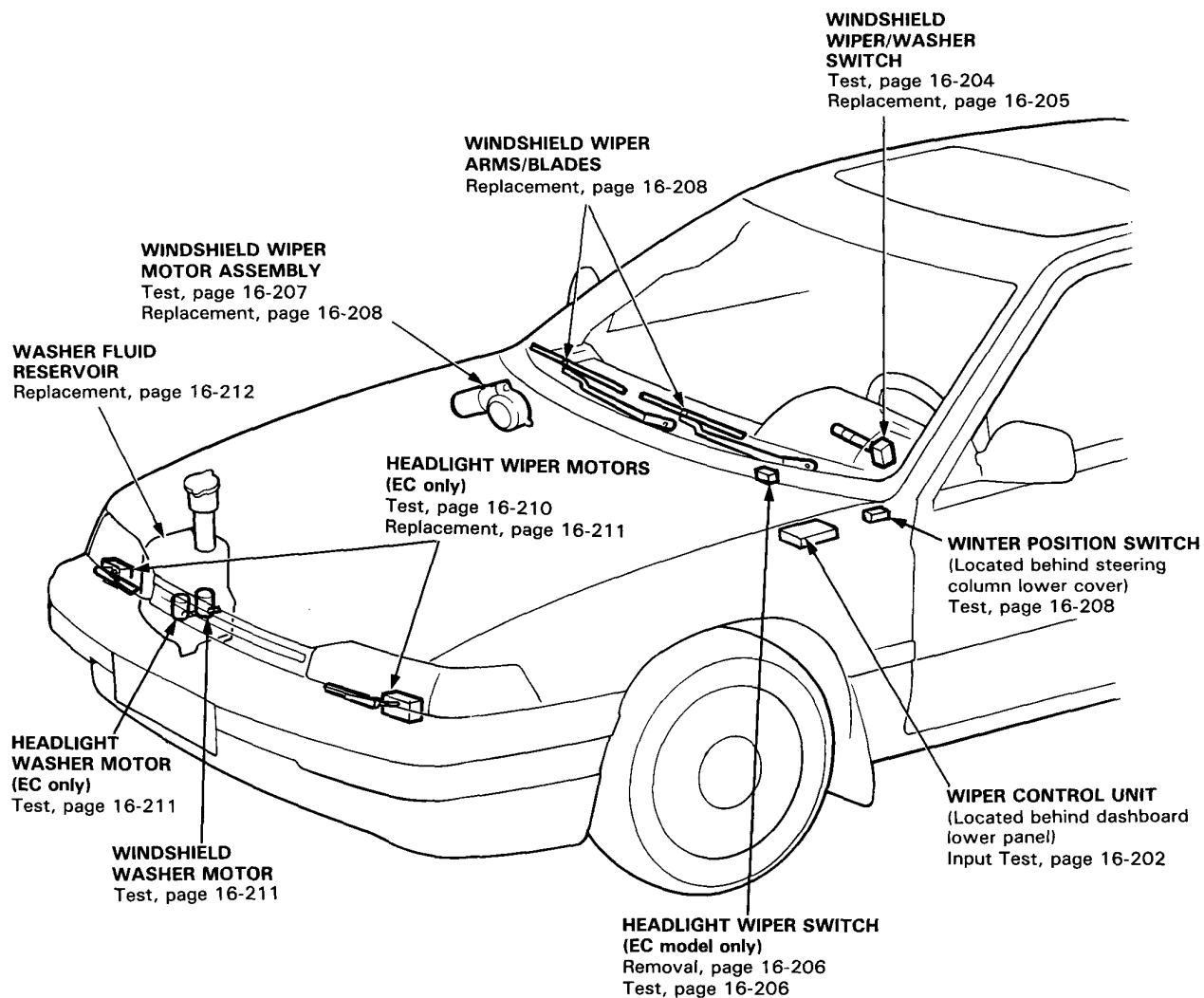




# Wipers/Washers

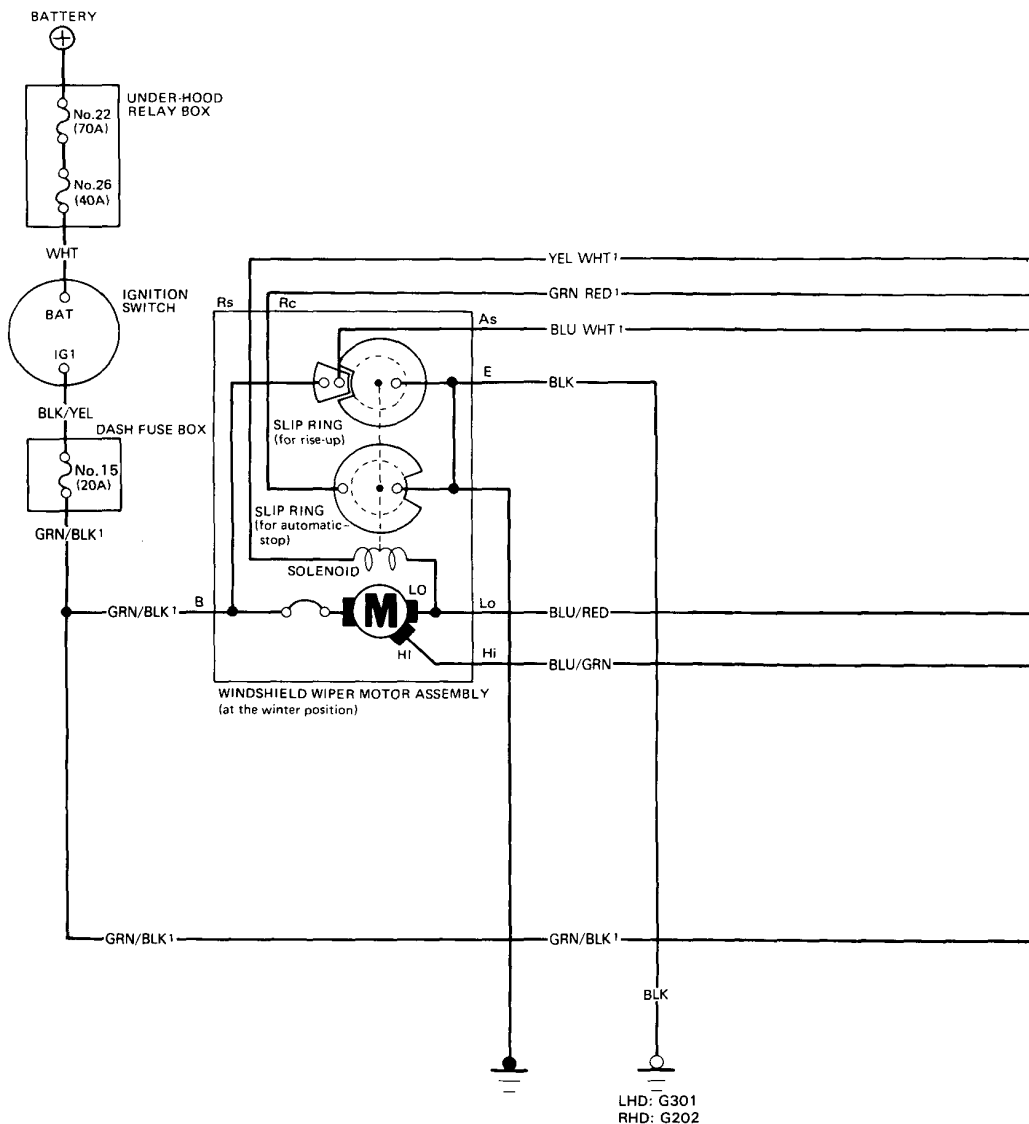
## Component Location Index

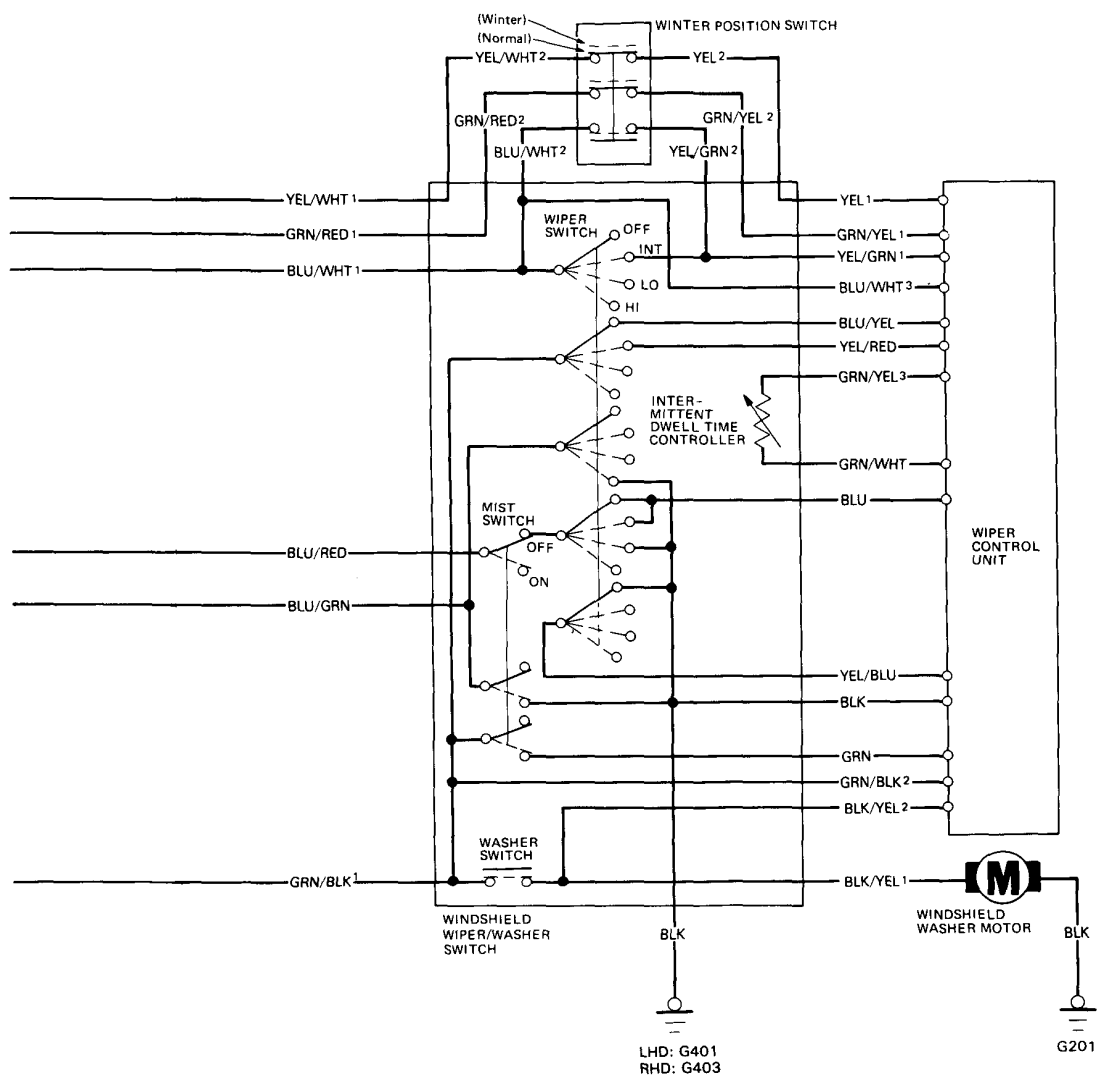


## Wipers/Washers

### Circuit Diagram (Windshield)

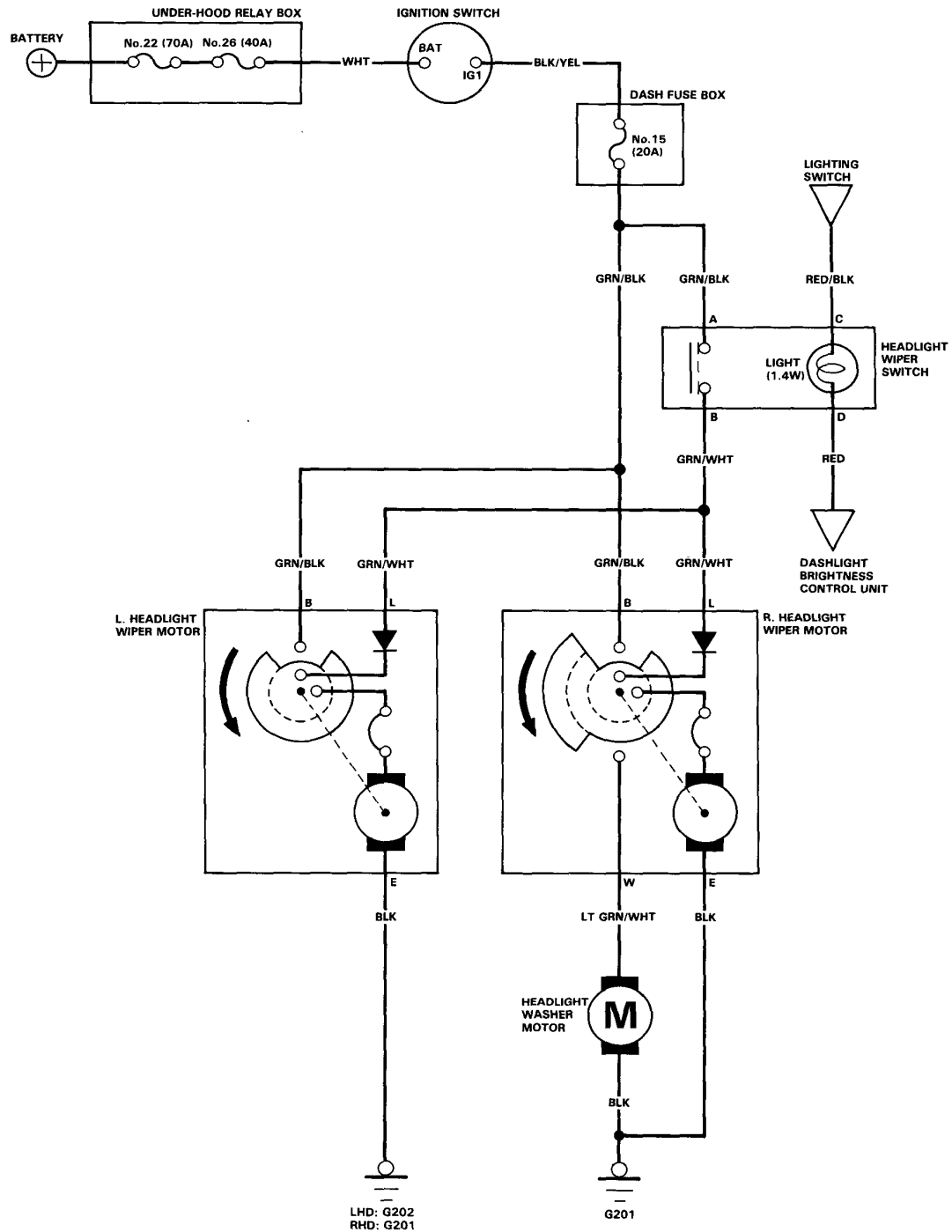
NOTE: Several different wires have the same color. They have been given a number suffix to distinguish them (for example GRN/BLK<sup>1</sup> and GRN/BLK<sup>2</sup> are not the same).





# Wipers/Washers

## Circuit Diagram (Headlight)





## Troubleshooting

NOTE: The numbers in the table show the troubleshooting sequence.

Item to be inspected  Symptom		Blown No. 15 (20 A) fuse (in the dash fuse box)	Wiper motor assembly				Disconnected wiper linkages	Control unit input	Wiper switch	Intermittent dwell time controller	Mist switch	Winter position switch	Washer switch	Washer motor	Disconnected, blocked washer hoses or clogged outlet	Poor ground	Open circuit in wires or loose or disconnected terminals
			Motor	Automatic-stop circuit	Rise-up circuit	Solenoid											
Wipers do not operate.	In all positions.	1	2				3									G401 [G403]	GRN/BLK <sup>1</sup>
	In INT.							3	1	2							GRN/YEL <sup>2</sup> , GRN/BLK <sup>2</sup> , GRN/WHT, YEL/RED or BLU
	In LO or HI		2						1								BLU/RED or BLU/GRN
	In Mist.										1						
Blades do not return to park position when wipers are turned OFF.				1				2								G401 [G403]	BLU/WHT <sup>1</sup> , BLU/WHT <sup>3</sup> or BLU
Erratic intermittent cycle or wipers do not operate intermittently.								2		1							GRN/WHT or GRN/YEL <sup>3</sup>
Little or no washer fluid is pumped.													1	2	3	G201	GRN/BLK <sup>1</sup> or BLK/YEL <sup>1</sup>
Blades do not return to normal (recessed) position when winter position switch is ON.					3	4			2			1					GRN/YEL <sup>1</sup> , GRN/YEL <sup>2</sup> , BLU/YEL, GRN/RED <sup>1</sup> , GRN/RED <sup>2</sup> , YEL/BLU, YEL/WHT <sup>1</sup> , YEL/WHT <sup>2</sup> , YEL <sup>1</sup> or YEL <sup>2</sup>
Wipers do not operate simultaneously with washer.								1									BLK/YEL <sup>2</sup>

[ ]: RHD

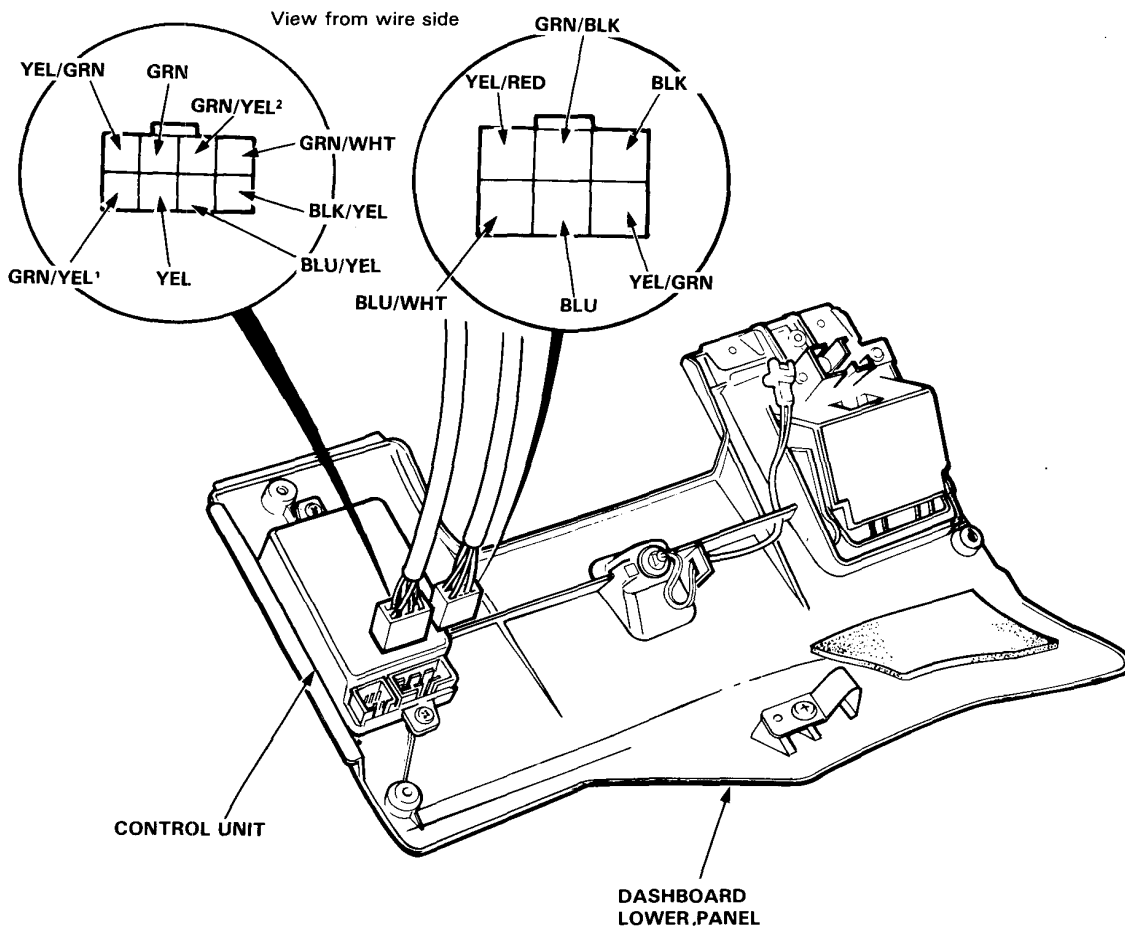
# Wipers/Washers

## Control Unit Input Test

Remove the dashboard lower panel to disconnect the 6-P and 8-P connectors from the control unit. Make the following input tests at the harness pins.

### NOTE:

- Several different wires have the same color. They have been given a number suffix to distinguish them (for example GRN/YEL<sup>1</sup> and GRN/YEL<sup>2</sup> are not the same).
- Recheck connections between the 6-P and 8-P connectors, and the control unit, then replace the control unit if all input tests prove OK.





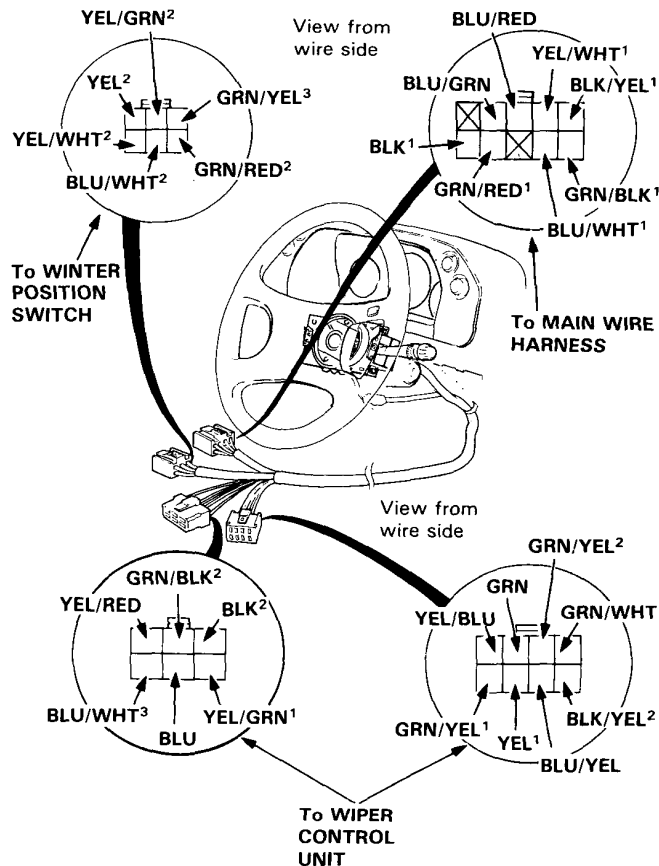
No.	Wire	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	BLK	Under all conditions.	Check for continuity to ground: should be continuity.	<ul style="list-style-type: none"> <li>• Poor ground (LHD: G401, RHD: G403).</li> <li>• Faulty wiper switch.</li> <li>• An open in the wire.</li> </ul>
2	GRN/BLK	Ignition switch ON.	Check for voltage to ground: should be battery voltage.	<ul style="list-style-type: none"> <li>• Blown No.15 (20 A) fuse.</li> <li>• Faulty wiper switch.</li> <li>• An open in the wire.</li> </ul>
3	GRN/YEL <sup>2</sup> and GRN/WHT	Intermittent dwell time control ring turned.	Check for resistance between the GRN/YEL <sup>2</sup> and GRN/WHT terminals: should vary from 0 to 30,000 ohms as the ring is turned.	<ul style="list-style-type: none"> <li>• Faulty intermittent dwell time controller.</li> <li>• An open in the wire.</li> </ul>
4	BLK/YEL	Ignition switch ON and washer switch ON.	Check for voltage to ground: should be battery voltage as the washer switch is pulled.	<ul style="list-style-type: none"> <li>• Faulty washer switch.</li> <li>• An open in the wire.</li> </ul>
5	BLU	Ignition switch ON, wiper switch OFF and mist switch OFF.	Attach to ground: Wiper motor should run at low speed.	<ul style="list-style-type: none"> <li>• Faulty wiper switch.</li> <li>• Faulty mist switch.</li> <li>• Faulty wiper motor.</li> <li>• An open in the BLU or BLU/RED wire.</li> </ul>
6	BLU/WHT	Ignition switch OFF, wiper switch OFF and wiper blades in extended position.	Check for continuity to ground: should be continuity.	<ul style="list-style-type: none"> <li>• Faulty wiper motor (automatic-stop circuit).</li> <li>• An open in the wire.</li> </ul>
7	YEL/GRN	Wiper switch in INT, winter position switch ON and wiper blades in extended position.	Check for continuity to ground: should be continuity.	<ul style="list-style-type: none"> <li>• Faulty wiper switch.</li> <li>• Faulty wiper motor (automatic-stop circuit).</li> <li>• Poor ground (LHD: G301, RHD: G202).</li> <li>• An open in the YEL/GRN or BLU/WHT wire.</li> </ul>
		Wiper switch OFF, winter position switch OFF and wiper blades in extended position.	Check for continuity to ground: should be continuity.	<ul style="list-style-type: none"> <li>• Faulty winter position switch.</li> <li>• An open in the YEL/GRN or BLU/WHT wire.</li> </ul>
8	BLU/YEL	Ignition switch ON and wiper switch OFF.	Check for voltage to ground: should be battery voltage.	<ul style="list-style-type: none"> <li>• Faulty wiper switch.</li> <li>• An open in the wire.</li> </ul>
9	YEL/RED	Ignition switch ON and wiper switch in INT.		
10	YEL/BLU	Wiper switch OFF.	Check for continuity to ground: should be continuity.	<ul style="list-style-type: none"> <li>• Faulty wiper switch.</li> <li>• An open in the wire.</li> </ul>
11	GRN	Ignition switch ON and mist switch ON.	Check for voltage to ground: should be battery voltage.	<ul style="list-style-type: none"> <li>• Faulty mist switch.</li> <li>• An open in the wire.</li> </ul>
12	GRN/YEL <sup>1</sup>	Winter position switch ON and wiper blades in exposed position.	Check for continuity to ground: should be continuity.	<ul style="list-style-type: none"> <li>• Faulty winter position switch.</li> <li>• Faulty wiper motor (rise-up circuit).</li> <li>• An open in the GRN/YEL<sup>1</sup> or GRN/RED wire.</li> </ul>
13	YEL	Winter position switch ON, ignition switch OFF, wiper switch in LOW and mist switch OFF, then with battery positive to the YEL terminal, connect negative to ground momentarily.	Check wiper motor solenoid operation: Solenoid in the wiper motor should click as the battery is connected momentarily.	<ul style="list-style-type: none"> <li>• Faulty wiper motor (solenoid).</li> <li>• Faulty winter position switch.</li> <li>• An open in the YEL and YEL/WHT wire.</li> </ul>

# Wipers/Washers

## Wiper/Washer Switch Test

1. Remove the dashboard lower panel to disconnect the 6-P and the 8-P connectors from the wiper control unit on the lower panel.
2. Disconnect the 10-P connector from the side wire harness.
3. Remove the steering column lower cover to disconnect the 6-P connector from the winter position switch.
4. Check for continuity between the terminals in each switch position according to the tables.

NOTE: Several different wires have the same color. They have been given a number suffix to distinguish them (for example BLU/WHT<sup>1</sup> and BLU/WHT<sup>2</sup> are not the same).



Mist Switch

Terminal Position	GRN/BLK <sup>1</sup>	GRN	BLU/GRN	BLK <sup>1</sup>	BLU/RED
OFF					○
ON	○	○	○	○	

To next page

Wiper Switch

Terminal Position	GRN/BLK <sup>1</sup>	BLU/YEL	YEL/RED	BLU/WHT <sup>1</sup>	YEL/GRN <sup>1</sup>	YEL/BLU	BLU/GRN	BLK <sup>1</sup>	BLU
OFF	○	○				○		○	○
INT	○		○	○	○				○
LO								○	
HI							○	○	





### Washer Switch

Terminal Position	GRN/BLK <sup>1</sup>	BLK/YEL <sup>1</sup>
OFF		
ON		

(A)

From previous page

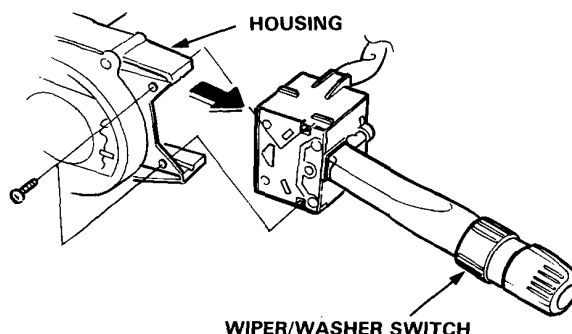
### Intermittent Dwell Time Controller

Terminal Position	GRN/YEL <sup>3</sup>		GRN/WHT
Control ring turned			
	0–30 ± 6 kΩ at 20°C (70°F)		

5. There should be continuity:
  - Between the YEL<sup>1</sup> and YEL<sup>2</sup> terminals.
  - Between the GRN/YEL<sup>1</sup> and GRN/YEL<sup>2</sup> terminals.
  - Between the YEL/WHT<sup>1</sup> and YEL/WHT<sup>2</sup> terminals.
  - Between the GRN/RED<sup>1</sup> and GRN/RED<sup>2</sup> terminals.
  - Between the GRN/BLK<sup>1</sup> and GRN/BLK<sup>2</sup> terminals.
  - Between the BLU/WHT<sup>1</sup>, BLU/WHT<sup>2</sup> and BLU/WHT<sup>3</sup> terminals.
  - Between the BLK/YEL<sup>1</sup> and BLK/YEL<sup>2</sup> terminals.
  - Between the BLK<sup>1</sup> and BLK<sup>2</sup> terminals.
  - Between the YEL/GRN<sup>1</sup> and YEL/GRN<sup>2</sup> terminals.

## Wiper/Washer Switch Replacement

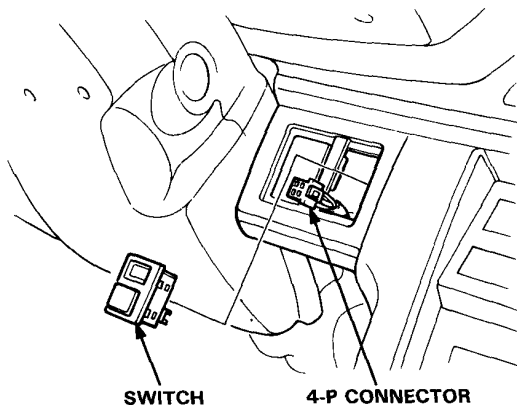
1. Remove the dashboard lower panel and disconnect 6-P and 8-P connectors from the wiper control unit on the lower panel.
2. Disconnect the 10-P connector from the side wire harness.
3. Remove the steering wheel, then remove the lower and upper covers from the steering column and disconnect the 6-P connector from the winter position switch.
4. Remove the 2 screws and slide the wiper/washer switch out of the housing as shown.



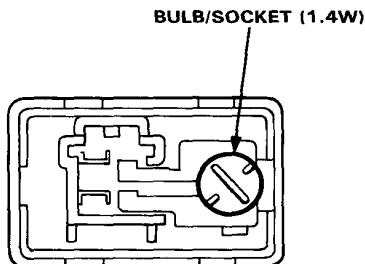
# Wipers/Washers

## Headlight Wiper Switch Removal

1. Remove the dashboard lower panel.
2. Push the switch from behind the instrument panel, then disconnect the 4-P connector to remove the switch.



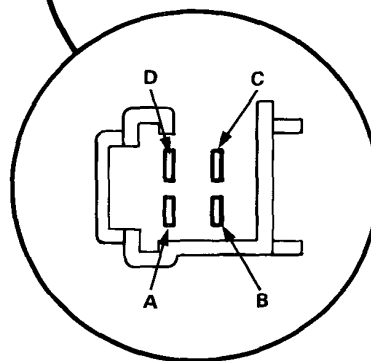
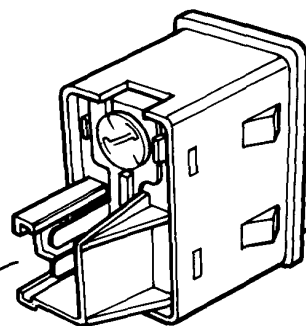
3. Turn the socket 45° counterclockwise to remove it.



## Headlight Wiper Switch Test

1. Remove the wiper switch from the instrument panel.
2. Check for continuity between the terminals in each switch position according to the table.

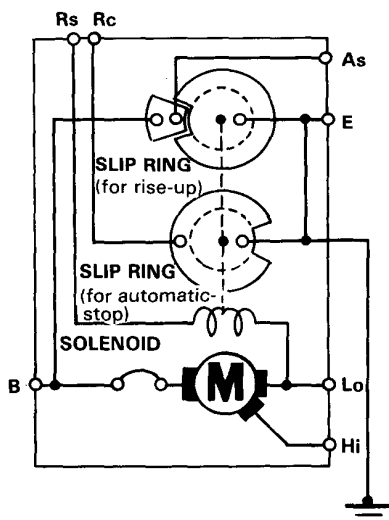
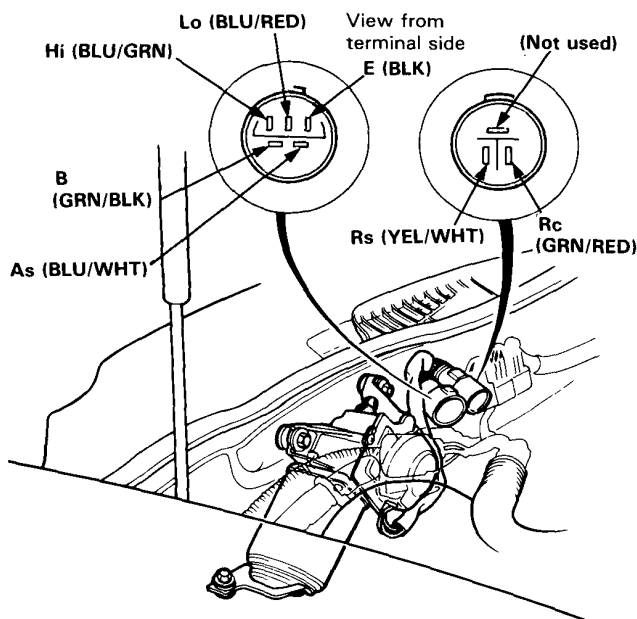
Terminal	A	B	C	D
Position				
OFF			○	○
ON	○	○		





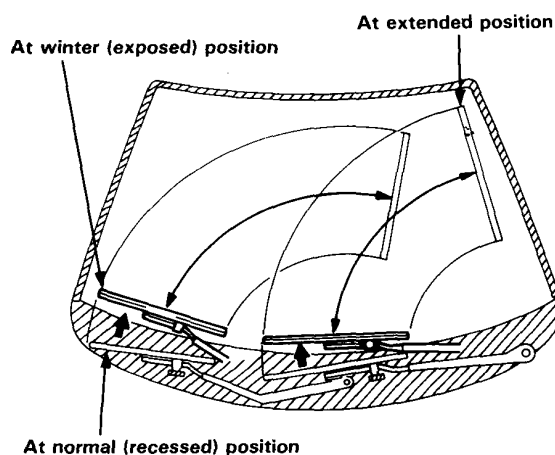
## Wiper Motor Test

1. Disconnect the 5-P and 3-P connectors of the wiper motor assembly.
2. Test motor operation:  
**LOW SPEED:** Connect battery positive to the B (GRN/BLK) terminal and negative to the Lo (BLU/RED) terminal.  
**HIGH SPEED:** Connect battery positive to the B (GRN/BLK) terminal and negative to the Hi (BLU/GRN) terminal.
3. If the motor fails to run smoothly, replace it.



4. Check for continuity between the terminals according to the table.

Terminal	B (GRN/ BLK)	As (BLU/ WHT)	E (BLK)	Rc (GRN/ RED)
Wiper Blade				
At winter (exposed) park position	○	○	○	○
At normal (recessed) park position		○	○	
At extended position		○	○	○



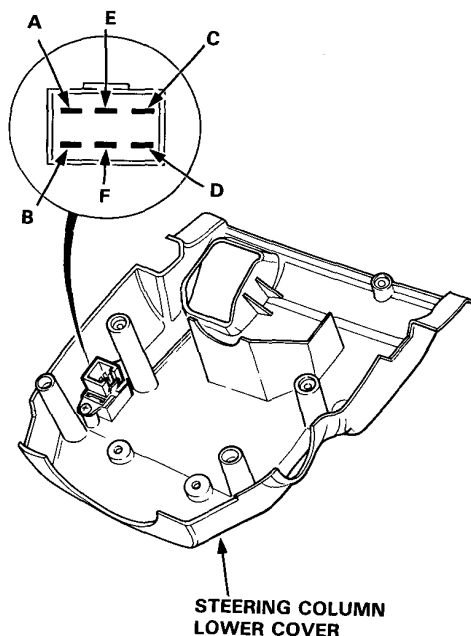
5. With battery positive to the Rs (YEL/WHT) terminal, connect negative to the Lo (BLU/RED) terminal momentarily.  
 Check the solenoid in the wiper motor assembly clicks.  
 If not, replace the wiper motor assembly.

# Wipers/Washers

## Winter Position Switch Test

1. Remove the steering column lower cover to disconnect the 6-P connector from the switch on the lower panel.
2. Check for continuity between the terminals in each switch position according to the table.

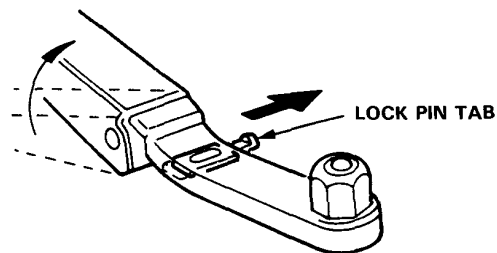
Terminal	A	B	C	D	E	F
Position						
ON (Recessed)	○—○		○—○			
OFF (Exposed)					○—○	



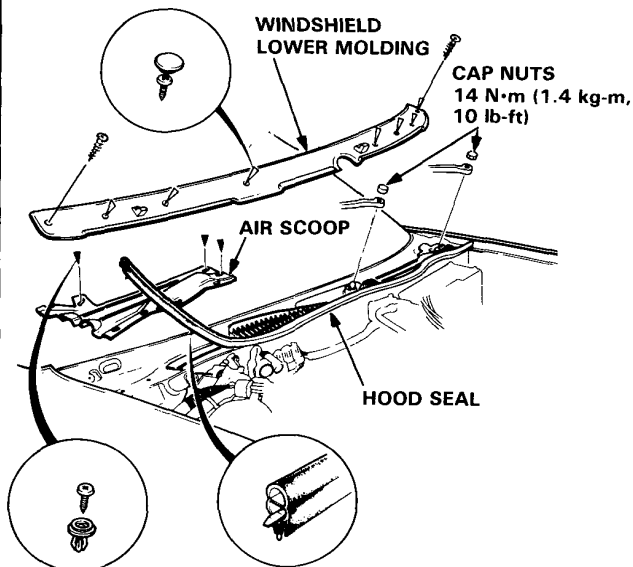
## Wiper Motor Replacement

### Removal

1. Position the wiper arms to the winter (exposed) position where they are not concealed.
2. Pull the lock pin tab with the wiper arm lifted away from the windshield to release the spring pressure.

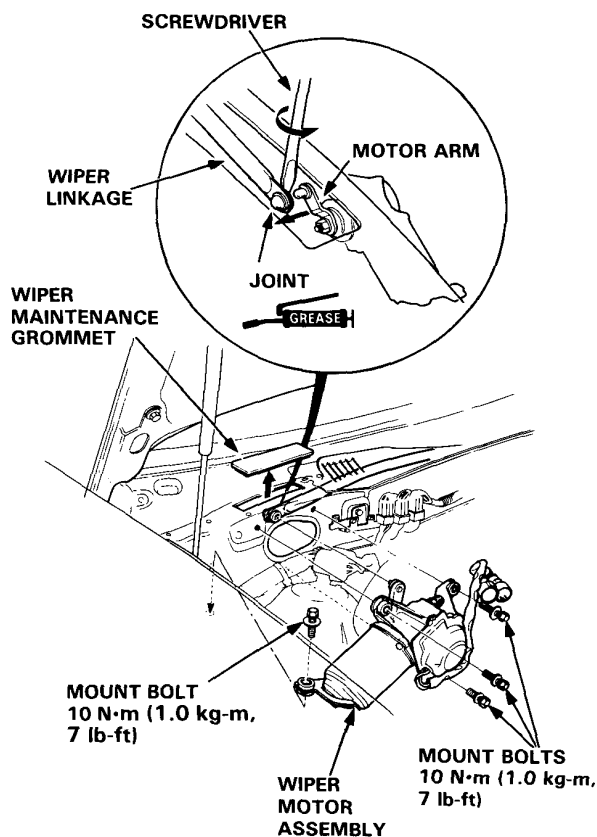


3. Open the hood.
4. Remove the cap nuts and the wiper arms.
5. Remove the hood seal, windshield lower molding and air scoops by prying off the trim clips and removing the screws.





6. Remove the wiper maintenance grommet, then pry the wiper linkage off the motor arm with a screwdriver.
7. Remove the wiper connectors from the bracket, then disconnect the 5-P and 3-P connectors from the wiper motor assembly.

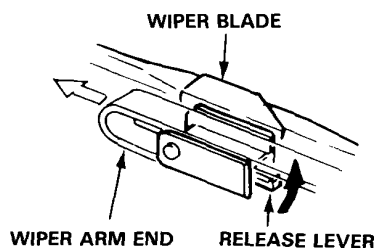


8. Remove the 4 mount bolts and the wiper motor assembly.

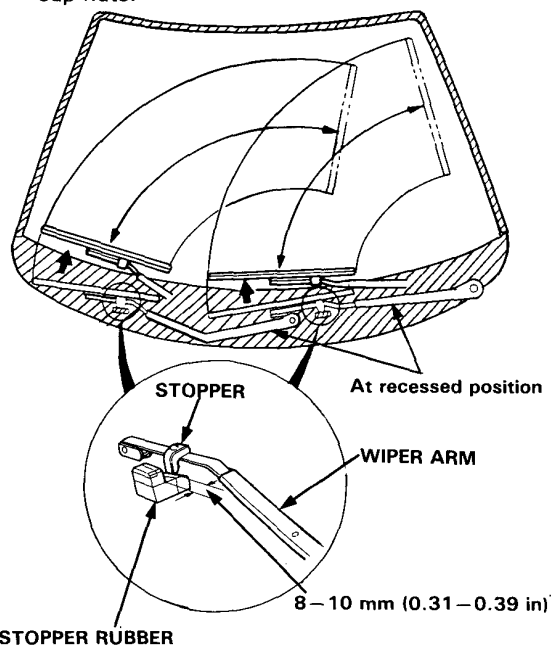
## Installation

Install the motor in the reverse order of removal, and also:

1. Coat the joints with grease and make sure the linkages move smoothly.
2. Slide the wiper blade off the arm end while pushing the release lever inside, and separate the blades from the arms, to install the wiper arms.



3. Before installing the wiper arms, turn the ignition switch ON and the wiper switch OFF, then set the winter position switch in ON (normal).
4. To install the wiper arms, position them on the bottom line of the stopper as shown and mount the cap nuts.



5. Install the wiper blades, then make sure that the wiper system operates properly.

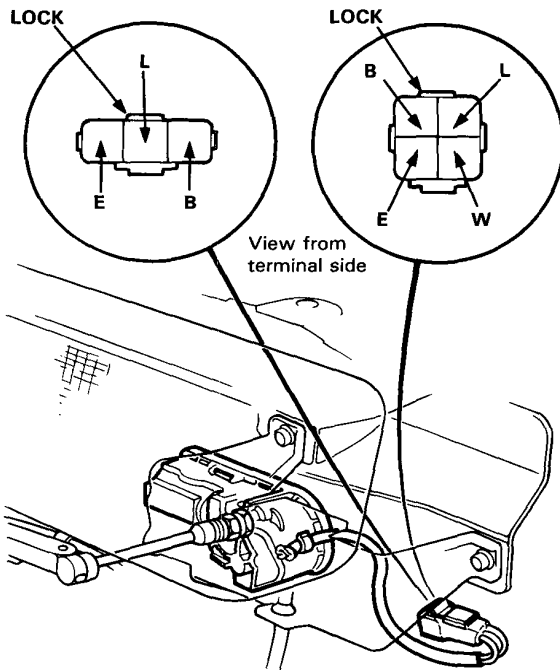
# Wipers/Washers

## Headlight Wiper Motor Test

1. Remove the front bumper and disconnect the 4-P connector for the right motor, or the 3-P connector for the left motor.
2. Test motor operation by connecting battery positive to the L terminal and negative to the E terminal.
3. If the motor fails to run smoothly, replace it.

### Left Motor:

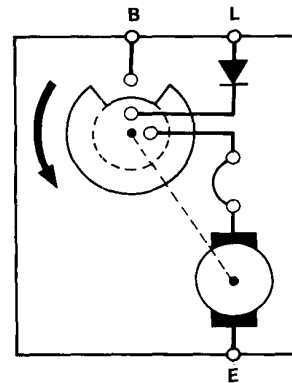
### Right Motor:



4. Check for continuity between the terminals according to the tables.

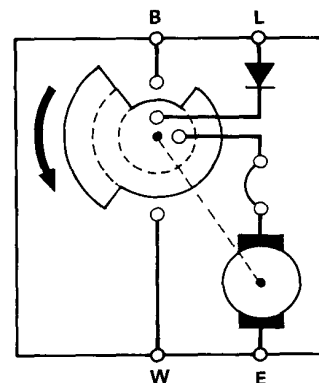
### Left Motor

Terminal	B		L
Wipers Blade			
At park position			
At extended position	○	◄	○



### Right Motor

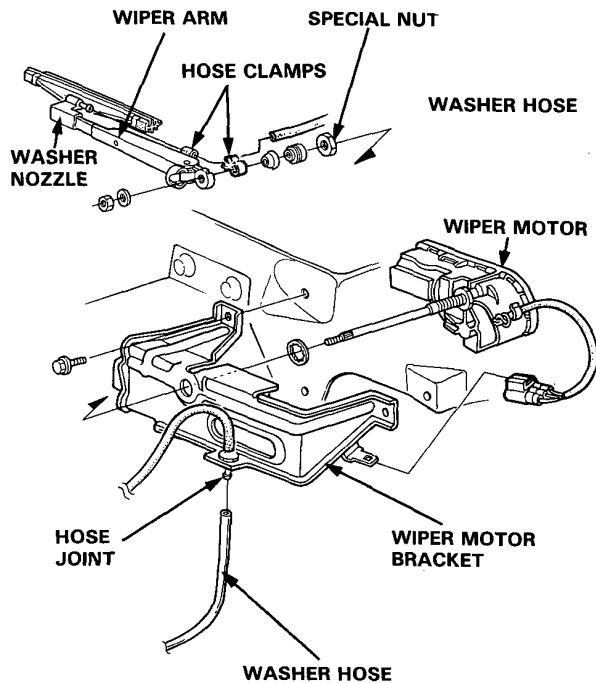
Terminal	W	B		L
Wipers Blade				
At park position				
At quarter position	○	○	◄	○
At extended position		○	◄	○





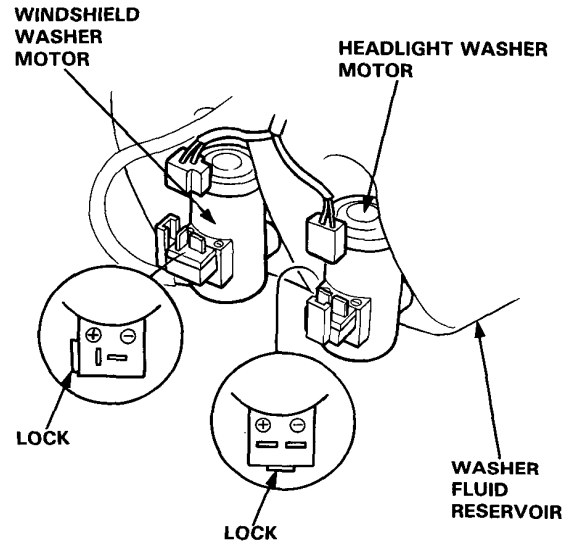
## Headlight Wiper Motor Replacement

1. Remove the front bumper and disconnect the connector from the wiper motor bracket.
2. Disconnect the washer hose from the nozzle, then remove the nut and the wiper arm from the motor shaft.
3. Disconnect the washer hose from the joint, then remove the 3 mount bolts and the wiper motor with the bracket.
4. Separate the wiper motor and bracket by removing the special nut.



## Washer Motor Test

1. Remove the front bumper and disconnect the 2-P connector from the washer motor.
2. Test motor operation by connecting battery positive to the  $\oplus$  terminal and negative to the  $\ominus$  terminal.
3. If the motor fails to run, replace it.

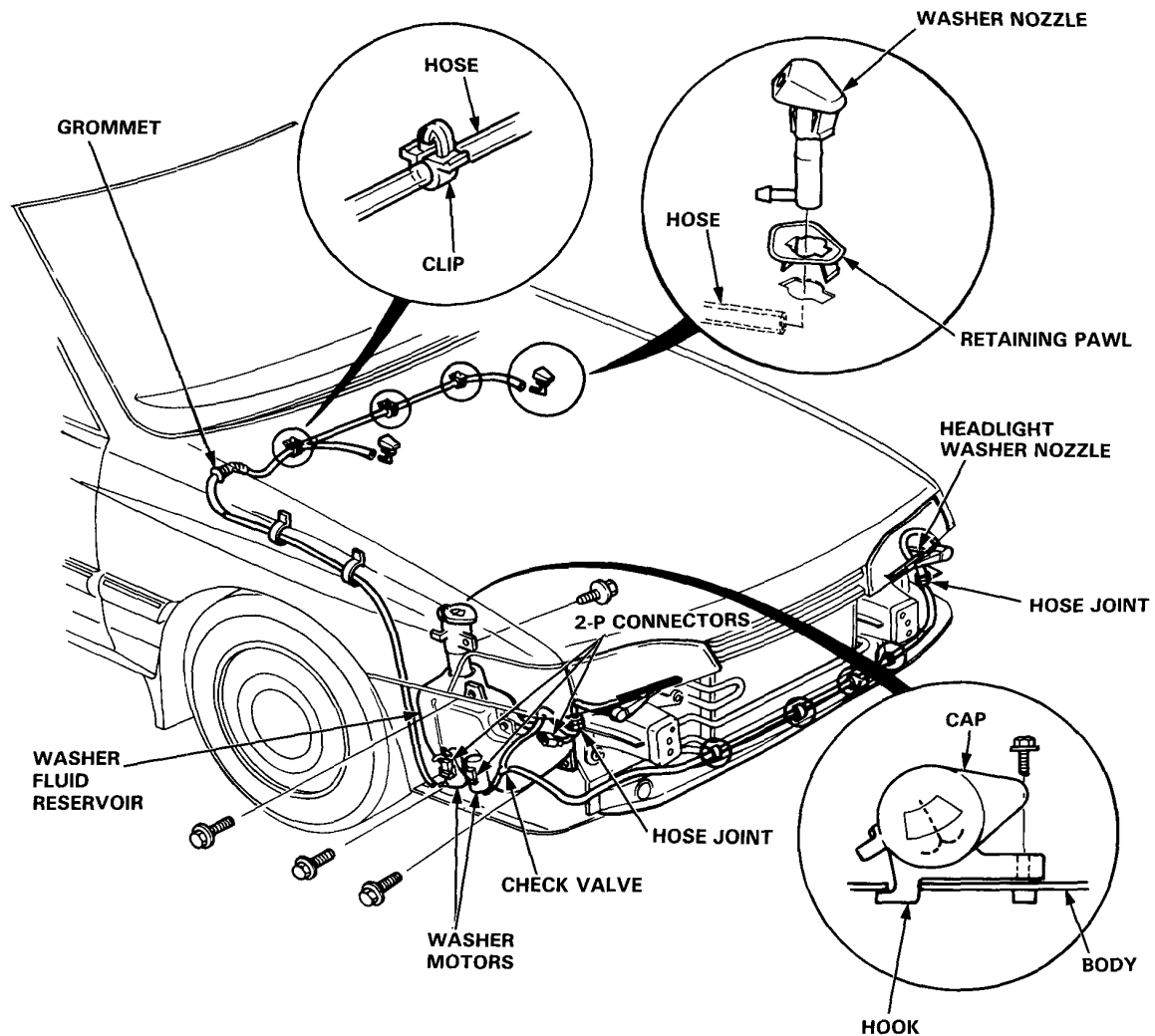


4. If necessary, disconnect the hose from the motor's outlet, then pull the motor out of the reservoir.

# Wipers/Washers

## Washer Replacement

1. Remove the bumper, then remove the washer reservoir by removing the cap and the 3 mount bolts.
2. Disconnect the hoses and the 2-P connectors from the washer motors, then the 2-P connector from the washer fluid level switch.
3. Remove the washer nozzles by releasing the retaining pawls and pushing them out from the underside of the hood.



### NOTE:

- Take care not to pinch the hoses during reinstallation.
- Install the grommets firmly.
- After installation, adjust the washer nozzles.