

Accord Engine Electrical Blueprint Part III

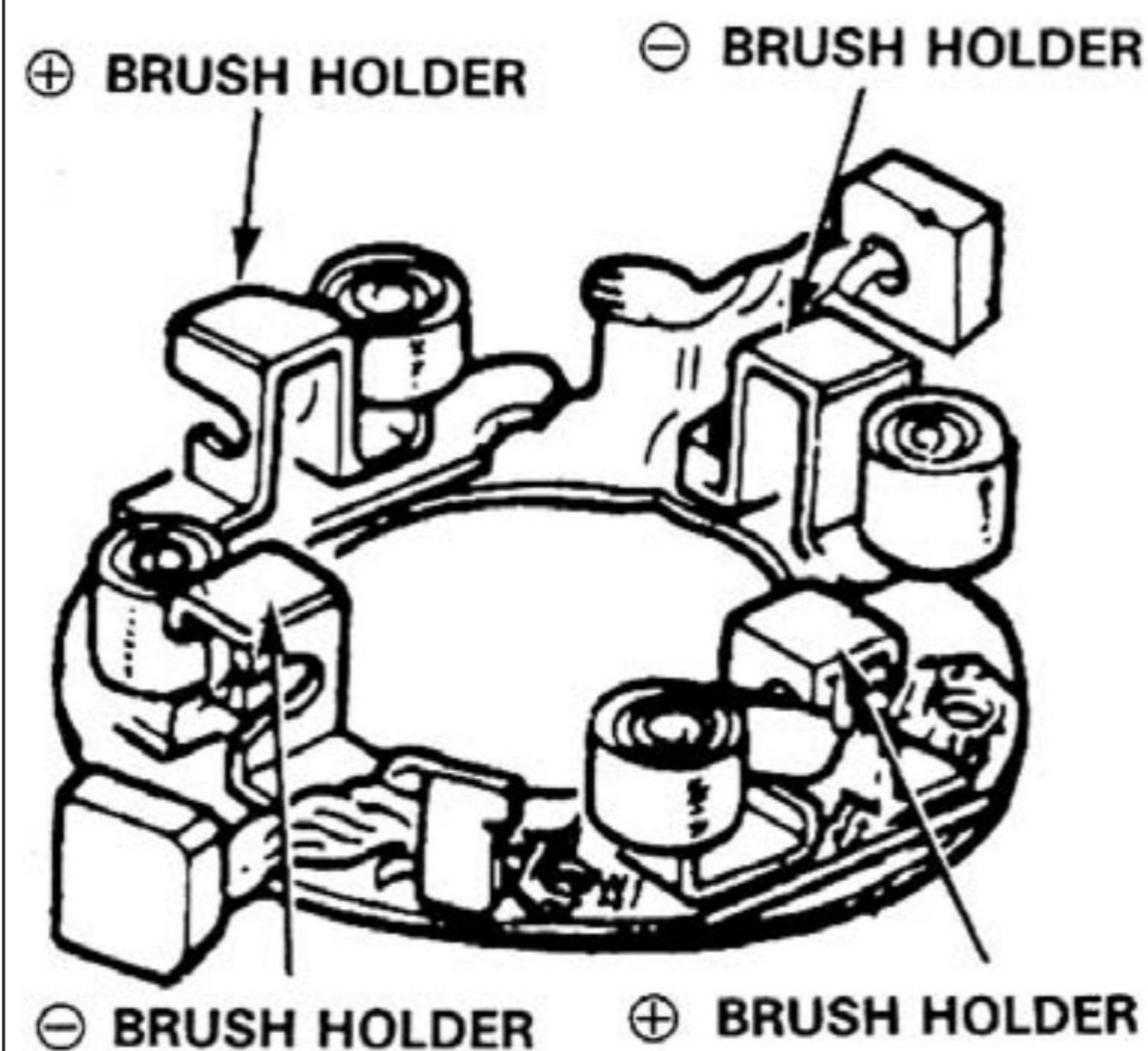
Courtesy Honda Motors Co.

Starter (Continued from February.)

Starter Brush Holder Test

Check that there is no continuity between the positive and negative brush holders. If continuity exists, replace the brush holder assembly.

Figure 1



Insert the brush into the brush holder, and bring the brush into contact with commutator, then attach a spring scale to the spring. Measure spring elastic force at the moment when the spring separates from the brush.

Elastic Force:

ND:

14.22 to 20.01 N

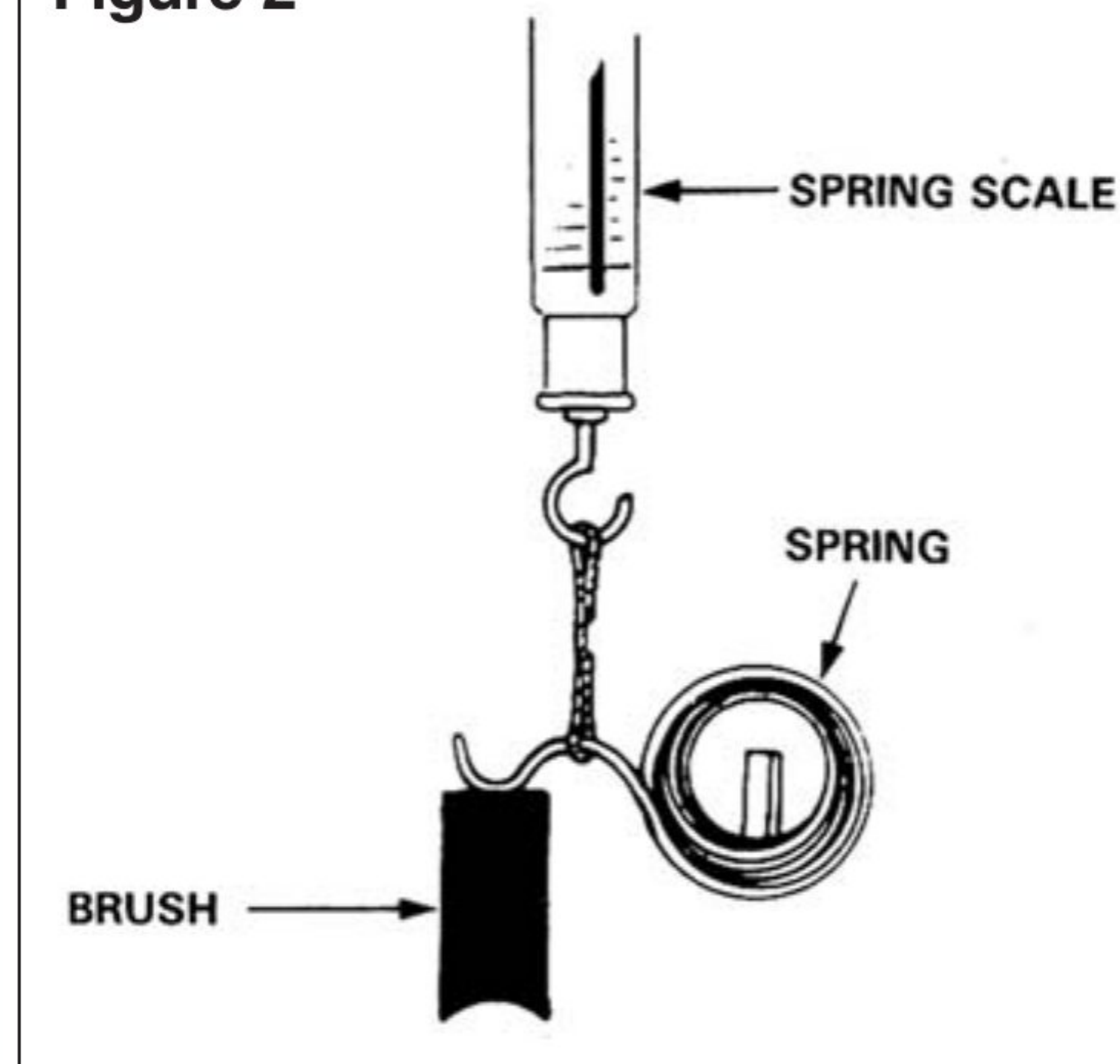
(1.45 to 2.04 kg., 3.22 to 4.53 lb.)

Mitsuba:

18.15 to 23.05 N

(1.85 to 2.35 kg., 4.11 to 5.22 lb.)

Figure 2



Brush Inspection

Measure brush length. If not within service limit, replace the armature housing and brush holder assembly.

Standard (new):

ND:

14.5 to 15.5 mm (0.57 to 0.61 in.)

Mitsuba:

14.3 to 14.7 mm (0.56 to 0.58 in.)

Service Limit:

ND:

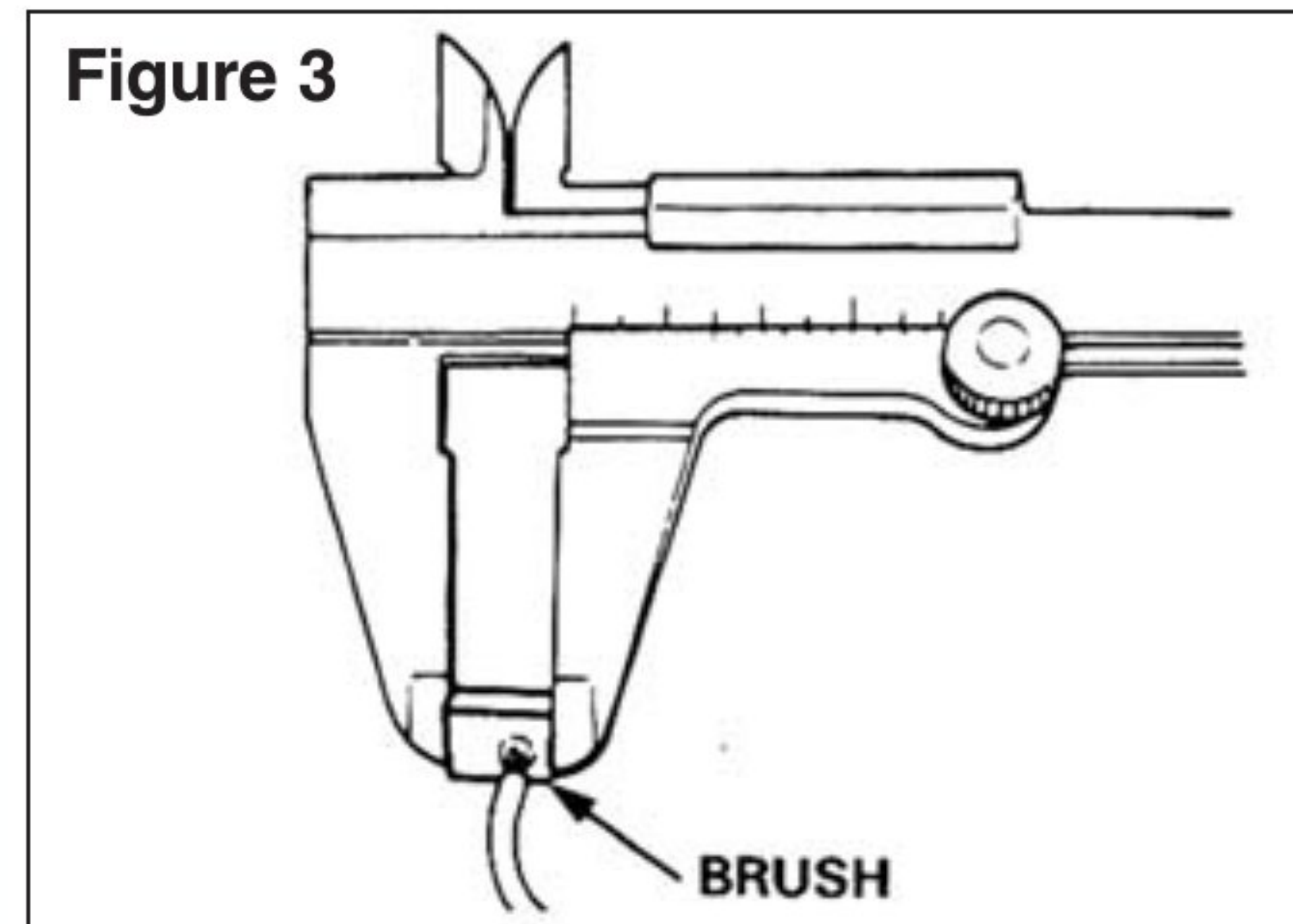
8.5 mm (0.33 in.)

Mitsuba:

9.3 mm (0.37 in.)

Note: To seat new brushes after installing them in their holders, slip a strip of no. 500 or no. 600 sandpaper, with the grit side up, over the commutator and smoothly rotate the armature. The contact surface of the brushes will be sanded to the same contour as the commutator.

Figure 3

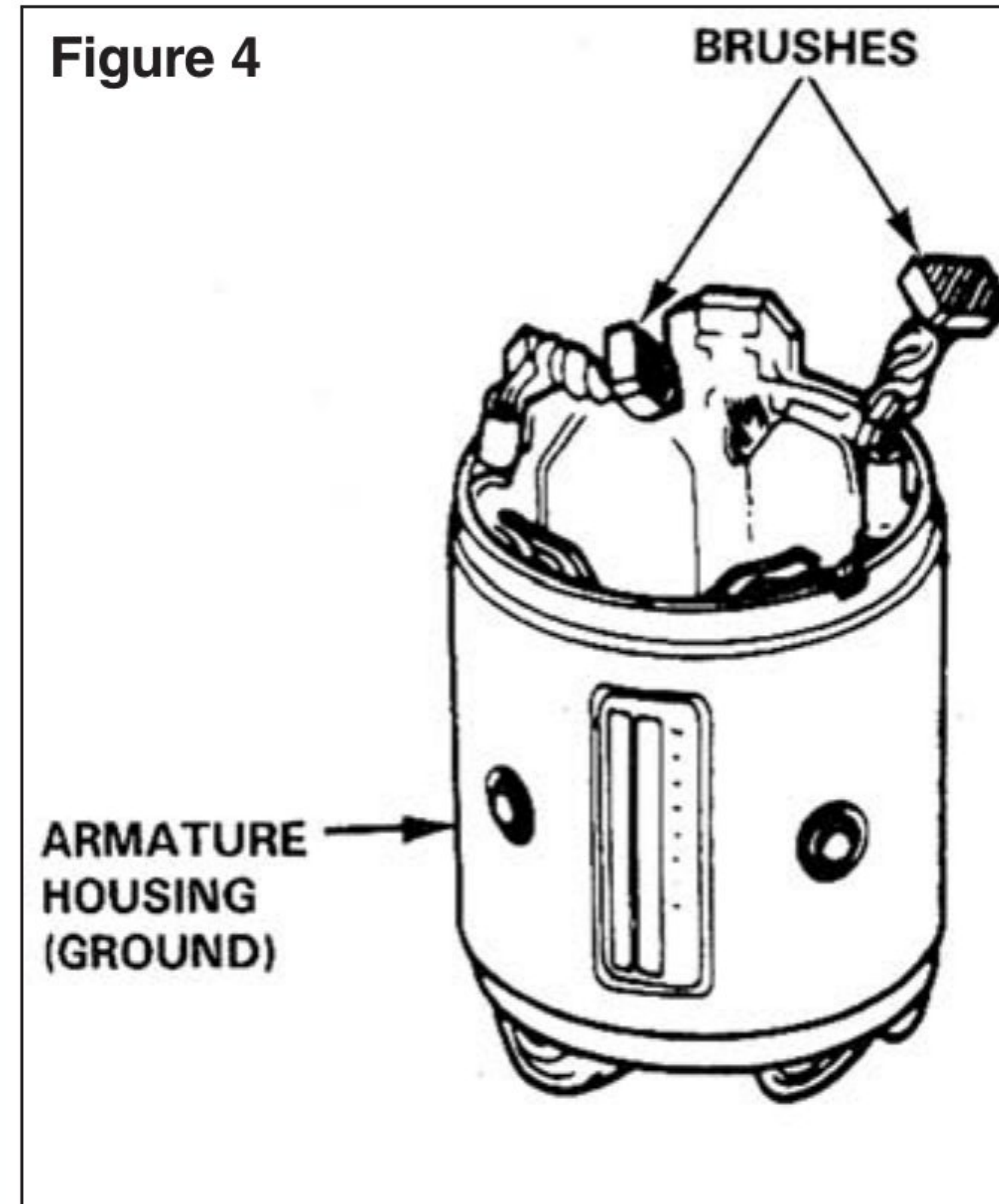


Field Winding Test

Check for continuity between the brushes. If no continuity, replace the armature housing.

Check for continuity between each brush and the armature housing (ground). If continuity exists, replace the armature housing.

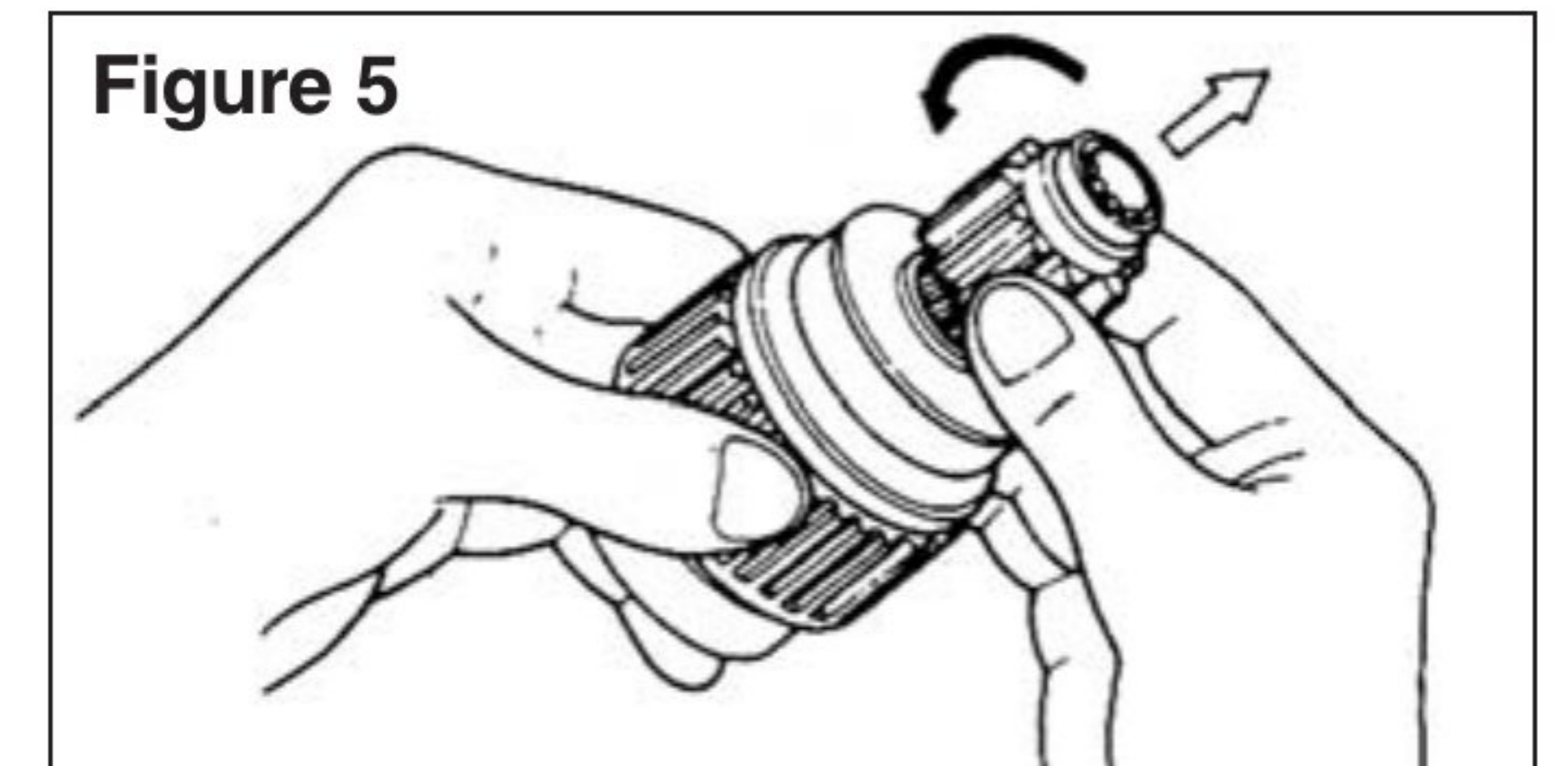
Figure 4



Overrunning Clutch Check

Move the overrunning clutch along the shaft. If it doesn't move freely, or if the clutch slips when the armature is rotated while holding the drive gear, replace the clutch assembly.

Figure 5



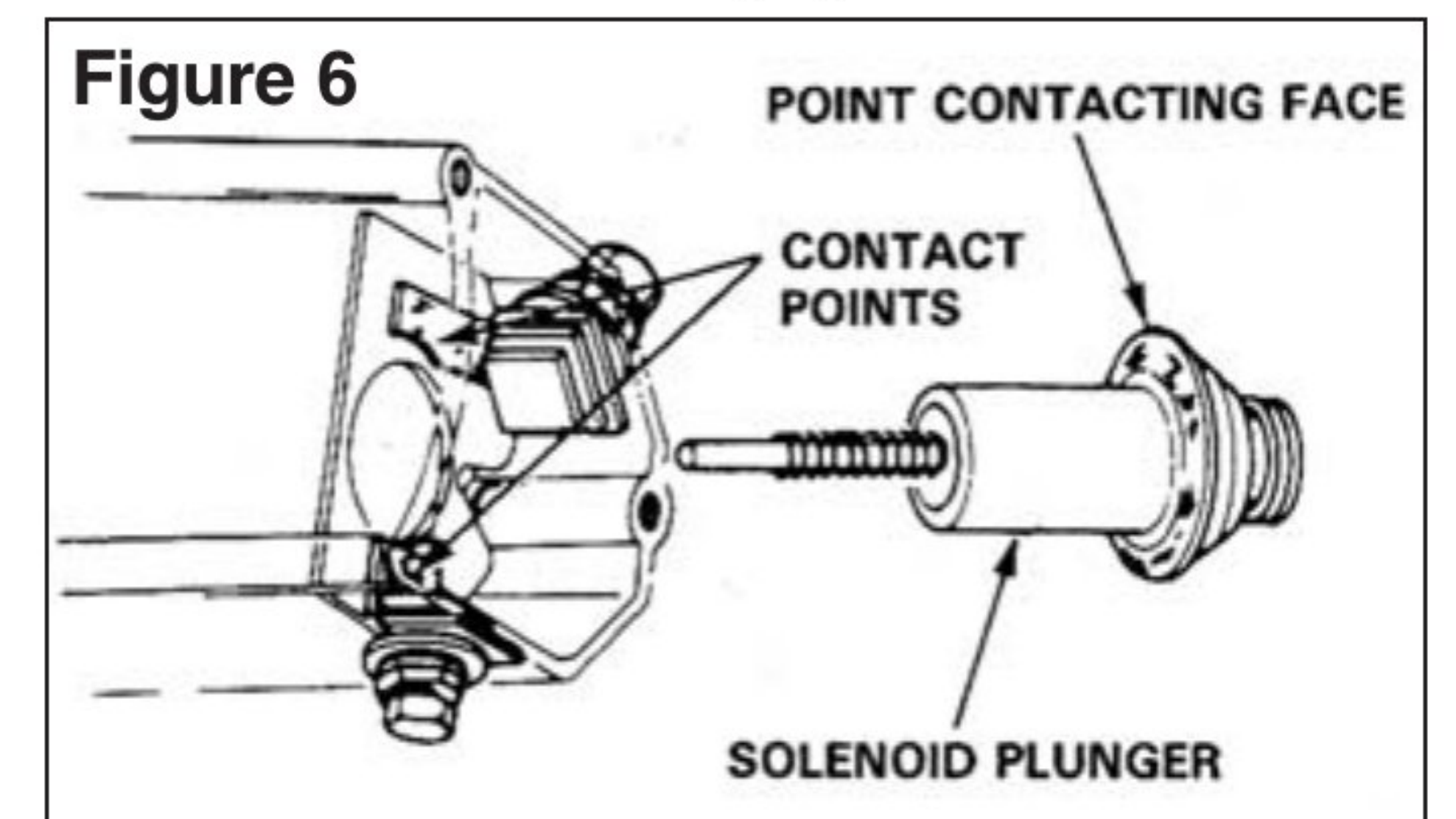
If the gear is worn or damaged, replace the overrunning clutch assembly; the gear is not available separately.

Note: Check condition of the fly-wheel or torque converter ring gear if the starter drive gear teeth are damaged.

Solenoid Plunger Inspection (ND)

Check the contact points, and face of the starter solenoid plunger for burning, pitting or any other defects. If surfaces are rough, recondition with a strip of no. 500 or no. 600 sandpaper.

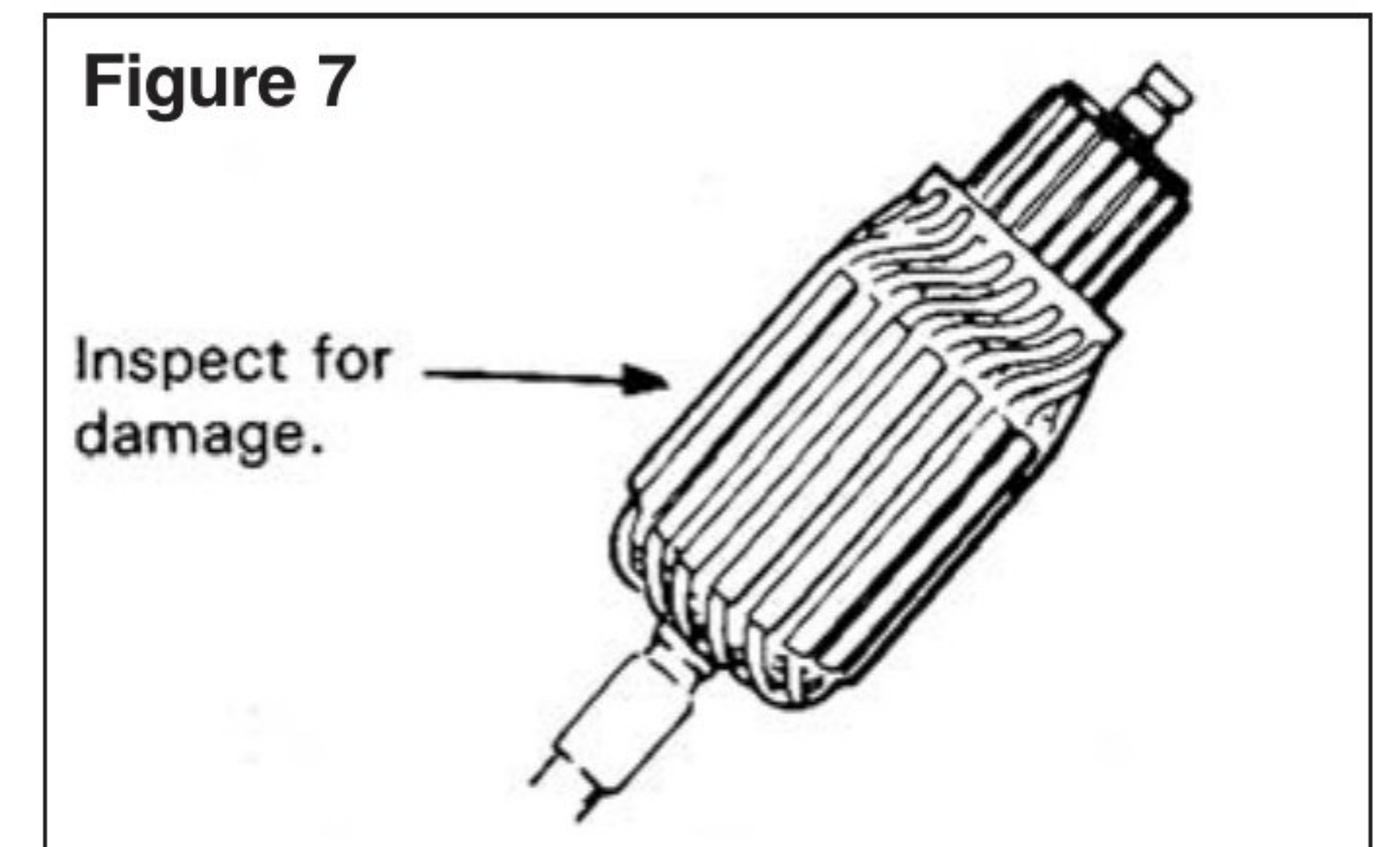
Figure 6



Starter Armature Inspection and Test

1. Inspect the armature for wear or damage due to contact with the field coil magnets.

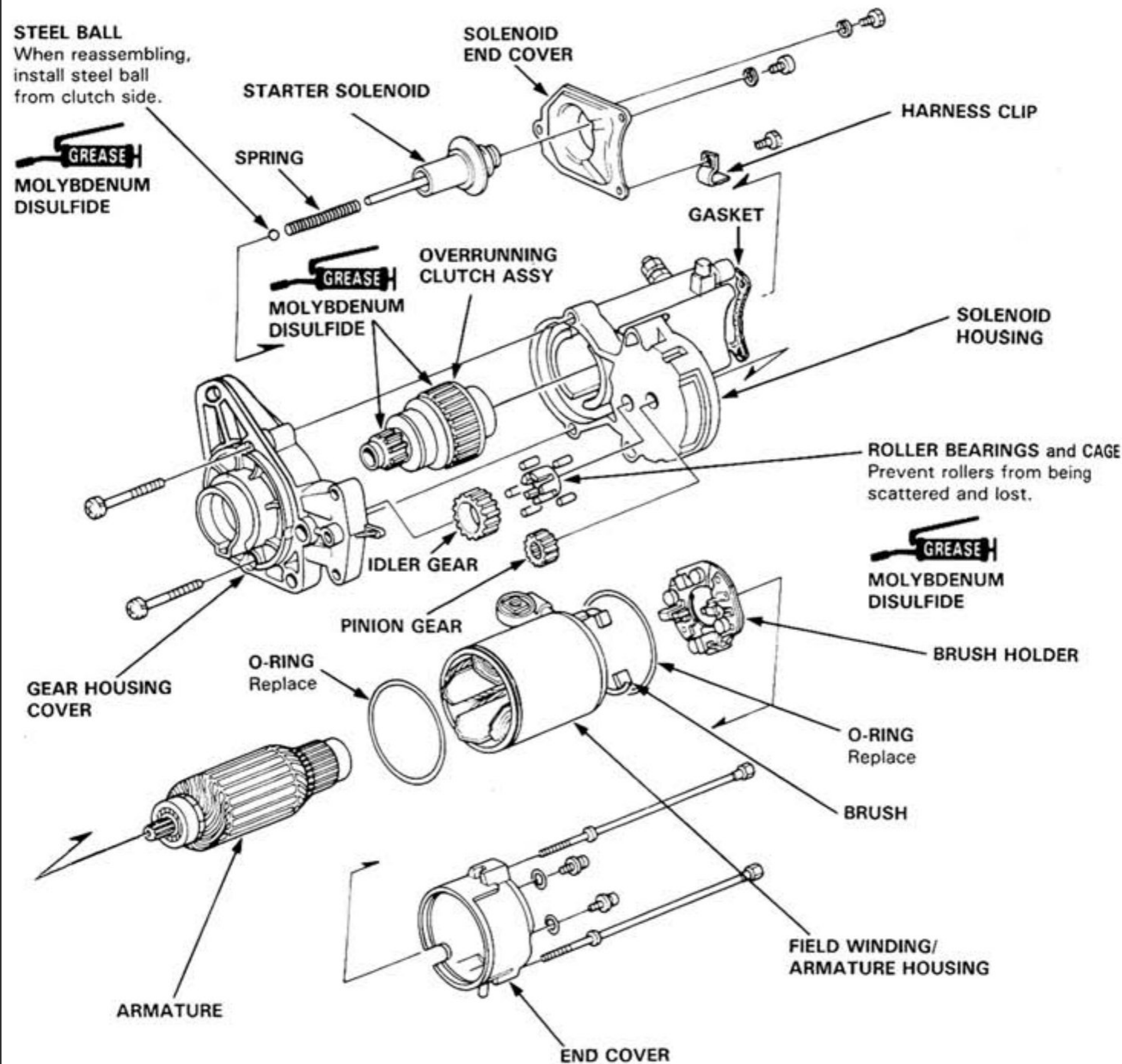
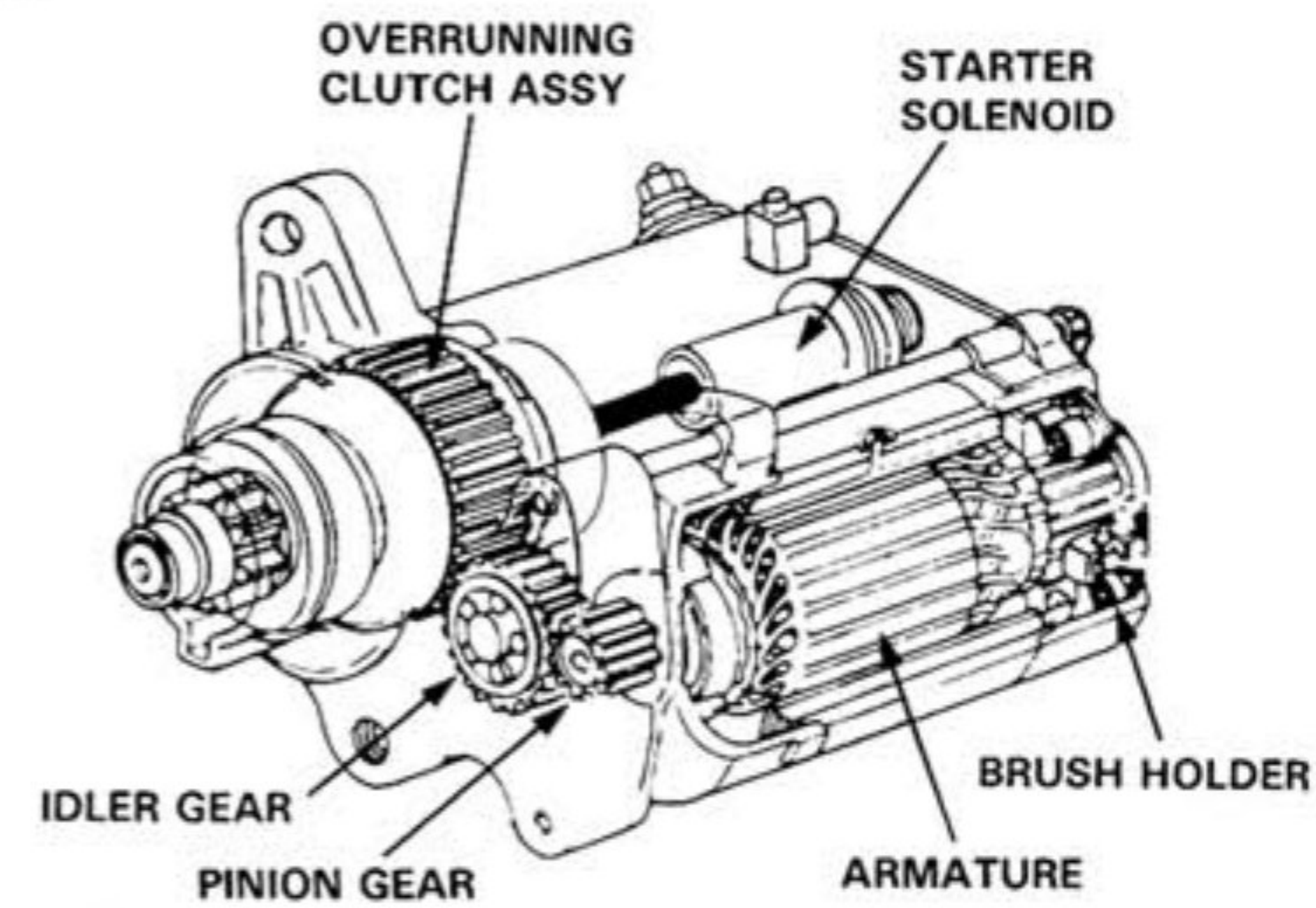
Figure 7



Starter Overhaul (Gear Reduction 1.4 kw)

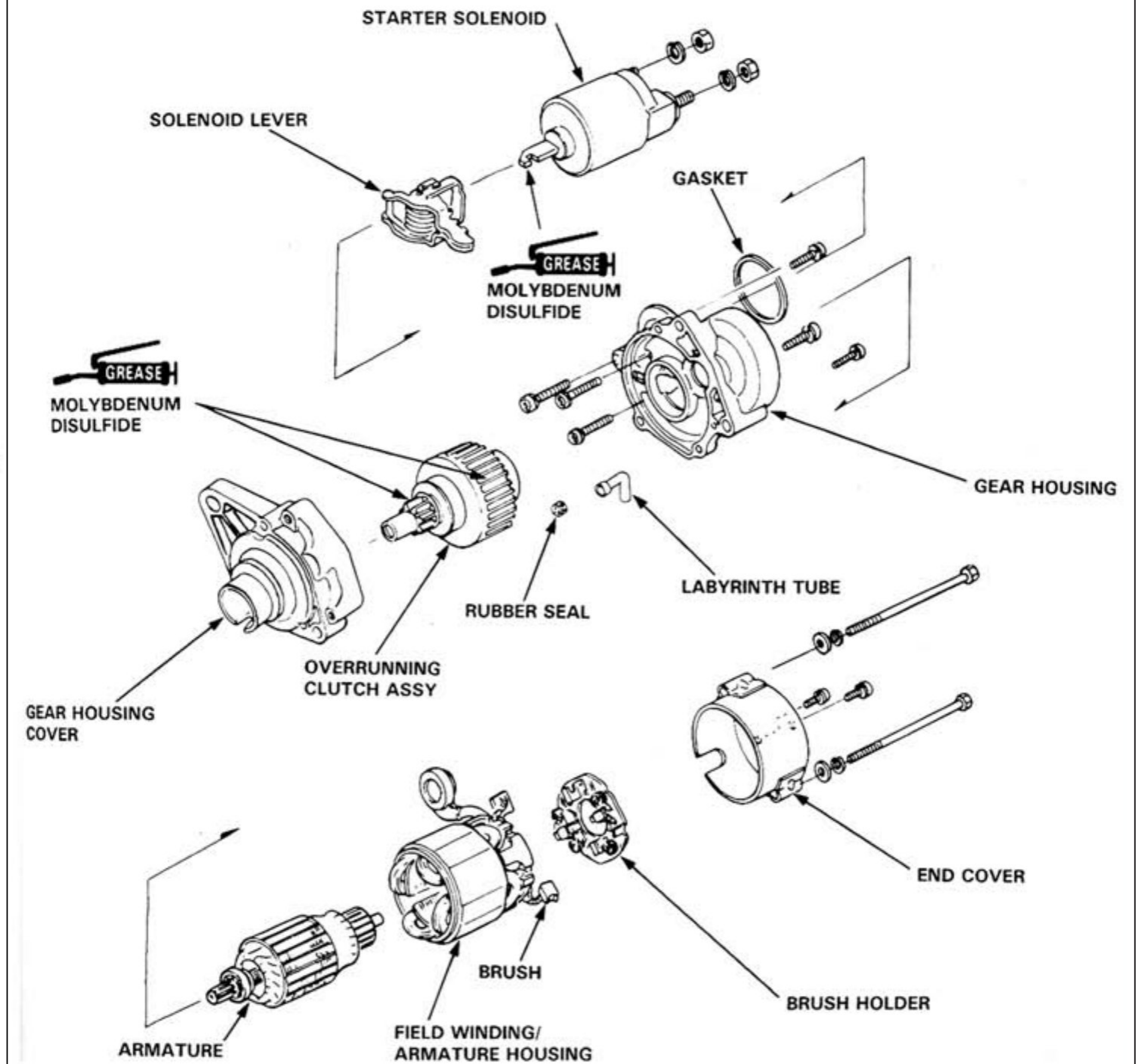
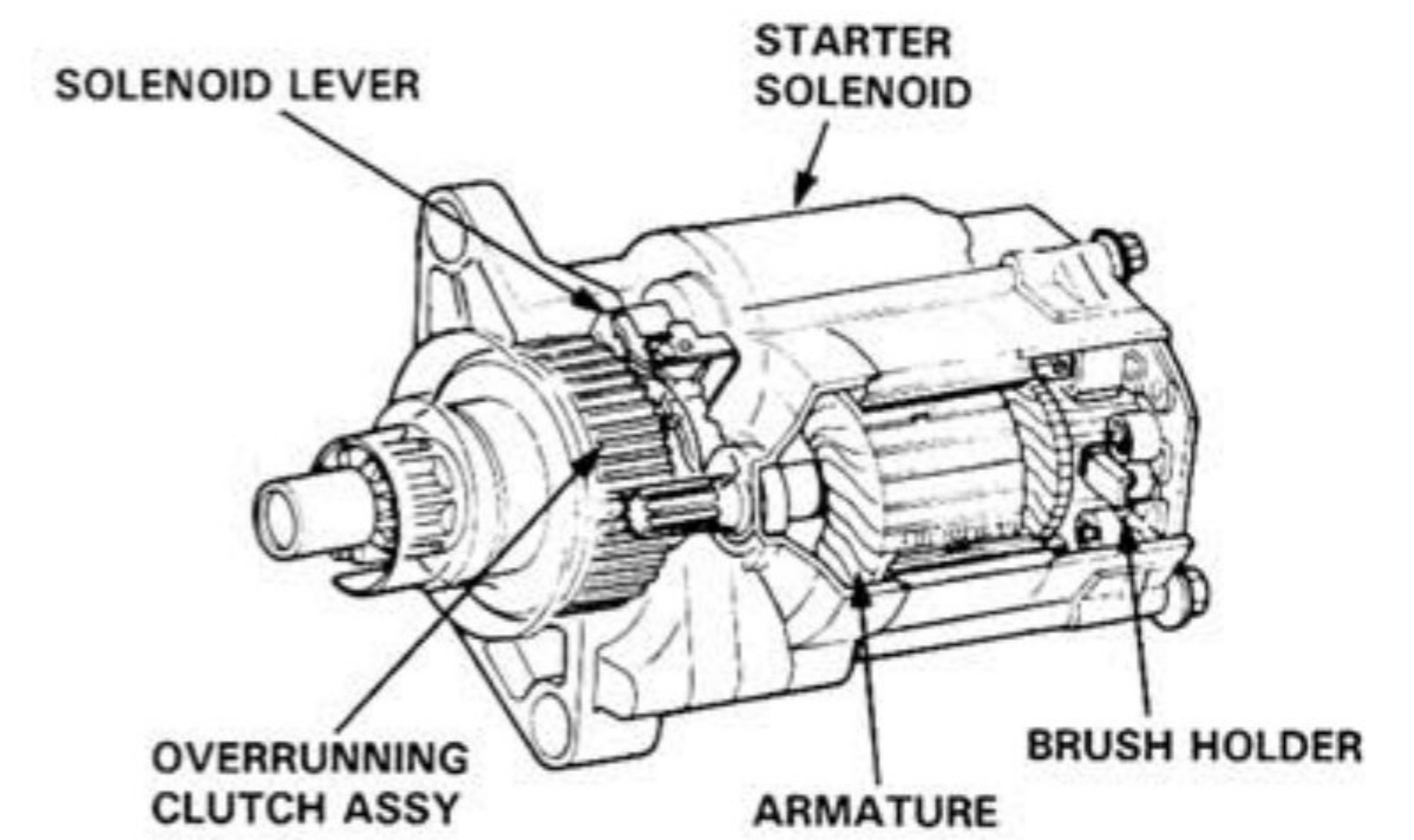
ND:

CAUTION: Disconnect the ground cable from the battery post before removing the starter.



Mitsuba:

CAUTION: Disconnect the ground cable from the battery post before removing the starter.



2. A dirty or burnt surface may be resurfaced with emery cloth or lathe within the following specifications.

Commutator Diameter
Standard (New):

ND:

29.9 to 30.0 mm (1.18 in.)

Mitsuba:

28.0 to 28.1 mm (1.11 in.)

Service Limit:

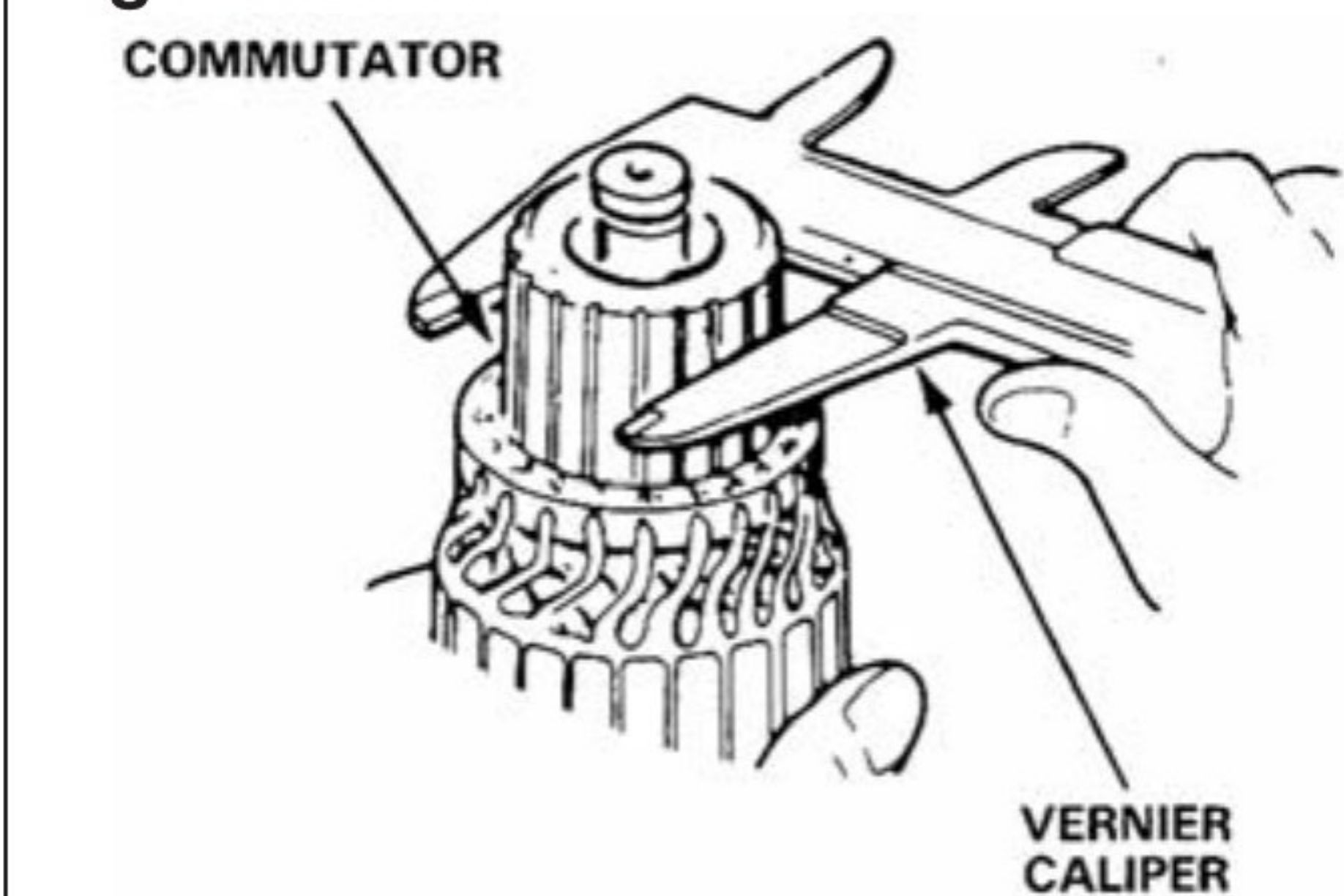
ND:

29.0 mm (1.14 in.)

Mitsuba:

27.5 mm (1.08 in.)

Figure 8



Commutator Runout

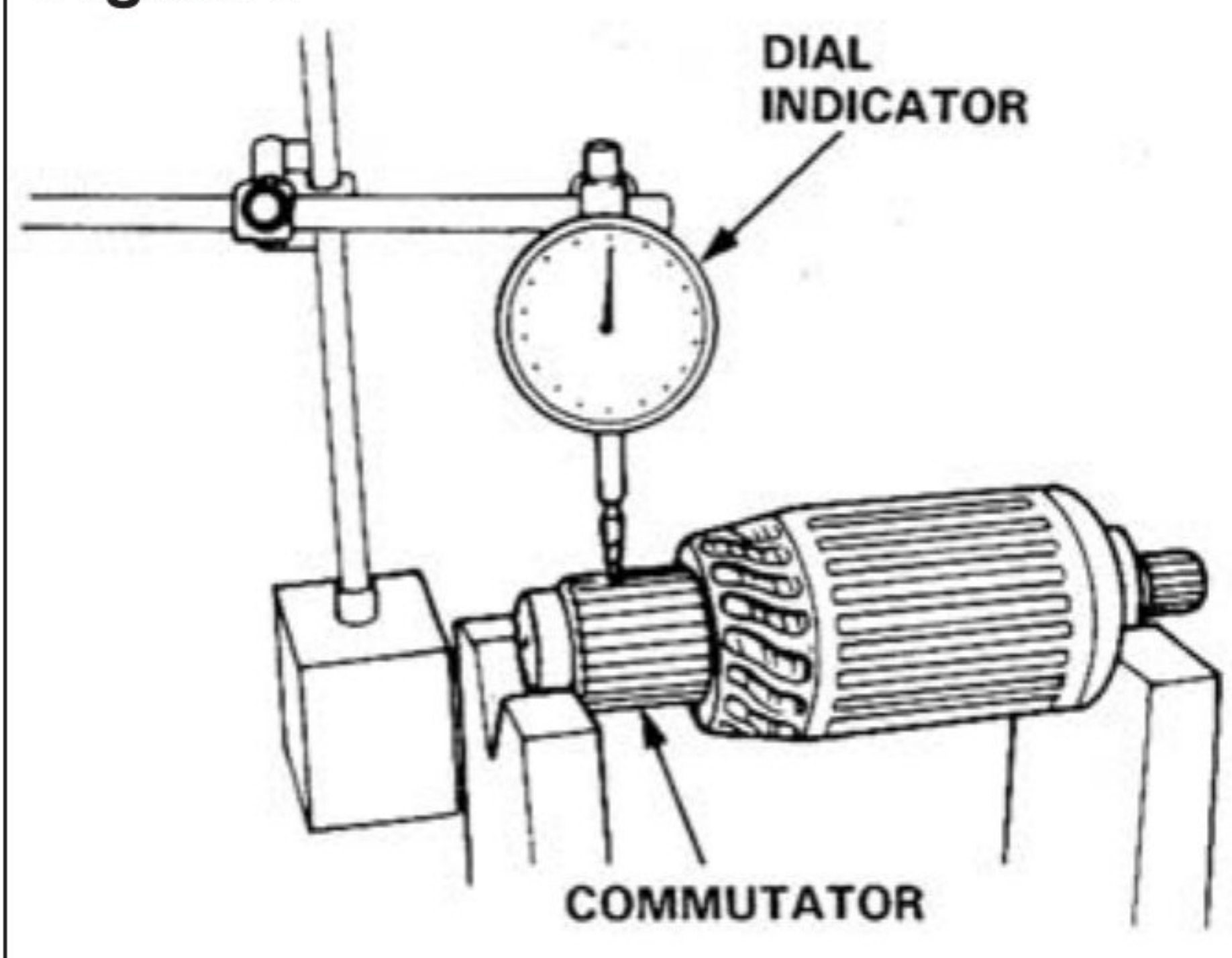
Standard (New):

0 to 0.02 mm (0 to 0.0008 in.)

Service Limit:

0.05 mm (0.002 in.)

Figure 9



3. If the commutator runout and diameter are within limits, check the commutator for damage or for carbon dust or brass chips between the segments.

4. If surface is dirty, recondition it with a no. 500 or no. 600 sandpaper. Then, check mica depth. If necessary, undercut mica with a hacksaw blade to achieve proper depth as shown.

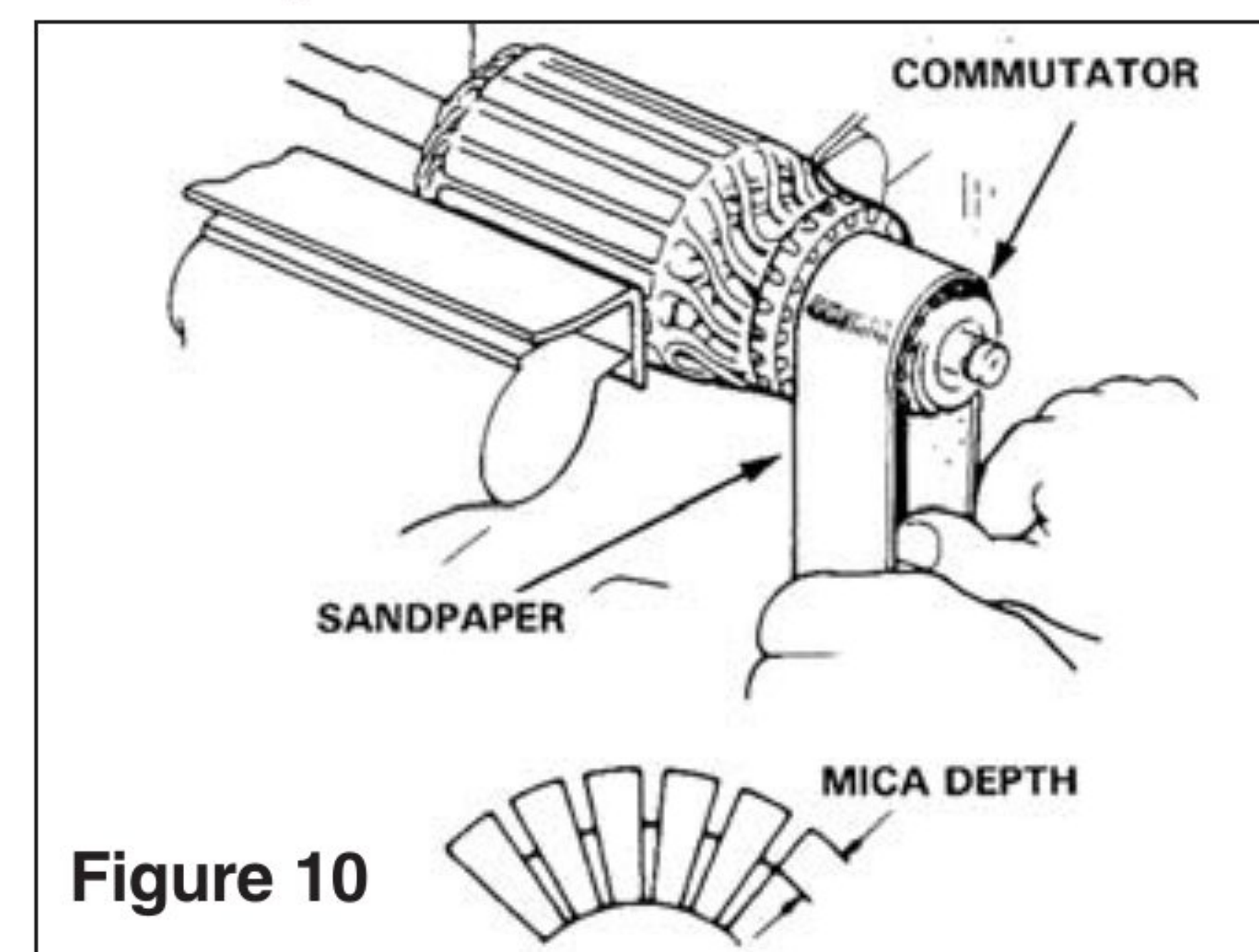


Figure 10

Commutator Mica Depth

Standard (New):

ND:

0.5 to 0.8 mm (0.020 to 0.031 in.)

Mitsuba:

0.4 to 0.5 mm (0.016 to 0.020 in.)

Service Limit:

ND:

0.2 mm (0.008 in.)

Figure 14

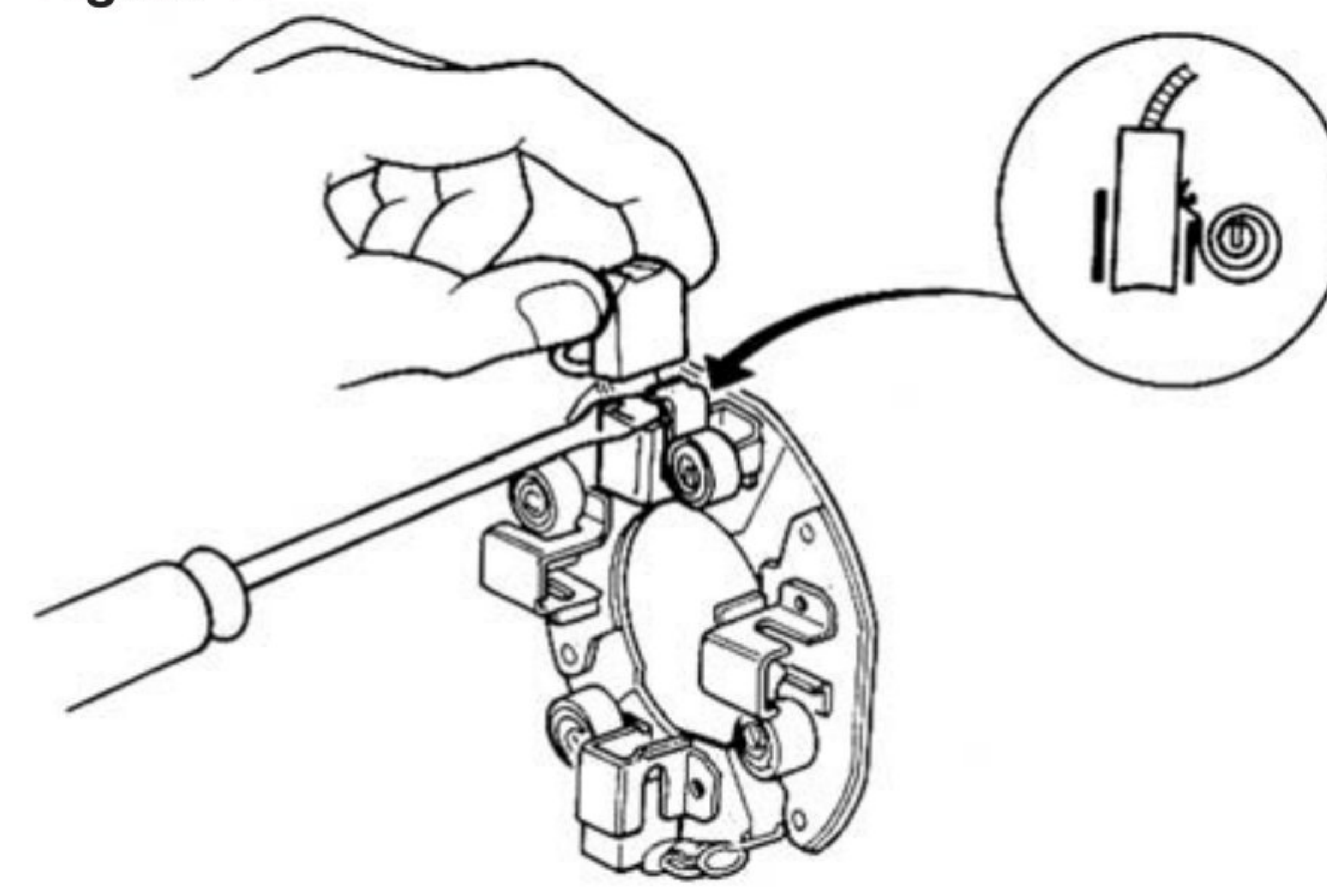


Figure 15

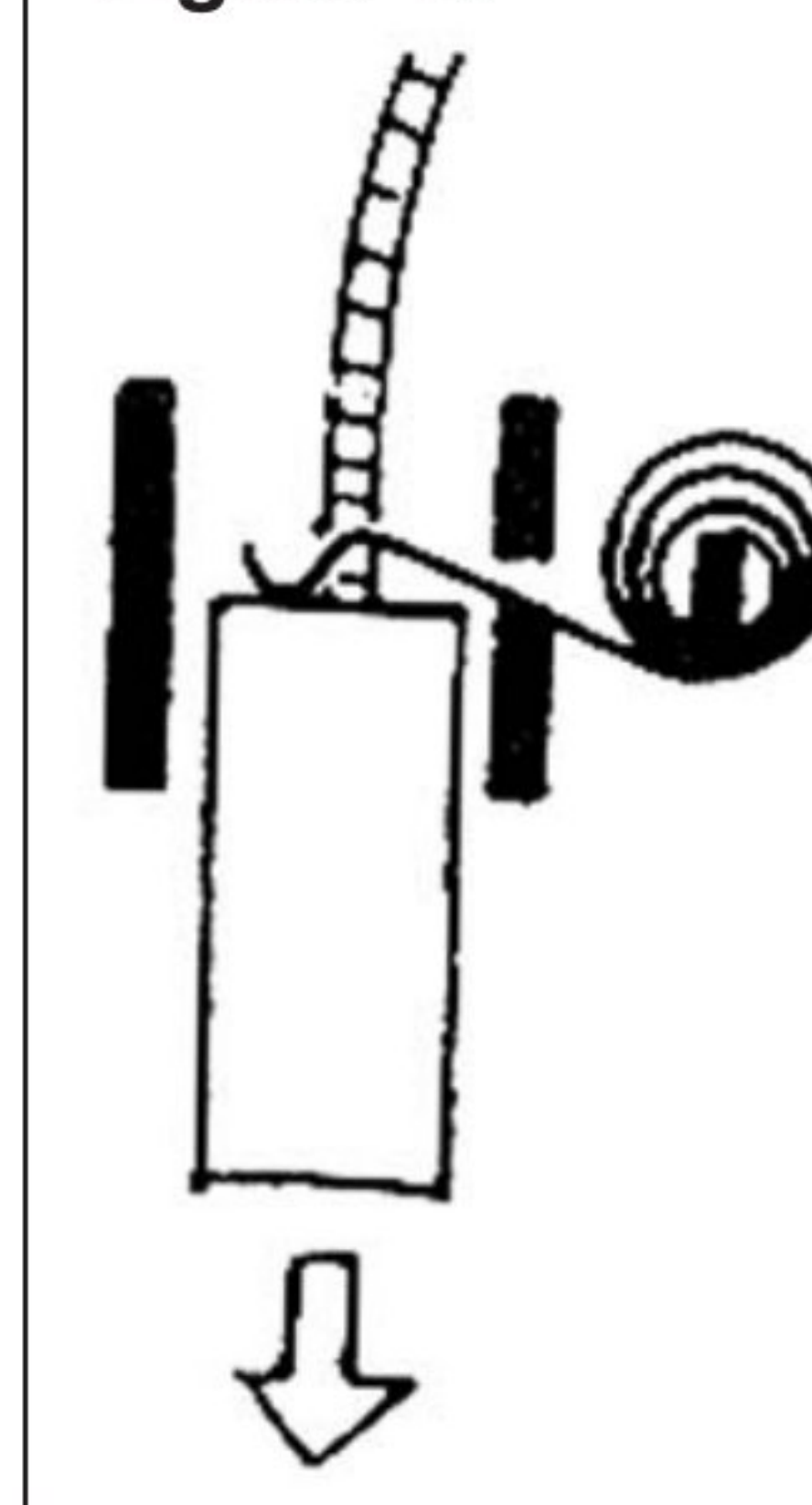
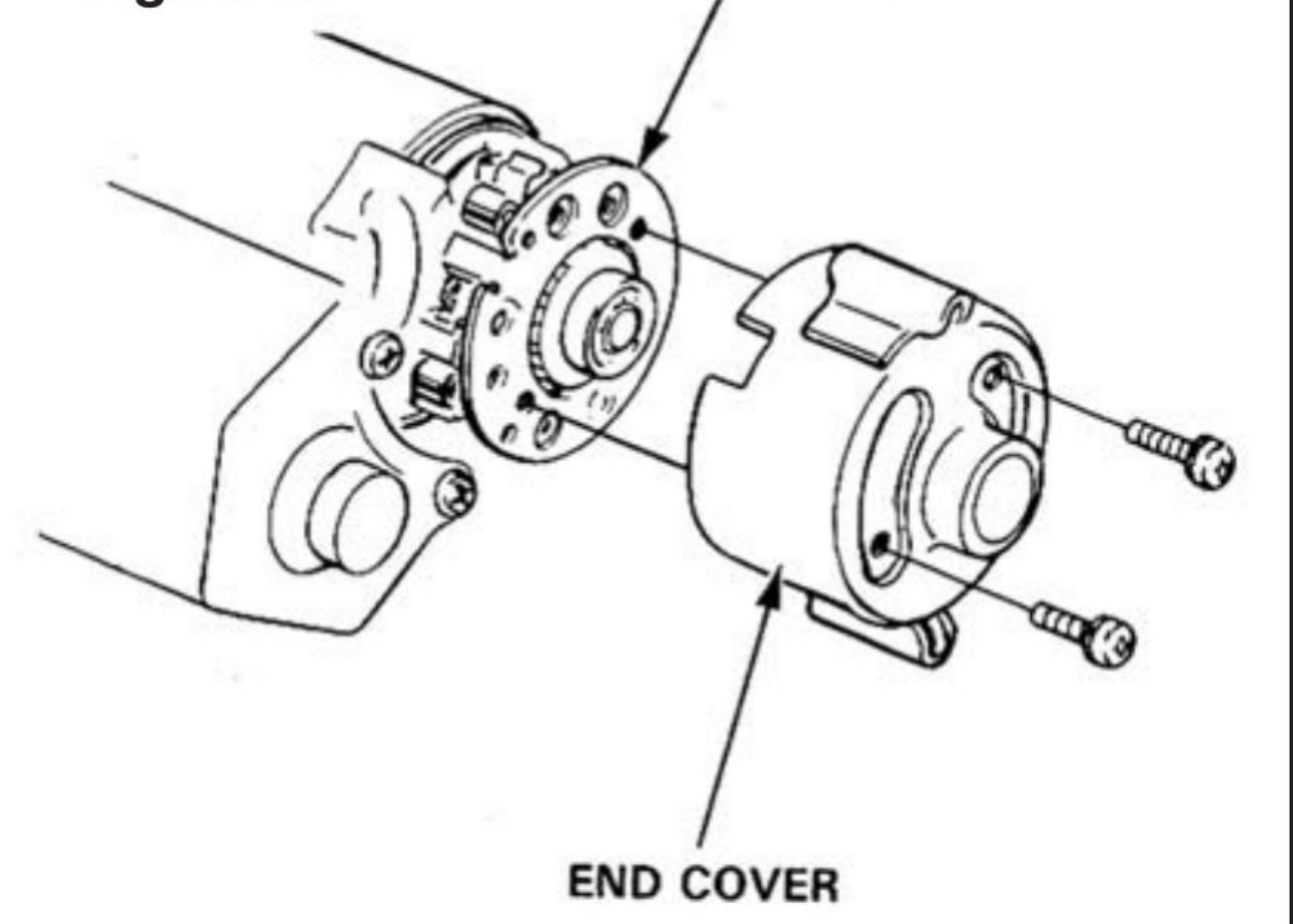


Figure 16

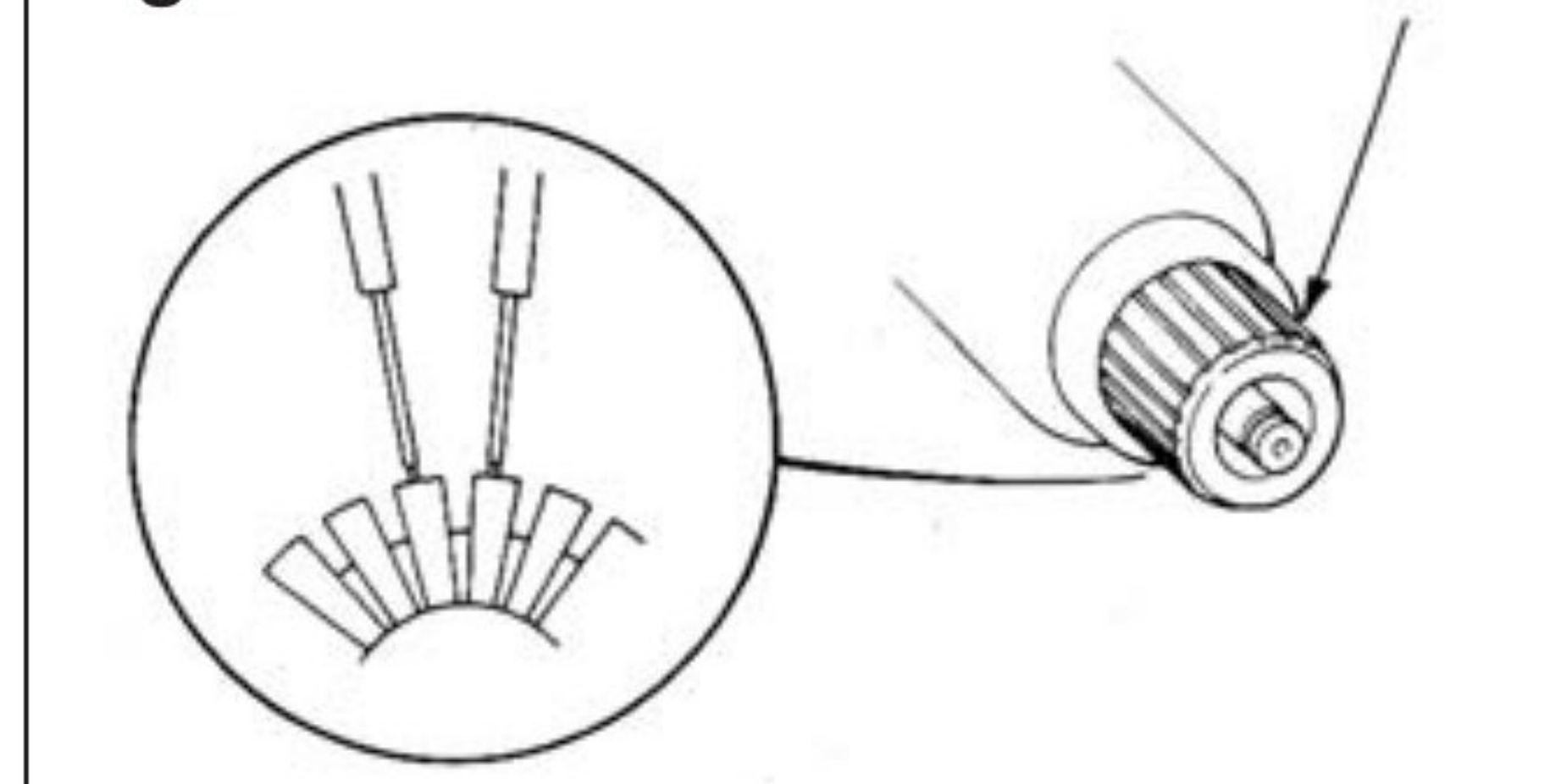


Mitsuba:

0.15 mm (0.006 in.)

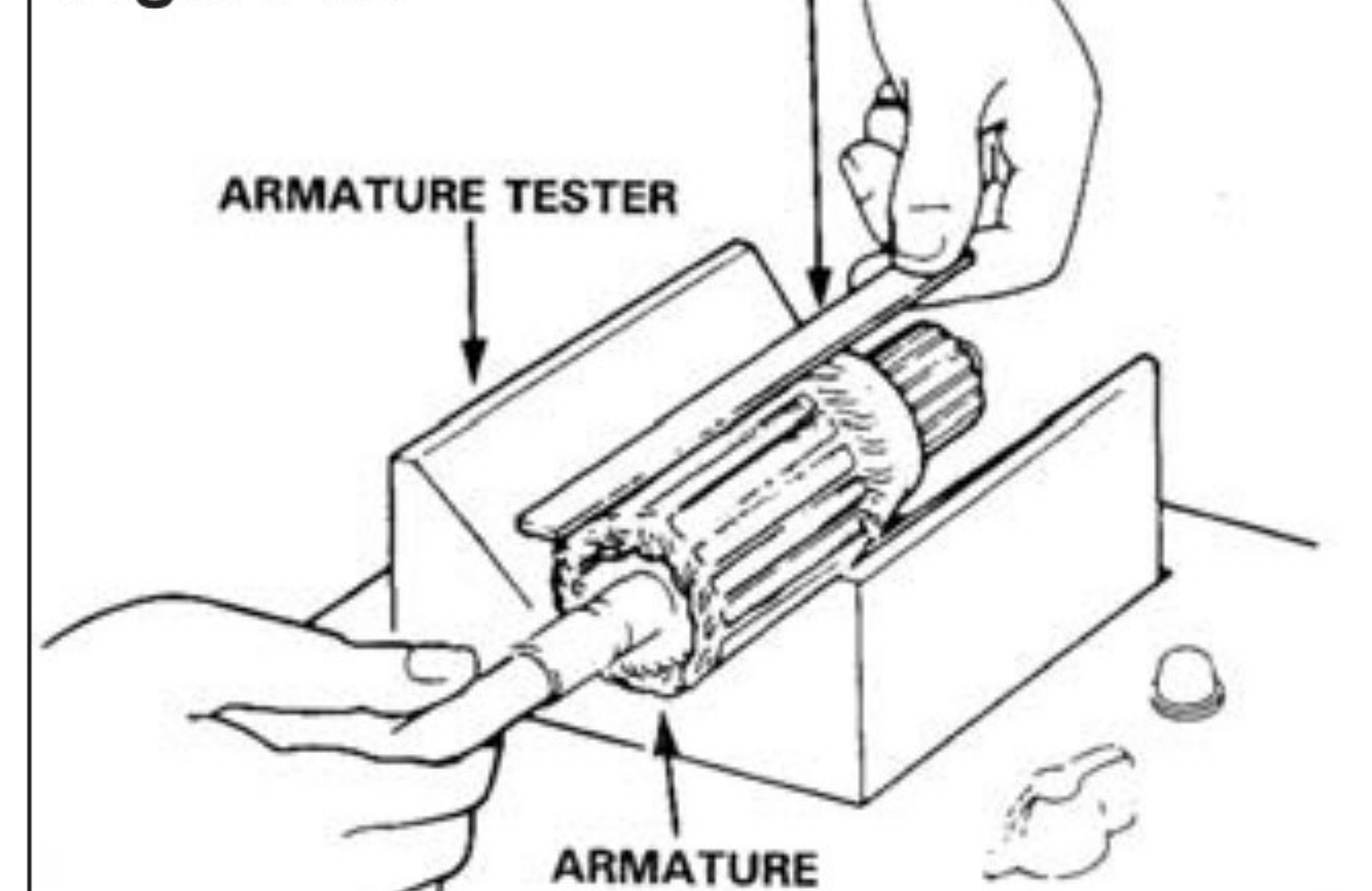
5. Check for continuity between each segment of the commutator. If an open circuit exists between any segments, replace the armature.

Figure 11



6. Place the armature on an armature tester. Hold a hacksaw blade on the armature core.

Figure 12

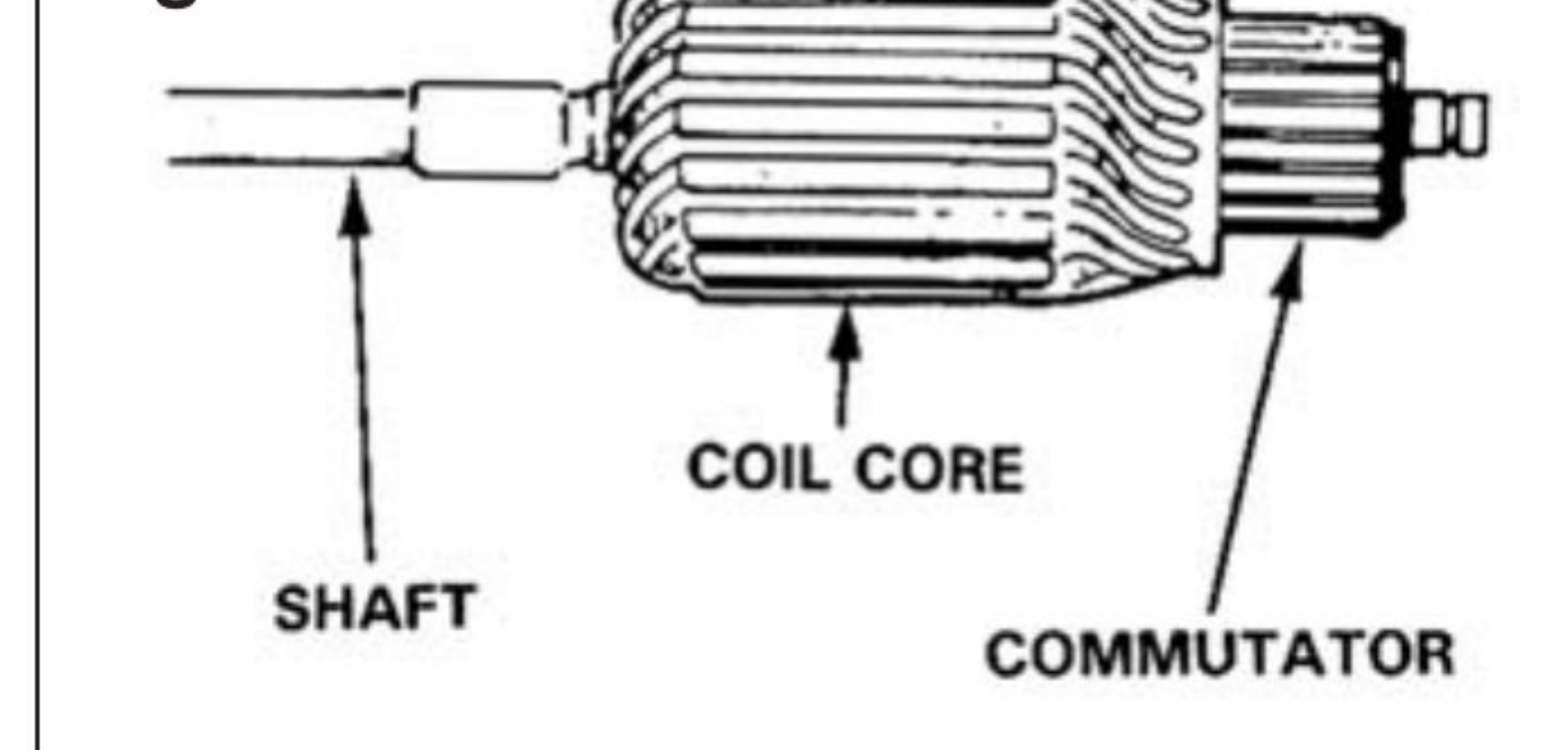


If the blade is attracted to the core or vibrates while core is turned, the armature is shorted.

Replace the armature.

7. With an ohmmeter, check that no continuity exists between the commutator and armature coil core, and between the commutator and armature shaft. If continuity exists, replace the armature.

Figure 13



Reassembly

Reassemble the starter in the reverse order of disassembly. See Fig. 14–16.

Pry back each brush spring with a screwdriver, then position the brush about halfway out of its holder, and release the spring to hold it there.

Install the armature in the housing. Next pry back each brush spring again and push the brush down until it seats against the commutator, then release the spring against the end of the brush.

Install the end cover on the brush holder.

Figure 17—Wiring Diagram

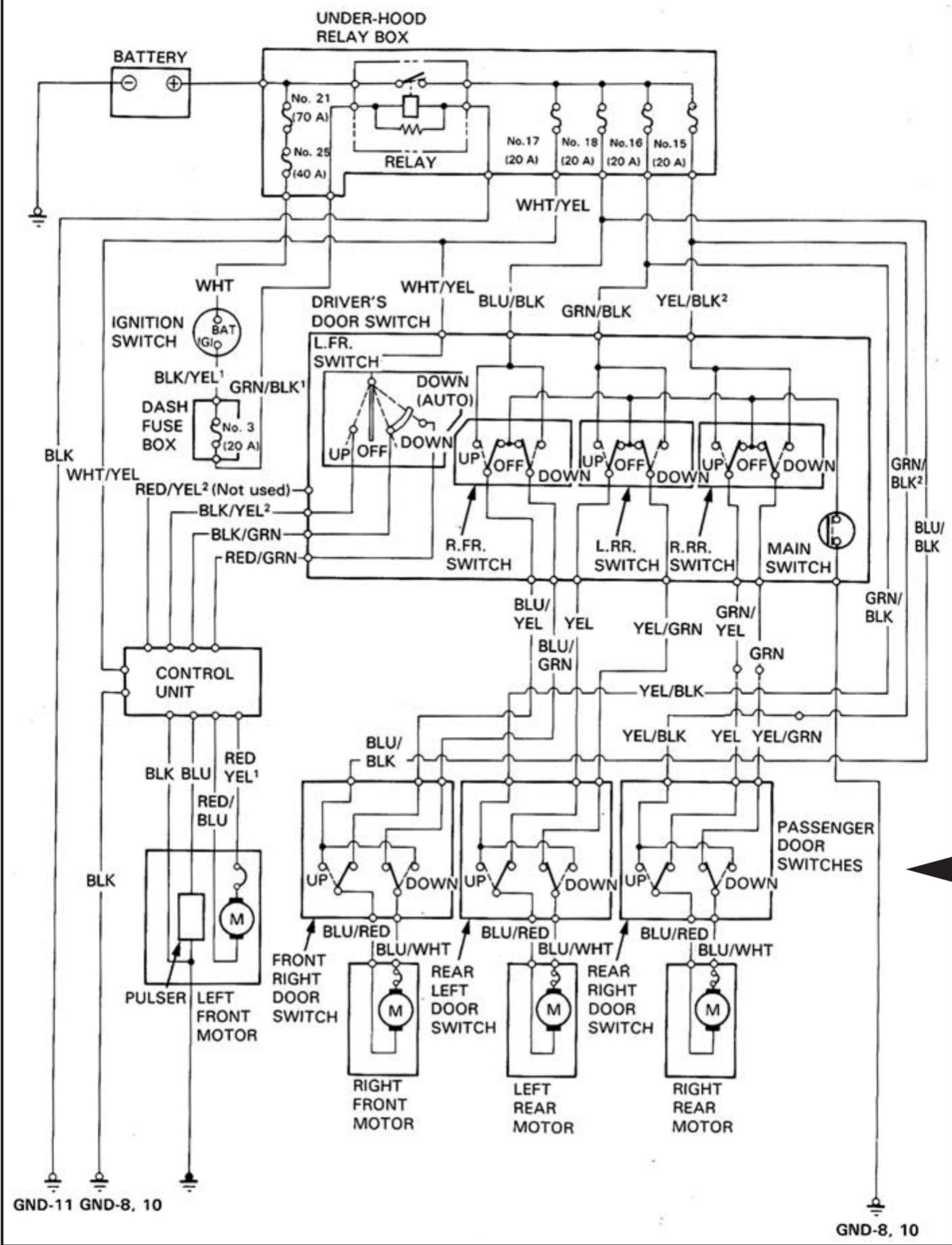


Figure 18—Troubleshooting

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

Item to be inspected	Blown No. 15 (20 A), No. 16 (20 A), No. 17 (20 A) or No. 18 (20 A) fuse in relay box	Blown No. 3 (20 A) fuse in fuse box	Relay	Control unit	Motor	Pulser in driver's door motor	Driver's door switch	Passenger door switch			Window regulator (section 21)	State of charge of battery	Poor ground	Open circuit in wires or loose or disconnected terminals
Symptom								Right front	Left rear	Right rear				
All windows do not operate.		1	3									2	GND-11	BLK/YEL ¹ or GRN/BLK ¹
Driver's door window does not operate.	1			2	4		3				5		GND-8 GND-10	WHT/YEL, BLK/YEL ² BLK/GRN, BLU/RED or BLU/WHT
Driver's door window does not operate in DOWN (AUTO).				1		2	3							RED/GRN, BLU or BLK
Passenger door windows do not operate.	Right front	1			4		3	2			5		GND-8 GND-10	BLU/BLK, BLU/YEL, BLU/GRN, BLU/RED or BLU/WHT
	Left rear	1			4		3		2		5		GND-8 GND-10	GRN/BLK, YEL, YEL/GRN, BLU/RED or BLU/WHT
	Right rear	1			4		3			2	5		GND-8 GND-10	YEL/BLK ² , GRN/YEL GRN, BLU/RED or BLU/WHT

Note: Several different wires have the same color. They have been given a number suffix to distinguish them (for example GRN/BLK¹ and GRN/BLK² are not the same).

Power Windows

Relay Test

Remove the power window relay in the relay box. There should be continuity between A and B terminals when the battery is connected to C and D terminals. There should be no continuity when the battery is disconnected.

Figure 19

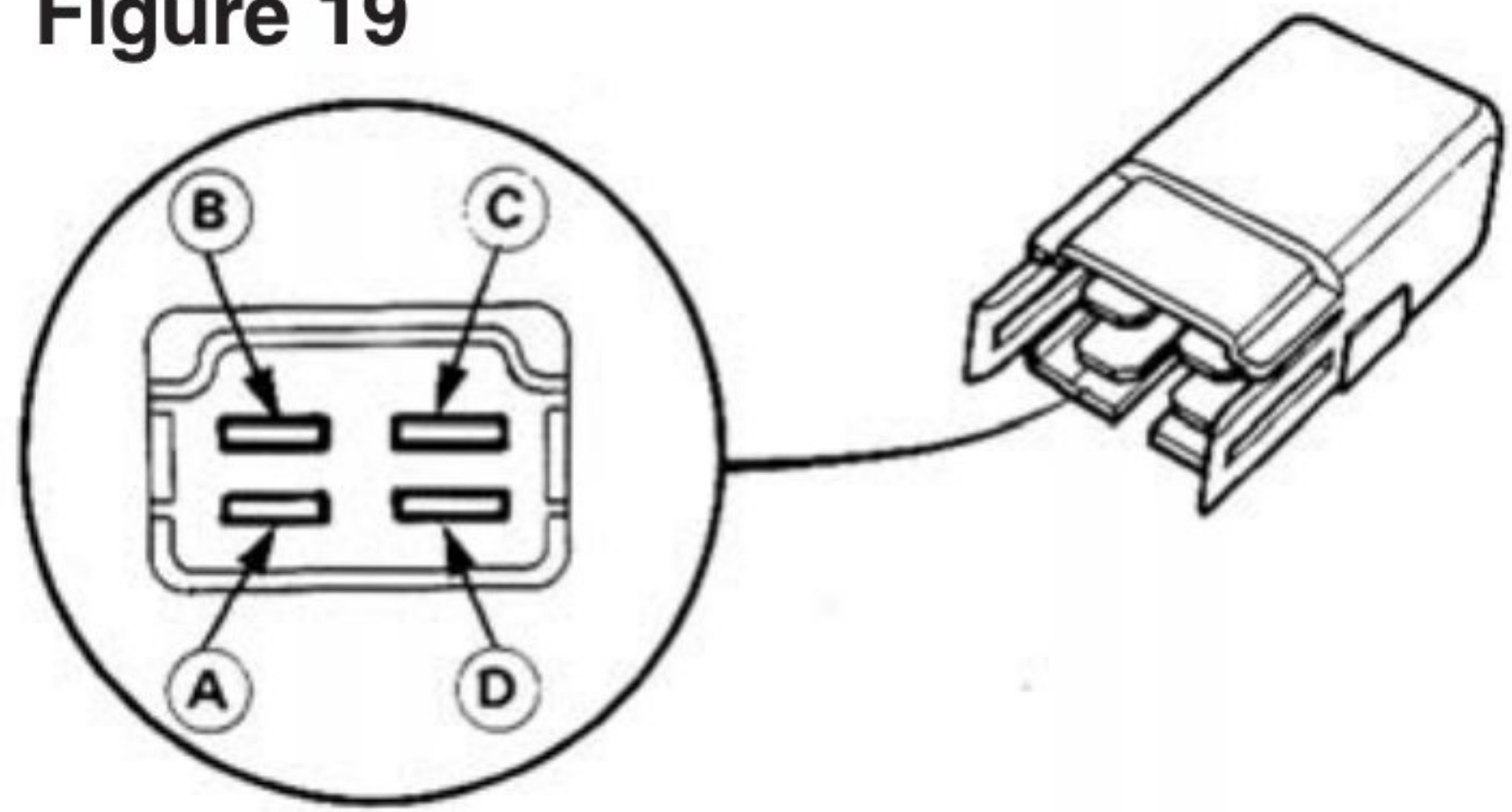
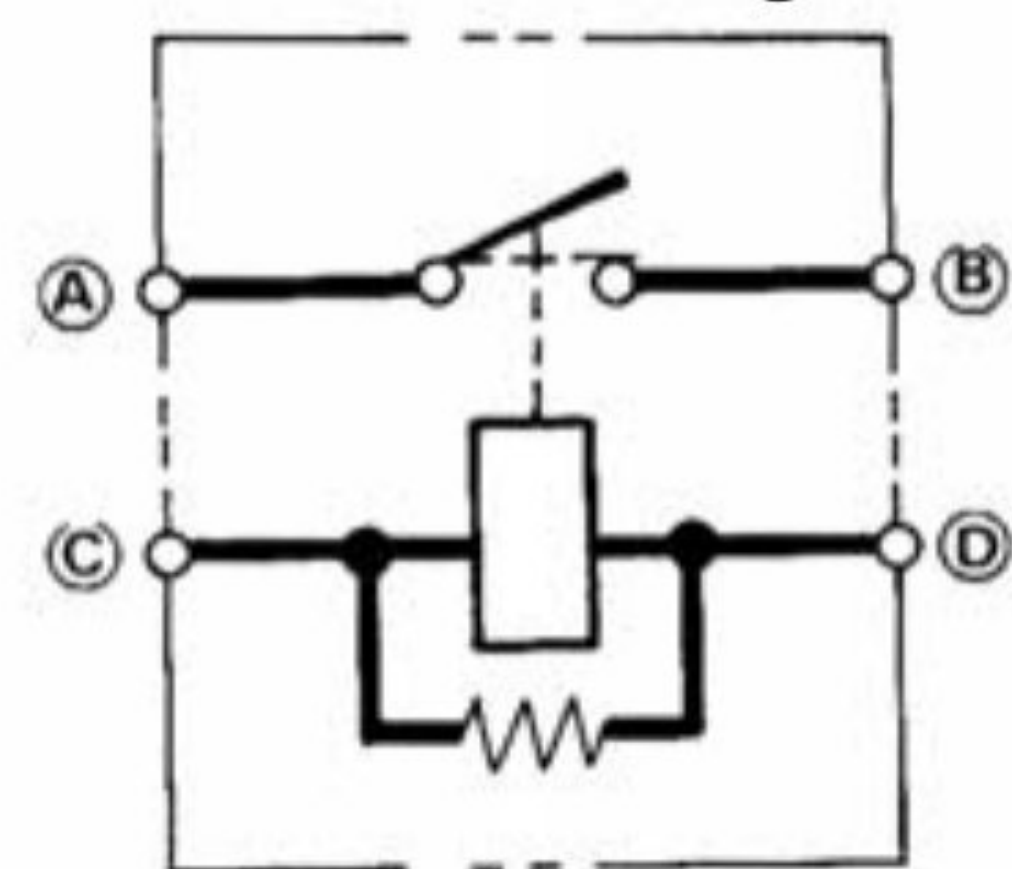


Figure 20—Circuit Diagram



Passenger Door Switch Test

Remove the door trim panel. Check for continuity between the terminals in each switch position according to the tables.

Figure 21—Rear Doors

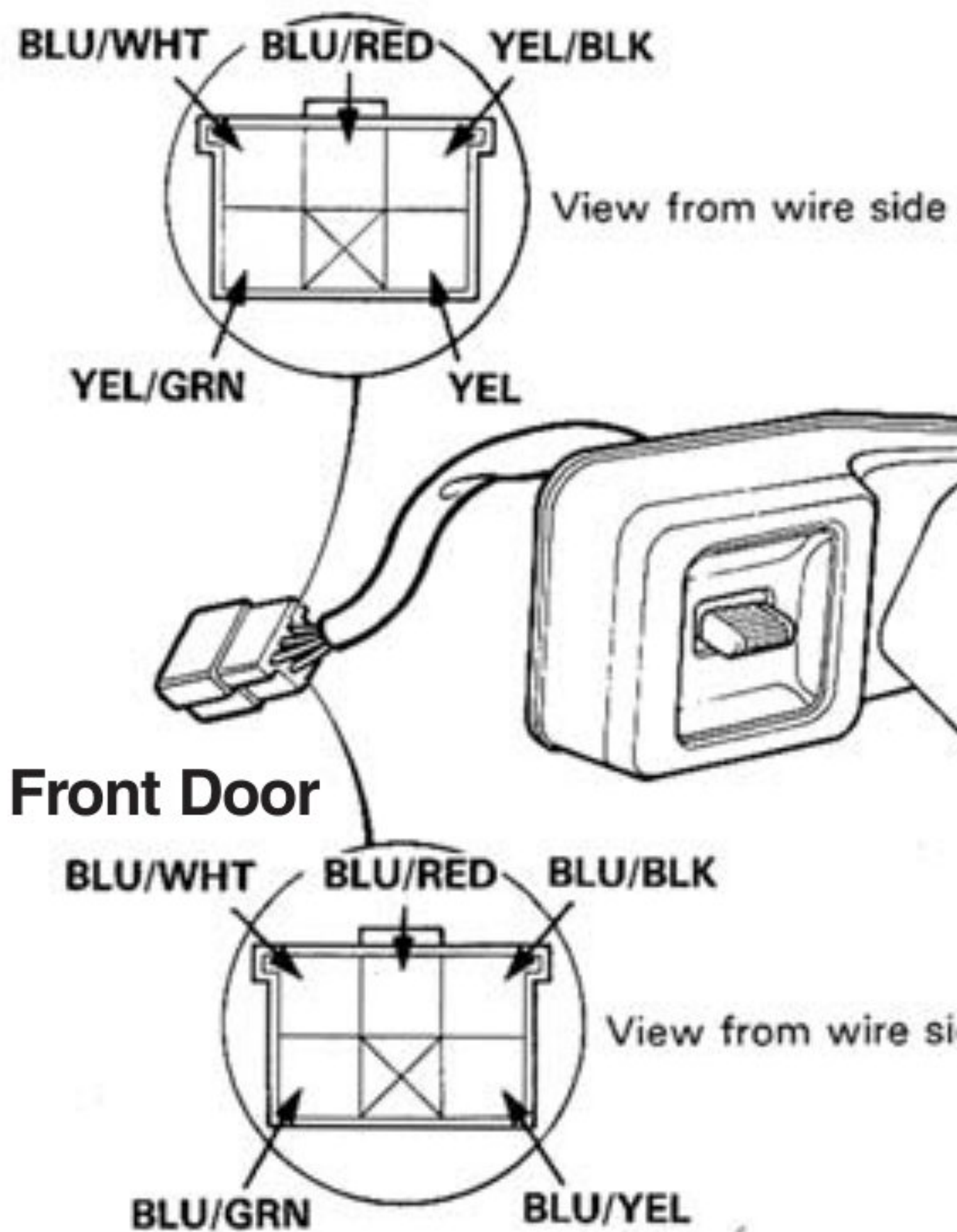


Figure 22—Rear Door Switches

Terminal	YEL/BLK	BLU/RED	BLU/WHT	YEL	YEL/GRN
Position					
UP	○—○		○—○		
OFF			○—○		
DOWN	○—○	○—○			

Figure 23—Front Door Switch

Terminal	BLU/BLK	BLU/RED	BLU/WHT	BLU/YEL	BLU/GRN
Position					
UP	○—○				
OFF			○—○		
DOWN	○—○	○—○			

Driver's Door Switch Test

Remove the door trim panel and the armrest. Check for continuity between the terminals in each switch position according to the tables.

Figure 24—Hatchback and Coupe

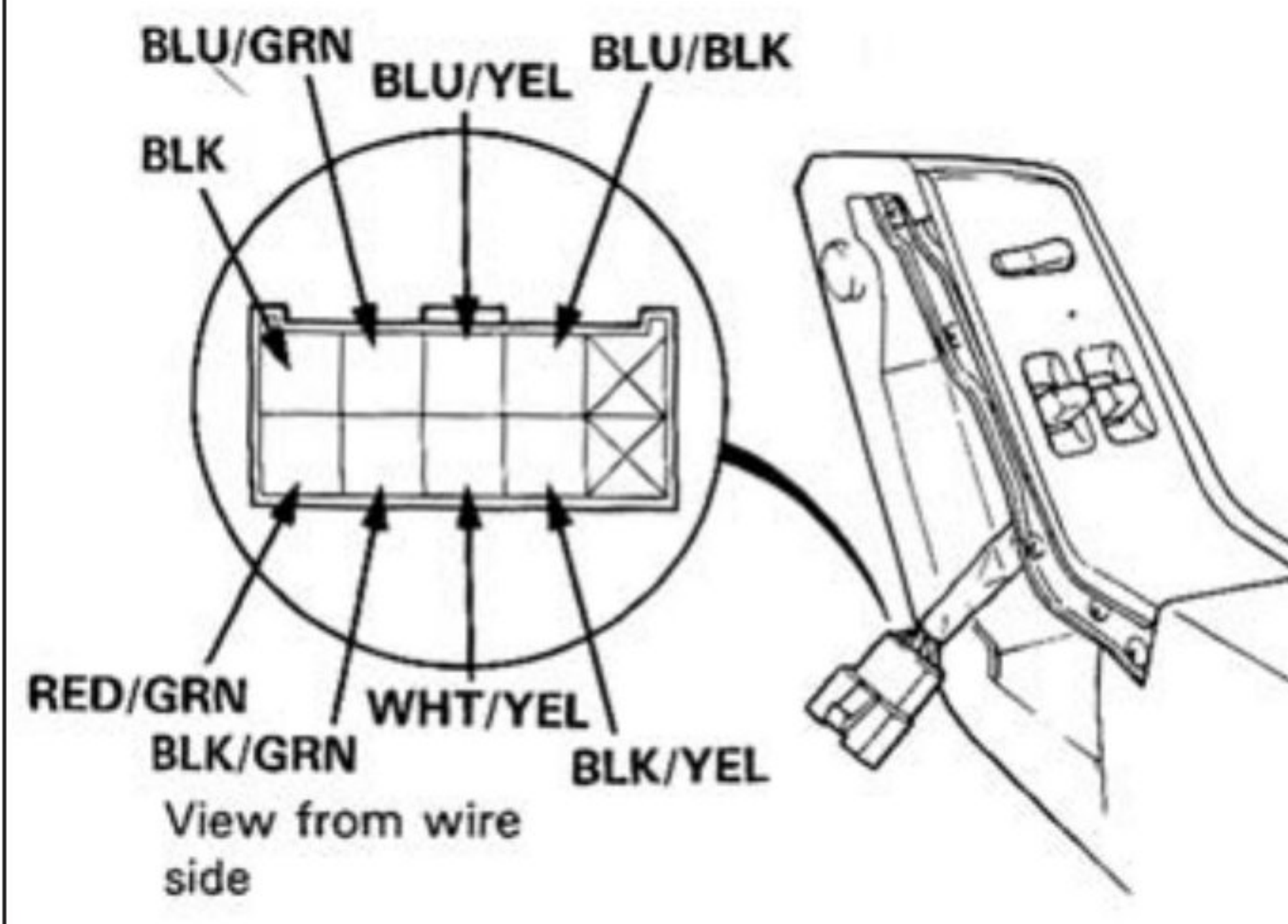


Figure 25—Sedan

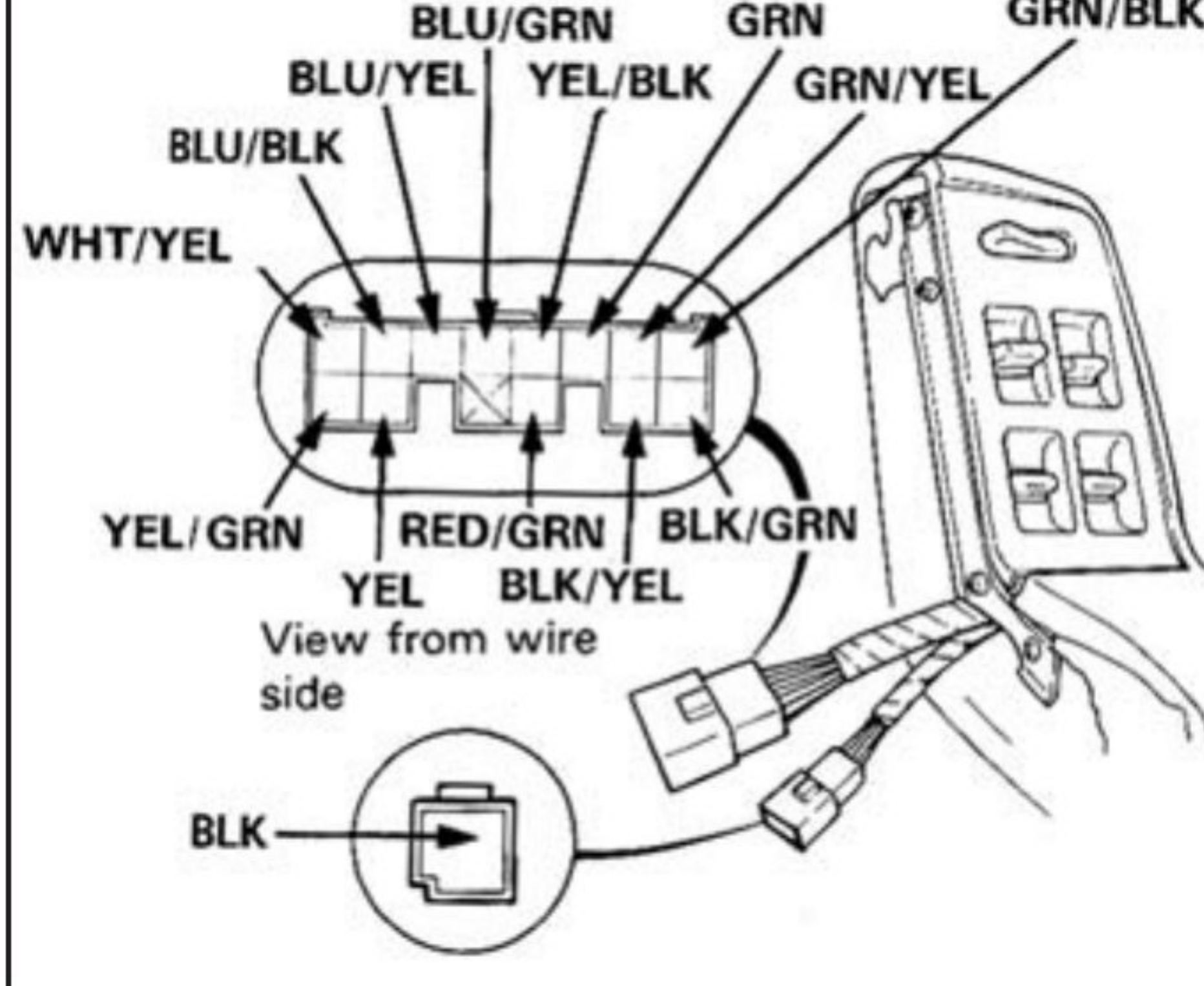


Figure 26—Left Front Switch

Terminal	BLK/YEL	WHT/YEL	BLK/GRN	RED/GRN
Position				
UP	○—○			
OFF				
DOWN		○—○	○—○	
DOWN (AUTO)		○—○	○—○	○—○

Figure 27—Right Front Switch

Position	Terminal	BLU/BLK	BLU/YEL	BLU/GRN	BLK
UP	ON	○—○	○—○	○—○	
UP	OFF	○—○	○—○		
OFF	ON		○—○	○—○	○—○
OFF	OFF		○—○	○—○	
DOWN	ON	○—○	○—○	○—○	
DOWN	OFF		○—○	○—○	
	Main Switch				

Figure 28—Left Rear Switch

Position	Terminal	YEL/BLK	YEL	YEL/GRN	BLK
UP	ON	○—○	○—○	○—○	
UP	OFF	○—○	○—○		
OFF	ON		○—○	○—○	○—○
OFF	OFF		○—○	○—○	
DOWN	ON	○—○	○—○	○—○	
DOWN	OFF		○—○	○—○	
	Main Switch				

Figure 29—Right Rear Switch

Position	Terminal	GRN/BLK	GRN/YEL	GRN	BLK
UP	ON	○—○	○—○	○—○	
UP	OFF	○—○	○—○		
OFF	ON		○—○	○—○	○—○
OFF	OFF		○—○	○—○	
DOWN	ON	○—○	○—○	○—○	
DOWN	OFF		○—○	○—○	
	Main Switch				

Switch Replacement

Remove the door trim panel and the armrest. Remove the switch by removing the two screws on passenger doors, or the four screws on driver's door.

Figure 30—Driver's Door Switch

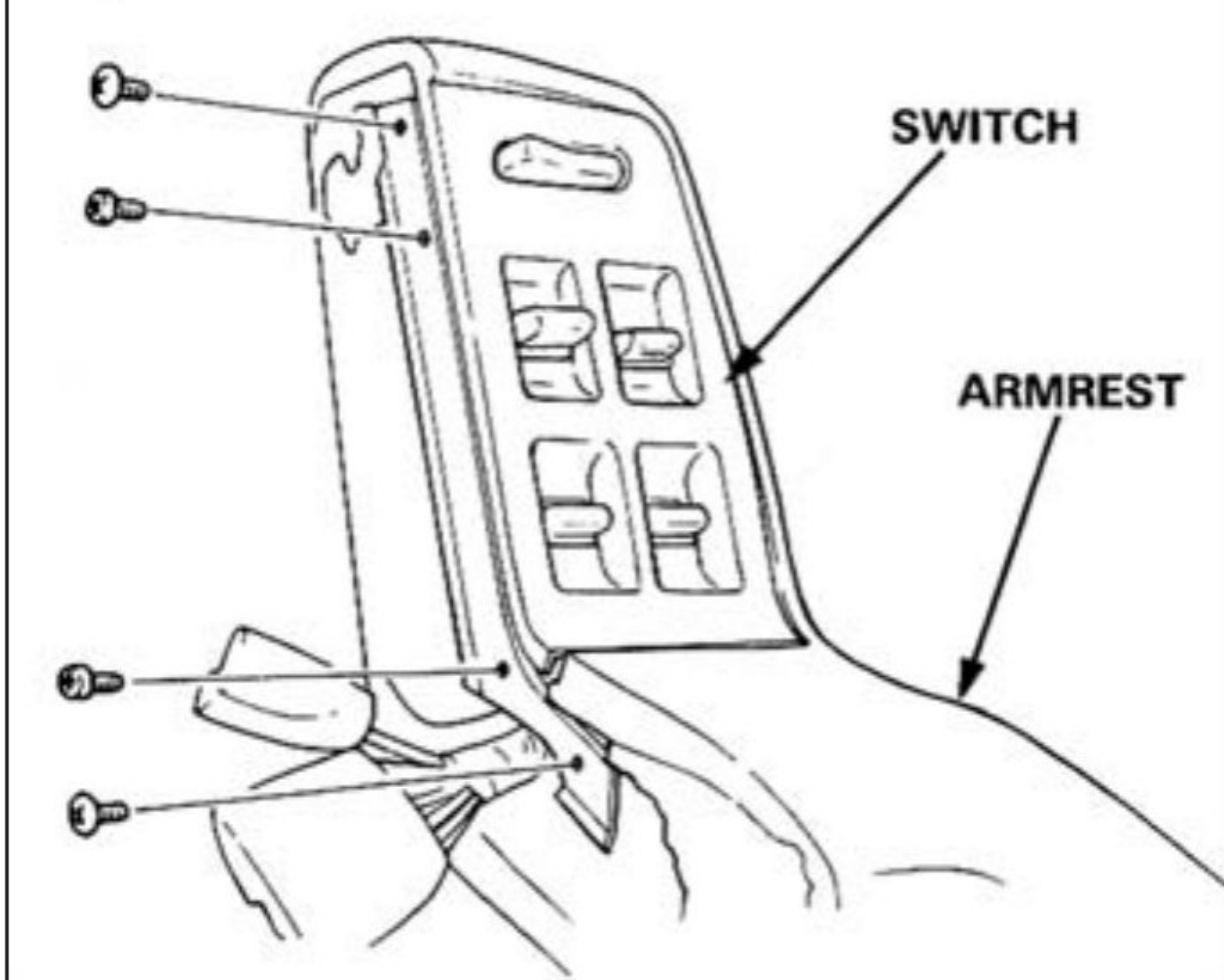
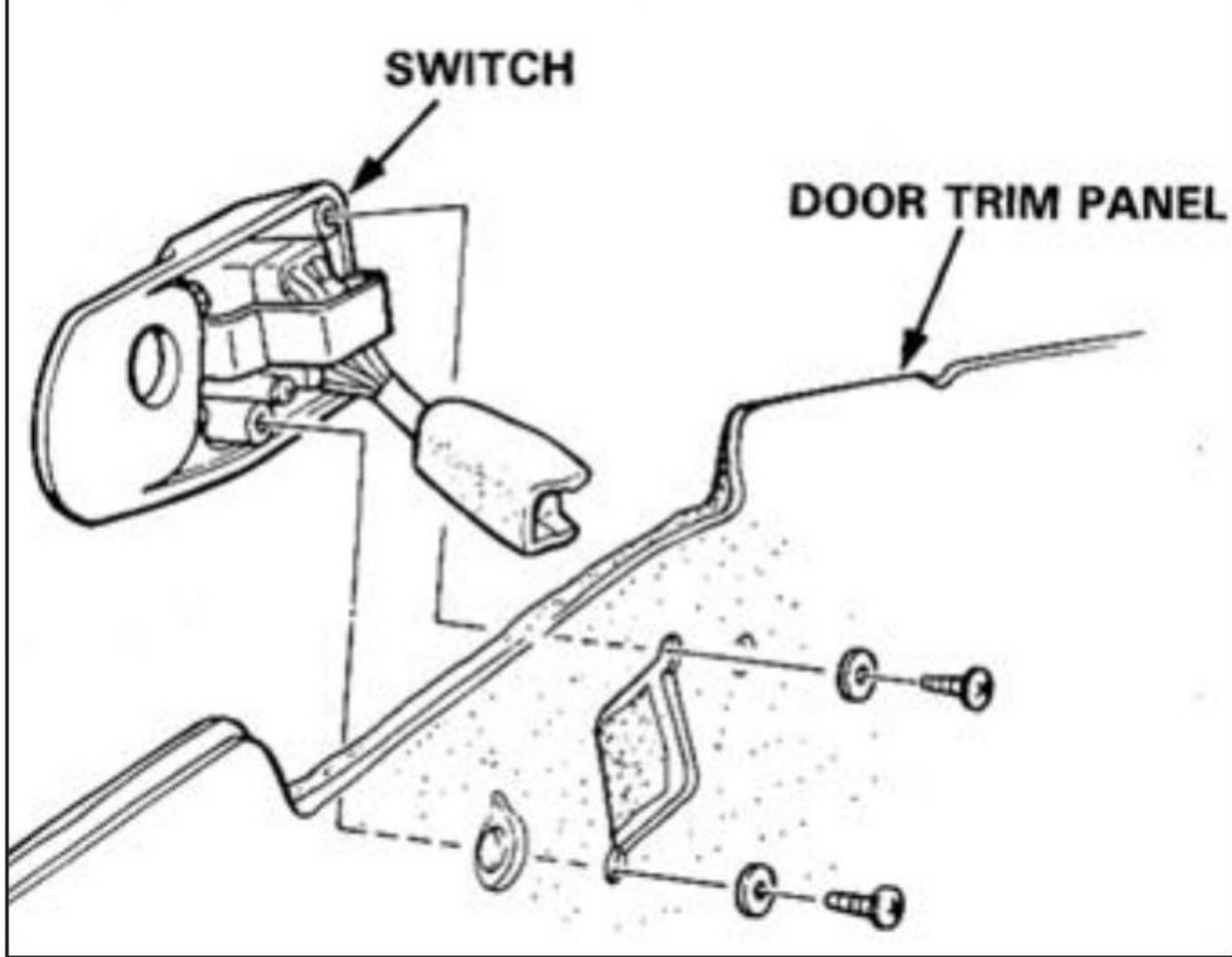
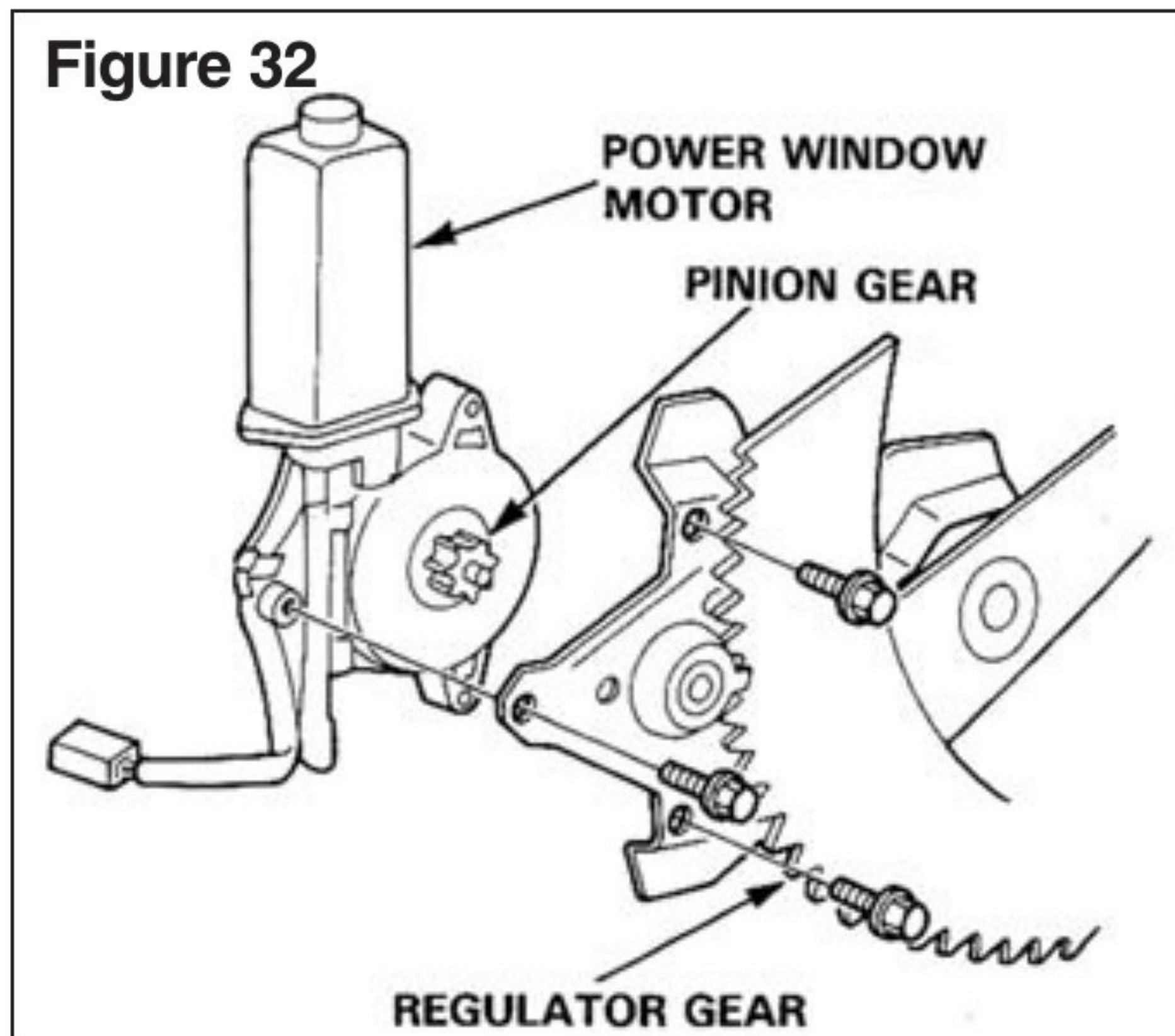


Figure 31—Passenger Door Switch

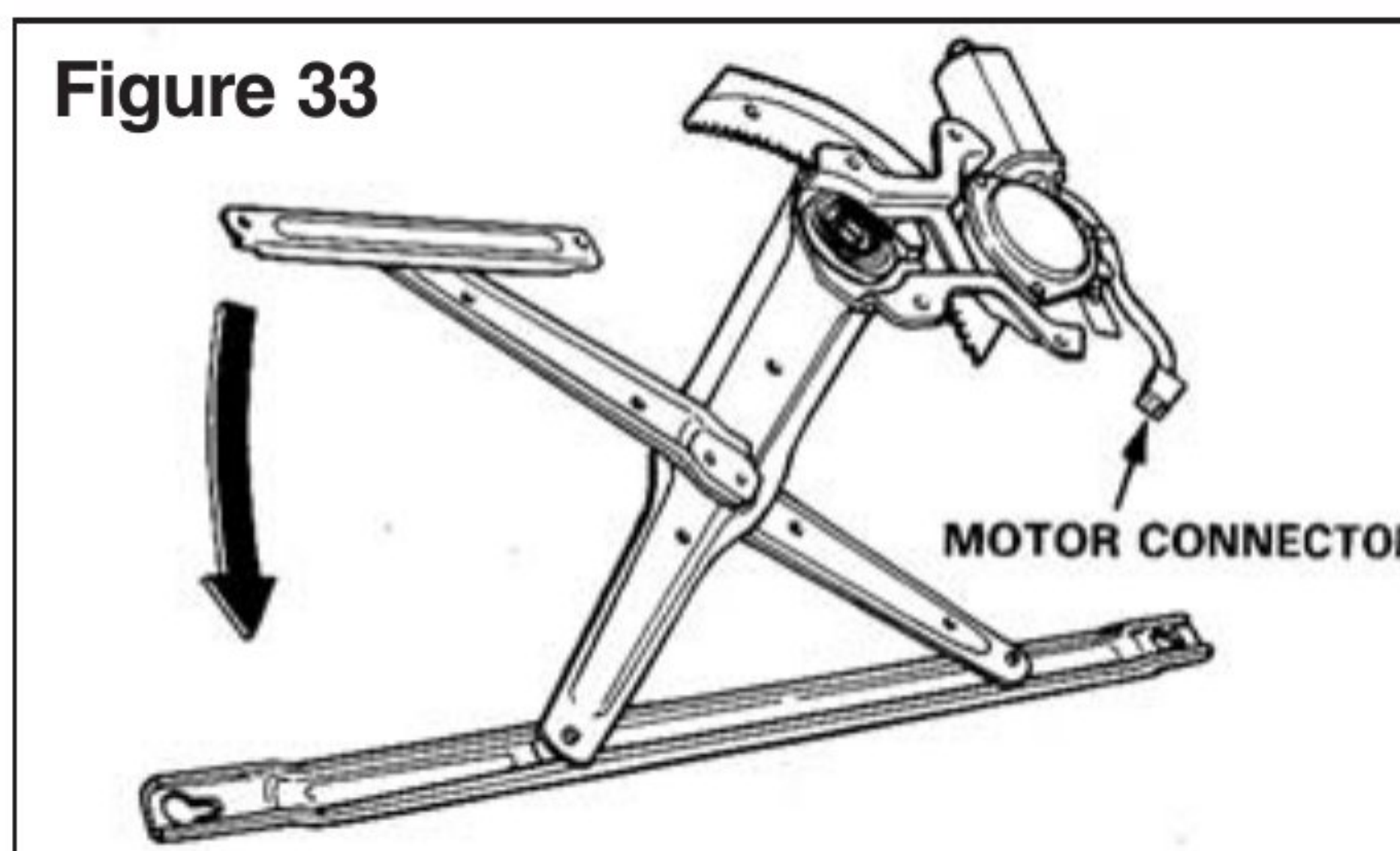


Motor Replacement

Take the power window regulator with motor out of the door panel. Remove the three mount bolts and motor from the regulator. Caution: The regulator gear will move suddenly when the motor is removed, because the regulator spring is tensioned against the gear.



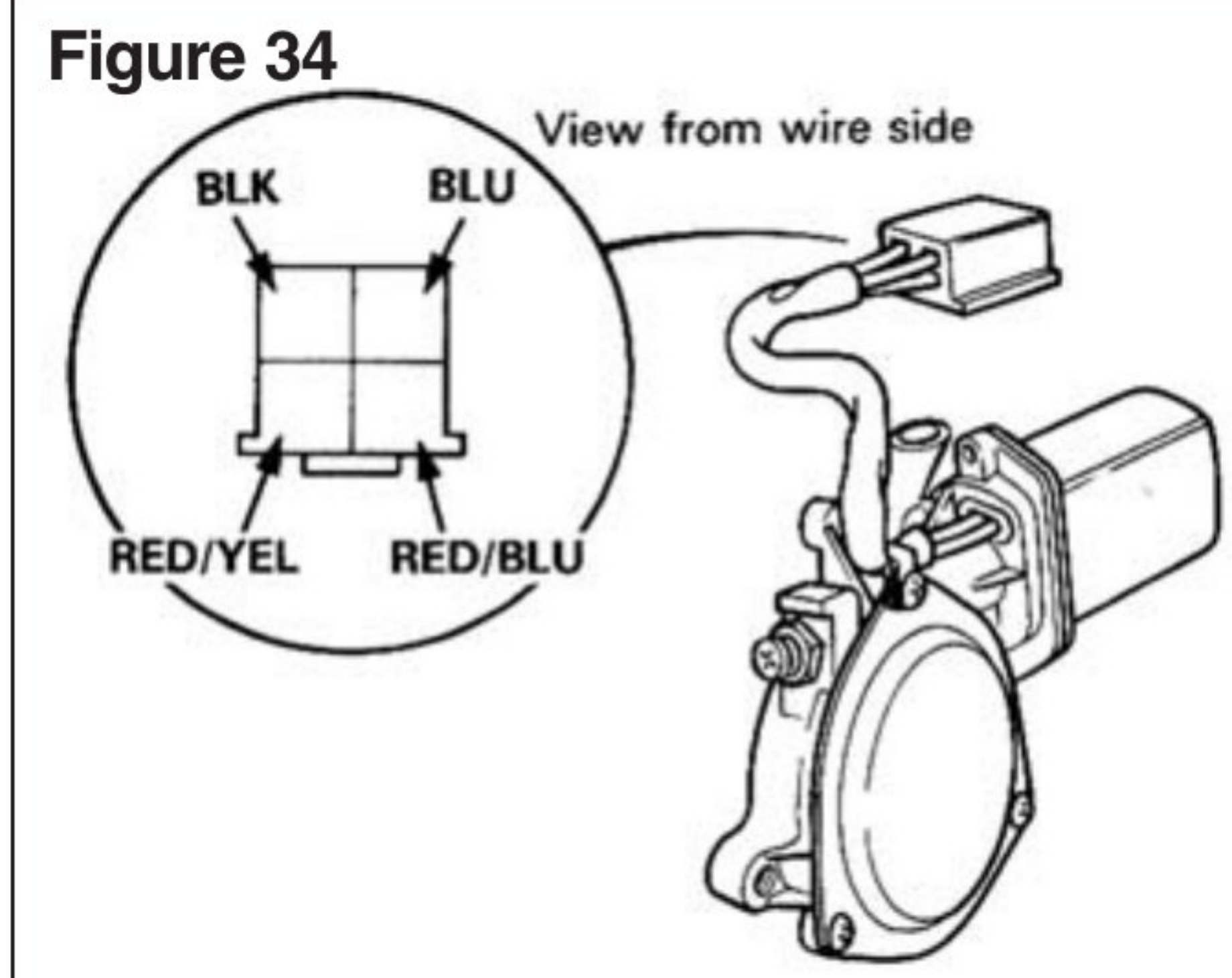
Install in the reverse order of removal. Engage the regulator gear with the pinion gear while moving the regulator gear by hand, then install the motor with the three mount bolts. To ease installation in the door panel, lower the regulator by connecting battery wires to the motor connector.



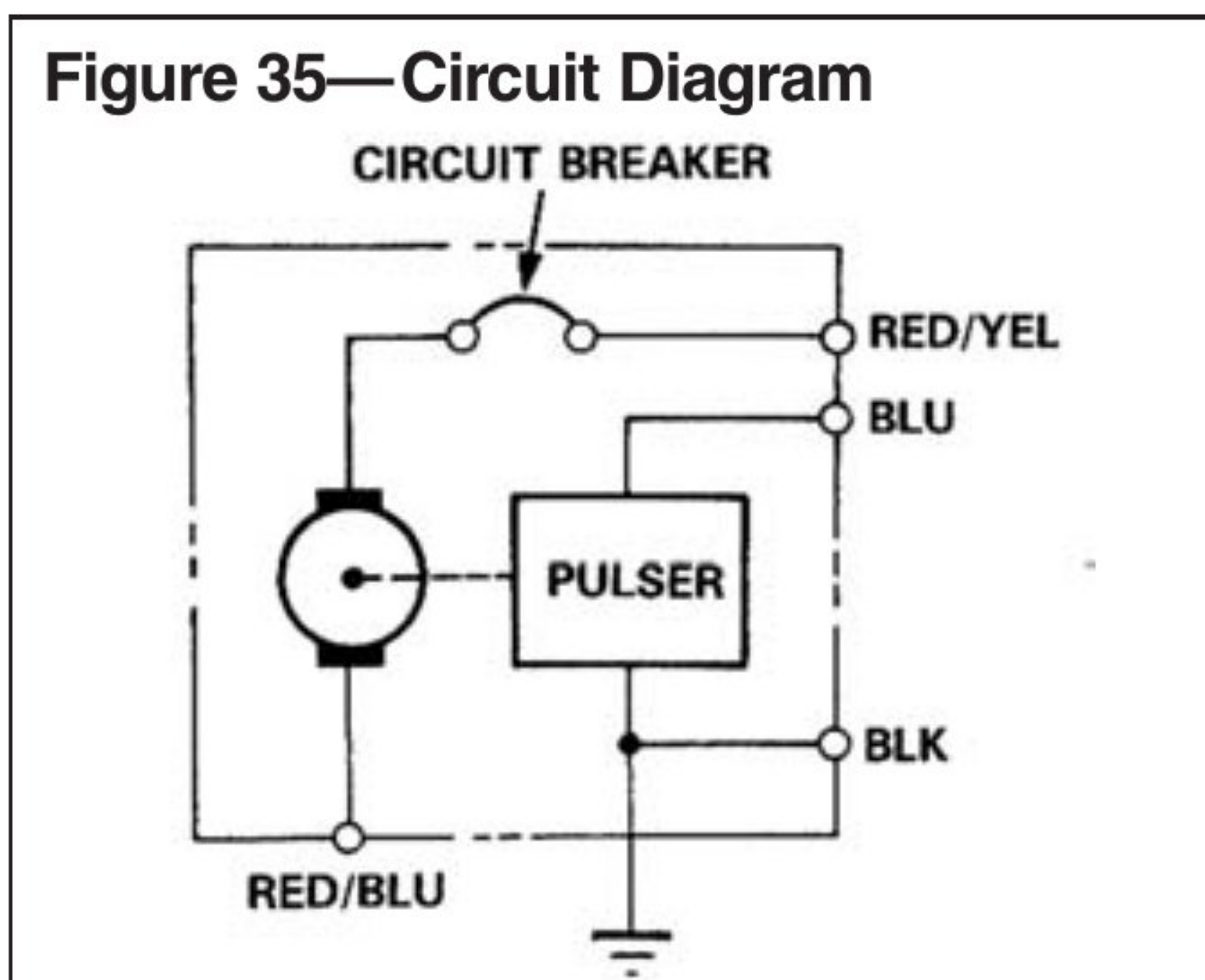
Driver's Door Motor Test

Remove the door trim panel. Disconnect the 4P connector from the power window control unit. Test power window motor operation by connecting battery wires to the RED/YEL and RED/BLU terminals. Test the motor in each direction by switching the leads from the battery.

If the motor does not run, replace it.



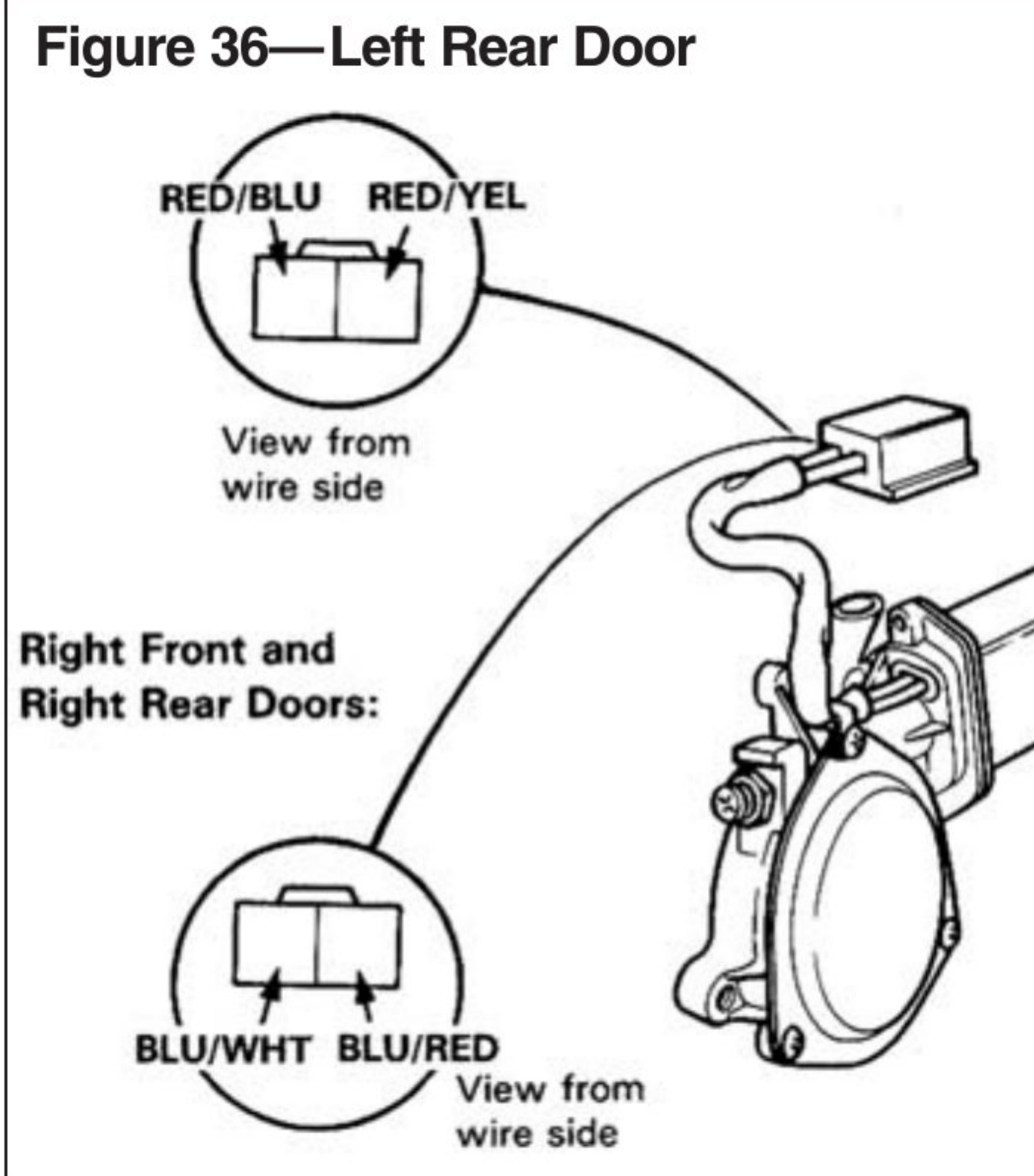
Pulser Test: Measure resistance between the BLU and BLK terminals when running the motor by connecting battery wires to the RED/YEL and RED/BLU terminals. Ohmmeter needle should indicate in between 20 and 50 Ω as the motor runs.



Passenger Door Motor Test

Remove the door trim panel. Disconnect the 2P-connector. Test power window motor operation by connecting battery wires to the RED/YEL and RED/BLU terminals (on rear left door), or the BLU/RED and BLU/WHT terminals (on front right and rear right doors). Test the motor in each direction, by switching the leads from the battery.

If the motor does not run, replace it.



Control Unit Input/Output

Input Test: Remove the driver's door trim panel and disconnect the 4-P and 6-P connectors from the control unit. Note: To test the unit, keep the driver's door switch connector connected with the door wire harness.

