

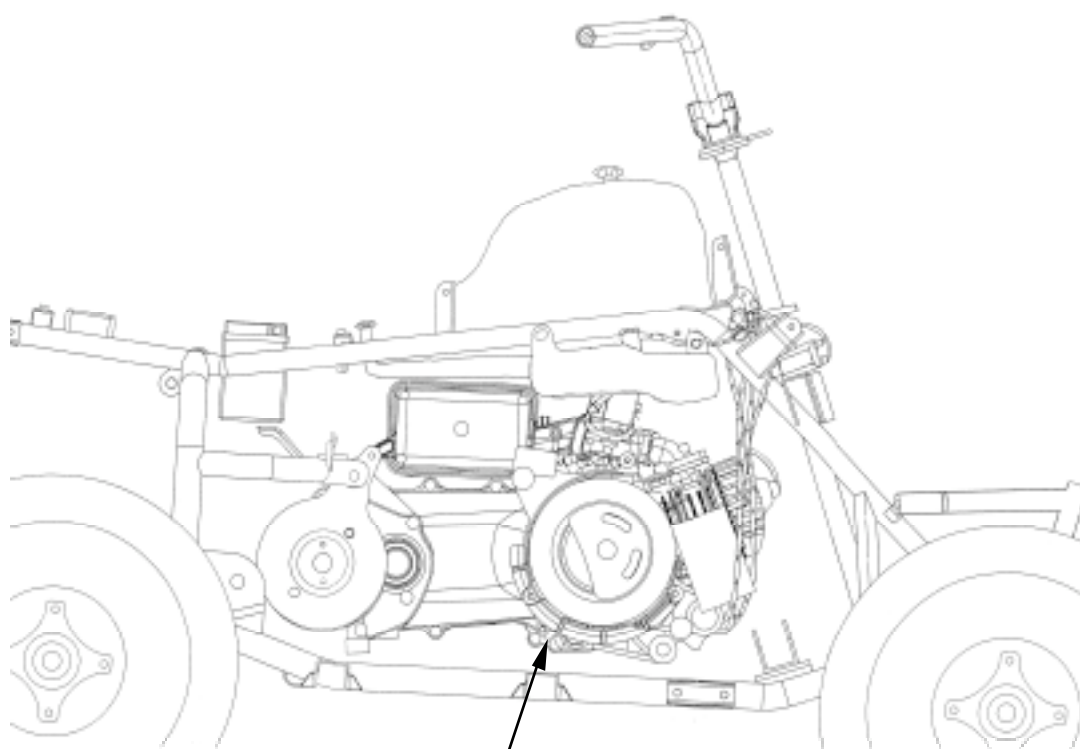
16. STARTING SYSTEM

16

STARTING SYSTEM

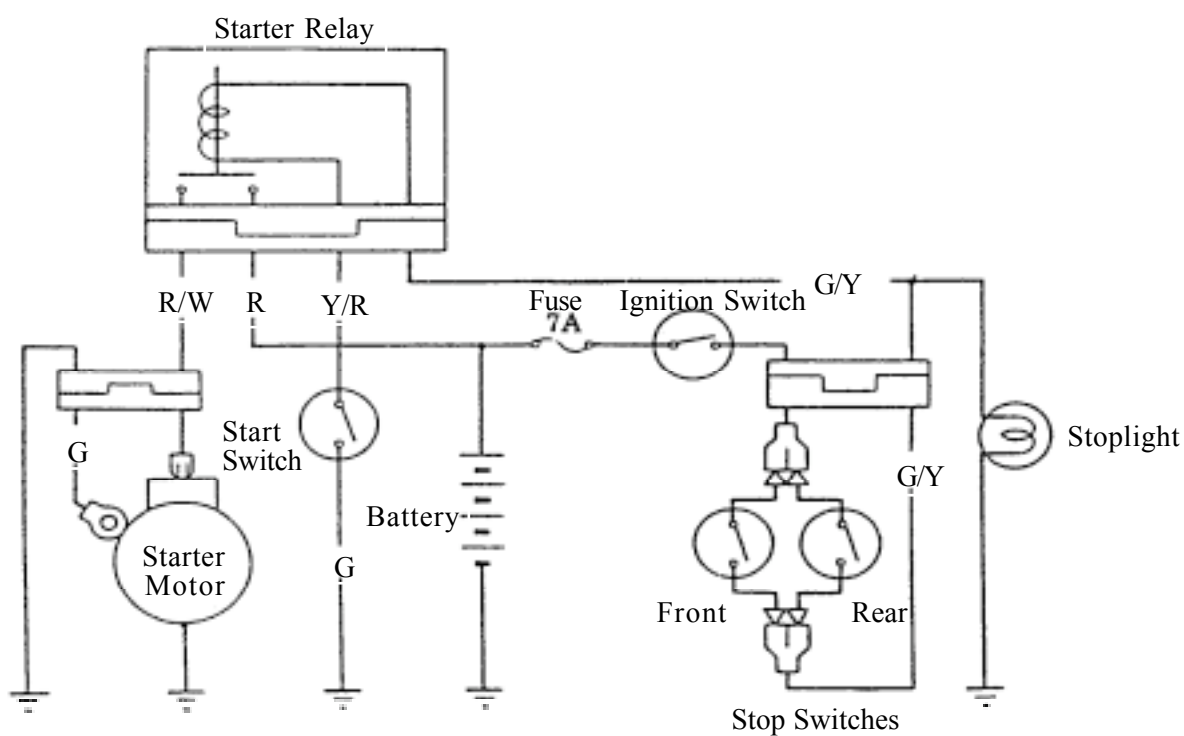
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16. STARTING SYSTEM



Starter Motor

STARTING CIRCUIT



16. STARTING SYSTEM

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- The removal of starter motor can be accomplished with the engine installed.

TROUBLESHOOTING

Starter motor won't turn

- Fuse burned out
- Weak battery
- Faulty ignition switch
- Faulty starter clutch
- Faulty front or rear stop switch
- Faulty starter relay
- Poorly connected, broken or shorted wire
- Faulty starter motor
- Faulty change gear control unit

Lack of power

- Weak battery
- Loose wire or connection
- Foreign matter stuck in starter motor or gear

Starter motor rotates but engine does not start

- Faulty starter clutch
- Starter motor rotates reversely
- Weak battery

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STARTER MOTOR

REMOVAL

- ° Before removing the starter motor, turn the ignition switch OFF and remove the battery ground. Then, turn on the ignition switch and push the starter button to see if the starter motor operates properly.

Disconnect the starter motor cable. Remove two mounting bolts at the starter motor attaching left crankcase, then remove the starter motor. (Mongoose/KXR 90's starter motor is located on the engine. Mongoose/KXR 50's starter motor is located under the engine.)

DISASSEMBLY

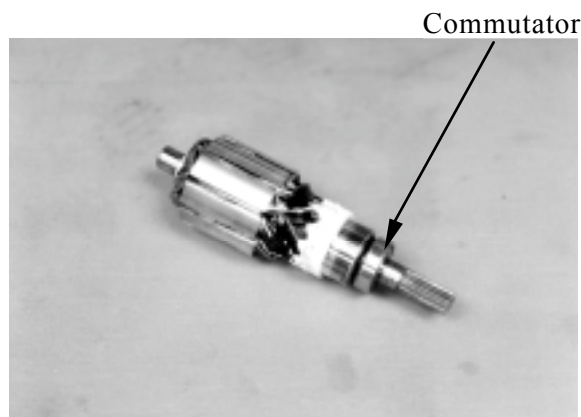
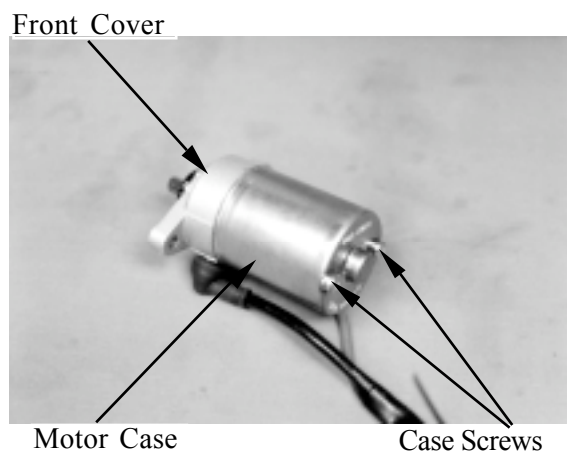
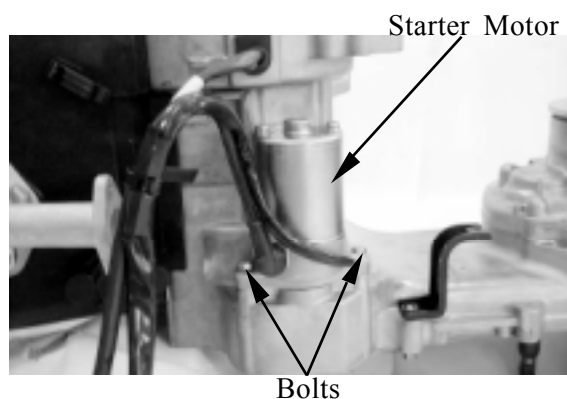
Remove the two starter motor case screws, front cover, motor case and other parts.

INSPECTION

Inspect the removed parts for wear, damage or discoloration and replace if necessary. Clean the commutator if there is metal powder between the segments.

Check for continuity between pairs of the commutator segments and there should be continuity.

Also, make a continuity check between individual commutator segments and the armature shaft. There should be no continuity.



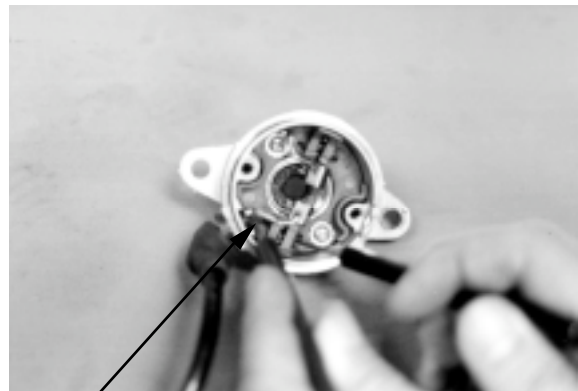
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STARTER MOTOR CASE CONTINUITY CHECK

Check to confirm that there is no continuity between the starter motor wire terminal and the motor front cover.

Also check for the continuity between the wire terminal and each brush.

Replace if necessary.



Wire Terminal

Measure the length of the brushes.

Service Limit: 8.5mm replace if below



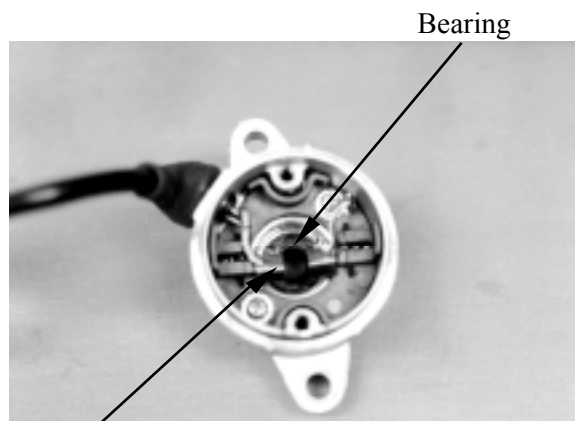
Check for continuity between the brushes.
If there is continuity, replace with new ones.



Check if the needle bearing in the front cover turns freely and has no excessive play.

Replace if necessary.

Check the dust seal for wear or damage.



Dust Seal

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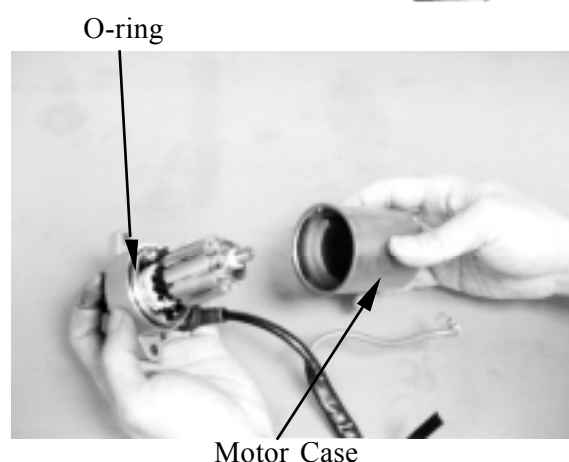
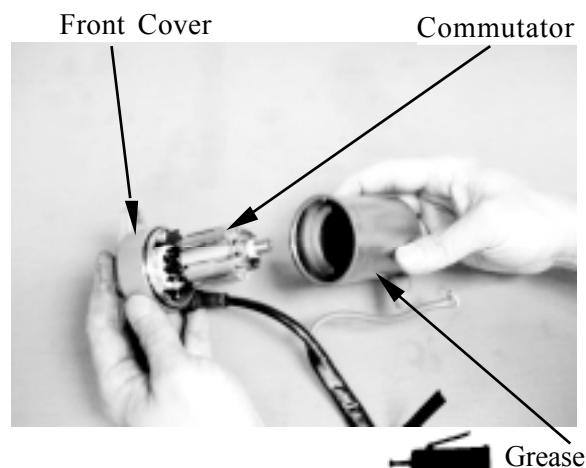
ASSEMBLY

Apply grease to the dust seal in the front cover.
Install the brushes onto the brush holders.
Apply a thin coat of grease to the two ends of the armature shaft.
Insert the commutator into the front cover.

- °C
 - Be careful not to damage the brush and armature shaft mating surfaces.
 - When installing the commutator, the armature shaft should not damage the dust seal lip.

Install a new O-ring to the front cover.
Install the starter motor case, aligning the tab on the motor case with the groove on the front cover.
Tighten the starter motor case screws.

- °C
 - When assembling the front cover and motor case, slightly press down the armature shaft to assemble them.

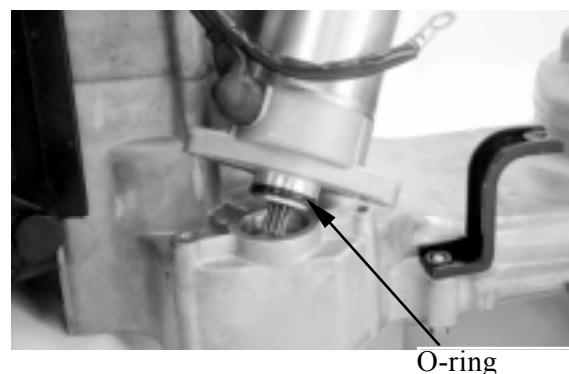


STARTER MOTOR INSTALLATION

Connect the starter motor cable connector
Check the O-ring for wear or damage and replace it if necessary.

Apply grease to the O-ring and install the starter motor.
Tighten the two mounting bolts.
Torque: 0.8_ 1.2kgf-m

- °C
 - The starter motor cable connector must be installed properly.



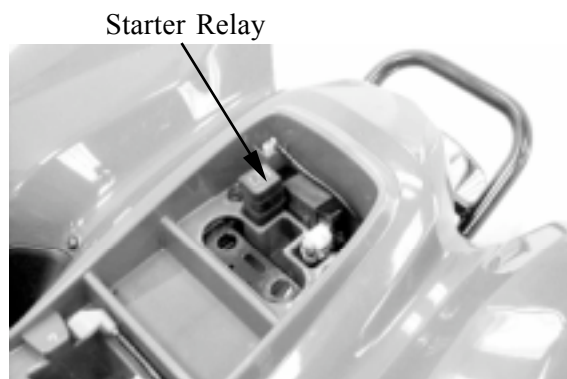
16. STARTING SYSTEM

STARTER RELAY

INSPECTION

Remove the seat. (Refer to the chapter 2)
Turn the ignition switch ON and the starter relay is normal if you hear a click when the starter button is depressed.
If there is no click sound:

- Inspect the starter relay voltage
- Inspect the starter relay ground circuit
- Check for continuity between the starter relay yellow/red and green/red wire terminals



STARTER RELAY VOLTAGE INSPECTION

Connect a 12V battery across the starter relay yellow/red and green/red wire terminals.

Connect an electric tester between the starter relay large terminals and check for continuity between the two terminals.
The relay is normal if there is continuity.
Replace the starter relay with a new one if there is no continuity.

Starter Relay (Mongoose/KXR 90)



Starter Relay (Mongoose/KXR 50)



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STARTER PINION (Mongoose/KXR 90)

REMOVAL

Remove the left crankcase cover and drive pulley face. (Refer to chapter 9)
Remove the starter one-way clutch drive nut.

Special

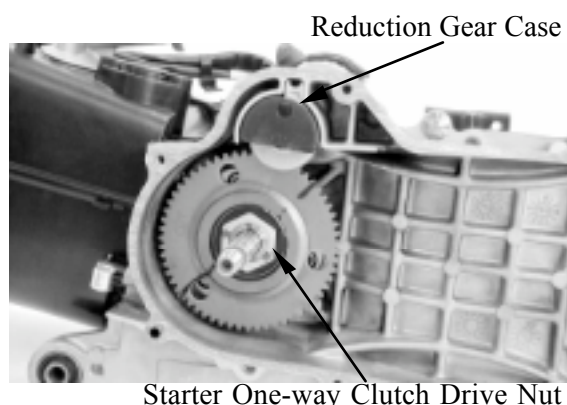
Lock nut socket wrench E015

Remove starter one-way clutch drive.

Special

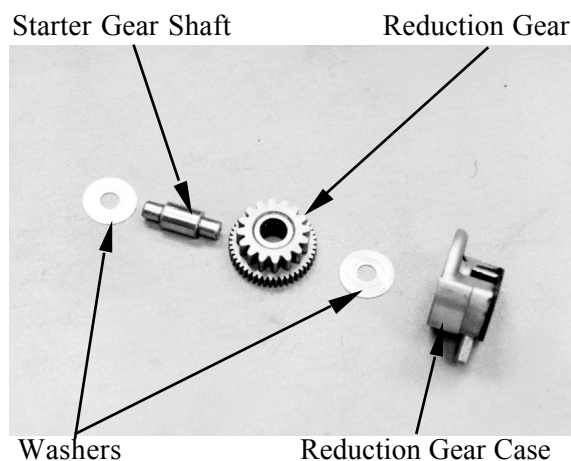
Start clutch puller E006

Remove the reduction gear case.
Remove the reduction gear.



INSTALLATION

Install each washer to the top and bottom of the reduction gear.
Apply grease to the reduction gear shaft forcing part.
Then, install in the reverse order of removal.

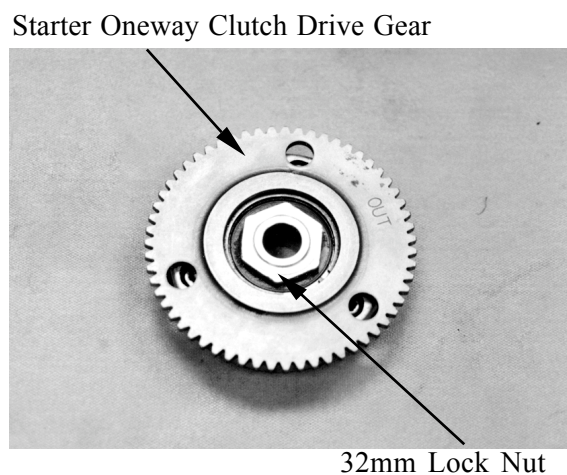


STARTER ONE-WAY CLUTCH DISASSEMBLY

Remove the 32mm lock nut with special tool.
Take the starter one-way clutch drive gear off.

Special

Lock nut socket wrench E015

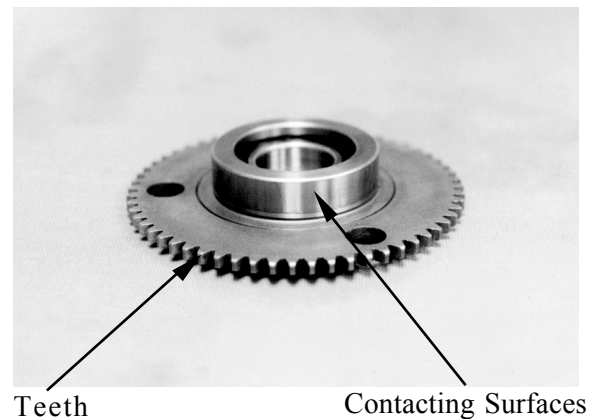


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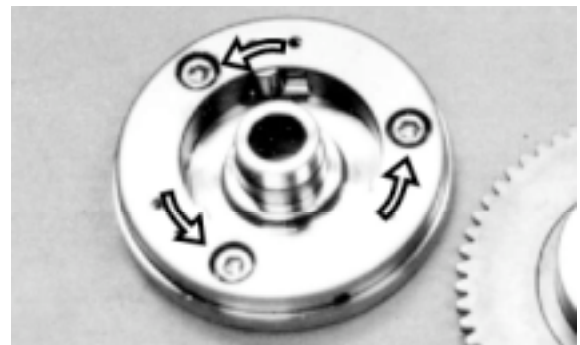
INSPECTION

Inspect the starter one-way clutch drive gear teeth for burrs/chips/roughness/wear.

Inspect the starter one-way clutch drive gear contacting surfaces for pitting/wear/damage.



Push the weight roller to arrow direction for unsmooth operation. _ Replace starter clutch assembly.

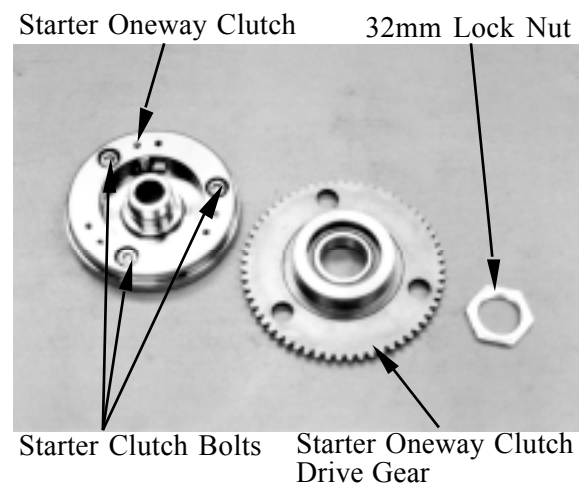


ASSEMBLY

Install the starter one-way clutch driver gear in the reverse order of removal.

Do not reuse the starter clutch bolts that have been removed.

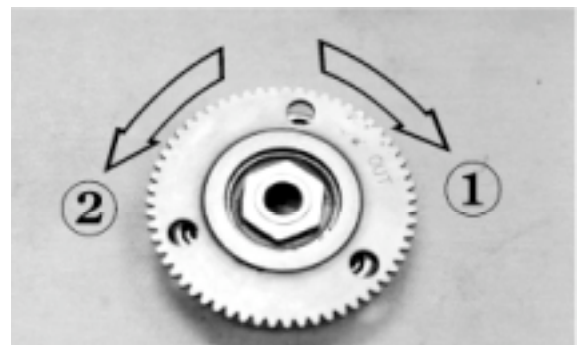
♦ **Torque:** 5.0_ 6.0kgf-m



Check starter clutch operation.

Clutch operation checking steps:

- ♦ Install the starter wheel gear to the starter clutch, and hold the starter clutch.
- ♦ When turning the wheel gear clockwise (1) the starter clutch and the wheel gear should be engaged. If not, the starter clutch is faulty. Replace it.
- ♦ When turning the wheel gear counterclockwise (2), the wheel gear should turn freely. If not, the starter clutch is faulty. Replace it.



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STARTER PINION (Mongoose/KXR 50)

REMOVAL

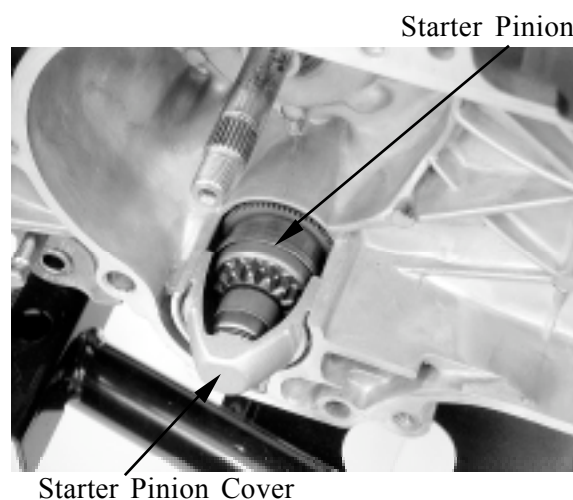
Remove the left crankcase cover.

Remove the drive pulley.

(Refer to chapter 9)

Remove the starter pinion cover.

Remove the starter pinion.



INSPECTION

Inspect the starter pinion seat for wear.

Inspect the starter pinion for smooth operation.

Inspect the starter pinion shaft forcing parts for wear and damage.

INSTALLATION

Apply a small amount of grease to the starter pinion teeth.

Install the starter pinion in the reverse order of removal.

