

**ICM BA1701 Lockout Board Testing**

***Firmware Update***

***SPCB-2 PCB1506-4A FIRMWARE Version – 00T21***

***Received Date: 03/30/2016***

***Board Label/Marking***

**Label 1 Label 2**

***P0968 PCB 1506-4***

***00T21 Ver. 21***

***3-29-16***

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**ICM BA1701 Lockout Board Testing**

***P0968 FIRMWARE 00T21***

**Summary:**

* + - 1. HP Fault and Lockout after CC On (Fault #1 & 2) – Pass
      2. HP Fault and Lockout before CC On (Fault #1 & 2) – Pass
      3. LP Fault and Lockout after CC On (Fault #3 & 4) – Pass
      4. LP Fault and Lockout before CC On (Fault #3 & 4) – Pass
      5. Source Coax Freeze and Lockout (Fault #5 & 6, AFRZ = Off, Heat Mode) – Pass
      6. Source Coax Freeze and Lockout (Fault #5 & 6, AFRZ = On, Heat Mode) – Pass
      7. Source Coax Freeze and Lockout (Fault #5 & 6, AFRZ = On, Heat Mode, SCT = 12 and < 12) – Pass
      8. Source Coax Freeze and Lockout (Fault #5 & 6, AFRZ = On, Cool Mode) – Pass
      9. FS Fault and Lockout (Fault #5 & 6, FS = On, Heat Mode) – Pass
      10. Load Coil Freeze and Lockout (Fault #7 & 8, Cool Mode) – Pass
      11. Condensate Overflow and Lockout (Fault #9 & 10) – Pass
      12. Over and Under Voltage Fault #11 (Under Voltage, CC Off) – Pass
      13. Over and Under Voltage Fault #11 (Over Voltage, CC Off) – Pass
      14. Over and Under Voltage Fault #11 (Under Voltage, CC On) – Pass
      15. Over and Under Voltage Fault #11 (Under Voltage, CC On, O/U Off) – Pass
      16. LCT Sensor Bad Fault # 12 (LCT < 10F, Cool Mode) – Pass
      17. LCT Sensor Bad Fault # 12 (LCT > 220F, Cool Mode) – Pass
      18. LCT Sensor Bad Fault # 12 (LCT > 220F, Heat Mode) – Pass
      19. DGT Sensor Bad Fault # 13 (DGT < 20F, Cool Mode) – Pass
      20. DGT Sensor Bad Fault # 13 (DGT > 220F, Heat Mode) – Pass
      21. DLWT Sensor Bad Fault # 14 (DLWT < 20F, Cool Mode) – Pass
      22. SCT Sensor Bad Fault # 15 (SCT < 10F, Heat Mode) – Pass
      23. SCT Sensor Bad Fault # 15 (SCT > 220F, Heat Mode) – Pass
      24. SCT Sensor Bad Fault # 15 (SCT > 220F, Cool Mode) – Pass
      25. LCT & SCT Swapped Fault #16 (Heat Mode) – Pass
      26. LCT & SCT Swapped Fault #16 (Cool Mode) – Pass
      27. HWG Faults (DLT < DLWT and DLWT > 130F) – Pass
      28. DGT > 220F Fault and Lockout (Fault #17 & 18, Heat Mode) – Pass
      29. DGT > 220F Fault and Lockout (Fault #17 & 18, Cool Mode) – Pass
      30. Auxiliary Heat – Pass
      31. Auxiliary Heat during Lockout Condition – Pass
      32. Emergency Heat Power-On Mode, No Faults, No Lockouts: – Pass
      33. Three Separate Faults of same kind in 30 minutes (LP Fault #3 & 4) – Pass
      34. Two Faults in 30 minutes. Timer must restart for new faults (LP Fault #3 & 4) – Pass

***Note:***

* ***Firmware update – changed SCT Setpoint for AFRZ = ON to 12⁰F (from 15⁰F).***
* ***Test #20 – remove 10min requirement – instant de-energization okay.***

1. **HP Fault and Lockout after CC On (Fault #1 & 2): PASS**

**Initial Condition: Y1= OFF, O = OFF, W1= OFF; Power = ON, ASC = Over; All DIP Switches are OFF**

**LCT = 458= 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Y1 = ON |  |
| 2 | 0’15” | A = ON |  |
| 3 | 0’26” | CC = ON |  |
| 4 | 0’50” | HP Fault introduced | **HP Fault #1**. |
| 4a | 0’50” | AA & CC OFF; Green LED Flashing | HP Fault recognized right when introduced. |
| 5 | 6’06” | A = ON; Green LED Flashing |  |
| 6 | 6’16” | A = OFF; Green LED Flashing | **HP Fault #2** |
| 7 | 11’30” | A = ON; Green LED Flashing |  |
| 8 | 11’40” | A = OFF; Green LED ON; L Blinks 2 times | **HP Fault #3** **HP Lockout** |

1. **HP Fault and Lockout before CC On (Fault #1 & 2): PASSC**

**Initial Condition: Y1= OFF, O = ON, W1= OFF; Power = ON, ASC = Over; All DIP Switches are OFF**

**LCT = 458= 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Y1 = ON |  |
| 2 | 0’14” | A = ON |  |
| 3 | 0’19” | HP Fault introduced |  |
| 4 | 0’24” | A = OFF; Green LED ON; L Blinks 2 times | **HP Fault #1**; **HP Lockout** |

1. **L Terminal Remains Does Not Remain Energized After Soft Reset With A Hard Lockout: PASS**

**Initial Condition: Y1= OFF, O = ON, W1= OFF; Power = ON, ASC = Over; All DIP Switches are OFF**

**LCT = 458= 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Y1 = ON |  |
| 2 | 0’14” | A = ON |  |
| 3 | 0’19” | HP Fault introduced |  |
| 4 | 0’24” | A = OFF; Green LED ON; L Blinks 2 times | **HP Fault #1**; **HP Lockout** |
| 5 | 5’24” | ASC Over; Y1 = OFF; L Energized |  |
| 6 | 6’24” | Y1 = ON; L Energized | **Soft Reset Occurs** |
| 7 | 6’38” | A = OFF |  |
| 8 | 6’49” | CC = OFF |  |

1. **LP Fault and Lockout before CC On (Fault #3 & 4): PASS**

**Initial Condition: Y1= OFF, O = OFF, W1= OFF; Power = ON, ASC = Over; All DIP Switches are OFF**

**LCT = 458= 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Y1 = ON |  |
| 2 | 0’16” | A = ON |  |
| 3 | 0’25” | LP Fault introduced |  |
| 4 | 0’26” | A = OFF; Orange LED ON; L Blinks 4 times | **LP Fault #1**; **LP Lockout** |

1. **LP Fault and Lockout after CC On (Fault #3 & 4): PASS**

**Initial Condition: Y1= OFF, O = ON, W1= OFF; Power = ON, ASC = Over; All DIP Switches are OFF**

**LCT = 458= 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Y1 = ON |  |
| 2 | 0’14” | A = ON |  |
| 3 | 0’25” | CC = ON |  |
| 4 | 0’55” | LP Fault introduced |  |
| 5 | 1’03” | A & CC OFF; Orange LED Flashing | **LP Fault #1.** |
| 6 | 6’10” | A = ON; Orange LED Flashing |  |
| 7 | 6’20” | CC = ON; Orange LED Flashing |  |
| 8 | 6’30” | A & CC OFF; Orange LED Flashing | **LP Fault #2.** |
| 9 | 11’40” | A = ON; Orange LED Flashing |  |
| 10 | 11’50” | CC = ON; Orange LED Flashing |  |
| 11 | 12’00” | A & CC = OFF; Orange LED ON; L Blinks 4 times | **LP Fault #3** **LP Lockout** |

1. **Source Coax Freeze and Lockout (Fault #5 & 6, AFRZ = Off, Heat Mode): FAIL**

**Initial Condition: Y1= OFF, O = OFF, W1= OFF; Power = ON, ASC = Over; FSW = AFZR = TEST = O/U = OFF**

**LCT = 458= 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Y1 = ON |  |
| 2 | 0’12” | A = ON |  |
| 3 | 0’23” | CC = ON |  |
| 4 | 2’05” | SCT < 30F (A2D 760) | SCF Fault introduced |
| 5 | 2’15” | A, CC = OFF; Red LED Flashing | **SCF Fault #1** |
| 6 | 7’31” | A = ON; Red LED Flashing |  |
| 7 | 7’42” | CC = ON; Red LED Flashing |  |
| 8 | 7’50” | A, CC = OFF; Red LED Flashing | **SCF Fault #2** |
| 9 | 13’00” | A = ON; Red LED Flashing |  |
| 10 | 13’10” | CC = ON; Red LED Flashing |  |
| 11 | 13’19” | A, CC = OFF; Red LED ON; L Blinks 6 times | **SCF Fault #3** **SCF Lockout**  **With FS jumped, no LED displayed** |

1. **Source Coax Freeze and Lockout (Fault #5 & 6, AFRZ = On, Heat Mode): FAIL**

**Initial Condition: Y1= OFF, O = OFF, W1= OFF; Power = ON, ASC = Over; FSW = TEST = O/U = OFF; AFRZ = ON**

**LCT = 458= 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Y1 = ON |  |
| 2 | 0’12” | A = ON |  |
| 3 | 0’23” | CC = ON |  |
| 4 | 0’30” | SCT = 21F (A2D 800) | NOT A FAULT |
| 6 | 4’00” | SCT < 12F (A2D 837) | SCF Fault introduced |
| 7 | 4’09” | A, CC = OFF; Red LED Flashing | **SCF Fault #1** |
| 8 | 9’22” | A = ON; Red LED Flashing |  |
| 9 | 9’32” | CC = ON; Red LED Flashing |  |
| 10 | 9’48” | A, CC = OFF; Red LED Flashing | **SCF Fault #2** |
| 11 | 14’54” | A = ON; Red LED Flashing |  |
| 12 | 15’05” | CC = ON; Red LED Flashing |  |
| 13 | 15’16” | A, CC = OFF; Red LED ON; L Blinks 6 times | **SCF Fault #3** **SCF Lockout**  **No LED when FS jumped** |

1. **Source Coax Freeze and Lockout (Fault #5 & 6, AFRZ = On, Heat Mode, SCT = 12 and < 12): FAIL**

**Initial Condition: Y1= OFF, O = OFF, W1= OFF; Power = ON, ASC = Over; FSW = TEST = O/U = OFF; AFRZ = ON**

**LCT = 458= 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 836 = 12⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Y1 = ON |  |
| 2 | 0’14” | A = ON |  |
| 3 | 0’25” | CC = ON | **SCT = 12⁰F (<12⁰F is a fault condition)** |
| 4 | 14’00” | A & CC = ON |  |
| 5 | 14’10” | SCT < 12⁰F (A2D = 837) |  |
| 6 | 14’23” | A, CC = OFF; Red LED Flashing | **SCF Fault #1**  **LED Doesn’t Display** |

1. **Source Coax Freeze Fault #5 & 6 (AFRZ = ON, Cool Mode): PASS**

**Initial Condition: Y1= OFF, O = ON, W1= OFF; Power = ON, ASC = Over; FSW = TEST = O/U = OFF; AFRZ = ON**

**LCT = 458= 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 838 < 12⁰F (fault condition)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Y1 = ON |  |
| 2 | 0’14” | A = ON |  |
| 3 | 0’25” | CC = ON |  |
| 4 | 10’00” | A & CC = ON | **SCT Freeze fault and must be ignored in Cool Mode** |

1. **FS Fault and Lockout (Fault #5 & 6, FSW = On, Heat Mode): PASS**

**Initial Condition: Y1= ON, O = OFF, W1= OFF; Power = OFF; FSW = ON; AFZR = TEST = O/U = OFF**

**LCT = 458= 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 835 = 12⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Power = ON |  |
| 2 | 5’17” | A = ON |  |
| 3 | 5’27” | CC = ON |  |
| 3 | 7’00” | FS Fault Introduced | Thermistor Fault was ignored |
| 4 | 7’12” | A, CC = OFF; Red LED Flashing | **FS Fault #1** |
| 5 | 12’28” | A = ON; Red LED Flashing |  |
| 6 | 12’39” | CC = ON; Red LED Flashing |  |
| 7 | 12’47” | A, CC = OFF; Red LED Flashing | **FS Fault #2** |
| 8 | 17’57” | A = ON; Red LED Flashing |  |
| 9 | 18’12” | CC = ON; Red LED Flashing |  |
| 10 | 18’22” | A, CC = OFF; Red LED ON; L Blinks 6 times | FS Fault #3 **FS Lockout** |

1. **Load Coil Freeze and Lockout (Fault #7 & 8, Cool Mode): PASS**

**Initial Condition: Y1= OFF, O = ON, W1= OFF; Power = ON, ASC = Over; All DIP Switches are OFF**

**LCT = 757 > 30⁰F && < 31⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Y1 = ON |  |
| 2 | 0’13” | A = ON |  |
| 3 | 0’24” | CC = ON |  |
| 4 | 1’53” | LCT < 30F (A2D = 760) | LCT < 30F Fault introduced |
| 5 | 2’04” | A, CC = OFF, Orange & Red LEDs Flashing | **LCF Fault #1** |
| 6 | 7’12” | A = ON, Orange & Red LEDs Flashing |  |
| 7 | 7’23” | CC = ON, Orange & Red LEDs Flashing |  |
| 8 | 7’31” | A, CC = OFF, Orange & Red LEDs Flashing | **LCF Fault #2** |
| 9 | 12’45” | A = ON |  |
| 10 | 12’56” | CC = ON |  |
| 11 | 13’04” | A, CC = OFF, Orange & Red LEDs ON, L Blinks 8 times | **LCF Fault #3** **LCF Lockout** |

1. **Load Coil Freeze and Lockout (Fault #7 & 8, Cool Mode, AFRZ = ON): PASS**

**Initial Condition: Y1= OFF, O = ON, W1= OFF; Power = ON, ASC = Over; FSW = O/U = TEST = OFF; AFRZ = ON**

**LCT = 836 > 12⁰F && < 13⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Y1 = ON |  |
| 2 | 0’13” | A = ON |  |
| 3 | 0’24” | CC = ON |  |
| 4 | 1’53” | LCT < 12F (A2D = 837) | LCT < 12F Fault introduced |
| 5 | 2’04” | A, CC = OFF, Orange & Red LEDs Flashing | **LCF Fault #1** |
| 6 | 7’12” | A = ON, Orange & Red LEDs Flashing |  |
| 7 | 7’23” | CC = ON, Orange & Red LEDs Flashing |  |
| 8 | 7’31” | A, CC = OFF, Orange & Red LEDs Flashing | **LCF Fault #2** |
| 9 | 12’45” | A = ON |  |
| 10 | 12’56” | CC = ON |  |
| 11 | 13’04” | A, CC = OFF, Orange & Red LEDs ON, L Blinks 8 times | **LCF Fault #3** **LCF Lockout**  **Temp is at 30 instead of 12 which is correct** |

1. **Condensate Overflow and Lockout (Fault #9 & 10): PASS**

**Initial Condition: Y1= OFF, O = ON, W1= OFF; Power = ON, ASC = Over; FSW = AFZR = TEST = O/U = OFF**

**LCT = 658 = 50⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Y1 = ON |  |
| 2 | 0’12” | A = ON |  |
| 3 | 0’22” | CC = ON |  |
| 4 | 0’30” | CO Fault introduced |  |
| 5 | 0’41” | A, CC = OFF; Yellow LED Flashing | **CO Fault #1** |
| 6 | 5’51” | A = ON; Yellow LED Flashing |  |
| 7 | 6’02” | CC = ON; Yellow LED Flashing |  |
| 8 | 6’12” | A, CC = OFF; Yellow LED Flashing | **CO Fault #2** |
| 9 | 11’21” | A = ON |  |
| 10 | 11’32” | CC = ON |  |
| 11 | 11’41” | A, CC = OFF; Yellow LED ON; L Blinks 10 times | **CO Fault #3** **CO Lockout** |

1. **Condensate Overflow and Lockout (Fault #9 & 10): PASS**

**Initial Condition: Y1= OFF, O = OFF, W1= OFF; Power = ON, ASC = Over; FSW = AFZR = TEST = O/U = OFF;**

**CO Fault Present**

**LCT = 658 = 50⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Y1 = ON |  |
| 2 | 0’15” | A = ON |  |
| 3 | 0’26” | CC = ON |  |
| 4 | 0’34” | CO Fault Recognized |  |
| 4a | 0’34” | A, CC = OFF; Yellow LED Flashing | **CO Fault #1**  **No 30 sec delay after CC Energized?** |

1. **Over and Under Voltage Fault #11 (Under Voltage, CC = Off): PASS**

**Initial Condition: Y1 = OFF, O = OFF, W1 = OFF; Power = OFF; FSW = AFZR = TEST = OFF; O/U = ON**

**LCT = 658 = 50⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Power = ON (VAC ~= 25 VAC; A2D Counts = 623) |  |
| 2 | 2’00” | Input Voltage < 18 VAC; A2D Counts = 456 | Under Voltage Fault introduced |
| 2a | 2’00” | All LEDs Blinks, L Terminal Flashes 11 pulses | **Under Voltage Fault recognized 5 min ASC timer starts** |
| 4 | 3’00” | Input Voltage > 20 VAC; A2D Counts = 509. All LEDs Blinks, L Terminal Flashes 11 pulses | Under Voltage Fault removed |
| 5 | 7’00” | L Terminal OFF; All LEDs are OFF | **No Fault mode after 5 minutes** |
| 6 | 7’14” | A = ON |  |
| 7 | 7’24” | CC = ON |  |

1. **Over and Under Voltage Fault #11 (Over Voltage, CC = Off): PASS**

**Initial Condition: Y1 = OFF, O = OFF, W1 = OFF; Power = OFF; FSW = AFZR = TEST = OFF; O/U = ON**

**LCT = 658 = 50⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Power = ON (VAC ~= 25 VAC; A2D Counts = 623) |  |
| 2 | 1’30” | Input Voltage > 31 VAC; A2D Counts = 774 | Over Voltage Fault introduced |
| 2a | 1’30” | All LEDs Blinks, L Terminal Flashes 11 pulses | **Over Voltage Fault recognized 5 min ASC timer starts** |
| 4 | 5’00” | Input Voltage < 29 VAC; A2D Counts = 728. All LEDs Blinks, L Terminal Flashes 11 pulses | Over Voltage Fault removed |
| 5 | 6’30” | L Terminal OFF; All LEDs are OFF | **No Fault mode after 5 minutes** |
| 6 | 6’47” | A = ON |  |
| 7 | 6’58” | CC = ON |  |

1. **Over and Under Voltage Fault #11 (Under Voltage, CC = On): PASS**

**Initial Condition: Y1 = ON, O = OFF, W1 = OFF; Power = OFF; FSW = AFZR = TEST = OFF; O/U = ON**

**LCT = 658 = 50⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Power = ON (VAC ~= 25 VAC; A2D Counts = 623) |  |
| 2 | 5’12” | A = ON |  |
| 3 | 5’23” | CC = ON |  |
| 4 | 8’24” | Input Voltage < 18 VAC; A2D Counts = 455 | Under Voltage Fault introduced |
| 4a | 8’24” | A & CC = OFF; All LEDs Blinks, L Terminal Flashes 11 pulses | Under Voltage Fault recognized. 5 minute ASC timer starts |
| 5 | 9’08” | Input Voltage = 24 VAC; A2D Counts = 606 | Under Voltage Fault removed |
| 6 | 13’24” | L Terminal OFF; All LEDs are OFF | No Fault mode after 5 minutes |
| 7 | 13’39” | A = ON |  |
| 8 | 13’50” | CC = ON |  |

1. **Over and Under Voltage Fault #11 (CC = On, O/U Off): PASS**

**Initial Condition: Y1 = OFF, O = OFF, W1 = OFF; Power = ON, ASC = Over; FSW = AFZR = TEST = OFF; O/U = OFF**

**LCT = 658 = 50⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Y1 = ON, Input Voltage = 24 VAC; A2D Counts = 606 |  |
| 2 | 0’17” | A = ON |  |
| 3 | 0’27” | CC = ON |  |
| 4 | 1’00” | Input Voltage < 18 VAC; A2D Counts = 455 |  |
| 5 | 1’50” | A = CC = ON | **Under Voltage Fault Ignored** |
| 6 | 2’30” | Input Voltage > 31 VAC; A2D Counts = 775 |  |
| 5 | 3’00” | A = CC = ON | **Over Voltage Fault Ignored** |

1. **LCT Sensor Bad Fault # 12 (LCT < 10F, Cool Mode): PASS**

**Initial Condition: Y1 = ON, O = ON, W1 = OFF; Power = OFF; All DIP Switches are OFF;**

**LCT = 658 = 50⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 0’00” | Power = ON |  |
| 2 | 5’14” | A = ON |  |
| 3 | 5’25” | CC = ON |  |
| 4 | 5’44” | LCT = 9⁰F (ADC = 847) | LCT < 10⁰F Fault |
| 5 | 5’54” | A, CC = OFF; Green LED Flashing, Yellow LED ON; L Blinks 12 Times | BAD LCT Sensor Lockout after 30 sec  ASC? |
| 6 | 11’00” | Y1 = OFF | Beginning of Soft Reset After ASC |
| 7 | 12’00” | L Terminal OFF, Green LED Flashing, Yellow LED ON | Soft Reset |
| 7 | 12’10” | Y1 = ON; LCT = 658 = 50⁰F; Green LED Flashing, Yellow LED ON | Last Fault remembered. |
| 8 | 12’25” | A = ON; Green LED Flashing, Yellow LED ON | Last Fault remembered. |
| 9 | 12’35” | CC = ON; Green LED Flashing, Yellow LED ON | Last Fault remembered. |

1. **LCT Sensor Bad Fault # 12 (LCT > 220F, Cool Mode): PASS**

**Initial Condition: Y1 = ON, O = ON, W1 = OFF; Power = OFF; All DIP Switches are OFF;**

**LCT = 658 = 50⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 0’00” | Power = ON |  |
| 2 | 5’18” | A = ON |  |
| 3 | 5’29” | CC = ON |  |
| 4 | 6’29” | LCT = 223⁰F (ADC = 87 ) | LCT > 220⁰F Fault |
| 5 | 6’39” | A, CC = OFF; Green LED Flashing, Yellow LED ON; L Blinks 12 Times | BAD LCT Sensor Lockout after 30 sec |
| 7 | 7’15” | LCT = 50⁰F | LCT Fault Removed |
| 8 | 15’00” | A, CC = OFF; Green LED Flashing, Yellow LED ON; L Blinks 12 Times | No change… after fault removal for more than 6 minutes |

1. **LCT Sensor Bad Fault # 12 (LCT > 220F, Heat Mode): PASS**

**Initial Condition: Y1 = ON, O = OFF, W1 = OFF; Power = OFF; All DIP Switches are OFF;**

**LCT = 658 = 50⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 0’00” | Power = ON |  |
| 2 | 5’12” | A = ON |  |
| 3 | 5’23” | CC = ON |  |
| 4 | 6’00” | LCT = 223⁰F (ADC = 87 ) | LCT > 220⁰F Fault |
| 5 | 7’30” | A, CC = ON | Ignored BAD LCT Fault in Heat Mode |

1. **DGT Sensor Bad Fault # 13 (DGT < 20F, Cool Mode): PASS**

**Initial Condition: Y1 = ON, O = ON, W1 = OFF; Power = OFF; All DIP Switches are OFF;**

**LCT = 655 = 51.5⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 0’00” | Y1 = ON |  |
| 1 | 0’17” | A = ON |  |
| 2 | 0’28” | CC = ON |  |
| 3 | 1’45” | DGT = OPEN (A2D 1023) | DGT < 20⁰F Fault |
| 4 | 2’16” | HWG Energized; Orange LED Flashing, Yellow LED ON; L Flashes 13 Pulses | **BAD DGT Sensor Fault.** |
| 5 | 6’35” | DGT = 114⁰F  L Terminal OFF; Orange LED Flashing, Yellow LED ON; HWG De-energized | Fault Removed.  Last Fault remembered.  Time inconsistencies for how long HWG is Energized for |

1. **DGT Sensor Bad Fault # 13 (DGT > 220F, Heat Mode): PASS**

**Initial Condition: Y1 = ON, O = OFF, W1 = OFF; Power = OFF; All DIP Switches are OFF;**

**LCT = 457 = 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 0’00” | Y1 = ON |  |
| 1 | 0’17” | A = ON |  |
| 2 | 0’28” | CC = ON |  |
| 3 | 1’45” | DGT = SHORT (A2D 10) | DGT > 257⁰F Fault |
| 4 | 2’16” | HWG Energized; Orange LED Flashing, Yellow LED ON; L Flashes 13 Pulses | **BAD DGT Sensor Fault.** |
| 5 | 6’35” | DGT = 114⁰F  L Terminal OFF; Orange LED Flashing, Yellow LED ON; HWG De-energized | Fault Removed.  Last Fault remembered.  Time inconsistencies for how long HWG is Energized for |

1. **DLWT Sensor Bad Fault # 14 (DLWT < 20⁰F, Cool Mode): PASS**

**Initial Condition: Y1 = ON, O = ON, W1 = OFF; Power = OFF; All DIP Switches are OFF;**

**LCT = 457 = 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 0’00” | Power = ON |  |
| 2 | 5’17” | A = ON |  |
| 3 | 5’27” | CC = ON |  |
| 4 | 6’10” | DLWT = OPEN (A2D 931) | DLWT < 20F Fault |
| 5 | 6’43” | HWG Energized; Red LED Flashing, Yellow LED ON; L Flashes 14 Pulses | **BAD DLWT** **Sensor Fault.** |
| 6 | 8’30” | DLWT = 88⁰F | Fault Removed. |
| 6a | 8’30” | L Terminal OFF; Red LED Flashing, Yellow LED ON; HWG De-energized | Last Fault remembered. |
| 7 | 9’15” | Y1 = OFF; HWG De-energized; Red LED Flashing, Yellow LED ON; |  |
| 7a | 9’15” | A & CC = OFF | Last Fault remembered. |
| 8 | 10’20” | Y1 = ON | **ASC occurred** |
| 9 | 14’31” | A = ON; Red LED Flashing, Yellow LED ON | Last Fault remembered. |
| 10 | 14’41” | CC = ON; Red LED Flashing, Yellow LED ON | Last Fault remembered. |

1. **SCT Sensor Bad Fault # 15 (SCT < 10F, Heat Mode): PASS**

**Initial Condition: Y1 = ON, O = OFF, W1 = OFF; Power = OFF; All DIP Switches are OFF;**

**LCT = 458 = 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 0’00” | Power = ON |  |
| 2 | 5’12” | A = ON |  |
| 3 | 5’23” | CC = ON |  |
| 4 | 6’00” | SCT = 9⁰F (A2D 931) | SCT < 10⁰F Fault |
| 5 | 6’33” | A, CC = OFF; Orange LED ON, Yellow LED Flashing; L Blinks 15 pulses | BAD SCT Sensor Lockout after 30 sec  **ASC occurred** |
| 6 | 8’05” | SCT = 78⁰F | SCT < 10⁰F Fault Removed |
| 7 | 8’30” | A, CC = OFF; Orange LED ON, Yellow LED Flashing; L Blinks 15 pulses | Last Fault remembered. Indicates BAD SCT Sensor LOCKOUT |
| 8 | 9’01” | Y1 = OFF | Beginning of Soft Reset |
| 9 | 10’04” | L Terminal OFF | Soft Reset after about 1 minute |
| 10 | 10’15” | Y1 = ON; Orange LED ON, Yellow LED Flashing | Last Fault remembered. |
| 11 | 11’48” | A = ON; Orange LED ON, Yellow LED Flashing | Last Fault remembered. |
| 12 | 11’58” | CC = ON; Orange LED ON, Yellow LED Flashing | Last Fault remembered. |

1. **SCT Sensor Bad Fault # 15 (SCT > 220F, Heat Mode): PASS**

**Initial Condition: Y1 = ON, O = OFF, W1 = OFF; Power = OFF; All DIP Switches are OFF;**

**LCT = 458 = 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 0’00” | Power = ON |  |
| 2 | 5’16” | A = ON |  |
| 3 | 5’27” | CC = ON |  |
| 4 | 6’30” | SCT = SHORT (A2D 10) | SCT > 220⁰F 10F Fault |
| 5 | 7’04” | A, CC = OFF; Orange LED ON, Yellow LED Flashing; L Blinks 15 pulses | BAD SCT Sensor Lockout after 30 sec  **ASC occurred** |
| 6 | 8’16” | SCT = 78⁰F | SCT > 220⁰F Fault Removed |
| 7 | 10’30” | A, CC = OFF; Orange LED ON, Yellow LED Flashing; L Blinks 15 pulses | Last Fault remembered. Indicates BAD SCT Sensor LOCKOUT |

1. **SCT Sensor Bad Fault # 15 (SCT > 220F, Cool Mode): PASS**

**Initial Condition: Y1 = ON, O = ON, W1 = OFF; Power = OFF; All DIP Switches are OFF;**

**LCT = 458 = 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Power = ON |  |
| 2 | 5’16” | A = ON |  |
| 3 | 5’27” | CC = ON |  |
| 4 | 6’30” | SCT = SHORT (A2D 10) | SCT > 220⁰F Fault |
| 5 | 7’30” | A & CC = ON | Ignored BAD SCT Fault in Cool Mode |

1. **LCT & SCT Swapped Fault #16 (Heat Mode): PASS**

**Initial Condition: Y1 = ON, O = OFF, W1 = OFF; Power = OFF; FSW = AFZR = O/U = OFF, Test = ON**

**LCT = 655 = 51.5⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Power = ON |  |
| 2 | 0’06” | A = ON |  |
| 3 | 0’16” | CC = ON |  |
| 4 | 1’14” | A & CC = OFF; Green & Yellow LEDs ON; L Flashing 16 Pulses | 60 sec delay before Fault Indication. |

1. **LCT & SCT Swapped Fault #16 (Cool Mode): PASS**

**Initial Condition: Y1 = ON, O = ON, W1 = OFF; Power = OFF; FSW = AFZR = O/U = OFF, Test = ON**

**LCT = 458 = 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Power = ON |  |
| 2 | 0’05” | A = ON |  |
| 3 | 0’16” | CC = ON |  |
| 4 | 1’14” | A & CC = OFF; Green & Yellow LEDs ON; L Flashing 16 Pulses | 60 sec delay before Fault Indication. |

1. **HWG Faults (DLT < DLWT and DLWT > 130F): PASS**

**Initial Condition: Y1 = ON, O = ON, W1 = OFF; Power = OFF; All DIP Switches are OFF**

**LCT = 458 = 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Y1= ON |  |
| 2 | 0’14” | A = ON |  |
| 3 | 0’25” | CC = ON |  |
| 4 | 1’30” | DGT = 78⁰F (ADC = 510) | DGT < DLWT Fault introduced |
| 5 | 2’24” | HWG = Energized | HWG Fault after 2 minutes of CC ON |
| 6 | 3’55” | DGT = 188⁰F | DGT < DLWT Fault REMOVED |
| 7 | 12’23” | HWG = De-energized | HWG stayed energized for 10 minutes. |
| 8 | 13’15” | DLWT = 137⁰F (ADC = 253) | DLWT > 130⁰F Fault introduced |
| 9 | 14’23” | HWG = Energized | HWG Fault after 2 minutes |
| 10 | 15’45” | DLWT = 88⁰F | DLWT < 130⁰F Fault REMOVED |
| 11 | 24’23” | HWG = De-energized | HWG stayed energized for 10 minutes. |

1. **DGT > 220F Fault and Lockout (Fault #17 & 18, Heat Mode): PASS**

**Initial Condition: Y1 = OFF, O = OFF, W1 = OFF; Power = ON, ASC = Over; All DIP Switches OFF**

**LCT = 458 = 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Y1 = ON |  |
| 2 | 0’13” | A = ON |  |
| 3 | 0’24” | CC = ON |  |
| 4 | 1’00” | DGT > 220⁰F (ADC = 74) | DGT > 220⁰F Fault introduced |
| 5 | 1’33” | A & CC = OFF; Green & Red LEDs Flashing, Yellow LED ON | DGT > 220⁰F Fault indication  **Fault #1** |
| 6 | 6’47” | A = ON; Green & Red LEDs Flashing, Yellow LED ON |  |
| 7 | 6’57” | CC = ON; Green & Red LEDs Flashing, Yellow LED ON |  |
| 8 | 7’25” | A & CC = OFF; Green & Red LEDs Flashing, Yellow LED ON | **Fault #2** |
| 9 | 12’38” | A = ON; Green & Red LEDs Flashing, Yellow LED ON |  |
| 10 | 12’49” | CC = ON; Green & Red LEDs Flashing, Yellow LED ON |  |
| 11 | 13’18” | A & CC = OFF; Green, Red & Yellow LEDs are ON; L Terminal Flashes 18 pulses | **Fault #3**; **LOCKOUT**  ASC Occurred |
| 12 | 15’03” | Y1 = OFF | Beginning of Soft Reset |
| 13 | 16’10” | Green, Red & Yellow LEDs are ON; L Terminal OFF | Soft Reset; Fault Remembered |
| 14 | 16’30” | DGT = 188⁰F | DGT > 220⁰F Fault REMOVED |
| 15 | 17’40” | Y1 = ON; Green, Red & Yellow LEDs are ON; L Terminal OFF | Fault Remembered |
| 16 | 18’33” | A = ON; Green, Red & Yellow LEDs are ON; L Terminal OFF | Fault Remembered |
| 17 | 18’42” | CC = ON; Green, Red & Yellow LEDs are ON; L Terminal OFF | Fault Remembered |

1. **DGT > 220F Fault and Lockout (Fault #17 & 18, Cool Mode): PASS**

**Initial Condition: Y1 = OFF, O = ON, W1 = OFF; Power = ON, ASC = Over; All DIP Switches OFF**

**LCT = 458 = 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Y1 = ON |  |
| 2 | 0’14” | A = ON |  |
| 3 | 0’25” | CC = ON |  |
| 4 | 0’45” | DGT > 230⁰F (ADC = 74) | DGT > 220⁰F Fault introduced |
| 5 | 1’19” | A & CC = OFF; Green & Red LEDs Flashing, Yellow LED ON | DGT > 220⁰F Fault indication  **Fault #1** |
| 6 | 6’31” | A = ON; Green & Red LEDs Flashing, Yellow LED ON |  |
| 7 | 6’42” | CC = ON; Green & Red LEDs Flashing, Yellow LED ON |  |
| 8 | 7’10” | A & CC = OFF; Green & Red LEDs Flashing, Yellow LED ON | **Fault #2** |
| 9 | 12’24” | A = ON; Green & Red LEDs Flashing, Yellow LED ON |  |
| 10 | 12’35” | CC = ON; Green & Red LEDs Flashing, Yellow LED ON |  |
| 11 | 13’03” | A & CC = OFF; Green, Red & Yellow LEDs are ON; L Terminal Flashes 18 pulses | **Fault #3**; **LOCKOUT** |

1. **Auxiliary Heat: PASS**

**Initial Condition: Y1 = ON, O = OFF, W1 = OFF; Power = ON, ASC = Over; A = CC = ON; All DIP Switches are OFF**

**LCT = 458 = 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | W1 = ON |  |
| 2 | 9’59” | W2 = ON | 10 minute delay for Aux Heat |

1. **Auxiliary Heat during Lockout Condition: PASS**

**Initial Condition: Y1 = ON, O = OFF, W1 = OFF; Power = OFF; All DIP Switches are OFF**

**LCT = 458 = 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Power = ON |  |
| 2 | 0’45” | W1 = ON |  |
| 3 | 5’17” | A = ON |  |
| 4 | 5’27” | CC = ON |  |
| 5 | 6’00” | LP Fault Introduced |  |
| 6 | 6’30” | A & CC = OFF; Orange LED Flashing | **LP Fault #1** |
| 7 | 10’45” | W2 = ON; Orange LED Flashing | 10 minute delay for Aux Heat |
| 8 | 11’44” | A = ON; Orange LED Flashing |  |
| 9 | 11’55” | CC = ON; Orange LED Flashing |  |
| 10 | 12’53” | A & CC = OFF, Orange LED still Flashing | **LP Fault #2** |
| 11 | 18’10” | A = ON |  |
| 12 | 18’20” | CC = ON |  |
| 13 | 19’18” | A & CC = OFF, Orange LED ON, L flashes 4 pulses | **LP Fault #3**, **LP Lockout** |
| 14 | 19’30” | W1 = OFF |  |
| 14a | 19’30” | W2 = OFF |  |
| 15 | 19’45” | W1 = ON |  |
| 16 | 21’45” | W2 = ON | In Lockout mode W1 call is treated as Emergency Heat. |

1. **Emergency Heat Power-On Mode, No Faults, No Lockouts: PASS**

**Initial Condition: Y1 = OFF, O = OFF, W1 = OFF; Power = OFF; All DIP Switches are OFF**

**LCT = 458 = 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Power = ON |  |
| 2 | 0’15” | W1 = ON | Emergency Heat Call (NO Y1 Call) |
| 3 | 2’15” | W2 = ON | 2 minute delay for Emergency Heat |
| 4 | 2’30” | O = ON | Mode change to Cool |
| 4a | 2’30” | W2 = OFF | Emergency Heat OFF |
| 5 | 2’50” | O = OFF | Mode change to Heat |
| 6 | 4’50” | W2 = ON | 2 minute delay for Emergency Heat |

1. **Three Separate Faults of same kind in 30 minutes (LP Fault #3 & 4): PASS**

**Initial Condition: Y1 = ON, O = OFF, W1 = OFF; Power = OFF; FSW = AFZR = TEST = O/U = OFF**

**LCT = 458 = 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Power = ON |  |
| 2 | 5’18” | A = ON |  |
| 3 | 5’29” | CC = ON |  |
| 4 | 6’00” | LP Fault ON | Fault introduced |
| 5 | 6’30” | A, CC = OFF; Orange LED Flashing | **LP Fault #1** |
| 6 | 6’50” | LP Fault OFF | Fault removed |
| 7 | 11’50” | A = ON |  |
| 8 | 12’01” | CC = ON |  |
| 9 | 12’25” | LP Fault ON | Fault introduced |
| 10 | 12’55" | A, CC = OFF | **LP Fault #2** |
| 11 | 13’30” | LP Fault OFF | Fault removed |
| 12 | 18’09” | A = ON |  |
| 13 | 18’20” | CC = ON |  |
| 14 | 35’15” | LP Fault ON - 3rd LP Fault in ~ 29+ minutes of the first one @5’45” | Fault introduced  **LP Fault #3; LP Lockout** |
| 15 | 35’45” | A & CC = OFF; Orange LED ON, L Flashes 4 Pulses | 3 separate LP Faults in < 30 minutes. |

1. **Two Faults in 30 minutes. Timer must restart for new faults (LP Fault #3 & 4): PASS**

**Initial Condition: Y1 = ON, O = OFF, W1 = OFF; Power = OFF; FSW = AFZR = TEST = O/U = OFF**

**LCT = 458 = 88⁰F; DGT = 132 = 188⁰F; DLWT = 457 = 88⁰F; SCT = 511 = 77.5⁰F**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step #** | **Time** | **Action/Observation** | **Comment** |
| 1 | 0’00” | Power = ON |  |
| 2 | 5’18” | A = ON |  |
| 3 | 5’29” | CC = ON |  |
| 4 | 5’35” | LP Fault ON | Fault introduced |
| 5 | 6’27” | A, CC = OFF; Orange LED Flashing | **LP Fault #1;** 30 minutes Timer Starts here |
| 6 | 7’15” | LP Fault OFF | Fault removed |
| 7 | 11’47” | A = ON |  |
| 8 | 11’58” | CC = ON |  |
| 9 | 12’15” | LP Fault ON | Fault introduced |
| 10 | 12’56” | A, CC = OFF | **LP Fault #2** |
| 11 | 13’30” | LP Fault OFF | Fault removed |
| 12 | 18’10” | A = ON |  |
| 13 | 18’21” | CC = ON |  |
| 14 | 36’27” | A, CC = ON; Orange LED Flashing | 30 minutes Timer Ends here; LP Fault remembered |
| 15 | 37’00” | LP Fault ON | Fault introduced |
| 16 | 37’30” | A, CC = OFF; Orange LED Flashing | **LP Fault #1;** New Fault counter and new 30 minutes Timer Starts here |
| 17 | 42’46” | A = ON |  |
| 18 | 42’56” | CC = ON |  |
| 19 | 43’55” | A, CC = OFF; Orange LED Flashing | **LP Fault #2** |
| 20 | 49’10” | A = ON |  |
| 21 | 49’20” | CC = ON |  |
| 22 | 50’18” | A, CC = OFF; Orange LED ON, L Flashes 4 Pulses | **LP Fault #3; LP Lockout** |