ROTATING SHAFT SEALS

PRIOR TO INSTALLING THE ROTATING SHAFT AND/OR SEAL apply a thin coat of lubricant, such as grease, on the sealing lip and shaft.

IMPORTANT: Do not install any seal without break-in lubricant protection.

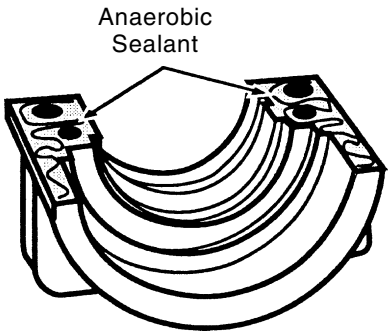
REAR MAIN BEARING SEAL

REMOVE NICKS AND SCRATCHES (IF ANY) FROM THE CRANKSHAFT SEALING SURFACE using a crocus cloth.

INSTALL SEAL into the cylinder block. The seal is properly installed when its largest raised sealing lip is toward the **front** of the engine. (Seals with a metal garter spring require the spring to face towards the **front** of the engine).

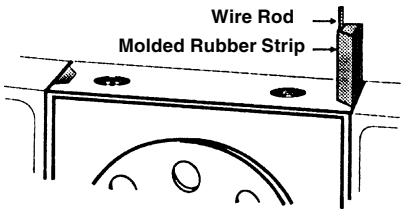
LUBRICATE SURFACE of seal lip and crankshaft by applying a thin coat of motor oil or grease. If engine will not be started within several days, grease is recommended.

IMPORTANT: Never install any seal without break-in lubricant protection.



PRIOR TO INSTALLING THE REAR MAIN BEARING CAP apply an anaerobic sealant to either the rear main bearing cap or cylinder block mating surfaces. **Never** apply sealant on the ends of the seals.

REINSTALL SEAL RETAINER TO CYLINDER BLOCK. Torque to OEM specifications.



INSTALL RUBBER SIDE SEALS into the side cavities of the rear main bearing cap using the wire pins.

OIL PAN GASKET

ATTACH AND ALIGN GASKETS(S). Apply quick-drying adhesive sparingly in several places on the engine casting or oil pan (depending upon engine model). Mount gasket (or gaskets and seals, if multipiece) on surface where adhesive was applied. **Allow time for adhesive to set.** Test for slippage with light pressure. If gasket moves, allow more time.

TEST RUN ENGINE. Check all mating areas thoroughly to determine that all seals hold during operation.

Form No. I-288 (Rev. 01/04)
Printed in U.S.A.

FEL-PRO INSTALLATION TIPS

VALVE STEM SEALS

REMOVE SPRING ASSEMBLIES, KEEPERS and the old valve stem seals.

REMOVE BURRS (IF ANY) FROM VALVE STEMS. Use a fine stone or crocus cloth. Clean stems thoroughly to remove all abrasive or dust particles. Lubricate lightly.

INSTALL NEW SEALS.

POSITIVE GUIDE SEAL: Use the plastic installation sleeve(s), included in this set, to prevent damage to the lip of the seal. Trim the plastic sleeve so it extends 1/16" below the keeper groove. Place the sleeve on the stem.

Carefully start valve stem seal over sleeve.

Remove plastic installation sleeve and reuse for instlalling remaining seals.

FOR RUBBER JACKET SEALS: Push seal down over valve guide until it bottoms.

FOR SOLID OR METAL JACKET SEALS: The use of an OEM service tool is recommended. If tool is unavailable, use a deep socket or rigid tube of appropriate diameter. Center tool (or socket) over the shoulder of the seal and tap the seal down over the guide until it bottoms.

REPLACE VALVE SPRING ASSEMBLIES. Compress springs just enough to install keepers. **IMPORTANT:** Excessive compression can result in spring retainer damaging valve stem seal. Release spring carefully.

VALVE COVER GASKET

INSTALL CAP SCREWS. Position gasket while valve cover is inverted on workbench. Install cap screws through cover and into gasket bolt holes. Gasket bolt holes are intentionally undersized to hold screws in place.

REINSTALL COVER TO ENGINE. Turn cover upright (gasket will remain with cover) and install on engine.

START CAP SCREWS into cylinder head but do not tighten until you adjust position of gasket under cover flange with gasket side tabs. Torque cap screws securely to 30 in. lbs.

INTAKE AND EXHAUST MANIFOLD GASKET

ATTACH AND ALIGN GASKET(S) TO CYLINDER HEAD(S). If gasket is steel faced on one side and fiber on the other, install steel faced side toward the manifold.

REINSTALL INTAKE AND EXHAUST MANIFOLDS to the cylinder heads. Torque securely to OEM specifications. Overtorquing can fracture the manifolds or cause the bolts and studs to break.

WATER OUTLET, WATER PUMP, FUEL PUMP, OIL PUMP AND TIMING COVER GASKETS

TO ASSIST IN ALIGNMENT AND SEALING DURING ASSEMBLY, apply a thin coat of a general purpose gasket sealer to both sides of gasket(s).

- Continued -

ROTATING SHAFT SEALS

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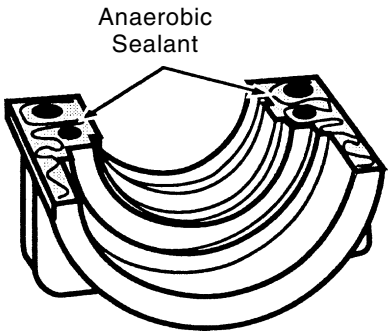

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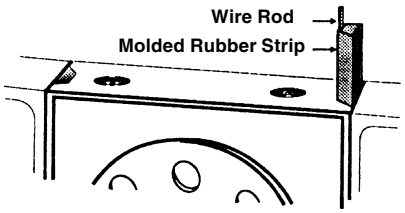

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