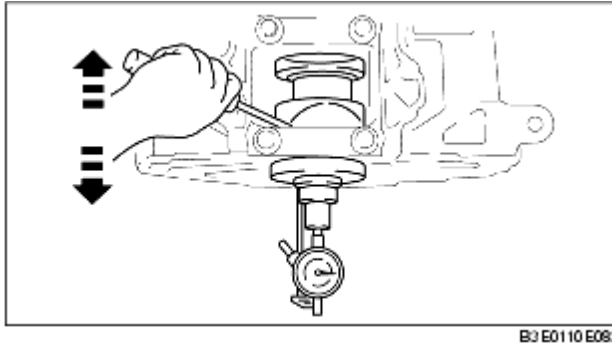


# CRANKSHAFT INSPECTION/REPAIR

B3E011011371E01

1. Measure the crankshaft end play using a dial gauge.



B3 E0110 E083

- If it exceeds the maximum specification, replace the crankshaft or grind the crankshaft thrust side, and install the oversize bearing so that the specified end play is obtained.

## Thrust bearing (mm {in})

Bearing size	Bearing thickness
	ZJ, ZY, Z6
Standard	2.500-2.550 {0.0985-0.1003}
0.25 {0.01} oversize	2.625-2.675 {0.1034-0.1053}
0.50 {0.02} oversize	2.750-2.800 {0.1083-0.1102}
0.75 {0.03} oversize	2.875-2.925 {0.1132-0.1151}

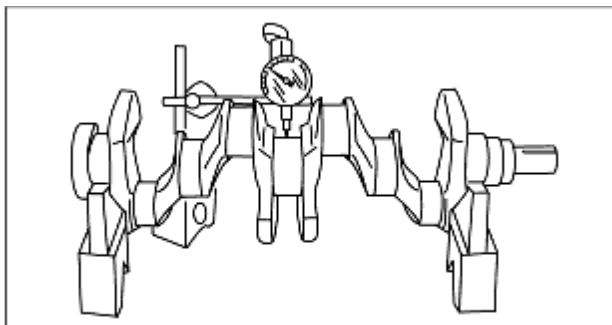
## Standard end play

**0.080-0.282 mm {0.0032-0.0111 in}**

## Maximum end play

**0.30 mm {0.0118 in}**

2. Measure the crankshaft main journal runout on V-blocks using a dial gauge.



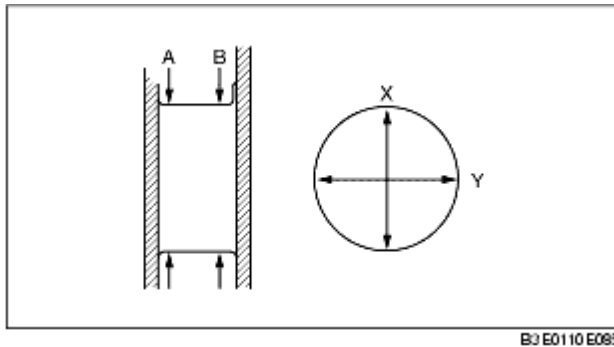
B3 E0110 E031

- If it exceeds the maximum specification, replace the crankshaft.

## Maximum runout

**0.10 mm {0.0039 in}**

3. Inspect the main journal diameter and crank pin diameter. Measurement positions total four and they are in the X and Y directions, at two points (A and B) as shown in the figure.



B3 E0110 E085

- If not within the specification or exceeds the maximum off-round, replace the crankshaft or grind the journal to fit the oversize bearing.

#### Main journal diameter (mm {in})

Bearing size	Main journal diameter
	ZJ, ZY, Z6
Standard	49.938-49.956 {1.9661-1.9667}
0.25 {0.01} oversize	49.688-49.706 {1.9562-1.9569}
0.50 {0.02} oversize	49.438-49.456 {1.9463-1.9471}

#### Maximum off-round

**0.05 mm {0.0019 in}**

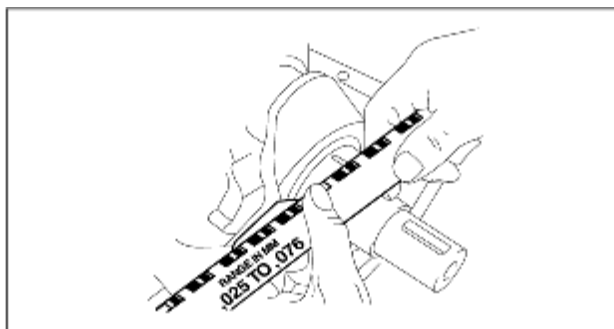
#### Crank pin journal diameter (mm {in})

Bearing size	Crank pin diameter	
	ZJ	ZY, Z6
Standard	39.940-39.956 {1.5725-1.5730}	47.940-47.956 {1.8874-1.8880}
0.25 {0.01} oversize	39.690-39.706 {1.5625-1.5632}	47.690-47.706 {1.8775-1.8782}
0.50 {0.02} oversize	39.440-39.456 {1.5527-1.5533}	47.440-47.456 {1.8677-1.8683}

#### Maximum off-round

**0.10 mm {0.0039 in}**

4. Inspect the main journal oil clearance using the following procedure.



B3 E0110 E096

- (1) Install the upper main bearing and crankshaft.
- (2) Position a plastigauge on the journals.
- (3) Install the lower main bearing and the lower cylinder block.  
(See [Main Bearing Assembly Note.](#))  
(See [Lower Cylinder Block Assembly Note.](#))
- (4) Remove the lower cylinder block.  
(See [Lower Cylinder Block Disassembly Note.](#))
- (5) Measure the main journal oil clearance.
  - If it exceeds the maximum specification, replace the main bearing or grind the main bearing journal part and install the oversize bearing.

**Standard oil clearance****0.014-0.038 mm {0.0006-0.0014 in}****Maximum oil clearance****0.084 mm {0.0033 in}****Main bearing (mm {in})**

Bearing size	Bearing thickness
	(center thickness)
	<b>ZJ, ZY, Z6</b>
Standard	2.511-2.529 {0.0989-0.0995}
0.25 {0.01} oversize	2.625-2.635 {0.1034-0.1037}
0.50 {0.02} oversize	2.750-2.760 {0.1083-0.1086}