

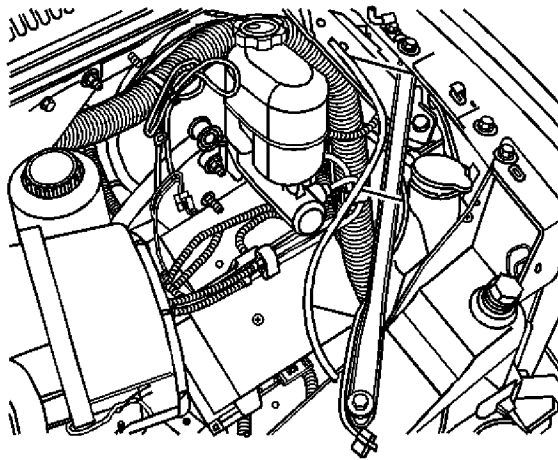
[2009 Chevrolet Express - AWD](#) | [Express, Savana \(VIN G/H\) Service Manual](#) | [Body Systems](#) | [Wipers and Washers](#) | [Specifications](#) | **Document ID: 1892892**

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Air Inlet Grille Panel Screws	1.7 N·m	15 lb in
Washer Solvent Container to Front End Panel Bolt	10 N·m	89 lb in
Wiper Arm Nuts	32 N·m	24 lb ft
Wiper Motor Cover Screws	3 N·m	26 lb in
Wiper Motor to Windshield Wiper Transmission	8 N·m	71 lb in
Windshield Wiper Transmission to Plenum Bolts	8 N·m	71 lb in

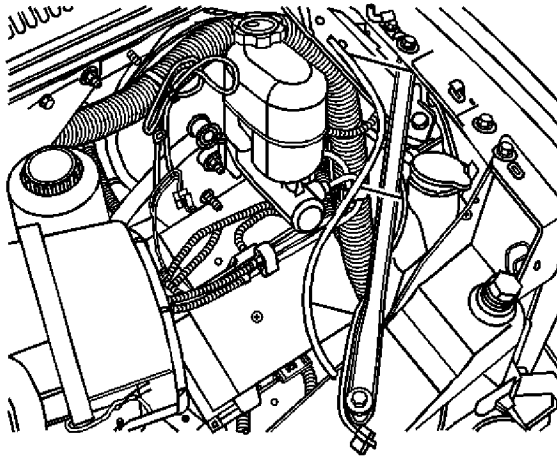
Windshield Washer Hose Replacement

Removal Procedure



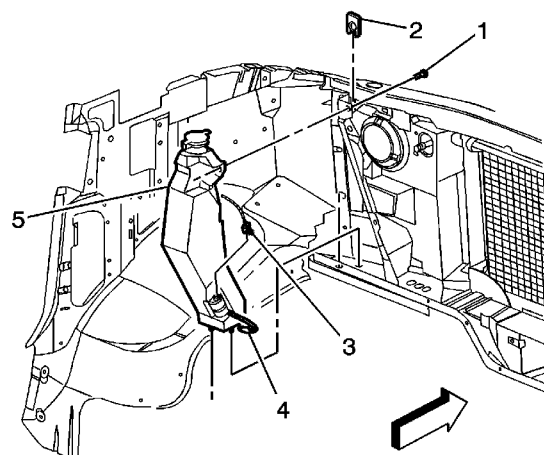
1. Open the hood.
2. Disconnect the washer hose from the wiper blades.
3. Remove the air inlet grille panel. Refer to [Air Inlet Grille Panel Replacement](#).
4. Disconnect the washer hose from the air inlet grille panel.
5. Remove the washer hose grommet from the grille panel.
6. Disconnect the washer hose from the plastic cover.
7. Disconnect the washer hose from the washer pump.
8. Remove the washer hose from the vehicle.

Installation Procedure



1. Position the washer hose to the vehicle.
2. Lubricate the washer hose ends with washer solvent and install to the washer hose end to the washer pump.
3. Connect the washer hose to the washer pump.
4. Install the washer hose grommet to the slot in the air inlet grille panel.
5. Connect the washer hose to the air inlet grille panel.
6. Connect the washer hose to the plastic panel.
7. Install the air inlet grille. Refer to [Air Inlet Grille Panel Replacement](#).
8. Connect the washer hose to the wiper blades.
9. Fill the washer solvent container.
10. Close the hood.

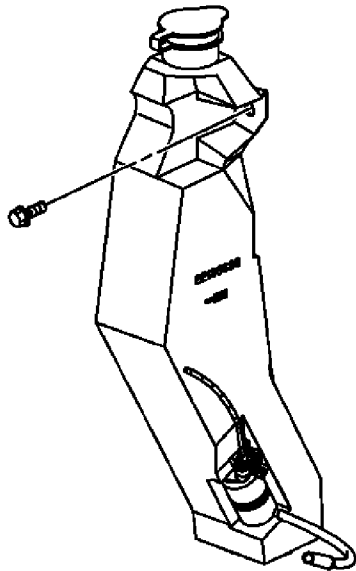
Windshield Washer Solvent Container Replacement



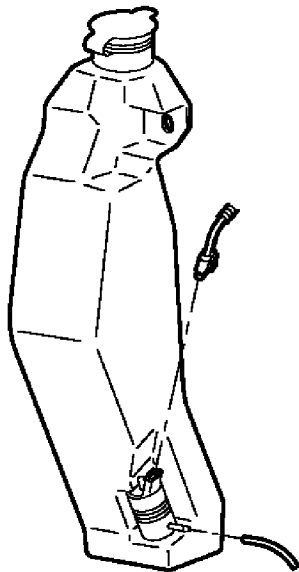
Callout	Component Name
Preliminary Procedure 1. Open and support the hood. 2. Place a clean container under the work area prior to removing the windshield washer pump hose from the pump.	
1	Front End Panel Bolt Caution: Refer to Fastener Caution in the Preface section. Tighten 10 N·m (89 lb in)
2	Windshield Washer Front End Panel Nut
3	Windshield Washer Pump Electrical Connector Tip Disconnect the electrical connector and position out of the way.
4	Windshield Washer Pump Hose
5	Windshield Washer Solvent Container Tip Lift the container from the locating holes in the front end lower panel support.

Washer Pump Replacement

Removal Procedure



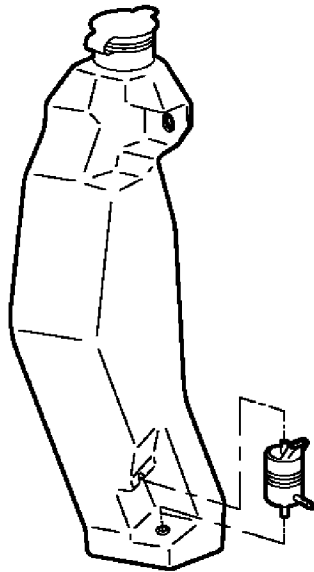
1. Open and support the hood.
2. Remove the upper fender support.
3. Remove the bolt from the washer solvent container.



4. Lift the washer solvent container up enough past the horns in order to access the washer hose and the electrical connector.

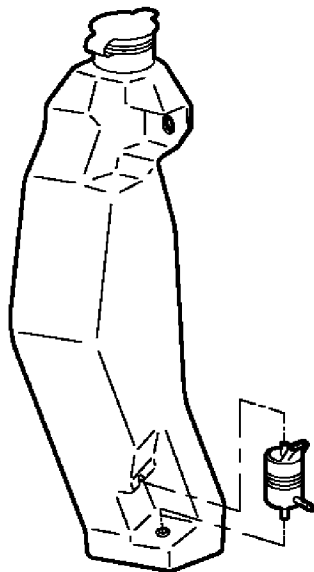
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5. Disconnect the electrical connector from the washer pump.
6. Disconnect the washer hose from the washer pump.
7. Place a cap on the washer pump to prevent any washer solvent loss.
8. Remove the washer solvent container from the vehicle.
9. Drain the washer solvent into a suitable container.

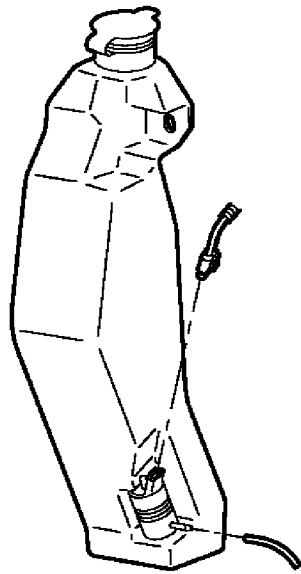


10. Remove the washer pump from the washer solvent container.
11. Remove the washer solvent container cap.

Installation Procedure

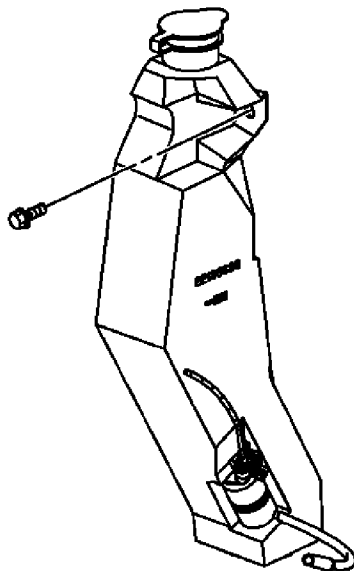


1. Install the new washer pump into the washer solvent container.
2. Install the washer solvent container cap.



3. Connect the electrical connector to the new washer pump.
4. Connect the washer hose to the new washer pump.
5. Position the washer solvent container into the locating holes in the chassis.

Caution: Refer to [Fastener Caution](#) in the Preface section.

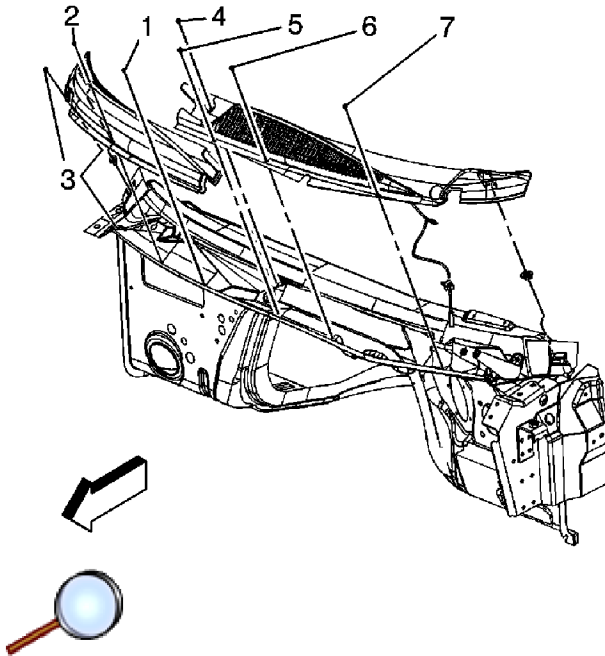


6. Install the washer solvent container with the bolt and tighten to **10 N·m (89 lb in)**.
7. Install the upper fender support.
8. Fill the washer solvent container.
9. Close the hood.

Air Inlet Grille Panel Replacement

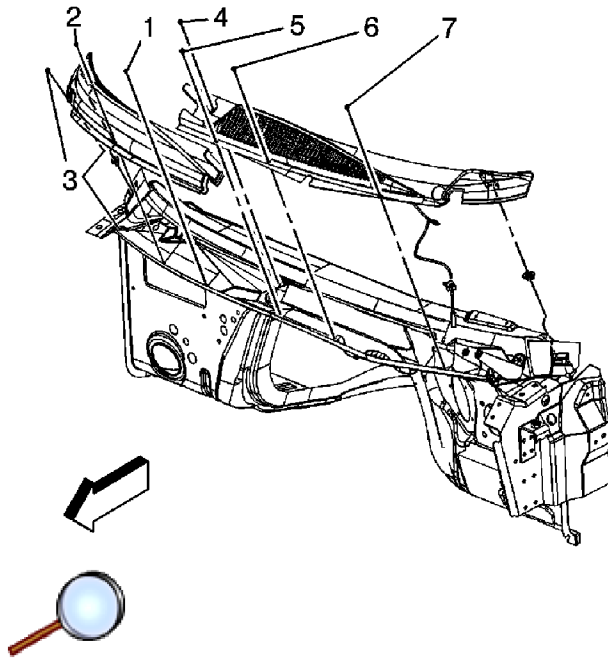
Removal Procedure

1. Raise and support the hood.



2. Remove the screws (1-7), retaining the air inlet grille panels to the cowl vent.
3. Remove the wiper arms from the vehicle. Refer to [Windshield Wiper Arm Replacement](#).
4. Disconnect the washer hoses from the air inlet grille panel.
5. Remove the air inlet grille panels from the vehicle.

Installation Procedure

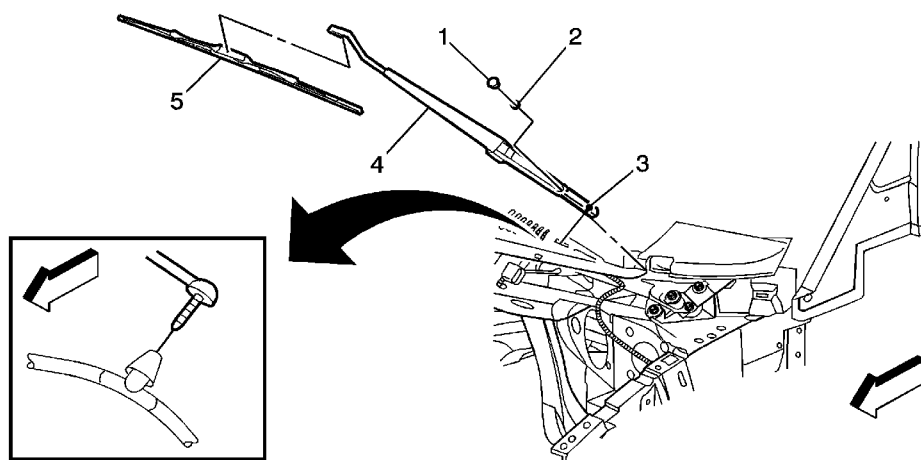


1. Install the air inlet grille panels to the vehicle.
2. Align the retainers in the body with the tabs on the grille panel. Press the retainers into place.
3. Connect the washer hoses to the air inlet grille panel.
4. Install the wiper arms to the vehicle. Refer to [Windshield Wiper Arm Replacement](#).

Caution: Refer to [Fastener Caution](#) in the Preface section.

5. Install the screws in sequential order (1-7), to retain the air inlet grille panels to the cowl vent and tighten to **1.7 N·m (15 lb in)**.
6. Close the hood.

Windshield Wiper Arm Replacement



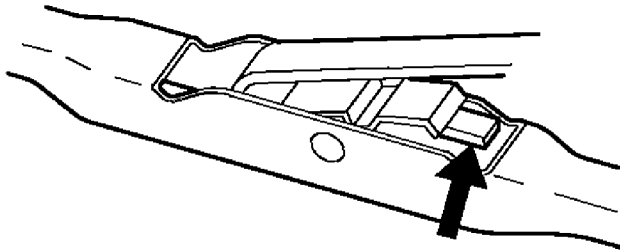
Callout	Component Name
Preliminary Procedure <ol style="list-style-type: none"> 1. Electrical set the wipers to the PARK position. 2. Disconnect the washer hose elbow from the air inlet grille panel. 	
1	Wiper Arm Finish Cover
2	Wiper Arm Nut Caution: Refer to Fastener Caution in the Preface section. Tighten 32 N·m (24 lb ft)
3	Windshield Wiper Arm Hose to Air Inlet Grille Panel Hose
4	Windshield Wiper Arm Procedure <ol style="list-style-type: none"> 1. Rock the arm in order to release the arm from the wiper motor pivot shaft. 2. Use a battery terminal puller if rocking fails to loosen the arm from the pivot shaft. 3. Clean the knurls on the pivot shaft with a soft wire brush. 4. Position the wiper blades to the black dots on the lower windshield. 5. Hold arm into position and secure the pivot shaft nut. 6. The wiper arms are marked LH and RH, do not interchange the arms.
5	Windshield Wiper Arm Blade Tip

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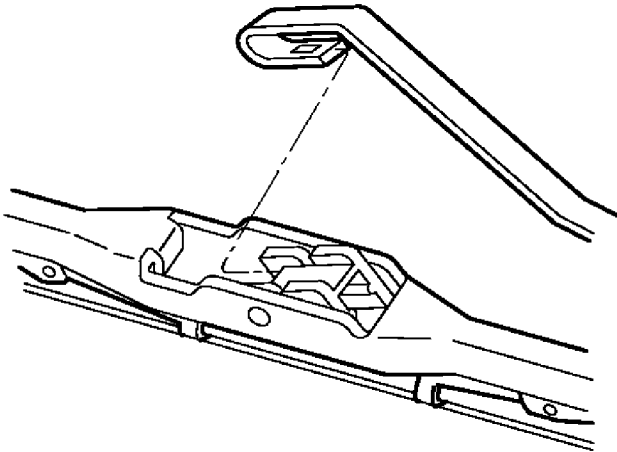
Remove the wiper blade from the wiper arm. Refer to [Windshield Wiper Blade Replacement](#)

Windshield Wiper Blade Replacement

Removal Procedure

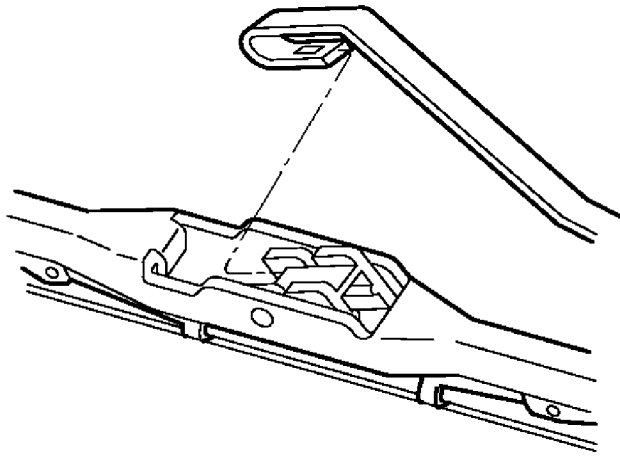


1. Push in the button of the wiper blade clip and remove the wiper blade from the inside radius of the wiper arm.

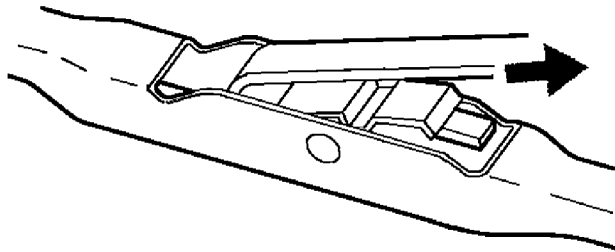


2. Bring the wiper arm out through the opening in the wiper blade.

Installation Procedure



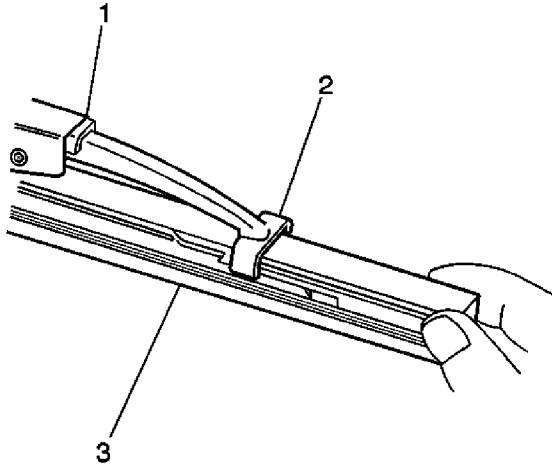
1. Insert the hook of the wiper arm through the opening in the wiper blade.



2. Position the wiper blade pivot in the inside radius of the wiper arm hook.
3. Pull the wiper blade pivot into the wiper arm hook until the pivot locks into the hook.
4. Operate the wipers and inspect for proper operation.

Wiper Blade Element Replacement

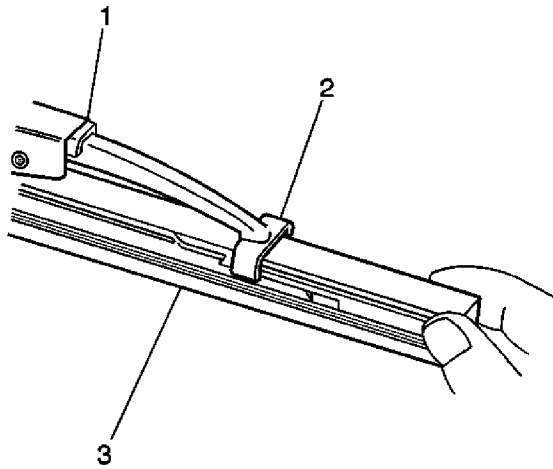
Removal Procedure



Important: Replace the wiper blade element if it is removed from the wiper blade.

1. Remove the wiper blade from the wiper arm. Refer to [Windshield Wiper Blade Replacement](#) .
2. Remove the bottom claws (2) of the wiper blade (1) from the notches in the wiper blade element (3).
3. Pull the wiper blade element (3) out through the wiper blade claws (2).

Installation Procedure

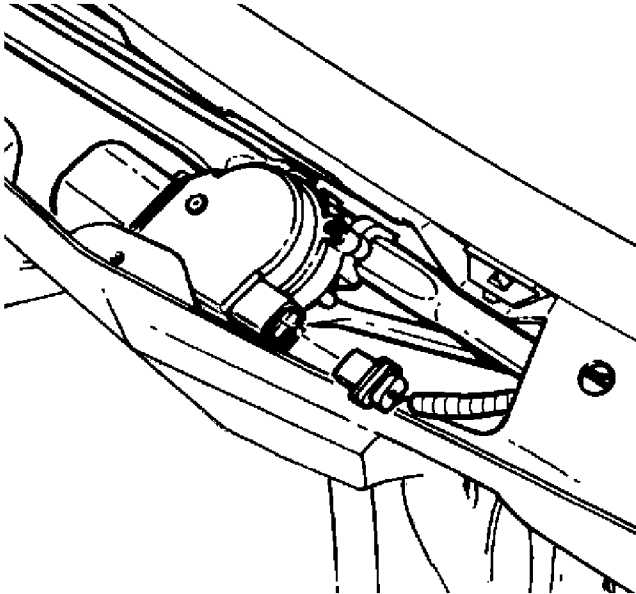


Important: Keep the wiper blade claws in the rubber claw channel of the wiper blade element. Do not allow the claws of the wiper blade to contact the metal spline of the wiper blade element.

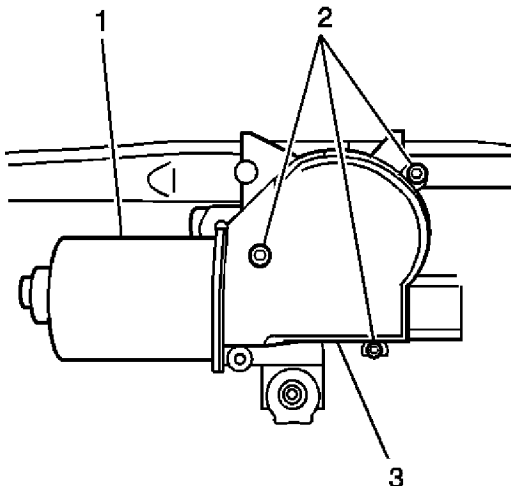
1. Insert the open end of the wiper blade element (3) into the bottom claws of the wiper blade (2).
2. Guide the wiper blade element (3) through the wiper blade (1) claw sets.
3. Engage the bottom claw (2) of the wiper blade (1) into the notches in wiper blade element (3).
4. Install the wiper blade onto the wiper arm. Refer to [Windshield Wiper Blade Replacement](#) .

Windshield Wiper Motor Cover Replacement

Removal Procedure



1. Remove the wiper arms. Refer to [Windshield Wiper Arm Replacement](#).
2. Remove the air inlet grille panel. Refer to [Air Inlet Grille Panel Replacement](#).
3. Disconnect the electrical connector from the wiper motor.

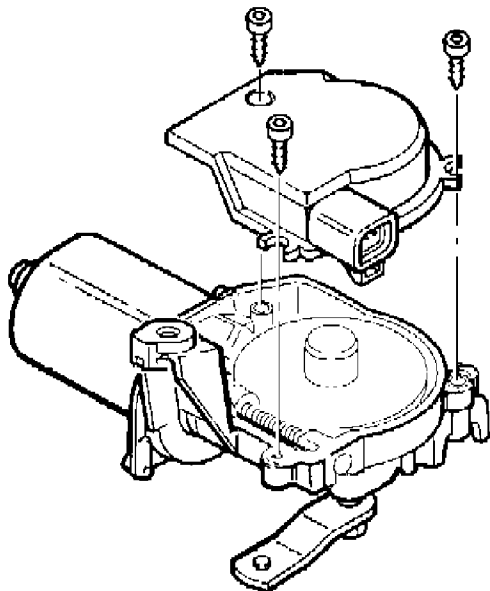



4. Remove the 3 screws (2) and the wiper motor cover (3) from the wiper motor (1).
5. Remove the wiper motor cover (3).

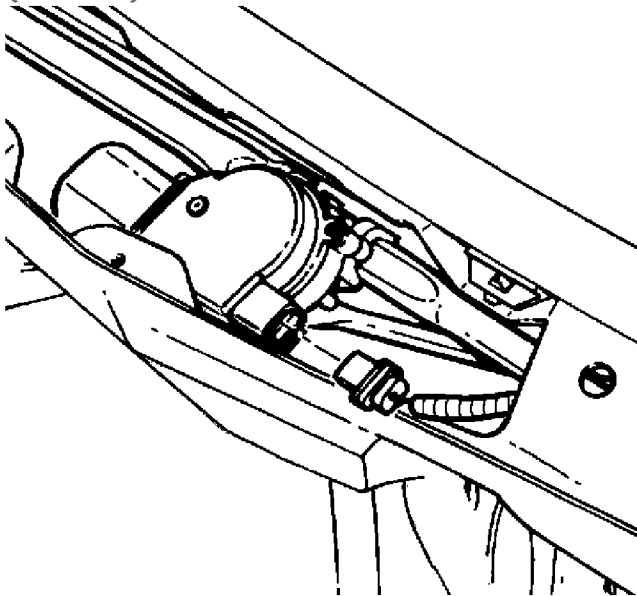
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Installation Procedure

Caution: Refer to [Fastener Caution](#) in the Preface section.



- 
1. Install the wiper motor cover onto the wiper motor with the 3 screws and tighten to **3 N·m (26 lb in)**.



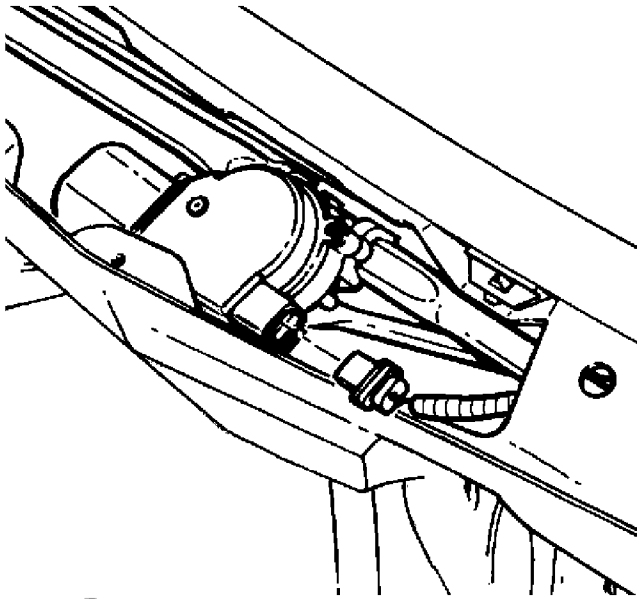
- 
2. Connect the electrical connector to the wiper motor.
 3. Install the air inlet grille panel. Refer to [Air Inlet Grille Panel Replacement](#).
 4. Install the wiper arms. Refer to [Windshield Wiper Arm Replacement](#).
 5. Operate the wipers and inspect for proper operation.

Windshield Wiper Motor Replacement

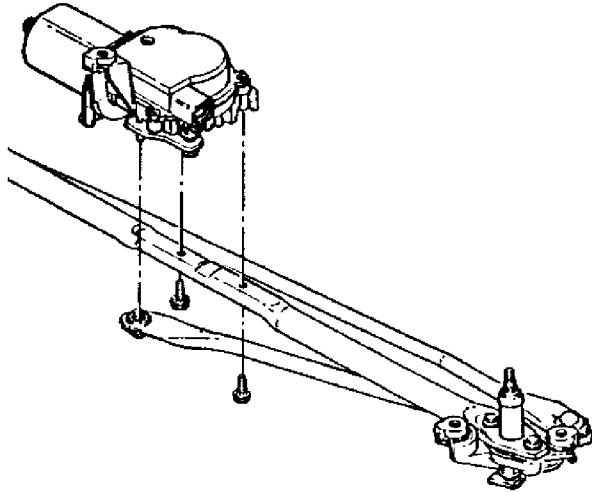
Special Tools

- [J 39232](#) Wiper Transmission Separator
- [J 39529](#) Wiper Transmission Installer

Removal Procedure



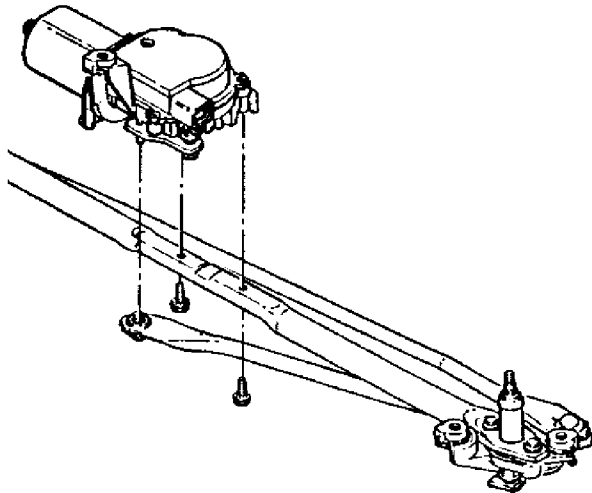
1. Remove the wiper arms. Refer to [Windshield Wiper Arm Replacement](#).
2. Remove the air inlet grille panel. Refer to [Air Inlet Grille Panel Replacement](#).
3. Remove the wiper transmission. Refer to [Windshield Wiper Transmission Replacement](#).



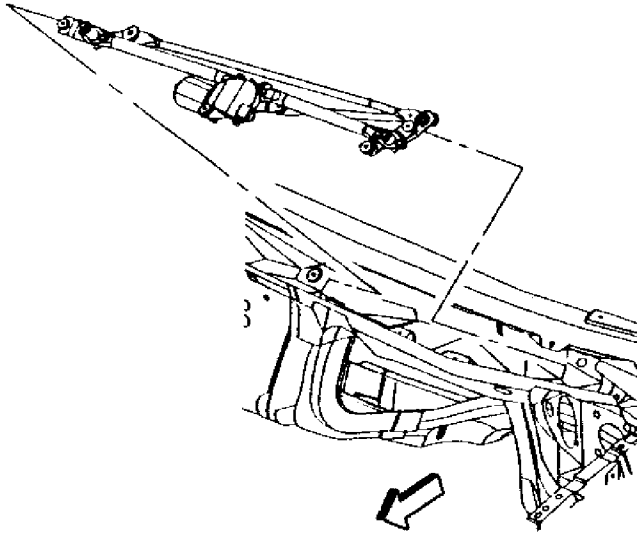
4. Remove the 2 bolts retaining the wiper motor.
5. Remove the wiper motor from the wiper transmission.

Installation Procedure

Caution: Refer to [Fastener Caution](#) in the Preface section.



1. Install the wiper motor onto the wiper transmission with the 2 bolts and tighten to **8 N·m (71 lb in)**.



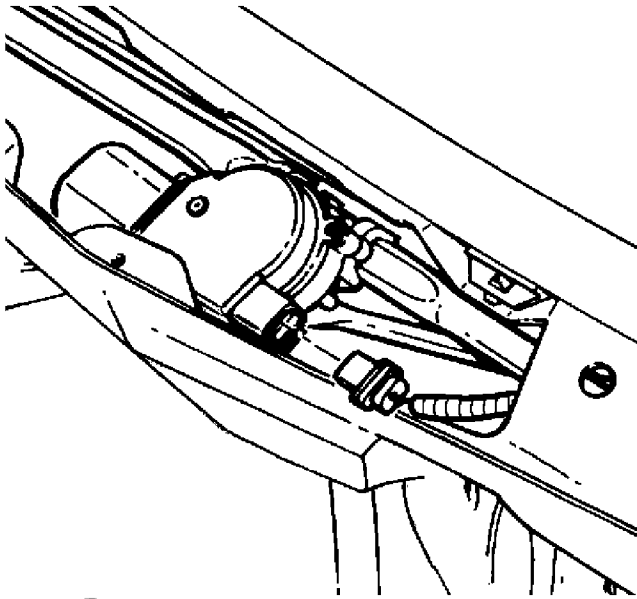
2. Install the wiper transmission assembly. Refer to [Windshield Wiper Transmission Replacement](#).
3. Install the air inlet grille panel. Refer to [Air Inlet Grille Panel Replacement](#).
4. Install the wiper arms. Refer to [Windshield Wiper Arm Replacement](#).
5. Operate the wipers and inspect for proper operation.

Windshield Wiper Transmission Replacement

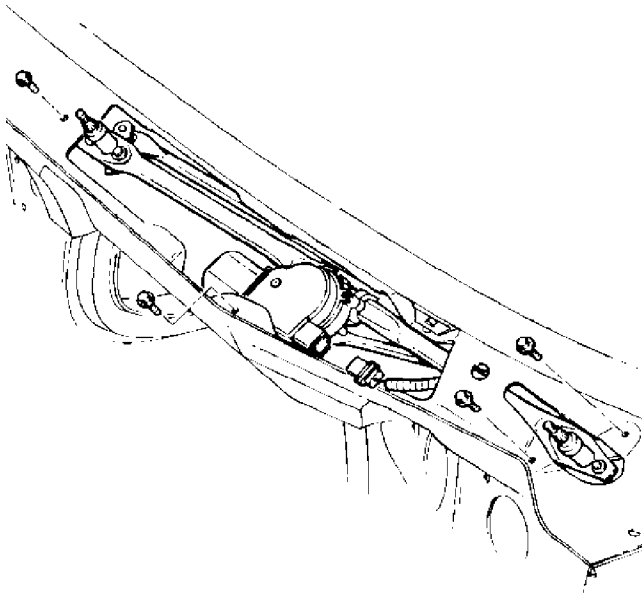
Special Tools

- [J 39232](#) Wiper Transmission Separator
- [J 39529](#) Wiper Transmission Installer

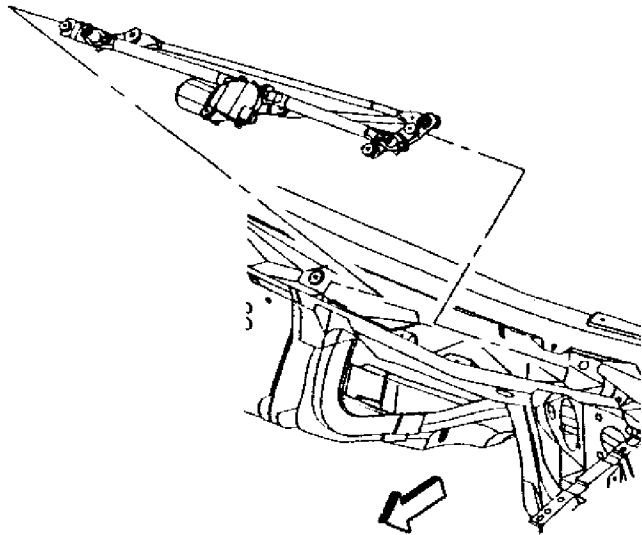
Removal Procedure



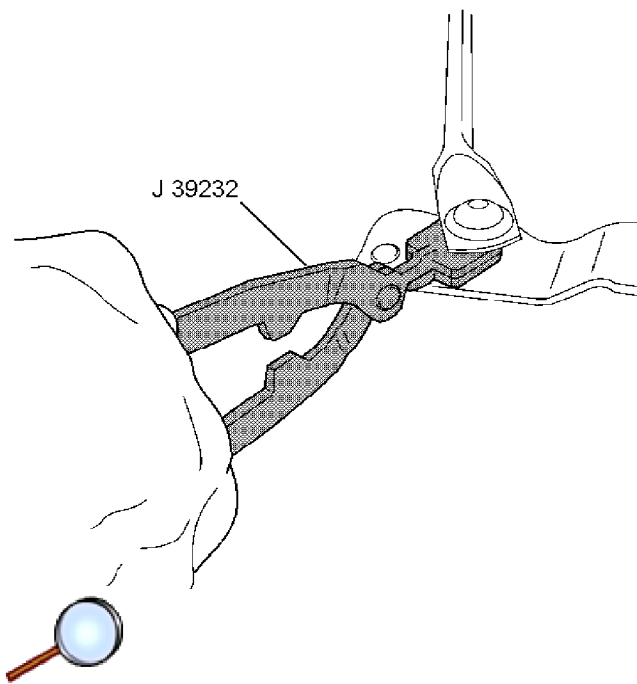
1. Remove the wiper arms. Refer to [Windshield Wiper Arm Replacement](#).
2. Remove the air inlet grille panel. Refer to [Air Inlet Grille Panel Replacement](#).
3. Disconnect the electrical connector from the wiper motor.



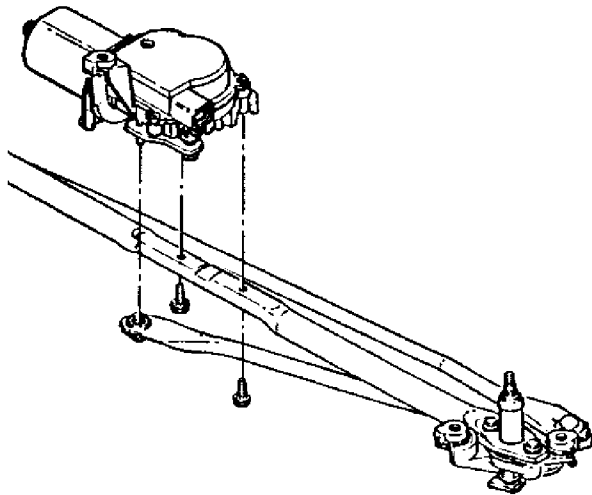
4. Remove the 4 bolts retaining the wiper transmission assembly to the plenum.



5. Remove the wiper transmission assembly from the vehicle.



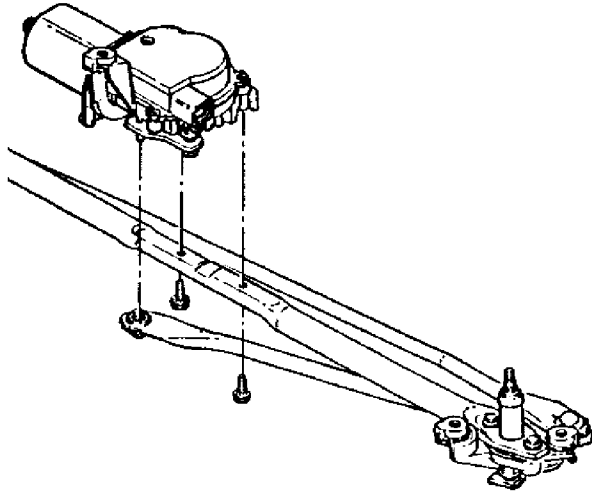
6. Disconnect the drive link from the wiper motor crank arm using the [J 39232](#).



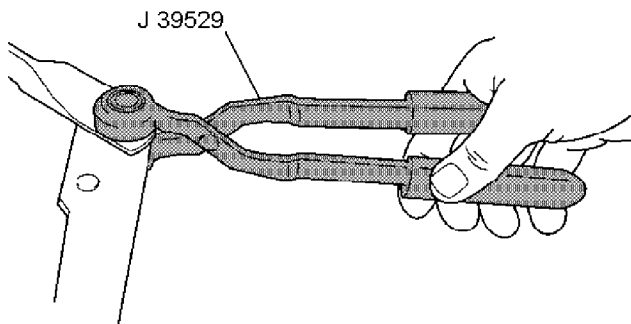
7. Remove the 2 bolts retaining the wiper motor to the transmission.
8. Remove the wiper motor from the wiper transmission.

Installation Procedure

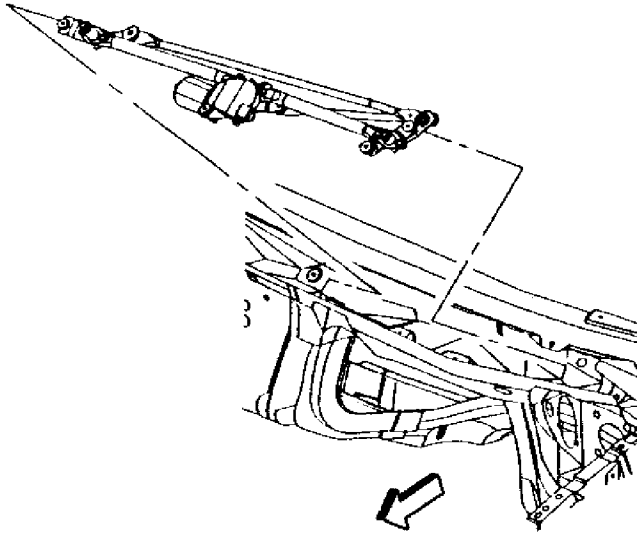
Caution: Refer to [Fastener Caution](#) in the Preface section.



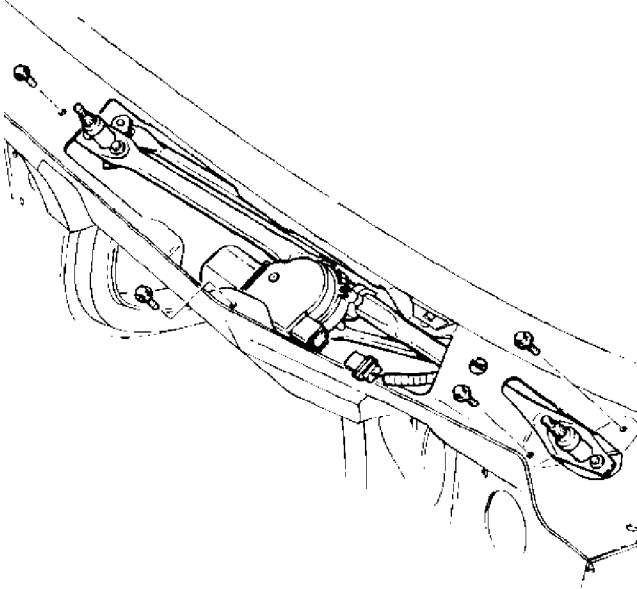
1. Install the wiper motor onto the wiper transmission with the 2 bolts and tighten to **8 N·m (71 lb in)**.



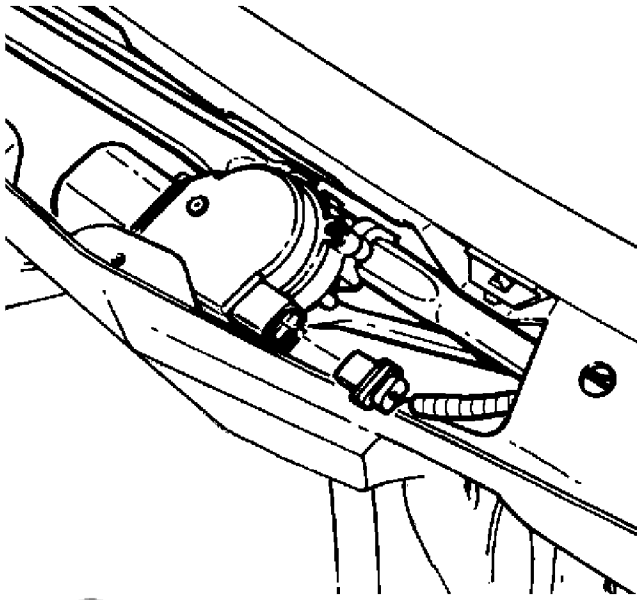
2. Connect the drive link onto the wiper motor crank arm using the [J 39529](#).



3. Install the wiper transmission assembly to the plenum.



4. Install the 4 bolts and tighten to **8 N·m (71 lb in)**.



5. Connect the electrical connector to the wiper motor.
6. Install the air inlet grille panel. Refer to [Air Inlet Grille Panel Replacement](#).
7. Install the wiper arms. Refer to [Windshield Wiper Arm Replacement](#).
8. Operate the wipers and inspect for proper operation.

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Windshield Glass Cleaning

Clean the windshield with windshield cleaner, GM P/N 1050011 (Canadian P/N 992727) or equivalent. The cleaner should not harm the paint finish or scratch the glass. The glass is clean when the water no longer beads, but sheets across the entire glass surface.

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Wiper Blade Element Cleaning

Lift each blade assembly off of the windshield and clean the element with a cloth saturated with full strength washer solvent. Then rinse the blade assemblies with water.

Wiper Chatter Repair

Some vehicles may exhibit a condition where the windshield wipers chatter and/or wipe unevenly. Several items may contribute to this condition. To completely repair this condition, ALL of the items listed should be tested and repaired as necessary.

- Perform the wiper arm pressure test. Refer to [Wiper Arm Tip Pressure Check](#) .
- Inspect the wiper blade element set. Refer to [Wiper Blade Element Check](#) .
- Clean the wiper blade elements. Refer to [Blade Element Cleaning](#) .
- Clean the windshield glass. Refer to [Windshield Glass Cleaning](#) .