REMOTE EVAPORATOR OPTION

60 HZ MODELS
YCAZ880R6, YCAJ440R6, YCAJ440T6, YCAJ540S6, YCAJ550T8, YCAJ650T8, YCAJ660T8

50 HZ MODELS
YCAJ440R7, YCAJ550R7, YCAJ550T7, YCAJ650S7, YCAJ660T9, YCAJ760T9, YCAJ770T9

STYLE B*

*With EPROM | 031-01096-001

200, 230, 460-3-60

REMOTE EVAPORATOR OPTION

GENERAL

The Remote Evaporator option allows an architect to place the evaporator inside the conditioned space. This helps eliminate the possibility of water line freezing. Additionally, interior noise is reduced as a result of the compressors and fans being placed outside.

The unit and remote evaporator will be pressure tested, evacuated, and given a holding charge of Refrigerant R-22 or Nitrogen. Refer to tags on unit and evaporator. An initial oil charge will also be included.

CAUTION: THE SYSTEM MUST BE EVACUATED BEFORE CHARGING.

After placing the system in operation, it is important to verify that the proper refrigerant cahrge has been installed by checking sub-cooling. See page 70 of Form 150.60-NM2.

This form is intended to be used as a supplement to Form 150.60-NM2. Use Form 150.60-NM2 for all installation, start-up, and operation instructions not outlined in this supplement.

Inventory the parts included with the Option and compare them to the list in Table 1. Assure that all parts have been included.

TABLE 1 – PARTS LIST

ITEM	QTY	DESCRIPTION
1	2	SOLENOID VALVE (LIQUID)
2	2	DEHYDRATOR (LESS CORE)
3	4	CARTRIDGE (DEHYDRATOR)
4	2	TEMPERATURE SENSOR
5	6	CONTACT SOCKET
6	2	THERMO EXPANSION VALVE
7	4	CONTACT RECEPTACLE
8	4	RUBBER COLLAR
9	2	CONNECTOR (PLUG HOUSING)

REFRIGERANT PIPING

GENERAL – When the unit has been located in its final position, the unit piping may be connected. Normal installation precautions should be observed in order to receive maximum operating efficiencies. System piping should conform to ASHRAE guidelines. All piping design and installation to assure proper system operation is the responsibility of the user. Piping should be kept free of all foreign matter.

Since elbows, tees, and valves decrease pump capacity, all piping should be kept as simple as possible.

Hand stop valves should be installed in all lines to facilitate servicing. Try to avoid eliminating service valves in favor of cost cutting.

Receivers should be installed as necessary and may be needed when low ambient operation is required.

YORK ASSUMES NO WARRANTY RESPONSIBILITY FOR SYSTEM OPERATION OR FAILURES DUE TO IMPROPER PIPING OR PIPING DESIGN.

PIPING CONNECTION POINTS – Each system liquid line will include a field connection shutoff valve (stop valve) with charging port located on each condenser circuit (Fig. 1). Suction line connections are provided on each compressor at the suction valve (Fig, 1). Field refrigerant piping can be connected to the condensing unit without loss of the holding charge in the unit.

All expansion valves, filter driers and liquid line solenoid valves are YORK supplied and installed by others (Fig. 1). Refrigerant field piping is supplied and installed by others (Fig. 1). Sight glasses are supplied and installed by others (Fig. 1).

LIQUID LINE SOLENOIDS AND EXPANSION VALVE MOUNTING – Liquid line solenoids and expansion valves must be mounted with the arrow on the devices pointing in the direction of refrigerant flow. The expansion valve sensing bulbs should be mounted and clamped securely on a newly cleaned pipe in the 4 or 8 o'clock position. The bulb and pipe should then be properly insulated.

PIPING SIZING AND ORIENTATION – When sizing refrigerant pipe for split system air conditioning, consideration must be given to the: (1) Suction line pressure drop due to friction, (2) Liquid line pressure drop due to friction, (3) Suction line velocity for oil return, and (4) Liquid line pressure drop due to vertical rise. Refer to Table 2 (Recommended Refrigerant Line Sizing) for condensing unit suction and liquid line friction losses.

On a system where the evaporator is located below the chiller unit, the suction line must be sized for both pressure drop and oil return.

When the chiller unit is located below the evaporator, the liquid line must be designed for pressure drop due to friction loss and vertical rise. If the pressure drop due to vertical rise and friction loss exceeds 40 psi, some refrigerant will flash before it reaches the thermal expansion valve.

All horizontal suction lines should be pitched at least 1/4 inch per foot in the direction of the refrigerant flow to aid the return of oil to the compressor. All suction lines with a vertical rise exceeding 3 feet should have a "P" trap at the bottom and the top to facilitate oil return. Suction lines with a vertical rise exceeding 25 feet should be trapped every 15 feet to provide drain points for the oil when the circuit is de-activated. When the circuit is reactivated, oil will return to the compressor more quickly and in smaller slugs.

For more details, refer to the ASHRAM 1990 Refrigeration Handbook, Chapter 3, System Practices for Halocarbon Refrigerants.

MODEL YCA	SYSTEM TYPE	NOM. TONS	SUCTION LINES			LIQUID LINES	
			COPPER TYPE L	PRESS. DROP	MIN. TONS	COPPER TYPE L	PRESS. DROP
Z880R6	2 CIR.	106.1	2-1/8" O.D.	8.1 PSI	7.6	1-1/8	7.0
J440R7			2-5/8" O.D.	2.4 PSI	13.1	1-3/8	2.5
						1-5/8	1.1
J440R6	2 CIR.	119.6	2-1/8" O.D.	8.2 PSI	7.6	1-1/8	7.9
J550R7			2-5/8" O.D.	2.9 PSI	13.1	1-3/8	2.9
						1-5/8	1.4
J440T6	2 CIR.	122.4	2-1/8" O.D.	8.4 PSI	7.6	1-1/8	8.9
J550T7			2-5/8" O.D.	3.2 PSI	13.1	1-3/8	3.2
			3-1/8" O.D.	1.4 PSI	20.4	1-5/8	1.4
J540S6	2 CIR.	130.5	2-1/8" O.D.	11.5 PSI	7.6	1-1/8	11.8
J650S7			2-5/8" O.D.	4.3 PSI	13.1	1-3/8	4.2
			3-1/8" 0.D.	1.8 PSI	20.4	1-5/8	1.8
J550T8	2 CIR.	145.5	2-1/8" O.D.	11.4 PSI	7.6	1-1/8	11.8
J660T9			2-5/8" O.D.	4.3 PSI	13.1	1-3/8	4.2
			3-1/8" O.D.	1.7 PSI	20.4	1-5/8	1.8
J650T8	2 CIR.	154.7	2-1/8" O.D.	14.6 PSI	7.6	1-1/8	15.2
J760T9			2-5/8" O.D.	5.5 PSI	13.1	1-3/8	5.6
			3-1/8" O.D.	2.4 PSI	20.4	1-5/8	2.5
J660T8	2 CIR.	164.3	2-1/8" O.D.	14.0 PSI	7.6	1-1/8	14.5
J770T9			2-5/8" O.D.	5.2 PSI	13.1	1-3/8	5.2
			3-1/8" O.D.	2.2 PSI	20.4	1-5/8	2.5

NOTES:

1. Based on R-22 at the nominal capacity of the unit (or system), an ambient temperature of 95°F, a liquid temperature of 130°F, a suction temperature of 45°F, and following the piping design recommendations for the ASHRAM Refrigeration Handbook.
2. 6 PSI is the recommended maximum liquid line friction loss.
3. These friction losses do not include any allowances for strainer, filter-drier, solenoid valve, isolation valve, or fittings which can typically represent 5 to 10 PSI.
4. Liquid Pressure drop due to vertical rise is 0.50 PSI/foot. The total pressure drop of the unit (system) for both friction and vertical rise must not exceed 40 PSI. If the pressure drop exceeds 40 PSI, the liquid refrigerant could flash before it reaches the expansion valve. This will cause erratic valve operation, poor performance, and possible damage to the expansion valve.
5. Unit minimum unloading step tons must exceed the above minimum tons to assure proper oil return. If the actual tons are less, a double riser is required.

CABLE TO PLUG (J11) CONNECTION INFO CHART			
MICRO BOARD PLUG. NO.	WIRE COLOR	PLUG PIN NO.	FUNCTION
P11	RED[3]	7	LEAVING CHILLED WATER
	BLK	4	
	DRAIN	1	
	RED[3]	8	ENTERING CHILLED WATER
	BLK	5	
	DRAIN	2	

NOTES:

1. ALL COMPONENTS SUPPLIED UNLESS INDICATED OTHERWISE.
2. APPLY HEAT CONDUCTIVE COMPOUND IN WELL TO INSURE RELIABLE THERMO-CONTACT BETWEEN BULB AND COOLING LIQUID.
3. THIS WIRE MAY BE RED OR WHITE IN COLOR.

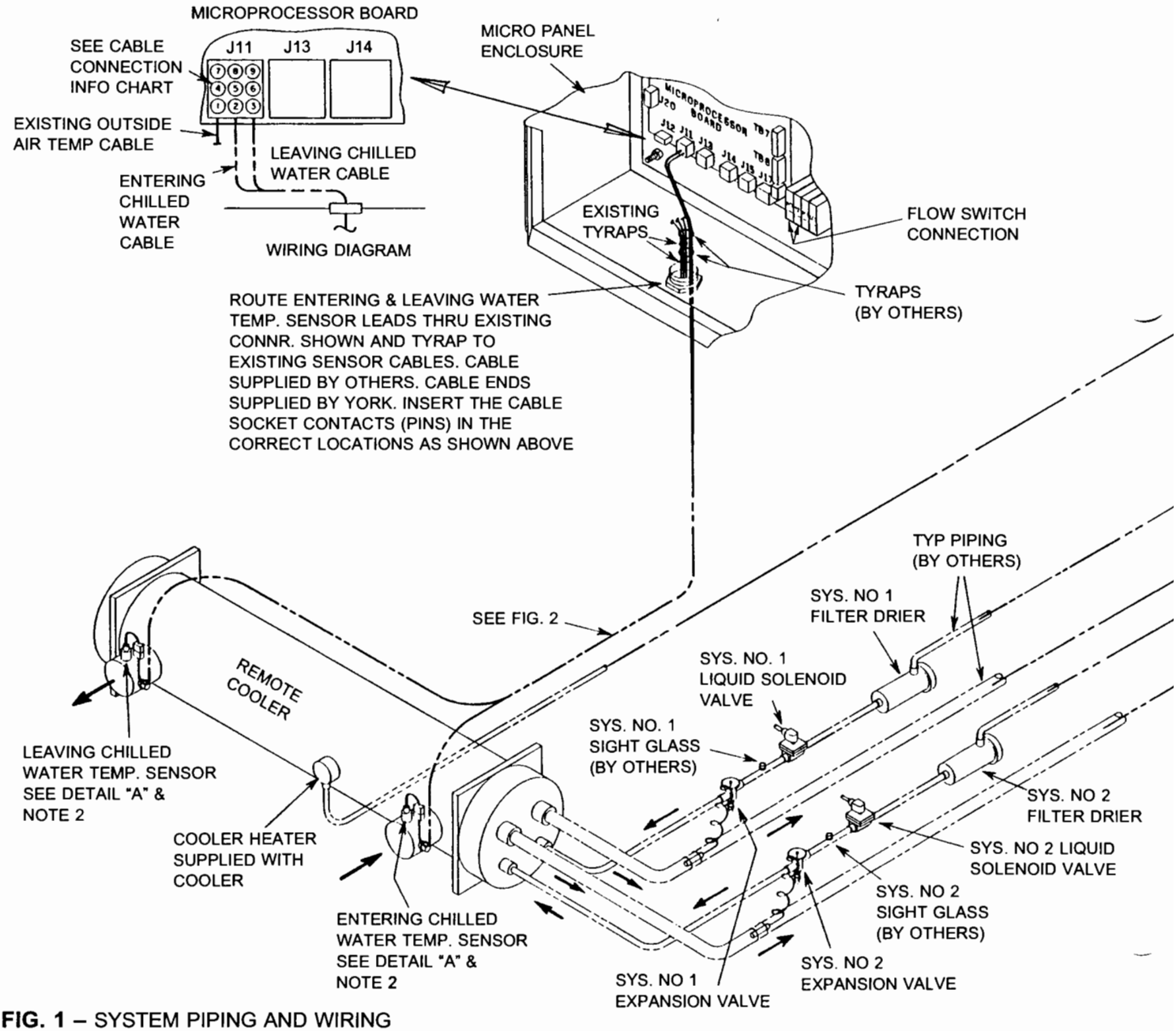
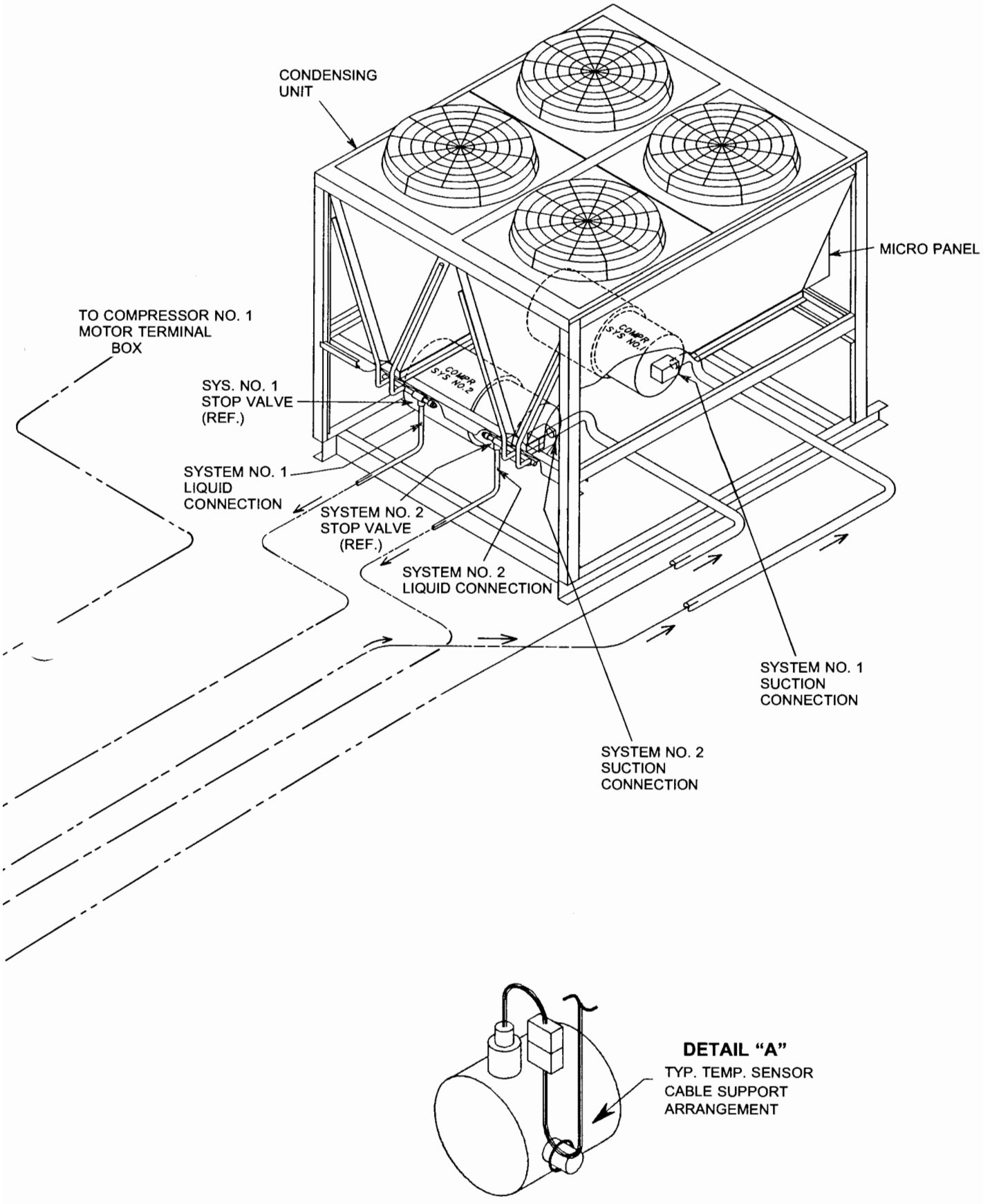


FIG. 1 – SYSTEM PIPING AND WIRING



DETAIL "A"

TYP. TEMP. SENSOR CABLE SUPPORT ARRANGEMENT

ELECTRICAL WIRING

GENERAL – The chiller is shipped with all factory mounted controls and power wiring for all components located in the chiller package. Field control wiring will be necessary for the flow switch, liquid line solenoid valve, water temp sensors, and the cooler heater.

All other wiring connections (incoming power, etc.) will be covered in the Installation, Operation, and Service Manual (Form 150.60-NM2).

FIELD CONTROL WIRING – The field mounted and remote cooler components listed below will require connection to the control panel.

1. Flow Switch – A chilled water flow switch, (either by YORK or others) *must* be installed in the leaving water piping of the cooler. There should be a straight horizontal run of at least 5 diameters on each side of the switch. Adjust the flow switch paddle to the size of the pipe in which it is installed. (See manufacturer's instructions furnished with the switch.)

   WARNING: The flow switch must not be used to stop and start the chiller. It is intended only as a safety switch. Interlock the flow switch with the start/stop contacts. If the start/stop contacts are activated by an inductive load (water pump contactor, etc), the relay/contactor coil ***must*** *be suppressed. Use Suppressor 031-00808-000.*

   YORK ASSUMES NO WARRANTY RESPONSIBILITY FOR DAMAGE CAUSED BY EQUIPMENT CYCLED DIRECTLY FROM A FLOW SWITCH.

   Flow switch controls should be connected to TB3 terminal block of the control panel between terminals 13 and 14 (Fig. 1).

   Flow switch wiring should be 2-CONDTR (20 AWG 300V) with foil shield and drain wire: ALPHA 5462, BELDEN 9320, or QUABBIN 0165 (supplied by others). The drain wire should be left unconnected, terminated and taped off at both ends.

2. Entering Water Temp Sensor – Fill the temperature well (Fig. 1) to a depth of 3 inches with heat conductive compound. Insert the sensor in the well and ensure it is placed on the bottom of the well.

   Assemble a proper length cable as shown in Fig. 2 between the sensor and J11 of the Microprocessor Board. Follow the instructions provided in Fig. 2 for assembly. Assure that the proper wire and tools noted are utilized.

   Connect the cable to the sensor and J11 of the Microprocessor Board as shown in Fig. 1.

3. Leaving Water Temp Sensor – Fill the temperature well to a depth of 3 inches with heat conductive compound. Insert the sensor in the well and ensure it is placed on the bottom of the well.

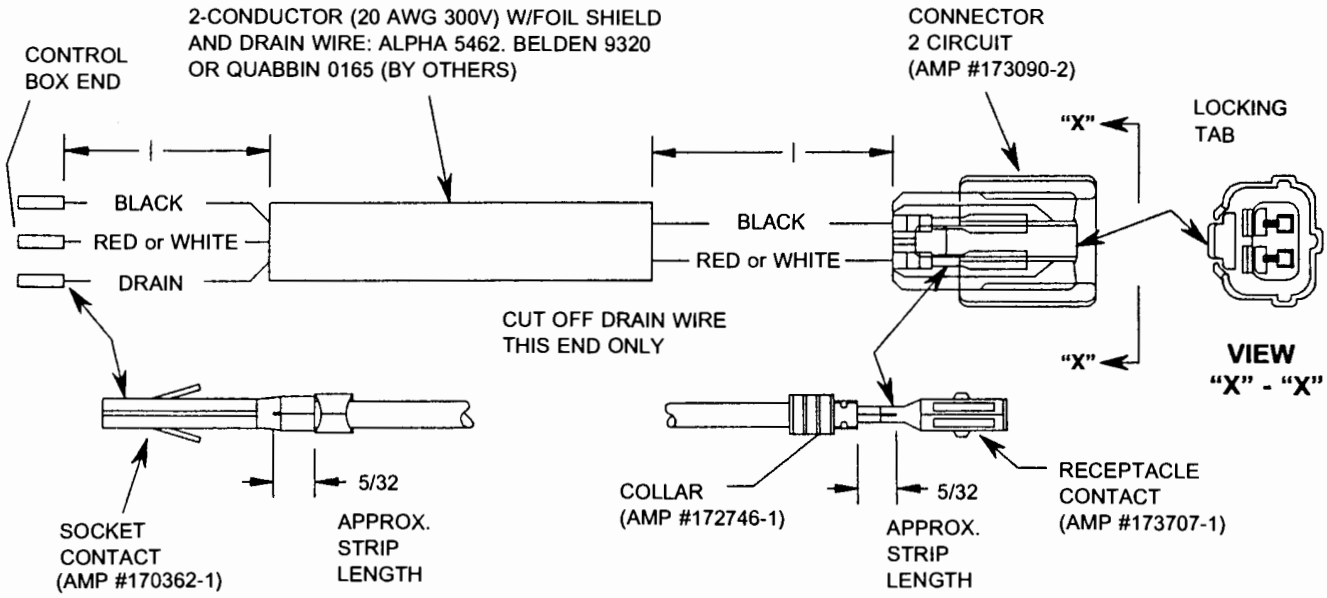
   Assemble a proper length cable as shown in Fig. 2 between the sensor and J11 of the Microprocessor Board. Follow the instructions provided in Fig. 2 for assembly. Assure that the proper wire and tools noted are utilized.

   Connect the cable to the sensor and J11 of the Microprocessor Board as shown in Fig. 1.

4. Liquid Line Solenoid Valves – Connect SYS 1 Liquid Line Solenoid Valve wiring to terminals 23 and 2 ("Z" compressors) or terminals SP1 and 2 ("J" compressors) in Compressor No. 1 Motor Terminal Box. See Fig. 3. The control panel will supply a 115VAC signal to energize the solenoid valve. An RC Suppressor (P/N 031-00808-000) MUST be connected across terminals 23 and 2 ("Z" compressors) or terminals SP1 and 2 ("J" compressors).

   Connect SYS 2 Liquid Line Solenoid Valve wiring to terminals 23 and 2 ("Z" compressors) or terminals SP1 and 2 ("J" compressors) in Compressor No. 2 Motor Terminal Box. See Fig. 3. The control panel will supply a 115VAC signal to energize the solenoid valve. An RC Suppressor (P/N 031-00808-000) MUST be connected across terminals 23 and 2 ("Z" compressors) or terminals SP1 and 2 ("J" compressors).

5. Cooler Heater – Connect the Cooler Heater wiring to terminals SP2 and 2 in Compressor No. 1 Motor Terminal Box. See Fig. 3. An RC Suppressor (P/N 031-00808-000) MUST be connected across terminals SP2 and 2.



NOTES:

1. ALL CABLE COMPONENTS SUPPLIED (EXCEPT AS NOTED)
2. HAND TOOLS REQUIRED TO TERMINATE CONTACT TERMINALS

AMP SERVICE TOOL NO. 1 #90287-1 OR AMP SUPER CHAMP FT #69758-2	FOR TERMINAL (AMP #173707-1)
AMP SERVICE TOOL #724651-1	FOR TERMINAL (AMP #170362-1)

3. IT IS ABSOLUTELY NECESSARY TO ORIENT WIRES PER DATA SHOWN ABOVE & CABLE CONNECTION INFO CHART IN FIG. 1

FIG. 2 – TEMP. SENSOR CABLE CONSTRUCTION DATA

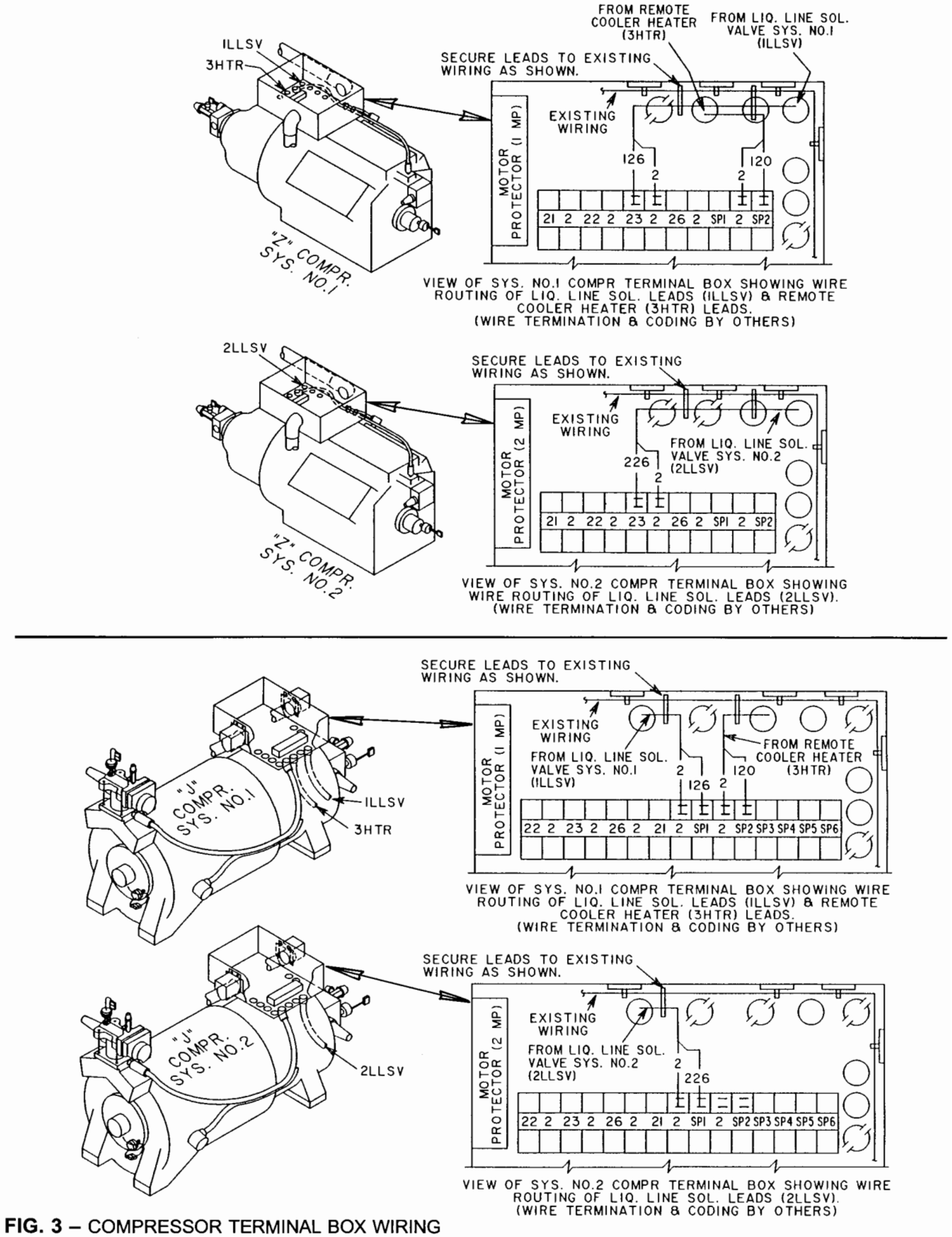


FIG. 3 – COMPRESSOR TERMINAL BOX WIRING

YORK®

P.O. Box 1592, York, Pennsylvania USA 17405-1592

Form 150.60-NM2.1 (1293)

RPC 4M 194 .40
CODES: ERR, SN4