



FEL-PRO INSTALLATION TIPS

GENERAL INSTRUCTIONS

CLEAN MATING SURFACES of all foreign material.

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Use a degreaser.

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

Determine which Bolts extend into the coolant passages. Those **entering** the coolant passages require a 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 not 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 sides(s) of the gasket.

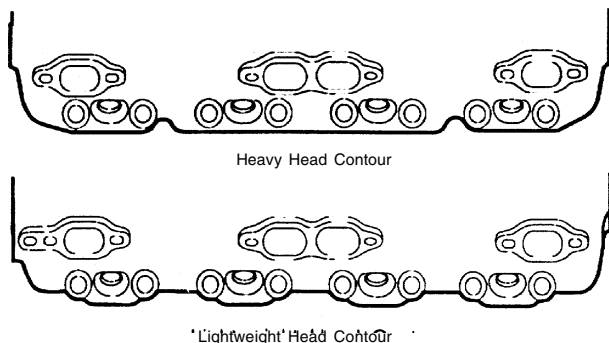
FINAL ASSEMBLY always requires torquing of fasteners according to OEM specifications. For certain assemblies we have provided specific torquing specifications.

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 application.

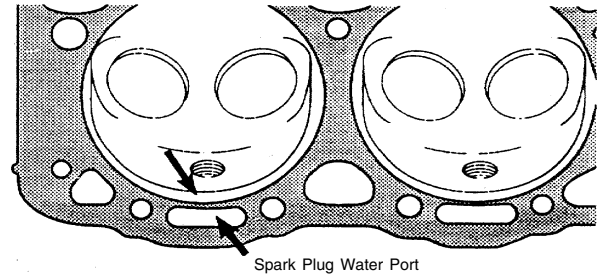
HEAD GASKET

LIGHTWEIGHT CYLINDER HEADS have created potential head gasket sealing problems around the spark plug cooling water ports.



To determine cylinder head type, refer to the contour differences between the heavy and lightweight cylinder heads (see drawing).

Lightweight Cylinder Head Casting Outline



If a significant amount of core shift exists and/or head surface has been excessively resurfaced, the narrow land area between the spark plug water port and the combustion chamber will move inward toward the combustion chamber. This will reduce the amount of sealing area on the head gasket's combustion seal and cause the gasket not to seal.

To insure proper fit and alignment of the gasket, check the location of the gasket's combustion seal in relation to the spark plug water port. If the gasket does not fit properly, replacement of the cylinder head may be necessary.

VALVE STEM SEALS

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

REMOVE BURRS (IF ANY) FROM VALVE STEMS.

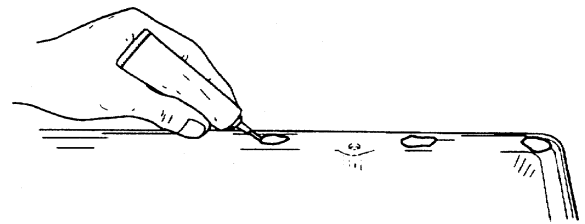
Use a fine stone or crocus cloth. Clean stems thoroughly to remove all abrasives or dust particles. Lubricate lightly.

INSTALL NEW SEALS.

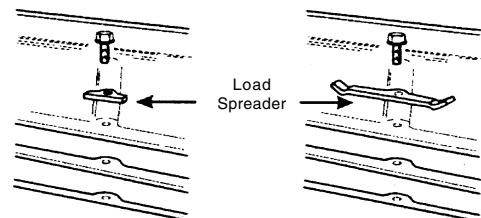
"O" RING TYPE SEAL: Place "O" Ring seal on valve stem and position it into the proper groove.

VALVE COVER GASKET

Be sure to retain the load spreader washers when you remove the

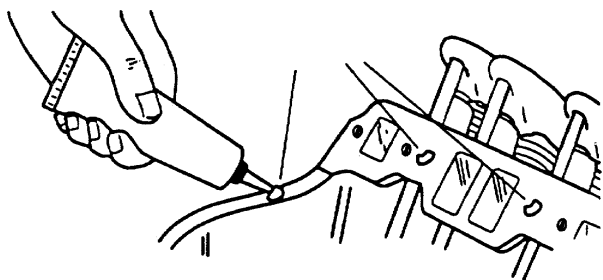


ATTACH AND ALIGN GASKET. Apply a quick-drying adhesive sparingly in several places on the mating surface of cover. If gasket has installation tabs, adhesive is **not** required. Mount gasket on cover. **Allow time for adhesive to set.** Test for slippage with light pressure. If



PRIOR TO REINSTALLING VALVE COVER, place a load spreader

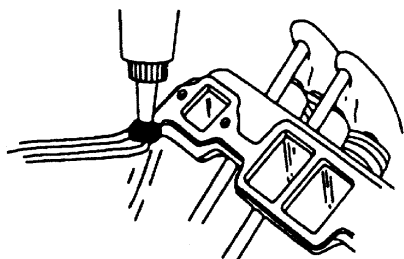
INTAKE MANIFOLD GASKET



ATTACH AND ALIGN END SEALS. Apply a quick-drying adhesive sparingly to cylinder block. Mount end seals. **Allow time for adhesive to set.** Test for slippage with light pressure. If seals move, allow more time.

ATTACH AND ALIGN GASKET(S) TO CYLINDER HEAD(S).

Apply a quick-drying adhesive sparingly in several places on the cylinder heads. Mount gasket(s) on cylinder head(s). **Allow time for adhesive to set.** Test for slippage with light pressure, if gasket moves, allow more time.



PRIOR TO REINSTALLING INTAKE MANIFOLD apply a small dab of silicone sealer to the 4 corner intersections between the end seals and gaskets. **IMMEDIATELY PROCEED** to the next step, as sealer normally sets up 10-15 minutes.

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

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).

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