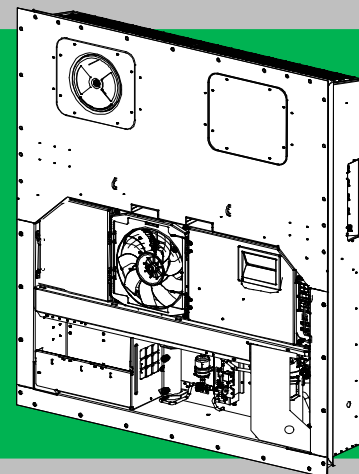
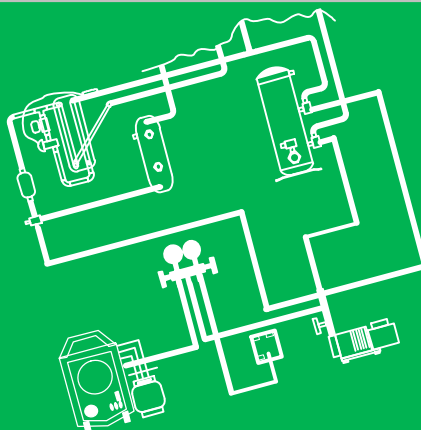
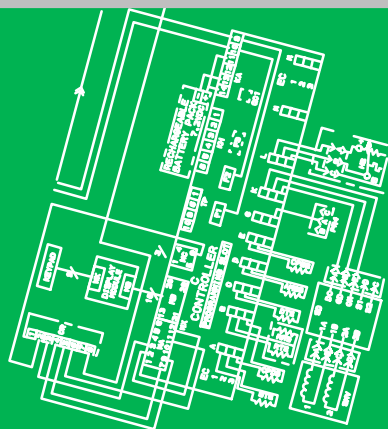




# Container Refrigeration



## OPERATION AND SERVICE for **69NT40-561-019** Evergreen Container Refrigeration Units

**Table 3–6 Controller Alarm Indications (Sheet 1 of 8)**

| <b>Alarm Code</b>                                        | <b>Cause</b>                                                                                                                                                                                                                                        | <b>Components</b>                                             | <b>Troubleshooting</b>                                                                                                                      | <b>Corrective Actions</b>                                                                                               |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>AL03</b><br>Loss of Superheat Control                 | Superheat has remained below 1.66°C (3°F) degrees for five minutes continuously while compressor running. Compressor drawing more than 2.0 amps, compressor pressure ratio is greater than 1.8, and Electronic Expansion Valve (EEV) is at 0% open. | Electronic Expansion Valve (EEV)                              | Check the operation of the EEV using Cd41.                                                                                                  | Replace EEV if defective.                                                                                               |
|                                                          |                                                                                                                                                                                                                                                     | Evaporator Temperature Sensor(s) ETS & ETS1.                  | Verify accuracy of temperature sensors, refer to Sensor Checkout Procedure Section 6.19.                                                    | Replace ETS or ETS1 if defective.                                                                                       |
|                                                          |                                                                                                                                                                                                                                                     | Evaporator Fans                                               | Confirm fans operating properly.                                                                                                            | Replace fan(s) if defective, refer to EVAPORATOR FAN MOTOR ASSEMBLY Section 6.10.                                       |
| <b>AL05</b><br>Manual Defrost Switch Failure             | Controller has detected continuous Manual Defrost Switch activity for five minutes or more.                                                                                                                                                         | Keypad                                                        | Power cycle the unit.                                                                                                                       | Resetting the unit may correct problem, monitor the unit.<br>If the alarm reappears after 5 minutes replace the keypad. |
| <b>AL06</b><br>Keypad or Keypad Harness Fail             | Controller has detected one of the keypad keys is continuously activity.                                                                                                                                                                            | Keypad or Harness                                             | Power cycle the unit.                                                                                                                       | Resetting the unit may correct problem, monitor the unit.<br>If the alarm reappears replace the keypad and harness.     |
| <b>AL07</b><br>Fresh Air Vent Open with Frozen Set Point | The VPS is reading greater than 0 CMH while unit is in frozen mode.                                                                                                                                                                                 | Vent Position Sensor (VPS)                                    | Manually reposition vent and confirm using Cd45. Refer to VENT POSITION SENSOR SERVICE Section 6.18.                                        | If unable to obtain zero reading, replace defective VPS.                                                                |
| <b>AL08</b><br>High Compressor Pressure Ratio            | Controller detects discharge pressure to suction pressure ratio is too high.<br>The controller will attempt to correct the situation by restarting the compressor.                                                                                  | Discharge Pressure Transducer (DPT)                           | Confirm accurate DPT pressure readings, refer to MANIFOLD GAUGE SET Section 6.2.                                                            | Replace DPT if defective.                                                                                               |
| <b>AL10</b><br>CO <sub>2</sub> Sensor Failure            | Alarm 10 is triggered when the CO <sub>2</sub> sensor voltage is operating outside of the 0.9 v to 4.7 v range, or if the sensor is out of range.                                                                                                   | This is a display alarm and has no associated failure action. | Refer to eAutoFresh manual.                                                                                                                 | The alarm is triggered off when voltage is within operating range.                                                      |
| <b>AL14</b><br>Phase Sequence Detect Fault               | Controller is unable to determine the correct phase relationship.                                                                                                                                                                                   | N/A                                                           | Power cycle the unit.                                                                                                                       | Resetting the unit may correct problem, monitor the unit.                                                               |
|                                                          |                                                                                                                                                                                                                                                     | Wiring                                                        | Check unit wiring.<br>Confirm pressure readings during start-up; suction pressure should decrease and discharge pressure should increase.   | Correct wiring.                                                                                                         |
|                                                          |                                                                                                                                                                                                                                                     | Current Sensor                                                | Check Cd41, right most digit:<br>If display is 3 or 4 check compressor / sensor wiring.<br>If display is 5 the current sensor is defective. | Replace current sensor if defective.                                                                                    |

**Table 3–6 Controller Alarm Indications (Sheet 2 of 8)**

| <b>Alarm Code</b>                                    | <b>Cause</b>                                                                                                                     | <b>Components</b>                   | <b>Troubleshooting</b>                                                                                                                                                                        | <b>Corrective Actions</b>                                                                                                           |
|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>AL16</b><br>Compressor<br>Current High            | Compressor current draw is over the calculated maximum for 10 minutes.                                                           | Current Sensor                      | Compare Cd3 to actual measured current at wire T1–T2 or T3 going to the compressor contactor. If there is a difference, determine whether this is caused by current sensor or amp clamp tool. | Replace current sensor if defective.                                                                                                |
|                                                      |                                                                                                                                  | Amperage is indeed too high.        | Confirm supply voltage/frequency is within specification and balanced according to Electrical Data Section 2.3.                                                                               | Correct power supply.                                                                                                               |
|                                                      |                                                                                                                                  | Operating Conditions                | Make sure system pressures are relevant to operating conditions.                                                                                                                              | Check air flow of condenser.<br><br>Check Refrigerant charge, refer to REFRIGERATION SYSTEM SERVICE Section 6.3                     |
|                                                      |                                                                                                                                  | Monitor Unit                        | Alarm is display only the alarm may clear itself during operation                                                                                                                             | If alarm remains active or is repetitive replace compressor at next available opportunity, refer to COMPRESSOR Service Section 6.4. |
| <b>AL17</b><br>Compressor<br>Pressure<br>Delta Fault | Compressor has attempted to start in both directions and fails to generate sufficient pressure differential between SPT and DPT. | N/A                                 | Controller will attempt restart every 20 minutes and deactivate the alarm if successful.                                                                                                      | Resume normal operation.                                                                                                            |
|                                                      |                                                                                                                                  | Discharge Pressure Transducer (DPT) | Confirm accurate DPT pressure readings, refer to MANIFOLD GAUGE SET Section 6.2.                                                                                                              | Replace DPT if defective.                                                                                                           |
|                                                      |                                                                                                                                  | Suction Pressure Transducer (SPT)   | Confirm accurate SPT pressure readings, refer to MANIFOLD GAUGE SET Section 6.2.                                                                                                              | Replace SPT if defective.                                                                                                           |
|                                                      |                                                                                                                                  | Monitor unit                        | Alarm is display only the alarm may clear itself during operation.                                                                                                                            | If alarm remains active or is repetitive replace compressor at next available opportunity.                                          |

**Table 3–6 Controller Alarm Indications (Sheet 3 of 8)**

| <b>Alarm Code</b>                          | <b>Cause</b>                                                                     | <b>Components</b>                             | <b>Troubleshooting</b>                                                                                                                                                                                         | <b>Corrective Actions</b>                                                                                                     |
|--------------------------------------------|----------------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b>AL18</b><br>Discharge Pressure High     | Discharge pressure is over the maximum for 10 minutes within the last hour.      | Restrictions in the refrigeration system.     | Ensure Liquid Line Service Valve is fully open.                                                                                                                                                                | Open Liquid Line Service Valve as needed.                                                                                     |
|                                            |                                                                                  | Filter Drier                                  | Check the filter drier, if it is iced up or very cold it indicates that the filter drier needs replacement.                                                                                                    | Replace the filter drier if needed, refer to FILTER DRIER Service Section 6.8.                                                |
|                                            |                                                                                  | Condenser Fan                                 | Check Condenser Fan for proper operation.                                                                                                                                                                      | Correct as required.                                                                                                          |
|                                            |                                                                                  | Discharge Pressure Transducer (DPT)           | Confirm accurate DPT pressure readings, refer to MANIFOLD GAUGE SET Section 6.2.                                                                                                                               | Replace DPT if defective.                                                                                                     |
|                                            |                                                                                  | Non–condensables in the refrigeration system. | With the unit off allow system to stabilize to ambient temperature. Check system pressure against PT Chart for 134a, refer to Table 6–6.                                                                       | Correct as required, refer to Refrigerant Charge Section 6.3.5.                                                               |
|                                            |                                                                                  | Refrigerant                                   | Check refrigerant level.                                                                                                                                                                                       | Correct as required, refer to Refrigerant Charge Section 6.3.5.                                                               |
| <b>AL19</b><br>Discharge Temperature High  | Discharge temperature exceeds 135°C (275°F) for 10 minutes within the last hour. | Restrictions in the refrigeration system.     | Ensure the Discharge Service Valve is fully open.<br>Check the unit for air flow restrictions.                                                                                                                 | Open the Discharge Service Valve as needed.<br>Clean or remove any debris from coils.                                         |
|                                            |                                                                                  | Non–condensables in the refrigeration system. | With the unit off allow system to stabilize to ambient temperature. Check system pressure against PT Chart for 134a, refer to Table 6–6.                                                                       | Correct as required, refer to Refrigerant Charge Section 6.3.5.                                                               |
|                                            |                                                                                  | Additional Alarms such as AL16, AL24.         | Check compressor operation.                                                                                                                                                                                    | If the alarm persists, it may indicate a failing compressor, replace the compressor, refer to COMPRESSOR Service Section 6.4. |
|                                            |                                                                                  |                                               |                                                                                                                                                                                                                |                                                                                                                               |
| <b>AL20</b><br>Control Contactor Fuse (F3) | Control power fuse (F3A or F3B) is open.                                         | Check F3A, if the fuse is open:               | Check PA, PB, CH coils for short to ground, if short is found:                                                                                                                                                 | Replace the defective coil.<br>Replace the fuse.                                                                              |
|                                            |                                                                                  | Check F3B, if the fuse is open:               | Check ESV coil resistance at TP7 to TP9, if short to ground, or if resistance is less than 4 ohms, coil is defective.<br>Check CF, ES, EF, HR coils for short to ground, if short is found, coil is defective. | Replace the defective coil.<br>Replace the fuse.                                                                              |
|                                            |                                                                                  | Check Voltage at QC1:                         | If voltage is present, it indicates a defective microprocessor.                                                                                                                                                | Refer to Controller Service Section 6.17.                                                                                     |

**Table 3–6 Controller Alarm Indications (Sheet 4 of 8)**

| <b>Alarm Code</b>                                        | <b>Cause</b>                                                       | <b>Components</b>                     | <b>Troubleshooting</b>                                                                                | <b>Corrective Actions</b>                                                                                                                                                           |
|----------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AL21</b><br>Control Circuit Fuse (F1/F2)              | One of the 18 VAC controller fuses (F1/F2) is open. Refer to Cd08. | System Sensors                        | Check system sensors for short to ground.                                                             | Replace defective sensor(s)                                                                                                                                                         |
|                                                          |                                                                    | Wiring                                | Check wiring for short to ground.                                                                     | Repair as needed.                                                                                                                                                                   |
|                                                          |                                                                    | Controller                            | Controller may have an internal short.                                                                | Replace controller, refer to Controller Service Section 6.17.                                                                                                                       |
| <b>AL22</b><br>Evaporator IP                             | Evaporator motor internal protector (IP) is open.                  | Evaporator Motor                      | Shut down unit, disconnect power, & check Evaporator Motor IP at plug connection pins 4 & 6.          | Replace defective evaporator fan motor, refer to EVAPORATOR FAN MOTOR Service Section 6.10.                                                                                         |
| <b>AL23</b><br>Loss of Phase B                           | Controller fails to detect current draw.                           | Incoming Power                        | Check incoming power source.                                                                          | Correct power source as required.                                                                                                                                                   |
| <b>AL24</b><br>Compressor IP                             | Compressor internal protector (IP) is open.                        | Compressor                            | Shut down unit disconnect power, & check resistance of compressor windings at contactor T1–T2, T2–T3. | Monitor unit, if alarm remains active or is repetitive replace the compressor at the next available opportunity, refer to COMPRESSOR Service Section 6.4.                           |
| <b>AL25</b><br>Condenser IP                              | Condenser fan motor internal protector (IP) is open.               | Insufficient Air Flow                 | Shut down unit and check condenser fan for obstructions.                                              | Remove obstructions.                                                                                                                                                                |
|                                                          |                                                                    | Condenser Fan Motor                   | Shut down unit, disconnect power, & check Condenser Fan Motor IP at plug connection pins 1 & 2.       | Replace defective condenser fan motor, refer to Condenser Fan Motor Assembly Service Section 6.7.                                                                                   |
| <b>AL26</b><br>All Sensors Failure: Supply/Return Probes | Sensors out of range.                                              | All sensors. detected as out of range | Perform Pre-trip P5:                                                                                  | <div>If P5 passes, no further action is required.</div> <div>If P5 fails, replace the defective sensor as determined by P5, refer to TEMPERATURE SENSOR Service Section 6.19.</div> |
| <b>AL27</b><br>Analog to Digital Accuracy Failure        | Controller AD converter faulty.                                    | Controller                            | Power cycle the unit. If the alarm persists, it indicates a defective microprocessor.                 | Replace defective microprocessor, refer to Controller Service Section 6.17.                                                                                                         |
| <b>AL28</b><br>Low Suction Pressure                      | Suction pressure too low for normal operation.                     | N/A                                   | Power cycle the unit.                                                                                 | Resetting the unit may correct problem, monitor the unit.                                                                                                                           |
|                                                          |                                                                    | Suction Pressure Transducer (SPT)     | Confirm accurate SPT pressure readings, refer to MANIFOLD GAUGE SET Section 6.2.                      | Replace SPT if defective.                                                                                                                                                           |
|                                                          |                                                                    | Discharge Pressure Transducer (DPT)   | Confirm accurate DPT pressure readings, refer to MANIFOLD GAUGE SET Section 6.2.                      | Replace DPT if defective.                                                                                                                                                           |

**Table 3–6 Controller Alarm Indications (Sheet 5 of 8)**

| <b>Alarm Code</b>                                    | <b>Cause</b>                                                      | <b>Components</b>                 | <b>Troubleshooting</b>                                                                                                                                                                                        | <b>Corrective Actions</b>                                                                                                                                                                      |
|------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AL50</b><br>Air Vent Position Sensor (VPS)        | VPS Sensor out of range.                                          | Vent Position Sensor (VPS)        | Make sure VPS is secure.                                                                                                                                                                                      | Manually tighten panel.                                                                                                                                                                        |
|                                                      |                                                                   |                                   | If the alarm persists, replace the sensor or the assembly.                                                                                                                                                    | Replace VPS.                                                                                                                                                                                   |
| <b>AL51</b><br>EEPROM Failure                        | Controller Memory Failure                                         | Controller                        | Pressing the ENTER key when “CLEAR” is displayed will result in an attempt to clear the alarm.                                                                                                                | If action is successful (all alarms are inactive), alarm 51 will be reset.                                                                                                                     |
|                                                      |                                                                   |                                   | Power cycle the unit. If the alarm persists, it indicates defective controller memory.                                                                                                                        | Replace defective controller, refer to Controller Service Section 6.17                                                                                                                         |
| <b>AL52</b><br>EEPROM Alarm List Full                | Alarm list queue is full.                                         | Active Alarms                     | Repair any alarms in the queue that are active. Indicated by “AA”.                                                                                                                                            | Clear alarms, refer to CONTROLLER ALARMS Section 3.5.                                                                                                                                          |
| <b>AL53</b><br>Battery Pack Failure                  | Battery voltage low                                               | Battery                           | If this alarm occurs on start up, allow a unit fitted with rechargeable batteries to operate for up to 24 hours to charge rechargeable batteries sufficiently. Once fully charged, the alarm will deactivate. | To clear the alarm press ENTER and ALT simultaneously at the startup of Cd19 (Battery Check).<br><br>If alarm persists, replace the battery pack, refer to Section 6.17.5 Battery Replacement. |
| <b>AL54</b><br>Primary Supply Sensor (STS)           | Invalid Supply Temperature Sensor (STS) reading.                  | Supply Temperature Sensor (STS)   | Perform Pre-trip P5:                                                                                                                                                                                          | If P5 passes, no further action is required.                                                                                                                                                   |
|                                                      |                                                                   |                                   |                                                                                                                                                                                                               | If P5 fails, replace the defective sensor as determined by P5, refer to TEMPERATURE SENSOR Service Section 6.19.                                                                               |
| <b>AL56</b><br>Primary Return Sensor (RTS)           | Invalid Return Temperature Sensor (RTS) reading.                  | Return Temperature Sensor (RTS)   | Perform Pre-trip P5:                                                                                                                                                                                          | If P5 passes, no further action is required.                                                                                                                                                   |
|                                                      |                                                                   |                                   |                                                                                                                                                                                                               | If P5 fails, replace the defective sensor as determined by P5, refer to TEMPERATURE SENSOR Service Section 6.19.                                                                               |
| <b>AL57</b><br>Ambient Sensor (AMBS)                 | Invalid Ambient Temperature Sensor (AMBS) reading.                | Ambient Temperature Sensor (AMBS) | Test the AMBS, refer to Sensor Checkout Procedure Section 6.19.                                                                                                                                               | Replace AMBS if defective, refer to TEMPERATURE SENSOR Service Section 6.19.                                                                                                                   |
| <b>AL58</b><br>Compressor High Pressure Safety (HPS) | High pressure safety switch remains open for at least one minute. | High Pressure Switch (HPS)        | Test the HPS; refer to Checking High Pressure Switch, Section 6.5.1.                                                                                                                                          | Replace HPS if defective, refer to Sensor Replacement, Section 6.5.2.                                                                                                                          |
|                                                      |                                                                   | Refrigeration System              | Check unit for air flow restrictions.                                                                                                                                                                         | Clean or remove any debris from coils.                                                                                                                                                         |

**Table 3–6 Controller Alarm Indications (Sheet 6 of 8)**

| <b>Alarm Code</b>                                                                      | <b>Cause</b>                                             | <b>Components</b>                     | <b>Troubleshooting</b>                                                                                                                                                   | <b>Corrective Actions</b>                                                                             |
|----------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| <b>AL59</b><br>Heater Termination Thermostat (HTT)                                     | Heat Termination Thermostat (HTT) is open.               | Heat Termination Thermostat (HTT)     | Check for 24 volts at test point TP10, if no voltage at TP10 after unit has reached set point HTT is open.                                                               | Replace HTT if defective, refer to Sensor Replacement Section 6.19.2.                                 |
| <b>AL60</b><br>Defrost Temperature Sensor (DTS)                                        | Failure of the Defrost Temperature Sensor (DTS) to open. | Defrost Temperature Sensor (DTS)      | Test the DTS; refer to Sensor Checkout Procedure Section 6.19.                                                                                                           | Replace the DTS if defective, refer to Sensor Replacement Section 6.19.2.                             |
| <b>AL61</b><br>Heater Current Draw Fault                                               | Improper current draw during heat or defrost mode.       | Heater(s)                             | While in heat or defrost mode, check for proper current draw at heater contactors, refer to ELECTRICAL DATA Section 2.3.                                                 | Replace heater(s) if defective, refer to section 6.9.2 Evaporator Heater Removal and Replacement.     |
|                                                                                        |                                                          | Contactor                             | Check voltage at heater contactor on the heater side. If no voltage present:                                                                                             | Replace heater contactor if defective.                                                                |
| <b>AL63</b><br>Current Limit                                                           | Unit operating above current limit.                      | Refrigeration System                  | Check unit for air flow restrictions.                                                                                                                                    | Clean or remove any debris from coils.                                                                |
|                                                                                        |                                                          |                                       | Check unit for proper operation.                                                                                                                                         | Repair as needed.                                                                                     |
|                                                                                        |                                                          | Power supply                          | Confirm supply voltage/frequency is within specification and balanced according to ELECTRICAL DATA Section 2.3.                                                          | Correct power supply.                                                                                 |
|                                                                                        |                                                          | Current limit set too low.            | Check current limit setting Code Cd32.                                                                                                                                   | The current limit can be raised (maximum of 23 amps) using Cd32.                                      |
| <b>AL64</b><br>Discharge Temperature Sensor (CPDS)                                     | Discharge Temperature sensor out of range.               | Discharge temperature sensor (CPDS).  | Test the CPDS; refer to Sensor Checkout Procedure, Section 6.19.1.                                                                                                       | Replace the CPDS if defective, refer to Sensor Replacement Section 6.19.2.                            |
| <b>AL65</b><br>Discharge Pressure Transducer (DPT)                                     | Compressor Discharge Transducer is out of range.         | Compressor Discharge Transducer (DPT) | Confirm accurate DPT pressure readings, refer to MANIFOLD GAUGE SET Section 6.2.                                                                                         | Replace DPT if defective.                                                                             |
| <b>AL66</b><br>(SPT) Suction Pressure Transducer, (EPT) Evaporator Pressure Transducer | Suction Pressure Transducer (SPT) out of range.          | Suction Pressure Transducer (SPT)     | Confirm accurate EPT and SPT pressure readings, refer to MANIFOLD GAUGE SET Section 6.2.<br><br>– <i>Performing a Pre-trip 5–9 test will also check the transducers.</i> | Replace EPT/SPT if defective.                                                                         |
|                                                                                        |                                                          |                                       | Monitor                                                                                                                                                                  | If the alarm persists, it may indicate a failing compressor, refer to COMPRESSOR Service Section 6.4. |

**Table 3–6 Controller Alarm Indications (Sheet 7 of 8)**

| <b>Alarm Code</b>                            | <b>Cause</b>                                                                                | <b>Components</b>                    | <b>Troubleshooting</b>                                                                                                               | <b>Corrective Actions</b>                                                                                        |
|----------------------------------------------|---------------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| <b>AL67</b><br>Humidity Sensor               | Humidity Sensor (HS) reading out of range.                                                  | Humidity Sensor (HS)                 | Make sure the humidity sensor is properly connected in the socket.<br><br>Make sure the humidity sensor wires have not been damaged. | Monitor, replace HS if alarm persists.                                                                           |
| <b>AL69</b><br>Evaporator Temp Sensor (ETS1) | Evaporator Temperature Sensor (ETS1) out of range.                                          | Evaporator Temperature Sensor (ETS1) | Test the ETS1, refer to Sensor Checkout Procedure Section 6.19.1.                                                                    | Replace Evaporator Temperature Sensor (ETS1) if defective.                                                       |
| <b>AL70</b><br>Secondary Supply Sensor (SRS) | Secondary Supply Sensor (SRS) is out of range.                                              | Secondary Supply Sensor (SRS)        | Perform Pre–trip P5:                                                                                                                 | If P5 passes, no further action is required.                                                                     |
|                                              |                                                                                             |                                      |                                                                                                                                      | If P5 fails, replace the defective sensor as determined by P5, refer to TEMPERATURE SENSOR Service Section 6.19. |
| <b>AL71</b><br>Secondary Return Sensor (RRS) | Secondary Return Sensor (RRS) is out of range.                                              | Secondary Return Sensor (RRS)        | Perform Pre–trip P5:                                                                                                                 | If P5 passes, no further action is required.                                                                     |
|                                              |                                                                                             |                                      |                                                                                                                                      | If P5 fails, replace the defective sensor as determined by P5, refer to TEMPERATURE SENSOR Service Section 6.19. |
| <b>AL72</b><br>Control Temp Out of Range     | After the unit goes in–range for 30 minutes then out of range for a continuous 120 minutes. | Refrigeration System                 | Ensure unit is operating correctly.                                                                                                  | Power cycle unit.<br><br>Control Temperature is in In–range.<br><br>Any Pre–Trip mode, re–sets the timers.       |

**Table 3–6 Controller Alarm Indications (Sheet 8 of 8)**

| NOTE                                                                                                                                                                                            |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                 |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------|-------------------|----------------------------------------------------------|------------------------------|--------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------------------|-----------|-----|-----------|-----|-------------------|----------------------------------------------------------------|------------------------|----------------------------------|--------------------------|-----------------------------------------|--------------------------|-------------------------------------|--------------------------|-------------------------------------|
| If the controller is configured for four probes without a DataCORDER, the DataCORDER alarms AL70 and AL71 will be processed as Controller alarms AL70 and AL71. Refer to Table 3–10, page 3–38. |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                 |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
| ERR #                                                                                                                                                                                           | Internal Microprocessor Failure                                         | The controller performs self–check routines. If an internal failure occurs, an “ERR” alarm will appear on the display. This is an indication the controller needs to be re-placed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                 |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
|                                                                                                                                                                                                 |                                                                         | <table><tr><th>ERROR</th><th>DESCRIPTION</th></tr><tr><td>ERR 0–RAM failure</td><td>Indicates that the controller working memory has failed.</td></tr><tr><td>ERR 1–Program Memory failure</td><td>Indicates a problem with the controller program.</td></tr><tr><td>ERR 2–Watchdog time–out</td><td>The controller program has entered a mode whereby the controller program has stopped executing.</td></tr><tr><td>ERR 3–N/A</td><td>N/A</td></tr><tr><td>ERR 4–N/A</td><td>N/A</td></tr><tr><td>ERR 5–A–D failure</td><td>The controller’s Analog to Digital (A–D) converter has failed.</td></tr><tr><td>ERR 6–IO Board failure</td><td>Internal program/update failure.</td></tr><tr><td>ERR 7–Controller failure</td><td>Internal version/firmware incompatible.</td></tr><tr><td>ERR 8–DataCORDER failure</td><td>Internal DataCORDER memory failure.</td></tr><tr><td>ERR 9–Controller failure</td><td>Internal controller memory failure.</td></tr></table> | ERROR                                                                                           | DESCRIPTION | ERR 0–RAM failure | Indicates that the controller working memory has failed. | ERR 1–Program Memory failure | Indicates a problem with the controller program. | ERR 2–Watchdog time–out | The controller program has entered a mode whereby the controller program has stopped executing. | ERR 3–N/A | N/A | ERR 4–N/A | N/A | ERR 5–A–D failure | The controller’s Analog to Digital (A–D) converter has failed. | ERR 6–IO Board failure | Internal program/update failure. | ERR 7–Controller failure | Internal version/firmware incompatible. | ERR 8–DataCORDER failure | Internal DataCORDER memory failure. | ERR 9–Controller failure | Internal controller memory failure. |
|                                                                                                                                                                                                 |                                                                         | ERROR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | DESCRIPTION                                                                                     |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
|                                                                                                                                                                                                 |                                                                         | ERR 0–RAM failure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Indicates that the controller working memory has failed.                                        |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
|                                                                                                                                                                                                 |                                                                         | ERR 1–Program Memory failure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Indicates a problem with the controller program.                                                |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
|                                                                                                                                                                                                 |                                                                         | ERR 2–Watchdog time–out                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | The controller program has entered a mode whereby the controller program has stopped executing. |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
|                                                                                                                                                                                                 |                                                                         | ERR 3–N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | N/A                                                                                             |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
|                                                                                                                                                                                                 |                                                                         | ERR 4–N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | N/A                                                                                             |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
|                                                                                                                                                                                                 |                                                                         | ERR 5–A–D failure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | The controller’s Analog to Digital (A–D) converter has failed.                                  |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
|                                                                                                                                                                                                 |                                                                         | ERR 6–IO Board failure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Internal program/update failure.                                                                |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
|                                                                                                                                                                                                 |                                                                         | ERR 7–Controller failure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Internal version/firmware incompatible.                                                         |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
|                                                                                                                                                                                                 |                                                                         | ERR 8–DataCORDER failure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Internal DataCORDER memory failure.                                                             |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
|                                                                                                                                                                                                 |                                                                         | ERR 9–Controller failure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Internal controller memory failure.                                                             |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
|                                                                                                                                                                                                 |                                                                         | In the event that a failure occurs and the display cannot be updated, the status LED will indicate the appropriate ERR code using Morse code as shown below.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                 |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
| E R R 0 to 9                                                                                                                                                                                    |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                 |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
| ERR0 = . .-. .-. ----                                                                                                                                                                           |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                 |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
| ERR1 = . .-. .-. .----                                                                                                                                                                          |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                 |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
| ERR2 = . .-. .-. ..----                                                                                                                                                                         |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                 |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
| ERR3 = . .-. .-. ....--                                                                                                                                                                         |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                 |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
| ERR4 = . .-. .-. .....-                                                                                                                                                                         |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                 |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
| ERR5 = . .-. .-. ....                                                                                                                                                                           |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                 |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
| ERR6 = . .-. .-. -....                                                                                                                                                                          |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                 |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
| ERR7 = . .-. .-. --...                                                                                                                                                                          |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                 |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
| ERR8 = . .-. .-. ---..                                                                                                                                                                          |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                 |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
| ERR9 = . .-. .-. ----.                                                                                                                                                                          |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                 |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
| Entr StPt                                                                                                                                                                                       | Enter Set point (Press Arrow & Enter)                                   | The controller is prompting the operator to enter a set point.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                 |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |
| LO                                                                                                                                                                                              | Low Main Voltage (Function Codes Cd27–38 disabled and NO alarm stored.) | This message will be alternately displayed with the set point whenever the supply voltage is less than 75% of its proper value.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                 |             |                   |                                                          |                              |                                                  |                         |                                                                                                 |           |     |           |     |                   |                                                                |                        |                                  |                          |                                         |                          |                                     |                          |                                     |