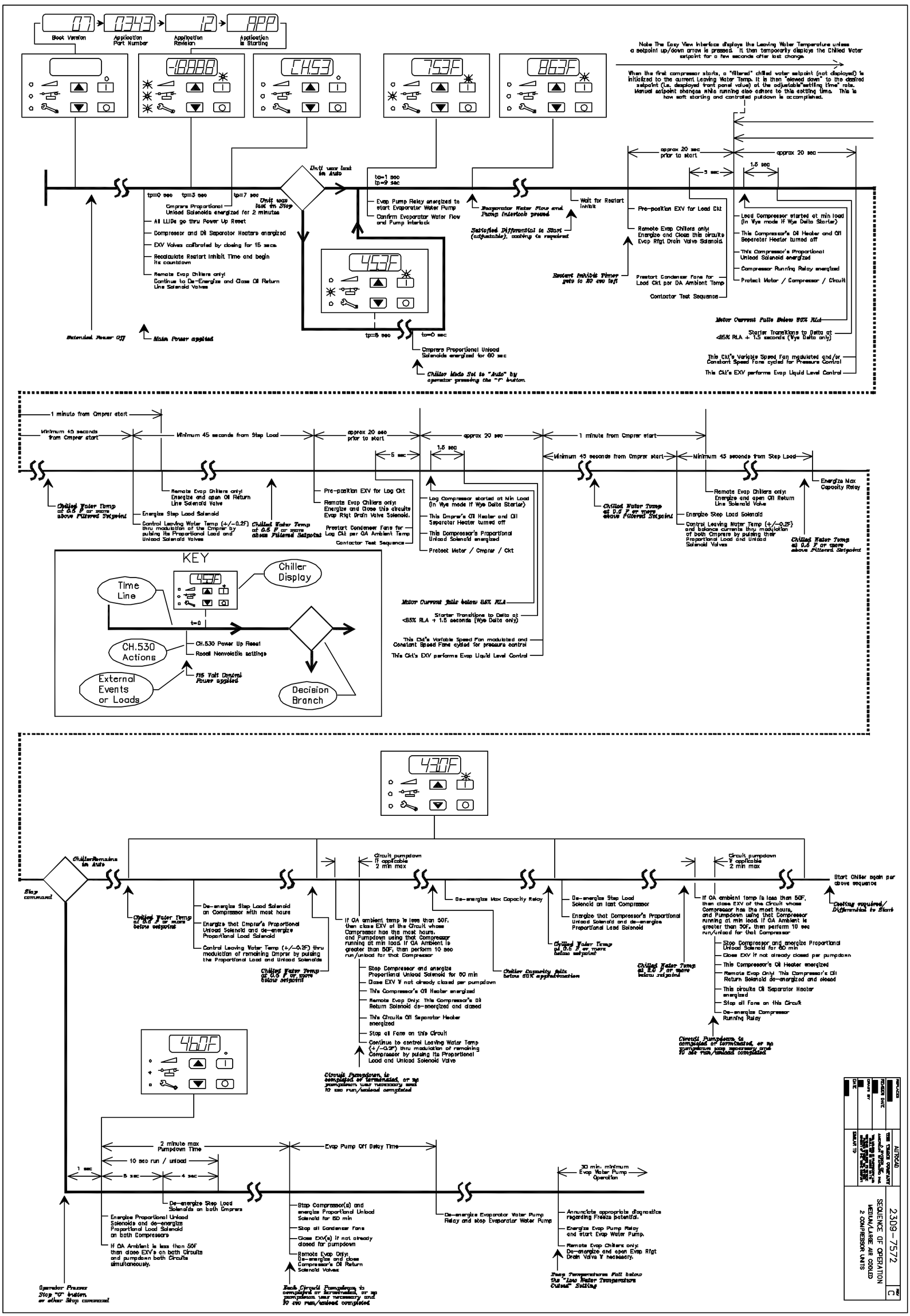
07
Boot Version
0343
Application Part Number
12
Application Revision
APP
Application is Starting
-18888
CH.53
75.3F
86.3F
Note: The Easy View interface displays the Leaving Water Temperature unless a setpoint up/down arrow is pressed. It then temporarily displays the Chilled Water setpoint for a few seconds after last change.
When the first compressor starts, a "filtered" chilled water setpoint (not displayed) is initialized to the current Leaving Water Temp. It is then "slewed down" to the desired setpoint (i.e. displayed front panel value) at the adjustable "settling time" rate. Manual setpoint changes while running also adhere to this settling time. This is how soft starting and controlled pulldown is accomplished.
approx 20 sec prior to start
approx 20 sec
5 sec
1.5 sec
Unit was last in Auto
Unit was last in Stop
t0=1 sec
t1=9 sec
t1=0 sec
t1=5 sec
t1=7 sec
Compres Proportional Unload Solenoids energized for 2 minutes
All LLIDs go thru Power Up Reset
Compressor and Oil Separator Heaters energized
EXV Valves calibrated by closing for 15 secs.
Recalculate Restart Inhibit Time and begin its countdown
Remote Evap Chillers only! Continue to De-Energize and Close Oil Return Line Solenoid Valves
Evap Pump Relay energized to start Evaporator Water Pump
Confirm Evaporator Water Flow and Pump Interlock
Evaporator Water Flow and Pump Interlock proved
Satisfied Differential to Start (adjustable), cooling is required
Wait for Restart Inhibit
Restart Inhibit Timer gets to 30 sec left
Pre-position EXV for Lead Ckt
Remote Evap Chillers only! Energize and Close this circuit's Evap Rtgt Drain Valve Solenoid.
Prestart Condenser Fans for Lead Ckt per OA Ambient Temp
Contactor Test Sequence
Lead Compressor started at min load (in Wye mode if Wye Delta Starter)
This Compressor's Oil Heater and Oil Separator Heater turned off
This Compressor's Proportional Unload Solenoid energized
Compressor Running Relay energized
Protect Motor / Compressor / Circuit
Motor Current falls below 80% RLA
Starter Transitions to Delta at <85% RLA + 1.5 seconds (Wye Delta only)
This Ckt's Variable Speed Fan modulated and/or Constant Speed Fans cycled for Pressure Control
This Ckt's EXV performs Evap Liquid Level Control
45.3F
t1=5 sec
t1=0 sec
Compres Proportional Unload Solenoids energized for 60 sec
Chiller Mode Set to "Auto" by operator pressing the "I" button.
Potential Power Off
Main Power applied
1 minute from Compr start
Minimum 45 seconds from Compr start
Minimum 45 seconds from Step Load
approx 20 sec prior to start
approx 20 sec
5 sec
1.5 sec
1 minute from Compr start
Minimum 45 seconds from Compr start
Minimum 45 seconds from Step Load
Chilled Water Temp at 0.5 F or more above Filtered Setpoint
Remote Evap Chillers only! Energize and open Oil Return Line Solenoid Valve
Energize Step Load Solenoid
Control Leaving Water Temp (+/-0.2F) thru modulation of the Compr b) pulsing its Proportional Load and Unload Solenoid Valves
Chilled Water Temp at 0.5 F or more above Filtered Setpoint
Pre-position EXV for Lag Ckt
Remote Evap Chillers only! Energize and Close this circuit's Evap Rtgt Drain Valve Solenoid.
Prestart Condenser Fans for Lag Ckt per OA Ambient Temp
Contactor Test Sequence
Lag Compressor started at Min Load (in Wye mode if Wye Delta Starter)
This Compr's Oil Heater and Oil Separator Heater turned off
This Compressor's Proportional Unload Solenoid energized
Protect Motor / Compr / Ckt
Motor Current falls below 85% RLA
Starter Transitions to Delta at <85% RLA + 1.5 seconds (Wye Delta only)
This Ckt's Variable Speed Fan modulated and Constant Speed Fans cycled for pressure control
This Ckt's EXV performs Evap Liquid Level Control
Chilled Water Temp at 0.5 F or more above Filtered Setpoint
Remote Evap Chillers only! Energize and open Oil Return Line Solenoid Valve
Energize Step Load Solenoid
Control Leaving Water Temp (+/-0.2F) and balance currents thru modulation of both Compres by pulsing their Proportional Load and Unload Solenoid Valves
Chilled Water Temp at 0.5 F or more above Filtered Setpoint
Energize Max Capacity Relay
KEY
Chiller Display
Time Line
t=0
CH.530 Actions
CH.530 Power Up Reset
Recall Nonvolatile settings
External Events or Loads
115 Volt Control Power applied
Decision Branch
43.0F
Chiller Remains in Auto
Stop command
Circuit pumpdown if applicable 2 min max
Circuit pumpdown if applicable 2 min max
Start Chiller again per above sequence
Chilled Water Temp at 0.5 F or more below setpoint
De-energize Step Load Solenoid on Compressor with most hours
Energize that Compr's Proportional Unload Solenoid and de-energize Proportional Load Solenoid
Control Leaving Water Temp (+/-0.2F) thru modulation of remaining Compr by pulsing the Proportional Load and Unload Solenoids
Chilled Water Temp at 0.5 F or more below setpoint
If OA ambient temp is less than 50F, then close EXV of the Circuit whose Compressor has the most hours, and Pumpdown using that Compressor running at min load. If OA Ambient is greater than 50F, then perform 10 sec run/unload for that Compressor
Stop Compressor and energize Proportional Unload Solenoid for 60 min
Close EXV if not already closed per pumpdown
This Compressor's Oil Heater energized
Remote Evap Only: This Compressor's Oil Return Solenoid de-energized and closed
This Circuits Oil Separator Heater energized
Stop all Fans on this Circuit
Continue to control Leaving Water Temp (+/-0.2F) thru modulation of remaining Compressor by pulsing its Proportional Load and Unload Solenoid Valve
Circuit Pumpdown is completed or terminated, or no pumpdown was necessary and 10 sec run/unload completed
De-energize Max Capacity Relay
Chiller Capacity falls below 80% approximation
De-energize Step Load Solenoid on last Compressor
Energize that Compressor's Proportional Unload Solenoid and de-energize Proportional Load Solenoid
Chilled Water Temp at 0.5 F or more below setpoint
Chilled Water Temp at 2.0 F or more below setpoint
If OA ambient temp is less than 50F, then close EXV of the Circuit whose Compressor has the most hours, and Pumpdown using that Compressor running at min load. If OA Ambient is greater than 50F, then perform 10 sec run/unload for that Compressor
Stop Compressor and energize Proportional Unload Solenoid for 60 min
Close EXV if not already closed per pumpdown
This Compressor's Oil Heater energized
Remote Evap Only: This Compressor's Oil Return Solenoid de-energized and closed
This circuits Oil Separator Heater energized
Stop all Fans on this Circuit
De-energize Compressor Running Relay
Circuit Pumpdown is completed or terminated, or no pumpdown was necessary and 10 sec run/unload completed
Cooling required/ Differential to Start
46.0F
2 minute max Pumpdown Time
Evap Pump Off Delay Time
1 sec
10 sec run / unload
5 sec
4 sec
30 min. minimum Evap Water Pump Operation
De-energize Step Load Solenoids on both Compres
Energize Proportional Unload Solenoids and de-energize Proportional Load Solenoid on both Compressors
If OA Ambient is less than 50F then close EXV's on both Circuits and pumpdown both Circuits simultaneously.
Operator Presses Stop "O" button or other Stop command
Stop Compressor(s) and energize Proportional Unload Solenoid for 60 min
Stop all Condenser Fans
Close EXV(s) if not already closed for pumpdown
Remote Evap Only: De-energize and close Compressor's Oil Return Solenoid Valves
Each Circuit Pumpdown is completed or terminated, or no pumpdown was necessary and 10 sec run/unload completed
De-energize Evaporator Water Pump Relay and stop Evaporator Water Pump
Annunciate appropriate diagnostics regarding Freeze potential.
Energize Evap Pump Relay and start Evap Water Pump.
Remote Evap Chillers only: De-energize and open Evap Rtgt Drain Valve if necessary.
Evap Temperatures fall below the "Low Water Temperature Cutout" Setting
REVISED
REVISED DATE
DRAWN BY
DATE
TRANE
AUTOCAD
SEQUENCE OF OPERATION
MEDIUM/LARGE AIR COOLED
2 COMPRESSOR UNITS
2309-7572
C