

# 11. CRANKCASE/CRANKSHAFT

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## CRANKCASE/CRANKSHAFT

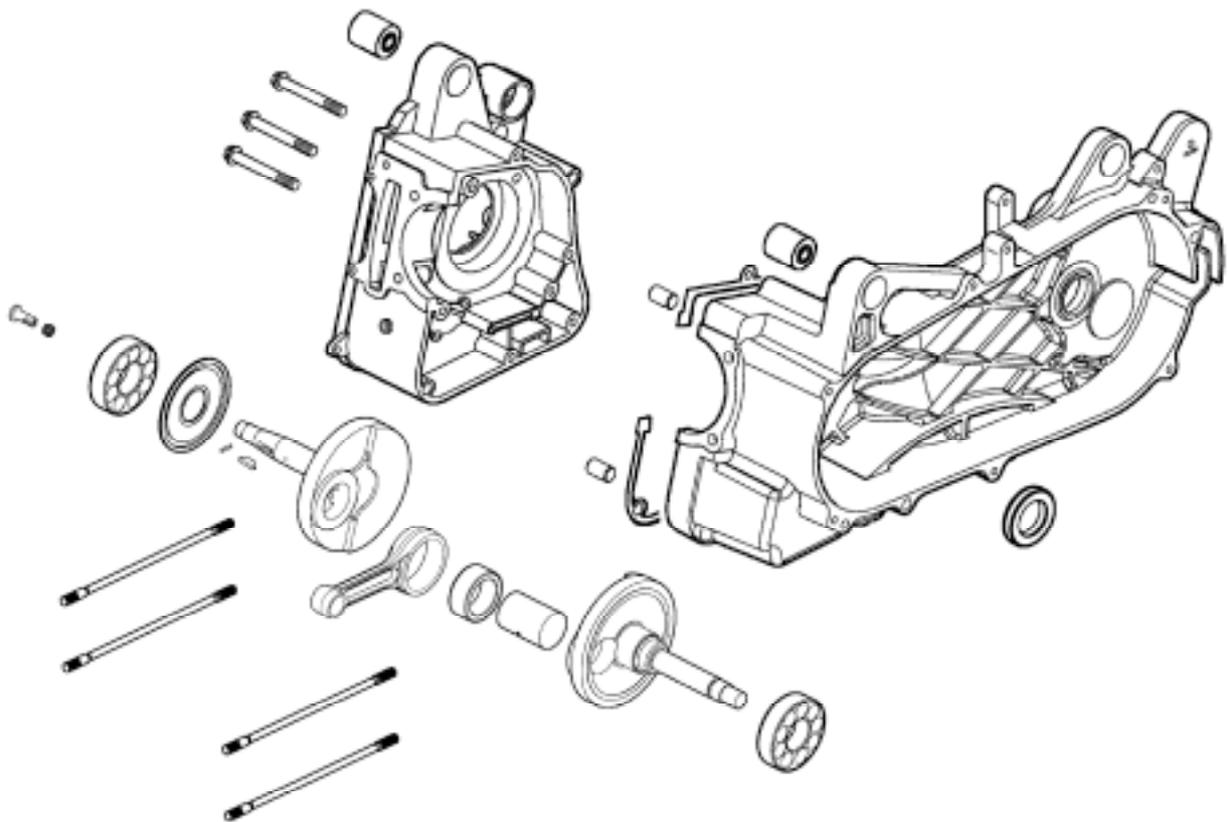
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## SCHEMATIC DRAWING



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## 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 (⇒chapter 6)
  - Cylinder/piston (⇒chapter 7)
  - Right crankcase cover/drive and driven pulley (⇒chapter 8)
  - A.C. generator/starter clutch (⇒chapter 9)
  - Rear wheel/rear shock absorber (⇒chapter 15)
  - Starter motor (⇒chapter 18)
  - Oil pump (⇒chapter 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

### TROUBLESHOOTING

#### Excessive engine noise

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

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## CRANKCASE SEPARATION

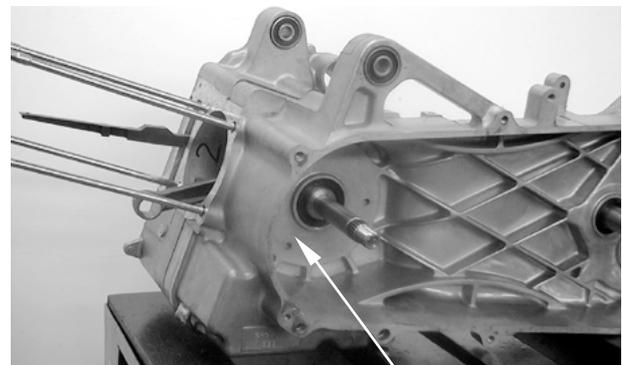
Remove the cam chain tensioner slipper bolt.  
Remove the cam chain tensioner slipper and cam chain.  
Remove the three right crankcase attaching bolts.



Bolt

Cam Chain

Remove the left crankcase.

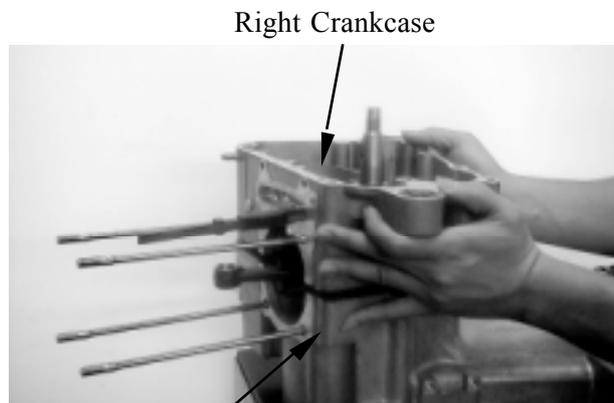


Left Crankcase

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.

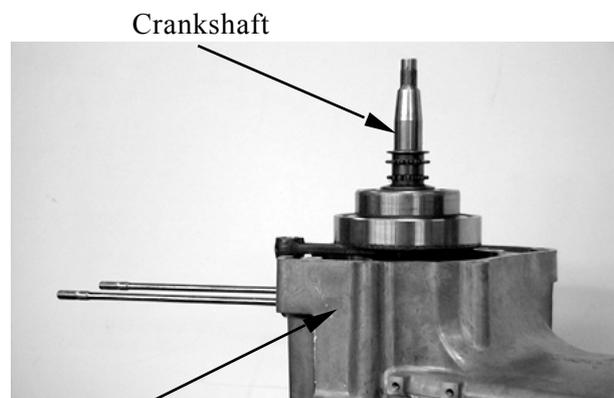
Remove the gasket and dowel pins.



Right Crankcase

Left Crankcase

Remove the crankshaft from the left crankcase.



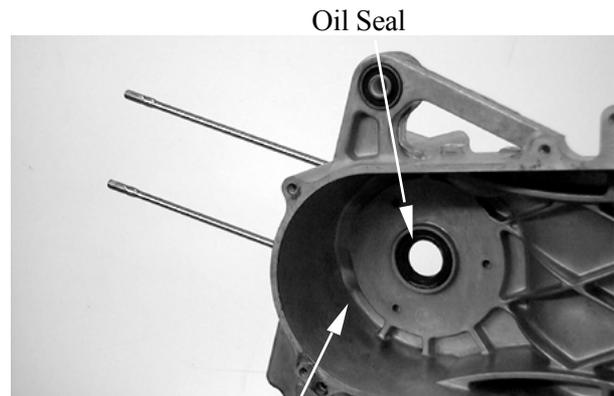
Crankshaft

Left Crankcase

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Remove the oil seal from the left crankcase.

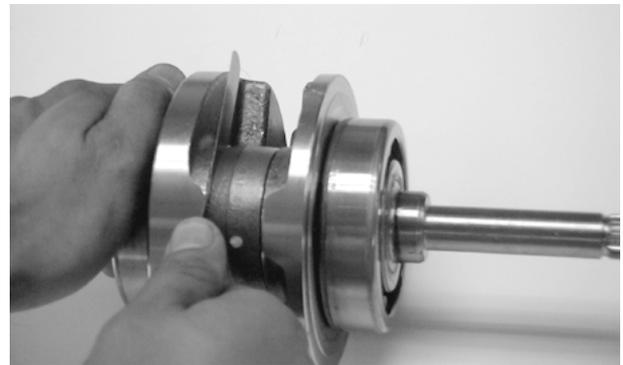


Left Crankcase

## 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.

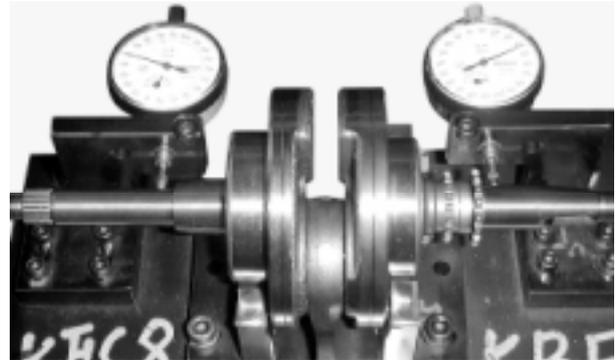
**Service Limit:** 17.06mm replace if over



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Measure the crankshaft runout.

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

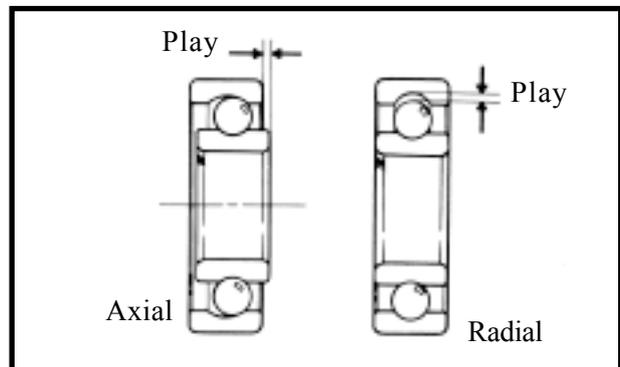


Measure the crankshaft bearing play.

**Service Limits:**

Axial : 0.20mm replace if over

Radial : 0.05mm replace if over



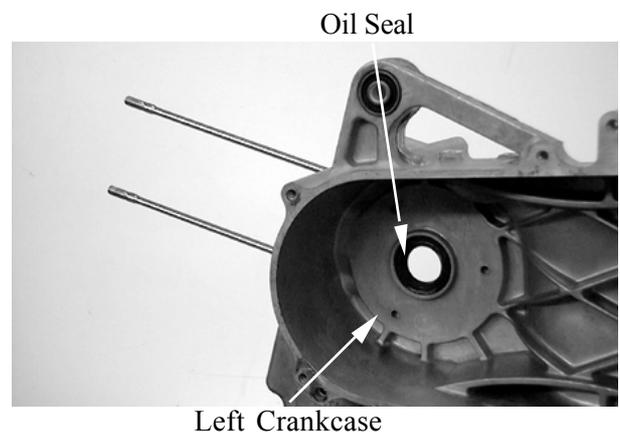
## CRANKCASE ASSEMBLY

Clean off all gasket material from the crankcase mating surfaces.

- \* 
  - Avoid damaging the crankcase mating surfaces.



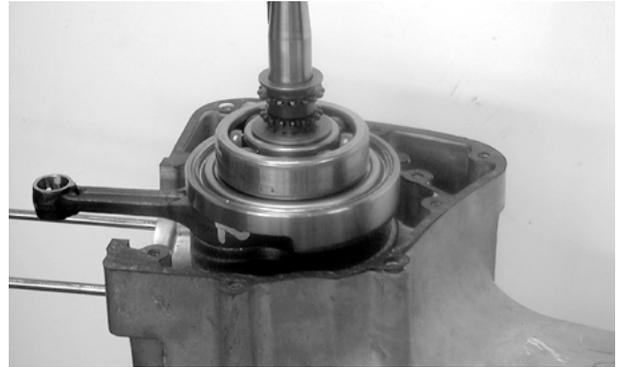
Install a new oil seal into the left crankcase.



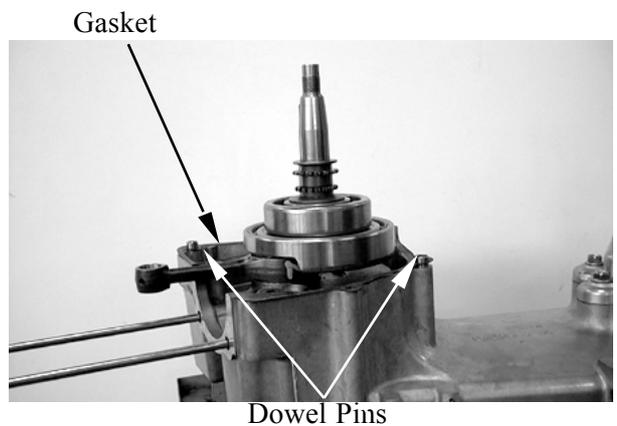
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Place the left crankcase down and install the crankshaft into the left crankcase.

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

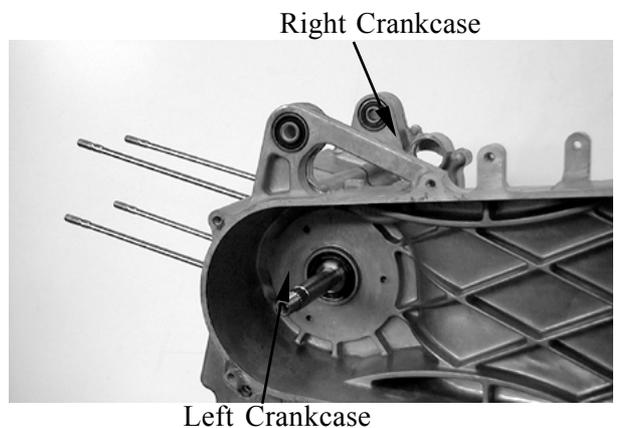


Install the two dowel pins and a new gasket.



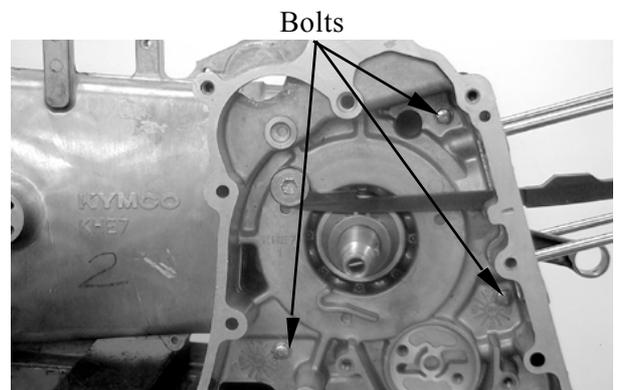
Place the right crankcase over the crankshaft and onto the left crankcase.

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



Install and tighten the right and left crankcase attaching bolts.

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



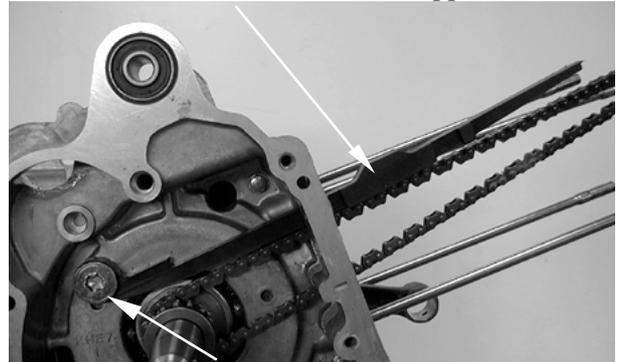
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Install the cam chain.  
Install the cam chain tensioner slipper.  
Install and tighten the cam chain tensioner slipper bolt.

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

Cam Chain Tensioner Slipper



Bolt