	MILLENNIUM ROTARY SCREW LIQUID CHILLERS	
	SERVICE BULLETIN	Supersedes: Nothing
File With 160.47-M2		

Subject: Screw Chiller (125-675TR) Microcomputer Control Center -
Eprom Version S.01F.17

On/about February 1998, the subject chillers will be shipped with Eprom version S.01F.17 (P/N 031-01102-002). It contains the following enhancements that revise Service Manual 160.47-M2 as follows:

SEAL OIL PRESSURE

A transducer (P/N 025-28678-001) and piping enhancements have been added to monitor a new parameter called **SEAL OIL PRESSURE**. It is displayed as "SEAL OIL PRESSURE = XXX.X PSIG" as one of the scrolled messages using the DISPLAY DATA key. The Evaporator Pressure is subtracted from this pressure to create a differential pressure called **SEAL OIL DIFFERENTIAL PRESSURE** and displayed as "SEAL OIL DIFF PRESSURE = XXX.X PSID" using the OIL/FILTER PRESSURE key. If this Differential value decreases to < 20.0 PSID for 2 continuous seconds after the compressor has been running for 3 minutes, a safety shutdown is performed and "DAY-TIME-LOW SEAL OIL PRESSURE" is displayed.

As with the other chiller transducers, the Seal Oil transducer is "Auto-Zeroed" with the Evaporator transducer during the first 15 seconds of "Start Sequence Initiated". Auto-Zeroing influences the displayed differential value as explained in Operation Manual 160.47-01.1. Also, as with the other transducers the Auto-Zeroing can be disabled as detailed below.

To calculate the expected Transducer voltage output for a given pressure input, refer to Service Manual 160.47-M2.

The new Seal Oil Pressure transducer connects to the Micro Board J17 as follows:

- J17-9 - +5vdc to transducer
- J17-10 - Gnd to transducer
- J17-15 - Output of transducer

This eeprom version can also be used on chillers that do not contain this new Seal Oil Pressure transducer and associated piping enhancements. Therefore, the following procedure is used to "Enable" or "Disable" this feature and associated display messages. This should not be performed by anyone other than a qualified Service Technician.

- 1.) Enter PROGRAM MODE using Access Code 1 3 8 0.
- 2.) Press OIL PRESSURE key. Use ADVANCE DAY/SCROLL key to scroll to display the following message. Each time the key is pressed, the display scrolls to the next message.
"SEAL OIL PRS XDCR ENABLED=X;(0=NO;1=YES)"
- 3.) Using ENTRY keys, press 0 key if chiller not equipped with the Seal Oil Pressure transducer and associated piping. Press 1 key if chiller is equipped with these items.
- 4.) Press ENTER key.
- 5.) Press PROGRAM key to exit.

STANDBY CHILLER FREEZE PROTECTION

In multiple chiller applications, it may be possible for the chilled liquid (water or brine) from an operating chiller to flow through the evaporator of a standby chiller. This presents a possible freeze threat to the standby chiller.

To minimize the freeze potential in the standby chiller, the Program will now cycle the Condenser Pump based upon the Evaporator Saturation Temperature while the chiller is shutdown. Also, if this temperature indicates a freeze potential exists, an alarm message is displayed on the Microcomputer Control Center Display and alarm contacts close. These contacts can be used to provide an alarm to a remote device or sound an audible alarm.

The Program operates Relay Board output terminals TB4-55 & 56 (dry contacts of Relay K0) (Relay Board 031-00932-002 is required; -001 does not contain K0) to control the Condenser pump. They close to start the pump coincident with compressor start. At chiller shutdown, they remain closed until the Evaporation Saturation Temperature increases to >45 Degrees F, whereupon they open to shutdown the pump.

While the chiller is shutdown, the Program continues to monitor the Evaporator Saturation Temperature. If it decreases to < 35 Degrees F, the Program closes the contacts to run the Condenser Pump until the temperature increases to > 45 Degrees F. Further, if the chiller has been shutdown for more than 10 minutes and the temperature decreases to < 32 Degrees F, "FREEZE THREAT FROM OPERATING CHILLER" is displayed and Relay Board Relay K6 is energized, closing contacts between TB3-34 and TB3-1. This applies 115VAC to TB3-34. This signal can be used for alarm purposes. When the

temperature increases to > 35 degrees F, the warning message clears and status relay K6 de-energizes.

NOTE - Early vintage chillers have the Oil Eductor Solenoid Valve connected to TB3-34. Later vintage chillers do not use this solenoid. If this eeprom is retrofit to this vintage chiller, and it is desired to use this alarm output, the solenoid wiring will have to be disconnected.

TRANSDUCER AUTO-ZEROING ENABLE/DISABLE

The procedure in previous eeprom versions to Enable/Disable transducer auto-zeroing has been modified and is now as follows:

- 1.) Enter PROGRAM mode using Access Code 1 3 8 0.
- 2.) Press OIL PRESSURE key. Use ADVANCE DAY/SCROLL key to display the following message. Each time the key is pressed, the display scrolls to the next message.
"PRS XDCR AUTO ZERO ENABLED=X;(0=NO;1=YES)"
- 3.) Using ENTRY keys, press 0 if it is desired to disable transducer auto-zeroing.
Press 1 if it is desired to enable auto-zeroing.
- 4.) Press ENTER key.
- 5.) Press PROGRAM key to exit.

SLIDE VALVE UNLOAD AT SHUTDOWN

In previous eeprom versions, the Slide Valve Unload solenoid valve is energized (opened) at the completion of the 2 minute Lockout Period after a chiller shutdown. In this version, if Micro Board Program Jumper JP4 is removed, the Unload solenoid valve is energized coincident with the compressor turnoff. In addition to this new feature, the previous features as detailed in Service Manual 160.47-M2, Figure 31A are retained when this jumper is removed as follows:

- 1.) Hot - Gas Bypass operation is enabled
- 2.) 30% Slide Valve start inhibit

VARIABLE ORIFICE SETPOINTS

The range over which the Variable Orifice "DELTA P" setpoint can be programmed has been changed as follows. Refer to Service Bulletin 160.47-M2 (SB15) for explanation of the Variable Orifice feature.

Previous eeprom versions:

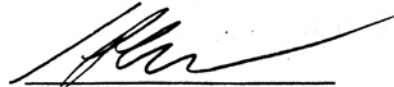
R22 - 25 to 130 PSID

R134a - 15 to 90 PSID

This eeprom version:

R22 - 25 to 150 PSID

R134a - 15 to 110 PSID



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