



FEL-PRO INSTALLATION TIPS

Fel-Pro products are the result of exhaustive research and strict quality control. However, no sealing product is better than the quality of its installation.

HEAD GASKET

IMPORTANT: Due to some recent engineering changes, the cylinder head gasket(s) in this set may appear different from those previously provided for this application.

The engine this cylinder head gasket will be installed on is a lean burn-high fuel efficient design. It can experience localized "hot spots" between cylinders 2 and 3; adjacent to the cylinder head's precombustion chambers. Consequently, premature cylinder head gasket failure may occur. The formation of localized hot spots can be minimized by following the preparation and installation procedure outlined below:

CLEAN MATING SURFACES of all foreign materials. You may wish to use a degreaser. Improper use of power scrapers and abrasive pads can cause deep scratches, waviness and rounded edges.

CHECK HEAD AND BLOCK for flatness. Recommended maximum combined head and block out-of-flat is .004" when measured diagonally and lengthwise; .002" maximum widthwise. If resurfacing is required, removed only the minimal amount of material to provide a flat casting. Surface finish is critical; A surface roughness of less than 90 RMS (80 RA) is recommended. A smooth surface is more beneficial for sealing this particular engine than a rough surface.

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.

IF BOLTS are supplied and have a sealant pre-applied to the threads and underside of bolt head, simply install the bolts.

ADDITIONAL SEALANT/OIL IS NOT REQUIRED.

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.

REINSTALL CYLINDER HEAD(S) TO ENGINE. Torque securely to OEM specifications.

TO INSURE PROPER ENGINE OPERATION WE RECOMMEND THE FOLLOWING:

- Bleed cooling system, prior to engine start up, from the thermostat bleed valve to eliminate trapped air pockets. It may be necessary to raise the front of the vehicle to position the bleeder valve at the highest point of the cooling system.
- **Use OEM recommended spark plugs, with the correct heat range.**
- Check and adjust air/fuel mixture ratio for proper emissions standards; mixture is critical to proper engine operation.
- Vacuum leaks cause lean air/fuel ratios and hot engine operation.
- Check vacuum hoses at carburetor, especially larger diameter molded hoses.
- Check the carburetor base gasket for cracks and leaks.

ANY CYLINDER HEAD GASKET INSTALLATION SHOULD INCLUDE THE FOLLOWING CHECKS:

- Radiator flow and corrosion condition.
- All coolant hoses for deterioration
- Thermostat operation (install bleed hole at 12 o'clock position)
- Fan belt tension
- Water pump flow
- Radiator thermostatic fan switch operation
- Anti-freeze mixture
- Radiator cap that maintains rated pressure
- Coolant reservoir fill level
- Ignition timing setting
- Emission controls
- Vacuum leaks
- Restriction in exhaust system.

VALVE STEM SEALS



**Positive Intake
Silver Retaining
Rings**



**Positive Exhaust
Black Retaining
Rings**

Use the valve stem seals included in this set for the applications indicated.

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.

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 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.



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