SERVICE INFORMATION	18-1
TROUBLESHOOTING	18-1
STARTER MOTOR	18-2
STARTER RELAY SWITCH	18-5

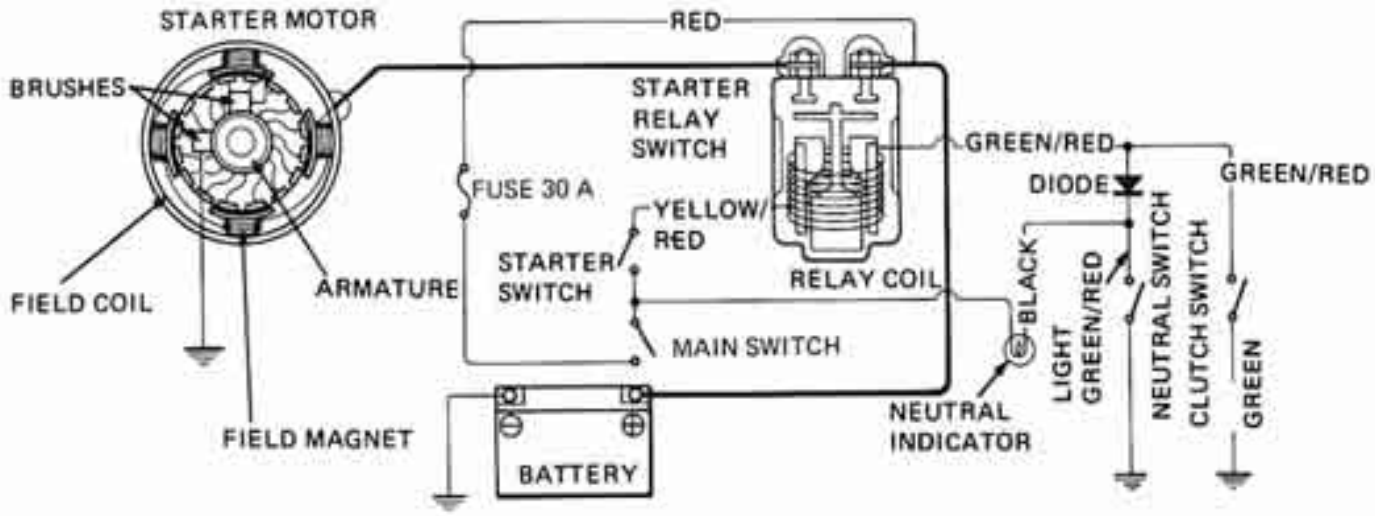
SERVICE INFORMATION

GENERAL INSTRUCTION

The starter motor can be removed with the engine in the frame.

SPECIFICATION

		STANDARD	SERVICE LIMIT
Starter motor	Brush spring tension	560 g–680 g (19.75–23.89 oz)	560 g (19.75 oz)
	Brush length	12.0–13.0 mm (0.47–0.51 in)	7.5 mm (0.03 in)



TROUBLESHOOTING

Starter Motor Will Not Turn:
- Battery discharged
- Faulty ignition switch
- Faulty start switch
- Faulty neutral switch
- Faulty starter magnetic switch
- Loosen or disconnected wire or cable
- Neutral diode open

Starter Motor Turns Engine Slowly
- Low specific gravity
- Excessive resistance in circuit
- Binding in starter motor

Starter Motor Turns, But Engine Does Not Turn:
- Faulty starter clutch
- Faulty starter motor gears
- Faulty starter motor or idle gear

Starter Motor and Engine Turns, But Engine Does Not Start
- Faulty ignition system
- Engine problems

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STARTER MOTOR

REMOVAL

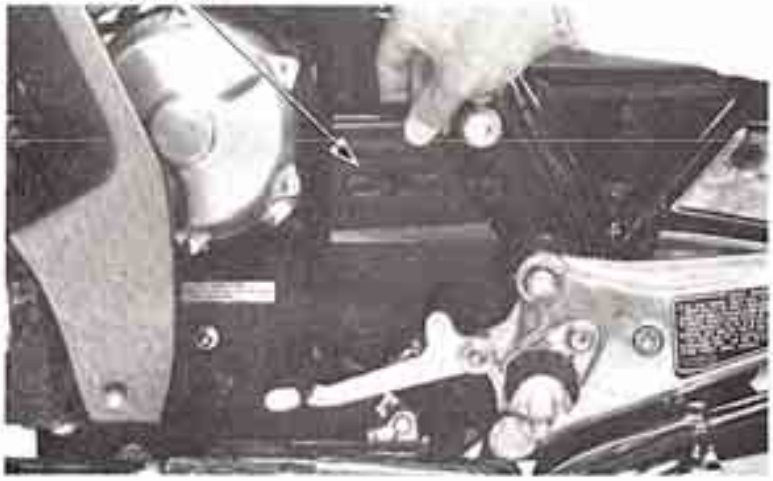
WARNING

With the ignition switch OFF, remove the negative cable at the battery before servicing the starter motor.

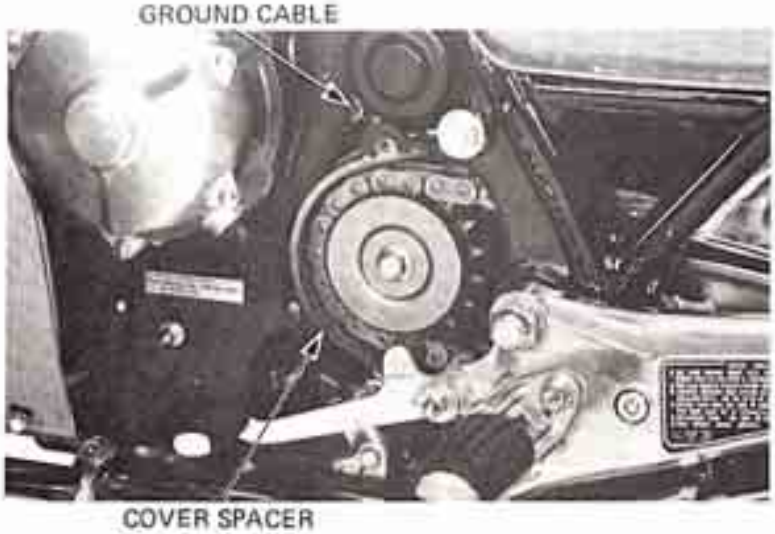
Loosen the drive sprocket cover mounting bolts.



Remove the drive sprocket cover, and pull back and to the right.



Remove the starter motor ground cable and the drive sprocket cover spacer.



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Remove the right side cover and disconnect the starter cable at the relay switch.
Remove the starter motor.

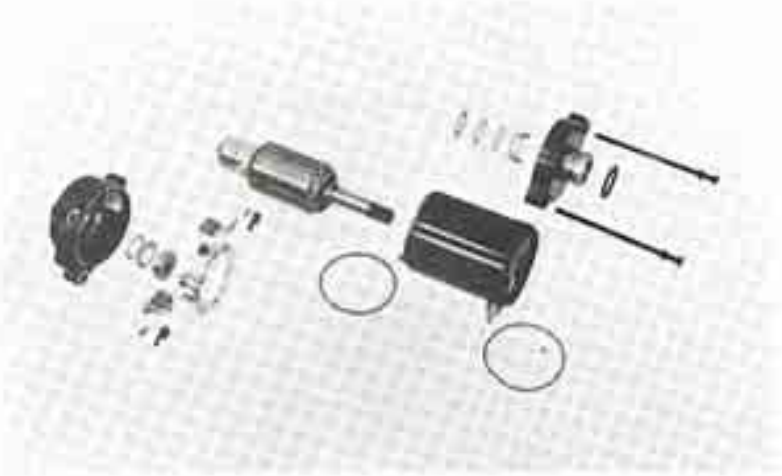
STARTER CABLE



STARTER RELAY SWITCH

STARTER MOTOR DISASSEMBLY

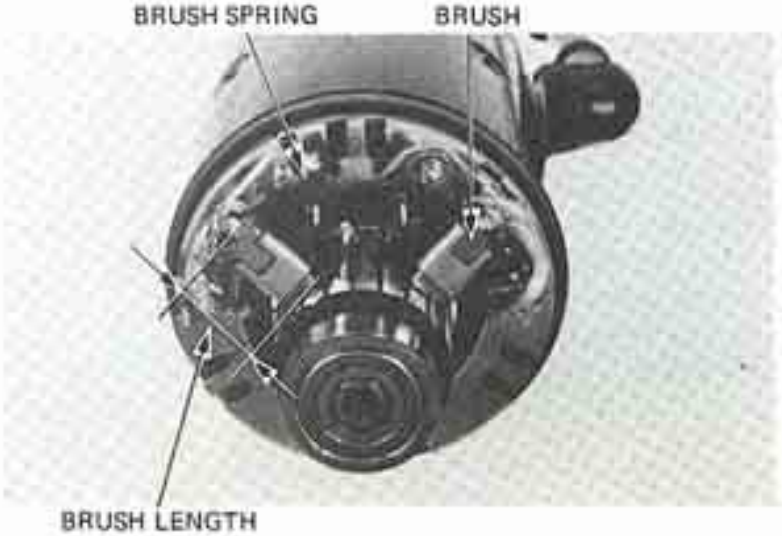
Remove the set bolts and disassemble the motor.



BRUSH INSPECTION

Remove the set bolts.
Remove the rear bracket.
Inspect the brushes and measure the brush length.
Measure the brush spring tension with a spring scale.

SERVICE LIMIT:
BRUSH LENGTH: 7.5 mm (0.30 in)
BRUSH SPRING TENSION: 560 g (19.75 oz)



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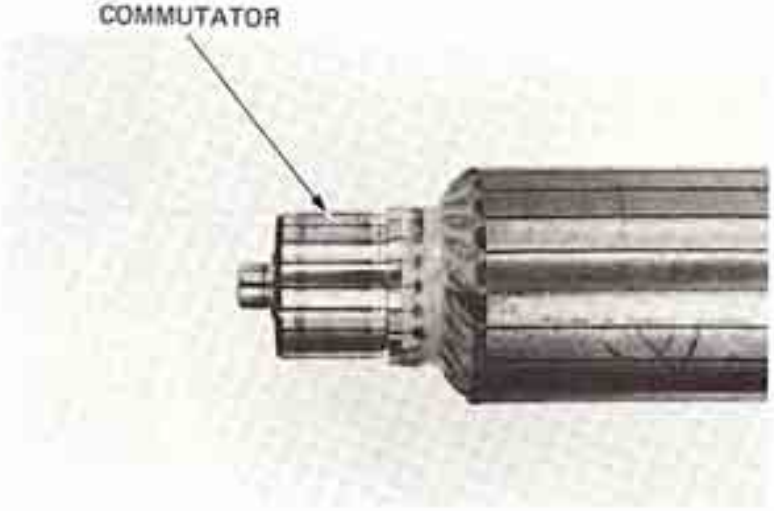
COMMUTATOR INSPECTION

Remove the starter motor case.

NOTE

Record the location and number of the thrust washers.

Inspect the commutator bars for discoloration. Bars discolored in pairs indicate grounded armature coils.



NOTE

Do not use emery or sand paper on the commutator.

Check for continuity between pairs of commutator bars, and also between commutator bars and armature shaft.
Replace the starter motor if armature coils are open, or shorted to the armature shaft.

COMMUTATOR BAR PAIRS: continuity
COMMUTATOR-ARMATURE: No continuity
COMMUTATOR-SHAFT: No continuity

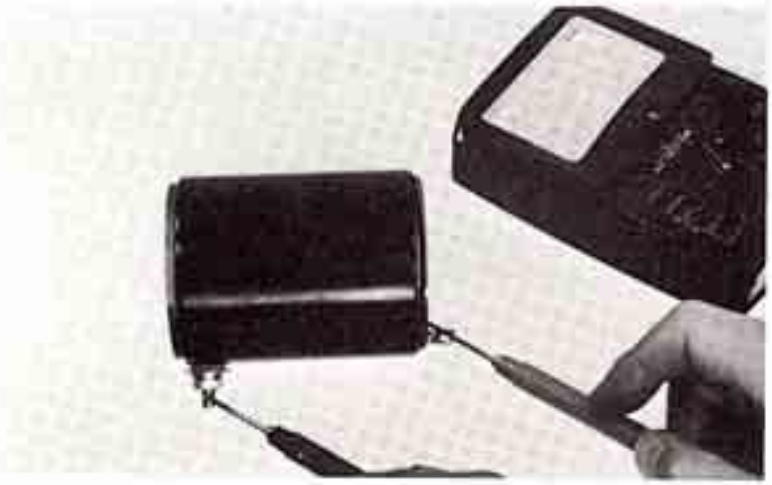


FIELD COIL INSPECTION

Check for continuity from the cable terminal to the motor case and from the cable terminal to the brush wire.
Replace the starter motor if the field coil is not continuous or if it is shorted to the motor case.

CABLE TERMINAL-MOTOR CASE: No continuity

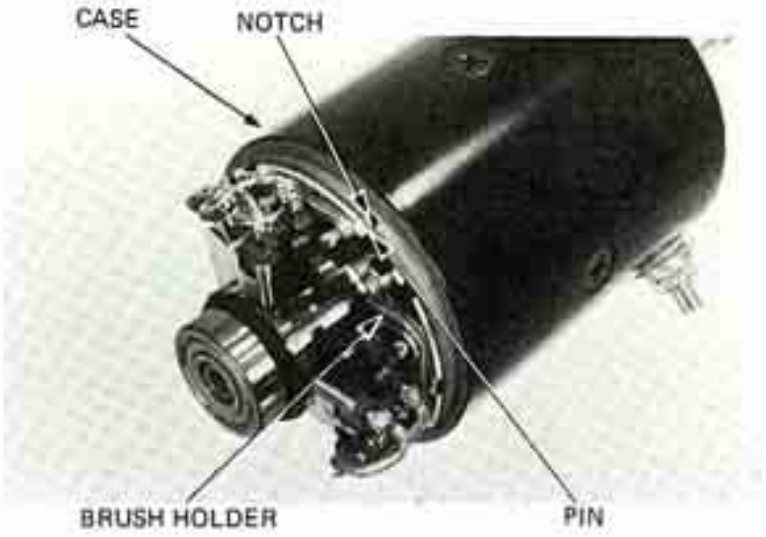
CABLE TERMINAL-BRUSH TERMINAL: Continuity



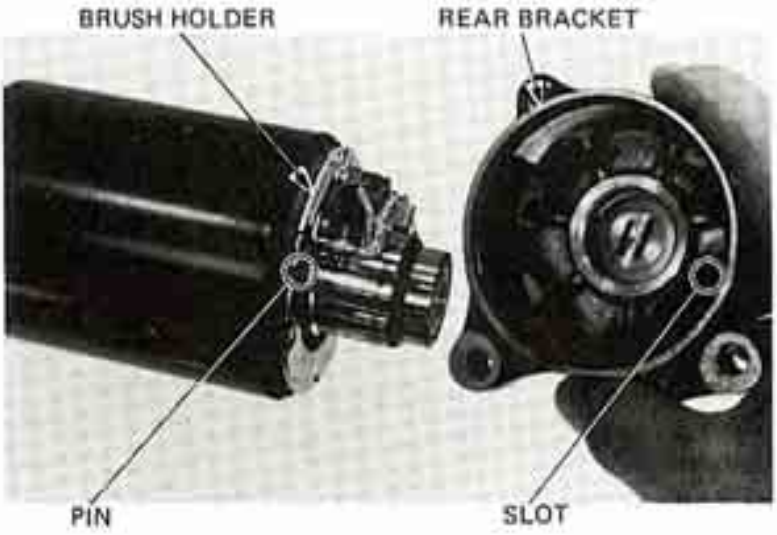
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ASSEMBLY/INSTALLATION

Assemble the starter motor.
Align the case notch with the brush holder pin.



Install the rear bracket, aligning its slot with the brush holder pin.

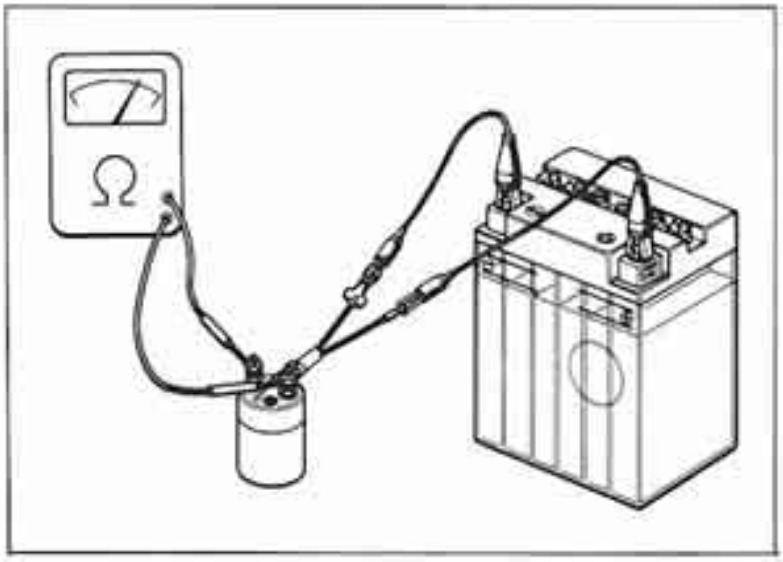


STARTER RELAY SWITCH

INSPECTION

Depress the starter switch button with the ignition ON.
The coil is normal if the magnetic switch clicks.

Connect an ohmmeter to the magnetic switch terminals.
Connect a 12 V battery to the switch cable terminals.
The switch is normal if there if there is continuity.



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