



# Diagnostics Manual

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## CTV CH530 Diagnostics



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CTV-SVD02A-EN



# Warnings and Cautions

Notice that warnings and cautions appear at appropriate intervals throughout this manual. Warnings are provided to alert manufacturers, designers, installers, servicers, and installing contractors to potential hazards that could result in personal injury or death, while cautions are designed to alert personnel to conditions that could result in equipment damage.

Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

**NOTICE:** Warnings and Cautions appear at appropriate sections throughout this literature. Read these carefully.

**⚠ WARNING:** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**⚠ CAUTION:** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

**CAUTION:** Indicates a situation that may result in equipment or property-damage only accidents.



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# General Information

This information piece provides troubleshooting information for the CH530 Control Diagnostics of CVHE/F/G, CDHF/G, CVGF units.

## Introduction

This document lists all the CTV CH530 diagnostics by major category, i.e. Starter, MP. For each diagnostic, it lists the three-digit code if applicable, diagnostic name, target, severity, persistence, active (inactive) modes, criteria and reset level.

**Note:** Recent additions to this document include diagnostics for 'LCI-C Software Mismatch: Use BAS Tool'; Revised purge diagnostic descriptions to match the purge functional spec and MP implementation, Added High Evaporator Water Temperature diagnostic, Revised cooling and hot water operation for Condenser Water Flow Lost, Added a note that on an Auto to stop transition when the water pumps are in override due to a flow loss, the pumps turn off and the diagnostic is cleared. Change persistence of 'Comm Loss: Evap Entering Water Temp' when in ice building from nonlatching to latching. Added that cond water flow lost diagnostic is reset 7 seconds after the condenser water pump is turned off.

## Description

### Table Header Notes

Three Digit Legacy Hex Code (3DC): 3-digit hexadecimal code used on all past products to uniquely identify diagnostics. The goal here was to map as many of the diagnostics as possible into the existing UCP2 Comm 4 codes since BASD would not be creating new code definitions. The ones that could not be mapped would be put into generalized new codes.

The following codes were added to cover the unmapped diagnostics:

6B4	Unknown Purge Diagnostic
6B5	Unknown Starter Diagnostic
6B6	Unknown Chiller Diagnostic
6B7	Unknown Compressor Diagnostic

### Diagnostic Name and Source:

Name of Diagnostic and its source. Note that this is the exact text used in the User Interface and/or Service Tool displays. Character strings are limit to 40 characters or less including spaces.

### Effects Target:

Defines the "target" or what is effected by the diagnostic. Usually either the entire Chiller, or a particular Circuit is effected by the diagnostic (the same one as the source), but in special cases functions are modified or disabled by the diagnostic. In some cases, the effected sub target, i.e. chilled water reset is listed in parenthesis ( ).

### Possible targets are:

- Chiller
- Circuit (Only applicable for Duplex items)
- Purge
- Free Cooling
- Hot Gas Bypass
- Ice Building
- Platform



## General Information

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### Target Severity:

Defines the severity of the above effected target.

### Immediate Shutdown:

Is the immediate shutdown of the effected portion,

### Normal Shutdown:

Is the normal or friendly shutdown of the effected portion and

### Warning:

Is an Informational Note or Warning is generated.

### See Criteria:

Is used when multiple severity's exist. An example is for a target of Free Cooling, a Normal Shutdown means Free Cooling is shutdown. The chiller is still allowed to do powered cooling.

### Target Persistence:

Defines whether or not the diagnostic and its effects are to be manually reset (Latching), or can be either manually or automatically reset (Nonlatching).

### Active Modes [Inactive Modes]:

States the modes or periods of operation that the diagnostic is active in and, as necessary, those modes or periods that it is specifically not active in as an exception to the active modes. The inactive modes are enclosed in brackets, [ ]. Note that the modes used in this column are internal and not generally enunciated to any of the formal mode displays.

### Criteria:

Quantitatively defines the criteria used in generating the diagnostic and, if Nonlatching, the criteria for auto reset. If more explanation is necessary a product support case may be referred.

### Reset Level:

Defines the lowest level of manual diagnostic reset command which can clear the diagnostic. The manual diagnostic reset levels in order of priority are: Local and Remote. 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.

The label Circuit X and Purge X are used for the Duplex target information. X can be either 1 or 2.



# Starter Diagnostics

These diagnostics are called out by the Starter module and communicated to the Main Processor.

**Table 1. Starter Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	F0	Starter Did Not Transition	Chiller Circuit X	Immediate Shutdown	Latching	Starting Compressor: On the first check after initiate transition.	For all electromechanical starters: The Starter Module did not receive a transition complete signal within 2.5 seconds 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. Actual design is 2.5 seconds.	Local
Simplex Duplex Gear Drive FastPak	1F5	Starter Did Not Fully Accelerate	Chiller Circuit X	Immediate Shutdown	Latching	Starting Compressor	For non-communicating SSS and non-communicating AFD: The Starter Module did not receive an Up to Speed (from SSS) or At Speed (from AFD) signal within the Maximum Acceleration Setting setpoint.	Local
Simplex Duplex Gear Drive FastPak	E5	Phase Reversal	Chiller Circuit X	Immediate Shutdown	Latching	Compressor energized to transition command [All Other Times]	<ul style="list-style-type: none"> <li>Phase Reversal Protection disabled: No effect</li> <li>Phase Reversal Protection enabled: A phase reversal was detected on the incoming current. On a compressor startup the phase reversal logic must detect and trip in a maximum of 7 second from compressor start.</li> </ul>	Local
Simplex Duplex Gear Drive FastPak	188	Starter Dry Run Test	Chiller Circuit X	Immediate Shutdown	Latching	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 at the current transformers.	Local
Simplex Duplex Gear Drive FastPak	E4	Phase Loss	Chiller Circuit X	Immediate Shutdown	Latching	Compressor Start Sequence and Running and Stopping modes	<ul style="list-style-type: none"> <li>Phase Reversal Protection disabled: No current was sensed on one or two of the current transformer inputs while running or starting (See Nonlatching Power Loss Diagnostic for all three phases lost while running). Must hold = 20% RLA. Must trip = 5% RLA. Actual design trippoint is 10% RLA. Time to trip shall be longer than guaranteed reset on Starter Module at a minimum, 3 seconds maximum. The actual design trip time is 2.64 seconds.</li> <li>Phase Reversal Protection enabled: Current is not sensed on one or two of the current transformer inputs. Logic will detect and trip in a maximum of 0.7 second from compressor start.</li> </ul>	Local



## Starter Diagnostics

**Table 1. Starter Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	D9	Power Loss	Chiller Circuit X	Immediate Shutdown	Nonlatching	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. Design: Less than 10% RLA, trip in 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 does not protect motor/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", Phase Loss or a "Starter Did Not Transition" latching diagnostic.	Local
Simplex Duplex Gear Drive FastPak	E2	Momentary Power Loss	Chiller Circuit X	Immediate Shutdown	Nonlatching	All compressor running and stopping modes [all compressor starting and non-running modes]	<ul style="list-style-type: none"> <li>• Momentary Power Loss option disabled: No effect</li> <li>• Momentary Power Loss option enabled: A loss of power of three line cycles or more was detected. Diagnostic is reset in 30 seconds.</li> <li>• See Momentary Power Loss Protection PSOL case 1580.</li> </ul>	Local
Simplex Duplex Gear Drive FastPak	1B2	Severe Current Unbalance	Chiller Circuit X	Normal Shutdown	Latching	All modes compressor is running	A motor Current Unbalance has been detected on one line relative to the average of all 3 lines that exceeds the Current Unbalance Trip Point setpoint for a continuous time longer than the Current Unbalance Grace Period setpoint. See Phase Imbalance PSOL Case #2589.	Local
Simplex Duplex Gear Drive FastPak	1E9	Starter Fault Type I	Chiller Circuit X	Immediate Shutdown	Latching	Starting Compressor. Y Delta Starters Only	This is a specific starter test where 1M(2K1) is closed first and a check is made to ensure that there are no currents detected by the CT's. If currents are detected when only 1M is closed first at start, then one of the other contactors is shorted or there exists a wiring error.	Local

**Table 1. Starter Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	1ED	Starter Fault Type II	Chiller Circuit X	Immediate Shutdown	Latching	Starting Compressor All types of starters	<ul style="list-style-type: none"> <li>This is a specific starter test where the Shorting Contactor S(2K3) is individually energized and a check is made to ensure that there are no currents detected by the CT's. If current is detected when only S is energized at Start, then 1M is shorted or there exists a wiring error.</li> <li>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 relay output).</li> </ul>	Local
Simplex Duplex Gear Drive FastPak	1F1	Starter Fault Type III	Chiller Circuit X	Immediate Shutdown	Latching	Starting Compressor [Adaptive Frequency Drive Starter Type]	As part of the normal start sequence to apply power to the compressor, the Shorting Contactor S(2K3) and then the Main Contactor 1M(2K1) were energized. 1.6 seconds later there were no currents detected by the CT's for the last 1.2 Seconds on all three phases. The test above applies to all forms of starters except Adaptive Frequency Drives.	Local
Simplex Duplex Gear Drive FastPak	3D5	Transition Complete Input Shorted	Chiller Circuit X	Immediate Shutdown	Latching	Waiting to Start	The Transition Complete input was found to be shorted before the compressor was started. This is active for all electromechanical starters.	Local
Simplex Duplex Gear Drive FastPak	3D6	At Speed Input Shorted	Chiller Circuit X	Immediate Shutdown	Latching	Waiting to Start	The At Speed (For AFD)/Up to Speed (For SSS) input was found to be shorted before the compressor was started. This is active for all non-communicating SSS and non-communicating AFDs.	Local
Simplex Duplex Gear Drive FastPak	3D7	Transition Complete Input Opened	Chiller Circuit X	Immediate Shutdown	Latching	All compressor running modes after successful transition	The Transition Complete input was found to be opened with the compressor motor running after a successful completion of transition. This is active for all electromechanical 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
Simplex Duplex Gear Drive FastPak	3D8	At Speed Input Opened	Chiller Circuit X	Immediate Shutdown	Latching	All compressor running modes after successful acceleration	The At Speed input was found to be opened with the compressor motor running after successfully obtaining at speed condition. Applies only to non-communicating Solid State Starters.	Local



## Starter Diagnostics

**Table 1. Starter Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	EC	Motor Current Overload	Chiller Circuit X	Immediate Shutdown	Latching	Compressor running in Running and Preparing to Shut Down	<p>Compressor current exceeded overload time vs. trip characteristic.</p> <ul style="list-style-type: none"> <li>For electromechanical and non-communicating solid state starters, see section on running overcurrent in Current Overload Protection PSOL Case 1564.</li> </ul>	Local
Simplex Duplex Gear Drive FastPak	EE	Compressor Did Not Accelerate: Shutdown	Chiller Circuit X	Immediate Shutdown	Latching	Compressor Accelerating	<ul style="list-style-type: none"> <li>Acceleration Time Out Action set to Shutdown: Compressor motor current did not drop below 85% RLA within the Maximum Acceleration Setting setpoint. Compressor motor de-energized. See Current Overload Protection PSOL Case 1564.</li> <li>Acceleration Time Out Action set to Transition: See diagnostic for Compressor Did Not Accelerate: Transitioned</li> </ul>	Local
Simplex Duplex Gear Drive FastPak	1FA	Compressor Did Not Accelerate: Transition	Chiller Circuit X	Warning	Latching	Compressor Accelerating	<ul style="list-style-type: none"> <li>Acceleration Time Out Action set to Transition: Compressor motor current did not drop below 85% RLA within the Maximum Acceleration Setting setpoint. Compressor motor put across the line. See Current Overload Protection PSOL Case 1564.</li> <li>Acceleration Time Out Action set to Shutdown: See diagnostic for Compressor Did Not Accelerate: Shutdown</li> </ul>	Local
Simplex Duplex Gear Drive FastPak	CA	Starter Contactor Interrupt Failure	Chiller Circuit X	Immediate Shutdown	Latching	Starter Contactor not Energized [Starter Contactor Energized]	<ul style="list-style-type: none"> <li>Welded starter contactor</li> <li>Detected compressor currents greater than 10% RLA on any or all phases when the compressor was commanded off. Detection time shall be 5 second minimum and 10 seconds maximum for all electromechanical and solid state starters. Detection time for Adaptive Frequency Drives shall be 12 seconds minimum and 20 seconds maximum. On detection and until the controller is manually reset: generate diagnostic, energize the appropriate alarm relay, continue to energize the Evap Water and oil Pump Outputs, continue to command the affected compressor off, fully unload the effected compressor and command a normal stop to all other compressors (Duplex)</li> </ul>	Local

**Table 1. Starter Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	6B5	Starter Module Memory Error Type I	Chiller Circuit X	Warning	Latching	All	Checksum on RAM copy of the Starter LLID configuration failed. Configuration recalled from EEPROM.	Local
Simplex Duplex Gear Drive FastPak	6B5	Starter Module Memory Error Type II	Chiller Circuit X	Immediate Shutdown	Latching	All	Checksum on EEPROM copy of the Starter LLID configuration failed. Factor default values used.	Local
Simplex Duplex Gear Drive FastPak	2D0	Starter Comm Loss: Main Processor	Chiller Circuit X	Immediate Shutdown	Latching	All	The Starter module detected a continual loss of communication with the main processor for greater than the Communications Loss Time bound setpoint.	Local
Simplex Duplex Gear Drive FastPak	6B5	L1 Current Transformer Polarity Reversed	Chiller Circuit X	Warning	Latching	Compressor Start Sequence and Running and Stopping modes	<ul style="list-style-type: none"> <li>Power Monitoring option disabled: No effect</li> <li>Power Monitoring option enabled: The L1 transformer signal polarity was found to be reversed. Detection time shall be 3 seconds minimum and 5 seconds maximum.</li> </ul>	Local
Simplex Duplex Gear Drive FastPak	6B5	L2 Current Transformer Polarity Reversed	Chiller Circuit X	Warning	Latching	Compressor Start Sequence and Running and Stopping modes	<ul style="list-style-type: none"> <li>Power Monitoring option disabled: No effect</li> <li>Power Monitoring option enabled: The L2 transformer signal polarity was found to be reversed. Detection time shall be 3 seconds minimum and 5 seconds maximum.</li> </ul>	Local
Simplex Duplex Gear Drive FastPak	6B5	L3 Current Transformer Polarity Reversed	Chiller Circuit X	Warning	Latching	Compressor Start Sequence and Running and Stopping modes	<ul style="list-style-type: none"> <li>Power Monitoring option disabled: No effect</li> <li>Power Monitoring option enabled: The L3 transformer signal polarity was found to be reversed. Detection time shall be 3 seconds minimum and 5 seconds maximum.</li> </ul>	Local
Simplex Duplex Gear Drive FastPak	6B5	VAB Potential Transformer Polarity Reversed	Chiller Circuit X	Warning	Latching	All	<ul style="list-style-type: none"> <li>Power Monitoring option disabled: No effect</li> <li>Power Monitoring option enabled: The VAB potential transformer signal polarity was found to be reversed. Detection time shall be 3 seconds minimum and 5 seconds maximum.</li> </ul>	Local
Simplex Duplex Gear Drive FastPak	6B5	VBC Potential Transformer Polarity Reversed	Chiller Circuit X	Warning	Latching	All	<ul style="list-style-type: none"> <li>Power Monitoring option disabled: No effect</li> <li>Power Monitoring option enabled: The VBC potential transformer signal polarity was found to be reversed. Detection time shall be 3 seconds minimum and 5 seconds maximum.</li> </ul>	Local



## Starter Diagnostics

**Table 1. Starter Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	6B5	VCA Potential Transformer Polarity Reversed	Chiller Circuit X	Warning	Latching	All	<ul style="list-style-type: none"> <li>Power Monitoring option disabled: No effect</li> <li>Power Monitoring option enabled: The VCA potential transformer signal polarity was found to be reversed. Detection time shall be 3 seconds minimum and 5 seconds maximum.</li> </ul>	Local
Simplex Duplex Gear Drive FastPak	6B5	Voltage Phase Reversal	Chiller Circuit X	Warning	Latching	Compressor Start [All Other Times]	<ul style="list-style-type: none"> <li>Power Monitoring option disabled: No effect</li> <li>Power Monitoring option enabled: A phase reversal was detected on the incoming voltage. On a compressor startup the phase reversal logic must detect and trip in a maximum of 7 second from compressor start.</li> </ul>	Local
Simplex Duplex Gear Drive FastPak	E4	Current L1 Loss	Chiller	Warning	Latch	Start Sequence and Run modes	No current was sensed on the current transformer L1 input while starting or running. Time to trip shall be longer than guaranteed reset on Starter Module at a minimum, 3 seconds maximum. Actual design trippoint is 10%. The actual design trip time is 2.64 seconds. If Phase reversal protection is enabled and current is not sensed on one or more current transformer inputs. Logic will detect and trip in a maximum of 0.3 second from compressor start.	Local
Simplex Duplex Gear Drive FastPak	E4	Current L2 Loss	Chiller	Warning	Latch	Start Sequence and Run modes	No current was sensed on the current transformer L2 input while starting or running. Time to trip shall be longer than guaranteed reset on Starter Module at a minimum, 3 seconds maximum. Actual design trippoint is 10%. The actual design trip time is 2.64 seconds. If Phase reversal protection is enabled and current is not sensed on one or more current transformer inputs. Logic will detect and trip in a maximum of 0.3 second from compressor start.	Local



## Starter Diagnostics

**Table 1. Starter Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	E4	Current L3 Loss	Chiller	Warning	Latch	Start Sequence and Run modes	No current was sensed on the current transformer L3 input while starting or running. Time to trip shall be longer than guaranteed reset on Starter Module at a minimum, 3 seconds max. Actual design trip point is 10%. The actual design trip time is 2.64 seconds. If Phase reversal protection is enabled and current is not sensed on one or more current transformer inputs. Logic will detect and trip in a maximum of 0.3 second from compressor start.	Local
Simplex Duplex Gear Drive FastPak	6B5	Voltage VAB Loss	Chiller Circuit X	Warning	Latching	Start Sequence and Run modes	<ul style="list-style-type: none"> <li>Power Monitoring option disabled: No effect</li> <li>Power Monitoring option enabled: No voltage was sensed on the potential transformer VAB input while starting or running. Detection time shall be 3 seconds min and 5 seconds max. Actual design trip point is 5 V at the Starter LLID input.</li> </ul>	Local
Simplex Duplex Gear Drive FastPak	6B5	Voltage VBC Loss	Chiller Circuit X	Warning	Latching	Start Sequence and Run modes	<ul style="list-style-type: none"> <li>Power Monitoring option disabled: No effect</li> <li>Power Monitoring option enabled: No voltage was sensed on the potential transformer VBC input while starting or running. Detection time shall be 3 seconds min and 5 seconds max. Actual design trip point is 5 V at the Starter LLID input.</li> </ul>	Local
Simplex Duplex Gear Drive FastPak	6B5	Voltage VCA Loss	Chiller Circuit X	Warning	Latching	Start Sequence and Run modes	<ul style="list-style-type: none"> <li>Power Monitoring option disabled: No effect</li> <li>Power Monitoring option enabled: No voltage was sensed on the potential transformer VCA input while starting or running. Detection time shall be 3 seconds min and 5 seconds max. Actual design trip point is 5 V at the Starter LLID input.</li> </ul>	Local



# Adaptive Frequency Drive Diagnostics

These diagnostics are called out by the Adaptive Frequency Drive and communicated to the Main Processor.

**Table 2. Adaptive Frequency Drive Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex FastPak	6B5	AFD Power Loss	Chiller Circuit X	Immediate Shutdown	Nonlatching	All Compressor Starting and Running modes	When power is lost for a longer period such that drive operation is impaired, the drive shall take action based on the Power Loss Mode and wait an adjustable Power Loss Time before setting a Power Loss Diagnostic that will keep the drive in the stop mode. When power is restored, the drive shall wait an adjustable Power Loss Reset Time and then automatically clear this diagnostic. See PSO case 4297	Local
Simplex Duplex FastPak	6B5	AFD Start Inhibited	Chiller Circuit X	Normal Shutdown	Nonlatching	Waiting to Start	The drive may inhibit starts due to internal conditions such as temperature.	Local
Simplex Duplex FastPak	EC	AFD Motor Current Overload	Chiller Circuit X	Immediate Shutdown	Latching	Compressor Starting and Running modes	Compressor motor current exceeded overload time vs. trip characteristic. It is assumed that the drive will not need a different overload function for starting vs. running because it will limit current during a start.	Local
Simplex Duplex FastPak	6B5	AFD Motor Short	Chiller Circuit X	Immediate Shutdown	Latching	All	Motor or power stage is shorted.	Local
Simplex Duplex FastPak	6B5	AFD Instantaneous Current Overload	Chiller Circuit X	Immediate Shutdown	Latching	All	The drive itself detected instantaneous overcurrent.	Local
Simplex Duplex FastPak	6B5	AFD High Temperature	Chiller Circuit X	Immediate Shutdown	Latching	All	The drive transistor temperature was detected to be above a safe temperature.	Local
Simplex Duplex FastPak	E4	AFD Output Phase Loss	Chiller Circuit X	Immediate Shutdown	Latching	All	A greater than 15% current unbalance is detected for more than 5 seconds while running or starting.	Local
Simplex Duplex FastPak	6B5	AFD Ground Fault	Chiller Circuit X	Immediate Shutdown	Latching	All	The drive detected ground fault current.	Local
Simplex Duplex FastPak	6B5	HPC/High AFD Heat Sink Water Pressure	Chiller Circuit X	Immediate Shutdown	Latching	All	The 'Gate Kill' input to the AFD opened. The devices that may open this circuit are the condenser high pressure cutout switch N.C. contact opening or the heat sink water pressure switch opening.	Local
Simplex Duplex FastPak	2D0	AFD Communication Loss: Main Processor	Chiller Circuit X	Immediate Shutdown	Latching	All	The AFD detected a continual loss of communication with the main processor for greater than the Communications Loss Time bound setpoint.	Local
Simplex Duplex FastPak	6B5	AFD High Bus Voltage	Chiller Circuit X	Immediate Shutdown	Latching	All	High DC bus voltage was detected on the drive.	Local
Simplex Duplex FastPak	6B5	AFD Control Board Memory Error Type II	Chiller Circuit X	Immediate Shutdown	Latching	All	Checksum on the EEPROM on the Control board configuration failed. Factory defaults used.	Local



## Adaptive Frequency Drive Diagnostics

**Table 2. Adaptive Frequency Drive Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex FastPak	6B5	AFD General Fault	Chiller Circuit X	Immediate Shutdown	Latching	All	A failure within the AFD exists. Clear the diagnostic. If persists, contact tech support	Local
Simplex Duplex FastPak	6B5	AFD Fatal Software Error	Chiller Circuit X	Immediate Shutdown	Latching	All	A fatal software fault has occurred. Cycle power. If persists, contact tech support	Local
Simplex Duplex FastPak	6B5	AFD I/O Board Failure	Chiller Circuit X	Immediate Shutdown	Latching	All	A failure has occurred on the I/O board. Clear the diagnostic. If persists, contact tech support	Local
Simplex Duplex FastPak	6B5	AFD Power Intfc Controller Board Failure	Chiller Circuit X	Immediate Shutdown	Latching	All	A failure has occurred on the Power Interface Controller (PIC) board. Clear the diagnostic. If persists, contact tech support	Local
Simplex Duplex FastPak	6B5	AFD Power Structure Board Failure	Chiller Circuit X	Immediate Shutdown	Latching	All	A failure has occurred on the Power Structure board. Clear the diagnostic. If persists, contact tech support	Local
Simplex Duplex FastPak	6B5	AFD DPI Communication Failure	Chiller Circuit X	Immediate Shutdown	Latching	All	A failure has occurred with the internal DPI communications interface.	Local
Simplex Duplex FastPak	6B5	AFD RS485 Board Memory Error Type II	Chiller Circuit X	Immediate Shutdown	Latching	All	Checksum on the EEPROM on the RS485 board failed. Factory default values used.	Local

While the Chiller is in the diagnostic state (not yet reset) and an AFD Fault Exists, attach the service tool TechView and go to Status View, Motor Tab to the last menu item of "Last Diagnostic Code". Then compare to the following drive fault table for additional information

**Table 3. Fault Codes**

No.	Fault	No.	Fault	No.	Fault
2	Auxiliary Input	77	Volts Range	216	Rctfr Gnd Fault
3	Power Loss	78	FluxAmps Rang	217	Rctfr Base Temp
4	Under Voltage	79	Excessive Load	218	Rctfr IGBT Temp
5	Over Voltage	80	AutoTune Aborted	219	Rctfr IT Overld
7	Motor Overload	81-85	Port 1-5 DPI Loss	220	Rctfr 12T Overld
8	Invtr Base Temp	87	IXo Voltage Range	221	Ride Thru Abort
9	Invtr IGBT Temp	100	Parameter Chksum	222	High AC Line
12	HW OverCurrent	101	UserSet1 Chksum	223	Low DC Bus
13	Ground Fault	102	UserSet2 Chksum	224	Rctfr Over Volt
24	Decel Inhibit	103	UserSet3 Chksum	225	Input I Imbalance
25	OverSpeed Limit	104	Pwr Brd Chksum1	226	Input V Imbalance
29	Analog in Loss	105	Pwr Brd Chksum2	227	AC Line Lost
30	NTC Demux Fail (2)	106	Incompat MCB-PB	228	Line Feq Lost
31	Inv Temp Switch (2)	107	Replaced MCB-PB	229	Rctfr Checksum
33	Auto Rstrt Tries	120	I/O Mismatch (3)	230	Invtr HW Unk
35	Current Fbk Lost	121	I/O Comm Loss	231	Rctfr HW Unk
36	SW OverCurrent	122	I/O Board Fail (3)	232	Rctfr Not OK
37	Motor I Imbalance	123	Invtr Unk IO Brd (2)	233	Precharge Closed
38	Phase U to Grnd	197-199	Invtr Dsat U-, V-, W- (2)	234	Precharge Opened
39	Phase V to Grnd	200-202	Invtr Dsat U, V, W (3)	235	Rctfr Pwr Board
40	Phase W to Grnd	200-202	Invtr Dsat U+, V+, W+ (2)	236	Rctfr IO Board
41	Phase UV Short	203-205	Invtr Over Cur U, V, W	237	Not at Voltage (See PSO Case 4077)
42	Phase VW Short	206	Invtr HW Unused (3)	238	Rctfr Not Login
43	Phase WU Short	207	Invtr Gate Kill	239	Power Phased ACB
48	Params Defaulted	208-210	Rctfr Dsat R, S, T (3)	240	Rctfr Gate Kill (2)
63	Shear Pin	208-210	Rctfr Dsat R+, S+, T+ (2)	241-243	Rctfr Dsat R-, S-, T- (2)
64	Drive Overload	211-213	Rctfr Over Cur R, S, T	244	Rctfr NTC Demux (2)
70	HW Fault	214	Reactor Temp	245	Rctfr Unk IO Brd (2)
71-75	Port 1-5 Adapter	215	Rctfr HW Unused (3)	246	Rctfr DPI Comm (2)

Notes: (1) = Fault Numbers not listed are reserved for future use. (2) = Fault available on Frame 4 drive only (3) = Fault available on Frame 3 drives only



# Main Processor Defective Sensor or LLID Diagnostics

These are diagnostics that the main processor calls out after determining the data it is receiving from the Low Level Intelligent Device (LLID) is invalid or the LLID itself is indicating its data is invalid. This section includes the Purge sensor and LLID diagnostics.

**Table 4. Main Processor Defective Sensor or LLID Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	87	External Chilled/ Hot Water Setpoint	Chiller (Ext. Chilled Water Setpoint)	Warning	Nonlatching	All	<p>This diagnostic will handle either functions of Ext. Chilled Water or Ext. Hot Water setpoint.</p> <ul style="list-style-type: none"> <li>Function Not "Enabled": no diagnostics.</li> <li>Function "Enabled ": Out-Of-Range Low or Hi or bad LLID, set diagnostic. External CWS (or HWS if selected) command will withdraw from decision to do CWS (or HWS if selected). This warning diagnostic will automatically reset if the input returns to the normal range.</li> <li>See Operation Maintenance manual.</li> </ul>	Remote
Simplex Duplex Gear Drive FastPak	89	External Current Limit Setpoint	Chiller (Ext Current Limit setpoint)	Warning	Nonlatching	All	<ul style="list-style-type: none"> <li>Not "Enabled": no diagnostics.</li> <li>"Enabled": Out-Of-Range Low or Hi or bad LLID, set diagnostic. External current limit command will withdraw from decision to do current limit. This warning diagnostic will automatically reset if the input returns to the normal range.</li> <li>See Operation Maintenance manual.</li> </ul>	Remote
Simplex Duplex Gear Drive FastPak	8E	Evaporator Entering Water Temp Sensor	Chiller (Chilled Water Reset, Feed forward control, Ice Building)	See Criteria	See Criteria	All	<p>Defective Sensor or LLID.</p> <ul style="list-style-type: none"> <li>Chiller in mode other than Ice Building: Severity is warning, persistence is latching, reset is remote</li> <li>If chiller in Return or Constant Return Chilled Water Reset, set CWS' equal to the next higher priority chilled water setpoint Feed forward control is disabled.</li> <li>Display invalid value for temperature</li> <li>Hot water operation: No effect on controls</li> <li>If Chiller in Ice Building mode: Severity is Normal, persistence is Latching, reset is Remote.</li> </ul>	See Criteria
Simplex Duplex Gear Drive FastPak	AB	Evaporator Leaving Water Temp Sensor	Chiller	Normal Shutdown	Latching	All	<p>Defective Sensor or LLID</p> <ul style="list-style-type: none"> <li>Display invalid value for temperature</li> </ul>	Remote



## Main Processor Defective Sensor or LLID Diagnostics

**Table 4. Main Processor Defective Sensor or LLID Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	9A	Condenser Entering Water Temp Sensor	Chiller	Warning	Latching	All	Defective Sensor or LLID <ul style="list-style-type: none"> <li>Normal heating operation: feed forward control is disabled.</li> <li>Chilled water operation: No effect on controls</li> <li>Display invalid value for temperature</li> </ul>	Remote
Simplex Duplex Gear Drive FastPak	9B	Condenser Leaving Water Temp Sensor	Chiller	See Criteria	Latching	All	Defective Sensor or LLID <ul style="list-style-type: none"> <li>Chilled water control: Severity is Warning</li> <li>Hot water control: Severity is Normal</li> <li>Display invalid value for temperature</li> </ul>	Remote
Simplex Duplex Gear Drive FastPak	2EB	Evaporator Diff Water Pressure Xdcr	Chiller	Warning	Latching	All	Defective Sensor or LLID <ul style="list-style-type: none"> <li>Display invalid value</li> <li>See PSO Case 2170</li> </ul>	Remote
Simplex Duplex Gear Drive FastPak	2EC	Condenser Diff Water Pressure Xdcr	Chiller	Warning	Latching	All	Defective Sensor or LLID Display invalid value Flow calculation shall be disabled. See PSO Case 2170	Remote
Simplex Duplex Gear Drive FastPak	2E9	Second Condenser Entering Water Temp Sensor	Chiller	Warning	Latching	All	Defective Sensor or LLID Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	2EA	Second Condenser Leaving Water Temp Sensor	Chiller	Warning	Latching	All	Defective Sensor or LLID Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	AD	Evaporator Saturated Refrigerant Temp Sensor	Chiller Circuit X	Normal Shutdown	Latching	All	Defective Sensor or LLID Display invalid value for temperature	Remote
Simplex Duplex Gear Drive FastPak	8F	Condenser Saturated Refrigerant Temp Sensor	Chiller Circuit X	Normal Shutdown	Latching	All	Defective Sensor or LLID	Remote
Simplex	2A4	Purge Liquid Temperature Sensor	Purge	Normal Shutdown	Latching	Retrofit Purge	Display invalid value Note: This sensor only exists for a Retrofit Purge. For a unit mount Purge, the Cond or Evap sat. Refrigerant Temperature is used depending on whether the compressor is running or not.	Remote
Simplex Duplex Gear Drive FastPak	AC	Condenser Refrigerant Pressure Xdcr	Chiller Circuit X	Normal Shutdown	Latching	All	Defective Sensor or LLID Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	A9	Oil Tank Temperature Sensor	Chiller Circuit X	Normal Shutdown	Latching	All	Defective Sensor or LLID Display invalid value See PSO Case 3884 for additional information	Remote



## Main Processor Defective Sensor or LLID Diagnostics

**Table 4. Main Processor Defective Sensor or LLID Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	2F1	Oil Pump Discharge pressure Transducer	Chiller Circuit X	Immediate Shutdown	Latching	All	Defective Sensor or LLID Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	2F3	Oil Tank Pressure Transducer	Chiller Circuit X	Immediate Shutdown	Latching	All	Defective Sensor or LLID Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	A4	Motor Winding Temperature 1 Sensor	Chiller Circuit X	Normal Shutdown	Latching	All	Defective Sensor or LLID Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	A7	Motor Winding Temperature 2 Sensor	Chiller Circuit X	Normal Shutdown	Latching	All	Defective Sensor or LLID Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	A8	Motor Winding Temperature 3 Sensor	Chiller Circuit X	Normal Shutdown	Latching	All	Defective Sensor or LLID Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	AF	Inboard Bearing Temperature Sensor	Chiller Circuit X	Normal Shutdown	Latching	All	Defective Sensor or LLID Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	B0	Outboard Bearing Temperature Sensor	Chiller Circuit X	Normal Shutdown	Latching	All	Defective Sensor or LLID Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	284	Compressor Discharge Refrigerant Temperature Sensor	Chiller Circuit X	Normal Shutdown	Latching	All	Defective Sensor or LLID Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	A1	Outdoor Air Temperature Sensor	Chiller (Chilled Water Reset)	Warning	Nonlatching	All	Defective Sensor or LLID. <ul style="list-style-type: none"> <li>• Operation other than outdoor chilled water reset: No effect on controls</li> <li>• See Operation Maintenance Manual for additional information.</li> <li>• Display invalid value for temperature</li> <li>• This warning diagnostic will automatically reset if the temperature returns to the normal range.</li> </ul>	Remote
Simplex Duplex Gear Drive FastPak	2A3	Purge Compressor Suction Refrigerant Temp Sensor	Purge Purge X	Normal Shutdown	Latching	All	Defective Sensor or LLID Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	6B4	Purge Carbon Tank Temperature Sensor	Purge Purge X	Normal Shutdown	Latching	All	Defective Sensor or LLID Display invalid value	Remote



## Main Processor Defective Sensor or LLID Diagnostics

**Table 4. Main Processor Defective Sensor or LLID Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	4C4	External Base Loading Setpoint	Chiller (Base Loading)	Warning	Nonlatching	Base Loading	Defective Sensor or LLID <ul style="list-style-type: none"> <li>• Display invalid value</li> <li>• External base load Not "Enabled": no diagnostic.</li> <li>• Function "Enabled": Out-Of-Range Low or Hi or bad LLID, set diagnostic, default base load setpoint to next level of priority (e.g. Front Panel Setpoint). This warning diagnostic will automatically reset if the input returns to the normal range.</li> </ul>	Remote
FastPak	6B7	RLA Input	Chiller	Normal Shutdown	Latching	All	Out-Of-Range Low or Hi or bad LLID.	



# Main Processor Purge Diagnostics

These are diagnostics that the main processor calls out pertaining to the Purge functions. Note that the diagnostics for the Purge Defective Sensor or LLIDs are listed in the Defective Sensor or LLID Diagnostics section.

**Table 5. Main Processor Purge Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	2A5	Purge Liquid Level Too High Warning	Purge Purge X	Normal Shutdown	Nonlatching	All	The level switch was open for more than 20 minutes. Diagnostic self-resets if switch is closed 20 minutes after the diagnostic occurs.	Remote
Simplex Duplex Gear Drive FastPak	2A5	Purge Liquid Level Too High Continuously	Purge Purge X	Normal Shutdown	Latching	All	The liquid level switch is still open 20 minutes after the initial liquid level diagnostic, or the initial liquid level diagnostic has occurred more than 4 times in 4 hours. See PSO Case 2428	Remote
Simplex Duplex Gear Drive FastPak	6B4	Purge Carbon Regen Temperature Not Satisfied	Purge Purge X	Normal Shutdown	Latching	All	The carbon tank temperature did not reach the required minimum temperature - 30F within 4 hours after energizing the carbon tank heater.	Remote
Simplex Duplex Gear Drive FastPak	6B4	Purge Carbon Regen Temperature Limit Exceeded	Purge Purge X	Normal Shutdown	Latching	All	The carbon tank temperature exceeded 120% of the regeneration temperature setpoint, or the carbon temperature did not decrease more than 25°F in the first hour after entering the cool down portion of the carbon regeneration process. In either case, the diagnostic should disable the purge and open the exhaust solenoid valve.	Remote
Simplex Duplex Gear Drive FastPak	2AA	Purge Daily Pumpout Limit Exceeded	Purge Purge X	Normal Shutdown	Nonlatching	All	The 24 hour average pumpout exceeded the daily pumpout limit setpoint. Diagnostic will clear when pumpout limit is no longer exceeded.	Remote
Simplex Duplex Gear Drive FastPak	6B4	Carbon Regeneration Temperature Too Low	Purge Purge X	Warning	Latching	All	The purge carbon temperature did not increase more than 25°F in the first hour after a carbon regeneration cycle was initiated. This is intended to identify a failed heater or temperature sensor. The diagnostic should disable future regeneration cycles, but allow all other purge algorithms to function.	Remote



# Main Processor Unit Level Diagnostics

These are diagnostics that the main processor calls out excluding those listed in the Defective Sensor or LLID, Purge, Communication, Main Processor and Boot Messages and Special Troubleshooting Messages diagnostic sections.

**Table 6. Main Processor Unit Level Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	FB	Low Evaporator Refrigerant Temperature	Chiller Chiller X	Immediate Shutdown	Latching	All	The Evaporator Saturated Refrigerant Temperature dropped below the Low Refrigerant Temperature Cutout Setpoint for 30°F-sec.	Local
Simplex Duplex Gear Drive FastPak	F4	High Oil Temperature	Chiller Chiller X	Immediate Shutdown	Latching	All	If Oil Temperature exceeds 180°F (for CVHE, F G, CDHE, F) for more than 120°F seconds this diagnostic is issued. See PSO Case #3884 specification for additional information. (There will be a different cutout for CVGF)	Remote
Simplex Duplex Gear Drive FastPak	C5	Low Evap Leaving Water Temperature: Unit Off (Unit in auto but not starting or running)	Chiller (Evap Pump)	Warning	Nonlatching	Unit in Stop Mode, or in Auto Mode and No Ckt's Energized (Any Ckt Energized)	The evaporator leaving water temp. fell below the leaving evaporator water temp cutout setting for 30 degree F seconds while the Chiller is in the Stop mode, or in Auto mode with no compressors running. Energize Evap Water pump Relay until diagnostic auto resets, then return to normal evap pump control. Automatic reset occurs when the temp rises 2(F 1.1(C) above the cutout setting for 2 minutes.	Remote
Simplex Duplex Gear Drive FastPak	C6	Low Evap Leaving Water Temp: Unit On	Chiller	Immediate Shutdown	Nonlatching	Any Ckt(s) Energized (No Ckt's Energized)	The evaporator leaving water temp. fell below the cutout setpoint for 30 degree F 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 Evaporator Water Pump Output.	Remote
Simplex Duplex Gear Drive FastPak	384	Evaporator Water Flow Overdue	Chiller	Normal Shutdown	Nonlatching	Estab. Evap. Water Flow on going from STOP to AUTO	<ul style="list-style-type: none"> <li>Evaporator water flow was not proven within 4.25 minutes of the Evap. water pump relay being energized.</li> <li>The diagnostic will de-energize the Evaporator Water Pump output.</li> <li>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 pump)</li> <li>In manual pump control, whether in auto or stop mode, This diagnostic shall be called, however the pump will remain energized.</li> </ul>	Remote



## Main Processor Unit Level Diagnostics

**Table 6. Main Processor Unit Level Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	ED	Evaporator Water Flow Lost	Chiller	Immediate Shutdown	Nonlatching	All Stop Modes	<ul style="list-style-type: none"> <li>The evaporator water flow switch input was open for more than 6-10 contiguous seconds.</li> <li>This diagnostic does not de-energize the evap pump output. (Is in Evap. Water pump override).</li> <li>Transitioning from auto to stop will de-energize the Evap Water pump even if in Evap. Water pump override. The Evaporator Water Flow Lost Diagnostic will then be cleared</li> <li>6-10 seconds of contiguous flow shall clear this diagnostic.</li> <li>Even though the pump times out in the STOP modes, this diagnostic shall not be called out in the STOP modes.</li> <li>In manual pump control, whether in auto or stop mode, this diagnostic shall be called, and the pump will remain energized.</li> </ul>	Remote
Simplex Duplex Gear Drive FastPak	6B6	High Evaporator Water Temperature	Chiller	Info and Special Action	Nonlatch	Only effective if either 1)Evap Wtr Flow Overdue, 2)Evap Wtr Flow Loss, or 3)Low Evap Rfgr Temp,- Unit Off, diagnostic is active.	The leaving water temperature exceeded the high evap water temp limit (TV service menu settable -default 105°F) for 15 continuous seconds. The evaporator water pump relay will be de-energized to stop the pump but only if it is running due to one of the diagnostics listed in 'Active modes'. The diagnostic will auto reset and the pump will return to normal control when the temperature falls 5°F below the trip setting. The primary purpose is to stop the evaporator water pump and its associated pump heat from causing excessive waterside temperatures and waterside pressures when the chiller is not running but the evap pump is on due to either Evap Water Flow Overdue, Evaporator Water Flow Loss, or Low Evap Temp - Unit Off Diagnostics. This diagnostic will not auto clear solely due to the clearing of the enabling diagnostic.	Local



## Main Processor Unit Level Diagnostics

**Table 6. Main Processor Unit Level Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	F5	Condenser High Pressure Cutout	Chiller Chiller X	Immediate Shutdown	Latching	All	<ul style="list-style-type: none"> <li>Condenser pressure exceeded the trip point of the form C HPC switch causing it to open its N.C. contacts removing power from the compressor motor contactors and closing its N.O. contacts supplying a signal to the CH530 controls that it was the HPC switch that shut down the compressor.</li> <li>Other diagnostics that may occur as an expected consequence of the HPC trip will be suppressed from annunciation. These include Phase Loss, Power Loss, MPL and Transition Complete Input Open.</li> <li>For CVHE/E/G and CDHE/F, the available HPC trip points are 15 and 25 PSIG. (check sales order)</li> <li>The Condenser Refrigerant temperature or pressure sensors are not used to initiate a high pressure shutdown.</li> </ul>	Local
Simplex Duplex Gear Drive FastPak	FD	Emergency Stop	Chiller	Immediate Shutdown	Latching	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
Simplex Duplex Gear Drive FastPak	399	MP: Invalid Configuration	Platform	Immediate Shutdown	Latching	All	MP recalled a configuration from nonvolatile memory that is not compatible with installed application, i.e. new software downloaded does not match configuration in MP.	NA
Simplex Duplex Gear Drive FastPak	1AD	MP: Non-Volatile Memory Reformat	Platform	Warning	Latching	All	MP has determined there was an error in a sector of the Non-Volatile memory and it was reformatted. Most likely recalled default setpoints. Check settings.	Local
Simplex Duplex Gear Drive FastPak	2E6	Check Clock	Platform	Warning	Latching	All	The real time clock had an error. The real time clock had detected loss of its oscillator at some time in the past. This diagnostic can be effectively cleared only by writing a new value to the chiller's time clock using the TechView or DynaView's "set chiller time" functions.	Remote
Simplex Duplex Gear Drive FastPak	1D1	MP: Could not Store Starts and Hours	Platform	Warning	Latching	All	On power-up, MP has determined that it could not complete the previous power-down store. Starts and Hours may have been lost for the last 24 hours. Most likely due to a setpoint store in progress at time of power down.	Remote



## Main Processor Unit Level Diagnostics

**Table 6. Main Processor Unit Level Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	1D2	MP: Non-Volatile Block Test Error	Platform	Warning	Latching	All	On power up, MP has detected a CRC error with a block in the Non-Volatile memory. Check diagnostic history and settings. Could loose history block and some setpoints. Recall ROM defaults for lost setpoints. Up to three blocks may fail before the sector is reformatted (diagnostic 1AD)	Local
Simplex Duplex Gear Drive FastPak	D9	MP: Reset Has Occurred	Platform	Warning	Latching	All	The main processor has successfully come out of a reset and built its application. A reset may have been due to a power up, installing new software or configuration.	Remote
Simplex Duplex Gear Drive FastPak	DA	Extended Compressor Surge	Chiller Chiller X	Normal Shutdown	See Criteria	Running and Stopping	<ul style="list-style-type: none"> <li>Chiller not in Ice Building mode: An extended Surge condition was detected and the Surge protection feature was Enabled. An extended Surge condition is defined as being in a "continuous" surge condition for 7 + 10% minutes. Severity is Normal, persistence is Latching.</li> <li>Chiller in Ice Building mode: An extended Surge condition was detected while in Ice Building Mode. Severity is Normal, persistence is Nonlatch. This diagnostic shall clear when the Ice Building command is withdrawn.</li> </ul>	Remote
Simplex Duplex Gear Drive FastPak	D7	Over Voltage	Chiller Chiller X	Normal Shutdown	Nonlatching	Starting and any Ckt(s) Energized	<ul style="list-style-type: none"> <li>Over/Under voltage option not selected: No effect</li> <li>Over/Under voltage option selected <ul style="list-style-type: none"> <li>- Diagnostic called when the average of the three line voltages is greater than 112.5% of the unit line voltage setpoint for 60 seconds.</li> <li>- Diagnostic cleared when the average of the three line voltages is 110% or less of the unit line voltage setpoint.</li> </ul> </li> </ul>	Remote
Simplex Duplex Gear Drive FastPak	D8	Under Voltage	Chiller Chiller X	Normal Shutdown	Nonlatching	Starting and any Ckt(s) Energized	<ul style="list-style-type: none"> <li>Over/Under voltage option not selected: No effect</li> <li>Over/Under voltage option selected <ul style="list-style-type: none"> <li>- Diagnostic called when the average of the three line voltages is less than 87.5% of the unit line voltage setpoint for 60 seconds.</li> <li>- Diagnostic cleared when the average of the three line voltages is 90% or greater of the unit line voltage setpoint.</li> </ul> </li> </ul>	Remote



## Main Processor Unit Level Diagnostics

**Table 6. Main Processor Unit Level Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	2F4	Low Evaporator Water Flow	Chiller	Warning	Nonlatching	Chiller Auto, manual water pump and All Running Modes	The evaporator water flow measurement option was installed and the flow dropped to or below the Evaporator Low Water Flow Warning Setpoint in TV. This IFW shall be Auto Reset and reset 0.1 gpm/ton above the adjustable trip point or when the evaporator water pump is turned off. See PSO Case # 3741.	Remote
Simplex Duplex Gear Drive FastPak	DC	Condenser Water Flow Overdue	Chiller	Normal Shutdown	Nonlatching	Waiting to Start	Condenser water flow was not proven within 4.25 minutes of the Condenser water pump relay being energized. The diagnostic will de-energize the Condenser Water Pump output. It will be re-energized if the diagnostic clears with the return of flow and the chiller will be allowed to start normally (to accommodate external control of pump)	Remote
Simplex Duplex Gear Drive FastPak	F7	Condenser Water Flow Lost	Chiller	Normal Shutdown	Nonlatching	Starting (after established flow running and stopping) [All Stop Modes]	<ul style="list-style-type: none"> <li>• In cooling mode               <ul style="list-style-type: none"> <li>- The condenser water flow proof input was open for more than 6 contiguous seconds after flow had been proven.</li> <li>- This diagnostic is cleared 7 seconds after the Condenser Water Pump is stopped. The 7 seconds is put in to avoid fast cycling of the cond pump. In order to arm the cond overdue diagnostic, the cond pump must be turned off. It is felt that 7 seconds is a reasonable time to cycle this pump. Do not want to cycle any faster.</li> <li>- The Cond Pump will be commanded off but the Evap pump command will not be effected.</li> </ul> </li> <li>• In heating mode               <ul style="list-style-type: none"> <li>- The condenser water flow proof input was open for more than 6 contiguous seconds after flow had been proven.</li> <li>- This diagnostic is automatically cleared after 6-10 seconds of contiguous flow.</li> <li>- This diagnostic does not de-energize the Cond. Water pump output (In Cond. water pump override).</li> <li>- Transitioning from auto to stop will de-energize the Cond Water pump even if in Cond Water pump override. The Condenser Water Flow Lost Diagnostic will then be cleared.</li> <li>- Even though the Cond. Water pump times out in the stop mode, this diagnostic will not be called out in the stop mode.</li> </ul> </li> </ul>	Remote



## Main Processor Unit Level Diagnostics

**Table 6. Main Processor Unit Level Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	F9	Free Cooling Actuators Not Open	Free Cooling	Normal Shutdown	Latching	Free Cooling	The FC valve closed limit switches did not open within 3 minutes after energizing the FC relays.	Remote
Simplex Duplex Gear Drive FastPak	F9	Free Cooling Actuators Not Open During FC	Free Cooling	Normal Shutdown	Latching	Free Cooling	The FC valve limit switches closed while in the Free Cooling mode.	Remote
Simplex Duplex Gear Drive FastPak	F9	Free Cooling Actuators Not Closed	Free Cooling	Normal Shutdown	Latching	Free Cooling	The FC valve closed limit switches did not close within 3 minutes after de-energized the FC relays.	Remote
Simplex Duplex Gear Drive FastPak	F9	Free Cooling Actuators Unexpectedly Open	Chiller	Immediate Shutdown	Latching	Free Cooling	The FC valve limit switches are open while not in a free cooling mode.	Remote
Simplex Duplex Gear Drive FastPak	6B5	Unexpected Starter Shutdown	Chiller Circuit X	Normal Shutdown	Nonlatching	All Cprsr Running modes, Starting, Running and Preparing to Shutdown	The Starter module status reported back that it is stopped when it should be running and no Starter diagnostic exists. This diagnostic will be logged in the history buffer and then cleared.	Local
Simplex Duplex Gear Drive FastPak	6B5	Starter Failed to Arm/Start	Chiller Circuit X	Normal Shutdown	Latching	All	Starter failed to arm or start within the allotted time (10 minutes).	Remote
Simplex Duplex Gear Drive FastPak	189	Solid State Starter Fault	Chiller Circuit X	Immediate Shutdown	Latching	All	A fault condition was detected on the non-communicating Solid State Starter. The fault relay contacts on the SSS opened while the SSS had control power. Filtering of the fault signal must allow for an approximate 2 second delay time from when the SSS is powered to when the fault relay contacts are valid.	Local
Simplex Duplex Gear Drive FastPak	F2	Low Differential Oil Pressure	Chiller Circuit X	Immediate Shutdown	Latching	After established Diff. Oil Press in Starting. Also at all times in Running and Stopping	<ul style="list-style-type: none"> <li>When the compressor is running, if the differential oil pressure falls below the Low Differential Oil Pressure Cutout setpoint for more than (cutout * 3) psid seconds then this diagnostic is issued.</li> <li>However for any listed mode, if the differential pressure ever falls below 3/4 of the Low Differential Oil Pressure Cutout this diagnostic is issued within 2 seconds.</li> <li>See PSO case # 3884 for additional information.</li> </ul>	Remote



## Main Processor Unit Level Diagnostics

**Table 6. Main Processor Unit Level Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	4C1	Check Oil Filter	Chiller Circuit X	Warning	Latching	Oil Pump Running and Feature Enabled [Manual oil pump]	<ul style="list-style-type: none"> <li>Check Oil Filter Diagnostic disabled: No diagnostic</li> <li>Check Oil Filter Diagnostic enabled: The calculated differential oil pressure fell below the Check Oil Filter Setpoint for the specified psid-seconds. See PSO case # 3884 for additional information.</li> </ul>	Remote
Simplex Duplex Gear Drive FastPak	2E7	Oil Pressure Sensor Calibration	Chiller Circuit X	Normal Shutdown	Latching	All modes in which the oil pump is not running nor has been running in the previous five minutes	The calibration error between the Oil Tank and Oil Discharge Pressure sensors exceeded the Differential Pressure Calibration Limit (The limit is not a setpoint) See PSO case # 3884 for additional information.	Remote
Simplex Duplex Gear Drive FastPak	287	High Vacuum Lockout	Chiller Circuit X	Immediate Shutdown	Latching	Waiting to Start	The oil tank pressure is at or below the High Vacuum Lockout Limit. A high vacuum lockout mode is entered and a timed recovery is attempted. If the recovery is unsuccessful, the High Vacuum Lockout diagnostic is called. See PSO case # 3884 for additional information.	Remote
Simplex Duplex Gear Drive FastPak	482	Low Oil Temperature	Chiller Circuit X	Immediate Shutdown	Latching	All Running Modes	If the oil temperature is at or below the Low Oil Temperature Cutout (Not a setpoint), this diagnostic will be issued stopping the compressor. This diagnostic is ignored for the first 10 minutes of compressor run. See PSO case # 3884 for additional information.	Local
Simplex Duplex Gear Drive FastPak	EA	High Inboard Bearing Temperature	Chiller Circuit X	Immediate Shutdown	Latching	All	The Inboard Bearing temperature sensor exceeded 180 + or - 5°F (82.2°C) for 0.5 - 2 seconds.	Local
Simplex Duplex Gear Drive FastPak	EB	High Outboard Bearing Temperature	Chiller Circuit X	Immediate Shutdown	Latching	All	The Outboard Bearing temperature sensor exceeded 180 + or - 5°F (82.2°C) for 0.5 - 2 seconds.	Local
Simplex Duplex Gear Drive FastPak	1C2	High Compressor Discharge Refrigerant Temperature	Chiller Circuit X	Immediate Shutdown	Nonlatching	All	The discharge temp. exceeded the High Discharge Temp Cutout setpoint. Time to trip from trip value exceeded shall be 0.5 to 2.0 seconds. The diag. shall reset automatically 50°F below the trippoint.	Remote
Simplex Duplex Gear Drive FastPak	18B	High Motor Winding Temperature 1	Chiller Circuit X	Immediate Shutdown	Latching	All	The motor winding temp. at sensor #2 exceeded 265°F for 0.5 - 2 seconds.	Local
Simplex Duplex Gear Drive FastPak	18C	High Motor Winding Temperature 2	Chiller Circuit X	Immediate Shutdown	Latching	All	The motor winding temp. at sensor #2 exceeded 265°F for 0.5 - 2 seconds.	Local



## Main Processor Unit Level Diagnostics

**Table 6. Main Processor Unit Level Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	18D	High Motor Winding Temperature 3	Chiller Circuit X	Immediate Shutdown	Latching	All	he motor winding temp. at sensor #2 exceeded 265°F for 0.5 - 2 seconds.	Local
Simplex Duplex Gear Drive FastPak	2F2	Refrigerant Monitor Input	Chiller	Warning	Nonlatching	All	Defective Sensor or LLID Display invalid value The generic refrigerant monitor input read a value that was out of range. < 2mA/1Vdc or >22mA/11Vdc.	Remote
Simplex Duplex Gear Drive FastPak	E8	Unexpected Differential Oil Pressure	Chiller Circuit X	Immediate Shutdown	Latching	Idle Oil Management Mode	The differential oil pressure did not fall far enough below the Differential Oil Pressure Cutout after waiting the required time after the oil pump was shut off. (Could be due to a defective pressure transducer or stuck oil pump relay). See PSO case # 3884 for additional information.	Remote
Simplex Duplex Gear Drive FastPak	1FF	Differential Oil Pressure Overdue	Chiller Circuit X	Immediate Shutdown	Latching	Waiting to Start; Establishing Oil Pressure	Sufficient differential oil pressure was not established within the specified time of starting the oil pump. See PSO case # 3884 for additional information.	Remote
Simplex Duplex Gear Drive FastPak	390	BAS Failed to Establish Communication	Chiller Circuit X	Warning	Nonlatching	At power up or rebuild	The BAS did not communicate with the Comm4 interface module within two minutes after Comm4 LLID came out of reset. This is also the same time MP comes out of reset. Set default setpoints to next level of priority (e.g. Front Panel Setpoint). Refer to Section on Setpoint Arbitration to determine how setpoints may be effected. Diagnostic is cleared when successful communication is received from the BAS.	Remote
Simplex Duplex Gear Drive FastPak	398	BAS Communication Lost	Chiller Circuit X	Warning	Nonlatching	All	The local BAS Comm4 interface module lost communications with the BAS for 15 continuous minutes after it had been established. This is a warning diagnostic. Use last valid BAS setpoints. Refer to Section on Setpoint Arbitration to determine how setpoints may be effected. Diagnostic is cleared when successful communication is received from the BAS.	Remote
Simplex Duplex Gear Drive FastPak	3B6	Hot Gas Bypass Valve Closure Overdue	HGBP	Normal Shutdown	Latching	When exiting HGBP, on reset	The HGBP Valve was commanded to close and did not close in the three minutes allowed for closure	Remote
Simplex Duplex Gear Drive FastPak	6B6	Hot Gas Bypass Valve Unexpectedly Open	HGBP	Normal Shutdown	Latching	Normal or Manual HGBP [in HGBP mode]	The HGBP valve opened unexpectedly. Also if in manual, and switch closes and opens without an open command will get diagnostic.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Hot Gas Bypass Valve Opening Overdue	HGBP	Normal Shutdown	Latching	When starting HGBP, on reset	The HGBP Valve was commanded to open and did not open in the three minutes allowed for opening	Remote



## Main Processor Unit Level Diagnostics

**Table 6. Main Processor Unit Level Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	4C5	Generator Fault Relay Open	Chiller Circuit X	Normal Shutdown	Latching	All	The generator fault relay input has opened.	Remote
Simplex Duplex Gear Drive FastPak	4C6	Generator Ready Overdue	Chiller Circuit X	Normal Shutdown	Latching	All	The generator on line input was not closed within 4.25 minutes of the generator run relay being energized.	Remote
FastPak	27E	Safety String Tripped	Chiller	Normal Shutdown	Latching	All	The safety string input is open	Remote
FastPak	27F	Motor Temperature Cutout Tripped	Chiller	Normal Shutdown	Latching	All	The MTC switch input is open	Remote
FastPak	6B6	Starter Interlock Failed to Close	Chiller	Normal Shutdown	Latching	Starting	Upon a call for cooling, If the start interlock does not pull in within 40 minutes.	Remote
FastPak	6B6	Starter Interlock Failed to Open	Chiller	Normal Shutdown	Latching	Stopping	Once a call for cooling drops out, if the start interlock does not drop out within 10 seconds.	Remote
FastPak	6B6	Starter Interlock Unexpectedly Open	Chiller	Normal Shutdown	Latching	Running	Once the call for cooling and the start interlock are established, if the start interlock drops out for more than 2 seconds while there is a call for cooling.	Remote
FastPak	6B6	Starter Interlock Unexpectedly Closed	Chiller	Normal Shutdown	Latching	Stopped	If there is no call for cooling, if the start interlock makes.	Remote
FastPak	6B6	IGV Closure Overdue	Chiller	Warning	Latching	All non running modes	The Inlet Guide Vanes were commanded to close and did not close in the 3 minutes allowed for closure.	Remote
Simplex Duplex Gear Drive FastPak	6B6	LCI-C Software Mismatch: Use BAS Tool	Chiller	Warning	Nonlatching	All	The neuron software in the LCI-C module does not match the chiller type. Download the proper software into the LCI-C neuron. To do this, use the Rover service tool, or a LonTalk tool capable of downloading software to a Neuron 3150	Remote



# Main Processor Communication Diagnostics

These are diagnostics that the main processor calls out when it does not hear from a particular device (functional ID) for the specified duration.

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 (with the exception of “Excessive Loss of Comm” are named by the Functional Name of the input or output that is no longer being heard from by the Main Processor. Many LLIDs, such as the Quad Relay LLID, have more than one functional output associated with it. A communication loss with such a multiple function board, will generate multiple diagnostics. Refer to the Chiller’s wiring diagrams to relate the occurrence of multiple communication diagnostics back to the physical LLID boards that they have been assigned to (bound).

**Table 7. Main Processor Unit Communication Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	6B6	Excessive Loss of Communication	Platform	Immediate Shutdown	Latching	All	This diagnostic is disabled as the default setting. The diagnostic is called out if communication is lost to over 255 devices. Since the maximum number of devices is 255, the diagnostic will never be called.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: External Auto/ Stop	Chiller	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Emergency Stop	Chiller	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: External Ice Building Command	Ice Building Mode	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Chiller shall revert to normal (non-ice building) mode regardless of last state.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Outdoor Air Temperature	Chiller	(Chilled Water Reset)	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. If Tracer not installed or has an invalid outdoor air temperature, default to chilled water reset of zero. If using a valid tracer outdoor temp, no affect. <ul style="list-style-type: none"> <li>• Display Invalid value for temperature.</li> </ul>	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Evap Leaving Water Temp	Chiller	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. <ul style="list-style-type: none"> <li>• Display invalid value for temperature.</li> </ul>	Remote



## Main Processor Communication Diagnostics

**Table 7. Main Processor Unit Communication Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Evap Entering Water Temp	(Chilled Water Reset, Feed forward control, Ice Building)	See Criteria	See Criteria	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. <ul style="list-style-type: none"> <li>Chiller in mode other than Ice Building: Severity is warning, persistence is latching - If chiller in Return or Constant Return Chilled Water Reset, set CWS' equal to the next higher priority chilled water setpoint - Feed forward control is disabled.</li> <li>Display invalid value for temperature</li> <li>Hot water operation: No effect on controls</li> <li>Chiller in Ice Building mode: Severity is Normal, persistence is latching. This diagnostic shall clear when the Ice Building command is withdrawn.</li> </ul>	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Condenser Leaving Water Temp	Chiller	See Criteria	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. <ul style="list-style-type: none"> <li>Chilled water control: Severity is</li> <li>Hot water control: Severity is Normal</li> </ul> Display invalid value for temperature	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Condenser Entering Water Temp	Chiller	Warning	Latch	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Default to a chilled water reset of zero if in load based chilled water reset. <ul style="list-style-type: none"> <li>Normal heating operation: feed forward control is disabled.</li> <li>Chilled water operation: No effect on controls</li> </ul> Display invalid value for temperature	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Sec Cond Leaving Water Temp	Chiller	Warning	Nonlatching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Sec Cond Entering Water Temp	Chiller	Warning	Nonlatching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Display invalid value	Remote



## Main Processor Communication Diagnostics

**Table 7. Main Processor Unit Communication Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	6B7	Comm Loss: Oil Tank Temperature	Chiller Circuit X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Display invalid value See PSO case # 3884 for additional information.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Ext Chilled/Hot Wtr Setpoint	Chiller (Ext. Chilled Water Setpoint)	Warning	Nonlatching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. External CWS (or HWS if selected) command will withdraw from decision to do CWS (or HWS if selected). This warning diagnostic will automatically clear when successful communication is reestablished.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Ext Current Limit Setpoint	Chiller (Ext. Chilled Water Setpoint)	Warning	Nonlatching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. External current limit command will withdraw from decision to do current limit. This warning diagnostic will automatically clear when successful communication is reestablished.	Remote
Simplex Duplex Gear Drive FastPak	6B7	Comm Loss: Cond High Pressure Cutout	Chiller Circuit X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Evaporator Water Flow Switch	Chiller	Immediate Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Condenser Water Flow Switch	Chiller	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Evap Saturated Rfgr Temp	Chiller Circuit X	Immediate Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Cond Saturated Rfgr Temp	Chiller Circuit X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Display invalid value	Remote
Simplex	6B4	Comm Loss: Purge Liquid Temperature	Purge	Normal Shutdown	Latching	Retrofit Purge	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Display invalid value Note: This sensor and thus diagnostic only exists on a retrofit Purge.	Remote



## Main Processor Communication Diagnostics

**Table 7. Main Processor Unit Communication Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Cond Refrigerant Pressure	Chiller Circuit X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	6B7	Comm Loss: Oil Tank Pressure	Chiller Circuit X	Immediate Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	6B7	Comm Loss: Oil Pump Discharge Pressure	Chiller Circuit X	Immediate Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Evaporator Water Pump Relay	Chiller	Warning	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Condenser Water Pump Relay	Chiller	Warning	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Ice Building Relay	Ice Building	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Chiller shall revert to normal (non-ice building) mode regardless of last state.	Remote
Simplex Duplex Gear Drive FastPak	2AD	Comm Loss: Starter	Chiller Circuit X	Immediate Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Local
Simplex Duplex Gear Drive FastPak	2AD	Comm Loss: Adaptive Frequency Drive	Chiller Circuit X	Immediate Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Local
Simplex Duplex Gear Drive FastPak	389	Comm Loss: Local BAS Interface	Chiller Circuit X	Warning	Nonlatching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Use last valid BAS setpoints. Diagnostic is cleared when successful communication is established with the Comm4 LLD.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Compressor Running Relay	Chiller	Warning	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Non-Wrn Latching Alarm Relay	Chiller	Warning	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote



## Main Processor Communication Diagnostics

**Table 7. Main Processor Unit Communication Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Non-Wrn NonLatching Alm Relay	Chiller	Warning	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Unit Purge Alarm Relay	Chiller Circuit X	Warning	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Limit Warning Relay	Chiller	Warning	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Maximum Capacity Relay	Chiller	Warning	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Head Relief Request Relay	Chiller	Warning	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Evap Diff Water Pressure	Chiller	Warning	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Flow and tons calculation shall be disabled.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Cond Diff Water Pressure	Chiller	Warning	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Flow calculation shall be disabled.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Cond Rfqt Pressure Output	Chiller Circuit X	Warning	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Compressor Motor % RLA Output	Chiller Circuit X	Warning	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Refrigerant Monitor Input	Chiller	Warning	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Display out of range value (dashes)	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: External Free Cooling Command	Free Cooling	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Chiller shall revert to normal (non-free cooling) mode regardless of last state.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Free Cool Actrs Closed Input	Chiller	Immediate Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote



## Main Processor Communication Diagnostics

**Table 7. Main Processor Unit Communication Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Free Cool Liq Line Actuator Relay	Free Cooling	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Chiller shall revert to normal (non-free cooling) mode regardless of last state.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Free Cool Gas Line Actr Relay	Free Cooling	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Chiller shall revert to normal (non-free cooling) mode regardless of last state.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Free Cooling Auxiliary Relay	Free Cooling	Normal Shutdown	Nonlatching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B4	Comm Loss: Purge Cprsr Suction Rfgr Temp	Purge Purge X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B4	Comm Loss: Purge Carbon Tank Temperature	Purge Purge X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	6B4	Comm Loss: Purge Liquid Level Switch	Purge Purge X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B4	Comm Loss: Purge Chiller Cprsr Run Input	Purge Purge X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B4	Comm Loss: Purge Pumpout Relay	Purge Purge X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B4	Comm Loss: Purge Carbon Tank Heater Relay	Purge Purge X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B4	Comm Loss: Purge Regen Solenoid Relay	Purge Purge X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B4	Comm Loss: Purge Alarm Relay	Purge Purge X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote



## Main Processor Communication Diagnostics

**Table 7. Main Processor Unit Communication Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	6B4	Comm Loss: Purge Pumpout Solenoid Output	Purge Purge X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B4	Comm Loss: Purge Exhaust Solenoid Output	Purge Purge X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B4	Comm Loss: Purge Condensing Unit Relay	Purge Purge X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B5	Comm Loss: Solid State Starter Fault	Chiller Circuit X	Immediate Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Local
Simplex Duplex Gear Drive FastPak	6B5	Comm Loss: PFCC Relay	Chiller Circuit X	Warning	Nonlatching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Diagnostic is cleared when communications is reestablished.	Remote
Simplex Duplex Gear Drive FastPak	6B7	Comm Loss: Oil/Refrigerant Pump Relay	Chiller Circuit X	Immediate Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B7	Comm Loss: Oil Tank Heater Relay	Chiller Circuit X	Warning	Nonlatching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Compressor allowed to start if oil temperature is okay. If oil temperature is not okay to enter a start, this diagnostic is called.	Remote
Gear Drive	6B7	Comm Loss: Oil Tank Heater 4E1 Relay	Chiller	Warning	Nonlatching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Compressor allowed to start if oil temperature is okay. If oil temperature is not okay to enter a start, this diagnostic is called.	Remote
Gear Drive	6B7	Comm Loss: Oil Tank Heater 4E2 Relay	Chiller	Warning	Nonlatching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Compressor allowed to start if oil temperature is okay. If oil temperature is not okay to enter a start, this diagnostic is called.	Remote
Simplex Duplex Gear Drive FastPak	6B7	Comm Loss: Motor Winding Temperature 1	Chiller Circuit X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Display invalid value	Remote



## Main Processor Communication Diagnostics

**Table 7. Main Processor Unit Communication Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	6B7	Comm Loss: Motor Winding Temperature 2	Chiller Circuit X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	6B7	Comm Loss: Motor Winding Temperature 3	Chiller Circuit X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	6B7	Comm Loss: Inboard Bearing Temperature	Chiller Circuit X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	6B7	Comm Loss: Outboard Bearing Temperature	Chiller Circuit X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Display invalid value	Remote
Simplex Duplex Gear Drive FastPak	6B7	Comm Loss: Cprsr Discharge Rfgt Temp	Chiller Circuit X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	2B0	Comm Loss: IGV First Stage Actuator	Chiller Circuit X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	2B1	Comm Loss: IGV Second Stage Actuator	Chiller Circuit X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Ext Base Loading Setpoint	Chiller (Base Loading)	Warning	Nonlatching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Chiller shall discontinue use of the External Base Loading Setpoint source and revert to the next higher priority for setpoint arbitration.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Ext Base Loading Command	Chiller (Base Loading)	Warning	Nonlatching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Chiller shall discontinue use of the External Base Loading Setpoint source and revert to the next higher priority for setpoint arbitration.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: External Hot Water Command	Chiller (Ext. Hot Water)	Warning	Nonlatching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Chiller shall discontinue use of the External Hot Water Setpoint source and revert to the next higher priority for setpoint arbitration.	Remote



## Main Processor Communication Diagnostics

**Table 7. Main Processor Unit Communication Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
Simplex Duplex Gear Drive FastPak	3B8	Comm Loss: Hot Gas Bypass Load Relay	HGBP	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Chiller shall revert to normal (non-HGBP) mode regardless of last state.	Remote
Simplex Duplex Gear Drive FastPak	3B8	Comm Loss: Hot Gas Bypass Unload Relay	HGBP	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Chiller shall revert to normal (non-HGBP) mode regardless of last state.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Hot Gas Bypass Actr Closed In	Chiller Circuit X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. Chiller shall revert to normal (non-HGBP) mode regardless of last state.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Generator Start/ Stop Relay	Chiller Circuit X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Generator Speed Signal Output	Chiller Circuit X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Generator Up To Speed Input	Chiller Circuit X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Simplex Duplex Gear Drive FastPak	6B6	Comm Loss: Generator Fault Input	Chiller Circuit X	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Duplex	6B6	Comm Loss: External Circuit Lockout	Circuit X	Warning	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. MP will nonvolatily hold the lockout state (enabled or disabled) that was in effect at the time of comm loss.	Remote
Gear Drive FastPak	6B7	Comm Loss: Oil Diff Pressure Switch	Chiller	Immediate Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period. See PSO case # 3884 for additional information.	Remote
FastPak	6B7	Comm Loss: Motor Temperature Cutout	Chiller	Immediate Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
FastPak	6B7	Comm Loss: RLA Input	Chiller	Immediate Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
FastPak	6B7	Comm Loss: Starter Command Relay	Chiller	Immediate Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote



## Main Processor Communication Diagnostics

**Table 7. Main Processor Unit Communication Diagnostics**

Unit Type	3DC (Hex)	Diagnostic Name	Effects Target	Target Severity	Target Persistence	Active Modes [Inactive Modes]	Criteria	Reset Level
FastPak	6B7	Comm Loss: Starter Running Input	Chiller	Immediate Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
FastPak	6B7	Comm Loss: Pulsed IGV Control	Chiller	Immediate Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
FastPak	6B6	Comm Loss: IGV Closed Switch	Chiller	Immediate Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
FastPak	6B7	Comm Loss: Transition Complete Input	Chiller	Warning	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
FastPak	6B7	Comm Loss: Starter Fault Output	Chiller	Warning	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
FastPak	6B7	Comm Loss: Winding Temperature Status	Chiller	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
FastPak	6B7	Comm Loss: Oil Pressure Status	Chiller	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
FastPak	6B6	Comm Loss: AFD Speed Signal VDC Output	Chiller	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
FastPak	6B6	Comm Loss: Call for Cooling Relay	Chiller	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
FastPak	6B6	Comm Loss: Starter Interlock	Chiller	Normal Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
FastPak	6B6	Comm Loss: Safety String Input	Chiller	Immediate Shutdown	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Gear Drive	6B7	Comm Loss: High Lift Unload Valve Relay	Chiller	Warning	Latching	All	Continual loss of communication between the MP and the Functional ID has occurred for a 35-40 second period.	Remote
Duplex	6B6	Comm Loss: Programmable Relay Board 1	Chiller	Warning	Latching	All	Continual loss of communication between the MP and the LLID has occurred for a 35-40 second period.	Remote
Duplex	6B6	Comm Loss: Programmable Relay Board 2	Chiller	Warning	Latching	All	Continual loss of communication between the MP and the LLID has occurred for a 35-40 second period.	Remote



# Main Processor Boot Messages and Diagnostics

**Table 8. Main Processor Boot Messages and Diagnostics**

DynaView Display Message	Description //Troubleshooting
Boot Software Part Numbers: LS Flash --> 6200-0318-07 MS Flash --> 6200-0319-07	The "boot code" is the portion of the code that is resident in all MPs regardless of what application code (if any) is loaded. Its main function is to run power up tests and provide a means for downloading application code via the MP's serial connection. The Part numbers for the code are displayed in the lower left-hand corner of the DynaView during the early portion of the power up sequence and during special programming and converter modes. See below. // This is normal, but you should provide this information when contacting Technical Service about power up problems.
Err2: RAM Pattern 1 Failure	There were RAM errors detected in RAM Test Pattern #1. // Recycle power, if the error persists, replace MP.
Err2: RAM Pattern 2 Failure	There were RAM errors detected in RAM Test Pattern #2. //Recycle power, if the error persists, replace MP.
Err2: RAM Addr Test #1 Failure	There were RAM errors detected in RAM Address Test #1. // Recycle power, if error persists, replace MP.
Err2: RAM Addr Test #2 Failure	There were RAM errors detected in RAM Address Test #2. //Recycle power, if the error persists, replace MP.
No Application Present Please Load Application...	No Main Processor Application is present - There are no RAM Test Errors. // Connect a TechView Service Tool to the MP's serial port, provide chiller model number (configuration information) and download the configuration if prompted by TechView. Then proceed to download the most recent MP software application or specific version as recommended by Technical Service.
App Present. Running Selftest.... Selftest Passed	An application has been detected in the Main Processor's nonvolatile memory and the boot code is proceeding to run a check on its entirety. 8 seconds later, the boot code had completed and passed the (CRC) test. // Temporary display of this screen is part of the normal power up sequence.
App Present. Running Selftest... Err3: CRC Failure	An application has been detected in Main Processor's nonvolatile memory and the boot code is proceeding to run a check on its entirety. A few seconds later, the boot code had completed but failed the (CRC) test. //Connect a TechView Service Tool to the MP's serial port, provide chiller model number (configuration information) and download the configuration if prompted by TechView. Then proceed to download the most recent MP software application or specific version as recommended by Technical Service. If the problem persists, replace the MP.
Err4: UnHandled Interrupt Restart Timer: [30 sec countdown timer]	An unhandled interrupt has occurred while running the application code. This event will normally cause a safe shutdown of the entire chiller. Once the countdown timer reaches 0, the processor will reset, clear diagnostics, and attempt to restart the application and allow a normal restart of chiller as appropriate. // This condition might occur due to a severe electro-magnetic transient such as can be caused by a near lightning strike. Such events should be rare or isolated and if no damage results to the CH.530 control system, the Chiller will experience a shutdown and restart. If this occurs more persistently it may be due to an MP hardware problem. Try replacing the MP. If replacement of the MP proves ineffective, the problem may be a result of extremely high radiated or conducted EMI. Contact Technical Service. If this screen occurs immediately after a software download, attempt to reload both the configuration and the application. Failing this, contact Technical Service.
Err5: Operating System Error Restart Timer: [30 sec countdown timer]	An Operating System error has occurred while running the application code. This event will normally cause a safe shutdown of the entire chiller. Once the countdown timer reaches 0, the processor will reset, clear diagnostics, and attempt to restart the application and allow a normal restart of chiller as appropriate. // See Err 4 above
Err6: Watch Dog Timer Error Restart Timer: [30 sec countdown timer]	A WatchDog Timer Error has occurred while running the application code. This event will normally cause a safe shutdown of the entire chiller. Once the countdown timer reaches 0, the processor will reset, clear diagnostics, and attempt to restart the application allowing a normal restart of chiller as appropriate.
Err7: Unknown Error Restart Timer: [30 sec countdown timer]	An Unknown Error has occurred while running the application code. This event will normally cause a safe shutdown of the entire chiller. Once the countdown timer reaches 0, the processor will reset, clear diagnostics, and attempt to restart the application allowing a normal restart of chiller as appropriate
Converter Mode	A command was received from the Service Tool (Tech View) to stop the running application and run in the "converter mode". In this mode the MP acts as a simple gateway and allows the TechView service computer to talk to all the LLIDs on the IPC3 bus.
Programming Mode	A command was received by the MP from TechView Service Tool and the MP is in the process of first erasing, then writing the program code to its internal Flash (nonvolatile) Memory



# Special Troubleshooting and Informational Messages

**Table 9. Special Troubleshooting and Informational messages**

<b>DynaView Display Message</b>	<b>Description //Troubleshooting</b>
Error Resulted From Invalid Configuration - Record Condition and Call Trane Service Assertion: 'File Name' 'Line Number'	<p>This error message is displayed when the MP code finds itself in an illegal location. These assertion points are placed in code locations to aid the software team in identifying why the MP locked up as a result of vectoring to an invalid location.</p> <p>When this message occurs, copy down the file name and line number and have this information ready to provide Trane Technical Service.</p> <p>This message remains on the screen for two minutes. After two minutes, the watchdog times out and a 'Watchdog Error' message is displayed. The watchdog then resets the MP. The MP heads into a boot and configuration mode the same as it does on a power up.</p> <p>These error messages are on the DynaView screen and do not appear in TechView nor in the diagnostic logs.</p>
A Valid Configuration is Present	<p>A valid configuration is present in the MP's nonvolatile memory. The configuration is a set of variables and settings that define the physical makeup of this particular chiller. These include: number/airflow,/and type of fans, number/and size of compressors, special features, characteristics, and control options.</p>





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