FEL-PRO INSTALLATION TIPS

GENERAL INSTRUCTIONS

CLEAN MATING SURFACES. Use a degreaser.

CLEAN THREADS of bolts/studs; for nuts/threaded holes use a bottoming tap.

BOLT PREPARATION: Those **entering** coolant passages require pliable non-hardening sealer on threads and underside of bolt heads. Those **not entering** coolant passages require oil on threads and underside of bolt heads. **Exhaust Assembly:** Apply a high temperature anti-seize lubricant to threadings.

CHECK CASTINGS for flatness. Straighten, resurface or replace if needed. **CYLINDER HEAD AND BLOCK;** Refer to OEM manual to determine flatness tolerances and resurfacing limitations.

FINAL ASSEMBLY: Torque all fasteners to OEM specifications unless noted. CYLINDER HEAD torquing is critical; we recommended that you confirm with OEM.

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

If a supplementary sealer is desired, apply a thin coat of gasket sealer to both sides of gasket(s).

FLYWHEEL BOLTS

REINSTALL FLYWHEEL to crankshaft. Note: On some engines that use a one-piece rear main bearing seal, a condition may exist where the bolt holes in the crankshaft rear flange have been drilled too deep by the manufacturer. This can result in oil seepage which may be misdiagnosed as coming from the oil pan or rear main bearing seal. To prevent seepage, coat bolt threads with thread locking sealer. Torque securely to OEM specifications.

ROTATING SHAFT SEALS

RUBBER SEAL(S): Install seal with its largest raised sealing lip toward the engine. Two-piece rubber seals may be installed using a “shoehorn” installation aid placed underneath seals to protect them from sharp edges.

ROPE SEALS: Install seals into grooves of cap and block by firmly pressing packing into grooves with a “packing tool.” Ensure that ends of seals protrude above face of cap and block.

> **IMPORTANT:** Final interference of rope packing seals against crankshaft is critical. To achieve proper interference, it is best to install packing using correct Packing Tool for your engine. With “packing tool” in position, cut protruded ends of seals flush with cap and block.

LUBRICATE SEALING LIPS AND CRANKSHAFT with 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.

REAR MAIN BEARING CAP: Prior to installation, apply an anaerobic sealant to mating surfaces of cap or block. **AVOID** sealant on ends of seals.

OIL PAN GASKET

Perma-Dry®

To effectively seal this sophisticated engine application. FEL-PRO has included PERMA-DRY® molded rubber gasket(s) in this set.

ATTACH AND ALIGN GASKET.

> **IMPORTANT:** This molded rubber silicone gasket must be installed **DRY** without any chemical adhesives, except a small dab in each of the four corners of the engine.

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