

2017 ACCESSORIES & EQUIPMENT

Wipers and Washers - Encore, Trax

SPECIFICATIONS

FASTENER SPECIFICATIONS

Reusable Threaded Fastener Tightening Specifications

NOTE:

All fasteners listed in this table can be reused after removal.

Application	Specification
	Metric (English)
Rear Window Wiper Arm Nut	10 N.m (89 lb in)
Rear Window Wiper Motor Bolt	9 N.m (80 lb in)
Windshield Washer Solvent Container Nut	5 N.m (44 lb in)
Windshield Wiper Arm Nut	25 N.m (18 lb ft)
Windshield Wiper Transmission Bolt	9 N.m (80 lb in)

SCHEMATIC WIRING DIAGRAMS

WIPER/WASHER WIRING SCHEMATICS (BUICK)

Front Wiper/Washer Control and Wiper (Buick)

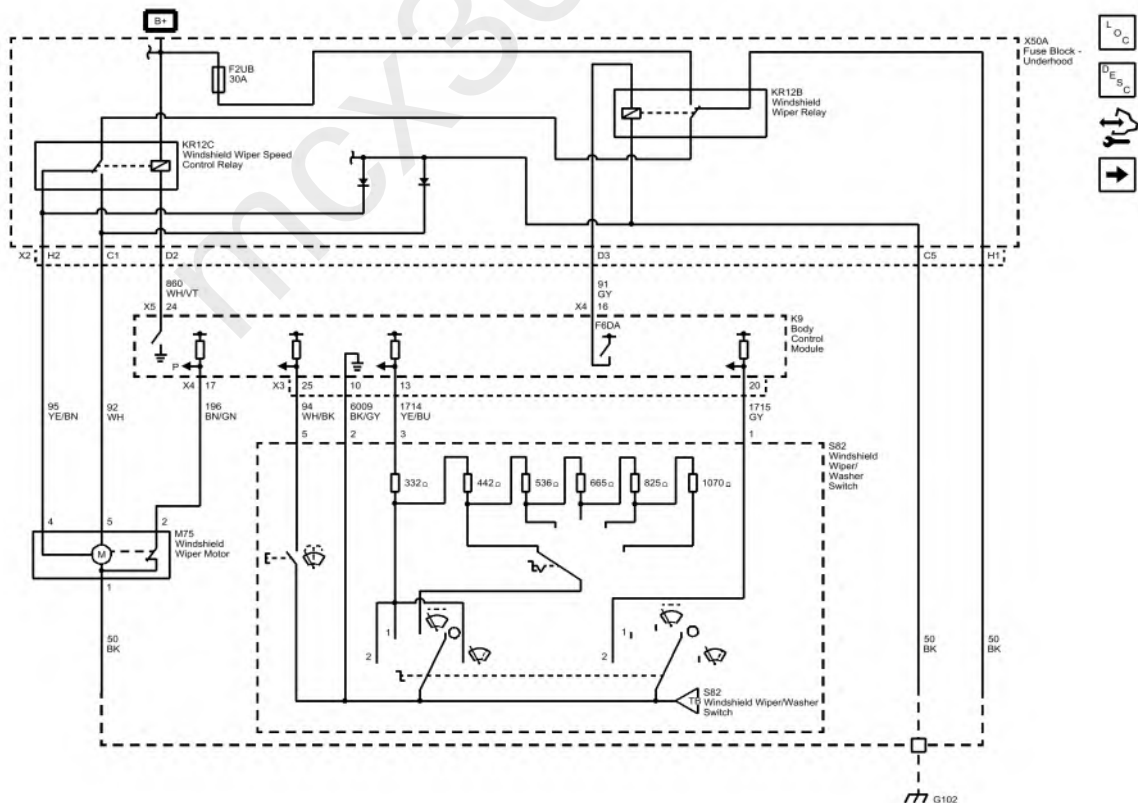


Fig. 1: Front Wiper/Washer Control and Wiper (Buick).

Courtesy of GENERAL MOTORS COMPANY

Rear Wiper/Washer Control and Wiper (Buick)

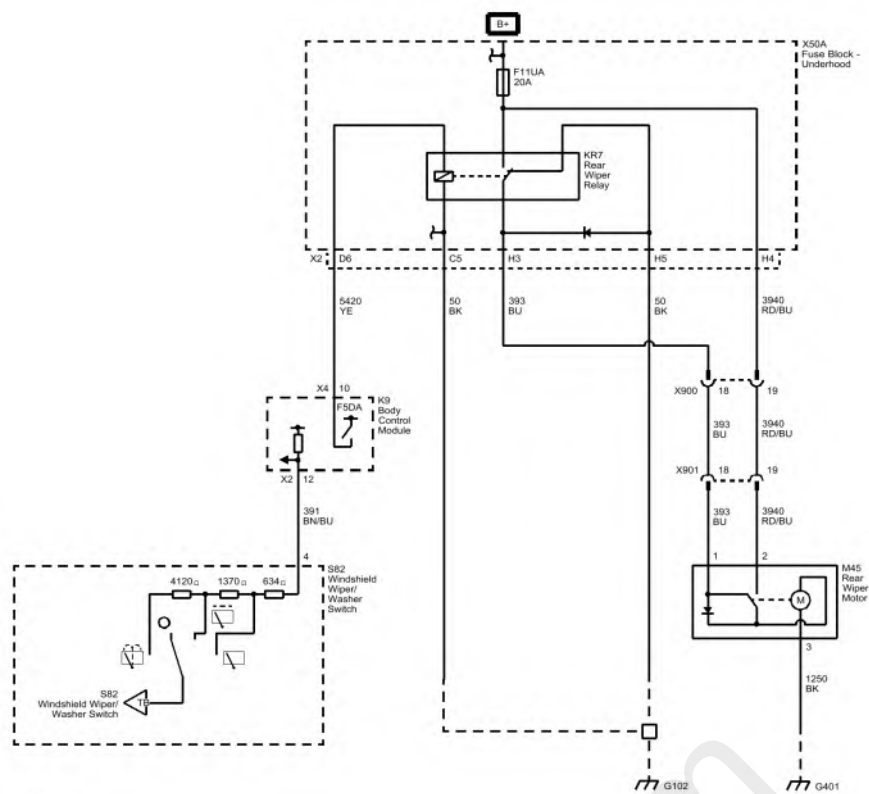


Fig. 2: Rear Wiper/Washer Control and Wiper (Buick)
 Courtesy of GENERAL MOTORS COMPANY

Washer (Buick)

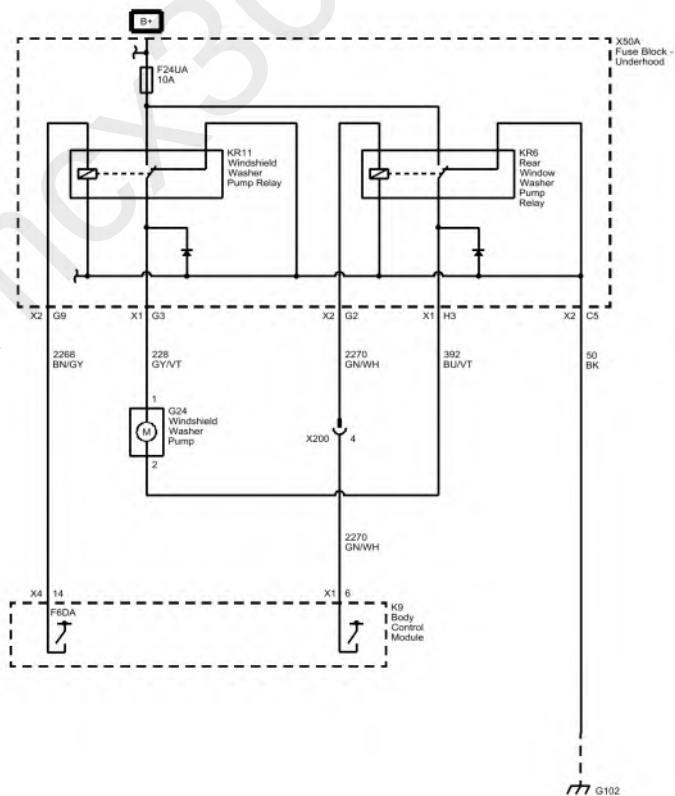


Fig. 3: Washer (Buick)
 Courtesy of GENERAL MOTORS COMPANY

Wiper/Washer Schematics (Buick)

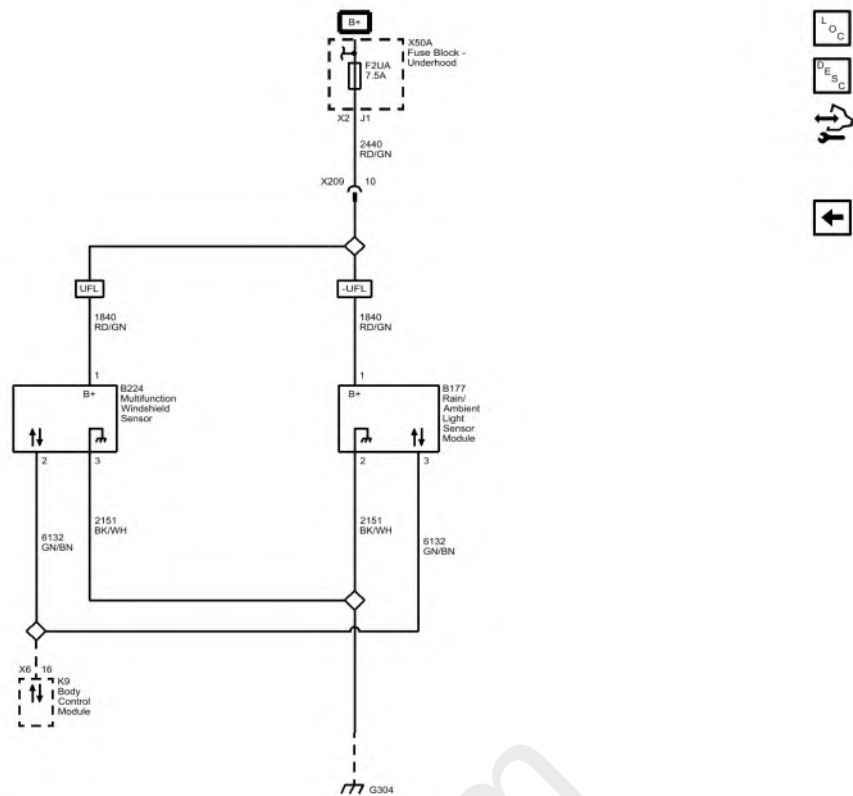


Fig. 4: Wiper/Washer Schematics (Buick)
 Courtesy of GENERAL MOTORS COMPANY

WIPER/WASHER WIRING SCHEMATICS (CHEVROLET)

Front Wiper/Washer Control and Wiper (Chevrolet)

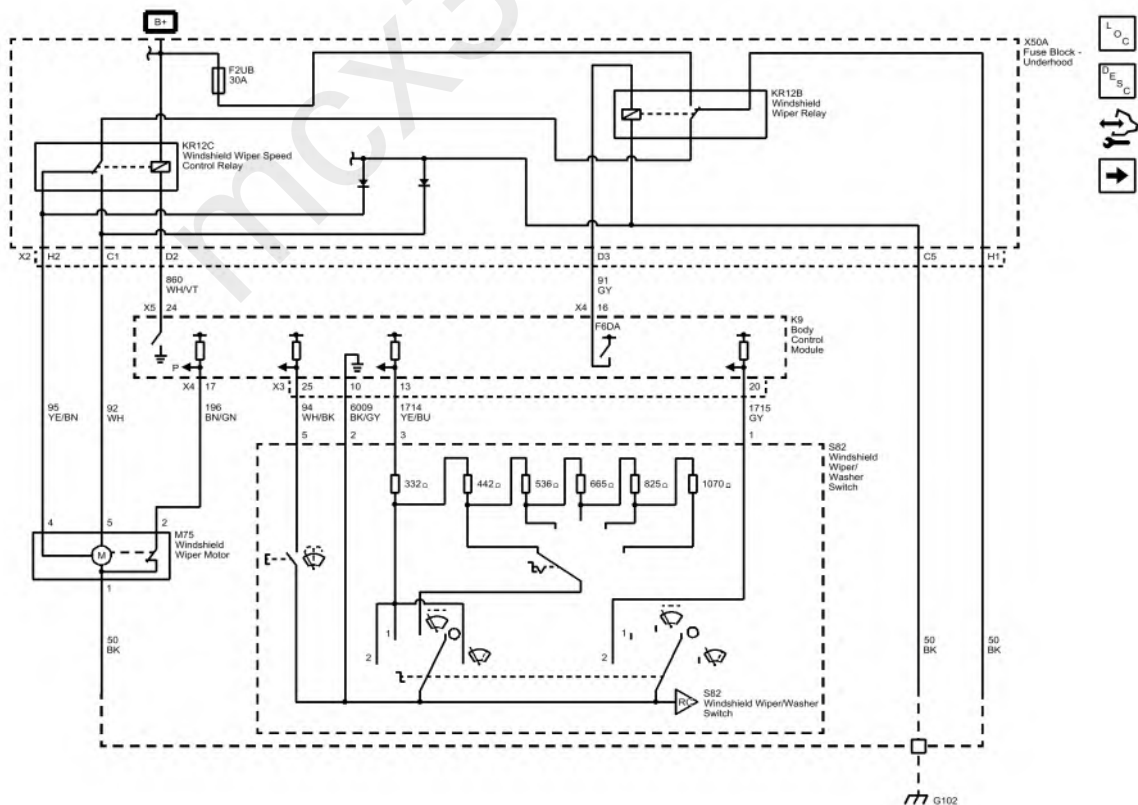


Fig. 5: Front Wiper/Washer Control and Wiper (Chevrolet)
 Courtesy of GENERAL MOTORS COMPANY

Rear Wiper/Washer Control and Wiper (Chevrolet)

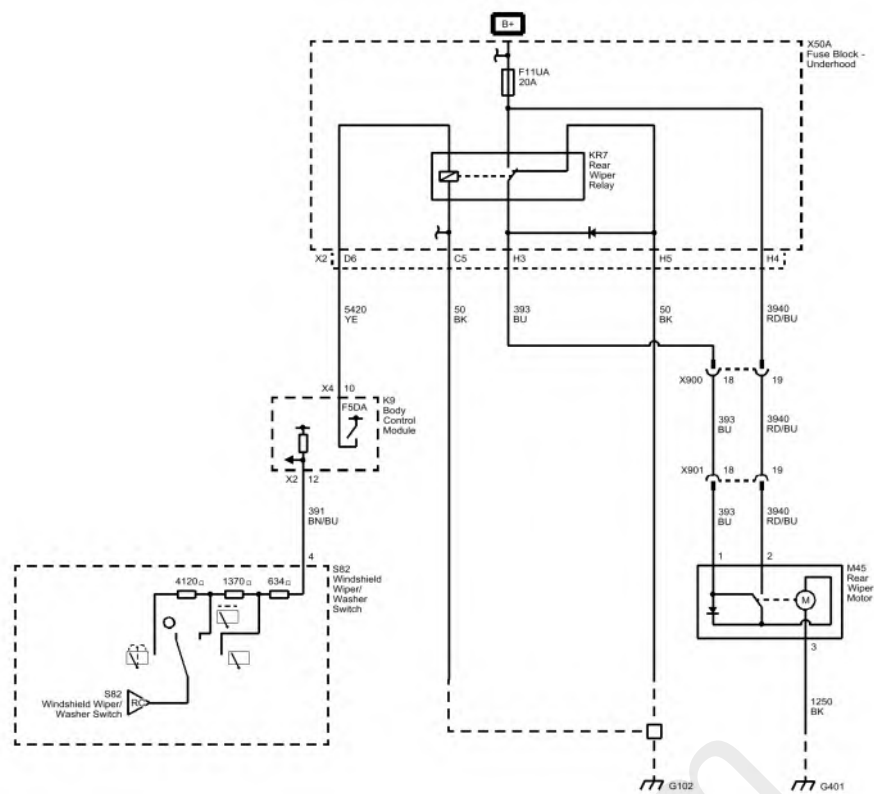


Fig. 6: Rear Wiper/Washer Control and Wiper (Chevrolet)
Courtesy of GENERAL MOTORS COMPANY

Washer (Chevrolet)

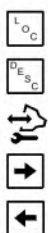
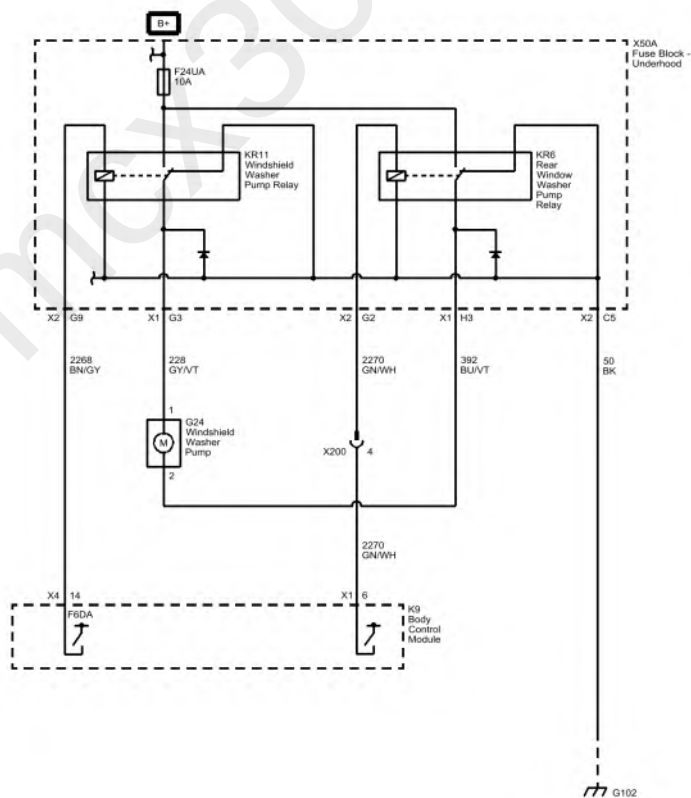


Fig. 7: Washer (Chevrolet)
Courtesy of GENERAL MOTORS COMPANY

Rain Sensor (Chevrolet)

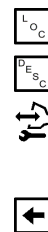
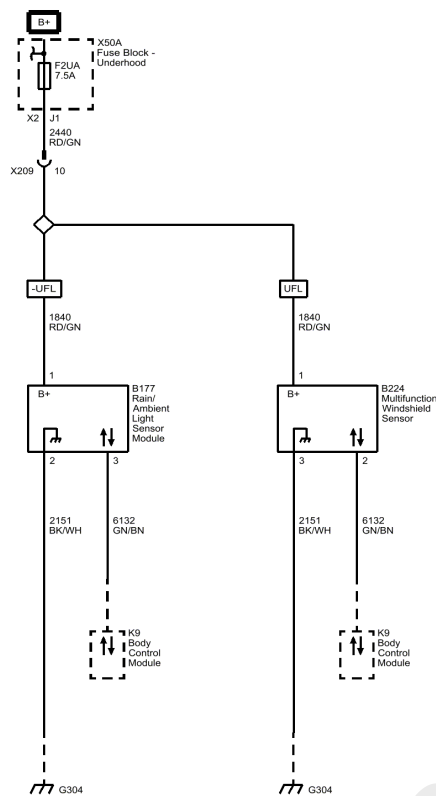


Fig. 8: Rain Sensor (Chevrolet)
 Courtesy of GENERAL MOTORS COMPANY

Rain Sensor (Chevrolet)

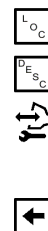
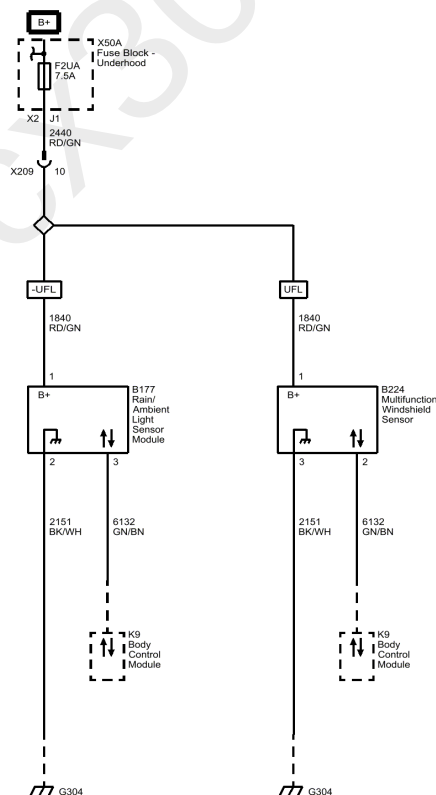


Fig. 9: Rain Sensor (Chevrolet)
 Courtesy of GENERAL MOTORS COMPANY

DIAGNOSTIC INFORMATION AND PROCEDURES

DTC B370A: RAIN SENSOR

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptor

DTC B370A

Rain Sensor

For symptom byte information, refer to [Symptom Byte List](#).

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B+	U151A	U151A	-	-
Serial Data	U151A	U151A	U151A	-
Ground	-	U151A	-	-

Circuit/System Description

B+ and ground is supplied at all times to the rain sensor. The rain sensor communicates with the body control module (BCM) via serial data. When the ignition is in the ON or ACCESSORY position and the windshield wiper/washer switch is in the intermittent delay position, the BCM monitors the rain sensor data to determine the rain build up on the windshield. As rain builds up on the windshield, the BCM will command the wipers to activate. The sensitivity of the wiper frequency is controlled by the intermittent delay of the windshield wiper/washer switch. As the sensitivity is increased, the BCM will command more frequent wiper activation based on rain build up on the windshield.

Conditions for Running the DTC

- Ignition ON.
- The system voltage is between 9-16 V.

Conditions for Setting the DTC

Communication between the BCM and the rain sensor is interrupted, and an interruption in communication is a serial data fault.

Action Taken When the DTC Sets

- If the BCM loses communication with the rain sensor while operating under manual 1X control, the windshield wiper operation will default to intermittent operation with a fixed dwell time of 4 s.
- If the BCM loses communication with the rain sensor while operating at low speed, the windshield wiper operation will default to low speed.
- If the BCM loses communication with the rain sensor while operating at high speed, the windshield wiper operation will default to high speed.

Conditions for Clearing the DTC

The DTC will clear when communication is established between the BCM and rain sensor.

Reference Information

Schematic Reference

[Wiper/Washer Schematics \(Buick\)](#)[Wiper/Washer Schematics \(Chevrolet\)](#)

Connector End View Reference

Description and Operation

Wiper/Washer System 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.
2. Verify DTC U151A is not set.
 - **If DTC is set**

Refer to [DTC U1500-U15FF](#) .
 - **If DTC is not set**
3. Place the S82 Windshield Wiper/Washer Switch in the intermittent delay setting and spray the outside of the windshield in the area of the B200 Rain Sensor Module with a water bottle. It may be necessary to increase the sensitivity of the intermittent delay to achieve windshield wiper operation.
4. Verify the windshield wipers operate at low speed.
 - **If the wipers are not operating at low speed**

Refer to Circuit/System Testing.
 - **If the wipers are operating at low speed**
5. All OK.

Circuit/System Testing

1. Ignition OFF, all vehicle systems OFF, disconnect the harness connector at the B200 Rain Sensor Module. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminals listed below and ground:
 - Ground circuit terminal 3 (With UFL)
 - Ground circuit terminal 2 (Without UFL)
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Ignition ON.
4. Verify a test lamp illuminates between the B+ circuit terminal 1 and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF, remove the test lamp.
 2. Test for less than 2 Ω in the B+ circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , verify the fuse is not open and there is voltage at the fuse.

- **If the test lamp does not illuminate and the circuit fuse is open**

1. Ignition OFF, remove the test lamp.
2. Test for infinite resistance between the B+ circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the B200 Rain Sensor Module.

- **If the test lamp illuminates**

5. Test for 5.0-10.0 V between the serial data circuit terminals listed below and ground:
 - Serial data circuit terminal 2 (With UFL)
 - Serial data circuit terminal 3 (Without UFL)
 - **If less than 5.0 V**
 1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module and the harness connector at the M75 Windshield Wiper Motor.
 2. Test for infinite resistance between the serial data circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the serial data circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.
 - **If greater than 10.0 V**
 1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the serial data circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the K9 Body Control Module.
 - **If between 5.0-10.0 V**
6. Test or replace the B200 Rain Sensor Module.

Repair Instructions

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

- Refer to [Windshield Outside Moisture Sensor Replacement](#)
- Refer to [Control Module References](#) for body control module replacement, programming and setup.

DTC B370B: REAR WIPER FUNCTION CONTROL CIRCUIT

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptor

DTC B370B

Rear Wiper Function Control Circuit

For symptom byte information, refer to [Symptom Byte List](#).

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Rear Wiper Motor B+	-	1	-	-
Rear Wiper Switch Signal	1	1	1	-
Rear Wiper Motor Control	1	1	2	-
Rear Wiper Relay Control	B370B 02	1	B370B 01	-

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Rear Wiper Relay Ground	-	1	-	-
Rear Window Wiper Ground	-	1	-	-
1. Rear Wiper Inoperative 2. Rear Wiper Always ON				

Circuit/System Description

The body control module (BCM) controls the rear wiper motor based on an input from the rear wiper switch, which is part of the windshield wiper/washer switch. The BCM monitors the windshield wiper/washer switch through two separate signal circuits and a low reference circuit. The rear wiper switch uses a resistor ladder to determine low speed, intermittent, and rear washer operation. The BCM monitors applies and monitors voltage on the rear wiper switch signal circuit. When the rear wiper switch is placed in the low speed, intermittent, or rear washer position, the voltage is pulled down through a different resistor in the resistor ladder, reducing the voltage seen at the BCM. The BCM will respond by commanding the specific rear wiper function.

The rear wiper motor is controlled by the BCM through the rear wiper relay. A constant B+ and ground are supplied to the rear wiper motor. When rear wiper operation is requested, the BCM will apply voltage to the rear wiper relay control circuit. This will cause the contacts in the rear wiper relay to close and apply B+ to the rear wiper motor through the rear wiper control circuit, enabling rear wiper operation. When the rear wiper request is no longer present, the contacts in the rear wiper relay will open, removing B+ from the rear wiper motor control circuit. The rear wiper motor will continue to operate using the constant B+ circuit until it is in the park position.

Conditions for Running the DTC

- Ignition ON
- The system voltage is between 9-16 V.

Conditions for Setting the DTC

B370B 01

A short to voltage is detected in the rear wiper relay control circuit.

B370B 02

A short to ground is detected in the rear wiper relay control circuit.

B370B 04

An open or high resistance is detected in the rear wiper relay control circuit.

Action Taken When the DTC Sets

Rear wiper operation is disabled.

Conditions for Clearing the DTC

The DTC will clear when the conditions for setting the DTC are no longer present.

Reference Information

Schematic Reference

Wiper/Washer Schematics (Buick)Wiper/Washer Schematics (Chevrolet)

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX (ENCORE) COMPONENT CONNECTOR END VIEWS - INDEX (TRAX)

Description and Operation

Wiper/Washer System Description and Operation

- [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.
2. Verify the scan tool Rear Closure Ajar Switch parameter changes between Inactive and Active when opening and closing the liftgate.
 - **If the parameter does not change**

Refer to [Door Ajar Indicator Malfunction](#)
 - **If the parameter changes**
3. Verify the Scan Tool Rear Wiper Switch Parameter changes between ON and OFF when cycling the rear wiper switch ON and OFF.
 - If the parameter does not change
 - Refer to Circuit/System Testing - Rear Wiper/Washer Switch Malfunction
 - If the parameter changes
4. Verify the M45 Rear Wiper Motor cycles when commanding the rear wiper ON with the rear wiper switch
 - **If the M45 Rear Wiper Motor does not cycle**

Refer to Refer to Circuit/System Testing - Rear Wiper Motor Malfunction
 - **If the M45 Rear Wiper Motor cycles**
5. Verify the M45 Rear Wiper Motor returns to the park position when the rear wipers are turned OFF
 - **If the M45 Rear Wiper Motor does not return to the park position**

Refer to Circuit/System Testing - Rear Wiper Motor Malfunction
 - **If the M45 Rear Wiper Motor returns to the park position**
6. All OK.

Circuit/System Testing

Rear Wiper/Washer Switch Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the S82 Windshield Wiper/Washer Switch. It may take up to 11 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the low reference circuit terminal 2 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the low reference circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.
 - **If less than 10 Ω**
3. Ignition ON.
4. Test for greater than 8 V between the signal circuit terminal 4 and ground.
 - **If less than 8 V**
 1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit and ground

- If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
3. Test for less than 2 Ω in the signal circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.
 - **If 8 V or greater**
5. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module, ignition ON.
 6. Test for less than 1 V between the S82 Windshield Wiper/Washer Switch signal circuit terminal 4 and ground.
 - **If 1 V or greater**

Repair the short to voltage on the circuit.

 - **If less than 1 V**
 7. Test or replace the S82 Windshield Wiper/Washer Switch.

Rear Wiper Motor Malfunction

1. Ignition OFF, and all vehicle systems OFF. Disconnect the harness connector at the M45 Rear Wiper Motor. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 3 and ground.
 - **If 10 Ω or greater**
 1. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Ignition ON.
4. Verify a test lamp illuminates between the B+ circuit terminal 2 and ground.
 - **If the test lamp does not illuminate**
 1. Ignition OFF, remove the test lamp. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
 2. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , test or replace the X50A Fuse Block - Underhood.
 - **If the test lamp illuminates**
5. Connect a test lamp between the control circuit terminal 1 and ground.
6. Verify the test lamp does NOT turn ON and OFF when commanding the rear wiper ON and OFF with the rear wiper switch.
 - **If the test lamp turns ON and OFF**

Test or replace the M45 Rear Wiper Motor.
 - **If the test lamp does not turn ON and OFF**
7. Ignition OFF, connect the harness connector at the M45 Rear Wiper Motor. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood, It may take up to 2 min for all vehicle systems to power down.
8. Test for less than 10 Ω between each ground circuit terminal listed below and ground:
 - Terminal C5
 - Terminal H5
 - **If 10 Ω or greater**
 1. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
9. Ignition ON.

10. Verify the M45 Rear Wiper Motor is not activated.
 - **If the M45 Rear Wiper Motor is activated**
 1. Ignition OFF, disconnect the harness connector at the M45 Rear Wiper Motor, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 1 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the M45 Rear Wiper Motor.
 - **If the M45 Rear Wiper Motor is not activated**
11. Connect a 20 A fused jumper wire between both of the circuits listed below and B+.
 - B+ Circuit Terminal H4
 - Control Circuit Terminal H3
12. Verify the M45 Rear Wiper Motor activates.
 - **If the M45 Rear Wiper Motor does not activate**
 1. Ignition OFF, remove the jumper wire, disconnect the harness connector at the M45 Rear Wiper Motor, ignition ON.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than Infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the M45 Rear Wiper Motor.
 - **If the M45 Rear Wiper Motor activates**
13. Ignition OFF, connect the X2 harness connector at the X50A Fuse Block - Underhood. Disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
14. Verify the M45 Rear Wiper Motor is not activated.
 - **If the M45 Rear Wiper Motor is activated**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 10 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the X50A Fuse Block - Underhood.
 - **If the M45 Rear Wiper Motor is not activated**
15. Connect a 10 A fused jumper wire between the control circuit terminal 10 and B+.
16. Verify the M45 Rear Wiper Motor activates.
 - **If the M45 Rear Wiper Motor does not activate**
 1. Ignition OFF, remove the jumper wire, disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If less than infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , test or replace the X50A Fuse Block - Underhood.
 - **If the M45 Rear Wiper Motor activates**
17. Test or replace the K9 Body Control Module.

Component Testing

Windshield Wiper/Washer Switch

1. Ignition OFF, disconnect the harness connector at the S82 Windshield Wiper/Washer Switch.
2. Test for infinite resistance between the signal terminal 4 and the low reference terminal 2 with the rear wiper switch in the OFF position.
 - **If less than infinite resistance**

Replace the S82 Windshield Wiper/Washer Switch.

- **If infinite resistance**

3. Verify the resistance is within the range specified below between the signal circuit terminal 4 and the low reference circuit terminal 2 by cycling the switch between Rear Wiper position and Rear Washers position.

- Rear Wiper : 624-644 Ω
- Rear Wiper Sweep : 1.8-2.2k Ω
- Rear Washer : 5.9-6.4k Ω

- **If not within the specific range**

Replace the S82 Windshield Wiper/Washer Switch.

- **If within the specific range**

4. All OK

Repair Instructions

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

- Refer to [Rear Window Wiper Motor Replacement](#)
- Refer to [Front Compartment Fuse Block Replacement](#)
- Refer to [Windshield Wiper and Washer Switch Replacement \(Buick\)](#)[Windshield Wiper and Washer Switch Replacement \(Chevrolet, Without BTM\)](#)[Windshield Wiper and Washer Switch Replacement \(Chevrolet, With BTM\)](#)
- Refer to [Control Module References](#) for body control module replacement, programming, and setup.

DTC B3715 OR B3875: WINDSHIELD WIPER RELAY CIRCUIT/WINDSHIELD WIPER HIGH SPEED RELAY CIRCUIT

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptors

DTC B3715

Windshield Wiper Relay Circuit

DTC B3875

Windshield Wiper High Speed Relay Circuit

For symptom byte information, refer to [Symptom Byte List](#) .

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Windshield Wiper Switch Signal terminal 3	1	1	1	-
Windshield Wiper Switch Signal terminal 4	4	2	-	-
Windshield Wiper Motor Park Signal	3	3	-	-
Windshield Wiper Relay Control	B3715 02	B3715 04	B3715 01	-
Windshield Wiper Speed Control Relay Control	B3875 02	B3875 04	B3875 01	-

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Windshield Wiper High Speed Motor Control	2	2	4	-
Front Wiper Low Speed Motor Control	1	1	4	-
Windshield Wiper Switch Low Reference	-	1, 2	-	-
Windshield Wiper Motor Ground	-	1, 2, 3	-	-
Windshield Wiper Relay Ground	-	1	-	-
1. Delay or Low Speed Wipers Inoperative 2. High Speed Wipers Inoperative 3. Wipers Do Not Park 4. Wipers Always On				

Circuit/System Description

The body control module (BCM) controls the windshield wiper motor based on inputs from the windshield wiper/washer switch. The BCM monitors the windshield wiper/washer switch through two separate signal circuits and a low reference circuit. The windshield wiper/washer switch uses a resistor ladder to determine low speed and intermittent operation. The BCM monitors and monitors voltage on the windshield wiper switch signal circuit. When the wiper switch is placed in the low speed or intermittent position, the voltage is pulled down through a different resistor in the resistor ladder, reducing the voltage seen at the BCM. The BCM will respond by commanding on the low speed or intermittent wipers. The high speed wipers are controls through a discrete signal circuit. With the windshield wiper/washer switch is in the high speed position, the windshield wiper high speed switch signal circuit is pulled directly to ground. The BCM will respond by commanding on the high speed wipers.

The windshield wiper motor is controlled by the BCM through the windshield wiper relay and the windshield wiper speed control relay. A constant and ground is supplied to the rear wiper motor. When low speed windshield wiper operation is requested, the BCM will apply voltage to the windshield wiper relay control circuit. This will cause the contacts in the windshield wiper relay to close and apply B+ to the windshield wiper motor through the windshield wiper low speed control circuit, enabling low speed wiper operation. When high speed windshield wiper operation is requested, the BCM continues to apply voltage to the windshield wiper relay control circuit and also applies ground to the windshield wiper speed control relay control circuit. This will cause the contacts in the windshield wiper speed control relay to close and apply B+ to the windshield wiper motor through the windshield wiper high speed control circuit, enabling high speed wiper operation. When the windshield wiper request is no longer present, the contacts in the windshield wiper relay and windshield wiper speed control relay will open, removing B+ from the wiper motor control circuits. The windshield wiper motor will continue to operate using a discrete B+ circuit provided by the BCM until the wipers are in the park position.

Conditions for Running the DTC

- A wiper output is actively being requested by the BCM.
- The system voltage is between 9-16 V.

Conditions for Setting the DTC

B3715 01

A short to voltage is detected in the windshield wiper relay control circuit.

B3715 02

A short to ground is detected in the windshield wiper relay control circuit.

B3715 04

An open or high resistance is detected in the windshield wiper relay control circuit.

B3875 01

A short to voltage is detected in the windshield wiper high speed relay control circuit.

B3875 02

A short to ground is detected in the windshield wiper high speed relay control circuit.

B3875 04

An open or high resistance is detected in the windshield wiper high speed relay control circuit.

Action Taken When the DTC Sets

The BCM will not activate the wiper output.

Conditions for Clearing the DTC

- A current DTC will clear when the condition for setting the fault is no longer present.
- A history DTC will clear after 50 consecutive ignition cycles without a fault present.

Reference Information

Schematic Reference

Wiper/Washer Schematics (Buick)Wiper/Washer Schematics (Chevrolet)

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX (ENCORE) COMPONENT CONNECTOR END VIEWS - INDEX (TRAX)

Description and Operation

Wiper/Washer System 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.
2. Verify the scan tool Windshield Wiper Switch parameter changes between Off and Low when activating the low speed windshield wipers.
 - **If the parameter does not change**

Refer to Circuit/System Testing - Windshield Wiper/Washer Switch Malfunction.
 - **If the parameter changes**
3. Verify the scan tool Windshield Wiper Switch parameter changes between Delay 1 and Delay 5 when cycling the intermittent speed windshield wipers.
 - **If the parameter does not change**

Test or replace the S82 Windshield Wiper/Washer Switch.
 - **If the parameter changes**
4. Verify the scan tool Windshield Wiper High Speed Switch parameter changes between Active and Inactive when activating the high speed windshield wipers.
 - **If the parameter does not change**

Refer to Circuit/System Testing - Windshield Wiper/Washer Switch Malfunction.

- **If the parameter changes**

5. Verify the M75 Windshield Wiper Motor changes between Off, Low, and High when cycling the S82 Windshield Wiper/Washer Switch between Off, Low, and High.

- **If the Windshield Wiper Motor does not cycle between Off, Low, and High**

Refer to Circuit/System Testing - Windshield Wiper Motor Malfunction

- **If the Windshield Wiper Motor cycles between Off, Low, and High**

6. Ignition OFF.

7. Verify the scan tool Windshield Wiper Park Switch parameter is Active.

- **If the parameter does not change**

Refer to Circuit/System Testing - Windshield Wiper Motor Malfunction.

- **If the parameter changes**

8. All OK.

Circuit/System Testing

Windshield Wiper/Washer Switch Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the S82 Windshield Wiper/Washer Switch. It may take up to 11 min for all vehicle systems to power down.

2. Test for less than 10 Ω between the low reference circuit terminal 2 and ground.

- **If 10 Ω or greater**

1. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module.

2. Test for less than 2 Ω in the low reference circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , replace the K9 Body Control Module.

- **If less than 10 Ω**

3. Ignition ON.

4. Verify the scan tool Windshield Wiper High Speed Switch parameter is Inactive.

- **If not Inactive**

1. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module.

2. Test for infinite resistance between the signal circuit terminal 1 and ground.

- If less than infinite resistance, repair the short to ground on the circuit.
- If infinite resistance, replace the K9 Body Control Module.

- **If Inactive**

5. Install a 3 A fused jumper wire between the signal circuit terminal 1 and the low reference circuit terminal 2.

6. Verify the scan tool Windshield Wiper High Speed Switch parameter is Active.

- **If not Active**

1. Ignition OFF, remove the jumper wire, disconnect the X3 harness connector at the K9 Body Control Module, ignition ON.

2. Test for less than 1 V between the signal circuit and ground.

- If 1 V or greater, repair the short to voltage on the circuit.
- If less than 1 V

3. Test for less than 2 Ω in the signal circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , replace the K9 Body Control Module.

- **If Active**

7. Test for greater than 8 V between the signal circuit terminal 3 and ground.

- **If less than 8 V**

1. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module.

2. Test for infinite resistance between the signal circuit and ground

- If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
3. Test for less than 2 Ω in the signal circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.
 - **If 8 V or greater**
8. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module, ignition ON.
 9. Test for less than 1 V between the S82 Windshield Wiper/Washer Switch signal circuit terminal 3 and ground.
 - **If 1 V or greater**

Repair the short to voltage on the circuit.
 - **If less than 1 V**
 10. Test or replace the S82 Windshield Wiper/Washer Switch.

Windshield Wiper Motor Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the M75 Windshield Wiper Motor. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 1 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Ignition ON.
4. Verify the scan tool Windshield Wiper Park Switch parameter is Inactive.
 - **If not Inactive**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the M75 Windshield Wiper Motor signal circuit terminal 2 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If Inactive**
5. Install a 3 A fused jumper wire between the signal circuit terminal 2 and ground.
6. Verify the scan tool Windshield Wiper Park Switch parameter is Active.
 - **If not Active**
 1. Ignition OFF, remove the jumper wire, disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the signal circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the signal circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.
 - **If Active**
7. Connect a test lamp between the following control circuits and ground, ignition ON.
 - Control Circuit Terminal 4
 - Control Circuit Terminal 5
8. Verify the test lamp does NOT turn ON and OFF when commanding the appropriate Windshield Wiper Relay On and Off with a scan tool.
 - **If the test lamp turns ON and OFF for both terminals**

Test or replace the M75 Windshield Wiper Motor.

- **If the test lamp does not turn ON and OFF for one or both terminals**

9. Ignition OFF and all vehicle systems OFF, connect the harness connector at the M75 Windshield Wiper Motor. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood. It may take up to 2 min for all vehicle systems to power down.
10. Test for less than 10 Ω between the ground circuit terminals listed below and ground:
 - Terminal C5
 - Terminal H1
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
11. Ignition ON.
12. Verify the M75 Windshield Wiper Motor is not activated.
 - **If the M75 Windshield Wiper Motor is activated**
 1. Ignition OFF, disconnect the harness connector at the M75 Windshield Wiper Motor, ignition ON.
 2. Test for less than 1 V between each control circuit listed below and ground:
 - Terminal 4
 - Terminal 5
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the M75 Windshield Wiper Motor.
 - **If the M75 Windshield Wiper Motor is not activated**
13. Connect a 20 A fused jumper wire between the control circuit terminals listed below, one at a time, and B+.
 - Terminal H2
 - Terminal C1
14. Verify the M75 Windshield Wiper Motor activates.
 - **If the M75 Windshield Wiper Motor does not activate**
 1. Ignition OFF, remove the jumper wire, disconnect the harness connector at the M75 Windshield Wiper Motor.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than Infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the M75 Windshield Wiper Motor.
 - **If the M75 Windshield Wiper Motor activates**
15. Ignition OFF, connect the X2 harness connector at the X50A Fuse Block - Underhood. Disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
16. Verify the M75 Windshield Wiper Motor low speed is not activated.
 - **If the M75 Windshield Wiper Motor low speed is activated**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
 2. Test for less than 1 V between the control circuit terminal D3 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the X50A Fuse Block - Underhood.
 - **If the M75 Windshield Wiper Motor low speed is not activated**
17. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.
18. Verify the M75 Windshield Wiper Motor High Speed is not activated.
 - **If the M75 Windshield Wiper Motor high speed is activated**

1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
2. Test for infinite resistance between the control circuit terminal D2 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the X50A Fuse Block - Underhood.
- **If the M75 Windshield Wiper Motor high speed is not activated**
19. Connect a 10 A fused jumper wire between the control circuit terminal 16 X4 and B+.
20. Verify the M75 Windshield Wiper Motor activates.
 - **If the M75 Windshield Wiper Motor does not activate**
 1. Ignition OFF, remove the jumper wire, disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If less than infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , test or replace the X50A Fuse Block - Underhood.
 - **If the M75 Windshield Wiper Motor activates**
21. Connect a 10 A fused jumper wire between the control circuit terminal 24 X5 and ground.
22. Verify the M75 Windshield Wiper Motor activates.
 - **If the M75 Windshield Wiper Motor does not activate**
 1. Ignition OFF, remove the jumper wire, disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
 2. Test for less than 1 V between the control circuit and ground.
 - If 1 V or greater, repair the short to ground on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , test or replace the X50A Fuse Block - Underhood.
 - **If the M75 Windshield Wiper Motor activates**
23. Replace the K9 Body Control Module.

Component Testing

Windshield Wiper/Washer Switch

1. Ignition OFF, disconnect the harness connector at the S82 Windshield Wiper/Washer Switch.
2. Test for infinite resistance between the signal terminal 1 and the low reference terminal 2 with the switch in the open position.
 - **If less than infinite resistance**

Replace the S82 Windshield Wiper/Washer Switch.
 - **If infinite resistance**
3. Test for less than 2 Ω between the signal circuit terminal 1 and the low reference circuit terminal 2 with the switch in the closed position.
 - **If 2 Ω or greater**

Replace the S82 Windshield Wiper/Washer Switch.
 - **If less than 2 Ω**
4. Test for infinite resistance between the signal terminal 3 and the low reference terminal 2 with the switch in the open position.
 - **If less than infinite resistance**

Replace the S82 Windshield Wiper/Washer Switch.

- **If infinite resistance**

5. Verify the resistance readings are within the specified range listed below between the signal circuit terminal 3 and the low reference circuit terminal 2 by pushing the switch in the listed positions below.

- Delay 1 : 3.75-3.85k Ω
- Delay 2 : 2.75-2.85k Ω
- Delay 3 : 1.95-2.05k Ω
- Delay 4 : 1.25-1.35k Ω
- Delay 5 : 765-775 Ω
- **If not within the specified range**

Replace the S82 Windshield Wiper/Washer Switch.

- **If within the specified range**

6. All OK

Repair Instructions

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

- Refer to [Windshield Wiper Motor Replacement](#)
- Refer to [Front Compartment Fuse Block Replacement](#)
- Refer to [Windshield Wiper and Washer Switch Replacement \(Buick\)](#)[Windshield Wiper and Washer Switch Replacement \(Chevrolet, Without BTM\)](#)[Windshield Wiper and Washer Switch Replacement \(Chevrolet, With BTM\)](#)
- Refer to [Control Module References](#) for body control module replacement, programming, and setup.

DTC B3811: REAR WASHER RELAY CIRCUIT

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptor

DTC B3811

Rear Washer Relay Circuit

For symptom byte information, refer to [Symptom Byte List](#).

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Rear Washer Switch Signal	1	1	1	-
Rear Window Washer Pump Relay Control	1	B3811 04	B3811 01	-
Rear Windshield Washer Pump Control	1	1	2	-
Rear Windshield Washer Pump Ground	-	1	-	-
1. Rear Washer Inoperative 2. Rear Washer Always ON				

Circuit/System Description

The body control module (BCM) controls the rear washer based on an input from the rear wiper switch, which is part of the windshield wiper/washer switch. The BCM monitors the windshield wiper/washer switch through two separate signal circuits and a low reference circuit. The rear wiper switch uses a resistor ladder to determine low

speed, intermittent, and rear washer operation. The BCM monitors applies and monitors voltage on the rear wiper switch signal circuit. When the rear wiper switch is placed in the low speed, intermittent, or rear washer position, the voltage is pulled down through a different resistor in the resistor ladder, reducing the voltage seen at the BCM. The BCM will respond by commanding the specific rear wiper function.

The windshield washer uses a single windshield washer pump to provide fluid for both the front and rear washers. Changing the polarity of the motor will cause it to spin in opposite directions, feeding fluid to the front or rear. When rear washers are requested, the BCM applies voltage to the rear window washer pump relay control circuit. This causes the contacts in the rear washer pump relay to close and supplies voltage to the windshield washer pump. Ground for the windshield washer pump is provided through the windshield washer pump relay, which is switched to ground in it's at-rest state.

Conditions for Running the DTC

- Ignition ON
- The system voltage is between 9-16 V

Conditions for Setting the DTC

B3811 01

A short to voltage has been detected on the rear window washer pump relay control circuit

B3811 04

A open/high resistance has been detected on the rear window washer pump relay control circuit

Action Taken When the DTC Sets

Rear washer operation is disabled.

Conditions for Clearing the DTC

- A current DTC clears when the diagnostic runs and passes.
- A history DTC will clear after 50 consecutive ignition cycles without a fault present.

Diagnostic Aids

The rear liftgate must be closed in order for the rear wiper to work

Reference Information

Schematic Reference

Wiper/Washer Schematics (Buick)Wiper/Washer Schematics (Chevrolet)

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX (ENCORE) COMPONENT CONNECTOR END VIEWS - INDEX (TRAX)

Description and Operation

Wiper/Washer System 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.
2. Verify the Scan Tool Rear Closure Ajar Switch Parameter changes between Inactive and Active when Opening and closing the liftgate.
 - **If the parameter does not change**

Refer to [Door Ajar Indicator Malfunction](#)
 - **If the parameter changes**
3. Verify the scan tool Rear Wiper Switch parameter changes between On and Off when cycling the rear wiper switch ON and OFF.
 - **If the parameter does not change**

Refer to [Rear Wiper System Malfunction](#)
 - **If the parameter changes**
4. Verify the G24 Windshield Washer Pump turns on and off when commanding the rear washers OFF and ON with the rear washer switch
 - **If the Rear Window Washers do not turn ON**

Refer to Circuit/System Testing
 - **If the Rear Window Washers turn ON**
5. All OK.

Circuit/System Testing

1. Ignition OFF, and all vehicle systems OFF. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal C5 and ground:
 - **If 10 Ω or greater**
 1. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Connect the X2 harness connector and disconnect the X1 harness connector at the X50A Fuse Block - Underhood.
4. Test for infinite resistance between each of the control circuit terminals listed below and ground.
 - Terminal G3
 - Terminal H3
 - **If less than Infinite resistance**

Repair the short to ground on the circuit.
 - **If infinite resistance**
5. Connect the X1 harness connector at the X50A Fuse Block - Underhood. Disconnect the harness connector at the G24 Windshield Washer Pump, ignition ON.
6. Test for less than 1 V between the control circuit terminals listed below and ground:
 - Terminal 1
 - Terminal 2
 - **If 1 V or greater**
 1. Ignition OFF, disconnect the X1 harness connector at the X50A Fuse Block - Underhood.
 2. Test for less than 1 V between the control circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, test or replace the X50A Fuse Block - Underhood.
 - **If less than 1 V**

7. Ignition OFF, and all vehicle systems OFF. It may take up to 2 min for all vehicle systems to power down.
8. Test for less than 10 Ω between the control circuit terminal 1 and ground.
- **If 10 Ω or greater**
 1. Ignition OFF, disconnect the X1 harness connectors at the X50A Fuse Block - Underhood.
 2. Test for less than 2 Ω in the control circuit end to end:
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the X50A Fuse Block - Underhood.
 - **If less than 10 Ω**
9. Test for less than 10 Ω between the control circuit terminal 2 and ground.
- **If 10 Ω or greater**
 1. Ignition OFF, disconnect the X1 harness connectors at the X50A Fuse Block - Underhood.
 2. Test for less than 2 Ω in the control circuit end to end:
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the X50A Fuse Block - Underhood.
 - **If less than 10 Ω**
10. Connect a test lamp between the control circuit terminal 1 and the control circuit terminal 2, ignition ON.
11. Verify the test lamp does NOT turn ON and OFF when commanding the rear washer ON and OFF with the rear washer switch.
- **If the test lamp turns ON and OFF**

Test or replace the G24 Windshield Washer Pump.
 - **If the test lamp does not turn ON and OFF**
12. Ignition OFF, connect the harness connector at the G24 Windshield Washer Pump. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
13. Connect a test lamp between the control circuit terminal G2 and ground.
14. Verify the test lamp turns ON and OFF when commanding the rear washer ON and OFF with the rear washer switch.
- **If the test lamp is always OFF**
 1. Ignition OFF, remove the test lamp. Disconnect the X1 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance.
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the short to ground on the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module
 - **If the test lamp is always ON**
 1. Ignition OFF, remove the test lamp. Disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit and ground.
 - If 2 Ω or greater, repair the short to voltage on the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module
 - **If the test lamp turns ON and OFF.**
15. Test or replace the X50A Fuse Block - Underhood.

Repair Instructions

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

- Refer to [Windshield Washer Pump Replacement](#)
- Refer to [Front Compartment Fuse Block Replacement](#)
- Refer to [Windshield Wiper and Washer Switch Replacement \(Buick\)](#)[Windshield Wiper and Washer Switch Replacement \(Chevrolet, Without BTM\)](#)[Windshield Wiper and Washer Switch Replacement](#)

(Chevrolet, With BTM)

- Refer to [Control Module References](#) for body control module replacement, programming, and setup.

DTC B3873: FRONT WASHER RELAY CIRCUIT

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptors

DTC B3873

Front Washer Relay Circuit

For symptom byte information, refer to [Symptom Byte List](#).

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Windshield Washer Switch Signal	2	1	1	-
Windshield Washer Pump Control	1	1	2	-
Windshield Washer Relay Control	B3873 02	B3873 04 B3873 01	B3873 01	-
Windshield Washer Pump Ground	-	1	-	-
1. Washer Inoperative 2. Washer Always ON				

Circuit/System Description

The body control module (BCM) controls the windshield washer based on an input from the windshield washer switch, which is part of the windshield wiper/washer switch. The BCM monitors the windshield washer switch through a discrete signal circuit. When the washer switch is pressed, the signal circuit is pulled to ground. The BCM will respond by commanding the washer function.

The windshield washer uses a single windshield washer pump to provide fluid for both the front and rear washers. Changing the polarity of the motor will cause it to spin in opposite directions, feeding fluid to the front or rear. When front washers are requested, the BCM applies voltage to the windshield washer pump relay control circuit. This causes the contacts in the windshield washer pump relay to close and supplies voltage to the windshield washer pump. Ground for the windshield washer pump is provided through the rear window washer pump relay, which is switched to ground in its at-rest state.

Conditions for Running the DTC

- Ignition ON.
- The system voltage is between 9-16 V.

Conditions for Setting the DTC

B3873 01

A short to voltage has been detected on the windshield washer pump relay control circuit

B3873 02

A short to ground has been detected on the windshield washer pump relay control circuit

B3873 04

An open/high resistance has been detected on the windshield washer pump relay control circuit

Action Taken When the DTC Sets

Washer operation is suspended.

Conditions for Clearing the DTC

A current DTC clears when the diagnostic runs and passes.

Reference Information

Schematic Reference

[Wiper/Washer Schematics \(Buick\)](#)[Wiper/Washer Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#)[COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

Description and Operation

[Wiper/Washer System 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.
2. Verify Windshield Washer pump does not activate
 - **If Windshield Washer Pump Activates**

Refer to Circuit/System Testing - Windshield Washer Pump Malfunction
 - **If Windshield Washer Pump does not Activate**
3. Verify the scan tool Windshield Washer Switch parameter changes between Active and Inactive when pressing and releasing the washer switch.
 - **If the parameter does not change**

Refer to Circuit/System Testing - Washer Switch Malfunction.
 - **If the parameter changes**
4. Verify the G24 Windshield Washer Pump activates when commanding the Windshield Washer Relay Active with a scan tool.
 - **If the Windshield Washers do not turn ON**

Refer to Circuit/System Testing - Windshield Washer Pump Malfunction
 - **If the Windshield Washers turn ON**
5. All OK.

Circuit/System Testing

Washer Switch Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the S82 Windshield Wiper/Washer Switch. It may take up to 11 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the low reference circuit terminal 2 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the low reference circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.
 - **If less than 10 Ω**
3. Ignition ON.
4. Verify the scan tool Windshield Washer Switch parameter is Inactive.
 - **If not Inactive**
 1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit terminal 5 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If Inactive**
5. Install a 3 A fused jumper wire between the signal circuit terminal 5 and the low reference circuit terminal 2.
6. Verify the scan tool Windshield Washer Switch parameter is Active.
 - **If not Active**
 1. Ignition OFF, remove the jumper wire, disconnect the harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the signal circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the signal circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.
 - **If Active**
7. Test or replace the S82 Windshield Wiper/Washer Switch.

Windshield Washer Pump Malfunction

1. Ignition OFF, and all vehicle systems OFF. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal C5 and ground:
 - **If 10 Ω or greater**
 1. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Connect the X2 harness connector and disconnect the X1 harness connector at the X50A Fuse Block - Underhood.
4. Test for infinite resistance between each of the control circuit terminals listed below and ground.
 - Terminal G3
 - Terminal H3
 - **If less than Infinite resistance**

Repair the short to ground on the circuit.
 - **If infinite resistance**
5. Connect the X1 harness connector at the X50A Fuse Block - Underhood. Disconnect the harness connector at the G24 Windshield Washer Pump, ignition ON.

6. Test for less than 1 V between the control circuit terminals listed below and ground:
 - Terminal 1
 - Terminal 2
 - **If 1 V or greater**
 1. Ignition OFF, disconnect the X1 harness connector at the X50A Fuse Block - Underhood.
 2. Test for less than 1 V between the control circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, test or replace the X50A Fuse Block - Underhood.
 - **If less than 1 V**
7. Ignition OFF, and all vehicle systems OFF. It may take up to 2 min for all vehicle systems to power down.
8. Test for less than 10 Ω between the control circuit terminal 1 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF, disconnect the X1 harness connectors at the X50A Fuse Block - Underhood.
 2. Test for less than 2 Ω in the control circuit end to end:
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the X50A Fuse Block - Underhood.
 - **If less than 10 Ω**
9. Test for less than 10 Ω between the control circuit terminal 2 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF, disconnect the X1 harness connectors at the X50A Fuse Block - Underhood.
 2. Test for less than 2 Ω in the control circuit end to end:
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the X50A Fuse Block - Underhood.
 - **If less than 10 Ω**
10. Connect a test lamp between the control circuit terminal 1 and the control circuit terminal 2, ignition ON.
11. Verify the test lamp does NOT turn ON and OFF when commanding the rear washer ON and OFF with the rear washer switch.
 - **If the test lamp turns ON and OFF**

Test or replace the G24 Windshield Washer Pump.
 - **If the test lamp does not turn ON and OFF**
12. Ignition OFF, connect the harness connector at the G24 Windshield Washer Pump. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
13. Connect a test lamp between the control circuit terminal G9 and ground.
14. Verify the test lamp turns ON and OFF when commanding the Windshield Washer Relay Active with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, remove the test lamp. Disconnect the X4 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance.
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the short to ground on the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module
 - **If the test lamp is always ON**
 1. Ignition OFF, remove the test lamp. Disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit and ground.
 - If 2 Ω or greater, repair the short to voltage on the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module

- If the test lamp turns ON and OFF.

15. Test or replace the X50A Fuse Block - Underhood.

Component Testing

Washer Switch

1. Ignition OFF, disconnect the harness connector at the S82 Windshield Wiper/Washer Switch.
2. Test for infinite resistance between the signal terminal 5 and the low reference terminal 2 with the switch in the open position.

- If less than infinite resistance

Replace the S82 Windshield Wiper/Washer Switch.

- If infinite resistance

3. Test for less than 2 Ω between the signal circuit terminal 5 and the low reference circuit terminal 2 with the switch in the closed position.

- If 2 Ω or greater

Replace the S82 Windshield Wiper/Washer Switch.

- If less than 2 Ω

4. All OK

Repair Instructions

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

- Refer to [Front Compartment Fuse Block Replacement](#)
- Refer to [Windshield Washer Pump Replacement](#)
- Refer to [Windshield Wiper and Washer Switch Replacement \(Buick\)](#)[Windshield Wiper and Washer Switch Replacement \(Chevrolet, Without BTM\)](#)[Windshield Wiper and Washer Switch Replacement \(Chevrolet, With BTM\)](#)
- Refer to [Control Module References](#) for body control module replacement, programming, and setup.

SYMPTOMS - WIPER/WASHER SYSTEMS

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

1. Perform [Diagnostic System Check - Vehicle](#) , in order to verify that all of the following conditions are true:
 - No DTCs are set.
 - The control modules can communicate via the serial data link.
2. Refer to [Wiper/Washer System Description and Operation](#) in order to familiarize yourself with the system functions.

Visual/Physical Inspection

- Inspect for aftermarket devices which may affect the operation of the windshield wiper/washer system. Refer to [Checking Aftermarket Accessories](#) .
- Inspect the easily accessible or visible system components for obvious damage or conditions which may cause the symptom.
- Inspect the washer fluid reservoir for the proper fluid level.

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:

- [Windshield Wiper System Malfunction](#)
- [Washer Malfunction](#)
- [Rear Washer System Malfunction](#)
- [Rear Wiper System Malfunction](#)
- [Rain Sensor Malfunction](#)

WINDSHIELD WIPER SYSTEM 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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptors

DTC B3715

Windshield Wiper Relay Circuit

DTC B3875

Windshield Wiper High Speed Relay Circuit

For symptom byte information, refer to [Symptom Byte List](#) .

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Windshield Wiper Switch Signal terminal 3	1	1	1	-
Windshield Wiper Switch Signal terminal 4	4	2	-	-
Windshield Wiper Motor Park Signal	3	3	-	-
Windshield Wiper Relay Control	B3715 02	B3715 04	B3715 01	-
Windshield Wiper Speed Control Relay Control	B3875 02	B3875 04	B3875 01	-
Windshield Wiper High Speed Motor Control	2	2	4	-
Front Wiper Low Speed Motor Control	1	1	4	-
Windshield Wiper Switch Low Reference	-	1, 2	-	-
Windshield Wiper Motor Ground	-	1, 2, 3	-	-
Windshield Wiper Relay Ground	-	1	-	-
1. Delay or Low Speed Wipers Inoperative 2. High Speed Wipers Inoperative 3. Wipers Do Not Park 4. Wipers Always On				

Circuit/System Description

The body control module (BCM) controls the windshield wiper motor based on inputs from the windshield wiper/washer switch. The BCM monitors the windshield wiper/washer switch through two separate signal circuits and a low reference circuit. The windshield wiper/washer switch uses a resistor ladder to determine low speed and intermittent operation. The BCM monitors applies and monitors voltage on the windshield wiper switch signal circuit. When the wiper switch is placed in the low speed or intermittent position, the voltage is pulled down through a different resistor in the resistor ladder, reducing the voltage seen at the BCM. The BCM will respond by commanding on the low speed or intermittent wipers. The high speed wipers are controls through a discrete signal

circuit. With the windshield wiper/washer switch is in the high speed position, the windshield wiper high speed switch signal circuit is pulled directly to ground. The BCM will respond by commanding on the high speed wipers.

The windshield wiper motor is controlled by the BCM through the windshield wiper relay and the windshield wiper speed control relay. A constant and ground is supplied to the rear wiper motor. When low speed windshield wiper operation is requested, the BCM will apply voltage to the windshield wiper relay control circuit. This will cause the contacts in the windshield wiper relay to close and apply B+ to the windshield wiper motor through the windshield wiper low speed control circuit, enabling low speed wiper operation. When high speed windshield wiper operation is requested, the BCM continues to apply voltage to the windshield wiper relay control circuit and also applies ground to the windshield wiper speed control relay control circuit. This will cause the contacts in the windshield wiper speed control relay to close and apply B+ to the windshield wiper motor through the windshield wiper high speed control circuit, enabling high speed wiper operation. When the windshield wiper request is no longer present, the contacts in the windshield wiper relay and windshield wiper speed control relay will open, removing B+ from the wiper motor control circuits. The windshield wiper motor will continue to operate using a discrete B+ circuit provided by the BCM until the wipers are in the park position.

Conditions for Running the DTC

- A wiper output is actively being requested by the BCM.
- The system voltage is between 9-16 V.

Conditions for Setting the DTC

B3715 01

A short to voltage is detected in the windshield wiper relay control circuit.

B3715 02

A short to ground is detected in the windshield wiper relay control circuit.

B3715 04

An open or high resistance is detected in the windshield wiper relay control circuit.

B3875 01

A short to voltage is detected in the windshield wiper high speed relay control circuit.

B3875 02

A short to ground is detected in the windshield wiper high speed relay control circuit.

B3875 04

An open or high resistance is detected in the windshield wiper high speed relay control circuit.

Action Taken When the DTC Sets

The BCM will not activate the wiper output.

Conditions for Clearing the DTC

- A current DTC will clear when the condition for setting the fault is no longer present.
- A history DTC will clear after 50 consecutive ignition cycles without a fault present.

Reference Information

Schematic Reference

[Wiper/Washer Schematics \(Buick\)](#)[Wiper/Washer Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#)[COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

Wiper/Washer System 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.
2. Verify the scan tool Windshield Wiper Switch parameter changes between Off and Low when activating the low speed windshield wipers.
 - **If the parameter does not change**
Refer to Circuit/System Testing - Windshield Wiper/Washer Switch Malfunction.
 - **If the parameter changes**
3. Verify the scan tool Windshield Wiper Switch parameter changes between Delay 1 and Delay 5 when cycling the intermittent speed windshield wipers.
 - **If the parameter does not change**
Test or replace the S82 Windshield Wiper/Washer Switch.
 - **If the parameter changes**
4. Verify the scan tool Windshield Wiper High Speed Switch parameter changes between Active and Inactive when activating the high speed windshield wipers.
 - **If the parameter does not change**
Refer to Circuit/System Testing - Windshield Wiper/Washer Switch Malfunction.
 - **If the parameter changes**
5. Verify the M75 Windshield Wiper Motor changes between Off, Low, and High when cycling the S82 Windshield Wiper/Washer Switch between Off, Low, and High.
 - **If the Windshield Wiper Motor does not cycle between Off, Low, and High**
Refer to Circuit/System Testing - Windshield Wiper Motor Malfunction
 - **If the Windshield Wiper Motor cycles between Off, Low, and High**
6. Ignition OFF.
7. Verify the scan tool Windshield Wiper Park Switch parameter is Active.
 - **If the parameter does not change**
Refer to Circuit/System Testing - Windshield Wiper Motor Malfunction.
 - **If the parameter changes**
8. All OK.

Circuit/System Testing

Windshield Wiper/Washer Switch Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the S82 Windshield Wiper/Washer Switch. It may take up to 11 min for all vehicle systems to power down.

2. Test for less than 10 Ω between the low reference circuit terminal 2 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module.
 2. Test for less than 2 Ω in the low reference circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.
 - **If less than 10 Ω**
3. Ignition ON.
4. Verify the scan tool Windshield Wiper High Speed Switch parameter is Inactive.
 - **If not Inactive**
 1. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit terminal 1 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If Inactive**
5. Install a 3 A fused jumper wire between the signal circuit terminal 1 and the low reference circuit terminal 2.
6. Verify the scan tool Windshield Wiper High Speed Switch parameter is Active.
 - **If not Active**
 1. Ignition OFF, remove the jumper wire, disconnect the X3 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the signal circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the signal circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.
 - **If Active**
7. Test for greater than 8 V between the signal circuit terminal 3 and ground.
 - **If less than 8 V**
 1. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit and ground
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the signal circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.
 - **If 8 V or greater**
8. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module, ignition ON.
9. Test for less than 1 V between the S82 Windshield Wiper/Washer Switch signal circuit terminal 3 and ground.
 - **If 1 V or greater**

Repair the short to voltage on the circuit.
 - **If less than 1 V**
10. Test or replace the S82 Windshield Wiper/Washer Switch.

Windshield Wiper Motor Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the M75 Windshield Wiper Motor. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 1 and ground.
 - **If 10 Ω or greater**

1. Ignition OFF.
2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
- **If less than 10 Ω**
3. Ignition ON.
4. Verify the scan tool Windshield Wiper Park Switch parameter is Inactive.
 - **If not Inactive**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the M75 Windshield Wiper Motor signal circuit terminal 2 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If Inactive**
5. Install a 3 A fused jumper wire between the signal circuit terminal 2 and ground.
6. Verify the scan tool Windshield Wiper Park Switch parameter is Active.
 - **If not Active**
 1. Ignition OFF, remove the jumper wire, disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the signal circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the signal circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.
 - **If Active**
7. Connect a test lamp between the following control circuits and ground, ignition ON.
 - Control Circuit Terminal 4
 - Control Circuit Terminal 5
8. Verify the test lamp does NOT turn ON and OFF when commanding the appropriate Windshield Wiper Relay On and Off with a scan tool.
 - **If the test lamp turns ON and OFF for both terminals**

Test or replace the M75 Windshield Wiper Motor.
 - **If the test lamp does not turn ON and OFF for one or both terminals**
9. Ignition OFF and all vehicle systems OFF, connect the harness connector at the M75 Windshield Wiper Motor. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood. It may take up to 2 min for all vehicle systems to power down.
10. Test for less than 10 Ω between the ground circuit terminals listed below and ground:
 - Terminal C5
 - Terminal H1
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
11. Ignition ON.
12. Verify the M75 Windshield Wiper Motor is not activated.
 - **If the M75 Windshield Wiper Motor is activated**
 1. Ignition OFF, disconnect the harness connector at the M75 Windshield Wiper Motor, ignition ON.

2. Test for less than 1 V between each control circuit listed below and ground:
 - Terminal 4
 - Terminal 5
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the M75 Windshield Wiper Motor.
- **If the M75 Windshield Wiper Motor is not activated**
13. Connect a 20 A fused jumper wire between the control circuit terminals listed below, one at a time, and B+.
 - Terminal H2
 - Terminal C1
14. Verify the M75 Windshield Wiper Motor activates.
 - **If the M75 Windshield Wiper Motor does not activate**
 1. Ignition OFF, remove the jumper wire, disconnect the harness connector at the M75 Windshield Wiper Motor.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than Infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the M75 Windshield Wiper Motor.
 - **If the M75 Windshield Wiper Motor activates**
15. Ignition OFF, connect the X2 harness connector at the X50A Fuse Block - Underhood. Disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
16. Verify the M75 Windshield Wiper Motor low speed is not activated.
 - **If the M75 Windshield Wiper Motor low speed is activated**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
 2. Test for less than 1 V between the control circuit terminal D3 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the X50A Fuse Block - Underhood.
 - **If the M75 Windshield Wiper Motor low speed is not activated**
17. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.
18. Verify the M75 Windshield Wiper Motor High Speed is not activated.
 - **If the M75 Windshield Wiper Motor high speed is activated**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
 2. Test for infinite resistance between the control circuit terminal D2 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the X50A Fuse Block - Underhood.
 - **If the M75 Windshield Wiper Motor high speed is not activated**
19. Connect a 10 A fused jumper wire between the control circuit terminal 16 X4 and B+.
20. Verify the M75 Windshield Wiper Motor activates.
 - **If the M75 Windshield Wiper Motor does not activate**
 1. Ignition OFF, remove the jumper wire, disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If less than infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , test or replace the X50A Fuse Block - Underhood.
 - **If the M75 Windshield Wiper Motor activates**
21. Connect a 10 A fused jumper wire between the control circuit terminal 24 X5 and ground.

22. Verify the M75 Windshield Wiper Motor activates.

- **If the M75 Windshield Wiper Motor does not activate**

1. Ignition OFF, remove the jumper wire, disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
2. Test for less than 1 V between the control circuit and ground.
 - If 1 V or greater, repair the short to ground on the circuit.
 - If less than 1 V
3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , test or replace the X50A Fuse Block - Underhood.

- **If the M75 Windshield Wiper Motor activates**

23. Replace the K9 Body Control Module.

Component Testing

Windshield Wiper/Washer Switch

1. Ignition OFF, disconnect the harness connector at the S82 Windshield Wiper/Washer Switch.
2. Test for infinite resistance between the signal terminal 1 and the low reference terminal 2 with the switch in the open position.
 - **If less than infinite resistance**

Replace the S82 Windshield Wiper/Washer Switch.
 - **If infinite resistance**
3. Test for less than 2 Ω between the signal circuit terminal 1 and the low reference circuit terminal 2 with the switch in the closed position.
 - **If 2 Ω or greater**

Replace the S82 Windshield Wiper/Washer Switch.
 - **If less than 2 Ω**
4. Test for infinite resistance between the signal terminal 3 and the low reference terminal 2 with the switch in the open position.
 - **If less than infinite resistance**

Replace the S82 Windshield Wiper/Washer Switch.
 - **If infinite resistance**
5. Verify the resistance readings are within the specified range listed below between the signal circuit terminal 3 and the low reference circuit terminal 2 by pushing the switch in the listed positions below.
 - Delay 1 : 3.75-3.85k Ω
 - Delay 2 : 2.75-2.85k Ω
 - Delay 3 : 1.95-2.05k Ω
 - Delay 4 : 1.25-1.35k Ω
 - Delay 5 : 765-775 Ω
 - **If not within the specified range**

Replace the S82 Windshield Wiper/Washer Switch.
 - **If within the specified range**
6. All OK

Repair Instructions

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

- Refer to [Windshield Wiper Motor Replacement](#)

- Refer to [Front Compartment Fuse Block Replacement](#)
- Refer to [Windshield Wiper and Washer Switch Replacement \(Buick\)](#)[Windshield Wiper and Washer Switch Replacement \(Chevrolet, Without BTM\)](#)[Windshield Wiper and Washer Switch Replacement \(Chevrolet, With BTM\)](#)
- Refer to [Control Module References](#) for body control module replacement, programming, and setup.

WASHER 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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptors

DTC B3873

Front Washer Relay Circuit

For symptom byte information, refer to [Symptom Byte List](#).

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Windshield Washer Switch Signal	2	1	1	-
Windshield Washer Pump Control	1	1	2	-
Windshield Washer Relay Control	B3873 02	B3873 04 B3873 01	B3873 01	-
Windshield Washer Pump Ground	-	1	-	-
1. Washer Inoperative 2. Washer Always ON				

Circuit/System Description

The body control module (BCM) controls the windshield washer based on an input from the windshield washer switch, which is part of the windshield wiper/washer switch. The BCM monitors the windshield washer switch through a discrete signal circuit. When the washer switch is pressed, the signal circuit is pulled to ground. The BCM will respond by commanding the washer function.

The windshield washer uses a single windshield washer pump to provide fluid for both the front and rear washers. Changing the polarity of the motor will cause it to spin in opposite directions, feeding fluid to the front or rear. When front washers are requested, the BCM applies voltage to the windshield washer pump relay control circuit. This causes the contacts in the windshield washer pump relay to close and supplies voltage to the windshield washer pump. Ground for the windshield washer pump is provided through the rear window washer pump relay, which is switched to ground in its at-rest state.

Conditions for Running the DTC

- Ignition ON.
- The system voltage is between 9-16 V.

Conditions for Setting the DTC

B3873 01

A short to voltage has been detected on the windshield washer pump relay control circuit

B3873 02

A short to ground has been detected on the windshield washer pump relay control circuit

B3873 04

An open/high resistance has been detected on the windshield washer pump relay control circuit

Action Taken When the DTC Sets

Washer operation is suspended.

Conditions for Clearing the DTC

A current DTC clears when the diagnostic runs and passes.

Reference Information

Schematic Reference

Wiper/Washer Schematics (Buick)Wiper/Washer Schematics (Chevrolet)

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX (ENCORE) COMPONENT CONNECTOR END VIEWS - INDEX (TRAX)

Description and Operation

Wiper/Washer System 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.
2. Verify Windshield Washer pump does not activate
 - **If Windshield Washer Pump Activates,**
Refer to Circuit/System Testing - Windshield Washer Pump Malfunction
 - **If Windshield Washer Pump does not Activate**
3. Verify the scan tool Windshield Washer Switch parameter changes between Active and Inactive when pressing and releasing the washer switch.
 - **If the parameter does not change**
Refer to Circuit/System Testing - Washer Switch Malfunction.
 - **If the parameter changes**
4. Verify the G24 Windshield Washer Pump activates when commanding the Windshield Washer Relay Active with a scan tool.
 - **If the Windshield Washers do not turn ON**
Refer to Circuit/System Testing - Windshield Washer Pump Malfunction
 - **If the Windshield Washers turn ON**
5. All OK.

Circuit/System Testing

Washer Switch Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the S82 Windshield Wiper/Washer Switch. It may take up to 11 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the low reference circuit terminal 2 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the low reference circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.
 - **If less than 10 Ω**
3. Ignition ON.
4. Verify the scan tool Windshield Washer Switch parameter is Inactive.
 - **If not Inactive**
 1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit terminal 5 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If Inactive**
5. Install a 3 A fused jumper wire between the signal circuit terminal 5 and the low reference circuit terminal 2.
6. Verify the scan tool Windshield Washer Switch parameter is Active.
 - **If not Active**
 1. Ignition OFF, remove the jumper wire, disconnect the harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the signal circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the signal circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.
 - **If Active**
7. Test or replace the S82 Windshield Wiper/Washer Switch.

Windshield Washer Pump Malfunction

1. Ignition OFF, and all vehicle systems OFF. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal C5 and ground:
 - **If 10 Ω or greater**
 1. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Connect the X2 harness connector and disconnect the X1 harness connector at the X50A Fuse Block - Underhood.
4. Test for infinite resistance between each of the control circuit terminals listed below and ground.
 - Terminal G3
 - Terminal H3
 - **If less than Infinite resistance**

Repair the short to ground on the circuit.
 - **If infinite resistance**
5. Connect the X1 harness connector at the X50A Fuse Block - Underhood. Disconnect the harness connector at the G24 Windshield Washer Pump, ignition ON.

6. Test for less than 1 V between the control circuit terminals listed below and ground:
 - Terminal 1
 - Terminal 2
 - **If 1 V or greater**
 1. Ignition OFF, disconnect the X1 harness connector at the X50A Fuse Block - Underhood.
 2. Test for less than 1 V between the control circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, test or replace the X50A Fuse Block - Underhood.
 - **If less than 1 V**
7. Ignition OFF, and all vehicle systems OFF. It may take up to 2 min for all vehicle systems to power down.
8. Test for less than 10 Ω between the control circuit terminal 1 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF, disconnect the X1 harness connectors at the X50A Fuse Block - Underhood.
 2. Test for less than 2 Ω in the control circuit end to end:
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the X50A Fuse Block - Underhood.
 - **If less than 10 Ω**
9. Test for less than 10 Ω between the control circuit terminal 2 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF, disconnect the X1 harness connectors at the X50A Fuse Block - Underhood.
 2. Test for less than 2 Ω in the control circuit end to end:
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the X50A Fuse Block - Underhood.
 - **If less than 10 Ω**
10. Connect a test lamp between the control circuit terminal 1 and the control circuit terminal 2, ignition ON.
11. Verify the test lamp does NOT turn ON and OFF when commanding the rear washer ON and OFF with the rear washer switch.
 - **If the test lamp turns ON and OFF**

Test or replace the G24 Windshield Washer Pump.
 - **If the test lamp does not turn ON and OFF**
12. Ignition OFF, connect the harness connector at the G24 Windshield Washer Pump. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
13. Connect a test lamp between the control circuit terminal G9 and ground.
14. Verify the test lamp turns ON and OFF when commanding the Windshield Washer Relay Active with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, remove the test lamp. Disconnect the X4 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance.
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the short to ground on the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module
 - **If the test lamp is always ON**
 1. Ignition OFF, remove the test lamp. Disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit and ground.
 - If 2 Ω or greater, repair the short to voltage on the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module

- If the test lamp turns ON and OFF.

15. Test or replace the X50A Fuse Block - Underhood.

Component Testing

Washer Switch

1. Ignition OFF, disconnect the harness connector at the S82 Windshield Wiper/Washer Switch.
2. Test for infinite resistance between the signal terminal 5 and the low reference terminal 2 with the switch in the open position.

- If less than infinite resistance

Replace the S82 Windshield Wiper/Washer Switch.

- If infinite resistance

3. Test for less than 2 Ω between the signal circuit terminal 5 and the low reference circuit terminal 2 with the switch in the closed position.

- If 2 Ω or greater

Replace the S82 Windshield Wiper/Washer Switch.

- If less than 2 Ω

4. All OK

Repair Instructions

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

- Refer to [Front Compartment Fuse Block Replacement](#)
- Refer to [Windshield Washer Pump Replacement](#)
- Refer to [Windshield Wiper and Washer Switch Replacement \(Buick\)](#)[Windshield Wiper and Washer Switch Replacement \(Chevrolet, Without BTM\)](#)[Windshield Wiper and Washer Switch Replacement \(Chevrolet, With BTM\)](#)
- Refer to [Control Module References](#) for body control module replacement, programming, and setup.

RAIN SENSOR 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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptor

DTC B370A

Rain Sensor

For symptom byte information, refer to [Symptom Byte List](#).

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B+	U151A	U151A	-	-
Serial Data	U151A	U151A	U151A	-
Ground	-	U151A	-	-

Circuit/System Description

B+ and ground is supplied at all times to the rain sensor. The rain sensor communicates with the body control module (BCM) via serial data. When the ignition is in the ON or ACCESSORY position and the windshield wiper/washer switch is in the intermittent delay position, the BCM monitors the rain sensor data to determine the rain build up on the windshield. As rain builds up on the windshield, the BCM will command the wipers to activate. The sensitivity of the wiper frequency is controlled by the intermittent delay of the windshield wiper/washer switch. As the sensitivity is increased, the BCM will command more frequent wiper activation based on rain build up on the windshield.

Conditions for Running the DTC

- Ignition ON.
- The system voltage is between 9-16 V.

Conditions for Setting the DTC

Communication between the BCM and the rain sensor is interrupted, and an interruption in communication is a serial data fault.

Action Taken When the DTC Sets

- If the BCM loses communication with the rain sensor while operating under manual 1X control, the windshield wiper operation will default to intermittent operation with a fixed dwell time of 4 s.
- If the BCM loses communication with the rain sensor while operating at low speed, the windshield wiper operation will default to low speed.
- If the BCM loses communication with the rain sensor while operating at high speed, the windshield wiper operation will default to high speed.

Conditions for Clearing the DTC

The DTC will clear when communication is established between the BCM and rain sensor.

Reference Information

Schematic Reference

Wiper/Washer Schematics (Buick)Wiper/Washer Schematics (Chevrolet)

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX (ENCORE) COMPONENT CONNECTOR END VIEWS - INDEX (TRAX)

Description and Operation

Wiper/Washer System 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.
2. Verify DTC U151A is not set.
 - If DTC is set

Refer to DTC U1500-U15FE .

- **If DTC is not set**

3. Place the S82 Windshield Wiper/Washer Switch in the intermittent delay setting and spray the outside of the windshield in the area of the B200 Rain Sensor Module with a water bottle. It may be necessary to increase the sensitivity of the intermittent delay to achieve windshield wiper operation.
4. Verify the windshield wipers operate at low speed.
 - **If the wipers are not operating at low speed**

Refer to Circuit/System Testing.
 - **If the wipers are operating at low speed**
5. All OK.

Circuit/System Testing

1. Ignition OFF, all vehicle systems OFF, disconnect the harness connector at the B200 Rain Sensor Module. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminals listed below and ground:
 - Ground circuit terminal 3 (With UFL)
 - Ground circuit terminal 2 (Without UFL)
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Ignition ON.
4. Verify a test lamp illuminates between the B+ circuit terminal 1 and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF, remove the test lamp.
 2. Test for less than 2 Ω in the B+ circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , verify the fuse is not open and there is voltage at the fuse.
 - **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF, remove the test lamp.
 2. Test for infinite resistance between the B+ circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the B200 Rain Sensor Module.
 - **If the test lamp illuminates**
5. Test for 5.0-10.0 V between the serial data circuit terminals listed below and ground:
 - Serial data circuit terminal 2 (With UFL)
 - Serial data circuit terminal 3 (Without UFL)
 - **If less than 5.0 V**
 1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module and the harness connector at the M75 Windshield Wiper Motor.
 2. Test for infinite resistance between the serial data circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the serial data circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.
 - **If greater than 10.0 V**
 1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the serial data circuit and ground.

- If 1 V or greater, repair the short to voltage on the circuit.
- If less than 1 V, replace the K9 Body Control Module.

- **If between 5.0-10.0 V**

6. Test or replace the B200 Rain Sensor Module.

Repair Instructions

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

- Refer to [Windshield Outside Moisture Sensor Replacement](#)
- Refer to [Control Module References](#) for body control module replacement, programming and setup.

REAR WIPER SYSTEM 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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptor

DTC B370B

Rear Wiper Function Control Circuit

For symptom byte information, refer to [Symptom Byte List](#).

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Rear Wiper Motor B+	-	1	-	-
Rear Wiper Switch Signal	1	1	1	-
Rear Wiper Motor Control	1	1	2	-
Rear Wiper Relay Control	B370B 02	1	B370B 01	-
Rear Wiper Relay Ground	-	1	-	-
Rear Window Wiper Ground	-	1	-	-
1. Rear Wiper Inoperative 2. Rear Wiper Always ON				

Circuit/System Description

The body control module (BCM) controls the rear wiper motor based on an input from the rear wiper switch, which is part of the windshield wiper/washer switch. The BCM monitors the windshield wiper/washer switch through two separate signal circuits and a low reference circuit. The rear wiper switch uses a resistor ladder to determine low speed, intermittent, and rear washer operation. The BCM monitors and applies and monitors voltage on the rear wiper switch signal circuit. When the rear wiper switch is placed in the low speed, intermittent, or rear washer position, the voltage is pulled down through a different resistor in the resistor ladder, reducing the voltage seen at the BCM. The BCM will respond by commanding the specific rear wiper function.

The rear wiper motor is controlled by the BCM through the rear wiper relay. A constant B+ and ground are supplied to the rear wiper motor. When rear wiper operation is requested, the BCM will apply voltage to the rear wiper relay control circuit. This will cause the contacts in the rear wiper relay to close and apply B+ to the rear wiper motor through the rear wiper control circuit, enabling rear wiper operation. When the rear wiper request is no longer present, the contacts in the rear wiper relay will open, removing B+ from the rear wiper motor control circuit. The rear wiper motor will continue to operate using the constant B+ circuit until it is in the park position.

Conditions for Running the DTC

- Ignition ON
- The system voltage is between 9-16 V.

Conditions for Setting the DTC

B370B 01

A short to voltage is detected in the rear wiper relay control circuit.

B370B 02

A short to ground is detected in the rear wiper relay control circuit.

B370B 04

An open or high resistance is detected in the rear wiper relay control circuit.

Action Taken When the DTC Sets

Rear wiper operation is disabled.

Conditions for Clearing the DTC

The DTC will clear when the conditions for setting the DTC are no longer present.

Reference Information

Schematic Reference

Wiper/Washer Schematics (Buick) Wiper/Washer Schematics (Chevrolet)

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX (ENCORE) COMPONENT CONNECTOR END VIEWS - INDEX (TRAX)

Description and Operation

Wiper/Washer System 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.
2. Verify the scan tool Rear Closure Ajar Switch parameter changes between Inactive and Active when opening and closing the liftgate.
 - **If the parameter does not change**

Refer to Door Ajar Indicator Malfunction
 - **If the parameter changes**
3. Verify the Scan Tool Rear Wiper Switch Parameter changes between ON and OFF when cycling the rear wiper switch ON and OFF.
 - If the parameter does not change
 - Refer to Circuit/System Testing - Rear Wiper/Washer Switch Malfunction
 - If the parameter changes
4. Verify the M45 Rear Wiper Motor cycles when commanding the rear wiper ON with the rear wiper switch

- **If the M45 Rear Wiper Motor does not cycle**

Refer to Refer to Circuit/System Testing - Rear Wiper Motor Malfunction

- **If the M45 Rear Wiper Motor cycles**

5. Verify the M45 Rear Wiper Motor returns to the park position when the rear wipers are turned OFF

- **If the M45 Rear Wiper Motor does not return to the park position**

Refer to Circuit/System Testing - Rear Wiper Motor Malfunction

- **If the M45 Rear Wiper Motor returns to the park position**

6. All OK.

Circuit/System Testing

Rear Wiper/Washer Switch Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the S82 Windshield Wiper/Washer Switch. It may take up to 11 min for all vehicle systems to power down.

2. Test for less than 10 Ω between the low reference circuit terminal 2 and ground.

- **If 10 Ω or greater**

1. Ignition OFF.

2. Test for less than 2 Ω in the low reference circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , replace the K9 Body Control Module.

- **If less than 10 Ω**

3. Ignition ON.

4. Test for greater than 8 V between the signal circuit terminal 4 and ground.

- **If less than 8 V**

1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.

2. Test for infinite resistance between the signal circuit and ground

- If less than infinite resistance, repair the short to ground on the circuit.
- If infinite resistance

3. Test for less than 2 Ω in the signal circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , replace the K9 Body Control Module.

- **If 8 V or greater**

5. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module, ignition ON.

6. Test for less than 1 V between the S82 Windshield Wiper/Washer Switch signal circuit terminal 4 and ground.

- **If 1 V or greater**

Repair the short to voltage on the circuit.

- **If less than 1 V**

7. Test or replace the S82 Windshield Wiper/Washer Switch.

Rear Wiper Motor Malfunction

1. Ignition OFF, and all vehicle systems OFF. Disconnect the harness connector at the M45 Rear Wiper Motor. It may take up to 2 min for all vehicle systems to power down.

2. Test for less than 10 Ω between the ground circuit terminal 3 and ground.

- **If 10 Ω or greater**

1. Test for less than 2 Ω in the ground circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , repair the open/high resistance in the ground connection.

- **If less than 10 Ω**

3. Ignition ON.
4. Verify a test lamp illuminates between the B+ circuit terminal 2 and ground.
 - **If the test lamp does not illuminate**
 1. Ignition OFF, remove the test lamp. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
 2. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , test or replace the X50A Fuse Block - Underhood.
 - **If the test lamp illuminates**
5. Connect a test lamp between the control circuit terminal 1 and ground.
6. Verify the test lamp does NOT turn ON and OFF when commanding the rear wiper ON and OFF with the rear wiper switch.
 - **If the test lamp turns ON and OFF**

Test or replace the M45 Rear Wiper Motor.
 - **If the test lamp does not turn ON and OFF**
7. Ignition OFF, connect the harness connector at the M45 Rear Wiper Motor. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood, It may take up to 2 min for all vehicle systems to power down.
8. Test for less than 10 Ω between each ground circuit terminal listed below and ground:
 - Terminal C5
 - Terminal H5
 - **If 10 Ω or greater**
 1. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
9. Ignition ON.
10. Verify the M45 Rear Wiper Motor is not activated.
 - **If the M45 Rear Wiper Motor is activated**
 1. Ignition OFF, disconnect the harness connector at the M45 Rear Wiper Motor, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 1 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the M45 Rear Wiper Motor.
 - **If the M45 Rear Wiper Motor is not activated**
11. Connect a 20 A fused jumper wire between both of the circuits listed below and B+.
 - B+ Circuit Terminal H4
 - Control Circuit Terminal H3
12. Verify the M45 Rear Wiper Motor activates.
 - **If the M45 Rear Wiper Motor does not activate**
 1. Ignition OFF, remove the jumper wire, disconnect the harness connector at the M45 Rear Wiper Motor, ignition ON.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than Infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the M45 Rear Wiper Motor.
 - **If the M45 Rear Wiper Motor activates**
13. Ignition OFF, connect the X2 harness connector at the X50A Fuse Block - Underhood. Disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.

14. Verify the M45 Rear Wiper Motor is not activated.
 - **If the M45 Rear Wiper Motor is activated**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 10 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the X50A Fuse Block - Underhood.
 - **If the M45 Rear Wiper Motor is not activated**
15. Connect a 10 A fused jumper wire between the control circuit terminal 10 and B+.
16. Verify the M45 Rear Wiper Motor activates.
 - **If the M45 Rear Wiper Motor does not activate**
 1. Ignition OFF, remove the jumper wire, disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If less than infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , test or replace the X50A Fuse Block - Underhood.
 - **If the M45 Rear Wiper Motor activates**
17. Test or replace the K9 Body Control Module.

Component Testing

Windshield Wiper/Washer Switch

1. Ignition OFF, disconnect the harness connector at the S82 Windshield Wiper/Washer Switch.
2. Test for infinite resistance between the signal terminal 4 and the low reference terminal 2 with the rear wiper switch in the OFF position.
 - **If less than infinite resistance**

Replace the S82 Windshield Wiper/Washer Switch.
 - **If infinite resistance**
3. Verify the resistance is within the range specified below between the signal circuit terminal 4 and the low reference circuit terminal 2 by cycling the switch between Rear Wiper position and Rear Washers position.
 - Rear Wiper : 624-644 Ω
 - Rear Wiper Sweep : 1.8-2.2k Ω
 - Rear Washer : 5.9-6.4k Ω
 - **If not within the specific range**

Replace the S82 Windshield Wiper/Washer Switch.
 - **If within the specific range**
4. All OK

Repair Instructions

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

- Refer to [Rear Window Wiper Motor Replacement](#)
- Refer to [Front Compartment Fuse Block Replacement](#)
- Refer to [Windshield Wiper and Washer Switch Replacement \(Buick\)Windshield Wiper and Washer Switch Replacement \(Chevrolet, Without BTM\)Windshield Wiper and Washer Switch Replacement \(Chevrolet, With BTM\)](#)
- Refer to [Control Module References](#) for body control module replacement, programming, and setup.

REAR WASHER SYSTEM 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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptor

DTC B3811

Rear Washer Relay Circuit

For symptom byte information, refer to [Symptom Byte List](#).

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Rear Washer Switch Signal	1	1	1	-
Rear Window Washer Pump Relay Control	1	B3811 04	B3811 01	-
Rear Windshield Washer Pump Control	1	1	2	-
Rear Windshield Washer Pump Ground	-	1	-	-
1. Rear Washer Inoperative 2. Rear Washer Always ON				

Circuit/System Description

The body control module (BCM) controls the rear washer based on an input from the rear wiper switch, which is part of the windshield wiper/washer switch. The BCM monitors the windshield wiper/washer switch through two separate signal circuits and a low reference circuit. The rear wiper switch uses a resistor ladder to determine low speed, intermittent, and rear washer operation. The BCM monitors applies and monitors voltage on the rear wiper switch signal circuit. When the rear wiper switch is placed in the low speed, intermittent, or rear washer position, the voltage is pulled down through a different resistor in the resistor ladder, reducing the voltage seen at the BCM. The BCM will respond by commanding the specific rear wiper function.

The windshield washer uses a single windshield washer pump to provide fluid for both the front and rear washers. Changing the polarity of the motor will cause it to spin in opposite directions, feeding fluid to the front or rear. When rear washers are requested, the BCM applies voltage to the rear window washer pump relay control circuit. This causes the contacts in the rear washer pump relay to close and supplies voltage to the windshield washer pump. Ground for the windshield washer pump is provided through the windshield washer pump relay, which is switched to ground in it's at-rest state.

Conditions for Running the DTC

- Ignition ON
- The system voltage is between 9-16 V

Conditions for Setting the DTC

B3811 01

A short to voltage has been detected on the rear window washer pump relay control circuit

B3811 04

A open/high resistance has been detected on the rear window washer pump relay control circuit

Action Taken When the DTC Sets

Rear washer operation is disabled.

Conditions for Clearing the DTC

- A current DTC clears when the diagnostic runs and passes.
- A history DTC will clear after 50 consecutive ignition cycles without a fault present.

Diagnostic Aids

The rear liftgate must be closed in order for the rear wiper to work

Reference Information

Schematic Reference

Wiper/Washer Schematics (Buick)Wiper/Washer Schematics (Chevrolet)

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX (ENCORE) COMPONENT CONNECTOR END VIEWS - INDEX (TRAX)

Description and Operation

Wiper/Washer System 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.
2. Verify the Scan Tool Rear Closure Ajar Switch Parameter changes between Inactive and Active when Opening and closing the liftgate.
 - **If the parameter does not change**
Refer to Door Ajar Indicator Malfunction
 - **If the parameter changes**
3. Verify the scan tool Rear Wiper Switch parameter changes between On and Off when cycling the rear wiper switch ON and OFF.
 - **If the parameter does not change**
Refer to Rear Wiper System Malfunction
 - **If the parameter changes**
4. Verify the G24 Windshield Washer Pump turns on and off when commanding the rear washers OFF and ON with the rear washer switch
 - **If the Rear Window Washers do not turn ON**
Refer to Circuit/System Testing
 - **If the Rear Window Washers turn ON**
5. All OK.

Circuit/System Testing

1. Ignition OFF, and all vehicle systems OFF. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal C5 and ground:
 - **If 10 Ω or greater**
 1. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Connect the X2 harness connector and disconnect the X1 harness connector at the X50A Fuse Block - Underhood.
4. Test for infinite resistance between each of the control circuit terminals listed below and ground.
 - Terminal G3
 - Terminal H3
 - **If less than Infinite resistance**

Repair the short to ground on the circuit.
 - **If infinite resistance**
5. Connect the X1 harness connector at the X50A Fuse Block - Underhood. Disconnect the harness connector at the G24 Windshield Washer Pump, ignition ON.
6. Test for less than 1 V between the control circuit terminals listed below and ground:
 - Terminal 1
 - Terminal 2
 - **If 1 V or greater**
 1. Ignition OFF, disconnect the X1 harness connector at the X50A Fuse Block - Underhood.
 2. Test for less than 1 V between the control circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, test or replace the X50A Fuse Block - Underhood.
 - **If less than 1 V**
7. Ignition OFF, and all vehicle systems OFF. It may take up to 2 min for all vehicle systems to power down.
8. Test for less than 10 Ω between the control circuit terminal 1 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF, disconnect the X1 harness connectors at the X50A Fuse Block - Underhood.
 2. Test for less than 2 Ω in the control circuit end to end:
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the X50A Fuse Block - Underhood.
 - **If less than 10 Ω**
9. Test for less than 10 Ω between the control circuit terminal 2 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF, disconnect the X1 harness connectors at the X50A Fuse Block - Underhood.
 2. Test for less than 2 Ω in the control circuit end to end:
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the X50A Fuse Block - Underhood.
 - **If less than 10 Ω**
10. Connect a test lamp between the control circuit terminal 1 and the control circuit terminal 2, ignition ON.
11. Verify the test lamp does NOT turn ON and OFF when commanding the rear washer ON and OFF with the rear washer switch.
 - **If the test lamp turns ON and OFF**

Test or replace the G24 Windshield Washer Pump.
 - **If the test lamp does not turn ON and OFF**

12. Ignition OFF, connect the harness connector at the G24 Windshield Washer Pump. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
13. Connect a test lamp between the control circuit terminal G2 and ground.
14. Verify the test lamp turns ON and OFF when commanding the rear washer ON and OFF with the rear washer switch.
 - **If the test lamp is always OFF**
 1. Ignition OFF, remove the test lamp. Disconnect the X1 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance.
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the short to ground on the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module
 - **If the test lamp is always ON**
 1. Ignition OFF, remove the test lamp. Disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit and ground.
 - If 2 Ω or greater, repair the short to voltage on the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module
 - **If the test lamp turns ON and OFF.**
15. Test or replace the X50A Fuse Block - Underhood.

Repair Instructions

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

- Refer to [Windshield Washer Pump Replacement](#)
- Refer to [Front Compartment Fuse Block Replacement](#)
- Refer to [Windshield Wiper and Washer Switch Replacement \(Buick\)](#)[Windshield Wiper and Washer Switch Replacement \(Chevrolet, Without BTM\)](#)[Windshield Wiper and Washer Switch Replacement \(Chevrolet, With BTM\)](#)
- Refer to [Control Module References](#) for body control module replacement, programming, and setup.

WIPER BLADE ELEMENT CHECK

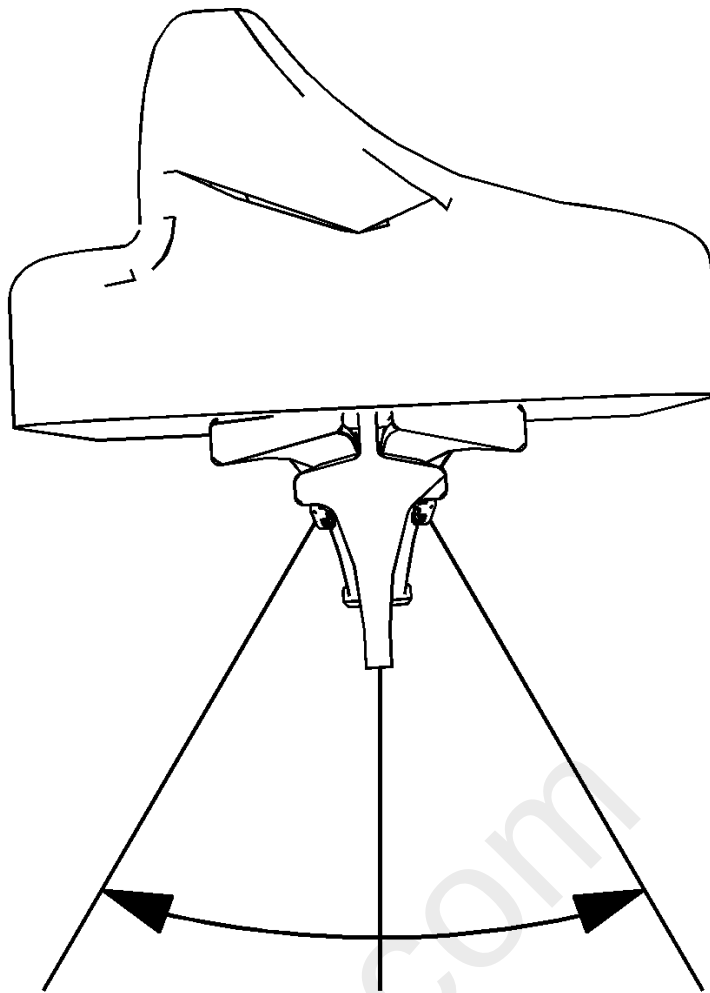


Fig. 10: Wiper Blade Element

Courtesy of GENERAL MOTORS COMPANY

1. Remove the wiper blades from the wiper arms. Refer to [Windshield Wiper Blade Replacement](#).
2. Look down the length of the blade element.
3. Replace the wiper blade element if the rubber element which contacts the glass is not on the centerline of the blade ± 15 degrees.
4. Install the wiper blades on the wiper arms. Refer to [Windshield Wiper Blade Replacement](#).

REPAIR INSTRUCTIONS

WINDSHIELD WIPER AND WASHER SWITCH REPLACEMENT (BUICK)

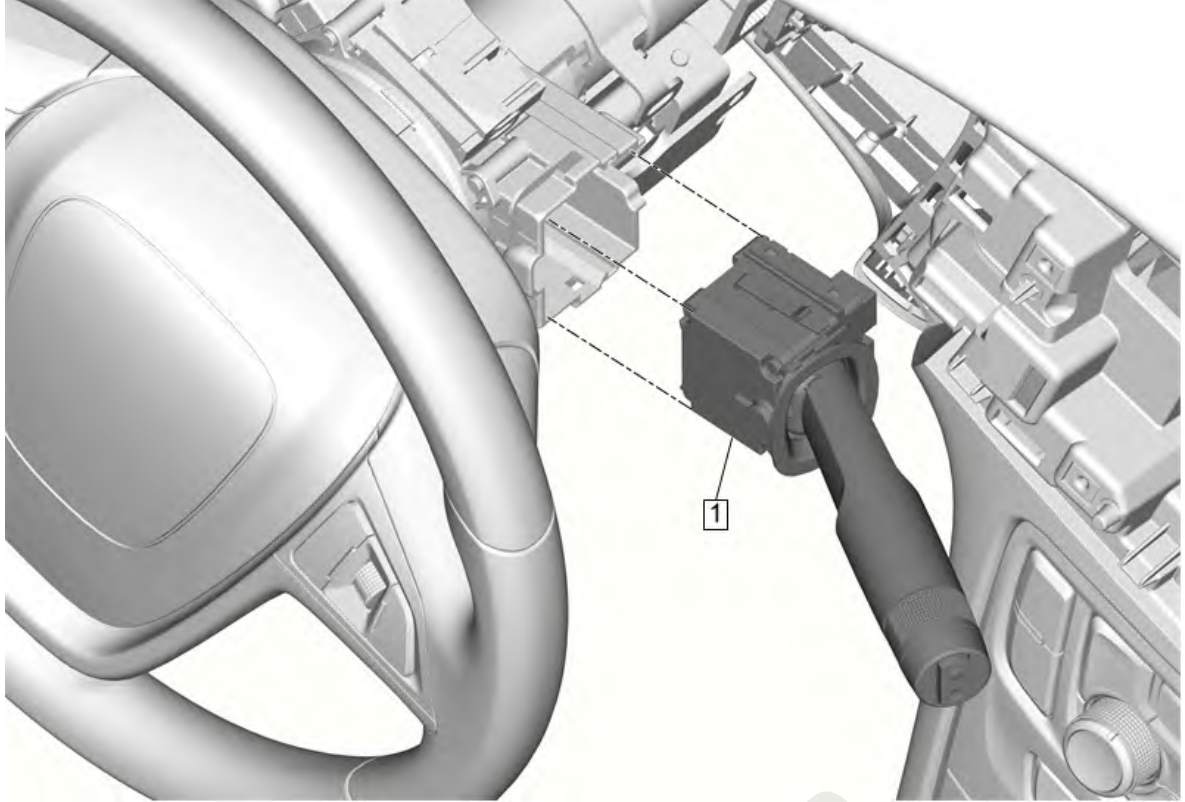


Fig. 11: Windshield Wiper and Washer Switch (Encore)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures Remove Steering Column Lower Trim Cover. Refer to Steering Column Lower Trim Cover Replacement (Buick, With BTM)	
1	Windshield Wiper and Washer Switch Procedure 1. Disconnect the electrical connector. 2. Release the retaining tabs and remove the windshield wiper and washer switch from the turn signal switch bracket.

WINDSHIELD WIPER AND WASHER SWITCH REPLACEMENT (CHEVROLET, WITHOUT BTM)

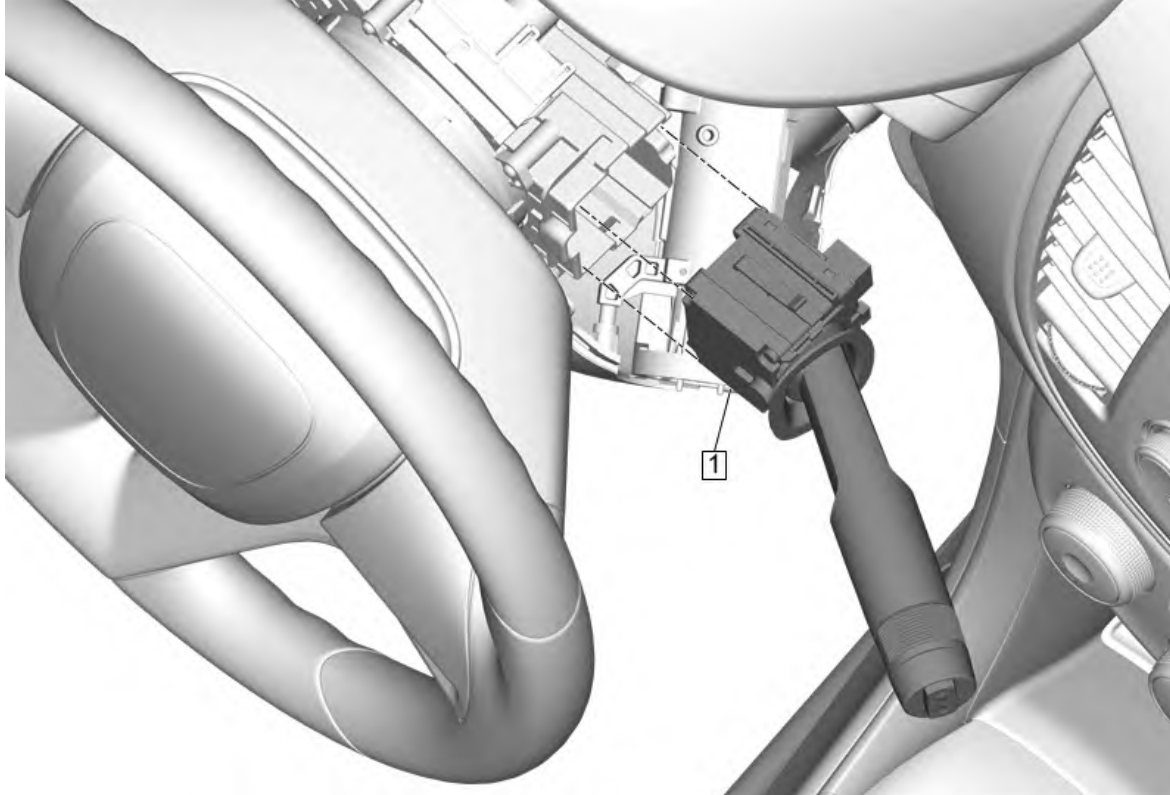


Fig. 12: Windshield Wiper and Washer Switch (Trax, Without BTM)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Reposition the steering column upper trim cover as necessary. Refer to Steering Column Upper Trim Cover Replacement (Chevrolet, Without BTM). 2. Remove Ignition Lock Cylinder Opening Trim Cover. Refer to Ignition Lock Cylinder Opening Trim Cover Replacement (Chevrolet, Without BTM).	
1	Windshield Wiper and Washer Switch Procedure 1. Disconnect the electrical connector. 2. Release the retaining tabs and remove the windshield wiper and washer switch from the turn signal switch bracket.

WINDSHIELD WIPER AND WASHER SWITCH REPLACEMENT (CHEVROLET, WITH BTM)

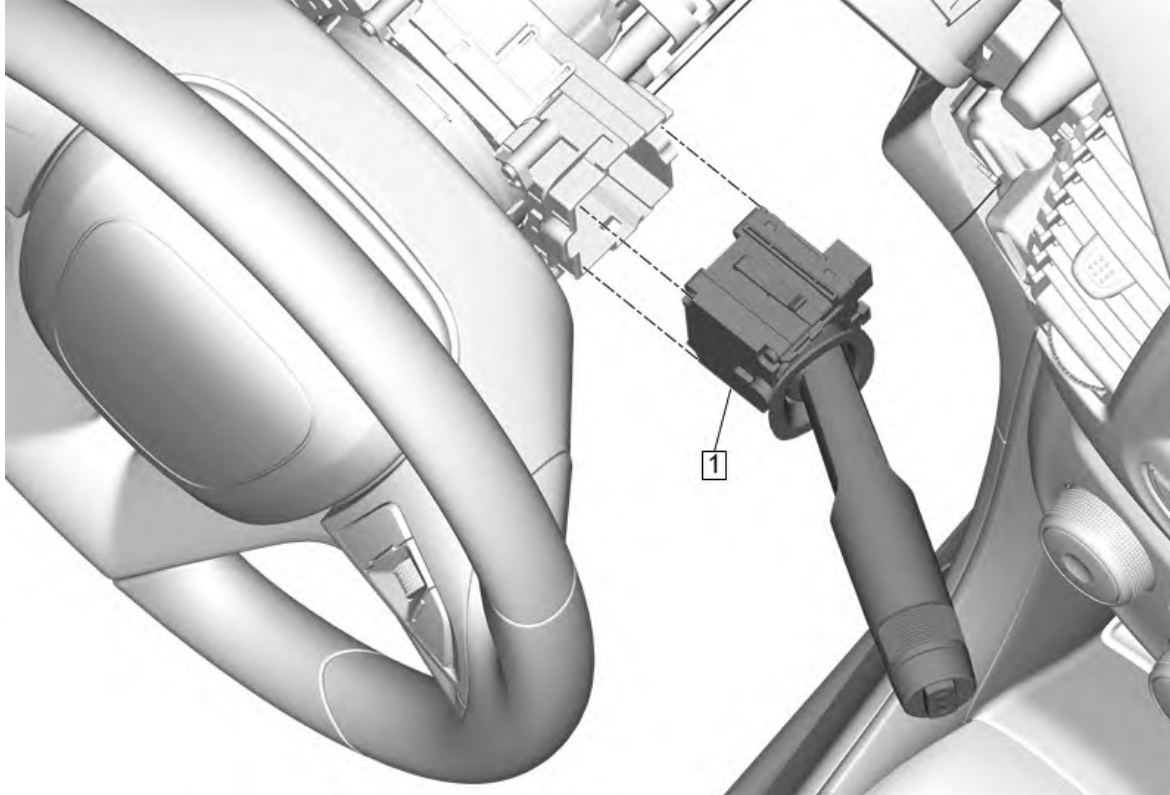


Fig. 13: Windshield Wiper and Washer Switch (Trax, With BTM)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures Remove Steering Column Lower Trim Cover. Refer to Steering Column Lower Trim Cover Replacement (Chevrolet, With BTM)	
1	Windshield Wiper and Washer Switch Procedure 1. Disconnect the electrical connector. 2. Release the retaining tabs and remove the windshield wiper and washer switch from the turn signal switch bracket.

WINDSHIELD WASHER NOZZLE REPLACEMENT (CHEVROLET)

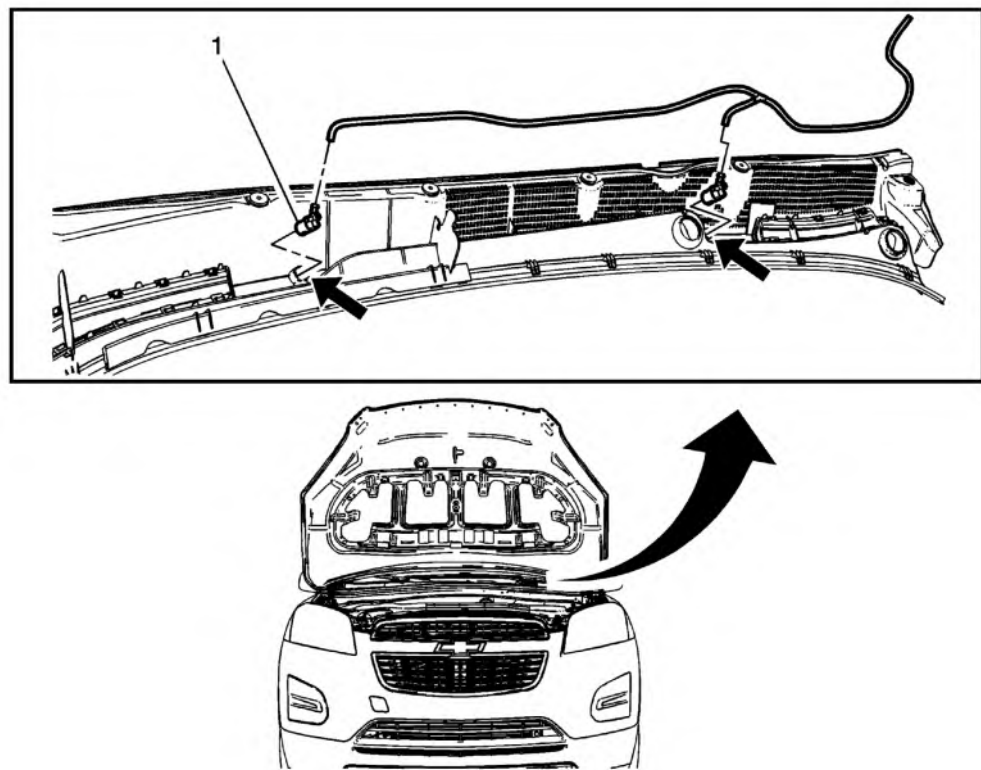


Fig. 14: Windshield Washer Nozzle (Trax)
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure	
Remove the air inlet grille panel. Refer to Air Inlet Grille Panel Replacement (Chevrolet) .	
	Windshield Washer Nozzle (Qty: 2)
1	Procedure 1. Disconnect the windshield washer hose at the windshield washer nozzle being serviced. 2. Compress the locking tab on the air inlet grille (arrows). 3. Pull the windshield washer nozzle from the air inlet grille panel.

WINDSHIELD WASHER NOZZLE REPLACEMENT (BUICK)

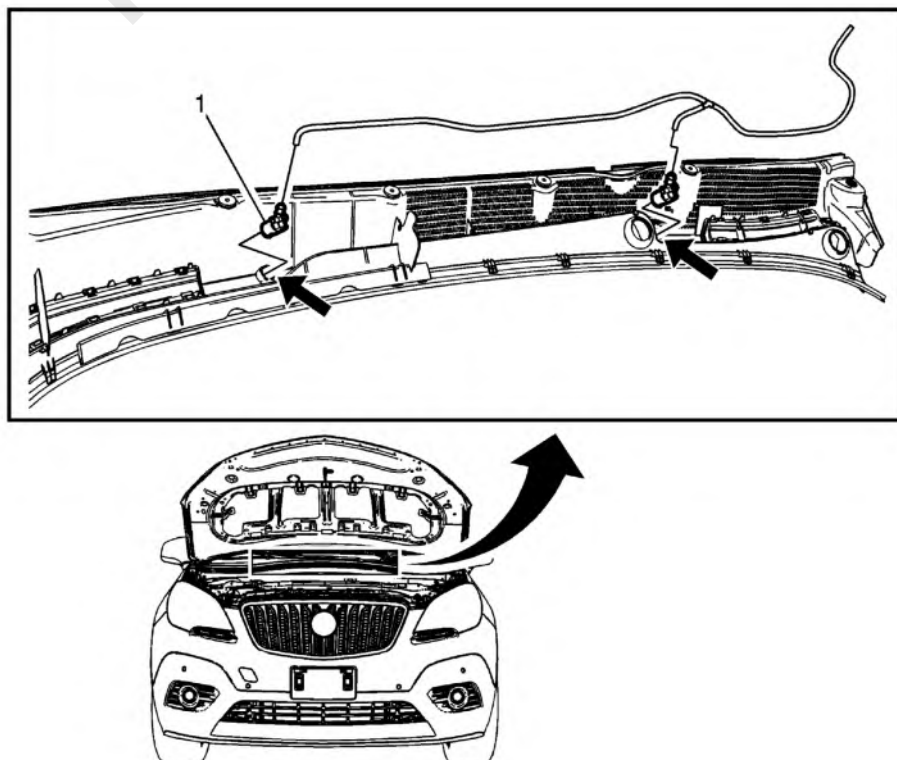


Fig. 15: Windshield Washer Nozzle (Encore)
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the air inlet grille panel. Refer to Air Inlet Grille Panel Replacement (Buick) .	
1	Windshield Washer Nozzle (Qty: 2)
	Procedure 1. Disconnect the windshield washer hose at the windshield washer nozzle being serviced. 2. Compress the locking tab on the air inlet grille (arrows). 3. Pull the windshield washer nozzle from the air inlet grille panel.

WINDSHIELD WASHER NOZZLE ADJUSTMENT

Special Tools

BO-49380 Adjusting Tool

For equivalent regional tools, refer to [Special Tools](#).

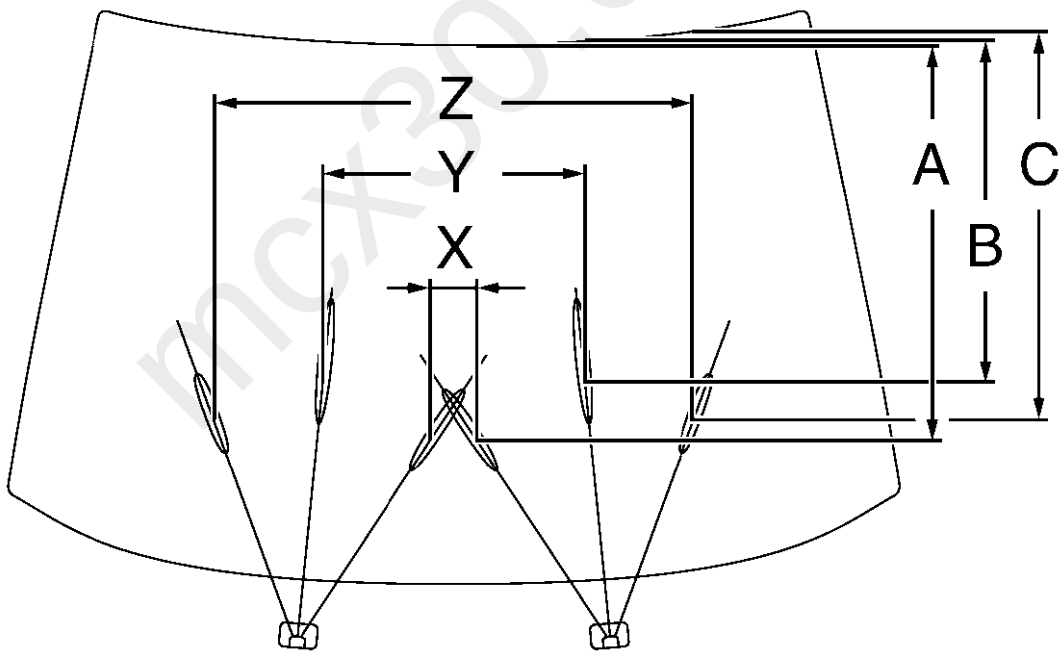


Fig. 16: Windshield Washer Nozzle
 Courtesy of GENERAL MOTORS COMPANY

NOTE: All adjustments must be completed with the hood assembly in the **FULL** closed position.

- A = 638 mm (25.118 in)

- B = 550 mm (21.653 in)
- C = 630 mm (24.803 in)
- X = 76 mm (2.992 in)
- Y = 420 mm (16.535 in)
- Z = 768 mm (30.236 in)

Adjust the windshield washer nozzle using the **BO-49380** adjuster.

REAR WINDOW WASHER NOZZLE REPLACEMENT (CHEVROLET)

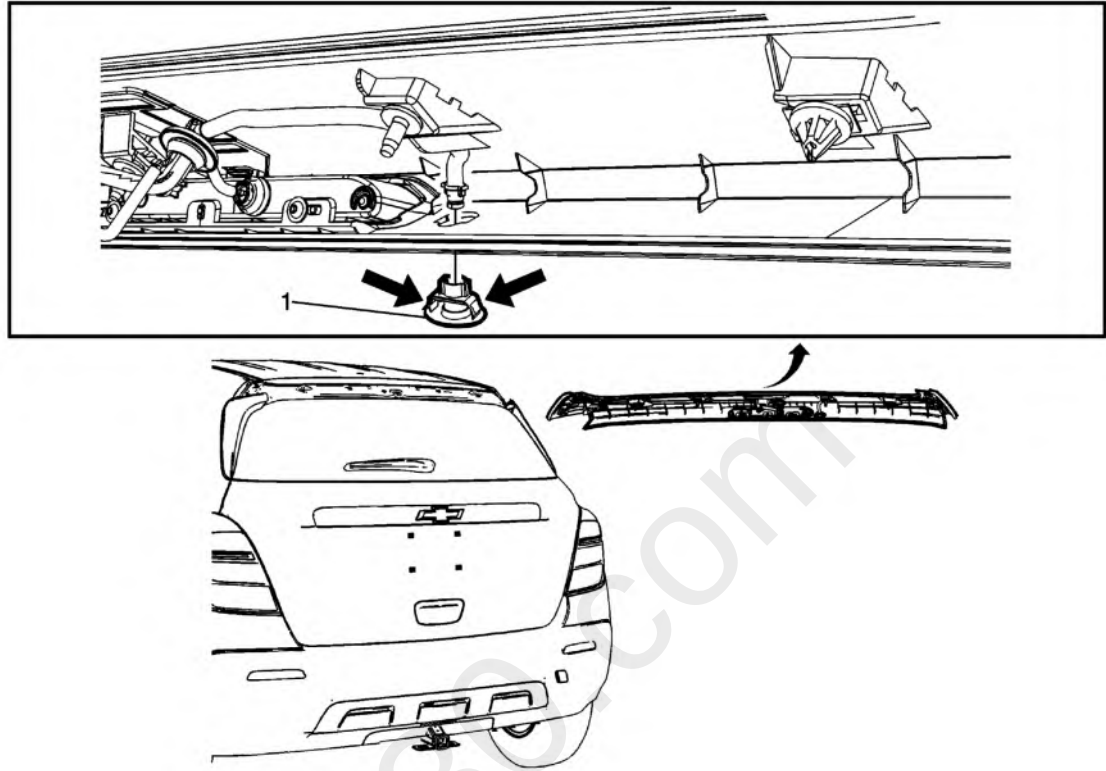


Fig. 17: Rear Window Washer Nozzle (Trax)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Open and support the liftgate. 2. Remove the rear end spoiler. Refer to Rear End Spoiler Replacement .	
1	Rear Window Washer Nozzle Procedure 1. Disconnect the rear window washer hose from the rear window washer nozzle. 2. Pinch the two tabs (arrows) on the rear window washer nozzle and push the nozzle out of the rear end spoiler. 3. Remove the rear window washer nozzle from the rear end spoiler.

REAR WINDOW WASHER NOZZLE REPLACEMENT (BUICK)

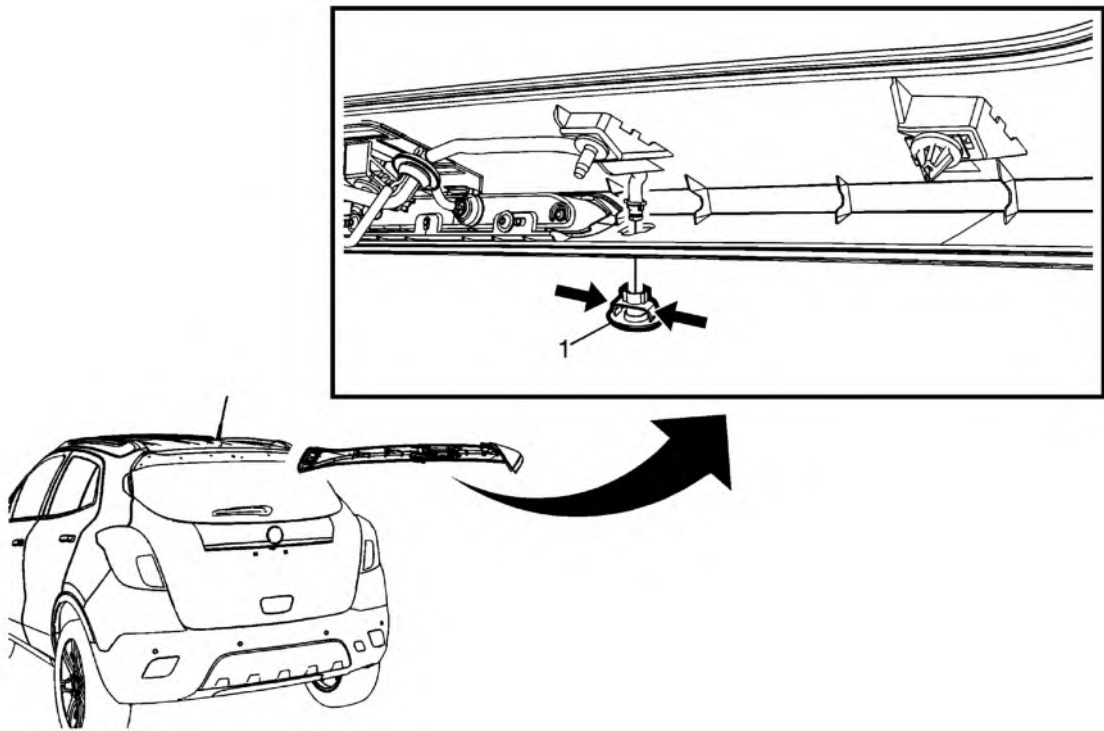


Fig. 18: Rear Window Washer Nozzle (Encore)
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Open and support the liftgate. 2. Remove the rear end spoiler. Refer to Rear End Spoiler Replacement.	
1	Rear Window Washer Nozzle Procedure 1. Disconnect the rear window washer hose from the rear window washer nozzle. 2. Pinch the two tabs (arrows) on the rear window washer nozzle and push the nozzle out of the rear end spoiler. 3. Remove the rear window washer nozzle from the rear end spoiler.

WINDSHIELD WASHER PUMP HOSE REPLACEMENT (CHEVROLET)

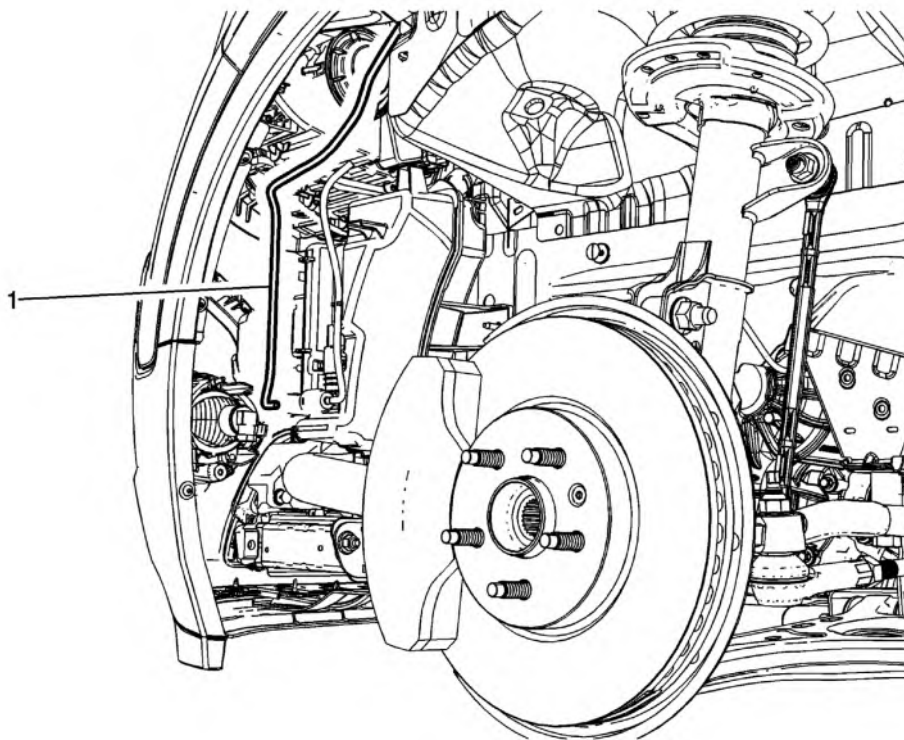


Fig. 19: Windshield Washer Pump Hose (Trax)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle . 2. Remove the front wheelhouse liner. Refer to Front Wheelhouse Liner Replacement (Chevrolet) .	
1	Windshield Washer Pump Hose Procedure 1. Place a collecting container under the windshield washer solvent container. 2. Disconnect the windshield washer pump hose from the windshield washer pump. 3. Lower the vehicle. 4. Disconnect the windshield washer pump hose from the connection piece at the air inlet grille panel. 5. Remove the windshield washer pump hose from the two clips on the windshield washer solvent container. NOTE: Observe the routing of the windshield washer pump hose for installation purposes.

WINDSHIELD WASHER PUMP HOSE REPLACEMENT (BUICK)

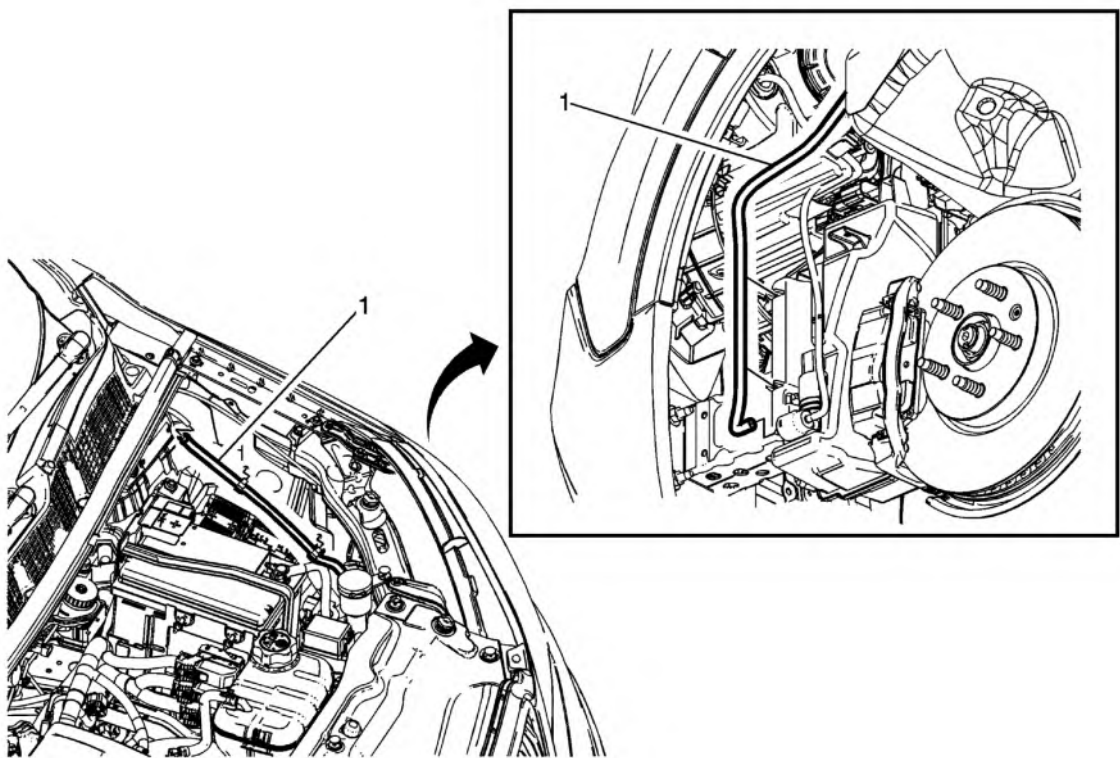


Fig. 20: Windshield Washer Pump Hose (Encore)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Reposition the front compartment fuse block. Refer to Front Compartment Fuse Block Replacement. 2. Remove the front wheelhouse liner. Refer to Front Wheelhouse Liner Replacement (Buick).	
1	Windshield Washer Pump Hose Procedure 1. Place a collecting container under the windshield washer solvent container. 2. Disconnect the windshield washer pump hose from the windshield washer pump. 3. Lower the vehicle. 4. Disconnect the windshield washer pump hose from the connection piece at the air inlet grille panel. 5. Remove the windshield washer pump hose from the two clips on the windshield washer solvent container. NOTE: Observe the routing of the windshield washer pump hose for installation purposes.

WINDSHIELD WASHER SOLVENT CONTAINER HOSE REPLACEMENT

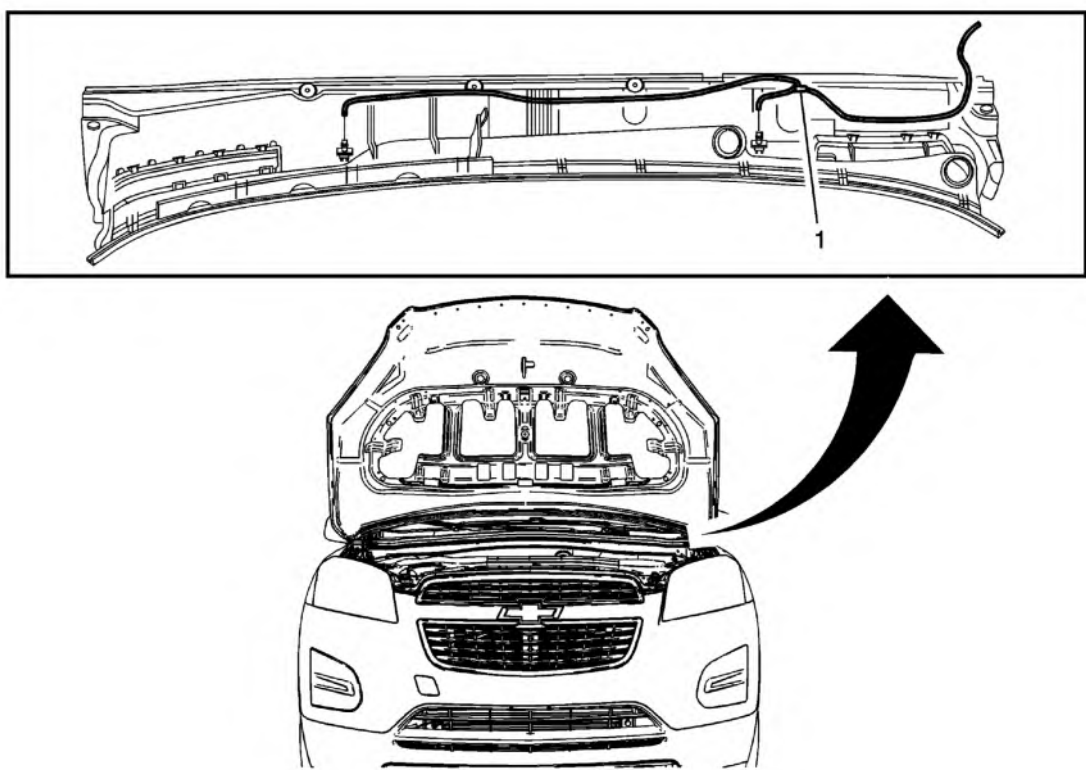


Fig. 21: Windshield Washer Solvent Container Hose

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the air inlet grille panel. Refer to Air Inlet Grille Panel Replacement (Chevrolet) Air Inlet Grille Panel Replacement (Buick) .	
1	Windshield Washer Solvent Container Hose Assembly Procedure 1. Disconnect the windshield washer solvent container hose from the windshield washer pump hose. 2. Disconnect the windshield washer solvent container hose from the windshield washer nozzle. 3. Disengage the windshield washer solvent container hose from the retainers on the air inlet grille. 4. Remove the windshield washer solvent container hose from the vehicle.

WINDSHIELD WASHER SOLVENT CONTAINER FILLER TUBE REPLACEMENT

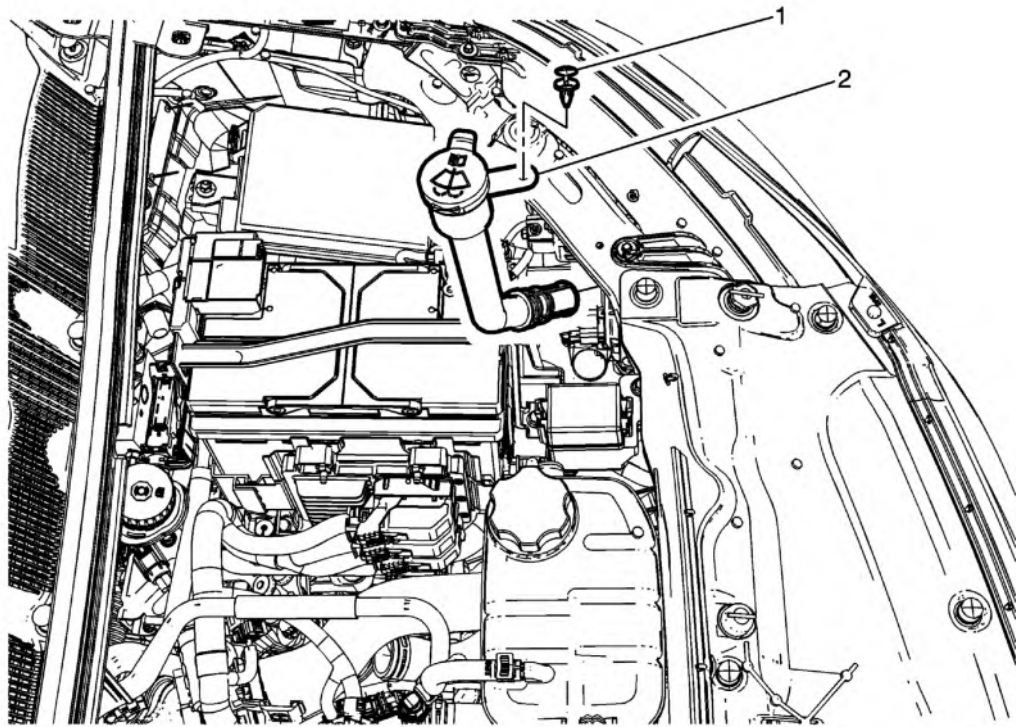


Fig. 22: Windshield Washer Solvent Container Filler Tube

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Windshield Washer Solvent Container Filler Tube Assembly Retainer
2	Windshield Washer Solvent Container Filler Tube Assembly Procedure 1. Reach into the driver side of the engine compartment at the position where the windshield washer solvent container filler tube enters the windshield washer solvent container. 2. Grasp the windshield washer solvent container filler tube where the filler tube enters the windshield washer solvent container. 3. Twist the windshield washer solvent container fill tube slightly back and forth while pulling outward from the windshield washer solvent container. 4. Remove the windshield washer solvent container filler tube. 5. Inspect and replace any damaged O-ring. 6. Use full strength windshield washer fluid at the windshield washer solvent container filler tube seal upon re-assembly.

WINDSHIELD WASHER SOLVENT CONTAINER REPLACEMENT

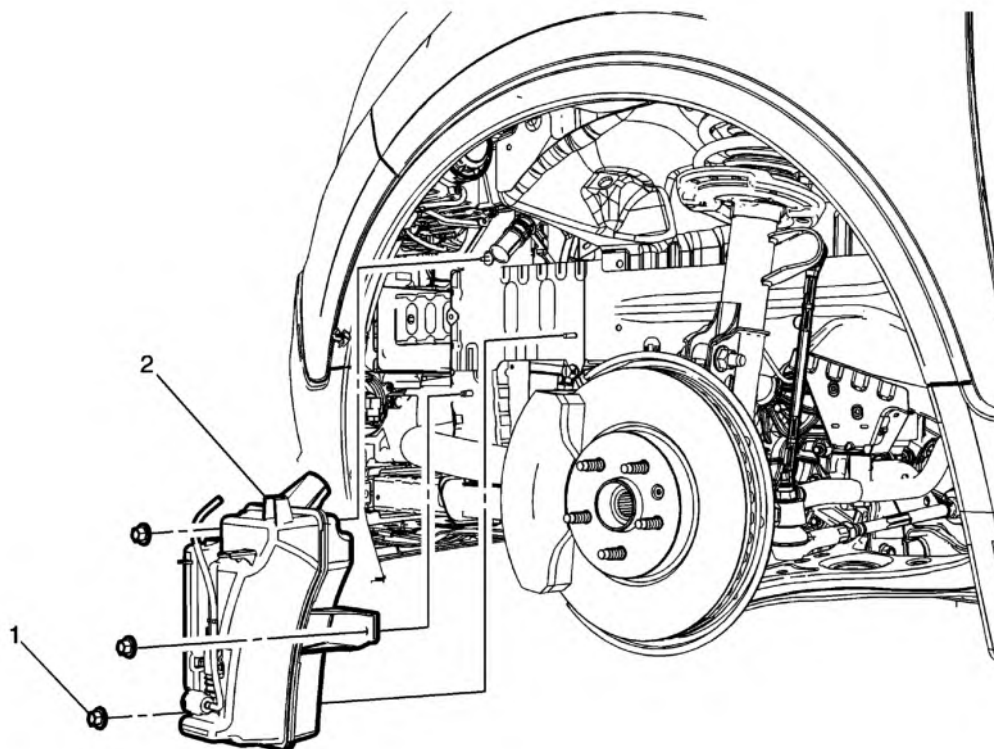


Fig. 23: Windshield Washer Solvent Container
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure 1. Remove the windshield washer solvent container filler tube. Refer to Windshield Washer Solvent Container Filler Tube Replacement. 2. Remove the front wheelhouse liner. Refer to Front Wheelhouse Liner Replacement (Chevrolet) Front Wheelhouse Liner Replacement (Buick). 3. Disconnect the windshield washer pump hose.	
1	Windshield Washer Solvent Container Nut (Qty: 3) CAUTION: Refer to Fastener Caution . Tighten 5 N.m (44 lb in)
2	Windshield Washer Solvent Container Procedure 1. Remove washer solvent container from the front compartment panel assembly and lower the washer container from the wheelhouse compartment. 2. Drain the windshield washer solvent into a suitable clean container. 3. Transfer the component parts as needed. 4. Install a new grommet prior to installing the windshield washer pump into the washer solvent container. 5. Fill the windshield washer solvent container after installation.

WINDSHIELD WASHER PUMP REPLACEMENT

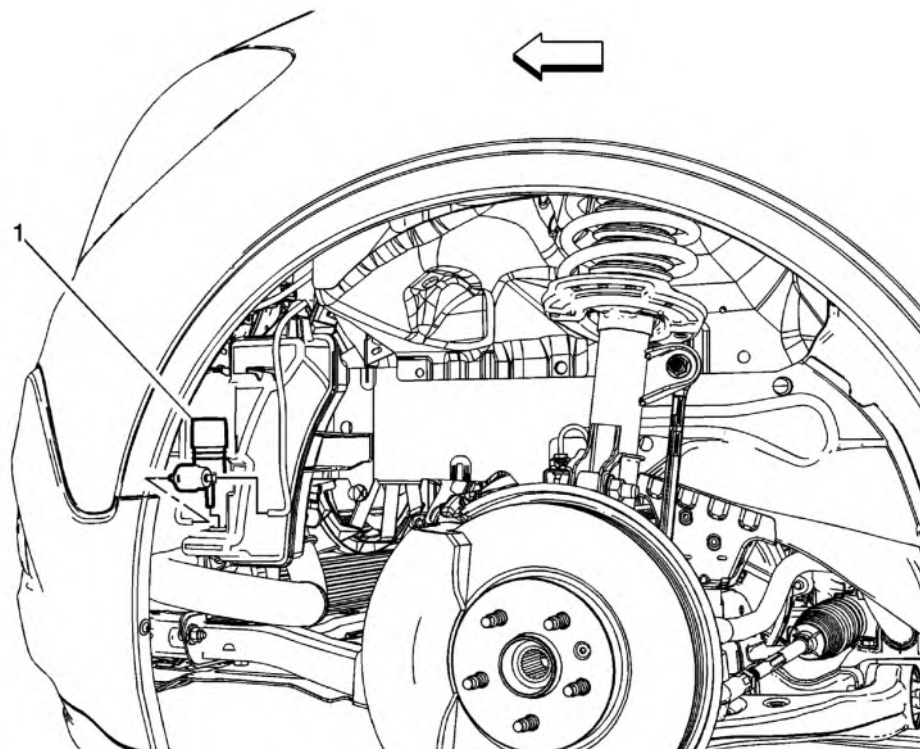


Fig. 24: Windshield Washer Pump

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front wheelhouse front liner. Refer to Front Wheelhouse Liner Replacement (Chevrolet) Front Wheelhouse Liner Replacement (Buick) .	
1	Windshield Washer Pump Procedure 1. Disconnect the windshield washer pump electrical connector. 2. Drain the windshield washer solvent container into a clean suitable container. 3. Disconnect the windshield washer pump hose from the washer pump. 4. Disconnect the rear window washer solvent container hose from the washer pump. 5. Using a small flat-bladed tool, remove the windshield washer pump from the windshield washer solvent container. 6. Using a small flat-bladed tool, remove the windshield washer pump seal from the windshield washer solvent container and inspect the seal. Replace if damaged.

AIR INLET GRILLE PANEL REPLACEMENT (CHEVROLET)

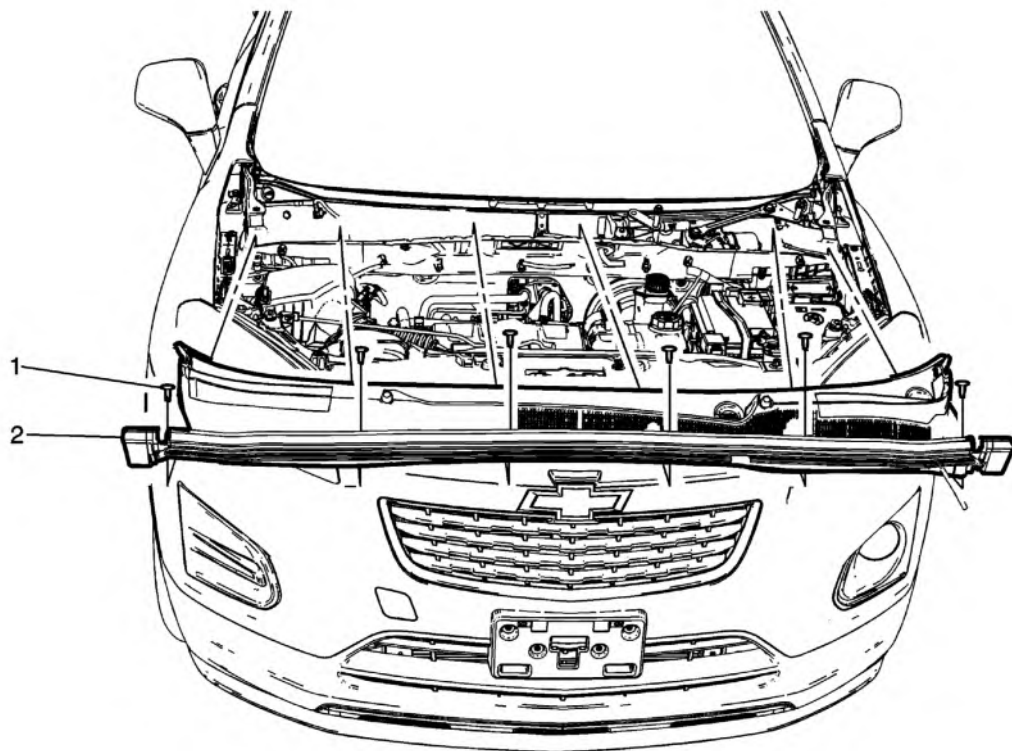


Fig. 25: Air Inlet Grille Panel (Trax)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure 1. Remove the windshield wiper arms. Refer to Windshield Wiper Arm Replacement. 2. Remove the air inlet grille panel extension. Refer to Air Inlet Grille Panel Extension Replacement. 3. Release the two (2) end hood rear weatherstrip retainers. Refer to Hood Rear Weatherstrip Replacement (Chevrolet).	
1	Air Inlet Grille Panel Retainer (Qty: 6) CAUTION: Refer to Fastener Caution .
2	Air Inlet Grille Panel Procedure 1. Use a suitable tool to release the push-in retainers at each end of the air inlet grille panel 2. Disconnect the windshield washer hose. 3. Lift up the front edge of the air inlet grille panel, slide the grille panel forward from both hood hinges. 4. Use a suitable tool to carefully release the air inlet grille panel from the windshield. 5. Transfer parts as needed.

AIR INLET GRILLE PANEL REPLACEMENT (BUICK)

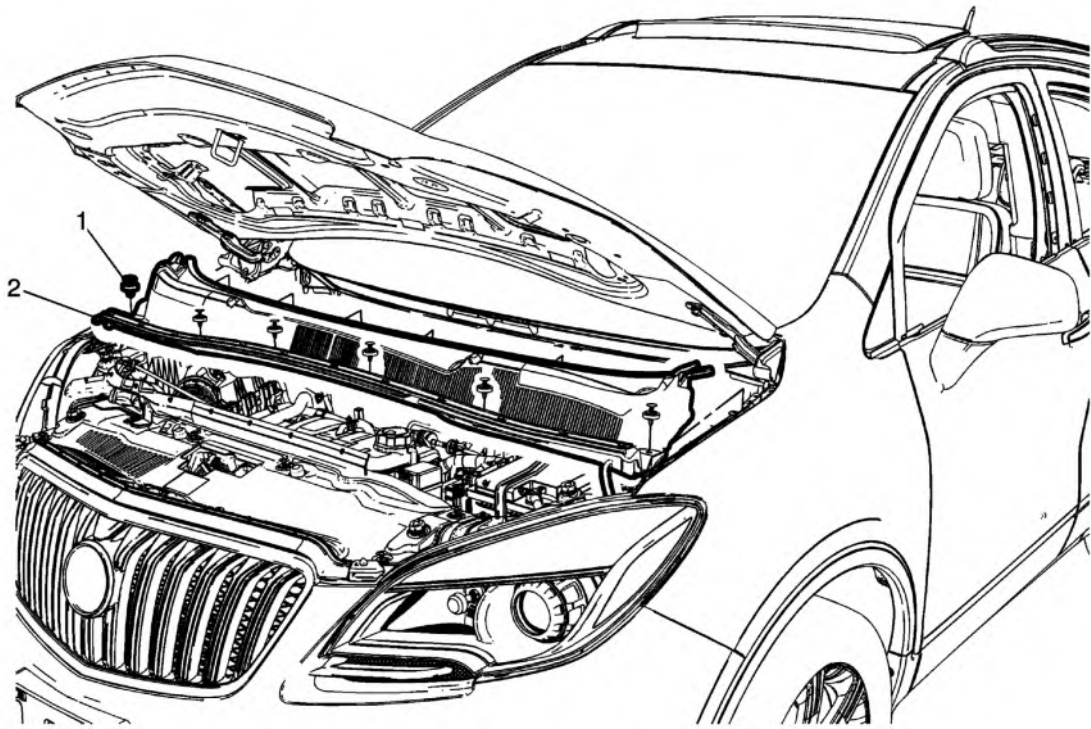


Fig. 26: Air Inlet Grille Panel (Encore)
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure 1. Remove the windshield wiper arms. Refer to Windshield Wiper Arm Replacement. 2. Remove the air inlet grille panel extension. Refer to Air Inlet Grille Panel Extension Replacement.	
1	Air Inlet Grille Panel Retainer (Qty: 6) CAUTION: Refer to Fastener Caution .
2	Air Inlet Grille Panel Procedure 1. Disconnect the windshield washer hose. 2. Use a suitable tool to release the push-in retainers at each end of the hood rear weatherstrip. 3. Lift up the front edge of the air inlet grille panel, slide the grille panel forward from both hood hinges. 4. Use a suitable tool to carefully release the air inlet grille panel from the windshield. 5. Transfer parts as needed.

AIR INLET GRILLE PANEL EXTENSION REPLACEMENT

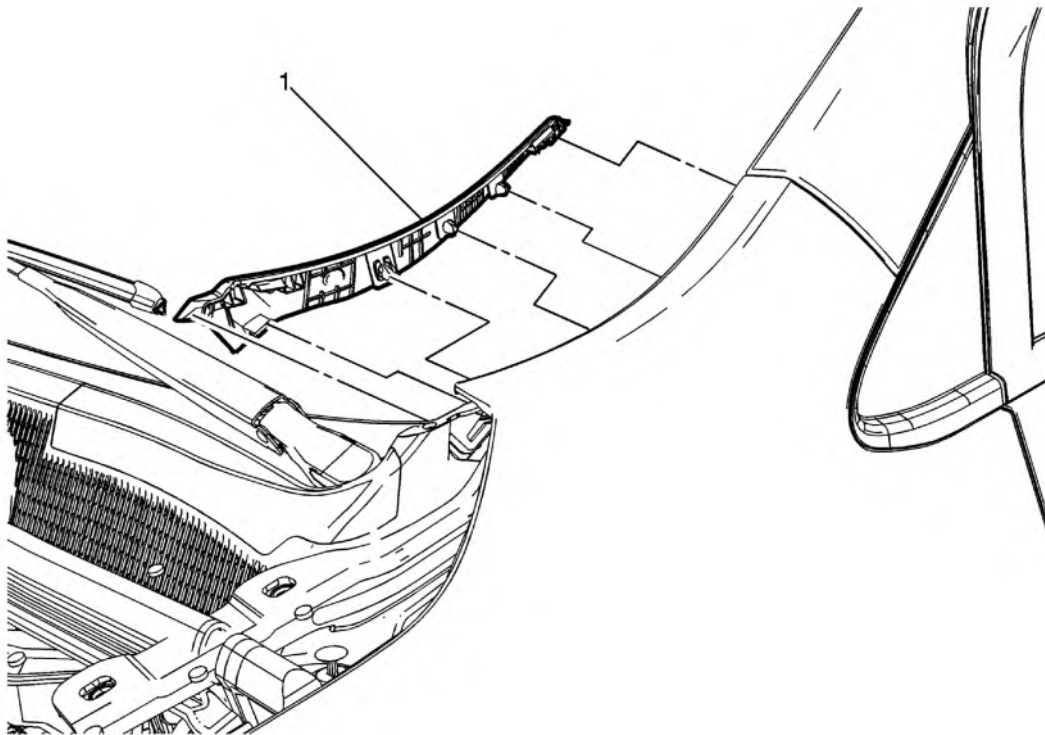


Fig. 27: Air Inlet Grille Panel Extension
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Air Inlet Grille Panel Extension Procedure Grasp the air inlet grille panel extension and disengage the retainers from the top edge of the fender and end edge of the air inlet grille panel.

AIR INLET GRILLE PANEL WATER DEFLECTOR REPLACEMENT

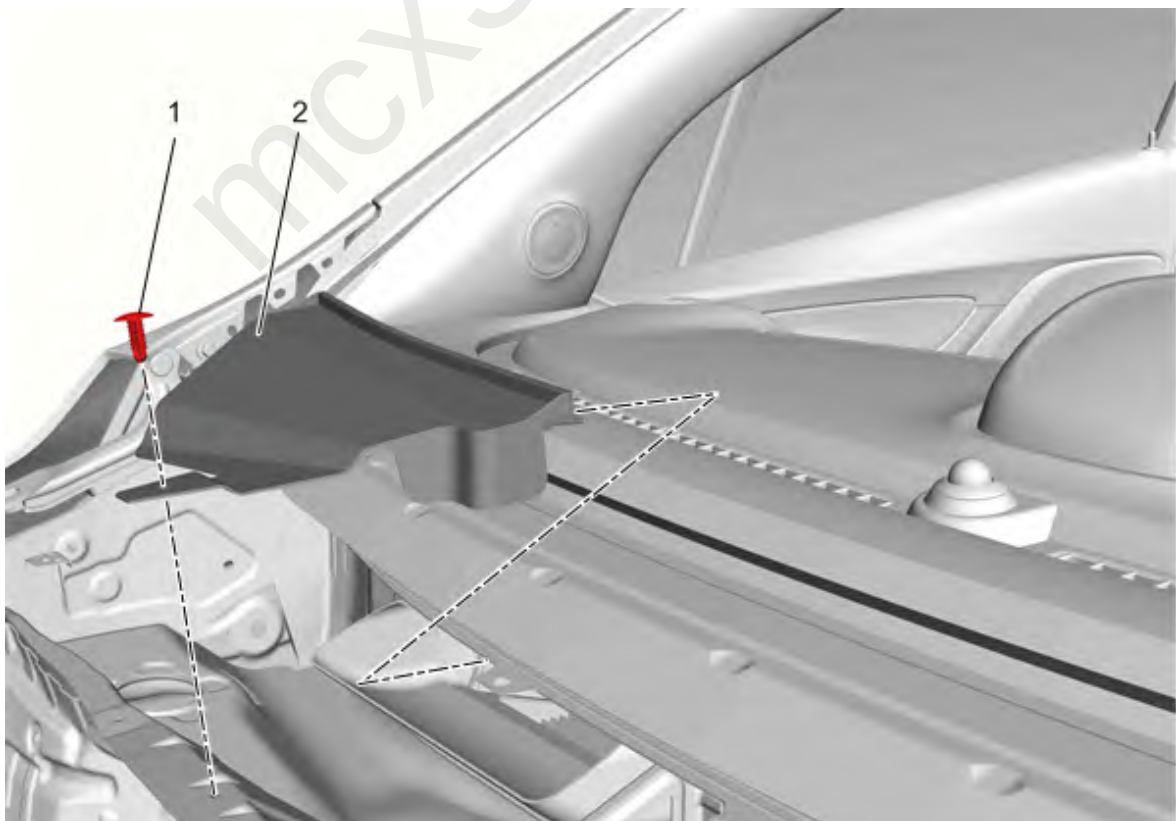


Fig. 28: Air Inlet Grille Panel Water Deflector
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name

Callout	Component Name
Preliminary Procedure Remove the air inlet grille panel. Refer to Air Inlet Grille Panel Replacement (Chevrolet) Air Inlet Grille Panel Replacement (Buick) .	
1	Air Inlet Grille Panel Water Deflector Retainer
2	Air Inlet Grille Panel Water Deflector Procedure Pull air inlet grille panel water deflector forward so retaining tabs release from shroud upper panel.

AIR INLET GRILLE PANEL AIR DEFLECTOR OPENING COVER REPLACEMENT

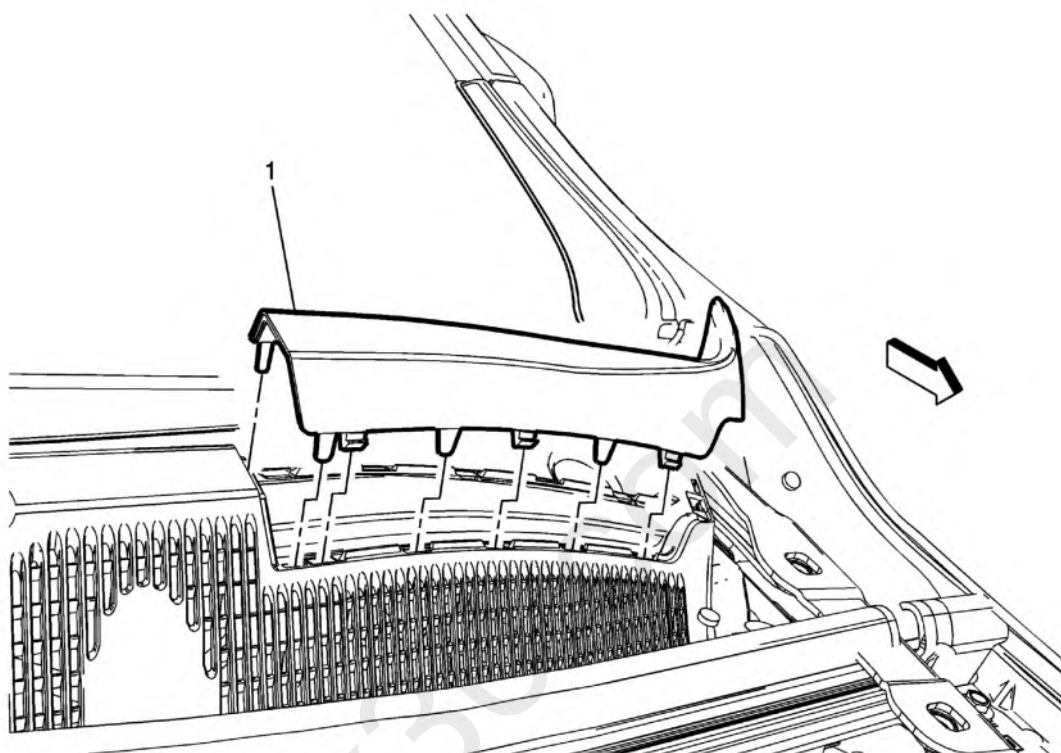


Fig. 29: Air Inlet Grille Panel Air Deflector Opening Cover

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Air Inlet Grille Panel Air Deflector Opening Cover Procedure Grasp the air inlet grille panel air deflector opening cover and disengage the retainers from the front and rear edge of the air inlet grille panel.

WINDSHIELD WIPER ARM REPLACEMENT

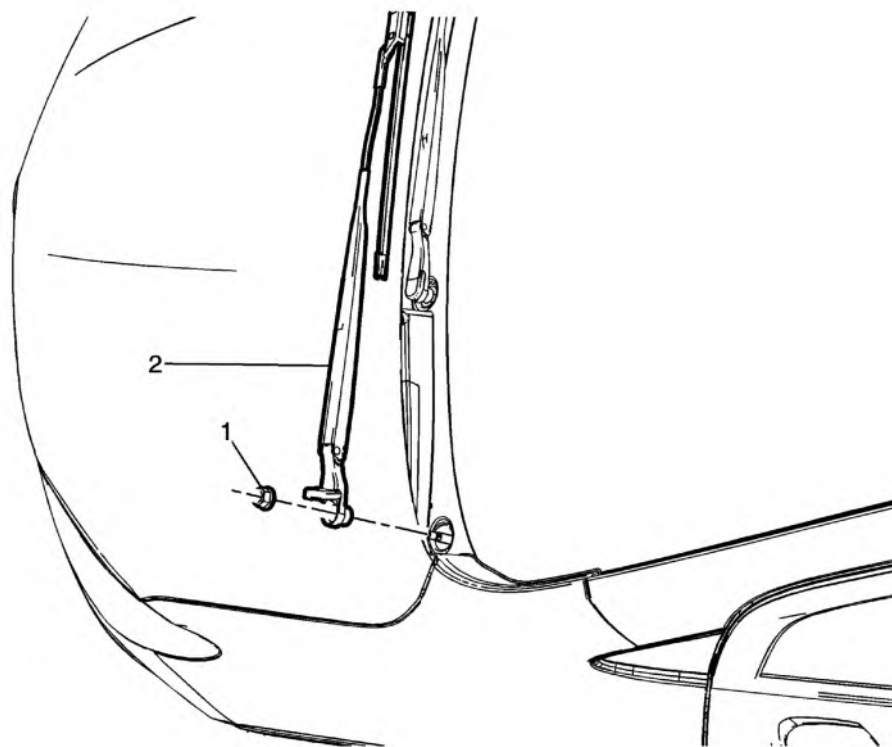


Fig. 30: Windshield Wiper Arm

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Open and support the hood assembly.	
1	Windshield Wiper Arm Nut CAUTION: Refer to Fastener Caution . Tighten 25 N.m (18 lb ft) NOTE: Use a small flat-bladed tool in order to open the finish cap on the wiper arm.
2	Windshield Wiper Arm Procedure 1. Grasp the windshield wiper arm near the pivot shaft and gently rock it side to side until the arm releases. 2. Clean the pivot shaft knurls with a soft wire brush before installing a new wiper arm. 3. Hold the wiper blade tip to the alignment marks on the windshield while torquing the wiper arm nut to specification.

REAR WINDOW WIPER ARM REPLACEMENT

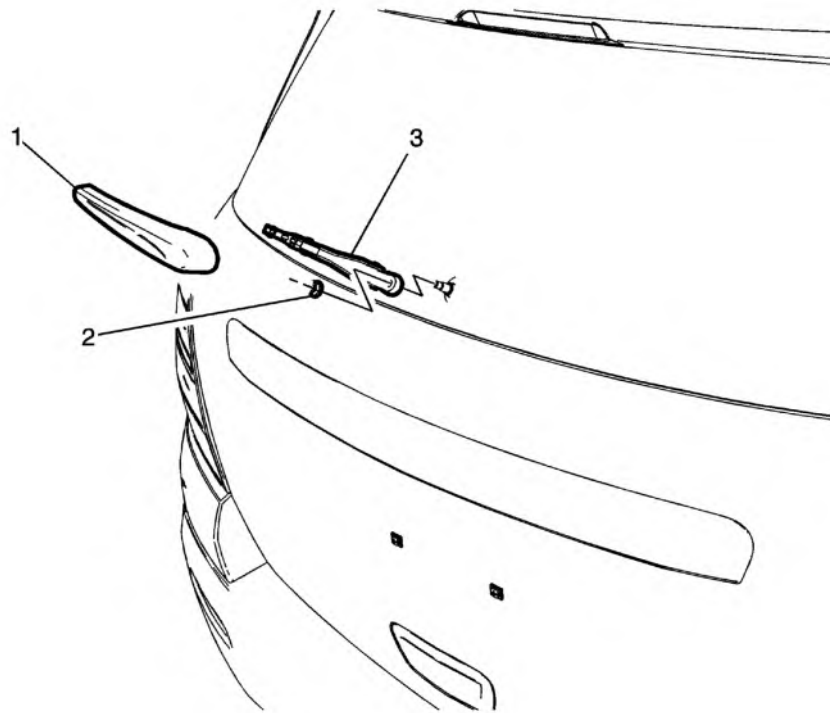


Fig. 31: Rear Window Wiper Arm

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Rear Window Wiper Arm Cover NOTE: Remove the wiper arm cover in order to access the wiper arm nut.
2	Rear Window Wiper Arm Nut CAUTION: Refer to Fastener Caution . Tighten 10 N.m (89 lb in)
3	Rear Window Wiper Arm Procedure 1. Remove the rear window wiper arm. 2. Clean the knurls on the rear wiper motor pivot shaft with a soft wire brush. 3. Electrically park the rear window wiper arm motor. 4. Position the rear window wiper arm to the pivot shaft and rear window. 5. Align the rear window wiper blade to the lower blackout edge. 6. Hold the rear window wiper blade in position while securing the rear window wiper arm nut. Special Tools J-39637 Wiper Arm Puller For equivalent regional tools, refer to Special Tools

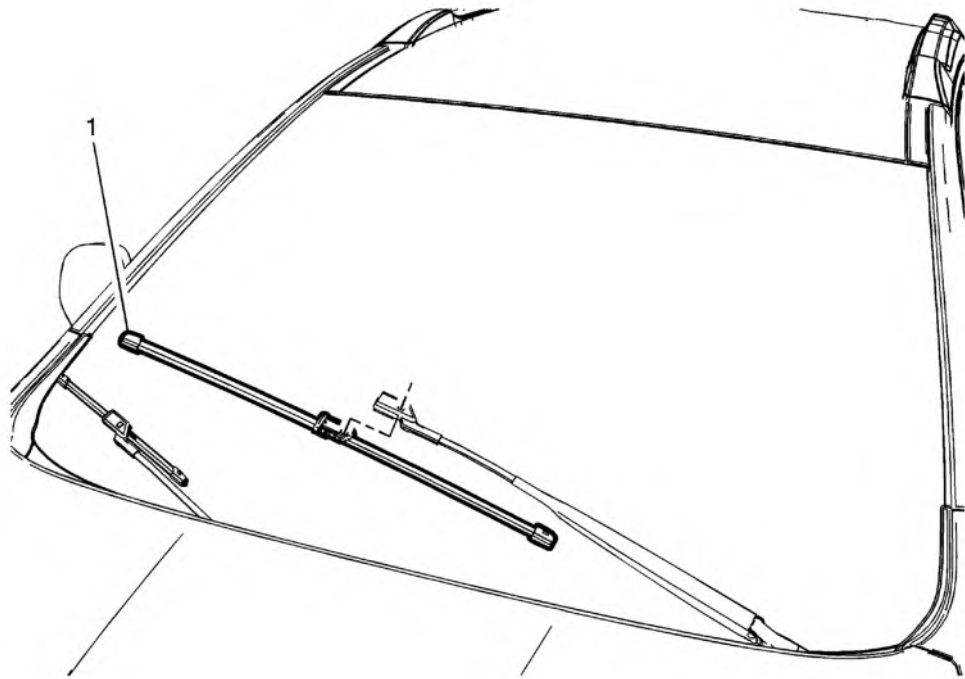


Fig. 32: Windshield Wiper Blade

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Windshield Wiper Blade Assembly Procedures 1. Lift the windshield wiper arm off the windshield to the service up position. 2. Depress the windshield wiper arm tab at the small square hole in the windshield wiper arm. 3. Rotate the windshield wiper blade slightly downward and slide the windshield wiper blade assembly from the windshield wiper arm. 4. Gently return the windshield wiper arm to the windshield. 5. Install a new windshield wiper blade.

REAR WINDOW WIPER BLADE REPLACEMENT

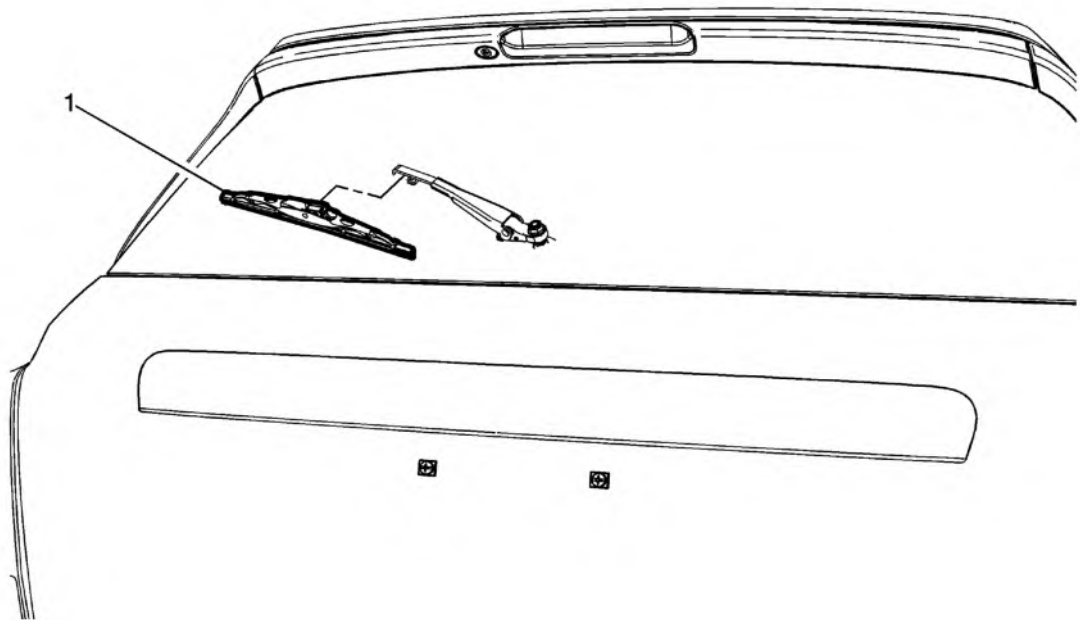


Fig. 33: Rear Window Wiper Blade
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Rear Window Wiper Blade Assembly Procedure 1. Remove the rear window wiper arm cover. 2. Lift the rear window wiper arm away from the rear liftgate window. 3. Depress the tab under the wiper blade and pull the blade from the wiper arm sheep hook. 4. Rotate slightly the bottom edge of the rear window wiper blade away from the underside of the arm. 5. Remove the rear window wiper blade from the inside radius of the rear window wiper arm. 6. On reinstallation the wiper blade is fully secured to the wiper arm when an audible click noise is heard.

WINDSHIELD WIPER MOTOR REPLACEMENT

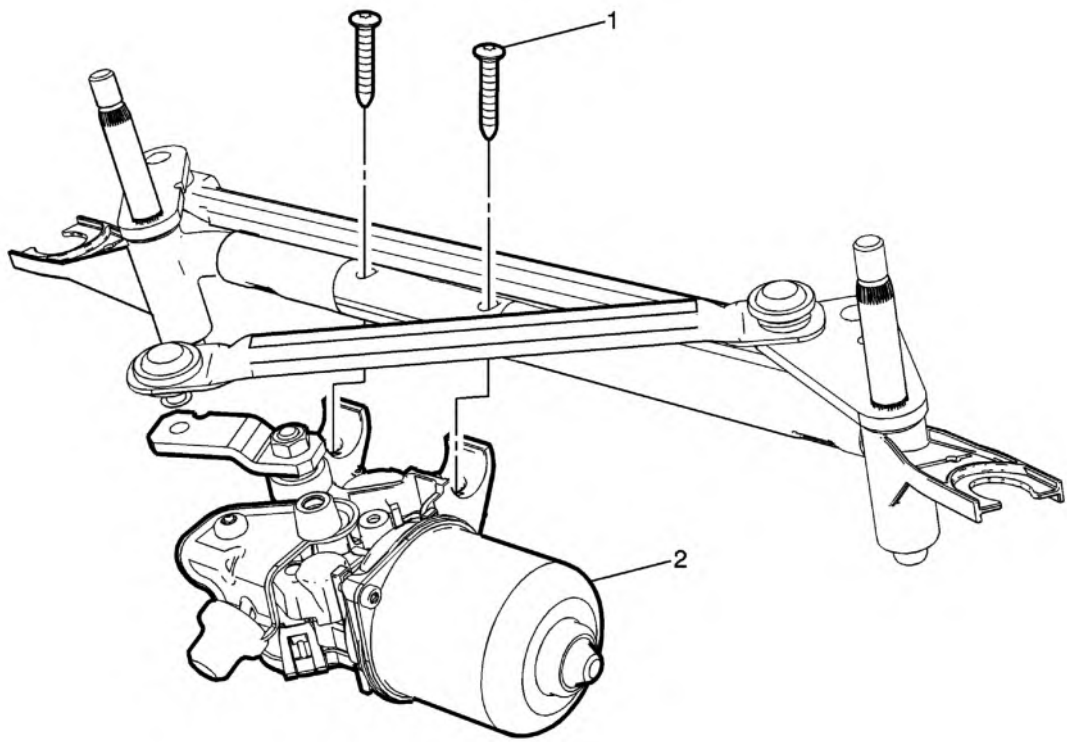


Fig. 34: Windshield Wiper Motor

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Remove the air inlet grille panel. Refer to Air Inlet Grille Panel Replacement (Chevrolet)Air Inlet Grille Panel Replacement (Buick). 2. Remove the windshield wiper transmission. Refer to Windshield Wiper Transmission Replacement	
1	Windshield Wiper Motor Bracket Screw (Qty: 2) CAUTION: Refer to Fastener Caution .

Callout	Component Name
2	Windshield Wiper Motor Procedure 1. Use a wiper linkage separator or similar tool, separate the transmission drive link from the wiper motor crank arm ball stud. 2. Remove the windshield wiper motor from the wiper transmission. 3. Position the new windshield wiper motor to the transmission. 4. Align the transmission links to the wiper motor crank arm. 5. Use a wiper linkage installer or similar tool, to install the transmission drive link onto the wiper motor crank arm ball stud. NOTE: Apply a small amount of grease to the inner cup on the transmission link to aid in installation. Special Tools • J-39232 Wiper Linkage Separator • J-39529 Wiper Linkage Installer For equivalent regional tools. Refer to Special Tools

REAR WINDOW WIPER MOTOR REPLACEMENT

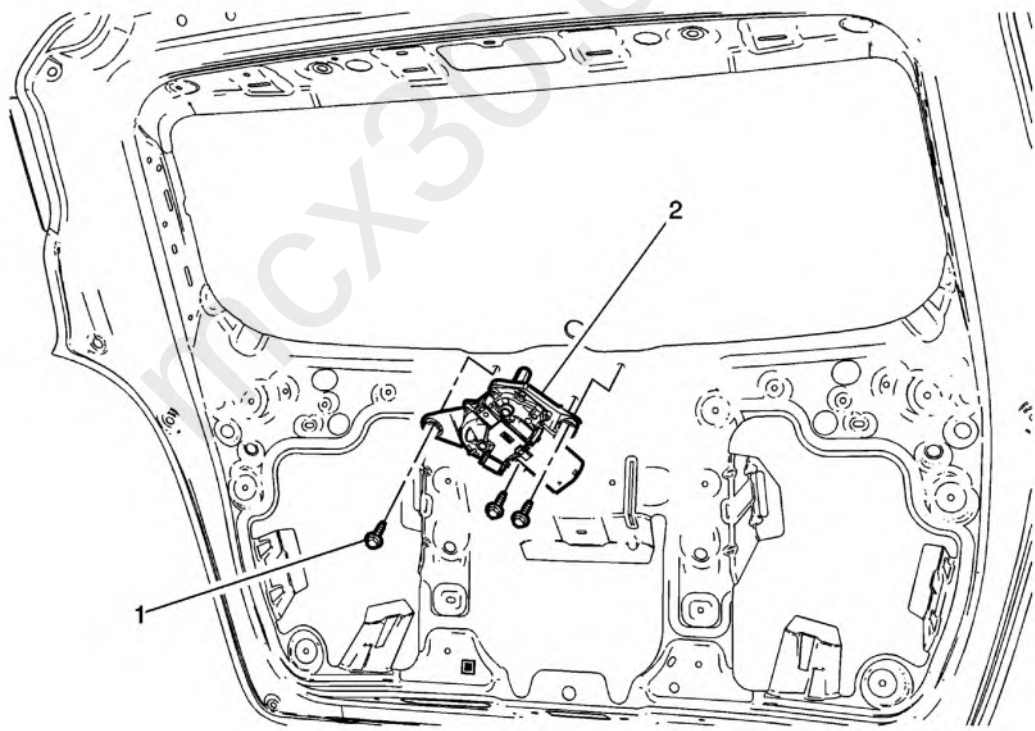


Fig. 35: Rear Window Wiper Motor
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name

Callout	Component Name
Preliminary Procedure 1. Open and support the liftgate assembly. 2. Remove the rear window wiper arm assembly. Refer to Rear Window Wiper Arm Replacement. 3. Remove the rear liftgate lower trim finish panel. Refer to Liftgate Lower Trim Finish Panel Replacement. 4. Disconnect the rear window wiper motor electrical connector.	
1	Rear Window Wiper Motor Bolt (Qty: 3) CAUTION: Refer to Fastener Caution . Tighten 9 N.m (80 lb in)
2	Rear Window Wiper Motor Procedure 1. Pull the rear window wiper motor inward from the rear liftgate. 2. Inspect the rear window wiper motor window grommet for damage. Replace if needed.

WINDSHIELD WIPER TRANSMISSION REPLACEMENT

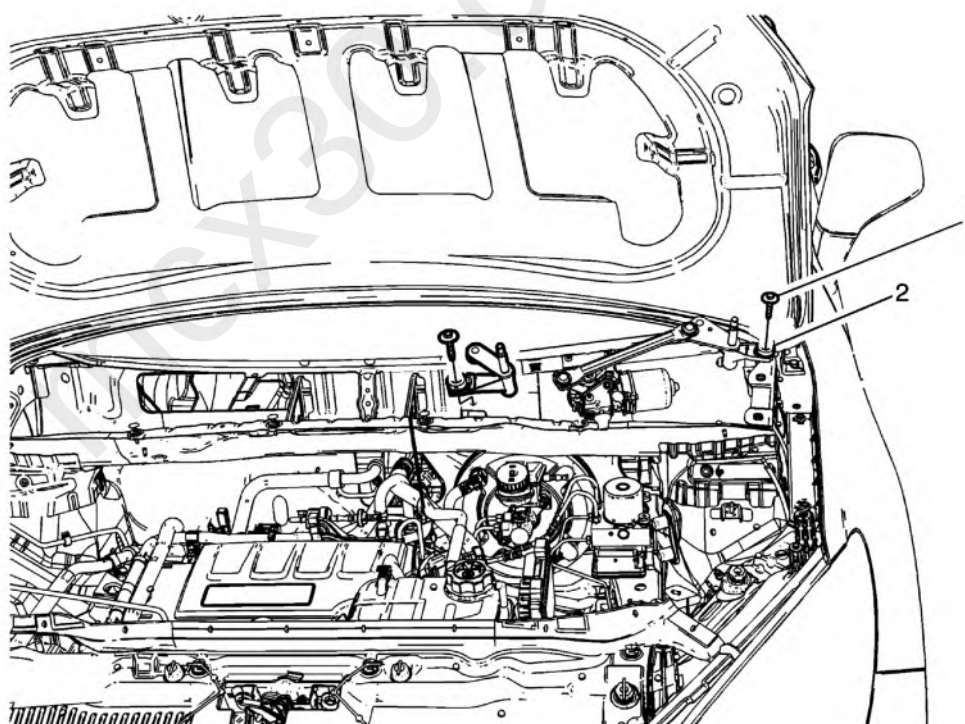


Fig. 36: Windshield Wiper Transmission

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Open and support the hood assembly. 2. Remove the air inlet grille panel. Refer to Air Inlet Grille Panel Replacement (Chevrolet)Air Inlet Grille Panel Replacement (Buick).	

Callout	Component Name
1	Windshield Wiper Transmission Bolt (Qty: 2) CAUTION: Refer to Fastener Caution . Tighten 9 N.m (80 lb in)
2	Windshield Wiper Transmission Procedure 1. Lift the windshield wiper transmission from the plenum brackets. 2. Disconnect the electrical connector from the windshield wiper motor. 3. Remove the windshield wiper transmission from the plenum.

WINDSHIELD OUTSIDE MOISTURE SENSOR COVER REPLACEMENT (BUICK)

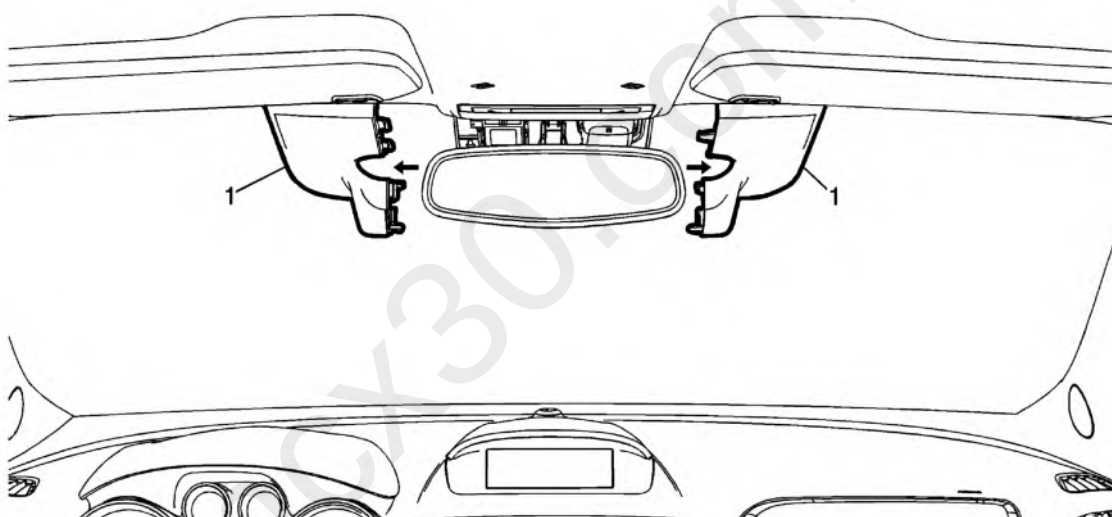


Fig. 37: Windshield Outside Moisture Sensor Cover (Encore).

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Windshield Outside Moisture Sensor Cover Procedure Grasp the cover in the center and gently slide cover apart.

WINDSHIELD OUTSIDE MOISTURE SENSOR COVER REPLACEMENT (CHEVROLET)

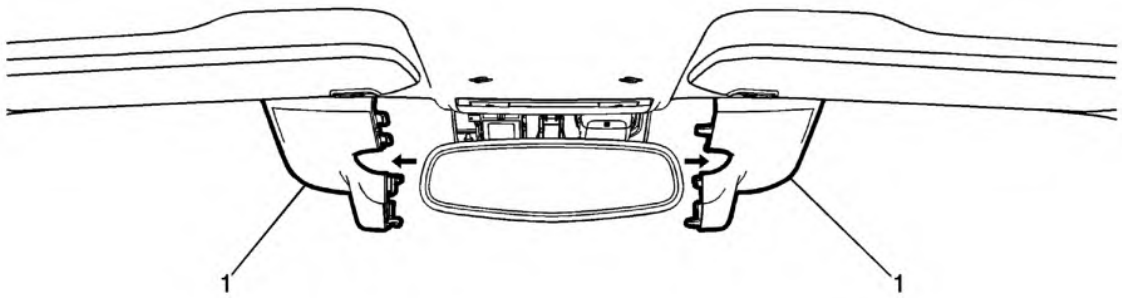


Fig. 38: Windshield Outside Moisture Sensor Cover (Trax)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Windshield Outside Moisture Sensor Cover Procedure Grasp the cover in the center and gently slide cover apart.

WINDSHIELD OUTSIDE MOISTURE SENSOR REPLACEMENT

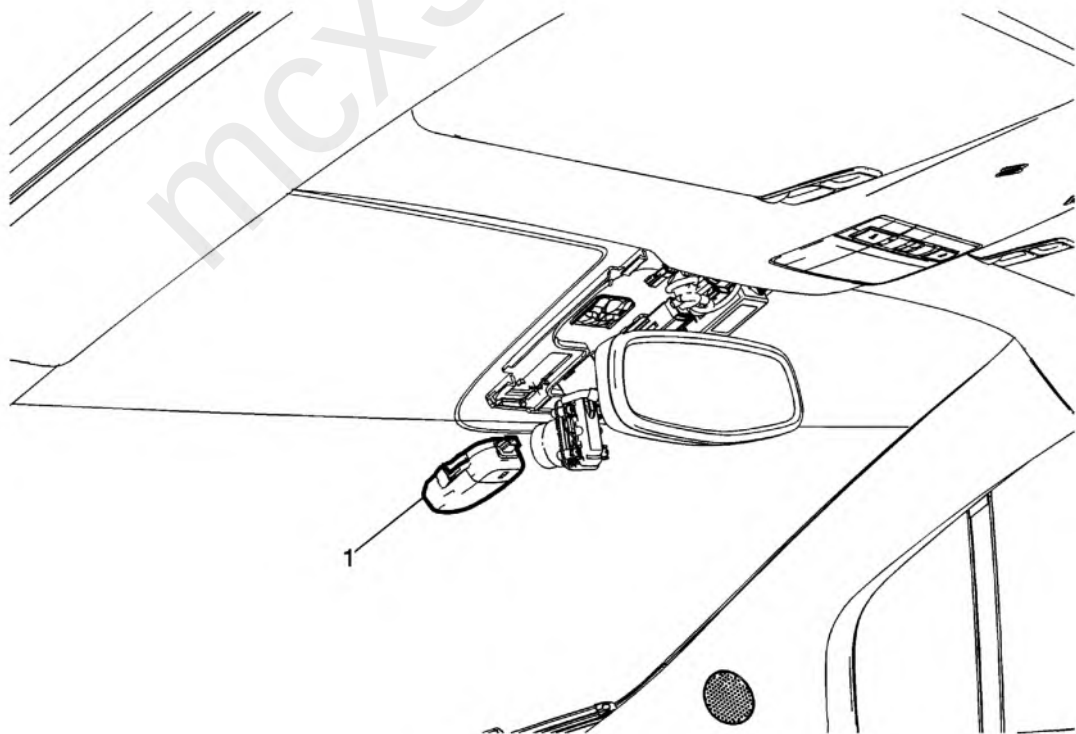


Fig. 39: Windshield Outside Moisture Sensor

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name

Callout	Component Name
Preliminary Procedure 1. Remove the outside moisture sensor cover. Refer to Windshield Outside Moisture Sensor Cover Replacement (Buick)Windshield Outside Moisture Sensor Cover Replacement (Chevrolet). 2. Disconnect the electrical connector at the top side of the windshield outside moisture sensor.	
1	Windshield Outside Moisture Sensor Assembly Procedure 1. Pinch the tabs on both outer edges of the windshield outside moisture sensor. 2. Push the windshield outside moisture sensor upward from the windshield base. 3. Remove the windshield outside moisture sensor from the vehicle.

WINDSHIELD WIPER ARM ADJUSTMENT

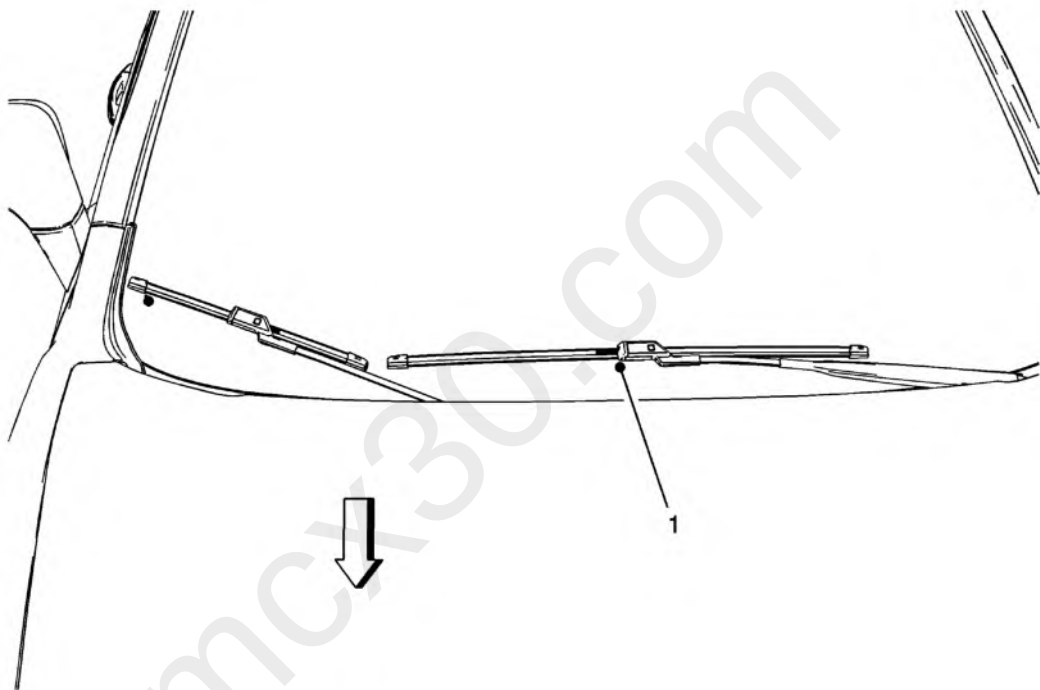


Fig. 40: Windshield Wiper Arm

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Windshield Wiper Arm Procedure 1. Lubricate the windshield with windshield washer fluid. 2. Run the windshield wipers and turn off the windshield wipers. 3. Ensure the windshield wipers are in the full park position. 4. Inspect the windshield wipers for proper position to the circle on the windshield. 5. Realign the windshield wiper arm to the circle if required. Refer to Windshield Wiper Arm Replacement.

DESCRIPTION AND OPERATION

WIPER/WASHER SYSTEM DESCRIPTION AND OPERATION

The wiper/washer system consists of the following electrical components:

- Windshield Wiper Relay
- Windshield Wiper Speed Control Relay
- Windshield Washer Pump Relay
- Windshield Washer Pump
- Windshield Wiper Motor
- Windshield Wiper/Washer Switch
- Windshield Wiper Motor Fuse
- Windshield Washer Pump Fuse
- Body Control Module (BCM)
- Rear Wiper Motor
- Rear Wiper Motor Fuse
- Rear Wiper Relay
- Rear Washer Pump Relay
- Rear Washer Pump Fuse
- Rain Sensor

Windshield Wiper System

The body control module (BCM) determines the front wipe/wash system mode of operation by monitoring several signals from the Windshield Wiper/Washer Switch as indicated in the wiper switch.

The Windshield Wiper/Washer Switch receives a reference ground signal from the BCM. Each input of the BCM provides a switched battery pull-up for each front wiper/washer switch output signal it receives. All the BCM inputs are recognized as active when the wiper switch provides a path to the referenced ground signal. The first signal received by the BCM is the result of 6 resistors in the front wiper switch configured as a resistor ladder network. This signal is connected to a BCM analog to digital input. Depending on the function selected (High, Low, Intermittent 1 thru 5, Mist, Off), the Windshield Wiper/Washer Switch connects a different set of resistors into the circuit resulting in different voltages appearing on the BCM A/D input. By monitoring this voltage, the BCM determines how to control the wiper motor On/Off Relay. It should be noted that High, Low, and Mist all have the same value on this signal circuit. The second signal received from the front wiper switch is active only when the front wiper switch is in the high speed wiper position. When the wiper switch is not in the high speed position, the switch is open and the signal circuit is pulled to battery by the BCM. When the wiper switch is in the high speed position, the switch pulls the circuit low. The BCM determines how to control the Wiper high/low speed relay from this input. The third signal received from the front wiper switch is from the momentary windshield wash control switch. When the washer switch is not active the switch is open and the signal circuit is pulled to battery by the BCM. When the washer switch is active, the switch pulls the circuit low. The BCM controls the windshield wash and windshield wash activated wiper operation based on this input.

The BCM controls Windshield Wiper Motor operation through two output signals and the monitoring of one input signal. The two outputs (one high side drive, one low side drive) are used to control two external wiper motor relays: Windshield Wiper Motor on/off relay: which provides the wiper motor with battery power when it is activated by the high side drive signal (switched battery) from the BCM. When left deactivated, the normally closed contacts provide a ground to the wiper motor. Wiper high/low speed relay: when activated by a low side drive signal (ground) from the BCM, it switches the power supplied by the wiper motors on/off relay to the motors high speed input. When left deactivated, the normally closed contacts connect the power supplied by the wiper motors on/off relay to the motors low speed input. The input used by the BCM is from the park switch located in the wiper motor assembly. When the wiper blades are not in the park position, the wiper park switch is open and the circuit is pulled up to battery by the BCM. When the wiper blades are in the park position at the bottom of the glass, the wiper park switch closes to ground pulling the park signal circuit low.

To initiate low speed operation, the BCM only energizes the front Windshield Wiper Motor on/off relay. This allows battery voltage from the wiper fuse to be applied through the switched contacts of the wiper motor on/off relay, through the normally closed contacts of the wiper high/low speed relay, to the low speed control circuit of the windshield wiper motor.

Redundant high speed switch pass through. The BCM provides redundant circuitry which places battery power on its wiper motor on/off relay output with activation of its low assertion high speed wiper switch input. The BCM shall be capable of doing this, even if the module has lost all microprocessor control. This redundant circuit shall supply power while in the RUN and CRANK power modes. However; while in the CRANK power mode, the pass through shall only be active if the BCM is NOT in a computer operating properly state.

To initiate high speed operation, the BCM energizes both the Windshield Wiper Motor on/off relay and the wiper high/low speed relay. This allows battery voltage from the wiper fuse to be applied through the switched contacts of the wiper motor on/off relay, through the switched contacts of the wiper high/low speed relay, to the high speed control circuit of the windshield wiper motor.

Parking the wiper motor. In order to perform an accurate read of the park switch and to ensure the wipers will come to rest while still in the park position, parking of the wipers only occurs while in a low speed wiper mode. This requires that if the wipers are performing a high speed wiper operation at the time they are required to park, the BCM shall transition the Wipers to low speed by deactivating the wiper high/low relay before attempting to park. In order to park the wipers, the BCM monitors the park circuit until the park switch pulls the park circuit to ground. At this time, the BCM will immediately deactivate the wiper motor on/off relay. The relay contacts will switch back to their normally closed position and will apply ground to the wiper motor power inputs through the normally closed contacts of the wiper high/low relay. This deactivates and dynamically brakes the wiper motor in the park position. When the wiper switch is turned to the OFF position while the wiper motor is somewhere in mid-cycle, the BCM will continue to operate the motor until the wipers reach the park position. If the BCM is running the wiper motor and does not see a state transition of the park switch after 8 s, the wipers will stop immediately when the wiper switch is turned to OFF. If the ignition is turned OFF while the wipers are in mid-cycle, the wipers will stop immediately, regardless of position. The BCM will park the wipers next time the ignition is turned ON.

The windshield wiper system MIST operation is identical to LOW speed operation, except that the MIST switch is a press and release type switch. When the wiper switch is moved to the MIST position and released, low speed wiper motor operation is started and will continue until 1 cycle is complete. If the wiper switch is moved to the MIST position and held, the wiper motor will operate in the LOW speed mode until the switch is released.

Windshield wiper intermittent operation is a low speed wiper motor function with a variable delay interval between the wiper motor cycles. The duration of the delay is controlled by the front wiper control switches intermittent 1 through intermittent 5 settings. The wiper operation is as follows

1. The BCM will initiate a single wipe by activating its windshield wiper ON/OFF relay output.
2. At the completion of a single wipe, the BCM will park the wipers as described above.
3. The BCM will then pause the wipers in their park position for the time duration associated with intermittent delay switch setting.
4. When the delay time expires repeat Steps 1 and 3 until the system is turned off or taken out of intermittent mode. If the wiper switch is moved from a longer delay interval to a shorter delay interval, the BCM will command an immediate wipe cycle and reset the delay timer to the shorter delay interval.

Intermittent wiper operation may be vehicle speed sensitive. When enabled, the speed compensated intermittent feature causes the intermittent wiper delay intervals to become shorter as a function of increased speed. As vehicle speed is reduced the intervals will become closer to the predetermined

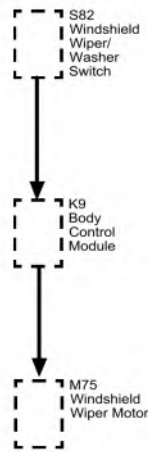
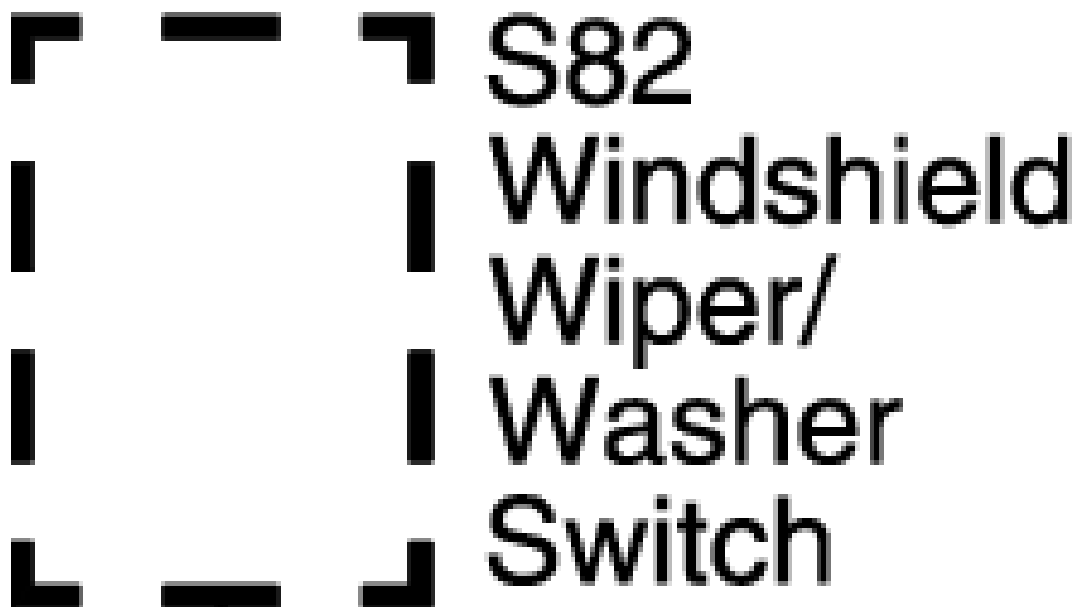


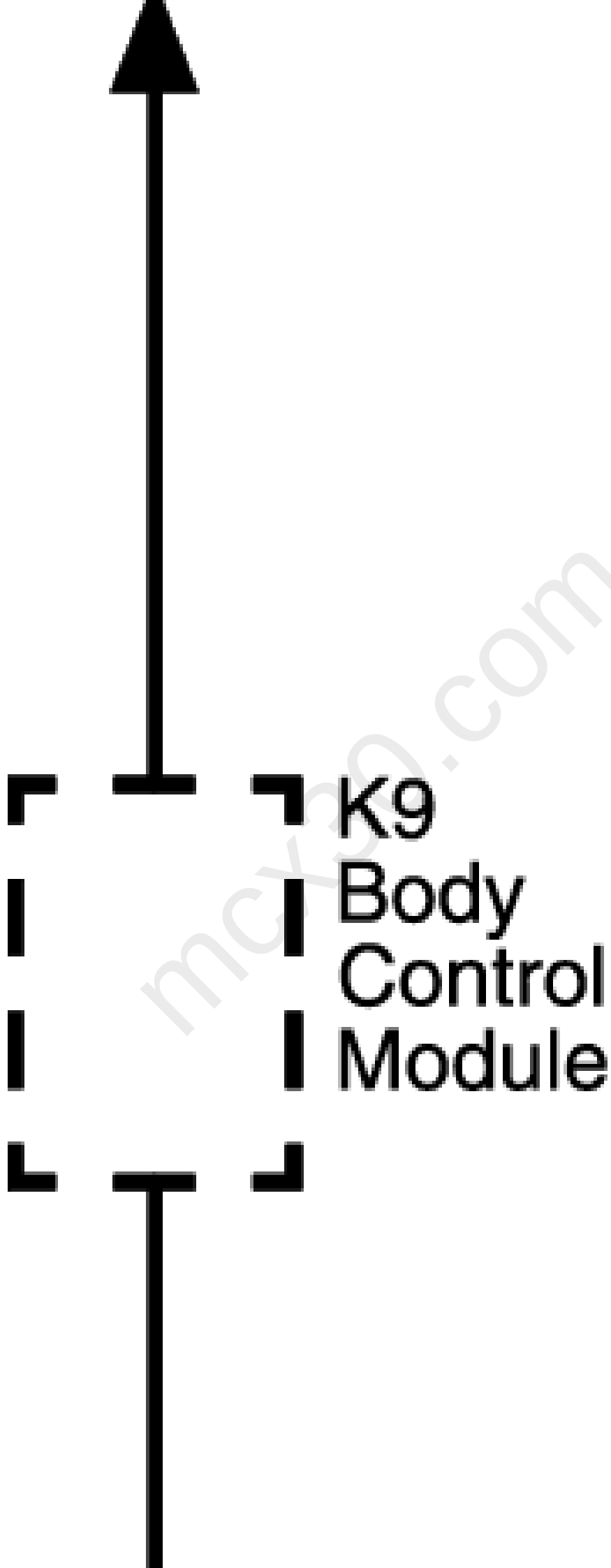
Fig. 41: Windshield Wiper System Block Diagram
 Courtesy of GENERAL MOTORS COMPANY

Windshield Washer System

The BCM controls the windshield wash operation and windshield wash activated wiper operation. When the BCM detects the activation of the momentary windshield wash control switch, it activates its washer pump relay drive output which supplies battery power to the coil of the washer pump relay. This energizes the relay, which switches battery power to the pump motor. The BCM will also activate continuous low speed windshield wipes as described above. Upon deactivation of the windshield wash control switch, the body control module (BCM) shall deactivate the wash motor and will also park the wiper motor as described above unless the drip wipe feature is enabled. On some vehicles the drip wipe feature will be enabled and cause the system to provide additional wiping of the windshield after the switch has been released and fluid is no longer being applied. The windshield washer switch feature may attempt to detect a stuck switch. When enabled, activation of the wash feature shall be limited to 10 seconds.

On vehicles with the Rear Wash feature a single reversing wash motor may be utilized for both the front and rear wash operation. In this system the wash motor is operated in one direction to spray fluid on the front windshield and then operated in the reverse direction to spray fluid on the rear window. The BCM Controls the reversing wash motor through two High Side Drive outputs. One controls the Windshield Wiper Motor Relay and one controls the Rear Wiper Relay.





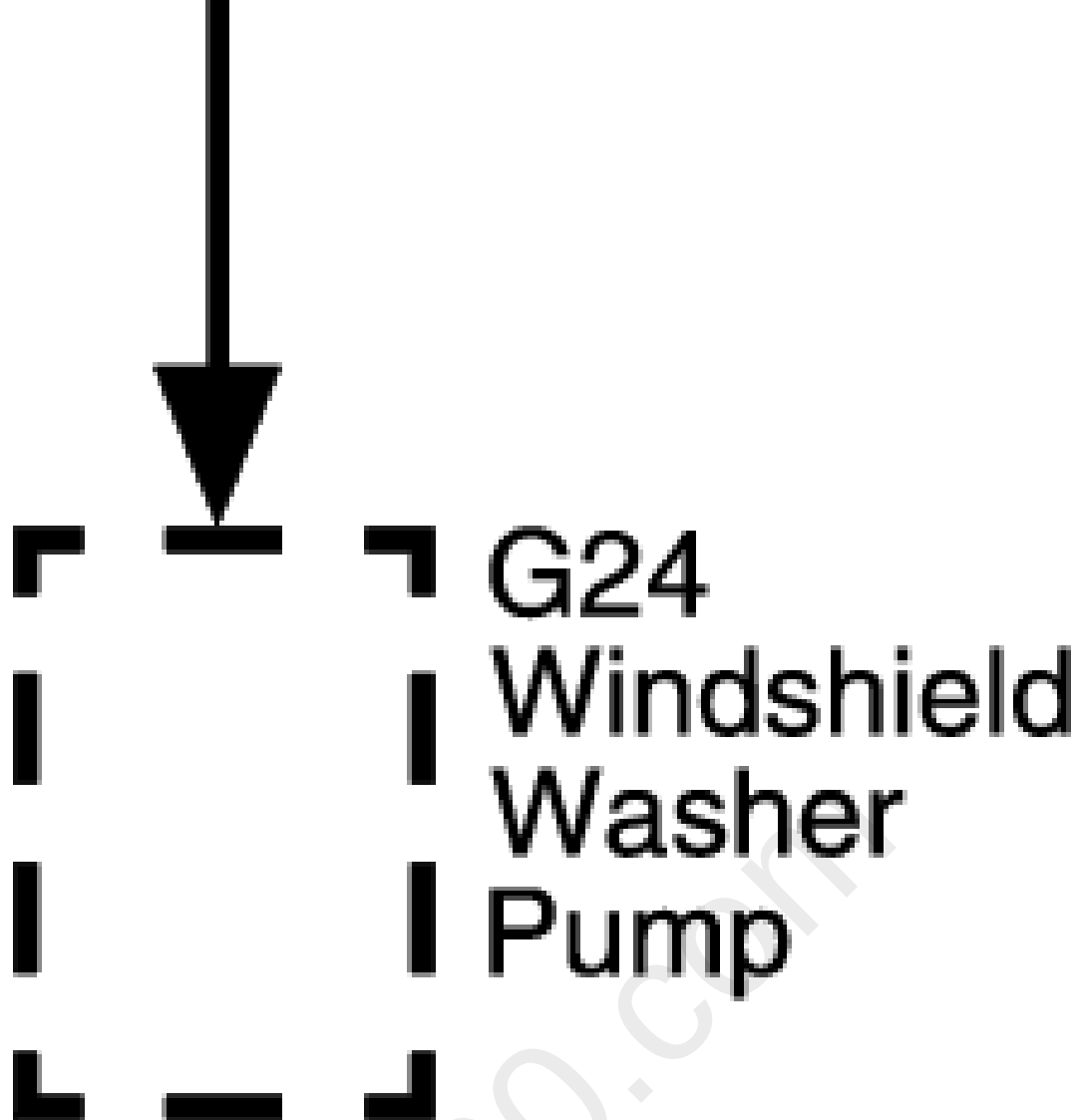
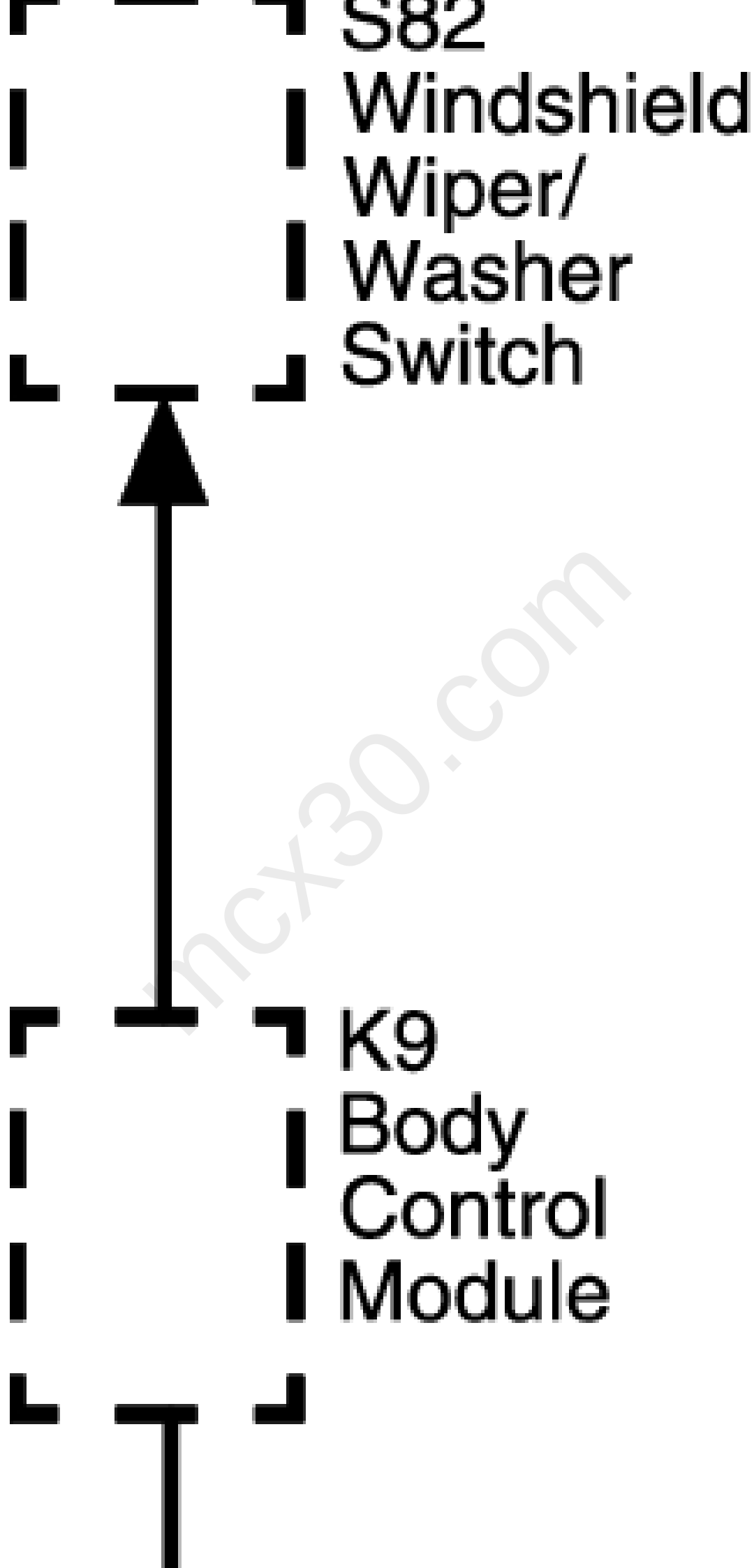


Fig. 42: Rear Wash System Block Diagram
Courtesy of GENERAL MOTORS COMPANY

Rear Wiper System

On vehicles equipped with a Rear Wiper, the BCM determines the Rear Wipe/Wash System Mode of Operation by monitoring the multiplexed output of the Windshield Wiper/Washer Switch. The Rear Wiper Relay uses a reference ground signal from the BCM. The BCM provides a switched Battery pull-up for the Rear Wiper Relay switch output signal it receives. All the BCM inputs are recognized as active when the Rear Wiper Relay switch provides a path to the referenced ground signal. The Rear Wiper/Washer signal received by the BCM is the result of 3 resistors in the Windshield Wiper/Washer Switch configured as a resistor ladder network. This signal is connected to a BCM Analog to Digital Input which also provides a switched Battery pull-up for the circuit. Depending on the function selected (Low, Intermittent, Off, Wash), the Rear Wiper Control Switch connects a different set of resistors into the circuit resulting in different voltages appearing on the BCM A/D input. By monitoring this voltage, the BCM determines how to control the Rear Wiper Relay and the Rear Washer Relay.

The BCM Controls the single speed Rear Wiper Motor by its Active High output to the external Rear Wiper Relay. When the BCM activates its output and applies Battery to the coil of the relay, the relay energizes, allowing Battery voltage from the fuse to be applied through the switched contacts of the Rear Wiper Relay to the Rear Wiper Motors control input. The motor then operates continuously at low speed. The BCM does not control the parking of the Rear Wiper Motor, it is self parking. When the BCM deactivates its output, the contacts of the Rear Wiper Relay switch back to ground which will be used by the wiper for Dynamic Braking. The Rear Wipers internal park switch and circuitry will sustain motor operation until the wiper arm has returned to its Park position.



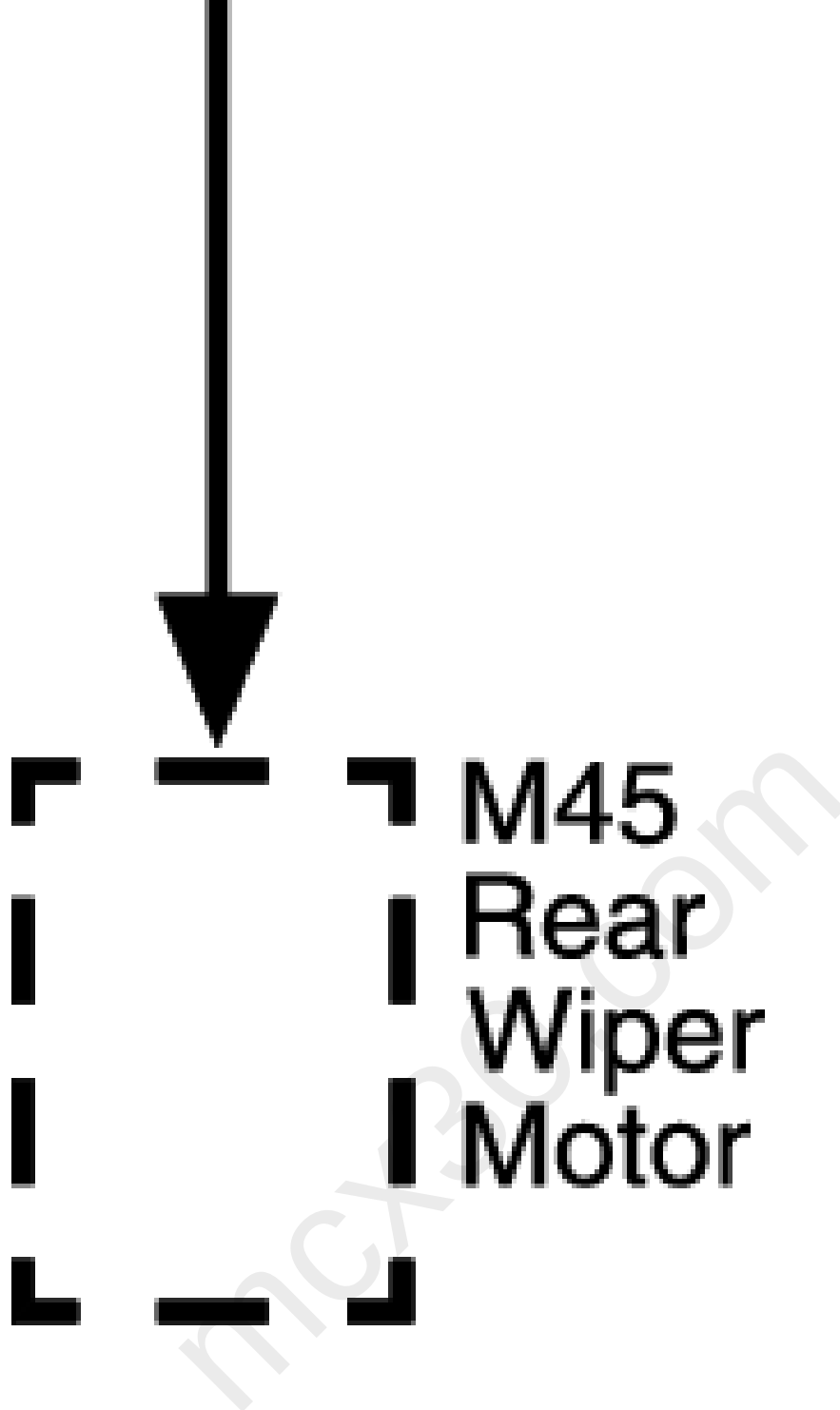
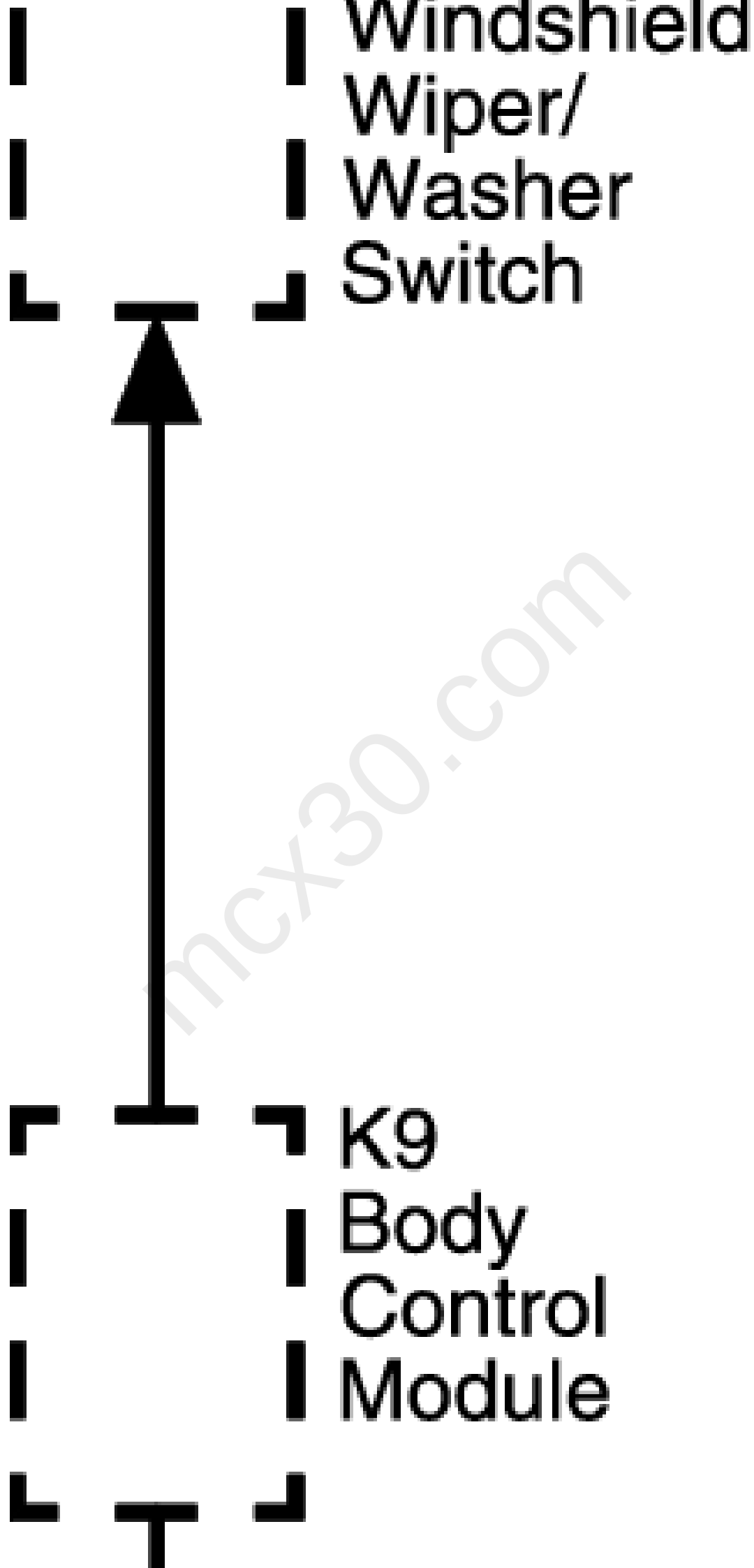


Fig. 43: Rear Wiper System Block Diagram
Courtesy of GENERAL MOTORS COMPANY

Rear Wash

When the Body Control Module detects that the Rear wiper/washer switch has activated the momentary Wash switch, it activates a High Side Drive output which supplies Battery to the coil of the Rear Washer Pump Relay. This energizes the Relay, which switches Battery Power to the Washer Pump Motor. The BCM will also activate continuous Low Speed Windshield Wipers as described above. The BCM software will attempt to detect a stuck Rear Wash Switch. A stuck Rear Wash Switch condition is detected if the Rear Wash Motor Relay Output has been continuously active for 10 seconds or more. Upon detecting this the BCM will fail soft the state of the Rear Wash Control to Inactive. This shall cause the System to perform as if the momentary Wash control had been released.

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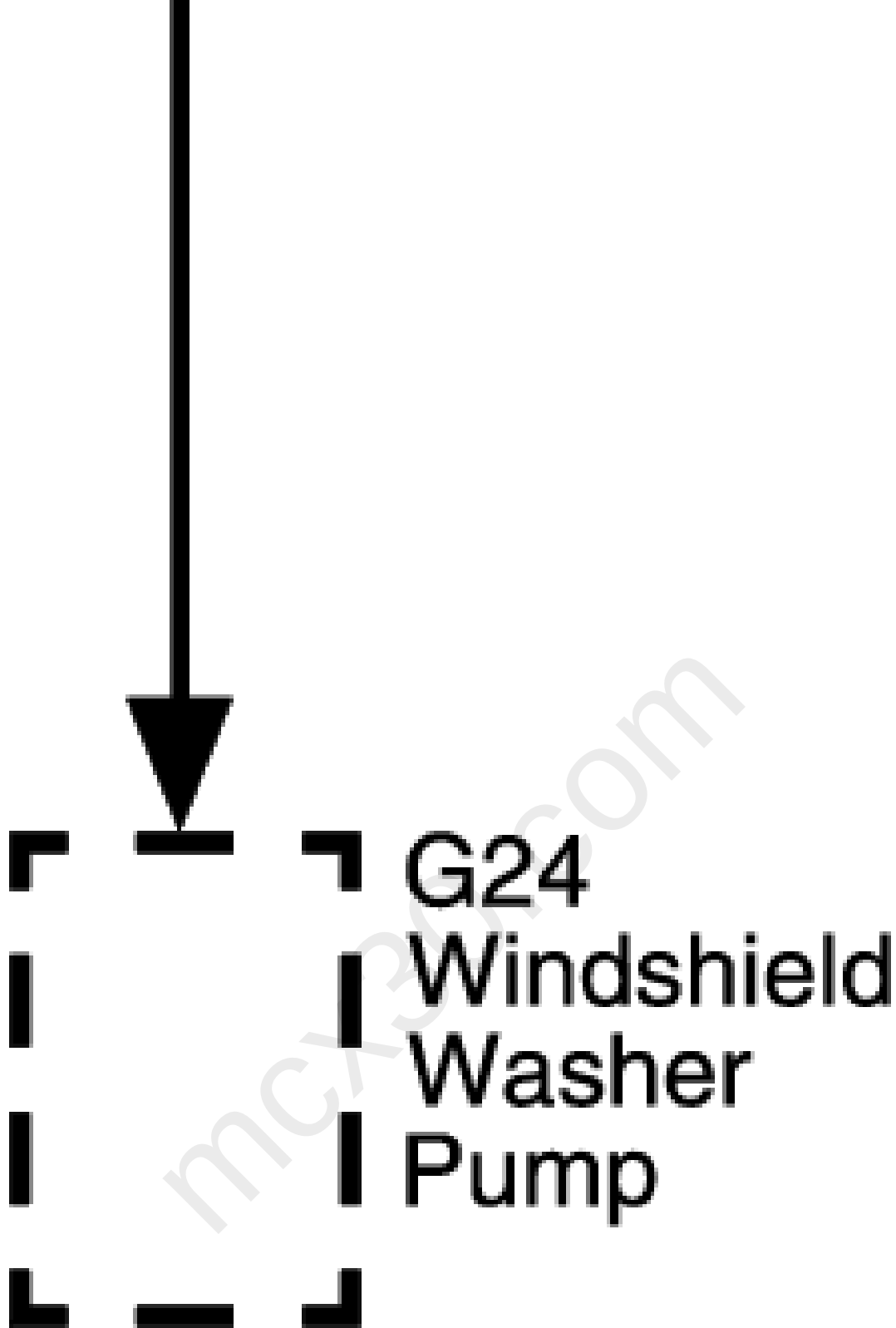
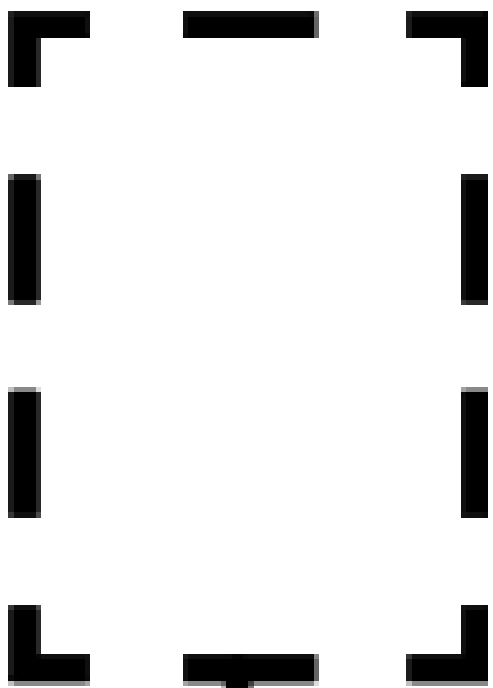


Fig. 44: Rear Wash System Block Diagram
Courtesy of GENERAL MOTORS COMPANY

Rain Sensor Indicator

B+ voltage is supplied to the Rain Sensor. Whenever the ignition is ON, or accessory positions, the body control module (BCM), sends the turn signal/multifunction switch status by using data communication. When a wipe cycle is needed, the Rain Sensor sends a data communication message to the BCM, requesting the wiper operation. The BCM commands the Windshield Wiper Motor wipe cycles. If at anytime a fault occurs between the Rain Sensor and BCM, the BCM will use the inputs from the turn signal/multifunction switch in the delay positions to operate the Windshield Wiper Motor at continuous variable delay intervals.



K9

Body
Control
Module

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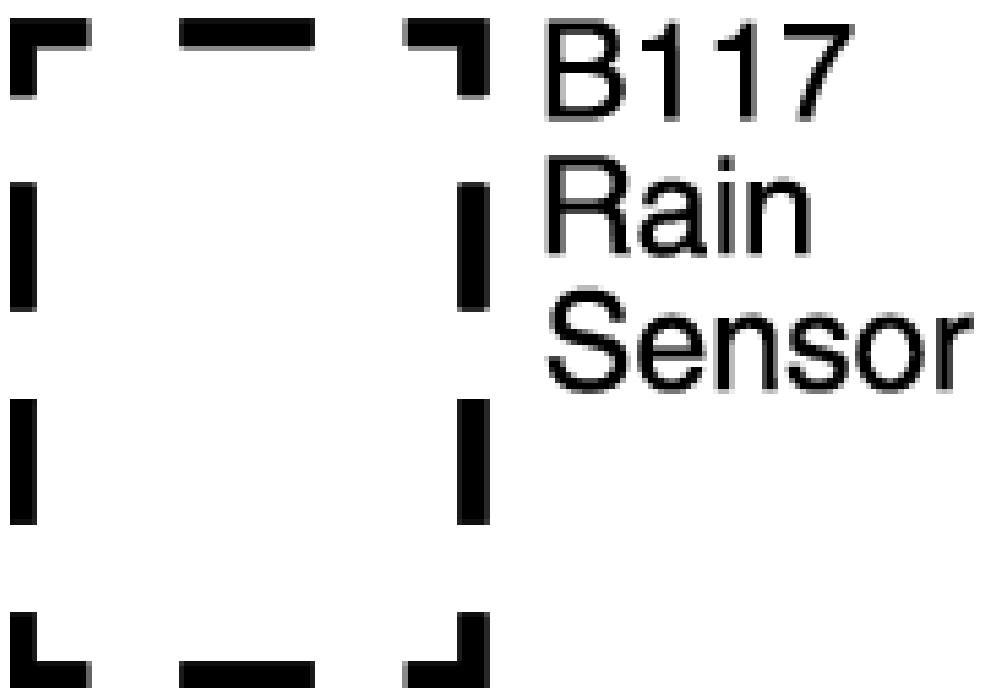


Fig. 45: Rain Sensor Indicator Block Diagram
Courtesy of GENERAL MOTORS COMPANY

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

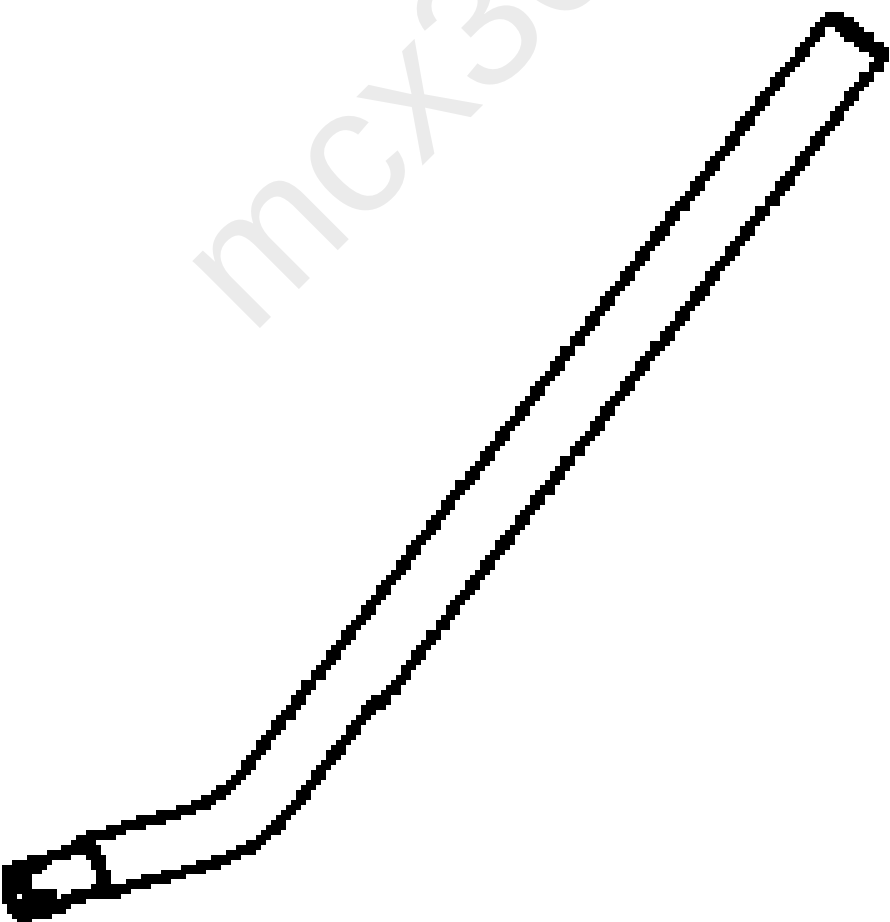
Illustration	Tool Number/Description
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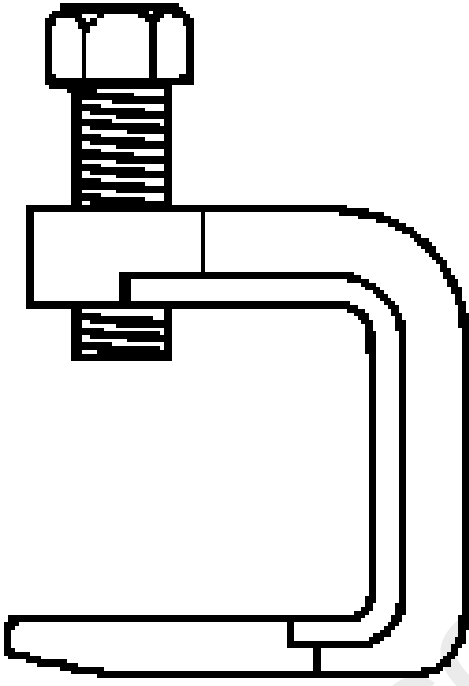
Illustration	Tool Number/Description
	BO-49385 BO-6626 KM-6626 S0201912 J-39673 Wiper Arm Puller

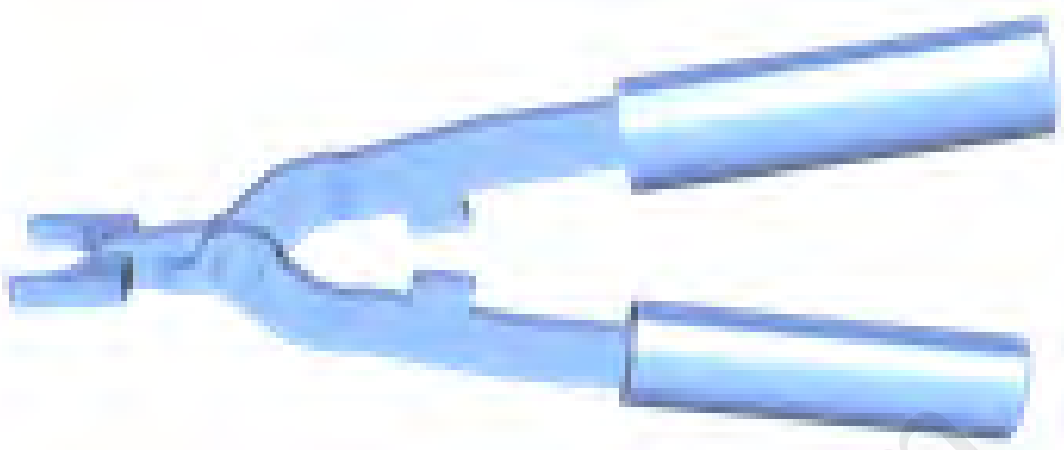
Illustration	Tool Number/Description
	B0-39232 J-39232 Wiper Linkage Separator

Illustration	Tool Number/Description
	B0-39529 J-39529 Wiper Linkage Installer