

# Installation Guidelines

## Installation guidelines

### 1 Identify Matching Caps

Ensure matching connecting rod and main bearing caps are identified with the correct position number before they are removed from the engine.

### 2

#### Housing Bore Conditions

With rod and main cap fasteners torqued, check housing bores for size, roundness, taper and surface condition using a good inside micrometer. If any specs are found to be out of tolerance, have a qualified machinist correct them.



### 3

#### Crankshaft Journals

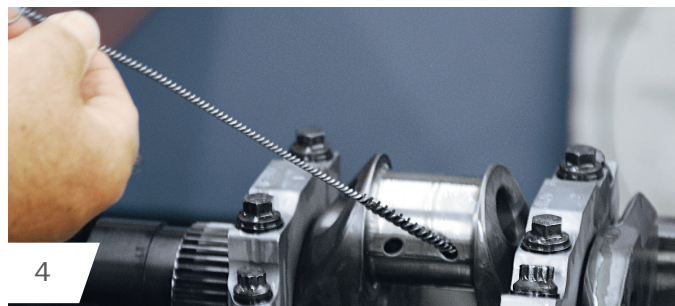
Check crankshaft rod and main journals for size, shape, and surface condition using an outside micrometer. If any specs are found to be out of tolerance, have a qualified machinist correct them. Before doing any crankshaft journal resizing, check with your King Engine Bearings distributor for available bearing undersizes. Also, remember to inspect the crank thrust surfaces for possible reconditioning. King ProFlange is available for certain applications.



### 4

#### Cleanliness

Both engine block and crankshaft should be free of any debris. A wire brush should be used to clean all oil passages. Thoroughly wash all engine components with hot soapy water before assembly. Dry all components with compressed air to remove any lodged debris.



### 5

#### Install Bearings in Bores

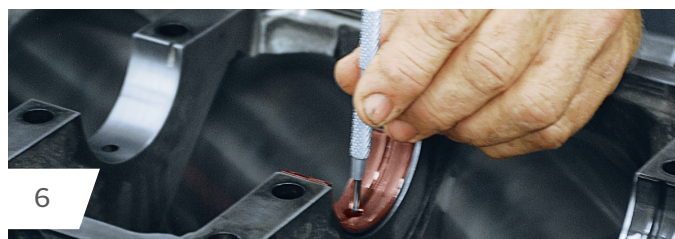
Carefully clean and install each bearing half into its appropriate position by referring to the latest King catalog for correct position. Firmly push each bearing into its bore until a slight snap is felt.



### 6

#### Check Proper Bearing Alignment

Ensure that all bearing oil holes line up with oil supply holes in the block. Also make sure locating lugs are nested into their appropriate slots and each bearing lines up properly in its bore.



**7**

**Pre Lube Bearing Surfaces**

Apply a sufficient amount of bearing assembly lube to the bearing surfaces and the rear main lip seal

**9**

**Main Bearing Cap Torqueing**

Clean and lubricate all main fasteners to ensure accurate torque readings. With a pry bar, push the crankshaft towards the front to align the thrust bearing surfaces. Obtain the correct torque specs from the original manufacturer's listing and hand tighten each main fastener. With a good calibrated torque wrench, torque each fastener to the specified load, starting at the center main and working toward each end. The shaft should turn freely after each main cap torqueing. Check for proper oil clearance before final assembly.

**8**

**Crankshaft Installation**

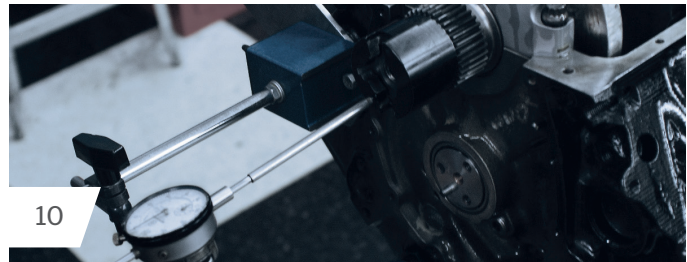
With engine block in the inverted position, carefully lower the crankshaft into the upper main bearings. Take extra care to prevent possible damage to the upper thrust bearing. Assemble and tap each main cap into its appropriate position making sure the caps are firmly seated and facing the correct direction.



**10**

**Check Crankshaft End Play**

Install a dial indicator on the snout end of the crankshaft. Force the crankshaft to its most forward position and zero the dial. Force the crank in the opposite direction till it bottoms out and read the dial. A feeler gauge can also be used.



**11**

**Connecting Rod to Crankshaft Assembly**

Lubricate rod cap fasteners, cylinder wall and corresponding connecting rod journal. Carefully insert connecting rod piston assembly into cylinder bore until the rod makes contact with the corresponding crank pin. Make sure the piston and rod are oriented in the correct direction. Assemble the corresponding connecting rod cap to the rod and hand tighten rod cap fasteners. Using a good calibrated torque wrench, torque the rod cap fasteners to manufacturer's specifications. Follow same procedure for all cylinders. The crank should turn freely after each rod has been installed.



**12**

**Prime the Engine**

To prevent a dry start and possible damage to bearing surfaces, the engine oiling system should be completely filled with good clean engine oil and pressure tested. This can be accomplished using two methods. Pressure spin test the engine with a pre-lubricator or simply turn the oil pump shaft with a drill motor until adequate pressure is reached.