

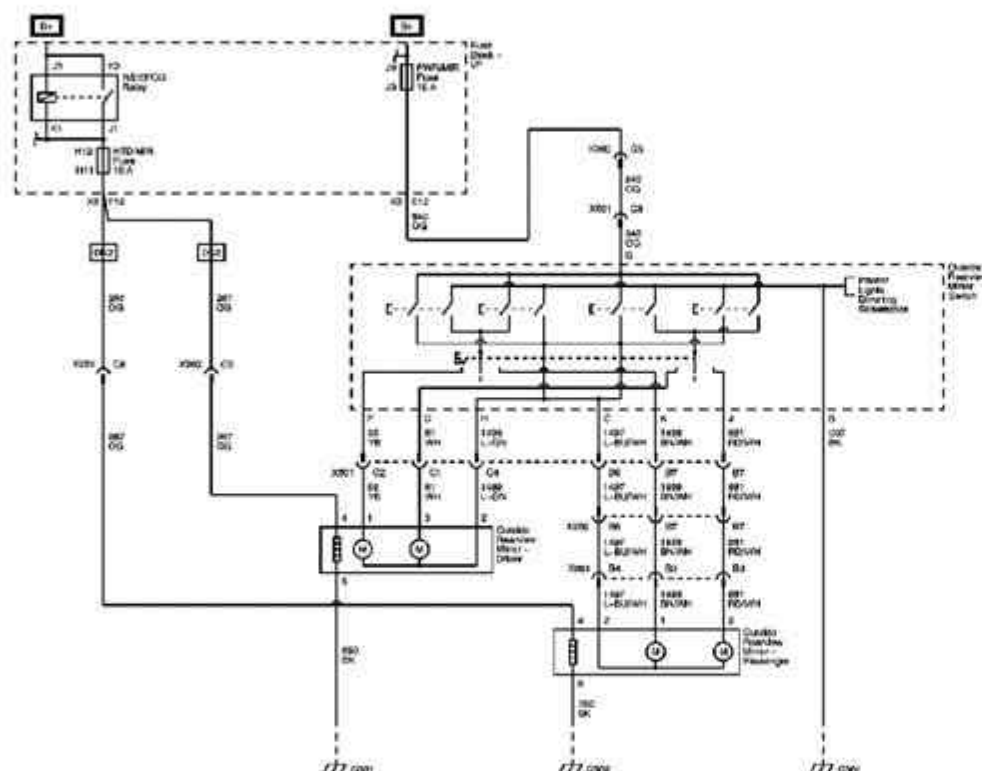


Fig. 2: Outside Rearview Mirror Schematic
 Courtesy of GENERAL MOTORS CORP.

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC STARTING POINT - MIRRORS

Begin the system diagnosis with the **Diagnostic System Check - Vehicle**. The Diagnostic System Check will provide the following information:

- The identification of the control modules which command the system.
- The ability of the control modules to communicate through the serial data circuit.
- The identification of any stored diagnostic trouble codes (DTCs) and their status.

The use of the Diagnostic System Check will identify the correct procedure for diagnosing the system and where the procedure is located.

SYMPTOMS - MIRRORS

IMPORTANT: The following steps must be completed before using the symptom tables.

1. Perform the **Diagnostic System Check - Vehicle** before using the Symptom Tables in order to verify that all of the following are true:
 - There are no DTCs set.
 - The control modules can communicate via the serial data link.
2. Review the system operation in order to familiarize yourself with the system functions. Refer to the following system descriptions:
 - **Outside Mirror Description and Operation**
 - **Automatic Day-Night Mirror Description and Operation**

- Inspect for aftermarket devices which could affect the operation of the system. Refer to **Checking Aftermarket Accessories**.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to **Testing for Intermittent Conditions and Poor Connections**.

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- **Heated Mirrors Inoperative**
- **Automatic Day-Night Mirrors Inoperative**
- **Power Mirrors Inoperative**

HEATED MIRRORS INOPERATIVE**Diagnostic Instructions**

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

Circuit/System Description

The R/DEFOG relay supplies voltage to the outside rearview mirror heater elements based on the current state of the rear window defogger. The replay supplies B+ through the driver/passenger mirror heating element supply voltage circuit when a request is seen.

Reference Information**Schematic Reference****Outside Rearview Mirror Schematics****Connector End View Reference****Component Connector End Views****Description and Operation****Outside Mirror Description and Operation****Electrical Information Reference**

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References For Scan Tool Information.**Circuit/System Verification**

1. Ignition ON, press the rear window defogger switch. Verify the rear window defogger turns ON and the rear window becomes warm.
 - o If the rear window defogger does not turn on, refer to **Rear Window Defogger Malfunction** .
2. Press the rear window defogger switch. Verify both the left and right outside mirror glass become warm.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the outside rearview mirror.
2. Ignition OFF, test for less than 5 ohms of resistance between the ground circuit terminal E and ground.
 - o If greater than the specified range, test the ground circuit for an open/high resistance.
3. Connect a test lamp between the B+ circuit terminal F and ground.
4. Ignition ON, command the rear window defogger ON and OFF with the rear defogger switch. The test lamp should turn ON and OFF when changing between the commanded states.
 - o If the test lamp is always ON, test the B+ circuit for a short to voltage.
 - o If the test lamp is always OFF, test the B+ circuit for a short to ground or an open/high resistance.
5. If all circuits test normal, test or replace the outside rearview mirror face.

Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

Outside Rearview Mirror Glass Replacement**AUTOMATIC DAY-NIGHT MIRRORS INOPERATIVE****Diagnostic Instructions**

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category

Circuit/System Description

The inside rearview mirror uses 2 photocell sensors. One sensor is the rear light sensor, located on the face side of the mirror, facing the rear of the vehicle. The rear light sensor is used to determine light conditions present at the mirror face. The other sensor is the front light sensor, located on the backside of the mirror, facing the front of the vehicle. The front light sensor is used to determine the exterior light conditions at the front of the vehicle. With a low exterior light condition detected by the front light sensor and a high light condition from the rear light sensor, the inside rearview mirror will automatically darken the face of the inside rearview mirror.

With the gear selector lever in the REVERSE position, backup lamp supply voltage is supplied as an input to the inside rearview mirror. The mirror monitors this input to disable the automatic day-night feature. This allows the driver to see objects in the mirror clearly when backing up, regardless of the rear light sensor status.

Reference Information**Schematic Reference**

- **Inside Rearview Mirror Schematics**
- **Outside Rearview Mirror Schematics**

Connector End View Reference

Component Connector End Views

Description and Operation

Automatic Day-Night Mirror Description and Operation

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References For Scan Tool Information.

Circuit/System Verification

1. Ignition ON, headlamps ON, vehicle in PARK, cover the front light sensor with a towel or other suitable item. Shine a flashlight at the rear light sensor while observing the inside rearview mirror face. The inside rearview mirror face should dim.
 - If the mirror face does not dim, refer to Inside Rearview Mirror Dimming Malfunction in **Circuit/System Testing**.
2. Headlamps ON, park brake applied, cover the front light sensor with a towel or other suitable item. Shine a flashlight at the rear light sensor while observing the inside rearview mirror face. Place the transmission in REVERSE. The inside rearview mirror face should transition from dim to bright.
 - If the mirror does not transition from dim to bright, refer to Reverse Input Malfunction in **Circuit/System Testing**.
3. Remove the towel from the inside rearview mirror and remove the flashlight. Verify the inside rearview mirror face returns to its normal bright state.
 - If the mirror face does not return to its normal state, test or replace the inside rearview mirror.

Circuit/System Testing

Inside Rearview Mirror Dimming Malfunction

1. Ignition OFF, disconnect the harness connector at the inside rearview mirror.
2. Ignition OFF, test for less than 1 ohm of resistance between the ground circuit terminal 8 and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition ON, verify that a test lamp illuminates between the accessory circuit terminal 13 and ground.
 - If the test lamp does not illuminate, test the accessory circuit for a short to ground or an open/high resistance.
4. If all circuits test normal, test or replace the inside rearview mirror.

Reverse Input Malfunction

1. Ignition OFF, disconnect the harness connector at the inside rearview mirror.
2. Ignition ON, park brake applied, vehicle in REVERSE, test for B+ between the supply voltage terminal 9 and ground.

- If less than the specified value, test the supply voltage circuit for a short to ground or an open/high resistance. If the circuit tests normal, refer to **Backup Lamps Malfunction**.

3. If all circuits test normal, test or replace the inside rearview mirror.

Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

Inside Rearview Mirror Replacement

POWER MIRRORS INOPERATIVE

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
5-Volt Reference	B1580, B1590	B1580, B1590	B1580, B1590	-
Driver/Passenger Mirror Horizontal Position Sensor Signal	B1580	B1580	B1580	-
Driver/Passenger Mirror Vertical Position Sensor Signal	B1590	B1590	B1590	-
Driver/Passenger Mirror Motor Right Control	B1605 02	B1605 04	B1605 01	-
Driver/Passenger Mirror Right/Down Motors Common	B1544 02	B1544 04	B1544 01	-
Driver/Passenger Mirror Motor Down Control	B1600 02	B1600 04	B1600 01	-
Low Reference	B1580, B1590	B1580, B1590	B1580, B1590	-

Circuit/System Description

The Driver Door Switch (DDS) or Passenger Door Switch (PDS) controls the mirror horizontal and vertical motors through the use of bi-directional motor controls. When the mirror is commanded up, voltage is supplied to the mirror vertical motor through the Driver/Passenger Mirror Motor Right/Down Motors Common circuit and ground is supplied through the Driver/Passenger Mirror Motor Down Control circuit. When the mirror is commanded down, voltage is supplied to the mirror vertical motor through the Driver/Passenger Mirror Motor Down Control circuit and ground is supplied through the Driver/Passenger Mirror Motor Right/Down Motors Common circuit.

Horizontal controls operate in the same manner with the Driver/Passenger Mirror Motor Right/Down Motors Common circuit supplying voltage and the Driver/Passenger Mirror Motor Right Control circuit supply a ground to the mirror horizontal motor when the mirror is commanded right. When the mirror is commanded left, voltage is supplied to the mirror horizontal motor through the Driver/Passenger Mirror Motor Right Control circuit and ground is supplied through the Driver/Passenger Mirror Motor Right/Down Motors Common circuit.

On vehicles equipped with RPO DL3/DR4, the Driver Door Switch (DDS) and Passenger Door Switch (PDS) determines the position of the outside rearview mirrors based on inputs from two mirror position sensors, one for

vertical position, the other for horizontal position. Five volts are applied to each sensor through a shared 5-volt reference circuit and a shared low reference circuit supplies ground. Each sensor has an individual signal circuit which provides position voltage to the DDS/PDS.

Reference Information

Schematic Reference

Outside Rearview Mirror Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Outside Mirror Description and Operation

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Circuit/System Verification

1. Ignition ON, observe the scan tool Mirror Select Switch parameter while cycling the mirror select switch between the left and right positions. The parameter should change between Idle, Left, and Right.
 - If the parameter does not cycle between the specified values, replace the DDS.
2. Observe the scan tool Mirror Motor parameter while cycling the mirror directional switch between the up, down, left and right positions. The parameter should change between Idle, Up, Down, Left, and Right.
 - If the parameter does not cycle between the specified values, replace the DDS.
3. Verify the vehicle is equipped with RPO DL3/DR4.
 - If the vehicle is not equipped with RPO DL3/DR4, refer to Mirror Motor Circuit Malfunction in **Circuit/System Testing**.
4. Observe the scan tool Mirror Horizontal Position and Mirror Vertical Position parameters. The reading should be between 0.2 volts and 4.8 volts and change as the mirror is moved, left, right, up, and down.
 - If not within the specified range or the parameter does not change as the mirror is moved, refer to Mirror Position Sensor Circuit Malfunction in **Circuit/System Testing**.
5. Command the left and right outside mirror to move up, down, left and right using the mirror directional switch. The mirrors should move in the commanded direction.
 - If either mirror does not move in all commanded directions, refer to Mirror Motor Circuit Malfunction in **Circuit/System Testing**.

Circuit/System Testing

Mirror Motor Circuit Malfunction

1. Ignition OFF, disconnect the harness connector X3 at the appropriate door switch.
2. Ignition ON, verify a test lamp does not illuminate between the following control circuit terminals and ground:

- Control circuit terminal 1
 - Control circuit terminal 2
 - Control circuit terminal 6
 - If the test lamp illuminates, test the appropriate control circuit for a short to voltage.
3. Ignition OFF, test for infinite resistance between the following control circuits and ground:
 - Control circuit terminal 1
 - Control circuit terminal 2
 - Control circuit terminal 6
 - If less the specified value, test the appropriate control circuit for a short to ground.
 4. Test for 40-100 ohms of resistance between the control circuit terminal 1 and the control circuit terminal 6.
 - If not within the specified range, test both control circuits for an open/high resistance. If the circuits test normal, test or replace the rearview mirror motor.
 5. Test for 40-100 ohms of resistance between the control circuit terminal 2 and the control circuit terminal 6.
 - If not within the specified range, test both control circuits for an open/high resistance. If the circuits test normal, test or replace the rearview mirror motor.
 6. If all circuits test normal, replace the appropriate door switch.

Mirror Position Sensor Circuit Malfunction

1. Ignition OFF, disconnect the harness connector X7 at the appropriate door switch.
2. Ignition ON, verify a test lamp does not illuminate between the following circuit terminals and ground:
 - 5-volt reference circuit terminal 7
 - Signal circuit terminal 4
 - Signal circuit terminal 5
 - Low reference circuit terminal 10
 - If the test lamp illuminates, test the appropriate circuit for a short to voltage.
3. Ignition OFF, test for infinite resistance between the following circuits and ground:
 - 5-volt reference circuit terminal 7
 - Signal circuit terminal 4
 - Signal circuit terminal 5
 - Low reference circuit terminal 10
 - If less than the specified value, test the appropriate circuit for a short to ground.
4. Test for 4K-7K ohms of resistance between the 5-volt reference circuit terminal 7 and the low reference circuit terminal 10.
 - If not within the specified range, test the 5-volt reference circuit and the low reference circuit for an open/high resistance. If the circuits test normal, test or replace the rearview mirror motor.
5. Test for 1K-7K ohms of resistance between the 5-volt reference circuit terminal 7 and the signal circuit terminal 4.
 - If not within the specified range, test the signal circuit for an open/high resistance. If the circuits test normal, test or replace the rearview mirror motor.
6. Test for 1K-7K ohms of resistance between the 5-volt reference circuit terminal 7 and the signal circuit terminal 5.
 - If not within the specified range, test the signal circuit for an open/high resistance. If the circuits test normal, test or replace the rearview mirror motor.
7. If all circuits test normal, replace the appropriate door switch.

Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Outside Rearview Mirror Motor Replacement**
- **Control Module References** for DDS or PDS replacement, setup, and programming

REPAIR INSTRUCTIONS

POWER MIRROR SWITCH REPLACEMENT

Removal Procedure

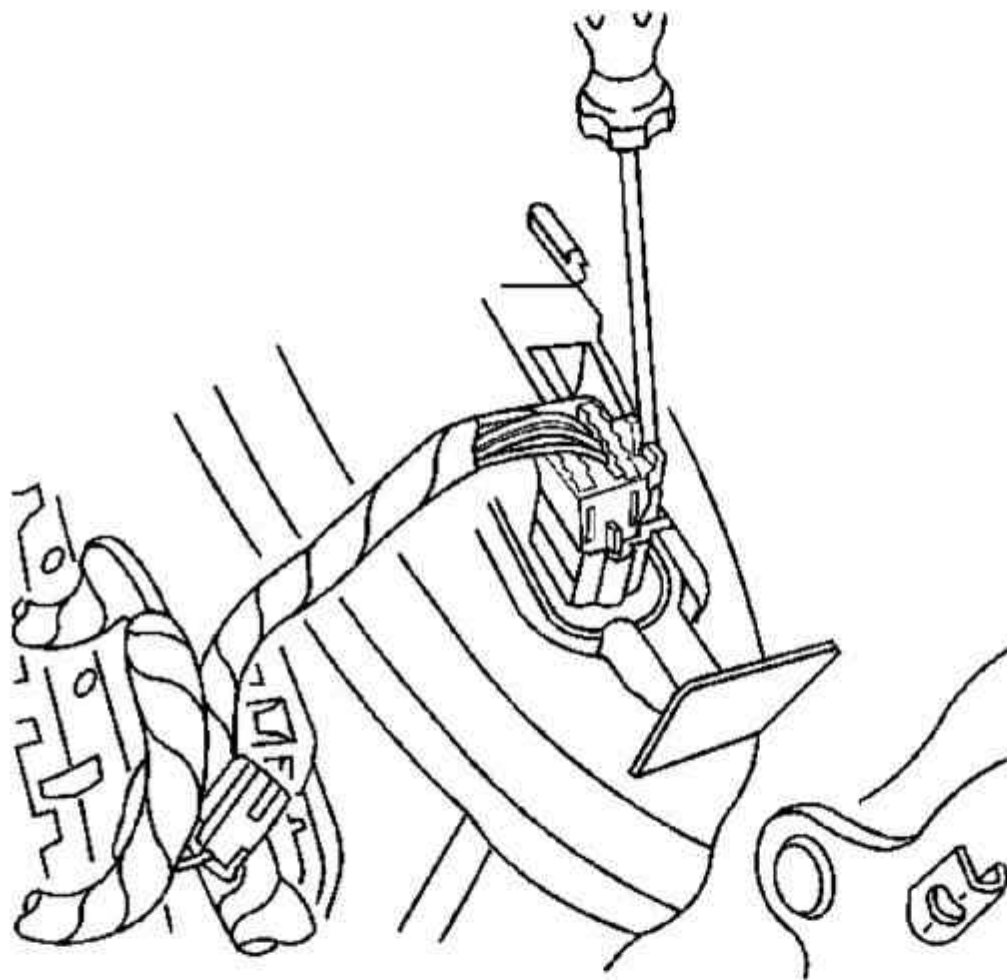


Fig. 3: Locating Power Mirror Switch Connector
Courtesy of GENERAL MOTORS CORP.

1. Remove the front door trim panel. Refer to **Front Side Door Trim Panel Replacement**.
2. Disconnect the electrical connector from the switch.
3. Using a small flat-bladed tool, carefully release the power mirror switch retainers and remove the switch.
4. Remove the switch from the vehicle.

Installation Procedure

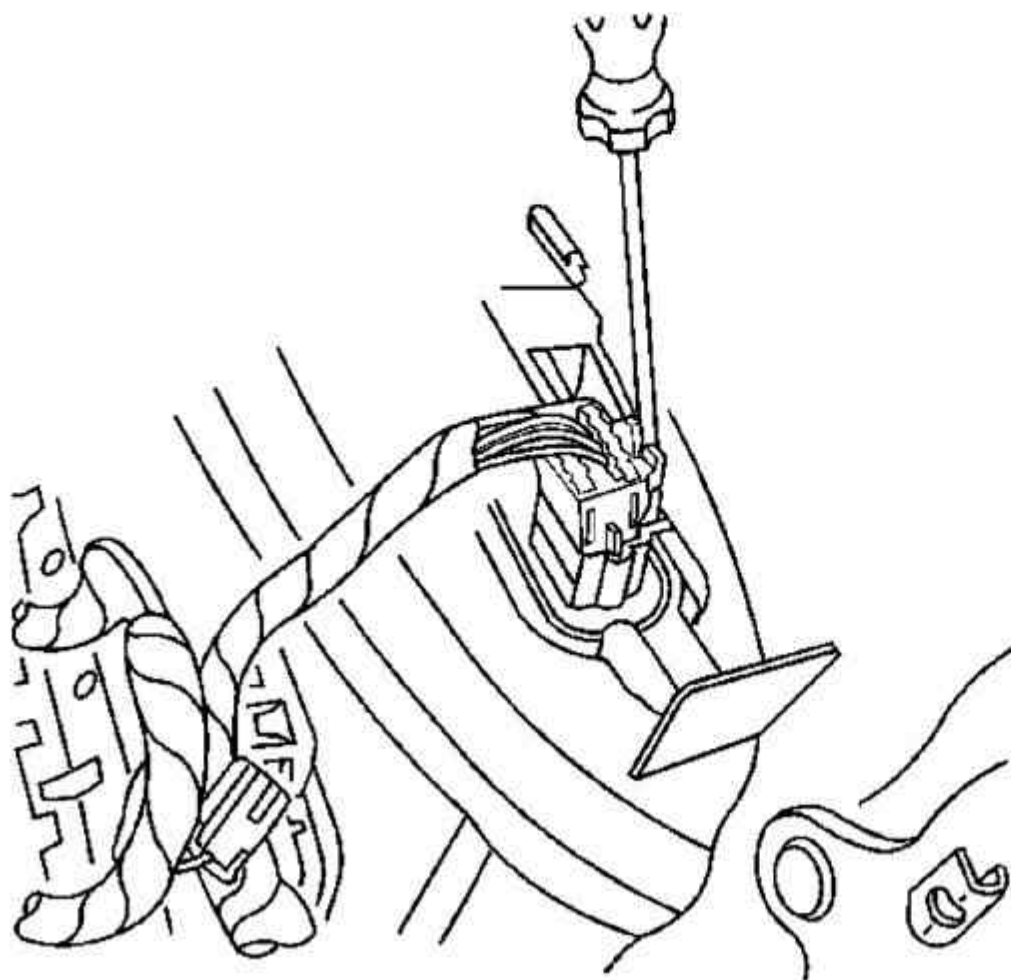


Fig. 4: Locating Power Mirror Switch Connector
Courtesy of GENERAL MOTORS CORP.

1. Install the electrical connector to the power mirror switch.
2. Press the switch into the retainer plate.
3. Install the front door trim panel. Refer to **Front Side Door Trim Panel Replacement**.

POWER MIRROR REPLACEMENT

Removal Procedure

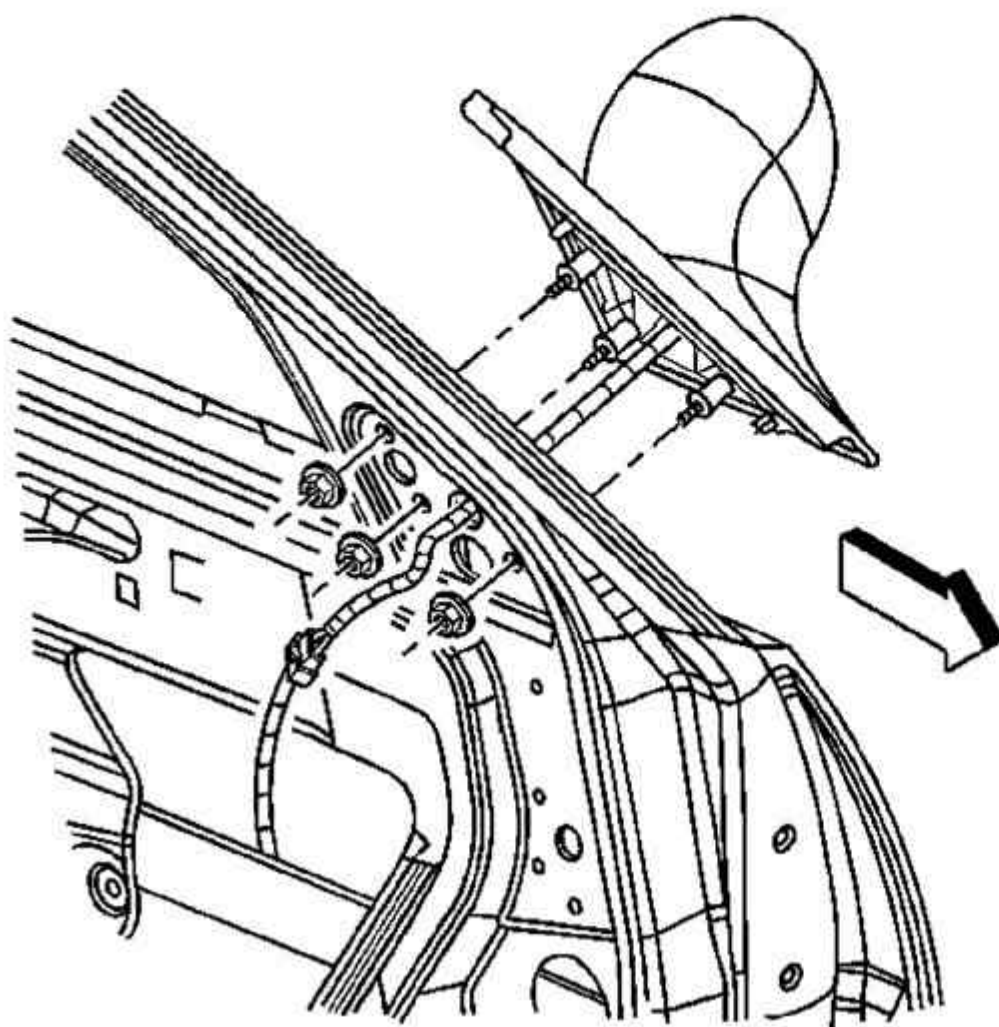


Fig. 5: Identifying Remote Mirror & Nuts
Courtesy of GENERAL MOTORS CORP.

1. Remove the front door trim panel. Refer to **Front Side Door Trim Panel Replacement**.
2. Disconnect the electrical connector from the outside rearview mirror.
3. Remove the outside rearview mirror nuts.
4. Remove the outside rearview mirror from the door.

Installation Procedure

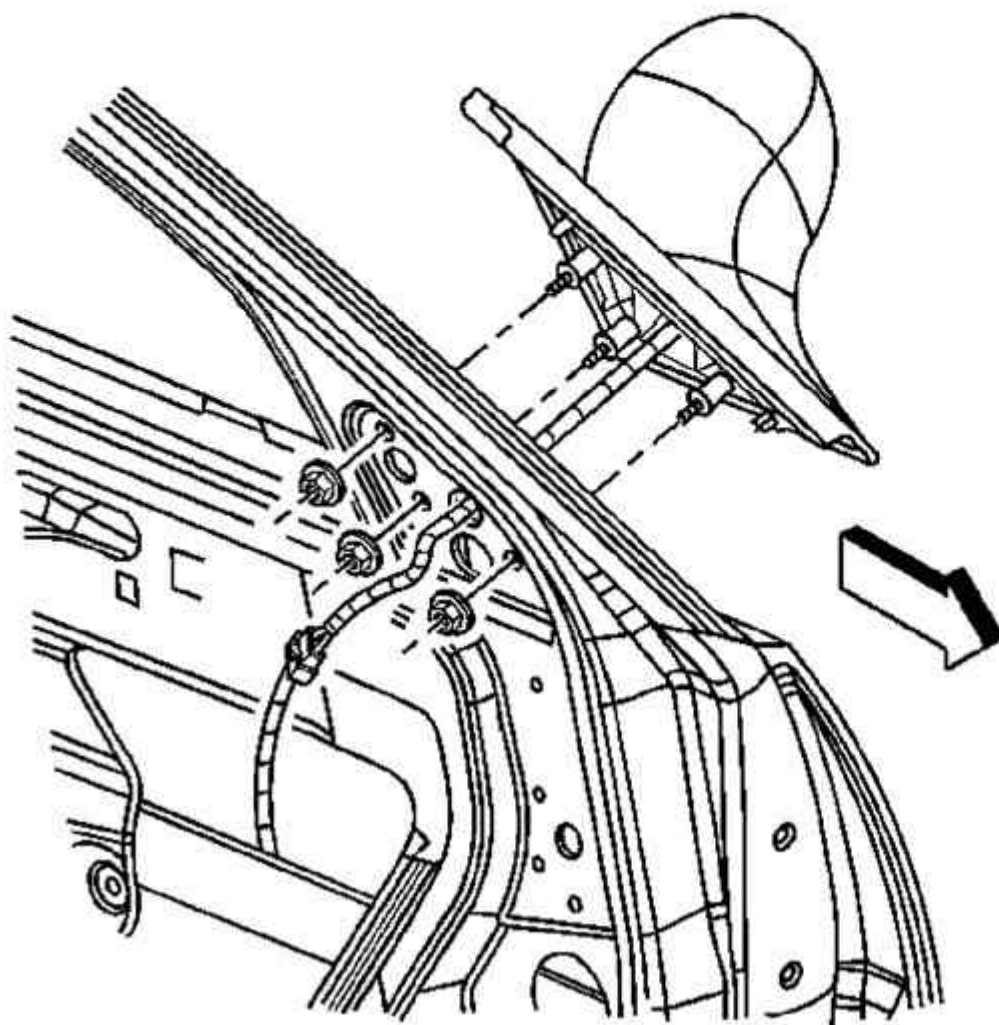


Fig. 6: Identifying Remote Mirror & Nuts
 Courtesy of GENERAL MOTORS CORP.

1. Install the outside rearview mirror to the door.

NOTE: Refer to Fastener Notice .

2. Install the outside rearview mirror nuts.

Tighten: Tighten the nuts to 10 N.m (89 lb in).

3. Connect the electrical connector to the outside rearview mirror.
4. Install the front door trim panel. Refer to Front Side Door Trim Panel Replacement .
5. Inspect the mirror for proper operation.

OUTSIDE REARVIEW MIRROR MOTOR REPLACEMENT

Removal Procedure

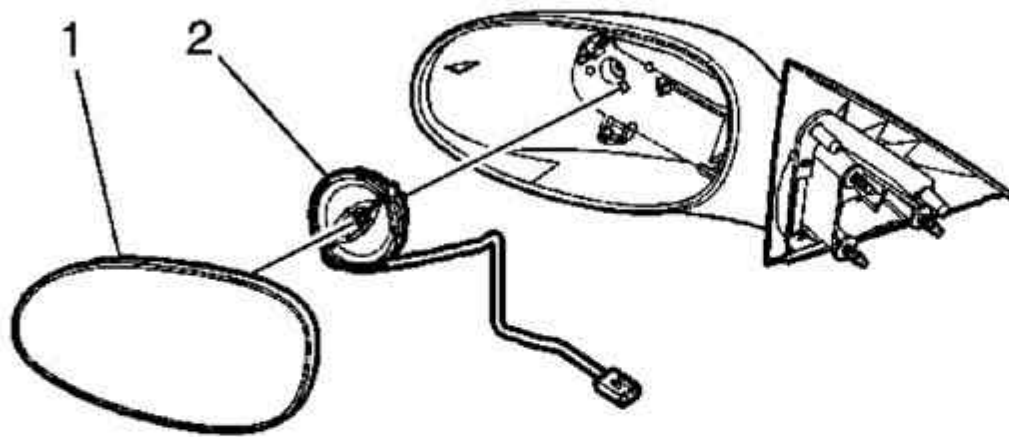


Fig. 7: Identifying Power Mirror Motor
Courtesy of GENERAL MOTORS CORP.

1. Remove the mirror face (1). Refer to Outside Rearview Mirror Glass Replacement.
2. Remove the screw from the mirror motor (2).
3. Disconnect the electrical connector from the edge of the mirror motor.

Note the position of the plugs on the mirror motor when removing.

4. Remove the motor.

Installation Procedure

1. Position the motor to the mirror housing.
2. Connect the electrical connector to the edge of the mirror motor.

NOTE: Refer to Fastener Notice .

3. Install the screw to the mirror motor.

Tighten: Tighten the screws to 2 N.m (18 lb in).

4. Install the mirror face to the mirror housing. Refer to Outside Rearview Mirror Glass Replacement.
5. Inspect the mirror for proper operation.

OUTSIDE REARVIEW MIRROR GLASS REPLACEMENT

Removal Procedure

CAUTION: Refer to EYE PROTECTION CAUTION .

IMPORTANT: The mirror back is made so that the bottom edge fits into a slot and clip in place. This allow the mirror to rotate.

1. Carefully push the mirror face toward the front of the car and downward on the inner edge, near the front door window glass, to allow access.

2. Grasp the mirror face back and firmly pull it away from the mirror motor and housing.

It will be necessary to use a sharp jerking motion to release it from the housing.

3. Lift the mirror back up and out to release the lower tabs.
4. Disconnect the heated mirror wires, if equipped.

Installation Procedure

1. Connect the heated mirror wires, if equipped.

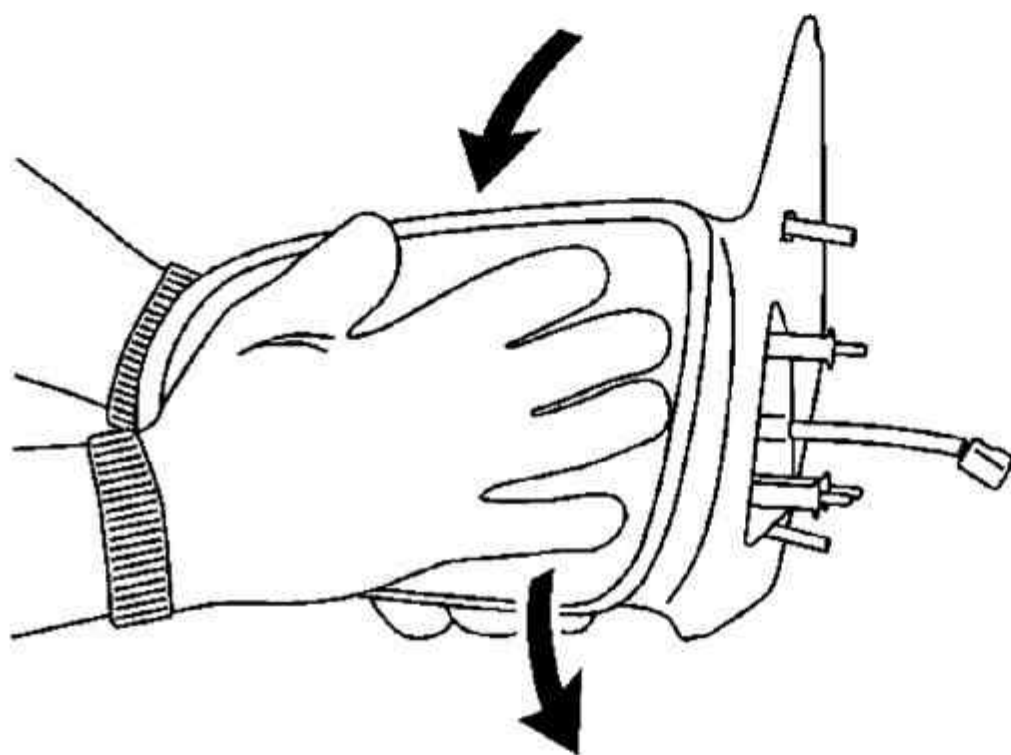


Fig. 8: View Of Mirror Glass & Motor Assembly
Courtesy of GENERAL MOTORS CORP.

2. Using the palm of your gloved hand, press firmly on the center of the glass until the case seats onto the motor.
The mirror will make a snapping noise when properly seated.
3. Inspect the mirror for proper operation.

INSIDE REARVIEW MIRROR REPLACEMENT

Removal Procedure

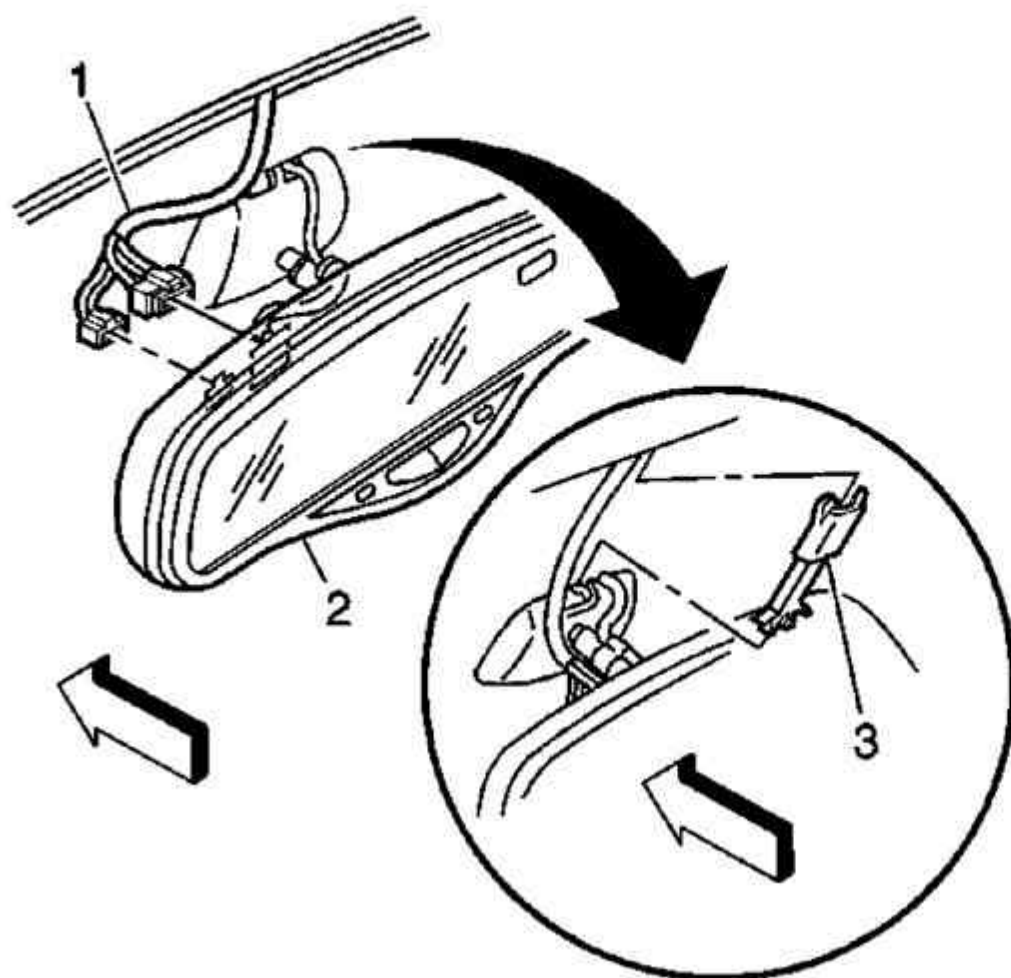


Fig. 9: Identifying Rearview Mirror Electrical Connector
Courtesy of GENERAL MOTORS CORP.

1. Disconnect the electrical connector (3) from the back of the mirror.
2. Remove the wire harness cover.
3. Adjust the mirror to the full upward position.

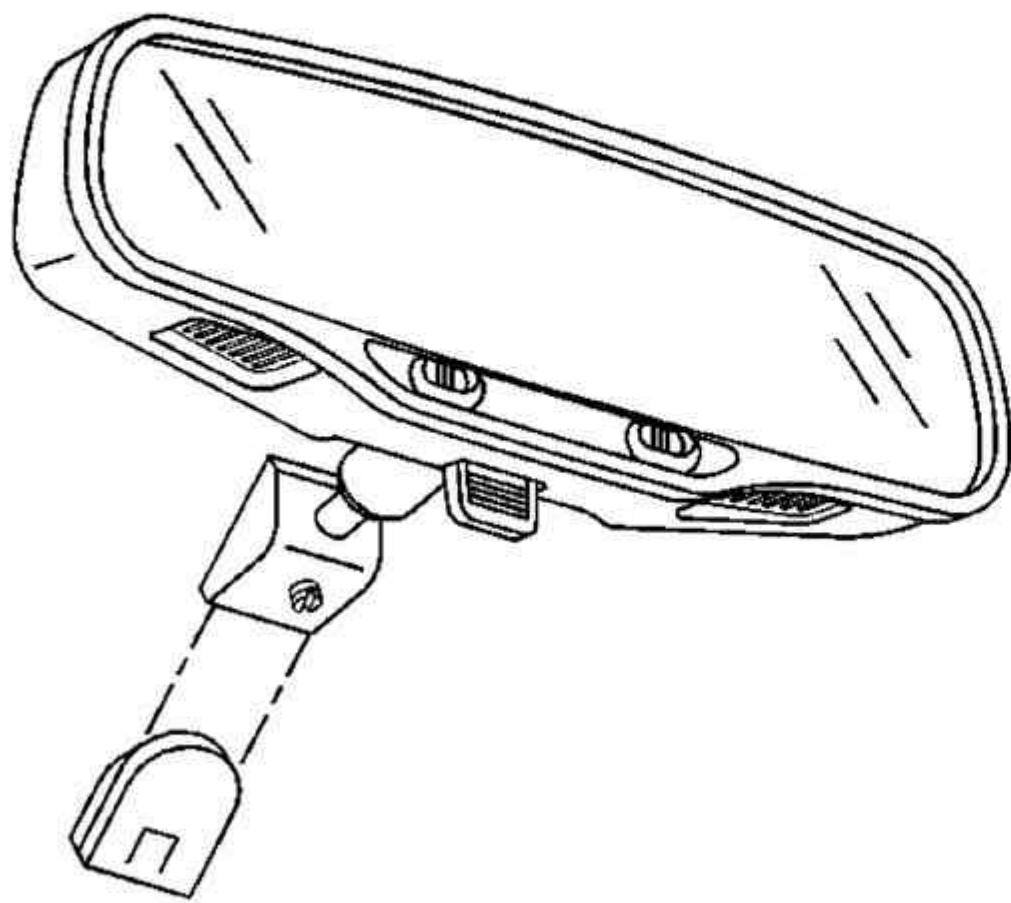


Fig. 10: View Of Rearview Mirror
Courtesy of GENERAL MOTORS CORP.

4. Loosen the screw at the base in order to remove the mirror from the button.
5. Slide the mirror in an upward motion in order to remove.

Installation Procedure

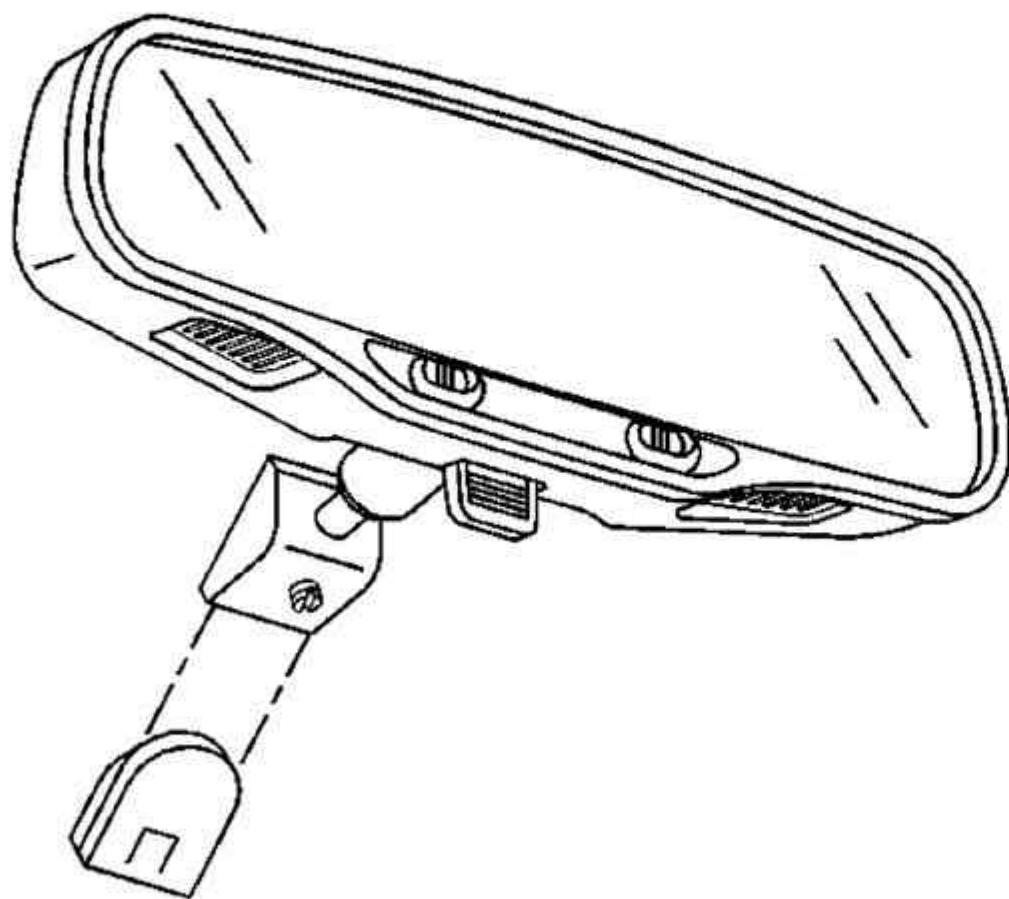


Fig. 11: View Of Rearview Mirror
Courtesy of GENERAL MOTORS CORP.

1. Position the center bottom of the mirror mount against the windshield at the top of the support button.
2. Slide the base of the mirror onto the button.

NOTE: Refer to Fastener Notice .

3. Make sure the mirror is firmly seated on the windshield button by pushing down on the base of the mirror.

Tighten: Tighten the screw to 1.8 N.m (16 lb in) in order to secure the mirror base to the button.

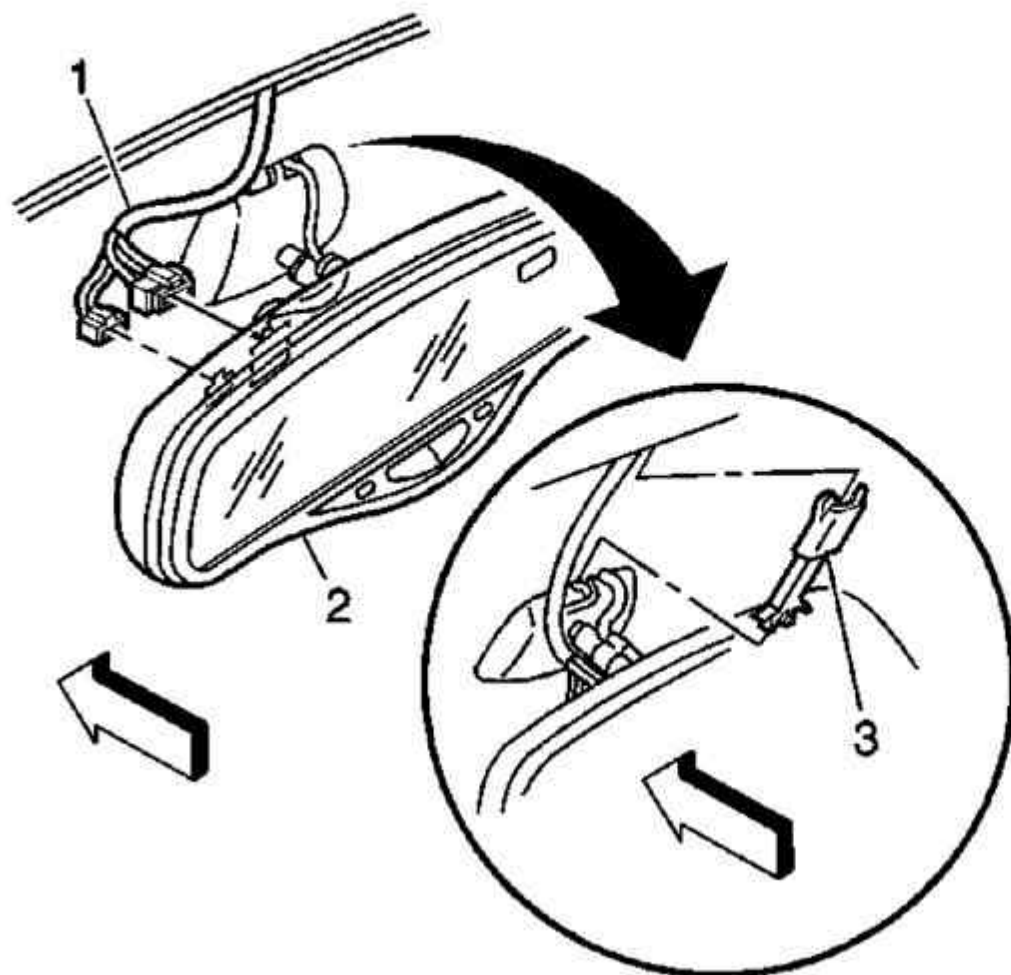


Fig. 12: Identifying Rearview Mirror Electrical Connector
Courtesy of GENERAL MOTORS CORP.

4. Connect the electrical connector (3) to the back of the mirror.
5. Install the wire harness cover.
6. Reposition the mirror.

REARVIEW MIRROR SUPPORT INSTALLATION

Special Tools

Safety Razor or Utility Knife

1. Determine the location of the mirror mounting base by marking the outside of the windshield with a marking pencil where the base was previously located. If it is not clear where the base was mounted, use the following steps to determine where the base should be installed:

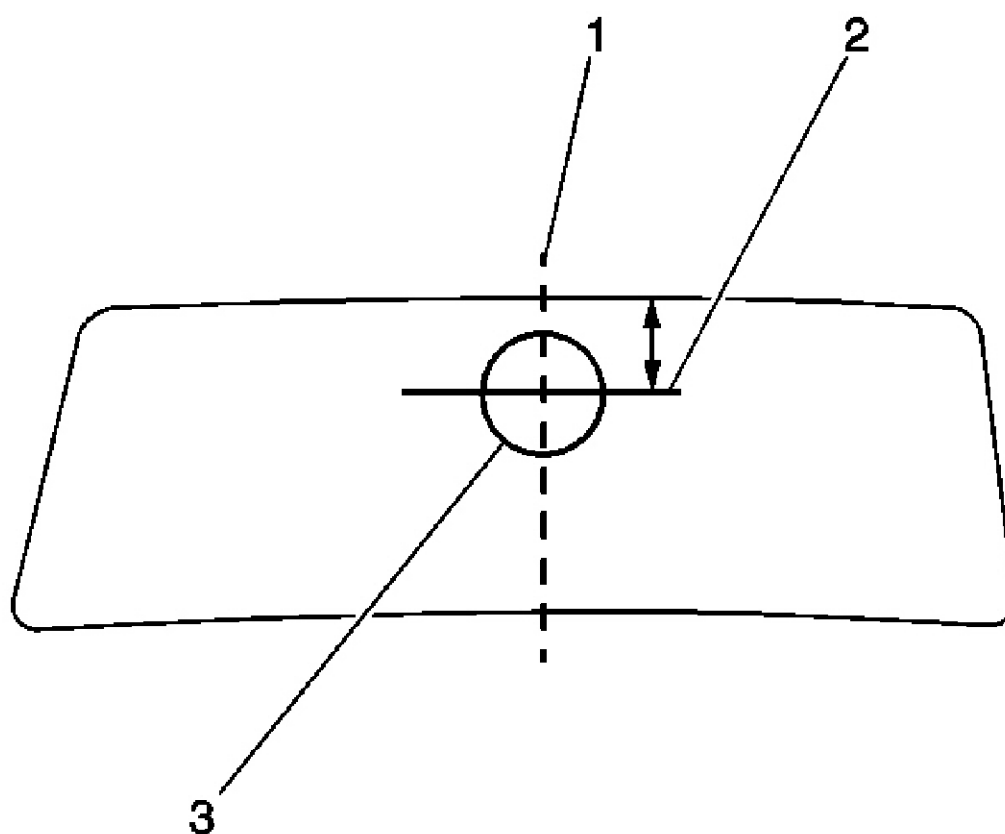


Fig. 13: Identifying Mirror Mounting Base Location
Courtesy of GENERAL MOTORS CORP.

1. Using a measuring tape, measure the distance between the windshield pillars from the base of the shade line .
2. Using a marking pencil, halfway between the windshield pillars, draw a centerline (1) on the windshield from the roof panel to the windshield base.
3. Draw a perpendicular line intersecting the centerline (2) at that location.

The top center of the mirror mounting base will be at the intersection of these lines.

2. Scrape the inside windshield glass thoroughly with a safety razor or utility knife in order to remove all old adhesive.
3. If reinstalling the original mounting base, place the mirror mounting base in a suitable holding device, such as a vice.
4. Scrape the mirror mounting base thoroughly with a safety razor or utility knife in order to remove all old adhesive.
5. Clean the inside windshield glass and the mounting surface of the mirror mounting base thoroughly with a clean cloth saturated with naphtha or a 50/50 mixture (by volume) of clean water and isopropyl alcohol.

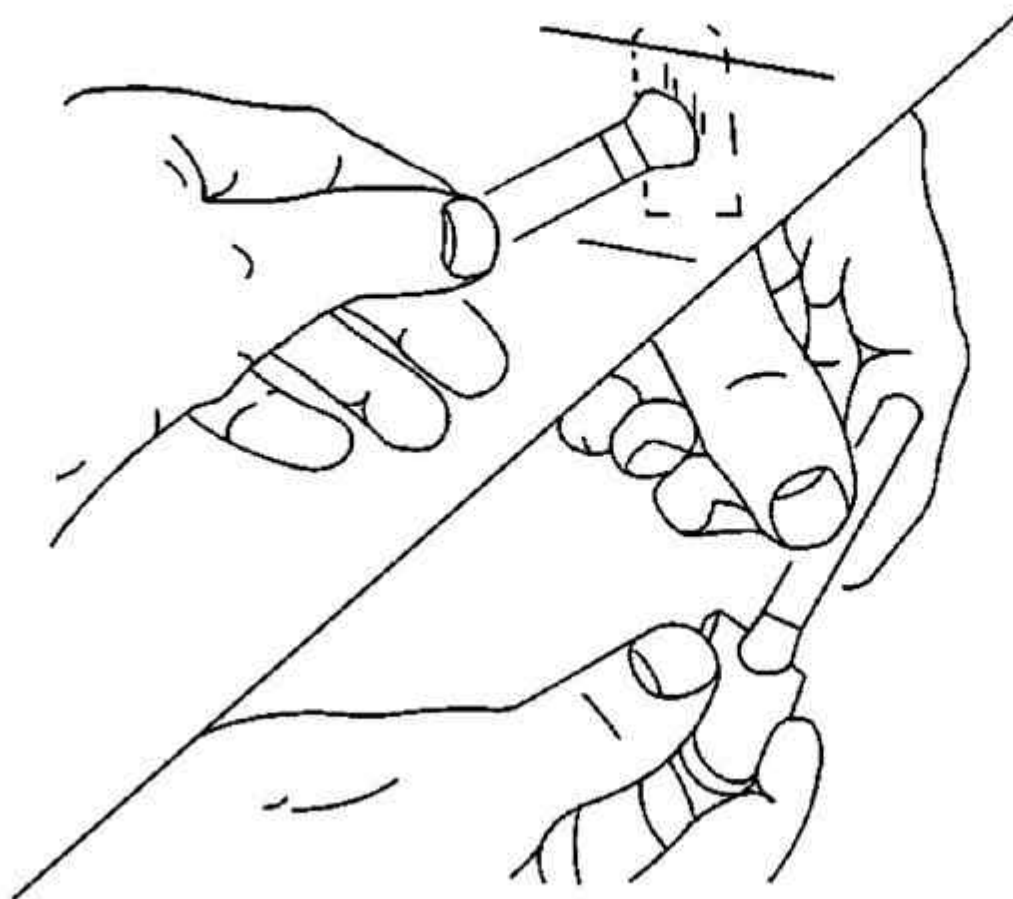


Fig. 14: Applying Adhesive To Mirror Base & Window
Courtesy of GENERAL MOTORS CORP.

6. Use Inside Mirror Adhesive Kit GM P/N 89021329, (Canadian P/N 993362) or equivalent to apply a small amount of activator to the mounting surface of the mirror mounting base.
7. Apply a small amount of activator to the windshield where the mounting base is to be installed.
8. Allow the activator to dry 5 minutes.

IMPORTANT: Do not touch the mounting surface of the mirror mounting base or the glass.

9. Apply 1 drop of adhesive to the center of the mirror mounting base.

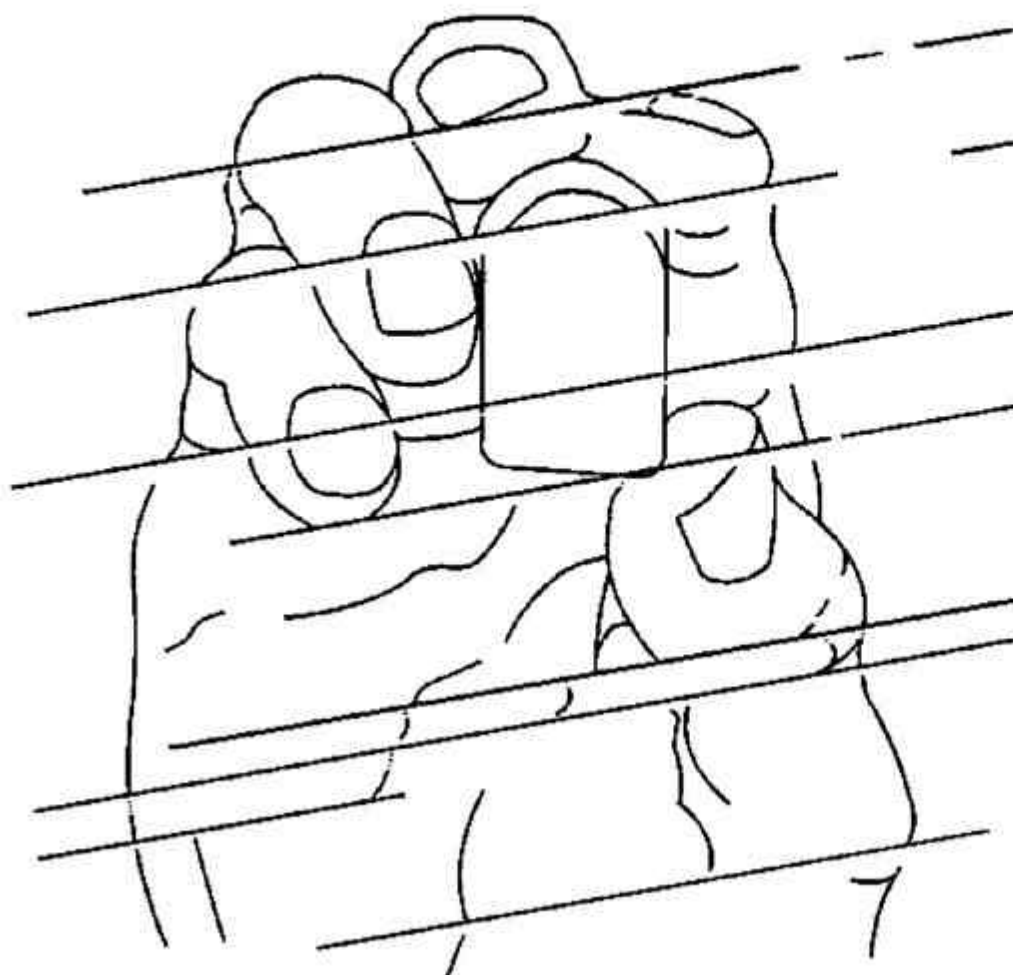


Fig. 15: Installing Mirror Mounting Base
Courtesy of GENERAL MOTORS CORP.

10. Immediately apply the mounting base to the windshield, ensuring that the mounting base aligns correctly to the marks made on the outside of the windshield.
11. Hold the mounting base firmly in place for 1 minute.
12. Allow the adhesive to set for 15 minutes.
13. Install the mirror to the mirror mounting base and fasten, if necessary.
14. Connect the electrical connector and install the wire cover, if equipped.

DESCRIPTION AND OPERATION

OUTSIDE MIRROR DESCRIPTION AND OPERATION

Power Mirror System Components

The power mirror system consists of the following components:

- Outside rearview mirror switch
- Mirror selector switch
- Left outside rearview mirror
- Right outside rearview mirror
- Power mirror fuse

Each of the outside rearview mirrors contains two motors. The vertical motor operates the mirror in the up and down directions, and the horizontal motor operates the mirror in the left and right directions. Each of the outside rearview mirror motors are circuit breaker protected.

Power Mirror System Controls

The outside rearview mirror switch is a four position directional switch: Up, Down, Left and Right.

The mirror select switch is a three position switch: L for left, Off for none, and R for right.

Power Mirror System Operation

The outside rearview mirror switch receives power through the battery positive voltage circuit from the power mirror fuse. The power mirror switch also receives a constant ground.

The four positions of the direction switch have dual switch contacts. Each of the contacts are connected to opposing sides of the appropriate power mirror motors through the selector switch. The selector switch completes these circuits depending on the position of the selector switch, L or R.

If the selector switch is placed in the L position and the up switch is depressed, battery positive voltage will be supplied to the left outside rearview mirror vertical motor through the left mirror motor down control circuit and ground through the left mirror motor left control circuit. If the down switch is depressed, battery positive voltage will be supplied to the left outside rearview mirror vertical motor through the left mirror motor left control circuit and ground through the left mirror motor down control circuit.

The remainder of the mirror functions operate in the same manner as described above. Placing the power mirror switch in opposing positions, left/right or up/down, will reverse the polarity to the mirror motor, reversing the direction of movement.

AUTOMATIC DAY-NIGHT MIRROR DESCRIPTION AND OPERATION**Inside Rearview Mirror with the Automatic Day-Night Feature System Components**

The inside rearview mirror with the automatic day-night feature system consists of the following components:

- Inside rearview mirror
- Ambient air temperature sensor

Inside Rearview Mirror with the Automatic Day-Night Feature System Operation

The inside rearview mirror uses 2 photocell sensors. One sensor is the headlight sensor, located on the face side of the mirror. The headlight sensor is used to determine light conditions present at the mirror face. The other sensor is the ambient light sensor, located on the rear of the mirror or windshield side. The ambient light sensor is used to determine the exterior light conditions. With a low exterior light condition detected, and a high light condition from behind of the car, at the headlight sensor, the inside rearview mirror will automatically darken the face of the mirror.

In the daytime, the mirror is in a normal state because of the high exterior light condition that is indicated by the ambient light sensor. With the gear selector lever in the REVERSE position, backup lamp supply voltage is supplied as an input to the inside rearview mirror. The mirror monitors this input to disable the automatic day-night feature. This allows the driver to see objects in the mirror clearly when backing up, even during the night.

Compass

The mirror uses 2 magnetic field sensors for compass direction. One sensor is for north and south, the other is for east and west. The mirror supplies a signal and low reference to each sensor. As the vehicle travels with or against

the earth's magnetic pull, there will be a change in voltage on one or both sensors. As a result of the change in voltage, the mirror changes the heading on the compass display.

Temperature Display

The inside rearview mirror monitors the ambient air temperature sensor. As the outside air temperature gets warmer, the ambient air temperature sensor will lower resistance. The inside rearview mirror monitors this change and will show this as a warmer temperature on the display. Temperatures exceeding 62°C (143°F) will be out of the mirror's temperature range and SC will be shown on the temperature display. In colder outside air temperatures, the ambient air temperature sensor will raise in resistance. The inside rearview mirror will show a colder temperature on the display. Temperatures lower than -40°C (-40°F) will be out of the mirror's temperature range which OC will be shown on the temperature display. In cold temperatures such as 3°C (37°F) or below, the temperature display will show ICE when the ignition is first turned ON. The display will toggle between ICE and the actual outside temperature until the temperature update process is complete.

Temperature Display Update Process

The inside rearview mirror has a temperature program that takes in account the fact that the radiator will heat the ambient air temperature sensor if the radiator is warm and the vehicle is not moving. If the vehicle has been off for more than 2 hours, the mirror temperature program assumes that the radiator has cooled and that the temperature supplied by the ambient air temperature sensor is accurate. Because of this, if the vehicle has been off for more than 2 hours, the mirror displays the temperature as reported by the ambient air temperature sensor. When the ambient air temperature sensor reports a new temperature to the mirror, one of the following cases will apply:

- Ignition is OFF for more than 2 hours, then is turned ON for more than 3 minutes. The outside temperature is greater than the last temperature recorded by the mirror for 2 minutes. The mirror will increase the last temperature reading by one degree every 2 minutes for 8 consecutive times. If the outside temperature is not matched after the 8th update, the mirror will then display the current outside temperature.
- Ignition is off for more than 2 hours, then is turned ON for less than 3 minutes. The mirror will update the temperature display every 2 seconds.
- Ignition is OFF for more than 2 hours, then is turned ON for more than 3 minutes. The outside temperature is less than the last temperature recorded by the mirror. The mirror will then display the current outside temperature.
- Ignition has been OFF for less than 2 hours. The outside temperature is greater than the last temperature recorded by the mirror, but the ignition is cycled from ON to OFF within 2 minutes. The mirror will display the old temperature.
- Ignition has been OFF for less than 2 hours. The outside temperature is less than the last temperature recorded by the mirror. The mirror will then display the current outside temperature.

Switches of the Inside Rearview Mirror with the Automatic Day-Night Feature and Compass without OnStar®

The inside rearview mirror has 2 switches that perform the following functions:

- The MIRROR switch is used to enable or disable the automatic day-night feature of the mirror. With the ignition in the ON position, depress the MIRROR switch to enable the automatic day-night feature of the mirror. A green indicator will illuminate on the mirror when the automatic day-night feature is enabled. To disable the automatic day-night feature of the mirror, depress the MIRROR switch.
- The COMPASS switch is used to turn the compass ON and OFF. With the ignition in the ON position, depress the COMPASS switch to turn the compass ON. Depress the COMPASS switch again to turn the compass OFF. The COMPASS switch is also used to place the compass into a calibration or zone mode.

Switches of the Inside Rearview Mirror with the Automatic Day-Night Feature, Compass/Temperature Display without OnStar®

The inside rearview mirror has 2 switches that perform the following functions:

- The TEMP switch is used to turn the compass/temperature display ON or OFF, it is also used to enable or disable the automatic day-night feature of the mirror. With the ignition in the ON position, depress the TEMP switch to enable the compass/temperature display. Depress the TEMP switch again to disable the compass/temperature display. The TEMP switch can be held for 4 seconds in order to change the display from Fahrenheit (°F) to Celsius (°C), or from Celsius (°C) to Fahrenheit (°F). Depress the TEMP switch until the green indicator illuminates on the mirror. This indicates that the automatic day-night feature is enabled. To disable the automatic day-night feature of the mirror, depress the TEMP switch until the green indicator turns OFF.
- The COMP switch is used to turn the compass/temperature display ON or OFF. With the ignition in the ON position, depress the COMP switch to turn the compass/temperature display ON. Depress the COMP switch again to turn the compass/temperature display OFF. The COMP switch is also used to place the compass into a calibration or zone mode.

Switches of the Inside Rearview Mirror with the Automatic Day-Night Feature with Compass and OnStar®

The inside rearview mirror has 4 switches that perform the following functions:

- The ON/OFF switch located at the left side of the mirror performs the following functions:
 - To enable or disable the automatic day-night feature of the mirror-With the ignition in the ON position, depress and hold the ON/OFF switch for 4 seconds to enable the automatic day-night feature of the mirror. A green indicator will illuminate on the mirror when the automatic day-night feature is enabled. To disable the automatic day-night feature of the mirror, depress and hold the ON/OFF switch for 4 seconds.
 - To turn the compass ON and OFF-With the ignition in the ON position, depress the ON/OFF switch to turn the compass ON. Depress the ON/OFF switch again to turn the compass OFF. The ON/OFF switch is also used to place the compass into a calibration or zone mode.
- The 3 switches on the right side of the mirror are for OnStar® operation. For more information, refer to **OnStar Description and Operation**.

Switches of the Inside Rearview Mirror with the Automatic Day-Night Feature, Compass/Temperature Display with OnStar®

The inside rearview mirror has 4 switches that perform the following functions:

- The ON/OFF switch located at the left side of the mirror performs the following functions:
 - To enable or disable the automatic day-night feature of the mirror-With the ignition in the ON position, depress and hold the ON/OFF switch for 6 seconds to enable the automatic day-night feature of the mirror. A green indicator will illuminate on the mirror when the automatic day-night feature is enabled. To disable the automatic day-night feature of the mirror, depress and hold the ON/OFF switch for 6 seconds.
 - To turn the compass/temperature display ON and OFF-With the ignition in the ON position, depress the ON/OFF switch to turn the compass/temperature display ON. Depress the ON/OFF switch again to turn the compass/temperature display OFF. The ON/OFF switch can be held for 4 seconds in order to change the display from Fahrenheit (°F) to Celsius (°C), or from Celsius (°C) to Fahrenheit (°F). The ON/OFF switch is also used to place the compass into a calibration or zone mode.
- The 3 switches on the right side of the mirror are for OnStar® operation. For more information, refer to **OnStar Description and Operation**.

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2008 ACCESSORIES & EQUIPMENT Mirrors - LaCrosse

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