

# Platinum Software Update Procedure

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The following procedure must be followed when using a laptop computer to upgrade the Platinum software via an ethernet connection.

It is highly recommended that the upgrade only be performed on an empty machine. Follow steps 1 to 5 to upgrade the Platinum display software and follow steps 6 to 10 to upgrade the machine software.

1. Connect a crossover ethernet patch cord from the laptop to the display PC/104 board (located on rear side of display) inside the Platinum console.
2. Run the Update program on the laptop. After a few seconds the window will display the connected machine. If no machine is shown then click on the "Scan List" button. If there are still no machines listed then see "Possible causes when no machines are displayed" below for possible solutions.
3. Click on the "Update Software" button. If there is a message saying "The machine's software is more recent than this update" click the "No" button and abort the procedure (this machine does not require upgrading.)
4. Wait for the upload to complete. It is normal for the machine's screen to go blank during the update. If there is an error (may take several minutes to appear), then disconnect the ethernet cable and power the machine off, then power it back on. Go back to step 1.
5. When update is complete, disconnect the ethernet cable.
6. If machine's fans are not already off, turn them off.
7. On the machine's display enter the Setup screen, then select the Information screen. Press the Update button to transfer the software from the display to the machine controller. If there is an error, retry the update, but do not turn the power off to the machine.
8. When transfer is complete, enter the Information screen and check for correct software versions. If there is an error, retry the update, but do not turn off the to the machine.
9. Restart the fans.
10. Turn off the power to the machine, wait a few seconds, then turn power back on.
11. Verify that all critical incubator functions, such as heating, cooling, humidification, and turning are working properly.

Possible causes when no machines are displayed:

- Patch cord is not making a connection. Ensure cable is of crossover type, and check that the ethernet jack pins are clean.
- Firewall on laptop is interfering with communications. Temporarily disable firewall (such as Zone Alarm, or Windows Firewall)
- Ethernet power saving causes port to become disabled until laptop is rebooted. Disable the ethernet power saving mode in Windows Control Panel
- Check that Platinum machine shows a proper IP address on the Information screen. If it is "0.0.0.0" then SW2-8 switch on SMA106 board is not in closed position
- The user account on the laptop needs to have administrative privileges to automatically set the correct adapter address, otherwise a static IP address of 10.77.250.1 with netmask 255.255.0.0 will need to be configured manually (not necessary if running IPCONFIG command within command prompt, while update program is active, shows a 10.77.250.x address)

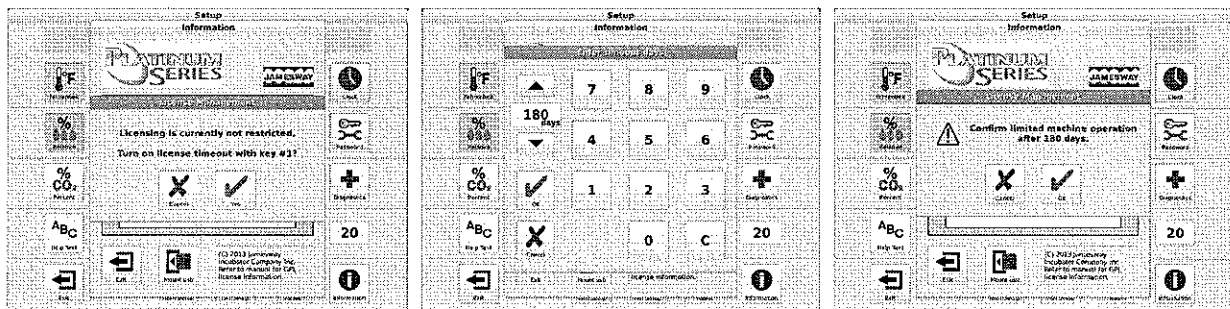
# Platinum Timed Licensing

The timed licensing feature can be used to set the incubator to enter limited functionality mode after a defined number of days of operation. In limited functionality mode the machine will no longer allow user to change setpoints or start a profile. A reminder message will be displayed on screen every day when fewer than 14 days of normal operation remain. The "Machine Information" text will show an asterisk (\*) after the firmware release date when timed licensing is enabled.

The display must have software version 4.07 or greater and machine controller must have software version 3.74 or greater to support timed licensing feature. Do not modify the files on the USB device as this will invalidate the key.

## Procedure to turn on timed licensing

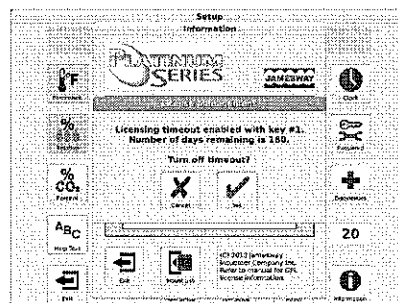
1. Insert the licensing USB key into socket on rear side of display assembly.
2. Wait about 10 seconds then on touch screen select "Information" button in the "Setup" window.
3. Press on the "Mount usb" button.
4. The prompt to turn on licensing will be displayed. Press "Yes" to continue.



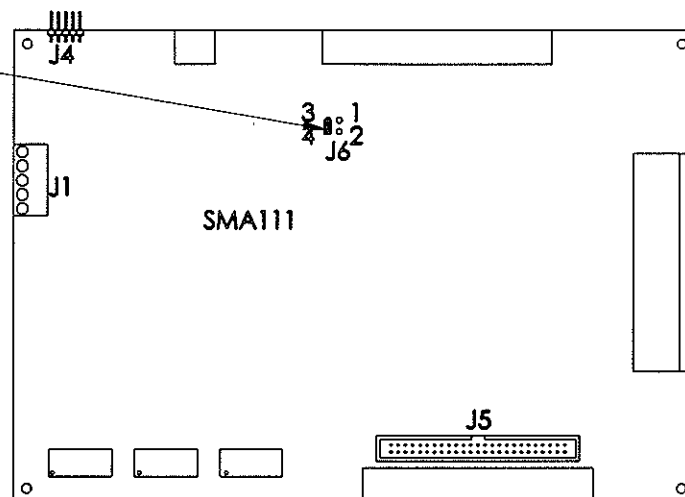
5. Next the number of days before machine enters limited functionality is requested. Enter number of days and press "OK".
6. A prompt to confirm that timed licensing will be enabled is shown. Press "OK" to enable.
7. Wait for hour glass cursor to return to normal pointer shape, then remove USB licensing key from socket.

## Procedure to turn off timed licensing

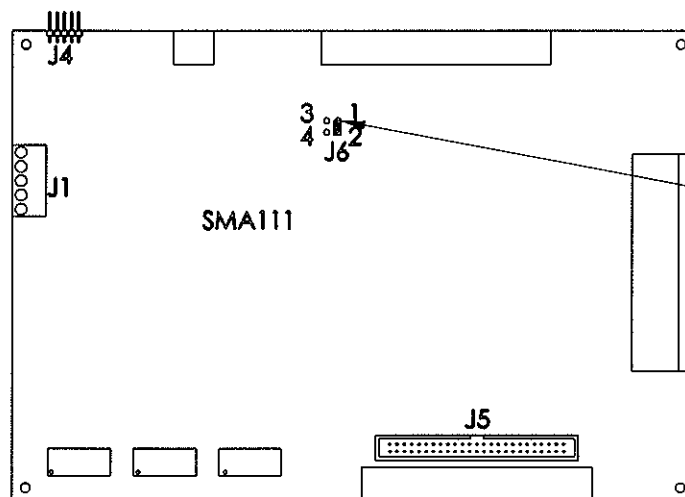
1. Insert the same licensing USB key that was used to turn on timed licensing into socket on rear side of display assembly.
2. Wait about 10 seconds then on touch screen select "Information" button in the "Setup" window.
3. Press on the "Mount usb" button.
4. The following prompt to turn off timeout will be displayed. Press "Yes" button to turn off timed licensing, or "Cancel" leave unchanged.
5. Wait for hour glass cursor to return to normal pointer shape, then remove USB licensing key from socket.



PT1901 SHORTING  
JACK TO PINS 3 & 4  
OF J6



SHORTINGJACK LOCATION IN ORIGINAL PLATINUM



PT1901 SHORTING  
JACK TO PINS 1 & 2  
OF J6

SHORTINGJACK LOCATION IN PLATINUM 2.0

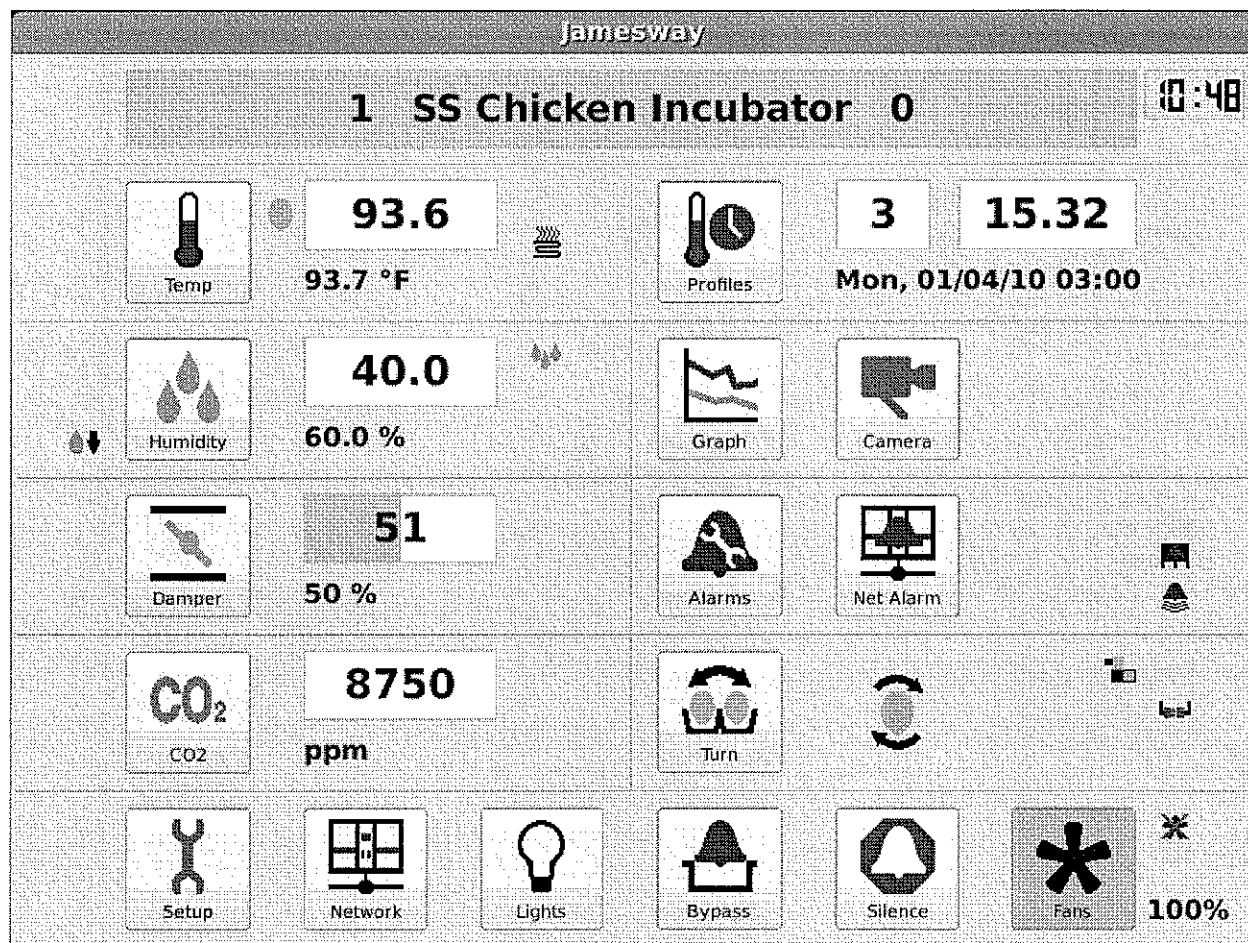
|                                                                                                                                                                                                                                                                                                                       |             |              |          |                                         |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------|----------|-----------------------------------------|--|
| UNLESS OTHERWISE SPECIFIED:                                                                                                                                                                                                                                                                                           |             | NAME         | DATE     |                                         |  |
| DIMENSIONS ARE IN INCH (MM)<br>TOLERANCES:<br>FRACTIONAL ±<br>ANGULAR: ± 1°<br>X.X ± 0.08 (2)<br>X.XX ± 0.03 (0.8)<br>X.XXX ± 0.010 (0.25)<br><br>THIRD ANGLE PROJECTION<br><br>MATERIAL<br><br>FINISH<br><br>DO NOT SCALE DRAWING | DRAWN       | J.B.         | 07/24/13 | TITLE:<br><br>SMA111S REPLACEMENT GUIDE |  |
|                                                                                                                                                                                                                                                                                                                       | CHECKED     |              |          |                                         |  |
|                                                                                                                                                                                                                                                                                                                       | OPERATIONS  |              |          |                                         |  |
|                                                                                                                                                                                                                                                                                                                       | Q.A.        |              |          |                                         |  |
|                                                                                                                                                                                                                                                                                                                       | MAINTENANCE |              |          |                                         |  |
| PROPRIETARY AND CONFIDENTIAL<br><br>THE INFORMATION CONTAINED IN THIS<br>DRAWING IS THE SOLE PROPERTY OF<br>JAMESWAY INCUBATOR COMPANY INC.<br>ANY REPRODUCTION IN PART OR AS A<br>WHOLE WITHOUT THE WRITTEN PERMISSION<br>OF JAMESWAY INCUBATOR COMPANY INC. IS<br>PROHIBITED.                                       |             |              |          |                                         |  |
| SIZE                                                                                                                                                                                                                                                                                                                  |             | PART NUMBER: |          |                                         |  |
| A                                                                                                                                                                                                                                                                                                                     |             | F3249        |          |                                         |  |
| SCALE: 1:8                                                                                                                                                                                                                                                                                                            |             | SHEET 1 OF 1 |          | REV: 1                                  |  |

# Pilot System User Guide

The Pilot system allows the incubator to gather egg shell temperatures from three different rack levels to continually adjust the machine's air temperature to provide optimal conditions for the developing embryo.

## Main Screen

The following screen shot shows an incubator with Pilot mode active, as indicated by the egg icon between the temperature icon and temperature actual readout.



When in Pilot mode, the temperature readout displays the egg shell temperature, and the setpoint below is the egg shell setpoint from the profile. On a P120 incubator the egg shell temperature displayed is the average of the front and rear zones.

The temperature readout may blink several minutes after the machine is reset or fans are turned off for more than two minutes, while new shell temperature samples are collected. The reading that is blinking is the last egg temperature that was collected before the machine was shut down.

## Alarms

There are two new alarms emitted by the machine, which will appear to the left of the temperature button.

 The egg temperature alarm indicates that the egg shell temperature is outside the allowed range programmed in the alarm range setup screen. On P120 machines triangular icons show whether the alarm is caused by the front or rear zone, similar to the air temperature alarm. Some of the possible causes:

- Opening the doors for an extended time
- the machine is unable to adjust the air setting quickly enough to track changes in the egg setpoint
- The internal air setting has reached the allowed safety limit. This could happen if incubator is not loaded evenly or flocks are not distributed evenly
- A Platinum Egg has become dislodged from the flat

Egg temperatures will change very slowly, therefore it may take some time to return back to setpoint.

 The pilot sensor alarm indicates that one of the Platinum Eggs is not sending valid data. Check the alarm screen to see which sensor is causing the alarm. The sensors are numbered 1 to 3 from top to bottom in the rack, and on P120 machines 4 to 6 in rear zone. Some of the possible causes:

- Sensor cable is unplugged
- Sensor is faulty
- A Platinum Egg has become dislodged from the flat

Note that the normal air temperature alarm may sound even when in Pilot mode due to fluctuations in air temperature. The high and low temperature alarms will be relative to the internal air temperature setting, not the egg temperature setpoint that is shown on the screen.

## Calibration

The Pilot system calibrates itself based on the machine's air temperature, it is therefore advisable to check or calibrate air temperature sensor before day 1.50 of incubation. If needed, the machine's temperature sensor can still be calibrated later during incubation, this will automatically adjust the egg temperature offset by the same amount.

## Profile Edit Screen

The profile edit screen has a toggle button to select whether a profile is a standard or Pilot mode profile.

When the Pilot button is in highlighted state, the profile will be saved as a Pilot mode profile, otherwise it will be saved as a standard air temperature profile.

After pressing the OK button the user will be asked to select destination profiles. The machine will remember whether the saved profile is a standard or Pilot mode profile.

Profile slot 2 contains a sample Pilot profile that can be used as a starting point to build a new profile. The profile in this slot can be modified. Deleting it will return it to the factory profile.

**Edit Profile**

| Day   | Temp  | Humidity | Damper |
|-------|-------|----------|--------|
| 0.00  | 100.4 | 70.0     | 0      |
| 1.00  | 100.3 | 70.0     | 0      |
| 2.00  | 100.2 | 70.0     | 0      |
| 3.00  | 100.1 | 70.0     | 0      |
| 4.00  | 100.0 | 70.0     | 0      |
| 6.00  | 99.9  | 70.0     | 0      |
| 7.00  | 99.8  | 70.0     | 10000p |
| 9.00  | 99.7  | 68.0     | 10000p |
| 10.00 | 99.6  | 65.0     | 4000p  |
| 10.38 | 99.5  | 60.0     | 4000p  |
| 10.75 | 99.4  | 55.0     | 4000p  |
| 11.12 | 99.3  | 50.0     | 4000p  |
| 11.50 | 99.2  | 45.0     | 4000p  |

**Buttons:** Pilot-Profile, OK, Cancel, 4.00, 100.0, 70.0, 0, CO2, Delete

## Start Profile Screen

The start profile screen uses an egg icon to indicate Pilot profiles. The Pilot profiles can only be selected if:

- At least one Platinum Egg sensor has been connected anytime since last power up
- A Pilot profile is currently active

Choosing a standard profile will set the machine to use normal air temperature setpoints, even if Platinum Egg sensors are hooked up to the machine. This allows the egg shell temperature to be

recorded by Hatchcom, or can be used when a problems arises with the Pilot system during incubation cycle.

**Start Profile**

1

2

3

4

5

6

7

8

14:19

▶

  
View

  
OK

  
Cancel

◀

2010  
January (1)

▶

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|-----|-----|-----|-----|-----|-----|-----|
| 27  | 28  | 29  | 30  | 31  | 1   | 2   |
| 3   | 4   | 5   | 6   | 7   | 8   | 9   |
| 10  | 11  | 12  | 13  | 14  | 15  | 16  |
| 17  | 18  | 19  | 20  | 21  | 22  | 23  |
| 24  | 25  | 26  | 27  | 28  | 29  | 30  |
| 31  | 1   | 2   | 3   | 4   | 5   | 6   |

▶

▶

23

:

00

▼

▼

### Copy Profile Screen

When copying a profile to another slot, the destination slot will become the same type as the source profile. Care must be taken if a Pilot profile is copied globally to the network. A remote machine not equipped with the Pilot system, but currently using the same profile will give a Pilot sensor failure alarm, which needs to be corrected by restarting a non-Pilot profile.

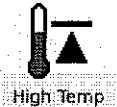
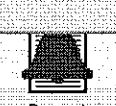
### Alarm Range Screen

The alarm range screen programs the upper and lower limit the egg shell temperature is allowed to deviate from the setpoint before triggering an alarm. Like all other alarms there will be an initial delay before the alarm becomes active as programmed in the alarm delays screen.

The range allowed is the same as for air temperature alarm, 0.8 °F for high setting, and 2.0 °F for low setting.

Note that the same egg temperature alarm is triggered for high or low condition, it does not distinguish between the two.

**Alarms**

| Alarms                                                                                              | Start Time                                                                                    | End Time                                                                                          | Acknowledge                                                                                   |
|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>Alarm Range</b>                                                                                  |                                                                                               |                                                                                                   |                                                                                               |
| <br>High Temp      | <div style="border: 1px solid black; padding: 5px; font-size: 1.2em;">0.4</div> °F            | <br>High Hum     | <div style="border: 1px solid black; padding: 5px; font-size: 1.2em;">6.0</div> %             |
| <br>Low Temp       | <div style="border: 1px solid black; padding: 5px; font-size: 1.2em;">0.4</div> °F            | <br>Low Hum      | <div style="border: 1px solid black; padding: 5px; font-size: 1.2em;">6.0</div> %             |
| <br>OK             | <br>High Egg |                                                                                                   | <div style="border: 1px solid black; padding: 5px; font-size: 1.2em;">0.5</div> °F            |
| <br>Cancel        | <br>Global  | <br>Default     | <br>Low Egg |
| <br>Exit         | <br>Report | <br>Delays     | <br>Ranges |
| <br>Test Alarm |                                                                                               | <br>Override |                                                                                               |

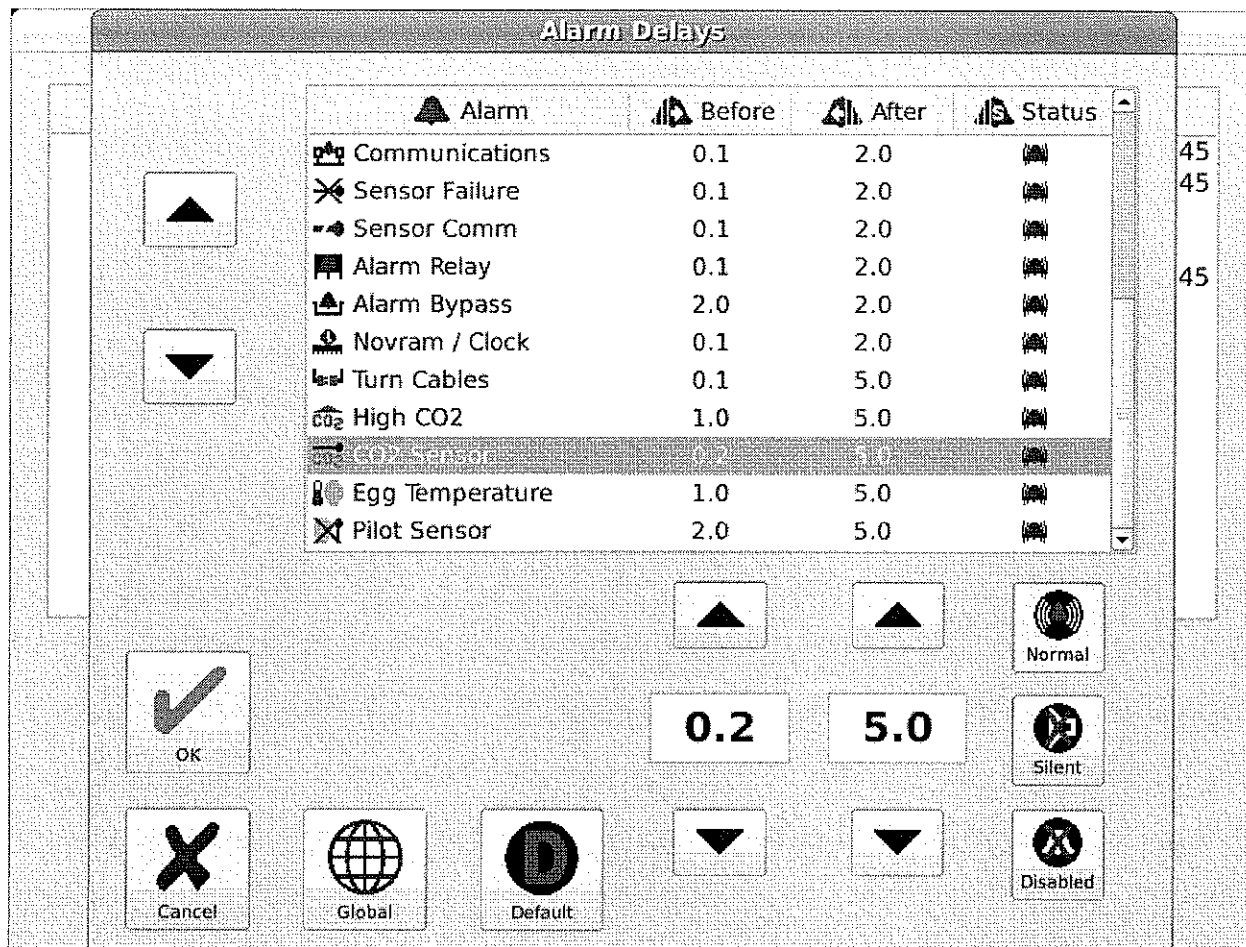
### Alarm Delays Screen

The alarm delays screen allows the user to program the Pilot system alarms.

The "Before" setting selects the amount of time in minutes before the display will show the alarm.

The "After" setting selects the number of minutes after silencing the alarm until it becomes audible again.

The "Status" setting allows the alarm to be programmed to be silent or disabled completely.



## Graph Screen

When the machine is in Pilot mode, the trend and full screen graphs will display the egg temperature data. On a P120 incubator the egg shell temperature displayed is the average of the front and rear zones.

## Troubleshooting

The Pilot system requires software version 3.20 or later on machines equipped with SMA106 revision C or earlier, and version 3.60 or later on SMA106 revision D or SMA111.

In the Setup screen choose the Diagnostics function. Verify that green check marks are shown beside each "Pilot Sensor" number. If a sensor does not show the check mark, verify the Platinum Egg is plugged in and cable is not damaged. Try replacing the sensor, then wait 10 seconds before exiting and re-entering the diagnostic screen. Sensors 1, 2, and 3 are the top, middle, and bottom rack location respectively; sensors 4, 5, and 6 are the rear zone sensors in a P80 or P120 incubator.

PB4529 LIQUID TIGHT

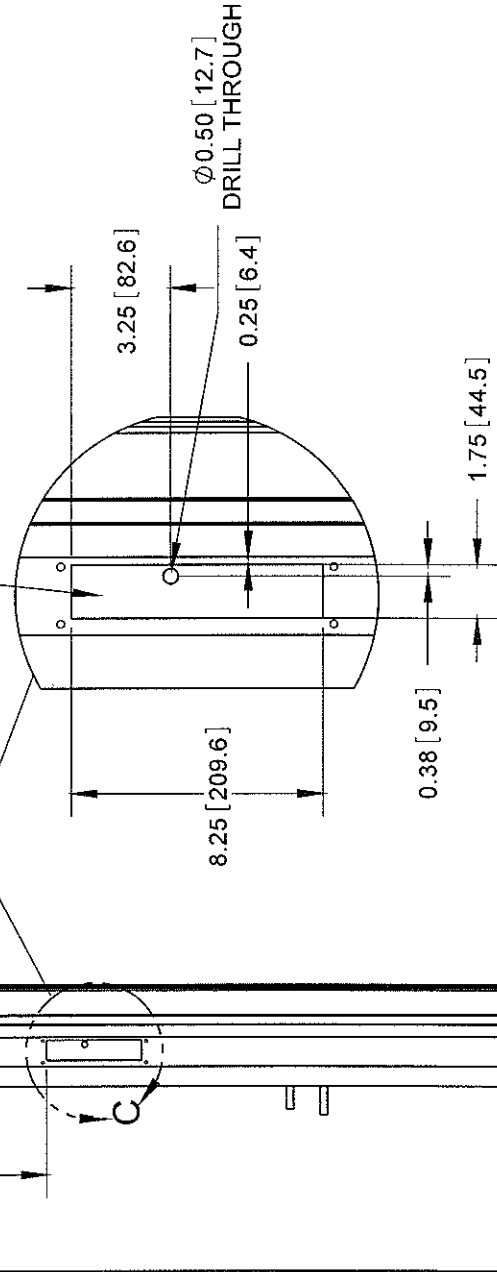
INSTALL FROM  
INSIDE CONSOLE

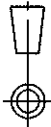
AB7592 PLATINUM EGG CONVERSION PLATE  
ROUTE 5 CONDUCTOR CABLE THROUGH  
LIQUID TIGHT, UP THE LEFT WIRE CONDUIT  
TO THE TOP OF THE SMA106 BOARD  
FOR CONNECTIONS SEE PAGE 2 OF 2

P6177 SCREW

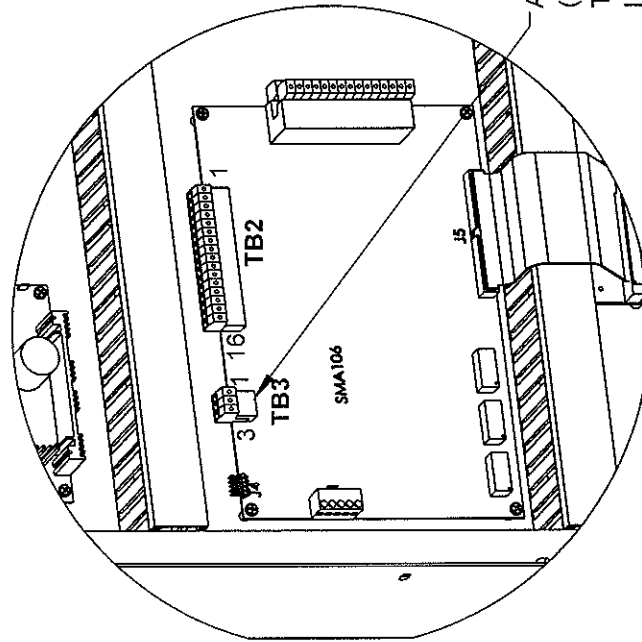
REMOVE ONE LAYER OF FRP  
AND FOAM FROM CUTOUT  
LEAVING THE SECOND  
FRP INTACT

APPLY SILICONE AROUND  
CUTOUT BEFORE MOUNTING PLATE



| REV                                                                                                                                                       | DESCRIPTION                     | DATE              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------------|
| A                                                                                                                                                         | REVISED INSTRUCTIONS ECO#100021 | 03/28/10          |
| -DO NOT SCALE<br>FROM DRAWING<br>-BREAK ALL<br>SHARP EDGES                                                                                                |                                 |                   |
| THIRD ANGLE<br>PROJECTION<br>                                          |                                 |                   |
| ALL DIMENSIONS IN INCH[mm]<br>UNLESS OTHERWISE SPECIFIED<br>XX $\pm 0.06$ [1.6]<br>XXX $\pm 0.03$ [0.8]<br>XXXX $\pm 0.01$ [0.3]<br>ANG TOL $\pm 1^\circ$ |                                 |                   |
| MATERIAL:                                                                                                                                                 |                                 |                   |
| FINISH:                                                                                                                                                   |                                 | DATE: MAR 30 2010 |
| SHT: 1 of 2                                                                                                                                               | SCALE: NTS                      | SIZE: A           |
| DRAWN BY: J BLACK                                                                                                                                         | CHK BY:                         |                   |
| NAME: PLATINUM EGG RETROFIT                                                                                                                               |                                 |                   |
| PART #: F3210                                                                                                                                             | PAGE 1 OF 2                     |                   |

IF PT1562 PLUG (GREEN 3 TERMINAL) AT TB3 IS PRESENT CONNECT AS LISTED.  
 IF PLUG IS NOT PRESENT MOUNT PT1562 SUPPLIED  
 BROWN WIRE TO TB3-1  
 BLACK WIRE TO TB3-2  
 WHITE WIRE TO TB3-3  
 RED WIRE TO TB2-10  
 TRIM GREEN WIRE AT JACKET



FOR CONTROLS WITHOUT TERMINAL BLOCK TB3 INSTALLED

ATTACH PT1562 PLUG  
 (GREEN 3 TERMINAL)  
 TO SMA106 BOARD AS SHOWN  
 IF REQUIRED

WIRES FROM PT2374  
 COMM ADAPTER CABLE

WHITE  
 WHITE  
 RED  
 BLACK  
 BROWN

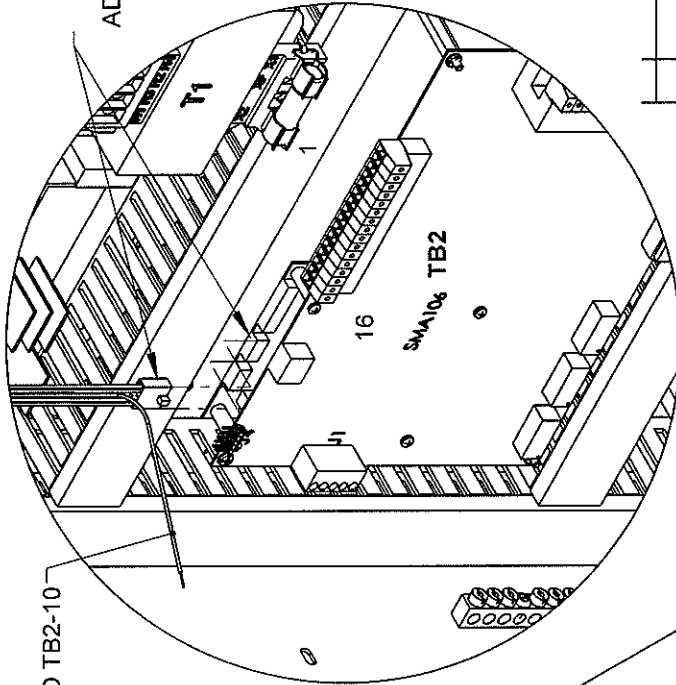
WHITE  
 RED  
 BLACK  
 BROWN

5 COND CABLE FROM  
 PLATINUM EGG PLUGS  
 TRIM GREEN AT JACKET

PB5083 TERMINAL STRIP

RED WIRE TO TB2-10

ATTACH PT2374 COMM  
 ADAPTER CABLE PLUG TO  
 SOCKET



FOR CONTROLS WITHOUT TB3  
 MOUNTING SOCKET

| REV | DESCRIPTION                     | DATE     |
|-----|---------------------------------|----------|
| A   | REVISED INSTRUCTIONS ECO#100021 | 05/26/10 |

DO NOT SCALE  
 FROM DRAWING  
 BREAK ALL  
 SHARP EDGES

THIRD ANGLE  
 PROJECTION

ALL DIMENSIONS IN INCHES [mm]  
 UNLESS OTHERWISE SPECIFIED

X.X ±0.06[1.6]  
 X.XX ±0.03[0.8]  
 X.XXX ±0.01[0.3]  
 ANG TOL ±1°

MATERIAL:

FINISH: NONE DATE: MAR 30 2010

SHT: 2 of 2 SCALE: NTS

DRAWN BY: J BLACK

NAME: PLATINUM EGG RETROFIT

PART #: F3210 PAGE 2 OF 2

## STEP #2

P6067 SCREW

## STEPS #5

**MOUNT DUCT COVER**  
**TO PLATINUM EGG DUCT**

## STEP #4

ROUTE 5 CONDUCTOR CABLE FROM TERMINAL  
BLOCK UP PLATINUM EGG DUCT THROUGH  
THE TWO LIQUID TIGHTS TO THE CENTRE ROOF  
EXTRUSION. SECURE PLATINUM EGG  
CONNECTION PLATE TO PLATINUM EGG DUCT

### STEP #3

DRILL 1 HOLE 0.437" DIA IN CENTRE ROOF  
EXTRUSION. THREAD PB4925 LIQUID TIGHT  
INTO HOLE.

## STEP #6

ROUTE THE 5 CONDUCTOR CABLE ALONG THE ROOF EXTRUSION INTO THE CONSOLE. RUN THE CABLE DOWN THE LEFT SIDE DUCT TO THE SMA106 BOARD AND CONNECT.

BROWN WIRE TO TB3-1

BLACK WIRE TO TB3-2

WHITE WIRE TO TB3-3

RED WIRE TO TB2-10

TRIM GREEN WIRE AT JACKET

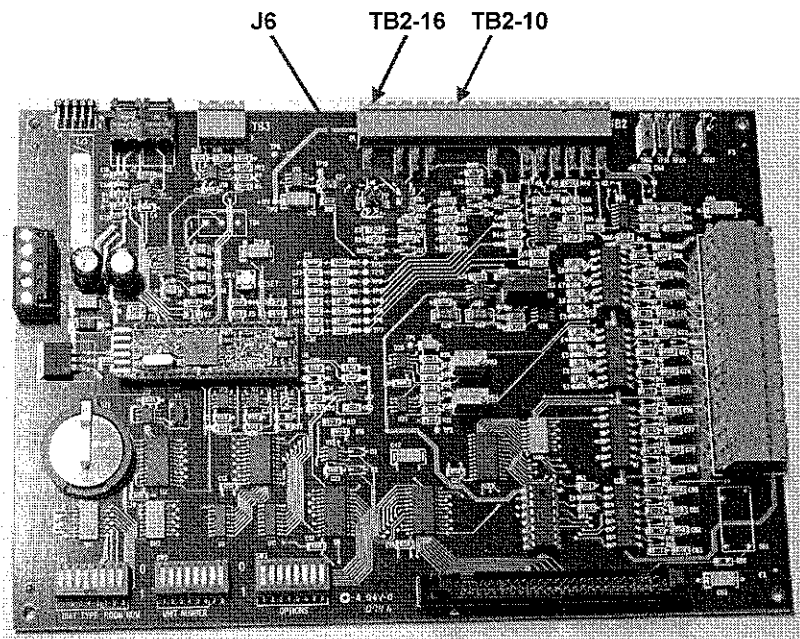
[illegible]

# PLATINUM FAN CURRENT SENSOR USER GUIDE

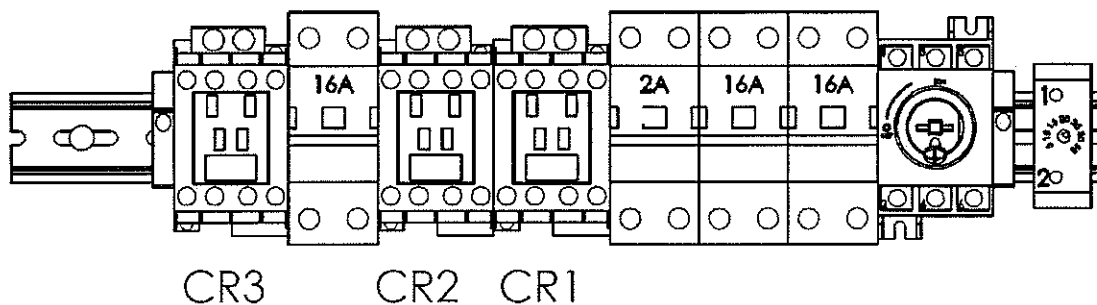
NOTE: Current sensor is compatible only with SMA106 rev D board pictured below (older revision board with processor module on rear side is not compatible).

## Installation

1. Minimum display software version required is 4.04 (Linux) or 3.68 (QNX). If necessary update software using laptop and Ethernet crossover cable, then in 'Information' screen transfer new software to control board
2. On SMA106 board install jumper link on J6 between pins 3 & 4 (4-20mA setting)



3. Set dial on current sensor to position "25"
4. Install current sensor on rail to the right side of the main power switch



5. Disconnect the black and brown wire from fan contactor CR1 (and CR3 if P120), feed wires through current sensor hole from right side, then reconnect wires back to contactor. On P120 be careful to reconnect wires back to correct terminal.
6. Connect red wire from current sensor pin 1 to SMA106 TB2-10
7. Connect black wire from current sensor pin 2 to SMA106 TB2-16
8. Calibrate the fan current as shown in next section

### Calibration

The first time the machine is used, it is necessary to calibrate the fan currents. This will allow the machine to learn the current flow at various fan speeds. The calibration step only needs to be performed one time and is required even if no variable speed fan drives are installed. Repeat the calibration if the machine gives false fan failure alarms once in a while.

1. Turn on fans.
2. In main screen select the 'Alarm Setup' function.
3. Choose 'Fan Current' calibration function, then 'Yes' to commence fan current calibration. This function will not be available if fans are off. If this button is not visible then the fan current sensor is not installed correctly or machine has incorrect software version.
4. The machine performs the calibration by stepping the fan speed from minimum to maximum. If the calibration fails, check that fan current sensor is installed correctly.



### Generator Bypass

When the machine is powered from a standby generator, the fan currents measured by machine may be different than when machine is powered from the normal supply. This may cause the machine to give a false fan failure alarm. Note: Use generator bypass feature only if the machine gives an alarm when powered from generator.

The fan failure alarm can be temporarily disabled in the 'Alarm Setup' screen. Select the 'Gen Bypass' button, then select 'OK' to enable the fan alarm bypass. If the machines are networked then by default all machines in the hatchery will enable the bypass.



To enable only the local machine, deactivate the global function before pressing 'OK'. When bypass is enabled, the yellow bypass light on console door blinks and fan failure alarm is suppressed.

The fan alarm bypass function turns off automatically when machine resets on next power failure. The bypass can also be turned off by pressing the active 'Gen Bypass' button in the 'Alarm Setup' screen.

### **Diagnosing current sensor problems**

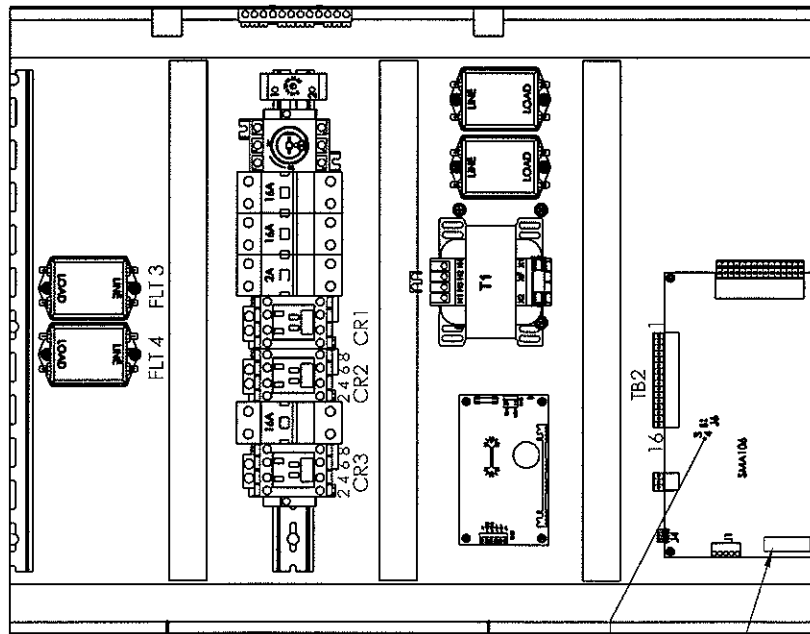
If the 'Fan Current' button is not visible in the alarm setup screen or calibration fails:

1. Check that the green light on current sensor is lit. If it is not lit then check that the wires leading back to SMA106 circuit board are connected correctly.
2. Turn off fans and start the 'Diagnostic' function in the 'Setup' screen. Examine the 'Analog 6' value. This should be approximately 0.30 volts.
  - If reading is near 0.0 volts, make sure control wires from current sensor are connected to correct locations on SMA106 circuit board
  - If reading is near 1.50 volts, make sure that jumper link is installed on pins 3 and 4 of J6
3. Check that only black and brown wires from contactor lead into left side hole of current sensor. The current sensor must be wired between the contactor and the variable speed drives, it will not work correctly if it is wired between variable speed drives and fan outlet on rear side of control console.

**NOTE:**  
**BEFORE STARTING CONVERSION PLEASE CHECK**

CURRENT SENSING IS ONLY COMPATIBLE WITH SMA106 REV D OR HIGHER. REPLACE SMA106 BOARD IF NECESSARY.

MACHINE SOFTWARE MUST BE VERSION 3.67 OR HIGHER. UPDATE SOFTWARE IF NECESSARY.

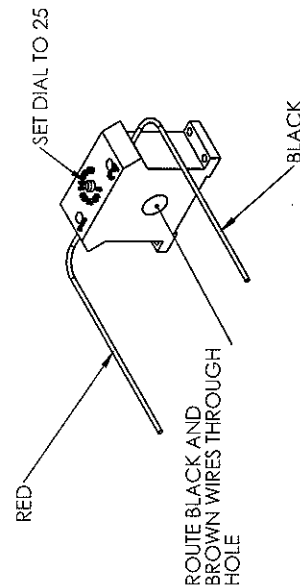


**TO INSTALL CURRENT SENSING IN SINGLE AND DOUBLE ECU CABINETS**

- 1) TURN OFF POWER TO MACHINE AND REMOVE CONTROL PANEL DOORS.
- 2) INSTALL PT1901 SHORTING JACK TO PINS # 3 & 4 OF J6 ON SMA106 BOARD.
- 3a) FOR ALL CONTROLS:  
DISCONNECT BLACK WIRE FROM CR1-2 AND BROWN WIRE FROM CR1-6.  
REROUTE THESE WIRES THROUGH THE HOLE IN PT2382 CURRENT TRANSFORMER.  
RECONNECT THE BLACK WIRE TO CR1-2 AND THE BROWN WIRE TO CR1-6.
- 3b) FOR DOUBLE ECU CONTROLS ONLY:  
DISCONNECT BLACK WIRE FROM CR3-2 AND BROWN WIRE FROM CR3-6.  
REROUTE THESE WIRES THROUGH THE HOLE IN PT2382 CURRENT TRANSFORMER.  
RECONNECT THE BLACK WIRE TO CR3-2 AND THE BROWN WIRE TO CR3-6.
- 4) INSTALL PT2382 CURRENT TRANSFORMER ON MOUNTING RAIL BETWEEN DISCONNECT SWITCH AND WIRING DUCT.
- 5) CONNECT RED WIRE FROM CURRENT TRANSFORMER PIN 1 TO TB2-10 OF THE SMA106 BOARD. CONNECT THE BLACK WIRE FROM THE CURRENT TRANSFORMER PIN 2 TO TB2-16 OF THE SMA106 BOARD.  
ROUTE WIRES IN WIRING DUCT.
- 6) TURN ON FANS. IN ALARMS SCREEN CHOOSE "FAN CURRENT" FUNCTION, THEN "YES" TO COMMENCE FAN CURRENT CALIBRATION.



ICON TO INDICATE FAN  
CURRENT SENSING



| REV                              | DESCRIPTION                                              | DATE |
|----------------------------------|----------------------------------------------------------|------|
|                                  | DO NOT SCALE FROM DRAWING UNLESS ALL SHARP EDGES         |      |
|                                  | THIRD ANGLE PROJECTION                                   |      |
|                                  | ALL DIMENSIONS IN INCHES (mm) UNLESS OTHERWISE SPECIFIED |      |
|                                  | X.XX .01 (0.025)                                         |      |
|                                  | X.XXX .001 (0.0025)                                      |      |
|                                  | X.XXXX .0001 (0.00025)                                   |      |
|                                  | ANG TOL .1°                                              |      |
| MATERIAL:                        |                                                          |      |
| FINISH: NONE                     |                                                          |      |
| DATE: JUNE 20 2011               |                                                          |      |
| SHT: 1 of 1 SCALE: NTS SIZE: B   |                                                          |      |
| DRAWN BY: J BLACK                |                                                          |      |
| CHK BY:                          |                                                          |      |
| NAME: CURRENT SENSING CONVERSION |                                                          |      |
| PART #: F3228                    |                                                          |      |

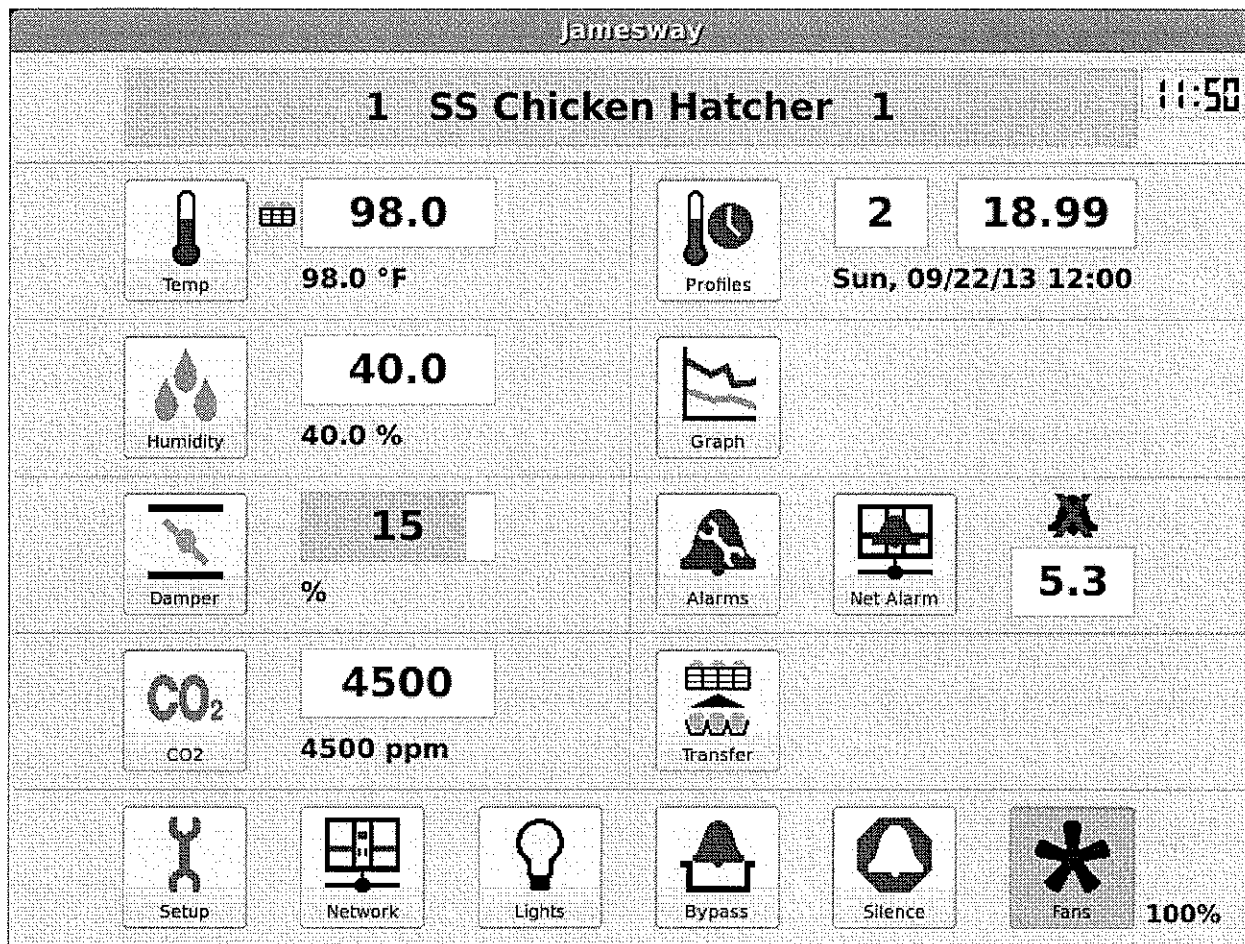
DOUBLE ECU CONTROL SHOWN

# HatchSense User Guide

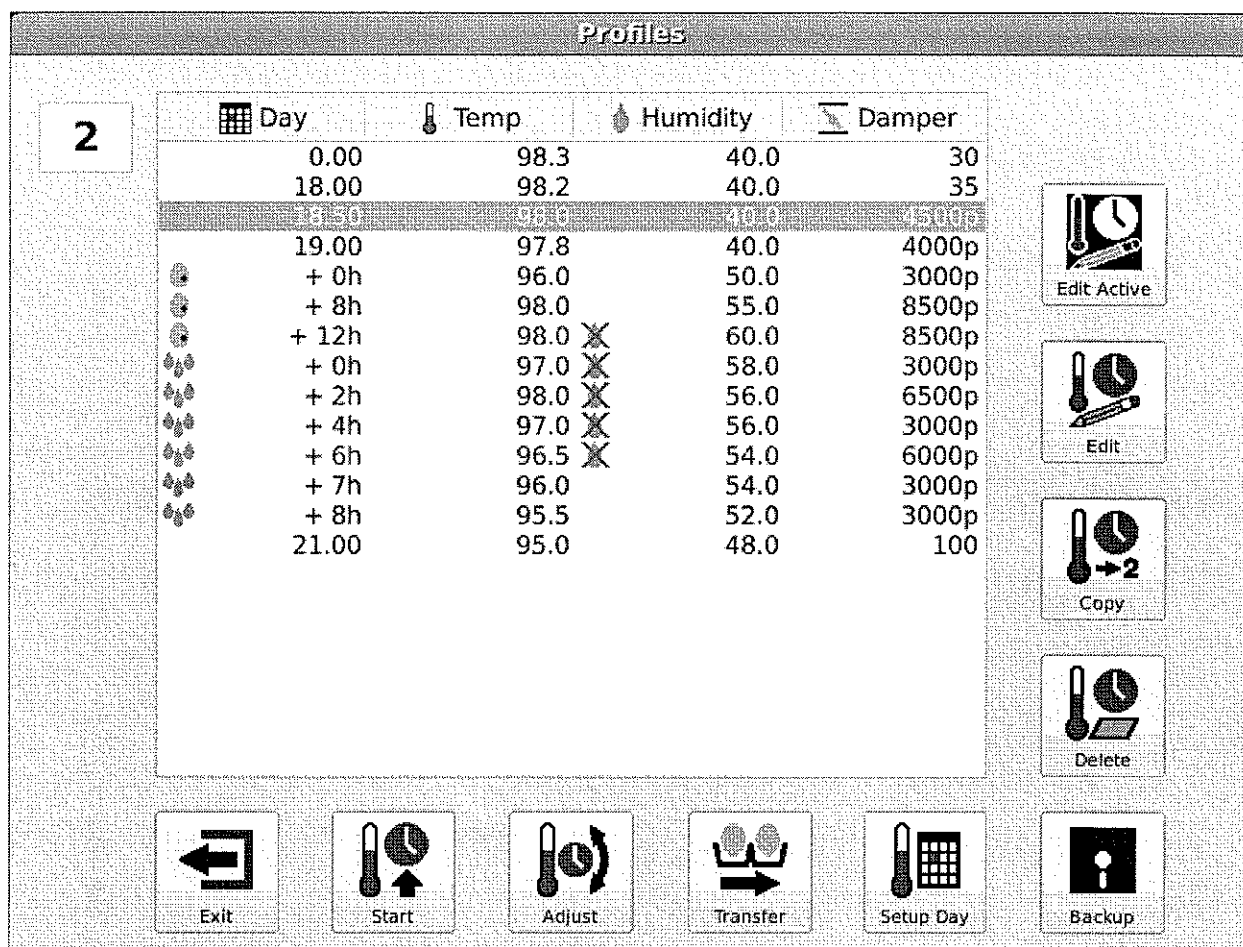
The HatchSense system allows the hatcher controls to watch for humidity changes and chick movement inside the baskets to initiate a sequence of modifications to the incubation environment to stimulate simultaneous hatching.

## Main Screen

The following screen shot shows a hatcher with HatchSense mode active, as indicated by the basket icon between the temperature button and temperature actual readout.



The profile day in cycle counter will advance normally, but the profile contains a special block of setpoint steps that will be triggered when certain conditions are met. The following screen shot shows the active profile in profile setup screen.



Until day 19.16 (19 days and 4 hours) the hatcher profile runs normally, with the HatchSense module operating in test mode. When test mode is active any motion on one of the sensors blinks the corresponding LED light for a few seconds, allowing the user to check that the module is operating correctly at transfer time.

At day 19.16 the HatchSense module activates the white LED lights on rear side of module, continuously cycling on for 30 minutes, then off for 30 minutes. Throughout this time the motion detectors are active, scanning for motion inside the baskets.

Please note that the HatchSense module and baskets must not be disturbed during this time as that will mistakenly trigger the machine to advance to internal pip phase. If it is necessary to open the machine before profile has advanced to the internal pip phase, then the fan switch must be turned off so that the machine disables the motion detection system.

When motion inside at least two baskets is detected the profile will advance to first internal pip step in the profile marked as +0h, skipping all regular setpoint lines that have not yet executed. If profile day-in-cycle reaches the pip timeout programmed in HatchSense setup screen without seeing movement, it will immediately change to the first pip step. The next two pip steps will execute in sequence once the specified hours after initial chick movement is reached.

Once the third pip step is active, the machine will monitor for the humidity peak. The actual humidity has to go above setpoint by amount programmed in setup screen (first peak number) then stay at that level for some time, then go below peak humidity by amount programmed in setup screen (second peak number). The humidifier should be disabled in the last pip step to ensure that it does not interfere with the humidity peak detection.

When the humidity peak is detected, the profile will advance to the first humidity step marked as  +0h. The HatchSense module lights are turned off. If the profile day-in-cycle counter reaches the humidity timeout programmed in HatchSense setup screen without seeing the peak, it will immediately change to the first humidity step. All six humidity steps will execute in sequence as the specified hours after peak are reached. If the day-in-cycle counter reaches the first non-HatchSense step at the end of the profile, these will be executed immediately, even if not all humidity steps have finished.

There is one new alarm emitted by the hatcher, located to the left of the temperature button.

 The HatchSense alarm indicates that the module is not sending valid data. Some of the possible causes:

- sensor module cable is unplugged or damaged
- sensor module is faulty

This alarm can be programmed in Alarm Delays screen same as other alarms.

## **Profile Edit Screen**

The profile edit screen has a toggle button to select whether a profile is a standard or HatchSense mode profile.

When turning on the HatchSense button, a special block of nine setpoint steps is inserted. Three of these steps are for internal pip phase, and the other six are for humidity peak phase. The number of steps is fixed, no steps can be added or deleted. If fewer steps are needed, then enter exactly the same numbers as the previous step.

The HatchSense button is disabled if not enough slots are available in the profile. Delete some of the regular setpoint lines to make room for the HatchSense block.

Each setpoint step can be programmed to disable humidification. The third pip step should always have humidification disabled to prevent interference with the humidity peak detection. Other setpoint lines can be programmed as required.

As many additional regular non-HatchSense setpoint lines as required may be added. Steps whose day-in-cycle is less than the Internal Pip Timeout (as programmed in the HatchSense setup screen) will appear above the special HatchSense steps, all others will appear below the HatchSense steps.

For a HatchSense profile to be valid four conditions must be met:

- First profile step must be a regular setpoint at day 0.0
- First internal pip step must be + 0 hours
- First humidity peak step must be + 0 hours
- At least one regular setpoint step must appear below the HatchSense section (for example at day 21.0)

The screenshot shows the 'Edit Profile' interface. At the top, there's a title bar 'Edit Profile'. Below it, a table displays profile data with columns: Day, Temp, Humidity, and Damper. The table has a scrollable list of steps. To the left of the table are navigation buttons: a large '2' in a box, up and down arrow buttons, and a 'HatchSense' button with a basket icon. To the right of the table are 'Insert' and 'Delete' buttons. Below the table are five large buttons for '0.00', '98.3', '40.0', '30', and 'CO2'. At the bottom left are 'OK' and 'Cancel' buttons. At the bottom right are five more navigation buttons (up and down arrows).

|  | Day   | Temp | Humidity | Damper |
|--|-------|------|----------|--------|
|  | 0.00  | 98.3 | 40.0     | 30     |
|  | 18.00 | 98.2 | 40.0     | 35     |
|  | 18.50 | 98.0 | 40.0     | 4500p  |
|  | 19.00 | 97.8 | 40.0     | 4000p  |
|  | + 0h  | 96.0 | 50.0     | 3000p  |
|  | + 8h  | 98.0 | 55.0     | 8500p  |
|  | + 12h | 98.0 | 60.0     | 8500p  |
|  | + 0h  | 97.0 | 58.0     | 3000p  |
|  | + 2h  | 98.0 | 56.0     | 6500p  |
|  | + 4h  | 97.0 | 56.0     | 3000p  |
|  | + 6h  | 96.5 | 54.0     | 6000p  |
|  | + 7h  | 96.0 | 54.0     | 3000p  |
|  | + 8h  | 95.5 | 52.0     | 3000p  |

When the HatchSense button is in highlighted state, the profile will be saved as a HatchSense mode profile, otherwise it will be saved as a standard profile.

After pressing the OK button the user will be asked to select destination profiles. The machine will remember whether the saved profile is a standard or HatchSense mode profile. In the profile selection screens the HatchSense profiles will be marked with a basket icon.

## Start Profile Screen

Hatchers using HatchSense profiles must be transferred before day 19.16, otherwise the motion detection phase may not be processed correctly. If a significant intervention is required inside the hatcher, then profile should be switched to a regular type.

The start profile screen uses a basket icon to indicate HatchSense profiles. The HatchSense profiles can only be selected if:

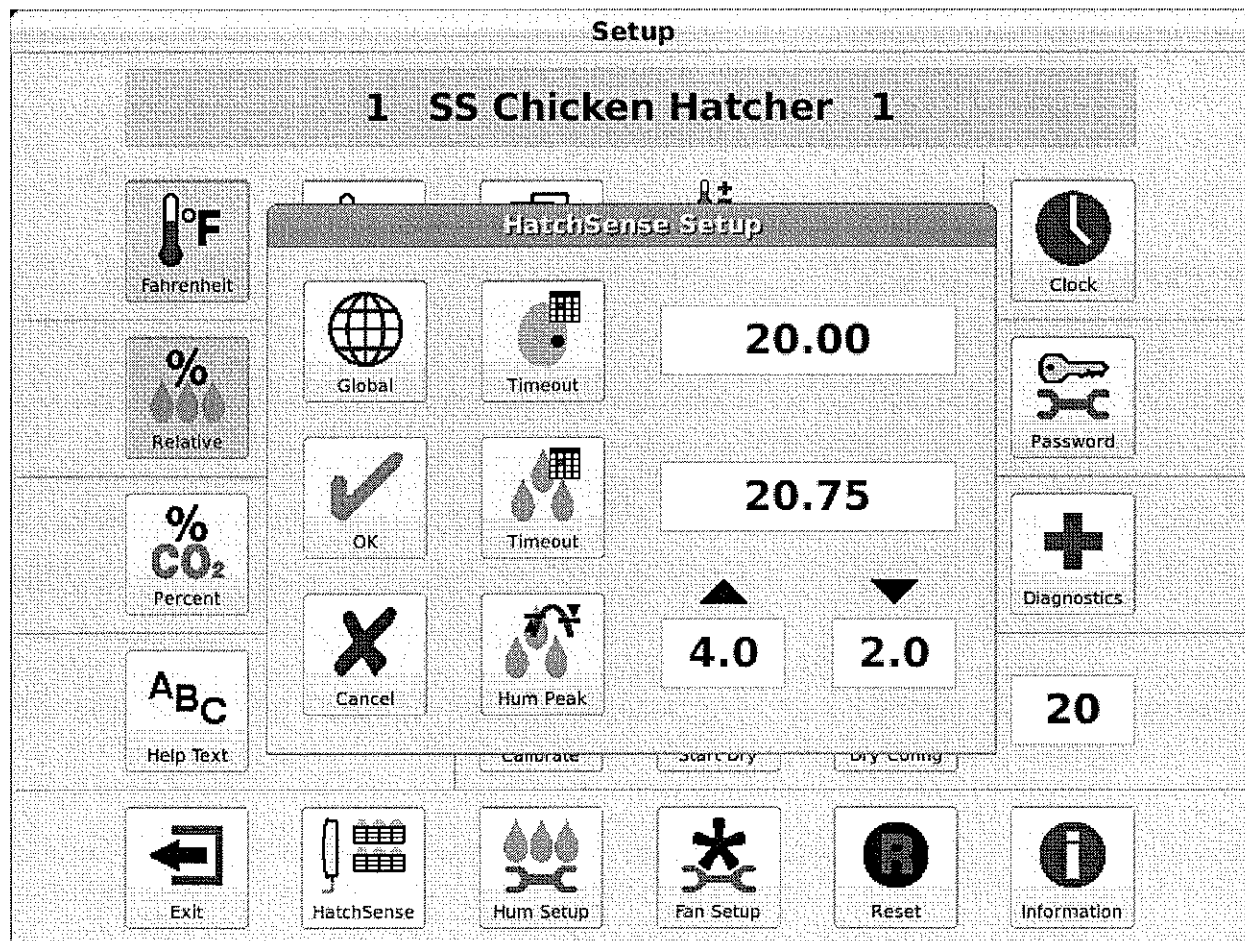
- A HatchSense module has been connected anytime since last power up
- A HatchSense profile is currently active

## Copy Profile Screen

When copying a profile to another slot, the destination slot will become the same type as the source profile. Care must be taken if a HatchSense profile is copied globally to the network. A remote machine not equipped with the HatchSense system, but currently using the same profile will give a HatchSense failure alarm, which needs to be corrected by restarting a regular profile.

## HatchSense Setup Screen

The HatchSense setup screen is used to program settings that are common to all HatchSense profiles.



 Internal pip timeout sets the day-in-cycle when the profile advances to the pip phase even if chick motion has not yet been detected. This value should be selected such that the profile has sufficient time to complete the pip steps before the humidity level starts to peak, otherwise the humidity phase may not have enough time to finish. This number also selects the point where regular setpoint steps appear above or below the HatchSense block.

 Humidity timeout sets the day-in-cycle when the profile advances to the peak phase even if no humidity peak has occurred. This value should be selected such that the humidity phase can finish before reaching the regular setpoints at end of profile.

 The peak settings determine the humidity changes that need to take place before profile advances to humidity peak phase. The first number selects how far above setpoint (in %RH) the humidity needs to rise. Once the humidity stops rising, and the humidity stays below the maximum peak by the second value (in %RH) for two hours, then the profile will advance to the humidity peak phase.

## Troubleshooting

The HatchSense system requires software version 3.27 or later on machines equipped with SMA106 revision C or earlier, and version 3.80 or later on SMA106 revision D or SMA111.

1. Turn off the fan switch and connect HatchSense module to communication outlet.
2. Check that green power light on HatchSense module is on. If the light is off then the module may be faulty or the communication outlet on console is damaged or incorrectly hooked up.
3. Check that yellow data light on HatchSense assembly blinks briefly once every second. This light will indicate if a signal is received from machine controller.
4. In the Setup screen choose the Diagnostics function. Verify that green check mark is shown beside "HatchSense". If no check mark is shown, then no signal is received back from HatchSense module, indicating that the module is faulty or cable connection is damaged.
5. Set HatchSense module on flat surface with the four black motion detectors facing away from moving objects. Wait for all four white LED lights beside detectors to turn off.
6. Move hand past each of the four motion detectors on rear side of assembly and check that the white LED light turns on for a few seconds. If a light does not turn on or stays on constantly then the module is faulty.

Note: The module is in test mode only when the fans are turned off or when day-in-cycle counter is less than 19.16, otherwise the white lights will not be controlled by the motion sensors.

HATCH SENSE CONVERSION PLATE  
ROUTE 5 CONDUCTOR CABLE THROUGH  
LIQUID TIGHT, UP THE LEFT WIRE CONDUIT  
TO THE TOP OF THE SMA106 OR SMA111  
BOARD FOR CONNECTIONS SEE PAGE 2 OF 2

PB4529 LIQUID TIGHT  
INSTALL FROM  
INSIDE CONSOLE

P6177 SCREW

REMOVE ONE LAYER OF FRP  
AND FOAM FROM CUTOUT  
LEAVING THE SECOND  
FRP INTACT

APPLY SILICONE AROUND  
CUTOUT BEFORE MOUNTING PLATE

$\phi 0.50 [12.7]$   
DRILL THROUGH

1.75 [44.5]

0.38 [9.5]

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCH (MM)

TOLERANCES:

FRACTIONAL  $\pm$

ANGULAR  $\pm 1^\circ$

XX  $\pm 0.06 (2)$

XXX  $\pm 0.03 (0.8)$

XXXX  $\pm 0.010 (0.25)$

THIRD ANGLE PROJECTION

MATERIAL

FINISH

DO NOT SCALE DRAWING

PROPRIETARY AND CONFIDENTIAL  
THE INFORMATION CONTAINED IN THIS  
DRAWING IS THE SOLE PROPERTY OF  
JAMESWAY INCUBATOR COMPANY INC.  
ANY REPRODUCTION IN PART OR AS A  
WHOLE WITHOUT THE WRITTEN PERMISSION  
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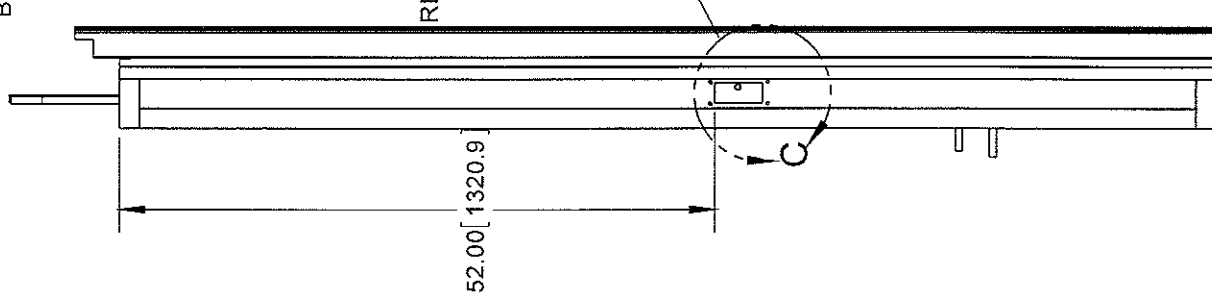
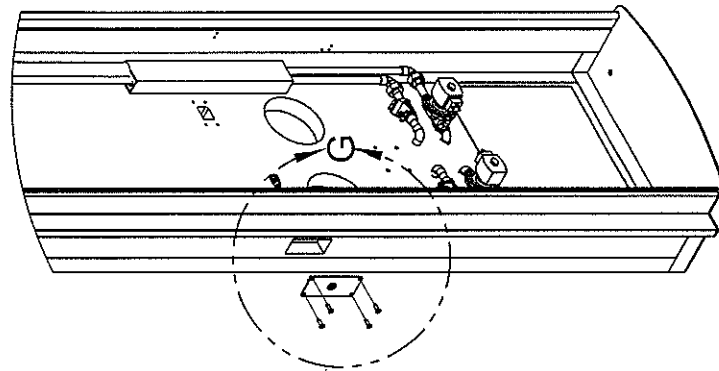
SIZE PART NUMBER:

A F3250

SCALE: 1:32 SHEET 1 OF 2 REV: 1

TITLE:

HATCHSENSE PLAT  
CONV INSTRUCT



## Schneider ATV312 Manual Programming Procedure

1. Turn on power to variable speed drive.
2. If fan motors start, press STOP button on drive. The display will show "nSt".
3. Press and release the rotary knob to enter programming mode.
4. Rotate the knob to select menu. To enter a menu press the "ESC" button.  
Note that some menus contain additional sub-menus of parameters when menu name contains a dash.
5. Press the knob to see parameter value. To change a parameter rotate the knob, then press the knob to save the setting, or press "ESC" button to leave parameter unchanged.
6. Rotate knob to choose next parameter, or press "ESC" to return to previous menu.
7. When finished press the "ESC" button to exit programming mode.
8. Power down the drive by turning off fans, then wait for display to go dark.

# Schneider model ATV312HU15N4 380-480V 3-phase programming

| SEt menu | drC menu   | I_O menu        | FUn menu    | FLt menu        |
|----------|------------|-----------------|-------------|-----------------|
| ACC 5.0  | bFr 60     | tCC 2C          | rPC-rPt L1n | Atr n0          |
| dEC 5.0  | UnS 380    | tCt LEL         | rPC-1nr 0.1 | rSF n0          |
| LSP 0.0  | FrS 60.0   | rRS L12         | rPC-ACC 5.0 | FLr n0          |
| HSP 60.0 | nCr 4.1    | CrL3 4.0        | rPC-dEC 5.0 | EtF n0          |
| 1tH 4.1  | nSP 1715   | CrH3 20.0       | rPC-rPS n0  | EPL YES         |
| UFr 20   | COS 0.81   | A01t 10U        | rPC-Frt 0.0 | OPL YES         |
| FLG 20   | rSC n0     | d0 0Cr          | rPC-brA Yes | 1PL YES         |
| StA 20   | tUn n0     | r1 FLt          | StC-Stt nSt | OHL YES         |
| SLP 100  | tUS tAb n0 | r2              | StC-FSt n0  | OLL YES         |
| JPF 0.0  | UFt n      |                 | StC-dC1 n0  | SLL YES         |
| JF2 0.0  | nrd YES    |                 | StC-nSt n0  | COL YES         |
| CL1 6.1  | SFr 4.0    |                 | AdC-AdC n0  | tnL YES         |
| tLS 0.0  | tFr 72.0   |                 | SA1-SA2 A12 | LFL n0          |
| Ftd 60.0 | SrF n0     |                 | SA1-SA3 n0  | LFF 10.0        |
| ttd 100  |            |                 | PSS-PS2 n0  | drn n0          |
| Ctd 4.1  |            | <b>CtL menu</b> | PSS-PS4 n0  | StP n0          |
| SdS 30.0 |            | LAC L1          | PSS-PS8 n0  | 1nH n0          |
| SFr 4.0  |            | Fr1 A11         | PSS-PS16 n0 | rPr n0          |
|          |            | Fr2 n0          | JOG-JOG n0  | rP n0           |
|          |            | rFC Fr1         | P1-P1F n0   |                 |
|          |            | LCC n0          | ArE n0      |                 |
|          |            | PSt YES         |             |                 |
|          |            |                 |             | <b>SUP menu</b> |
|          |            |                 |             | LCr 0.0 Enter   |

Note: Ignore menus and parameters that are not listed, some settings disappear when other items are changed

# Schneider model ATV312H15M3 200-240V 3-phase programming

| Sr menu  | drC menu | I_0 menu  | FUn menu    | Flt menu      |
|----------|----------|-----------|-------------|---------------|
| ACC 5.0  | bFr 60   | tCC 2C    | rPC-rPt L1n | Atr n0        |
| dEC 5.0  | UnS 220  | tCt LEL   | rPC-1nr 0.1 | rSF n0        |
| LSP 0.0  | FrS 60.0 | rrS L12   | rPC-ACC 5.0 | FLr n0        |
| HSP 60.0 | nCr 8.0  | CrL3 4.0  | rPC-dEC 5.0 | EtF n0        |
| 1tH 8.0  | nSP 1715 | CrH3 20.0 | rPC-rPS n0  | EPL YES       |
| UFr 20   | COS 0.81 | A01t 10U  | rPC-Frt 0.0 | OPL YES       |
| FLG 20   | rSC n0   | d0 OCr    | rPC-brA Yes | 1PL YES       |
| StA 20   | tUn n0   | r1 Flt    | StC-Stt nSt | OHL YES       |
| SLP 100  | tUS tAb  | r2 n0     | StC-FSt n0  | OLL YES       |
| JPF 0.0  | Uft n    |           | StC-dC1 n0  | SLL YES       |
| JF2 0.0  | nrd YES  |           | StC-nSt n0  | COL YES       |
| CL1 12.0 | SFr 4.0  |           | AdC-AdC n0  | tnL YES       |
| tLS 0.0  | tFr 72.0 |           | SA1-SA2 A12 | LFL n0        |
| Ftd 60.0 | SrF n0   |           | SA1-SA3 n0  | LFF 10.0      |
| ttd 100  |          |           | PSS-PS2 n0  | drn n0        |
| Ctd 8.0  |          | Ctl menu  | PSS-PS4 n0  | StP n0        |
| SdS 30.0 |          | LAC L1    | PSS-PS8 n0  | 1nH n0        |
| SFr 4.0  |          | Fr1 A11   | PSS-PS16 n0 | rPr n0        |
|          |          | Fr2 n0    | JOG-JOG n0  | rP n0         |
|          |          | rFC Fr1   | P1-P1F n0   |               |
|          |          | LCC n0    | ArE n0      |               |
|          |          | PSt YES   |             | SUP menu      |
|          |          |           |             | LCr 0.0 Enter |

Note: Ignore menus and parameters that are not listed, some settings disappear when other items are changed

# Schneider model ATV312HU15M2 200-240V 1-phase programming

| SrE menu | drC menu | I_0 menu  | FUn menu    | FLt menu      |
|----------|----------|-----------|-------------|---------------|
| ACC 5.0  | bFr 60   | tCC 2C    | rPC-rPt L1n | Atr n0        |
| dEC 5.0  | UnS 220  | tCt LEL   | rPC-1nr 0.1 | rSF n0        |
| LSP 0.0  | FrS 60.0 | rFr L12   | rPC-ACC 5.0 | FLr n0        |
| HSP 60.0 | nCr 8.0  | CrL3 4.0  | rPC-dEC 5.0 | EtF n0        |
| 1tH 8.0  | nSP 1715 | CrH3 20.0 | rPC-rPS n0  | EPL YES       |
| UFr 20   | COS 0.81 | A01t 10U  | rPC-Frt 0.0 | OPL YES       |
| FLG 20   | rSC n0   | d0 OCr    | rPC-brA Yes | OHL YES       |
| StA 20   | tUn n0   | r1 FLt    | StC-Stt nSt | OLL YES       |
| SLP 100  | tUS tAb  | r2 n0     | StC-FSt n0  | SLL YES       |
| JPF 0.0  | Uft n    |           | StC-dC1 n0  | COL YES       |
| JF2 0.0  | nrd YES  |           | StC-nSt n0  | tnL YES       |
| CL1 12.0 | SFr 4.0  |           | AdC-AdC n0  | LFL n0        |
| tLS 0.0  | tFr 72.0 |           | SA1-SA2 A12 | LFF 10.0      |
| Ftd 60.0 | SrF n0   |           | SA1-SA3 n0  | drn n0        |
| ttd 100  |          |           | PSS-PS2 n0  | StP n0        |
| Ctd 8.0  |          | CtL menu  | PSS-PS4 n0  | 1nH n0        |
| SdS 30.0 |          | LAC L1    | PSS-PS8 n0  | rPr n0        |
| SFr 4.0  |          | Fr1 A11   | PSS-PS16 n0 | rP n0         |
|          |          | Fr2 n0    | JOG-JOG n0  |               |
|          |          | rFC Fr1   | P1-P1F n0   |               |
|          |          | LCC n0    | ArE n0      |               |
|          |          | PSt YES   |             |               |
|          |          |           |             | SUP menu      |
|          |          |           |             | LCr 0.0 Enter |

Note: Ignore menus and parameters that are not listed, some settings disappear when other items are changed

## Drive does not start, no code displayed

- If the display does not light up, check the power supply to the drive and check the wiring of inputs AI1 and AI2 and the connection to the RJ45 connector.
- The assignment of the "Fast stop" or "Freewheel stop" functions will prevent the drive from starting if the corresponding logic inputs are not powered up. The ATV312 then displays [Freewheel stop] (nSt) or [Fast stop] (FSt). This is normal since these functions are active at zero so that the drive will be stopped if there is a wire break.
- Check that the run command input(s) have been actuated in accordance with the chosen control mode (the [2/3 wire control] (tCC) parameter in the [INPUTS / OUTPUTS CFG] (I-O-) menu, page 47).
- If an input is assigned to the limit switch function and this input is at zero, the drive can only be started up by sending a command for the opposite direction (see page 89).
- If the reference channel (page 53) or the control channel (page 54) is assigned to a communication network, when the power supply is connected, the drive will display [Freewheel stop] (nSt) and remain in stop mode until the communication bus sends a command.
- If the LED on the DC bus is lit and nothing appears on the display, check that there is no short-circuit on the 10 V power supply.
- If the drive displays [Ready] (rdy) and refuses to start, check that there is no short-circuit on the 10 V power supply and check the wiring of inputs AI1 and AI2 and the connection to the RJ45 connector.
- In the factory setting, the "RUN" button is inactive. Set the [Ref.1 channel] (Fr1) parameter, page 29, and the [Cmd channel 1] (Cd1) parameter, page 59, to control the drive locally.

## Fault detection codes which require a power reset after the fault is cleared

The cause of the fault must be removed before resetting by cycling power to the drive.

[PRECHARGE FAULT] (CrF), [OVERSPEED] (SOF), [AUTO-TUNING FAULT] (tnF), and [BRAKE CONTROL FAULT] (bLF) can also be reset remotely using a logic input (the [Fault reset] (rSF) parameter in the [FAULT MANAGEMENT] (FLt-) menu, page 92).

| Code  | Name                  | Probable cause                                                                                                                                                                                                                                   | Remedy                                                                                                                                                                                                                                                                                                                         |
|-------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| b L F | [BRAKE CONTROL FAULT] | <ul style="list-style-type: none"> <li>• Brake release current not reached</li> <li>• Brake engage frequency threshold [Brake engage freq] (bEn) = [No] (nO) (not set) whereas the brake control [Brake assignment] (bLC) is assigned</li> </ul> | <ul style="list-style-type: none"> <li>• Check the drive/motor connection.</li> <li>• Check the motor windings.</li> <li>• Check the [Brake release I FW] (lbr) setting in the [APPLICATION FUNCT.] (FUn-) menu, page 85.</li> <li>• Apply the recommended settings for [Brake engage freq] (bEn), pages 84 and 85.</li> </ul> |
| C r F | [PRECHARGE FAULT]     | <ul style="list-style-type: none"> <li>• Precharge relay control or damaged precharge resistor</li> </ul>                                                                                                                                        | <ul style="list-style-type: none"> <li>• Replace the drive.</li> </ul>                                                                                                                                                                                                                                                         |
| E E F | [EEPROM FAULT]        | <ul style="list-style-type: none"> <li>• Internal memory</li> </ul>                                                                                                                                                                              | <ul style="list-style-type: none"> <li>• Check the environment (electromagnetic compatibility)</li> <li>• Replace the drive.</li> </ul>                                                                                                                                                                                        |
| I F 1 | [INTERNAL FAULT]      | <ul style="list-style-type: none"> <li>• Unknown rating</li> </ul>                                                                                                                                                                               | <ul style="list-style-type: none"> <li>• Replace the drive.</li> <li>• Restart the drive.</li> <li>• Contact a Schneider Electric representative.</li> </ul>                                                                                                                                                                   |
| I F 2 | [INTERNAL FAULT]      | <ul style="list-style-type: none"> <li>• HMI card not recognized</li> <li>• HMI card incompatible</li> <li>• No display present</li> </ul>                                                                                                       |                                                                                                                                                                                                                                                                                                                                |
| I F 3 | [INTERNAL FAULT]      | <ul style="list-style-type: none"> <li>• EEPROM</li> </ul>                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                |
| I F 4 | [INTERNAL FAULT]      | <ul style="list-style-type: none"> <li>• Industrial EEPROM</li> </ul>                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                |

## Diagnostics and troubleshooting (continued)

### Fault detection codes which require a power reset after the fault is cleared (continued)

| Code         | Name                  | Probable cause                                                                                                                                                                                               | Remedy                                                                                                                                                                                                                                                                               |
|--------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>O C F</b> | [OVERCURRENT]         | <ul style="list-style-type: none"> <li>Parameters in the [SETTINGS] (SEt-) and [MOTOR CONTROL] (drC-) menus are incorrect.</li> <li>Inertia or load too high</li> <li>Mechanical locking</li> </ul>          | <ul style="list-style-type: none"> <li>Check the parameters in [SETTINGS] (SEt-) , page 32, and [MOTOR CONTROL] (drC-) page 41.</li> <li>Check the size of the motor/drive/load.</li> <li>Check the state of the mechanism.</li> </ul>                                               |
| <b>S C F</b> | [MOTOR SHORT CIRCUIT] | <ul style="list-style-type: none"> <li>Short-circuit or grounding at the drive output</li> <li>Significant ground leakage current at the drive output if several motors are connected in parallel</li> </ul> | <ul style="list-style-type: none"> <li>Check the cables connecting the drive to the motor, and the motor insulation.</li> <li>Reduce the switching frequency</li> <li>Connect chokes in series with the motor</li> </ul>                                                             |
| <b>S O F</b> | [OVERSPEED]           | <ul style="list-style-type: none"> <li>Instability or</li> <li>Driving load too high</li> </ul>                                                                                                              | <ul style="list-style-type: none"> <li>Check the motor, gain and stability parameters</li> <li>Add a braking resistor</li> <li>Check the size of the motor/drive/load.</li> </ul>                                                                                                    |
| <b>E n F</b> | [AUTO TUNING FAULT]   | <ul style="list-style-type: none"> <li>Special motor or motor whose power is not suitable for the drive</li> <li>Motor not connected to the drive</li> </ul>                                                 | <ul style="list-style-type: none"> <li>Use the L ratio or the [Var. torque] (P) ratio (see [U/F mot 1 selected] (UFt), page 44).</li> <li>Check that the motor is present during auto-tuning.</li> <li>If an output contactor is being used, close it during auto-tuning.</li> </ul> |

### Fault detection codes that can be reset with the automatic restart function after the cause has disappeared

See the [Automatic restart] (Atr) function, page 91.

These detected faults can also be reset by turning the drive off then on again or by means of a logic input (the [Fault reset] (rSF) parameter, page 92, in the [FAULT MANAGEMENT] (FLt-) menu, page 91).

| Code         | Name             | Probable cause                                                                                           | Remedy                                                                                                                                                                                                                                                                                               |
|--------------|------------------|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>C n F</b> | [NETWORK FAULT]  | <ul style="list-style-type: none"> <li>Communication detected fault on the communication card</li> </ul> | <ul style="list-style-type: none"> <li>Check the environment (electromagnetic compatibility)</li> <li>Check the wiring.</li> <li>Check the time out.</li> <li>Replace the option card.</li> <li>See the [CANopen fault mgt] (COL) parameter page 95 to define the stop mode with a (CnF).</li> </ul> |
| <b>C O F</b> | [CANopen FAULT]  | <ul style="list-style-type: none"> <li>Interruption in communication on the CANopen bus</li> </ul>       | <ul style="list-style-type: none"> <li>Check the communication bus</li> <li>Refer to the relevant product documentation.</li> </ul>                                                                                                                                                                  |
| <b>E P F</b> | [EXTERNAL FAULT] | <ul style="list-style-type: none"> <li>Depending on user</li> </ul>                                      | <ul style="list-style-type: none"> <li>Depending on user</li> </ul>                                                                                                                                                                                                                                  |
| <b>L F F</b> | [4-20mA LOSS]    | <ul style="list-style-type: none"> <li>Loss of the 4-20 mA reference on input AI3</li> </ul>             | <ul style="list-style-type: none"> <li>Check the connection on input AI3.</li> </ul>                                                                                                                                                                                                                 |
| <b>O b F</b> | [OVERBRAKING]    | <ul style="list-style-type: none"> <li>Braking too sudden or driving load</li> </ul>                     | <ul style="list-style-type: none"> <li>Increase the deceleration time</li> <li>Install a braking resistor if necessary.</li> <li>Activate the [Dec ramp adapt.] (bra) function, page 64, if it is compatible with the application.</li> </ul>                                                        |
| <b>O H F</b> | [DRIVE OVERHEAT] | <ul style="list-style-type: none"> <li>Drive temperature too high</li> </ul>                             | <ul style="list-style-type: none"> <li>Check the motor load, the drive ventilation and the environment. Wait for the drive to cool before restarting.</li> </ul>                                                                                                                                     |

## Diagnostics and troubleshooting (continued)

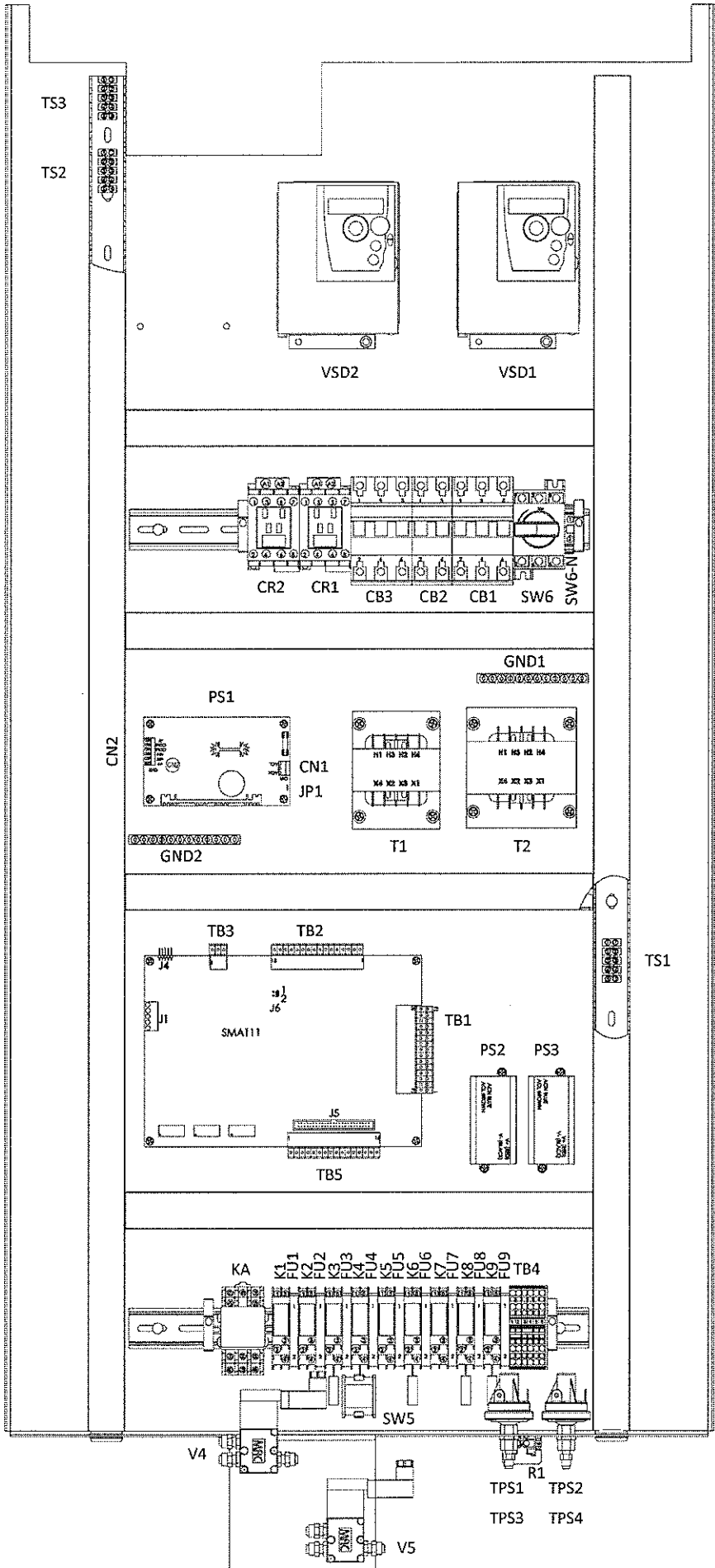
**Fault detection codes that can be reset with the automatic restart function after the cause has disappeared (continued)**

| Code        | Name                | Probable cause                                                                                                                                                                                                                                                                 | Remedy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>OL F</b> | [MOTOR OVERLOAD]    | <ul style="list-style-type: none"> <li>Triggered by excessive motor current</li> <li>[Cold stator resist.] (rSC) parameter value incorrect</li> </ul>                                                                                                                          | <ul style="list-style-type: none"> <li>Check the [Mot. therm. current] (ItH) setting, page 33, of the motor thermal protection, check the motor load. Wait for the drive to cool before restarting.</li> <li>Remeasure [Cold stator resist.] (rSC), page 42.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>OP F</b> | [MOTOR PHASE LOSS]  | <ul style="list-style-type: none"> <li>Loss of one phase at drive output</li> <li>Output contactor open</li> <li>Motor not connected or motor power too low</li> <li>Instantaneous instability in the motor current</li> </ul>                                                 | <ul style="list-style-type: none"> <li>Check the connections from the drive to the motor.</li> <li>If an output contactor is being used, set [Output Phase Loss] (OPL) to [Output cut] (OAC) ([FAULT MANAGEMENT] (FLT-) menu, page 94).</li> <li>Test on a low-power motor or without a motor: In factory settings mode, motor output phase loss detection is active ([Output Phase Loss] (OPL) = [Yes] (YES)). To check the drive in a test or maintenance environment without having to switch to a motor with the same rating as the drive (particularly useful in the case of high-power drives), deactivate motor phase loss detection ([Output Phase Loss] (OPL) = [No] (NO)).</li> <li>Check and optimize the [IR compensation] (UFR), [Rated motor volt.] (UnS), and [Rated mot. current] (nCr) parameters, and perform an [Auto tuning] (tUn) operation, page 43.</li> </ul> |
| <b>OS F</b> | [MAINS OVERVOLTAGE] | <ul style="list-style-type: none"> <li>Line voltage is too high.</li> <li>Disturbed line supply</li> </ul>                                                                                                                                                                     | <ul style="list-style-type: none"> <li>Check the line voltage.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>PH F</b> | [INPUT PHASE LOSS]  | <ul style="list-style-type: none"> <li>Drive incorrectly supplied or a fuse blown</li> <li>Failure of one phase</li> <li>Three-phase ATV312 used on a single-phase line supply</li> <li>Unbalanced load</li> </ul> <p>This protection only operates with the drive on load</p> | <ul style="list-style-type: none"> <li>Check the power connection and the fuses.</li> <li>Reset</li> <li>Use a three-phase line supply.</li> <li>Disable the detection by setting [Input phase loss] (IPL) = [No] (NO) ([FAULT MANAGEMENT] (FLT-) menu, page 94).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>SL F</b> | [MODBUS FAULT]      | <ul style="list-style-type: none"> <li>Interruption in communication on the Modbus bus</li> <li>Remote display terminal enabled ([HMI command] (LCC) = [Yes] (YES), page 61) and terminal disconnected.</li> </ul>                                                             | <ul style="list-style-type: none"> <li>Check the communication bus</li> <li>Refer to the relevant product documentation.</li> <li>Check the link with the remote display terminal.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

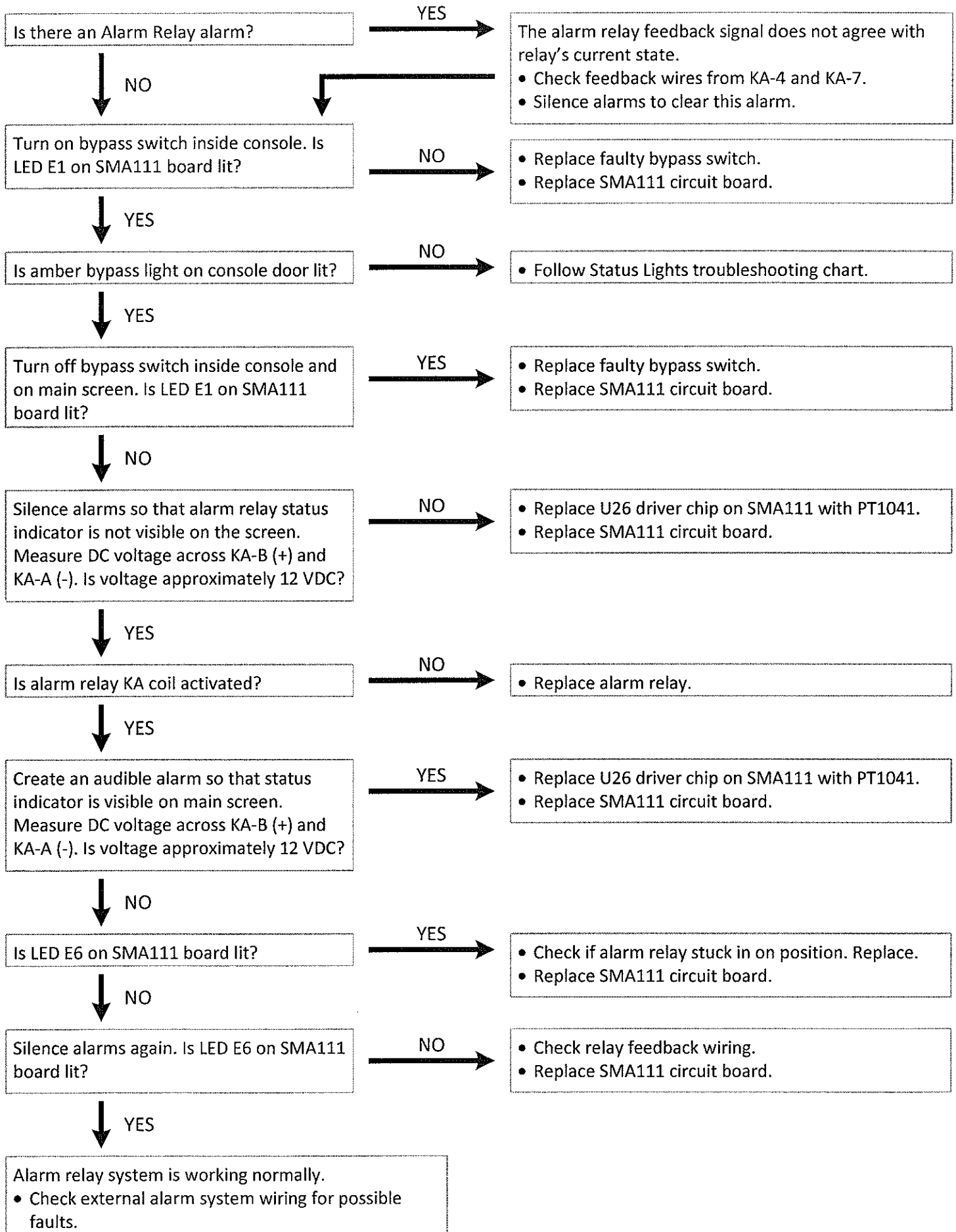
## Diagnostics and troubleshooting (continued)

### Fault detection codes that are reset as soon as their cause disappears

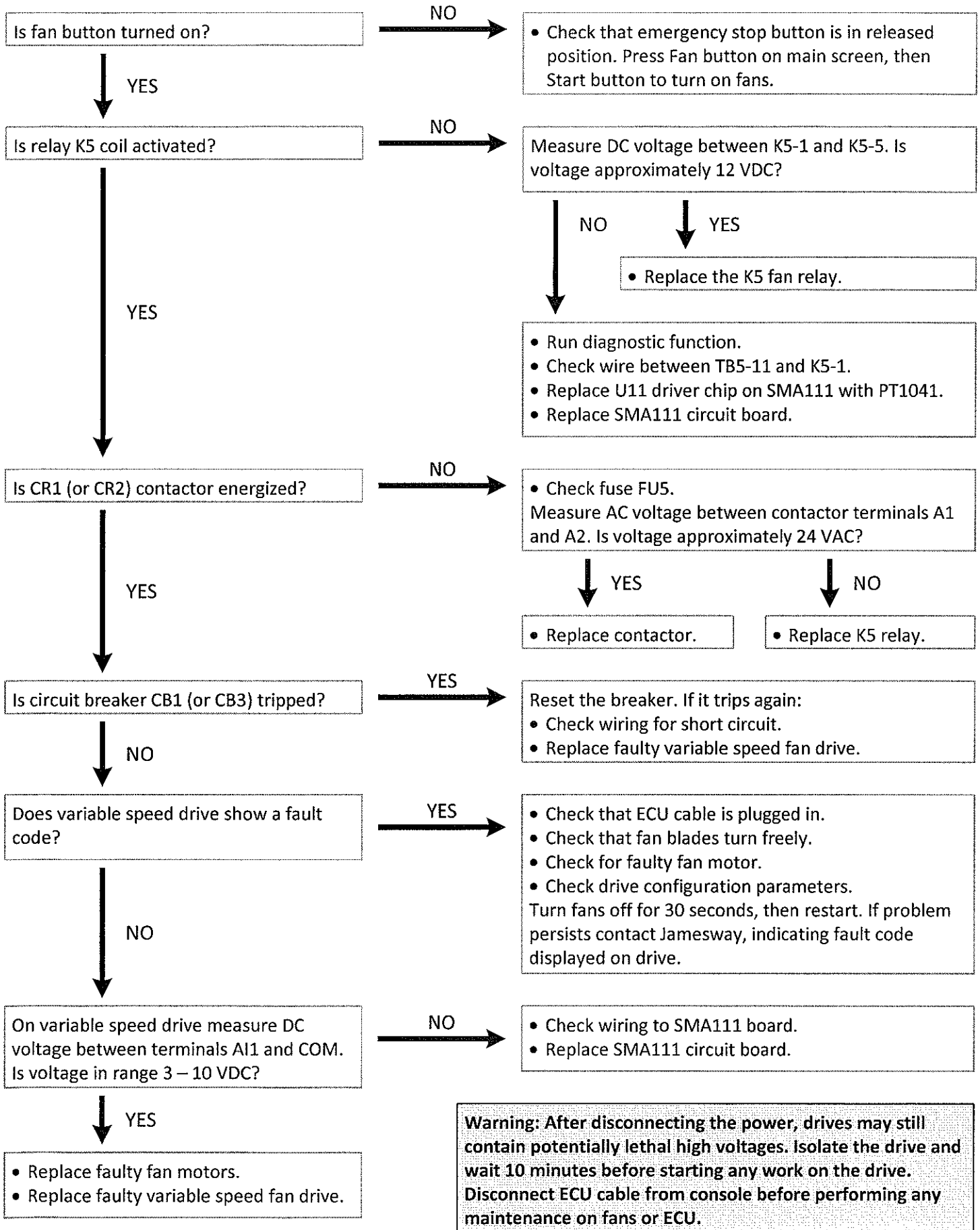
| Code             | Name                | Probable cause                                                                                                                                        | Remedy                                                                                                                                                                                                                                                                     |
|------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>[ F F ]</b>   | [INCORRECT CONFIG.] | <ul style="list-style-type: none"><li>• The current configuration is inconsistent.</li><li>• Addition or removal of an option</li></ul>               | <ul style="list-style-type: none"><li>• Return to factory settings or retrieve the backup configuration, if it is valid. See the [Restore config.] (FCS) parameter, page 46.</li></ul>                                                                                     |
| <b>[ F I ]</b>   | [INVALID CONFIG]    | <ul style="list-style-type: none"><li>• Invalid configuration<br/>The configuration loaded in the drive via the serial link is inconsistent</li></ul> | <ul style="list-style-type: none"><li>• Check the configuration loaded previously.</li><li>• Load a consistent configuration.</li></ul>                                                                                                                                    |
| <b>[ U S F ]</b> | [UNDERVOLTAGE]      | <ul style="list-style-type: none"><li>• Insufficient line supply</li><li>• Transient voltage dip</li><li>• Damaged precharge resistor</li></ul>       | <ul style="list-style-type: none"><li>• Check the voltage and the voltage parameter.<br/>Tripping threshold in [UNDERVOLTAGE] (USF)<br/>ATV312●●●●M2: 160 V<br/>ATV312●●●●M3: 160 V<br/>ATV312●●●●N4: 300 V<br/>ATV312●●●●S6: 430 V</li><li>• Replace the drive.</li></ul> |



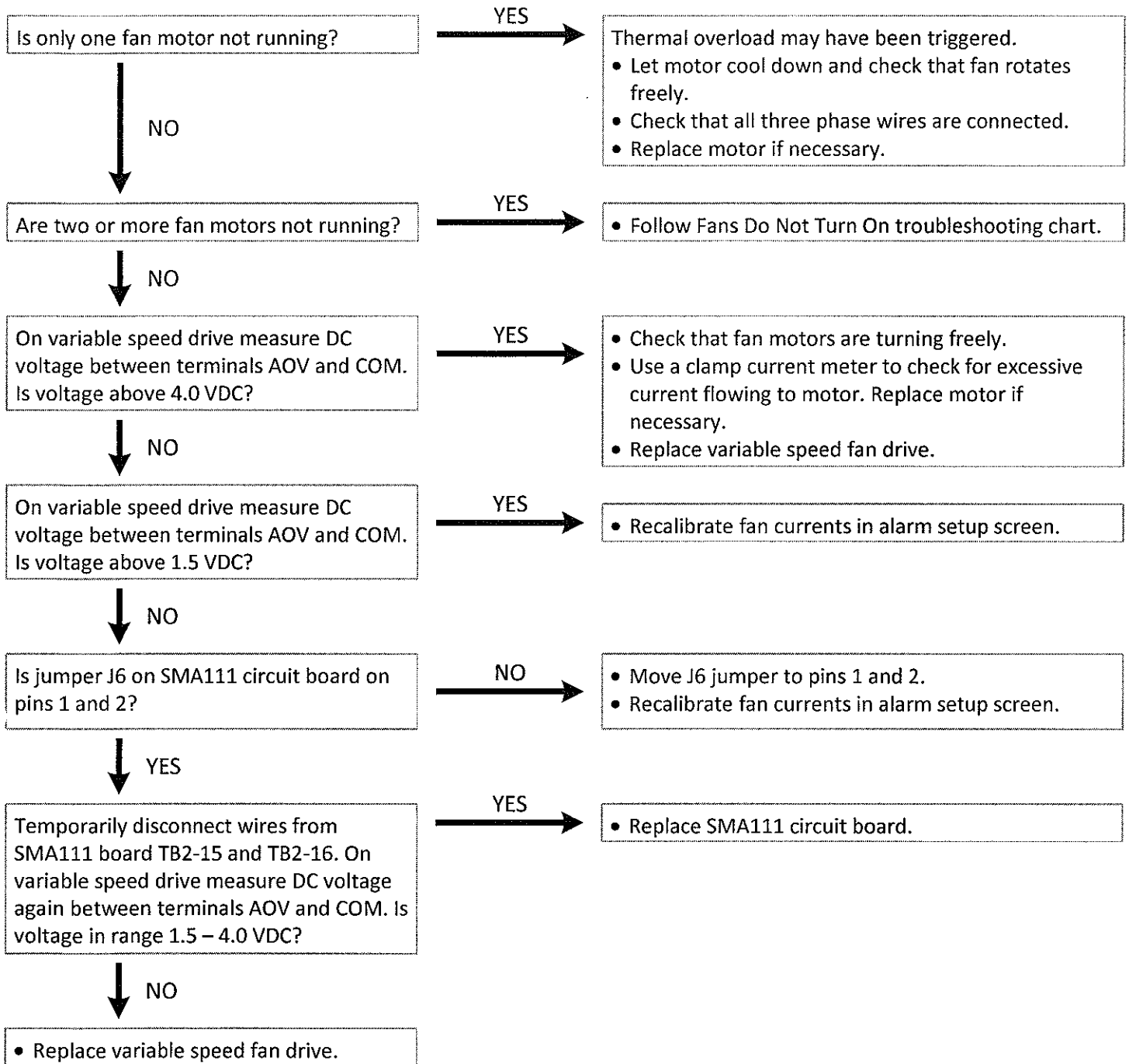
## Alarm Relay



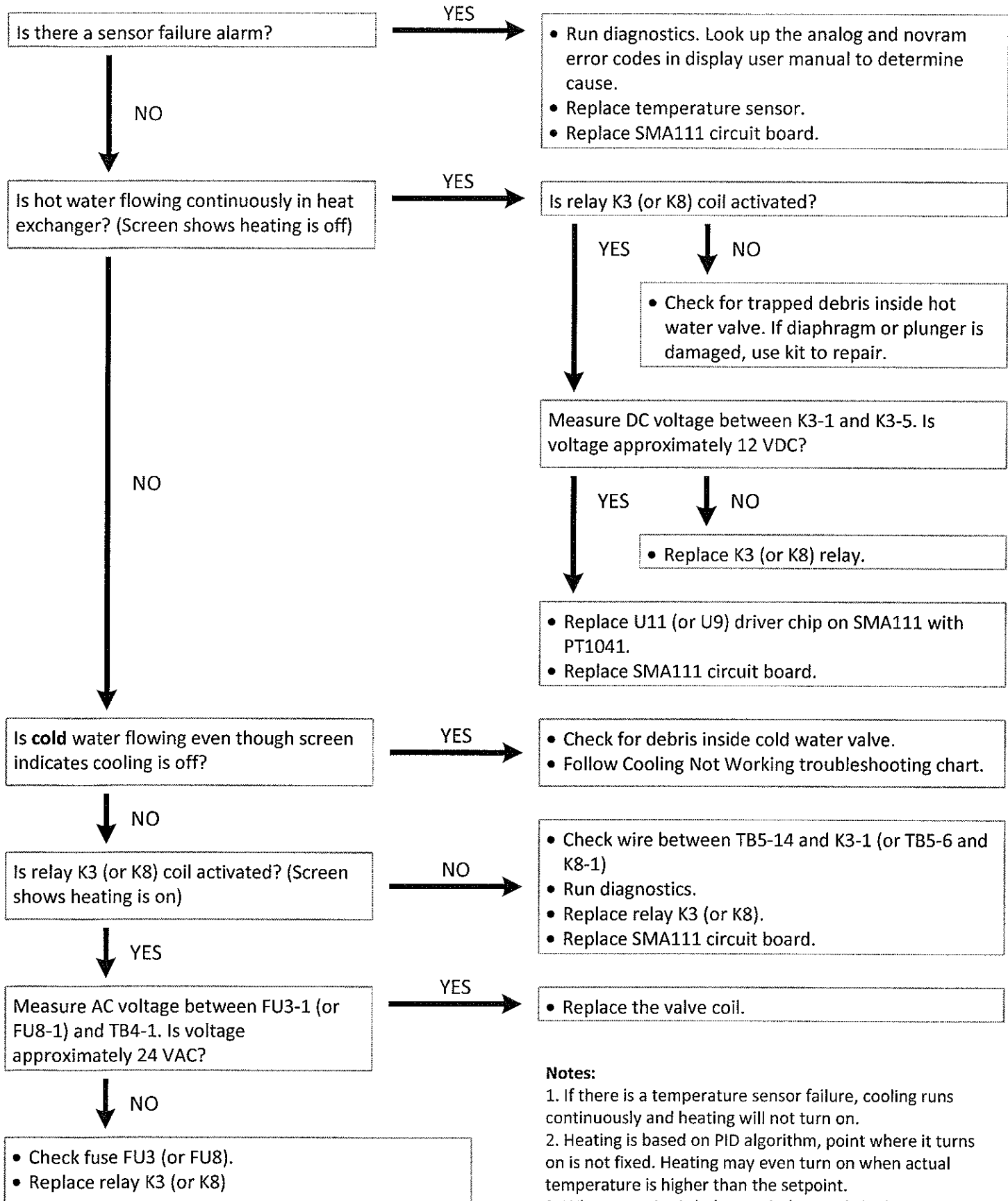
## Fans Do Not Turn On



## Fan Failure Alarm



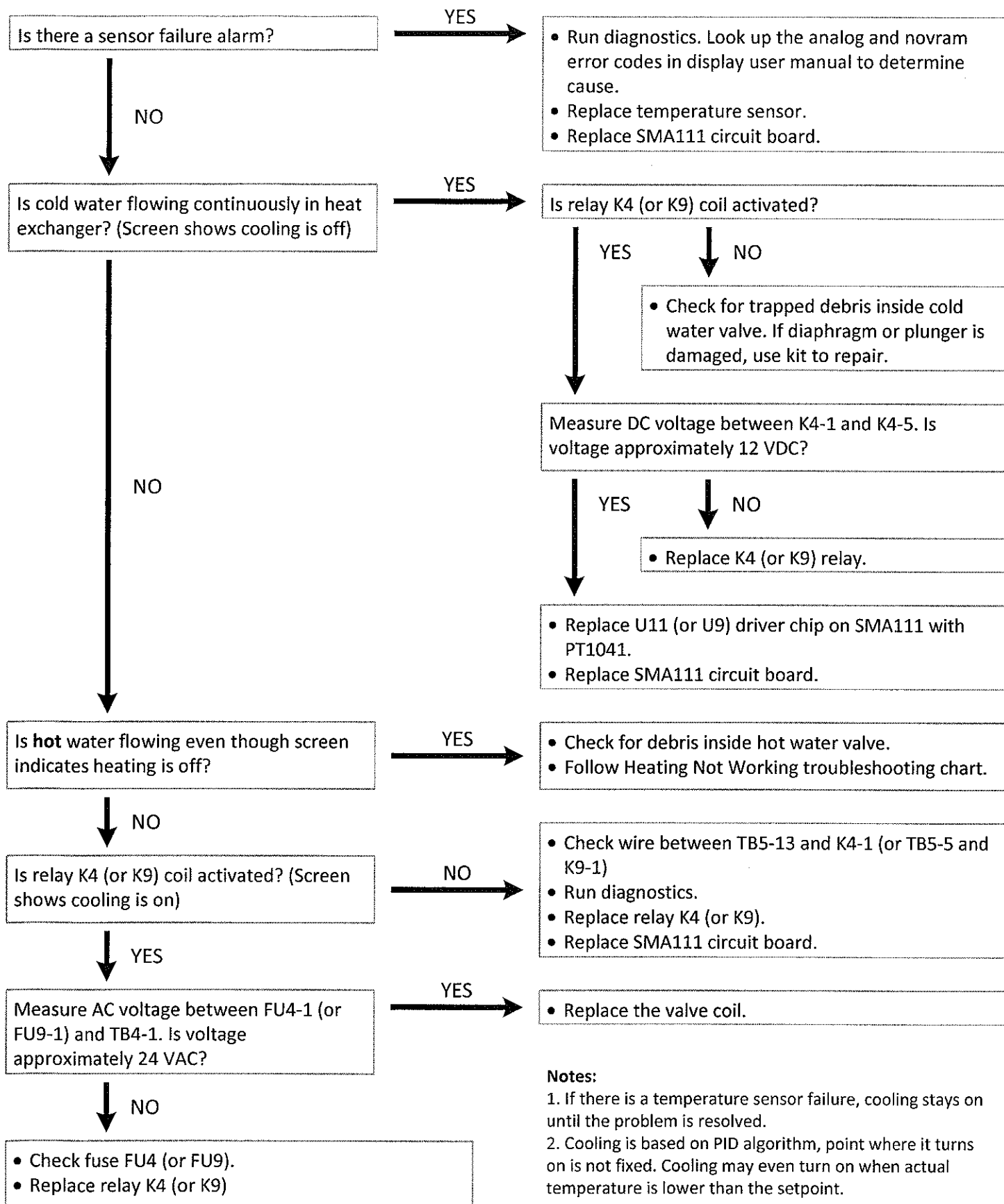
## Heating Not Working



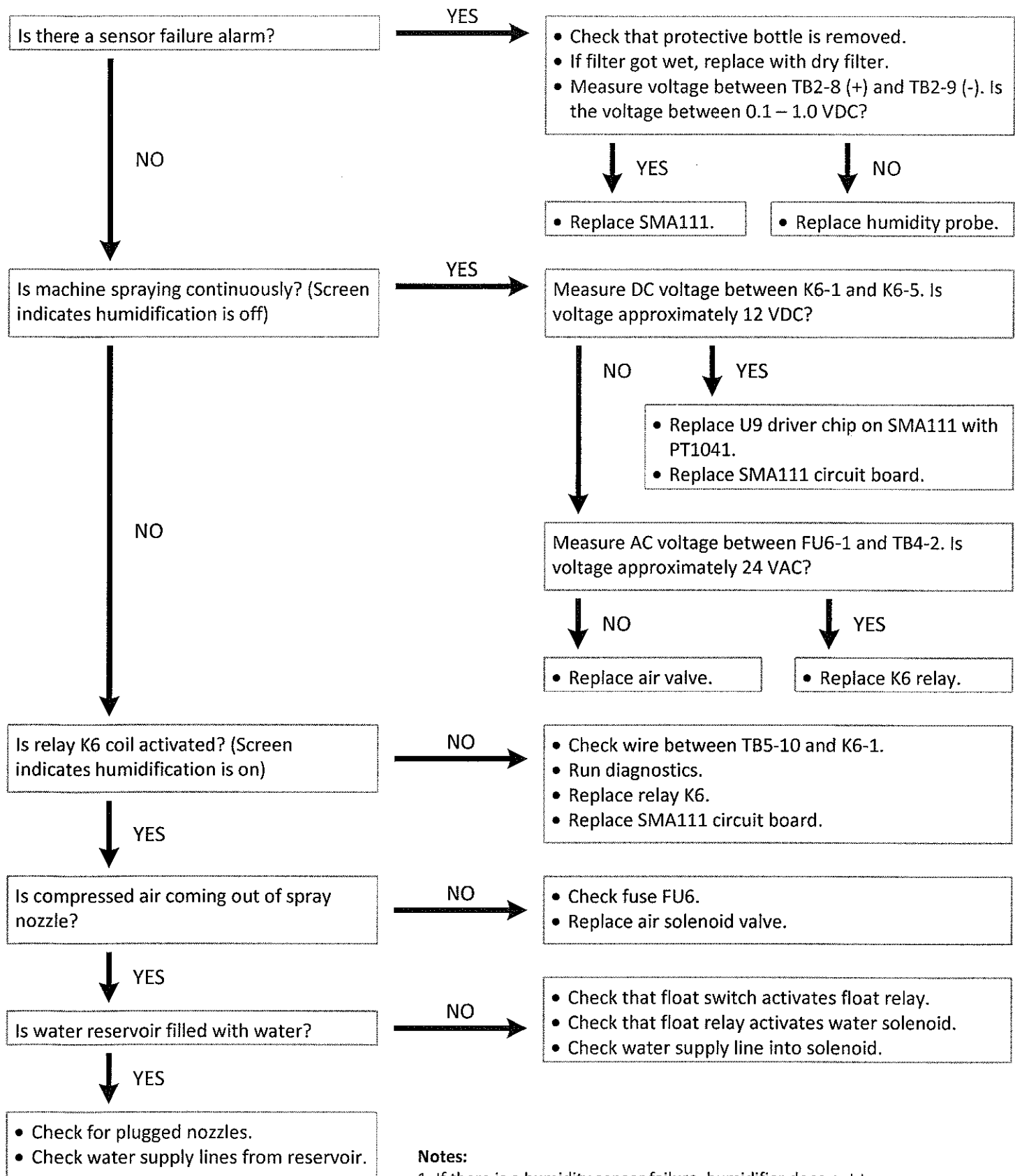
### Notes:

1. If there is a temperature sensor failure, cooling runs continuously and heating will not turn on.
2. Heating is based on PID algorithm, point where it turns on is not fixed. Heating may even turn on when actual temperature is higher than the setpoint.
3. When setpoint is below 85 °F (29.4 °C) the high temperature alarm will sound only if actual rises above this threshold.

## Cooling Not Working



## Humidification Not Working

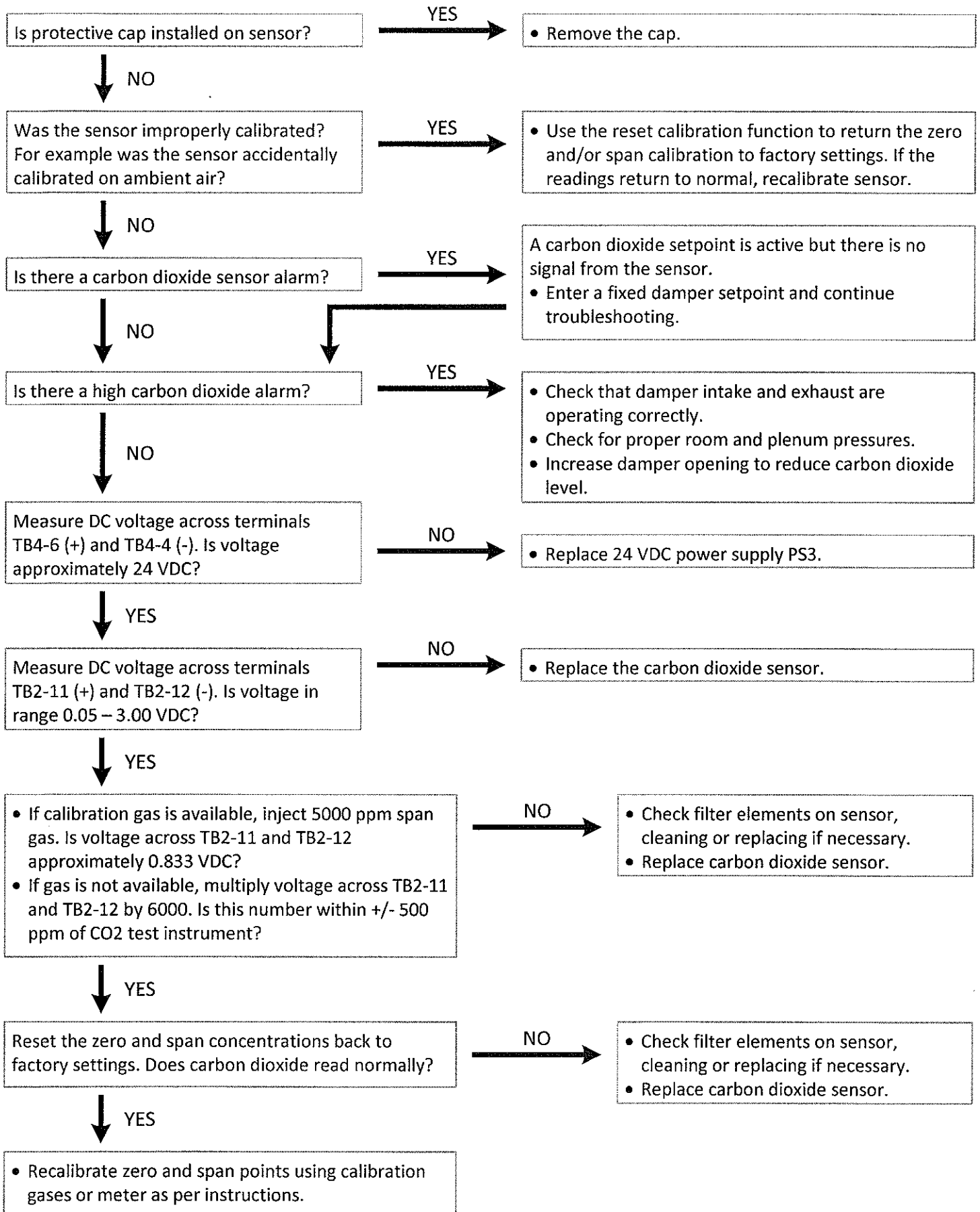


### Notes:

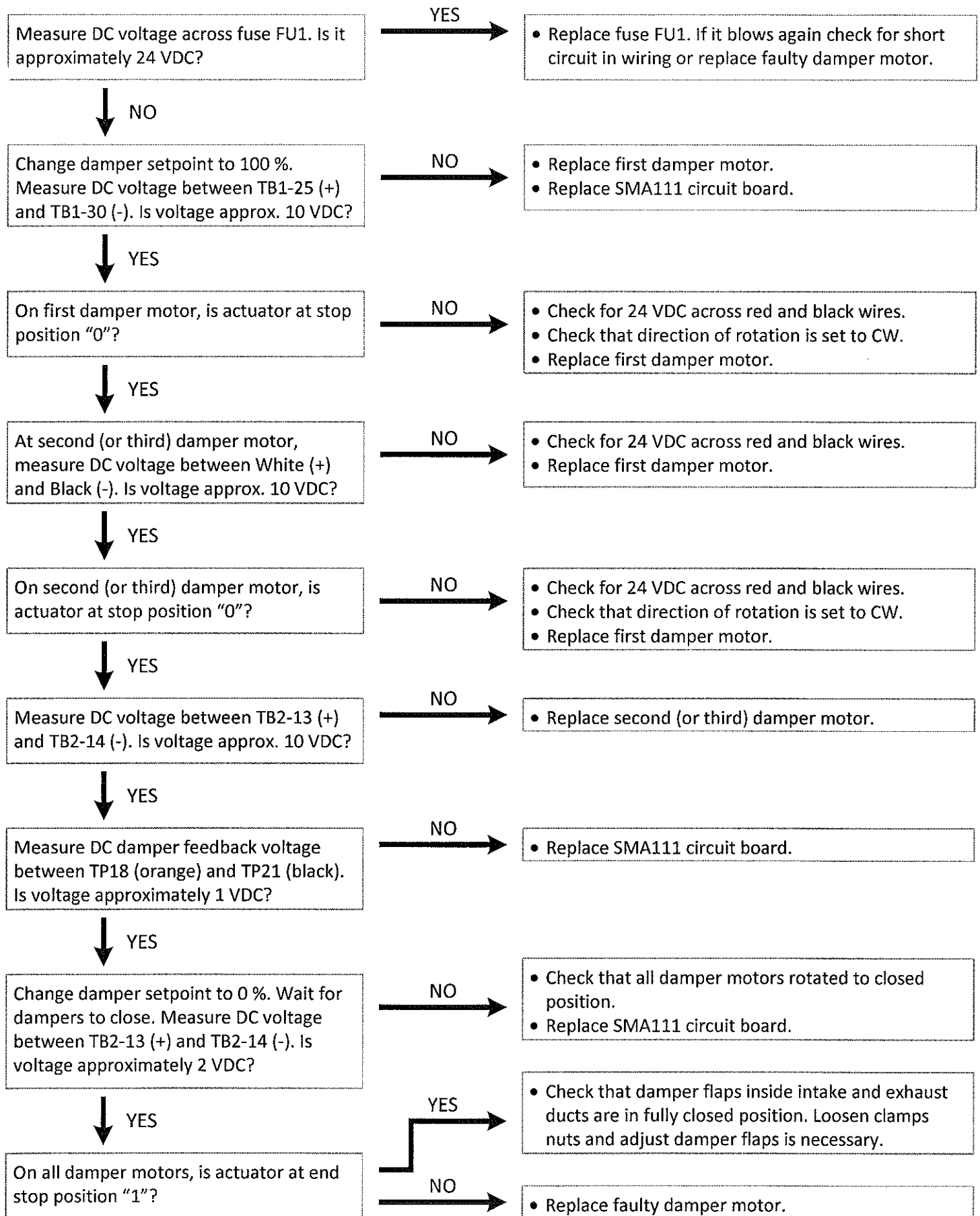
1. If there is a humidity sensor failure, humidifier does not turn on.
2. If there is a low temperature condition, humidifier does not turn on.
3. Humidifier does not turn on for five minutes after dehumidification cycle.

4. Humidifier turns on only after the day in cycle programmed in the Humidity Setup screen, unless it is disabled in profile step.
5. Hatchers do not show a high humidity alarm until actual is 15% RH above setpoint during hatching.
6. Sensor filter getting wet causes temporary sensor failure, which may take many hours to dry out and clear.
7. High humidity alarm is disabled when the damper setpoint is 0.

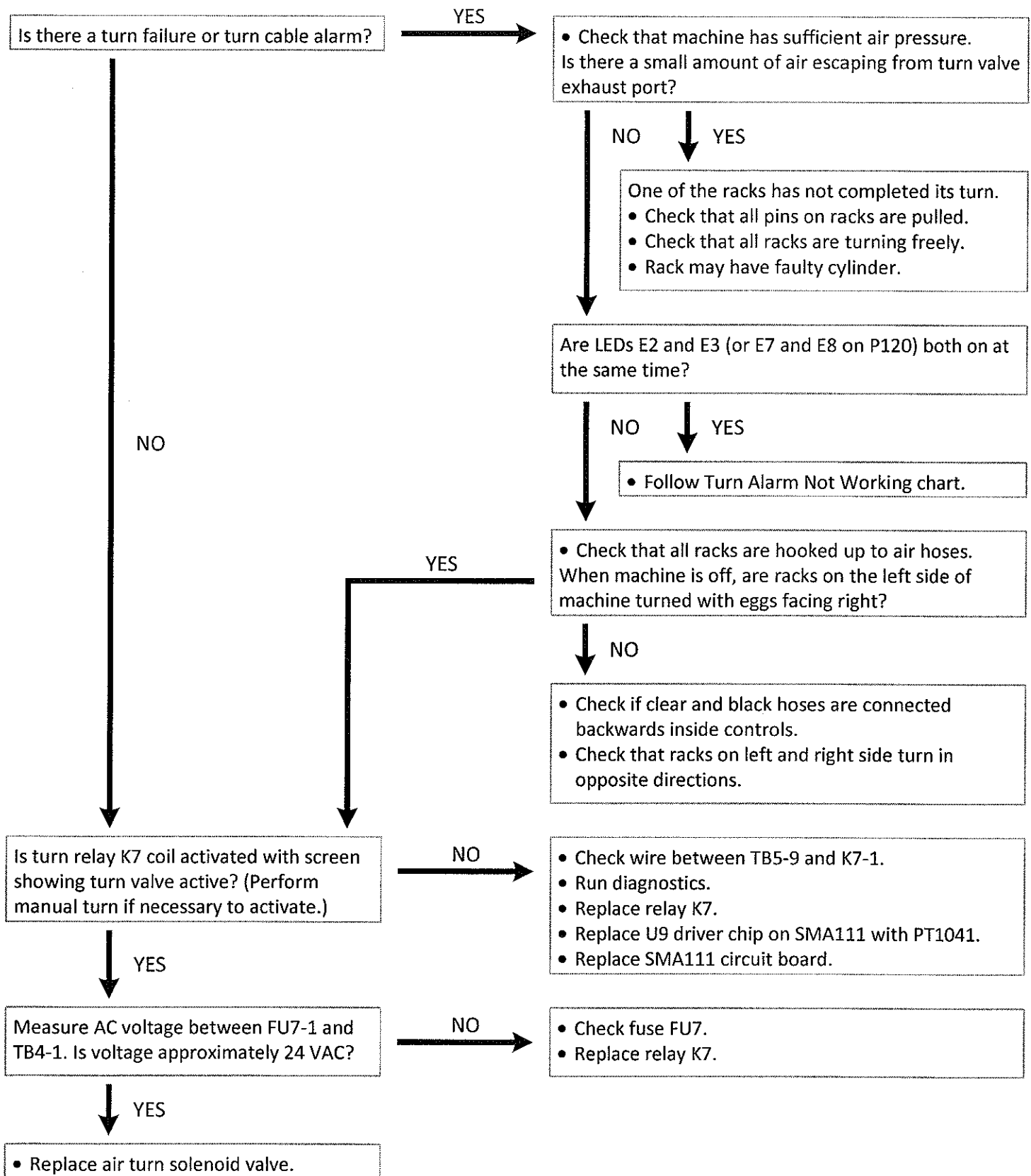
## Carbon Dioxide Sensor Not Working



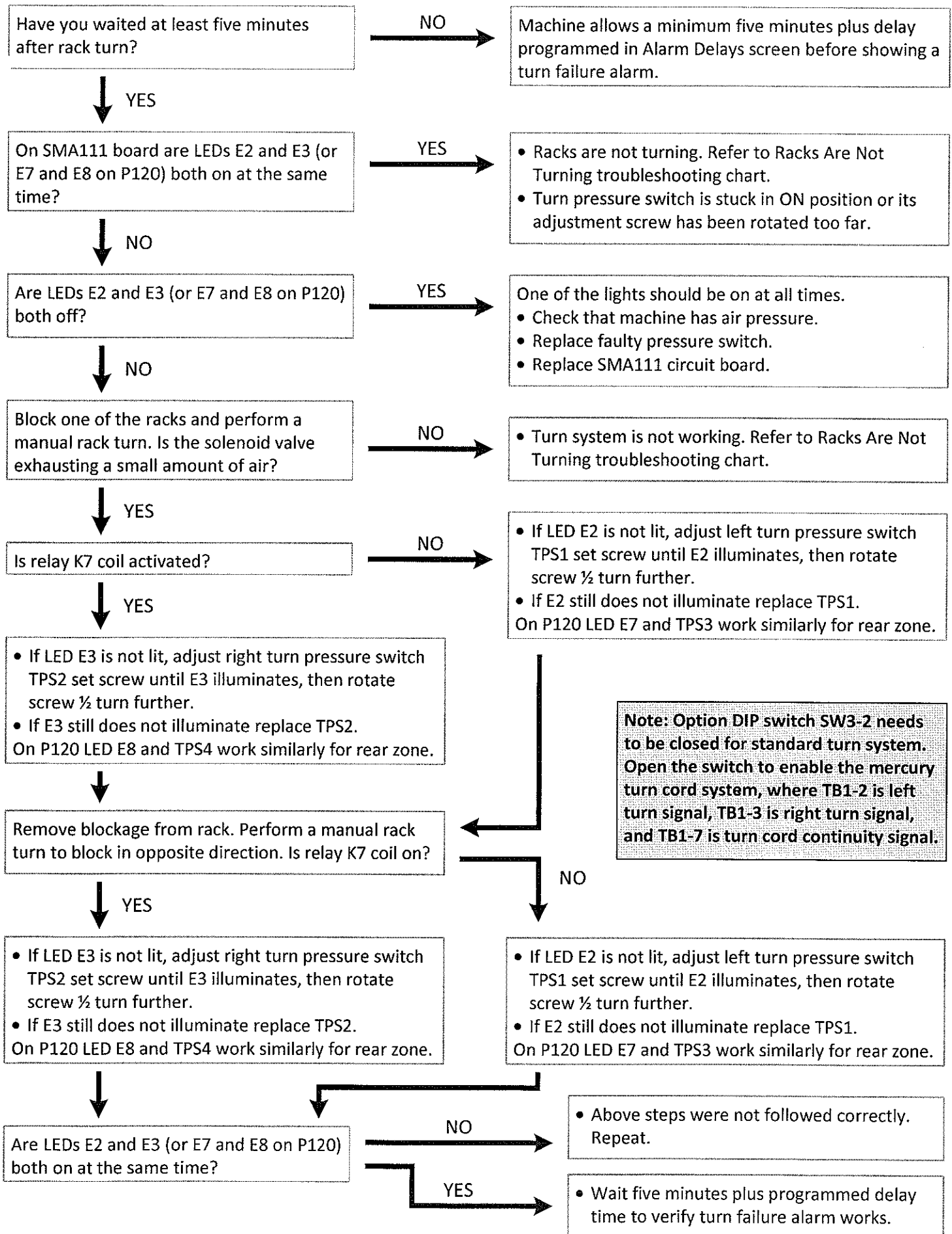
## Damper Not Working



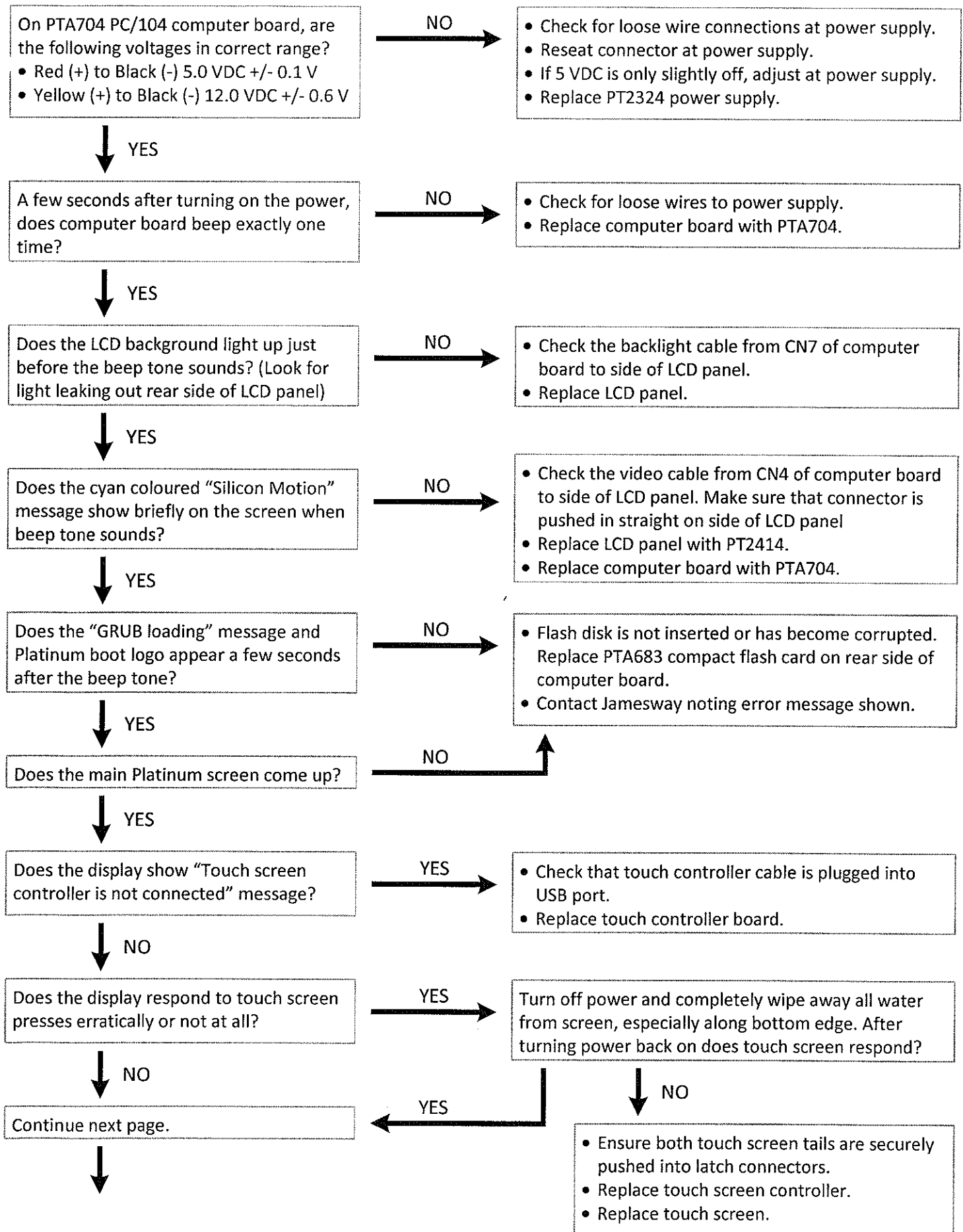
## Racks Not Turning

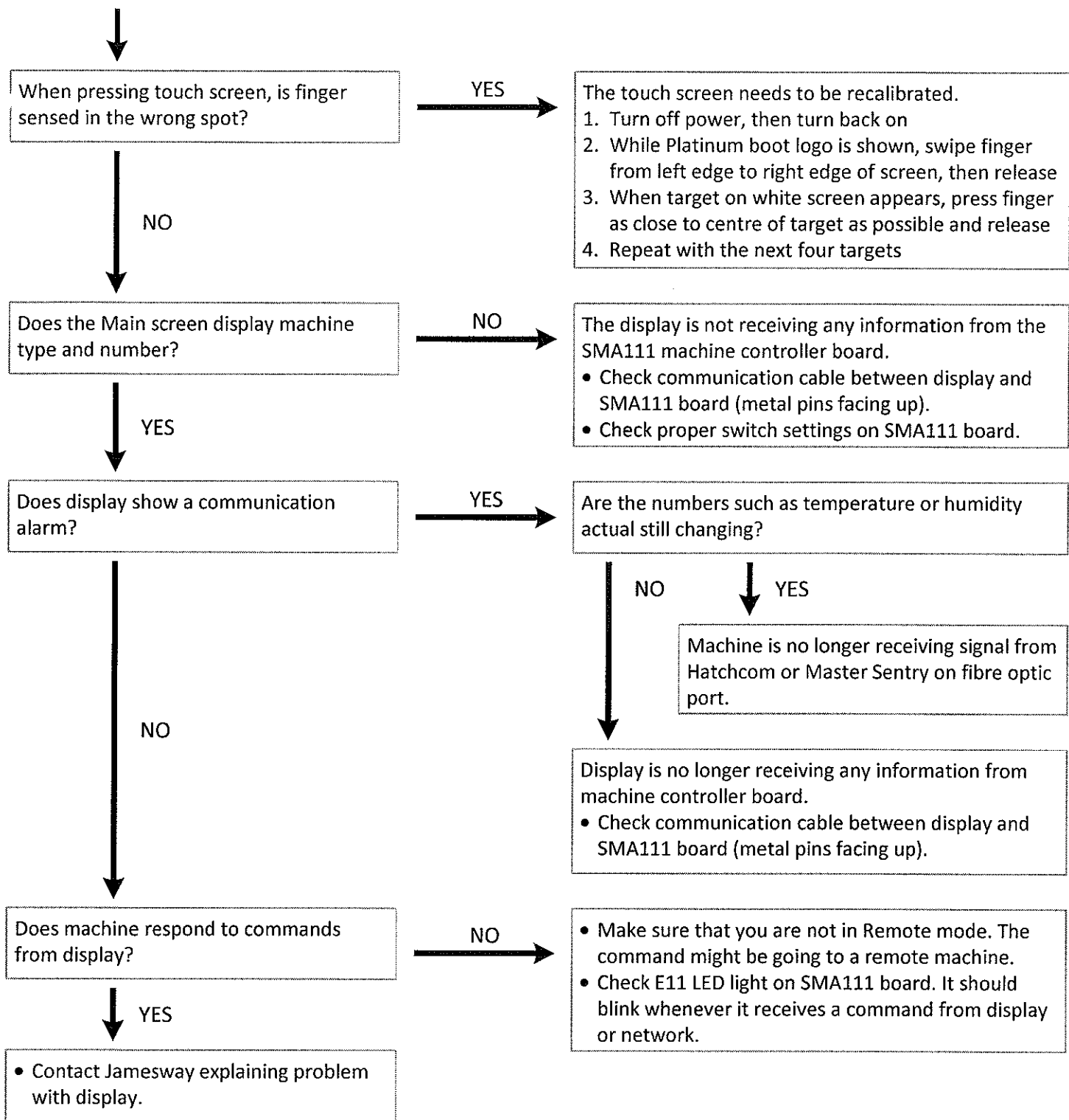


## Turn Alarm Not Working



## Display Not Working

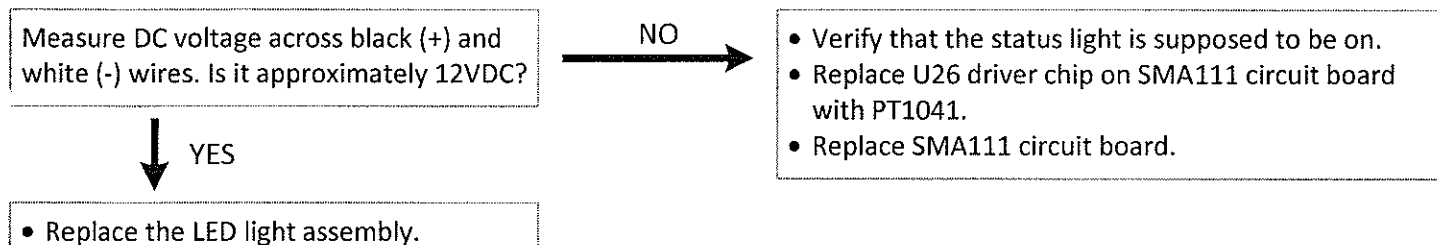




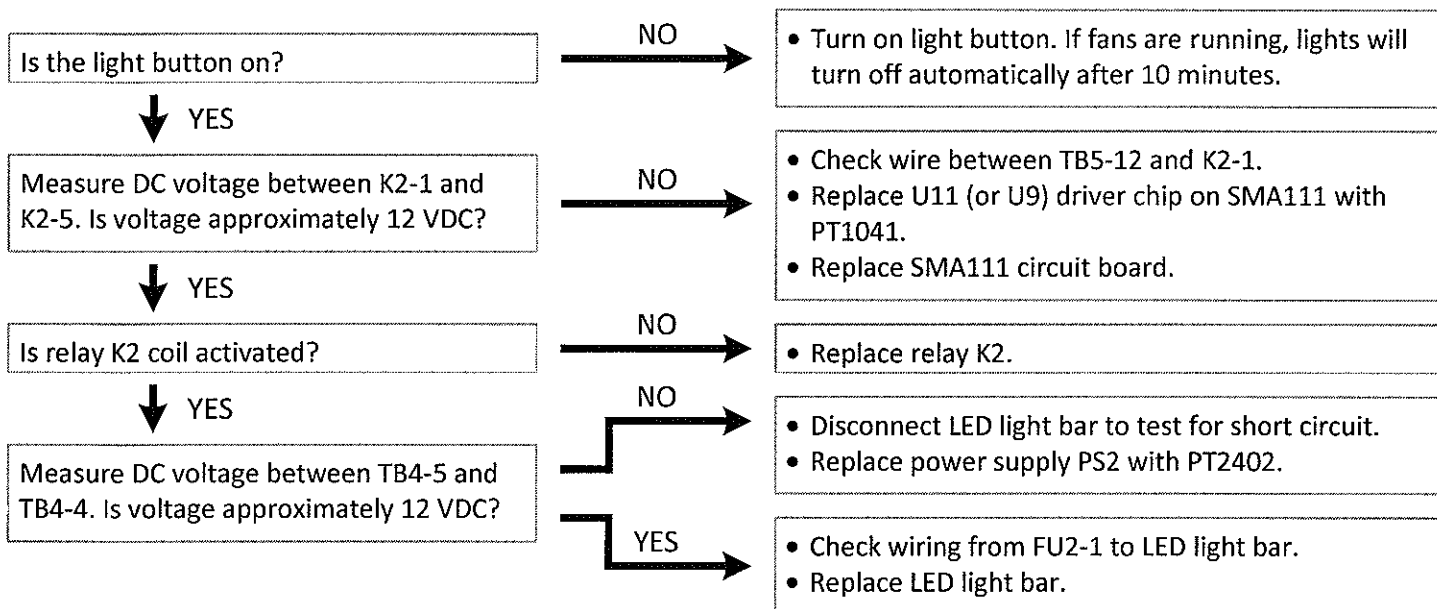
#### Notes:

1. To disconnect touch screen tails from controller, lift up the black latch. To reconnect leave the latch in released position, then carefully insert the tails, taking care that they are pushed in straight, then press down on latch to lock ribbon tail in place.
2. Fibre optic communications problems can be determined by examining LED E10 on SMA111 board. It lights up whenever a signal is received. It should blink rapidly when network is running normally. If LED is on continuously, light is entering system and disrupting all communication. Intermittent communication problems can be caused by improperly polished connector, damaged cable, or ambient light entering the system.
3. Only use touch calibration when finger is sensed in the wrong spot on screen, it will not fix failed touch screen or controller.

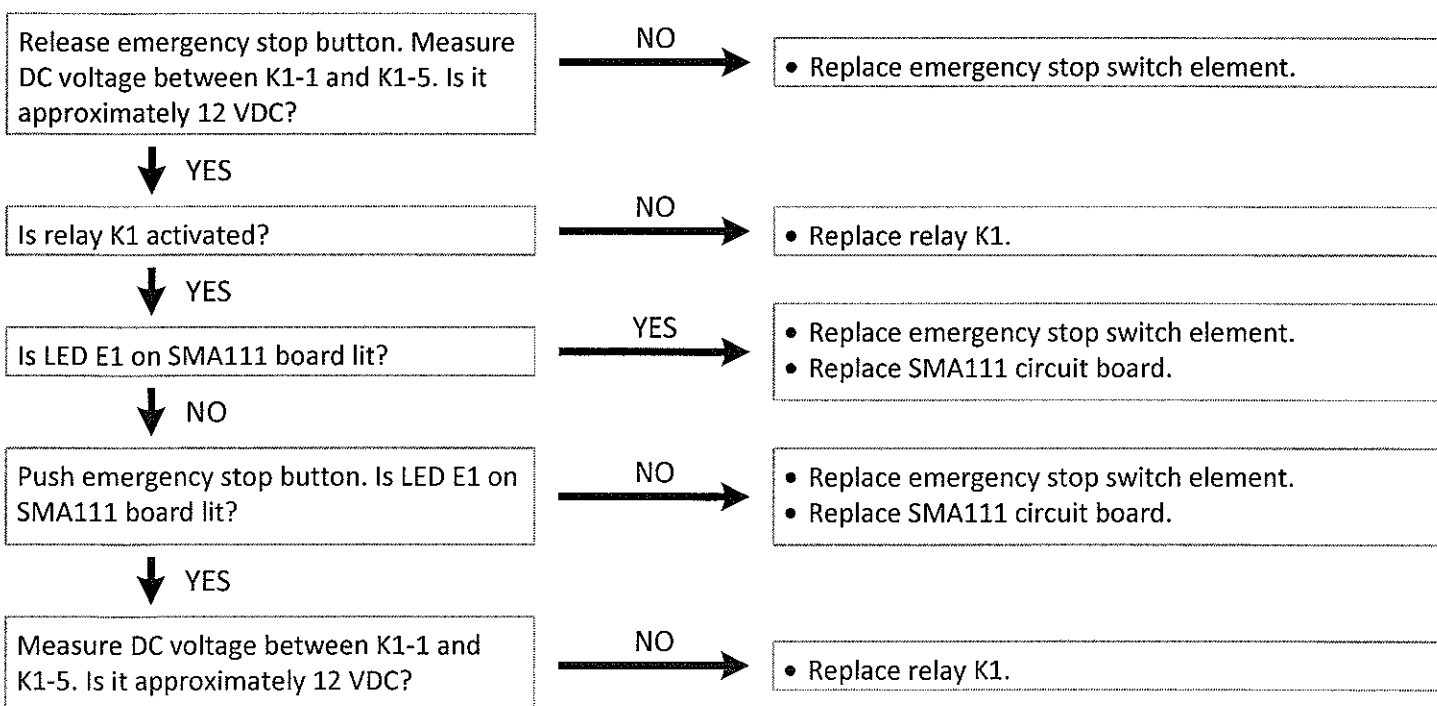
## Status Lights



## Interior Light



## Emergency Stop



## Platinum 2.0 Power Ratings and Connections (Water Heating)

### 3-PHASE 380 – 480 VAC

#### Ratings:

Voltage: 380 VAC / 480 VAC  
 Phase: 3  
 Current: 3.25 A / 2.83 A  
 Power: 1.53 kW / 1.50 kW  
 Power factor: 0.72 / 0.65

#### Line Connections:

##### 380 – 400 VAC

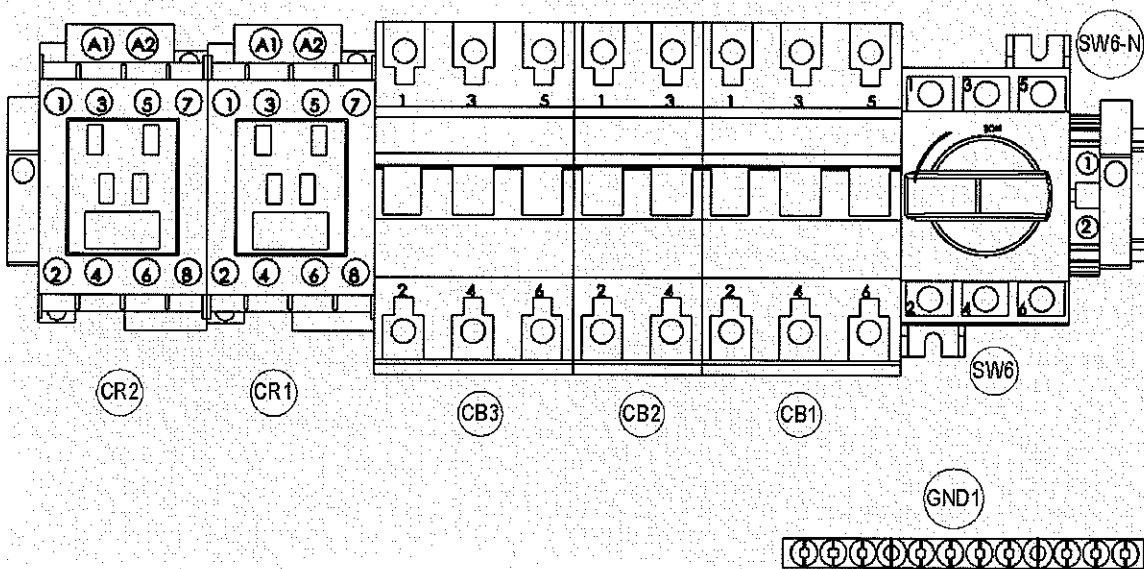
Phase 1: SW6-1  
 Phase 2: SW6-3  
 Phase 3: SW6-5  
 Neutral: SW6-N1  
 Ground: GND1

##### 401 – 480 VAC

Phase 1: SW6-1  
 Phase 2: SW6-3  
 Phase 3: SW6-5  
 Neutral: Not Connected  
 Ground: GND1

Leave white wire on SW6-N2

Move white wire from SW6-N2 to SW6-6



#### Transformer Jumpers on T1 and T2:

380 – 400 VAC

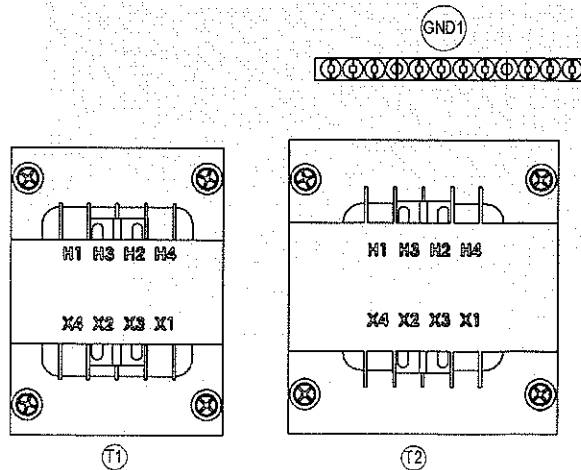
Bridge H1 to H3

Bridge H2 to H4

401 – 480 VAC

Bridge H2 to H3

Bridges supplied in parts bag



### **3-PHASE 200 – 230 VAC**

#### **Ratings:**

Voltage: 200 - 230 VAC  
Phase: 3  
Current: 7.42 A  
Power: 1.60 kW  
Power factor: 0.60

#### **Line Connections:**

Phase 1: SW6-1  
Phase 2: SW6-3  
Phase 3: SW6-5  
Neutral: Not Connected  
Ground: GND1

Move white wire from SW6-N2 to SW6-6

### **1-PHASE 200 – 230 VAC**

#### **Ratings:**

Voltage: 200 - 230 VAC  
Phase: 1  
Current: 13.2 A  
Power: 1.62 kW  
Power factor: 0.60

#### **Line Connections:**

Phase: SW6-1  
Neutral: SW6-5  
Ground: GND1

Move white wire from SW6-N2 to SW6-6

