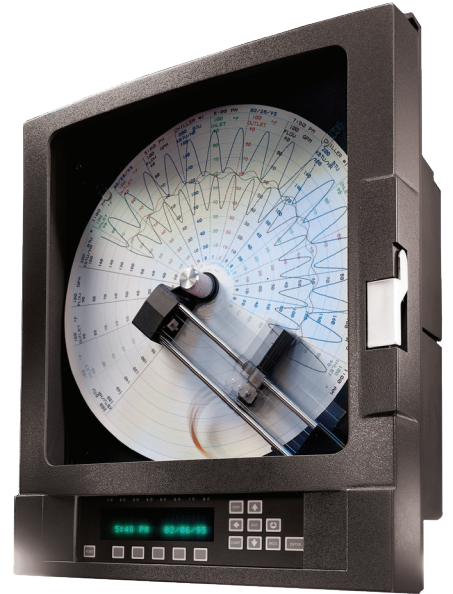


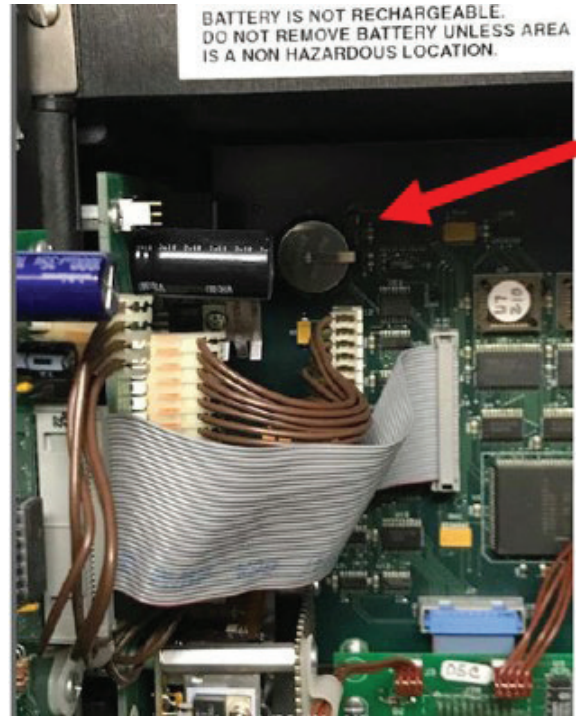
# AV Basic Errors Troubleshooting Guide



	Page
1. Programming Not Retained Following Power Down	2
2. Unable to Change Number of Active Setpoints	2
3. IC2 Data Read Fail	2
4. Check Hardware	2
5. Input Reads All 9s	3
6. Bad Input/Output Cal CRC	4
7. Bad Chart Cal CRC	4
8. Default Values Set	5
9. Bell Alarm	5
10. Warning STLR Probe Failure (HTST Specific)	6
11. Chart Will Not Start	7
12. Chart Stuck in Simulated Values	7
13. Chart Will Not Go Into Hold	8
14. Chart Will Not Go Into Forward Flow Even Though Probe Is Above Setpoint (HTST Specific)	9
15. Mod Button Does Not Work	10
16. Unable to Change Date/Time	11
17. Neither Forward or Divert Lights Are Lit	12
18. Black Pen Not Printing	12
19. Date/Time Not Printing	13
20. Gaps in Chart	13
21. Sawtooth on Event Pen	14
22. Ghosting (Double Printing)	14
23. Scatter Printing	15
24. Unit Losing Power (Printing Down Arrows)	15

## Programming Not Retained Following Power Down

1. Check the 3V Lithium battery on the motherboard
  - Removal of the battery while the unit is powered off will result in default programming
2. If the battery is dead, replace it (Part Number 72801401)



## Unable to Change Number of Active Setpoints

Verify that the recorder has Remote Setpoints in the model number

1. Scroll to Model and Revision
2. Press Down
3. 99 XXX **XX** XX1 33 (If your model number has 1 or 2 in that position, you have remote setpoints and they cannot be changed through recorder keypad, only through a remote switch or contact closure)
4. If the model number needs to be changed, you must contact Anderson-Negele Technical Service in order to change the model number, as this is a password protected area.
  - Technical Service can be contacted at (518) 922-9285

## IC2 Data Read Fail

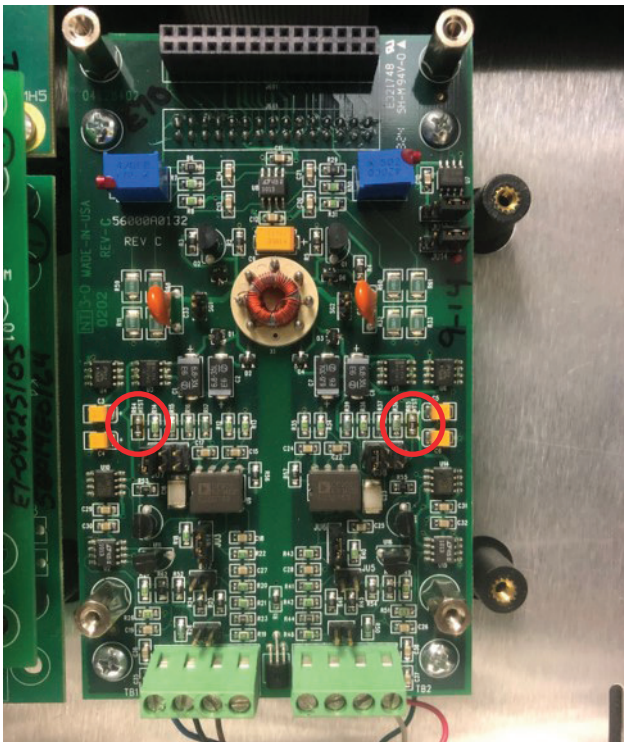
1. Power down recorder - Leave powered down for 10-15 minutes

## Check Hardware Data Read Fail

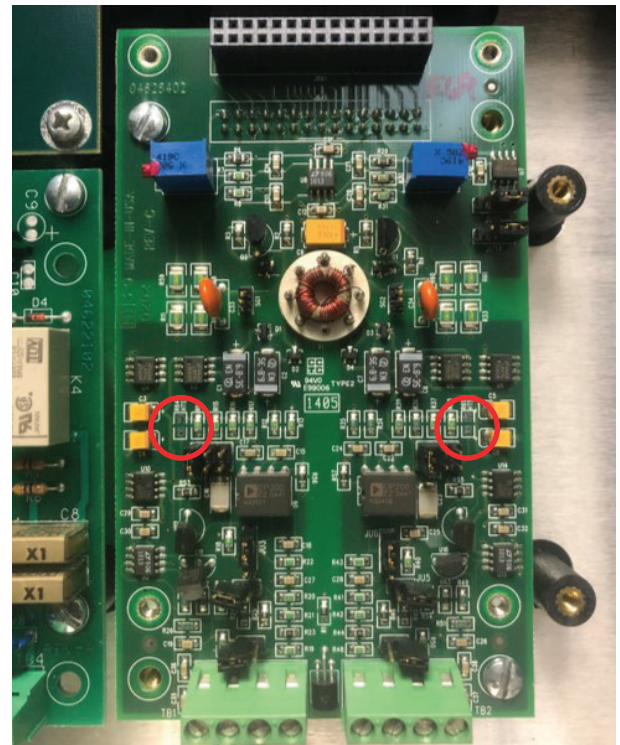
1. Power down recorder - Leave powered down for 10-15 minutes

## Input Reads All 9s

1. Verify all wires are tight and wired correctly
2. Verify input card is correct (HTST vs. Universal Input)
3. Verify jumpers are set correctly (including address jumpers)
4. Verify signal coming from the sensor is transmitting properly
5. If all of these are working properly, the input card must be replaced



HTST Input



Universal Input

## Bad Input/Output Cal CRC

1. Cycle Power
2. Perform mA Calibration
  - Scroll to mA Calibration
  - Press Down
  - Scroll to mA Outputs
  - Press down to Cal Which Output?
  - Press Scroll to start mA calibration
  - Press MOD then select YES
  - Press Enter three times to go back to main screen
3. Perform Model Number Reset (Must obtain password from factory)



## Bad Chart Cal CRC

### Perform Chart Calibration

1. Unit must be in Program Mode
2. Scroll to Calibration
3. Press Down
4. Scroll to Chart Calibration
5. Press down to Start Chart Cal
6. Press MOD then select YES
7. Scroll to Inner Ring Calibration Scroll Toggles Ring
  - Use the Up/Down arrows to move actuator and print a small dot on inner ring (Up Arrow moves pen out, Down arrow moves pen in)
8. When the dot is aligned on the inner ring press Scroll to Out Ring Calibration Toggles Ring
  - Use the Up/Down arrows to move actuator and print a small dot on inner ring (Up Arrow moves pen out, Down arrow moves pen in)
9. When the dot is aligned on the inner ring press Enter to finish calibration



## Default Values Set

1. Verify which input has been defaulted
  - Scroll to Configuration
  - Press down
  - Go to the input that is specified on the display
  - Verify all programming for that input
2. Change the model number by one digit, then change it back to the proper model number
3. Perform Parameter Default
  - Scroll to Calibration
  - Press Down
  - Scroll to Parameter Defaults
  - Press Down
  - Press MOD
  - Select YES
  - Reprogram all values in unit



## Bell Alarm

(Note: Do each step and verify the alarm didn't clear before proceeding to the next)

1. Power Cycle unit
2. Go to the change model number screen, but do not change anything
  - Scroll to select Model and Revision
  - Press the down arrow to view model number
  - Press the MOD key as if you were changing the model number (cursor will appear under the first digit 99 012 202 001 33)
  - Press Enter
3. Perform mA output calibration
  - Scroll to Calibration
  - Press Down
  - Scroll to mA Outputs
  - Press down to Cal Which Output
  - Press Scroll to start mA calibration
  - Press MOD then select YES
  - Press Enter three times to get back to main screen
4. Perform Parameter Default
  - Scroll to Calibration
  - Press Down
  - Scroll to Parameter Defaults
  - Press Down
  - Press MOD
  - Select YES
  - Reprogram all values in unit

## Warning STLR Probe Failure (HTST Specific)

If the Sensor Balance LEDs are lit

- The STLR sensor is a dual element device, if the elements differ more than  $.5^{\circ}$  F, Sensor Balance LEDs will turn on

1. Perform a correction to make the RTD elements match

- Make sure the probe is at a stable temperature and verify each STLR INP 1 and 2 reading on the display
- Scroll to Configuration
- Press down to Inputs
- Press Down (STLR should be flashing)
- Select STLR
- Scroll to STLR Input 1 Corr 1
- Press MOD
- Use up/down arrows to adjust
  - The first number is the offset, or, how much the unit is reading off by, the second number is the current bath temperature
- Press Enter
- Repeat for STLR Input 1 Corr 2, STLR Input 2 Corr 1, and Input 2 Corr 2 as needed

2. Replace the probe



### Default

STLR INPUT 1 CORR 1	Low end temperature	Set to 0 at 0
STLR INPUT 1 CORR 2	High end temperature	Set to 0 at 100
STLR INPUT 2 CORR 1	Low end temperature	Set to 0 at 0
STLR INPUT 2 CORR 2	High end temperature	Set to 0 at 100

### Example Adjustment

STLR INPUT 1 CORR 1	Low end temperature	Set to 2 at 32
STLR INPUT 1 CORR 2	High end temperature	Set to .5 at 167
STLR INPUT 2 CORR 1	Low end temperature	Set to 2 at 32
STLR INPUT 2 CORR 2	High end temperature	Set to .5 at 167

## Warning STLR Probe Failure (HTST Specific) (Cont'd)

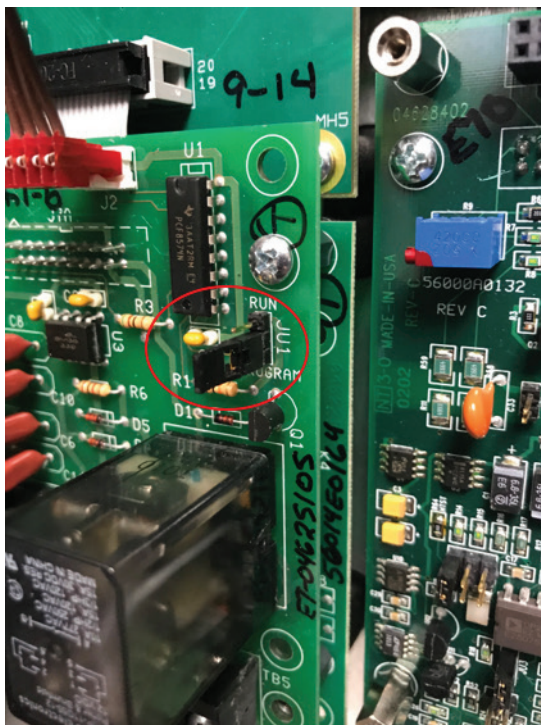
If the Sensor Balance LEDs are not lit

1. Verify all wires are intact and tight in both the recorder and the probe
2. Replace the probe

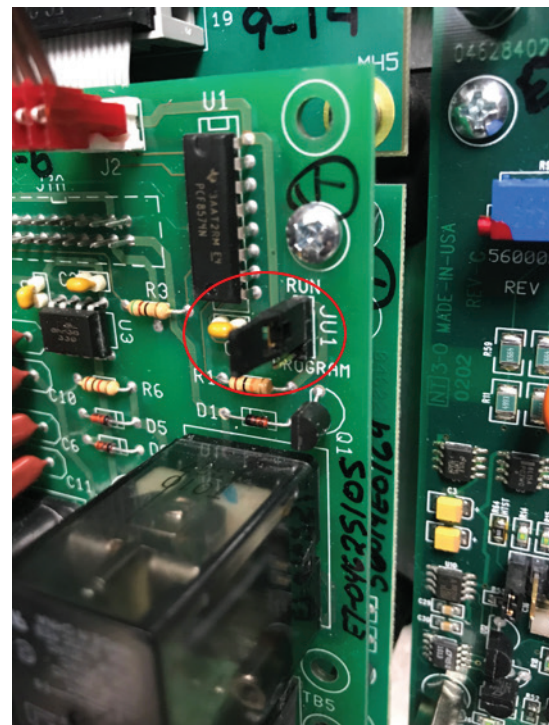


## Chart Will Not Start (HTST Specific)

1. Make sure the unit is in Run Mode
2. Chart will not start if any error codes exist on the display
  - Clear all errors and restart the chart



Program Mode



Run Mode

## Chart Stuck in Simulated Values

How to get the simulated values to clear:

1. Start new chart
2. Stop the chart
3. Power cycle the recorder

Once this is done, the parameters should go back to normal except for the Recorders section under the configuration menu. You will have to manually change these back

1. Scroll to Configuration
2. Press down
3. Scroll to Recorders
4. Press Down
5. Scroll to R1 Value to Record
6. Set to IV1 or PV1 depending on your usage
  - Press MOD
  - Use up/down arrows to change the value
  - Press Enter to save
7. Repeat for each R? Value to Record setting

If this does not work, perform Parameter Default and reprogram unit

## Chart Will Not Go Into HOLD (HTST Specific)

1. Make sure the unit has caught up to real time (you will see a forward pointing red arrow on the outer ring)
2. Fully stop the chart to start a new 12 hour cycle
  - This could be caused by an over run or by a power interruption
3. Power Cycle recorder





# Chart Will Not Go Into Forward Flow Even Though STLR Is Above Setpoint (HTST Specific)

Perform forward/divert test (See Technical Bulletin #1157)

- If unit passes this test, the error is with the Micro Switches
- If unit fails this test
  - Change the probe
  - Change the HTST relay board



Anderson Instrument Co., Inc.  
156 Auriesville Rd.  
Fultonville, NY 12072  
Phone: 518-922-5315 or 800-833-0081  
Fax: 518-922-8997 or 800-726-6733

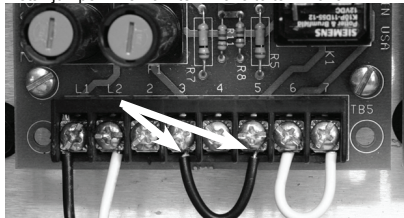
ANDERSON-NEGELE

## Technical Bulletin AV9900 Forward Flow / Divert flow Test Procedure

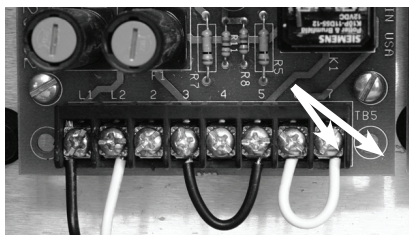
The following procedure will test the recorders ability to record and control the flow diversion valve. When troubleshooting forward flow / divert problems this will isolate the recorder from all external circuitry.

**NOTE: THIS PROCEDURE REQUIRES THE HEALTH AUTHORITY SEAL TO BE BROKEN, THEREFORE LOCAL AUTHORITIES MUST BE NOTIFIED PRIOR TO TESTING.**

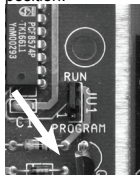
1. Power down recorder and remove all wiring from terminals 2 through 7 of HTST board.
2. Install jumper wire from terminal 3 to terminal 5.



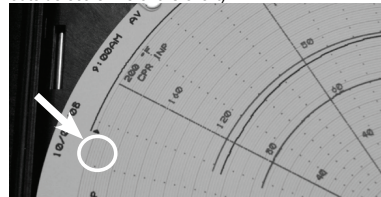
3. Install a second jumper wire from terminal 6 to terminal 7.



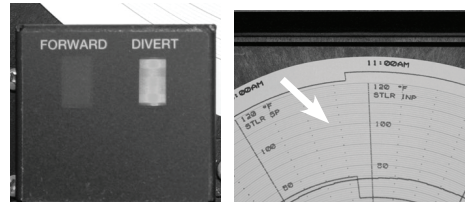
4. Make sure Run/Program jumper is in the Run position.



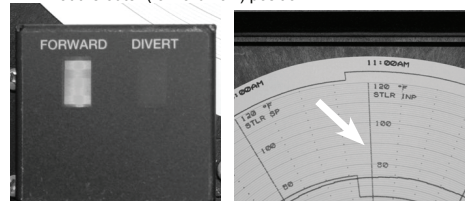
5. Power up recorder and start new chart – Allow enough time for chart to catch up to “Real” time (This will be indicated by an arrow at the outside scale line of the chart).



6. Expose HTST probe to a temperature below diversion setpoint – The divert flow (red) light should be on and the event line at the outside edge of the chart should be recording at the inner (divert) position.



7. Expose HTST probe to a temperature above diversion setpoint – The forward flow (green) light should be on and the event line at the outside edge of the chart should be recording at the outer (forward flow) position.



# MOD Button Does Not Work

Make sure jumper on the back of the plate is in program mode (See Technical Bulletin #1186)



ANDERSON-NEGELE

Anderson Instrument Co., Inc.  
156 Auriesville Rd., Fultonville, NY 12072  
Phone: 518-922-5315 - Fax: 518-922-8997  
www.anderson-negele.com

## Technical Bulletin

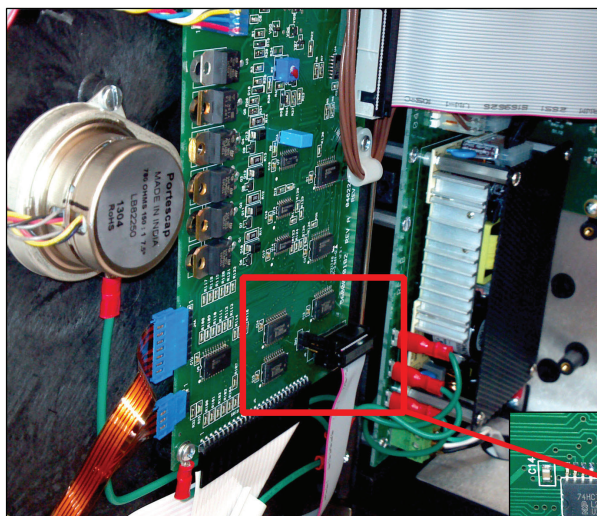
### AV9000/AV9900 Run/Program Lockout Jumper

Version 1.1 Document 1186

The AV-Series is equipped with a Run/Program shunt jumper on the Motor Driver Board that will disable use of the "MOD" key on the display, therefore disabling the ability to change any parameters.

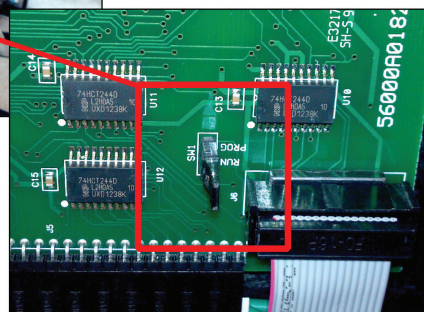
RUN position - MOD key and parameter changes DISABLED.

PROGRAM position - MOD key and parameter changes ENABLED.



This jumper **MUST** be left in PROGRAM position at all times for AV-9900 Pasteurization Recorder Controller Units for proper operation.

For AV-9900, lockout of Public Health related parameters in accordance with Pasteurized Milk Ordinance, should be performed using RUN / PROGRAM jumper located on HTST Relay Board (Page 7, Section 3.2 of the AV-9900 Field Setup Guide).



# Unable to Change Date/Time

1. Chart must be stopped
2. The MOD key has been disabled (See Technical Bulletin #1186)



**ANDERSON-NEGELE**

Anderson Instrument Co., Inc.  
156 Auriesville Rd., Fultonville, NY 12072  
Phone: 518-922-5315 - Fax: 518-922-8997  
[www.anderson-negele.com](http://www.anderson-negele.com)

## Technical Bulletin

### AV9000/AV9900

### Run/Program Lockout

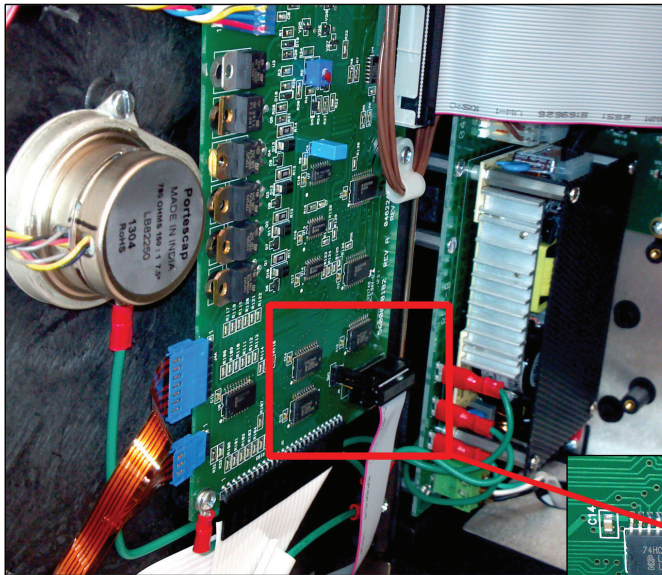
### Jumper

Version 1.1 Document 1186

The AV-Series is equipped with a Run/Program shunt jumper on the Motor Driver Board that will disable use of the "MOD" key on the display, therefore disabling the ability to change any parameters.

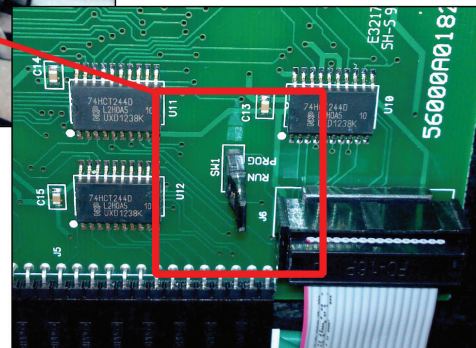
RUN position - MOD key and parameter changes DISABLED.

PROGRAM position - MOD key and parameter changes ENABLED.



This jumper **MUST** be left in PROGRAM position at all times for AV-9900 Pasteurization Recorder Controller Units for proper operation.

For AV-9900, lockout of Public Health related parameters in accordance with Pasteurized Milk Ordinance, should be performed using RUN / PROGRAM jumper located on HTST Relay Board (Page 7, Section 3.2 of the AV-9900 Field Setup Guide).

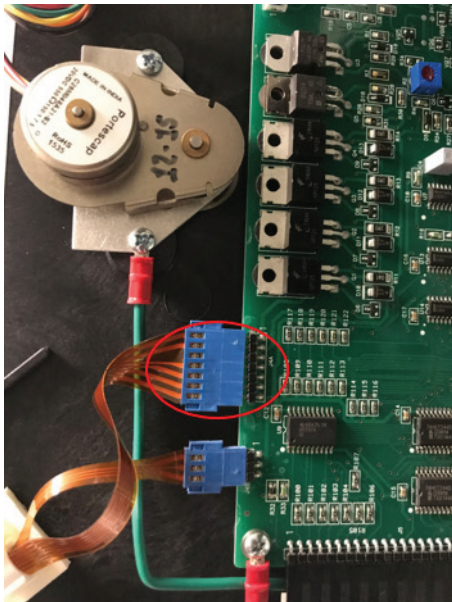


## Neither the Forward/Divert Light are lit (HTST Specific)

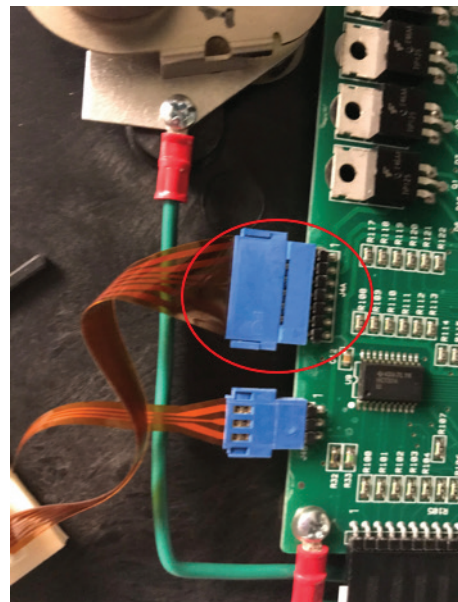
1. Replace LED Assembly (Part Number 40052001)

## Black Pen Not Printing

1. Make sure ribbon cable for pen arm is connected properly (if rectangles are not visible, it is not installed correctly)
2. Short to the motor driver board



Good



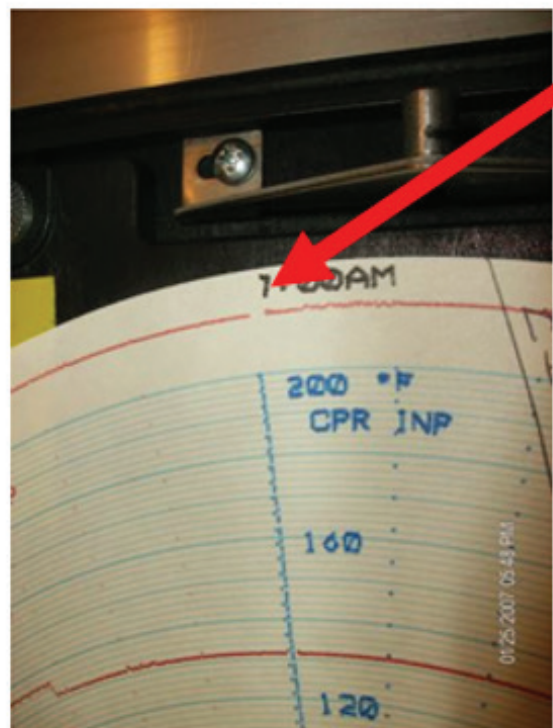
Bad

## Date/Time Not Printing

1. Chart is in over run (has been running over 12 hours)
  - You will see an  $\Omega$  symbol on the outer ring of the chart
  - You will need to fully stop the chart and start it again
2. Perform Chart Calibration (Date and Time could be printing off the chart)
  - Scroll to Calibration
  - Press Down
  - Scroll to Chart Calibration
  - Press down to Start Chart Cal
  - Press MOD then select YES
  - Scroll to Inner Ring Calibration Scroll Toggles Ring
    - Use Up/Down arrows to move actuator and print a small dot on the inner ring (Up Arrow moves pen out, Down arrow moves pen in)
  - When the dot is aligned on the inner ring press Scroll to Out Ring Calibration Scroll Toggles Ring
    - Use Up/Down arrows to move actuator and print a small dot on outer ring (Up Arrow moves pen out, Down Arrow moves pen in)
  - When the dot is aligned on the inner ring, press Enter to Finish Calibration
3. Verify you have the correct type of chart (AV9000 vs AV99)

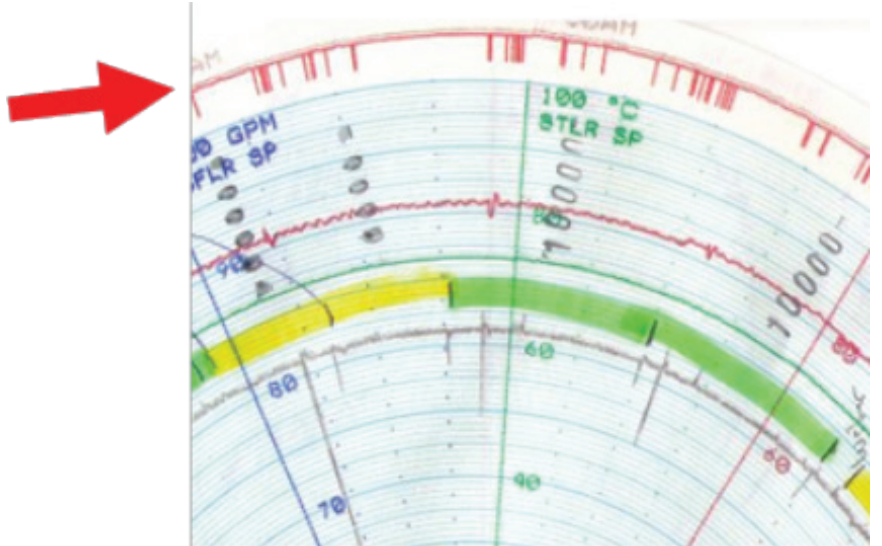
## Gaps in Printing

1. Change chart motor
2. Change motor driver board



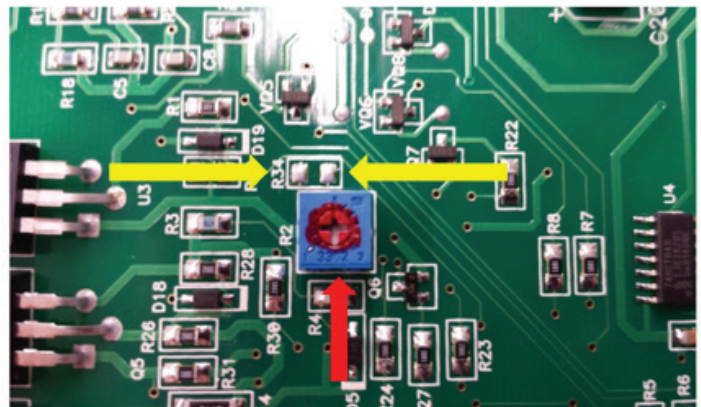
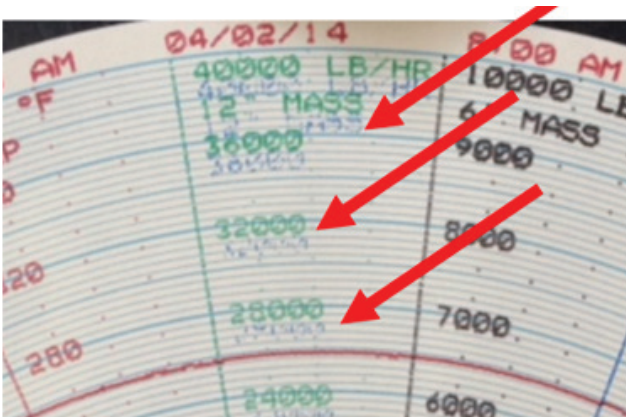
## Sawtooth on Event Pen (HTST Specific)

1. Change the HTST relay board  
(Part Number SP04625105)



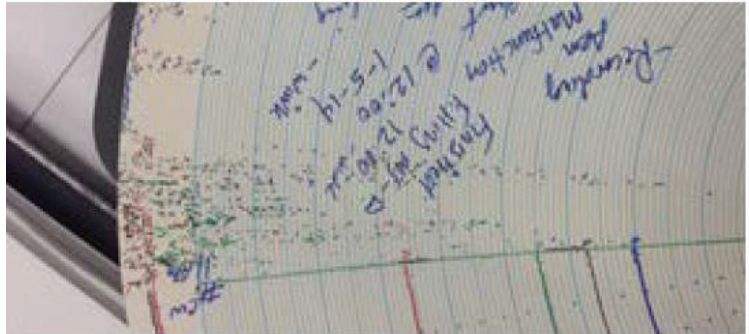
## Ghosting/Double Printing

1. Replace ink cartridge
2. Check resistance on motor driver board
  - Power down unit for at least 5 minutes to allow components to completely discharge
  - Using an OHM Meter with the test leads on points R34 pointed by the yellow arrows, wait until you get a stable reading
  - Using a small screwdriver, make a slight adjustment to the R2 potentiometer indicated by the red arrow to get an OHM reading between 840 and 870 ohms
  - Warning - The operation of the recorder with the ohms adjusted outside the specified settings can shorten the life of the pen cartridges and do permanent damage to the pen arm assembly
3. Replace motor driver board



## Scattered Printing

1. Replace Pen Arm Assembly
  - 66428404 - 4 pen
  - 64428403 - 3 pen
  - 66428402 - 2 pen



## Unit Constantly Losing Power

1. Check for downward facing red arrows on the outer ring of chart
2. Display shows random symbols
3. Replace the power supply board (64428001)

