Controls, Start-Up, Operation, Service and Troubleshooting

CONTENTS

SAFETY CONSIDERATIONS

Installation and servicing of air-conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified service personnel should install, repair, or service air-conditioning equipment.

Untrained personnel can perform basic maintenance functions of cleaning coils and filters and replacing filters. All other operations should be performed by trained service personnel. When working on air-conditioning equipment, observe precautions in the literature, tags and labels attached to the unit, and other safety precautions that may apply.

Follow all safety codes. Wear safety glasses and work gloves. Use quenching cloth for unbrazing operations. Have fire extinguisher available for all brazing operations.

It is important to recognize safety information. This is the safety-alert symbol ⚠. When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, CAUTION, and NOTE. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices, which **may** result in minor personal

injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

⚠ WARNING

Electrical shock can cause personal injury and death. Shut off all power to this equipment during installation and service. There may be more than one disconnect switch. Tag all disconnect locations to alert others not to restore power until work is completed.

⚠ WARNING

DO NOT VENT refrigerant relief valves within a building. Outlet from relief valves must be vented in accordance with the latest edition of ANSI/ASHRAE (American National Standards Institute/American Society of Heating, Refrigerating and Air-Conditioning Engineers) 15 (Safety Code for Mechanical Refrigeration). The accumulation of refrigerant in an enclosed space can displace oxygen and cause asphyxiation. Provide adequate ventilation in enclosed or low overhead areas. Inhalation of high concentrations of vapor is harmful and may cause heart irregularities, unconsciousness or death. Misuse can be fatal. Vapor is heavier than air and reduces the amount of oxygen available for breathing. Product causes eye and skin irritation. Decomposition products are hazardous.

⚠ WARNING

DO NOT USE TORCH to remove any component. System contains oil and refrigerant under pressure.

To remove a component, wear protective gloves and goggles and proceed as follows:

a. Shut off electrical power to unit.
b. Recover refrigerant to relieve all pressure from system using both high-pressure and low pressure ports.
c. Traces of vapor should be displaced with nitrogen and the work area should be well ventilated. Refrigerant in contact with an open flame produces toxic gases.
d. Cut component connection tubing with tubing cutter and remove component from unit. Use a pan to catch any oil that may come out of the lines and as a gage for how much oil to add to the system.
e. Carefully un-sweat remaining tubing stubs when necessary. Oil can ignite when exposed to torch flame.

Failure to follow these procedures may result in personal injury or death.

⚠ CAUTION

DO NOT re-use compressor oil or any oil that has been exposed to the atmosphere. Dispose of oil per local codes and regulations. DO NOT leave refrigerant system open to air any longer than the actual time required to service the equipment. Seal circuits being serviced and charge with dry nitrogen to prevent oil contamination when timely repairs cannot be completed. Failure to follow these procedures may result in damage to equipment.

⚠ CAUTION

This unit uses a microprocessor control system. Do not short or jumper between terminations on circuit boards or modules; control or board failure may result.

Be aware of electrostatic discharge (static electricity) when handling or making contact with circuit boards or module connections. Always touch a chassis (grounded) part to dissipate body electrostatic charge before working inside the control center.

Use extreme care when handling tools near boards and when connecting or disconnecting terminal plugs. Circuit boards can easily be damaged. Always hold boards by the edges and avoid touching components and connections.

This equipment uses, and can radiate, radio frequency energy. If not installed and used in accordance with the instruction manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to International Standard in North America EN 61000-2/3 which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

Always store and transport replacement or defective boards in anti-static shipping bag.

⚠ CAUTION

To prevent potential damage to the heat exchanger, always run fluid through heat exchanger when adding or removing refrigerant charge. Use appropriate brine solutions in cooler fluid loop to prevent the freezing of heat exchanger, optional hydronic section and/or interconnecting piping when the equipment is exposed to temperatures below 32°F (0°C). Proof of flow switch and strainer are factory-installed on all models. Do NOT remove power from this chiller during winter shutdown periods without taking precaution to remove all water from heat exchanger and optional hydronic system. Failure to properly protect the system from freezing may constitute abuse and may result in loss of warranty coverage.

⚠ CAUTION

Compressors require specific rotation. Check reverse rotation board. If lower (red) LED is blinking, the phase sequence is incorrect. Swap any two incoming power leads to correct condenser fan rotation before starting any other motors. Operating the unit without verifying proper phasing could result in equipment damage.

GENERAL

This publication contains controls, operation, start-up, service and troubleshooting information for the AquaForce® 30XW150-400 water-cooled liquid chillers with electronic controls. The 30XW chillers are equipped with *Comfort*Link controls and electronic expansion valves. The 30XW chillers offer two different user interface devices, Touch Pilot™ display and Navigator™ display.

Conventions Used in This Manual

The following conventions for discussing configuration points for the Navigator™ module and Touch Pilot™ display will be used in this manual.

Point names for the Touch Pilot™ display will be shown in **bold**. See Appendix A for a complete list of point names. Item names for the Navigator™ module will be shown in ***bold italics***. See Appendix B for the complete path name preceding the item name. The point and item names in Appendices A and B will be listed in alphabetical order and the path name for each will be written with the mode name first, then any sub-modes, each separated by an arrow symbol (→).

This path name will show the user how to navigate through the Navigator™ module or the Touch Pilot™ display to reach the desired configuration. The user would scroll through the modes and sub-modes using the ▲ and ▼ keys on the Navigator™ display. For the Touch Pilot™ display, the user should simply touch the menu item on the screen. The arrow symbol in the path name represents pressing ENTER to move to the next level of the menu structure for the Navigator™ module, or touching the menu item on the screen for the Touch Pilot™ display.

When a value is included as part of the point name, it will be shown after the point name after an equals sign. If the value represents a configuration setting, an explanation will be shown in parentheses after the value. The Touch Pilot™ point name will be shown first with the Navigator™ name following. As an example, **(Circuit Loading Sequence = 1, *LLCS = Cir A leads)***.

Press the ESCAPE and ENTER keys simultaneously on the Navigator™ module to display an expanded text description of the point name or value. The expanded description is shown in the Navigator™ display tables (Appendix B) but will not be shown with the path names in text. The Touch Pilot™ display will show an expanded description of the point name. To view the expanded point name for the Touch Pilot™ display refer to Appendix A.

The Touch Pilot™ display configures the unit via the Carrier Comfort Network® (CCN) Tables, which are listed and described in Appendix C of this manual.

Display Module Usage

TOUCH PILOT™ DISPLAY

The Touch Pilot™ display is the standard user interface for the AquaForce 30XW chillers with the *Comfort*Link control system. The display includes a large LCD touch screen for display and user configuration, a Start/Stop button, and an Alarm Indicator LED. See Fig. 1.

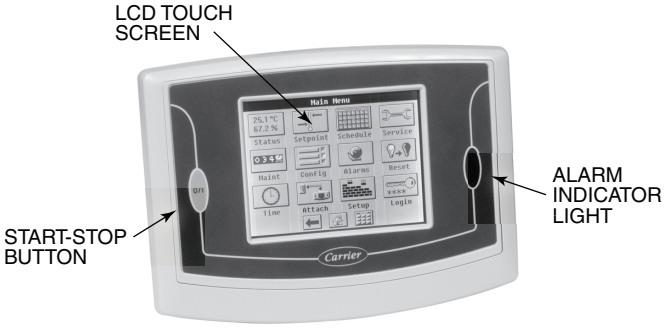


Fig. 1 — Touch Pilot™ Display

The Touch Pilot™ display can be used to access various CCN devices. For operation under these circumstances, contact your Carrier representative.

Operation of the Touch Pilot™ display is driven from the displays on the touch screen. The Touch Pilot™ display uses the following screen "buttons" to allow the user to operate the display and navigate within and between screens.

"BACK" returns to the next higher screen in the hierarchy.

"HOME" displays the Default Group Display screen for Touch Pilot™ display. The Default Screen is a user-configured display of up to 9 points on each of the 8 screens. This allows for quick access to various, frequently viewed points, without navigating through the Main Menu structure. This button is available at all menu levels and returns the user to the first Default Group Display screen.

"MAIN MENU" displays the Main Menu screen. This allows access for viewing and configuration, where possible, of all points supported by the controller. This includes points such as set point and operational configuration. This button is available at all menu levels and returns the user to the Main Menu screen.

"PREVIOUS" moves the user to the next earlier screen in a group of sequential screens of the same type.

"NEXT" advances the user to the next screen in a group of sequential screens of the same type.

"OK" agrees with, or says "yes" to a prompt and performs the appropriate processing.

"NO" rejects, or says "no" to a prompt and performs the appropriate processing.

"CANCEL" terminates an ongoing action and returns to the current screen without any other processing.

"CLEAR DATA" clears the data value in a data entry dialog box. This button is used to clear incorrect data.

"RESET DATA" zeros the data value in a data entry dialog box.

"ADD" adds the active point to a Group Display screen.

"REMOVE" deletes a point from a Group Display screen.

"INCREASE" modifies the value of a field within its defined limits or "SCROLL UP" shifts the screen view up by one item.

"DECREASE" modifies the value of a field within its defined limits or "SCROLL DOWN" shifts the screen view down by one item.

"PAGE DOWN" will replace the items currently on the screen with the next group of items if the current table or list has more data than will fit on the screen.

"PAGE UP" will replace the items currently on the screen with the previous group of items if the current table or list has more data than will fit on the screen.


"FORCE" begins the process of forcing or overriding the value of a point.


"AUTO" begins the process of removing a force from a point.

"MODIFY" begins the process of modifying a configuration value.


"ALARM INDICATOR LIGHT" activates when a new alarm condition occurs. The alarm indicator light LED, located on the right side of the display, remains activated until it is manually reset using the Reset button on the Main menu.


"START/STOP BUTTON" enables the user to start or stop the chiller from the Touch Pilot™ display. See Enable-Off-Remote Contact Switch on page 17 for additional information.

Several items are password protected. When required, a Password dialog box will be displayed for field input of the password. The default password is 3333. The password can be changed if desired.

Power-Up Display

When the Touch Pilot™ display is powered up, it displays an initialization progress bar and attaches (initiates communication) to the Main Base Board. The Touch Pilot™ display then shows that controller's default Group Display screen. See Fig. 2. This is a user-configured display screen with up to 9 points on 8 separate screens. For more information on adding or removing points from the Group Display screen, see the Group Display Screens section on page 7.

Touch any of the screen point buttons and Point Data Dialog box will be displayed with expanded information. In the example shown, the CTRL_PNT button in the bottom left corner was selected. See Fig. 2 and 3.

To exit the box, press  .

Main Menu Display

The default screen for the Touch Pilot™ controller is the Group Display screen. To access the Main Menu, press the  button. The screen shown in Fig. 4 will be displayed. Selecting a button will display the screens associated with that category. The user can also access the login screen from the Main Menu.

Touch Pilot™ Menu Structure

The user can navigate through the Touch Pilot™ display screens by selecting the buttons that appear on the screen. When a button is selected, either a sub-menu or a list of point names and values will be shown. Sub-menus will display a list of associated point names. See Fig. 5 for the Touch Pilot™ menu structure.

If the list of point names and values are shown, the top line of the display is the table name. The line and total line counter is displayed in the upper right corner of the display. Selecting an item will cause a Point Data dialog box to appear.

Setup Menu Screen

The Setup Menu screen, shown in Fig. 6, is accessed by pressing the Setup button from the Main Menu. This configuration allows the user to configure the basic operation and look of the display. Table 1 summarizes the Setup Menu functions.

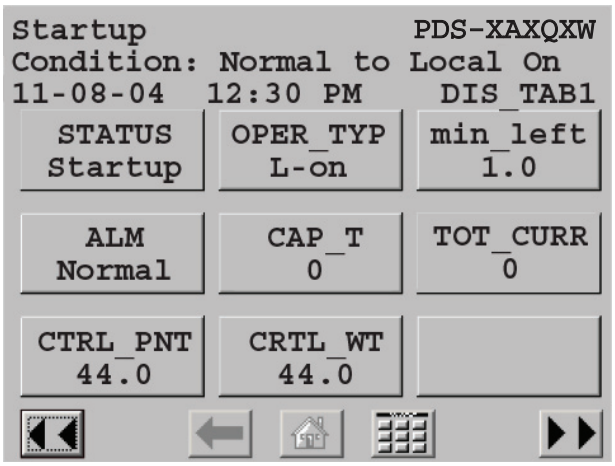


Fig. 2 — Group Display Screen

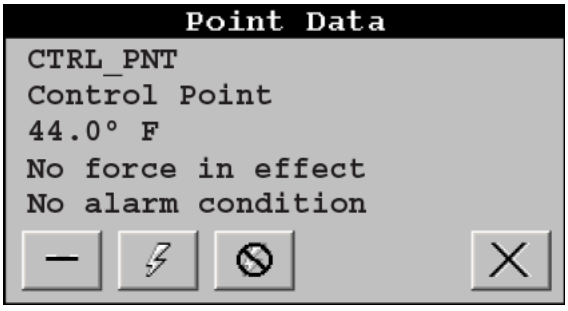


Fig. 3 — Point Data Dialog Box

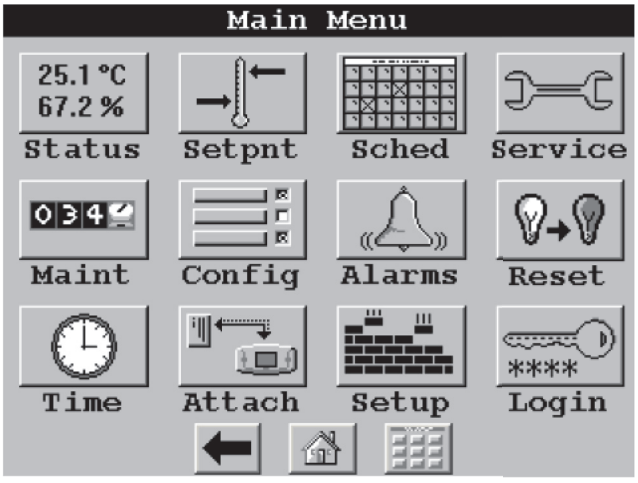


Fig. 4 — Main Menu Display

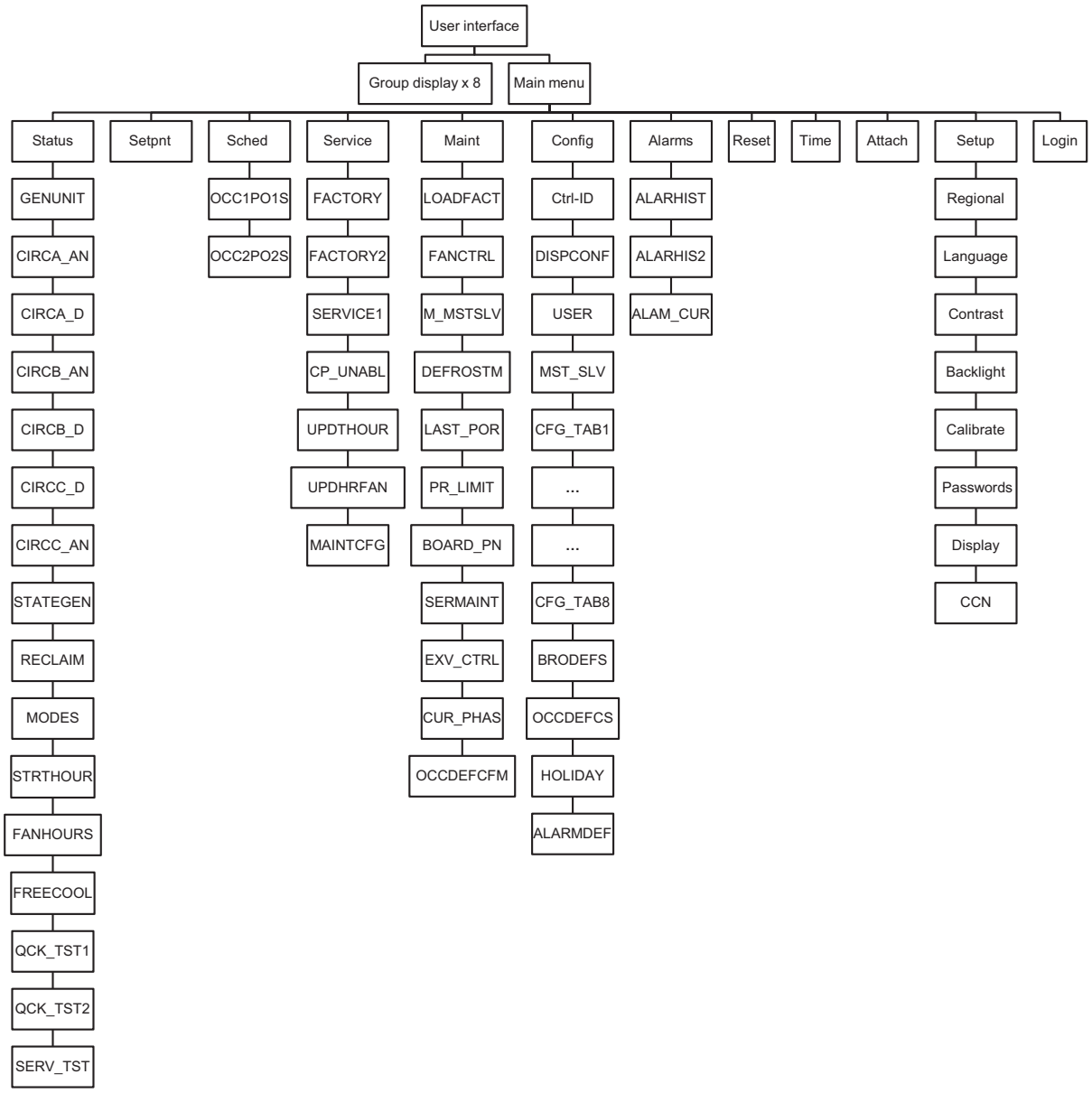


Fig. 5 — Touch Pilot™ Display Menu Structure

Fig. 6 — Setup Menu Display

Table 1 — Setup Menu

SETUP MENU BUTTON	FUNCTION
REGIONAL	This button specifies the time and date format and the base unit of measure. Time display can be configured as 12-hour AM/PM setting or as a 24-hour setting. The date can be formatted in one of 3 settings, MM-DD-YYYY (Month-Day-Year), DD-MM-YYYY (Day-Month-Year), or YYYY-MM-DD (Year-Month-Day). Units of measure can be either US (English) or Metric (SI).
LANGUAGE	This button selects the active language and font of the display. Available languages are English and Spanish (Espanol). If a preferred language is not available, additional software for the Main Base Board (MBB) and the Touch Pilot™ display are required. Contact your Carrier representative for instructions and software.
CONTRAST	This button adjusts the LCD contrast. Press and hold the [**MOON**] button to increase/darken the contrast or the [**STAR**] button to decrease/lighten the current contrast. NOTE: Touching the screen anywhere for 5 seconds while powering-up will prompt the user to restore contrast and calibration settings to factory defaults.
BACKLIGHT	This button specifies whether backlighting should be kept on at all times or turned off during inactive periods.
CALIBRATE	This button is used to adjust the LCD touch screen calibration. Touch the screen in the circular targets located first in the upper left and then in the lower right corner of the screen to adjust.
PASSWORDS	This button is used to configure the limited and full logged-in access system passwords. In order to change passwords, the user must be logged in with full access to view and change the passwords. All passwords must consist of 4 digits, which can be entered using the numeric keypad. Access levels and associated privileges are as follows: Limited Logged-in Access - Provides the user with read/write access to all available tables (except service configuration tables, where the user will not be permitted to modify point data, and Group Display tables, where the user will not be permitted to add points.) This access level also provides read/write access to all Touch Pilot™ display setup properties except Display, CCN, and Password. Full Logged-in Access - Provides user with read/write access to all available tables for the attached device and all Touch Pilot™ display properties. If the user does not log in, read-only access to all tables is allowed. The user will be prompted to log in when attempting to access password-required functions.
DISPLAY	This button is used to view the description data and part number from the Ctlr-ID Table and to specify the Operating mode. The Operating mode can be configured for Equipment mode or Network mode. For Touch Pilot™ displays that are standard with the unit, Operating mode should not be changed from Equipment mode. Equipment mode provides access only to the chiller's MBB via the Local Equipment Network (LEN) Bus. For remote access, a remote Touch Pilot™ display can be set to Network mode. Network mode provides access to all devices on the CCN (Carrier Comfort Network®) bus. NOTE: When changing the operating mode, a power cycle is required in order for the new operating mode to take effect. The user should view and correct the following CCN data: address and baud rate, alarm acknowledger, and broadcast acknowledger designation.
CCN	This button is used to configure the bus and element numbers and the baud rate of the control on the network.

Setting the Time and Date

The *Comfort*Link controller has a time and date function. This can be useful for diagnostics to determine when alarms occur. The controller is factory configured for the proper date and is set for the Eastern Time Zone. The date and time zone must be checked and corrected if necessary, to allow the machine to function on an internal time schedule and to display a proper time and date stamp for alarms. The time and date is displayed on the Group Display Screen.

To change the Time and Date, press the Main Menu button. Select Time. On the display, a day and date box with a time box will be shown. To change the day and date, press the day and date box. A calendar will be displayed. If the correct month is displayed, touch the correct date. If the wrong month is displayed, use the ◀◀ or ▶▶ to change to the correct month and select the correct date. The date will highlighted. Press ✓ to accept the change. The previous screen will be displayed with the corrected day and date shown. To correct the time, use the ▲ or ▼ on the left to change the hour. Use the ▲ or ▼ on the left to change the minutes. Continuously touching the ▲ or ▼ will sequence the numbers. The time is shown in a 24-hour format. To accept the changes, press the ⌂ or Main Menu buttons. A "Save" dialog box is displayed with the words, "Do you wish to save changes?" Press ✓ to accept the changes.

Group Display Screens

The Touch Pilot™ display supports up to eight Group Display screens. Group Display screens show status information along the top of the screens and 9 buttons that display 9 point names and point values that are chosen by the user. All Group Display screen points are user configurable. The bottom line of the screen contains navigation buttons that can be used to move between the Group Display screens.

Pressing a point button will show that point's Point Data dialog box. See Fig. 2 and 3. This box contains buttons that remove the point from the group display and apply or remove a force (point override). When touching any button in the display screen, the button will be outlined to acknowledge input. There may be a delay in response to input, but if the button is outlined, do NOT press any other button until the previous input has been processed.

If there is a communication failure with the Main Base Board (MBB), all point buttons will be displayed in inverse video and the message *Communication Failure* will be displayed in the top left line of the screen.

Default Group Designation

The default group is the first of the 8 Group Display screens. This is the default screen of the display. Information on this screen as well as the other 7 screens can be user-modified to meet the needs of the site.

To Add a Point to a Group Display

From the Main Menu, press the desired menu button (Status, Set Point, Service, Maint, or Config) and, if necessary, the sub-menu button to access the point to be added. Press the point button to show the source point's Point Data dialog box. See Fig. 3. From the Point Data dialog box, press the ADD button. The display will show the last Group Display accessed. Use the navigation buttons to access the destination Group Display. Press an existing point button or a blank button to update the highlighted button with the source point's name. Press to add the highlighted point to the group and return to the table display.

To Remove a Point from a Group Display

From the Point Data Dialog box, press the REMOVE button and follow the prompts. The display will return to the Group Display

screen from which the point was removed, and the button corresponding to the deleted point will be blank and disabled.

NAVIGATOR™ DISPLAY MODULE

The Navigator™ display module provides a mobile user interface to the *Comfort*Link control system. The display has up and down arrow keys, an ENTER key, and an ESCAPE key. These keys are used to navigate through the different levels of the display structure. Press the ESCAPE key until 'Select a Menu Item' is displayed. Use the up and down arrow keys to move through the top 11 mode levels indicated by LEDs on the left side of the display. See Fig. 7. See Table 2 and Appendix B for more details about the display menu structure.

Once within a mode or sub-mode, a ">" indicates the currently selected item on the display screen. Pressing the ENTER and ESCAPE keys simultaneously will put the Navigator™ module into expanded text mode where the full meaning of all sub-modes, items, and their values can be displayed. Pressing the ENTER and ESCAPE keys when the display says 'Select Menu Item' (Mode LED level) will return the Navigator™ module to its default menu of rotating display items (those items in ***Run Status→VIEW***). In addition, the password will be disabled, requiring that it be entered again before changes can be made to password protected items. Press the ESCAPE key to exit out of the expanded text mode.

When a specific item is located, the item name appears on the left of the display, the value will appear near the middle of the display and the units (if any) will appear on the far right of the display. Press the ENTER key at a changeable item and the value will begin to flash. Use the up and down arrow keys to change the value, and confirm the value by pressing the ENTER key.

Changing item values or testing outputs is accomplished in the same manner. Locate and display the desired item. Press ENTER so that the item value flashes. Use the arrow keys to change the value or state and press the ENTER key to accept it. Press the ESCAPE key to return to the next higher level of structure. Repeat the process as required for other items.

Items in the Configuration and Service Test modes are password protected. The words **Enter Password** will be displayed when required, with 1111 also being displayed. The default password is 0111. Use the arrow keys to change each number and press ENTER to accept the digit. Continue with the remaining digits of the password. The password can only be changed through CCN operator interface software such as ComfortWORKS®, ComfortVIEW™ and Service Tool.

Power-Up Display

When the Navigator™ display is powered up it will display:

ComfortLink
Navigator
By
Carrier

This indicates an initialization period while the Navigator™ display initiates communication with the Main Base Board. Once communication is established, the default rotating display will be shown. If communication is not established, the Navigator™ module will display:

Communication
Failure

If the Navigator™ module is connected to a Main Base Board without software loaded, the display will remain at the powered-up initialization display.

Setting the Time and Date

The *Comfort*Link controller has a time and date function. This can be useful for diagnostics to determine when alarms occur. The controller is factory configured for the proper date and for use in the Eastern Time Zone. The controls must be checked and corrected if necessary. The correct time is important if the machine is to function on an internal time schedule and display a proper time and date stamp for alarms. The time and date will be displayed on the default rotating display of the Navigator™ module. The time and date can also be checked and changed under the Time Clock mode as described below.

ITEM	ITEM EXPANSION	PATH	VALUE
HH.MM	Time of Day	***Time Clock→TIME***	XX.XX

To change the time, press the arrow key to move to the correct hour and press ENTER. The minutes can be changed in a similar manner.

To check or change the date, the following items must be checked and changed if necessary.

ITEM	ITEM EXPANSION	PATH	VALUE
MNTH	Month of Year	***Time Clock→DATE***	WW
DOM	Day of Month	***Time Clock→DATE***	XX
DAY	Day of Week	***Time Clock→DATE***	YY
YEAR	Year of Century	***Time Clock→DATE***	ZZ

NOTE:
WW is the current month of the controller, (01=January, 02=February, etc.).
XX is the current day of the month
YY is the day of the week, (01=Monday, 02-Tuesday, etc.)
ZZ is the year of the century, (06=2006, 07=2007)

Changing the Unit of Measure

The Navigator™ display has two options for unit of measure on the display, English or SI (metric). The factory default for the units of measure is English. To change the unit of measure, the following item must be changed.

ITEM	ITEM EXPANSION	PATH	VALUE
METR	Metric Display	***Configuration→DISP***	OFF – English ON – SI (Metric)

Changing the Display Language

The Navigator™ display has five language options to select from: English, Espanol, Francais, Portugues, and Translated. The "Translated" option is not supported at this time. The factory default language is English. To change the display language, the following item must be changed.

ITEM	ITEM EXPANSION	*PATH*	VALUE
LANG	Language Selection	***Configuration→DISP***	English Espanol Francais Portugues Translated

NOTE: When the Language Selection (***Configuration → DISP→ LANG***) variable is changed, all appropriate display expansions will immediately change to the new language. The four letter/digit code will not change. No power-off or control reset is required when reconfiguring languages.

Adjusting the Contrast

The display contrast can be adjusted to suit ambient conditions. To adjust the contrast, enter the LED Test mode of the device.

ITEM	ITEM EXPANSION	PATH	VALUE
TEST	Test Display LEDs	***Configuration→DISP***	

Pressing ENTER will access the TEST point. Pressing ENTER again will cause the "OFF" to flash. Use the up or down arrow to change "OFF" to "ON." Pressing ENTER will illuminate all LEDs and display all pixels in the view screen. Pressing ENTER and ESCAPE simultaneously allows the user to adjust the display contrast. The display will read:

Adjust Contrast

----+----------

Use the up or down arrows to adjust the contrast. The screen's contrast will change with the adjustment. Press ENTER to accept the change. The Navigator™ module will keep this setting as long as it is plugged in to the LEN (Local Equipment Network) bus.

Adjusting the Backlight Brightness

The backlight of the display can be adjusted to suit ambient conditions. The factory default is set to the highest level. To adjust the backlight of the Navigator™ module, enter the LED Test mode of the device.

ITEM	ITEM EXPANSION	PATH	VALUE
TEST	Test Display LED's	***Configuration Mode→DISP***	

Pressing ENTER will access the TEST point. Pressing ENTER again will cause the "OFF" to flash. Use the up or down arrow to change "OFF" to "ON." Pressing ENTER will illuminate all LEDs and display all pixels in the view screen. Pressing the up and down arrow keys simultaneously allows the user to adjust the display brightness. The display will read:

Adjust Brightness

----------+

Use the up or down arrow keys to adjust screen brightness. Press ENTER to accept the change. The Navigator™ module will keep this setting as long as it is plugged in to the LEN bus.

Fig. 7 — Navigator™ Display Module

Table 2 — *Comfort*Link Navigator™ Display Menu Structure

MODE										
RUN STATUS	**SERVICE TEST**	**TEMPERATURES**	**PRESSURES**	**SET POINTS**	**INPUTS**	**OUTPUTS**	**CONFIGURATION**	**TIME CLOCK**	**OPERATING MODES**	**ALARMS**
Auto Display (**VIEW**)	Manual Test Mode (**TEST**)	Unit Temperatures (**UNIT**)	Circuit A Pressures (**PRC.A**)	Cooling Set Points (**COOL**)	General Inputs (**GEN.I**)	Circuit A Outputs (**CIR.A**)	Display Configuration (**DISP**)	Time of Day (**TIME**)	Operating Control Type (**SLCT**)	Reset Current Alarms (**R.ALM**)
Machine Starts/Hours (**RUN**)	Quick Test Mode (**QUIC**)	Circuit A Temperatures (**CIR.A**)	Circuit B Pressures (**PRC.B**)	Heating Set Points (**HEAT**)		Circuit B Outputs (**CIR.B**)	Unit Configuration (**UNIT**)	Day, Date (**DATE**)	Operating Modes (**MODE**)	Current Alarms (**ALRM**)
Compressor Run Hours (**HOUR**)		Circuit B Temperatures (**CIR.B**)	Circuit C Pressures (**PRC.C**)	Misc. Set Points (**MISC**)		Circuit C Outputs (**CIR.C**)	Service Configurations (**SERV**)	Schedule 1 (**SCH1**)		Alarm History (**H.ALM**)
Compressor Starts (**STRT**)		Circuit C Temperatures (**CIR.C**)				General Outputs (**GEN.O**)	Options Configuration (**OPTN**)	Schedule 2 (**SCH2**)		
Fan Run Hours (**FAN**)							Reset, Demand Limit, Master/Slave (**RSET**)	Holidays (**HOLI**)		
Compressor Disable (**CP.UN**)								Service Maintenance Configuration (**MCFG**)		
Predictive Maintenance (**MAIN**)										
Software Versions (**VERS**)										

CONTROLS

General

The 30XW water-cooled liquid chillers contain the *Comfort*Link electronic control system that controls and monitors all operations of the chiller. The control system is composed of several components as listed in the following sections. All machines have a Main Base Board (MBB), Touch Pilot™ module or Navigator™ device, electronic expansion valve board (EXV), auxiliary board, compressor protection board, emergency On/Off switch, and an Enable-Off-Remote contact switch.

Main Base Board

The Main Base Board (MBB) is the core of the *Comfort*Link control system. It contains the major portion of operating software and controls the operation of the machine. See Fig. 8. The MBB continuously monitors input/output channel information received from its inputs and from all other modules. The MBB receives inputs from status and feedback switches, pressure transducers and thermistors. The MBB also controls several outputs. Some inputs and outputs that control the chiller are located on other boards, but are transmitted to or from the MBB via the internal communications bus. Information is transmitted between modules via a 3-wire communication bus or Local Equipment Network (LEN). The Carrier Comfort Network® (CCN) bus is also supported. Connections to both LEN and CCN buses are made at TB3. For a complete description of MBB inputs and outputs and their channel identifications, see Table 3.

Compressor Protection Module

There is one compressor protection module (CPM) per compressor. See Fig. 9. The device controls the compressor contactors, oil solenoid, loading and unloading solenoids. The CPM also monitors the compressor motor temperature, high pressure switch, oil level switch, discharge gas temperature, oil pressure transducer, motor current, must trip amps (MTA) setting and economizer pressure transducer (sizes 175-300, 350, 400 only). The CPM responds to commands from the MBB and sends the MBB the results of the channels it monitors via the LEN. The CPM has three DIP switch input banks, Switch 1 (S1), Switch 2 (S2), and Switch 3 (S3). The CPM board DIP switch (S1) configures the board for the type of starter, the location and type of the current transformers and contactor failure instructions. See Table 4 for description of DIP switch 1 (S1) inputs. See Appendix D for DIP switch settings.

The CPM board DIP switch S2 setting determines the MTA setting. See Appendix D for DIP switch settings. The MTA setting which is calculated using the settings S2 must match the MTA setting in the software or an MTA alarm will be generated.

See below for CPM board DIP switch S3 address information. See Table 5 for CPM inputs and outputs.

CPM-A DIP Switch 3	1	2	3	4
Address:	OFF	OFF	OFF	OFF

CPM-B DIP Switch 3*	1	2	3	4
Address:	OFF	OFF	ON	OFF

* 30XW325-400 units only.

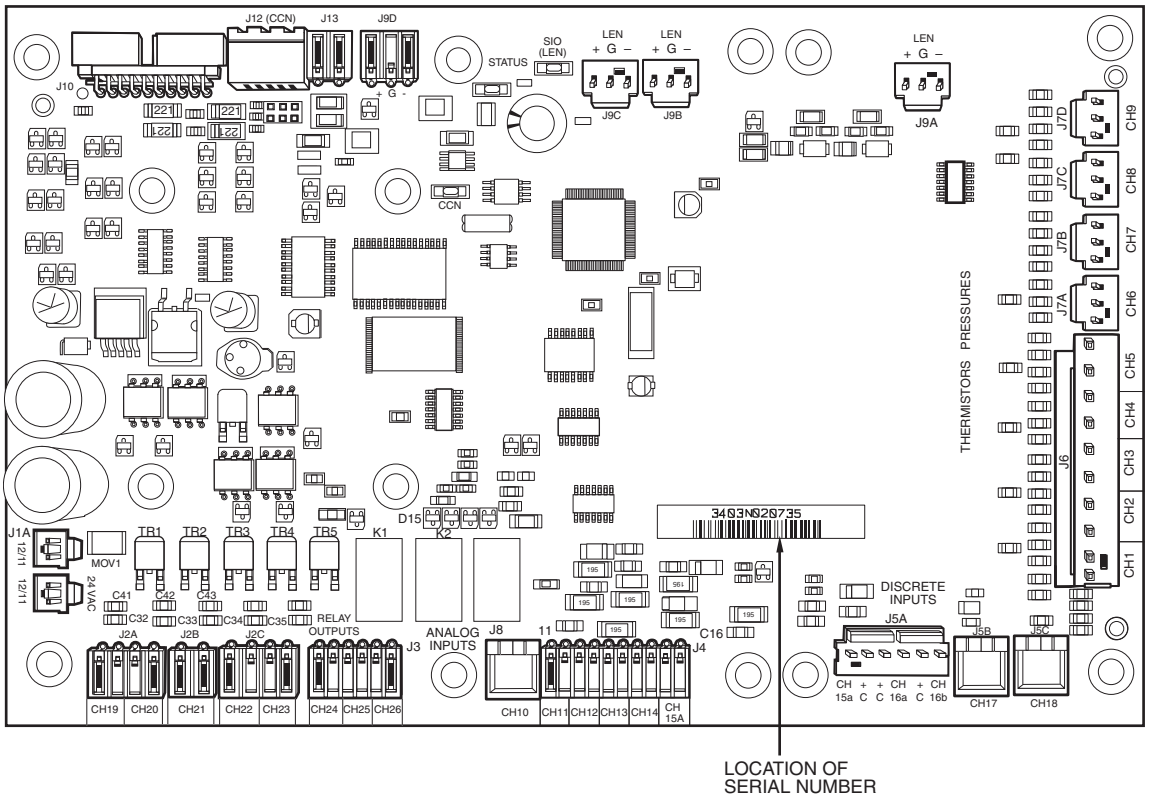


Fig. 8 — Main Base Board

Table 3 — Main Base Board Inputs and Outputs

DESCRIPTION	INPUT/OUTPUT	I/O TYPE	DISPLAY MODULE POINT NAME	CONNECTION POINT	
				Pin	Notation
Power (24 vac supply)	—	—	—	MBB-J1, MBB-J1A, MBB-J1B	
				11	24 vac
				12	Ground
Local Equipment Network	—	—	—	MBB-J9A, MBB-J9B, MBB-J9C, MBBJ9D	
				+	RS485 Port (D+)
				G	RS485 Port (Gnd)
				-	RS485 Port (D-)
Carrier Communication Network	—	—	—	MBB-J12	
				+	RS485 Port (D+)
				G	RS485 Port (Gnd)
				-	RS485 Port (D-)
Chilled Water Flow Switch	CWFS	Switch	**Cooler Flow Switch, *LOCK***	MBB-J5B-CH17	
				17	
Demand Limit Switch No. 1	Demand Limit SW1	Switch	**Limit Switch 1 Status, *DLS1***	MBB-J4-CH13	
Condenser Flow Switch	CDFS	Switch	**Condenser Flow Switch, *COND***	16A	MBB-J5A-CH16A
Circuit A Discharge Pressure Transducer	DPTA	Pressure Transducer	**Discharge Pressure, *DP.A***	MBB-J7A-CH6	
				5V	+5 vdc Ref.
				S	Signal
				R	Return
Circuit B Discharge Pressure Transducer	DPTB	Pressure Transducer	**Discharge Pressure, *DP.B***	MBB-J7C-CH8	
				5V	+5 vdc Ref.
				S	Signal
				R	Return
Dual Chiller LWT Thermistor	DUAL	5k Thermistor	**CHWS Temperature, *CHWS***	MBB-J6-CH3	
Dual Set Point Input	Dual Set Point	Switch	**Remote Set Point Switch, *DUAL***	MBB-J4-CH12	
Heat/Cool Switch	HC_SW	Switch	**Heat/Cool Select Contact, *HC.SW***		MBB-J4-CH14
Entering Water Thermistor	EWT	5k Thermistor	**Cooler Entering Fluid, *EWT***	MBB-J6-CH2	
Leaving Water Thermistor	LWT	5k Thermistor	**Cooler Leaving Fluid, *LWT***	MBB-J6-CH1	
Condenser Entering Water Thermistor	CEWT	5k Thermistor	**Condenser Entering Fluid, *CEWT***	MBB-J6-CH5	
Condenser Leaving Water Thermistor	CLWT	5k Thermistor	**Condenser Leaving Fluid, *CLWT***	MBB-J6-CH4	
External Chilled Water Pump Interlock	PMPI	Switch	**Electrical Box Interlock, *ELEC***	MBB-J4-CH15A	
Circuit A Suction Pressure Transducer	SPTA	Pressure Transducer	**Suction Pressure, *SP.A***	MBB-J7B-CH7	
				5V	+5 vdc Ref.
				S	Signal
				R	Return
Circuit B Suction Pressure Transducer	SPTB	Pressure Transducer	**Suction Pressure, *SP.B***	MBB-J7D-CH9	
				5V	+5 vdc Ref.
				S	Signal
				R	Return
Unit Status	Remote Contact-Off-Enable	Switch	**On/Off Remote Switch, *ONOF***	MBB-J4-CH11	
Alarm Relay	ALM R	Relay	**Alarm Relay Output, *ALRM***	MBB-J3-CH24	
Alert Relay	ALT R	Relay	**Alert Relay Output, *ALRT***	MBB-J3-CH25	
Cooler Pump Relay 1	PMP1	Contactor	**Cooler Pump 1, *PMP.1***	MBB-J2A-CH19	
Cooler Pump Relay 2	PMP2	Contactor	**Cooler Pump 2, *PMP.2***	MBB-J2A-CH20	
Condenser Pump Relay	CPMP	Contactor	**Condenser Pump, *PMP.3***	MBB-J2C-CH22	
Pump #1 Interlock Pump #2 Interlock	PMP_1 PMP_2	Switch	**Cooler Pump Run Status, *PUMP***	MBB-J5C-CH18	

LEGEND

I/O — Input or Output
LWT — Leaving Water Temperature

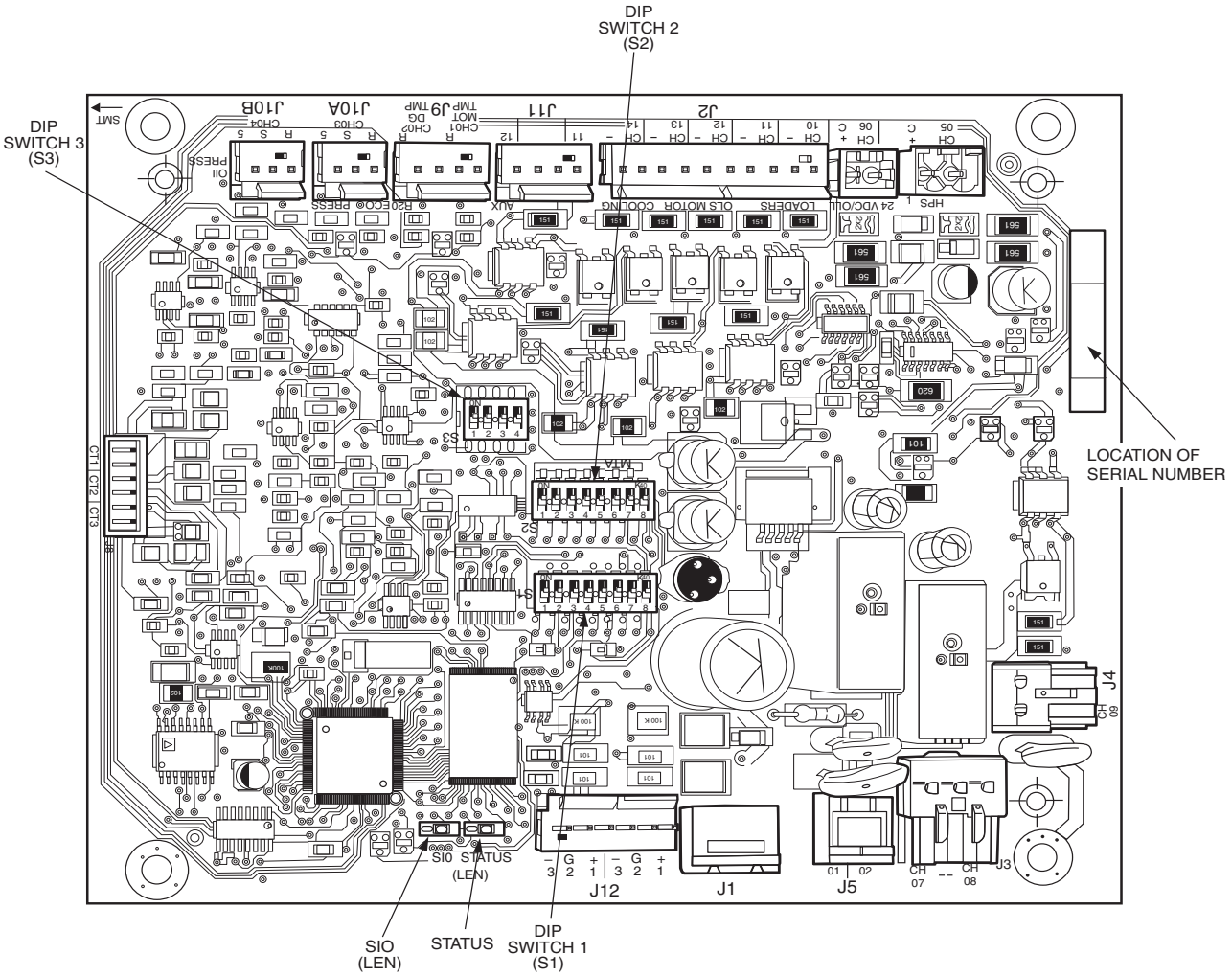


Fig. 9 — Compressor Protection Module

Table 4 — DIP Switch 1 (S1) Inputs

DIP SWITCH POSITION	FUNCTION	SETTING	MEANING
1	Starter Configuration	OFF	Across-the-line Start
		ON	Wye-Delta Start
2, 3	Current Transformer (CT) Position	OFF (2), OFF (3)	CT is located in the Delta of the motor
		ON (2), OFF (3)	CT is located in the main line
		OFF (2), ON (3)	Reserved for future use
		ON (2), ON (3)	Invalid; will cause MTA configuration alarm
4, 5, 6	Current Transformer (CT) Selection	OFF (4), OFF (5), OFF (6)	100A/1V CT1, CT ratio: 4030:1
		ON (4), OFF (5), OFF (6)	100A/0.503V CT2, CT ratio: 8000:1
		OFF (4), ON (5), OFF (6)	100A/0.16V CT3, CT ratio: 25,200:1
		ON (4), ON (5), OFF (6)	Invalid; will cause MTA configuration alarm
		OFF (4), OFF (5), ON (6)	Invalid; will cause MTA configuration alarm
		ON (4), OFF (5), ON (6)	Invalid; will cause MTA configuration alarm
		OFF (4), ON (5), ON (6)	Invalid; will cause MTA configuration alarm
		ON (4), ON (5), ON (6)	Invalid; will cause MTA configuration alarm
7	Contactor Failure Action	OFF	All units should be off
		ON	Used when Shunt Trip is available in the unit
8	Not Used	—	—

Table 5 — Compressor Protection Module Inputs and Outputs*

DESCRIPTION	INPUT/OUTPUT	I/O TYPE	DISPLAY MODULE POINT NAME	CONNECTION POINT	
				Pin	Notation
Power (24 vac supply)	—	—	—	CPM-X-J1	
				11	24 vac
				12	Ground
Local Equipment Network	—	—	—	CPM-X-JP12	
				1	RS485 Port (D+)
				2	RS485 Port (Gnd)
				3	RS485 Port (D-)
				CPM-X-J12	
				1	RS485 Port (D+)
				2	RS485 Port (Gnd)
				3	RS485 Port (D-)
Circuit X High Pressure Switch	HPS-X	Switch	**Not available**	CPM-X-J7-CH05	
				1	
				2	
Oil Level Switch	Oil LS X	Switch	**Circuit X Oil Solenoid, *OLS.X***	CPM-X-J6-CH06	
				1	
				2	
Must Trip Amps†	MTA (S2)	8-Pin DIP Switch	**Must Trip Amps, *MTA.X***		
Configuration Switch†	S1	8-Pin DIP Switch	**S1 Config Switch, *C.SW.X***		
Compressor X Motor Temperature	MTR-X	NTC Thermistor	**Motor Temperature, *CTP.X***	CPM-X-J9-CH01	
				1	
				2	
Compressor X Discharge Gas Temperature	DGT X	NTC Thermistor	**Discharge Gas Temp, *DGT.X***	CPM-X-J9-CH02	
				1	
				2	
Oil Pressure Transducer	OPT X	Pressure Transducer	**Oil Pressure, *OP.X***	CPM-X-J10B-CH04	
				5V	+ 5 vdc ref
				S	Signal
				R	Return
Economizer Pressure Transducer (sizes 175,200,350,400 only)	EPT X	Pressure Transducer	**Economizer Pressure, *ECP.X***	CPM-X-J10A	
				5V	+ 5 vdc ref
				S	Signal
				R	Return
Compressor Current X Phase A		Current Sensor	**CUR.A**	CPM-X-J8-CH01	
				1	
				2	
Compressor Current X Phase B		Current Sensor	**CUR.B**	CPM-X-J8-CH02	
				1	
				2	
Compressor Current X Phase C		Current Sensor	**CUR.C**	CPM-X-J8-CH3	
				1	
				2	
Compressor X 1M Contactor	C X 1M	Contactor	**Compressor Output, *CP.X***	CPM-X-J1-CH07	
				1	
				2	
Compressor X 2M Contactor	C X 2M	Contactor	**Not available**	CPM-X-J2-CH8	
				1	
				2	
Compressor X S Contactor	C X S	Contactor	**Not available**	CPM-X-J2-CH9	
				1	
				2	
Oil Solenoid X	Oil solenoid-X	Solenoid	**Oil Solenoid Output, *OLS.X***	CPM-X-J2-CH12	
				1	
				2	
Load Solenoid X	Loading Solenoid-X	Solenoid	**Slide Valve 1 Output, *SL1.X***	CPM-X-J2-CH13	
				1	
Unload Solenoid X	Unloading Solenoid-X	Solenoid	**Slide Valve 2 Output, *SL2.X***	CPM-X-J2-CH14	
				1	
				2	

* "X" denotes the circuit, A or B.
† See Appendix D for MTA settings.

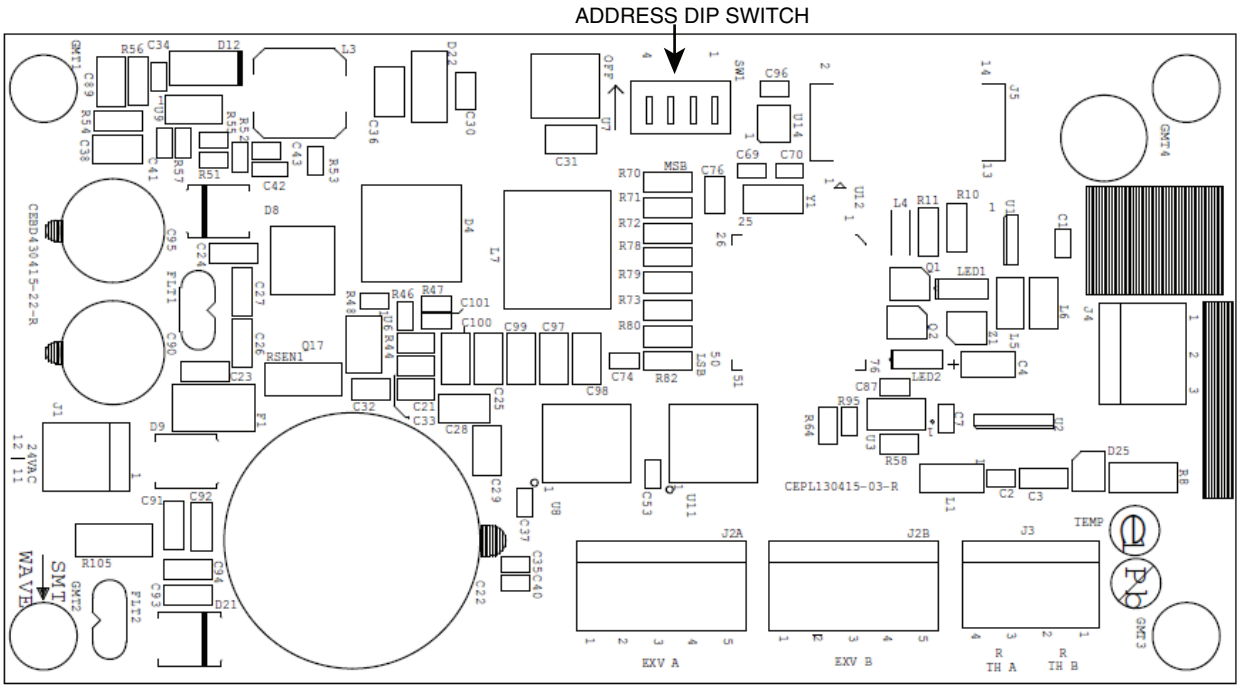
Electronic Expansion Valve Board

The 30XW150-325, 375 units have one Electronic Expansion Valve (EXV) board. The 30XW350,400 units have one EXV board per circuit. See Fig. 10. The board is responsible for monitoring the suction gas temperature and economizer gas temperature thermistors. The board also signals the main EXV and economizer EXV (ECEXV) motors to open or close. The EXV board responds to commands from the MBB and sends the MBB the results of the channels it monitors via the LEN.

See below for DIP switch information. See Tables 6 and 7 for EXV inputs and outputs.

EXV1 DIP Switch	1	2	3	4
Address: 65	OFF	OFF	OFF	OFF

EXV2 DIP Switch	1	2	3	4
Address: 66	ON	OFF	OFF	OFF



NOTE: PIN1 OF EACH CONNECTOR MARKED WITH “1”

Fig. 10 — EXV Board

Table 6 — EXV1 Board Inputs and Outputs (30XW150,185,225,260,325,375)

DESCRIPTION	INPUT/OUTPUT	I/O TYPE	DISPLAY MODULE POINT NAME	CONNECTION POINT	
				Pin	Notation
Power (24 vac supply)	—	—	—		EXVA-J1
				11	24 vac
				12	Ground
Local Equipment Network	—	—	—		EXVA-J4
				1	RS485 Port (D+)
				2	RS485 Port (Gnd)
				3	RS485 Port (D–)
Circuit A Suction Gas Thermistor	SGTA	5k Thermistor	**Compressor Suction Temp, *SGT.A***		EXVA-J3
				TH	
				A	
Circuit B Suction Gas Thermistor	SGTB	5k Thermistor	**Compressor Suction Temp, *SGT.B***		EXVA-J3
				TH	
				B	
Circuit A EXV	EXV-A	Stepper Motor	**EXV Position, *EXV.A***		EXVA-J2A
				1	
				2	
				3	
				4	
Circuit B EXV (sizeS 325,375 only)	EXV-B	Stepper Motor	**EXV Position, *EXV.B***		EXVA-J2B
				1	
				2	
				3	
				4	

Table 7 — EXV1,2 Board Inputs and Outputs* (30XW175,200,250,275,300,350,400)

DESCRIPTION	INPUT/OUTPUT	I/O TYPE	DISPLAY MODULE POINT NAME	CONNECTION POINT	
				Pin	Notation
Power (24 vac supply)	—	—	—		EXVX-J1
				11	24 vac
				12	Ground
Local Equipment Network	—	—	—		EXVX-J4
				1	RS485 Port (D+)
				2	RS485 Port (Gnd)
				3	RS485 Port (D–)
Circuit X Suction Gas Thermistor	SGT X	5k Thermistor	**Compressor Suction Temp, *SGT.X***		EXVX-J3
				TH	
				A	
Circuit X Economizer Gas Thermistor	ECT X	5k Thermistor	**Economizer Gas Temp, *ECT.X***		EXVX-J3
				TH	
				B	
Circuit X EXV	EXV-X	Stepper Motor	**EXV Position, *EXV.X***		EXVX-J2A
				1	
				2	
				3	
				4	
Circuit X Economizer EXV	ECEXV-X	Stepper Motor	**Cir X Economizer EXV Pos, *ECO.X***		EXVX-J2A
				1	
				2	
				3	
				4	

* “X” denotes the circuit: 1 = Circuit A; 2 = Circuit B.

Minimum Load Valve / Condenser Board

One auxiliary board is installed in each unit. See Fig. 11. The auxiliary board contains an analog output for head pressure control and discrete outputs for minimum load control. The auxiliary board responds to commands from the MBB and sends the MBB the results of the channels it monitors via the LEN. See below for auxiliary board A, B and C DIP switch addresses. See Table 8 for inputs and outputs.

AUX BOARD DIP SWITCH	1	2	3	4	5	6	7	8
Address:	OFF	ON	OFF	OFF	ON	OFF	ON	OFF

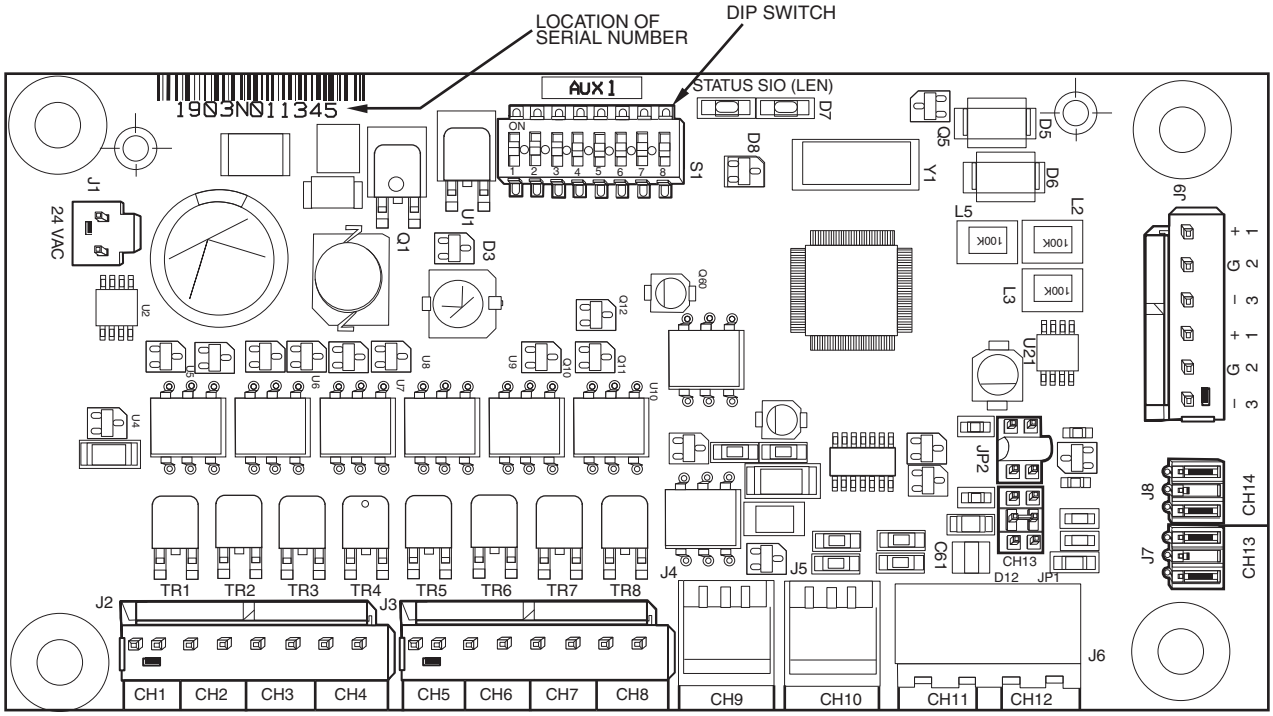


Fig. 11 — Auxiliary Board with Optional Minimum Load Control or Head Pressure Control

Table 8 — Auxiliary Board Outputs

DESCRIPTION	INPUT/OUTPUT	I/O TYPE	DISPLAY MODULE POINT NAME	CONNECTION POINT	
				Pin	Notation
Power (24 vac supply)	—	—	—	AUX-J1	
				11	24 vac
				12	Ground
Local Equipment Network	—	—	—	AUX-J9	
				+	RS485 Port (D+)
				G	RS485 Port (Gnd)
				-	RS485 Port (D-)
				+	RS485 Port (D+)
				G	RS485 Port (Gnd)
				-	RS485 Port (D-)
Condenser Head Pressure Control Speed Signal	HD_A	0-10 VDC	**Head Press Actuator Pos, *SPD.A***	AUX-CH9	
				+	Signal
				-	Ground
Minimum Load Valve A	MLV-A	Solenoid	**Minimum Load Valve Circuit A, *HGB.A***	AUX-J2-CH3	
Minimum Load Valve B	MLV-B	Solenoid	**Minimum Load Valve Circuit B, *HGB.B***	AUX-J2-CH4	

Enable-Off-Remote Contact Switch

This Enable-Off-Remote Contact Switch (SW1) is installed in all units and provides the owner and service person with a local means of enabling or disabling the machine. It is a 3-position switch and it is used to control the chiller. When switched to the Enable position, the chiller will be under its own control. When switched to the Off position, the chiller will shut down. When switched to the Remote Contact position, a field-installed dry contact can be used to start the chiller. The contacts must be capable of handling a 24-vac, 50-mA load. In the Enable and Remote Contact (dry contacts closed) positions, the chiller is allowed to operate and respond to the scheduling configuration, CCN configuration, and set point data.

For units with a Touch Pilot™ display, the position of the Enable/Off/Remote contact switch is ignored except when the Remote Mode operating type is selected. Refer to the Machine Control Methods section on page 22 for more details.

Emergency On/Off Switch

This Emergency On/Off Switch (SW2) is installed in all units. The Emergency On/Off switch should only be used when it is required to shut the chiller off immediately. Power to all modules is interrupted when this switch is off and all outputs from these modules will be turned off.

Energy Management Module

The Energy Management Module (EMM) is available as a factory-installed option or as a field-installed accessory. See Fig. 12. The EMM receives 4 to 20 mA inputs for the temperature reset, cooling set point and demand limit functions. The EMM also receives the switch inputs for the field-installed second stage 2-step demand limit and ice done functions. The EMM communicates the status of all inputs with the MBB, and the MBB adjusts the control point, capacity limit, and other functions according to the inputs received. See Table 9.

⚠CAUTION

Care should be taken when interfacing with other manufacturer's control systems due to possible power supply differences, full wave bridge versus half wave rectification, which could lead to equipment damage. The two different power supplies cannot be mixed. *Comfort*Link controls use half wave rectification. A signal isolation device should be utilized if incorporating a full wave bridge rectifier signal generating device is used.

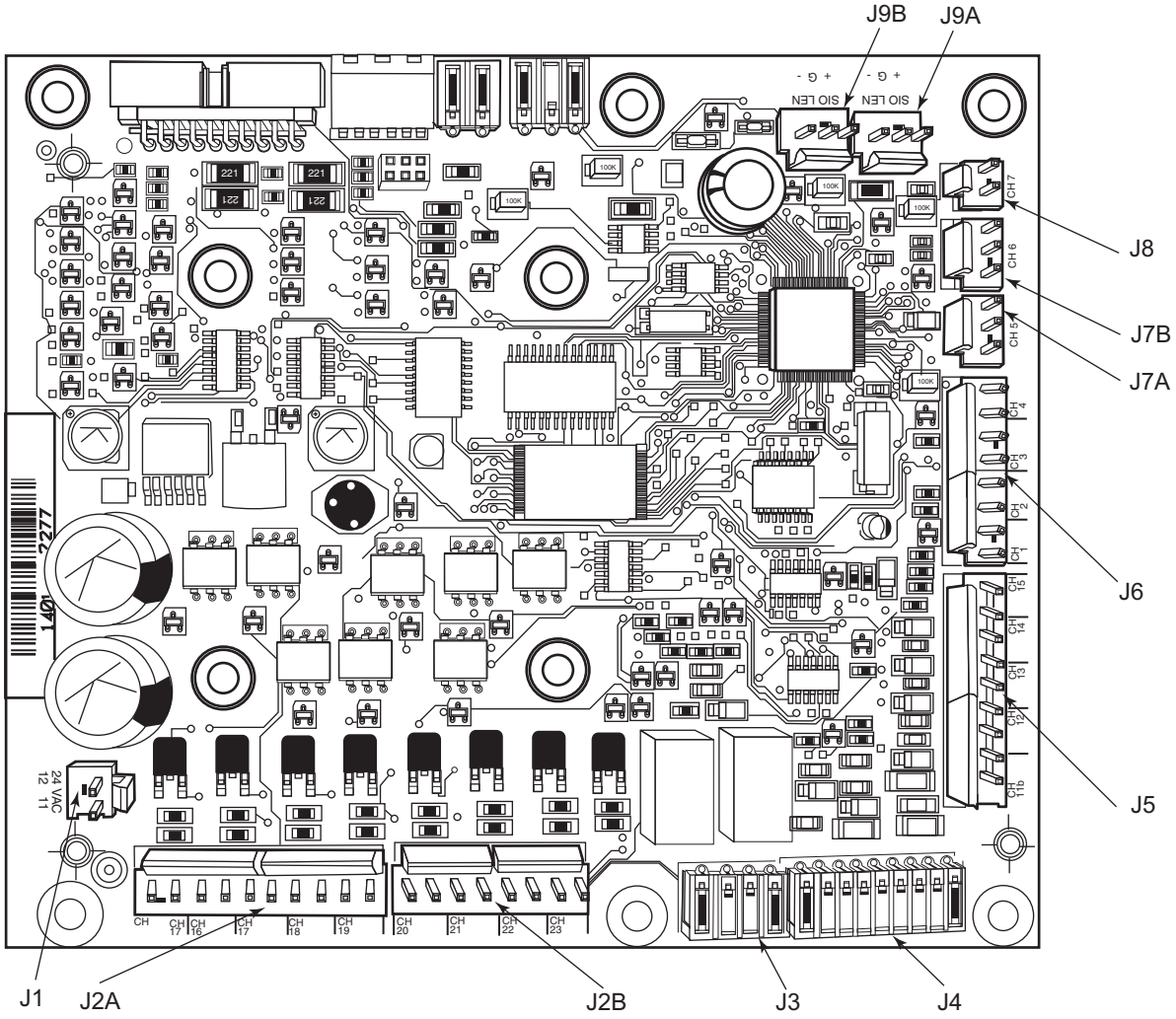


Fig. 12 — Energy Management Module

Table 9 — Energy Management Module Inputs and Outputs

INPUT/OUTPUT	DESCRIPTION	I/O TYPE	DISPLAY MODULE POINT NAME	CONNECTION POINT
4-20 mA Demand Limit	4-20 mA Demand Limit	4-20 mA*	**Limit 4-20 mA Signal, *DMD***	EMM-J7B-CH6
4-20 mA Temperature Reset/Cooling Set Point	4-20 mA Temperature Reset/ Cooling Set point	4-20 mA*	**Reset/Setpnt 4-20 mA Signal, *RSET***	EMM-J7A-CH5
Demand Limit SW2	Demand Limit Step 2	Switch Input	**Switch Limit Set Point 2, *DLS2***	EMM-J4-CH9
Ice Done	Ice Done Switch	Switch Input	**Ice Done Storage Switch, *ICE.D***	EMM-J4-CH11A
Occupancy Override	Occupied Schedule Override	Switch Input	**Occupied Override Switch, *OCCS***	EMM-J4-CH8
Remote Lockout Switch	Chiller Lockout	Switch Input	**Remote Interlock Switch, *RLOC***	EMM-J4-CH10
SPT	Space Temperature Thermistor	10k Thermistor	**Optional Space Temp, *SPT***	EMM-J6-CH2
% Total Capacity	Percent Total Capacity Output	0-10 vdc	**Chiller Capacity Signal, *CATO***	EMM-J8-CH7
RUN R	Run Relay	Relay	**Running Status, *RUN***	EMM-J3-CH25
SHD R	Shutdown Relay	Relay	**Shutdown Indicator State, *SHUT***	EMM-J3-CH24
CA_S	Run Status for Circuit A	Relay	**Compressor A Run Status, *Q_RUN_A***	EMM-J2A-CH17
CB_S	Run Status for Circuit B	Relay	**Compressor B Run Status, *Q_RUN_B***	EMM-J2A-CH18

* A field-supplied 1/2 watt 250 ohm resistor is required across terminals TB6-1,2 (CH6) and/or TB6-3, 4 (CH5).

Local Equipment Network

Information is transmitted between modules via a 3-wire communication bus or LEN. External connection to the LEN bus is made at TB3.

Board Addresses

All boards (except the Main Base Board and Energy Management Module Board) have 8-position DIP switches.

Touch Pilot Display

The Touch Pilot™ display port connections are shown in Table 10. Wiring is shown in Fig. 13.

Control Module Communication

RED LED

Proper operation of the control boards can be visually checked by looking at the red status LEDs (light-emitting diodes). When operating correctly, the red status LEDs will blink in unison at a rate of once every 2 seconds. If the red LEDs are not blinking in unison, verify that correct power is being supplied to all modules. Be sure that the Main Base Board (MBB) is supplied with the current software. If necessary, reload current software. If the problem still persists, replace the MBB. A red LED that is lit continuously or blinking at a rate of once per second or faster indicates that the board should be replaced.

GREEN LED

All boards have a green LEN LED which should be blinking whenever power is on. If the LEDs are not blinking as described check LEN connections for potential communication errors at the board connectors. See input/output Tables 3-10 for LEN connector designations. A 3-wire bus accomplishes communication between modules. These 3 wires run in parallel from module to module. The J9A connector on the MBB provides communication directly to the Navigator™ display module.

YELLOW LED

The MBB has one yellow LED. The Carrier Comfort Network® LED will blink during times of network communication.

Table 10 — Touch Pilot™ Display Port Connections

CONNECTOR	PIN	FUNCTION
J1 (Power)	1	24VAC +
	2	24VAC -
	3	Earth Ground
J2 (COM1)	1	RS485 Port (D+)
	2	RS485 Port (GND)
	3	RS485 Port (D-)
J3 (RJ11)	1	24VAC (+)
	2	RS485 Port (D+)
	3	RS485 Port (GND)
	4	Unused (no connect)
	5	RS485 Port (D-)
	6	24VAC(-)

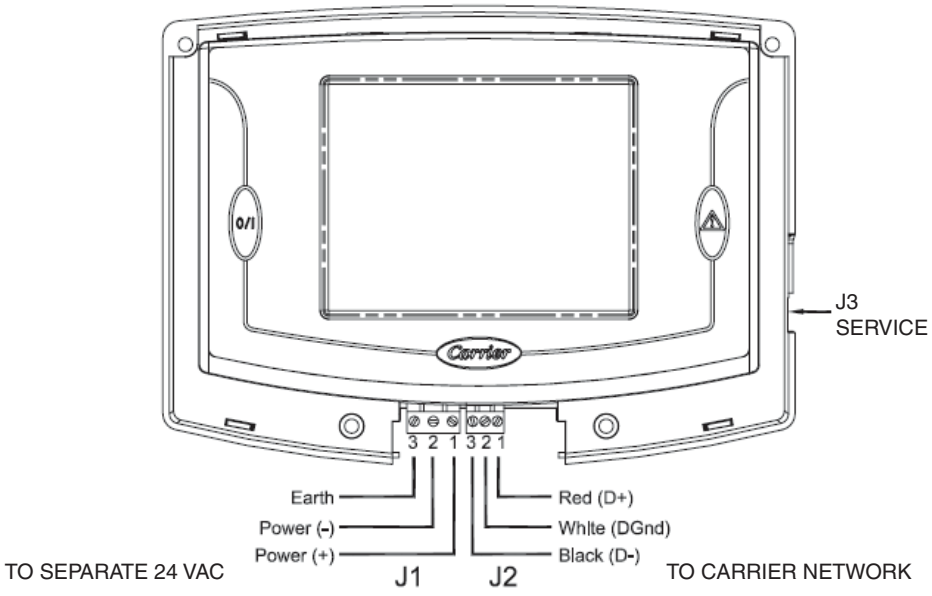


Fig. 13 — Touch Pilot™ Display Wiring

Carrier Comfort Network Interface

All 30XW units can be connected to a CCN system, if desired. The communication bus wiring is a shielded, 3-conductor cable with drain wire and is field supplied and installed. The system elements are connected to the communication bus in a daisy chain arrangement. The positive pin of each system element communication connector must be wired to the positive pins of the system elements on either side of it. The negative and signal ground pins of each system element must also be wired in the same manner. Wiring connections for CCN should be made at TB3. Consult the CCN Contractor's Manual for further information. See Fig. 14.

NOTE: Conductors and drain wire must be 20 AWG (American Wire Gage) minimum stranded, tinned copper. Individual conductors must be insulated with PVC, PVC/nylon, vinyl, Teflon[1], or polyethylene. An aluminum/polyester 100% foil shield and an outer jacket of PVC, PVC/nylon, chrome vinyl, or Teflon with a minimum operating temperature range of –20°C to 60°C is required. See Table 11 for recommended wire manufacturers and part numbers.

Table 11 — CCN Communication Bus Wiring

MANUFACTURER	PART NUMBER	
	Regular Wiring	Plenum Wiring
Alpha	1895	—
American	A21451	A48301
Belden	8205	884421
Columbia	D6451	—
Manhattan	M13402	M64430
Quabik	6130	—

It is important when connecting to a CCN communication bus that a color-coding scheme be used for the entire network to simplify the installation. It is recommended that red be used for the signal positive, black for the signal negative, and white for the signal ground. Use a similar scheme for cables containing different colored wires.

At each system element, the shields of its communication bus cables must be tied together. If the communication bus is entirely within one building, the resulting continuous shield must be connected to a ground at one point only. If the communication bus cable exits from one building and enters another, the shields must be connected to grounds at the lightning suppressor in each building where the cable enters or exits the building (one point per building only).

To connect the unit to the network:

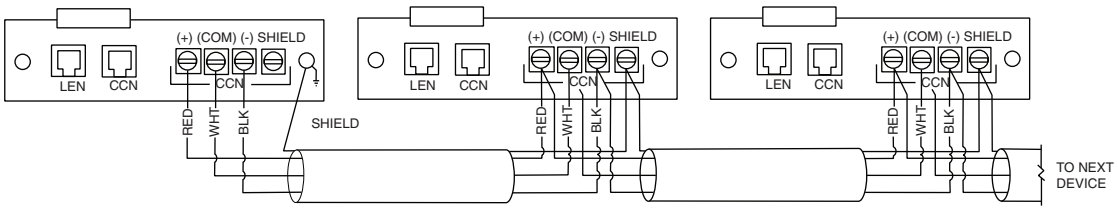
1. Turn off power to the control box.
2. Cut the CCN wire and strip the ends of the red (+), white (ground), and black (–) conductors. (Substitute appropriate colors for different colored cables.)
3. Connect the red wire to (+) terminal on TB3 of the plug, the white wire to COM terminal, and the black wire to the (–) terminal.
4. The RJ14 CCN connector on TB3 can also be used, but is only intended for temporary connection (for example, a laptop computer running Service Tool).

IMPORTANT: A shorted CCN bus cable will prevent some routines from running and may prevent the unit from starting. If abnormal conditions occur, disconnect the CCN bus. If conditions return to normal, check the CCN connector and cable. Run new cable if necessary. A short in one section of the bus can cause problems with all system elements on the bus.

Remote Alarm and Alert Relays

The 30XW chiller can be equipped with a remote alert and remote alarm annunciator contacts. Both relays connected to these contacts must be rated for a maximum power draw of 10 va sealed, 25 va inrush at 24 volts. The alarm relay, indicating that the complete unit has been shut down, can be connected to TB5-12 and TB5-13. Refer to unit wiring diagrams. For an alert relay, indicating that at least 1 circuit is off due to the alert, a field-supplied and installed relay must be connected between MBB-J3-CH25-3 and TB5-13. The action of the alarm and alert relays can be reversed from normally open to normally closed by using the Reverse Alarms Relay configuration (**Reverse Alarms Relay, *RVAL***).

1. Teflon is a registered trademark of DuPont.



LEGEND

CCN — Carrier Comfort Network
LEN — Local Equipment Network

Fig. 14 — *Comfort*Link CCN Communication Wiring

Table 12 — Touch Pilot™ Controller Identification Configuration Table

CONTROLLER ID DATA	BLOCK NO.	VALUE AND RANGE	QUALIFIERS
Device Name	1	CHILLDSP 8 character Name field	Default Optional
Local address	2	115	Default
Bus number	2	0	Default
Device (driver) type	2	0 = Non-bridge 3 = Broadcast Acknowledger	Default Optional
Primary baud rate	3	38400	Default
Secondary baud rate	3	38400	Fixed
Device description	4	Global Chiller Display 24 character text field	Default Optional
Device location	4	(Blank) 24 character text field	Default Optional
Software part number	4	CESR-131363-01	Fixed
Model number	4	(Blank)	Fixed
Serial number	4	(Blank)	Fixed
Reference number	4	Version 1.0	Fixed
Broadcast address processing list (primary)	5	241-251, 254, 255 enabled 241-255 enabled/disabled	Defaults Optional
Broadcast address processing list (secondary)	5	none	Not applicable

Table 13 — Touch Pilot™ User Configuration (USERCONF) Table

DESCRIPTION	LIMITS	UNITS	NAME	DEFAULT
Backlight always on?	No Yes		BACKLITE	No
Full access password	0 9999		PSWDFULL	3333
Limited access password	0 9999		PSWDLMTD	2222
Active language	0 1		ACTLANG	0
Time format	0 1		TIMEFMT	0
Date format	0 2		DATEFMT	0
Units base	US Metric		UNITBASE	US
Contrast control	Manual Auto		CONTRAST	Auto
Network mode	Disable Enable		NETWORK	Disable
Network settings				
Alarm acknowledger	No Yes		ALARMACK	No
Broadcast acknowledger	No Yes		BROADACK	No
Equipment CCN address				
Bus number	0 239		EQUIPBUS	0
Element number	1 239		EQUIPELE	1
Control variables				
Equipment status (Not Used)	Name char 8		EQSTATUS	NOT USED
Equipment start/stop (Not Used)	Name char 8		STARSTOP	NOT USED
Alarm status (Not Used)	Name char 8		ALSTATUS	NOT USED
Alarm reset (Not Used)	Name char 8		ALRESET	NOT USED

CONFIGURATION

Touch Pilot™ Operation Configuration Tables

The Touch Pilot™ display operation is controlled by configuration information entered in the following configuration tables. These tables are accessible by using Network Service Tool or ComfortVIEW™ software. The tables are the CtrlID (Controller Identification) configuration table and the USERCONF (User Configuration) table. See Tables 12 and 13.

NOTE: Always perform an Upload to obtain the latest configuration before making configuration table changes.

BACKLIGHT ALWAYS ON?

This configuration keeps the backlight on continuously or to turns it off after 60 seconds with no activity.

Allowable Entries: No/Yes (No=0 or Yes=1)

Default Value: No

FULL ACCESS PASSWORD

This configuration specifies the full access password. Refer to Table 1, Setup Menu, for additional information on passwords.

Allowable Entries: 0 through 9999

Default Value: 3333

LIMITED ACCESS PASSWORD

This configuration specifies the limited access password.

Allowable Entries: 0 through 9999

Default Value: 2222

ACTIVE LANGUAGE

This configuration specifies the display's active language. All translatable text will be displayed in this language.

Allowable Entries: 0 (English), 1 (alternate, installed by user)

Default Value: 0

TIME FORMAT

This configuration is specifies the format for display of time.

Allowable Entries:

0 = H:MM AM/PM without leading zero

1 = HH:MM with leading zero when necessary

Default Value: 0

DATE FORMAT

This configuration specifies the format for display of date.

Allowable Entries:

0 = MM-DD-YYYY with leading zero when necessary

1 = DD-MM-YYYY with leading zero when necessary

2 = YYYY-MM-DD

Default Value: 0

UNITS BASE

This configuration specifies the format of the units of measure.

Allowable Entries: U.S., Metric

Default Value: U.S.

CONTRAST CONTROL

This configuration is used to enable or disable the display's auto contrast adjustment feature. When enabled, the display's contrast will be automatically adjusted as required, based on temperature.

Allowable Entries:

Manual (Auto Contrast Adjustment Disabled)

Auto (Auto Contrast Adjustment Enabled)

Default Value: Auto

NETWORK MODE

This configuration sets the display's operating mode. For additional information on operating mode, refer to *Display* in the Table Setup Menu. This decision will be ignored and the mode will default to Equipment when the display is connected to a device (the LEN Bus).

NOTE: A power cycle is required for this decision to take effect.

Allowable Entries:

Disable = Equipment Mode

Enable = Network Mode

Default Value: Disable

ALARM ACKNOWLEDGER

This configuration specifies whether the Touch Pilot™ display will act as the alarm acknowledger for the CCN. There can be only one alarm acknowledger per CCN. Therefore, if another CCN device such as ComfortVIEW™ software, the Autodial Gateway or TeLINK is already set as the alarm acknowledger for the CCN network then this decision should be set to *No*.

NOTE: The display must be in Network mode and connected to the primary CCN bus and this decision set to *Yes* for alarm acknowledgment to be enabled.

Allowable Entries: No/Yes

Default Value: No

BROADCAST ACKNOWLEDGER

This configuration indicates whether the Touch Pilot™ display will act as the broadcast acknowledger for its CCN bus. There can be only one broadcast acknowledger per CCN bus.

NOTE: The display must be in Network mode and this decision set to *Yes* for broadcast acknowledgment to be enabled.

Allowable Entries: No/Yes

Default Value: No

EQUIPMENT CCN ADDRESS

When in equipment mode (USERCONF Table's Network Mode decision is set to *Disabl*e), the Bus Number and Element Number decisions are used to specify the CCN address of the piece of equipment to communicate with. An Attach or power cycle must be performed for changes to take effect. These decisions will be ignored when the display is connected to the LEN bus or in Network mode. In Network mode, specify the bus and element number of the equipment communicate with using the display's Attach function.

NOTE: In Network mode, these configurations will be overwritten with the default device address if it is changed through the Attach process.

BUS NUMBER

This configuration is used to specify the Equipment Controller bus number.

Allowable Entries: 0 through 239

Default Value: 0

ELEMENT NUMBER

This configuration is used to specify the Equipment Controller element number.

Allowable Entries: 1 through 239

Default Value: 1

Machine Control Methods

Three variables control how the machine operates. These variables control the On-Off function, set point operation, and Heat-Cool operation.

Machine On/Off Control

Machine On/Off control depends on which interface display is used. The control is different for Touch Pilot™ or Navigator™ displays. Select the correct configuration procedure below based on which interface is being used.

TOUCH PILOT™ MACHINE CONTROL

Machine On/Off control is determined locally by pushing the Start/Stop button on the Touch Pilot™ display. Pressing this button will cause the Equipment Start screen to be displayed. See Fig. 15.

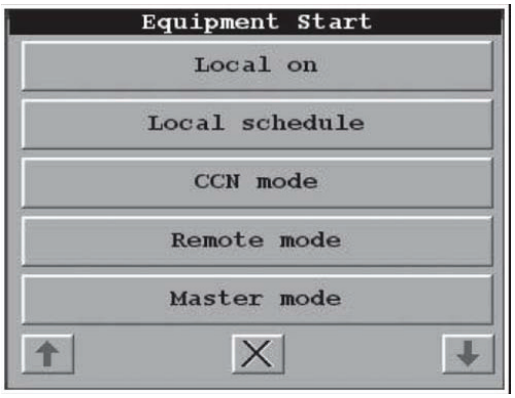


Fig. 15 — Equipment Start Screen

Table 14 summarizes the unit control type and stop or go status with regard to the following parameters:

- Operating type: this is selected by using the start/stop button on the front of the user interface.
- Remote start/stop contacts: these contacts are used when the unit is in remote operating type (Remote mode).
- CHIL_S_S: this network command variable relates to the chiller start/stop when the unit is in CCN control (CCN mode). When this variable forced to Disable, then the unit is stopped. When this variable is forced to Enable, then the unit runs in accordance with schedule 1.
- Start/Stop schedule: occupied or unoccupied status of the unit as determined by the chiller start/stop program (Schedule 1).
- Master control type: This parameter is used when the unit is the master unit in a two chiller lead/lag arrangement. The master control type determines whether the unit is to be controlled locally, remotely or through CCN (this parameter is a Service configuration).
- CCN emergency shutdown: if this CCN command is activated, it shuts the unit down whatever the active operating type.
- General alarm: the unit is totally stopped due to failure.

Local Mode

To start the machine in local mode, press the Start/Stop button on the Touch Pilot™ display. The Equipment Start screen will be displayed. Select Local On. The control will ignore the position of Enable/Off/Remote Contact switch and all CCN network force commands, except an Emergency Stop Command. The **Run Status** variable, indicating the current status of the machine, will change to RUNNING, DELAY or READY. The **Chiller Occupied?** variable will change to YES. The **Control Type** variable indicates the type of control. For this configuration, **Control Type** will be Local. The **Operating Type** variable will change to Local On (**L-On**).

Local Schedule

To start the machine with a local schedule, press the Start/Stop button on the Touch Pilot™ display. The Equipment Start screen will be displayed. Select Local Schedule. The unit will start and stop according to the schedule defined in the Time Schedule menu. Two Internal Time Schedules are available and must be field programmed. Time Schedule 1 is used for single set point On-Off control. Time Schedule 2 is used for Dual Set Point/Occupied-Unoccupied set point control. The control will ignore the position of Enable/Off/Remote Contact switch and all CCN network force commands, except the Emergency Stop Command.

The **Run Status** variable will indicate the current status of the machine — OFF, RUNNING, DELAY, or READY. The **Chiller Occupied?** variable will indicate the occupied state of the machine according to Time Schedule 1 and will be either YES (occupied) or NO (unoccupied). The **Control Type** variable will indicate the type of control. For this configuration, **Control Type** will be Local. The **Operating Type** variable will change to Local Schedule (L-Sched).

The schedules consist of 8 user-configurable occupied time periods. The control supports time schedules for local control, remote control, and ice building. These time periods can be flagged to be in effect or not in effect on each day of the week. The day begins at 00.00 and ends at 24.00. The machine will be in unoccupied mode unless a scheduled time period is in effect. If an occupied period extends past midnight, the occupied period will automatically end at 24:00 hours (midnight) and the new occupied period must be programmed to begin at 00:00 hours.

In the following example, the occupied period starts at 6:00 AM, Monday through Friday and 10:00 AM on Saturday and Sunday. The occupied time ends at 6:30 PM on Monday through Friday and 2:00 PM on Saturday and Sunday. See Fig. 16.

NOTE: This schedule was designed to illustrate the programming of the schedule function and is not intended as a recommended schedule for chiller operation.

If the chiller is to be controlled to a single set point, use Schedule 1 (**OCCPC01S**). This will start and stop the machine. During the unoccupied times, the chiller will be off. If the chiller is to be controlled to 2 set points, occupied and unoccupied, use Schedule 2 (**OCCPC02S**). This will cause the chiller to control to an occupied set point and an unoccupied set point. The machine will be able to provide cooling at any time.

To configure the local schedule on the Touch Pilot™ display see Table 15.

Table 14 — Touch Pilot™ Start/Stop Control

ACTIVE OPERATING TYPE	PARAMETER STATUS						CONTROL TYPE	UNIT STATUS
	CHIL_S_S Variable	Remote Start/Stop Contact	Master Unit Control Type	Start/Stop Schedule Mode	CCN Emergency Shutdown	General Alarm		
Local On	—	—	—	—	Disabled	No	Local	On
Local Off	—	—	—	—	—	—	Local	Off
Local Schedule	—	—	—	Unoccupied	—	—	Local	Off
				Occupied	Disabled	No	Local	On
Remote Mode	—	Off	—	—	—	—	Remote	Off
		—	—	Unoccupied	—	—	Remote	Off
		On Cool	—	Occupied	Disabled	No	Remote	On
CCN Mode	Off	—	—	—	—	—	CCN	Off
	—	—	—	—	—	—	CCN	Off
	On	—	—	Occupied	Disabled	No	CCN	On
Master Mode	—	—	Local	Unoccupied	—	—	Local	Off
				Occupied	Disabled	No	Local	On
			Remote	Unoccupied	—	—	Remote	Off
			CCN	Unoccupied	—	—	CCN	Off
		Off	Remote	—	—	—	Remote	Off
		On Cool	Remote	Occupied	Disabled	No	Remote	On
	Off	—	CCN	—	—	—	CCN	Off
	On	—	CCN	Occupied	Disabled	No	CCN	On
—	—	—	—	—	Active	—	—	Off
					—	Yes	—	Off

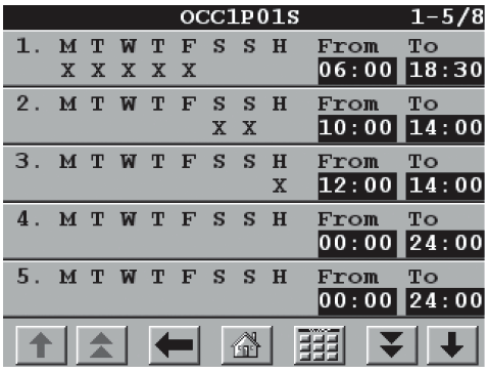


Fig. 16 — Chiller Schedule Screen

Table 15 — Configuring the Schedule with Touch Pilot™ Display

DISPLAY NAME	PATH	LINE NO.	VALUE
Period 1 DOW (MTWTFSSH)	***Config*\ *OCCDEFCS*\ *OCC1P01S*** or ***OCC1P02S***	1	11111000
Occupied from			06:00
Occupied to			18:30
Period 2 DOW (MTWTFSSH)		2	00000110
Occupied from			10:00
Occupied to			14:00
Period 3 DOW (MTWTFSSH)		3	00000001
Occupied from			12:00
Occupied to			14:00
Period 4 DOW (MTWTFSSH)		4	00000000
Occupied from			00:00
Occupied to			24:00
Period 5 DOW (MTWTFSSH)		5	00000000
Occupied from			00:00
Occupied to			24:00

Holiday Schedule

For the Touch Pilot™ display, the control allows up to 16 holiday periods. All holidays are entered with numerical values. To configure, first change the month (**Holiday Start Month**), then the day (**Holiday Start Day**), then the duration (**Holiday Duration**) of the holiday period in days. If a holiday is included in one of the Occupied Time Periods of the schedule, the machine will follow that operating condition for the holiday. In the following examples, the holidays July 4 and December 25-26 are programmed for Holiday 1 and Holiday 2, respectively. To configure these holidays with the Touch Pilot™ display, see Table 16. To configure Holidays with the Navigator™ display, check the holiday (H) schedule on the Schedule screen and program in the desired occupied times.

Table 16 — Programming Holiday Schedules with Touch Pilot™ Display

DISPLAY NAME	PATH	LINE NO.	VALUE
Holiday Start Month	***Config**HOLIDAY**HOLDY_01***	1	7
Start Day		2	4
Duration (days)		3	1
Holiday Start Month	***Config**HOLIDAY**HOLDY_02***	1	12
Start Day		2	25
Duration (days)		3	2

Timed Override

With the Touch Pilot™ display only, each time schedule can be overridden to keep the chiller in an Occupied mode (Timed Override Hours) for 1, 2, 3 or 4 hours on a one-time basis. To configure this option for the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Timed Override Hours	***Config**OCCDEFCS*\ *OCC1P01S*** or ***OCC1P02S***	1	Range: 0 to 4 Default: 0

If configured for a timed override, the override can be canceled by changing the Timed Override Hours to 0.

CCN Global Time Schedule

A CCN global schedule can be used if desired. The schedule number can be set anywhere from 65 to 99 for operation under a CCN global schedule. The 30XW chillers can be configured to follow a CCN Global Time Schedule broadcast by another system element. The ComfortVIEW™ Network Manager's Configure and Modify commands or the Service Tool's Modify/Names function must be used to change the number of the Occupancy Equipment Part Table Name (OCC1P01E) to the Global Schedule Number. The Schedule Number can be set from 65 to 99 (OCC1P65E to OCC1P99E).

The Occupancy Supervisory Part table name (OCC1P01S) number must be changed to configure the unit to broadcast a Global Time Schedule. The Schedule Number can be set from 65 to 99 (OCC1P65S to OCC1P99S). When OCC1PxxS is set to a value greater than 64, an occupancy flag is broadcast over the CCN every time it transitions from occupied to unoccupied or vice-versa. By configuring their appropriate Time Schedule decisions to the same number, other devices on the network can follow this same schedule. The Enable/Off/Remote Contact must be in the Enable position or the Remote Contact position with the contacts closed for the unit to operate. The Unit Run Status (***STAT***) will indicate the current status of the machine (OFF, RUNNING, STOPPING or DELAY), depending on the schedule. The unit Occupied status (***OCC***) will indicate the current occupied schedule according to the schedule, either NO or YES. The Status Unit Control Type (***CTRL***) will be LOCAL OFF when the switch is Off. The Status Unit Control Type will be CCN when the Enable/Off/Remote Contact switch input is On.

Refer to Appendix F for more detailed instructions regarding global schedules and the i-Vu® device.

CCN Mode

To allow machine control by CCN commands, press the Start/Stop button on the Touch Pilot display. The Equipment Start screen will be displayed. Select CCN Mode. The unit will be controlled by a CCN command to the **CCN Chiller Start/Stop** variable. An external CCN device, such as Chillervisor, controls the On/Off state of the machine. When controlled by a Chillervisor, it is recommended that the **Auto Start When SM Lost** configuration be set to Yes. In the event of a loss of communication with the network, the machine will start and be controlled locally.

Careful evaluation of chilled water plant control should be reviewed. In the event local control is established, be sure that all pumps, valves, and other devices are capable of operating properly. The control will ignore the position of Enable/Off/Remote Contact switch. The **Run Status** variable will indicate the current status of the machine — OFF, RUNNING, DELAY, or READY. The **Control Type** variable will change to CCN. The **Operating Type** variable will change to CCN.

For dual chiller control applications, the slave chiller must be enabled using the CCN Mode button.

Remote Mode

To allow machine to start and stop via a remote contact closure, press the Start/Stop button on the Touch Pilot™ display. The Equipment Start screen will be displayed. Select Remote Mode. The unit will be controlled by the Enable/Off/Remote Contact switch (SW1). Switching the Enable/Off/Remote Contact switch to the Enable or Remote Contact position (external contacts closed) will force the unit into an occupied state. In this mode, all CCN network force commands, except the Emergency Stop

Command will be ignored. The **Run Status** variable will indicate the current status of the machine (OFF, RUNNING, DELAY, or READY), depending on the position of the Remote/Off/Enable Switch closure. The **Chiller Occupied?** variable will change to YES. The **Control Type** variable will change to Remote. The **Operating Type** variable will change to Remote.

Master Mode

To activate Dual Chiller Control, each machine must be individually configured for Dual Chiller Control. To operate the machines in Dual Chiller Mode, one machine must be designated as the master unit and one machine as the slave unit. On the master unit, press the Start/Stop button on the Touch Pilot™ display. The Equipment Start screen will be displayed. Select Master Mode. Failure to start the Master unit in this manner will cause both machines to operate in local mode.

The Master Unit Control can be done locally, remotely or through CCN commands per the master/slave configuration (**Master Control Type**). The control will ignore the position of Enable/Off/Remote Contact switch if the **Master Control Type** is configured for Local Control or CCN Control. The **Run Status** variable, **Chiller Occupied?** variable, and **Control Type** variable will change based on the **Master Control Type** configured above and the Machine On/Off Control defined above. The **Operating Type** variable will change to Master.

To Turn Machine Off

To turn the machine off, press the Start/Stop button on the Touch Pilot™ display. See Fig. 17. The machine will shut down. While the unit is in Local Off, it will remain shut down and ignore all CCN commands as well as the position of Enable/Off/Remote Contact switch. The **Run Status** variable, indicating the current status of the machine, will change to OFF. The **Chiller Occupied?** variable will change to NO. The **Control Type** variable will indicate Local. The **Operating Type** variable will change to Local Off (L-OFF).

Fig. 17 — Equipment Stop Screen

NAVIGATOR™ DISPLAY MACHINE CONTROL

Machine On/Off control with the Navigator™ display is determined by the configuration of the Operating Type Control (***OPER***). Options to control the machine locally via a switch, from a local Time Schedule, or via a Carrier Comfort Network® command are offered. See Table 17.

The schedules consist of 8 user-configurable occupied time periods. The control supports time schedules for local control, remote control, and ice building. These time periods can be flagged to be in effect or not in effect on each day of the week. The day begins at 00.00 and ends at 24.00. The machine is in unoccupied mode unless a scheduled time period is in effect. If an occupied period is to extend past midnight, the occupied period must end at 24:00 hours (midnight) and a new occupied period must be programmed to begin at 00:00 hours.

In the following example, a early morning pulldown time period is scheduled for Monday morning from 12:00 AM to 3:00 AM. The occupied period starts at 7:00 AM, Monday through Saturday. The occupied time ends at 6:00 PM on Monday and Tuesday, 9:30 PM on Wednesday, 5:00 PM on Thursday and Friday, and 12:00 PM on Saturday.

NOTE: This schedule was designed to illustrate the programming of the schedule function and is not intended as a recommended schedule for chiller operation.

Switch Control

In the Switch Control operating type, the Enable/Off/Remote Contact switch controls the machine locally. All models are factory configured with Operating Type Control (***OPER***) set to **SWITCH CTRL** (Switch Control). With **SWITCH CTRL**, switching the Enable/Off/Remote Contact switch to the Enable or Remote Contact position (external contacts closed) will put the chiller in an occupied state. The Unit Run Status (***STAT***) will indicate the current status of the machine and will change from OFF to RUNNING or DELAY. The unit Occupied Status (***OCC***) will change from NO to YES. The Status Unit Control Type (***CTRL***) will change from LOCAL OFF when the switch is Off to LOCAL ON when in the Enable position or in the Remote Contact position with external contacts closed.

ITEM	ITEM EXPANSION	PATH	VALUE
OPER	Operating Control Type	***Operating Modes→ SLCT→OPER***	SWITCH CTRL

Table 17 — Navigator™ Start/Stop Control

CONTROL METHOD (OPER)	ACTIVE OPERATING TYPE	REMOTE/OFF/ ENABLE SWITCH	REMOTE ON/ OFF SWITCH	TIME SCHEDULE 1	CCN CHILLER START/STOP (CHIL_S_S)	EMERGENCY STOP (EMSTOP)	ALARM	REMOTE LOCKOUT SWITCH	UNIT STATUS
All	Local Off	Off	—	—	—	—	—	—	Off
		Remote	Open	—	—	—	—	—	Off
		—	—	—	—	Enable	—	—	Off
		—	—	—	—	—	Yes	—	Off
		—	—	—	—	—	—	Closed	Off
Switch Control	Local On	Enable	—	—	—	Disable	—	—	On
		Remote	Closed	—	—	Disable	—	—	On
Time Schedule	Local Schedule	Enable	—	Occupied	—	Disable	—	—	On
		Remote	Closed	Occupied	—	Disable	—	—	On
		—	—	Unoccupied	—	Disable	—	—	Off
CCN Control	CCN	Remote	Closed	—	Enable	Disable	—	—	On
		Remote	Closed	—	Disable	Disable	—	—	Off
		Enable	—	—	Enable	Disable	—	—	On
		Enable	—	—	Disable	Disable	—	—	Off

Time Schedule

With Time Schedule Operating Type control, the machine operates under a local schedule programmed by the user as long as the Enable/Off/Remote Contact switch is in the Enable or Remote Contact position (external contacts closed). To operate under this Operating Type Control (***OPER***) must be set to Time Schedule (**TIME SCHED**). Two Internal Time Schedules are available and must be field programmed. Time Schedule 1 (***SCH1***) is used for single set point On-Off control. Time Schedule 2 (***SCH2***) is used for dual set point On-Off and Occupied-Unoccupied set point control. The control will use the operating schedules as defined under the Time Clock mode in the Navigator display module.

ITEM	ITEM EXPANSION	PATH	VALUE
OPER	Operating Control Type	***Operating Modes→ SLCT→OPER***	TIME SCHED

If the chiller is to be controlled to a single set point, use Schedule 1 (***SCH1***). This type of schedule will start and stop the machine only. During the unoccupied times, the chiller will be off. If the chiller is to be controlled to 2 set points, occupied and unoccupied, use Schedule 2 (***SCH2***). This will cause the chiller to control to an occupied set point and an unoccupied set point. The machine will be able to provide cooling at any time.

To configure this option while using the Navigator display, see Table 18.

Holiday Schedule

The unit control allows up to 16 holiday periods. All holidays are entered with numerical values. First enter the month (***MON.x***), then the day (***DAY.x***), then the duration (***DUR.x***) of the holiday period in days. If a holiday is included in one of the Occupied Time Periods of the schedule, the machine will follow that operating condition for the holiday. In the following examples, the holidays July 4 and December 25-26 are programmed for Holiday 1 and Holiday 2 respectively.

To configure this option for the Navigator display, see Table 19.

CCN Global Time Schedule

A CCN global schedule can be used if desired. The schedule number can be set anywhere from 65 to 99 for operation under a CCN global schedule. The 30XW chillers can be configured to follow a CCN Global Time Schedule broadcast by another system element. The ComfortVIEW™ Network Manager's Configure and Modify commands or the Service Tool's Modify/Names function must be used to change the number of the Occupancy Equipment Part Table Name (OCC1P01E) to the Global Schedule Number. The Schedule Number can be set from 65 to 99 (OCC1P65E to OCC1P99E).

The Occupancy Supervisory Part table name (OCC1P01S) number must be changed to configure the unit to broadcast a Global Time Schedule. The Schedule Number can be set from 65 to 99 (OCC1P65S to OCC1P99S). When OCC1PxxS is set to a value greater than 64, an occupancy flag is broadcast over the CCN every time it transitions from occupied to unoccupied or vice-versa. By configuring their appropriate Time Schedule decisions to the same number, other devices on the network can follow this same schedule. The Enable/Off/Remote Contact must be in the Enable position or the Remote Contact position with the contacts closed for the unit to operate. The Unit Run Status (***STAT***) will indicate the current status of the machine (OFF, RUNNING, STOPPING or DELAY), depending on the schedule. The unit Occupied status (***OCC***) will indicate the current occupied schedule according to the schedule, either NO or YES. The Status Unit Control Type (***CTRL***) will be LOCAL OFF when the switch is Off. The Status Unit Control Type will be CCN when the Enable/Off/Remote Contact switch input is On.

Refer to Appendix F for more detailed instructions regarding global schedules and the i-Vu® device.

Table 18 — Configuring Schedules with Navigator™ Display

ITEM	ITEM EXPANSION	PATH	VALUE
OCC.1	Occupied Time	***Time Clock→SCH1→PER.1*** or Time ***Clock→SCH2→PER.1***	00:00
UNO.1	Unoccupied Time		03:00
MON.1	Monday Select		Yes
TUE.1	Tuesday Select		No
WED.1	Wednesday Select		No
THU.1	Thursday Select		No
FRI.1	Friday Select		No
SAT.1	Saturday Select		No
SUN.1	Sunday Select		No
HOL.1	Holiday Select		No
OCC.2	Occupied Time	***Time Clock→SCH1PER.2*** or ***Time Clock→SCH2→PER.2***	07:00
UNO.2	Unoccupied Time		18:00
MON.2	Monday Select		Yes
TUE.2	Tuesday Select		Yes
WED.2	Wednesday Select		No
THU.2	Thursday Select		No
FRI.2	Friday Select		No
SAT.2	Saturday Select		No
SUN.2	Sunday Select		No
HOL.2	Holiday Select		No
OCC.3	Occupied Time	***Time Clock→SCH1PER.3*** or ***Time Clock→SCH2→PER.3***	07:00
UNO.3	Unoccupied Time		21:30
MON.3	Monday Select		No
TUE.3	Tuesday Select		No
WED.3	Wednesday Select		Yes
THU.3	Thursday Select		No
FRI.3	Friday Select		No
SAT.3	Saturday Select		No
SUN.3	Sunday Select		No
HOL.3	Holiday Select		No
OCC.4	Occupied Time	***Time Clock→SCH1→PER.4*** or ***Time Clock→SCH2→PER.4***	07:00
UNO.4	Unoccupied Time		17:00
MON.4	Monday Select		No
TUE.4	Tuesday Select		No
WED.4	Wednesday Select		No
THU.4	Thursday Select		Yes
FRI.4	Friday Select		Yes
SAT.4	Saturday Select		No
SUN.4	Sunday Select		No
HOL.4	Holiday Select		No
OCC.5	Occupied Time	***Time Clock→SCH1→PER.5*** or ***Time Clock→SCH2→PER.5***	07:00
UNO.5	Unoccupied Time		12:00
MON.5	Monday Select		No
TUE.5	Tuesday Select		No
WED.5	Wednesday Select		No
THU.5	Thursday Select		No
FRI.5	Friday Select		No
SAT.5	Saturday Select		Yes
SUN.5	Sunday Select		No
HOL.5	Holiday Select		No

Table 19 — Configuring Holiday Schedules for Navigator Display

ITEM	ITEM EXPANSION	PATH	VALUE
MON.1	Holiday Start Month	***Time Clock→HOLI→HOL.1***	7
DAY.1	Holiday Start Day		4
DUR.1	Holiday Duration in Day		1
MON.2	Holiday Start Month	***Time Clock→HOLI→HOL.2***	12
DAY.2	Holiday Start Day		25
DUR.2	Holiday Duration in Day		2

CCN Control

With CCN Operating Type control, the machine operates under CCN control as long as the Enable/Off/Remote Contact Switch is in the Enable or Remote Contact position (external contacts closed). To operate under this Operating Control, OPER must be set to CCN CONTROL. An external CCN device, such as Chillervisor, controls the On/Off state of the machine. When controlled by a Chillervisor, it is recommended that the Auto Start When SM Lost (***AU.SM***) be set to Yes.

If any of the unit control points is to be written to, such as Demand Limit or Control Point, the unit must be set to CCN for the value to be accepted. Careful evaluation of Chilled Water Plant control should be reviewed. In the event Local Control is established, be sure that all pumps, valves, and other devices are capable of operating properly. In the event of a loss of communication with the network, the machine will start and be controlled locally. The CCN device forces the variable CHIL_S_S to control the chiller. The Unit Run Status (***STAT***) will indicate the current status of the machine (OFF, RUNNING, STOPPING or DELAY), depending on the CCN command. The unit Occupied status (***OCC***) will indicate the current occupied state according to the CCN command and will be displayed as either NO or YES. The Status Unit Control Type (***CTRL***) will be LOCAL OFF when the Enable/Off/Remote Contact switch is Off. The Status Unit Control Type will be CCN when the Enable/Off/Remote Contact switch input is Closed and the CHIL_S_S variable is Stop or Start.

For Dual Chiller Control applications, the Slave Chiller must be enabled using the CCN CONTROL option.

ITEM	ITEM EXPANSION	PATH	VALUE
OPER	Operating Control Type	***Operating Modes→ SLCT →OPER***	CCN CONTROL
AU.SM	Auto Start when SM Lost	***Configuration→SERV***	YES

Entering Fluid Control Option

The factory default for the chilled water fluid set point is controlling to the leaving water temperature. An option to configure the machine for entering water control is available. The control operation remains the same except the control point is focused on the entering water temperature, rather than the leaving water temperature when configured.

To configure this option for the Touch Pilot™ display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Entering Fluid Control	***Service\ SERVICE1***	5	No = Leaving Water Control Yes = Entering Water Control

To configure this option for the Navigator display:

ITEM	ITEM EXPANSION	PATH	VALUE
EWTO	Entering Water Control	***Configuration→SERV***	No = Leaving Water Control Yes = Entering Water Control

Heat Machine Option

The 30XW chiller with the heat machine option can be configured for heating duty. The heat machine option consists of air-cooled duty compressor(s), water-cooled condenser with higher operating pressure, condenser entering and leaving water temperature thermistors and condenser water flow switch.

The control will load compressors to satisfy the required heating set point provided there is sufficient cooling load. Operating as a heat machine requires the unit configuration of the Unit Type **(*TYPE*) = 4 (Heat Machine)**, High Condensing Select **(*H.CON*) = Yes (YES)**, and Heat/Cool Select **(*HC.SE*)** parameters.

Heat/Cool Select **(*HC.SE*) = 0 (Cooling)** allows the unit to operate in the cooling mode only.

Heat/Cool Select **(*HC.SE*) = 1 (Heating)** allows the unit to operate in the heating mode only.

Heat/Cool Select **(*HC.SE*) = 3 (Heat Cool Sw)** allows the unit to switch between cooling and heating based on a dry contact input (open contacts = Cool, closed contacts = Heat). Use of the Heat/Cool switch option requires field installed wiring to Main Base Board input channel 14. Refer to 30XW wiring diagram in Service Test section. Heat/Cool Select can also be forced from communications (CCN point name HC_SEL).

To configure these options for the Touch Pilot™ display, see Table 20. To configure these options for the Navigator™ display, see Table 21.

Table 20 — Configure Heat Machine Option with Touch Pilot Display

DISPLAY NAME	PATH	LINE NO.	VALUE
Unit Type	***Main Menu\Service\ FACTORY***	1	Default = 3 3 = Water Cooled 4 = Heat Machine
High Condensing Select	***Main Menu\Service\ FACTORY***	24	Default = No Yes = Enabled No = Disabled
Heat Cool Select	***Status\GENUNIT***	9	Default = 0 0 = Cool 1 = Heat 2 = Auto (not supported)

Table 21 — Configure Heat Machine Option with Navigator Display

ITEM	ITEM EXPANSION	PATH	VALUE
TYPE	Unit Type	***Configuration→UNIT***	Default = Water Cooled Water Cooled Heat Machine
H.CON	High Condensing Select	***Configuration→UNIT***	Default = No Yes = Enabled No = Disabled
HC.SE	Heat Cool Select	***Operating Mode→ SLCT***	Default = Cooling Cooling Heating Auto Chgover (not supported) Heat Cool Sw

Cooling Set Point Selection

Several options for controlling the Leaving Chilled Water Set Point are offered and are configured by the Cooling Set Point Select (**Set Point Select, *SP.SE***) variable. In addition to the Cooling Set Point Select, Ice Mode Enable discussed later in this book, and Heat Cool Select (**Heat/Cool Select, *HC.SE***) variables also have a role in determining the set point of the machine. All units are shipped from the factory with the Heat Cool Select set to 0.

All default set points are based on Leaving Water Control (**Entering Fluid Control, *EWTO***) set to No. Values must be confirmed for the individual set points. Limits for the set points are listed in the configurations noted below.

To configure these options for the Touch Pilot display, see Table 22. To configure these options for the Navigator display, see Table 23.

Table 22 — Cooling Set Point Selection with Touch Pilot Display

DISPLAY NAME	PATH	LINE NO.	VALUE
Cooling Set Point 1	***Set Point***	2	Range: 14 to 70°F (–10.0 to 21.1°C) Default: 44°F (6.6°C)
Cooling Set Point 2	***Set Point***	3	Range: 14 to 70°F (–10.0 to 21.1°C) Default: 44°F (6.6°C)
Cooling Ice Set Point	***Set Point***	4	Range: –20 to 32°F (–28.9 to 0°C) Default: 44°F (6.6°C)

Table 23 — Cooling Set Point Selection with Navigator Display

ITEM	ITEM EXPANSION	PATH	VALUE
CSP.1	Cooling Set Point 1	***Set Points→COOL***	Range: 14 to 70°F (–10.0 to 21.1°C) Default: 44°F (6.6°C)
CSP.2	Cooling Set Point 2	***Set Points→COOL***	Range: 14 to 70°F (–10.0 to 21.1°C) Default: 44°F (6.6°C)
CSP.3	Ice Set Point	***Set Points→COOL***	Range: –20 to 32°F (–28.9 to 0°C) Default: 44°F (6.6°C)

In all cases, there are limits on what values are allowed for each set point. These values depend on the Cooler Fluid Type and the Brine Freeze Set point, discussed later. See Table 24.

Table 24 — Configuration Set Point Limits

SET POINT LIMITS	COOLER FLUID TYPE (COOLER FLUID TYPE, FLUD)	
	1, Water	**2, Brine**
Minimum *	38°F (3.3°C)	14°F (–10.0°C)
Maximum	60°F (15.5°C)	

* The minimum set point for Medium Temperature Brine applications is related to the Brine Freeze Point. The set point is limited to be no less than the Brine Freeze Point +5°F (2.8°C).

The Set Point Select configuration can be set to five different control options: Set Point Occupancy, Set Point 1, Set Point 2, 4-20mA Input, and Dual Switch.

⚠ CAUTION

Brine duty application (below 40°F [4.4°C] LCWT) for chillers normally requires factory modification. Contact a Carrier Representative for details regarding specific applications. Operation below 40°F (4.4°C) LCWT without modification can result in compressor failure.

SET POINT OCCUPANCY

Set Point Occupancy is the default configuration for the Set Point Select variable. When Set Point Select (**Set Point Select, *SP.SE***) is configured to 0 (Set Point Occ), the unit's active set point is based on Cooling Set Point 1 (**Cooling Set Point 1, *CSP.1***) during the occupied period while operating under Time Schedule 1 (***SCH1***). If the Time Schedule 2 (***SCH2***) is in use, the unit's active set point is based on Cooling Set Point 1 (**Cooling Set Point 1, *CSP.1***) during the occupied period and Cooling Set Point 2 (**Cooling Set Point 2, *CSP.2***) during the unoccupied period. See Tables 25 and 26.

Table 25 — Cooling Set Point Selection Touch Pilot™ Parameters

SET POINT CONFIGURATION (Set Point Select)	ICE MODE ENABLE (ice_cnfg)	DUAL SET POINT INPUT (SETP_SW)	ICE DONE INPUT (ICE_SW)	TIME SCHEDULE 2	ACTIVE SET POINT
0 (Auto)	NO	—	—	Occupied	Cooling Set Point 1
		—	—	Unoccupied	Cooling Set Point 2
	YES	—	Open	Unoccupied	Cooling Ice Set Point
		—	Closed	Unoccupied	Cooling Set Point 2
		—	—	Occupied	Cooling Set Point 1
1 (Setp 1)	—	—	—	—	Cooling Set Point 1
2 (Setp 2)	—	—	—	—	Cooling Set Point 2
3 (4-20 mA)	—	—	—	—	4 to 20 mA Input
4 (Setp Sw)	NO	Open	—	—	Cooling Set Point 1
		Closed	—	—	Cooling Set Point 2
	YES	Open	—	—	Cooling Set Point 1
		Closed	Open	—	Cooling Ice Set Point
		Closed	Closed	—	Cooling Set Point 2

Table 26 — Cooling Set Point Selection Navigator™ Parameters

PARAMETER STATUS							ACTIVE SET POINT
Control Method (OPER)	Heat/Cool Select (HC.SE)	Set Point Select (SP.SE)	Ice Mode Enable (ICE.M)	Ice Done (ICE.D)	Dual Set Point Switch (DUAL)	Set Point Occupied (SP.OC)	
LOCAL	COOL	Set Point Occ	—	—	—	Occupied	CSP.1
		Set Point Occ	—	—	—	Unoccupied	CSP.2
		Set Point Occ	Enable	Open	—	Unoccupied	CSP.3
		Set Point 1	—	—	—	—	CSP.1
		Set Point 2	—	—	—	—	CSP.2
		4-20mA Setp	—	—	—	—	4_20mA
		—	Enable	Open	Closed	—	CSP.3
		—	Enable	Closed	Closed	—	CSP.2
		—	—	—	Open	—	CSP.1
		Dual Setp Sw	—	—	Closed	—	CSP.2
CCN	COOL	—	—	—	—	Occupied	CSP.1
		—	—	—	—	Unoccupied	CSP.2

To configure this option while using a Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Set Point select	*Status\GENUNIT*	25	0 (Set Point Occupied)

To change this value, a Control Point Force must be applied. When configured correctly, Set Point Select (**Set Point Select, *SP.SE***) will indicate Auto.

To configure this option while using a Navigator display:

ITEM	ITEM EXPANSION	PATH	VALUE
SP.SE	Set Point Select	*Operating Modes→SLCT*	Set Point Occ

Set Point 1

When Set Point Select (**Set Point Select, *SP.SE***) is configured to 1 (**Set Point 1**), the unit's active set point is based on Cooling Set Point 1 (**Cooling Set Point 1, *CSP.1***).

To configure this option with the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Set Point Select	*Status\GENUNIT*	25	1 (Set Point 1)

To change this value, a Control Point Force must be applied. When configured correctly, **Set Point Control** will indicate Setp 1.

To configure this option with the Navigator display:

ITEM	ITEM EXPANSION	PATH	VALUE
SP.SE	Set Point Select	*Operating Modes→SLCT*	Set Point 1

Set Point 2

When Set Point Select (**Set Point Select, *SP.SE***) is configured to 2 (Set Point 2), the unit's active set point is based on Cooling Set Point 2 (**Cooling Set Point 2, *CSP.2***).

To configure this option with the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Set Point Select	*Status\GENUNIT*	25	2 (Set Point 2)

To change this value, a Control Point Force must be applied. When configured correctly, Set Point Control (***Status→ GENUNIT***) will indicate Setp 2.

To configure this option with the Navigator display:

ITEM	ITEM EXPANSION	PATH	VALUE
SP.SE	Set Point Select	*Operating Modes→SLCT*	Set Point 2

4 to 20 mA Input

When Set Point Select (**Set Point Select, *SP.SE***) is configured to 3 (4-20 mA Setp), the unit's active set point is based on a field-supplied, external 4 to 20 mA signal input to the EMM. Care should be taken when interfacing with other manufacturer's control systems, due to power supply differences of full wave bridge versus half wave rectification. The two different power supplies cannot be mixed. *Comfort*Link controls use half wave rectification. A signal isolation device should be utilized if a full wave bridge signal generating device is used.

The following equation is used to control the set point. See Fig. 18.

Fahrenheit Set Point = 10 + 70(mA – 4)/16 (deg F)

Celsius Set Point = –12.2 + 38.9(mA – 4)/16 (deg C)

To configure this option while using a Touch Pilot™ display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Set Point Select	***Status\GENUNIT***	25	3 (4-20 mA Input)

To change this value, a Control Point Force must be applied. When configured correctly, **Set Point Control** will indicate 4-20 mA.

To configure this option while using a Navigator™ display:

ITEM	ITEM EXPANSION	PATH	VALUE
SP.SE	Set Point Select	***Operating Modes→SLCT***	4-20 mA Setp

Dual Switch

When Set Point Select (**Set Point Select, *SP.SE***) is configured to 4 (Dual Setp Sw), the unit's active set point is based on Cooling Set Point 1 (**Cooling Set Point 1, *CSP.1***) when the Dual Set Point switch contact is open and Cooling Set Point 2 (**Cooling Set Point 2, *CSP.2***) when it is closed.

To configure this option while using Touch Pilot™ display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Set Point Select	***Status\GENUNIT***	25	4 (Dual Set Point Switch)

To change this value, a Control Point Force must be applied. When configured correctly, **Set Point Control** will indicate Setp Sw.

To configure this option while using a Navigator display:

ITEM	ITEM EXPANSION	PATH	VALUE
SP.SE	Set Point Select	***Operating Modes→SLCT***	Dual Setp Sw

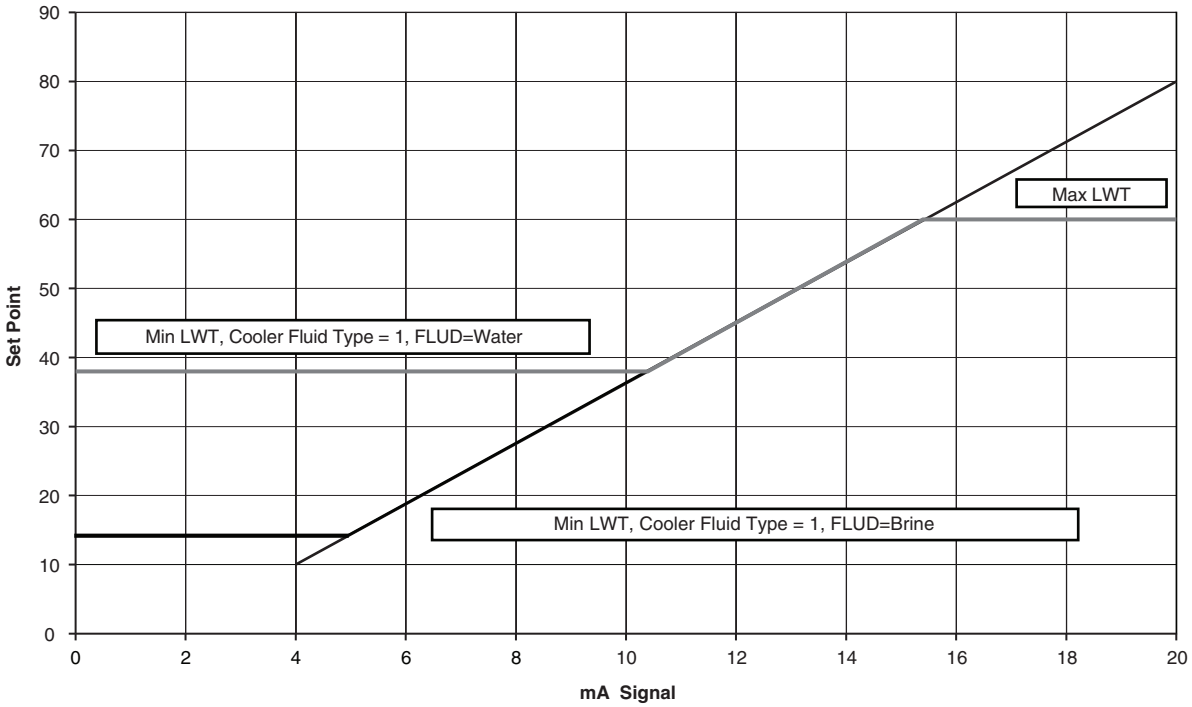


Fig. 18 — 4 to 20 mA Set Point Control

Heating Set Point Selection

Several options for 30XW chillers operating as heat machines exist for controlling the Leaving Condenser Water Set Point and are configured by the Set Point Select (**Set Point Select, *SP.SE***) variable. In addition, the Heat Cool Select (**Heat/Cool Select, *HC.SE***) variable also has a role in determining the set point of the machine. All units are shipped from the factory with the Heat/Cool Select set to 0 (Cool).

All default set points are based on Leaving Water Control (**Entering Fluid Control, *EWTO***) set to No. Values must be confirmed for the individual set points. Limits for the set points are listed in the configurations noted below.

To configure these options for the Touch Pilot™ display, see Table 27. If the chiller will be run in the Local mode, change the Heat/Cool Select to a value of 1 (Heat). If desired, the Touch Pilot™ display can be configured for remote mode operation. For this mode, use the remote/off/enable switch for chiller operation. This mode also requires that the heat/cool switch input be wired. The chiller will be in cooling mode with an open switch input and heating mode when this switch input is closed.

To configure these options for the Navigator™ display, see Table 28.

The Set Point Select configuration can be set to five different control options: Set Point Occupancy, Set Point 1, Set Point 2, 4-20 mA Input, and Dual Switch.

⚠ CAUTION

The 30XW chiller operation in either high condensing or heat machine modes require that field-supplied thermal insulation be installed on compressor discharge lines, oil lines, condenser external surfaces and optional minimum load valve lines up to the solenoid valve body. Tubing and heat exchanger surfaces will be hot and the insulation is required to prevent burns from accidental contact.

Table 27 — Heating Set Point Selection with Touch Pilot Display

DISPLAY NAME	PATH	LINE NO.	VALUE
Heating Set Point 1	***Set Point***	17	Range: 80 to 140°F (26.7 to 60°C) Default: 100 °F (37.8°C)
Heating Set Point 2	***Set Point***	18	Range: 80 to 140°F (26.7 to 60°C) Default: 100 °F (37.8°C)

PARAMETERS			
SET POINT CONFIGURATION (Set Point Select)	**DUAL SET POINT INPUT (SETP_SW)**	**TIME SCHEDULE 2**	**ACTIVE SET POINT**
0 (Auto)	—	Occupied	Heating Set Point 1
	—	Unoccupied	Heating Set Point 2
1 (Setpt 1)	—	—	Heating Set Point 1
2 (Setpt 1)	—	—	Heating Set Point 2
3 (4-20 mA)	—	—	4 to 20 mA Input
4 (Setpt Sw)	Open	—	Heating Set Point 1
	Closed	—	Heating Set Point 2

Table 28 — Heating Set Point Selection with Navigator Display

ITEM	ITEM EXPANSION	PATH	VALUE
HSP.1	Heating Set Point 1	**Set Points→HEAT**	Range: 80 to 140°F (26.7 to 60°C) Default: 100 °F (37.8°C)
HSP.2	Heating Set Point 2	**Set Points→HEAT**	Range: 80 to 140°F (26.7 to 60°C) Default: 100°F (37.8°C)

PARAMETERS					
Control Method (OPER)	**Heat/ Cool Select (HC.SE)**	**Set Point Select (SP.SE)**	**Dual Set Point Switch (DUAL)**	**Set Point Occupied (SP.OC)**	**ACTIVE SET POINT**
LOCAL	HEAT	Set Point	—	Occupied	HSP.1
		Set Point	—	Unoccupied	HSP.2
		Set Point 1	—	—	HSP.1
		Set Point 2	—	—	HSP.2
		4-20 mA	—	—	4-20 mA
		Dual Setp Sw	Open	—	HSP.1
		Dual Setp Sw	Closed	—	HSP.2
CCN	HEAT	—	—	Occupied	HSP.1
		—	—	Unoccupied	HSP.2

Heating Operation

Operation in a heating mode always requires that a cooling load exists. The chiller will then look to see if a heating load exists and start as required to maintain the desired heating set point. For optimum benefit it is desirable to give as much cooling load to the chiller as possible to realize maximum savings potential. Chiller operation in heating is limited to 122°F (50°C) as standard and up to 140°F (60°C) with heat machine option and high condensing select parameter (**highcond** or ***H.CON***) is set to Yes. To avoid low cooler leaving water temperature alarms, the compressor capacity will decrease if cooler leaving water temperature is less than whichever temperature is the lowest, cooling set point 1 or cooling set point 2. See Override 69 in the Capacity Control Overrides section on page 50.

Chilled Water Fluid Type Selection

The chilled water fluid must be configured. The fluid type must be configured to obtain the proper leaving water set point control range and freeze protection. The Cooler Fluid Type (**Cooler Fluid Type, *FLUD***) can be set to water or brine.

FRESH WATER

Configure the unit for Cooler Fluid Type (**Cooler Fluid Type, *FLUD***) to water for units without brine or glycol installed in the chilled water loop. The factory default fluid type is fresh water. Use this option for fresh water systems. This will allow for a water temperature set point of 38 to 60°F (3.3 to 15.5°C). With water as the selection, the Freeze Point is fixed at 34°F (1.1°C).

To configure this option with the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Cooler Fluid Type	***Main Menu\Service\SERVICE1***	1	1 = Water

To configure this option with the Navigator display:

ITEM	ITEM EXPANSION	PATH	VALUE
FLUD	Cooler Fluid Type	***Configuration→SERV***	Water

BRINE OR GLYCOL OPERATION

Configure the unit for Cooler Fluid Type (**Cooler Fluid Type, *FLUD***) to brine for brine or glycol chilled water loops. This option will allow for a set point temperature range of 14 to 60°F (–10.0 to 15.5°C). Before configuring this selection, confirm that a suitable antifreeze has been added and is at a sufficient concentration to protect the loop. Additionally, the Brine Freeze Set Point (**Brine Freeze Set Point, *LOSP***) must be set for proper freeze protection operation. Set the Brine Freeze Set Point to the burst protection provided by the glycol concentration. This value will be Freeze Point for the fluid.

To configure this option with the Touch Pilot™ display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Cooler Fluid Type	***Main Menu\ Service\SERVICE1***	1	2 = Brine
Brine Freeze Set Point	***Main Menu\ Service\SERVICE1***	3	Dependent on fluid concentration
Brine Minimum Fluid Temp	***Main Menu\ Service\SERVICE1***	4	Dependent on job site requirements

To configure this option with the Navigator™ display:

ITEM	ITEM EXPANSION	PATH	VALUE
FLUD	Cooler Fluid Type	***Configuration→SERV***	Brine
LOSP	Brine Freeze Set Point	***Configuration→SERV***	Dependent on fluid concentration
LLWT	Brine Minimum Fluid Temp	***Configuration→SERV***	Dependent on job site requirements

Cooler Pump Control

It is required for all chillers that the cooler pump control be utilized unless the chilled water pump runs continuously or the chilled water system contains a suitable concentration of antifreeze solution. When the Cooler Pumps Sequence is configured, the cooler pump output will be energized when the chiller enters an "ON" mode. The cooler pump output is also energized when certain alarms are generated. The cooler pump output should be used as an override to the external pump control if cooler pump control is not utilized. The cooler pump output is energized if a P.01 Water Exchanger Freeze Protection alarm is generated, which provides additional freeze protection if the system is not protected with a suitable antifreeze solution.

The 30XW units can be configured for external cooler pump control. Cooler Pumps Sequence is the variable that must be confirmed in the field. Proper configuration of the cooler pump control is required to provide reliable chiller operation. The factory default setting for Cooler Pumps Sequence is 0 (No Pump). The configuration settings for Cooler Pumps Sequence are 1 (1 pump only) for single pump control and 2 (2 pumps auto). Configuration settings 3 (PMP 1 Manual) and 4 (PMP 2 Manual) are for dual pump control only.

If the Cooler Pumps Sequence (***PUMP***) is set to 1, the control will start the pump. If a flow failure is detected, the unit will shut down and must be manually reset. If the Cooler Pumps Sequence (***PUMP***) is set to 2, the control will start the lead pump and automatically alternate the operation of the pumps to even the wear. If a flow failure is detected, the unit will shut down and the lag pump will attempt to start. If flow is established within the Unit Off to On Delay (***DELY***) period the unit will restart automatically.

Two manual control options are also available. When the Cooler Pumps Sequence (***PUMP***) is set to 3, Cooler Pump 1 will always operate. If a flow failure is detected, the unit will shut down and must be manually reset. When the Cooler Pumps Sequence (***PUMP***) is set to 4, Cooler Pump 2 will always operate. If a flow failure is detected, the unit will shut down and must be manually reset.

For all Cooler Pumps Sequence (***PUMP***) settings (including 0), closure of both the chilled water flow switch (CWFS) and the chilled water pump interlock contact (connected across TB5 terminals 1 and 2) are required. In addition, for Cooler Pumps Sequence settings of ***PUMP*** = 1, 2, 3, 4, normally open auxiliary contacts for Pump 1 and Pump 2 (wired in parallel) must be connected to the violet and pink wires located in the harness from the MBB-J5C-CH18 connector. The wires in the harness are marked "PMP1-13" and "PMP1-14". See the field wiring diagram in the 30XW Installation Instructions.

Regardless of the cooler pump control option selected, if the chilled water flow switch/interlock does not close within the Unit Off to On Delay period after the unit is enabled and in an ON mode, alarm P.91 will be generated. Other conditions which will trigger this alarm include:

- Cooler pump interlock is open for at least 15 seconds during chiller operation.
- Lag chiller in Master/Slave Control pump interlock does not close after 1 minute of the pump start command.
- Cooler pump control is enabled and the chilled water flow switch/interlock is closed for more than 2 minutes following a command to shut down the pump.

The last alarm criterion can be disabled. If the cooler pump flow setting (**Flow Checked if C Pmp Off, *P.LOC***) is set to NO, the control will ignore the pump interlock input if the cooler pump output is OFF.

The *Comfort*Link controls have the ability to periodically start the pumps to maintain the bearing lubrication and seal integrity. If Pump Sticking Protection (**Pump Sticking Protection**, ***PM.PS***) is set to YES, and if the unit is off at 2:00 PM, a pump will be started once each day for 2 seconds. If the unit has 2 pumps, Pump 1 will be started on even days (such as day 2, 4, or 6 of the month); Pump 2 will be started on odd days. The default for this option is ***PM.PS***=NO.

The pump will continue to run for 60 seconds after an off command is issued.

COOLER PUMP CONTROL CONFIGURATIONS

No Pump Control

To configure cooler pump control options with the Touch Pilot™ display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Cooler Pumps Sequence	***Main Menu\Config\USER***	8	0 (No Pump Control)

To configure cooler pump control options with the Navigator™ display:

ITEM	ITEM EXPANSION	PATH	VALUE
PUMP	Cooler Pumps Sequence	***Configuration→OPTN***	No Pump

Single Pump Control

To configure cooler pump control options with the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Cooler Pumps Sequence	***Main Menu\Config\USER***	8	1 (Single Pump Control)
Pump Sticking Protection	***Main Menu\Config\USER***	15	Default = No No = Disabled Yes = Enabled
Flow Checked if C Pump Off	***Main Menu\Config\USER***	17	Default = Yes No = Disabled Yes = Enabled

To configure cooler pump control options with the Navigator™ display:

ITEM	ITEM EXPANSION	PATH	VALUE
PUMP	Cooler Pumps Sequence	***Configuration→OPTN***	1 Pump Only
PM.PS	Periodic Pump Start	***Configuration→OPTN***	Default = No No = Disabled Yes = Enabled
P.LOC	Flow Checked if Pmp Off	***Configuration→OPTN***	Default = Yes No = Disabled Yes = Enabled

Dual Pump and Manual Control

To configure cooler pump control options with the Touch Pilot™ display.

DISPLAY NAME	PATH	LINE NO.	VALUE
Cooler Pumps Sequence	***Main Menu\ Config\USER***	8	2 (2 Pumps Automatic) 3 (Pump 1 Manual) 4 (Pump 2 Manual)
Pump Auto Rotation Delay	***Main Menu\ Config\USER***	14	Default = 48 hours
Pump Sticking Protection	***Main Menu\ Config\USER***	15	Default = No No = Disabled Yes = Enabled
Flow Checked if C Pump Off	***Main Menu\ Config\USER***	17	Default = Yes No = Disabled Yes = Enabled

To configure cooler pump control options with the Navigator display:

ITEM	ITEM EXPANSION	PATH	VALUE
PUMP	Cooler Pumps Sequence	***Configuration→OPTN***	2 Pumps Auto PMP1 Manual PMP2 Manual
ROT.P	Pump Rotation Delay	***Configuration→OPTN***	Default = 48 hours
PM.PS	Periodic Pump Start	***Configuration→OPTN***	Default = No No = Disabled Yes = Enabled
P.LOC	Flow Checked if Pmp Off	***Configuration→OPTN***	Default = Yes No = Disabled Yes = Enabled

Condenser Pump Control

The 30XW chillers can be configured for condenser pump control. When configured, the condenser pump output will be energized when the chiller enters an "ON" mode. The condenser pump output is also energized if either circuit's saturated condensing temperature falls below 34°F (1.1°C). A field-installed condenser flow switch input is required when using condenser pump control. The flow switch input is connected to Channel 16A of the Main Base Board (MBB-J5A connector). There is a factory-installed jumper wire on this channel that must be cut. Connect flow switch output signal wire to cut jumper wire connected to the main base board pin marked "CH 16A." Install wire nut on other end of cut jumper wire. Condenser flow switch requires 24v power to be taken from the load side of CB1. Refer to the 24v and 115v control wiring diagrams for flow switch wiring marked as device "CDFS."

The variable Condenser Pumps Sequence must be configured to enable pump control. The factory default setting for Condenser Pumps Sequence is 0 (No Pump). The only configuration setting choice for Condenser Pumps Sequence is 1 (1 pump only). With the Condenser Pumps Sequence (***HPUM***) set to 1, the control will start the pump. If a flow failure is detected, the unit will shut down and must be manually reset. If the condenser flow switch does not close within 1 minute after pump start command or is open for at least 15 seconds during chiller operation, alarm P.15 will be generated. The pump will continue to run for 20 seconds after an off command is issued.

CONDENSER PUMP CONTROL CONFIGURATIONS

No Pump Control

To configure condenser pump control options with the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Condenser Pumps Sequence	***Main Menu→Config→ USER***	7	0 (No Pump Control)

To configure cooler pump control options with the Navigator™ display:

ITEM	ITEM EXPANSION	PATH	VALUE
HPUM	Condenser Pumps Sequence	***Configuration→OPTN***	No Pump

Single Pump Control

To configure condenser pump control options with the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Condenser Pumps Sequence	***Main Menu\Config\ USER***	7	1 (Single Pump Control)

To configure condenser pump control options with the Navigator display:

ITEM	ITEM EXPANSION	PATH	VALUE
HPUM	Condenser Pumps Sequence	***Configuration→OPTN***	1 Pump Only

Machine Start Delay

An option to delay the start of the machine is also available. This parameter is useful in keeping multiple machines from starting at the same time in case of a power failure. The parameter has a factory default of 1 minute. This parameter also has a role in the timing for a chilled water flow switch alarm. The flow switch status is not checked until the delay time has elapsed.

To configure this option with the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Unit Off to On Delay	***Main Menu\ Config\USER***	6	Default = 1 Minute

To configure this option with the Navigator display:

ITEM	ITEM EXPANSION	PATH	VALUE
DELY	Minutes Off Time	***Configuration→OPTN***	Default = 1 Minute

Circuit/Compressor Staging and Loading

The AquaForce® 30XW chillers employ one compressor per circuit. As a result, circuit and compressor staging are the same. The control has several control option parameters to load the compressors. The circuit/compressor start can be configured as well as the loading of each circuit/compressor.

CIRCUIT/COMPRESSOR STAGING

The control can be configured to decide which circuit/compressor starts first, by configuring Lead/Lag Circuit Select (**Circuit Loading Sequence, *LLCS***). Three options for this variable are allowed: Automatic Lead-Lag, Circuit A Leads or Circuit B Leads. The factory default is Automatic Lead-Lag.

The automatic lead-lag function determines which circuit/compressor starts. When enabled, the control will determine which circuit/compressor starts to even the wear of the compressor. The compressor wear factor (combination of starts and run hours) is used to determine which compressor starts.

Compressor Wear Factor = (Compressor Starts) + 0.1 *(Compressor Run Hours)*

The circuit/compressor with the lowest compressor wear factor is the circuit that starts first.

If starting a particular circuit/compressor first is desired, that can also be configured with the same variable.

To configure this option with the Touch Pilot™ display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Circuit Loading Sequence	***Main Menu\ Config\USER***	1	0 (Automatic Lead-lag) 1 (Circuit A Leads) 2 (Circuit B Leads) Default = 0 (Automatic Lead-lag)

To configure this option with the Navigator™ display:

ITEM	ITEM EXPANSION	PATH	VALUE
LLCS	Lead/Lag Circuit Select	***Configuration →OPTN***	Range: Automatic, Cir A Leads, Cir B Leads, Cir C Leads Default – Automatic

CIRCUIT/COMPRESSOR LOADING

The control can be configured to stage the circuit/compressors. The Loading Sequence Select (**Staged Loading Sequence, *LOAD***) setting determines how the control will perform loading. The configuration can be set to Equal or Staged.

Equal Loading

With equal loading, the lead circuit will start and maintain the minimum stage of capacity with the slide valve fully unloaded. As additional capacity is required, the slide valve will be adjusted in approximately 5% increments to match capacity requirements. The lag circuit will not start until the lead circuit reaches 70% capacity. The lead circuit will remain at 70% and the lag circuit will increase in capacity until it also reaches 70% capacity. The control will alternate between circuits to maintain the same percentage of capacity on each circuit until they reach 100%.

Staged Loading

If staged loading is selected, the lead circuit will start and maintain the minimum stage of capacity with the slide valve fully unloaded. As additional capacity is required, the slide valve will be adjusted in approximately 5% increments to match capacity requirements until the circuit is fully loaded. Once the circuit is fully loaded and additional capacity is required, the control will start the lag circuit fully unloaded. The control will continue load the lag circuit in approximately 5% increments to match capacity requirements until both circuits reach 100% capacity.

To configure this option with the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Staged Loading Sequence	***Main Menu\Config\ USER***	4	Default = No No (Equal) Yes (Staged)

To configure this option with the Navigator display:

ITEM	ITEM EXPANSION	PATH	VALUE
LOAD	Loading Sequence Select	***Configuration→OPTN***	Default = Equal Equal Staged

Minimum Load Control

Minimum Load Control is a factory-installed option. If installed, and its operation is desired, the Minimum Load Control must be enabled. Once enabled, the valve will be operational only during the first stage of cooling.

To configure this option with the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Hot Gas Bypass Select	***Main Menu\Service \FACTORY***	14	Default = No No (No Minimum Load Control) Yes = Minimum Load Control Installed

To configure this option with the Navigator display:

ITEM	ITEM EXPANSION	PATH	VALUE
HGBP	Hot Gas Bypass Select	***Configuration→UNIT***	No = No Minimum Load Control Yes = Minimum Load Control Installed

Dual Chiller Control

The dual chiller routine is available for the control of two units installed in series or parallel supplying chilled fluid on a common loop. One chiller must be configured as the master chiller, the other as the slave chiller. For parallel applications, an additional leaving fluid temperature thermistor (dual chiller LWT) must be installed in the common chilled water piping as described in the Installation Instructions for both the master and slave chillers. See the Field Wiring section in the 30XW Installation Instructions for dual chiller LWT sensor control wiring.

The control algorithm relies on several parameters that must be field configured for operation. Both chillers must be on the same Carrier Comfort Network® bus with different addresses. On both chillers, Master/Slave Select (**Master/Slave Select, *MSSL***) must be enabled. The water piping arrangement, Chillers in Series (**Chiller in Series, *SERI***), must be configured. The master chiller must be programmed with the Slave Chiller Address (**Slave Address, *SLVA***). Additional optional programming parameters may be configured to meet application requirements.

Lead/Lag Balance Select (**Lead Lag Select, *LLBL***) determines which chiller is the lead machine. The options are Always Lead, Lag if Fail, and Runtime Select. Under Runtime Select control, the lead chiller will change based on the time increment selected in the Lead/Lag Balance Delta configuration (**Lead/Lag Balance Delta, *LLBD***). If the run hour difference between the master and the slave remains less than the Lead/Lag Balance Delta, the chiller designated as the lead will remain the lead chiller. The Lead/Lag changeover between the master and the slave chiller due to hour balance will occur during chiller operating odd days, such as day 1, day 3, and day 5 of the month, at 12:00 a.m. If a lead chiller is not designated, the master chiller will always be designated the lead chiller.

The dual chiller control algorithm has the ability to delay the start of the lag chiller in two ways. The Lead Pulldown Time parameter (**Lead Pulldown Time, *LPUL***) is a one-time, time delay initiated after starting the lead chiller, before checking whether to start an additional chiller. This time delay gives the lead chiller a chance to remove the heat that the chilled water loop picked up while being inactive during an unoccupied period. The second time delay, Lead/Lag Delay (**Lag Start Timer, *LLDY***) is a time delay imposed between the last stage of the lead chiller and the start of the lag chiller. This prevents enabling the lag chiller until the lead/lag delay timer has expired.

A quicker start of the lag chiller can be accomplished by configuring the Start if Error Higher parameter (**Start if Error Higher, *LL.ER***). If the difference between the common leaving water temperature and the set point is greater than the configured value, then the lag chiller will start.

A minimum on time for the lag chiller can be programmed with the Lag Minimum Running Time configuration (**Lag Minimum Running Time, *LAG.M***). This parameter causes the control to run the lag chiller for the programmed minimum on time. The Lag Unit Pump Select (**Lag Unit Pump Control, *LAGP***) can be configured such that the pump can be on or off while the chiller is off. This parameter is only active in Parallel Chiller Operation.

For units with a Touch Pilot™ display, two additional steps must be completed to start the machine. On the master chiller, the Master Control Type must be configured for the start control defined in the Machine Control configuration. To start the machines, the master chiller must be started with the Start/Stop button and Master Mode selected. The slave chiller must be started with the CCN Mode selected.

Each application, Parallel and Series, is described separately below.

DUAL CHILLER CONTROL FOR PARALLEL APPLICATIONS

To configure the master chiller for parallel applications using the Touch Pilot display, see Table 29. To configure the master chiller for parallel applications using the Navigator™ display, see Table 30.

To configure the slave chiller for parallel applications using the Touch Pilot display, see Table 31. To configure the slave chiller for parallel applications using the Navigator display, see Table 32.

DUAL CHILLER PUMP CONTROL FOR PARALLEL CHILLER APPLICATIONS

It is recommended that a dedicated pump be used for each unit. The chiller must start and stop its own water pump located on its own piping. If pumps are not dedicated for each chiller, chiller isolation valves are required and each chiller must open and close its own isolation valve.

DUAL CHILLER CONTROL FOR SERIES APPLICATIONS

To configure the master chiller for series applications using the Touch Pilot display, see Table 33. To configure the master chiller for series applications using the Navigator display, see Table 34.

To configure the slave chiller for series applications using the Touch Pilot display, see Table 35. To configure the slave chiller for series applications using the Navigator display, see Table 36.

DUAL CHILLER PUMP CONTROL FOR SERIES CHILLER APPLICATIONS

Pump control for series chiller applications is controlled by the master chiller only. The control of the slave chiller is directed through commands emitted by the master chiller. The slave chiller has no action in master/slave operations. The slave chiller only verifies that CCN communication with the master chiller is present. See the Dual Chiller Sequence of Operation section on page 64.

Table 29 — Dual Master Chiller Control Parameters for Parallel Applications with Touch Pilot Display

DISPLAY NAME	PATH	LINE NO.	VALUE
Master/Slave Select	***Main Menu\Config\MST_SLV***	3	1 (Master) Default: 0 (Disable)
Master Control Type	***Main Menu\Config\MST_SLV***	7	1=Local Control 2=Remote Control 3=CCN Control Default: 1 Configure for proper control type.
Slave Address	***Main Menu\Config\MST_SLV***	11	Must be set to the Slave Chiller's address. The master and slave chiller must have different addresses and be on the same Bus Number Default: 2
Lead Lag Select	***Main Menu\Config\MST_SLV***	12	0 (Master Always Leads) 1 (Lag Once Failed Only) 2 (Lead/Lag Runtime Select) Default: 0 (Master Always Leads)
Lead/Lag Balance Delta	***Main Menu\Config\MST_SLV***	16	Range: 40 to 400 hours Default: 168 hours
Lag Start Timer	***Main Menu\Config\MST_SLV***	17	Range: 2 to 30 minutes Default: 10 minutes
Lead Pulldown Time	***Main Menu\Config\MST_SLV***	18	Range: 0 to 60 minutes Default: 0 minutes
Start If Error Higher	***Main Menu\Config\MST_SLV***	19	Range: 3.0 to 18 ΔF (1.7 to 10.0 ΔC) Default: 4.0 ΔF (2.2 ΔC)
Lag Minimum Running Time	***Main Menu\Config\MST_SLV***	20	Range: 0 to 150 minutes Default: 0 minutes
Lag Unit Pump Control	***Main Menu\Config\MST_SLV***	21	0 (Stop If Unit Stops) 1 (Run If Unit Stops) Default: 0 (Stop If Unit Stops)
Chiller In Series	***Main Menu\Config\MST_SLV***	22	Default: No Value: No

Table 30 — Dual Master Chiller Control Parameters for Parallel Applications with Navigator™ Display

ITEM	ITEM EXPANSION	PATH	VALUE
MSSL	Master/Slave Select	***Configuration→RSET***	Master Default: Disable
SLVA	Slave Address	***Configuration→RSET***	Must be set to the Slave Chiller's address. The master and slave chiller must have different addresses and be on the same Bus Number Default: 2
LLBL	Master Lead Lag Select	***Configuration→RSET***	Range: Always Lead, Lag if Fail, Runtime Sel Default: Always Lead
LLBD	Lead/Lag Balance Delta	***Configuration→RSET***	Range: 40 to 400 hours Default: 168 hours
LLDY	Lag Start Delay	***Configuration→RSET***	Range: 2 to 30 minutes Default: 10 minutes
LL.ER	Start If Error Higher	***Configuration→RSET***	Range: 3.0 to 18 ΔF (1.7 to 10.0 ΔC) Default: 4.0 ΔF (2.2 ΔC)
LAG.M	Lag Minimum Running Time	***Configuration→RSET***	Range: 0 to 150 minutes Default: 0 minutes
LAGP	Lag Unit Pump Select	***Configuration→RSET***	Range: Off If U Stp, On If U Stop Default: Off If U Stp
LPUL	Lead Pulldown Time	***Configuration→RSET***	Range: 0 to 60 minutes Default: 0 minutes
SERI	Chillers in Series	***Configuration→RSET***	No Default: No
OPER	Operating Control Type	***Operating Modes→SLCT***	Set to desired control

Table 31 — Dual Slave Chiller Control Parameters for Parallel Applications with Touch Pilot™ Display

DISPLAY NAME	PATH	LINE NO.	VALUE
Master/Slave Select	***Main Menu\Config\MST_SLV***	3	2 (Slave) Default: 0 (Disable)
Master Control Type	***Main Menu\Config\MST_SLV***	7	1 (Local Control) 2 (Remote Control) 3 (CCN Control) Default: 1 Configure for proper control type.
Slave Address	***Main Menu\Config\MST_SLV***	11	Must be set to the Slave Chiller's address. The master and slave chiller must have different addresses and be on the same Bus Number Default: 2
Lead Lag Select	***Main Menu\Config\MST_SLV***	12	0 (Master Always Leads) 1 (Lag Once Failed Only) 2 (Lead/Lag Runtime Select) Default: 0 (Master Always Leads)
Lead/Lag Balance Delta	***Main Menu\Config\MST_SLV***	16	Range: 40 to 400 hours Default: 168 hours
Lag Start Timer	***Main Menu\Config\MST_SLV***	17	Range: 2 to 30 minutes Default: 10 minutes
Lead Pulldown Time	***Main Menu\Config\MST_SLV***	18	Range: 0 to 60 minutes Default: 0 minutes
Start If Error Higher	***Main Menu\Config\MST_SLV***	19	Range: 3.0 to 18 ΔF (1.7 to 10.0 ΔC) Default: 4.0 ΔF (2.2 ΔC)
Lag Minimum Running Time	***Main Menu\Config\MST_SLV***	20	Range: 0 to 150 minutes Default: 0 minutes
Lag Unit Pump Control	***Main Menu\Config\MST_SLV***	21	0 (Stop If Unit Stops) 1 (Run If Unit Stops) Default: 0 (Stop If Unit Stops)
Chiller In Series	***Main Menu\Config\MST_SLV***	22	No Default: No

Table 32 — Dual Slave Chiller Control Parameters for Parallel Applications with Navigator™ Display

ITEM	ITEM EXPANSION	PATH	VALUE
MSSL	Master/Slave Select	***Configuration→RSET***	Slave Default: Disable
SLVA	Slave Address	***Configuration→RSET***	Must be set to the Slave Chiller's address. The master and slave chiller must have different addresses and be on the same Bus Number Default: 2
LLBL	Master Lead Lag Select	***Configuration→RSET***	Range: Always Lead, Lag if Fail, Runtime Sel Default: Always Lead
LLBD	Lead/Lag Balance Delta	***Configuration→RSET***	Range: 40 to 400 hours Default: 168 hours
LLDY	Lag Start Delay	***Configuration→RSET***	Range: 2 to 30 minutes Default: 10 minutes
LL.ER	Start If Error Higher	***Configuration→RSET***	Range: 3.0 to 18 ΔF (1.7 to 10.0 ΔC) Default: 4.0 ΔF (2.2 ΔC)
LAG.M	Lag Minimum Running Time	***Configuration→RSET***	Range: 0 to 150 minutes Default: 0 minutes
LAGP	Lag Unit Pump Select	***Configuration→RSET***	Range: Off If U Stp, On If U Stop Default: Off If U Stp
LPUL	Lead Pulldown Time	***Configuration→RSET***	Range: 0 to 60 minutes Default: 0 minutes
SERI	Chillers in Series	***Configuration→RSET***	No, Default: No
OPER	Operating Control Type	***Operating Modes→SLCT***	CCN Control

Table 33 — Dual Master Chiller Control Parameters for Series Applications with Touch Pilot™ Display

DISPLAY NAME	PATH	LINE NO.	VALUE
Master/Slave Select	***Main Menu\Config\MST_SLV***	3	1 (Master) Default: 0 (Disable)
Master Control Type	***Main Menu\Config\MST_SLV***	7	1 (Local Control) 2 (Remote Control) 3 (CCN Control) Default: 1 (Local Control) Value: Configure for proper control type.
Slave Address	***Main Menu\Config\MST_SLV***	11	Must be set to the Slave Chiller's address. The master and slave chiller must have different addresses and be on the same Bus Number Default: 2
Lead Lag Select	***Main Menu\Config\MST_SLV***	12	0 (Master Always Leads) 1 (Lag Once Failed Only) 2 (Lead/Lag Runtime Select) Default: 0 (Master Always Leads)
Lead/Lag Balance Delta	***Main Menu\Config\MST_SLV***	16	Range: 40 to 400 hours Default: 168 hours
Lag Start Timer	***Main Menu\Config\MST_SLV***	17	Range: 2 to 30 minutes Default: 10 minutes
Lead Pulldown Time	***Main Menu\Config\MST_SLV***	18	Range: 0 to 60 minutes Default: 0 minutes
Start If Error Higher	***Main Menu\Config\MST_SLV***	19	Range: 3.0 to 18 ΔF (1.7 to 10.0 Δ°C) Default: 4.0Δ °F (2.2 Δ°C)
Lag Minimum Running Time	***Main Menu\Config\MST_SLV***	20	Range: 0 to 150 minutes Default: 0 minutes
Lag Unit Pump Control	***Main Menu\Config\MST_SLV***	21	0 (Stop If Unit Stops) 1 (Run If Unit Stops) Default: 0 (Stop If Unit Stops)
Chiller In Series	***Main Menu\Config\MST_SLV***	22	Yes Default: No

Table 34 — Dual Master Chiller Control Parameters for Series Applications with Navigator™ Display

ITEM	ITEM EXPANSION	PATH	VALUE
MSSL	Master/Slave Select	***Configuration→RSET***	Master Default: Disable
SLVA	Slave Address	***Configuration→RSET***	Must be set to the Slave Chiller's address. The master and slave chiller must have different addresses and be on the same Bus Number Default: 2
LLBL	Master Lead Lag Select	***Configuration→RSET***	Range: Always Lead, Lag if Fail, Runtime Sel Default: Always Lead
LLBD	Lead/Lag Balance Delta	***Configuration→RSET***	Range: 40 to 400 hours Default: 168 hours
LLDY	Lag Start Delay	***Configuration→RSET***	Range: 2 to 30 minutes Default: 10 minutes
LL.ER	Start If Error Higher	***Configuration→RSET***	Range: 3.0 to 18 ΔF (1.7 to 10.0 ΔC) Default: 4.0 ΔF (2.2 ΔC)
LAG.M	Lag Minimum Run Time	***Configuration→RSET***	Range: 0 to 150 minutes Default: 0 minutes
LAGP	Lag Unit Pump Select	***Configuration→RSET***	Range: Off If U Stp, On If U Stop Default: Off If U Stp
LPUL	Lead Pulldown Time	***Configuration→RSET***	Range: 0 to 60 minutes Default: 0 minutes
SERI	Chillers in Series	***Configuration→RSET***	YES Default: NO
OPER	Operating Control Type	***Operating Modes→SLCT***	Set to desired value

Table 35 — Dual Slave Chiller Control Parameters for Series Applications with Touch Pilot™ Display

DISPLAY NAME	PATH	LINE NO.	VALUE
Master/Slave Select	***Main Menu\Config\MST_SLV***	3	2 (Slave) Default: 0 (Disable)
Master Control Type	***Main Menu\Config\MST_SLV***	7	1 (Local Control) 2 (Remote Control) 3 (CCN Control) Default: 1 (Local Control) Value: Configure for proper control type.
Slave Address	***Main Menu\Config\MST_SLV***	11	Must be set to the Slave Chiller's address. The master and slave chiller must have different addresses and be on the same Bus Number Default: 2
Lead Lag Select	***Main Menu\Config\MST_SLV***	12	0 (Master Always Leads) 1 (Lag Once Failed Only) 2 (Lead/Lag Runtime Select) Default: 0 (Master Always Leads)
Lead/Lag Balance Delta	***Main Menu\Config\MST_SLV***	16	Range: 40 to 400 hours Default: 168 hours
Lag Start Timer	***Main Menu\Config\MST_SLV***	17	Range: 2 to 30 minutes Default: 10 minutes
Lead Pulldown Time	***Main Menu\Config\MST_SLV***	18	Range: 0 to 60 minutes Default: 0 minutes
Start If Error Higher	***Main Menu\Config\MST_SLV***	19	Range: 3.0 to 18 ΔF (1.7 to 10.0 ΔC) Default: 4.0 ΔF (2.2 ΔC)
Lag Minimum Running Time	***Main Menu\Config\MST_SLV***	20	Range: 0 to 150 minutes Default: 0 minutes
Lag Unit Pump Control	***Main Menu\Config\MST_SLV***	21	0 (Stop If Unit Stops) 1 (Run If Unit Stops) Default: 0 (Stop If Unit Stops)
Chiller In Series	***Main Menu\Config\MST_SLV***	22	Yes Default: No

Table 36 — Dual Slave Chiller Control Parameters for Series Applications with Navigator™ Display

ITEM	ITEM EXPANSION	PATH	VALUE
MSSL	Master/Slave Select	***Configuration→RSET***	Slave Default: Disable
SLVA	Slave Address	***Configuration→RSET***	Must be set to the Slave Chiller's address. The master and slave chiller must have different addresses and be on the same Bus Number Default: 2
LLBL	Master Lead Lag Select	***Configuration→RSET***	Range: Always Lead, Lag if Fail, Runtime Sel Default: Always Lead
LLBD	Lead/Lag Balance Delta	***Configuration→RSET***	Range: 40 to 400 hours Default: 168 hours
LLDY	Lag Start Delay	***Configuration→RSET***	Range: 2 to 30 minutes Default: 10 minutes
LL.ER	Start If Error Higher	***Configuration→RSET***	Range: 3.0 to 18 ΔF (1.7 to 10.0 ΔC) Default: 4.0 ΔF (2.2 ΔC)
LAG.M	Lag Minimum Run Time	***Configuration→RSET***	Range: 0 to 150 minutes Default: 0 minutes
LAGP	Lag Unit Pump Select	***Configuration→RSET***	Range: Off If U Stp, On If U Stop Default: Off If U Stp
LPUL	Lead Pulldown Time	***Configuration→RSET***	Range: 0 to 60 minutes Default: 0 minutes
SERI	Chillers in Series	***Configuration→RSET***	YES Default: NO
OPER	Operating Control Type	***Operating Modes→SLCT***	CCN Control

Ramp Loading

Ramp Loading limits the rate of change of the leaving fluid temperature. If the unit is in a Cooling mode and configured for Ramp Loading Select (**Ramp Loading Select, *RL.S***), the control makes two comparisons before deciding to increase capacity. First, the control calculates the temperature difference between the control point and leaving fluid temperature. If the difference is greater than 4°F (2.2°C) and the rate of change (°F or °C per minute) is more than the configured Cool Ramp Loading rate (**Cooling Ramp Loading, *CRMP***), then the control does not allow any increase of capacity.

To configure this option with the Touch Pilot™ display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Ramp Loading Select	Main Menu\ Config\USER	5	Yes
Cooling Ramp Loading	Main Menu\ Set Point	14	Range: 0.2 to 2.0°F (0.1 to 1.1°C) Default: 1.0°F (0.5°C)

To configure this option with the Navigator display:

ITEM	ITEM EXPANSION	PATH	VALUE
RL.S	Ramp Load Select	***Configuration→OPTN***	Yes
CRMP	Cool Ramp Loading	***Set Points→COOL***	Range: 0.2 to 2.0°F (0.1 to 1.1°C) Default: 1.0°F (0.5°C)

Temperature Reset

Temperature reset is a value added to the basic leaving fluid temperature set point and the resulting sum of these values is the new control point. When a non-zero temperature reset is applied, the chiller controls to the new control point, not the set point. The type of temperature reset is configured with the Cooling Reset Type (**Cooling Reset Select, *CRST***) variable. These types of temperature reset are available: Return Water Reset, Space Temperature Reset, and 4 to 20 mA Temperature Reset.

Under normal operation, the chiller will maintain a constant entering or leaving fluid temperature, based on the configuration, approximately equal to the chilled fluid set point. As the cooler load varies, the cooler fluid temperature difference will change in proportion to the load. For example, if the chiller was selected for a Entering to Leaving Water Temperature difference of 10°F (5.5°C) at full load, at 50% load the temperature difference would be 5°F (2.8°C). See Fig. 19. Because the change in temperature through the cooler is a measure of the building load, the temperature difference reset is the average building load. Usually the chiller size and fluid temperature set point are selected based on a full load condition. At part load, the fluid temperature set point may be lower than required. If the fluid temperature were allowed to increase at part load, the efficiency of the machine would increase. The chiller can also be set for return water temperature control. See Fig. 20.

Other indirect means of estimating building load and controlling temperature reset are also available and are discussed below.

To verify that reset is functioning correctly, subtract the Set Point Select (**Current Set Point, *SETP***) from the Control Point (**Control Point, *CTPT***) to determine the degrees reset.

RETURN WATER RESET

The control system is capable of performing fluid temperature reset based on cooler fluid temperature difference. Because the change in temperature through the cooler is a measure of the building load, the temperature difference reset is, in effect, an average building load reset method.

Return Water Temperature Reset allows for the chilled water temperature set point to be reset upward as a function of the fluid temperature difference (building load).

NOTE: Return Water Temperature Reset should not be used with variable cooler flow rate systems.

To use Return Water Temperature Reset, four variables must be configured. Cooling Reset Type (**Cooling Reset Select, *CRST***) must be enabled. The variable Delta T No Reset Temp (**Delta T No Reset Value, *CRT1***) should be set to the cooler temperature difference (T) where no chilled water temperature reset should occur. The variable Delta T Full Reset Temp (**Delta T Full Reset Value, *CRT2***) should be set to the cooler temperature difference where the maximum chilled water temperature reset should occur. The variable Degrees Cool Reset (**Cooling Reset Deg. Value, *DGRC***) should be set to the maximum amount of reset desired.

To configure this option with the Touch Pilot™ display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Cooling Reset Select	***Main Menu\Config\USER***	19	Default =0 (No Reset) 2 (Delta T)
Delta T No Reset Value	***Main Menu\Set Point\ SET POINT***	7	Default = 0°F (0°C)
Delta T Full Reset Value	***Main Menu\Set Point\ SET POINT***	8	Default = 0°F (0°C)
Cooling Reset Deg. Value	***Main Menu\Set Point\ SET POINT***	13	Default = 0°F (0°C)

To configure this option with the Navigator™ display:

ITEM	ITEM EXPANSION	PATH	VALUE
CRST	Cooling Reset Type	***Configuration→RSET***	Default = No Reset Delta T Temp
CRT1	Delta T No Reset Temp	***Set Points→COOL***	Default = 0°F (0°C)
CRT2	Delta T Full Reset Temp	***Set Points→COOL***	Default = 0°F (0°C)
DGRC	Degrees Cool Reset	***Set Points→COOL***	Default = 0°F (0°C)

In the example in Fig. 21 using Return Water Temperature Reset, the chilled water temperature will be reset by 5°F (2.8°C) when the Fluid Temperature Difference is 2°F (1.1°C) and 0°F (0°C) reset when the Temperature Difference is 10°F (5.5°C).

SPACE TEMPERATURE RESET

The control system is also capable of temperature reset based on space temperature (SPT). An accessory sensor must be used for SPT reset (33ZCT55SPT). The Energy Management Module (EMM) is also required for temperature reset using space temperature.

To use Space Temperature Reset, four variables must be configured. Cooling Reset Type (**Cooling Reset Select,** ***CRST***) must be enabled. The space temperature at which no temperature reset is required, Space T No Reset Temp (**Space T No Reset Value,** ***CRS1***) must be set. The space temperature at which full temperature reset is required, Space T Full Reset Temp (**Space T Full Reset Value,** ***CRS2***) must be set. Finally, the amount of temperature reset desired, Degrees Cool Reset (**Cooling Reset Deg. Value,** ***DRGC***), must be set.

To configure this option with the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Cooling Reset Select	***Main Menu\ Config\USER***	19	Default =0 (No Reset) 4 (Space Temp)
Space T No Reset Value	***Main Menu\ Set Point\ SET POINT***	11	Default = 14 °F (–10 °C)
Space T Full Reset Value	***Main Menu Set Point\ SET POINT***	12	Default = 14 °F (–10 °C)
Cooling Reset Deg. Value	***Main Menu\ Set Point\ SET POINT***	13	Default = 0 °F (0 °C)

To configure this option with the Navigator display:

ITEM	ITEM EXPANSION	PATH	VALUE
CRST	Cooling Reset Type	***Configuration→RSET***	Default = No Reset Space Temp
CRS1	Space T No Reset Temp	***Set Points→COOL***	Default = 14 °F (–10 °C)
CRS2	Space T Full Reset Temp	***Set Points→COOL***	Default = 14 °F (–10 °C)
DGRC	Degrees Cool Reset	***Set Points→COOL***	Default = 0 °F (0 C)

In the space temperature reset example in Fig. 22, 0°F (0°C) chilled water set point is reset at 72ºF (22.2ºC) space temperature and 6°F (3.3°C) is reset at 68ºF (20.0ºC) space temperature.

4 TO 20 mA TEMPERATURE RESET

The control system is also capable of temperature reset based on an externally powered 4 to 20 mA signal. The Energy Management Module (EMM) is required for temperature reset using a 4 to 20 mA signal.

To use 4 to 20 mA Temperature Reset, four variables must be configured. Cooling Reset Type (**Cooling Reset Select,** ***CRST***) must be enabled. The milliamp signal at which no temperature reset is required, Current No Reset Value (**Current No Reset Value,** ***CRV1***), must be set. The milliamp signal at which full temperature reset is required, Current Full Reset Value (**Current Full Reset Value,** ***CRV2***), must be set. Finally, the amount of temperature reset desired, Degrees Cool Reset (**Cooling Reset Deg. Value,** ***DRGC***), must be set.

⚠ CAUTION

Care should be taken when interfacing with other control systems due to possible power supply differences such as a full wave bridge versus a half wave rectification. Connection of control devices with different power supplies may result in permanent damage. The *Comfort*Link controls incorporate power supplies with half wave rectification. A signal isolation device should be utilized if the signal generator incorporates a full wave bridge rectifier.

To configure this option with the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Cooling Reset Select	***Main Menu\ Config\USER***	19	Default =0 (No Reset) 3 (4 to 20mA Control)
Current No Reset Value	***Main Menu\ Set Point\ SET POINT***	9	Default = 0.0
Current Full Reset Value	***Main Menu\ Set Point\ SET POINT***	10	Default = 0.0
Cooling Reset Deg. Value	***Main Menu\ Set Point\ SET POINT***	13	Default = 0.0°F (0.0°C)

To configure this option with the Navigator display:

ITEM	ITEM EXPANSION	PATH	VALUE
CRST	Cooling Reset Type	***Configuration→RSET***	Default = No Reset 4 to 20mA Input
CRV1	Current No Reset Temp	***Set Points→COOL***	Default = 0.0
CRV2	Current Full Reset Temp	***Set Points→COOL***	Default = 0.0
DGRC	Degrees Cool Reset	***Set Points→COOL***	Default = 0.0

In the example in Fig. 23, at 4 mA no reset takes place and at 20 mA, 5°F (2.8°C) chilled water set point reset is required.

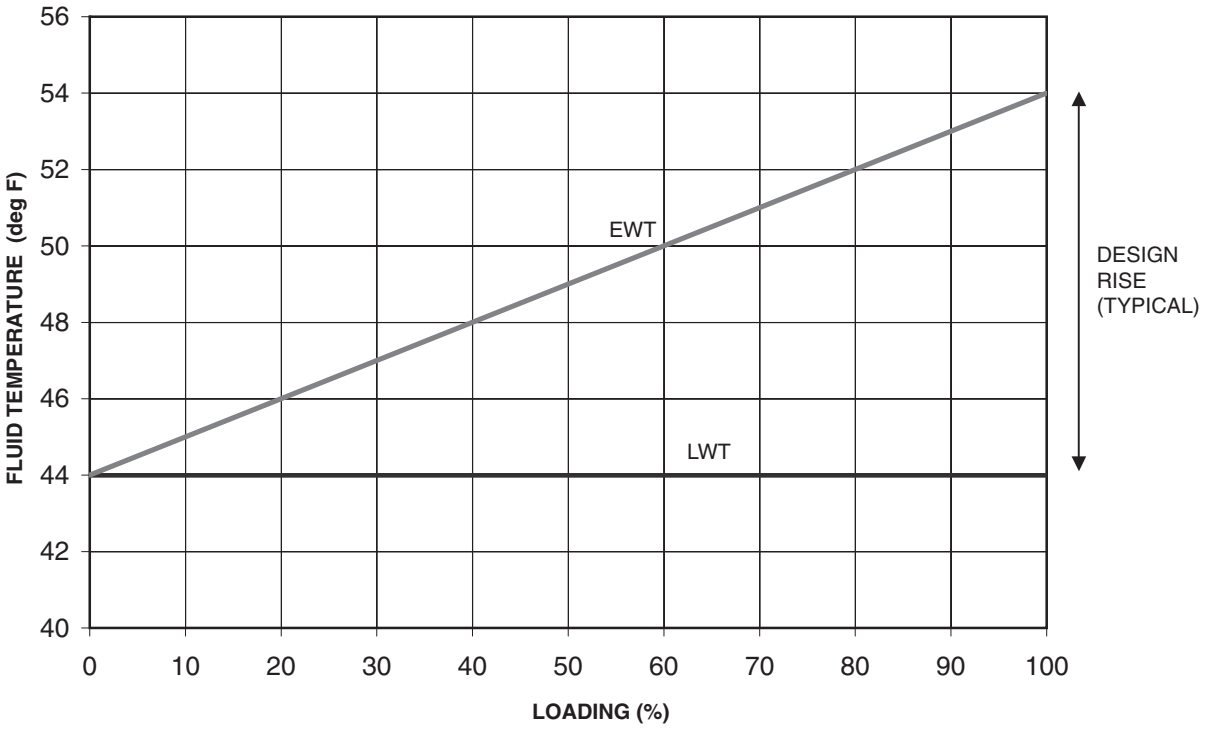


Fig. 19 — Leaving Chilled Water Temperature Control

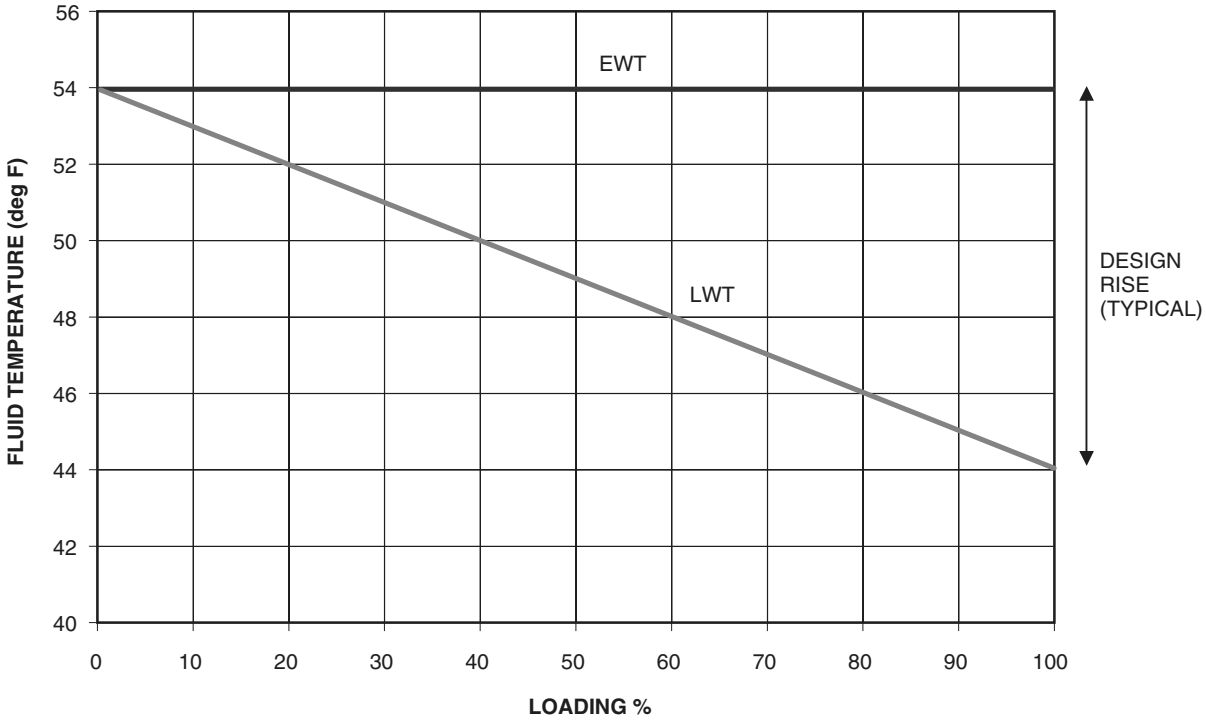


Fig. 20 — Return Water Temperature Control Load Profile

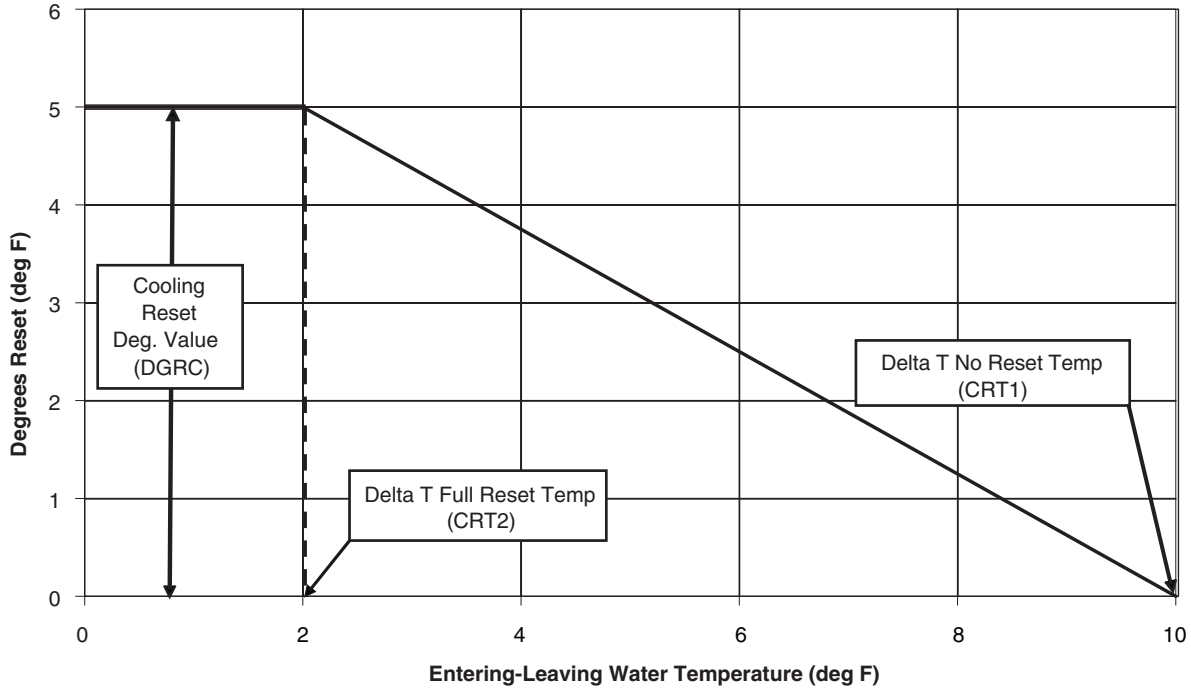


Fig. 21 — Return Water Reset

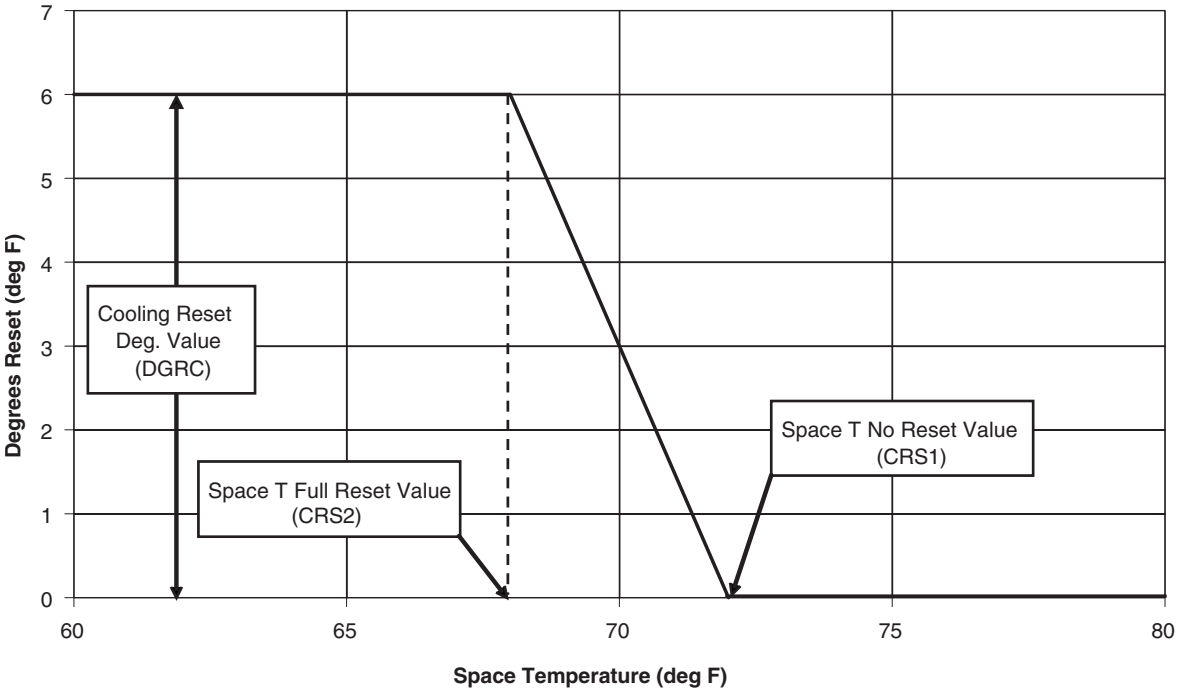


Fig. 22 — Space Temperature Reset

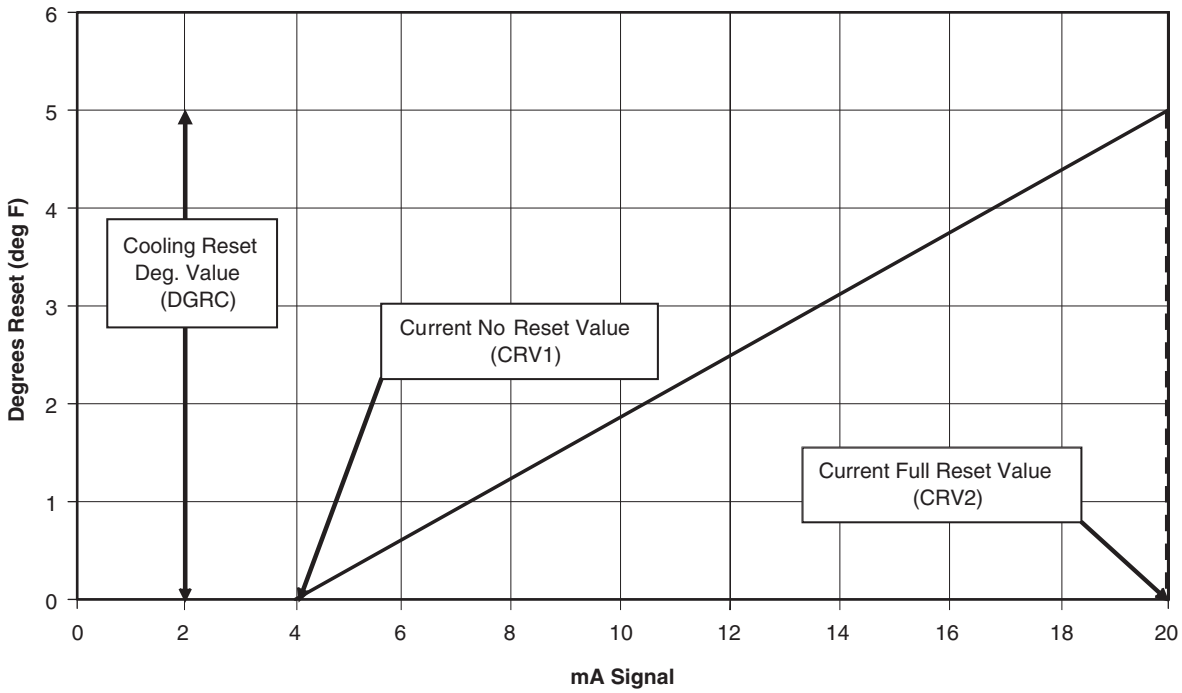


Fig. 23 — 4 to 20 mA Temperature Reset

Demand Limit

Demand limit is a feature that allows the unit capacity to be limited during periods of peak energy usage. This allows the owner to keep energy costs down. Three types of demand limiting can be configured. The first type is through 2-step switch control, which will reduce the maximum capacity to 2 user configurable percentages. The second type is by 4 to 20 mA signal input which will reduce the maximum capacity linearly between 100% at a 4 mA input signal (no reduction) down to the user-configurable level at a 20 mA input signal. The third type uses the CCN Loadshed module and has the ability to limit the current operating capacity to maximum and further reduce the capacity if required. Demand limit control can be based on a calculated capacity level or by compressor current level.

SWITCH CONTROLLED DEMAND LIMIT

The control system is capable of demand limit based on a field-supplied switch for 1-step demand limit or 2 switches for 2-step demand limit. One-step demand limit is standard. The 2-step switch control of demand limiting requires the Energy Management Module (EMM). Demand limit steps are controlled by two relay switch inputs field wired to TB5-5 and TB5-14 for Switch 1 and TB6-14 and TB6-15 for Switch 2.

For demand limit by switch control, closing the first demand limit contact will put the unit on the first demand limit level, either by capacity or compressor current. The unit will not exceed the percentage of capacity or compressor current entered as Demand Limit Switch 1 set point. Closing contacts on the second demand limit switch prevents the unit from exceeding the demand limit entered as Demand Limit Switch 2 set point. The demand limit percent capacity or compressor current that is set to the lowest demand takes priority if both demand limit inputs are closed. If the demand limit percentage does not match unit operation, the unit will limit capacity or current to the closest step without exceeding the value.

To use demand limit, select the type of demand limiting to use by configuring the Demand Limit Select variable (**Demand Limit Type Select, *DMDC***) to Switch. Configure the Demand Limit set points based on the type selected.

Switch Controlled (Capacity Based)

If using 2-step demand limit control, an energy management module must be installed. One-step demand limit control does not require the energy management module. To configure Demand Limit for switch control, three parameters for 1-step switch control must be configured. For 2-step control, four parameters must be configured. The parameters are: the type of Demand Limit Selection (**Demand Limit Type Select, *DMDC***), the setting for Switch Limit Set Point 1 (**Switch Limit Set Point 1, *DLS1***), the setting for Switch Limit Set Point 2 (**Switch Limit Set Point 2, *DLS2***), and Current Limit Select (**Current Limit Select, *CUR.S***). Current Limit Select must be set to NO.

To configure this option with the Touch Pilot™ display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Demand Limit Type Select	***Config\USER***	24	1 (Switch Control) Default = 0 (None)
Switch Limit Set Point 1	***Set Points\ SET POINT***	33	Default = 100%
Switch Limit Set Point 2	***Set Points\ SET POINT***	34	(Not required for 1-Step) Default = 100%
Current Limit Select	***Config\USER***	30	No Default = No

To configure this option with the Navigator™ display:

ITEM	ITEM EXPANSION	PATH	VALUE
DMDC	Demand Limit Select	***Configuration→RSET***	SWITCH Default = NONE
DLS1	Switch Limit Set Point 1	***Setpoints→MISC***	Default = 100%
DLS2	Switch Limit Set Point 2	***Setpoints→MISC***	(Not required for 1-Step) Default = 100%
CUR.S	Current Limit Select	***Configuration→OPTN***	NO Default: NO

In the following example, 2-step demand limit based on capacity is desired with the first switch closure limiting the capacity to 60%. The second switch closure is to limit the capacity to 40%. Demand Limit Switch 1 is 60% and Demand Limit Switch 2 is 40%.

TOUCH PILOT DISPLAY	
Display Name	**Value**
Demand Limit Type Select	1
Switch Limit Set Point 1	60%
Switch Limit Set Point 2	40%
Current Limit Select	No

NAVIGATOR DISPLAY	
Item	**Value**
DMDC	SWITCH
DSL1	60%
DSL2	40%
CUR.S	NO

Switch Controlled (Current Based)

If using 2-step demand limit control, an energy management module must be installed. One-step demand limit control does not require the energy management module. Four parameters for 1-step switch control must be configured. For 2-step control, five parameters must be configured. The parameters are: the type of Demand Limit Selection (**Demand Limit Type Select, *DMDC***), the setting for Switch Limit Set Point 1 (**Switch Limit Set Point 1, *DLS1***), the setting for Switch Limit Set Point 2 (**Switch Limit Set Point 2, *DLS2***), the Current Limit Select (**Current Limit Select, *CUR.S***), and the Compressor Current limit at 100% signal, (**Current Limit at 100%, *CUR.F***).

NOTE: This function shall be disabled if chiller operates in master/slave control, under System Manager control, or if night mode is in effect.

To configure this option with the Touch Pilot™ display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Demand Limit Type Select	***Config\USER***	24	1 (Switch Control) Default = 0 (None)
Switch Limit Set Point 1	***Set Points\SET POINT***	33	Default = 100%
Switch Limit Set Point 2	***Set Points\SET POINT***	34	(Not required for 1-Step) Default = 100%
Current Limit Select	***Config\USER***	30	Yes Default = No
Current Limit at 100%	***Config\USER***	31	Default = 2000.0 Amps

To configure this option with the Navigator™ display:

ITEM	ITEM EXPANSION	PATH	VALUE
DMDC	Demand Limit Select	***Configuration→RSET***	SWITCH Default = NONE
DSL1	Switch Limit Set Point 1	***Set Points→MISC***	Default = 100%
DSL2	Switch Limit Set Point 2	***Set Points→MISC***	(Not required for 1-Step) Default = 100%
CUR.S	Current Limit Select	***Configuration→OPTN***	NO Default: NO
CUR.F	Current Limit at 100%	***Configuration→OPTN***	Default = 2000

EXTERNALLY POWERED (4 TO 20 mA) CAPACITY BASED DEMAND LIMIT

The energy management module is required for 4 to 20 mA demand limit control. An externally powered 4 to 20 mA signal must be connected to TB6-1 and TB6-2. To configure demand limit for 4 to 20 mA control based on unit capacity, four parameters must be configured. The parameters are: the type of Demand Limit Selection (**Demand Limit Type Select, *DMDC***), the current at which 100% capacity limit takes place (**mA For 100% Demand Limit, *DMMX***), the current at which 0% capacity limit takes place (**mA For 0% Demand Limit, *DMZE***), and the Current Limit Selection (**Current Limit Select, *CUR.S***).

⚠CAUTION

Care should be taken when interfacing with other control systems due to possible power supply differences such as a full wave bridge versus a half wave rectification. Connection of control devices with different power supplies may result in permanent damage. *Comfort*Link controls incorporate power supplies with half wave rectification. A signal isolation device should be utilized if the signal generator incorporates a full wave bridge rectifier.

To configure this option with the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Demand Limit Type Select	***Config\USER***	24	2 (4-20mA Control) Default = 0 (None)
mA For 100% Demand Limit	***Config\USER***	28	Default = 0.0 mA
mA For 0% Demand Limit	***Config\USER***	29	Default = 10.0 mA
Current Limit Select	***Config\USER***	30	No Default = No

To configure this option with the Navigator display:

ITEM	ITEM EXPANSION	PATH	VALUE
DMDC	Demand Limit Select	***Configuration→RSET***	4-20MA INPUT Default = NONE
DMMX	mA for 100% Demand Lim	***Configuration→RSET***	Default = 0.0 mA
DMZE	mA for 0% Demand Limit	***Configuration→RSET***	Default = 10.0 mA
CUR.S	Current Limit Select	***Configuration→OPTN***	NO Default: NO

In the following example, a 4 mA signal is Demand Limit 100% and a 20 mA Demand Limit signal is 0%. The 4 to 20 mA signal is connected to TB6-1 and TB6-2. The demand limit is a linear interpolation between the two values entered. In Fig. 24, if the machine receives a 12 mA signal, the machine controls will limit the capacity to 50%.

EXTERNALLY POWERED (4 TO 20 mA) CURRENT BASED DEMAND LIMIT

The energy management module is required for 4 to 20 mA demand limit control. An externally powered 4 to 20 mA signal must be connected to TB6-1 and TB6-2. To configure demand limit for 4 to 20 mA control based on compressor current, five parameters must be configured. The parameters are: the type of Demand Limit Selection (**Demand Limit Type Select, *DMDC***), the current at which 100% capacity limit takes place (**mA For 100% Demand Limit, *DMMX***), the current at which 0% capacity limit takes place (**mA For 0% Demand Limit, *DMZE***), the Current Limit Selection (**Current Limit Select, *CUR.S***), and the Compressor Current limit at 100% signal (**Current Limit at 100%, *CUR.F***).

NOTE: This function shall be disabled if chiller operates in master/slave control, under System Manager control, or if night mode is in effect.

To configure this option with the Touch Pilot™ display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Demand Limit Type Select	***Config\USER***	24	2 (4-20mA Control) Default = 0 (None)
mA For 100% Demand Limit	***Config\USER***	28	Default = 0.0 mA
mA For 0% Demand Limit	***Config\USER***	29	Default = 10.0 mA
Current Limit Select	***Config\USER***	30	Yes Default = No
Current Limit at 100%	***Config\USER***	31	Default = 2000.0 Amps

To configure this option with the Navigator™ display:

ITEM	ITEM EXPANSION	PATH	VALUE
DMDC	Demand Limit Select	***Configuration→RSET***	4-20MA INPUT Default = NONE
DMMX	mA for 100% Demand Lim	***Configuration→RSET***	Default = 0.0 mA
DMZE	mA for 0% Demand Limit	***Configuration→RSET***	Default = 10.0 mA
CUR.S	Current Limit Select	***Configuration→OPTN***	YES Default: NO
CUR.F	Current Limit at 100%	***Configuration→OPTN***	Default = 2000

In the following example, a 4 mA signal is Demand Limit for compressor current is 2000 amps and a 20 mA Demand Limit signal corresponds with a compressor current of 0 amps. The 4 to 20 mA signal is connected to TB6-1 and TB6-2. The demand limit is a linear interpolation between the two values entered. If the machine receives a 12 mA signal, the machine controls will limit the total compressor current capacity to 1000 amps. See Fig. 25.

CCN LOADSHED CONTROLLED DEMAND LIMIT

To configure Demand Limit for CCN Loadshed control, the unit Operating Type Control must be in CCN control. With the Touch Pilot display, the machine must be started with CCN Control. For the Navigator display, the Operating Control Type (**I/O Button, *OPER***) must be CCN CONTROL.

The unit must be controlled by a Chillervisor module. The Chillervisor module can force the demand limit variable and directly control the capacity of the machine. Additionally, the unit's set point will be artificially lowered to force the chiller to load to the demand limit value.

Ice Storage Operation

Chiller operation can be configured to make and store ice. The energy management module and an Ice Done Switch are required for operation in the Ice Mode. In this configuration, the machine can operate with up to three cooling set points: Cooling Set Point 1 (**Cooling Set Point 1, *CSP.1***) is used during the Occupied period; Cooling Set Point 2 (**Cooling Set Point 2, *CSP.2***) is used during the Unoccupied period when the ice build is complete (Ice Done Switch is closed); and Cooling Ice Set Point (**Cooling Ice Set Point, *CSP.3***) is used during the unoccupied period while ice is building (Ice Done Switch is open).

To configure this option with the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Ice Mode Enable	***Config\USER***	42	Yes

To configure this option with the Navigator display:

ITEM	ITEM EXPANSION	PATH	VALUE
ICE.M	Ice Mode Enable	***Configuration→OPTN***	ENBL

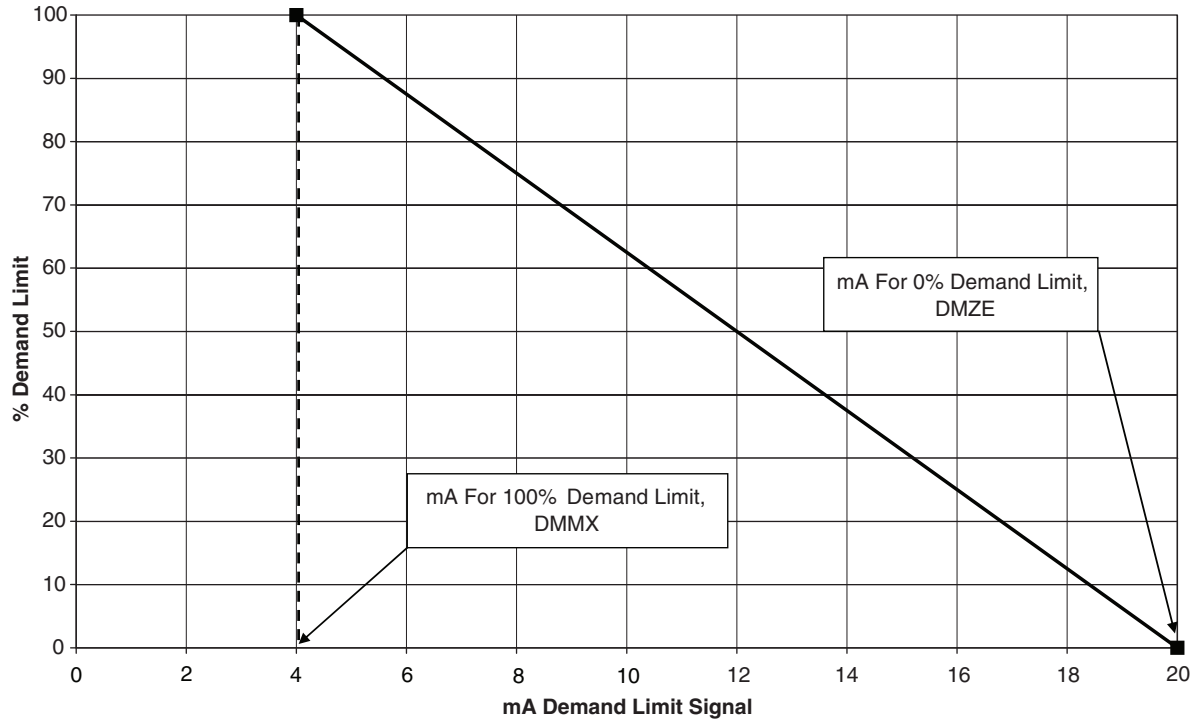


Fig. 24 — 4 to 20 mA Demand Limit (Capacity)

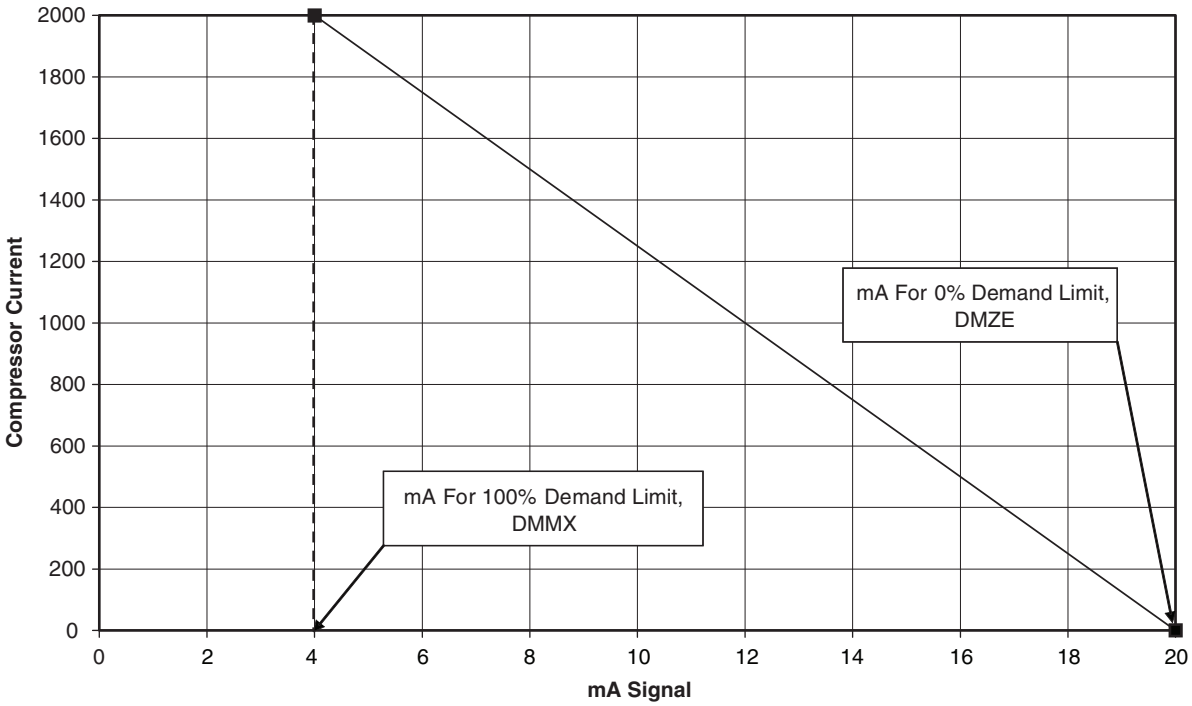


Fig. 25 — 4 to 20 mA Demand Limit (Compressor Current)

Broadcast Configuration

The 30XW chiller is capable of broadcasting time, date, and holiday status to all elements in the CCN system. In the stand-alone mode, broadcast must be activated to utilize holiday schedules and adjust for daylight saving time. If the chiller is to be connected to a CCN system, determine which system element is to be the network broadcaster to all other system elements. Broadcast is activated and deactivated in the BRODEFS Table. It is accessible from Touch Pilot™ display (**Config\BRODEFS**) or through Network Service Tool™. It is not accessible through Navigator™ display.

Only one element should be configured as a broadcaster. If a broadcast is activated by a device that has been designated as a network broadcaster, then broadcasted time, date, and holiday status will be updated over the CCN system. If broadcast is enabled, a broadcast acknowledger must also be enabled. The acknowledger cannot be the same machine as the broadcasting machine.

ACTIVATE

The Activate variable enables the broadcast function of the *Comfort*Link controls. If this variable is set to 0, this function is not used and holiday schedules and daylight savings compensation are not possible. Setting this variable to 1 allows the machine to broadcast and receive broadcasts on the network. The following information is broadcast: the time with compensation for daylight savings, date, and holiday flag.

Set this variable to 2 for stand-alone units that are not connected to a CCN. With this configuration, daylight saving time and holiday determination will be done without broadcasting through the bus. This variable can only be changed when using the Touch Pilot display, ComfortVIEW™ software, or Network Service Tool. This variable cannot be changed with the Navigator display.

To configure this option with the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Activate	***Config→BRODEFS***	1	Range = 0 to 2 Default = 2

BROADCAST ACKNOWLEDGER

This configuration defines if the chiller will be used to acknowledge broadcast messages on the CCN bus. One broadcast acknowledger is required per bus, including secondary buses created by the use of a bridge. This variable can only be changed with the Touch Pilot display, ComfortVIEW software, or Network Service Tool. This variable cannot be changed with the Navigator display.

To configure this option with the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Broadcast acknowledger	***Config\CtIt-ID***	10	Yes

Alarm Control

ALARM ROUTING CONTROL

Alarms recorded on the chiller can be routed through the CCN. To configure this option, the *Comfort*Link control must be configured to determine which CCN elements will receive and process alarms. Input for the decision consists of eight digits, each of which can be set to either 0 or 1. Setting a digit to 1 specifies that alarms will be sent to the system element that corresponds to that digit. Setting all digits to 0 disables alarm processing. The factory default is 00000000. See Fig. 26. The default setting is based on the assumption that the unit will not be connected to a network. If the network does not contain a ComfortVIEW, ComfortWORKS®, TeLink, DataLINK™, or BAClink module, enabling this feature will only add unnecessary activity to the CCN communication bus.

This option can be modified by the Touch Pilot display. It cannot be modified with the Navigator display.

Typical configuration of the Alarm Routing variable is 11010000. This Alarm Routing status will transmit alarms to ComfortVIEW software, TeLink, BAClink, and DataLINK.

To configure this option with the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Alarm Routing Control	***Config→ALARMDEF***	1	Default = 00000000

ALARM EQUIPMENT PRIORITY

The ComfortVIEW device uses the equipment priority value when sorting alarms by level. The purpose of the equipment priority value is to determine the order in which to sort alarms that have the same level. A priority of 0 is the highest and would appear first when sorted. A priority of 7 would appear last when sorted. For example, if two chillers send out identical alarms, the chiller with

the higher priority would be listed first. The default is 4. This variable can only be changed when using the Touch Pilot™ display, ComfortVIEW™ software, or Network Service Tool™. This variable cannot be changed with the Navigator display. To configure this option with the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Alarm Equipment Priority	***Config\ALARMDEF***	2	Range = 0 to 7 Default = 4

COMMUNICATION FAILURE RETRY TIME

This variable specifies the amount of time that will be allowed to elapse between alarm retries. Retries occur when an alarm is not acknowledged by a network alarm acknowledger, which may be either a ComfortVIEW software or TeLink™. If acknowledgment is not received, the alarm will be re-transmitted after the number of minutes specified in this decision. This variable can only be changed with the Touch Pilot display, ComfortVIEW software, or Network Service Tool. This variable cannot be changed with the Navigator™ display. To configure this option with the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Comm Failure Retry Time	***Config\ALARMDEF***	3	Range = 1 to 240 minutes Default = 10 minutes

RE-ALARM TIME

This variable specifies the amount of time that will be allowed to elapse between re-alarms. A re-alarm occurs when the conditions that caused the initial alarm continue to persist for the number of minutes specified in this decision. Re-alarming will continue to occur at the specified interval until the condition causing the alarm is corrected. This variable can only be changed with the Touch Pilot display, ComfortVIEW software, or Network Service Tool. This variable cannot be changed with the Navigator display.

To configure this option with the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Realarm Time	***Config\ALARMDEF***	4	Range = 1 to 254 minutes 255 = Re-Alarm Disabled Default = 30 minutes

ALARM SYSTEM NAME

This variable specifies the system element name that will appear in the alarms generated by the unit control. The name can be up to 8 alphanumeric characters in length. This variable can only be changed when using the Touch Pilot display, ComfortVIEW software, or Network Service Tool. This variable cannot be changed with the Navigator display.

To configure this option with the Touch Pilot display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Alarm System Name	***Config\ALARMDEF***	5	Default = PRO_XAXQ

Daylight Saving Time Configuration

The 30XW chiller control contains software which can automatically correct for daylight saving time. This software is accessible from the Touch Pilot display, ComfortVIEW software, or Network Service Tool. It is not accessible through the Navigator display.

To enable this feature, Daylight Saving Select must be set to 1. The start of Daylight Saving must be configured by setting the Month, Day of Week, and Week of Month. The end for Daylight Saving must also be configured. To configure this option with the Touch Pilot display, see Table 37.

Table 37 — Daylight Savings Time Configuration

DISPLAY NAME	PATH	LINE NO.	VALUE
Activate	***Config\BRODEFS***	1	1 or 2 Default = 2
Daylight Saving Select	***Config\BRODEFS***	7	Enable Default = Dsble
Entering	***Config\BRODEFS***	8	
Month	***Config\BRODEFS***	9	Enter Starting Month for Daylight Saving
Day of Week (1=Monday)	***Config\BRODEFS***	10	Enter the Day of the Week Daylight Saving Starts
Week of Month	***Config\BRODEFS***	11	Enter Week of the Month Daylight Saving Starts
Leaving	***Config\BRODEFS***	12	
Month	***Config\BRODEFS***	13	Enter Ending Month for Daylight Saving
Day of Week (1=Monday)	***Config\BRODEFS***	14	Enter the Day of the Week Daylight Saving ends
Week of Month	***Config\BRODEFS***	15	Enter Week of the Month Daylight Saving ends

DESCRIPTION	STATUS								POINT
Alarm Routing	0	0	0	0	0	0	0	0	ALRM_CNT
ComfortVIEW™ or ComfortWORKS™									
TeLink									
Unused									
BACLink or DataLINK™									
Unused									

Fig. 26 — Alarm Routing Control

Capacity Control Overrides

The following capacity control overrides (**Active Capacity Override, *CAP.S***) will modify the normal operation routine. If any of the override conditions listed below are satisfied, the override will determine the capacity change instead of the normal control. Overrides are listed by priority order and are often linked to unit operating modes. See Table 38 for a list of overrides. See the Operating Modes section on page 64 for more information regarding operating modes.

Override #1: Cooler Freeze Protection

This override attempts to avoid the freeze protection alarm. If the Leaving Water Temperature is less than Brine Freeze Set Point (**Brine Freeze Set Point, *LOSP***) + 2.0°F (1.1ºC) then a stage of capacity is removed.

NOTE: The freeze set point is 34°F (1.1°C) for fresh water systems (**Cooler Fluid Type, *FLUD*=1**). The freeze set point is Brine Freeze Set Point (**Brine Freeze Set Point, *LOSP***), for Medium Temperature Brine systems (**Cooler Fluid Type, *FLUD*=2**).

Override #2: Circuit A Low Saturated Suction Temperature in Cooling
Override #3: Circuit B Low Saturated Suction Temperature in Cooling

These overrides attempt to avoid the low suction temperature alarms and are active only when the compressor is running beyond the fully unloaded level. The slide valve in the affected circuit will be decreased in position if the Saturated Suction Temperature is less than Brine Freeze Set Point (**Brine Freeze Set Point, *LOSP***) –18.0°F (–10°C) for 90 seconds, or the Saturated Suction Temperature is less than –4°F (–20°C).

Override #5: Low Temperature Cooling and High Temperature Heating

This override decreases capacity when the difference between the Control Point (**Control Point, *CTPT***) and the Leaving Water Temperature (**Cooler Leaving Fluid, *LWT***) reaches a predetermined limit and the rate of change of the water is 0ºF per minute or still decreasing.

Override #6: Low Temperature Cooling and High Temperature Heating

This override decreases capacity (approximately 5% of circuit capacity) when the Entering Water Temperature (**Cooler Entering Fluid, *EWT***) is less than the Control Point (**Control Point, *CTPT***).

Override #7: Ramp Loading

No capacity stage increase will be made if the unit is configured for ramp loading (**Ramp Loading Select, *RL.S*=*ENBL***) and the difference between the Leaving Water Temperature and the Control Point is greater than 4ºF (2.2ºC) and the rate of change of the leaving water is greater than Cool Ramp Loading Rate (**Cooling Ramp Loading, *CRMP***). Operating mode 5 (MD05) will be in effect.

Override #8: Service Manual Test Override

This override mode indicates the unit has been placed into Service Test mode. The user can then use Service Test functions to test the unit. All safeties and higher priority overrides are monitored and acted upon.

NOTE: The user cannot activate this override mode.

Override # 9: Demand Limit

This override mode is active when a command to limit the capacity is received. If the current unit capacity is greater than the active capacity limit value, a stage is removed. If the current capacity is lower than the capacity limit value, the control will not add a stage that will result in the new capacity being greater than the capacity limit value. Operating mode 4 (MD04) will be in effect.

Override #10: Cooler Interlock Override

This override prohibits compressor operation until the Cooler Interlock (**Cooler Flow Switch, *LOCK***) is closed.

Override #11: High Temperature Cooling and Low Temperature Heating

This override algorithm runs once when the unit is switched to ON. If the difference between the Leaving Water Temperature (**Cooler Leaving Fluid, *LWT***) and the Control Point (**Control Point, *CTPT***) exceeds a calculated value and the rate of change of the water temperature is greater than –0.1ºF/min, a stage will be added.

Override #12: High Temperature Cooling and Low Temperature Heating

This override runs only when Minimum Load Control is Enabled, (**Hot Gas Bypass Select, *HGBP***) and is set to **1**, **2** or **3**. This override will add a stage of capacity if the next stage is Minimum Load Control, when the difference between the Leaving Water Temperature (**Cooler Leaving Fluid, *LWT***) and the Control Point (**Control Point, *CTPT***) exceeds a calculated value and the rate of change of the water temperature is greater than a fixed value.

Override #13: Minimum On/Off and Off/On Time Delay

Whenever a capacity change has been made, the control will remain at this capacity stage for the next 90 seconds. During this time, no capacity control algorithm calculations will be made. If the capacity step is a compressor, an additional 90-second delay is added to the previous hold time (see Override #22). This override allows the system to stabilize before another capacity stage is added or removed. If a condition of a higher priority override occurs, the higher priority override will take precedence. Operating Mode 10 (MD10) will be in effect.

Override #14: Slow Change Override

This override prevents compressor stage changes when the leaving temperature is close to the control point and slowly moving towards it.

Override #15: System Manager Capacity Control

If a Chillervisor module is controlling the unit and multiple chillers, the unit will increase capacity to attempt to load to the demand limited value.

Override #16: Circuit A High Pressure Override
Override #17: Circuit B High Pressure Override

This override attempts to avoid a high pressure failure. The algorithm is run every 4 seconds. If the Saturated Condensing Temperature for the circuit is above the High Pressure Threshold (**High Pressure Threshold, *HP.TH***) then the position of slide valve will be unloaded.

Override #19: Standby Mode

This override algorithm will not allow a compressor to run if the unit is in Standby mode, (**Heat/Cool Status, *HC.ST*=2**).

Override #20: Low Entering Water Temperature in Heating

This override applies to 30XW units in heating mode only. If the Cooler Entering Water Temperature (**Cooler Entering Water, *EWT***) is less than 38°F (3.3°C), the override is active. The unit shall be stopped or not allowed to start. The circuit is not allowed to restart in heating until the entering water temperature rises above 38°F (3.3°C).

Override #21: Low Entering Water Temperature in Heating at Start-Up

This override applies to 30XW units in heating mode and is only monitored when the machine starts (**Run Status, *STAT*** changes from **Off** to **Delay**). If the Cooler Entering Water Temperature (**Cooler Entering Water, *EWT***) is less than 50°F (10.0°C) and the rate of change of the entering water temperature is less than 1°F (0.6°C) after two minutes of operation, the override is active. The unit is stopped and prevented from starting again until entering water temperature rises above 50°F (10.0°C).

Override #22: Minimum On Time Delay

In addition to Override #13 Minimum On/Off and Off/On Time Delay, for compressor capacity changes, an *additional* 90-second delay will be added to Override #13 delay. No compressor will be de-energized until 3 minutes have elapsed since the last compressor has been turned ON. When this override is active, the capacity control algorithm calculations will be performed, but no capacity reduction will be made until the timer has expired. A control with higher precedence will override the Minimum On Time Delay.

Override #23: Circuit A Low Saturated Suction Temperature in Cooling
Override #24: Circuit B Low Saturated Suction Temperature in Cooling

If the circuit is operating close to the operational limit of the compressor, the circuit capacity will remain at the same point or unload to raise the saturated suction temperature. This algorithm will be active if at least 1 compressor in the circuit is on and one of the following conditions is true:

1. Saturated Suction Temperature is less than the Brine Freeze Set Point (**Brine Freeze Set Point, *LOSP***) –6ºF (3.3ºC).
2. Saturated Suction Temperature is less than the Brine Freeze Set Point (**Brine Freeze Set Point, *LOSP***) and the circuit approach (Leaving Water Temperature – Saturated Suction Temperature) is greater than 15ºF (8.3ºC) and the Circuit Superheat (Discharge Gas Temperature – Saturated Discharge Temperature) is greater than 25ºF (13.9ºC).

   NOTE: The freeze set point is 34ºF (1.1ºC) for fresh water systems (**Cooler Fluid Type, *FLUD*=1**). The freeze set point is Brine Freeze Set Point (**Brine Freeze Set Point, *LOSP***), for Medium Temperature Brine systems (**Cooler Fluid Type, *FLUD*=2**).

If any of these conditions are met, the appropriate operating mode, 21 (Circuit A) or 22 (Circuit B) will be in effect.

Table 38 — Capacity Control Overrides

	CAPACITY CONTROL OVERRIDES
1	Cooler Freeze Protection
2	Circuit A Low Saturated Suction Temperature in Cooling
3	Circuit B Low Saturated Suction Temperature in Cooling
4	—
5	Low Temperature cooling and High Temperature Heating (LWT)
6	Low Temperature cooling and High Temperature Heating (EWT)
7	Ramp Loading
8	Service Manual Test Override
9	Demand Limit
10	Cooler Interlock Override
11	High Temperature Cooling and Low Temperature Heating
12	High Temperature Cooling and Low Temperature Heating (minimum load control in effect)
13	Minimum On/Off and Off/On Time Delay
14	Slow Change Override
15	System Manager Capacity Control
16	Circuit A High Pressure Override
17	Circuit B High Pressure Override
18	—
19	Standby Mode
20	Low Entering Water Temperature in Heating
21	Low Entering Water Temperature in Heating at Start-Up
22	Minimum On Time Delay
23	Circuit A Low Saturated Suction Temperature in Cooling
24	Circuit B Low Saturated Suction Temperature in Cooling
25	—
26	—
27	—
28	—
29	—
30	—
31	—
32	—
33	—
34	Circuit A Low Refrigerant Charge
35	Circuit B Low Refrigerant Charge
36	—
37	—
38	—
39	—
40	Chiller Current Demand Limit
41	Circuit A High Current Override
42	Circuit B High Current Override
43	—
44	Circuit A High Suction Superheat at Part Load
45	Circuit B High Suction Superheat at Part Load
46	—
47	—
48	—
49	—
50	—
51	—
52	—
53	Circuit A Delay for Unloading the Slide Valve
54	Circuit B Delay for Unloading the Slide Valve
55	—
56	—
57	—
58	—
59	Circuit A Low Oil Level
60	Circuit B Low Oil Level
61	—
62	Circuit A High Motor Temperature Override
63	Circuit B High Motor Temperature Override
64	—
65	—
66	Circuit A High Discharge Gas Override
67	Circuit B High Discharge Gas Override
69	Water-Cooled Heating Mode Low Entering Water Temperature
70	Water-Cooled Max Condenser LWT = 133°F (45°C)
71	Wait Until Pump Turns On Override
77	Boostload Function Active
80	Circuit A, 81 Circuit B: Long Time Minload Run

Override #34: Circuit A Low Refrigerant Charge
Override #35: Circuit B Low Refrigerant Charge

The capacity override attempts to protect the compressor from starting with no refrigerant in the circuit. This algorithm runs only when the circuit is not operational (compressors is OFF). There are several criteria that will enable this override:

1. The saturated suction temperature or saturated discharge temperature is less than –13°F (–25°C).
2. Both of these conditions must be true:
   a. The saturated suction temperature or saturated discharge temperature is less than leaving fluid temperature by more than 5.4ºF (3.0ºC).
   b. Saturated suction temperature or saturated discharge temperature is less than 41°F (5°C).
3. All of these conditions must be true:
   a. The saturated suction temperature or saturated discharge temperature is less than leaving fluid temperature by more than 5.4ºF (3.0ºC).
   b. Saturated suction temperature or saturated discharge temperature is less than 41°F (5°C).
   c. Saturated suction temperature or saturated discharge temperature is less than the brine freeze point (**Brine Freeze Set Point, *LOSP***) by more than 6ºF (3.3ºC).

   NOTE: The freeze set point is 34°F (1.1°C) for fresh water systems (**Brine Freeze Set Point, *FLUD*=1**). The freeze set point is brine freeze set point (**Brine Freeze Set Point, *LOSP***), for medium temperature brine systems (**Cooler Fluid Type, *FLUD*=2**).
4. Both of these conditions must be true:
   a. The saturated suction temperature or saturated discharge temperature is less than leaving fluid temperature by more than 5.4ºF (3.0ºC).
   b. Saturated suction temperature or saturated discharge temperature is less than 41°F (5°C).

If any of these conditions 1, 2, 3 or 4 are met, the appropriate operating mode, 21 (Circuit A) or 22 (Circuit B) will be in effect.

Override #40: Chiller Current Demand Limit

This override is active when compressor current demand limit is active (**Current Limit Select=YES, *CUR.S=YES***) and the sum of the compressor current exceeds the user specified compressor current limit (**Current Limit at 100%, *CUR.F***). The unit capacity is reduced until the total compressor current is less than the user specified current limit. If the unit is configured for Dual Chiller Control, Night Mode, or is under a System Manager's control, the function shall be disabled.

Override #41: Circuit A High Current Override
Override #42: Circuit B High Current Override

This override attempts to avoid an overcurrent failure. The algorithm is run every 4 seconds. If the compressor current is greater than 79% of must trip amps (MTA) but less than 85% MTA then the capacity will be held at current capacity. If the compressor current is greater than 85% MTA then capacity will be reduced by repositioning the slide valve until the current is less than 85% MTA (**Must Trip Amps, *MTA.X***).

Override #44: Circuit A High Suction Superheat at Part Load
Override #45: Circuit B High Suction Superheat at Part Load

If the compressor of the circuit is on, the compressor current is no more than 30% of the MTA, main EXV is more than 90% open and the suction superheat is higher than the superheat control point for more than 5 minutes, then the circuit will be shut down.

Override #53: Circuit A Delay for Unloading the Slide Valve
Override #54: Circuit B Delay for Unloading the Slide Valve

This override prevents the compressor from re-starting with locked rotor failure after being shut down due to an alarm or power cycle. A delay of 20 minutes will elapse for all units. The delay allows the slide valve of the compressor to move back to its fully unloaded position. The delay is adjusted according to the percent of the compressor running capacity before it is shut down. If the compressor is stopped normally, no delay will be applied. If the compressor is shut down by the locked rotor alarm, a full delay will be applied before the compressor is allowed to re-start.

Override #59: Circuit A Low Oil Level
Override #60: Circuit B Low Oil Level

This override is only effective when the circuit is not running. The override will prevent the circuit from starting up with a low oil level. If this override occurs three times, the low oil level alarm will be tripped.

Override #62: Circuit A High Motor Temperature Override
Override #63: Circuit B High Motor Temperature Override

This override prevents the compressor motor temperature from rising above the high temperature limit, but still allows the chiller to run close to the high temperature limit by unloading the compressor. If the motor temperature is greater than 214°F (101.1°C), the compressor will not load. This override will remain active until the temperature drops below 214°F (101.1°C). If the motor temperature is greater than 225°F (107.2°C) for 60 seconds, the circuit capacity will decrease by one stage. If the motor temperature is greater than 228°F (108.9°C), the circuit capacity will decrease by one stage immediately.

Override #66: Circuit A High Discharge Gas Override
Override #67: Circuit B High Discharge Gas Override

There are two control methods possible for this override:

1. If the leaving fluid temperature exceeds the freeze set point (LOSP) + 5.4°F (3°C) and the compressor is not at full load, the compressor capacity will be increased when discharge gas temperature exceeds 190°F (87.8°C). Compressor capacity will be allowed to continue increasing until discharge gas temperature falls below 175°F (79.4°C). When the temperature is above the limit minus 2°F (1.1°C) increase in capacity will not be allowed. This override will remain active until the discharge gas temperature drops below the limit by –3°F (–1.7°C).
2. If the leaving fluid temperature is 3.6°F (2°C) or more below the freeze set point (LOSP), the compressor capacity will be decreased when discharge gas temperature exceeds 190°F (87.8°C). If after five minutes, the discharge gas temperature falls below 175°F (79.4°C), the compressor will be allowed to load again.

Override #69: Water-Cooled Heating Mode Low Entering Water Temperature

This override decreases capacity if the unit is in heating mode and the cooler leaving water temperature is below one of the two cooling set points. This protection is to avoid low water temperature on cooler in heating mode.

Override #70: Water-Cooled Max Condenser LWT = 113°F (45°C)

This override is activated only if the water-cooled unit option "Maximum Condenser LWT = 45degC (113 F)" is activated. If condenser leaving water temperature is above 111.2°F (44°C), then the compressor capacity cannot increase. If condenser leaving water temperature is above 113.0°F (45°C), then the compressor capacity will decrease.

Override #71: Wait Until Pump Turns On Override

This override is activated only if the water-cooled unit option "turn cooler/condenser pump off in heating:cooling mode" is activated. When unit is not running and about to start, wait until the pump turns on before starting compressor to avoid HP trips or cooler freeze.

Override #77: Boostload Function Active

This override can be present when boostload function is enabled. It is set in the following conditions:

If fastload = BOOSTLOAD and cooler leaving water temperature > control point + 5.4°F, and cooler entering water temperature > control point + 9.0°F demand limit > 99, and current limit select = NO.

Override #80: Circuit A, 81 Circuit B: Long Time Minload Run

If circuit runs for more than 30 minutes at minimum load, the circuit is stopped. This is to prevent loss of oil.

Head Pressure Control

The Main Base Board (MBB) uses the saturated condensing temperature input from the discharge pressure transducer to control the head pressure control signal. The control will automatically reduce the unit capacity as the saturated condensing temperature approaches an upper limit. See capacity overrides #16 and 17. The control will indicate through an operating mode that high ambient unloading is in effect. If the saturated condensing temperature in a circuit exceeds the calculated maximum, the circuit will be stopped. The control will modulate the 0 to 10v head pressure control output signal when condensing temperature is below the minimum head pressure requirement for the compressor. In addition, the Condenser Valve Select item under factory configuration must be set to Yes and 0-10 V signal wiring connections must be made to TB7 terminals 1 and 2.

LOW CONDENSER FLUID TEMPERATURE HEAD PRESSURE CONTROL OPTION

Units will start and operate down to 65°F (18.3°C) entering condenser water temperature as standard. Operation with entering condenser water temperatures below 65°F (18.3°C) requires a field-supplied and installed condenser fluid control valve.

Sequence of Operation

Valve position is controlled through a 0 to 10 vdc signal provided by the MLV/COND board, channel 9, to maintain the head pressure set point. Unit sizes 325-400 use a common condenser water valve output so the MBB uses the highest saturated condensing temperature of either circuit. As a safety feature, if the circuit is on and if the saturated condensing temperature reaches the condensing set point +10°F, the valve is opened to its maximum position to avoid a high pressure alarm. The water valve is fully closed when the circuit is OFF on unit sizes 150-300 and if both circuits are off on unit sizes 325-400.

If the unit is configured as a heat machine, the valve will be maintained fully open when the unit operates in heating mode and when the condenser leaving water temperature becomes greater than the head pressure set point.

Maximum and minimum condenser valve position is configurable. The minimum condenser valve position is very important to avoid condenser freeze risks as condenser freeze protection is ensured by the condenser pump.

To configure this option with the Touch Pilot™ display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Condenser Water Val Sel	***Service\FACTORY***	13	YES
Water Val Condensing Stp	***Set Point***	38	Range: 80 to120°F (26.7 to 48.9°C) Default: 86°F (30°C)
Recl Valve Min Position	***Service\SERVICE1***	19	Range: 0 to 50% Default: 20%
Recl Valve Max Position	***Service\SERVICE1***	20	Range: 20 to 100% Default: 100%
Prop PID Gain Varifan	***Service\SERVICE1***	6	Range: –20 to 20 Default: 2.0
Int PID Gain Varifan	***Service\SERVICE1***	7	Range: –5.0 to 5.0 Default: 0.2
Deri PID Gain Varifan	***Service\SERVICE1***	8	Range: –20 to 20 Default: 0.4

To configure this option with the Navigator™ display:

ITEM	ITEM EXPANSION	PATH	VALUE
CON.V	Condenser Valve Select	***Configuration→UNIT***	YES
W.SCT	Water Val Cond Stp	***Set Point→MISC***	Range: 80 to140°F (26.7 to 60°C) Default: 86°F (30°C)
HD.PG	Varifan Proportion Gain	***Configuration→SERV***	Range: –10 to 10 Default: 2.0
HD.DG	Varifan Derivative Gain	***Configuration→SERV***	Range: –10 to 10 Default: 0.4
HD.IG	Varifan Integral Gain	***Configuration→SERV***	Range: –10 to 10 Default: 0.2

NOTE: The Quick Test function is not available from the Navigator display or Touch Pilot display.

PRE-START-UP

IMPORTANT: Complete the Start-Up Checklist for 30XW Liquid Chillers at the end of this publication.

The checklist assures proper start-up of a unit, and provides a record of unit condition, application requirements, system information, and operation at initial start-up.

Do not attempt to start the chiller until the following checks have been completed.

System Check

1. Check to ensure the unit is level per the installation instructions.
2. Electrical power source must agree with unit nameplate.
3. Check that auxiliary components, such as the chilled fluid and condenser fluid circulating pumps, air-handling equipment, or any other equipment to which the chiller supplies liquid are operational. Consult manufacturer's instructions. If the unit has field-installed accessories, be sure all are properly installed and wired correctly. Refer to unit wiring diagrams.
4. Open compressor suction service valves (if equipped).
5. Open discharge, liquid line, oil line, and economizer (if equipped) service valves.
6. Fill the chiller fluid circuit with clean water (with recommended inhibitor added) or other non-corrosive fluid to be cooled. Bleed all air out of high points of system. If unit is exposed to temperatures below 32°F (0°C), sufficient inhibited propylene glycol or other suitable corrosion inhibited antifreeze should be added to the chiller water and condenser water circuit to prevent possible freeze-up. The chilled water loop must be cleaned before the unit is connected. To set the maintenance time for cleaning and inspecting loop strainers, go to **Water Filter Ctrl (days), *W.FIL***. Values for this item are counted as days. Refer to the system pump package literature for specific internal inspection/cleaning requirements.
7. Check tightness of all electrical connections.
8. Verify power supply phase sequence. The phase sequence should be A-B-C for proper compressor rotation.

START-UP

⚠ CAUTION

Do not manually operate contactors. Serious damage to the machine may result.

Actual Start-Up

Actual start-up should be done only under supervision of a qualified refrigeration technician.

1. Be sure all discharge, oil, and suction valves (if equipped) and liquid line service valves are open.
2. Using the unit control, set leaving-fluid set point (**Cooling Set Point 1, *CSP.1***). No cooling range adjustment is necessary.
3. If optional control functions or accessories are being used, the unit must be properly configured. Refer to Configuration Options section for details.
4. Start the chilled fluid and condenser pumps, if unit is not configured for pump control. (**Cooler Pumps Sequence, *PUMP=0;* Condenser Pump Sequence, *HPUM = No***)
5. Complete the Start-Up Checklist to verify all components are operating properly.
6. Check the cooler flow switch for proper operation. Ensure that the flow switch input indicates closed when the pump is on and open when the pump is off.
7. Turn Enable/Off/Remote contact switch to Enable position.
8. Allow unit to operate and confirm that everything is functioning properly. Check to see that leaving fluid temperature agrees with leaving set point Control Point (**Control Point, *CTPT***).

Operating Limitations

TEMPERATURES

Unit operating temperature limits are listed in Table 39.

LOW CONDENSER WATER TEMPERATURE OPERATION

For condenser entering water temperatures between 33°F (0.6°C) and 65°F (18.3°C), field-installed accessory head pressure control valve is required. Contact your Carrier representative for details.

⚠ CAUTION

Brine duty application (below 40°F [4.4°C] LCWT) for chiller normally requires factory modification. Contact your Carrier Representative for details regarding specific applications. Operation below 40°F (4.4°C) LCWT without modification can result in compressor failure.

Table 39 — Temperature Limits for Standard Units

TEMPERATURE	F	C
Maximum Condenser EWT	110	43.3
Minimum Condenser EWT	65	18.3
Maximum Condenser LWT*	118	47.8
Maximum Cooler EWT†	70	21.1
Maximum Cooler LWT	60	15.6
Minimum Cooler LWT**	40	4.4

LEGEND

EWT — Entering Fluid (Water) Temperature
LWT — Leaving Fluid (Water) Temperature

* Temperature limit for high condensing/heat reclaim option units are 140°F (60°C).
† For sustained operation, EWT should not exceed 85°F (29.4°C). Pulldown can be accomplished from 95°F (35°C).
** Unit requires brine modification for operation below this temperature.

VOLTAGE

Main Power Supply

Minimum and maximum acceptable supply voltages are listed in the Installation Instructions.

Unbalanced 3-Phase Supply Voltage

Never operate a motor where a phase imbalance between phases is greater than 2%.

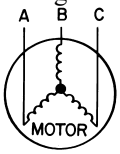
To determine percent voltage imbalance:

$$\% \text{ Voltage Imbalance} = 100 \times \frac{\text{max voltage deviation from avg voltage}}{\text{average voltage}}$$

The maximum voltage deviation is the largest difference between a voltage measurement across 2 legs and the average across all 3 legs.

Example: Supply voltage is 240-3-60.

AB = 243v
BC = 236v
AC = 238v



1. Determine average voltage:

$$\text{Average voltage} = \frac{243+236+238}{3} = \frac{717}{3} = 239$$

2. Determine maximum deviation from average voltage:

   (AB) 243 – 239 = 4 v

   (BC) 239 – 236 = 3 v

   (AC) 239 – 238 = 1 v

   Maximum deviation is 4 v.

3. Determine percent voltage imbalance:

$$\% \text{ Voltage Imbalance} = 100 \times \frac{4}{239}$$

$$= 1.7\%$$

This voltage imbalance is satisfactory as it is below the maximum allowable of 2%.

IMPORTANT: If the supply voltage phase imbalance is more than 2%, contact the local electric utility company immediately. Do not operate unit until imbalance condition is corrected.

MINIMUM FLUID LOOP VOLUME

To obtain proper temperature control, loop fluid volume must be at least 3 gallons per ton (3.25 L per kW) of chiller nominal capacity for air conditioning and at least 6 gallons per ton (6.5 L per kW) for process applications. Refer to application information in Product Data literature for details.

FLOW RATE REQUIREMENTS

Standard chillers should be applied with nominal flow rates within those listed in the Evaporator and Condenser Flow Rates table. Higher or lower flow rates are permissible to obtain lower or higher temperature rises. Minimum flow rates must be exceeded to assure turbulent flow and proper heat transfer in the cooler. See Table 40. See Fig. 27-44 for cooler and condenser pressure drop curves.

⚠ CAUTION

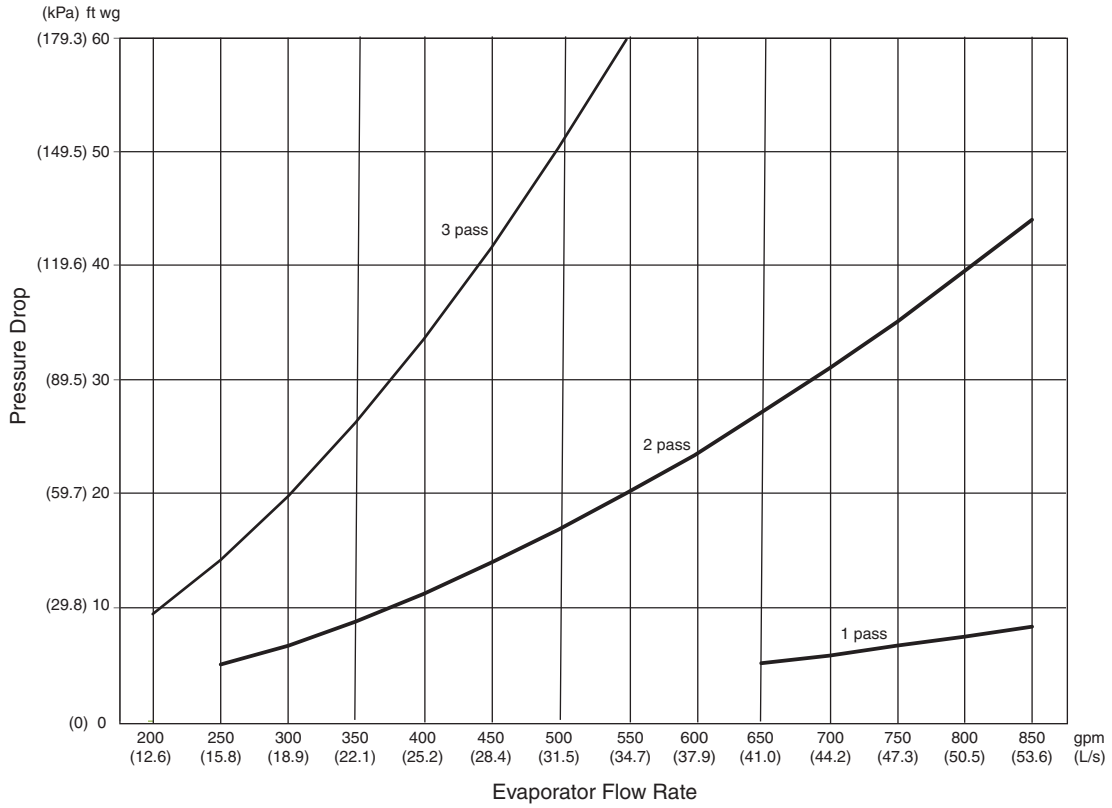
Operation below minimum flow rate could generate alarms and result in damage to the cooler.

Consult application data section in the Product Data literature and job design requirements to determine flow rate requirements for a particular installation.

Table 40 — Evaporator and Condenser Flow Rates

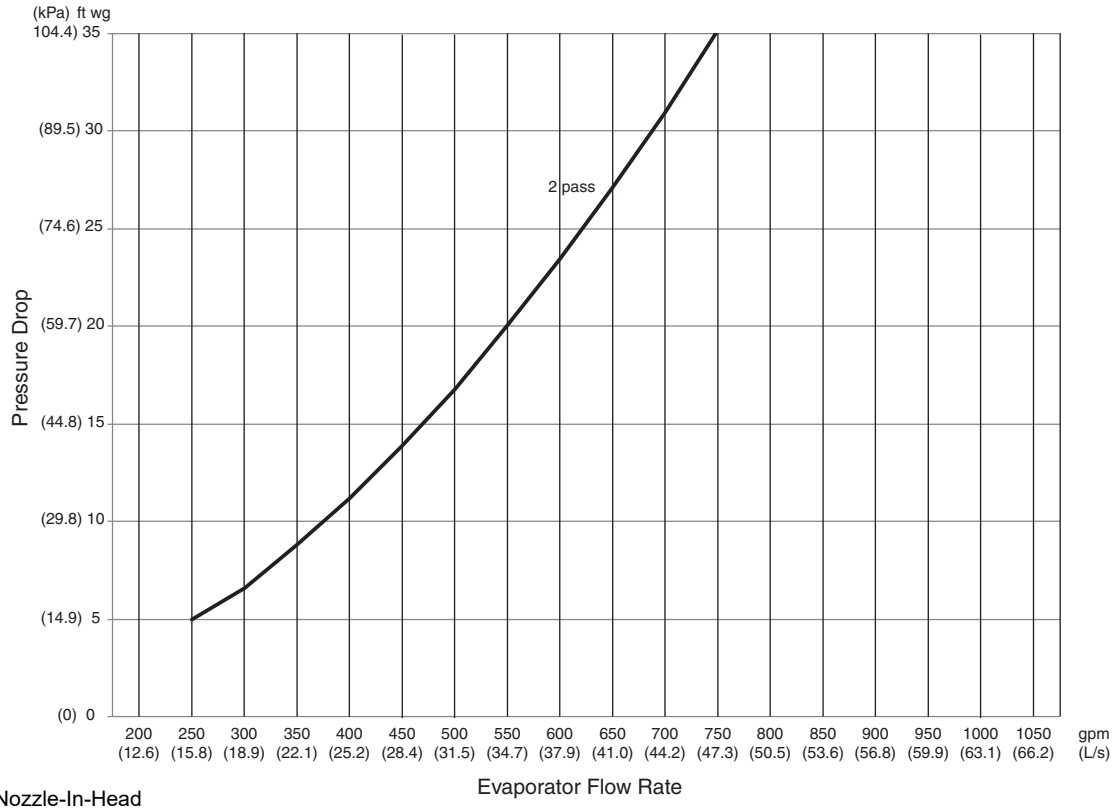
30XW UNIT		Evaporator				Condenser				Nominal			
		Leaving Fluid/Entering Fluid				Leaving Fluid/Entering Fluid				Evaporator		Condenser	
		Minimum		Maximum		Minimum		Maximum*					
		40°F (4.4°C)/ 45°F (7.2°C)		60°F (15.6°C)/ 70°F (21.1°C)		70°F (21.1°C)/ 65°F (18.3°C)		118°F (47.8°C)/ 110°F (43.3°C)					
		Minimum Flow Rate		Maximum Flow Rate		Minimum Flow Rate		Maximum Flow Rate		Nominal Flow Rate		Nominal Flow Rate	
		GPM	L/s	GPM	L/s	GPM	L/s	GPM	L/s	GPM	L/s	GPM	L/s
150	Two pass	200	12.6	720	45.4	240	15.1	960	60.6	384	24.2	480	30.3
	One pass	384	24.2	1520	95.9	480	30.3	1600	100.9	384	24.2	480	30.3
	Three pass	120	7.6	480	30.3	160	10.1	528	33.3	384	24.2	480	30.3
175	Two pass	213	13.4	765	48.3	255	16.1	1021	64.4	408	25.8	510	32.2
	One pass	408	25.8	1616	102.0	510	32.2	1701	107.3	408	25.8	510	32.2
	Three pass	128	8.0	510	32.2	170	10.7	561	35.4	408	25.8	510	32.2
185	Two pass	223	14.1	802	50.6	267	16.9	1069	67.5	428	27.0	535	33.7
	One pass	428	27.0	1693	106.8	535	33.7	1782	112.4	428	27.0	535	33.7
	Three pass	134	8.4	535	33.7	178	11.2	588	37.1	428	27.0	535	33.7
200	Two pass	239	15.1	860	54.3	287	18.1	1147	72.3	459	28.9	573	36.2
	One pass	459	28.9	1815	114.5	573	36.2	1911	120.6	459	28.9	573	36.2
	Three pass	143	9.0	573	36.2	191	12.1	631	39.8	459	28.9	573	36.2
225	Two pass	278	17.5	1001	63.2	334	21.1	1335	84.2	534	33.7	668	42.1
	One pass	534	33.7	2114	133.4	668	42.1	2225	140.4	534	33.7	668	42.1
	Three pass	167	10.5	668	42.1	223	14.0	734	46.3	543	33.7	668	42.1
250	Two pass	301	19.0	1085	68.4	362	22.8	1447	91.3	579	36.5	723	45.6
	One pass	579	36.5	2290	144.5	723	45.6	2411	152.1	579	36.5	723	45.6
	Three pass	181	11.4	723	45.6	241	15.2	796	50.2	579	36.5	723	45.6
260	Two pass	306	19.3	1102	69.5	367	23.2	1469	92.7	588	37.1	734	46.3
	One pass	588	37.1	2326	146.7	734	46.3	2448	154.4	588	37.1	734	46.3
	Three pass	184	11.6	734	46.3	245	15.4	808	51.0	588	37.1	734	46.3
275	Two pass	329	20.7	1183	74.6	394	24.9	1577	99.5	631	39.8	788	49.7
	One pass	631	39.8	2497	157.5	788	49.7	2628	165.8	631	39.8	788	49.7
	Three pass	197	12.4	788	49.7	263	16.6	867	54.7	631	39.8	788	49.7
300	Two pass	357	22.5	1285	81.1	428	27.0	1713	108.1	685	43.2	857	54.0
	One pass	685	43.2	2712	171.1	857	54.0	2855	180.1	685	43.2	857	54.0
	Three pass	214	13.5	857	54.0	286	18.0	942	59.4	685	43.2	857	54.0
325	Two pass	403	25.4	1450	91.4	483	30.5	1933	122.0	773	48.8	967	61.0
	One pass	773	48.8	3061	193.0	967	61.0	3222	203.3	773	48.8	967	61.0
	Three pass	242	15.2	967	61.0	322	20.3	1063	67.1	773	48.8	967	61.0
350	Two pass	429	27.0	1544	97.4	515	32.5	2058	129.8	823	51.9	1029	64.9
	One pass	823	51.9	3259	205.6	1029	64.9	3430	216.4	823	51.9	1029	64.9
	Three pass	257	16.2	1029	64.9	343	21.6	1132	71.4	823	51.9	1029	64.9
375	Two pass	455	28.7	1639	103.4	546	34.5	2186	137.9	874	55.2	1093	69.0
	One pass	874	55.2	3461	218.3	1093	69.0	3643	229.8	874	55.2	1093	69.0
	Three pass	273	17.2	1093	69.0	364	23.0	1202	75.8	874	55.2	1093	69.0
400	Two pass	481	30.4	1733	109.3	578	36.4	2310	145.7	924	58.3	1155	72.9
	One pass	924	58.3	3658	230.8	1155	72.9	3850	242.9	924	58.3	1155	72.9
	Three pass	289	18.2	1155	72.9	385	24.3	1271	80.2	924	58.3	1155	72.9

* Maximum condenser fluid temperature shown for standard condensing option. High condensing or heat machine option may have leaving fluid temperatures up to 140°F (60°C) and entering up to 128°F (53.3°C).



NOTE: The table above represents pressure drops only. The table does not imply that the chiller can be properly applied over the entire range of evaporator water flow rates represented.

Fig. 27 — 30XW150-200 Evaporator Marine Waterbox

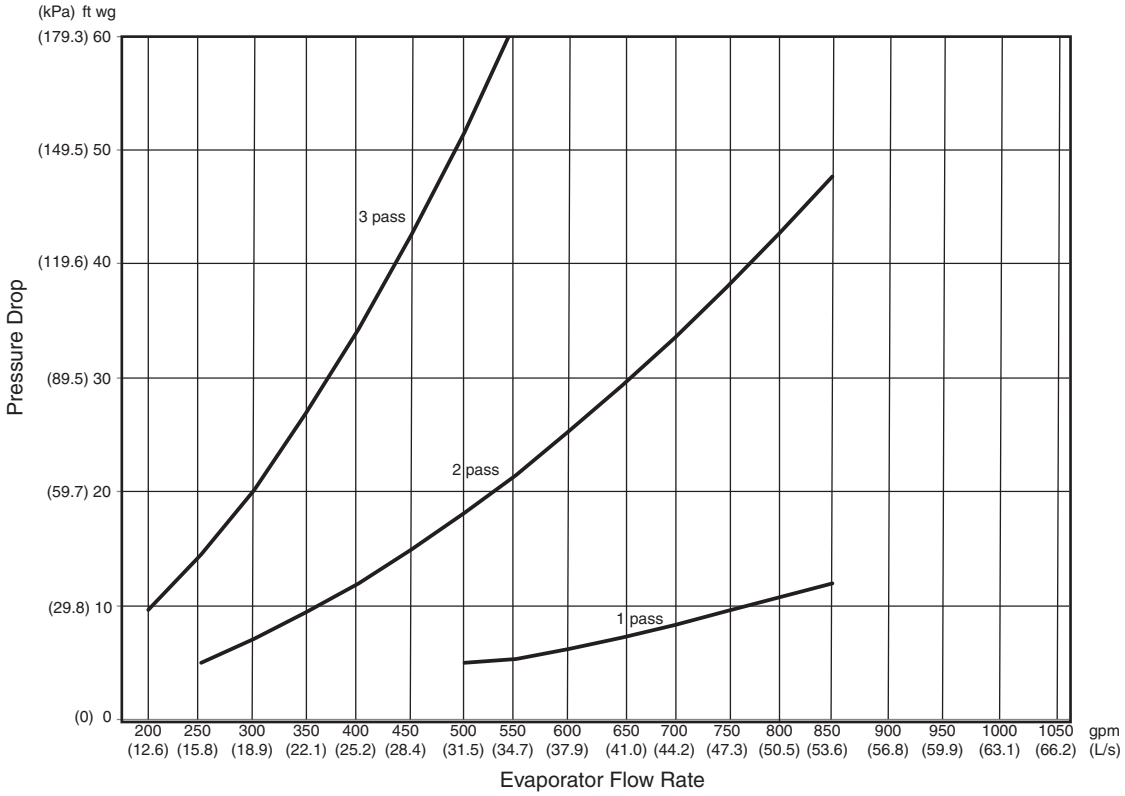


LEGEND

NIH — Nozzle-In-Head

NOTE: The table above represents pressure drops only. The table does not imply that the chiller can be properly applied over the entire range of evaporator water flow rates represented.

Fig. 28 — 30XW150-200 Evaporator NIH (Nozzle-in-Head) Victaulic

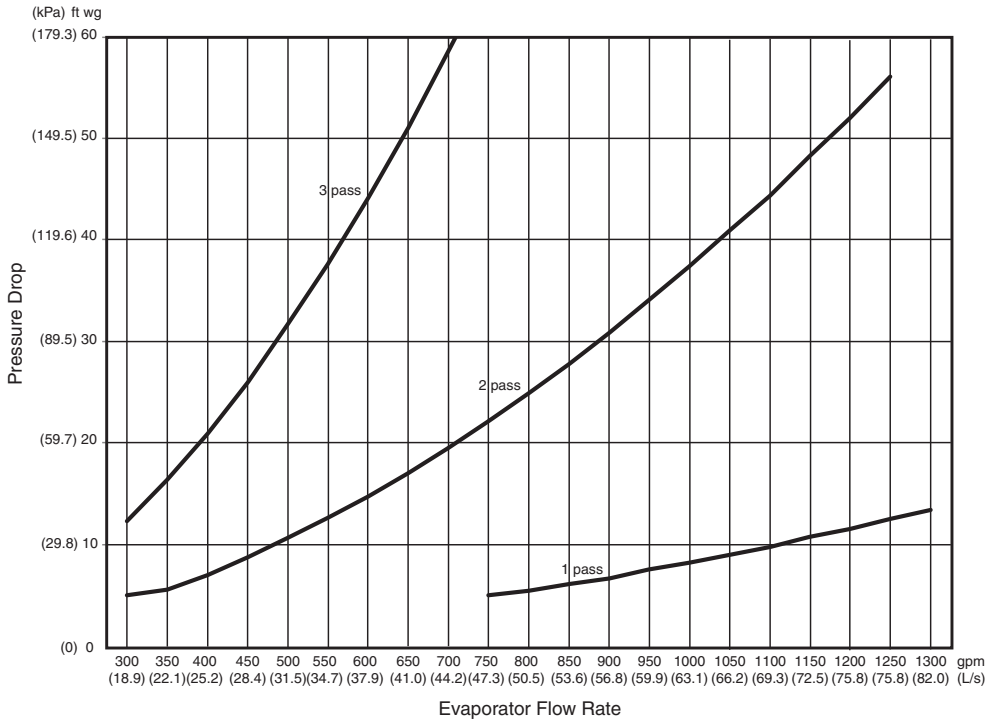


LEGEND

NIH — Nozzle-In-Head

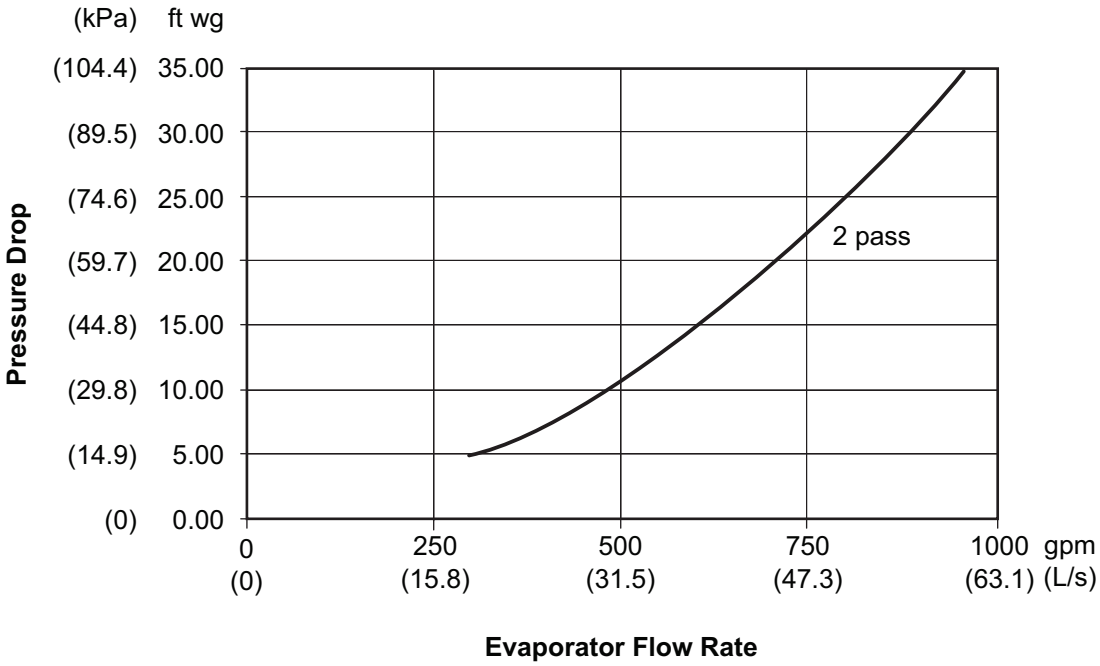
NOTE: The table above represents pressure drops only. The table does not imply that the chiller can be properly applied over the entire range of evaporator water flow rates represented.

Fig. 29 — 30XW150-200 Evaporator NIH Flange



NOTE: The table above represents pressure drops only. The table does not imply that the chiller can be properly applied over the entire range of evaporator water flow rates represented.

Fig. 30 — 30XW225-300 Evaporator Marine Waterbox

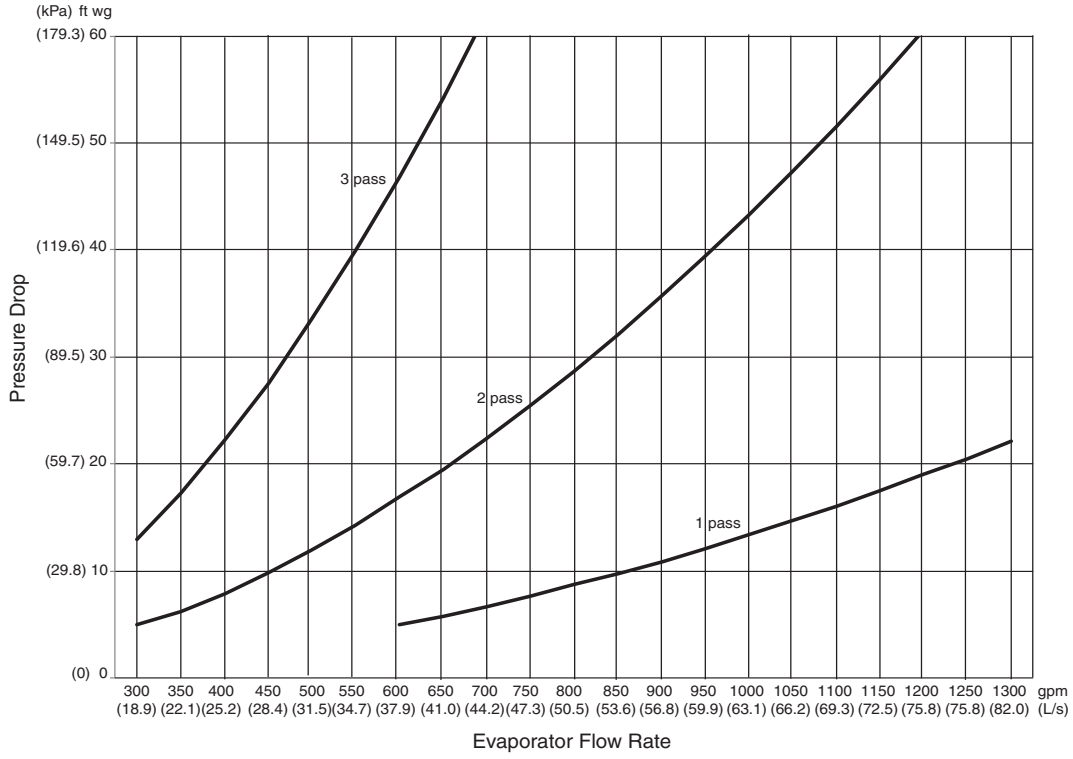


LEGEND

NIH — Nozzle-In-Head

NOTE: The table above represents pressure drops only. The table does not imply that the chiller can be properly applied over the entire range of evaporator water flow rates represented.

Fig. 31 — 30XW225-300 Evaporator NIH Victaulic

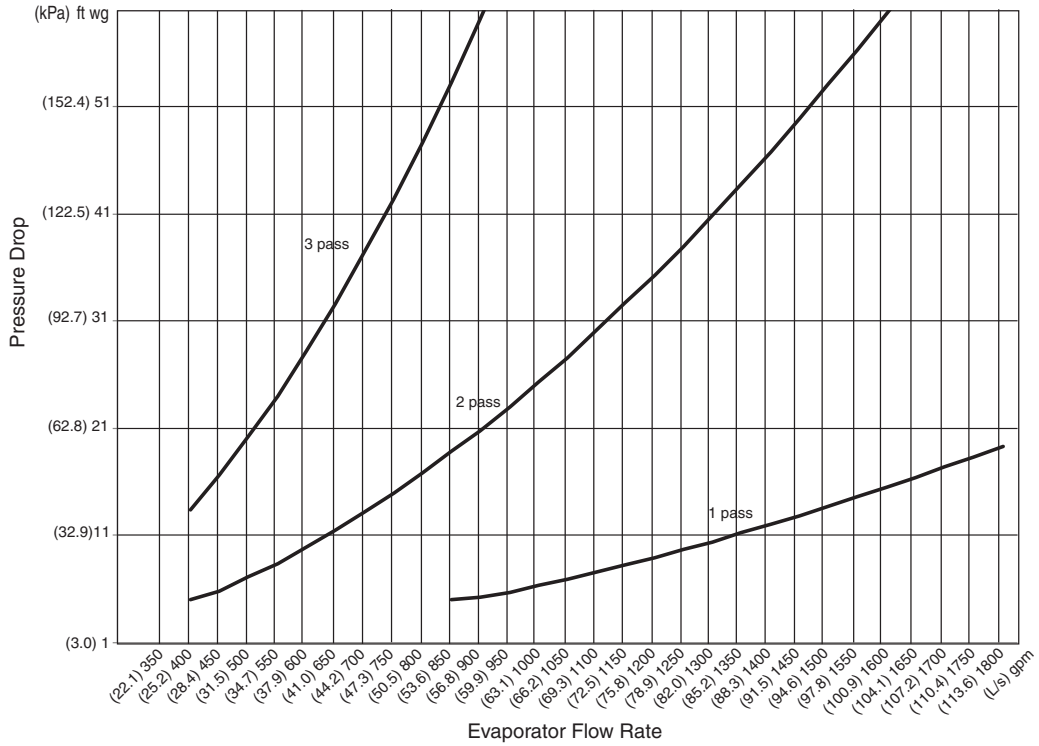


LEGEND

NIH — Nozzle-In-Head

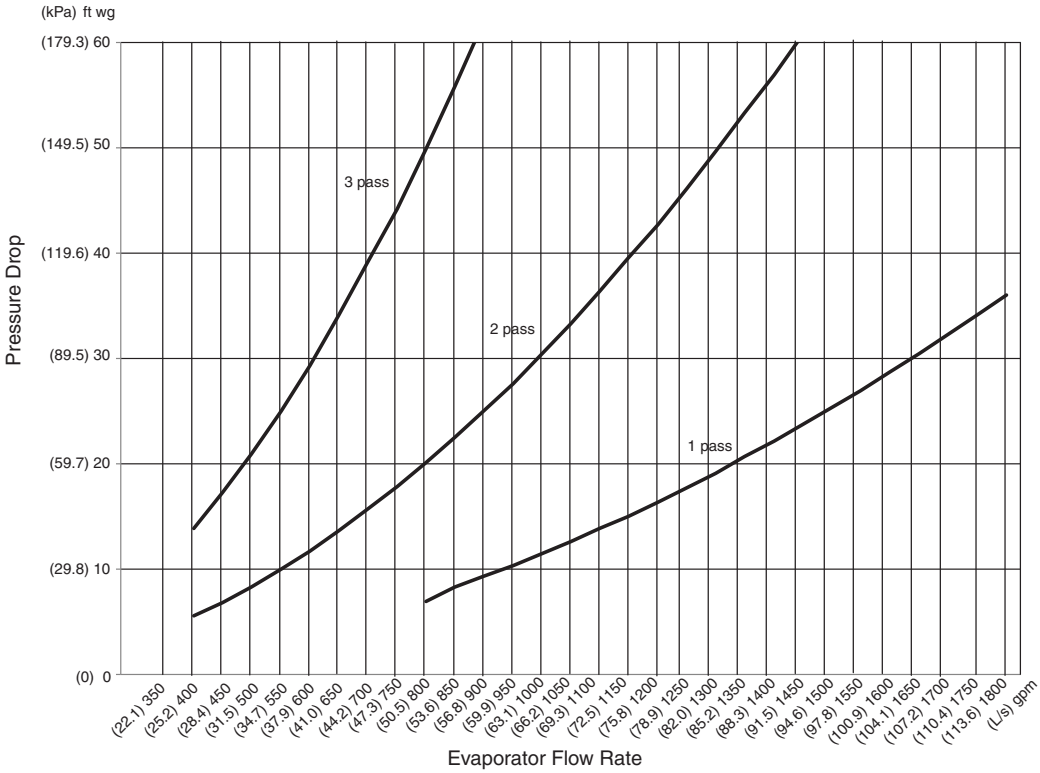
NOTE: The table above represents pressure drops only. The table does not imply that the chiller can be properly applied over the entire range of evaporator water flow rates represented.

Fig. 32 — 30XW225-300 Evaporator NIH Flange



NOTE: The table above represents pressure drops only. The table does not imply that the chiller can be properly applied over the entire range of evaporator water flow rates represented.

Fig. 33 — 30XW325-400 Evaporator Marine Waterbox

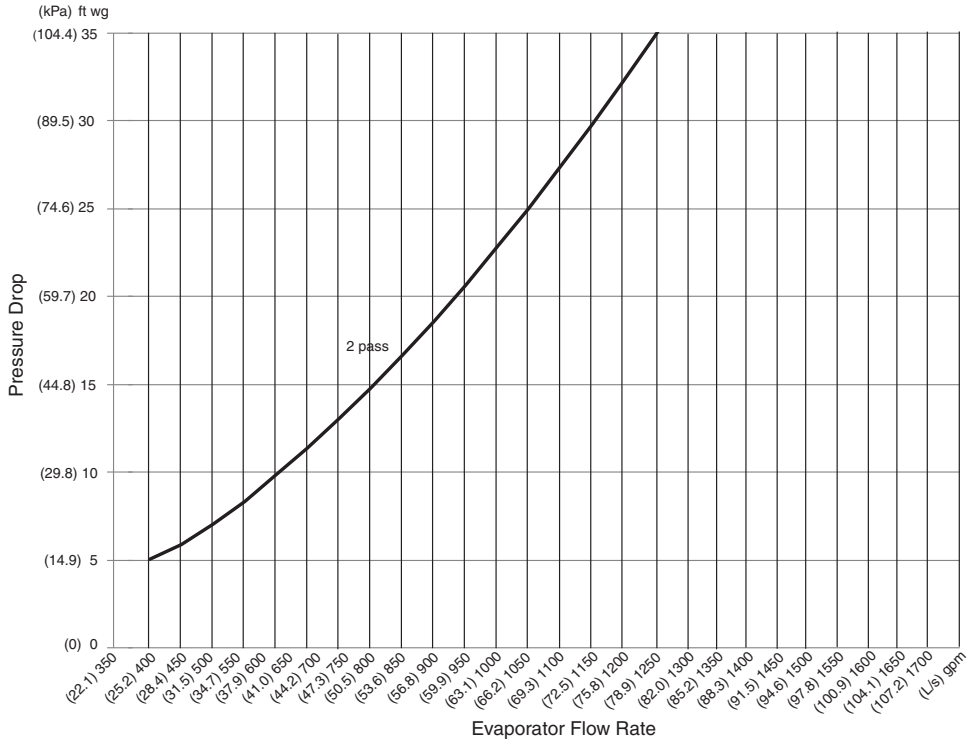


LEGEND

NIH — Nozzle-In-Head

NOTE: The table above represents pressure drops only. The table does not imply that the chiller can be properly applied over the entire range of evaporator water flow rates represented.

Fig. 34 — 0XW325-400 Evaporator NIH Flange

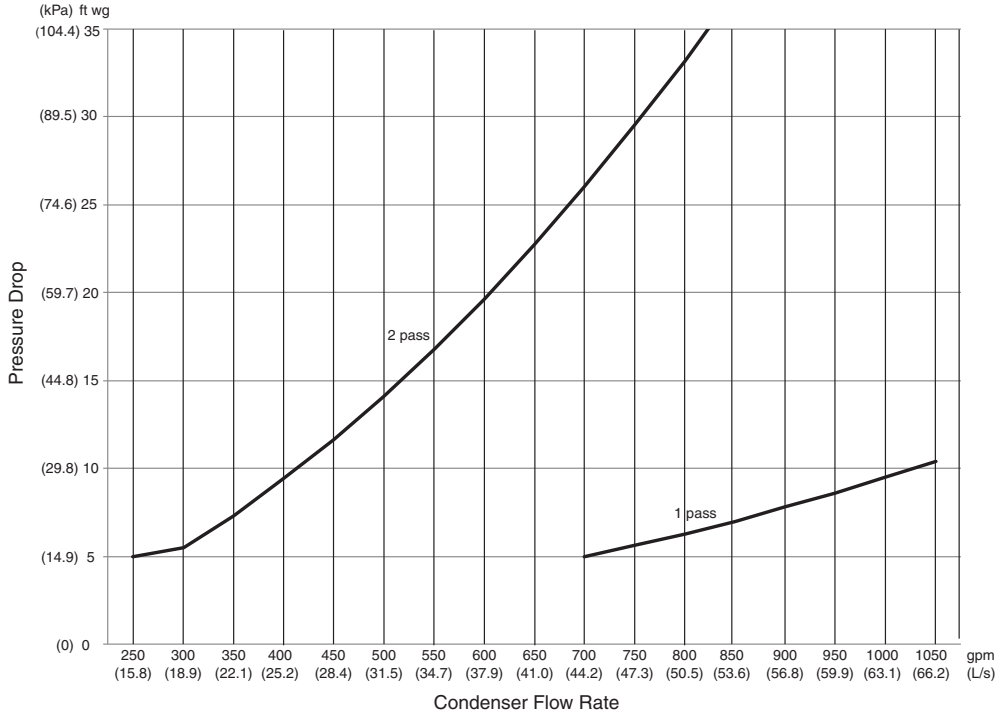


LEGEND

NIH — Nozzle-In-Head

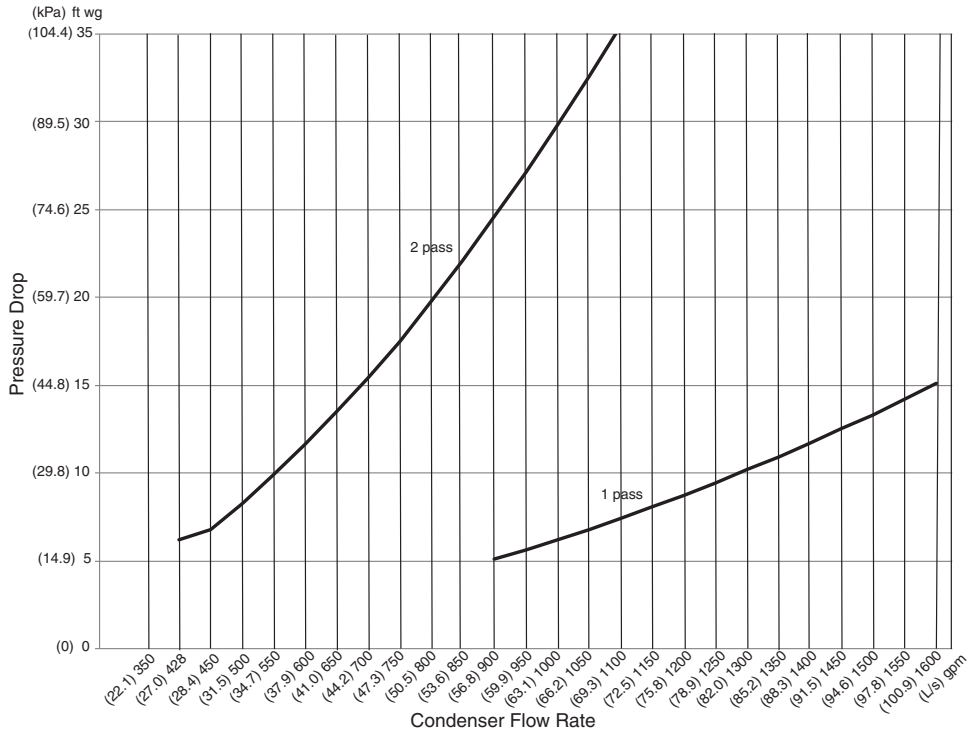
NOTE: The table above represents pressure drops only. The table does not imply that the chiller can be properly applied over the entire range of evaporator water flow rates represented.

Fig. 35 — 30XW325-400 Evaporator NIH Victaulic



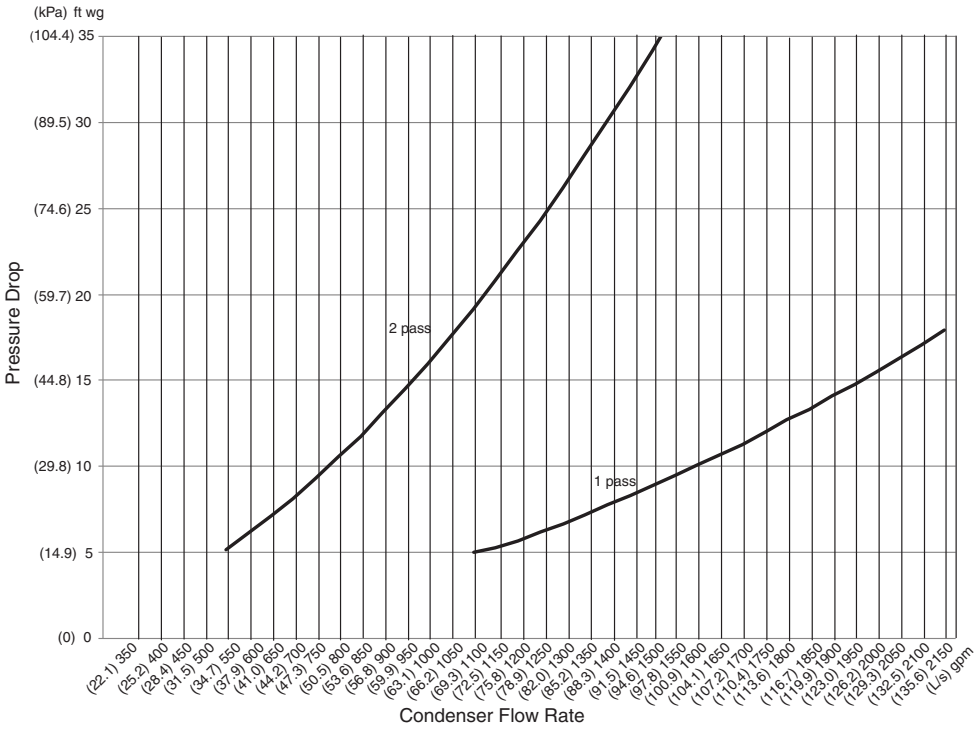
NOTE: The table above represents pressure drops only. The table does not imply that the chiller can be properly applied over the entire range of condenser water flow rates represented.

Fig. 36 — 30XW150-200 Condenser Marine Waterbox



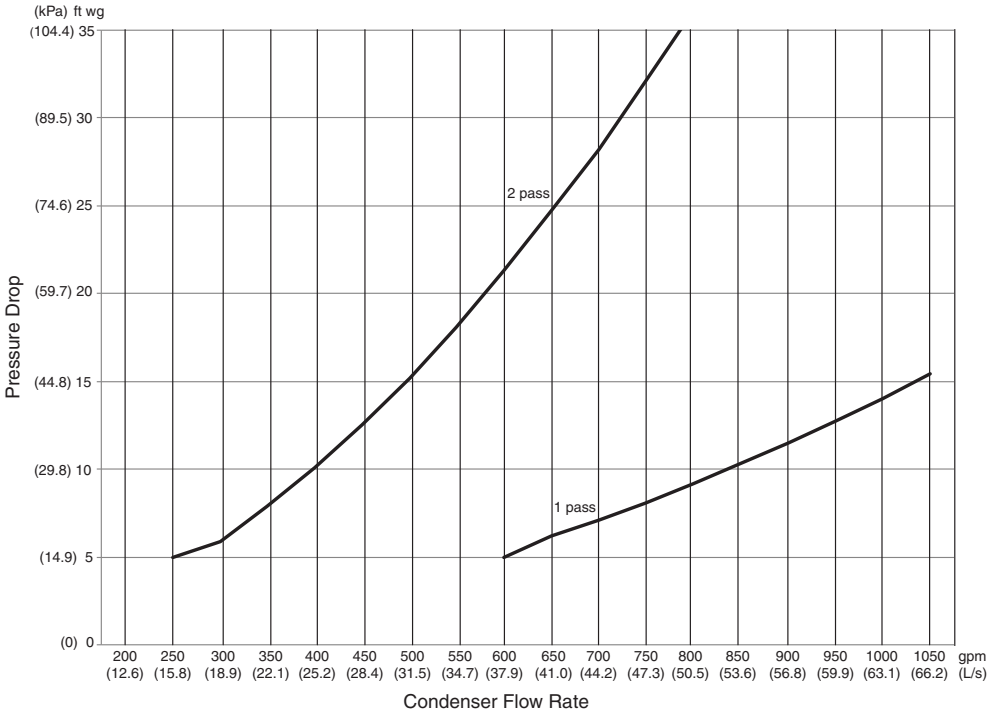
NOTE: The table above represents pressure drops only. The table does not imply that the chiller can be properly applied over the entire range of condenser water flow rates represented.

Fig. 37 — 30XW225-300 Condenser Marine Waterbox



NOTE: The table above represents pressure drops only. The table does not imply that the chiller can be properly applied over the entire range of condenser water flow rates represented.

Fig. 38 — 30XW325-400 Condenser Marine Waterbox

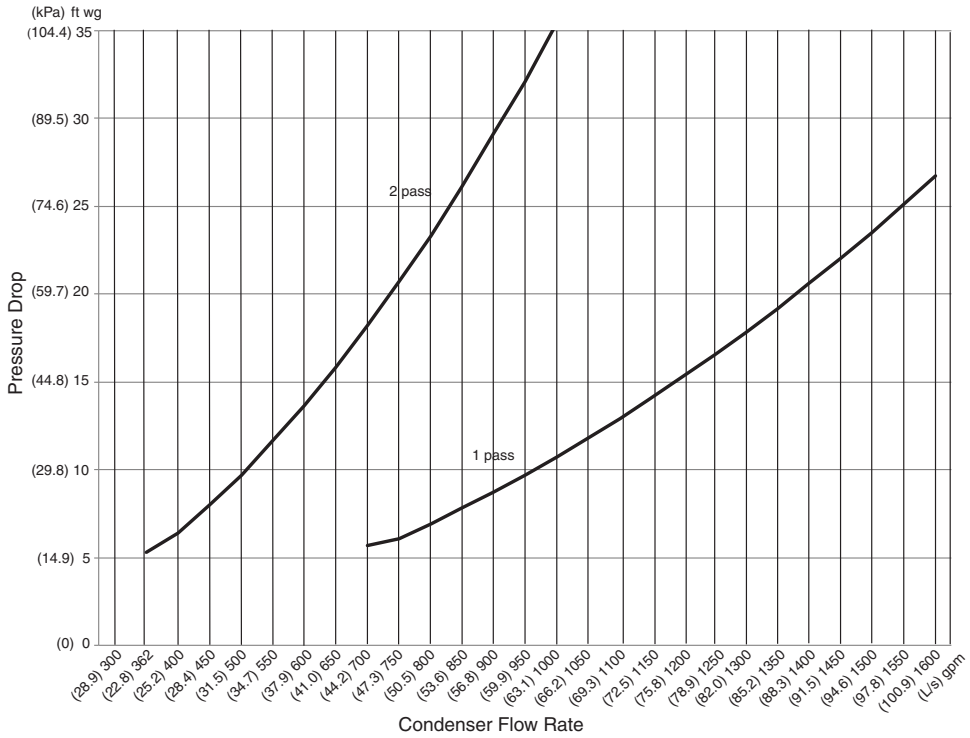


LEGEND

NIH — Nozzle-In-Head

NOTE: The table above represents pressure drops only. The table does not imply that the chiller can be properly applied over the entire range of condenser water flow rates represented.

Fig. 39 — 30XW150-200 Condenser NIH Flange

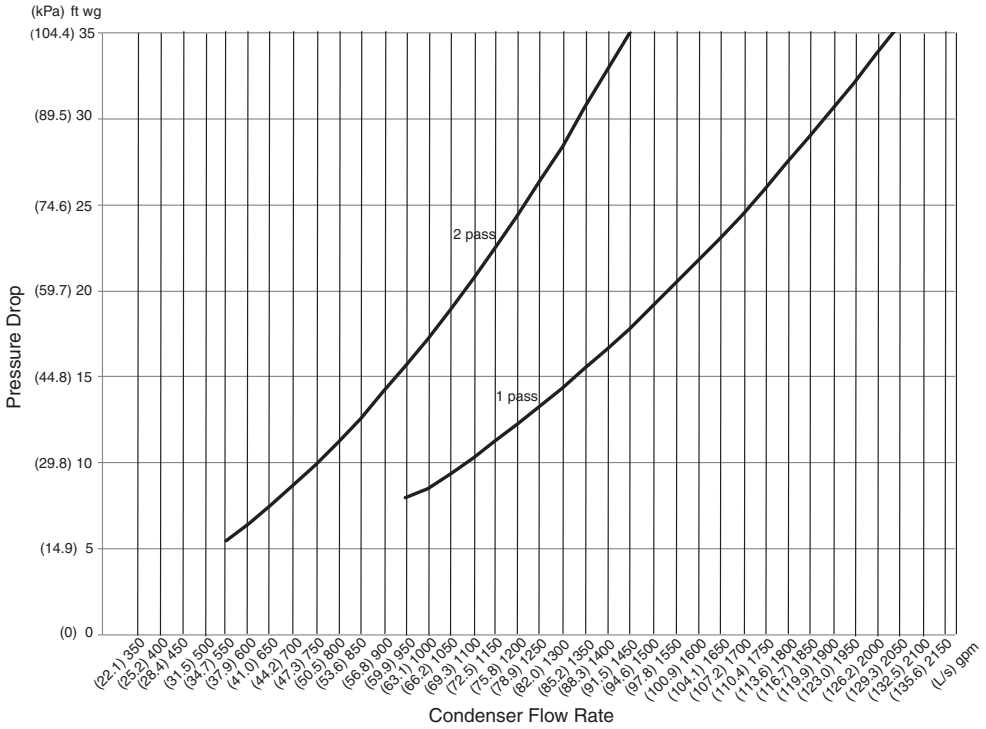


LEGEND

NIH — Nozzle-In-Head

NOTE: The table above represents pressure drops only. The table does not imply that the chiller can be properly applied over the entire range of condenser water flow rates represented.

Fig. 40 — 30XW225-300 Condenser NIH Flange

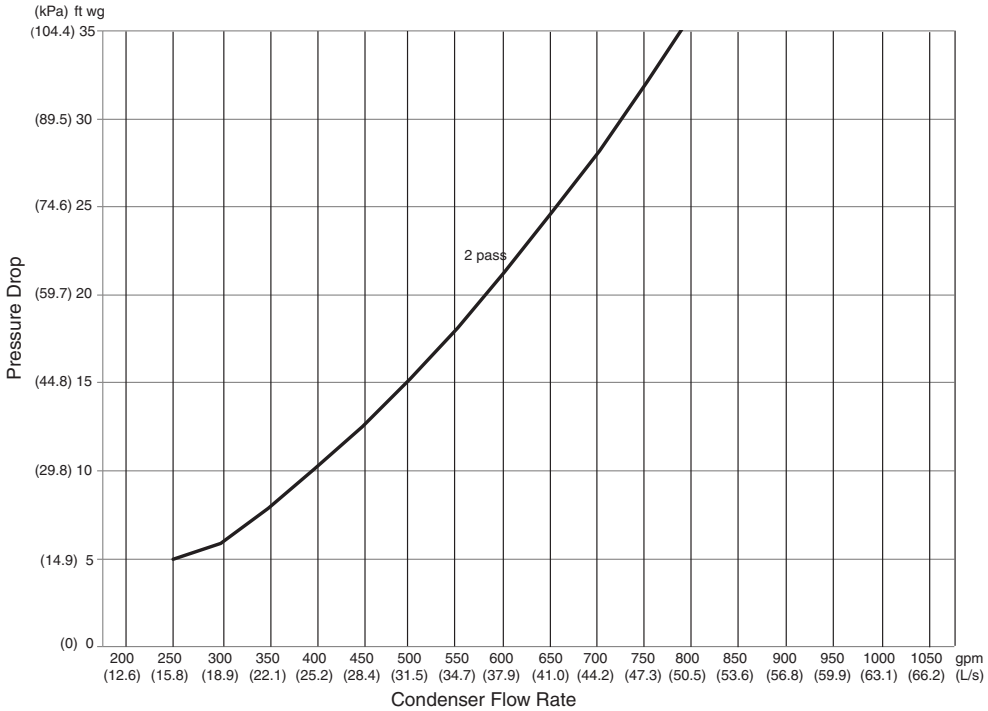


LEGEND

NIH — Nozzle-In-Head

NOTE: The table above represents pressure drops only. The table does not imply that the chiller can be properly applied over the entire range of condenser water flow rates represented.

Fig. 41 — 30XW325-400 Condenser NIH Flange

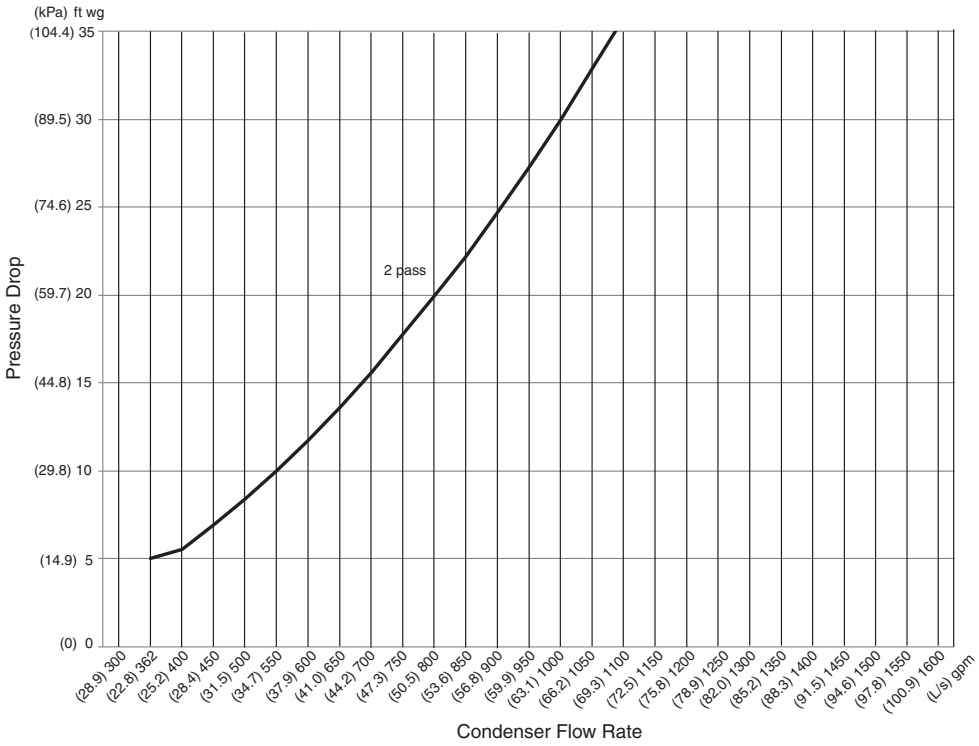


LEGEND

NIH — Nozzle-In-Head

NOTE: The table above represents pressure drops only. The table does not imply that the chiller can be properly applied over the entire range of condenser water flow rates represented.

Fig. 42 — 30XW150-200 Condenser NIH Victaulic

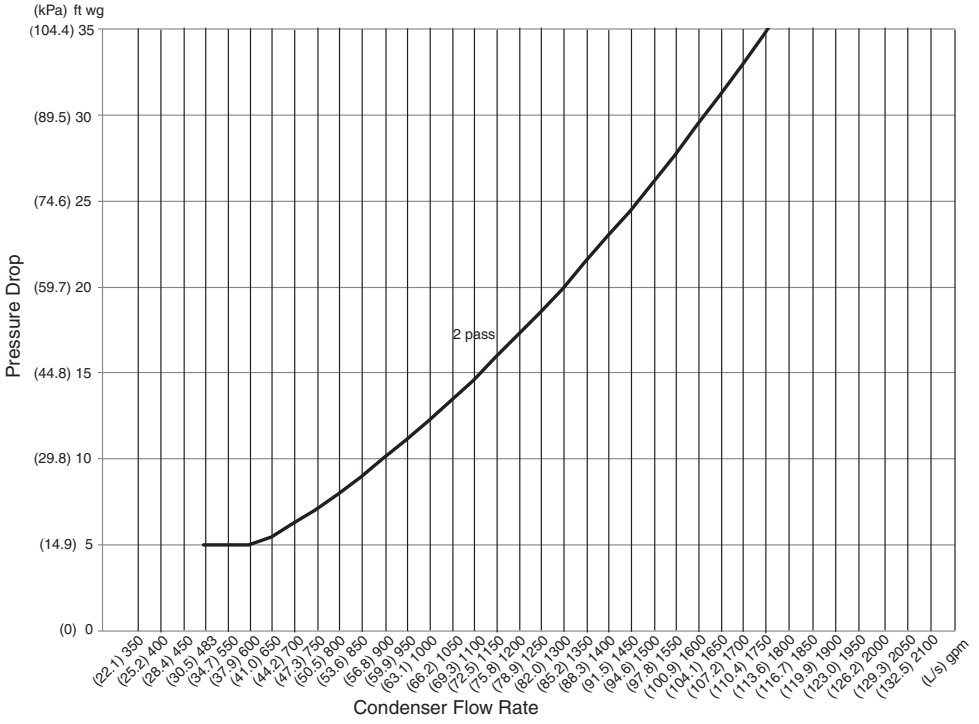


LEGEND

NIH — Nozzle-In-Head

NOTE: The table above represents pressure drops only. The table does not imply that the chiller can be properly applied over the entire range of condenser water flow rates represented.

Fig. 43 — 30XW225-300 Condenser NIH Victaulic



LEGEND

NIH — Nozzle-In-Head

NOTE: The table above represents pressure drops only. The table does not imply that the chiller can be properly applied over the entire range of condenser water flow rates represented.

Fig. 44 — 30XW325-400 Condenser NIH Victaulic

OPERATION

Sequence of Operation

With a command to start the chiller, the cooler and condenser pumps will start. After verifying water flow, the control will monitor the entering and leaving water temperatures. If the need for mechanical cooling is determined, the control decides which circuit and compressor to start. The control will start the required compressor completely unloaded. The control will continue to load this circuit by moving the slide valve to satisfy cooling requirements. Once fully loaded, the control will start an additional circuit (sizes 325-400 only) to satisfy the load as required.

For those chillers configured for heat machine duty, the control will load compressors to satisfy the required heating set point provided there is a cooling load.

Shutdown of each circuit under normal conditions occurs in the opposite sequence to loading. Once the circuit is fully unloaded the compressor is shut off and the EXV will close completely.

Dual Chiller Sequence of Operation

With a command to start the chiller, the master chiller determines which chiller will become the lead chiller based on the configuration of **Lead Lag Select, *LLBL*** and **Lead/Lag Balance Delta, *LLBD***. The lead chiller is always started first and the lag chiller is held at zero percent capacity by the master chiller forcing the lag demand limit value to 0%. If Lead Pulldown Time (**Lead Pulldown Time, *LPUL***) has been configured, the lead chiller will continue to operate alone for that specified time. After the Lead Pulldown Time timer has elapsed and when the lead chiller is fully loaded, either all available compression is on or at the master demand limit value, then the lag start timer (**Lag Start Timer, *LLDY***) is initiated. When the pulldown timer and lag start timer has elapsed and the Combined Leaving Chilled Water Temperature is more than 3°F (1.7°C) above the set point, then the lag chiller is started. If the lag chiller's water pump was not started when the machines went into occupied mode, the lag chiller water pump will be started. The lag chiller will start with the master chiller forcing the lag chiller demand limit value (LAG_LIM) to the master's demand limit value. When the load reduces, the lag chiller will be the first chiller to unload. To accomplish this, the lead chiller set point is decreased by 4°F (2.2°C) until the lag chiller unloads.

PUMP OPERATION

For parallel chiller pump operation, the lead chiller's water pump will be started. The lag chiller's water pump will be maintained off if **Lag Unit Pump Control, *LAGP*=0**. The internal algorithm of lead chiller will control capacity of the lead chiller.

For series chiller operation, the pump is always controlled by the master chiller.

Operating Modes

Operating modes are override modes that affect normal operation of the equipment. More than one operating mode can be in effect at the same time. Some operating modes have corresponding capacity control overrides in the Capacity Control Overrides section on page 48.

For the Touch Pilot display, the status of the operating modes can be found in the **MODES** sub-menu, which is under the **STATUS** menu. Each operating mode and its status (Yes = active, No = inactive) is listed.

For the Navigator™ display, the status of the operating modes can be found in the ***MODE*** sub-menu under the ***OPERATING MODES*** menu. The 6 top priority operating modes are displayed in ***MD01*** through ***MD06***. To view the modes with the Navigator™ display:

ITEM	ITEM EXPANSION	PATH	VALUE
MD01	First Active Mode	***Operating modes→MODE***	0-32
MD02	Second Active Mode	***Operating modes→MODE***	0-32
MD03	Third Active Mode	***Operating modes→MODE***	0-32
MD04	Fourth Active Mode	***Operating modes→MODE***	0-32
MD05	Fifth Active Mode	***Operating modes→MODE***	0-32
MD06	Sixth Active Mode	***Operating modes→MODE***	0-32

See Table 41 for a list of operating modes.

STARTUP DELAY IN EFFECT

This mode is checked for when the unit is started. This mode is active when the Minutes Off Time (**Unit Off to On Delay, *DELY***) timer is active. The unit will not start until the timer has expired. The mode will terminate when the timer expires.

SECOND SET POINT IN USE

This mode is checked for when the unit is ON. The mode is active when Cooling Set Point 2 (**Cooling Set Point 2, *CSP.2***) or Ice Set Point (**Cooling Ice Set Point, *CSP.3***) is in use. While in this mode, the Active Set Point (**Current Set Point, *SETP***) will show the ***CSP.2*** or ***CSP.3*** value.

While in this mode, the unit will operate to the Cooling Set Point 2 (***CSP.2***) or Ice Set Point (***CSP.3***). The mode will terminate when the Cooling Set Point 2 (***CSP.2***) or Ice Set Point (***CSP.3***) is no longer in use.

RESET IN EFFECT

This mode is checked for when the unit is ON. The mode will be active when Temperature Reset (**Cooling Reset Select, *CRST***) is enabled either by ***CRST*=1** (Outside Air Temperature), ***CRST*=2** (Return Water), ***CRST*=3** (4-20 mA Input), or ***CRST*=4** (Space Temperature) and reset is active.

While in this mode, the Active Set Point (**Current Set Point, *SETP***) will be modified according to the programmed information and will be displayed as the Control Point (**Control Point, *CTPT***). The mode will terminate when the Temperature Reset is not modifying the active leaving water set point, causing ***SETP*** to be the same as ***CTPT***.

DEMAND LIMIT ACTIVE

This mode is checked for when the unit is ON. The mode is active when Demand Limit (**Demand Limit Type Select, *DMDC***) is enabled either by ***DMDC*=1** (Switch), ***DMDC*=2** (4-20 mA Input), or the Night Time Low Sound Capacity Limit (**Capacity Limit, *LS.LT***).

The Active Demand Limit Value (**Active Demand Limit Val, *LIM***) will display the current demand limit according to the programmed information and the unit's capacity will be reduced to the amount shown or lower. The mode will terminate when the Demand Limit command has been removed.

RAMP LOADING ACTIVE

This mode is checked for when the unit is ON. The mode is active when Ramp Loading (**Ramp Loading Select, *RL.S***) is enabled and the following conditions are met:

1. The leaving water temperature is more than 4°F (2.2°C) from the Control Point (**Control Point, *CTPT***), and
2. The rate of change of the leaving water temperature is greater than the Cool Ramp Loading (**Cooling Ramp Loading, *CRMP***).

The control will limit the percent capacity increase until one of the two conditions above are no longer met, then the mode will terminate.

Table 41 — 30XW Operating Modes

NAVIGATOR OPERATING MODE NUMBER	NAVIGATOR EXPANSION	TOUCH PILOT DISCRIPTION	TOUCH PILOT LINE NUMBER	TOUCH PILOT VALUE
01	Startup Delay in Effect	Startup Delay in Effect	2	Yes/No
02	Second Set Point in Use	Second Set Point in Use	3	Yes/No
03	Reset in Effect	Reset in Effect	4	Yes/No
04	Demand Limit Active	Demand Limit Active	5	Yes/No
05	Ramp Loading Active	Ramp Loading Active	6	Yes/No
06	Cooler Heater Active*	Cooler Heater Active	7	Yes/No
07	Cooler Pumps Rotation	Cooler Pumps Rotation	8	Yes/No
08	Pump Periodic Start	Pump Periodic Start	9	Yes/No
10	System Manager Active	System Manager Active	11	Yes/No
11	Mast Slave Ctrl Active	Mast Slave Active	12	Yes/No
12	Auto Changeover Active	Auto Changeover Active	13	Yes/No
13	Free Cooling Active	Free Cooling Active	14	Yes/No
14	Reclaim Active	Reclaim Active	15	Yes/No
15	Electric Heat Active	Electric Heat Active	16	Yes/No
16	Heating Low EWT Lockout	Heating Low EWT Lockout	17	Yes/No
17	Condenser Pumps Rotation	Condenser Pumps Rotation	18	Yes/No
18	Ice Mode in Effect	Ice Mode in Effect	19	Yes/No
19	Defrost Active on Cir A	Defrost Active on Cir A	20	Yes/No
20	Defrost Active on Cir B	Defrost Active on Cir B	21	Yes/No
21	Low Suction Circuit A	Low Suction Circuit A	22	Yes/No
22	Low Suction Circuit B	Low Suction Circuit B	23	Yes/No
24	High DGT Circuit A	High DGT Circuit A	25	Yes/No
25	High DGT Circuit B	High DGT Circuit B	26	Yes/No
27	High Pres Override Cir A	High Pres Override Cir A	28	Yes/No
28	High Pres Override Cir B	High Pres Override Cir B	29	Yes/No
30	Low Superheat Circuit A	Low Superheat Circuit A	31	Yes/No
31	Low Superheat Circuit B	Low Superheat Circuit B	32	Yes/No

* Not applicable.

COOLER PUMPS ROTATION

This mode is checked for whether the unit is ON or OFF. The mode is active when the Cooler Pump Sequence (**Cooler Pump Run Status, *PUMP*=2**) (2 Pumps Automatic Changeover) and the Pump Rotation Delta Timer (**Pump Auto Rotation Delay, *ROT.P***) have expired.

The control will switch the operation of the pumps. The lead pump will operate normally. The lag pump will be started, becoming the lead, and then the original lead pump will be shut down. This mode will terminate when the pump operation has been completed.

PUMP PERIODIC START

This mode is active when the cooler pump is started due to the Periodic Pump Start configuration (**Pump Sticking Protection, *PM.PS*=YES**). If the pump has not run that day, a pump will be started and will run for 2 seconds at 2:00 PM. If the machine is equipped with dual pumps, Pump no. 1 will run on even days (such as day 2, 4, 6 of the month). Pump no. 2 will run on odd days (such as day 1, 3, 5 of the month). The mode will terminate when the pump shuts down.

SYSTEM MANAGER ACTIVE

This mode is checked when the unit is ON or OFF. This mode is active if a System Manager such as Building Supervisor, Chillervisor System Manager, or another CCN device is controlling the machine.

When this mode is active, the machine will respond to the specific commands received from the System Manager. The mode will be terminated if the System Manager control is released.

MASTER SLAVE CONTROL ACTIVE

This mode is checked for if the machine is ON. This mode is active if Master Slave Control has been enabled. This occurs when two machines are programmed, one as the master (**Master/Slave Select, *MSSL=1*** [Master]) and the other as a slave (**Master/Slave Select, *MSSL=2*** [Slave]).

Both the master and slave machines will respond to the capacity control commands issued by the master controller. This may include control point changes and demand limit commands. This mode will terminate when Master Slave Control has been disabled.

AUTO CHANGEOVER ACTIVE

This mode is not supported.

FREE COOLING ACTIVE

This mode is not supported.

RECLAIM ACTIVE

This mode is not supported.

ELECTRIC HEAT ACTIVE

This mode is not supported.

HEATING LOW EWT LOCKOUT

This mode is not supported.

CONDENSER PUMPS ROTATION

This mode is checked for whether the unit is ON or OFF. The mode is active when the condenser pump sequence (**Condenser Pump Sequence, *HPUM* = Yes**) and the pump rotation delta timer (**Pump Auto Rotation Delay, *ROT.P***) have expired.

ICE MODE IN EFFECT

This mode is checked for when the unit is ON. This mode is active when Ice Set Point (**Cooling Ice Set Point, *CSP.3***) is in use. While in this mode, the Active Set Point (**Current Set Point, *SETP***) will show the **Cooling Ice Set Point, *CSP.3*** value and the unit will operate to the Ice Set Point (***CSP.3***). This mode will terminate when the Ice Set Point (***CSP.3***) is no longer in use.

DEFROST ACTIVE ON CIR A
DEFROST ACTIVE ON CIR B

These modes are not supported.

LOW SUCTION CIRCUIT A
LOW SUCTION CIRCUIT B

These modes are checked when the circuit is ON. The appropriate circuit mode will be active if one of the following conditions is true:

1. If the circuit's saturated suction temperature (SST/LOSP) is more than 6°F (3.3°C) less than the freeze point and both the cooler approach (Leaving Water Temperature – SST) and superheat (Suction Gas Temperature – SST) are greater than 15°F (8.3°C).
2. If the circuit is ON and the circuit's SST is more than 18ºF (10.0ºC) below the freeze point (***LOSP***) for more than 90 seconds.
3. If the circuit's saturated suction temperature is more than 6°F (3.3°C) below the freeze point (***LOSP***) for more than 3 minutes.

For a fresh water system (**Cooler Fluid Type, *FLUD* =1**), the freeze point is 34°F (1.1°C). For medium temperature brine systems, (**Cooler Fluid Type, *FLUD*=2**), the freeze point is Brine Freeze Set Point (**Brine Freeze Set Point, *LOSP***).

For criterion 1, no additional capacity will be added. For criteria 2 and 3 capacity will be decreased on the circuit. The mode will terminate when the circuit's SST is greater than the freeze point minus 6°F (3.3°C) or the circuit has alarmed.

If this condition is encountered, see Possible Causes for Alarms 56 and 57 on page 92.

HIGH DGT CIRCUIT A
HIGH DGT CIRCUIT B

The capacity of the affected circuit may be increased to reduce circuit discharge gas temperature.

HIGH PRES OVERRIDE CIR A
HIGH PRES OVERRIDE CIR B

This mode is checked for when the circuit is ON. The appropriate circuit mode will be active if the discharge pressure for the circuit, Discharge Pressure Circuit A (**Discharge Pressure, *DP.A***), Discharge Pressure Circuit B (**Discharge Pressure, *DP.B***), or Discharge Pressure Circuit C (**Discharge Pressure, *DP.C***), is greater than the High Pressure Threshold (**High Pressure Threshold, *HP.TH***).

The capacity of the affected circuit will be reduced. Two minutes following the capacity reduction, the circuit's saturated condensing temperature (SCT_{t+2}) is calculated and stored. The affected circuit will not be allowed to add capacity for at least 5 minutes following the capacity reduction. If after 5 minutes, the circuit's saturated condensing temperature is less than SCT_{t+2} –3°F (1.7°C), and then if required, percent capacity will be added. If additional capacity is required, the control will look for other circuits to add capacity.

This mode will terminate once the circuit's saturated condensing temperature is less than SCT_{t+2} –3°F (1.7°C).

If this condition is encountered, see Possible Causes for Alarm A1.03 on page 99.

LOW SUPERHEAT CIRCUIT A
LOW SUPERHEAT CIRCUIT B

This mode is checked for when the circuit is ON. The appropriate circuit mode will be active if the circuit's superheat (discharge gas temperature – SCT) is less than 18°F (10°C).

No additional capacity will be added until the circuit's superheat is greater than 18°F (10°C). The control will look for other circuits to add capacity if additional steps of capacity are required. This mode will terminate once the affected circuit's superheat is greater than 18°F (10°C).

If this condition is encountered, see Possible Causes for Alarms P.11 and P.12 on page 93.

Sensors

The electronic control uses up to 13 thermistors to sense temperatures and up to 8 transducers to sense pressure for controlling chiller operation. These sensors are outlined below. See Fig. 45 for thermistor and transducer locations.

THERMISTORS (TABLES 42-44)

Thermistors that are monitoring the chiller's operation include: cooler entering water, cooler leaving water, condenser entering water, condenser leaving water, dual chiller leaving water, compressor suction gas temperature, compressor discharge gas temperature, economizer temperature, and compressor motor temperature. These thermistors are 5000 Ω at 77°F (25°C) and are identical in temperature versus resistance. The space temperature thermistor is 10,000 Ω at 77°F (25°C) and has a different temperature vs. resistance. See Fig. 45 for thermistor locations.

Cooler Leaving Water Sensor

On all sizes, this thermistor is installed in a well in the leaving water nozzle of the cooler. See Fig. 46 and 47.

Cooler Entering Water Sensor

On all sizes, this thermistor is factory-installed in a well in the entering water nozzle of the cooler.

Condenser Leaving Water Sensor

On all sizes with heat machine options, this thermistor is installed in a well in the leaving water nozzle of the condenser. See Fig. 46 and 47.

Condenser Entering Water Sensor

On all sizes with heat machine options, this thermistor is factory-installed in a well in the entering water nozzle of the condenser.

Compressor Suction Gas Temperature

On all sizes, this thermistor is factory-installed in a well located on the compressor of each circuit. There is one thermistor for each circuit.

Compressor Discharge Gas Temperature

On all sizes, this thermistor is factory-installed in a well located in the discharge end of the compressor for the circuit. There is one thermistor for each circuit.

Economizer Temperature
(sizes 175, 200, 250, 275, 300, 350, 400 only)

On all sizes, this thermistor is factory-installed in a friction fit well located in the economizer line for the circuit. There is one thermistor for each circuit.

Compressor Motor Temperature

On all sizes, this thermistor is embedded in the motor windings. There are two thermistors in each compressor. One spare is provided.

Remote Space Temperature

This sensor (part no. 33ZCT55SPT) is a field-installed accessory mounted in the indoor space and is used for water temperature reset. The sensor should be installed as a wall-mounted thermostat would be (in the conditioned space where it will not be subjected to either a cooling or heating source or direct exposure to sunlight, and 4 to 5 ft above the floor).

Space temperature sensor wires are to be connected to terminals in the unit main control box. The space temperature sensor includes a terminal block (SEN) and a RJ11 female connector. The RJ11 connector is used to access the Carrier Comfort Network® (CCN) system at the sensor.

To connect the space temperature sensor (see Fig. 48):

1. Using a 20 AWG twisted pair conductor cable rated for the application, connect one wire of the twisted pair to one SEN terminal and connect the other wire to the other SEN terminal located under the cover of the space temperature sensor.
2. Connect the other ends of the wires to terminals 7 and 8 on TB6 located in the unit control box.

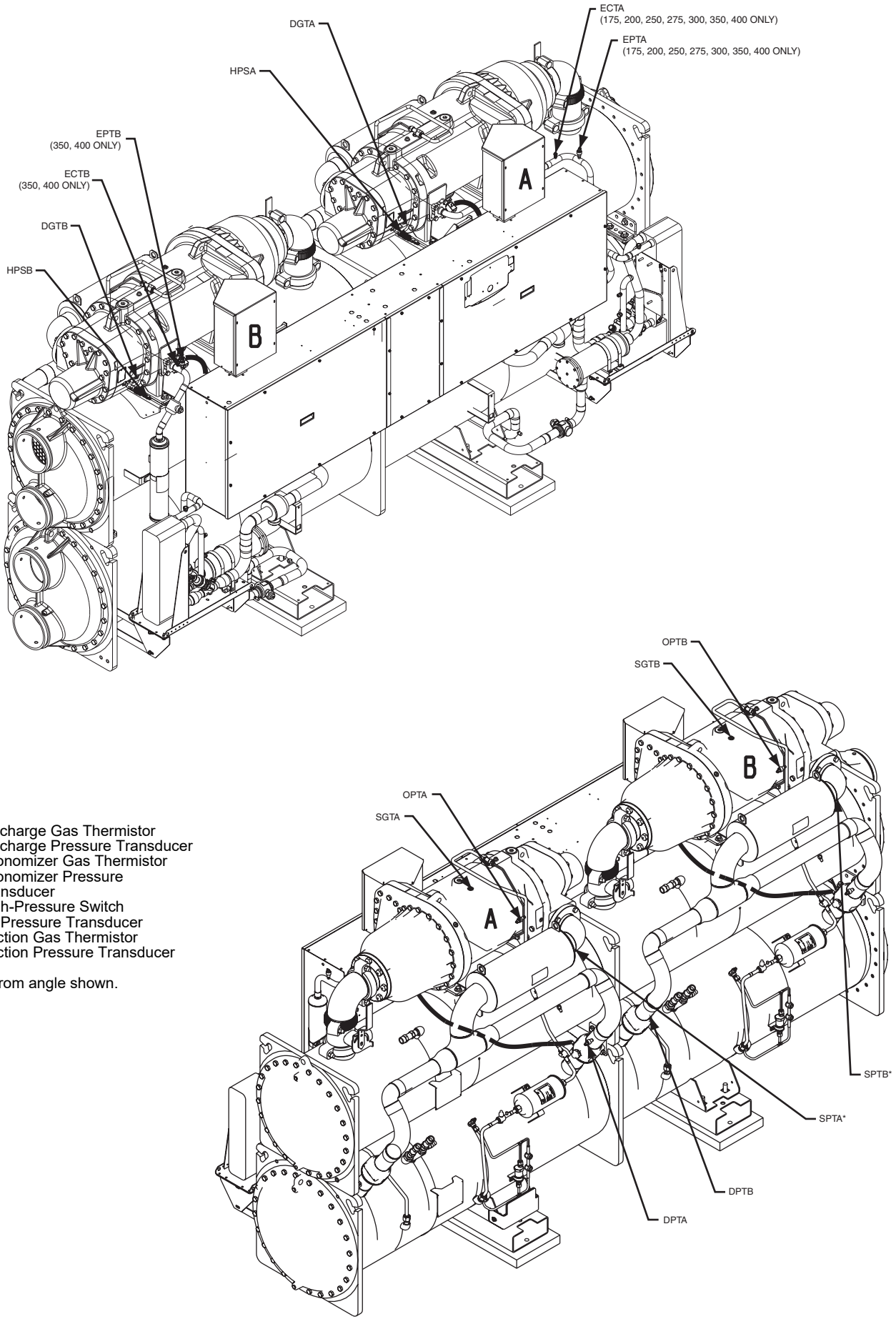
Units on the CCN can be monitored from the space at the sensor through the RJ11 connector, if desired. To wire the RJ11 connector into the CCN:

1. Cut the CCN wire and strip ends of the red (+), white (ground), and black (–) conductors. (If another wire color scheme is used, strip ends of appropriate wires.)
2. Insert and secure the red (+) wire to terminal 5 of the space temperature sensor terminal block.
3. Insert and secure the white (ground) wire to terminal 4 of the space temperature sensor.
4. Insert and secure the black (–) wire to terminal 2 of the space temperature sensor.

IMPORTANT: The cable selected for the RJ11 connector wiring MUST be identical to the CCN communication bus wire used for the entire network. Refer to Table 11 for acceptable wiring.

5. Connect the other end of the communication bus cable to the remainder of the CCN communication bus.

NOTE: The Energy Management Module (EMM) is required for this accessory.



LEGEND

DGT — Discharge Gas Thermistor
DPT — Discharge Pressure Transducer
ECT — Economizer Gas Thermistor
EPT — Economizer Pressure Transducer
HPS — High-Pressure Switch
OPT — Oil Pressure Transducer
SGT — Suction Gas Thermistor
SPT — Suction Pressure Transducer

*Not visible from angle shown.

Fig. 45 — Thermistor and Transducer Locations

TRANSDUCERS

There are four pressure transducers per circuit (3 per circuit for sizes 150 and 325), and two different types of transducers: low pressure (green connector) and high pressure (black connector). See Fig. 45 for transducer locations.

Low-pressure type:

- Suction pressure transducer (SPT)
- Economizer pressure transducer (EPT)

High-pressure type:

- Discharge pressure transducer (DPT)
- Oil pressure transducer (OPT)

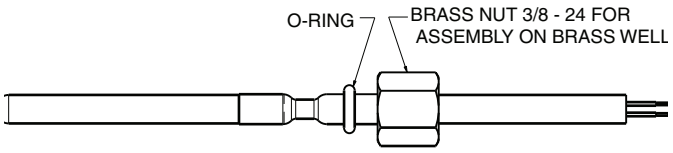


Fig. 46 — 5K Thermistor (30RB660036 Thermistor Kit)

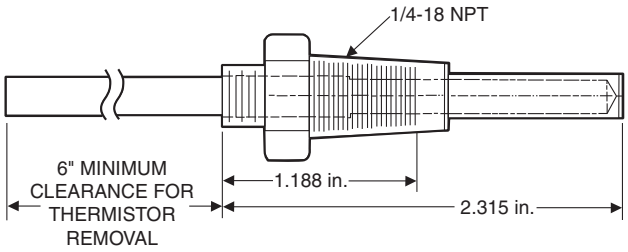


Fig. 47 — Dual Leaving Water Thermistor Well (00PPG000008000A)

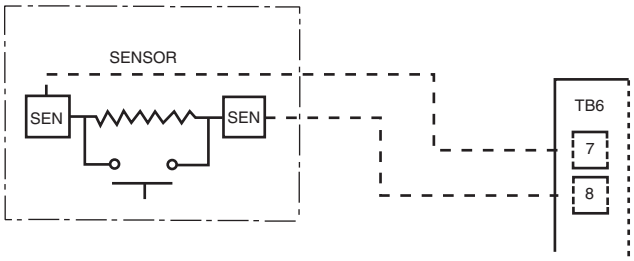


Fig. 48 — Typical Remote Space Temperature Sensor (33ZCT55SPT) Wiring

Table 42 — Thermistor Identification

THERMISTOR ID	DESCRIPTION	RESISTANCE AT 77 °F (25 °C)	CONNECTION POINT
EWT	Evaporator Entering Water Thermistor	5k Ω	MBB-J6-CH2
LWT	Evaporator Leaving Water Thermistor	5k Ω	MBB-J6-CH1
CEWT	Condenser Entering Water Thermistor	5k Ω	MBB-J6-CH4
CLWT	Condenser Leaving Water Thermistor	5k Ω	MBB-J6-CH5
SGTA*	Circuit A Suction Gas Thermistor	5k Ω	EXV1-J3-THA
SGTB*	Circuit B Suction Gas Thermistor	5k Ω	EXV2-J3-THA
DGTA	Circuit A Discharge Gas Thermistor	5k Ω	CPM-A-J9-CH02
DGTB	Circuit B Discharge Gas Thermistor	5k Ω	CPM-B-J9-CH02
ECTA	Circuit A Economizer Thermistor	5k Ω	EXV1-J3-THB
ECTB	Circuit B Economizer Thermistor	5k Ω	EXV2-J3-THB
DUAL	Dual Chiller LWT Thermistor	5k Ω	MBB-J6-CH3
CAMT	Circuit A Motor Temperature	5k Ω	CPM-A-J9-CH01
CBMT	Circuit B Motor Temperature	5k Ω	CPM-B-J9-CH01
SPT	Space Temperature Thermistor	10k Ω	EMM-J6-CH2

* SGTA and SGTB for 30XW150-325, 375 units are connected to the EXV1 board.

Table 43 — 5K Thermistor Temperature (°F) vs Resistance

TEMP (F)	RESISTANCE (OHMS)
–25	98,010
–24	94,707
–23	91,522
–22	88,449
–21	85,486
–20	82,627
–19	79,871
–18	77,212
–17	74,648
–16	72,175
–15	69,790
–14	67,490
–13	65,272
–12	63,133
–11	61,070
–10	59,081
–9	57,162
–8	55,311
–7	53,526
–6	51,804
–5	50,143
–4	48,541
–3	46,996
–2	45,505
–1	44,066
0	42,679
1	41,339
2	40,047
3	38,800
4	37,596
5	36,435
6	35,313
7	34,231
8	33,185
9	32,176
10	31,202
11	30,260
12	29,351
13	28,473
14	27,624
15	26,804
16	26,011
17	25,245
18	24,505
19	23,789
20	23,096
21	22,427
22	21,779
23	21,153
24	20,547
25	19,960
26	19,393
27	18,843
28	18,311
29	17,796
30	17,297
31	16,814
32	16,346
33	15,892
34	15,453
35	15,027
36	14,614
37	14,214
38	13,826
39	13,449
40	13,084
41	12,730
42	12,387
43	12,053
44	11,730
45	11,416
46	11,112
47	10,816
48	10,529
49	10,250
50	9,979
51	9,717
52	9,461
53	9,213
54	8,973
55	8,739
56	8,511
57	8,291
58	8,076
59	7,686
60	7,665
61	7,468
62	7,277
63	7,091
64	6,911
65	6,735
66	6,564
67	6,399
68	6,238
69	6,081
70	5,929
71	5,781
72	5,637
73	5,497
74	5,361
75	5,229
76	5,101
77	4,976
78	4,855
79	4,737
80	4,622
81	4,511
82	4,403
83	4,298
84	4,196
85	4,096
86	4,000
87	3,906
88	3,814
89	3,726
90	3,640
91	3,556
92	3,474
93	3,395
94	3,318
95	3,243
96	3,170
97	3,099
98	3,031
99	2,964
100	2,898
101	2,835
102	2,773
103	2,713
104	2,655
105	2,597
106	2,542
107	2,488
108	2,436
109	2,385
110	2,335
111	2,286
112	2,239
113	2,192
114	2,147
115	2,103
116	2,060
117	2,018
118	1,977
119	1,937
120	1,898
121	1,860
122	1,822
123	1,786
124	1,750
125	1,715
126	1,680
127	1,647
128	1,614
129	1,582
130	1,550
131	1,519
132	1,489
133	1,459
134	1,430
135	1,401
136	1,373
137	1,345
138	1,318
139	1,291
140	1,265
141	1,240
142	1,214
143	1,190
144	1,165
145	1,141
146	1,118
147	1,095
148	1,072
149	1,050
150	1,029
151	1,007
152	986
153	965
154	945
155	925
156	906
157	887
158	868
159	850
160	832
161	815
162	798
163	782
164	765
165	750
166	734
167	719
168	705
169	690
170	677
171	663
172	650
173	638
174	626
175	614
176	602
177	591
178	581
179	570
180	561
181	551
182	542
183	533
184	524
185	516
186	508
187	501
188	494
189	487
190	480
191	473
192	467
193	461
194	456
195	450
196	445
197	439
198	434
199	429
200	424
201	419
202	415
203	410
204	405
205	401
206	396
207	391
208	386
209	382
210	377
211	372
212	367
213	361
214	356
215	350
216	344
217	338
218	332
219	325
220	318
221	311
222	304
223	297
224	289
225	282

Table 44 — 5K Thermistor Temperature (°C) vs Resistance

TEMP (C)	RESISTANCE (OHMS)
–32	100,260
–31	94,165
–30	88,480
–29	83,170
–28	78,125
–27	73,580
–26	69,250
–25	65,205
–24	61,420
–23	57,875
–22	54,555
–21	51,450
–20	48,536
–19	45,807
–18	43,247
–17	40,845
–16	38,592
–15	38,476
–14	34,489
–13	32,621
–12	30,866
–11	29,216
–10	27,633
–9	26,202
–8	24,827
–7	23,532
–6	22,313
–5	21,163
–4	20,079
–3	19,058
–2	18,094
–1	17,184
0	16,325
1	15,515
2	14,749
3	14,026
4	13,342
5	12,696
6	12,085
7	11,506
8	10,959
9	10,441
10	9,949
11	9,485
12	9,044
13	8,627
14	8,231
15	7,855
16	7,499
17	7,161
18	6,840
19	6,536
20	6,246
21	5,971
22	5,710
23	5,461
24	5,225
25	5,000
26	4,786
27	4,583
28	4,389
29	4,204
30	4,028
31	3,861
32	3,701
33	3,549
34	3,404
35	3,266
36	3,134
37	3,008
38	2,888
39	2,773
40	2,663
41	2,559
42	2,459
43	2,363
44	2,272
45	2,184
46	2,101
47	2,021
48	1,944
49	1,871
50	1,801
51	1,734
52	1,670
53	1,609
54	1,550
55	1,493
56	1,439
57	1,387
58	1,337
59	1,290
60	1,244
61	1,200
62	1,158
63	1,118
64	1,079
65	1,041
66	1,006
67	971
68	938
69	906
70	876
71	836
72	805
73	775
74	747
75	719
76	693
77	669
78	645
79	623
80	602
81	583
82	564
83	547
84	531
85	516
86	502
87	489
88	477
89	466
90	456
91	446
92	436
93	427
94	419
95	410
96	402
97	393
98	385
99	376
100	367
101	357
102	346
103	335
104	324
105	312
106	299
107	285

SERVICE

Economizer Assembly

Each circuit on 30XW175,200,250,275,300,350,400 units has an economizer assembly. The 30XW150,185,225,260,325,375 units do not have an economizer and have one main electronic expansion valve. The 30XW150,185,225,260,325,375 units are controlled the same way as units with a separate economizer assembly. See Fig. 49.

Electronic Expansion Valve (EXV)

See Fig. 50 for a cutaway view of the EXV. High-pressure liquid refrigerant enters valve through the top. As refrigerant passes through the orifice, pressure drops and refrigerant changes to a 2-phase condition (liquid and vapor). The electronic expansion valve operates through an electronically controlled activation of a stepper motor. The stepper motor stays in position unless power pulses initiate the two discrete sets of motor stator windings for rotation in either direction. The direction depends on the phase relationship of the power pulses.

The motor directly operates the spindle, which has rotating movements that are transformed into linear motion by the transmission in the cage assembly. The valve cone is a V-port type which includes a positive shut-off when closed.

The large number of steps and long stroke results in very accurate control of the refrigerant flow. The stepper motor has either 4260 (main) or 2785 (economizer) steps.

LEGEND

EXV — Electronic Expansion Valve
1 — Fuse Plug Adaptor
2 — High Flow Access Fitting
3 — Filter Drier
4 — Main Expansion Valve
5 — Economizer Expansion Valve
6 — Brazed Plate Heat Exchanger

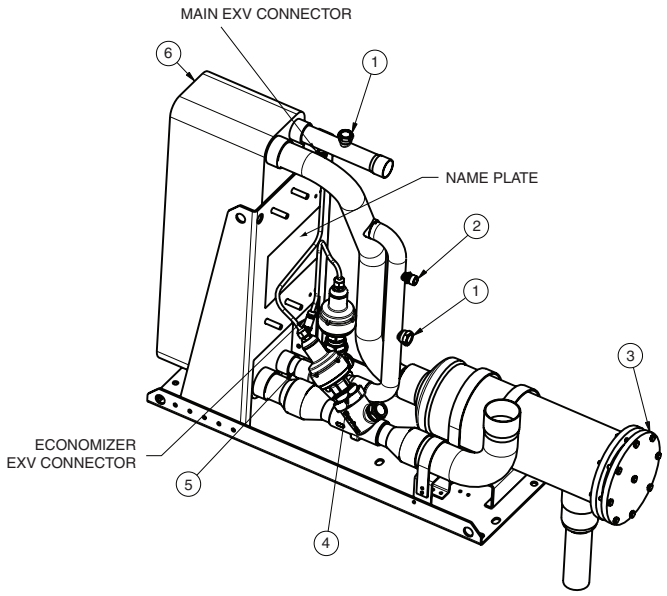
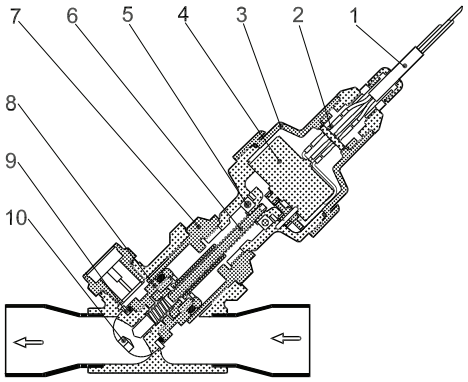


Fig. 49 — Economizer Assembly

1. Cable
2. Glass Seal
3. Motor Housing
4. Stepper Motor
5. Bearing
6. Lead Screw
7. Insert
8. Valve Piston
9. Valve Seat
10. Valve Port



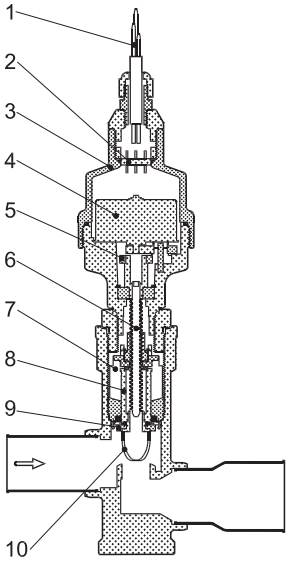


Fig. 50 — Cutaway Views of the Electronic Expansion Valve

MAIN EXV CONTROL

Each circuit has a thermistor located in a well in the discharge line of the compressor (DGT) and another one located in the compressor motor cavity (SGT). Each circuit also has discharge and suction pressure transducers. Discharge and suction pressure as measured by the transducers are converted to saturated temperatures.

The main control logic for the EXV uses discharge superheat to control the position of the EXV. The difference between the temperature of the discharge gas and the saturated discharge temperature is the superheat. The EXV module controls the position of the electronic expansion valve stepper motor to maintain the discharge superheat set point.

The EXV control logic has several overrides, which are also used to control the position of the EXV.

- Approach between SST and LWT
- Maximum Operating Pressure (MOP)

Approach

If the approach (pinch), which is the difference between leaving fluid temperature and saturated suction temperature, is equal to or less than the pinch set point then the EXV will not open any further even though discharge superheat set point is not met. Pinch set point is calculated using suction superheat, discharge superheat and pinch offset. Pinch offset is used to adjust calculated pinch set point due to accuracy of transducers and thermistors.

MOP

The EXV is also used to limit cooler saturated suction temperature to 62°F (16.7°C) for standard water-cooled units, and 55°F (12.8°C) for high condensing units. This makes it possible for the chiller to start at higher cooler fluid temperatures without overloading the compressor. This feature is commonly called MOP (maximum operating pressure). If the SST is equal to or greater

than the MOP set point then the MBB (main base board) will try to control the EXV position to maintain the MOP set point.

The discharge superheat leaving the compressor is maintained between approximately 18 and 25°F (10 and 14°C), or less. Because EXV status is communicated to the MBB and is controlled by the EXV modules, it is possible to track the valve position. The unit is then protected against loss of charge and a faulty valve. During initial start-up, the EXV is fully closed. After an initialization period, the EXV module tracks valve position by constantly monitoring the amount of valve movement.

ECONOMIZER EXV CONTROL

The economizer EXV is controlled by the circuit EXV board. An economizer gas temperature thermistor and economizer pressure transducer are located in the line, which runs from the economizer assembly to the compressor. The economizer pressure is converted to saturated temperature and is used to calculate economizer superheat. Economizer superheat equals economizer temperature minus saturated economizer temperature. The economizer EXV only operates during normal conditions when the capacity of the circuit is greater than 70%. Once the capacity of the circuit is greater than 70% the MBB will start controlling the economizer EXV to maintain economizer superheat set point, which is approximately 8 to 12°F (4.4 to 6.7°C). If the circuit capacity is less than 70%, the economizer EXV will be closed.

The economizer EXV has one override. If the discharge gas temperature exceeds 195°F (90.6°C) the economizer EXV will start to open. The EXV will be controlled to maintain discharge gas temperature at approximately 195°F (90.6°C).

If it appears that main EXV or economizer EXV is not properly controlling circuit operation to maintain correct superheat, a number of checks can be made using test functions and initialization features built into the microprocessor control. See the Service Test section to test EXVs.

EXV TROUBLESHOOTING PROCEDURE

There are two different economizer EXVs. Both of the economizer EXVs have a total of 2785 steps. There are three different main EXVs, which all have a total of 4260 steps. The EXV motor moves at 150 steps per second. Commanding the valve to either 0% or 100% will add an additional 160 steps to the move, to ensure the valve is open or closed completely.

⚠ CAUTION

Do not remove EXV cable from the EXV board with power applied to the board. Damage to the board may result.

Follow the steps below to diagnose and correct EXV problems. Check EXV motor operation first. Switch the Enable/Off/Remote (EOR) Contact switch to the Off position. Check the appropriate circuit EXV, Circuit A EXV % Open (**Circuit A EXV Position, *EXV.A***) or Circuit B EXV % Open (**Circuit B EXV Position, *EXV.B***). The current value of **0** will be displayed. Increase the EXV position to select 100% valve position. The actuator should be felt moving through the EXV. To close the valve, select 0%. The actuator should knock when it reaches the bottom of its stroke. See Table 45 for a list of EXV modes and submodes.

If the valve is not working properly, continue with the following test procedure:

Check the 8-position DIP switch on the board for the proper address (Fig. 10). Check the EXV output signals at appropriate terminals on the EXV module. For 30XW150,185,225,260, 325,375 units, connect the positive test lead to EXV-J2A terminal 5 for Circuit A and to EXV-J2B terminal 5 for Circuit B.

For 30XW175,200,250,275,300,350,400 units, connect positive test lead to EXV(X)-J2A terminal 5 for EXV(X) and EXV(X)-J2B terminal 5 for Economizer EXV(X). Using the Service Test procedure on page 101, move the valve output under test to 100%. DO NOT short meter leads together or pin 5 to any other pin, as board damage will occur. During the next several seconds, carefully connect the negative test lead to pins 1,2,3 and 4 in succession. Digital voltmeters will average this signal and display approximately 6 vdc. If the output remains at a constant voltage other than 6 vdc or shows 0 volts, remove the connector to the valve and recheck.

Select 0% to close the valve.

NOTE: When the valve is stationary, the output from the EXV board is 12-vdc.

See Tables 6 and 7 on page 15. If a problem still exists, replace the EXV board. If the reading is correct, the expansion valve and EXV wiring should be checked. Check the EXV connector and interconnecting wiring.

1. Check color-coding and wire connections. Make sure they are connected to the correct terminals at the EXV board and EXV plug and that the cables are not crossed.
2. Check for continuity and tight connection at all pin terminals.

Check the resistance of the EXV motor windings. For 30XW150,185,225,260,325,375 units remove the EXV module plug EXV-J2A for Circuit A EXV and EXV-J2B for Circuit B EXV. For 30XW175,200,250,275,300,350,400 units remove the EXV module plug EXV(X)-J2A for main EXV and EXV(X)-J2B for economizer EXV. Check the resistance of the two windings between pins 1 and 3 for one winding and pins 2 and 4 for the other winding. The resistance should be 52 ohms (± 5.2 ohms). Also check pins 1-4 for any shorts to ground.

Table 45 — EXV Modes and Submodes

EXV TYPE AND CIRCUIT	TOUCH PILOT™ PATH	NAVIGATOR™ PATH
EXV, Circuit A	***Main Menu\Status\QCK_TST1\Q_EXVA***	***Service Test Mode→QUIC→EXV.A***
EXV, Circuit B	***Main Menu\Status\QCK_TST1\Q_EXVB***	***Service Test Mode→QUIC→EXV.B***
Economizer EXV, Circuit A	***Main Menu\Status\QCK_TST1\Q_ECO_A***	***Service Test Mode→QUIC→ECO.A***
Economizer EXV, Circuit B	***Main Menu\Status\QCK_TST1\Q_ECO_B***	***Service Test Mode→QUIC→ECO.B***

INSPECTING/OPENING ELECTRONIC EXPANSION VALVES

IMPORTANT: Obtain replacement gaskets before opening EXV. Do not re-use gaskets.

To check the physical operation of an EXV, the following steps must be performed.

1. Close the liquid line service valve of the circuit to be checked. Put the Enable/Off/Remote Contact (EOR) switch in the Off position. Enter the Service Test mode and change **Service Test Enable, *T.REQ*** from **OFF** to **ON**. A password may be required. Switch the EOR switch to the Enable position. Under the COMP sub-mode, enable one of the compressors (***CP.xn***) for the circuit. Let compressor run until gage on suction pressure port reads 10 psig (68.9 kPa). Turn the compressor off. The compressor will turn off. Immediately after the compressor shuts off, manually close the discharge ball valves. If the unit is equipped with suction service valves and economizer service valves, close both valves. Closing the valves will minimize the amount of charge that will have to be removed from the system after pump down.
2. Remove any remaining refrigerant from the system low side using proper recovering techniques. The economizer assembly has a 1/4-in. access connection which can be used to remove charge from the inlet of the EXVs. Turn off the line voltage power supply to the compressors.

⚠ CAUTION

Ensure refrigerant is removed from both the inlet and outlet of EXV assemblies. Equipment damage could result.

3. The expansion valve motor is hermetically sealed inside the top portion of the valve. See Fig. 50. Disconnect the EXV plug. Carefully unscrew the motor portion from the body of the valve. The EXV operator will come out with the motor portion of the device. Reconnect the EXV plug.
4. Enter the appropriate EXV test step under the (***QUIC***) Service Test mode Locate the desired item **Circuit A EXV Position, *EXV.A*** or **Circuit B EXV Position, *EXV.B***. Change the position to 100%. Observe the operation of the lead screw. See Fig. 50. The motor should be turning, raising the operator closer to the motor. Motor actuator movement should be smooth and uniform from fully closed to fully open position. Select 0% and check open to closed operation. If the valve is properly connected to the processor and receiving correct signals, yet does not operate as described above, the sealed motor portion of the valve should be replaced.

Installing EXV Motor

IMPORTANT: Obtain replacement gaskets before opening EXV. Do not re-use gaskets.

If re-installing the motor, be sure to use a new gasket in the assembly. See Fig. 51. It is easier to install the motor assembly with the piston in the fully closed position. Insert the motor into the body of the EXV. Tighten the motor to the body to 36 ft-lb (50 N-m) and then tighten the valve another 30 degrees.

Moisture Liquid Indicator

Clear flow of liquid refrigerant indicates sufficient charge in system. Bubbles in the sight glass indicate undercharged system or presence of non-condensables. Moisture in system, measured in parts per million (ppm), changes color of indicator. See Table 46. Change filter drier at first sign of moisture in system.

IMPORTANT: Unit must be in operation at least 12 hours before moisture indicator can give an accurate reading.

With unit running, indicating element must be in contact with liquid refrigerant to give true reading.

Table 46 — Color Indicators When Moisture is Present in Refrigerant

COLOR INDICATOR	R-134a, 75°F (24°C) (ppm)	R-134a, 125°F (52°C) (ppm)
Green — Dry	<30	<45
Yellow-green — Caution	30-100	45-170
Yellow — Wet	>100	>170

Filter Drier

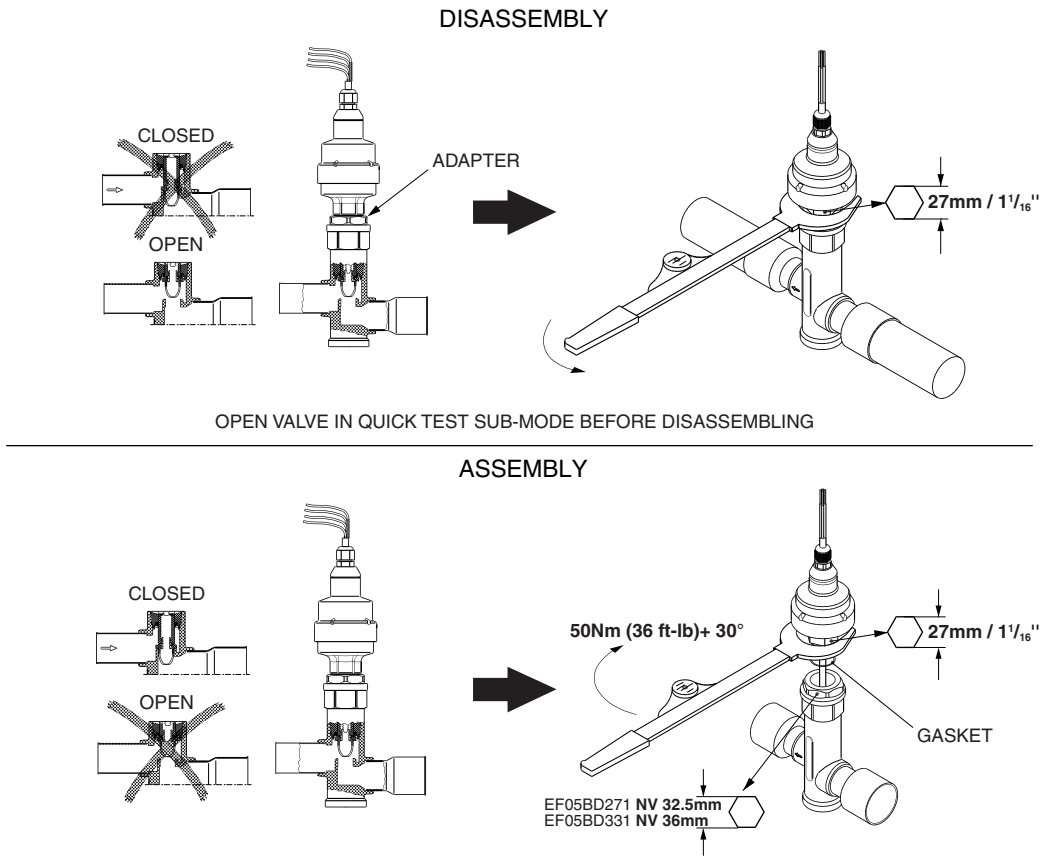
Whenever moisture-liquid indicator shows presence of moisture, replace filter drier(s). There is one filter drier assembly on each circuit with two cores. Refer to the Carrier Standard Service Techniques Manual, Chapter 1, Refrigerants, for details on servicing filter driers.

Liquid Line Service Valve

This valve is located immediately ahead of filter drier, and has a 1/4-in. access connection for field charging. In combination with compressor discharge service valve, each circuit can be pumped down into the high side for servicing.

Compressor Assembly

The 30XW units utilize screw compressors with a modulating slide valve which varies capacity from 15% to 100% of compressor capacity for each circuit. See Fig. 52 for a view of a typical 06T compressor. The slide valve position is varied by opening and closing the 2 solenoid valves located on the compressor. To unload the compressor, both solenoids are de-energized. To increase in capacity both solenoid valves are energized together which will cause the slide valve to slide towards the fully loaded position. To stop the loading process solenoid 2 is energized and solenoid 1 is de-energized. This will cause the slide valve to maintain its current position. There is no feedback for the position of the slide valve. The control utilizes compressor current as an indicator of the slide valve position. Once the calculated position of the slide valve reaches 100% circuit capacity, the control will try to increase capacity again if the compressor current continues to increase. The control will continue to load the compressor until the compressor current no longer increases. At that time the control will energize both solenoids and the circuit will be considered fully loaded.



NOTES:
1. Push down on valve piston to close valve before assembling.
2. After valve is assembled close valve in Quick Test sub-mode or cycle power before opening service valve.

Fig. 51 — Disassembly and Assembly of EXV Motor

VICTAULIC COUPLING INSTALLATION

1. The outside surface of the pipe, between the groove and the pipe end, must be smooth and free from indentations, projections (including weld seams), and roll marks to ensure a leak-tight seal. All oil, grease, loose paint, dirt, must be removed. The Victaulic gasket used for refrigerant system piping will have a yellow mark on one side of the gasket lips.
2. Apply a thin coat of Victaulic lubricant or silicone lubricant to the gasket sealing lips and exterior.

⚠ CAUTION

Always use a compatible lubricant to prevent the gasket from pinching or tearing during installation. Failure to follow this instruction could result in joint leakage.

3. Position the gasket over the pipe end. Make sure the gasket does not overhang the pipe end.
4. Align and bring the two pipe ends together. Slide the gasket into position and center it between the groove in each pipe end. Make sure no portion of the gasket extends into the groove in either pipe end.
5. Install the housings over the gasket. Make sure the housings' keys engage the grooves completely on both pipe ends.

⚠ CAUTION

Make sure the gasket does not become rolled or pinched while installing the housings. Failure to follow this instruction could cause damage to the gasket, resulting in joint leakage.

6. Install the bolts, and thread a nut finger-tight onto each bolt. For couplings supplied with stainless steel hardware, apply an anti-seize compound to the bolt threads. Make sure the oval neck of each bolt seats properly in the bolt hole.
7. Tighten the nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. Make sure the housings' keys engage the grooves completely. It is important to tighten the nuts evenly to prevent gasket pinching.
8. Visually inspect the bolt pads at each joint to ensure metal-to-metal contact is achieved.

COMPRESSOR OIL SYSTEM

Each compressor/circuit has its own oil system which includes an oil filter, oil solenoid, check valve, oil level switch, oil pressure transducer, and an oil shut-off valve. A typical oil system is shown in Fig. 53. See Table 47.

Table 47 — Unit Oil Quantities

30XW UNIT SIZE	OIL CHANGE (gal, [liters])	
	Circuit A	Circuit B
150-200	6.0 [22.7]	—
225-300	8.0 [30.3]	—
325-400	6.0 [22.7]	6.0 [22.7]

Oil Charge

When additional oil or a complete charge is required it must meet the following specifications:

- Manufacturer: Emkarate RL220XL
- Oil Type: Inhibited polyolester-based synthetic compressor lubricant for use with screw compressors.
- ISO Viscosity Grade: 220

Do not reuse drained oil or any oil that has been exposed to the atmosphere.

Oil is available in the quantities shown in Table 48 from your local Carrier representative.

Table 48 — Oil Part No. Information

QUANTITY	TOTALINE PART NO.
1 QUART	P903-2325
1 GALLON	P903-2301
5 GALLON	P903-2305

If unsure if there is low oil charge in the system, follow the steps below:

1. If the unit shuts off repeatedly from a low oil level alert it may be an indication of inadequate oil charge; however, it could also indicate that the oil is not being recovered from the low-side of the system.
2. Begin running the unit at full load for 1-1/2 hours. Use the manual Test Mode feature of Service Test if the unit does not normally run at full load.
   NOTE: An adequate load must be available.
3. After running the unit for 1-1/2 hours at full load, allow the unit to restart and run normally. If low oil alarms persist, continue with the following steps.
4. Close the liquid line service valve and place a pressure gage on top of the cooler. Enable the Service Test feature and turn the Enable/Off/Remote switch to the enable position. Start the desired circuit by turning it on under the TEST function: ***CP.A*** for compressor A, ***CP.B*** for compressor B, or ***CP.C*** for compressor C.
5. When the compressor starts successfully, observe the cooler pressure. When the pressure reads 10 psig (68.9 kPa), turn the Emergency Switch (SW2) to the OFF position. The compressor should stop.
6. Open the liquid line service valve and allow the unit to restart normally. If low oil level alarms persist, continue with the following steps.

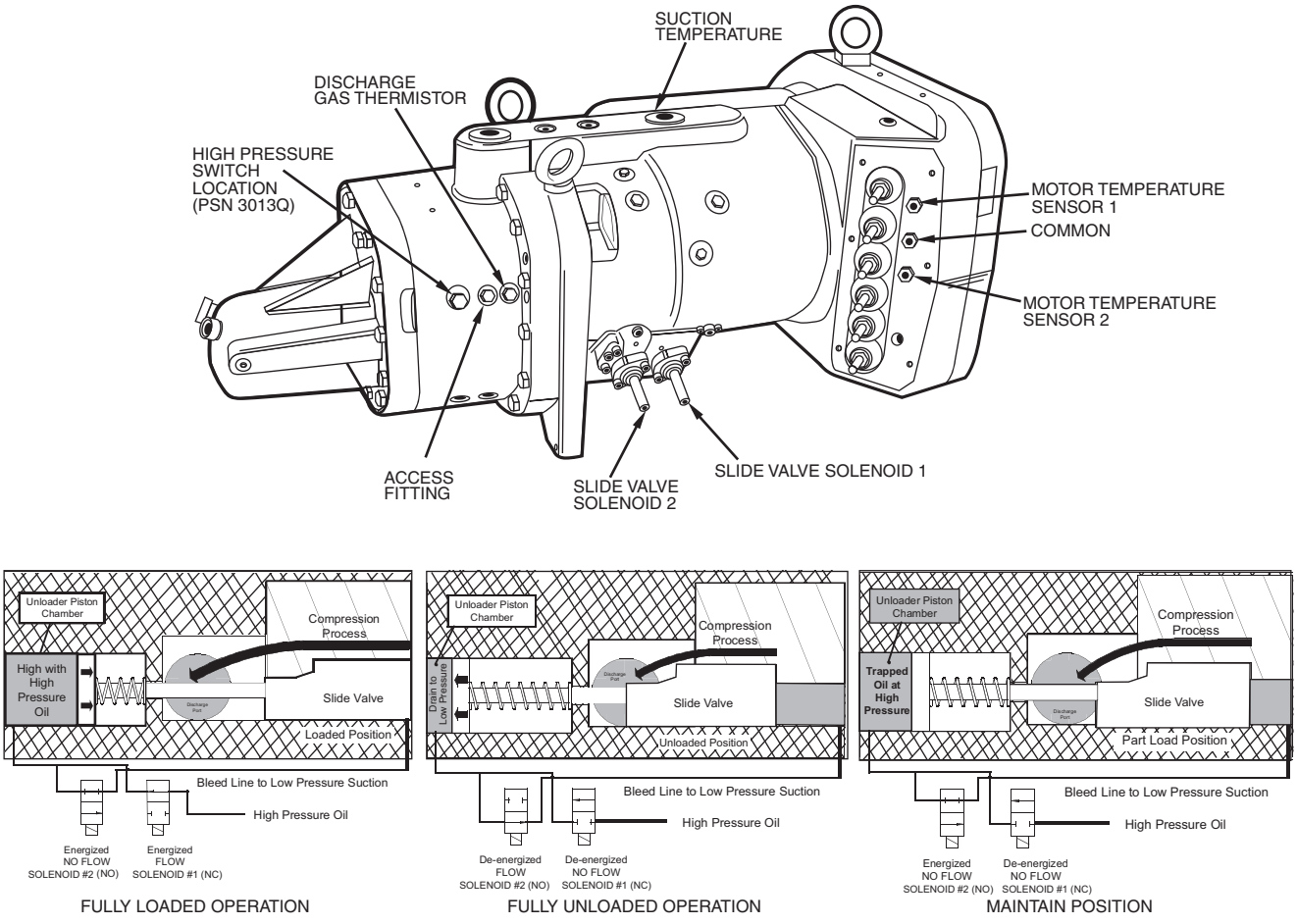
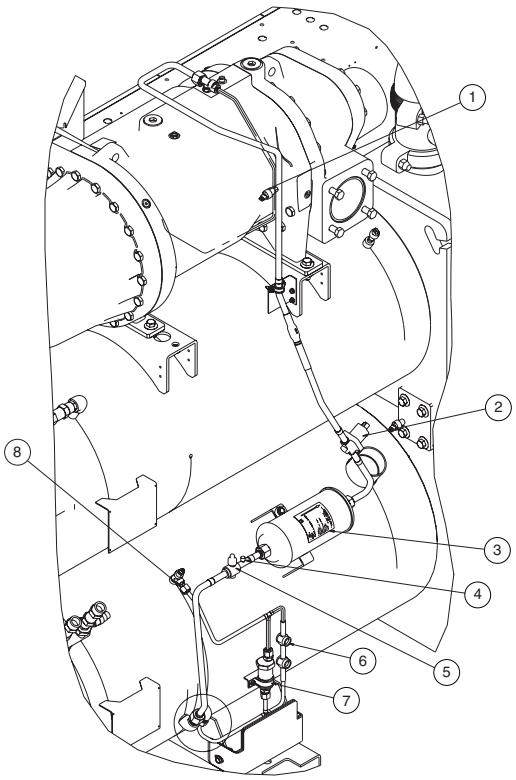


Fig. 52 — Typical 06T Compressor



LEGEND
1 — Oil Pressure Transducer
2 — Oil Solenoid
3 — Oil Filter
4 — 1/4 in. FL (Female) Access Fitting
5 — Shut-Off Valve
6 — Oil Level Sight Glass
7 — Oil Level Switch
8 — 1/4 in. FL (Female) Access Fitting

Fig. 53 — Typical Oil System

7. If none of the previous steps were successful, the unit is low on oil charge. Add oil to the oil separator using the 1/4 in. access fitting that the discharge pressure transducer is mounted to.
8. To facilitate the oil charging process, ensure that the unit is not running when adding oil. The system is under pressure even when the unit is not running, so it is necessary to use a suitable pump to add oil to the system.
9. Using a suitable pump, add 1/2 gal (1.9 L) of oil to the system. Continue adding oil in 1/2 gal (1.9 L) increments until the problem is resolved, up to a maximum of 1.5 gal (5.7 L). If it is necessary to add factory oil charge levels to the system contact your local Carrier representative.

Oil Filter Maintenance

Each circuit has one oil filter located externally to the compressor. Oil line pressure drop is monitored by the control. Oil line pressure drop is calculated by subtracting oil pressure (OP) from discharge pressure (DP). If the oil line pressure drop exceeds 30 psig (206.8 kPa) for 5 minutes the control will generate a High Oil Filter Pressure Drop alert. The High Oil Filter Pressure Drop alert will not shut down the compressor, but instead indicates that the oil filter is dirty. If oil pressure line losses exceed 50 psig (344.7 kPa) then the control will shut down the circuit on Maximum Oil Filter Differential Pressure Failure.

⚠ CAUTION

Compressor oil is pressurized. Use proper safety precautions when relieving pressure.

Replacing the Oil Filter

Close the oil line ball valve located in front of the oil filter. Connect a charging hose to the 1/4-in. access fitting port located downstream of the valve and bleed off oil trapped between the service valve and the oil solenoid valve. A quart of oil is typically removed during this process. Remove the charging hose. Unscrew the nuts from both ends of the oil filter and remove the oil filter. Remove the protective caps from the new oil filter and install, being careful not to lose or damage the new O-ring located on the new oil filter. Draw a vacuum at the Schrader port. Remove the charging hose and open the oil line ball valve. Check both fittings for leaks.

REVERSE ROTATION SWITCH

If the compressor is replaced or power wiring removed from the load side of the compressor contactor or compressor motor terminals, temporarily install the reverse rotation low pressure switch, part number HK01CB002. Connect the switch to the high pressure port access fitting using a standard 1/4 in. service hose. The switch will not reset until 10 psig of pressure is present on the switch. Temporarily wire the reverse rotation low pressure switch in series with the compressor's high pressure switch as shown in Fig. 54.

LEGEND
HPS — High-Pressure Switch
RRS — Reverse Rotation Switch (HK01CB002)

Fig. 54 — Reverse Rotation Switch Wiring

Cooler

SUCTION SERVICE VALVE

The suction service valve is a factory-installed option for 30XW units. It is located at the suction outlet of the cooler. The suction service valve handle has a locking screw located on the handle to lock the valve in either a fully open position or a fully closed position. The locking screw must be removed prior to moving the valve handle to a fully open or a fully closed position. See Fig. 55 and 56.

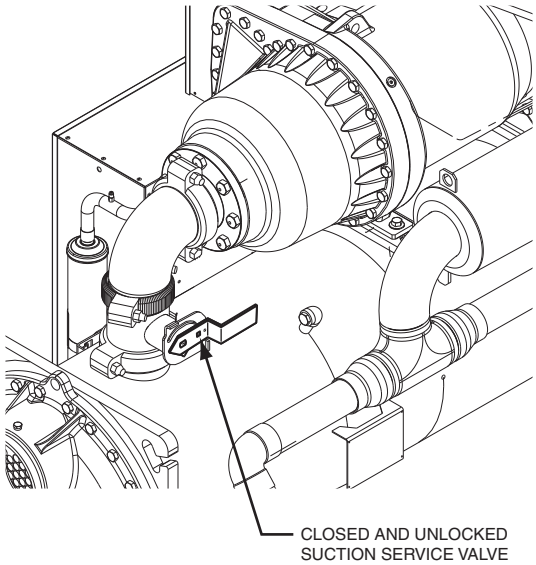


Fig. 55 — Suction Service Valve Locking Device, Closed and Unlocked

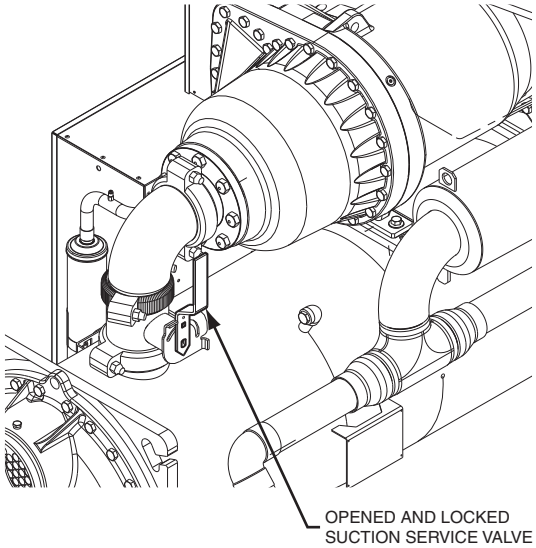


Fig. 56 — Suction Service Valve Locking Device, Open and Locked

LOW FLUID TEMPERATURE

Main Base Board is programmed to shut chiller down if leaving fluid temperature drops below 34°F (1.1°C) for cooler fluid type water or below Brine Freeze Set Point (**Brine Freeze Set Point, *LOSP***) for cooler fluid type brine. The unit will shut down without a pumpout. When fluid temperature rises to 6°F (3.3°C) above the leaving fluid set point, safety resets and chiller restarts. Reset is automatic as long as this is the first occurrence.

TUBE PLUGGING

A leaky tube can be plugged until retubing can be done. The number of tubes plugged determines how soon the cooler *must* be retubed. All tubes in the cooler may be removed. Loss of unit capacity and efficiency as well as increased pump power will result from plugging tubes. Failed tubes should be replaced as soon as possible. Up to 10% of the total number of tubes per pass can be plugged before retubing is necessary. Fig. 57 shows an Elliott tube plug and a cross-sectional view of a plug in place. See Tables 49-52 for plug components. If the tube failure occurs in both circuits using tube plugs will not correct the problem. Contact your local Carrier representative for assistance.

⚠CAUTION

Use extreme care when installing plugs to prevent damage to the tube sheet section between the holes.

Table 49 — Condenser (Sizes 150-300) and Evaporator (All Sizes) Plug Component Parts

COMPONENT	PART NUMBER
For Tubes	
Brass Pin	853103-1*
Brass Ring	853002-657 or 670* (Measure inside diameter of tube before ordering.)
For Holes without Tubes	
Brass Pin	853103-1A*
Brass Ring	853002-738*
Loctite	No. 675†
Locquic	"N"†

* Order directly from Elliot Tube Company, Dayton, OH or RCD.
† Can be obtained locally.

Table 50 — Condenser (Sizes 150-300) and Evaporator (All Sizes) Tube Components

COMPONENT	SIZE	
	in.	mm
Tube Sheet Hole Diameter	0.752 to 0.757	19.10 to 19.23
Tube OD	0.742 to 0.748	18.85 to 19.00
Tube ID after Rolling (includes expansion due to clearance.)	0.666 to 0.681	16.92 to 17.30

LEGEND

ID — Inside Diameter
OD — Outside Diameter

NOTE: Tubes replaced along heat exchanger head partitions must be flush with tube sheet (both ends).

Table 51 — Condenser (Sizes 325-400) Plug Component Parts

COMPONENT	PART NUMBER
For Tubes	
Brass Pin	853103-2A*
Brass Ring	853002-918*
For Holes without tubes	
Brass Pin	853103-3*
Brass Ring	853002-988*
Loctite	No. 675†
Locquic	"N"†

* Order directly from Elliot Tube Company, Dayton, OH or RCD.
† Can be obtained locally.

Table 52 — Condenser (Sizes 325-400) Tube Components

COMPONENT	SIZE	
	in.	mm
Tube Sheet Hole Diameter	1.000 to 1.008	25.40 to 25.60
Tube OD	0.992 to 0.998	25.20 to 25.35
Tube ID after Rolling (includes expansion due to clearance.)	0.918 to 0.935	23.32 to 23.75

LEGEND

ID — Inside Diameter
OD — Outside Diameter

NOTE: Tubes replaced along heat exchanger head partitions must be flush with tube sheet (both ends).

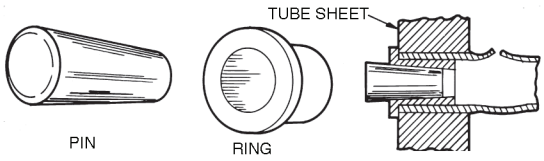


Fig. 57 — Elliott Tube Plug

RETUBING

When retubing is required, obtain service of qualified personnel experienced in boiler maintenance and repair. Most standard procedures can be followed when retubing the coolers. An 8% crush is recommended when rolling replacement tubes into the tubesheet.

Place one drop of Loctite No. 675 or equivalent on top of tube prior to rolling. This material is intended to "wick" into the area of the tube that is not rolled into the tube sheet, and prevent fluid from accumulating between the tube and the tube sheet. New tubes must also be rolled into the center tubesheet to prevent circuit to circuit leaks.

TIGHTENING COOLER AND CONDENSER HEAD BOLTS

Gasket Preparation

When reassembling cooler and condenser heads, always use new gaskets. Gaskets are neoprene-based and are brushed with a light film of compressor oil. *Do not soak gasket or gasket deterioration will result.* Use new gaskets within 30 minutes to prevent deterioration. Reassemble cooler or condenser waterbox covers with the gaskets. Torque all bolts to the following specification and in sequence:

5/8-in. Diameter Perimeter Bolts (Grade 5): 150 to 170 ft-lb (201 to 228 N-m)

1. Install all bolts finger tight.
2. Bolt tightening sequence is outlined in Fig. 58-60. Follow the numbering or lettering sequence so that pressure is evenly applied.
3. Apply torque in one-third steps until required torque is reached. Load *all* bolts to each one-third step before proceeding to next one-third step.
4. No less than one hour later, retighten all bolts to required torque values.
5. After water is restored to system, check for leaks using recommended industry practices.
6. Replace cooler or condenser insulation as required.

INSPECTING/CLEANING HEAT EXCHANGERS

Inspect and clean cooler tubes at the end of the first operating season. Because these tubes have internal ridges, a rotary-type tube cleaning system is necessary to fully clean the tubes. Tube condition in the cooler will determine the scheduled frequency for cleaning, and will indicate whether water treatment is adequate in the chilled water/brine circuit. Inspect the entering and leaving water thermistor wells for signs of corrosion or scale. Replace the well if corroded or remove any scale if found.

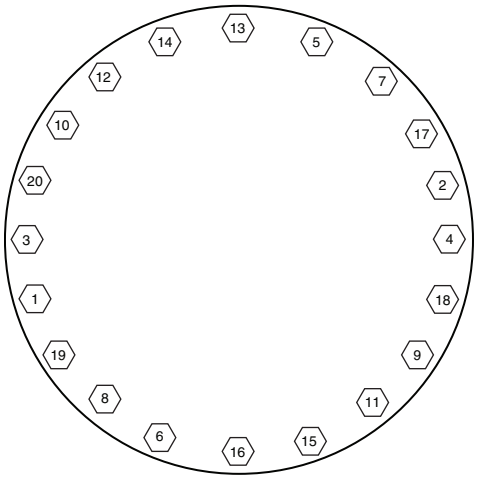


Fig. 58 — Cooler 150-200 Head Recommended Bolt Torque Sequence

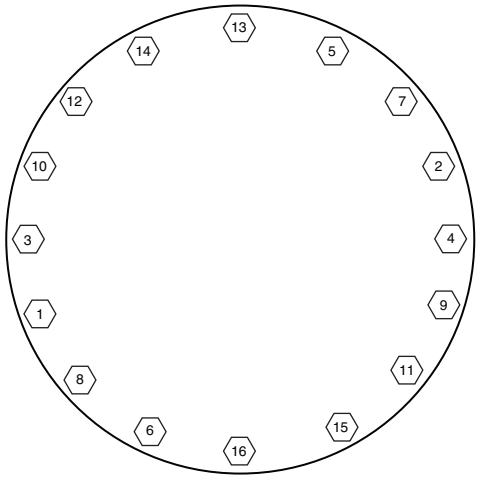


Fig. 59 — Cooler 225-300 and Condenser 150-200 Head Recommended Bolt Torque Sequence

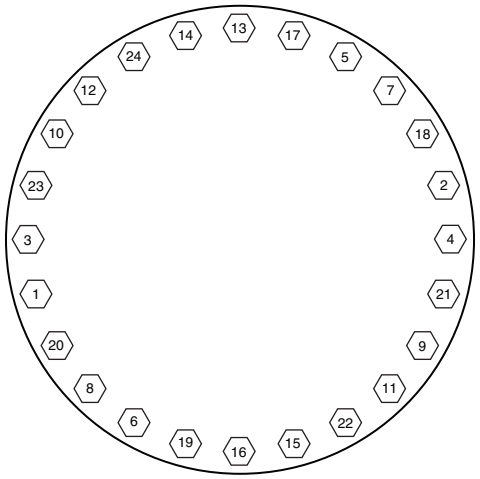


Fig. 60 — Cooler 325-400 and Condenser 225-400 Head Recommended Bolt Torque Sequence

⚠ CAUTION

Hard scale may require chemical treatment for its prevention or removal. Consult a water treatment specialist for proper treatment procedures.

WATER TREATMENT

Untreated or improperly treated water may result in corrosion, scaling, erosion or algae. The services of a qualified water treatment specialist should be obtained to develop and monitor a treatment program.

⚠ CAUTION

Water must be within design flow limits, clean and treated to ensure proper machine performance and reduce the potential of tubing damage due to corrosion, scaling, and algae. Carrier assumes no responsibility for cooler damage resulting from untreated or improperly treated water.

THERMAL DISPERSION FLOW SWITCH CLEANING

For recommended maintenance, check the sensor tip for build-up every 6 months. Clean the tip with a soft cloth. If necessary, buildup (e.g., lime) can be removed with a common vinegar cleansing agent.

CHILLED WATER FLOW SWITCH

A factory-installed flow switch is installed in the entering water nozzle for all machines. See Fig. 61 and 62. This is a thermal-dispersion flow switch. Figure 62 shows typical installation. If nuisance trips of the sensor are occurring, follow the steps below to correct:

When power is supplied to the device, a warm-up period is initiated. The warm-up period may take up to 30 seconds. When enough flow is detected, the switch contacts will close. The switch closure does not indicate minimum flow requirements have been met for the machine.

1. Check to confirm that all strainers are clean, valves are open and pumps are running. For the case of variable frequency drive (VFD) controlled pumps, ensure the minimum speed setting has not been changed.
2. Measure the pressure drop across the cooler (evaporator). Use the cooler pressure drop curves in Fig. 27-35 to calculate the flow and compare this to system requirements.
3. If the contacts do not close with sufficient flow, then check the wiring connection to the MBB. If the input signal is not closed, then the switch needs to be replaced.

CONDENSER WATER FLOW SWITCH AND THERMISTORS

A condenser water flow switch and entering and leaving water thermistors are factory-installed for all heat machines and chillers with optional medium temperature brine. See Fig. 61 and 62. This is a thermal-dispersion flow switch. Figure 62 shows typical installation.

When power is supplied to the device, a warm-up period is initiated. The warm-up period may take up to 30 seconds. When enough flow is detected, switch contacts will close. The switch closure does not indicate minimum flow requirements have been met for the machine. If nuisance trips of the sensor are occurring, follow the steps below to correct:

1. Check to confirm that all strainers are clean, valves are open and pumps are running. For the case of variable frequency drive (VFD) controlled pumps, ensure the minimum speed setting has not been changed.
2. Measure the pressure drop across the condenser. Use the condenser pressure drop curves in Fig. 36-44 to calculate the flow and compare this to system requirements.
3. If the contacts do not close with sufficient flow, then check the wiring connection to the MBB. If the input signal is not closed, then the switch needs to be replaced.

To configure condenser water thermistors with the Touch Pilot™ display:

DISPLAY NAME	PATH	LINE NO.	VALUE
Condenser probe select	***Service\FACTORY***	26	Yes

This option cannot be configured with the Navigator™ display.

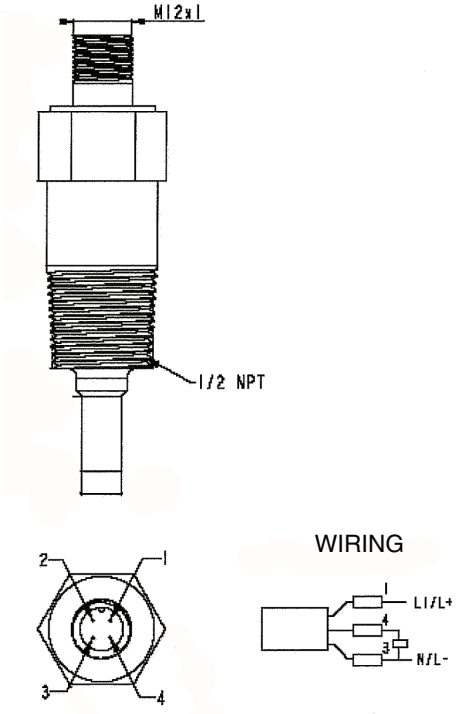
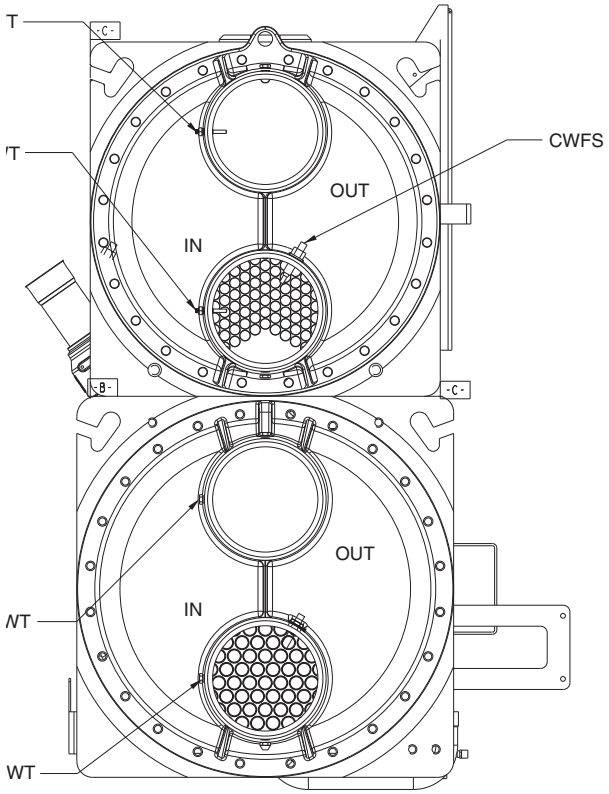


Fig. 61 — Chilled Water and Condenser Water Flow Switch



LEGEND

CDFS — Condenser Water Flow Switch
CEWT — Condenser Entering Water Thermistor
CLWT — Condenser Leaving Water Thermistor
CWFS — Chilled Water Flow Switch
EWT — Entering Water Thermistor
LWT — Leaving Water Thermistor

Fig. 62 — Flow Switch (Typical)

Refrigerant Circuit

LEAK TESTING

Units are shipped with complete operating charge of refrigerant R-134a or nitrogen (see Physical Data tables supplied in the 30XW installation instructions) and should be under sufficient pressure to conduct a leak test. If there is no pressure in the system, introduce enough nitrogen to search for the leak. Repair the leak using good refrigeration practices. After leaks are repaired, system must be evacuated and dehydrated.

REFRIGERANT CHARGE

Refer to Physical Data tables supplied in the 30XW installation instructions. Immediately ahead of filter drier in each circuit is a factory-installed liquid line service valve. Each valve has a 1/4 in. access connection for charging liquid refrigerant.

Charging with Unit Off and Evacuated

Close liquid line service valve before charging. Weigh in charge shown on unit nameplate. Open liquid line service valve; start unit and allow it to run several minutes fully loaded. Check for a clear sight glass. Be sure clear condition is liquid and not vapor.

Charging with Unit Running

If charge is to be added while unit is operating, loop water temperatures should be near the AHRI (Air-Conditioning, Heating and Refrigeration Institute) rating point (54/44°F evaporator; 85/95°F condenser). At these conditions and with the circuit at full load, charge to a clear sightglass and a liquid line temperature of 90 to 93°F (32.2 to 33.9°C).

Add 5 lb (2.3 kg) of liquid charge into the fitting located on the tube entering the bottom of the cooler. This fitting is located between the electronic expansion valve (EXV) and the cooler.

Allow the system to stabilize and then recheck the liquid temperature. If needed, add additional liquid charge, 5 lb (2.3 kg) at a time, allowing the system to stabilize between each charge addition. Slowly add charge as the sight glass begins to clear to avoid overcharging.

IMPORTANT: When adjusting refrigerant charge, circulate fluid through cooler and condenser continuously to prevent freezing and possible damage to both. Do not overcharge, and never charge liquid into the low-pressure side of system.

Safety Devices

The 30XW units contain many safety devices and protection logic built into the electronic control. Following is a description of the major safeties.

COMPRESSOR PROTECTION

Motor Overload

The compressor protection modules (CPM) protect each compressor against overcurrent. Do not bypass the current transducers or make any changes to the factory-installed and configured headers. The configuration of these headers defines the must trip amps (MTA) at which the CPM will turn the compressors off. Determine the cause for trouble and correct the problem before resetting the CPM. See Appendix D for MTA settings and configuration headers.

Each CPM board also reads the status of each compressor's high-pressure switch. All compressors have factory-installed high-pressure switches. See Table 53.

Table 53 — High-Pressure Switch Settings

30XW UNIT	SWITCH SETTING	
	psig	kPa
STD	217.6 +7.25, –14.5	1500 +50, –100
HIGH COND	275 ±10	1896 ± 69

If the switch opens during operation, the compressor will be shut down. The CPM will reset automatically when the switch closes, however, a manual reset of the control is required to restart the compressor.

COOLER PROTECTION

Low Water Temperature

Microprocessor is programmed to shut the chiller down if the leaving fluid temperature drops below 34°F (1.1°C) for water or more than 8°F (4.4°C) below set point for Fluid Type = brine. When the fluid temperature rises 6°F (3.3°C) above the leaving fluid set point, the safety resets and the chiller restarts. Reset is automatic as long as this is the first occurrence of the day.

IMPORTANT: If unit is installed in an area where ambient temperatures fall below 32°F (0°C), a suitable corrosion-inhibited antifreeze solution must be used in the chilled water and condenser water circuit.

Relief Devices

Fusible plugs are located in each circuit between the condenser and the liquid line shutoff valve.

PRESSURE RELIEF VALVES

Valves are installed in each circuit and are located on all coolers and condensers. These valves are designed to relieve if an abnormal pressure condition arises. Relief valves on all coolers relieve at 220 psig (1517 kPa). These valves should not be capped. If a valve relieves, it should be replaced. If the valve is not replaced, it may relieve at a lower pressure, or leak due to trapped dirt from the system which may prevent resealing. Valves on standard condensers relieve at 220 psig (1517 kPa). Valves on high condensing and heat machine units relieve at 300 psig (2068 kPa).

Dual pressure relief valves are mounted on the three-way valves in some locations to allow testing and repair without transferring the refrigerant charge. Three-way valve shafts should be turned either fully clockwise or fully counterclockwise so only one relief valve is exposed to refrigerant pressure at a time.

Pressure relief valves located on shells have 3/4 in. NPT connections for relief. Some local building codes require that relieved gases be exhausted to a specific location. This connection allows conformance to this requirement. Refer to Installation Instructions for details.

INSPECTION AND MAINTENANCE

The relief valves on this chiller protect the system against the potentially dangerous effects of overpressure. To ensure against damage to the equipment and possible injury to personnel, these devices must be kept in peak operating condition.

As a minimum, the following maintenance is required:

1. At least once a year, disconnect the vent piping at the valve outlet. Inspect the vent piping for corrosion, a restriction or blockage. If any is found, clean or replace the affected vent piping.
2. Carefully inspect the valve body and mechanism for any evidence of internal corrosion or rust, dirt, scale, leakage, etc. If corrosion or foreign material is found, do not attempt to repair or recondition; replace the valve.
3. If the chiller is installed in a corrosive atmosphere or the relief valves are vented into a corrosive atmosphere, inspect relief valves and piping at more frequent intervals.

MAINTENANCE

Recommended Maintenance Schedule

The following are only recommended guidelines. Jobsite conditions may dictate that maintenance schedule is performed more often than recommended.

Every month:

- Check moisture indicating sight glass for possible refrigerant loss and presence of moisture.

Every 3 months:

- Check refrigerant charge.
- Check all refrigerant joints and valves for refrigerant leaks; repair as necessary.
- Check chilled water and condenser flow switch operation.
- Check oil filter pressure drop.

Every 6 months:

- Check Chilled Water/Condenser Flow Switch sensor tip for build-up (Thermal Dispersion Flow Switch). Clean as necessary.

Every 12 months:

- Check all electrical connections; tighten as necessary.
- Inspect all contactors and relays; replace as necessary.
- Check accuracy of thermistors; replace if greater than ±2°F (1.2°C) variance from calibrated thermometer.
- Check accuracy of transducers; replace if greater than ±5 psig (34.47 kPa) variance.
- Check to be sure that the proper concentration of antifreeze is present in the chilled water and condenser loops, if applicable.
- Verify that the chilled water loop is properly treated.
- Check refrigerant filter driers for excessive pressure drop; replace as necessary.
- Check chilled water and condenser strainers, clean as necessary.
- Perform Service Test to confirm operation of all components.
- Check for excessive cooler approach (Leaving Chilled Water Temperature – Saturated Suction Temperature) which may indicate fouling. Clean cooler vessel if necessary.
- Obtain oil analysis; change as necessary.

TROUBLESHOOTING

See Table 54 for an abbreviated list of symptoms, possible causes and possible remedies.

Alarms and Alerts

The integral control system constantly monitors the unit and generates warnings when abnormal or fault conditions occur. Alarms may cause either a circuit (Alert) or the whole machine (Alarm) to shut down. Alarms and Alerts are assigned codes as described in Fig. 63. The alarm/alert indicator LED on the Navigator™ module is illuminated when any alarm or alert condition is present. If an Alert is active, the Alarm Indicator LED will blink. If an Alarm is active, the Alarm Indicator LED will remain on. Currently active Alerts and Alarms can be found in (**Current Alarm, *ALRM***).

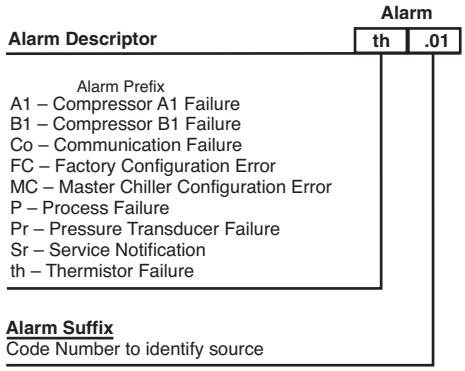


Fig. 63 — Alarm Description

The controller generates two types of alarms. Automatic reset alarms will reset without any intervention if the condition that caused the alarm corrects itself. Manual reset alarms require the service technician to check for the alarm cause and reset the alarm. The following method must be followed to reset manual alarms:

Before resetting any alarm, first determine the cause of the alarm and correct it. To reset the alarm, set ***R.ALM*** to YES. The alarms will be reset. Indicator light will be turned off when switched correctly.

To reset the alarm with the Touch Pilot™ display, press the Reset button 

.

Do not reset the chiller at random without first investigating and correcting the cause(s) of the failure.

Each alarm is described by a three or four-digit code. The first one or two digits indicate the alarm source and are listed in Fig. 63. The last two digits pinpoint the problem. See Table 55.

COMMAND REJECTED will be displayed if the unit is in an ON state and a configuration change is attempted. Place the unit in the OFF state before making a configuration change.

DIAGNOSTIC ALARM CODES AND POSSIBLE CAUSES

Thermistor Failure

Alarm 1 — Cooler Fluid Entering (th.01)
Alarm 2 — Cooler Fluid Leaving (th.02)

Criteria for Trip

This alarm criterion is tested whether the unit is on or off if the temperature as measured by the thermistor is outside of the range –40 to 245°F (–40 to 118.3°C).

Action to be Taken

The unit shuts down normally, or is not allowed to start.

Reset Method

Automatic, the alarm will reset once the thermistor reading is within the expected range.

Possible Causes

If this condition is encountered, check the following items:

- sensor wiring to the Main Base Board
- sensor accuracy

See the Thermistors section on page 66 for thermistor description, identifiers and connections.

Defrost Thermistor Failure

Alarm 3 — Circuit A (th.03)
Alarm 4 — Circuit B (th.04)

NOTE: Alarms 3 and 4 are not used or supported. If this condition is encountered, confirm machine configuration.

Thermistor Failure

Alarm 5 — Condenser Entering Fluid (th.06)

Criteria for Trip

This alarm criterion is tested whether the unit is on or off if the temperature as measured by the thermistor is outside of the range –40 to 245°F (–40 to 118.3°C).

Action to be Taken

If the unit is in the cool mode (Heat/Cool Status = 0) no action will be taken. If the unit is a heat machine (Unit Type = 4) and if the unit is in heat mode (Heat/Cool Status = 1), then the machine shall continue to run, but a default *rise_per_%_unit_capacity_on* of 0.1°F shall be used by the capacity control function. Heating reset based on Delta T (Heating Reset Select = 2) will be disabled.

Reset Method

Automatic, the alarm will reset once the thermistor reading is within the expected range.

Possible Causes

If this condition is encountered, check the following items:

- sensor wiring to the Main Base Board
- sensor accuracy

See the Thermistors section on page 66 for thermistor description, identifiers and connections.

Alarm 6 — Condenser Leaving Fluid (th.07)

Criteria for Trip

This alarm criterion is tested whether the unit is on or off if the temperature as measured by the thermistor is outside of the range –40 to 245°F (–40 to 118.3°C).

Action to be Taken

If the unit is in the cool mode (Heat/Cool Status = 0) no action will be taken. If the unit is a heat machine (Unit Type = 4) and if the unit is in heat mode (Heat/Cool Status = 1), the unit shuts down normally, or is not allowed to start.

Reset Method

Automatic, the alarm will reset once the thermistor reading is within the expected range.

Possible Causes

If this condition is encountered, check the following items:

- sensor wiring to the Main Base Board
- sensor accuracy

See the Thermistors section on page 66 for thermistor description, identifiers and connections.

Condenser Reclaim Thermistor

Alarm 7— Reclaim Entering Fluid (th.08)

Alarm 8 — Reclaim Leaving Fluid (th.09)

NOTE: Alarms 7 and 8 are not used or supported. If this condition is encountered, confirm machine configuration.

Alarm 10 — Master/Slave Common Fluid Thermistor (th.11)

Criteria for Trip

This alarm criterion is tested whether the unit is ON or OFF. The alarm will be tripped if the unit is configured as a master or a slave (**Master/Slave Select, *MSSL***), leaving temperature control is selected (**Entering Fluid Control, *EWTO***), and if the temperature measured by the CHWS (chilled water sensor) fluid sensor is outside the range of –40 to 245°F (–40 to 118.3°C).

Action to be Taken

Master/slave operation is disabled and the chiller returns to stand alone mode.

Reset Method

Reset is automatic when the thermistor reading is inside the range of –40 to 245°F (–40 to 118.3°C).

Possible Causes

If this condition is encountered, check the following items:

- sensor wiring to the Main Base Board
- a faulty thermistor

See the Thermistors section on page 66 for thermistor description, identifiers and connections.

Table 54 — Troubleshooting

SYMPTOM	POSSIBLE CAUSE	POSSIBLE REMEDY
Unit Does Not Run	Check for power to unit	• Check overcurrent protection device. • Check non-fused disconnect (if equipped). • Restore power to unit.
	Wrong or incorrect unit configuration	Check unit configuration.
	Active alarm	Check Alarm status. See the Alarms and Alerts section and follow troubleshooting instructions.
	Active operating mode	Check for Operating Modes. See the Operating Modes section and follow troubleshooting instructions
Unit Operates too Long or Continuously	Low refrigerant charge	Check for leak and add refrigerant.
	Compressor or control contacts welded	Replace contactor or relay.
	Air in chilled water loop	Purge water loop.
	Non-condensables in refrigerant circuit.	Remove refrigerant and recharge.
	Inoperative EXV	• Check EXV, clean or replace. • Check EXV cable, replace if necessary. • Check EXV board for output signal.
	Load too high	Unit may be undersized for application
Circuit Does Not Run	Active alarm	Check Alarm status. See the Alarms and Alerts section and follow troubleshooting instructions.
	Active operating mode	Check for Operating Modes. See the Operating Modes section and follow troubleshooting instructions.
Circuit Does Not Load	Active alarm	Check Alarm status. See the Alarms and Alerts section and follow troubleshooting instructions.
	Active operating mode	Check for Operating Modes. See the Operating Modes section and follow troubleshooting instructions.
	Low saturated suction temperature	See Operating Modes 21 and 22.
	High circuit suction superheat	The circuit capacity is not allowed increase if circuit superheat is greater than 36°F (20°C). See Alarms 74 and 75 for potential causes.
	Low suction superheat	The circuit capacity is not allowed to increase if the circuit superheat is less than 18°F (10°C). See Alarms 74 and 75 for potential causes.
Compressor Does Not Run	Active alarm	Check Alarm status. See the Alarms and Alerts section and follow troubleshooting instructions.
	Active operating mode	Check for Operating Modes. See the Operating Modes section and follow troubleshooting instructions.
	Inoperative compressor contactor	• Check control wiring. • Check scroll protection module. • Check contactor operation, replace if necessary.
Chilled Water Pump is ON, but the Machine is OFF	Cooler freeze protection	Chilled water loop temperature too low. Check EWT and LWT sensors.

LEGEND

EWT — Entering Water Temperature
EXV — Electronic Expansion Valve
LWT — Leaving Water Temperature

Table 55 — Alarm Codes

PREFIX CODE	SUFFIX CODE	ALARM NUMBER	ALARM DESCRIPTION	REASON FOR ALARM	ACTION TAKEN BY CONTROL	RESET TYPE	PROBABLE CAUSE
th	01	1	Cooler Entering Fluid Thermistor	Temperature measured by the controller is outside of the range of –40°F to 245°F	Unit be shut down or not allowed to start	Automatic	Faulty Sensor, wiring error or failed main base board
	02	2	Cooler Leaving Fluid Thermistor				
	03	3	Circuit A Defrost Thermistor	Temperature measured by the controller is outside of the range of –40°F to 245°F	None	Automatic	Configuration error
	04	4	Circuit B Defrost Thermistor				
	06	5	Condenser Entering Fluid Thermistor	Temperature measured by the controller is outside of the range of –40°F to 245°F	Unit be shut down or not allowed to start	Automatic	Faulty Sensor, wiring error or failed main base board
	07	6	Condenser Leaving Fluid Thermistor				
	08	7	Reclaim Condenser Entering Thermistor	Temperature measured by the controller is outside of the range of –40°F to 245°F	None	Automatic	Configuration error
	09	8	Reclaim Condenser Leaving Thermistor				
	11	10	Master/Slave Common Fluid Thermistor	Temperature measured by the controller is outside of the range of –40°F to 245°F	Dual chiller deactivated. Master and slave machines operate in stand- alone mode	Automatic	Faulty Sensor, wiring error or failed main base board
	12	11	Circuit A Suction Gas Thermistor	Temperature measured by the controller is outside of the range of –40°F to 245°F	Circuit shut down or not allowed to start	Automatic	Faulty Sensor, wiring error, failed EXV or CPM board
	13	12	Circuit B Suction Gas Thermistor				
	15	14	Circuit A Discharge Gas Thermistor				
	16	15	Circuit B Discharge Gas Thermistor				
	18	17	Circuit A Condenser Subcooling Liquid Thermistor	Temperature measured by the controller is outside of the range of –40°F to 245°F	Not supported	Automatic	Configuration error
	19	18	Circuit B Condenser Subcooling Liquid Thermistor				
	21	19	Space Temperature Thermistor	Temperature measured by the controller is outside of the range of –40°F to 245°F	Alarm tripped	Automatic	Faulty Sensor, wiring error, failed EMM board
	23	20	Cooler heater feedback thermistor	Temperature measured by the controller is outside of the range of –40°F to 245°F	None	Automatic	Configuration error
	24	21	Circuit A Economizer Gas Thermistor	Temperature measured by the controller is outside of the range of –40°F to 245°F	Circuit economizer function disabled	Automatic	Faulty Sensor, wiring error, failed EXV board
	25	22	Circuit B Economizer Gas Thermistor				

LEGEND

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LWT — Leaving Water Temperature
MBB — Main Base Board
MLV — Minimum Load Valve
MOP — Maximum Operating Pressure
MTA — Must Trip Amps
SST — Saturated Suction Temperature
UL — Underwriters Laboratories

Table 55 — Alarm Codes (cont)

PREFIX CODE	SUFFIX CODE	ALARM NUMBER	ALARM DESCRIPTION	REASON FOR ALARM	ACTION TAKEN BY CONTROL	RESET TYPE	PROBABLE CAUSE
Pr	01	26	Circuit A Discharge Transducer	Measured voltage is 0 vdc or SST > EWT and EXV < 50% for 1 minute	Circuit shut down or not allowed to start	Automatic	Faulty transducer, wiring error, failed main base board or fan board
	02	27	Circuit B Discharge Transducer				
	04	29	Circuit A Suction Transducer				
	05	30	Circuit B Suction Transducer				
	07*	32*	Circuit A Reclaim Pumpdown Pressure Transducer	Measured voltage is 0 vdc or SST > EWT and EXV < 50% for 1 minute	None	Automatic	Configuration error
	08*	33*	Circuit B Reclaim Pumpdown Pressure Transducer				
	10	34	Circuit A Oil Pressure Transducer	Measured voltage is 0 vdc or SST > EWT and EXV < 50% for 1 minute	Circuit shut down or not allowed to start	Automatic	Faulty transducer, wiring error, failed CPM board
	11	35	Circuit B Oil Pressure Transducer				
	13	37	Circuit A Economizer Pressure Transducer	Measured voltage is 0 vdc	Circuit shut down or not allowed to start	Automatic	Faulty transducer, wiring error, failed CPM board
	14	38	Circuit B Economizer Pressure Transducer				
Co	A1	53	Loss of communication with Compressor Board A	No communication with CPM board	Affected compressor shut down	Automatic	Wrong CPM address, wrong unit configuration, wiring error, power loss, failed CPM board
	B1	54	Loss of communication with Compressor Board B				
	E1	56	Loss of communication with EXV Board 1	No communication with EXV board	Affected compressor shut down	Automatic	Wrong EXV board address, wrong unit configuration, wiring error, power loss, failed EXV board
	E2	57	Loss of communication with EXV Board 2				
	03	64	Loss of communication with Energy Management Board	No communication with EMM board	Disable or not allow EMM functions 3 step and 4-20 mA and space temperature reset, occupancy override and ice build)	Automatic	Wrong board address, wrong unit configuration, wiring error, power loss to module, failed module
	05	66	Loss of communication with AUX Board 6	No communication with MLV/COND Board	Unit shut down or not allowed to start	Automatic	Wrong board address, wrong unit configuration, wiring error, power loss to module, failed module
P	01	67	Cooler Freeze Protection	Entering or leaving thermistor sensed a temperature at or below freeze point	Unit shut down or not allowed to start	Automatic, first occurrence in 24 hours; manual if multiple alarms within 24 hours	Faulty thermistor, faulty wiring, low water flow, low loop volume, fouled cooler, or freeze conditions
	02	68	Condenser Freeze Protection Circuit A				
	03	69	Condenser Freeze Protection Circuit B				
	05	71	Circuit A Low Suction Temperature	Low saturated suction temperatures detected for a period of time	Circuit shut down	Automatic, first occurrence in 24 hours; manual if multiple alarms within 24 hours	Faulty thermistor, faulty wiring, low water flow, low loop volume, fouled cooler, or freeze conditions
	06	72	Circuit B Low Suction Temperature				
	08	74	Circuit A High Suction Superheat	EXV>98%, suction superheat > 30 F, and SST<MOP for more than 5 minutes	Circuit shut down	Manual	Faulty transducer, faulty wiring, faulty thermistor, faulty EXV, low refrigerant charge, plugged or restricted liquid line
	09	75	Circuit B High Suction Superheat				

LEGEND

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* Not applicable.

Table 55 — Alarm Codes (cont)

PREFIX CODE	SUFFIX CODE	ALARM NUMBER	ALARM DESCRIPTION	REASON FOR ALARM	ACTION TAKEN BY CONTROL	RESET TYPE	PROBABLE CAUSE
P	11	77	Circuit A Low Suction Superheat	EXV<5% and either the suction superheat is less than the set point by at least 5 °F or the suction temperature is greater than MOP set point for more than 5 minutes	Circuit shut down	Manual	Faulty transducer, faulty wiring, faulty thermistor, faulty EXV, or incorrect configuration
	12	78	Circuit B Low Suction Superheat				
	14	80	Interlock Failure	Lockout Switch Closed	Unit shut down or not allowed to start	Automatic	Lockout Switch Closed on EMM board
	28	81	Electrical Box Thermostat Failure/Reverse Rotation	External pump interlock open	Unit shut down or not allowed to start	Automatic	External pump off. Faulty jumper wiring when channel not used
	29	82	Loss of communication with System Manager	Loss of communication with an external control device for more than 2 minutes	Unit change to stand-alone operation	Automatic	Faulty communication wiring, no power supply to the external controller
	30	83	Master/Slave communication Failure	Communication between the master and slave machines lost	Unit change to stand-alone operation	Automatic	Faulty communication wiring, no power or control power to the main base board of either module
	67	84	Circuit A Low Oil Pressure	Oil pressure and suction pressure differential is less than the set point	Circuit shut down	Manual	Plugged oil filter, faulty oil transducer, oil check valve stuck, plugged oil strainer
	68	85	Circuit B Low Oil Pressure				
	70	87	Circuit A Max Oil Filter Differential Pressure	Difference between discharge pressure and oil pressure is greater than 50 psig for more than 30 seconds	Circuit shut down	Manual	Plugged oil filter, closed oil valve, bad oil solenoid, oil check valve stuck, faulty oil pressure transducer
	71	88	Circuit B Max Oil Filter Differential Pressure				
	84	90	Circuit A High Oil Filter Drop Pressure	Difference between discharge pressure and oil pressure is greater than 30 psig for more than 5 minutes	Alert generated	Manual	Plugged oil filter
	85	91	Circuit B High Oil Filter Drop Pressure				
	75	93	Circuit A Low Oil Level	Oil level switch open	Circuit shut down or not allowed to start	Automatic when the oil level is elevated, first 3 times in a 24-hour period. Manual if alarm is tripped more than 3 times in 24 hours.	Low oil level, faulty switch, wiring error, failed CPM board
	76	94	Circuit B Low Oil Level				
MC	nn	96	Master chiller configuration error Number 01 to nn. Refer to Table 56.	Wrong or incompatible configuration data	Unit not allowed to start in Master-slave control	Automatic	Configuration error
FC	n0	97	No factory configuration	No Configuration	Unit not allowed to start	Automatic	Configuration error
	nn	98	Illegal factory configuration Number 01 to 03	Wrong or incompatible configuration data	Unit not allowed to start	Automatic	Configuration error

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Table 55 — Alarm Codes (cont)

PREFIX CODE	SUFFIX CODE	ALARM NUMBER	ALARM DESCRIPTION	REASON FOR ALARM	ACTION TAKEN BY CONTROL	RESET TYPE	PROBABLE CAUSE
	31	99	Unit is in CCN emergency stop	Emergency stop command has been received	Unit shut down or not allowed to start	Automatic	Carrier Comfort Network® Emergency Stop command received
	32	100	Cooler pump #1 fault	Pump interlock status does not match pump status	Unit shuts down, if available, another pump will start	Manual	Faulty contacts, wiring error or low control voltage. Configuration error.
	33	101	Cooler pump #2 fault				
	15	102	Condenser Flow Switch Failure	Flow switch open	Unit shut down	Manual	Faulty flow switch, low condenser flow, faulty wiring, faulty MBB, condenser pump off
	34	103	Circuit A Reclaim Operation Failure	—	None	Manual	Configuration error
	35	104	Circuit B Reclaim Operation Failure				
	37	105	Circuit A — High condensing temperature out of compressor envelope	Multiple capacity overrides due to high saturated discharge temperature	Circuit shut down	Automatic	Low or restricted condenser water flow. Fouled condenser tubes.
	38	106	Circuit B — High condensing temperature out of compressor envelope				
	40	108	Circuit A — Repeated low suction temp overrides	Multiple capacity overrides due to low saturated suction temperature	Circuit shut down	Automatic	Inaccurate transducer, faulty EXV, low refrigerant charge, plugged or restricted liquid line filter drier.
	41	109	Circuit B — Repeated low suction temp overrides				
P	43	111	Low entering water temperature in heating	Not supported	—	—	—
	73	112	Condenser pump #1 default	Not supported	None	Manual	Faulty contacts, wiring error or low control voltage. Configuration error.
	74	113	Condenser pump #2 default				
	78	114	Circuit A High Discharge Temperature	Discharge gas temperature is higher than 212°F for more than 90 seconds	Circuit shut down	Manual	Faulty transducer/ high pressure switch, low/restricted condenser flow
	79	115	Circuit B High Discharge Temperature				
	81	117	Circuit A Low Economizer Pressure	The economizer pressure is below the suction pressure more than 14.5 psig for more than 10 seconds	Circuit shut down	Manual	Faulty transducer, faulty main base board, faulty wiring, closed suction service valve, faulty EXV
	82	118	Circuit B Low Economizer Pressure				
	87	120	Circuit A Slide Valve Control Unverifiable	If 100% load current is less than 1.1 times of 30% load current, or for 1 minute when active cooling set point is greater than 32°F.	None	Manual	Slide valve stuck, inaccurate initial current reading
	88	121	Circuit B Slide Valve Control Unverifiable				
	90	123	Cooler flow switch set point configuration failure	—	None	Manual	Configuration error
	91	124	Cooler flow switch failure	Flow switch open	Unit shut down	Manual if unit is running, automatic otherwise	Faulty flow switch, low cooler flow, faulty wiring, faulty cooler pump, faulty main base board
	97	125	Water Exchanger Temperature Sensors Swapped	Control detects EWT below LWT for 1 minute	Unit shut down	Manual	Wiring error, EWT and LWT sensors swapped
Sr	nn	128	Service maintenance alert Number # nn	Field programmed elapsed time has expired for maintenance time	None	Manual	Maintenance required

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Table 55 — Alarm Codes (cont)

PREFIX CODE	SUFFIX CODE	ALARM NUMBER	ALARM DESCRIPTION	REASON FOR ALARM	ACTION TAKEN BY CONTROL	RESET TYPE	PROBABLE CAUSE
A1, B1	01	132-01, 133-01	Compressor Motor temperature too high	Compressor temperature higher than 232 °F for more than 90 seconds	Circuit shut down	Manual	Economizer EXV failure (175, 200, 250, 275, 300, 350, 400 only), faulty CPM board, low refrigerant charge
	02	132-02, 133-02	Compressor Motor temperature out of range	Compressor temperature reading out of the range of –40 °F to 245 F	Circuit shut down	Manual	Faulty thermistor, faulty wiring, faulty CPM board
	03	132-03, 133-03	Compressor High pressure switch protection	HPS input on CPM board open	Circuit shut down	Manual, press reset button on HPS	Loss of condenser air flow, operation beyond compressor envelope, faulty high pressure switch, faulty wiring, faulty CPM board
	04	132-04, 133-04	Compressor Over current	CPM board detects high motor current compared with MTA setting	Circuit shut down	Manual	Operating beyond compressor envelope, incorrect configuration
	05	132-05, 133-05	Compressor Locked rotor	CPM board detects locked rotor current compared with MTA setting	Circuit shut down	Manual	Compressor motor failure, unloader slide valve failure, compressor mechanical failure
	06	132-06, 133-06	Compressor Phase loss L1	CPM board detects current unbalance greater than 65% for more than 1 second	Circuit shut down	Manual	Blown fuse, wiring error, loose terminals
	07	132-07, 133-07	Compressor Phase loss L2				
	08	132-08, 133-08	Compressor Phase loss L3				
	09	132-09, 133-09	Compressor Low current alarm	CPM detects motor current less than a certain percentage of the MTA setting, compressor not operating	Circuit shut down	Manual	Power supply disconnected, blown fuse, wiring error, contact de-energized, faulty current toroid high pressure switch trip.
	10	132-10, 133-10	Compressor Y delta starter current increase failure alarm	If the delta mode current is not 25% greater than the current in Y mode	Circuit shut down	Manual	Power supply to delta contactor not connected, faulty delta contactor or wiring, faulty CPM board
	11	132-11, 133-11	Compressor Contactor failure	CPM board detects greater than 15% of MTA current for 10 seconds after shutting off the compressor contactor. Oil solenoid is energized.	Circuit shut down	Manual	Faulty contactor, contactor welded, wiring error
	12	132-12, 133-12	Compressor Unable to stop motor	CPM board detects greater than 15% of MTA current for 10 seconds after three attempts	Circuit shut down	Manual	Faulty contactor, contactor welded, wiring error

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MOP — Maximum Operating Pressure
MTA — Must Trip Amps
SST — Saturated Suction Temperature
UL — Underwriters Laboratories

Table 55 — Alarm Codes (cont)

PREFIX CODE	SUFFIX CODE	ALARM NUMBER	ALARM DESCRIPTION	REASON FOR ALARM	ACTION TAKEN BY CONTROL	RESET TYPE	PROBABLE CAUSE
A1, B1 (cont)	13	132-13, 133-13	Compressor Phase reversal	CPM board detects phase reversal from current toroid	Circuit shut down	Manual	Terminal block power supply lead not in correct phase. Power supply leads going through toroid crossed
	14	132-14, 133-14	Compressor MTA configuration fault	MTA setting is out of the allowed MTA range	Circuit shut down	Manual	Incorrect MTA setting, faulty CPM board
	15	132-15, 133-15	Compressor Configuration switch mismatch	CPM board MTA setting do not match factory configuration	Circuit shut down	Manual	Incorrect CPM dipswitch setting, incorrect factory MTA setting, faulty CPM board
	16	132-16, 133-16	Compressor Unexpected switch setting change	CPM board dipswitch S1 setting changed	Circuit shut down	Manual	Incorrect CPM dipswitch setting, faulty CPM board
	17	132-17, 133-17	Compressor Power on reset	CPM board detects a power failure	Circuit shut down	Manual	Power supply interruption
	18	132-18, 133-18	Compressor UL 1998 critical section software error	Software error	Circuit shut down	Manual	Electric noise, faulty CPM board
	19	132-19, 133-19	Compressor UL 1998 current measure dual channel mismatch	Software error	Circuit shut down	Manual	Electric noise, faulty CPM board

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Suction Gas Thermistor

Alarm 11 — Circuit A (th.12)
Alarm 12 — Circuit B (th.13)

Criteria for Trip

This alarm criterion is tested whether the unit is ON or OFF. If the suction gas temperature as measured by the thermistor is outside of the range –40 to 245°F (–40 to 118.3°C).

Action to be Taken

The affected circuit shuts down normally.

Reset Method

Automatic, once the thermistor reading is within the expected range. The affected circuit will restart once the alarm has cleared.

Possible Causes

If this condition is encountered, check the following items:

- sensor wiring to the EXV board
- board for a faulty channel
- a faulty thermistor

See the Thermistors section on page 66 for thermistor description, identifiers and connections.

Circuit Discharge Gas Thermistor Sensor Failure

Alarm 14 — Circuit A (th.15)
Alarm 15 — Circuit B (th.16)

Criteria for Trip

This alarm criterion is tested whether the unit is ON or OFF. The alarm is tripped if the temperature measured by the Outdoor Air Thermistor sensor is outside the range of –40 to 245°F (–40 to 118.3°C).

Action to be Taken

The unit shuts down normally, or is not allowed to start.

Reset Method

Automatic, the alarm will reset once the thermistor reading is within the expected range.

Possible Causes

If this condition is encountered, check the following items:

- sensor wiring to the CPM board
- a faulty thermistor
- a faulty channel on the board

See the Thermistors section on page 66 for thermistor description, identifiers and connections.

Condenser Subcooling Liquid Thermistor

Alarm 17 — Circuit A (th.18)
Alarm 18 — Circuit B (th.19)

NOTE: Alarms 17 and 18 are not used or supported. If this condition is encountered, confirm machine configuration.

Alarm 19 — Space Temperature Sensor Failure (th.21)

Criteria for Trip

This alarm criterion is checked whether the unit is ON or OFF and if Space Temperature Reset has been enabled. This alarm is generated if the outdoor-air temperature as measured by the thermistor is outside of the range –40 to 245°F (–40 to 118.3°C).

Action to be Taken

Unit operates under normal control. Temperature Reset based on Space Temperature is disabled.

Reset Method

Automatic, once the thermistor reading is within the expected range. The Space Temperature Reset will resume once the alarm has cleared.

Possible Causes

If this condition is encountered, check the following items:

- sensor wiring to the Energy Management Module
- board for a faulty channel
- a faulty thermistor

For thermistor descriptions, identifiers and connections, see the Thermistors section (page 66).

Alarm 20 — Cooler Heater Feedback Sensor Thermistor (th.23)

NOTE: Alarm 20 is not used or supported. If this condition is encountered, confirm machine configuration.

Economizer Gas Thermistor

Alarm 21 — Circuit A (th.24)
Alarm 22 — Circuit B (th.25)

Criteria for Trip

This alarm criterion is tested whether the unit is ON or OFF. The alarm is tripped if the Economizer gas reading is outside the range of –40 to 245°F (–40 to 118.3°C).

Action to be Taken

The unit shuts down normally, or is not allowed to start.

Reset Method

Automatic, the alarm will reset once the thermistor reading is within the expected range.

Possible Causes

If this condition is encountered, check the following items:

- sensor wiring to the EXV board
- a faulty thermistor
- a faulty channel on the board

See the Thermistors section on page 66 for thermistor description, identifiers and connections.

Discharge Transducer

Alarm 26 — Circuit A (Pr.01)
Alarm 27 — Circuit B (Pr.02)

Criteria for Trip

The criterion is tested whether the circuit is ON or OFF. This alarm is generated if the voltage as sensed by the MBB is 0 vdc, which corresponds to the Navigator™ display of –7 psig (–48.3 kPa).

Action to be Taken

The circuit is shut down normally, or not allowed to start.

Reset Method

Automatic, once the transducer voltage is greater than 0 vdc, which corresponds to the Navigator™ display of a value greater than –7 psig (–48.3 kPa).

Possible Causes

If this condition is encountered, check the following items:

- sensor wiring to Main Base Board
- board for a faulty channel
- for a faulty transducer
- confirm unit configuration

Suction Pressure Transducer Failure

Alarm 29 — Circuit A (Pr.04)
Alarm 30 — Circuit B (Pr.05)

Criteria for Trip

The criteria are tested whether the circuit is ON or OFF. The alarm is generated if one of the following criteria is met:

1. If the voltage as sensed by the MBB is 0 vdc, which corresponds to the Navigator™ display of –7 psig (–48.3 kPa).
2. The circuit is ON in cooling mode and the Saturated Suction Temperature (**Saturated Suction Temp, *SST.A*, *SST.B***) for the circuit is greater than the Entering Water Temperature and EXV opening is less than 50% for more than 60 seconds.

Action to be Taken

The circuit is shut down immediately, or not allowed to start.

Reset Method

1. Automatic, once the transducer voltage is greater than 0 vdc, which corresponds to the Navigator display of a value greater than –7 psig (–48.3 kPa).
2. Automatic once the circuit's saturated suction temperature is lower than the Entering Water Temperature by 3°F (1.6°C). If this criterion trips the alarm 3 times within a 24-hour period, the alarm changes to a manual reset.

Possible Causes

If this condition is encountered, check the following items:

- sensor wiring to Main Base Board
- board for a faulty channel
- faulty transducer
- faulty entering water temperature sensor

Oil Pressure Transducer

Alarm 34 — Circuit A (Pr.10)
Alarm 35 — Circuit B (Pr.11)

Criteria for Trip

The criteria are tested whether the circuit is ON or OFF. The alarm is generated if the voltage as sensed by the CPM board is 0 vdc, which corresponds to the Navigator display of –7 psig (–48.3 kPa).

Action to be Taken

The circuit is shut down immediately, or not allowed to start.

Reset Method

Automatic, once the transducer voltage is greater than 0 vdc.

Possible Causes

If this condition is encountered, check the following items:

- sensor wiring to CPM board
- board for a faulty channel
- faulty transducer
- plugged oil filter
- faulty oil solenoid valve coil
- stuck oil solenoid valve
- confirm unit configuration

Economizer Pressure Transducer Failure (sizes 175,200, 250,275,300,350,400 only)

Alarm 37 — Circuit A (Pr. 13)
Alarm 38 — Circuit B (Pr. 14)

Criteria for Trip

The criteria are tested whether the circuit is ON or OFF. The alarm is generated if the voltage as sensed by the MBB or Fan Board C is 0 vdc, which corresponds to the Navigator display of –7 psig (–48.3 kPa).

Action to be Taken

The circuit is shut down immediately, or not allowed to start.

Reset Method

Automatic, once the transducer voltage is greater than 0 vdc, which corresponds to the Navigator™ display of a value greater than –7 psig (–48.3 kPa).

Possible Causes

If this condition is encountered, check the following items:

- sensor wiring to EXV Board
- EXV board for a faulty channel
- faulty transducer
- faulty economizer EXV or EXV wiring
- faulty economizer EXV channel on the board
- closed or partially closed suction service valve
- confirm unit configuration

Loss of Communication with Compressor Board

Alarm 53 — Compressor Board A (Co.A1)
Alarm 54 — Compressor Board B (Co.B1)

Criteria for Trip

The alarm criterion is tested whether the unit is ON or OFF. If communication with the Compressor Protection Module Board (CPM) is lost for a period of 10 seconds, the alarm will be generated.

Action to be Taken

The affected compressor will be shut down.

Reset Method

Automatic, if communication is established. If called for, the compressor will start normally.

Possible Causes

If this condition is encountered, check the following items:

- power supply to the affected CPM board
- address of the CPM
- local equipment network (LEN) wiring
- confirm unit configuration

Loss of Communication with EXV Board

Alarm 56 — Circuit A, EXV Board 1 (Co.E1)
Alarm 57 — Circuit B, EXV Board 2 (Co.E2)

Criteria for Trip

The alarm criterion is tested whether the unit is ON or OFF. If communication with EXV1 or 2 is lost for a period of 10 seconds, the alarm will be triggered.

Action to be Taken

If running, Circuit A or B will shut down normally. If Circuit A or B is not operating, it will not be allowed to start.

Reset Method

Automatic, if communication is established, the unit will start normally.

Possible Causes

If this condition is encountered, check the following items:

- power supply to EXV1 or 2
- address of the EXV board
- local equipment network (LEN) wiring
- confirm unit configuration

Alarm 64 — Loss of Communication with Energy Management Module Board (Co.03)

Criteria for Trip

The criterion is tested whether the unit is ON or OFF and when a function that requires the Energy Management Module (EMM) is configured. If communication with the EMM is lost for a period of 10 seconds, the alarm will be triggered.

Action to be Taken

If any function controlled by the EMM (3-Step and 4-20 mA Demand Limit, 4-20 mA and Space Temperature Reset, Occupancy Override, and Ice Build) is active, that function will be terminated. If an EMM function is programmed, and communication is lost, the function will not be allowed to start.

Reset Method

Automatic, if communication is established, the functions will be enabled.

Possible Causes

If this condition is encountered, check the following items:

- The EMM is installed, (**EMM NRCP2 Board, *EMM***). If **EMM NRCP2 Board, *EMM*=*YES***, then check for a control option that requires the EMM that may be enabled (correct configuration if not correct).
- power supply to EMM
- address of the EMM
- local equipment network (LEN) wiring
- confirm unit configuration to be sure that no options that require the EMM are enabled

Alarm 66 — Loss of Communication with AUX Board 6 (Co.05)

Criteria for Trip

The alarm criteria are checked whether the unit is ON or OFF. If units are configured for minimum load control or head pressure control (**Hot Gas Bypass Select, *HGBP*=Yes or Condenser Valve Select, *CON.V*=Yes**). If communication with the AUX board is lost then the alarm will be generated.

Action to be Taken

Unit shut down or not allowed to start.

Reset Method

Automatic, if communication is established, the unit will start normally.

Possible Causes

If this condition is encountered, check the following items:

- power supply to the MLV/COND board
- address of the MLV/COND board
- local equipment network (LEN) wiring
- confirm network configuration

Alarm 67 — Cooler Freeze Protection (P.01)

Criteria for Trip

The alarm criteria are checked whether the unit is ON or OFF. If the entering or leaving water thermistor senses a temperature at the freeze point or less, the alarm will be generated. For a fresh water system (**Cooler Fluid Type, *FLUD*=1**), the freeze point is 34°F (1.1°C). For medium temperature brine systems (**Cooler Fluid Type, *FLUD*=2**), the freeze point is Brine Freeze Set Point (**Brine Freeze Set Point, *LOSP***).

Action to be Taken

Unit shut down or not allowed to start. Chilled water pump will be started.

Reset Method

Automatic, first occurrence in 24 hours if LWT rises to 6°F (3°C) above set point. Manual, if more than one occurrence in 24 hours.

Possible Causes

If this condition is encountered, check the following items:

- entering and leaving fluid thermistors for accuracy
- water flow rate
- loop volume — low loop volume at nominal flow rates can in extreme cases bypass cold water to the cooler
- freezing conditions
- freeze protection items for proper operation
- glycol concentration and adjust ***LOSP*** accordingly

- If the Leaving Water Set Point is above 40°F (4.4°C) and there is glycol in the loop, consider using the Medium Temperature Brine option (**Cooler Fluid Type, *FLUD*=2**) to utilize the brine freeze point instead of 34 °F (1.1°C)

Condenser Freeze Protection

Alarm 68 — Circuit A (P.02)
Alarm 69 — Circuit B (P.03)

Criteria for Trip

The alarm criteria are checked whether the unit is ON or OFF and condenser fluid type is set for water.

- If the unit is **not** equipped with condenser water thermistors and the saturated condensing temperature is less than 34°F (1.1°C), the alarm will be generated. (Saturated condensing temperature is the saturated temperature converted from lowest pressure of discharge pressure and economizer pressure.)
- If the unit is equipped with condenser water thermistors and entering or leaving water temperature is less than 34°F (1.1°C), the alarm will be generated.

Action to be Taken

If the chiller is ON, the affected circuit will be shut down and the condenser pump output shall be turned on. If the chiller is OFF, the unit is not allowed to start. If a condenser head pressure control valve is configured, it is opened to 100%.

Reset Method

Automatic when saturated condensing temperature rises above 40°F (4.4°C).

Possible Causes

If this condition is encountered, check the following items:

- entering and leaving fluid thermistors for accuracy (if installed)
- water flow rate
- freezing conditions
- low refrigerant charge

Low Saturated Suction Temperature

Alarm 71 — Circuit A (P.05)
Alarm 72 — Circuit B (P.06)

Criteria for Trip

The criteria are tested only when the circuit is ON. This alarm is generated if one of the following criteria is met:

- If the circuit Saturated Suction Temperature is below –13°F (–25°C) for more than 30 seconds or 40 seconds if OAT is less than 14°F (–10°C) or LWT is less than 36°F (2.2°C).
- If the circuit Saturated Suction Temperature is below –22°F (–30°C) for more than 10 seconds, or 20 seconds if OAT less than 50°F (10°C).

Action to be Taken

The circuit is shut down immediately.

Prior to the alarm trip, the control will take action to avoid the alarm. See Operating Modes 21 and 22 on page 66.

Reset Method

Automatic, first occurrence in 24 hours. Manual, if more than one occurrence in 24 hours.

Possible Causes

If this condition is encountered, check the following items:

- sensor wiring to Main Base Board
- board for a faulty channel
- faulty suction transducer
- cooler water flow
- loop volume
- EXV operation
- liquid line refrigerant restriction, filter drier, service valve, etc.
- refrigerant charge
- If the Leaving Water Set Point is above 40°F (4.4°C) and there is glycol in the loop, consider using the Medium Temperature Brine option (**Cooler Fluid Type, *FLUD*=2**) to utilize the brine freeze point instead of 34°F (1.1°C).

High Suction Superheat

Alarm 74 — Circuit A (P.08)
Alarm 75 — Circuit B (P.09)

Criteria for Trip

The criteria are tested only when the circuit is ON. This alarm is generated if *all* of the following criteria are met:

- The EXV position is equal to or greater than 98%.
- The circuit's Suction Superheat (Suction Gas Temperature – Saturated Suction Temperature) is greater than the superheat control set point.
- The circuit's Saturated Suction Temperature is less than Maximum Operating Pressure (MOP) set point (**EXV MOP Set Point, *MOP***) for more than 5 minutes.

Action to be Taken

The circuit is shut down normally.

Reset Method

Manual.

Possible Causes

If this condition is encountered, check the following items:

- suction pressure transducer wiring to Main Base Board
- board for a faulty channel
- a faulty suction transducer
- suction gas thermistor wiring to EXV Board 1 or to EXV Board 2
- suction gas thermistor sensor for accuracy
- for EXV Board 1 or EXV Board 2 faulty channel
- EXV operation
- a liquid line refrigerant restriction, filter drier, service valve, etc.
- refrigerant charge

Low Suction Superheat

Alarm 77 — Circuit A (P.11)
Alarm 78 — Circuit B (P.12)

Criteria for Trip

The criteria are tested when the circuit is ON. This alarm is generated if the following criterion is met:

The EXV position is equal to or less than 5% and the circuit's Suction Superheat (Suction Gas Temperature – Saturated Suction Temperature) is less than the Suction Superheat Set Point (**EXVA Superheat Set Point, *SHP.A***, **EXVB Superheat Set Point, *SHP.B***, or **EXVC Superheat Set Point, *SHP.C***) by at least 5°F (2.8°C) or the circuit Saturated Suction Temperature is greater than Maximum Operating Pressure (MOP) set point (**EXV MOP Set Point, *MOP***) for more than 5 minutes.

Action to be Taken

The circuit is shut down normally.

Reset Method

Automatic, first occurrence in 24 hours. Manual, if more than one occurrence in 24 hours.

Possible Causes

If this condition is encountered, check the following items:

- suction pressure transducer wiring to Main Base Board
- board for a faulty channel

- faulty suction transducer
- suction gas thermistor wiring to EXV Board 1 or to EXV Board 2
- suction gas thermistor sensor for accuracy
- EXV Board 1 or EXV Board 2 faulty channel
- EXV operation
- confirm maximum operating pressure set point
- refrigerant charge level

Alarm 80 — Interlock Failure (P.14)

Criteria for Trip

The criteria are tested whether the unit is ON or OFF. This alarm is generated if the remote lockout switch input to the Energy Management Module (if equipped) is closed during normal operation.

Action to be Taken

All compressors are shut down immediately without going through the normal sequence and are not allowed to start.

Reset Method

Automatic, first occurrence in 24 hours. Manual, if more than one occurrence in 24 hours.

Possible Causes

If this condition is encountered, check the following items:

- chilled water flow switch operation
- water flow. Be sure all water isolation valves are open and check water strainer for a restriction
- interlock wiring circuit
- power supply to the pump
- control signal to the pump controller
- chilled water pump operation
- cooler pump contactor for proper operation

Alarm 81 — Electrical Box Thermostat Failure/Reverse Rotation (P.28)

Criteria for Trip

The alarm criteria are checked whether the unit is ON or OFF. If channel 15A on the MBB, which is used for field wired external pump interlock, is open then the alarm will be generated.

Action to be Taken

Unit shut down or note allowed to start.

Reset Method

Automatic, if the channel is closed, the unit will start normally.

Possible Causes

If this condition is encountered, check the following items:

- jumper wiring on TB5-1 and TB5-2 when channel is not in use
- external pump interlock open
- field wiring for the external pump interlock open

Alarm 82 — Loss of Communication with System Manager (P.29)

Criteria for Trip

The criterion is tested whether the unit is ON or OFF. This alarm is generated if the System Manager had established communications with the machine and is then lost for more than 2 minutes.

Action to be Taken

The action to be taken by the control depends on the configuration. If Auto Start when SM lost is enabled, (**Cooler Heater Delta Spt, *AU.SM*=YES**), then the unit will force the CCN Chiller Start Stop to **ENBL** and clear all forced points from the System Manager. The unit will revert to stand-alone operation.

Reset Method

Automatic, once communication is re-established.

Possible Causes

If this condition is encountered, check the following items:

- communication wiring
- power supply to the System Manager and unit controls

Alarm 83 — Master/Slave Communication Failure (P.30)

Criteria for Trip

The criterion is tested whether the units are ON or OFF and a master and slave machine has been configured, (**Master/Slave Select, *MSSL*=1** and **Master/Slave Select, *MSSL*=2**). If communication is lost for more than 3 minutes, this alarm is generated.

Action to be Taken

Dual chiller control will be disabled and each unit will operate in Stand-Alone mode.

Reset Method

Automatic, once communication is re-established.

Possible Causes

If this condition is encountered, check the following items:

- CCN wiring
- control power to each Main Base Board, master and slave
- confirm correct configuration

Low Oil Pressure

Alarm 84 — Circuit A (P.67)
Alarm 85 — Circuit B (P.68)

Criteria for Trip

The criteria are tested only when the compressor is ON. The alarm is generated if oil pressure is less than either **oil_sp1** or **oil_sp2** as defined below, where:

oil = oil pressure transducer reading for the appropriate compressor

sp = suction pressure reading for the affected circuit

dp = discharge pressure reading for the affected circuit

oil_sp1 = 0.7 x (dp-sp) + sp

oil_sp2 = sp + 7.2 psig (15 seconds after start)

oil_sp2 = sp + 14.5 psig (45 seconds after start)

Action to be Taken

The affected compressor will be stopped. The other compressors will continue to operate.

Reset Method

Manual.

Possible Causes

If this condition is encountered, check the following items:

- sensor wiring to the CPM Board
- board for a faulty channel
- faulty transducer
- plugged oil filter
- faulty oil solenoid valve coil
- stuck oil solenoid valve
- stuck check valve
- manual shut off valve to ensure it is not fully open
- confirm unit configuration

Max Oil Filter Differential Pressure Failure

Alarm 87 — Circuit A (P.70)
Alarm 88 — Circuit B (P.71)

Criteria for Trip

The criterion is tested when the compressor has been operating for at least 5 seconds. The alarm is generated if the difference between the Circuit Discharge Pressure and the Compressor Oil Pressure is greater than 50 psig (345 kPa) for more than 30 seconds.

Action to be Taken

The affected compressor will be turned off.

Reset Method

Manual

Possible Causes

If this condition is encountered, check the following items:

- check the discharge and oil sensor wiring to the Main Base Board and CPM board
- boards for a faulty channel
- faulty transducer
- plugged oil filter
- faulty oil solenoid valve coil
- stuck oil solenoid valve
- stuck check valve
- manual shut off valve to ensure it is not fully open

Check the power supply to the System Manager and unit controls.

High Oil Filter Pressure Drop

Alarm 90 — Circuit A (P.84)
Alarm 91 — Circuit B (P.85)

Criteria for Trip

The criterion is tested when the compressor has been operating for at least 5 seconds. The alarm is generated if the difference between the Circuit Discharge Pressure and the Compressor Oil Pressure is greater than 30 psig (206.8 kPa) for more than 5 minutes.

Action to be Taken

The compressor will continue to run.

Reset Method

Manual

Possible Causes

If this condition is encountered, check the following items:

- discharge and oil sensor wiring to the Main Base Board and CPM board
- boards for a faulty channel
- faulty transducer
- plugged oil filter
- faulty oil solenoid valve coil
- stuck oil solenoid valve
- stuck check valve
- manual shut off valve to ensure it is not fully open

Check the power supply to the System Manager and unit controls.

Low Oil Level Failure

Alarm 93 — Circuit A (P.75)
Alarm 94 — Circuit B (P.76)

Criteria for Trip

The criteria are tested whether the compressor is on or off. The alarm is generated if:

- the compressor is not running and an increase in capacity is required, and the compressor is not started.
- the compressor is running and the oil level switch is open for more than 45 seconds.

Action to be Taken

The affected compressor will be turned off or not allowed to start.

Reset Method

Automatic, when the oil level is elevated, first 3 times the alarm is tripped in a 24-hour period. Manual if alarm is tripped more than 3 times in a 24-hour period.

Possible Causes

If this condition is encountered, check the following items:

- oil level in the oil separator
- oil level switch wiring to the CPM board
- CPM board for a faulty channel
- faulty oil level switch
- oil solenoid valve stuck open

Alarm 96 — Master Chiller Configuration Error (MC.nn)

Criteria for Trip

The criterion is tested whether the unit is ON or OFF. The units must be configured as a Master and Slave machine (**Master/Slave Select, *MSSL*=1** and **Master/Slave Select, *MSSL*=2**), and one of the following configuration errors has been found. The "nn" refers to the error code listed in Table 56.

Action to be Taken

Unit not allowed to start in Master Slave control.

Reset Method

Automatic

Possible Causes

If this condition is encountered, check the following:

- CCN wiring
- Control power to each Main Base Board, master and slave
- Move to first position
- Confirm unit configuration

Alarm 97 — Initial Factory Configuration Required (FC.n0)

Criteria for Trip

The criterion is tested whether the unit is ON or OFF. The alarm will be generated if the **Unit Capacity Model, *TONS*=0**.

Action to be Taken

The unit is not allowed to start.

Reset Method

Automatic after factory configuration is complete. The configuration must be manually completed.

Possible Causes

If this condition is encountered, confirm the unit configuration.

Table 56 — Master/Slave Alarm Code

MC ERROR CODE	MASTER	SLAVE	DESCRIPTION
01	X	X	The master or slave water pump is not configured while the control of the lag unit pump is required (***lag_pump = 1***)
02	X		Master and slave units have the same network address.
03	X		There is no slave configured at the slave address
04	X		Slave ***pump_seq*** incorrect configuration
05	X		There is a conflict between the master and the slave LWT option: the master is configured for EWT control while the slave is configured for LWT control.
06	X		There is a conflict between the master and the slave LWT option: the master is configured for LWT control while the slave is configured for EWT control.
07	X		There is a conflict between the master and the slave pump option: the master is configured for lag pump control while the slave is not configured for lag pump control.
08	X		There is a conflict between the master and the slave pump option: the master is not configured for lag pump control while the slave is configured for lag pump control.
09	X	X	The slave chiller is in local or remote control (***chilstat = 3***)
10	X	X	The slave chiller is down due to fault (***chilstat = 5***)
11	X		The master chiller operating type is not Master: ***master_oper_typ***
12	X	X	No communication with slave.
13	X		Master and slave heat cool status are not the same.

LEGEND
EWT — Entering Water Temperature
LWT — Leaving Water Temperature

Alarm 98 — Illegal Configuration (FC.nn)

Criteria for Trip

The criterion is tested whether the unit is ON or OFF. The alarm will be generated if one of the following configuration errors is detected by the control. The "nn" refers to the error code listed in Table 57.

Action to be Taken

The unit is not allowed to start.

Reset Method

Automatic after reconfiguration is completed.

Possible Causes

If this condition is encountered, confirm the unit configuration (**None,** ***UNIT***).

Table 57 — Illegal Configuration Alarm Code

FC ERROR CODE	DESCRIPTION
01	Unit size is unknown.
02	Reclaim option selected for Heat Pump machine.
03	Hot Gas Bypass configured for a Heat Pump machine.

Alarm 99 — Unit is in Emergency Stop (P.31)

Criteria for Trip

The criterion is tested whether the units are ON or OFF and when the machine receives a Carrier Comfort Network® (CCN) command for an Emergency Stop.

Action to be Taken

Unit will stop, or will not allowed to start.

Reset Method

Automatic, once a return to normal command is received.

Possible Causes

If this condition is encountered, check for CCN Emergency Stop command.

Cooler Pump Fault

Alarm 100 — Pump 1 Fault (P.32)
Alarm 101 — Pump 2 Fault (P.33)

Criteria for Trip

The criterion is tested whether the units are ON or OFF. This alarm will be generated if the cooler pump interlock opens. When starting the pump, the control must read an open circuit for 3 consecutive reads. If the pump is operating and the circuit opens, the alarm will be generated immediately. The alarm will also be generated if the unit is configured for cooler pump sequence (PUMP) = 2 Pumps Auto and there is a loss of flow.

Action to be Taken

The pump and machine will be shut down. If there is another pump available, the control will start that pump, restart the machine and clear the alarm. If no other pump is available, the unit will remain OFF.

Reset Method

Manual.

Possible Causes

If this condition is encountered, check the following items:

- interlock wiring circuit
- control signal to the pump controller
- cooler pump contactor for proper operation
- control voltage for proper voltage

Alarm 102 — Condenser Flow Switch Failure (P.15)

Criteria for Trip

The criteria are tested when the unit is ON. This alarm will be tripped if:

- the flow switch fails to close after the Off/On delay
- the condenser pump control is enabled (**Condenser Pump Sequence,** ***HPUM***) and the condenser flow switch fails to close after the condenser pump is commanded on for more than one minute
- the flow switch is opened after normal operation.

Action to be Taken

For criteria 1 and 2 the compressor(s) will not be started. For criteria 3 all compressors will stop with no delay.

Reset Method

Manual.

Possible Causes

If this condition is encountered, check the following items:

- low condenser water flow
- faulty flow switch
- flow switch wiring
- faulty channel on MBB

Reclaim Operation Failure

Alarm 103 — Circuit A (P.34)
Alarm 104 — Circuit B (P.35)

NOTE: Alarms 103 and 104 are not used or supported. If this condition is encountered, confirm machine configuration.

High Condensing Temperature — Out of Compressor Envelope

Alarm 105 — Circuit A (P.37)
Alarm 106 — Circuit B (P.38)

Criteria for Trip

The criterion is tested when the circuit is ON. This alarm will be tripped if the circuit capacity is reduced more than 8 times in 30 minutes due to high discharge gas temperatures. If no override occurs in a 30-minute period, the counter is reset.

Action to be Taken

The affected circuit will be shut down.

Reset Method

Automatic, after 30 minutes. If the alarm is cleared via the Manual method, the counter will be reset to zero.

Possible Causes

If this condition is encountered, check the following items:

- Maximum Condensing Temperature (MCT) is linked to High Pressure Threshold (**hp_th**). It is a Service parameter which define the maximum chiller operating pressure.
- non-condensables in the refrigerant circuit
- low condenser water flow
- refrigerant charge (overcharged)
- condenser tubes fouled
- discharge service valve to be sure that it is open. Check the discharge pressure transducer for accuracy
- unit configuration
- Check High Pressure Threshold (***Configuration→SERV→HI→TH***) for proper setting

Repeated Low Suction Temperature Protection

Alarm 108 — Circuit A (P.40)
Alarm 109 — Circuit B (P.41)

Criteria for Trip

The criterion is tested when the circuit is ON. If the circuit operates and if more than 8 successive circuit capacity decreases (stop the compressor) have occurred because of low suction temperature protection overrides, the circuit alarm will be tripped. If no override has occurred for more than 30 minutes, the override counter will be reset to zero.

Action to be Taken

ALARM_LED will be set to blinking. Alert relay will be energized.

Reset Method

Automatic, when the override counter returns to zero. If the alarm is cleared via the Manual method, the counter will be forced to zero.

Possible Causes

If this condition is encountered, check the following items:

- suction transducer for accuracy
- suction transducer wiring
- EXV operation
- refrigerant charge (undercharged)
- evaporator loop for low water flow
- evaporator leaving water temperature
- suction service valve to be sure it is open. Discharge pressure transducer for accuracy
- unit configuration

Alarm 111 — Low Entering Water Temperature in Heating (P.43)

NOTE: Alarm 111 is not used or supported. If this condition is encountered, confirm machine configuration.

Condenser Default

Alarm 112 — Pump 1 (P.73)
Alarm 113 — Pump 2 (P.74)

NOTE: Alarms 112 and 113 are not used or supported. If this condition is encountered, confirm machine configuration.

High Discharge Temperature

Alarm 114 — Circuit A (P.78)
Alarm 115 — Circuit B (P.79)

Criteria for Trip

The criterion is tested when the compressor is operating. This alarm will be tripped if the discharge gas temperature is higher than 212°F (100°C) for more than 90 seconds.

Action to be Taken

The affected compressor will be stopped.

Reset Method

Manual.

Possible Causes

If this condition is encountered, check the following items:

- Maximum Condensing Temperature (MCT) for the proper setting
- non-condensables in the refrigerant circuit
- refrigerant charge (overcharged)
- condenser tubes fouled
- the discharge service valve to be sure that it is open, check the discharge pressure transducer for accuracy
- unit configuration

Low Economizer Pressure

Alarm 117 — Circuit A (P.81)
Alarm 118 — Circuit B (P.82)

Criteria for Trip

The criterion is tested when the compressor is operating to prevent pump down conditions when the suction service valve is closed. This alarm will be tripped if the economizer pressure is below the suction pressure more than 1 bar (14.5 psig [100 kPa]) for more than 10 seconds. On non-economized units, if the circuit suction pressure does not decrease by at least 10 psig (69.0 kPa) in 20 seconds, the alarm will be triggered. This is only checked after a power on reset. If the criterion is satisfied, it will not be tested again until the next power on reset.

Action to be Taken

The affected compressor will be stopped.

Reset Method

Manual.

Possible Causes

If this condition is encountered, check the following items:

- suction service valve is closed
- sensor wiring to the EXV boards
- boards for faulty channels
- faulty transducer
- economizer EXV operation

Slide Valve Control Unverifiable

Alarm 120 — Circuit A (P.87)
Alarm 121 — Circuit B (P.88)

Criteria for Trip

The criteria are tested when the compressor is operating and the active cooling set point is greater than 32°F (0°C). This alarm will be tripped if:

- The circuit is operating at 100% of capacity and the measured current is less than 1.1 times the current at fully unloaded 30% for more than one minute.

Action to be Taken

The affected compressor will continue to run.

Reset Method

Manual.

Possible Causes

If this condition is encountered, check the following items:

- faulty unloader solenoid valves
- faulty unloader solenoid coils
- wiring of the unloader solenoid valves
- CPM board for faulty channels
- current transformer reading for accuracy

Alarm 123 — Cooler Flow Switch Set Point Configuration Failure (P.90)

NOTE: Alarm 123 is not used or supported. If this condition is encountered, confirm machine configuration.

Alarm 124 — Cooler Flow Switch Failure (P.91)

Criteria for Trip

The criteria are tested when the unit is on or off. This alarm will be tripped when the unit is ON if:

1. Cooler pump interlock opens.
2. The flow switch fails to close after the Off/On delay.
3. If the master/slave control is active, the unit is the lag chiller and if the cooler flow switch fails to close within one minute after the cooler pump was restarted. The alarm is ignored if the lag cooler pump is stopped as a result of master/slave control.
4. The flow switch is opened during normal operation.

This alarm will be tripped when the unit is OFF if:

1. The cooler pump control is enabled (**Cooler Pumps Sequence, *PUMP***) and the cooler flow switch is checked when the pump is enabled (**Flow Checked if Pump Off**, ***P.LOC***) and the cooler flow switch is closed after the cooler pump is commanded OFF for more than 2 minutes.
2. The cooler pump control is enabled (**Cooler Pumps Sequence, *PUMP***) and the flow switch fails to close after the Off/On delay after the cooler pump has been turned on to protect the cooler from freezing.

Action to be Taken

If the unit is ON, for criteria for trips 1 and 2, the compressors will not be started.

For criteria for trip 3, all compressors will be stopped without going through pumpdown. Cooler pump will be stopped with no delay.

If the unit is OFF, for criteria for trip 1, the unit will not start.

Reset Method

Manual if at least one compressor is operating. Automatic if no compressors are operating.

Possible Causes

If this condition is encountered, check the following items:

- low chilled water flow
- a faulty flow switch
- flow switch wiring
- Main Base Board for a faulty channel

Alarm 125 — Water Exchanger Temperature Sensors Swapped (P.97)

Criteria for Trip

The alarm criterion is checked when the chiller is ON and one or more compressors is running. This alarm will be tripped if the entering water temperature is less than the leaving water temperature for more than 1 minute.

Action to be Taken

The chiller is shut down immediately.

Reset Method

Manual.

Possible Causes

If this condition is encountered, check the following items:

- Check LWT and EWT wiring at main base board (connector J6, channels 1,2).
- Check for a faulty entering or leaving water temperature sensor.
- Check cooler nozzles for proper water temperature sensor locations.

Alarm 128 — Service Maintenance Alert (Sr.nn)

Criteria for Trip

This alert is tested whether the unit is ON or OFF and when the Servicing Alert decisions listed under ***Time Clock→MCFG*** have been enabled. The alarm will be generated if the one of the following configuration errors is detected by the control. The "nn" refers to the error code listed in Table 58.

Table 58 — Service Maintenance Alert Codes

CODE	DESCRIPTION
S.01	Circuit A Loss of Refrigerant Charge
S.02	Circuit B Loss of Refrigerant Charge
S.04	Water Loop Size Warning
S.06	Cooler Pump 1 Servicing Required
S.07	Cooler Pump 2 Servicing Required
S.08	Condenser Pump 1 Servicing Required
S.09	Condenser Pump 2 Servicing Required
S.10	Water Filter Servicing Required
S.11	Compressor A Oil Filter Servicing Required
S.12	Compressor B Oil Filter Servicing Required

Action to be Taken

None.

Reset Method

Manual, after the service has been completed.

Possible Causes

If the Sr. 01, 02, or 03 conditions are encountered, check the following items:

- sensor wiring to the Main Base Board
- sensor for accuracy

Compressor Motor Temperature Too High

Alarm 132-01 — Circuit A (A1.01)
Alarm 133-01 — Circuit B (B1.01)

Criteria for Trip

The alarm criteria are checked when the compressor is ON. This alarm will be generated if:

- The temperature is greater than 245°F (118°C) and it has been greater than 212°F (100°C) for 10 consecutive seconds.
- The compressor temperature is greater than 232°F (111°C) for 90 seconds (but less than 250°F [120°C]).

Action to be Taken

The circuit shuts down immediately.

Reset Method

Manual

Possible Causes

If this condition is encountered, check the following items:

- faulty wiring and loose plugs
- faulty CPM board

Compressor Motor Temperature Out of Range

Alarm 132-02 — Circuit A (A1.02)
Alarm 133-02 — Circuit B (B1.02)

Criteria for Trip

The alarm criterion is checked when the compressor is ON. This alarm will be generated if: the temperature is greater than 245°F (118°C) and it has NOT been greater than 212°F (100°C) for 10 consecutive seconds.

Action to be Taken

The compressor will be stopped.

Reset Method

Manual

Possible Causes

If this condition is encountered, check the following items:

- faulty compressor temperature thermistor
- faulty wiring and loose plugs
- faulty CPM board

Compressor High Pressure Switch Protection

Alarm 132-03 — Circuit A (A1.03)
Alarm 133-03 — Circuit B (B1.03)

Criteria for Trip

The alarm criterion is checked when the compressor is ON. This alarm will be generated if the circuit high-pressure switch (HPS) opens for more than 2 seconds. The CPM board monitors the HPS switch.

Action to be Taken

The compressor will be stopped.

Reset Method

Manual (reset button on switch)

Possible Causes

If this condition is encountered, check the following items:

- loss of condenser water flow
- condenser pump failure
- compressor operating beyond the operation envelope
- faulty high pressure switch or wiring
- faulty CPM board

Compressor Overcurrent

Alarm 132-04 — Circuit A (A1.04)
Alarm 133-04 — Circuit B (B1.04)

Criteria for Trip

The alarm criterion is checked when the compressor is ON. This alarm will be generated if the CPM board detects a motor current greater than 93% MTA (must trip amps) and less than 2 times that for more than 1.7 seconds.

Action to be Taken

The compressor will be stopped.

Reset Method

Manual

Possible Causes

If this condition is encountered, check the following items:

- Compressor operating beyond the operation envelope.
- Incorrect MTA setting.

Compressor Locked Rotor

Alarm 132-05 — Circuit A (A1.05)
Alarm 133-05 — Circuit B (B1.05)

Criteria for Trip

The alarm criterion is checked during start-up when the compressor is ON. This alarm will be generated if the CPM board detects a high motor current compared with the MTA (must trip amps) setting for more than 450 ms.

Action to be Taken

The compressor will be stopped.

Reset Method

Manual

Possible Causes

If this condition is encountered, check the following items:

- compressor mechanical failure
- unloader slide valve failure
- compressor motor failure

Compressor Phase Loss

Alarm 132-06 — Circuit A L1 (A1.06)
Alarm 133-06 — Circuit B L1 (B1.06)
Alarm 132-07 — Circuit A L2 (A1.07)
Alarm 133-07 — Circuit B L2 (B1.07)
Alarm 132-08 — Circuit A L3 (A1.08)
Alarm 133-08 — Circuit B L3 (B1.08)

Criteria for Trip

The alarm criteria are checked during startup when the compressor is ON. This alarm will be generated if:

- The current unbalance on any of the 3 phases is greater than 48% for more than 1 second continuously during start-up.
- The current unbalance on any of the 3 phases is greater than 48% for more than 2 seconds continuously during runtime.

Action to be Taken

The compressor will be stopped.

Reset Method

Manual

Possible Causes

If this condition is encountered, check the following items:

- power failure
- blown fuse or tripped circuit breaker
- power wiring errors or loose terminals

Compressor Low Current

Alarm 132-09 — Circuit A (A1.09)
Alarm 133-09 — Circuit B (B1.09)

Criteria for Trip

The alarm criteria are checked when the compressor is ON. This alarm will be generated if:

- The current is less than 15% MTA on all three legs for more than 1 second for wye-delta start units.
- If the current is less than 15% of MTA on all three legs for more than 1 second for direct start units.

Action to be Taken

The compressor will be stopped.

Reset Method

Manual

Possible Causes

If this condition is encountered, check the following items:

- power failure

- blown fuse or tripped circuit breaker
- de-energized contactor
- faulty current toroid
- high pressure switch (HPS) trip (when auto reset HPS is used)

Compressor Wye-Delta Starter Current Increase Failure

Alarm 132-10 — Circuit A (A1.10)
Alarm 133-10 — Circuit B (B1.10)

Criteria for Trip

The alarm criterion is checked during compressor start-up. This alarm will be generated if the current in Delta mode is not more than 25% greater than the current in Y mode within 550 ms.

Action to be Taken

The compressor will be stopped.

Reset Method

Manual

Possible Causes

If this condition is encountered, check the following items:

- power supply failure to the delta contactor
- faulty wiring to the delta contactor
- faulty CPM board
- faulty current toroid

Compressor Contactor Failure

Alarm 132-11 — Circuit A (A1.11)
Alarm 133-11 — Circuit B (B1.11)

Criteria for Trip

The alarm criterion is checked during compressor shut-down. This alarm will be generated if the current is greater than 15% of the MTA on at least one phase for 10 continuous seconds.

Action to be Taken

The compressor will be stopped.

Reset Method

Manual

Possible Causes

If this condition is encountered, check the following items:

- faulty or welded contactor
- faulty wiring
- faulty CPM board

Compressor Unable to Stop Motor

Alarm 132-12 — Circuit A (A1.12)
Alarm 133-12 — Circuit B (B1.12)

Criteria for Trip

The alarm criterion is checked during compressor shutdown. This alarm will be generated if after three attempts to turn off the compressor outputs and the current is still greater than 15% of the MTA on at least one phase for 10 continuous seconds.

Action to be Taken

The compressor will be stopped.

Reset Method

Manual

Possible Causes

If this condition is encountered, check the following items:

- faulty or welded contactor
- faulty wiring

Compressor Phase Reversal

Alarm 132-13 — Circuit A (A1.13)
Alarm 133-13 — Circuit B (B1.13)

Criteria for Trip

The alarm criterion is checked during compressor start-up. This alarm will be generated if the CPM board detects a phase reversal from the current toroid.

Action to be Taken

The compressor will be stopped.

Reset Method

Manual

Possible Causes

If this condition is encountered, check the following items:

- if power supply lead at the terminal block is not operating at the correct phase
- if power supply is crossed when going through the current toroid

Compressor MTA Configuration Fault

Alarm 132-14 — Circuit A (A1.14)
Alarm 133-14 — Circuit B (B1.14)

Criteria for Trip

The alarm criterion is checked whether the compressor is ON or OFF. This alarm will be generated if the MTA setting is out of the allowed MTA range.

Action to be Taken

The compressor will be stopped.

Reset Method

Manual

Possible Causes

If this condition is encountered, check the following items:

- incorrect MTA settings
- faulty CPM board

Compressor Configuration Switch Mismatch

Alarm 132-15 — Circuit A (A1.15)
Alarm 133-15 — Circuit B (B1.15)

Criteria for Trip

The alarm criterion is checked whether the compressor is ON or OFF. This alarm will be generated if the CPM board S1 and S2 setting does not match software configuration.

Action to be Taken

The compressor will be stopped.

Reset Method

Manual

Possible Causes

If this condition is encountered, check the following items:

- incorrect CPM board settings
- faulty CPM board

Compressor Unexpected Switch Setting Change

Alarm 132-16 — Circuit A (A1.16)
Alarm 133-16 — Circuit B (B1.16)

Criteria for Trip

The alarm criterion is checked when the compressor is ON. This alarm will be generated if the CPM board S1 setting has changed.

Action to be Taken

The compressor will be stopped.

Reset Method

Manual

Possible Causes

If this condition is encountered, check the following items:

- incorrect CPM board settings
- faulty CPM board

Compressor Power on Reset

Alarm 132-17 — Circuit A (A1.17)
Alarm 133-17 — Circuit B (B1.17)

Criteria for Trip

The alarm criterion is checked when the compressor is ON. This alarm will be generated if the CPM board detects a power failure.

Action to be Taken

The compressor will be stopped.

Reset Method

Manual

Possible Causes

If this condition is encountered, check for power interruptions.

Compressor UL 1998 Critical Section Software Error

Alarm 132-18 — Circuit A (A1.18)
Alarm 133-18 — Circuit B (B1.18)

Criteria for Trip

The alarm criterion is checked when the compressor is ON. This alarm will be generated if the CPM board detects a software error.

Action to be Taken

The compressor will be stopped.

Reset Method

Manual

Possible Causes

If this condition is encountered, check the following items:

- electrical noise
- faulty CPM board

Compressor UL 1998 Current Measure Dual Channel Mismatch

Alarm 132-19 — Circuit A (A1.19)
Alarm 133-19 — Circuit B (B1.19)

Criteria for Trip

The alarm criterion is checked when the compressor is ON. This alarm will be generated if the CPM board detects a software error.

Action to be Taken

The compressor will be stopped.

Reset Method

Manual

Possible Causes

If this condition is encountered, check the following items:

- electrical noise
- faulty CPM board

Service Test

Main power and control circuit power must be on for Service Test.

The Service Test function is used to verify proper operation of various devices within the chiller, such as compressors, minimum load valve solenoid (if installed), cooler pump(s) and remote alarm relay. This is helpful during the start-up procedure to determine if devices are installed correctly. See Fig. 64 for 30XW wiring diagram.

SERVICE TEST WITH NAVIGATOR™ DISPLAY

To use the Service Test mode, the Enable/Off/Remote Contact switch must be in the OFF position. Use the display keys to move to the Service Test mode. The items are described in the Service Test table. There are two sub-modes available. **Service Test Enable, *T.REQ*** allows for manual control of the compressors and minimum load control. In this mode the compressors will operate only on command. The capacity control, head pressure control, and EXV control algorithms will be active. There must be a load on the chiller to operate for an extended period of time. All circuit safeties will be honored during the test. **Quick Test Enable, *Q.REQ*** allows for test of EXVs, pumps, oil solenoids, unloader solenoids and status points (alarm relays, running status and chiller capacity). If there are no keys pressed for 5 minutes, the active test mode will be disabled.

To enter the Manual Control mode with the Navigator™ display, the Enable/Off/Remote Contact switch must be in the OFF position. Move the LED to the Service Test mode. Press ENTER to access ***TEST***. Press ENTER to access ***T.REQ.*** Press ENTER and the display will show **OFF**. Press ENTER and **OFF** will flash. Enter the password if required. Use either arrow key to change the ***T.REQ*** value to **ON** and press ENTER. Place the Enable/Off/Remote Switch in the enable position. Manual Control mode is now active. Press the arrow keys to move to the appropriate item. To activate an item locate the item, press ENTER and the display will show **OFF**. Press ENTER and **OFF** will flash. Use either arrow key to change the value to **ON** and press ENTER. The item should be active. To turn the item off, locate the item, press ENTER and the display will show **ON**. The chiller must be enabled by turning the Enable/Off/Remote Contact switch to Enable. Press ENTER and **ON** will flash. Use either arrow key to change the value to **OFF** and press ENTER. The item should be inactive.

To enter the Quick Test mode, the Enable/Off/Remote Contact switch must be in the OFF position. Move the LED to the Service Test mode. Press ENTER to access ***TEST***. Use the ▼ key until the display reads **QUIC**. Press ENTER to access ***Q.REQ***. Press ENTER and the display will show **OFF**. Press ENTER and **OFF** will flash. Enter the password if required. Use either arrow key to change the ***QUIC*** value to **ON** and press ENTER. Quick Test mode is now active. Follow the same instructions for the Manual Control mode to activate a component.

Example — Test the oil solenoid circuit A (see Table 59).

Power must be applied to the unit. Enable/Off/Remote Contact switch must be in the OFF position.

Test the cooler pump(s) and alarm relay by changing the item values from OFF to ON. These discrete outputs are then turned off if there is no keypad activity for 10 minutes. Test the compressor and minimum load valve solenoid (if installed) outputs in a similar manner. The minimum load valve solenoids will be turned off if there is no keypad activity for 10 minutes. Compressors will stay on until the operator turns them off. The Service Test mode will remain enabled for as long as there is one or more compressors running. All safeties are monitored during this test and will turn a compressor, circuit or the machine off if required. Any other mode or sub-mode can be accessed, viewed, or changed during the Manual Control mode only. The ***STAT*** item (***Run Status→VIEW***) will display "0" as long as the Service mode is enabled. The ***TEST*** sub-mode value must be changed back to OFF before the chiller can be switched to Enable or Remote contact for normal operation.

NOTE: There may be up to a one-minute delay before the selected item is energized.

SERVICE TEST WITH TOUCH PILOT™ DISPLAY

To enter the Manual Control mode with the Touch Pilot display, the unit Operating Type must be Local OFF. Use the START/STOP button on the Touch Pilot display to stop the machine if necessary. To place the unit the Service Test mode, select **Main Menu\STATUS\Page Down\SERV_TST** and configure **Service Test Enable** to YES. Enter the password if required. Configure the desired compressor output to ON. Then press the START/

STOP button on the Touch Pilot display and select Local on. Return to the SERV_TST screen to start and stop compressors or manually operate the compressor slide valve.

To enter the Quick Test mode, the unit Operating Type must be Local OFF. Use the START/STOP button on the Touch Pilot display to stop the machine if necessary. To place the unit in Quick Test mode select **Main Menu\STATUS\Page Down\QCK_TST1** and configure **Quick Test Enable** to Yes. Enter the password if required. Configure the desired output to ON, percent output or stage to confirm operation of the component.

Table 59 — Testing Circuit A Oil Solenoid

MODE (Red LED)	SUB-MODE	KEYPAD ENTRY	ITEM	DISPLAY EXPANSION	VALUE DESCRIPTION (Units)	COMMENT
SERVICE TEST		ENTER		Service Test Mode		
	TEST	↓		Manual Sequence		
	QUIC	ENTER	Q.REQ			
			PASS WORD			Password may be required
		ENTER			0111	
		ENTER ENTER ENTER ENTER				Each ENTER will lock in the next digit. If 0111 is not the password, use the arrow keys to change the password digit and press ENTER when correct.
		ENTER	Q.REQ			Returns to the original field
		ENTER			OFF	
		ENTER			OFF	OFF will flash
		↓			ON	The Enable/Off/Remote Contact switch must be in the OFF position.
		ESCAPE	Q.REQ			
		↓	EXV.A			
		↓	Press 15 times.			
		↓	OLS.A	Oil Solenoid cir.A		
		ENTER			OFF	
		ENTER			OFF	OFF will flash
		↑			ON	
		ENTER			ON	OLS.A will turn on.
		ENTER			ON	1 will flash
		↓			OFF	
		ENTER			OFF	OLS.A will turn off.

LEGEND FOR FIG. 64

ALM	— Alarm	**FIOP**	— Factory-Installed Option
ALT	— Alert	**HGBP**	— Hot Gas Bypass
CB	— Circuit Breaker	**LWT**	— Leaving Water Temperature
CDFS	— Condenser Flow Switch	**MBB**	— Main Base Board
CPM	— Compressor Protection Module	**MLV**	— Minimum Load Valve
CPMP	— Condenser Pump Relay	**PL**	— Plug
CWFS	— Chilled Water Flow Switch	**PMP**	— Pump
DPT	— Discharge Pressure and Temperature	**SGT**	— Saturated Gas Temperature
ECEXV	— Economizer Electronic Expansion Valve	**SHD**	— Loadshed
ECT	— Entering Cooler Temperature	**SPT**	— Suction PressureTransducer
EMM	— Energy Management Module	**TB**	— Terminal Block
EXV	— Electronic Expansion Valve		

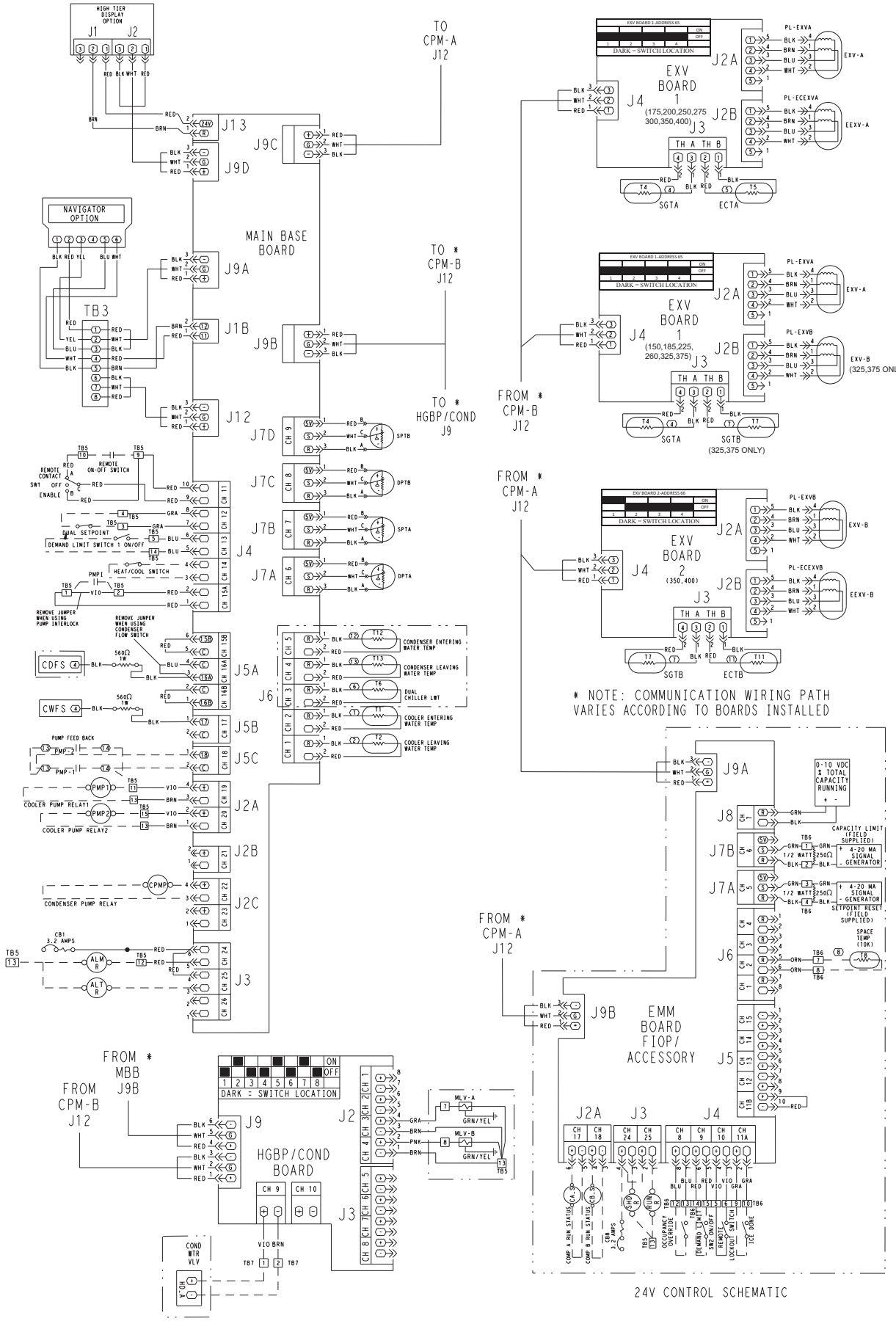

Fig. 64 — 30XW Low Voltage Control Wiring Schematic

APPENDIX A — TOUCH PILOT DISPLAY TABLES

The Touch Pilot™ display tables are formatted in alphabetical order based on the point name description. The line number corresponds to the line number from the top of the Touch Pilot screen. A cross reference to the CCN tables in Appendix C is provided. Please refer to Appendix C for range and configuration default information.

NOTE: In places where duplicated point name descriptions were used, the headers were added to the point name description to differentiate them. For example, the description Compressor Output is used three times for circuits A, B, and C. In this table, the descriptions include Circuit A, Circuit B, and Circuit C.

POINT NAME DESCRIPTION	TOUCH PILOT POINT NAME	TOUCH PILOT PATH	LINE	READ/ WRITE	CCN TABLE NAME
1 Elec Stage for backup	ehs_back	MAIN MENU\Config\USER	35	RW	Configuration Tables\USER
3 Way Valve Position	Q_3W_VLV	MAIN MENU\Status\QCK_TST2	11	RW	Status Display Tables\QCK_TST2
3 Way Valve Position					
Circuit A	fc_vlv_a	MAIN MENU\Status\FREECOOL	14	RO	Status Display Tables\FREECOOL
Circuit B	fc_vlv_b	MAIN MENU\Status\FREECOOL	24	RO	Status Display Tables\FREECOOL
Circuit C	fc_vlv_c	MAIN MENU\Status\FREECOOL	34	RO	Status Display Tables\FREECOOL
3 Way Valve Status					
Circuit A	FC_VLV_A	MAIN MENU\Status\FREECOOL	15	RO	Status Display Tables\FREECOOL
Circuit B	FC_VLV_B	MAIN MENU\Status\FREECOOL	25	RO	Status Display Tables\FREECOOL
Circuit C	FC_VLV_C	MAIN MENU\Status\FREECOOL	35	RO	Status Display Tables\FREECOOL
4 way Valve Circuit A	Q_RV_A	MAIN MENU\Status\QCK_TST2	13	RW	Status Display Tables\QCK_TST2
4 way Valve Circuit B	Q_RV_B	MAIN MENU\Status\QCK_TST2	14	RW	Status Display Tables\QCK_TST2
4 Way Refrigerant Valve					
Circuit A	RV_A	MAIN MENU\Status\CIRCA_D	24	RO	Status Display Tables\CIRCA_D
Circuit B	RV_B	MAIN MENU\Status\CIRCB_D	24	RO	Status Display Tables\CIRCB_D
Circuit C	RV_C	MAIN MENU\Status\CIRCC_D	23	RO	Status Display Tables\CIRCC_D
Activate	ccnbroad	MAIN MENU\Config\BRODEFS	1	RW	Configuration Tables\BRODEFS\BROCASTS
Active Capacity Override	over_cap	MAIN MENU\Maint\LOADFACT	20	RO	Maintenance Display Tables\LOADFACT
Active Demand Limit Val	DEM_LIM	MAIN MENU\Status\GENUNIT	21	RO	Status Display Tables\GENUNIT
Actual Capacity	cap_t	MAIN MENU\Maint\LOADFACT	8	RO	Maintenance Display Tables\LOADFACT
Actual Capacity Limit	cap_lim	MAIN MENU\Maint\LOADFACT	9	RO	Maintenance Display Tables\LOADFACT
Actual Chiller Current	TOT_CURR	MAIN MENU\Maint\LOADFACT	10	RO	Maintenance Display Tables\LOADFACT
Actual Chiller Current	TOT_CURR	MAIN MENU\Status\GENUNIT	23	RO	Status Display Tables\GENUNIT
Air Cond Enter Valve A	Q_HREA_A	MAIN MENU\Status\QCK_TST2	3	RW	Status Display Tables\QCK_TST2
Air Cond Enter Valve B	Q_HREA_B	MAIN MENU\Status\QCK_TST2	7	RW	Status Display Tables\QCK_TST2
Air Cond Entering Valv A	hr_ea_a	MAIN MENU\Status\RECLAIM	15	RO	Status Display Tables\RECLAIM
Air Cond Entering Valv B	hr_ea_b	MAIN MENU\Status\RECLAIM	25	RO	Status Display Tables\RECLAIM
Air Cond Leaving Valv A	Q_HRLA_A	MAIN MENU\Status\QCK_TST2	4	RW	Status Display Tables\QCK_TST2
Air Cond Leaving Valv B	Q_HRLA_B	MAIN MENU\Status\QCK_TST2	8	RW	Status Display Tables\QCK_TST2
Air Cond Leaving Valve A	hr_la_a	MAIN MENU\Status\RECLAIM	17	RO	Status Display Tables\RECLAIM
Air Cond Leaving Valve B	hr_la_b	MAIN MENU\Status\RECLAIM	27	RO	Status Display Tables\RECLAIM
Air Cooled Reclaim Sel	recl_opt	MAIN MENU\Service\FACTORY	10	RW	Service Configuration Tables\FACTORY
Alarm Equipment Priority	EQP_TYP	MAIN MENU\Config\ALARMDEF	2	RW	Configuration Tables\ALARMDEF\ALARMS01
Alarm Relay Output	Q_ALARM	MAIN MENU\Status\QCK_TST1	48	RW	Status Display Tables\QCK_TST1
Alarm Relay Status	ALARMOUT	MAIN MENU\Status\STATEGEN	28	RO	Status Display Tables\STATEGEN
Alarm Routing Control	ALRM_CNT	MAIN MENU\Config\ALARMDEF	1	RW	Configuration Tables\ALARMDEF\ALARMS01
Alarm State	ALM	MAIN MENU\Status\GENUNIT	13	RO	Status Display Tables\GENUNIT
Alarm System Name	ALRM_NAM	MAIN MENU\Config\ALARMDEF	5	RW	Configuration Tables\ALARMDEF\ALARMS01
Alert Relay Output	Q_ALERT	MAIN MENU\Status\QCK_TST1	49	RW	Status Display Tables\QCK_TST1
Alert Relay Status	ALERT	MAIN MENU\Status\STATEGEN	29	RO	Status Display Tables\STATEGEN
Auto Changeover Active	Mode_12	MAIN MENU\Status\MODES	13	RO	Status Display Tables\MODES
Auto Changeover Select	auto_sel	MAIN MENU\Config\USER	18	RW	Configuration Tables\USER
Auto Start When SM Lost	auto_sm	MAIN MENU\Service\SERVICE1	18	RW	Service Configuration Tables\SERVICE1
AUX Board #1 Part Number	AUX_BRD1	MAIN MENU\Maint\BOARD_PN	4	RO	Maintenance Display Tables\BOARD_PN
AUX Board #2 Part Number	AUX_BRD2	MAIN MENU\Maint\BOARD_PN	5	RO	Maintenance Display Tables\BOARD_PN
AUX Board #3 Part Number	AUX_BRD3	MAIN MENU\Maint\BOARD_PN	6	RO	Maintenance Display Tables\BOARD_PN
AUX Board #4 Part Number	AUX_BRD4	MAIN MENU\Maint\BOARD_PN	7	RO	Maintenance Display Tables\BOARD_PN
AUX Board #5 Part Number	AUX_BRD5	MAIN MENU\Maint\BOARD_PN	8	RO	Maintenance Display Tables\BOARD_PN
Average Ctrl Water Temp	ctrl_avg	MAIN MENU\Maint\LOADFACT	2	RO	Maintenance Display Tables\LOADFACT

LEGEND

RO — Read Only
RW — Read/Write

APPENDIX A — TOUCH PILOT DISPLAY TABLES (CONT)

POINT NAME DESCRIPTION	TOUCH PILOT POINT NAME	TOUCH PILOT PATH	LINE	READ/ WRITE	CCN TABLE NAME
Ball Valve Closing Out					
Circuit A	ISO_CL_A	MAIN MENU\Status\CIRCA_D	22	RO	Status Display Tables\CIRCA_D
Circuit B	ISO_CL_B	MAIN MENU\Status\CIRCB_D	22	RO	Status Display Tables\CIRCB_D
Circuit C	ISO_CL_C	MAIN MENU\Status\CIRCC_D	22	RO	Status Display Tables\CIRCC_D
Ball Valve Opening Out					
Circuit A	ISO_OP_A	MAIN MENU\Status\CIRCA_D	23	RO	Status Display Tables\CIRCA_D
Circuit B	ISO_OP_B	MAIN MENU\Status\CIRCB_D	23	RO	Status Display Tables\CIRCB_D
Circuit C	ISO_OP_C	MAIN MENU\Status\CIRCC_D	23	RO	Status Display Tables\CIRCC_D
Ball Valve Position					
Circuit A	ISO_REFA	MAIN MENU\Status\CIRCA_D	21	RO	Status Display Tables\CIRCA_D
Circuit B	ISO_REFB	MAIN MENU\Status\CIRCB_D	21	RO	Status Display Tables\CIRCB_D
Circuit C	ISO_REFC	MAIN MENU\Status\CIRCC_D	21	RO	Status Display Tables\CIRCC_D
Baud rate	Baud rate	MAIN MENU\Config\Ctlr-ID	9	RO	Configuration Tables\!CtlrID\PD5_XAXQ
Brine flow Switch SP	flow_sp	MAIN MENU\Service\SERVICE1	2	RW	Service Configuration Tables\SERVICE1
Brine Freeze Set Point	lowestsp	MAIN MENU\Service\SERVICE1	3	RW	Service Configuration Tables\SERVICE1
Broadcast acknowledger	Broadcast	MAIN MENU\Config\Ctlr-ID	10	RO	Configuration Tables\!CtlrID\PD5_XAXQ
Bus	Bus	MAIN MENU\Config\Ctlr-ID	7	RO	Configuration Tables\!CtlrID\PD5_XAXQ
CCN Chiller Start/Stop	CHIL_S_S	MAIN MENU\Status\GENUNIT	5	RO	Status Display Tables\GENUNIT
Chiller Capacity in0-10v	Q_CATO	MAIN MENU\Status\QCK_TST1	46	RW	Status Display Tables\QCK_TST1
Chiller Capacity Signal	CAPT_010	MAIN MENU\Status\STATEGEN	43	RO	Status Display Tables\STATEGEN
Chiller Current Limit	CURR_LIM	MAIN MENU\Maint\LOADFACT	11	RO	Maintenance Display Tables\LOADFACT
Chiller Current Limit	CURR_LIM	MAIN MENU\Status\GENUNIT	24	RO	Status Display Tables\GENUNIT
Chiller in Series	ll_serie	MAIN MENU\Config\MST_SLV	24	RW	Configuration Tables\MST_SLV
Chiller Occupied?	CHIL_OCC	MAIN MENU\Status\GENUNIT	6	RO	Status Display Tables\GENUNIT
Chiller Ready Output	Q_READY	MAIN MENU\Status\QCK_TST1	41	RW	Status Display Tables\QCK_TST1
Chiller Running Output	Q_RUN	MAIN MENU\Status\QCK_TST1	42	RW	Status Display Tables\QCK_TST1
CHWS Temperature	CHWSTEMP	MAIN MENU\Status\STATEGEN	40	RO	Status Display Tables\STATEGEN
Circuit C Heater Temp	T_HEAT_C	MAIN MENU\Status\STATEGEN	38	RO	Status Display Tables\STATEGEN
Circuit Loading Sequence	lead_cir	MAIN MENU\Config\USER	1	RW	Configuration Tables\USER
Comm Failure Retry Time	RETRY_TM	MAIN MENU\Config\ALARMDEF	3	RW	Configuration Tables\ALARMDEF\ALARMS01
Comp A Must Trip Amps	cpa_mtac	MAIN MENU\Service\FACTORY2	2	RW	Service Configuration Tables\FACTORY2
Comp A S1 Config Switch (8->1)	cpa_s1_c	MAIN MENU\Service\FACTORY2	3	RW	Service Configuration Tables\FACTORY2
Comp B Must Trip Amps	cpb_mtac	MAIN MENU\Service\FACTORY2	6	RW	Service Configuration Tables\FACTORY2
Comp B S1 Config Switch (8->1)	cpb_s1_c	MAIN MENU\Service\FACTORY2	7	RW	Service Configuration Tables\FACTORY2
Comp C Must Trip Amps	cpc_mtac	MAIN MENU\Service\FACTORY2	10	RW	Service Configuration Tables\FACTORY2
Comp C S1 Config Switch (8->1)	cpc_s1_c	MAIN MENU\Service\FACTORY2	11	RW	Service Configuration Tables\FACTORY2
Compressor A Disable	un_cp_a	MAIN MENU\Service\CP_UNABL	2	RW	Service Configuration\CP_UNABL
Compressor A Hours	hr_cp_a	MAIN MENU\Service\UPDTHOUR	7	RW	Service Configuration Tables\UPDTHOUR
Compressor A Hours	HR_CP_A	MAIN MENU\Status\STRTHOUR	3	RO	Status Display Tables\STRTHOUR
Compressor A Output	Q_CPA	MAIN MENU\Status\SERV_TST	3	RW	Status Display Tables\SERV_TST
Compressor A Starts	st_cp_a	MAIN MENU\Service\UPDTHOUR	8	RW	Service Configuration Tables\UPDTHOUR
Compressor A Starts	st_cp_a	MAIN MENU\Status\STRTHOUR	4	RO	Status Display Tables\STRTHOUR
Compressor B Disable	un_cp_b	MAIN MENU\Service\CP_UNABL	3	RW	Service Configuration\CP_UNABL
Compressor B Hours	hr_cp_b	MAIN MENU\Service\UPDTHOUR	9	RW	Service Configuration Tables\UPDTHOUR
Compressor B Hours	HR_CP_B	MAIN MENU\Status\STRTHOUR	5	RO	Status Display Tables\STRTHOUR
Compressor B Output	Q_CPB	MAIN MENU\Status\SERV_TST	5	RW	Status Display Tables\SERV_TST
Compressor B Starts	st_cp_b	MAIN MENU\Service\UPDTHOUR	10	RW	Service Configuration Tables\UPDTHOUR
Compressor B Starts	st_cp_b	MAIN MENU\Status\STRTHOUR	6	RO	Status Display Tables\STRTHOUR
Compressor C Disable	un_cp_c	MAIN MENU\Service\CP_UNABL	4	RW	Service Configuration\CP_UNABL
Compressor C Hours	hr_cp_c	MAIN MENU\Service\UPDTHOUR	11	RW	Service Configuration Tables\UPDTHOUR
Compressor C Hours	HR_CP_C	MAIN MENU\Status\STRTHOUR	7	RO	Status Display Tables\STRTHOUR
Compressor C Output	Q_CPC	MAIN MENU\Status\SERV_TST	7	RW	Status Display Tables\SERV_TST
Compressor C Starts	st_cp_c	MAIN MENU\Service\UPDTHOUR	12	RW	Service Configuration Tables\UPDTHOUR
Compressor C Starts	st_cp_c	MAIN MENU\Status\STRTHOUR	8	RO	Status Display Tables\STRTHOUR

LEGEND

RO — Read Only
RW — Read/Write

APPENDIX A — TOUCH PILOT DISPLAY TABLES (CONT)

POINT NAME DESCRIPTION	TOUCH PILOT POINT NAME	TOUCH PILOT PATH	LINE	READ/ WRITE	CCN TABLE NAME
Compressor Output					
Circuit A	COMP_A	MAIN MENU\Status\CIRCA_D	2	RO	Status Display Tables\CIRCA_D
Circuit B	COMP_B	MAIN MENU\Status\CIRCB_D	2	RO	Status Display Tables\CIRCB_D
Circuit C	COMP_C	MAIN MENU\Status\CIRCC_D	2	RO	Status Display Tables\CIRCC_D
Compressor Suction Temp					
Circuit A	SUCT_T_A	MAIN MENU\Status\CIRCA_AN	14	RO	Status Display Tables\CIRCA_AN
Circuit B	SUCT_T_B	MAIN MENU\Status\CIRCB_AN	14	RO	Status Display Tables\CIRCB_AN
Circuit C	SUCT_T_C	MAIN MENU\Status\CIRCC_AN	14	RO	Status Display Tables\CIRCC_AN
Condenser Entering Fluid	COND_EWT	MAIN MENU\Status\STATEGEN	35	RO	Status Display Tables\STATEGEN
Condenser Flow Status	CONDFLOW	MAIN MENU\Status\STATEGEN	14	RO	Status Display Tables\STATEGEN
Condenser Fluid Type	cond_typ	MAIN MENU\Service\SERVICE1	4	RW	Service Configuration Tables\SERVICE1
Condenser Leaving Fluid	COND_LWT	MAIN MENU\Status\STATEGEN	36	RO	Status Display Tables\STATEGEN
Condenser Probe Select	condprob	MAIN MENU\Service\FACTORY	26	RW	Service Configuration Tables\FACTORY2
Condenser Pump #1 Command	HPUMP_1	MAIN MENU\Status\STATEGEN	23	RO	Status Display Tables\STATEGEN
Condenser Pump #1 Hours	hr_hpum1	MAIN MENU\Service\UPDTHOUR	15	RW	Service Configuration Tables\UPDTHOUR
Condenser Pump #1 Hours	hr_hpum1	MAIN MENU\Status\STRTHOUR	11	RO	Status Display Tables\STRTHOUR
Condenser Pump #2 Command	HPUMP_2	MAIN MENU\Status\STATEGEN	24	RO	Status Display Tables\STATEGEN
Condenser Pump #2 Hours	hr_hpum2	MAIN MENU\Service\UPDTHOUR	16	RW	Service Configuration Tables\UPDTHOUR
Condenser Pump #2 Hours	hr_hpum2	MAIN MENU\Status\STRTHOUR	12	RO	Status Display Tables\STRTHOUR
Condenser Pump 1	Q_HPMP1	MAIN MENU\Status\QCK_TST1	39	RW	Status Display Tables\QCK_TST1
Condenser Pump 2	Q_HPMP2	MAIN MENU\Status\QCK_TST1	40	RW	Status Display Tables\QCK_TST1
Condenser Pumps Rotation	Mode_17	MAIN MENU\Status\MODES	18	RO	Status Display Tables\MODES
Condenser Pumps Sequence	hpump_seq	MAIN MENU\Config\USER	7	RW	Configuration Tables\USER
Condenser Water Val Sel	cond_val	MAIN MENU\Service\FACTORY	13	RW	Service Configuration Tables\FACTORY
Control Point	CTRL_PNT	MAIN MENU\Maint\LOADFACT	5	RO	Maintenance Display Tables\LOADFACT
Control Point	CTRL_PNT	MAIN MENU\Status\GENUNIT	28	RO	Status Display Tables\GENUNIT
Control Type	ctr_type	MAIN MENU\Status\GENUNIT	3	RO	Status Display Tables\GENUNIT
Controlled Temp Error	tp_error	MAIN MENU\Maint\LOADFACT	7	RO	Maintenance Display Tables\LOADFACT
Controlled Water Temp	CTRL_WT	MAIN MENU\Status\GENUNIT	29	RO	Status Display Tables\GENUNIT
Cool Changeover Setpt	cauto_sp	MAIN MENU\Set Point	29	RW	Set Point Configuration Tables\SET POINT
Cooler Entering Fluid	COOL_EWT	MAIN MENU\Status\STATEGEN	33	RO	Status Display Tables\STATEGEN
Cooler Exchange DT Cir A	pinch_a	MAIN MENU\Maint\EXV_CTRL	6	RO	Maintenance Display Tables\EXV_CTRL
Cooler Exchange DT Cir B	pinch_b	MAIN MENU\Maint\EXV_CTRL	13	RO	Maintenance Display Tables\EXV_CTRL
Cooler Exchange DT Cir C	pinch_c	MAIN MENU\Maint\EXV_CTRL	20	RO	Maintenance Display Tables\EXV_CTRL
Cooler Flow Set Point Out	SET_FLOW	MAIN MENU\Status\STATEGEN	18	RO	Status Display Tables\STATEGEN
Cooler Flow Switch	FLOW_SW	MAIN MENU\Status\STATEGEN	12	RO	Status Display Tables\STATEGEN
Cooler Fluid Type	flui_typ	MAIN MENU\Service\SERVICE1	1	RW	Service Configuration Tables\SERVICE1
Cooler Heater Active	Mode_06	MAIN MENU\Status\MODES	7	RO	Status Display Tables\MODES
Cooler Heater Command	COOLHEAT	MAIN MENU\Status\STATEGEN	26	RO	Status Display Tables\STATEGEN
Cooler Heater Delta Spt	heatersp	MAIN MENU\Service\SERVICE1	17	RW	Service Configuration Tables\SERVICE1
Cooler Heater Output	Q_CL_HT	MAIN MENU\Status\QCK_TST1	36	RW	Status Display Tables\QCK_TST1
Cooler Heater Select	heat_sel	MAIN MENU\Service\FACTORY	12	RW	Service Configuration Tables\FACTORY
Cooler Heater Temp	T_HEATER	MAIN MENU\Status\STATEGEN	37	RO	Status Display Tables\STATEGEN
Cooler Leaving Fluid	COOL_LWT	MAIN MENU\Status\STATEGEN	34	RO	Status Display Tables\STATEGEN
Cooler Pinch Ctl Point A	pinch_spa	MAIN MENU\Maint\EXV_CTRL	7	RO	Maintenance Display Tables\EXV_CTRL
Cooler Pinch Ctl Point B	pinch_spb	MAIN MENU\Maint\EXV_CTRL	14	RO	Maintenance Display Tables\EXV_CTRL
Cooler Pinch Ctl Point C	pinch_spc	MAIN MENU\Maint\EXV_CTRL	21	RO	Maintenance Display Tables\EXV_CTRL
Cooler Pump #1 Command	CPUMP_1	MAIN MENU\Status\STATEGEN	20	RO	Status Display Tables\STATEGEN
Cooler Pump #1 Hours	hr_cpum1	MAIN MENU\Status\STRTHOUR	9	RO	Status Display Tables\STRTHOUR
Cooler Pump #2 Command	CPUMP_2	MAIN MENU\Status\STATEGEN	21	RO	Status Display Tables\STATEGEN
Cooler Pump #2 Hours	hr_cpum2	MAIN MENU\Status\STRTHOUR	10	RO	Status Display Tables\STRTHOUR
Cooler Pump Run Status	CPUMPDEF	MAIN MENU\Status\STATEGEN	13	RO	Status Display Tables\STATEGEN
Cooler Pumps Rotation	Mode_07	MAIN MENU\Status\MODES	8	RO	Status Display Tables\MODES
Cooler Pumps Sequence	cpump_seq	MAIN MENU\Config\USER	8	RW	Configuration Tables\USER

LEGEND

RO — Read Only
RW — Read/Write

APPENDIX A — TOUCH PILOT DISPLAY TABLES (CONT)

POINT NAME DESCRIPTION	TOUCH PILOT POINT NAME	TOUCH PILOT PATH	LINE	READ/ WRITE	CCN TABLE NAME
Cooling Ice Set Point	ice_sp	MAIN MENU\Set Point	4	RW	Set Point Configuration Tables\SET POINT
Cooling Ramp Loading	cramp_sp	MAIN MENU\Set Point	14	RW	Set Point Configuration Tables\SET POINT
Cooling Reset Deg. Value	cr_deg	MAIN MENU\Set Point	13	RW	Set Point Configuration Tables\SET POINT
Cooling Reset Select	cr_sel	MAIN MENU\Config\USER	19	RW	Configuration Tables\USER
Cooling Set Point 1	csp1	MAIN MENU\Set Point	2	RW	Set Point Configuration Tables\SET POINT
Cooling Set Point 2	csp2	MAIN MENU\Set Point	3	RW	Set Point Configuration Tables\SET POINT
Cooling/FreeCool Timeout	fc_tmout	MAIN MENU\Status\FREECOOL	7	RO	Status Display Tables\FREECOOL
CPump 1 Ctl Delay (days)	cpump1_c	MAIN MENU\Service\MAINTCFG	5	RW	Service Configuration Tables\MAINTCFG
CPump 2 Ctl Delay (days)	cpump2_c	MAIN MENU\Service\MAINTCFG	6	RW	Service Configuration Tables\MAINTCFG
Current Alarm 1	alarm_1	MAIN MENU\Status\GENUNIT	14	RO	Status Display Tables\GENUNIT
Current Alarm 2	alarm_2	MAIN MENU\Status\GENUNIT	15	RO	Status Display Tables\GENUNIT
Current Alarm 3	alarm_3	MAIN MENU\Status\GENUNIT	16	RO	Status Display Tables\GENUNIT
Current Alarm 4	alarm_4	MAIN MENU\Status\GENUNIT	17	RO	Status Display Tables\GENUNIT
Current Alarm 5	alarm_5	MAIN MENU\Status\GENUNIT	18	RO	Status Display Tables\GENUNIT
Current At 100% Load A	cur100_a	MAIN MENU\Maint\LOADFACT	15	RO	Maintenance Display Tables\LOADFACT
Current At 100% Load B	cur100_b	MAIN MENU\Maint\LOADFACT	16	RO	Maintenance Display Tables\LOADFACT
Current At 100% Load C	cur100_c	MAIN MENU\Maint\LOADFACT	17	RO	Maintenance Display Tables\LOADFACT
Current At 30% Load A	cur_30_a	MAIN MENU\Maint\LOADFACT	12	RO	Maintenance Display Tables\LOADFACT
Current At 30% Load B	cur_30_b	MAIN MENU\Maint\LOADFACT	13	RO	Maintenance Display Tables\LOADFACT
Current At 30% Load C	cur_30_c	MAIN MENU\Maint\LOADFACT	14	RO	Maintenance Display Tables\LOADFACT
Current Control	on_ctrl	MAIN MENU\Status\STATEGEN	4	RO	Status Display Tables\STATEGEN
Current Cooling Power	cool_pwr	MAIN MENU\Status\FREECOOL	4	RO	Status Display Tables\FREECOOL
Current Full Reset Value	v_cr_fu	MAIN MENU\Set Point	10	RW	Set Point Configuration Tables\SET POINT
Current Full Reset Value	v_hr_fu	MAIN MENU\Set Point	24	RW	Set Point Configuration Tables\SET POINT
Current Limit at 100%	curr_ful	MAIN MENU\Config\USER	31	RW	Configuration Tables\USER
Current Limit Select	curr_sel	MAIN MENU\Config\USER	30	RW	Configuration Tables\USER
Current Mode (1=occup.)	MODE	MAIN MENU\Maint\OCCDEFCM\OCC1PO1S	1	RO	Maintenance Display Tables\OCCDEFCM\OCC1PO1S
Current Mode (1=occup.)	MODE	MAIN MENU\Maint\OCCDEFCM\OCC2PO2S	1	RO	Maintenance Display Tables\OCCDEFCM\OCC2PO2S
Current No Reset Value	v_cr_no	MAIN MENU\Set Point	9	RW	Set Point Configuration Tables\SET POINT
Current No Reset Value	v_hr_no	MAIN MENU\Set Point	23	RW	Set Point Configuration Tables\SET POINT
Current Occup Period #	PER-NO	MAIN MENU\Maint\OCCDEFCM\OCC1PO1S	2	RO	Maintenance Display Tables\OCCDEFCM\OCC1PO1S
Current Occup Period #	PER-NO	MAIN MENU\Maint\OCCDEFCM\OCC2PO2S	2	RO	Maintenance Display Tables\OCCDEFCM\OCC2PO2S
Current Occupied Time	STRTTIME	MAIN MENU\Maint\OCCDEFCM\OCC1PO1S	5	RO	Maintenance Display Tables\OCCDEFCM\OCC1PO1S
Current Occupied Time	STRTTIME	MAIN MENU\Maint\OCCDEFCM\OCC2PO2S	5	RO	Maintenance Display Tables\OCCDEFCM\OCC2PO2S
Current Phase 1 Comp A	cpa_cur1	MAIN MENU\Maint\CUR_PHAS	1	RO	Maintenance Display Tables\CUR_PHASE
Current Phase 1 Comp B	cpb_cur1	MAIN MENU\Maint\CUR_PHAS	4	RO	Maintenance Display Tables\CUR_PHASE
Current Phase 1 Comp C	cpc_cur1	MAIN MENU\Maint\CUR_PHAS	7	RO	Maintenance Display Tables\CUR_PHASE
Current Phase 2 Comp A	cpa_cur2	MAIN MENU\Maint\CUR_PHAS	2	RO	Maintenance Display Tables\CUR_PHASE
Current Phase 2 Comp B	cpb_cur2	MAIN MENU\Maint\CUR_PHAS	5	RO	Maintenance Display Tables\CUR_PHASE
Current Phase 2 Comp C	cpc_cur2	MAIN MENU\Maint\CUR_PHAS	8	RO	Maintenance Display Tables\CUR_PHASE
Current Phase 3 Comp A	cpa_cur3	MAIN MENU\Maint\CUR_PHAS	3	RO	Maintenance Display Tables\CUR_PHASE
Current Phase 3 Comp B	cpb_cur3	MAIN MENU\Maint\CUR_PHAS	6	RO	Maintenance Display Tables\CUR_PHASE
Current Phase 3 Comp C	cpc_cur3	MAIN MENU\Maint\CUR_PHAS	9	RO	Maintenance Display Tables\CUR_PHASE
Current Set Point	SP	MAIN MENU\Status\GENUNIT	31	RW	Status Display Tables\GENUNIT
Current Unoccupied Time	ENDTIME	MAIN MENU\Maint\OCCDEFCM\OCC1PO1S	6	RO	Maintenance Display Tables\OCCDEFCM\OCC1PO1S
Current Unoccupied Time	ENDTIME	MAIN MENU\Maint\OCCDEFCM\OCC2PO2S	6	RO	Maintenance Display Tables\OCCDEFCM\OCC2PO2S
Current Z Multiplier Val	zm	MAIN MENU\Maint\LOADFACT	18	RO	Maintenance Display Tables\LOADFACT
Customer Shutdown Out	Q_SHUT	MAIN MENU\Status\QCK_TST1	47	RW	Status Display Tables\QCK_TST1

LEGEND

RO — Read Only
RW — Read/Write

APPENDIX A — TOUCH PILOT DISPLAY TABLES (CONT)

POINT NAME DESCRIPTION	TOUCH PILOT POINT NAME	TOUCH PILOT PATH	LINE	READ/ WRITE	CCN TABLE NAME
Daylight Sav Ent Day of Week (1=Monday)	startdow	MAIN MENU\Config\BRODEFS	10	RW	Configuration Tables\BRODEFS\BROCASTS
Daylight Sav Ent Month	startmon	MAIN MENU\Config\BRODEFS	9	RW	Configuration Tables\BRODEFS\BROCASTS
Daylight Sav Ent Week of Month	startwom	MAIN MENU\Config\BRODEFS	11	RW	Configuration Tables\BRODEFS\BROCASTS
Daylight Sav Leaving Day of Week (1=Monday)	stopdow	MAIN MENU\Config\BRODEFS	14	RW	Configuration Tables\BRODEFS\BROCASTS
Daylight Sav Leaving Month	stopmon	MAIN MENU\Config\BRODEFS	13	RW	Configuration Tables\BRODEFS\BROCASTS
Daylight Sav Leaving Week of Month	stopwom	MAIN MENU\Config\BRODEFS	15	RW	Configuration Tables\BRODEFS\BROCASTS
Daylight Saving Select	dayl_sel	MAIN MENU\Config\BRODEFS	7	RW	Configuration Tables\BRODEFS\BROCASTS
Decription	DevDesc	MAIN MENU\Config\Ctlr-ID	1	RW	Configuration Tables\!CtlrID\PD5_XAXQ
Defrost Active On Cir A	Mode_19	MAIN MENU\Status\MODES	20	RO	Status Display Tables\MODES
Defrost Active On Cir B	Mode_20	MAIN MENU\Status\MODES	21	RO	Status Display Tables\MODES
Defrost Active?					
Circuit A	mode[19]	MAIN MENU\Maint\DEFROSTM	4	RO	Maintenance Display Tables\DEFROSTM
Circuit B	mode[20]	MAIN MENU\Maint\DEFROSTM	21	RO	Maintenance Display Tables\DEFROSTM
Defrost Duration					
Circuit A	defr_dua	MAIN MENU\Maint\DEFROSTM	6	RO	Maintenance Display Tables\DEFROSTM
Circuit B	defr_dub	MAIN MENU\Maint\DEFROSTM	23	RO	Maintenance Display Tables\DEFROSTM
Defrost Fan Offset Cal A	def_of_a	MAIN MENU\Maint\DEFROSTM	16	RO	Maintenance Display Tables\DEFROSTM
Defrost Fan Offset Cal B	def_of_b	MAIN MENU\Maint\DEFROSTM	33	RO	Maintenance Display Tables\DEFROSTM
Defrost Fan Start Cal A	def_ca_a	MAIN MENU\Maint\DEFROSTM	15	RO	Maintenance Display Tables\DEFROSTM
Defrost Fan Start Cal B	def_ca_b	MAIN MENU\Maint\DEFROSTM	32	RO	Maintenance Display Tables\DEFROSTM
Defrost Number					
Circuit A	nb_def_a	MAIN MENU\Service\UPDHRFAN	6	RW	Service Configuration Tables\UPDHRFAN
Circuit B	nb_def_b	MAIN MENU\Service\UPDHRFAN	7	RW	Service Configuration Tables\UPDHRFAN
Defrost Number					
Circuit A	nb_def_a	MAIN MENU\Status\FANHOURS	3	RO	Status Display Tables\FANHOURS
Circuit B	nb_def_b	MAIN MENU\Status\FANHOURS	4	RO	Status Display Tables\FANHOURS
Defrost Temperature					
Circuit A	DEFRT_A	MAIN MENU\Maint\DEFROSTM	5	RO	Maintenance Display Tables\DEFROSTM
Circuit B	DEFRT_B	MAIN MENU\Maint\DEFROSTM	22	RO	Maintenance Display Tables\DEFROSTM
Delta - Reference Delta					
Circuit A	delt_v_a	MAIN MENU\Maint\DEFROSTM	13	RO	Maintenance Display Tables\DEFROSTM
Circuit B	delt_v_b	MAIN MENU\Maint\DEFROSTM	30	RO	Maintenance Display Tables\DEFROSTM
Delta: OAT - Mean SST					
Circuit A	delt_a	MAIN MENU\Maint\DEFROSTM	11	RO	Maintenance Display Tables\DEFROSTM
Circuit B	delt_b	MAIN MENU\Maint\DEFROSTM	28	RO	Maintenance Display Tables\DEFROSTM
Delta T Full Reset Value	dt_cr_fu	MAIN MENU\Set Point	8	RW	Set Point Configuration Tables\SET POINT
Delta T Full Reset Value	dt_hr_fu	MAIN MENU\Set Point	22	RW	Set Point Configuration Tables\SET POINT
Delta T No Reset Value	dt_cr_no	MAIN MENU\Set Point	7	RW	Set Point Configuration Tables\SET POINT
Delta T No Reset Value	dt_hr_no	MAIN MENU\Set Point	21	RW	Set Point Configuration Tables\SET POINT
Demand Limit Active	Mode_04	MAIN MENU\Status\MODES	5	RO	Status Display Tables\MODES
Demand Limit Type Select	lim_sel	MAIN MENU\Config\USER	24	RW	Configuration Tables\USER
Deri PID Gain Varifan	hd_dg	MAIN MENU\Service\SERVICE1	8	RW	Service Configuration Tables\SERVICE1
DGT Cool Solenoid					
Circuit A	Q_CDGT_A	MAIN MENU\Status\QCK_TST1	21	RW	Status Display Tables\QCK_TST1
Circuit B	Q_CDGT_B	MAIN MENU\Status\QCK_TST1	28	RW	Status Display Tables\QCK_TST1
Circuit C	Q_CDGT_C	MAIN MENU\Status\QCK_TST1	9	RO	Status Display Tables\QCK_TST1

LEGEND

RO — Read Only
RW — Read/Write

APPENDIX A — TOUCH PILOT DISPLAY TABLES (CONT)

POINT NAME DESCRIPTION	TOUCH PILOT POINT NAME	TOUCH PILOT PATH	LINE	READ/ WRITE	CCN TABLE NAME
DGT Cooling Solenoid					
Circuit A	GASCOOLA	MAIN MENU\Status\CIRCA_D	8	RO	Status Display Tables\CIRCA_D
Circuit B	GASCOOLB	MAIN MENU\Status\CIRCB_D	8	RO	Status Display Tables\CIRCB_D
Circuit C	GASCOOLC	MAIN MENU\Status\CIRCC_D	8	RO	Status Display Tables\CIRCC_D
Discharge Gas Temp					
Circuit A	DGT_A	MAIN MENU\Status\CIRCA_AN	10	RO	Status Display Tables\CIRCA_AN
Circuit B	DGT_B	MAIN MENU\Status\CIRCB_AN	10	RO	Status Display Tables\CIRCB_AN
Circuit C	DGT_C	MAIN MENU\Status\CIRCC_AN	10	RO	Status Display Tables\CIRCC_AN
Discharge Pressure					
Circuit A	DP_A	MAIN MENU\Status\CIRCA_AN	3	RO	Status Display Tables\CIRCA_AN
Circuit B	DP_B	MAIN MENU\Status\CIRCB_AN	3	RO	Status Display Tables\CIRCB_AN
Circuit C	DP_C	MAIN MENU\Status\CIRCC_AN	3	RO	Status Display Tables\CIRCC_AN
Differential Water Temp	diff_wt	MAIN MENU\Maint\LOADFACT	3	RO	Maintenance Display Tables\LOADFACT
Discharge A Gas Limit	sdtlim_a	MAIN MENU\Maint\PR_LIMIT	3	RO	Maintenance Display Tables\PR_LIMIT
Discharge A Temp Average	sdt_m_a	MAIN MENU\Maint\PR_LIMIT	1	RO	Maintenance Display Tables\PR_LIMIT
Discharge A Temp Rate	sdt_mr_a	MAIN MENU\Maint\PR_LIMIT	2	RO	Maintenance Display Tables\PR_LIMIT
Discharge B Gas Limit	sdtlim_b	MAIN MENU\Maint\PR_LIMIT	7	RO	Maintenance Display Tables\PR_LIMIT
Discharge B Temp Average	sdt_m_b	MAIN MENU\Maint\PR_LIMIT	5	RO	Maintenance Display Tables\PR_LIMIT
Discharge B Temp Rate	sdt_mr_b	MAIN MENU\Maint\PR_LIMIT	6	RO	Maintenance Display Tables\PR_LIMIT
Discharge C Gas Limit	sdtlim_c	MAIN MENU\Maint\PR_LIMIT	11	RO	Maintenance Display Tables\PR_LIMIT
Discharge C Temp Average	sdt_m_c	MAIN MENU\Maint\PR_LIMIT	9	RO	Maintenance Display Tables\PR_LIMIT
Discharge C Temp Rate	sdt_mr_c	MAIN MENU\Maint\PR_LIMIT	10	RO	Maintenance Display Tables\PR_LIMIT
Discharge Superheat A	DSH_A	MAIN MENU\Maint\EXV_CTRL	3	RO	Maintenance Display Tables\EXV_CTRL
Discharge Superheat B	DSH_B	MAIN MENU\Maint\EXV_CTRL	10	RO	Maintenance Display Tables\EXV_CTRL
Discharge Superheat C	DSH_C	MAIN MENU\Maint\EXV_CTRL	17	RO	Maintenance Display Tables\EXV_CTRL
DLY 3 - Cooler Pump 1 (days)	cpump1_m	MAIN MENU\Maint\SERMAINT	10	RO	Maintenance Display Tables\SERMAINT
DLY 4 - Cooler Pump 2 (days)	cpump2_m	MAIN MENU\Maint\SERMAINT	11	RO	Maintenance Display Tables\SERMAINT
DLY 5 - Condenser Pump 1 (days)	hpump1_m	MAIN MENU\Maint\SERMAINT	12	RO	Maintenance Display Tables\SERMAINT
DLY 6 - Condenser Pump 2 (days)	hpump2_m	MAIN MENU\Maint\SERMAINT	13	RO	Maintenance Display Tables\SERMAINT
DLY 7 - Water Filter (days)	wfilte_m	MAIN MENU\Maint\SERMAINT	14	RO	Maintenance Display Tables\SERMAINT
DLY 8 - Cp A Oil Filter (days)	ofilta_m	MAIN MENU\Maint\SERMAINT	15	RO	Maintenance Display Tables\SERMAINT
DLY 9 - Cp B Oil Filter (days)	ofiltb_m	MAIN MENU\Maint\SERMAINT	16	RO	Maintenance Display Tables\SERMAINT
DLY 10 - Cp C Oil Filter (days)	ofiltc_m	MAIN MENU\Maint\SERMAINT	17	RO	Maintenance Display Tables\SERMAINT
Economizer A Steps Numb	eco_cnfa	MAIN MENU\Service\FACTORY2	22	RW	Service Configuration Tables\FACTORY2
Economizer B Steps Numb	eco_cnfb	MAIN MENU\Service\FACTORY2	23	RW	Service Configuration Tables\FACTORY2
Economizer C Steps Numb	eco_cnfc	MAIN MENU\Service\FACTORY2	24	RW	Service Configuration Tables\FACTORY2
Economizer Position A	EXV_EC_A	MAIN MENU\Maint\EXV_CTRL	25	RO	Maintenance Display Tables\EXV_CTRL
Economizer Position B	EXV_EC_B	MAIN MENU\Maint\EXV_CTRL	29	RO	Maintenance Display Tables\EXV_CTRL
Economizer Position C	EXV_EC_C	MAIN MENU\Maint\EXV_CTRL	33	RO	Maintenance Display Tables\EXV_CTRL
Economizer SH Set Point A	ecsh_spa	MAIN MENU\Maint\EXV_CTRL	27	RO	Maintenance Display Tables\EXV_CTRL
Economizer SH Set Point A	esh_sp_a	MAIN MENU\Service\SERVICE1	21	RW	Service Configuration Tables\SERVICE1
Economizer SH Set Point B	ecsh_spb	MAIN MENU\Maint\EXV_CTRL	31	RO	Maintenance Display Tables\EXV_CTRL
Economizer SH Set Point B	esh_sp_b	MAIN MENU\Service\SERVICE1	22	RW	Service Configuration Tables\SERVICE1
Economizer SH Set Point C	ecsh_spc	MAIN MENU\Maint\EXV_CTRL	35	RO	Maintenance Display Tables\EXV_CTRL
Economizer SH Set Point C	esh_sp_c	MAIN MENU\Service\SERVICE1	23	RW	Service Configuration Tables\SERVICE1
Economizer Superheat A	eco_sha	MAIN MENU\Maint\EXV_CTRL	26	RO	Maintenance Display Tables\EXV_CTRL
Economizer Superheat B	eco_shb	MAIN MENU\Maint\EXV_CTRL	30	RO	Maintenance Display Tables\EXV_CTRL
Economizer Superheat C	eco_shc	MAIN MENU\Maint\EXV_CTRL	34	RO	Maintenance Display Tables\EXV_CTRL
Economizer EXV Pos					
Circuit A	Q_ECO_A	MAIN MENU\Status\QCK_TST1	6	RW	Status Display Tables\QCK_TST1
Circuit B	Q_ECO_B	MAIN MENU\Status\QCK_TST1	7	RW	Status Display Tables\QCK_TST1
Circuit C	Q_ECO_C	MAIN MENU\Status\QCK_TST1	8	RW	Status Display Tables\QCK_TST1

LEGEND

RO — Read Only
RW — Read/Write

APPENDIX A — TOUCH PILOT DISPLAY TABLES (CONT)

POINT NAME DESCRIPTION	TOUCH PILOT POINT NAME	TOUCH PILOT PATH	LINE	READ/ WRITE	CCN TABLE NAME
Economizer Gas Temp					
Circuit A	ECO_TP_A	MAIN MENU\Status\CIRCA_AN	11	RO	Status Display Tables\CIRCA_AN
Circuit B	ECO_TP_B	MAIN MENU\Status\CIRCB_AN	11	RO	Status Display Tables\CIRCB_AN
Circuit C	ECO_TP_C	MAIN MENU\Status\CIRCC_AN	11	RO	Status Display Tables\CIRCC_AN
Economizer Pressure					
Circuit A	ECON_P_A	MAIN MENU\Status\CIRCA_AN	5	RO	Status Display Tables\CIRCA_AN
Circuit B	ECON_P_B	MAIN MENU\Status\CIRCB_AN	5	RO	Status Display Tables\CIRCB_AN
Circuit C	ECON_P_C	MAIN MENU\Status\CIRCC_AN	5	RO	Status Display Tables\CIRCC_AN
EHS Ctrl Override	over_ehs	MAIN MENU\Maint\LOADFACT	22	RO	Maintenance Display Tables\LOADFACT
Elec Stage OAT Threshold	ehs_th	MAIN MENU\Config\USER	34	RW	Configuration Tables\USER
Electric Heat Active	Mode_15	MAIN MENU\Status\MODES	16	RO	Status Display Tables\MODES
Electrical Box Interlock	ELEC_BOX	MAIN MENU\Status\STATEGEN	16	RO	Status Display Tables\STATEGEN
Electrical Heat Stage	EHS_STEP	MAIN MENU\Status\STATEGEN	19	RO	Status Display Tables\STATEGEN
Electrical Heat Stages	ehs_sel	MAIN MENU\Service\FACTORY	16	RW	Service Configuration Tables\FACTORY
Electrical Pulldown Time	ehs_pull	MAIN MENU\Config\USER	36	RW	Configuration Tables\USER
Electrical Pulldown?	ehspulld	MAIN MENU\Maint\LOADFACT	24	RO	Maintenance Display Tables\LOADFACT
Element	Element	MAIN MENU\Config\Ctlr-ID	8	RO	Configuration Tables\!CtlrID\PD5_XAXQ
Emergency Stop	EMSTOP	MAIN MENU\Status\GENUNIT	32	RO	Status Display Tables\GENUNIT
EMM NRCP2 Board	EMM_NRCP	MAIN MENU\Maint\BOARD_PN	9	RO	Maintenance Display Tables\BOARD_PN
Energy Management Module	emm_nrcp	MAIN MENU\Service\FACTORY	17	RW	Service Configuration Tables\FACTORY
Entering Fluid Control	ewt_opt	MAIN MENU\Service\SERVICE1	5	RW	Service Configuration Tables\SERVICE1
Estimated FreeCool Power	fc_pwr	MAIN MENU\Status\FREECOOL	5	RO	Status Display Tables\FREECOOL
Exchanger Frost Factor					
Circuit A	frost_a	MAIN MENU\Maint\DEFROSTM	2	RO	Maintenance Display Tables\DEFROSTM
Circuit B	frost_b	MAIN MENU\Maint\DEFROSTM	19	RO	Maintenance Display Tables\DEFROSTM
External Temperature	OAT	MAIN MENU\Status\GENUNIT	30	RO	Status Display Tables\GENUNIT
EXV A Maximum Steps Numb	exva_max	MAIN MENU\Service\FACTORY2	18	RW	Service Configuration Tables\FACTORY2
EXV A Superheat Set Point	sh_sp_a	MAIN MENU\Service\SERVICE1	9	RW	Service Configuration Tables\SERVICE1
EXV B Maximum Steps Numb	exvb_max	MAIN MENU\Service\FACTORY2	19	RW	Service Configuration Tables\FACTORY2
EXV B Superheat Set Point	sh_sp_b	MAIN MENU\Service\SERVICE1	10	RW	Service Configuration Tables\SERVICE1
EXV Board Circuit A	EXV_BRD1	MAIN MENU\Maint\BOARD_PN	1	RO	Maintenance Display Tables\BOARD_PN
EXV Board Circuit B	EXV_BRD2	MAIN MENU\Maint\BOARD_PN	2	RO	Maintenance Display Tables\BOARD_PN
EXV Board Circuit C	EXV_BRD3	MAIN MENU\Maint\BOARD_PN	3	RO	Maintenance Display Tables\BOARD_PN
EXV C Maximum Steps Numb	exvc_max	MAIN MENU\Service\FACTORY2	20	RW	Service Configuration Tables\FACTORY2
EXV C Superheat Set Point	sh_sp_c	MAIN MENU\Service\SERVICE1	11	RW	Service Configuration Tables\SERVICE1
EXV MOP Set Point	mop_sp	MAIN MENU\Service\SERVICE1	15	RW	Service Configuration Tables\SERVICE1
EXV Override Circuit A	oc_eco_a	MAIN MENU\Maint\EXV_CTRL	28	RO	Maintenance Display Tables\EXV_CTRL
EXV Override Circuit A	ov_exv_a	MAIN MENU\Maint\EXV_CTRL	8	RO	Maintenance Display Tables\EXV_CTRL
EXV Override Circuit B	oc_eco_b	MAIN MENU\Maint\EXV_CTRL	32	RO	Maintenance Display Tables\EXV_CTRL
EXV Override Circuit B	ov_exv_b	MAIN MENU\Maint\EXV_CTRL	15	RO	Maintenance Display Tables\EXV_CTRL
EXV Override Circuit C	oc_eco_c	MAIN MENU\Maint\EXV_CTRL	36	RO	Maintenance Display Tables\EXV_CTRL
EXV Override Circuit C	ov_exv_c	MAIN MENU\Maint\EXV_CTRL	22	RO	Maintenance Display Tables\EXV_CTRL
EXV Position Circuit A	EXV_A	MAIN MENU\Maint\EXV_CTRL	2	RO	Maintenance Display Tables\EXV_CTRL
EXV Position Circuit B	EXV_B	MAIN MENU\Maint\EXV_CTRL	9	RO	Maintenance Display Tables\EXV_CTRL
EXV Position Circuit C	EXV_C	MAIN MENU\Maint\EXV_CTRL	16	RO	Maintenance Display Tables\EXV_CTRL
EXV Position					
Circuit A	Q_EXVA	MAIN MENU\Status\QCK_TST1	3	RW	Status Display Tables\QCK_TST1
Circuit B	Q_EXVB	MAIN MENU\Status\QCK_TST1	4	RW	Status Display Tables\QCK_TST1
Circuit C	Q_EXVC	MAIN MENU\Status\QCK_TST1	5	RW	Status Display Tables\QCK_TST1
EXV Position					
Circuit A	EXV_A	MAIN MENU\Status\CIRCA_AN	15	RO	Status Display Tables\CIRCA_AN
Circuit B	EXV_B	MAIN MENU\Status\CIRCB_AN	15	RO	Status Display Tables\CIRCB_AN
Circuit C	EXV_C	MAIN MENU\Status\CIRCC_AN	15	RO	Status Display Tables\CIRCC_AN

LEGEND

RO — Read Only
RW — Read/Write

APPENDIX A — TOUCH PILOT DISPLAY TABLES (CONT)

POINT NAME DESCRIPTION	TOUCH PILOT POINT NAME	TOUCH PILOT PATH	LINE	READ/ WRITE	CCN TABLE NAME
EXV Position					
Circuit A	EXV_A	MAIN MENU\Status\FREECOOL	20	RO	Status Display Tables\FREECOOL
Circuit B	EXV_B	MAIN MENU\Status\FREECOOL	30	RO	Status Display Tables\FREECOOL
Circuit C	EXV_C	MAIN MENU\Status\FREECOOL	40	RO	Status Display Tables\FREECOOL
Factory Password	fac_pass	MAIN MENU\Service\FACTORY	19	RW	Service Configuration Tables\FACTORY
Fan #1 Hours					
Circuit A	hr_fana1	MAIN MENU\Service\UPDHRFAN	8	RW	Service Configuration Tables\UPDHRFAN
Circuit B	hr_fanb1	MAIN MENU\Service\UPDHRFAN	18	RW	Service Configuration Tables\UPDHRFAN
Circuit C	hr_fanc1	MAIN MENU\Service\UPDHRFAN	28	RW	Service Configuration Tables\UPDHRFAN
Fan #1 Hours					
Circuit A	hr_fana1	MAIN MENU\Status\FANHOURS	5	RO	Status Display Tables\FANHOURS
Circuit B	hr_fanb1	MAIN MENU\Status\FANHOURS	15	RO	Status Display Tables\FANHOURS
Circuit C	hr_fanc1	MAIN MENU\Status\FANHOURS	25	RO	Status Display Tables\FANHOURS
Fan #2 Hours					
Circuit A	hr_fana2	MAIN MENU\Service\UPDHRFAN	9	RW	Service Configuration Tables\UPDHRFAN
Circuit B	hr_fanb2	MAIN MENU\Service\UPDHRFAN	19	RW	Service Configuration Tables\UPDHRFAN
Circuit C	hr_fanc2	MAIN MENU\Service\UPDHRFAN	29	RW	Service Configuration Tables\UPDHRFAN
Fan #2 Hours					
Circuit A	hr_fana2	MAIN MENU\Status\FANHOURS	6	RO	Status Display Tables\FANHOURS
Circuit B	hr_fanb2	MAIN MENU\Status\FANHOURS	16	RO	Status Display Tables\FANHOURS
Circuit C	hr_fanc2	MAIN MENU\Status\FANHOURS	26	RO	Status Display Tables\FANHOURS
Fan #3 Hours					
Circuit A	hr_fana3	MAIN MENU\Service\UPDHRFAN	10	RW	Service Configuration Tables\UPDHRFAN
Circuit B	hr_fanb3	MAIN MENU\Service\UPDHRFAN	20	RW	Service Configuration Tables\UPDHRFAN
Circuit C	hr_fanc3	MAIN MENU\Service\UPDHRFAN	30	RW	Service Configuration Tables\UPDHRFAN
Fan #3 Hours					
Circuit A	hr_fana3	MAIN MENU\Status\FANHOURS	7	RO	Status Display Tables\FANHOURS
Circuit B	hr_fanb3	MAIN MENU\Status\FANHOURS	17	RO	Status Display Tables\FANHOURS
Circuit C	hr_fanc3	MAIN MENU\Status\FANHOURS	27	RO	Status Display Tables\FANHOURS
Fan #4 Hours					
Circuit A	hr_fana4	MAIN MENU\Service\UPDHRFAN	11	RW	Service Configuration Tables\UPDHRFAN
Circuit B	hr_fanb4	MAIN MENU\Service\UPDHRFAN	21	RW	Service Configuration Tables\UPDHRFAN
Circuit C	hr_fanc4	MAIN MENU\Service\UPDHRFAN	31	RW	Service Configuration Tables\UPDHRFAN
Fan #4 Hours					
Circuit A	hr_fana4	MAIN MENU\Status\FANHOURS	8	RO	Status Display Tables\FANHOURS
Circuit B	hr_fanb4	MAIN MENU\Status\FANHOURS	18	RO	Status Display Tables\FANHOURS
Circuit C	hr_fanc4	MAIN MENU\Status\FANHOURS	28	RO	Status Display Tables\FANHOURS
Fan #5 Hours					
Circuit A	hr_fana5	MAIN MENU\Service\UPDHRFAN	12	RW	Service Configuration Tables\UPDHRFAN
Circuit B	hr_fanb5	MAIN MENU\Service\UPDHRFAN	22	RW	Service Configuration Tables\UPDHRFAN
Circuit C	hr_fanc5	MAIN MENU\Service\UPDHRFAN	32	RW	Service Configuration Tables\UPDHRFAN
Fan #5 Hours					
Circuit A	hr_fana5	MAIN MENU\Status\FANHOURS	9	RO	Status Display Tables\FANHOURS
Circuit B	hr_fanb5	MAIN MENU\Status\FANHOURS	19	RO	Status Display Tables\FANHOURS
Circuit C	hr_fanc5	MAIN MENU\Status\FANHOURS	29	RO	Status Display Tables\FANHOURS
Fan #6 Hours					
Circuit A	hr_fana6	MAIN MENU\Service\UPDHRFAN	13	RW	Service Configuration Tables\UPDHRFAN
Circuit B	hr_fanb6	MAIN MENU\Service\UPDHRFAN	23	RW	Service Configuration Tables\UPDHRFAN
Circuit C	hr_fanc6	MAIN MENU\Service\UPDHRFAN	33	RW	Service Configuration Tables\UPDHRFAN
Fan #6 Hours					
Circuit A	hr_fana6	MAIN MENU\Status\FANHOURS	10	RO	Status Display Tables\FANHOURS
Circuit B	hr_fanb6	MAIN MENU\Status\FANHOURS	20	RO	Status Display Tables\FANHOURS
Circuit C	hr_fanc6	MAIN MENU\Status\FANHOURS	30	RO	Status Display Tables\FANHOURS

LEGEND

RO — Read Only
RW — Read/Write

APPENDIX A — TOUCH PILOT DISPLAY TABLES (CONT)

POINT NAME DESCRIPTION	TOUCH PILOT POINT NAME	TOUCH PILOT PATH	LINE	READ/ WRITE	CCN TABLE NAME
Fan #7 Hours					
Circuit A	hr_fana7	MAIN MENU\Service\UPDHRFAN	14	RW	Service Configuration Tables\UPDHRFAN
Circuit B	hr_fanb7	MAIN MENU\Service\UPDHRFAN	24	RW	Service Configuration Tables\UPDHRFAN
Circuit C	hr_fanc7	MAIN MENU\Service\UPDHRFAN	34	RW	Service Configuration Tables\UPDHRFAN
Fan #7 Hours					
Circuit A	hr_fana7	MAIN MENU\Status\FANHOURS	11	RO	Status Display Tables\FANHOURS
Circuit B	hr_fanb7	MAIN MENU\Status\FANHOURS	21	RO	Status Display Tables\FANHOURS
Circuit C	hr_fanc7	MAIN MENU\Status\FANHOURS	31	RO	Status Display Tables\FANHOURS
Fan #8 Hours					
Circuit A	hr_fana8	MAIN MENU\Service\UPDHRFAN	15	RW	Service Configuration Tables\UPDHRFAN
Circuit B	hr_fanb8	MAIN MENU\Service\UPDHRFAN	25	RW	Service Configuration Tables\UPDHRFAN
Circuit C	hr_fanc8	MAIN MENU\Service\UPDHRFAN	35	RW	Service Configuration Tables\UPDHRFAN
Fan #8 Hours					
Circuit A	hr_fana8	MAIN MENU\Status\FANHOURS	12	RO	Status Display Tables\FANHOURS
Circuit B	hr_fanb8	MAIN MENU\Status\FANHOURS	22	RO	Status Display Tables\FANHOURS
Circuit C	hr_fanc8	MAIN MENU\Status\FANHOURS	32	RO	Status Display Tables\FANHOURS
Fan #9 Hours					
Circuit A	hr_fana9	MAIN MENU\Service\UPDHRFAN	16	RW	Service Configuration Tables\UPDHRFAN
Circuit B	hr_fanb9	MAIN MENU\Service\UPDHRFAN	26	RW	Service Configuration Tables\UPDHRFAN
Circuit C	hr_fanc9	MAIN MENU\Service\UPDHRFAN	36	RW	Service Configuration Tables\UPDHRFAN
Fan #9 Hours					
Circuit A	hr_fana9	MAIN MENU\Status\FANHOURS	13	RO	Status Display Tables\FANHOURS
Circuit B	hr_fanb9	MAIN MENU\Status\FANHOURS	23	RO	Status Display Tables\FANHOURS
Circuit C	hr_fanc9	MAIN MENU\Status\FANHOURS	33	RO	Status Display Tables\FANHOURS
Fan #10 Hours					
Circuit A	hrfana10	MAIN MENU\Service\UPDHRFAN	17	RW	Service Configuration Tables\UPDHRFAN
Circuit B	hrfanb10	MAIN MENU\Service\UPDHRFAN	27	RW	Service Configuration Tables\UPDHRFAN
Circuit C	hrfanc10	MAIN MENU\Service\UPDHRFAN	37	RW	Service Configuration Tables\UPDHRFAN
Fan #10 Hours					
Circuit A	hrfana10	MAIN MENU\Status\FANHOURS	14	RO	Status Display Tables\FANHOURS
Circuit B	hrfanb10	MAIN MENU\Status\FANHOURS	24	RO	Status Display Tables\FANHOURS
Circuit C	hrfanc10	MAIN MENU\Status\FANHOURS	34	RO	Status Display Tables\FANHOURS
Fan Cycle Counter					
Circuit A	fancyc_a	MAIN MENU\Maint\FANCTRL	3	RO	Maintenance Display Tables\FANCTRL
Circuit B	fancyc_b	MAIN MENU\Maint\FANCTRL	7	RO	Maintenance Display Tables\FANCTRL
Circuit C	fancyc_c	MAIN MENU\Maint\FANCTRL	11	RO	Maintenance Display Tables\FANCTRL
Fan Output DO #1					
Circuit A	fan_a1	MAIN MENU\Status\CIRCA_D	11	RO	Status Display Tables\CIRCA_D
Circuit B	fan_b1	MAIN MENU\Status\CIRCB_D	11	RO	Status Display Tables\CIRCB_D
Circuit C	fan_c1	MAIN MENU\Status\CIRCC_D	11	RO	Status Display Tables\CIRCC_D
Fan Output DO #2					
Circuit A	fan_a2	MAIN MENU\Status\CIRCA_D	12	RO	Status Display Tables\CIRCA_D
Circuit B	fan_b2	MAIN MENU\Status\CIRCB_D	12	RO	Status Display Tables\CIRCB_D
Circuit C	fan_c2	MAIN MENU\Status\CIRCC_D	12	RO	Status Display Tables\CIRCC_D
Fan Output DO #3					
Circuit A	fan_a3	MAIN MENU\Status\CIRCA_D	13	RO	Status Display Tables\CIRCA_D
Circuit B	fan_b3	MAIN MENU\Status\CIRCB_D	13	RO	Status Display Tables\CIRCB_D
Circuit C	fan_c3	MAIN MENU\Status\CIRCC_D	13	RO	Status Display Tables\CIRCC_D
Fan Output DO #4					
Circuit A	fan_a4	MAIN MENU\Status\CIRCA_D	14	RO	Status Display Tables\CIRCA_D
Circuit B	fan_b4	MAIN MENU\Status\CIRCB_D	14	RO	Status Display Tables\CIRCB_D
Circuit C	fan_c4	MAIN MENU\Status\CIRCC_D	14	RO	Status Display Tables\CIRCC_D

LEGEND

RO — Read Only
RW — Read/Write

APPENDIX A — TOUCH PILOT DISPLAY TABLES (CONT)

POINT NAME DESCRIPTION	TOUCH PILOT POINT NAME	TOUCH PILOT PATH	LINE	READ/ WRITE	CCN TABLE NAME
Fan Output DO #5					
Circuit A	fan_a5	MAIN MENU\Status\CIRCA_D	15	RO	Status Display Tables\CIRCA_D
Circuit B	fan_b5	MAIN MENU\Status\CIRCB_D	15	RO	Status Display Tables\CIRCB_D
Circuit C	fan_c5	MAIN MENU\Status\CIRCC_D	15	RO	Status Display Tables\CIRCC_D
Fan Output DO #6					
Circuit A	fan_a6	MAIN MENU\Status\CIRCA_D	16	RO	Status Display Tables\CIRCA_D
Circuit B	fan_b6	MAIN MENU\Status\CIRCB_D	16	RO	Status Display Tables\CIRCB_D
Circuit C	fan_c6	MAIN MENU\Status\CIRCC_D	16	RO	Status Display Tables\CIRCC_D
Fan Output DO #7					
Circuit A	fan_a7	MAIN MENU\Status\CIRCA_D	17	RO	Status Display Tables\CIRCA_D
Circuit B	fan_b7	MAIN MENU\Status\CIRCB_D	17	RO	Status Display Tables\CIRCB_D
Circuit C	fan_c7	MAIN MENU\Status\CIRCC_D	17	RO	Status Display Tables\CIRCC_D
Fan Output DO #8					
Circuit A	fan_a7	MAIN MENU\Status\CIRCA_D	17	RO	Status Display Tables\CIRCA_D
Circuit B	fan_b7	MAIN MENU\Status\CIRCB_D	17	RO	Status Display Tables\CIRCB_D
Circuit C	fan_c7	MAIN MENU\Status\CIRCC_D	17	RO	Status Display Tables\CIRCC_D
Fan Sequence Started?					
Circuit A	def_fa_a	MAIN MENU\Maint\DEFROSTM	7	RO	Maintenance Display Tables\DEFROSTM
Circuit B	def_fa_b	MAIN MENU\Maint\DEFROSTM	24	RO	Maintenance Display Tables\DEFROSTM
Fan Stages					
Circuit A	Q_FAN_A	MAIN MENU\Status\QCK_TST1	9	RW	Status Display Tables\QCK_TST1
Circuit B	Q_FAN_B	MAIN MENU\Status\QCK_TST1	10	RW	Status Display Tables\QCK_TST1
Circuit C	Q_FAN_C	MAIN MENU\Status\QCK_TST1	11	RW	Status Display Tables\QCK_TST1
Fan Staging Number					
Circuit A	FAN_ST_A	MAIN MENU\Status\CIRCA_D	19	RO	Status Display Tables\CIRCA_D
Circuit B	FAN_ST_B	MAIN MENU\Status\CIRCB_D	19	RO	Status Display Tables\CIRCB_D
Circuit C	FAN_ST_C	MAIN MENU\Status\CIRCC_D	19	RO	Status Display Tables\CIRCC_D
Fan Staging Number					
Circuit A	FAN_ST_A	MAIN MENU\Status\FREECOOL	13	RO	Status Display Tables\FREECOOL
Circuit B	FAN_ST_B	MAIN MENU\Status\FREECOOL	23	RO	Status Display Tables\FREECOOL
Circuit C	FAN_ST_C	MAIN MENU\Status\FREECOOL	33	RO	Status Display Tables\FREECOOL
Flow Checked if C Pump Off	pump_loc	MAIN MENU\Config\USER	17	RW	Configuration Tables\USER
Free Cool A Ball Valve	Q_FCBVL_A	MAIN MENU\Status\QCK_TST2	18	RO	Status Display Tables\QCK_TST2
Free Cool A EXV Position	Q_FCEXVA	MAIN MENU\Status\QCK_TST2	16	RO	Status Display Tables\QCK_TST2
Free Cool B Ball Valve	Q_FCBVL_B	MAIN MENU\Status\QCK_TST2	19	RO	Status Display Tables\QCK_TST2
Free Cool B EXV Position	Q_FCEXVB	MAIN MENU\Status\QCK_TST2	17	RO	Status Display Tables\QCK_TST2
Free Cool Conditions OK?	fc_ready	MAIN MENU\Status\FREECOOL	8	RO	Status Display Tables\FREECOOL
Free Cool Pump A Hours	hr_fcm_a	MAIN MENU\Status\FANHOURS	1	RO	Status Display Tables\FANHOURS
Free Cool Pump B Hours	hr_fcm_b	MAIN MENU\Status\FANHOURS	2	RO	Status Display Tables\FANHOURS
Free Cool Request?	fc_reqst	MAIN MENU\Status\FREECOOL	9	RO	Status Display Tables\FREECOOL
Free Cooling A Pump Hours	hr_fcp_a	MAIN MENU\Service\UPDHRFAN	4	RW	Service Configuration Tables\UPDHRFAN
Free Cooling Active	Mode_13	MAIN MENU\Status\MODES	14	RO	Status Display Tables\MODES
Free Cooling Active					
Circuit A	FC_ON_A	MAIN MENU\Status\FREECOOL	12	RO	Status Display Tables\FREECOOL
Circuit B	FC_ON_B	MAIN MENU\Status\FREECOOL	22	RO	Status Display Tables\FREECOOL
Circuit C	FC_ON_C	MAIN MENU\Status\FREECOOL	32	RO	Status Display Tables\FREECOOL
Free Cooling B Pump Hours	hr_fcp_b	MAIN MENU\Service\UPDHRFAN	5	RW	Service Configuration Tables\UPDHRFAN
Free Cooling Disable	FC_DSBLE	MAIN MENU\Status\GENUNIT	12	RW	Status Display Tables\GENUNIT
Free Cooling Disable Sw	FC_SW	MAIN MENU\Status\STATEGEN	6	RO	Status Display Tables\STATEGEN
Free Cooling Disable?	FC_DSBLE	MAIN MENU\Status\FREECOOL	2	RO	Status Display Tables\FREECOOL
Free Cooling Heater	Q_FC_HTR	MAIN MENU\Status\QCK_TST2	15	RO	Status Display Tables\QCK_TST2
Free Cooling OAT Limit	free_oat	MAIN MENU\Config\USER	33	RW	Configuration Tables\USER
Free Cooling Select	freecool	MAIN MENU\Service\FACTORY	11	RW	Service Configuration Tables\FACTORY

LEGEND

RO — Read Only
RW — Read/Write

APPENDIX A — TOUCH PILOT DISPLAY TABLES (CONT)

POINT NAME DESCRIPTION	TOUCH PILOT POINT NAME	TOUCH PILOT PATH	LINE	READ/ WRITE	CCN TABLE NAME
Frost Integrator Gain					
Circuit A	fr_int_a	MAIN MENU\Maint\DEFROSTM	14	RO	Maintenance Display Tables\DEFROSTM
Circuit B	fr_int_b	MAIN MENU\Maint\DEFROSTM	31	RO	Maintenance Display Tables\DEFROSTM
Head Press Speed					
Circuit A	Q_VFANA	MAIN MENU\Status\QCK_TST1	12	RW	Status Display Tables\QCK_TST1
Circuit B	Q_VFANB	MAIN MENU\Status\QCK_TST1	13	RW	Status Display Tables\QCK_TST1
Circuit C	Q_VFANC	MAIN MENU\Status\QCK_TST1	14	RW	Status Display Tables\QCK_TST1
HEAT RECLAIM CIRCUIT A	—	MAIN MENU\Status\RECLAIM	9	RO	Status Display Tables\RECLAIM
HEAT RECLAIM CIRCUIT B	—	MAIN MENU\Status\RECLAIM	19	RO	Status Display Tables\RECLAIM
Heat Reclaim Select	RECL_SEL	MAIN MENU\Status\RECLAIM	1	RO	Status Display Tables\RECLAIM
Heat Reclaim Select	RECL_SET	MAIN MENU\Status\GENUNIT	11	RW	Status Display Tables\GENUNIT
Heat/Cool Select	HC_SEL	MAIN MENU\Status\GENUNIT	9	RW	Status Display Tables\GENUNIT
Heat/Cool Status	HEATCOOL	MAIN MENU\Status\GENUNIT	8	RO	Status Display Tables\GENUNIT
Heating Changeover Setpt	hauto_sp	MAIN MENU\Set Point	30	RW	Set Point Configuration Tables\SET POINT
Heating Low EWT Lockout	Mode_16	MAIN MENU\Status\MODES	17	RO	Status Display Tables\MODES
Heating OAT Threshold	heat_th	MAIN MENU\Config\USER	32	RW	Configuration Tables\USER
Heating Ramp Loading	hramp_sp	MAIN MENU\Set Point	26	RW	Set Point Configuration Tables\SET POINT
Heating Reset Deg. Value	hr_deg	MAIN MENU\Set Point	25	RW	Set Point Configuration Tables\SET POINT
Heating Reset Select	hr_sel	MAIN MENU\Config\USER	20	RW	Configuration Tables\USER
Heating Set Point 1	hsp1	MAIN MENU\Set Point	17	RW	Set Point Configuration Tables\SET POINT
Heating Set Point 2	hsp2	MAIN MENU\Set Point	18	RW	Set Point Configuration Tables\SET POINT
High DGT Circuit A	Mode_24	MAIN MENU\Status\MODES	25	RO	Status Display Tables\MODES
High DGT Circuit B	Mode_25	MAIN MENU\Status\MODES	26	RO	Status Display Tables\MODES
High DGT Circuit C	Mode_26	MAIN MENU\Status\MODES	27	RO	Status Display Tables\MODES
High Pres Override Cir A	Mode_27	MAIN MENU\Status\MODES	28	RO	Status Display Tables\MODES
High Pres Override Cir B	Mode_28	MAIN MENU\Status\MODES	29	RO	Status Display Tables\MODES
High Pres Override Cir C	Mode_29	MAIN MENU\Status\MODES	30	RO	Status Display Tables\MODES
High Pressure Threshold	hp_th	MAIN MENU\Service\SERVICE1	16	RW	Service Configuration Tables\SERVICE1
High Tiers Display Selec	highdisp	MAIN MENU\Service\FACTORY	18	RW	Service Configuration Tables\FACTORY
Holiday Duration (days)	HOL-LEN	MAIN MENU\Config\HOLIDAY\HOLDY_01	3	RW	Configuration Tables\HOLIDAY\HOLDY_01
Holiday Start Day	HOL-DAY	MAIN MENU\Config\HOLIDAY\HOLDY_01	2	RW	Configuration Tables\HOLIDAY\HOLDY_01
Holiday Start Month	HOL-MON	MAIN MENU\Config\HOLIDAY\HOLDY_01	1	RW	Configuration Tables\HOLIDAY\HOLDY_01
Hot Gas Bypass Select	hgbp_sel	MAIN MENU\Service\FACTORY	14	RW	Service Configuration Tables\FACTORY
Head Press Actuator Pos					
Circuit A	hd_pos_a	MAIN MENU\Status\CIRCA_AN	16	RO	Status Display Tables\CIRCA_AN
Circuit B	hd_pos_b	MAIN MENU\Status\CIRCB_AN	16	RO	Status Display Tables\CIRCB_AN
Circuit C	hd_pos_c	MAIN MENU\Status\CIRCC_AN	16	RO	Status Display Tables\CIRCC_AN
Heater Ball Valve					
Circuit A	Q_BVL_A	MAIN MENU\Status\QCK_TST1	19	RW	Status Display Tables\QCK_TST1
Circuit B	Q_BVL_B	MAIN MENU\Status\QCK_TST1	26	RW	Status Display Tables\QCK_TST1
Circuit C	Q_BVL_C	MAIN MENU\Status\QCK_TST1	33	RW	Status Display Tables\QCK_TST1
Hot Gas Bypass Output					
Circuit A	HGBP_A	MAIN MENU\Status\CIRCA_D	9	RO	Status Display Tables\CIRCA_D
Circuit B	HGBP_B	MAIN MENU\Status\CIRCB_D	9	RO	Status Display Tables\CIRCB_D
Circuit C	HGBP_C	MAIN MENU\Status\CIRCC_D	9	RO	Status Display Tables\CIRCC_D
Hot Gas Bypass					
Circuit A	Q_HGBP_A	MAIN MENU\Status\QCK_TST1	20	RW	Status Display Tables\QCK_TST1
Circuit B	Q_HGBP_B	MAIN MENU\Status\QCK_TST1	27	RW	Status Display Tables\QCK_TST1
Circuit C	Q_HGBP_C	MAIN MENU\Status\QCK_TST1	34	RW	Status Display Tables\QCK_TST1
HPump 1 Ctl Delay (days)	hpump1_c	MAIN MENU\Service\MAINTCFG	7	RW	Service Configuration Tables\MAINTCFG
HPump 2 Ctl Delay (days)	hpump2_c	MAIN MENU\Service\MAINTCFG	8	RW	Service Configuration Tables\MAINTCFG
HR Condenser Heater	Q_CD_HT	MAIN MENU\Status\QCK_TST2	12	RW	Status Display Tables\QCK_TST2
Ice Done Storage Switch	ICE_SW	MAIN MENU\Status\STATEGEN	11	RO	Status Display Tables\STATEGEN
Ice Mode Enable	ice_cnfg	MAIN MENU\Config\USER	42	RW	Configuration Tables\USER
Ice Mode in Effect	Mode_18	MAIN MENU\Status\MODES	19	RO	Status Display Tables\MODES

LEGEND
RO — Read Only
RW — Read/Write

APPENDIX A — TOUCH PILOT DISPLAY TABLES (CONT)

POINT NAME DESCRIPTION	TOUCH PILOT POINT NAME	TOUCH PILOT PATH	LINE	READ/ WRITE	CCN TABLE NAME
Int PID Gain Varifan	hd_ig	MAIN MENU\Service\SERVICE1	7	RW	Service Configuration Tables\SERVICE1
Lag Capacity Limit Value	LAG_LIM	MAIN MENU\Status\GENUNIT	22	RO	Status Display Tables\GENUNIT
Lag Minimum Running Time	lag_mini	MAIN MENU\Config\MST_SLV	20	RW	Configuration Tables\MST_SLV
Lag Start Delay	l_strt_d	MAIN MENU\Maint\M_MSTSLV	8	RO	Maintenance Display Tables\MSTSLAVE
Lag Start Timer	lstr_tim	MAIN MENU\Config\MST_SLV	17	RW	Configuration Tables\MST_SLV
Lag Unit Pump Control	lag_pump	MAIN MENU\Config\MST_SLV	21	RW	Configuration Tables\MST_SLV
Language Selection	LANGUAGE	MAIN MENU\Config\DISPCONF	2	RW	Configuration Tables\DISPCONF
Lead Lag Select	lead_sel	MAIN MENU\Config\MST_SLV	12	RW	Configuration Tables\MST_SLV
Lead Pulldown Time	lead_pul	MAIN MENU\Config\MST_SLV	18	RW	Configuration Tables\MST_SLV
Lead Pulldown?	ll_pull	MAIN MENU\Maint\M_MSTSLV	11	RO	Maintenance Display Tables\MSTSLAVE
Lead Unit is the:	lead_sel	MAIN MENU\Maint\M_MSTSLV	5	RO	Maintenance Display Tables\MSTSLAVE
Lead/Lad Changeover?	ll_chang	MAIN MENU\Maint\M_MSTSLV	10	RO	Maintenance Display Tables\MSTSLAVE
Lead/Lag Balance Delta	ll_bal_d	MAIN MENU\Config\MST_SLV	16	RW	Configuration Tables\MST_SLV
Lead/Lag Hours Delta	ll_hr_d	MAIN MENU\Maint\M_MSTSLV	9	RO	Maintenance Display Tables\MSTSLAVE
Limit 4-20mA Signal	LIM_ANAL	MAIN MENU\Status\STATEGEN	42	RO	Status Display Tables\STATEGEN
Limit Switch 1 Status	LIM_SW1	MAIN MENU\Status\STATEGEN	8	RO	Status Display Tables\STATEGEN
Limit Switch 2 Status	LIM_SW2	MAIN MENU\Status\STATEGEN	9	RO	Status Display Tables\STATEGEN
Load/Unload Factor	smz	MAIN MENU\Maint\LOADFACT	19	RO	Maintenance Display Tables\LOADFACT
Location	Location	MAIN MENU\Config\Ctlr-ID	2	RO	Configuration Tables\!CtlrID\PD5_XAXQ
Low Suction Circuit A	Mode_21	MAIN MENU\Status\MODES	22	RO	Status Display Tables\MODES
Low Suction Circuit B	Mode_22	MAIN MENU\Status\MODES	23	RO	Status Display Tables\MODES
Low Suction Circuit C	Mode_23	MAIN MENU\Status\MODES	24	RO	Status Display Tables\MODES
Low Superheat Circuit A	Mode_30	MAIN MENU\Status\MODES	31	RO	Status Display Tables\MODES
Low Superheat Circuit B	Mode_31	MAIN MENU\Status\MODES	32	RO	Status Display Tables\MODES
Low Superheat Circuit C	Mode_32	MAIN MENU\Status\MODES	33	RO	Status Display Tables\MODES
LWT-OAT Delta	fc_delta	MAIN MENU\Status\FREECOOL	3	RO	Status Display Tables\FREECOOL
mA For 0% Demand Limit	lim_ze	MAIN MENU\Config\USER	29	RW	Configuration Tables\USER
mA For 100% Demand Limit	lim_mx	MAIN MENU\Config\USER	28	RW	Configuration Tables\USER
Machine Operating Hours	hr_mach	MAIN MENU\Service\UPDTHOUR	5	RW	Service Configuration Tables\UPDTHOUR
Machine Operating Hours	HR_MACH	MAIN MENU\Status\STRTHOUR	1	RO	Status Display Tables\STRTHOUR
Machine Starts	st_mach	MAIN MENU\Service\UPDTHOUR	6	RW	Service Configuration Tables\UPDTHOUR
Machine Starts Number	st_mach	MAIN MENU\Status\STRTHOUR	2	RO	Status Display Tables\STRTHOUR
Master Control Type	ms_ctrl	MAIN MENU\Config\MST_SLV	7	RW	Configuration Tables\MST_SLV
Master Control Type	ms_ctrl	MAIN MENU\Maint\M_MSTSLV	3	RO	Maintenance Display Tables\MSTSLAVE
Master Slave Active	Mode_11	MAIN MENU\Status\MODES	12	RO	Status Display Tables\MODES
Master/Slave Ctrl Active	ms_activ	MAIN MENU\Maint\M_MSTSLV	4	RO	Maintenance Display Tables\MSTSLAVE
Master/Slave Error	ms_error	MAIN MENU\Maint\M_MSTSLV	12	RO	Maintenance Display Tables\MSTSLAVE
Master/Slave Select	ms_sel	MAIN MENU\Config\MST_SLV	3	RW	Configuration Tables\MST_SLV
Max Available Capacity?	cap_max	MAIN MENU\Maint\M_MSTSLV	13	RO	Maintenance Display Tables\MSTSLAVE
MCHX Exchanger Select	mchx_sel	MAIN MENU\Service\FACTORY	15	RW	Service Configuration Tables\FACTORY
Metric Display on STDU	DISPUNIT	MAIN MENU\Config\DISPCONF	1	RW	Configuration Tables\DISPCONF
Minutes Left for Start	min_left	MAIN MENU\Status\GENUNIT	7	RO	Status Display Tables\GENUNIT
Model Number	ModelNum	MAIN MENU\Config\Ctlr-ID	4	RO	Configuration Tables\!CtlrID\PD5_XAXQ
Must Trip Amps	cpa_mtam	MAIN MENU\Maint\BOARD_PN	12	RO	Maintenance Display Tables\BOARD_PN
Must Trip Amps	cpb_mtam	MAIN MENU\Maint\BOARD_PN	16	RO	Maintenance Display Tables\BOARD_PN
Must Trip Amps	cpc_mtam	MAIN MENU\Maint\BOARD_PN	20	RO	Maintenance Display Tables\BOARD_PN
Mean SST Calculation					
Circuit A	sst_dm_a	MAIN MENU\Maint\DEFROSTM	10	RO	Maintenance Display Tables\DEFROSTM
Circuit B	sst_dm_b	MAIN MENU\Maint\DEFROSTM	27	RO	Maintenance Display Tables\DEFROSTM
Motor Current					
Circuit A	CURREN_A	MAIN MENU\Status\CIRCA_AN	8	RO	Status Display Tables\CIRCA_AN
Circuit B	CURREN_B	MAIN MENU\Status\CIRCB_AN	8	RO	Status Display Tables\CIRCB_AN
Circuit C	CURREN_C	MAIN MENU\Status\CIRCC_AN	8	RO	Status Display Tables\CIRCC_AN

LEGEND

RO — Read Only
RW — Read/Write

APPENDIX A — TOUCH PILOT DISPLAY TABLES (CONT)

POINT NAME DESCRIPTION	TOUCH PILOT POINT NAME	TOUCH PILOT PATH	LINE	READ/ WRITE	CCN TABLE NAME
Motor Temperature					
Circuit A	CP_TMP_A	MAIN MENU\Status\CIRCA_AN	9	RO	Status Display Tables\CIRCA_AN
Circuit B	CP_TMP_B	MAIN MENU\Status\CIRCB_AN	9	RO	Status Display Tables\CIRCB_AN
Circuit C	CP_TMP_C	MAIN MENU\Status\CIRCC_AN	9	RO	Status Display Tables\CIRCC_AN
Next Sequence Allowed in					
Circuit A	def_se_a	MAIN MENU\Maint\DEFROSTM	20	RO	Maintenance Display Tables\DEFROSTM
Circuit B	def_se_b	MAIN MENU\Maint\DEFROSTM	20	RO	Maintenance Display Tables\DEFROSTM
Oil Heater					
Circuit A	Q_HT_A	MAIN MENU\Status\QCK_TST1	15	RW	Status Display Tables\QCK_TST1
Circuit B	Q_HT_B	MAIN MENU\Status\QCK_TST1	22	RW	Status Display Tables\QCK_TST1
Circuit C	Q_HT_C	MAIN MENU\Status\QCK_TST1	29	RW	Status Display Tables\QCK_TST1
Oil Heater Output					
Circuit A	OIL_HT_A	MAIN MENU\Status\CIRCA_D	5	RO	Status Display Tables\CIRCA_D
Circuit B	OIL_HT_B	MAIN MENU\Status\CIRCB_D	5	RO	Status Display Tables\CIRCB_D
Circuit C	OIL_HT_C	MAIN MENU\Status\CIRCC_D	5	RO	Status Display Tables\CIRCC_D
Oil Level Input					
Circuit A	OIL_L_A	MAIN MENU\Status\CIRCA_D	7	RO	Status Display Tables\CIRCA_D
Circuit B	OIL_L_B	MAIN MENU\Status\CIRCB_D	7	RO	Status Display Tables\CIRCB_D
Circuit C	OIL_L_C	MAIN MENU\Status\CIRCC_D	7	RO	Status Display Tables\CIRCC_D
Oil Pressure					
Circuit A	OP_A	MAIN MENU\Status\CIRCA_AN	6	RO	Status Display Tables\CIRCA_AN
Circuit B	OP_B	MAIN MENU\Status\CIRCB_AN	6	RO	Status Display Tables\CIRCB_AN
Circuit C	OP_C	MAIN MENU\Status\CIRCC_AN	6	RO	Status Display Tables\CIRCC_AN
Oil Pressure Difference					
Circuit A	DOP_A	MAIN MENU\Status\CIRCA_AN	7	RO	Status Display Tables\CIRCA_AN
Circuit B	DOP_B	MAIN MENU\Status\CIRCB_AN	7	RO	Status Display Tables\CIRCB_AN
Circuit C	DOP_C	MAIN MENU\Status\CIRCC_AN	7	RO	Status Display Tables\CIRCC_AN
Oil Solenoid					
Circuit A	Q_OILS_A	MAIN MENU\Status\QCK_TST1	16	RW	Status Display Tables\QCK_TST1
Circuit B	Q_OILS_B	MAIN MENU\Status\QCK_TST1	23	RW	Status Display Tables\QCK_TST1
Circuit C	Q_OILS_C	MAIN MENU\Status\QCK_TST1	30	RW	Status Display Tables\QCK_TST1
Oil Solenoid Output					
Circuit A	OIL_SL_A	MAIN MENU\Status\CIRCA_D	6	RO	Status Display Tables\CIRCA_D
Circuit B	OIL_SL_B	MAIN MENU\Status\CIRCB_D	6	RO	Status Display Tables\CIRCB_D
Circuit C	OIL_SL_C	MAIN MENU\Status\CIRCC_D	6	RO	Status Display Tables\CIRCC_D
Optimal Fan Count					
Circuit A	fancop_a	MAIN MENU\Maint\FANCTRL	4	RO	Maintenance Display Tables\FANCTRL
Circuit B	fancop_b	MAIN MENU\Maint\FANCTRL	8	RO	Maintenance Display Tables\FANCTRL
Circuit C	fancop_c	MAIN MENU\Maint\FANCTRL	12	RO	Maintenance Display Tables\FANCTRL
Override State					
Circuit A	over_d_a	MAIN MENU\Maint\DEFROSTM	8	RO	Maintenance Display Tables\DEFROSTM
Circuit B	over_d_b	MAIN MENU\Maint\DEFROSTM	25	RO	Maintenance Display Tables\DEFROSTM
Percent Total Capacity					
Circuit A	CAPA_T	MAIN MENU\Status\CIRCA_AN	2	RO	Status Display Tables\CIRCA_AN
Circuit B	CAPB_T	MAIN MENU\Status\CIRCB_AN	2	RO	Status Display Tables\CIRCB_AN
Circuit C	CAPC_T	MAIN MENU\Status\CIRCC_AN	2	RO	Status Display Tables\CIRCC_AN
Pump Differential Press.					
Circuit A	fc_dp_a	MAIN MENU\Status\FREECOOL	19	RO	Status Display Tables\FREECOOL
Circuit B	fc_dp_b	MAIN MENU\Status\FREECOOL	29	RO	Status Display Tables\FREECOOL
Circuit C	fc_dp_c	MAIN MENU\Status\FREECOOL	39	RO	Status Display Tables\FREECOOL
Pump Inlet Pressure					
Circuit A	fc_inp_a	MAIN MENU\Status\FREECOOL	17	RO	Status Display Tables\FREECOOL
Circuit B	fc_inp_b	MAIN MENU\Status\FREECOOL	27	RO	Status Display Tables\FREECOOL

LEGEND

RO — Read Only
RW — Read/Write

APPENDIX A — TOUCH PILOT DISPLAY TABLES (CONT)

POINT NAME DESCRIPTION	TOUCH PILOT POINT NAME	TOUCH PILOT™ PATH	LINE	READ/ WRITE	CCN TABLE NAME
Pump Inlet Pressure					
Circuit A	fc_inp_a	MAIN MENU\Status\FREECOOL	17	RO	Status Display Tables\FREECOOL
Circuit B	fc_inp_b	MAIN MENU\Status\FREECOOL	27	RO	Status Display Tables\FREECOOL
Circuit C	fc_inp_c	MAIN MENU\Status\FREECOOL	37	RO	Status Display Tables\FREECOOL
Pump Outlet Pressure					
Circuit A	fc_oup_a	MAIN MENU\Status\FREECOOL	18	RO	Status Display Tables\FREECOOL
Circuit B	fc_oup_b	MAIN MENU\Status\FREECOOL	28	RO	Status Display Tables\FREECOOL
Circuit C	fc_oup_c	MAIN MENU\Status\FREECOOL	38	RO	Status Display Tables\FREECOOL
NB Fans on Varifan Cir A	varfan_a	MAIN MENU\Service\FACTORY	5	RW	Service Configuration Tables\FACTORY
NB Fans on Varifan Cir B	varfan_b	MAIN MENU\Service\FACTORY	6	RW	Service Configuration Tables\FACTORY
NB Fans on Varifan Cir C	varfan_c	MAIN MENU\Service\FACTORY	7	RW	Service Configuration Tables\FACTORY
Next Occupied Day	NXTOCDAY	MAIN MENU\Maint\OCCDEFCM\OCC1PO1S	7	RO	Maintenance Display Tables\OCCDEFCM\OCC1PO1S
Next Occupied Day	NXTOCDAY	MAIN MENU\Maint\OCCDEFCM\OCC2PO2S	7	RO	Maintenance Display Tables\OCCDEFCM\OCC2PO2S
Next Occupied Time	NXTOCTIM	MAIN MENU\Maint\OCCDEFCM\OCC1PO1S	8	RO	Maintenance Display Tables\OCCDEFCM\OCC1PO1S
Next Occupied Time	NXTOCTIM	MAIN MENU\Maint\OCCDEFCM\OCC2PO2S	8	RO	Maintenance Display Tables\OCCDEFCM\OCC2PO2S
Next Session Allowed In	fc_next	MAIN MENU\Status\FREECOOL	6	RO	Status Display Tables\FREECOOL
Next Unoccupied Day	NXTUNDAY	MAIN MENU\Maint\OCCDEFCM\OCC1PO1S	9	RO	Maintenance Display Tables\OCCDEFCM\OCC1PO1S
Next Unoccupied Day	NXTUNDAY	MAIN MENU\Maint\OCCDEFCM\OCC2PO2S	9	RO	Maintenance Display Tables\OCCDEFCM\OCC2PO2S
Next Unoccupied Time	NXTUNTIM	MAIN MENU\Maint\OCCDEFCM\OCC1PO1S	10	RO	Maintenance Display Tables\OCCDEFCM\OCC1PO1S
Next Unoccupied Time	NXTUNTIM	MAIN MENU\Maint\OCCDEFCM\OCC2PO2S	10	RO	Maintenance Display Tables\OCCDEFCM\OCC2PO2S
Night Control Capacity Limit	nh_limit	MAIN MENU\Config\USER	41	RW	Configuration Tables\USER
Night Control End Hour	nh_end	MAIN MENU\Config\USER	40	RW	Configuration Tables\USER
Night Control Start Hour	nh_start	MAIN MENU\Config\USER	39	RW	Configuration Tables\USER
Night Low Noise Active	Mode_09	MAIN MENU\Status\MODES	10	RO	Status Display Tables\MODES
OAT Broadcast Bus #	oatbusnm	MAIN MENU\Config\BRODEFS	4	RW	Configuration Tables\BRODEFS\BROCASTS
OAT Broadcast Element #	oatlocad	MAIN MENU\Config\BRODEFS	5	RW	Configuration Tables\BRODEFS\BROCASTS
OAT Full Reset Value	oatcr_fu	MAIN MENU\Set Point	6	RW	Set Point Configuration Tables\SET POINT
OAT Full Reset Value	oathr_fu	MAIN MENU\Set Point	20	RW	Set Point Configuration Tables\SET POINT
OAT No Reset Value	oatcr_no	MAIN MENU\Set Point	5	RW	Set Point Configuration Tables\SET POINT
OAT No Reset Value	oathr_no	MAIN MENU\Set Point	19	RW	Set Point Configuration Tables\SET POINT
Occupied From	OCCTOD#	MAIN MENU\Schedule\OCCPC01S	3	RO	Configuration Tables\OCCPC01S
Occupied Override Switch	OCC_OVSW	MAIN MENU\Status\STATEGEN	10	RO	Status Display Tables\STATEGEN
Occupied To	UNOCTOD#	MAIN MENU\Schedule\OCCPC01S	4	RO	Configuration Tables\OCCPC01S
Oil Filter A Ctrl (days)	oilfil_a	MAIN MENU\Service\MAINTCFG	10	RW	Service Configuration Tables\MAINTCFG
Oil Filter B Ctrl (days)	oilfil_b	MAIN MENU\Service\MAINTCFG	11	RW	Service Configuration Tables\MAINTCFG
Oil Filter C Ctrl (days)	oilfil_c	MAIN MENU\Service\MAINTCFG	12	RW	Service Configuration Tables\MAINTCFG
On/Off - Remote Switch	ONOFF_SW	MAIN MENU\Status\STATEGEN	2	RO	Status Display Tables\STATEGEN
OP WARN 1- Refrigerant Charge	charge_m	MAIN MENU\Maint\SERMAINT	6	RO	Maintenance Display Tables\SERMAINT
OP WARN 2 - Water Loop Size	wloop_m	MAIN MENU\Maint\SERMAINT	7	RO	Maintenance Display Tables\SERMAINT
Operating Type	OPER_TYP	MAIN MENU\Status\GENUNIT	2	RO	Status Display Tables\GENUNIT
Optional Space temp	SPACETMP	MAIN MENU\Status\STATEGEN	39	RO	Status Display Tables\STATEGEN
Pass for All User Config	all_pass	MAIN MENU\Config\USER	44	RW	Configuration Tables\USER
Percent Total Capacity	CAP_T	MAIN MENU\Status\GENUNIT	20	RO	Status Display Tables\GENUNIT
Period # DOW (MTWTFSSH)	DOW#	MAIN MENU\Schedule\OCCPC01S	2	RO	Configuration Tables\OCCPC01S
Pinch offset circuit A	p_ofst_a	MAIN MENU\Service\SERVICE1	12	RW	Service Configuration Tables\SERVICE1
Pinch offset circuit B	p_ofst_b	MAIN MENU\Service\SERVICE1	13	RW	Service Configuration Tables\SERVICE1
Pinch offset circuit C	p_ofst_c	MAIN MENU\Service\SERVICE1	14	RW	Service Configuration Tables\SERVICE1

LEGEND

RO — Read Only
RW — Read/Write

APPENDIX A — TOUCH PILOT DISPLAY TABLES (CONT)

POINT NAME DESCRIPTION	TOUCH PILOT POINT NAME	TOUCH PILOT PATH	LINE	READ/ WRITE	CCN TABLE NAME
Power Down 1: day-mon-year	date_of1	MAIN MENU\Maint\LAST_POR	3	RO	Maintenance Display Tables\LAST_POR
Power Down 1: hour-minute	time_of1	MAIN MENU\Maint\LAST_POR	4	RO	Maintenance Display Tables\LAST_POR
Power Down 2: day-mon-year	date_of2	MAIN MENU\Maint\LAST_POR	7	RO	Maintenance Display Tables\LAST_POR
Power Down 2: hour-minute	time_of2	MAIN MENU\Maint\LAST_POR	8	RO	Maintenance Display Tables\LAST_POR
Power Down 3: day-mon-year	date_of3	MAIN MENU\Maint\LAST_POR	11	RO	Maintenance Display Tables\LAST_POR
Power Down 3: hour-minute	time_of3	MAIN MENU\Maint\LAST_POR	12	RO	Maintenance Display Tables\LAST_POR
Power Down 4: day-mon-year	date_of4	MAIN MENU\Maint\LAST_POR	15	RO	Maintenance Display Tables\LAST_POR
Power Down 4: hour-minute	time_of4	MAIN MENU\Maint\LAST_POR	16	RO	Maintenance Display Tables\LAST_POR
Power Down 5: day-mon-year	date_of5	MAIN MENU\Maint\LAST_POR	19	RO	Maintenance Display Tables\LAST_POR
Power Down 5: hour-minute	time_of5	MAIN MENU\Maint\LAST_POR	20	RO	Maintenance Display Tables\LAST_POR
Power Frequency 60HZ Sel	freq_60H	MAIN MENU\Service\FACTORY	3	RW	Service Configuration Tables\FACTORY
Power On 1: day-mon-year	date_on1	MAIN MENU\Maint\LAST_POR	1	RO	Maintenance Display Tables\LAST_POR
Power On 1: hour-minute	time_on1	MAIN MENU\Maint\LAST_POR	2	RO	Maintenance Display Tables\LAST_POR
Power On 2: day-mon-year	date_on2	MAIN MENU\Maint\LAST_POR	5	RO	Maintenance Display Tables\LAST_POR
Power On 2: hour-minute	time_on2	MAIN MENU\Maint\LAST_POR	6	RO	Maintenance Display Tables\LAST_POR
Power On 3: day-mon-year	date_on3	MAIN MENU\Maint\LAST_POR	9	RO	Maintenance Display Tables\LAST_POR
Power On 3: hour-minute	time_on3	MAIN MENU\Maint\LAST_POR	10	RO	Maintenance Display Tables\LAST_POR
Power On 4: day-mon-year	date_on4	MAIN MENU\Maint\LAST_POR	13	RO	Maintenance Display Tables\LAST_POR
Power On 4: hour-minute	time_on4	MAIN MENU\Maint\LAST_POR	14	RO	Maintenance Display Tables\LAST_POR
Power On 5: day-mon-year	date_on5	MAIN MENU\Maint\LAST_POR	17	RO	Maintenance Display Tables\LAST_POR
Power On 5: hour-minute	time_on5	MAIN MENU\Maint\LAST_POR	18	RO	Maintenance Display Tables\LAST_POR
Power Supply Voltage	voltage	MAIN MENU\Service\FACTORY	4	RW	Service Configuration Tables\FACTORY
Prev unoccupied Day	PRVUNDAY	MAIN MENU\Maint\OCCDEFCM\OCC1PO1S	11	RO	Maintenance Display Tables\OCCDEFCM\OCC1PO1S
Prev unoccupied Day	PRVUNDAY	MAIN MENU\Maint\OCCDEFCM\OCC2PO2S	11	RO	Maintenance Display Tables\OCCDEFCM\OCC2PO2S
Prev unoccupied Time	PRVUNTIM	MAIN MENU\Maint\OCCDEFCM\OCC1PO1S	12	RO	Maintenance Display Tables\OCCDEFCM\OCC1PO1S
Prev unoccupied Time	PRVUNTIM	MAIN MENU\Maint\OCCDEFCM\OCC2PO2S	12	RO	Maintenance Display Tables\OCCDEFCM\OCC2PO2S
Prop PID Gain Varifan	hd_pg	MAIN MENU\Service\SERVICE1	6	RW	Service Configuration Tables\SERVICE1
Pump Auto Rotation Delay	pump_del	MAIN MENU\Config\USER	14	RW	Configuration Tables\USER
Pump Periodic Start	Mode_08	MAIN MENU\Status\MODES	9	RO	Status Display Tables\MODES
Pump Sticking Protection	pump_per	MAIN MENU\Config\USER	15	RW	Configuration Tables\USER
Pumpdown Pressure Cir A	PD_P_A	MAIN MENU\Status\RECLAIM	11	RO	Status Display Tables\RECLAIM
Pumpdown Pressure Cir B	PD_P_B	MAIN MENU\Status\RECLAIM	21	RO	Status Display Tables\RECLAIM
Pumpdown Saturated Tmp A	hr_sat_a	MAIN MENU\Status\RECLAIM	13	RO	Status Display Tables\RECLAIM
Pumpdown Saturated Tmp B	hr_sat_b	MAIN MENU\Status\RECLAIM	23	RO	Status Display Tables\RECLAIM
Quick EHS for Defrost	ehs_defr	MAIN MENU\Config\USER	37	RW	Configuration Tables\USER
Quick Test Enable	Q_TSTRQ	MAIN MENU\Status\QCK_TST1	1	RW	Status Display Tables\QCK_TST1
Quick Test Enable	Q_TSTRQ	MAIN MENU\Status\QCK_TST2	1	RW	Status Display Tables\QCK_TST2
Ramp Loading Active	Mode_05	MAIN MENU\Status\MODES	6	RO	Status Display Tables\MODES
Ramp Loading Select	ramp_sel	MAIN MENU\Config\USER	5	RW	Configuration Tables\USER
Ready or Running Status	READY	MAIN MENU\Status\STATEGEN	30	RO	Status Display Tables\STATEGEN
Realarm Time	RE_ALARM	MAIN MENU\Config\ALARMDEF	4	RW	Configuration Tables\ALARMDEF\ALARMS01
Recl Valve Max Position	max_3w	MAIN MENU\Service\SERVICE1	20	RW	Service Configuration Tables\SERVICE1
Recl Valve Min Position	min_3w	MAIN MENU\Service\SERVICE1	19	RW	Service Configuration Tables\SERVICE1
Reclaim Active	Mode_14	MAIN MENU\Status\MODES	15	RO	Status Display Tables\MODES
Reclaim Condenser Flow	CONDFLOW	MAIN MENU\Status\RECLAIM	3	RO	Status Display Tables\RECLAIM
Reclaim Condenser Heater	cond_htr	MAIN MENU\Status\RECLAIM	4	RO	Status Display Tables\RECLAIM
Reclaim Condenser Pump	HPUMP_1	MAIN MENU\Status\RECLAIM	2	RO	Status Display Tables\RECLAIM
Reclaim Deadband	hr_deadb	MAIN MENU\Set Point	37	RW	Set Point Configuration Tables\SET POINT
Reclaim Entering Fluid	HR_EWT	MAIN MENU\Status\RECLAIM	5	RO	Status Display Tables\RECLAIM
Reclaim Fluid Set Point	RSP	MAIN MENU\Status\RECLAIM	7	RO	Status Display Tables\RECLAIM
Reclaim Leaving Fluid	HR_LWT	MAIN MENU\Status\RECLAIM	6	RO	Status Display Tables\RECLAIM
Reclaim NRCP2 Board	REC_NRCP	MAIN MENU\Maint\BOARD_PN	10	RO	Maintenance Display Tables\BOARD_PN
Reclaim Set Point	rsp	MAIN MENU\Set Point	36	RW	Set Point Configuration Tables\SET POINT

LEGEND

RO — Read Only
RW — Read/Write

APPENDIX A — TOUCH PILOT DISPLAY TABLES (CONT)

POINT NAME DESCRIPTION	TOUCH PILOT POINT NAME	TOUCH PILOT PATH	LINE	READ/ WRITE	CCN TABLE NAME
Reclaim Status Circuit A	hrstat_a	MAIN MENU\Status\RECLAIM	10	RO	Status Display Tables\RECLAIM
Reclaim Status Circuit B	hrstat_b	MAIN MENU\Status\RECLAIM	20	RO	Status Display Tables\RECLAIM
Reclaim Valve Position	hr_v_pos	MAIN MENU\Status\RECLAIM	8	RO	Status Display Tables\RECLAIM
Reference Number	RefNum	MAIN MENU\Config\Ctlr-ID	6	RO	Configuration Tables\lCtlrID\PD5_XAXQ
Refrigerant Charge Ctrl	charge_c	MAIN MENU\Service\MAINTCFG	3	RW	Service Configuration Tables\MAINTCFG
Remote Heat/Cool Switch	HC_SW	MAIN MENU\Status\STATEGEN	3	RO	Status Display Tables\STATEGEN
Remote Interlock Status	REM_LOCK	MAIN MENU\Status\STATEGEN	15	RO	Status Display Tables\STATEGEN
Remote Reclaim Switch	RECL_SW	MAIN MENU\Status\STATEGEN	5	RO	Status Display Tables\STATEGEN
Remote Set Point Switch	SETP_SW	MAIN MENU\Status\STATEGEN	7	RO	Status Display Tables\STATEGEN
Requested Electric Stage	eh_stage	MAIN MENU\Maint\LOADFACT	23	RO	Maintenance Display Tables\LOADFACT
Reset Amount	reset	MAIN MENU\Maint\LOADFACT	6	RO	Maintenance Display Tables\LOADFACT
Reset in Effect	Mode_03	MAIN MENU\Status\MODES	4	RO	Status Display Tables\MODES
Reset Maintenance Alert	S_RESET	MAIN MENU\Maint\SERMAINT	1	RO	Maintenance Display Tables\SERMAINT
Reset/Setpnt 4-20mA Sgnl	SP_RESET	MAIN MENU\Status\STATEGEN	41	RO	Status Display Tables\STATEGEN
Reverse Alarms Relay	al_rever	MAIN MENU\Config\USER	43	RW	Configuration Tables\USER
Rotate Condenser Pumps?	ROTHPUMP	MAIN MENU\Status\STATEGEN	25	RO	Status Display Tables\STATEGEN
Rotate Cooler Pumps?	ROTCPUMP	MAIN MENU\Status\STATEGEN	22	RO	Status Display Tables\STATEGEN
Run Status	STATUS	MAIN MENU\Status\GENUNIT	4	RO	Status Display Tables\GENUNIT
Running Status	RUNNING	MAIN MENU\Status\STATEGEN	31	RO	Status Display Tables\STATEGEN
Reference Delta					
Circuit A	delt_r_a	MAIN MENU\Maint\DEFROSTM	12	RO	Maintenance Display Tables\DEFROSTM
Circuit B	delt_r_b	MAIN MENU\Maint\DEFROSTM	29	RO	Maintenance Display Tables\DEFROSTM
Refrigerant Pump Out					
Circuit A	FC_PMP_A	MAIN MENU\Status\FREECOOL	16	RO	Status Display Tables\FREECOOL
Circuit B	FC_PMP_B	MAIN MENU\Status\FREECOOL	26	RO	Status Display Tables\FREECOOL
Circuit C	FC_PMP_C	MAIN MENU\Status\FREECOOL	36	RO	Status Display Tables\FREECOOL
Running Output					
Circuit A	Q_RUN_A	MAIN MENU\Status\QCK_TST1	43	RW	Status Display Tables\QCK_TST1
Circuit B	Q_RUN_B	MAIN MENU\Status\QCK_TST1	44	RW	Status Display Tables\QCK_TST1
Circuit C	Q_RUN_C	MAIN MENU\Status\QCK_TST1	45	RW	Status Display Tables\QCK_TST1
Saturated Condensing Tmp					
Circuit A	SCT_A	MAIN MENU\Status\CIRCA_AN	12	RO	Status Display Tables\CIRCA_AN
Circuit B	SCT_B	MAIN MENU\Status\CIRCB_AN	12	RO	Status Display Tables\CIRCB_AN
Circuit C	SCT_C	MAIN MENU\Status\CIRCC_AN	12	RO	Status Display Tables\CIRCC_AN
Saturated Suction Temp					
Circuit A	SST_A	MAIN MENU\Status\CIRCA_AN	13	RO	Status Display Tables\CIRCA_AN
Circuit B	SST_B	MAIN MENU\Status\CIRCB_AN	13	RO	Status Display Tables\CIRCB_AN
Circuit C	SST_C	MAIN MENU\Status\CIRCC_AN	13	RO	Status Display Tables\CIRCC_AN
Circuit C	Q_SLI_1C	MAIN MENU\Status\QCK_TST1	31	RW	Status Display Tables\QCK_TST1
SCT Candidate					
Circuit A	sct_fu_a	MAIN MENU\Maint\FANCTRL	2	RO	Maintenance Display Tables\FANCTRL
Circuit B	sct_fu_b	MAIN MENU\Maint\FANCTRL	6	RO	Maintenance Display Tables\FANCTRL
Circuit C	sct_fu_c	MAIN MENU\Maint\FANCTRL	10	RO	Maintenance Display Tables\FANCTRL
SCT Control Point					
Circuit A	sct_sp_a	MAIN MENU\Maint\FANCTRL	1	RO	Maintenance Display Tables\FANCTRL
Circuit B	sct_sp_b	MAIN MENU\Maint\FANCTRL	5	RO	Maintenance Display Tables\FANCTRL
Circuit C	sct_sp_c	MAIN MENU\Maint\FANCTRL	9	RO	Maintenance Display Tables\FANCTRL

LEGEND

RO — Read Only
RW — Read/Write

APPENDIX A — TOUCH PILOT DISPLAY TABLES (CONT)

POINT NAME DESCRIPTION	TOUCH PILOT POINT NAME	TOUCH PILOT PATH	LINE	READ/ WRITE	CCN TABLE NAME
Slide Valve 1					
Circuit A	Q_SLI_1A	MAIN MENU\Status\QCK_TST1	17	RW	Status Display Tables\QCK_TST1
Circuit B	Q_SLI_1B	MAIN MENU\Status\QCK_TST1	24	RW	Status Display Tables\QCK_TST1
Circuit C	Q_SLI_1C	MAIN MENU\Status\QCK_TST1	31	RW	Status Display Tables\QCK_TST1
Slide Valve 2					
Circuit A	Q_SLI_2A	MAIN MENU\Status\QCK_TST1	18	RW	Status Display Tables\QCK_TST1
Circuit B	Q_SLI_2B	MAIN MENU\Status\QCK_TST1	25	RW	Status Display Tables\QCK_TST1
Circuit C	Q_SLI_2C	MAIN MENU\Status\QCK_TST1	32	RW	Status Display Tables\QCK_TST1
Slide Valve 1 Output					
Circuit A	SLID_1_A	MAIN MENU\Status\CIRCA_D	3	RO	Status Display Tables\CIRCA_D
Circuit B	SLID_1_B	MAIN MENU\Status\CIRCB_D	3	RO	Status Display Tables\CIRCB_D
Circuit C	SLID_1_C	MAIN MENU\Status\CIRCC_D	3	RO	Status Display Tables\CIRCC_D
Slide Valve 2 Output					
Circuit A	SLID_2_A	MAIN MENU\Status\CIRCA_D	4	RO	Status Display Tables\CIRCA_D
Circuit B	SLID_2_B	MAIN MENU\Status\CIRCB_D	4	RO	Status Display Tables\CIRCB_D
Circuit C	SLID_2_C	MAIN MENU\Status\CIRCC_D	4	RO	Status Display Tables\CIRCC_D
Suction Pressure					
Circuit A	SP_A	MAIN MENU\Status\CIRCA_AN	4	RO	Status Display Tables\CIRCA_AN
Circuit B	SP_B	MAIN MENU\Status\CIRCB_AN	4	RO	Status Display Tables\CIRCB_AN
Circuit C	SP_C	MAIN MENU\Status\CIRCC_AN	4	RO	Status Display Tables\CIRCC_AN
S1 Config Switch (8 ->1)	cpa_s1_m	MAIN MENU\Maint\BOARD_PN	13	RO	Maintenance Display Tables\BOARD_PN
S1 Config Switch (8 ->1)	cpb_s1_m	MAIN MENU\Maint\BOARD_PN	17	RO	Maintenance Display Tables\BOARD_PN
S1 Config Switch (8 ->1)	cpc_s1_m	MAIN MENU\Maint\BOARD_PN	21	RO	Maintenance Display Tables\BOARD_PN
Second Set Point in Use	Mode_02	MAIN MENU\Status\MODES	3	RO	Status Display Tables\MODES
Serial Number	SerialNo	MAIN MENU\Config\Ctlr-ID	5	RO	Configuration Tables\!CtlrID\PD5_XAXQ
Service Test Enable	Q_STREQ	MAIN MENU\Status\SERV_TST	1	RW	Status Display Tables\SERV_TST
Servicing Alert	s_alert	MAIN MENU\Service\MAINTCFG	2	RW	Service Configuration Tables\MAINTCFG
Set Point Control	sp_ctrl	MAIN MENU\Status\GENUNIT	27	RO	Status Display Tables\GENUNIT
Set Point Occupied?	SP_OCC	MAIN MENU\Status\GENUNIT	26	RO	Status Display Tables\GENUNIT
Set Point select	sp_sel	MAIN MENU\Status\GENUNIT	25	RW	Status Display Tables\GENUNIT
Shutdown Indicator State	SHUTDOWN	MAIN MENU\Status\STATEGEN	27	RO	Status Display Tables\STATEGEN
Slave Address	slv_addr	MAIN MENU\Config\MST_SLV	11	RW	Configuration Tables\MST_SLV
Slave Chiller State	slv_stat	MAIN MENU\Maint\M_MSTSLV	6	RO	Maintenance Display Tables\MSTSLAVE
Slave Chiller Total Cap	slv_capt	MAIN MENU\Maint\M_MSTSLV	7	RO	Maintenance Display Tables\MSTSLAVE
Slave lagstat	lagstat	MAIN MENU\Maint\M_MSTSLV	14	RO	Maintenance Display Tables\MSTSLAVE
Slide Valve Capacity A	Q_SLIA	MAIN MENU\Status\SERV_TST	4	RW	Status Display Tables\SERV_TST
Slide Valve Capacity B	Q_SLIB	MAIN MENU\Status\SERV_TST	6	RW	Status Display Tables\SERV_TST
Slide Valve Capacity C	Q_SLIC	MAIN MENU\Status\SERV_TST	8	RW	Status Display Tables\SERV_TST
Soft Starter Select	softstar	MAIN MENU\Service\FACTORY	8	RW	Service Configuration Tables\FACTORY
Software Part Number	PartNum	MAIN MENU\Config\Ctlr-ID	3	RO	Configuration Tables\!CtlrID\PD5_XAXQ
Space T Full Reset Value	spacr_fu	MAIN MENU\Set Point	12	RW	Set Point Configuration Tables\SET POINT
Space T No Reset Value	spacr_no	MAIN MENU\Set Point	11	RW	Set Point Configuration Tables\SET POINT
Staged Loading Sequence	seq_typ	MAIN MENU\Config\USER	4	RW	Configuration Tables\USER
Start if Error Higher	start_dt	MAIN MENU\Config\MST_SLV	19	RW	Configuration Tables\MST_SLV
Startup Delay in Effect	Mode_01	MAIN MENU\Status\MODES	2	RO	Status Display Tables\MODES
Stop Pump During Standby	pump_sby	MAIN MENU\Config\USER	16	RW	Configuration Tables\USER

LEGEND

RO — Read Only
RW — Read/Write

APPENDIX B — NAVIGATOR™ DISPLAY TABLES

Table A — MODE — RUN STATUS

ITEM	EXPANSION	UNITS	RANGE	COMMENT	WRITE STATUS	CCN TABLE	CCN POINT	PAGE NO.
VIEW	AUTO DISPLAY							
→*EWT*	Entering Fluid Temp	XXXX.X (deg F/deg C)	0-100			STATEGEN	COOL_EWT	11,48
→*LWT*	Leaving Fluid Temp	XXX.X (deg F/deg C)	0-100			STATEGEN	COOL_LWT	11,48
→*SETP*	Active Set Point	XXX.X (deg F/deg C)	0-100			GENUNIT	SP	39, 64,65
→*CTPT*	Control Point	XXX.X (deg F/deg C)	0-100			GENUNIT	CTRL_PNT	39,48,64
→*STAT*	Unit Run Status		Off Running Stopping Delay			GENUNIT	STATUS	24-27, 101
→*OCC*	Occupied		NO/YES			GENUNIT	CHIL_OCC	24-27
→*CTRL*	Status Unit Control Type		Local Off Local On CCN Remote			GENUNIT	ctr_type	24-27
→*CAP*	Percent Total Capacity	XXX (%)	0-100			GENUNIT	CAP_T	
→CAP. A	Percent Capacity Cir A	XXX (%)	0-100			GENUNIT	CAPA_T	
→CAP. B	Percent Capacity Cir B	XXX (%)	0-100			GENUNIT	CAPB_T	
→CAP. C	Percent Capacity Cir C	XXX (%)	0-100			GENUNIT	CAPC_T	
→CAP. S	Capacity Indicator	XX	0-32			MAINT	OVER_CAP	
→*LIM*	Active Demand Limit Val	XXX (%)	0-100			GENUNIT	DEM-LIM	64
→CURR	Actual Chiller Current	XXX (amps)	0-4000			GENUNIT	TOT_CURR	
→CUR.L	Chiller Current Limit	XXX (amps)	0-4000			GENUNIT	CURR_LIM	
→*ALRM*	Alarm State		0=Normal 1=Partial 2=Shutdown			GENUNIT	ALM	82
→EMGY	Emergency Stop		DSBL/ENBL			GENUNIT	EMSTOP	
→CH.SS	CCN Chiller Start Stop		DSBL/ENBL			GENUNIT	CHILL_S_S	
→*HC.ST*	Heat Cool Status		0=Cooling 1=Heating 2=Standby	Standby not supported.		GENUNIT	HEATCOOL	49
→*RC.ST*	Reclaim Select Status		NO/YES	Not supported.		GENUNIT	reclaim_sel	
→*TIME*	Time of Day	XX.XX	00:00-23:59			N/A	TIME	
→*MNTH*	Month of Year		1=January 2=February 3=March 4=April 6=May 6=June 7=July 8=August 9=September 10=October 11=November 12=December			N/A	moy	
→*DATE*	Day of Month	XX	1-31			N/A	dom	
→*YEAR*	Year of Century	XX	00-99			N/A	yoc	
RUN	MACHINE STARTS/HOURS							
→*HRS.U*	Machine Operating Hours	XXXX (hours)	0-999999*		forcible		hr_mach	
→*STR.U*	Machine Starts	XXXX	0-999999*		forcible	STRTHOUR	st_mach	
→*HR.P1*	Water Pump 1 Run Hours	XXXX (hours)	0-999999*		forcible	STRTHOUR	hr_cpum1	
→*HR.P2*	Water Pump 2 Run Hours	XXXX (hours)	0-999999*		forcible	STRTHOUR	hr_cpum2	
→HR.P3	Condenser Pump 1 Hours	XXXX (hours)	0-999999*		forcible	STRTHOUR	hr_hpump1	
HOUR	COMPRESSOR RUN HOURS							
→*HR.A*	Compressor A Run Hours	XXXX (hours)	0-999999*		forcible	STRTHOUR	hr_cp_a	
→*HR.B*	Compressor B Run Hours	XXXX (hours)	0-999999*		forcible	STRTHOUR	hr_cp_b	
→*HR.C*	Compressor C Run Hours	XXXX (hours)	0-999999*	Not supported.	forcible	STRTHOUR	hr_cp_c	
STRT	COMPRESSOR STARTS							
→*ST.A*	Compressor A Starts	XXXX	0-999999*		forcible	STRTHOUR	st_cp_a	
→*ST.B*	Compressor B Starts	XXXX	0-999999*		forcible	STRTHOUR	st_cp_b	
→*ST.C*	Compressor C Starts	XXXX	0-999999*	Not supported.	forcible	STRTHOUR	st_cp_c	

* As data in all of these categories can exceed 9999 the following display strategy is used:

From 0-9999 display as 4 digits.

From 9999-99999 display xx.xK

From 99900-999999 display as xxxK.

APPENDIX B — NAVIGATOR™ DISPLAY TABLES (CONT)

Table A — MODE — RUN STATUS (cont)

ITEM	EXPANSION	UNITS	RANGE	COMMENT	WRITE STATUS	CCN TABLE	CCN POINT	PAGE NO.
FAN	FAN RUN HOURS							
→***FR.A1***	Fan 1 Run Hours Cir A	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fana1	
→***FR.A2***	Fan 2 Run Hours Cir A	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fana2	
→***FR.A3***	Fan 3 Run Hours Cir A	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fana3	
→***FR.A4***	Fan 4 Run Hours Cir A	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fana4	
→***FR.A5***	Fan 5 Run Hours Cir A	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fana5	
→***FR.A6***	Fan 6 Run Hours Cir A	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fana6	
→**FR.A7**	Fan 7 Run Hours Cir A	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fana7	
→**FR.A8**	Fan 8 Run Hours Cir A	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fana8	
→**FR.A9**	Fan 9 Run Hours Cir A	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fana9	
→**F.A10**	Fan 10 Run Hours Cir A	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hrfana10	
→***FR.B1***	Fan 1 Run Hours Cir B	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fanb1	
→***FR.B2***	Fan 2 Run Hours Cir B	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fanb2	
→***FR.B3***	Fan 3 Run Hours Cir B	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fanb3	
→***FR.B4***	Fan 4 Run Hours Cir B	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fanb4	
→***FR.B5***	Fan 5 Run Hours Cir B	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fanb5	
→***FR.B6***	Fan 6 Run Hours Cir B	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fanb6	
→**FR.B7**	Fan 7 Run Hours Cir B	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fanb7	
→**FR.B8**	Fan 8 Run Hours Cir B	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fanb8	
→**FR.B9**	Fan 9 Run Hours Cir B	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fanb9	
→**F.B10**	Fan 10 Run Hours Cir B	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hrfanb10	
→***FR.C1***	Fan 1 Run Hours Cir C	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fanc1	
→***FR.C2***	Fan 2 Run Hours Cir C	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fanc2	
→***FR.C3***	Fan 3 Run Hours Cir C	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fanc3	
→***FR.C4***	Fan 4 Run Hours Cir C	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fanc4	
→***FR.C5***	Fan 5 Run Hours Cir C	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fanc5	
→**FR.C6**	Fan 6 Run Hours Cir C	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fanc6	
→**FR.C7**	Fan 7 Run Hours Cir C	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fanc7	
→**FR.C8**	Fan 8 Run Hours Cir C	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS	hr_fanc8	
→**FR.C9**	Fan 9 Run Hours Cir C	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS		
→**F.C10**	Fan 10 Run Hours Cir C	XXXX (hours)	0-999999*	Not supported.	forcible	FANHOURS		
CP.UN	COMPRESSOR DISABLE							
→***A.UN***	Compressor A Disable		NO/YES		forcible	CP_UNABL	un_cp_a	
→***B.UN***	Compressor B Disable		NO/YES		forcible	CP_UNABL	un_cp_b	
→**C.UN**	Compressor C Disable		NO/YES		forcible	CP_UNABL	un_cp_c	
MAIN	PREDICTIVE MAINTENANCE							
→***CHRG***	Refrigerant Charge		NO/YES			SERMAINT	charge_m	
→***WATE***	Water Loop Size		NO/YES			SERMAINT	wloop_m	
→***PMP.1***	Pump 1 (Days)	(days)				SERMAINT	cpump1_m	
→***PMP.2***	Pump 2 (Days)	(days)				SERMAINT	cpump2_m	
→***PMP.3***	Cond Pump 1 (Days)					SERMAINT	hpump1_m	
→**PMP.4**	Cond Pump 2 (Days)			Not supported.		SERMAINT	hpump2_m	
→**W.FIL**	Water Filter	(days)				SERMAINT	wfilte_m	52
→**A.FIL**	Comp A Oil Filter (days)					SERMAINT	ofilta_m	
→**B.FIL**	Comp B Oil Filter (days)					SERMAINT	ofiltb_m	
→**C.FIL**	Comp C Oil Filter (days)					SERMAINT	ofiltc_m	
VERS	SOFTWARE VERSIONS							
→***APPL***	CSA-XXXXXXXXX						PD5_APPL	
→***MARQ***	XXXXXX-XX-XX						STDU	
→***NAVI***	XXXXXX-XX-XX						Navigator	
→***EXVA***	XXXXXX-XX-XX			Press ENTER and ESCAPE simultaneously to read version information			EXV_BRDA	
→***EXVB***	XXXXXX-XX-XX						EXV_BRDB	
→**EXVC**	XXXXXX-XX-XX						EXV_BRDC	
→***AUX1***	XXXXXX-XX-XX						AUX_BRD1	
→***AUX2***	XXXXXX-XX-XX						AUX_BRD2	
→***AUX3***	XXXXXX-XX-XX						AUX_BRD3	
→***AUX4***	XXXXXX-XX-XX						AUX_BRD4	
→***AUX5***	XXXXXX-XX-XX						AUX_BRD5	
→***AUX6***	XXXXXX-XX-XX						AUX_BRD6	
→**CPMA**	XXXXXX-XX-XX						SPM_CPA	
→**CPMB**	XXXXXX-XX-XX						SPM_CPB	
→**CPMC**	XXXXXX-XX-XX						SPM_CPC	
→**EMM**	XXXXXX-XX-XX						EMM_NRCP	92
→**R.BRD**	XXXXXX-XX-XX						REC_NRCP	

* As data in all of these categories can exceed 9999 the following display strategy is used:

From 0-9999 display as 4 digits.

From 9999-99999 display xx.xK

From 99900-999999 display as xxxK.

APPENDIX B — NAVIGATOR™ DISPLAY TABLES (CONT)

Table B — MODE — SERVICE TEST

ITEM	EXPANSION	UNITS	RANGE	COMMENT	WRITE STATUS	CCN TABLE	CCN POINT	PAGE NO.
TEST	MANUAL TEST MODE					N/A		
→***T.REQ***	Manual Sequence		OFF/ON	Remote-Off-Enable Switch must be set to **OFF** Position	forcible	N/A	service_test	74, 101
→***CP.A***	Compressor A Output		OFF/ON	Remote-Off-Enable Switch must be set to **ENABLE** Position	forcible	N/A	comp_serv_a	74,75
→**SLI.A**	Slide Valve Capacity A		unchanged increase decrease		forcible		comp_ser_sid_a	
→***CP.B***	Compressor B Output		OFF/ON		forcible	N/A	comp_serv_b	74,75
→**SLI.B**	Slide Valve Capacity B		unchanged increase decrease	Not supported.	forcible		comp_ser_sid_b	
→***CP.C***	Compressor C Output		OFF/ON		forcible	N/A	comp_serv_c	74,75
→**SLI.C**	Slide Valve Capacity C		unchanged increase decrease	Not supported.	forcible		comp_ser_sid_c	
QUIC	QUICK TEST MODE					N/A		
→***Q.REQ***			OFF/ON	Remote-Off-Enable Switch must be set to **OFF** Position	forcible	N/A		101, 102
→***EXV.A***	Circuit A EXV % Open	XXX (%)	0-100		forcible	N/A		74, 102
→***EXV.B***	Circuit B EXV % Open	XXX (%)	0-100	Not supported.	forcible	N/A		74
→***EXV.C***	Circuit C EXV % Open	XXX (%)	0-100		forcible	N/A		
→**ECO.A**	Circ A ECO EXV %	XXX (%)	0-100		forcible			
→**ECO.B**	Circ B ECO EXV %	XXX (%)	0-100	Not supported.	forcible			
→**ECO.C**	Circ C ECO EXV %	XXX (%)	0-100		forcible			
→***FAN.A***	Circuit A Fan Stages	X	0-8		forcible	N/A		
→***FAN.B***	Circuit B Fan Stages	X	0-8		forcible	N/A		
→***FAN.C***	Circuit C Fan Stages	X	0-8	Not supported.	forcible	N/A		
→***SPD.A***	Cir A Varifan position	XXX (%)	0-100		forcible	N/A		
→**SPD.B**	Cir B Varifan position	XXX (%)	0-100		forcible	N/A		
→**SPD.C**	Cir C Varifan position	XXX (%)	0-100	Not supported.	forcible	N/A		
→**HT.A**	Oil Heater Circuit A		OFF/ON		forcible			
→**SL1.A**	Slide Valve 1 Cir A		OFF/ON		forcible			
→**SL2.A**	Slide Valve 2 Cir B		OFF/ON		forcible			
→**HGP.A**	Hot Gas Bypass A Output		OFF/ON		forcible			
→**OLS.A**	Oil Solenoid Cir A		OFF/ON		forcible			102
→**DGT.A**	DGT Cool Solenoid A		OFF/ON		forcible			
→**HT.B**	Oil Heater Circuit B		OFF/ON		forcible			
→**SL1.B**	Slide Valve 1 Cir B		OFF/ON		forcible			
→**SL2.B**	Slide Valve 2 Cir B		OFF/ON		forcible			
→**HGP.B**	Hot Gas Bypass B Output		OFF/ON		forcible			
→**OLS.B**	Oil Solenoid Cir A		OFF/ON		forcible			
→**DGT.B**	DGT Cool Solenoid B		OFF/ON		forcible			
→**HT.C**	Oil Heater Circuit C		OFF/ON	Not supported.	forcible			
→**SL1.C**	Slide Valve 1 Cir C		OFF/ON	Not supported.	forcible			
→**SL2.C**	Slide Valve 2 Cir C		OFF/ON	Not supported.	forcible			
→**HGP.C**	Hot Gas Bypass C Output		OFF/ON	Not supported.	forcible			
→**OLS.C**	Oil Solenoid Cir C		OFF/ON	Not supported.	forcible			
→**DGT.C**	DGT Cool Solenoid C		OFF/ON	Not supported.	forcible			
→**PMP.1**	Water Exchanger Pump 1		OFF/ON		forcible	N/A		
→**PMP.2**	Water Exchanger Pump 2		OFF/ON		forcible	N/A		
→**PMP.3**	Condenser Pump 1		OFF/ON		forcible			
→**CL.HT**	Cooler Heater Output		OFF/ON			N/A		
→**BVL.A**	Ball Valve Position A		OPEN/CLSE					
→**BVL.B**	Ball Valve Position B		OPEN/CLSE					
→**BVL.C**	Ball Valve Position C		OPEN/CLSE	Not supported.				
→**Q.RDY**	Chiller Ready Status		OFF/ON		forcible	N/A		
→**Q.RUN**	Chiller Running Status		OFF/ON		forcible	N/A		
→**SHUT**	Customer Shutdown Stat		OFF/ON		forcible	N/A		
→**CATO**	Chiller Capacity in 0-10v	XX.X (vdc)			forcible	N/A		
→**ALRM**	Alarm Relay		OFF/ON		forcible	N/A		82
→**ALRT**	Alert Relay		OFF/ON		forcible	N/A		

APPENDIX B — NAVIGATOR™ DISPLAY TABLES (CONT)

Table C — MODE — TEMPERATURE

ITEM	EXPANSION	UNITS	RANGE	COMMENT	WRITE STATUS	CCN TABLE	CCN POINT	PAGE NO.
UNIT	UNIT TEMPERATURES							
→***CEWT***	Cooler Entering Fluid	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)			STATEGEN	COOL_EWT	11
→***CLWT***	Cooler Leaving Fluid	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)			STATEGEN	COOL_LWT	11
→**CD.ET**	Condenser Entering Fluid	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)	Heat machine only			COND_LWT	
→**CD.LT**	Condenser Leaving Fluid	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)	Heat machine only			COND_EWT	
→***OAT***	Outside Air Temperature	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)			GENUNIT	OAT	
→***CHWS***	Lead/Lag Leaving Fluid	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)			STATEGEN	CHWS	11
→***SPT***	Optional Space Temp	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)			STATEGEN	SPACETMP	18
→**THHR**	Cooler Heater Temp	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)	Not supported.			TH_HEATER	
→**THR.C**	Cooler Heat Temp Cir C	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)	Not supported.			T_HEAT_C	
CIR.A	CIRCUIT A TEMPERATURES							
→***SCT.A***	Sat Cond Temp Circ A	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)			CIRCA_AN	SCT_A	
→***SST.A***	Sat Suction Temp Circ A	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)			CIRCA_AN	SST_A	91
→**DGT.A**	Discharge Gas Temp Cir A	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)				DGT_A	13
→***SGT.A***	Suction Gas Temp Circ A	XXX.X (deg F/deg C)	–40-245 F (–40-118 C)			CIRCA_AN	SUCT_T_A	15
→***SUP.A***	Superheat Temp Circ A	XXX.X (ΔF/ΔC)				CIRCA_AN	SH_A	
→**ECT.A**	Economizer Gas Temp A	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)				ECO_TP_A	15
→**ESH.A**	Economizer Superheat A	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)				ECO_SH_A	
→**CTP.A**	Motor Temperature Cir A	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)				CP_TMP_A	13
CIR.B	CIRCUIT B TEMPERATURES							
→***SCT.B***	Sat Cond Temp Circ B	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)			CIRCB_AN	SCT_B	
→***SST.B***	Sat Suction Temp Circ B	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)			CIRCB_AN	SST_B	91
→**DGT.B**	Discharge Gas Temp Cir B	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)				DGT_B	13
→***SGT.B***	Suction Gas Temp Circ B	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)			CIRCB_AN	SUCT_T_B	15
→***SUP.B***	Superheat Temp Circ B	XXX.X (ΔF/ΔC)				CIRCB_AN	SH_B	
→**ECT.B**	Economizer Gas Temp B	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)				ECO_TP_B	15
→**ESH.B**	Economizer Superheat B	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)				ECO_SH_B	
→**CTP.B**	Motor Temperature Cir B	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)				CP_TMP_B	13
CIR.C	CIRCUIT C TEMPERATURES					CIRCC_AN		
→***SCT.C***	Sat Cond Temp Circ C	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)			CIRCC_AN	SCT_C	
→***SST.C***	Sat Suction Temp Circ C	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)			CIRCC_AN	SST_C	
→**DGT.C**	Discharge Gas Temp Cir C	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)				DGT_C	13
→***SGT.C***	Suction Gas Temp Circ C	XXX.X (deg F/deg C)	–40-245°F (–40-118°C)			CIRCC_AN	SUCT_T_C	15
→***SUP.C***	Superheat Temp Circ C	XXX.X (ΔF/ΔC)				CIRCC_AN	SH_C	
→**ECT.C**	Economizer Gas Temp C	XXX.X (deg F/deg C)					ECO_TP_C	15
→**ESH.C**	Economizer Superheat C	XXX.X (deg F/deg C)					ECO_SH_C	
→**CTP.C**	Motor Temperature Cir C	XXX.X (deg F/deg C)					CP_TMP_C	13

APPENDIX B — NAVIGATOR™ DISPLAY TABLES (CONT)

Table D — MODE — SET POINTS

ITEM	EXPANSION	UNITS	RANGE	COMMENT	WRITE STATUS	CCN TABLE	CCN POINT	PAGE NO.
COOL	COOLING SET POINTS							
→***CSP.1***	Cooling Set Point 1	XXXX.X (deg F/deg C)	–20-70°F (–29-21°C), Default = 44.0		forcible	SET POINT	csp1	28,29, 45,52
→***CSP.2***	Cooing Set Point 2	XXXX.X (deg F/deg C)	–20-70°F (–29-21°C), Default = 44.0		forcible	SET POINT	csp2	28,29, 45,64
→***CSP.3***	Ice Set Point	XXXX.X (deg F/deg C)	–20-70°F (–29-21°C), Default = 44.0		forcible	SET POINT	ice_sp	29,45, 64,65
→***CRV1***	Current No Reset Val	XX.X (mA)	0-20, Default = 0		forcible	SET POINT	v_cr_no	40, 43
→***CRV2***	Current Full Reset Val	XX.X (mA)	0-20, Default = 0		forcible	SET POINT	v_cr_fu	40, 43
→***CRT1***	Delta T No Reset Temp	XXX.X (ΔF/ΔC)	0-125°F (0-69.4°C), Default = 0		forcible	SET POINT	dt_cr_no	39, 42
→***CRT2***	Delta T Full Reset Temp	XXX.X (ΔF/ΔC)	0-125°F (0-69.4°C), Default = 0		forcible	SET POINT	dt_cr_fu	39, 42
→***CRO1***	OAT No Reset Temp	XXX.X (deg F/deg C)	0-125°F (–18-52°C), Default = 14.0		forcible	SET POINT	oatcr_no	
→***CRO2***	OAT Full Reset Temp	XXX.X (deg F/deg C)	0-25°F (–18-52°C), Default = 14.0		forcible	SET POINT	oatcr_fu	
→***CRS1***	Space T No Reset Temp	XXX.X (deg F/deg C)	0-125°F (–18-52°C), Default = 14.0		forcible	SET POINT	spacr_no	40,42
→***CRS2***	Space T Full Reset Temp	XXX.X (deg F/deg C)	0-125°F (–18-52°C), Default = 14.0		forcible	SET POINT	spacr_fu	40,42
→***DGRC***	Degrees Cool Reset	XX.X (ΔF/ΔC)	–30-30°F (–16.7-16.7°C), Default = 0		forcible	SET POINT	cr_deg	40,42, 43
→***CAUT***	Cool Changeover Setpt	XX.X (deg F/deg C)	Default = 75.0	Not supported.	forcible	SET POINT	cauto_sp	
→**CRMP**	Cool Ramp Loading	X.X	0.2-2.0 ΔF (0.1-1.1 ΔC), Default = 1.0		forcible	SET POINT	cramp_sp	39,48, 64
HEAT	HEATING SET POINTS							
→**HSP.1**	Heating Set Point 1	XXX.X (deg F/deg C)	Default = 100	Heat machine only	forcible	SET POINT	HSP.1	31
→**HSP.2**	Heating Set Point 2	XXX.X (deg F/deg C)	Default = 100	Heat machine only	forcible	SET POINT	HSP.2	31
→**HRV1**	Current to Reset Val	XX.X (mA)	Default = 0	Heat machine only	forcible	SET POINT	v_hr_no	
→**HRV2**	Current Full Reset Val	XX.X (mA)	Default = 0	Heat machine only	forcible	SET POINT	v_hr_fu	
→**HRT1**	Delta T No Reset Temp	XXX.X (ΔF/ΔC)	Default = 0	Heat machine only	forcible	SET POINT	dt_hr_no	
→**HRT2**	Delta T Full Reset Temp	XXX.X (ΔF/ΔC)	Default = 0	Heat machine only	forcible	SET POINT	dt_hr_fu	
→**HRO1**	OAT No Reset Temp	XXX.X (deg F/deg C)	Default = 14.0	Heat machine only	forcible	SET POINT	oathr_no	
→**HRO2**	OAT Full Reset Temp	XXX.X (deg F/deg C)	Default = 14.0	Heat machine only	forcible	SET POINT	oathr_fu	
→**DGRH**	Degrees Heat Reset	XX.X (ΔF/ΔC)	Default = 0	Heat machine only	forcible	SET POINT	DGRH	
→**HAUT**	Heat Changeover Setpt	XX.X (deg F/deg C)	Default = 64	Heat machine only	forcible	SET POINT	hauto_sp	
→**HRMP**	Heat Ramp Loading	X.X	Default = 1.0	Heat machine only	forcible	SET POINT	hramp_sp	
MISC	MISC SET POINTS							
→**DLS1**	Switch Limit Set Point 1	XXX (%)	0-100, Default = 100		forcible	SET POINT	lim_sp1	43,44
→**DLS2**	Switch Limit Set Point 2	XXX (%)	0-100, Default = 100		forcible	SET POINT	lim_sp2	43,44
→**DLS3**	Switch Limit Set Point 3	XXX (%)	0-100, Default = 100		forcible	SET POINT	lim_sp3	
→**W.SCT**	Water Val Cond Stp	XXX.X (deg F/deg C)	80-140°F (26.7-60°C) Default = 95		forcible	SET POINT	w_sct_sp	51

APPENDIX B — NAVIGATOR™ DISPLAY TABLES (CONT)

Table E — MODE — PRESSURE

ITEM	EXPANSION	UNITS	RANGE	COMMENT	WRITE STATUS	CCN TABLE	CCN POINT	PAGE NO.
PRC.A	CIRCUIT A PRESSURES							
→***DP.A***	Discharge Pressure Cir A	XXX.X (psig/kPa)				CIRCA_AN	DP_A	11,66
→***SP.A***	Suction Pressure Circ A	XXX.X (psig/kPa)				CIRCA_AN	SP_A	11
→**OP.A**	Oil Pressure Circ A	XXX.X (psig/kPa)				CIRCA_AN	OP_A	13
→**DOP.A**	Oil Pressure Diff A	XXX.X (psig/kPa)				CIRCA_AN	DOP_A	
→**ECP.A**	Economizer Pressure A	XXX.X (psig/kPa)				CIRCA_AN	ECON_P_A	13
PRC.B	CIRCUIT B PRESSURES							
→***DP.B***	Discharge Pressure Cir B	XXX.X (psig/kPa)				CIRCB_AN	DP_B	11,66
→***SP.B***	Suction Pressure Circ B	XXX.X (psig/kPa)				CIRCB_AN	SP_B	11
→**OP.B**	Oil Pressure Circ B	XXX.X (psig/kPa)				CIRCB_AN	OP_B	13
→**DOP.B**	Oil Pressure Diff B	XXX.X (psig/kPa)				CIRCB_AN	DOP_B	
→**ECP.B**	Economizer Pressure B	XXX.X (psig/kPa)				CIRCB_AN	ECON_P_B	13
PRC.C*	CIRCUIT C PRESSURES							
→***DP.C***	Discharge Pressure Cir C	XXX.X (psig/kPa)				CIRCC_AN	DP_C	66
→***SP.C***	Suction Pressure Circ C	XXX.X (psig/kPa)				CIRCC_AN	SP_C	
→**OP.C**	Oil Pressure Circ C	XXX.X (psig/kPa)				CIRCC_AN	OP_C	13
→**DOP.C**	Oil Pressure Diff C	XXX.X (psig/kPa)				CIRCC_AN	DOP_C	
→**ECP.C**	Economizer Pressure C	XXX.X (psig/kPa)				CIRCC_AN	ECON_P_C	13

* Not supported.

Table F — MODE — INPUTS

ITEM	EXPANSION	UNITS	RANGE	COMMENT	WRITE STATUS	CCN TABLE	CCN POINT	PAGE NO.
GEN.I	GENERAL INPUTS							
→***ONOF***	On Off Switch		OPEN/CLSE			STATEGEN	ONOF	11
→***LOCK***	Cooler Interlock		OPEN/CLSE			STATEGEN	FLOW_SW	11,48
→**COND**	Condenser Flow Switch		OPEN/CLSE			STATEGEN	CONFLOW	11
→***DLS1***	Demand Limit Switch 1		OPEN/CLSE			STATEGEN	LIM_SW1	11
→***DLS2***	Demand Limit Switch 2		OPEN/CLSE			STATEGEN	LIM_SW2	18
→***ICE.D***	Ice Done		OFF/ON			STATEGEN	ICE_SW	18,29
→***DUAL***	Dual Set Point Switch		OFF/ON			STATEGEN	SETP_SW	11,29
→***ELEC***	Electrical Box Safety		OPEN/CLSE			STATEGEN	ELEC_BOX	11
→***PUMP***	Pump Run Feedback		OPEN/CLSE			STATEGEN	PUMP_DEF	11, 52
→***OCCS***	Occupancy Override Swit		OFF/ON			STATEGEN	OCC_OVSW	18
→***HC.SW***	Heat Cool Switch Status		OFF/ON			STATEGEN	HC_SW	11
→→***RLOC***	Remote Interlock Switch		OPEN/CLSE			STATEGEN	REM-LOCK	18
→**OIL.A**	Oil Level Circuit A		LOW/HIGH			STATEGEN	OIL_L_A	
→**OIL.B**	Oil Level Circuit B		LOW/HIGH			STATEGEN	OIL_L_B	
→**OIL.C**	Oil Level Circuit C		LOW/HIGH	Not supported.		STATEGEN	OIL_L_C	
→**CUR.A**	Motor Current Circuit A	XXX.X (amps)*	0-600			STATEGEN	CURR_A	13
→**CUR.B**	Motor Current Circuit B	XXX.X (amps)*	0-600			STATEGEN	CURR_B	13
→**CUR.C**	Motor Current Circuit C	XXX.X (amps)*	0-600	Not supported.		STATEGEN	CURR_C	13
→***DMND***	4-20 mA Demand Signal	XXX.X (mA)	4 to 20			STATEGEN	LIM_ANAL	18
→**RSET**	4-20 mA Reset/Set Point	XXX.X (mA)	4 to 20			STATEGEN	SP_RESET	18

* For Wye-Delta units, displayed motor current value is measured current multiplied by 1.72.

APPENDIX B — NAVIGATOR™ DISPLAY TABLES (CONT)

Table G — MODE — OUTPUTS

ITEM	EXPANSION	UNITS	RANGE	COMMENT	WRITE STATUS	CCN TABLE	CCN POINT	PAGE NO.
CIR.A	CIRCUIT A OUTPUTS							
→***CP.A***	Compressor A Relay		OFF/ON			CIRCA_D	CP_A	13
→**HT.A**	Oil Heater Circuit A		OFF/ON			CIRCA_D	OIL_HT_A	
→**SL1.A**	Slide Valve 1 Cir A		OFF/ON			CIRCA_D	SLID1_A	13
→**SL2.A**	Slide Valve 2 Cir A		OFF/ON			CIRCA_D	SLID2_A	13
→**OLS.A**	Oil Solenoid Cir A		OFF/ON			CIRCA_D	OIL_SL_A	13
→**HGB.A**	Hot Gas Bypass Cir A		OFF/ON			CIRCA_D		16
→***FAN.A***	Circuit A Fan Stages	X	0-6			CIRCA_D	FAN_ST_A	
→***SPD.A***	Circ A Varifan Position	XXX (%)	0-100			CIRCA_AN	hd_pos_a	16
→***EXV.A***	Circuit A EXV % Open	XXX (%)	0-100			CIRCA_AN	EXV_A	15,73
→**ECO.A**	Circ A EXV ECO % Open	XXX (%)	0-100			CIRCA_AN	EXV_EC_A	15
→**DGT.A**	DGT Cool Solenoid A		OFF/ON			CIRCA_D	dgt_gascool_a	
CIR.B	CIRCUIT B OUTPUTS							
→***CP.B***	Compressor B Relay		OFF/ON			CIRCB_D	CP_B	13
→***HT.B***	Oil Heater Circuit B		OFF/ON			CIRCB_D	OIL_HT_B	
→**SL1.B**	Slide Valve 1 Cir B		OFF/ON			CIRCB_D	SLID1_B	13
→**SL2.B**	Slide Valve 2 Cir B		OFF/ON			CIRCB_D	SLID2_B	13
→**OLS.B**	Oil Solenoid Cir B		OFF/ON			CIRCB_D	OIL_SL_B	13
→**HGB.B**	Hot Gas Bypass Cir B		OFF/ON			CIRCB_D		16
→***FAN.B***	Circuit B Fan Stages	X	0-6			CIRCB_D	FAN_ST_B	
→***SPD.B***	Circ B Varifan Position	XXX (%)	0-100			CIRCB_AN	hd_pos_b	
→***EXV.B***	Circuit B EXV % Open	XXX (%)	0-100			CIRCB_AN	EXV_B	15,74
→**ECO.B**	Circ B EXV ECO % Open	XXX (%)	0-100			CIRCB_AN	EXV_EC_B	15
→**DGT.B**	DGT Cool Solenoid B		OFF/ON			CIRCB_D	dgt_gascool_b	
CIR.C	CIRCUIT C OUTPUTS			Not supported.				
→**CP.C**	Compressor C Relay	OFF/ON				CIRCC_D	CP_C	13
→**HT.C**	Oil Heater Circuit C	OFF/ON				CIRCC_D	OIL_HT_C	
→**SL1.C**	Slide Valve 1 Cir C		OFF/ON			CIRCC_D	SLID1_C	13
→**SL2.C**	Slide Valve 2 Cir C		OFF/ON			CIRCC_D	SLID2_C	13
→**OLS.C**	Oil Solenoid Cir C		OFF/ON			CIRCC_D	OIL_SL_C	13
→**HGB.C**	Hot Gas Bypass Cir C		OFF/ON			CIRCC_D		
→**FAN.C**	Circuit C Fan Stages	X	0-6			CIRCC_D	FAN_ST_C	
→**SPD.C**	Circ C Varifan Position	XXX (%)	0-100			CIRCC_AN	hd_pos_c	
→**EXV.C**	Circuit C EXV % Open	XXX (%)	0-100			CIRCC_AN	EXV_C	15
→**ECO.C**	Circ C EXV ECO % Open	XXX (%)	0-100			CIRCC_AN	EXV_EC_C	15
→**DGT.C**	DGT Cool Solenoid C		OFF/ON			CIRCC_D	dgt_gascool_c	
GEN.O	GENERAL OUTPUTS							
→**PMP.1**	Water Exchanger Pump 1		OFF/ON		forcible	STATEGEN	CPUMP_1	11
→**PMP.2**	Water Exchanger Pump 2		OFF/ON		forcible	STATEGEN	CPUMP_2	11
→**PMP.3**	Condenser Pump 1		OFF/ON		forcible	STATEGEN	HPUMP_1	11
→**CO.HT**	Cooler Heater Output		OFF/ON	Not supported.		STATEGEN	COOLHEAT	
→**BVL.A**	Ball Valve Position A		OPEN/CLOSE			CIRCA_D	ref_iso_a	
→**BVL.B**	Ball Valve Position B		OPEN/CLOSE			CIRCB_D	ref_iso_b	
→**BVL.C**	Ball Valve Position C		OPEN/CLOSE	Not supported.		CIRCC_D	ref_iso_c	
→**CN.HT**	Condenser Heat Output		OFF/ON	Not supported.		RECLAIM	cond_htr	
→**REDY**	Chiller Ready Status		OFF/ON			STATEGEN	READY	
→**RUN**	Chiller Running Status		OFF/ON			STATEGEN	RUNNING	
→**SHUT**	Customer Shutdown Stat		OFF/ON			STATEGEN	SHUTDOWN	18
→**CATO**	Chiller Capacity 0-10 v	XX.X				STATEGEN	CAPT_010	18
→**ALRM**	Alarm Relay		OFF/ON			STATEGEN	ALARM	11,18
→**ALRT**	Alert Relay		OFF/ON			STATEGEN	ALERT	11

Table H — MODE — CONFIGURATION

ITEM	EXPANSION	UNITS	RANGE	COMMENT	DEFAULT	CCN TABLE	CCN POINT	PAGE NO.
DISP	DISPLAY CONFIGURATION							
→***TEST***	Test Display LEDs		OFF/ON		OFF	N/A	display_test	8
→***METR***	Metric Display		US/METR		US	DISPCONF	DISPUNIT	8
→***LANG***	Language Selection		English Espanol Francais Portugues Translated		English	DISPCONF	LANGUAGE	8

APPENDIX B — NAVIGATOR™ DISPLAY TABLES (CONT)

Table H — MODE — CONFIGURATION (cont)

ITEM	EXPANSION	UNITS	RANGE	COMMENT	DEFAULT	CCN TABLE	CCN POINT	PAGE NO.
UNIT	UNIT CONFIGURATION							
→***TYPE***	Unit Type		3 = Water Cooled 4 = Heat Machine		Water cooled	FACTORY	unit_typ	27
→***TONS***	Unit Size	XXX	0 to 1800 (nominal size)			FACTORY	unitsize	95
→***VAR.A***	Nb Fan on Varifan Cir A	X	0-8	Not supported.	0: No low ambient temperature head pressure control 1:low ambient temperature head pressure control	FACTORY	varfan_a	
→***VAR.B***	Nb Fan on Varifan Cir B	X	0-8	Not supported.	0: No low ambient temperature head pressure control 1: low ambient temperature head pressure control	FACTORY	varfan_b	
→***VAR.C***	Nb Fan on Varifan Cir C	X	0-8	Not supported.	0: No low ambient temperature head pressure control 1: low ambient temperature head pressure control	FACTORY	varfan_c	
→***VOLT***	Power Supply Voltage	XXX (volt)	200, 230, 380, 460, 575		Acceptable values 200, 230, 380, 460, and 575	FACTORY	voltage	
→***60HZ***	60 Hz Frequency		NO/YES		YES	FACTORY	freq_60H	
→**STAR**	Soft Starter Select		NO/YES	Not supported.		FACTORY	softstar	
→**Y.D**	Wye Delta Start Select		NO/YES			FACTORY	wye_delt	
→**MTA.A**	Must Trip Amps Cir A	XXX (amps)	0 to 1500			FACTORY	cpa_mtac	13,50
→**R.MT.A**	Read Must Trip Amps A	XXX (amps)	0 to 1500			FACTORY	cpa_mtam	
→**MTA.B**	Must Trip Amps Cir B	XXX (amps)	0 to 1500			FACTORY	cpb_mtac	13,50
→**R.MT.B**	Read Must Trip Amps B	XXX (amps)	0 to 1500			FACTORY	cpb_mtam	
→**MTA.C**	Must Trip Amps Cir C	XXX (amps)	0 to 1500	Not supported.		FACTORY	cpc_mtac	13,50
→**R.MT.C**	Read Must Trip Amps C	XXX (amps)	0 to 1500	Not supported.		FACTORY	cpb_mtam	
→**C.SW.A**	S1 Config Switch Cir A	XXX (amps)	0 to 255			FACTORY	cpa_s1_c	13
→**R.CSA**	Read S1 Config Switch A	XXX (amps)	0 to 255			FACTORY	cpa_s1_m	
→**C.SW.B**	S1 Config Switch Cir B	XXX (amps)	0 to 255			FACTORY	cpb_s1_c	13
→**R.CSB**	Read S1 Config Switch B	XXX (amps)	0 to 255			FACTORY	cpb_s1_m	
→**C.SW.C**	S1 Config Switch Cir C	XXX (amps)	0 to 255	Not supported.		FACTORY	cpc_s1_c	13
→**R.CSC**	Read S1 Config Switch C	XXX (amps)	0 to 255	Not supported.		FACTORY	cpc_s1_m	
→***RECL***	Heat Reclaim Select		NO/YES	Not supported.	NO	FACTORY	recl_opt	
→***BOIL****	Boiler Command Select		NO/YES	Not supported.	NO	FACTORY	ehs_sel	
→**EMM**	EMM Module Installed		NO/YES		NO	FACTORY	emm_nrcp	92
→**PAS.E**	Password Enable		ENBL/DSBL		ENBL	FACTORY	pass_enb	
→**PASS**	Factory Password	XXX	1 to 0150		0111	FACTORY	fac_pass	
→**CO.HT**	Cooler Heater Select		NO/YES	Not supported.		FACTORY	heat_sel	
→**CON.V**	Condenser Valve Select		NO/YES		NO	FACTORY	cond_val	51, 92
→**HGBP**	Hot Gas Bypass Select		NO/YES		NO	FACTORY	hgbp_sel	34, 48, 92
→**MCHX**	MCHX Exchanger Select		NO/YES	Not supported.	NO	FACTORY	mchx_sel	
→**HI.TI**	High Tiers Display Select		NO/YES		NO	FACTORY	highdisp	
→**H.KIT**	Hydronic Kit Selection		NO/YES	Not supported.	NO	FACTORY		
→**PA.NB**	Cooler Pass Number		1-3		2	FACTORY		
→**VLT**	VLT Fan Drive Select			Not supported.	NONE	FACTORY		
→**RPM**	VLT Fan Drive RPM			Not supported.	0	FACTORY		
→**H.CON**	High Condensing Select		NO/YES		NO	FACTORY		27,31
SERV	SERVICE CONFIGURATIONS							
→***FLUD***	Cooler Fluid Type		WATER BRINE		WATER	SERVICE1	flui_typ	28,31,32,48, 49,66,92
→**CFLU**	Condenser Fluid Type		WATER BRINE		WATER		cond_typ	
→***MOP***	EXV MOP Set Point	XX.X (deg F/deg C)	40-60°F (4.4-15.6°C)		62.0	SERVICE1	mop_sp	93
→***HP.TH***	High Pressure Threshold	XXX.X (psig/kPa)	180-304 psig (1241-2096 kPa)		293 for all units where Model Number Position 11 is "M" (Heat Machine), 290 for all others.	SERVICE1	hp_th	49,66
→***SHP.A***	Cir A Superheat Setp	XX.X (ΔF/ΔC)	3-14°F (1.7-7.8°C)		7.2	SERVICE1	sh_sp_a	93
→***SHP.B***	Cir B Superheat Setp	XX.X (ΔF/ΔC)	3-14°F (1.7-7.8°C)		7.2	SERVICE1	sh_sp_b	93
→***SHP.C***	Cir C Superheat Setp	XX.X (ΔF/ΔC)	3-14°F (1.7-7.8°C)	Not supported.	14.4	SERVICE1	sh_sp_c	93
→***HTR***	Cooler Heater DT Setp	XX.X (ΔF/ΔC)	0.5-9°F (0.3-5.0°C)	Not supported.	2.0 38.0	SERVICE1	heatersp	
→***EWTO***	Entering Water Control		NO/YES		NO	SERVICE1	ewt_opt	27,31,83
→***AU.SM***	Auto Start When SM Lost		NO/YES		NO	SERVICE1	auto_sm	27,94
→***LLWT***	Brine Minimum Fluid Temp	XX.X (deg F/deg C)	–20-38°F (–28.9-3.3°C)		38			32
→***LOSP***	Brine Freeze Set Point	XX.X (deg F/deg C)	–20-50°F (–20-10°C)		34	SERVICE1	lowestsp	30,48,49,65, 78,92
→**FL.SP**	Brine Flow Switch Setp		0-60	Not supported.	1	SERVICE1	flow_sp	
→***HD.PG***	Varifan Proportion Gain	XX.X	–10-10		2.0	SERVICE1	hd_pg	51
→***HD.DG***	Varifan Derivative Gain	XX.X	–10-10		0.4	SERVICE1	hd_dg	51
→**HD.IG**	Varifan Integral Gain	XX.X	–10-10		0.2	SERVICE1	hd_ig	51
→**F.LOA**	Fast Load Select		0-4		0	SERVICE1	fastload	
→**AVFA**	Fan A Drive Attach		NO/YES	Not supported.	NO			
→**AVFB**	Fan B Drive Attach		NO/YES	Not supported.	NO			
→**AVFC**	Fan C Drive Attach		NO/YES	Not supported.	NO			
→**EWT.S**	EWT Probe on Cir A Side		NO/YES		YES	SERVICE1	ewt_cirA	
→**MAXL**	Max Condenser LWT 45DC		NO/YES		NO	FACTORY	max_clwt	

* Not supported.

APPENDIX B — NAVIGATOR™ DISPLAY TABLES (CONT)

Table H — MODE — CONFIGURATION (cont)

ITEM	EXPANSION	UNITS	RANGE	COMMENT	DEFAULT	CCN TABLE	CCN POINT	PAGE NO.
OPTN	OPTIONS CONFIGURATION							
→**CCNA**	CCN Address	XXX	1-239		1	N/A	CCNA	
→**CCNB**	CCN Bus Number	XXX	0-239		0	N/A	CCNB	
→**BAUD**	CCN Baud Rate		2400 4800 9600 19200 38400		9600	N/A	BAUD	
→**LOAD**	Loading Sequence Select		Equal Staged Automatic		EQUAL	USER	lead_cir	34
→**LLCS**	Lead/Lag Circuit Select		Cir A Leads Cir B Leads Cir C Leads		AUTOMATIC	USER	seq_typ	33,34
®**RL.S**	Ramp Load Select		ENBL/DSBL		DSBL	USER	ramp_sel	39,48,64
→**DELY**	Minutes Off Time	XX (Minutes)	1 to 15		1	USER	off_on_d	33,64
→**ICE.M**	Ice Mode Enable		ENBL/DSBL		DSBL	USER	ice_cnfg	29,45
→**HPUM**	Condenser Pumps Sequence		No Pump 1 Pump Only 2 Pumps Auto PMP 1 Manual PMP 2 Manual	Not supported. Not supported. Not supported.	NO PUMP		hpum_seq	33,52,65,96
→**PUMP**	Cooler Pumps Sequence		No Pump 1 Pump Only 2 Pumps Auto PMP 1 Manual PMP 2 Manual		NO PUMP	USER	pump_seq	32,52,65,98
→**ROT.P**	Pump Rotation Delay	XXXX (hours)	24 to 3000		48	USER	pump_del	33,65,65
→**PM.PS**	Periodic Pump Start		NO-YES		NO	USER	pump_per	32, 65
→**P.SBY**	Stop Pump In Standby		NO-YES		NO	USER	pump_sby	
→**P.LOC**	Flow Checked if Pmp Off		NO-YES		NO	USER	pump_loc	32,98
→**LS.ST**	Night Low Noise Start	XX.XX	00.00-23.59		00.00	USER	nh_start	
→**LS.ND**	Night Low Noise End	XX.XX	00-00-23.59		00.00	USER	nh_end	
→**LS.LT**	Low Noise Capacity Lim	XXX (%)	0-100		100	USER	nh_limit	
→**RV.AL**	Reverse Alarms Relay		NO-YES		NO	USER	al_rever	
→**OA.TH**	Heat Mode OAT Threshold	XX.X (deg F/deg C)		Not supported.	5 F	USER	heat_th	
→**CUR.S**	Current Limit Select		NO/YES		NO	USER	curr_sel	43
→**CUR.F**	Current Limit at 100%	XXXX	0 to 5000		2000	USER	curr_ful	43
RSET	RESET, DEMAND LIMIT, MASTER/SLAVE							
→**CRST**	Cooling Reset Type		No Reset Out Air Temp Delta T Temp 4-20 mA Input Space Temp		NO RESET	USER	cr_sel	39, 40, 64
→**HRST**	Heating Reset Type		No Reset Out Air Temp Delta T Temp 4-20 mA Input		NO RESET	USER	hr_sel	
→**DMDC**	Demand Limit Select		None Switch 4-20 mA Input		NONE	USER	lim_sel	43,64
→**DMMX**	mA for 100% Demand Limit	XX.X (mA)			0.0	USER	lim_mx	44,45
→**DMZE**	mA for 0% Demand Limit	XX.X (mA)			0.0	USER	lim_ze	44,45
→**MSSL**	Master/Slave Select		Disable Master Slave		DISABLE	MST_SLV	ms_sel	34,36-39, 65,83, 94,95
→**SLVA**	Slave Address	XXX	1-236		2	MST_SLV	slv_addr	34,36-39
→**LLBL**	Lead/Lag Balance Select		Always Lead Lag if Fail Runtime Sel		Always Lead	MST_SLV	ll_bal	34,36-39, 64
→**LLBD**	Lead/Lag Balance Delta	XXX (hours)	40-400		168	MST_SLV	ll_bal_d	34,36-39, 64
→**LLDY**	Lead/Lag Delay	XX (minutes)	2-30		10	MST_SLV	lsrt_tim	34,36-39, 64
→**LL.ER**	Start if Error Higher	XX.X (deg F/deg C)	3-18		4	MST_SLV	start_dt	34,36-39
→**LAG.M**	Lag Minimum Running Time	XXX (min)	0-150		0	MST_SLV	lag_mini	34,36-39
→**LAGP**	Lag Unit Pump Select		OFF if U stp ON if U stp		OFF if U stp	MST_SLV	lag_pump	34,36-39, 64
→**LPUL**	Lead Pulldown Time	XX (minutes)	0-60		0	MST_SLV	lead_pul	34,36-39, 64
→**SERI**	Chillers in Series		NO/YES		NO	MST_SLV	ll_serie	34,36-39

APPENDIX B — NAVIGATOR™ DISPLAY TABLES (CONT)

Table I — MODE — TIMECLOCK

ITEM	EXPANSION	UNITS	RANGE	COMMENT	WRITE STATUS	CCN TABLE	CCN POINT	PAGE NO.
TIME	TIME OF DAY							
→***HH.MM***	Hour and Minute	XX.XX	00.00-23.59		forcible	N/A	HH.MM	8
DATE	DAY, DATE							
→***MNTH***	Month		1=January 2=February 3=March 4=April 5=May 6=June 7=July 8=August 9=September 10=October 11=November 12=December		forcible	N/A	MNTH	8
→***DOM***	Day of Month	XX	1-31		forcible	N/A	DOM	8
→**DAY**	Day of Week		1=Monday 2=Tuesday 3=Wednesday 4=Thursday 5=Friday 6=Saturday 7=Sunday		forcible	N/A	DAY	8
→***YEAR***	Year of Century	XX	00-99		forcible	N/A	YEAR	8
SCH1	SCHEDULE 1							
→**PER.1**	Period 1 Occ/Unocc Sel							
→**PER.1**→**OCC.1**	Occupied Time	XX.XX	00:00-23:59		forcible	OCC1P01S	OCCTOD1	27
→**PER.1**→**UNO.1**	Unoccupied Time	XX.XX	00:00-23:59		forcible	OCC1P01S	UNOCTOD1	27
→**PER.1**→**MON.1**	Monday Select		NO/YES		forcible	OCC1P01S	DOW1	27
→**PER.1**→**TUE.1**	Tuesday Select		NO/YES		forcible	OCC1P01S	DOW1	27
→**PER.1**→**WED.1**	Wednesday Select		NO/YES		forcible	OCC1P01S	DOW1	27
→**PER.1**→**THU.1**	Thursday Select		NO/YES		forcible	OCC1P01S	DOW1	27
→**PER.1**→**FRI.1**	Friday Select		NO/YES		forcible	OCC1P01S	DOW1	27
→**PER.1**→**SAT.1**	Saturday Select		NO/YES		forcible	OCC1P01S	DOW1	27
→**PER.1**→**SUN.1**	Sunday Select		NO/YES		forcible	OCC1P01S	DOW1	27
→**PER.1**→**HOL.1**	Holiday Select		NO/YES		forcible	OCC1P01S	DOW1	27
→**PER.2**	Period 2 Occ/Unocc Sel					OCC1P01S		
→**PER.2**→**OCC.2**	Occupied Time	XX.XX	00:00-23:59		forcible	OCC1P01S	OCCTOD2	27
→**PER.2**→**UNO.2**	Unoccupied Time	XX.XX	00:00-23:59		forcible	OCC1P01S	UNOCTOD2	27
→**PER.2**→**MON.2**	Monday Select		NO/YES		forcible	OCC1P01S	DOW2	27
→**PER.2**→**TUE.2**	Tuesday Select		NO/YES		forcible	OCC1P01S	DOW2	27
→**PER.2**→**WED.2**	Wednesday Select		NO/YES		forcible	OCC1P01S	DOW2	27
→**PER.2**→**THU.2**	Thursday Select		NO/YES		forcible	OCC1P01S	DOW2	27
→**PER.2**→**FRI.2**	Friday Select		NO/YES		forcible	OCC1P01S	DOW2	27
→**PER.2**→**SAT.2**	Saturday Select		NO/YES		forcible	OCC1P01S	DOW2	27
→**PER.2**→**SUN.2**	Sunday Select		NO/YES		forcible	OCC1P01S	DOW2	27
→**PER.2**→**HOL.2**	Holiday Select		NO/YES		forcible	OCC1P01S	DOW2	27
→**PER.3**	Period 3 Occ/Unocc Sel					OCC1P01S		
→**PER.3**→**OCC.3**	Occupied Time	XX.XX	00:00-23:59		forcible	OCC1P01S	OCCTOD3	27
→**PER.3**→**UNO.3**	Unoccupied Time	XX.XX	00:00-23:59		forcible	OCC1P01S	UNOCTOD3	27
→**PER.3**→**MON.3**	Monday Select		NO/YES		forcible	OCC1P01S	DOW3	27
→**PER.3**→**TUE.3**	Tuesday Select		NO/YES		forcible	OCC1P01S	DOW3	27
→**PER.3**→**WED.3**	Wednesday Select		NO/YES		forcible	OCC1P01S	DOW3	27
→**PER.3**→**THU.3**	Thursday Select		NO/YES		forcible	OCC1P01S	DOW3	27
→**PER.3**→**FRI.3**	Friday Select		NO/YES		forcible	OCC1P01S	DOW3	27
→**PER.3**→**SAT.3**	Saturday Select		NO/YES		forcible	OCC1P01S	DOW3	27
→**PER.3**→**SUN.3**	Sunday Select		NO/YES		forcible	OCC1P01S	DOW3	27
→**PER.3**→**HOL.3**	Holiday Select		NO/YES		forcible	OCC1P01S	DOW3	27
→**PER.4**	Period 4 Occ/Unocc Sel							
→**PER.4**→**OCC.4**	Occupied Time	XX.XX	00:00-23:59		forcible	OCC1P01S	OCCTOD4	27
→**PER.4**→**UNO.4**	Unoccupied Time	XX.XX	00:00-23:59		forcible	OCC1P01S	UNOCTOD4	27
→**PER.4**→**MON.4**	Monday Select		NO/YES		forcible	OCC1P01S	DOW4	27
→**PER.4**→**TUE.4**	Tuesday Select		NO/YES		forcible	OCC1P01S	DOW4	27
→**PER.4**→**WED.4**	Wednesday Select		NO/YES		forcible	OCC1P01S	DOW4	27
→**PER.4**→**THU.4**	Thursday Select		NO/YES		forcible	OCC1P01S	DOW4	27
→**PER.4**→**FRI.4**	Friday Select		NO/YES		forcible	OCC1P01S	DOW4	27
→**PER.4**→**SAT.4**	Saturday Select		NO/YES		forcible	OCC1P01S	DOW4	27
→**PER.4**→**SUN.4**	Sunday Select		NO/YES		forcible	OCC1P01S	DOW4	27
→**PER.4**→**HOL.4**	Holiday Select		NO/YES		forcible	OCC1P01S	DOW4	27
→**PER.5**	Period 5 Occ/Unocc Sel							
→**PER.5**→**OCC.5**	Occupied Time	XX.XX	00:00-23:59		forcible	OCC1P01S	OCCTOD5	27
→**PER.5**→**UNO.5**	Unoccupied Time	XX.XX	00:00-23:59		forcible	OCC1P01S	UNOCTOD5	27
→**PER.5**→**MON.5**	Monday Select		NO/YES		forcible	OCC1P01S	DOW5	27
→**PER.5**→**TUE.5**	Tuesday Select		NO/YES		forcible	OCC1P01S	DOW5	27
→**PER.5**→**WED.5**	Wednesday Select		NO/YES		forcible	OCC1P01S	DOW5	27
→**PER.5**→**THU.5**	Thursday Select		NO/YES		forcible	OCC1P01S	DOW5	27
→**PER.5**→**FRI.5**	Friday Select		NO/YES		forcible	OCC1P01S	DOW5	27
→**PER.5**→**SAT.5**	Saturday Select		NO/YES		forcible	OCC1P01S	DOW5	27
→**PER.5**→**SUN.5**	Sunday Select		NO/YES		forcible	OCC1P01S	DOW5	27
→**PER.5**→**HOL.5**	Holiday Select		NO/YES		forcible	OCC1P01S	DOW5	27
→**PER.6**	Period 6 Occ/Unocc Sel							
→**PER.6**→**OCC.6**	Occupied Time	XX.XX	00:00-23:59		forcible	OCC1P01S	OCCTOD6	
→**PER.6**→**UNO.6**	Unoccupied Time	XX.XX	00:00-23:59		forcible	OCC1P01S	UNOCTOD6	
→**PER.6**→**MON.6**	Monday Select		NO/YES		forcible	OCC1P01S	DOW6	
→**PER.6**→**TUE.6**	Tuesday Select		NO/YES		forcible	OCC1P01S	DOW6	
→**PER.6**→**WED.6**	Wednesday Select		NO/YES		forcible	OCC1P01S	DOW6	
→**PER.6**→**THU.6**	Thursday Select		NO/YES		forcible	OCC1P01S	DOW6	
→**PER.6**→**FRI.6**	Friday Select		NO/YES		forcible	OCC1P01S	DOW6	
→**PER.6**→**SAT.6**	Saturday Select		NO/YES		forcible	OCC1P01S	DOW6	
→**PER.6**→**SUN.6**	Sunday Select		NO/YES		forcible	OCC1P01S	DOW6	
→**PER.6**→**HOL.6**	Holiday Select		NO/YES		forcible	OCC1P01S	DOW6	

APPENDIX B — NAVIGATOR™ DISPLAY TABLES (CONT)

Table I — MODE — TIMECLOCK (cont)

ITEM	EXPANSION	UNITS	RANGE	COMMENT	WRITE STATUS	CCN TABLE	CCN POINT	PAGE NO.
SCH1	SCHEDULE 1							
→PER.7	Period 7 Occ/Unocc Sel							
→PER.7→OCC.7	Occupied Time	XX.XX	00:00-23:59		forcible	OCCP01S	OCCTOD7	
→PER.7→UNO.7	Unoccupied Time	XX.XX	00:00-23:59		forcible	OCCP01S	UNOCTOD7	
→PER.7→MON.7	Monday Select		NO/YES		forcible	OCCP01S	DOW7	
→PER.7→TUE.7	Tuesday Select		NO/YES		forcible	OCCP01S	DOW7	
→PER.7→WED.7	Wednesday Select		NO/YES		forcible	OCCP01S	DOW7	
→PER.7→THU.7	Thursday Select		NO/YES		forcible	OCCP01S	DOW7	
→PER.7→FRI.7	Friday Select		NO/YES		forcible	OCCP01S	DOW7	
→PER.7→SAT.7	Saturday Select		NO/YES		forcible	OCCP01S	DOW7	
→PER.7→SUN.7	Sunday Select		NO/YES		forcible	OCCP01S	DOW7	
→PER.7→HOL.7	Holiday Select		NO/YES		forcible	OCCP01S	DOW7	
→PER.8	Period 8 Occ/Unocc Sel					OCCP01S		
→PER.8→OCC.8	Occupied Time	XX.XX	00:00-23:59		forcible	OCCP01S	OCCTOD8	
→PER.8→UNO.8	Unoccupied Time	XX.XX	00:00-23:59		forcible	OCCP01S	UNOCTOD8	
→PER.8→MON.8	Monday Select		NO/YES		forcible	OCCP01S	DOW8	
→PER.8→TUE.8	Tuesday Select		NO/YES		forcible	OCCP01S	DOW8	
→PER.8→WED.8	Wednesday Select		NO/YES		forcible	OCCP01S	DOW8	
→PER.8→THU.8	Thursday Select		NO/YES		forcible	OCCP01S	DOW8	
→PER.8→FRI.8	Friday Select		NO/YES		forcible	OCCP01S	DOW8	
→PER.8→SAT.8	Saturday Select		NO/YES		forcible	OCCP01S	DOW8	
→PER.8→SUN.8	Sunday Select		NO/YES		forcible	OCCP01S	DOW8	
→PER.8→HOL.8	Holiday Select		NO/YES		forcible	OCCP01S	DOW8	
SCH2	SCHEDULE 2							
→PER.1	Period 1 Occ/Unocc Sel							
→PER.1→OCC.1	Occupied Time	XX.XX	00:00-23:59		forcible	OCC2P02S	OCCTOD1	27
→PER.1→UNO.1	Unoccupied Time	XX.XX	00:00-23:59		forcible	OCC2P02S	UNOCTOD1	27
→PER.1→MON.1	Monday Select		NO/YES		forcible	OCC2P02S	DOW1	27
→PER.1→TUE.1	Tuesday Select		NO/YES		forcible	OCC2P02S	DOW1	27
→PER.1→WED.1	Wednesday Select		NO/YES		forcible	OCC2P02S	DOW1	27
→PER.1→THU.1	Thursday Select		NO/YES		forcible	OCC2P02S	DOW1	27
→PER.1→FRI.1	Friday Select		NO/YES		forcible	OCC2P02S	DOW1	27
→PER.1→SAT.1	Saturday Select		NO/YES		forcible	OCC2P02S	DOW1	27
→PER.1→SUN.1	Sunday Select		NO/YES		forcible	OCC2P02S	DOW1	27
→PER.1→HOL.1	Holiday Select		NO/YES		forcible	OCC2P02S	DOW1	27
→PER.2	Period 2 Occ/Unocc Sel							
→PER.2→OCC.2	Occupied Time	XX.XX	00:00-23:59		forcible	OCC2P02S	OCCTOD	27
→PER.2→UNO.2	Unoccupied Time	XX.XX	00:00-23:59		forcible	OCC2P02S	UNOCTOD2	27
→PER.2→MON.2	Monday Select		NO/YES		forcible	OCC2P02S	DOW2	27
→PER.2→TUE.2	Tuesday Select		NO/YES		forcible	OCC2P02S	DOW2	27
→PER.2→WED.2	Wednesday Select		NO/YES		forcible	OCC2P02S	DOW2	27
→PER.2→THU.2	Thursday Select		NO/YES		forcible	OCC2P02S	DOW2	27
→PER.2→FRI.2	Friday Select		NO/YES		forcible	OCC2P02S	DOW2	27
→PER.2→SAT.2	Saturday Select		NO/YES		forcible	OCC2P02S	DOW2	27
→PER.2→SUN.2	Sunday Select		NO/YES		forcible	OCC2P02S	DOW2	27
→PER.2→HOL.2	Holiday Select		NO/YES		forcible	OCC2P02S	DOW2	27
→PER.3	Period 3 Occ/Unocc Sel							
→PER.3→OCC.3	Occupied Time	XX.XX	00:00-23:59		forcible	OCC2P02S	OCCTOD	27
→PER.3→UNO.3	Unoccupied Time	XX.XX	00:00-23:59		forcible	OCC2P02S	UNOCTOD3	27
→PER.3→MON.3	Monday Select		NO/YES		forcible	OCC2P02S	DOW3	27
→PER.3→TUE.3	Tuesday Select		NO/YES		forcible	OCC2P02S	DOW3	27
→PER.3→WED.3	Wednesday Select		NO/YES		forcible	OCC2P02S	DOW3	27
→PER.3→THU.3	Thursday Select		NO/YES		forcible	OCC2P02S	DOW3	27
→PER.3→FRI.3	Friday Select		NO/YES		forcible	OCC2P02S	DOW3	27
→PER.3→SAT.3	Saturday Select		NO/YES		forcible	OCC2P02S	DOW3	27
→PER.3→SUN.3	Sunday Select		NO/YES		forcible	OCC2P02S	DOW3	27
→→PER.3→HOL.3	Holiday Select		NO/YES		forcible	OCC2P02S	DOW3	27
→PER.4	Period 4 Occ/Unocc Sel							
→PER.4→OCC.4	Occupied Time	XX.XX	00:00-23:59		forcible	OCC2P02S	OCCTOD4	27
→PER.4→UNO.4	Unoccupied Time	XX.XX	00:00-23:59		forcible	OCC2P02S	UNOCTOD4	27
→PER.4→MON.4	Monday Select		NO/YES		forcible	OCC2P02S	DOW4	27
→PER.4→TUE.4	Tuesday Select		NO/YES		forcible	OCC2P02S	DOW4	27
→PER.4→WED.4	Wednesday Select		NO/YES		forcible	OCC2P02S	DOW4	27
→PER.4→THU.4	Thursday Select		NO/YES		forcible	OCC2P02S	DOW4	27
→PER.4→FRI.4	Friday Select		NO/YES		forcible	OCC2P02S	DOW4	27
→PER.4→SAT.4	Saturday Select		NO/YES		forcible	OCC2P02S	DOW4	27
→PER.4→SUN.4	Sunday Select		NO/YES		forcible	OCC2P02S	DOW4	27
→PER.4→HOL.4	Holiday Select		NO/YES		forcible	OCC2P02S	DOW4	27
→PER.5	Period 5 Occ/Unocc Sel							
→PER.5→OCC.5	Occupied Time	XX.XX	00:00-23:59		forcible	OCC2P02S	OCCTOD5	27
→PER.5→UNO.5	Unoccupied Time	XX.XX	00:00-23:59		forcible	OCC2P02S	UNOCTOD5	27
→PER.5→MON.5	Monday Select		NO/YES		forcible	OCC2P02S	DOW5	27
→PER.5→TUE.5	Tuesday Select		NO/YES		forcible	OCC2P02S	DOW5	27
→PER.5→WED.5	Wednesday Select		NO/YES		forcible	OCC2P02S	DOW5	27
→PER.5→THU.5	Thursday Select		NO/YES		forcible	OCC2P02S	DOW5	27
→PER.5→FRI.5	Friday Select		NO/YES		forcible	OCC2P02S	DOW5	27
→PER.5→SAT.5	Saturday Select		NO/YES		forcible	OCC2P02S	DOW5	27
→PER.5→SUN.5	Sunday Select		NO/YES		forcible	OCC2P02S	DOW5	27
→PER.5→HOL.5	Holiday Select		NO/YES		forcible	OCC2P02S	DOW5	27
→PER.6	Period 6 Occ/Unocc Sel							
→PER.6→OCC.6	Occupied Time	XX.XX	00:00-23:59		forcible	OCC2P02S	OCCTOD6	
→PER.6→UNO.6	Unoccupied Time	XX.XX	00:00-23:59		forcible	OCC2P02S	UNOCTOD6	
→PER.6→MON.6	Monday Select		NO/YES		forcible	OCC2P02S	DOW6	
→PER.6→TUE.6	Tuesday Select		NO/YES		forcible	OCC2P02S	DOW6	
→PER.6→WED.6	Wednesday Select		NO/YES		forcible	OCC2P02S	DOW6	
→PER.6→THU.6	Thursday Select		NO/YES		forcible	OCC2P02S	DOW6	
→PER.6→FRI.6	Friday Select		NO/YES		forcible	OCC2P02S	DOW6	
→PER.6→SAT.6	Saturday Select		NO/YES		forcible	OCC2P02S	DOW6	
→PER.6→SUN.6	Sunday Select		NO/YES		forcible	OCC2P02S	DOW6	
→PER.6→HOL.6	Holiday Select		NO/YES		forcible	OCC2P02S	DOW6	

APPENDIX B — NAVIGATOR™ DISPLAY TABLES (CONT)

Table I — MODE — TIMECLOCK (cont)

ITEM	EXPANSION	UNITS	RANGE	COMMENT	WRITE STATUS	CCN TABLE	CCN POINT	PAGE NO.
→**PER.7**	Period 7 Occ/Unocc Sel							
→**PER.7**→**OCC.7**	Occupied Time	XX.XX	00:00-23:59		forcible	OCC2P02S	OCCTOD7	
→**PER.7**→**UNO.7**	Unoccupied Time	XX.XX	00:00-23:59		forcible		UNOCTOD7	
→**PER.7**→**MON.7**	Monday Select		NO/YES		forcible		DOW7	
→**PER.7**→**TUE.7**	Tuesday Select		NO/YES		forcible		DOW7	
→**PER.7**→**WED.7**	Wednesday Select		NO/YES		forcible		DOW7	
→**PER.7**→**THU.7**	Thursday Select		NO/YES		forcible		DOW7	
→**PER.7**→**FRI.7**	Friday Select		NO/YES		forcible		DOW7	
→**PER.7**→**SAT.7**	Saturday Select		NO/YES		forcible		DOW7	
→**PER.7**→**SUN.7**	Sunday Select		NO/YES		forcible		DOW7	
→**PER.7**→**HOL.7**	Holiday Select		NO/YES		forcible		DOW7	
→**PER.8**	Period 8 Occ/Unocc Sel							
→**PER.8**→**OCC.8**	Occupied Time	XX.XX	00:00-23:59		forcible		OCCTOD8	
→**PER.8**→**UNO.8**	Unoccupied Time	XX.XX	00:00-23:59		forcible		UNOCTOD8	
→**PER.8**→**MON.8**	Monday Select		NO/YES		forcible		DOW8	
→**PER.8**→**TUE.8**	Tuesday Select		NO/YES		forcible		DOW8	
→**PER.8**→**WED.8**	Wednesday Select		NO/YES		forcible		DOW8	
→**PER.8**→**THU.8**	Thursday Select		NO/YES		forcible		DOW8	
→**PER.8**→**FRI.8**	Friday Select		NO/YES		forcible		DOW8	
→**PER.8**→**SAT.8**	Saturday Select		NO/YES		forcible		DOW8	
→**PER.8**→**SUN.8**	Sunday Select		NO/YES		forcible		DOW8	
→**PER.8**→**HOL.8**	Holiday Select		NO/YES		forcible		DOW8	
HOLI	HOLIDAYS*							
→**HOL.1**	Holiday 1 Configuration							24
→**HOL.1**→**MON.1**	Holiday Start Month		1=January 2=February 3=March 4=April 5=May 6=June 7=July 8=August 9=September 10=October 11=November 12=December		forcible	HOLDY_01	HOL_MON	27
→**HOL.1**→**DAY.1**	Holiday Start Day	XX	1 to 31		forcible	HOLDY_01	HOL_DAY	27
→**HOL.1**→**DUR.1**	Holiday Duration in Days	XX	1 to 99		forcible	HOLDY_01	HOL_LEN	27
→**HOL.1**→**HOL.2**	Holiday 2 Configuration							27
→**HOL.1**→**MON.2**	Holiday Start Month		See HOL.1→MON.1		forcible	HOLDY_02	HOL_MON	27
→**HOL.2**→**DAY.2**	Holiday Start Day		See HOL.1→DAY.1		forcible	HOLDY_02	HOL_DAY	27
→**HOL.2**→**DUR.2**	Holiday Duration in Days		See HOL.1→DUR.1		forcible	HOLDY_02	HOL_LEN	27
→**HOL.16**→**HO.16**	Holiday 16 Configuration							
→**HOL.16**→**MO.16**	Holiday Start Month		See HOL.1→MON.1		forcible	HOLDY_16		
→**HOL.16**→**DA.16**	Holiday Start Day		See HOL.1→DAY.1		forcible	HOLDY_16		
→**HOL.16**→**DU.16**	Holiday Duration in Days		See HOL.1→DUR.1		forcible	HOLDY_16		
MCFG	SERVICE MAINTENANCE CONFIGURATION							98
→**AL.SV**	Service Warning Select		NO/YES	DEFAULT=NO	forcible	MAINTCFG	s_alert	
→**CHRG**	Refrigerant Charge		NO/YES	DEFAULT=NO	forcible	MAINTCFG	charge_a	
→**WATE**	Water Loop Size		NO/YES	DEFAULT=NO	forcible	MAINTCFG	wloop_c	
→**PMP.1**	Pump 1 (days)	XXXX (days)	0-65,500	DEFAULT=0	forcible	MAINTCFG	pump1_c	
→**PMP.2**	Pump 2 (days)	XXXX (days)	0-65,500	DEFAULT=0	forcible	MAINTCFG	pump2_c	
→**PMP.3**	Cond Pump 1 (days)	XXXX (days)	0-65,500	DEFAULT=0	forcible	MAINTCFG	hpump1_c	
→**PMP.4**	Cond Pump 2 (days)	XXXX (days)	0-65,500	DEFAULT=0	forcible	MAINTCFG	hpump2_c	
→**W.FIL**	Water Filter (days)	XXXX (days)	0-65,500	DEFAULT=0	forcible	MAINTCFG	wfilte_c	52
→**A.FIL**	Comp A Oil Filter (days)	XXXX (days)	0-65,500	DEFAULT=0	forcible	MAINTCFG	ofilta_c	
→**B.FIL**	Comp B Oil Filter (days)	XXXX (days)	0-65,500	DEFAULT=0	forcible	MAINTCFG	ofiltb_c	
→**C.FIL**	Comp C Oil Filter (days)	XXXX (days)	0-65,500	DEFAULT=0	forcible	MAINTCFG	ofiltc_c	
→**RS.SV**	Servicing Alert Reset		0=Default 1=Refrigerant Charge 2=Water loop size 3=Not used 4=Pump 1 5=Pump 2 6=Condenser Pump 7=Condenser Pump (not used) 8=Water Filter 9=Compressor A Oil Filter 10=Compressor B Oil Filter 11=Compressor C Oil Filter 12=Reset All	DEFAULT=0	forcible	SERMAINT	s_reset	

* Holidays range from 1-16. Item has same structure, with the only difference being the two-number identifier.

APPENDIX B — NAVIGATOR™ DISPLAY TABLES (CONT)

Table J — MODE — OPERATING MODE

ITEM	EXPANSION	UNITS	RANGE	COMMENT	WRITE STATUS	CCN TABLE	CCN POINT	PAGE NO.
SLCT	OPERATING CONTROL TYPE							
→OPER	Operating Control Type		Switch Ctrl Time Sched CCN Control Set Point Occ	Default = Switch Ctrl	forcible	N/A	N/A	25,26, 36-38
→SP.SE	Set Point Select		Set Point1 Set Point2 4-20mA Setp Dual Setp Sw	Default = Set Point Occ	forcible	N/A	N/A	28-31
→HC.SE	Heat Cool Select		Cooling Heating Auto Chgover Heat Cool Sw	Default = Cooling	forcible	GENUNIT	HC_SEL	28, 31
MODE*	OPERATING MODES							64
→MD01	First Active Mode		0-32			MODES		64
→MD02	Second Active Mode		0-32			MODES		64
→MD03	Third Active Mode		0-32			MODES		64
→MD04	Fourth Active Mode		0-32			MODES		64
→MD05	Fifth Active Mode		0-32			MODES		64
→MD06	Sixth Active Mode		0-32			MODES		64

* Up to six current operating modes will be displayed.

NOTE: See Operating Modes starting on page 64.

Table K — MODE — ALARMS

ITEM	EXPANSION*	UNITS	RANGE	COMMENT	WRITE STATUS	CCN TABLE	CCN POINT	PAGE NO.
R.ALM	RESET ALL CURRENT ALARM		NO/YES		forcible	N/A	N/A	
ALRM†	CURRENTLY ACTIVE ALARMS Current Alarm 1 Current Alarm 2 Current Alarm 3 Current Alarm 4 Current Alarm 5					 GENUNIT GENUNIT GENUNIT GENUNIT GENUNIT	 alarm_1 alarm_2 alarm_3 alarm_4 alarm_5	
H.ALM**	ALARM HISTORY Alarm History #1 Alarm History #2 Alarm History #49 Alarm History #50					 ALRMHIST ALRMHIST ALRMHIST ALRMHIST	 alm_history_01 alm_history_02 alm_history_49 alm_history_50	

* Expanded display will be actual alarm description.
† History of up to five past alarms will be displayed.
** History of fifty past alarms will be displayed.

APPENDIX C — CCN TABLES

Table L — STATUS DISPLAY TABLES

TABLE	DISPLAY NAME	RANGE	UNITS	POINT NAME	WRITE STATUS
CIRCA_AN	CIRCUIT A ANALOG VALUES				
	Percent Total Capacity	0 - 100	%	CAPA_T	
	Discharge Pressure	nnn.n	psi	DP_A	
	Suction Pressure	nnn.n	psi	SP_A	
	Economizer Pressure	nnn.n	psi	ECON_P_A	
	Oil Pressure	nnn.n	psi	OP_A	
	Oil Pressure Difference	nnn.n	psi	DOP_A	
	Motor Current	nnn.n	AMPS	CURREN_A	
	Motor Temperature	nnnn	°F	CP_TMP_A	
	Discharge Gas Temp	nnnn	°F	DGT_A	
	Economizer Gas Temp	nnnn	°F	ECO_TP_A	
	Saturated Condensing Tmp	±nnn.n	°F	SCT_A	
	Saturated Suction Temp	±nnn.n	°F	SST_A	
	Compressor Suction Temp	±nnn.n	°F	SUCT_T_A	
	EXV Position	0 - 100	%	EXV_A	
	Head Press Actuator Pos	0 - 100	%	hd_pos_a	
CIRCA_D	CIRCUIT A DISCRETE				
	Compressor Output	ON/OFF		COMP_A	
	Slide Valve 1 Output	ON/OFF		SLID_1_A	
	Slide Valve 2 Output	ON/OFF		SLID_2_A	
	Oil Heater Output	ON/OFF		OIL_HT_A	
	Oil Solenoid Output	ON/OFF		OIL_SL_A	
	Oil Level Input	Low/High		OIL_L_A	
	DGT Cooling Solenoid	ON/OFF		GASCOOLA	
	Hot Gas Bypass Output	ON/OFF		HGBP_A	
	FANS OUTPUT*				
	Fan Output DO # 1	ON/OFF		fan_a1	
	Fan Output DO # 2	ON/OFF		fan_a2	
	Fan Output DO # 3	ON/OFF		fan_a3	
	Fan Output DO # 4	ON/OFF		fan_a4	
	Fan Output DO # 5	ON/OFF		fan_a5	
	Fan Output DO # 6	ON/OFF		fan_a6	
	Fan Output DO # 7	ON/OFF		fan_a7	
	Fan Output DO # 8	ON/OFF		fan_a8	
	Fan Staging Number	0-10		FAN_ST_A	
	MISCELLANEOUS*				
	Ball Valve Position	OPEN/CLSE		ISO_REFA	
	Ball Valve Closing Out	ON/OFF		ISO_CL_A	
	Ball Valve Opening Out	ON/OFF		ISO_OP_A	
	4 Way Refrigerant Valve	ON/OFF		RV_A	
CIRCB_AN	CIRCUIT B ANALOG VALUES				
	Percent Total Capacity	0 - 100	%	CAPB_T	
	Discharge Pressure	nnn.n	psi	DP_B	
	Suction Pressure	nnn.n	psi	SP_B	
	Economizer Pressure	nnn.n	psi	ECON_P_B	
	Oil Pressure	nnn.n	psi	OP_B	
	Oil Pressure Difference	nnn.n	psi	DOP_B	
	Motor Current	nnn.n	AMPS	CURREN_B	
	Motor Temperature	nnnn	°F	CP_TMP_B	
	Discharge Gas Temp	nnnn	°F	DGT_B	
	Economizer Gas Temp	nnnn	°F	ECO_TP_B	
	Saturated Condensing Tmp	±nnn.n	°F	SCT_B	
	Saturated Suction Temp	±nnn.n	°F	SST_B	
	Compressor Suction Temp	±nnn.n	°F	SUCT_T_B	
	EXV Position	0-100	%	EXV_B	
	Head Press Actuator Pos	0-100	%	hd_pos_b	
CIRCB_D	CIRCUIT B DISCRETE				
	Compressor Output	ON/OFF		COMP_B	
	Slide Valve 1 Output	ON/OFF		SLID_1_B	
	Slide Valve 2 Output	ON/OFF		SLID_2_B	
	Oil Heater Output	ON/OFF		OIL_HT_B	
	Oil Solenoid Output	ON/OFF		OIL_SL_B	
	Oil Level Input	Low/High		OIL_L_B	
	DGT Cooling Solenoid	ON/OFF		GASCOOLB	
	Hot Gas Bypass Output	ON/OFF		HGBP_B	
	FANS OUTPUT*				
	Fan Output DO # 1	ON/OFF		fan_b1	
	Fan Output DO # 2	ON/OFF		fan_b2	
	Fan Output DO # 3	ON/OFF		fan_b3	
	Fan Output DO # 4	ON/OFF		fan_b4	
	Fan Output DO # 5	ON/OFF		fan_b5	
	Fan Output DO # 6	ON/OFF		fan_b6	
	Fan Output DO # 7	ON/OFF		fan_b7	
	Fan Output DO # 8	ON/OFF		fan_b8	
	Fan Staging Number	0-10		FAN_ST_B	
	MISCELLANEOUS*				
	Ball Valve Position	OPEN/CLSE		ISO_REFB	
	Ball Valve Closing Out	ON/OFF		ISO_CL_B	
	Ball Valve Opening Out	ON/OFF		ISO_OP_B	
	4 Way Refrigerant Valve	ON/OFF		RV_B	

* Not supported.

APPENDIX C — CCN TABLES (CONT)

Table L — STATUS DISPLAY TABLES (cont)

TABLE	DISPLAY NAME	RANGE	UNITS	POINT NAME	WRITE STATUS
CIRCC_AN*	CIRCUIT C ANALOG VALUES				
	Percent Total Capacity	0-100	%	CAPC_T	
	Discharge Pressure	nnn.n	psi	DP_C	
	Suction Pressure	nnn.n	psi	SP_C	
	Economizer Pressure	nnn.n	psi	ECON_P_C	
	Oil Pressure	nnn.n	psi	OP_C	
	Oil Pressure Difference	nnn.n	psi	DOP_C	
	Motor Current	nnn.n	AMPS	CURREN_C	
	Motor Temperature	nnnn	°F	CP_TMP_C	
	Discharge Gas Temp	nnnn	°F	DGT_C	
	Economizer Gas Temp	nnnn	°F	ECO_TP_C	
	Saturated Condensing Tmp	±nnn.n	°F	SCT_C	
	Saturated Suction Temp	±nnn.n	°F	SST_C	
	Compressor Suction Temp	±nnn.n	°F	SUCT_T_C	
	EXV Position	0-100	%	EXV_C	
	Head Press Actuator Pos	0-100	%	hd_pos_c	
CIRCC_D*	CIRCUIT C DISCRETE				
	Compressor Output	ON/OFF		COMP_C	
	Slide Valve 1 Output	ON/OFF		SLID_1_C	
	Slide Valve 2 Output	ON/OFF		SLID_2_C	
	Oil Heater Output	ON/OFF		OIL_HT_C	
	Oil Solenoid Output	ON/OFF		OIL_SL_C	
	Oil Level Input	Low/High		OIL_L_C	
	DGT Cooling Solenoid	ON/OFF		GASCOOLC	
	Hot Gas Bypass Output	ON/OFF		HGBP_C	
	FANS OUTPUT				
	Fan Output DO # 1	ON/OFF		fan_c1	
	Fan Output DO # 2	ON/OFF		fan_c2	
	Fan Output DO # 3	ON/OFF		fan_c3	
	Fan Output DO # 4	ON/OFF		fan_c4	
	Fan Output DO # 5	ON/OFF		fan_c5	
	Fan Output DO # 6	ON/OFF		fan_c6	
	Fan Output DO # 7	ON/OFF		fan_c7	
	Fan Output DO # 8	ON/OFF		fan_c8	
	Fan Staging Number	0-10		FAN_ST_C	
	MISCELLANEOUS				
	Ball Valve Position	OPEN/CLSE		ISO_REFC	
	Ball Valve Closing Out	ON/OFF		ISO_CL_C	
	Ball Valve Opening Out	ON/OFF		ISO_OP_C	
FAN HOURS*	Free Cool A Pump Hours	nnnnn	hours	hr_fem_a	
	Free Cool B Pump Hours	nnnnn	hours	hr_fem_b	
	Circuit A Defrost Number	nnnnn	—	ub_def_a	
	Circuit B Defrost Number	nnnnn	—	ub_def_b	
	Circuit A Fan #1 Hours	nnnnn	hours	hr_fana1	
	Circuit A Fan #2 Hours	nnnnn	hours	hr_fana2	
	Circuit A Fan #3 Hours	nnnnn	hours	hr_fana3	
	Circuit A Fan #4 Hours	nnnnn	hours	hr_fana4	
	Circuit A Fan #5 Hours	nnnnn	hours	hr_fana5	
	Circuit A Fan #6 Hours	nnnnn	hours	hr_fana6	
	Circuit A Fan #7 Hours	nnnnn	hours	hr_fana7	
	Circuit A Fan #8 Hours	nnnnn	hours	hr_fana8	
	Circuit A Fan #9 Hours	nnnnn	hours	hr_fana9	
	Circuit A Fan #10 Hours	nnnnn	hours	hrfana10	
	Circuit B Fan #1 Hours	nnnnn	hours	hr_fanb1	
	Circuit B Fan #2 Hours	nnnnn	hours	hr_fanb2	
	Circuit B Fan #3 Hours	nnnnn	hours	hr_fanb3	
	Circuit B Fan #4 Hours	nnnnn	hours	hr_fanb4	
	Circuit B Fan #5 Hours	nnnnn	hours	hr_fanb5	
	Circuit B Fan #6 Hours	nnnnn	hours	hr_fanb6	
	Circuit B Fan #7 Hours	nnnnn	hours	hr_fanb7	
	Circuit B Fan #8 Hours	nnnnn	hours	hr_fanb8	
	Circuit B Fan #9 Hours	nnnnn	hours	hr_fanb9	
	Circuit B Fan #10 Hours	nnnnn	hours	hrfanb10	
	Circuit C Fan #1 Hours	nnnnn	hours	hr_fanc1	
	Circuit C Fan #2 Hours	nnnnn	hours	hr_fanc2	
	Circuit C Fan #3 Hours	nnnnn	hours	hr_fanc3	
	Circuit C Fan #4 Hours	nnnnn	hours	hr_fanc4	
	Circuit C Fan #5 Hours	nnnnn	hours	hr_fanc5	
	Circuit C Fan #6 Hours	nnnnn	hours	hr_fanc6	
	Circuit C Fan #7 Hours	nnnnn	hours	hr_fanc7	
	Circuit C Fan #8 Hours	nnnnn	hours	hr_fanc8	

* Not supported.

APPENDIX C — CCN TABLES (CONT)

Table L — STATUS DISPLAY TABLES (cont)

TABLE	DISPLAY NAME	RANGE	UNITS	POINT NAME	WRITE STATUS
GENUNIT	Operating Type	L-Off-Local Off (Navigator Display= SW1 Switch=Opened) L-On-Local On L-Sched-Local On/Off State based on Time Schedules CCN-Unit is in CCN Control Remote-On/Off Based on Remote Contact (not applied to Navigator Display) Master-Unit Operation in Lead/Lag and it is a Master		OPER_TYP	
	Control Type	Local CCN Remote		ctr_type	
	Run Status	0 = Off 1 = Running 2 = Stopping 3 = Delay 4 = Tripout 5 = Ready 6 = Override 7 = Defrost 8 = Run Test 9 = Test		STATUS	
	CCN Chiller Start/Stop	Enable/Disable		CHIL_S_S	forcible
	Chiller Occupied?	Yes/No		CHIL_OCC	forcible
	Minutes Left for Start	0-15	min	min_left	
	Heat/Cool Status	0 = Cool 1 = Heat 2 = Stand-by 3 = Both		HEATCOOL	
	Heat/Cool Select	0 = Cool 1 = Heat 2 = Auto		HC_SEL	forcible
	Heat Reclaim Select	Yes/No		RECL_SEL	forcible*
	Free Cooling Selct	Yes/No		FC_DSBLE	forcible
	Alarm State	0 = Normal 1 = Partial 2 = Shutdown		ALM	
	Current Alarm 1	nnnnn		alarm_1	
	Current Alarm 2	nnnnn		alarm_2	
	Current Alarm 3	nnnnn		alarm_3	
	Current Alarm 4	nnnnn		alarm_4	
	Current Alarm 5	nnnnn		alarm_5	
	Percent Total Capacity	nnn	%	CAP_T	
	Active Demand Limit Val	nnn	%	DEM_LIM	forcible*
	Lag Capacity Limit Value	nnn	%	LAG_LIM	
	Actual Chiller Current	nnn	amps	TOT_CURR	forcible†
	Chiller Current Limit	nnn	amps	CURR_LIM	forcible
	Current Set Point	±nnn.n	°F	SP	
	Set Point Occupied?	Yes/No		SP_OCC	forcible
	Set Point Control	Auto Setpt 1 Setpt 2 4-20mA Ice_sp		sp_ctrl	
	Control Point	±nnn.n	°F	CTRL_PNT	forcible*
	Controlled Water Temp	±nnn.n	°F	CTRL_WT	
	External Temperature	±nnn.n	°F	OAT	
	Emergency Stop	Enable/Disable		EMSTOP	forcible
MODES	Startup Delay in Effect	Yes/No		Mode_01	
	Second Set Point in Use	Yes/No		Mode_02	
	Reset in Effect	Yes/No		Mode_03	
	Demand Limit Active	Yes/No		Mode_04	
	Ramp Loading Active	Yes/No		Mode_05	
	Cooler Heater Active	Yes/No		Mode_06	
	Cooler Pumps Rotation	Yes/No		Mode_07	
	Pump Periodic Start	Yes/No		Mode_08	
	Night Low Noise Active	Yes/No		Mode_09	
	System Manager Active	Yes/No		Mode_10	
	Master Slave Active	Yes/No		Mode_11	
	Auto Changeover Active	Yes/No		Mode_12	
	Free Cooling Active	Yes/No		Mode_13	
	Reclaim Active	Yes/No		Mode_14	
	Electric Heat Active	Yes/No		Mode_15	
	Heating Low EWT Lockout	Yes/No		Mode_16	
	Condenser Pumps Rotation	Yes/No		Mode_17	
	Ice Mode in Effect	Yes/No		Mode_18	
	Defrost Active On Cir A	Yes/No		Mode_19	
	Defrost Active On Cir B	Yes/No		Mode_20	
	Low Suction Circuit A	Yes/No		Mode_21	
	Low Suction Circuit B	Yes/No		Mode_22	
	Low Suction Circuit C	Yes/No		Mode_23	
	High DGT Circuit A	Yes/No		Mode_24	
	High DGT Circuit B	Yes/No		Mode_25	
	High DGT Circuit C	Yes/No		Mode_26	
	High Pres Override Cir A	Yes/No		Mode_27	
	High Pres Override Cir B	Yes/No		Mode_28	
	High Pres Override Cir C	Yes/No		Mode_29	
	Low Superheat Circuit A	Yes/No		Mode_30	
	Low Superheat Circuit B	Yes/No		Mode_31	
	Low Superheat Circuit C	Yes/No		Mode_32	

* Not supported.
† The forced value will be used.

APPENDIX C — CCN TABLES (CONT)

Table L — STATUS DISPLAY TABLES (cont)

TABLE	DISPLAY NAME	RANGE	UNITS	POINT NAME	WRITE STATUS
QCK_TST1	Quick Test Enable	no/Yes	—	Q_TSTRQ	forcible
	Circuit A EXV Position	0 - 100	%	Q_EXVA	forcible
	Circuit B EXV Position	0 - 100	%	Q_EXVB	forcible
	Circuit C EXV Position	0 - 100	%	Q_EXVC	forcible
	Cir A Economizer EXV Pos	0 - 100	%	Q_ECO_A	forcible
	Cir B Economizer EXV Pos	0 - 100	%	Q_ECO_B	forcible
	Cir C Economizer EXV Pos	0 - 100	%	Q_ECO_C	forcible
	Circuit A Fan Stages	0-10	—	Q_FAN_A	forcible
	Circuit B Fan Stages	0-10	—	Q_FAN_B	forcible
	Circuit C Fan Stages	0-10	—	Q_FAN_C	forcible
	Circuit A Head Press Speed	0 - 100	%	Q_VFANA	forcible
	Circuit B Head Press Speed	0 - 100	%	Q_VFANB	forcible
	Circuit C Head Press Speed	0 - 100	%	Q_VFANC	forcible
	Circuit A Oil Heater	Off/On	—	Q_HT_A	forcible
	Circuit A Oil Solenoid	Off/On	—	Q_OILS_A	forcible
	Circuit A Slide Valve 1	Off/On	—	Q_SLI_1A	forcible
	Circuit A Slide Valve 2	Off/On	—	Q_SLI_2A	forcible
	Cir A Heater Ball Valve	Off/On	—	Q_BVL_A	forcible
	Cir A Hot Gas Bypass	Off/On	—	Q_HGBP_A	forcible
	Cir A DGT Cool Solenoid	Off/On	—	Q_CDGT_B	forcible
	Circuit B Oil Heater	Off/On	—	Q_HT_B	forcible
	Circuit B Oil Solenoid	Off/On	—	Q_OILS_B	forcible
	Circuit B Slide Valve 1	Off/On	—	Q_SLI_1B	forcible
	Circuit B Slide Valve 2	Off/On	—	Q_SLI_2B	forcible
	Cir A Heater Ball Valve	Off/On	—	Q_BVL_B	forcible
	Cir B Hot Gas Bypass	Off/On	—	Q_HGBP_B	forcible
	Cir B DGT Cool Solenoid	Off/On	—	Q_CDGT_B	forcible
	Circuit C Oil Heater	Off/On	—	Q_HT_C	forcible
	Circuit C Oil Solenoid	Off/On	—	Q_OILS_C	forcible
	Circuit C Slide Valve 1	Off/On	—	Q_SLI_1C	forcible
	Circuit C Slide Valve 2	Off/On	—	Q_SLI_2C	forcible
	Cir C Heater Ball Valve	Off/On	—	Q_BVL_C	forcible
	Cir C Hot Gas Bypass	Off/On	—	Q_HGBP_C	forcible
	Cooler Heater Output	Off/On	—	Q_CL_HT	forcible
	Water Exchanger Pump 1	Off/On	—	Q_PMP1	forcible
	Water Exchanger Pump 2	Off/On	—	Q_PMP2	forcible
	Condenser Pump 1	Off/On	—	Q_HPMP1	forcible
	Condenser Pump 2*	Off/On	—	Q_HPMP2	forcible
	Chiller Ready Output	Off/On	—	Q_READY	forcible
	Chiller Running Output	Off/On	—	Q_RUN	forcible
	Cir A Running Output	Off/On	—	Q_RUN_A	forcible
	Cir B Running Output	Off/On	—	Q_RUN_B	forcible
	Cir C Running Output*	Off/On	—	Q_RUN_C	forcible
	Chiller Capacity in 0-10v	0 – 10.0	volt	Q_CATO	forcible
	Customer Shutdown Out	Off/On	—	Q_SHUT	forcible
	Alarm Relay Output	Off/On	—	Q_ALARM	forcible
	Alert Relay Output	Off/On	—	Q_ALERT	forcible
QCK_TST2*	Quick Test Enable	no/Yes	—	Q_TSTRQ	forcible
	Air Cond Enter Valve A	Off/On	—	Q_HREA_A	forcible
	Air Cond Leaving Valv A	Off/On	—	Q_HRLA_A	forcible
	Water Cond Enter Valv A	Off/On	—	Q_HREW_A	forcible
	Water Cond Leav Valve A	Off/On	—	Q_HRLW_A	forcible
	Air Cond Enter Valve B	Off/On	—	Q_HREA_B	forcible
	Air Cond Leaving Valv B	Off/On	—	Q_HRLA_B	forcible
	Water Cond Enter Valv B	Off/On	—	Q_HREW_B	forcible
	Water Cond Leav Valve B	Off/On	—	Q_HRLW_B	forcible
	HR Condenser Heater	Off/On	—	Q_CD_HT	forcible
	4 way Valve Circuit A	Off/On	—	Q_RV_A	forcible
	4 way Valve Circuit B	Off/On	—	Q_RV_B	forcible
	Free Cooling Heater	On/Off	—	Q_FC_HTR	forcible
	Free Cool A EXV Position	0 - 100	%	Q_FCEXVA	forcible
	Free Cool B EXV Position	0 - 100	%	Q_FCEXVB	forcible
	Free Cool A Ball Valve	Off/On	—	Q_FCBVL_A	forcible
	Free Cool B Ball Valve	Off/On	—	Q_FCBVL_B	forcible
SERV_TST	Service Test Enable†	no/Yes		Q_STREQ	read only
	Compressor A Output	Off/On		Q_CPA	read only
	Slide Valve Capacity A	0 - 2**		Q_SLIA	read only
	Compressor B Output	Off/On		Q_CPB	read only
	Slide Valve Capacity B	0 - 2**		Q_SLIB	read only
	Compressor C Output	Off/On		Q_CPC	read only
	Slide Valve Capacity C	0 - 2**		Q_SLIC	read only

* Not supported.

† Yes = service test function enable. Unit must be in Local Off to enable Service Test. After service test is enabled, select Local ON.

** 0 = capacity frozen (unchanged).
1 = capacity increase.
2 = capacity decrease.

NOTE: Disable quick test: all the quick test parameters shall be reset to 0.

APPENDIX C — CCN TABLES (CONT)

Table L — STATUS DISPLAY TABLES (cont)

TABLE	DISPLAY NAME	RANGE	UNITS	POINT NAME
FREECOOL*	GENERAL PARAMETERS			
	Free Cooling Disable ?	Yes/No	—	FC_DSBLE
	LWT – OAT Delta	±nnn.n	°F	fc_delta
	Current Cooling Power	nnn	°F	cool_pwr
	Estimated FreeCoo Power	nnn	°F	fc_pwr
	Next Session Allowed In	nn	minutes	fc_next
	Cooling/FreeCool Timeout	nn	minutes	fc_tmout
	Free Cool Conditions OK ?	Yes/No	—	fc_ready
	Free Cool Request ?	Yes/No	—	fc_reqst
	Valve Actuators Heaters ?	On/Off	-	FC_HTR
	CIRCUIT A			
	Free Cooling Active	Yes/No	—	fc_on_a
	Fan Staging Number	1 to 6	—	FAN_ST_A
	3 Way Valve Position	nnn	%	fc_vlv_a
	3 Way Valve Status	Opening/Closing/...	—	FC_VLV_A
	Refrigerant Pump Out	On/Off	—	fc_pmp_a
	Pump Inlet Pressure	±nnn	kPa	fc_inp_a
	Pump Outlet Pressure	±nnn	kPa	fc_oup_a
	Pump Differential Pressure	±nnn	kPa	fc_dp_a
	EXV Position	nnn.n	%	EXV_A
	CIRCUIT B			
	Free Cooling Active	Yes/No	—	fc_on_b
	Fan Staging Number	1 to 6	—	FAN_ST_B
	3 Way Valve Position	nnn	%	fc_vlv_b
	3 Way Valve Status	Opening/Closing/...	—	FC_VLV_B
	Refrigerant Pump Out	On/Off	—	fc_pmp_b
	Pump Inlet Pressure	±nnn	kPa	fc_inp_b
	Pump Outlet Pressure	±nnn	kPa	fc_oup_b
	Pump Differential Pressure	±nnn	kPa	fc_dp_b
	EXV Position	nnn.n	%	EXV_B
	CIRCUIT C			
	Free Cooling Active	Yes/No	—	fc_on_c
	Fan Staging Number	1 to 6	—	FAN_ST_C
	3 Way Valve Position	nnn	%	fc_vlv_c
	3 Way Valve Status	Opening/Closing/...	—	FC_VLV_C
	Refrigerant Pump Out	On/Off	—	fc_pmp_c
	Pump Inlet Pressure	±nnn	kPa	fc_inp_c
	Pump Outlet Pressure	±nnn	kPa	fc_oup_c
	Pump Differential Pressure	±nnn	kPa	fc_dp_c
	EXV Position	nnn.n	%	EXV_C

* Not supported.

APPENDIX C — CCN TABLES (CONT)

Table L — STATUS DISPLAY TABLES (cont)

TABLE	DISPLAY NAME	RANGE	UNITS	POINT NAME	WRITE STATUS
RECLAIM*	Heat Reclaim Select	Yes/no		RECL_SEL	
	Reclaim Condenser Pump	On/Off		CONDPUMP	
	Reclaim Condenser Flow	On/Off		CONDFLOW	
	Reclaim Condenser Heater	On/Off		cond_htr	
	Reclaim Entering Fluid	±nnn.n	°F	HR_EWT	
	Reclaim Leaving Fluid	±nnn.n	°F	HR_LWT	
	Reclaim Fluid Set Point	±nnn.n	°F	RSP	forcible
	Reclaim Valve Position	±nnn.n	%	hr_v_pos	
	HEAT RECLAIM CIRCUIT A				
	Reclaim Status Circuit A	n		hrstat_a	
	Pumpdown Pressure Cir A	±nnn.n	psi	PD_P_A	
	Sub Condenser Temp Cir A	±nnn.n	°F	hr_subta	
	Pumpdown Saturated Tmp A	±nnn.n	°F	hr_sat_a	
	Subcooling Temperature A	±nnn.n	^F	hr_subca	
	Air Cond Entering Valv A	On/Off		hr_ea_a	
	Water Cond Enter Valve A	On/Off		hr_ew_a	
	Air Cond Leaving Valve A	On/Off		hr_la_a	
	Water Cond Leaving Val A	On/Off		hr_lw_a	
	HEAT RECLAIM CIRCUIT B				
	Reclaim Status Circuit B	n		hrstat_b	
	Pumpdown Pressure Cir B	±nnn.n	psi	PD_P_B	
	Sub Condenser Temp Cir B	±nnn.n	°F	hr_subtb	
	Pumpdown Saturated Tmp B	±nnn.n	°F	hr_sat_b	
	Subcooling Temperature B	±nnn.n	^F	hr_subcb	
	Air Cond Entering Valv B	On/Off		hr_ea_b	
	Water Cond Enter Valve B	On/Off		hr_ew_b	
	Air Cond Leaving Valve B	On/Off		hr_la_b	
	Water Cond Leaving Val B	On/Off		hr_lw_b	
STATEGEN	UNIT DISCRETE IN				
	On/Off – Remote Switch	Open/Clse		ONOFF_SW	
	Remote Heat/Cool Switch	Open/Clse		HC_SW	
	Current Control	Off, On Cool, On Heat, On Auto		on_ctrl	
	Remote Reclaim Switch	Open/Clse		RECL_SW	
	Free Cooling Disable Switch*	Open/Clse		FC_SW	
	Remote Set Point Switch	Open/Clse		SETP_SW	
	Limit Switch 1 Status	Open/Clse		LIM_SW1	
	Limit Switch 2 Status	Open/Clse		LIM_SW2	
	Occupied Override Switch	Open/Clse		OCC_OVSW	
	Ice Done Storage Switch	Open/Clse		ICE_SW	
	Cooler Flow Switch	Open/Clse		FLOW_SW	
	Cooler Pump Run Status	Open/Clse		CPUMPDEF	
	Condenser Flow Status	On/Off		CONDFLOW	
	Remote Interlock Status	Open/Clse		REM_ LOCK	
	Electrical Box Interlock*	Open/Clse		ELEC_BOX	
	UNIT DISCRETE OUT				
	Cooler Flow Set Point Out*	On/Off		SET_FLOW	
	Electrical Heat Stage*	0-4/Off		EHS_STEP	
	Cooler Pump #1 Command	On/Off		CPUMP_1	forcible
	Cooler Pump #2 Command	On/Off		CPUMP_2	forcible
	Rotate Cooler Pumps ?	Yes/No		ROTCPUMP	forcible
	Condenser Pump #1 Out	On/Off		HPUMP_1	forcible
	Rotate Condenser Pumps?*	Yes/No		ROTHPUMP	forcible
	Cooler Heater Command*	On/Off		COOLHEAT	
	Shutdown Indicator State	On/Off		SHUTDOWN	
	Alarm Relay Status	On/Off		ALARMOUT	
	Alert Relay Status	On/Off		ALERT	
	Ready or Running Status*	On/Off		READY	
	Running Status	On/Off		RUNNING	
	UNIT ANALOG				
	Cooler Entering Fluid	±nnn.n	°F	COOL_EWT	
	Cooler Leaving Fluid	±nnn.n	°F	COOL_LWT	
	Condenser Entering Fluid	±nnn.n	°F	COND_EWT	
	Condenser Leaving Fluid	±nnn.n	°F	COND_LWT	
	Cooler Heater Temp*	±nnn.n	°F	HEATER	
	Circuit C Heater Temp*	±nnn.n	°F	T_HEAT_C	
	Optional Space Temp	±nnn.n	°F	SPACETMP	
	CHWS Temperature	±nnn.n	°F	CHWSTEMP	
	Reset /Setpnt 4-20mA Sgnl	±nn.n	ma	SP_RESET	
	Limit 4-20mA Signal	±nn.n	ma	LIM_ANAL	
	Chiller Capacity Signal	±nn.n	volts	CAPT_010	
STRTHOUR	Machine Operating Hours	nnnnn	hours	HR_MACH	
	Machine Starts Number	nnnnn		st_mach	
	Compressor A Hours	nnnnn	hours	HR_CP_A	
	Compressor A Starts	nnnnn		st_cp_a	
	Compressor B Hours	nnnnn	hours	HR_CP_B	
	Compressor B Starts	nnnnn		st_cp_b	
	Compressor C Hours	nnnnn	hours	HR_CP_C	
	Compressor C Starts	nnnnn		st_cp_c	
	WATER PUMPS				
	Cooler Pump #1 Hours	nnnnn	hours	hr_cpum1	
	Cooler Pump #2 Hours	nnnnn	hours	hr_cpum2	
	Condenser Pump #1 Hours	nnnnn	hours	hr_hpum1	
	Condenser Pump #2 Hours*	nnnnn	hours	hr_hpum2	

* Not supported.

APPENDIX C — CCN TABLES (CONT)

Table M — CONFIGURATION TABLES

TABLE	DISPLAY NAME	RANGE	DEFAULT	UNITS	POINT NAME
!CtlrID/PD5_XAXQ	Device Name	8 chars	30XW		
	Description	24 chars	PRO-DIALOG 5 30XA XQ XW		DevDesc
	Location	24 chars			Location
	Software Part Number	16 chars	CSA-SR-20C47nnnn		PartNum
	Model Number	20 chars			ModelNum
	Serial Number	12 chars			SerialNo
	Reference Number	24 chars			RefNum
	CCN Bus Number	0-239	0		CCNB
	CCN Element Number	1-239	1		CCNA
	CCN Baud Rate	9600 19200 38400	9600		BAUD
	Broadcast acknowledger*	Yes/No	No		
ALARMDEF/ ALARMS01	Alarm Routing Control	0-11111111	00000000		ALRM_CNT
	Alarm Equipment Priority	0-7	4		EQP_TYP
	Comm Failure Retry Time	1-240	10	min	RETRY_TM
	Realarm Time	1-255	30	min	RE_ALARM
	Alarm System Name	8 chars	PRO_XAXQ		ALRM_NAM
BRODEFS/ BROCASTS	Activate	0=Unused 1=Broadcast time, date, holiday flag and OAT. 2=For Standalone chiller. Daylight savings time & holiday determination will be done without broadcasting through the bus.	2	—	ccnbroad
	OAT Broadcast				
	Bus #	0 to 239	0		oatbusnm
	Element #	0 to 239	0		oatlocad
	DAYLIGHT SAVING SELECT	Disable/Enable	Disable		dayl_sel
	ENTERING				
	Month	1 to 12	3		startmon
	Day of week† (1=Monday)	1 to 7	7		startdow
	Week Number of Month**	1 to 5	5		startwom
	LEAVING				
	Month	1 to 12	10		Stopmon
	Day of week† (1=Monday)	1 to 7	7		Stoptdow
	Week Number of Month**	1 to 5	5		stopwom
HOLIDAY/HOLDY_nn nn = 01 to 16	Holiday Start Month	0-12	0		HOL_MON
	Start Day	0-31	0		HOL_DAY
	Duration (days)	0-99	0		HOL_LEN
OCCDEFCS/ OCCnP0nS n = 1 or 2	Timed Override Hours	0-4	0		OVR_EXT
	Period 1 DOW (MTWTFSSH)	0/1	11111111		DOW1
	Occupied From	00:00-24:00	00:00		OCCTOD1
	Occupied To	00:00-24:00	24:00		UNOCTOD1
	Period 2 DOW (MTWTFSSH)	0/1	11111111		DOW2
	Occupied From	00:00-24:00	00:00		OCCTOD2
	Occupied To	00:00-24:00	00:00		UNOCTOD2
	Period 3 DOW (MTWTFSSH)	0/1	00000000		DOW3
	Occupied From	00:00-24:00	00:00		OCCTOD3
	Occupied To	00:00-24:00	00:00		UNOCTOD3
	Period 4 DOW (MTWTFSSH)	0/1	00000000		DOW4
	Occupied From	00:00-24:00	00:00		OCCTOD4
	Occupied To	00:00-24:00	00:00		UNOCTOD4
	Period 5 DOW (MTWTFSSH)	0/1	00000000		DOW5
	Occupied From	00:00-24:00	00:00		OCCTOD5
	Occupied To	00:00-24:00	00:00		UNOCTOD5
	Period 6 DOW (MTWTFSSH)	0/1	00000000		DOW6
	Occupied From	00:00-24:00	00:00		OCCTOD6
	Occupied To	00:00-24:00	00:00		UNOCTOD6
	Period 7 DOW (MTWTFSSH)	0/1	00000000		DOW7
	Occupied From	00:00-24:00	00:00		OCCTOD7
	Occupied To	00:00-24:00	00:00		UNOCTOD7
	Period 8 DOW (MTWTFSSH)	0/1	00000000		DOW8
	Occupied From	00:00-24:00	00:00		OCCTOD8
	Occupied To	00:00-24:00	00:00		UNOCTOD8

* Indicated on Touch Pilot™ display only.

† Day of week where daylight savings time will occur in the morning (at 2:00 am). Daylight savings time occurs on Sunday (7) morning, 1 hour shall be added when entering and 1 hour subtracted when leaving.

** Date once selected (from 1) shall occur in the week number entered. 1: If day of week selected is 7 (Sunday) time change will occur the first Sunday (week number 1) in the month. 5: If day of week selected is 7 (Sunday) time change will occur the last Sunday of the month (week number 4 or 5).

NOTE: nn is software version.

APPENDIX C — CCN TABLES (CONT)

Table M — CONFIGURATION TABLES (cont)

TABLE	DISPLAY NAME	RANGE	DEFAULT	UNITS	POINT NAME
CFG_TABn (n = 1 to 8)	Display n table number 1	nn			tab_nb_1
	Display n var number 1	nn			var_nb_1
	Display n table number 2	nn			tab_nb_2
	Display n var number 2	nn			var_nb_2
	Display n table number 3	nn			tab_nb_3
	Display n var number 3	nn			var_nb_3
	Display n table number 4	nn			tab_nb_4
	Display n var number 4	nn			var_nb_4
	Display n table number 5	nn			tab_nb_5
	Display n var number 5	nn			var_nb_5
	Display n table number 6	nn			tab_nb_6
	Display n var number 6	nn			var_nb_6
	Display n table number 7	nn			tab_nb_7
	Display n var number 7	nn			var_nb_7
	Display n table number 8	nn			tab_nb_8
	Display n var number 8	nn			var_nb_8
	Display n table number 9	nn			tab_nb_9
	Display n var number 9	nn			var_nb_9
DISPCONF	Metric Display on STDU	Yes/No	No		DISPUNIT
	Language Selection	0=English 1=Espanol 2=Francais 3=Portugues 4=Translated	0		LANGUAGE
MST_SLV	MASTER SLAVE CONTROL				
	Master/Slave Select	0=Disable 1=Master 2=Slave	0		ms_sel
	Master Control Type	1=Local Control 2=Remote Control 3=CCN Control	1		ms_ctrl
	Slave Address	1 to 236	2		slv_addr
	Lead Lag Select	0=Always Lead 1=Lag Once Failed Only 2=Lead/Lag Runtime Sel	0		lead_sel
	Lead/Lag Balance Delta	40 to 400	168	hours	ll_bal_d
	Lag Start Timer	2 to 30	10	min	lstr_tim
	Lead Pulldown Time	0 to 60	0	min	lead_pul
	Start if Error Higher		4	^F	start_dt
	Lag Minimum Running Time		0	min	lag_mini
	Lag Unit Pump Control	0=Stop if Unit Stops 1=Run if Unit Stops	0		lag_pump
	Chiller in Series	Yes/No	No		ll_serie

APPENDIX C — CCN TABLES (CONT)

Table M — CONFIGURATION TABLES (cont)

TABLE	DISPLAY NAME	RANGE	DEFAULT	UNITS	POINT NAME
USER	Circuit Loading Sequence	0-3 0=Auto, 1=A Lead 2=B Lead, 3 =C Lead	0		lead_cir
	Staged Loading Sequence	No/Yes	No		seq_typ
	Ramp Loading Select	No/Yes	No		ramp_sel
	Unit Off to On Delay	1-15	1	min	off_on_d
	Condenser Pumps Sequence	0-4†	0		hpumpseq
	Cooler Pumps Sequence	0-4 0=No Pump 1=One Pump Only 2=Two Pumps Auto 3=Pump#1 Manual 4=Pump#2 Manual	0		cpumpseq
	Pump Auto Rotation Delay	24-3000	48	hours	pump_del
	Pump Sticking Protection	No/Yes	No		pump_per
	Stop Pump During Standby	No/Yes	No		pump_sby
	Flow Checked if Pump Off	No/Yes	No		pump_loc
	Auto Changeover Select*	No/Yes	No		auto_sel
	Cooling Reset Select	0-4	0		cr_sel
	Heating Reset Select*	0-4 1 =OAT*, 0=None 2=Delta T, 3=4-20mA Control 4=Space Temp	0		hr_sel
	Demand Limit Type Select	0-2 0=None 1=Switch Control 2=4-20mA Control	0		lim_sel
	mA For 100% Demand Limit	0-20	0	ma	lim_mx
	mA For 0% Demand Limit	0-20	10	ma	lim_ze
	Current Limit Select	No/Yes	No		curr_sel
	Current Limit at 100%	0 to 2000	2000	amps	curr_ful
	Heating OAT Threshold*	-4-32	5	°F	heat_th
	Free Cooling Delta T Th*	14.4-27	18	°F	free_dt
	Full Load Timeout	20-300	30	min	fc_tmout
	HSM Both Command Select	No/Yes	No		both_sel
	NIGHT CONTROL				
	Start Hour	00:00-24:00	00:00		nh_start
	End Hour	00:00-24:00	00:00		nh_end
	Capacity Limit	0-100	100	%	nh_limit
	Ice Mode Enable	No/Yes	No		ice_cnfg
	Reverse Alarms Relay	No/Yes	No		al_rever
	Cooler pump off in heat	No/Yes	No		stopheat
	Cond pump off in cool	No/Yes	No		stopcool

* Not supported.
† Only condenser pump sequence 1 is supported.

NOTES:

1. Flow checked if pump off needed when a command is sent to the primary pump to prevent cooler from freezing in winter conditions. Command will set the cooler flow switch to closed while the controls stop the cooler pump. The controls may then generate an alarm. If this decision is active, the cooler flow switch is not checked when the cooler pump is stopped.
2. If cooling reset select set point has been selected the set point based on 4-20mA input signal through *Comfort*Link controls, then a 4-20 mA reset function shall be ignored. Configuration 3 (4-20mA Control) and 4 (Space Temperature) shall require an Energy Management Module.
3. Demand Limit Type Select, configuration 2 (4-20mA Control) requires an Energy Management Module. Demand Limit Type Select, configuration 1 (Switch Control) provides 3 step demand limit if an Energy Management Module is present. Otherwise, only one step is allowed.
4. Reverse Alarms Relay configuration will be de-energized when an alarm and alert relay is present and will be energized when no alarm is present.

APPENDIX C — CCN TABLES (CONT)

Table N — SET POINT CONFIGURATION TABLES

TABLE	DISPLAY NAME	RANGE	DEFAULT	UNITS	POINT NAME
SET POINT	COOLING				
	Cooling Set Point 1	–20-70	44.0	°F	csp1
	Cooling Set Point 2	–20-70	44.0	°F	csp2
	Cooling Ice Set Point	–20-70	44.0	°F	ice_sp
	OAT No Reset Value	14-125	14.0	°F	oatcr_no
	OAT Full Reset Value	14-125	14.0	°F	oatcr_fu
	Delta T No Reset Value	0-25	0.0	^F	dt_cr_no
	Delta T Full Reset Value	0-25	0.0	^F	dt_cr_fu
	Current No Reset Value	0-20	0.0	ma	v_cr_no
	Current Full Reset Value	0-20	0.0	ma	v_cr_fu
	Space T No Reset Value	14-125	14.0	°F	spacr_no
	SpaceT Full Reset Value	14-125	14.0	°F	spacr_fu
	Cooling Reset Deg. Value	–30-30	0.0	^F	cr_deg
	Cooling Ramp Loading	0.2-2.0	1.0	^F	cramp_sp
	HEATING				
	Heating Set Point 1	80-140	100.0	°F	hsp1
	Heating Set Point 2	80-140	100.0	°F	hsp2
	OAT No Reset Value	14-125	14.0	°F	oathr_no
	OAT Full Reset Value	14-125	14.0	°F	oathr_fu
	Delta T No Reset Value	0-25	0.0	^F	dt_hr_no
	Delta T Full Reset Value	0- 25	0.0	^F	dt_hr_fu
	Current No Reset Value	0-20	0.0	ma	v_hr_no
	Current Full Reset Value	0-20	0.0	ma	v_hr_fu
	Heating Reset Deg. Value	–30-30	0.0	^F	hr_deg
	Heating Ramp Loading	0.2-2.0	1.0	^F	hramp_sp
	AUTO CHANGEOVER*				
	Cool Changeover Setpt	39-122	75.0	°F	cauto_sp
	Heat Changeover Setpt	32-115	64.0	°F	hauto_sp
	MISCELLANEOUS				
	Switch Limit Set Point 1	0-100	100	%	lim_sp1
	Switch Limit Set Point 2	0-100	100	%	lim_sp2
	Switch Limit Set Point 3	0-100	100	%	lim_sp3
	Reclaim Set Point*	95-140	122.0	°F	rsp
	Reclaim Deadband*	5-27	9.0	°F	hr_deadb
	Water Val Condensing Stp	80 to 140	86	°F	w_sct_sp

* Not supported.

APPENDIX C — CCN TABLES (CONT)

Table O — MAINTENANCE DISPLAY TABLES

TABLE	DISPLAY NAME	RANGE	UNITS	POINT NAME	WRITE STATUS
BOARD_PN	EXV Board Circuit A	XXXXXXXX		exv_brda	
	EXV Board Circuit B	XXXXXXXX		exv_brdb	
	EXV Board Circuit C*	XXXXXXXX		exv_brdc	
	AUX Board #1 Part Number	XXXXXXXX		aux_brd1	
	AUX Board #2 Part Number	XXXXXXXX		aux_brd2	
	AUX Board #3 Part Number	XXXXXXXX		aux_brd3	
	AUX Board #4 Part Number	XXXXXXXX		aux_brd4	
	AUX Board #5 Part Number	XXXXXXXX		aux_brd5	
	EMM NRCP2 Board	XXXXXXXX		emm_nrcp	
	Reclaim NRCP2 Board	XXXXXXXX		rec_nrcp	
	TCPM Board Comp A	XXXXXXXX		cpa_vers	
	Must Trip Amps	0-600	amps	cpa_mtam	
	S1 Config Switch (8 to 1)	00000000	0	cpa_s1_m	
	TCPM Board Comp B	nnnn		cpb_vers	
	Must Trip Amps	0-600	amps	cpb_mtam	
	S1 Config Switch (8 to 1)	00000000	0	cpb_s1_m	
	TCPM Board Comp C*	XXXXXXXX		cpc_vers	
	Must Trip Amps	0-600	amps	cpc_mtam	
	S1 Config Switch (8 to 1)	00000000	0	cpc_s1_m	
CUR_PHASE	Current Phase 1 Comp A	0-600	amps	cpa_cur1	
	Current Phase 2 Comp A	0-600	amps	cpa_cur2	
	Current Phase 3 Comp A	0-600	amps	cpa_cur3	
	Current Phase 1 Comp B	0-600	amps	cpb_cur1	
	Current Phase 2 Comp B	0-600	amps	cpb_cur2	
	Current Phase 3 Comp B	0-600	amps	cpb_cur3	
	Current Phase 1 Comp C*	0-600	amps	cpc_cur1	
	Current Phase 2 Comp C*	0-600	amps	cpc_cur2	
	Current Phase 3 Comp C*	0-600	amps	cpc_cur3	
DEFROSTM*	CIR A DEFROST CONTROL				
	Exchanger Frost Factor	0-100	%	frost_a	
	Next Sequence Allowed in	nnn	minutes	def_se_a	
	Defrost Active?	True/False		mode[19]	
	Defrost Temperature	±nnn.n	°F	DEFRT_A	
	Defrost Duration	nnn	minutes	defr_dua	
	Fan Sequence Started ?	n		def_fa_a	
	Override State	nn		over_d_a	
	Mean SST Calculation	±nnn.n	°F	sst_dm_a	
	Delta: OAT - Mean SST	±nnn.n	^F	delt_a	
	Reference Delta	±nnn.n	^F	delt_r_a	
	Delta - Reference Delta	±nnn.n	°F	del_v_a	
	Frost Integrator Gain	n.n		fr_int_a	
	Defrost Fan Start Cal A	0.00	psi	def_ca_a	
	Defrost Fan Offset Cal A	0.00	psi	def_of_a	
	CIR B DEFROST CONTROL				
	Exchanger Frost Factor	0-100	%	frost_b	
	Next Sequence Allowed in	nnn	minutes	def_se_b	
	Defrost Active?	True/False		mode[20]	
	Defrost Temperature	±nnn.n	°F	DEFRT_B	
	Defrost Duration	nnn	minutes	defr_dub	
	Fan Sequence Started?	n		def_fa_b	
	Override State	nn		over_d_b	
	Mean SST calculation	±nnn.n	°F	sst_dm_b	
	Delta: OAT - Mean SST	±nnn.n	^F	delt_b	
	Reference Delta	±nnn.n	^F	delt_r_b	
	Delta - Reference Delta	±nnn.n	^F	del_v_b	
	Frost Integrator Gain	n.n		fr_int_b	
	Defrost Fan Start Cal B	0.00	psi	def_ca_b	
	Defrost Fan Offset Cal B	0.00	psi	def_of_b	

* Not supported.

NOTES: Tables for display only. Forcing shall not be supported on this maintenance screen.

APPENDIX C — CCN TABLES (CONT)

Table O — MAINTENANCE DISPLAY TABLES (cont)

TABLE	DISPLAY NAME	RANGE	UNITS	POINT NAME	WRITE STATUS
FANCTRL*	Cir A SCT Control Point	±nnn.n	°F	sct_sp_a	
	Cir A SCT Candidate	±nnn.n	°F	sct_fu_a	
	Cir A Fan Cycle Counter	±nnn.n		fancyc_a	
	Cir A Optimal Fan Count	±nnn.n		fancop_a	
	Cir B SCT Control Point	±nnn.n	°F	sct_sp_b	
	Cir B SCT Candidate	±nnn.n	°F	sct_fu_b	
	Cir B Fan Cycle Counter	±nnn.n		fancyc_b	
	Cir B Optimal Fan Count	±nnn.n		fancop_b	
	Cir C SCT Control Point	±nnn.n	°F	sct_sp_c	
	Cir C SCT Candidate	±nnn.n	°F	sct_fu_c	
	Cir C Fan Cycle Counter	±nnn.n		fancyc_c	
	Cir C Optimal Fan Count	±nnn.n		fancop_c	
LAST_POR	Power On 1: day-mon-year	nnnnnn	ddmmyy	date_on1	
	Power On 1: hour-minute	nnnn	hhmm	time_on1	
	PowerDown 1:day-mon-year	nnnnnn	ddmmyy	date_of1	
	PowerDown 1:hour-minute	nnnn	hhmm	time_of1	
	Power On 2: day-mon-year	nnnnnn	ddmmyy	date_on2	
	Power On 2: hour-minute	nnnn	hhmm	time_on2	
	PowerDown 2:day-mon-year	nnnnnn	ddmmyy	date_of2	
	PowerDown 2:hour-minute	nnnn	hhmm	time_of2	
	Power On 3: day-mon-year	nnnnnn	ddmmyy	date_on3	
	Power On 3: hour-minute	nnnn	hhmm	time_on3	
	PowerDown 3:day-mon-year	nnnnnn	ddmmyy	date_of3	
	PowerDown 3:hour-minute	nnnn	hhmm	time_of3	
	Power On 4: day-mon-year	nnnnnn	ddmmyy	date_on4	
	Power On 4: hour-minute	nnnn	hhmm	time_on4	
	PowerDown 4:day-mon-year	nnnnnn	ddmmyy	date_of4	
	PowerDown 4:hour-minute	nnnn	hhmm	time_of4	
	Power On 5: day-mon-year	nnnnnn	ddmmyy	date_on5	
	Power On 5: hour-minute	nnnn	hhmm	time_on5	
	PowerDown 5:day-mon-year	nnnnnn	ddmmyy	date_of5	
	PowerDown 5:hour-minute	nnnn	hhmm	time_of5	
LOADFACT	CAPACITY CONTROL				
	Average Ctrl Water Temp	±nnn.n	°F	ctrl_avg	
	Differential Water Temp	±nnn.n	°F	diff_wt	
	Water Delta T	±nnn.n	^F	delta_t	
	Control Point	±nnn.n	°F	CTRL_PNT	
	Reset Amount	±nnn.n	^F	reset	
	Controlled Temp Error	±nnn.n	^F	tp_error	
	Actual Capacity	nnn	%	cap_t	
	Actual Capacity Limit	nnn	%	cap_lim	
	Actual Chiller Current	nnnn	amps	TOT_CURR	
	Chiller Current Limit	nnnn	amps	CURR_LIM	
	Current At 30% Load A	nnnn	amps	cur_30_a	
	Current At 30% Load B	nnnn	amps	cur_30_b	
	Current At 30% Load C	nnnn	amps	cur_30_c	
	Current At 100% Load A	nnnn	amps	cur100_a	
	Current At 100% Load B	nnnn	amps	cur100_b	
	Current At 100% Load C	nnnn	amps	cur100_c	
	Current Z Multiplier Val	±n.n		zm	
	Load/Unload Factor	±nnn.n	0/0	smz	
	Active Capacity Override	nn		over_cap	
	EHS CAPACITY CONTROL*				
	EHS Ctrl Override	nn		over_ehs	
	Requested Electric Stage	nn		eh_stage	
	Electrical Pulldown?	True/False		ehspulld	
EXV_CTRL	EXV CONTROL				
	EXV Position Circuit A	nnn.n	%	EXV_A	
	Discharge Superheat A	nnn.n	%	DSH_A	
	Suction Superheat A	nn.n	^F	SH_A	
	Suction SH Control Pt A	nn.n	^F	sh_sp_a	
	Cooler Exchange DT Cir A	nn.n	^F	pinch_a	
	Cooler Pinch Ctl Point A	nn.n	^F	pinch_spa	
	EXV Override Circuit A	nn		ov_exv_a	
	EXV Position Circuit B	nnn.n	%	EXV_B	
	Discharge Superheat B	nnn.n	%	DSH_B	
	Suction Superheat B	nn.n	^F	SH_B	
	Suction SH Control Pt B	nn.n	^F	sh_sp_b	
	Cooler Exchange DT Cir B	nn.n	^F	pinch_b	
	Cooler Pinch Ctl Point B	nn.n	^F	pinch_spb	
	EXV Override Circuit B	nn		ov_exv_b	
	EXV Position Circuit C*	nnn.n	%	EXV_C	
	Discharge Superheat C*	nnn.n	%	DSH_C	
	Suction Superheat C*	nn.n	^F	SH_C	
	Suction SH Control Pt C*	nn.n	^F	sh_sp_c	
	Cooler Exchange DT Cir C*	nn.n	^F	pinch_c	
	Cooler Pinch Ctl Point C*	nn.n	^F	pinch_spc	
	EXV Override Circuit C*	nn		ov_exv_c	
	ECONOMIZER CONTROL				
	Economizer Position A	nnn.n	%	EXV_EC_A	
	Economizer Superheat A	nn.n	^F	eco_sha	
	Economizer SH Set Point A	nn.n	^F	ecsh_spa	
	EXV Override Circuit A	nn		ov_eco_a	
	Economizer Position B	nnn.n	%	EXV_EC_B	
	Economizer Superheat B	nn.n	^F	eco_shb	
	Economizer SH Set Point B	nn.n	^F	ecsh_spb	
	EXV Override Circuit B	nn		ov_eco_b	
	Economizer Position C*	nnn.n	%	EXV_EC_C	
	Economizer Superheat C*	nn.n	^F	eco_shc	
	Economizer SH Set Point C*	nn.n	^F	ecsh_spc	
	EXV Override Circuit C*	nn		ov_eco_c	

*Not supported.

APPENDIX C — CCN TABLES (CONT)

Table O — MAINTENANCE DISPLAY TABLES (cont)

TABLE	DISPLAY NAME	RANGE	UNITS	POINT NAME	WRITE STATUS
MSTSLAVE	MASTER/SLAVE CONTROL				
	Unit is Master or Slave	Disable/Master/Slave		mstslv	
	Master Control Type*	Local/Remote/CCN		ms_ctrl	
	Master/Slave Ctrl Active	True/False		ms_activ	
	Lead Unit is the:	Master/Slave		lead_sel	
	Slave Chiller State†	0=Chiller is off 1=Valid Run State in CCN Mode 2=Unused for this control 3=Chiller is in local mode 4=Power fail restart in progress 5=Shudown due to fault 6=Communication failure		slv_stat	
	Slave Chiller Total Cap	0-100	%	slv_capt	
	Lag Start Delay**	1-30	minutes	l_strt_d	
	Lead/Lag Hours Delta	±nnnnn	hours	ll_hr_d	
	Lead/Lag Changeover?**	Yes/No		ll_chang	
	Lead Pulldown?	Yes/No		ll_pull	
	Master/Slave Error	nn		ms_error	
	Max Available Capacity?††	True/False		cap_max	
	Slave Lagstat	0=Unit not configured as a slave chiller 1=Slave pump configuration error (ms_error=1) 2=Unit configured as slave chiller with lwt_opt=no (entering water control) with pump control (lag_pump=0) 3=Unit configured as slave chiller with lwt_opt=yes (leaving water control) with pump control (lag_pump=0) 4=Unit Configured as slave chiller with lwt_opt=no (entering water control) with no pump control (lag_pump=1) 5=Unit configured as slave chiller with lwt_opt=yes (leaving water control) with no pump control (lag_pump=1)		lagstat	
OCCMAINT	Current Mode (1=occup.)	0/1		MODE	
	Current Occp Period #	1 to 8		PER_NO	
	Timed-Override in Effect	Yes/No		OVERLAST	
	Timed-Override Duration	0-4	hours	OVR_HRS	
	Current Occupied Time	00:00-23:59		STRTTIME	
	Current Unoccupied Time	00:00-23:59		ENDTIME	
	Next Occupied Day	Mon-Sun		NXTOCDAY	
	Next Occupied Time	00:00-23:59		NXTOCTIM	
	Next Unoccupied Day	Mon-Sun		NXTUNDAY	
	Next Unoccupied Time	00:00-23:59		NXTUNTIM	
	Prev Unoccupied Day	Mon-Sun		PRVUNDAY	
	Prev Unoccupied Time	00:00-23:59		PRVUNTIM	
PR_LIMIT	Discharge A Temp Average	±nnn.n	°F	sdt_m_a	
	Discharge A Temp Rate	±nnn.n	^F	sdt_mr_a	
	Discharge A Gas Limit	±nnn.n	°F	sdtlim_a	
	Suction A Temp Average	±nnn.n	°F	sst_m_a	
	Discharge B Temp Average	±nnn.n	°F	sdt_m_b	
	Discharge B Temp Rate	±nnn.n	^F	sdt_mr_b	
	Discharge B Gas Limit	±nnn.n	°F	sdtlim_b	
	Suction B Temp Average	±nnn.n	°F	sst_m_b	
	Discharge C Temp Average	±nnn.n	°F	sdt_m_c	
	Discharge C Temp Rate	±nnn.n	^F	sdt_mr_c	
	Discharge C Gas Limit	±nnn.n	°F	sdtlim_c	
	Suction C Temp Average	±nnn.n	°F	sst_m_c	
SERMAINT	Reset Maintenance Alert 1 to 11: reset individually 12: reset all	nn		S_RESET	forcible
	OPERATION WARNINGS				
	1 — Refrigerant Charge	Normal/Low/Disable		charge_m	
	2 — Water Loop Size	Normal/Low/Disable		wloop_m	
	GENERAL SERVICING DELAYS				
	3 — Cooler Pump 1 (days)	0-1000/Alert/Disable		cpump1_m	
	4 — Cooler Pump 2 (days)	0-1000/Alert/Disable		cpump2_m	
	5 — Condenser Pump 1 (days)	0-1000/Alert/Disable		hpump1_m	
	6 — Condenser Pump 2 (days)	0-1000/Alert/Disable		hpump2_m	
	7 — Water Filter (days)	0-1000/Alert/Disable		wfilte_m	
	8 — Cp A Oil Filter (days)	0-1000/Alert/Disable		oilfa_m	
	9 — Cp B Oil Filter (days)	0-1000/Alert/Disable		oilfilb_m	
	10 — CP.C Oil Filter (days)	0-1000/Alert/Disable		oilfic_m	

* Always CCN for the slave chiller.
† Slave chiller chillstat value
** This decision is consistent for master chiller only. It shall be set by default to 0 for the slave chiller.
†† This item is true when chiller has loaded its total available capacity tonnage.

APPENDIX C — CCN TABLES (CONT)

Table P — SERVICE CONFIGURATION TABLES

TABLE	DISPLAY NAME	RANGE	DEFAULT	UNITS	POINT NAME	WRITE STATUS
CP_UNABL[1]	Compressor A Disable	No/Yes	No		un_cp_a	
	Compressor B Disable	No/Yes	No		un_cp_b	
	Compressor C Disable*	No/Yes	No		un_cp_c	
FACTORY	Unit Type	3 (Water Cooled) 4 (Heat Machine)	3		unit_typ	
	Unit Capacity[2]	0 to 1800	Nominal Unit Size		unitsize	
	Power Frequence 60HZ Sel	Yes/No	Yes		freq_60H	
	Power Supply Voltage	200 to 660	Nameplate Voltage	volts	voltage	
	NB Fans on Varifan Cir A[3]	0 to 6	0		varfan_a	
	NB Fans on Varifan Cir B[3]	0 to 6	0		varfan_b	
	NB Fans on Varifan Cir C[3]	0 to 6	0		varfan_c	
	Soft Starter Select*	Yes/No	No		softstar	
	Wye Delta Start Select	Yes/No	No		wye_delt	
	Air Cooled Reclaim Sel	Yes/No	No		recl_opt	
	Free Cooling Select*	Yes/No	No		freecool	
	Cooler Heater Select*	0 to 2	0		heat_sel	
	Condenser Water Val Sel	No/Yes	No		cond_val	
	Hot Gas Bypass Select	No/Yes	No		hgbp_sel	
	MCHX Exchanger Select*	No/Yes	No		mchx_sel	
	Boiler Command Select*	No/Yes	No		boil_sel	
	Energy Management Module[4]	No/Yes	No		emm_nrcp	
	High Tiers Display Selec	No = Use Navigator™ display as user interface (factory installed) Yes = Use Touch Pilot™ Display as user interface (factory installed)	No		highdisp	
	Factory Password	0 to 9999	111		fac_pass	
	Hydraulic Transducer Kit*	No/Yes	No		kithydro	
	Cooler Pass Number	1 to 3	2		cpass_nb	
	VLT Fan Drive Select*		0		vlt_sel	
	VLT Fan Drive rpm*		0		vlt_rpm	
	High Condensing Select	No/Yes	No		highcond	
	Max Condenser LWT=45degC	No/Yes	No		max_clwt	
	Condenser probe select	No/Yes	No		condprob	
FACTORY2	Compressor A Config					
	Must Trip Amps	0 to 600	Refer to Appendix D		cpa_mtac	
	S1 Config Switch (8 to 1)	00000000 (8 position dip switch configuration)	Refer to Appendix D		cpa_s1_c	
	Compressor B Config					
	Must Trip Amps	0 to 600	Refer to Appendix D		cpb_mtac	
	S1 Config Switch (8 to 1)	00000000 (8 position dip switch configuration)	Refer to Appendix D		cpb_s1_c	
	Compressor C Config					
	Must Trip Amps	0 to 600	0		cpc_mtac	
	S1 Config Switch (8 to 1)	00000000 (8 position dip switch configuration)	0		cpc_s1_c	
	Circuit A Total Fans NB[5]	2 to 8	0		nb_fan_a	
	Circuit B Total Fans NB[5]	2 to 8	0		nb_fan_b	
	Circuit C Total Fans NB[5]	0 to 8	0		nb_fan_c	
	EXV A Maximum Steps Numb	0/15000	4260		exva_max	
	EXV B Maximum Steps Numb	0/15000	4260		exvb_max	
	EXV C Maximum Steps Numb	0/15000	0		exvc_max	
	Economizer A Steps Numb	0/15000	2785†		eco_cnfa	
	Economizer B Steps Numb	0/15000	2785†		eco_cnfb	
	Economizer C Steps Numb	0/15000	0		eco_cnfc	

* Not supported.
† 0 = No economizer.

NOTES:

1. Table used to disable compressors for maintenance purposes. The capacity control will consider that these compressors (once set to YES) are failed manually (no alarm will appear).
2. Enter unit size. This item allows the controls to determine capacity of each compressor and the total number of fans on each circuit based on a compressor arrangement array (can be viewed in table FACTORY2). It is not necessary to enter compressor capacity and number of fans on each circuit. See the 30XW Installation Instructions for more information. Compressor capacity will be automatically determined if unit size entered in FACTORY table matches the values in the unit compressor configuration table.
3. Number of fans controlled directly by a variable speed fan actuator using 0 to 10 vdc signal. This will enable the controls to determine the remaining discrete fan staging outputs from the total fans on each circuit.
4. Used for extra functions with the purpose of energy management such as occupancy override switch, ice storage, set point reset, and demand limit.
5. Total number of fans includes fans controlled by a variable speed fan. This value will be automatically populated if unit size entered in FACTORY table matches the values in the unit compressor configuration table.

APPENDIX C — CCN TABLES (CONT)

Table P — SERVICE CONFIGURATION TABLES (cont)

TABLE	DISPLAY NAME	RANGE	DEFAULT	UNITS	POINT NAME	WRITE STATUS
MAINTCFG	MAINTENANCE CONFIG					
	Servicing Alert	Enable/Disable	Disable		s_alert	
	Refrigerant Charge Ctrl	Enable/Disable	Disable		charge_c	
	Water Loop Control	Enable/Disable	Disable		wloop_c	
	CPump 1 Ctl Delay (days)	0-1000	0		cpump1_c	
	CPump 2 Ctl Delay (days)	0-1000	0		cpump2_c	
	HPump 1 Ctrl Delay (days)	0-1000	0		hpump1_c	
	HPump 2 Ctrl Delay (days)*	0-1000	0		hpump2_c	
	Water Filter Ctrl (days)	0-1000	0		wfilte_c	
	Oil Filter A Ctrl (days)	0 to 1000	0		oilfia_c	
	Oil Filter B Ctrl (days)	0 to 1000	0		oilfib_c	
	Oil Filter C Ctrl (days)	0 to 1000	0		oilfic_c	
SERVICE1	Cooler Fluid Type	1-2 1=Water 2=Brine	1		flui_typ	
	Flow Switch SP*	0-60	1		flow_sp	
	Brine Freeze Set Point	–20.0-34.0	34	°F	freezesp	
	Brine Minimum Fluid Temp	10.0-34.0	38	°F	mini_lwt	
	Condenser Fluid Type*	1-2 1=Water 2=Brine	1		cond_typ	
	Entering Fluid Control	Yes/No	No		ewt_opt	
	Prop PID Gain Varifan	–20.0-20.0	2.0		hd_pg	
	Int PID Gain Varifan	–5.0-5.0	0.2		hd_ig	
	Deri PID Gain Varifan	–20.0-20.0	0.4		hd_dg	
	Maximum Ducted Fan Speed*	20-100	100	%	fan_max	
	EXV A Superheat Set Point	7.2-44	14.4†	^F	sh_sp_a	
	EXV B Superheat Set Point	7.2-44	14.4†	^F	sh_sp_b	
	EXV C Superheat Set Point	7.2-44	14.4	^F	sh_sp_c	
	Pinch offset circuit A	–5.4-5.4	0	^F	p_ofst_a	
	Pinch offset circuit B	–5.4-5.4	0	^F	p_ofst_b	
	Pinch offset circuit C	–5.4-5.4	–3.6	^F	p_ofst_c	
	EXV MOP Set Point	40-55	62	°F	mop_sp	
	High Pressure Threshold	200-290	275.5	psi	hp_th	
	Cooler Heater Delta Spt	1-6	2	^F	heatersp	
	Auto Start When SM Lost	Enable/Disable	Disable		auto_sm	
	3way Valve Min Position*	0-50	0	%	min_3w	
	3way Valve Max Position*	20-100	100	%	max_3w	
	Economizer SH Set Point A	5-15	10.8	^F	esh_sp_a	
	Economizer SH Set Point B	5-15	10.8	^F	esh_sp_b	
	Economizer SH Set Point C	5-15	10.8	^F	esh_sp_c	
	Fast Loading Sequence	0-4	0		fastload	
	EWT Probe on Cir A Side	Yes/No	Yes		ewt_cirA	
	Current Offset Cir A	-50 to 50	0	amps	cur_offA	
	Current Offset Cir B	-50 to 50	0	amps	cur_offB	
	Current Offset Cir C	-50 to 50	0	amps	cur_offC	

* Not supported. Must be configured at default.
† Default superheat set point for DX cooler unit see table below:

Superheat Set Point for DX Cooler

Fluid	Ckt.	Unit Size		
		082-242	262-302	327-352
Water LWT ≥ 40°F	A	15	10	10
	B	15	15	10
Brine LWT < 40°F	A	25	20	20
	B	25	25	20

NOTE: This table shall be downloadable at any time. However, modified value shall not be used by tasks until the unit is in OFF state. This shall not apply to the Varifan gains that shall be modified at any time and used immediately by the head pressure control tasks even if the unit is in operation.

APPENDIX C — CCN TABLES (CONT)

Table P — SERVICE CONFIGURATION TABLES (cont)

TABLE	DISPLAY NAME	RANGE	UNITS	POINT NAME	WRITE STATUS
TABLE TO BE USED FOR RUN TIMES UPDATE IN CASE OF CONTROL RETROFIT					
UPDHRFAN	Free Cooling A Pump Hours	0	hours	hr_fcp_a	
	Free Cooling B Pump Hours	0	hours	hr_fcp_b	
	Circuit A Defrost Number	0		nb_def_a	
	Circuit B Defrost Number	0		nb_def_b	
	Circuit A Fan #1 Hours	0	hours	hr_fana1	
	Circuit A Fan #2 Hours	0	hours	hr_fana2	
	Circuit A Fan #3 Hours	0	hours	hr_fana3	
	Circuit A Fan #4 Hours	0	hours	hr_fana4	
	Circuit A Fan #5 Hours	0	hours	hr_fana5	
	Circuit A Fan #6 Hours	0	hours	hr_fana6	
	Circuit A Fan #7 Hours	0	hours	hr_fana7	
	Circuit A Fan #8 Hours	0	hours	hr_fana8	
	Circuit A Fan #9 Hours	0	hours	hr_fana9	
	Circuit A Fan #10 Hours	0	hours	hrfana10	
	Circuit B Fan #1 Hours	0	hours	hr_fanb1	
	Circuit B Fan #2 Hours	0	hours	hr_fanb2	
	Circuit B Fan #3 Hours	0	hours	hr_fanb3	
	Circuit B Fan #4 Hours	0	hours	hr_fanb4	
	Circuit B Fan #5 Hours	0	hours	hr_fanb5	
	Circuit B Fan #6 Hours	0	hours	hr_fanb6	
	Circuit B Fan #7 Hours	0	hours	hr_fanb7	
	Circuit B Fan #8 Hours	0	hours	hr_fanb8	
	Circuit B Fan #9 Hours	0	hours	hr_fanb9	
	Circuit B Fan #10 Hours	0	hours	hrfanb10	
	Circuit C Fan #1 Hours	0	hours	hr_fanc1	
	Circuit C Fan #2 Hours	0	hours	hr_fanc2	
	Circuit C Fan #3 Hours	0	hours	hr_fanc3	
	Circuit C Fan #4 Hours	0	hours	hr_fanc4	
	Circuit C Fan #5 Hours	0	hours	hr_fanc5	
	Circuit C Fan #6 Hours	0	hours	hr_fanc6	
	Circuit C Fan #7 Hours	0	hours	hr_fanc7	
	Circuit C Fan #8 Hours	0	hours	hr_fanc8	
UPDTHOUR	Machine Operating Hours	0	hours	hr_mach	
	Machine Starts	0		st_mach	
	Compressor A Hours	0	hours	hr_cp_a	
	Compressor A Starts	0		st_cp_a	
	Compressor B Hours	0	hours	hr_cp_b	
	Compressor B Starts	0		st_cp_b	
	Compressor C Hours	0	hours	hr_cp_c	
	Compressor C Starts	0		st_cp_c	
	Water Pump #1 Hours	0	hours	hr_cpum1	
	Water Pump #2 Hours	0	hours	hr_cpum2	
	Condenser Pump #1 Hours	0	hours	hr_hpum1	
	Condenser Pump #2 Hours	0	hours	hr_hpum2	

NOTE: This table shall be used for purposes of transplanting the devices run hours and starts in the event of a module hardware failure or software upgrade via downloading. It shall be usable only if all items are still null. Afterwards, its access shall be denied.

APPENDIX D — 30XW150-400 CPM DIP SWITCH ADDRESSES

Table P — ACROSS-THE-LINE START — STANDARD CONDENSING

30XW UNIT SIZE	VOLTAGE (3 ph, 60 Hz)	CPM DIP SWITCHES	CIRCUIT A								CIRCUIT B								MTA SETTING CIRCUIT A	MTA SETTING CIRCUIT B
			1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8		
150, 325	575	S1	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF	220	220
		S2	OFF	ON	OFF	ON	ON	OFF	ON	OFF	OFF	ON	OFF	ON	ON	OFF	ON	OFF		
	460	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	278	278
		S2	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	OFF	OFF	OFF	OFF	OFF		
	380	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	338	338
		S2	OFF	ON	ON	OFF	ON	OFF	OFF	OFF	OFF	ON	ON	OFF	ON	OFF	OFF	OFF		
175, 350	575	S1	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF	220	220
		S2	OFF	ON	OFF	ON	ON	OFF	ON	OFF	OFF	ON	OFF	ON	ON	OFF	ON	OFF		
	460	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	278	278
		S2	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	OFF	OFF	OFF	OFF	OFF		
	380	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	338	338
		S2	OFF	ON	ON	OFF	ON	OFF	OFF	OFF	OFF	ON	ON	OFF	ON	OFF	OFF	OFF		
185, 200, 375, 400	575	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	254	254
		S2	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF		
	460	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	314	314
		S2	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF		
	380	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	378	378
		S2	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF		
225, 250	575	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	298	—
		S2	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF	—	—	—	—	—	—	—	—		
	460	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	374	—
		S2	ON	ON	ON	ON	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—		
	380	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	460	—
		S2	OFF	ON	OFF	OFF	ON	ON	OFF	OFF	—	—	—	—	—	—	—	—		
260, 275	575	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	330	—
		S2	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—		
	460	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	414	—
		S2	ON	OFF	OFF	ON	OFF	ON	OFF	OFF	—	—	—	—	—	—	—	—		
	380	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	498	—
		S2	OFF	ON	ON	ON	ON	ON	OFF	OFF	—	—	—	—	—	—	—	—		
300	575	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	350	—
		S2	ON	OFF	OFF	ON	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—		
	460	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	442	—
		S2	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	—	—	—	—	—	—	—	—		
	380	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	534	—
		S2	ON	ON	ON	OFF	OFF	OFF	ON	OFF	—	—	—	—	—	—	—	—		

Table Q — ACROSS-THE-LINE START — HIGH CONDENSING/HEAT MACHINE

30XW UNIT SIZE	VOLTAGE (3 ph, 60 Hz)	CPM DIP SWITCHES	CIRCUIT A								CIRCUIT B								MTA SETTING CIRCUIT A	MTA SETTING CIRCUIT B
			1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8		
150, 325	575	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	282	282
		S2	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF		
	460	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	354	354
		S2	OFF	ON	OFF	ON	ON	OFF	OFF	OFF	OFF	ON	OFF	ON	ON	OFF	OFF	OFF		
	380	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	426	426
		S2	OFF	OFF	ON	ON	OFF	ON	OFF	OFF	OFF	OFF	ON	ON	OFF	ON	OFF	OFF		
175, 350	575	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	282	282
		S2	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF		
	460	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	354	354
		S2	OFF	ON	OFF	ON	ON	OFF	OFF	OFF	OFF	ON	OFF	ON	ON	OFF	OFF	OFF		
	380	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	426	426
		S2	OFF	OFF	ON	ON	OFF	ON	OFF	OFF	OFF	OFF	ON	ON	OFF	ON	OFF	OFF		
185, 200, 375, 400	575	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	322	322
		S2	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF		
	460	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	402	402
		S2	OFF	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	ON	ON	OFF	OFF	ON	OFF	OFF		
	380	S1	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	486	486
		S2	ON	ON	OFF	ON	ON	ON	OFF	OFF	ON	ON	OFF	ON	ON	ON	OFF	OFF		
225, 250, 260, 275, 300	575	S1	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	—	—	—	—	—	—	—	—	0	—
		S2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	—	—	—	—	—	—	—	—		
	460	S1	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	—	—	—	—	—	—	—	—	0	—
		S2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	—	—	—	—	—	—	—	—		
	380	S1	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	—	—	—	—	—	—	—	—	0	—
		S2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	—	—	—	—	—	—	—	—		

NOTE: Sizes 150-200 are Circuit A only.

APPENDIX D — 30XW150-400 CPM DIP SWITCH ADDRESSES (CONT)

Table R — WYE-DELTA START — STANDARD CONDENSING

30XW UNIT SIZE	VOLTAGE (3 ph, 60Hz)	CPM DIP SWITCHES	CIRCUIT A								CIRCUIT B								MTA SETTING CIRCUIT A	MTA SETTING CIRCUIT B
			1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8		
150,325	575	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	220	220
		S2	OFF	ON	OFF	ON	ON	OFF	ON	OFF	OFF	ON	OFF	ON	ON	OFF	ON	OFF		
	460	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	278	278
		S2	ON	ON	ON	OFF	ON	ON	ON	OFF	ON	ON	ON	OFF	ON	ON	ON	OFF		
	380	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	338	338
		S2	ON	OFF	ON	OFF	ON	OFF	OFF	ON	ON	OFF	ON	OFF	ON	OFF	OFF	ON		
	230	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	554	554
		S2	OFF	OFF	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	ON	ON	OFF	OFF	ON	OFF		
	200	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	638	638
		S2	ON	OFF	OFF	OFF	OFF	ON	ON	OFF	ON	OFF	OFF	OFF	OFF	ON	ON	OFF		
175,350	575	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	220	220
		S2	OFF	ON	OFF	ON	ON	OFF	ON	OFF	OFF	ON	OFF	ON	ON	OFF	ON	OFF		
	460	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	278	278
		S2	ON	ON	ON	OFF	ON	ON	ON	OFF	ON	ON	ON	OFF	ON	ON	ON	OFF		
	380	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	338	338
		S2	ON	OFF	ON	OFF	ON	OFF	OFF	ON	ON	OFF	ON	OFF	ON	OFF	OFF	ON		
	230	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	554	554
		S2	OFF	OFF	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	ON	ON	OFF	OFF	ON	OFF		
	200	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	638	638
		S2	ON	OFF	OFF	OFF	OFF	ON	ON	OFF	ON	OFF	OFF	OFF	OFF	ON	ON	OFF		
185, 200, 375, 400	575	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	254	254
		S2	ON	ON	OFF	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	OFF	ON	ON	OFF		
	460	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	314	314
		S2	ON	OFF	OFF	ON	OFF	OFF	OFF	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	ON		
	380	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	378	378
		S2	ON	OFF	OFF	ON	OFF	ON	OFF	ON	ON	OFF	OFF	ON	OFF	ON	OFF	ON		
	230	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	626	626
		S2	OFF	ON	ON	ON	ON	OFF	ON	OFF	OFF	ON	ON	ON	ON	OFF	ON	OFF		
	200	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	722	722
		S2	OFF	ON	ON	OFF	ON	ON	ON	OFF	OFF	ON	ON	OFF	ON	ON	ON	OFF		
225, 250	575	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	—	—	—	—	—	—	—	—	298	—
		S2	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON	—	—	—	—	—	—	—	—		
	460	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	—	—	—	—	—	—	—	—	374	—
		S2	ON	ON	ON	OFF	OFF	ON	OFF	ON	—	—	—	—	—	—	—	—		
	380	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	460	—
		S2	OFF	ON	OFF	OFF	ON	ON	OFF	OFF	—	—	—	—	—	—	—	—		
	230	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	746	—
		S2	OFF	OFF	ON	ON	ON	ON	ON	OFF	—	—	—	—	—	—	—	—		
	200	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	858	—
		S2	OFF	OFF	OFF	ON	ON	OFF	OFF	ON	—	—	—	—	—	—	—	—		
260, 275	575	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	—	—	—	—	—	—	—	—	330	—
		S2	ON	OFF	OFF	OFF	ON	OFF	OFF	ON	—	—	—	—	—	—	—	—		
	460	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	—	—	—	—	—	—	—	—	414	—
		S2	ON	ON	OFF	ON	ON	ON	OFF	ON	—	—	—	—	—	—	—	—		
	380	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	498	—
		S2	OFF	ON	ON	ON	ON	ON	OFF	OFF	—	—	—	—	—	—	—	—		
	230	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	826	—
		S2	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	—	—	—	—	—	—	—	—		
	200	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	950	—
		S2	ON	ON	ON	ON	OFF	ON	OFF	ON	—	—	—	—	—	—	—	—		
300	575	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	—	—	—	—	—	—	—	—	350	—
		S2	ON	ON	OFF	ON	ON	OFF	OFF	ON	—	—	—	—	—	—	—	—		
	460	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	—	—	—	—	—	—	—	—	442	—
		S2	ON	OFF	OFF	ON	OFF	OFF	ON	ON	—	—	—	—	—	—	—	—		
	380	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	534	—
		S2	ON	ON	ON	OFF	OFF	OFF	ON	OFF	—	—	—	—	—	—	—	—		
	230	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	882	—
		S2	OFF	ON	ON	ON	ON	OFF	OFF	ON	—	—	—	—	—	—	—	—		
	200	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	1014	—
		S2	ON	ON	ON	ON	ON	ON	OFF	ON	—	—	—	—	—	—	—	—		

LEGEND

CPM — Compressor Protection Module
DIP — Dual In-Line Package
MTA — Must Trip Amps

NOTE: Sizes 150-200 are Circuit A only.

APPENDIX D — 30XW150-400 CPM DIP SWITCH ADDRESSES (CONT)

Table S — WYE-DELTA START — HIGH CONDENSING/HEAT MACHINE

30XW UNIT SIZE	VOLTAGE (3 ph, 60Hz)	CPM DIP SWITCHES	CIRCUIT A								CIRCUIT B								MTA SETTING CIRCUIT A	MTA SETTING CIRCUIT B
			1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8		
150,325	575	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	282	282
		S2	ON	OFF	OFF	ON	ON	ON	ON	OFF	ON	OFF	OFF	ON	ON	ON	ON	OFF		
	460	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	354	354
		S2	ON	OFF	ON	ON	ON	OFF	OFF	ON	ON	OFF	ON	ON	ON	OFF	OFF	ON		
	380	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	426	426
		S2	ON	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	ON	ON		
	230	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	706	706
		S2	OFF	ON	OFF	OFF	ON	ON	ON	OFF	OFF	ON	OFF	OFF	ON	ON	ON	OFF		
	200	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	810	810
		S2	OFF	OFF	ON	ON	OFF	OFF	OFF	ON	OFF	OFF	ON	ON	OFF	OFF	OFF	ON		
175, 350	575	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	282	282
		S2	ON	OFF	OFF	ON	ON	ON	ON	OFF	ON	OFF	OFF	ON	ON	ON	ON	OFF		
	460	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	354	354
		S2	ON	OFF	ON	ON	ON	OFF	OFF	ON	ON	OFF	ON	ON	ON	OFF	OFF	ON		
	380	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	426	426
		S2	ON	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	ON	ON		
	230	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	706	706
		S2	OFF	ON	OFF	OFF	ON	ON	ON	OFF	OFF	ON	OFF	OFF	ON	ON	ON	OFF		
	200	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	810	810
		S2	OFF	OFF	ON	ON	OFF	OFF	OFF	ON	OFF	OFF	ON	ON	OFF	OFF	OFF	ON		
185, 200, 375, 400	575	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	322	322
		S2	ON	OFF	ON	ON	OFF	OFF	OFF	ON	ON	OFF	ON	ON	OFF	OFF	OFF	ON		
	460	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	402	402
		S2	ON	OFF	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	OFF	ON	ON	OFF	ON		
	380	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	486	486
		S2	ON	ON	OFF	ON	ON	ON	OFF	OFF	ON	ON	OFF	ON	ON	ON	OFF	OFF		
	230	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	802	802
		S2	OFF	ON	OFF	ON	OFF	OFF	OFF	ON	OFF	ON	OFF	ON	OFF	OFF	OFF	ON		
	200	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	922	922
		S2	OFF	OFF	OFF	ON	OFF	ON	OFF	ON	OFF	OFF	OFF	ON	OFF	ON	OFF	ON		
225,250	575	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	—	—	—	—	—	—	—	—	386	—
		S2	ON	OFF	ON	ON	OFF	ON	OFF	ON	—	—	—	—	—	—	—	—		
	460	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	486	—
		S2	ON	ON	OFF	ON	ON	ON	OFF	OFF	—	—	—	—	—	—	—	—		
	380	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	590	—
		S2	ON	OFF	ON	OFF	ON	OFF	ON	OFF	—	—	—	—	—	—	—	—		
260,275	575	S1	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	—	—	—	—	—	—	—	—	430	—
		S2	ON	ON	OFF	OFF	OFF	OFF	ON	ON	—	—	—	—	—	—	—	—		
	460	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	538	—
		S2	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	—	—	—	—	—	—	—	—		
	380	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	654	—
		S2	ON	OFF	OFF	OFF	OFF	ON	ON	OFF	—	—	—	—	—	—	—	—		
300	575	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	458	—
		S2	OFF	OFF	ON	OFF	ON	ON	OFF	OFF	—	—	—	—	—	—	—	—		
	460	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	574	—
		S2	ON	OFF	OFF	OFF	ON	OFF	ON	OFF	—	—	—	—	—	—	—	—		
	380	S1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	—	—	—	—	—	—	—	—	694	—
		S2	ON	ON	ON	ON	OFF	ON	ON	OFF	—	—	—	—	—	—	—	—		

LEGEND

CPM — Compressor Protection Module
DIP — Dual In-Line Package
MTA — Must Trip Amps

NOTE: Sizes 150-200 are Circuit A only.

APPENDIX E — PIPING AND INSTRUMENTATION

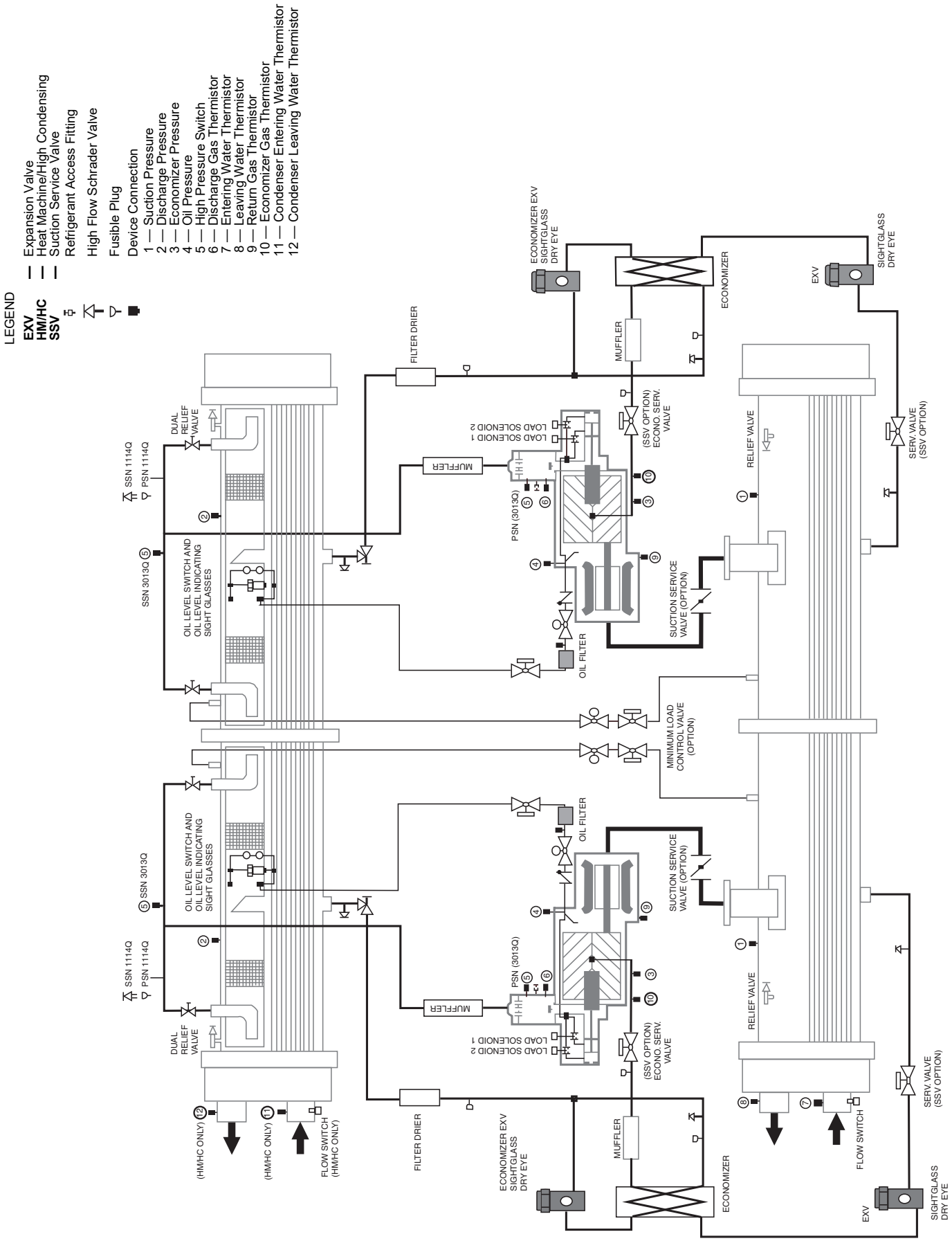

Fig. A — 30XW UNIT ECONOMIZED PIPING

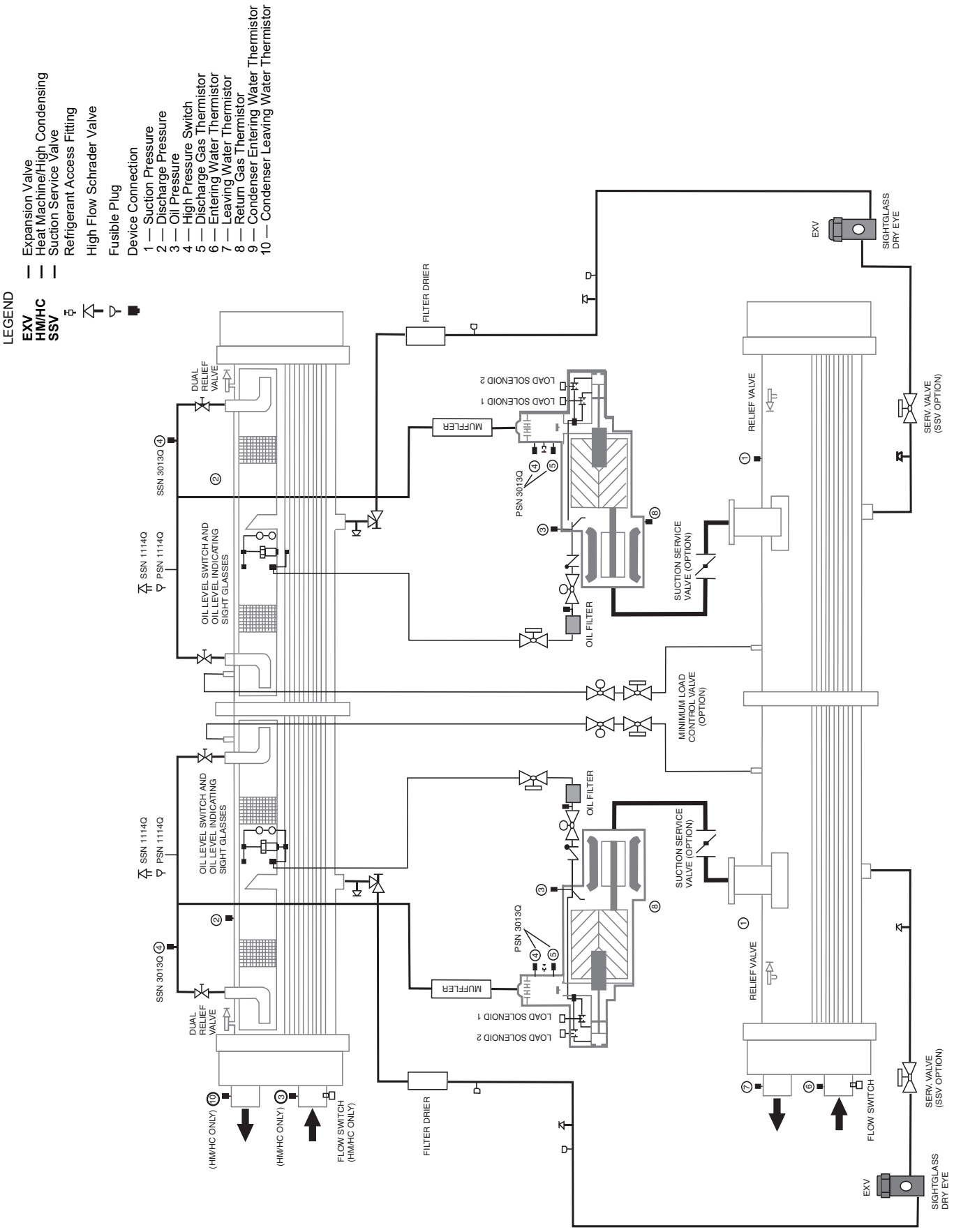

Fig. B — 30XW UNIT NON-ECONOMIZED PIPING

APPENDIX F — GLOBAL TIME SCHEDULE CONFIGURATION FOR i-Vu® DEVICE AND CSM CONTROLLER

The following is intended to assist a Carrier technician in configuring a 30XW chiller so either the i-Vu® 4.0 or 4.2 device, CCN Global Schedule Master, or a CSM controller can Start and Stop the chiller. The 30XW chiller has unique table naming conventions for its Time Schedules that are different than what is used today in CCN. The five steps outlined in the procedures below must be followed in order to have the i-Vu device and CCN products control the chiller.

Step 1 — Configure Chiller

1. Make sure the chiller is shut down and that the Emergency On/Off Switch (SW2) is in the Off Position and the Enable-Off-Remote (SW1) is in the Disable position.
2. Next, UPLOAD the chiller to assure the configuration is current.

   NOTE: This must be done in both NSTV and CVIEW.
3. Change the chiller's Time Schedule Table Name from OCCyP0xx to OCCPC0xx. See descriptions below.

LOCAL AND NETWORK TIME SCHEDULE DESCRIPTIONS

OCCPC01S

The i-Vu 4.2 device will write to this Time Schedule Table.

OCC2P02S

This is for Dual Set Point Control and MUST be Configured for 24/7 Occupied when the i-Vu device is writing to OCCPC01S.

OCCPC65E

Used with the i-Vu device or another CCN Global Schedule Master with Single Set Point Control.

OCC2P02E

This will only be used with Dual Set Point Control. This is not applicable in this application.

TIME SCHEDULE TABLE NAME CHANGE

NSTV

When using NSTV to edit a Time Schedule Name, the process is the same for both Local (S) or Network (E) Time Schedules.

1. Highlight the chiller, then (at the top menu bar) click on Configure → Names…
2. When the dialog box opens, scroll down to find the four time schedules (as seen in Fig. C for Local Schedule or Fig. D for Network Time Schedule). Highlight the desired Time Schedule to edit.
3. At the bottom where it says New name, double click on OCC1P01x and rename it with OCCPC01x → click Save → click OK.
4. Download the new configuration to the chiller.
5. Cycle power to the MBB (main base board) using SW2 emergency stop.

CVIEW

If using CVIEW to edit a Time Schedule Name, the process is the same for both Local (S) or Network (E) Time Schedules.

1. Highlight the chiller and click Configure → Table Names.
2. When the dialog box opens, scroll down to find the six OCC tables.

   NOTE: Only the "S" and "E" Schedules are editable.
3. Highlight the Time Schedule OCC1P01x then click Modify…
4. In the new dialog box, rename the schedule OCCPC01x (as seen in Fig. E for Local Schedule or Fig. F for Network Time Schedule) then click OK to close this dialog box.
5. Click Close to close the Table Names dialog box.
6. Download the new configuration to the chiller.
7. Cycle power to the MBB (main base board) using SW2 emergency stop.

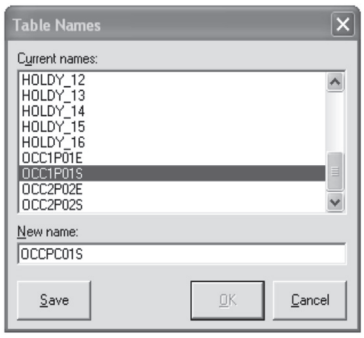

Fig. C — NTSV Table Name (Local Schedule)

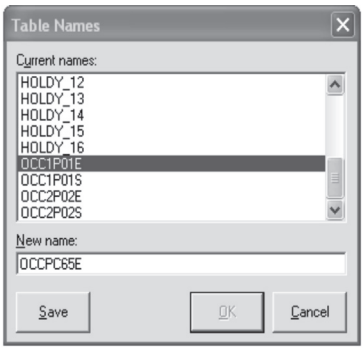

Fig. D — NTSV Table Name (Network Schedule)

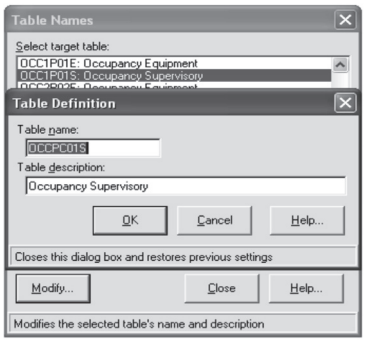

Fig. E — CVIEW Table Name (Local Schedule)

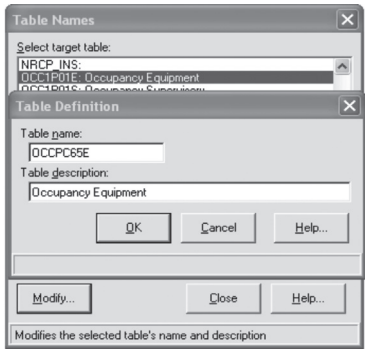

Fig. F — CVIEW Table Name (Network Schedule)

Step 2 — Select Chiller Mode

There are 3 different mode selections for the chiller which are described below. In order to change the mode from the default configuration, a scrolling marquee or handheld Navigator™ device must be used.

1. Using a Navigator device, select Operating Modes → SLCT → OPER, then enter the password.
2. The screen defaults to SWITCH Mode. If using an i-Vu device or CCN Global Scheduling, use the up arrow to select Time Sched and then press Enter.

   or

   Click the up arrow and select CCN to control the chiller using a CCN Network Command of "CHIL_S_S".

MODE DESCRIPTIONS

Switch

The chiller will be running 24/7 (no time schedule involved). DO NOT use for the i-Vu device or CCN Global Scheduling.

Time Sched

This mode will allow the user to configure a local schedule and control the chiller by either Local Time Schedule or by set point tables 1 or 2. This mode needs to be selected if the i-Vu device will be writing to either a Local (S) or Network (E) Time Schedule.

NOTE: The i-Vu CCN 4.0 device can only write to Network schedules.

CCN

This will be used when a CCN controller, like a CSM, Translator, or CC will be writing to the chiller's CCN point name CHIL_S_S for starting and stopping the equipment.

Step 3 — Select Chiller Cooling Set Point

There are several options for controlling the Leaving Chilled Water temperature. For the purpose of having the i-Vu device able to start stop the chiller through the Time Schedule MODE the chiller's "Cooling Set Point Select" decision needs to be configured for SET POINT 1 using a scrolling marquee or Navigator™ device.

1. Using a Navigator™ device, select Operating Modes → SLCT → SP.SE, then enter the password.
2. Click the arrow up and select SET POINT 1 then push Enter.

Step 4 — Set Up Chiller Switch

1. Set the Emergency On/Off Switch (SW2) switch to the On Position.
2. Set the Enable-Off-Remote (SW1) switch to the Enable position. (If Remote is used, external contacts will need to be closed or a jumper needs to be installed on TB-5 no. 9, 10.) The chiller will run off either the Switch, Time Schedule, or CCN Mode (see Mode Descriptions in Step 2).

This completes the configuration decisions needed in a 30XW unit to enable i-Vu device scheduling to control the chiller start/stop.

Step 5 — Set Up i-Vu Device Schedule

CONFIGURING THE i-Vu 4.2 DEVICE (LOCAL AND GLOBAL SCHEDULING)

1. After chiller has been scanned into the database, check the Schedule number. To do this, click on the Schedules Tab → CCN Tab. The CCN Schedule Number needs to be the same number that the user edited in Fig. C or E for local or Fig. D or F for global (see Fig. G).
2. Next, create a Schedule by highlighting the chiller.
3. Click on Schedules → Configure → Add.
4. Then select the type of schedule from the drop down menu.
5. Example: Select Normal → Weekly and the schedule should look like Fig. H.
6. Configure the schedule.

NOTE: Refer to the i-Vu Installation and Startup manual for more information on creating a schedule for the i-Vu device.

CONFIGURING THE i-Vu 4.0 DEVICE (GLOBAL SCHEDULING)

1. After chiller has been scanned into the database, check the Schedule number. To do this, expand the Chiller on the left-hand navigation pane → click the on the "Schedule" point → Properties tab → Summary Tab. Enter CCN Global Schedule Number. It needs to be the same number that the user edited in Fig. D or F (see Fig I).
2. Follow Steps 2 through 5 in the Configuring the i-Vu 4.2 device (Local and Global Scheduling) section.

This completes configuring a 30XW Chiller, i-Vu device, and CCN Network Time Schedules.

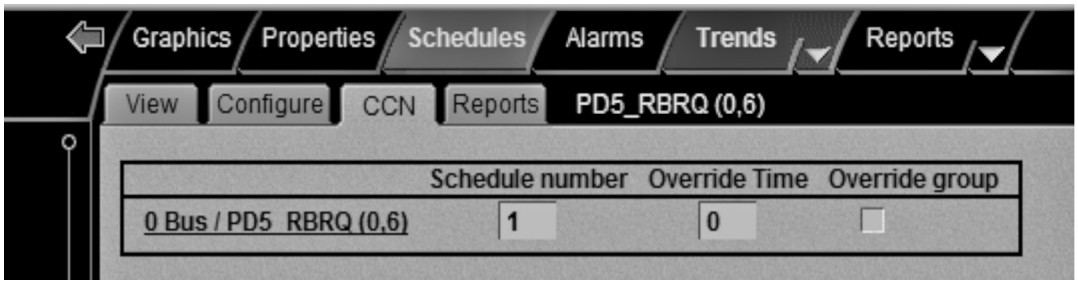

Fig. G — CCN Tab

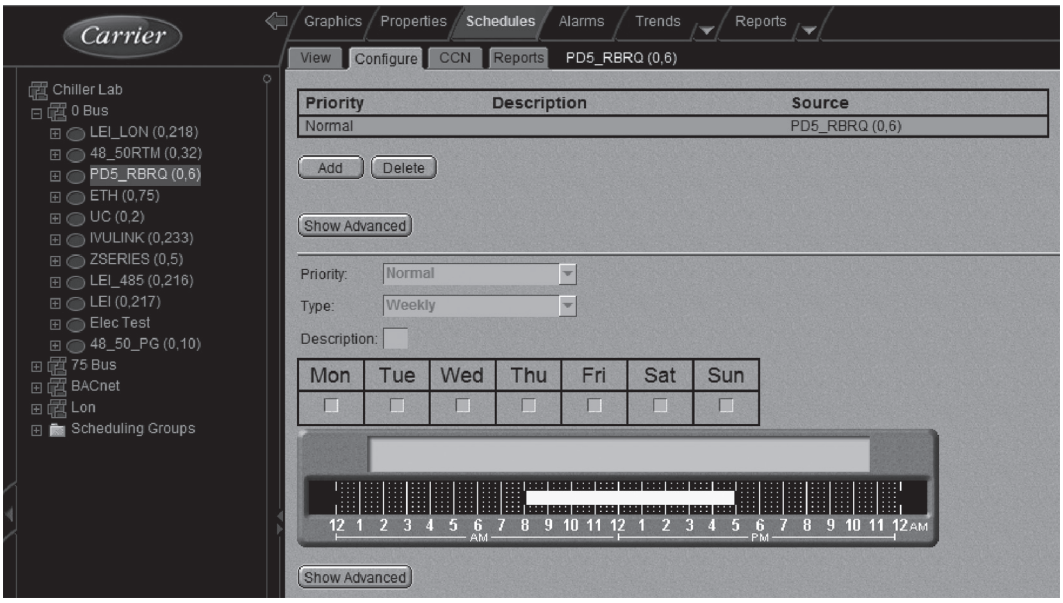

Fig. H — Schedule Type Example (Weekly)

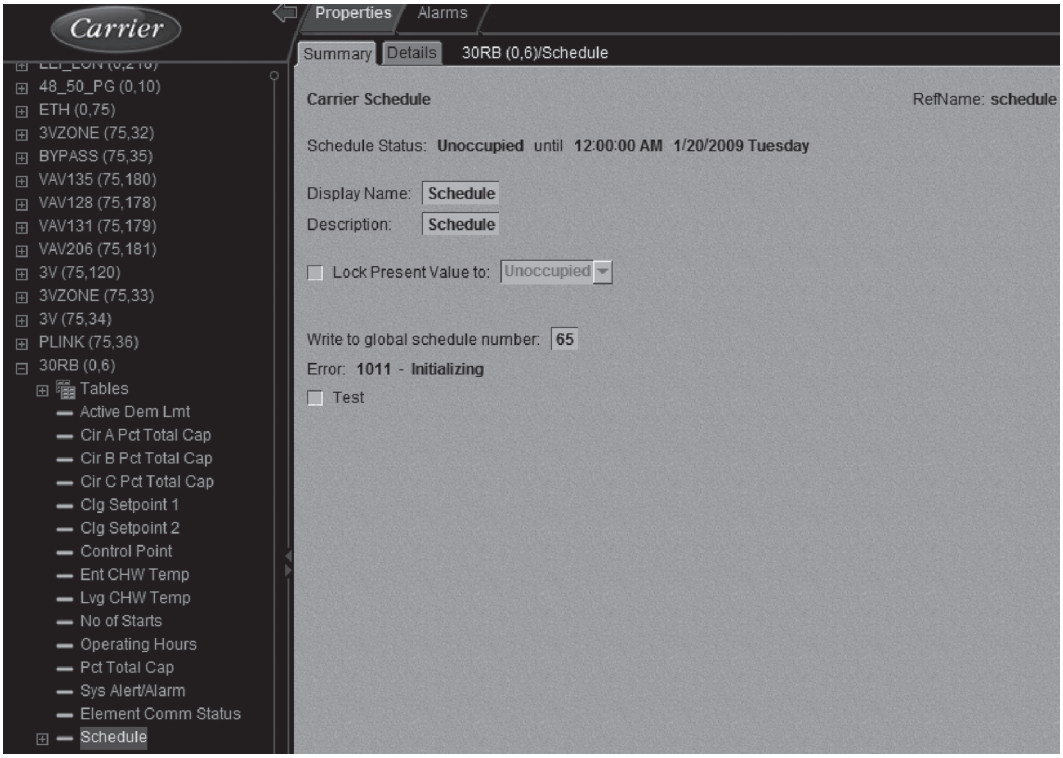

Fig. I — CCN Global Schedule Number

APPENDIX G — MAINTENANCE SUMMARY AND LOG SHEETS

30XW Maintenance Interval Requirements

WEEKLY			
Compressor	Check Oil Level.	**Economizer/EXV**	None.
Cooler	None.	**Controls**	Review Alarm/Alert History.
Condenser	None.	**Starter**	None.
MONTHLY			
Compressor	Check Oil Level.	**Economizer/exv**	Inspect sight glass for moisture and refrigerant level.
Cooler	None.	**Controls**	None.
Condenser	None.	**Starter**	None.
QUARTERLY			
Compressor	Check Oil Level	**Economizer/EXV**	None.
Cooler	Check refrigerant charge. Check all connections for leaks.	**Controls**	Perform an Automated Controls test. Run all Compressors and ensure proper operation.
Condenser	None.	**Starter**	Ensure operation of units flow switch.
ANNUALLY			
Compressor	Check Oil Level. Obtain and test an oil sample.	**Economizer/EXV**	Verify proper operation of EXVs (electronic expansion valves).
Cooler	Check refrigerant charge. Check all connections for leaks. Check approach on unit to determine if tubes need cleaning. Check for temperature drop across filter drier to determine if filter needs replacement.	**Controls**	Perform an Automated Controls test. Run all Compressors and ensure proper operation. Ensure operation of unit flow switch.
Condenser	Check condenser approach to determine if tubes need to be cleaned.	**Starter**	Inspect all electrical connections and tighten as needed. Measure current to each compressor and inspect contactors.

NOTE: Equipment failures caused by lack of adherence to the Maintenance Interval Requirements are not covered under warranty.

APPENDIX G — MAINTENANCE SUMMARY AND LOG SHEETS (CONT)

30XW Weekly Maintenance Log

Plant ____

Machine Model No. ______________________________________

DATE	OIL LEVEL	CHECK ALARMS / FAULTS	OPERATOR INITIALS	REMARKS

NOTE: Equipment failures caused by lack of adherence to the Maintenance Interval Requirements are not covered under warranty.

APPENDIX G — MAINTENANCE SUMMARY AND LOG SHEETS (CONT)

30XW Monthly Maintenance Log

Month			1	2	3	4	5	6	7	8	9	10	11	12
Date			/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /
Operator														

UNIT SECTION	ACTION	UNIT	ENTRY											
Compressor	Check Oil Level	yes/no												
	Change Oil Filter (Screw Compressors)	yes/no	Year 1 then As Needed											
	Send Oil Sample Out for Analysis	yes/no	Annually											
	Leak Test	ppm												
Cooler	Inspect and Clean Cooler Tubes	yes/no	Every 3 - 5 Years											
	Inspect Cooler Heater	amps												
	Inspect Relief Valves	yes/no												
	Leak Test	yes/no												
	Record Water Pressure Differential (PSIG)	PSIG												
	Inspect Water Pumps	yes/no												
	Eddy Current Test	yes/no	Every 3 - 5 Years											
Condenser	Leak Test	ppm												
	Inspect and Clean Condenser Tubes	yes/no	Annually											
	Record Water Pressure Differential (PSIG)	PSIG												
	Inspect Water Pumps and Cooling Tower	yes/no												
	Inspect Relief Valves	yes/no												
Controls	General Cleaning and Tightening Connections	yes/no	Annually											
	Check Pressure Transducers	yes/no												
	Confirm Accuracy of Thermistors	yes/no												
Starter	General Tightening and Cleaning Connections	yes/no	Annually											
	Inspect All Contactors	yes/no												
System	Check Refrigerant Charge Level	yes/no												
	Verify Operation of EXVs and Record Position	0-100%												
	Record System Superheat	deg. F												

NOTE: Equipment failures caused by lack of adherence to the Maintenance Interval Requirements are not covered under warranty.

APPENDIX G — MAINTENANCE SUMMARY AND LOG SHEETS (CONT)

30XW Seasonal Shutdown Log

Month		1	2	3	4	5	6	7	8	9	10	11	12
Date		/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /
Operator													
UNIT SECTION	ACTION	ENTRY											
Cooler	Isolate and Drain Waterbox												
	Remove Waterbox Cover from One End												
	Use Compressed Air to Clean Tubes												
Condenser	Isolate and Drain Waterbox												
	Remove Waterbox Cover from One End												
	Use Compressed Air to Clean Tubes												
Controls	Do Not Disconnect Control Power												

NOTE: Equipment failures caused by lack of adherence to the Maintenance Interval Requirements are not covered under warranty.

INDEX

START-UP CHECKLIST FOR 30XW LIQUID CHILLERS

A. PROJECT INFORMATION

Job Name _____

Address _____

City _____ State _____ Zip _____

Installing Contractor _____

Sales Office _____

Start-up Performed By _____

Design Information

	CAPACITY	EWT	LWT	FLUID TYPE	FLOW RATE	P.D.
Evaporator						
Condenser						

B. PRELIMINARY EQUIPMENT CHECK (This section to be completed by installing contractor)

1. Is there any physical damage? ☐ Yes ☐ No
   If yes, was it noted on the freight bill and a claim filed with the shipper? ☐ Yes ☐ No
   Will this prevent start-up? ☐ Yes ☐ No
   Description
   _____
   _____
2. Unit is installed level as per the installation instructions. ☐ Yes ☐ No
3. Power supply agrees with the unit nameplate. ☐ Yes ☐ No
4. Correct control voltage _____vac. ☐ Yes ☐ No
5. Electrical power wiring is installed properly. ☐ Yes ☐ No
6. Unit is properly grounded. ☐ Yes ☐ No
7. Electrical circuit protection has been sized and installed properly. ☐ Yes ☐ No
8. All terminals are tight. ☐ Yes ☐ No
9. All plug assemblies are tight. ☐ Yes ☐ No
10. Relief valve vent piping per local codes. ☐ Yes ☐ No
11. Mechanical room temperature maintained above 50°F (10°C). ☐ Yes ☐ No

Chilled Water System Check (This section to be completed by installing contractor)

⚠CAUTION

Water must be within design flow limits, clean and treated to ensure proper machine performance and reduce the potential of tubing damage due to corrosion, scaling, and algae. Carrier assumes no responsibility for cooler damage resulting from untreated or improperly treated water.

1. All chilled water valves are open. ☐ Yes ☐ No
2. All piping is connected properly. ☐ Yes ☐ No
3. All air has been purged from the system. ☐ Yes ☐ No
4. Chilled water pump is operating with the correct rotation. ☐ Yes ☐ No
5. Chilled water pump starter interlocked with chiller. ☐ Yes ☐ No
6. Chilled water flow switch operational. ☐ Yes ☐ No
7. Inlet piping to evaporator includes a 20 mesh strainer within 10 ft (3 m). ☐ Yes ☐ No
8. Water loop volume greater than 3 gal/ton for air conditioning or 6 gal/ton for process cooling and low ambient operation. ☐ Yes ☐ No

IMPORTANT: On brine applications where leaving cooler water is less than 40°F (4.4°C), a minimum water flow of 0.75 gpm/ton (0.14 L/s per kW) should be maintained through the condenser at all times. In addition to the factory-installed chilled water flow switch, a factory-supplied condenser water flow switch must be installed per the switch manufacturer's instructions. The chiller must control both the chilled water pump and the condenser pump and utilize cooler and condenser pump interlocks. The cooler pump must operate for a minimum of 10 minutes after the chiller has shut down and the condenser pump must operate for 30 minutes after the chiller has shut down. In the event of loss of condenser water flow, the flow of chilled fluid to the evaporator must be stopped or an isolation valve must be closed. Condenser head pressure control valve must be coordinated with condenser flow switch to ensure the minimum valve position does not prevent flow detection. This is necessary to reduce the possibility of condenser freeze-up.

9. Proper loop freeze protection provided to ____ °F (°C) for brine applications. ☐ Yes ☐ No
   Antifreeze type_____ Concentration _____%. ☐ Yes ☐ No
10. Outdoor piping wrapped with electric heater tape. ☐ Yes ☐ No

Condenser Water System Check (This section to be completed by installing contractor)

1. All condenser water valves are open. ☐ Yes ☐ No
2. All piping is connected properly. ☐ Yes ☐ No
3. All air has been purged from the system. ☐ Yes ☐ No
4. Condenser water pump is operating with the correct rotation. ☐ Yes ☐ No
5. Condenser water pump starter interlocked with chiller. ☐ Yes ☐ No
6. Condenser water flow switch operational. ☐ Yes ☐ No
7. Inlet piping to condenser includes a 20 mesh strainer within 10 ft. (3 m) ☐ Yes ☐ No
8. Outdoor piping wrapped with electric heater tape. ☐ Yes ☐ No
9. Is system equipped with head pressure control?
   (Required for entering condenser water below 65°F (18.3°C).) ☐ Yes ☐ No

SIGNATURE REQUIRED!

Preliminary system check completed.

Installing/Mechanical contractor _____ Date _____

CUT ALONG DOTTED LINE

CUT ALONG DOTTED LINE

C. UNIT START-UP (Mandatory factory/Carrier service start-up required!)

Unit

Model _____ Serial _____

Compressors

Compressor A
Model _____ Serial _____

Compressor B
Model _____ Serial _____

Evaporator
Model _____ Serial _____

Condenser
Model _____ Serial _____

1. All cables, thermistors, and transducers have been inspected for cross wires. ☐ Yes ☐ No
2. All thermistors are fully inserted into wells. ☐ Yes ☐ No
3. All liquid line service valves are open. ☐ Yes ☐ No
4. All discharge service valves are open. ☐ Yes ☐ No
5. All suction service valves are open. ☐ Yes ☐ No
6. Economizer service valves open (if equipped). ☐ Yes ☐ No
7. Oil service valves open. ☐ Yes ☐ No
8. Relief valve, cooler three-way (if installed) fully front seated or fully back seated. ☐ Yes ☐ No
9. Relief valve, condenser three-way (if installed) fully front seated or fully back seated. ☐ Yes ☐ No
10. Leak check unit. Locate, repair and report any refrigerant leaks. ☐ Yes ☐ No
11. Voltage at terminal block is within unit nameplate range. ☐ Yes ☐ No

    Check voltage imbalance: A-B_____ A-C_____B-C_____

    Average voltage = _____ (A-B + A-C + B-C)/3
    Maximum deviation from average voltage = _____
    Voltage imbalance = _____% (max. deviation / average voltage) X 100

    Is voltage imbalance less than 2%? ☐ Yes ☐ No

    (DO NOT start chiller if voltage imbalance is greater than 2%.
    Contact local utility for assistance.)

12. Verify evaporator flow rate

    Pressure entering evaporator _____ psig (kPa)
    Pressure leaving evaporator _____ psig (kPa)
    Evaporator pressure drop _____ psig (kPa)
    psig x 2.31 ft/psi = _____ ft of water
    Evaporator flow rate _____ gpm (l/s) (See Evaporator Pressure Drop Curve)

13. Verify condenser flow rate

    Pressure entering condenser _____ psig (kPa)
    Pressure leaving condenser _____ psig (kPa)
    Condenser pressure drop _____ psig (kPa)
    psig x 2.31 ft/psi = _____ ft of water
    Condenser flow rate _____ gpm (l/s) (See Condenser Pressure Drop Curve)

Start and Operate Machine

1. Complete component test utilizing Quick Test Mode
2. Check refrigerant and oil charge. Record charge information. _____
3. Record compressor motor current. _____
4. Record operating data. _____
5. Provide operating instructions to owner's personnel.

	Circuit A	Circuit B
Refrigerant Charge		
Additional charge required	_____	_____
Oil Charge		
Additional charge required	_____	_____

CUT ALONG DOTTED LINE

CUT ALONG DOTTED LINE

Record Software Versions

TOUCH PILOT™ DESRIPTION	NAVIGATOR ITEM	NAVIGATOR™ SUB-MODE	ITEM EXPANSION
Software Part Number	APPL	Run Status→VERS	CSA-SR- __ __ __ __ __ __

(Press ENTER and ESCAPE simultaneously to obtain software versions)

Record Configuration Information

TOUCH PILOT DESCRIPTION	NAVIGATOR ITEM	NAVIGATOR SUBMODE	RANGE	DEFAULT	ENTRY
Metric Display on STDU	METR	Configuration→DISP	US-METR	US	
Language Selection	LANG	Configuration→DISP	x	English	
Unit Type	TYPE	Configuration→UNIT	x	Water-Cooled	
Unit Capacity Model	TONS	Configuration→UNIT	XXX		
Power Supply Voltage	VOLT	Configuration→UNIT	200-690	200, 230, 380, 460, and 575	
Power Frequency 60HZ Sel	60HZ	Configuration→UNIT	NO-YES	YES	
Wye Delta Start Select	Y.D	Configuration→UNIT	NO-YES		
Must Trip Amps (Circuit A)	MTA.A	Configuration→UNIT	XXX		
Must Trip Amps (Read Circuit A)	R.MT.A	Configuration→UNIT	XXX		
Must Trip Amps (Circuit B)	MTA.B	Configuration→UNIT	XXX		
Must Trip Amps (Read Circuit B)	R.MT.B	Configuration→UNIT	XXX		
S1 Config Switch (Circuit A)	C.SW.A	Configuration→UNIT	XXX		
S1 Config Switch (Read Circuit A)	R.CSA	Configuration→UNIT	XXX		
S1 Config Switch (Circuit B)	C.SW.B	Configuration→UNIT	XXX		
S1 Config Switch (Read Circuit B)	R.CSB	Configuration→UNIT	XXX		
Energy Management Module	EMM	Configuration→UNIT	NO-YES	NO	
Password Enable	PAS.E	Configuration→UNIT	ENBL/DSBL	ENBL	
Factory Password	PASS	Configuration→UNIT	XXX	0111	
Condenser Water Val Sel	CON.V	Configuration→UNIT	NO-YES	NO	
Hot Gas Bypass Select	HGBP	Configuration→UNIT	NO-YES	NO	
High Tier Display Selec	HI.TI	Configuration→UNIT	NO-YES	NO	
Cooler Pass Number	PA.NB	Configuration→UNIT	X	2	
High Condensing Select	H.CON	Configuration→UNIT	NO-YES	NO	
Cooler Fluid Type	FLUD	Configuration→SERV	WATER-BRINE	WATER	
Condenser Fluid Type	CFLU	Configuration→SERV	WATER-BRINE	WATER	
EXV MOP Set Point	MOP	Configuration→SERV	XX.X	62	
High Pressure Threshold	HP.TH	Configuration→SERV	XXX.X	290	
EXV A Superheat Set Point	SHP.A	Configuration→SERV	XX.X	7.2	
EXV B Superheat Set Point	SHP.B	Configuration→SERV	XX.X	7.2	
Entering Fluid Control	EWTO	Configuration→SERV	NO-YES	NO	
Auto Start When SM Lost	AU.SM	Configuration→SERV	NO-YES	NO	
Brine Minimum Fluid Temp	LLWT	Configuration→SERV	XX	38	
Brine Freeze Set Point	LOSP	Configuration→SERV	XX.X	34	
Fast Load Select	F.LOA	Configuration→SERV	X	0	
EWT Probe on Cir A Side	EWT.S	Configuration→SERV	NO-YES	YES	
Max Condenser LWT 45DC	MAXL	Configuration→SERV	NO-YES	NO	

Record Configuration Information (cont)

TOUCH PILOT™ DESCRIPTION	NAVIGATOR ITEM	NAVIGATOR™ SUBMODE	RANGE	DEFAULT	ENTRY
Element	CCNA	Configuration→OPTN	XXX	1	
Bus	CCNB	Configuration→OPTN	XXX	0	
Baud Rate	BAUD	Configuration→OPTN	X	3/9600	
Circuit Loading Sequence	LOAD	Configuration→OPTN	X	EQUAL	
Staged Loading Sequence	LLCS	Configuration→OPTN	X	AUTOMATIC	
Ramp Loading Select	RL.S	Configuration→OPTN	ENBL-DSBL	DSBL	
Unit Off to On Delay	DELY	Configuration→OPTN	XX	1	
Ice Mode Enable	ICE.M	Configuration→OPTN	ENBL-DSBL	DSBL	
Condenser Pumps Sequence	HPUM	Configuration→OPTN	X	0/NO PUMP	
Cooler Pumps Sequence	PUMP	Configuration→OPTN	X	0/NO PUMP	
Pump Auto Rotation Delay	ROT.P	Configuration→OPTN	XX	48	
Pump Sticking Protection	PM.PS	Configuration→OPTN	NO-YES	NO	
Stop Pump During Standby	P.SBY	Configuration→OPTN	NO-YES	NO	
Flow Checked if C Pump On	P.LOC	Configuration→OPTN	NO-YES	NO	
Start Hour (Night Control)	LS.ST	Configuration→OPTN	XX.XX	00.00	
End Hour (Night Control)	LS.ND	Configuration→OPTN	XX.XX	00.00	
Capacity Limit (Night Control)	LS.LT	Configuration→OPTN	XXX	100	
Reverse Alarms Relay	RV.AL	Configuration→OPTN	NO-YES	NO	
Current Limit Select	CUR.S	Configuration→OPTN	NO-YES	NO	
Current Limit at 100%	CUR.F	Configuration→OPTN	XXXX	2000	
Cooling Reset Select	CRST	Configuration→RSET	X	0	
Demand Limit Type Select	DMDC	Configuration→RSET	X	0	
mA for 100% Demand Limit	DMMX	Configuration→RSET	XX.X	0.0	
mA for 0% Demand Limit	DMZE	Configuration→RSET	XX.X	0.0	
Master/Slave Select	MSSL	Configuration→RSET	X	0	
Slave Address	SLVA	Configuration→RSET	XXX	2	
Lead/Lag Select	LLBL	Configuration→RSET	X	DSBL	
Lead/Lag Balance Delta	LLBD	Configuration→RSET	XXX	168	
Lag Start Timer	LLDY	Configuration→RSET	XX	10	
Start if Error Higher	LL.ER	Configuration→RSET	XX.X	4	
Lag Minimum Running Time	LAG.M	Configuration→RSET	XXX	0	
Lag Unit Pump Control	LAGP	Configuration→RSET	X	0	
Lead Pulldown Time	LPUL	Configuration→RSET	XX	0	
Chiller in Series	SERI	Configuration→RSET	NO-YES	NO	

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Record Configuration Information (cont)

TOUCH PILOT™ DESCRIPTION	NAVIGATOR ITEM	NAVIGATOR™ SUBMODE	RANGE	DEFAULT	ENTRY
Cooling Set Point 1	CSP.1	Set Point→COOL	XXX.X	44.0°F	
Cooling Set Point 2	CSP.2	Set Point→COOL	XXX.X	44.0°F	
Cooling Ice Set Point	CSP.3	Set Point→COOL	XXX.X	44.0°F	
Current No Reset Value (Cooling)	CRV1	Set Point→COOL	XXX.X	0	
Current Full Reset Value (Cooling)	CRV2	Set Point→COOL	XXX.X	0	
Delta T No Reset Value (Cooling)	CRT1	Set Point→COOL	XXX.X	0	
Delta T Full Reset Value (Cooling)	CRT2	Set Point→COOL	XXX.X	0	
OAT No Reset Value (Cooling)	CRO1	Set Point→COOL	XXX.X	14.0°F	
OAT Full Reset Value (Cooling)	CRO2	Set Point→COOL	XXX.X	14.0°F	
Space T No Reset Value	CRS1	Set Point→COOL	XXX.X	14.0°F	
Space T Full Reset Value	CRS2	Set Point→COOL	XXX.X	14.0°F	
Cooling Reset Deg. Value	DGRC	Set Point→COOL	XX.X	0	
Cooling Ramp Loading	CRMP	Set Point→COOL	X.X	1.0	
Heating Set Point 1	HSP.1	Set Point→HEAT	XXX.X	100.0°F	
Heating Set Point 2	HSP.2	Set Point→HEAT	XXX.X	100.0°F	
Current No Reset Value (Heating)	HRV1	Set Point→HEAT	XXX.X	0	
Current Full Reset Value (Heating)	HRV2	Set Point→HEAT	XXX.X	0	
Delta T No Reset Value (Heating)	HRT1	Set Point→HEAT	XXX.X	0	
Delta T Full Reset Value (Heating)	HRT2	Set Point→HEAT	XXX.X	0	
OAT No Reset Value (Heating)	HRO1	Set Point→HEAT	XXX.X	14.0°F	
OAT Full Reset Value (Heating)	HRO2	Set Point→HEAT	XXX.X	14.0°F	
Heating Reset Deg. Value	DGRH	Set Point→HEAT	XX.X	0	
Heating Changeover Set Point	HAUT	Set Point→HEAT	XX.X	64.0°F	
Heat Ramp Loading	HRMP	Set Point→HEAT	X.X	1.0	
Switch Limit Set Point 1	DLS1	Set Point→MISC	XXX	100	
Switch Limit Set Point 2	DLS2	Set Point→MISC	XXX	100	
Switch Limit Set Point 3	DLS3	Set Point→MISC	XXX	100	
Water Val Condensing Stp	W.SCT	Set Point→MISC	XXX.X	95.0°F	
None (I/O Button)	OPER	Operating Modes→SLCT	X	SWITCH CTRL	
Set Point Select	SP.SE	Operating Modes→SLCT	X	SET POINT OCC	
Heal/Cool Select	HC.SE	Operating Modes→SLCT	X	COOLING	

Component Test — Complete the following tests to make sure all peripheral components are operational before the compressors are started.

TOUCH PILOT™ DESCRIPTION	NAVIGATOR ITEM	NAVIGATOR™ SUBMODE	RANGE	CHECK WHEN COMPLETE
Service Test Enable	T.REQ	Service Test→TEST	OFF-ON	
Compressor A Output	CP.A	Service Test→TEST	OFF-ON	
Slide Valve Capacity A	SLI.A	Service Test→TEST	0-2	
Compressor B Output	CP.B	Service Test→TEST	OFF-ON	
Slide Valve Capacity B	SLI.B	Service Test→TEST	0-2	
Quick Test Enable	Q.REQ	Service Test→QUIC	OFF-ON	
Circuit A EXV Position	EXV.A	Service Test→QUIC	0-100	
Circuit B EXV Position	EXV.B	Service Test→QUIC	0-100	
Cir A Economizer EXV Position	ECO.A	Service Test→QUIC	0-100	
Cir B Economizer EXV Position	ECO.B	Service Test→QUIC	0-100	
Circuit A Fan Stages	FAN.A	Service Test→QUIC	0-8	
Circuit B Fan Stages	FAN.B	Service Test→QUIC	0-8	
Cir A Varifan Position	SPD.A	Service Test→QUIC	0-100	
Cir B Varifan Position	SPD.B	Service Test→QUIC	0-100	
Circuit A Oil Heater	HT.A	Service Test→QUIC	OFF-ON	
Circuit A Slide Valve 1	SL1.A	Service Test→QUIC	OFF-ON	
Circuit A Slide Valve 2	SL2.A	Service Test→QUIC	OFF-ON	
Circuit A Hot Gas Bypass	HGP.A	Service Test→QUIC	OFF-ON	
Circuit A Oil Solenoid	OLS.A	Service Test→QUIC	OFF-ON	
Circuit A DGT Cool Solenoid	DGT.A	Service Test→QUIC	OFF-ON	
Circuit B Oil Heater	HT.B	Service Test→QUIC	OFF-ON	
Circuit B Slide Valve 1	SL1.B	Service Test→QUIC	OFF-ON	
Circuit B Slide Valve 2	SL2.B	Service Test→QUIC	OFF-ON	
Circuit B Hot Gas Bypass	HGP.B	Service Test→QUIC	OFF-ON	
Circuit B Oil Solenoid	OLS.B	Service Test→QUIC	OFF-ON	
Circuit B DGT Cool Solenoid	DGT.B	Service Test→QUIC	OFF-ON	
Water Exchanger Pump 1	PMP.1	Service Test→QUIC	OFF-ON	
Water Exchanger Pump 2	PMP.2	Service Test→QUIC	OFF-ON	
Cooler Heater Output	CL.HT	Service Test→QUIC	OFF-ON	
Cir A Heater Ball Valve	BVL.A	Service Test→QUIC	OPEN-CLSE	
Cir B Heater Ball Valve	BVL.B	Service Test→QUIC	OPEN-CLSE	
Chiller Ready Status	Q.RDY	Service Test→QUIC	OFF-ON	
Chiller Running Output	Q.RUN	Service Test→QUIC	OFF-ON	
Customer Shutdown Out	SHUT	Service Test→QUIC	OFF-ON	
Chiller Capacity in 0-10V	CATO	Service Test→QUIC	nn.n	
Alarm Relay Output	ALRM	Service Test→QUIC	OFF-ON	
Alert Relay Output	ALRT	Service Test→QUIC	OFF-ON	

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Operating Data:

Record the following information from the Run Status, Temperatures and Outputs Modes when machine is in a stable operating condition.

TEMPERATURES

COOLER ENTERING FLUID	CEWT _____	
COOLER LEAVING FLUID	CLWT _____	
CONDENSER ENTERING FLUID	CD.ET _____	
CONDENSER LEAVING FLUID	CD.LT _____	
CONTROL POINT	CTPT _____	
CAPACITY	CAP _____	
LEAD/LAG LEAVING FLUID	CHWS_____	(Dual Chiller Control Only)

CIRCUIT A	CIRCUIT B
SCT.A _____	SCT.B _____
SST.A _____	SST.B _____
DGT.A _____	DGT.B _____
SGT.A _____	SGT.B _____
SUP.A _____	SUP.B _____
ECT.A _____	ECT.B _____
ESH.A _____	ESH.B _____
CTP.A _____	CTP.B _____
EXV.A_____	EXV.B _____
ECO.A_____	ECO.B _____

NOTE: EXV.A, EXV.B, ECO.A and ECO.B positions are found in the output mode.

COMPRESSOR MOTOR CURRENT

	L1	L2	L3
COMPRESSOR A1	_____	_____	_____
COMPRESSOR B1	_____	_____	_____

COMMENTS:

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SIGNATURES:

Start-up
Technician _____Date_____

Customer
Representative _____Date_____

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Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations.

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