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LITERATURE ITEM-GENERAL SERVICE
BULLETIN

LITERATURE FILE NO.

HCOM-SB-47

**GENERAL
SERVICE BULLETIN**

Since the Trane Company has a policy of continuous product improvement, it reserves the right to change specifications and design without notice. The installation and servicing of the equipment referred to in this booklet should be done by qualified, experienced technicians.

7/1/81
SUPERSEDES S-101
DATED 7/15/75

SUBJECT: 8-CYLINDER MODEL E OPEN AND HERMETIC COMPRESSOR, MINIMUM UNLOADING CHANGE

INTRODUCTION

The purpose of this bulletin is to discuss a 1974 8-cylinder Model E design change that reduced the number of unloading cylinders on the compressor, and improved the compressor oil distribution system. This bulletin also gives instructions and part ordering information for field modernization of the 8-cylinder Model E unloading system.

DISCUSSION

In systems using this compressor operated under very light load conditions (25 per cent), the suction gas flow rate was very low. If the compressor ran for an extended period under these conditions, excessive temperatures built up, which overheated and destroyed the "O" rings, causing an oil loss.

This low suction gas flow rate encountered under light load conditions also resulted in reduced oil return to the compressor. The flow rate did not provide a high enough pressure differential in the compressor to maintain a stable operating oil level in the crankcase.

CORRECTIVE ACTION

The number of unloading cylinders on the 8-cylinder Model E was reduced from six to five cylinders. This maintains an operating minimum of three cylinders instead of the previous two. The oil return check valve (between the compressor suction cavity and crankcase) was replaced by an oil stand pipe. The upper housing oil drain check valves were replaced by oil return drain orifices.

These modifications result in greater suction gas and oil flow, and higher pressure differential, which maintains a stable operating oil level in the compressor.

Eight cylinder Model E production compressors with the redesigned unloading system have the following unloading sequence:

<u>STAGE OF UNLOADING</u>	<u>LOADED CYLINDERS</u>	<u>UNLOADED CYLINDERS</u>
Unloaded	1,2,7	3,4,5,6,8
First Stage	1,2,7,8	3,4,5,6
Second State	1,2,5,6,7,8	3,4
Loaded	1,2,3,4,5,6,7,8	-----

FIELD CONVERSION: UNLOADING MODIFICATION

1. With compressors that are to be completely rebuilt, it is recommended that the oil supply line to cylinder number 7 be capped off and soldered shut (See Figure 1). A cylinder liner assembly (without unloaders) should be installed. NOTE: Do not pinch or crimp oil supply line. Vibration will eventually break the line.
2. The oil supply line, on units in operation, can be plugged by removing the oil connector (CON-1) and "O" rings and soldering the hold shut. (See Figure 2). To assure an oil tight seal, new "O" rings (RNG-10) should be installed.

The unloader assembly should be removed from the cylinder liner and all of the following parts removed.

Take up ring -	RNG-88
Lift Pin -	PIN-44
Lift Pin Spring -	SPG-3

The unloader retaining ring (RNG-229) must remain on the cylinder line.

The unloader assembly should have new unloader-to-liner "O" rings installed (RNG-99) to position the unloader properly with respect to the liner, and a new "O" ring (RNG-65) should be installed on the suction valveplate.

Eight cylinder Model E compressors with field modified unloading systems have the following unloading sequence:

<u>STAGE OF UNLOADING</u>	<u>LOADED CYLINDERS</u>	<u>UNLOADED CYLINDERS</u>	<u>% CAPACITY</u>
Unloaded	1,2,7	3,4,5,6,8	37.5
First Stage	1,2,5,6,7	3,4,8	62.5
Second Stage	1,2,5,6,7,8	3,4	75
Loaded	1,2,3,4,5,6,7,8	-----	100

When the compressor modifications are complete, it is important that the system operation be completely checked out. Since one additional cylinder has been added at minimum compressor loading, it is possible that compressor short cycling will occur at system loads below 37½%. If short cycling is found to be a problem, an anti-cycle timer must be added.

Units that have hot gas bypass will require resetting of the bypass valve to maintain the proper suction pressure. If the valve cannot maintain proper suction pressure, the valve size will have to be increased.

NEW PRODUCTION

Eight cylinder Model E compressors shipped between August 1, 1974 and October 1, 1974 have the redesigned cylinder unloading only. The design sequence letter changed from "K" to "L" for open drive compressors and from "M" to "N" for the hermetic Model E.

Eight cylinder Model E compressors shipped after October 1, 1974, have both the redesigned unloading and the improved oil return system. The design sequence letter was changed from "L" to "M" for open drive compressors and from "N" to "P" for hermetics.

PARTS ORDERING INFORMATION

Order parts required for field unloader modification from LaCrosse.

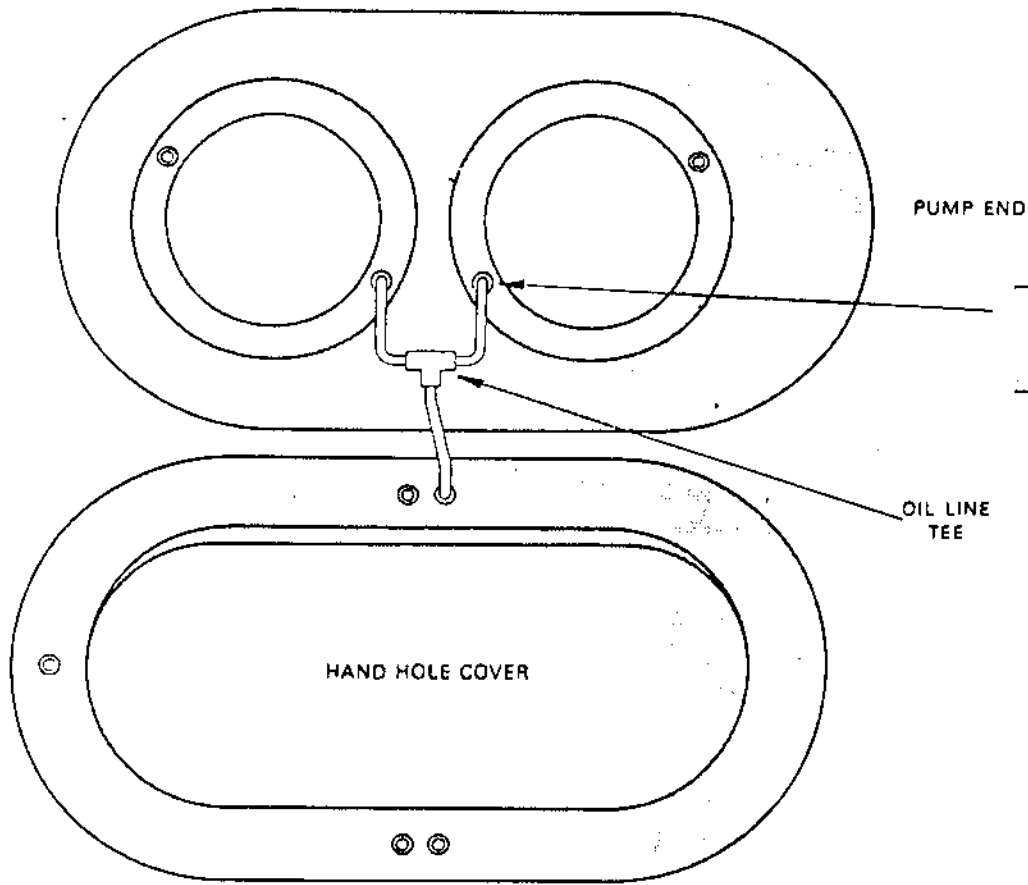


FIGURE 1

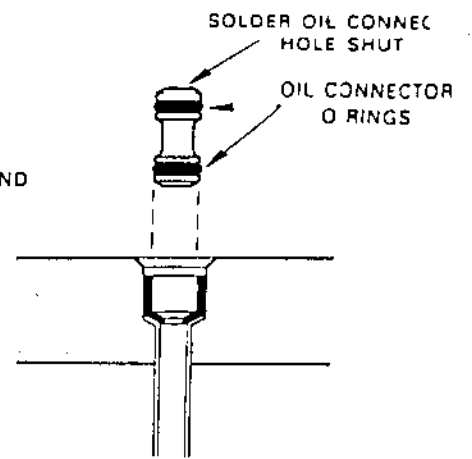


FIGURE 2

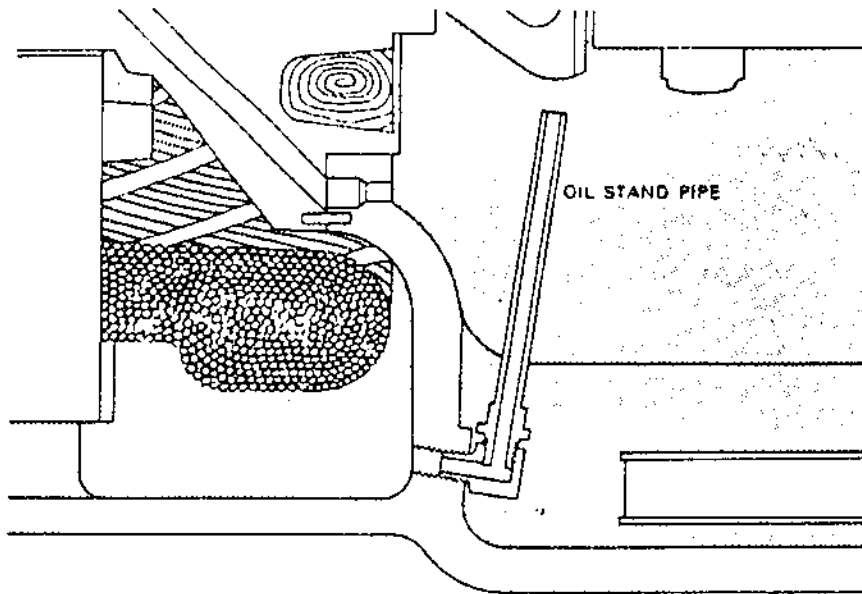


FIGURE 3

Figure 3 illustrates the oil stand pipe for Model E Hermetic only. The open version has a $\frac{1}{2}$ " coupling and elbow located closer to the crankshaft.

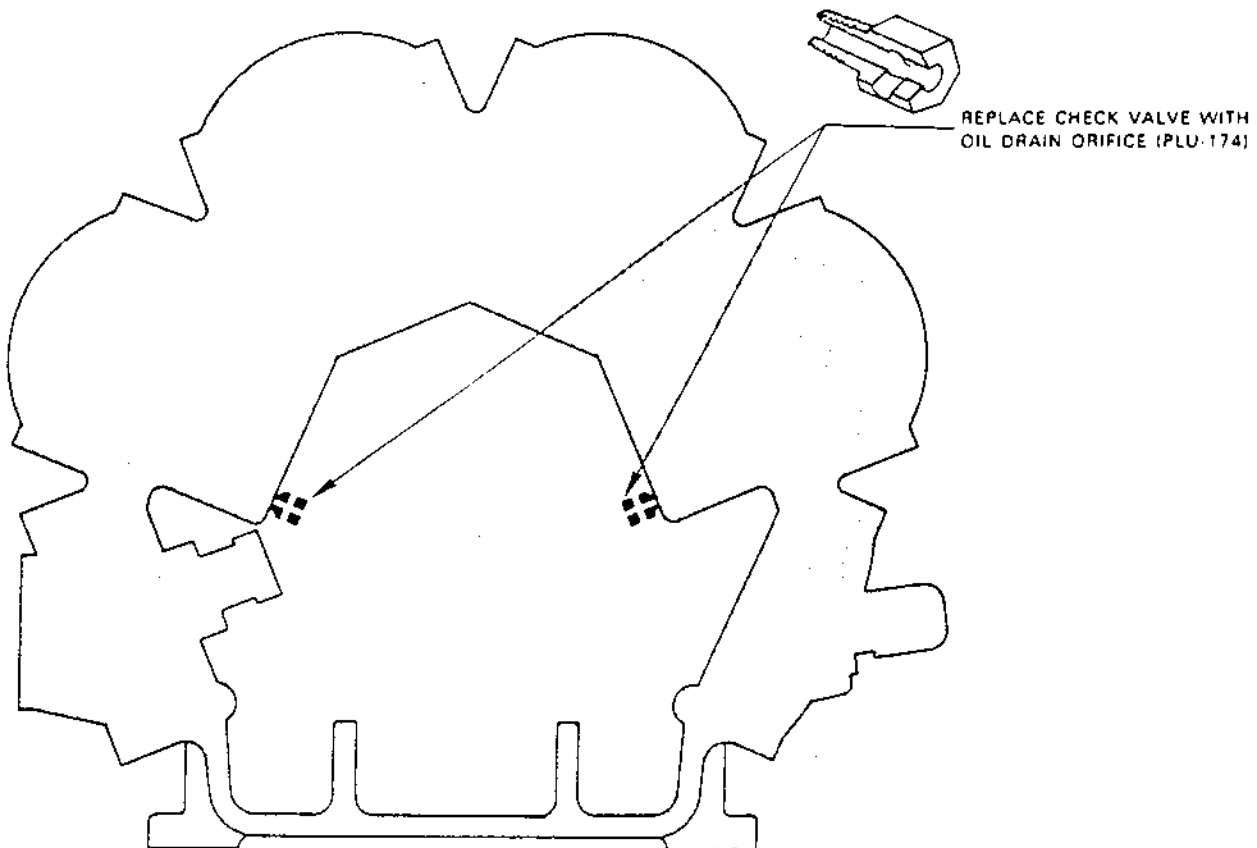


FIGURE 4