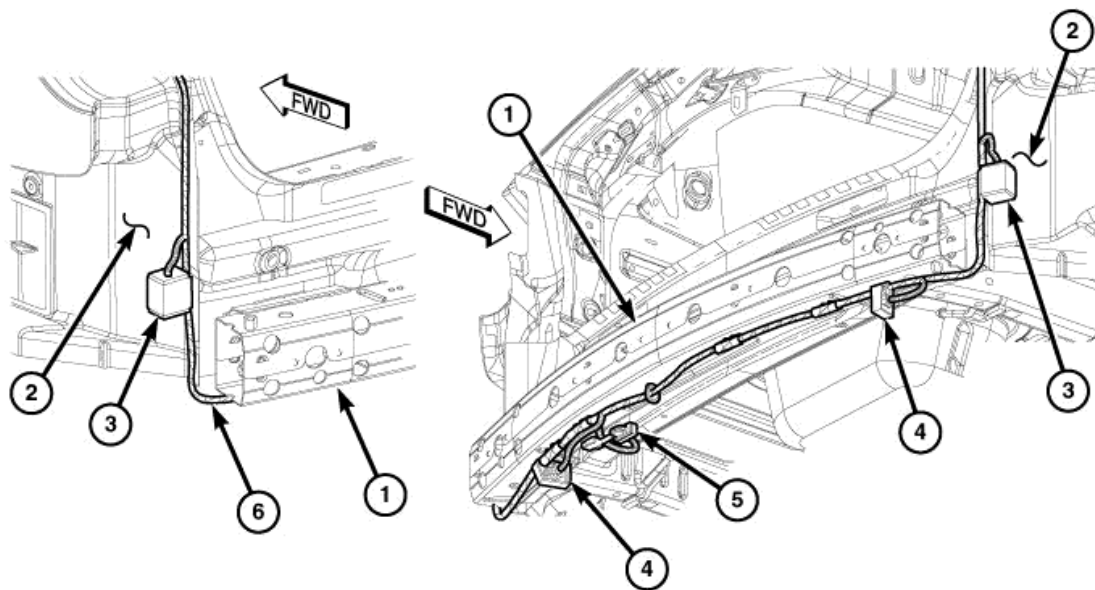
TRAILER TOW STOP/TURN RELAYS

1. Disconnect and isolate the battery negative cable.
2. Remove the rear fascia from the vehicle. Refer to **Frame and Bumpers/Bumpers/FASCIA, Rear - Removal**
3. Disengage the left or right trailer tow stop/turn relay and connector from the isolator envelope (3) secured to the trailer tow wire harness (6) along the left or right body side aperture (2) just below the outer tail lamp.
4. Pull the relay straight out from the wire harness connector.

TRAILER TOW STOP LAMP RELAYS

1. Disconnect and isolate the battery negative cable.
2. Remove the rear fascia from the vehicle. Refer to **Frame and Bumpers/Bumpers/FASCIA, Rear - Removal**
3. Disengage the left or right trailer tow stop lamp relay and connector from the isolator envelope (4) secured to the trailer tow wire harness (6) on the underside of the rear bumper reinforcement (1) on the left or right side of the 4-way trailer tow connector (5).
4. Pull the relay straight out from the wire harness connector.

INSTALLATION**INSTALLATION**



2291621

Fig. 42: Isolator Envelope

Courtesy of CHRYSLER LLC

TRAILER TOW STOP/TURN RELAYS

1. Align the terminals of the left or right trailer tow stop/turn relay with the terminal receptacles of the trailer tow wire harness connector.
2. Firmly and evenly push the relay into the connector until it is fully seated.
3. Insert the relay and connector into the isolator envelope (3) secured to the wire harness (6) along the left or right body side aperture (2) just below the outer tail lamp.
4. Reinstall the rear fascia onto the vehicle. Refer to **Frame and Bumpers/Bumpers/FASCIA, Rear - Installation** .
5. Reconnect the battery negative cable.

TRAILER TOW STOP LAMP RELAYS

1. Align the terminals of the left or right trailer tow stop lamp relay with the terminal receptacles of the trailer tow wire harness connector.
2. Firmly and evenly push the relay into the connector until it is fully seated.
3. Insert the relay and connector into the isolator envelope (4) secured to the trailer tow wire harness (6) on the underside of the rear bumper reinforcement (1) on the left or right side of the 4-way trailer tow connector (5).
4. Reinstall the rear fascia onto the vehicle. Refer to **Frame and Bumpers/Bumpers/FASCIA, Rear - Installation** .
5. Reconnect the battery negative cable.

SWITCH, BACKUP LAMP

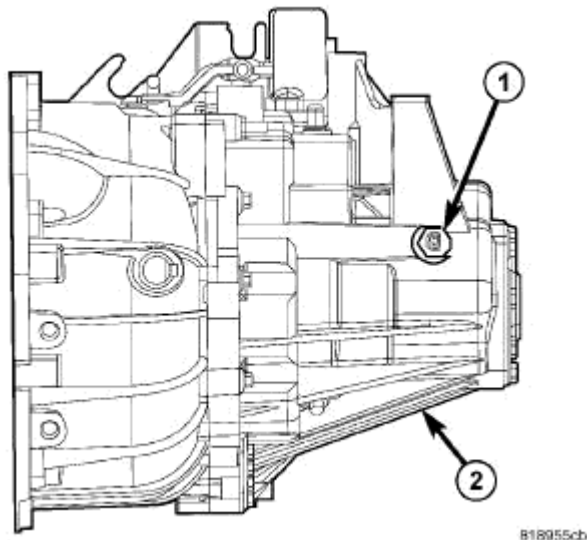
DESCRIPTION**DESCRIPTION**

Fig. 43: Backup Lamp Switch
Courtesy of CHRYSLER LLC

Vehicles equipped with a manual transmission (2) have a normally open, spring-loaded plunger type backup lamp switch (1). 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 left facing surface 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. Refer to the service and diagnostic information for the manual transmission type installed in the vehicle.

OPERATION**OPERATION**

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 wire harness that is secured to the body sheet metal.

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 **SYSTEM WIRING DIAGRAMS**. However, conventional diagnostic methods will not prove conclusive in the diagnosis of the electronic controls and communication between other modules and devices that rely upon inputs from the backup lamp switch. The most reliable, efficient, and accurate means to diagnose the electronic controls and communication related to backup lamp switch operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

DIAGNOSIS AND TESTING

BACKUP LAMP SWITCH

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

SWITCH, HAZARD WARNING

DESCRIPTION

DESCRIPTION

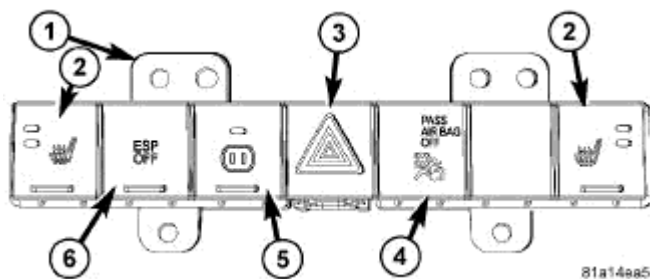


Fig. 44: Instrument Panel Switch Pod
Courtesy of CHRYSLER LLC

The hazard switch (3) is integral to the instrument panel switch pod (1), which is secured to the instrument panel center bezel just above 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 **Electrical - Instrument Cluster/Instrument Cluster/POD, Switch - Removal** .

OPERATION

OPERATION

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 ElectroMechanical 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 provides a hard wired output to the Totally Integrated Power Module (TIPM). 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, front and rear 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 hard wired circuits for the instrument panel switch pod may be diagnosed using conventional diagnostic tools and procedures. Refer to **SYSTEM WIRING DIAGRAMS** . 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.

SWITCH, HEADLAMP LEVELING, EXPORT

DESCRIPTION

DESCRIPTION

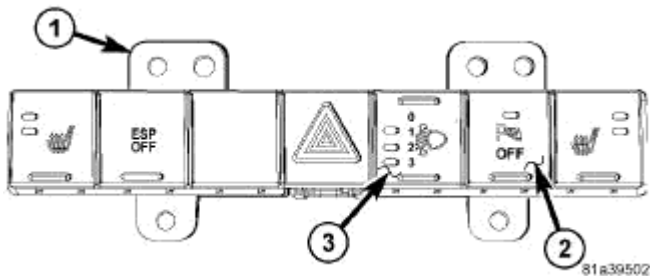


Fig. 45: Identifying Park Assist Switch
 Courtesy of CHRYSLER LLC

The headlamp leveling switch (3) is used only on vehicles manufactured for certain export markets where the headlamp leveling system is required. The headlamp leveling switch is integral to the switch pod (1), which is secured to the instrument panel center bezel just above the heater and air conditioner controls. 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-like 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 the molded black plastic instrument panel switch pod housing. A single connector receptacle is integral to the back of the switch pod housing. The switch pod 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 **Electrical - Instrument Cluster/Instrument Cluster/POD, Switch - Removal** .

OPERATION

OPERATION

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 ElectroMechanical 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 Controller Area Network (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 **SYSTEM WIRING DIAGRAMS** . 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.

SWITCH, MULTIFUNCTION, LEFT

DESCRIPTION

DESCRIPTION

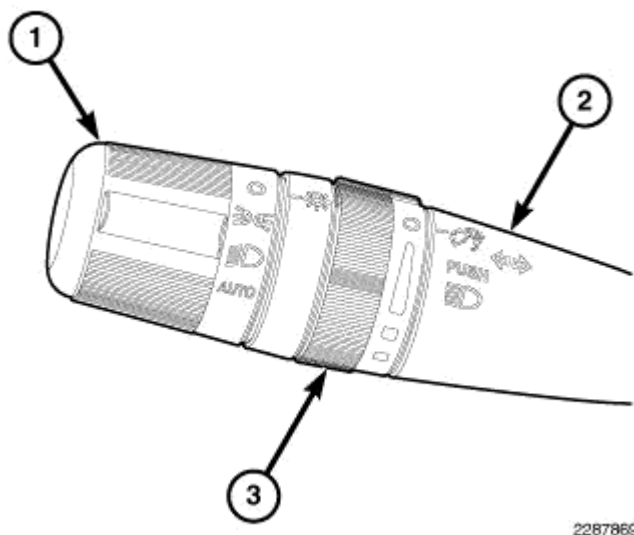
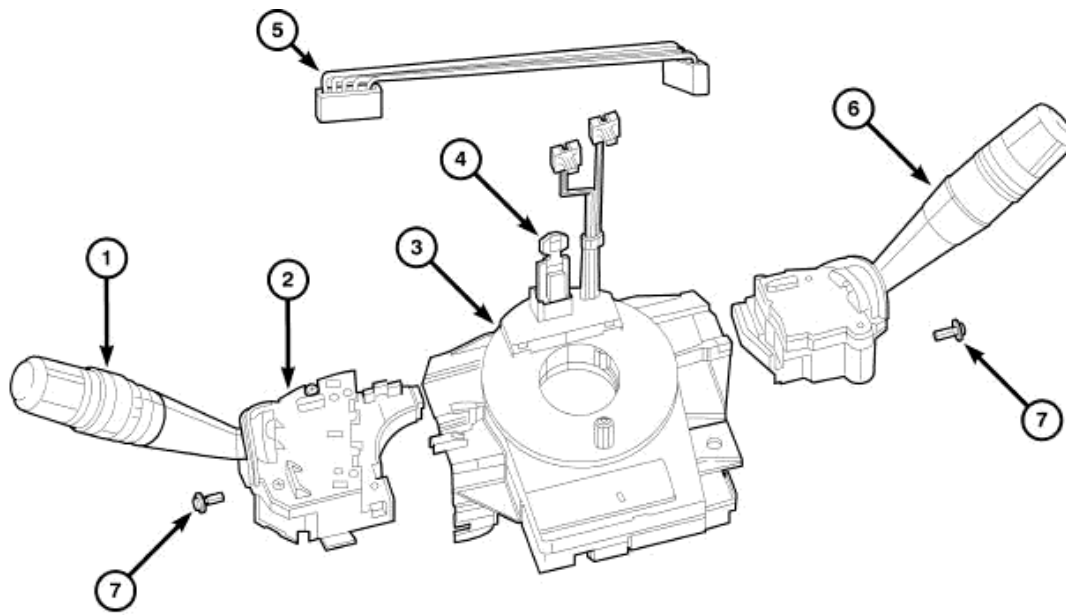


Fig. 46: Left Multifunction Switch
Courtesy of CHRYSLER LLC

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.



81785cc2

Fig. 47: Steering Control Module
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 functions:

- **Automatic Headlamps** - For vehicles so equipped, the left multi-function switch control knob provides detent switching for the optional automatic headlamps.
- **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 export 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 or the liftgate is opened.
- **Interior Lamps On** - The left multi-function switch control ring provides detent switching to illuminate all interior courtesy lamps simultaneously.
- **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 six 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

OPERATION

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 ElectroMechanical 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 system. 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 **SYSTEM WIRING DIAGRAMS**. 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:

- **Automatic Headlamps** - The optional automatic headlamps feature is requested when the left multi-function switch control knob is rotated to the automatic (AUTO) detent position with the ignition switch in the ON 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.
- **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

REMOVAL

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, 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.

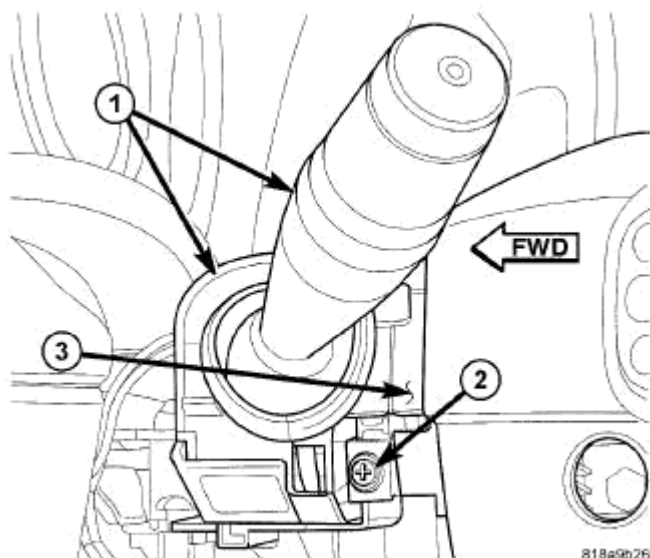


Fig. 48: Identifying Left Multi-Function Switch, Screw & Clockspring
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Remove both the upper and lower shrouds from the steering column. Refer to **Steering/Column/SHROUD, Steering Column - 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.

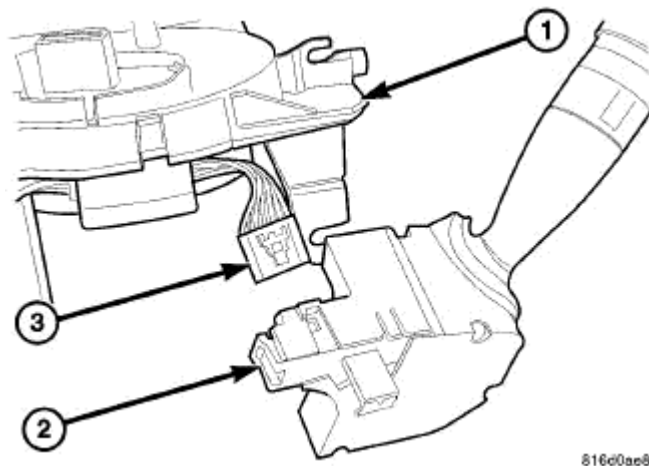


Fig. 49: Left Stalk Electrical Connector
Courtesy of CHRYSLER LLC

5. Slide the switch (2) away from the clockspring (1) 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 (3) from the connector receptacle on the inboard end of the left multi-function switch.
7. Remove the switch from the clockspring.

INSTALLATION

INSTALLATION

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, 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.

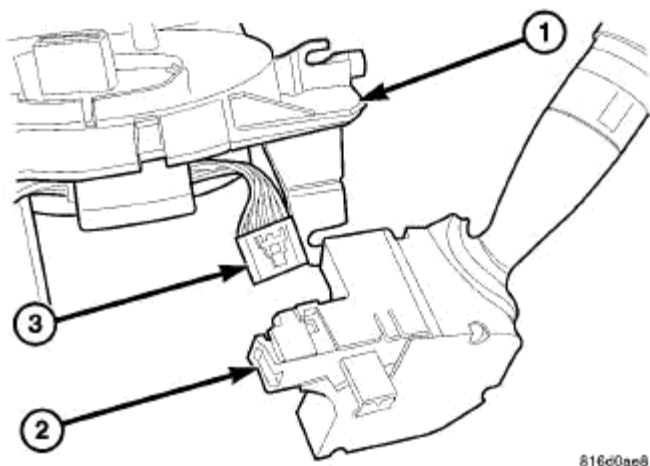


Fig. 50: Left Stalk Electrical Connector
Courtesy of CHRYSLER LLC

1. Position the left multi-function switch (2) close enough to the mounting bracket (1) integral to the left side of the clockspring to reconnect the jumper wire harness connector (3) 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.

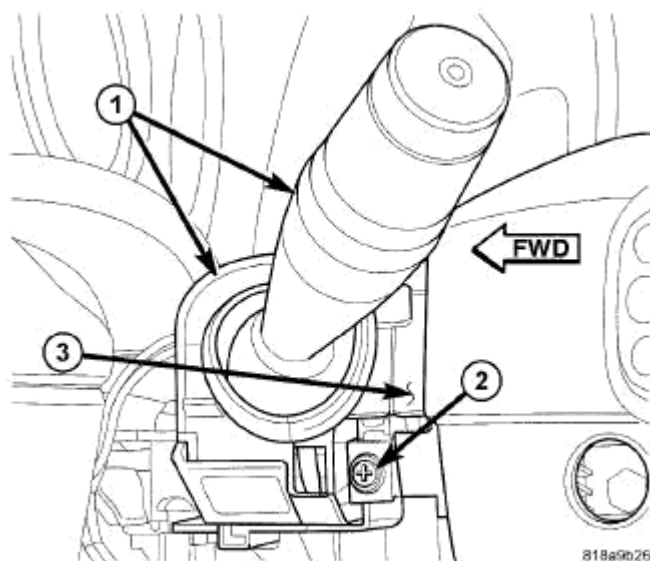


Fig. 51: Identifying Left Multi-Function Switch, Screw & Clockspring
Courtesy of CHRYSLER LLC

3. Install and tighten the screw (2) that secures the mounting tab on the front of the left multi-function

- switch (1) to the mounting bracket (3) on the clockspring. Tighten the screw to 1 N.m (10 in. lbs.).
- Reconnect the instrument panel wiring harness connector to the back of the left multi-function switch.
 - Reinstall the upper and lower shrouds onto the steering column. Refer to **Steering/Column/SHROUD, Steering Column - Installation**.
 - Reconnect the battery negative cable.

SWITCH, PARKING BRAKE

DESCRIPTION

DESCRIPTION

There are two unique park brake switches used on this vehicle, depending upon whether the vehicle has a foot-operated or hand-operated park brake lever mechanism.

FOOT-OPERATED

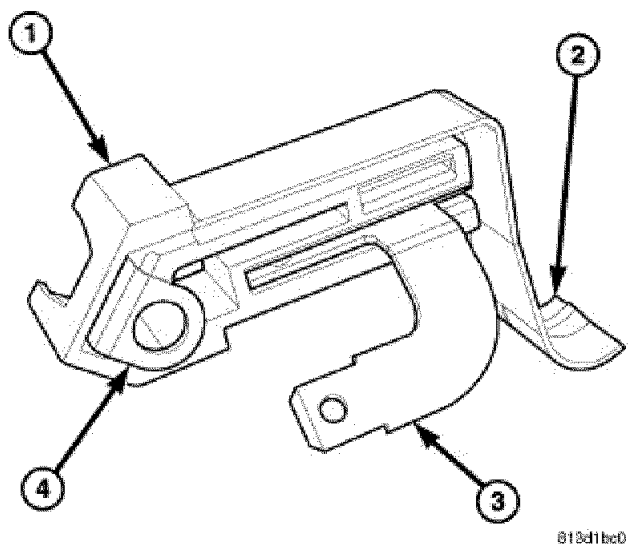


Fig. 52: Foot-Operated Park Brake Switch
Courtesy of CHRYSLER LLC

The foot-operated park brake switch (1) is located on the park brake lever mechanism on the cowl side inner panel below the instrument panel, outboard of the steering column. This switch includes a spade-type output terminal (3) 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 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 with an integral grounding lug (4) on one end and an integral actuating lever and follower (2) on the opposite end. The switch is secured to and grounded by a single screw to

the park brake lever mechanism.

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

HAND-OPERATED

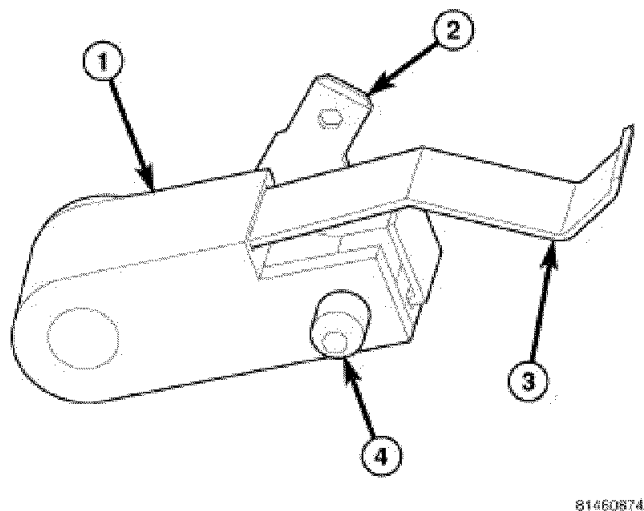


Fig. 53: Hand-Operated Park Brake Switch
Courtesy of CHRYSLER LLC

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

OPERATION

OPERATION

Both the foot-operated and hand-operated park brake switch are normally closed, mechanically actuated leaf contact switches that are operated by the foot or hand park brake lever mechanism. The switch is grounded through its mounting to the park brake lever mechanism and provides a ground input to the ElectroMechanical

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 as a logic input by the EMIC 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 **SYSTEM WIRING DIAGRAMS**. However, conventional diagnostic methods will not prove conclusive in the diagnosis of the electronic controls and communication between other modules and devices that rely upon inputs from the park brake switch. The most reliable, efficient, and accurate means to diagnose the electronic controls and communication related to park brake switch operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic 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, 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 **Brakes - 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 body 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 2. If not OK, replace the ineffective park brake switch.
2. Disconnect the instrument panel wire harness connector (Connector C2) for the instrument cluster from the cluster connector receptacle. Check for continuity between the park brake switch sense circuit cavities of the body wire harness connector for the park brake switch and the instrument panel 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 OKAY

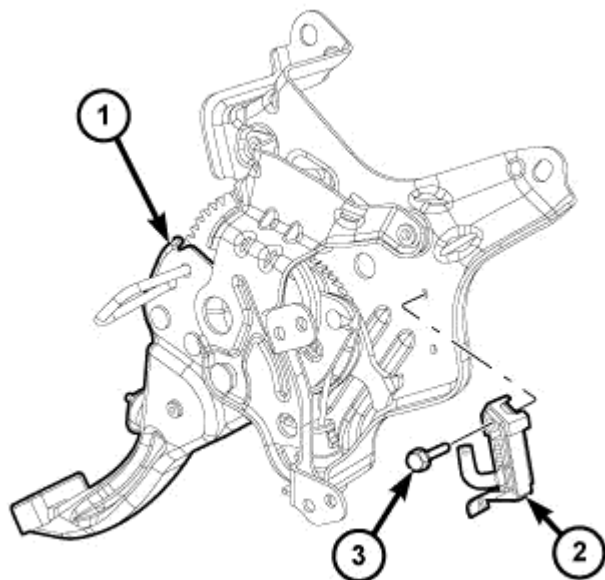
1. Disconnect and isolate the battery negative cable. Disconnect the body wire harness connector for the park brake switch from the switch terminal. Check for continuity between the terminal of the park brake switch and a good ground. There should be no continuity with the park brake released, and continuity with the park brake applied. If OK, go to 2. If not OK, replace the ineffective park brake switch.
2. Disconnect the instrument panel wire harness connector (Connector C2) for the instrument cluster from the cluster connector receptacle. Check for continuity between the park brake switch sense circuit cavity of the body 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

REMOVAL

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, 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.

FOOT-OPERATED



2295829

Fig. 54: Park Brake Lever Mechanism
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Apply the parking brake.
3. Reach under the left end of the instrument panel to access and disconnect the wire harness connector from the terminal of the park brake switch (2) located on the park brake lever mechanism (1) on the left cowl side inner panel.
4. Remove the screw (3) that secures the park brake switch to the park brake lever mechanism.
5. Remove the switch from the park brake lever mechanism.

HAND-OPERATED

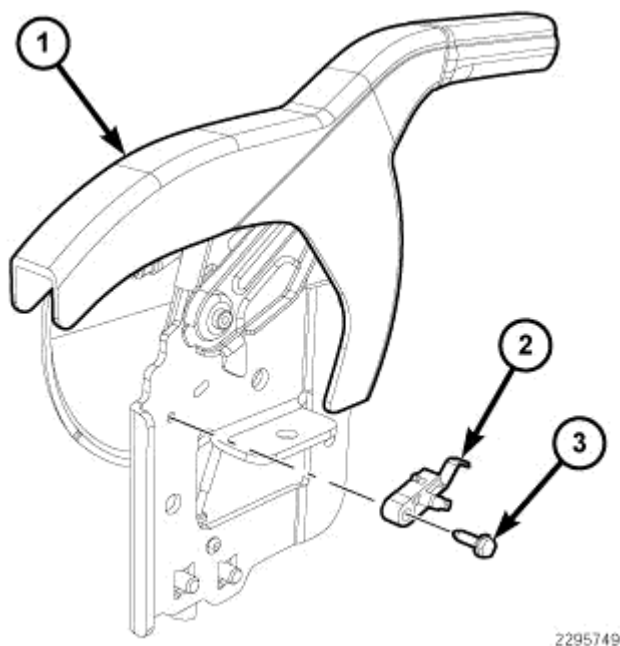


Fig. 55: Parking Brake Lever
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Remove the console from the floor panel transmission tunnel. Refer to **Body/Interior/CONSOLE, Center - Removal**
3. Pull the parking brake lever (1) upward to apply the parking brake.
4. Disconnect the wire harness connector from the terminal of the park brake switch (2) located on the right side of the park brake lever mechanism.
5. Remove the screw (3) that secures the switch to the park brake lever bracket.
6. Remove the switch from the park brake lever bracket.

INSTALLATION

INSTALLATION

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, 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.

FOOT-OPERATED

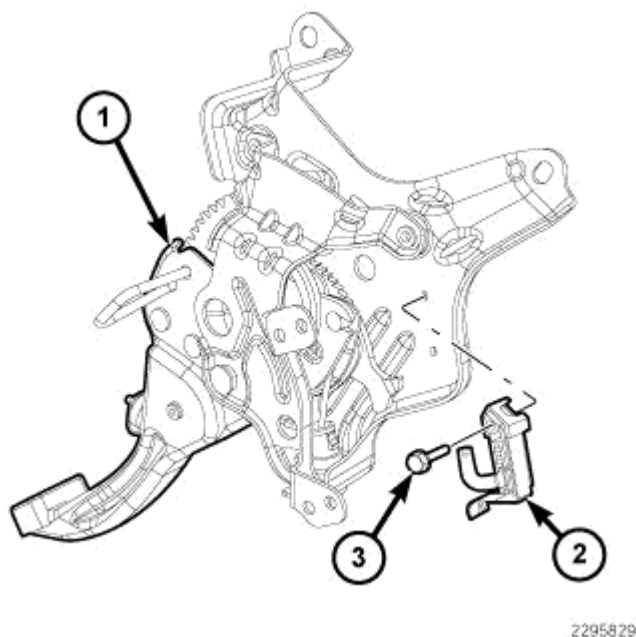


Fig. 56: Park Brake Lever Mechanism
Courtesy of CHRYSLER LLC

1. Reach under the left end of the instrument panel to position the park brake switch (2) onto the park brake lever mechanism (1) on the left cowl side inner panel. 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 (3) 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 to the terminal of the park brake switch.
4. Reconnect the battery negative cable.
5. 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.

HAND-OPERATED

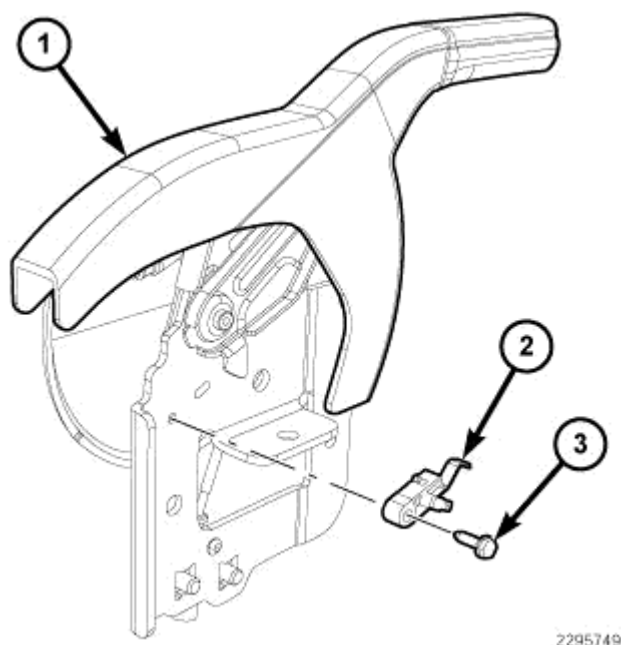


Fig. 57: Parking Brake Lever
 Courtesy of CHRYSLER LLC

1. Position park brake switch (2) onto the right side of the park brake lever (1) bracket. Be certain to engage the locating pin on the back of the switch insulator into the locating slot in the lever bracket.
2. Install and tighten the screw (3) that secures the switch to the lever bracket. Tighten the screw to 2.5 N.m (24 in. lbs.).
3. Reconnect the wire harness connector to the terminal of the switch.
4. Reinstall the console onto the floor panel transmission tunnel. Refer to **Body/Interior/CONSOLE, Center - 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.

SWITCH, STOP LAMP

DESCRIPTION

DESCRIPTION

Two unique brake lamp switches are used in this vehicle, depending upon whether the vehicle was built during early or late production. These switches are not interchangeable and both are illustrated and described in the paragraphs that follow.

EARLY PRODUCTION

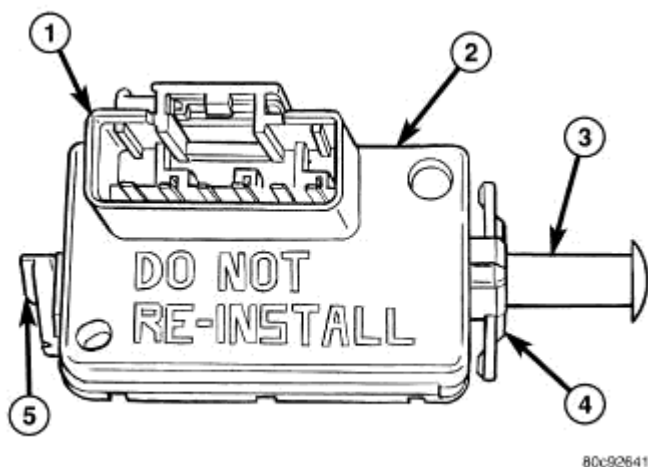


Fig. 58: Brake Lamp Switch
Courtesy of CHRYSLER LLC

This brake lamp switch (2) is a three circuit, spring-loaded plunger actuated switch that is secured to the brake pedal support bracket on the dash panel 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 body 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 horizontal and parallel to the connector receptacle.

This 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.

LATE PRODUCTION

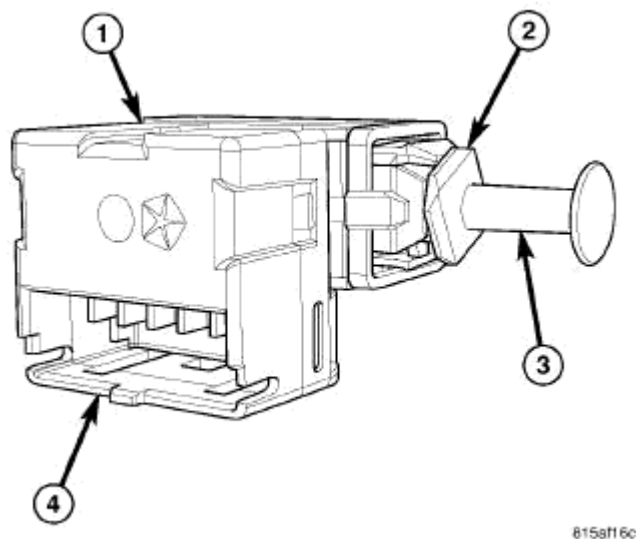


Fig. 59: Brake Lamp Switch
Courtesy of CHRYSLER LLC

This brake lamp switch (1) is a three circuit, spring-loaded plunger actuated switch that is secured to the brake pedal support bracket under the instrument panel on the driver side of the vehicle. The molded plastic switch housing has an integral connector receptacle (4) containing six terminal pins. The switch is connected to the vehicle electrical system through a dedicated take out of the body wire harness.

The switch plunger (3) extends through a mounting collar (2) on one end of the switch housing. The plunger has a telescoping self-adjustment feature that is activated after the switch is installed by pulling the brake pedal upward to its normal at-rest position. The telescoping plunger can be pulled outward from the switch housing to repeat the self-adjustment procedure if necessary.

This brake lamp switch cannot be repaired. If the switch is damaged or ineffective it must be replaced with a new unit.

OPERATION

OPERATION

Both the early and late production brake lamp switches control 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 Center High Mounted Stop Lamp (CHMSL) and the Totally Integrated Power Module (TIPM) 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 signal 1 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 Totally Integrated Power Module (TIPM) on an ignition run/start control output circuit, and supplies this battery voltage to the PCM on a brake signal 2 circuit only when the brake pedal is released (brake lamp switch plunger is depressed).

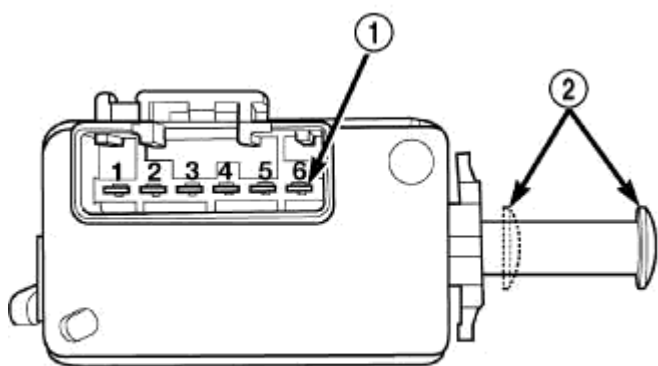
The PCM sends electronic **brake lamp switch status** messages to other electronic modules in the vehicle over the Controller Area Network (CAN) data bus for use as an additional logic input for controlling many other vehicle functions and features.

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 **SYSTEM WIRING DIAGRAMS**. However, conventional diagnostic methods will not prove conclusive in the diagnosis of the electronic controls and communication that provide some features related to brake lamp switch operation. The most reliable, efficient and accurate means to diagnose the electronic controls and communication related to brake lamp switch operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.

DIAGNOSIS AND TESTING

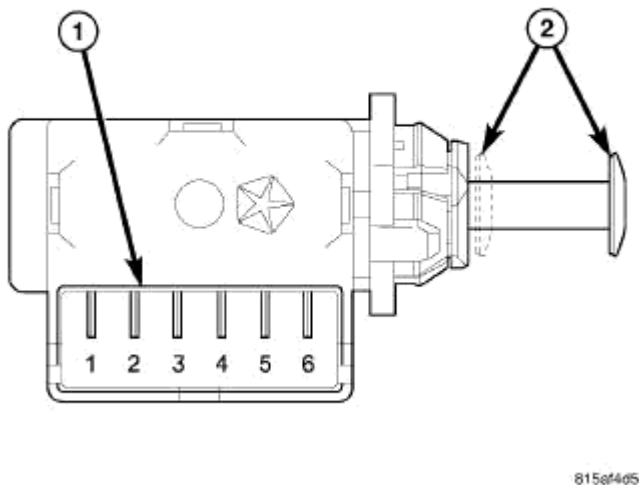
BRAKE LAMP SWITCH

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, 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.



80bce8e6

Fig. 60: Brake Lamp Switch - Early Production
Courtesy of CHRYSLER LLC



815ef4d5

Fig. 61: Brake Lamp Switch - Late Production
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.

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

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 below.

BRAKE LAMP SWITCH TESTS	
PLUNGER POSITION (2)	CONTINUITY BETWEEN
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

REMOVAL

Two unique brake lamp switches are used in this vehicle, depending upon whether the vehicle was built during early or late production. These switches are not interchangeable. Both switches are illustrated and described elsewhere in this service information to assist in positive identification. See **Electrical - Lamps and Lighting/Lamps/Lighting - Exterior/SWITCH, Stop Lamp - Description**.

EARLY PRODUCTION

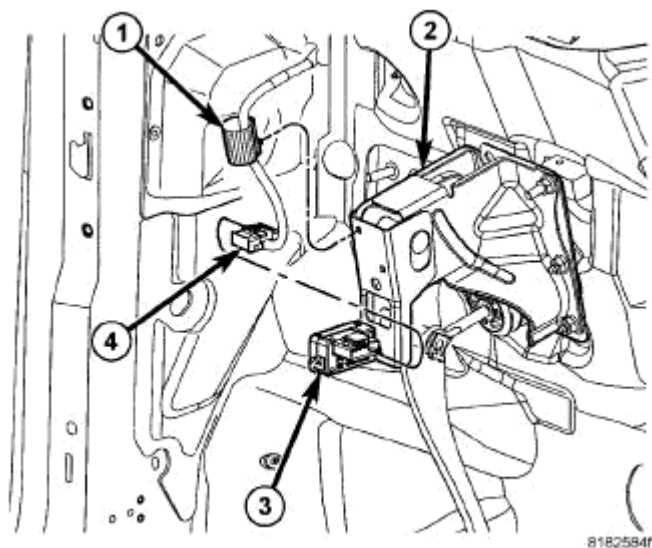


Fig. 62: Stop Lamp Switch Wiring Routing Clip, Brake Pedal Bracket, Stop Lamp Switch & Wiring Connector

Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. If equipped, remove the silencer pad from below the steering column. Refer to **Body/Instrument Panel/PANEL, Silencer - Removal**.
3. Locate the brake lamp switch (3) on the brake pedal support bracket (2) under the instrument panel.
4. Disconnect the wire harness connector (4) from the switch.

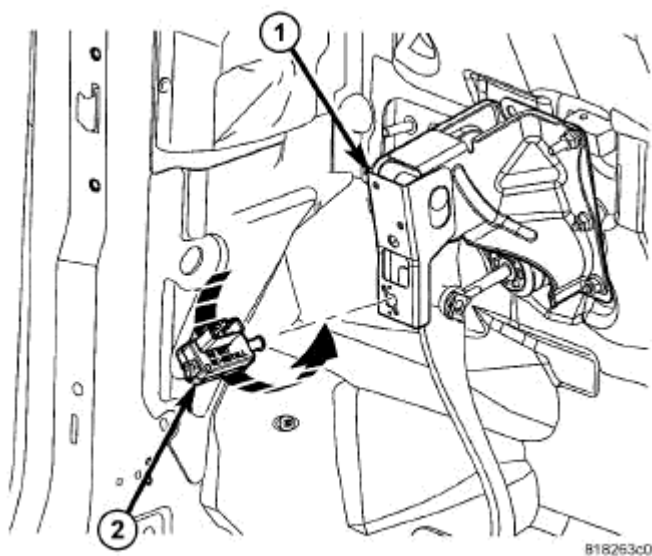


Fig. 63: STOP LAMP SWITCH REMOVAL

Courtesy of CHRYSLER LLC

1. Rotate the brake lamp switch housing (2) counterclockwise about 30 degrees to align the tabs on the switch locking collar with the keyed hole in the brake pedal support bracket (1).
2. Pull the switch straight rearward from the keyed hole to remove it from the bracket.
3. Discard the removed brake lamp switch. **The brake lamp switch self-adjusting plunger is a one time only feature. If the switch is removed from the bracket, it MUST be replaced with a new switch.**

LATE PRODUCTION

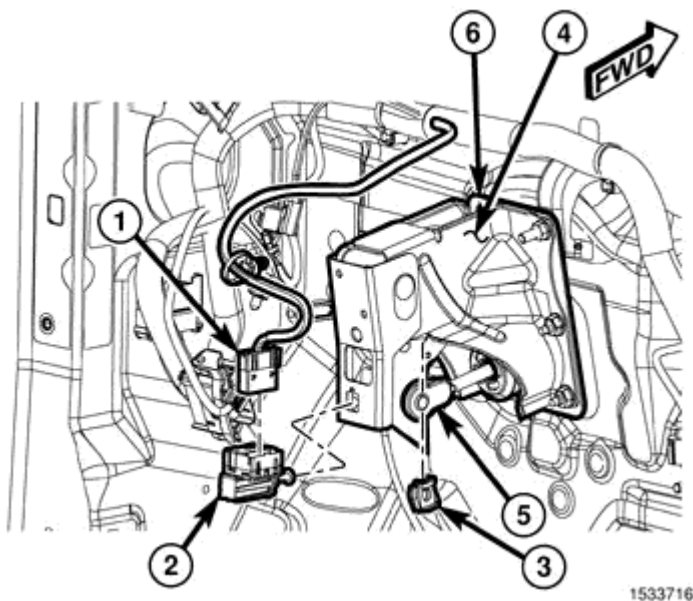


Fig. 64: Brake Lamp Switch On Brake Pedal Support Bracket

Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. If equipped, remove the silencer pad from below the steering column. Refer to **Body/Instrument Panel/PANEL, Silencer - Removal**.
3. Locate the brake lamp switch (2) on the brake pedal support bracket (4) under the instrument panel.
4. Depress and hold the brake pedal in the depressed position.
5. Rotate the brake lamp switch housing (2) counterclockwise about 30 degrees to align the tabs on the switch locking collar with the keyed hole in the brake pedal support bracket.
6. Pull the switch straight rearward from the keyed hole to remove it from the bracket.
7. Release the brake pedal.
8. Disconnect the wire harness connector (1) from the switch.

INSTALLATION

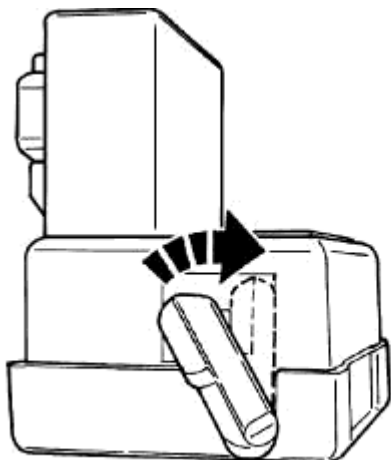
INSTALLATION

Two unique brake lamp switches are used in this vehicle, depending upon whether the vehicle was built during early or late production. These switches are not interchangeable. Both switches are illustrated and described elsewhere in this service information to assist in positive identification. See **Electrical - Lamps and Lighting/Lamps/Lighting - Exterior/SWITCH, Stop Lamp - Description**.

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, 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.

EARLY PRODUCTION

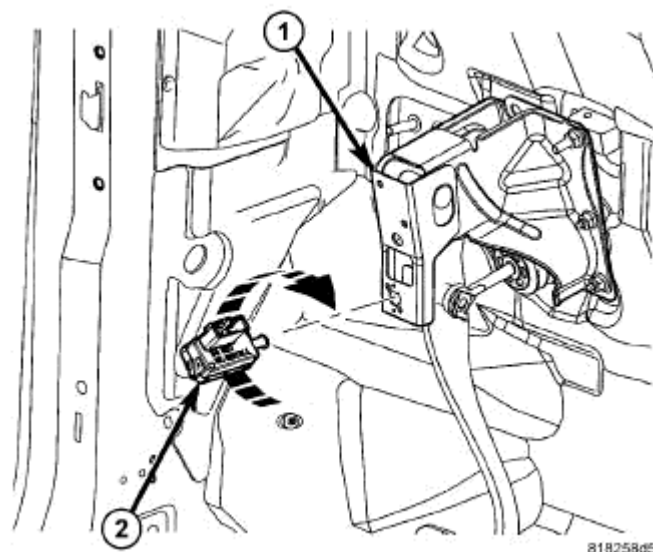
CAUTION: The brake lamp switch self-adjusting switch plunger is a one time only feature. If the switch is removed from the mounting bracket, it **MUST** be replaced with a new switch.



80c41498

Fig. 65: Switch Adjustment Lever
Courtesy of CHRYSLER LLC

1. Obtain a new brake lamp switch. The adjustment lever on the new switch should be at about a 45 degree angle to the switch connector receptacle. If the adjustment lever is parallel with the connector receptacle, the switch adjustment has already been set and the switch must be scrapped. **DO NOT ATTEMPT TO RESET OR READJUST THE BRAKE LAMP SWITCH.**



818258d5

Fig. 66: Identifying Stop Lamp Switch & Pedal Clip
Courtesy of CHRYSLER LLC

2. Depress and hold the brake pedal in the depressed position.
3. Align the tabs on the brake lamp switch (2) locking collar with the keyed hole in the brake pedal support bracket (1) below the instrument panel.
4. Insert the tabs on the brake lamp switch locking collar through the keyed hole in the brake pedal support bracket until the switch housing is firmly seated against the bracket.

5. Rotate the switch housing clockwise about 30 degrees to engage the tabs on the locking collar with the bracket.

CAUTION: Release, but do not 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 (2) 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.

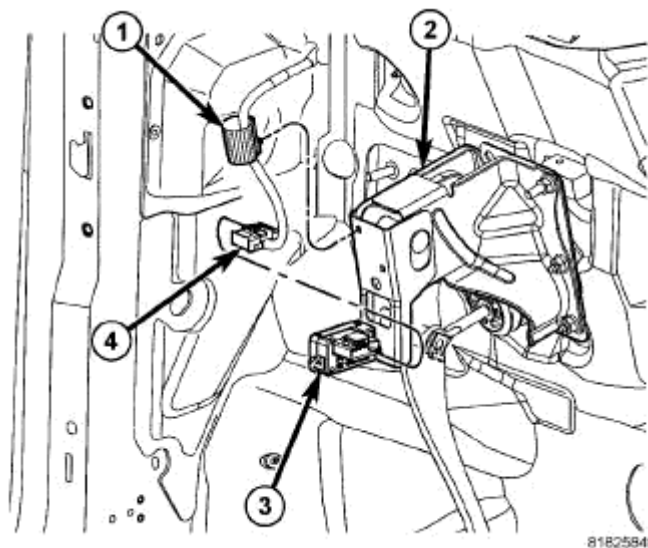


Fig. 67: Stop Lamp Switch Wiring Routing Clip, Brake Pedal Bracket, Stop Lamp Switch & Wiring Connector
Courtesy of CHRYSLER LLC

8. Reconnect the wire harness connector (4) to the brake lamp switch (3).
9. If equipped, reinstall the silencer pad below the steering column. Refer to **Body/Instrument Panel/PANEL, Silencer - Installation**.
10. Reconnect the battery negative cable.

LATE PRODUCTION

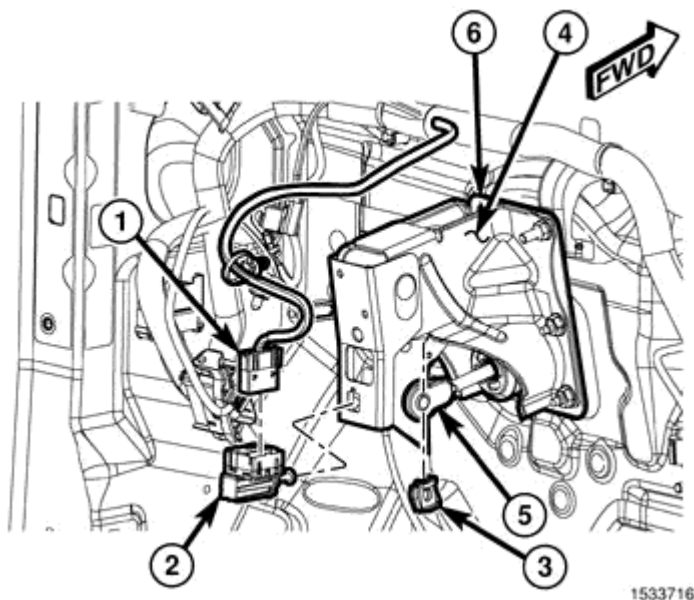


Fig. 68: Brake Lamp Switch On Brake Pedal Support Bracket
 Courtesy of CHRYSLER LLC

1. Be certain that the brake lamp switch (2) plunger is pulled all the way out of the switch housing to its fully extended position.
2. Reconnect the wire harness connector (1) to the connector receptacle on the switch.
3. Depress and hold the brake pedal in the depressed position.
4. Align the tabs on the brake lamp switch locking collar with the keyed hole in the brake pedal support bracket (2).
5. Insert the tab on the brake lamp switch locking collar through the keyed hole in the support bracket until the switch housing is firmly seated against the bracket.
6. Rotate the switch housing clockwise about 30 degrees to engage the tabs on the locking collar with the support bracket.

CAUTION: Brake booster damage may occur if the brake pedal pull exceeds about 9 kilograms (20 pounds).

7. Release the brake pedal. Then pull the pedal lightly upward to its normal at-rest position. The pedal will set the plunger to the correct position as the pedal pushes the plunger into the switch housing. The switch plunger will make a light audible ratcheting noise as it self-adjusts.
8. If equipped, reinstall the silencer pad below the steering column. Refer to **Body/Instrument Panel/PANEL, Silencer - Installation**.
9. Reconnect the battery negative cable.

ADJUSTMENTS

ADJUSTMENT - LATE PRODUCTION TYPE ONLY

Two unique brake lamp switches are used in this vehicle, depending upon whether the vehicle was built during early or late production. These switches are not interchangeable and, only the late production type switch can be readjusted following initial installation using this adjustment procedure. If the early production type switch requires readjustment for any reason, it **must** be replaced with a new switch. Both switches are illustrated and described elsewhere in this service information to assist in positive identification. See **Electrical - Lamps and Lighting/Lamps/Lighting - Exterior/SWITCH, Stop Lamp - Description**.

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, 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.

1. Disconnect and isolate the battery negative cable.
2. If equipped, remove the silencer pad from below the steering column. Refer to **Body/Instrument Panel/PANEL, Silencer - Removal**.
3. Depress and hold the brake pedal in the depressed position.
4. Pull the brake lamp switch plunger all the way out of the switch housing to its fully extended position.

CAUTION: Brake booster damage may occur if the brake pedal pull exceeds about 9 kilograms (20 pounds).

5. Release the brake pedal. Then pull the pedal lightly upward to its normal at-rest position. The pedal will set the plunger to the correct position as the pedal pushes the plunger into the switch housing. The switch plunger will make a light audible ratcheting noise as it self-adjusts.
6. If equipped, reinstall the silencer pad below the steering column. Refer to **Body/Instrument Panel/PANEL, Silencer - Installation**.
7. Reconnect the battery negative cable.

UNIT, FRONT LAMP

STANDARD PROCEDURE

FRONT LAMP UNIT 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

BULBS

HEADLAMP HIGH BEAM

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.

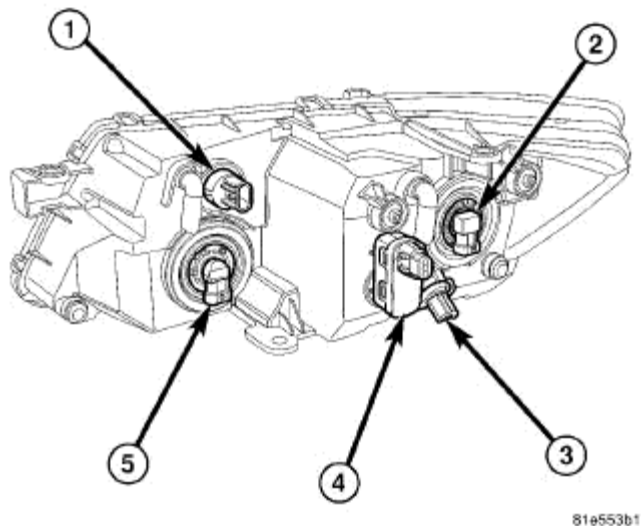


Fig. 69: Headlamp Bulb
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Disconnect the wire harness connector from the connector receptacle integral to the headlamp bulb (5) on the back of the front lamp unit housing.
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.

HEADLAMP LOW BEAM

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.

1. Disconnect and isolate the battery negative cable.
2. Disconnect the wire harness connector from the connector receptacle integral to the headlamp bulb (2) on the back of the front lamp unit housing.
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

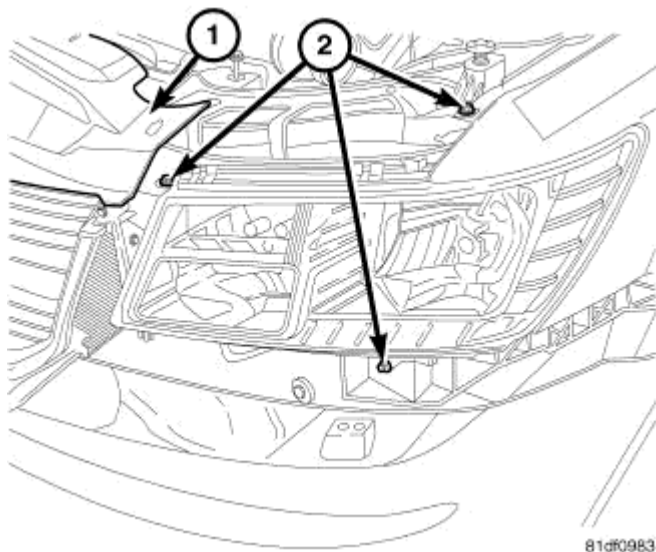
NOTE: The following procedure applies only to vehicles manufactured for certain export markets. Vehicles manufactured for domestic markets do not have a position lamp bulb, socket or wiring provided in the front lamp unit.

1. Disconnect and isolate the battery negative cable.
2. Disconnect the wire harness connector from the connector receptacle integral to the position lamp bulb socket (3) on the back of the front lamp unit housing.
3. Firmly grasp the position lamp bulb socket on the back of the housing 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.

TURN SIGNAL/SIDE MARKER LAMP

1. Disconnect and isolate the battery negative cable.
2. Disconnect the wire harness connector from the connector receptacle integral to the turn signal/side marker lamp bulb socket (1) on the back of the front lamp unit housing.
3. Firmly grasp the turn signal/side marker lamp bulb socket on the back of the housing 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.

LAMP

**Fig. 70: Fascia & Grille**

Courtesy of CHRYSLER LLC

1. Disconnect and isolate the battery negative cable.
2. Loosen the front fascia on the same side of the vehicle as the front lamp unit being removed. Refer to **Frame and Bumpers/Bumpers/FASCIA, Front - Removal**.
3. Remove the four plastic push-pin fasteners that secure the upper grille to the Front End Module (FEM).
4. Flex the fascia and grille (1) outward far enough to access and remove the three screws (2) that secure the front lamp unit to the FEM.
5. Pull the front lamp unit away from the FEM far enough to access and disconnect the headlamp and dash wire harness connectors from the back of the lamp housing.
6. Remove the front lamp unit from the vehicle.

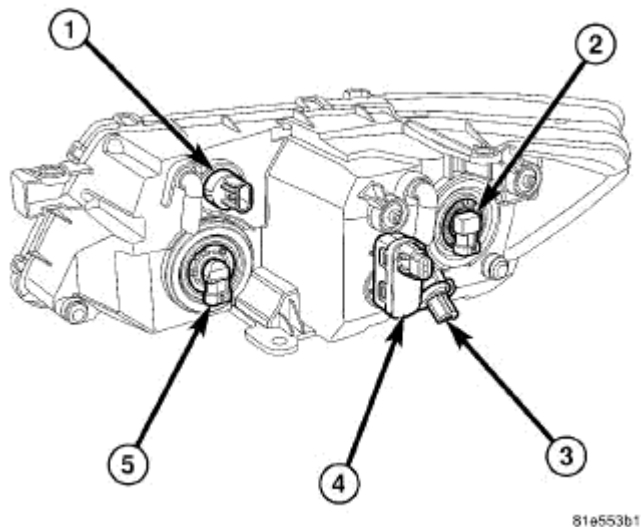
INSTALLATION

BULBS

HEADLAMP HIGH BEAM

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. 71: Headlamp Bulb**

Courtesy of CHRYSLER LLC

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

HEADLAMP LOW BEAM

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.

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

POSITION LAMP

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

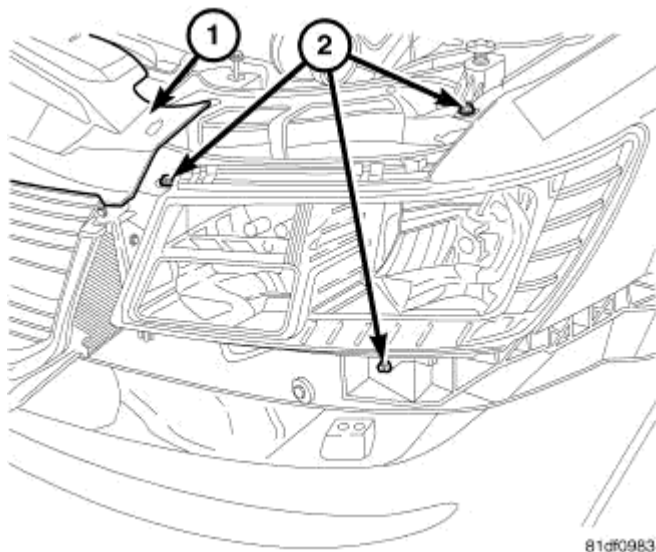
1. Align the base of the bulb with the position lamp bulb socket (3).
2. Push the bulb straight into the socket until the base is firmly seated.
3. Align the socket and bulb with the keyed opening on the back of the front lamp unit housing.
4. Insert the socket and bulb straight into the housing until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

TURN SIGNAL/SIDE MARKER LAMP

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.

1. Align the base of the bulb with the park/turn signal lamp bulb socket (1).
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.
4. Insert the socket and bulb straight 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 to the connector receptacle integral to the park/turn signal lamp bulb socket.
7. Reconnect the battery negative cable.

LAMP

**Fig. 72: Fascia & Grille**

Courtesy of CHRYSLER LLC

NOTE: If the front lamp is being replaced with a new unit, the bulbs and sockets must be transferred from the unit being replaced.

1. Position the front lamp unit to the front of the vehicle.
2. Reconnect the headlamp and dash wire harness connectors to the back of the lamp housing.
3. Position the front lamp unit into the Front End Module (FEM).
4. Flex the fascia and grille (1) outward far enough to install and tighten the three screws (2) that secure the front lamp unit to the FEM. Tighten the screws securely.
5. Reinstall the four plastic push-pin fasteners that secure the upper grille to the FEM.
6. Reinstall the front fascia on the same side of the vehicle as the front lamp unit being installed. Refer to **Frame and Bumpers/Bumpers/FASCIA, Front - Installation**
7. Reconnect the battery negative cable.
8. Confirm proper headlamp alignment. See **Electrical - Lamps and Lighting/Lamps/Lighting - Exterior - Standard Procedure**.

WIRING, TRAILER TOW

DESCRIPTION

DESCRIPTION

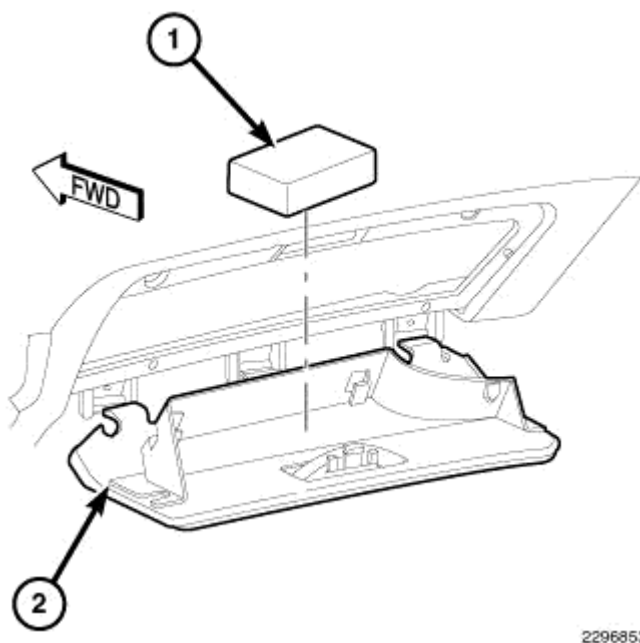


Fig. 73: Instruction Sheet Are Placed In Glove Box
Courtesy of CHRYSLER LLC

Vehicles equipped with an optional Trailer Tow Preparation package have a trailer tow wiring harness and an instruction sheet (1) that are placed in the glove box (2) of the vehicle when it is shipped from the factory. This package also includes four relays to isolate the trailer lighting from the vehicle lighting and a four-way trailer tow wiring connector that are all concealed behind the rear bumper fascia after installation is complete.

OPERATION

OPERATION

The trailer tow preparation wiring harness is connected to the body wire harness at the right and left outer rear lamp unit connections. After installation is complete, a trailer tow stop/turn relay is secured to the harness behind the rear bumper fascia just below each outer rear lamp unit, while a trailer tow stop lamp relay is located on the underside of each outboard end of the rear bumper reinforcement behind the rear fascia. The four-way trailer tow connector is located near the center of the rear fascia.

Refer to **SYSTEM WIRING DIAGRAMS** . 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. Also refer to the Instruction Sheet packaged with the harness for additional details.