

• Remove needle roller bearing 1, collar 2, and thrust washer 3.

• Remove oil pump driven gear 4 after removing the circlip.

• Remove pin 5 and washer 6.



Take care not to drop the circlip, pin **5** or washer **6** into the crank-case.

• Remove oil pressure regulator 7 and oil sump filter 8.

• Remove neutral switch **9** and cable guide **10** after removing the related screws.







• Remove neutral switch contact 1 and the related spring 2.

- While holding the generator rotor with a 36-mm spanner, remove no. 1 valve motion idler gear/sprocket nut **3** and the related washer.

- Insert a bar of suitable size into the holes of the primary driving gears to align the teeth of the scissors gears.
- Remove no. 1 valve motion idler gear/sprocket 4 and timing chain 5.

• Remove key 6.













• While holding the generator rotor with a 36 mm (1.417 in) spanner, remove primary driving gear nut **1**.

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This nut has a left-hand thread. Turning it anticlockwise may cause damage.



- Remove washer 2.
- Remove primary driving gear assembly 3.



Refer to page D-130 for instructions on how to remove and fit the primary driving gear.

• Remove key 4 and thrust washer 5.

• While holding the generator rotor with a 36 mm (1.417 in) spanner, remove its bolt and washer.









• After removing the generator rotor bolt, fit the special tool in the hub and remove generator rotor assembly **1** by rotating the special tool while holding the rotor with a 36 mm (1.417 in) spanner.

Specific tool: 800096684 Rotor extractor

• Remove key 2 and starting driven gear 3.

Remove no. 1 valve motion idler gear/sprocket 4 and timing chain 5.

- Remove the gearbox cover bolts and clamp 6.
- Remove gearbox cover 7.

• Remove dowel pins 8 and gasket 9.













• Pull out gear shaft/arm 1 with washers 2.











- Remove gear preselector plate 3.
- Remove gear preselector stop 4 with the related spring and washer.
- Remove gear arm stop bolt 5.

• Remove oil seal retainer **6** and engine sprocket spacer **7** with the O-ring.

• Remove oil seal retainer 8 and oil pressure switch 9.

Specific tool: 800096659 Oil filter spanner





· Remove the crankcase bolts.











- Separate the crankcase into two parts, left and right, using the specially designed tool.
- Specific tool: 800096674 Crankcase separator

- * Fit the crankcase separator so that the tool arms are parallel with the crankcase sides.
- * The crankshaft and the transmission components must remain in the left crankcase half.
- * When separating the crankcase, tap the countershaft end with a plastic mallet.
- Remove dowel pins 1.
- Remove crankshaft 2 along with thrust shim 3.



Refer to page D-153 for instructions on how to service the crankshaft and the connecting rods.

- Remove gear change fork shafts 4 and gear change forks 5.
- Remove gear preselector 6.
- Remove driving shaft assembly 7 and countershaft assembly 8.

Refer to page D-153 for instructions on how to service the driving shaft and the countershaft.



• Remove O-ring 1, oil pump 2 and plate 3.

Refer to page D-170 for details of how to inspect the oil pump.

• Remove reed valve 4.

• Remove piston cooling oil nozzles **5** from the left and right crankcase halves.

• Remove the oil seals using the specially designed tool.

Specific tool: 800096653 Gasket separator

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Replace the removed oil seal with a new one.

• Remove the oil jet from the left crankcase half.













· Remove the bearing setscrews.











• Remove bearings 1, 2, 3, 4, 5 and 6 using the special tools.

Specific tools: 800096676: Bearing extractor (for 1) 800096683: Sliding shaft (for 1) 800096655: Bearing separator (for 2,4,5) 800096656: Bearing separator (for 3,6)



Replace the removed bearings with new ones.

• Remove bearing 7.



Refer to pages D-163 to D-167 for directions on how to remove and install the crankshaft bearings.





ASSEMBLING THE ENGINE

The engine is reassembled by following the disassembling procedure in reverse order. However, a number of operations require special instructions or precautions.



Apply engine oil over all movable and sliding parts before reassembly.

Fit bearings 1, 2, 4, 5, 6 and 7 in the crankcase using the specially designed tools.

Specific tools: 800096873: Bearing installer (for 1,6,7) 800096657: Bearing installer (for 2,4,5)

- Fit bearing **3** in the crankcase by hand.
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The sealed side of bearings 1 and 2 must face outwards.





• Fit the bearing retainers.



Apply a small quantity of specific product to the bearing setscrews and then tighten with the prescribed torque.

Specific product: LOC-TITE 243 Tightening torque: Bearing setscrew

8 N.m (0,8 kg-m) (5.84 lb-ft)





