UNITED TECHNOLOGIES CARRIER	Commercial Division Carrier Corporation	BULLETIN: CA-SB-19-D-66-32 DATE: 9/29/66 PAGE: 1 OF: 7
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SUBJECT: **THRUST BEARING THERMOSTAT MODIFICATION 19D11, 21, 31**		

PURPOSE: To transmit information on design improvements to the thrust bearing high temperature cut-out thermostat and to forward instructions and parts lists for adapting existing machines to these design improvements.

MACHINES AFFECTED: All 19D11, 19D21 and 19D31 size machines, compressor serial 21424, 21423, 21420, 21418 and lower.

PROCEDURE: Machines shipped after approximately February 1, 1966, compressor serial 21419, 21421, 21422, 21425 and higher were equipped with a new design Klixon type thermostat mounted on the thrust bearing retainer ring.

It is recommended that this modification be added to all affected machines when opened for any reason.

The new design thermostat senses the temperature of the oil in the thrust shoe housing and reacts faster than the former design located in the return oil channel.

When adding the Klixon type thermostat to a machine which has not had one originally installed, the thrust assembly retaining ring, seal ring, spacer ring, and in some cases the shaft and disc assembly must be replaced.

Kits containing parts necessary to modify machines with the old style thermostat or to replace parts on machines having the new thermostat are available from the Parts Center.

All thrust and shaft assemblies shipped as field replacements include the new type thermostat and lead wires. The modification kit to apply this design to existing machines must be ordered from the Parts Center. See package parts list.

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Field Supplied Material:

1.	Wire connectors for 18WG	Splice thermostat leads to terminal leads inside compressor.
2.	Wire eyelets for 18WG	Connection at spark plug terminals.
3.	Wire crimpers	For splicing.
4.	9/16" drill and 3/8-18 tapered pipe tap.	For spark plug type terminals.
5.	#7 drill and 1/4" - 20 tap.	For terminal box screws.
6.	1/2" conduit and conduit nuts (19D11 & 19D31 6' long, 19D21 3' long)	For external wiring to pressure switch box.
7.	16-18 gage wire	External wiring to pressure switch box.

ADDING KLIXON THERMOSTAT TO EXISTING FIELD MACHINES

1. Open the compressor end and remove impeller.

2. Index rotating parts with prick punch.

3. Unbolt thrust bearing and shaft assembly and pull from compressor base casting and high speed pinion gear.

4. Remove retainer ring, seal ring, and spacer dam (refer to Figure 5) and install similar parts plus thermostat from kit. See CAUTION Note on page 6.

5. Remove compressor base inspection cover plate.

6. Install the thermostat lead wire clamp on the lip of the oil trough as illustrated in figure 3.

7. Align and replace thrust bearing and shaft assembly and insure thermostat lead wires are securely attached to the clamp and that there is no slack in the lead between the thermostat and the clamp.

8. Pencil outline the base of the terminal box on the outside of the inspection plate, and center punch mark the position of the screw holes at the base of the terminal box.

9. Drill two 9/16" holes in the inspection cover plate on the center line of the terminal box outline about 1 3/4" apart and tap with a 3/8 - 18 tapered pipe tap.

10. Drill terminal box screw holes with No. 7 drill 3/8" deep and tap with 1/4" - 20 spiral taps. Do not drill completely through cover.

11. Use Loctite on threaded surfaces of spark plug terminals and on inside of tapped spark plug holes and tighten.

12. Attach thermostat wires to bottom of spark plug terminals, replace inspection cover, and test for continuity through the thermostat. Circuit should be closed.

13. Install 1/2" conduit from terminal box to oil pressure switch terminal box as shown in Figure 2 and insert 16 - 18 gage wire. Figure 2 depicts a typical 19D21 machine. On 19D11 and 19D31 machines the oil pressure switch box is on opposite side of the compressor.

14. Wire the thermostat in series with the oil pressure switch and motor winding high temperature thermostat as shown in Figure 1 by cutting the blue wire from terminal 41 and splicing the new thermostat leads to the cut ends.

NOTE: It is not necessary to remove the original high bearing temperature thermostat.

ADDING KLIXON THERMOSTAT TO MACHINES
EQUIPPED WITH FORMER DESIGN IN CONJUNCTION
WITH REPLACEMENT OF FAILED THRUST BEARING.

1. Remove damaged thrust bearing and replace with new assembly with thermostat and leads attached.

2. Follow steps 7 through 14 as above.

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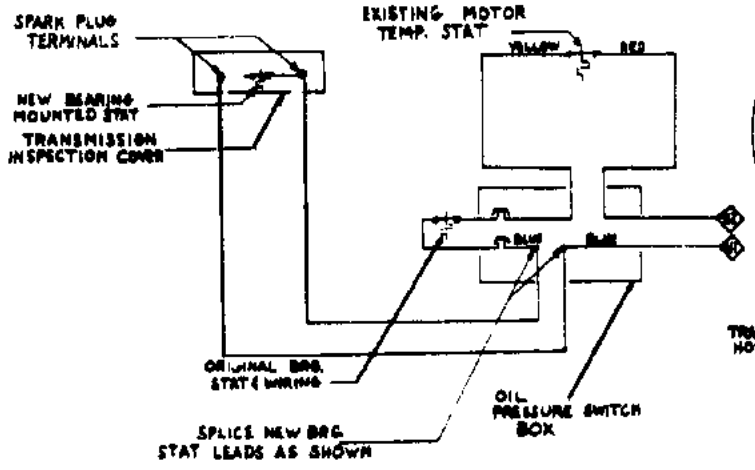

FIG. 1 CONVERSION WIRING

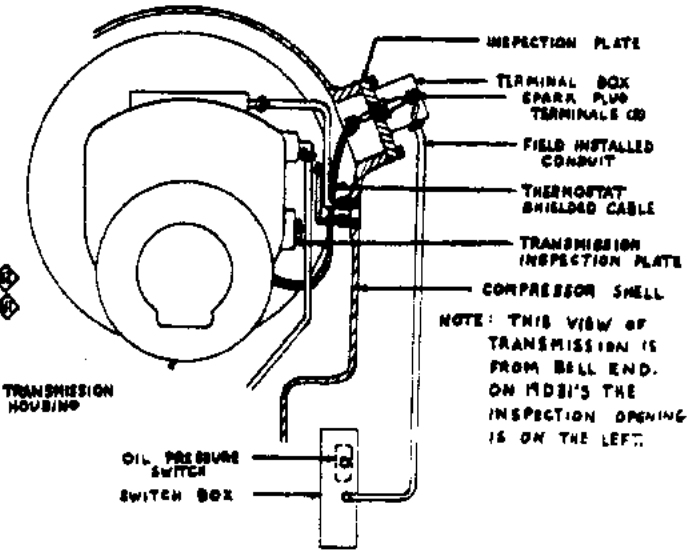

FIG. 2 COMPLETED ASSEMBLY

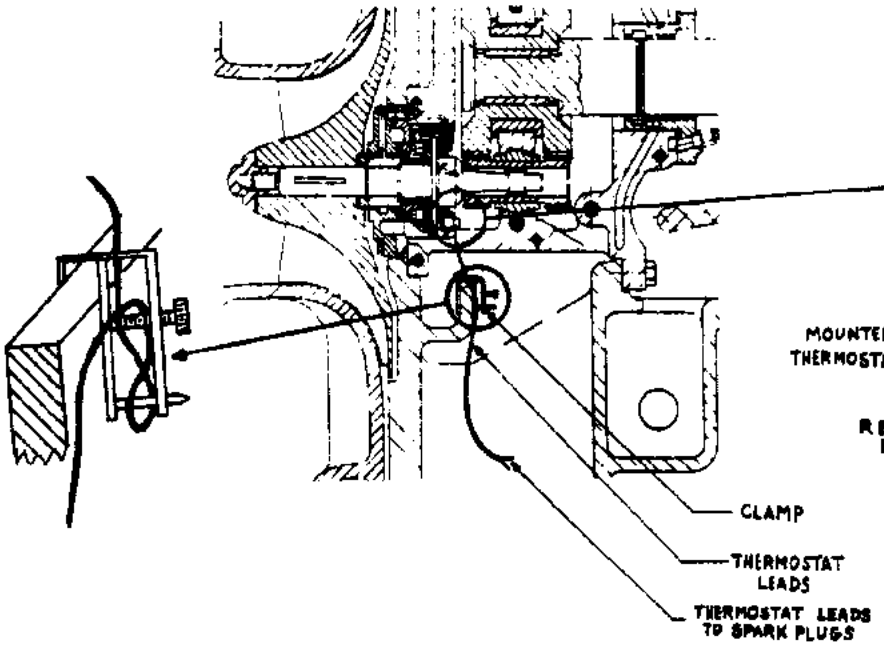

FIG. 3 COMPRESSOR X-SECTION

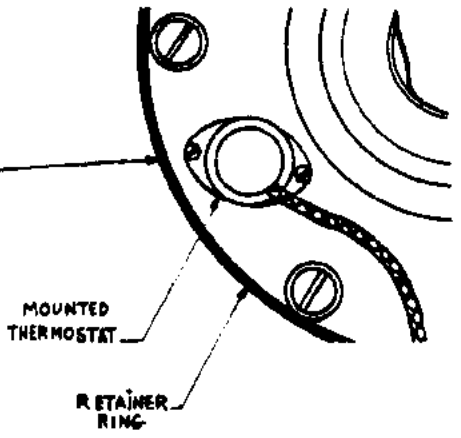

FIG. 4 RETAINER RING & STAT ASSEMBLY

THRUST AND SHAFT ASSEMBLY

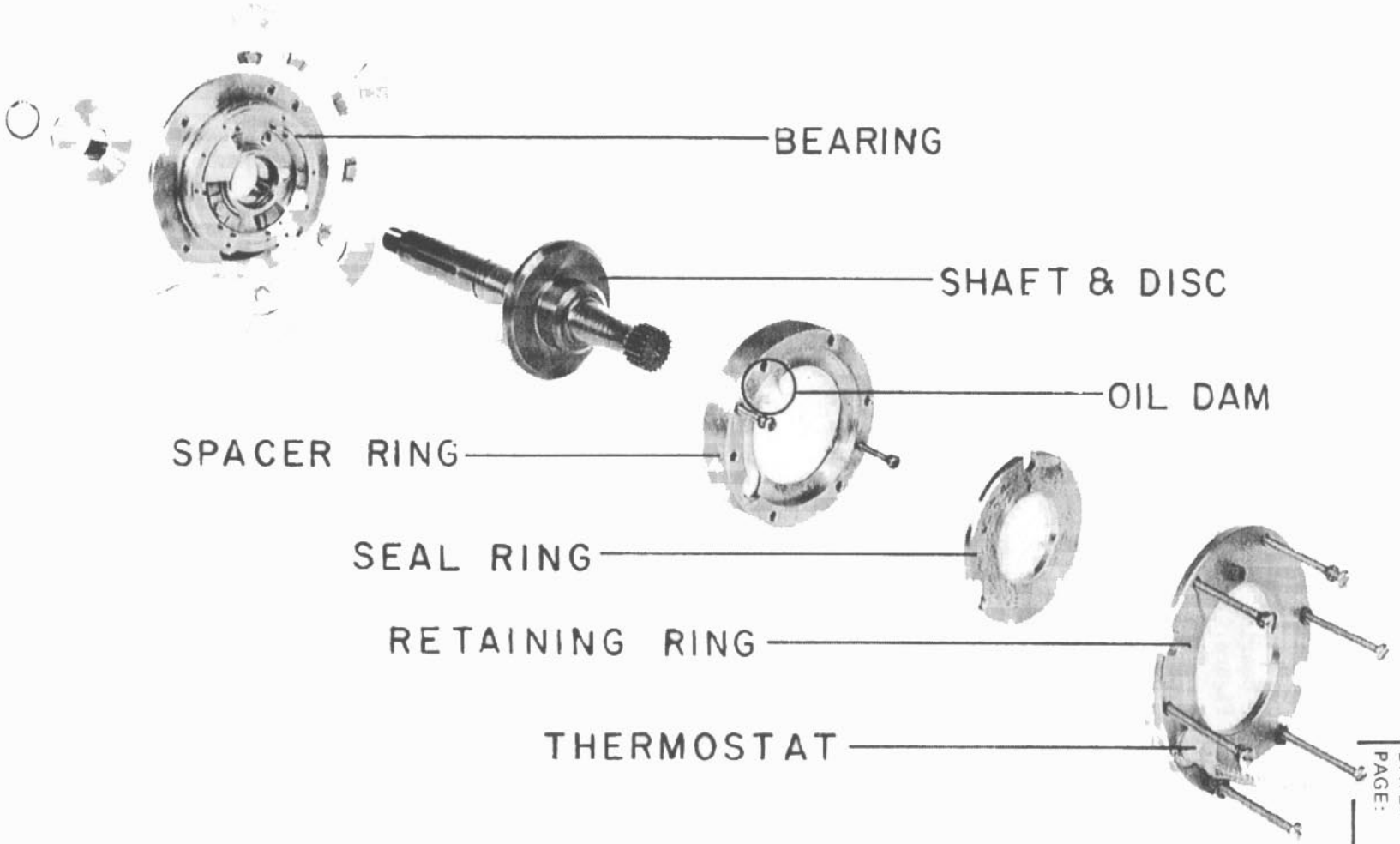

FIGURE 5

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CAUTION CAUTION CAUTION

Some early design shaft and bearing assemblies were manufactured with a bearing (Item 6) and spacer ring (Item 3) joint as shown in Figure 6. This design was included on the following machines:

19D11 Compressors with Compressor Serial No. 20661 and Lower

19D21 Compressors with Compressor Serial No. 20519 and Lower

19D31 Compressors with Compressor Serial No. 20483 and Lower

Later design assemblies included an alignment lip on the Spacer Ring as shown in Figure 7. When replacing the Spacer Ring on the earlier machines, it will be necessary to machine off the alignment lip, if the bearing (Item 6) does not include a matching shoulder.

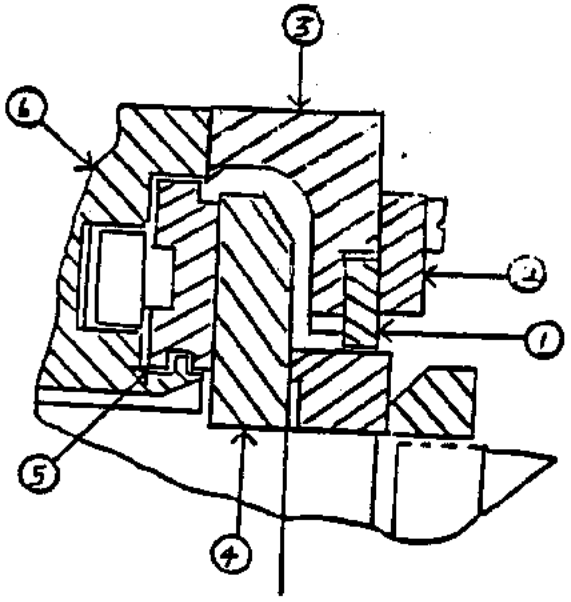

FIGURE 6

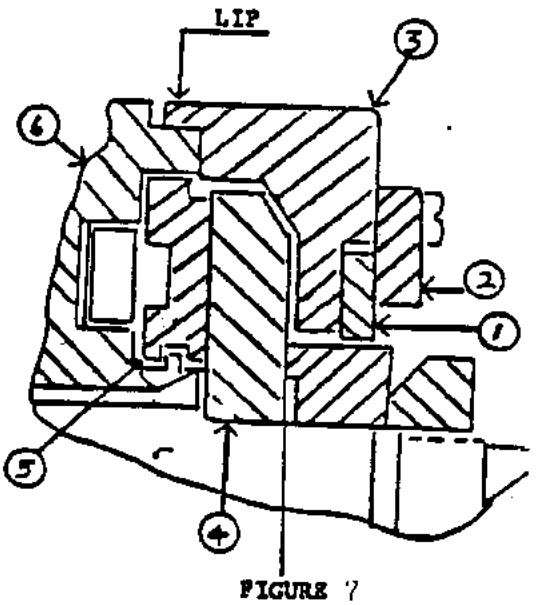

FIGURE 7

1. Seal Ring
2. Retainer Ring
3. Spacer Ring
4. Thrust Disc
5. Thrust Shoe
6. Bearing

Adding Klixon thermostat to machine equipped with former design.	19D11	19DA11-521	Wire and Stat Assembly Spark Plug Terminals (2) Retaining Ring Seal Ring Spacer Ring Clamp Loctite Terminal Box and 4 Screws Pan Hd. Scr. & Lockwashers (8) (19D31 only) Socket Head Cap Screws (5) (19D21 only)
	19D31	19DA31-521	
	19D21 (With compressor serial 20152 to 21418 plus 21420, 21423 and 21424)	19DA21-521	
	19D21 (With compressor serial 20151 and lower an additional part must be ordered (See Note 1)	19DA21-521	
		19D23-1043	Shaft and Disc Assembly
Adding Klixon thermostat to machines equipped with former design in conjunction with replacement of failed thrust bearing.	All Machines See Note 1	19DA19-521 (See Note 2)	Accessory Package Clamp Loctite Spark Plug Terminals (2) Terminal Box & Screws
Replacement of parts on machines which have been modified per this instruction.	All Machines See Note 1	19DA11-1402 19DA11-5031 19D31-006	Wire and Stat Assembly Spark Plug Terminals Loctite

NOTE 1: Does not apply to 19D2 machines. Consult 19D2 parts catalog. 19D2 machine can be machined to accept the new style thrust bearing assembly.

NOTE 2: If complete thrust bearing and shaft assembly requires replacement, order from parts catalog. All assemblies in stock will include new design Klixon thermostat and wire lead.

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