

# C6 Corvette Accessories & Equipment

## Mirrors - Corvette

### SPECIFICATIONS

#### FASTENER TIGHTENING SPECIFICATIONS

Application	Metric	English
Inside Rearview Mirror Screw	1.5N.m	13 lb in
Side Window Filler Panel	2.5N.m	22 lb in
Outside Rearview Mirror Nuts	10 N.m	89 lb in

### SCHEMATIC AND ROUTING DIAGRAMS

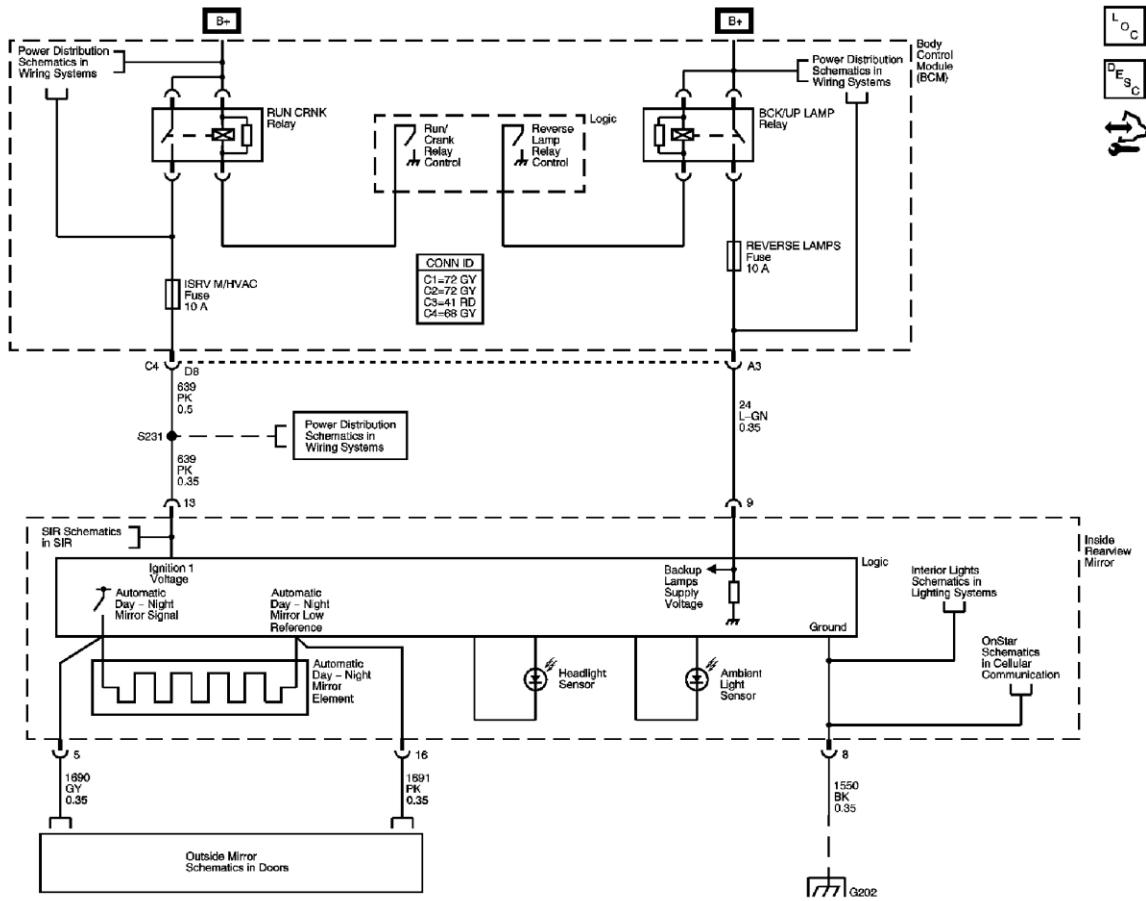


Fig. 1: Inside Rearview Mirror Schematic

# OUTSIDE REARVIEW MIRROR SCHEMATIC

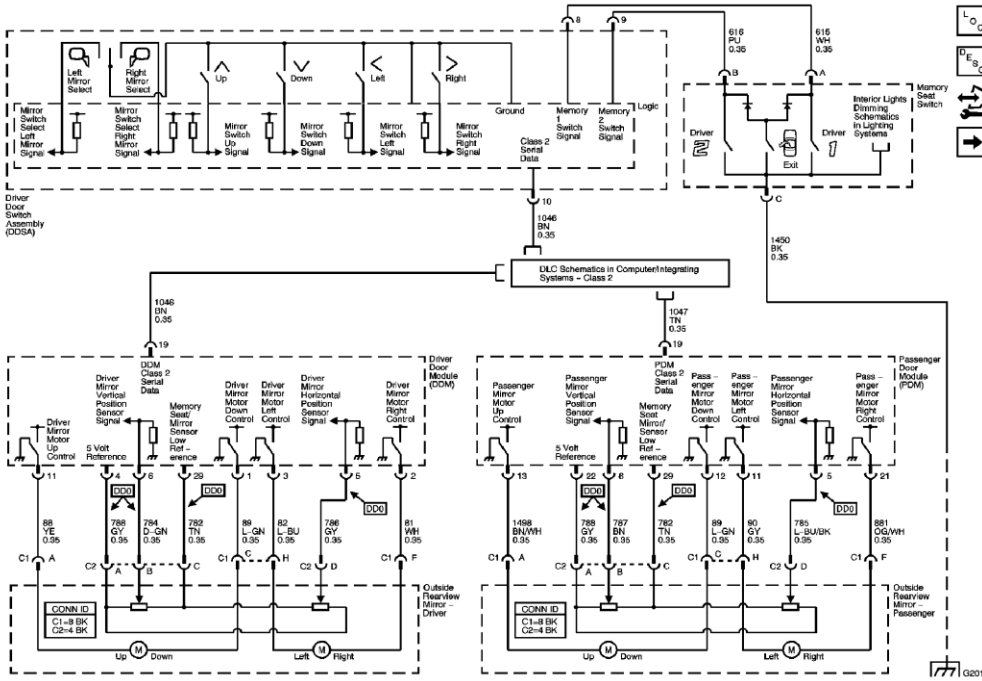


Fig. 2: Memory Power Mirrors Schematic

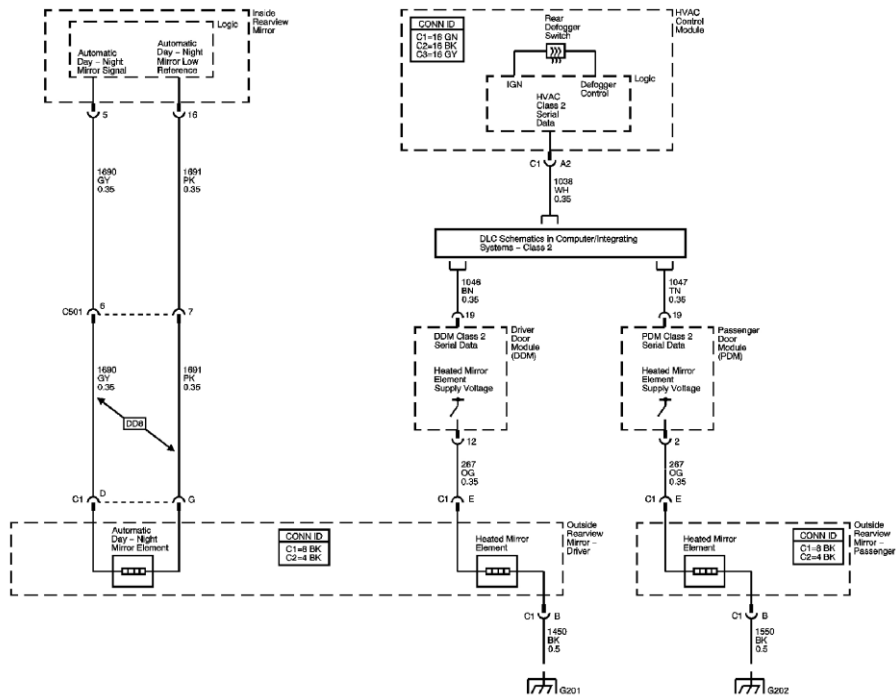


Fig. 3: Dimming Mirror, Heated Mirrors Schema

## COMPONENT LOCATOR

### COMPONENT VIEWS

Fig. 4: I/P and Overhead Lamps

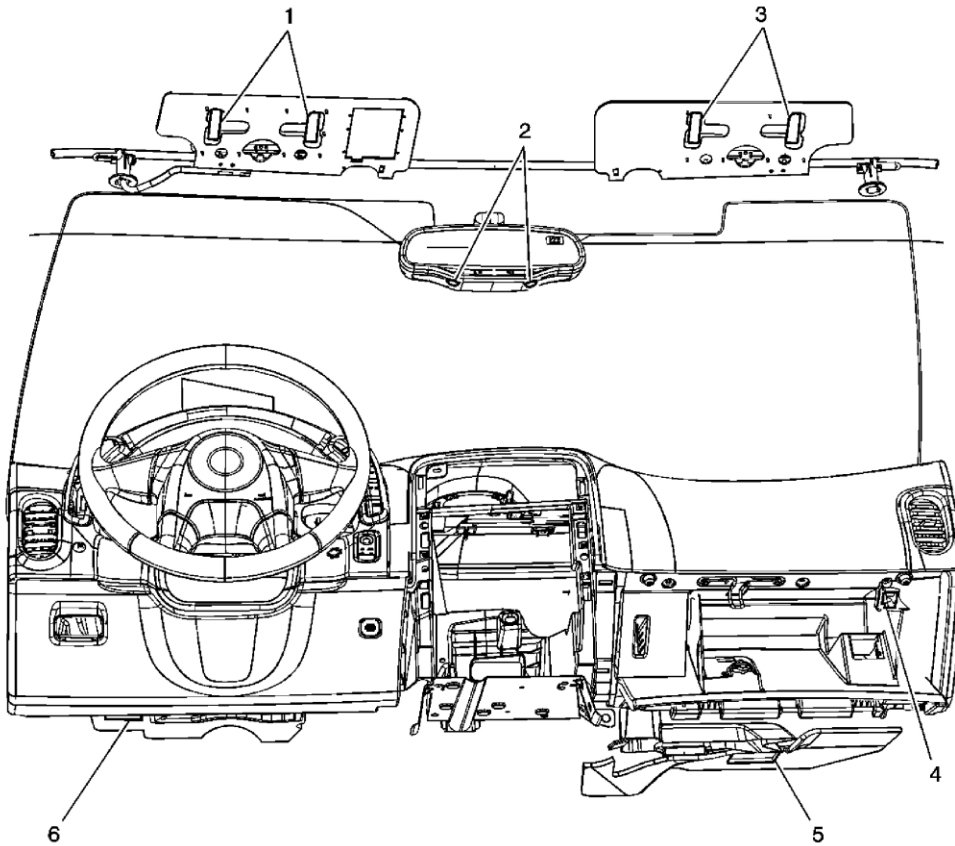


Fig. 4 - Component Names

- 1 Vanity Mirror Lamp-Left
- 2 Inside Rearview Mirror w/Reading Lamps
- 3 Vanity Mirror Lamp-Right
- 4 I/P Compartment Lamp
- 5 Courtesy Lamp-Right
- 6 Courtesy Lamp-Left

Fig. 5: Identifying Driver Door Internal Components

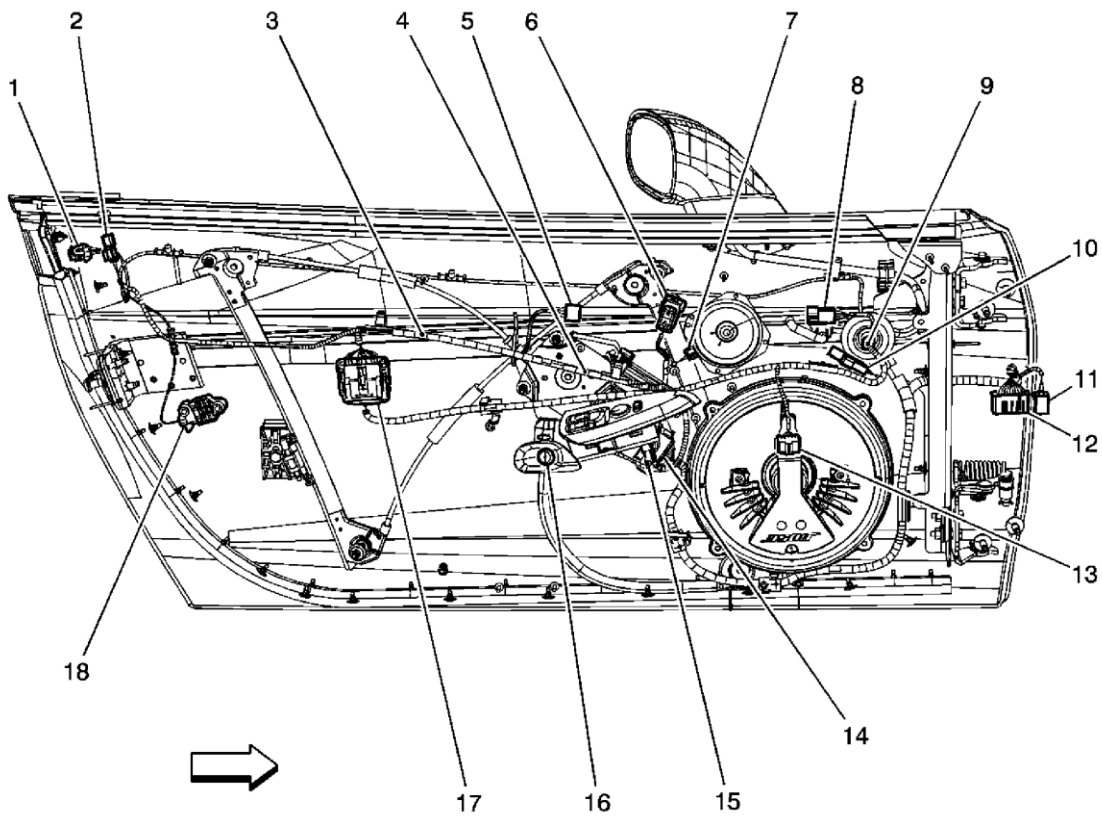


Fig. 5 - Component Names

- |    |                                      |    |  |
|----|--------------------------------------|----|--|
| 1  | Door Handle Switch - Driver Exterior | 17 | C555   |
| 2  | Door Lock Indicator – Driver         | 18 | Inflatable Restraint Side Impact Sensor - Left |
| 3  | S579                                 |    |  |
| 4  | S559                                 |    |  |
| 5  | Memory Seat Switch                   |    |  |
| 6  | Door Lock Switch - Driver            |    |  |
| 7  | Speaker - LF Door Tweeter            |    |  |
| 8  | Outside Rearview Mirror - Driver C1  |    |  |
| 9  | S539                                 |    |  |
| 10 | Outside Rearview Mirror - Driver C2  |    |  |
| 11 | C503                                 |    |  |
| 12 | C501                                 |    |  |
| 13 | Speaker - Bose                       |    |  |
| 14 | Driver Door Module (DDM)             |    |  |
| 15 | Driver Door Switch Assembly (DDSA)   |    |  |
| 16 | Door Handle Switch - Driver Interior |    |  |

Fig. 6: Identifying Passenger Door Components

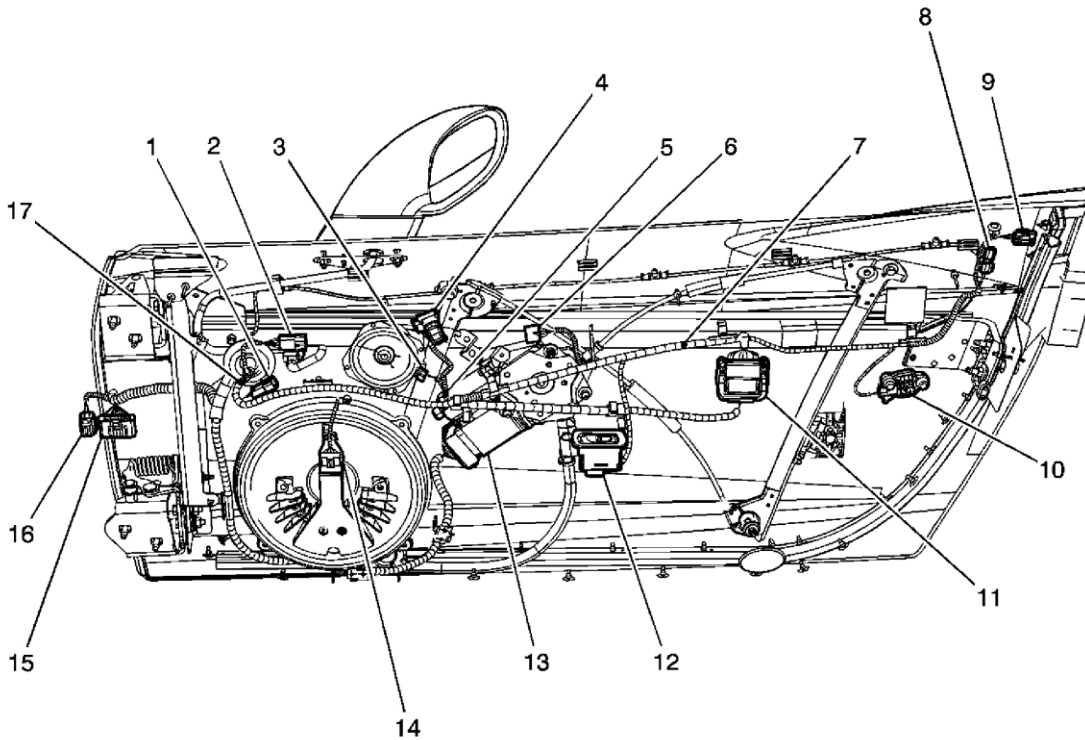


Fig. 6 - Component Names

- 1 Outside Rearview Mirror - Passenger C2
- 2 Outside Rearview Mirror - Passenger C2
- 3 Speaker - RF Door Tweeter
- 4 Door Lock Switch - Passenger
- 5 S680
- 6 Door Handle Switch - Passenger Interior
- 7 S660
- 8 Door Lock Indicator – Passenger
- 9 Door Handle Switch - Passenger Exterior
- 10 Inflatable Restraint Side Impact Sensor - Right
- 11 C666
- 12 Window Switch - Front Passenger
- 13 Front Passenger Door Module (FPDM)
- 14 Speaker - Bose
- 15 C600
- 16 C602
- 17 S640

OUTSIDE MIRROR - SIRIUS XM ANTENNAS

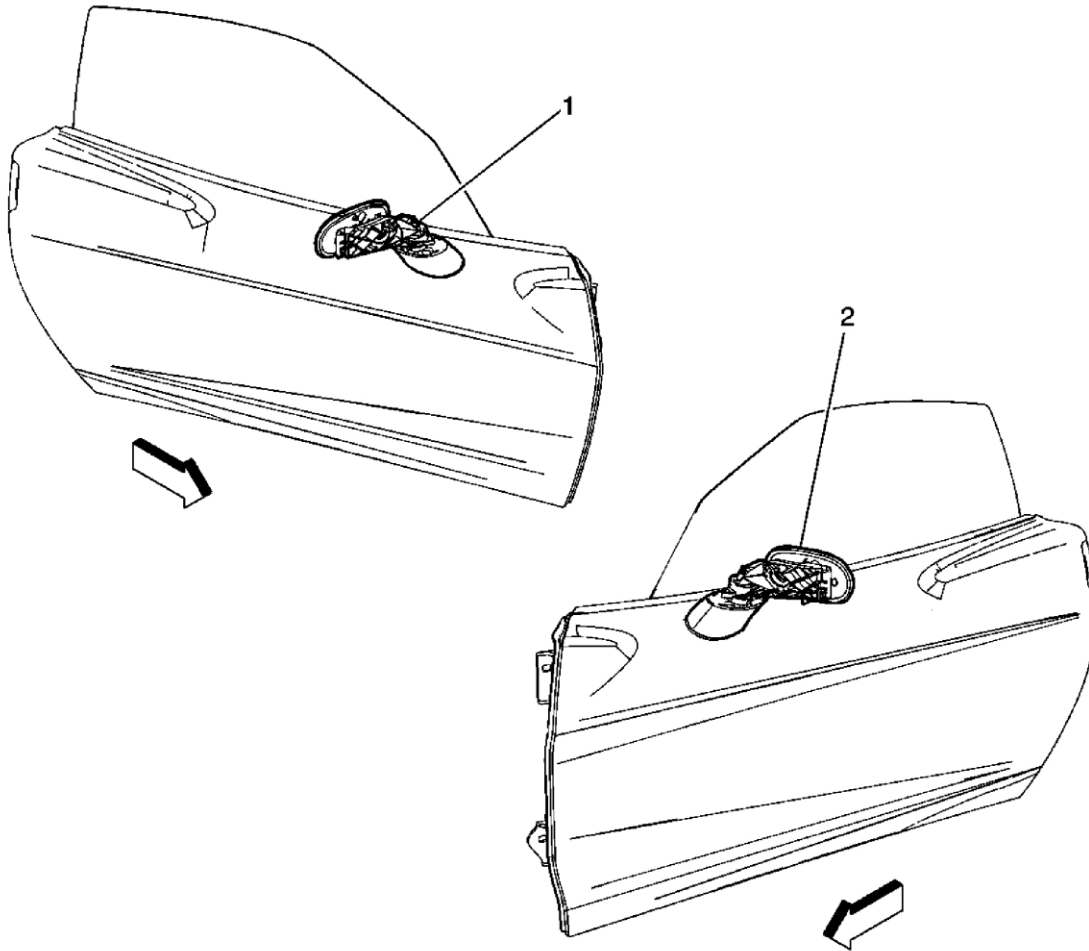


Fig. 7: - View Of Outside Mirrors

Fig. 7 - Component Names

- 1 Digital Radio Antenna - Passenger (U2K)
- 2 Digital Radio Antenna - Driver (U2K)

## VEHICLE MIRRORS CONNECTOR END VIEWS

### Inside Rearview Mirror Connector End View

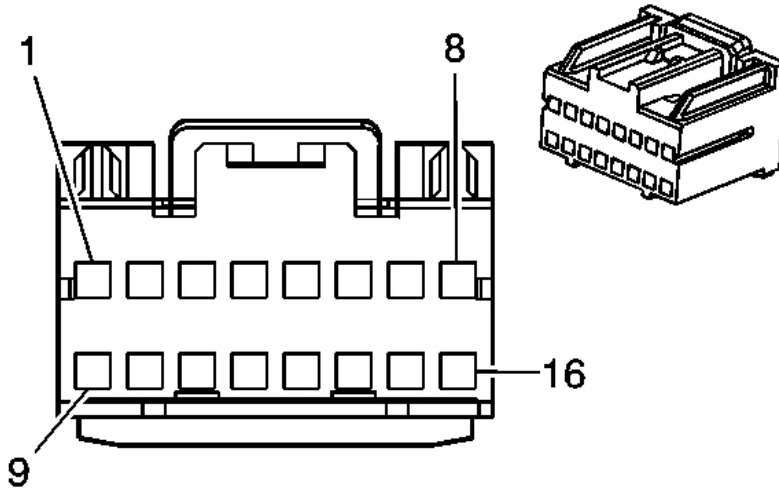


Fig. 8: Inside Rearview Mirror Connector End View

#### Connector Part Information

OEM: 15441350

Service: 15306351

Description: 16-Way F Micro 100A Series (BK)

#### Terminal Part Information

Pins: 1, 5, 6, 8, 9, 13, 16

Terminal/Tray: 15355438/20

Core/Insulation Crimp: E/C

Release Tool/Test Probe: 15315247/J-35616-12 (BU)

Pins: 11, 12, 14, 15

Terminal/Tray: See Terminal Repair Kit

Core/Insulation Crimp: See Terminal Repair Kit

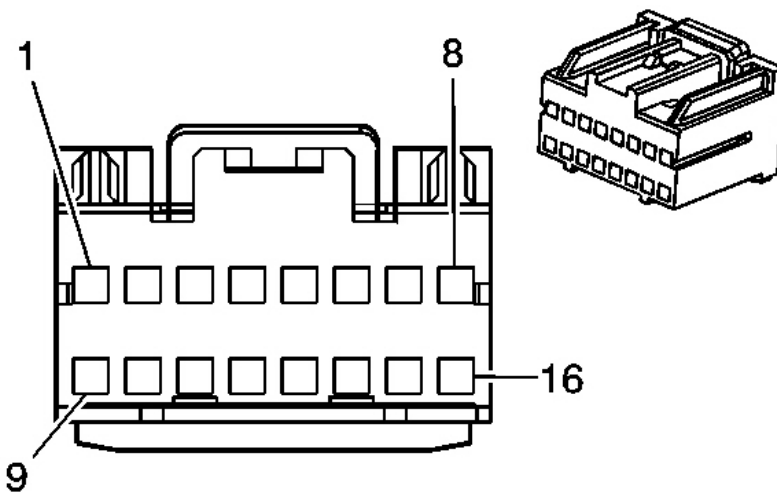
Release Tool/Test Probe: See Terminal Repair Kit

## Inside Rearview Mirror

Connector Terminal Identification - **Fig 8**

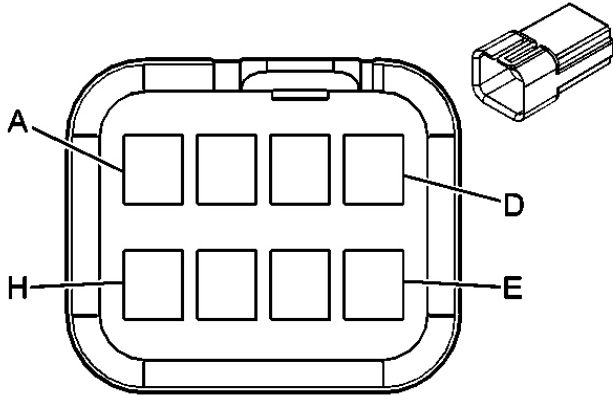
PIN	WIRE COLOR	CIRCUIT NO.	FUNCTION Description
1	WH	1156	Courtesy Lamp Low Control
2-4	-	-	Not Used
5	GY	1690	Automatic Day/Night Mirror Signal (DD8)
6	OG	1732	Courtesy Lamps Supply Voltage
7	-	-	Not Used
8	BK	1550	Ground
9	L-GR/WH	24	Backup Lamps Supply Voltage (DD8)
10	-	-	Not Used
11	D-GN/WH	2514	Keypad Signal (UE1)
12	L-GN/BK	2515	Keypad Supply Voltage (UE1)
13	PK	639	Ignition 1 Voltage (DD8)
14	YE/BK	2516	Keypad Green LED Signal (UE1)
15	BN/WH	2517	Keypad Red LED Signal (UE1)
16	PK	1691	Automatic Day/Night Mirror Low Reference (DD8)

**FIG. 8**





Outside Rearview Mirror - Driver C1 Connector End View – Fig.9



**Fig. 9:** Outside Rearview Mirror - Driver C1 Connector End View

Connector Part Information

OEM: 12084256

Service: 12101827

Description: 8-Way M Metri-Pack 150 Series (BK)

Terminal Part Information

Terminal/Tray: 12047581/2

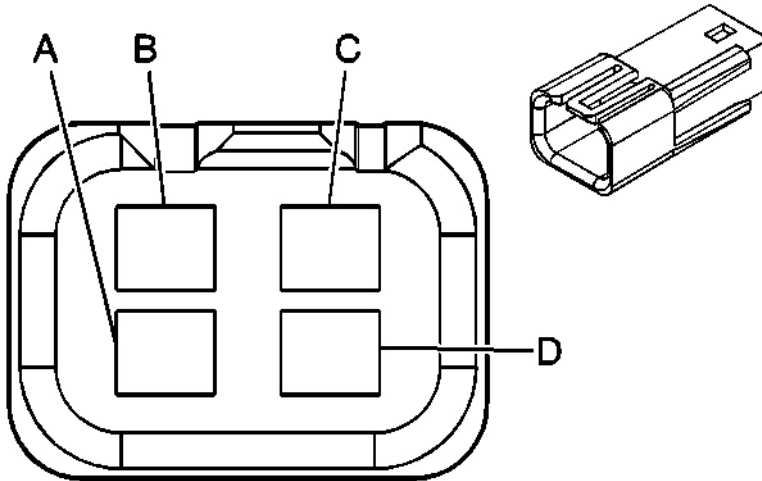
Core/Insulation Crimp: E/C

Release Tool/Test Probe: 12094429/J-35616-3 (GY)

Outside Rearview Mirror - Driver C1 Connector Terminal Identification – **Fig 9**

PIN	WIRE COLOR	CIRCUIT NO.	FUNCTION Description
A	YE	88	Driver Mirror Motor Up Control
B	BK	1450	Ground
C	L-GN	89	Driver Mirror Motor Down Control
D	GY	1690	Automatic Day/Night Mirror Signal (DD8)
E	OG	267	Heated Mirror Element Supply Voltage
F	WH	81	Driver Mirror Motor Right Control
G	PK	1691	Automatic Day/Night Mirror Low Reference (DD8)
H	L-BU	82	Driver Mirror Motor Left Control

Outside Rearview Mirror - Driver C2 (DD0) Connector End View - Fig. 10



**Fig. 10:** Outside Rearview Mirror - Driver C2 (DD0) Connector End View

Connector Parts Information

OEM: 12047786

Service: 12085536

Description: 4-Way M Metri-Pack 150 Series (BK)

Terminal Part Information

Terminal/Tray: 12047581/2

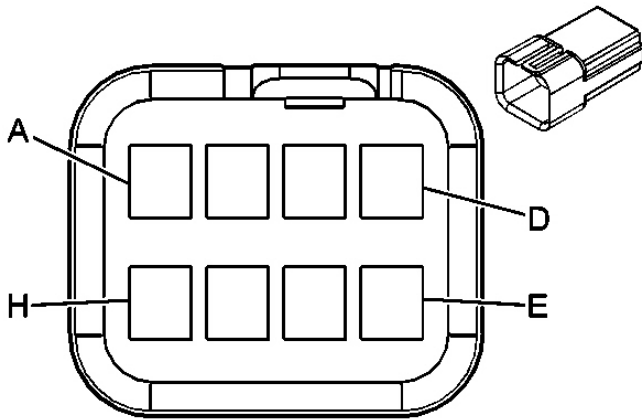
Core/Insulation Crimp: E/C

Release Tool/Test Probe: 12094429/J-35616-3 (GY)

Outside Rearview Mirror - Driver C2 (DD0) Connector Terminal Identification

PIN	WIRE COLOR	CIRCUIT NO.	FUNCTION Description
A	GY	7885	Volt Reference
B	D-GN	784	Driver Mirror Vertical Position Sensor Signal
C	TN	782	Memory Seat/Mirror Sensor Low Reference
D	GY	786	Driver Mirror Horizontal Position Sensor Signal

Outside Rearview Mirror - Passenger C1 Connector End View – Fig. 11



**Fig. 11:** Outside Rearview Mirror - Passenger C1 Connector End View

Connector Part Information

OEM: 12084256

Service: 12101827

Description: 8-Way M Metri-Pack 150 Series (BK)

Terminal Part Information

Pins: A-C, E, F, H

Terminal/Tray: 12047581/2

Core/Insulation Crimp: E/C

Release Tool/Test Probe: 12094429/J-35616-3 (GY)

Outside Rearview Mirror - Passenger C1 Connector Terminal Identification

PIN	WIRE COLOR	CIRCUIT NO.	FUNCTION Description
A	BN/WT	1498	Passenger Mirror Motor Up Control
B	BK	1550	Ground
C	GN	89	Passenger Mirror Motor Down Control
D	-	-	Not Used
E	OG	267	Heated Mirror Element Supply Voltage
F	OG/WT	90	Passenger Mirror Motor Right Control
G	-	-	Not Used
H	GY	90	Passenger Mirror Motor Left Control

Outside Rearview Mirror - Passenger C2 (DD0) Connector End View – Fig. 12

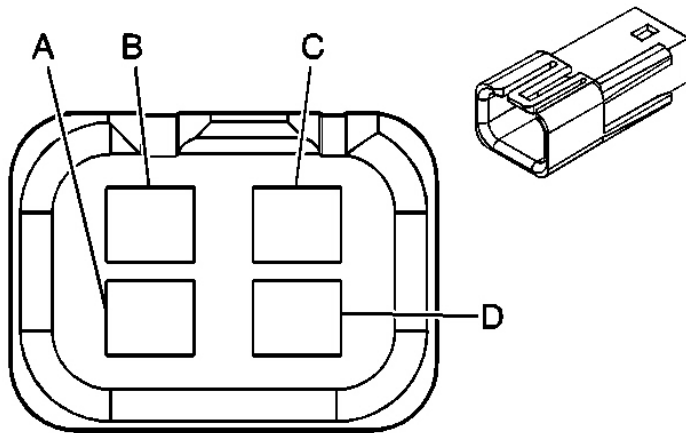


Fig. 12: Outside Rearview Mirror - Passenger C2 (DD0) Connector End View

Connector Part Information

OEM: 12047786

Service: 12085536

Description: 4-Way M Metri-Pack 150 Series (BK)

Terminal Part Information

Pins: A-C

Terminal/Tray: 12047581/2

Core/Insulation Crimp: E/C

Release Tool/Test Probe: 12094429/J-35616-3 (GY)

Pins: D

Terminal/Tray: See Terminal Repair Kit

Core/Insulation Crimp: See Terminal Repair Kit

Release Tool/Test Probe: See Terminal Repair Kit

## Outside Rearview Mirror - Passenger C2 (DD0) Connector Terminal Identification

PIN	WIRE COLOR	CIRCUIT NO.	FUNCTION Description
A	GY	7885	Volt Reference
B	BN	784	Passenger Mirror Vertical Position Sensor Signal
C	TN	782	Memory Seat/Mirror Sensor Low Reference
D	L-BU/BK	786	Passenger Mirror Horizontal Position Sensor Signal

## DIAGNOSTIC INFORMATION AND PROCEDURES

### **DIAGNOSTIC CODE INDEX**

DTC	DESCRIPTION
DTC B1580	Mirror Horizontal Position Sensor Circuit
DTC B1600	Mirror Motor 1 (vertical) Circuit
DTC B1605	Mirror Motor 2 (horizontal) Circuit
DTC B1697	Mirror Left-Up Control Switch Circuit Low
DTC B1702	Mirror Left-Down Control Switch Circuit Low
DTC B1707	Mirror Right-Up Control Switch Circuit Low
DTC B1712	Mirror Right-Down Control Switch Circuit Low

### **DIAGNOSTIC STARTING POINT - MIRRORS**

Begin the system diagnosis with the Diagnostic System Check - Vehicle . The Diagnostic System Check - Vehicle 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 - Vehicle will identify the correct procedure for diagnosing the system and where the procedure is located.

## SCAN TOOL DATA DEFINITIONS

### Battery Voltage Signal

The scan tool displays 9.0-16.0 Volts. The state of the battery voltage feed to the door module or door switch selected.

### Driver Mirror Motors Command

The scan tool displays Idle/Up/Down/Left/Right/Left Up/Left Down/Right Up/Right Down.

The driver mirror motors outputs from the DDM, where the mirror motors transitions are displayed as Up, Down, Left, Right, Left Up, Left Down, Right Up or Right Down.

The scan tool is capable of commanding the driver mirror motors to all positions.

### Driver Mirror Heater

The scan tool displays Active/Inactive. The driver mirror heater output from the DDM, where the mirror heater transition to ON is displayed as Active.

### Driver Mirror Horizontal Position

The scan tool displays 25-225 Counts. The driver mirror horizontal motor output from the DDM, where the mirror motor movement is measured in Counts.

### Driver Mirror Horizontal Position

The scan tool displays 0.5-4.50 Volts. The driver mirror horizontal motor output from the DDM, where the mirror motor movement is measured in Volts.

### Driver Mirror Vertical Position

The scan tool displays 25-225 Counts. The driver mirror vertical motor output from the DDM, where the mirror motor movement is measured in Counts.

### Driver Mirror Vertical Position

The scan tool displays 0.5-4.50 Volts. The driver mirror vertical motor output from the DDM, where the mirror motor movement is measured in Volts.

### Memory 1 Mirror Horizontal Position

The scan tool displays 25-225 Counts. The driver or passenger mirror horizontal motor position output from the selected door module for Memory 1, where the mirror motor position is displayed in Counts.

### Memory 1 Mirror Horizontal Position

The scan tool displays 0.5-4.50 Volts. The driver or passenger mirror horizontal motor position output from the selected door module for Memory 1, where the mirror motor position is displayed in Volts.

### Memory 1 Mirror Vertical Position

The scan tool displays 25-225 Counts. The driver or passenger mirror vertical motor

position output from the selected door module for Memory 1, where the mirror motor position is displayed in Counts.

### Memory 1 Mirror Vertical Position

The scan tool displays 0.5-4.50 Volts. The driver or passenger mirror vertical motor position output from the selected door module for Memory 1, where the mirror motor position is displayed in Volts.

### Memory 2 Mirror Horizontal Position

The scan tool displays 25-225 Counts. The driver or passenger mirror horizontal motor position output from the selected door module for Memory 2, where the mirror motor position is displayed in Counts.

### Memory 2 Mirror Horizontal Position

The scan tool displays 0.5-4.50 Volts. The driver or passenger mirror horizontal motor position output from the selected door module for Memory 2, where the mirror motor position is displayed in Volts.

### Memory 2 Mirror Vertical Position

The scan tool displays 25-225 Counts. The driver or passenger mirror vertical motor position output from the selected door module for Memory 2, where the mirror motor position is displayed in Counts.

### Memory 2 Mirror Vertical Position

The scan tool displays 0.5-4.50 Volts. The driver or passenger mirror vertical motor position output from the selected door module for Memory 2, where the mirror motor position is displayed in Volts.

### Memory Recall Switches

The scan tool displays Idle/Memory 1/Memory 2/Exit. The memory mirror switch inputs to the DDS, where the mirror where the memory mirror switch transitions are displayed as Idle, Memory 1, Memory 2, or Exit.

### Mirror Direction Switch

The scan tool displays Idle/Up/Down/Left/Right/Left Up/Left Down/Right Up/Right Down.

The mirror switch input to the DDS, where the mirror switch transitions are displayed as Up, Down, Left, Right, Left Up, Left Down, Right Up or Right Down.

### Mirror Select Switch

The scan tool displays Off/Driver/Passenger. The mirror select switch input to the DDS, where the mirror select switch transition is displayed as Driver or Passenger.

### Passenger. Mirror Heater

The scan tool displays Active/Inactive. The passenger mirror heater output from the PDM, where the mirror heater transition to ON is displayed as Active.



### Passenger Mirror Horizontal Position

The scan tool displays 25-225 Counts. The passenger mirror horizontal motor output from the PDM, where the mirror motor movement is measured in Counts.

### Psgr. Mirror Horizontal Position

The scan tool displays 0.5-4.50 Volts. The passenger mirror horizontal motor output from the PDM, where the mirror motor movement is measured in Volts.

### Psgr. Mirror Motors Command

The scan tool displays Idle/Up/Down/Left/Right/Left Up/Left Down/Right Up/Right Down.

The passenger mirror motors outputs from the PDM, where the mirror motors transitions are displayed as Up, Down, Left, Right, Left Up, Left Down, Right Up or Right Down.

### Psgr. Mirror Vertical Position

The scan tool displays 25-225 Counts. The passenger mirror vertical motor output from the PDM, where the mirror motor movement is measured in Counts.

### Psgr. Mirror Vertical Position

The scan tool displays 0.5-4.50 Volts. The passenger mirror vertical motor output from the PDM, where the mirror motor movement is measured in Volts.

## **SCAN TOOL DATA LIST**

### **Driver Door Module (DDM)**

Typical Data

Scan Tool Parameter	Data	List	Units	Displayed Value
---------------------	------	------	-------	-----------------

RUN MODE ON

Battery Voltage Signal Data			Volts 9-16 Volts	
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Driver Mirror Heater Data		Active/Inactive	Inactive	
---------------------------	--	-----------------	----------	--

Driver Mirror Motors Data Idle/ Up/Down/ Left/Right/ Left Up/ Left Down/  
Right Idle

Command Up/Right Down

Driver Mirror Horizontal Position Data Counts 25-230 Counts

Driver Mirror Horizontal Position Data Volts 0.5-4.5 Volts

Driver Mirror Vertical Position Data Counts 15-225 Counts

Driver Mirror Vertical Position Data Volts 0.5-4.5 Volts

Memory 1 Mirror Horizontal Position Data Counts 25-230 Counts

Memory 1 Mirror Horizontal Position Data Volts 0.5-4.5 Volts

Memory 1 Mirror Vertical Position Data Counts 15-225 Counts

Memory 1 Mirror Vertical Position Data Volts 0.5-4.5 Volts

Memory 2 Mirror Horizontal Position Data Counts 25-230 Counts

Memory 2 Mirror Horizontal Position Data Volts 0.5-4.5 Volts

Memory 2 Mirror Vertical Position Data Counts 15-225 Counts

Memory 2 Mirror Vertical Position Data Volts 0.5-4.5 Volts

### **Driver Door Switch**

Typical Data

Scan Tool Parameter Data List Units Displayed Value

RUN MODE ON

Battery Voltage Signal Data Volts 9-16 Volts

Memory Recall Switches Data Idle/Memory 1/Memory 2/Exit

Mirror Direction Switch Command Data	Idle/Up/Down/Left/Right/Left Up/Left Down/Right Idle Up/Right Down
Mirror Select Switch Data	Off/Driver/Passenger Off

### **Passenger Door Module (PDM)**

#### Typical Data

Scan Tool Parameter	Data	List	Units	Displayed Value
---------------------	------	------	-------	-----------------

#### RUN MODE ON

Battery Voltage Signal Data	Volts	9-16	Volts	
Memory 1 Mirror Horizontal Position Data	Counts	25-225	Counts	
Memory 1 Mirror Horizontal Position Data	Volts	0.5-4.5	Volts	
Memory 1 Mirror Vertical Position Data	Counts	25-225	Counts	
Memory 2 Mirror Vertical Position Data	Volts	0.5-4.5	Volts	
Memory 2 Mirror Horizontal Position Data	Counts	25-225	Counts	
Memory 2 Mirror Horizontal Position Data	Volts	0.5-4.5	Volts	
Memory 2 Mirror Vertical Position Data	Counts	25-225	Counts	
Memory 2 Mirror Vertical Position Data	Volts	0.5-4.5	Volts	
Passenger Mirror Heater Data	Active/Inactive		Inactive	
Passenger Mirror Horizontal Position Data	Counts	25-225	Counts	
Passenger Mirror Horizontal Position Data	Volts	0.5-4.5	Volts	
Passenger Mirror Motors Command Data	Idle/Up/Down/Left/Right/Left Up/Left Down/Right Idle Up/Right Down			

Passenger Mirror Vertical Position Data      Counts 25-225 Counts

Passenger Mirror Vertical Position Data      Volts 0.5-4.5 Volts

## **SCAN TOOL OUTPUT CONTROLS**

### **Driver Door Module (DDM)**

Additional Menu

Special Functions	Selection(s)	Description
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#### **Driver door DDM**

The DDM commands the driver mirror to rotate in the right or left direction for approximately 5 seconds when you select Right or Left.

The driver Horizontal Motor mirror should move in the right or left direction.

The DDM commands the driver mirror to rotate in the up or down direction for approximately 5 seconds when you select Up or Down

The driver Vertical Motor mirror should move in the up or down direction.

#### **Mirror Heater DDM**

The DDM commands the driver mirror heater On for approximately 5 seconds.

The driver mirror should feel warm when the heater is commanded On.

## **Passenger Door Module (PDM)**

Additional Menu

Special Functions	Selection(s)	Description
-------------------	--------------	-------------

### Passenger Mirror PDM

The PDM commands the passenger mirror to rotate in the right or left direction for approximately 5 seconds when you select Right or Left. The passenger mirror Horizontal Motor should move in the right or left direction.

The PDM commands the passenger mirror to rotate in the up or down direction for approximately 5 seconds when you select Up or Down. The passenger mirror Vertical Motor should move in the up or down direction.

### Passenger Mirror Heater PDM

The PDM commands the passenger mirror heater On for approximately 5 seconds. The passenger mirror should feel warm when the heater is commanded On.

### **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.

[DTC Descriptor](#)

DTC	Description
DTC B1580	Mirror Horizontal Position Sensor Circuit
DTC B1590	Mirror Vertical Position Sensor Circuit

## **Circuit / System Description** – **Mirror position Sensor Signals**

The driver door module (DDM) and passenger door module (PDM) receive mirror position signals from the mirror horizontal and vertical position sensors. These signals are used by the door modules for memory recall functions of the driver and passenger mirrors.

The door modules command the mirror memory settings based upon the voltage level received back from the position sensors. Each door module provides a 5 volt supply, a signal, and ground circuit for each of the position sensors.

The horizontal and vertical position sensors are variable resistors that the door modules monitor voltage levels across. When a memory setting is recalled, the door modules command the mirror motors in the appropriate directions until the stored position sensor voltage levels are achieved. The DDM and PDM monitor the signal circuits to determine if the voltage level is out of range.

For more detailed information concerning power mirror operation refer to Outside Mirror Description and Operation

### **Conditions for Running the DTC**

Battery voltage must be between 9-16 volts.

### **Conditions for Setting the DTC**

These DTC's will set if:

A mirror position sensor signal voltage is below 0.5 volts for 2 seconds.

A mirror position sensor signal voltage is above 4.5 volts for 2 seconds.

### **Actions Taken When the DTC Sets**

The door module will ignore the failed position sensor.

The door module will ignore memory set or recall for the mirrors.

Manual mirror movements will be allowed.

## **Conditions for Clearing the DTC**

The condition responsible for setting the DTC no longer exists.

You issue a scan tool CLEAR DTCs command.

## **Diagnostic Aids**

If DTC- B1580 and DTC-B1590 are both set, the low reference circuit may be open, or the 5-volt reference circuit may be open, shorted to ground, or shorted to voltage.

## **Circuit/System Testing**

1. Ignition OFF, disconnect the appropriate outside rearview mirror C 2 harness connector.

2. Ignition OFF, test for less than 1.0 ohm of resistance between the low reference circuit terminal C and ground.

If greater than the specified range, test the low reference circuit for an open/high resistance. If the circuit tests normal, replace the appropriate door control module.

3. Ignition ON, test for 4.8 - 5.2 volts between the 5-volt reference circuit terminal A and ground.

If less than the specified range, test the 5-volt reference circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the appropriate door control module.

If greater than the specified range, test the 5-volt reference circuit for a short to voltage. If the circuit tests normal, replace the appropriate door control module.

4. Verify with a scan tool the appropriate mirror position parameter is less than 4.5 volts.

If greater than the specified range, test the appropriate mirror position signal circuit for a short to voltage. If the circuit tests normal, replace the appropriate door control module.

5. Install a 3-A fused jumper wire between the appropriate mirror position signal circuit and the 5-volt reference circuit terminal A. Verify with a scan tool the appropriate mirror position parameter is greater than 4.5 volts.

If less than the specified range, test the appropriate mirror position signal circuit for short to ground or an open/high resistance. If the circuit tests normal, replace the appropriate door control module.

6. If all circuits test normal, test or replace the appropriate mirror.

### **Repair Procedures**

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

Mirror Replacement.

Control Module References for DDM or PDM replacement, setup, and programming.

DTC B1600 OR B1605

### **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.

#### **DTC Descriptor**

DTC	Description
DTC B1600	Mirror Motor 1 (vertical) Circuit
DTC B1605	Mirror Motor 2 (horizontal) Circuit



## **Diagnostic Fault Information**

Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.

### **Circuit/System Description** – Mirror control output .

The driver door module (DDM) and passenger door module (PDM) each provide motor control output functions for their respective mirrors. These output controls allow each door module to command their respective power mirrors in horizontal and vertical positions.

The driver door switch assembly (DDSA) sends a serial data message to the door modules when the mirror switch is activated to the up, down, left or right positions. When the door modules detect an active mirror command from the DDSA, they will command the respective mirror motor in the appropriate direction. Each door module commands their respective mirror motors by applying a ground or voltage to the control circuit, depending on the desired mirror position.

For more detailed information concerning power mirror operation refer to Outside Mirror Description and Operation.

### **Conditions for Running the DTC**

Battery voltage must be between 9-16 volts.

### **Conditions for Setting the DTC**

The DDM or PDM detects a short to ground or voltage in the mirror motor control circuit.

Condition must be present for 2 seconds.

### **Actions Taken When the DTC Sets**

When DTC B1600 is present, the vertical mirror control will be disabled.

When DTC B1605 is present, the horizontal mirror control will be disabled.

### **Conditions for Clearing the DTC**

The condition responsible for setting the DTC no longer exists

You issue a scan tool CLEAR DTC's command.

## **Diagnostic Aids**

The following conditions may cause an intermittent malfunction:

There is an intermittent short to ground or voltage in a mirror motor control circuit.

A mirror motor is shorted internally.

## **Circuit/System Testing**

1. Ignition OFF, disconnect the appropriate outside rearview mirror C 1 harness connector.

2. Ignition OFF, test for less than 1.0 ohm of resistance at each mirror motor control circuit between the outside rearview mirror C 1 harness connector and ground.

If greater than the specified range, test the appropriate mirror motor control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the appropriate door control module.

3. Connect a test lamp between mirror motor UP control circuit terminal A and mirror motor DOWN control circuit terminal C.

4. Command the appropriate mirror to the UP and DOWN positions with a scan tool. The test lamp should turn ON when commanding the Up and DOWN states. If the test lamp remains OFF during either of the commands, test for a short to ground on either control circuit. If the circuit tests normal, replace the appropriate door control module.

5. Connect a test lamp between mirror motor LEFT control circuit terminal H and mirror motor RIGHT control circuit terminal F.

6. Command the appropriate mirror to the LEFT and RIGHT positions with a scan tool. The test lamp should turn ON when commanding the LEFT and RIGHT states.

If the test lamp remains OFF during either of the commands, test for a short to ground on either control circuit. If the circuit tests normal, replace the appropriate door control module.

7. If all circuits test normal, test or replace the appropriate mirror.

## **Repair Procedures**

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

Mirror Replacement.

Control Module References for DDM or PDM replacement, setup, and programming.

DTC B1697, B1702, B1707, OR B1712

## **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.

## **DTC Descriptor**

DTC	Description
DTC B1697	Mirror Left-Up Control Switch Circuit Low
DTC B1702	Mirror Left-Down Control Switch Circuit Low
DTC B1707	Mirror Right-Up Control Switch Circuit Low
DTC B1712	Mirror Right-Down Control Switch Circuit Low

## **Circuit/System Description** - Outside rearview mirror control

The outside rearview mirror control switch is contained within the driver door switch assembly (DDSA). The DDSA contains a microprocessor which takes the signal generated by the outside rearview mirror control switch and assigns a digital message to the switch signal.

The DDSA sends this message via class 2 serial data to the driver door module (DDM) to move the left mirror or the passenger door module (PDM) to move the right mirror. The DDM or PDM then applies voltage and ground to the appropriate circuits of the appropriate mirror motor to move the mirror vertically and/or horizontally. The mirror motors are reversible.

For more detailed information concerning outside rearview mirror operation refer to Outside Mirror Description and Operation.

### **Conditions for Running the DTC**

Battery voltage must be between 9-16 volts.

### **Conditions for Setting the DTC**

The DDSA detects that the switch contacts are activated.

Condition must be present for greater than 30 seconds.

### **Actions Taken When the DTC Sets**

Stores DTC B1697, B1702, B1707, or B1712 in DDSA memory.

### **Conditions for Clearing the DTC**

The condition responsible for setting the DTC no longer exists.

You issue a scan tool CLEAR DTCs command.

### **Diagnostic Aids**

The following conditions may cause an intermittent malfunction:

When a contact for a mirror position switch has failed, it will affect both mirrors.

The DDSA is shorted internally.

### **Circuit/System Testing**

Ignition ON, install a scan tool, clear all DTCs and operate the mirrors within the Conditions for Running the DTC.

If DTC B1697, B1702, B1707, or B1712 resets as current, replace the DDSA.

### **Repair Procedures**

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

- Left Side .

Front Side Door Window Switch Replacement

### **SYMPTOMS - MIRRORS**

IMPORTANT:

The following steps must be completed before using a symptom table.

Perform the Diagnostic System Check - Vehicle in Vehicle DTC Information before using a symptom table in order to verify that all of the following conditions are true:

There are no DTCs set.

The control modules can communicate via the serial data link.

Review the system description and operation in order to familiarize yourself with the system functions.

Refer to the following:

Automatic Day-Night Mirror Description and Operation

Outside Mirror Description and Operation

### **Visual/Physical Inspection**

Inspect for aftermarket devices which could affect the operation of the power mirrors.

Refer to Checking Aftermarket Accessories in Wiring Systems.

Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

### **Intermittent**

Thoroughly inspect the wiring and connectors. An incomplete inspection of the wiring and connectors may result in misdiagnosis causing part replacement with the reappearance of the malfunction. If an intermittent malfunction exists, refer to Testing for Intermittent Conditions and Poor Connections in Wiring Systems.

### **Symptom List**

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

Heated Mirrors Inoperative

Mirrors - Automatic Day-Night Inoperative

Mirrors - Outside Automatic Day-Night Feature Inoperative

Power Mirrors Inoperative

Power Mirrors - Mirror Tilt Inoperative in Reverse

## **HEATED MIRRORS INOPERATIVE**

### **Diagnostic Instructions**

Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.

Strategy Based Diagnosis

Diagnostic Procedure Instructions

### **Circuit/System Description** - Outside Rearview Mirrors Heat

The outside rearview mirrors heat during the defrost/defog cycles for the rear window. The driver door module (DDM) and passenger door module (PDM) control the heated mirror functions. The DDM supplies power and ground to the driver heated mirror and the PDM supplies it to the passenger heated mirror. When the door modules receive a class 2 serial data message from the HVAC control module indicating the rear defogger has been turned ON, both door modules will activate the heated mirror by applying voltage to the heated mirror element feed circuit.

### **Circuit/System Testing**

1. Ignition OFF, disconnect the C1 harness connector at the inoperative outside rearview mirror.
2. Test for less than 1.0 ohm of resistance between the ground circuit terminal B and ground.  
If greater than the specified range, test the ground circuit for an open/high resistance.
3. Connect a test lamp between the control circuit terminal E and the ground circuit terminal B.

4. Command the inoperative mirror heater ON and OFF with a scan tool. The test lamp should turn ON and OFF when changing between the commanded states.

If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests normal, replace the inoperative door control module.

If the test lamp is always OFF, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the inoperative door control module.

5. If all circuits test normal, test or replace the inoperative outside rearview mirror.

### **Repair Procedures**

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

### **Mirror Replacement**

#### **MIRRORS - AUTOMATIC DAY-NIGHT 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** – Mirror automatic day/night feature

The automatic day/night feature of the driver outside rearview mirror is controlled by the inside rearview mirror. The inside rearview mirror supplies a signal and a low reference to the driver outside rearview mirror. The voltage on the signal circuit of the driver outside rearview mirror varies between 0.5-1.5 volts depending on light conditions present at the inside rearview mirror.



At night, with the automatic day-night feature enabled, the driver outside rearview mirror will automatically darken with the inside rearview mirror to reduce the glare from the headlamps from behind. The voltage on the signal circuit of the driver outside rearview mirror will be near 1.5 volts.

In daytime conditions, the mirrors are in the normal state. The voltage on the signal circuit of the driver outside rearview mirror may be less than or near 0.5 volts. For more detailed information concerning automatic day night mirror operation refer to Automatic Day-Night Mirror Description and Operation.

### **Diagnostic Aids**

This diagnostic assumes that the vehicles backup lamps are operating within specifications. If the backup lamps are inoperative, diagnose the backup lamps system before continuing with this procedure.

### **Circuit/System Testing**

1. Ignition OFF, disconnect the harness connector at the inside rearview mirror.
2. Ignition OFF, test for less than 1.0 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, test for battery voltage between the ignition 1 voltage circuit terminal 13 and ground.  
If less than the specified range, test the voltage circuit terminal 13 for a short to ground or an open/high resistance.
4. Transmission in REVERSE, test for battery voltage between the backup lamps supply voltage circuit terminal 9 and ground.  
If less than the specified range, test the voltage circuit terminal 9 for a short to ground or an open/high resistance.
5. If all circuits test normal, test or replace the inside rearview mirror.

## **Repair Procedures**

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

Rearview Mirror Replacement (DD8) or Rearview Mirror Replacement (Except DD8).

## **MIRRORS - OUTSIDE AUTOMATIC DAY-NIGHT FEATURE 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 automatic day/night feature of the driver outside rearview mirror is controlled by the inside rearview mirror. The inside rearview mirror supplies a signal and a low reference to the driver outside rearview mirror. The voltage on the signal circuit of the driver outside rearview mirror varies between 0.5-1.5 volts depending on light conditions present at the inside rearview mirror.

At night, with the automatic day-night feature enabled, the driver outside rearview mirror will automatically darken with the inside rearview mirror to reduce the glare from the headlamps from behind. The voltage on the signal circuit of the driver outside rearview mirror will be near 1.5 volts.

In daytime conditions, the mirrors are in the normal state. The voltage on the signal circuit of the driver outside rearview mirror may be less than or near 0.5 volts. For more detailed information concerning automatic day night mirror operation refer to Automatic Day-Night Mirror Description and Operation.

### **Circuit/System Testing**

1. Ignition OFF, disconnect the C1 harness connector at the driver outside rearview mirror.

2. Ignition OFF, test for less than 1.0 ohm of resistance between the low reference circuit terminal G and ground.

If greater than the specified range, test the low reference circuit for an open/high resistance. If the circuit tests normal, replace the inside rearview mirror.

3. Ignition ON, test for 0.5-1.5 volts between the signal circuit terminal D and ground.

If less than the specified range, test the signal circuit terminal D for a short to ground or an open/high resistance. If the circuit tests normal, replace the inside rearview mirror.

If greater than the specified range, test the signal circuit terminal D for a short to voltage. If the circuit tests normal, replace the inside rearview mirror.

4. If all circuits test normal, test or replace the driver outside rearview mirror.

### **Repair Procedures**

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

Rearview Mirror Replacement (DD8) or Rearview Mirror Replacement (Except DD8).

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.

### **Circuit/System Description** – Mirror Horizontal/Vertical Output Control

The driver door module (DDM) and passenger door module (PDM) each provide motor control output functions for their respective mirrors. These output controls allow each door module to command their respective power mirrors in horizontal and vertical positions. The driver door switch assembly (DDSA) sends a serial data message to the door modules when the mirror switch is activated to the up, down, left or right positions. When the door modules detect an active mirror command from the DDSA, they will command the respective mirror motor in the appropriate direction. Each door module commands their respective mirror motors by applying a ground or voltage to the control circuit, depending on the desired mirror position.

For more detailed information concerning power mirror operation refer to Outside Mirror Description and Operation.

### **Circuit/System Testing**

1. Ignition ON, verify with a scan tool the mirror direction switch parameter changes as the switch is activated. The scan tool should change between UP, DOWN, LEFT, RIGHT.

If the function does not perform as specified, replace the DDSA.

Verify with a scan tool the mirror select switch parameter changes as the switch is activated.

2. The scan tool should change between DRIVER and PASSENGER.

If the function does not perform as specified, replace the DDSA.

3. Ignition OFF, disconnect the appropriate outside rearview mirror C 1 harness connector.

4. Ignition OFF, test for less than 1.0 ohm of resistance at each mirror motor control circuit between the outside rearview mirror C 1 harness connector and ground.

If greater than the specified range, test the appropriate mirror motor control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the appropriate door control module.

5. Connect a test lamp between mirror motor UP control circuit terminal A and mirror motor DOWN control circuit terminal C.

6. Command the appropriate mirror to the UP and DOWN positions with a scan tool. The test lamp should turn ON when commanding the UP and DOWN states. If the test lamp remains OFF during either of the commands, test for a short to ground on either control circuit. If the circuit tests normal, replace the appropriate door control module.

7. Connect a test lamp between mirror motor LEFT control circuit terminal H and mirror motor RIGHT control circuit terminal F.

8. Command the appropriate mirror to the LEFT and RIGHT positions with a scan tool. The test lamp should turn ON when commanding the LEFT and RIGHT states.

If the test lamp remains OFF during either of the commands, test for a short to ground on either control circuit. If the circuit tests normal, replace the appropriate door control module.

9. If all circuits test normal, test or replace the appropriate outside rearview mirror.

### **Repair Procedures**

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

Front Side Door Window Switch Replacement - Left Side .

Mirror Replacement.

Control Module References for DDM or PDM replacement, setup, and programming.

## **POWER MIRRORS - MIRROR TILT INOPERATIVE IN REVERSE**

### **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** – Mirror tilt Horizontal/Vertical Control

The driver door module (DDM) and passenger door module (PDM) each provide motor control output functions for their respective mirrors. These output controls allow each door module to command their respective power mirrors in horizontal and vertical positions. The driver door switch assembly (DDSA) sends a serial data message to the door modules when the mirror switch is activated to the up, down, left or right positions. When the door modules detect an active mirror command from the DDSA, they will command the respective mirror motor in the appropriate direction. Each door module commands their respective mirror motors by applying a ground or voltage to the control circuit, depending on the desired mirror position. For more detailed information concerning power mirror operation refer to Outside Mirror Description and Operation.

### **Circuit/System Testing**

1. Ignition ON, verify the park assist option is activated in the driver information center (DIC).
2. If the park assist option is activated in the DIC, replace the appropriate door control module.

## **Repair Procedures**

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

Control Module References for DDM or PDM replacement, setup, and programming.

## **REPAIR INSTRUCTIONS**

### **SIDE WINDOW FILLER PANEL REPLACEMENT -**

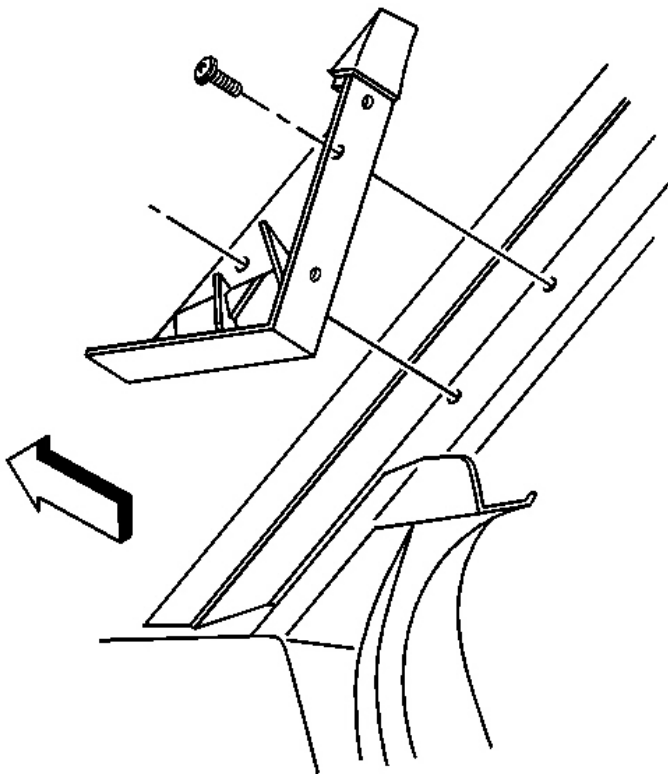


Fig. 13: Filler Panel To Windshield Pillar

## **Removal Procedure** (Fig. 13)

1. Remove the windshield weatherstrip, the side retainer, and the windshield side reveal molding. Refer to Windshield Side Reveal Molding Replacement (Coupe and Convertible) or Windshield Side Reveal Molding Replacement (Hardtop) .
2. Remove the side window filler panel.
3. Remove the screws attaching the filler panel.
4. Separate the filler panel from the sealant attaching the panel to the windshield pillar.
5. Remove the old sealant from the windshield pillar.

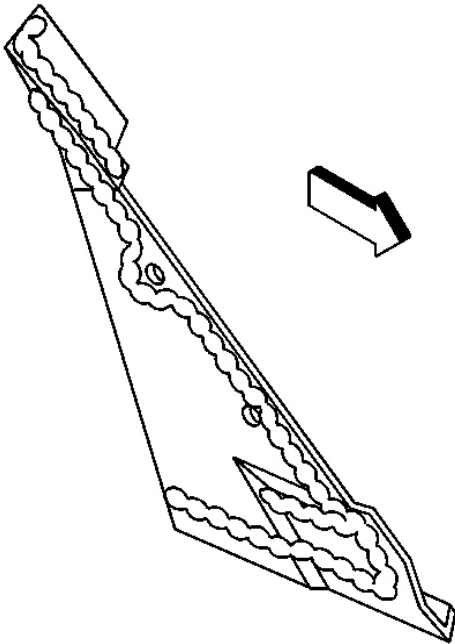


Fig. 14: Side Window Filler Panel To Windshield Pillar



## Installation Procedure

1. Apply a continuous bead of sealant GM P/N 12345097, or equivalent, to the side window filler panel along the surface that will contact the windshield pillar as illustrated. (**fig. 14**)

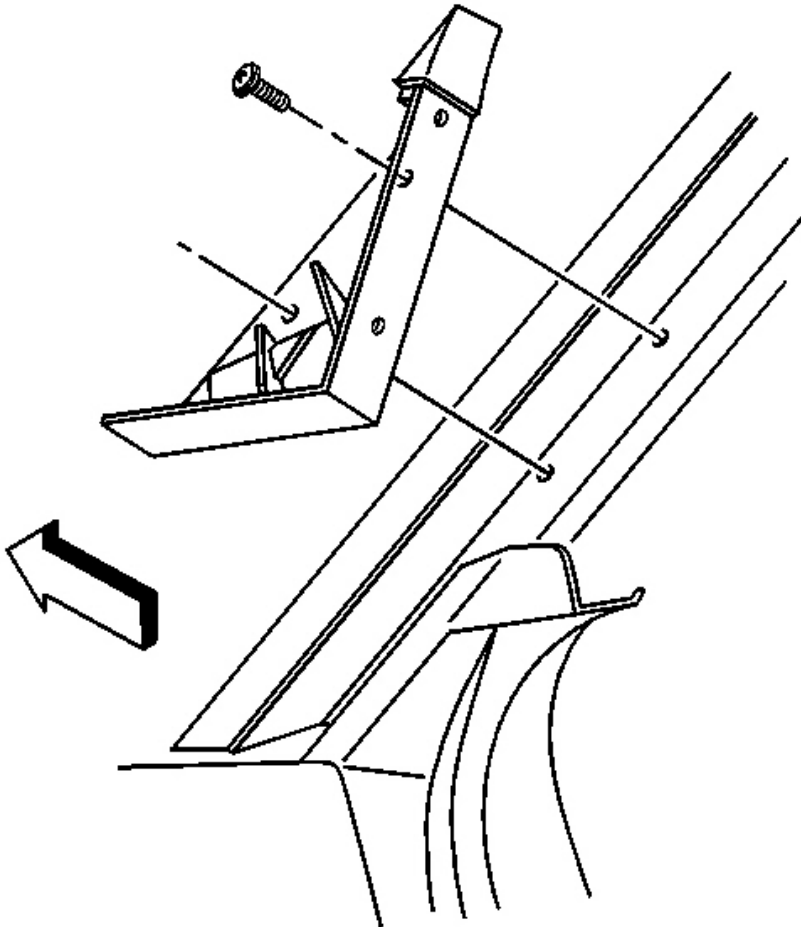


Fig. 15: Filler Panel To Windshield Pillar

2. Position the filler panel to the windshield pillar.

NOTE: Refer to Fastener Notice .

3. Install the screws attaching the side window filler panel. (**fig. 15**)

Tighten: Tighten the filler panel screws to 2.5 N.m (22 lb in).

4. Wipe off any excessive sealant that squeezed out around the filler panel.

5. Install the windshield side reveal molding, the side weatherstrip retainer, and the weatherstrip.

Refer to Windshield Side Reveal Molding Replacement (Coupe and

Convertible) or Windshield Side Reveal Molding Replacement (Hardtop) .

### **OUTSIDE REARVIEW MIRROR REPLACEMENT**

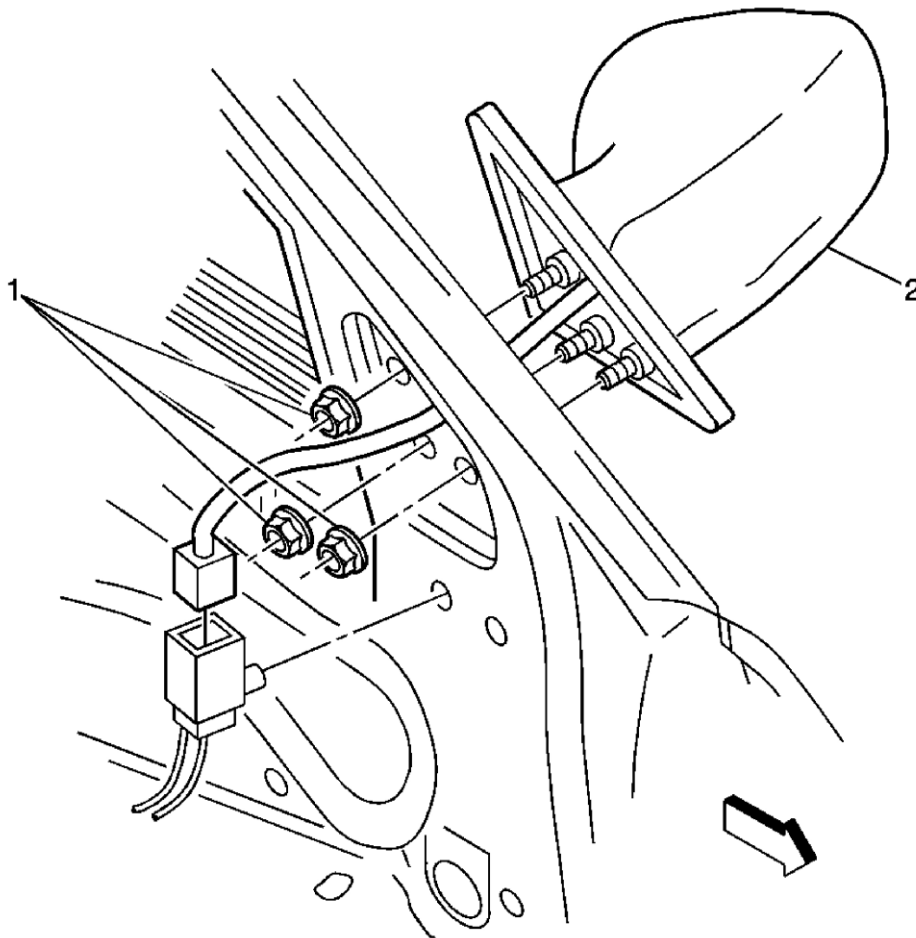


Fig. 16: View Of Outside Mirror & Connector

## **Mirror Replacement**

### **Preliminary Procedures:**

Remove the interior door trim panel.

Replacement - Outside Rearview Mirror (s)

Outside Rearview Mirror Nuts (Qty: 3)

Tip: Disconnect the electrical connector. (Qty: 1)

Tighten: 4 N.m (35 lb in)

### **OUTSIDE REAR VIEW MIRROR MOTOR REPLACEMENT**

#### **Removal Procedure**

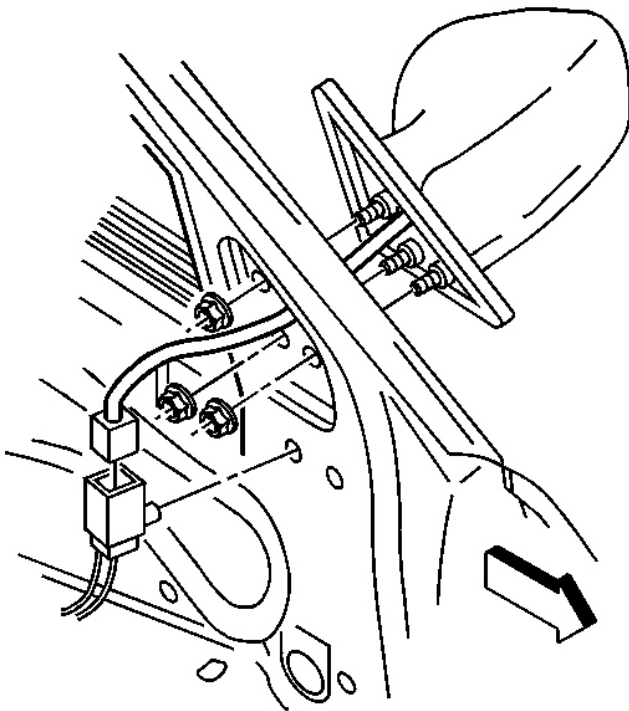


Fig. 17: Mirror Wire Harness & Electrical Connector

1. Remove the door trim panel. Refer to Front Side Door Trim Panel Replacement Driver Side or Front Side Door Trim Panel Replacement - Passenger Side .
2. Disconnect the electrical connector to the mirror wire harness.
3. Remove the mirror face. Refer to Mirror Face Replacement.
4. Remove the screws from the mirror motor.
5. Pull the motor electrical harness through the mirror housing.
6. Remove the motor from the mirror housing.

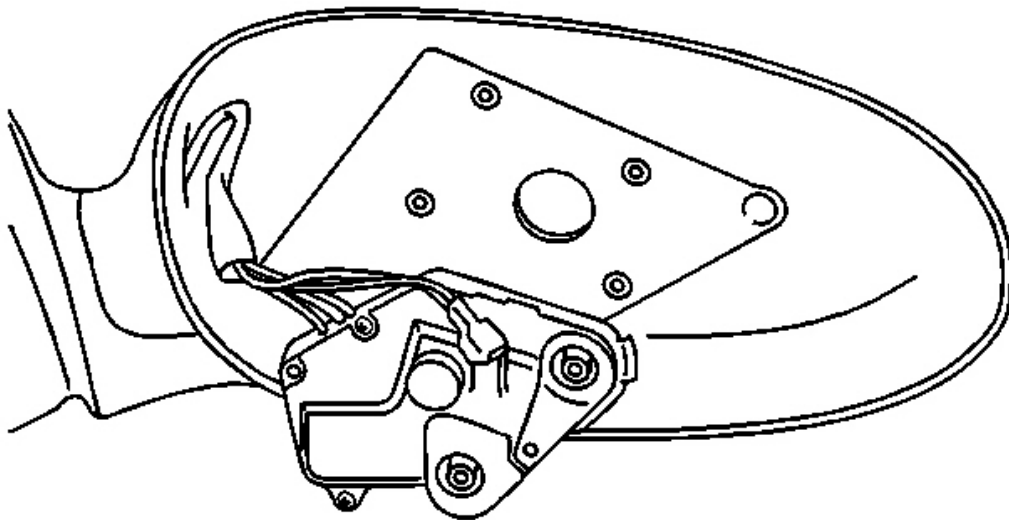


Fig. 18: View Of Outside Rearview Mirror Motor

## Installation Procedure

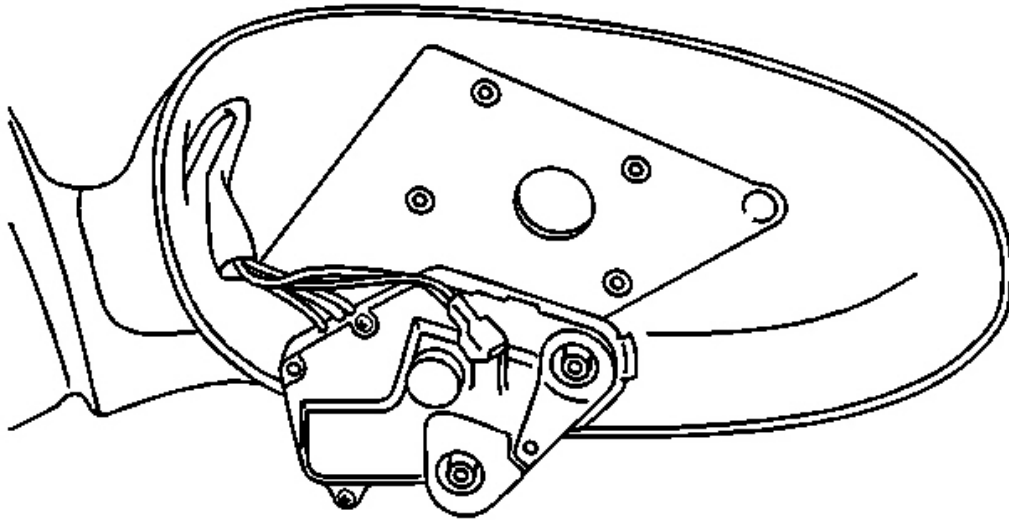


Fig. 19: View Of Outside Rearview Mirror Motor

1. Position the motor to the mirror housing.
2. Pull the motor electrical harness through the mirror housing to the inside door panel.

NOTE: Use the correct fastener in the correct location. Replacement fasteners must be the correct part number for that application.

Fasteners requiring replacement or fasteners requiring the use of thread locking compound or sealant are identified in the service procedure. Do not use paints, lubricants, or corrosion inhibitors on fasteners or fastener joint surfaces unless specified. These coatings affect fastener torque and joint clamping force and may damage the fastener. Use the correct tightening sequence and specifications when installing fasteners in order to avoid damage to parts and systems.

3. Install the screws to the mirror motor.  
Tighten: Tighten the mirror motor screws to 10 N.m (89 lb in).
4. Install the mirror face to the mirror housing. Refer to Mirror Face Replacement.

5. Connect the electrical connector to the mirror wire harness.
6. Check the operation of the mirror.
7. Install the door trim panel. Refer to Front Side Door Trim Panel Replacement - Driver Side or Front Side Door Trim Panel Replacement - Passenger Side .

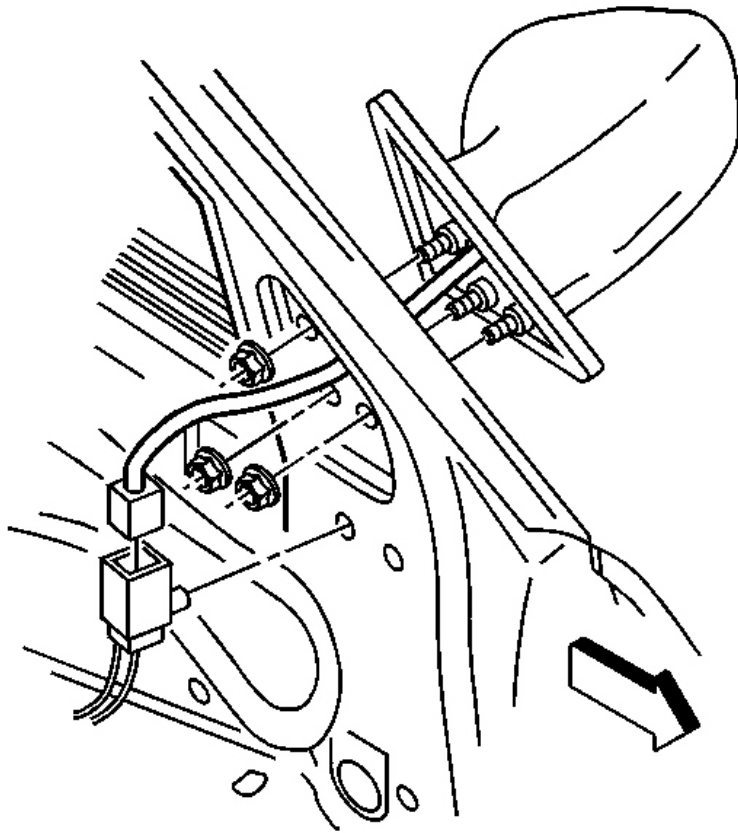


Fig. 20: Mirror Wire Harness & Electrical Connector

## **MIRROR FACE REPLACEMENT**

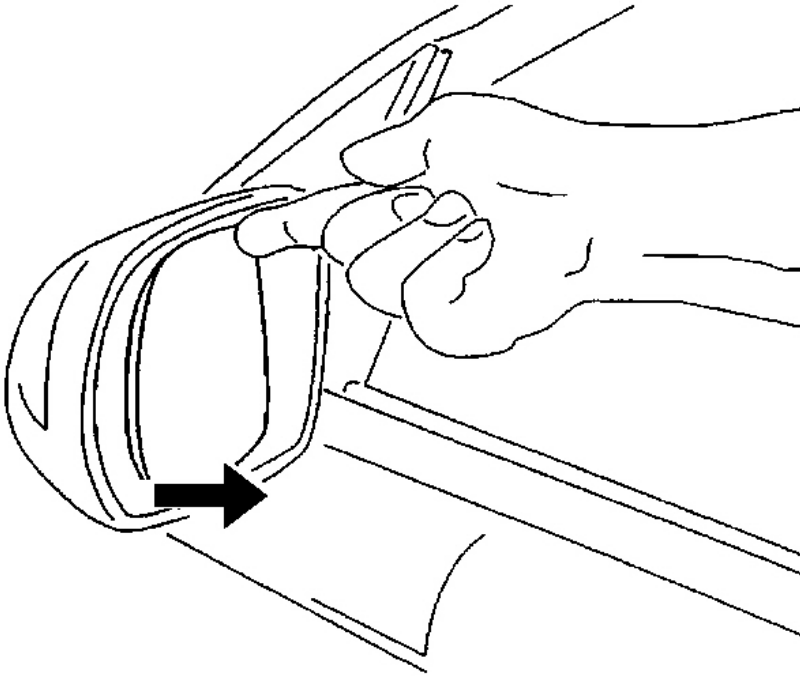


Fig. 21: Pushing on Mirror Face Glass

### **Removal Procedure**

1. Push in on one edge of the mirror face glass tilting the mirror case to allow finger access.
2. Grasp the glass case firmly and pull the case from the mirror body.
3. Disconnect the wire connectors from the case (heated mirror).
4. Remove the two jackscrews from the mirror glass case.

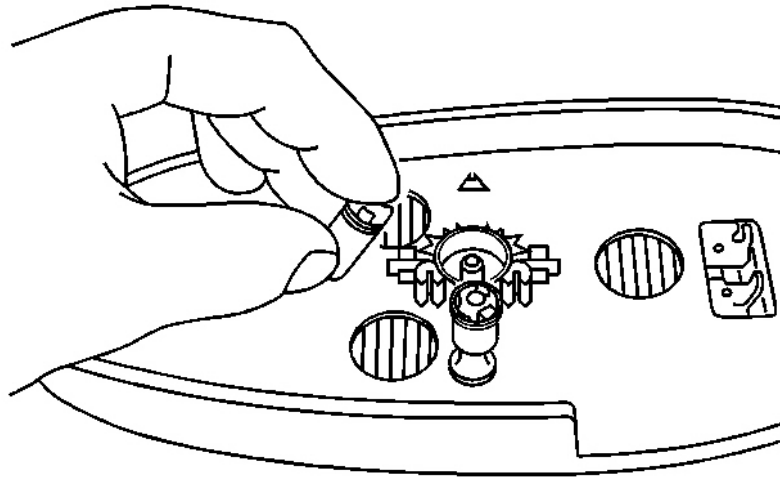


Fig. 22: Identifying Mirror Case Jackscrews

1. Bend the jackscrew over.
2. Press down on the side of the jackscrew popping the jackscrew from the mirror glass case.
3. Save the jackscrews for reinstallation to the mirror motor.



## Installation Procedure

**IMPORTANT:** The mirror glass case is not the same for the right and left mirror. For ease of assembly of the mirror glass case place a little white lithium grease on the motor pivot and on the tip of the installed jackscrews.

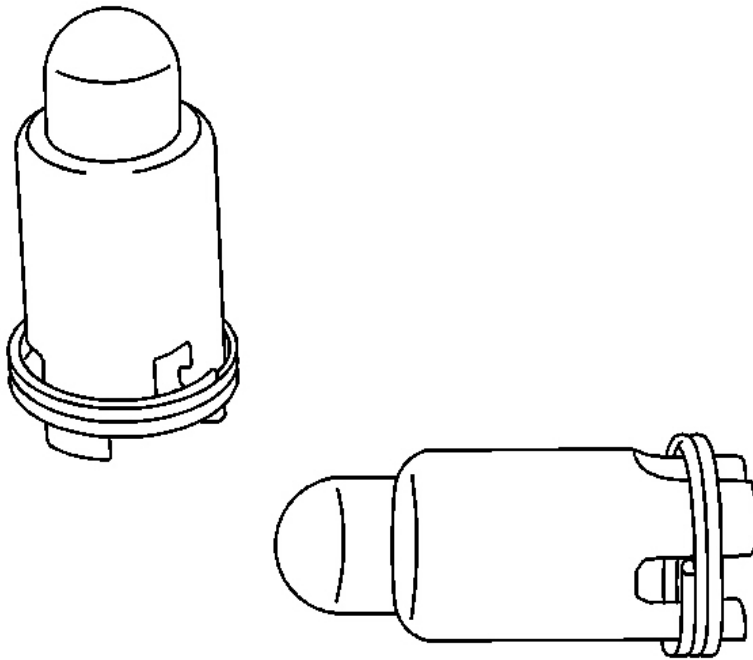


Fig. 23: View of Mirror Case Jackscrews & Mirror Motor

1. The jackscrew springs must be positioned down compressing the fingers at the bottom of the jackscrews.

Push to install the jackscrews into the mirror motor.

2. Rotate both jackscrews to position the ball flanges to be in-line with the attaching hub. They will then be correctly positioned to the mirror glass case. (This is shown in the graphic below- Fig. 24).

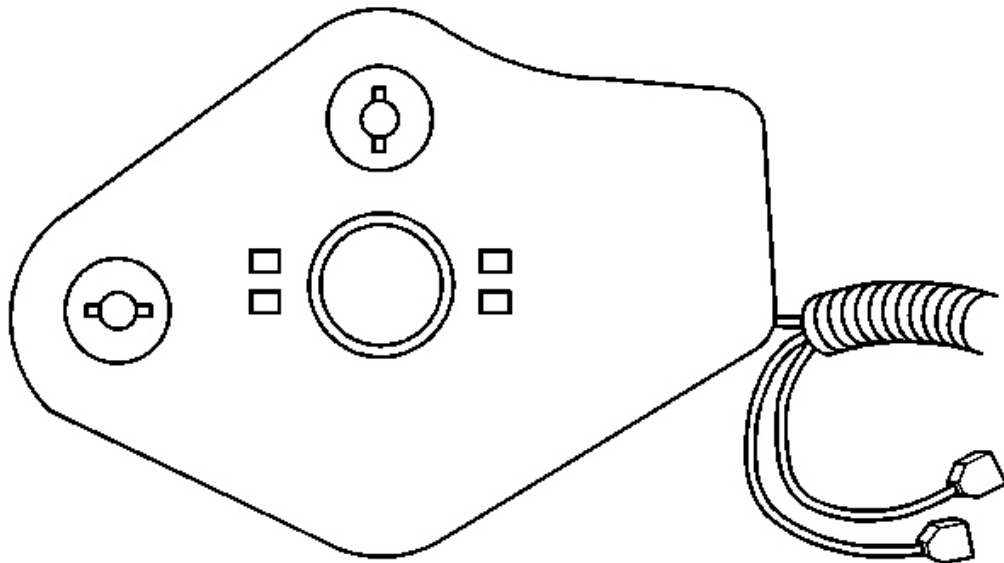


Fig. 24: View of Jackscrews in Mirror Face

3. Connect the electrical connectors to the mirror glass case (heated mirror).

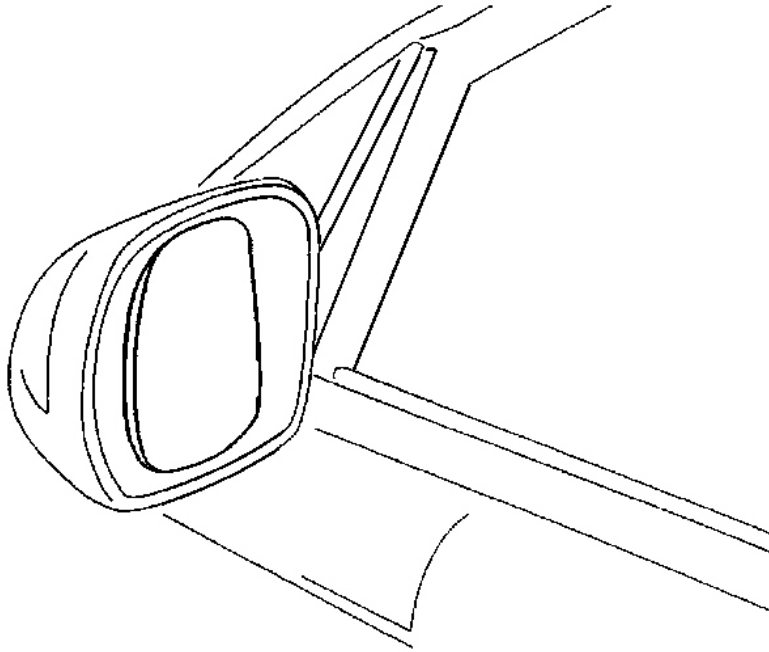


Fig. 25: Aligning Case & Mirror Motor

4. Align the case to the mirror motor.
5. With the palm of your gloved hand press firmly on the center of the mirror glass case until the case engages onto the motor.
6. Push the mirror glass case to the jackscrews.

Right mirror-Rotate the mirror glass case down and press firmly on the lower side engaging the mirror glass case to the lower jackscrew.

Left mirror-Rotate the mirror glass case up and press firmly on the upper side engaging the mirror glass case to the upper jackscrew.

Rotate the mirror glass case and press firmly on the outer side engaging the mirror glass case to the outer jackscrew. The jackscrews will give a clicking noise when properly seated.

## **REARVIEW MIRROR REPLACEMENT (DD8)**

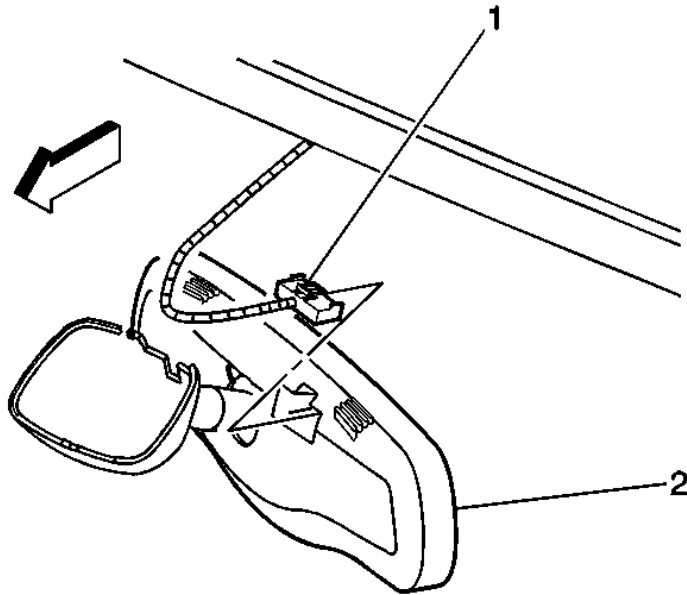


Fig. 26: Wire Connector And Mirror

### **Removal Procedure**

1. Remove the electrical connector (1) from the back of the inside rearview mirror.

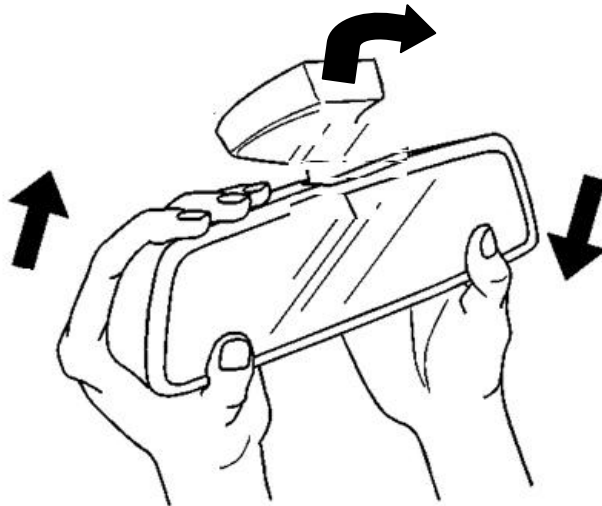


Fig. 27: Inside Rearview Mirror Support

**IMPORTANT:**

Do NOT pull rearward on the mirror while removing the mirror or damage to the support and/or windshield will occur.

2. Rotate the mirror CLOCKWISE from the 12 o'clock to approx 3 o'clock position.

An audible click is heard when the inside rearview mirror is releasing from the support.

3. Remove the inside rearview mirror support.

**Installation Procedure**

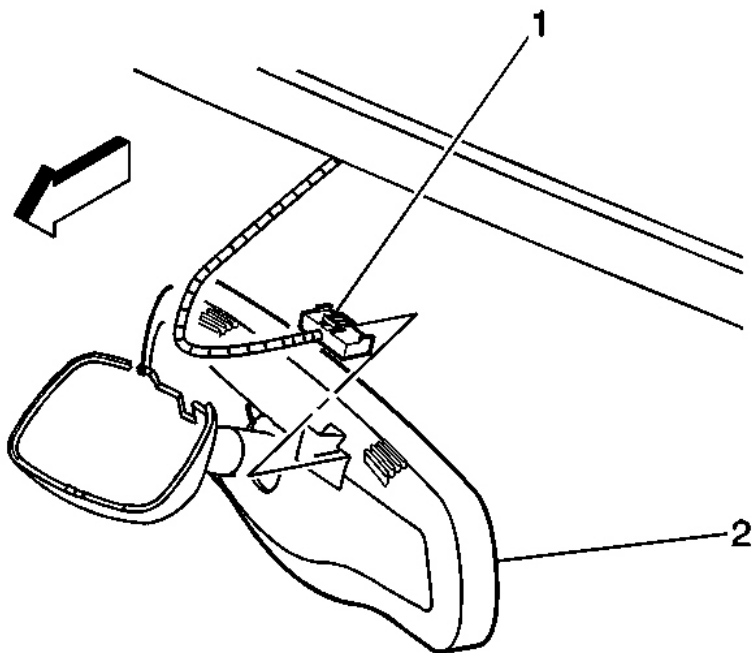


Fig. 28: Wire Connector And Mirror

1. Install the electrical connector (1) to the back of the inside rearview mirror.

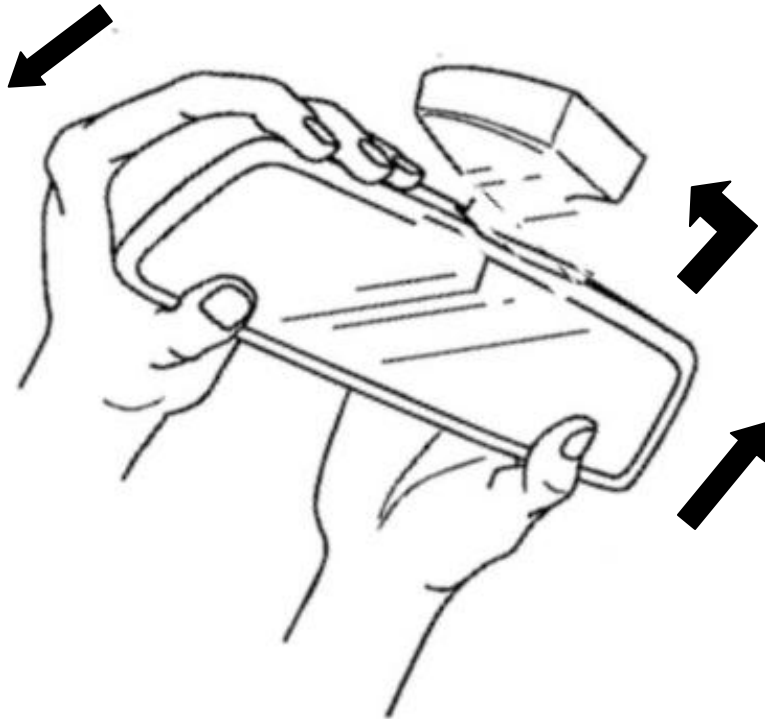


Fig. 29: Inside Rearview Mirror To Windshield

**IMPORTANT:**

Do NOT pull rearward on the mirror while installing the mirror or damage to the support and/or windshield will occur.

2. Center the bottom of the inside rearview mirror on the support at the 3 o'clock position.

3. Rotate the mirror COUNTERCLOCKWISE towards the 12 o'clock position until an audible click is heard.

An audible click is heard when the inside rearview mirror is fully seated.

## REARVIEW MIRROR SUPPORT INSTALLATION

Tools Required

Safety Razor or Utility Knife

### Procedure:

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:

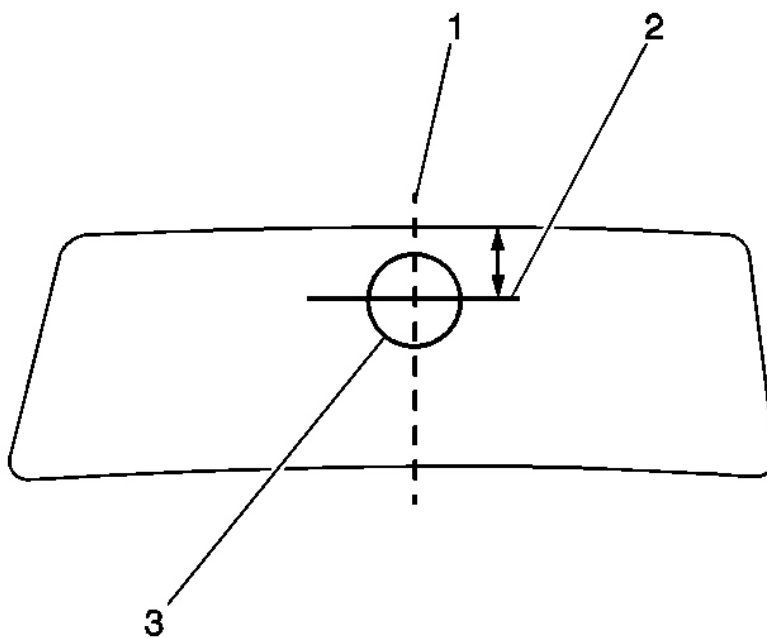


Fig. 30: Identifying Mirror Mounting Base Location

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.

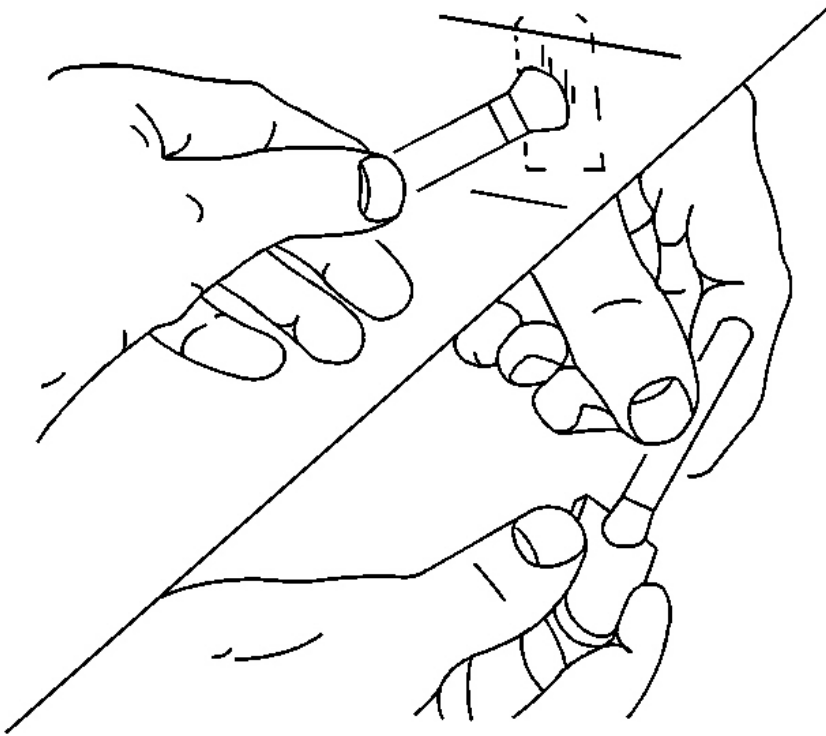


Fig. 31: Applying Adhesive To Mirror Base & Window



6. Use Inside Mirror Adhesive Kit GM P/N 1052369, (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.
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.

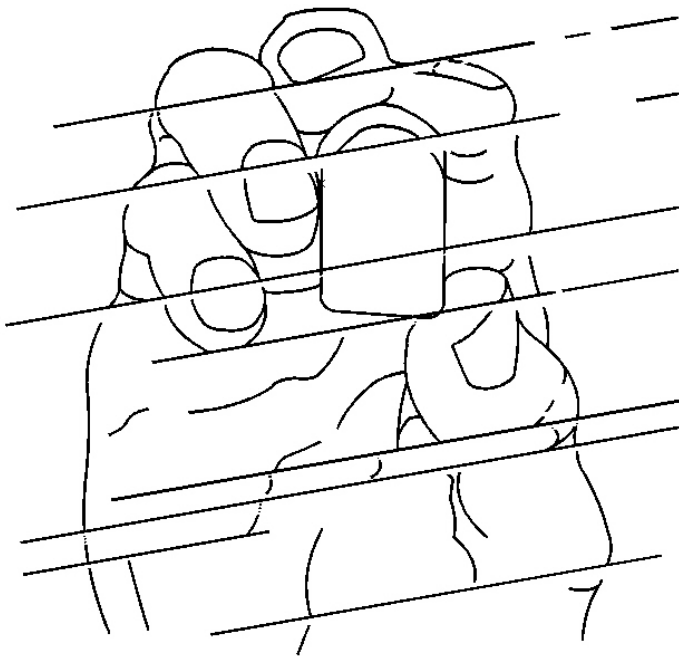


Fig. 32: View Of Mirror Mounting Base

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.

## **OUTSIDE MIRROR DESCRIPTION AND OPERATION**

### **Outside Mirror System Components**

Driver door module (DDM)  
Passenger door module (PDM)  
Driver door switch assembly (DDSA)  
Driver outside rearview mirror  
Passenger outside rearview mirror  
DOOR CONTROLS circuit breaker (30 -Amp)  
ACCA/DRIV DR SW fuse (10-Amp)

### **Outside Rearview Mirror Operation**

The outside rearview mirrors are controlled by the driver door switch assembly (DDSA) which contains the mirror control switches, the driver door module (DDM), and the passenger door module (PDM). The DDSA decodes mirror control switch activations while the door modules apply battery voltage and ground to their respective mirror motors to move the mirrors to the desired positions.

### **Outside Rearview Mirror Switches**

The outside rearview mirror adjustment switches are contained in the driver door switch assembly (DDSA). The Mirror Select Switch is used to select which mirror, driver or passenger, is to be adjusted. The Mirror Position Switch is used to move the mirror that has been selected for adjustment to the desired position. The DDSA reports the activity of these switches to the driver door module (DDM) and the passenger door module (PDM) via class 2 serial data circuit.

On vehicles that have the memory mirrors feature, the DDSA is also wired to, and receives direct signal inputs from the memory function switch. For more information concerning the memory function switch refer to Memory Seats

## **Description and Operation –Mirror Motor Operation**

Each mirror has 2 reversible motors for position adjustment; the vertical motor and the horizontal motor. Each reversible motor is wired to its associated door module through 2 motor control circuits. The door modules control the reversible motors by applying battery voltage and ground to these 2 motor control circuits. The door module reverses the polarity of the voltage and ground it applies to these 2 circuits in order to run the motor in opposite directions.

For example, to run the mirror in the Up direction, the door module applies voltage to the mirror motor up control circuit, and ground to the mirror motor down control circuit. To run the mirror in the opposite Down direction, the module reverses the polarity, supplying voltage to the down control circuit, and ground to the up control circuit.

### **Memory Mirrors Operation**

The memory mirrors are controlled by the mirror position sensors, the driver door switch assembly (DDSA), the driver door module (DDM), and passenger door module (PDM). The DDSA decodes memory switch activations while the mirror position sensors provide mirror position information to the door modules. The door modules supply voltage and ground to the mirror position sensors, store mirror position information, and apply voltage and ground to the mirror motors.

For memory operations, each outside rearview mirror has four additional circuits and contains a vertical position sensor and a horizontal position sensor. The position sensors, which are potentiometer type sensors, are attached to the corresponding position motor of each mirror, and provide constant information, in the form of feedback voltage to the associated door module to indicate the vertical and horizontal position of the mirror. Each position sensor of each mirror is wired to the corresponding front door module through four circuits to provide mirror location information in the following manner. Each door module supplies a 5-volt reference voltage and ground to both of its position sensors. Each door module also supplies 5 volts to the vertical position sensor signal circuit, and 5 volts to the horizontal position sensor signal circuit of the corresponding position sensor. When the mirror motors run, the resistance of the attached sensors vary, which in turn, varies the feedback voltage to the door module.

When mirror positions are programmed into the personalization package, the front door modules store the positions indicated by the feedback voltages of the position sensors.

When a memory recall is requested, the door modules compare the feedback voltages indicated by the current mirror positions to the stored feedback voltages. The door modules then move the mirrors until the current feedback voltages match the stored feedback voltage levels.

### **Heated Mirrors**

The outside rearview mirrors heat during the defrost/defog cycles for the rear window. The driver door module (DDM) and passenger door module (PDM) control the heated mirror functions. The DDM supplies power and ground to the driver heated mirror and the PDM supplies it to the passenger heated mirror. When the door modules receive a class 2 serial data message from the HVAC control module indicating the rear defogger has been turned ON, both door modules will activate the heated mirror by applying voltage to the heated mirror element feed circuit.

### **Mirrors - Outside Automatic Day/Night Feature**

The automatic day/night feature of the driver outside rearview mirror is controlled by the inside rearview mirror. The inside rearview mirror supplies a signal and a low reference to the driver outside rearview mirror. The voltage on the signal circuit of the driver outside rearview mirror varies between 0.5-1.5 volts depending on light conditions present at the inside rearview mirror.

At night, with the automatic day-night feature enabled, the driver outside rearview mirror will automatically darken with the inside rearview mirror to reduce the glare from the headlamps from behind. The voltage on the signal circuit of the driver outside rearview mirror will be near 1.5 volts. In daytime conditions, the mirrors are in the normal state. The voltage on the signal circuit of the driver outside rearview mirror may be less than or near 0.5 volts. Refer to Automatic Day-Night Mirror Description and Operation for further description and operation of the inside rearview mirror.

## **AUTOMATIC DAY-NIGHT MIRROR DESCRIPTION AND OPERATION**

The inside rearview mirror consist of 2 photocell sensors. The headlight sensor, located on the front of the mirror is used to determine light conditions present at the mirror face from sources behind the vehicle. The ambient light sensor, located on the rear of the mirror is used to determine exterior light conditions present at the mirror.

At night, with the automatic day-night feature enabled, the inside rearview mirror will automatically darken to reduce glare from headlamps behind the vehicle. In daytime conditions, the mirror operates at a normal, clear state due to the high exterior light conditions that are indicated by the ambient light sensor. When the vehicles gear selector is placed in the REVERSE position, backup lamp voltage is supplied as an input to the inside rearview mirror. In night time conditions only, the inside rearview mirror monitors the backup amp voltage to disable the automatic day-night feature. This allows the inside rearview mirror face to gradually change to a normal, clear state and allow the driver to see objects in the mirror clearly when backing up.

### **Driver Outside Rearview Mirror with Automatic Day-Night System Operation**

The automatic day-night feature of the driver outside rearview mirror is controlled by the inside rearview mirror. The inside rearview mirror supplies a signal and low reference to the driver outside rearview mirror. At night, with the automatic day-night feature enabled, the driver outside rearview mirror will automatically darken with the inside rearview mirror to reduce glare from headlamps behind the vehicle. Refer to Outside Mirror Description and Operation for further description and operation of the driver outside rearview mirror.

### **Inside Rearview Mirror with Automatic Day-Night Switch Operation**

The inside rearview mirror with only the automatic day-night feature has 2 switches that perform the following functions:

The AUTO switch is used to enable the automatic day-night feature of the inside rearview mirror. To enable the automatic day-night feature, turn the ignition ON and depress the AUTO switch. A green indicator will illuminate on the inside rearview mirror when the automatic day-night feature is enabled.

The OFF switch is used to disable the automatic day-night feature of the inside rearview mirror.

### **Inside Rearview Mirror with Automatic Day-Night and OnStar® Switch Operation**

The inside rearview mirror with automatic day-night and OnStar features has 4 switches that perform the following functions: The on/off switch is used to enable/disable the automatic day-night feature of the inside rearview mirror. To enable the automatic day-night feature, turn the ignition ON and depress the on/off switch.

A green indicator will illuminate on the inside rearview mirror when the automatic day-night feature is enabled. To disable the automatic day-night feature depress the on/off switch.

The three switches on the right side of the mirror are for OnStar® operation. For more information, refer to OnStar Description and Operation .