

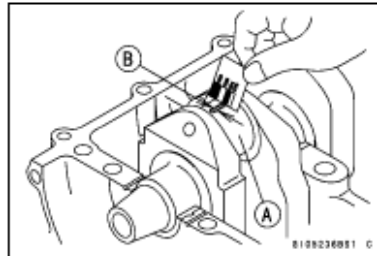
## Crankshaft and Connecting Rods

**Connecting Rod Big End Bearing Insert/Crankpin Wear Inspection**

- Measure the bearing insert/crankpin [A] clearance with a plastigage [B].

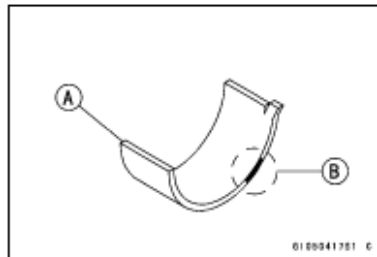
**NOTE**

- Tighten the connecting rod big end nuts to the specified torque (see *Connecting Rod Installation*).
- Do not move the connecting rod and crankshaft during clearance measurement.

**Connecting Rod Big End Bearing Insert/Crankpin Clearance**

- Standard:** 0.041 – 0.071 mm (0.0016 – 0.0028 in.)
- Service Limit:** 0.11 mm (0.0043 in.)

- ★ If clearance is within the standard, no bearing replacement is required.
- ★ If clearance is between 0.072 mm (0.00284 in.) and the service limit 0.11 mm (0.0043 in.), replace the bearing inserts [A] with inserts painted green [B]. Check insert/crankpin clearance with the plastigage. The clearance may exceed the standard slightly, but it must not be less than the minimum in order to avoid bearing seizure.
- ★ If the clearance exceeds the service limit, measure the diameter of the crankpins.

**Crankpin Diameter**

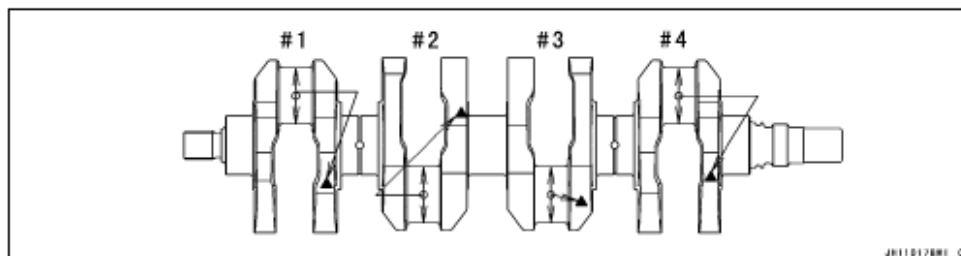
- Standard:** 38.984 – 39.000 mm (1.5348 – 1.5354 in.)
- Service Limit:** 38.97 mm (1.534 in.)

- ★ If any crankpin has worn past the service limit, replace the crankshaft with a new one.
- ★ If the measured crankpin diameters are not less than the service limit, but do not coincide with the original diameter markings on the crankshaft, make new marks on it.

**Crankpin Diameter Marks**

- None** 38.984 – 38.992 mm (1.5348 – 1.53512 in.)
- 38.993 – 39.000 mm (1.53515 – 1.5354 in.)

△: Crankpin Diameter Marks, "○" mark or no mark.



## 8-28 ENGINE BOTTOM END

### Crankshaft and Connecting Rods

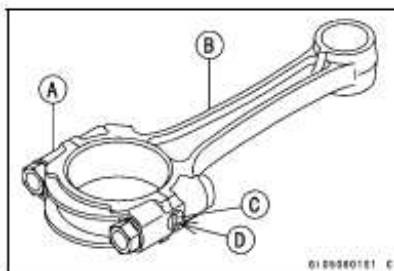
- Measure the connecting rod big end inside diameter, and mark each connecting rod big end in accordance with the inside diameter.

Big End Cap [A]

Connecting Rod [B]

Weight Mark [C]: A letter of the alphabet

Inside Diameter Mark (Around Weight Mark) [D]: "○" or no mark.



#### NOTE

- Tighten the connecting rod big end nuts to the specified torque (see *Connecting Rod Installation*).
- The mark already on the big end should almost coincide with the measurement.

#### Connecting Rod Big End Inside Diameter Marks

None 42.000 mm – 42.008 mm (1.6535 – 1.65385 in.)

○ 42.009 – 42.016 mm (1.65389 – 1.6542 in.)

- Select the proper bearing insert in accordance with the combination coding of the connecting rod and crankshaft.
- Install the new inserts in the connecting rod and check insert/crankpin clearance with the plastigage.

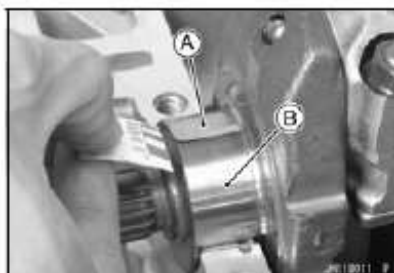
| Connecting Rod<br>Big End Inside<br>Diameter Marking | Crankpin<br>Diameter<br>Marking | Bearing Insert |             |
|--|---------------------------------|----------------|-------------|
|  |                                 | Size Color     | Part Number |
| None   | ○                               | Pink           |             |
| None   | None                            | Yellow         |             |
| ○  | ○                               |                |             |
| ○  | None                            | Green          |             |

#### Crankshaft Main Bearing Insert/Journal Wear Inspection

- Measure the bearing insert/journal [B] clearance with a plastigage [A].

#### NOTE

- Tighten the crankcase bolts to the specified torque (see *Crankcase Assembly*).
- Do not turn the crankshaft during clearance measurement.
- Journal clearance less than 0.025 mm (0.0010 in.) can not be measured by plastigage, however, using genuine parts maintains the minimum standard clearance.



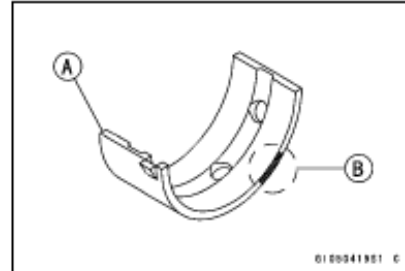
## Crankshaft and Connecting Rods

### Crankshaft Main Bearing Insert/Journal Clearance

**Standard:** 0.030 – 0.054 mm (0.0012 – 0.0021 in.)

**Service Limit:** 0.08 mm (0.0031 in.)

- ★ If clearance is within the standard, no bearing replacement is required.
- ★ If clearance is between 0.055 mm (0.022 in.) and the service limit 0.08 mm (0.0031 in.), replace the bearing inserts [A] with inserts painted green [B]. Check insert/journal clearance with the plastigage. The clearance may exceed the standard slightly, but it must not be less than the minimum in order to avoid bearing seizure.
- ★ If clearance exceeds the service limit, measure the diameter of the crankshaft main journal.



### Crankshaft Main Journal Diameter

**Standard:** 40.984 – 41.000 mm (1.6135 – 1.6142 in.)

**Service Limit:** 40.96 mm (1.613 in.)

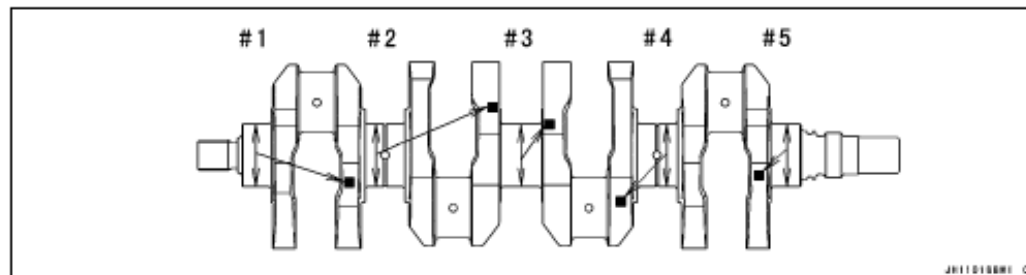
- ★ If any journal has worn past the service limit, replace the crankshaft with a new one.
- ★ If the measured journal diameters are not less than the service limit, but do not coincide with the original diameter markings on the crankshaft, make new marks on it.

### Crankshaft Main Journal Diameter Marks

**None** 40.984 – 40.992 mm (1.6135 – 1.61386 in.)

**1** 40.993 – 41.000 mm (1.61389 – 1.6142 in.)

- : Crankshaft Main Journal Diameter Marks, "1" mark or no mark.



## 8-30 ENGINE BOTTOM END

### Crankshaft and Connecting Rods

- Measure the main bearing inside diameter, and mark [B] the upper crankcase half [A] in accordance with the inside diameter.
- Crankcase main bearing inside diameter marks are "○" mark and no mark.

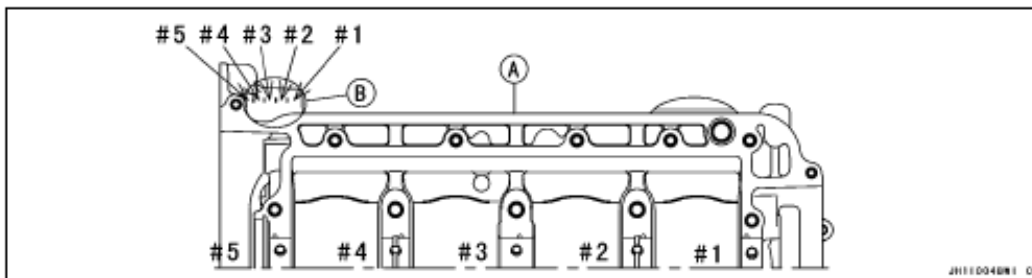
#### NOTE

- Tighten the crankcase bolts to the specified torque (see Crankcase Assembly).
- The mark already on the upper crankcase half should almost coincide with the measurement.

#### Crankcase Main Bearing Inside Diameter Marks

- 44.000 – 44.008 mm (1.7323 – 1.73259 in.)
- None 44.009 – 44.016 mm (1.73263 – 1.7329 in.)

#### Marking Position



- Select the proper bearing insert in accordance with the combination coding of the crankcase and crankshaft.
- Install the new inserts in the crankcase halves and check insert/journal clearance with the plastigage.

| Crankcase Main Bearing Inside Diameter Marking | Crankshaft Main Journal Diameter Marking | Bearing Insert* |             |             |
|--|--|-----------------|-------------|-------------|
|  |  | Size Color      | Part Number | Journal No. |
| ○  | 1  | Pink            |             | 1, 5        |
|  |  |                 |             | 2, 4        |
|  |  |                 |             | 3           |
| ○  | None                                     | Yellow          |             | 1, 5        |
|  |  |                 |             | 2, 4        |
|  |  |                 |             | 3           |
| None   | 1  | Green           |             | 1, 5        |
| None   | None                                     |                 |             | 2, 4        |
|  |  |                 |             | 3           |

\*The bearing inserts for Nos. 2 and 4 journals have an oil groove, respectively.