4. Install the clutch outer to the mainshaft and then, install the clutch center.

5. Apply engine oil on the friction discs (7 pcs.) and assemble them on the clutch center alternately with the clutch plates (6 pcs.), and then, assemble into the clutch outer.

**Note:**
When assembling the friction discs, assemble them on the clutch center so that the oil grooves are facing as per Fig. 118.

6. After assembling the friction discs and clutch plates, set them with the snap ring. Place a dial gauge against the end of the clutch assembly to check for looseness. If the measured value of looseness is greater than **0.1 mm (0.004 in.)**, install a spacer on the inside of the snap ring. Spacers are available in the thickness of 0.1, 0.3 and 0.5 mm.

7. Insert the clutch lifter joint piece into the mainshaft and fix the clutch plates with four pcs. each of the clutch spring, washer and 6 mm screw.

8. Install the R. crank case cover.

9. Adjust the clutch.
7. GEAR SHIFT MECHANISM

A. Disassembly
1. Disassemble the clutch in accordance with the section 6. A.
2. Remove the gear change pedal.
3. Remove the gear shift arm while holding the gear shift arm down.

4. Remove the shift drum stopper bolt and shift drum neutral stopper bolt, and then, remove the shift drum stopper and shift drum neutral stopper.
5. Unscrew the 6 mm screw and then, remove the oil guide plate and bearing set plate.
6. Unscrew the 6 mm screw and cam plate.
7. Disassemble the upper and lower crankcase and disassemble the transmission gears in accordance with the section 9. A.
8. Remove the neutral stopper switch from the gear shift drum.
9. Remove the shift drum guide screw from the upper crankcase and then remove the guide screw collar.

10. Remove the guide pin clip and guide pin and pull out the gear shift drum from the crankcase.
B. Inspection

1. Measure the diameter of the gear shift drum with a micrometer and the shift fork with an inside micrometer. Replace any part which exceeds the serviceable limit.

2. Measure the width of the gear shift fork fingers with a micrometer. Replace if beyond serviceable limit.

C. Reassembly

1. Set the left, right and center gear shift forks into the upper crankcase as shown in Fig. 126, then install the gear shift drum.

2. Insert the guide pin into the shift fork and fix it with the guide pin clip.

Note:
Make sure that the guide pin clip is installed in the proper direction.
3. Place the counterbored section of the shift drum as shown Fig. 128, and install the steel ball, the spring cap, and the spring then lock with the shift drum screw.

Next, bend up the tab on the guide screw lock washer to lock the guide screw.

4. Align the neutral switch to the groove in the gear shift drum and lock in place with the 6 mm screw.

5. Assemble the transmission into the upper crankcase in accordance with section 10. C, and assemble the upper and lower crankcase.

6. Install the cam plate on the pin of the gear shift drum with the 6 mm flat head screw which has been coated with thread lock cement.

**Note:**
The pin and the pin hole in the cam plate must be aligned.

7. Attach the shift drum stopper spring to the drum stopper and to the drum neutral stopper as shown in Fig. 132, then tighten the drum stop bolt and neutral stop bolt. Also tighten the bearing set plate together.

8. Tighten the oil guide plate. After tightening, rotate the shift drum and check to be sure that each component part operates smoothly.

**Note:**
Check if the guide plate comes in contact with the primary drive gear.
9. Install the gear shift arm and make sure that it operates smoothly in both direction.
10. Install the clutch in accordance with section 6. C.

8. CAM CHAIN TENSIONER
The cam chain tensioner is constructed of spring steel on which a layer of heat resistant rubber is vulcanized and a sheet of teflon cemented. It applies pressure against the cam chain and absorbs the shocks produced by the chain. The cam chain guide on the tension side of the cam chain also controls chain vibration.
An adjustment screw is located at the rear of the cylinder block.

Fig. 133

1. Cam chain guide
2. Cam chain tensioner
3. Lock nut
4. Screw
A. Disassembly
1. Remove the cam chain tensioner and the chain guide in accordance with section 3. A.

B. Inspection
1. Make sure that the gear of the cam chain tensioner adjuster is properly meshed with the rack, and inspect for smooth operation.
   To adjust the cam chain, see page 13.

C. Reassembly
1. Perform reassembly in accordance with section 3. C.

9. CRANKSHAFT AND CONNECTING ROD
A. Disassembly
1. Dismount the engine in accordance with section 2. A.
2. Disassemble the cylinder head, cylinder, and piston in accordance with section 3. A.
3. Remove the generator cover and remove the rotor using a generator rotor puller. (Tool No. 07933-2160000)
4. Remove the point cover, and the special washer by removing the 6 mm bolt. Next, unscrew the three 5 mm screws and remove the contact breaker assembly and the spark advance.

5. Remove the clutch and the gear shift arm in accordance with section 6. A.
6. Remove the starting motor cover, and dismount the starting motor.
7. Place the engine upside down and unscrew the ten 6 mm bolts to remove the oil pan.

8. Unscrew ten 8 mm bolts and twelve 6 mm bolts from the lower crankcase. Loosen the 8 mm bolts in the reverse order shown in Fig. 151.

9. Then, put the engine in correct position and unscrew three each 8 mm and 6 mm bolts. Tap the upper crankcase lightly with a wooden hammer and separate the upper and lower crankcases.

10. Unscrew two 6 mm bolts and remove the bearing set plate.

11. Pull out the primary shaft using a primary shaft hammer (Tool No. 07936-3230100) and weight hammer (Tool No. 07936-3230200). On the model CB550, use a primary shaft hammer (Tool No. 07936-3740100) and weight hammer (Tool No. 07945-3000500).

Note:
Disassembly of the primary shaft, transmission, and kick starter can be performed without removing the cylinder head, cylinder or piston. When removing lower crankcase, follow the sequence 10, 11, 9 and 8 above.

12. Remove the starting clutch from the primary chain.

13. Remove the primary chain and the cam chain from the crankshaft.

B. Inspection
1. Measure crankshaft runout
   Support both ends of the crankshaft on V-block and measure the amount of bend in the crankshaft by applying a dial gauge to the center journal and rotating the crankshaft. If the runout exceeds the serviceable limit on the dial gauge, the crankshaft should be replaced.

2. Inspect the crankshaft journals for scoring and uneven wear with a micrometer. If any journal is out-of-round or tapered more than serviceable limit, the crankshaft should be replaced.
3. Measure the crankshaft journal wear.  
Cut a length of plasti gauge to the width of the bearing cap. Place the gauge on the bearing parallel to the crankshaft, assemble the crankshaft and torque down the crankcase in accordance with Fig. 151.  
Disassemble the crankcase and measure the plasti gauge using the scale provided. If there is a clearance in excess of 0.08 mm (0.0031 in.), the bearing should be replaced.  

Note:  
When measuring with the plasti gauge, do not turn the crankshaft.

### Selection of The Bearing

1. Remove the bearing, assemble and tighten the upper and lower crankcases. Refer to Fig. 151.  
2. Measure the inside diameter of all the bearing seats in the vertical direction with a cylinder gauge and select out the corresponding alphabet from the table below.

<table>
<thead>
<tr>
<th>Alphabet</th>
<th>Diameter (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>36.016<del>36.024 (1.4179</del>1.4182)</td>
</tr>
<tr>
<td>B</td>
<td>36.008<del>36.016 (1.4175</del>1.4179)</td>
</tr>
<tr>
<td>A</td>
<td>36.000<del>36.008 (1.4173</del>1.4176)</td>
</tr>
</tbody>
</table>

3. Measure the diameter of all the crankshaft journal with a micrometer and also select out the corresponding figure 1 or 2 from the table below.

<table>
<thead>
<tr>
<th>Crankshaft No.</th>
<th>Diameter (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>32.99<del>33.00 (1.2987</del>1.2992)</td>
</tr>
<tr>
<td>2</td>
<td>32.98<del>32.99 (1.2983</del>1.2987)</td>
</tr>
</tbody>
</table>

4. According to the alphabet and the figure from item 2 and 3, pick out the proper bearing from A, B, C and D.

<table>
<thead>
<tr>
<th>Crankshaft classification mark</th>
<th>Crankshaft classification No.</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>C (Brown)</td>
<td>B (Black)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B (Green)</td>
<td>C (Brown)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A (Yellow)</td>
<td>D (Green)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note:  
The lower crankcase and crankshaft are marked with letters or number at the factory. These are production codes and should not be used or referred to during servicing or repair.
5. Measure connecting rod large end wear. Separate the cap from the connecting rod and after setting the plasti gauge in place, torque the two rod nuts to 2.0–2.2 kg-m (14.46–15.91 lbs-ft). Disassemble the cap and measure the plasti gauge. Replace the bearing with new one if beyond the serviceable limit.

**Note:**
Do not turn the crankshaft while the plasti gauge is installed.

### Selection of The Bearing

1. Measure crankshaft pin diameter with a micrometer and select out the corresponding alphabet from the table below.

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>34.69–35.00 (1.3775–1.3780)</td>
<td>34.98–34.99 (1.3771–1.3775)</td>
</tr>
</tbody>
</table>

2. Select out the bearing from the table below which coincides with the number (1, 2, 3) stamped on the large end of the connecting rod.

<table>
<thead>
<tr>
<th>Crank pin classification mark</th>
<th>Crank connecting rod classification mark</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecting rod code No.</td>
<td>Crank pin classification mark</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>3</td>
<td>B (Brown)</td>
<td>A (Black)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>C (Green)</td>
<td>B (Brown)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>D (Yellow)</td>
<td>C (Green)</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
- The numbers marked on the crankshaft are production codes and should not be referred to during servicing.
- The bearings must be installed on the connecting rod with the key toward the front.
   When replacing connecting rod, replace with one having the same weight code. The weight code is stamped at the large end of the connecting rod. When replacing all of the connecting rods, the tolerance of the respective rods should be within 5 grams.

Note:
In the connecting rod weight, that weight of cap and two bolts are included but does not include the bearings.

7. Measure axial clearance using a feeler gauge.
   Replace if beyond the serviceable limit.

8. Measure the connecting rod small end.
   Measure the diameter of the connecting rod small end with an inside dial gauge. Replace if beyond serviceable limit.

C. Reassembly
1. Install the primary chain and cam chain on the crankshaft.
2. Install the crankshaft into the lower crankcase.
3. Position the starting clutch and starter gear as in Fig. 150, then drive the primary shaft in from the right to left. Exercise care in the needle bearing assembly sequence shown in Fig. 165.
4. Install the bearing set plate with two 6 mm bolts.

5. Apply a thin coat of gasket paste on the mounting flange of the lower crankcase (heavy coat will cause the paste to fall inside the crankcase). Install two dowel pins, mount the upper crankcase on the lower crankcase.

6. Place the engine upside down so as not to separate the parting surfaces by holding them by hands and install the ten 8 mm bolts. Torque the 8 mm bolts in the sequence shown in Fig. 151 to a torque of \(2.3 - 2.5 \text{ kg-m. (16.63-18.08 lbs-ft)}\). Next, tighten thirteen 6 mm bolts. (Fig. 152)

Note:
Note position of the two 8 mm bolts which are stamped on the bolt head with numeral "9".

7. Position the upper crankcase on top and install with three each, 6 mm and 8 mm bolts. (Fig. 153)

Note:
Note position of the two 8 mm bolts which are stamped on the bolt head with numeral "8".

8. Install the oil screen filter and mount the oil pan with ten 6 mm bolts.

9. Mount the starting motor with two 6 mm screws.

10. Install the gear shift arm in accordance with section 7. C.

11. Install the clutch in accordance with section 6. C.

12. Insert the spark advance dowel pin into the pin hole in the crankshaft, and then mount the contact breaker with three 5 mm screws.
13. Install the special advance washer with the 6 mm bolt, and install the point cover.
14. Mount the generator rotor with the 10 mm bolt.
15. Install the generator cover.
16. Assemble the piston, cylinder, cylinder head, and head cover in accordance with section 3. C.

10. TRANSMISSION, KICK STARTER AND PRIMARY SHAFT

A. Disassembly
1. Dismount the engine from the frame in accordance with section 2. A.
2. Remove the clutch in accordance with section 6. A.
3. Separate the upper and lower crankcase in accordance with section 9. A.
4. Remove the transmission and disassemble the gears from the respective shafts.

Kick Starter

5. Remove the 18 mm snap ring and the return spring.
6. Remove the 12 mm snap ring and disassemble the kick starter shaft from the lower crankcase.
Primary Shaft

7. Remove the primary shaft in accordance with section 9. A, and remove the 20 mm snap ring and primary drive gear.

8. Remove the side collar and pull out the 30205 ball bearing.
9. Remove the 30 mm snap ring, primary driven sprocket, starting clutch, and pull out the damper rubbers.

10. Unscrew the three 6 mm flat head screws and remove the starting clutch outer.

B. Inspection

1. Measure gear backlash.
   Set the pointer of a dial gauge against the tooth of the gear and measure the backlash.
2. Inspect the dogs and replace any gears with excessively worn dogs. Also, make sure that the gears slide smoothly over the splined shaft.

C. Reassembly

**Primary Shaft**

1. Install the starting clutch outer and primary driven sprocket hub with the three 6 mm flat head screws coated with thread lock cement, and then stake the screw heads with a punch to prevent loosening.

![Fig. 164 1 6 mm flat head screw](image)

2. Assemble the damper rubbers on the primary driven sprocket, and install on the starting clutch with 30 mm set ring.

3. Drive the #6205 ball bearing into the primary shaft.

![Fig. 165 1 Primary driven sprocket 2 Damper rubbers](image)

4. Mount the starting clutch gear on the starting clutch, insert the needle bearing and 25 mm spacer into the starting clutch gear, fit the 25 mm thrust washer and the snap ring on the primary shaft, and install the primary shaft in the crankcase.

![Fig. 166 1 Starting clutch gear 2 Needle bearing (25×28×17) 3 25 mm spacer 4 25 mm thrust washer 5 25 mm snap ring 6 22 mm thrust washer](image)
Kick Starter

5. Reassemble the kick starter components in accordance with Fig. 166.

Note:
Do not forget to install the 18 mm washer.

Transmission

6. Assemble the transmission gears on the respective main and counter shafts.

Fig. 167
(1) Kick starter pinion
(2) 20 mm thrust washer
(3) Starter pinion set spring
(4) Kick starter ratchet
(5) 15 mm thrust washer
(6) Kick starter ratchet spring
(7) Ratchet guide plate
(8) Chain guide thrust
(9) 12 mm snap ring
(10) 18 mm washer
(11) 18 mm snap ring
(12) Kick starter spring
(13) Kick starter spindle
(14) 57 mm bearing set ring
(15) 25 mm snap ring
(16) 5205 special ball bearing
(17) 24.5 mm O-ring
(18) Transmission counter shaft
(19) 33×57×7 oil seal
(20) Drive sprocket (17T)
(21) Drive sprocket fixing plate
(22) Gear shift fork pin
(23) 20 mm needle bearing
(24) Counter shaft low gear (40 T)
(25) Counter shaft fourth gear (29 T)
(26) 25 mm thrust washer
(27) Counter shaft third gear (33T)
(28) 25 mm lock washer
(29) 25 mm thrust washer
(30) Counter shaft second gear (36 T)
(31) Counter shaft top gear (27 T)
(32) 52 mm bearing set ring
(33) 5205 H5 ball bearing
(34) Transmission main shaft (24 T)
(35) Main shaft fourth gear (28 T)
(36) Main shaft second, third gear (22 T, 26 T)
(37) Main shaft top gear (30 T)
(38) 20 mm thrust washer
(39) 22 mm needle bearing
(40) 8×34×8 oil seal

Fig. 168
7. Install the two each bearing set rings and the dowel pins in the upper crankcase, and install the transmission.
8. Reassemble the upper and the lower crankcase in accordance with section 9. C.
9. Install the clutch in accordance with section 6. C.
10. Mount the engine in the frame in accordance with 2. B.

11. CARBURETOR

A. Disassembly
1. Remove the carburetor unit from the engine in accordance with section 2 A.

**Stay Plate And Carburetor**

2. Unhook the throttle return spring off the link lever.
   **Note:**
   Exercise care not to damage the hook end of the spring.
3. Unscrew the hex. nuts, and remove the dust plate B. Remove the cap nuts.
4. Remove the adjuster holders from the link arm.
5. Unscrew the eight 6 mm flat head screws from the stay plate and remove the carburetor unit.

**Throttle Valve And Jet Needle**

6. Unscrew the two carburetor top mounting screws from each carburetor and remove the tops.
7. Position the throttle valve to full open and straighten the tab of the two tongued washers.
8. Remove the 6 mm bolt from the shaft end and remove the link arm in direction A using a screw driver.
9. Loosen the 6 mm bolt on the throttle side about 1/2 turn, insert a screwdriver between the throttle shaft and link arm and pry loose in direction A.

10. Unscrew the two 3 mm screws, rotate the valve plate 90° in either direction and align the tab on the valve plate to the groove in the shaft, and remove the valve plate.

11. Remove the jet needle from the throttle valve.

**Adjuster Holder**

1. Remove the carburetor from the stay plate in accordance with section 1~5.
2. Remove the adjusting screw from the adjuster holder.

3. Position the throttle valve at the intermediate position and remove the adjuster holder.
4. ENGINE

**Float, Main Jet, And Slow Jet**

1. Remove the float chamber body.
2. Remove the leaf spring and the main jet.

3. Pull out the float arm pin and remove the float.

4. Disengage the clip plate and remove the valve seat.

**B. Inspection**

1. Fuel level adjustment.
   Position the float so that the float arm barely touches the tip of the float valve. Measure the distance from the flange to the top of the float with the float level gauge. The standard value is **22 mm** (0.89 in.)
C. Reassembly

**Float, Main Jet, And Slow Jet**

1. Install the valve seat with the clip plate.
2. Install the float.
3. Place the leaf spring on the main jet, and install them on top of the needle jet holder.
4. Install the float chamber body.

**Adjuster Holder**

1. Insert the coil spring B and spring seat B into the adjuster holder. Position the throttle valve to about 1/2 open and insert approximately 1/4 of the connector shaft into the holder window. Install them while holding the spring seat down with a thin screwdriver.
2. Mount the carburetor on the stay plate in accordance with section 7 and 8.

**Throttle Valve And Jet Needle**

1. Install the jet needle on the throttle valve.
2. Place two each spring washers and 3 mm screws on the valve plate, and then place the tab of the valve plate to the slot of the throttle valve and push down to the bottom. Then rotate the valve plate 90° toward the link arm and install the 3 mm screws.

3. Install the throttle valve in the carburetor body so that the throttle valve cutaway section is toward the choke valve.