

**Inspection**

1. Measure the thickness of the friction disc.
2. Check the clutch plate for distortion.
3. Measure the free length of the clutch spring.
4. Check the clutch center-to-clutch plate B clearance (Ø), and if beyond specified limit, replace clutch plate B.

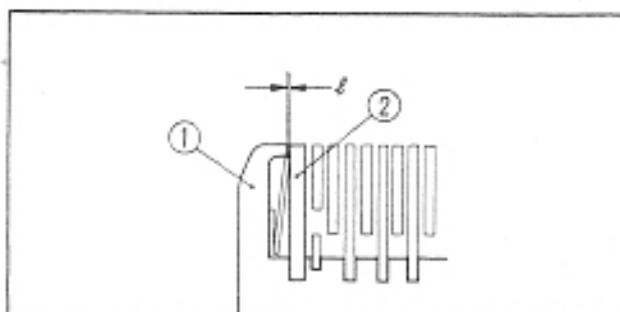


Fig. 3-33 ① Clutch center  
 ② Clutch plate B

**Reassembly**

1. Install the disc spring seat and clutch disc spring in proper direction as shown.

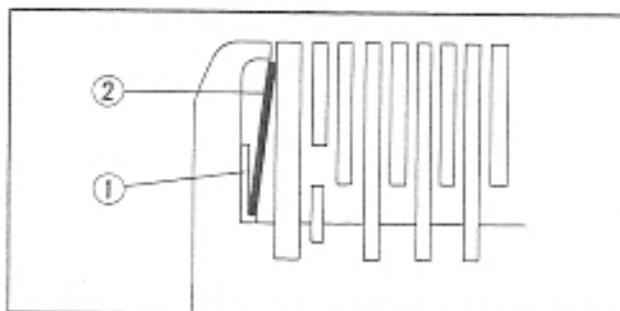


Fig. 3-34 ① Disc spring seat  
 ② Clutch disc spring

2. Be sure to install the 25 mm thrust washer.
3. Alternately install the friction discs and clutch plates to the clutch outer, and finally install the 8 mm friction disc (see ④, Fig. 3-30).

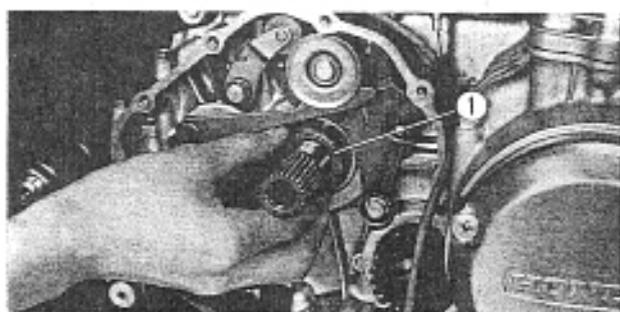


Fig. 3-35 ① 25 mm thrust washer

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## KICK STARTER

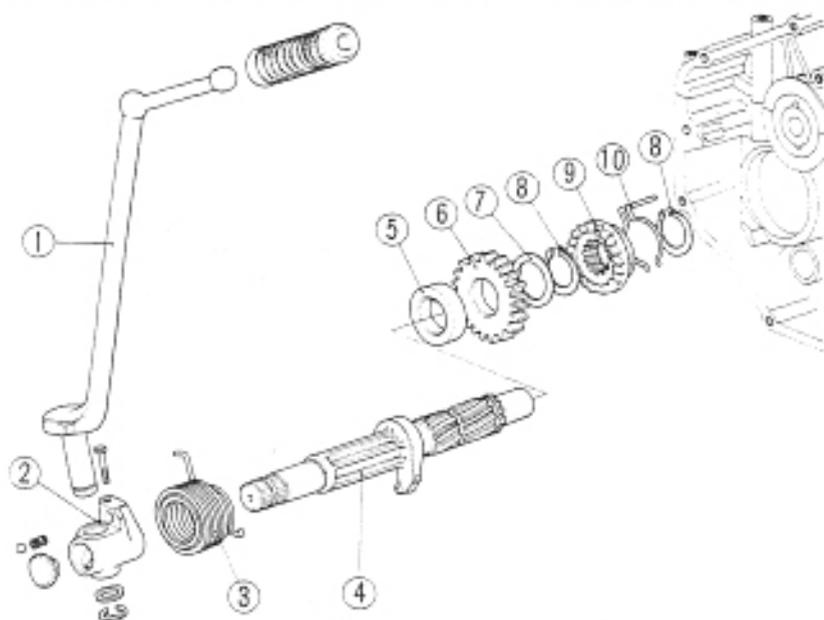


Fig. 3-36

- |                       |                        |                         |                                  |
|-----------------------|------------------------|-------------------------|----------------------------------|
| ① Kick starter arm    | ④ Kick starter spindle | ⑦ Thrust washer, 20 mm  | ⑩ Starter pinion friction spring |
| ② Kick arm joint      | ⑤ Collar               | ⑧ Set rings (two) 20 mm |                                  |
| ③ Kick starter spring | ⑥ Kick starter pinion  | ⑨ Starter drive ratchet |                                  |

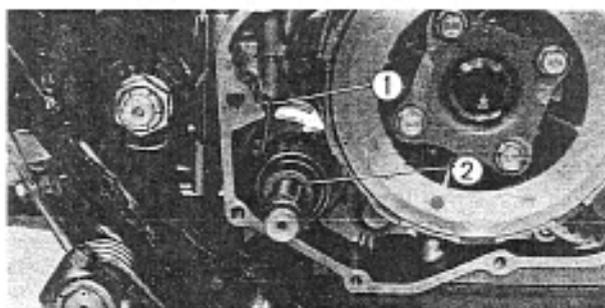


Fig. 3-37 ① Kick starter spring  
② Kick starter spindle

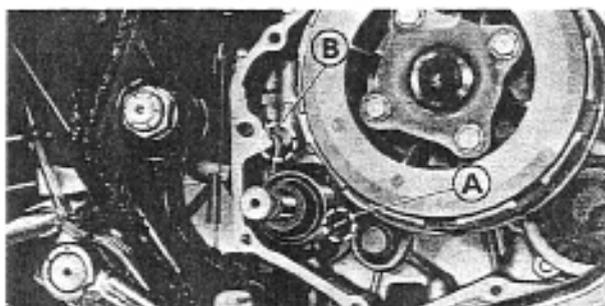


Fig. 3-38 Installing kick starter spring

### Disassembly

1. Drain oil from the crankcase.
2. Remove the R. foot rest and kick starter pedal.
3. Remove the R. crankcase cover.
4. Remove the kick starter spring and remove the kick starter assembly.

### Inspection

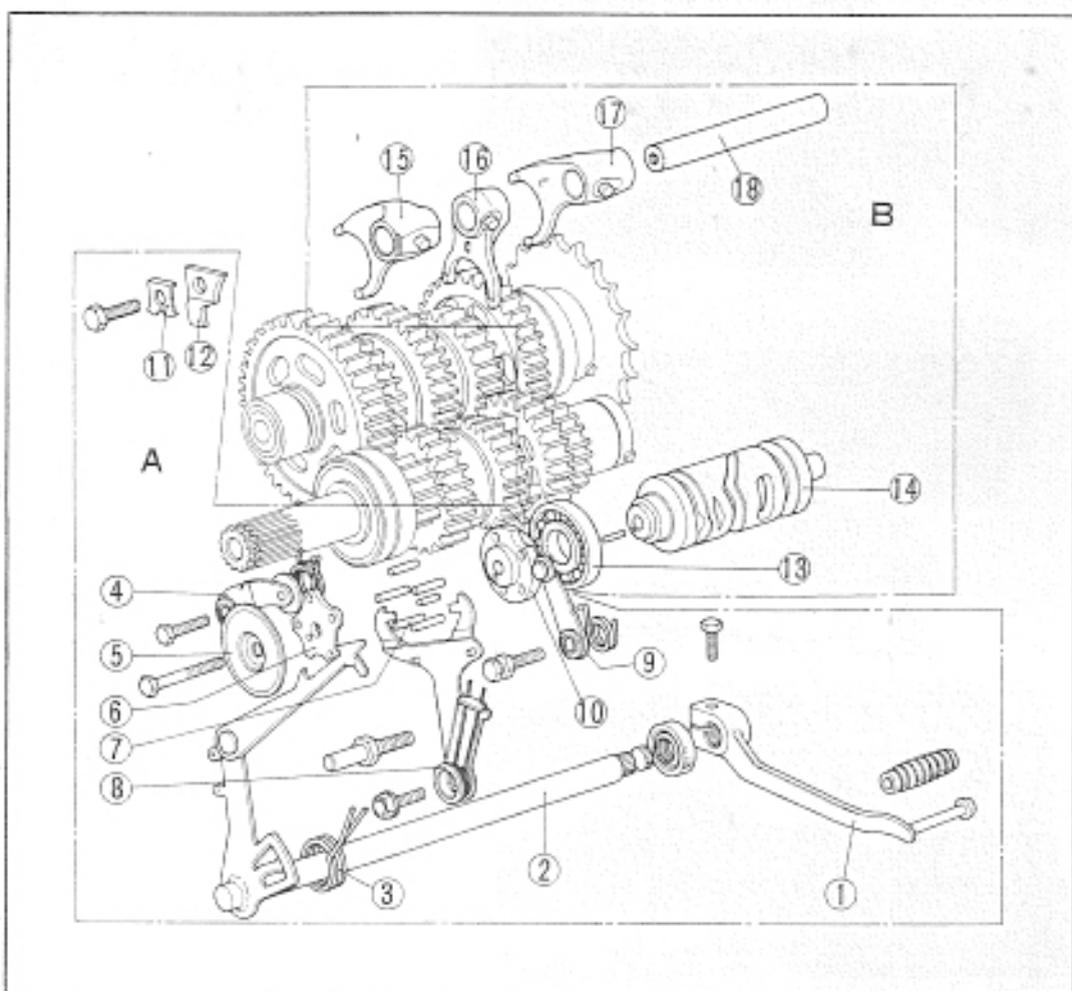
1. Check the starter drive ratchet for smooth and proper operation.
2. Check the kick starter pinion-to-kick starter spindle clearance.

### Reassembly

1. Insert the hair pin section of the starter pinion friction spring into the crankcase stopper groove in place.
2. Hook the end ④ of the kick starter spring as shown, and install the kick starter assembly. Install the other end ⑩ of the spring to the crankcase rib as shown.
3. Check to be sure the starter pinion gear is properly meshed with the low gear.

## 7. GEAR SHIFT MECHANISM

- Group A**  
On-vehicle servicing
- Group B**  
On-work stand servicing
- ① Gear change pedal  
② Gear shift spindle  
③ Return spring  
④ Gear shift drum stopper  
⑤ Gear shift side plate  
⑥ Drum stopper plate  
⑦ Rollers (six)  
⑧ Positive stopper  
⑨ Neutral stopper arm  
⑩ Gear shift drum center  
⑪ Lock washer, 8 mm  
⑫ Guide shaft set plate  
⑬ 16004 ball bearing  
⑭ Gear shift drum  
⑮ Gear shift fork, R  
⑯ Gear shift fork, center  
⑰ Gear shift fork, L  
⑱ Shift fork guide shaft



## Disassembly

**Group A**

1. Drain oil from the crankcase.
2. Remove the R. foot rest and kick starter pedal.
3. Remove the gear change pedal.
4. Remove the R. crankcase cover.
5. Remove the gear shift spindle.
6. Disassemble the positive stopper, gear shift drum stopper and neutral stopper arm. Fig. 3-41 indicates the transmission gears in neutral.

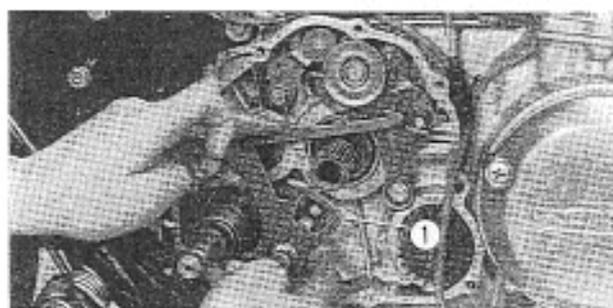
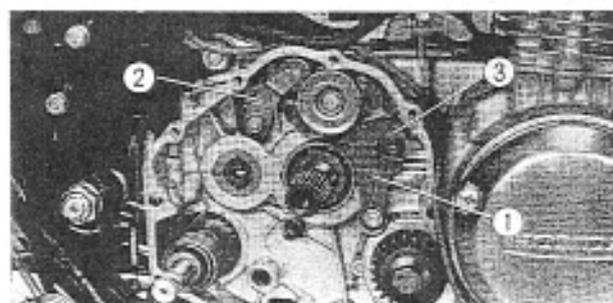


Fig. 3-40 ① Gear shift spindle

Fig. 3-41 ① Positive stopper  
② Gear shift drum stopper  
③ Neutral stopper arm

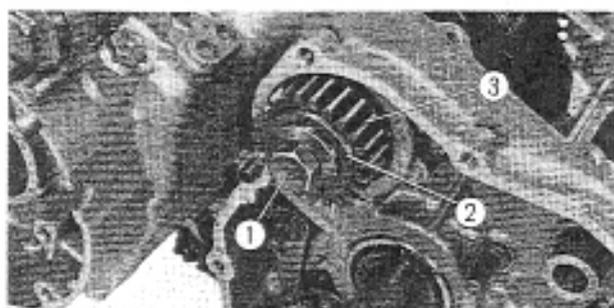


Fig. 3-42 ① 12 mm bolt  
② Primary shaft lock washer  
③ Secondary drive gear



Fig. 3-43 ① Primary shaft

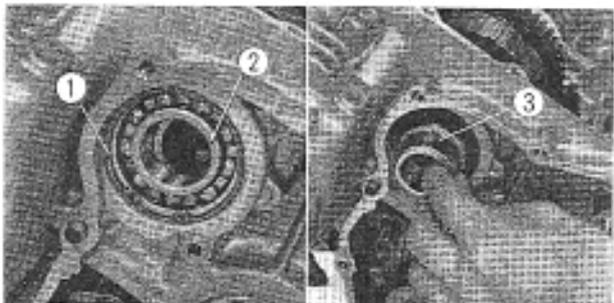


Fig. 3-44 ① 52 mm internal circlip  
② 6205 ball bearing  
③ 25 mm collar

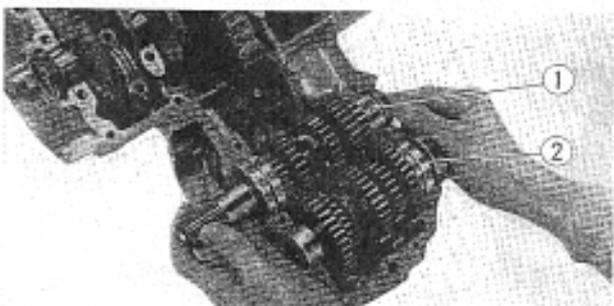


Fig. 3-45 ① Main shaft  
② Countershaft

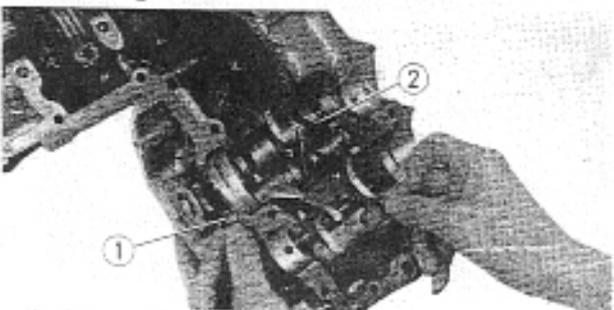


Fig. 3-46 ① Shift fork guide shaft  
② Gear shift drum

7. Remove the contact breaker base and spark advancer.
8. Remove the oil pump.
9. Remove the secondary drive gear from the primary shaft by removing the 12 mm bolt.

#### Group B

1. Dismount the engine from the machine and follow the steps 1 thru 9 above.
2. Pull out the primary shaft to the right.
3. Remove the 52 mm internal circlip, and disassemble the 6205 ball bearing and 25 mm collar.
4. Loosen the bolts securing the upper and lower crankcases to remove the lower crankcase.
5. Remove the transmission main shaft and the countershaft at the same time.
6. Remove the gear shift set plate, and pull out the shift fork guide shaft and gear shift drum.

**Inspection**

1. Measure the width of the gear shift fork finger.
2. Measure the outside diameter of the shift fork guide shaft.
3. Measure the inside diameter of the gear shift fork.
4. Check the gear shift fork guide-to-gear shift drum groove clearance.

**Reassembly**

1. Install the gear shift drum and gears in the neutral position.
2. Install the guide set plate, and bend the lug of the lock washer against the flat of the 8mm bolt.
3. Install the gear shift forks properly in their respective positions. They are provided with the marks "R", "C" and "L" for identification.
4. Check the gear shift drum stopper, neutral stopper arm and positive stopper are in their proper respective positions, and also check them for operation.
5. Move the gear shift spindle to check each related part for smooth operation.
6. Refer to pages 26~27 for the installation of the transmission.
7. Refer to page 34 for the installation of the upper and lower crankcases.

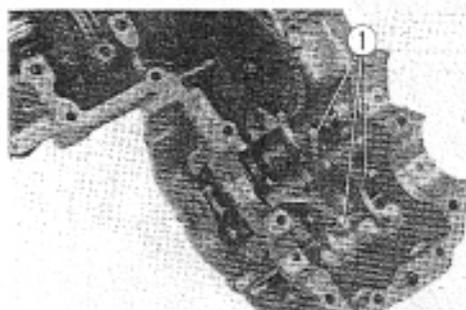
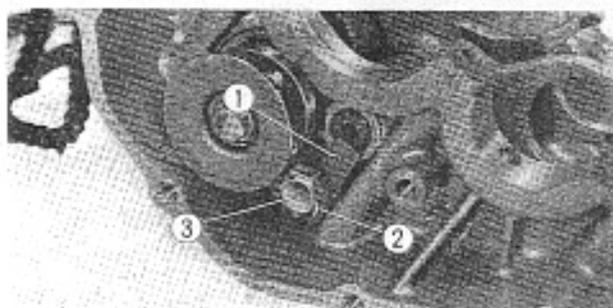


Fig. 3-47 ① Gear shift forks

Fig. 3-48 ① Guide set plate  
② Lock washer  
③ 8 mm bolt

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## 8. TRANSMISSION

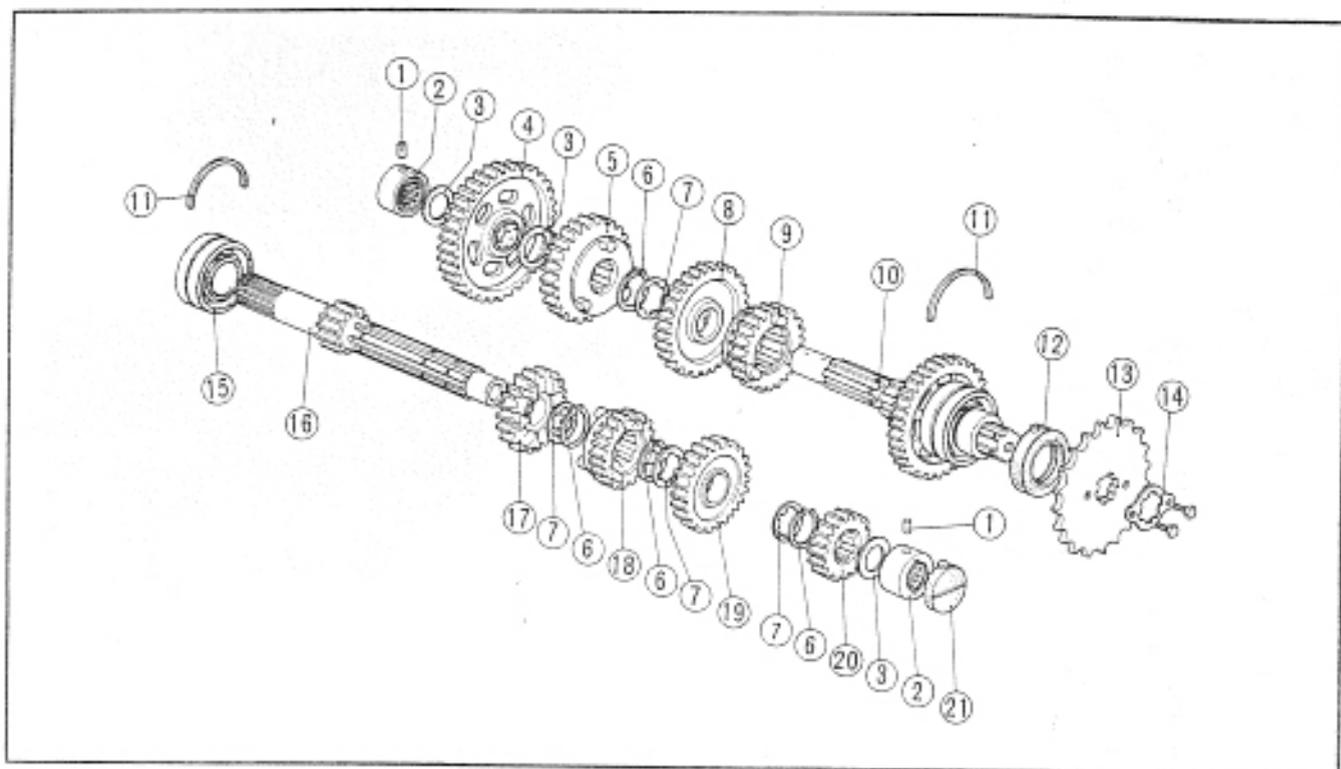


Fig. 3-49

- ① Gear shift fork guide pins (two), 6 mm
- ② Needle bearings (two), 20 mm
- ③ Thrust washers (three), 20 mm
- ④ Countershaft low gear, 41T
- ⑤ Countershaft fourth gear, 31T
- ⑥ Circlips (four), 25 mm
- ⑦ Thrust washers (four)

- ⑧ Countershaft third gear, 34T
- ⑨ Countershaft top gear, 28T
- ⑩ Countershaft, 37T
- ⑪ Bearing set rings (two), 52 mm
- ⑫ Oil seal
- ⑬ Drive sprocket, 17T
- ⑭ Drive sprocket fixing plate

- ⑮ Ball bearing, 5205 HS
- ⑯ Main shaft
- ⑰ Main shaft fourth gear, 27T
- ⑱ Main shaft third gear, 24T
- ⑲ Main shaft top gear, 29T
- ⑳ Main shaft second gear, 20T
- ㉑ Oil seal

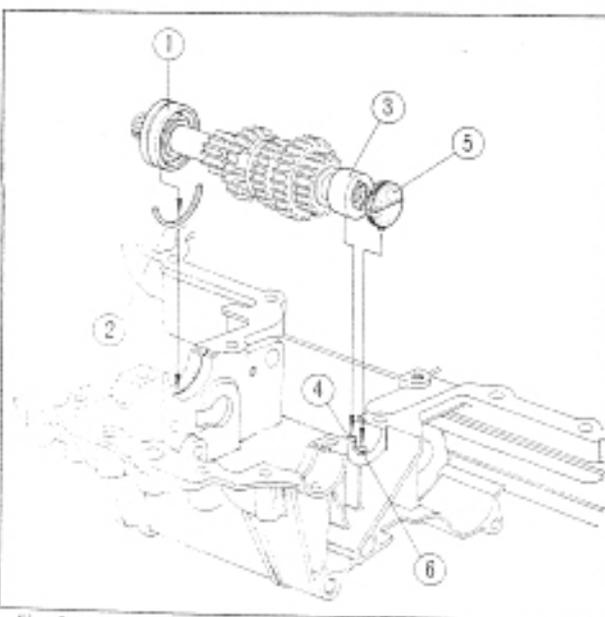


Fig. 3-50

- ① 5205 HS ball bearing
- ② 52 mm bearing set ring
- ③ 20 mm needle bearing
- ④ 6 mm guide pin
- ⑤ Oil seal
- ⑥ Pin hole

**Disassembly**

1. Remove the main shaft and countershaft from the upper crankcase. (See page 24)

**Inspection**

1. Check the gears for backlash.
2. Replace any gear if its lugs are excessively worn or damaged. Also check the gears for smooth sliding on the shaft splines.
3. Check each gear-to-its mounting shaft clearance.

**Reassembly****Main Shaft**

1. Install the 5205 HS ball bearing with its groove fitted with the 52 mm bearing set ring in place.
2. Install the 20 mm needle bearing with its pin hole fitted with the 6 mm guide pin.
3. Install the oil seal with its dowel fitted into the pin hole in the upper crankcase.

**Countershaft**

1. Install the 20mm needle bearing with its pin hole fitted with the 6mm guide pin in the upper crankcase.
2. Install the 5205 ball bearing with its ring groove fitted with 50mm bearing set ring installed in the upper crankcase.
3. Install the oil seal with its dowel fitted into the pin hole in the upper crankcase.

Rotate the crankshaft to check each gear for smooth moving.

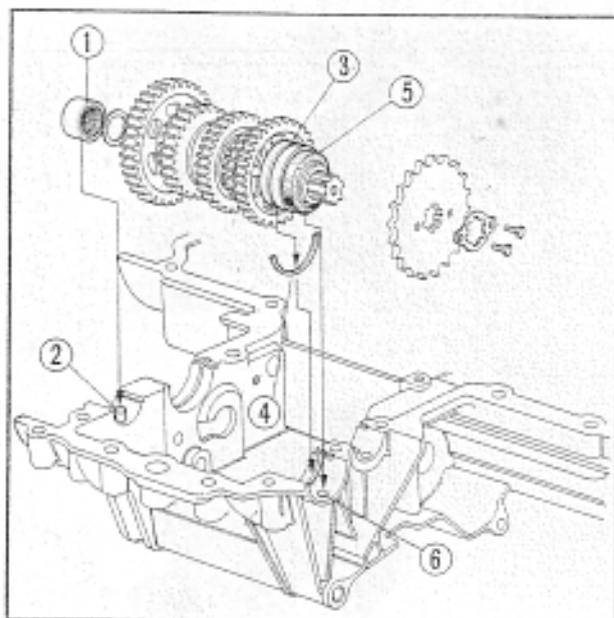


Fig. 3-51 ① 20 mm needle bearing  
② 6 mm guide pin  
③ 5205 ball bearing  
④ 50 mm bearing set ring  
⑤ Oil seal  
⑥ Pin hole

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9. PRIMARY SHAFT

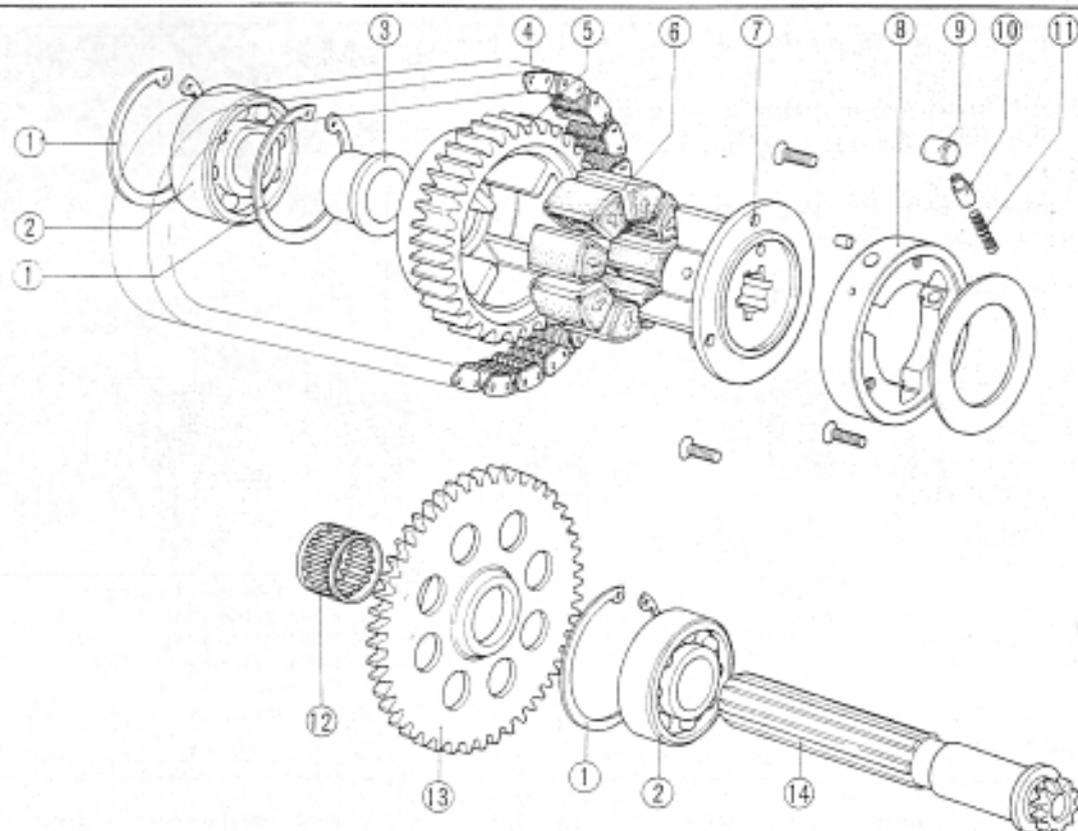


Fig. 3-52

- |                                    |                             |                       |
|------------------------------------|-----------------------------|-----------------------|
| ① Internal circlips (three), 52 mm | ⑥ Rubber dampers (eight)    | ⑪ Springs (three)     |
| ② Ball bearings (two), 6205        | ⑦ Driven sprocket hub       | ⑫ Needle bearing      |
| ③ Collar, 25×21.8                  | ⑧ Clutch outer              | ⑬ Starter driven gear |
| ④ Primary drive chain              | ⑨ Rollers (three), 10.2×9.5 | ⑭ Primary shaft       |
| ⑤ Primary driven sprocket          | ⑫ Caps (three)              |                       |

**Disassembly**

1. Pull out the primary shaft. (See page 24)
2. Remove the primary driven sprocket and starter driven gear.

3. Remove the driven sprocket hub from the primary driven sprocket.
4. Remove the rubber dampers.

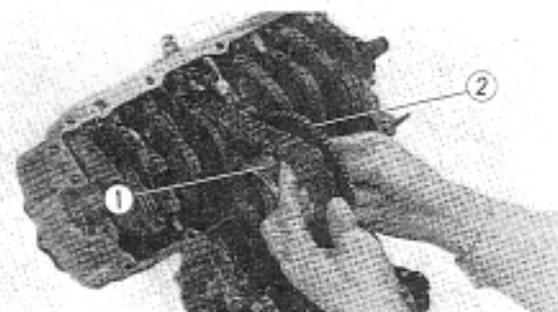


Fig. 3-53 ① Primary driven sprocket  
② Starter driven gear

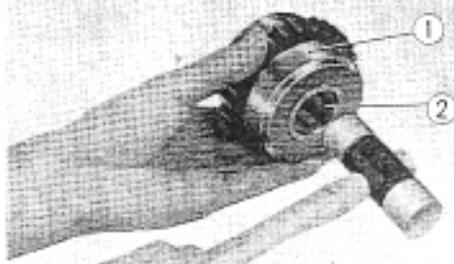


Fig. 3-54 ① Primary driven sprocket  
② Driven sprocket hub

### Inspection

1. Check the starting clutch and its related parts for wear or any other damage. Also check the rollers for smooth rolling.
2. Check the starter driven gear needle bearing for any damage.

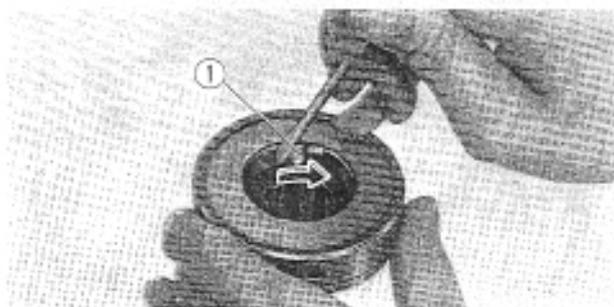


Fig. 3-55 ① Starting clutch roller

### Reassembly

1. When the clutch outer body has been disassembled, tighten three 6 mm flat screws to secure the driven sprocket hub to clutch outer body, and stake each screw head in two positions as shown.

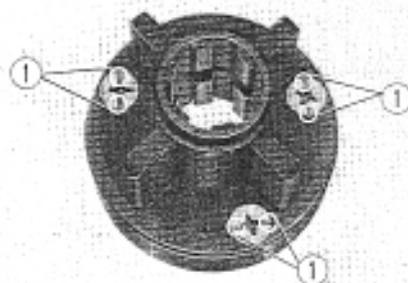
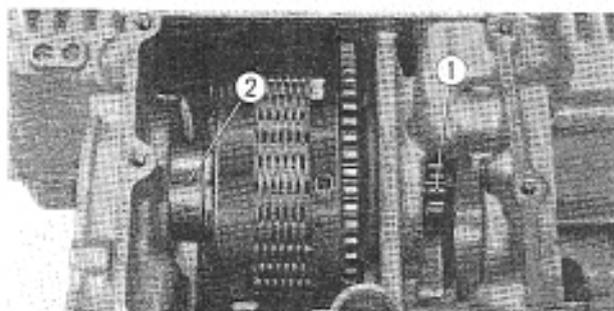
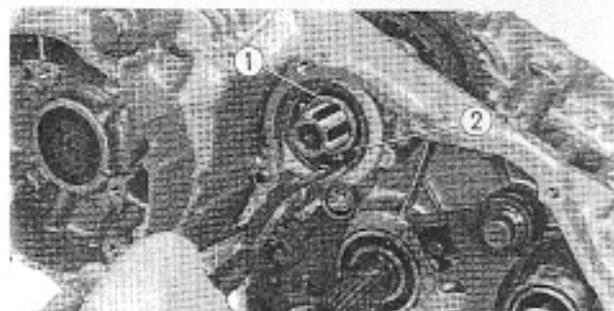


Fig. 3-56 ① Stake

2. After assembling the upper and lower crankcases insert the primary shaft into the crankcase from right side, and install the collar.

Fig. 3-57 ① Primary shaft  
② 25 mm collar

3. Drive the 6205 ball bearing into the primary shaft, and secure with the 25 mm internal circlip.
4. Tighten the crankcases with securing bolts. (See page 34)

Fig. 3-58 ① 6205 ball bearing  
② 52 mm internal circlip

5. Install the primary shaft lock washer with the mark "OUTSIDE" facing outward.

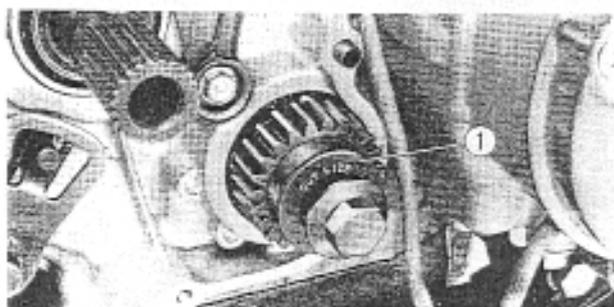


Fig. 3-59 ① Lock washer

## 10. CAM CHAIN TENSIONER

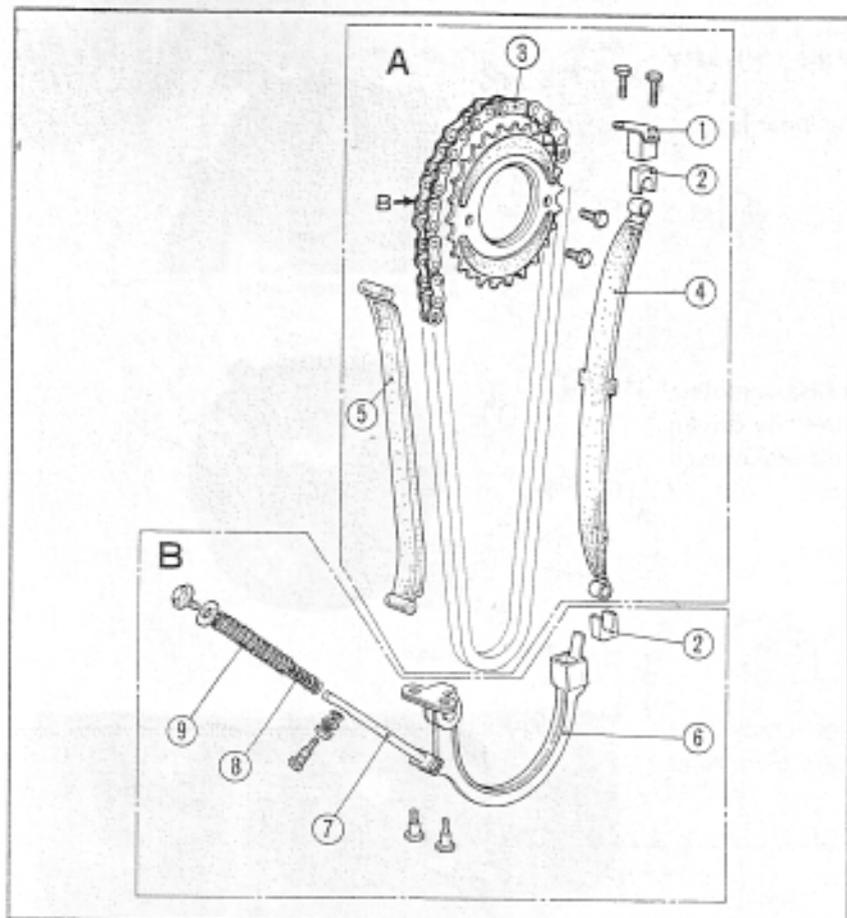


Fig. 3-60

- Group A** On-vehicle servicing  
**Group B** On-work stand servicing
- ① Cam chain tensioner holder
  - ② Tensioner dampers (two)
  - ③ Cam chain
  - ④ Tensioner slipper
  - ⑤ Cam chain guide
  - ⑥ Cam chain tensioner arm
  - ⑦ Push bar
  - ⑧ Tensioner inner spring
  - ⑨ Tensioner outer spring

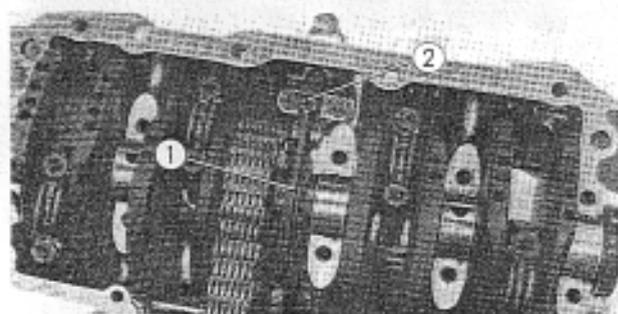


Fig. 3-61 ① Tensioner arm  
② Push bar

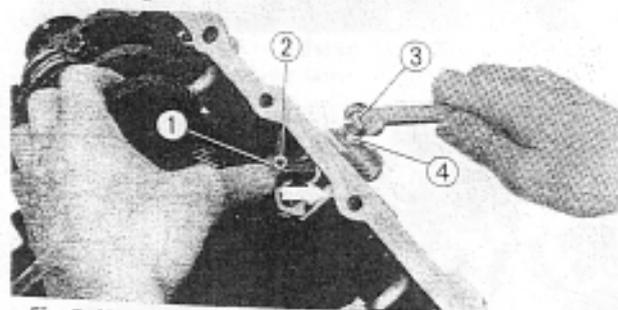


Fig. 3-62 ① Push bar  
② Mark  
③ Tensioner adjusting bolt  
④ Lock nut

**Disassembly****Group A**

1. Remove the cam chain guide and tensioner slipper. (See pages 12-14)

**Group B**

1. Remove the lower crankcase. (See pages 23-24)
2. Remove the tensioner arm and tensioner push bar.

**Inspection**

1. Check the cam chain guide and tensioner slipper for wear.

**Reassembly**

1. Install the tensioner push bar with the mark facing upward as shown. Then finger-depress the push bar and secure it with tensioner adjusting bolt and lock nut.

## 11. CRANKSHAFT AND CONNECTING RODS

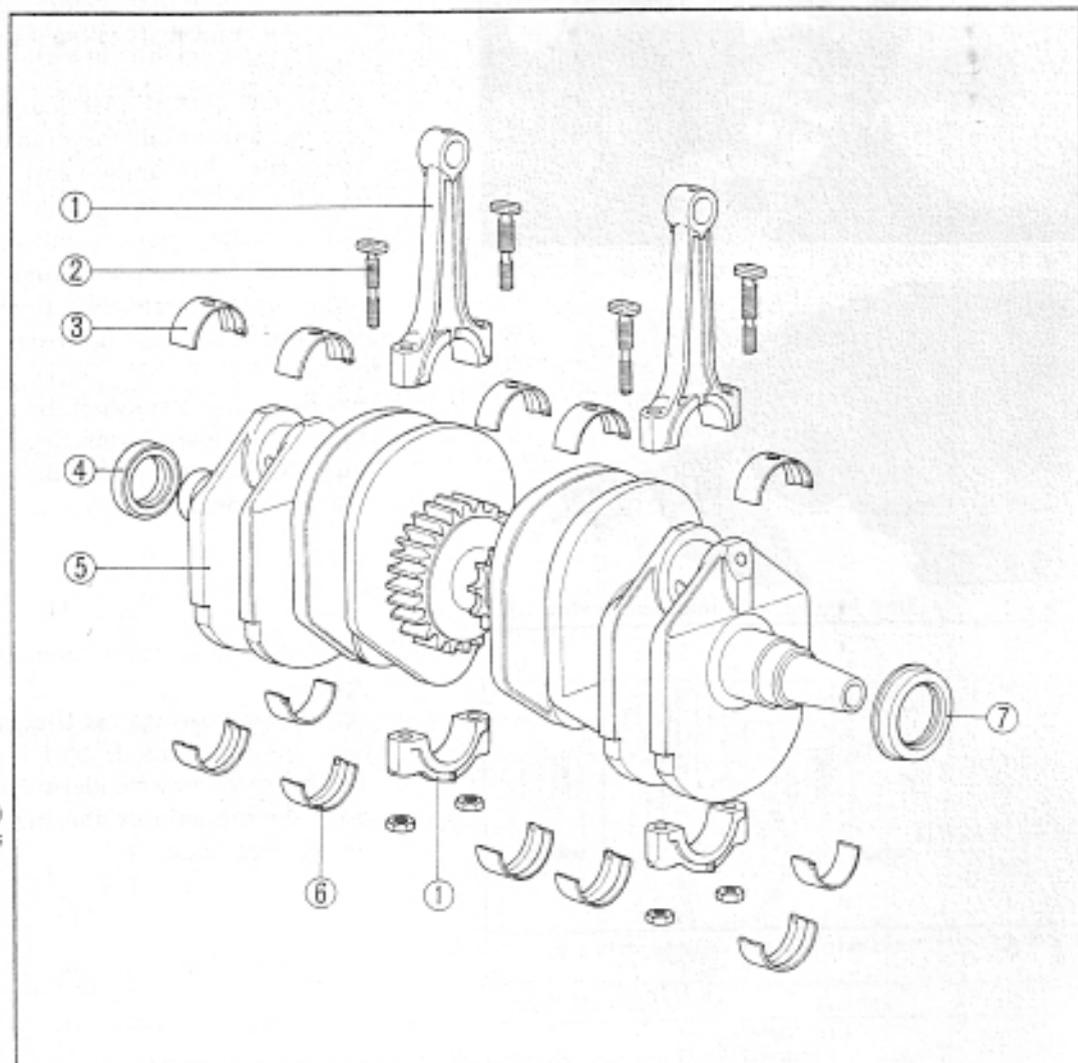


Fig. 3-63

- ① Connecting rods (four)
- ② Connecting rod bolts (eight)
- ③ Crankshaft bearings (ten)
- ④ Oil seal, 30×42×8
- ⑤ Crankshaft
- ⑥ Connecting rod bearings (eight)
- ⑦ Oil seal, 30×45×8

### Disassembly

1. Remove the cylinder head, cylinder and pistons. (See pages 12-14)
2. Pull out the A-C generator rotor using rotor remover. (Tool No. 07011-33301)
3. Separate the lower crankcase from the upper one. (See pages 23-24)
4. Remove the cam chain tensioner arm. (See page 30)
5. Remove the crankshaft.

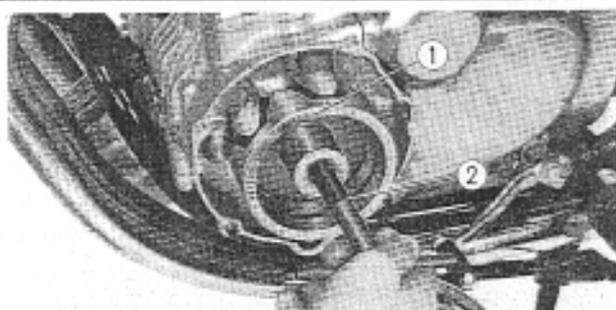
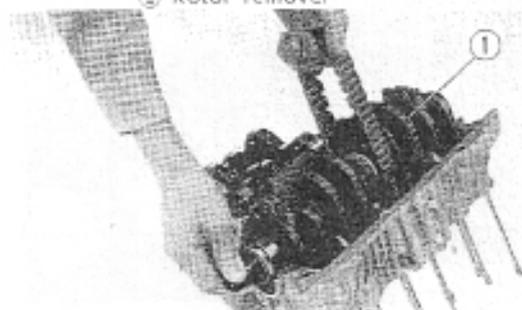

 Fig. 3-64 ① A-C generator rotor  
 ② Rotor remover


Fig. 3-65 ① Crankshaft