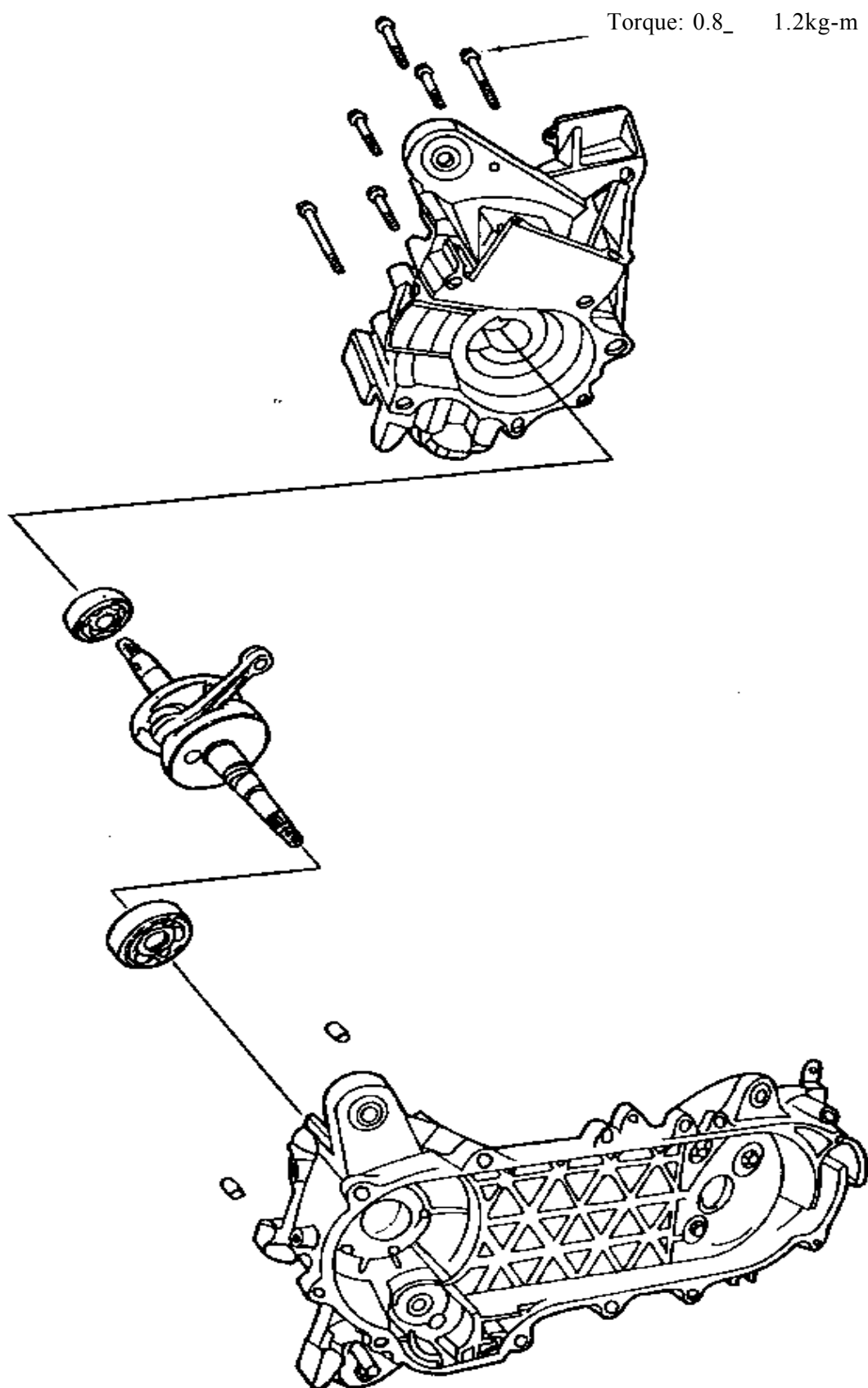


10. CRANKCASE/CRANKSHAFT

CRANKCASE/CRANKSHAFT

| | |
|------------------------------|------|
| SERVICE INFORMATION..... | 10-2 |
| TROUBLESHOOTING..... | 10-2 |
| CRANKCASE SEPARATION | 10-3 |
| CRANKSHAFT REMOVAL..... | 10-3 |
| CRANKSHAFT INSPECTION | 10-4 |
| CRANKSHAFT INSTALLATION..... | 10-5 |
| CRANKCASE ASSEMBLY | 10-7 |

10. CRANKCASE/CRANKSHAFT



10. CRANKCASE/CRANKSHAFT

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- This section covers crankcase separation to service the crankshaft.
- The following parts must be removed before separating the crankcase.
 - Engine (⇒ Section 5)
 - Driven pulley (⇒ Section 7)
 - Carburetor (⇒ Section 12)
 - A.C. generator (⇒ Section 9)
 - Oil pump (⇒ Section 4)
 - Cylinder head/cylinder (⇒ Section 6)
 - Reed valve (⇒ Section 12)
- When the left crankcase must be replaced, remove the following part in addition to the above.
 - Final reduction removal
- Special tools must be used for crankshaft and crankcase assembly. When separating the crankcase, the bearing will remain in the crankcase and it should be removed. When, assembling, drive a new bearing into the crankcase and install a new oil seal.

| SPECIFICATIONS | SH10BA | | SH10AA | |
|---|---------------|--------------------|---------------|--------------------|
| | Standard (mm) | Service Limit (mm) | Standard (mm) | Service Limit (mm) |
| Connecting rod big end side clearance | — | 0.60 | — | 0.60 |
| Connecting rod big end radial clearance | — | 0.04 | — | 0.04 |
| Crankshaft runout A/B | — | 0.15/0.10 | — | 0.15/0.10 |

SPECIAL TOOLS

| | |
|---------------------------|-------------------------------|
| Crankcase puller | Bearing outer driver handle A |
| Universal bearing puller | Bearing outer driver, 42x47mm |
| Crankcase assembly collar | Bearing driver pilot, 20mm |
| Crankcase assembly tool | Bearing outer driver, 37x40mm |
| | Bearing driver pilot, 17mm |

TROUBLESHOOTING

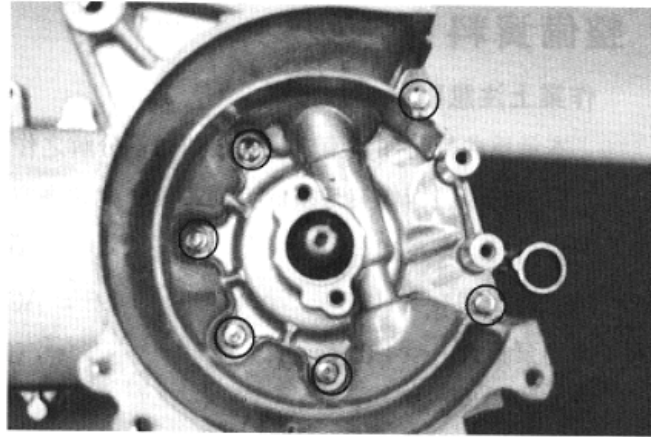
Abnormal engine noise

- Excessive crank journal bearing play
- Excessive crankpin bearing play
- Excessive transmission bearing play

10. CRANKCASE/CRANKSHAFT

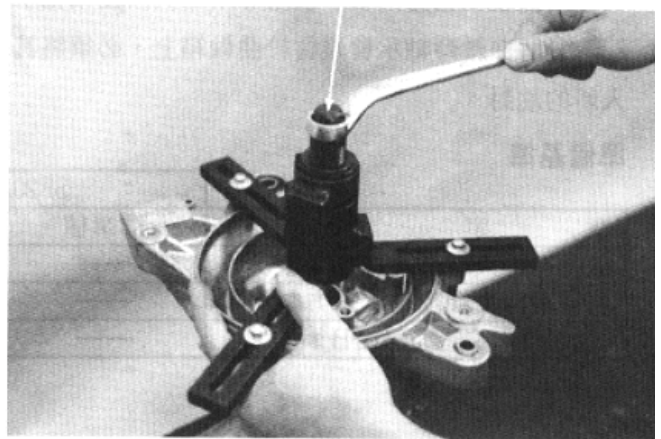
CRANKCASE SEPARATION

Remove the crankcase attaching bolts.



Attach the crankcase puller on the right crankcase and remove the right crankcase from the left crankcase.

Crankcase Puller



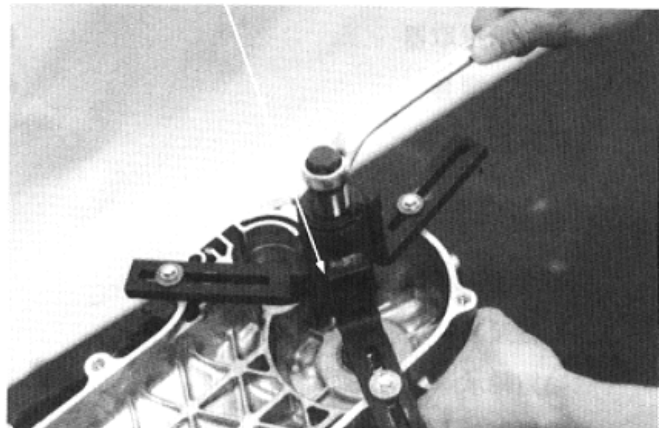
CRANKSHAFT REMOVAL

Attach the crankcase puller on the left crankcase and remove the crankshaft from the left crankcase.

*

When removing the crankshaft, do it slowly and gently.

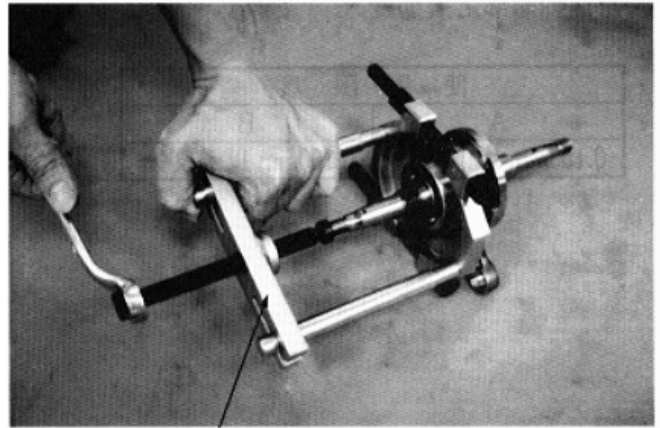
Crankcase Puller



10. CRANKCASE/CRANKSHAFT

Remove the remaining bearing on the crankshaft side using the universal bearing puller.

* When separating the crankcase, the oil seals must be removed. Replace the oil seals with new ones.

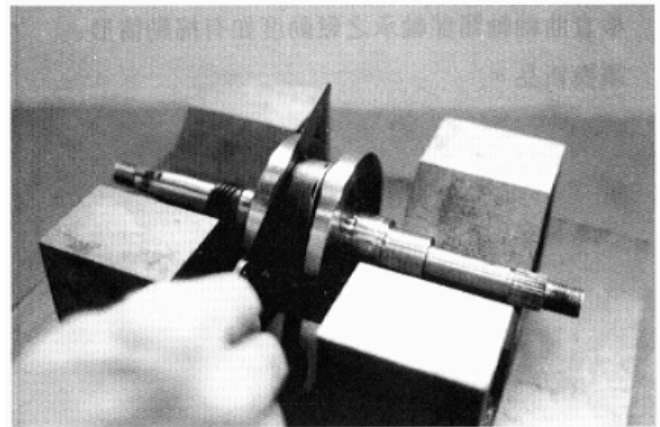


Universal Bearing Puller

CRANKSHAFT INSPECTION

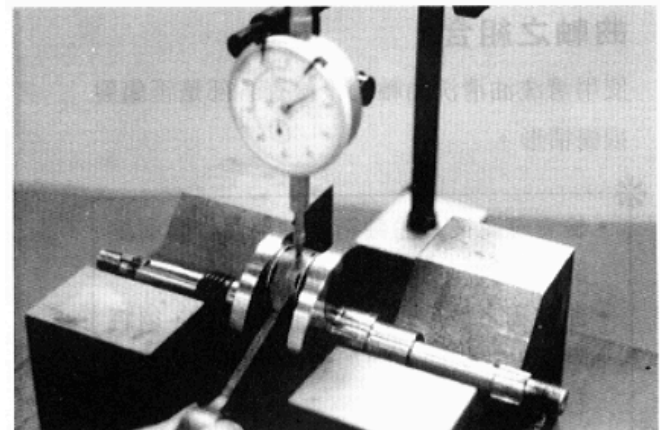
Measure the connecting rod big end side clearance.

Service Limit: 0.6mm replace if over



Measure the connecting rod big end radial clearance at two points in the X and Y directions.

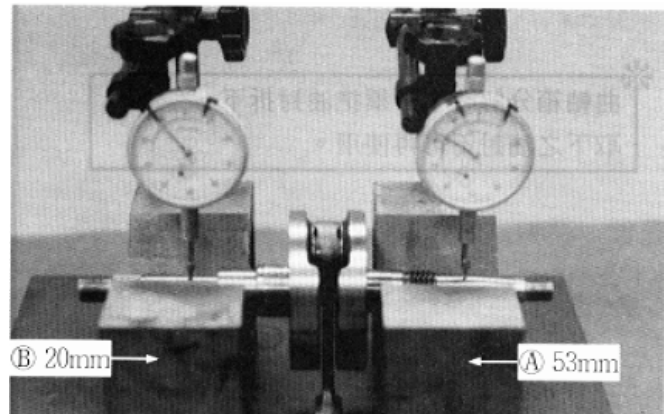
Service Limit: 0.04mm replace if over



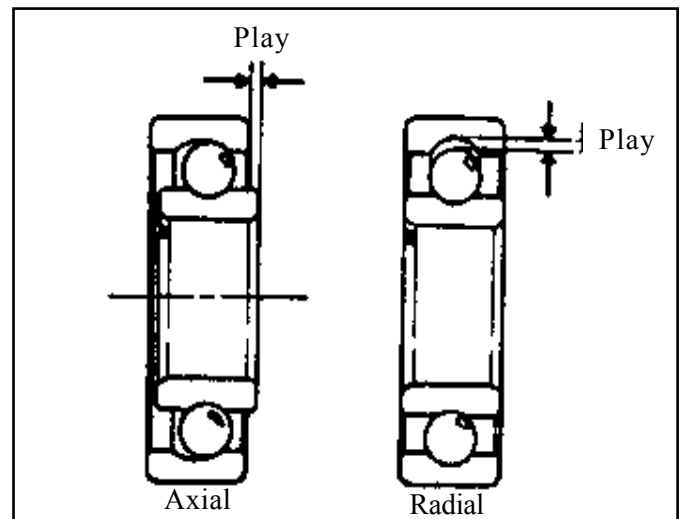
10. CRANKCASE/CRANKSHAFT

Measure the crankshaft runout.

| Service Limit | |
|----------------------------|----------------------------|
| A | B |
| 0.150mm replace if over | 0.100mm replace if over |



Check the crankshaft bearings for excessive play. The bearings must be replaced if they are noisy or have excessive play.

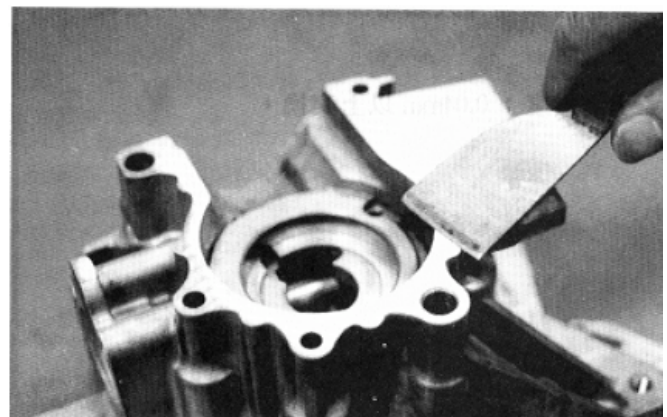


CRANKSHAFT INSTALLATION

Wash the crankshaft in cleaning solvent and then check for cracks or other faults.

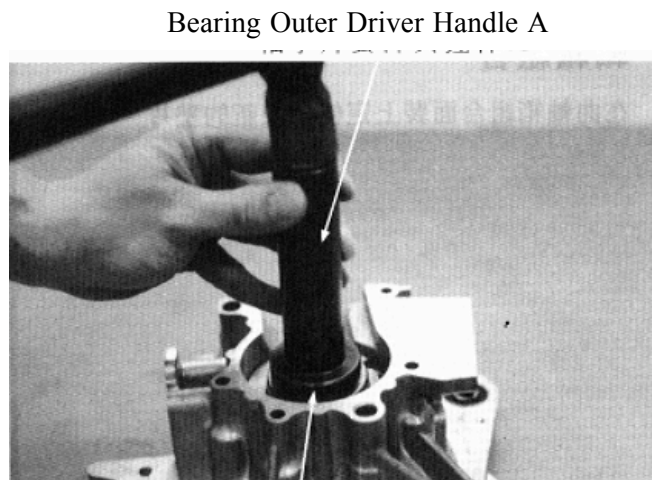
*

- After check, apply clean engine oil to all moving and sliding parts.
- Remove all gasket material from the crankcase mating surfaces. Dress any roughness or irregularities with an oil stone.



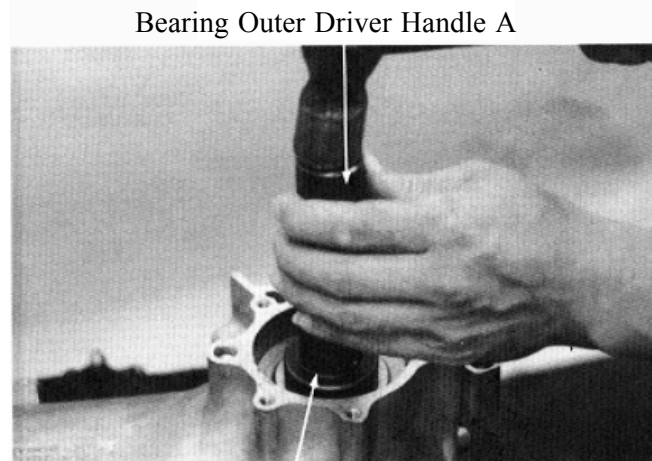
10. CRANKCASE/CRANKSHAFT

Drive a new crankshaft bearing into the right crankcase.



Bearing Outer Driver, 37x40mm
Bearing Driver Pilot, 17mm

Drive a new crankshaft bearing into the left crankcase.

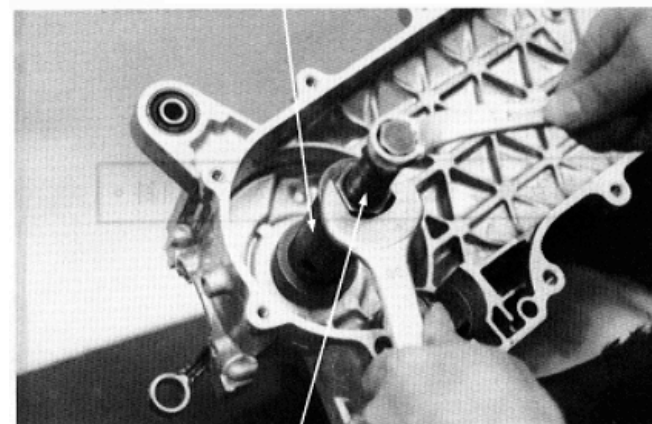


Bearing Outer Driver, 42x47mm
Pilot, 20mm

Install the crankshaft into the left crankcase.

*

- Apply KYMCO ULTRA motor oil or molybdenum disulfide to the crankshaft bearings and connecting rod big end.
- Apply grease to the lip of the oil seal and then install it.



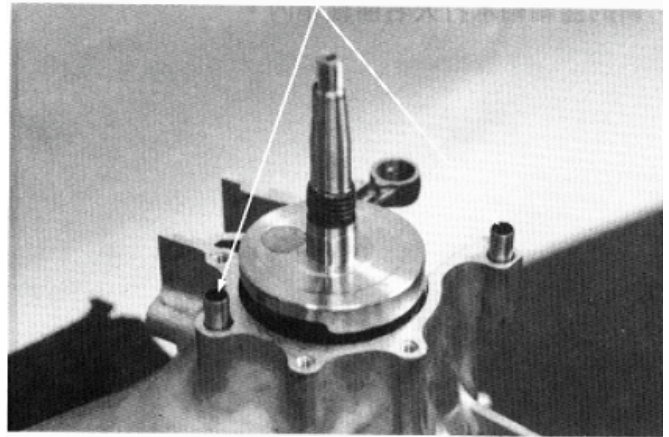
Crankcase Assembly Tool

10. CRANKCASE/CRANKSHAFT

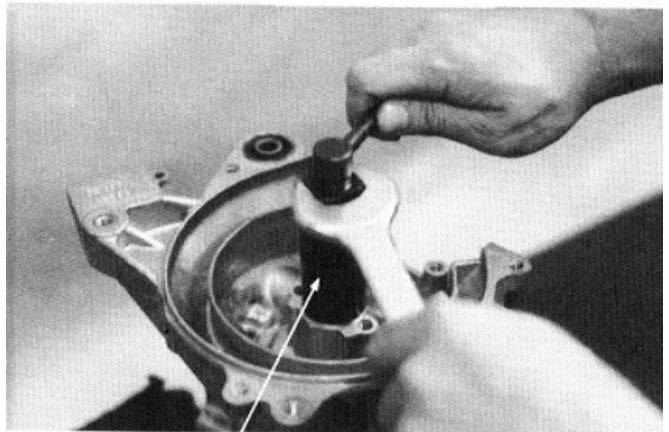
CRANKCASE ASSEMBLY

Install the dowel pins and a new gasket to the crankcase mating surface.

Dowel Pins



Assemble the crankcase halves.



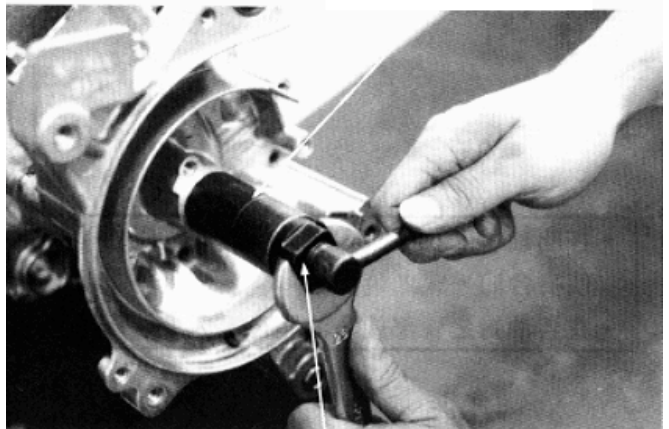
Crankcase Assembly Tool

Crankcase Assembly Collar

The distance between the right crankcase oil seal and crankcase surface is about 12.5 ± 0.5 mm.

*

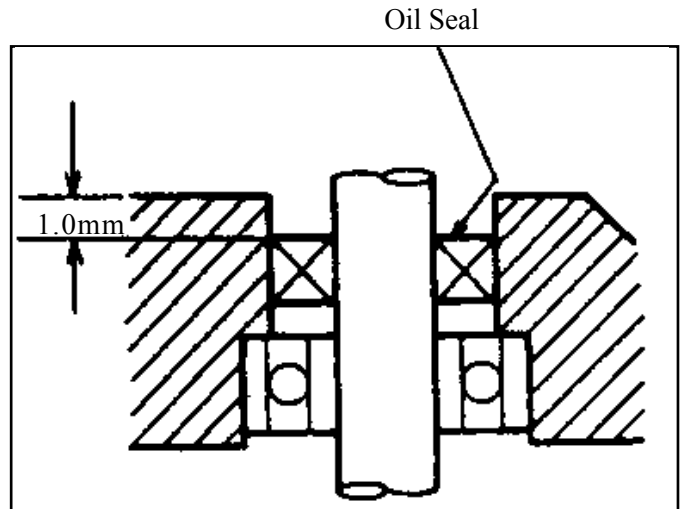
When installing the oil seal, be careful to press it with even force.



Crankcase Assembly Tool

10. CRANKCASE/CRANKSHAFT

The distance between the left crankcase oil seal and crankcase surface is about 1.0mm.



Install and tighten the crankcase attaching bolts.

*

After assembly, check the crankshaft for smooth operation.

