| | |
|---|---|
| YORK<br>**PRODUCT DRAWING**<br>YORK INTERNATIONAL CORPORATION<br>P.O. Box 1592, YORK, PA 17405 | Supersedes: 155.16-PA1 (793) FORM 155.16-PA1 (197)<br>**MILLENNIUM™ CHILLER**<br>**FIELD CONTROL MODIFICATIONS DIAGRAM**<br>**FOR MILLENNIUM CONTROL CENTER** |
| CONTRACTOR _____<br>ORDER NO. _____<br>YORK CONTRACT NO. _____<br>YORK ORDER NO. _____ | PURCHASER _____<br>JOB NAME _____<br>LOCATION _____<br>ENGINEER _____ |
| ☐ REFERENCE DATE _____ | ☐ APPROVAL DATE _____ ☐ CONSTRUCTION DATE _____ |

For use with YORK Millennium Chiller shown below:

| | |
|---|---|
| Hot Water Models | Millennium-HW-1A1 thru 14F3 |
| Steam Models | Millennium-ST-1A1 thru 14F3 |

**JOB DATA:**

MILLENNIUM MODEL NO. _____ MILLENNIUM MODEL NO. _____

NO. OF UNITS _____ NO. OF UNITS _____

**SEE FIGURES:** _____

_____

_____

**INCLUDED BY YORK FOR FIELD INSTALLATION (BY OTHERS) ARE:**

| | YES | NO | Per Unit |
|---|---|---|---|
| SEQUENCE COMMANDER II when available, Part No. 371-01418-101 | ☐ | ☐ | _____ |
| Remote Steam/Hot Water Limit Setpoint Card, Part No. 031-00814-000 | ☐ | ☐ | _____ |
| Remote Temperature Control Point Reset Card, Part No. 031-00814-000 | ☐ | ☐ | _____ |
| Card File, Part No. 031-00827-000 | ☐ | ☐ | _____ |
| Condenser Water Flow Switch, FS8W | ☐ | ☐ | _____ |
| _____ | ☐ | ☐ | _____ |
| _____ | ☐ | ☐ | _____ |
| _____ | ☐ | ☐ | _____ |
| _____ | ☐ | ☐ | _____ |
| _____ | ☐ | ☐ | _____ |

## ENERGY MANAGEMENT SYSTEMS

The Millennium Control Center is designed to function as an integral component of the YORK (Integrated System Network). All of the data contained in the Millennium Chiller Control Center is shared with the YORK Direct Digital Controllers via the single twisted-pair YorkTalk Bus. All Millennium temperatures, pressures, safety alarms and cycling conditions are available to the Direct Digital Controllers for integrated plant control, data logging and, local and remote display of operator information. The YorkTalk Bus communication interface also allows the Direct Digital Controllers to issue commands to the Millennium Control Center to set temperature setpoints and start or stop the unit. Refer to Form 450.11-N2 for more details.

The Control Center also provides a limited interface to other Energy Management Systems (EMS). The Control Center includes unit status contacts, provisions for remote temperature setpoint reset and starting and stopping of the unit.

Five sets of YIA unit status contacts are factory furnished through a field wiring terminal board in the Control Center. Each set of contacts are single pole, normally open, rated at 5 amperes resistive at 240VAC. Millennium status contacts are provided for unit:

- Warning – See Fig. H
- Remote Mode Ready to Start – See Fig. A
- Cycling Shutdown – See Fig. B
- Safety Shutdown – See Fig. C
- Run (System Operating) – See Fig. D

Three sets of inputs are available to the EMS, allowing for remote control of YIA unit operation. Input device contact rating shall be 5 milliamperes at 115 VAC. Field wiring terminal board (TB2) in the Millennium Control Center permits connection for the following operation:

- Remote Stop Contacts – See Fig. E
- Remote Start Contacts – See Fig. E
- Remote/Local Cycling Devices – See Fig. F

The YIA unit should not be cycled frequently by the Energy Management System. Instead, it is possible to reduce the energy input indirectly or directly by the following methods:

1. Application of Sequence Control Kit, so only one unit is running, when a single unit can carry the cooling load - See Fig. J.

2. When multiple unit YIA installations are controlled by an EMS, remote start and stop contacts are available to start and stop each chiller per Fig. E. contact rating shall be 5 milliamperes at 115 VAC.

3. The Millennium Control Center has a programmable time clock function as a standard feature with holiday capability. This offers one preset automatic Start-Stop per day on a seven day calendar basis with the ability to program a single additional holiday start and stop time up to a week in advance. Chilled water pump control contacts are also provided, allowing for efficient automatic operation of the chilled water pump to reduce energy. Two chilled water pump operating modes are available via the LWT PUMP programming jumper (J54) on the Micro Board. With jumper J54 installed, the chilled water pump operates for 30 seconds prior to Millennium start, during YIA operation, dilution cycle, and LWT cycling shutdowns. With jumper J54 removed, the chilled water pump operates as above, plus it operates during MULTI-UNIT and REMOTE/LOCAL cycling shutdowns.

4. Reduce the energy input by raising the leaving chilled liquid temperature through remote temperature control setpoint in the “remote” operating mode. When remote temperature reset is accomplished by supplying a 1 to 11 second pulse-width modulated signal, refer to Fig. P. Through use of the remote temperature control setpoint option (at additional cost) card and card file, the leaving chilled liquid temperature may be reset via a 4 to 20mA D.C. current signal, a 0 to 10 volt D.C. signal, or a single contact closure per Fig. W.

5. Steam or hot water limiting of demand during pulldown may be accomplished by using the standard PULLDOWN DEMAND LIMIT function provided in the Millennium Control Center. The “Pulldown Demand Limit” key can be programmed to limit steam or hot water input from 20 to 100% in ramp fashion, for 1 to 255 minutes following each unit start. For more details, refer to Millennium Control Center Instructions, Form 155.16-O2.

# LIST OF FIGURES

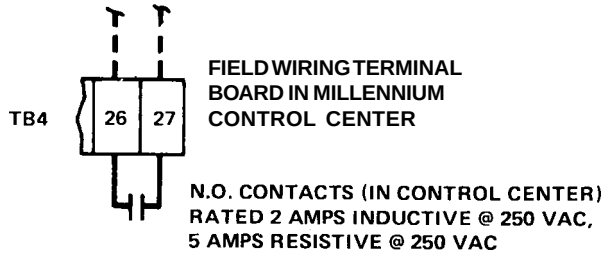



**FIG. A –** REMOTE MODE READY TO START CONTACTS

**FIG. A – REMOTE MODE READY TO START CONTACTS -** When closed, these contact signify the following: (1) The Control Center is in "remote" operating mode, allowing for energy management system or remote start/stop control (Fig. E); (2) All unit safety cutout controls are in the normal position, so they will allow the YIA unit to start; (3) All unit cycling cutout controls are in the normal position, so they will allow the Millennium unit to start; (4) The Millennium Control Center "unit" switch is in the "run" position. A closure of the Remote Mode Ready to Start Contacts then signifies that the YIA unit shall start when the Energy Management System Maintains the Remote Stop Contact (Fig. E) open and momentarily closes the Remote Start Contact (Fig. E). When the Remote Mode Ready to Start Contacts close, the Millennium Control Center will display the following message "SYSTEM READY TO START".

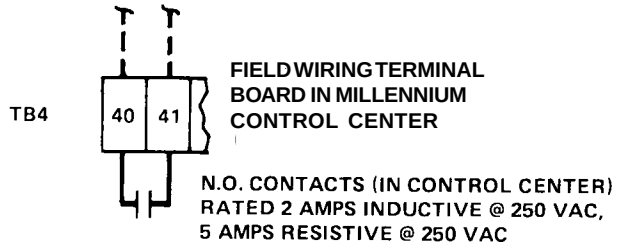



**FIG. B –** CYCLING SHUTDOWN CONTACTS

**FIG. B – CYCLING SHUTDOWN CONTACTS -** When closed, these contacts signify the YIA unit is not permitted to start due to one or more of the following occurrences: (1) The leaving chilled water temperature has dropped more than 2°F below setpoint; (2) The steam/hot water valve actuator is loaded greater than 10%; (3) The condenser water pump interlock or flow switch contacts are open (see "Field Connections" wiring diagram, Form 155.19-W1 for steam/hot water units); the Remote/Local Cycling Devices are open - see Fig. F; the Multi-Unit Sequence Contacts are open - see Fig. G; (6) The Micro Board 5 VDC supply is less than 4.75 VDC (Power Failure); a 115 VAC supply power failure occurred when the unit was off with the "Auto Restart After Power Failure" programming jumper installed on the Micro Board - see Fig. R. Upon closure of all contacts above, the YIA unit will automatically restart. When the Cycling Shutdown Contacts are closed, the Millennium Control Center will display the following message: "SYSTEM SHUTDOWN - PRESS STATUS"; upon pressing the "status" key, the message displayed consists of the day and time of shutdown plus the cause of shutdown.

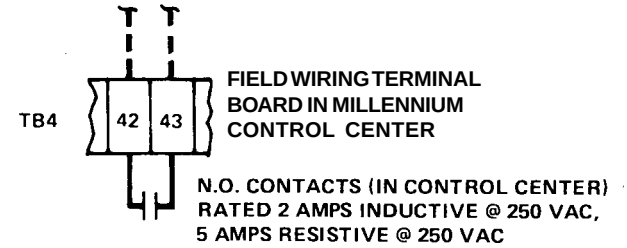



**FIG. C –** SAFETY SHUTDOWN CONTACTS

**FIG. C – SAFETY SHUTDOWN CONTACTS -** When closed, these contacts signify the Millennium unit is not permitted to start due to one or more of the following safety controls:

(1) Solution or refrigerant pump overloads or thermal switches tripped/open

(2) Low refrigerant temperature cut-out at 33.0°F

(3) Generator high pressure cut-out at 13.73 PSIA (analog back-up at 15.00 PSIA)

(4) Generator high temperature cut-out at 330°F (analog back-up at 337°F)

(5) Generator pump (50Hz Models YIA 10E3-YIA 14F3 only) overloads or thermal switches tripped/open

(6) Steam/Hot water high temperature cutout at 285/260°F

(7) Solution/refrigerant pump motor coolant float switch tripped/open

(8) Steam supply pressure (steam units only) cut-out at 29.0 PSIA

(9) Power failure (when the "Auto Restart After Power Failure" jumper is removed from the Micro Board - see Fig. R)

(10) Chilled water flow switch open

(11) Following a power failure, if the solution temperature is less than 136°F when power is restored and the unit did not complete its previous dilution cycle, check for crystallization

(12) If, after a shutdown as described in item (1), while the solution or refrigerant pump overloads or thermal switches are tripped, if the solution temperature falls to less than 136°F before the switches reclose, check for crystallization

(13) While the low refrigerant temperature cutout switch is tripped or the refrigerant sensor temperature rises to 37°F (whichever device caused the shutdown), if the solution temperature is less than 136°F, check for crystallization

(14) While the chilled water flow switch is tripped after shutdown as described in item (10) and the solution temperature is below 136°F, check for crystallization

(15) While the condenser water flow switch is tripped/open, if the solution temperature falls to less than 136°F, check for crystallization

(16) While the solution/refrigerant motor coolant float switch is tripped as described in item (7), if the solution temperature falls to less than 136°F, check for crystallization. In items (11), (12), (13), (14), (15), and (16), after the levels are properly adjusted, the unit must be manually reset by pressing the "warning reset" key in "service" mode.

When all safety controls are satisfied, and the Millennium Control Center "unit" switch has been placed in the "stop/reset" position and then in the "run" position, the YIA unit may be restarted; if the Control Center is in "remote" mode, via the Remote Start Contacts (Fig. E); or if the Control Center is in "local" mode the unit may be started by pressing the keypad-mounted "unit" switch to the "start" position.

A closure of the Safety Contacts means that an operator must manually reset the YIA unit. When the Safety Shutdown Contacts are closed, the Millennium Control Center will display the following message: "SYSTEM SHUTDOWN - PRESS STATUS". Upon pressing "status" key, the status message consists of the day and time of shutdown plus cause of shutdown. Safety Shutdown Contacts function in all operating modes - local, remote, program, and service.


**FIG. D –** RUN CONTACTS

**FIG. D – RUN CONTACTS -** When closed, these contacts signify that the YIA unit is operating. The Millennium Control Center will display:

(1) "SYSTEM RUN - LEAVING CHILLED WATER CONTROL" – Message displayed while the YIA unit is running; indicating that the capacity control is being controlled by the leaving chilled water temperature setpoint.

(2) "SYSTEM RUN - MAXIMUM COOLING" – The message is displayed while the Millennium unit is running. It indicates that the unit is inhibiting loading due to its design operating limits controlled by the "MAXIMUM LOAD" = 89% setting. The actual limit is programmable from 50 to 100%. The values for a specific unit are typically different and are dependent upon the specified operating conditions and unit design.

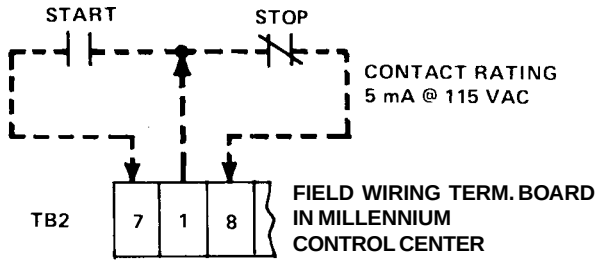



**FIG. E –** REMOTE START-STOP CONTACTS FROM ENERGY MANAGEMENT SYSTEM

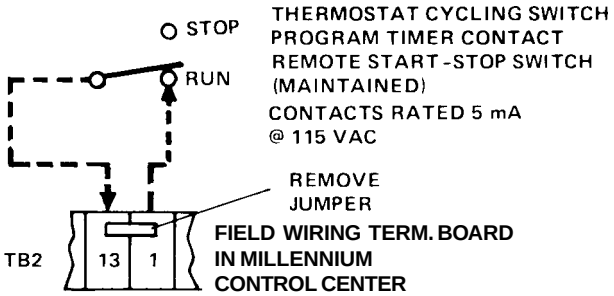



**FIG. F –** REMOTE/LOCAL CYCLING DEVICES

**FIG. E – REMOTE START AND STOP CONTACTS FROM ENERGY MANAGEMENT SYSTEM -** When the Millennium Control Center is in the "remote" operating mode and the "unit" switch is in the "run" position, with the Remote Stop Contacts open, and the Remote Mode Ready to Start Contacts closed (Fig. A), the YIA unit will start via a momentary or maintained closure of the Remote Start Contacts. A subsequent closure of the Energy Management System Remote Stop Contacts causes the unit to shut down. The Millennium Control Center will display the following message: "SYSTEM SHUTDOWN - PRESS STATUS". Upon pressing "status" key "REMOTE STOP" message will be displayed when the Energy Management System Remote Stop Contacts has commanded the unit to shut down.

When terminals 7, 1 and 8 on terminal board TB2 (see note 13) are not connected to an Energy Management System, they may be connected to a Remote Start-Stop station (see Fig. X).

*Note – Even when the YIA unit is applied with Remote Start-Stop (when the Control Center is in the "remote operating mode"), and EMERGENCY STOP by an operator or others can STOP the unit from the Millennium Control Center and prevent the unit from restarting. However, the operator cannot locally start the unit using "unit" start switch, when the Control Center is in the "remote" operating mode.*

**FIG. F – REMOTE/LOCAL CYCLING DEVICES -** The closure of an automatic reset device across this input (See Note 13) will permit the YIA unit to operate in all operating modes. Conversely, an opening of the device contacts will inhibit the YIA unit from operating; the Millennium Control Center will then display the following message: "SYSTEM SHUTDOWN - PRESS STATUS". Upon pressing "status" key, the status message will read day and time of shutdown: "DAY XX:XX AM - SYSTEM CYCLING - AUTO START".

*Note – The Millennium Control Center contains a seven day time clock to select daily schedule Start/Stop times (Sunday through Saturday including one or more holidays in week) up to one full week at a time. So automatic start and stop of the YIA unit on a daily basis, at predetermined times, can be programmed as a standard feature; an additional program timer is not required for this function.*

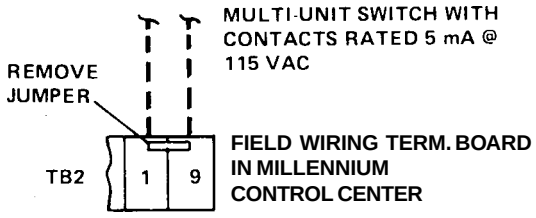



**FIG. G –** MULTI-UNIT SEQUENCE

**FIG. G – MULTI-UNIT SEQUENCE -** For a multiple Millennium installation application, the Sequence Commander II may be used to sequence 2 to 8 units. The sequencing is accomplished via the YORKTalk communications bus using a single twisted-pair of wires to each chiller unit. When a Millennium Control Center is commanded to stop, the following message is displayed: "SYSTEM SHUTDOWN - PRESS STATUS". Upon pressing the "status" key, the message will read day and time of shutdown: "DAY XX:XX AM - REMOTE STOP". Contact YORK for more details. If the Sequence Commander II is not used, another multi-unit cycling device may be used as shown in Fig. G. When the cycling device contacts open, the message "SYSTEM SHUTDOWN - PRESS STATUS" is displayed. Upon pressing the "status" key, the displayed message is "DAY XX:XX AM - MULTIUNIT CYCLING - AUTOSTART".

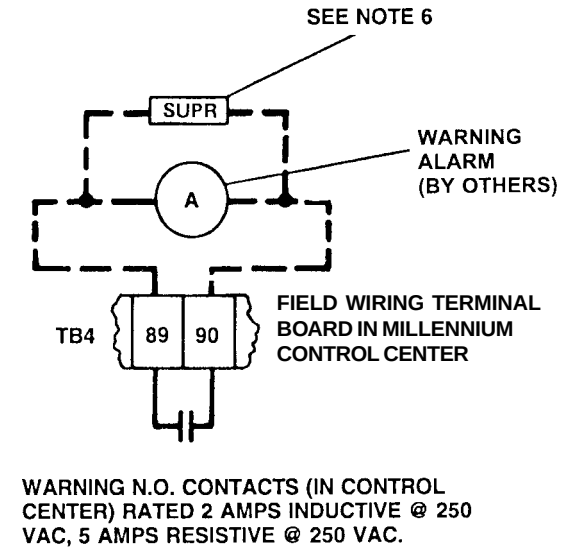



**FIG. H –** WARNING CONTACTS (SEE NOTE 6)

**FIG. H - WARNING CONTACTS -** The warning contacts may be employed to energize a local or remote warning alarm (by others). When one or more of the warning thresholds are exceeded and the unit is operating, the normally open warning contacts close to sound the alarm (by others). When the alarm (by others) sounds, it is indicative of one or more of the following warning conditions (which are displayed by pressing the "status" key on the Millennium Control Center):

(1) Low refrigerant temperature (which inhibits unit loading)

(2) Generator high pressure override (which limits loading to 30% max.)

(3) Entering condenser water temperature >XX°F (which limits the loading to 60% max.) after a 30 minute bypass at unit start (the limiting temperature is programmable from 75 to 125°F)

(4) Purge pump overloads open

(5) Faulty solution temperature sensor (for reading ≤ 91°F for 1 minute continuously following a 30 minute bypass at unit start)

(6) High steam supply pressure (steam units only)

(7) High steam/hot water supply temperature

(8) Programmable purge pump service interval has elapsed (purge pump service interval is programmable from 5 to 100 hours).

If any of the warning thresholds are exceeded, the unit continues to run and the warning alarm, if connected (by others), may be silenced anytime by pressing the "warning reset" key. The displayed warning message may be cleared only when (1) the warning reset threshold has been previously reached and (2) by pressing the "warning reset" key in "service" mode.

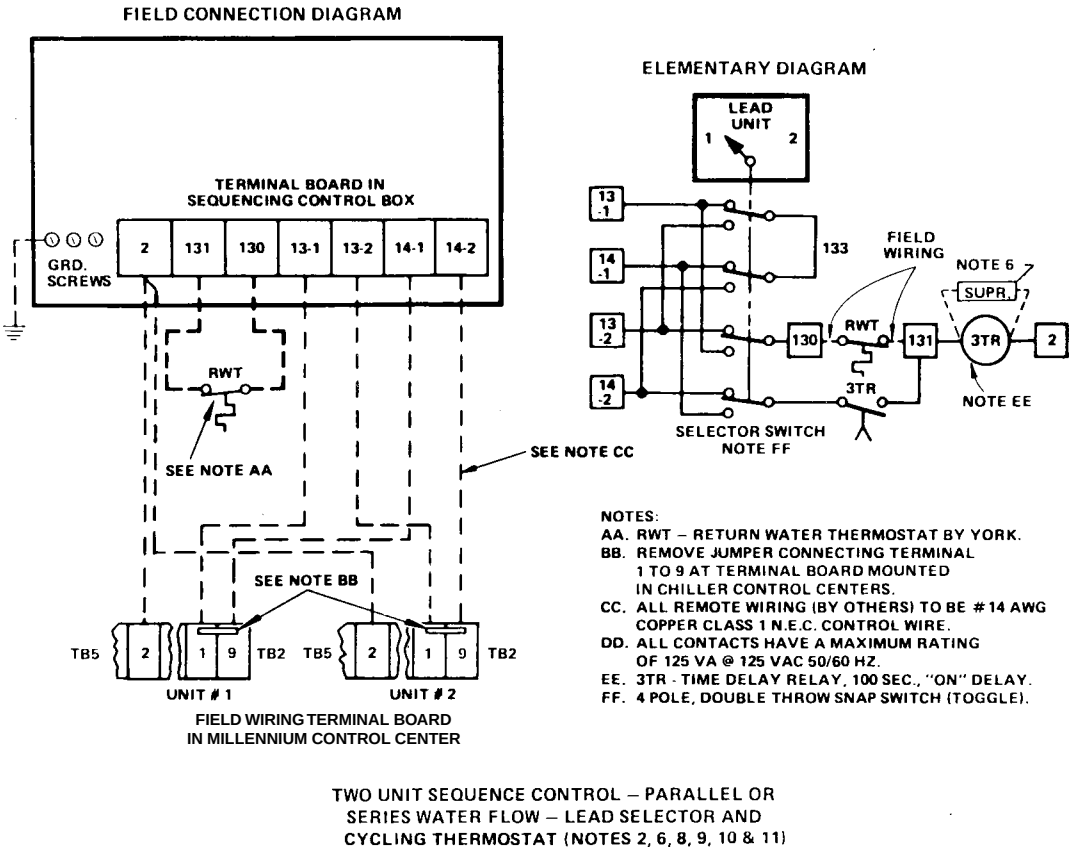



**FIG. J –** TWO UNIT SEQUENCE CONTROL (COOLING APPLICATION ONLY)

**FIG. J – TWO UNIT SEQUENCE CONTROL -** Provides that cycling thermostat RWT will automatically cycle either #1 or #2 unit. Timer 3TR is an additional feature which prevents simultaneous starting of lead and lag unit following a power failure and eliminates nuisance starting of lag unit due to periodic fluctuations in temperature. For two unit sequence control kit, order YORK accessory Kit No. 466-61597T for controls as specified with NEMA I enclosure. See Form 150.40-NM2.2 for Installation and Operation Instructions. RWT has 20°F to 80°F range with adjustable differential of 3-1/2 to 14°F; 6 ft. of capillary with 3/8" x 5" bulb and 1/2" NPT brass well (maximum liquid DWP 300 PSIG). The thermostat is drawn to indicate its operation closes on rise. A 1/2" pipe coupling in the return chilled water line from the building must be furnished (by others) for RWT control well.

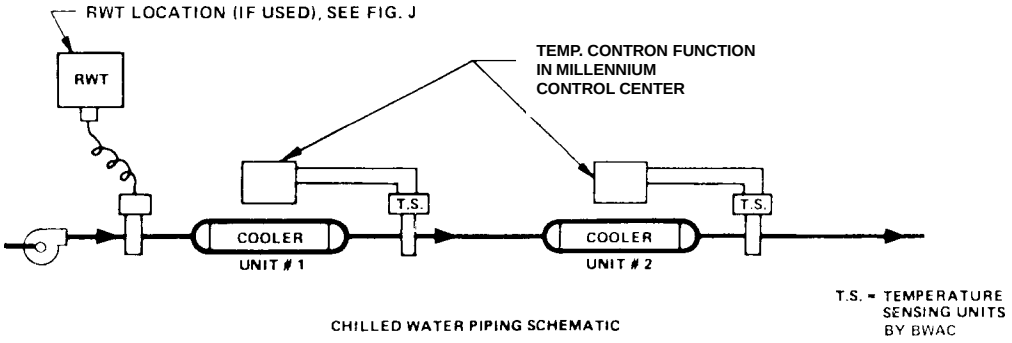



**FIG. K –** MULTIPLE UNITS (TWO) - SERIES OPERATION (NOTES 8 & 11) (COOLING APPLICATION ONLY)

**FIG. K – MULTIPLE UNITS (TWO) - SERIES OPERATION -** The supply chilled water temperature to the building is normally determined by the "chilled water temp." setpoint for Unit #2. When lead selector position of sequence control kit (Fig. J) is Unit #1, the supply chilled water temperature to the building will be the temperature control setpoint on Unit #1 Millennium Control Center. If a lower temperature is desired, reprogram the "chilled water temp." setpoint for Unit #1.

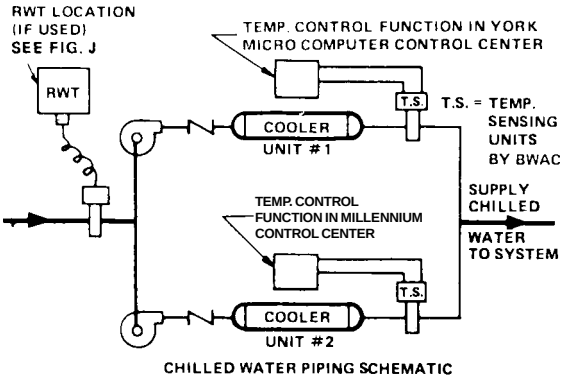



**FIG. L –** MULTIPLE UNITS (TWO) - PARALLEL OPERATION - INDIVIDUAL UNIT PUMPS (COOLING APPLICATION ONLY)

**FIG. L – MULTIPLE UNITS (TWO) - PARALLEL OPERATION - INDIVIDUAL UNIT PUMPS -** This piping arrangement is the same as Fig. M, except that the chilled water pumps associated with each cooler (evaporator) are cycled on and off with the YIA unit. This results in reduced chilled water flow rates whenever a single unit can handle the cooling load. Because no chilled water flows through the inoperative unit, the mixed water temperature peculiar to using a single pump is avoided. When one unit is cutout by the sequence control (Fig. J) the temperature of the supply chilled water does not change.

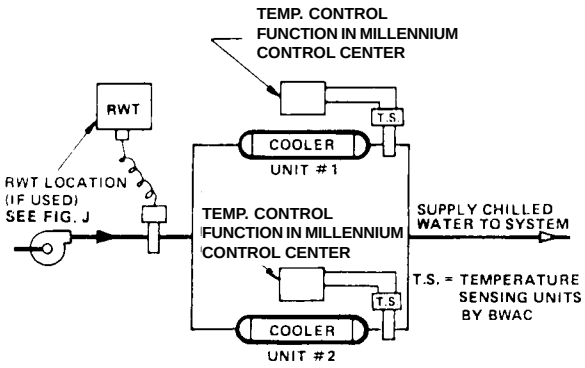



**FIG. M –** MULTIPLE UNITS (TWO) - PARALLEL OPERATION - SINGLE CHILLED WATER PUMP (COOLING APPLICATION ONLY)

**FIG. M – MULTIPLE UNITS (TWO) - PARALLEL OPERATION - SINGLE CHILLED WATER PUMP -** For this piping arrangement, each YIA unit's water sensor is located in it's own leaving water nozzle. This produces a constant "mixed" chilled water temperature when both units are operating. When either unit is cycled off by the sequence control (Fig. J), mixed chilled water temperature will rise as a result of uncooled return water flowing through the inoperative unit. For individual unit chilled water pump piping, refer to Fig. L.

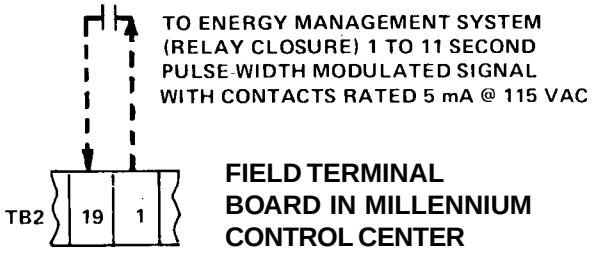



**FIG. N –** REMOTE LEAVING CHILLED WATER TEMPERATURE SETPOINT WITH PWM SIGNAL (NOTE 14)

**FIG. N – REMOTE LEAVING CHILLED TEMPERATURE SETPOINT WITH PWM SIGNAL -** The Millennium Control Center can be programmed via panel "remote reset temp. range" setpoint for a 10°F or 20°F leaving chilled water temperature reset range. Then automatic remote temperature setpoint is accomplished by supplying (by others) a 1 to 11 second pulse-width modulated signal across terminals 1 and 19 on the digital input board (field wiring terminal board TB2) in the Millennium Control Center. The input signal will only be accepted when the Millennium Control Center is in the "remote" operating mode - see Fig. A. YIA unit capacity control is from the leaving chilled or hot water temperature providing the unit load is below the "maximum cooling or heating load" setpoint. A one second pulse corresponds to zero deg. F offset and therefore at the programmed leaving chilled liquid temperature setpoint. An eleven second pulse corresponds to maximum offset (10°F or 20°F as programmed) above the programmed chilled water setpoint. The amount of offset from 1 to 11 seconds varies linearly with pulse-width. For example, a 3 second pulse applied (across terminals 1 and 19 ) to the YIA unit programmed for 45°F leaving chilled water temperature setpoint and 20°F "remote reset temp. range", the new setpoint would be:

$$\text{Temp. Offset - Deg. F offset} = \frac{(\text{pulse-width} - 1)(\text{remote reset temp. range})}{10}$$

$$\text{Deg. F offset} = \frac{(3 - 1)(20)}{10} = 4°\text{F}$$

Setpoint = keypad entered setpoint + °F offset

Thus the new leaving chilled water temperature control point is 45°F = 4°F = 49°F.

The maximum rate at which the Millennium Control Center will accept reset pulses is one pulse each 60 seconds. If a second reset pulse is not received within 30 minutes of the first pulse, the temperature setpoint reverts to the base setpoint (with no offset).

For remote temperature setpoint via a 4 to 20mA D.C. current signal, a 0 to 10 volt D.C. signal, or a single contact closure, refer to Fig. V.

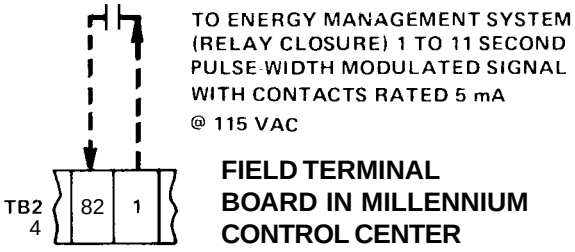



**FIG. P –** REMOTE STEAM/HOT WATER LIMIT SETPOINT WITH PWM SIGNAL

**FIG. P – REMOTE STEAM/HOT WATER LIMIT SETPOINT WITH PWM SIGNAL -** Remote steam limit is accomplished by supplying (by others) a 1 to 11 second pulse-width modulated signal across terminals 1 and 82 on a digital input of the relay board (field wiring terminal board TB4) in the Millennium Control Center. The input signal will only be accepted when the Millennium Control Center is in the "remote" operating mode - see Fig. A. Unit capacity control is from the leaving chilled water temperature, providing the steam/hot water valve limit setpoint is satisfied. When the % steam/hot water valve exceeds the steam/hot water limits setpoint, it will override the temperature control system to reduce unit capacity. A one second pulse corresponds to 100% valve position (full open) and an eleven second pulse corresponds to a programmable lower limit (10%-20%) valve position. The steam/hot water limit setpoint varies linearly from 100% to the lower programmable limit of between 10%-20% valve position as the pulse-width changes from 1 to 11 seconds. Since the lower limit of the steam valve is programmable (factory adjusted for 10%), the minimum valve position during unit operation is 10-20%. For example, for a 5 second pulse applied across terminals 1 and 82 of TB4, and with a lower steam/hot water valve limit of 10%, the steam/hot water limit setpoint would be as follows:

Remote Steam/Hot Water Limit —

Setpoint = 100% - (pulse-width in seconds - 1) [(100%-lower steam valve limit%)]

Setpoint = 100% - (5 - 1) [(100%-10%)/10]
= 100% - 4 (9%)
= 100% - 36% = **64%**

The maximum rate at which the Millennium Control Center will accept remote steam/hot water limit setpoint pulses is one pulse each 60 seconds.

Following a remote setpoint pulse, the steam/hot water limit setpoint changes to the value corresponding to the pulse-width. If a second reset pulse is not received within 30 minutes of the first pulse, the steam/hot water setpoint reverts to the programmed maximum load limit setpoint. If the Millennium Control Center "Pulldown Demand Limit" (standard available function) has been programmed and the unit was started and has run less than the Pulldown Demand Limit timer setting, then the unit will be steam/hot

*Continued on Page 11*

water limited by the lower of the Pulldown Demand Limit and remote steam/hot water limit. The Pulldown Demand Limit will automatically transfer control of steam/hot water limit function to "remote" at the end of its programmed timed cycle with the unit in "remote" mode.

Fig. P can be applied in conjunction with Fig. N, thus providing the capability of remotely controlling both motor steam/hot water limit setting AND leaving chilled water temperature simultaneously, if so desired.

For remote steam/hot water limit setpoint via a 4 to 20mA D.C. current signal, a 0 to 10 volt D.C. signal, or a single contact closure, refer to Fig. U.

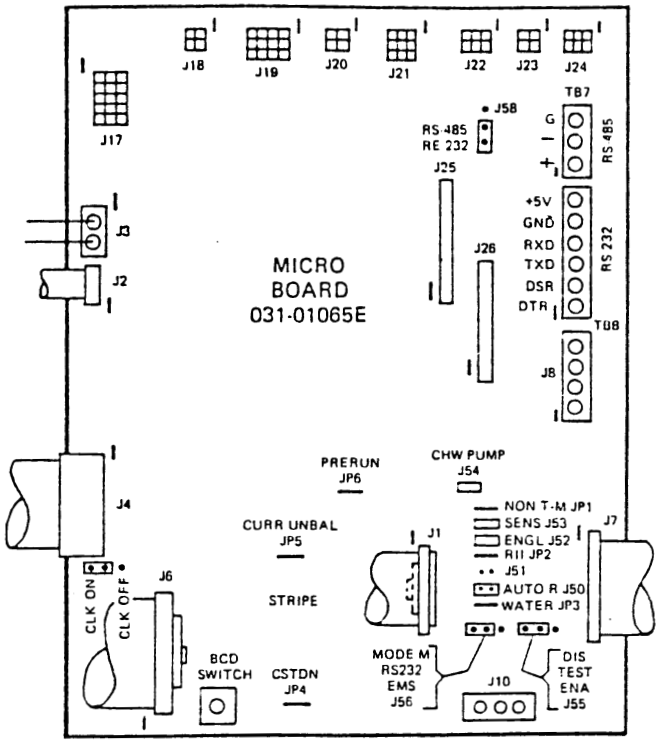



**FIG. Q –** MICRO BOARD JUMPERS FOR AUTO/MANUAL RESTART AFTER POWER FAILURE OR ENGLISH/METRIC DISPLAY UNITS

**FIG. Q – MICRO BOARD JUMPERS FOR AUTO/MANUAL RESTART AFTER POWER FAILURE OR ENGLISH/MATRIC DISPLAY UNITS -** This figure shows the location of two jumpers, "Auto Restart" and "English", on the Micro Board which can convert the Millennium Control Center functions. The Micro Board is on the rear panel located directly behind the Millennium Control Center key locked door and hinged panel; refer to the Connection Diagram page of Wiring Diagram, Form 155.16-W1 (all units). For orientation purposes with the Connection Diagram, see Fig. R.

(1) Auto Restart Jumper – Millennium Control Center is furnished for Manual Restart After Power Failure as a standard function. The Control Center can be field changed to AUTOMATIC restart after a power failure, if the MANUAL restart feature is not desired. Simply remove jumper from provided bag of parts, and plug in the "Auto Restart" programming JUMPER (Auto R.) on the Micro Board.

(2) English Jumper – The Millennium Control Center can present the "display" in English or Metric System fo Units. For English units, temperature display is in degree Farenheit (°F) and absolute pressure in pounds per square inch (PSIA). For Metric units, temperature display is in degree Celcius (°C) and pressure in Kilo-Pascals (kPa). When the Metric system of units is desired, the Micro Board JUMPER ("English"), shown in Fig. R, is removed from the J52 terminals.

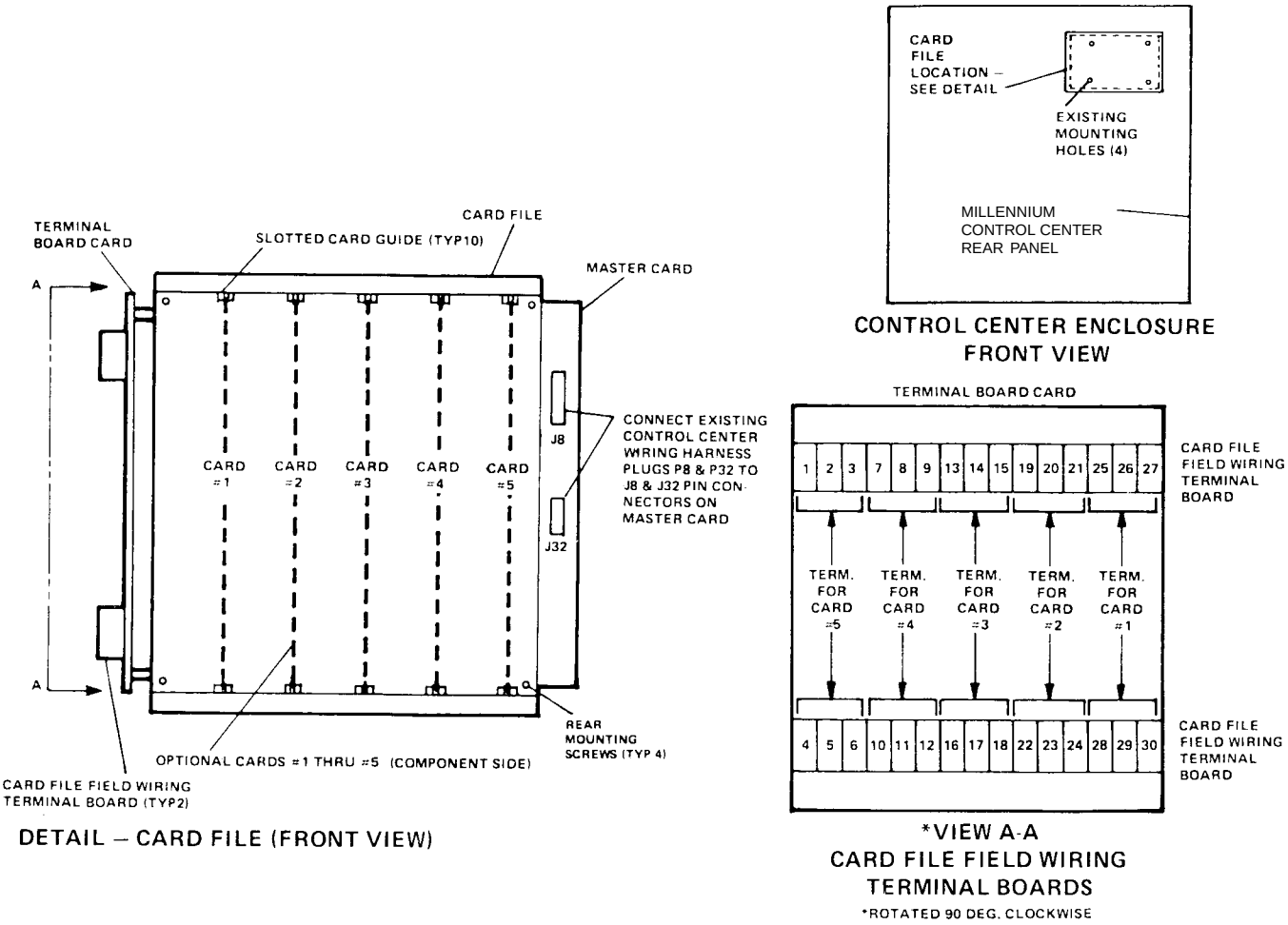
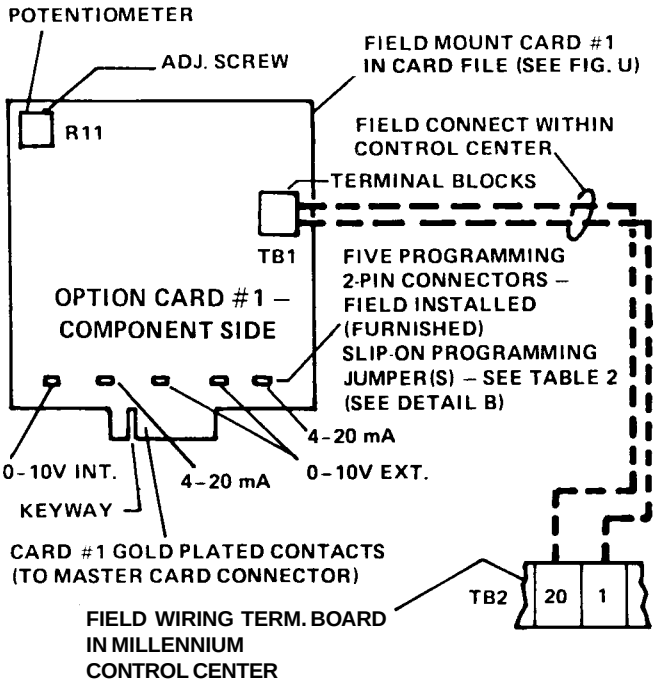


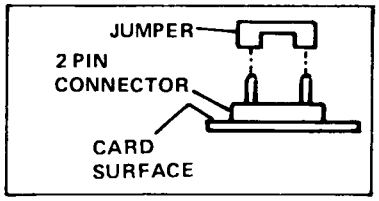

**FIG. R –** CARD FILE

**FIG. R – CARD FILE -** Designed-in flexibility of the Millennium Control Center allows the unit to be tailored for the application - for example, using a 4 to 20mA D.C. temperature reset signal instead of a 1 to 11 second pulse-width modulated signal, for Remote Temperature Setpoint. The Card File assembly provides the basic control system building block for optional features (when desired). The card file function is to serve as a mounting medium for optional (at additional cost) electronic control printed circuit boards ("cards"). The Card File is a field installed assembly which includes slotted card guides, a field wiring terminal board card having 30 terminals, and a master card having connectors for option cards. One card file can hold up to five option cards (at additional cost). The accessible field wiring terminal boards, located on the left end of the card file assembly, provide six field connection terminals for each option card - See View A-A. For example, option card #1 would use field wiring terminals numbered 25 thru 30 . The Millennium Control Center provides the 12 volt D.C. unregulated power to the master card; simply push-on connector plugs P8 & P32 from the control center existing wiring harnesses, to the corresponding master card J8 & J32 pin connectors. The card file assembly (6" W. x 8-3/4" L. x 6-1/2" Deep overall) is easily field installed (by others) within the control center enclosure at the "card file" location, on the rear panel, using four standoff mounts, screws and lock-washers (factory furnished) – see Card File Installation Instructions, Form 160.45-N2.2, for more details. At additional cost, order YORK Accessory Part No. 031-00827-000 for the Card File Assembly (with mounting hardware); shipped loose for field installation (by others). Option cards #1 thru #5 are NOT included with the Card File Assembly (refer to Fig. V).

Front loading option cards (#1 and #5) are field mounted into the Card File via slotted slide card guides, for easy push-in installation and plug connection to master card. Each option card has a keyway to mate with the corresponding key connector on the master card; the option card (#1 thru #5) can only be mounted in the proper card file guides and in the correct position.

Option card #2 provides the user with the capability of remotely controlling leaving chilled water temperature setting. Refer to Fig. V.




DETAIL B – JUMPER END VIEW

**TABLE 2 – JUMPER POSITION FOR CARD #1 PROGRAMMING MODE**

| SEE DETAIL | TYPE REMOTE INPUT SIGNAL | PROGRAMMING MODE PIN CONNECTORS | | | | |
|---|---|---|---|---|---|---|
| | | 0-10V INT | 4-20 mA | 0-10V EXT | 0-10V EXT | 4-20 mA |
| 1 | 4 TO 20 mA | — | ON | — | — | ON |
| 2 | 0 TO 10 VOLTS | — | — | ON | ON | — |
| 3 | CONTACT CLOSURE* | ON | — | — | — | — |

*ONLY ONE JUMPER IS USED

**FIG. U –** REMOTE STEAM/HOT WATER LIMIT SETPOINT - OPTION CARD #1

**FIG. U – REMOTE STEAM/HOT WATER LIMIT SETPOINT - OPTION CARD #1 -** A standard feature of the Millennium Control Center is to accept a 1 to 11 second pulse-width modulated (PWM) signal (by others) for remote steam/hot water limit setpoint. Should the application require an input signal of 4 to 20mA D.C., or 0 to 10 volts D.C. or a single contact closure for one discrete remote steam/hot water limit setpoint - instead of a PWM signal - then option card #1 is required in conjunction with the Card File (see Fig. U). The input signal (by others) can be from an energy management system, etc. The Millennium Control Center will only accept the input signal when the control center is in the "remote" mode is selected - see Fig. A. When option card #1 is used, Fig. P, for PWM signal, cannot be applied. Unit capacity control is from the leaving chilled water temperature, providing the steam/hot water limit setpoint is not reached. When steam/hot water valve exceeds the steam/hot water limit setpoint, it will override the temperature control system to reduce unit capacity.

Three input signal choices are available using option card #1. The user first determines which one is desired: (1) 4 to 20mA D.C., (2) 0 to 10 volts D.C., or (3) single contact closure. Two slip-on programming mode jumpers are furnished with card #1. Simply place the program jumper(s) on the 2-pin connectors (see Detail B) according to the positions indicated by Table 2. Note only one jumper is used if the contact closure mode was chosen.

The optional Card File (Fig. R) must have been previously field installed (by others) in the Millennium Control Center, because it serves as the mounting medium for card #1. Field install (by others) card #1 by just sliding it into the slotted card guides of the Card File; connect the wiring harness (by others) from card #1 terminal block (TB1) to control center terminal board (TB4) as shown.

Input signal wiring is field connected (by others) to the card file field wiring terminals, as shown in Detail 1, 2 or 3 (see Page 14). Select the detail that agrees with how program jumper(s) were positioned on card #1. For more details on card file field wiring terminal board, refer to Fig. R - see View A-A.

The timer circuit on card #1 will permit the unit to begin responding to an input signal change within 150 seconds after the signal is received. Following a remote setpoint signal, the steam/hot water limit setpoint changes to the value corresponding to the signal (see Details 1, 2, or 3). When the remote setpoint signal is removed, the setpoint reverts to the programmed maximum load limit setpoint following a 30 minute built-in time delay. If the Millennium Control Center "Pulldown Demand Limit" (standard available function) has been programmed and the unit was started and has run less than the Pulldown Demand Limit timer setting, then the unit will be steam limited by the lower of the Pulldown Demand Limit and the remote steam limit. The Pulldown Demand Limit will automatically transfer control of steam limit function to "remote" at the end of its programmed timed cycle with panel in "remote" operating mode.

Order, at additional cost, YORK Remote Steam Setpoint Option Card, Part No. 031-00814-000; shipped loose for field installation (by others). The optional Card File (Fig. U) is REQUIRED if card #1 is ordered. When Remote Leaving Chilled Water Temperature Control Setpoint option card #2 is also ordered, cards #1 AND #2 are required, but only ONE card file is ordered. Refer to card #1 Installation Instructions, Form 160.45-N2.3.

Option card #1 in Fig. U can be applied in conjunction with Fig. V (option card #2) thus providing the capability of remotely controlling both steam/hot water limit setting AND leaving chilled water temperature setting simultaneously, if so desired.

***See Page 14 for Details 1, 2, & 3.***

**DETAIL 1 –** Remote Steam/Hot Water Limit Setpoint is accomplished by supplying a 4 to 20mA D.C. input current signal (by others) across terminals [28] and [30] on the card file field wiring terminal board (see Fig. R). Option card #1 program jumper positions must be per Table 2. A 4mA signal corresponds to 100% valve position (full open) and a 20mA signal corresponds to a programmable lower limit (10%-20%) valve position. The steam/hot water limit setpoint varies linearly from 100% to the lower programmable limit of between 10%-20% valve position as the current changes from 4 to 20mA. Since the lower limit of the steam/hot water valve is controlled by a programmable limit (factory adjusted to 10%), the minimum valve position during operation is 10%-20%. For example, 8mA applied across terminals [28] and [30] of the card file, and with a programmed lower steam/hot water valve limit of 10%, the steam/hot water valve limit would be as follows:

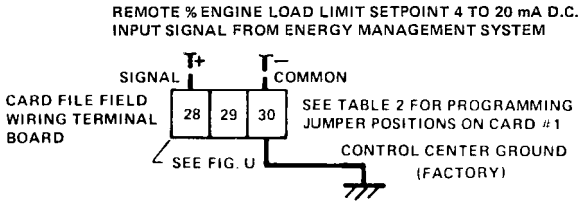
Remote Steam/Hot Water Limit -

Setpoint = 100% - (mA signal - 4) [(100% - lower steam valve limit %)/16]

Setpoint = 100% - (8 - 4) [(100% - 10%)/16]
= 100% - (4) (5.625%)
= 100% - 22.5% = **77.5%**

The maximum rate at which the Millennium Control center will accept remote steam/hot water limit setpoint mA signal is once every 150 seconds.

For remote steam/hot water limit setpoint via a 0 to 10 volt D.C. signal - see Detail 2, or a single contact closure - see Detail 3. Refer to Fig. Q for pulse-width modulated signal.




**DETAIL 1 –** 4 to 20mA D.C. INPUT CURRENT SIGNAL CONNECTIONS

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**DETAIL 2 –** Remote Steam/Hot Water Limit Setpoint is accomplished by supplying a 0 to 10 volt D.C. input signal (by others) across terminals [28] and [30] on the card file field wiring terminal board (see Fig. U). Option card #1 program jumper positions must be per Table 2. A 0 volt D.C. signal corresponds to 100% valve position (full open) and a 10 volt D.C. signal corresponds to a programmable lower limit (10% - 20%) valve position. The steam/hot water limit setpoint varies linearly from 100% to the lower programmable limit of between 10%-20% valve position as the voltage changes from 0 to 10 volts D.C. Since the lower limit of the steam/hot water valve is controlled by a programmable limit (factory adjusted to 10%), the minimum valve position during operation is 10%-20%. For example, 5 volts D.C. applied across terminals [28] and [30] of the card file, and with a lower steam/hot water valve limit of 10%, the steam/hot water limit setpoint would be as follows:

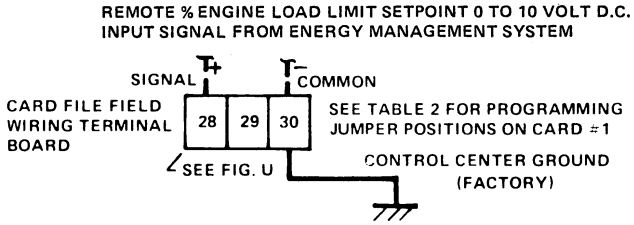
Remote Steam/Hot Water Limit —

Setpoint = 100% - (D.C. voltage signal) [(100% - lower steam valve limit%)/10]

Setpoint = 100% - (5) [(100% - 10%)/10]
= 100% - 5(9%)
= 100% - 45% = **55%**

The maximum rate at which the Millennium Control Center will accept remote steam/hot water limit setpoint D.C. voltage signal is once every 150 seconds.

For remote steam/hot water limit setpoint via a 4 to 20 mA D.C. signal - see Detail 1, or a single contact closure - see Detail 3. Refer to Fig. Q for pulse-width modulated signal.




**DETAIL 2 –** 0 TO 10 VOLT D.C. INPUT VOLTAGE SIGNAL CONNECTIONS

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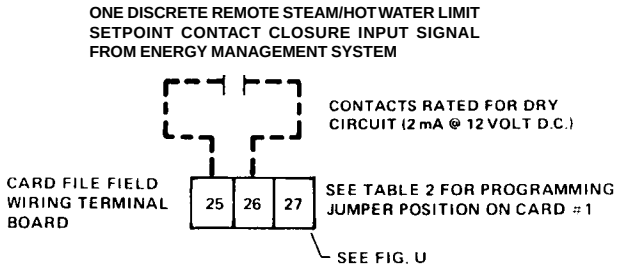
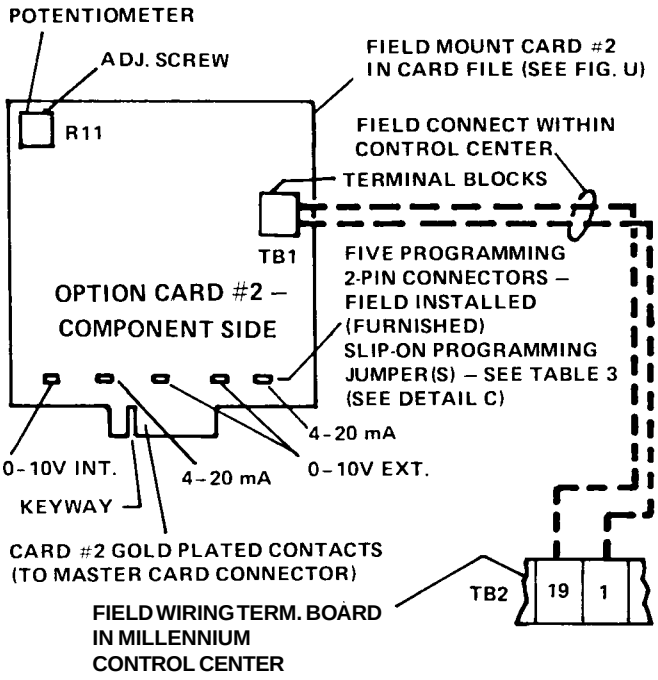
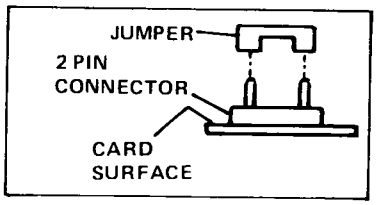
**DETAIL 3 –** Remote Steam/Hot Water Limit Setpoint is accomplished by supplying a single dry circuit contact closure, 2 milliamperes @ 12 volts (by others) across terminals [25] and [26] on the card file field wiring terminal board (see Fig. U). Option card #1 program jumper (one) position must be per Table 2. The contact closure provides one discrete remote steam limit setpoint corresponding to the full load setting (screw adjustable) between 100% and the minimum panel programmable limit of 10%-20% (factory set to 10%).




**DETAIL 3 –** CONTACT CLOSURE INPUT SIGNAL CONNECTIONS

**FIG. V (Continued) –** REMOTE CURRENT LIMIT SETPOINT - OPTION CARD #1




DETAIL C – JUMPER END VIEW

TABLE 3 – JUMPER POSITION FOR CARD #2 PROGRAMMING MODE

| SEE DETAIL | TYPE REMOTE INPUT SIGNAL | PROGRAMMING MODE PIN CONNECTORS | | | | |
|---|---|---|---|---|---|---|
| | | 0-10V INT | 4-20 mA | 0-10V EXT | 0-10V EXT | 4-20 mA |
| 1 | 4 TO 20 mA | — | ON | — | — | ON |
| 2 | 0 TO 10 VOLTS | — | — | ON | ON | — |
| 3 | CONTACT CLOSURE* | ON | — | — | — | — |

*ONLY ONE JUMPER IS USED

**FIG. V –** REMOTE LEAVING CHILLED WATER TEMPERATURE SETPOINT OPTION CARD #2 (NOTE 14)

**FIG. V– REMOTE LEAVING CHILLED WATER TEMPERATURE SETPOINT OPTION CARD #2 -** A standard feature of the Millennium Control Center is to accept a 1 to 11 second pulse-width modulated (PWM) signal (by others) for remote leaving chilled water temperature setpoint. Should the application require an input signal of 4 to 20mA D.C., or 0 to 10 volts D.C., or a single contact closure for one discrete remote leaving chilled water temperature - instead of a PWM signal - then option card #2 is required in conjunction with the card file (see Fig. R). The input signal (by others) can be from an energy management system, etc. The Millennium Control Center will only accept the input signal when the Control Center is in the "remote" mode - see Fig. A. When option card #2 is used, Fig. P, for PWM signal, cannot be applied. Millennium capacity control is from the leaving chilled water temperature, providing the maximum cooling load setpoint is not reached.

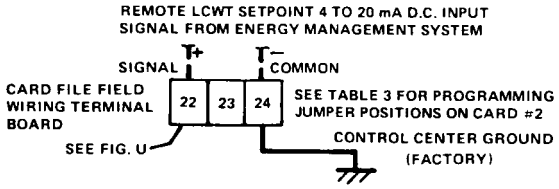
The Millennium Control Center can be programmed via "Remote Reset Temp. Range" setpoint key for a 10°F or 20°F leaving chilled liquid temperature reset range. Then automatic remote temperature reset is accomplished by supplying (by others) the input signal to the card file field wiring terminal board shown in Fig. R. Three input signal choices are available using option card #2. The user first determines which one is desired: (1) 4 to 20mA D.C., (2) 0 to 10 volts D.C., or (3) single contact closure. Two slip-on programming mode jumpers are furnished with card #2. Simply place the program jumper(s) on the 2-pin connectors (see Detail C) according to the positions indicated by Table 3. Note only one jumper is used if the contact closure mode was chosen.

The optional card file (Fig. R) must have been previously field installed (by others) in the Millennium Control Center, because it serves as the mounting medium for card #2. Field install (by others) card #2 by just sliding it into the slotted card guides of the Card File; connect the wiring harness (by others) from card #2 terminal block (TB1) to control center terminal board (TB2) as shown. Input signal wiring is field connected (by others) to the card file field wiring terminals, as shown in Detail 1, 2, or 3 (See Page 17). Select the detail that agrees with how program jumper(s) were positioned on card #2. For more details on card file field wiring terminal board, refer to Fig. R – see View A-A.

The timer circuit on card #2 will permit the YIA to begin responding to an input signal change within 150 seconds after the signal is received. Following a remote setpoint signal, the leaving chilled water temperature setpoint changes to the value corresponding to the signal (see Details 1, 2, or 3). When the remote setpoint signal is removed, the setpoint reverts to the programmed leaving chilled water temperature following a 30 minute built-in time delay.

Order, at additional cost, YORK Remote Leaving Chilled Water Temperature Setpoint Option Card, Part No. 031-00814-000; shipped loose for field installation (by others). The optional card file (Fig. R) is REQUIRED if card #2 is ordered. Refer to card #2 Installation Instructions, Form 160.45-N2.3.

***See Page 16 for Details 1, 2, & 3.***




**DETAIL 1 –** 4 to 20 mA D.C. INPUT CURRENT SIGNAL CONNECTIONS

**DETAIL 1 –** Remote Leaving Chilled Water Temperature Setpoint is accomplished by supplying a 4 to 20mA D.C. input current signal (by others) across terminals [22] and [24] on the card file field wiring terminal board (see Fig. U). Option card #2 program jumper positions must be per Table 3. A 4mA signal corresponds to zero deg. F offset and therefore at the programmed leaving chilled water temperature setpoint. A 20mA signal corresponds to maximum offset (10°F or 20°F as programmed) above the programmed leaving chilled liquid temperature setpoint. The amount of offset varies linearly with the 4 to 20mA signal. For example, 12mA applied (across terminals [22] and [24] of the card file) to the YIA unit programmed for 45°F leaving chilled water temperature setpoint and 10°F "Remote Reset Temp. Range", the new setpoint would be:

Temperature Offset -

$$\text{Deg. F Offset} = \frac{(\text{mA signal} - 4)(\text{remote reset temp. range})}{16}$$

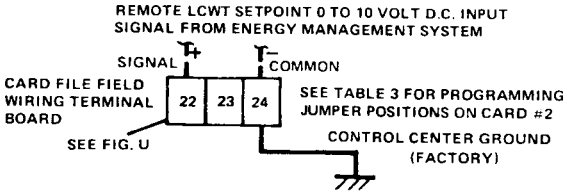
$$\text{Deg. F Offset} = \frac{(12 - 4)(10)}{16} = 5°\text{F}$$

Remote Cooling Setpoint = Keypad entered setpoint + °F offset

Thus, the new leaving chilled water temperature control point is 45°F + 5°F = 50°F.

The maximum rate at which the Millennium Control Center will accept remote leaving chilled water temperature setpoint mA signal is once each 150 seconds.

For remote leaving chilled water temperature setpoint via a 0 to 10 volt D.C. signal - see Detail 2, or a single contact closure - see Detail 3. Refer to Fig. N for pulse-width modulated signal.




**DETAIL 2 –** 0 TO 10 VOLT D.C. INPUT VOLTAGE SIGNAL CONNECTIONS

**DETAIL 2 –** Remote Leaving Chilled Water Temperature Setpoint is accomplished by supplying a 0 to 10 volt D.C. input voltage signal (by others) across terminals [22] and [24] on the card file field wiring terminal board (see Fig. R). Option card #2 program jumper positions must be per Table 3. A 0 volt D.C. signal corresponds to zero deg. F offset and therefore at the programmed leaving chilled water temperature setpoint. A 10 volt D.C. signal corresponds to maximum offset (10°F or 20°F as programmed) above the programmed leaving chilled water temperature setpoint. The amount of offset varies linearly with the 0 to 10 volt D.C. signal. For example, 5 volts D.C. applied (across terminals [22] and [24] of the card file) to the Millennium unit programmed for 45°F leaving chilled water temperature setpoint and 10°F "Remote Reset Temp. Range". The new setpoint would be:

Temperature Offset -

$$\text{Deg. F Offset} = \frac{(\text{D.C. voltage signal})(\text{remote reset temp. range})}{10}$$

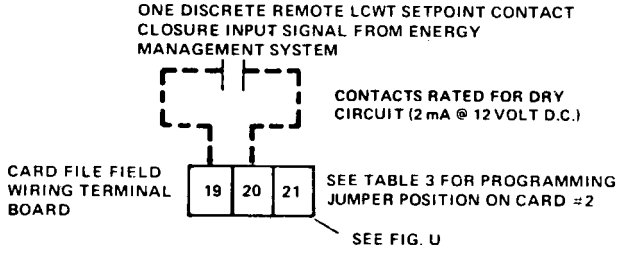
$$\text{Deg. F Offset} = \frac{(5)(10)}{10} = 5°\text{F}$$

Remote Cooling Setpoint = Keypad entered setpoint + °F offset

Thus, the new leaving chilled water temperature control point is 45°F + 5°F = 50°F.

The maximum rate at which the Millennium Control Center will accept remote leaving chilled water temperature setpoint D.C. voltage signal is once each 150 seconds.

For remote leaving chilled water temperature setpoint via a 4 to 20mA signal - see Detail 1, or a single contact closure - see Detail 3. Refer to Fig. P for pulse-width modulated signal.




**DETAIL 3 –** CONTACT CLOSURE INPUT SIGNAL CONNECTIONS

**DETAIL 3 –** Remote Leaving Chilled Water Temperature Setpoint is accomplished by supplying a single dry circuit contact closure, 2 milliamperes @ 12 volts (by others) across terminals [19] and [20] on the card file field wiring terminal board (see Fig. R). Option card #2 program jumper (one) position must be per Table 3. The contact closure provides one discrete remote leaving chilled water temperature setpoint corresponding to the leaving chilled water temperature setting (screw adjustable) that has been previously field selected (by others) on card #2 potentiometer (R11) - see top left corner of card #2.

**FIG. W (Continued) –** REMOTE LEAVING CHILLED WATER TEMPERATURE SETPOINT OPTION CARD #2 (NOTE 15)

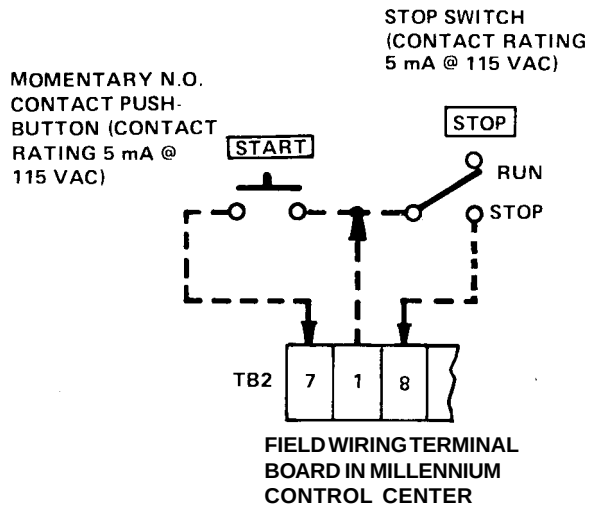



**FIG. W –** REMOTE START-STOP PUSHBUTTON STATION

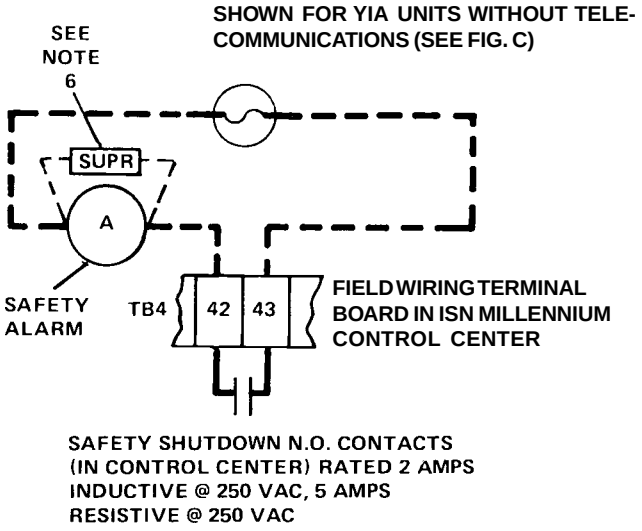



**FIG. X –** EXTERNAL SIGNAL FOR REFRIGERATION UNIT FAILURE (NOTE 6)

**FIG. W – REMOTE START-STOP STATION -** When the Remote Start-Stop contacts (see Fig. E) are not connected to an Energy Management System, terminals [7], [1] and [8] on terminal board TB2 (See Note 13) may be connected to a Remote Start-Stop Station. Whenever the Millennium Control Center is in the "remote" operating mode, the Millennium unit can be started and stopped from a remote location by employing a momentary normally open contact pushbutton for Remote Start and a maintained switch for Remote Stop.

*Note – Remote Start-Stop Station only functions in "remote" operating mode.*

When the Remote Mode Ready to Start contacts close in Fig. A (meaning the panel is in the "remote" operating mode and the "unit" switch is in the "run" position) ([1] to [8] open), the Millennium unit will start via a momentary closure of the Remote Start Pushbutton. A subsequent closure of the maintained Remote Stop Switch to the "stop" position causes the Millennium unit to shut down. The Millennium Control Center will display the following message: "SYSTEM SHUTDOWN - PRESS STATUS". Upon pressing "status" key, "REMOTE STOP" message will be displayed when the Remote Stop switch has commanded the Millennium unit to shutdown.

*Note – Even when the YIA unit is applied with Remote Start-Stop (when the panel is in the "remote" operating mode), an EMERGENCY STOP by an operator or others can STOP the unit from the Millennium Control Center and prevent the Millennium unit from restarting. However, the operator cannot locally start the unit using "unit" start switch, when the panel is in the "remote" operating mode. To enter "remote" operating mode, a four digit access code must be entered for security.*

**FIG. X – EXTERNAL SIGNAL FOR REFRIGERATION UNIT FAILURE -** When the Safety Shutdown Contacts (see Fig. C) are not connected to an Energy Management System they may be employed to energize a local or remote safety alarm (by others). When the normally open Safety Shutdown Contacts close, the alarm will indicate shutdown of the YIA unit. The cause of shutdown will be one or more of the following safety controls:

(1) Solution or refrigerant pump overloads or thermal switches tripped/open

(2) Low refrigerant temperature cut-out at 33.0°F

(3) Generator high pressure cut-out 13.73 PSIA (analog back-up at 15.00 PSIA)

(4) Generator high temperature cut-out at 330°F (analog back-up at 337°F)

(5) Generator pump (50Hz Models TIA10E3 - Millennium14F3 only) overloads or thermal switches tripped/open

(6) Steam/hot water high temperature cutout at 285/260°F

(7) Solution/refrigerant pump motor coolant float switch tripped/open

(8) Steam supply pressure (steam units only) cut-out at 29.0 PSIA

(9) Power Failure (when the "Auto Restart After Power Failure" jumper is removed from the Micro Board - see Fig. Q)

*Continued on Page 18*

(10) Chilled water flow switch open

(11) Following a power failure, if the solution temperature is less than 136°F when power is restored and the unit did not complete its previous dilution cycle, check for crystallization

(12) If, after a shutdown as described in item (1), while the solution or refrigerant pump overloads or thermal switches are tripped, if the solution temperature falls to less than 136°F before the switches reclose, check for crystallization

(13) While the low refrigerant cut-out switch is tripped or the refrigerant temperature sensor temperature rises to 37°F (whichever device caused the shutdown), if the solution temperature is less than 136°F, check for crystallization

(14) While the chilled water flow switch is tripped after shutdown as described in item (10) and the solution temperature is below 136°F, check for crystallization

(15) While the condenser water flow is tripped/open; if the solution temperature falls to less than 136°F, check for crystallization

(16) While the solution/refrigerant motor coolant float switch is tripped as described in item (7), if the solution temperature falls to less than 136°F, check for crystallization. In items (11), (12), (13), (14), (15), and (16), after the levels are properly adjusted, the unit must be manually reset by pressing the "warning reset" key in "service" mode.

When all safety controls are satisfied, and the Millennium Control Center "unit" switch has been placed in the "stop/reset" position (de-energizing the alarm) and then in the "run" position, the Millennium unit may be restarted, if the control center is in "remote" mode, via the Remote Start Contacts (Fig. E); or if the control center is in "local" mode the unit may be started by pressing the keypad-mounted "unit" switch to the "start" position.

*Note – If the YIA unit was shutdown because of Cycling Shutdown Contacts (see Fig. B) the alarm will not be energized, but the Millennium unit will have been shutdown. A closure of the safety alarm contacts means that an operator must manually reset and restart the unit.*

When the Safety Shutdown contacts close, the control center will display the following message: "SYSTEM SHUTDOWN-PRESS STATUS". Upon pressing the "status" key, the status message consists of the day and time of shutdown plus cause of shutdown.

**ELEMENTARY DIAGRAM**

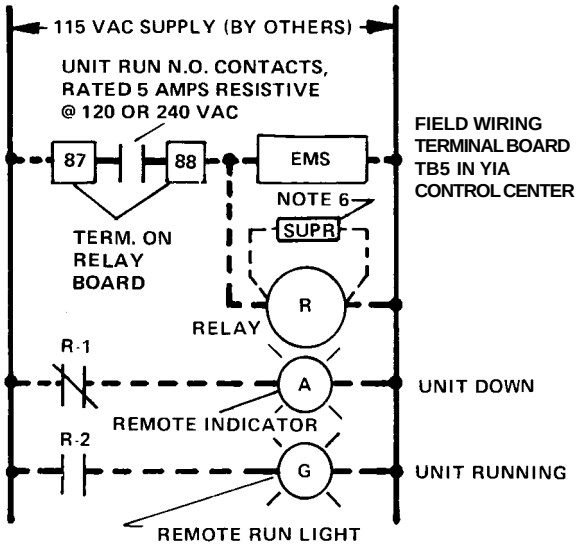



**FIG. Y –** RUN CONTACTS/REMOTE RUN LIGHT AND SHUTDOWN INDICATOR PLUS EMS

**FIG. Y – RUN CONTACTS/REMOTE RUN LIGHT AND SHUTDOWN INDICATOR PLUS EMS -** When run contacts are required for a Remote Run Light and/or Shutdown Indicator AND Energy Management System (EMS), connect (by others) as shown in the diagram. The EMS, control relay, shutdown and run lights are furnished by others. When the N.O. contacts close, between terminals 35 and 36 on field wiring terminal board TB5 in the Millennium Control Center, this indicates that the YIA unit is operating; the remote Run Light will be energized. The unit run contacts open when the YIA unit is shutdown (safety or cycling) and the remote indicator will then be energized. For run contacts to EMS only refer to Fig. D. When terminals 35 and 36 are not used for an EMS, they may be connected to a remote Run Light. The control relay scheme shown in Fig. AA can also be applied for a remote Run Light AND a Remote Shutdown Indicator, when an EMS is not used.

## NOTES

1. This drawing shows recommended field control wiring modifications (by others) to the standard Millennium Control Center wiring diagram. Refer to Millennium Control Center Wiring Diagram: Product Drawing, Form 155.16-W1.

2. If more than one of these modifications is to be utilized with a particular unit, additional consideration must be given to the application to insure proper functioning of the control system. Consult your YORK representative.

3. The additional controls and wiring for these modifications are to be furnished and installed in the field (by others).

4. The controls specified are recommended for use, but other controls of equal specifications are acceptable.

5. All wiring shall be in accordance with the National Electrical Code, and applicable State and Local Codes.

6. Each 115 VAC field connected inductive load; i.e., relay coil, motor starter coil, etc., shall have a transient suppressor wired (by others) in parallel with its coil, physically located at the coil. Spare transient suppressors are furnished in a bag in the Millennium Control Center.

7. The Millennium Control Center is factory furnished for Manual Restart After Power Failure as a standard function. The Control Center can be field changed from Manual Restart to Auto Restart after a power failure by plugging in a programming jumper – see Fig. R.

8. Two (2) unit control schemes are suitable for 8-12°F water range. Constant chilled water flow is assumed at all loads. For other requirements contact your YORK representative.

9. Lead selector and cycling control to provide similar lead selection and cycling of lag units for three (3) units is available: Kit No. 366-44684D (see Product Drawing Form 160.00-PA1.1) in NEMA I enclosure; for 4 units, Kit No. 366-52529D (see Product Drawing Form 160.00-PA1.2) in NEMA I enclosure. Consult your YORK representative.

10. Sequence control kits (see Fig. J and Note 10) assume a constant chilled water flow and a constant leaving chilled water temperature to sense the cooling load. Sequence control kits are not designed for variable chilled water flow or with reset of the leaving chilled water temperature – see Figs. P & W and Note 2.

11. The maximum allowable current draw between circuits [5] and [2] for field installed devices is 1 amp holding and 10 amps inrush – see Millennium Control Center Wiring Diagram Form No. referenced in Note 1.

12. For required connections of the chilled water pump contacts (terminals [44] and [45]), and condenser water pump contacts (terminals [55] and [56]), located on TB4 in the Millennium Control Center, and the chilled water pump flow switch (terminals [12], [24] and [25]), and condenser water pump interlock or flow switch (terminals [1] and [20]), See Form 155.16-PA2.

    The chilled water flow switch is a safety control. It must be connected to prevent operation of the unit Millennium unit whenever chilled water flow is stopped.

13. Do not apply voltage on field wiring terminal boards TB2 and TB5 in Millennium Control Center, as 115 VAC source is fed from terminals [1] and [2].

14. Entering and leaving chilled and condenser water temperature sensors are supplied by YORK as a standard item on all YIA units.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Supersedes: 155.16-PA1 (793)