

MAINTENANCE INSTRUCTION

WATER DRAIN PIPE REPAIR PROCEDURE

APPLICATION: All 567 Series Engines

The following repair procedures are for the repair of all water drain pipes used in 567, 567A and 567B engines, except the early 567 cast top deck engines.

The drain pipes connect the inlet water jacket or manifold with the discharge water jacket or manifold of the engine. They are located in the air box at each end of the engine adjacent to the inner stress plates and are curved to pass through the circular openings in the stress plates.

Materials of which the drain pipes have been made are SAE 1020 and stainless steel. Material of the pipes, if in question, may be determined by a small magnet. Stainless steel is non-magnetic.

Items "A," "B" and "C" shown in Fig. 1, indicate the usual points where failure of drain pipes occur. Items "A" and "C" are the failure locations on stainless steel pipes and Item "B" for SAE 1020 steel pipes. Each failure and its repair procedure is outlined below.

Failure "A" — Drain Pipe Junction To Upper Liner Support Plate

1. This type of failure is more prevalent on stainless than the SAE 1020 steel and it usually occurs at the upper toe of the weld.
2. The two adjacent cylinder liners by the drain pipe should be removed to provide ample working space.
3. Grind or file crack out completely forming a "V" groove.

4. Weld up the "V" groove with 3/32" or 1/8" stabilized stainless steel welding electrode. If the pipe is made of SAE 1020 steel use any A.W.S. Class E-6010 or E-6012 type welding rod.
5. Water test weld application.
6. In the event the crack cannot be successfully repaired, remove the pipe completely and follow procedure as outlined under "Failure C."
7. If crack occurs above the liner support plate sufficiently to employ a rubber hose connection, repair in accordance with procedure "Failure B."

Failure "B" — Center Portion Of Water Drain Pipe, Fig. 1

1. This type of failure is more prevalent in SAE 1020 steel, but sometimes occurs in the stainless steel pipe.
2. Successful repair can be accomplished by replacement with a new pipe held in position with special rubber hoses and clamps, as shown in Fig. 2. The new replacement pipe must be re-worked by cutting off ends to obtain length needed.
3. In order to install a new pipe, it is necessary to remove the end cylinder liner on each side of the engine. This allows a man to work from either side of the engine in order to cut the pipe with a hacksaw. If difficulty is experienced in starting the cutting, a clamp or guide can be attached to the pipe to keep the hacksaw blade properly located.

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4. The sharp edges of the pipe must be removed before slipping hose connections in place. Care must be taken to remove chips and filings from inside the pipe, crankcase and air box. In case a hose replacement is necessary at a later date, only one cylinder need be removed.

5. Drain pipe #8058399 is used in 567, 567A and 567B engines with the exception of the cast top deck 567 engines; however, some of the early "fabricated top deck" 567 engines

used pipe #8058400. The two pipes having opposite bends were used on these engines.

Failure "C" - Water Drain Pipe Junction To Bottom Water Seal Plate In Upper Water Jacket, Fig. 1.

When failures occur in region "C," repair is relatively difficult, due to difficult access to this particular area. Overhead welding in this region should be discouraged and if the given procedure is followed, repair should be successful.

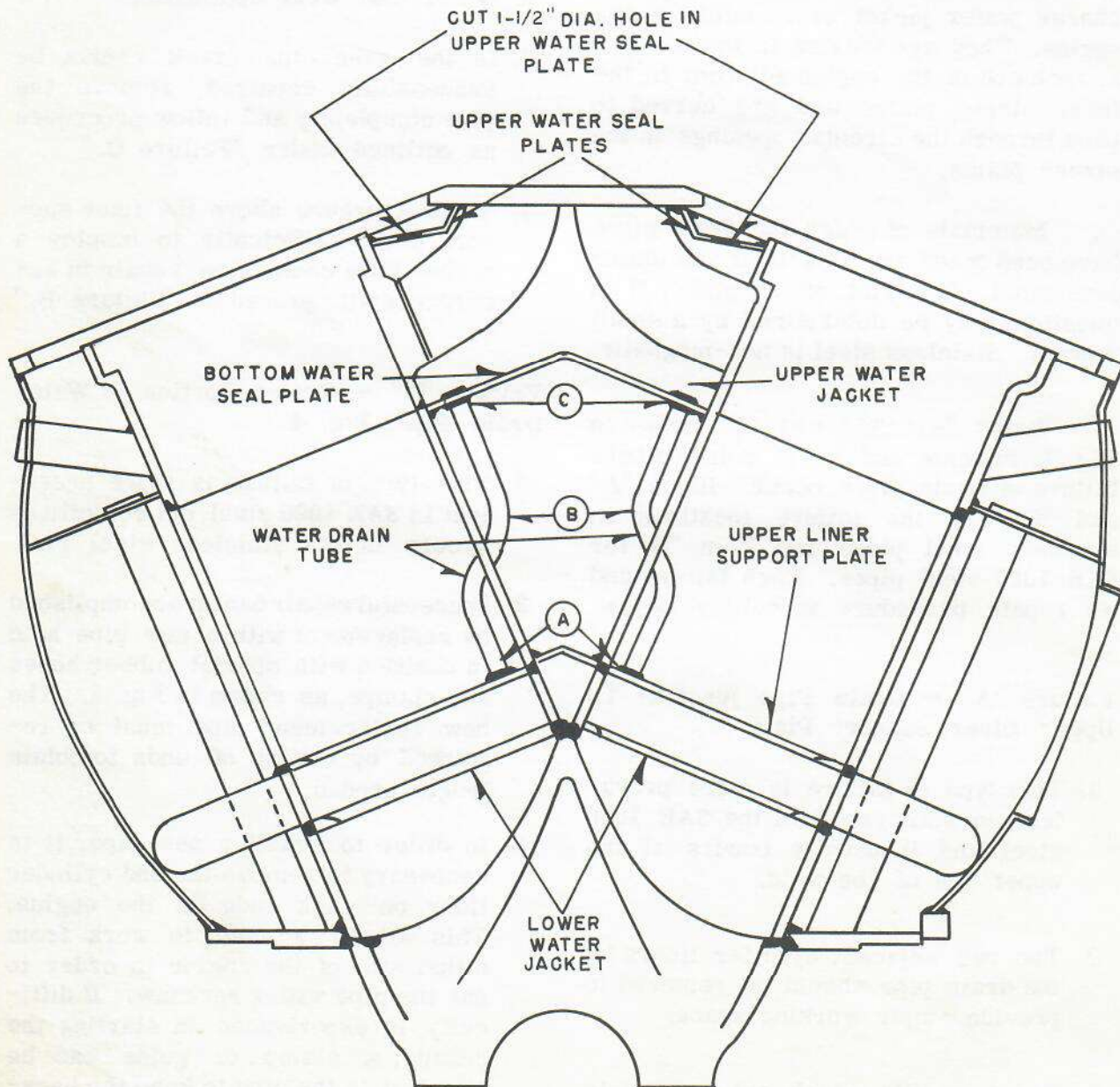


Fig. 1 - Engine Cross-Section - Drain Pipe Failure Locations

1. Remove a section of the camshaft directly over the water drain pipe to make room for cutting a 1-1/2" hole in the top seal plate as shown in "A," Fig. 3.
2. Be sure that the pawl shaft and adjacent engine parts are amply protected from heat, spatter and chips.
3. The repair hole can be cut with a hole saw. This hole must be located
4. Through this hole, access is made into the upper water jacket and to top weld of the water drain pipe. This

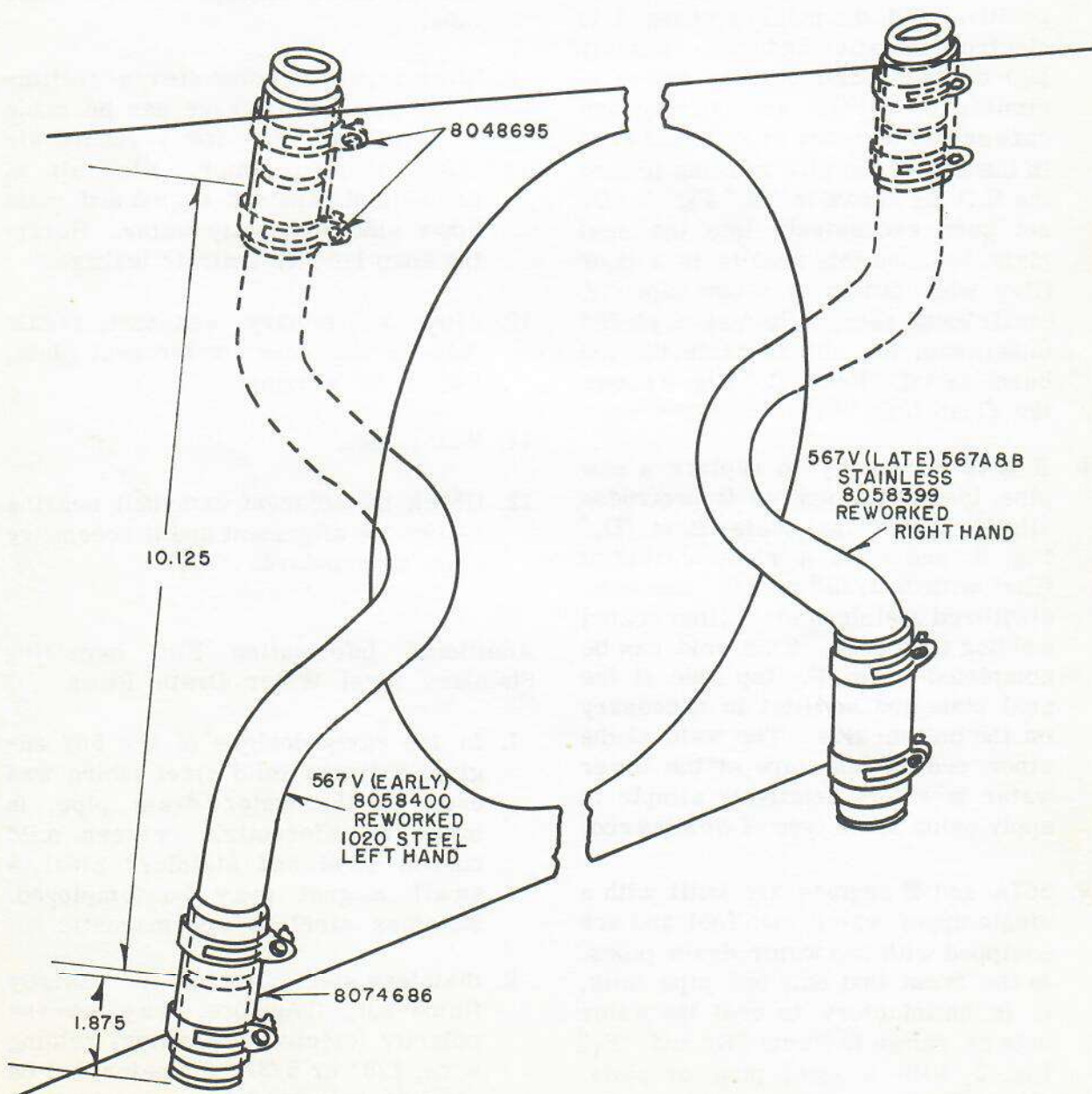


Fig. 2 - Drain Pipe And Hose Application