6. LUBRICATION SYSTEM (After '05)

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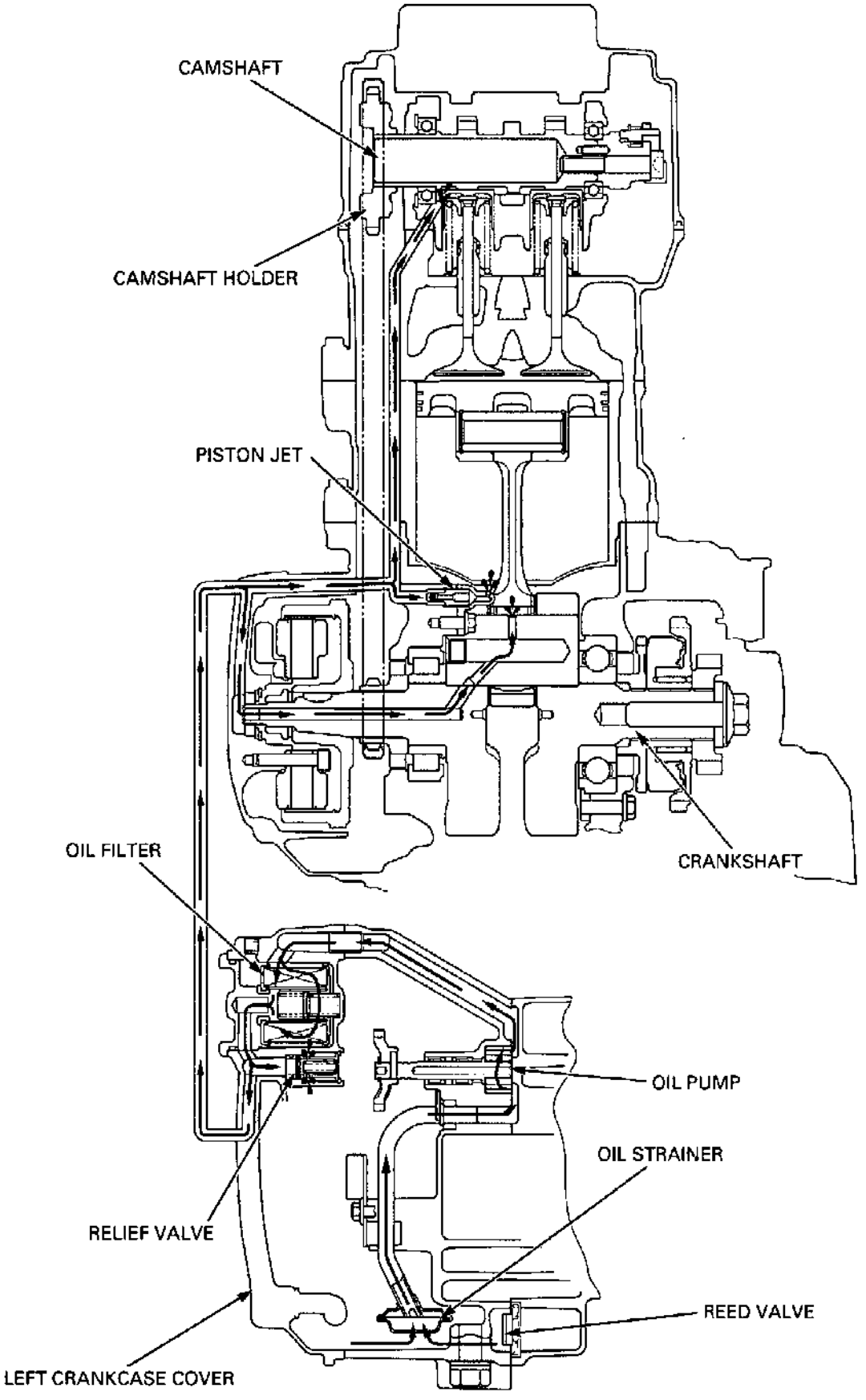
LUBRICATION SYSTEM DIAGRAM



SERVICE INFORMATION

GENERAL

⚠ CAUTION

Used engine oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil.

- This section covers service of the oil pump.
- The crankcase must be separated to service the oil pump (page 16-11).
- For engine oil level check, oil change and filter replacement (page 4-14).
- For transmission oil level check and oil change (page 4-17).

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Engine oil capacity	After draining	0.65 liter (0.69 US qt, 0.57 Imp qt)	–
	After filter change	0.69 liter (0.73 US qt, 0.61 Imp qt)	–
	After disassembly	0.85 liter (0.90 US qt, 0.75 Imp qt)	–
Recommended engine oil		Pro Honda GN4, HP4 (without molybdenum additives) 4-stroke oil or HP4M (with molybdenum additives) 4-stroke oil, or equivalent motor oil API service classification: SG or Higher JASO T 903 standard: MA or MB Viscosity: SAE 10W-40, 5W-30	–
Transmission oil capacity	After draining	0.68 liter (0.72 US qt, 0.60 Imp qt)	–
	After disassembly	0.80 liter (0.85 US qt, 0.70 Imp qt)	–
Recommended transmission oil		Pro Honda GN4 or HP4 (without molybdenum additives) 4-stroke oil or equivalent motor oil API service classification: SG or Higher JASO T 903 standard: MA Viscosity: SAE 10W-40, 5W-30	–
Oil pump rotor	Tip clearance	0.15 (0.006)	0.20 (0.008)
	Body clearance	0.15 – 0.21 (0.006 – 0.008)	–
	Side clearance	0.04 – 0.13 (0.002 – 0.005)	–

TORQUE VALUES

Piston jet mounting bolt	10 N·m (1.0 kgf·m, 7 lbf·ft)	Apply locking agent to the threads.

TROUBLESHOOTING

Engine oil level too low
- Normal oil consumption
- External oil leak
- Worn piston rings or incorrect piston ring installation
- Worn cylinder
- Worn valve guides or stem seals

Engine oil contamination
- Oil or filter not changed often enough
- Worn piston rings or incorrect piston ring installation
- Worn valve guides or stem seals
- Clogged oil strainer screen

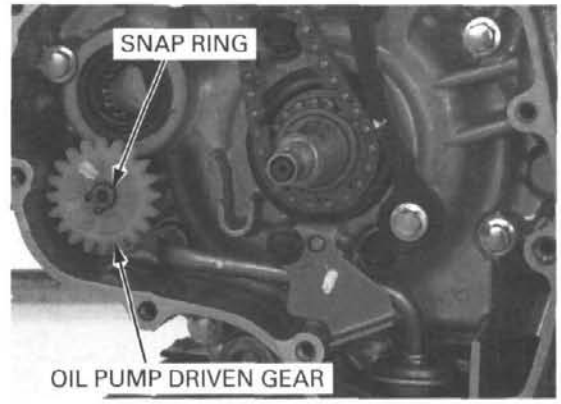
Engine oil emulsification
- Blown cylinder head gasket
- Leaky coolant passage
- Water entry

OIL STRAINER

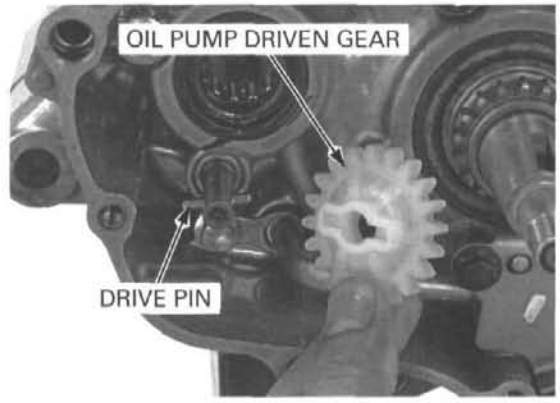
REMOVAL

Remove the balancer shaft (page 16-7).

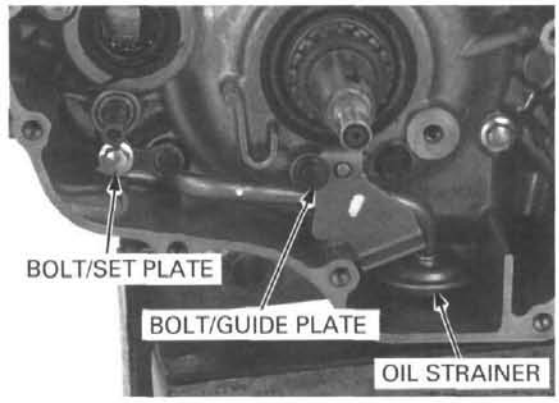
Remove the snap ring from the oil pump driven gear.



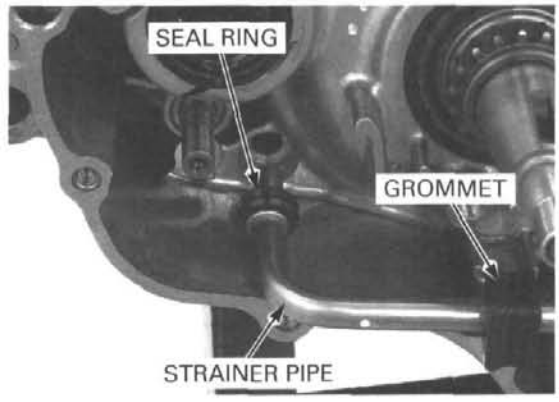
Remove the oil pump driven gear and drive pin.



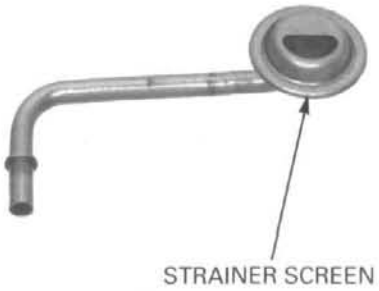
Remove the bolts, guide plate, set plate and the oil strainer.



Remove the grommet and seal ring from the oil pipe of the strainer.



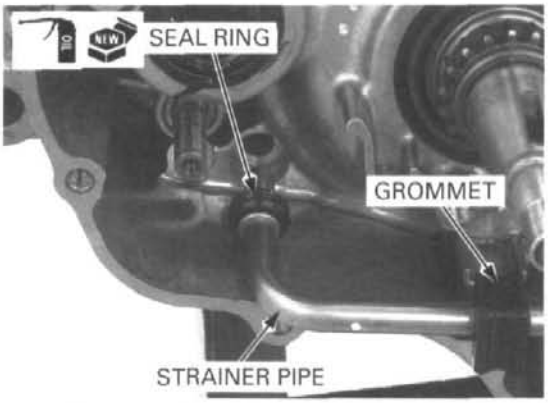
Clean the oil strainer screen.
Check the oil strainer screen for damage.



INSTALLATION

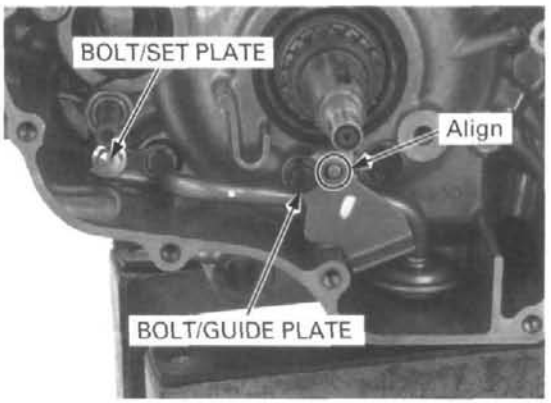
Install the grommet onto the oil strainer pipe.
Coat a new seal ring with oil and install it onto the oil pipe.

Install the oil strainer onto the left crankcase.

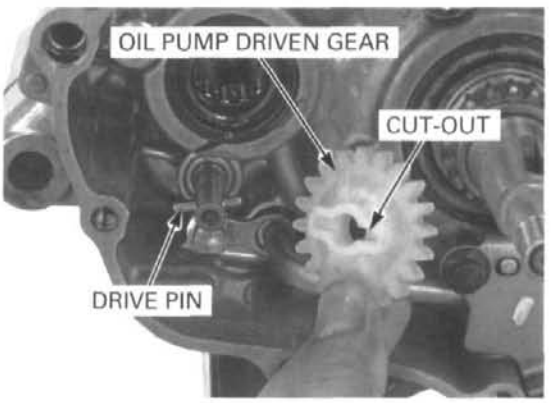


Install the set plate and tighten the bolt securely.

Install the guide plate by aligning the hole with the boss and tighten the bolt securely.

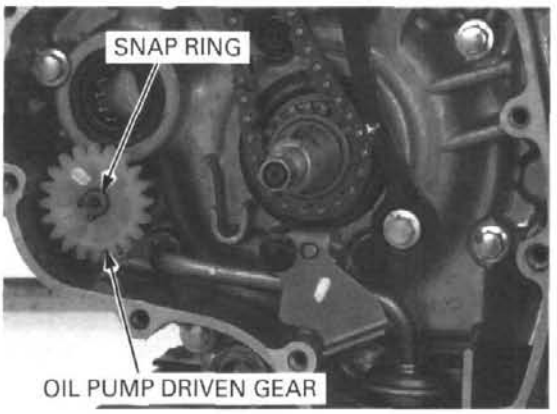


Install the drive pin into the oil pump shaft.
Install the oil pump driven gear aligning its cut-out with the drive pin.



Install a new snap ring onto the oil pump shaft.

Install the balancer (page 16-8).

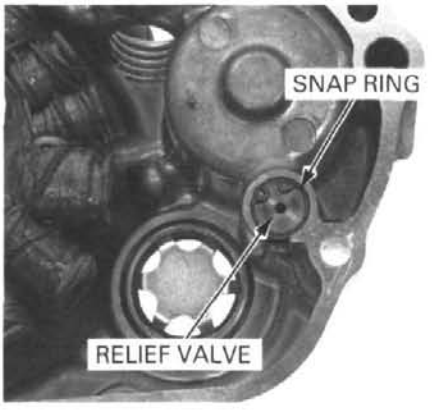


PRESSURE RELIEF VALVE

REMOVAL/INSPECTION

Remove the left crankcase cover (page 21-11).

Remove the snap ring and pressure relief valve from the left crankcase cover.



Check the pressure relief valve for damage or clogs.

INSTALLATION

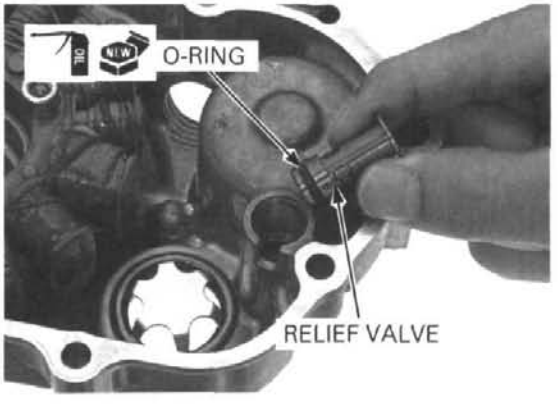
Apply oil to a new O-ring and install it onto the pressure relief valve.

Install the pressure relief valve into the left crankcase cover.

Install the snap ring securely.

After installing a snap ring, always rotate it in its groove to be sure it is fully seated.

Install the left crankcase cover (page 21-13).



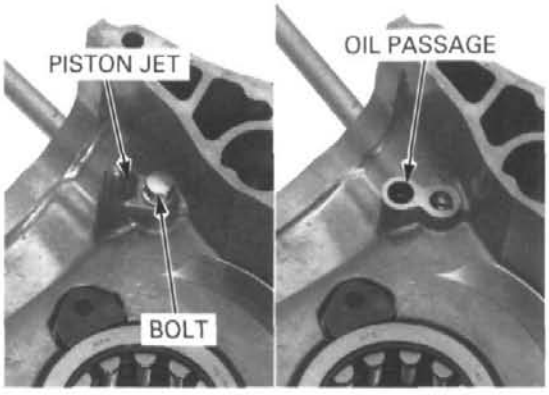
PISTON JET

REMOVAL/INSPECTION

Separate the left and right crankcase halves (page 16-11).

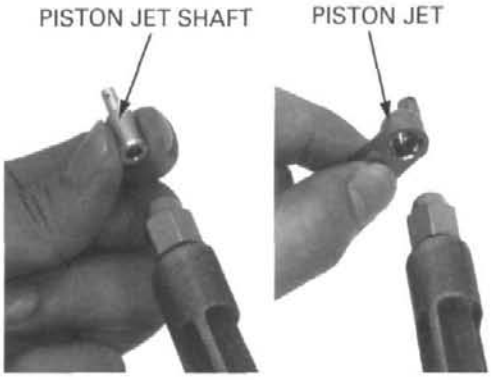
Remove the bolt and piston jet from the left crankcase.

Check the left crankcase oil passage for clogging. Clean the oil passage.



Remove the piston jet shaft from the piston jet.

Check the piston jet for damage or clogging. Blow open the oil passage in the piston jet and shaft with compressed air.



INSTALLATION

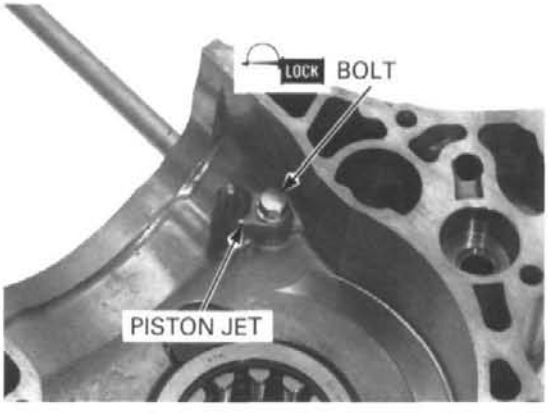
Install the piston jet shaft to the piston jet.

Install the piston jet onto the left crankcase and tighten the bolt.

Apply locking agent to the piston jet mounting bolt and tighten it to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

Assemble the left and right crankcase halves (page 16-25).



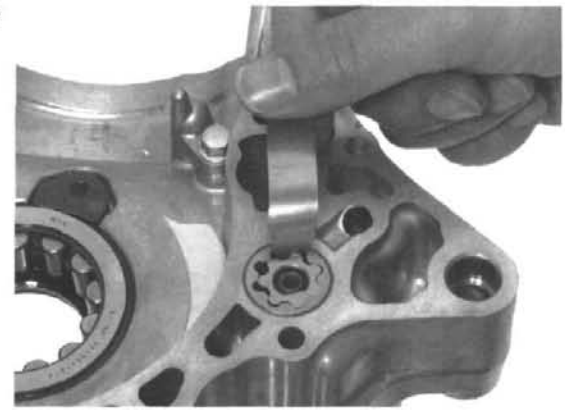
OIL PUMP

INSPECTION

Separate the left and right crankcase halves (page 16-11).

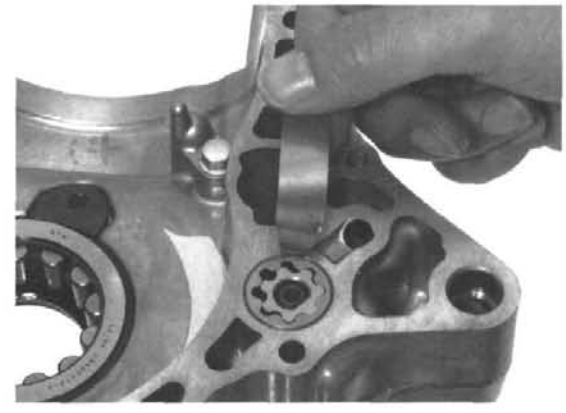
Measure the rotor tip clearance.

SERVICE LIMIT: 0.20 mm (0.008 in)



Measure the pump body clearance.

STANDARD: 0.15 – 0.21 mm (0.006 – 0.008 in)



Measure the clearance with the gasket installed.

Measure the oil pump side clearance.

STANDARD: 0.04 – 0.13 mm (0.002 – 0.005 in)

Assemble the left and right crankcase halves (page 16-25).