

# **11. CRANKCASE/CRANKSHAFT**

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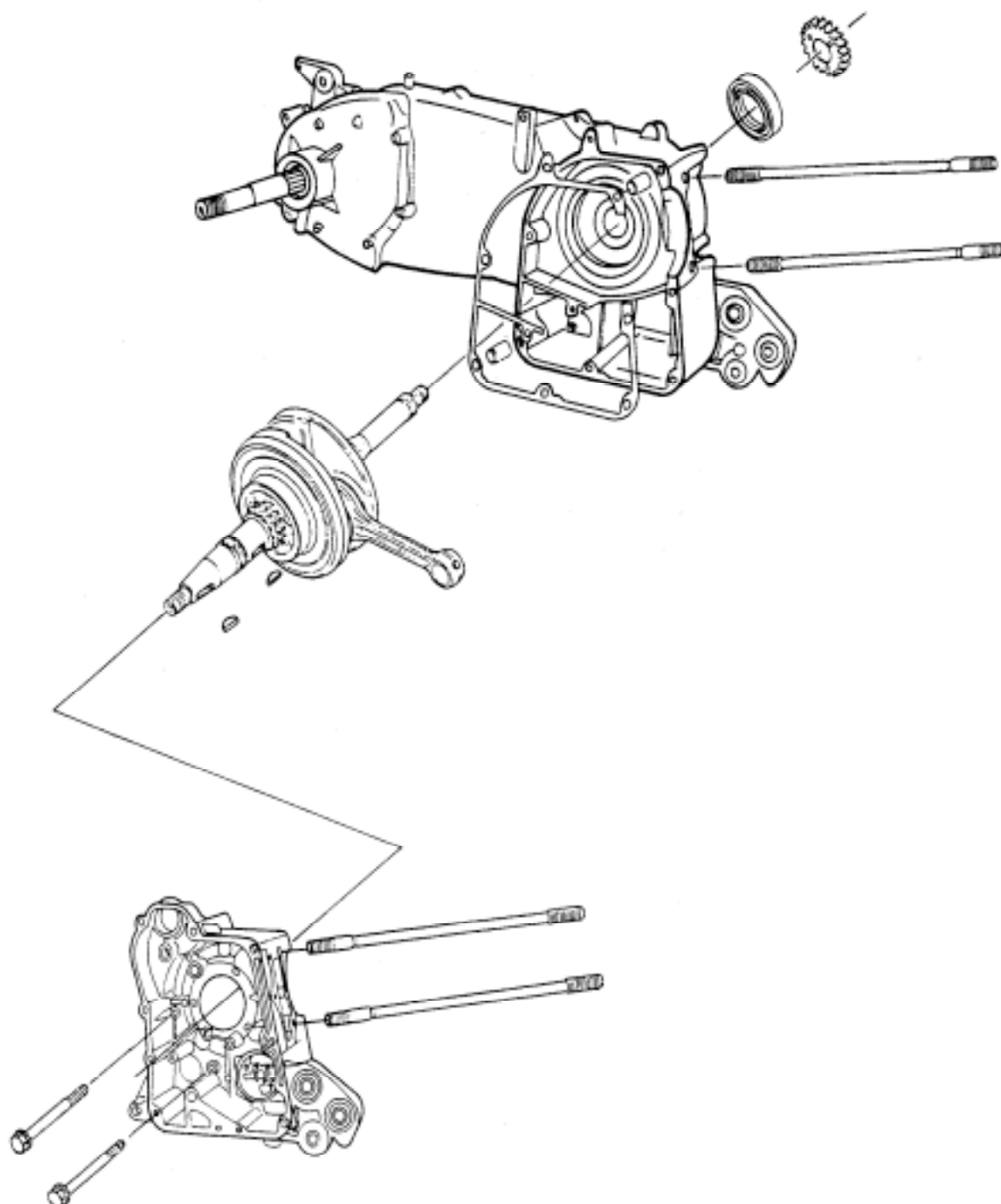
## **CRANKCASE/CRANKSHAFT**

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# 11. CRANKCASE/CRANKSHAFT

## SCHEMATIC DRAWING



# 11. CRANKCASE/CRANKSHAFT

## SERVICE INFORMATION

### GENERAL INSTRUCTIONS

- This section covers crankcase separation to service the crankshaft. The engine must be removed for this operation.
- When separating the crankcase, never use a driver to pry the crankcase mating surfaces apart forcibly to prevent damaging the mating surfaces.
- When installing the crankcase, do not use an iron hammer to tap it.
- The following parts must be removed before separating the crankcase.
  - Cylinder head (⇒6-4)
  - Cylinder/piston (⇒7-3)
  - Right crankcase cover/drive and driven pulley (⇒8-3)
  - A.C. generator/starter clutch (⇒10-3)
  - Rear wheel/rear shock absorber (⇒15-4)
  - Starter motor (⇒19-3)
  - Oil pump (⇒4-4)

### SPECIFICATIONS

|            | Item                                    | Standard (mm) | Service Limit (mm) |
|------------|---|---------------|--------------------|
| Crankshaft | Connecting rod big end side clearance   | 0.15_ 0.35    | 0.6                |
|            | Connecting rod big end radial clearance | 0._ 0.008     | 0.05               |
|            | Runout                                  | □             | 0.10               |

### TORQUE VALUES

|                                  |      |         |
|----------------------------------|------|---------|
| Crankcase bolt                   | 7.8_ | 10.8N-m |
| Cam chain tensioner slipper bolt | 7.8_ | 11.8N-m |

### SPECIAL TOOL

Gear remover

### TROUBLESHOOTING

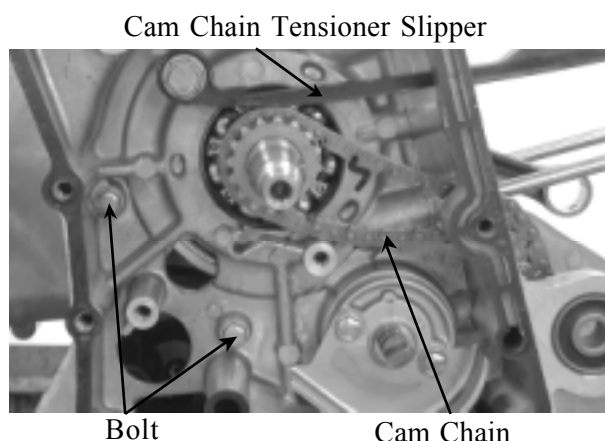
#### Excessive engine noise

- Excessive bearing play
- Excessive crankpin bearing play
- Worn piston pin and piston pin hole

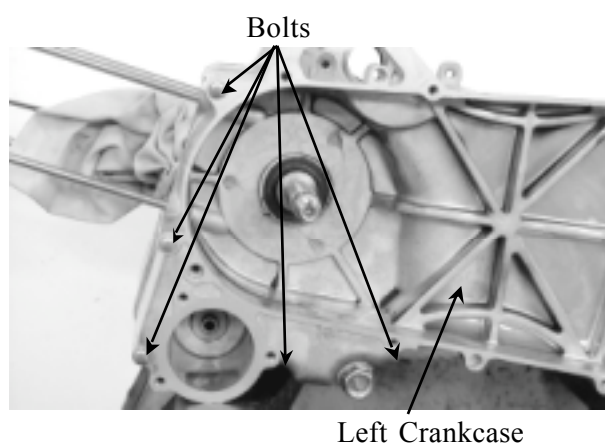
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## CRANKCASE SEPARATION

Remove the cam chain tensioner slipper bolt.  
Remove the cam chain tensioner slipper and cam chain.  
Remove the two right crankcase attaching bolts.



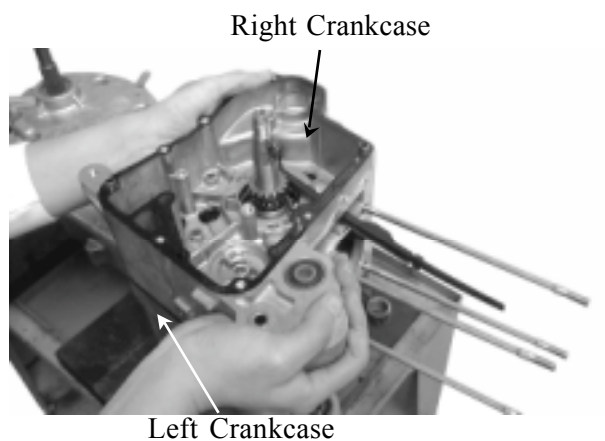
Remove the five left crankcase bolts.



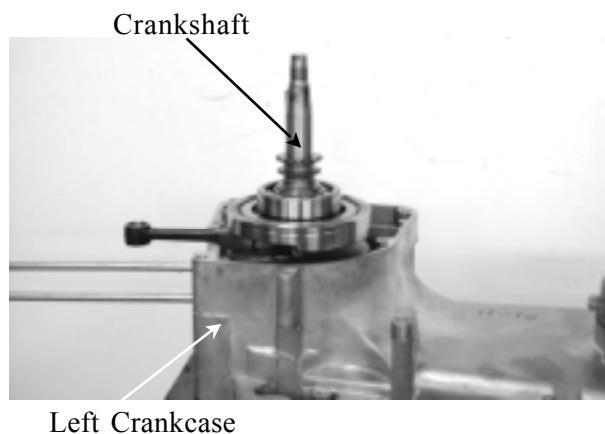
Place the crankcase with the left crankcase down and remove the right crankcase from the left crankcase.

- \* • Never use a driver to pry the crankcase mating surfaces apart.

Remove the gasket and dowel pins.



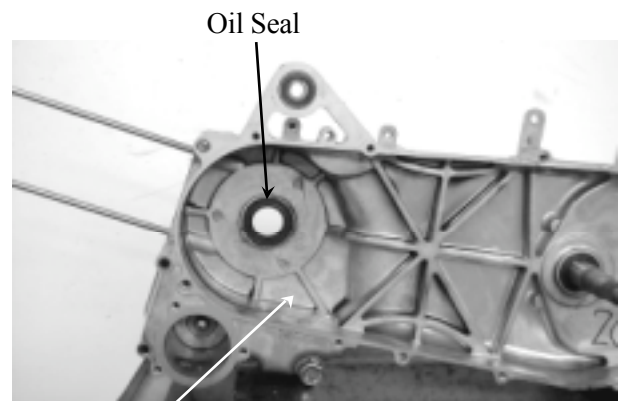
Remove the crankshaft from the left crankcase.



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Remove the oil seal from the left crankcase.



Left Crankcase

### CRANKSHAFT INSPECTION

Measure the connecting rod big end side clearance.

**Service Limit:** 0.6mm replace if over



Measure the connecting rod small end I.D.

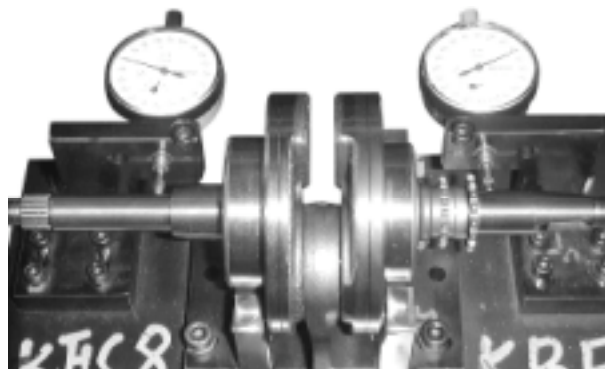
**Service Limit:** 15.06mm replace if over



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Measure the crankshaft runout.

**Service Limit:** 0.10mm replace if over

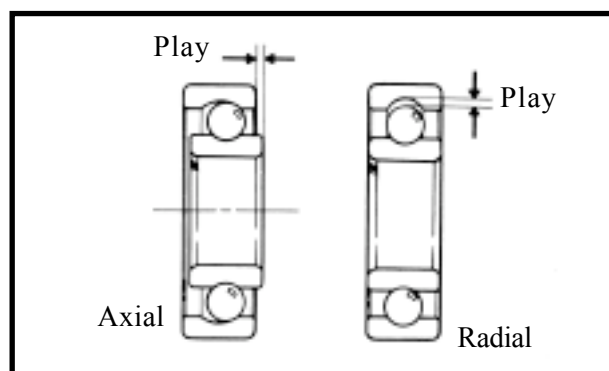


Measure the crankshaft bearing play.

**Service Limits:**

Axial : 0.20mm replace if over

Radial : 0.05mm replace if over



## CRANKCASE ASSEMBLY

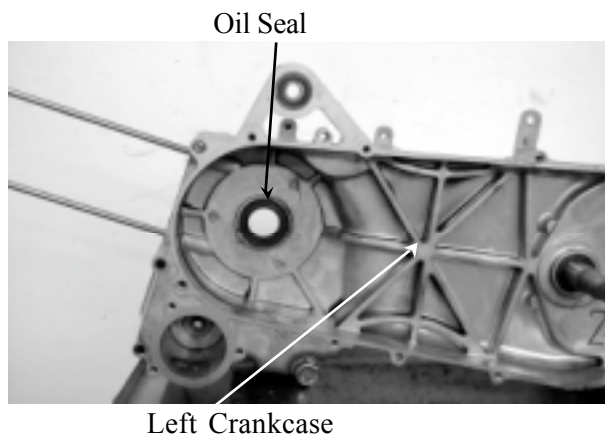
Clean off all gasket material from the crankcase mating surfaces.

- \* 

• Avoid damaging the crankcase mating surfaces.



Install a new oil seal into the left crankcase.



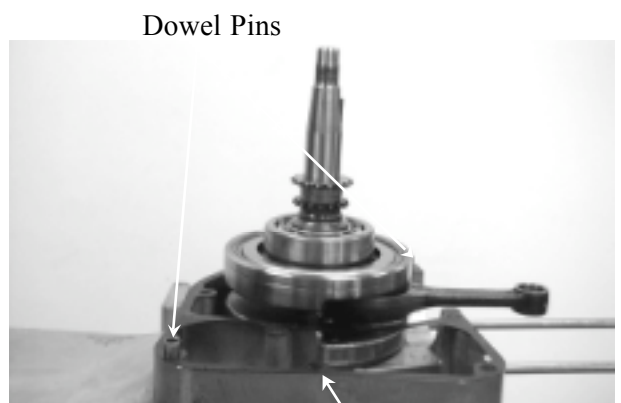
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Place the left crankcase down and install the crankshaft into the left crankcase.

- \* • Avoid damaging the oil seal.
- Apply grease to the lip of the oil seal.



Install the two dowel pins and a new gasket.

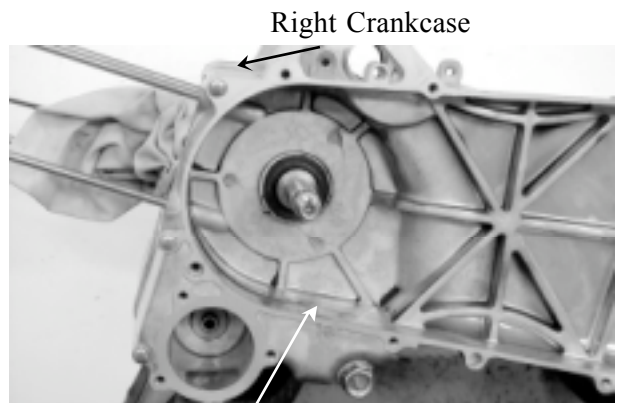


Dowel Pins

Gasket

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

- \* • Install the right crankcase squarely and do not tap it with an iron or plastic hammer.

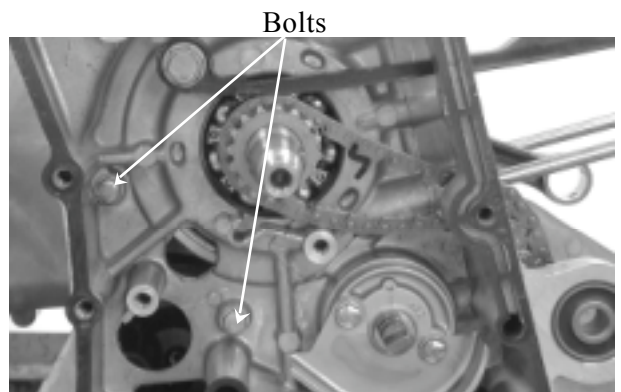


Right Crankcase

Left Crankcase

Install and tighten the right and left crankcase attaching bolts.

**Torque:** 7.8\_ 10.8N-m



Bolts

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Install the cam chain.  
Install the cam chain tensioner slipper.  
Install and tighten the cam chain tensioner slipper bolt.

**Torque:** 7.8\_ 11.8N-m

