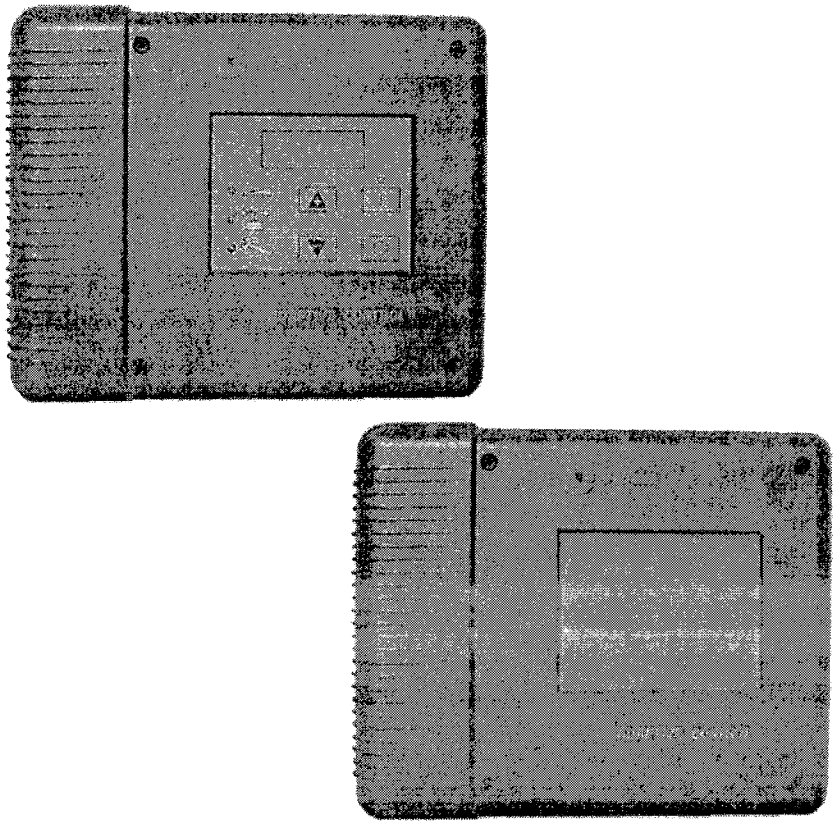
TRANE®

Owner Manual

Tracer CH.530™ Chiller Control System



EasyView and DynaView Interfaces

RLC-SVU01A-E4

Foreword

These Installation, Operation, and Maintenance instructions are given as a guide to good practice in the installation, start-up, operation, and periodic maintenance by the user of Tracer CH.530 chiller control modules.

They do not contain the full service procedures necessary for the continued successful operation of this equipment. The services of a qualified service technician should be employed, through the medium of a maintenance contract with a reputable service company.

Warranty

Warranty is based on the general terms and conditions of the constructor. The warranty is void if the equipment is modified or repaired without the written approval of the constructor, if the operating limits are exceeded, or if the control system or the electrical wiring is modified.

Damage due to misuse, lack of maintenance, or failure to comply with the manufacturer's instructions, is not covered by the warranty obligation.

If the user does not conform to the rules of chapter "Maintenance," it may entail cancellation of warranty and liabilities by the constructor.

Reception

On arrival, inspect the unit before signing the delivery note. Specify any damage on the delivery note, and send a registered letter of protest to the last carrier of the goods within 72 hours of delivery. Notify the local sales office at the same time.

The unit should be totally inspected within 7 days of delivery. If any concealed damage is discovered, send a registered letter of protest to the carrier within 7 days of delivery and notify the local sales office.

Units are shipped with the refrigerant operating or holding charge and should be examined with an electronic leak detector to determine the hermetic integrity of the unit. The refrigerant charge is not included in the standard Warranty Cover.

General information

About this manual

Cautions appear at appropriate places in this instruction manual. Your personal safety and the proper operation of this machine require that you follow them carefully.

The constructor assumes no liability for installations or servicing performed by unqualified personnel.

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Commonly Used Abbreviations

Commonly Used Abbreviations

Abbreviations and terms used in this manual are defined below.

BAS = Building Automation System

CAR = Circuit Shutdown, Auto Reset

CLS = Current Limit Set Point

CMR = Circuit Shutdown, Manual Reset

CPRS = Compressor

CWR = Chilled-Water Reset

CWS = Chilled-Water Set Point

EXV = Electronic Expansion Valve

FLA = Full Load Amperes

HACR = Heating, Air Conditioning, and Refrigeration

HVAC = Heating, Ventilating, and Air Conditioning

IFW = Informational Warning

LLID = Low Level Intelligent Device

LRA = Locked Rotor Amperes

MAR = Machine Shutdown, Auto Reset

MMR = Machine Shutdown, Manual Reset

PCWS = Front Panel Chilled-Water Set Point

PSIG = Pounds-per-Square-inch (gauge pressure)

RAS = Reset Action Set Point

RLA = Rated Load Amperes

RCWS = Reset Chilled-Water Set Point

RRS = Reset Reference Set Point

Tracer ™ = Type of Trane Building Automation System

UCLS = Unit Current-Limit Set Point

UCM = Unit Control Module (Microprocessor-based)

Controls Interface

Tracer CH.530™ Communications Overview

The Trane CH.530 control system that runs the chiller consists of several elements:

- The main processor collects data, status, and diagnostic information, and communicates commands to the starter module and the LLID (Low Level Intelligent Device) bus. The main processor has an integral display (EasyView or DynaView).
- Higher-level modules (e.g., starter) exist only as necessary to support system-level control and communications. The starter module provides control of the starter when starting, running, and stopping the chiller motor. It also processes its own diagnostics and provides motor and compressor protection.
- Low Level Intelligent Device (LLID) bus. The main processor communicates to each input and output device (e.g., temperature and pressure sensors, low voltage binary inputs, analog input/output) all connected to a four-wire bus, rather than the conventional control architecture of signal wires for each device.
- The communication interface to a building automation system (BAS).
- A service tool to provide all service and maintenance capabilities.

Main processor and service tool software is downloadable from www.Trane.com.

EasyView or DynaView provides bus management. It has the task of restarting the link, or filling in for what it sees as "missing" devices when normal communications have been degraded. Use of TechView may be required.

The CH.530 uses the IPC3 protocol based on RS485 signal technology and communicating at 19.2 Kbaud, to allow three rounds of data per second on a 64-device network. A typical four-compressor RTAC will have approximately 50 devices, and IPC3 permits a maximum of 255 devices per network.

Most diagnostics are handled by the EasyView or DynaView. If a temperature or pressure is reported out of range by an LLID, the EasyView or DynaView processes this information and calls out the diagnostic. The individual LLIDs are not responsible for any diagnostic functions. The only exception to this is the Starter module.

Note: It is imperative that the CH.530 Service Tool (TechView)be used to facilitate the replacement of any LLID or reconfigure any chiller component. TechView is discussed later in this section.

Controls Interface

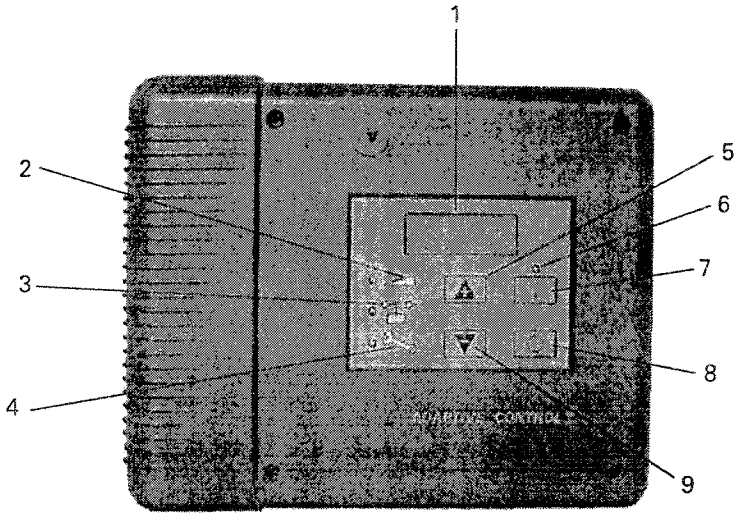
Each chiller is equipped with either the EasyView or DynaView interface to the CH.530. EasyView provides basic monitoring and control functions in a language-independent format, with an LED display in an enclosure. DynaView has the capability to display additional information to the advanced operator, including the ability to adjust settings. Multiple screens are available and text is presented in multiple languages as ordered.

TechView can be connected to either the EasyView or DynaView module, and provides further data, adjustment capabilities, and diagnostics information using downloadable software.

EasyView Interface

EasyView Interface

Figure 1 – EasyView Display



Legend
1. Display
2. Set Point
3. Interlock
4. Service
5. Increment Button
6. Auto LED
7. AUTO Button
8. STOP Button
9. Decrement Button

The EasyView interface to the CH.530 consists of a display in a 9.75" wide, 8" high, and 1.6" deep [250 mm x 205 mm x 41 mm] enclosure. The enclosure contains a circuit card and a weathertight connection for the RS232 TechView. Use of TechView is discussed in a separate publication.

The LED display contains basic information for machine monitoring and control. The information presented uses symbols and is language-independent.

Outputs: Display

Default Display: During normal operation, Evaporator Leaving-Water Temperature is shown.

Set Point Display: The Evaporator Leaving-Water Temperature Set Point is displayed if the **increment** (+) or **decrement** (-) key is pressed. The Evaporator Leaving-Water Set Point will remain on the screen for three seconds after **increment** or **decrement** is released.

Diagnostic and Interlock Display: When in a diagnostic or interlock condition, the front panel will continue to show the default or set point display as appropriate. When in a diagnostic condition (service wrench LED flashes) or interlock condition (interlock LED flashes), simultaneously depressing the increment (+) and decrement (-) keys will cause the most-severe active diagnostic or interlock to be displayed in code for 3-5 seconds, after which the front panel will revert to the Evaporator Leaving-Water Temperature. Only the most-recent diagnostic will be retained. The Trane standard 3-digit diagnostic codes are listed at the end of this section. *The diagnostic readout should be noted and is for the use of Trane service.*

EasyView Interface

Auto LED
The Auto LED is used to indicate the position of the AUTO/STOP keys as though they were a physical toggle switch. When the AUTO key is depressed, the Auto LED will be lit. If the unit cannot enter the Auto mode, that information will be conveyed by the lighting of either the diagnostic LED or the interlock LED. When the STOP key is depressed, the Auto LED will extinguish.

Set Point LED 
The Set Point LED is on solid when the display is showing "Evaporator Leaving-Water Set Point."

Interlock LED 
The interlock LED flashes when there is an interlock condition.

Interlock is used to indicate that the machine is prevented from running, due to an external status that the operator could probably correct, and is not related to a chiller or component failure. The interlock conditions for RTAC are as follows:

Interlock Condition	Code
No Chilled-Water Flow	ED
External Auto/Stop	100
BAS Auto/Stop	300
Low-Ambient Start Inhibit	200

'BAS here and elsewhere in this manual refers to the Trane Tracer™ Equipment Controller.

The interlock LED will stop flashing when the condition that prevents machine operation is corrected. No reset is required.

Service LED 
The service LED flashes when there is a diagnostic that is *not* an interlock condition.

This is the standard diagnostic indication of the machine. **Contact a qualified service agency to correct the problem.** Before calling, press the (+) and (-) keys simultaneously to determine the diagnostic code. Record this code and report it to the service agency. If you suspect that a nuisance trip has occurred, the diagnostic can be reset. (See section on diagnostic reset.)

Inputs:

Increment Key (+)
Pressing the increment key while the set point light is off will cause it to turn on continuously and display the Evaporator Leaving-Water Temperature Set Point for three seconds.

Pressing the increment key while the Set Point light is on will increase it by 0.1 degree (F or C).

Holding the increment key down will increase it repeatedly at a rate of 5°F/sec [2.77°C/sec] until the Set Point is equal to the Evaporator Leaving-Water Set Point machine maximum

Decrement Key (-)
Pressing the decrement key while the set point light is off will cause it to turn on continuously and the display will display the Evaporator Leaving-Water Temperature.

Pressing the decrement key while the Set Point light is on will cause the Set Point to decrease by 0.1 degree (F or C).

Holding the decrement key down will decrease the set point repeatedly at a rate of 2°F/sec [0.56°C/sec] until the set point is equal to the Evaporator Leaving-Water Set Point relative minimum.

AUTO Key (|)
Pressing the AUTO key will send a request to the chiller to turn on. If no other device or condition is preventing the chiller from starting and *there is a need to cool*, the chiller will attempt a start. (See Auto LED and diagnostic reset for further description.)

STOP Key (O)
Pressing the STOP key will send a request to the chiller to stop. The chiller will then begin the shutdown sequence and the Auto LED will extinguish.

EasyView Interface

Diagnostic Reset

If the machine is in a diagnostic condition (LED is flashing), a  transition from Stop to Auto will reset the diagnostic. If the machine is in the Stop State (Auto LED off), depressing the AUTO key will reset all diagnostics. If the machine is in the Auto State (Auto LED on), it must be put in the Stop state and sequenced back to Auto in order to reset.

SI vs. English (I-P)

The Leaving-Water Set Point and the Leaving-Water Temperature are displayed in either SI or English (I-P) units as determined by the appropriate setting within the processor. A right-justified C or F will indicate SI or English.

Power-Up Test

On power-up, a means to test the display and annunciators is required. To demonstrate that all segments and LEDs can be lighted, EasyView will light all segments and annunciators for approximately 2 seconds. To demonstrate that no elements are stuck on, EasyView will turn off all segments and annunciators for approximately 2 seconds. Normal operation will follow.

DynaView Interface

DynaView Interface

The DynaView and EasyView share the same enclosure design: weatherproof and durable plastic for use as a stand-alone device on the outside of the unit or mounted nearby.

The display on DynaView is a 1/4 VGA display with a resistive touch screen and an LED backlight. The display area is approximately 4 inches wide by 3 inches high [102 mm x 60 mm].

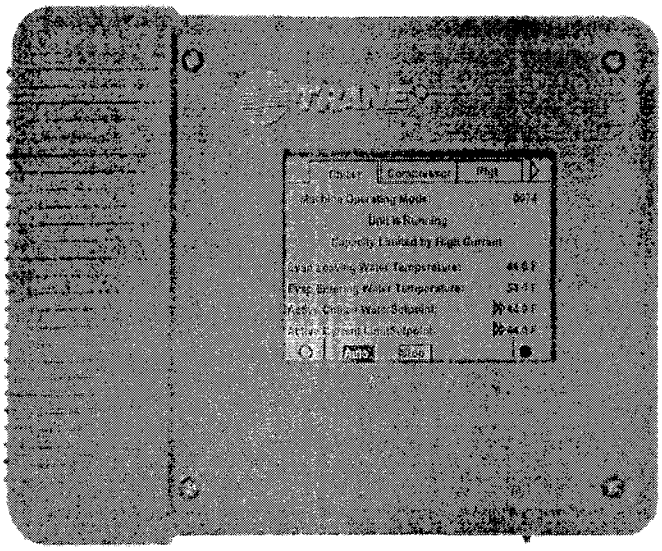
Key Functions

In this touch screen application, key functions are determined completely by software, and change depending upon the subject matter currently being displayed. The basic touch-screen functions are outlined below.

Radio Buttons

Radio buttons show one menu choice among two or more alternatives, all visible. (It is the AUTO button in Figure 2.) The radio-button model mimics the buttons used on old-fashioned radios to select stations. When one is pressed, the one that was previously pressed "pops out" and the new station is selected. In the DynaView model the possible selections are each associated with a button. The selected button is darkened, presented in reverse video to indicate it is the selected choice. The full range of possible choices, as well as the current choice, is always in view.

Figure 2 – DynaView Display



Spin Value Buttons

Spin values are used to allow a variable set point to be changed, such as leaving-water set point. The value increases or decreases by touching the increment (+) or decrement (-) arrows.

Action Buttons

Action buttons appear temporarily and provide the user with a choice such as **Enter** or **Cancel**.

Hot Links

Hot links are used to navigate from one view to another view.

File-Folder Tabs

File-folder tabs are used to select a screen of data. Just like tabs in a file folder, these serve to title the folder or screen selected, as well as to provide navigation to other screens. In DynaView, the tabs are in one row across the top of the display. The folder tabs are separated from the rest of the display by a horizontal line. Vertical lines separate the tabs from each other. The folder that is selected has no horizontal line under its tab, thereby making it look like a part of the current folder (as would an open folder in a file cabinet). The user selects a screen of information by touching the appropriate tab.

Display Screens

The file-folder tabs across the top of the screen are used to select the various display screens.

Scroll arrows are added if more file tabs (choices) are available. When the tabs are at the leftmost position, the left navigator will not show and only navigation to the right will be possible. Likewise, when the rightmost screen is selected, only left navigation will be possible.

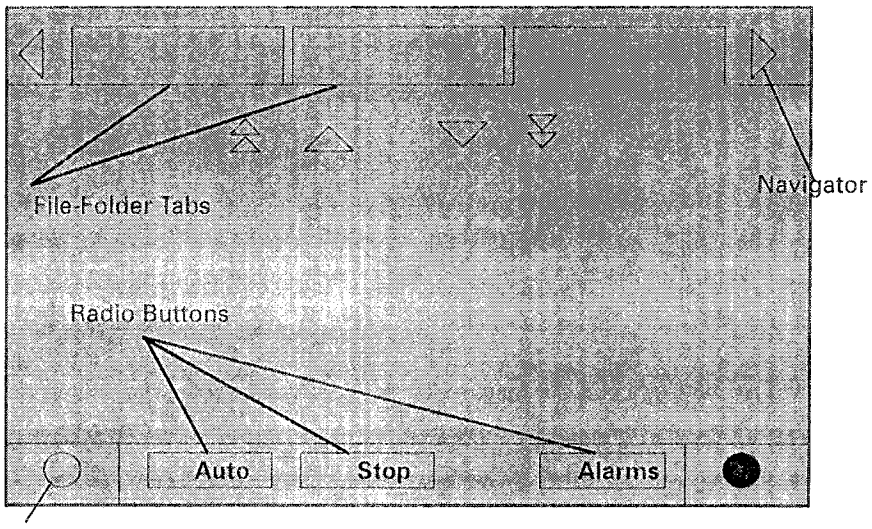
The main body of the screen is used for description text, data, set points, or keys (touch sensitive areas). The Chiller Mode (*see Table 1*) is displayed here.

The double up-arrows and down-arrows cause a page-by-page scroll either up or down. The single arrows cause a line by line scroll to occur. At the end of the page, the appropriate scroll bar will disappear.

Display Screens

Basic Screen Format

The basic screen format appears as:



The bottom of the screen (Fixed Display) is present in all screens and contains the following functions. The **left circular area** is used to reduce the contrast/viewing angle of the display. The **right circular area** is used to increase the contrast/viewing angle of the display.

The other functions are critical to machine operation. The AUTO and STOP keys are used to enable or disable the chiller. The selected key is in black (reverse video). The chiller will stop when the STOP key is touched and after completing the Run Unload mode.

Touching the AUTO key will enable the chiller for active cooling if no diagnostic is present. (A separate action must be taken to clear active diagnostics.)

The AUTO and STOP keys take precedence over the Enter and Cancel keys. (While a setting is being changed, AUTO and STOP keys are recognized even if Enter or Cancel has not been pressed.)

The ALARMS button appears only when an alarm is present, and blinks (by alternating between normal and reverse video) to draw attention to a diagnostic condition. Pressing the ALARMS button takes you to the corresponding tab for additional information.

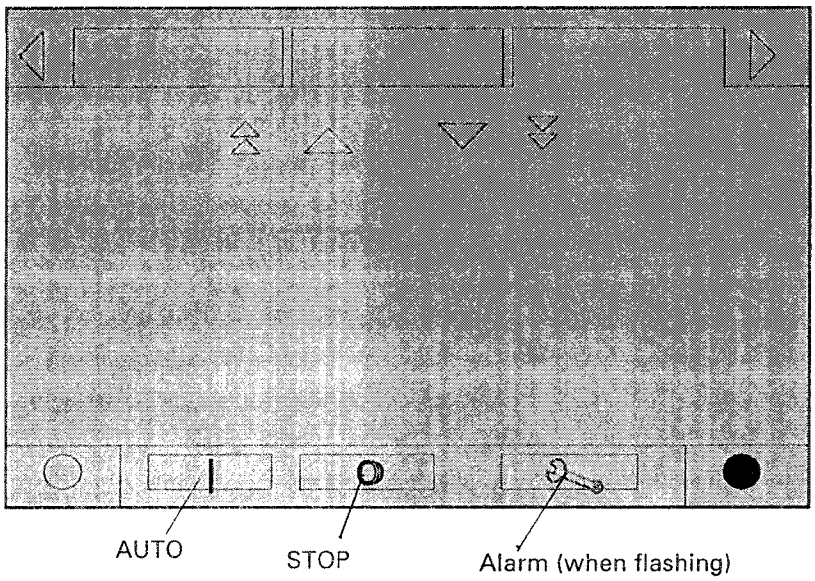
Display Screens

If words are not used on the bottom keys as described (for example AUTO, STOP, ALARMS), the following symbols may be used.

The vertical line indicates AUTO.

The circle indicates STOP.

The wrench flashes when a diagnostic is detected and is used to navigate to the diagnostic screen.

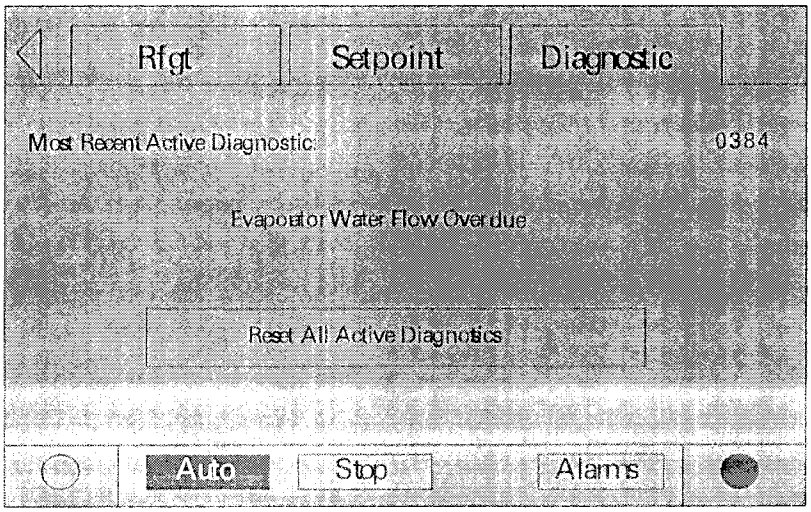


Diagnostic Screen

The diagnostic screen shown is accessible either by pressing the blinking ALARMS key or by pressing the **Diagnostic** tab on the screen tab selection.

A hex code and a verbal description appear on a typical display as shown on the right. This is the last active diagnostic. Touching "Reset All Active Diagnostics" will reset all active diagnostics regardless of type, machine, or refrigerant circuit. Compressor diagnostics, which hold off only one compressor, are treated as circuit diagnostics, consistent with the circuit to which they belong. One circuit not operating will not shut the chiller down. Viewing the "Compressor" screen will indicate whether a circuit is not operating and for what reason.

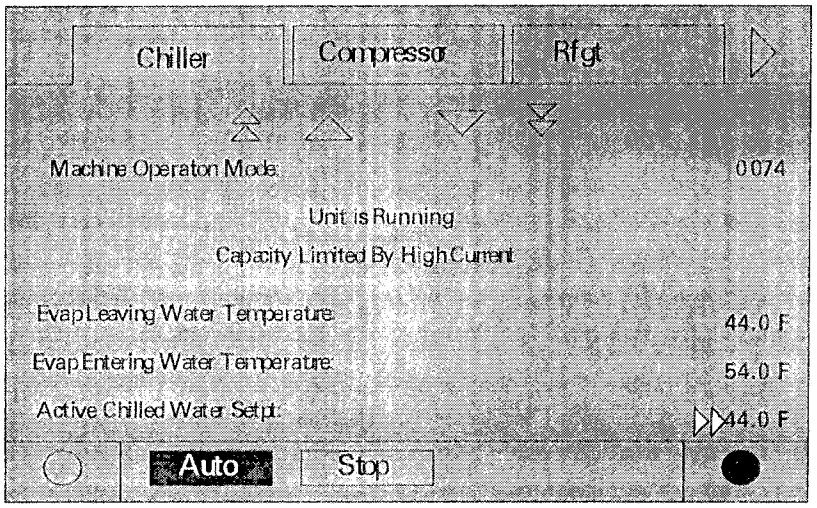
A complete listing of diagnostics and codes is included at the end of this section.

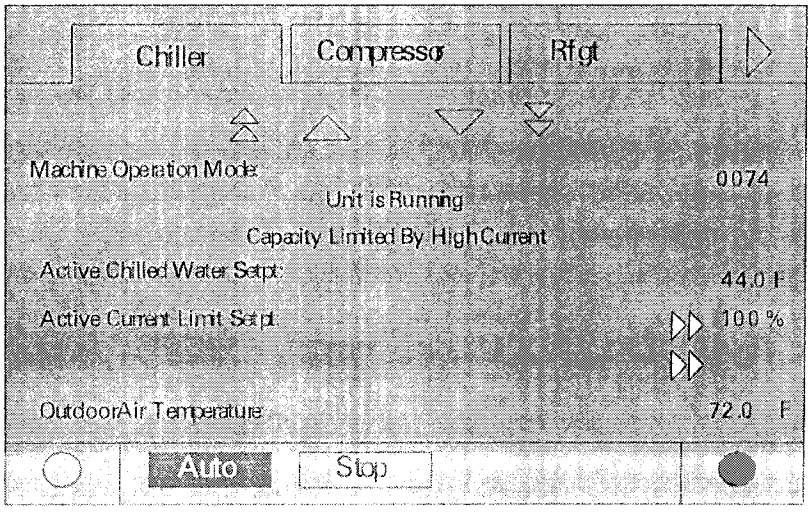


Display Screens

Chiller Screen

The chiller screen is a summary of the chiller activity as shown below.





The machine operating mode indicates the status of the chiller (see Table 1).

The leaving-water temperature is displayed to 0.1°F or °C.

The entering-water temperature is displayed to 0.1°F or °C.

The **active chilled-water set point** is displayed to 0.1°F or °C. Touching the double arrow to the left of the Active Chilled-Water Set Point will take you to the active chilled-water set point subscreen.

The **active current-limit set point** is displayed. Touching the double arrow to the left of the Active Current-Limit Set Point will take you to the set point subscreen.

Display Screens

The following is a list of the chiller and compressor operating modes for the RTAC chiller.

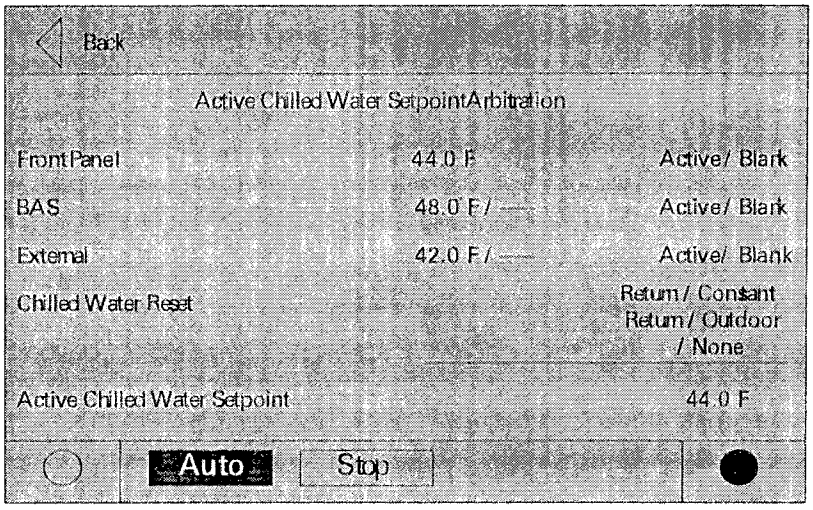
Table 1 – Chiller and Compressor Operating Modes

Chiller Modes
Resetting
Local Stop
Auto Waiting for Evaporator Water Flow
Compressors Locked Out
Starting is Inhibited by Remote Device
Starting is Inhibited by External Source
Starting is Inhibited by Low Ambient Temperature
Starting is Inhibited by BAS
Diagnostic Shutdown: Stop
Diagnostic Shutdown: Auto
Auto Waiting for Need to Cool
Waiting For BAS Communications To Establish Operating Status
Starting is Inhibited by Restart Timer
Unit is Starting
Unit Is Running
Unit Is Running Capacity Limited By High Current
Unit Is Running Capacity Limited By Phase Unbalance
Unit Is Running Capacity Limited By High Condenser Pressure
Unit Is Running Capacity Limited By Low Evaporator Temperature
Unit is Running Establishing Minimum Capacity Limit
Unit Is Preparing To Shut down
Unit Is Building Ice
Unit Is Building Ice Capacity Limited By High Current
Unit Is Building Ice Capacity Limited By Phase Unbalance
Unit Is Building Ice Capacity Limited By High Condenser Pressure
Unit Is Building Ice Capacity Limited By Low Evaporator Temperature
Ice-Building Is Complete
Starter Dry Run
Compressor Modes
Stopped
Locked Out
Service Pumpdown
Restart Inhibit
Starting
Running
Running Capacity Limited By High Current
Running Capacity Limited By Phase Unbalance
Running Capacity Limited By High Condenser Pressure
Running Capacity Limited By Low Evaporator Temperature
Running Establishing Minimum Capacity Limit
Preparing to Shut Down
Diagnostic Shutdown

Display Screens

Active Chilled-Water Subscreen

The active chilled-water set point is that set point to which the unit is currently controlling. It is determined by the front panel, Tracer, or external set points, which in turn may be subject to a form of chilled-water reset.



The chilled-water reset status area in the rightmost column will display one of the following messages

- Return
- Constant Return
- Outdoor
- None

The left column text "Front Panel," "BAS," External," and "Active Chilled-Water Set Point" will always be present. In the second column, "_ _ _ _" will be shown if that option is not installed.

Pressing the "Back" button navigates back to the chiller screen.

Active Current-Limit Set Point

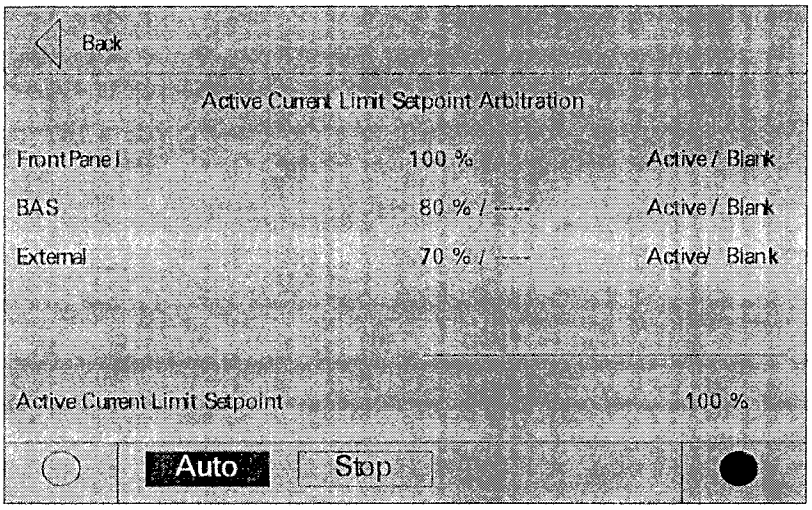
The active current-limit set point is the set point that is currently in use displayed in % RLA. Touching the double arrow to the left of the Active Current-Limit Set Point will change the display to the active current-limit set point subscreen.

Display Screens

Active Current-Limit Subscreen

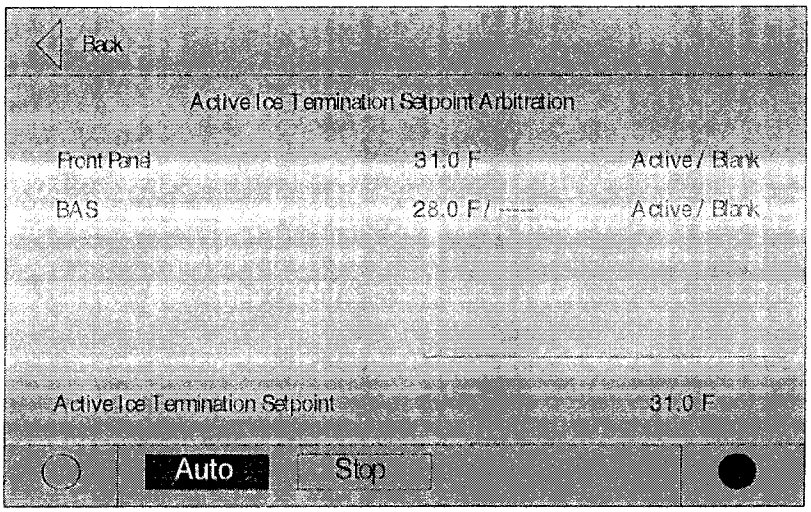
The active current-limit set point is that set point to which the unit is currently controlling, based on the front panel, Tracer, or external set points.

The left column text "Front Panel," "BAS," "External," and "Active Current-Limit Set Point" will always be present. In the second column, "____" will be shown if that option is not installed.



Active Ice-Termination Subscreen

The "Back" button provides navigation back to the chiller screen.



Display Screens

Refrigerant Screen

The refrigerant screen displays those aspects of the chiller related to the refrigerant circuits. All pressures are displayed to 0.1 psig or 1 kPa.

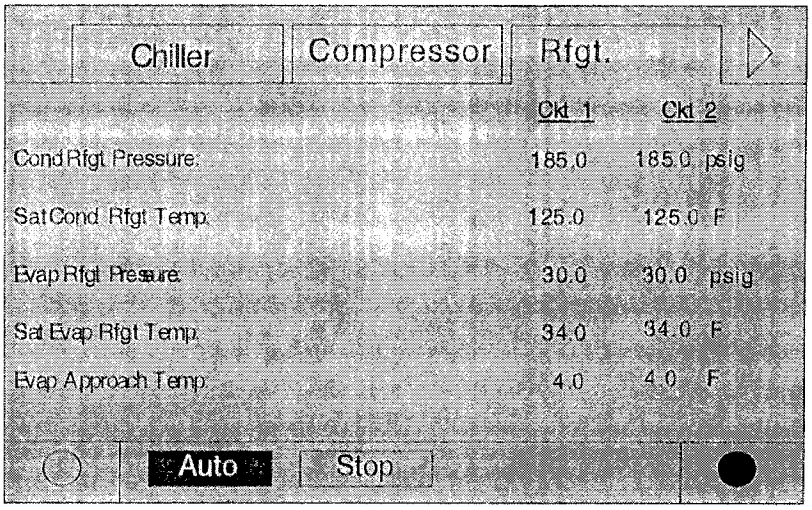
Condenser Refrigerant Pressure Circuit 1 and 2
(Gauge pressure)

Condenser Refrigerant Temperature Circuit 1 and 2
The main processor will read a saturated temperature, converted from the appropriate pressure.

Evaporator Refrigerant Pressure Circuit 1 and 2
(Gauge pressure)

Evaporator Refrigerant Temperature Circuit 1 and 2
The main processor will read a saturated temperature, converted from the appropriate pressure.

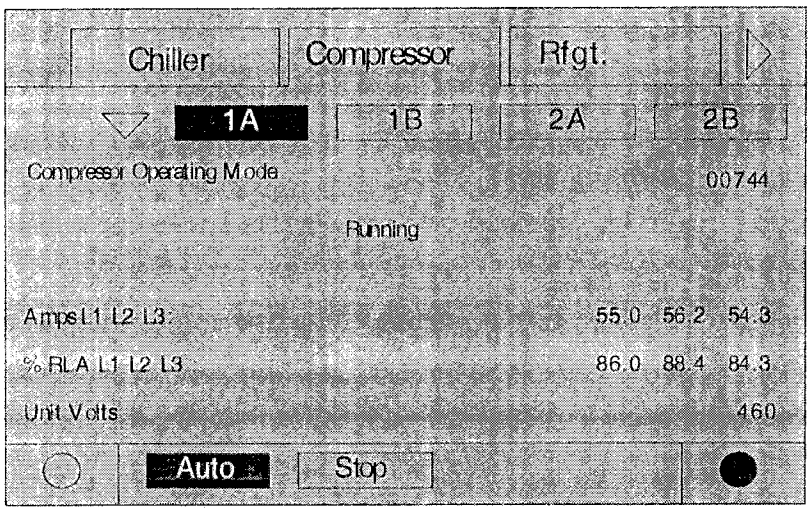
Evaporator Approach Temperature Circuit 1 and 2
(Leaving-water temperature minus the saturated-evaporator temperature)



Display Screens

Compressor Screen

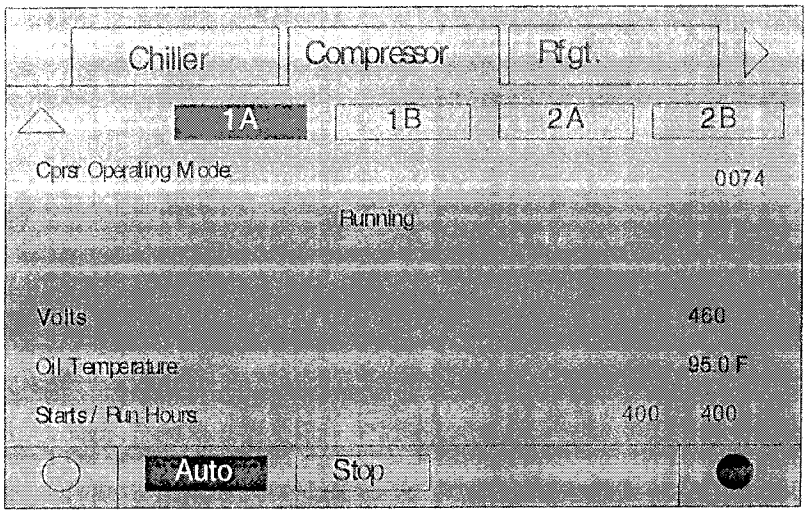
The compressor screen displays information for the one, two, three, or four compressors in the format shown. The top line of radio buttons allows you to select the compressor of interest. The next three lines are the compressor operating mode. The compressor radio buttons and the compressor operating mode lines do not change as you scroll down in the menu.



The top screen has no upward scroll keys. The single arrow down scrolls the screen one line at a time. As soon as the display is one line away from the top, the upward pointing arrow appears.

The last screen has a single arrow to scroll upward one line at a time. When in the last position, the single down arrow disappears.

Each compressor has its own screen depending on which radio key is pressed. When toggling between compressor screens, for instance, to compare starts and run time, the same lines will be seen without additional key strokes. For example, toggling from the bottom of the compressor 1A menu accesses the bottom of the compressor 2A menu.



Display Screens

Compressor Mode
The compressor mode indicates the status of each compressor, independent of unit mode.

See *Table 1* for a complete listing of compressor modes.

Line Currents
Line currents are displayed in amperes to the nearest tenth from 0.0 to 999.9.

% RLA
The line % running load amperes will be displayed to the nearest tenth from 0.0 to 999.9.

Line-Line Voltages
The single line-to-line voltage displayed is A-B in unit volts.

Oil Temperature
The oil temperature is displayed for each compressor.

In a two-compressor circuit there are two oil temperature sensors, one per compressor if oil coolers are installed (as required by operating conditions). If oil coolers are not installed, there is only one oil temperature sensor per circuit. In the latter case, one oil temperature is shown for each compressor, each showing the same temperature.

Compressor Starts
Compressor starts are displayed 0 to 999,999.

Compressor Run Hours
Compressor running hours will be rounded to the nearest hour, 0 to 999,999.

Set Point Screen

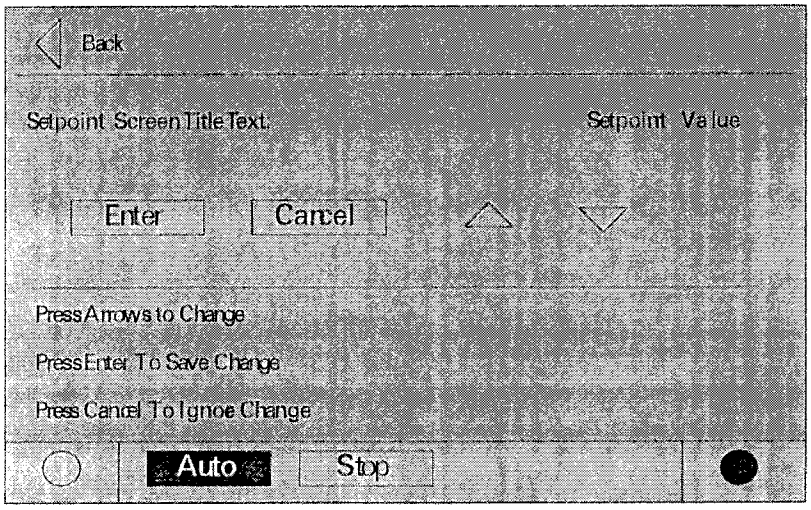
The set point screen is a two-part screen. Screen 1 lists all changeable set points along with their current value. You can select a set point by touching either the verbal description or set point value. Doing this causes the screen to switch to Screen 2.

Screen 2 displays the current value of the chosen set point in the upper half of the display, in a changeable format depending on the type. Binary set points use radio buttons. Analog set points are displayed as spin buttons. The lower half of the screen is reserved for help screens.

Display Screens

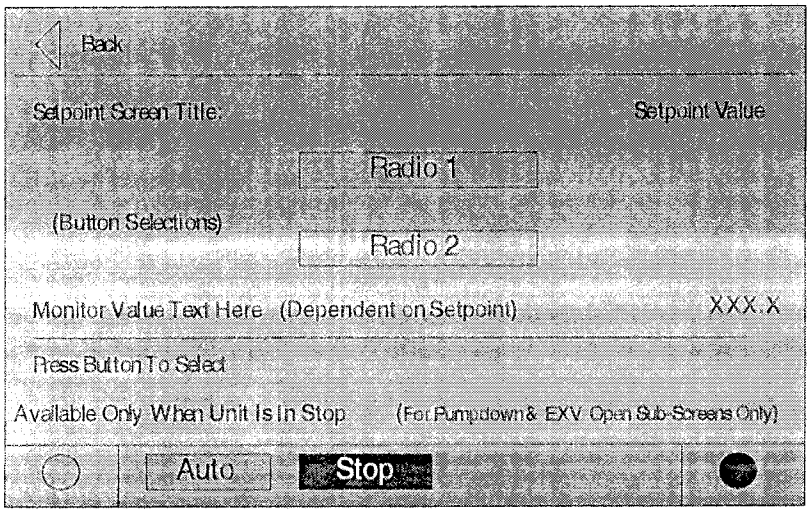
Analog Set Point Subscreen

All set point subscreens will execute the equivalent of a Cancel key if any action or key is pressed before a new set point is entered. All set point subscreens will have a 10-minute time-out, which is reset when any key activity occurs. After 10 consecutive minutes of inactivity, the set point subscreen will return to the first chiller screen.



Enumerated Set Points Subscreen

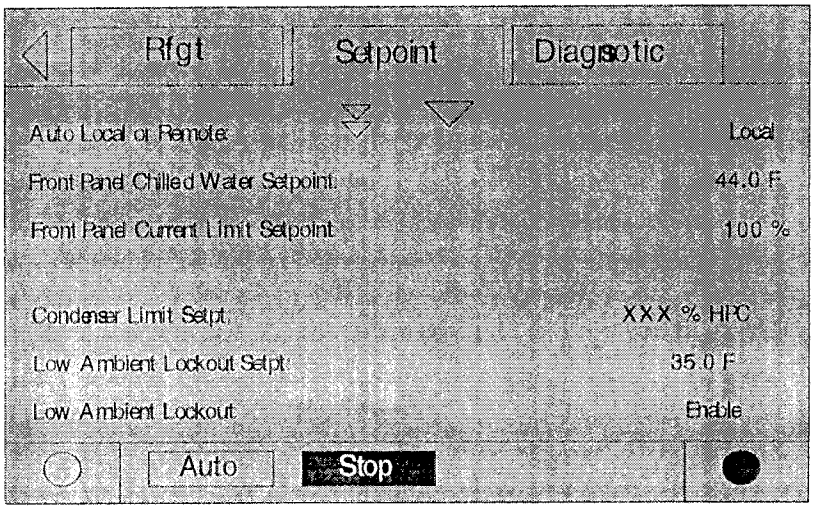
This subscreen is activated by pressing one of the two radio keys:



Display Screens

Set Point List Screen

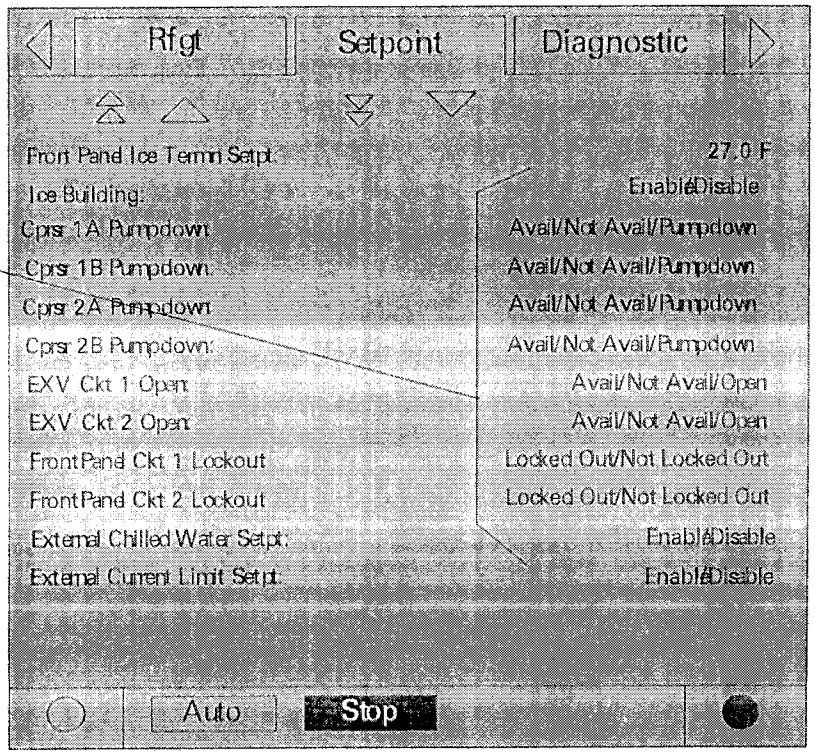
The following set points can be reviewed or changed:



Set Point Screen – Top

The remote devices identified on the following set point screen are discussed in the unit's installation-operation-maintenance manual.

All set point options shown. Only one condition will appear. See Table 2.



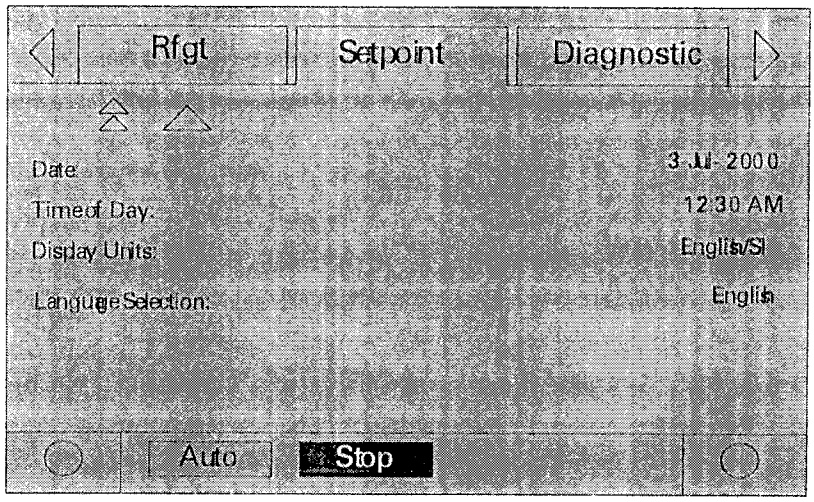
Set Point Screen – Middle

Display Screens

Table 2 – Set Point Options and Conditions Displayed

Option	Condition(s)	Explanation
Ice Building	Enable/Disable	If the feature is installed, operation can be initiated or stopped.
Compressor Pumpdown[1]	Available	Pumpdown is allowed: only with the unit in Stop or when the circuit is locked out.
	Not Available	Pumpdown is not allowed because the unit is operating or pumpdown has been completed.
	Pumpdown	State is displayed while pumpdown is in progress.
EXV Circuit Open (For Authorized Service Use Only[2])	Available	Indicates the EXV is closed but can be opened manually since the unit is in Stop or the circuit is locked out.
	Not Available	EXV is closed but cannot be opened manually because the unit is operating.
	Open	State is displayed when EXV is open. The unit will not start with EXV manually set open, but will initiate valve closure first.
Circuit Lockout	Locked Out	The circuit is locked out at Front Panel; the other circuit may be available to run.
	Not Locked Out	The circuit is not locked out and is available to run.
External Chilled-Water Set Point	Enable/Disable	Allows the unit to control the set point; otherwise another loop controller in line will control, as optionally wired.
External Current-Limit Set Point	Enable/Disable	Allows the unit to control the set point; otherwise another loop controller in line will control, as optionally wired.

Notes:
1. Pumpdown procedures are discussed in the Maintenance section.
2. Used for liquid-level control or to recover from pumpdown.



Set Point Screen – Bottom

Display Screens

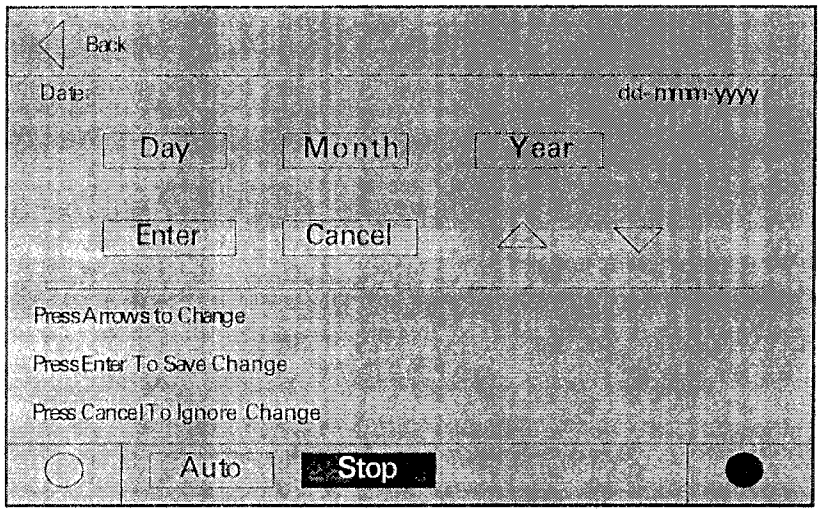
Table 3 – Set Point Subscreens – Table of Text, Data, Ranges, and so forth

			Button Selections		
Set Point Screen Title	Resolution	Set Point Field	Radio 1	Radio 2	Monitor Value
Auto Local or Remote			Remote	Local	
Front Panel CWS	(3)	+ or – XX.X			
Front Panel CLS	Integer (4)	XXX			
Condenser Limit Set Point	Integer (4)	XXX			
Low-Ambient Lockout Set Point	(3)	+ or – XX.X			
Low-Ambient Lockout			Enable	Disable	
Ice Building			Enable	Disable	
Front Panel Ice-Termination Set Point	(3)	+ or – XX.X			
Compressor 1A Pumpdown (6)			Pumpdown (1)	Abort	Compressor 1A Suction Pressure
Compressor 1B Pumpdown (6)			Pumpdown (1)	Abort	Compressor 1B Suction Pressure
Compressor 2A Pumpdown (6)			Pumpdown (1)	Abort	Compressor 2A Suction Pressure
Compressor 2B Pumpdown (6)			Pumpdown (1)	Abort	Compressor 2B Suction Pressure
EXV Circuit 1 Open (6)			Open (1)	Auto	Circuit 1 Evaporator Pressure
EXV Circuit 2 Open (6)			Open (1)	Auto	Circuit 2 Evaporator Pressure
Circuit 1 Lockout			Enable	Disable	
Circuit 2 Lockout			Enable	Disable	
External Chilled-Water Set Point			Enable	Disable	
External Current-Limit Set Point			Enable	Disable	
Date	(5)	(5)			
Time of Day	(5)	(5)			
Display Units			English (I-P)	SI	
Language			Selection 1 (2)	Selection 2 (2)	

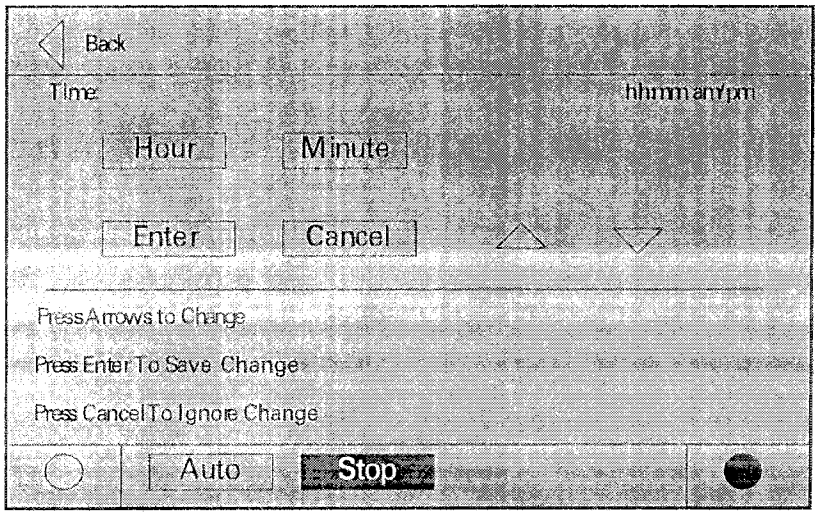
Notes:
(1) Button is reverse video while the function is active and then returns to normal.
(2) Language choices are dependent on what the Service Tool has set up in the Main Processor. Get Radio Button names from Main Processor setups.
(3) Temperatures will be adjustable to 0.1°F or °C or 1°F or C, depending on the resolution setting adjustable through the Service Tool. The Main Processor will provide the minimum and maximum allowable value.
(4) Adjustable to nearest integer or whole %. The Main Processor will provide the minimum and maximum allowable value.
(5) The Date and Time setup screen formats deviate slightly from the standard screens defined above. See the alternate screen layouts on the next page.
(6) The subscreen for these set points will have the additional direction "Available Only When Unit Is In Stop."

Display Screens

The set point screen for setting up the CH.530 date is shown below: Select **Month, Day, or Year** and then use the up/down arrows to adjust.



The set point screen for setting up the CH.530 time with a 12-hour format is shown below: Select **Hour, Minute, or AM/PM** and then use the up/down arrows to adjust.



Power Up and Self Tests

On power up, a screen will be displayed for 5 seconds, giving an operator the ability to enter the test mode or the demo mode.

Display Screens

Power-up EasyView

Scenario Number1: On Power-up, EasyView will progress through two screens if an application is not present.

First Screen, Version number of the Boot, only the version number extension is displayed.
This screen will display for 3-5 seconds and move on to the second screen.

Second Screen, Application or No Application.
This screen will display "-APP" for as long as it remains powered.

Scenario Number 2: On Power-up, EasyView will progress through five screens if an application is present.

First Screen, Version number of the Boot, only the version number extension is displayed.
This screen will display for 3-5 seconds and move on to the second screen.

Second Screen, Application or No Application. This screen will display "APP" for 3-5 seconds and move on to the third screen.

Third screen, First screen of the Application, segment and LED test.
This screen will turn on all LEDs and segments for 3-5 seconds and move on to the fourth screen.

Fourth Screen, splash screen.
This screen will display CH.530 for 3-5 seconds and move on to the fifth screen.

Fifth Screen, the Leaving-Water Temperature.

Power-up DynaView

On Power-up, DynaView will progress through three screens:

First Screen, Version number of the Boot, full version number displayed.
This screen will display for 5 seconds and move on to the second screen. The contrast will also be adjustable from this screen.

Second Screen, Application or No Application.
This screen will display for 5 seconds "A Valid Application Is Present" or "A Valid Application Is Not Present" and move on to the third screen.

Third Screen, First screen of the Application, the Chiller Tab.

Self Tests

On Power-Up, the CH. 530 runs self tests. Error messages that appear should be recorded and reported to a qualified service agency to include "ERR1" or "ERR2" messages on EasyView and a "RAM ERROR" or "Un-Recoverable Error" message on DynaView. Failure may result in flashing of all the LEDs on EasyView and flashing of the backlight on DynaView.

Display Formats

Units
Temperature settings are in °F or °C, depending on Display Units settings. Settings can be entered in tenths or whole degrees depending on a menu setting at the TechView.

Dashes ("-----") appearing in a temperature or pressure report indicate that the value is invalid or not applicable.

Languages
Two languages may be used with DynaView and will reside in the main processor. The main processor will hold two languages, and English does not have to be one of them. When a complex-character language such as Chinese is chosen, an alternate font can be downloaded to the DynaView.

Display Screens

TechView Interface

TechView is the PC (laptop)-based tool used for servicing Tracer CH.530. Technicians that make any chiller-control modification or service any diagnostic with Tracer CH.530 must use a laptop running the software application "TechView." *TechView is a Trane application developed to minimize chiller downtime and aid the technicians' understanding of chiller operation and service requirements.*

Performing any Tracer CH.530 service functions should be done only by a properly-trained service technician. Please contact your local Trane service agency for assistance with any service requirements.

TechView software is available via Trane.com (http://www.trane.com/commercial/software/Tracer CH530/), and provides a user the TechView installation software and CH.530 main processor software that must be loaded onto your PC in order to service a CH.530 main processor.

The TechView service tool is used to load software into the Tracer CH.530 main processor (DynaView or EasyView). TechView is also used to perform any CH.530 service or maintenance function. Servicing a CH.530 main processor includes:

- updating main-processor software
- monitoring chiller operation
- viewing and resetting chiller diagnostics
- Low-Level Intelligent Device (LLID) replacement and binding
- main-processor replacement and configuration modifications
- set point modifications
- service overrides

Software Download Process

Important Installation Instructions:
First Time Users:

1. Proceed to the "TechView Software Download" page and download the latest version of TechView, Java Runtime Environment, and emGateway installation files. These files should be stored in a folder named "CH.530" so they are easy to locate.
2. Using the file manager in your PC, locate the files you just downloaded.
3. Install Java Runtime Environment on your PC by running the loaded "JRE_VXXX.exe" file. For example, locate the "JRE_VXXX.exe" file on your PC, then double-left-click the file to execute the install program. Then follow the installation prompts.
4. Install emGateway on your PC by running the loaded "*emG_VXXX.exe" file. For example, locate the "emG_VXXX.exe" file on your PC, then double-left-click the file to execute the install program. Then follow the installation prompts.
5. Install TechView on your PC by running the loaded "TV_VXXX.exe" file. For example, locate the "TV_VXXX.exe" file on your PC, then double left-click the file to execute the install program. Then follow the installation prompts.
6. Connect your PC to the CH.530 main processor using a standard 9-pin male/9-pin female RS-232 cable.
7. Run TechView software by selecting the TechView icon placed on your desktop during the installation process. The "Help...About" menu can be viewed to confirm proper installation of latest versions.

Note: An installation of TechView includes the set of chiller main-processor software files available on that date of the TechView release. It would be necessary to select a chiller main processor only if a later version of chiller main-processor software were released. The version of chiller main-processor software available in TechView can be determined from the Software Download View screen within TechView.

Display Screens

Diagnostics

The following Diagnostic Table contains all possible diagnostics, arranged alphanumerically by the three-digit code assigned to each diagnostic. Not all data is available unless TechView is installed.

Legend to Diagnostics Table

Hex Code:
3-digit code used to uniquely identify diagnostics.

Diagnostic Name:
Name of the diagnostic as it appears at DynaView and/or TechView displays.

Effects:
Defines whether the entire chiller, the circuit or the compressor is affected by this diagnostic. *None* implies that there is no direct effect on the chiller operation.

Severity:
Defines the action resulting from the above effect. *Immediate* means an instantaneous shutdown of the affected portion. *Normal* means routine or friendly shutdown of the affected portion. *Special Mode* means a particular mode of operation is invoked, but without shutdown, and *Info* means an Informational Note or Warning is generated.

Reset:
Defines whether or not the diagnostic and its effects are to be manually reset (latched), or can be either manually or automatically reset (non-latched).

Active Modes [Inactive Modes]:
States the modes or periods of operation during which the diagnostic is active and, as necessary, those modes or periods that it is specifically not active as an exception to the active modes. The inactive modes are enclosed in brackets [ ].

Criteria:
Quantitatively defines the criteria used in generating the diagnostic and, if non-latching, the criteria for auto-reset.

Reset Level:
Defines the lowest level of manual diagnostic reset command that can clear the diagnostic. The manual diagnostic reset levels in order of priority are: local, remote, and info. For example, a diagnostic that has a reset level of remote can be reset by either a remote diagnostic-reset command or by a local diagnostic-reset command, but not by the lower priority info-reset command.

Help Text:
A brief description of what kind of problems might cause this diagnostic to occur.

Display Screens

Table 4 – Possible Diagnostics

Hex Code	Diagnostic Name	Affects	Severity	Reset	Active Modes [Inactive Modes]	Criteria	Reset Level
180 or F0	Starter Did Not Transition - Compressor 1A	Compressor	Immediate	Latch	On the first check after transition.	The Starter Module did not receive a transition complete signal in the designated time from its command to transition. The design trip time is 2.5 seconds. This diagnostic is active only for Y-Delta, Auto-Transformer, Primary Reactor, and X-Line Starters	Local
181	Starter Did Not Transition - Compressor 1B	Compressor	Immediate	Latch	On the first check after transition.	The Starter Module did not receive a transition complete signal in the designated time from its command to transition. The must-hold time from the Starter Module transition command is 1 second. The must-trip time from the transition command is 6 seconds. The actual design trip time is 2.5 seconds. This diagnostic is active only for Y-Delta, Auto-Transformer, Primary Reactor, and X-Line Starters. Same as for Compressor 1A.	Local
182	Starter Did Not Transition - Compressor 2A	Compressor	Immediate	Latch	On the first check after transition.	Same as for Compressor 1A	Local
183	Starter Did Not Transition - Compressor 2B	Compressor	Immediate	Latch	On the first check after transition.	Same as for Compressor 1A	Local
184 or E5	Phase Reversal - Compressor 1A	Compressor	Immediate	Latch	Compressor energized to transition command [All Other Times]	A phase reversal was detected on the incoming current. On a compressor startup, the phase-reversal logic must detect and trip within 0.3 seconds after compressor start.	Local
185	Phase Reversal - Compressor 1B	Compressor	Immediate	Latch	Compressor energized to transition command [All Other Times]	Same as for Compressor 1A	Local
186	Phase Reversal - Compressor 2A	Compressor	Immediate	Latch	Compressor energized to transition command [All Other Times]	Same as for Compressor 1A	Local
187	Phase Reversal - Compressor 2B	Compressor	Immediate	Latch	Compressor energized to transition command [All Other Times]	Same as for Compressor 1A	Local
188	Starter Dry Run Test	Compressor	Immediate	Latch	Starter Dry Run Mode	While in the Starter Dry-Run Mode, either 50% line voltage was sensed at the potential transformers or 10% RLA current was sensed through the current transformers.	Local

Display Screens

Hex Code	Diagnostic Name	Affects	Severity	Reset	Active Modes (Inactive Modes)	Criteria	Reset Level
19C	Phase Loss - Compressor 1A	Compressor	Immediate	Latch	Start Sequence and Run modes	a.) No current was sensed on one or two of the current-transformer inputs while running or starting. Design trip level is 10% RLA. The design trip time is 2.64 seconds. b.) If phase-reversal protection is enabled and current is not sensed on one or both current transformer inputs, logic will detect and trip in a maximum of 0.3 seconds after compressor start.	Local
19D	Phase Loss - Compressor 1B	Compressor	Immediate	Latch	Start Sequence and Run modes	Same as for Compressor 1A	Local
19E	Phase Loss - Compressor 2A	Compressor	Immediate	Latch	Start Sequence and Run modes	Same as for Compressor 1A	Local
19F	Phase Loss - Compressor 2B	Compressor	Immediate	Latch	Start Sequence and Run modes	Same as for Compressor 1A	Local
1A0	Power Loss - Compressor 1A	Compressor	Immediate	Non-Latch	All compressor running modes (all compressor starting and non-running modes)	The compressor had previously established currents while running, and then all three phases of current were lost. The trip level is less than 10% RLA, the trip time is 2.64 seconds. This diagnostic will preclude the Phase Loss Diagnostic and the Transition Complete Input Opened Diagnostic from being called out. To prevent this diagnostic from occurring with the intended disconnect of main power, the minimum time-to-trip must be greater than the guaranteed reset time of the Starter module. Note: This diagnostic prevents nuisance latching diagnostics due to a momentary power loss – it does not protect the motor and compressor from uncontrolled power reapplication. See Momentary Power Loss Diagnostic for this protection. This diagnostic is not active during the start mode before the transition-complete input is proven. Thus, a random power loss during a start would result in either a "Starter Fault Type 3" or a "Starter Did Not Transition" latching diagnostic.	Remote
1A1	Power Loss - Compressor 1B	Compressor	Immediate	Non-Latch	All compressor running modes (all compressor starting and non-running modes)	Same as for Compressor 1A	Remote
1A2	Power Loss - Compressor 2A	Compressor	Immediate	Non-Latch	All compressor running modes (all compressor starting and non-running modes)	Same as for Compressor 1A	Remote
1A3	Power Loss - Compressor 2B	Compressor	Immediate	Non-Latch	All compressor running modes (all compressor starting and non-running modes)	Same as for Compressor 1A	Remote

Display Screens

Hex Code	Diagnostic Name	Affects	Severity	Reset	Active Modes [Inactive Modes]	Criteria	Reset Level
1B2	Severe Phase Unbalance - Compressor 1A	Circuit	Immediate	Latch	All Running Modes	A 40% Phase Current Unbalance has been detected on one phase, relative to the average of all 3 phases, for 90 continuous seconds.	Local
1B3	Severe Phase Unbalance - Compressor 1B	Circuit	Immediate	Latch	All Running Modes	Same as for Compressor 1A	Local
1B4	Severe Phase Unbalance - Compressor 2A	Circuit	Immediate	Latch	All Running Modes	Same as for Compressor 1A	Local
1B5	Severe Phase Unbalance - Compressor 2B	Circuit	Immediate	Latch	All Running Modes	Same as for Compressor 1A	Local
1E9	Starter Fault Type I - Compressor 1A	Compressor	Immediate	Latch	Starting - Y Delta Starters Only	This is a specific starter test in which 1M (1K1) is closed first and a check is made to ensure that there are no currents detected by the CTs. If currents are detected when only the 1M contactor is closed first at start, then one of the other contactors is shorted.	Local
1EA	Starter Fault Type I - Compressor 1B	Compressor	Immediate	Latch	Starting - Y Delta Starters Only	Same as for Compressor 1A	Local
1EB	Starter Fault Type I - Compressor 2A	Compressor	Immediate	Latch	Starting - Y Delta Starters Only	Same as for Compressor 1A	Local
1EC	Starter Fault Type I - Compressor 2B	Compressor	Immediate	Latch	Starting - Y Delta Starters Only	Same as for Compressor 1A	Local
1ED	Starter Fault Type II - Compressor 1A	Compressor	Immediate	Latch	Starting - All types of starters	a. This is a specific starter test in which the Shorting Contactor (1K3) is individually energized and a check is made to ensure that there are no currents detected by the CTs. If current is detected when only the 1K3 is energized at Start, then the 1M contactor is shorted. b. This test in a. above applies to all forms of starters (Note: It is understood that many starters do not connect to the Shorting Contactor.).	Local
1EE	Starter Fault Type II - Compressor 1B	Compressor	Immediate	Latch	Starting - All types of starters	Same as for Compressor 1A	Local
1EF	Starter Fault Type II - Compressor 2A	Compressor	Immediate	Latch	Starting - All types of starters	Same as for Compressor 1A	Local
1F0	Starter Fault Type II - Compressor 2B	Compressor	Immediate	Latch	Starting - All types of starters	Same as for Compressor 1A	Local
1F1	Starter Fault Type III - Compressor 1A	Compressor	Immediate	Latch	Starting [Adaptive Frequency Starter Type]	As part of the normal start sequence to apply power to the compressor, the Shorting Contactor (1K3) and then the Main Contactor (1K1) were energized. 1.6 seconds later there were no currents detected by the CTs for the last 1.2 seconds on all three phases. The test above applies to all forms of starters except Adaptive Frequency Drives.	Local
1F2	Starter Fault Type III - Compressor 1B	Compressor	Immediate	Latch	Starting [Adaptive Frequency Starter Type]	Same as for Compressor 1A	Local
1F3	Starter Fault Type III - Compressor 2A	Compressor	Immediate	Latch	Starting [Adaptive Frequency Starter Type]	Same as for Compressor 1A	Local
1F4	Starter Fault Type III - Compressor 2B	Compressor	Immediate	Latch	Starting [Adaptive Frequency Starter Type]	Same as for Compressor 1A	Local

Display Screens

Hex Code	Diagnostic Name	Affects	Severity	Reset	Active Modes [Inactive Modes]	Criteria	Reset Level
5A4	Compressor 1A Did Not Accelerate Normally: Forced Transition	None	Info	Latch	Start Mode	a. The compressor did not come up to speed (get to <85% RLA) in the allotted time defined by the Maximum Acceleration Timer. b. The configuration defined "Transition or Bypass" as the action when the Maximum Acceleration Timer was exceeded.	Info
5A5	Compressor 1B Did Not Accelerate Normally: Forced Transition	None	Info	Latch	Start Mode	Same as for Compressor 1A	Info
5A6	Compressor 2A Did Not Accelerate Normally: Forced Transition	None	Info	Latch	Start Mode	Same as for Compressor 1A	Info
5A7	Compressor 2B Did Not Accelerate Normally: Forced Transition	None	Info	Latch	Start Mode	Same as for Compressor 1A	Info
5A8	Compressor 1A Did Not Accelerate Normally: Shutdown	Circuit	Immediate	Latch	Start Mode	a. The compressor did not come up to speed (get to <85%RLA) in the allotted time defined by the Maximum Acceleration Timer. b. The TechView setups defined "Shutdown" as the action to take when the Maximum Acceleration Timer was exceeded.	Local
5A9	Compressor 1B Did Not Accelerate Normally: Shutdown	Circuit	Immediate	Latch	Start Mode	Same as for Compressor 1A	Local
5AA	Compressor 2A Did Not Accelerate Normally: Shutdown	Circuit	Immediate	Latch	Start Mode	Same as for Compressor 1A	Local
5AB	Compressor 2B Did Not Accelerate Normally: Shutdown	Circuit	Immediate	Latch	Start Mode	Same as for Compressor 1A	Local
5AC	Transition Complete Input Shorted – Compressor 1A	Compressor	Immediate	Latch	Prestart	The Transition Complete input was found to be shorted before the compressor was started. This is active for all electromechanical starters.	Local
5AD	Transition Complete Input Shorted – Compressor 1B	Compressor	Immediate	Latch	Prestart	Same as for Compressor 1A	Local
5AE	Transition Complete Input Shorted – Compressor 2A	Compressor	Immediate	Latch	Prestart	Same as for Compressor 1A	Local
5AF	Transition Complete Input Shorted – Compressor 2B	Compressor	Immediate	Latch	Prestart	Same as for Compressor 1A	Local
5B0	Transition Complete Input Opened – Compressor 1A	Compressor	Immediate	Latch	All running modes	The Transition Complete input was found to be open, with the compressor motor running, after a successful completion of transition. This is active only for Y-Delta, Auto-Transformer, Primary Reactor, and X-Line Starters. To prevent this diagnostic from occurring as the result of a power loss to the contactors, the minimum time to trip must be greater than the trip time for the power-loss diagnostic.	Local

Display Screens

Hex Code	Diagnostic Name	Affects	Severity	Reset	Active Modes (Inactive Modes)	Criteria	Reset Level
5B1	Transition Complete Input Opened – Compressor 1B	Compressor	Immediate	Latch	All running modes	Same as for Compressor 1A	Local
5B2	Transition Complete Input Opened – Compressor 2A	Compressor	Immediate	Latch	All running modes	Same as for Compressor 1A	Local
5B3	Transition Complete Input Opened – Compressor 2B	Compressor	Immediate	Latch	All running modes	Same as for Compressor 1A	Local
BA or EC	Overload Trip - Compressor 1A	Circuit	Immediate	Latch	Compressor Energized	Compressor current exceeded overload time vs. trip characteristic. For A/C products Must Trip = 140% RLA, Must Hold=125%, Nominal Trip 132.5% in 30 seconds.	Local
BB	Overload Trip - Compressor 1B	Circuit	Immediate	Latch	Compressor Energized	Same as for Compressor 1A	Local
BC	Overload Trip - Compressor 2A	Circuit	Immediate	Latch	Compressor Energized	Same as for Compressor 1A	Local
BD	Overload Trip - Compressor 2B	Circuit	Immediate	Latch	Compressor Energized	Same as for Compressor 1A	Local
CA	Starter Contactor Interrupt Failure - Compressor 1A	Chiller	Special Action	Latch	Starter Contactor not Energized [Starter Contactor Energized]	Detected compressor currents greater than 10% RLA on any or all phases when the compressor was commanded off. Detection time shall be 5 seconds minimum and 10 seconds maximum. On detection and until the controller is manually reset: generate diagnostic, energize the appropriate alarm relay, continue to energize the Evaporator Pump Output, continue to command the affected compressor off, fully unload the affected compressor and command a normal stop to all other compressors. For as long as current continues, perform liquid level and fan control on the circuit affected.	Local
CB	Starter Contactor Interrupt Failure - Compressor 1B	Chiller	Special Action	Latch	Starter Contactor not Energized [Starter Contactor Energized]	Same as for Compressor 1A	Local
CC	Starter Contactor Interrupt Failure - Compressor 2A	Chiller	Special Action	Latch	Starter Contactor not Energized [Starter Contactor Energized]	Same as for Compressor 1A	Local
CD	Starter Contactor Interrupt Failure - Compressor 2B	Chiller	Special Action	Latch	Starter Contactor not Energized [Starter Contactor Energized]	Same as for Compressor 1A	Local

Display Screens

Hex Code	Diagnostic Name	Affects	Severity	Reset	Active Modes [Inactive Modes]	Criteria	Reset Level
D7	Overvoltage	Chiller	Normal	Non-Latch	Prestart and Any Circuit(s) Energized	a. Line voltage above + 10% of nominal. [Must hold = + 10% of nominal. Must trip = + 15% of nominal. Reset differential = minimum of 2% and maximum of 4%. Time to trip = minimum of 1 minute and maximum of 5 minutes) Design: Nominal trip: 60 seconds at greater than 112.5%, + or - 2.5%, Auto Reset at 109% or less.	Remote
D8	Undervoltage	Chiller	Normal	Non-Latch	Prestart and Any Circuit(s) Energized	a. Line voltage below - 10% of nominal or the Under/Over voltage transformer is not connected. [Must Hold = - 10% of nominal. Must Trip = - 15% of nominal. Reset differential = minimum of 2% and maximum of 4%. Time to trip = minimum of 1 minute and maximum of 5 minutes) Design: Nominal trip: 60 seconds at less than 87.5%, + or - 2.8% at 200 V or + or - 1.8% at 575 V, Auto Reset at 90% or greater.	Remote
194 or FB	Low Evaporator-Refrigerant Temperature - Circuit 1	Circuit	Immediate	Latch	All Circuit Running Modes (reversible heat pump in heating mode, excluding defrost)	The inferred Saturated Evaporator Refrigerant Temperature (calculated from suction-pressure transducer(s)) dropped below the Low Refrigerant-Temperature Cutout Set Point for 60°F-sec [33.3°C-sec].	
195	Low Evaporator-Refrigerant Temperature - Circuit 2	Circuit	Immediate	Latch	All Circuit Running Modes [reversible heat pump in heating mode, excluding defrost]	Same as for Circuit 1	Remote
198	Low Oil Flow - Compressor 1A	Compressor	Immediate	Latch	Compressor Energized and Delta P above 35 PSID [2.45 bar]	The intermediate oil pressure transducer for this compressor was out of the acceptable pressure range for 15 seconds, while the Delta Pressure was greater than 35 PSID [2.45 bar]. Acceptable range is 0.50 > (P_C-P_I) / (P_C-P_E) for the first 2.5 minutes of operation, and 0.25 > (P_C-P_I) / (P_C-P_E) thereafter.	Local
199	Low Oil Flow - Compressor 1B	Compressor	Immediate	Latch	Compressor Energized and Delta P above 35 PSID [2.45 bar]	Same as for Compressor 1A	Local
19A	Low Oil Flow - Compressor 2A	Compressor	Immediate	Latch	Compressor Energized and Delta P above 35 PSID [2.45 bar]	Same as for Compressor 1A	Local
19B	Low Oil Flow - Compressor 2B	Compressor	Immediate	Latch	Compressor Energized and Delta P above 35 PSID [2.45 bar]	Same as for Compressor 1A	Local

Display Screens

Hex Code	Diagnostic Name	Affects	Severity	Reset	Active Modes (Inactive Modes)	Criteria	Reset Level
1AE	Low Differential Refrigerant Pressure - Circuit 1	Circuit	Immediate	Latch	Compressor Energized	The system differential pressure for the respective circuit was below 35 PSID [2.45 bar] for more than 2000 PSID-sec [140 bar-sec].	Remote
1AF	Low Differential Refrigerant Pressure - Circuit 2	Circuit	Immediate	Latch	Compressor Energized	Same as for Circuit 1	Remote
1C6	High Differential Refrigerant Pressure - Circuit 1	Circuit	Normal	Latch	Compressor Energized	The system differential pressure for the respective circuit was above 275 PSID [19.25 bar] for two consecutive samples or more than 10 seconds.	Remote
1C7	High Differential Refrigerant Pressure - Circuit 2	Circuit	Normal	Latch	Compressor Energized	Same as for Circuit 1	Remote
1DD	High Oil Temperature – Circuit 1 or Compressor 1A	Circuit	Normal	Latch	All	The oil temperature of the respective circuit, as supplied to the compressors, exceeded 200°F [93°C] for two consecutive samples or for more than 10 seconds. Note: As part of the Compressor High-Temperature Limit Mode, the female load step for the running compressor will be forced loaded when the oil temperature of the respective circuit exceeds 190°F [88°C] and returned to normal control when the oil temperature falls below 180°F [77°C].	
1DE	High Oil Temperature – Compressor 1B	Circuit	Normal	Latch	All	Same as for Compressor 1A	
1DF	High Oil Temperature – Circuit 2 or Compressor 2A	Circuit	Normal	Latch	All	Same as for Compressor 1A	
1E0	High Oil Temperature – Compressor 2B	Circuit	Normal	Latch	All	Same as for Compressor 1A	
1E3	Subcooled Liquid Temperature Sensor - Circuit 1	None	Info	Latch	All	Bad Sensor or LLID	Info
1E4	Subcooled Liquid Temperature Sensor - Circuit 2	None	Info	Latch	All	Bad Sensor or LLID	Info
1E5	Oil Temperature Sensor – Circuit 1 or Compressor 1A	Circuit	Normal	Latch	All	Bad Sensor or LLID	Remote
1E7	Oil Temperature Sensor – Circuit 2 or Compressor 2A	Circuit	Normal	Latch	All	Bad Sensor or LLID	Remote
1E6	Oil Temperature Sensor – Compressor 1B	Circuit	Normal	Latch	All	Bad Sensor or LLID	Remote
1E8	Oil Temperature Sensor – Compressor 2B	Circuit	Normal	Latch	All	Bad Sensor or LLID	Remote
27D	Evaporator Liquid Level Sensor – Circuit 1	Circuit	Immediate	Latch	All	Bad Sensor or LLID	Remote
3F9	Evaporator Liquid Level Sensor – Circuit 1	Circuit	Immediate	Latch	All	Bad Sensor or LLID	Remote

Display Screens

Hex Code	Diagnostic Name	Affects	Severity	Reset	Active Modes (Inactive Modes)	Criteria	Reset Level
2A1	Condenser Fan Variable-Speed Drive Fault - Circuit 1 (Drive 1)	Circuit	Special Action	Latch	Prestart and Running with Variable Speed Fan enabled	The MP has received a fault signal from the respective condenser fan Variable Speed Inverter Drive, and unsuccessfully attempted (5 times within 1 minute of each other) to clear the fault. The 4th attempt removes power from the inverter to create a power-up reset. If the fault does not clear, the MP will revert to constant-speed operation without the use of the inverters fan. The inverter must be manually bypassed, and fan outputs rebound, for full fixed-speed fan operation.	Remote
5B4	Condenser Fan Variable-Speed Drive Fault - Circuit 1 (Drive 2)	Circuit	Special Action	Latch	Prestart and Running with Variable Speed Fan enabled	Same as for Circuit 1 (Drive 1)	Remote
5B5	Condenser Fan Variable-Speed Drive Fault - Circuit 2 (Drive 2)	Circuit	Special Action	Latch	Prestart and Running with Variable Speed Fan enabled	Same as for Circuit 1 (Drive 1)	Remote
390	BAS Failed to Establish Communication	None	Info		At power-up	The BAS was set up as "installed" and the BAS did not communicate with the MP within 2 minutes after power-up.	Info
398	BAS Communication Lost	None	Info		All	The BAS was set up as "installed" at TechView and the Comm LLID lost communications with the BAS for 15 continuous minutes after it had been established. Continue to run the chiller with the last valid BAS set points and Mode.	Info
583	Low Evaporator Liquid Level – Circuit 1	None	Info	Non-Latch	Starter Contactor Energized (all Stop modes)	The liquid level sensor is seen to be at or near its low end of range for 80 continuous minutes while the compressor is running	Remote
5B6	Low Evaporator Liquid Level – Circuit 2	None	Info	Non-Latch	Starter Contactor Energized (all Stop modes)	Same as for Circuit 1	Remote
584	High Evaporator Liquid Level – Circuit 1	Circuit	Immediate	Latch	Starter Contactor Energized (all Stop modes)	The liquid level sensor is seen to be at or near its high end of range for 80 continuous minutes while the compressor is running	Remote
5B7	High Evaporator Liquid Level – Circuit 2	Circuit	Immediate	Latch	Starter Contactor Energized (all Stop modes)	Same as for Circuit 1	Remote
87	External Chilled-Water Set Point (Or External Hot-Water Set Point On Reversible Heat Pumps In Heating Mode)	None	Info	Non-Latch	All	Input signal Out-Of-Range Low or Hi or bad LLID. Set diagnostic, default CWS to next level of priority (e.g., Front Panel Set Point). This Info diagnostic will automatically reset if the input returns to the normal range.	Info
89	External Current-Limit Set Point	None	Info	Non-Latch	All	Input signal Out-Of-Range Low or Hi or bad LLID. Set diagnostic, default CLS to next level of priority (e.g., Front Panel Set Point. This Info diagnostic will automatically reset if the input returns to the normal range.	Info

Display Screens

Hex Code	Diagnostic Name	Affects	Severity	Reset	Active Modes [Inactive Modes]	Criteria	Reset Level
8E	Evaporator Entering-Water Temperature Sensor	None	Info	Latch	All	Bad Sensor or LLID a. Normal operation, no effects on control. b. Chilled-Water Reset, will just run at either normal CWS or will run at maximum reset permitted.	Info
AB	Evaporator Leaving-Water Temperature Sensor	Chiller	Normal	Latch	All	Bad Sensor or LLID	Remote
B8	Condenser Refrigerant Pressure Transducer - Circuit 1	Circuit	Normal	Latch	All	Bad Sensor or LLID	Remote
5B9	Condenser Refrigerant Pressure Transducer - Circuit 2	Circuit	Normal	Latch	All	Bad Sensor or LLID	Remote
5BA	Suction Pressure Transducer – Circuit 1, Compressor 1A	Circuit	Normal	Latch	All	Bad Sensor or LLID	Remote
5BB	Suction Pressure Transducer – Circuit 1, Compressor 1B	Circuit	Normal	Latch	All	Bad Sensor or LLID	Remote
5BC	Suction Pressure Transducer – Circuit 2, Compressor 2A	Circuit	Normal	Latch	All	Bad Sensor or LLID	Remote
5BD	Suction Pressure Transducer – Circuit 1, Compressor 2B	Circuit	Normal	Latch	All	Bad Sensor or LLID	Remote
5BE	Intermediate Oil-Pressure Transducer – Compressor 1A	Circuit	Immediate	Latch	All	Bad Sensor or LLID	Remote
5BF	Intermediate Oil-Pressure Transducer – Compressor 1A	Circuit	Immediate	Latch	All	Bad Sensor or LLID	Remote
5C0	Intermediate Oil-Pressure Transducer – Compressor 2A	Circuit	Immediate	Latch	All	Bad Sensor or LLID	Remote
5C1	Intermediate Oil-Pressure Transducer – Compressor 2A	Circuit	Immediate	Latch	All	Bad Sensor or LLID	Remote
B5	Low Suction Refrigerant Pressure - Circuit 1	Circuit	Immediate	Latch	Compressor Prestart and Compressor Energized	a. The Suction Refrigerant Pressure (or either of the compressor suction pressures) dropped below 10 psia [0.7 bar] just prior to compressor start (after EXV preposition). b. The pressure fell below 16 psia [1.12 bar] while running after the ignore time had expired, or fell below 5 psia [0.35 bar] before the ignore time had expired. The ignore time is a function of outdoor air temperature. Note: Part b. is identical to the Low Evaporator Refrigerant Temperature diagnostic except for the trip integral and trip point settings.	Local
B6	Low Suction Refrigerant Pressure - Circuit 2	Circuit	Immediate	Latch	Compressor Prestart and Compressor Energized	Same as for Circuit 1	Local

Display Screens

Hex Code	Diagnostic Name	Affects	Severity	Reset	Active Modes (Inactive Modes)	Criteria	Reset Level
B7	Low Suction Refrigerant Pressure – Compressor 1B	Circuit	Immediate	Latch	Compressor Prestart and Compressor Energized	a. The Suction Refrigerant Pressure (or either of the compressor suction pressures) dropped below 10 psia [0.7 bar] just prior to compressor start (after EXV preposition). b. The pressure fell below 16 psia [1.12 bar] while running after the ignore time had expired, or fell below 5 psia [0.35 bar] before the ignore time had expired. The ignore time is function of outdoor air temperature. Note: Part b. is identical to the Low Evaporator Refrigerant Temperature diagnostic except for the trip integral and trip point settings.	Local
B8	Low Suction Refrigerant Pressure – Compressor 2B	Circuit	Immediate	Latch	Compressor Prestart and Compressor Energized	Same as for Circuit 1.	Local
C5	Low Chilled-Water Temperature: Unit Off	Evaporator Pump Non-Latch	Special Action	Non-Latch	Unit in Stop Mode, or in Auto Mode and No Circuits Energized [Any Circuit Energized]	a. The leaving chilled-water temperature fell below the leaving-water temperature cutout set point for 30°F-seconds [-1.1°C-seconds] while the chiller was in the Stop mode or in Auto mode with no compressors running. Energize the Chilled-Water Pump Relay until the diagnostic Auto Resets, then return to normal evaporator pump control.	Info
C6	Low Chilled-Water Temperature: Unit On	Chiller	Immediate and Special Action	Non-Latch	Any Circuit[s] Energized [No Circuits Energized]	The chilled-water temperature fell below the cutout set point for 30°F-seconds [-1.1°C-seconds] while the compressor was running. Automatic reset occurs when the temperature rises 2°F [1.1°C] above the cutout setting for 2 minutes. This diagnostic shall not de-energize the Chilled-Water Pump Output.	Remote
38	Evaporator Water Flow Overdue	Chiller	Normal	Non-Latch	Establish Evaporator Water Flow on going from STOP to AUTO.	Evaporator water flow was not proven within 4.25 minutes of the chilled-water pump relay being energized. The diagnostic will de-energize the chilled-water pump output. It will be re-energized if the diagnostic clears with the return of flow, and the chiller will be allowed to restart normally (to accommodate external control of the pump). Note that this diagnostic will not light the red diagnostic light on the EasyView display.	Remote
ED	Evaporator Water Flow Lost	Chiller	Normal	Non-Latch	[All Stop modes]	a. The chilled-water flow switch input was open for more than 6-10 continuous seconds. b. This diagnostic does not de-energize the evaporator pump output c. 6-10 seconds of continous flow shall clear this diagnostic. d. Even though the pump times out in the STOP modes, this diagnostic shall not be called out in the STOP modes. Note that this diagnostic will not light the red diagnostic light on the EasyView display.	Not Available

Display Screens

Hex Code	Diagnostic Name	Affects	Severity	Reset	Active Modes [inactive Modes]	Criteria	Reset Level
F5	High-Pressure Cutout - Compressor 1A	Circuit	Immediate	Latch	All	A high-pressure cutout was detected on Compressor 1A; trip at 315 ± 5 psig [22 bar ±0.35]. Note: Other diagnostics that may occur as an expected consequence of the HPC trip will be suppressed from annunciation. These include Phase Loss, Power Loss, and Transition Complete Input Open.	Local
F6	High-Pressure Cutout - Compressor 1B	Circuit	Immediate	Latch	All	Same as for Compressor 1A	Local
BE	High-Pressure Cutout - Compressor 2A	Circuit	Immediate	Latch	All	Same as for Compressor 1A	Local
BF	High-Pressure Cutout - Compressor 2A	Circuit	Immediate	Latch	All	Same as for Compressor 1A	Local
FD	Emergency Stop	Chiller	Immediate	Latch	All	Emergency Stop input is open. An external interlock has tripped. Time to trip from input opening to unit stop shall be 0.1 to 1.0 seconds.	Local
A1	Outdoor Air Temperature Sensor	Chiller	Normal	Latch	All	Bad Sensor or LLID	Remote
5C4	Panel High-Temperature Limit	Circuit	Special Action	Latch	All	Electrical Panel High-Limit Thermostat (170°F [77°C]) trip was detected. Note: Other diagnostics that may occur as an expected consequence of the Panel High-Temperature Limit trip will be suppressed from annunciation. These include Phase Loss, Power Loss, and Transition Complete Input Open.	
5C5	Starter Module Memory Error Type 1-Starter 1A	None	Info	Latch	All	Checksum on the RAM copy of the Starter LLID configuration failed. The configuration is recalled from EEPROM.	Local
5C6	Starter Module Memory Error Type 1-Starter 1B	None	Info	Latch	All	Same as for Starter 1A	Local
5C7	Starter Module Memory Error Type 1-Starter 2A	None	Info	Latch	All	Same as for Starter 1A	Local
5C8	Starter Module Memory Error Type 1-Starter 2B	None	Info	Latch	All	Same as for Starter 1A	Local
5C9	Starter Module Memory Error Type 2 - Starter 1A	Compressor	Immediate	Latch	All	Checksum on the EEPROM copy of the Starter LLID configuration failed. Factor default values are used.	
5CA	Starter Module Memory Error Type 2 - Starter 1B	Compressor	Immediate	Latch	All	Same as for Starter 1A	
5CB	Starter Module Memory Error Type 2 - Starter 2A	Compressor	Immediate	Latch	All	Same as for Starter 1A	
5CC	Starter Module Memory Error Type 2 - Starter 2B	Compressor	Immediate	Latch	All	Same as for Starter 1A	
5FF	MP: Invalid Configuration	None	Immediate	Latch	All	The Main Processor has an invalid configuration based on the current software installed.	Not Available
1AD	MP Application Memory CRC Error	Chiller	Immediate	Latch	All Modes	Memory error criteria TBD.	Remote
69C	MP: Non-Volatile Memory Error	None	Immediate	Latch	All	The Main Processor has determined there is a catastrophic error with the Non-Volatile Memory.	Not Available
2E6	Check Clock	Chiller	IFW	Latch	All	The real-time clock had an error. Reset the clock or check the battery.	

Display Screens

Communication Diagnostics

The following communication loss diagnostics will not occur unless that input or output is required to be present by the particular configuration and installed options for the chiller.

Communication diagnostics are named by the Functional Name of the input or output that is no longer communicating with the Main Processor. Many LLIDs, such as the Quad Relay LLID, have more than one functional output associated with them. A COMM loss with such a multiple-function board will generate multiple diagnostics. Refer to the wiring diagrams for the chiller to relate the occurrence of multiple COMM diagnostics back to the physical LLID boards to which they have been assigned.

For **all** diagnostics, unless noted, the criteria prompting the diagnostic is *continual loss of communication between the MP and the Functional ID, occurring for a 30-second period.* Additional action taken by the chiller is noted in the "Action" column.

Table 5 – Communication Loss Diagnostics

Hex Code	Diagnostic Name	Affects	Severity	Reset	Criteria	Reset Level
5D1	Communication Loss: Male Port Unload Compressor 1A	Compressor	Normal	Latch		Remote
5D2	Communication Loss: Male Port Load Compressor 1A	Compressor	Normal	Latch		Remote
5D3	Communication Loss: Male Port Unload Compressor 1B	Compressor	Normal	Latch		Remote
5D4	Communication Loss: Male Port Load Compressor 1B	Compressor	Normal	Latch		Remote
5D5	Communication Loss: Male Port Unload Compressor 2A	Compressor	Normal	Latch		Remote
5D6	Communication Loss: Male Port Load Compressor 2A	Compressor	Normal	Latch		Remote
5D7	Communication Loss: Male Port Unload Compressor 2B	Compressor	Normal	Latch		Remote
5D8	Communication Loss: Male Port Load Compressor 2B	Compressor	Normal	Latch		Remote
5D9	Communication Loss: Female Step Load Compressor 1A	Compressor	Normal	Latch		Remote
5DA	Communication Loss: Female Step Load Compressor 1B	Compressor	Normal	Latch		Remote
5DB	Communication Loss: Female Step Load Compressor 2A	Compressor	Normal	Latch		Remote
5DC	Communication Loss: Female Step Load Compressor 2B	Compressor	Normal	Latch		Remote
5DD	Communication Loss: External Auto/Stop	Chiller	Normal	Latch		Remote
5DE	Communication Loss: Emergency Stop	Chiller	Normal	Latch		Remote
5DF	Communication Loss: External Circuit Lockout, Circuit 1	Circuit	Special Mode	Latch	MP will continuously hold the lockout state (enabled or disabled) that was in effect at the time of comm loss.	Info
5E0	Communication Loss: External Circuit Lockout, Circuit 2	Circuit	Special Mode	Latch	MP will continuously hold the lockout state (enabled or disabled) that was in effect at the time of comm loss.	Info
5E1	Communication Loss: Ice-Machine Control	Ice-Making Mode	Special Mode	Latch	Chiller shall revert to normal (non-ice-building) mode regardless of last state.	Info
5E2	Communication Loss: Outdoor Air Temperature	Chiller	Normal	Latch		Remote
5E3	Communication Loss: Evaporator Leaving-Water Temperature	Chiller	Normal	Latch		Remote
5E4	Communication Loss: Evaporator Entering-Water Temperature	Chilled-Water Reset	Special Mode	Latch	Chiller shall discontinue Chilled-Water Reset by Return-Water Temperature, if it was in effect.	Info

Display Screens

Hex Code	Diagnostic Name	Affects	Severity	Reset	Criteria	Reset Level
5E5	Communication Loss: Oil Temperature, Circuit 1 or Compressor 1A	Compressor	Normal	Latch		Remote
5E6	Communication Loss: Oil Temperature, Circuit 2 or Compressor 2A	Compressor	Normal	Latch		Remote
5E7	Communication Loss: Sub-Cooling Liquid Temperature, Circuit 1	Circuit	Special Mode	Non-Latch		Info
5E8	Communication Loss: Sub-Cooling Liquid Temperature, Circuit 2	Circuit	Special Mode	Non-Latch		Info
5E9	Communication Loss: External Chilled-Water Set Point	External Chilled-Water set point	Special Mode	Non-Latch	The chiller shall discontinue use of the External Chilled-Water set point source and revert to the next higher priority for set point arbitration.	Info
5EA	Communication Loss: External Current Limit Set Point	External Current-Limit set point	Special Mode	Non-Latch	The chiller shall discontinue use of the External Current-Limit set point and revert to the next higher priority for Current-Limit set point arbitration.	Info
5EB	Communication Loss: High Pressure Cutout Switch, Compressor 1A	Circuit	Immediate	Latch		Remote
5EC	Communication Loss: High Pressure Cutout Switch, Compressor 1B	Circuit	Immediate	Latch		Remote
5ED	Communication Loss: High Pressure Cutout Switch, Compressor 2A	Circuit	Immediate	Latch		Remote
5EE	Communication Loss: High Pressure Cutout Switch, Compressor 2B	Circuit	Immediate	Latch		Remote
5EF	Communication Loss: Chilled-Water Flow Switch	Chiller	Normal	Latch		Remote
5F0	Communication Loss: Evaporator Refrigerant Pressure, Circuit 1	Circuit	Normal	Latch		Remote
5F1	Communication Loss: Evaporator Refrigerant Pressure, Circuit 2	Circuit	Normal	Latch		Remote
5F2	Communication Loss: Condenser Refrigerant Pressure, Circuit 1	Circuit	Normal	Latch		Remote
5F3	Communication Loss: Condenser Refrigerant Pressure, Circuit 2	Circuit	Normal	Latch		Remote
5F4	Communication Loss: Intermediate Oil Pressure, Compressor 1A	Compressor	Immediate	Latch		Remote
5F5	Communication Loss: Intermediate Oil Pressure, Compressor 1B	Compressor	Immediate	Latch		Remote
5F6	Communication Loss: Intermediate Oil Pressure, Compressor 2A	Compressor	Immediate	Latch		Remote
5F7	Communication Loss: Intermediate Oil Pressure, Compressor 2B	Compressor	Immediate	Latch		Remote
5F8	Communication Loss: Evaporator Water Pump Control	None	Info	Latch		Remote
5F9	Communication Loss: Condenser Water Pump Control	None	Info	Latch		
5FA	Communication Loss: Ice-Making Status	Ice Machine	Special Mode	Latch	Chiller shall revert to normal (non-ice-building) mode regardless of the last state.	Info
5FB	Communication Loss: Suction Pressure Compressor 1A	Compressor	Immediate	Latch		Remote
5FC	Communication Loss: Suction Pressure Compressor 1B	Compressor	Immediate	Latch		Remote
5FD	Communication Loss: Suction Pressure Compressor 2A	Compressor	Immediate	Latch		Remote
5FE	Communication Loss: Suction Pressure Compressor 2B	Compressor	Immediate	Latch		Remote

Display Screens

Hex Code	Diagnostic Name	Affects	Severity	Reset	Active Modes [Inactive Modes]	Criteria	Reset Level
680	Communication Loss: Fan Control Circuit 1, Stage 1		Circuit	Normal	Latch		Remote
681	Communication Loss: Fan Control Circuit 1, Stage 2		Circuit	Normal	Latch		Remote
682	Communication Loss: Fan Control Circuit 1, Stage 3		Circuit	Normal	Latch		Remote
683	Communication Loss: Fan Control Circuit 1, Stage 4		Circuit	Normal	Latch		Remote
684	Communication Loss: Fan Control Circuit 2, Stage 1		Circuit	Normal	Latch		Remote
685	Communication Loss: Fan Control Circuit 2, Stage 2		Circuit	Normal	Latch		Remote
686	Communication Loss: Fan Control Circuit 2, Stage 3		Circuit	Normal	Latch		Remote
687	Communication Loss: Fan Control Circuit 2, Stage 4		Circuit	Normal	Latch		Remote
688	Communication Loss: Evaporator Refrigerant Liquid Level, Circuit 1		Circuit	Normal	Latch		Remote
689	Communication Loss: Evaporator Refrigerant Liquid Level, Circuit 2		Circuit	Normal	Latch		Remote
68A	Communication Loss: Fan Inverter Power, Circuit 1 or Circuit 1 Drive 1 and 2		Circuit	Normal	Latch		Remote
68B	Communication Loss: Fan Inverter Speed Command, Circuit 1 or Circuit 1 Drive 1 and 2		Inverter	Special Mode	Latch	Operate the remaining fans as a fixed-speed fan deck.	Remote
68C	Communication Loss: Fan Inverter Fault, Circuit 1 or Circuit 1, Drive 1		Inverter	Special Mode	Latch	Operate the remaining fans as a fixed-speed fan deck.	Remote
68D	Communication Loss: Fan Inverter Fault, Circuit 1, Drive 2		Inverter	Special Mode	Latch	Operate the remaining fans as a fixed-speed fan deck.	Remote
68E	Communication Loss: Evaporator Oil Return Valve, Circuit 1		Circuit	Normal	Latch		Remote
68F	Communication Loss: Evaporator Oil Return Valve, Circuit 2		Circuit	Normal	Latch		Remote
690	Communication Loss: Starter 1A		Compressor	Immediate	Latch		Local
691	Communication Loss: Starter 1B		Compressor	Immediate	Latch		Local
692	Communication Loss: Starter 2A		Compressor	Immediate	Latch		Local
693	Communication Loss: Starter 2B		Compressor	Immediate	Latch		Local
694	Communication Loss: Electronic Expansion Valve, Circuit 1		Circuit	Normal	Latch		Remote
695	Communication Loss: Electronic Expansion Valve, Circuit 2		Circuit	Normal	Latch		Remote
696	Communication Loss: Oil Temperature, Comp 1B		Compressor	Normal	Latch		Remote
697	Communication Loss: Oil Temperature, Compressor 2B		Compressor	Normal	Latch		Remote
698	Communication Loss: Fan Inverter Power, Circuit 2 or Circuit 2 Drive 1 and 2		Circuit	Normal	Latch		Remote

Display Screens

Hex Code	Diagnostic Name	Affects	Severity	Reset	Criteria	Reset Level
699	Communication Loss: Fan-Inverter Speed Command, Circuit 2 or Circuit 2 Drive 1 and 2	Inverter	Special Mode	Latch	Operate the remaining fans as a fixed-speed fan deck.	Remote
69A	Communication Loss: Fan-Inverter Fault, Circuit 2 or Circuit 2, Drive 1	Inverter	Special Mode	Latch	Operate the remaining fans as a fixed speed fan deck.	Remote
69B	Communication Loss: Fan-Inverter Fault, Circuit 2, Drive 2	Inverter	Special Mode	Latch	Operate the remaining fans as a fixed-speed fan deck.	Remote
5CD	Starter 1A Communication Loss: MP	Compressor	Immediate	Latch	The starter had a loss of communication with the MP for a 15-second period.	Local
5CE	Starter 1B Communication Loss: MP	Compressor	Immediate	Latch	The starter had a loss of communication with the MP for a 15-second period.	Local
5CF	Starter 2A Communication Loss: MP	Compressor	Immediate	Latch	The starter had a loss of communication with the MP for a 15-second period.	Local
5D0	Starter 2B Communication Loss: MP	Compressor	Immediate	Latch	The starter had a loss of communication with the MP for a 15-second period.	Local
69D	Communication Loss: Local BAS Interface	None	Special Mode	Latch	Continual loss of communication between the MP and the Functional ID has occurred for a 30-second period.	Remote
6A0	Communication Loss: Status and Annunciation Relays	None	Info	Latch	Continual loss of communication between the MP and the Functional ID has occurred for a 30-second period.	Remote

Maintenance Contract and Training

Maintenance Contract

It is strongly recommended that you sign a maintenance contract with your local Service Agency. This contract provides regular maintenance of your installation by a specialist in our equipment. Regular maintenance helps ensure that any malfunction is detected and corrected quickly and minimizes the possibility that serious damage will occur. Finally, regular maintenance helps ensure the maximum operating life of your equipment. We would remind you that failure to respect these installation and maintenance instructions may result in immediate cancellation of the warranty.

Training

The equipment described in this manual is the result of many years of research and continuous development. To assist you in obtaining the best use of it, and maintaining it in perfect operating condition over a long period of time, the constructor has at your disposal a refrigeration and air conditioning service school. The principal aim of this is to give operators and maintenance technicians a better knowledge of the equipment they are using, or that is under their charge. Emphasis is particularly given to the importance of periodic checks on the unit operating parameters as well as on preventive maintenance, which reduces the cost of owning the unit by avoiding serious and costly breakdowns.

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