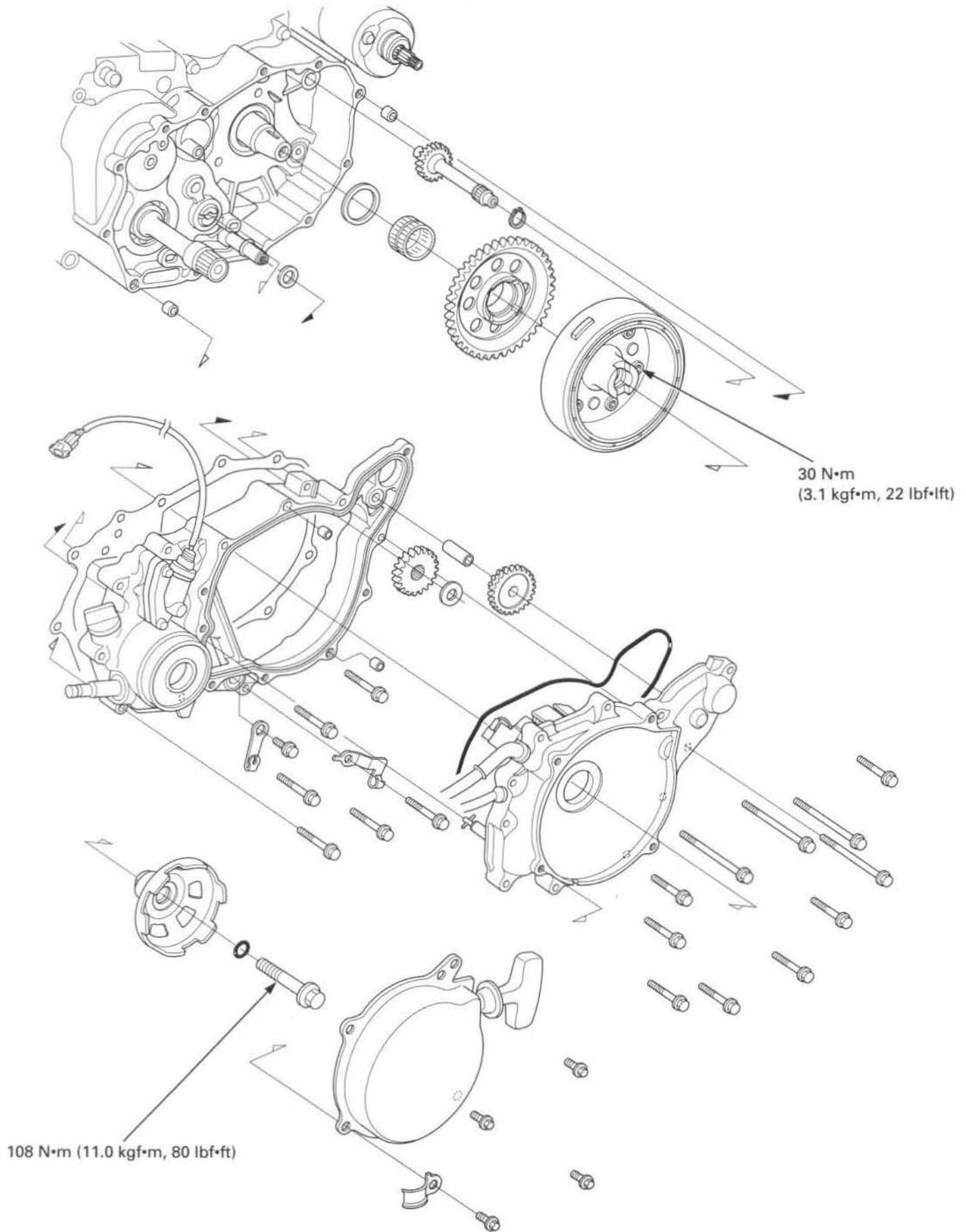


ALTERNATOR/STARTER CLUTCH



10. ALTERNATOR/STARTER CLUTCH

SERVICE INFORMATION	10-1	ALTERNATOR REMOVAL	10-6
TROUBLESHOOTING	10-1	FLYWHEEL/STARTER CLUTCH	10-9
RECOIL STARTER	10-2	ALTERNATOR INSTALLATION	10-14

SERVICE INFORMATION

GENERAL

- This section covers removal and installation of the starter reduction gear, alternator, ignition pulse generator, flywheel and starter clutch.
- Refer to section 17 for alternator inspection, and to section 18 for ignition pulse generator inspection.
- These parts can be serviced with the engine in the frame.

TORQUE VALUES

Recoil pulley flange bolt	110 N•m (11.0 kgf•m, 80 lbf•ft)	Apply oil to the thread and flange surface.
Starter one-way clutch socket bolt	30 N•m (3.1 kgf•m, 22 lbf•ft)	Apply locking agent to the threads.
Stator socket bolt	10 N•m (1.0 kgf•m, 7 lbf•ft)	
Ignition pulse generator socket bolt	6 N•m (0.6 kgf•m, 4.3 lbf•ft)	Apply locking agent to the threads.

10

TOOLS

Recoil pulley holder	07SMB-HM70100
Rotor puller	07733-0020001 or 07933-3950000 (U.S.A. only)
Flywheel holder	07725-0040000 or equivalent commercially available in U.S.A.
Driver	07749-0010000
Attachment, 24 X 26 mm	07746-0010700
Attachment, 52 X 55 mm	07746-0010400
Attachment, 58 mm	07JAD-PH80101
Pilot, 10 mm	07746-0040100

TROUBLESHOOTING

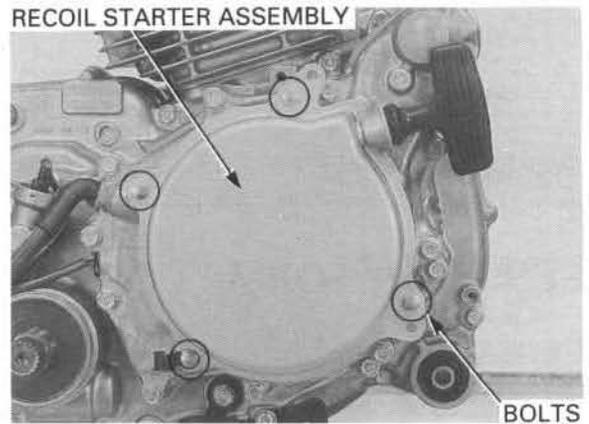
Engine does not turn

- Faulty one-way starter clutch
- Starter reduction gear broken

RECOIL STARTER

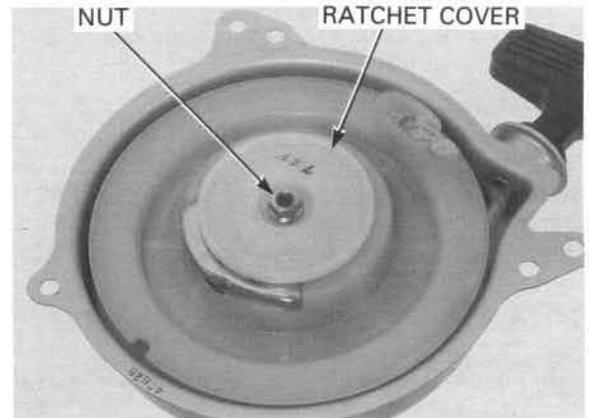
REMOVAL

Remove the breather tube clamps from the recoil starter cover.
Remove the bolts and recoil starter assembly.

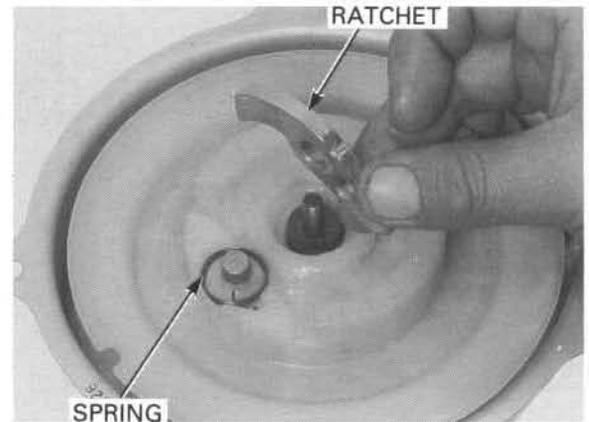


DISASSEMBLY

Remove the nut and the ratchet cover.



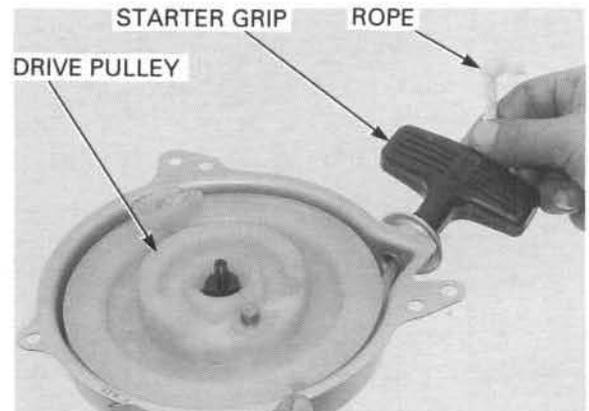
Remove the ratchet and spring.
Check each part for wear or damage.



Untie the starter rope and remove the starter grip.
Release the starter rope slowly.
Remove the starter drive pulley.

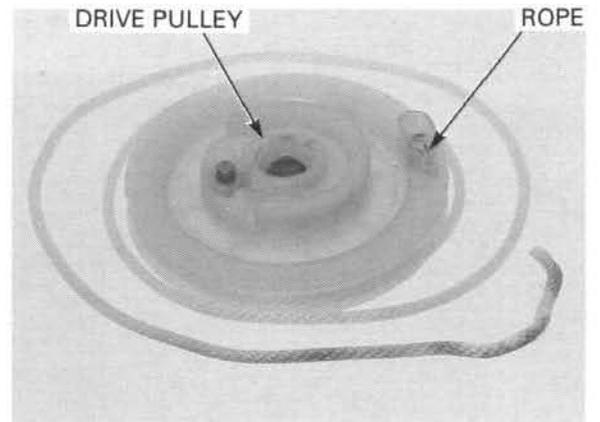
CAUTION:

Wear eye protection and use care when removing the drive pulley and starter spring. The spring can pop out of the housing if care is not used.

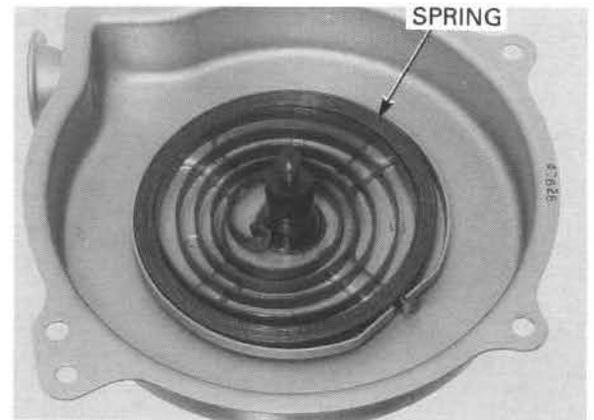


ALTERNATOR/STARTER CLUTCH

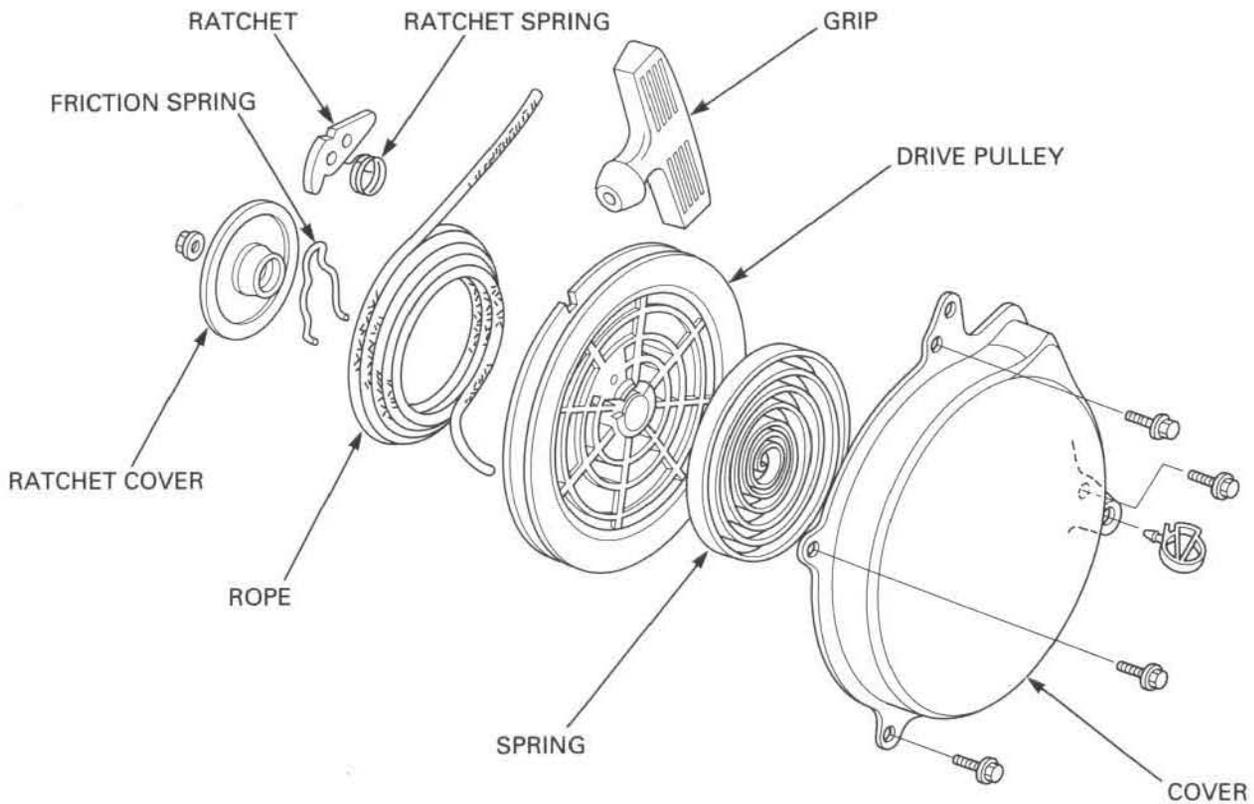
Remove the starter rope from the drive pulley.
Check the starter rope for wear or damage.



Check the recoil starter spring.
Remove the spring and replace it if it is broken.



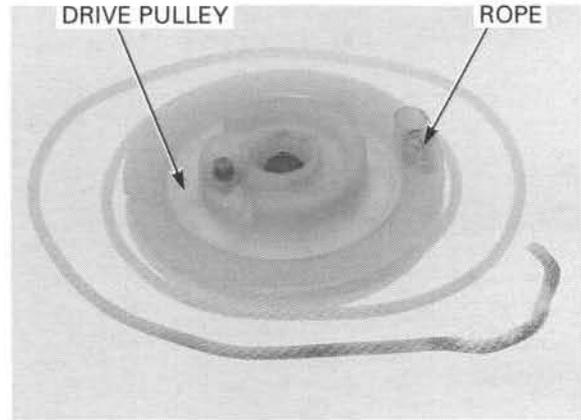
ASSEMBLY



ALTERNATOR/STARTER CLUTCH

Install the starter rope and tie a square knot as shown.

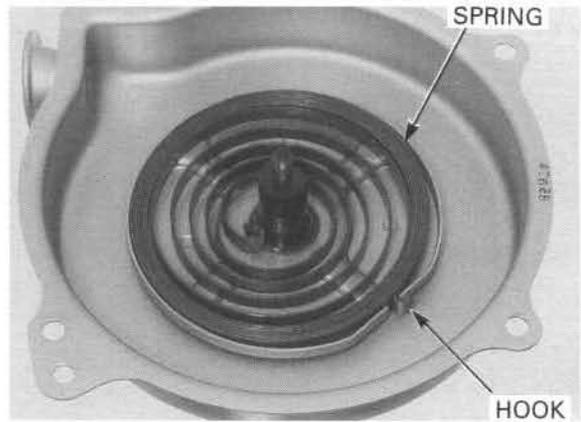
Wrap the rope around the starter pulley in a counter clockwise direction as viewed from the ratchet side as shown.



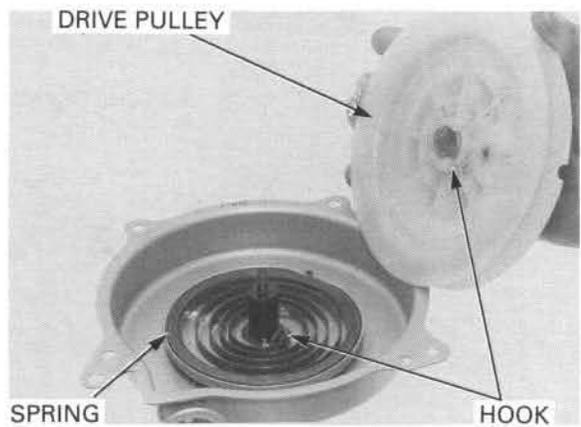
Install the spring by hooking the end on the starter housing hook.

CAUTION:

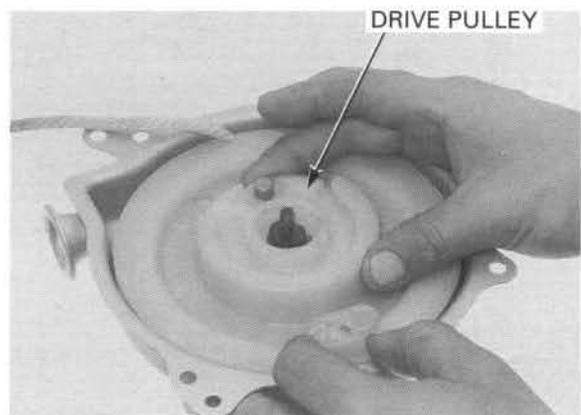
Wear eye protection and use care when installing the starter spring. The spring can pop out of the housing if care is not used.



Grease the drive pulley shaft and install the pulley by hooking the end of the spring on the pulley shaft.



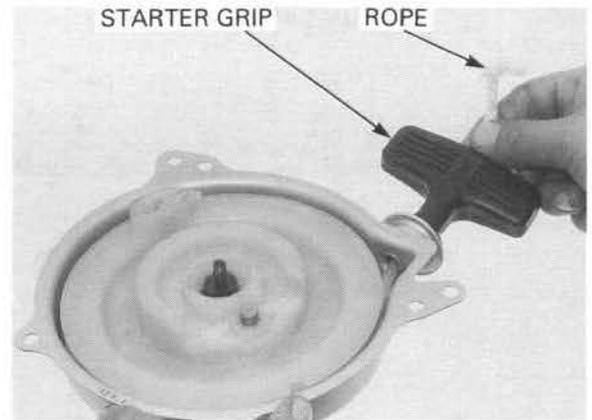
Reload the starter spring by turning the pulley 2-1/2 turns clockwise.



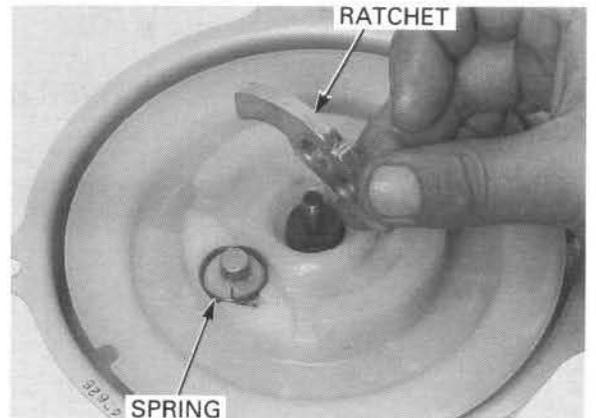
ALTERNATOR/STARTER CLUTCH

Route the rope end through the starter housing hole and install the grip.

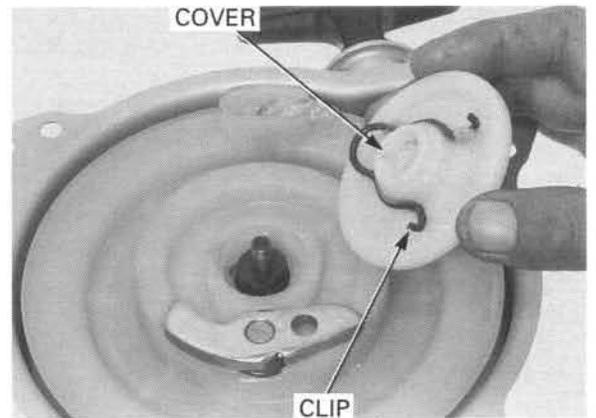
Tie the rope end in a square knot.



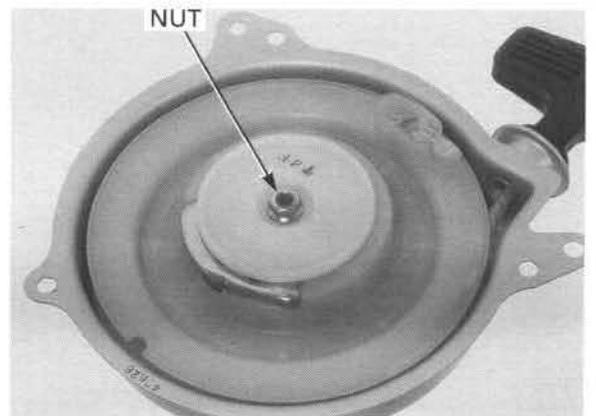
Grease the ratchet and install it with the spring.



Install the clip to the ratchet cover.



Install the ratchet cover and tighten the nut.
Check the starter operation by pulling the starter grip.

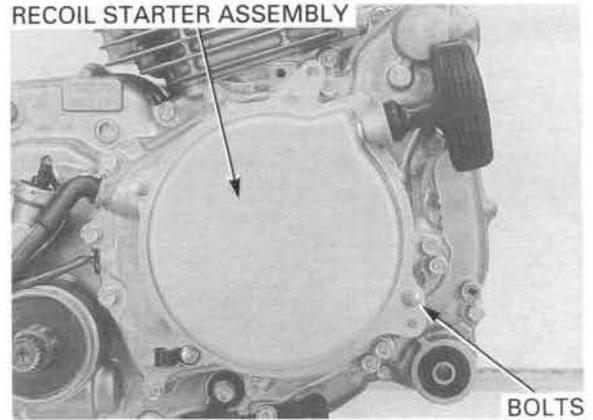


ALTERNATOR/STARTER CLUTCH

INSTALLATION

Install the recoil starter assembly and tighten the bolts.

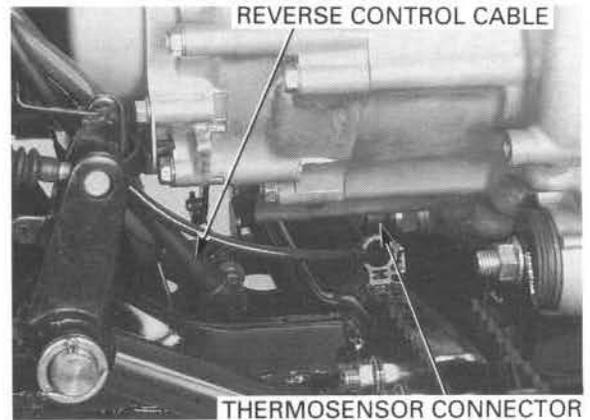
Route the wires and secure them with the clamps.



ALTERNATOR REMOVAL

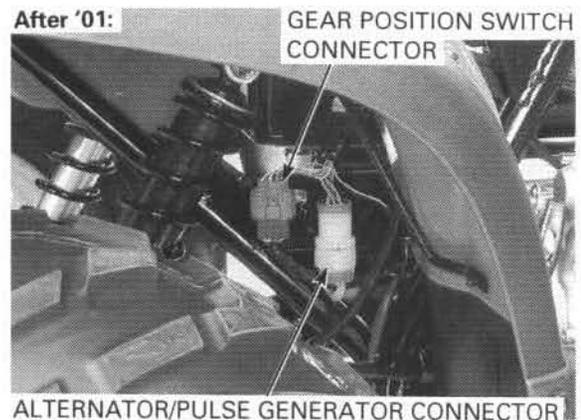
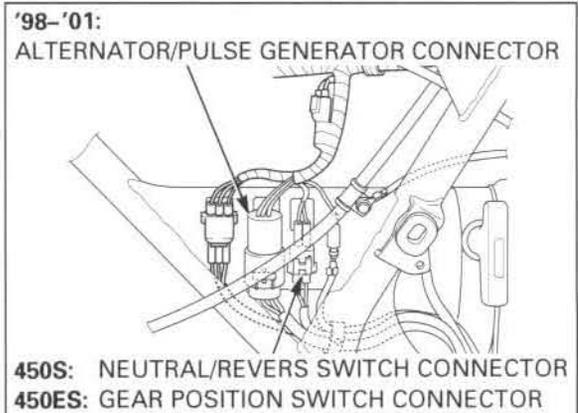
ALTERNATOR COVER REMOVAL

Remove the recoil starter (page 10-2).
Disconnect the thermosensor connector from the sensor.
Disconnect the reverse control cable end from the lever.



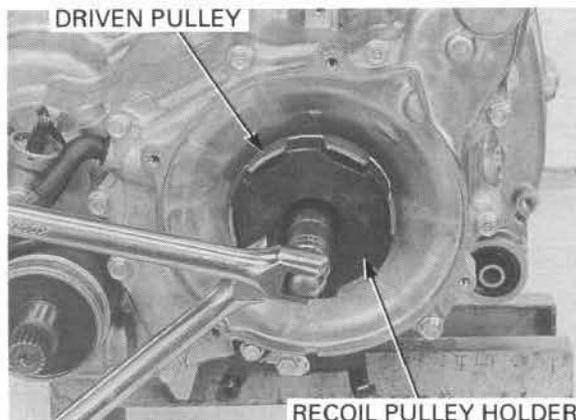
TRX450S/FM: Disconnect the neutral/reverse switch and alternator/pulse generator connectors.

TRX450ES/FE: Disconnect the gear position switch and alternator/pulse generator connectors.



Hold the starter driven pulley using the special tool, then remove the bolt and O-ring.

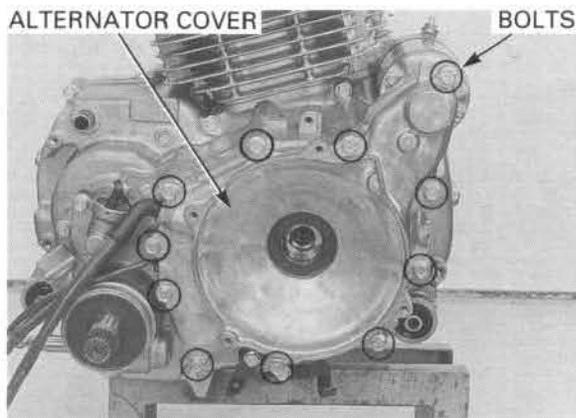
TOOL:
Recoil pulley holder 07SMB-HM70100



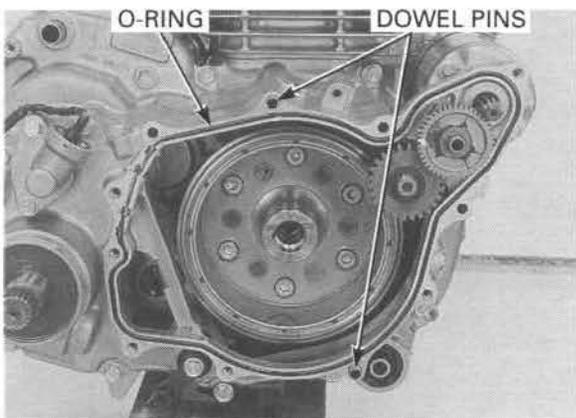
Remove the eleven bolts and alternator cover.

NOTE:

The starter reduction gears may fall out as the cover is removed.



Remove the O-ring and dowel pins.

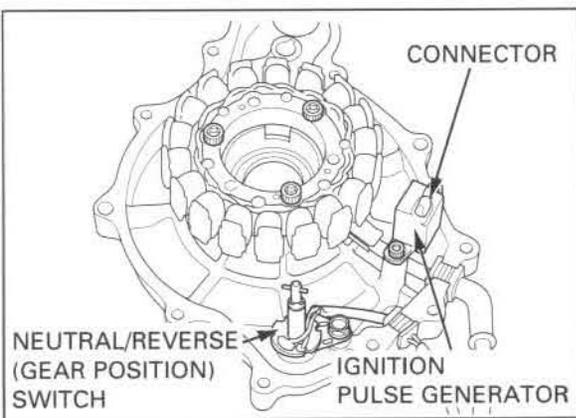


ALTERNATOR COVER DISASSEMBLY

Disconnect the ignition pulse generator connector. Remove the wire grommet from the alternator cover groove.

Remove the ignition pulse generator and stator mounting bolts. Remove the stator/ignition pulse generator assembly.

Remove the bolt and neutral/reverse (gear position) switch.



ALTERNATOR/STARTER CLUTCH

Turn the starter bearing inner race with your finger. The bearing should turn smoothly and quietly. Also check that the bearing outer race fits tightly in the alternator cover.

If you need to replace the bearing, heat the alternator cover and remove the bearing by tapping the cover.

⚠ WARNING

Always wear gloves when handling the case after it has been heated to prevent burning your hands.

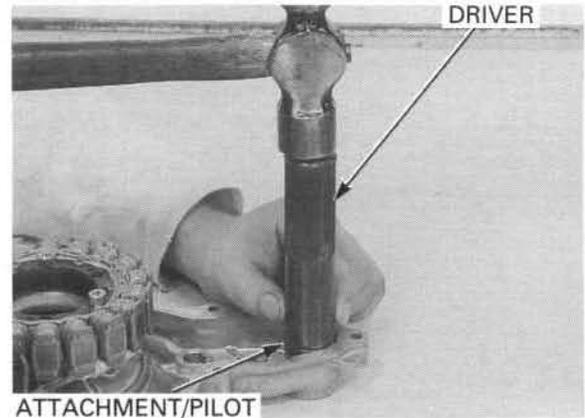
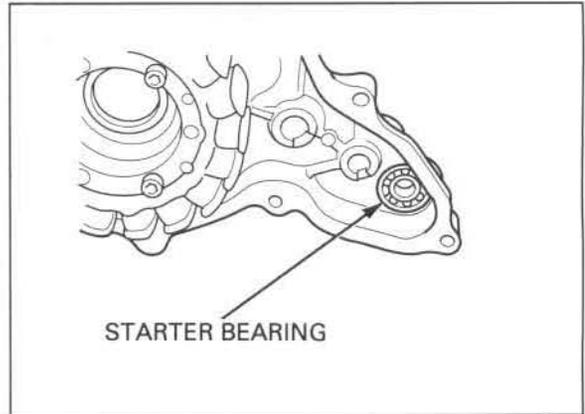
CAUTION:

Do not use a torch to heat the case, it may cause warping.

Drive the new bearing into the alternator cover.

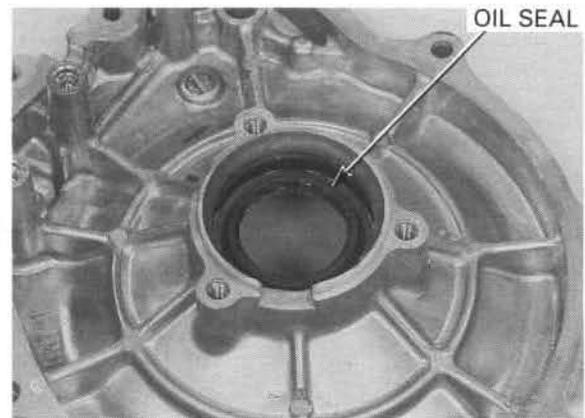
TOOLS:

Driver	07749-0010000
Attachment, 24 X 26 mm	07746-0010700
Pilot, 10 mm	07746-0040100



Inspect the alternator cover oil seal for wear or damage.

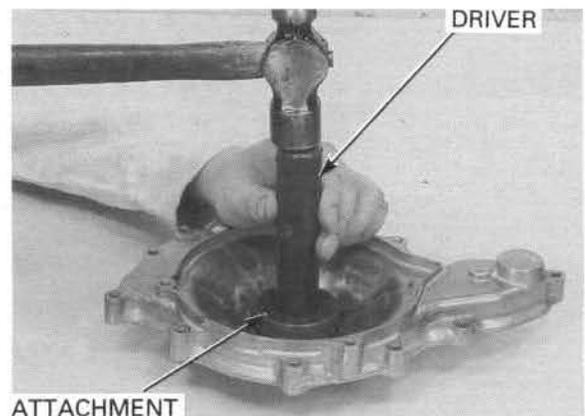
If replacement is required, remove the oil seal from the alternator cover.



Install the oil seal using the special tools as shown.

TOOLS:

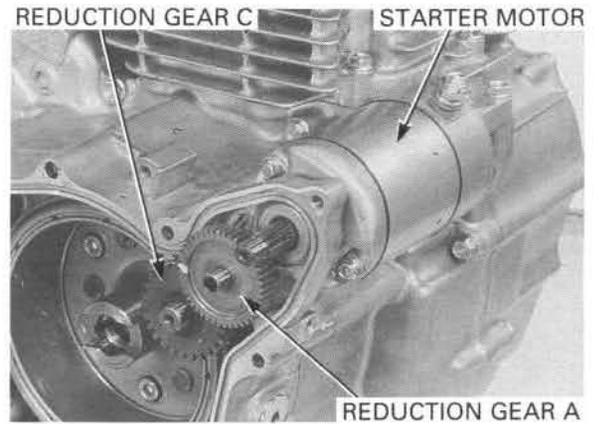
Driver	07749-0010000
Attachment, 52 X 55 mm	07746-0010400



FLYWHEEL/STARTER CLUTCH

**FLYWHEEL/STARTER CLUTCH
REMOVAL**

Remove the starter reduction gear A and shaft.
Remove the washer and reduction gear C.
Remove the starter motor (page 19-3).



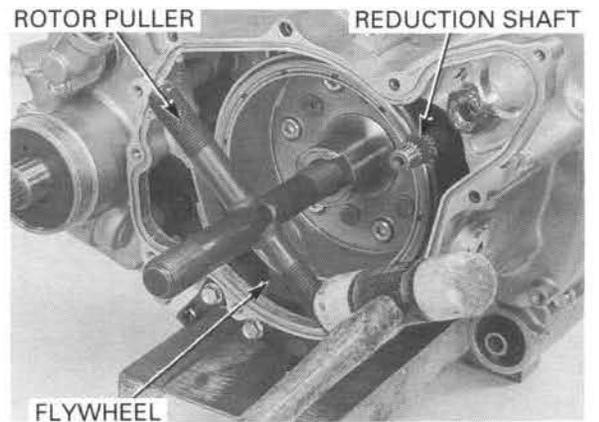
Remove the flywheel and starter driven gear using the special tool.

TOOL:

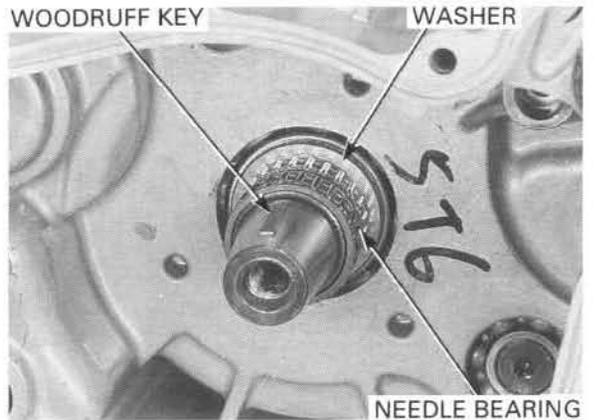
Rotor puller

07733-0020001 or
07933-3950000
(U.S.A. only)

Remove the starter reduction shaft.



Remove the needle bearing, washer and woodruff key.

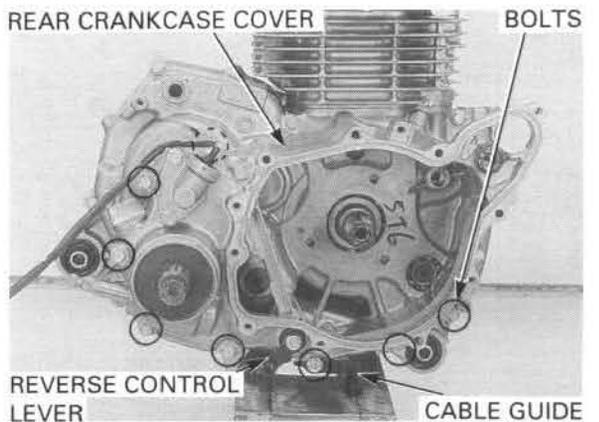


REAR CRANKCASE COVER REMOVAL

'98 - '01: Remove the speed sensor (page 20-12).

Remove the bolt and reverse control lever.

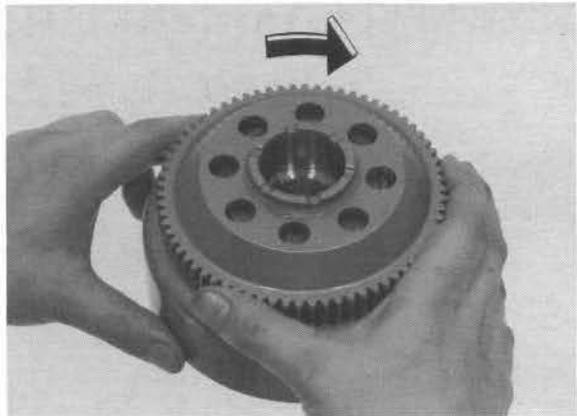
Remove the bolts, cable guide and rear crankcase cover.



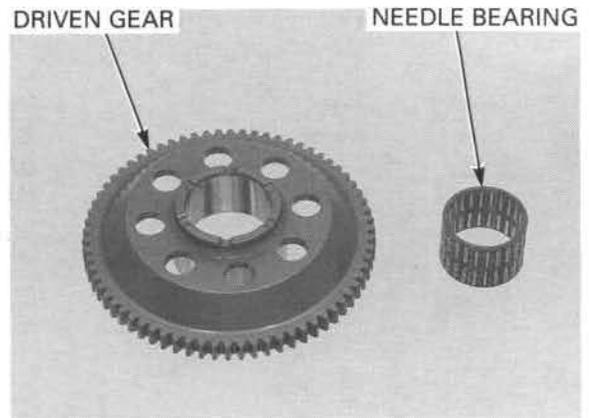
STARTER CLUTCH INSPECTION/ DISASSEMBLY

Check the operation of the one-way clutch by turning the driven gear.

You should be able to turn the driven gear clockwise smoothly, but the gear should not turn counter-clockwise.



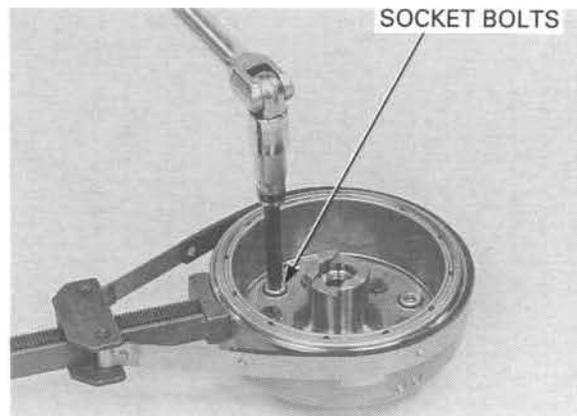
Inspect the starter driven gear teeth for damage or abnormal wear.
Check the needle bearing for damage.



Remove the six socket bolts and remove the one-way clutch from the flywheel.

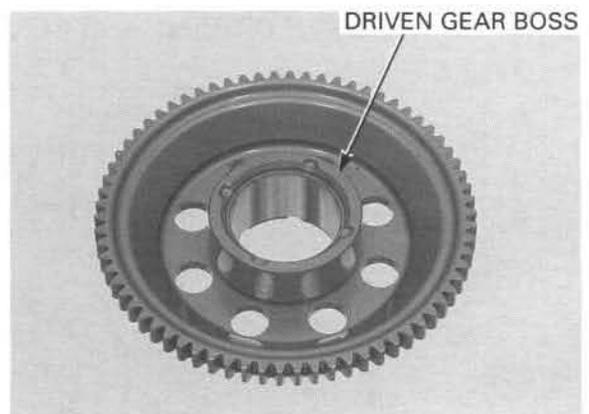
TOOL:
Flywheel holder

07725-0040000 or
equivalent commercially
available in U.S.A.

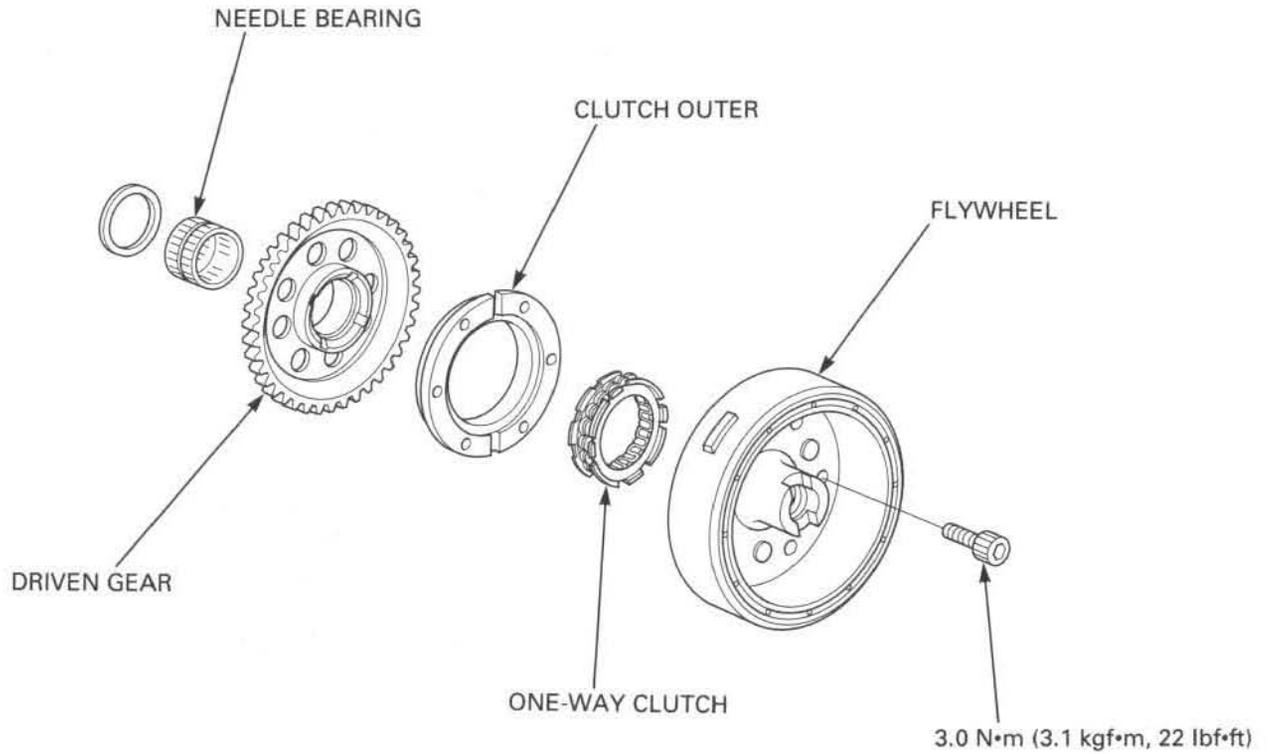


Check the one-way clutch rollers for wear or damage.

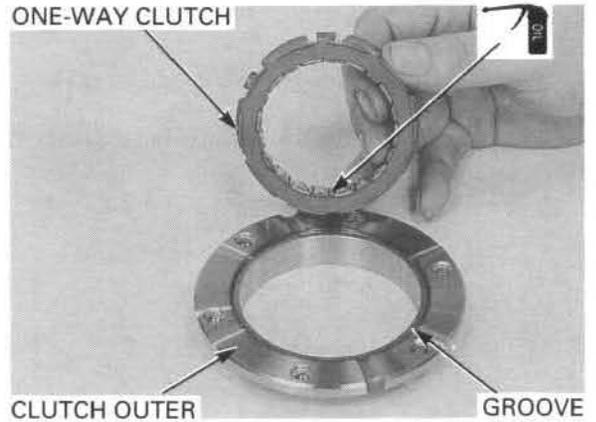
Check the starter driven gear boss for wear or damage.



STARTER CLUTCH ASSEMBLY



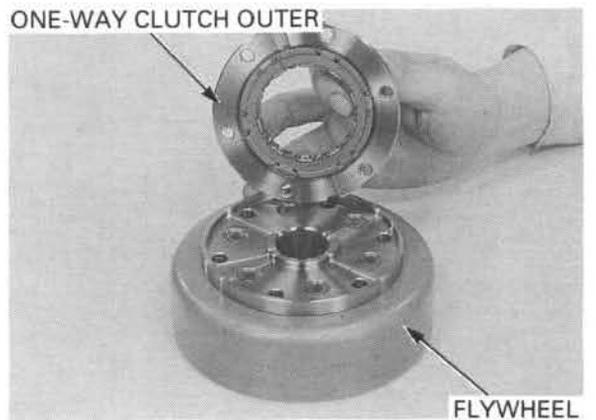
Apply oil to one-way clutch rollers.
 Install the one-way clutch in the clutch outer.
 Install the lips of the clutch into the groove of the clutch outer as shown.



Assemble the one-way clutch outer and the flywheel.

NOTE:

Make sure the flange side of the one-way clutch faces toward the flywheel.



ALTERNATOR/STARTER CLUTCH

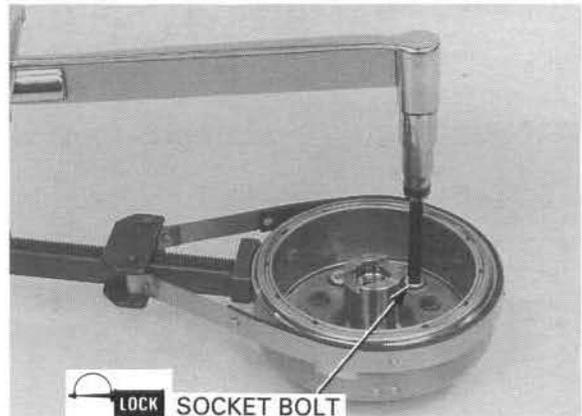
Apply a locking agent to the threads of the socket bolt threads.
Hold the flywheel using the special tool and install and tighten the six socket bolts.

TORQUE: 30 N•m (3.1 kgf•m, 22 lbf•ft)

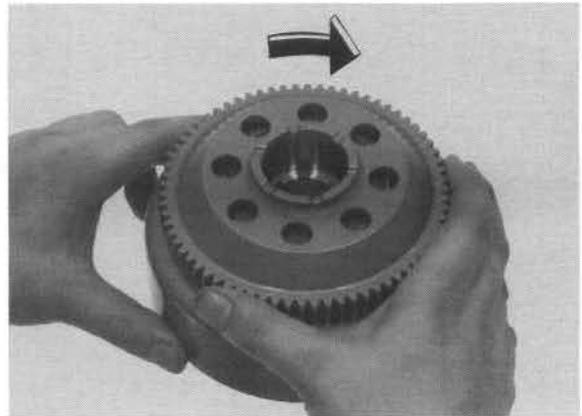
TOOL:

Flywheel holder

07725-0040000 or
equivalent commercially
available in U.S.A.



Install the starter driven gear into the one-way clutch by turning it clockwise.



DRIVE SHAFT OIL SEAL REPLACEMENT

*Use the back side
of the oil seal driver.*

Remove the clip and oil seal.

Drive new oil seal into the rear crankcase cover using
the special tools.

TOOLS:

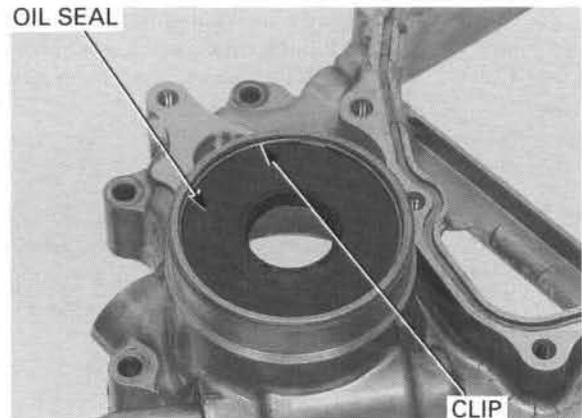
Driver

07749-0010000

Attachment, 58 mm

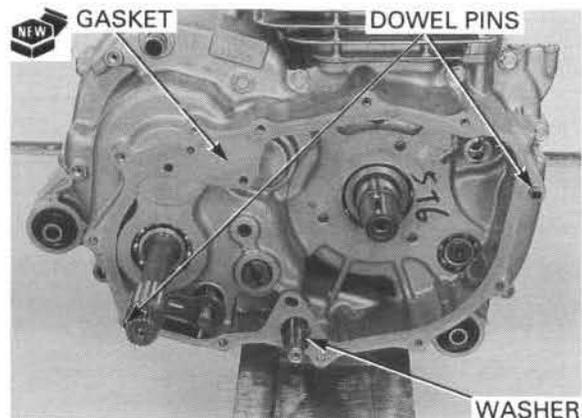
07JAD-PH80101

Install the oil seal clip.



REAR CRANKCASE COVER INSTALLATION

Install the dowel pins, washer and new gasket.



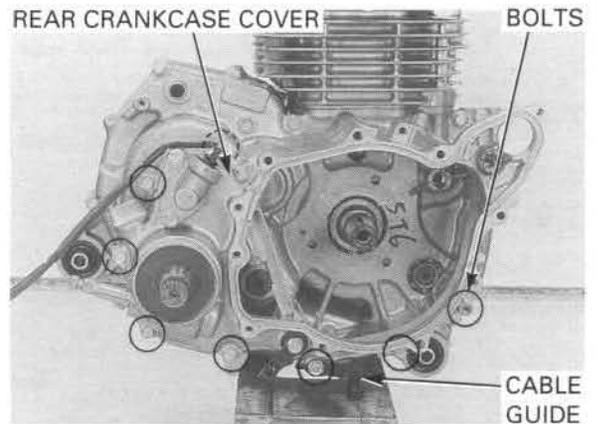
ALTERNATOR/STARTER CLUTCH

Install the rear crankcase cover, reverse control cable guide and bolts.
Tighten the bolts in a crisscross pattern in two or three steps.

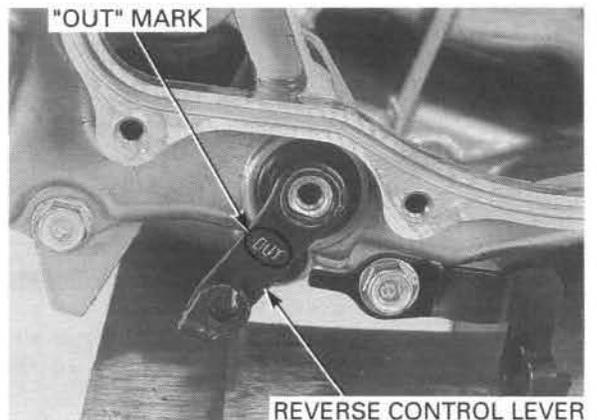
'98 - '01: Install the speed sensor (page 20-12).

NOTE:

- Align the gearshift A-arm with the sub-gearshift spindle as you install the cover.
- Make sure the washer is installed on the reverse spindle.



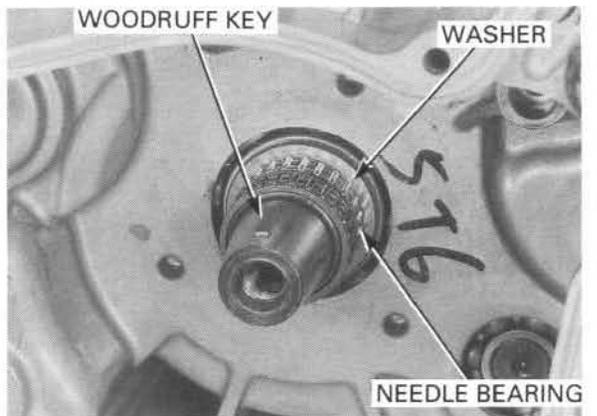
Install the reverse stopper arm with its "OUT" mark facing out, then tighten the reverse stopper shaft bolts.



FLYWHEEL/STARTER CLUTCH INSTALLATION

Clean any oil from the crankshaft taper.
Install the washer.

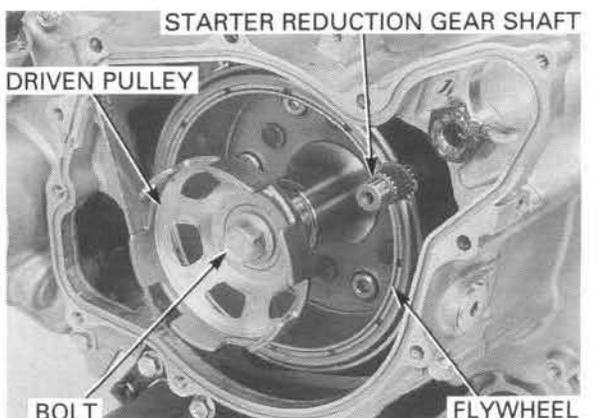
Install the needle bearing onto the crankshaft.
Install the woodruff key.



Make sure the starter reduction gear shaft is installed.

Install the flywheel/starter reduction gear aligning the key way in the flywheel with the key on the crankshaft.

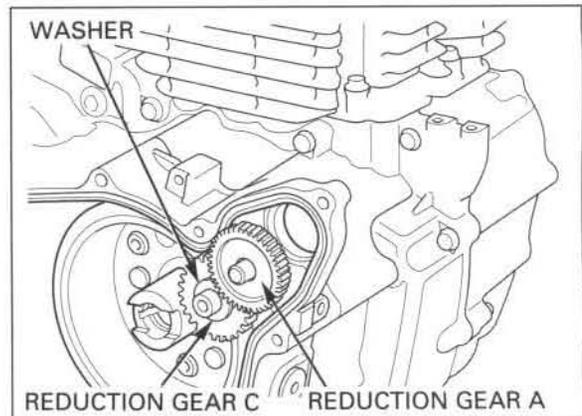
For installation of the alternator cover, temporarily install the driven pulley and tighten the driven pulley bolt to seat the flywheel.



ALTERNATOR/STARTER CLUTCH

Install the starter reduction gear C and thrust washer. Install the starter reduction shaft and reduction gear A.

Install the alternator cover (see below).



ALTERNATOR INSTALLATION

ALTERNATOR ASSEMBLY

Apply sealant to the grommets of the alternator/ignition pulse generator and neutral/reverse (gear position) switch wire grommets.

Install the neutral/reverse (gear position) switch and alternator/ignition pulse generator assembly onto the alternator cover.

Route the wires properly as shown and install the grommets into the groove of the alternator cover.

Apply a locking agent to the neutral/reverse (gear position) switch mounting bolt threads.

Install the neutral/reverse (gear position) switch and tighten the bolt.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

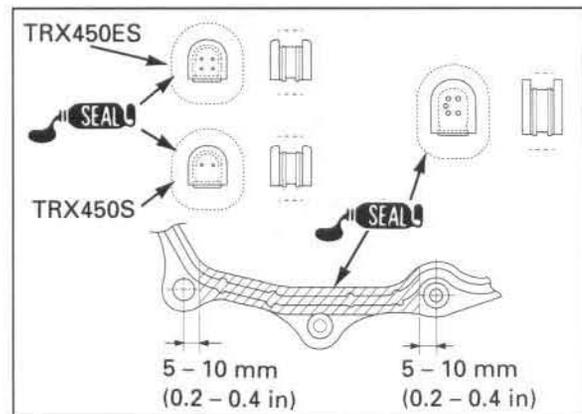
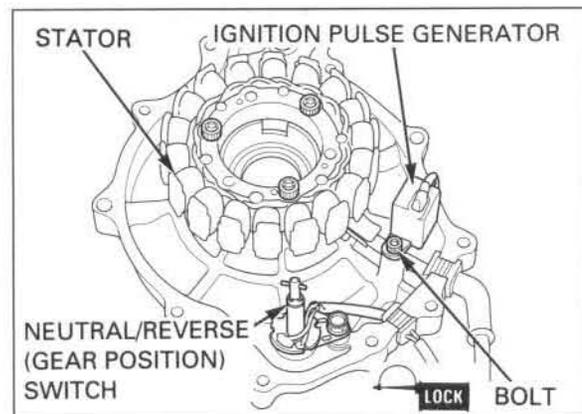
Install and tighten the stator mounting bolts.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

Install and tighten the ignition pulse generator mounting bolts.

TORQUE: 6 N·m (0.6 kgf·m, 4.3 lbf·ft)

Connect the ignition pulse generator connector.

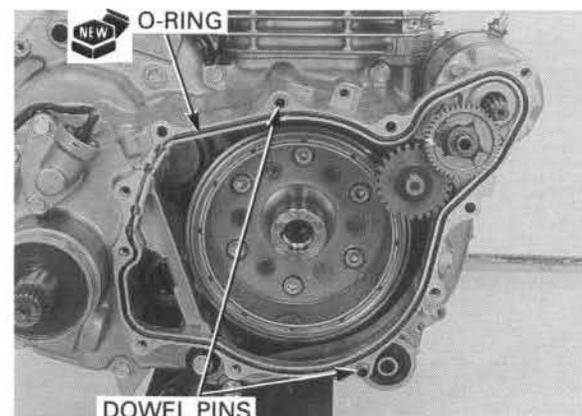


ALTERNATOR COVER INSTALLATION

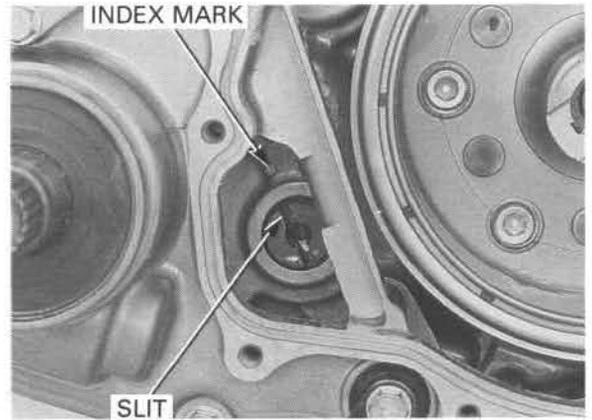
Install the new O-ring into the groove of the rear crankcase cover.

Install the dowel pins.

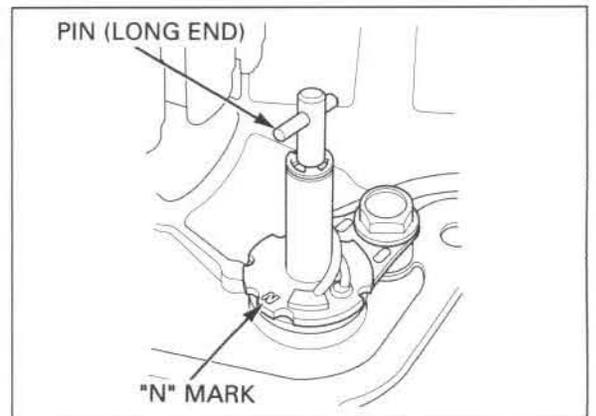
Apply sealant to the indicated area of the alternator cover as shown.



Shift the transmission into neutral, by aligning the slit of the shift drum with the index mark on the crank case as shown.



Align the long end of the neutral/reverse (gear position) switch pin with the "N" mark on the switch as shown.



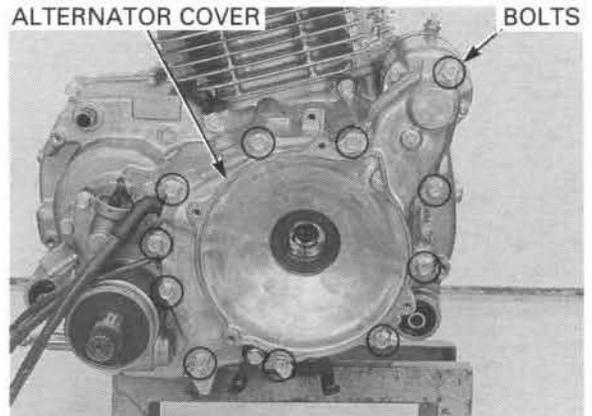
Install the alternator cover and tighten the eleven bolts securely.

CAUTION:

The alternator cover (stator) is magnetically attracted to the flywheel, be careful not to pinch your finger.

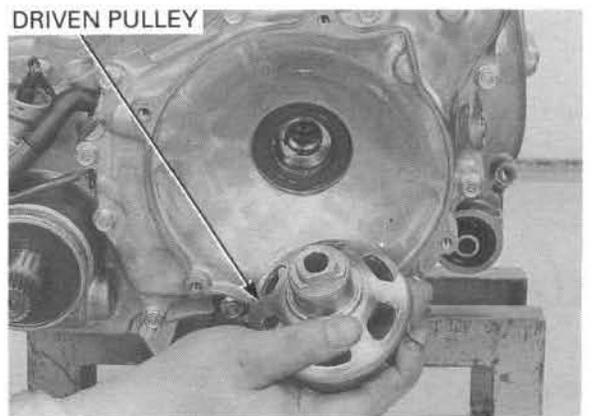
NOTE:

If the cover doesn't install easily, remove it and check the alignment of the reverse/neutral (gear position) switch with the shift drum. Be careful not to damage the pin on the switch.



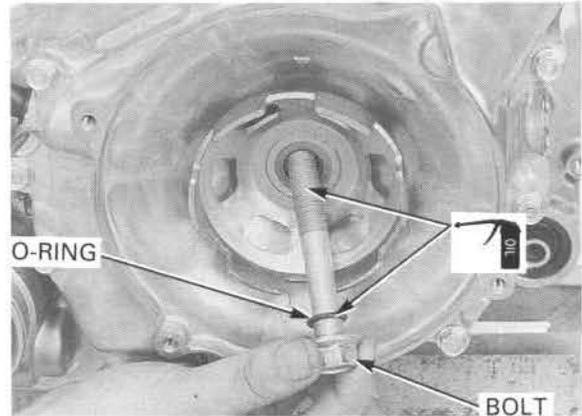
Install the starter motor (page 19-7).

Install the starter driven pulley aligning the boss with the groove on the flywheel.



ALTERNATOR/STARTER CLUTCH

Apply oil to the driven pulley bolt threads and O-ring.
Install the driven pulley bolt with a O-ring.

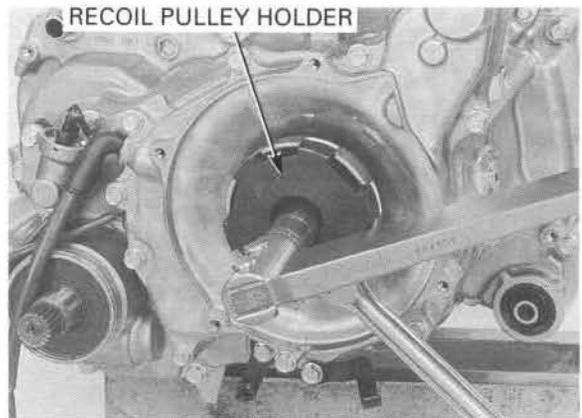


Hold the starter driven pulley using the special tool, then tighten the bolt to the specified torque.

TOOL:
Recoil pulley holder 07SMB-HM70100

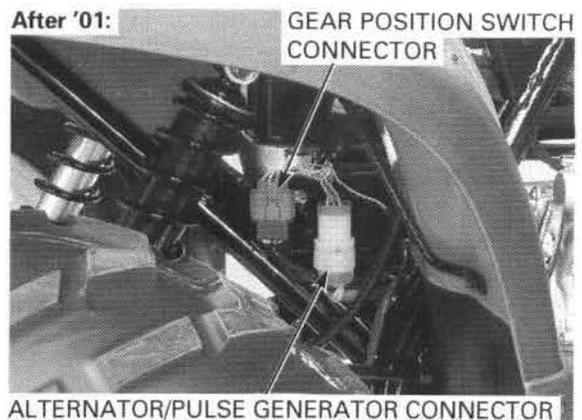
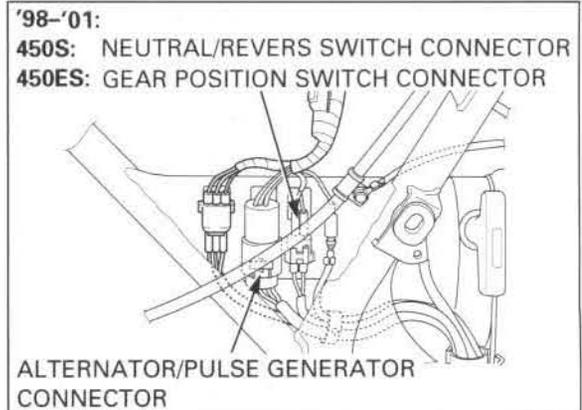
TORQUE: 108 N·m (11.0 kgf·m, 80 lbf·ft)

Install the recoil starter (page 10-6).



TRX450S/FM: Connect the neutral/reverse switch and alternator/pulse generator connector.

TRX450ES/FE: Connect the gear position switch and alternator/pulse generator connector.



Connect the thermosensor connector to the sensor.

Connect the reverse control cable end to the lever.

Adjust the reverse selector lever free play (page 3-18).

