

# 9. ALTERNATOR/STARTER CLUTCH

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## SERVICE INFORMATION

### GENERAL

- This section covers servicing of the alternator and starter clutch. These operations can be accomplished with the engine in the frame.
- For alternator inspection and troubleshooting, refer to the section 16 and 17.

### SPECIFICATION

ITEM	STANDARD	SERVICE LIMIT
Starter driven gear O.D.	57.755—57.768 mm (2.2738—2.2743 in)	57.66 mm (2.270 in)

### TORQUE VALUES

Starter clutch bolts	30 N·m (3.0 kg-m, 22 ft-lb) Apply a locking agent to the threads
Flywheel bolt	125 N·m (12.5 kg-m, 90 ft-lb) Apply MoS2 paste (page 2-14) to the threads
Left crankcase cover bolt	12 N·m (1.2 kg-m, 9 ft-lb)
Starter gear cover	12 N·m (1.2 kg-m, 9 ft-lb)

### TOOLS

#### Common

Flywheel holder	07725—0040000 or equivalent commercially available in U.S.A.
Rotor puller	07733—0020001 or 07933—3290001 (U.S.A. only)
Torx bit (T40)	07703—0010100 or equivalent commercially available in U.S.A.

## TROUBLESHOOTING

### Starter motor turns, but engine does not crank:

- Faulty starter clutch
- Faulty starter idle gears
- Faulty starter driven gear

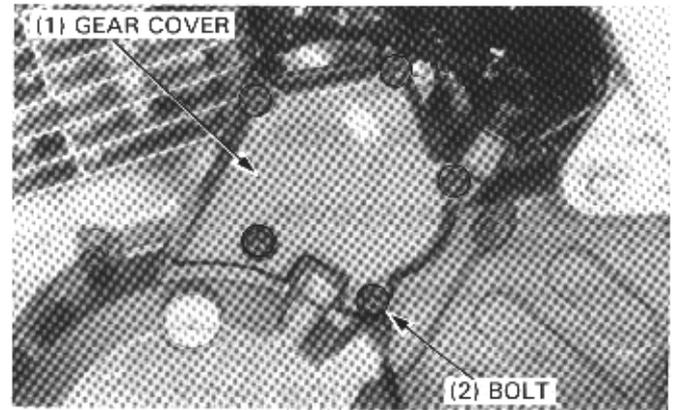
### Starter motor does not turn:

- Faulty starter motor (section 18)
- Faulty starting circuit (section 18)
- Bound idle gears

## LEFT CRANKCASE COVER REMOVAL

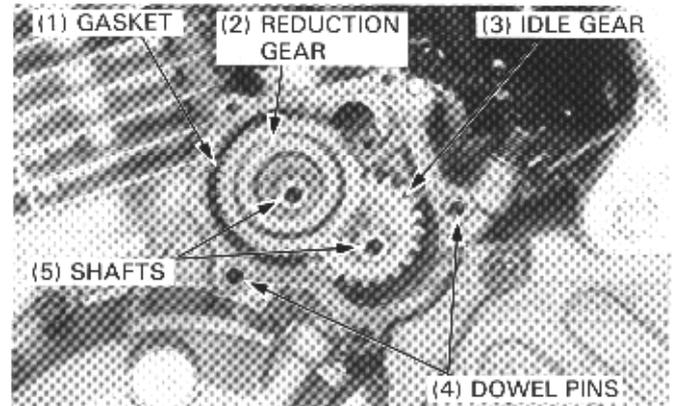
Remove the following:

- five socket bolts
- starter gear cover



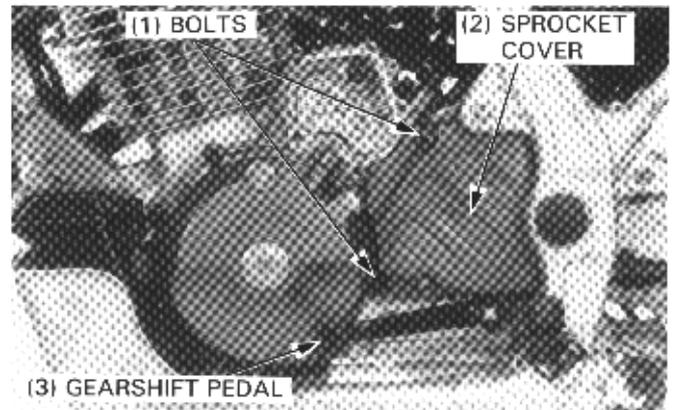
- dowel pins
- gasket
- shaft, reduction gear and washers
- shaft, idle gear and washers

Check the idle gear and reduction gear for excessive wear or damage.



Remove the following:

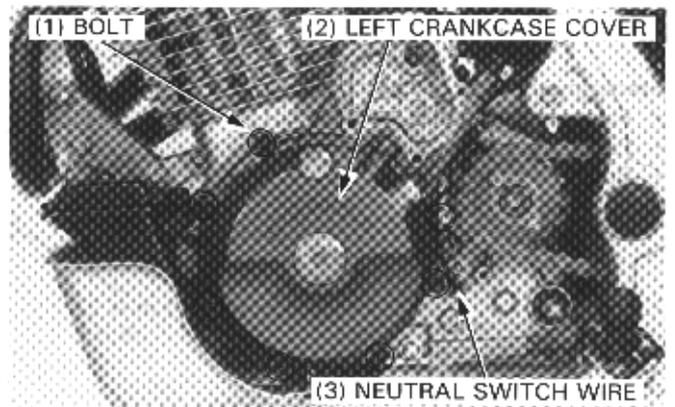
- gearshift pedal
- drive sprocket cover



Disconnect the neutral switch wire from the neutral switch. Remove the bolts and left crankcase cover.

### NOTE

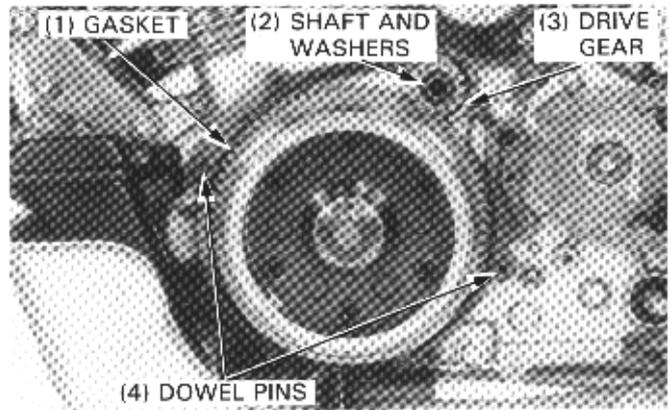
- Loosen the bolts in a crisscross pattern in two or more steps.



Remove the following:

- dowel pins
- gasket
- shaft, starter drive gear and washers

Check the starter drive gear for excessive wear or damage.

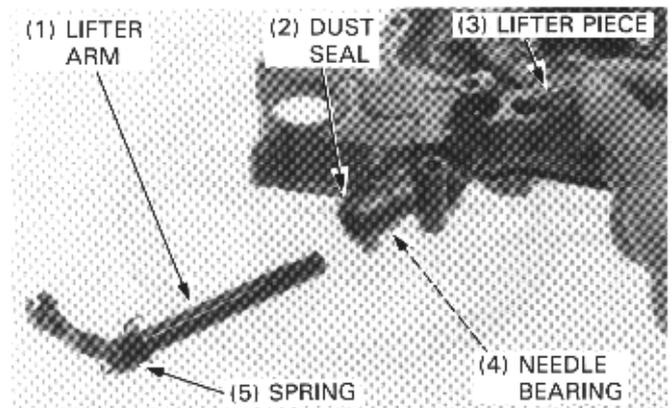


## LEFT CRANKCASE COVER DISASSEMBLY

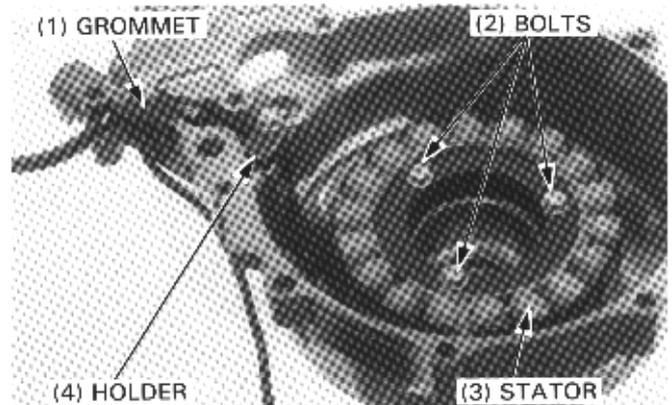
Remove the followings:

- Clutch lifter piece
- Clutch lifter arm
- Spring

Check the dust seal for damage or deterioration.  
Check the needle bearing for wear or damage.



Remove the alternator wire holder and grommet.  
Remove the three bolts and alternator stator.



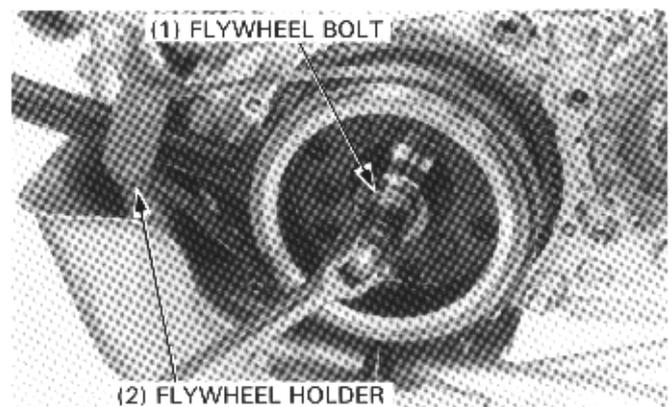
## FLYWHEEL REMOVAL

Remove the flywheel bolt while holding the flywheel with the flywheel holder.

**TOOL:**

Flywheel holder

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



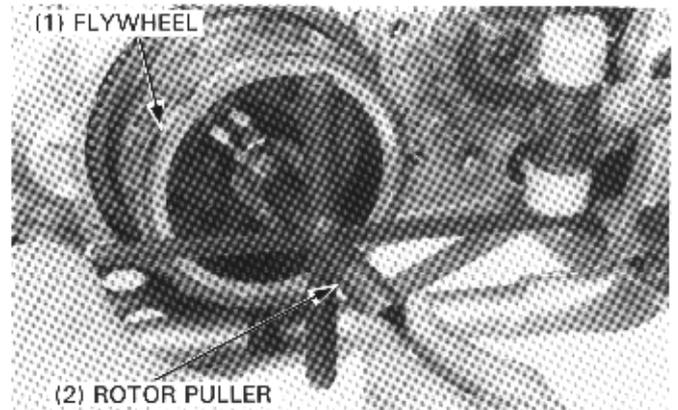
## ALTERNATOR/STARTER CLUTCH

Remove the flywheel using the rotor puller.

### TOOL:

Rotor puller

07733-0020001  
or 07933-3290001  
(U.S.A. only)

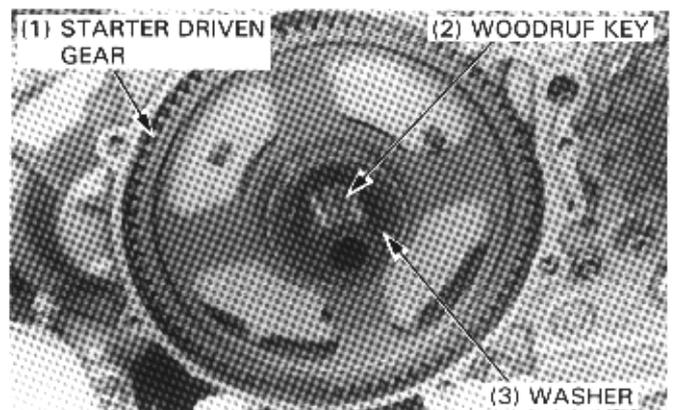


## STARTER CLUTCH

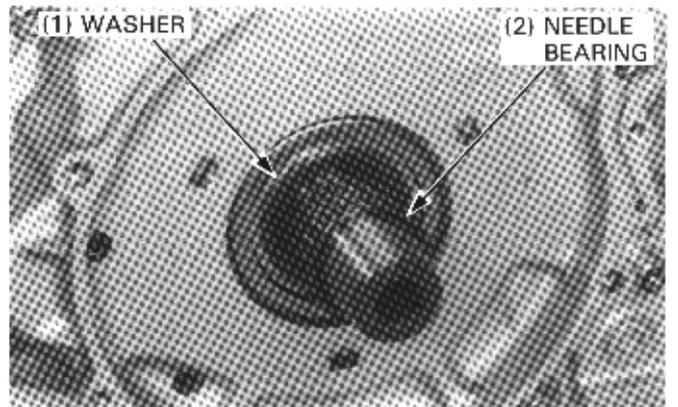
### REMOVAL/DISASSEMBLY

Remove the followings:

- Flywheel (page 9-3)
- Washer and starter driven gear
- Woodruff key

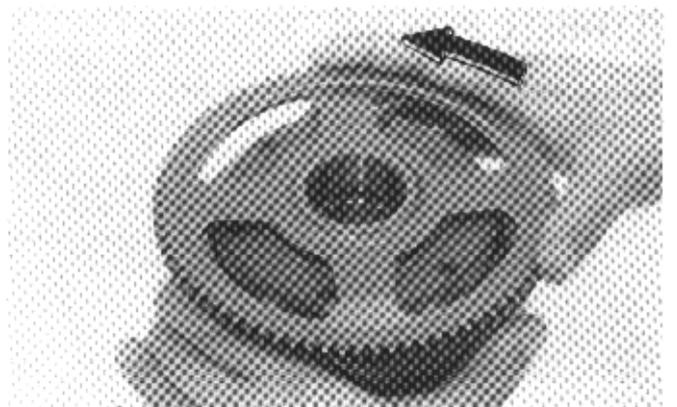


Remove the needle bearing and washer, and check the needle bearing for wear or damage.



Install the starter driven gear onto the flywheel and inspect the starter clutch by turning the starter driven gear. The driven gear should turn counter clockwise freely and should not turn clockwise, if not so, replace the starter clutch.

After inspection, remove the starter driven gear.



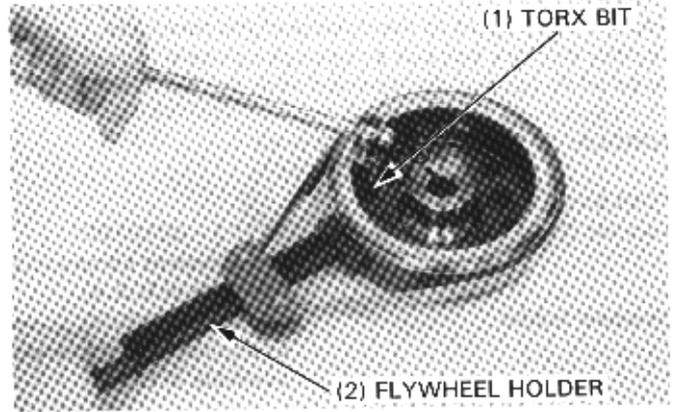
Loosen and remove the six torx bolts in a crisscross pattern in two or more steps, holding the flywheel with the flywheel holder.

**TOOLS:**

Torx bit (T40)

07703-0010100  
or equivalent commercially  
available in U.S.A.  
Flywheel holder  
07725-0040000  
or equivalent commercially  
available in U.S.A.

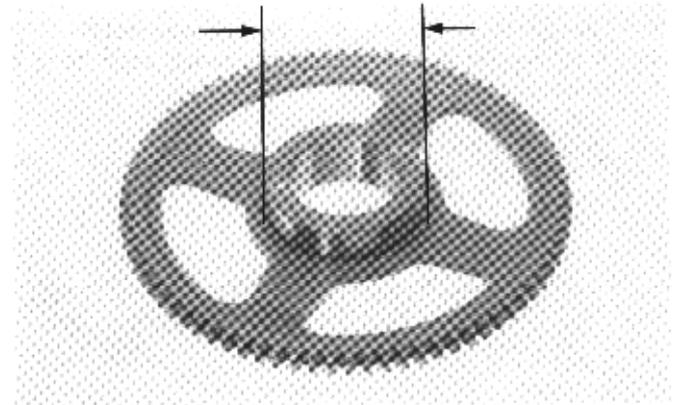
Flywheel holder



**INSPECTION**

Inspect the starter driven gear for excessive wear or damage. Measure the O.D. of the starter driven gear hub.

**SERVICE LIMIT: 57.66 mm (2.270 in)**

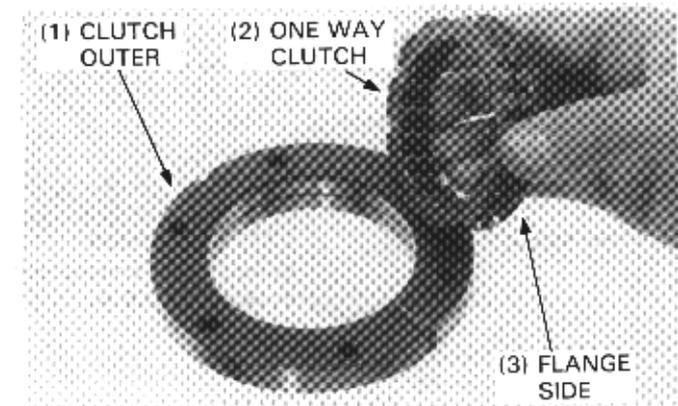


Inspect the one way clutch for wear or damage and replace if necessary.



**ASSEMBLY/INSTALLATION**

Install the one way clutch onto the clutch outer so that the flange side faces flywheel.



## ALTERNATOR/STARTER CLUTCH

Apply locking agent to the threads of the torx bolts.  
Tighten the torx bolts in a crisscross pattern in two or more steps while holding the flywheel with the flywheel holder.

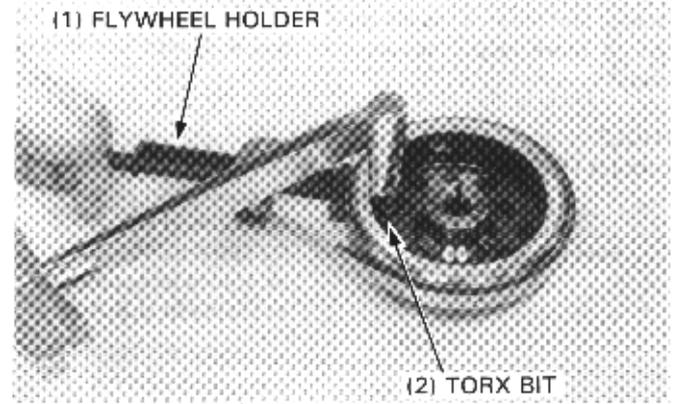
**TORQUE:** 30 N·m (3.0 kg-m, 22 ft-lb)

**TOOLS:**

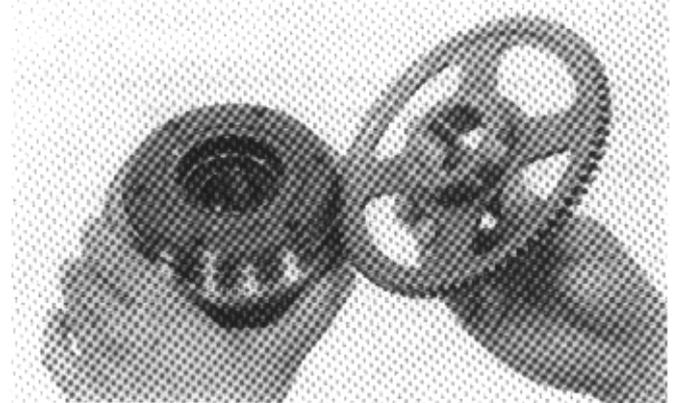
Torx bit (T40)

07703-0010100  
or equivalent commercially  
available in U.S.A.  
Flywheel holder  
07725-0040000  
or equivalent commercially  
available in U.S.A.

Flywheel holder



Install the starter driven gear onto the one way clutch.  
With the flywheel, install the starter clutch assy, onto the crankshaft.



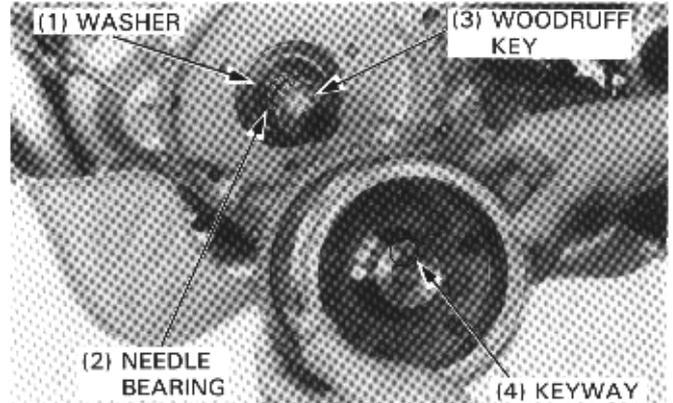
## FLYWHEEL INSTALLATION

Wipe all oil off the crankshaft and from within the tapered hole in the flywheel.

Install the following:

- woodruff key
- washer
- needle bearing

Install the flywheel onto the crankshaft, aligning the woodruff key with the keyway.



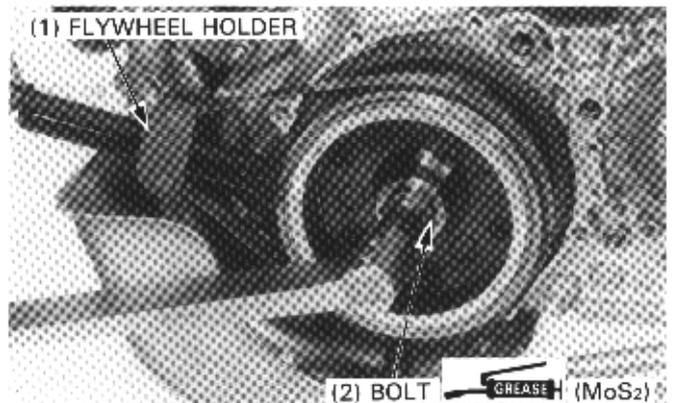
Apply MoS<sub>2</sub> paste to the threads of the flywheel bolt.  
Install the bolt and washer, and tighten the bolt while holding the flywheel.

**TORQUE:** 125 N·m (12.5 kg-m, 90 ft-lb)

**TOOL:**

Flywheel holder

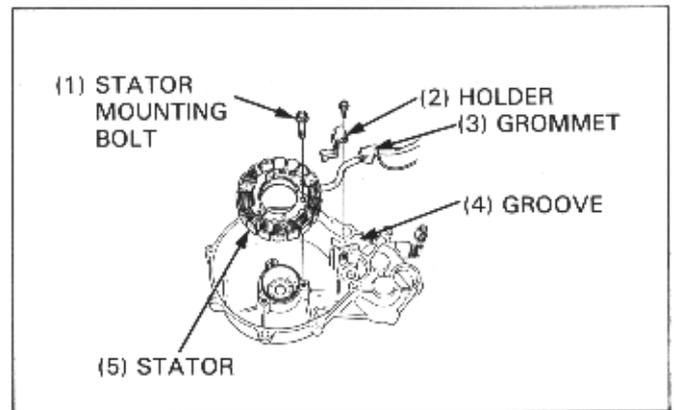
07725-0040000  
or equivalent commercially  
available in U.S.A.



## LEFT CRANKCASE COVER ASSEMBLY

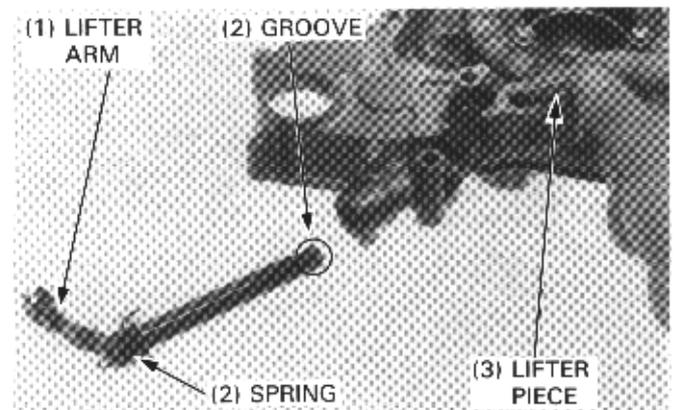
### ALTERNATOR STATOR INSTALLATION

Install the stator onto the left crankcase cover and apply a locking agent to the threads of the stator mounting bolts. Tighten the three bolts.  
Route the stator wire and install the wire grommet into the groove of the cover as shown.



### CLUTCH LIFTER ARM INSTALLATION

Install the spring onto the lifter arm.  
Insert the lifter arm and hook the spring to the left crankcase cover.  
Turn the lifter arm and install the lifter piece, aligning the groove on the lifter arm with the bottom of the lifter piece.



## LEFT CRANKCASE COVER INSTALLATION

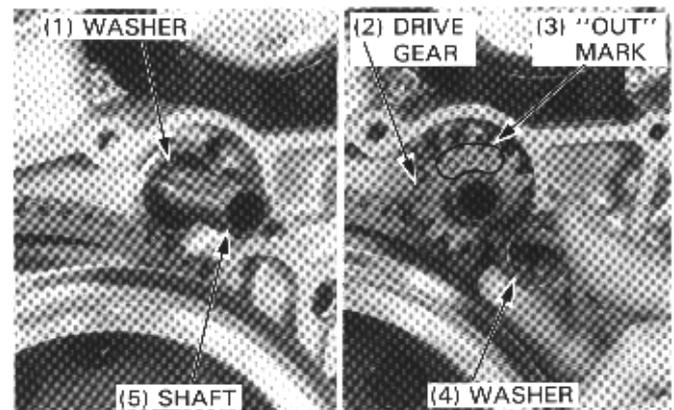
Install the following:

- washer and shaft
- starter drive gear

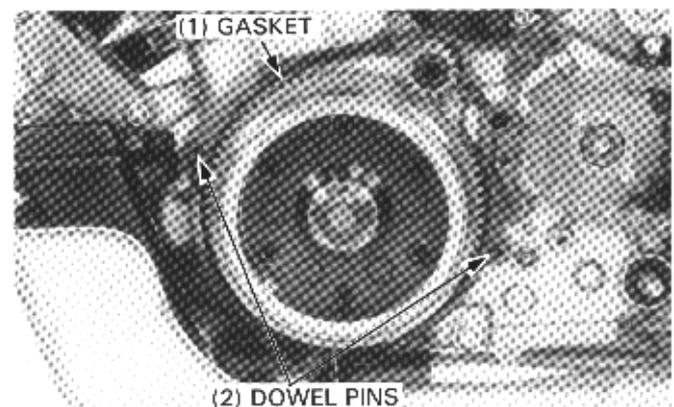
### NOTE

- Install the starter drive gear with the "OUT" mark facing out.

- washer



Install the dowel pins and a new gasket.



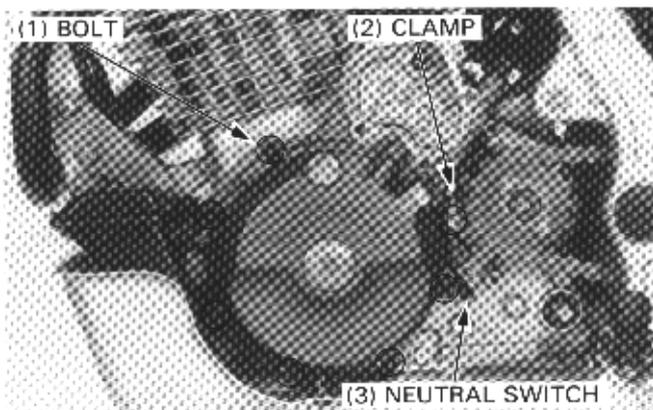
## ALTERNATOR/STARTER CLUTCH

Install the left crankcase cover and connect the neutral switch wire.

Put the neutral switch wire into the groove of the left crankcase cover.

Install the left crankcase cover with a clamp, and tighten the left crankcase cover bolts in a crisscross pattern in two or more steps.

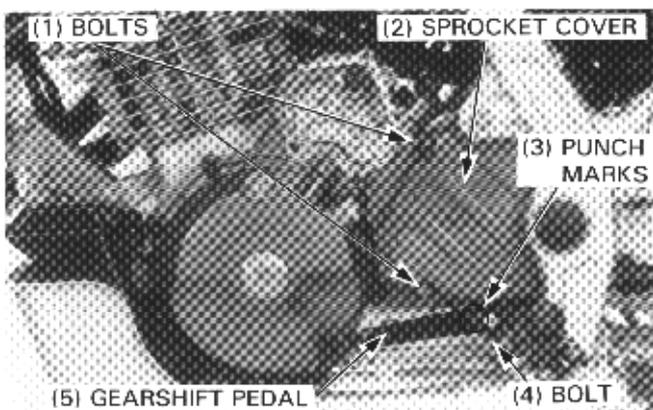
**TORQUE: 12 N·m (1.2 kg·m, 9 ft·lb)**



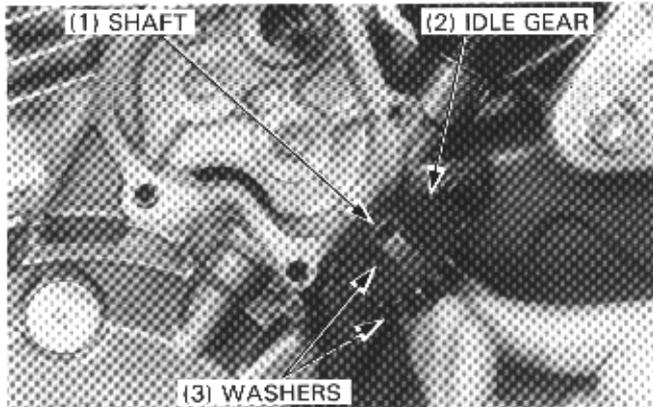
Install the drive sprocket cover and secure it with three bolts.

Install the gearshift pedal, aligning the punch marks on the pedal and gearshift spindle.

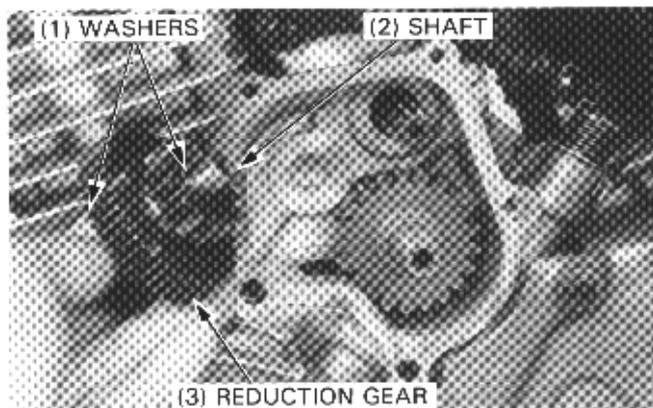
Secure the pedal with a bolt.



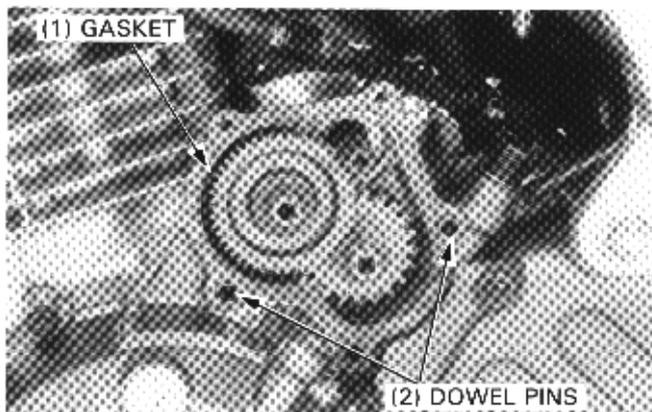
Install the shaft and idle gear with the washers.



Install the shaft and reduction gear with the washers.



Install the dowel pins and a new gasket.



Install the starter gear cover and secure it with the five bolts.

**TORQUE: 12 N·m (1.2 kg-m, 9 ft-lb)**

