

2007 Saturn Outlook XE

2007 ACCESSORIES & EQUIPMENT Vehicle Access - Outlook

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Vehicle Access - Outlook

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specifications	
	Metric	English
Door Latch Screws	10 N.m	89 lb in
Door Lock Actuator to Latch Screws	0.75 N.m	6 lb in
Door Striker Screws	25 N.m	18 lb ft
Inside Door Handle Bolts	10 N.m	89 lb in
Liftgate Bumper Bolts	25 N.m	18 lb ft
Outside Door Handle Nuts	10 N.m	89 lb in

SCHEMATIC AND ROUTING DIAGRAMS

DOOR LOCK/INDICATOR SCHEMATICS (AXA)

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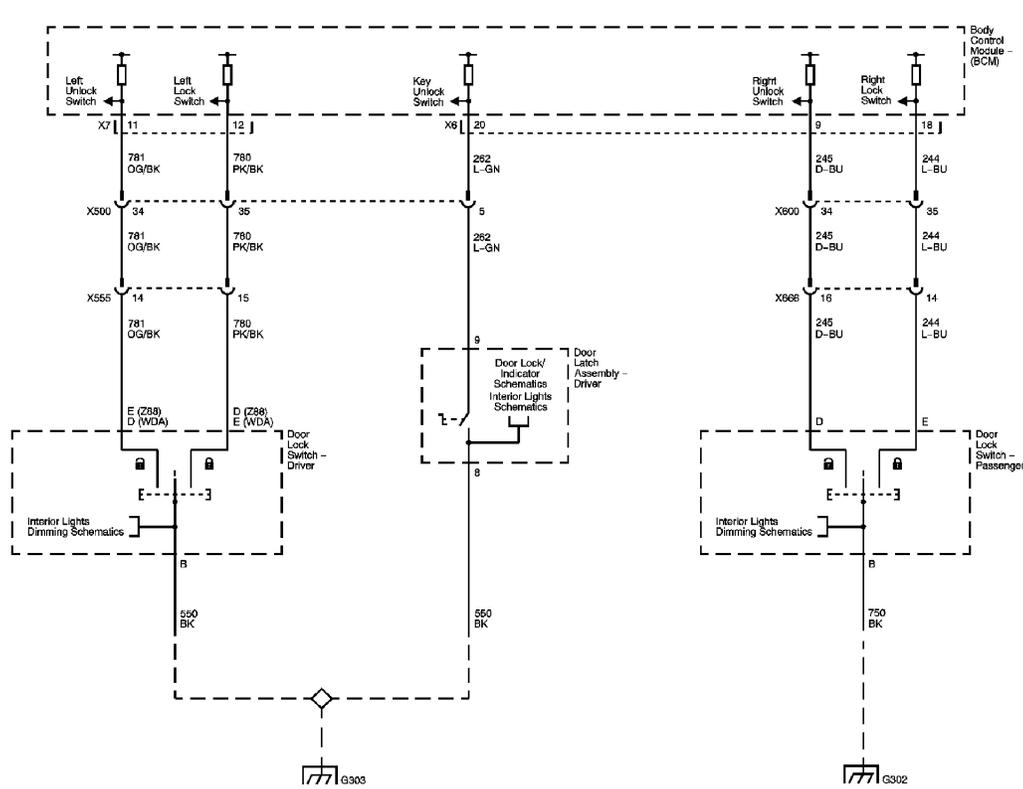


Fig. 1: Switches Schematic (AXA)
Courtesy of GENERAL MOTORS CORP.

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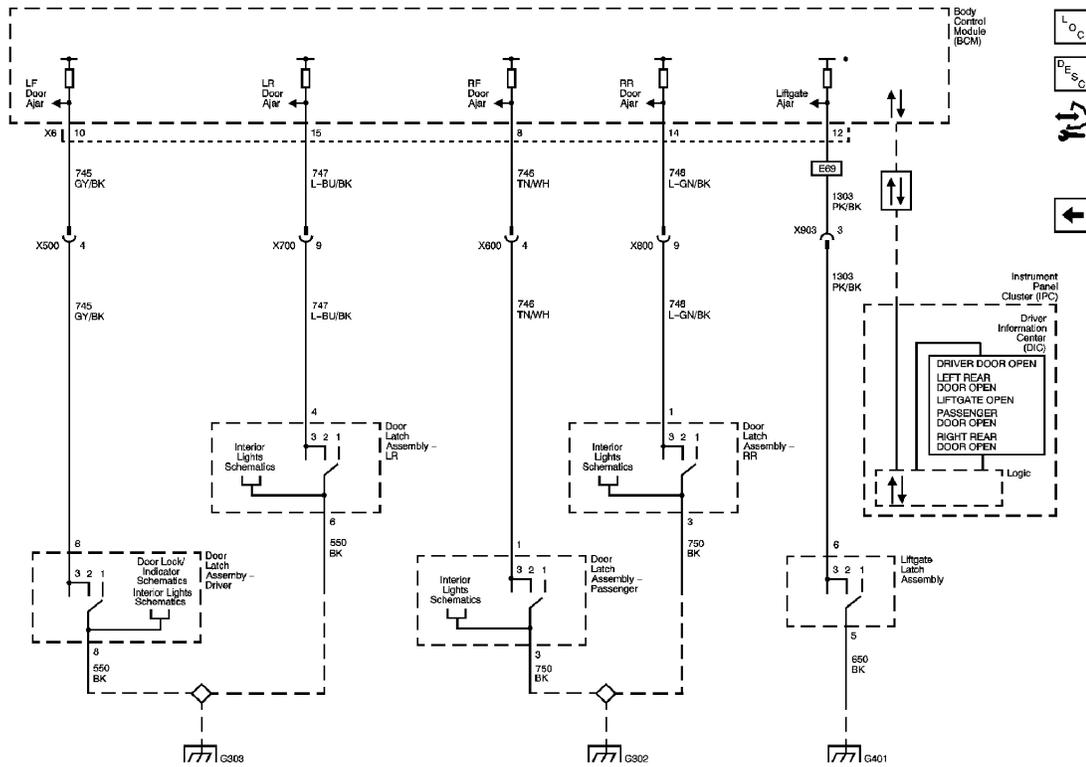


Fig. 3: Indicators Schematic (AXA)
Courtesy of GENERAL MOTORS CORP.

DOOR LOCK/INDICATOR SCHEMATICS (AXC/AXE)

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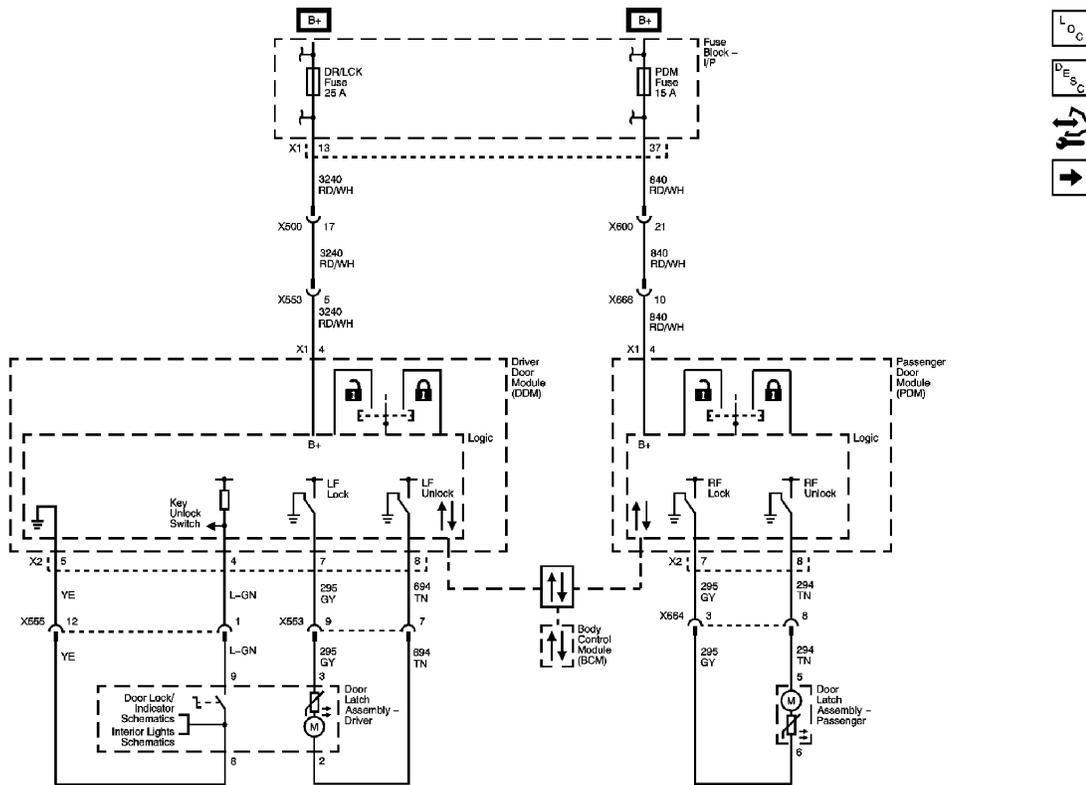


Fig. 4: Front Doors Schematic (AXC/AXE)
Courtesy of GENERAL MOTORS CORP.

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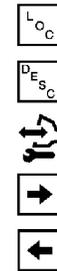
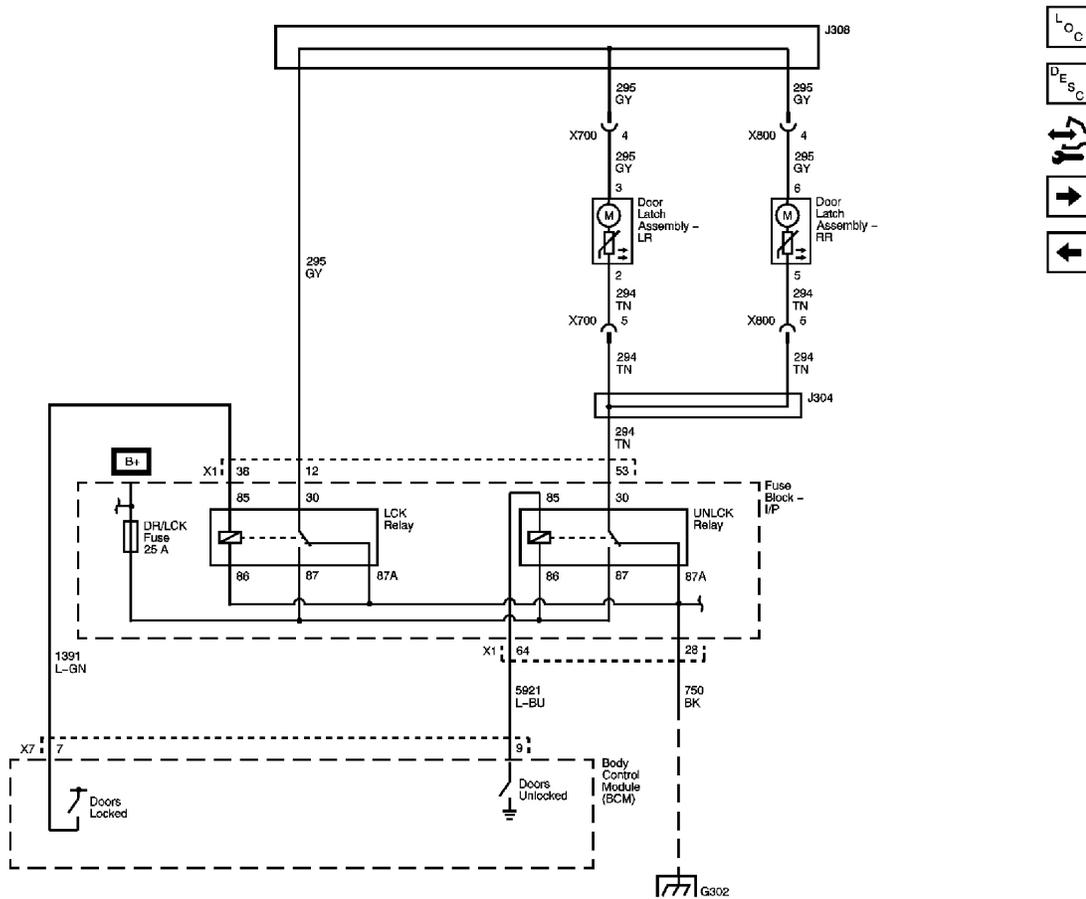


Fig. 5: Rear Doors Schematic (AXC/AXE)
 Courtesy of GENERAL MOTORS CORP.

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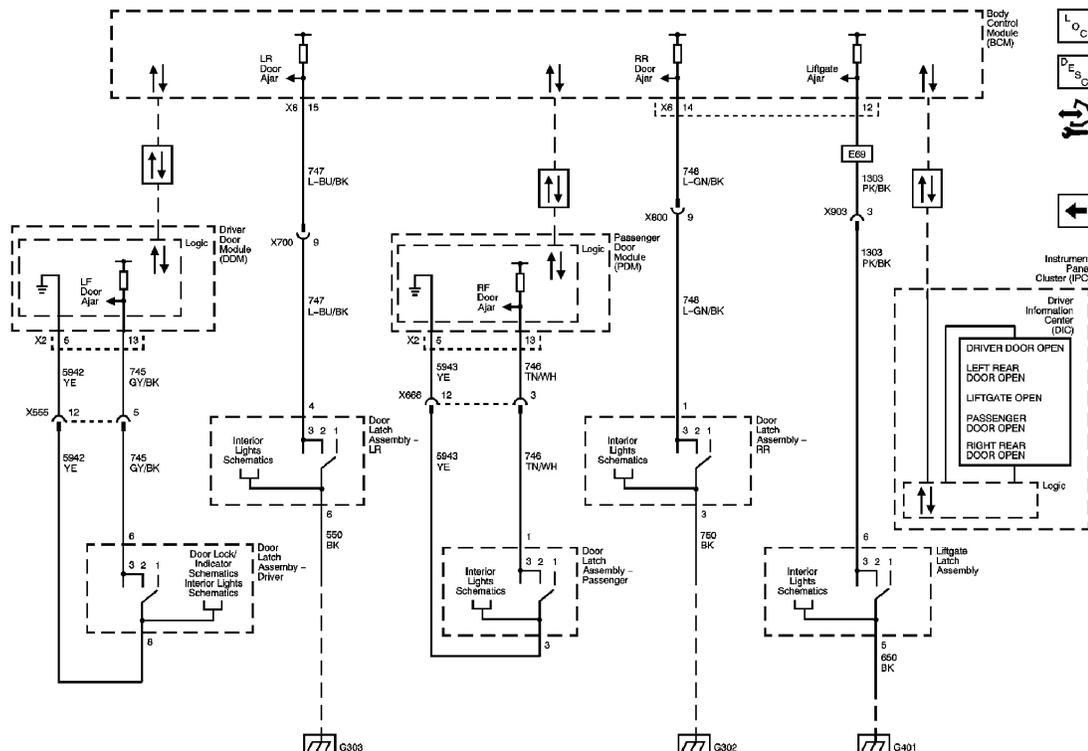


Fig. 6: Indicators Schematic (AXC/AXE)
 Courtesy of GENERAL MOTORS CORP.

DOOR CONTROL MODULE SCHEMATICS

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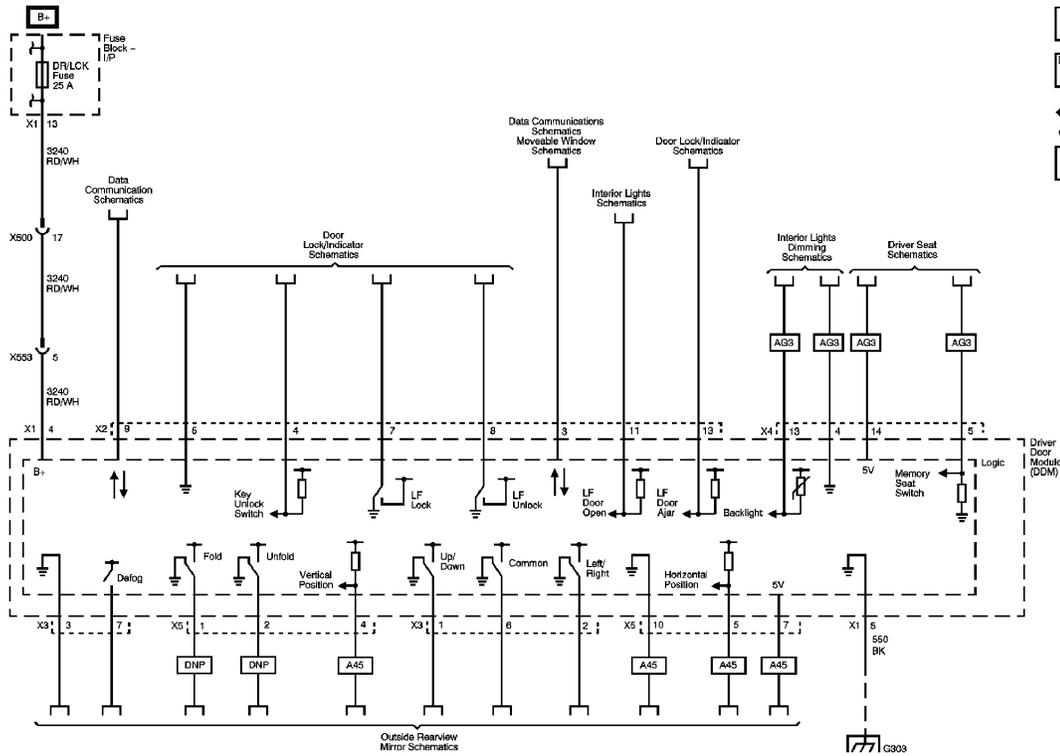


Fig. 7: DDM Power, Ground & All Except KA1 References Schematic
Courtesy of GENERAL MOTORS CORP.

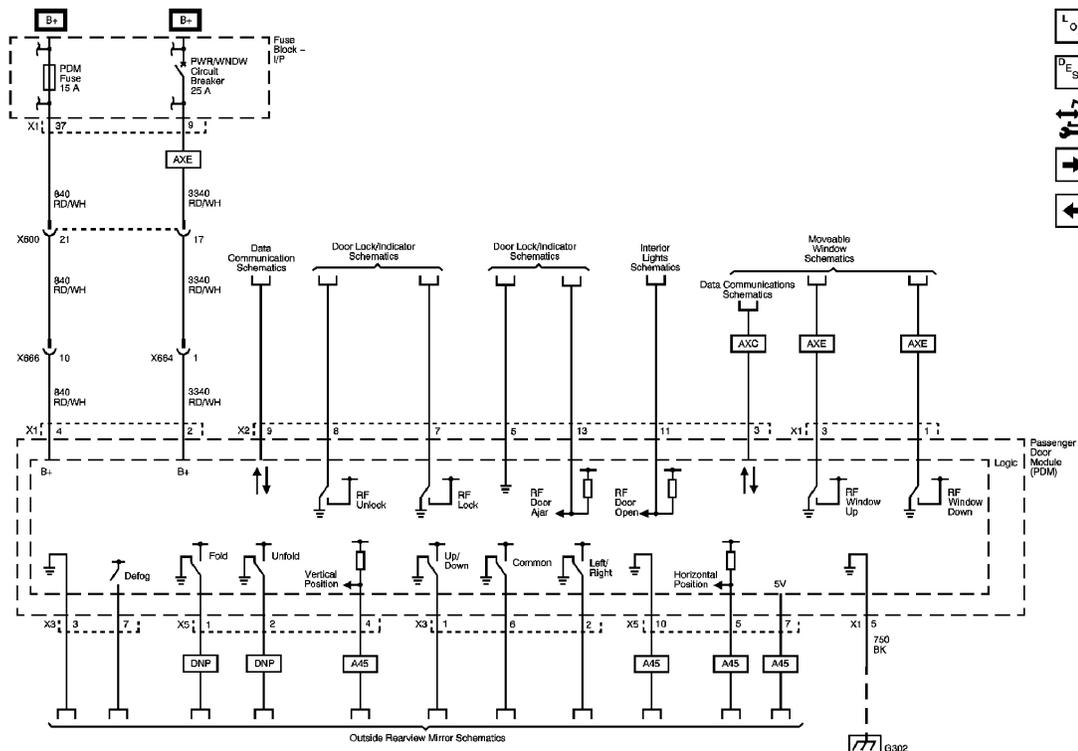


Fig. 8: PDM Power, Ground & All Except KA1 References Schematic
 Courtesy of GENERAL MOTORS CORP.

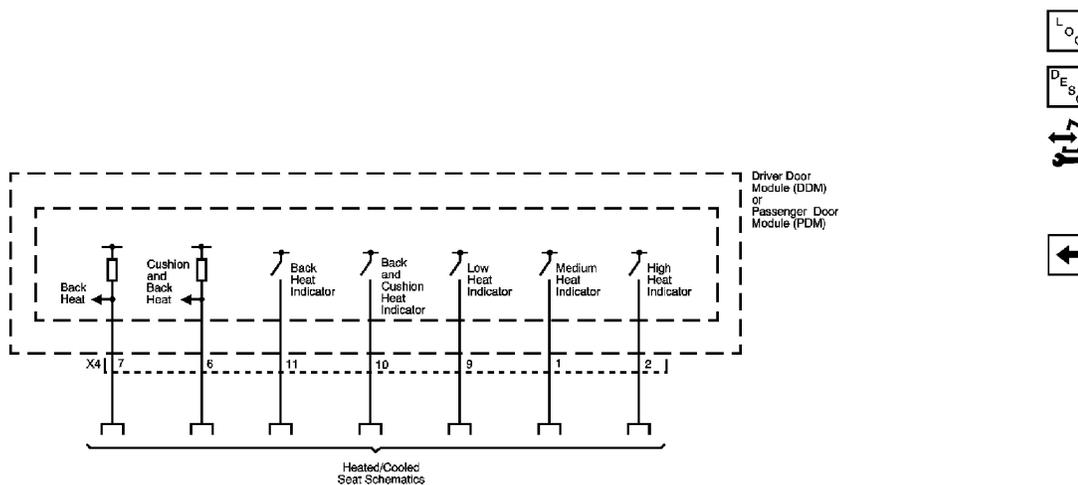


Fig. 9: KA1 References Schematic
 Courtesy of GENERAL MOTORS CORP.

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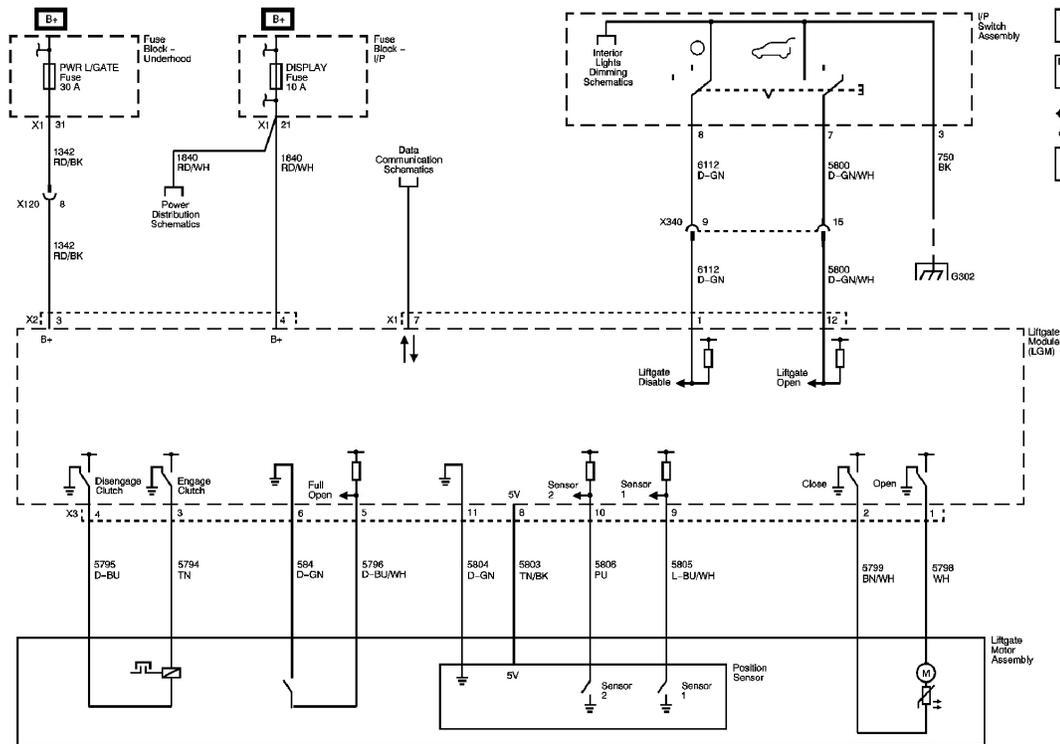


Fig. 11: Module Power, Ground, Data Communication, I/P Switch & Liftgate Motor Schematic
 Courtesy of GENERAL MOTORS CORP.

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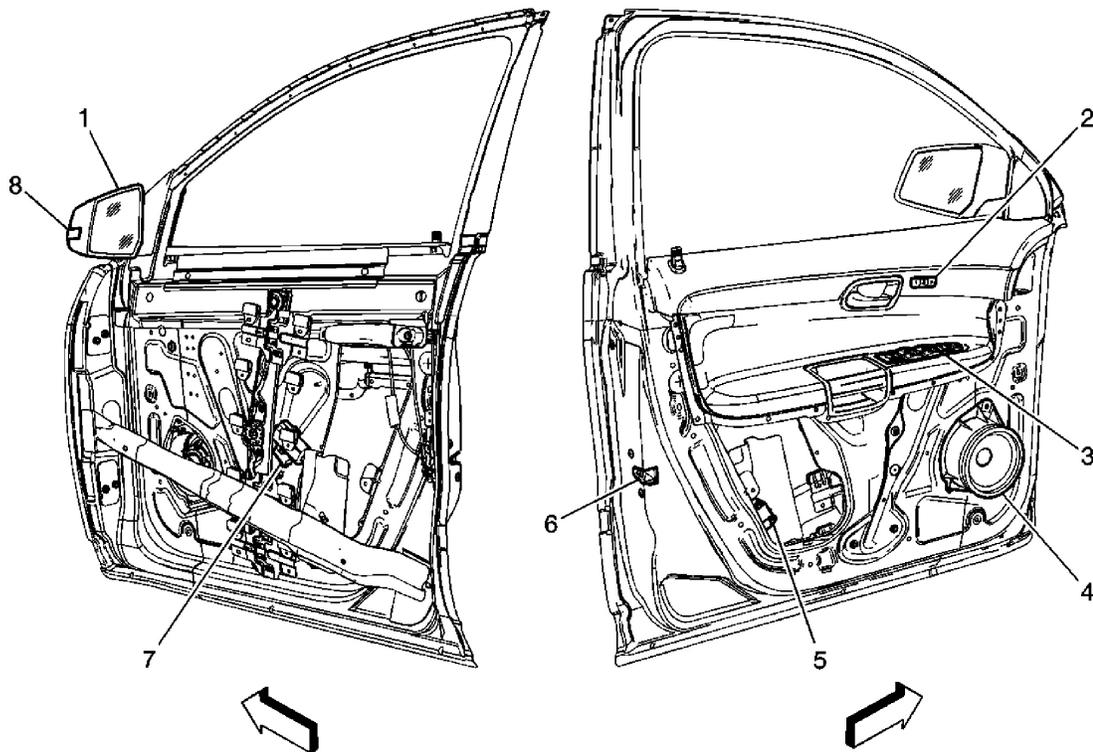


Fig. 13: Identifying Driver Door Components
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 13

Callout	Component Name
1	Outside Rearview Mirror - Driver
2	Memory Seat Switch (AG3)
3	Driver Door Module (DDM) (AXC/AXE)
4	Speaker - LF Door
5	Inflatable Restraint Side Impact Sensing Module (SISM) - Left
6	Door Latch Assembly - Driver
7	Window Motor - Driver
8	Turn Signal Lamp (Part of Outside Rearview)

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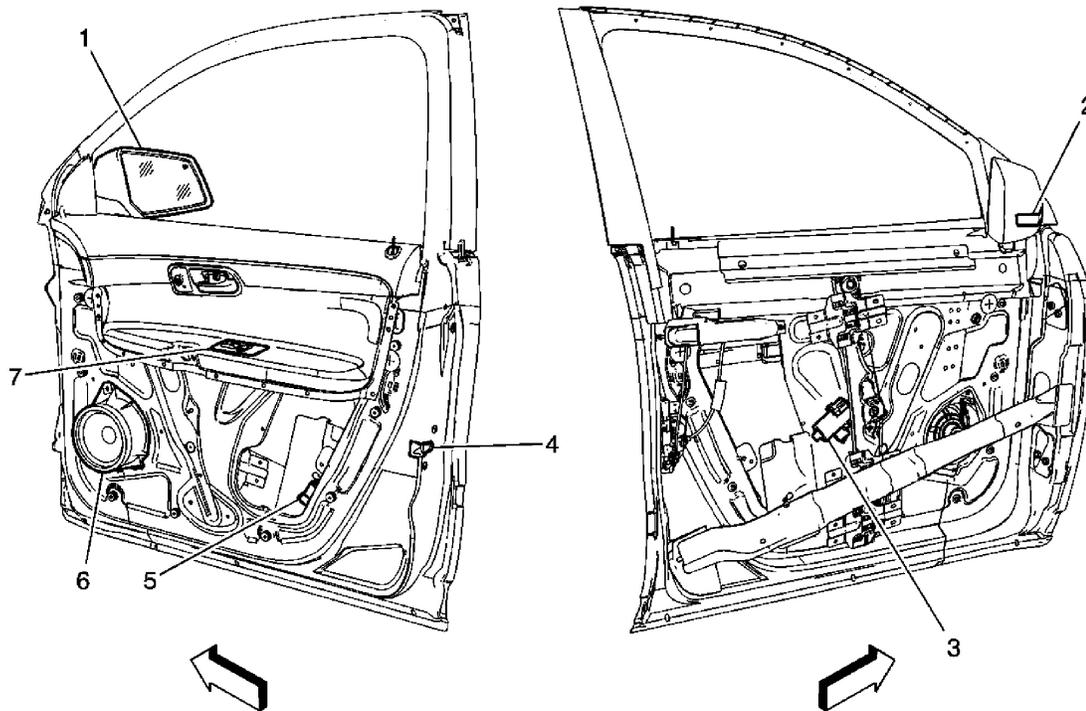


Fig. 14: Identifying Passenger Door Components
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 14

Callout	Component Name
1	Outside Rearview Mirror - Passenger
2	Turn Signal Lamp (Part of Outside Rearview Mirror)
3	Window Motor - Passenger
4	Door Latch Assembly - Passenger
5	Inflatable Restraint Side Impact Sensing Module (SISM) - Right
6	Speaker - RF Door
7	Window Switch - Passenger (AXA)

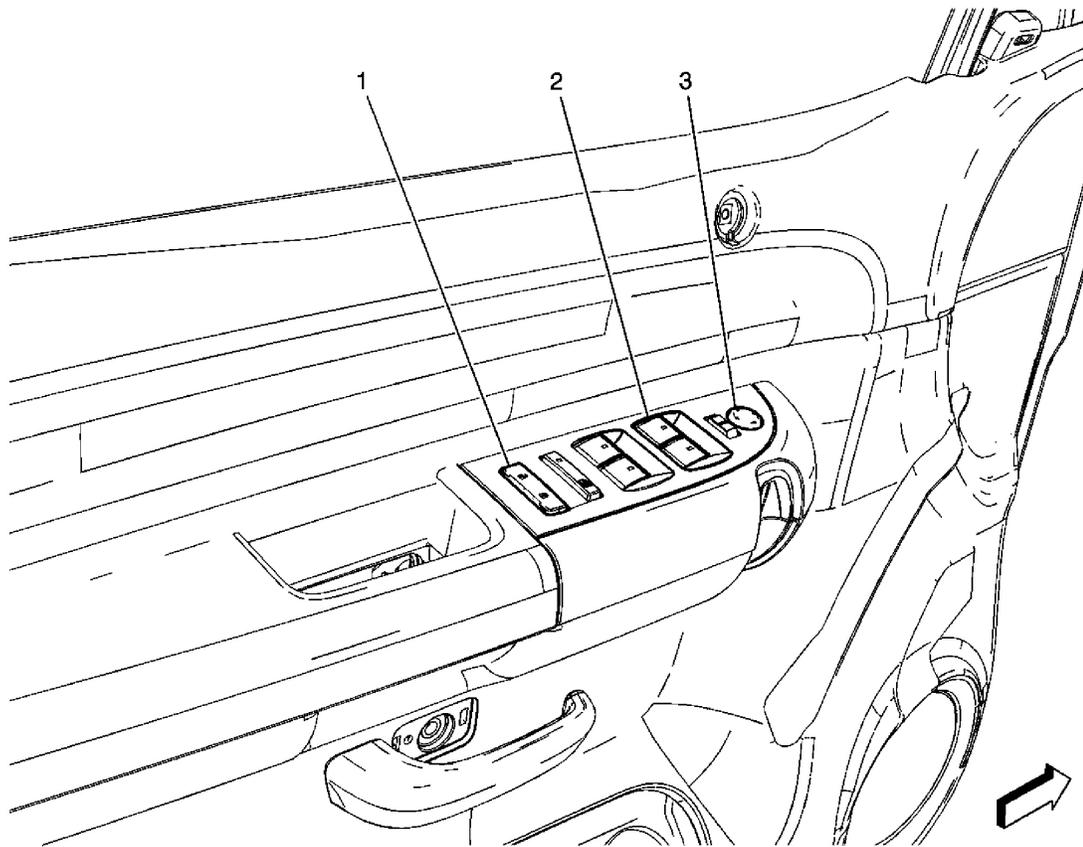


Fig. 15: Identifying Driver Door Switches (AXA)
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 15

Callout	Component Name
1	Door Lock Switch - Driver
2	Window Switch - Driver
3	Outside Rearview Mirror Switch

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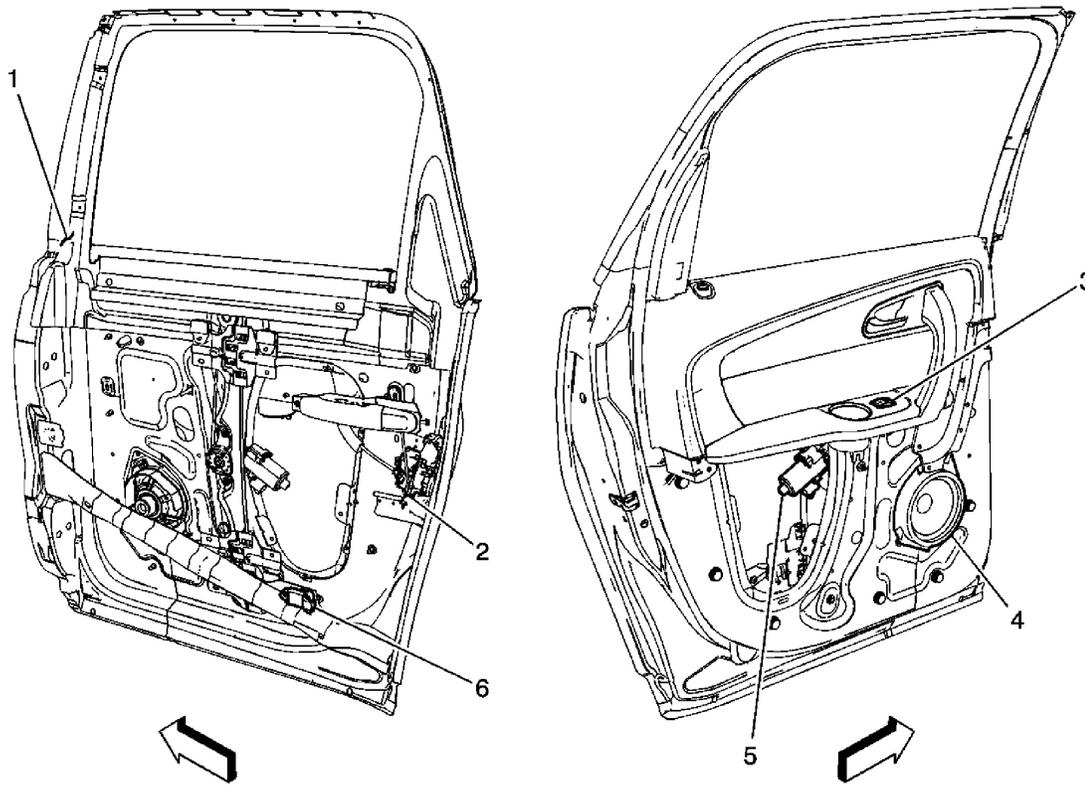


Fig. 16: Locating LR Door Components
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 16

Callout	Component Name
1	Door Frame
2	Door Latch Assembly - LR
3	Window Switch - LR
4	Speaker - LR Door
5	Window Motor - LR
6	Inflatable Restraint Side Impact Sensing Module (SISM) - LR

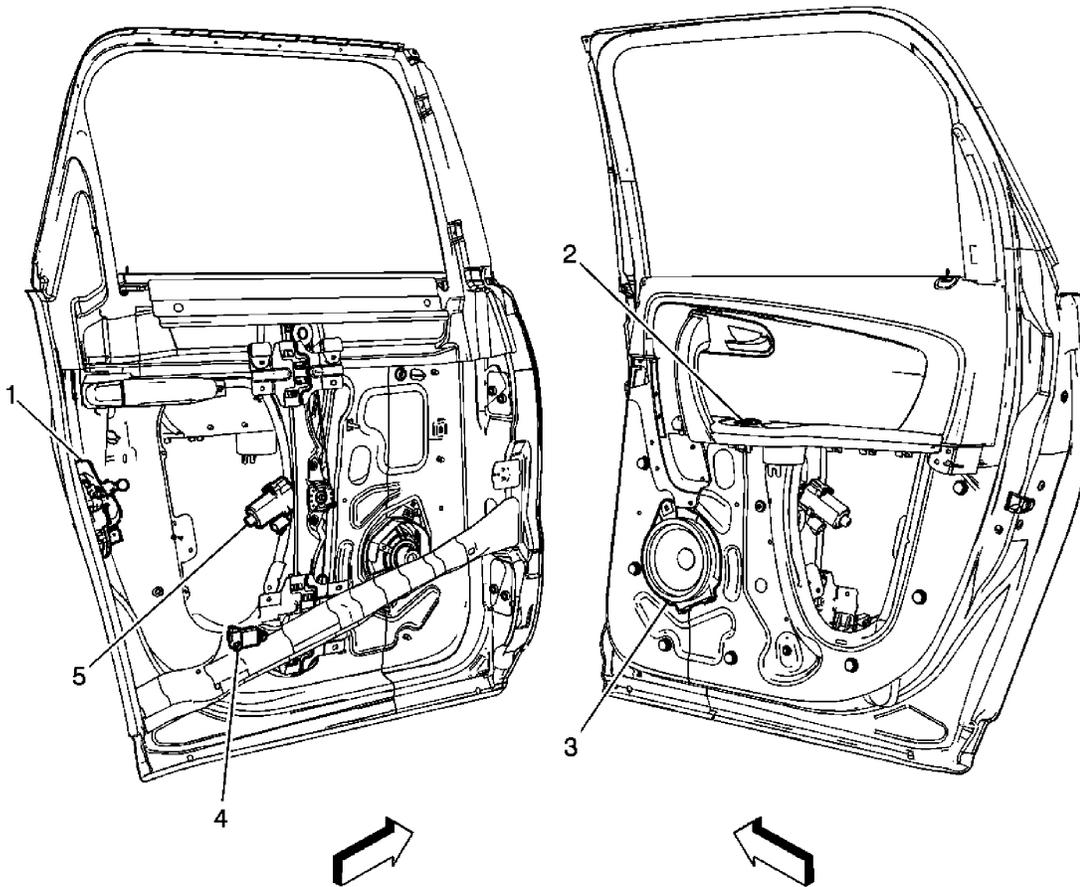


Fig. 17: Locating RR Door Components
 Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 17

Callout	Component Name
1	Door Latch Assembly - RR
2	Window Switch - RR
3	Speaker - RR Door
4	Inflatable Restraint Side Impact Sensing Module (SISM) - RR
5	Window Motor - RR

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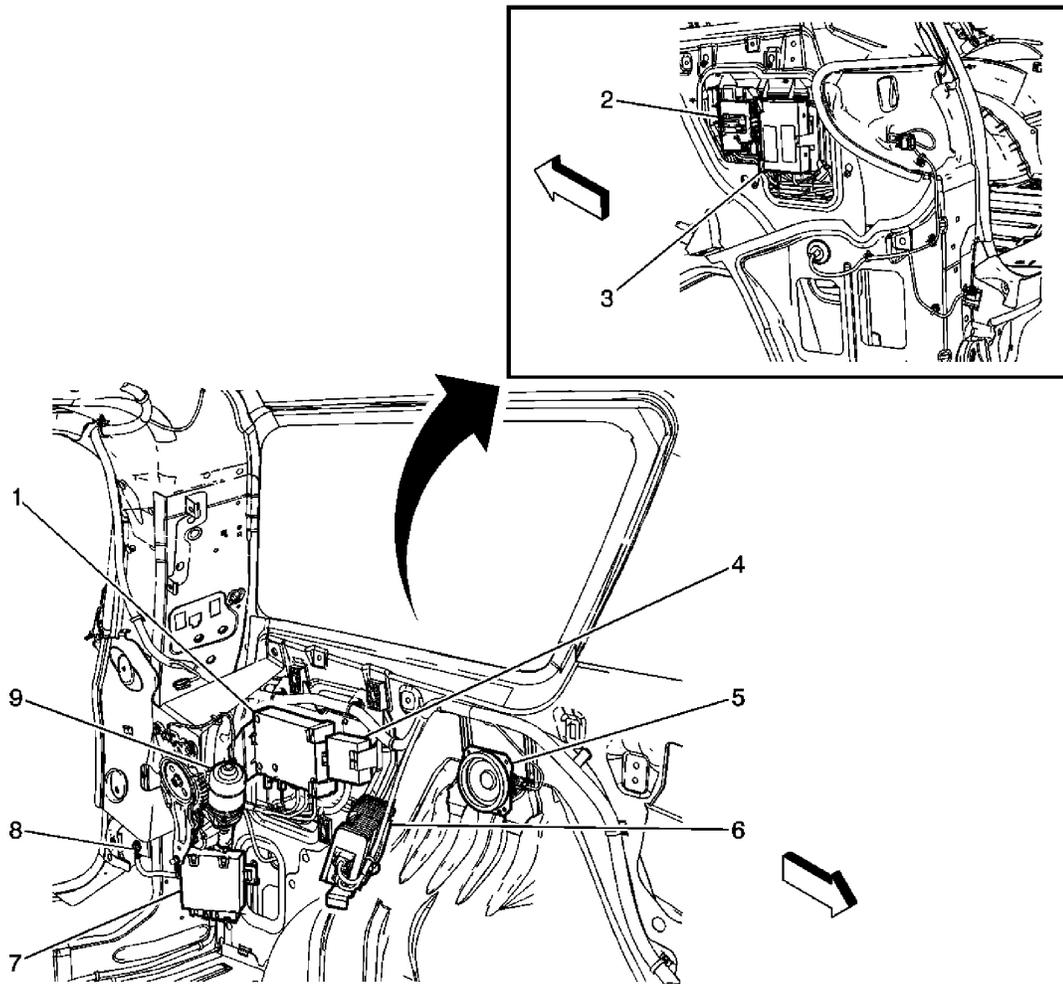


Fig. 18: Identifying Left Rear Passenger Compartment Components
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 18

Callout	Component Name
1	Vehicle Communication Unit (VCU) (UE1)
2	Rear Parking Assist (RPA) Module (UD7)
3	Digital Radio Receiver (U2K)
4	Speaker - LR (UQA/UQ6/UQS)
5	Accessory AC/DC Power Control Module (KV1)
6	Liftgate Module (LGM) (E61)
7	G401
8	Liftgate Motor Assembly (E61)

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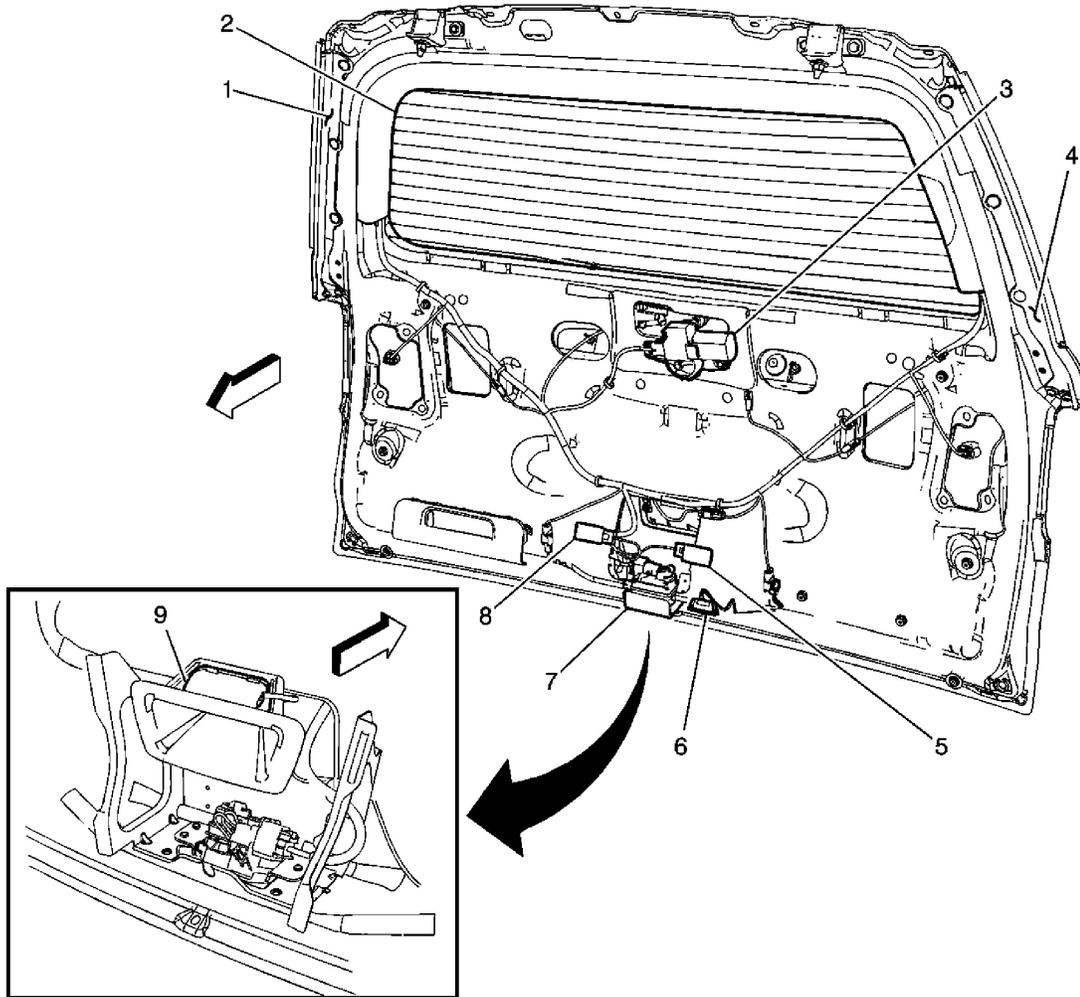


Fig. 19: Identifying Liftgate Components
 Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 19

Callout	Component Name
1	Liftgate Object Sensor - Right (E61)
2	Rear Window Defogger Grid
3	Rear Window Wiper Motor
4	Liftgate Object Sensor - Left (E61)
5	Courtesy Lamp - Liftgate - Left
6	Liftgate Switch - Interior (E61)
7	Liftgate Latch Assembly
8	Courtesy Lamp - Liftgate - Right

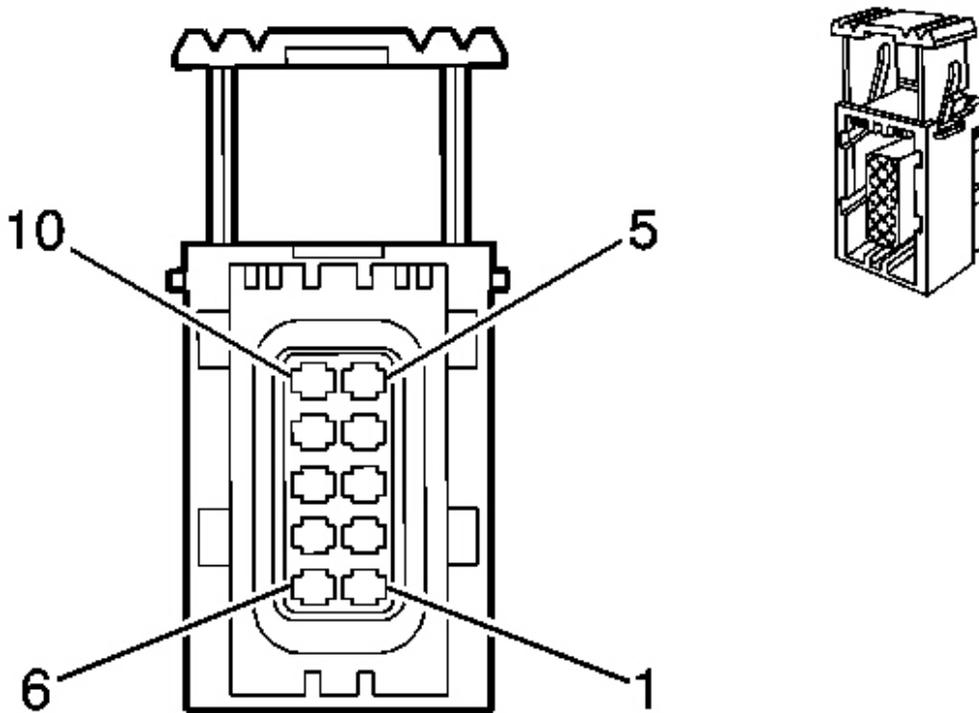
VEHICLE ACCESS CONNECTOR END VIEWS**Door Latch Assembly - Driver (WDA)**

Fig. 20: Door Latch Assembly - Driver (WDA) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Door Latch Assembly - Driver (WDA) Connector Parts Information**Connector Part Information**

- OEM: 6-1355688-1
- Service: See Catalog
- Description: 10-Way F 1.2 Micro III Timer (BK)

Terminal Part Information

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- Pins: 2, 3, 6-9
- Terminal/Tray: 4-969005-1/16
- Core/Insulation Crimp: E/1
- Release Tool/Test Probe: J-38125-560/J-35616-33 (YE)

Door Latch Assembly - Driver (WDA) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
1	-	-	Not Used
2	0.8 TN	694	Driver Door Lock Actuator Unlock Control (-A45-AXC-AXE)
	0.5 TN	694	Driver Door Lock Actuator Unlock Control (A45/AXC/AXE)
3	0.8 GY	295	Door Lock Actuator Lock Control (Midgate Latch Release Control) (-A45-AXC-AXE)
	0.5 GY	295	Door Lock Actuator Lock Control (Midgate Latch Release Control) (A45/AXC/AXE)
4-5	-	-	Not Used
6	0.5 GY/BK	745	Left Front Door Ajar Switch Signal (-A45-AXC-AXE)
	0.5 GY/BK	745	Left Front Door Ajar Switch Signal (A45/AXC/AXE)
7	0.5 TN	126	Left Front Door Open Switch Signal (A45/AXC/AXE)
	0.5 TN	126	Left Front Door Open Switch Signal (-A45-AXC-AXE)
8	0.5 YE	5942	Left Front Door Ajar Switch Low Reference (A45/AXC/AXE)
	0.35 BK	550	Ground (-A45-AXC-AXE)
9	0.5 L-GN	262	Driver Door Key Switch Signal (-A45-AXC-AXE)
	0.5 L-GN	262	Driver Door Key Switch Signal (A45/AXC/AXE)
10	-	-	Not Used

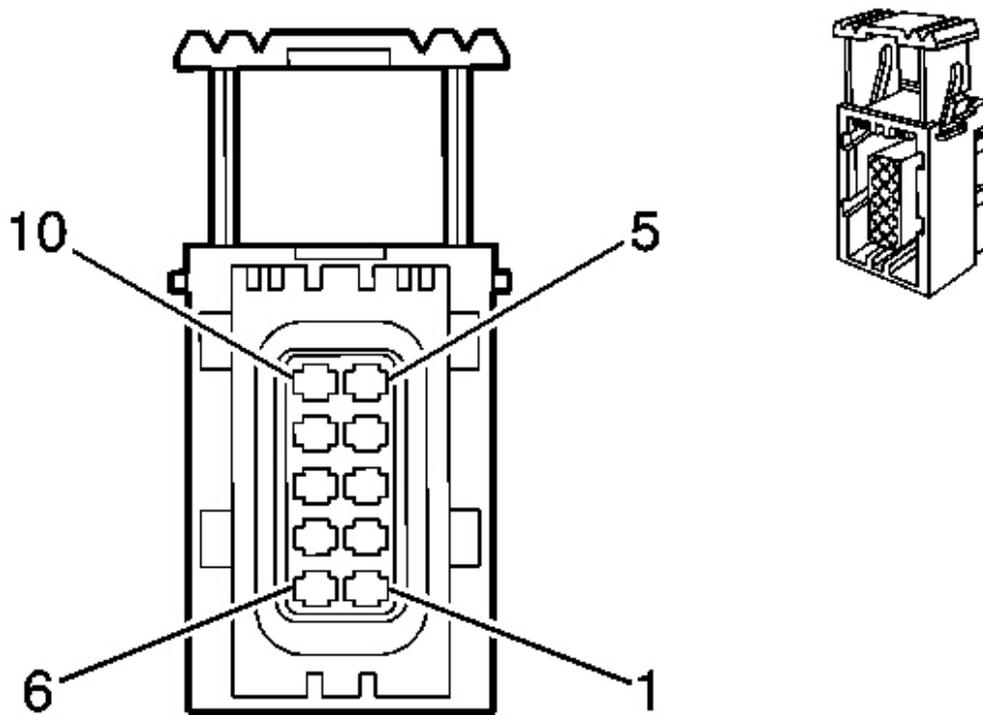


Fig. 21: Door Latch Assembly - Driver (Z88) Connector End View
Courtesy of GENERAL MOTORS CORP.

Door Latch Assembly - Driver (Z88) Connector Parts Information

Connector Part Information

- OEM: 6-1355688-1
- Service: See Catalog
- Description: 10-Way F 1.2 Micro III Timer (BK)

Terminal Part Information

- Pins: 2, 3, 6-9
- Terminal/Tray: 4-969005-1/16
- Core/Insulation Crimp: E/1
- Release Tool/Test Probe: J-38125-560/J-35616-33 (YE)

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Door Latch Assembly - Driver (Z88) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
1	-	-	Not Used
2	0.5 TN	694	Driver Door Lock Actuator Unlock Control (A45/AXC/AXE)
	0.8 TN	694	Driver Door Lock Actuator Unlock Control (-A45-AXC-AXE)
3	0.8 GY	295	Door Lock Actuator Lock Control (Midgate Latch Release Control) (-A45-AXC-AXE)
	0.5 GY	295	Door Lock Actuator Lock Control (Midgate Latch Release Control) (A45/AXC/AXE)
6	0.5 GY/BK	745	Left Front Door Ajar Switch Signal (A45/AXC/AXE)
	0.5 GY/BK	745	Left Front Door Ajar Switch Signal (-A45-AXC-AXE)
7	0.5 TN	126	Left Front Door Open Switch Signal (A45/AXC/AXE)
	0.5 TN	126	Left Front Door Open Switch Signal (-A45-AXC-AXE)
8	0.35 BK	550	Ground (-A45-AXC-AXE)
	0.5 YE	5942	Left Front Door Ajar Switch Low Reference (A45/AXC/AXE)
9	0.5 L-GN	262	Driver Door Key Switch Signal (-A45-AXC-AXE)
	0.5 L-GN	262	Driver Door Key Switch Signal (A45/AXC/AXE)
10	-	-	Not Used

Door Latch Assembly - LR (WDA)

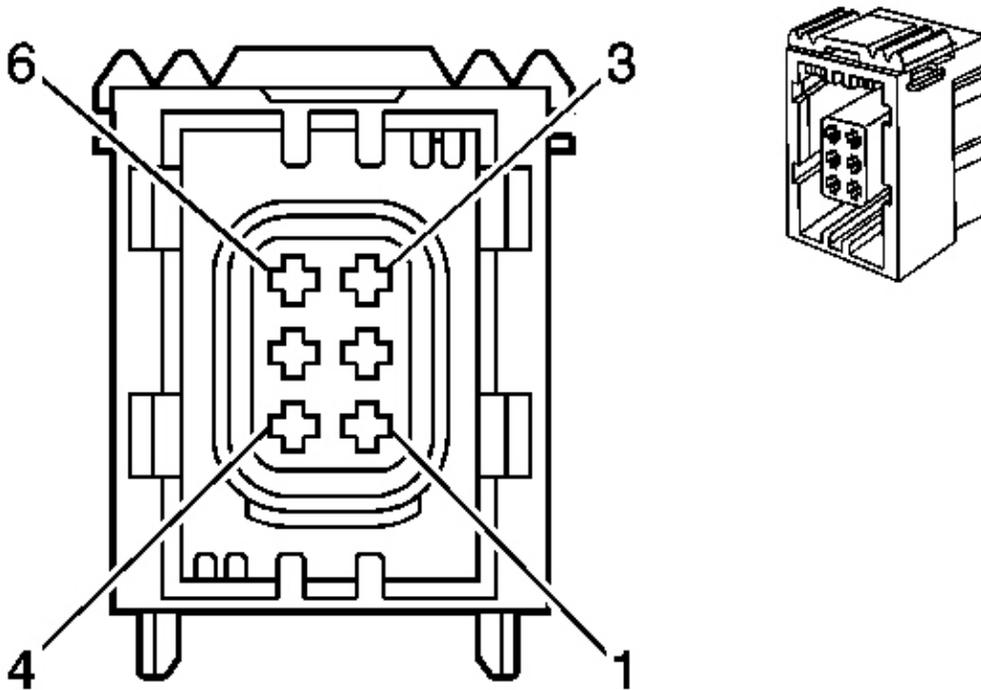


Fig. 22: Door Latch Assembly - LR (WDA) Connector End View
Courtesy of GENERAL MOTORS CORP.

Door Latch Assembly - LR (WDA) Connector Parts Information

Connector Part Information

- OEM: 6-1355683-1
- Service: 88986251
- Description: 6-Way F Sealed Series (BK)

Terminal Part Information

- Pins: 2-6
- Terminal/Tray: 4-969005-1/16
- Core/Insulation Crimp: E/1
- Release Tool/Test Probe: J-38125-560/J-35616-33 (YE)

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Door Latch Assembly - LR (WDA) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
1	-	-	Not Used
2	0.8 TN	294	Door Lock Actuator Unlock Control
3	0.8 GY	295	Door Lock Actuator Lock Control (Midgate Latch Release Control)
4	0.5 L-BU/BK	747	Left Rear Door Ajar Switch Signal
5	0.5 D-BU/WH	1179	Left Rear Door Open Switch Signal
6	0.5 BK	550	Ground

Door Latch Assembly - LR (Z88)

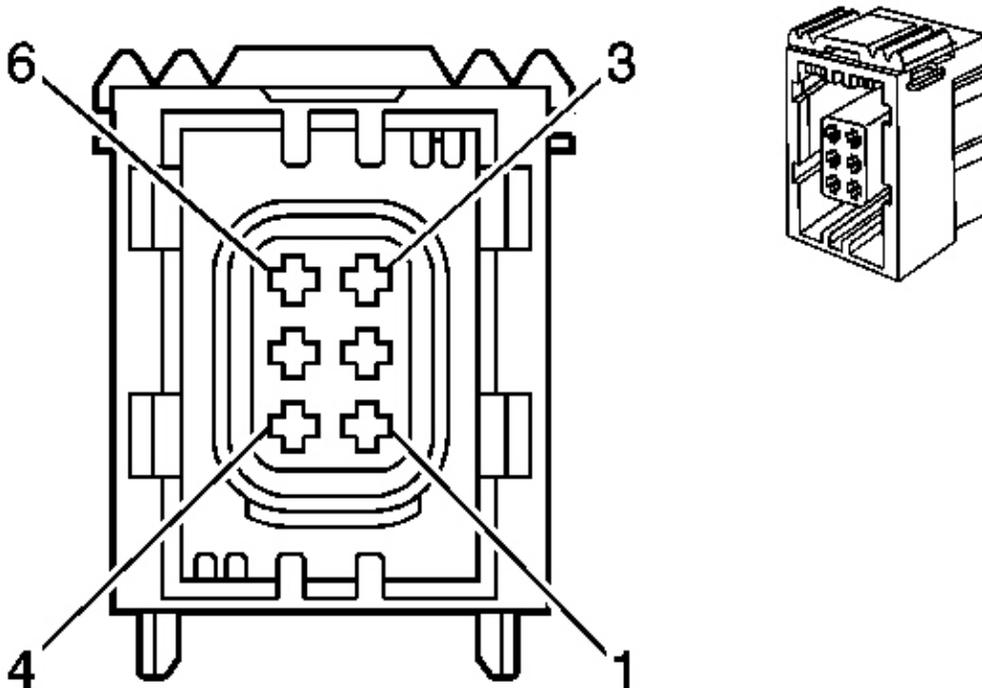


Fig. 23: Door Latch Assembly - LR (Z88) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Door Latch Assembly - LR (Z88) Connector Parts Information

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Connector Part Information

- OEM: 6-1355683-1
- Service: 88986251
- Description: 6-Way F Sealed Series (BK)

Terminal Part Information

- Pins: 2-6
- Terminal/Tray: 4-969005-1/16
- Core/Insulation Crimp: E/1
- Release Tool/Test Probe: J-38125-560/J-35616-33 (YE)

Door Latch Assembly - LR (Z88) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
1	-	-	Not Used
2	0.8 TN	294	Door Lock Actuator Unlock Control
3	0.8 GY	295	Door Lock Actuator Lock Control (Midgate Latch Release Control)
4	0.5 L-BU/BK	747	Left Rear Door Ajar Switch Signal
5	0.5 D-BU/WH	1179	Left Rear Door Open Switch Signal
6	0.5 BK	550	Ground

Door Latch Assembly - Passenger (WDA)

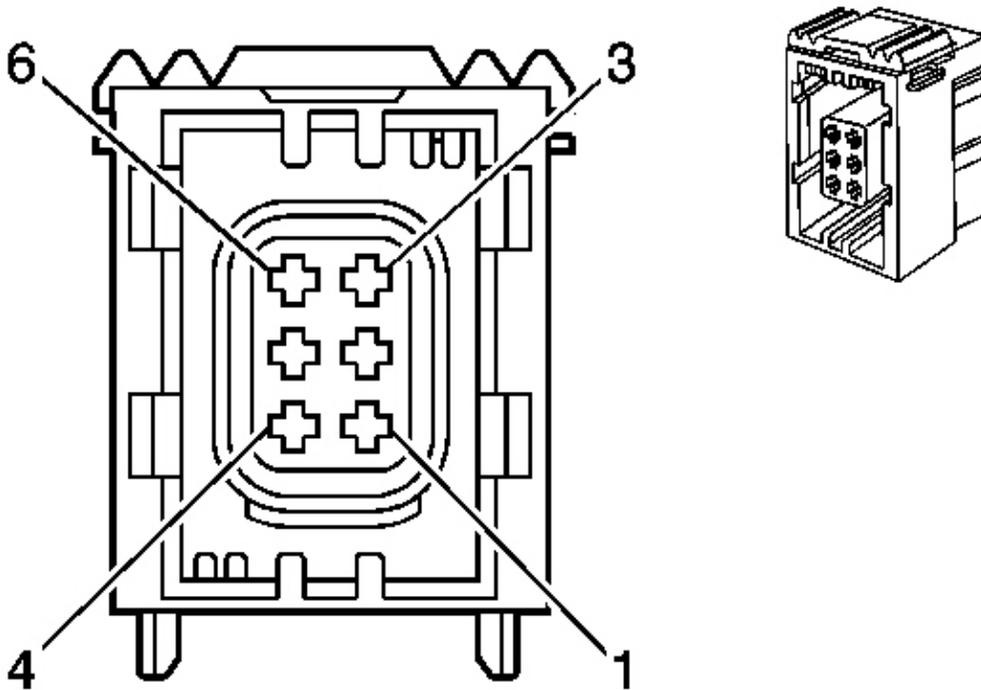


Fig. 24: Door Latch Assembly - Passenger (WDA) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Door Latch Assembly - Passenger (WDA) Connector Parts Information

Connector Part Information

- OEM: 6-1355683-1
- Service: 88986251
- Description: 6-Way F Sealed Series (BK)

Terminal Part Information

- Pins: 1, 3, 5, 6
- Terminal/Tray: 4-969005-1/16
- Core/Insulation Crimp: E/1
- Release Tool/Test Probe: J-38125-560/J-35616-33 (YE)

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Door Latch Assembly - Passenger (WDA) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
1	0.5 TN/WH	746	Right Front Door Ajar Switch Signal (A45/AXC/AXE)
	0.5 TN/WH	746	Right Front Door Ajar Switch Signal (-A45-AXC-AXE)
2	0.35 D-BU/WH	1179	Left Rear Door Open Switch Signal (-A45-AXC-AXE)
	0.5 L-GN	1177	Door Open Switch Signal (A45/AXC/AXE)
3	0.5 YE	5943	Right Front Door Ajar Switch Low Reference (A45/AXC/AXE)
	0.35 BK	750	Ground (-A45-AXC-AXE)
4	-	-	Not Used
5	0.5 TN	294	Door Lock Actuator Unlock Control (A45/AXC/AXE)
	0.8 TN	294	Door Lock Actuator Unlock Control (-A45-AXC-AXE)
6	0.8 GY	295	Door Lock Actuator Lock Control (Midgate Latch Release Control) (-A45-AXC-AXE)
	0.5 GY	295	Door Lock Actuator Lock Control (Midgate Latch Release Control) (A45/AXC/AXE)

Door Latch Assembly - Passenger (Z88)

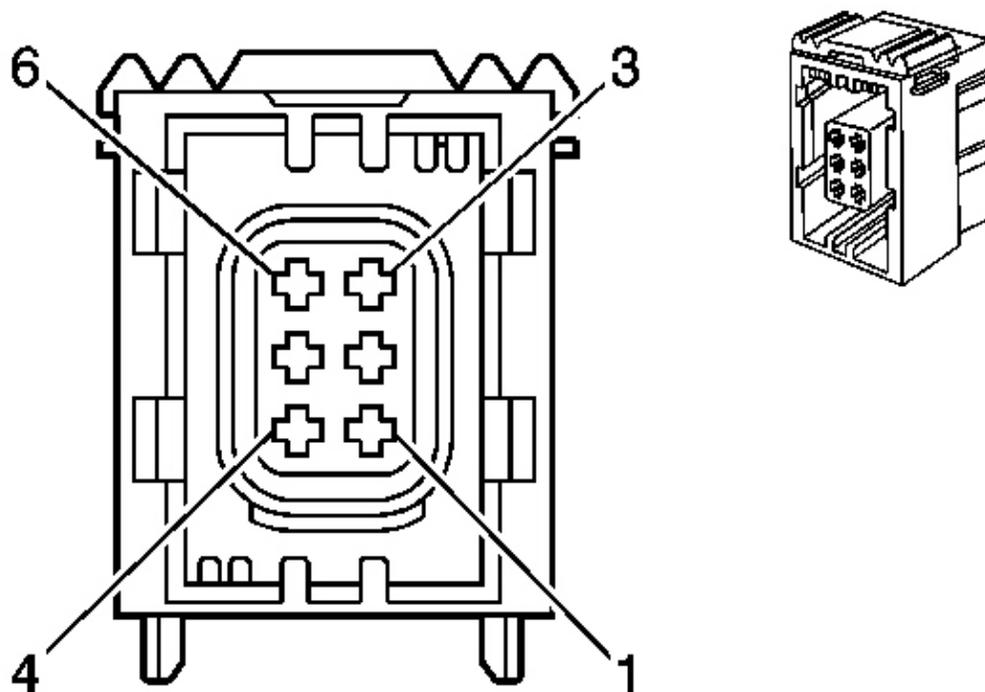


Fig. 25: Door Latch Assembly - Passenger (Z88) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Door Latch Assembly - Passenger (Z88) Connector Parts Information

Connector Part Information

- OEM: 6-1355683-1
- Service: 88986251
- Description: 6-Way F Sealed Series (BK)

Terminal Part Information

- Pins: 1- 3, 5, 6
- Terminal/Tray: 964274-2/16
- Core/Insulation Crimp: E/1
- Release Tool/Test Probe: J-38125-560/J-35616-33 (YE)

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Door Latch Assembly - Passenger (Z88) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
1	0.5 TN/WH	746	Right Front Door Ajar Switch Signal (A45/AXC/AXE)
	0.5 TN/WH	746	Right Front Door Ajar Switch Signal (-A45-AXC-AXE)
2	0.35 D-BU/WH	1179	Left Rear Door Open Switch Signal (-A45-AXC-AXE)
	0.5 L-GN	1177	Door Open Switch Signal (A45/AXC/AXE)
3	0.5 YE	5943	Right Front Door Ajar Switch Low Reference (A45/AXC/AXE)
	0.35 BK	750	Ground (-A45-AXC-AXE)
4	-	-	Not Used
5	0.5 TN	294	Door Lock Actuator Unlock Control (A45/AXC/AXE)
	0.8 TN	294	Door Lock Actuator Unlock Control (-A45-AXC-AXE)
6	0.5 GY	295	Door Lock Actuator Lock Control (Midgate Latch Release Control) (A45/AXC/AXE)
	0.8 GY	295	Door Lock Actuator Lock Control (Midgate Latch Release Control) (-A45-AXC-AXE)

Door Latch Assembly - RR (WDA)

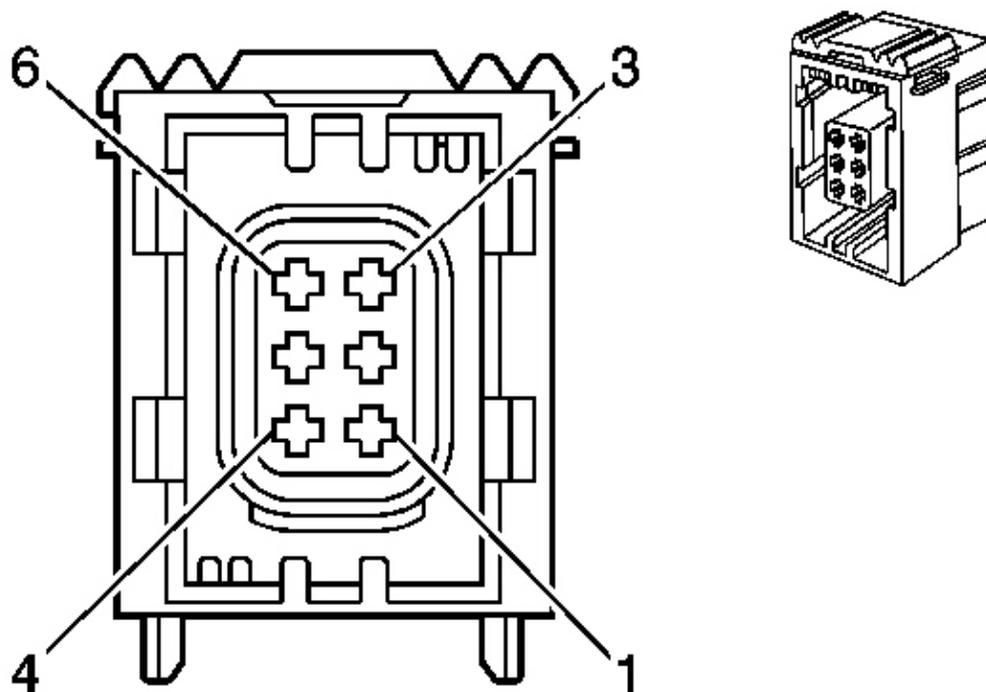


Fig. 26: Door Latch Assembly - RR (WDA) Connector End View
Courtesy of GENERAL MOTORS CORP.

Door Latch Assembly - RR (WDA) Connector Parts Information

Connector Part Information

- OEM: 6-1355683-1
- Service: 88986251
- Description: 6-Way F Sealed Series (BK)

Terminal Part Information

- Pins: 1-3, 5, 6
- Terminal/Tray: 964274-2/16
- Core/Insulation Crimp: E/1
- Release Tool/Test Probe: J-38125-560/J-35616-33 (YE)

Door Latch Assembly - RR (WDA) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
1	0.5 L-GN/BK	748	Right Rear Door Ajar Switch Signal
2	0.5 D-BU/WH	1179	Left Rear Door Open Switch Signal
3	0.5 BK	750	Ground
4	-	-	Not Used
5	0.8 TN	294	Door Lock Actuator Unlock Control
6	0.8 GY	295	Door Lock Actuator Lock Control (Midgate Latch Release Control)

Door Latch Assembly - RR (Z88)

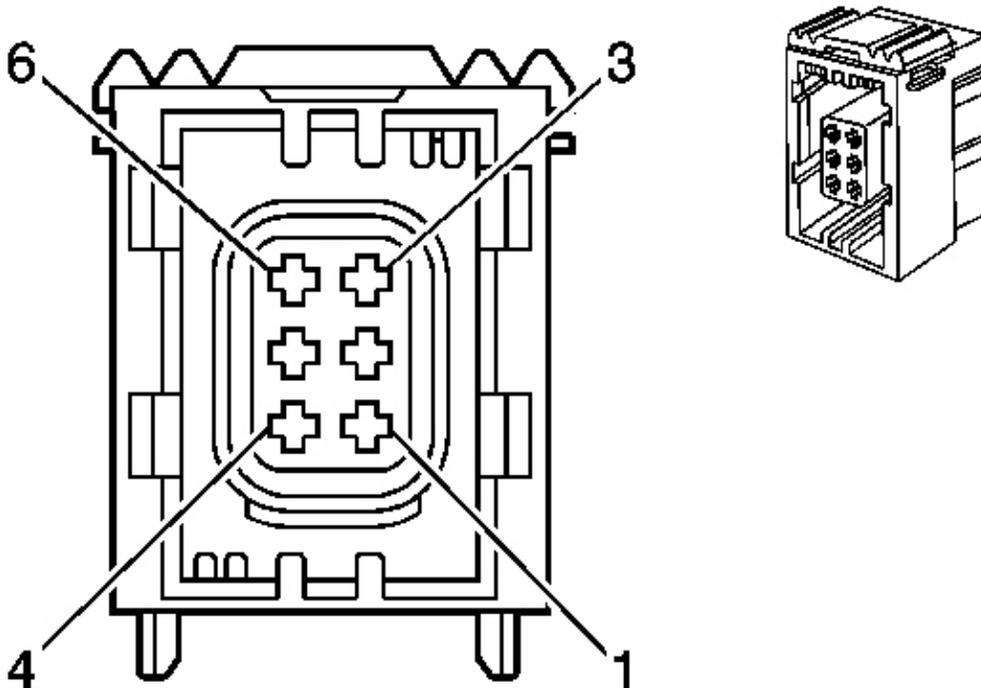


Fig. 27: Door Latch Assembly - RR (Z88) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Door Latch Assembly - RR (Z88) Connector Parts Information

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Connector Part Information

- OEM: 6-1355683-1
- Service: 88986251
- Description: 6-Way F Sealed Series (BK)

Terminal Part Information

- Pins: 1-3, 5, 6
- Terminal/Tray: 964274-2/16
- Core/Insulation Crimp: E/1
- Release Tool/Test Probe: J-38125-560/J-35616-33 (YE)

Door Latch Assembly - RR (Z88) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
1	0.5 L-GN/BK	748	Right Rear Door Ajar Switch Signal
2	0.5 D-BU/WH	1179	Left Rear Door Open Switch Signal
3	0.5 BK	750	Ground
4	-	-	Not Used
5	0.8 TN	294	Door Lock Actuator Unlock Control
6	0.8 GY	295	Door Lock Actuator Lock Control (Midgate Latch Release Control)

Door Lock Switch - Driver (WDA)

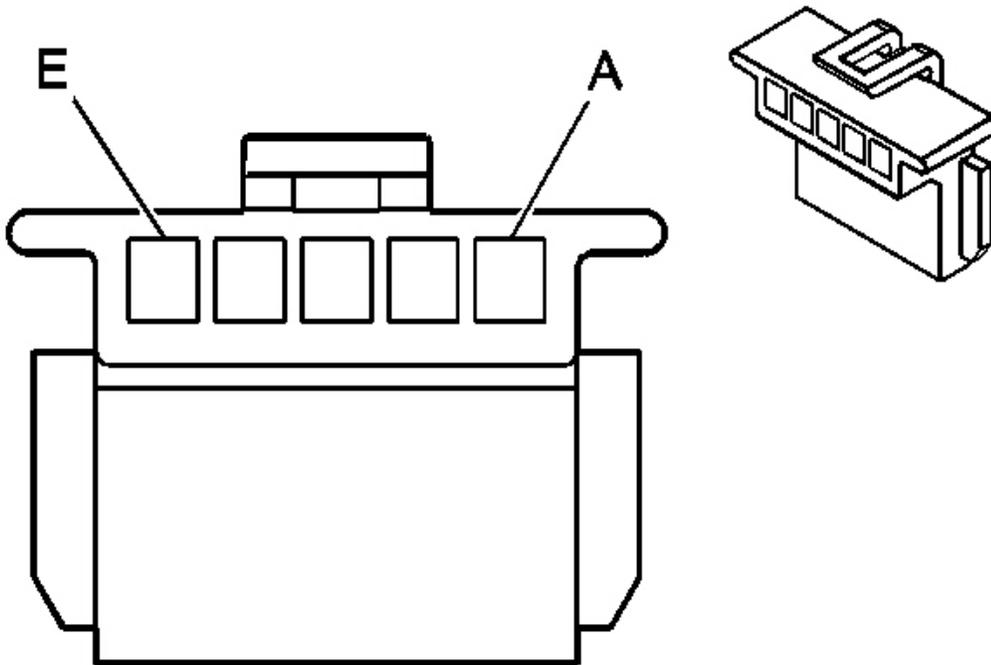


Fig. 28: Door Lock Switch - Driver (WDA) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Door Lock Switch - Driver (WDA) Connector Parts Information

Connector Part Information

- OEM: 12124997
- Service: 12167130
- Description: 5-Way F Metri-Pack 150 Series, Unsealed (BK)

Terminal Part Information

- Terminal/Tray: 12103359/18
- Core/Insulation Crimp: E/C
- Release Tool/Test Probe: 12094429/J-35616-14 (GN)

Door Lock Switch - Driver (WDA) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
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A	0.35 GY	8	Instrument Panel Lamp Supply Voltage/Instrument Panel Lamps Dimmer Switch Signal (-A45-AXC-AXE)
B	0.35 BK	550	Ground (-A45-AXC-AXE)
C	-	-	Not Used
D	0.5 OG/BK	781	Driver Door Lock Switch Unlock Signal (-A45-AXC-AXE)
E	0.5 PK/BK	780	Driver Door Lock Switch Lock Signal (-A45-AXC-AXE)

Door Lock Switch - Driver (Z88)

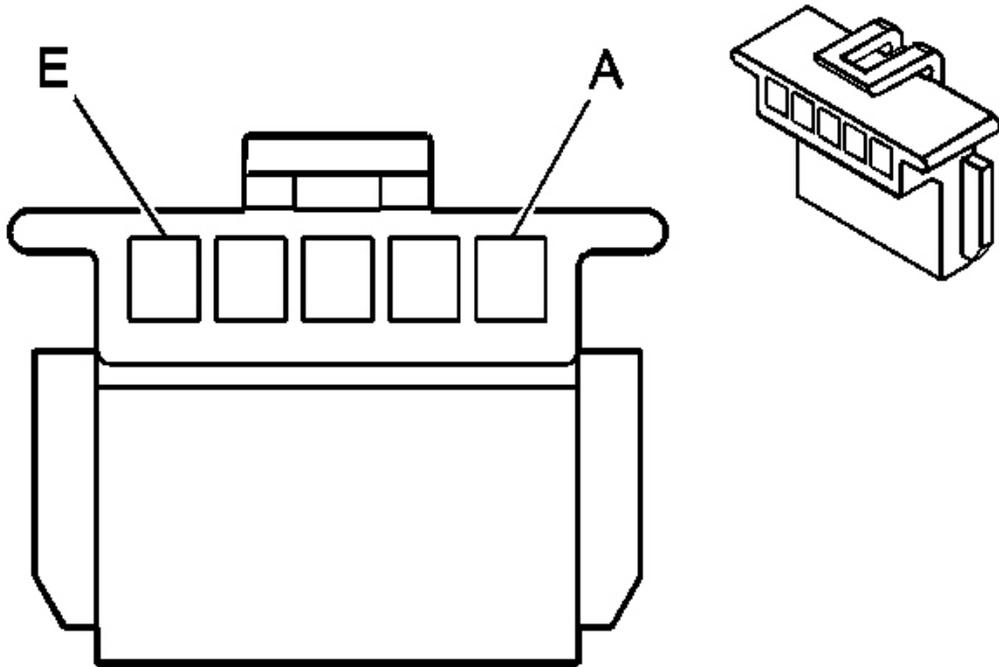


Fig. 29: Door Lock Switch - Driver (Z88) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Door Lock Switch - Driver (Z88) Connector Parts Information

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Connector Part Information

- OEM: 12124997
- Service: 12167130
- Description: 5-Way F Metri-Pack 150 Series, Unsealed (BK)

Terminal Part Information

- Terminal/Tray: 12103359/18
- Core/Insulation Crimp: E/C
- Release Tool/Test Probe: 12094429/J-35616-14 (GN)

Door Lock Switch - Driver (Z88) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
A	0.35 GY	8	Instrument Panel Lamp Supply Voltage/Instrument Panel Lamps Dimmer Switch Signal (-A45-AXC- AXE)
B	0.35 BK	550	Ground (-A45-AXC-AXE)
C	-	-	Not Used
D	0.5 PK/BK	780	Driver Door Lock Switch Lock Signal (-A45-AXC-AXE)
E	0.5 OG/BK	781	Driver Door Lock Switch Unlock Signal (-A45-AXC-AXE)

Door Lock Switch - Passenger (WDA)

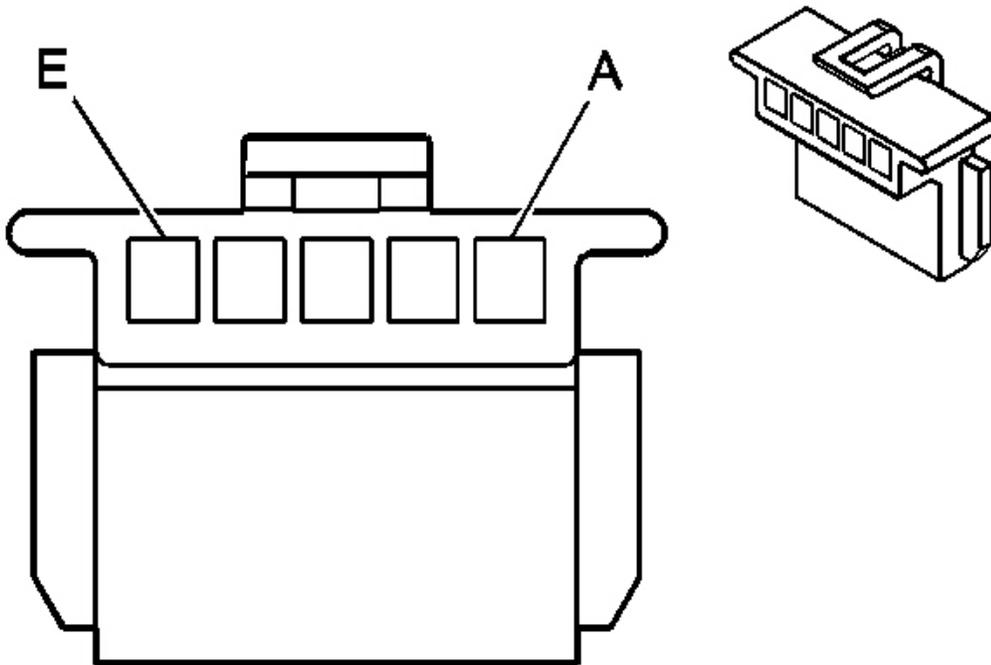


Fig. 30: Door Lock Switch - Passenger (WDA) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Door Lock Switch - Passenger (WDA) Connector Parts Information

Connector Part Information

- OEM: 12124997
- Service: 12167130
- Description: 5-Way F Metri-Pack 150 Series, Unsealed (BK)

Terminal Part Information

- Terminal/Tray: 12103359/18
- Core/Insulation Crimp: E/C
- Release Tool/Test Probe: 12094429/J-35616-14 (GN)

Door Lock Switch - Passenger (WDA) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
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A	0.35 GY	8	Instrument Panel Lamp Supply Voltage/Instrument Panel Lamps Dimmer Switch Signal (-A45-AXC-AXE)
B	0.35 BK	750	Ground (-A45-AXC-AXE)
C	-	-	Not Used
D	0.5 D-BU	245	Passenger Door Lock Switch Unlock [Control or Supply Voltage] (-A45-AXC-AXE)
E	0.5 L-BU	244	Passenger Door Lock Switch Lock [Control or Supply Voltage] (-A45-AXC-AXE)

Door Lock Switch - Passenger (Z88)

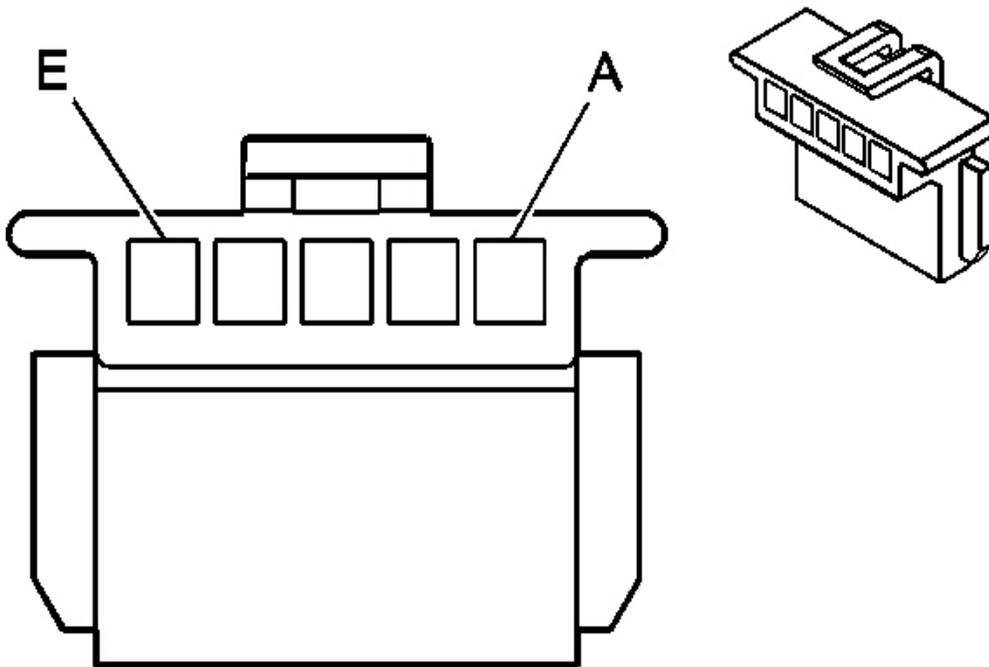


Fig. 31: Door Lock Switch - Passenger (Z88) Connector End View
 Courtesy of GENERAL MOTORS CORP.

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2007 ACCESSORIES & EQUIPMENT Vehicle Access - Outlook

Door Lock Switch - Passenger (Z88) Connector Parts Information

Connector Part Information

- OEM: 12124997
- Service: 12167130
- Description: 5-Way F Metri-Pack 150 Series, Unsealed (BK)

Terminal Part Information

- Terminal/Tray: 12103359/18
- Core/Insulation Crimp: E/C
- Release Tool/Test Probe: 12094429/J-35616-14 (GN)

Door Lock Switch - Passenger (Z88) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
A	0.35 GY	8	Instrument Panel Lamp Supply Voltage/Instrument Panel Lamps Dimmer Switch Signal (-A45-AXC-AXE)
B	0.35 BK	750	Ground (-A45-AXC-AXE)
C	-	-	Not Used
D	0.5 D-BU	245	Passenger Door Lock Switch Unlock [Control or Supply Voltage] (-A45-AXC-AXE)
E	0.5 L-BU	244	Passenger Door Lock Switch Lock [Control or Supply Voltage] (-A45-AXC-AXE)

Driver Door Module (DDM) X1 (WDA+AXC/AXE)

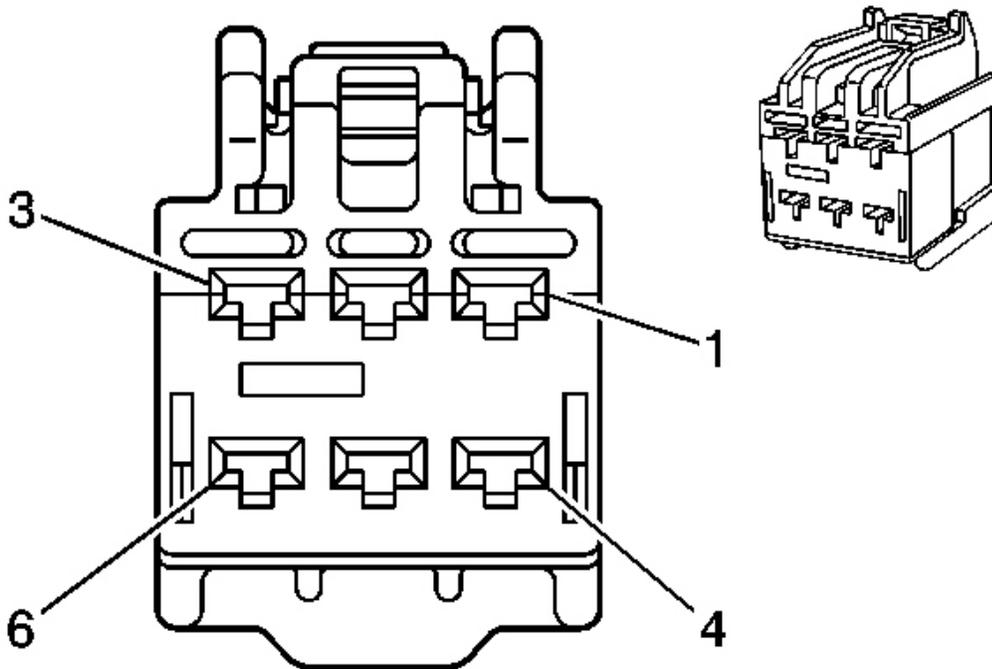


Fig. 32: Driver Door Module (DDM) X1 (WDA+AXC/AXE) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Driver Door Module (DDM) X1 (WDA+AXC/AXE) Connector Parts Information

Connector Part Information

- OEM: 6098-4607
- Service: 88988497
- Description: 6-Way F 2.8mm PBT (BK)

Terminal Part Information

- Pins: 4
- Terminal/Tray: 8100-4444/22
- Core/Insulation Crimp: 2/A
- Release Tool/Test Probe: 15315247/J-35616-35 (VT)
- Pins: 5

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- Terminal/Tray: 8100-4445/22
- Core/Insulation Crimp: 4/4
- Release Tool/Test Probe: 15315247/J-35616-35 (VT)

Driver Door Module (DDM) X1 (WDA+AXC/AXE) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
1-3	-	-	Not Used
4	1 RD/WH	3240	Battery Positive Voltage (A45/AXC/AXE)
5	2 BK	550	Ground (A45)
6	-	-	Not Used

Driver Door Module (DDM) X1 (Z88+AXC/AXE)

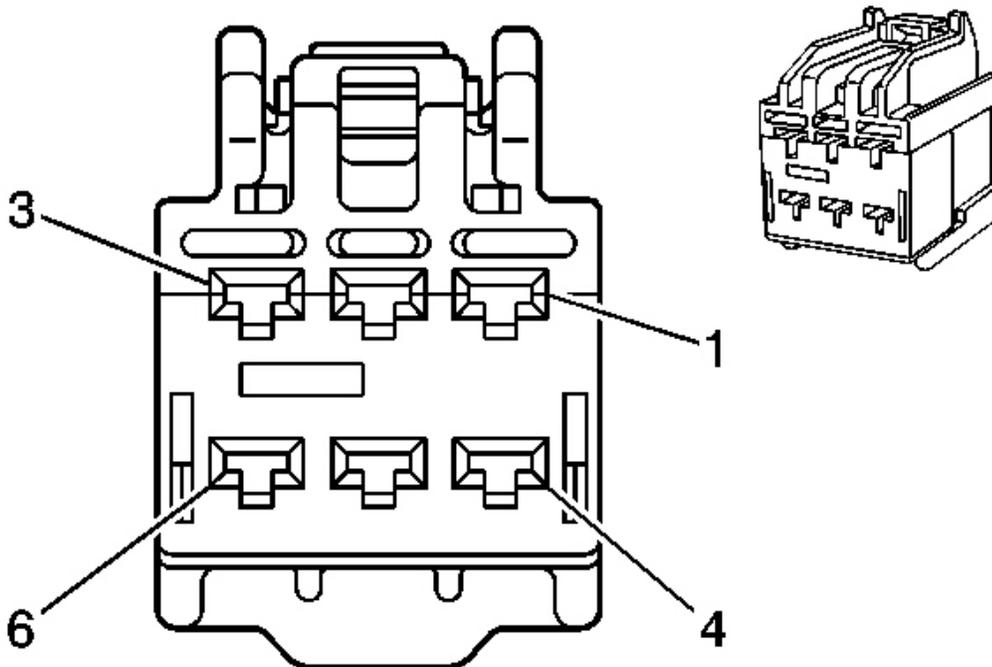


Fig. 33: Driver Door Module (DDM) X1 (Z88+AXC/AXE) Connector End View
Courtesy of GENERAL MOTORS CORP.

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Driver Door Module (DDM) X1 (Z88+AXC/AXE) Connector Parts Information

Connector Part Information

- OEM: 6098-4607
- Service: 88988497
- Description: 6-Way F 2.8mm PBT (BK)

Terminal Part Information

- Pins: 4
- Terminal/Tray: 8100-4444/22
- Core/Insulation Crimp: 2/A
- Release Tool/Test Probe: 15315247/J-35616-35 (VT)

- Pins: 5
- Terminal/Tray: 8100-4445/22
- Core/Insulation Crimp: 4/4
- Release Tool/Test Probe: 15315247/J-35616-35 (VT)

Driver Door Module (DDM) X1 (Z88+AXC/AXE) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
1-3	-	-	Not Used
4	1 RD/WH	3240	Battery Positive Voltage (A45/AXC/AXE)
5	2 BK	550	Ground (A45/AXC/AXE)
6	-	-	Not Used

Driver Door Module (DDM) X2 (WDA+AXC/AXE)

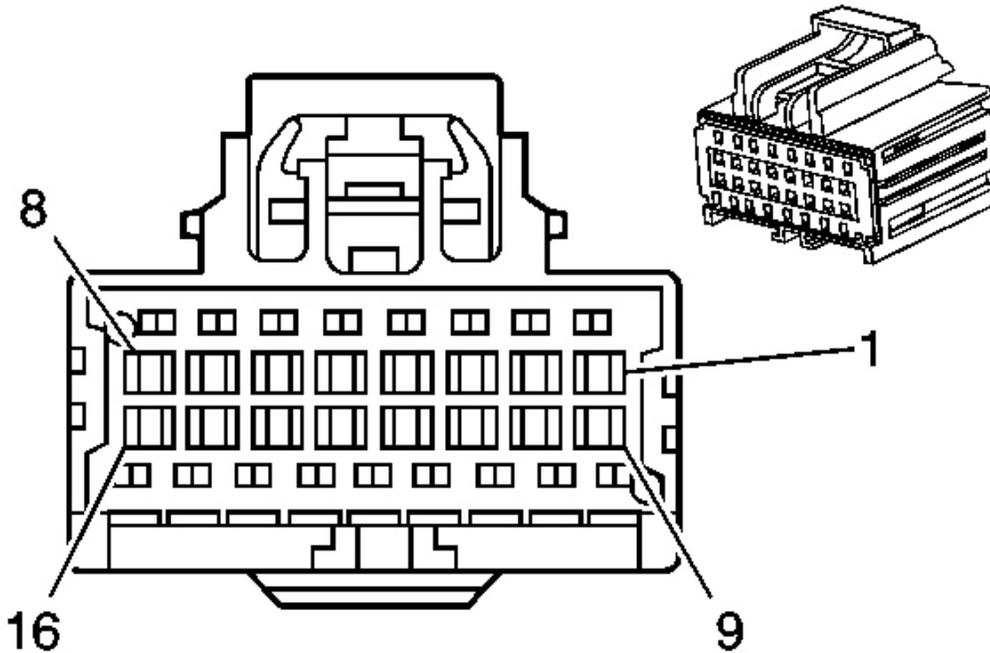


Fig. 34: Driver Door Module (DDM) X2 (WDA+AXC/AXE) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Driver Door Module (DDM) X2 (WDA+AXC/AXE) Connector Parts Information

Connector Part Information

- OEM: 7283-9078-80
- Service: See Catalog
- Description: 16-Way F Kaizen 0.64 Series (BN)

Terminal Part Information

- Terminal/Tray: 7116-4618-02/14
- Core/Insulation Crimp: P/P
- Release Tool/Test Probe: J-38125-215/J-35616-64B (L-BU)

Driver Door Module (DDM) X2 (WDA+AXC/AXE) Connector Terminal Identification

Pin	Wire	Circuit No.	Function

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1-2	-	-	Not Used
3	0.35 BN	6132	Linear Interconnect Network Bus (AXC/AXE)
4	0.5 L-GN	262	Driver Door Key Switch Signal (A45/AXC/AXE)
5	0.5 YE	5942	Left Front Door Ajar Switch Low Reference (A45/AXC/AXE)
6	-	-	Not Used
7	0.5 GY	295	Door Lock Actuator Lock Control (Midgate Latch Release Control) (A45/AXC/AXE)
8	0.5 TN	694	Driver Door Lock Actuator Unlock Control (A45/AXC/AXE)
9	0.35 D-GN	5060	Low Speed GMLAN Serial Data (A45/AXC/AXE)
10	-	-	Not Used
11	0.5 TN	126	Left Front Door Open Switch Signal (A45/AXC/AXE)
12	-	-	Not Used
13	0.5 GY/BK	745	Left Front Door Ajar Switch Signal (A45/AXC/AXE)
14-16	-	-	Not Used

Driver Door Module (DDM) X2 (Z88+AXC/AXE)

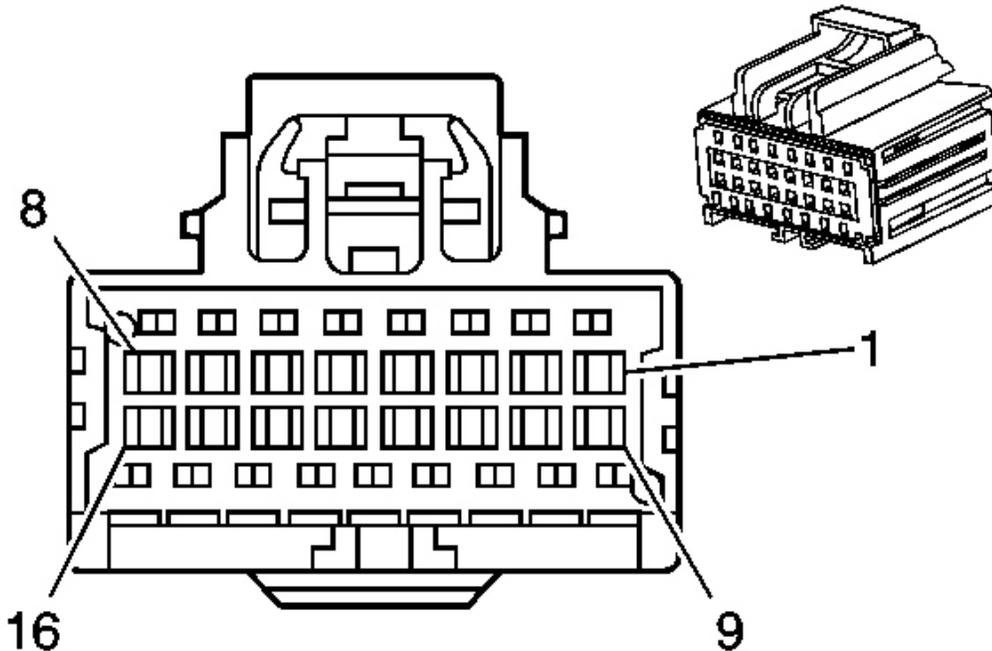


Fig. 35: Driver Door Module (DDM) X2 (Z88+AXC/AXE) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Driver Door Module (DDM) X2 (Z88+AXC/AXE) Connector Parts Information

Connector Part Information

- OEM: 7283-9078-80
- Service: See Catalog
- Description: 16-Way F Kaizen 0.64 Series (BN)

Terminal Part Information

- Terminal/Tray: 7116-4618-02/14
- Core/Insulation Crimp: P/P
- Release Tool/Test Probe: J-38125-215/J-35616-64B (L-BU)

Driver Door Module (DDM) X2 (Z88+AXC/AXE) Connector Terminal Identification

Pin	Wire	Circuit No.	Function

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2007 ACCESSORIES & EQUIPMENT Vehicle Access - Outlook

1-2	-	-	Not Used
3	0.35 BN	6132	Linear Interconnect Network Bus (AXC/AXE)
4	0.5 L-GN	262	Driver Door Key Switch Signal (A45/AXC/AXE)
5	0.5 YE	5942	Left Front Door Ajar Switch Low Reference (A45/AXC/AXE)
6	-	-	Not Used
7	0.5 GY	295	Door Lock Actuator Lock Control (Midgate Latch Release Control) (A45/AXC/AXE)
8	0.5 TN	694	Driver Door Lock Actuator Unlock Control (A45/AXC/AXE)
9	0.35 D-GN	5060	Low Speed GMLAN Serial Data (A45/AXC/AXE)
10	-	-	Not Used
11	0.5 TN	126	Left Front Door Open Switch Signal (A45/AXC/AXE)
12	-	-	Not Used
13	0.5 GY/BK	745	Left Front Door Ajar Switch Signal (A45/AXC/AXE)
14-16	-	-	Not Used

Driver Door Module (DDM) X3 (WDA+AXC/AXE)

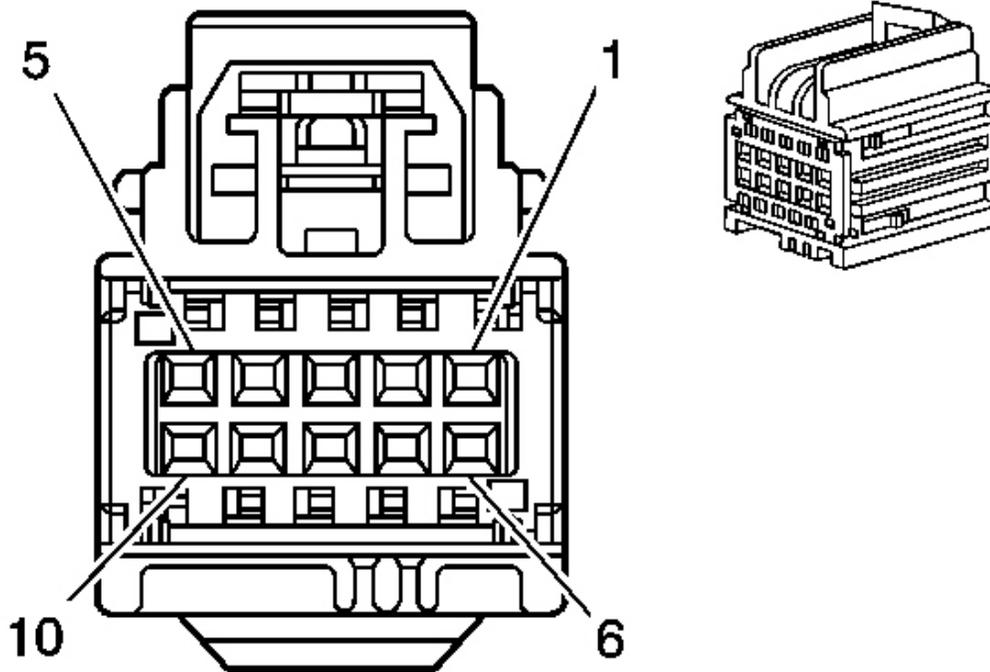


Fig. 36: Driver Door Module (DDM) X3 (WDA+AXC/AXE) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Driver Door Module (DDM) X3 (WDA+AXC/AXE) Connector Parts Information

Connector Part Information

- OEM: 7283-9040-30
- Service: See Catalog
- Description: 10-Way F YESC Kaizen Series (BK)

Terminal Part Information

- Terminal/Tray: 7116-4618-02/14
- Core/Insulation Crimp: P/P
- Release Tool/Test Probe: J-38125-215/J-35616-64B (L-BU)

Driver Door Module (DDM) X3 (WDA+AXC/AXE) Connector Terminal Identification

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Pin	Wire	Circuit No.	Function
1	0.35 D-BU/WH	6160	Outside Left Mirror Vertical Position Control (A45+DNP/DS3)
2	0.35 D-GN/WH	6159	Outside Left Mirror Horizontal Position Control (A45+DNP/DS3)
3	0.5 L-GN	627	Driver Mirror Heating Element Low Reference (A45+DNP/DS3)
4-5	-	-	Not Used
6	0.35 WH	7197	Outside Left Mirror Drive Motor Common (A45+DNP/DS3)
7	0.5 OG	2267	Mirror Heating Element Supply Voltage (A45+DNP/DS3)
8	0.35 PK/BK	5855	Driver Side Object Detection LED Low Reference (UFT)
9-10	-	-	Not Used

Driver Door Module (DDM) X3 (Z88+AXC/AXE)

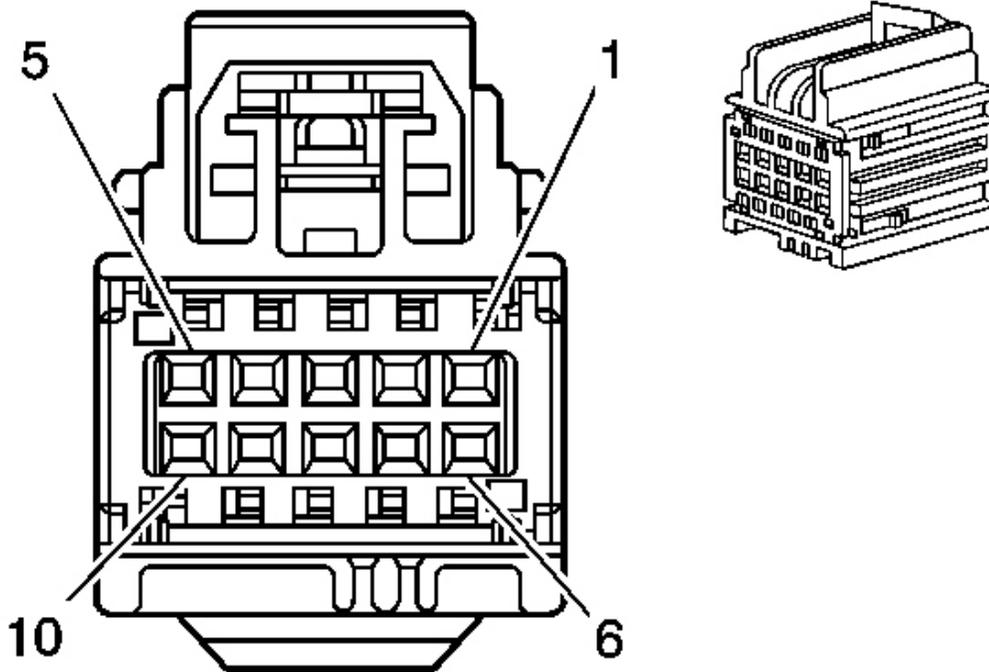


Fig. 37: Driver Door Module (DDM) X3 (Z88+AXC/AXE) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Driver Door Module (DDM) X3 (Z88+AXC/AXE) Connector Parts Information

Connector Part Information

- OEM: 7283-9040-30
- Service: See Catalog
- Description: 10-Way F YESC Kaizen Series (BK)

Terminal Part Information

- Terminal/Tray: 7116-4618-02/14
- Core/Insulation Crimp: P/P
- Release Tool/Test Probe: J-38125-215/J-35616-64B (L-BU)

Driver Door Module (DDM) X3 (Z88+AXC/AXE) Connector Terminal Identification

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2007 ACCESSORIES & EQUIPMENT Vehicle Access - Outlook

Pin	Wire	Circuit No.	Function
1	0.35 D-BU/WH	6160	Outside Left Mirror Vertical Position Control (DNP)
2	0.35 D-GN/WH	6159	Outside Left Mirror Horizontal Position Control (DNP)
3	0.5 L-GN	627	Driver Mirror Heating Element Low Reference (DNP)
4-5	-	-	Not Used
6	0.35 WH	7197	Outside Left Mirror Drive Motor Common (DNP)
7	0.5 OG	2267	Mirror Heating Element Supply Voltage (DNP)
8	0.35 PK/BK	5855	Driver Side Object Detection LED Low Reference (UFT)
9-10	-	-	Not Used

Driver Door Module (DDM) X4 (WDA+AXC/AXE)

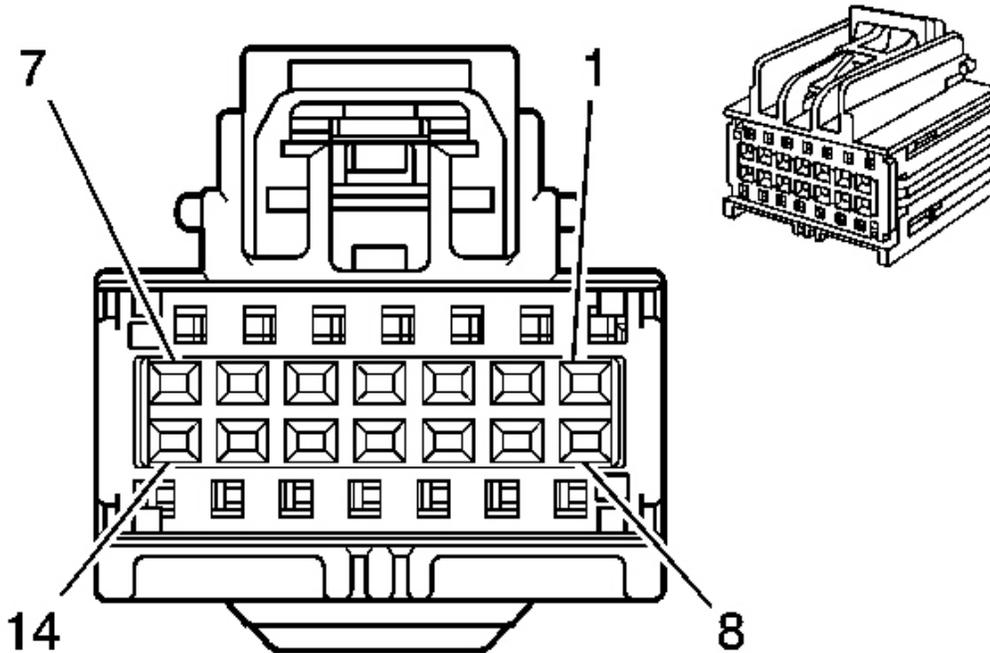


Fig. 38: Driver Door Module (DDM) X4 (WDA+AXC/AXE) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Driver Door Module (DDM) X4 (WDA+AXC/AXE) Connector Parts Information

Connector Part Information

- OEM: 7283-9065-40
- Service: See Catalog
- Description: 14-Way F Kaizen 0.64 Series (L-GY)

Terminal Part Information

- Terminal/Tray: 7116-4618-02/14
- Core/Insulation Crimp: P/P
- Release Tool/Test Probe: J-38125-215/J-35616-64B (L-BU)

Driver Door Module (DDM) X4 (WDA+AXC/AXE) Connector Terminal Identification

Pin	Wire	Circuit No.	Function

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1	0.35 WH/BK	6177	Power Window Motor Right Rear Down Control (A45+KA1)
2	0.35 D-GN	1661	Driver Heated Seat High Temperature Indicator Control (A45+KA1)
3	-	-	Not Used
4	0.35 D-BU/WH	5978	Memory Switch Low Reference (AG3)
5	0.35 OG	614	Memory Set Switch Signal (AG3)
6	0.35 D-BU	6172	Power Window Motor Right Front Down Control (A45+KA1)
7	0.35 GY	6175	Power Window Motor Right Rear Up Control (A45+KA1)
8	-	-	Not Used
9	0.35 L-BU	1662	Driver Heated Seat Low Temperature Indicator Control (A45+KA1)
10	0.35 BN	6173	Power Window Motor Left Rear Up Control (A45+KA1)
11	0.35 PU	6174	Power Window Motor Left Rear Down Control (A45+KA1)
12	-	-	Not Used
13	0.35 BN/WH	6064	Memory Switch Dimming Control (AG3)
14	0.35 GY/BK	5979	Memory Seat Switch Exit Signal (AG3)

Driver Door Module (DDM) X4 (Z88+AXC/AXE)

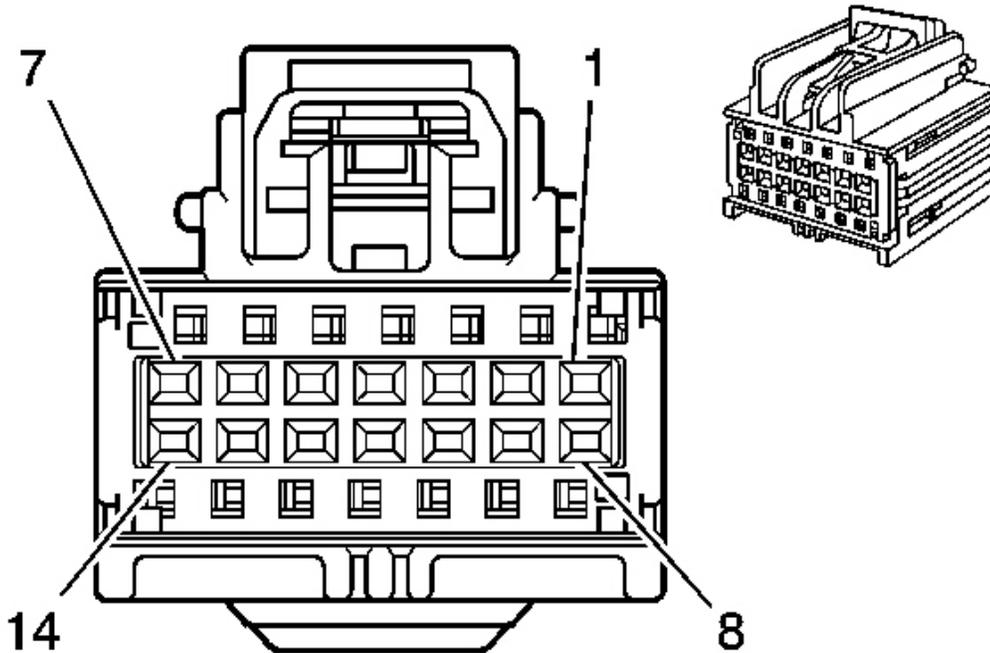


Fig. 39: Driver Door Module (DDM) X4 (Z88+AXC/AXE) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Driver Door Module (DDM) X4 (Z88+AXC/AXE) Connector Parts Information

Connector Part Information

- OEM: 7283-9065-40
- Service: See Catalog
- Description: 14-Way F Kaizen 0.64 Series (L-GY)

Terminal Part Information

- Terminal/Tray: 7116-4618-02/14
- Core/Insulation Crimp: P/P
- Release Tool/Test Probe: J-38125-215/J-35616-64B (L-BU)

Driver Door Module (DDM) X4 (Z88+AXC/AXE) Connector Terminal Identification

Pin	Wire	Circuit No.	Function

2007 Saturn Outlook XE

2007 ACCESSORIES & EQUIPMENT Vehicle Access - Outlook

1	0.35 WH/BK	6177	Power Window Motor Right Rear Down Control (A45+KA1)
2	0.35 D-GN	1661	Driver Heated Seat High Temperature Indicator Control (A45+KA1)
3	-	-	Not Used
4	0.35 D-BU/WH	5978	Memory Switch Low Reference (AG3)
5	0.35 OG	614	Memory Set Switch Signal (AG3)
6	0.35 D-BU	6172	Power Window Motor Right Front Down Control (A45+KA1)
7	0.35 GY	6175	Power Window Motor Right Rear Up Control (A45+KA1)
8	-	-	Not Used
9	0.35 L-BU	1662	Driver Heated Seat Low Temperature Indicator Control (A45+KA1)
10	0.35 BN	6173	Power Window Motor Left Rear Up Control (A45+KA1)
11	0.35 PU	6174	Power Window Motor Left Rear Down Control (A45+KA1)
12	-	-	Not Used
13	0.35 BN/WH	6064	Memory Switch Dimming Control (AG3)
14	0.35 GY/BK	5979	Memory Seat Switch Exit Signal (AG3)

Driver Door Module (DDM) X5 (WDA+AXC/AXE)

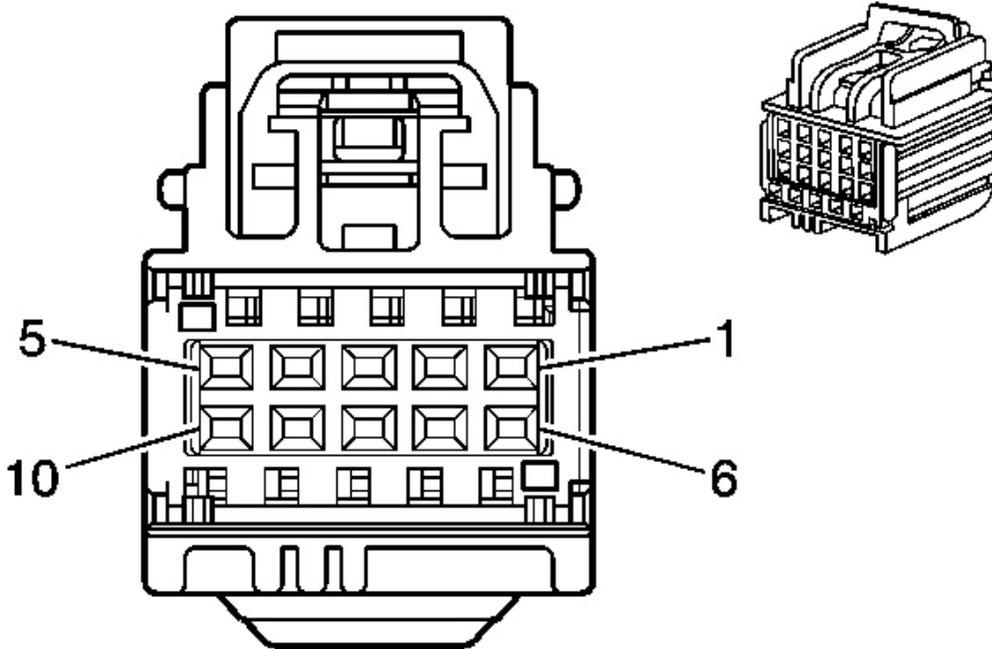


Fig. 40: Driver Door Module (DDM) X5 (WDA+AXC/AXE) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Driver Door Module (DDM) X5 (WDA+AXC/AXE) Connector Parts Information

Connector Part Information

- OEM: 7283-9045
- Service: See Catalog
- Description: 10-Way F 064 Series Unsealed (BK)

Terminal Part Information

- Terminal/Tray: 7116-4618-02/14
- Core/Insulation Crimp: P/P
- Release Tool/Test Probe: J-38125-215/J-35616-64B (L-BU)

Driver Door Module (DDM) X5 (WDA+AXC/AXE) Connector Terminal Identification

Pin	Wire	Circuit No.	Function

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1	0.35 YE	6802	Left Extend/Fold Mirror Motor Extend Control (DNP)
2	0.35 L-BU	6803	Passenger Mirror Motor Down Control (DNP)
3	-	-	Not Used
4	0.35 D-GN	784	Driver Mirror Vertical Position Sensor Signal (A45+DNP/DS3)
5	0.35 GY	786	Driver Mirror Horizontal Position Sensor Signal (A45+DNP/DS3)
6	-	-	Not Used
7	0.35 D-BU	672	5-Volt Reference (A45+DNP/DS3)
8	0.35 PK	5853	Driver Mirror Heating Element Low Reference (UFT)
9	-	-	Not Used
10	0.35 BN	673	Low Reference (A45+DNP/DS3)

Driver Door Module (DDM) X5 (Z88+AXC/AXE)

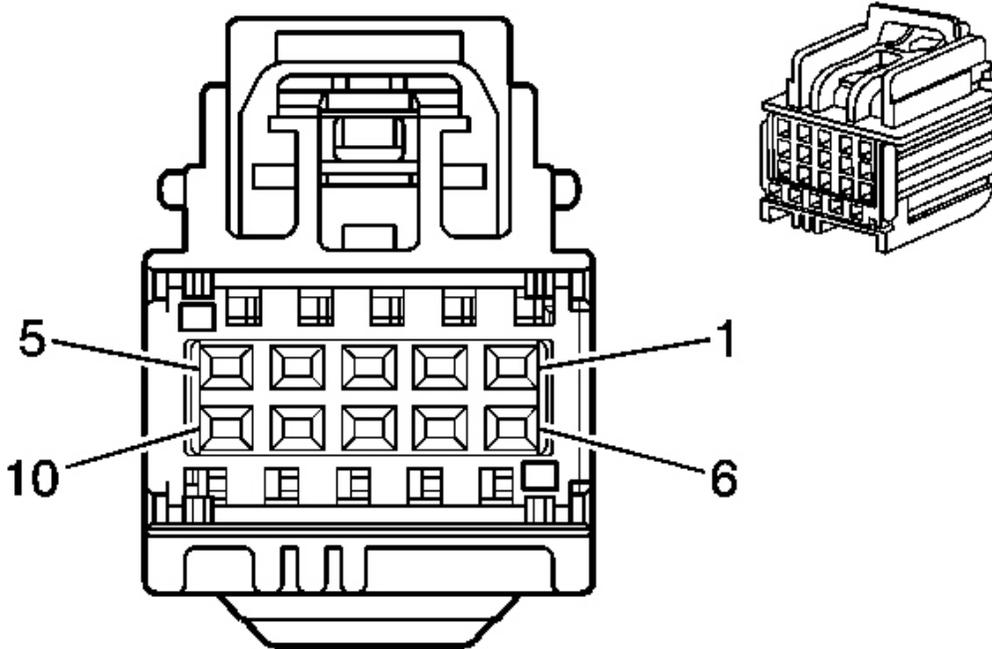


Fig. 41: Driver Door Module (DDM) X5 (Z88+AXC/AXE) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Driver Door Module (DDM) X5 (Z88+AXC/AXE) Connector Parts Information

Connector Part Information

- OEM: 7283-9045
- Service: See Catalog
- Description: 10-Way F 064 Series Unsealed (BK)

Terminal Part Information

- Terminal/Tray: 7116-4618-02/14
- Core/Insulation Crimp: P/P
- Release Tool/Test Probe: J-38125-215/J-35616-64B (L-BU)

Driver Door Module (DDM) X5 (Z88+AXC/AXE) Connector Terminal Identification

Pin	Wire	Circuit No.	Function

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2007 ACCESSORIES & EQUIPMENT Vehicle Access - Outlook

1	0.35 YE	6802	Left Extend/Fold Mirror Motor Extend Control (DNP)
2	0.35 L-BU	6803	Passenger Mirror Motor Down Control (DNP)
3	-	-	Not Used
4	0.35 D-GN	784	Driver Mirror Vertical Position Sensor Signal (DNP)
5	0.35 GY	786	Driver Mirror Horizontal Position Sensor Signal (DNP)
6	-	-	Not Used
7	0.35 D-BU	672	5-Volt Reference (DNP)
8	0.35 PK	5853	Driver Mirror Heating Element Low Reference (UFT)
9	-	-	Not Used
10	0.35 BN	673	Low Reference (DNP)

Liftgate Latch Assembly (WDA+E61)

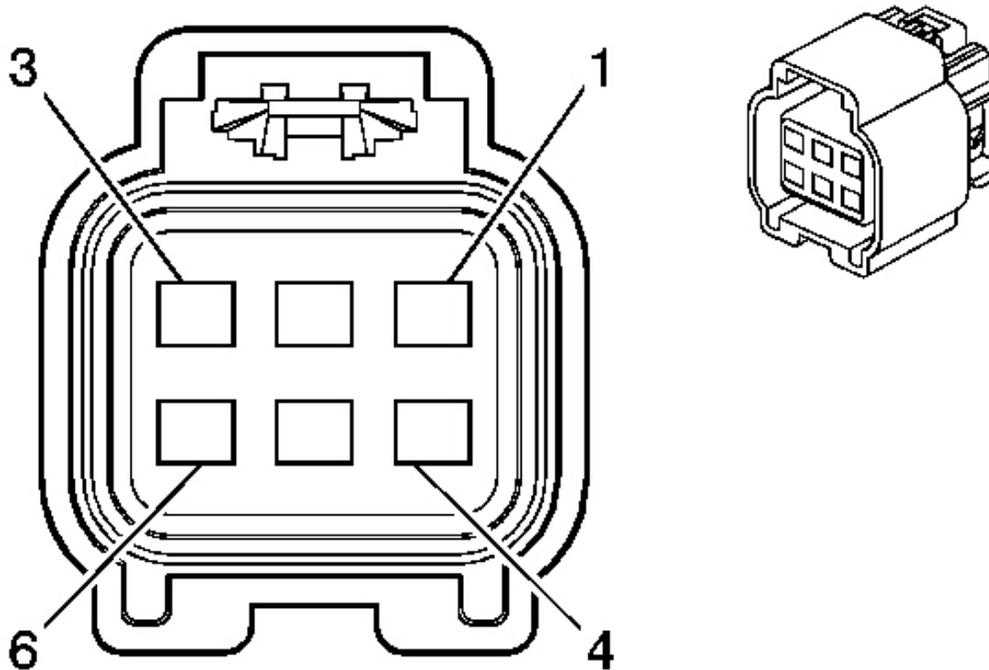


Fig. 42: Liftgate Latch Assembly (WDA+E61) Connector End View
Courtesy of GENERAL MOTORS CORP.

Liftgate Latch Assembly (WDA+E61) Connector Parts Information

Connector Part Information

- OEM: 15476196
- Service: 88988498
- Description: 6-Way F GT 280 Series, Sealed (BK)

Terminal Part Information

- Pins: 1, 3
- Terminal/Tray: 15304720/19
- Core/Insulation Crimp: 4/5
- Release Tool/Test Probe: 15315247/J-35616-4A (PU)

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- Pins: 2, 4- 6
- Terminal/Tray: 15304719/19
- Core/Insulation Crimp: E/5
- Release Tool/Test Probe: 15315247/J-35616-4A (PU)

Liftgate Latch Assembly (WDA+E61) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
1	2 BN	5790	Lift Gate Cinch Latch Motor Open Control
2	0.35 PU/WH	5801	Lift Gate Object Sensor Low Reference
3	2 L-BU	5791	Lift Gate Cinch Latch Motor Close Control
4	0.35 D-GN	5512	Local Interconnect Network 1
5	0.35 GY	7000	Lift Gate Ajar Switch Signal 3
6	0.35 PK/BK	6000	Lift Gate Ajar Switch Signal (2)

Liftgate Latch Assembly (Z88+E61)

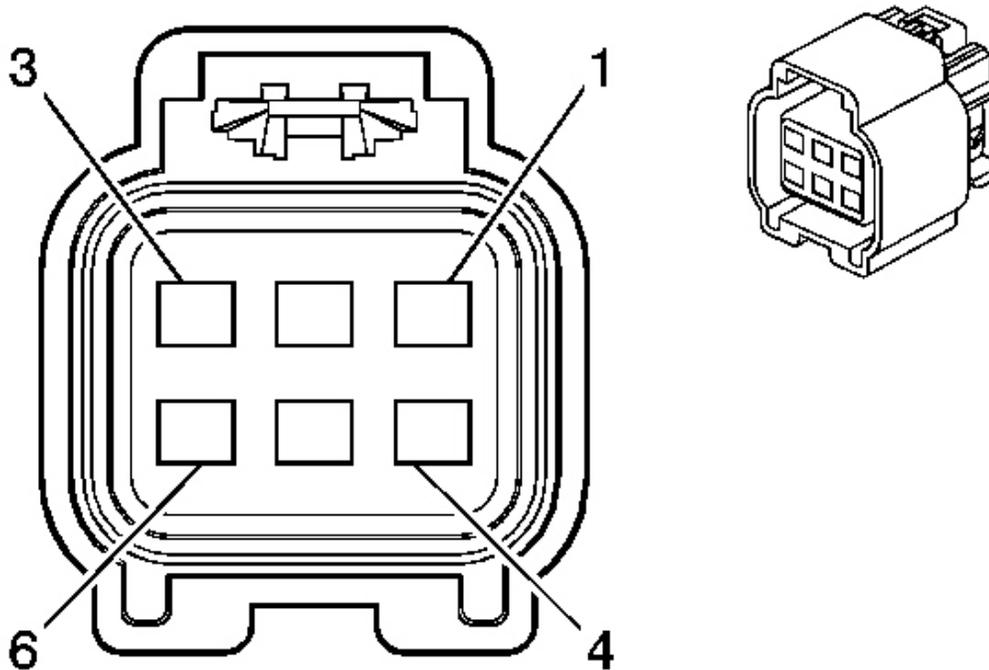


Fig. 43: Liftgate Latch Assembly (Z88+E61) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Liftgate Latch Assembly (Z88+E61) Connector Parts Information

Connector Part Information

- OEM: 15476196
- Service: 88988498
- Description: 6-Way F GT 280 Series, Sealed (BK)

Terminal Part Information

- Pins: 1, 3
- Terminal/Tray: 15304720/19
- Core/Insulation Crimp: 4/5
- Release Tool/Test Probe: 15315247/J-35616-4A (PU)

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2007 ACCESSORIES & EQUIPMENT Vehicle Access - Outlook

- Pins: 2, 4-6
- Terminal/Tray: 15304719/19
- Core/Insulation Crimp: E/5
- Release Tool/Test Probe: 15315247/J-35616-4A (PU)

Liftgate Latch Assembly (Z88+E61) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
1	2 BN	5790	Lift Gate Cinch Latch Motor Open Control
2	0.35 PU/WH	5801	Lift Gate Object Sensor Low Reference
3	2 L-BU	5791	Lift Gate Cinch Latch Motor Close Control
4	0.35 D-GN	5512	Local Interconnect Network 1
5	0.35 GY	7000	Lift Gate Ajar Switch Signal 3
6	0.35 PK/BK	6000	Lift Gate Ajar Switch Signal (2)

Liftgate Latch Assembly (WDA+E69)

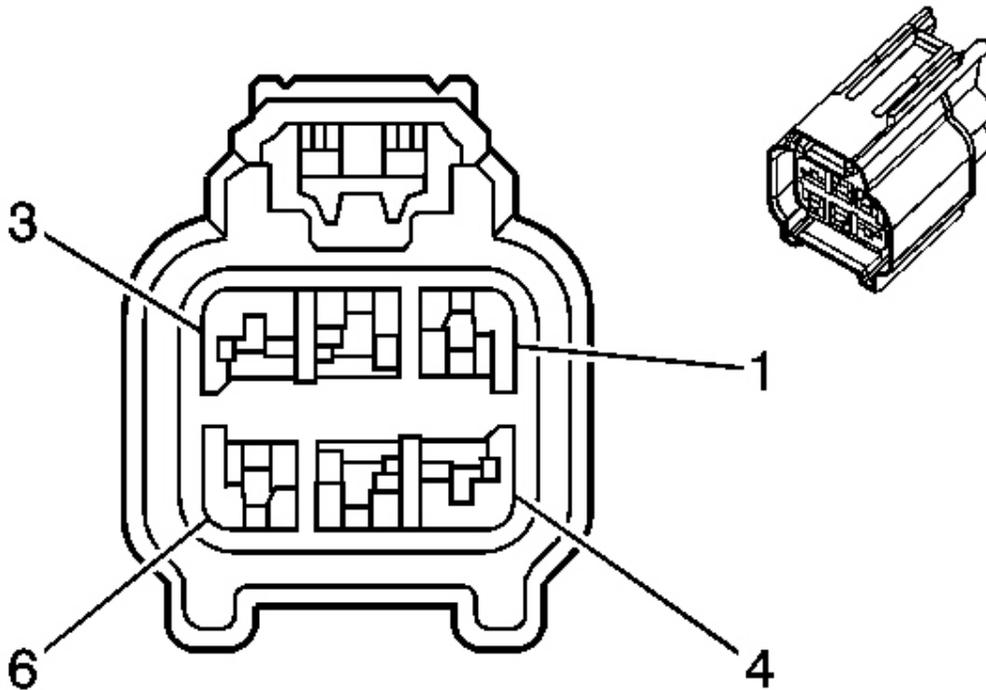


Fig. 44: Liftgate Latch Assembly (WDA+E69) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Liftgate Latch Assembly (WDA+E69) Connector Parts Information

Connector Part Information

- OEM: 15476199
- Service: 88988358
- Description: 6-Way F GT 280 Series, Sealed (GN)

Terminal Part Information

- Terminal/Tray: 15304719/19
- Core/Insulation Crimp: E/5
- Release Tool/Test Probe: 15315247/J-35616-4A (PU)

Liftgate Latch Assembly (WDA+E69) Connector Terminal Identification

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Pin	Wire	Circuit No.	Function
1	0.5 L-BU	6128	Ground
2	-	-	Not Used
3	0.5 BK	650	Ground
4	0.5 L-GN	5926	Rear Access Open Switch Signal
5	0.35 BK	650	Ground
6	0.5 PK/BK	1303	Liftgate Ajar Switch Signal

Liftgate Latch Assembly (Z88+E69)

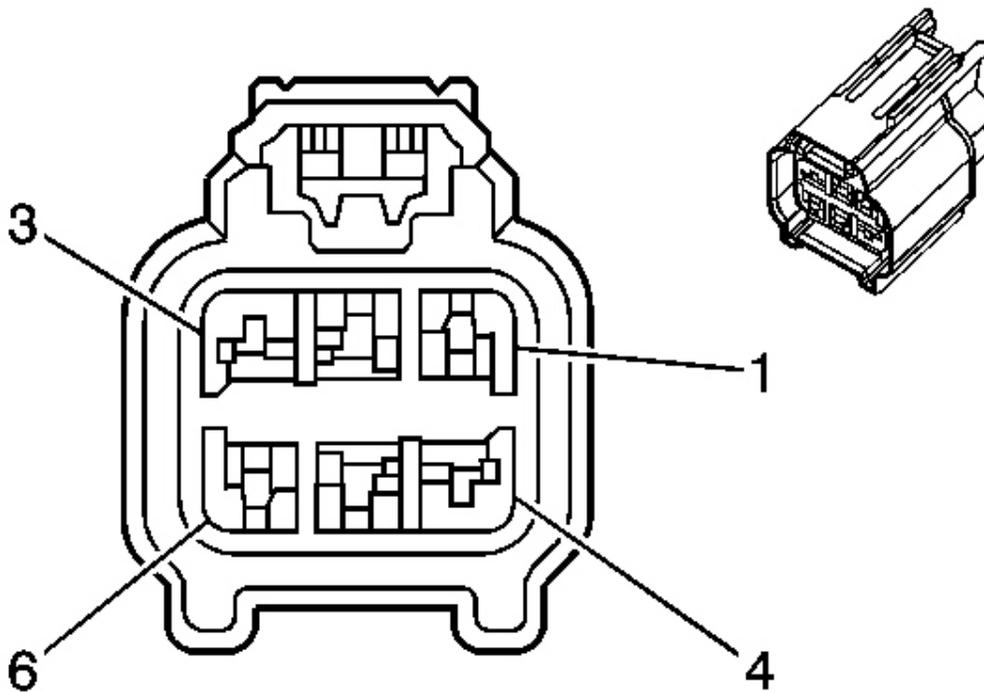


Fig. 45: Liftgate Latch Assembly (Z88+E69) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Liftgate Latch Assembly (Z88+E69) Connector Parts Information

Connector Part Information

2007 Saturn Outlook XE

2007 ACCESSORIES & EQUIPMENT Vehicle Access - Outlook

- OEM: 15476199
- Service: 88988358
- Description: 6-Way F GT 280 Series, Sealed (GN)

Terminal Part Information

- Terminal/Tray: 15304719/19
- Core/Insulation Crimp: E/5
- Release Tool/Test Probe: 15315247/J-35616-4A (PU)

Liftgate Latch Assembly (Z88+E69) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
1	0.5 L-BU	6128	Ground
2	-	-	Not Used
3	0.5 BK	650	Ground
4	0.5 L-GN	5926	Rear Access Open Switch Signal
5	0.35 BK	650	Ground
6	0.5 PK/BK	1303	Liftgate Ajar Switch Signal

Liftgate Module (LGM) X1 (E61)

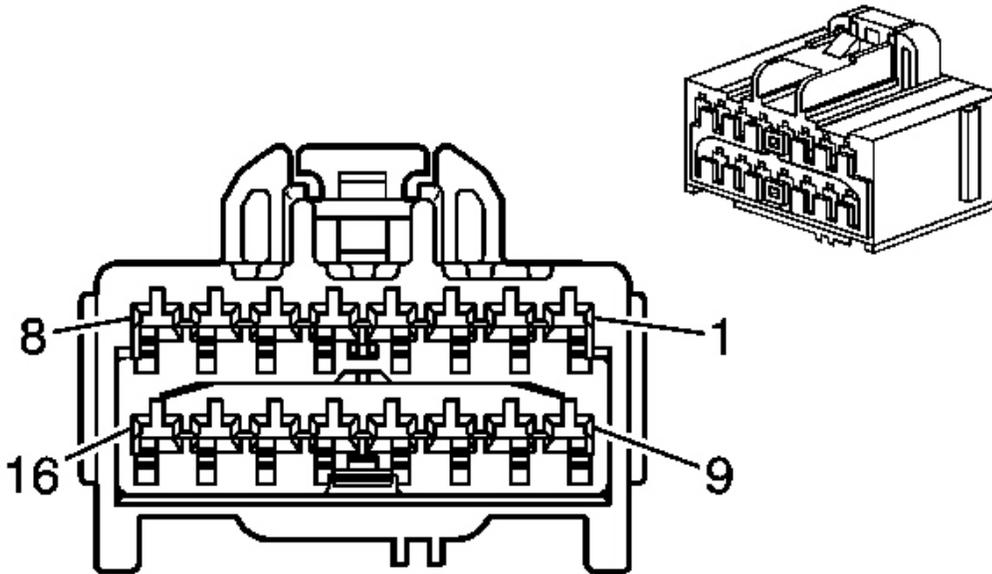


Fig. 46: Liftgate Module (LGM) X1 (E61) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Liftgate Module (LGM) X1 (E61) Connector Parts Information

Connector Part Information

- OEM: 15136073
- Service: See Catalog
- Description: 16-Way F Kaizen 0.64 (BK)

Terminal Part Information

- Terminal/Tray: 7116-4618-02/14
- Core/Insulation Crimp: P/P
- Release Tool/Test Probe: J-38125-215/J-35616-64B (L-BU)

Liftgate Module (LGM) X1 (E61) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
1	0.35 D-GN	6112	Power Lift Gate On/Off Switch Signal
2-3	-	-	Not Used

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4	0.35 D-GN	5512	Local Interconnect Network 1
5	0.35 PK/BK	6000	Lift Gate Ajar Switch Signal (2)
6	0.35 GY	7000	Lift Gate Ajar Switch Signal 3
7	0.35 D-GN	5060	Low Speed GMLAN Serial Data
8	0.35 WH/BK	6126	Lift Gate Object Sensor 2 Signal
9-11	-	-	Not Used
12	0.35 D-GN/WH	5800	Lift Gate Open/Close Switch Signal
13	-	-	Not Used
14	0.35 GY/BK	6113	Rear Lift Gate Open/Close Switch Signal
15	-	-	Not Used
16	0.35 PU/WH	5801	Lift Gate Object Sensor Low Reference

Liftgate Module (LGM) X2 (E61)

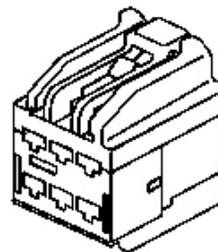
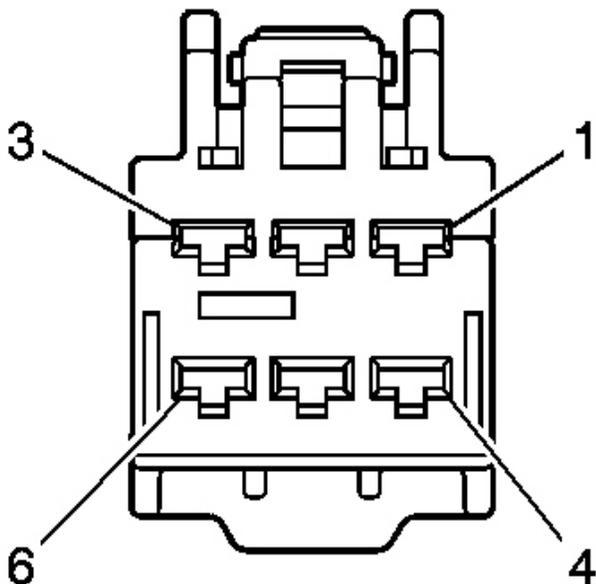


Fig. 47: Liftgate Module (LGM) X2 (E61) Connector End View

Courtesy of GENERAL MOTORS CORP.

Liftgate Module (LGM) X2 (E61) Connector Parts Information

Connector Part Information

- OEM: 15134094
- Service: 88988497
- Description: 6-Way F 2.8 Series (BK)

Terminal Part Information

- Pins: 4
- Terminal/Tray: 8100-4443/22
- Core/Insulation Crimp: E/A
- Release Tool/Test Probe: 15315247/J-35616-35 (VT)

- Pins: 1-3, 6
- Terminal/Tray: 8100-4445/22
- Core/Insulation Crimp: Pins 1, 2, 6 - 4/4
- Core/Insulation Crimp: Pins 3 - F/D
- Release Tool/Test Probe: 15315247/J-35616-35 (VT)

Liftgate Module (LGM) X2 (E61) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
1	2 BN	5790	Lift Gate Cinch Latch Motor Open Control
2	2 L-BU	5791	Lift Gate Cinch Latch Motor Close Control
3	3 RD/WH	2840	Battery Positive Voltage
4	0.5 RD/WH	1840	Battery Positive Voltage
5	-	-	Not Used
6	2 BK	650	Ground

Liftgate Module (LGM) X3 (E61)

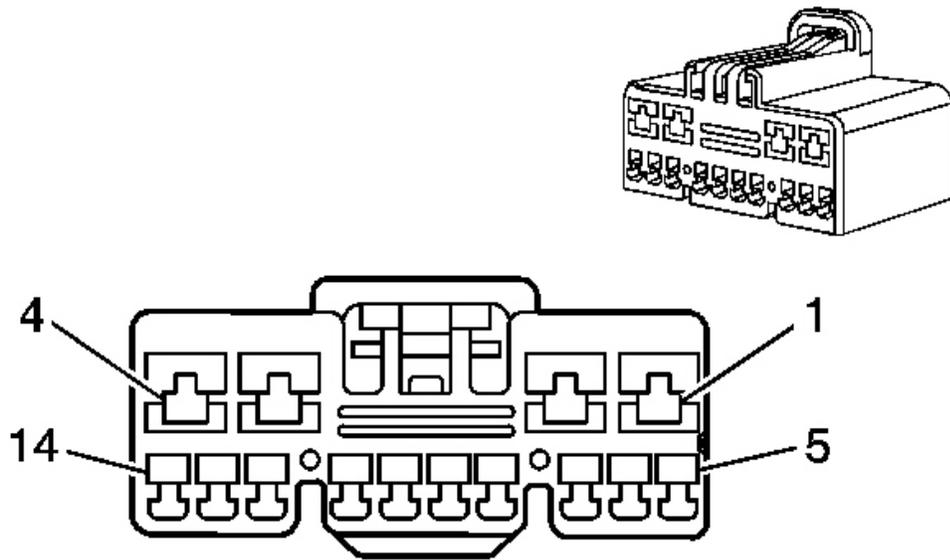


Fig. 48: Liftgate Module (LGM) X3 (E61) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Liftgate Module (LGM) X3 (E61) Connector Parts Information

Connector Part Information

- OEM: 7283-8398-40
- Service: See Catalog
- Description: 14-Way F 0.64 2.8YESC Series (L-GY)

Terminal Part Information

- Terminal/Tray: See Terminal Repair Kit
- Core/Insulation Crimp: See Terminal Repair Kit
- Release Tool/Test Probe: See Terminal Repair Kit

Liftgate Module (LGM) X3 (E61) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
			Lift Gate Open/Close Motor Open

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1	2 WH	5798	Control
2	2 BN/WH	5799	Lift Gate Open/Close Motor Close Control
3	0.35 TN	5794	Lift Gate Engage/Disengage Motor Engage Control
4	0.35 D-BU	5795	Lift Gate Engage/Disengage Motor Disengage Control
5	0.35 D-BU/WH	5796	Lift Gate Full Open Switch Signal
6	0.35 D-GN	5804	Lift Gate Position Sensor Low Reference
7	-	-	Not Used
8	0.35 TN/BK	5803	Lift Gate Position Sensor Voltage Reference
9	0.35 L-BU/WH	5805	Lift Gate Position Sensor Signal (1)
10	0.35 PU	5806	Lift Gate Position Sensor Signal (2)
11	0.35 D-GN	5804	Lift Gate Position Sensor Low Reference
12-14	-	-	Not Used

Liftgate Object Sensor - Left (E61)

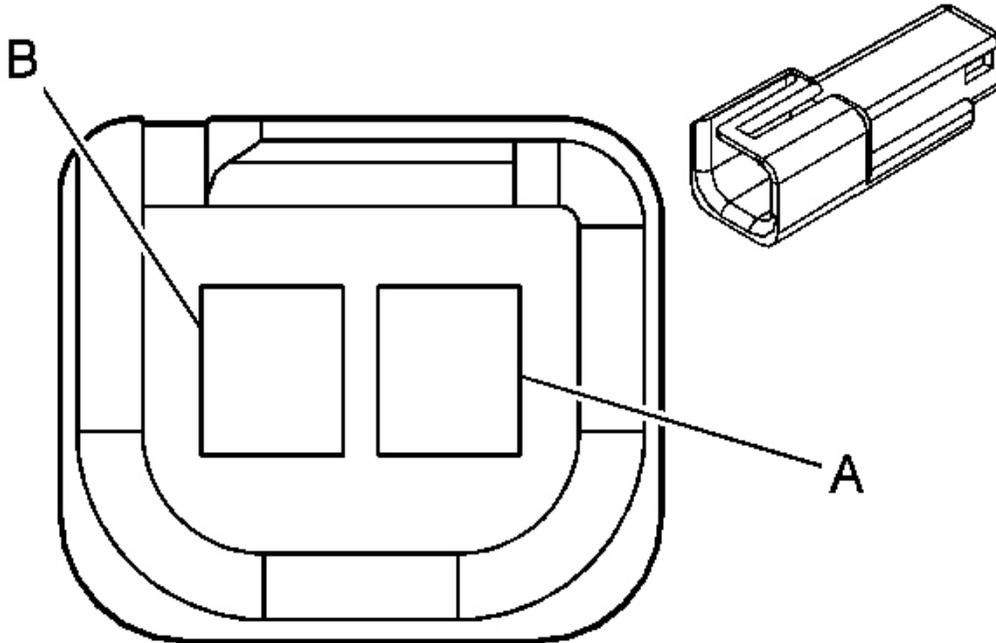


Fig. 49: Liftgate Object Sensor - Left (E61) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Liftgate Object Sensor - Left (E61) Connector Parts Information

Connector Part Information

- OEM: 12048457
- Service: 12085481
- Description: 2-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)

Liftgate Object Sensor - Left (E61) Connector Terminal Identification

Pin	Wire	Circuit No.	Function

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A	0.35 PU/WH	5801	Lift Gate Object Sensor Low Reference
B	0.35 PK/BK	5802	Lift Gate Object Sensor Signal

Liftgate Object Sensor - Right (E61)

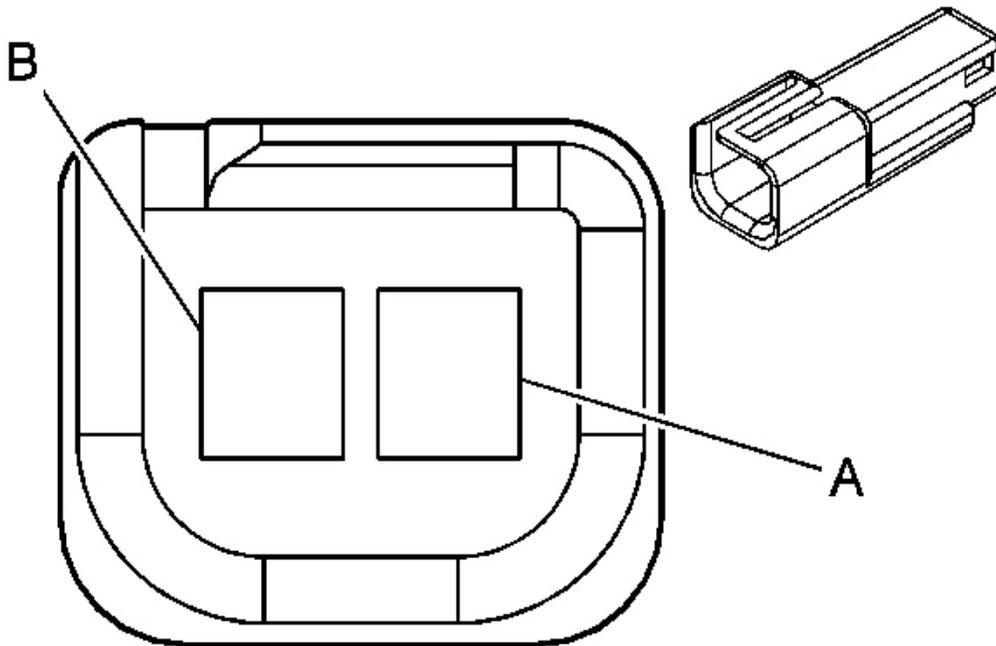


Fig. 50: Liftgate Object Sensor - Right (E61) Connector End View
Courtesy of GENERAL MOTORS CORP.

Liftgate Object Sensor - Right (E61) Connector Parts Information

Connector Part Information

- OEM: 12048457
- Service: 12085481
- Description: 2-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)

Liftgate Object Sensor - Right (E61) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
A	0.35 PK/BK	5802	Lift Gate Object Sensor Signal
B	0.35 WH/BK	6126	Lift Gate Object Sensor 2 Signal

Liftgate Switch - Exterior

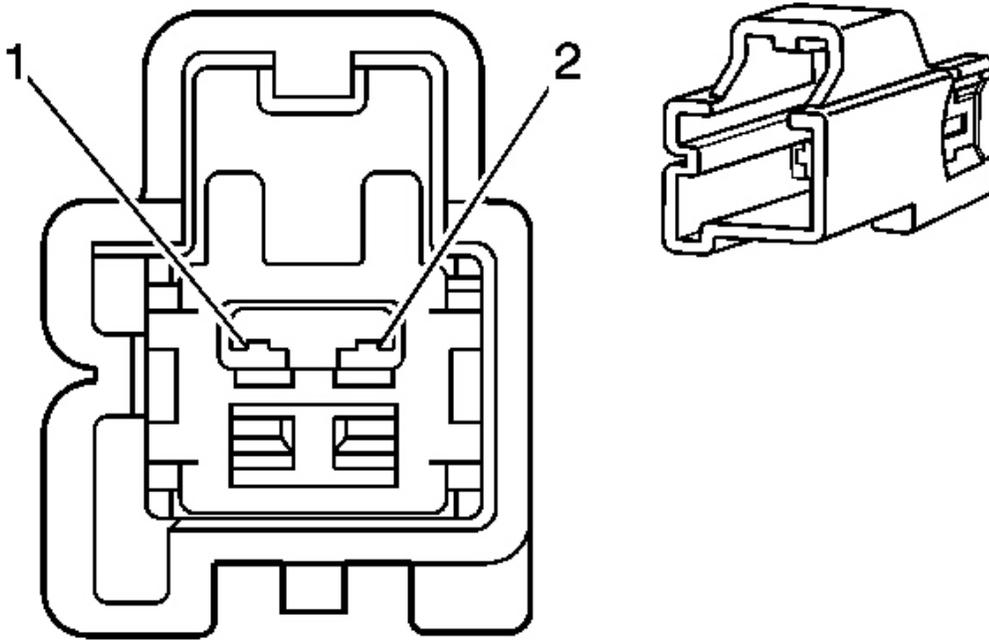


Fig. 51: Liftgate Switch - Exterior Connector End View
 Courtesy of GENERAL MOTORS CORP.

Connector Parts Information

Connector Part Information

- OEM: 7282-6444-60
- Service: See Catalog

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- Description: 2-Way M 1.5 Series (GN)

Terminal Part Information

- Terminal/Tray: 7114-4100-08/9
- Core/Insulation Crimp: E/C
- Release Tool/Test Probe: 15315247/J-35616-3 (GY)

Liftgate Switch - Exterior Connector Terminal Identification

Pin	Wire	Circuit No.	Function
1	0.35 GY	5797	Rear Closure Handle Switch Open Signal (E69)
1	0.35 GY/BK	6113	Rear Lift Gate Open/Close Switch Signal (E61)
2	0.35 BK	650	Ground (E69)
2	0.35 PU/WH	5801	Lift Gate Object Sensor Low Reference (E61)

Liftgate Switch - Interior (E61)

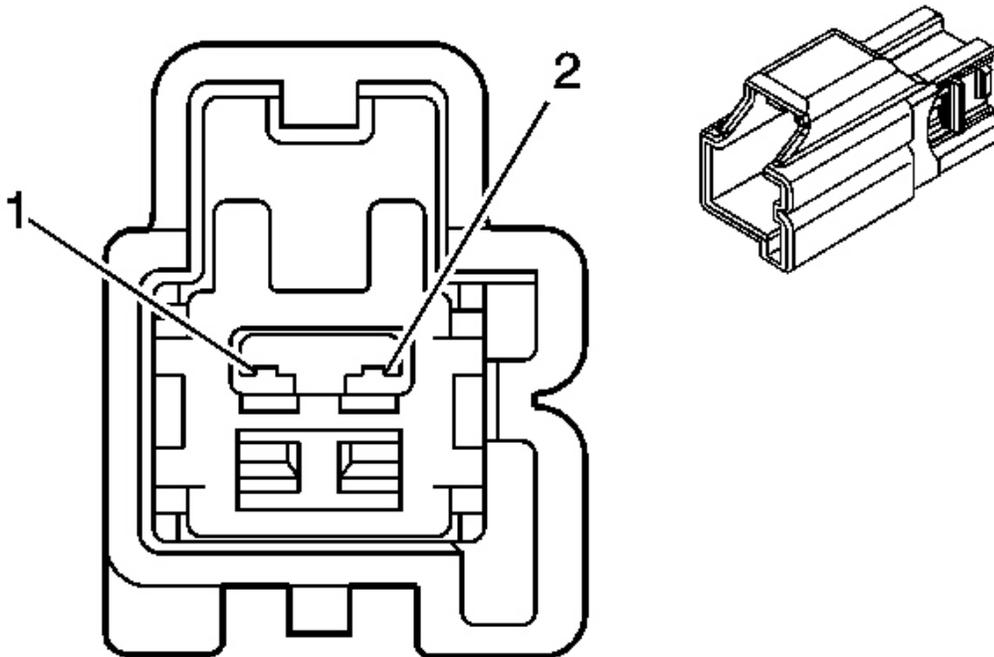


Fig. 52: Liftgate Switch - Interior (E61) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Liftgate Switch - Interior (E61) Connector Parts Information

Connector Part Information

- OEM: 7282-6443-40
- Service: See Catalog
- Description: 2-Way M 1.5 Series (L-GY)

Terminal Part Information

- Terminal/Tray: 7114-4100-08/9
- Core/Insulation Crimp: E/C
- Release Tool/Test Probe: 15315247/J-35616-3 (GY)

Liftgate Switch - Interior (E61) Connector Terminal Identification

Pin	Wire	Circuit No.	Function

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1	0.35 GY/BK	6113	Rear Lift Gate Open/Close Switch Signal
2	0.35 PU/WH	5801	Lift Gate Object Sensor Low Reference

Passenger Door Module (PDM) X1 (WDA+AXC/AXE)

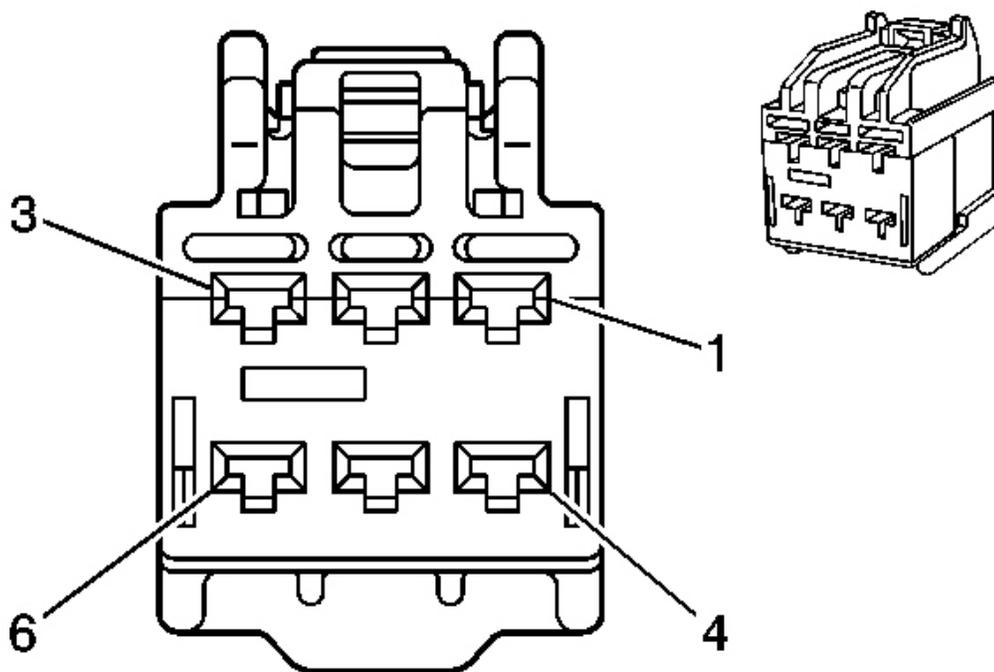


Fig. 53: Passenger Door Module (PDM) X1 (WDA+AXC/AXE) Connector End View
Courtesy of GENERAL MOTORS CORP.

Passenger Door Module (PDM) X1 (WDA+AXC/AXE) Connector Parts Information

Connector Part Information

- OEM: 6098-4607
- Service: 88988497
- Description: 6-Way F 2.8mm PBT (BK)

Terminal Part Information

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- Pins: 1- 3, 5
- Terminal/Tray: 8100-4445/22
- Core/Insulation Crimp: 4/4
- Release Tool/Test Probe: 15315247/J-35616-35 (VT)

- Pins: 4
- Terminal/Tray: 8100-4444/22
- Core/Insulation Crimp: 2/A
- Release Tool/Test Probe: 15315247/J-35616-35 (VT)

Passenger Door Module (PDM) X1 (WDA+AXC/AXE) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
1	2 BN	667	Power Window Motor Right Front Down Control (AXE)
2	2 RD/WH	3340	Battery Positive Voltage (AXE)
3	2 D-BU	666	Power Window Motor Right Front Up Control (AXE)
4	0.8 RD/WH	840	Battery Positive Voltage (A45/AXC/AXE)
5	2 BK	750	Ground (A45/AXC/AXE)
6	-	-	Not Used

Passenger Door Module (PDM) X1 (Z88+AXC/AXE)

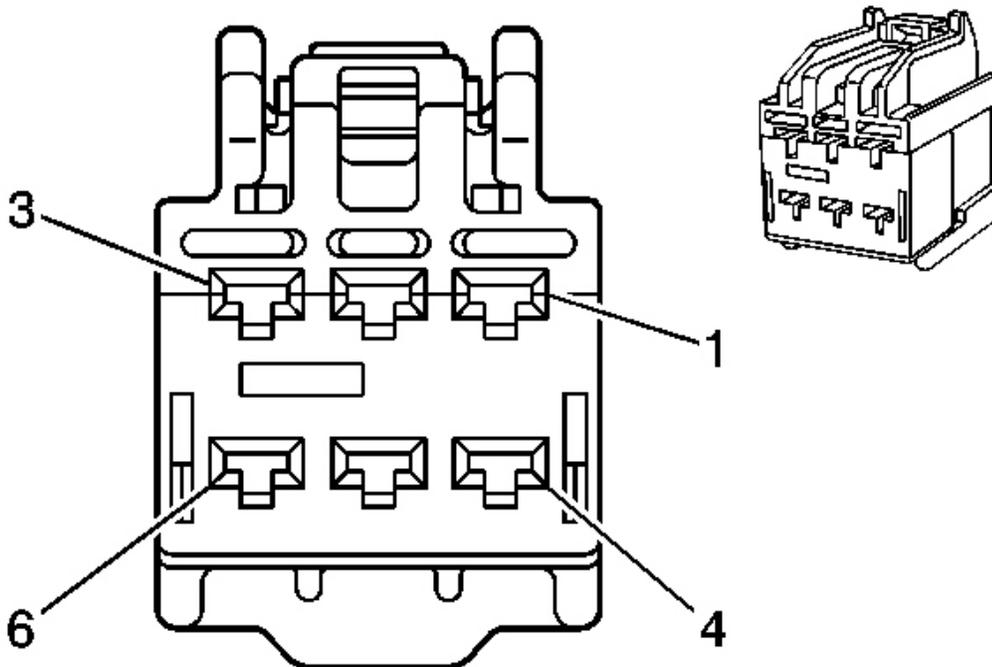


Fig. 54: Passenger Door Module (PDM) X1 (Z88+AXC/AXE) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Passenger Door Module (PDM) X1 (Z88+AXC/AXE) Connector Parts Information

Connector Part Information

- OEM: 6098-4607
- Service: 88988497
- Description: 6-Way F 2.8mm PBT (BK)

Terminal Part Information

- Pins: 1-3, 5
- Terminal/Tray: 8100-4445/22
- Core/Insulation Crimp: 4/4
- Release Tool/Test Probe: 15315247/J-35616-35 (VT)

- Pins: 4

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- Terminal/Tray: 8100-4444/22
- Core/Insulation Crimp: 2/A
- Release Tool/Test Probe: 15315247/J-35616-35 (VT)

Passenger Door Module (PDM) X1 (Z88+AXC/AXE) Connector Terminal Identification

Pin	Wire	Circuit No.	Function
1	2 BN	667	Power Window Motor Right Front Down Control (AXE)
2	2 RD/WH	3340	Battery Positive Voltage (AXE)
3	2 D-BU	666	Power Window Motor Right Front Up Control (AXE)
4	0.8 RD/WH	840	Battery Positive Voltage (A45/AXC/AXE)
5	2 BK	750	Ground (A45/AXC/AXE)
6	-	-	Not Used

Passenger Door Module (PDM) X2 (WDA+AXC/AXE)

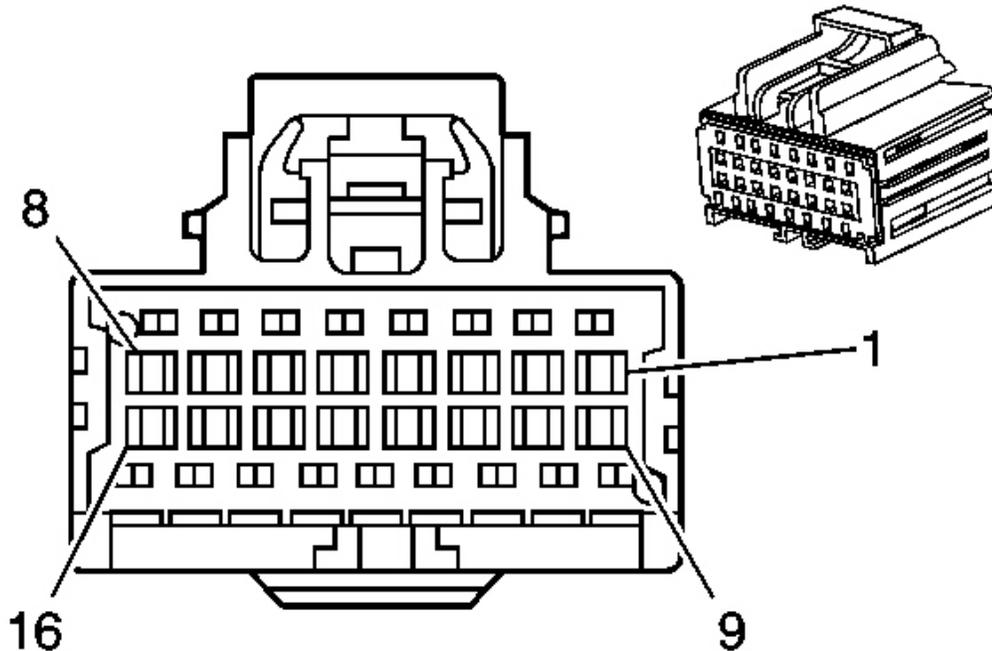


Fig. 55: Passenger Door Module (PDM) X2 (WDA+AXC/AXE) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Passenger Door Module (PDM) X2 (WDA+AXC/AXE) Connector Parts Information

Connector Part Information

- OEM: 7283-9078-80
- Service: See Catalog
- Description: 16-Way F Kaizen 0.64 Series (BN)

Terminal Part Information

- Terminal/Tray: 7116-4618-02/14
- Core/Insulation Crimp: P/P
- Release Tool/Test Probe: J-38125-215/J-35616-64B (L-BU)

Passenger Door Module (PDM) X2 (WDA+AXC/AXE) Connector Terminal Identification

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Pin	Wire	Circuit No.	Function
1-2	-	-	Not Used
3	0.35 D-BU	6133	Linear Interconnect Network Bus (AXC)
4	-	-	Not Used
5	0.5 YE	5943	Right Front Door Ajar Switch Low Reference (A45/AXC/AXE)
6	-	-	Not Used
7	0.5 GY	295	Door Lock Actuator Lock Control (Midgate Latch Release Control) (A45/AXC/AXE)
8	0.5 TN	294	Door Lock Actuator Unlock Control (A45/AXC/AXE)
9	0.35 D-GN	5060	Low Speed GMLAN Serial Data (A45/AXC/AXE)
10	-	-	Not Used
11	0.5 L-GN	1177	Door Open Switch Signal (A45/AXC/AXE)
12	-	-	Not Used
13	0.5 TN/WH	746	Right Front Door Ajar Switch Signal (A45/AXC/AXE)
14-16	-	-	Not Used

Passenger Door Module (PDM) X2 (Z88+AXC/AXE)

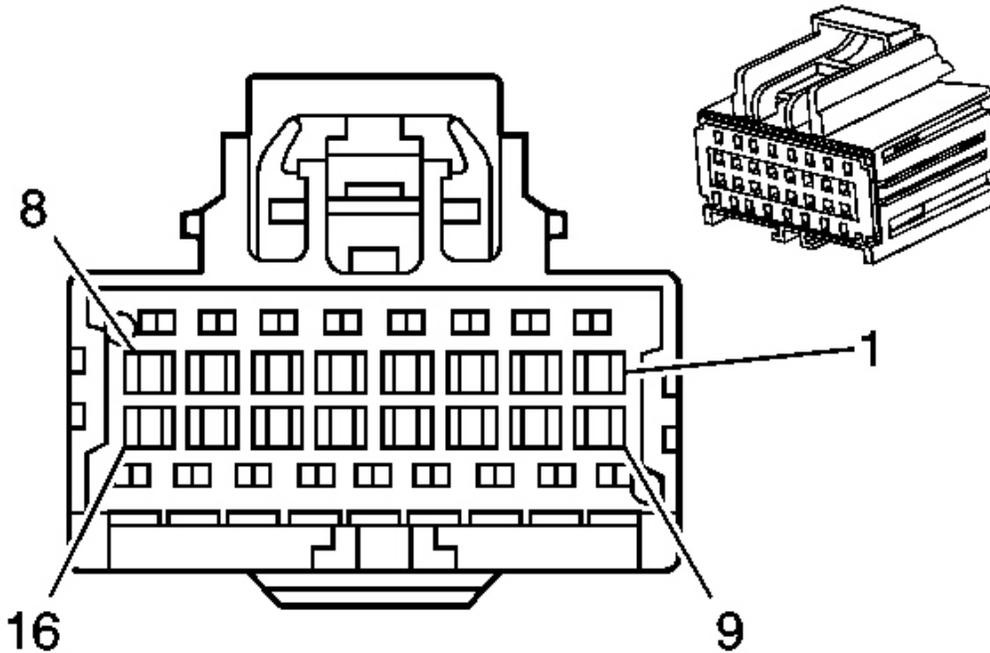


Fig. 56: Passenger Door Module (PDM) X2 (Z88+AXC/AXE) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Passenger Door Module (PDM) X2 (Z88+AXC/AXE) Connector Parts Information

Connector Part Information

- OEM: 7283-9078-80
- Service: See Catalog
- Description: 16-Way F Kaizen 0.64 Series (BN)

Terminal Part Information

- Terminal/Tray: 7116-4618-02/14
- Core/Insulation Crimp: P/P
- Release Tool/Test Probe: J-38125-215/J-35616-64B (L-BU)

Passenger Door Module (PDM) X2 (Z88+AXC/AXE) Connector Terminal Identification

Pin	Wire	Circuit No.	Function

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1-2	-	-	Not Used
3	0.35 D-BU	6133	Linear Interconnect Network Bus (AXC)
4	-	-	Not Used
5	0.5 YE	5943	Right Front Door Ajar Switch Low Reference (A45/AXC/AXE)
6	-	-	Not Used
7	0.5 GY	295	Door Lock Actuator Lock Control (Midgate Latch Release Control) (A45/AXC/AXE)
8	0.5 TN	294	Door Lock Actuator Unlock Control (A45/AXC/AXE)
9	0.35 D-GN	5060	Low Speed GMLAN Serial Data (A45/AXC/AXE)
10	-	-	Not Used
11	0.5 L-GN	1177	Door Open Switch Signal (A45/AXC/AXE)
12	-	-	Not Used
13	0.5 TN/WH	746	Right Front Door Ajar Switch Signal (A45/AXC/AXE)
14-16	-	-	Not Used

Passenger Door Module (PDM) X3 (WDA+AXC/AXE)

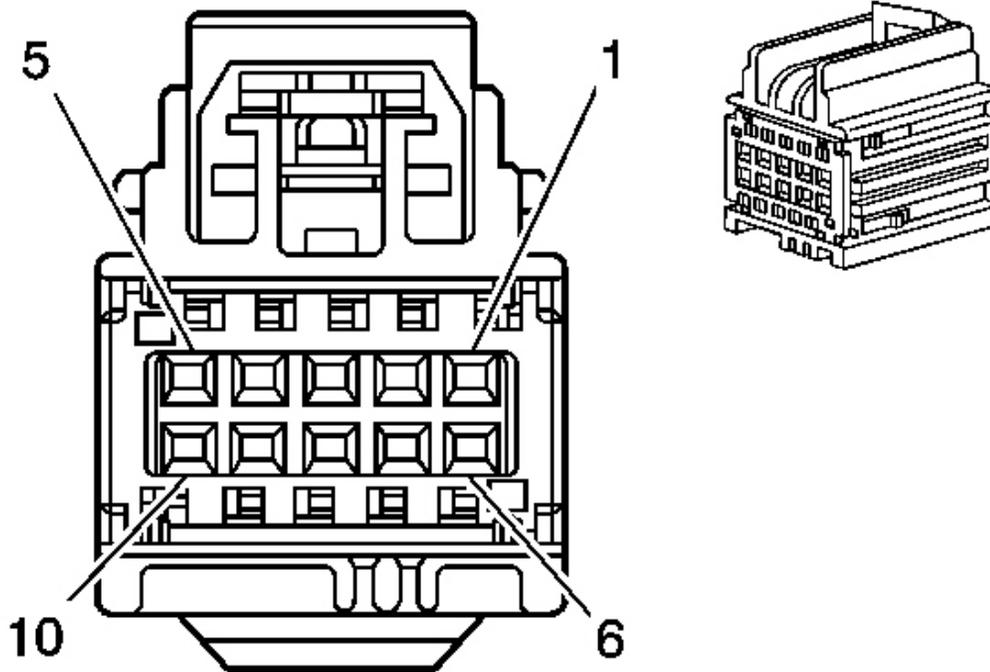


Fig. 57: Passenger Door Module (PDM) X3 (WDA+AXC/AXE) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Passenger Door Module (PDM) X3 (WDA+AXC/AXE) Connector Parts Information

Connector Part Information

- OEM: 7283-9040-30
- Service: See Catalog
- Description: 10-Way F YESC Kaizen Series (BK)

Terminal Part Information

- Terminal/Tray: 7116-4618-02/14
- Core/Insulation Crimp: P/P
- Release Tool/Test Probe: J-38125-215/J-35616-64B (L-BU)

Passenger Door Module (PDM) X3 (WDA+AXC/AXE) Connector Terminal Identification

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Pin	Wire	Circuit No.	Function
1	0.35 OG/BK	6162	Power Window Motor Right Front Up Control (A45+DNP/DS3)
2	0.35 GY/BK	6161	Outside Right Mirror Horizontal Position Control (A45+DNP/DS3)
3	0.5 D-GN	628	Passenger Mirror Heating Element Low Reference (A45+DNP/DS3)
4-5	-	-	Not Used
6	0.35 WH	7196	Outside Right Mirror Drive Motor Common (A45+DNP/DS3)
7	0.5 OG	2267	Mirror Heating Element Supply Voltage (A45+DNP/DS3)
8	0.35 PK/BK	5862	Passenger Side Object Detection LED Low Reference (UFT)
9-10	-	-	Not Used

Passenger Door Module (PDM) X3 (Z88+AXC/AXE)

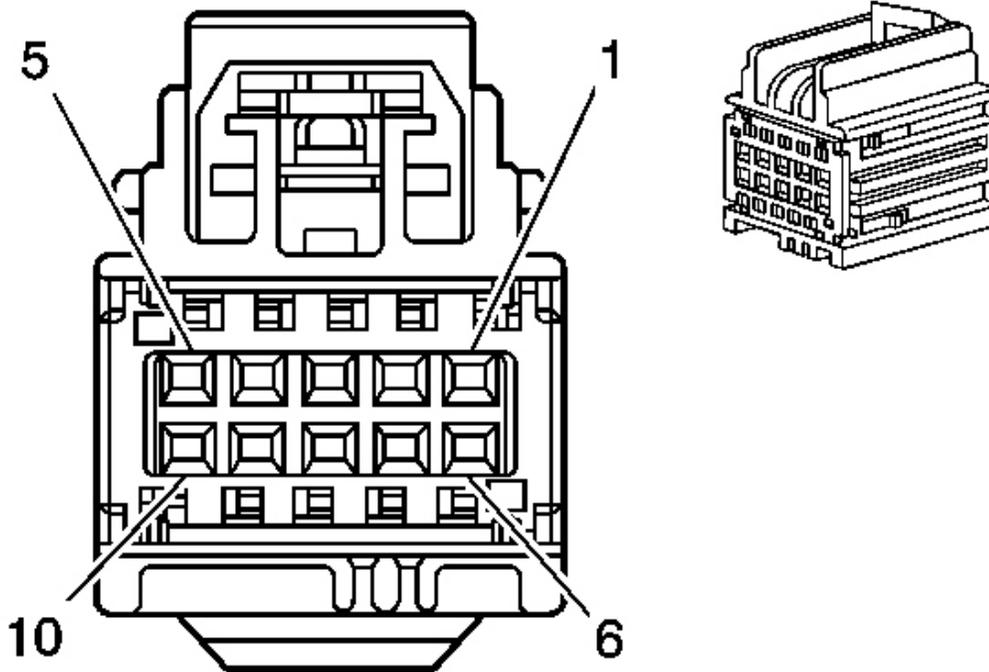


Fig. 58: Passenger Door Module (PDM) X3 (Z88+AXC/AXE) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Passenger Door Module (PDM) X3 (Z88+AXC/AXE) Connector Parts Information

Connector Part Information

- OEM: 7283-9040-30
- Service: See Catalog
- Description: 10-Way F YESC Kaizen Series (BK)

Terminal Part Information

- Terminal/Tray: 7116-4618-02/14
- Core/Insulation Crimp: P/P
- Release Tool/Test Probe: J-38125-215/J-35616-64B (L-BU)

Passenger Door Module (PDM) X3 (Z88+AXC/AXE) Connector Terminal Identification

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2007 ACCESSORIES & EQUIPMENT Vehicle Access - Outlook

Pin	Wire	Circuit No.	Function
1	0.35 OG/BK	6162	Power Window Motor Right Front Up Control (DNP)
2	0.35 GY/BK	6161	Outside Right Mirror Horizontal Position Control (DNP)
3	0.5 D-GN	628	Passenger Mirror Heating Element Low Reference (DNP)
4-5	-	-	Not Used
6	0.35 WH	7196	Outside Right Mirror Drive Motor Common (DNP)
7	0.5 OG	2267	Mirror Heating Element Supply Voltage (DNP)
8	0.35 PK/BK	5862	Passenger Side Object Detection LED Low Reference (UFT)
9-10	-	-	Not Used

Passenger Door Module (PDM) X4 (WDA+AXC/AXE)

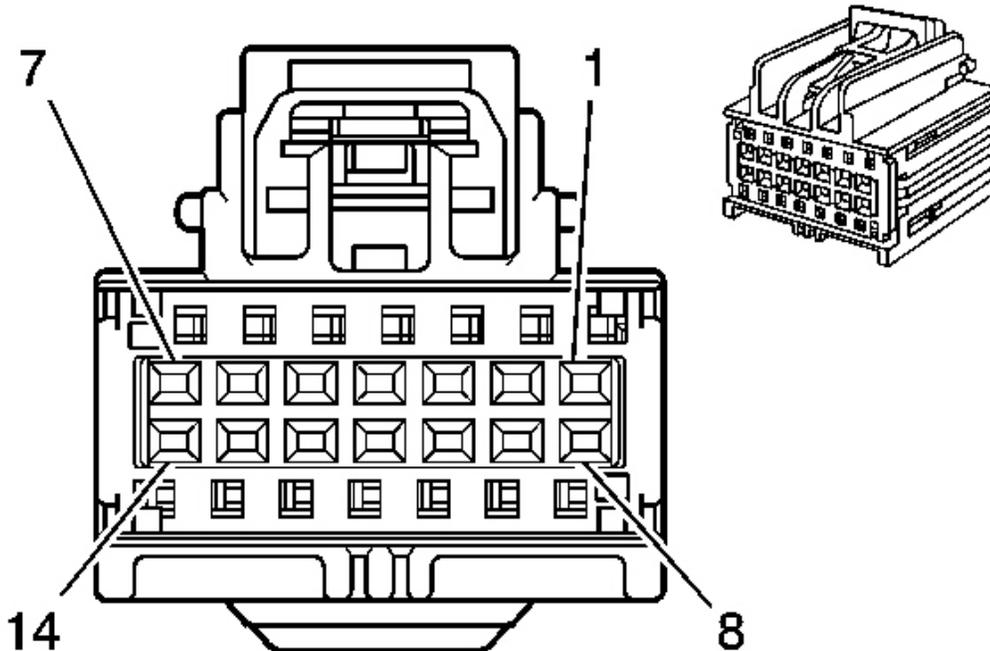


Fig. 59: Passenger Door Module (PDM) X4 (WDA+AXC/AXE) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Passenger Door Module (PDM) X4 (WDA+AXC/AXE) Connector Parts Information

Connector Part Information

- OEM: 7283-9065-40
- Service: See Catalog
- Description: 14-Way F Kaizen 0.64 Series (L-GY)

Terminal Part Information

- Terminal/Tray: 7116-4618-02/14
- Core/Insulation Crimp: P/P
- Release Tool/Test Probe: J-38125-215/J-35616-64B (L-BU)

Passenger Door Module (PDM) X4 (WDA+AXC/AXE) Connector Terminal Identification

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2007 Saturn Outlook XE

2007 ACCESSORIES & EQUIPMENT Vehicle Access - Outlook

Pin	Wire	Circuit No.	Function
1	0.35 WH/BK	6185	Passenger Heated Seat Medium Indicator Control (A45+KA1)
2	0.35 YE	1685	Passenger Heated Seat High Temperature Indicator Control (A45+KA1)
3-5	-	-	Not Used
6	0.35 D-BU	6180	Low Reference (A45+KA1)
7	0.35 GY	6182	Low Reference (A45+KA1)
8	-	-	Not Used
9	0.35 TN	1686	Passenger Heated Seat Low Temperature Indicator Control (A45+KA1)
10	0.35 BN	6179	5-Volt Reference (A45+KA1)
11	0.35 PU	6181	5-Volt Reference (A45+KA1)
12-14	-	-	Not Used

Passenger Door Module (PDM) X4 (Z88+AXC/AXE)

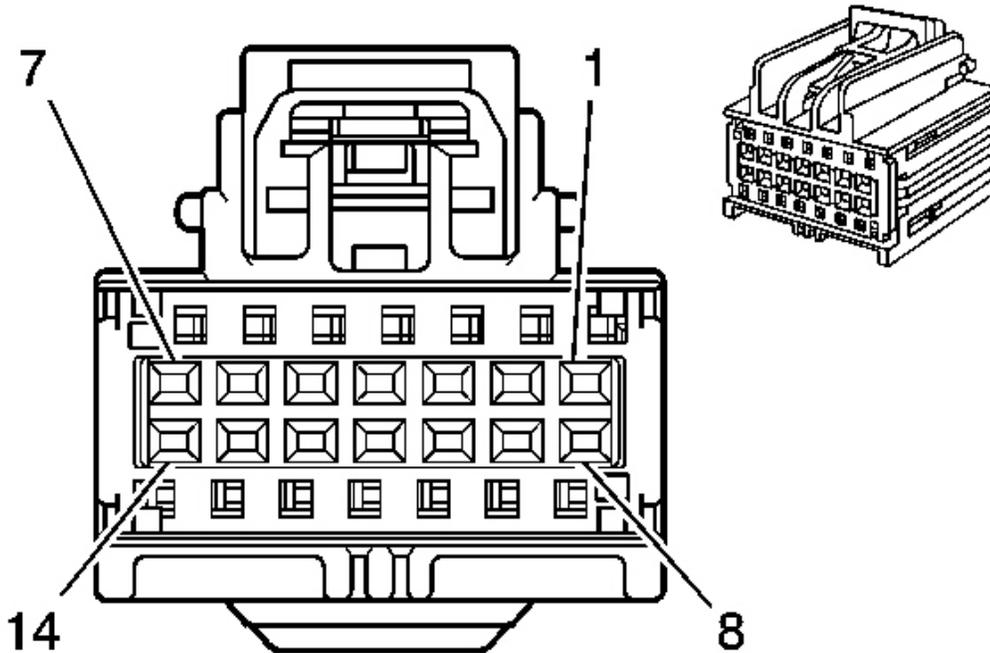


Fig. 60: Passenger Door Module (PDM) X4 (Z88+AXC/AXE) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Passenger Door Module (PDM) X4 (Z88+AXC/AXE) Connector Parts Information

Connector Part Information

- OEM: 7283-9065-40
- Service: See Catalog
- Description: 14-Way F Kaizen 0.64 Series (L-GY)

Terminal Part Information

- Terminal/Tray: 7116-4618-02/14
- Core/Insulation Crimp: P/P
- Release Tool/Test Probe: J-38125-215/J-35616-64B (L-BU)

Passenger Door Module (PDM) X4 (Z88+AXC/AXE) Connector Terminal Identification

Pin	Wire	Circuit No.	Function

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2007 ACCESSORIES & EQUIPMENT Vehicle Access - Outlook

1	0.35 WH/BK	6185	Passenger Heated Seat Medium Indicator Control (A45+KA1)
2	0.35 YE	1685	Passenger Heated Seat High Temperature Indicator Control (A45+KA1)
3-5	-	-	Not Used
6	0.35 PK/BK	6180	Low Reference (A45+KA1)
7	0.35 GY	6182	Low Reference (A45+KA1)
8	-	-	Not Used
9	0.35 TN	1686	Passenger Heated Seat Low Temperature Indicator Control (A45+KA1)
10	0.35 BN	6179	5-Volt Reference (A45+KA1)
11	0.35 PU	6181	5-Volt Reference (A45+KA1)
12-14	-	-	Not Used

Passenger Door Module (PDM) X5 (WDA+AXC/AXE)

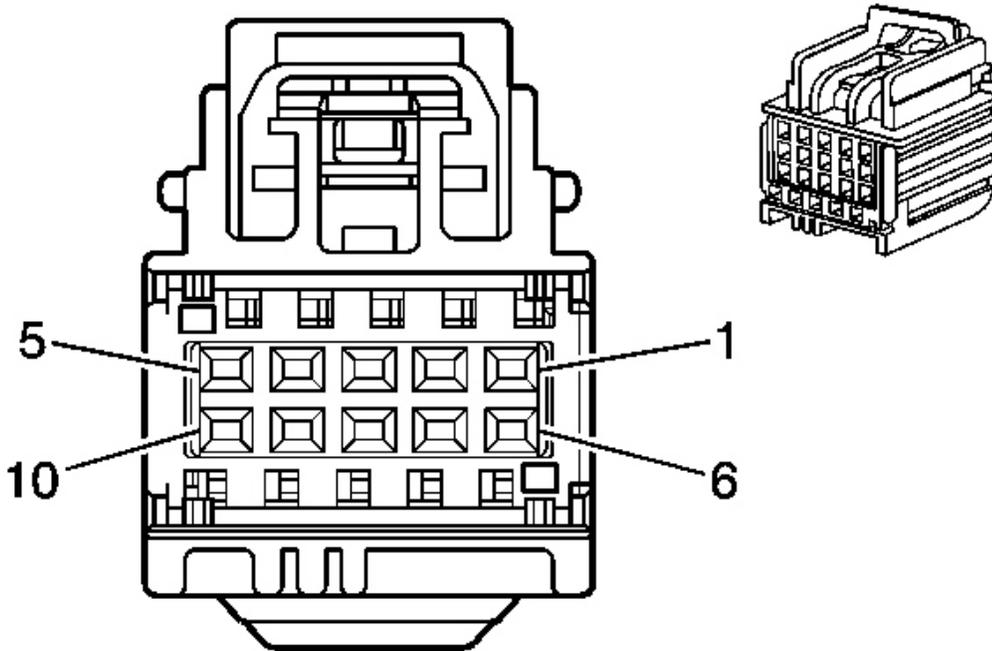


Fig. 61: Passenger Door Module (PDM) X5 (WDA+AXC/AXE) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Passenger Door Module (PDM) X5 (WDA+AXC/AXE) Connector Parts Information

Connector Part Information

- OEM: 7283-9045
- Service: See Catalog
- Description: 10-Way F 064 Series Unsealed (BK)

Terminal Part Information

- Terminal/Tray: 7116-4618-02/14
- Core/Insulation Crimp: P/P
- Release Tool/Test Probe: J-38125-215/J-35616-64B (L-BU)

Passenger Door Module (PDM) X5 (WDA+AXC/AXE) Connector Terminal Identification

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Pin	Wire	Circuit No.	Function
1	0.35 YE	6804	Driver Mirror Motor Down Control (DNP)
2	0.35 L-BU	6805	Right Extend Motor Retract/Unfold Control (DNP)
3	-	-	Not Used
4	0.35 BN	787	Passenger Mirror Vertical Position Sensor Signal (A45+DNP/DS3)
5	0.35 L-BU/BK	785	Passenger Mirror Horizontal Position Sensor Signal (A45+DNP/DS3)
6	-	-	Not Used
7	0.35 YE	674	5-Volt Reference (A45+DNP/DS3)
8	0.35 PK	5861	Passenger Side Object Detection LED Signal (UFT)
9	-	-	Not Used
10	0.35 L-GN	675	Low Reference (A45+DNP/DS3)

Passenger Door Module (PDM) X5 (Z88+AXC/AXE)

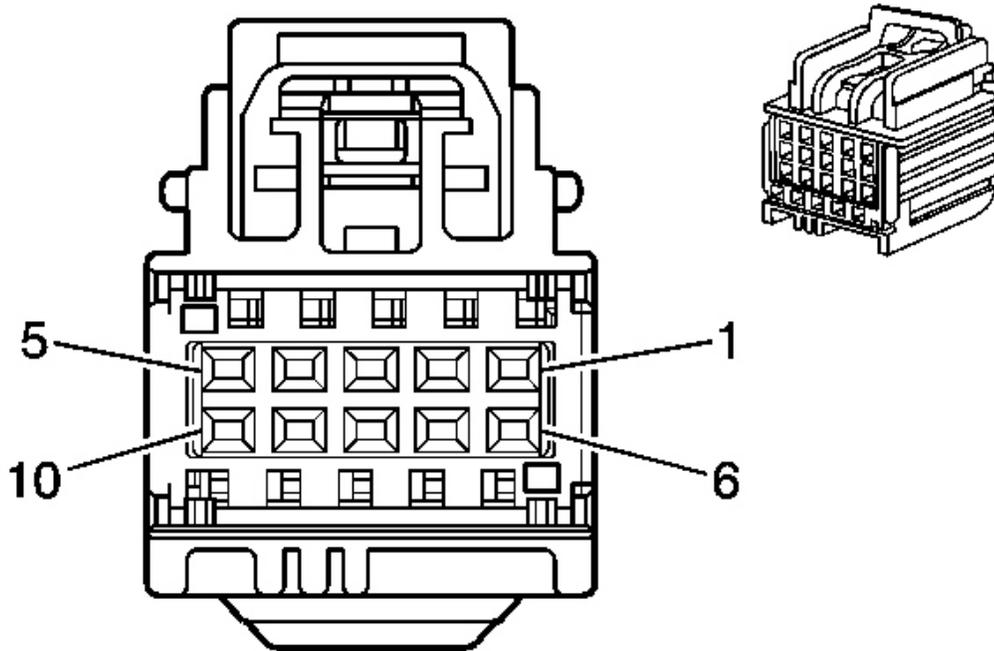


Fig. 62: Passenger Door Module (PDM) X5 (Z88+AXC/AXE) Connector End View
 Courtesy of GENERAL MOTORS CORP.

Passenger Door Module (PDM) X5 (Z88+AXC/AXE) Connector Parts Information

Connector Part Information

- OEM: 7283-9045
- Service: See Catalog
- Description: 10-Way F 064 Series Unsealed (BK)

Terminal Part Information

- Terminal/Tray: 7116-4618-02/14
- Core/Insulation Crimp: P/P
- Release Tool/Test Probe: J-38125-215/J-35616-64B (L-BU)

Passenger Door Module (PDM) X5 (Z88+AXC/AXE) Connector Terminal Identification

Pin	Wire	Circuit No.	Function

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1	0.35 YE	6804	Driver Mirror Motor Down Control (DNP)
2	0.35 L-BU	6805	Right Extend Motor Retract/Unfold Control (DNP)
3	-	-	Not Used
4	0.35 BN	787	Passenger Mirror Vertical Position Sensor Signal (DNP)
5	0.35 L-BU/BK	785	Passenger Mirror Horizontal Position Sensor Signal (DNP)
6	-	-	Not Used
7	0.35 YE	674	5-Volt Reference (DNP)
8	0.35 PK	5861	Passenger Side Object Detection LED Signal (UFT)
9	-	-	Not Used
10	0.35 L-GN	675	Low Reference (DNP)

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC CODE INDEX

DIAGNOSTIC CODE INDEX

DTC	Description
<u>DTC B1019</u>	System Configuration Error
<u>DTC B1023</u>	Integral Switch Performance
<u>DTC B153A</u>	Liftgate Latch Switch Signal Circuit
<u>DTC B153B</u>	Liftgate Open Switch Signal Circuit Short to Ground Or Open
<u>DTC B153E</u>	Liftgate Position Sensor Signal Circuit Short to Ground, Open Or Signal Invalid
<u>DTC B153F</u>	Liftgate Object Sensor Signal Circuit Voltage Above Or Below Threshold
<u>DTC B2494 (Manual Liftgate)</u>	Liftgate Handle Switch Circuit Short to Ground
<u>DTC B2494 (Power Liftgate)</u>	Liftgate Handle Switch Circuit Short to Ground
<u>DTC B2495 (Manual Liftgate)</u>	Liftgate Latch Control Circuit Short to Battery Or Ground
<u>DTC B2495 (Power Liftgate)</u>	Endgate/Liftgate Latch Control Circuit Short to Battery Or

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<u>Liftgate)</u>	Ground
<u>DTC B2730</u>	Interior Trunk/Hatch/Liftglass Release Sw Circuit
<u>DTC B2971</u>	Driver Door Key Switch Circuit
<u>DTC B3125, B3130 or B3135</u>	Left Front/Driver Door Only, Unlock Circuit
<u>DTC B3140, B3145, B3150 or B3155 (AXA)</u>	Driver Or PassengerUnlock Switch Circuit Short to Ground
<u>DTC B3265</u>	Trunk/Hatch/Liftglass Release Output Circuit
<u>DTC B396A</u>	Liftgate Motor Control Circuit Short to Battery, Ground Or Open
<u>DTC B396B</u>	Liftgate Motor Clurch Control Circuit Short to Battery, Ground Or Open

DIAGNOSTIC STARTING POINT - VEHICLE ACCESS

Begin the 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 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.

SCAN TOOL DATA DEFINITIONS

Data Display/Body Rear End

Endgate Handle Sw

The scan tool displays Active/Inactive. The scan tool displays the status of the endgate handle switch and the endgate close switch.

Endgate Lock Status

This parameter indicates the status of the endgate as either being Locked or Unlocked.

Endgate Release Cmd

The scan tool displays On/Off. The scan tool displays the commanded state of the release portion of the endgate latch.

Ext. Trunk/Liftglass Rel. Sw

The scan tool displays Active/Inactive. Active is displayed when the liftglass release switch is being pressed and Inactive is displayed when the liftgate release switch is not being pressed.

Int. Trunk/Liftglass Sw

The scan tool displays Active/Inactive. The scan tool displays the status of the interior liftglass release switch.

Liftgate Handle Sw

The scan tool displays Active/Inactive. The scan tool displays the status of the liftgate handle switch and the liftgate close switch.

Liftgate Lock Status

This parameter indicates the status of the liftgate as either being Locked or Unlocked.

Liftgate Release Cmd

The scan tool displays On/Off. The scan tool displays the commanded state of the release portion of the liftgate latch.

Liftglass Release Cmd

The scan tool displays On/Off. The scan tool displays the commanded state of the release portion of the liftglass latch.

Rear Cargo Lock Sw

The scan tool displays Active/Inactive. The vehicle liftgate lock switch inputs to the body control module (BCM), where a switch transition to the Lock position is displayed as Active.

Rear Cargo Unlock Sw

The scan tool displays Active/Inactive. The vehicle liftgate lock switch inputs to the BCM,

where a switch transition to the Unlock position is displayed as Active.

Rear Closure Cyl. Unlock Sw

This parameter indicates the current status of the liftgate cylinder unlock switch as being Active or Inactive.

Rear Closure Open Sw

The scan tool displays Active/Inactive. The scan tool displays the status of the liftgate open switch.

Rear Closure Ajar Sw

The scan tool displays Active/Inactive. The scan tool displays the state of the liftgate ajar switch as seen at the rear integration module.

Data Display/Doors**Door Lock Requestor**

This parameter represents the door lock function responsible for a door lock activation.

Drvr. Door Unlock Cmd

When the BCM sends a driver door unlock command to the driver unlock relay, the parameter will be On.

Left Rear Door Ajar Sw

The scan tool displays Door Closed/Door Ajar, the left rear door ajar switch input to the BCM, where an open door is displayed as Ajar.

Rear Doors Lock Cmd

This parameter indicates the commanded state of the rear door lock relay control circuit.

Rear Doors Unlock Cmd

This parameter indicates the commanded state of the rear door unlock relay control circuit.

Right Rear Door Ajar Sw

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This parameter indicates the current status of the door ajar switch input to the BCM.

Special Functions/Output Controls

Door Lock/Unlock

This test will lock and unlock the front door lock actuator.

Door Dead Bolt Lock/Unlock

This test will lock and unlock the front door dead bolt actuator.

Liftgate Open/Close Test

This test will open and close the power liftgate including unlatching and cinch-in the liftgate latch.

Liftgate Learn

This procedure will open the power liftgate including unlatching liftgate latch.

SCAN TOOL DATA LIST

Scan Tool Data List

Scan Tool Parameter	Data List	Units Displayed	Typical Data Value
Operating Conditions: Ignition ON/Engine OFF/Vehicle in PARK/All Doors Closed			
Door Lock Requestor	Doors	Auto Locks/Power Lock/Door Key Cyl./Rear Closure/Emergency/Keyless Entry/Passive Keyless/Remote/Delayed Lock/Relocking/Anti-Lockout/Exterior Sw.	Varies
Drv. Door Unlock Cmd	Doors	On/Off	Off
Endgate Handle Sw.	Rear End	Active/Inactive	Inactive
Endgate Lock Status	Rear End	Locked/Unlocked	Unlocked
Endgate Release Cmd.	Rear End	On/Off	Off
Ext. Trunk/Liftglass Rel. Sw.	Rear End	Active/Inactive	Inactive

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Int. Trunk/Liftglass Sw	Rear End	Active/Inactive	Inactive
Left Rear Door Ajar Sw.	Doors	Door Closed/Door Ajar	Door Closed
Liftgate Handle Sw	Rear End	Active/Inactive	Inactive
Liftgate Lock Status	Rear End	Locked/Unlocked	Unlocked
Liftgate Release Cmd	Rear End	On/Off	Off
Rear Cargo Lock Sw	Rear End	Active/Inactive	Inactive
Rear Cargo Unlock Sw	Rear End	Active/Inactive	Inactive
Rear Closure Ajar Sw	Rear End	Active/Inactive	Inactive
Rear Closure Cyl. Unlock Sw	Rear End	Active/Inactive	Inactive
Rear Closure Open Sw	Rear End	Active/Inactive	Inactive
Rear Doors Lock Cmd	Doors	On/Off	Off
Rear Doors Unlock Cmd	Doors	On/Off	Off
Right Rear Door Ajar Sw	Doors	Door Closed/Door Ajar	Door Closed

SCAN TOOL OUTPUT CONTROLS

Driver Door Module

Scan Tool Output Control	Additional Menu Selection(s)	Description
Door Lock/Unlock	Special Functions/Output Controls/Door Lock Test	This command will lock and unlock the driver door lock actuator
Door Dead Bolt Lock/Unlock	Special Functions/Output Controls/Door Lock Test	This command will lock and unlock the driver door dead bolt actuator

Passenger Door Module

Scan Tool Output Control	Additional Menu Selection(s)	Description
Door Lock/Unlock	Special Functions/Output Controls/Door Lock Test	This command will lock and unlock the passenger door lock actuator
	Special	

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Door Dead Bolt Lock/Unlock	Functions/Output Controls/Door Lock Test	This command will lock and unlock the passenger door dead bolt actuator
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Power Liftgate Control Module

Scan Tool Output Control	Additional Menu Selection(s)	Description
Liftgate Open/Close Test	Output Controls	This command will open and close the power liftgate including unlatching and cinch-in the liftgate latch
Liftgate Learn	Learn	This procedure will open the power liftgate including unlatching liftgate latch

Body Control Module

Scan Tool Output Control	Additional Menu Selection(s)	Description
Doors	Lock Rear Doors	This command will lock both rear door lock actuators
Doors	Unlock Rear Doors	This command will unlock both rear door lock actuators

DTC B1019

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 B1019

System Configuration Error

Circuit/System Description

When calibrating the liftgate position, the power liftgate control module (PLGM) is placed in a functional state to learn the liftgate travel limits. DTC B1019 will set automatically as an indicator that the system is in learn mode and not as a fault indicator. Once the travel limits are

learned by the PLGM, the PLGM will exit calibration mode and DTC B1019 will clear. If the PLGM does not exit learn mode, DTC B1019 will remain current and indicate a fault.

Conditions for Running the DTC

System voltage to the liftgate control module must be 9-16 volts.

Conditions for Setting the DTC

Whenever the liftgate control module is replaced or reprogrammed.

Conditions for Clearing the DTC

- The DTC will be current until the liftgate calibration procedure has been completed.
- When the calibration procedure has been completed the DTC will be a history status code.
- A history DTC will clear after 50 ignition cycles or with a scan tool using the clear DTCs function.

Diagnostic Aids

A new or reprogrammed control module will be in a locked state and will require an ignition cycle before the calibration procedure can be performed.

Reference Information

Schematic Reference

Release Systems Schematics

Connector End View Reference

Vehicle Access Connector End Views

Description and Operation

Rear Hatch/Gate Description and Operation

Electrical Information Reference

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

Scan Tool Reference

- **Scan Tool Data Definitions**
- **Scan Tool Data List**
- **Scan Tool Output Controls**

Circuit/System Testing

Perform the Liftgate Calibration Procedure. The liftgate module should learn the travel limits, exit the calibration mode and B1019 should clear.

- If the liftgate module does not exit learn mode after the calibration attempt, replace the liftgate module.

Repair Procedures

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

Liftgate Calibration Procedure

DTC B1023

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 B1023 00

Integral Switch Performance

Circuit/System Description

The driver door module (DDM) and front passenger door module (PDM) each contain switches that control power door lock and window functions. The DDM also contains the control switch for the power outside rear view mirrors. These switches are integrated within the door control modules and are not serviceable as separate components. The DDM and PDM monitor these switch inputs for internal faults and set DTC B1023 00 if any are detected.

Conditions for Running the DTC

Battery voltage must be between 9-16 volts.

Conditions for Setting the DTC

The DDM or PDM detects multiple inputs from a window or door lock switch.

Action Taken When the DTC Sets

The driver or passenger door module ignores inputs from the malfunctioning switch.

Conditions for Clearing the DTC

- The DTC will be current for as long as the fault is present.
- When the fault is no longer present, the DTC will be a history status code.
- A history DTC will clear after 50 ignition cycles or with a scan tool using the clear DTCs function.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics (AXA) or Door Lock/Indicator Schematics (AXC/AXE)

Connector End View Reference

- **Vehicle Access Connector End Views**
- **Data Communication Connector End Views**

Description and Operation

Power Door Locks Description and Operation (AXA) or Power Door Locks Description and Operation (AXC/AXE)

Electrical Information Reference

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

Scan Tool Reference

- **Scan Tool Data List**

- **Scan Tool Data Definitions**
- **Scan Tool Output Controls**

Circuit/System Verification

1. Ignition ON, verify the scan tool door switch parameters are OFF.
 - If not the specified value, replace the appropriate door module.
2. Clear all DTCs and operate the integrated switches at each door control module within the Conditions for Running the DTC.
 - If the DTC resets, replace the affected door module.

Repair Procedures

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

DTC B153A

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 B153A 00

Liftgate Latch Switch Signal Circuit

Diagnostic Fault Information

DTC B153A

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Liftgate Control Module B+	2	2	-	-
Liftgate Position Sensor 5V Reference Voltage	2	2	2	-
Full Open Signal	B153B 02	2	2	-
Liftgate Disable Signal	1, 2	1	1	-

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Liftgate Open Signal	1	1	1	-
Object Sensors Signal	B153F 03	2	B153F 07	-
Open/Close Switches Signal	B2494 02	1, 2	1, 2	-
Pawl Switch Signal	B153A 00	B153A 00	B153A 00	-
Position Sensor Signal 1	B153E 02	B153E 05	B153E 05	-
Position Sensor Signal 2	B153E 02	B153E 05	B153E 05	-
Ratchet Switch Signal	B153A 00	B153A 00	B153A 00	-
Sector Switch Signal	B153A 00	B153A 00	B153A 00	-
Disengage Clutch Control	B396B 02	B396B 04	B396B 01	-
Engage Clutch Control	B396B 02	B396B 04	B396B 01	-
Liftgate Latch Cinch Control	B2495 02	B2495 05	B2495 01	-
Liftgate Latch Release Control	B2495 02	B2495 05	B2495 01	-
Liftgate Motor Close Control	B396A 02	B396A 04	B396A 01	-
Liftgate Motor Open Control	B396A 02	B396A 04	B396A 01	-
Full Open Low Reference	-	2	2	-
Liftgate Switches Low Reference	-	1	1	-
Position Sensor Low Reference	-	2	2	-
I/P Switch Ground	-	1	1	-
Liftgate Control Module Ground	-	2	2	-
1. Liftgate Switch Malfunction 2. Liftgate Malfunction				

Circuit/System Description

The ratchet, pawl and sector switches are part of the liftgate latch assembly and are used by the power liftgate control module (PLGM) to determine the state of the latch during the process of latching or unlatching. The ratchet and pawl switches will be inactive when the primary and secondary latches are latched and the sector switch will be active during the power cinch

function. Each of the latch switch signal circuits are supplied battery voltage through a resistor and monitored within the PLGM. The latch switches share a common low reference circuit from the PLGM and when the switch contacts close the signal circuit goes low and the PLGM determines the switch to be active. The full open switch is a limit switch mounted on the gear motor assembly alongside the swing arm gear. The full open switch signal circuit is supplied battery voltage through a resistor and monitored within the PLGM. When the liftgate reaches the full open position, the switch signal circuit is closed to the low reference circuit and the signal circuit voltage goes low.

Conditions for Running the DTC

System voltage to the liftgate control module must be 9-16 volts.

Conditions for Setting the DTC

Any incorrect combination of the following switch inputs:

- Ratchet switch
- Pawl switch
- Sector switch

Action Taken When the DTC Sets

- Power open will be disabled.
- The latch may be inoperative or not function normally.

Conditions for Clearing the DTC

- The DTC will be current for as long as the fault is present.
- When the fault is no longer present, the DTC will be a history status code.

Diagnostic Aids

Whenever the PLGM loses power or is disconnected, the ignition must be cycled OFF then ON.

Reference Information**Schematic Reference****Release Systems Schematics****Connector End View Reference**

Vehicle Access Connector End Views

Description and Operation

Rear Hatch/Gate Description and Operation

Electrical Information Reference

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

Scan Tool Reference

- Scan Tool Data List
- Scan Tool Data Definitions
- Scan Tool Output Controls

Circuit/System Verification

1. Ignition ON, observe the scan tool Pawl Sw. parameter while opening and closing the liftgate. The reading should change between ACTIVE and INACTIVE.
2. Observe the scan tool Ratchet Sw. parameter while opening and closing the liftgate. The reading should change between ACTIVE and INACTIVE.
3. Observe the scan tool Sector Sw. parameter while opening and closing the liftgate. The reading should change between ACTIVE and INACTIVE.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the liftgate latch assembly.
2. Ignition OFF, test for less than 1.0 ohm of resistance between the low reference circuit terminal 2 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 PLGM.
3. Ignition ON, verify the scan tool Pawl Sw. parameter is INACTIVE.
 - If not the specified value, test the signal circuit terminal 5 for a short to ground. If the circuit tests normal, replace the PLGM.
4. Ignition ON, verify the scan tool Ratchet Sw. parameter is INACTIVE.

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- If not the specified value, test the signal circuit terminal 6 for a short to ground. If the circuit tests normal, replace the PLGM.
- 5. Ignition ON, verify the scan tool Sector Sw. parameter is INACTIVE.
 - If not the specified value, test the signal circuit terminal 4 for a short to ground. If the circuit tests normal, replace the PLGM.
- 6. Install a 3A fused jumper wire between the signal circuit terminal 5 and low reference circuit terminal 2. Verify the scan tool Pawl Sw. parameter is ACTIVE.
 - If not the specified value, test the signal circuit terminal 5 for a short to voltage or an open/high resistance. If the circuit tests normal, replace the PLGM.
- 7. Install a 3A fused jumper wire between the signal circuit terminal 6 and low reference circuit terminal 2. Verify the scan tool Ratchet Sw. parameter is ACTIVE.
 - If not the specified value, test the signal circuit terminal 6 for a short to voltage or an open/high resistance. If the circuit tests normal, replace the PLGM.
- 8. Install a 3A fused jumper wire between the signal circuit terminal 4 and low reference circuit terminal 2. Verify the scan tool Sector Sw. parameter is ACTIVE.
 - If not the specified value, test the signal circuit terminal 4 for a short to voltage or an open/high resistance. If the circuit tests normal, replace the PLGM.
- 9. If all circuits test normal, test or replace the liftgate latch assembly.

Repair Procedures

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

- **Control Module References** for BCM replacement, setup and programming
- **Liftgate Actuator Replacement**
- **Liftgate Calibration Procedure**

DTC B153B

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 B153B 02

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Liftgate Open Switch Signal Circuit Short to Ground

Diagnostic Fault Information

DTC B153B

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Liftgate Control Module B+	2	2	-	-
Liftgate Position Sensor 5V Reference Voltage	2	2	2	-
Full Open Signal	B153B 02	2	2	-
Liftgate Disable Signal	1, 2	1	1	-
Liftgate Open Signal	1	1	1	-
Object Sensors Signal	B153F 03	2	B153F 07	-
Open/Close Switches Signal	B2494 02	1, 2	1, 2	-
Pawl Switch Signal	B153A 00	B153A 00	B153A 00	-
Position Sensor Signal 1	B153E 02	B153E 05	B153E 05	-
Position Sensor Signal 2	B153E 02	B153E 05	B153E 05	-
Ratchet Switch Signal	B153A 00	B153A 00	B153A 00	-
Sector Switch Signal	B153A 00	B153A 00	B153A 00	-
Disengage Clutch Control	B396B 02	B396B 04	B396B 01	-
Engage Clutch Control	B396B 02	B396B 04	B396B 01	-
Liftgate Latch Cinch Control	B2495 02	B2495 05	B2495 01	-
Liftgate Latch Release Control	B2495 02	B2495 05	B2495 01	-
Liftgate Motor Close Control	B396A 02	B396A 04	B396A 01	-
Liftgate Motor Open Control	B396A 02	B396A 04	B396A 01	-
Full Open Low Reference	-	2	2	-
Liftgate Switches Low Reference	-	1	1	-
Position Sensor Low Reference	-	2	2	-
I/P Switch Ground	-	1	1	-
Liftgate Control Module Ground	-	2	2	-
1. Liftgate Switch Malfunction 2. Liftgate Malfunction				

Circuit/System Description

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The full open switch is part of the gear motor assembly and will close and become active when the liftgate reaches the full open position. The full open switch signal circuit is supplied battery voltage through a resistor and monitored within the liftgate control module. The power liftgate control module (PLGM) provides a low reference circuit and when the switch contacts close, the signal circuit goes low and the PLGM determines the switch to be active.

Conditions for Running the DTC

- System voltage to the liftgate control module must be 9-16 volts
- Power open or close operation is attempted

Conditions for Setting the DTC

The PLGM detects a short to ground in the full open switch signal circuit.

Action Taken When the DTC Sets

The power liftgate system will be disabled.

Conditions for Clearing the DTC

- The DTC will be current for as long as the fault is present.
- When the fault is no longer present, the DTC will be a history status code.

Reference Information

Schematic Reference

Release Systems Schematics

Connector End View Reference

Vehicle Access Connector End Views

Description and Operation

Rear Hatch/Gate Description and Operation

Electrical Information Reference

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

- **Wiring Repairs**

Scan Tool Reference

- **Scan Tool Data List**
- **Scan Tool Data Definitions**
- **Scan Tool Output Controls**

Circuit/System Testing

1. Ignition OFF, disconnect the X3 harness connector at the PLGM.
2. Ignition ON, verify the scan tool Full Open Sw. parameter is INACTIVE.
 - If not the specified value, replace the PLGM
3. Reconnect the X3 harness connector at the PLGM.
4. Open the liftgate and verify the scan tool Full Open Sw. parameter is ACTIVE.
 - If not the specified value, test the signal circuit terminal 5 for a short to voltage or an open/high resistance. If the circuit tests normal, test the low reference circuit terminal 6 for an open/high resistance. If the circuits tests normal, test or replace the liftgate motor assembly.
5. Close the liftgate and verify the scan tool Full Open Sw. parameter is INACTIVE.
 - If not the specified value, test the signal circuit terminal 5 for a short to ground. If the circuit tests normal, test or replace the liftgate motor assembly.
6. If all circuits test normal, replace the PLGM.

Repair Procedures

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

Control Module References for BCM replacement, setup and programming

DTC B153E

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

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DTC B153E 02

Liftgate Position Sensor Signal Circuit Short to Ground

DTC B153E 05

Liftgate Position Sensor Signal Circuit Short to Battery or Open

Diagnostic Fault Information

DTC B153E

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Liftgate Control Module B+	2	2	-	-
Liftgate Position Sensor 5V Reference Voltage	2	2	2	-
Full Open Signal	B153B 02	2	2	-
Liftgate Disable Signal	1, 2	1	1	-
Liftgate Open Signal	1	1	1	-
Object Sensors Signal	B153F 03	2	B153F 07	-
Open/Close Switches Signal	B2494 02	1, 2	1, 2	-
Pawl Switch Signal	B153A 00	B153A 00	B153A 00	-
Position Sensor Signal 1	B153E 02	B153E 05	B153E 05	-
Position Sensor Signal 2	B153E 02	B153E 05	B153E 05	-
Ratchet Switch Signal	B153A 00	B153A 00	B153A 00	-
Sector Switch Signal	B153A 00	B153A 00	B153A 00	-
Disengage Clutch Control	B396B 02	B396B 04	B396B 01	-
Engage Clutch Control	B396B 02	B396B 04	B396B 01	-
Liftgate Latch Cinch Control	B2495 02	B2495 05	B2495 01	-
Liftgate Latch Release Control	B2495 02	B2495 05	B2495 01	-
Liftgate Motor Close Control	B396A 02	B396A 04	B396A 01	-
Liftgate Motor Open				

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Control	B396A 02	B396A 04	B396A 01	-
Full Open Low Reference	-	2	2	-
Liftgate Switches Low Reference	-	1	1	-
Position Sensor Low Reference	-	2	2	-
I/P Switch Ground	-	1	1	-
Liftgate Control Module Ground	-	2	2	-
1. Liftgate Switch Malfunction 2. Liftgate Malfunction				

Circuit/System Description

The power liftgate control module (PLGM) continuously monitors power liftgate operation and calculates its location and direction of travel using 2 Hall effect sensors that are part of the gear motor assembly. The Hall effect sensors are 5-volt 3-wire sensors and are supplied with a 5-volt power, ground and signal circuits from the PLGM. The Hall effect sensor signal circuits are referenced from voltage within the PLGM and pulsed low by the Hall effect sensors.

Conditions for Running the DTC

System voltage to the liftgate control module must be 9-16 volts.

Conditions for Setting the DTC**B153E 02**

The PLGM detects a short to ground in the liftgate motor assembly position sensor circuit

B153E 05

The PLGM detects a short to voltage or an open/high resistance in the liftgate motor assembly position sensor circuit.

Action Taken When the DTC Sets

The power liftgate system will be disabled.

Conditions for Clearing the DTC

- The DTC will be current for as long as the fault is present.
- When the fault is no longer present, the DTC will be a history status code.

Reference Information

Schematic Reference

Release Systems Schematics

Connector End View Reference

Vehicle Access Connector End Views

Description and Operation

Rear Hatch/Gate Description and Operation

Electrical Information Reference

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

Scan Tool Reference

- **Scan Tool Data List**
- **Scan Tool Data Definitions**
- **Scan Tool Output Controls**

Circuit/System Testing

1. Ignition ON, observe the voltage between the sensor 1 terminal 9 and ground while manually opening and closing the liftgate. The voltage should vary while opening and closing the liftgate.
 - If the voltage does not vary, check the sensor 1 signal circuit terminal 9 for a short to ground, open/high resistance or a short to voltage.
2. Observe the voltage between the sensor 2 terminal 10 and ground while manually opening and closing the liftgate. The voltage should vary while opening and closing the liftgate.
 - If the voltage does not vary, check the sensor 2 signal circuit terminal 10 for a short to ground, open/high resistance or a short to voltage. If the circuit tests normal, replace

the PLGM.

3. If all circuits test normal, replace the liftgate motor assembly.

Repair Procedures

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

Control Module References for BCM replacement, setup and programming

DTC B153F

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 B153F 03

Liftgate Object Sensor Signal Circuit Voltage Below Threshold

DTC B153F 07

Liftgate Object Sensor Signal Circuit Voltage Above Threshold

Diagnostic Fault Information

DTC B153F

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Liftgate Control Module B+	2	2	-	-
Liftgate Position Sensor 5V Reference Voltage	2	2	2	-
Full Open Signal	B153B 02	2	2	-
Liftgate Disable Signal	1, 2	1	1	-
Liftgate Open Signal	1	1	1	-
Object Sensors Signal	B153F 03	2	B153F 07	-

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Open/Close Switches Signal	B2494 02	1, 2	1, 2	-
Pawl Switch Signal	B153A 00	B153A 00	B153A 00	-
Position Sensor Signal 1	B153E 02	B153E 05	B153E 05	-
Position Sensor Signal 2	B153E 02	B153E 05	B153E 05	-
Ratchet Switch Signal	B153A 00	B153A 00	B153A 00	-
Sector Switch Signal	B153A 00	B153A 00	B153A 00	-
Disengage Clutch Control	B396B 02	B396B 04	B396B 01	-
Engage Clutch Control	B396B 02	B396B 04	B396B 01	-
Liftgate Latch Cinch Control	B2495 02	B2495 05	B2495 01	-
Liftgate Latch Release Control	B2495 02	B2495 05	B2495 01	-
Liftgate Motor Close Control	B396A 02	B396A 04	B396A 01	-
Liftgate Motor Open Control	B396A 02	B396A 04	B396A 01	-
Full Open Low Reference	-	2	2	-
Liftgate Switches Low Reference	-	1	1	-
Position Sensor Low Reference	-	2	2	-
I/P Switch Ground	-	1	1	-
Liftgate Control Module Ground	-	2	2	-
1. Liftgate Switch Malfunction 2. Liftgate Malfunction				

Circuit/System Description

The liftgate object sensor uses two tape switches embedded in the liftgate opening weatherstrip to detect any foreign objects in the path of the liftgate. When pressure is applied to the weatherstrip, the tape switch is closed signaling the power liftgate module (PLGM) that an object is in the path of the liftgate. The PLGM will reverse the direction of the liftgate motor should this occur.

The 2 tape switches are placed in series between the liftgate object sensor signal circuit and the

liftgate object low reference circuit. Each object sensor has a resistor as well as a switch. The resistors enable the PLGM to perform diagnostic functions on the circuits. When both switches are open, voltage supplied by the PLGM passes through the resistors and supplies the PLGM with a reference voltage. If an object is in the path of the moving liftgate, the affected switch would close. The closing of the switch would bypass the resistor and change the reference voltage seen by the PLGM, indicating that one of the switches is closed and an object has been detected.

Conditions for Running the DTC

System voltage to the PLGM must be 9-16 volts.

Conditions for Setting the DTC**B153F 03**

When the PLGM detects a low voltage in the liftgate tape switch signal circuit.

B153F 07

When the PLGM detects high voltage in the liftgate tape switch signal circuit.

Action Taken When the DTC Sets

The power liftgate will be inoperative until the conditions for setting the DTC are no longer present. If the liftgate is in motion prior to the DTC setting, the liftgate will close and immediately re-open.

Conditions for Clearing the DTC

- The DTC will be current for as long as the fault is present.
- When the fault is no longer present, the DTC will be a history status code.
- A history DTC will clear after 50 ignition cycles or with a scan tool using the clear DTCs function.

Diagnostic Aids

Whenever the PLGM is disconnected or loses power, the ignition must be cycled OFF then ON.

Reference Information**Schematic Reference****Release Systems Schematics**

Connector End View Reference

Vehicle Access Connector End Views

Description and Operation

Rear Hatch/Gate Description and Operation

Electrical Information Reference

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

Scan Tool Reference

- **Scan Tool Data Definitions**
- **Scan Tool Data List**
- **Scan Tool Output Controls**

Circuit/System Testing

1. Ignition OFF, disconnect the harness connectors at the left and right liftgate tape switches.
2. Ignition OFF, test for less than 1 ohm of resistance between the low reference circuit terminal B and ground at the left liftgate tape switch harness connector.
 - If greater than the specified range, test the low reference circuit for an open/high resistance. If the circuit tests normal, replace the PLGM.
3. Ignition ON, test for 5 volts between the signal circuit terminal A and ground at the right liftgate tape switch harness connector.
 - If less than the specified range, test the signal circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the PLGM.
4. Ignition OFF, disconnect the C1 harness connector at the PLGM.
5. Ignition ON, verify that a test lamp does not illuminate between the signal circuit terminal A and ground.
 - If the test lamp illuminates, test the signal circuit for a short to voltage.
6. If all circuits test normal, test or replace the affected liftgate tape switch.

Component Testing

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1. Ignition OFF, disconnect the harness connector at the right liftgate tape switch.
2. Test for 10K ohms of resistance between the signal terminal A and the low reference terminal B.
 - If not within the specified range, replace the right liftgate tape switch.
3. Disconnect the harness connector at the left liftgate tape switch.
4. Test for 10K ohms of resistance between the signal terminal A and the low reference terminal B.
 - If resistance is not within the specified range, replace the left liftgate tape switch.

Repair Procedures

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

- **Control Module References** for BCM replacement, setup and programming
- **Liftgate Side Upper Sensor Replacement**

DTC B2494 (MANUAL LIFTGATE)

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 B2494 02

Liftgate Handle Switch Circuit Short to Ground

Diagnostic Fault Information

DTC B2494 (Manual Liftgate)

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
I/P Fuse Block B+	2	2	-	-
Liftgate Release Switch Signal	B2494	1	-	-
Liftgate Relay Low	-	2	2	-

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Reference				
Liftgate Relay Coil Control	B3265	2	-	-
Liftgate Latch Control	2	2	2	-
Liftgate Latch Ground	-	2	2	-
Liftgate Release Switch Ground	-	1	1	-
1. Liftgate Release Switch Inoperative 2. Liftgate Release Inoperative				

Circuit/System Description

The liftgate release switch is an input to the body control module (BCM). The BCM supplies battery voltage to the signal circuit and when the release switch is activated the signal circuit voltage goes low. The BCM controls the liftgate release actuator through the liftgate latch release relay. When the release switch signal is activated, the BCM enables the liftgate latch release relay by applying battery voltage to the liftgate latch release relay supply circuit and the relay is energized when the BCM grounds the liftgate latch release relay control circuit. When the relay is energized battery voltage is supplied to the liftgate release actuator through the liftgate release actuator control circuit.

Conditions for Running the DTC

System voltage to the PLGM must be 9-16 volts.

Conditions for Setting the DTC

The Liftgate Release Switch signal circuit is active for longer than 10 minutes.

Action Taken When the DTC Sets

The liftgate open and close functions from the liftgate switch will be inoperative.

Conditions for Clearing the DTC

- The DTC will be current for as long as the fault is present.
- When the fault is no longer present, the DTC will be a history status code.
- A history DTC will clear after 50 ignition cycles or with a scan tool using the clear DTCs function.

Reference Information

Schematic Reference

Release Systems Schematics

Connector End View Reference

Vehicle Access Connector End Views

Description and Operation

Rear Hatch/Gate Description and Operation

Electrical Information Reference

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

Scan Tool Reference

- **Scan Tool Data Definitions**
- **Scan Tool Data List**
- **Scan Tool Output Controls**

Circuit/System Verification

Ignition ON, observe the Liftgate Release Sw parameter while pressing the Liftgate Release Switch. The reading should change between Active and Inactive.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the Liftgate Release switch.
2. Ignition ON, verify the scan tool Liftgate Release is Inactive.
 - If not the specified value, test the signal circuit terminal for a short to ground. If the circuit tests normal, replace the BCM.
3. If all circuits test normal, test or replace the Liftgate Release switch.

Component Testing

1. Ignition OFF, disconnect the harness connector at the Exterior Liftgate Release switch.
2. Test for infinite resistance between the signal terminal 1 and the ground circuit terminal 2

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with the switch in the open position.

- If not the specified value, replace the Liftgate Release switch.

3. Test for less than 2.0 ohms between the signal terminal 1 and the ground circuit terminal 2 with the switch in the closed position.

- If greater than the specified range, replace the Exterior Liftgate Release switch.

Repair Procedures

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

Control Module References for BCM replacement, setup and programming

DTC B2494 (POWER LIFTGATE)

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 B2494 02

Liftgate Handle Switch Circuit Short to Ground

Diagnostic Fault Information

DTC B2494 (Power Liftgate)

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Liftgate Control Module B+	2	2	-	-
Liftgate Position Sensor 5V Reference Voltage	2	2	2	-
Full Open Signal	B153B 02	2	2	-
Liftgate Disable Signal	1, 2	1	1	-
Liftgate Open Signal	B2730	1	1	-
Object Sensors Signal	B153F 03	2	B153F 07	-
Open/Close Switches				

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Signal	B2494 02	1, 2	1, 2	-
Pawl Switch Signal	B153A 00	B153A 00	B153A 00	-
Position Sensor Signal 1	B153E 02	B153E 05	B153E 05	-
Position Sensor Signal 2	B153E 02	B153E 05	B153E 05	-
Ratchet Switch Signal	B153A 00	B153A 00	B153A 00	-
Sector Switch Signal	B153A 00	B153A 00	B153A 00	-
Disengage Clutch Control	B396B 02	B396B 04	B396B 01	-
Engage Clutch Control	B396B 02	B396B 04	B396B 01	-
Liftgate Latch Cinch Control	B2495 02	B2495 05	B2495 01	-
Liftgate Latch Release Control	B2495 02	B2495 05	B2495 01	-
Liftgate Motor Close Control	B396A 02	B396A 04	B396A 01	-
Liftgate Motor Open Control	B396A 02	B396A 04	B396A 01	-
Full Open Low Reference	-	2	2	-
Liftgate Switches Low Reference	-	1	1	-
Position Sensor Low Reference	-	2	2	-
I/P Switch ground	-	1	1	-
Liftgate Control Module Ground	-	2	2	-
1. Liftgate Switch Malfunction 2. Liftgate Malfunction				

Circuit/System Description

The power liftgate button and exterior liftgate handle switch are parallel circuits and provide a single input to the power liftgate module (PLGM). The liftgate switches are supplied voltage and share a common low reference circuit from the PLGM. When the switch contacts close, the PLGM detects the voltage drop and commands the liftgate to open or close depending upon the position of the liftgate at the time.

Conditions for Running the DTC

System voltage to the PLGM must be 9-16 volts.

Conditions for Setting the DTC

The liftgate open/close signal circuit is active for longer than 10 minutes.

Action Taken When the DTC Sets

The liftgate open and close functions from the liftgate switches will be inoperative.

Conditions for Clearing the DTC

- The DTC will be current for as long as the fault is present.
- When the fault is no longer present, the DTC will be a history status code.
- A history DTC will clear after 50 ignition cycles or with a scan tool using the clear DTCs function.

Reference Information

Schematic Reference

Release Systems Schematics

Connector End View Reference

Vehicle Access Connector End Views

Description and Operation

Rear Hatch/Gate Description and Operation

Electrical Information Reference

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

Scan Tool Reference

- **Scan Tool Data Definitions**
- **Scan Tool Data List**
- **Scan Tool Output Controls**

Circuit/System Verification

Ignition ON, observe the scan tool Endgate Handle Sw parameter while pressing and depressing the Liftgate Switches. The reading should change between Active and Inactive.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connectors at the liftgate exterior switch and liftgate interior switch.
2. Ignition ON, verify the scan tool Endgate Handle Sw parameter is Inactive.
 - If not the specified value, test the signal circuit for a short to ground. If the circuit tests normal, replace the PLGM.
3. Ignition OFF, connect the harness connector at the appropriate liftgate switch.
4. Ignition ON, press and depress the appropriate liftgate switch, the reading should change between Active and Inactive.
 - If the reading does not change between Active and Inactive, test or replace the appropriate liftgate switch.

Component Testing

1. Ignition OFF, disconnect the harness connector at the appropriate liftgate switch.
2. Test for infinite resistance between the signal terminal 1 and the low reference circuit terminal 2 with the switch in the open position.
 - If not the specified value, replace the appropriate liftgate switch.
3. Test for less than 2.0 ohms between the signal terminal 1 and the low reference circuit terminal 2 with the switch in the closed position.
 - If greater than the specified range, replace the appropriate liftgate switch.

Repair Procedures

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

- **Liftgate Outside Handle Replacement**
- **Control Module References** for BCM replacement, setup and programming

DTC B2495 (MANUAL LIFTGATE)**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.

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- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptor

DTC B2495 01

Liftgate Latch Control Circuit Short to Battery

DTC B2495 02

Liftgate Latch Control Circuit Short to Ground

Diagnostic Fault Information

DTC B2495 (Manual Liftgate)

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
I/P Fuse Block B+	2	2	-	-
Liftgate Release Switch Signal	B2494 00	B2494 00	B2494 00	-
Liftgate Relay Low Reference	-	2	B3265 00	-
Liftgate Relay Coil Control	B2495 02	2	-	-
Liftgate Latch Control	2	2	B2495 01	-
Liftgate Latch Ground	-	2	2	-
Liftgate Release Switch Ground	-	1	1	-
1. Liftgate Release Switch Malfunction 2. Liftgate Release Malfunction				

Circuit/System Description

The body control module (BCM) provides voltage to the liftgate release relay control circuit thus energizing the L/GATE relay which provides voltage to the liftgate latch assembly releasing the liftgate.

Conditions for Running the DTC

System voltage must be 9-16 volts.

Conditions for Setting the DTC

- **B2495 01:** The BCM detects a short to voltage in the liftgate latch relay supply voltage circuit.
- **B2495 02:** The BCM detects a short to ground in the liftgate latch relay supply voltage circuit.

Action Taken When the DTC Sets

- The BCM stores the DTC to memory.
- The liftgate latch will malfunction.

Conditions for Clearing the DTC

- The DTC will be current for as long as the fault is present.
- When the fault is no longer present, the DTC will be a history DTC.
- A history DTC will clear after 50 ignition cycles.

Reference Information

Schematic Reference

Release Systems Schematics

Connector End View Reference

Vehicle Access Connector End Views

Description and Operation

Rear Hatch/Gate Description and Operation

Electrical Information Reference

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

Scan Tool Reference

- Scan Tool Data Definitions

- **Scan Tool Data List**
- **Scan Tool Output Controls**

Circuit/System Verification

Command the liftgate latch to release by pressing the exterior liftgate switch. The liftgate latch assembly should release the liftgate.

Circuit/System Testing

1. Ignition OFF, disconnect the L/GATE relay.
2. Connect a test lamp between the liftgate relay control circuit terminal 85 and ground.
3. Command the liftgate latch assembly by pressing and depressing the exterior liftgate switch. The test lamp should turn ON and OFF when changing between the commanded states.
 - 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 BCM.
 - If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests normal, replace the BCM.
4. If all circuits test normal, test or replace the L/GATE relay.

Component Testing

1. Ignition OFF, disconnect the L/GATE relay.
2. Test for 60-200 ohms of resistance between terminals 85 and 86.
 - If the resistance is not within the specified range, replace the relay.
3. Test for infinite resistance between the following terminals:
 - 30 and 86
 - 30 and 87
 - 30 and 85
 - 85 and 87

If greater than 2 ohms, replace the L/GATE relay.

4. Install a 3-amp fused jumper wire between applicable relay terminal 85 and 12 volts. Install a jumper wire between relay terminal 86 and ground. Measure for less than 2 ohms between terminals 30 and 87.
 - If greater than 2 ohms, replace the L/GATE relay.

Repair Procedures

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

Relay Replacement (Attached to Wire Harness) or **Relay Replacement (Within an Electrical Center)**

Control Module References for BCM replacement, setup and programming

DTC B2495 (POWER LIFTGATE)**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 B2495 01**

Endgate/Liftgate Latch Control Circuit Short to Battery

DTC B2495 02

Endgate/Liftgate Latch Control Circuit Short to Ground

DTC B2495 04

Endgate/Liftgate Latch Control Circuit open circuit

Diagnostic Fault Information**DTC B2495**

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Liftgate Control Module B+	2	2	-	-
Liftgate Position Sensor 5V Reference Voltage	2	2	2	-
Full Open Signal	B153B 02	2	2	-

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Liftgate Disable Signal	1, 2	1	1	-
Liftgate Open Signal	B2730	1	1	-
Object Sensors Signal	B153F 03	2	B153F 07	-
Open/Close Switches Signal	B2494 02	1, 2	1, 2	-
Pawl Switch Signal	B153A 00	B153A 00	B153A 00	-
Position Sensor Signal 1	B153E 02	B153E 05	B153E 05	-
Position Sensor Signal 2	B153E 02	B153E 05	B153E 05	-
Ratchet Switch Signal	B153A 00	B153A 00	B153A 00	-
Sector Switch Signal	B153A 00	B153A 00	B153A 00	-
Disengage Clutch Control	B396B 02	B396B 04	B396B 01	-
Engage Clutch Control	B396B 02	B396B 04	B396B 01	-
Liftgate Latch Cinch Control	B2495 02	B2495 05	B2495 01	-
Liftgate Latch Release Control	B2495 02	B2495 05	B2495 01	-
Liftgate Motor Close Control	B396A 02	B396A 04	B396A 01	-
Liftgate Motor Open Control	B396A 02	B396A 04	B396A 01	-
Full Open Low Reference	-	2	2	-
Liftgate Switches Low Reference	-	1	1	-
Position Sensor Low Reference	-	2	2	-
I/P Switch Ground	-	1	1	-
Liftgate Control Module Ground	-	2	2	-
1. Liftgate Switch Malfunction 2. Liftgate Malfunction				

Circuit/System Description

The latch motor is a bi-directional motor and cinch or unlatch operation is the result of the direction of the motor rotation. The liftgate module (LGM) controls the latch motor through the control circuits by supplying power and ground in the appropriate polarity. The motor control circuits are monitored by the LGM prior to activation for a high or low condition and during

motor operation for an insufficient current flow condition.

Conditions for Running the DTC

Battery voltage must be between 9-16 volts.

Conditions for Setting the DTC

B2495 01

The LGM detects a short to voltage in the liftgate latch motor open control circuit or the liftgate latch motor close control circuit.

B2495 02

The LGM detects a short to ground in the liftgate latch motor open control circuit or the liftgate latch motor close control circuit.

B2495 04

The LGM detects an open/high resistance in the liftgate latch motor open control circuit or the liftgate latch motor close control circuit.

Action Taken When the DTC Sets

- The LGM stores the DTC to memory.
- The liftgate latch will malfunction.

Conditions for Clearing the DTC

- This DTC will change from current to history when the fault is no longer present.
- A history DTC will clear after 100 consecutive ignition cycles if the condition for the malfunction is no longer present.
- The technician issues a scan tool CLEAR DTCs command.

Reference Information

Schematic Reference

Release Systems Schematics

Connector End View Reference

Vehicle Access Connector End Views

Description and Operation**Rear Hatch/Gate Description and Operation****Electrical Information Reference**

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

Scan Tool Reference

- **Scan Tool Data Definitions**
- **Scan Tool Data List**
- **Scan Tool Output Controls**

Circuit/System Verification

Command the liftgate to Open and Close with the scan tool. The liftgate latch assembly should release the liftgate allowing the liftgate to open.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the liftgate latch assembly.
2. Ignition OFF, test for less than 1.0 ohm of resistance between the control circuit terminal 1 and ground.
 - If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If circuits test normal, replace the LGM.
3. Ignition OFF, test for less than 1.0 ohm of resistance between the control circuit terminal 3 and ground.
 - If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If circuits test normal, replace the LGM.
4. Connect a test lamp between control circuit terminal 1 and control circuit terminal 3.
5. Command the Liftgate to OPEN and CLOSE with a scan tool. The test lamp should turn ON when commanding the OPEN and CLOSE states.
 - If the test lamp remains OFF during either of the commands, test for a short to ground on either control circuit. If the circuits test normal, replace the LGM.
6. If all circuits test normal, test or replace the liftgate latch assembly.

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Component Testing

1. Install a 20-amp fused jumper wire between the control terminal 1 and 12 volts. Momentarily install a jumper wire between the control terminal 3 and ground. The Liftgate Latch Assembly should perform the CINCH or RELEASE function.
 - If the function does not perform as specified, replace the appropriate liftgate latch assembly.
2. Reverse the jumper wires; the liftgate latch assembly should perform the RELEASE or CINCH function.
 - If the function does not perform as specified, replace the liftgate latch assembly.

Repair Procedures

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

DTC B2730

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 B2730

Interior Trunk/Hatch/Liftglass Release Sw Circuit

Diagnostic Fault Information

DTC B2730

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Liftgate Control Module B+	2	2	-	-
Liftgate Position Sensor 5V Reference Voltage	2	2	2	-
Full Open Signal	B153B 02	2	2	-
Liftgate Disable Signal	1, 2	1	1	-

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Liftgate Open Signal	B2730	1	1	-
Object Sensors Signal	B153F 03	2	B153F 07	-
Open/Close Switches Signal	B2494 02	1, 2	1, 2	-
Pawl Switch Signal	B153A 00	B153A 00	B153A 00	-
Position Sensor Signal 1	B153E 02	B153E 05	B153E 05	-
Position Sensor Signal 2	B153E 02	B153E 05	B153E 05	-
Ratchet Switch Signal	B153A 00	B153A 00	B153A 00	-
Sector Switch Signal	B153A 00	B153A 00	B153A 00	-
Disengage Clutch Control	B396B 02	B396B 04	B396B 01	-
Engage Clutch Control	B396B 02	B396B 04	B396B 01	-
Liftgate Latch Cinch Control	B2495 02	B2495 05	B2495 01	-
Liftgate Latch Release Control	B2495 02	B2495 05	B2495 01	-
Liftgate Motor Close Control	B396A 02	B396A 04	B396A 01	-
Liftgate Motor Open Control	B396A 02	B396A 04	B396A 01	-
Full Open Low Reference	-	2	2	-
Liftgate Switches Low Reference	-	1	1	-
Position Sensor Low Reference	-	2	2	-
I/P Switch Ground	-	1	1	-
Liftgate Control Module Ground	-	2	2	-
1. Liftgate Switch Malfunction 2. Liftgate Malfunction				

Circuit/System Description

Pressing the I/P switch assembly closes a contact providing a ground for the Liftgate Open circuit. The power liftgate module (PLGM) will detect the voltage drop and command the liftgate to open or close depending upon the position of the liftgate.

Conditions for Running the DTC

Battery voltage must be between 9-16 volts.

Conditions for Setting the DTC

This DTC will set when the LGM detects a fault in the Liftgate Open circuit.

Action Taken When the DTC Sets

- The BCM stores the DTC to memory.
- The lift switch will be inoperative.

Conditions for Clearing the DTC

- This DTC will change from current to history when the fault is no longer present.
- A history DTC will clear after 100 consecutive ignition cycles if the condition for the malfunction is no longer present.
- The technician issues a scan tool CLEAR DTCs command.

Reference Information

Schematic Reference

Release Systems Schematics

Connector End View Reference

Vehicle Access Connector End Views

Description and Operation

Rear Hatch/Gate Description and Operation

Electrical Information Reference

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

Scan Tool Reference

- **Scan Tool Data Definitions**
- **Scan Tool Data List**
- **Scan Tool Output Controls**

Circuit/System Verification

Ignition ON, observe the Int Trunk/Liftglass Sw parameter while pressing the I/P Switch Assembly. The reading should change between Active and Inactive.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the I/P Switch.
2. Ignition ON, verify the scan tool Int Trunk/Liftglass Sw is Inactive.
 - If not the specified value, test the signal circuit terminal 7 for a short to ground. If the circuit tests normal, replace the PLGM.
3. Install a 3A fused jumper wire between the signal circuit terminal 7 and ground. Verify the scan tool Int Trunk/Liftglass Sw is Active.
 - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the PLGM.
4. If all circuits test normal, test or replace the I/P Switch.

Repair Procedures

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

Control Module References for BCM replacement, setup and programming

DTC B2971

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 B2971

Driver Door Key Switch Circuit

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Circuit/System Description

The key cylinder unlock feature will unlock all of the doors when the BCM receives a Key Unlock Switch signal for greater than 1 second and will unlock all of the doors.

Conditions for Running the DTC

Battery voltage must be between 9-16 volts.

Conditions for Setting the DTC

- The BCM detects the Key Unlock Switch Signal has a fault.
- The conditions above must be present for more than 60 seconds.

Action Taken When the DTC Sets

- The BCM stores the DTC to memory.
- The door lock actuators will not lock or unlock.

Conditions for Clearing the DTC

- This DTC will change from current to history when the fault is no longer present.
- A history DTC will clear after 100 consecutive ignition cycles if the condition for the malfunction is no longer present.
- The technician issues a scan tool CLEAR DTCs command.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics (AXA) or **Door Lock/Indicator Schematics (AXC/AXE)**

Connector End View Reference

- **Vehicle Access Connector End Views**
- **Data Communication Connector End Views**

Description and Operation

Power Door Locks Description and Operation (AXA) or **Power Door Locks Description and Operation (AXC/AXE)**

Electrical Information Reference

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

Scan Tool Reference

- **Scan Tool Data Definitions**
- **Scan Tool Data List**
- **Scan Tool Output Controls**

Circuit/System Verification

Ignition OFF, insert the key into the drivers door lock cylinder, turn the key clockwise and hold for greater than 1 second and turn the key counterclockwise and hold for greater than 1 second. Observe the scan tool Door Lock Requestor parameters, the reading should be Door Key Cyl.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the Driver Door Latch Assembly.
2. 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, verify the scan tool Drvr Door Unlock Cmd is OFF. If not the specified value, test the signal circuit terminal 9 for a short to ground. If the circuit tests normal, replace the BCM.
4. Install a 3-amp fused jumper wire between the signal circuit terminal 9 and ground, verify the scan tool Drvr Door Unlock Cmd is ON.
 - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the BCM.
5. If all circuits tests normal, replace the Driver Door Latch Assembly.

Repair Procedures

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

- **Door Lock Cylinder Replacement**
- **Control Module References** for BCM replacement, setup and programming

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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 Descriptors

DTC B3125

Left Front/Driver Door Only, Unlock Circuit

DTC B3130

All Unlock Circuit Short to Ground

DTC B3135

All Door Lock Circuit Short to Ground

Diagnostic Fault Information

DTC B3125, B3130 or B3135

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
I/P Fuse Block B+	1, 2, 3	1, 2, 3	-	-
Door Latch Control	1, 2, 3	1, 2, 3	1, 2, 3	-
Doors Unlock Control	B3130	B3130	B3130	-
LF Door Unlock Control	B3125	B3125	B3125	-
Doors Locked Control	B3135	B3135	-	-
Left Lock Switch Signal	B3150	B3150	B3150	-
Left Unlock Switch Signal	B3140	B3140	B3140	-
Right Lock Switch Signal	B3155	B3155	B3155	-
Right Unlock Switch Signal	B3145	B3145	B3145	-
Door Lock Switch Ground	-	1, 2, 3	1, 2, 3	-

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I/P Fuse Block Ground	-	1, 2, 3	1, 2, 3	-
1. Door Lock Inoperative 2. Driver Door Unlock Inoperative 3. Door Unlock Inoperative				

Circuit/System Description

For vehicles with the RPO AXA door lock system, the body control module (BCM) controls the door lock, passenger door unlock and driver door unlock relays. Voltage is applied to the appropriate relay through the door lock/unlock control circuit when the BCM senses a door lock/unlock switch activation or a keyless entry lock or unlock command.

For vehicles with the RPO AXC/AXE door lock system, the BCM controls the rear door lock and rear door unlock relays. Voltage is applied to the appropriate relay through the door lock/unlock control circuit when the BCM receives a door lock/unlock command from either the driver door module or the passenger door module or a keyless entry lock or unlock command.

Conditions for Running the DTC

The system voltage must be between 9-16 volts.

Conditions for Setting the DTC

B3125

The BCM detects a short to ground on the LF Door Unlock low reference circuit (AXA only)

B3130

The BCM detects a short to ground on the Doors Unlock low reference circuit (AXA or AXC/AXE)

B3135

The BCM detects a short to ground on the Doors Locked control circuit. (AXA or AXC/AXE).

Action Taken When the DTC Sets

- The BCM stores the DTC to memory.
- The power door locks will not operate

Conditions for Clearing the DTC

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- This DTC will change from current to history when the fault is no longer present.
- A history DTC will clear after 100 consecutive ignition cycles if the condition for the malfunction is no longer present.
- The technician issues a scan tool CLEAR DTCs command.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics (AXA) or **Door Lock/Indicator Schematics (AXC/AXE)**

Connector End View Reference

- **Vehicle Access Connector End Views**
- **Data Communication Connector End Views**

Description and Operation

Power Door Locks Description and Operation (AXA) or **Power Door Locks Description and Operation (AXC/AXE)**

Electrical Information Reference

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

Scan Tool Reference

- **Scan Tool Data Definitions**
- **Scan Tool Data List**
- **Scan Tool Output Controls**

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector X1 at the I/P Fuse Block.
2. Connect a test lamp between the control circuit terminal 38 and ground.
3. Ignition ON, command the Lock Doors ON and OFF with a scan tool. The test lamp should turn ON and OFF when changing between the commanded states.

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- If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests normal, replace the BCM
 - 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 BCM.
4. Connect a test lamp between the control circuit terminal 24 and B+.
 5. Command the Driver Door Unlock 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 ground. If the circuit tests normal, replace the BCM.
 - If the test lamp is always OFF, test the control circuit for a short to voltage or and open/high resistance. If the circuit tests normal, replace the BCM.
 6. Connect a test lamp between the control circuit terminal 64 and B+.
 7. Command the Unlock Rear Doors 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 ground. If the circuit tests normal, replace the BCM.
 - If the test lamp is always OFF, test the control circuit for a short to voltage or and open/high resistance. If the circuit tests normal, replace the BCM.
 8. If all circuits test normal, test or replace the appropriate relay.

Component Testing

1. Ignition OFF, disconnect the applicable relay.
2. Test for 60-200 ohms of resistance between terminals 85 and 86.
 - If the resistance is not within the specified range, replace the relay.
3. Test for infinite resistance between the following terminals:
 - 30 and 86
 - 30 and 87
 - 30 and 85
 - 85 and 87
 - If less than infinite resistance, replace the relay.
4. Test for less than 2 ohms of resistance between terminals 30 and 87A.
 - If greater than 2 ohms, replace the relay.
5. Install a 3-amp fused jumper wire between relay terminal 85 and 12 volts. Install a jumper wire between relay terminal 86 and ground. Measure for less than 2 ohms of resistance

between terminals 30 and 87.

- If greater than 2 ohms, replace the relay.

Repair Procedures

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

- **Relay Replacement (Attached to Wire Harness)** or **Relay Replacement (Within an Electrical Center)**
- **Control Module References** for BCM replacement, setup and programming

DTC B3140, B3145, B3150 OR B3155 (AXA)

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 B3140

Driver Unlock Switch Circuit Short to Ground

DTC B3145

Passenger Unlock Switch Circuit Short to Ground

DTC B3150

Driver Lock Switch Circuit Short to Ground

DTC B3155

Right Front Lock Switch Circuit Short to Ground

Diagnostic Fault Information

DTC B3140, B3145, B3150 or B3155 (AXA)

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance

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I/P Fuse Block B+	1, 2, 3	1, 2, 3	-	-
Door Latch Control	1, 2, 3	1, 2, 3	1, 2, 3	-
Doors Unlock Control	B3130	B3130	B3130	-
LF Door Unlock Control	B3125	B3125	B3125	-
Doors Locked Control	B3135	B3135	-	-
Left Lock Switch Signal	B3150	B3150	B3150	-
Left Unlock Switch Signal	B3140	B3140	B3140	-
Right Lock Switch Signal	B3155	B3155	B3155	-
Right Unlock Switch Signal	B3145	B3145	B3145	-
Door Lock Switch Ground	-	1, 2, 3	1, 2, 3	-
I/P Fuse Block Ground	-	1, 2, 3	1, 2, 3	-
1. Door Lock Inoperative 2. Driver Door Unlock Inoperative 3. Door Unlock Inoperative				

Circuit/System Description

The body control module (BCM) controls the door lock, passenger door unlock and driver door unlock relays. Voltage is applied to the appropriate relay through the door lock/unlock control circuit when the BCM senses a door lock/unlock switch activation or a keyless entry lock or unlock command.

Conditions for Running the DTC

The system voltage must be between 9-16 volts.

Conditions for Setting the DTC

B3140 or B3150

The BCM detects a short to ground in the Left Lock Switch or Unlock Switch signal circuits.

B3145 or B3155

The BDM detects a short to ground in the Right Lock Switch or Unlock Switch signal circuits.

Action Taken When the DTC Sets

- The BCM stores the DTC to memory.
- The power door locks will not operate

Conditions for Clearing the DTC

- This DTC will change from current to history when the fault is no longer present.
- A history DTC will clear after 100 consecutive ignition cycles if the condition for the malfunction is no longer present.
- The technician issues a scan tool CLEAR DTCs command.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics (AXA) or Door Lock/Indicator Schematics (AXC/AXE)

Connector End View Reference

- **Vehicle Access Connector End Views**
- **Data Communication Connector End Views**

Description and Operation

Power Door Locks Description and Operation (AXA) or Power Door Locks Description and Operation (AXC/AXE)

Electrical Information Reference

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

Scan Tool Reference

- **Scan Tool Data Definitions**
- **Scan Tool Data List**
- **Scan Tool Output Controls**

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the appropriate Door Lock Switch.
2. Ignition ON, verify the appropriate scan tool Lock Sw parameter is Inactive.
 - If not the specified value, test the signal circuit terminal E for a short to ground. If the circuit tests normal, replace the BCM.
3. Verify the appropriate scan tool Unlock Sw parameter is Inactive.
 - If not the specified value, test the signal circuit terminal D for a short to ground. If the circuit tests normal, replace the BCM.
4. If all circuits test normal, test or replace the appropriate door lock switch.

Component Testing

1. Ignition OFF, disconnect the harness connector at the applicable door lock switch.
2. Test for infinite resistance between the signal terminals D and E and the ground terminal B with the switch in the at rest position.
 - If less than infinite resistance, replace the applicable door lock switch.
3. Test for less than 2 ohms of resistance between the signal terminal D and the ground terminal B with the switch in the unlock position.
 - If greater than 2 ohms, replace the applicable door lock switch.
4. Test for less than 2 ohms of resistance between the signal terminal E and the ground terminal B with the switch in the lock position.
 - If greater than 2 ohms, replace the applicable door lock switch.

Repair Procedures

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

- **Control Module References** for BCM replacement, setup and programming
- **Door Lock and Side Window Switch Replacement - Driver Side**
- **Door Lock and Side Window Switch Replacement - Passenger Side**

DTC B3265

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.

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DTC Descriptor**DTC B3265**

Trunk/Hatch/Liftglass Release Output Circuit

Diagnostic Fault Information**DTC B3265**

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
I/P Fuse Block B+	2	2	-	-
Liftgate Release Switch Signal	B2494	1	-	-
Liftgate Relay Low Reference	-	2	2	-
Liftgate Relay Coil Control	B3265	2	-	-
Liftgate Latch Control	2	2	2	-
Liftgate Latch Ground	-	2	2	-
Liftgate Release Switch Ground	-	1	1	-
1. Liftgate Release Switch Inoperative 2. Liftgate Release Inoperative				

Circuit/System Description

The body control module (BCM) provides voltage to the Liftgate Release Relay Control circuit thus energizing the L/GATE Relay which provides voltage to the Liftgate Latch Assembly releasing the liftgate.

Conditions for Running the DTC

Battery voltage must be between 9-16 volts.

Conditions for Setting the DTC

This DTC will set when the BCM detects a fault in the Liftgate Latch Relay Supply Voltage circuit or the Liftgate Latch Relay Coil Control circuit.

Action Taken When the DTC Sets

- The BCM stores the DTC to memory.
- The liftgate latch will malfunction.

Conditions for Clearing the DTC

- This DTC will change from current to history when the fault is no longer present.
- A history DTC will clear after 100 consecutive ignition cycles if the condition for the malfunction is no longer present.
- The technician issues a scan tool CLEAR DTCs command.

Reference Information

Schematic Reference

Release Systems Schematics

Connector End View Reference

Vehicle Access Connector End Views

Description and Operation

Rear Hatch/Gate Description and Operation

Electrical Information Reference

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

Scan Tool Reference

- Scan Tool Data Definitions
- Scan Tool Data List
- Scan Tool Output Controls

Circuit/System Verification

Command the Liftgate Release with the scan tool. The Liftgate Latch Assembly should release the liftgate.

Circuit/System Testing

1. Ignition OFF, disconnect the L/GATE relay.
2. Ignition OFF, test for less than 1.0 ohm of resistance between the relay coil ground circuit terminal and ground while pressing the Exterior Liftgate Switch.
 - If greater than the specified range, test for an open/high resistance. If the circuit tests normal, replace the BCM.
3. Connect a test lamp between the Liftgate Release Relay Control terminal and the relay coil ground circuit terminal.
4. Command the Liftgate Release 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 BCM.
 - 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 BCM.
5. If all circuits test normal, test or replace the L/GATE relay.

Component Testing**Relay Test**

1. Ignition OFF, disconnect the L/GATE relay.
2. Test for 60-180 ohms of resistance between terminals 85 and 86.
 - If the resistance is not within the specified range, replace the relay.
3. Test for infinite resistance between the following terminals:
 - 30 and 86
 - 30 and 87
 - 30 and 85
 - 85 and 87
 - If not the specified value, replace the relay.
4. Install a 25-amp fused jumper wire between relay terminal 85 and 12 volts. Install a jumper wire between relay terminal 86 and ground. Test for less than 2 ohms of resistance between terminals 30 and 87.
 - If greater than the specified range, replace the relay.

Repair Procedures

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

- **Relay Replacement (Attached to Wire Harness)** or **Relay Replacement (Within an Electrical Center)**
- **Control Module References** for BCM replacement, setup and programming

DTC B396A

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 B396A 01

Liftgate Motor Control Circuit Short to Battery

DTC B396A 02

Liftgate Motor Control Circuit Short to Ground

DTC B396A 04

Liftgate Motor Control Circuit Open

Diagnostic Fault Information

DTC B396A

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Liftgate Control Module B+	2	2	-	-
Liftgate Position Sensor 5V Reference Voltage	2	2	2	-
Full Open Signal	B153B 02	2	2	-
Liftgate Disable Signal	1, 2	1	1	-
Liftgate Open Signal	1	1	1	-

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Object Sensors Signal	B153F 03	2	B153F 07	-
Open/Close Switches Signal	B2494 02	1, 2	1, 2	-
Pawl Switch Signal	B153A 00	B153A 00	B153A 00	-
Position Sensor Signal 1	B153E 02	B153E 05	B153E 05	-
Position Sensor Signal 2	B153E 02	B153E 05	B153E 05	-
Ratchet Switch Signal	B153A 00	B153A 00	B153A 00	-
Sector Switch Signal	B153A 00	B153A 00	B153A 00	-
Disengage Clutch Control	B396B 02	B396B 04	B396B 01	-
Engage Clutch Control	B396B 02	B396B 04	B396B 01	-
Liftgate Latch Cinch Control	B2495 02	B2495 05	B2495 01	-
Liftgate Latch Release Control	B2495 02	B2495 05	B2495 01	-
Liftgate Motor Close Control	B396A 02	B396A 04	B396A 01	-
Liftgate Motor Open Control	B396A 02	B396A 04	B396A 01	-
Full Open Low Reference	-	2	2	-
Liftgate Switches Low Reference	-	1	1	-
Position Sensor Low Reference	-	2	2	-
I/P Switch Ground	-	1	1	-
Liftgate Control Module Ground	-	2	2	-
1. Liftgate Switch Malfunction 2. Liftgate Malfunction				

Circuit/System Description

The liftgate motor is a bi-directional motor and open or close operation is the result of the direction of the motor rotation. The power liftgate control module (PLGM) controls the liftgate motor through the control circuits by supplying power and ground in the appropriate polarity. The motor control circuits are monitored by the PLGM prior to activation for a high or low condition and during motor operation for any irregular current flow conditions.

Conditions for Running the DTC

- System voltage to the PLGM must be 9-16 volts.
- Power open or close function is initiated.

Conditions for Setting the DTC

- The PLGM detects a high or low condition on one of the control circuits prior to being activated.
- During power open or close operation, the PLGM detects current flow on one of the control circuits to be greater or less than the learned limits.

Action Taken When the DTC Sets

Power liftgate operation will be suspended.

Conditions for Clearing the DTC

- The DTC will be current for as long as the fault is present.
- When the fault is no longer present, the DTC will be a history status code.

Diagnostic Aids

In some circumstances high or low control circuit faults may cause the PLGM to react as if the liftgate has encountered an object in its travel and reverse direction.

Reference Information

Schematic Reference

Release Systems Schematics

Connector End View Reference

Vehicle Access Connector End Views

Description and Operation

Rear Hatch/Gate Description and Operation

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**

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

Scan Tool Reference

- **Scan Tool Data Definitions**
- **Scan Tool Data List**
- **Scan Tool Output Controls**

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector X3 at the PLGM.
2. Ignition OFF, test for less than 1.0 ohm of resistance between the control circuit terminal 1 and ground.
 - If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If the circuits test normal, replace the PLGM.
3. Ignition OFF, test for less than 1.0 ohm of resistance between the control circuit terminal 2 and ground.
 - If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If the circuits test normal, replace the PLGM.
4. Connect a test lamp between control circuit terminal 1 and control circuit terminal 2.
5. Command the power liftgate to OPEN and CLOSE with a scan tool. The test lamp should turn ON when commanding the OPEN and CLOSE states.
 - If the test lamp remains OFF during either of the commands, test for a short to ground on either control circuit. If the circuits test normal, replace the PLGM.
6. If all circuits test normal, test or replace the liftgate motor assembly.

Component Testing

1. Install a 30-amp fused jumper wire between the control terminal 1 and 12 volts. Momentarily install a jumper wire between the control terminal 2 and ground. The liftgate motor should perform the OPEN or CLOSE function.
 - If the function does not perform as specified, replace the liftgate motor assembly.
2. Reverse the jumper wires, the liftgate motor should perform the CLOSE or OPEN function.
 - If the function does not perform as specified, replace the liftgate motor assembly.

Repair Procedures

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

- **Control Module References** for BCM replacement, setup and programming
- **Power Liftgate Motor Replacement**

DTC B396B

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 B396B 01

Liftgate Motor Clutch Control Circuit Short to Battery

DTC B396B 02

Liftgate Motor Clutch Control Circuit Short to Ground

DTC B396B 04

Liftgate Motor Clutch Control Circuit Open

Diagnostic Fault Information

DTC B396B

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Liftgate Control Module B+	2	2	-	-
Liftgate Position Sensor 5V Reference Voltage	2	2	2	-
Full Open Signal	B153B 02	2	2	-
Liftgate Disable Signal	1, 2	1	1	-
Liftgate Open Signal	1	1	1	-
Object Sensors Signal	B153F 03	2	B153F 07	-

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Open/Close Switches Signal	B2494 02	1, 2	1, 2	-
Pawl Switch Signal	B153A 00	B153A 00	B153A 00	-
Position Sensor Signal 1	B153E 02	B153E 05	B153E 05	-
Position Sensor Signal 2	B153E 02	B153E 05	B153E 05	-
Ratchet Switch Signal	B153A 00	B153A 00	B153A 00	-
Sector Switch Signal	B153A 00	B153A 00	B153A 00	-
Disengage Clutch Control	B396B 02	B396B 04	B396B 01	-
Engage Clutch Control	B396B 02	B396B 04	B396B 01	-
Liftgate Latch Cinch Control	B2495 02	B2495 05	B2495 01	-
Liftgate Latch Release Control	B2495 02	B2495 05	B2495 01	-
Liftgate Motor Close Control	B396A 02	B396A 04	B396A 01	-
Liftgate Motor Open Control	B396A 02	B396A 04	B396A 01	-
Full Open Low Reference	-	2	2	-
Liftgate Switches Low Reference	-	1	1	-
Position Sensor Low Reference	-	2	2	-
I/P Switch Ground	-	1	1	-
Liftgate Control Module Ground	-	2	2	-
1. Liftgate Switch Malfunction 2. Liftgate Malfunction				

Circuit/System Description

The power liftgate module (PLGM) supplies power and ground to the liftgate clutch, which is part of the liftgate motor assembly. Upon receiving a liftgate open request, the PLGM supplies voltage to the clutch via the liftgate motor engage control circuit. The liftgate motor disengage control circuit serves a ground. With the clutch energized, the motor output is mechanically connected to the liftgate and power liftgate operation is allowed. The liftgate motor clutch engages or disengages the liftgate motor to the liftgate drive gear and is the component that

determines power or manual operation.

Conditions for Running the DTC

System voltage to the PLGM must be 9-16 volts.

Conditions for Setting the DTC

B396B 01

The PLGM detects a short to voltage in the liftgate motor engage control circuit or the liftgate motor disengage control circuit.

B396B 02

The PLGM detects a short to ground in the liftgate motor engage control circuit or the liftgate motor disengage control circuit.

B396B 04

The PLGM detects an open/high resistance in the liftgate motor engage control circuit or the liftgate motor disengage control circuit.

Action Taken When the DTC Sets

- When an open or short to ground condition exists, power liftgate operation will be inoperative.
- When a short to voltage condition exists, the liftgate can not be opened or closed manually.

Conditions for Clearing the DTC

- The DTC will be current for as long as the fault is present.
- When the fault is no longer present, the DTC will be a history status code.

Diagnostic Aids

Whenever the PLGM is disconnected or loses power, the ignition must be cycled OFF then ON.

Reference Information

Schematic Reference

Release Systems Schematics

Connector End View Reference

Vehicle Access Connector End Views

Description and Operation

Rear Hatch/Gate Description and Operation

Electrical Information Reference

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

Scan Tool Reference

- **Scan Tool Data Definitions**
- **Scan Tool Data List**
- **Scan Tool Output Controls**

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector X3 at the PLGM.
2. Ignition OFF, test for less than 1.0 ohm of resistance between the control circuit terminal 4 and ground.
 - If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If the circuits test normal, replace the PLGM.
3. Ignition OFF, test for less than 1.0 ohm of resistance between the control circuit terminal 3 and ground.
 - If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If the circuits test normal, replace the PLGM.
4. Connect a test lamp between control circuit terminal 4 and control circuit terminal 3.
5. Command the power liftgate to OPEN and CLOSE with a scan tool. The test lamp should turn ON when commanding the OPEN and CLOSE states.
 - If the test lamp remains OFF during either of the commands, test for a short to ground on either control circuit. If the circuits test normal, replace the PLGM.
6. If all circuits test normal, replace the liftgate motor assembly.

Repair Procedures

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

Power Liftgate Motor Replacement

SYMPTOMS - VEHICLE ACCESS

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:
 - **Power Door Locks Description and Operation (AXA)Power Door Locks Description and Operation (AXC/AXE)**
 - **Rear Hatch/Gate Description and Operation**

Visual/Physical Inspection

- 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:

- **Liftgate Release Inoperative (Manual Liftgate)**
- **Power Door Locks Inoperative (RPO AXC/AXE)** or **Power Door Locks Inoperative (RPO AXA)**
- **Power Liftgate Inoperative**

AUTOMATIC DOOR LOCKS 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 door lock feature can be programmed to control the door lock system. The automatic door lock feature is factory programmed to have all doors lock and unlock. When the automatic door lock feature is programmed to control the door lock system, the driver door switch, passenger door switch and body control module (BCM) will lock the vehicle doors when the ignition 1 input is ACTIVE, the door jam switch inputs are INACTIVE and the transaxle is not in PARK.

This automatic door lock function will only occur once per ignition cycle unless, a door jamb switch input changes state to active and back to inactive. Then the driver door module, passenger door module and BCM will lock all doors again.

Once the automatic door lock feature has locked the doors, the BCM will then unlock all the doors when the transaxle is shifted into PARK.

Reference Information**Schematic Reference**

Door Lock/Indicator Schematics (AXA) or **Door Lock/Indicator Schematics (AXC/AXE)**

Connector End View Reference

- **Vehicle Access Connector End Views**
- **Data Communication Connector End Views**

Description and Operation

Power Door Locks Description and Operation (AXA) or **Power Door Locks Description and Operation (AXC/AXE)**

Electrical Information Reference

- **Circuit Testing**

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

Scan Tool Reference

- **Scan Tool Data Definitions**
- **Scan Tool Data List**
- **Scan Tool Output Controls**

Circuit/System Verification

Press the top and bottom of the door lock switch. All of the vehicle doors should lock and unlock.

- If one or more vehicle doors do not lock or unlock, refer to **Power Door Locks Inoperative (RPO AXC/AXE)** or **Power Door Locks Inoperative (RPO AXA)**.

Circuit/System Testing

Follow the DIC Vehicle Personalization instructions outlined in the Owner's Manual.

- If the personalization options cannot be set, replace the BCM.

Repair Procedures

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

Control Module References for BCM replacement, setup and programming

LIFTGATE RELEASE INOPERATIVE (MANUAL LIFTGATE)

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

Liftgate Release Inoperative (Manual Liftgate)

	Short to	Open/High	Short to	Signal

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Circuit	Ground	Resistance	Voltage	Performance
I/P Fuse Block B+	2	2	-	-
Liftgate Release Switch Signal	B2494	1	-	-
Liftgate Relay Low Reference	-	2	2	-
Liftgate Relay Coil Control	B3265	2	-	-
Liftgate Latch Control	2	2	2	-
Liftgate Latch Ground	-	2	2	-
Liftgate Release Switch Ground	-	1	1	-
1. Liftgate Release Switch Inoperative 2. Liftgate Release Inoperative				

Circuit/System Description

The liftgate switch is an input to the body control module (BCM). The BCM supplies battery voltage to the signal circuit and when the liftgate switch is activated the signal circuit voltage goes low. The BCM controls the liftgate latch assembly through the liftgate L/GATE relay. When the liftgate switch signal is activated, the BCM enables the L/GATE relay by applying battery voltage to the liftgate relay circuit and the relay is energized when the BCM grounds the L/GATE relay control circuit. When the relay is energized battery voltage is supplied to the liftgate latch assembly through the liftgate latch control circuit.

Reference Information

Schematic Reference

Release Systems Schematics

Connector End View Reference

Vehicle Access Connector End Views

Description and Operation

Rear Hatch/Gate Description and Operation

Electrical Information Reference

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

Scan Tool Reference

- **Scan Tool Data Definitions**
- **Scan Tool Data List**
- **Scan Tool Output Controls**

Circuit/System Verification

1. Ignition ON, observe the Liftgate Release Sw parameter while pressing the Liftgate Release Switch. The reading should change between Active and Inactive.
 - If the reading does not change between Active and Inactive, refer to **Liftgate Switch Malfunction**.
2. Ignition ON, observe the Liftgate Release Cmd parameter while pressing the Liftgate Release Switch. The reading should change between On and Off.
 - If the reading does not change between On and Off, refer to **Liftgate Latch Malfunction**.

Circuit/System Testing

Liftgate Switch Malfunction

1. Ignition OFF, disconnect the harness connector at the Liftgate switch.
2. Ignition OFF, test for less than 1.0 ohm for resistance between the ground circuit terminal 2 and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition ON, verify the scan tool Liftgate Release is Inactive.
 - If not the specified value, test the signal circuit terminal 1 for a short to ground. If the circuit tests normal, replace the BCM.
4. Install a 3A fused jumper wire between the signal circuit terminal 1 and ground. Verify the scan tool Liftgate Release is Active.
 - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the BCM.
5. If all circuits test normal, test or replace the Liftgate switch.

Liftgate Latch Malfunction

1. Ignition OFF, disconnect the L/GATE relay.
2. Ignition ON, verify that a test lamp does not illuminate between the control circuit terminal 40 and ground.
 - If the test lamp illuminates, test the control circuit for a short to voltage
3. Verify that a test lamp illuminates between the B+ circuit terminal and ground.
 - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance. If the circuit tests normal and the PDM fuse is open, test the control circuit terminal 40 for a short to ground.
4. Ignition OFF, disconnect the harness connector at the Liftgate Latch Assembly
5. Ignition OFF, test for less than 1.0 ohm of resistance between the Liftgate Latch Assembly ground circuit terminal 3 and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
6. Ignition OFF, connect the harness connector at the Liftgate Latch Assembly.
7. Ignition ON, connect a 15A fused jumper wire between the B+ circuit terminal and the control circuit terminal 40. Verify the Liftgate Latch Assembly is activated.
 - If the Liftgate Latch Assembly does not activate, test the control circuit for an open/high resistance. If the circuit tests normal, test or replace the Liftgate Latch Assembly.
 - If the test lamp is always ON, test the control circuit for a short to ground. If the circuit tests normal, replace the BCM.
8. Connect a test lamp between the relay coil control circuit terminal 22 circuit and ground.
9. Command the Liftgate Release 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 BCM.
 - 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 BCM.
10. Connect a test lamp between the B+ circuit and the relay coil low reference circuit terminal 69.
11. Command the Liftgate Release 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 low reference circuit for a short to ground. If the circuit tests normal, replace the BCM.
 - If the test lamp is always OFF, test the low reference circuit for an open/high

resistance. If the circuit tests normal, replace the BCM.

12. If all circuits test normal, test or replace the L/GATE relay.

Component Testing

Liftgate Latch Assembly

1. Ignition OFF, disconnect the harness connector at the Liftgate Latch.
2. Install a 20-amp fused jumper wire between the control circuit terminal 1 and 12 volts. Install a jumper wire between the ground circuit terminal 3 and ground. Verify the release actuator activates.
 - If the actuator does not perform as specified, replace the Liftgate Latch.

Liftgate Release Switch

1. Ignition OFF, disconnect the harness connector at the Liftgate Release switch.
2. Test for infinite resistance between the signal terminal B and the ground circuit terminal D with the switch in the open position.
 - If not the specified value, replace the Liftgate Release switch.
3. Test for less than 2.0 ohms between the signal terminal B and the ground circuit terminal D with the switch in the closed position.
 - If greater than the specified range, replace the Liftgate Release switch.

Relay Test

1. Ignition OFF, disconnect the L/GATE relay
2. Test for 60-200 ohms of resistance between terminals 85 and 86.
 - If the resistance is not within the specified range, replace the relay.
3. Test for infinite resistance between the following terminals.
 - 30 and 86
 - 30 and 87
 - 30 and 85
 - 85 and 87
 - If less than infinite resistance, replace the L/GATE relay
4. Install a 3-amp fused jumper wire between applicable relay terminal 85 and 12 volts. Install a jumper wire between relay terminal 86 and ground. Measure for less than 2 ohms of resistance between terminals 30 and 87.
 - If greater than 2 ohms, replace the L/GATE relay

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Repair Procedures

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

Control Module References for BCM replacement, setup and programming

POWER DOOR LOCKS INOPERATIVE (RPO AXC/AXE)

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

Power Door Locks Inoperative (RPO AXC/AXE)

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Door Module B+	1	1	-	-
I/P Fuse Block B+	3, 4	3, 4	-	-
Passenger Door Module B+	2	2	-	-
Driver Door Latch Assembly Control Circuit	1	1	1	-
Passenger Door Latch Assembly Control Circuit	2	2	2	-
Doors Locked Control Circuit	B3135	3, 4	3, 4	-
Doors Unlocked Control Circuit	B3130	3, 4	3, 4	-
Rear Door Latch Control Circuit	3, 4	3, 4	3, 4	-
I/P Fuse Block Ground	-	3, 4	3, 4	-

1. Driver Door Latch Malfunction
2. Passenger Door Latch Malfunction
3. Rear Door Unlock Inoperative

4. Rear Door Lock Inoperative

Circuit/System Description

The driver and front passenger power door lock switches are integral components of the driver door module (DDM) and passenger door module (PDM). The switches consist of 2 positions, lock and unlock and are in the normally open state. When placed in either the lock or unlock positions, the switches provide a direct input to their respective door control module. When a power door lock switch is operated to the lock or unlock position, the associated door control module responds by sending a GMLAN serial data message indicating a change in the switch's position. This serial data message is received by the opposite door control module as well as the body control module (BCM). The DDM and PDM respond to the lock/unlock request by activating their associated power door lock motors to the appropriate direction to lock or unlock the front doors. The BCM is responsible for controlling the left rear and right rear passenger door lock motors. The BCM, upon receipt of a lock or unlock serial data signal, will control either the rear door lock or unlock relay. When the appropriate door lock relay is energized, the rear power door lock motors will lock or unlock the rear doors.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics (AXA) or **Door Lock/Indicator Schematics (AXC/AXE)**

Connector End View Reference

- **Vehicle Access Connector End Views**
- **Data Communication Connector End Views**

Description and Operation

Power Door Locks Description and Operation (AXA) or **Power Door Locks Description and Operation (AXC/AXE)**

Electrical Information Reference

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

Scan Tool Reference

- **Scan Tool Data Definitions**
- **Scan Tool Data List**
- **Scan Tool Output Controls**

Circuit/System Verification

Ignition ON, observe the Liftgate Release Sw parameter while pressing the Liftgate Release Switch. The reading should change between Active and Inactive.

- If the driver door does not Lock and Unlock when changing between commanded states, refer to **Driver Door Lock Malfunction**.
- If the passenger door does not Lock and Unlock when changing between commanded states, refer to **Passenger Door Lock Malfunction**.
- If a rear door does not Unlock when changing between commanded states, refer to **Door Unlock Relay Malfunction**.
- If a rear door does not Lock when changing between commanded states, refer to **Door Lock Relay Malfunction**.

Circuit/System Testing

Driver Door Lock Malfunction

1. Ignition OFF, disconnect the harness connector X1 at the DDM.
2. Ignition ON, verify that a test lamp illuminates between the B+ circuit terminal 4 and ground.
 - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance. If the circuit tests normal and the DR/LCK fuse is open, replace the DDM.
3. Ignition OFF, reconnect the DDM and disconnect the harness connector at the driver door latch assembly.
4. Ignition OFF, test for less than 1.0 ohm of resistance between the lock control circuit terminal 9 and ground.
 - If greater than the specified range, test the lock control circuit for a short to voltage or an open/high resistance. If circuits test normal, replace the DDM.
5. Ignition OFF, test for less than 1.0 ohm of resistance between the unlock control circuit terminal 7 and ground.

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- If greater than the specified range, test the unlock control circuit for a short to voltage or an open/high resistance. If circuits test normal, replace the DDM.
- 6. Ignition ON, connect a test lamp between the lock control circuit terminal 9 and unlock control circuit terminal 7.
- 7. Command the door to LOCK/UNLOCK with a scan tool. The test lamp should turn ON when commanding the DOOR LOCK and UNLOCK states.
 - If the test lamp remains OFF during either of the commands, test for a short to ground on either control circuit. If the circuits test normal, replace the DDM.
- 8. If the circuits test normal, test or replace the driver door latch assembly.

Passenger Door Lock Malfunction

1. Ignition OFF, disconnect the harness connector X1 at the PDM.
2. Ignition ON, verify that a test lamp illuminates between the B+ circuit terminal 4 and ground.
 - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance. If the circuit tests normal and the PDM fuse is open, replace the PDM.
3. Ignition OFF, reconnect the PDM and disconnect the harness connector at the passenger door latch assembly.
4. Ignition OFF, test for less than 1.0 ohm of resistance between the lock control circuit terminal 3 and ground.
 - If greater than the specified range, test the lock control circuit for a short to voltage or an open/high resistance. If circuits test normal, replace the PDM.
5. Ignition OFF, test for less than 1.0 ohm of resistance between the unlock control circuit terminal 8 and ground.
 - If greater than the specified range, test the unlock control circuit for a short to voltage or an open/high resistance. If circuits test normal, replace the PDM.
6. Ignition ON, connect a test lamp between the lock control circuit terminal 3 and unlock control circuit terminal 8.
7. Command the door to LOCK/UNLOCK with a scan tool. The test lamp should turn ON when commanding the DOOR LOCK and UNLOCK states.
 - If the test lamp remains OFF during either of the commands, test for a short to ground on either control circuit. If the circuits test normal, replace the PDM.
8. If the circuits test normal, test or replace the passenger door latch assembly.

Door Unlock Relay Malfunction

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1. Ignition OFF, disconnect the harness connector X1 at the I/P Fuse Block.
2. Ignition OFF, test for less than 1.0 ohm of resistance between the ground circuit terminal 28 and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition OFF, reconnect the I/P Fuse Block and disconnect the UNLCK relay.
4. Test for less than 1.0 ohm of resistance between the switch side ground circuit terminal 87A and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
5. Ignition ON, verify that a test lamp does not illuminate between the switch side control circuit terminal 30 and ground.
 - If the test lamp illuminates, test the control circuit for a short to voltage.
6. Verify that a test lamp illuminates between the coil side B+ circuit terminal 86 and ground.
 - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance. If the circuit tests normal and the DR/LCK fuse is open, test the switch side control circuit terminal 30 for a short to ground. If the circuit tests normal, test or replace the UNLCK relay
7. Verify that a test lamp illuminates between the switch side B+ circuit terminal 87 and ground.
 - If the test lamp does not illuminate, test the B+ circuit for an open/high resistance.
8. Connect a test lamp between the coil control circuit terminal 85 and the coil side B+ circuit terminal 86.
9. Command the Rear Doors Unlock 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 OFF, test the control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the BCM.
 - If the test lamp is always ON, test the control circuit for a short to ground. If the circuit tests normal, replace the BCM.
10. Install the UNLCK relay.
11. Ignition OFF, disconnect the harness connector at the appropriate rear door latch.
12. Ignition OFF, test for less than 5.0 ohms of resistance between the control circuit terminal 4 and ground.
 - If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If the circuits test normal, replace the UNLCK relay.
13. Ignition OFF, test for less than 5.0 ohms of resistance between the control circuit 5 and ground.

- If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the UNLCK relay.
14. Connect a test lamp between control circuit terminal 4 and control circuit terminal 5.
 15. Ignition ON, command the door latch to LOCK and UNLOCK with a scan tool. The test lamp should turn ON when commanding the LOCK and UNLOCK states.
 - If the test lamp remains OFF during either of the commands and the DR/LCK fuse is good, test for a short to ground on either control circuit. If the circuits test normal, replace the BCM.
 - If the test lamp is always OFF and the circuit fuse is open, test the control circuit for a short to ground. If the circuit tests normal, test or replace the UNLCK relay.
 16. If all circuits test normal, test or replace the appropriate door latch.

Door Lock Relay Malfunction

1. Ignition OFF, disconnect the LCK relay.
2. Ignition OFF, test for less than 1.0 ohm of resistance between the switch side ground circuit terminal 87A and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition OFF, test for less than 1.0 ohm of resistance between the coil side ground circuit terminal 86 and ground.
 - If greater than the specified value, test the ground circuit for an open/high resistance.
4. Ignition ON, verify that a test lamp does not illuminate between the switch side control circuit terminal 30 and ground.
 - If the test lamp illuminates, test the control circuit for a short to voltage.
5. Verify that a test lamp illuminates between the switch side B+ circuit terminal 87 and ground.
 - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance.
6. Connect a test lamp between the coil control circuit terminal 85 and the coil side ground circuit terminal 86.
7. Command the Rear Doors Lock 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 OFF, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the BCM.
 - If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests normal, replace the BCM.

8. Install the LCK relay.
9. Disconnect the harness connector at the applicable rear door latch.
10. Ignition OFF, test for less than 5.0 ohms of resistance between the control circuit terminal 4 and ground.
 - If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If the circuits test normal, replace the LCK relay.
11. Ignition OFF, test for less than 5.0 ohms of resistance between the control circuit 5 and ground.
 - If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the LCK relay.
12. Connect a test lamp between the control circuit terminal 4 and the control circuit terminal 5.
13. Ignition ON, command the door latch to LOCK and UNLOCK with a scan tool. The test lamp should turn ON when commanding the LOCK and UNLOCK states.
 - If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests normal, test or replace the LCK relay.
 - 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, test or replace the LCK relay.
14. If all circuits test normal, test or replace the appropriate door latch.

Component Testing

Door Latch Assembly

1. Install a 20A fused jumper wire between the control terminal 4 and 12 volts. Install a jumper wire between the ground terminal 5 and ground.
2. Verify the actuator turns ON & OFF.
 - If the function does not perform as specified, replace the applicable door latch.

Relay Test

1. Ignition OFF, disconnect the applicable relay.
2. Test for 60-200 ohms of resistance between terminals 85 and 86.
 - If the resistance is not within the specified range, replace the relay.
3. Test for infinite resistance between the following terminals
 - 30 and 86
 - 30 and 87

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- 30 and 85
 - 85 and 87
 - If less than infinite resistance, replace the applicable relay.
4. Test for less than 2 ohms of resistance between terminals 30 and 87A.
- If greater than 2 ohms, replace the relay.
5. Install a 3-amp fused jumper wire between applicable relay terminal 85 and 12 volts. Install a jumper wire between relay terminal 86 and ground. Measure for less than 2 ohms of resistance between terminals 30 and 87.
- If greater than 2 ohms, replace the applicable relay.

Repair Procedures

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

- **Door Lock and Side Window Switch Replacement - Driver Side**
- **Door Lock and Side Window Switch Replacement - Passenger Side**
- **Front Side Door Latch Replacement**
- **Rear Side Door Latch Replacement**
- **Control Module References** for BCM replacement, setup and programming

POWER DOOR LOCKS INOPERATIVE (RPO AXA)

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

Power Door Locks Inoperative (RPO AXA)

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
I/P Fuse Block B+	1, 2, 3	1, 2, 3	-	-
Door Latch Control	1, 2, 3	1, 2, 3	1, 2, 3	-
Doors Unlocked Control	B3130	B3130	B3130	-
LF Door Unlock Control	B3125	B3125	B3125	-

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Doors Locked Control	B3135	B3135	-	-
Driver Door Lock Switch Lock Signal	B3150	B3150	B3150	-
Driver Door Lock Switch Unlock Signal	B3140	B3140	B3140	-
Passenger Door Lock Switch Lock Signal	B3155	B3155	B3155	-
Passenger Door Lock Switch Unlock Signal	B3145	B3145	B3145	-
Door Lock Switch Ground	-	1, 2, 3	1, 2, 3	-
I/P Fuse Block Ground	-	1, 2, 3	1, 2, 3	-
1. Door Lock Malfunction 2. Driver Door Unlock Malfunction 3. Door Unlock Malfunction				

Circuit/System Description

The body control module (BCM) provides battery positive voltage and ground to the appropriate lock and unlock control circuits of the door lock and unlock relays. The Lock control circuits of the driver and passenger door latch assemblies share a common relay; however, the Unlock control circuits have separate relays. The system is designed this way so that the keyless entry transmitter may be used to unlock only the driver door.

The BCM supplies and monitors a reference voltage to the door lock switch through the door lock switch lock/unlock signal circuit. The door lock switch also receives a constant ground source. If a door lock switch is placed in the lock position or unlock position, the reference voltage is taken directly to ground and the BCM detects 0.0 volts on the signal circuit.

The BCM, upon receipt of a lock switch lock signal, will switch the All Lock Relay Control circuit to battery positive voltage. This will energize the LCK relay. The relay will supply voltage to the door lock actuator lock control circuits to one side of the lock actuator. Since the opposing side of the lock actuators are connected to ground through the other lock actuator control circuit and the normally closed contacts of the lock or unlock relay, the doors will then lock appropriately. The remaining unlock relays receive voltage from the underhood fuse block, the BCM upon receipt of a unlock signal or driver door unlock signal will switch the appropriate unlock relay to ground. This will energize the appropriate unlock relay. The relay will supply voltage to the appropriate door unlock control circuits to one side of the appropriate lock actuator. Since the opposing side of the lock actuators are connected to ground through the other

lock actuator control circuits and the normally closed contact of the lock relay, the doors will then unlock appropriately.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics (AXA) or **Door Lock/Indicator Schematics (AXC/AXE)**

Connector End View Reference

- **Vehicle Access Connector End Views**
- **Data Communication Connector End Views**

Description and Operation

Power Door Locks Description and Operation (AXA) or **Power Door Locks Description and Operation (AXC/AXE)**

Electrical Information Reference

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

Scan Tool Reference

- **Scan Tool Data Definitions**
- **Scan Tool Data List**
- **Scan Tool Output Controls**

Circuit/System Verification

Ignition ON, observe function of the door locks while pressing the lock and unlock on both door lock switches. The doors should perform the LOCK and UNLOCK function.

- If either door lock switch malfunctions, refer to **Door Lock Switch Malfunction**.
- If the driver door does not unlock, refer to Driver **Driver Door Unlock Relay Malfunction**.
- If one or more passenger door do not unlock, refer to **Door Unlock Relay Malfunction**.

- If one or more vehicle doors do not lock, refer to **Door Lock Relay Malfunction**.

Circuit/System Testing

Door Lock Switch Malfunction

1. Ignition OFF, disconnect the harness connector at the appropriate Door Lock Switch.
2. Ignition OFF, test for less than 1.0 ohm for 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. Ignition ON, verify the scan tool Lock Cmd is OFF.
 - If not the specified value, test the signal circuit terminal E for a short to ground. If the circuit tests normal, replace the BCM.
4. Verify the scan tool Unlock Cmd is OFF.
 - If not the specified value, test the signal circuit terminal D for a short to ground. If the circuit tests normal, replace the BCM.
5. Install a 3-amp fused jumper wire between the Unlock signal circuit terminal D and ground. Verify the scan tool Door Unlock Cmd is ON.
 - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the BCM.
6. Install a 3-amp fused jumper wire between the lock signal circuit terminal E and ground. Verify the scan tool Lock Cmd is ON.
 - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the BCM.
7. If all circuits test normal, test or replace the appropriate door lock switch.

Driver Door Unlock Relay Malfunction

1. Ignition OFF, disconnect the harness connector X1 at the I/P Fuse Block.
2. Ignition OFF, test for less than 1.0 ohm of resistance between the ground circuit terminal 28 and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition OFF, reconnect the I/P Fuse Block and disconnect the LT/UNLCK relay.
4. Test for less than 1.0 ohm of resistance between the switch side ground circuit terminal 87A and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
5. Ignition ON, verify that a test lamp does not illuminate between the switch side control

- circuit terminal 30 and ground.
- If the test lamp illuminates, test the control circuit for a short to voltage.
6. Verify that a test lamp illuminates between the coil side B+ circuit terminal 86 and ground.
 - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance. If the circuit tests normal and the DR/LCK fuse is open, test the switch side control circuit terminal 30 for a short to ground. If the circuit tests normal, test or replace the LT/UNLCK relay
 7. Verify that a test lamp illuminates between the switch side B+ circuit terminal 87 and ground.
 - If the test lamp does not illuminate, test the B+ circuit for an open/high resistance.
 8. Connect a test lamp between the coil control circuit terminal 85 and the coil side B+ circuit terminal 86.
 9. Command the Driver Door Unlock 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 OFF, test the control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the BCM.
 - If the test lamp is always ON, test the control circuit for a short to ground. If the circuit tests normal, replace the BCM.
 10. Install the LT/UNLCK relay.
 11. Ignition OFF, disconnect the harness connector at the driver door latch.
 12. Ignition OFF, test for less than 5.0 ohms of resistance between the control circuit terminal 24 and ground.
 - If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If the circuits test normal, replace the LT/UNLCK relay.
 13. Ignition OFF, test for less than 5.0 ohms of resistance between the control circuit 26 and ground.
 - If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the LT/UNLCK relay.
 14. Connect a test lamp between control circuit terminal 24 and control circuit terminal 26.
 15. Ignition ON, command the driver door latch to LOCK and UNLOCK with a scan tool. The test lamp should turn ON when commanding the LOCK and UNLOCK states.
 - If the test lamp remains OFF during either of the commands and the DR/LCK fuse is good, test for a short to ground on either control circuit. If the circuits test normal, replace the BCM.
 - If the test lamp is always OFF and the circuit fuse is open, test the control circuit for a short to ground. If the circuit tests normal, test or replace the LT/UNLCK relay.

16. If all circuits test normal, test or replace the driver door latch.

Door Unlock Relay Malfunction

1. Ignition OFF, disconnect the harness connector X1 at the I/P Fuse Block.
2. Ignition OFF, test for less than 1.0 ohm of resistance between the ground circuit terminal 28 and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition OFF, reconnect the I/P Fuse Block and disconnect the UNLCK relay.
4. Test for less than 1.0 ohm of resistance between the switch side ground circuit terminal 87A and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
5. Ignition ON, verify that a test lamp does not illuminate between the switch side control circuit terminal 30 and ground.
 - If the test lamp illuminates, test the control circuit for a short to voltage.
6. Verify that a test lamp illuminates between the coil side B+ circuit terminal 86 and ground.
 - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance. If the circuit tests normal and the DR/LCK fuse is open, test the switch side control circuit terminal 30 for a short to ground. If the circuit tests normal, test or replace the UNLCK relay.
7. Verify that a test lamp illuminates between the switch side B+ circuit terminal 87 and ground.
 - If the test lamp does not illuminate, test the B+ circuit for an open/high resistance.
8. Connect a test lamp between the coil control circuit terminal 85 and the coil side B+ circuit terminal 86.
9. Command the Rear Doors Unlock 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 OFF, test the control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the BCM.
 - If the test lamp is always ON, test the control circuit for a short to ground. If the circuit tests normal, replace the BCM.
10. Install the UNLCK relay.
11. Ignition OFF, disconnect the harness connector at the appropriate door latch.
12. Ignition OFF, test for less than 5.0 ohms of resistance between the control circuit terminal 4 and ground for the rear door latches or control circuit terminal 26 and ground for the front passenger door latch.

- If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If the circuits test normal, replace the UNLCK relay.
13. Ignition OFF, test for less than 5.0 ohms of resistance between the control circuit 5 and ground for the rear door latches or control circuit terminal 24 and ground for the front passenger door latch.
 - If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the UNLCK relay.
 14. Connect a test lamp between control circuit terminal 4 and control circuit terminal 5 for the rear door latches or control circuit terminal 26 and control circuit terminal 24 for the front passenger door latch.
 15. Ignition ON, command the door latch to LOCK and UNLOCK with a scan tool. The test lamp should turn ON when commanding the LOCK and UNLOCK states.
 - If the test lamp remains OFF during either of the commands and the DR/LCK fuse is good, test for a short to ground on either control circuit. If the circuits test normal, replace the BCM.
 - If the test lamp is always OFF and the circuit fuse is open, test the control circuit for a short to ground. If the circuit tests normal, test or replace the UNLCK relay.
 16. If all circuits test normal, test or replace the appropriate door latch.

Door Lock Relay Malfunction

1. Ignition OFF, disconnect the LCK relay.
2. Ignition OFF, test for less than 1.0 ohm of resistance between the switch side ground circuit terminal 87A and ground.
 - If greater than the specified value, test the ground circuit for an open/high resistance.
3. Ignition OFF, test for less than 1.0 ohm of resistance between the coil side ground circuit terminal 86 and ground.
 - If greater than the specified value, test the ground circuit for an open/high resistance.
4. Ignition ON, verify that a test lamp does not illuminate between the switch side control circuit terminal 30 and ground.
 - If the test lamp illuminates, test the control circuit for a short to voltage.
5. Verify that a test lamp illuminates between the switch side B+ circuit terminal 87 and ground.
 - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance.
6. Connect a test lamp between the coil control circuit terminal 85 and the coil side ground

- circuit terminal 86.
7. Command the Doors Lock 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 OFF, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the BCM.
 - If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests normal, replace the BCM.
 8. Install the LCK relay.
 9. Disconnect the harness connector at the applicable door latch.
 10. Ignition OFF, test for less than 5.0 ohms of resistance between the control circuit terminal 4 and ground for the rear door latches or between the control circuit terminal 26 and ground for the front door latches.
 - If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If the circuits test normal, replace the LCK relay.
 11. Ignition OFF, test for less than 5.0 ohms of resistance between the control circuit 5 and ground for the rear door latches or between the control circuit terminal 24 and ground for the front door latches.
 - If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the LCK relay.
 12. Connect a test lamp between the control circuit terminal 4 and the control circuit terminal 5 for the rear door latches and between control circuit terminal 26 and the control circuit terminal 24 for the front door latches.
 13. Ignition ON, command the door latch to LOCK and UNLOCK with a scan tool. The test lamp should turn ON when commanding the LOCK and UNLOCK states.
 - If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests normal, test or replace the LCK relay.
 - 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, test or replace the LCK relay.
 14. If all circuits test normal, test or replace the applicable door latch.

Component Testing

Door Lock Switch Test

1. Ignition OFF, disconnect the harness connector at the applicable door lock switch.
2. Test for infinite resistance between the signal terminals D and E and the ground terminal B with the switch in the open position.

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- If less than infinite resistance, replace the applicable door lock switch.
- 3. Test for less than 2 ohms of resistance between the signal terminal E and the ground terminal B with the switch in the lock position.
 - If greater than 2 ohms, replace the applicable door lock switch.
- 4. Test for less than 2 ohms of resistance between the signal terminal D and the ground terminal B with the switch in the unlock position.
 - If greater than 2 ohms, replace the applicable door lock switch.

Front Door Lock Actuator Test

1. Install a 15A fused jumper wire between the control terminal 26 and 12 volts. Install a jumper wire between the ground terminal 24 and ground.
2. Verify the actuator turns ON & OFF.
 - If the function does not perform as specified, replace the applicable front door latch.

Rear Door Lock Actuator Test

1. Install a 15A fused jumper wire between the control terminal 4 and 12 volts. Install a jumper wire between the ground terminal 5 and ground.
2. Verify the actuator turns ON & OFF.
 - If the function does not perform as specified, replace the applicable rear door latch.

Relay Test

1. Ignition OFF, disconnect the applicable relay.
2. Test for 60-200 ohms of resistance between terminals 85 and 86.
 - If the resistance is not within the specified range, replace the relay.
3. Test for infinite resistance between the following terminals:
 - 30 and 86
 - 30 and 87
 - 30 and 85
 - 85 and 87
 - If less than infinite resistance, replace the applicable relay.
4. Test for less than 2 ohms of resistance between terminals 30 and 87A.
 - If greater than 2 ohms, replace the relay.
5. Install a 3-amp fused jumper wire between applicable relay terminal 85 and 12 volts. Install a jumper wire between relay terminal 86 and ground. Measure for less than 2 ohms of

resistance between terminals 30 and 87.

- If greater than 2 ohms, replace the applicable relay.

Repair Procedures

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

- **Door Lock and Side Window Switch Replacement - Driver Side**
- **Door Lock and Side Window Switch Replacement - Passenger Side**
- **Control Module References** for BCM replacement, setup and programming

POWER DOOR LOCK KEY CYLINDER SWITCHES 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

RPO AXA

The key cylinder unlock feature will unlock all of the doors when the body control module (BCM) receives a Key Unlock Switch signal for greater than 1 second and will unlock all of the doors.

RPO AXC/AXA

The key cylinder unlock feature will unlock all of the doors when the driver door module (DDM) receives a Key Unlock Switch signal for greater than 1 second and will send a request to the passenger door module (PDM) and the BCM to unlock all of the doors.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics (AXA) or **Door Lock/Indicator Schematics (AXC/AXE)**

Connector End View Reference

Vehicle Access Connector End Views

Description and Operation**Power Door Locks Description and Operation (AXA) or Power Door Locks Description and Operation (AXC/AXE)****Electrical Information Reference**

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

Scan Tool Reference

- **Scan Tool Data Definitions**
- **Scan Tool Data List**
- **Scan Tool Output Controls**

Circuit/System Verification

Ignition OFF, insert the key into the drivers door lock cylinder, turn the key clockwise and hold for greater than 1 second and turn the key counterclockwise and hold for greater than 1 second. Observe the scan tool Door Key Cyl Unlock Switch parameters, the reading should change between Active and Inactive.

Circuit/System Testing**RPO AXA**

1. Ignition OFF, disconnect the harness connector at the driver door latch assembly.
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, verify the scan tool Door Key Cyl Unlock Switch parameter is Inactive.
 - If not the specified value, test the signal circuit terminal 9 for a short to ground. If the circuits test normal, replace the BCM.
4. Install a 3-amp fused jumper wire between the signal circuit terminal 9 and ground, verify the scan tool Door Key Cyl Unlock Switch parameter is Active.
 - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the BCM.

5. If all circuits tests normal, test or replace the driver door latch assembly.

RPO AXC/AXE

1. Ignition OFF, disconnect the harness connector at the Driver Door Latch Assembly.
2. Ignition ON, verify the scan tool Door Key Cyl Unlock Switch parameter is Inactive.
 - If not the specified value, test the signal circuit terminal 9 for a short to ground. If the circuits test normal, replace the DDM.
3. Install a 3-amp fused jumper wire between the signal circuit terminal 9 and ground, verify the scan tool Door Key Cyl Unlock Switch parameter is Active.
 - If not the specified value, test the signal circuit for an open/high resistance. If the circuit tests normal, replace the DDM.
4. Install a 3-amp fused jumper wire between the signal circuit terminal 9 and the low reference circuit terminal 8, verify the scan tool Door Key Cyl Unlock Switch parameter is Active.
 - If not the specified value, test the low reference circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the DDM.
5. If all circuits tests normal, test or replace the driver door latch assembly.

Component Testing

1. Ignition OFF, disconnect the harness connector at the driver door latch assembly.
2. Test for infinite resistance between the signal terminal 9 and the ground circuit terminal 8 with the switch in the open position.
 - If not the specified value, replace the driver door latch assembly.
3. Test for less than 2.0 ohms between the signal terminal 9 and the ground circuit terminal 8 with the switch in the Unlock position.
 - If greater than the specified range, replace the driver door latch assembly.

Repair Procedures

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

- **Door Lock Cylinder Replacement**
- **Front Side Door Latch Replacement**
- **Control Module References** for BCM replacement, setup and programming

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

This feature prevents the locking of the driver door if the ignition key is left in the ignition lock cylinder. If a lock function occurs from any door lock switch and the body control module (BCM) senses an active state on either the left front door latch signal, secondary door latch switch signal and/or the liftgate ajar switch signal circuits and the key in ignition switch signal circuit is in the YES state, the BCM, driver door module and passenger door module will lock the doors and then the driver door module will unlock the driver door.

Reference Information**Schematic Reference**

Door Lock/Indicator Schematics (AXA) or **Door Lock/Indicator Schematics (AXC/AXE)**

Connector End View Reference

- **Vehicle Access Connector End Views**
- **Data Communication Connector End Views**

Description and Operation

Power Door Locks Description and Operation (AXA) or **Power Door Locks Description and Operation (AXC/AXE)**

Electrical Information Reference

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

Scan Tool Reference

- **Scan Tool Data Definitions**

- **Scan Tool Data List**
- **Scan Tool Output Controls**

Circuit/System Verification

With the ignition OFF, the key in the ignition and the driver window down, exit the vehicle, lock and close all doors. The driver door should unlock.

Circuit/System Testing

1. Command the doors to LOCK and UNLOCK by pressing the door lock switch.
 - If one or more doors fail to LOCK and UNLOCK, refer to **Power Door Locks Inoperative (RPO AXC/AXE)** or **Power Door Locks Inoperative (RPO AXA)**.
2. Ignition OFF, with a scan tool, observe the Key in Ignition Status, the parameter should be Key In.
 - If the reading is Key Out, refer to **Chime Inoperative** .
3. With a scan tool, observe each of the Door Ajar Switch parameters while opening and closing each door, the reading should change between Door Closed and Ajar.
 - If the reading on any door continuously reads Ajar, refer to **Door Ajar Indicator Malfunction** .
4. If all circuits are normal, replace the BCM.

Repair Procedures

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

Control Module References for BCM replacement, setup and programming

POWER LIFTGATE 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

Power Liftgate Inoperative

	Short to	Open/High	Short to	Signal
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Circuit	Ground	Resistance	Voltage	Performance
Liftgate Control Module B+	2	2	-	-
Liftgate Position Sensor 5V Reference Voltage	2	2	2	-
Full Open Signal	B153B 02	2	2	-
Liftgate Disable Signal	1, 2	1	1	-
Liftgate Open Signal	1	1	1	-
Object Sensors Signal	B153F 03	2	B153F 07	-
Open/Close Switches Signal	B2494 02	1, 2	1, 2	-
Pawl Switch Signal	B153A 00	B153A 00	B153A 00	-
Position Sensor Signal 1	B153E 02	B153E 05	B153E 05	-
Position Sensor Signal 2	B153E 02	B153E 05	B153E 05	-
Ratchet Switch Signal	B153A 00	B153A 00	B153A 00	-
Sector Switch Signal	B153A 00	B153A 00	B153A 00	-
Disengage Clutch Control	B396B 02	B396B 04	B396B 01	-
Engage Clutch Control	B396B 02	B396B 04	B396B 01	-
Liftgate Latch Cinch Control	B2495 02	B2495 05	B2495 01	-
Liftgate Latch Release Control	B2495 02	B2495 05	B2495 01	-
Liftgate Motor Close Control	B396A 02	B396A 04	B396A 01	-
Liftgate Motor Open Control	B396A 02	B396A 04	B396A 01	-
Full Open Low Reference	-	2	2	-
Liftgate Switches Low Reference	-	1	1	-
Position Sensor Low Reference	-	2	2	-
I/P Switch Ground	-	1	1	-
Liftgate Control Module Ground	-	2	2	-

1. Liftgate Switch Malfunction
2. Liftgate Malfunction

Circuit/System Description

The power liftgate module (PLGM) controls operation of the liftgate latch motor and the liftgate actuator assembly. Under normal conditions the power latch can only be unlatched under power from the PLGM through an input from the liftgate handle switch, the instrument panel switch or the remote keyless entry (RKE) transmitter, but the liftgate may be manually closed to the primary latched position without the PLGM performing the power latch function. The ON/OFF switch in the instrument panel switchbank will enable or disable the power open/close operation of the actuator assembly but will have no effect on power latch operation. The liftgate actuator assembly consists of the actuator drive motor with 2 internal Hall effect sensors. The drive motor is mated to a worm type gear off the actuator clutch and when the clutch is engaged the motor rotation is transferred to the clutch gear, intermediate gear and actuator arm gear. The full open switch is a limit switch mounted on the liftgate actuator assembly along side the actuator arm gear and will make contact with the cam on the actuator arm gear when the liftgate is near the full open position. The PLGM continuously monitors the liftgate location and direction of travel using the 2 Hall effect sensors in the drive motor. The sensor counts are used to determine when the liftgate has reached the open and closed points of travel where the actuator clutch should be disengaged. These positions may vary slightly and must be learned when most liftgate components are serviced.

Diagnostic Aids

Power liftgate function will only be allowed if certain operating criteria are met. Any of the following may cause the power liftgate not to function:

- After a power loss of the low current battery supply until the ignition is cycled.
- Vehicle is not in park.
- Engine cranking is present.
- Ambient temperature at the PLGM must be within -17 to +80°C (+1 to +176°F).
- Liftgate motor excess current is detected.
- System voltage is out of range.
- A DTC is set that disables power liftgate functionality.
- The liftgate is locked when attempting to open from exterior handle.
- The theft deterrent system is enabled.

The liftgate also receives input from 2 pressure sensing object detection sensors. If either of these

sensors indicates an object may be pinched as the liftgate is brought to the closed position, the liftgate will reverse direction and power close operation will be suspended until the pressure against the sensor is released.

Reference Information

Schematic Reference

Liftgate Schematics

Connector End View Reference

Vehicle Access Connector End Views

Description and Operation

Rear Hatch/Gate Description and Operation

Electrical Information Reference

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

Scan Tool Reference

- Scan Tool Data Definitions
- Scan Tool Data List
- Scan Tool Output Controls

Circuit/System Verification

1. Ignition ON, doors unlocked, transaxle in Park, disable the power liftgate by pressing the Liftgate Enable/Disable button on the I/P Switch Assembly.
2. Open the liftgate by pressing the touchpad on the liftgate handle switch and close by pushing the liftgate closed. The liftgate should release, cinch-in and latch.
 - If the liftgate fails to release, cinch-in or latch, refer to **Latch Assembly Malfunction**.
3. Enable the liftgate by pressing the Enable/Disable button on the I/P Switch Assembly and command the liftgate to OPEN and CLOSE with a scan tool. The liftgate should OPEN and

CLOSE as commanded.

- If the liftgate fails to OPEN and CLOSE, refer to **Power Liftgate Inoperative**.
 - If the liftgate closes and immediately reopens, refer to **Liftgate Closes and Reopens**.
4. Command the Power Liftgate to OPEN and CLOSE by pressing the I/P Switch Assembly, the liftgate should OPEN and CLOSE as commanded.
 - If the liftgate does not OPEN and CLOSE as commanded, refer to **I/P Switch Inoperative**.
 5. Command the Power Liftgate to OPEN by pressing the touchpad on the Liftgate Handle, the liftgate should OPEN as commanded.
 - If the liftgate does not OPEN as commanded, refer to **Liftgate Handle Switch Inoperative**.
 6. Command the Power Liftgate to Close by pressing the liftgate button next to the liftgate latch, the liftgate should CLOSE as commanded.
 - If the liftgate does not CLOSE as commanded, refer to **Liftgate Button Switch Inoperative**.

Circuit/System Testing

Latch Assembly Malfunction

1. Ignition OFF, disconnect the harness connector at the Liftgate Latch Assembly.
2. Ignition OFF, test for less than 1.0 ohm of resistance between the Release control circuit terminal 1 and ground.
 - If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If circuits test normal, replace the PLGM.
3. Ignition OFF, test for less than 1.0 ohm of resistance between the Cinch control circuit terminal 3 and ground.
 - If greater than the specified range, test the control circuit for a short to voltage or an open/high resistance. If circuits test normal, replace the PLGM.
4. Connect a test lamp between control circuit terminal 1 and control circuit terminal 3.
5. Command the Liftgate to OPEN and CLOSE with a scan tool. The test lamp should turn ON when commanding the OPEN and CLOSE states.
 - If the test lamp remains OFF during either of the commands, test for a short to ground on either control circuit. If the circuits test normal, replace the PLGM.
6. Ignition OFF, test for less than 1.0 ohm of resistance between the low reference circuit terminal 2 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 PLGM.
7. Ignition ON, verify the scan tool Pawl Sw. parameter is INACTIVE.
 - If not the specified value, test the signal circuit terminal 5 for a short to ground. If the circuit tests normal, replace the PLGM.
 8. Ignition ON, verify the scan tool Ratchet Sw. parameter is INACTIVE.
 - If not the specified value, test the signal circuit terminal 6 for a short to ground. If the circuit tests normal, replace the PLGM.
 9. Ignition ON, verify the scan tool Sector Sw. parameter is INACTIVE.
 - If not the specified value, test the signal circuit terminal 4 for a short to ground. If the circuit tests normal, replace the PLGM.
 10. Install a 3A fused jumper wire between the signal circuit terminal 5 and low reference circuit terminal 2. Verify the scan tool Pawl Sw. parameter is ACTIVE.
 - If not the specified value, test the signal circuit terminal 5 for a short to voltage or an open/high resistance. If the circuit tests normal, replace the PLGM.
 11. Install a 3A fused jumper wire between the signal circuit terminal 6 and low reference circuit terminal 2. Verify the scan tool Ratchet Sw. parameter is ACTIVE.
 - If not the specified value, test the signal circuit terminal 6 for a short to voltage or an open/high resistance. If the circuit tests normal, replace the PLGM.
 12. Install a 3A fused jumper wire between the signal circuit terminal 4 and low reference circuit terminal 2. Verify the scan tool Sector Sw. parameter is ACTIVE.
 - If not the specified value, test the signal circuit terminal 4 for a short to voltage or an open/high resistance. If the circuit tests normal, replace the PLGM.
 13. If all circuits test normal, test or replace the Liftgate Latch Assembly.

Power Liftgate Inoperative

1. Ignition OFF, disconnect the harness connector at the PLGM.
2. Ignition OFF, test for 1.0 ohm of resistance between the ground terminal 6 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 B+ circuit terminal 3 and ground.
 - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance. If the circuit tests normal and the PWR L/GATE fuse is open, replace the PLGM.

Liftgate Closes and Reopens

2007 Saturn Outlook XE

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1. Ignition OFF, disconnect the harness connector at the appropriate liftgate object sensor.
2. Ignition OFF, test for 10 ohms of resistance between the signal terminal B and the low reference circuit terminal A.
 - If less than the specified range, replace the appropriate liftgate object sensor. If the circuit tests normal, replace the PLGM.

I/P Switch Inoperative

1. Ignition OFF, disconnect the harness connector at the I/P switch assembly.
2. Ignition OFF, test for less than 1 ohm of resistance between the ground circuit terminal 3 and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition ON, verify the scan tool PLGM Disable Switch parameter is Inactive.
 - If not the specified value, test the signal circuit terminal 8 for a short to ground. If the circuit tests normal, replace the PLGM.
4. Install a 3A fused jumper wire between the signal circuit terminal 8 and ground. Verify the scan tool PLGM Disable Switch parameter is Active.
 - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the PLGM.
5. Verify the scan tool Front Control Switch parameter is Inactive.
 - If not the specified value, test the signal circuit terminal 7 for a short to ground. If the circuit tests normal, replace the PLGM.
6. Install a 3A fused jumper wire between the signal circuit terminal 7 and ground. Verify the scan tool Front Control Switch parameter is Active.
 - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the PLGM.
7. If all circuits test normal, test or replace the I/P switch.

Liftgate Handle Switch Inoperative

1. Ignition OFF, disconnect the harness connector at the exterior liftgate switch.
2. Ignition OFF, test for less than 1 ohm of resistance between the low reference circuit terminal 2 and ground.
 - If greater than the specified range, test the low reference circuit for an open/high resistance.
3. Ignition ON, verify the scan tool Liftgate Handle Sw Status parameter is Inactive.
 - If not the specified value, test the signal circuit terminal 1 for a short to ground. If the

circuit tests normal, replace the PLGM.

4. Install a 3A fused jumper wire between the signal circuit terminal 1 and ground. Verify the scan tool Liftgate Handle Sw Status parameter is Active.
 - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the PLGM.
5. If all circuits test normal, test or replace the exterior liftgate switch.

Liftgate Button Switch Inoperative

1. Ignition OFF, disconnect the harness connector at the interior liftgate switch.
2. Ignition OFF, test for less than 1 ohm of resistance between the low reference circuit terminal 2 and ground.
 - If greater than the specified range, test the low reference circuit for an open/high resistance.
3. Ignition ON, verify the scan tool Liftgate Handle Sw Status parameter is Inactive.
 - If not the specified value, test the signal circuit terminal 1 for a short to ground. If the circuit tests normal, replace the PLGM.
4. Install a 3A fused jumper wire between the signal circuit terminal 1 and ground. Verify the scan tool Liftgate Handle Sw Status parameter is Active.
 - If not the specified value, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the PLGM.
5. If all circuits test normal, test or replace the interior liftgate switch.

Component Testing**Liftgate Object Sensor**

1. Ignition OFF, disconnect the harness connector at the right liftgate tape switch.
2. Test for 10K ohms of resistance between the signal terminal A and the low reference terminal B.
 - If not within the specified range, replace the right liftgate tape switch.
3. Disconnect the harness connector at the left liftgate tape switch.
4. Test for 10K ohms of resistance between the signal terminal A and the low reference terminal B.
 - If resistance is not within the specified range, replace the left liftgate tape switch.

Liftgate Interior/Exterior Switch

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1. Ignition OFF, disconnect the harness connector at the appropriate Liftgate Switch.
2. Test for infinite resistance between the signal terminal 1 and the low reference circuit terminal 2 with the switch in the open position.
 - If not the specified value, replace the appropriate Liftgate Switch.
3. Test for less than 2.0 ohms between the signal terminal 1 and the low reference circuit terminal 2 with the switch in the closed position.
 - If greater than the specified range, replace the appropriate Liftgate Switch.

Liftgate Latch Assembly

1. Install a 20-amp fused jumper wire between the control terminal 1 and 12 volts. Momentarily install a jumper wire between the control terminal 3 and ground. The Liftgate Latch Assembly should perform the CINCH or RELEASE function.
 - If the function does not perform as specified, replace the Liftgate Latch Assembly.
2. Reverse the jumper wires, the Liftgate Latch Assembly should perform the RELEASE or CINCH function.
 - If the function does not perform as specified, replace the Liftgate Latch Assembly.

I/P Switch Assembly

1. Ignition OFF, disconnect the harness connector at the I/P Switch Assembly.
2. Test for infinite resistance between the signal circuit terminal 7 and the ground circuit terminal 3 with the liftgate open switch in the inactive position.
 - If not the specified value, replace the I/P Switch Assembly.
3. Test for infinite resistance between the signal circuit terminal 8 and the ground circuit terminal 3 with the liftgate disable switch in the inactive position.
 - If not the specified value, replace the I/P Switch Assembly.
4. Test for less than 3 ohms between the signal circuit terminal 7 and the ground circuit terminal 3 with the liftgate open switch in the active position.
 - If greater than the specified range, replace the I/P Switch Assembly.
5. Test for less than 3 ohms between the signal circuit terminal 8 and the ground circuit terminal 3 with the switch in the disable position.
 - If greater than the specified range, replace the I/P Switch Assembly.

Repair Procedures

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

- **Control Module References** for BCM replacement, setup and programming
- **Liftgate Calibration Procedure**
- **Liftgate Outside Handle Replacement**
- **Power Liftgate Motor Replacement**
- **Liftgate Side Upper Sensor Replacement**

REPAIR INSTRUCTIONS

FRONT SIDE DOOR LOCK ACTUATOR REPLACEMENT

Removal Procedure

1. Remove the door trim panel. Refer to **Front Side Door Trim Panel Replacement - Left Side** or **Front Side Door Trim Panel Replacement - Right Side** .
2. Remove the water deflector. Refer to **Front Side Door Water Deflector Replacement** .
3. Remove the door latch assembly. Refer to **Front Side Door Latch Replacement**.

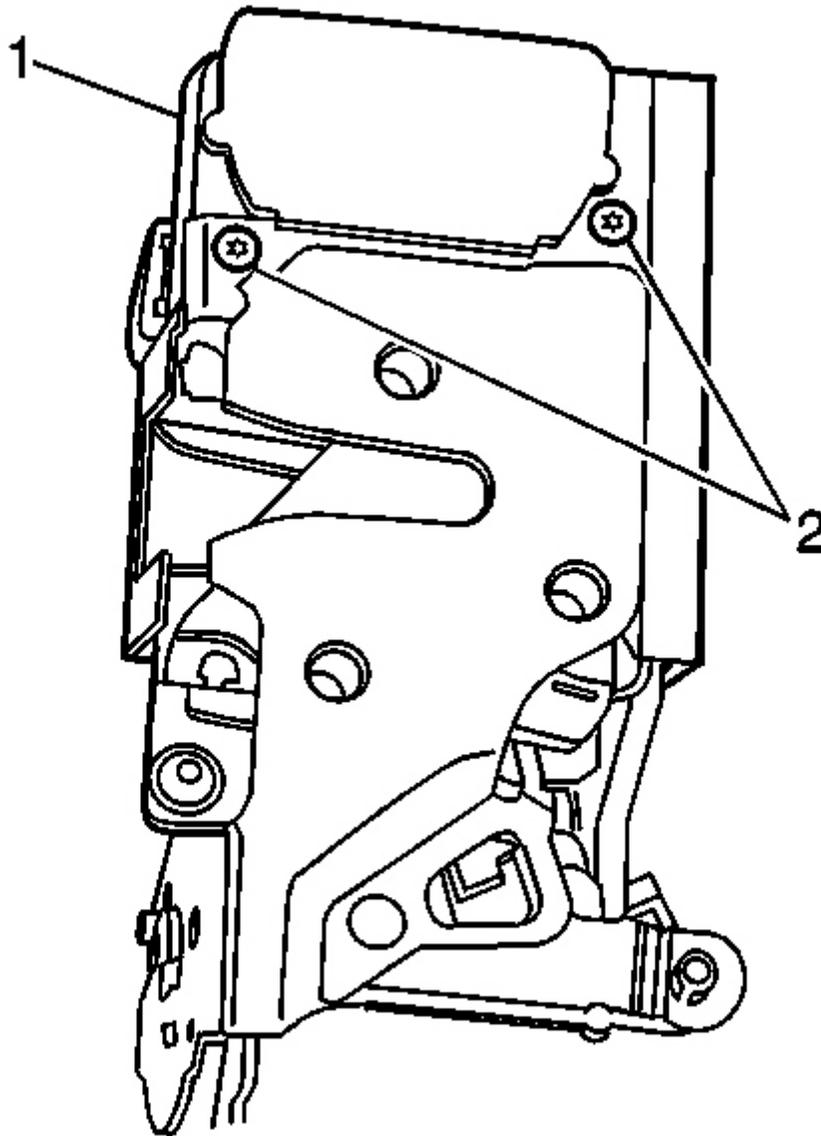


Fig. 63: View Of Lock Actuator To Latch Assembly
Courtesy of GENERAL MOTORS CORP.

4. Remove the 2 screws (2) that retain the actuator (1) to the lock.

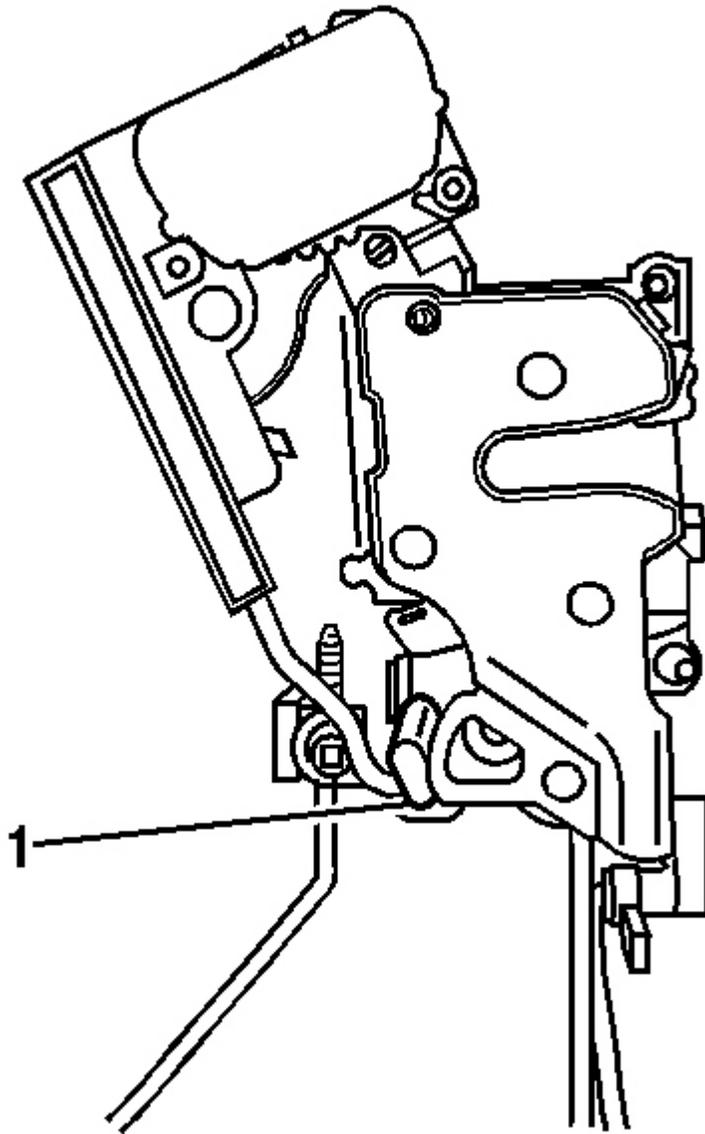


Fig. 64: View Of Lock Actuator Rubber Bumper In Latch
Courtesy of GENERAL MOTORS CORP.

5. Simultaneously lift up on and rotate the actuator away from the latch in order to disengage the rubber bumper (1) from the latch.
6. Remove the actuator from the latch.

Installation Procedure

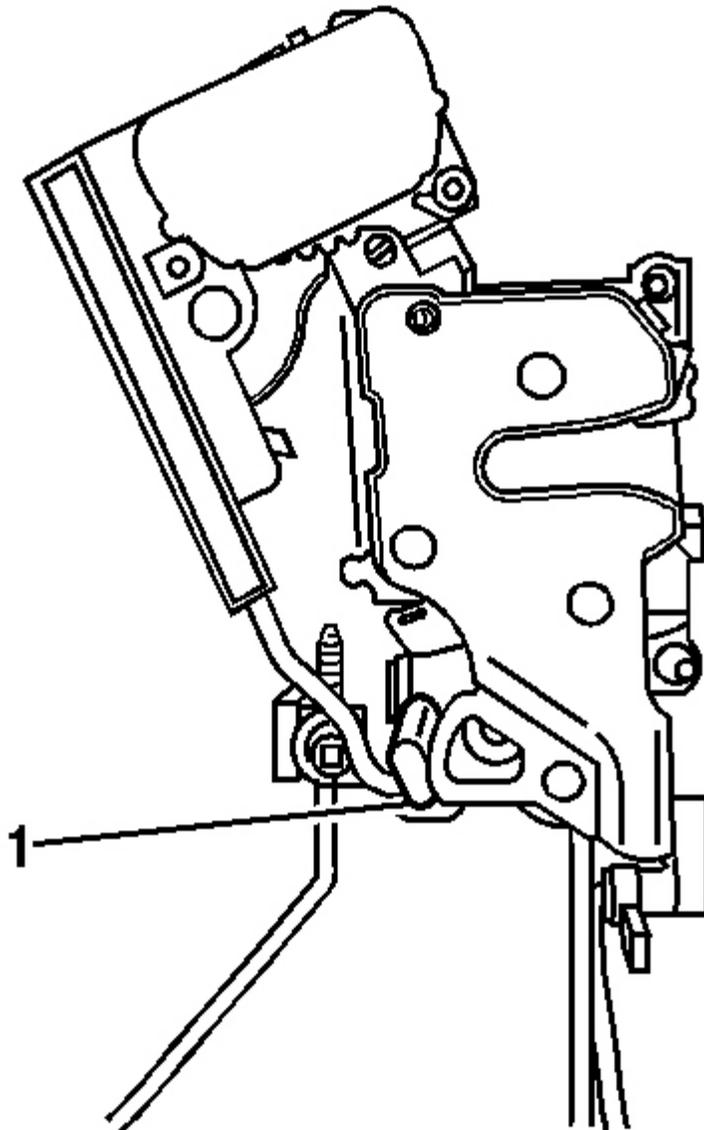


Fig. 65: View Of Lock Actuator Rubber Bumper In Latch
Courtesy of GENERAL MOTORS CORP.

1. Install the rubber bumper (1) to the latch.

2. Rotate the actuator toward the latch in order to fully engage the rubber bumper into the latch.

IMPORTANT: Ensure that the first tooth of the gear on the actuator and the first tooth of the gear on the latch align and interlock properly.

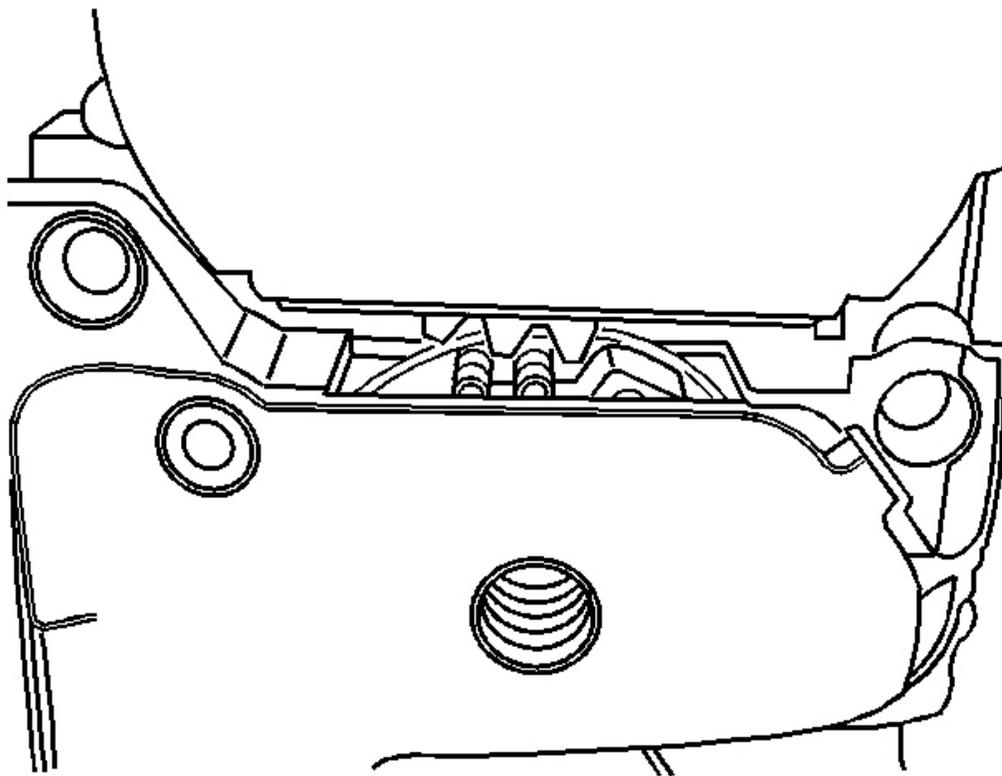


Fig. 66: Aligning Actuator & Latch Gear Teeth
Courtesy of GENERAL MOTORS CORP.

3. Install the actuator to the top of the latch.

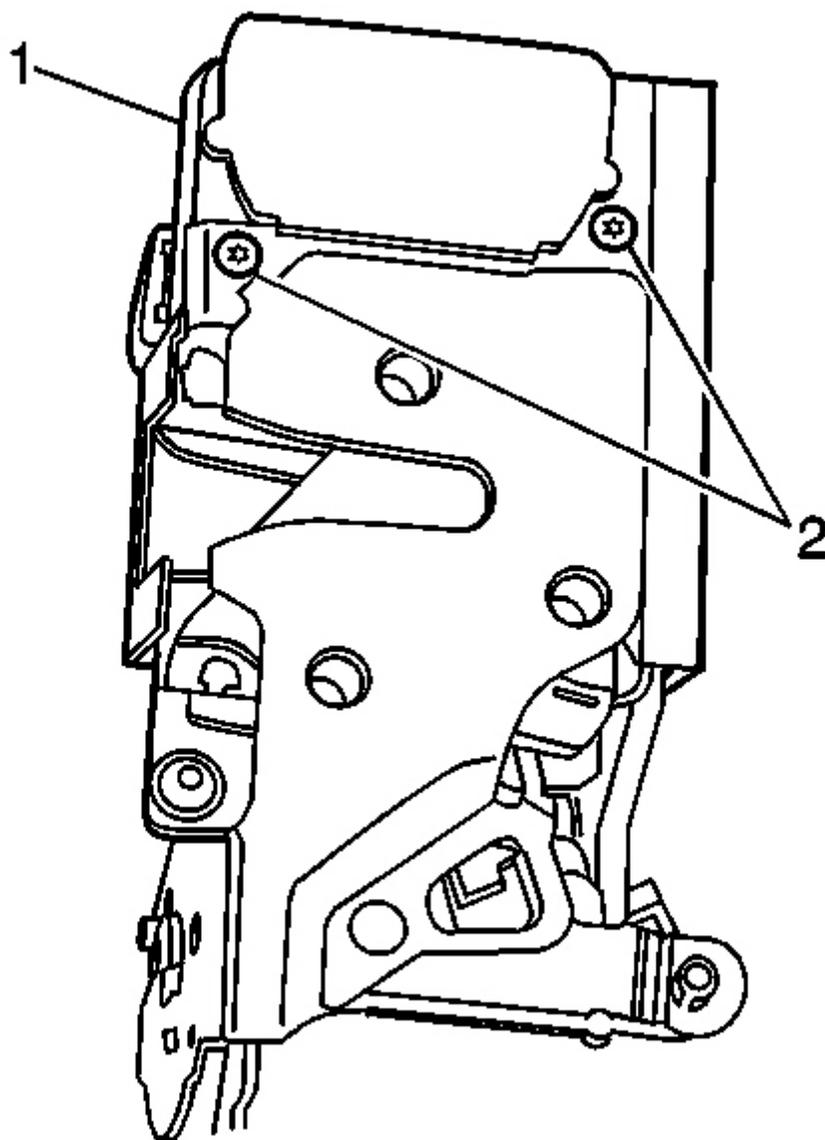


Fig. 67: View Of Lock Actuator To Latch Assembly
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to **Fastener Notice** .

4. Install the 2 screws (2) that retain the actuator (1) to the lock.

Tighten: Tighten the screws to 0.75 N.m (6 lb in).

5. Install the lock to the door. Refer to **Front Side Door Latch Replacement**.
6. Install the water deflector. Refer to **Front Side Door Water Deflector Replacement** .
7. Install the door trim panel. Refer to **Front Side Door Trim Panel Replacement - Left Side** or **Front Side Door Trim Panel Replacement - Right Side** .

REAR SIDE DOOR LOCK ACTUATOR REPLACEMENT

Removal Procedure

1. Remove the door trim panel. Refer to **Rear Side Door Trim Panel Replacement** .
2. Remove the water deflector. Refer to **Rear Side Door Water Deflector Replacement** .
3. Remove the door latch assembly. Refer to **Rear Side Door Latch Replacement**.

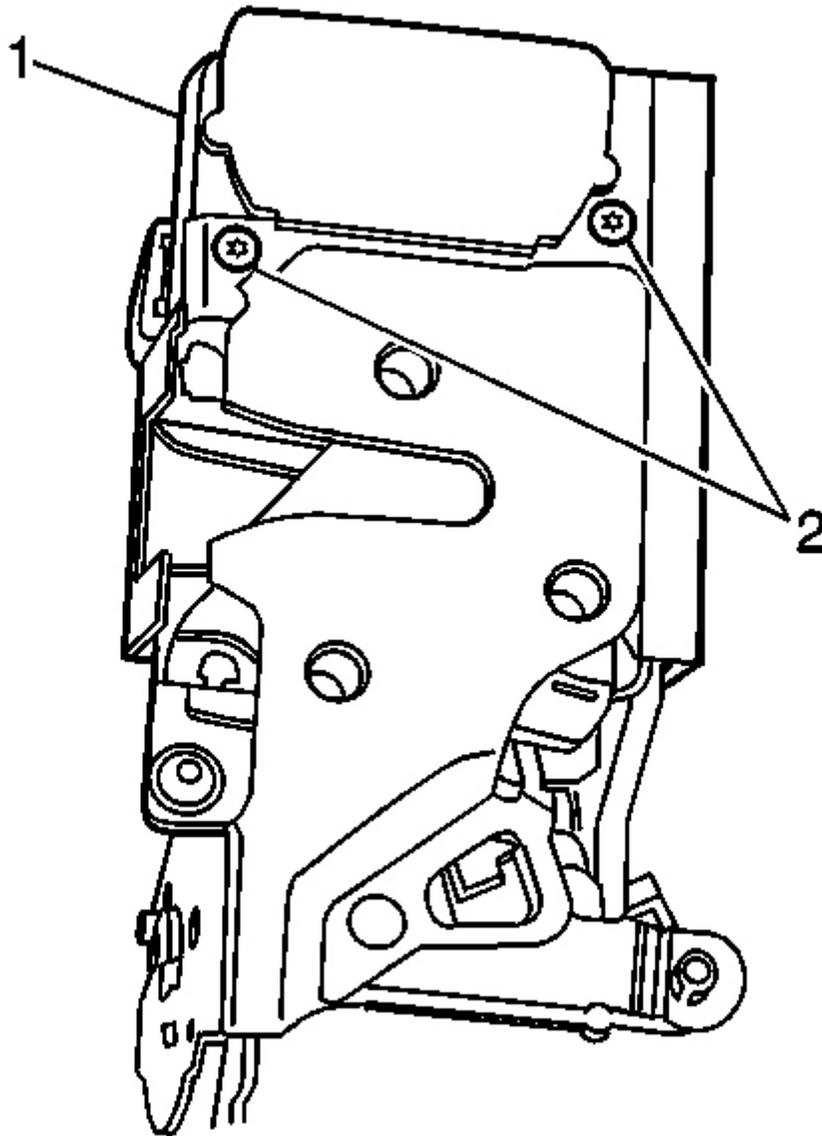


Fig. 68: View Of Lock Actuator To Latch Assembly
Courtesy of GENERAL MOTORS CORP.

4. Remove the 2 screws (2) that retain the actuator (1) to the lock.

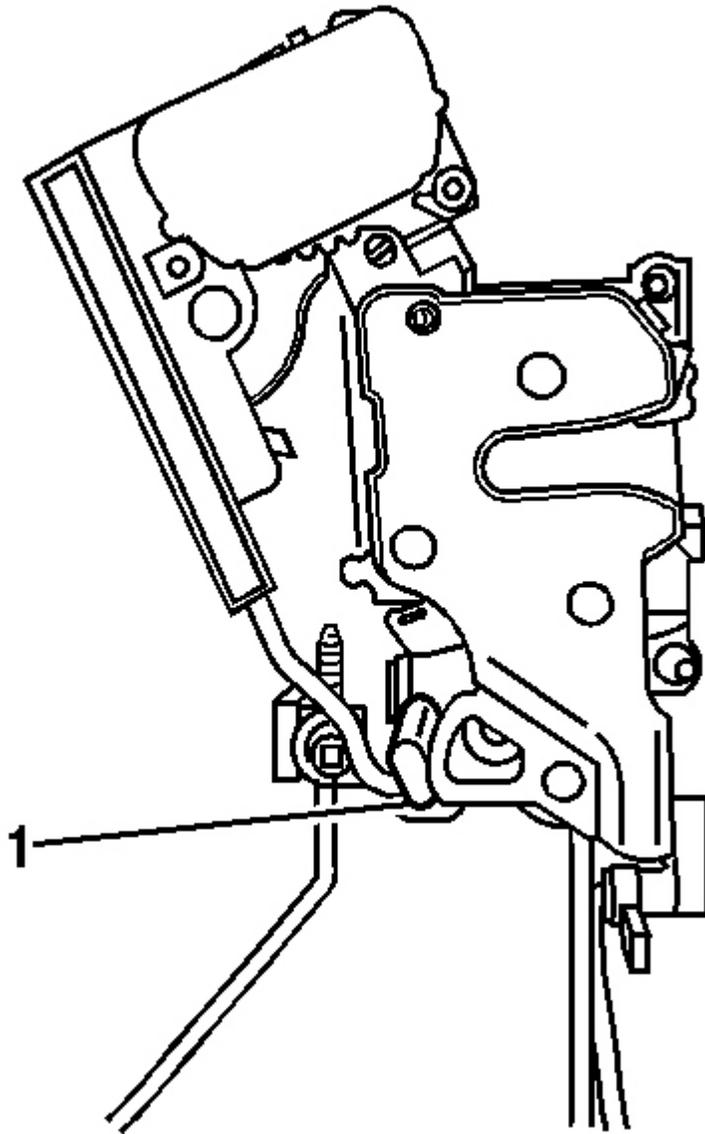


Fig. 69: View Of Lock Actuator Rubber Bumper In Latch
Courtesy of GENERAL MOTORS CORP.

5. Simultaneously lift up on and rotate the actuator away from the latch in order to disengage the rubber bumper (1) from the latch.
6. Remove the actuator from the latch.

Installation Procedure

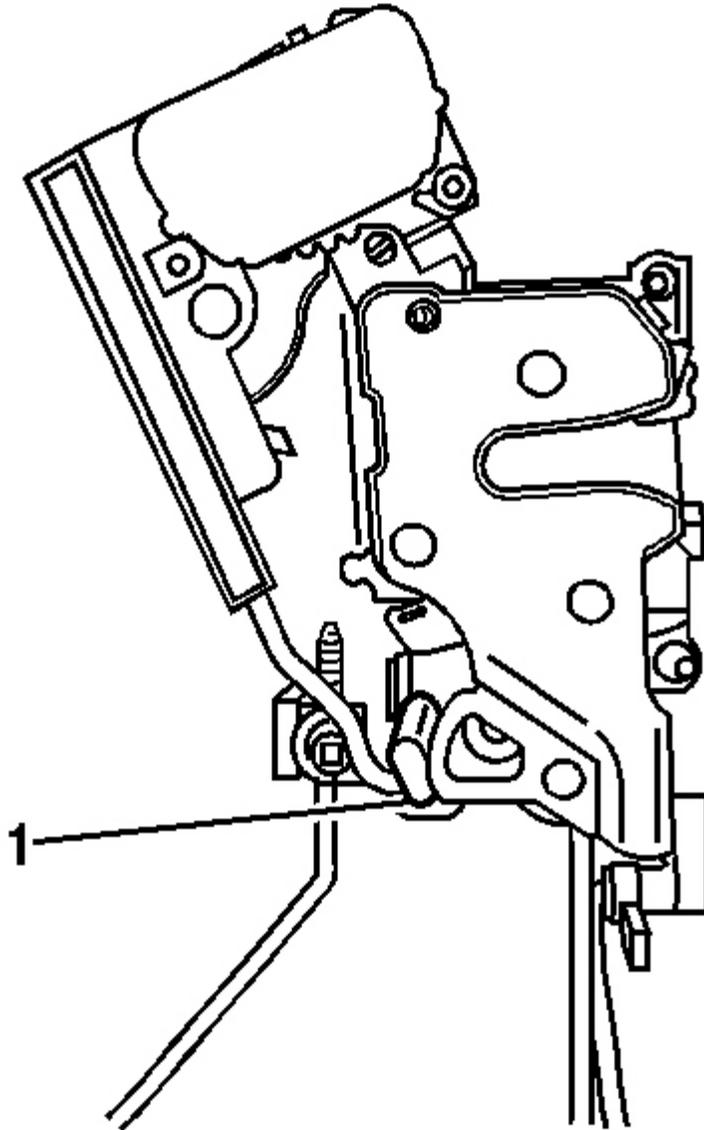


Fig. 70: View Of Lock Actuator Rubber Bumper In Latch
Courtesy of GENERAL MOTORS CORP.

1. Install the rubber bumper (1) to the latch.

2. Rotate the actuator toward the latch in order to fully engage the rubber bumper into the latch.

IMPORTANT: Ensure that the first tooth of the gear on the actuator and the first tooth of the gear on the latch align and interlock properly.

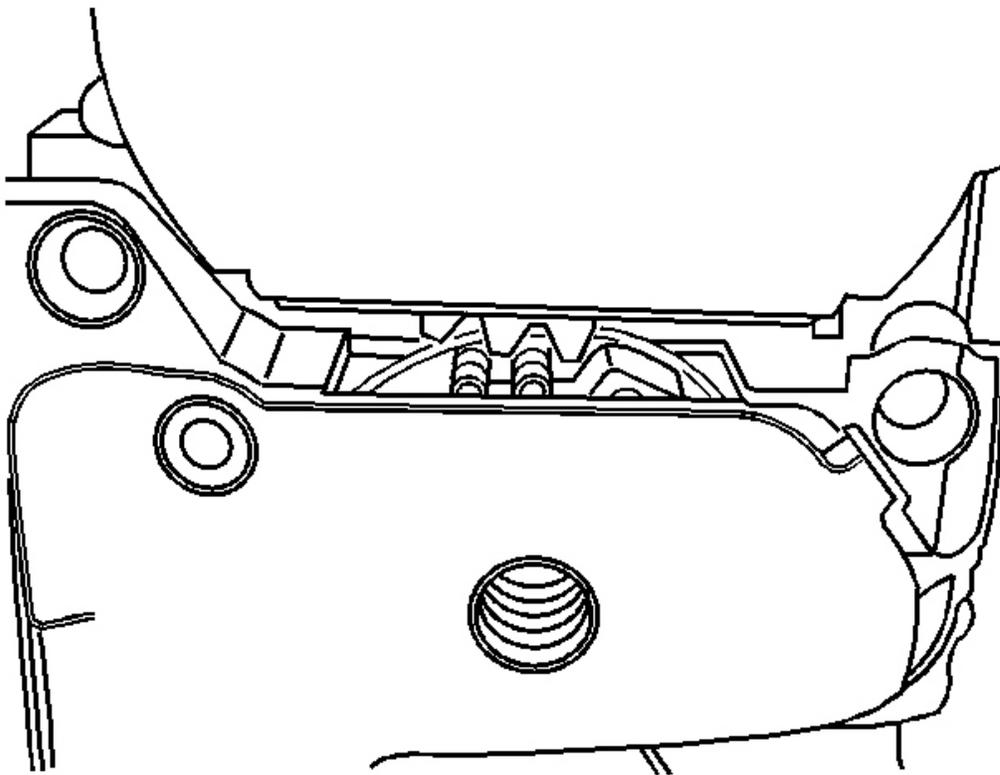


Fig. 71: Aligning Actuator & Latch Gear Teeth
Courtesy of GENERAL MOTORS CORP.

3. Install the actuator to the top of the latch.

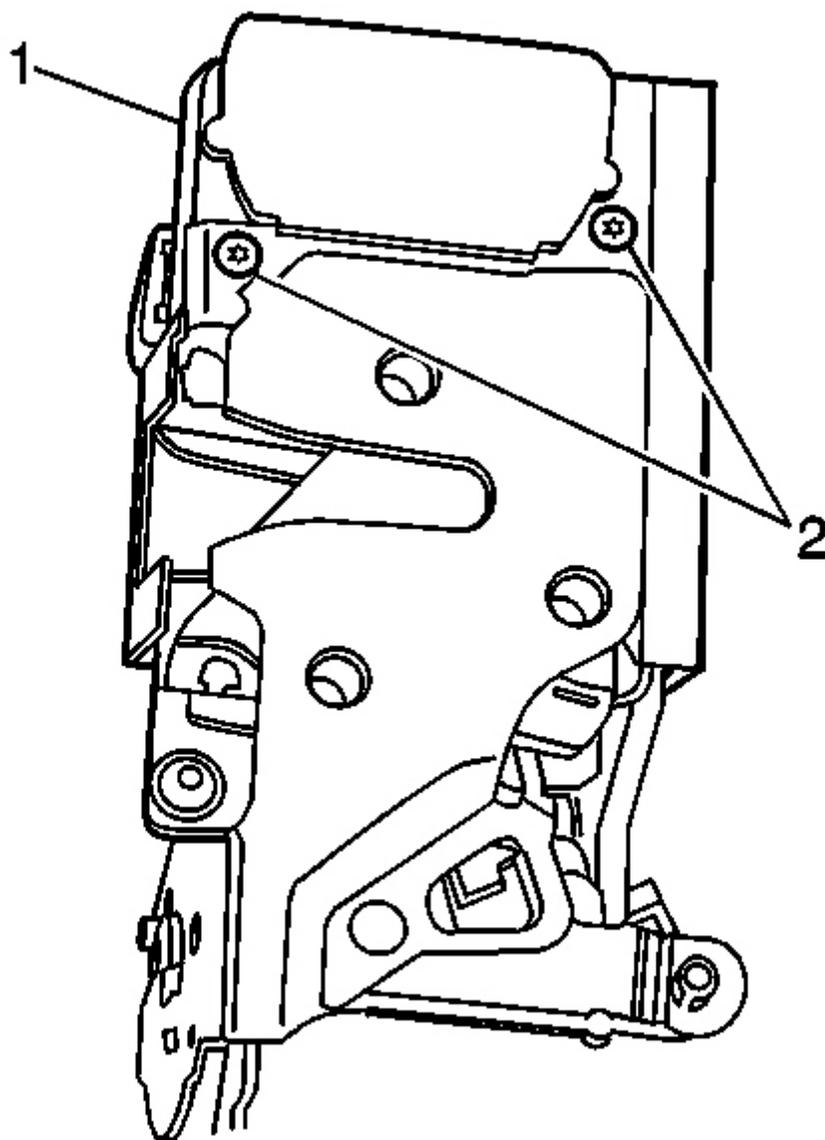


Fig. 72: View Of Lock Actuator To Latch Assembly
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice .

4. Install the 2 screws (2) that retain the actuator (1) to the lock.

Tighten: Tighten the screws to 0.75 N.m (6 lb in).

5. Install the lock to the door. Refer to **Rear Side Door Latch Replacement**.
6. Install the water deflector. Refer to **Rear Side Door Water Deflector Replacement**.
7. Install the door trim panel. Refer to **Rear Side Door Trim Panel Replacement**.

DOOR LOCK CYLINDER REPLACEMENT

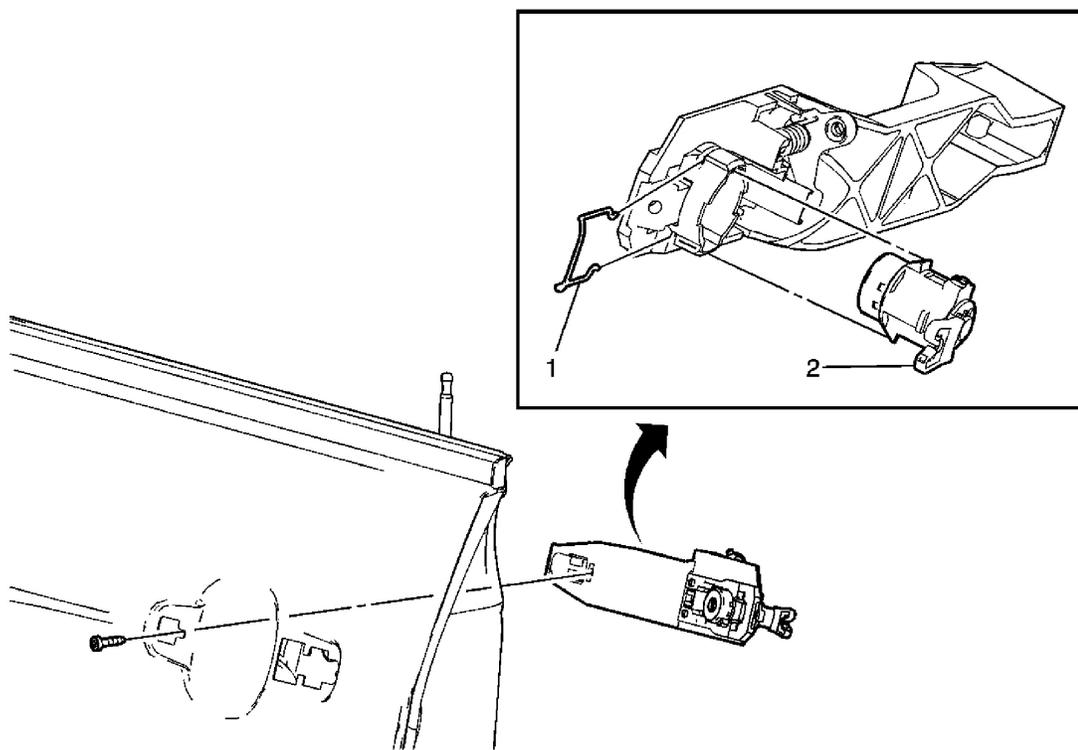


Fig. 73: View Of Door Lock Cylinder
Courtesy of GENERAL MOTORS CORP.

Door Lock Cylinder Replacement

Callout	Component Name
Preliminary Procedures	
1.	Remove the interior trim panel. Refer to <u>Front Side Door Trim Panel Replacement - Left Side</u> or <u>Front Side Door Trim Panel Replacement - Right Side</u> .
2.	Remove the water deflector. Refer to <u>Front Side Door Water Deflector Replacement</u> .
3.	Remove the outside door handle. Refer to <u>Front Side Door Outside Handle</u>

Replacement.

4. Remove the front side door outside handle housing. Refer to **Front Side Door Outside Handle Housing Replacement.**

1	Lock Cylinder Clip Tip: Use a flat-bladed tool to remove the clip.
2	Front Door Lock Cylinder Tip: Pull the lock cylinder from the housing to remove.

LIFTGATE CALIBRATION PROCEDURE

IMPORTANT: To ensure proper calibration of the liftgate, the liftgate assembly must be at room temperature during calibration.

Conditions

Use this procedure after replacing, repairing or disassembling any portion of the power liftgate assembly.

Calibrate Liftgate

1. Connect the Tech 2 to the vehicle.
2. Select Special Functions in the Liftgate Module menu.
3. Select LGM Open/Close Test.
4. Follow the on screen instructions.

OPENING THE LIFTGATE WITHOUT ELECTRICAL POWER

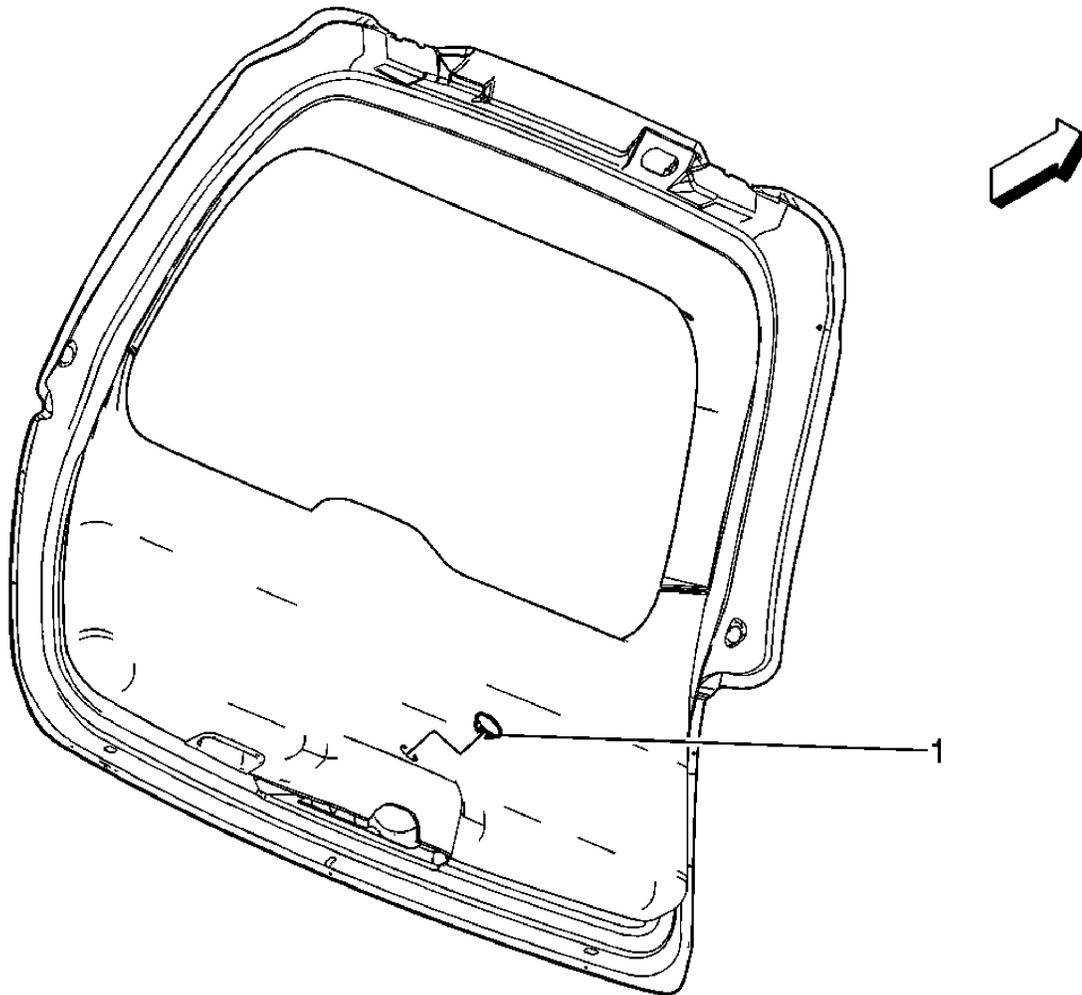


Fig. 74: Identifying Liftgate Trim Panel Plug
 Courtesy of GENERAL MOTORS CORP.

Opening the Liftgate Without Electrical Power

Callout	Component Name
1	Liftgate Trim Panel Plug Tip: <ol style="list-style-type: none"> 1. From inside the vehicle lower the second and third, if applicable, row seats. 2. Use a small flat-bladed tool to remove the access plug from the liftgate lower interior trim panel. 3. Pull on the black bellcrank lever located on the right just through the access hole to unlock the liftgate.

4. Open the liftgate from the outside of the vehicle using the exterior handle.

FRONT SIDE DOOR OUTSIDE HANDLE REPLACEMENT

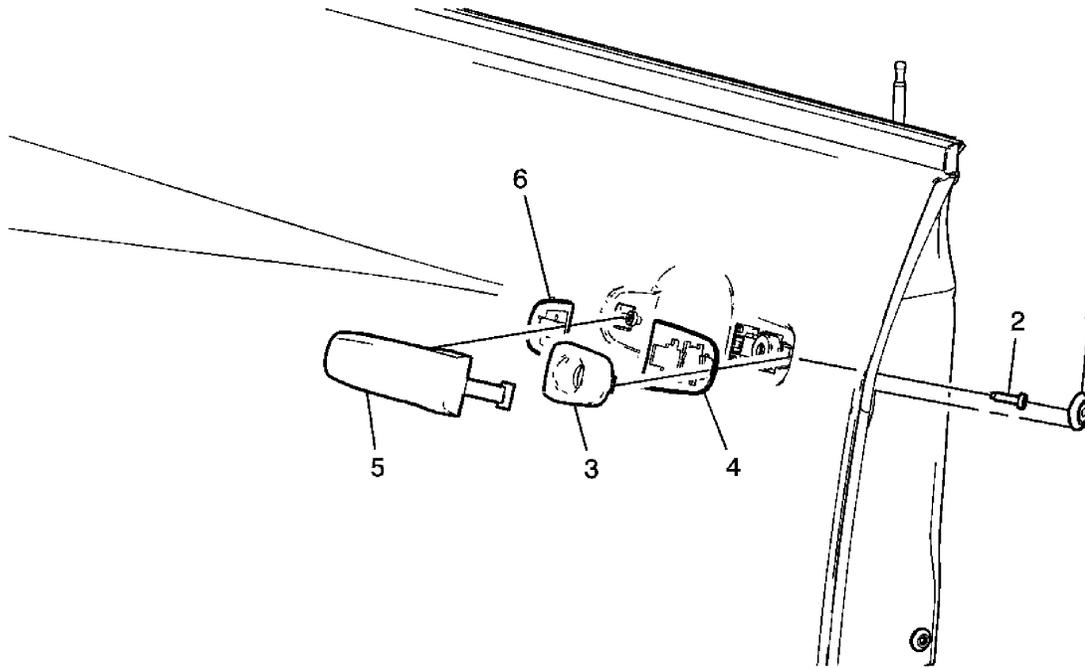


Fig. 75: View Of Front Side Door Outside Handle
 Courtesy of GENERAL MOTORS CORP.

Front Side Door Outside Handle Replacement

Callout	Component Name
1	Bolt Access Plug Tip: Use a plastic flat-bladed tool to remove.
2	Front Side Door Outside Handle Bolt NOTE: Refer to <u>Fastener Notice</u> . Tighten: 9 N.m (80 lb in)
3	Front Door Outside Handle Cap
4	Front Door Outside Handle Cap Gasket
	Front Door Outside Handle

5	Tip: Pull the outside handle rearward to release it from the inside handle housing.
6	Front Door Outside Handle Gasket

LIFTGATE OUTSIDE HANDLE REPLACEMENT

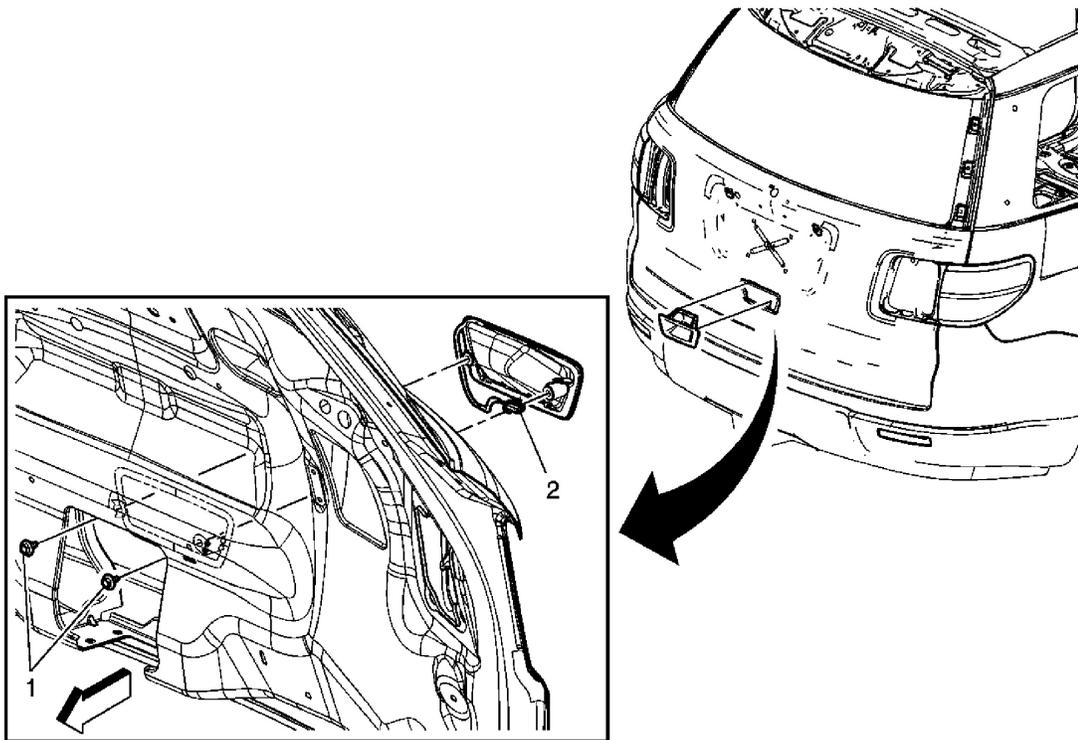


Fig. 76: View Of Liftgate Outside Handle
 Courtesy of GENERAL MOTORS CORP.

Liftgate Outside Handle Replacement

Callout	Component Name
Preliminary Procedure: Remove the liftgate trim panel. Refer to <u>Liftgate Trim Panel Replacement</u> .	
1	Liftgate Handle Nuts (Qty: 2) NOTE: Refer to <u>Fastener Notice</u> . Tighten: 9 N.m (80 lb in)
	Liftgate Handle Assembly

2

Procedure:

Disconnect the electrical connector.

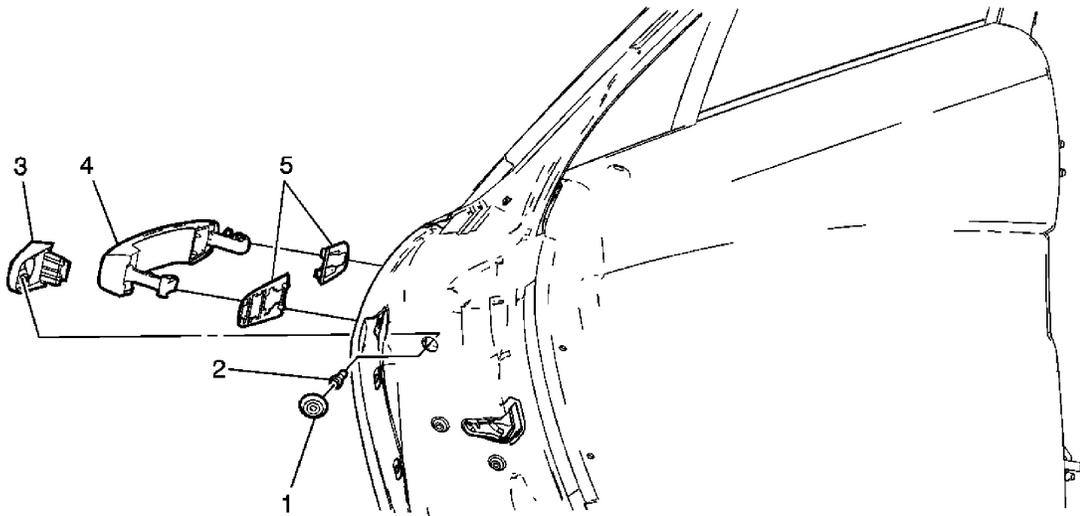
REAR SIDE DOOR OUTSIDE HANDLE REPLACEMENT

Fig. 77: View Of Rear Side Door Outside Handle
 Courtesy of GENERAL MOTORS CORP.

Rear Side Door Outside Handle Replacement

Callout	Component Name
1	Bolt Access Plug Tip: Use a plastic flat-bladed tool to remove.
2	Rear Side Door Outside Handle Cap Bolt NOTE: Refer to Fastener Notice . Tighten: 9 N.m (80 lb in)
3	Rear Door Outside Handle Cap
4	Rear Door Outside Handle Tip: Pull the outside handle rearward to release it from the inside handle housing.
5	Rear Door Outside Handle Gasket

REAR SIDE DOOR OUTSIDE HANDLE HOUSING REPLACEMENT

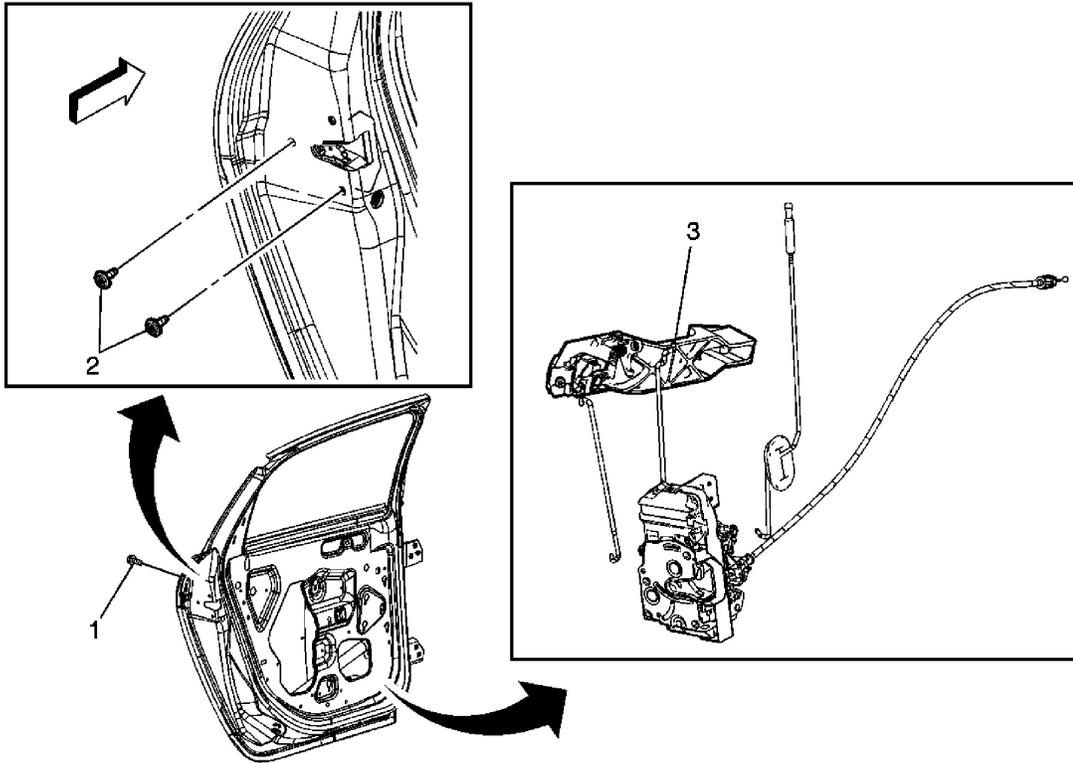


Fig. 78: Identifying Rear Side Door Outside Handle Housing
 Courtesy of GENERAL MOTORS CORP.

Rear Side Door Outside Handle Housing Replacement

Callout	Component Name
Preliminary Procedures	
<ol style="list-style-type: none"> 1. Remove the interior trim panel. Refer to <u>Rear Side Door Trim Panel Replacement</u> . 2. Remove the water deflector. Refer to <u>Rear Side Door Water Deflector Replacement</u> . 3. Remove the outside door handle. Refer to <u>Rear Side Door Outside Handle Replacement</u>. 	
1	Rear Side Door Outside Handle Housing Bolt (Qty: 2) NOTE: Refer to <u>Fastener Notice</u> . Tighten: 10 N.m (89 lb in)

2	<p>Rear Side Door Lock Bolts (Qty: 2)</p> <p>Tighten: 10 N.m (89 lb in)</p>
3	<p>Rear Side Door Outside Handle Housing</p> <p>Procedures</p> <ol style="list-style-type: none"> 1. Disconnect the lock and handle rods to remove the housing. 2. Release the inside handle cable retainers before removing the door lock. 3. Disconnect the door lock electrical connector.

FRONT SIDE DOOR LATCH REPLACEMENT

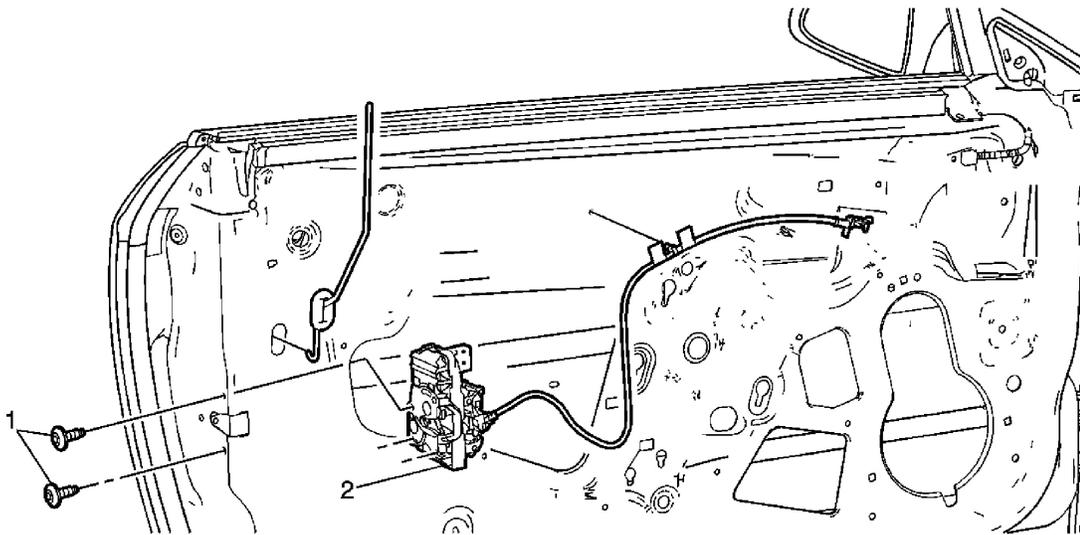


Fig. 79: Identifying Front Side Door Latch
 Courtesy of GENERAL MOTORS CORP.

Front Side Door Latch Replacement

Callout	Component Name
Preliminary Procedures	
<ol style="list-style-type: none"> 1. Remove the interior trim panel. Refer to <u>Front Side Door Trim Panel Replacement - Left Side</u> or <u>Front Side Door Trim Panel Replacement - Right Side</u> . 2. Remove the water deflector. Refer to <u>Front Side Door Water Deflector Replacement</u> . 	

3. Remove the door outside handle housing. Refer to **Front Side Door Outside Handle Housing Replacement**.

1	<p>Front Side Door Lock Screw (Qty: 2)</p> <p>NOTE: Refer to <u>Fastener Notice</u> .</p> <p>Tighten: 10 N.m (89 lb in)</p>
2	<p>Front Side Door Lock Assembly</p> <p>Procedure</p> <ol style="list-style-type: none"> 1. Release the door lock cable retainers from the door. 2. Disconnect the door lock electrical connector. 3. Transfer the lock rods.

REAR SIDE DOOR LATCH REPLACEMENT

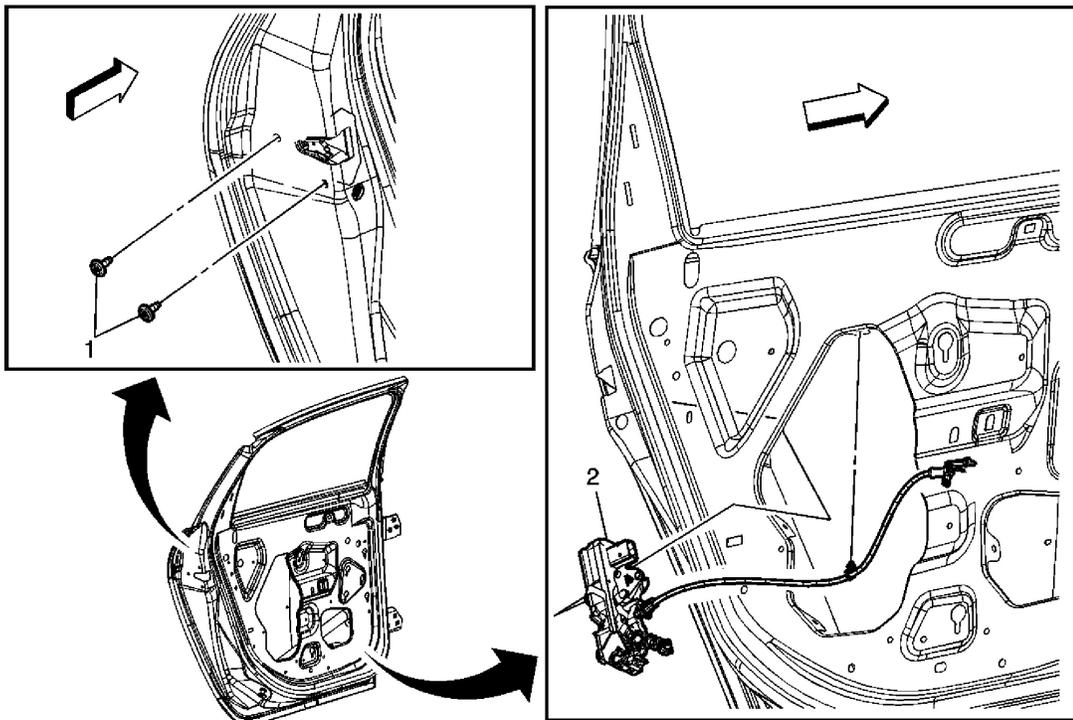


Fig. 80: View Of Rear Side Door Latch
Courtesy of GENERAL MOTORS CORP.

Rear Side Door Latch Replacement

Callout	Component Name
Preliminary Procedures <ol style="list-style-type: none"> 1. Remove the interior trim panel. Refer to <u>Rear Side Door Trim Panel Replacement</u> . 2. Remove the water deflector. Refer to <u>Rear Side Door Water Deflector Replacement</u> . 3. Remove the door outside handle housing. Refer to <u>Rear Side Door Outside Handle Housing Replacement</u>. 	
1	Rear Side Door Lock Bolt (Qty: 2) NOTE: Refer to <u>Fastener Notice</u> . Tighten: 10 N.m (89 lb in)
2	Rear Side Door Lock Assembly Procedures <ol style="list-style-type: none"> 1. Release the inside handle cable retainers before removing the door lock. 2. Disconnect the door lock electrical connector. 3. Transfer the lock rods.

ACCESSORY AND LIFTGATE CONTROL MODULE REPLACEMENT

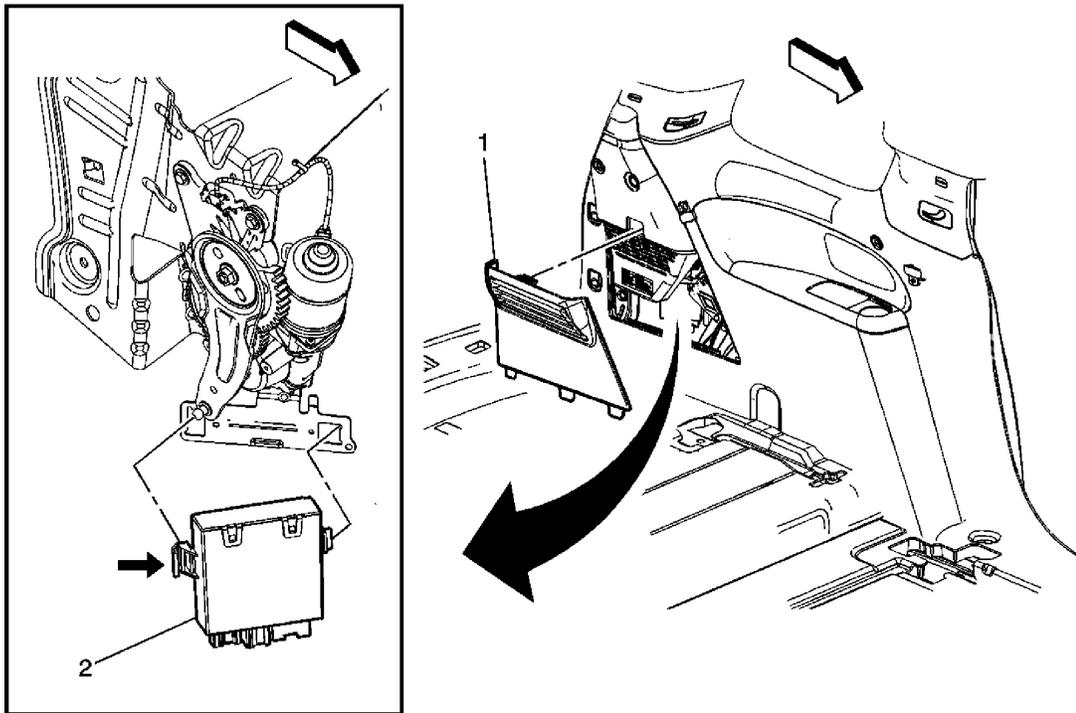


Fig. 81: Identifying Accessory & Liftgate Control Module
 Courtesy of GENERAL MOTORS CORP.

Accessory and Liftgate Control Module Replacement

Callout	Component Name
1	Body Side Trim Panel Stow Compartment Door Assembly
2	Accessory and Liftgate Control Module
	<p>Procedure</p> <ol style="list-style-type: none"> 1. Disconnect the electrical connectors. 2. Reprogram the rear body control module if replaced. Refer to <u>Control Module References</u> . <p>Tip: Push in the tab to release the module from the liftgate actuator assembly.</p>

POWER LIFTGATE MOTOR REPLACEMENT

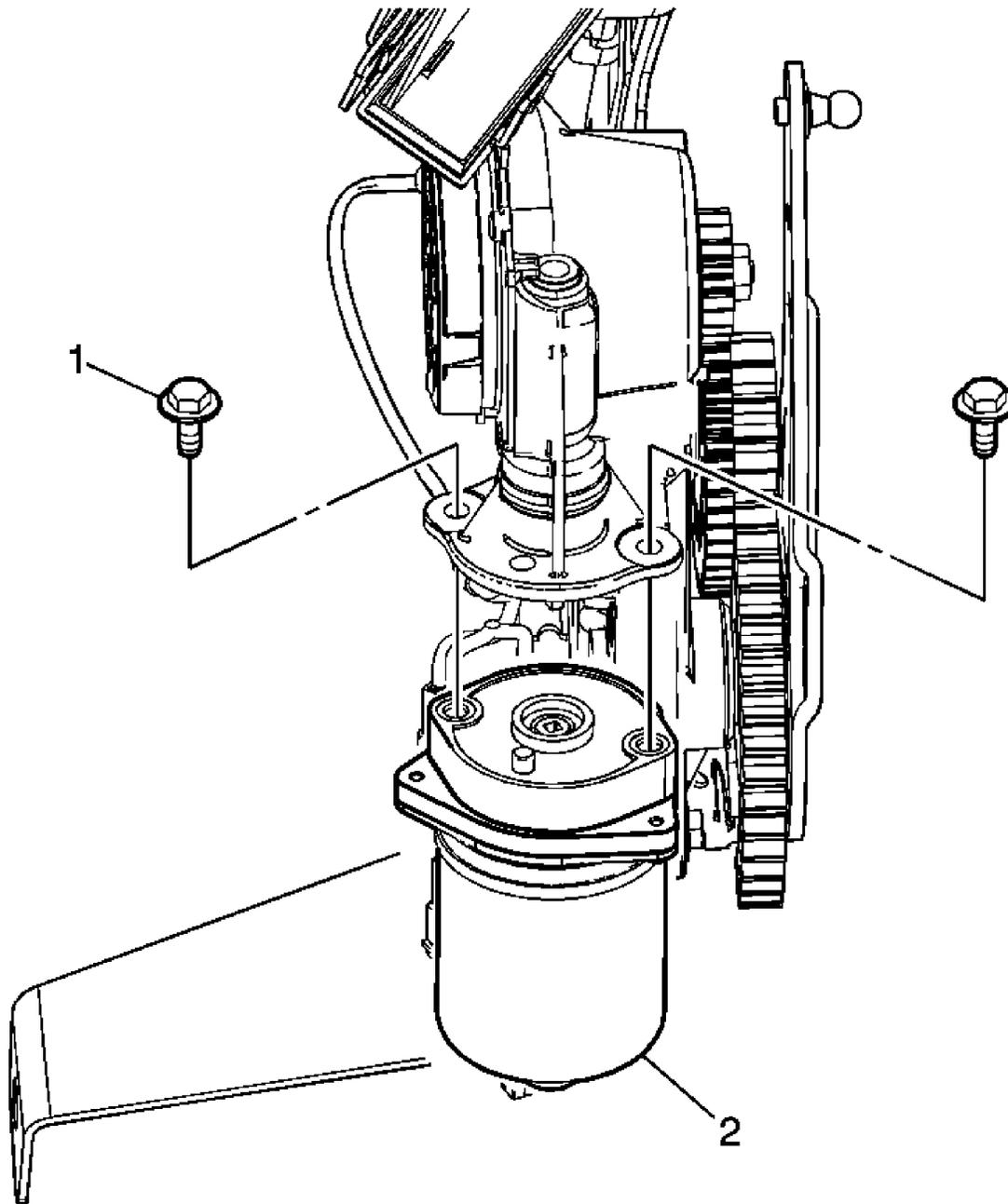


Fig. 82: View Of Power Liftgate Motor
 Courtesy of GENERAL MOTORS CORP.

Power Liftgate Motor Replacement

Callout	Component Name
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Preliminary Procedures

1. Remove the body side trim panel. Refer to **Rear Quarter Lower Trim Panel Replacement (without RPO E61)** or **Rear Quarter Lower Trim Panel Replacement (with RPO E61)** .
2. Remove the liftgate actuator rod. Refer to **Liftgate Actuator Rod Replacement**.

1	<p>Power Liftgate Actuator Motor Bolts (Qty: 2)</p> <p>NOTE: Refer to <u>Fastener Notice</u> .</p> <p>Tighten: 8 N.m (71 lb in)</p>
2	<p>Power Liftgate Actuator Motor</p> <p>Procedure</p> <ul style="list-style-type: none"> • Disconnect the electrical connector. • Reprogram liftgate control module. Refer to <u>Liftgate Control Module Programming and Setup</u> .

FRONT SIDE DOOR OUTSIDE HANDLE HOUSING REPLACEMENT

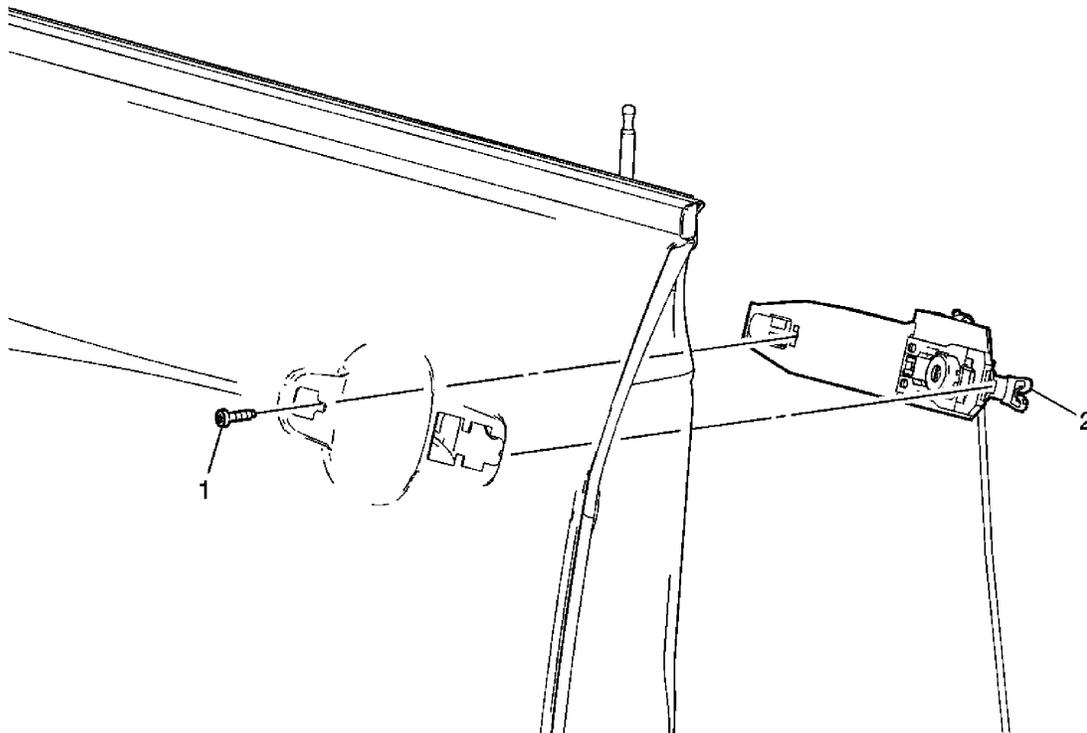


Fig. 83: View Of Front Side Door Outside Handle Housing
 Courtesy of GENERAL MOTORS CORP.

Front Side Door Outside Handle Housing Replacement

Callout	Component Name
<p>Preliminary Procedures</p> <ol style="list-style-type: none"> 1. Remove the interior trim panel. Refer to <u>Front Side Door Trim Panel Replacement - Left Side</u> or <u>Front Side Door Trim Panel Replacement - Right Side</u> . 2. Remove the water deflector. Refer to <u>Front Side Door Water Deflector Replacement</u> . 3. Remove the outside door handle. Refer to <u>Front Side Door Outside Handle Replacement</u>. 	
1	<p>Front Side Door Handle Housing Bolt (Qty: 2)</p> <p>NOTE: Refer to <u>Fastener Notice</u> .</p> <p>Tighten: 7 N.m (62 lb in)</p>
2	<p>Front Side Door Handle Housing</p> <p>Procedure</p> <ol style="list-style-type: none"> 1. Disconnect the lock and handle rods to remove the housing. 2. Release the inside handle cable retainers before removing the door lock. 3. Disconnect the door lock electrical connector. 4. Transfer the lock cylinder to the new housing. Refer to <u>Door Lock Cylinder Replacement</u>.

LIFTGATE CLOSE ACTUATOR BRACKET REPLACEMENT

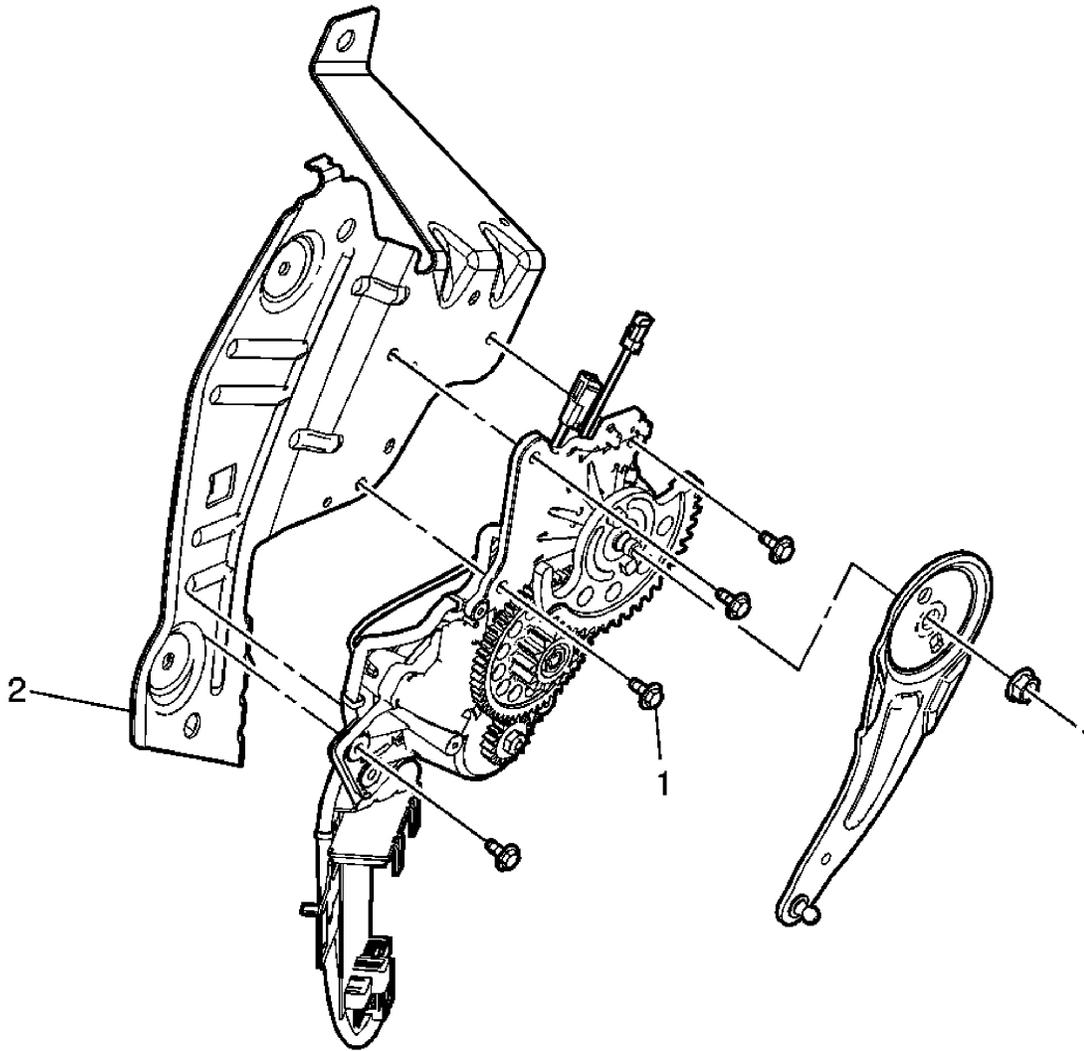


Fig. 84: Identifying Liftgate Close Actuator Bracket
 Courtesy of GENERAL MOTORS CORP.

Liftgate Close Actuator Bracket Replacement

Callout	Component Name
Preliminary Procedures	
<ol style="list-style-type: none"> 1. Remove the body side trim panel. Refer to <u>Rear Quarter Lower Trim Panel Replacement (without RPO E61)</u> or <u>Rear Quarter Lower Trim Panel Replacement (with RPO E61)</u> . 2. Remove the liftgate close actuator control module. Refer to <u>Liftgate Actuator Replacement</u>. 	
	Liftgate Close Actuator Bracket Bolts (Qty: 5)

1	NOTE: Refer to <u>Fastener Notice</u> . Tighten: 30 N.m (22 lb ft)
2	Liftgate Close Actuator Bracket

LIFTGATE ACTUATOR REPLACEMENT

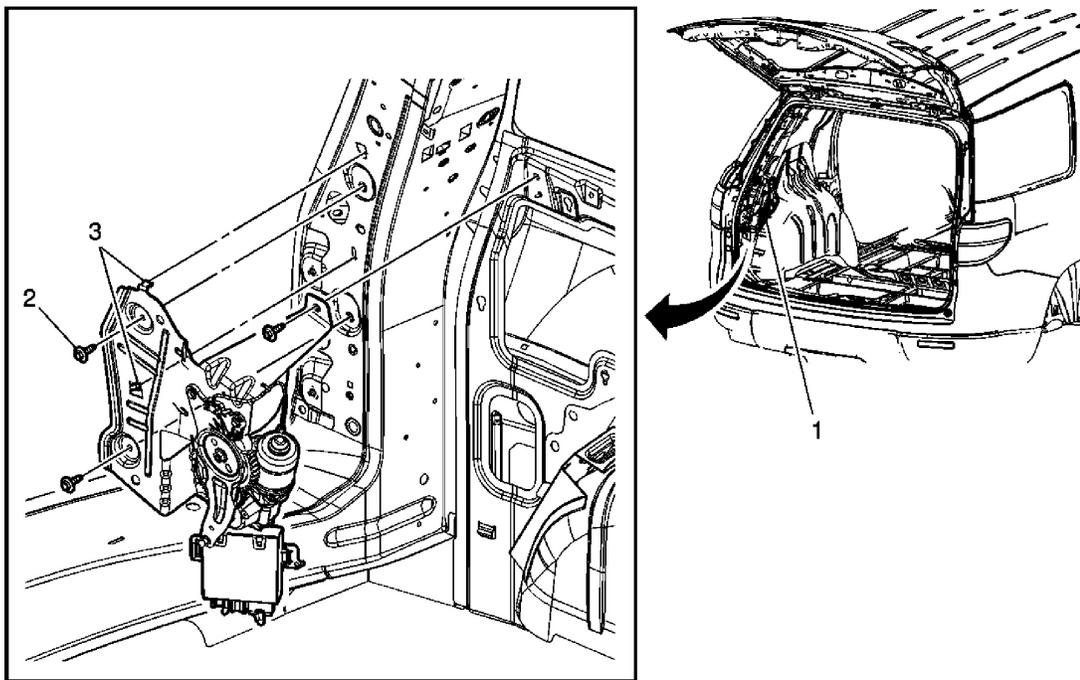


Fig. 85: View Of Liftgate Actuator
Courtesy of GENERAL MOTORS CORP.

Liftgate Actuator Replacement

Callout	Component Name
Preliminary Procedures	
1.	Remove the bodyside trim panel. Refer to <u>Rear Quarter Lower Trim Panel Replacement (without RPO E61)</u> or <u>Rear Quarter Lower Trim Panel Replacement (with RPO E61)</u> .
2.	Disconnect the power liftgate actuator rod. Refer to <u>Liftgate Actuator Rod Replacement</u> .

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1	Liftgate Close Actuator Control Module Procedure <ul style="list-style-type: none">• Disconnect the electrical connector.• Cut the tie strap, if equipped.
2	Liftgate Close Actuator Motor Control Module Bolt (Qty: 5) NOTE: Refer to <u>Fastener Notice</u> . Tighten: 9 N.m (80 lb in)
3	Liftgate Close Actuator Control Module Procedure: Reprogram liftgate module. Refer to <u>Liftgate Calibration Procedure</u>

LIFTGATE ACTUATOR ROD REPLACEMENT

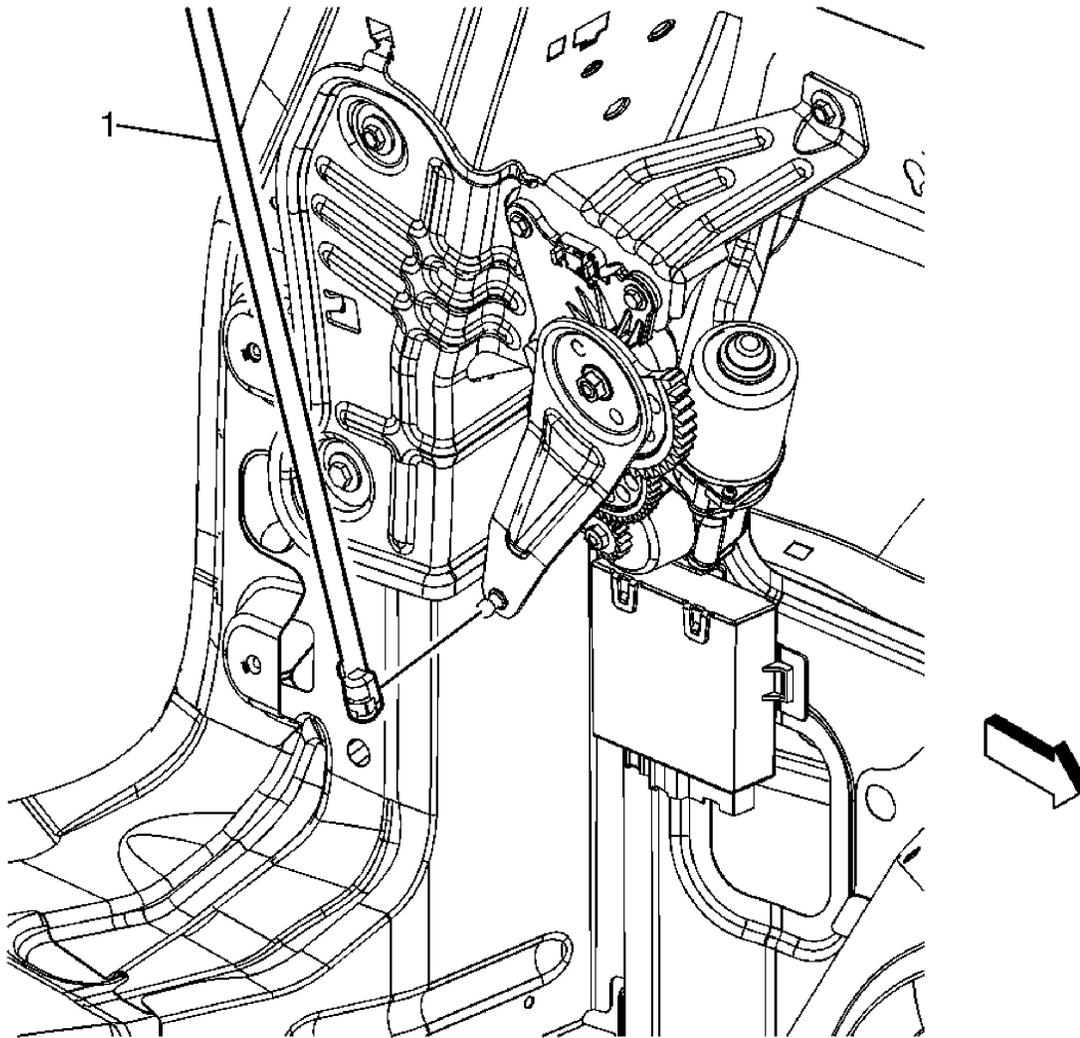


Fig. 86: Identifying Liftgate Actuator Rod
 Courtesy of GENERAL MOTORS CORP.

Liftgate Actuator Rod Replacement

Callout	Component Name
<p>Preliminary Procedure: Remove the left side trim panel. Refer to <u>Rear Quarter Lower Trim Panel Replacement (without RPO E61)</u> or <u>Rear Quarter Lower Trim Panel Replacement (with RPO E61)</u> .</p>	
	<p>Liftgate Actuator Rod</p> <p>CAUTION: When a lift gate hold open device is being removed or installed, provide alternate</p>

support to avoid the possibility of damage to the vehicle or personal injury.

1

Procedure

- Release the locking tabs on the actuator rod.
- Calibrate the liftgate. Refer to **Liftgate Calibration Procedure**.

LIFTGATE SIDE UPPER SENSOR REPLACEMENT

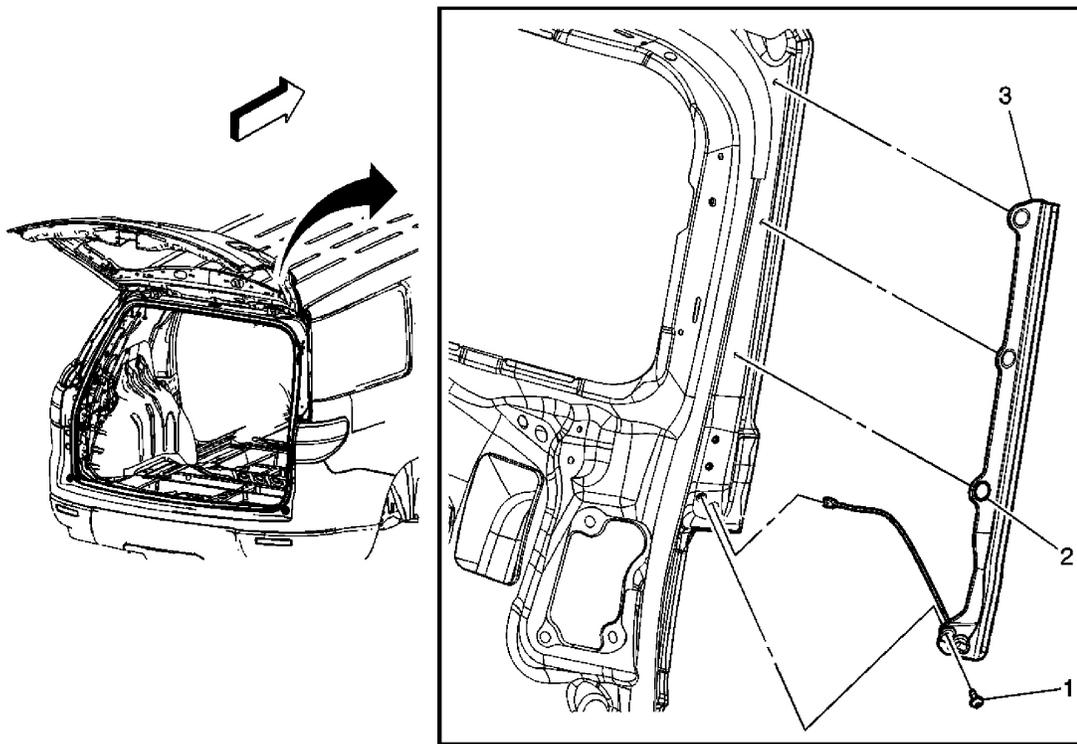


Fig. 87: Locating Liftgate Side Upper Sensor
 Courtesy of GENERAL MOTORS CORP.

Liftgate Side Upper Sensor Replacement

Callout	Component Name
Preliminary Procedures	
1. Remove the liftgate trim panel. Refer to <u>Liftgate Trim Panel Replacement</u> . 2. Disconnect the electrical connector.	
1	Sensor Side Upper Liftgate Retainers (Qty: 4) Tip: The retainers are ONE time use ONLY. They must be replaced after

	being removed.
2	Sensor Side Upper Liftgate

DOOR LOCK STRIKER ADJUSTMENT

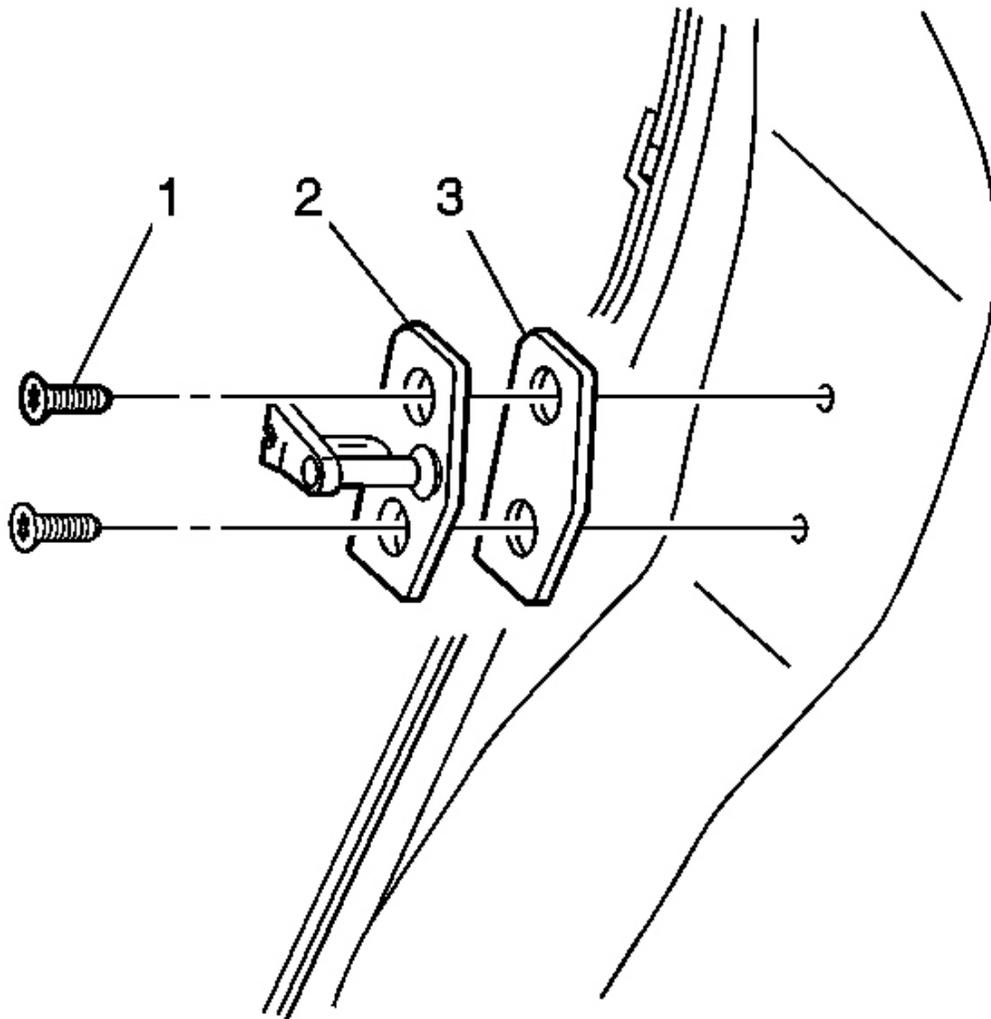


Fig. 88: Identifying Door Lock Striker & Bolts
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: To determine if the striker adjustment is required, proceed

as follows.

1. Ensure that the door is properly aligned with the door opening before proceeding with the striker adjustment.
2. Open and close the door on the striker (2). Note if the door drags on the striker causing the door to move upward or downward upon contact with the striker. Also note the closing effort to fully engage the latch.

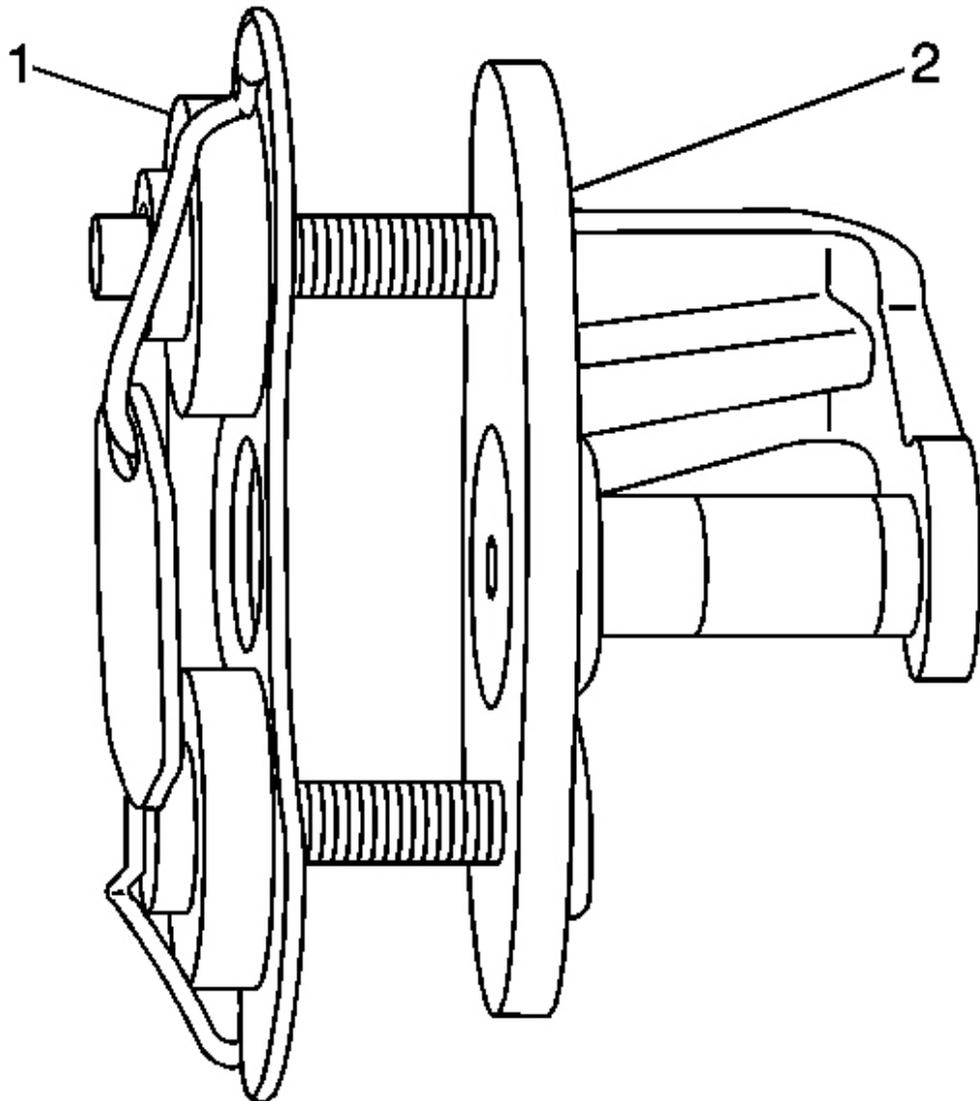


Fig. 89: Identifying Door Striker & Anchor Plate
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: When the striker bolts have been removed, the striker anchor plate (1) will slip down in the door pillar or quarter panel and the trim will need to be removed to gain access.

- Using a soft marker, mark around the striker (2) for reference of the original position. Loosen the striker screws just enough to allow the movement of the door striker and shims if equipped.

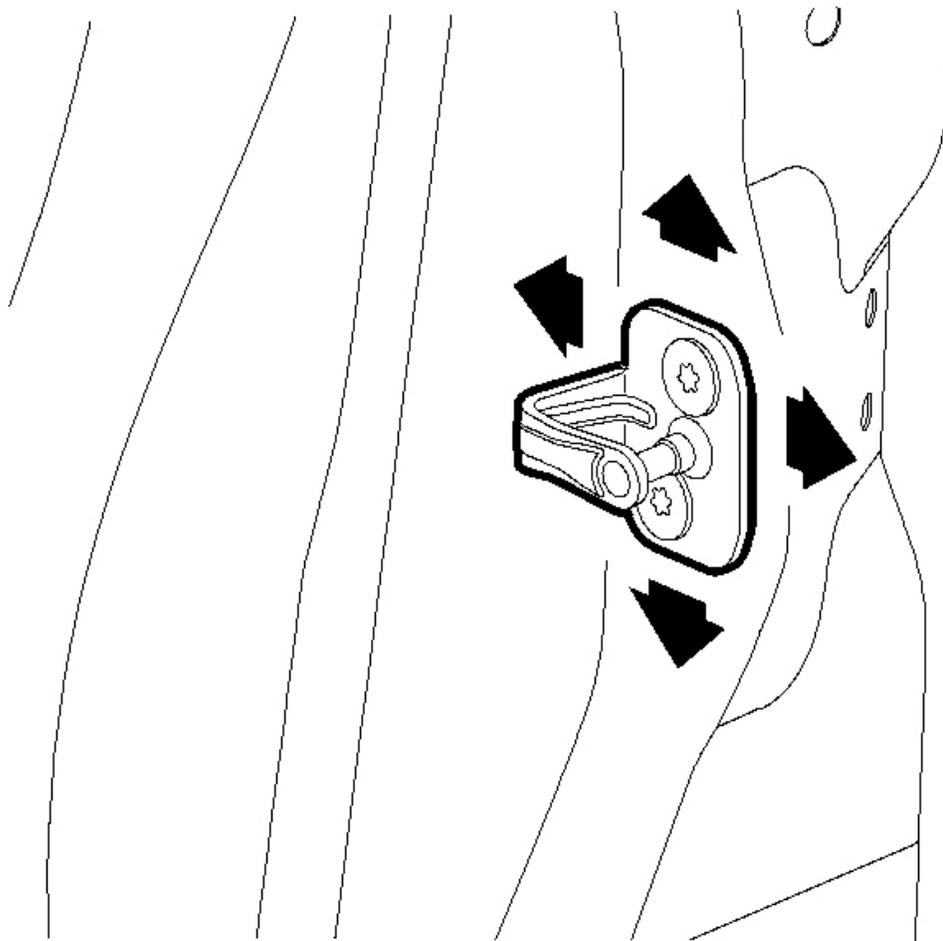


Fig. 90: View Of Front Door Striker
Courtesy of GENERAL MOTORS CORP.

- Adjust the door striker up or down and inboard or outboard as required.
- Move the striker to eliminate drag on the striker and door latch and to achieve proper door position within door opening. Start with up/down position, then position the striker to achieve proper alignment to the door opening. Set the in/out adjustment for proper door seal

engagement ensuring that the door closing efforts are correct.

NOTE: Refer to Fastener Notice .

6. Adjust the striker and add spacers as required.

Tighten: Tighten the screws to 25 N.m (18 lb ft).

7. Inspect the door for proper operation.

8. Close the door.

FRONT SIDE DOOR LOCK STRIKER REPLACEMENT

Removal Procedure

CAUTION: In order to prevent SIR deployment, personal injury or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

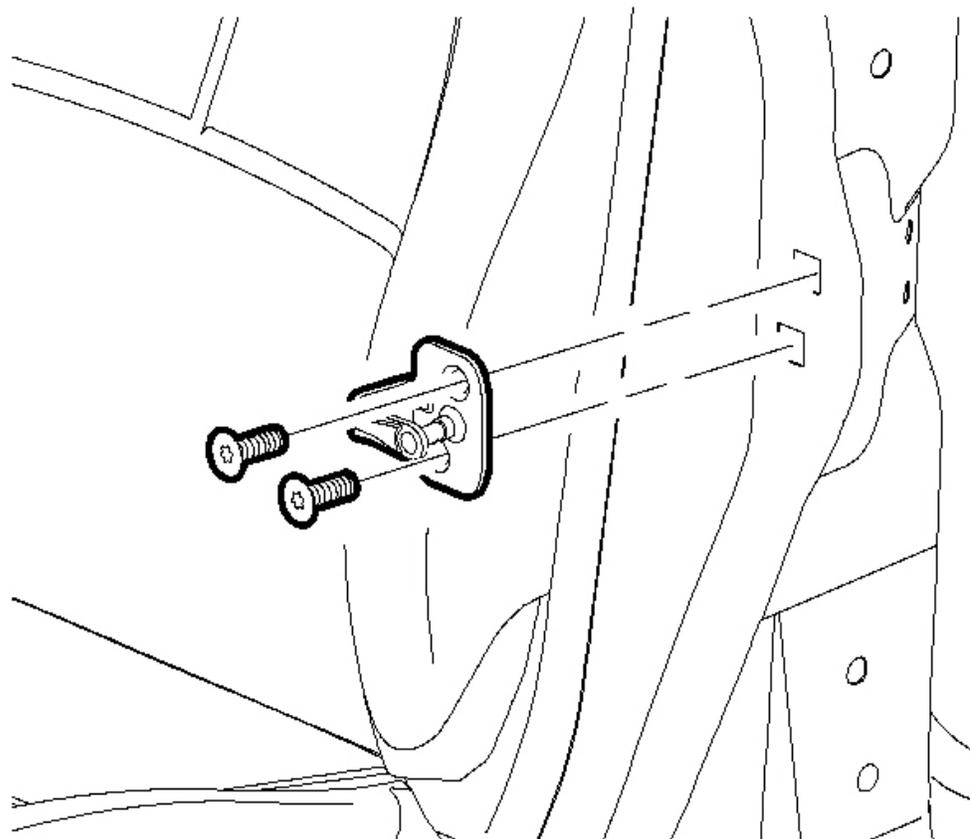


Fig. 91: View Of Front Door Striker
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: When the striker bolts have been removed, the striker anchor plate will slip down in the door pillar or quarter panel and the trim will need to be removed to gain access.

1. Using a grease pencil, mark around the striker for installation purposes.
2. Remove the bolts.
3. Remove the striker.

Installation Procedure

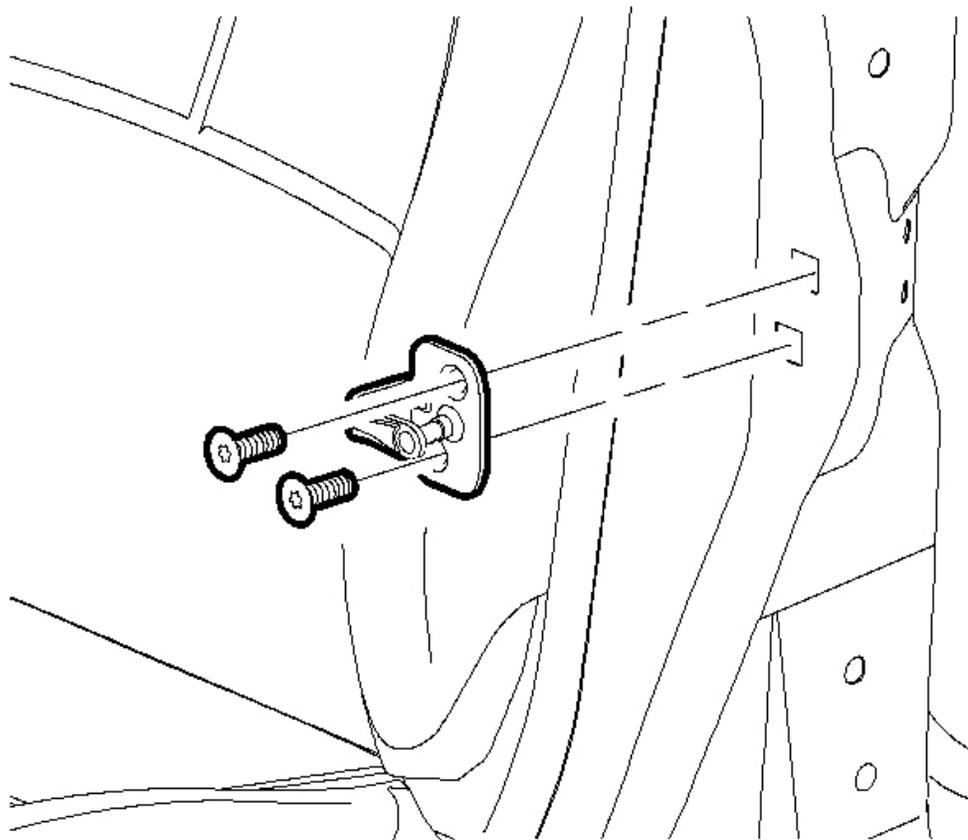


Fig. 92: View Of Front Door Striker
Courtesy of GENERAL MOTORS CORP.

1. Loosely install the striker with the bolts.
2. Align the striker with the marks made prior to removal.
3. Install the bolts, hand tighten.
4. Inspect the door closing and align the striker as required. Refer to **Door Lock Striker Adjustment**.

NOTE: Refer to Fastener Notice .

5. Tighten the striker bolts.

Tighten: Tighten the door striker bolts to 25 N.m (18 lb ft).

LIFTGATE LOCK STRIKER REPLACEMENT

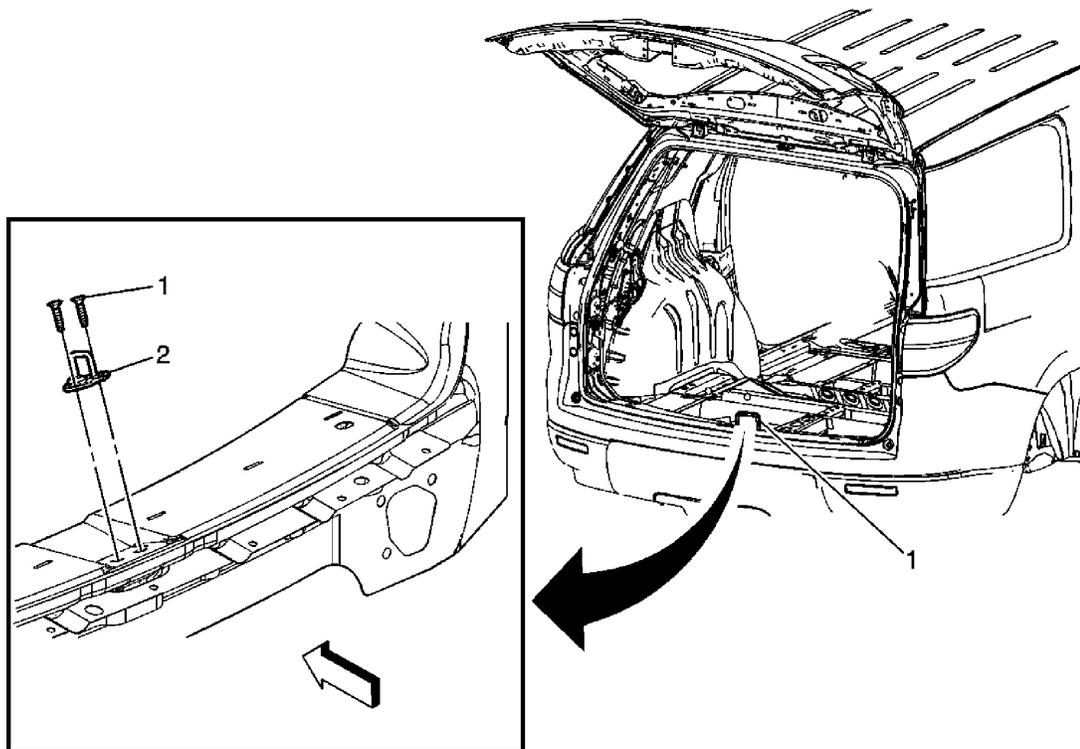


Fig. 93: Identifying Liftgate Lock Striker & Bolts
 Courtesy of GENERAL MOTORS CORP.

Liftgate Lock Striker Replacement

Callout	Component Name
1	Liftgate Lock Striker Bolt (Qty: 2) NOTE: Refer to <u>Fastener Notice</u> . Tighten: 25 N.m (18 lb ft)
	Liftgate Lock Striker

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2

Procedure:

Mark the location of the striker with a grease pencil to ensure proper alignment during installation.

REAR SIDE DOOR LOCK STRIKER REPLACEMENT

Removal Procedure

CAUTION: In order to prevent SIR deployment, personal injury or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

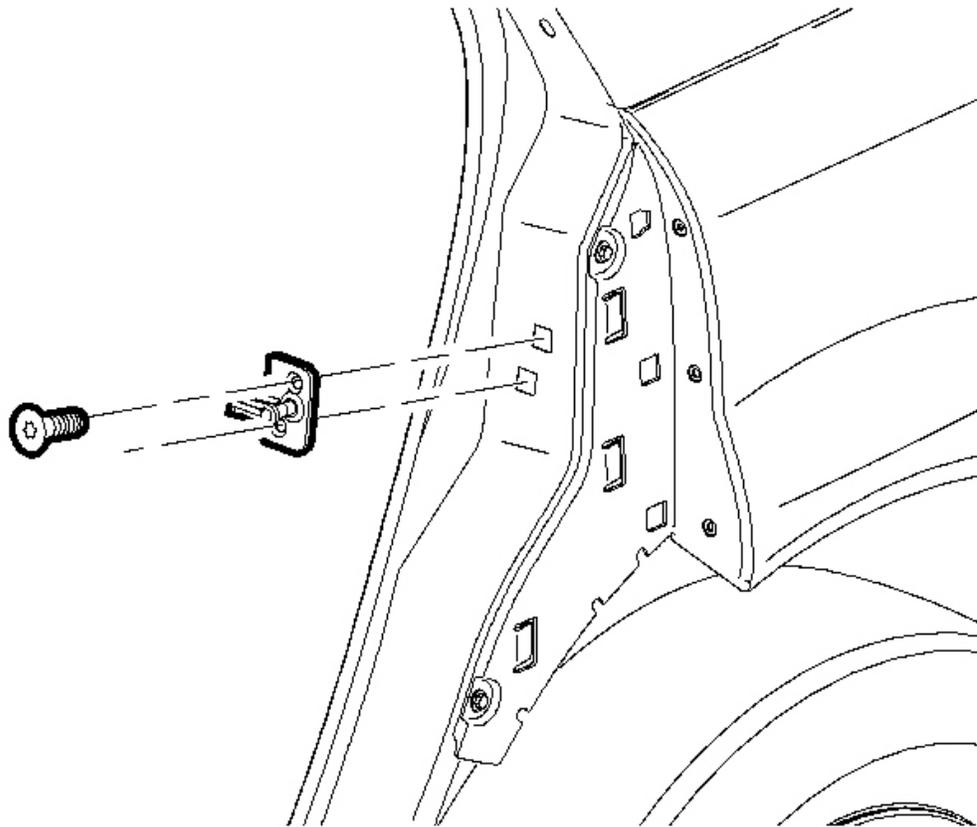


Fig. 94: View Of Rear Door Striker
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: When the striker bolts have been removed, the striker anchor plate will slip down in the door pillar or quarter panel and the trim will need to be removed to gain access.

1. Using a grease pencil, mark around the striker for installation purposes.
2. Remove the screws.
3. Remove the striker.

Installation Procedure

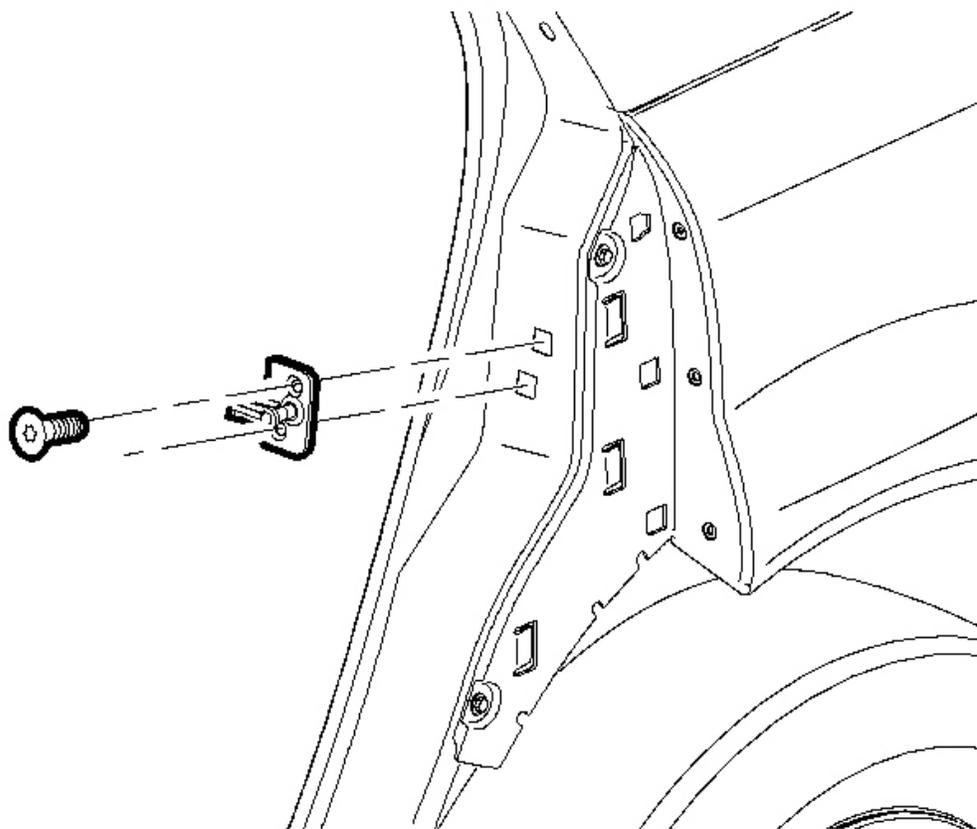


Fig. 95: View Of Rear Door Striker
Courtesy of GENERAL MOTORS CORP.

1. Install the striker loosely with the bolts.
2. Align the striker with the marks made prior to removal.
3. Install the bolts, hand tighten.
4. Inspect the door closing and align the striker as required. Refer to **Door Lock Striker Adjustment**.

NOTE: Refer to Fastener Notice .

5. Tighten the striker bolts.

Tighten: Tighten the door striker bolts to 25 N.m (18 lb ft).

DOOR LOCK AND SIDE WINDOW SWITCH REPLACEMENT - DRIVER SIDE

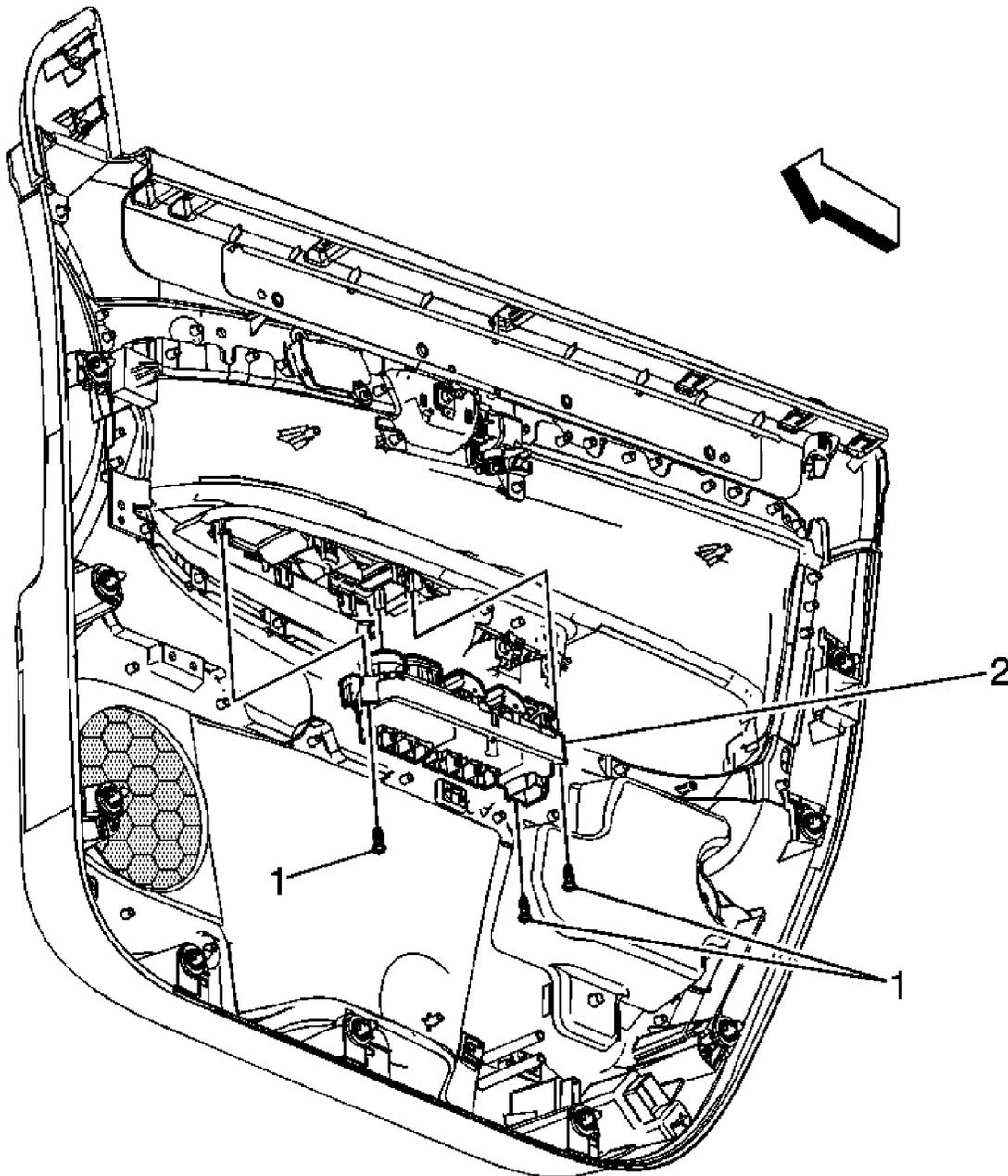


Fig. 96: Identifying Door Lock And Side Window Switch - Driver Side
 Courtesy of GENERAL MOTORS CORP.

Door Lock and Side Window Switch Replacement - Driver Side

Callout	Component Name
Preliminary Procedure: Remove driver side door trim panel. Refer to <u>Front Side Door Trim Panel Replacement - Left Side</u> .	
1	Front Side Door Lock and Side Window Switch Screw (Qty: 3) NOTE: Refer to <u>Fastener Notice</u> . Tighten: 3 N.m (27 lb in)
2	Front Side Door Lock and Side Window Switch Assembly Tip: Disconnect the electrical connectors.

DOOR LOCK AND SIDE WINDOW SWITCH REPLACEMENT - PASSENGER SIDE

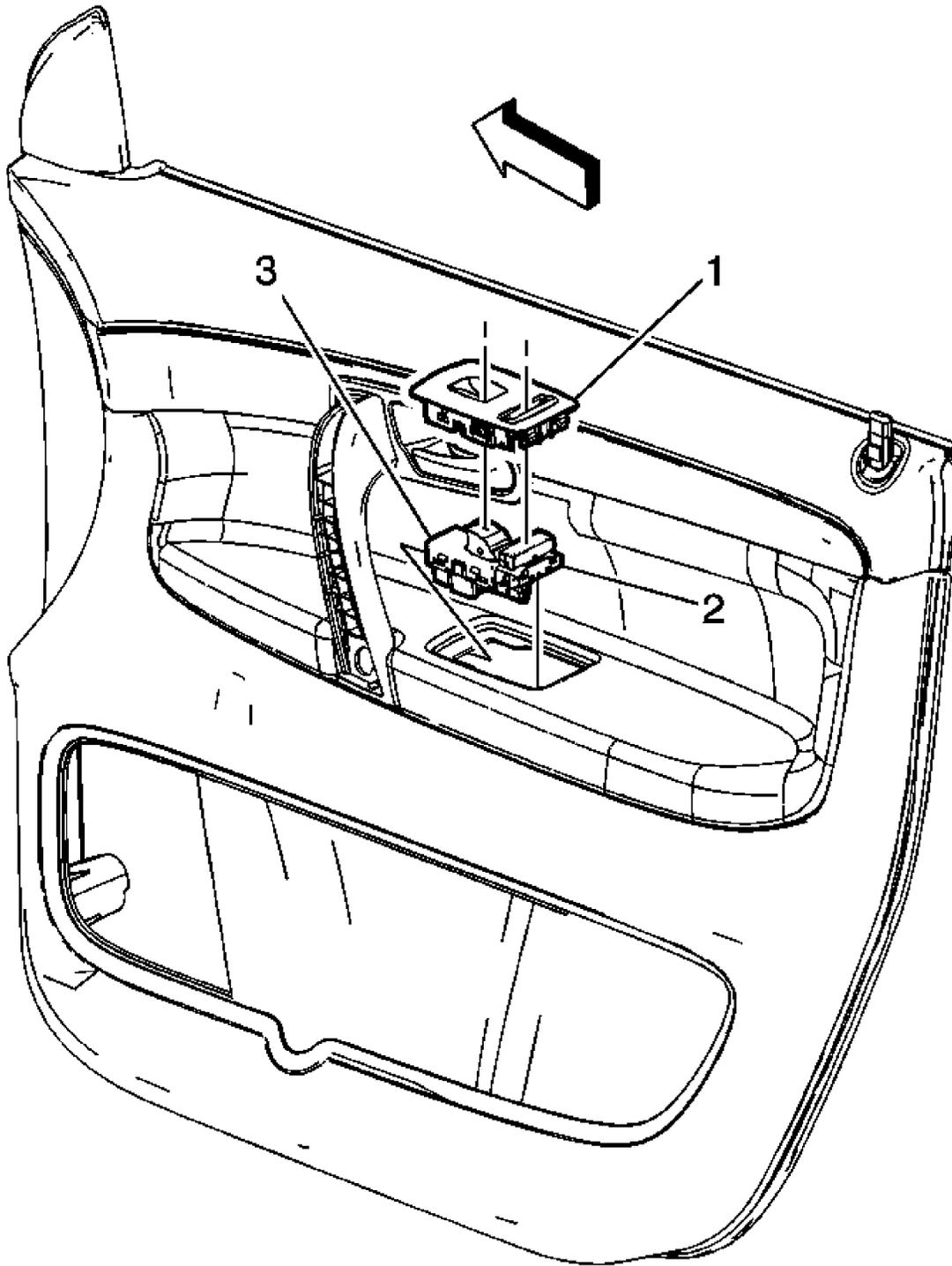


Fig. 97: View Of Door Lock and Side Window Switch - Passenger Side
Courtesy of GENERAL MOTORS CORP.

Door Lock and Side Window Switch Replacement - Passenger Side

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Callout	Component Name
1	Front Side Door Lock and Side Window Switch Plate Procedure: Use a flat-bladed tool to pry the switch plate from the door handle assembly.
2	Front Side Door Lock Switch Procedure: Disconnect the electrical connector.
3	Front Side Door Window Switch Procedure: Disconnect the electrical connector.

DESCRIPTION AND OPERATION

POWER DOOR LOCKS DESCRIPTION AND OPERATION (AXA)

Door Lock System Components

The power door lock system consists of the following components:

- Driver door lock switch-Provides a switched voltage signal to the body control module (BCM) for both lock and unlock switch activations.
- Front passenger door lock switch-Provides a switched voltage signal to the BCM for both lock and unlock switch activations.
- Door lock relay-Located in the instrument panel (I/P) fuse block and controls the locking of all doors.
- Door unlock relay-Located in the I/P fuse block and controls the unlocking of the passenger doors.
- Driver door unlock relay-Located in the I/P fuse block and controls the unlocking of the driver door.
- BCM-Class 2 module which requires programming when replaced.
- Reversible door lock actuators in each of the doors.
- DR LCK 20-amp fuse-Located in the I/P fuse block, supplies power to the relays

Door Lock System Controls

The power door lock system can be controlled by any of the following:

- Power door lock switch activation

- Keyless entry lock or unlock command
- A door lock cylinder switch Unlock actuation
- Delayed locking command
- Automatic door lock command
- Lockout prevention command

Door Lock and Unlock Operation

When a door lock switch is activated in the lock or unlock position the body control module (BCM) will receive a voltage signal on either the door lock switch lock or unlock signal circuits.

The BCM, upon receipt of a lock switch lock or unlock signal, will switch the appropriate lock relay control circuit(s) to battery positive voltage. This will energize the appropriate lock or unlock relay(s). The relay will supply voltage to the door lock actuator lock or unlock control circuits to one side of the lock actuator. Since the opposing side of the lock actuators are connected to ground through the other lock actuator control circuit and the normally closed contacts of the lock or unlock relay, the doors and liftgate will then lock or unlock appropriately.

Three relays are used to operate the lock. Driver door unlock, passenger door unlock and all door lock. This is done to isolate the driver door lock actuator so it can be unlocked by itself using the keyless entry transmitter.

Automatic Door Lock Operation

This body control module (BCM) controlled feature can be personalized to driver preference.

The BCM will automatically lock the vehicle doors if the following conditions exist:

- All vehicles doors are closed.
- The ignition is in the ON position
- The vehicle is shifted out of PARK.

The BCM will then unlock the doors when the ignition is placed in the OFF position.

Delayed Locking Operation

With any door open and a door lock switch is activated in the lock position, the body control module (BCM) will give three audible chimes. When the door is closed, the BCM will cycle the internal door lock relay to lock the doors after approximately five seconds. This feature can be overridden by activating the door lock switch a second time and the doors will lock even with a

door open.

Lockout Prevention Operation

The body control module (BCM) will lock all doors and unlock the driver door with a door lock switch lock activation if a vehicle door is open and the ignition key is fully inserted in the ignition. The lockout prevention feature can be overridden if a lock command is received from the keyless entry system.

Key Cylinder Unlock

The body control module (BCM) will unlock all of the doors after detecting a door lock cylinder switch in the unlock position for greater than 1 second.

POWER DOOR LOCKS DESCRIPTION AND OPERATION (AXC/AXE)

Door Lock System Components

The power door lock system consists of the following components:

- The driver door module
- The passenger door module
- Door lock relay-Located in the instrument panel (I/P) fuse block and controls the locking of the rear doors.
- Door unlock relay-Located in the I/P fuse block and controls the unlocking of the rear doors
- The body control module
- The IP BEC
- The reversible door lock actuators in each of the doors

Door Lock System Controls

The power door lock system can be controlled by any of the following:

- A power door lock or unlock switch command
- A keyless entry command
- An automatic door lock function
- Door lock cylinder switch command
- Lockout Prevention

Driver and Passenger Lock System Operation

The front power door lock switches are integral components of the driver door module and passenger door module. The switches are 2 position normally open rocker switches. When placed in either the lock or unlock positions, the switches provide a direct input to the driver door module or passenger door module. The driver door module or passenger door module monitors these inputs and sends a LAN message indicating a change in the switches respective position. Modules which activate the power door lock motors receive the LAN message and activate the motor in the appropriate direction to lock or unlock the vehicle's doors. The body control module (BCM) upon receipt of a lock or unlock signal will control the rear door lock or unlock relays and also send a LAN message to the driver door module and passenger door module to perform the appropriate function.

The modules which activate the power lock motors are:

- The driver door module (driver door lock actuator)
- The passenger door module (passenger front door lock actuator)
- The BCM (both rear door lock actuators)

The driver door module and passenger door module are directly connected to the respective door lock actuator through the door lock motor lock and unlock circuits. Once a door lock or unlock request has been received, the module will supply battery voltage to one side of the actuator and ground the other causing the doors to lock or unlock.

The rear passenger doors are controlled by the BCM through the rear door lock/unlock relay which is incorporated onto the printed circuit board in the LH BEC. The BCM controls the unlock relay by providing ground to energize the coil and controls the lock relay by providing battery voltage to energize the relay coil. The energized the relay and allows voltage to be applied to either the door lock motor lock or unlock circuits. Since the other side of the door lock actuator is connected to the normally closed contacts of the opposing relay to ground, the doors lock or unlock.

Programmable Automatic Door Locks

The automatic door lock feature can be programmed to control the door lock system. The automatic door lock feature is factory programmed to have all doors lock and unlock.

When the automatic door lock feature is programmed to control the door lock system, the driver door switch, passenger door switch and body control module (BCM) will lock the vehicle doors if the following inputs are true:

- Ignition 1 input is active

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- All door jamb switch inputs are inactive
- Transmission is shifted out of PARK

This automatic door lock function will only occur once per ignition cycle unless, a door jamb switch input changes state to active and back to inactive. Then the driver door module, passenger door module and BCM will lock all doors again.

Once the automatic door lock feature has locked the doors, the BCM will then unlock all the doors when the transmission is shifted into PARK.

Lockout Prevention

This feature prevents the locking of the driver door if the ignition key is left in the ignition lock cylinder. If a lock function occurs from any door lock switch and the body control module (BCM) senses an active state on either the left front door latch signal, secondary door latch switch signal and/or the liftgate ajar switch signal circuits and the key in ignition switch signal circuit is in the YES state, the BCM, driver door module and passenger door module will lock the doors and then the driver door module will unlock the driver door.

REAR HATCH/GATE DESCRIPTION AND OPERATION

Power Liftgate

Operation

A power open or close cycle can only be initiated from the fully closed or open positions while the transaxle is in park. At any time during a power open or close cycle the operation can be reversed by pressing any one of three switches. These switches are located on the center console switch bank, the touchpad located on the underside of the liftgate handle and the touch button located on the underside of the liftgate next to the liftgate latch. The power liftgate can be switched to manual mode with the enable/disable switch in the center console switchbank and during manual operation the power latch will still operate. During power liftgate operation the liftgate module continuously monitors the liftgate position and load profile. The position is calculated from Hall effect sensor counts and the electrical load of the gear motor is used to determine physical resistance to the liftgate. Both of these profiles must be learned before the liftgate can operate properly and relearned any time most liftgate components are serviced.

Power Latch

The latch motor is a bi-directional motor and latch or unlatch operation is the result of the direction of the motor rotation. The liftgate module controls the latch motor through the control circuits by supplying power and ground in the appropriate polarity. The motor control circuits are

monitored by the liftgate module prior to activation for a high or low condition and during motor operation for an insufficient current flow condition. The ratchet, pawl and sector switches are part of the latch motor assembly and are used by the liftgate control module to determine the state of the latch during the process of latching or unlatching. Each of the latch switch signal circuits are supplied battery voltage through a resistor and monitored within the liftgate module. The latch switches share a common low reference circuit from the liftgate module and when the switch contacts close the signal circuit goes low and the liftgate module determines the switch to be active.

The liftgate handle touchpad and liftgate touch button are parallel circuits and provide a single input to the liftgate control module. The touchpad/touch button switch signal circuit is supplied battery voltage and monitored within the power liftgate control module. The switches share a common low reference circuit from the power liftgate control module and when the switch contacts close the signal circuit goes low and the power liftgate control module determines the switch to be active.

Gear Motor Assembly

The liftgate motor is a bi-directional motor and open or close operation is the result of the direction of the motor rotation. The liftgate module controls the liftgate motor through the control circuits by supplying power and ground in the appropriate polarity. The motor control circuits are monitored by the liftgate module prior to activation for a high or low condition and during motor operation for any irregular current flow conditions.

The liftgate motor clutch engages or disengages the liftgate motor to the liftgate drive gear and is the component that determines power or manual operation. When the liftgate module supplies power to the clutch control circuit the clutch coil is energized and the liftgate motor is engaged to the liftgate drive gear so that power operation can occur. The liftgate module monitors the clutch control circuit at all times for a short high while in an inactive state or a short low or insufficient current flow while in an active state.

The full open switch is part of the gear motor assembly and will close and become active when the liftgate reaches the full open position. The full open switch signal circuit is supplied battery voltage through a resistor and monitored within the liftgate module. The liftgate provides a low reference circuit and when the switch contacts close the signal circuit goes low and the liftgate module determines the switch to be active.

Object Detection

The liftgate control module continuously monitors power liftgate operation and calculates its location and direction of travel using 2 Hall effect sensors that are part of the gear motor

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assembly. The Hall effect sensors are 3-wire sensors and are supplied with a 5 volt power circuit, ground and signal circuits from the liftgate control module. The Hall effect sensor signal circuits are referenced from battery voltage within the liftgate control module and pulsed low by the hall effect sensors.

The power liftgate system uses a secondary object detection method which consists of object sensors fixed to both sides of the liftgate near the seal area. The object sensors consist of an internal fixed resistor and normally open switch contacts which when closed will bypass the resistor. The signal circuit is supplied 5 volts through a resistor and monitored within the liftgate control module and during normal power liftgate operation the signal circuit should remain a fixed value. When an object presses one of the sensors the contacts close and the resistor is bypassed causing the signal circuit voltage at the module to go low.

Manual Liftgate

The liftgate can be released placing the transaxle in park, unlocking all the doors and then pressing the touchpad on the underside of the liftgate handle. Battery voltage is supplied to the liftgate latch assembly through the liftgate relay. The body control module will pulse the liftgate relay when a release input is received through the touchpad.