

Mirrors

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Description and Operation

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1. BODY SYSTEMS
2. MIRRORS
3. DESCRIPTION AND OPERATION
- 4.

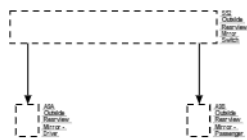
Outside Mirror Description and Operation

Power Mirror System Components

The power mirror system consists of the following components:

- Mirror direction switch – Controls the left, right, up and down movements of the mirrors
- Mirror select switch – Allows the operator to select the mirror to be moved
- Left outside mirror – Contains both the horizontal and vertical mirror motors
- Right outside mirror – Contains both the horizontal and vertical mirror motors
- 10A fuse – Located in the instrument panel (I/P) fuse block and supplies power for the power mirror system

Each of the outside power mirrors contains 2 motors. The up-down motor operates the vertical directions and the left-right motor operates the horizontal directions. Each of the power mirror motors are internally circuit breaker protected.



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Power Mirror System Controls

The outside mirror switch incorporates a mirror select switch and a 4-position mirror direction switch.

The mirror select switch allows the driver to select the mirror to be moved by pressing the switch to L-position enabling the left outside mirror or pressing the switch to R-position enabling the right outside mirror.

The mirror direction switch is a 4-position switch that allows the operator to move the selected mirror up, down, left or right.

Power Mirror System Operation

The outside mirror switch receives power through the battery positive voltage circuit from the 10A fuse in the instrument panel (I/P) fuse block. The outside mirror switch also receives a constant ground.

The 4-positions of the direction switch have multiple switch contacts. When not in use, the directional contacts are isolated from any circuit. Each of the contacts are connected to opposing sides of the appropriate mirror motors through the selector switch. The selector switch interrupts or completes these circuits depending on the position of the selector switch, L or R.

If the mirror select switch is placed in the L-position and the up switch is pressed, battery voltage will be supplied to the driver outside mirror vertical motor through the driver mirror motor up control circuit and return to the mirror switch through the driver mirror motor left/down control circuit, then to ground and the mirror will move up. If the down switch is pressed, the driver mirror motor left/down control circuit supplies battery voltage and the driver mirror motor up control circuit completes the path to the mirror switch, then to ground and the mirror will move down.

The remainder of the mirror functions operate in the same manner as described above. Placing the mirror direction switch in opposing positions, left/right or up/down, will reverse the voltage polarity to the mirror motor, utilizing the same circuits and the mirror will move accordingly.

Heated Mirror System Operation

The rear window defogger system controls the operation of the driver and passenger rearview mirror heaters. When the rear window defogger

switch is activated, the DEFOG relay in the IP fuse block is energized sending B+ through the defog mirror 15A fuse to the driver and passenger rearview mirror heaters. The mirror heaters are connected to separate ground circuits.

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Diagnostic Information and Procedures

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Symptoms - Mirrors

Note:

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:
2.
 - There are no DTCs set.
 - The control modules can communicate via the serial data link.
3. Review the system operation in order to familiarize yourself with the system functions. Refer to [Outside Mirror Description and Operation](#).

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the system.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to [Testing for Intermittent Conditions and Poor Connections](#).

Symptom List

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

- [Heated Mirrors Malfunction](#)
- [Power Mirrors Inoperative](#)

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Heated Mirrors Malfunction

Diagnostic Instructions

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

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Heated Mirror Element Control	1	1	2	â€”
Ground	â€”	1	â€”	â€”
1. Heated Mirror Inoperative				
2. Heated Mirror Always On				

Circuit/System Description

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

Reference Information

Schematic Reference

[Outside Rearview Mirror Schematics](#)

Connector End View Reference

[Master Electrical Component List](#)

Description and Operation

[Outside Mirror Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Verification

1. Engine running, press the rear window defogger switch. Verify the rear window defogger turns ON and the rear window becomes warm.
2.
 - If the rear window defogger does not turn on, refer to [Rear Window Defogger Malfunction](#).
3. Verify both the left and right outside mirror glass become warm.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the appropriate outside rearview mirror.
2. Wait 1 minute, test for less than 10Î© between the ground circuit terminalâ€”2 and ground.
3.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
4. Connect a test lamp between the heater element control circuit terminalâ€”1 and ground.
5. Engine running, operate the rear window defogger ON and OFF with the rear defogger switch. The test lamp should turn ON and OFF when changing between the commanded states.
6.
 - If the test lamp is always ON, test the control circuit for a short to voltage.
 - If the test lamp is always OFF, test the control circuit for a short to ground or an open/high resistance.
7. If all circuits test normal, test or replace the outside rearview mirror glass.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the diagnostic procedure.

[Outside Rearview Mirror Glass Replacement](#)

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Power Mirrors Inoperative

Diagnostic Instructions

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

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B+	1	1	1	â€”
Left/Right Mirror Horizontal Motor Control	1	1	1	â€”
Left/Right Mirror Vertical Motor Control	1	1	1	â€”
Left/Right Mirror Motor Common Control	1	1	1	â€”
Switch Ground	â€”	1	â€”	â€”
1. Power mirror malfunction				

Circuit/System Description

The outside rearview mirror switch supplies both voltage and ground to the outside rearview mirror motors. When the outside rearview mirror switch is being pressed the switch supplies the voltage and ground to the proper circuits to engage the proper mirror motor.

Reference Information

Schematic Reference

[Outside Rearview Mirror Schematics](#)

Connector End View Reference

[Master Electrical Component List](#)

Description and Operation

[Outside Mirror Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Verification

1. Ignition ON, with the mirror selector switch in the DRIVER position, command the mirrors UP, DOWN, LEFT, and RIGHT using the mirror directional switch. The driver mirror should move in the commanded direction.
2. With the mirror selector switch in the PASSENGER position, command the mirrors UP, DOWN, LEFT, and RIGHT using the mirror directional switch. The passenger mirror should move in the commanded direction.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the outside rearview mirror switch.
2. Test for less than 10Î© between the ground circuit terminalâ€”8 and ground.
3.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
4. Ignition ON, verify that a test lamp illuminates between the B+ circuit terminalâ€”6 and ground.
5.
 - 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 fuse is open, replace the fuse and continue to the next diagnostic step.
6. Connect the harness connector at the outside rearview mirror switch.
7. Disconnect the harness connector at the appropriate outside rearview mirror.
8. Connect a test lamp between the following mirror door harness control circuit terminals:
9.
 - Terminal 5 and terminal 3
10. Operate the vertical switch UP and DOWN. Verify that the test lamp illuminates when commanding the UP and DOWN states.
11.
 - If the test lamp does not illuminate during either of the commands, test for a short to voltage, short to ground or an open/high resistance on the control circuits. If the circuits test normal, replace the power mirror switch.
12. Connect a test lamp between the following mirror door harness control circuit terminals:
13.
 - Terminal 3 and terminal 4
14. Operate the horizontal switch LEFT and RIGHT. Verify that the test lamp illuminates when commanding the LEFT and RIGHT states.
15.
 - If the test lamp does not illuminate during either of the commands, test for a short to voltage, short to ground or an open/high resistance on the control circuits. If the circuits test normal, replace the power mirror switch.
16. If all circuits test normal, test or replace the outside rearview mirror.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the diagnostic procedure.

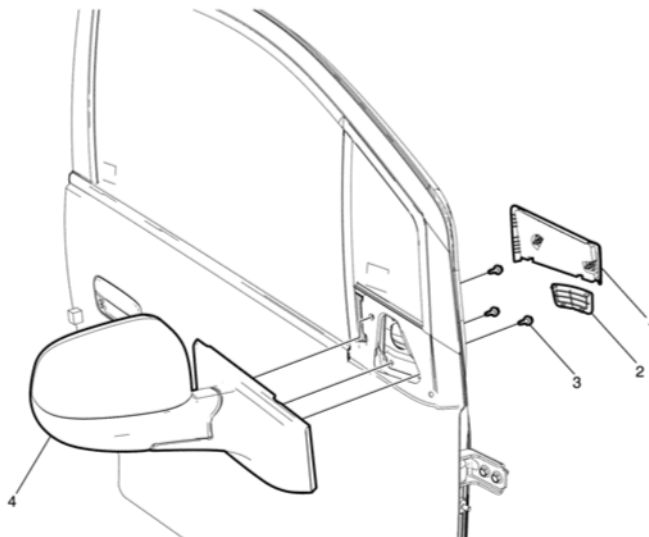
- [Instrument Panel Multifunction Switch Replacement](#)
- [Outside Rearview Mirror Replacement](#)

Repair Instructions

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Outside Rearview Mirror Replacement



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Callout	Component Name
1	Front Side Door Upper Front Trim Panel Assembly Tip Trim panel is secured to door with clips.
2	Front Side Door Trim Bolt Hole Cover
3	Outside Rearview Mirror Mounting Bolt (Qty: 3) Caution: Refer to Fastener Caution . Tighten 9 N-m (80 lb-in)
4	Outside Rearview Mirror Assembly

Related Part Information

Part Name	Catalog Name	Part Code
Outside Rearview Mirror	MIRROR,PKG O/S RR VIEW	0295A
Outside Rearview Mirror	MIRROR KIT,O/S RR VIEW	0296A
Outside Rearview Mirror	MIRROR KIT,O/S RR VIEW(W/CASE)	0297A
Outside Rearview Mirror	MIRROR KIT,O/S RR VIEW	0300A
Outside Rearview Mirror	MIRROR,O/S RR VIEW	0324A
Outside Rearview Mirror	MIRROR,O/S RR VIEW	0325A
Outside Rearview Mirror	MIRROR,O/S RR VIEW (W/T/SIG)	0325C
Outside Rearview Mirror	MIRROR,O/S RR VIEW (UPR REFL GLASS ONLY)	0325E
Outside Rearview Mirror	MIRROR,O/S RR VIEW (LWR CONVEX GLASS ONLY)	0325F
Outside Rearview Mirror	MIRROR,O/S RR VIEW (UPR CONVEX GLASS ONLY)	0325H
Outside Rearview Mirror	MIRROR PKG,O/S RR VIEW(TRLR TOWING)	SS187
Outside Rearview Mirror	MIRROR PKG,O/S RR VIEW(ELEC CONT)(CHROME)	SS188
Outside Rearview Mirror	MIRROR PKG,O/S RR VIEW	SS321
Outside Rearview Mirror	MIRROR PKG,O/S RR VIEW(ELEC CONT)	SS585
Outside Rearview Mirror	MIRROR PKG,O/S RR VIEW(ELEC CONT)	SS011
Outside Rearview Mirror	MIRROR PKG,O/S RR VIEW	SS018
Outside Rearview Mirror	MIRROR PKG,O/S RR VIEW(CAMPER TYPE)	SS073
Outside Rearview Mirror	MIRROR PKG,O/S RR VIEW(SPORT)	SS125

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Outside Rearview Mirror Housing Cover Replacement (without Side Turn Signal Lamp)

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Callout	Component Name
Preliminary Procedures	
Remove the outside rearview mirror glass. Refer to Outside Rearview Mirror Glass Replacement .	
1	Outside Rearview Mirror Housing Cover Note: 1. After the mirror glass has been removed the retainers can be accessed to release. 2. Align the housing cover with the slots in the mirror housing, push downward locking retainers in place. 3. Inspect the outside mirror for proper operation.

Related Part Information

Part Name	Catalog Name	Part Code
Outside Rearview Mirror Housing Cover	COVER PKG,O/S RR VIEW MIR HSG	0376Y
Outside Rearview Mirror Housing Cover	COVER KIT,O/S RR VIEW MIR HSG	0376Z
Outside Rearview Mirror Housing Cover	COVER,O/S RR VIEW MIR HSG	0377A
Outside Rearview Mirror Housing Cover	COVER,O/S RR VIEW MIR HSG	0377B

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Outside Rearview Mirror Housing Cover Replacement (with Side Turn Signal Lamp)

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Callout	Component Name
Preliminary Procedures	
Remove the outside rearview mirror motor. Refer to Outside Rearview Mirror Motor Replacement .	
1	Outside Rearview Mirror Housing Screw (Qty: 5) Caution: Refer to Fastener Caution. Tighten 2â€%N-mâ€%(18â€%lbâ€%in)
2	Outside Rearview Mirror Housing
3	Outside Rearview Mirror Housing Cover 1. Release the mirror housing cover taps from the mirror housing. 2. After the removal of the mirror housing cover, visually inspect the cover taps for breaking before installation. 3. If the cover taps are broken, replace with new cover. Note: • To access the mirror housing cover taps easily, loosen the mirror housing screws and then move the mirror housing in every direction. • The mirror housing cannot be removed from the outside mirror assembly.

Related Part Information

Part Name	Catalog Name	Part Code
Outside Rearview Mirror Housing Cover	COVER PKG,O/S RR VIEW MIR HSG	0376Y
Outside Rearview Mirror Housing Cover	COVER KIT,O/S RR VIEW MIR HSG	0376Z
Outside Rearview Mirror Housing Cover	COVER,O/S RR VIEW MIR HSG	0377A
Outside Rearview Mirror Housing Cover	COVER,O/S RR VIEW MIR HSG	0377B

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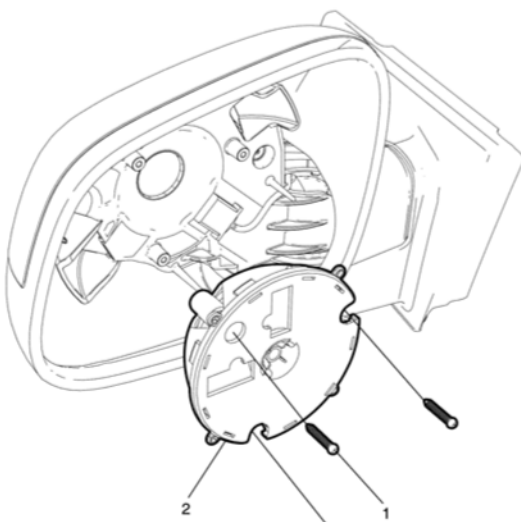
Outside Rearview Mirror Remote Control Switch Replacement

Refer to [Instrument Panel Multifunction Switch Replacement](#).

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Outside Rearview Mirror Motor Replacement





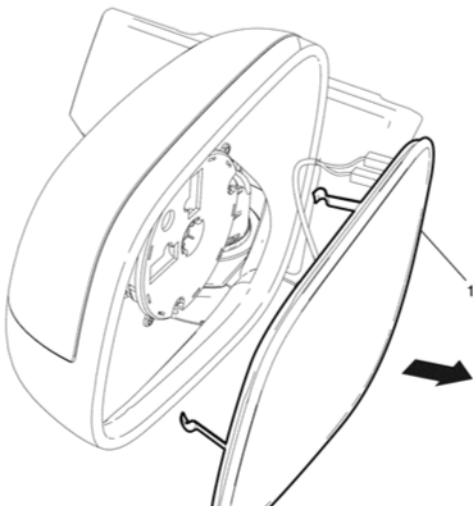
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Callout	Component Name
Preliminary Procedure	
Remove the outside rearview mirror glass. Refer to Outside Rearview Mirror Glass Replacement .	
1	Outside Rearview Mirror Motor Screw (Qty: 3) Caution: Refer to Fastener Caution . Tighten 3 N·m (27 lb·in)
2	Outside Rearview Mirror Motor Tip Disconnect the electrical connector.

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Outside Rearview Mirror Glass Replacement





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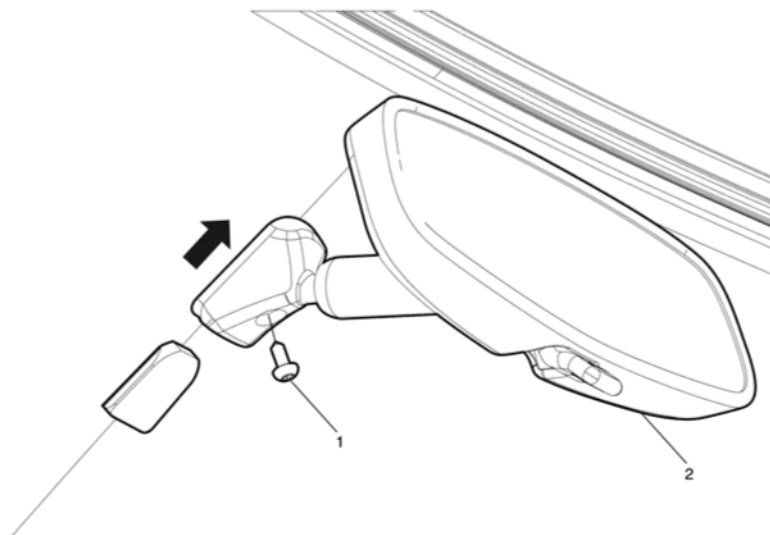
Callout	Component Name
Warning:	
Refer to Glass and Sheet Metal Handling Warning .	
1	Outside Rearview Mirror Glass
	Procedure
	Release the mirror glass backing from the mirror housing by pulling outward.
	Tip
	Disconnect the power wire harness electrical connector.

Related Part Information

Part Name	Catalog Name	Part Code
Outside Rearview Mirror Glass GLASS,O/S RR VIEW MIR		0325B
Outside Rearview Mirror Glass GLASS,O/S RR VIEW MIR (W/BKG PLATE)		0325D

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Inside Rearview Mirror Replacement



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Callout	Component Name
Preliminary Procedure	
Adjust the mirror to the full upward position.	
1	Inside Rearview Mirror Screw Caution: Refer to Fastener Caution . Tighten 1.8â€%N-m (16â€%lbâ€%in)
2	Inside Rearview Mirror Tip Slide the mirror in an upward motion in order to remove.

Related Part Information

Part Name	Catalog Name	Part Code
Inside Rearview Mirror	MIRROR,I/S RR VIEW	0895A
Inside Rearview Mirror	MIRROR,I/S RR VIEW	0900A
Inside Rearview Mirror	MIRROR PKG,I/S RR VIEW(ELECTRO CHROMIC)	SS007
Inside Rearview Mirror	MIRROR PKG,I/S RR VIEW(LIGHTED)	SS067

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Specifications

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Fastener Specifications

Reusable Threaded Fastener Tightening Specifications

Application	Specification
	Metric (English)
Note:	
All fasteners listed in this table can be reused after removal.	
Inside Rearview Mirror Screw	1.8â€‰N-mâ€‰(16â€‰lbâ€‰in)
Outside Rearview Mirror Housing Screw	2â€‰N-mâ€‰(18â€‰lbâ€‰in)
Outside Rearview Mirror Motor Screw	3â€‰N-mâ€‰(27â€‰lbâ€‰in)
Outside Rearview Mirror Mounting Bolt	9â€‰N-mâ€‰(80â€‰lbâ€‰in)

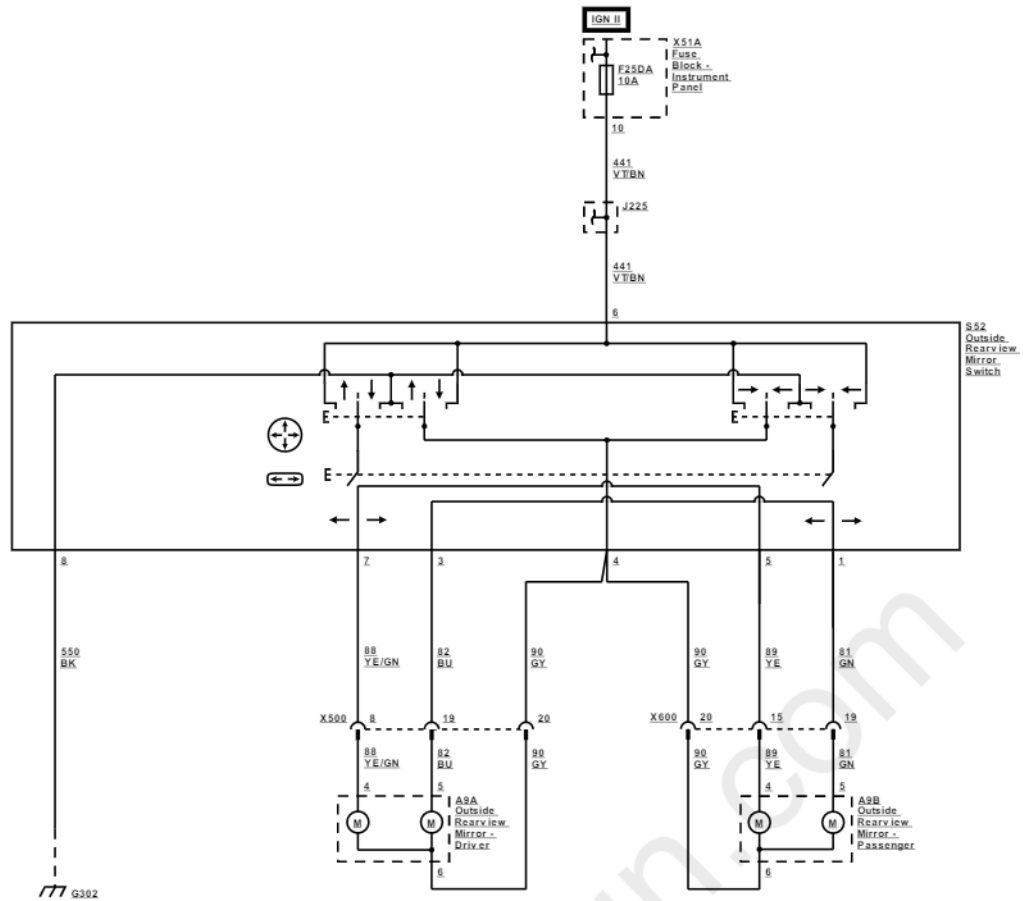
Schematic and Routing Diagrams

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Outside Rearview Mirror Schematics

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Outside Rearview Mirrors



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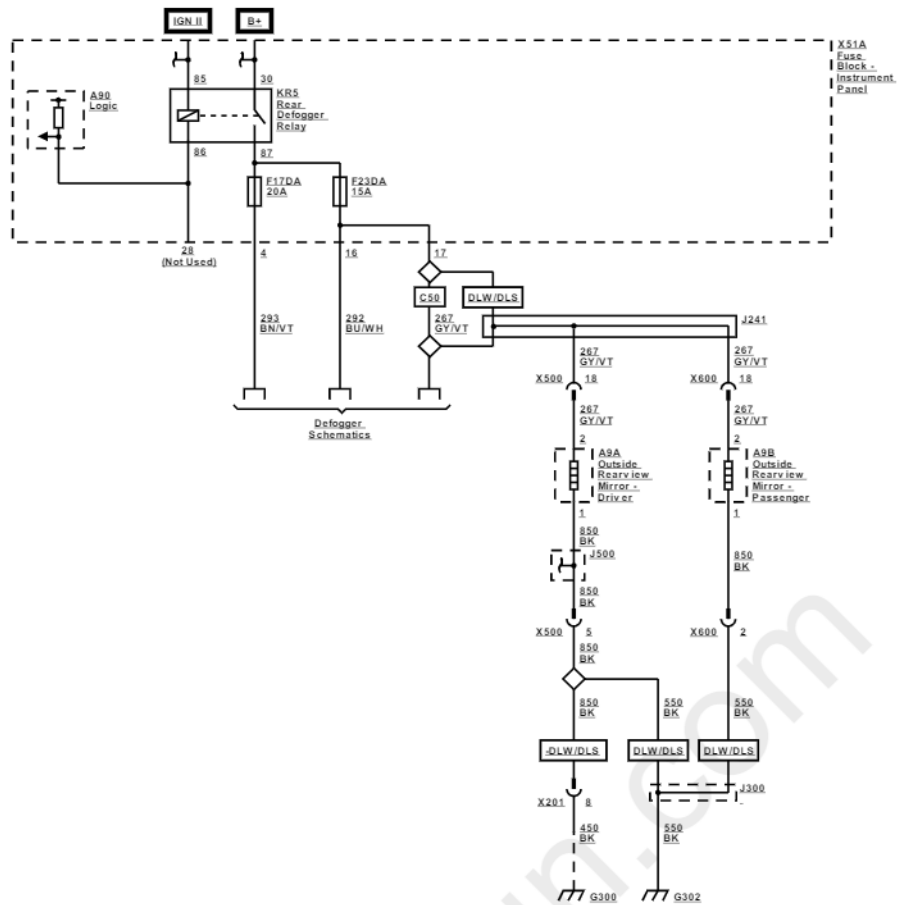
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Outside Heated Mirrors



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