

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

INSTALL NEW SEALS.

POSITIVE GUIDE SEAL: Use the plastic installation sleeves(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.

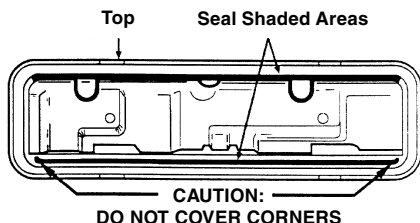
Remove plastic installation sleeve and reuse for installing remaining seals.

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



EXCESSIVE ENGINE OIL CONSUMPTION may be eliminated by sealing the PCV baffle to the valve cover. Apply a 1/8" diameter bead of silicone sealer, such as RTV Black, to the gaps along the top, bottom and sides only. The corners must be left open.

ATTACH AND ALIGN GASKET. Apply quick-drying adhesive sparingly in several places on the mating surface of covers. If gasket has installation tabs, adhesive is **not** required. Mount gasket on cover. **Allow time for adhesive to set.** Test for slippage with light pressure. If gasket moves, allow more time.

EXHAUST MANIFOLD GASKET

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

EXHAUST PIPE FLANGE AND E.G.R. VALVE BOLTS

ATTACH AND ALIGN GASKET.

WATER OUTLET GASKET

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

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.

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



FEL-PRO INSTALLATION TIPS

GENERAL INSTRUCTIONS

CLEAN MATING SURFACES of all foreign material. Use a degreaser.

CLEAN THREADS of bolts/studs; using a wire brush; all nuts/threaded holes use a bottoming tap.

Determine Which Bolts extend into the coolant passages. Those **entering** coolant passages require pliable non-hardening sealer on the bolt threads and the underside of the bolt head. Those **not entering** the coolant passages require oil on the bolt threads and the underside of the bolt head.

Exhaust Assembly: Apply a high temperature anti-seize lubricant to the threadings.

CHECK ALL CASTINGS for flatness; straighten, resurface or replace if out of flat conditions exists.

CYLINDER HEAD AND BLOCK: refer to OEM manual to determine flatness tolerances and resurfacing limitations.

Attach and align gasket(s) following any directional markings shown on the gasket. If no markings exist, simply install the gasket by matching the gasket to engine deck surface.

Fiber Faced Gasket(s) are to be installed dry. **Metal Faced Gasket(s)** require a thin even coat of sealer, to be applied to the metal side(s) of the gasket.

FINAL ASSEMBLY: always requires torquing of fasteners according to OEM specifications. For certain assemblies we have provided specific torquing specifications.

NOTE: CYLINDER HEAD torquing procedures are critical and therefore we recommend to double-check with OEM.

Some procedures may be repeated with additional specific information for your applications.

CAM CARRIER HOUSING

CLEAN MATING SURFACES.

PREPARE MATING SURFACES, for application of anaerobic sealant by applying Cleaner/Primer to mating surface.

Allow 1 to 2 minutes to dry.

SEAL CAM CARRIER MATING SURFACE. Apply a thin continuous bead of anaerobic sealant to the cam carrier surface of the cylinder head.

Wipe off any excess sealant.

THIS WARNING MESSAGE IS SPECIFIC FOR 221L PRO LOCK FLANGE SEALANT

WARNING! EYE AND SKIN IRRITANT.

This product contains bisphenol-A fumerate resin and cumene hydroperoxide. Avoid contact with eyes and skin. In case of skin contact wash thoroughly with soap and water. For contact with eyes flush with water for 15 minutes and call a physician.

KEEP AWAY FROM CHILDREN.

WARNING: This product contains a chemical known to the State of California to cause cancer.

CLEAN ALL BOLT THREADS by using a wire brush. Now lubricate the bolts threads using a pliable non-hardening sealer.

REINSTALL CAM CARRIER. Torque securely to OEM specifications

VALVE STEM SEALS

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

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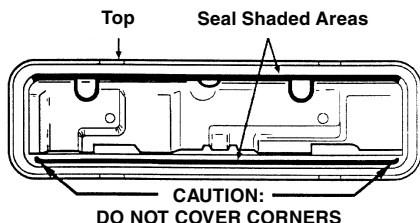
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