

POWER MIRROR SYSTEMS

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OUTSIDE POWER MIRRORS

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GENERAL INFORMATION

INTRODUCTION

Power operated and heated outside rear view mirrors are standard factory-installed equipment on this model. Following are general descriptions of the major components in the power mirror system. Refer to 8W-62 - Power Mirrors in Group 8W - Wiring Diagrams for complete circuit descriptions and diagrams.

MEMORY SYSTEM

An electronic memory system is an available option on this model. The memory system is able to store and recall the driver's power seat positions (including power lumbar and recliner positions), both outside power mirror positions, and ten radio station presets (including last station tuned) for two drivers. The memory system will automatically return to all of these settings when the corresponding button (Driver 1 or 2) of the memory switch on the driver's front door trim panel is depressed, or when the doors are unlocked using the corresponding (Driver 1 or 2) Remote Keyless Entry (RKE) transmitter.

The Driver Door Module (DDM) receives hard-wired input from the memory set/select switch on the driver's front door trim panel. The DDM also receives messages on the Chrysler Collision Detection (CCD) data bus network from the Remote Keyless Entry (RKE) receiver in the Passenger Door Module (PDM)

for the memory select function. The DDM processes these inputs and sends messages to the radio, the PDM, and the Memory Seat Module (MSM) on the CCD data bus for memory recall.

The CCD data bus network allows the sharing of sensor information. This helps to reduce wiring harness complexity, reduce internal controller hardware, and reduce component sensor current loads. At the same time, this system provides increased reliability, enhanced diagnostics, and allows the addition of many new feature capabilities.

This group covers only the diagnostic procedures for the conventional power mirror system components. For additional information on the features and functions of the memory system, refer to the vehicle owner's manual. For diagnosis of the memory system, use of a DRB scan tool and the proper Body Diagnostic Procedures Manual are recommended.

DESCRIPTION AND OPERATION

POWER MIRROR

The power mirrors are connected to battery feed at all times. Each mirror head contains two electric motors, two drive mechanisms, an electric heating element, horizontal and vertical position sensors for the memory system option, and the mirror glass. One motor and drive controls mirror up-and-down move-

DESCRIPTION AND OPERATION (Continued)

ment, and the other controls right-and-left movement.

An optional driver's side electrochromic mirror is able to automatically change its reflectance level. This mirror is controlled by the circuitry of the automatic day/night inside rear view mirror. A thin layer of electrochromic material between two pieces of conductive glass make up the face of the mirror. Two photocell sensors are used to monitor light levels and adjust the mirror's reflectance to reduce the glare of headlamps approaching the vehicle from the rear. Refer to the Automatic Day/Night Mirror section of this group for more information on the operation of this system.

The power mirror assembly cannot be repaired. If any component of the mirror unit is faulty or damaged, the entire assembly must be replaced.

POWER MIRROR SWITCH

Both the right and left power mirrors are controlled by a multi-function switch located on the driver's door trim panel. This switch is integral to the Driver Door Module (DDM).

A selector switch is moved right (right mirror control), left (left mirror control), or center to turn the power mirrors off. Then one of four directional control buttons is depressed to control movement of the selected mirror up, down, right, or left.

The power mirror switch cannot be repaired and, if faulty, the DDM must be replaced.

DOOR MODULE

A Driver Door Module (DDM) and a Passenger Door Module (PDM) are used on this model to control and integrate many of the vehicle's electrical features and functions. The DDM and PDM communicate with each other, and with other vehicle modules on the Chrysler Collision Detection (CCD) data bus network.

The CCD data bus network allows the sharing of sensor information. This helps to reduce wiring harness complexity, internal controller hardware, and component sensor current loads. At the same time, this system provides increased reliability, enhanced diagnostics, and allows the addition of many new feature capabilities.

Each door module controls the positioning of its respective outside mirror. When the power mirror switch on the DDM is used to position the passenger side outside mirror, the DDM sends mirror positioning messages to the PDM on the CCD data bus. The PDM then moves the passenger side mirror accordingly.

Both the PDM and DDM respond to the defogger switch status messages sent by the Body Control Module on the CCD data bus to control the heater

elements of their respective mirrors. Refer to Group 8N - Electrically Heated Systems for more information on this feature.

On models equipped with the memory system, each door module stores the mirror position information for its respective mirror. When the DDM receives a Driver 1 or 2 signal from the Memory Switch or from the Remote Keyless Entry (RKE) system in the PDM, it positions the left side mirror and sends a memory recall message on the CCD data bus to the PDM to position the right side mirror.

For diagnosis of the DDM, PDM, or the CCD data bus network, refer to the proper Body Diagnostic Procedures Manual.

DIAGNOSIS AND TESTING**POWER MIRROR SYSTEM**

If only one power mirror is inoperative, or partially inoperative, see the tests under Power Mirror in this group. If both power mirrors are inoperative, proceed as follows. For circuit descriptions and diagrams, refer to 8W-62 - Power Mirrors in Group 8W - Wiring Diagrams.

NOTE: The following tests may not prove conclusive in the diagnosis of this system. The most reliable, efficient, and accurate means to diagnose this system involves the use of a DRB scan tool and the proper Body Diagnostic Procedures Manual.

(1) Check the circuit breaker in the junction block. If OK, go to Step 2. If not OK, replace the faulty circuit breaker.

(2) Check the fuse in the Power Distribution Center (PDC). If OK, go to Step 3. If not OK, replace the faulty fuse.

(3) Disconnect and isolate the battery negative cable. Remove the driver's door trim panel as described in this group. Check the 12-way door module wiring connector to see that it is fully seated in the door module receptacle. If OK, go to Step 4. If not OK, install the connector properly.

(4) Unplug the 12-way connector from the door module. Check for continuity between the ground circuit cavity of the door module connector and a good ground. There should be continuity. If OK, go to Step 5. If not OK, repair the open circuit as required.

(5) Connect the battery negative cable. Check for battery voltage at the fused B(+) circuit cavity of the connector. If OK, use a DRB scan tool and the proper Body Diagnostic Procedures Manual to test the door modules and the CCD data bus. If not OK, repair the open circuit as required.

DIAGNOSIS AND TESTING (Continued)

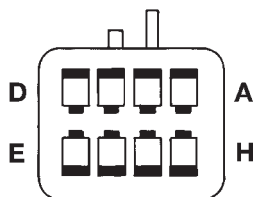
POWER MIRROR

If both power mirrors are inoperative, see the tests under Power Mirror System in this group. If only one power mirror is inoperative, or partially inoperative, refer to the symptom diagnosis as follows. For circuit descriptions and diagrams, refer to 8W-62 - Power Mirrors in Group 8W - Wiring Diagrams.

LIMITED OR NO MIRROR MOVEMENT

(1) Disconnect and isolate the battery negative cable. Remove the front door trim panel on the side of the inoperative mirror as described in Door Module in this group.

(2) Unplug the mirror harness connector from the door module. Using two jumper wires test the mirror as shown in the Mirror Test chart (Fig. 1). If the mirror tests OK, use a DRB scan tool and the proper Body Diagnostic Procedures Manual to test the door modules and the CCD data bus. If the mirror does not test OK, replace the faulty mirror.



POWER MIRROR HARNESS CONNECTOR		
APPLY 12 VOLTS TO:	APPLY GROUND TO:	MIRROR REACTION
A	G	LEFT
G	A	RIGHT
H	G	UP
G	H	DOWN

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Fig. 1 Mirror Test**NO MIRROR HEAT**

If both mirror heaters are inoperative, refer to Group 8N - Electrically Heated Systems to test the Rear Defogger System.

(1) Disconnect and isolate the battery negative cable. Remove the front door trim panel on the side of the inoperative mirror as described in Door Module in this group.

(2) Unplug the mirror harness connector from the door module. Check for continuity between the heater switched ground circuit cavity and the heater 12V supply circuit cavity of the mirror connector. There should be continuity. If OK, use a DRB scan

tool and the proper Body Diagnostic Procedures Manual to test the door modules and the CCD data bus. If not OK, replace the faulty mirror.

NO MIRROR DIMMING (Driver's Side Only)

(1) Test the operation of the Automatic Day/Night Mirror as described in this group. If OK, go to Step 2. If not OK, repair that unit as necessary before you proceed.

(2) Disconnect and isolate the battery negative cable. Remove the driver's front door trim panel as described in Door Module in this group.

(3) Unplug the 2-way electric chromatic mirror harness connector and connect a voltmeter to the door harness half of the connector. Perform the automatic day/night mirror test as described in this group, while observing the voltmeter. A voltmeter reading of $1.45 \pm .5$ volts indicates a proper dimming signal is being received at the mirror connector. If OK, replace the faulty power mirror. If not OK, repair the circuits to the automatic day/night mirror as required.

NO MIRROR MEMORY

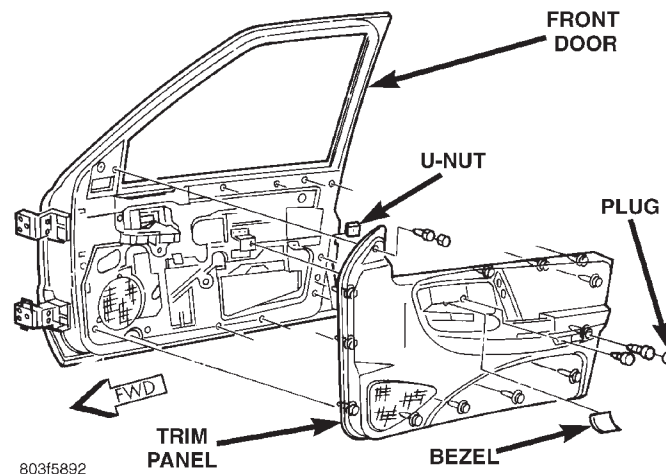
For diagnosis of the memory system, use of a DRB scan tool and the proper Body Diagnostic Procedures Manual are recommended.

REMOVAL AND INSTALLATION**DOOR MODULE**

(1) Disconnect and isolate the battery negative cable.

(2) Remove the bezel near the inside door latch release handle by inserting a straight-bladed screwdriver in the notched end and prying gently upwards.

(3) Remove the door trim panel mounting screw located in the bezel opening near the inside door latch release handle (Fig. 2).

**Fig. 2 Front Door Trim Panel Remove/Install**

REMOVAL AND INSTALLATION (Continued)

(4) Remove the trim cap and screw near the rear of the door armrest.

(5) Remove the trim cap and screw at the upper front corner of the trim panel.

(6) Remove the screw located above the front door speaker grille.

(7) Using a wide flat-bladed tool such as a trim stick, pry the trim panel away from the door around the perimeter and remove the trim panel.

NOTE: To aid in the removal of the trim panel, start at the bottom of the panel.

(8) Unplug the wiring connectors from the door module and the door courtesy lamp, if equipped.

(9) Remove the five screws securing the door module to the door trim panel (Fig. 3).

(10) Remove the door module from the trim panel.

(11) Reverse the removal procedures to install.

POWER MIRROR

(1) Disconnect and isolate the battery negative cable.

(2) Remove the door trim panel as described under Door Module in this group.

(3) Unplug the electric chromatic mirror connector, if equipped.

(4) Unclip the mirror harnesses from the inner door panel.

(5) Remove the mirror flag seal (Fig. 4).

(6) Remove the three nuts securing the mirror to the door.

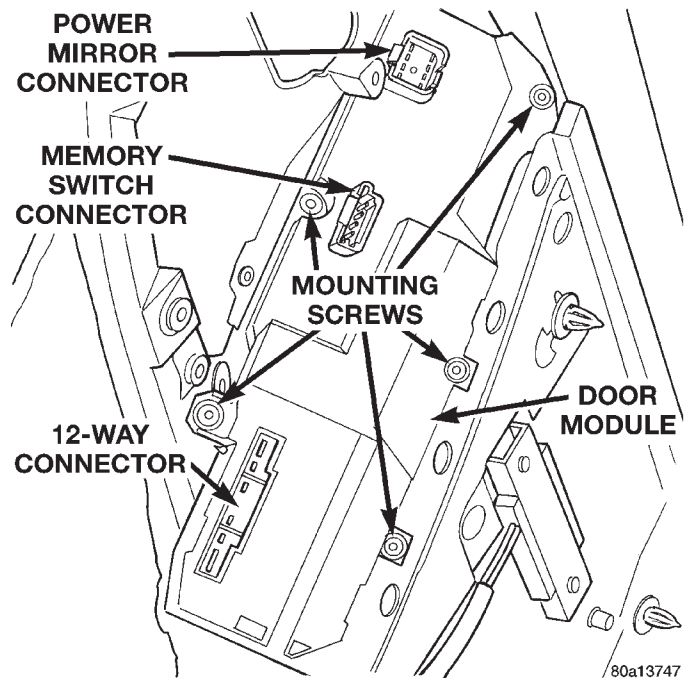


Fig. 3 Door Module Remove/Install

(7) Remove the mirror from the door.

(8) Reverse the removal procedures to install. Tighten the mirror nuts to 7.4 N·m (65 in. lbs.).

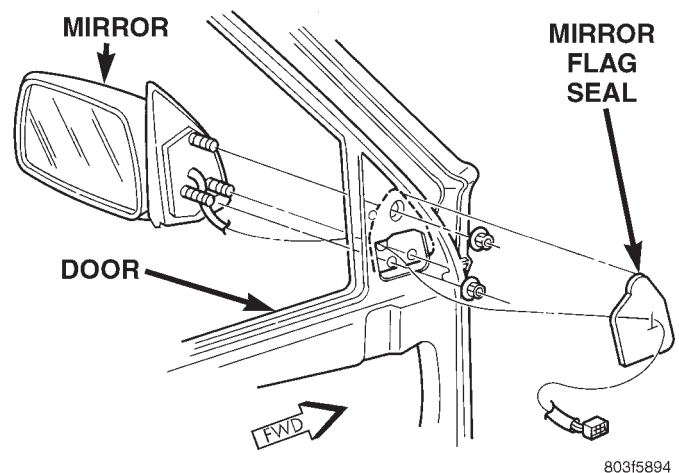


Fig. 4 Power Mirror Remove/Install

AUTOMATIC DAY/NIGHT MIRROR

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GENERAL INFORMATION

INTRODUCTION

An automatic dimming inside day/night rear view mirror and an automatic dimming driver's outside rear view mirror are available factory-installed options on this model. Following is a general description of this optional equipment. Refer to 8W-44 - Interior Lighting and 8W-62 - Power Mirrors in Group 8W - Wiring Diagrams for complete circuit descriptions and diagrams.

DESCRIPTION AND OPERATION

AUTOMATIC DAY/NIGHT MIRROR

The automatic day/night mirror is able to automatically change its reflectance. A thin layer of electrochromic material between two pieces of conductive glass make up the face of the mirror. Two photocell sensors are used to monitor light levels and adjust the mirror's reflectance to reduce the glare of headlamps approaching the vehicle from the rear.

The ambient photocell sensor faces forward, to detect the outside light levels. The headlamp sensor faces rearward, to detect the light level received at the rear window side of the mirror. When the difference between the two light levels becomes too great (the light level received at the rear of the mirror is much higher than at the front of the mirror), the mirror begins to darken.

The mirror switch allows the driver a manual control of whether the automatic dimming feature is operational. When On is selected, the mirror switch is lighted by an integral Light-Emitting Diode (LED). The automatic dimming feature will only operate when the ignition switch is in the On position. The mirror also senses the back-up lamp circuit, and disables the self-dimming feature whenever the transmission gear selector is in the Reverse position.

On models with an optional electrochromic driver's outside rear view mirror, the signal to control the dimming of that mirror is generated by the automatic day/night inside rear view mirror circuitry.

That signal is then delivered to the driver's outside rear view mirror on a hard-wired circuit.

The automatic day/night mirror cannot be repaired. If faulty, the entire assembly must be replaced.

DIAGNOSIS AND TESTING

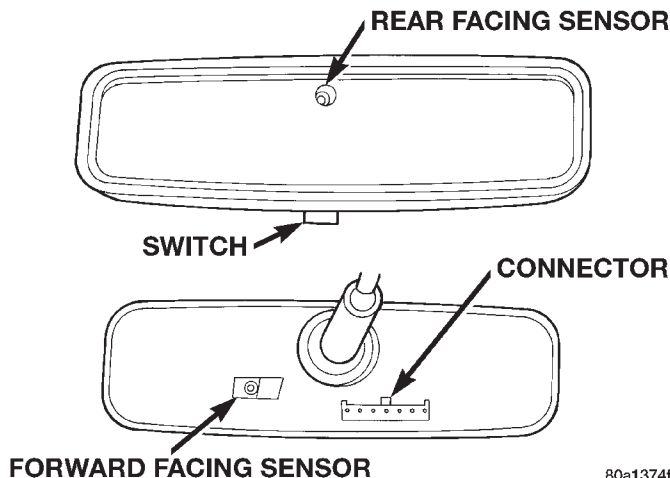
AUTOMATIC DAY/NIGHT MIRROR

For circuit descriptions and diagrams, refer to 8W-44 - Interior Lighting or 8W-62 Power Mirrors in Group 8W - Wiring Diagrams.

(1) Check the fuse in the junction block. If OK, go to Step 2. If not OK, replace the faulty fuse.

(2) Turn the ignition switch to the On position. Check for battery voltage at the fuse in the junction block. If OK, go to Step 3. If not OK, repair the open circuit to the ignition switch as required.

(3) Unplug the wiring connector from the mirror (Fig. 1). Check for battery voltage at the fused ignition switch output circuit cavity of the mirror connector. If OK, go to Step 4. If not OK, repair the open circuit to the junction block as required.



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Fig. 1 Automatic Day/Night Mirror

(4) Turn the ignition switch to the Off position. Check for continuity between the ground circuit cav-

DIAGNOSIS AND TESTING (Continued)

ity of the mirror connector and a good ground. There should be continuity. If OK, go to Step 5. If not OK, repair the circuit to ground as required.

(5) Turn the ignition switch to the On position. Set the parking brake. Place the transmission gear selector lever in the Reverse position. Check for battery voltage at the back-up lamp switch output circuit cavity of the mirror connector. If OK, plug the mirror connector in and go to Step 6. If not OK, repair the open circuit as required.

(6) Place the transmission gear selector lever in the Neutral position. Place the mirror switch in the On (switch LED lighted) position. Cover the forward facing ambient photocell sensor to keep out any ambient light.

NOTE: The ambient photocell sensor must be covered completely, so that no light reaches the sensor. Use a finger pressed tightly against the sensor, or cover the sensor completely with electrical tape.

(7) Shine a light into the rear facing headlamp photocell sensor. The mirror should darken. If OK, go to Step 8. If not OK, replace the faulty mirror unit.

(8) With the mirror darkened, place the transmission gear selector lever in the Reverse position. The mirror should return to its normal condition. If not OK, replace the faulty mirror unit.

REMOVAL AND INSTALLATION

AUTOMATIC DAY/NIGHT MIRROR

(1) Disconnect and isolate the battery negative cable.

(2) If so equipped, remove the wire cover by grasping the lower portion of the wire cover and sliding it into the upper portion and off of the mirror base (Fig. 2).

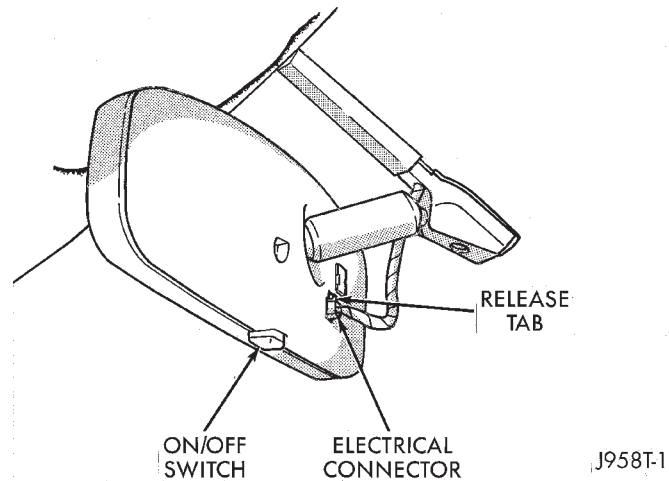


Fig. 2 Automatic Day/Night Mirror Remove/Install - Typical

- (3) Unplug the wiring connector from the mirror.
- (4) Remove the setscrew holding the mirror to the windshield support button.
- (5) Push the mirror up far enough to clear the support button and remove the mirror.
- (6) Reverse the removal procedures to install.