



# TECHNICAL BULLETIN

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DATE: AUGUST 16, 1993  
MODEL YEAR: ALL  
ENGINE MODEL: FE6 (T) (TA), FD35T  
BULLETIN #: EN - 015

**FILE IN THE ENGINE SECTION OF THE TECHNICAL BULLETIN BINDER**

## CYLINDER HEAD PUSH ROD PIPE

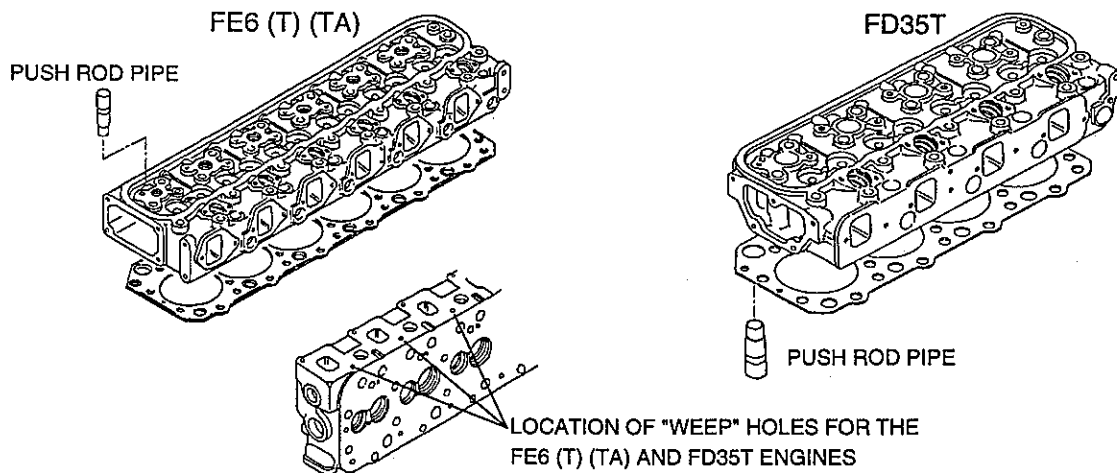
### SUBJECT:

The cylinder head assembly found in all FD35T, FE6, FE6T, and FE6TA engines utilize a sleeve pipe that is press-fitted into the bore for the intake valve push rod.

The purpose of the push rod pipe is to "cap off" drilled passages in the cylinder head which direct coolant to the adjacent injector sleeves.

Six push rod pipes are found in the FE6 (T) (TA) engine cylinder head, and four are found in the FD35T engine cylinder head.

A portion of the passage that the push rod pipes seal off continues to the outside of the casting on the exhaust manifold side (right side) of the cylinder head. The passage is not plugged off on the outside of the cylinder head, but is left open to provide a convenient "weep" hole for the push rod pipe in case the pipe should ever leak.



**FIGURE 1**

**PURPOSE:**

To provide the proper procedures for the service replacement of the push rod pipe.

The seepage of coolant on the right side of the cylinder head in the FE6 and FD35 engines is sometimes incorrectly diagnosed as a leaking head gasket and is generally caused by seepage originating from the weep holes for the push rod pipes.

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ALWAYS PRESSURE-TEST THE COOLING SYSTEM BEFORE REMOVING THE CYLINDER HEAD TO ESTABLISH ACCURATELY THE SOURCE OF THE COOLANT LEAK OR SEEPAGE. FAILURE TO DO SO WILL RESULT IN IMPROPER REPAIRS AND SUBSEQUENT REWORK.

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**SERVICE NOTICE:**

The push rod pipe is a steel sleeve which has a two-step taper: one on the leading end and one in the middle of the sleeve. The intake valve push rod bore in the cylinder head casting is tapered similarly.

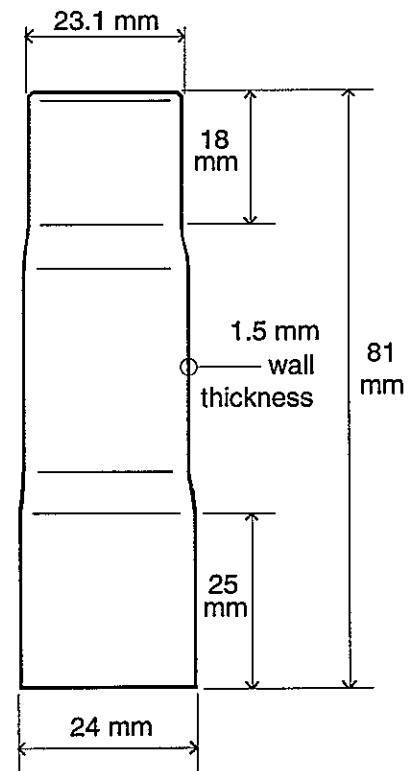
**Removal Procedure:**

The dimensions for the push rod pipe are shown on the right in FIGURE 2.

No special tools are required to remove the push rod pipe, but a suitable driver, such as a properly fitting bushing driver, can be used to press the push rod pipe out of the cylinder head.

1. Remove the cylinder head assembly.  
Clean and thoroughly blow-dry.
2. Properly support the cleaned cylinder head on the bench of a suitable hydraulic or arbor press with the cylinder block side of the head facing downward.
3. Insert a suitable bushing driver in the push rod pipe bore from the rocker arm side of the cylinder head, ensuring that the driving lip of the tool fits correctly on the edge of the push rod pipe and does not exceed the outside diameter of the pipe (otherwise the cylinder head casting may be damaged).

ROCKER ARM SIDE



CYLINDER BLOCK SIDE

**FIGURE 2**

4. Press the push rod pipe from the cylinder head.

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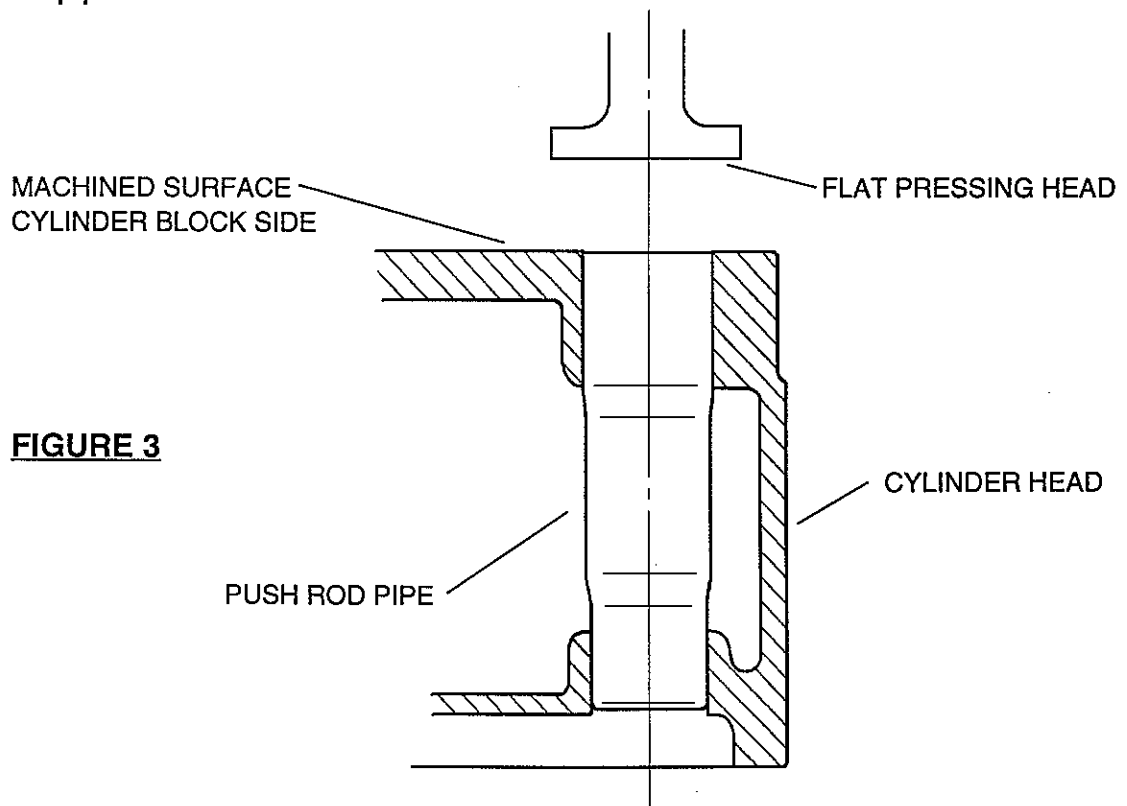
INSPECT THE CYLINDER HEAD BORE AND THE REMOVED PUSH ROD PIPE IN ORDER TO DETERMINE THE CAUSE OF THE PIPE LEAKING. FAILURE TO ESTABLISH THE CAUSE OF THE FAILURE ACCURATELY MAY LEAD TO LEAKAGE IN THE NEWLY REPLACED PUSH ROD PIPE.

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5. Clean the push rod pipe bore in the cylinder head thoroughly using a suitable circular wire brush.

#### Installation Procedure

1. Properly support the cleaned cylinder head assembly on the bench of a suitable hydraulic or arbor press with the cylinder block side of the head facing upward. Ensure that the push rod pipe bore is aligned with the ram of the press being used. Refer to FIGURE 3 below.
2. Use a suitable oil/grease remover to clean the new push rod pipe and its bore in the cylinder head.
3. Liberally coat the outside wall of the push rod pipe with a thread lock sealer such as Three Bond #1324 (red) or Lock-Tite #242 (blue) or a sealer equivalent to either.
4. Insert the smaller end of the push rod pipe into the bore of the cylinder head and press the pipe into the bore.



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DO NOT HAMMER THE PUSH ROD PIPE INTO THE BORE. USE A FLATHEAD ATTACHMENT OR A SUITABLE DRIVER FOR THE RAM ON THE PRESS BEING USED.

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4. Press the push rod pipe into the cylinder head bore until the flathead driver bottoms out on the machined deck of the head. With the bushing driver used for removing the push rod pipe, press the pipe deeper into the cylinder head bore approximately 0.010" (0.25 mm) to ensure that the pipe does not extend higher than the machined surface of the cylinder head.

THE INFORMATION IN THIS BULLETIN SHOULD NOT BE INTERPRETED AS THE BASIS FOR CLAIMS UNLESS SO DESIGNATED.