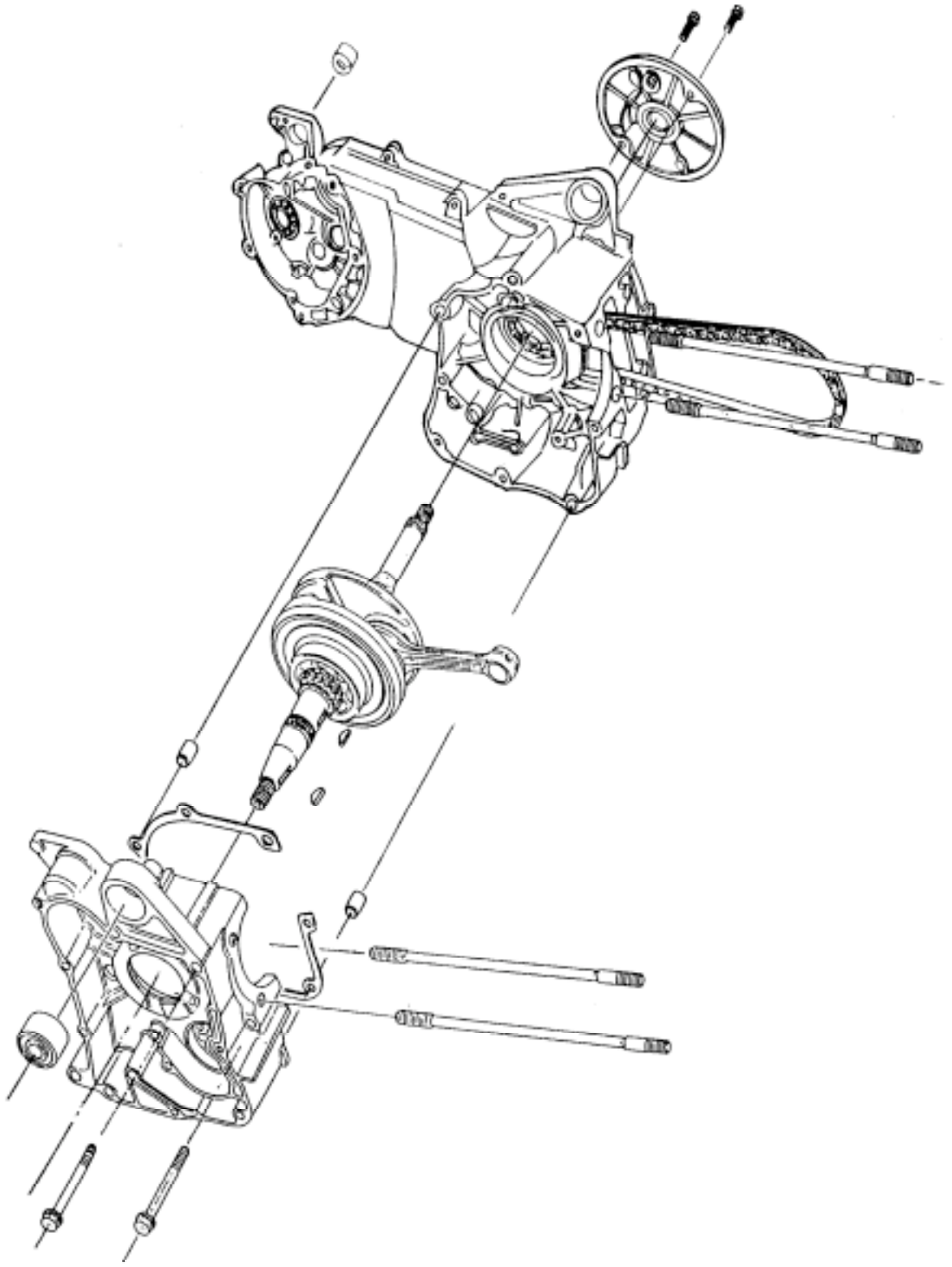
11. CRANKCASE/CRANKSHAFT



11. CRANKCASE/CRANKSHAFT

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- This section covers crankcase separation to service the crankshaft. The engine must be removed for this operation.
- The following parts must be removed before separating the crankcase.
  - Cylinder head (⇨Section 7)
  - Cylinder/piston (⇨Section 8)
  - Drive and driven pulleys (⇨Section 9)
  - A.C. generator (⇨Section 14)
  - Carburetor/air cleaner (⇨Section 4)
  - Rear wheel/rear shock absorber (⇨Section 13)
  - Starter motor (⇨Section 16)
  - Oil pump (⇨Section 4)

SPECIFICATIONS

	Item	Standard (mm)	Service Limit (mm)
Crankshaft	Connecting rod big end side clearance	0.10_ 0.35	0.55
	Connecting rod big end radial clearance	0_ 0.008	0.05
	Runout		0.10

TORQUE VALUES

Crankcase bolt	0.9kg-m
Cam chain tensioner slipper bolt	1.0kg-m
Cam chain cover bolt	0.9kg-m

SPECIAL TOOL

Gear remover

TROUBLESHOOTING

Excessive engine noise

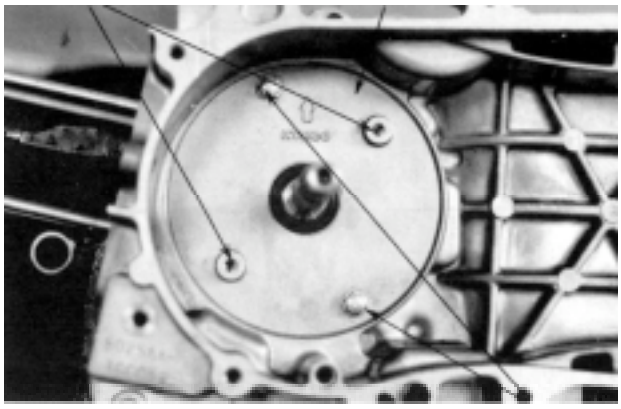
- Excessive bearing play
- Excessive crankpin bearing play

CRANKCASE SEPARATION

Remove the two cam chain cover bolts on the left crankcase and remove the cam chain cover.
Check the oil seal and O-ring for wear or deterioration.

✱ Before removing the cam chain cover, screw two 6mm bolts into the threaded holes in the cam chain cover.

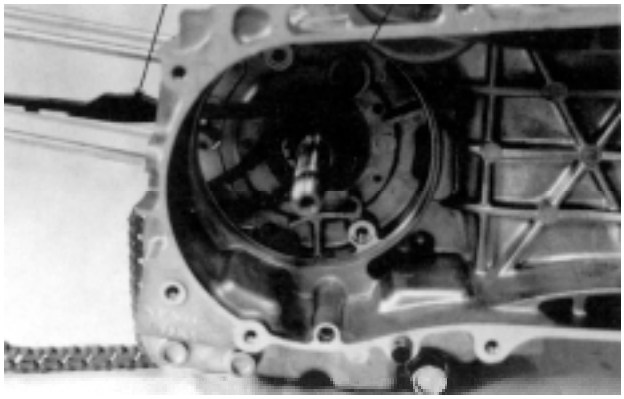
Threaded Holes Cam Chain Cover



Bolts

Remove the cam chain and cam chain tensioner slipper.

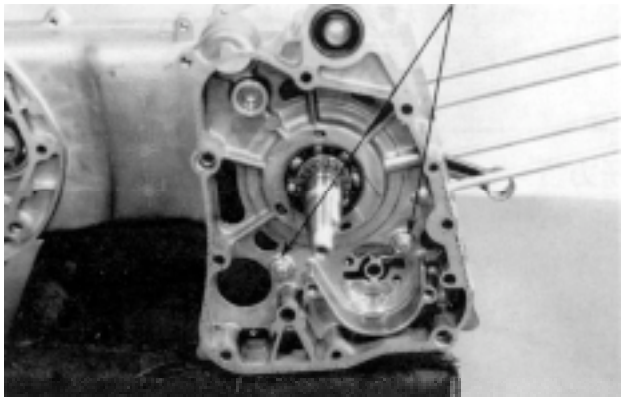
Cam Chain Tensioner Slipper Cam Chain



Remove the two crankcase attaching bolts.
Separate the left and right crankcase halves.

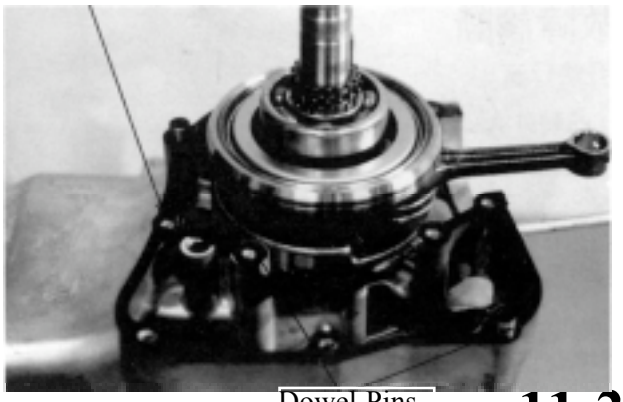
✱ Do not damage the crankcase gasket surface.

Crankcase Bolts



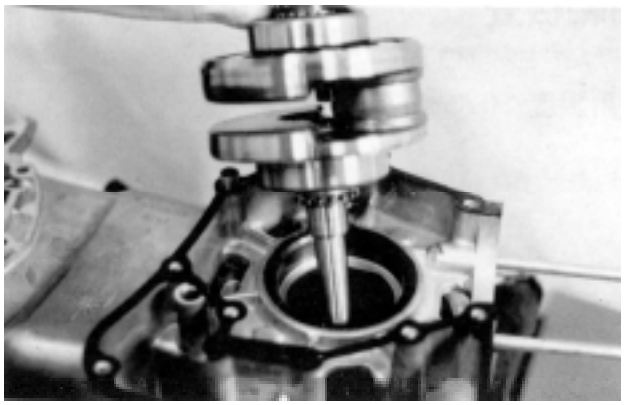
Remove the gasket and dowel pins.

Gasket



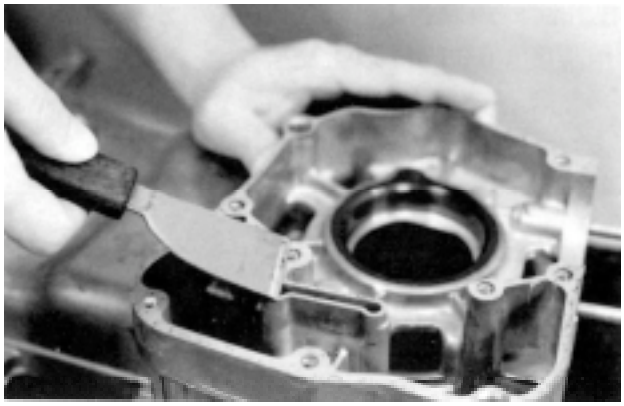
Dowel Pins

Remove the crankshaft from the left crankcase.

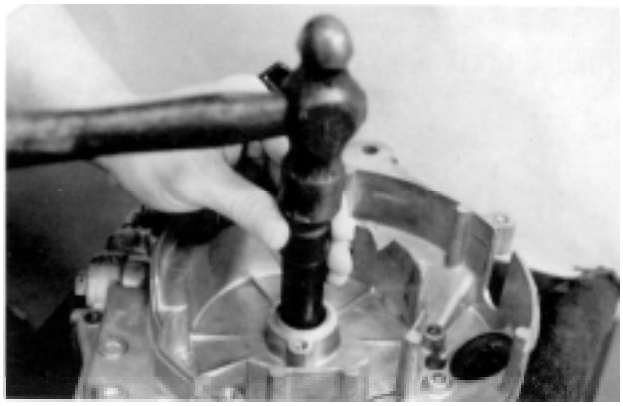


Clean off all gasket material from the crankcase mating surfaces.

✱ Avoid damaging the crankcase mating surfaces.



Remove the oil seal from the right crankcase.
Check the oil seal lip for wear or deterioration.
The installation sequence is the reverse of removal.



CRANKSHAFT INSPECTION

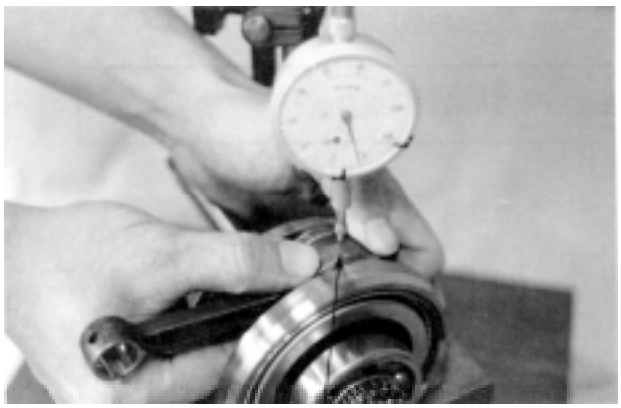
Measure the connecting rod big end side clearance.

Service Limit: 0.55mm replace if over

Connecting Rod Big End

Measure the connecting rod big end radial clearance at two points at right angels to the shaft.

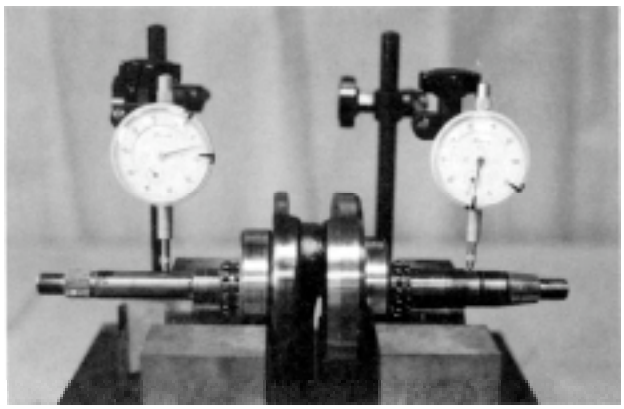
Service Limit: 0.05mm replace if over



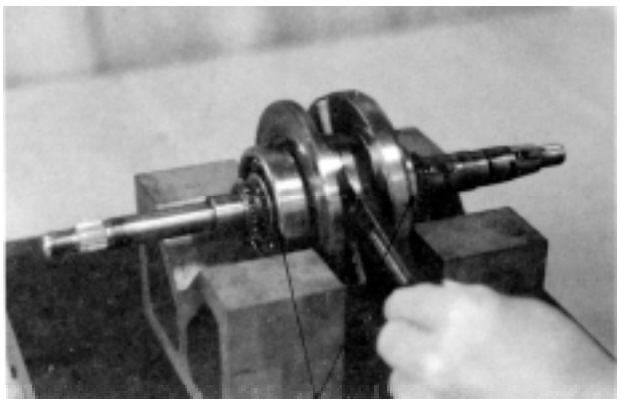
Measuring Location

Measure the crankshaft runout.

Service Limit: 0.10mm replace if over



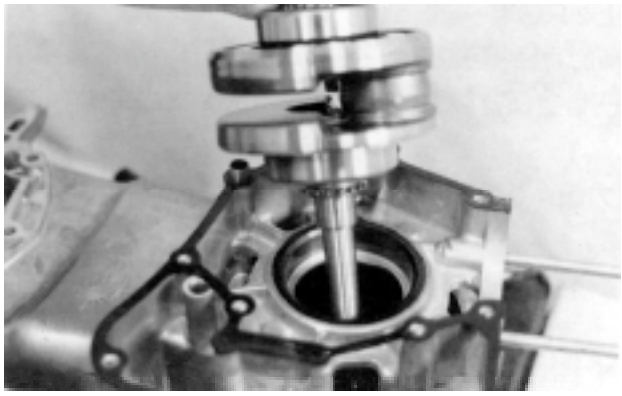
Turn the crankshaft bearings and check for excessive play.
If they do not turn smoothly, quietly or if they fit loosely in the crankshaft, replace the crankshaft as a set.



Crankshaft Bearings

CRANKCASE ASSEMBLY

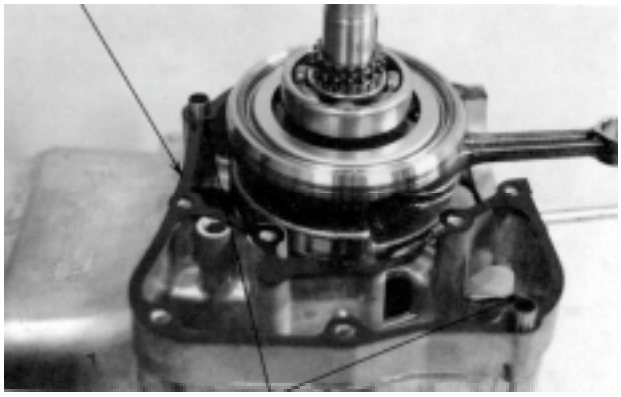
Install the crankshaft into the left crankcase.



Gasket

Install the dowel pins and a new gasket onto the left crankcase.

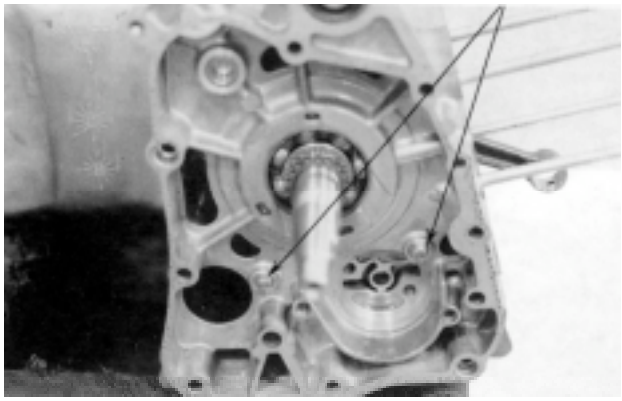
✱ Place the right crankcase over the crankshaft and onto the left crankcase.



Dowel Pins

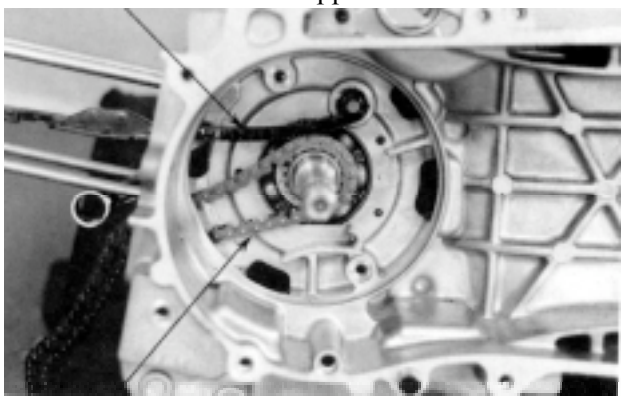
Crankcase Bolts

Tighten the two crankcase attaching bolts.
Torque: 0.9kg-m



Cam Chain Tensioner Slipper

Install the cam chain.
Install the cam chain tensioner slipper.

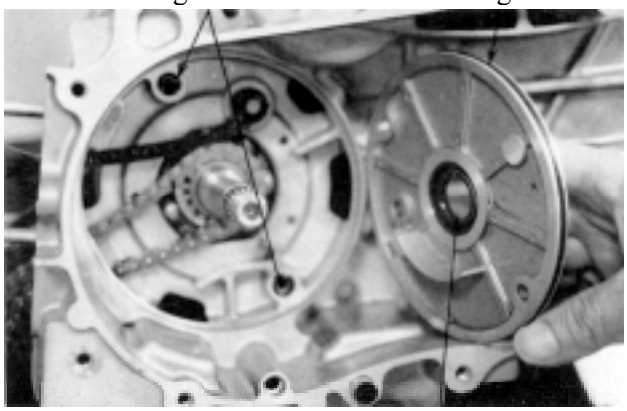


Cam Chain

Install the two O-rings.
Install a new oil seal and O-ring onto the cam chain cover.
Install the cam chain cover onto the left crankcase and tighten the two bolts.

Torque: 0.9kg-m

O-rings O-ring



Oil Seal

Bolts