

## ENGINE REASSEMBLY

Reassemble the engine in the reverse order of disassembly. The following steps require special attention or precautionary measures should be taken.

### NOTE:

Apply engine oil to each running and sliding part before reassembling.

### SECONDARY DRIVE BEVEL GEAR

- Install the secondary drive bevel gear shim(s).

#### SHIM SELECTION 4-6

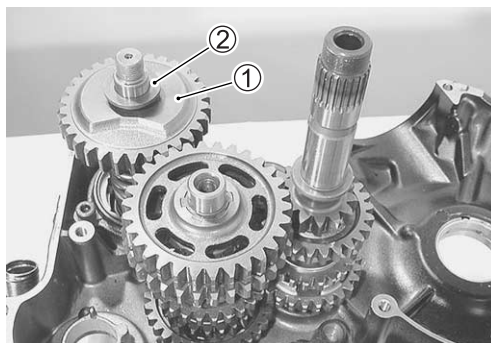
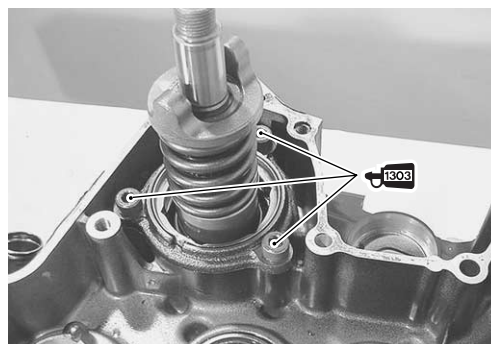
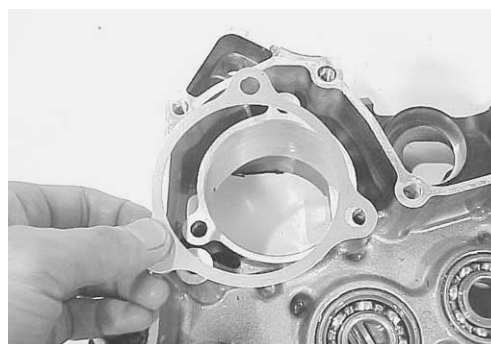
- Install the secondary drive bevel gear assembly and tighten the retainer bolts to the specified torque.

### NOTE:

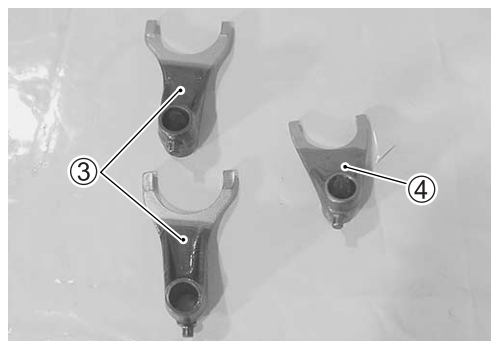
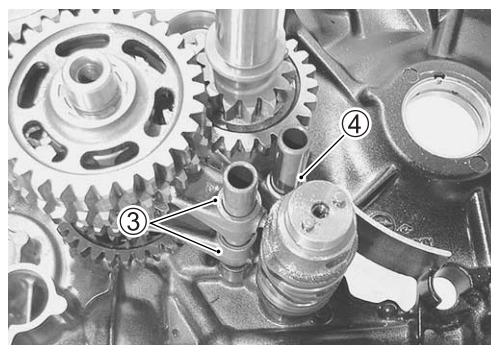
Apply **THREAD LOCK SUPER "1303"** to the thread of the bolts.

 **99000-32030: THREAD LOCK SUPER "1303"**

 **Secondary drive gear bearing retainer bolt: 23 N·m  
(2.3 kgf·m, 16.5 lb-ft)**




- Install the gearshift forks ③④, gearshift fork shafts and gearshift cam.
- ③ No. 1 shift forks (For 4th and 5th driven gears)
- ④ No. 2 shift fork (For 3rd drive gear)

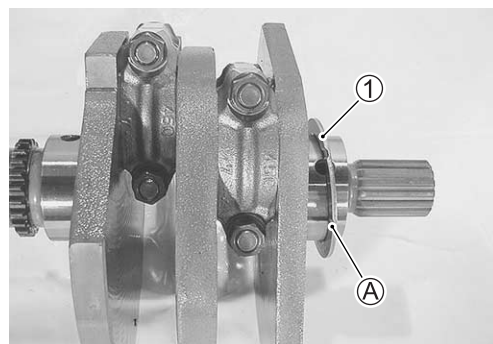


**CRANKSHAFT**

- Install the thrust shim ① on the crankshaft.

**NOTE:**

- \* The grooved face ① of thrust shim ① faces to crankshaft web side.
- \* The thrust shim is selected by the crankshaft thrust clearance.  
( 3-42)



- Install the crankshaft into the left crankcase half.

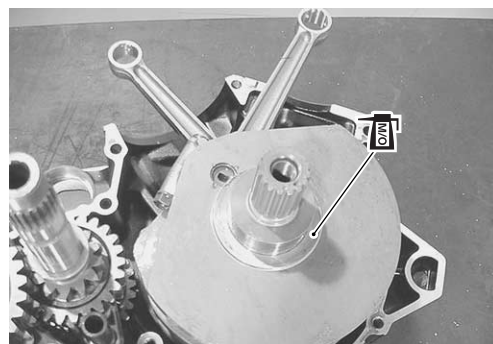
**NOTE:**

Coat lightly moly paste to the crankshaft journal bearings and the thrust shim.

 **99000-25140: SUZUKI MOLY PASTE**

**⚠ CAUTION**


**Never strike the crankshaft with a plastic hammer when inserting it into the crankcase. It will be easy to install the crankshaft to left crankcase.**

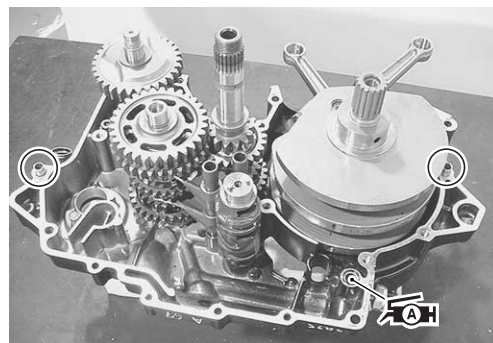


- Install the dowel pins and O-ring on the left crankcase half.

**NOTE:**


Apply grease to the O-ring.

 **99000-25030: SUZUKI SUPER GREASE "A" (For USA)**  
**99000-25010: SUZUKI SUPER GREASE "A"**  
(For the others)

**⚠ CAUTION**

**Use the new O-ring to prevent oil leakage.**

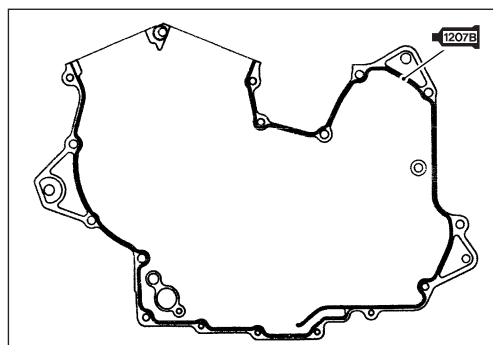
- Clean the mating surfaces of the left and right crankcase halves.
- Apply SUZUKI BOND "1207B" to the mating surface of the right crankcase.

 **99104-31140: SUZUKI BOND "1207B" (For USA)**  
**99000-31140: SUZUKI BOND "1207B" (For the others)**

**NOTE:**

Use of SUZUKI BOND "1207B" is as follows:

- \* Make surfaces free from moisture, oil, dust and other foreign materials.
- \* Spread on surfaces thinly to form an even layer, and assemble the crankcases within few minutes.
- \* Take extreme care not to apply any BOND "1207B" to the oil hole, oil groove and bearing.
- \* Apply to distorted surfaces as it forms a comparatively thick film.



- Fit the gasket to the bolt (A).
- When securing the right and left crankcase halves, tighten each bolt a little at a time to equalize the pressure. Tighten all the securing bolts to the specified torque values.

**🔧 Crankcase 8mm bolt: (Initial) 15 N·m (1.5 kgf·m, 11.0 lb-ft)  
(Final) 22 N·m (2.2 kgf·m, 16.0 lb-ft)  
Crankcase 6mm bolt: 11 N·m (1.1 kgf·m, 8.0 lb-ft)**

**⚠ CAUTION**

**Do not drop the O-ring into the crankcase when assembling the right and left crankcase halves.**

**NOTE:**

*After the crankcase bolts have been tightened, check if the crankshaft, secondary drive bevel gear shaft, countershaft and the driveshaft rotate smoothly.*

**SECONDARY DRIVEN BEVEL GEAR**

- Install the secondary driven bevel gear bearing and the pin (1).

**NOTE:**

*Align the hole (A) of the secondary driven bevel gear bearing with the pin (1).*

- Install the secondary driven bevel gear assembly, shim(s) (2) and O-ring (3).
- Install the dowel pins and the oil jet (4).

**⚠ CAUTION**

**Use the new O-ring to prevent oil leakage.**

**NOTE:**

\* Refer to the section 4 for shim selection.

\* Apply grease to the O-ring.

**🔧 99000-25030: SUZUKI SUPER GREASE "A" (For USA)  
99000-25010: SUZUKI SUPER GREASE "A"**

**(For the others)**

- Clean the mating surfaces of the crankcase and the secondary gear case.
- Apply SUZUKI BOND "1207B" to the mating surface of the secondary gear case.

**🔧 1207B 99104-31140: SUZUKI BOND "1207B" (For USA)  
99000-31140: SUZUKI BOND "1207B" (For the others)**

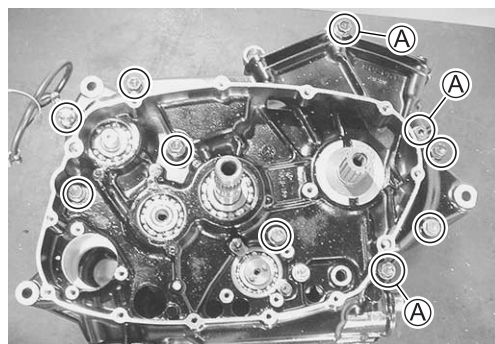
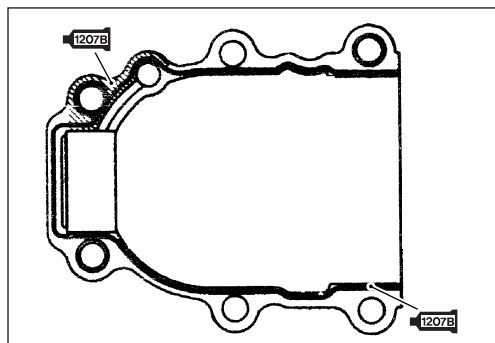
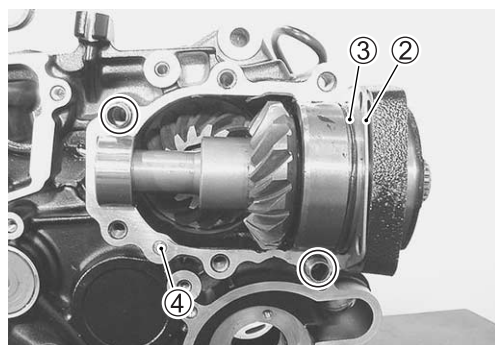
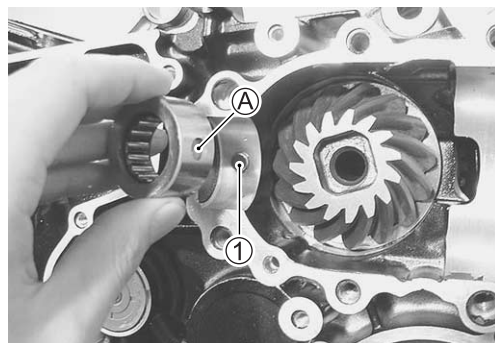
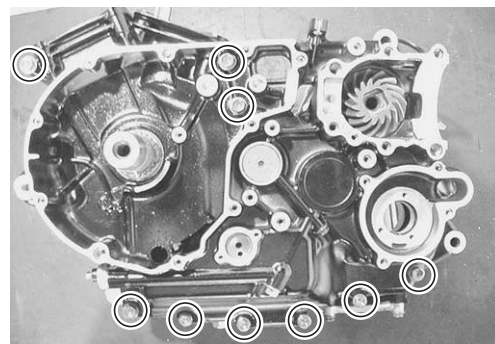
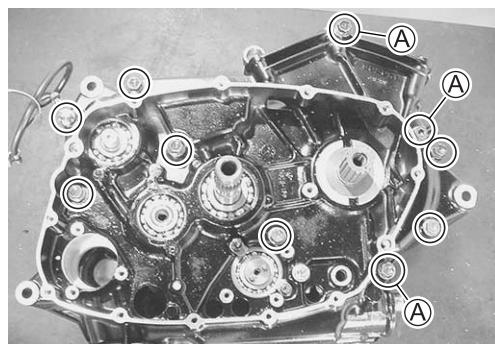
**NOTE:**

\* Make surfaces free from moisture, oil, dust and other foreign materials.


\* Spread on surfaces thinly to form an even layer, and assemble the crankcases within few minutes.

\* Take extreme care not to apply any BOND "1207B" to the oil hole, oil groove and bearing.

\* Apply to distorted surfaces as it forms a comparatively thick film.






-  **Secondary gear case bolt (Initial): 15 N·m**  
(1.5 kgf·m, 11.0 lb-ft)  
**(Final) : 22 N·m**  
(2.2 kgf·m, 16.0 lb-ft)

Fit the washer to the bolt ④.

- \* *Hollow portion ⑥ of the secondary driven gear assembly faces inside.*
- \* *Apply a small quantity of THREAD LOCK SUPER "1303" to the bolt.*


**1303 99000-32030: THREAD LOCK SUPER "1303"**

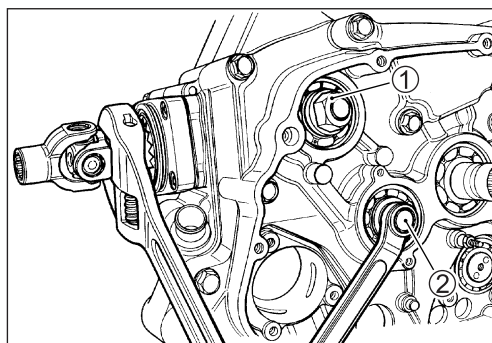
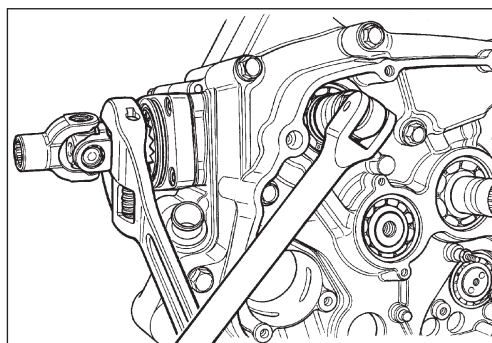
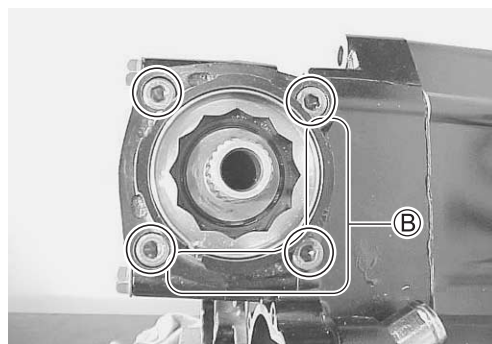
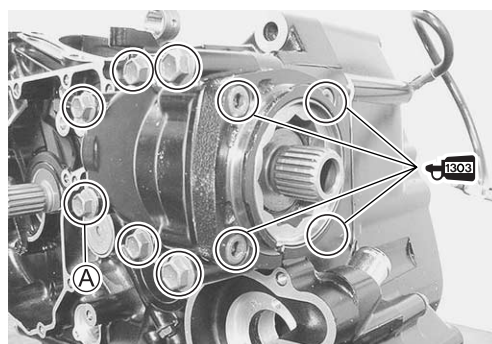
 **Secondary driven bevel gear bolt: 23 N·m**  
(2.3 kgf·m, 16.5 lb·ft)

- Install the universal joint on the secondary driven gear shaft.
- While holding the universal joint with a adjustable wrench, tighten the secondary drive gear shaft nut ① and driveshaft bolt ② to the specified torque.

**Driveshaft bolt ② has left-hand thread.**

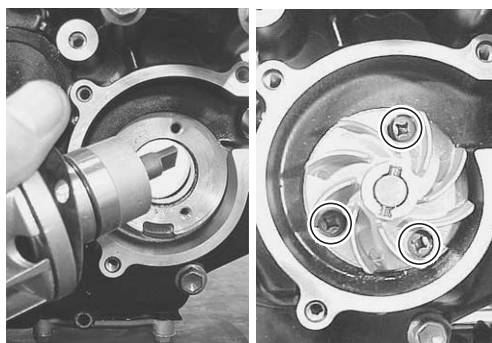
 **09900-18710: Hexagon socket (12 mm)**

 **Secondary drive gear shaft nut: 105 N·m**  
(10.5 kgf·m, 76.0 lb-ft)  
**Driveshaft bolt: 65 N·m (6.5 kgf·m, 47.0 lb-ft)**



- Install the new O-ring and new gasket.
- Tighten the water pump mounting screws.

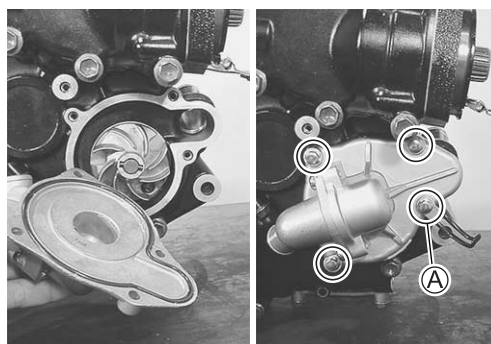
**Use the new O-ring to prevent oil leakage.**



- Install the new O-ring.
- Install the water pump cover.

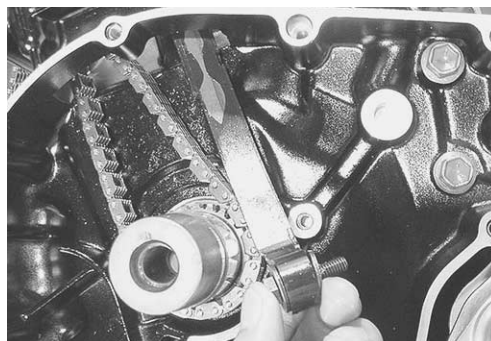
**NOTE:**

Fit the clamp to the bolt (A).

**CAM CHAIN/CAM CHAIN TENSIONER**

- Install the cam chain tensioner and cam chain.

 **Cam chain tensioner bolt: 10 N·m (1.0 kgf·m, 7.0 lb-ft)**

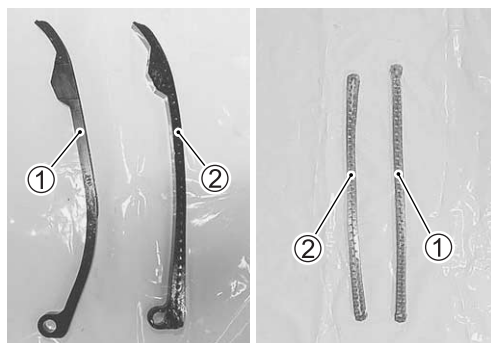


① For front cylinder

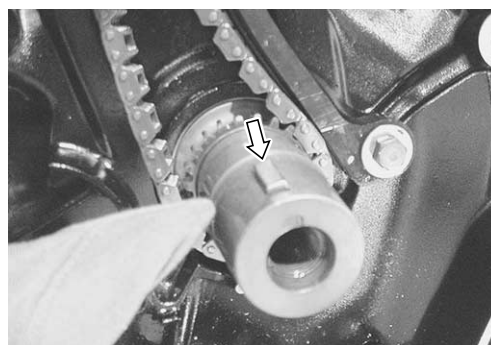
② For rear cylinder

**NOTE:**

The No. 2 cam chain (For front cylinder) is a little longer than the No. 1 cam chain.

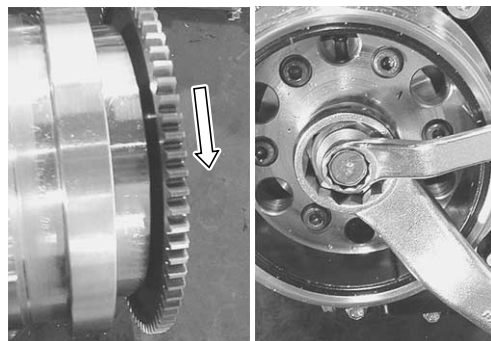
**GENERATOR**

- Degrease the tapered portion of the generator rotor assembly and also the crankshaft. Use nonflammable cleaning solvent to wipe off the oily or greasy matter to make these surfaces completely dry.
- Install the key.

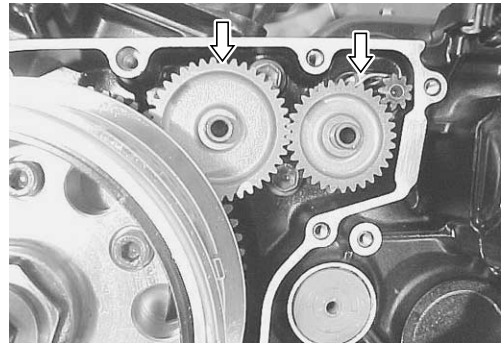


- Install the starter driven gear to the rotor.
- Install the generator rotor assembly and tighten its bolt to the specified torque.

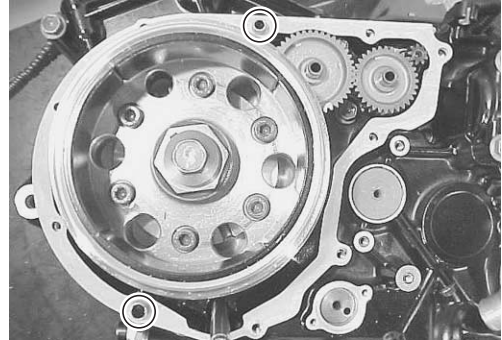
 **Generator rotor bolt: 160 N·m (16.0 kgf·m, 115.5 lb-ft)**



- Install the starter driven gear and the idle gear.



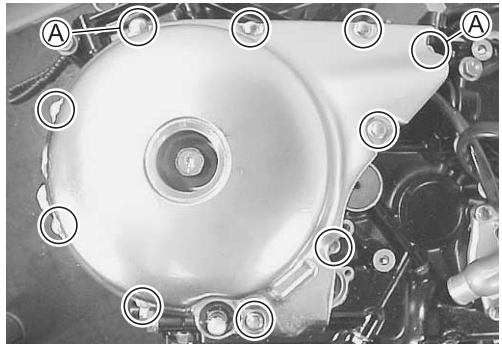
- Install the new gasket and dowel pins.



- Install the generator cover.

**NOTE:**

*Fit the new gaskets to the bolts (A).*

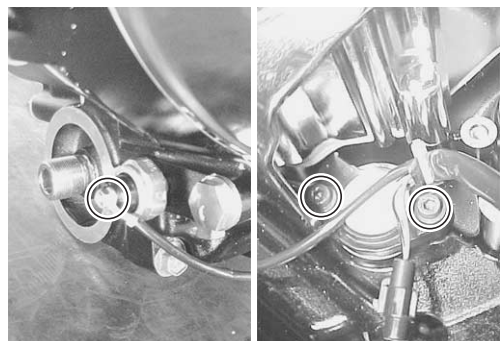


## NEUTRAL SWITCH

- Install the springs and switch contacts.



- Install the neutral switch.
- Install the oil pressure switch lead wire.

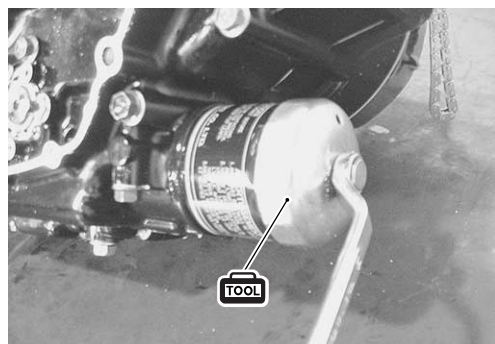




## OIL FILTER

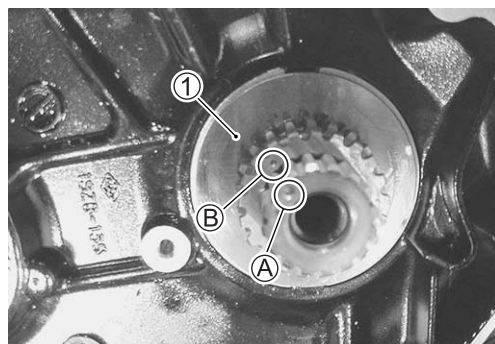
- Apply engine oil lightly to the gasket of the oil filter before installation.
- Install the oil filter turning it by hand until feeling that the filter gasket contacts the mounting surface. Then tighten it 2 turns using the oil filter wrench.

 **09915-40610: Oil filter wrench**



## PRIMARY DRIVE GEAR

- Install the thrust washer ① onto the crankshaft.
- Align the punch mark ① on the crankshaft with the punch mark ② on the camshaft drive sprocket.



- Install the cam chain and cam chain tensioner.
- Tighten the cam chain tensioner bolt to the specified torque.

 **Cam chain tensioner bolt: 10 N·m (1.0 kgf·m, 7.0 lb-ft)**



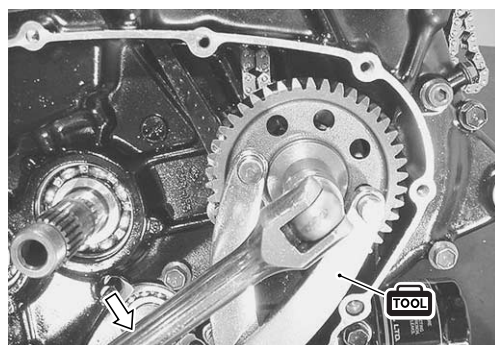
- Install the primary drive gear and tighten the primary drive gear bolt to the specified torque with the special tool.

 **Primary drive gear bolt: 95 N·m (9.5 kgf·m, 68.5 lb-ft)**

 **09930-40113: Rotor holder**

### NOTE:

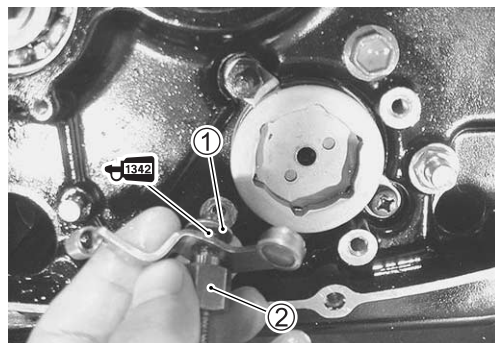
*This bolt has left-hand thread.*



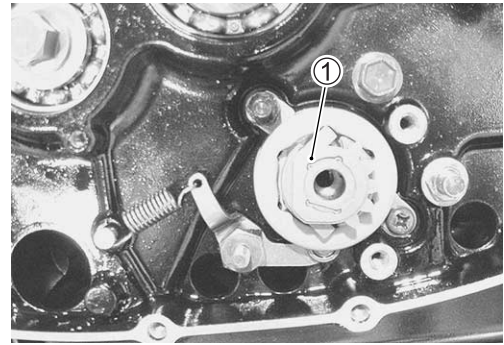
## GEARSHIFT

- Install the washer ①.
- Apply a small quantity of THREAD LOCK “1342” to the gearshift cam stopper bolt ② and tighten it.

 **99000-32050: THREAD LOCK “1342”**

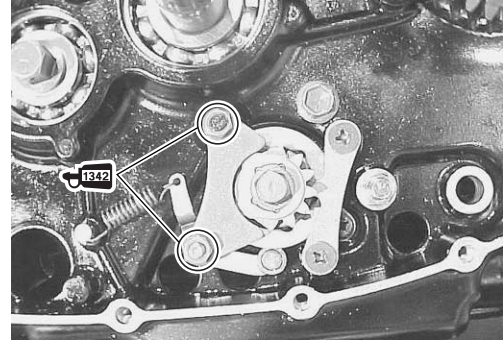


- Install the cam driven gear ① after installing the springs, pins and gearshift pawls.

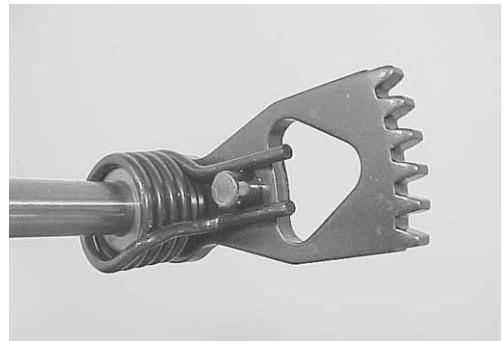


- Install the cam guide and the pawl lifter.
- Apply a small quantity of THREAD LOCK “1342” to the nuts.

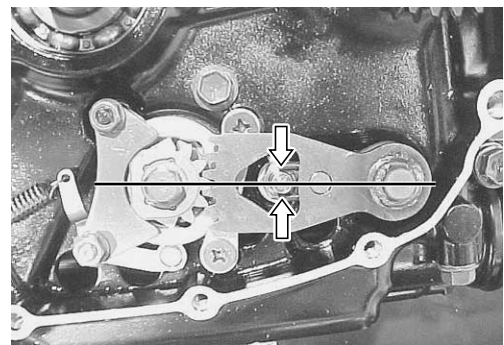
 99000-32050: THREAD LOCK “1342”



- Install the gearshift return spring properly.



- Install the gearshift shaft with the center of shift gear on the shaft aligned the center of gearshift cam driven gear.



## OIL PUMP

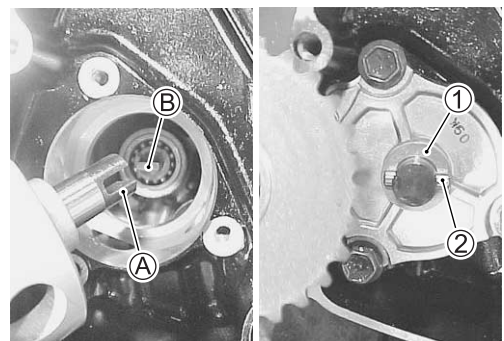
- Install the oil pump.

 Oil pump mounting bolt: 11 N·m (1.1 kgf·m, 8 lb-ft)

### NOTE:

Set the oil pump shaft end ① to the water pump shaft ②.

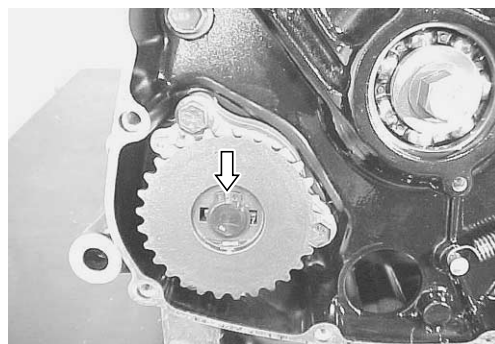
- Install the washer ① and pin ②.





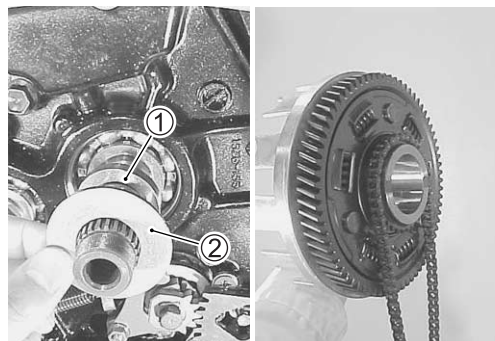
- Install the oil pump driven gear and the circlip.

**TOOL** 09900-06107: Snap ring pliers

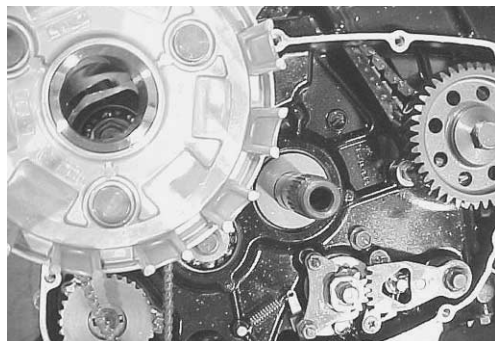


## CLUTCH

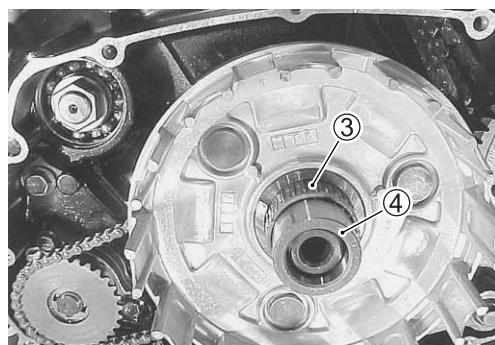
- Install the spacer ① and the thrust washer ②.
- Engage the chain with the oil pump drive gear.



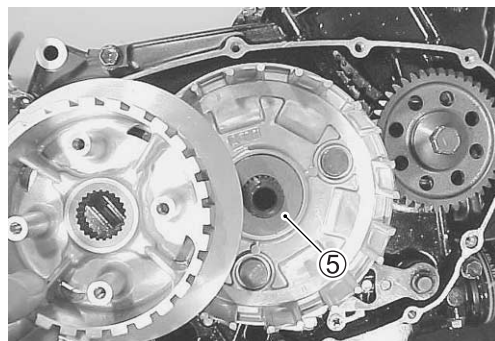
- Install the primary driven gear assembly and engage the chain with the oil pump drive gear.



- Apply engine oil to the primary driven gear bearing ③ and install it.
- Install the collar ④.



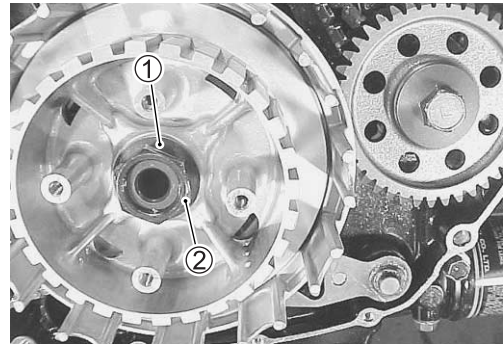
- Install the thrust washer ⑤ and the clutch sleeve hub.



- Install the washer ① and the clutch sleeve hub nut ②.

**NOTE:**

*The convex side of the washer faces outside.*



- Tighten the clutch sleeve hub nut to the specified torque with the special tool.

**Clutch sleeve hub nut: 60 N·m (6.0 kgf·m, 43.5 lb-ft)**

**TOOL 09920-53740: Clutch sleeve hub holder**

