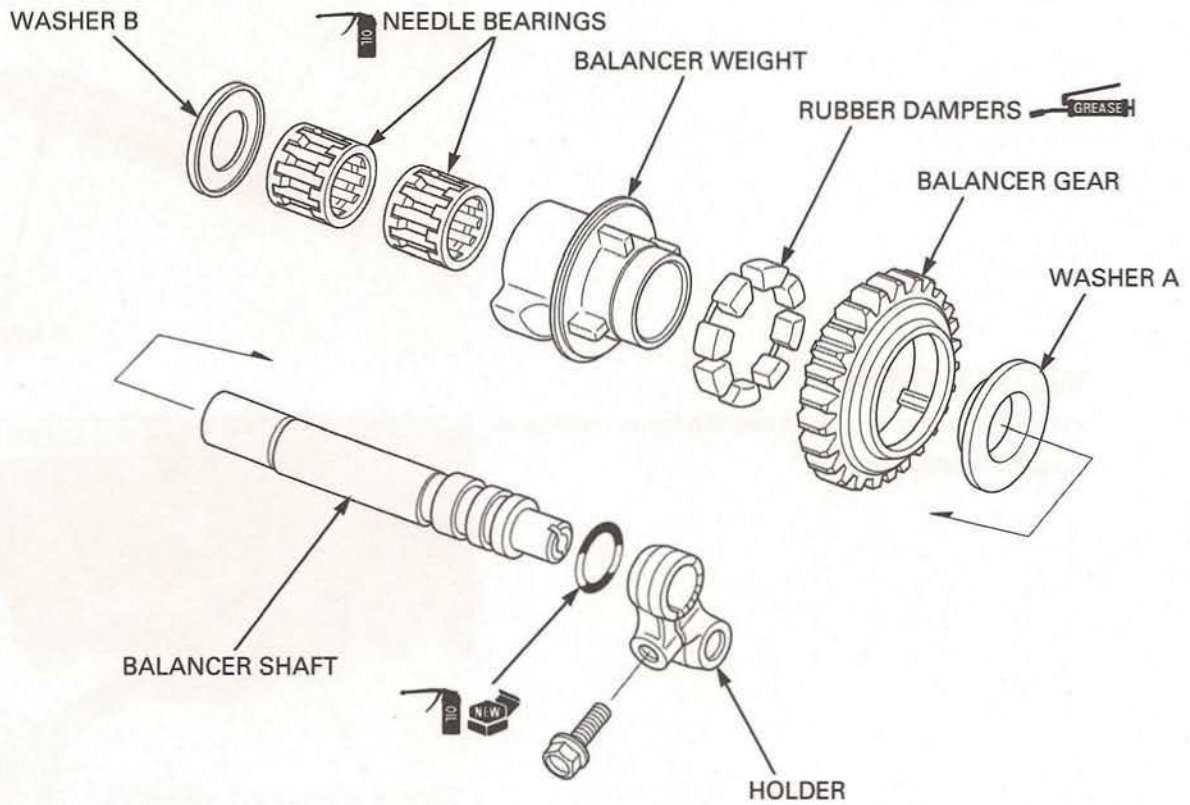
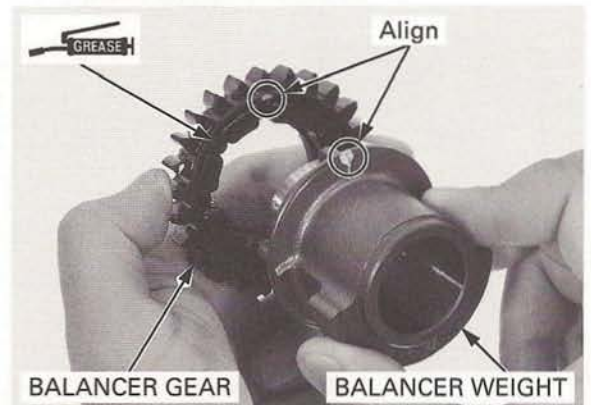


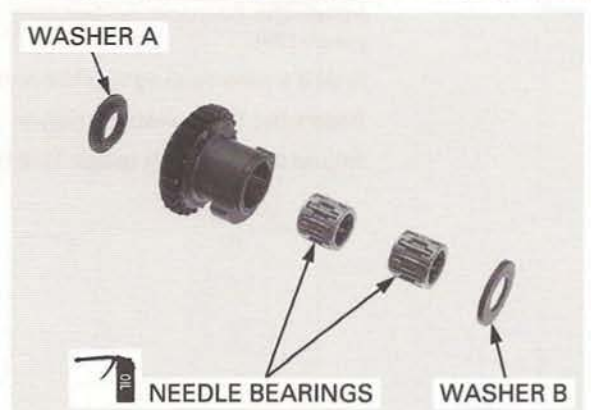
DISASSEMBLY



Apply grease to the damper rubber fitting area.
 Install the damper rubbers into the balancer gear.
 Assemble the balancer gear and weight while aligning the marks.



Apply oil to the needle bearing and install them into the balancer weight.
 Install the washer A and B as shown.



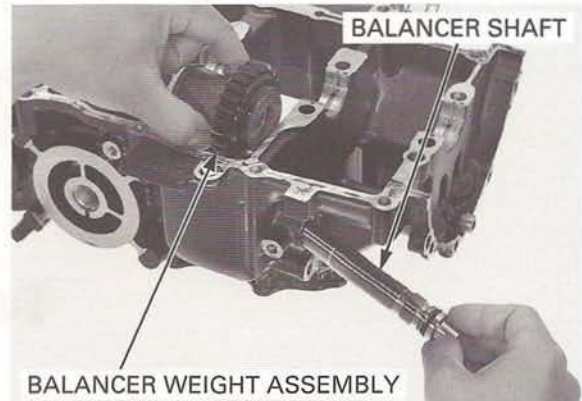
CRANKCASE/TRANSMISSION/BALANCER

Apply oil to a new O-ring and install it to the balancer shaft groove.

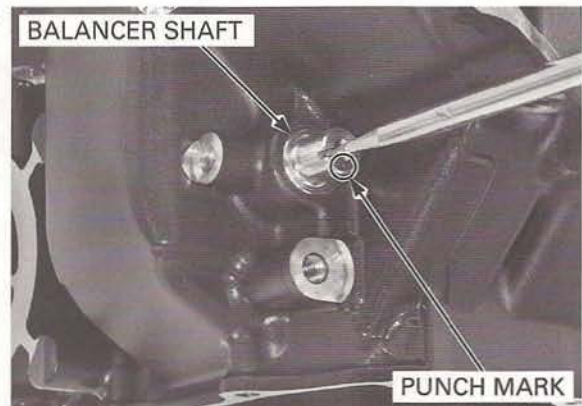


INSTALLATION

Install the balancer weight into the lower crankcase.
Install the balancer shaft.



Turn the balancer shaft and position the punch mark on the shaft facing down.



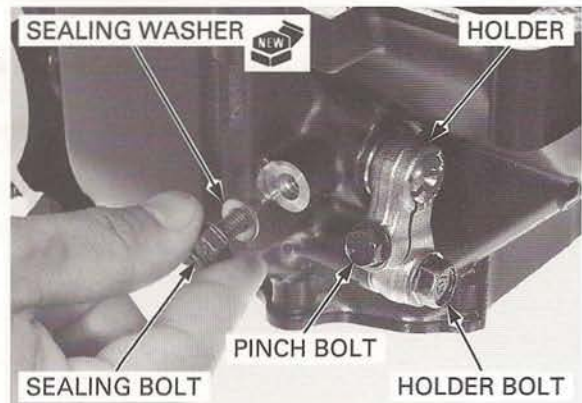
Install the balancer shaft holder.

Install the balancer holder bolt and balancer holder pinch bolt.

Install a new sealing washer and sealing bolt.

Assemble the crankcase halves (page 12-22).

Adjust the backlash (page 12-21).



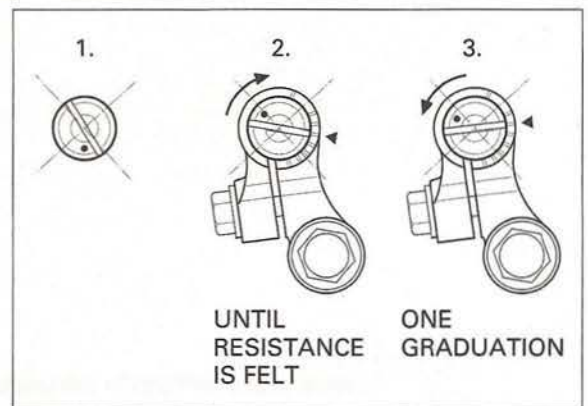
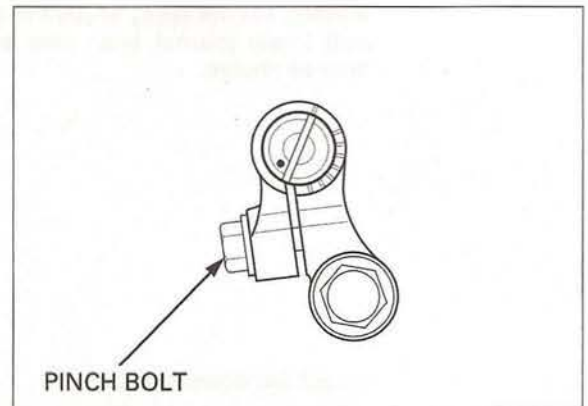
BALANCER GEAR BACKLASH ADJUSTMENT

INITIAL BACKLASH ADJUSTMENT

Install the engine into the frame (page 8-8).

Adjust the backlash while the engine is cold (below 35°C/95°F) and while it is not running. Loosen the balancer shaft holder pinch bolt.

Excessive force can cause balancer gear, bearing and shaft damage. Do not turn the shaft more than necessary. Turn the balancer shaft clockwise until resistance is felt, then back it off one graduation using the slot as a measure.



FINAL BACKLASH ADJUSTMENT

Warm up the engine and let it idle.

If the balancer gear noises are excessive, adjust the balancer backlash as follows:

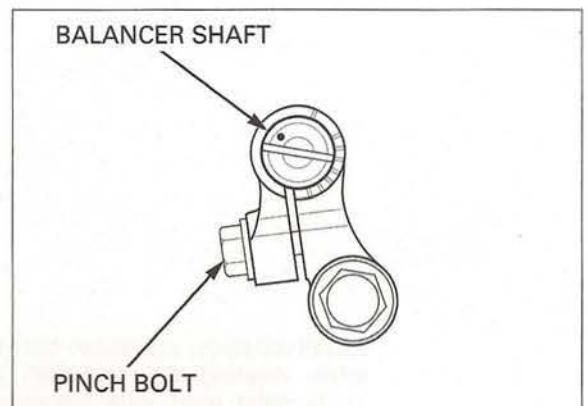
Turn the balancer gear shaft counterclockwise until the gears begin to make a "whining" noise. Then turn the gear shaft clockwise until the gear "whining" noise disappears.

Tighten the balancer shaft pinch bolt.

After all gear backlash adjustments are done, snap the throttle and make sure the gear noises are not excessive.

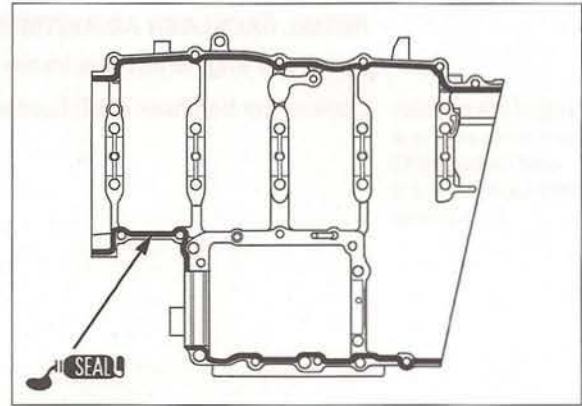
If the gear "whine" noise is excessive, the backlash is too small.

If the gear "rattling" noise is excessive, the backlash is excessive.

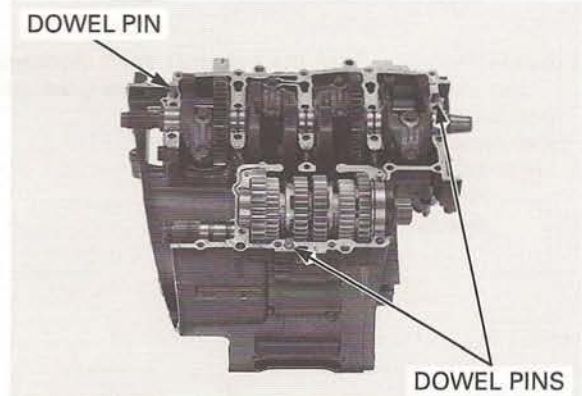


CRANKCASE ASSEMBLY

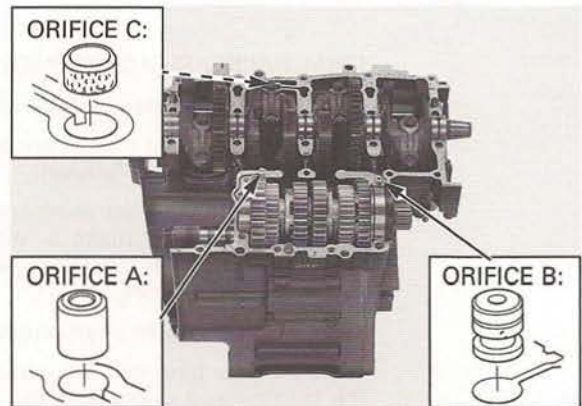
Apply a light, but thorough, coating of liquid sealant (TB 1207B or equivalent) to the crankcase mating surface. Do not apply sealant to the crankcase 8 mm bolt (main journal bolt) area and the oil passage area as shown.



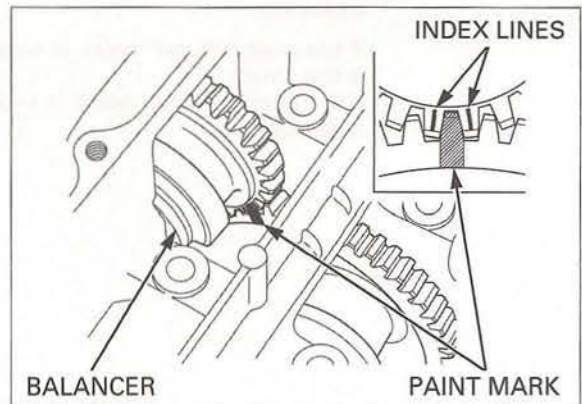
Install the dowel pins.



Install the oil orifices in the upper crankcase.



Install the lower crankcase onto the upper crankcase while aligning the crankshaft balancer drive gear white paint mark with between the balancer gear index lines as shown.



- Tighten the crankcase main journal bolts using the tightening method described below.
- Do not reuse the crankcase main journal bolts, because the correct axial tension will not be obtained.
- The crankcase main journal bolts are pre-coated with an oil additive for axial tension stability. Do not remove, the oil additive from the new main journal bolts surface.

Install new crankcase main journal bolts.
Loosely install all the crankcase bolts/sealing washer.

TIGHTENING METHOD:

Make sure the upper and lower crankcase are seated securely.

Tighten the crankcase main journal bolts in numerical order as shown in the illustration in two or three steps to the specified torque.

Further tighten the crankcase main journal bolts 150°.

TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft) + 150°

Tighten the 10 mm bolt to the specified torque.

TORQUE: 39 N·m (4.0 kgf·m, 29 lbf·ft)

Tighten the 8 mm bolt to the specified torque.

TORQUE: 24 N·m (2.4 kgf·m, 18 lbf·ft)

From the inside to outside, tighten the 7 mm bolts/new sealing washer to the specified torque.

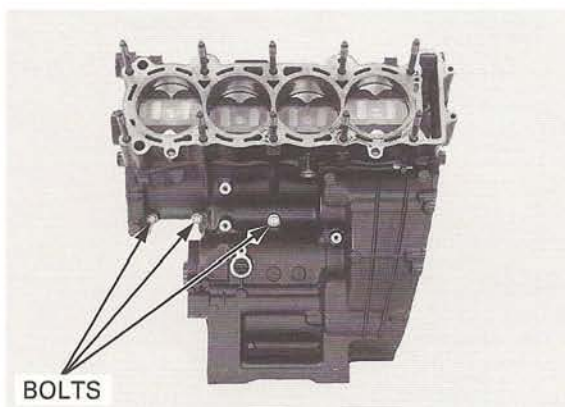
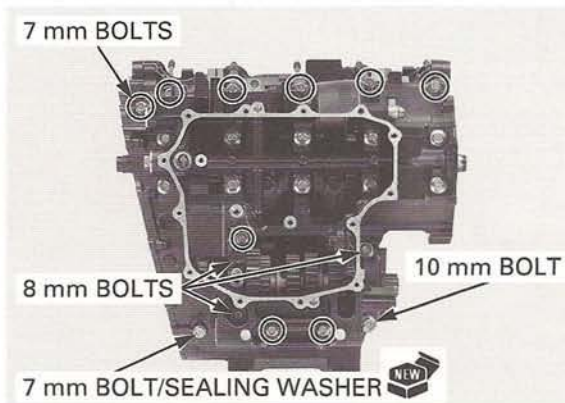
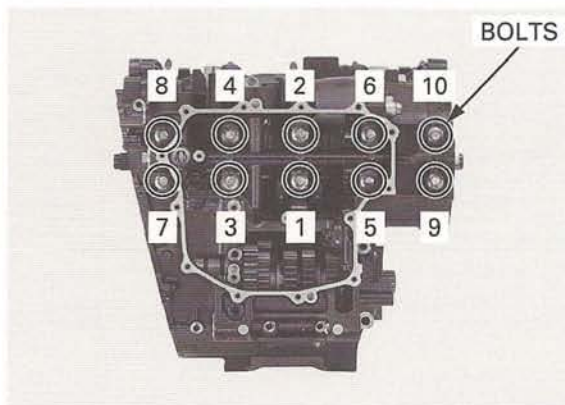
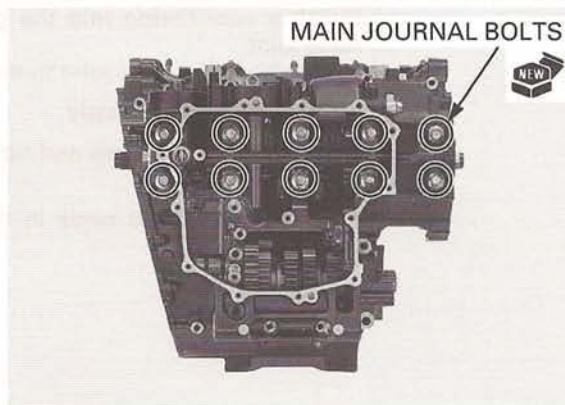
TORQUE: 18 N·m (1.8 kgf·m, 13 lbf·ft)

The sealing washer locations are indicated on the upper crankcase with a "△" mark.

Place the engine with the lower side facing down.

Install the 7 mm bolts and tighten to the specified torque.

TORQUE: 18 N·m (1.8 kgf·m, 13 lbf·ft)



CRANKCASE/TRANSMISSION/BALANCER

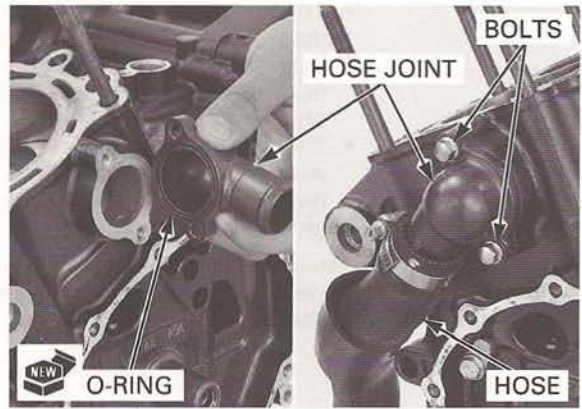
Install a new O-ring into the groove of the water hose joint.

Install the water hose joint to the cylinder block.

Tighten the bolts securely.

Connect the water hose and tighten the hose clamp screw (page 7-23).

Install the removed parts in the reverse order of removal.



13. CRANKSHAFT/PISTON/CYLINDER

COMPONENT LOCATION	13-2	MAIN JOURNAL BEARING	13-9
SERVICE INFORMATION	13-3	CRANKPIN BEARING	13-12
TROUBLESHOOTING	13-4	PISTON/CYLINDER	13-14
CRANKSHAFT	13-5		

CRANKSHAFT/PISTON/CYLINDER
COMPONENT LOCATION

