

# Network Portable Dryer Models

**Troubleshooting and  
Reference Manual**  
2002 Edition  
PNEG 1181



Pistachio Facility - California



a division of  

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THE GSI GROUP



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### Dryer Safety Instructions and Information

Thank you for choosing a GSI Network Portable Grain Dryer. It is designed to provide excellent performance and service for many years.

This manual refers to the troubleshooting of the Network Dryer models. Different models are available for liquid propane or natural gas fuel supply, with either single phase 230 volt, or three phase 230, 460, 575 volt electrical power. (Also 380 volt 50Hz).

The GSI Group, Inc. recommends contacting your local power company, and having a representative survey your installation so the wiring is compatible with your system and adequate power is supplied



The principal concern of the GSI Group, Inc. ("GSI") is your safety and the safety of others associated with grain drying equipment. This manual is written to help you understand safe operating procedures and some of the problems that maybe encountered by the operator or other personnel.

As owner and/or operator, it is your responsibility to know what requirements, hazards and precautions exist, and to inform all personnel associated with the equipment, or who are in the dryer area. Avoid any alterations to the equipment. Such alterations may produce a very dangerous situation, where serious injury or death may occur.



**WARNING! BE ALERT!**  
Personnel operating, working or servicing portable dryers should read this manual. Failure to read this manual and its safety instructions is a misuse of the equipment.

### Safety Alert Symbol

The symbol shown is used to call your attention to instructions concerning your personal safety. Watch for this symbol; it points out important safety precautions. It means "ATTENTION", "WARNING", "CAUTION", and "DANGER". Read the message and be cautious to the possibility of personal injury or death.

Safety decals should be read and understood by all people in and around the dryer area. If the following safety decals are not displayed on your dryer, or if they are damaged, contact Grain Systems, Inc. for replacement.



**A CAREFUL OPERATOR  
IS THE BEST INSURANCE  
AGAINST AN ACCIDENT**



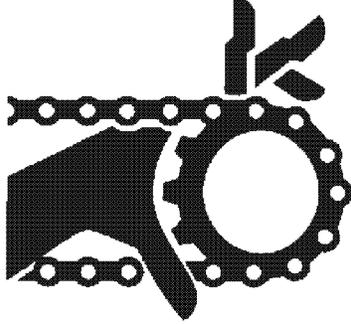
**⚠ DANGER!**



Auto equipment can start at anytime. Do not enter until electric power is locked in off position. Failure to do so will result in serious injury or death.

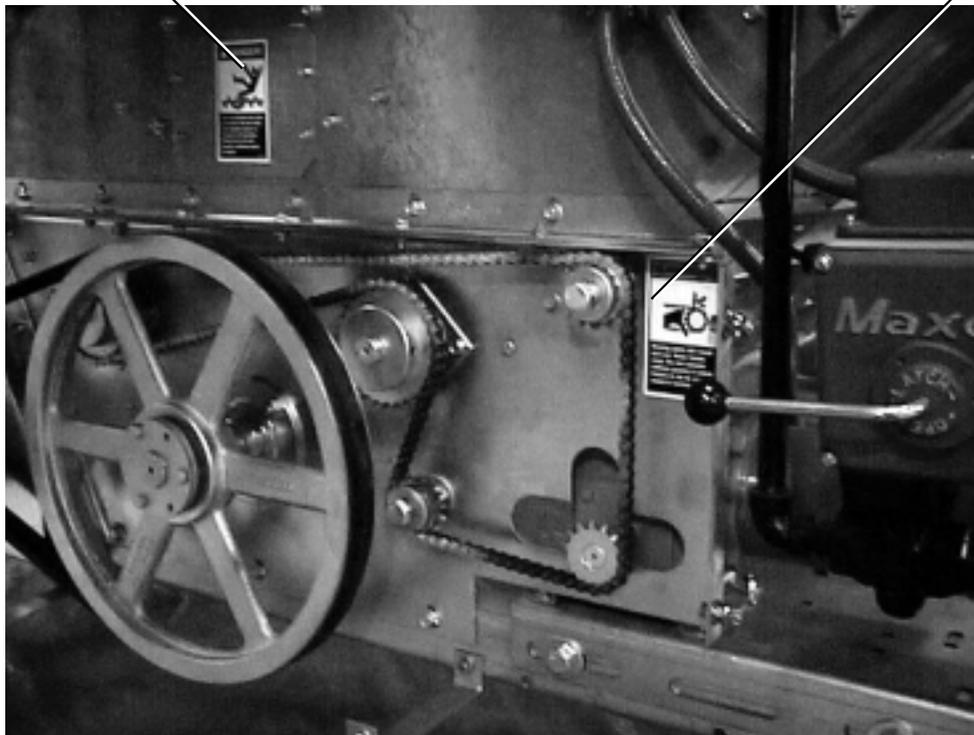
DC-974

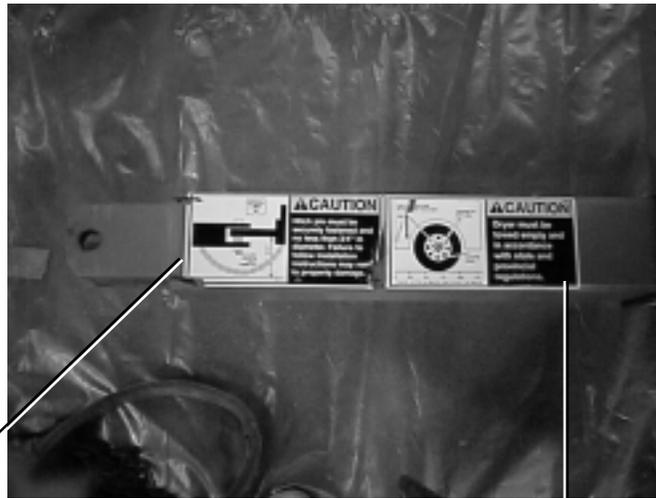
**⚠ WARNING!**



Moving parts can crush and cut. Keep hands clear. Do not operate without guards in place. Failure to do so could result in serious injury.

DC-972





**SPEED LIMIT 45**

**CAUTION**

Hitch pin must be securely fastened and no less than 3/4" in diameter. Failure to follow installation instructions may result in property damage.

3/4" MINIMUM BOLT DIAMETER

16-17"

DC-388

**CAUTION**

HUB TEMPERATURE NO GREATER THAN 150°F

150°

TIGHTEN TO 90FT-LBS.

55-60 PSI COLD

0 50 100 150 200 250

CHECK AFTER 50 MILES AND EVERY 200 MILES

DC-1249

**READ THESE INSTRUCTIONS  
BEFORE OPERATION AND SERVICE  
SAVE FOR FUTURE REFERENCE**

1. Read and understand the operating manual before trying to operate the dryer.
2. Power supply should be OFF for service of electrical components. Use CAUTION in checking voltage or other procedures requiring power to be ON.
3. Check for gas leaks at all gas pipe connections. If any leaks are detected, do not operate the dryer. Shut down and repair before further operation.
4. Never attempt to operate the dryer by jumping or otherwise bypassing any safety devices on the unit.
5. Set pressure regulator to avoid excessive gas pressure applied to burner during ignition and when burner is in operation. Do not exceed maximum recommended drying temperature.
6. Keep the dryer clean. Do not allow fine material to accumulate in the plenum or drying chamber.
7. Use CAUTION in working around high speed fans, gas burners, augers and auxiliary conveyors which START AUTOMATICALLY.
8. Do not operate in any area where combustible material will be drawn into the fan.
9. Before attempting to remove and reinstall any propeller, make certain to read the recommended procedure listed within the servicing section of the manual.
10. Clean grain is easier to dry. Fine material increases resistance to airflow and requires removal of extra moisture.

**This product is intended for the use of grain handling only. Any other use is considered a misuse of the product.**

**Some edges of the product components can be sharp. It is recommended that each component of this product be examined to determine if there are any safety considerations to be taken. Any and all necessary personal protective equipment should be worn at all times when handling, assembling, installing and operation of the product and/or components.**

**Guards are removed for illustration purpose only. All guards must be in place before/during operation.**

**Use Caution in the  
Operation of this  
Equipment**

The design and manufacture of this dryer is directed toward operator safety. However, the very nature of a grain dryer having a gas burner, high voltage electrical equipment and high speed rotating parts, does present a hazard to personnel, which can not be completely safeguarded against, without interfering with efficient operation and reasonable access to components.

Use extreme caution in working around high speed fans, gas-fired heaters, augers and auxiliary conveyors, which may start without warning when the dryer is operating on automatic control.

---

**KEEP THE DRYER CLEAN  
DO NOT ALLOW FINE  
MATERIAL TO ACCUMULATE  
IN THE PLENUM CHAMBER  
OR SURROUNDING THE  
OUTSIDE OF THE DRYER**

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Continued safe, dependable operation of automatic equipment depends, to a great degree, upon the owner. For a safe and dependable drying system, follow the recommendations within your owners manual, and make it a practice to regularly inspect the operation of the unit for any developing problems or unsafe conditions.

Take special note of the safety precautions listed at left before attempting to operate the dryer.

### Special Network Dryer Setup Screens

Pressing and **HOLDING** the "Modify" button *while the power is off*, turn on the control power for the dryer, then **RELEASE** the modify button, you will be able to access certain dryer features that rarely need to be changed.

Pressing **ENTER** *after releasing the Modify button* will allow you to view and/or change the special setup screens in the following sequential order:

Option	Select
1. Turn Meter Rolls Off	<b>No</b> ----Yes
2. Air Switch Testing	<b>Yes</b> ----No
3. Meter Roll Reverse	<b>No</b> ----Yes
A. Reverse Time	<b>5 Minutes</b> , but is adjustable
B. Forward Time	<b>55 Minutes</b> , but is adjustable
4. Select Unload Method	<b>2 Speed</b> ----3 Speed
5. Select Dryer Address	<b>01</b> ----Used for Watchdog Only
6. Attempt to Refill	<b>No</b> ----Yes
7. Enter Model Number	Dryer Model Number
8. Temperature Scale	<b>Fahrenheit</b> ----Celsius
9. Change Burner Setup	Enter to Change----Reset to Bypass
A. High/Low Fire or On/Off Fire	<b>High/Low Fire</b> ----On/Off Fire
B. Active or Inactive	<b>Active</b> ----Inactive
10. Set Time and Date	Time and Date
11. Load System	<b>End Fill</b> ----Center Fill----Dual Fill
12. Unit of Measure	<b>Bushels</b> ----Metric Tons
13. Change Burner Differential	Enter to Change----Reset to Bypass
A. Set Burner Differential in Degrees	Default is <b>3 Degrees in Hi/Low</b> and <b>1 Degree in On/Off Fire</b>

**Selections in bold are the default settings**

**Series 2000 Fan & Heater Dipswitch Settings:**

**NOTE!**

**These are set at the factory.**

**Need to set them when changing out a board.**

- Fan 1 #1 Off / All Others On
- Fan 2 #2 Off / All Others On
- Fan 3 #1 & #2 Off / All Others On
- Fan 4 #3 Off / All Others On
- Fan 5 #1 & #3 Off / All Others On
- Fan 6 #2 & #3 Off / All Others On

## Network Dryer Options Explanation

### Turn Meter Rolls Off

This option does not actually turn off the metering rolls of the dryer. What this option is for is the monitoring of the metering rolls by the metering roll monitor board. On the rear of the dryer is a sensor that sends information to the computer. The computer calculates this information and uses it to display any data connected to the metering rolls. One of things it does is monitor that the metering rolls are actually turning when the unload is running. If the meter rolls do show some movement in a 2-minute period of time the computer will shut down the dryer with a meter roll drive system failure. Also calculated are the rpm, total bushels, and bushel per hour of the grain flowing across the meter rolls. If for some reason the sensor should fail the dryer will shutdown with a meter roll drive failure. If you restart the dryer and the meter rolls work properly then you can be confident that the drive system itself is okay, but the problem is probably in the meter roll sensor board itself. By changing the option to yes you are taking the sensor board out of the circuit. The dryer will operate normally, but you will not have any meter roll information displayed on the screen. When a new board arrives you simply install it and turn this option back to no.

### Air Switch Testing

The air switch testing option has two purposes. One is to allow the factory and dealers to start up a dryer for testing or early season checkouts. By setting this option to "NO" the dryer will run without having to prove airflow. Use this option until a new switch arrives, or turn it off to check out proper operation of a dryer before season is started. When a fan starts it has 20 seconds to develop air pressure in the plenum of the dryer. If pressure is developed the dryer operate normally, but if no pressure is developed the dryer will shutdown and give a loss of airflow shutdown indication on the computer screen. The whole reason of this option is to allow a customer or dealer to run the fan on the dryer without grain inside, or keep running if a switch becomes defective. The option will reset itself every time there is a dryer power loss or the dryer control power is shut off. When restarted the computer will look for the air switch again.

### Meter Roll Reverse

Meter roll reverse is just what the description says it is. If this option is set to yes the meter rolls will actually run the normal direction and every so often they will come to a slow stop, then reverse for a short period of time. The option is something that you would not use on a daily basis. This is an option that you may use during years with extremely trashy grain conditions. The amount of time that the meter rolls run forward and in reverse is adjustable.

### Select Unload Method

The select unload method is set to a default of 2 speed. The 2 speed options makes the dryer run the same that it has for the last 10 years. Depending on the temperature of the grain the meter rolls will speed up and slow down to keep the grain moisture at a constant at the discharge of the dryer. We are currently working on a 3-speed option. This has not been added to the software as of yet, but possibly in the future. For right now this option should always stay on 2-speed.

### Select Dryer Address

This is an option that the majority of dryer owners will never use. This sets an address for the dryer when a customer has more than one dryer, and wants the GSI Watchdog program to monitor all the dryers. Each dryer will need an address so it can be identified

## Network Dryer Options Explanation (continued)

### Select Dryer Address (continued)

by the watchdog program. Currently we have as many as ten dryers on one watchdog system. The system can monitor and log dryer functions whenever any of the dryers are running.

### Attempt to Refill

If you set this option to yes, the dryer monitors the "Out of Grain" timer. When the dryer runs low on grain the "Out of Grain" timer runs down. Then the dryer will go into a hold mode instead of a shutdown. The hold mode is as follows: the unload auger will shutdown, the burner will turn off. The fan and the load auger will continue to run. If at any time the dryer fills back up with grain the burner will turn back on and the unload auger will start back up.

### Dyer Model Number

This is the actual model number of the dryer. It is extremely important that this model number be correct. This model number contains a lot of valuable information about the dryer. The number of fans, number of modules, the length of the dryer are all bits of data that the computer must have to make the dryer operate properly. If any of this information is set incorrectly the dryer will not operate properly, or possibly not at all.

### Temperature Scale

This option allows the user to toggle the temperature scale from Fahrenheit to Celsius.

### Change Burner Set-Up

This option controls the operation of each fan/heater unit on the dryer. First of all it allows a user to have any burner (or combination of burners) running either High/Low fire or On/Off fire. Most dryers will run High/Low but a user may elect to run On/Off fire in some conditions. There is a second option to make the fan/heater active or inactive. This allows you keep the dryer running if you have a problem with a particular fan/heater. When a fan/heater is active the dryer operates normally. By making it inactive the fan/heater is removed from the dryer as far as programming goes. The remainder of the dryer will operate normally, and the problem fan/heater will be removed from the programming.

### Set Time & Date

Here is where the time and date stored in the software is adjusted.

### Select Load System

The GSI dryer has the ability to run more than one load system. For 99% of all dryers sold the end fill option is what is used. We also have center fill and dual fill in case they are needed.

### Unit of Measure

This is similar to the temperature scale. If the dryer is to be used in a foreign country they may elect to have all grain calculations in metric tons instead of bushels.

### Change Burner Differential

The burner differential is the number of degrees that a fan/heater's temperature must drop before it will cycle. Proper burner cycling means 3 to 4 times a minute the fan/heater should cycle from high to low pressure. For this to happen the burner must first reach the set point. The set point is the temperature that you want the plenum to run at (usually

**Change Burner Differential (continued)**

around 220 degrees). When this temperature is reached the burner will instantly shut off one solenoid and all the gas is diverted through the low-pressure ball valve and the low-pressure solenoid. You must turn down the low-pressure ball valve far enough to allow the temperature to start to fall. Whenever the temperature falls the number of degrees set by the differential the burner will cycle back to high. Keep in mind the burner should cycle 3 to 4 times a minute.

## Programming Instructions Using Palm Pilot

On the Network Dryer there are three boards to program, Display Board ( lower control box ), Input/Output Board ( upper control box ), and Heater Interface Board ( by fan/can housing ).

1. Turn the control power on the dryer to the off position.
2. Locate the programming jack on each individual board:
  - Display Board (lower control panel) - (DB-9) located at bottom of board.
  - Input/Output Board (upper panel) - (DB-9) located at bottom of board.
  - Heater Interface Board (by fan can housing) - (J2 Connector) located on back of board.
3. If you are programming the I/O Board or Display Board connect the DB-9 connector from the Palm Pilot to the board.
4. If you are programming the Heater Interface Board connect the J2 connector on the series 2000 cable to the J2 connector on the back of the board.
5. Unplug the network connection (yellow and blue wires) to the board you are programming.
6. On the Palm Pilot select the program for that particular board and tap on it.
7. Turn the dryer control power back on.
8. The programming process should begin, it will erase the present program and start the new program.
9. A screen will come up telling you when the transfer of software is complete.
10. When the process is complete turn dryer control power off, remove the connector from the board and plug the network wires back on to the board you are programming.
11. Turn on the dryer and the opening screens should indicate the latest version of software.

If ordering Palm Pilot from GSI there are two kits available:

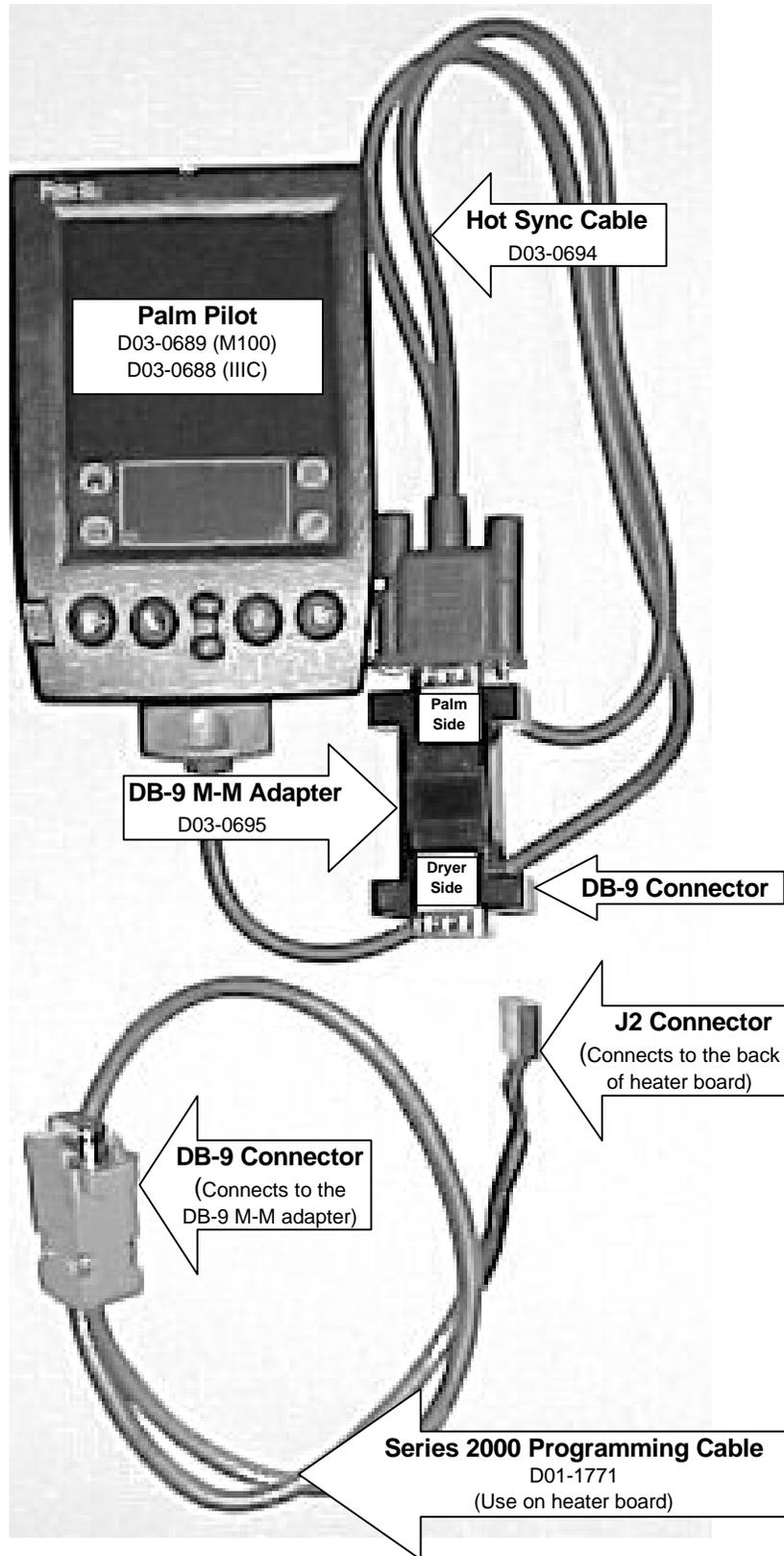
### **D03-0692 ( Palm Flash Program Kit Deluxe )**

D01-1771 Series 2000 Programming Cable  
D03-0688 Palm Pilot IIIC (color)  
D03-0694 Palm Pilot Hot Sync Cable  
D03-0695 Palm Flash 9 Pin M-M Adapter  
D03-0709 Disk, CD-Rom Palm Flash Software

### **D03-0693 ( Palm Flash Program Kit Economy )**

D01-1771 Series 2000 Programming Cable  
D03-0689 Palm Pilot M100 (black & white)  
D03-0695 Palm Flash 9 Pin M-M Adapter  
D03-0709 Disk, CD-Rom Palm Flash Software

**Programming Network Dryer Using Palm Pilot**

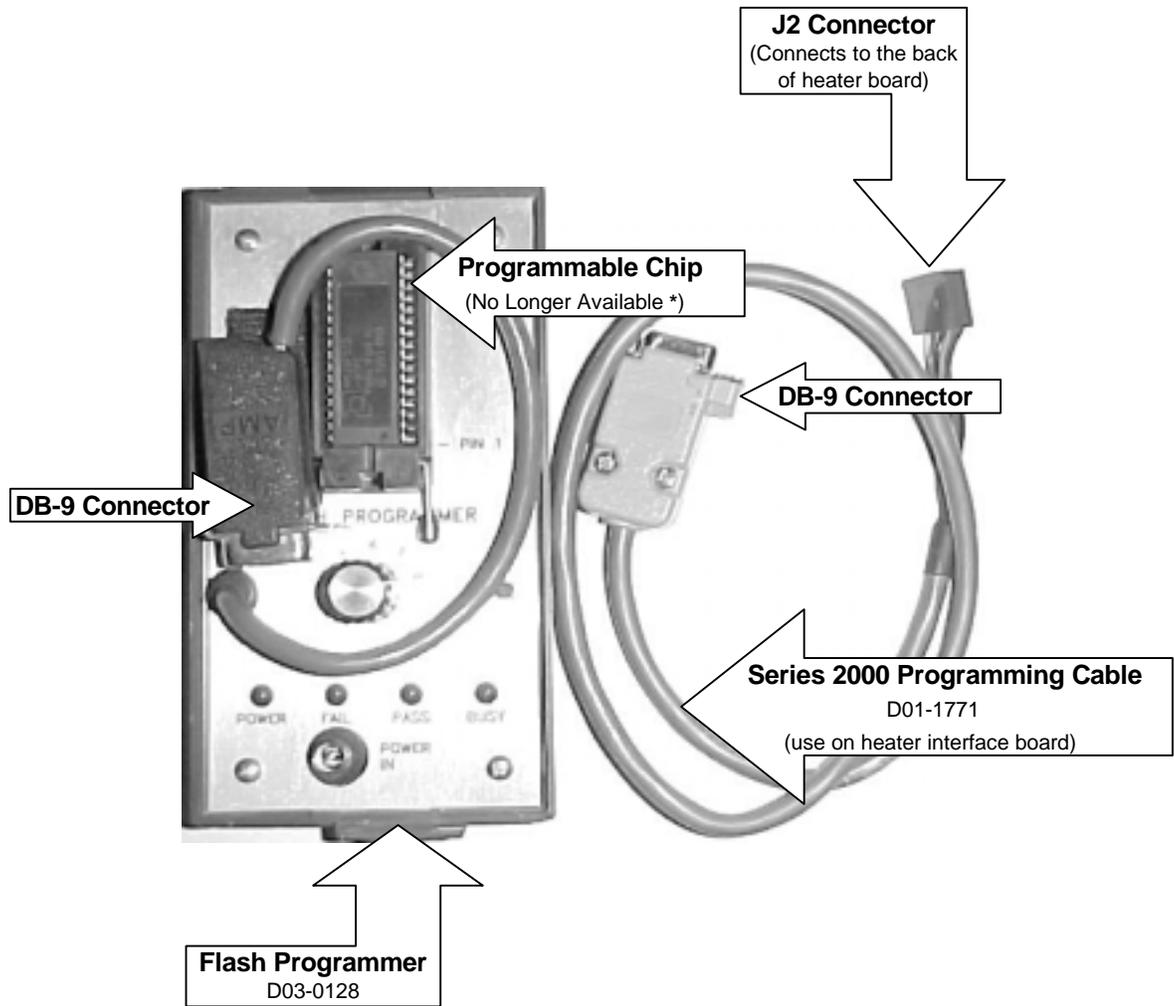


### Programming Instructions Using Flash Programmer

On the Network Dryer there are three boards to program, Display Board ( lower control box ), Input/Output Board ( upper control box ), and Heater Interface Board ( fan/can housing ). The following is needed for programming if you are using a Flash Programmer:

1. Turn the control power on the dryer to the off position.
2. Locate the programming jack on each individual board:
  - Display Board (lower control panel) - (DB-9) located at bottom of board.
  - Input/Output Board (upper panel) - (DB-9) located at bottom of board.
  - Heater Interface Board (by fan can housing) - (J2 Connector) located on back of board.
3. If you are programming the I/O Board or Display Board connect the DB-9 connector from the Flash Programmer to the board.
4. If you are programming the Heater Interface Board connect the J2 connector on the series 2000 cable to the J2 connector on the back of the board.
5. Unplug the network connection (yellow and blue wires) to the board you are programming.
6. Make sure the rotary switch on the programmer is set to position 8.
7. Turn the dryer control power back on.
8. The four lights on the programmer will come on, then three will go out leaving the power light still on.
9. Push the start button on the programmer to start the transfer of software.
10. The busy light will flash until the transfer process is complete.
11. When completed, the pass light will come on indicating a successful transfer.
12. After a successful transfer turn control power off, remove connector from the board and plug the network wires back on the board you are programming.
13. If the fail light flashes check your connection and repeat the above process.
14. Turn on the dryer and the opening screens should indicate the latest version of software.

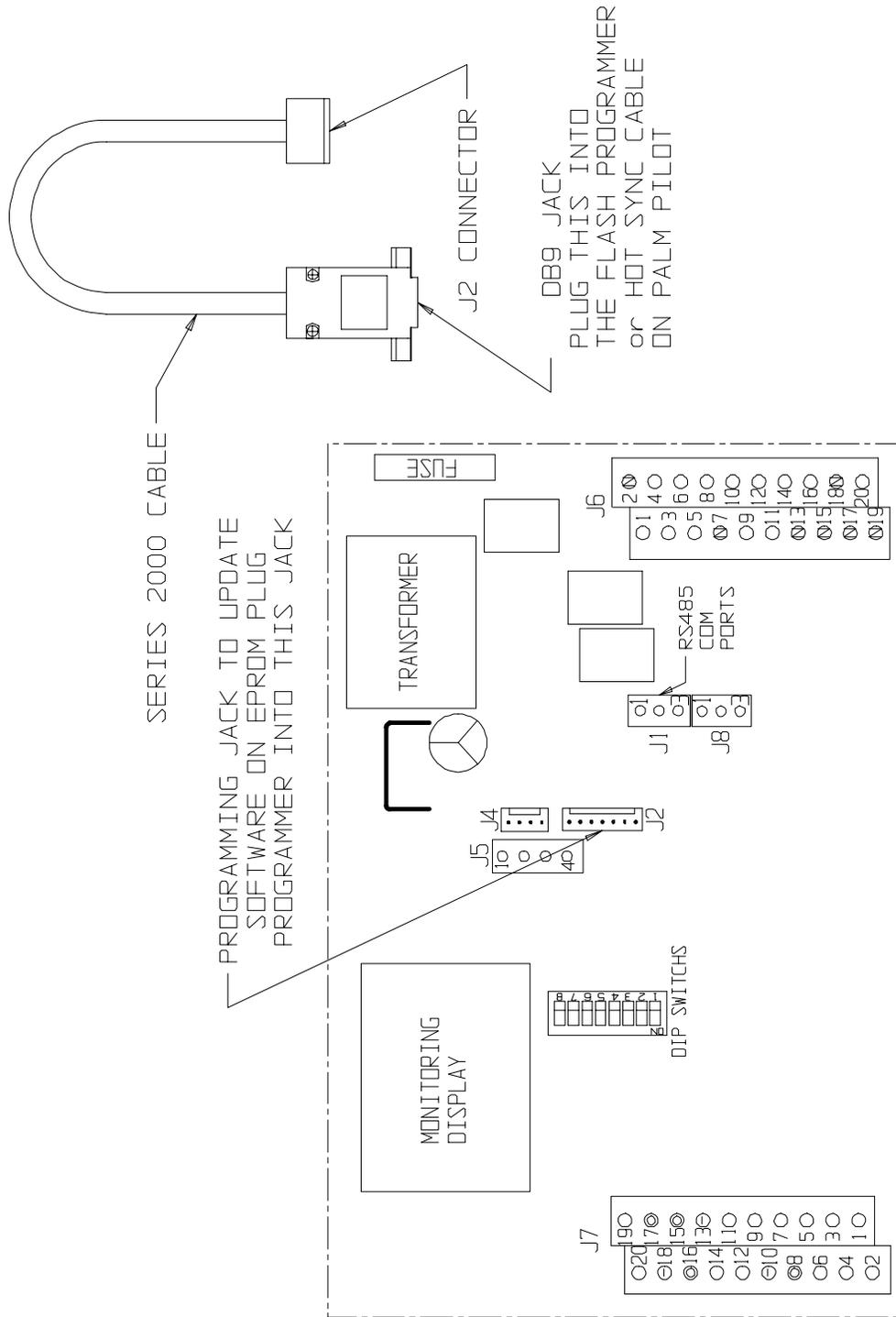
### Programming Network Dryer Using Flash Programmer



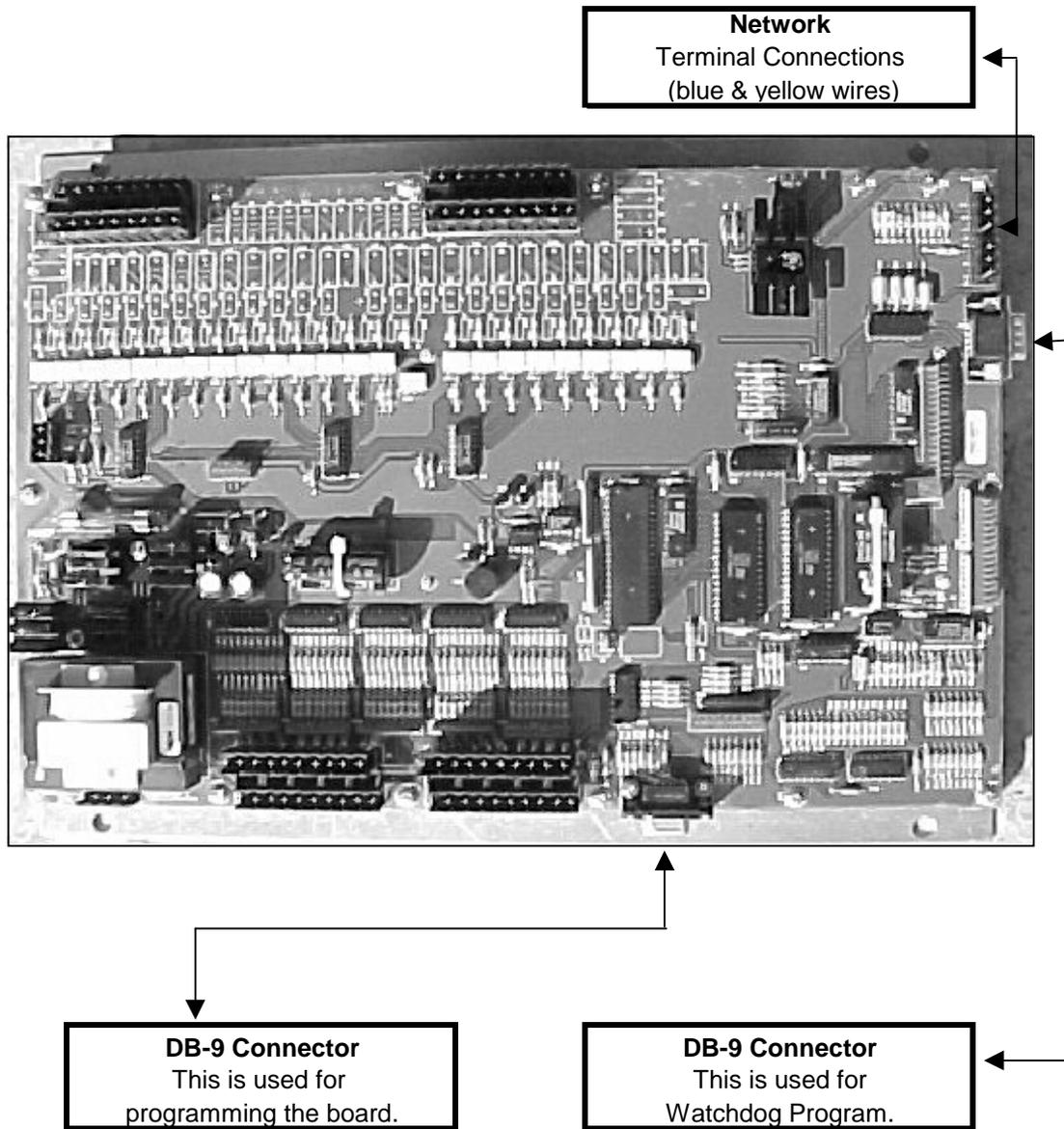
\* You can still use the Flash Programmer to program the dryer, but the programmable chip is no longer available. This is why we are encouraging you to use a Palm Pilot for programming.

### Programmer Hook Up Diagram

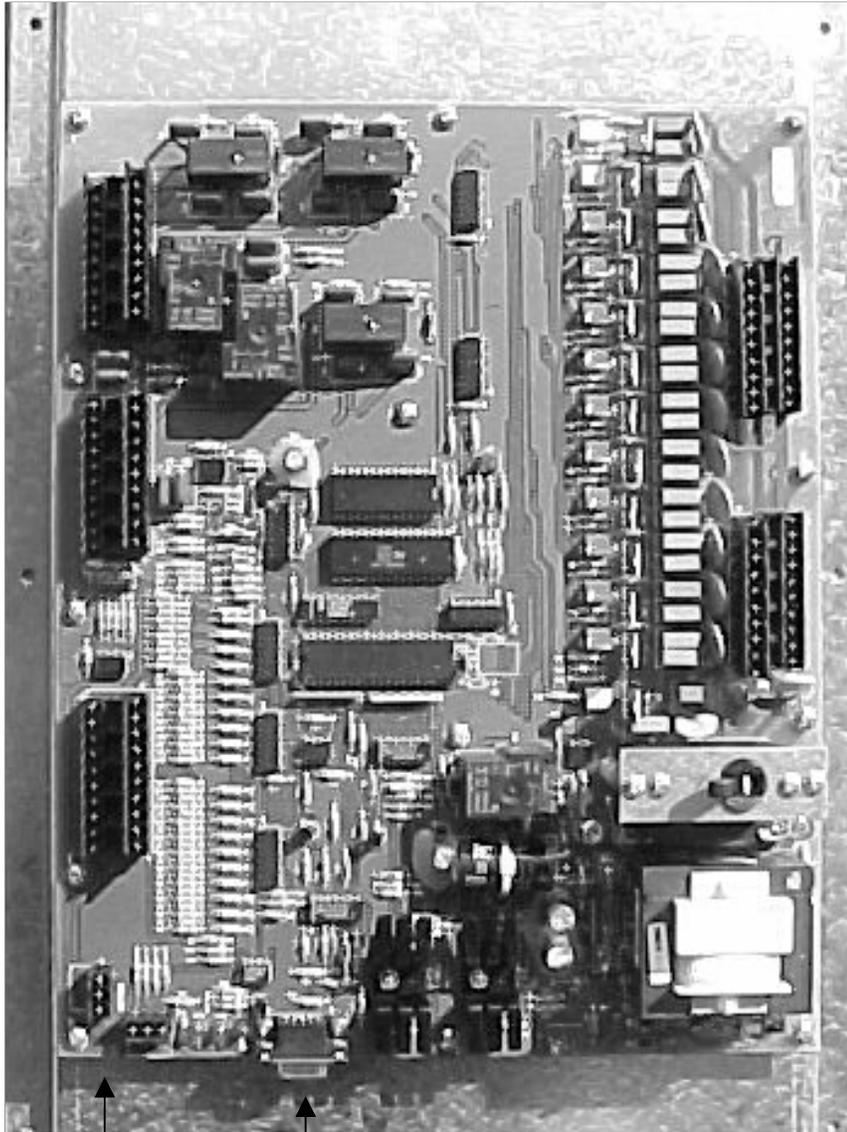
( Located in Heater Control Box )  
 ( Back of Heater Board )



**Network Display Board**  
(Located in the lower control panel)  
(Back of Board)



**Input/Output Board**  
(Located in Upper Control Panel)



**Network**  
Terminal Connections  
(blue & yellow wires)

**DB-9 Connector**  
This is used for  
programming the board.

## Possible Safety Circuit Shutdown Messages

### Viewing the Shutdown History

The shutdown history can store up to 200 shutdown warnings, when your dryer exceeds this amount, your oldest shutdown will be erased and replaced with the current shutdown warning.

To view the shutdown history (Warnings), turn the Control Power to on, wait until the time and date screen appears then press the START button. Then press the increase and decrease buttons **at the same time** while the dryer is stopped. You can view the shutdown history by pressing either the increase or decrease buttons. Press enter to exit this screen or press stop to clear your shutdown.

### Shutdown Message Listing

The following is a list of all possible shutdown messages that your network dryer can display. They are broken down with their associated controller where the error will be originating from. The message on the screen will show **WARNING** at the top followed by the error, time, date and in which fan/heater the error occurred.

### Fan x Loss of Airflow

#### FAN 1 LOSS OF AIRFLOW

The contacts in the air switch have opened due to insufficient air pressure in the plenum. The message will distinguish between which plenum caused the shutdown.

#### Hints

Verify that the fan is running and the dryer is completely full of grain.

The easiest way to tell if the air pressure switch is sensing air pressure, is to watch the blue light in the fan switch. This light should come on after the fan has reached half speed, if not you may need to adjust the air switch. To adjust it you will need a straight blade screwdriver and turn the adjusting screw on the air switch counterclockwise. This will make it more sensitive to air pressure therefore making the light come on sooner. If this does not solve this problem you will have to look at the wiring circuit of the air pressure switch. Each air pressure switch is wired to the Network Fan/Heater Interface located on each individual fan can box.

Use your voltmeter on the following terminals:

	Black Probe ( J7-10 )	DC Negative	
Red Probe ( J7-09 )	0 VDC Fan Running	Red Probe ( J7-09 )	5 VDC Fan Stopped
Red Probe ( J7-11 )	5 VDC Fan Running	Red Probe ( J7-11 )	0 VDC Fan Stopped

**If operating correctly you should have the above readings, any other reading might determine a bad switch, computer board, air pressure switch or wiring.**

If all this fails to work then remove the wires from the air pressure switch and remove the switch from the dryer. Blow into the air tube this will simulate air pressure in the plenum. The switch should have an open circuit until you blow into the switch, then it should be closed. If it fails to close try adjusting it or replace it.

#### Remember

1. Dryer must be full of grain. ( Make sure fill is keeping up with unload. )
2. Check to see if light comes on when fan is running.
3. Make sure the bulb is good. It is a 110 VAC.
4. Make adjustments on air pressure switch one quarter turn at a time.
5. Clean air pressure switch tube make sure it is not plugged.

## Possible Safety Circuit Shutdown Messages

### Air Switch x Stuck

#### **AIR SWITCH 1 STUCK**

Air pressure switch contacts have closed prior to the fan starting, indicating a freewheeling blade or improper adjustment of the air switch. The error message will show on which fan the error occurred.

### Housing x High Limit

#### **HOUSING 1 HIGH LIMIT**

This occurs when there is a overheat in the fan housing of 200 F degrees. This is a thermo disc that has opened. It is located directly on top of the individual fan housing and will have to be manually reset. The high limit is wired directly to the fan/heater interface mounted to that particular fan. If it doesn't clear after resetting and pushing the stop button then you may have to check in the fan/heater interface. The error message will show on which fan/heater the error occurred. Use your voltmeter on the following terminals:

Black probe ( J7-10 ) DC negative  
Red probe ( J7-16 ) 12 VDC output  
Red probe ( J7-02 ) 12 VDC when closed

### Grain x Overheat

#### **GRAIN 1 OVERHEAT**

This occurs when the grain temperature in one of the columns has reached 210 F degrees. The fixed temperature thermo disc has opened. This will automatically reset when it cools down. You will have to check each grain column and make sure the grain is moving down the column screen. If it doesn't clear after pushing the stop button then you may have to check in the fan/heater interface. Use your voltmeter on the following terminals:

Black probe ( J7-10 ) DC negative  
Red probe ( J7-08 ) 12 VDC output  
Red probe ( J7-05 ) 12 VDC when closed

### Plenum x Overheat

#### **PLENUM 1 OVERHEAT**

This occurs when the plenum temperature inside the plenum has reached 300 F degrees. The fixed temperature thermo disc has opened. This will automatically reset when it cools down. If it doesn't clear after pushing the stop button then you may have to check in the fan/heater interface. Use your voltmeter on the following terminals:

Black probe ( J7-10 ) DC negative  
Red probe ( J7-15 ) 12 VDC output  
Red probe ( J7-03 ) 12 VDC when closed

### Vapor x High Limit

#### **VAPOR 1 HIGH LIMIT**

The LP gas vapor temperature sensor located in the gas pipe train downstream from the vaporizer, has opened indicating that the vaporizer is running too hot and must be adjusted. This sensor is set at 200 F degrees and will automatically reset itself when cool. Try adjusting the vaporizer coil away from the burner flame. Make sure your LP tank has fuel in it. You may also try switching to on/off cycle rather than hi/low, especially on warmer days.

## Possible Safety Circuit Shutdown Messages

### VAPOR 1 HIGH LIMIT (continued)

If it doesn't clear after pushing the stop button then you may have to check in the fan/heater interface. The error message will show on which heater this condition occurred.

Use your voltmeter on the following terminals:

Black probe ( J7-10 ) DC negative

Red probe ( J7-16 ) 12 VDC output

Red probe ( J7-01 ) 12 VDC when closed

### Grain Temp Open x

#### GRAIN TEMP OPEN 1

This error indicates there is a open condition with one of the grain temperature sensors located inside the left or right grain columns. This could be a open sensor or the sensor wires could be into. These sensors are wired to a fan/heater interface, which one depends on the model of dryer. Refer to Dryer Front Panel Parts Location drawing for location of the actual sensors.

The terminals they are wired to are as follows:

Grain Temp Sensor Ground - ( J7-18 )

Grain Temp Sensor - ( J7-14 )

When testing these sensors to see if they are bad refer to the Temperature Chart ( Thermistor Temperature Sensor ) on page 43 and also Grain Sensor Testing on page 41 & 42.

### Grain Temp Short x

#### GRAIN TEMP SHORT 1

This error indicates there is a shorted condition with one of the grain temperature sensors located inside the left or right grain columns. This could be a shorted sensor or the sensor wires could be shorted together. These sensors are wired to a fan/heater interface, which one depends on the model of dryer. Refer to Dryer Front Parts Location drawing for location of the actual sensors.

The terminals they are wired to are as follows:

Grain Temp Sensor Ground - ( J7-18 )

Grain Temp Sensor - ( J7-14 )

When testing these sensors to see if they are bad refer to the Temperature Chart ( Thermistor Temperature Sensor ) on page 43 and also Grain Sensor Testing on page 41 & 42.

### Plenum Temp Open x

#### PLENUM TEMP OPEN 1

This error indicates there is a open condition with the plenum temperature sensor located inside the plenum chamber. This could be an open sensor or the sensor wires could be into.

These sensors are wired to a fan/heater interface, which one depends on number of plenums.

The error message will show in which plenum the opening occurred.

Refer to the picture of the sensor on page 44 for location and testing of the actual sensor.

The terminals they are wired to are as follows:

Plenum Temp Sensor Ground - ( J7-13 )

Plenum Temp Sensor - ( J7-12 )

## Possible Safety Circuit Shutdown Messages

### Plenum Temp Short x

#### PLENUM TEMP SHORT 1

This error indicates there is a shorted condition with the plenum temperature sensor located inside the plenum chamber. This could be an shorted sensor or the sensor wires could be shorted. These sensors are wired to a fan/heater interface, which one depends on number of plenums. The error message will show in which plenum the short occurred.

Refer to the picture of the sensor on page 44 for location and testing of the actual sensor.

The terminals they are wired to are as follows:

Plenum Temp Sensor Ground - ( J7-13 )

Plenum Temp Sensor - ( J7-12 )

### Flame Loss x

#### FLAME LOSS 1

The flame probe has failed to detect the burner flame that had already been established. This may be caused by the flame probe not directly in the flame path, loss of fuel or a problem with the burner circuit. Sometimes the loss of flame occurs while the burner cycles to low fire. You may need to adjust the gas pressure or adjust the flame probe to where it is in the flame path at all times. **CAUTION Make sure power is off while making this adjustment!!!** By removing the access door on the side of the fan/heater housing you will be able to reach the flame probe. Another good way to see if the burner is sensing flame correctly is to watch the light in the burner switch. If it starts to flicker an adjustment may need to be made on the flame probe. The flame probe wire and ground wire are connected to the fan/heater interface. The error message will show in which heater the flame loss has occurred.

The terminals they are wired to are as follows:

Flame Probe Ground - ( J7-20 )

Flame Probe Wire - ( J7-19 )

### Ignition Failure x

#### IGNITION FAILURE 1

This happens when the burner fails to light. Make sure the fuel source has been turned on, all valves are on and especially the maxon valve. The maxon valve has to be reset after every time an error has occurred or there is a loss of power. Check the wiring, igniter gap (which needs to be about 1/8" gap) and make sure you are getting a spark. The igniter is located inside the fan/heater housing and the wiring from it goes directly to the ignition transformer, which is located in the fan can box on the outside of the fan/heater housing. You can gain access to the igniter by removing the access door on the side of the fan/heater housing or entering through the rear door of the dryer. **CAUTION Make sure power is off while making this adjustment!!!** Power to the ignition transformer is received from the fan/heater interface. The error message will show in which heater the ignition failure has occurred.

The terminals the ignition transformer are wired to are as follows:

Transformer Ground - ( J6-02 ) AC Neutral

Transformer Power - ( J6-06 ) AC Power 120 VAC

### Illegal Flame x

#### ILLEGAL FLAME 1

This message is displayed when the flame detection circuit of the heater is sensing flame,

## Possible Safety Circuit Shutdown Messages

### **ILLEGAL FLAME 1 ( continued )**

when the burner is supposed to be off. Example, if you shut down the dryer and the heater continues to burn do to a solenoid stuck open. The error message will show in which heater the illegal flame has occurred.

### **Motor Overload x**

#### **MOTOR OVERLOAD 1**

This indicates that one of the fan motor thermal overloads has opened. This overload is located in the fan can box on the side of the fan/heater housing. The overload must be manually reset by pushing the red button. The message will display in which fan the overload has occurred. If the error does not clear after resetting the overload and pushing the stop button. You might have to check in the fan/heater interface located nearest that same fan can. The overload is connected to the fan/heater interface. This is the only overload that is located here, the rest are located in the upper main panel. Refer to ? Motor Overload below for more motor overload information.

Use your voltmeter on the following terminals:

Black Probe ( J7-10 ) DC negative

Red Probe ( J7-15 ) 12 VDC output

Red Probe ( J7-04 ) 12 VDC when closed

## **Input/Output Errors**

The following is a list of errors that are generated with the Input/Output board. This board is located in the upper control box of your Network Dryer.

### **? Motor Overload**

The following are messages that may show up under this shutdown. These overloads are located in the upper panel. This means that the thermal overload has opened on that motor indicated on the display. The overload has to be manually reset by pushing the red button on the overload. This indicates that this motor might be operating under an abnormal work load. This condition causes the motor to pull more current (amperage) over its rated full load amps. You may need to get an electrician to check the motors operating amperage. The name tag on the motor will indicate the full load amps (FLA) in relationship to the incoming voltage. The overload has a normally closed set of contacts. To these contacts from the I/O board is sent 12 VDC, when the overload opens so do these contacts. Below will indicate which terminals to check for that particular overload shutdown. When checking DC voltage you must have a DC negative. The DC negative is located on the I/O board where the network connections are terminated. It is a three terminal block connection, use the unused terminal for the DC negative. Refer to the I/O Board Voltage Testing diagram.

#### **LOAD MOTOR OVERLOAD**

Use your voltmeter on the following terminals:

Black probe - unused terminal where the network connections are terminated ( I/O Board )

Red probe ( J3-09 ) 12 VDC output

Red probe ( J2-11 ) 12 VDC when closed

#### **AUX LOAD OVERLOAD**

Use your voltmeter on the following terminals:

Black probe - unused terminal where the network connections are terminated ( I/O Board )

Red probe ( J3-09 ) 12 VDC output

Red probe ( J2-10 ) 12 VDC when closed

## Input/Output Errors

### UNLOAD MOTOR OVERLOAD

Use your voltmeter on the following terminals:

Black probe - unused terminal where the network connections are terminated ( I/O Board )

Red probe ( J3-09 ) 12 VDC output

Red probe ( J2-09 ) 12 VDC when closed

### AUX UNLOAD MOTOR OVERLOAD

Use your voltmeter on the following terminals:

Black probe - unused terminal where the network connections are terminated ( I/O Board )

Red probe ( J3-09 ) 12 VDC output

Red probe ( J2-12 ) 12 VDC when closed

### REAR DISCHARGE

This indicates that the lid on the grain discharge box has opened. This could be caused by the grain not being taken away fast enough or not at all. Usually checking the grain take away system will fix this problem. There is 12 VDC sent out from the I/O board to the mercury switch located under the discharge box lid and must return to the board or this error will appear.

Use your voltmeter on the following terminals:

Black probe - unused terminal where the network connections are terminated ( I/O Board )

Red probe ( J3-07 ) 12 VDC output

Red probe ( J2-05 ) 12 VDC when closed

### USER SAFETY

A shutdown has occurred do to user installed safety switch that has opened. The connectons to this are on the terminal strip located in the upper panel. Again there is 12 VDC sent out and must return or this error will appear. This input is normally jumpered when it leaves the factory on the terminal strip. If in use this has normally been installed by a electrician.

Use your voltmeter on the following terminals:

Black probe - unused terminal where the network connections are terminated ( I/O Board )

Red probe ( J3-07 ) 12 VDC output

Red probe ( J2-01 ) 12 VDC when closed

### METER ROLLS FAILED

This is usually caused by one of following, defective meter roll sensor, meter rolls not turning because of a broken drive chain, jammed meter roll, bad motor or gear case. The meter roll sensor is located in a white plastic box on the rear of the dryer. The box is mounted on the end of the meter roll drive shaft.

12 VDC is sent out to the meter roll sensor, which in turn sends a pulse signal back to the terminal strip in the upper panel. (The meter rolls must be turning in order for the pulse signal to return). After checking to make sure the meter rolls are turning, the following may need to be checked.

Refer to the Network Dryer Meter Roll Sensor Rearview diagram in your manual.

Use your voltmeter on the following terminals:

Black probe - ( J3-04 ) 12 VDC negative

Red probe ( J3-07 ) 12 VDC output

Red probe ( J3-03 ) meter roll return (If you aren't able to read a pulse signal with your meter.

Set your meter to read DC voltage and you should be able to read a varying DC voltage. Somewhere between 0 VDC and 12 VDC).

## Input/Output Errors

### OUT OF GRAIN

The out of grain timer has timed out according to the time set on the out of grain timer. The timer is reset by the mercury switch located on top of the dryer in a white plastic box. This is connected to a paddle which is moved by grain as the dryer fills up. The shutdown usually occurs when the loading equipment is having trouble keeping up with the output of the dryer or the wet supply has run out of grain. You may lengthen the amount of time, but remember the top hopper of the dryer should always have grain in it. If any of the side screens are opening up at anytime, then you are losing heat along with efficiency of the dryer. So it is necessary for the fill equipment to be large enough to handle the capacity of the dryer. Something to remember is that the out of grain timer is only in operation when the load switch is in the auto position.

Black probe - unused terminal where the network connections are terminated ( I/O Board )

Red probe ( J3-07 ) 12 VDC output

Red probe ( J2-01 ) 12 VDC when the dryer is calling for grain

Red probe ( J2-01 ) 0 VDC when the dryer is full

## Master Display Generated Errors

The following is a list of errors that come from the Master Display Board located in the lower control box.

### CONT-BATCH MODE CHNG

This occurs when you switch the dryer mode switch from the Continuous Flow to the Staged Batch position while the dryer is running in the Continuous Flow Mode. To avoid this shutdown, stop the dryer before switching modes. Press the stop button to clear.

### NETWORK FAILED: FH1

This happens when a fan/heater board (by fan can housing) has lost its communications link with input/output board (upper control panel) and the master display board (lower control panel). Check the blue and yellow wires marked N1-01 and N1-02 on a 3 terminal plug to make sure they are plugged in tightly. Also need to check and make sure the blue and yellow wires have continuity between each other (blue to blue and yellow to yellow). The error displayed will show which fan/heater has lost communication. Example FH1 - FH2 - FH3 and so on. Press stop to clear.

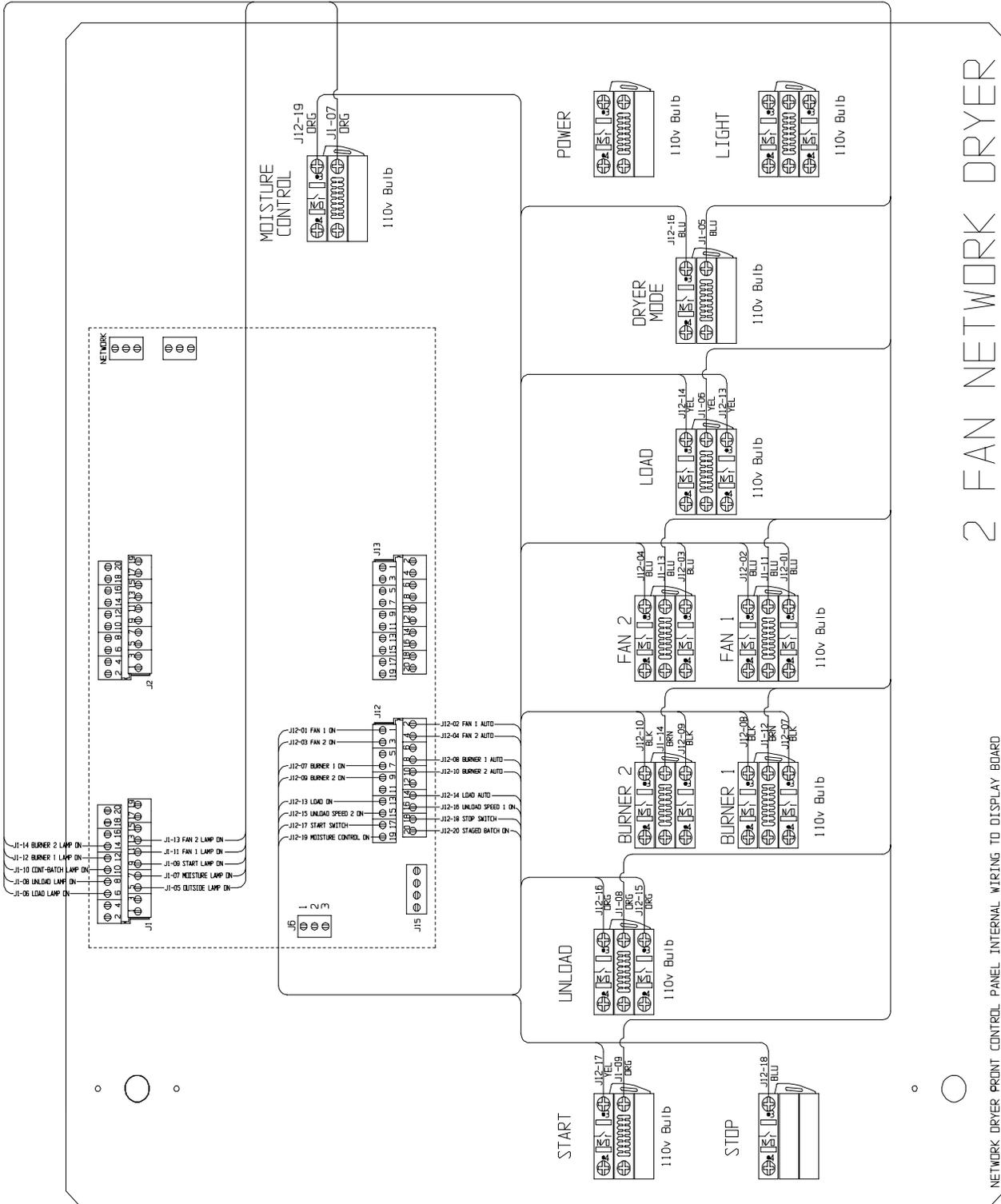
### NETWORK FAILED: I/O

This error occurs when the Input/Output board (upper control panel) has lost its communications link with the master display board (lower control panel) and the fan/heater boards. Check the blue and yellow wires marked N1-01 and N1-02 on a 3 terminal plug to make sure they are plugged in tightly. Also need to check and make sure the blue and yellow wires have continuity between each other (blue to blue and yellow to yellow). There are 3 LED lights next to the 3 terminal plug, one is for power and the other indicate data being transmitted between the boards. The two labeled RXD and TXD should be flashing randomly back and forth, this indicates network activity. Press stop to clear.

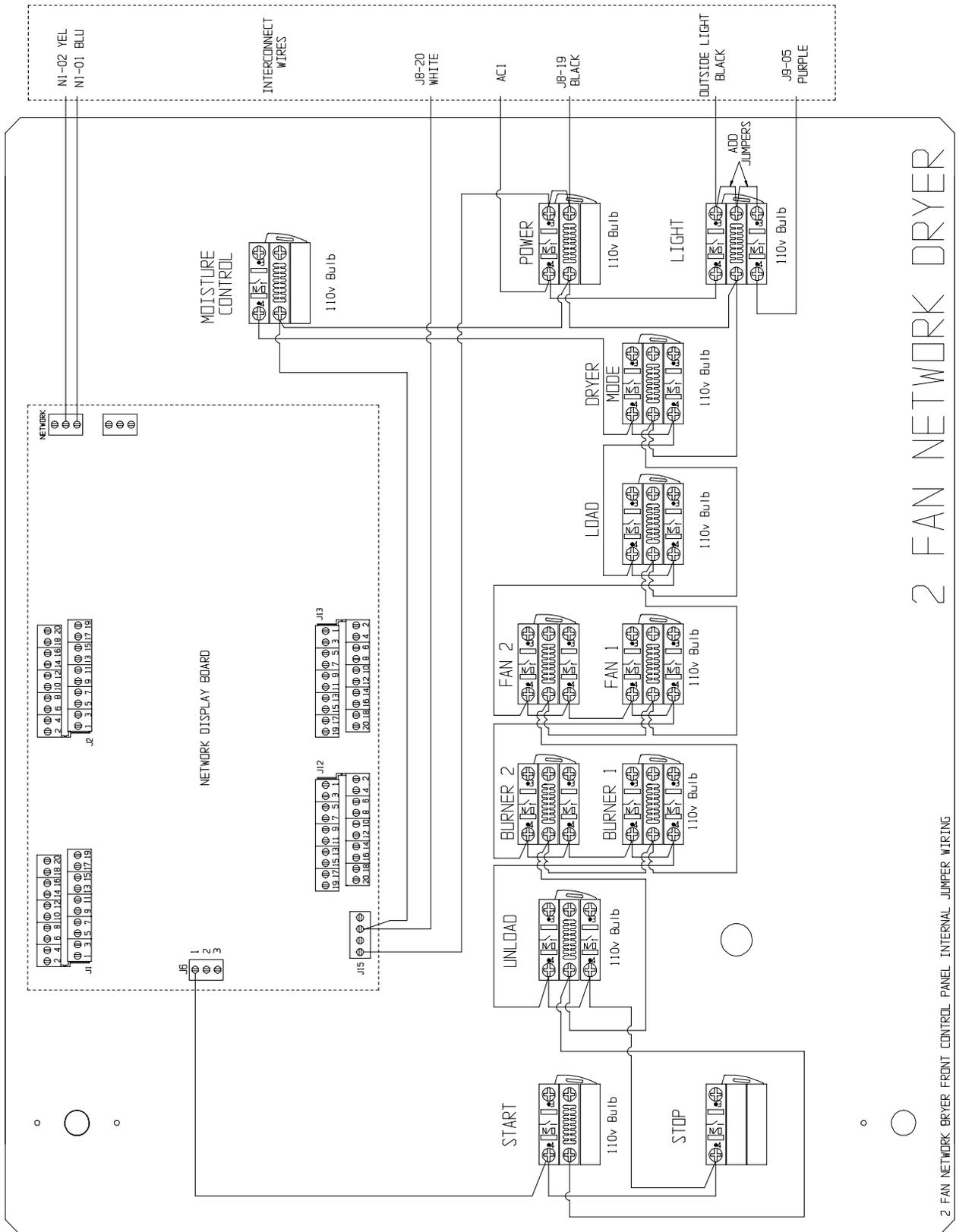
### NETWORK FAILED: MAST

This error occurs when the Master Display board (lower control panel) has lost its communications link with the Input/Output board (upper control panel) and the fan/heater boards. Check the blue and yellow wires marked N1-01 and N1-02 on a 3 terminal plug to make sure they are plugged in tightly. Also need to check and make sure the blue and yellow wires have continuity between each other (blue to blue and yellow to yellow). Press stop to clear.

### 2 Fan Network Dryer Internal Wiring ( Back of Control Panel Switches to Display Board )

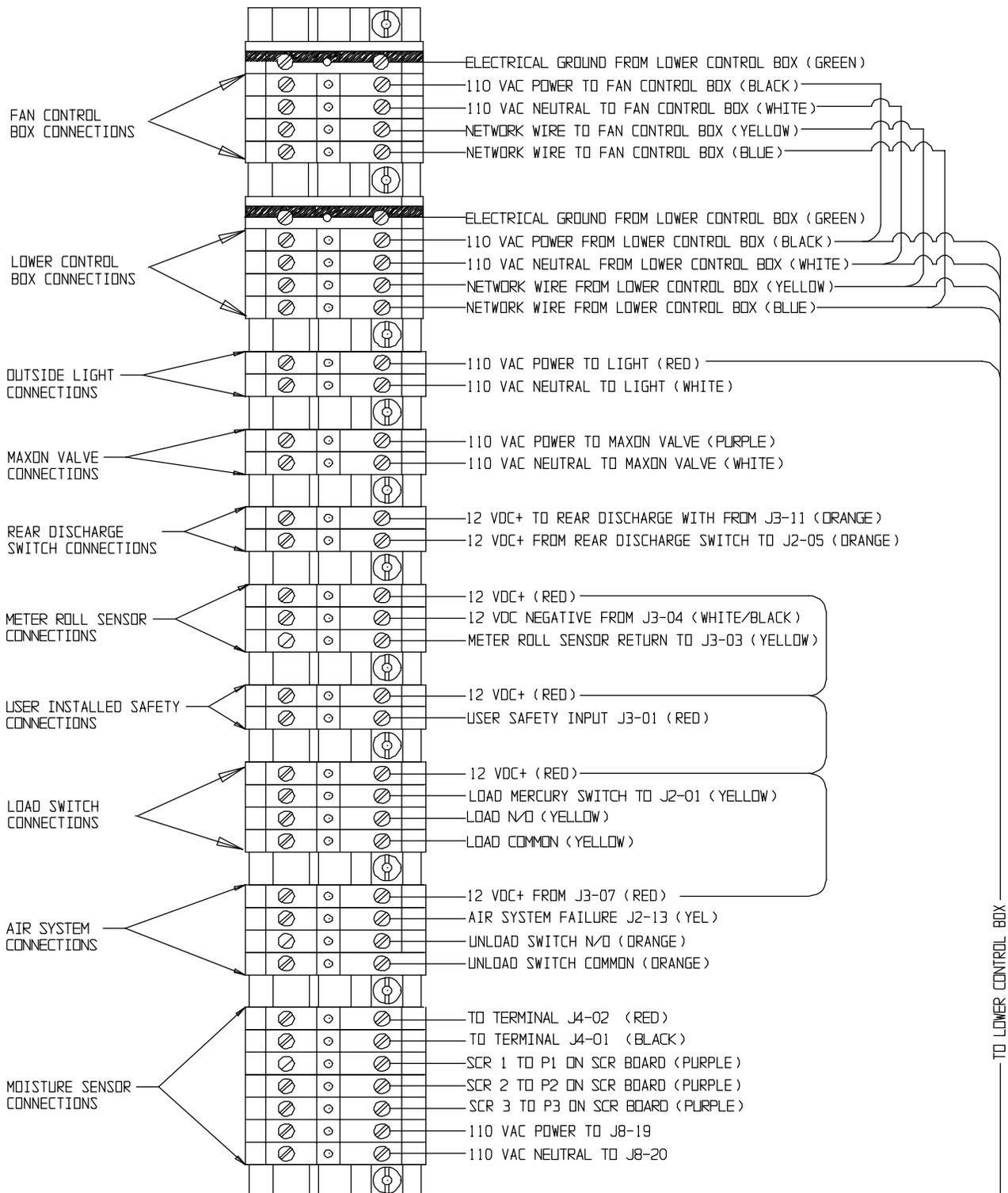


### 2 Fan Network Dryer Internal Jumper Wiring





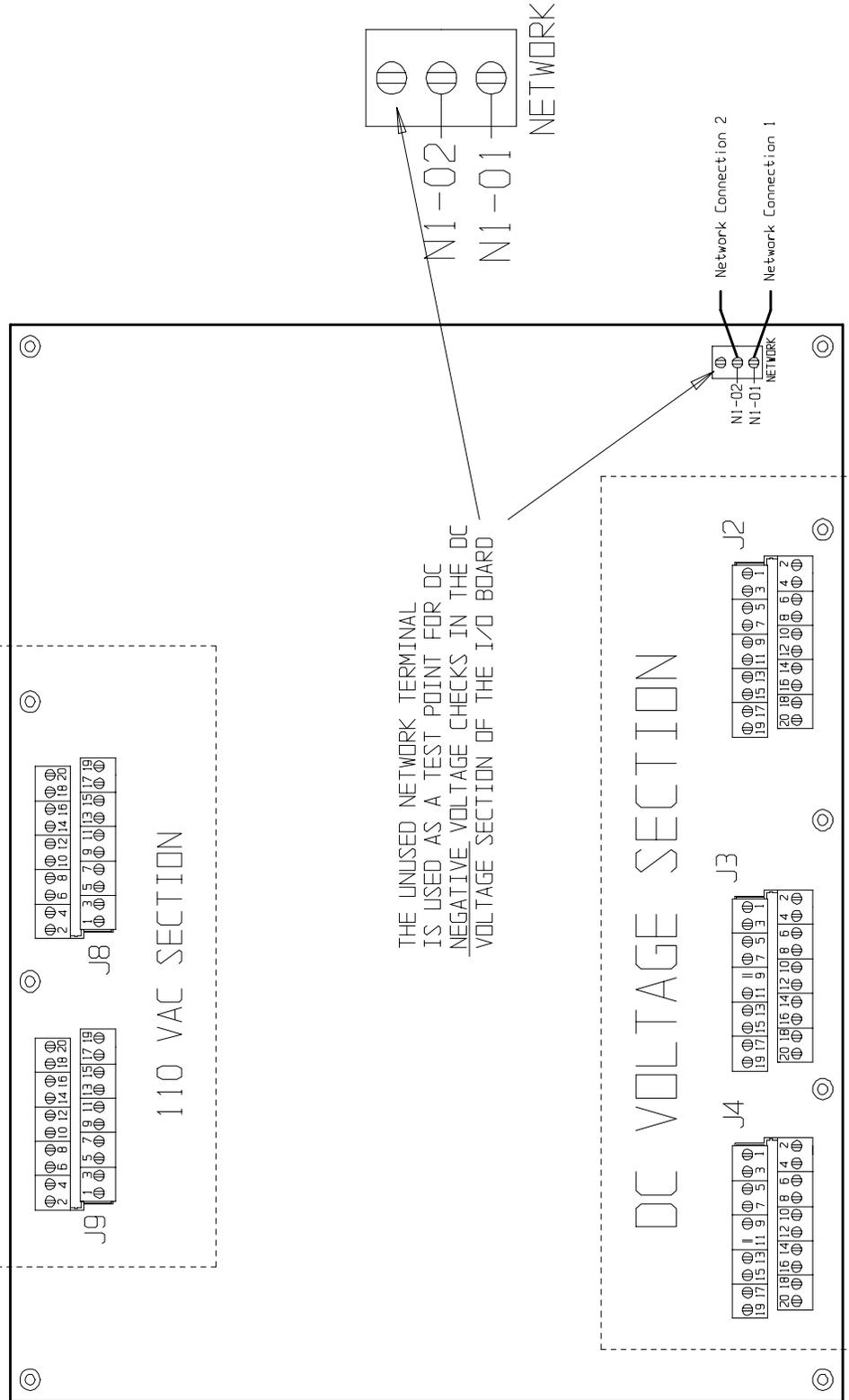
### Upper Terminal Strip



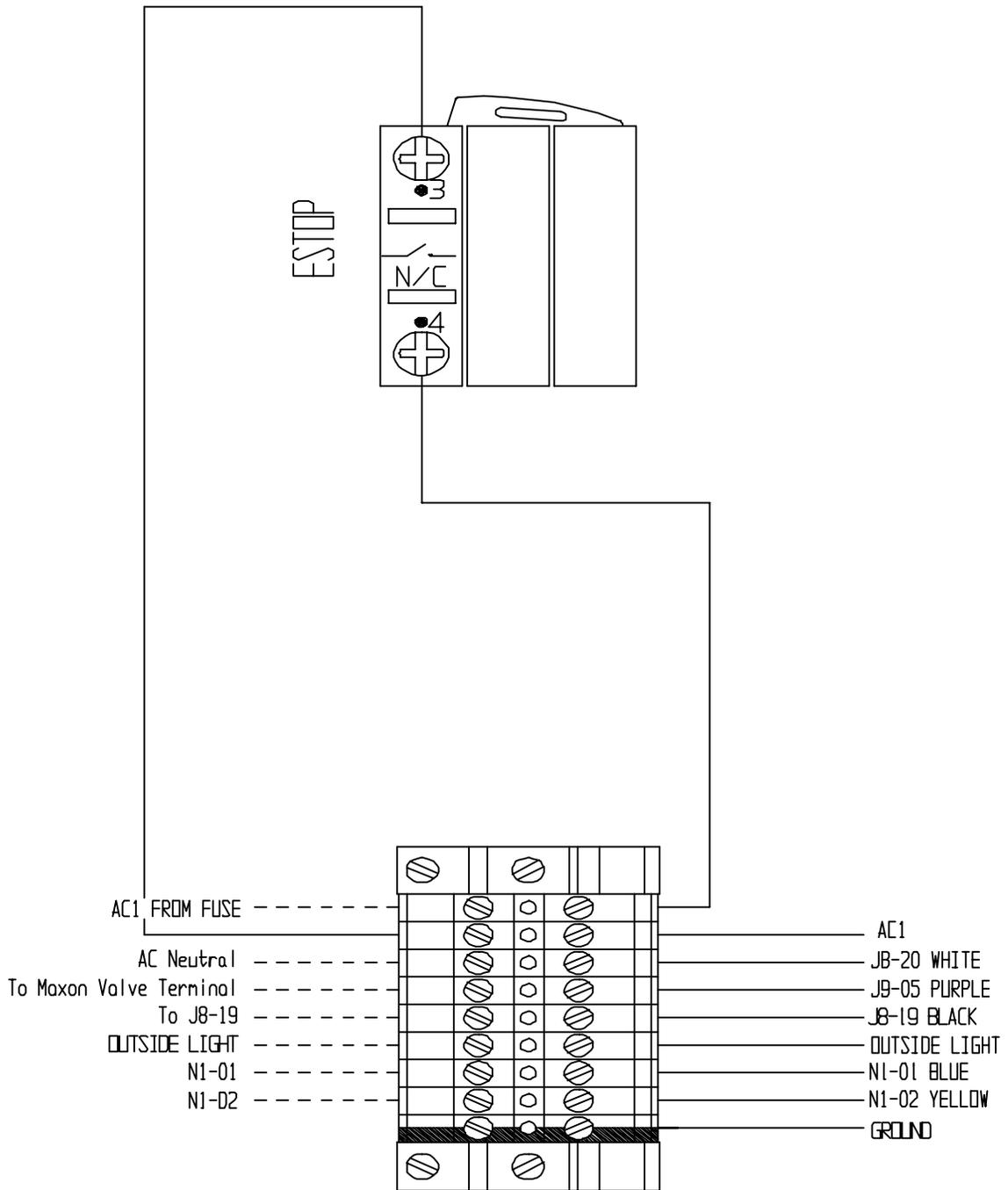
### I/O BOARD VOLTAGE TESTING ( Located in Upper Control Box )

## INPUT/OUTPUT BOARD

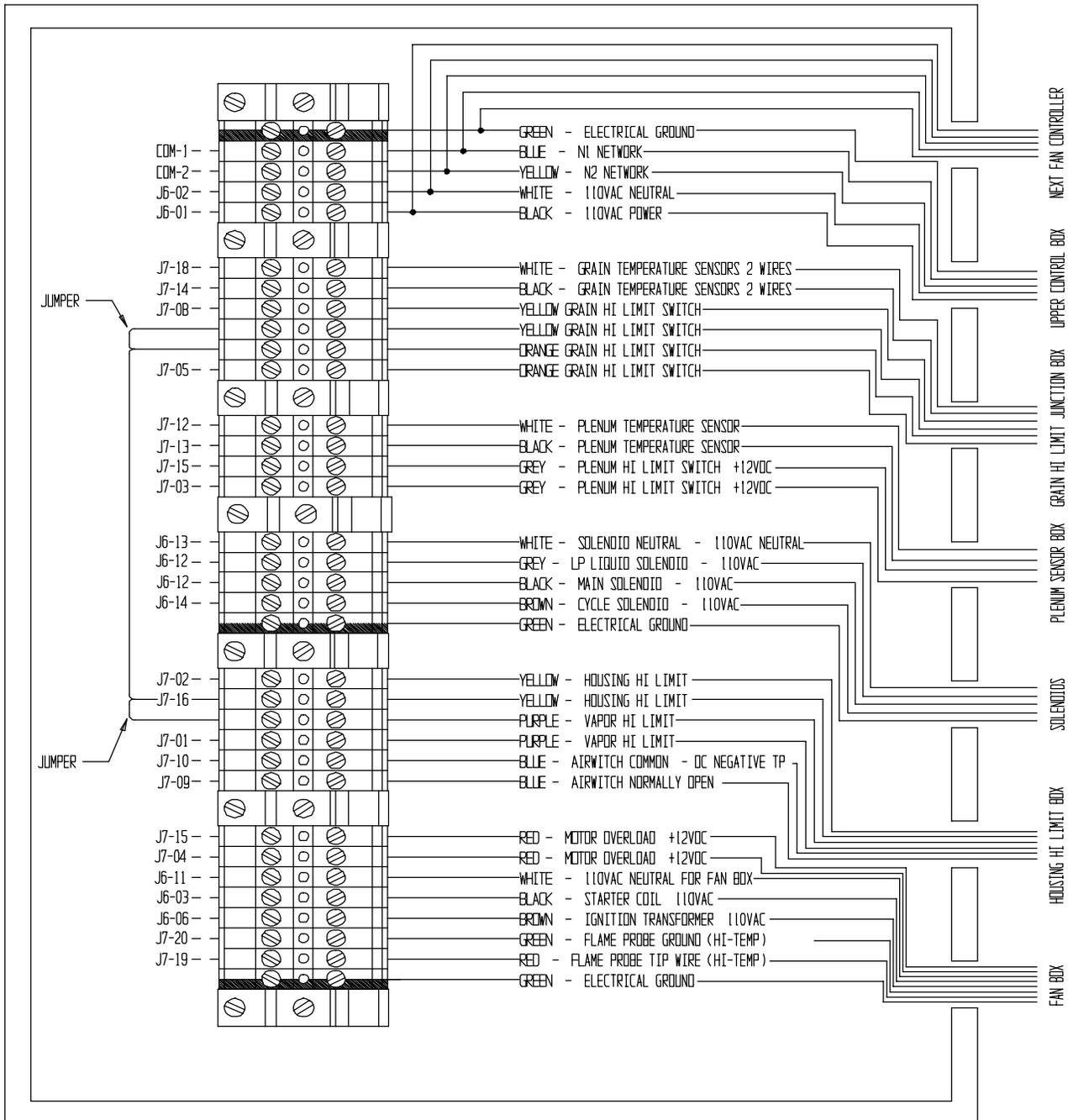
LOCATED IN THE UPPER CONTROL BOX



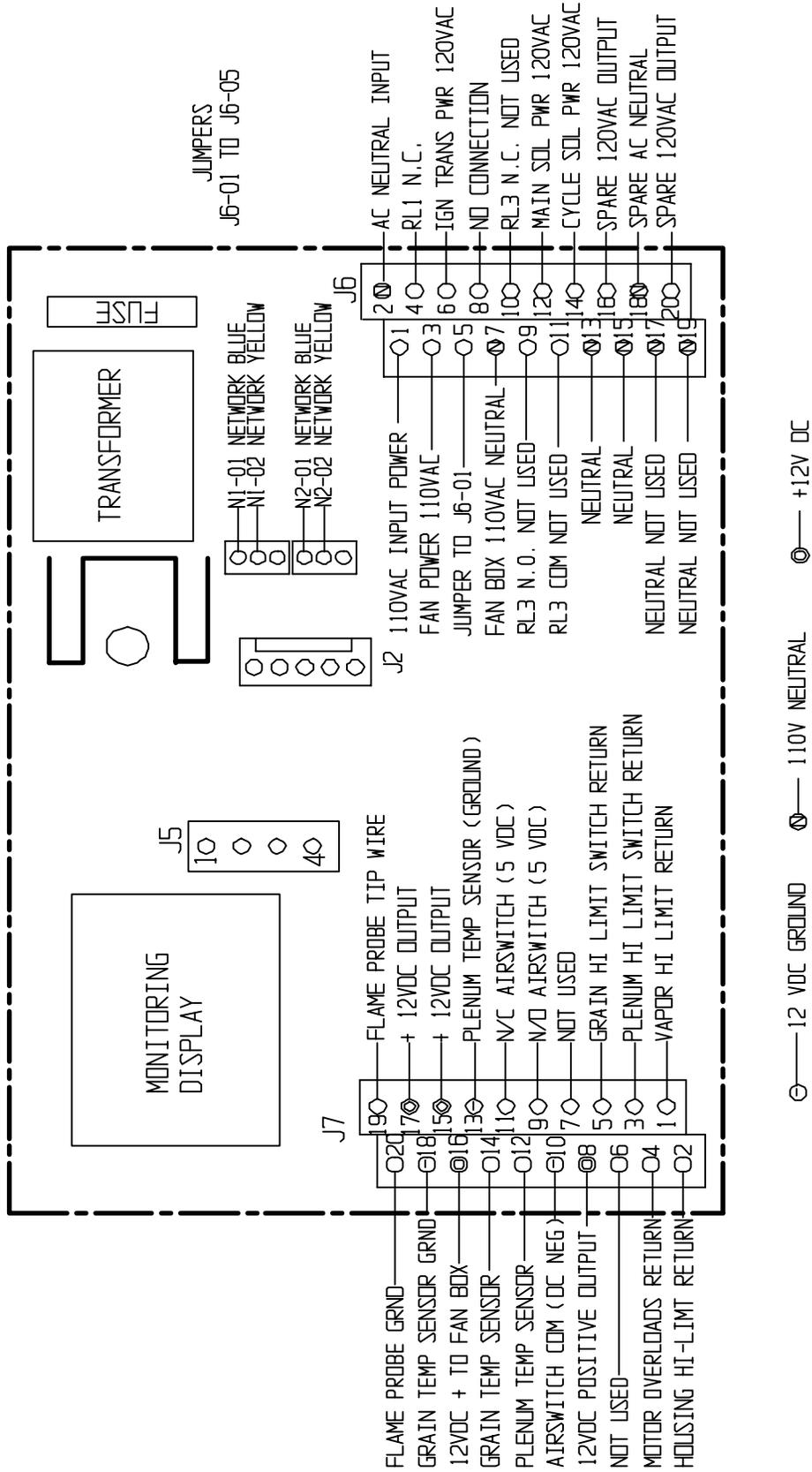
Lower Control Box Back Panel Wiring



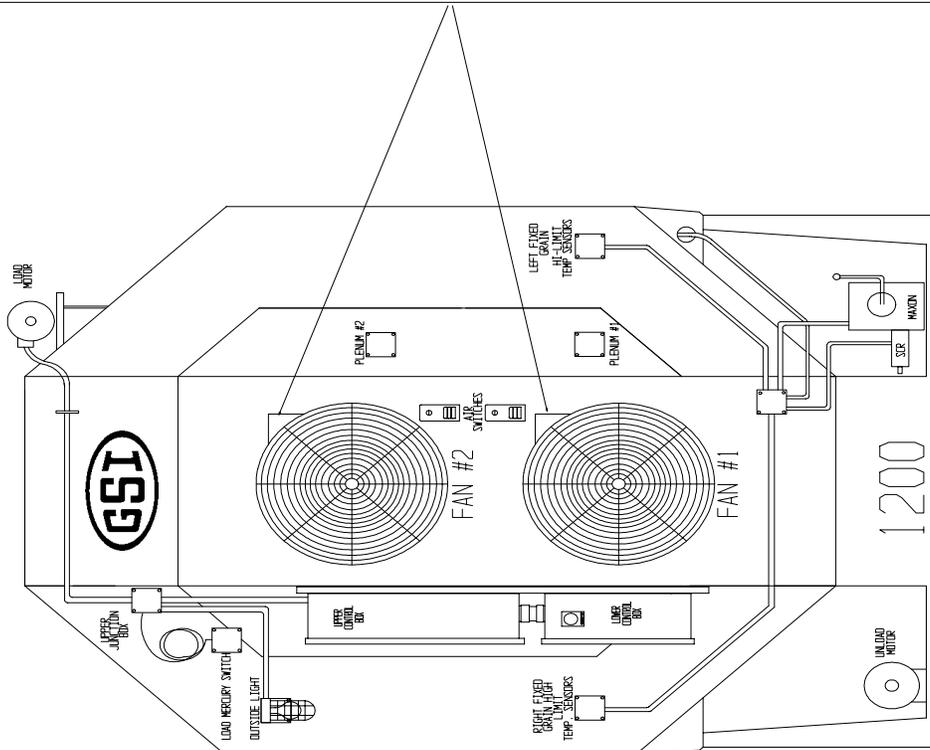
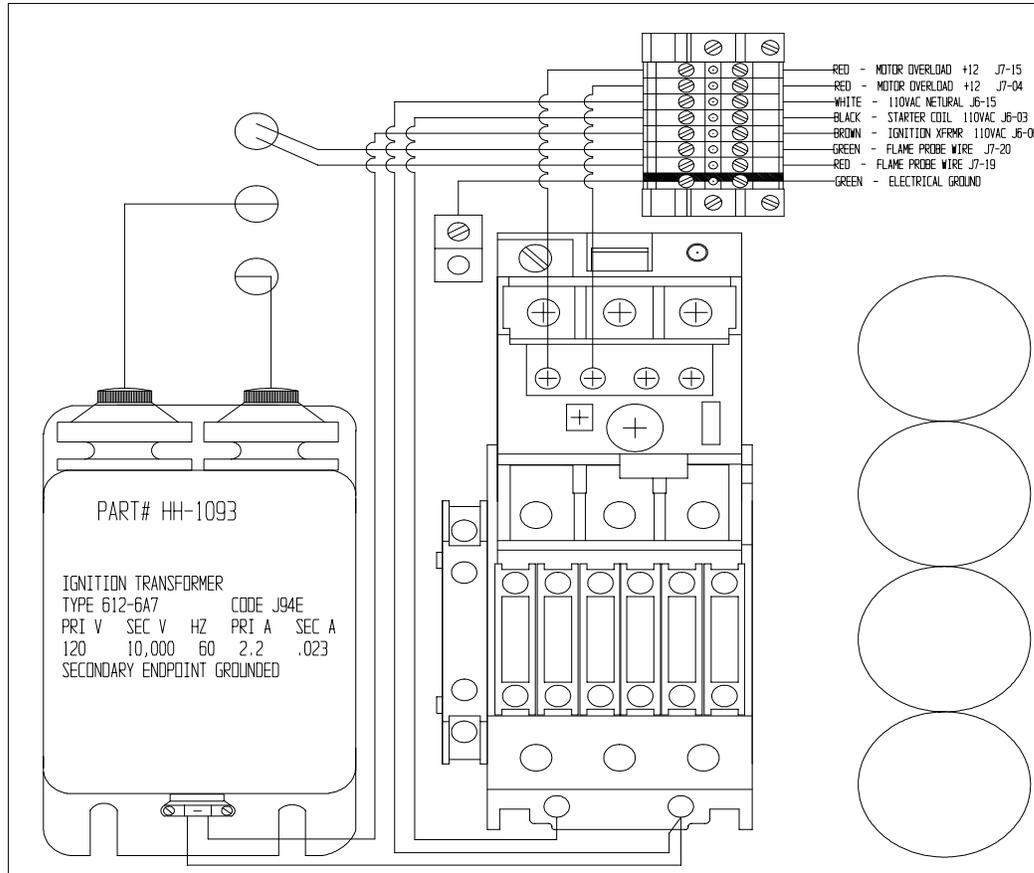
### Network Fan/Heater Interface ( Located in Heater Control Box )



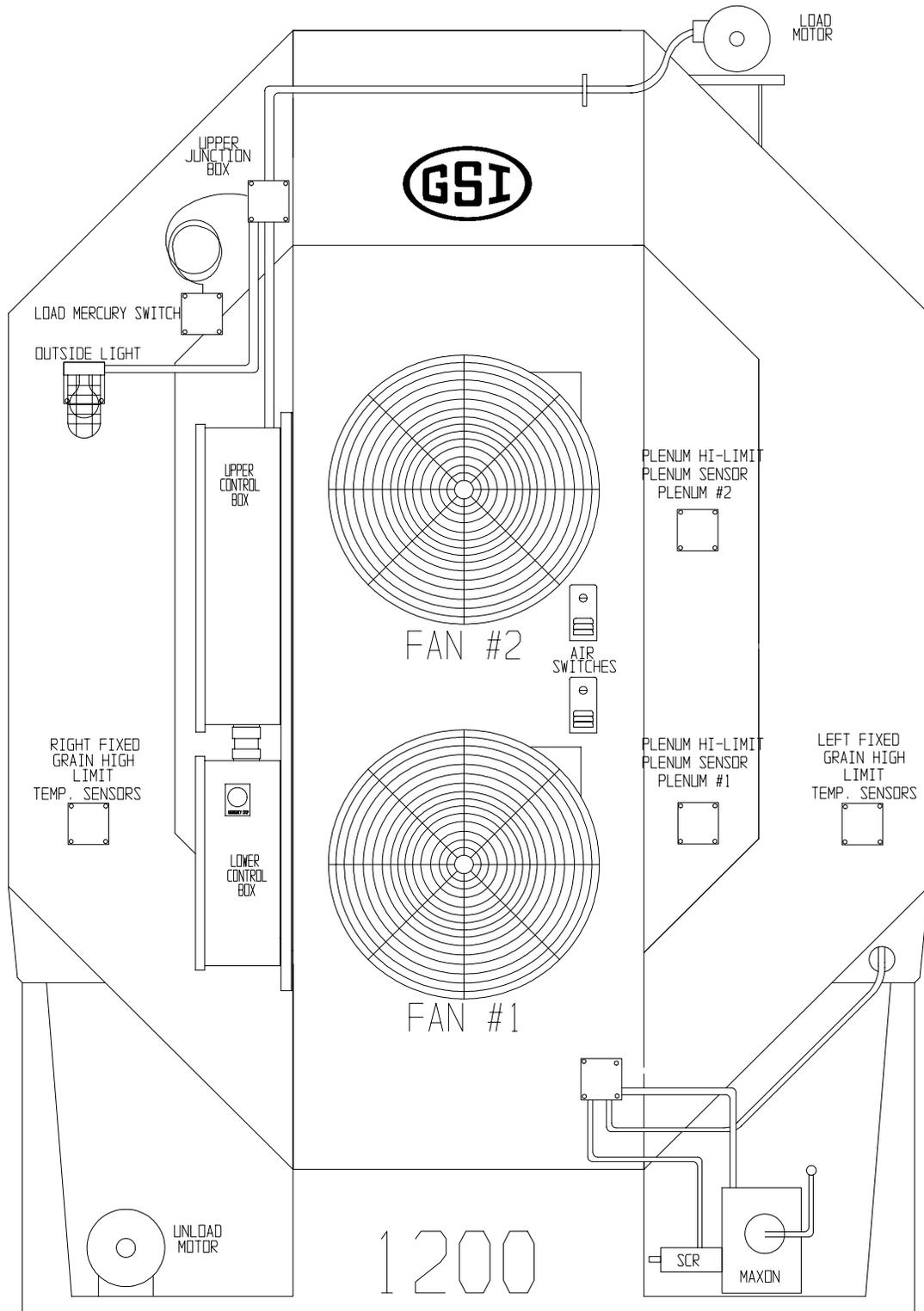
Network Fan/Heater Computer Pinouts



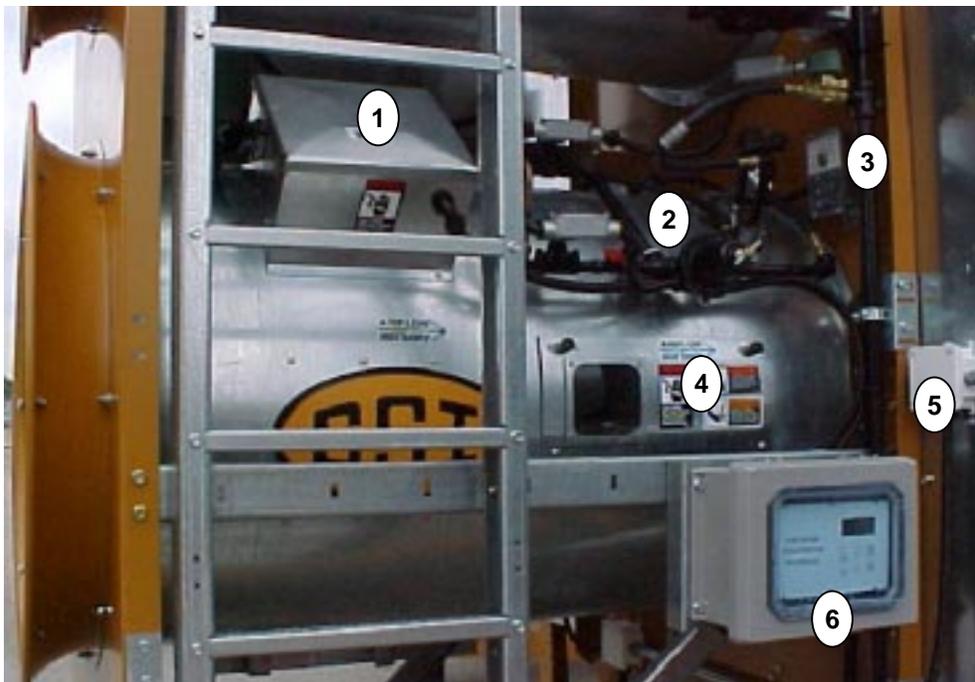
**Fan Can Control Box Wiring**  
 ( Example: Single Phase Power )



### Dryer Front Panel (Part Locations)

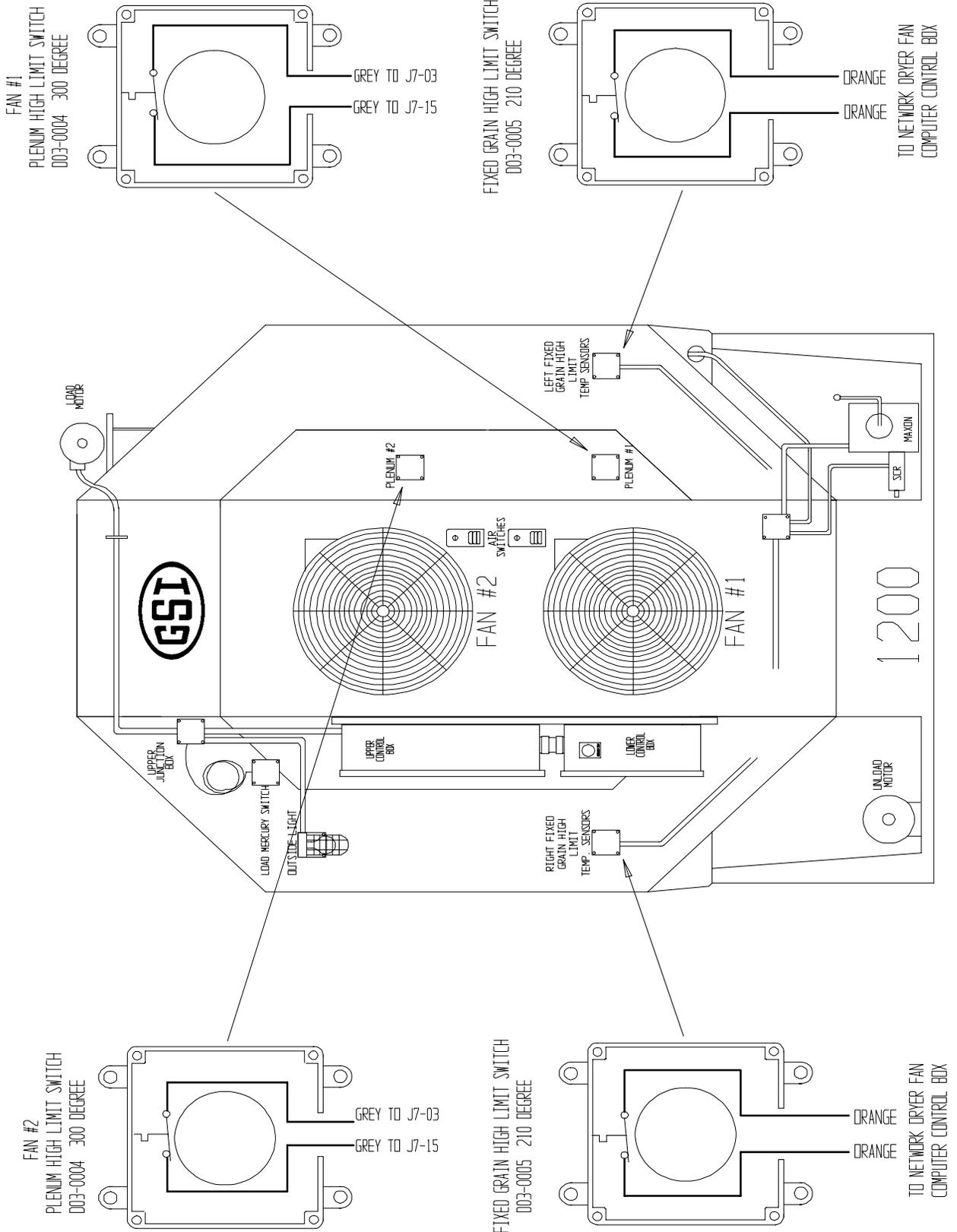


### Dryer Fan Can Side View ( Part Locations )

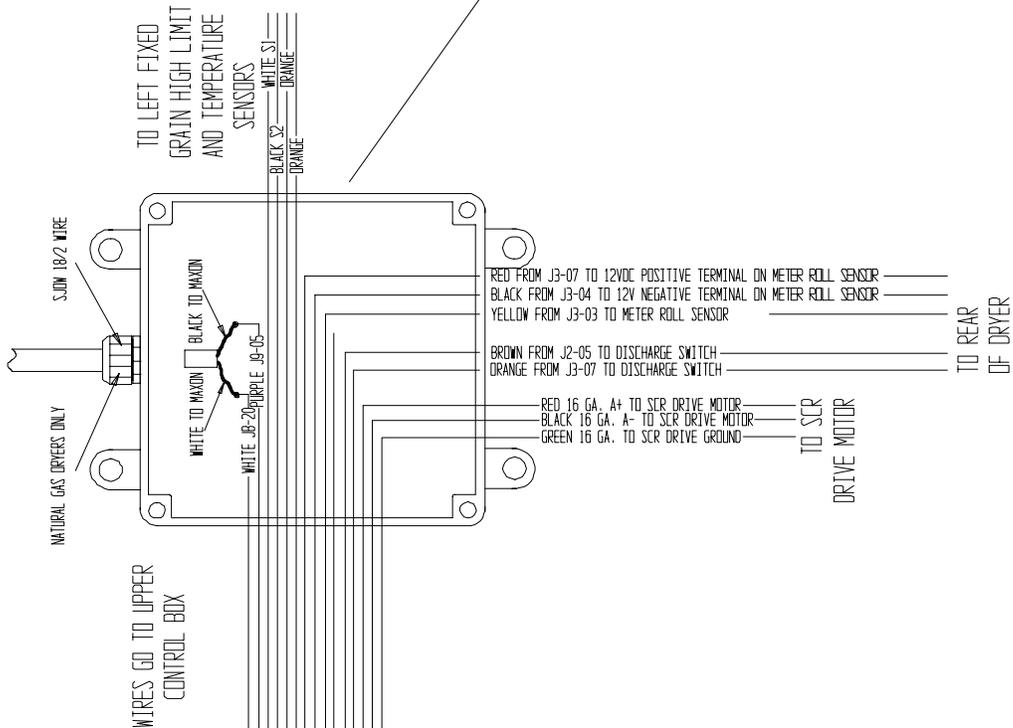
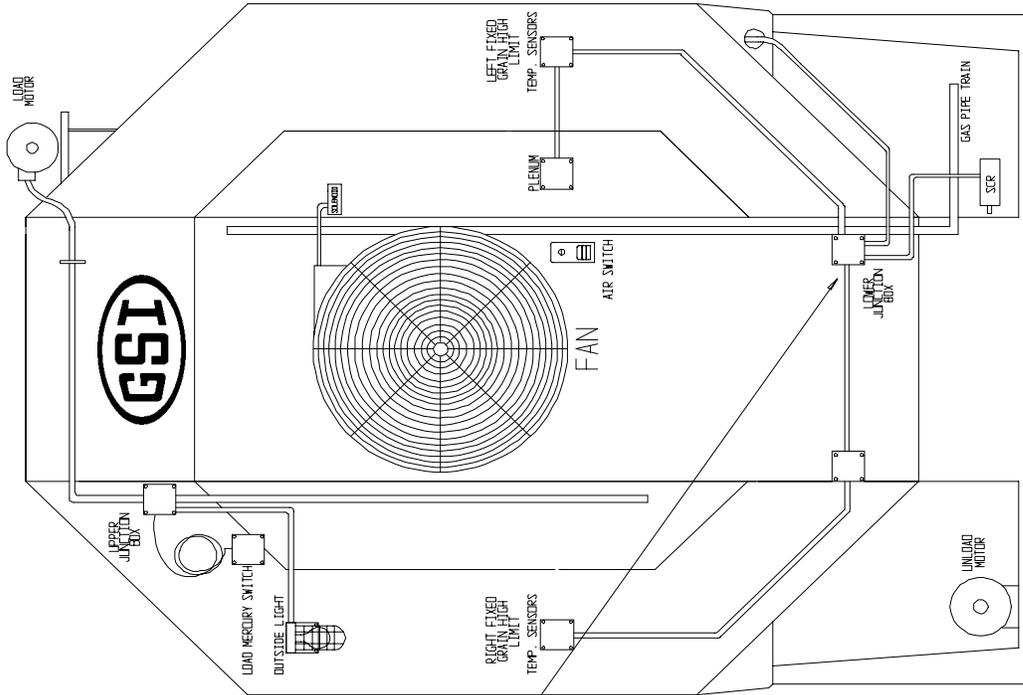


1. Fan Can Box: fan motor contactor & overload - ignition transformer - igniter & flame probe wire connections
2. LP Pipe Train
3. Air Switch
4. Access Door: flame probe - igniter
5. 4" x 4" White Plastic Junction Box: plenum (bolt) sensor wire connection - plenum high limit
6. Fan Heater Control Box: heater interface board

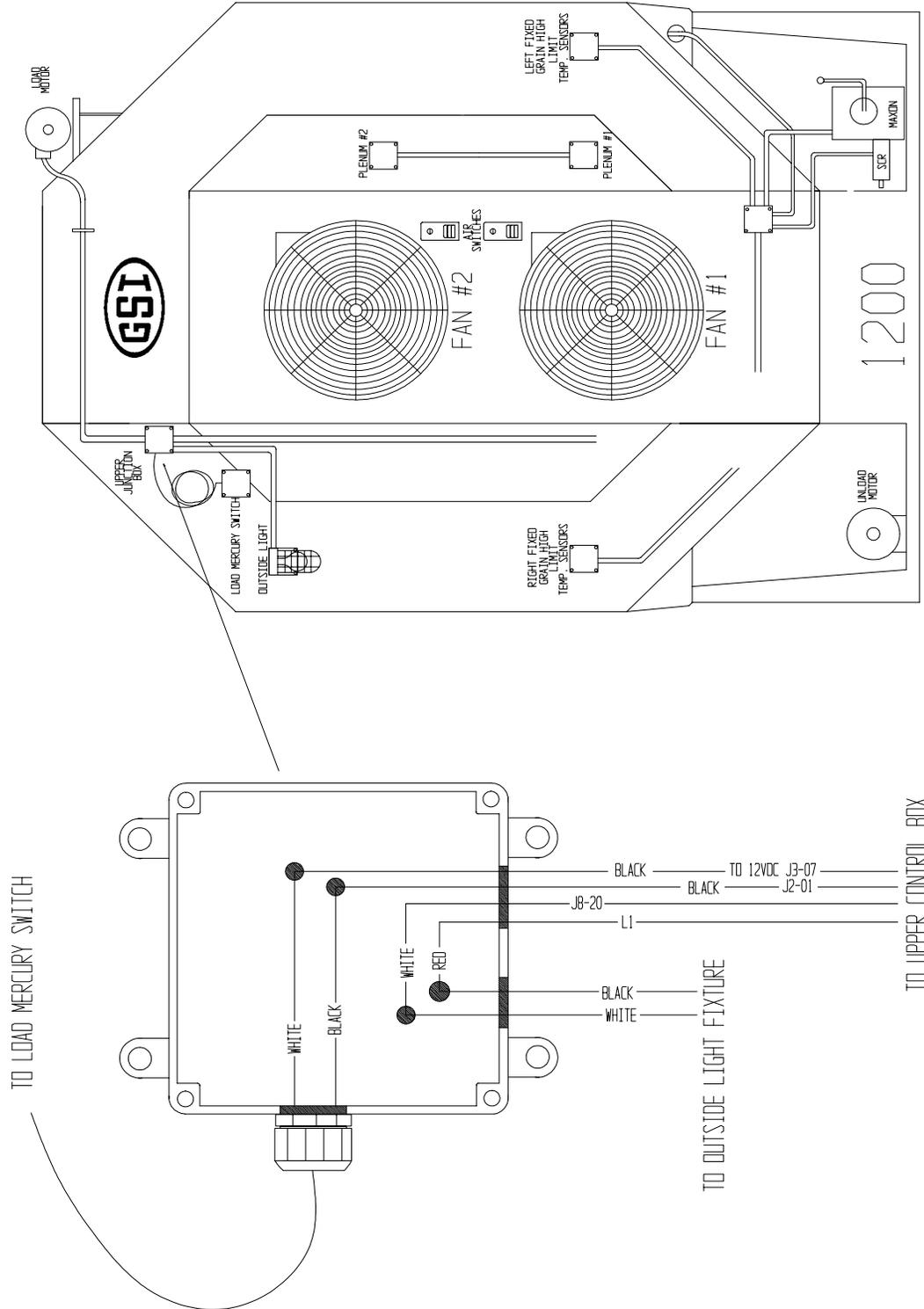
Plenum & Grain High Limit Locations



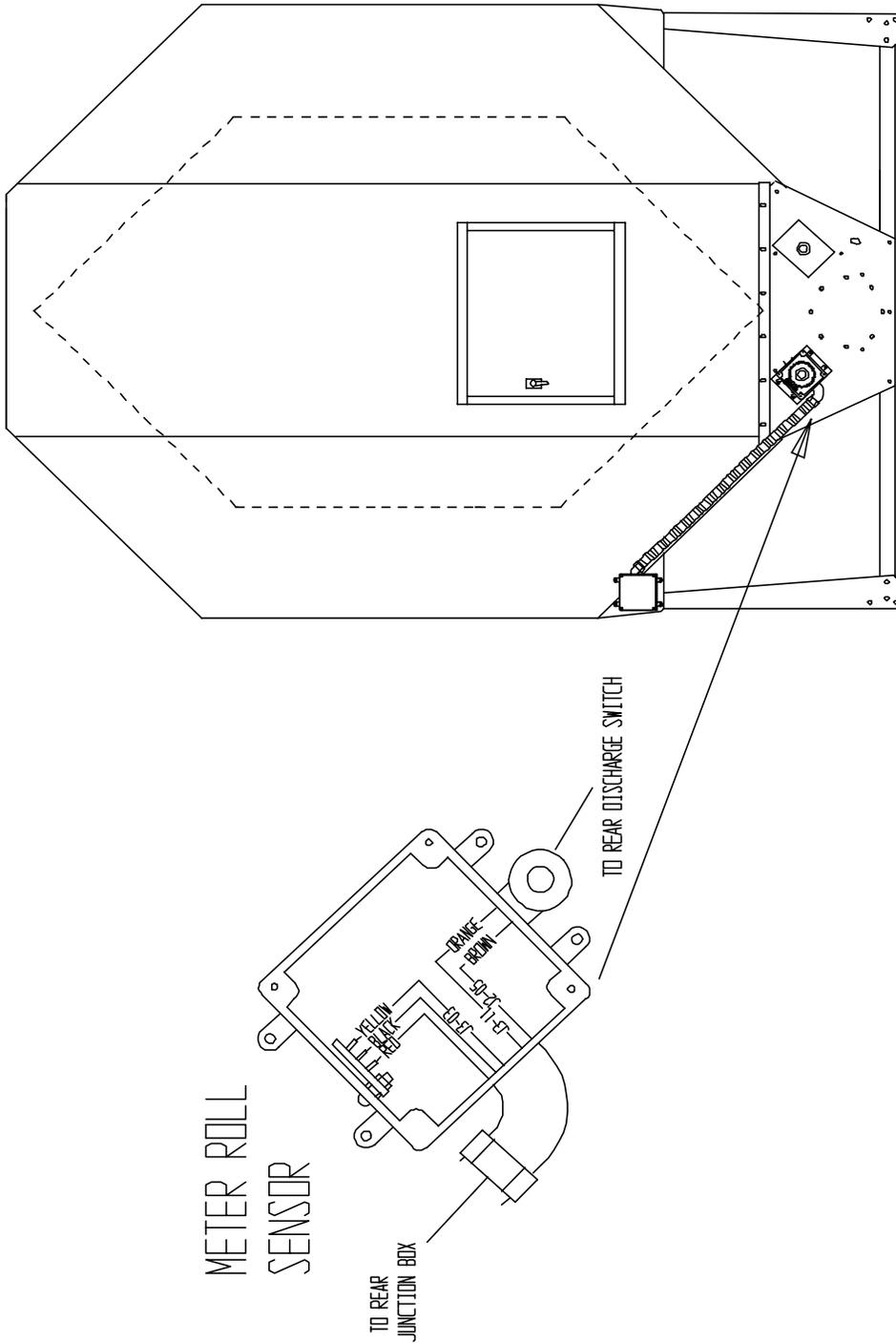
Lower Junction Box Wire Routing



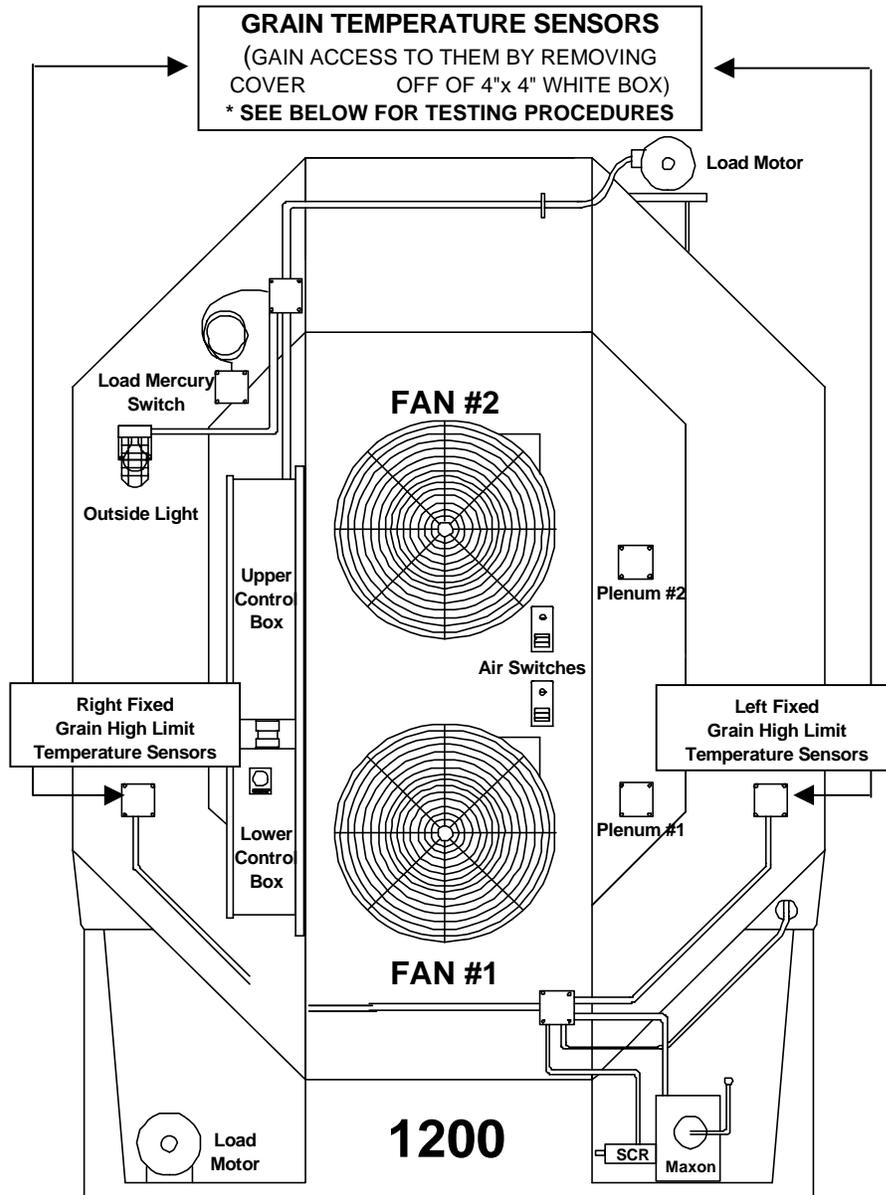
### Upper Junction Box (Wiring)



**Network Dryer Meter Roll Sensor Rearview  
( Wiring )**



### Testing Procedures & Location of Grain Temperature Sensors



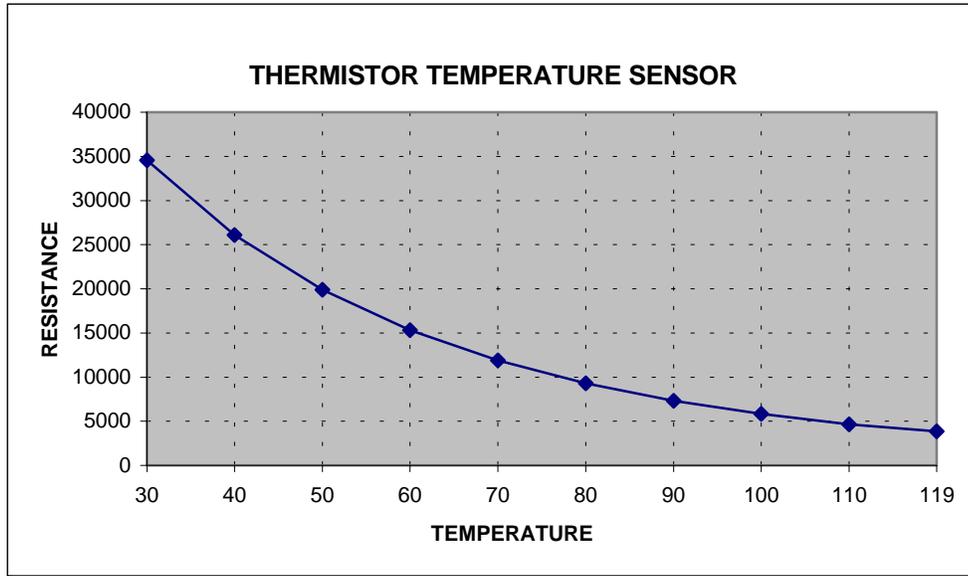
The grain sensors are finally terminated at the heater board located by the fan can housing. Single module with two fans, grain sensors are wired to bottom heater board. On a stack dryer with multiple fan/heaters the sensors will be terminated on the bottom heater board of the second module. It does not matter if the second module has one fan/heater or two fan/heaters. If you suspect a bad sensor always check at the heater board first. You will have two white wires connected to J7-18 and two black wires connected to J7-14. What you are checking is the resistance of the (thermistor) sensor according to the temperature in the grain column. Disconnect the two sets of wires and with your meter set to ohms scale put one meter probe on the black set of wires and the other probe to the white set. It should read somewhere close to the chart on page 43. Example: Temperature 70 degrees Fahrenheit - should read about 11K on your meter. If this doesn't = 11K go back to the white junction boxes as indicated above. (Next Page)

### Testing Procedures & Location of Grain Temperature Sensors (continued)

When checking grain sensors at the white junction boxes use the following procedures:

1. There are two (thermistor) sensors wired in series on each side of the dryer.
2. Find the wires connected to the sensors.
3. Unhook those wires.
4. Set your meter to ohms scale.
5. Put one probe of your meter on one wire going to the sensors and the other probe to the other wire.
6. The meter should read somewhere close to the resistance/temperature chart. (page 43)
7. With the wires disconnected it should read as follows:  
Example: 22K at 70 Degrees Fahrenheit
8. If it doesn't you may have to check each individual sensor by pulling them out of the conduit. Each individual sensor should read as follows:  
Example: 11K at 70 Degrees Fahrenheit
9. You may want to check and make sure the wiring is OK between the grain sensors, sensors to the white junction boxes and from there to the heater board.
10. If the wiring checks OK then you might assume that one of the sensors is bad.

Temperature Sensor Chart

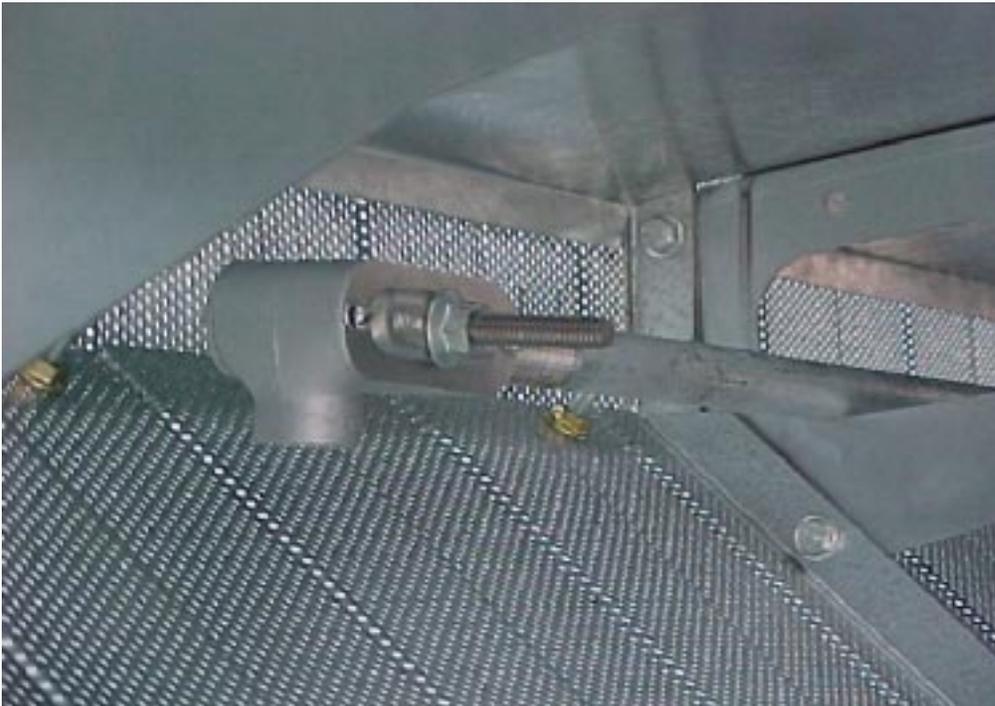


On the Network Dryer we use thermistor temperature sensors. In the plenum you will find what is called a bolt sensor which contains a single thermistor sensor. In the grain column there are two individual sensors on each side of the dryer. These sensors are wired in series on each side. The above chart shows how these sensors react to temperature. With these sensors the resistance rises with colder temperatures. This chart will help in troubleshooting any sensor problems by checking the resistance of the sensor.

### Testing Procedures & Location of Plenum Temperature Sensor

When checking the plenum (bolt) sensor at the heater board or the white junction box use the following procedures:

1. Start at the heater board that is associated with the plenum sensor you want to check. ( Each plenum has it's own plenum sensor).
2. The wires from the plenum sensor are terminated at the heater board.
3. The wires are connected to terminals J7-12 (white wire) and J7-13 (black wire).
4. Unhook those wires.
5. Set your meter to ohms scale.
6. Put one probe of your meter on one wire going to the sensor and the other probe on the other wire.
7. The meter should read somewhere close to resistance/temperature chart.(page 43)
8. Example: 11K at 70 Degrees Fahrenheit
9. You may want to make sure the wires from the plenum sensor to the white box and from there to the heater board are ok.
10. If the wiring is OK, then you may assume that the plenum (bolt) sensor is bad.



The above picture is of the plenum (bolt) sensor. It is located inside the plenum to the left looking at the rear of the dryer. To gain access open the rear plenum door. Wires from the sensor go out through the conduit to a 4" x 4" white plastic junction box. From there out through flex conduit to the heater board where it is terminated.

**Overload Cross Reference Chart**

<b>CR124 STANDARD &amp; AMBIENT COMPENSATED BLOCK OVERLOADS</b>								
<b>1 PHASE</b>								
<b>FOR CR124C 27 AMP OVERLOAD</b>				<b>FOR CR124D 45 AMP OVERLOAD</b>				
<b>Motor FLA</b>	<b>GE #</b>	<b>GSI #</b>	<b>New GE #</b>	<b>Motor FLA</b>	<b>GE #</b>	<b>GSI #</b>	<b>New GE #</b>	
.30-.33	C036A		RT12C	5.90-6.63	C695A		RT12M	
.34-.37	C039A		RT12C	6.64-7.59	C778A	D03-0008	RT12M	
.38-.41	C043A		RT12C	7.60-8.39	C867A	D33-0011	RT12M	
.42-.46	C048A		RT12D	8.40-9.20	C955A	FH-5436	RT12N	
.47-.52	C054A		RT12D	9.21-9.93	C104B	FH-5735	RT12N	
.53-.57	C060A		RT12D	9.94-11.2	C113B		RT12N	
.58-.61	C066A		RT12D	11.3-12.5	C125B	FH-5438	RT12P	
.62-.67	C071A		RT12F	12.6-14.1	C137B	D63-0003	RT12P	
.68-.75	C078A		RT12F	14.2-15.5	C151B	FH-5439	RT12P	
.76-.84	C087A		RT12F	15.6-17.4	C163B	FH-5440	RT12S	
.85-.94	C097A		RT12F	17.5-19.8	C180B	FH-5441	RT12T	
.95-1.03	C109A		RT12F	19.9-21.2	C198B	FH-5442	RT12T	
1.04-1.14	C118A		RT12G	21.3-22.7	C214B	FH-5443	RT12U	
1.15-1.30	C131A		RT12G	22.8-24.9	C228B	FH-2444	RT12U	
1.31-1.42	C148A		RT12G	25.0-27.3	C250B	FH-5445	RT12V	
1.43-1.61	C163A		RT12H	27.4-29.7	C273B	FH-5446	RT12V	
1.62-1.72	C184A		RT12H	29.8-33.2	C303B	FH-5447	RT12W	
1.73-1.93	C196A		RT12H	33.3-39.0	C330B	FH-5456	RT12W	
1.94-2.10	C220A		RT12J	39.1-45.0	C366B	FH-5448	RT22E	
2.11-2.34	C239A	D03-0145	RT12J	<b>FOR CR124E 90 AMP OVERLOAD</b>				
2.35-2.64	C268A	D13-0003	RT12J	16.4-17.2	F181B		RT22B	
2.65-2.86	C301A	FH-7036	RT12K	17.3-19.0	F199B		RT22B	
2.87-3.13	C326A	D03-0079	RT12K	19.1-21.0	F218B		RT22C	
3.14-3.32	C345A	D55-0002	RT12K	21.1-22.9	F233B		RT22C	
3.33-3.68	C379A	D03-0080	RT12K	23.0-24.8	F243B		RT22C	
3.69-4.08	C419A	FH-6969	RT12K	24.9-27.2	F270B		RT22D	
4.09-4.61	C466A	D13-0002	RT12L	27.3-30.0	F300B		RT22D	
4.62-5.21	C526A	FH-5736	RT12L	30.1-33.0	F327B		RT22E	
5.22-5.62	C592A	D03-0015	RT12L	33.1-36.2	F357B		RT22E	
5.63-6.12	C630A	D13-0001	RT12L	36.3-40.0	F395B	FH-5449	RT22E	
6.13-6.83	C695A		RT12M	40.1-44.0	F430B		RT22E	
6.84-7.70	C778A	D03-0008	RT12M	44.1-48.4	F487B	FH-5450	RT22G	
7.71-8.48	C867A	D33-0011	RT12M	48.5-53.3	F567B	FH-5451	RT22G	
8.49-9.19	C955A	FH-5436	RT12N	53.4-58.6	F614B	FH-5452	RT22H	
9.20-9.92	C104B	FH-5735	RT12N	58.7-64.4	F658B	FH-5453	RT22H	
9.93-11.1	C113B		RT12N	64.5-71.3	F719B		RT22J	
11.2-12.2	C125B	FH-5438	RT12P	71.4-78.0	F772B	FH-5454	RT22J	
12.3-13.5	C137B	D63-0003	RT12P	78.1-86.0	F848B	FH-5455	RT22L	
13.6-14.6	C151B	FH-5439	RT12P	86.1-90.0	F914B	FH-5738	RT22L	
14.7-16.1	C163B	FH-5440	RT12S					
16.2-17.9	C180B	FH-5441	RT12S					
18.0-19.3	C198B	FH-5442	RT12T					
19.4-20.6	C214B	FH-5443	RT12T					
20.7-22.6	C228B	FH-2444	RT12U					
22.7-24.8	C250B	FH-5445	RT12U					
24.9-27.0	C273B	FH-5446	RT12V					

**Overload Cross Reference Chart**

<b>CR324 STANDARD &amp; AMBIENT COMPENSATED BLOCK OVERLOADS</b>							
<b>3 PHASE</b>							
<b>FOR CR324C 27 AMP OVERLOAD</b>				<b>FOR CR324D 45 AMP OVERLOAD</b>			
<b>Motor FLA</b>	<b>GE #</b>	<b>GSI #</b>	<b>New GE #</b>	<b>Motor FLA</b>	<b>GE #</b>	<b>GSI #</b>	<b>New GE #</b>
.35-.39	C054A		RT12C	4.78-5.14	C630A	D13-0001	RT12L
.40-.42	C060A		RT12C	5.15-5.63	C695A		RT12L
.43-.45	C066A		RT12D	5.64-6.26	C778A	D03-0008	RT12M
.46-.51	C071A		RT12D	6.27-7.15	C867A	D33-0011	RT12M
.52-.56	C078A		RT12D	7.16-7.58	C955A	FH-5436	RT12M
.57-.65	C087A		RT12D	7.59-8.39	C104B	FH-5735	RT12M
.66-.73	C097A		RT12E	8.40-9.11	C113B		RT12N
.74-.81	C109A		RT12E	9.12-9.67	C125B	FH-5438	RT12N
.82-.90	C118A		RT12E	9.68-11.0	C137B	D63-0003	RT12N
.91-1.00	C131A		RT12E	11.1-12.0	C151B	FH-5439	RT12P
1.01-1.10	C148A		RT12E	12.1-14.4	C163B	FH-5440	RT12P
1.11-1.21	C163A		RT12G	14.5-16.3	C180B	FH-5441	RT12S
1.22-1.35	C184A		RT12G	16.4-17.3	C198B	FH-5442	RT12S
1.36-1.50	C196A		RT12H	17.4-19.3	C214B	FH-5443	RT12T
1.51-1.64	C220A		RT12H	19.4-20.9	C228B	FH-2444	TR12T
1.65-1.78	C239A	D03-0145	RT12H	21.0-22.9	C250B	FH-5445	RT12U
1.79-1.98	C268A	D13-0003	RT12H	23.0-24.7	C273B	FH-5446	RT12U
1.99-2.15	C301A	FH-7036	RT12J	24.8-28.0	C303B	FH-5447	RT12V
2.16-2.42	C326A	D03-0079	RT12J	28.1-32.1	C330B	FH-5456	RT12V
2.43-2.88	C356A	D55-0002	RT12K	32.2-35.9	C366B	FH-5448	RT12W
2.89-3.22	C379A	D03-0080	RT12K	36.0-41.5	C400B	FH-5739	RT22E
3.23-3.53	C419A	FH-6969	RT12K	41.6-43.4	C440B	D05-0013	RT22G
3.54-3.89	C466A	D13-0002	RT12K	43.5-45.0	C460B	FH-6892	RT22G
3.90-4.30	C526A	FH-5736	RT12L	<b>FOR CR324E 90 AMP OVERLOAD</b>			
4.31-4.77	C592A	D03-0015	RT12L	16.0-18.0	F233B		RT22B
4.78-5.14	C630A	D13-0001	RT12L	18.1-20.5	F243B		RT22C
5.15-5.63	C695A		RT12L	20.6-21.7	F270B		RT22C
5.64-6.26	C778A	D03-0008	RT12M	21.8-25.1	F300B		RT22D
6.27-7.15	C867A	D33-0011	RT12M	25.2-27.0	F327B		RT22D
7.16-7.58	C955A	FH-5436	RT12M	27.1-30.5	F357B		RT22D
7.59-8.39	C104B	FH-5735	RT12M	30.6-32.5	F395B	FH-5449	RT22E
8.40-9.11	C113B		RT12N	32.6-33.9	F430B		RT22E
9.12-9.67	C125B	FH-5438	RT12N	34.0-38.9	F487B	FH-5450	RT22E
9.68-11.0	C137B	D63-0003	RT12N	39.0-44.4	F567B	FH-5451	RT22G
11.1-11.9	C151B	FH-5439	RT12P	44.5-48.4	F614B	FH-5452	RT22G
12.0-14.3	C163B	FH-5440	RT12P	48.5-52.4	F658B	FH-5453	RT22G
14.4-16.1	C180B	FH-5441	RT12S	52.5-57.0	F719B		RT22H
16.2-17.2	C198B	FH-5442	RT12S	57.1-64.5	F772B	FH-5454	RT22H
17.3-19.2	C214B	FH-5443	RT12T	64.6-68.8	F848B	FH-5455	RT22J
19.3-20.6	C228B	FH-2444	RT12T	68.9-75.7	F914B	FH-5738	RT22J
20.7-21.8	C250B	FH-5445	RT12T	75.8-86.2	F104C	FH-6469	RT22L
21.9-23.4	C273B	FH-5446	RT12U	86.3-90.0	F114C		RT22L
23.5-26.1	C303B	FH-5447	RT12V	<b>FOR CR324F 135 AMP OVERLOAD</b>			
26.2-27.0	C330B	FH-5456	RT12V	86.7-94.7	F848B	FH-5455	RT22L
				94.8-103	F914B	FH-5738	RT22M
				104-115	F104C	FH-6469	RT32D
				116-130	F114C		RT32E
				131-135	F118C	FH-5740	RT32E

Portable Dryer Troubleshooting

Motor Cross Reference

GSI #	HP	RPM	PHASE	VOLTS	FLA	HZ	FRAME	STYLE	BRAND	MFG. #
100-1	1	1750	1	230	6.5	60	56	TEFC	Baldor	FDL3510M
D03-0309	1.5	1750	1	230	9	60	145T	TEFC	Baldor	FDL3514TM
200-1	2	1750	1	230	14	60	184	TEFC	Baldor	FDL3611M
300-1	3	1750	1	230	15.5	60	184	TEFC	Baldor	FDL3610TM
500-1	5	1750	1	230	23	60	184T	TEFC	Baldor	FDL3612TM
712-1	7.5	1750	1	230	31	60	215	TEFC	Baldor	FDL3732M
1000-1	10	1750	1	230	40	60	215T	TEFC	Baldor	FDL3737TM
CD-0110	10-12	1750	1	230	48	60	215TZ	DPOA	Magnetek	SPECIAL
CD-0571	15	1750	1	230	62	60	256T	TEAO	Baldor	SPECIAL

GSI #	HP	RPM	PHASE	VOLTS	FLA	HZ	FRAME	STYLE	BRAND	MFG. #
100-3	1	1750	3	230/460	3/1.5	60	143T	TEFC	Baldor	M3546T
112-3	1.5	1750	3	230/460	4/2	60	145T	TEFC	Baldor	M3554T
200-3	2	1750	3	230/460	6/3	60	145T	TEFC	Baldor	M3558T
300-3	3	1750	3	230/460	8/4	60	182T	TEFC	Baldor	M3611T
500-3	5	1750	3	230/460	13/7	60	184T	TEFC	Baldor	M3615T
712-3	7.5	1750	3	230/460	20/10	60	213T	TEFC	Baldor	M3710T
1000-3	10	1750	3	230/460	28/14	60	215TZ	TEFC	Baldor	M3714T
CH-1049	10F	1750	3	230/460	28/14	60	215TZ	ODP	Baldor	GDM3313T
CD-0239	10-12	1750	3	230/460	33/17	60	215TZ	OAO	Baldor	Special
CH-1050	15	1750	3	230/460	40/20	60	254TZ	ODP	Baldor	GDM2513T
CH-1051	20	1750	3	230/460	50-25	60	254TZ	ODP	Baldor	GDM2515T
C-2049	25	1750	3	230/460	62/31	60	284TZ	ODP	Baldor	GDM2531T
TFC-2011	30	1750	3	230/460	72/36	60	284TZ	ODP	Baldor	GDM2535T
CH-6848	40	1750	3	230/460	98/49	60	324TZ	ODP	Baldor	M2539T

GSI #	HP	RPM	PHASE	VOLTS	FLA	HZ	FRAME	STYLE	BRAND	MFG. #
	1	1750	3	575	1.4	60	143T	TEFC	Baldor	M3546T-5
	1.5	1750	3	575	2	60	145T	TEFC	Baldor	M3554T-5
200-5	2	1750	3	575	2.5	60	145T	TEFC	Baldor	M3558T-5
300-3-5	3	1750	3	575	3.3	60	182T	TEFC	Baldor	M3611T-5
500-5	5	1750	3	575	5.3	60	184T	TEFC	Baldor	M3615T-5
CH-6914	7.5	1750	3	575	8	60	213T	TEFC	Baldor	M3710T-5
C-7227	10	1750	3	575	11.4	60	213T	TEFC	Baldor	M3714T-5
CH-6819	10F	1750	3	575	11	60	215T	ODP	Baldor	M3313T-5
CH-6820	15	1750	3	575	16	60	254T	ODP	Baldor	M2513T-5
CH-6915	20	1750	3	575	19.1	60	256T	TEFC	Baldor	M2334T-5
CH-6692	25	1750	3	575	23.8	60	284T	ODP	Baldor	M2531T-5
CH-6917	30	1750	3	575	30	60	286T	TEFC	Baldor	M4110T-5
CH-6918	40	1750	3	575	40	60	324T	TEFC	Baldor	M4110T-5

GSI #	HP	RPM	PHASE	VOLTS	FLA	HZ	FRAME	STYLE	BRAND	MFG. #
100-3-50	1	1425	3	380	2	50	143T	TEFC	Baldor	M3546T-50
112-3-50	1.5	1425	3	380	2.5	50	145T	TEFC	Baldor	M3554T-50
200-3-50	2	1425	3	380	3.5	50	145T	TEFC	Baldor	M3558T-50
300-3-50	3	1425	3	380	4.4	50	182T	TEFC	Baldor	M3611T-50
500-3-50	5	1425	3	380	8.1	50	184T	TEFC	Baldor	M3615T-50
712-3-50	7.5	1425	3	380	12.7	50	213T	TEFC	Baldor	M3710T-50
1000-3-50	10	1425	3	380	15.5	50	215T	TEFC	Baldor	M3714T-50
CH-6874	10F	1425	3	380	15.5	50	215T	ODP	Baldor	M3313T-50
CH-6868	15	1425	3	380	25	50	254T	ODP	Baldor	M2513T-50
CH-6869	20	1425	3	380	32	50	256T	ODP	Baldor	M2515T-50
CH-6434	25	1425	3	380	39	50	284T	ODP	Baldor	M4103T-50
CH-6883	30	1425	3	380	46	50	286T	ODP	Baldor	M4104T-50
CH-6888	40	1425	3	380	58	50	324T	ODP	Baldor	M4110T-50

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THE GSI GROUP

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1004 E. Illinois St.  
Assumption, IL 62510  
Phone 217-226-4421  
Fax 217-226-4498

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