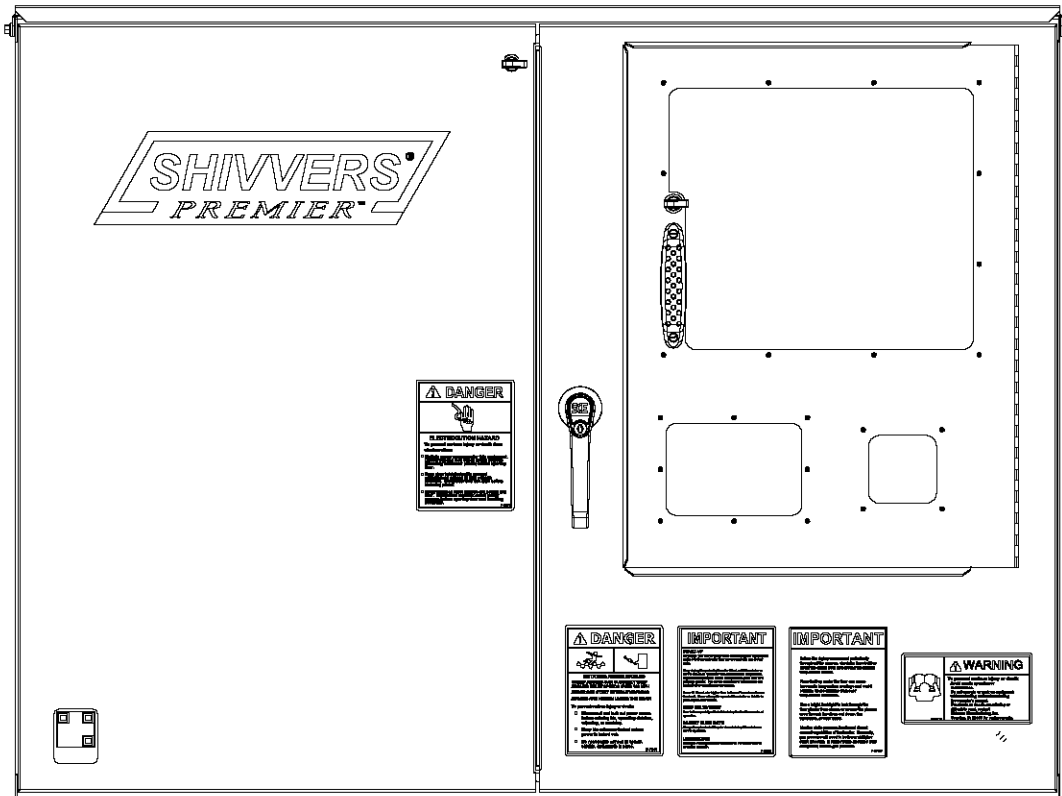


# SHIVERS

## PREMIER CONTROL

### 641(AG & AH)-001A

### Installation Manual



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P-13280  
JUNE 17, 2016

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# **SAFETY INFORMATION**

The installer of this machinery must assume the responsibility for his own safety, and the safety of those working with him. He must also make sure that the equipment is installed as shown in this manual.

If any items covered in this manual are not completely understood, or there is a concern with the safety of the product, contact SHIVVERS at the address shown on the front page.



TAKE NOTE ANYTIME EITHER OF THESE SYMBOLS APPEAR. YOUR SAFETY, AND THAT OF PERSONS AROUND YOU IS AT STAKE.

ALL ELECTRICAL WIRING SHALL BE INSTALLED IN COMPLIANCE WITH THE LATEST EDITION OF THE ANSI/NFPA STANDARD 70. NATIONAL ELECTRICAL CODE, AS A MINIMUM REQUIREMENT, AND IN COMPLIANCE WITH LOCAL WIRING CODES AS APPLICABLE.

WIRING MUST BE DONE BY A COMPETENT ELECTRICIAN. A LICENSED ELECTRICIAN IS RECOMMENDED, AND MUST BE USED WHEN REQUIRED BY LOCAL OR STATE STATUTES.

Field installable safety decals are supplied with this unit. These decals may also be provided with other equipment. Consult the "Operator's Safety Manual" (P-10001) for complete instructions on where and how to place field installed safety decals. If more decals are needed, contact the factory for additional ones. Make sure all decals and the safety lock kits are installed on the system as shown in the safety manual.

Read this installation manual completely before starting.

# **INTRODUCTION**

Read this manual, the operating instructions, and the operator's safety manual, completely before starting the installation.

The 641 series Premier drying system is designed as a complete, automatic in-bin dryer control with a touchscreen controller that gives the user access to their dryer data through any web interface device. The touchscreen will adjust the plenum temperature within the operator's set parameters to give the desired moisture content with limited over drying. The touchscreen has the ability to text the user when an alert condition has been reached, so downtime can be reduced.

The standard configuration comes with two motor starters which will control either the removal machine and one continuous flow auger, or two removal machine motors. It can control up to three fans and heaters, and has a low grain shut off to turn the system off when the grain depth gets too low. A static pressure sensor kit is included.

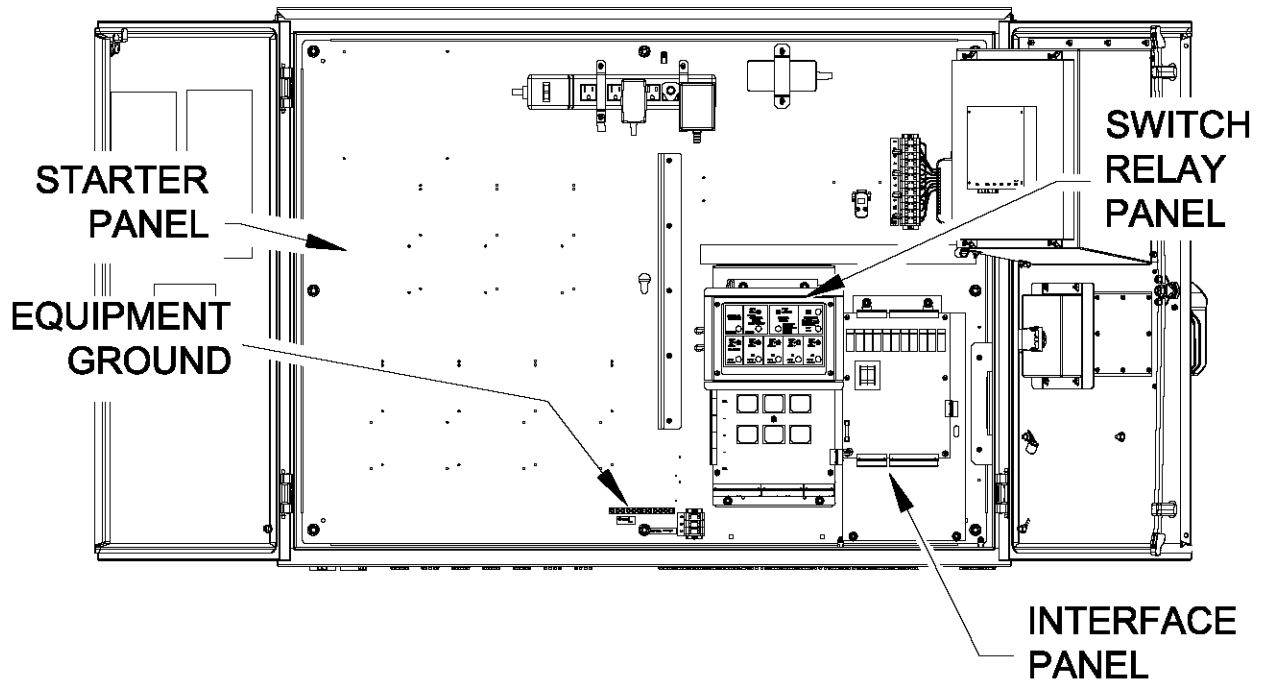
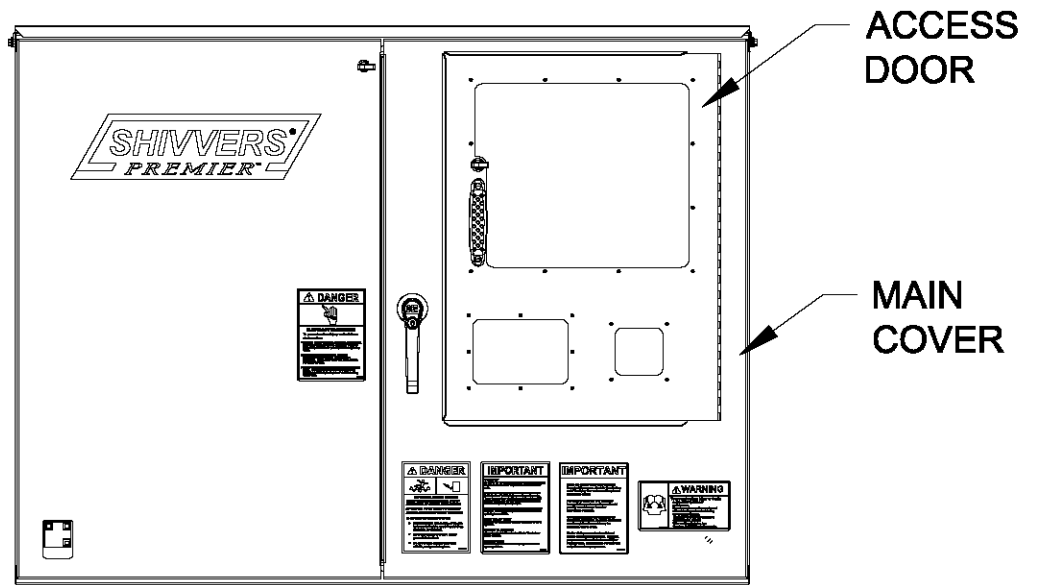
Available options include motor starters for up to a total of four transfer augers. If control of more than four transfer augers is required, an Expansion Box is available. Stepdown transformers are available for control power, but it is up to the installer to provide an enclosure. Other options include an ambient temperature and humidity weather station.

With the Premier drying system the printer has been made obsolete because the touchscreen stores the last 600 records in onboard memory. Also, all of the records are sent to a database that can be accessed from any web interface device. There is no longer a need for a sequential timer control on the transfer augers because this is now controlled by the touchscreen.

The touchscreens operating temperature is rated for -20 to 60°C (-4 to 140°F). The touchscreen storage temperature is rated for -30 to 70°C (-22 to 158°F). If temperatures cannot be maintained in this range, a climate controlled room is HIGHLY recommended. Temperatures inside the control panel can increase dramatically if exposed to direct sunlight. The touchscreen visibility will be very poor in bright sunlight. These are all reasons why it is best to mount it inside. Keep these things in mind when selecting a mounting location.

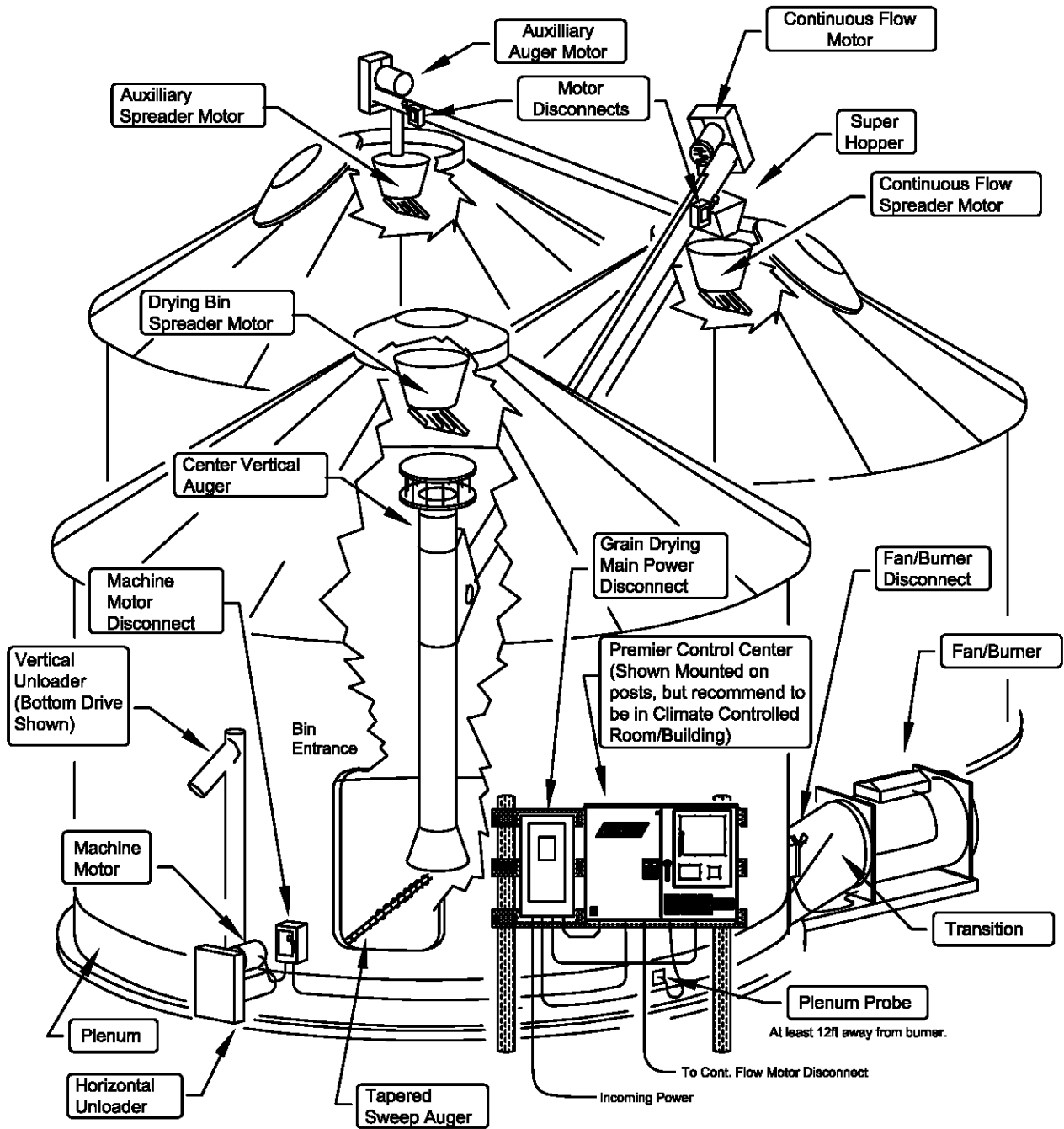
Every attempt is made to provide up to date instructions, but some items may change without notice. If in doubt about something, contact your dealer or the factory.

# PREMIER CONTROL FEATURES



# EQUIPMENT TERMINOLOGY

Note: Some supporting structures are omitted for clarity, this diagram is not to be used as an installation guide, but rather to quickly identify various parts & components of the system.

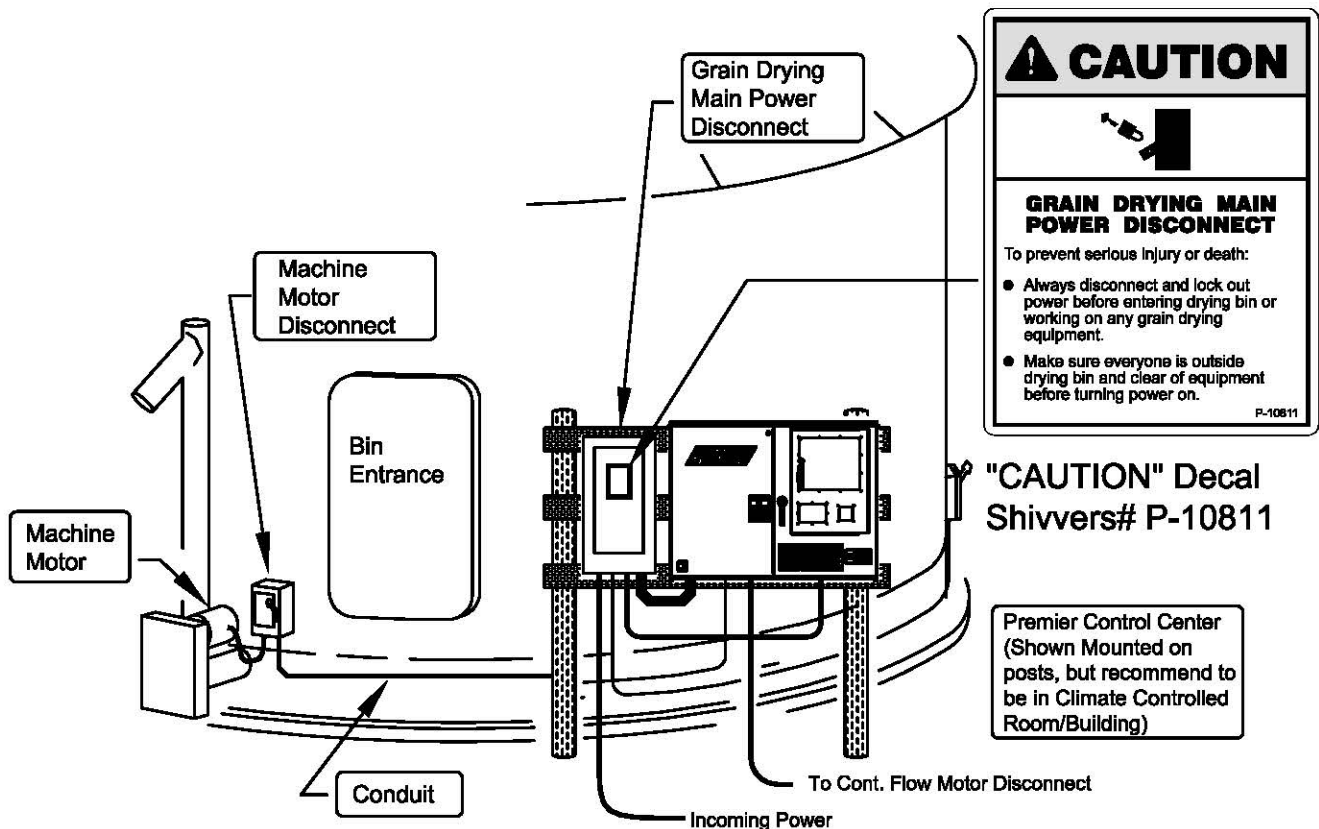


# MAIN POWER DISCONNECT (MECHANICAL INSTALLATION)

A main power disconnect switch box or main breaker load center must be wired immediately ahead of the Premier Control box. It must be of sufficient capacity to safely switch the entire grain drying electrical load, including fans. It should not switch off lights or 115V electrical outlets. This switch must also have the capability of being locked into the OFF position. It must be located within direct line of sight of the Premier Control, and should also be in close proximity to the grain bin's main entry door. Most systems will require a 200 Amp rating, and some may require a 400 Amp rating, or larger. Contact Shivers Incorporated if assistance is needed to size the proper disconnect.

When the main power disconnect is locked off, it will be electrically safe to enter the drying bin or open the control panels. If the separate light and outlet circuit is provided, it is more convenient to use the main power disconnect. The fans must be switched off with the same disconnect because their circuits are controlled by the Premier Control.

Make sure the safety decal P-10811 is applied to the main power disconnect. See the "Operator's Safety Manual", for complete instructions.

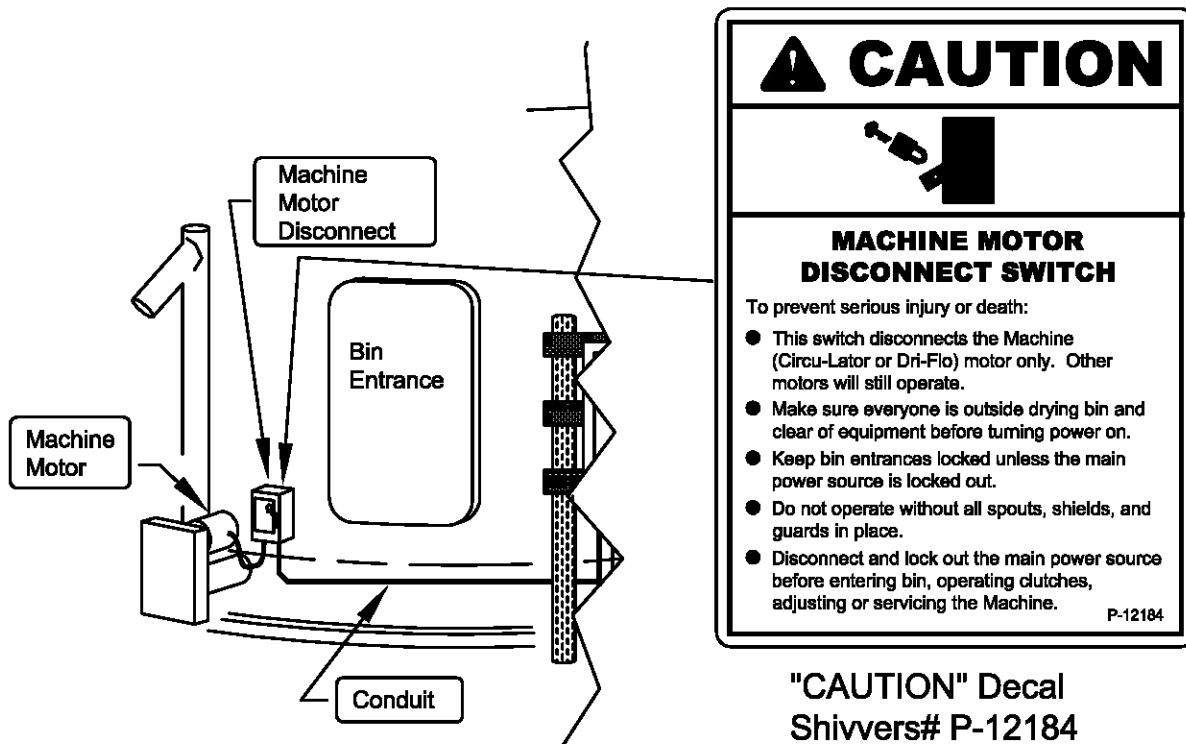


# MACHINE MOTOR DISCONNECT SWITCH (MECHANICAL INSTALLATION)

A Machine (Circu-Lator or Dri-Flo) Motor disconnect switch must be located adjacent to the bin entrance door. It must be of sufficient capacity to safely switch the Machine Motor, usually 10 or 15 Hp. This switch must also have the capability of being locked into the OFF position. Contact Shivers Incorporated if assistance is needed to size the proper disconnect.

High Torque Systems with 2-Motors will require two Machine Motor Disconnect Switches, one for each Motor.

Make sure the safety decal P-12184 is applied on or near the machine motor disconnect. See the "Operator's Safety Manual", for complete instructions.





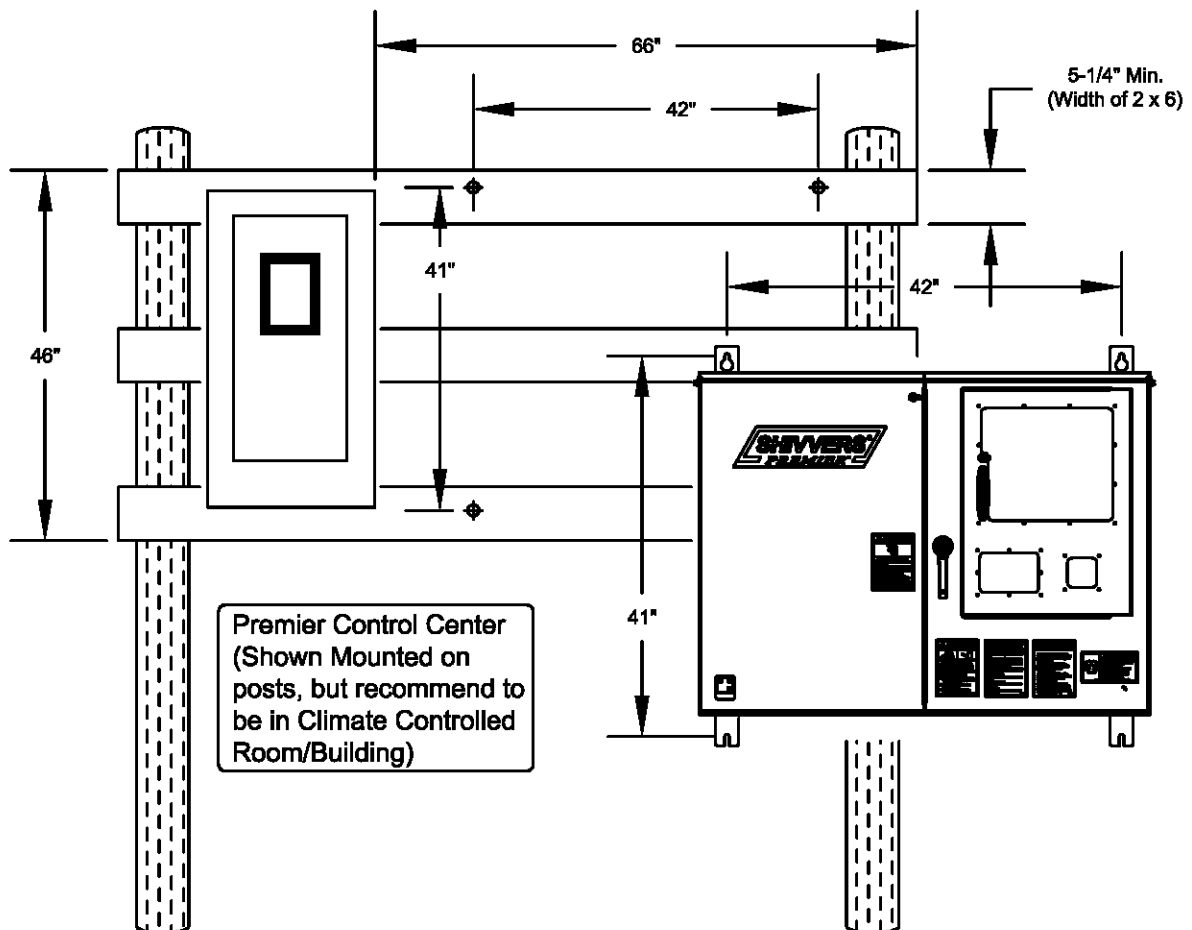
# PREMIER CONTROL INSTALLATION

## (MECHANICAL INSTALLATION)

The Premier Control box will require a 66" wide x 46" high area for mounting. Mounting flanges are on the top & bottom of the box. The touchscreen should be mounted near eye level so the screen, lights, & switches can be viewed and operated easily. Open the access door to locate the lights & switches. Leave room for the doors to swing open.

**Mounting hardware is not provided. It is recommended to use 1/2" mounting hardware.**

**The touchscreens operating temperature is rated for -20 to 60°C (-4 to 140°F). The touchscreen storage temperature is rated for -30 to 70°C (-22 to 158°F). If temperatures cannot be maintained in this range a climate controlled room is **HIGHLY** recommended.**

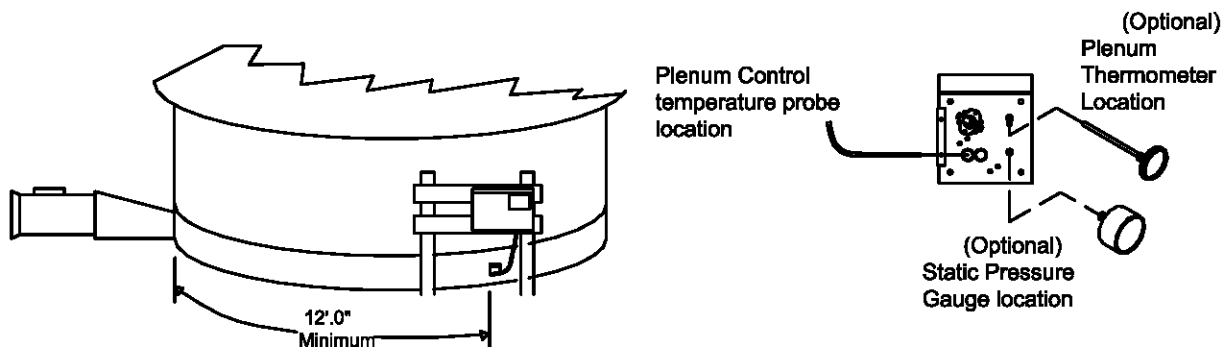


# PLENUM PROBE HOLDER (MECHANICAL INSTALLATION)

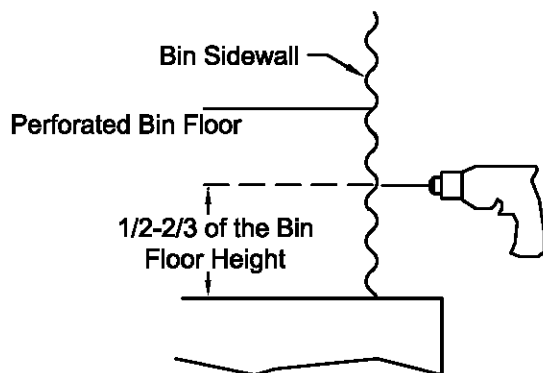
If possible, the Plenum Probe Holder should be mounted so that the 25' long temperature sensor will reach from the Premier Control Interface Panel to the holder. If it is not possible, extension kits are available to extend the temperature sensor cable.

The Plenum Probe Holder should also be located at least 12' away from the nearest fan/burner unit. The preferred location is directly across from a one-fan installation, as this is usually one of the hotter spots in the plenum.

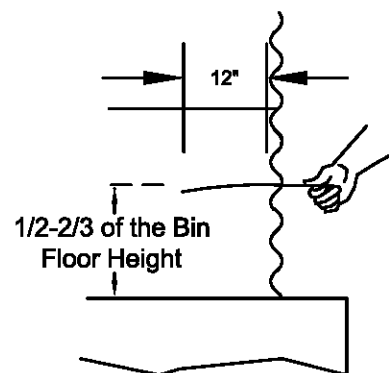
The Plenum Probe Holder has mounting holes for an optional Dial Thermometer, and/or Static Pressure Gauge, so keep this in mind when selecting a location.



Once a location is selected, drill a small hole 1/2-2/3 up from the bin concrete to the drying floor. Insert a wire 1 foot into the plenum area to make sure the hole is not obstructed by a floor leg or other structure. If it is obstructed, insert a sheet metal screw to plug the hole and move to another location. If clear, remove the mounting hole template from the probe holder and mark the opening on the bin. (See next page.)



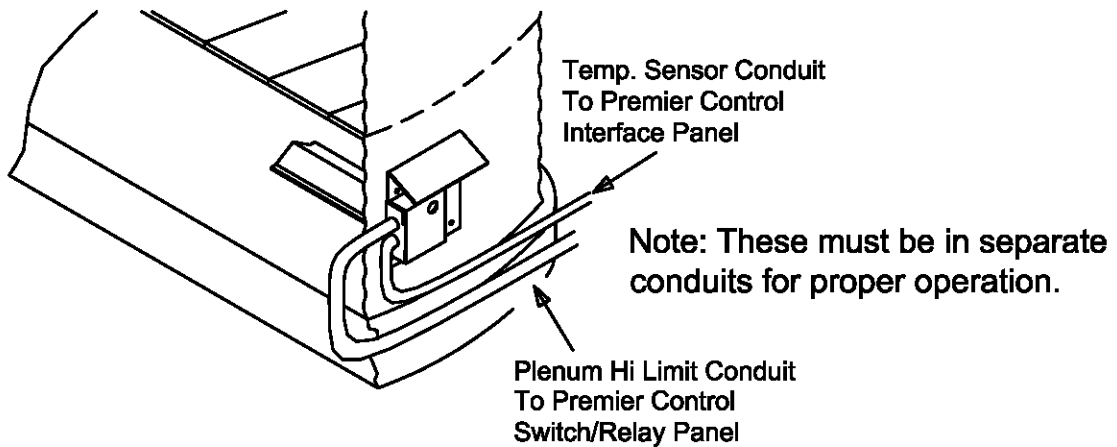
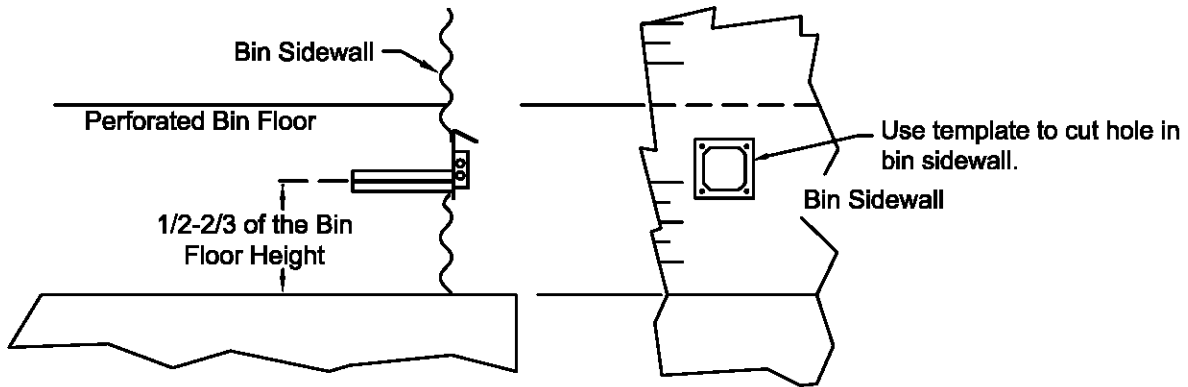
**DRILL SMALL HOLE (5/32") AT DESIRED LOCATION**



**USING A WIRE, CHECK FOR FLOOR LEGS OR OTHER OBSTRUCTIONS.**

# PLENUM PROBE HOLDER (MECHANICAL INSTALLATION)

Cut the hole into the bin and insert the probe holder. Make sure the dial thermometer and static pressure gauge holes are clear. Trim any required areas. Use 1/2 of the thum-seal provided in the 641AH-001A Accessory Parts Box to seal between the bin sidewall and the probe holder. Attach the probe holder with (4) 1/4 x 1-1/2 self drilling screws provided in the 295-184A Circuitrol & Probe Mounting hardware sack.



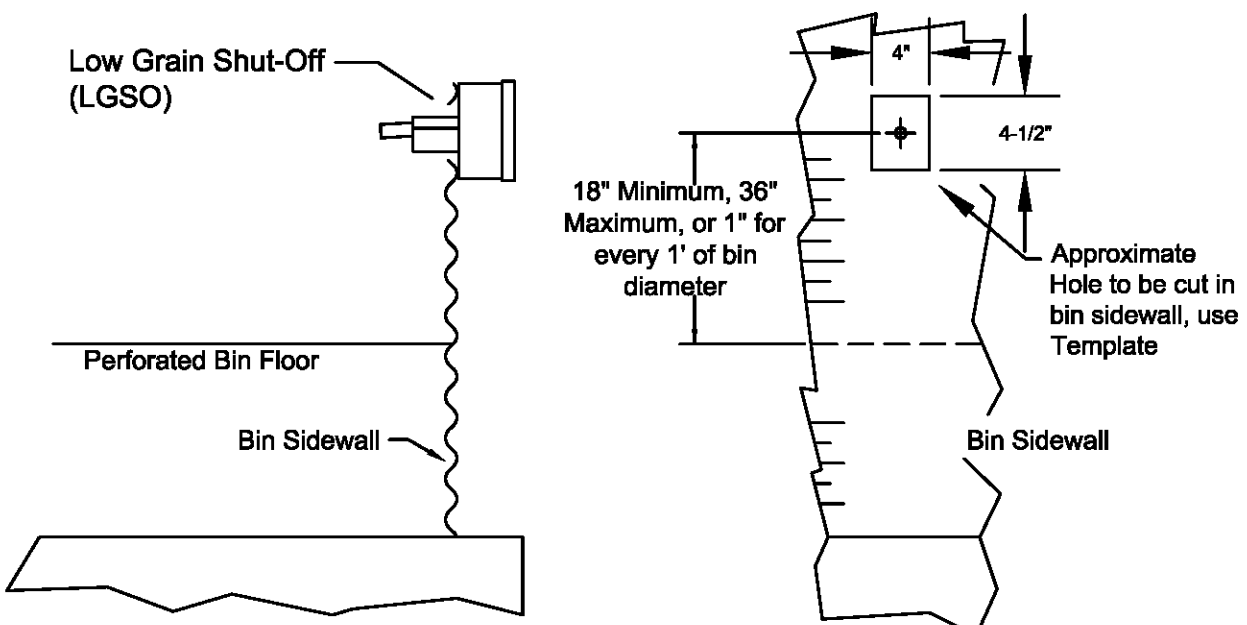
# LOW GRAIN SHUT OFF (MECHANICAL INSTALLATION)

The Low Grain Shut-Off (LGSO) is designed to shut the drying system down when the grain level in the bin falls below the LGSO box. The mounting height above the perforated bin floor is normally determined by the bin diameter. If a Level-Dry is installed, the minimum grain depth is set by the Level-Dry. If there isn't a Level-Dry installed, mount the LGSO box one inch above the drying floor for every foot of bin diameter.

The minimum distance should be 18" (without a Level-Dry) and the maximum should be 36" under any conditions. For a 30' diameter bin, the distance should be 30".

Using the Template is provided, mark and cut the 4" wide by 4-1/2" tall opening in the bin sidewall at the desired location. Use 1/2 the thum-seal provided in the 641AH-001A Accessory Parts Box to seal between the LGSO box and the bin sidewall.

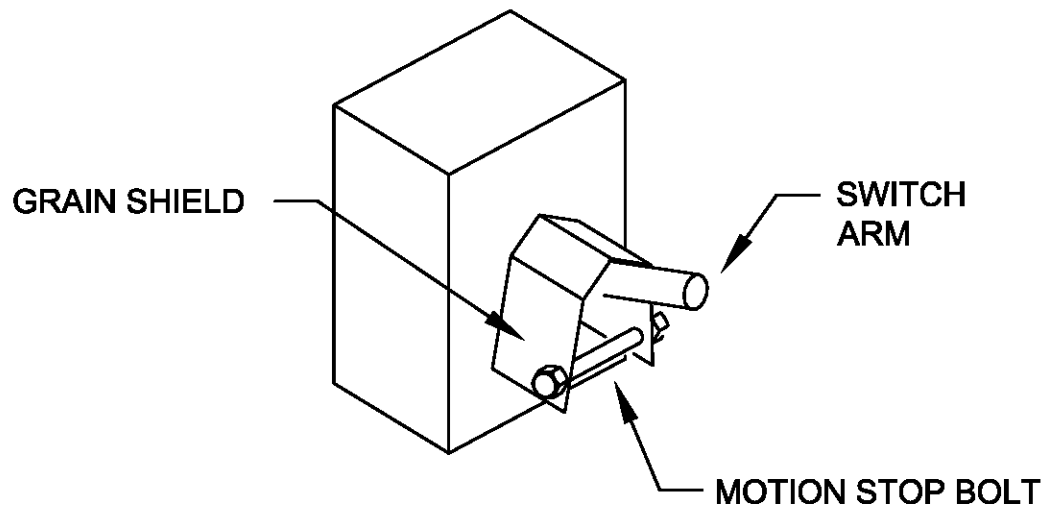
Place the LGSO on the bin and drill 4 mounting holes. Use the (4) 5/16 x 1-1/2" bolts and nyloc nuts to attach the box to the bin.



# **LOW GRAIN SHUT OFF** **(MECHANICAL INSTALLATION)**

Setup the Low Grain Shut-Off for operation as shown below:

BEFORE OPERATION THE LGSO SHOULD LOOK LIKE THIS...

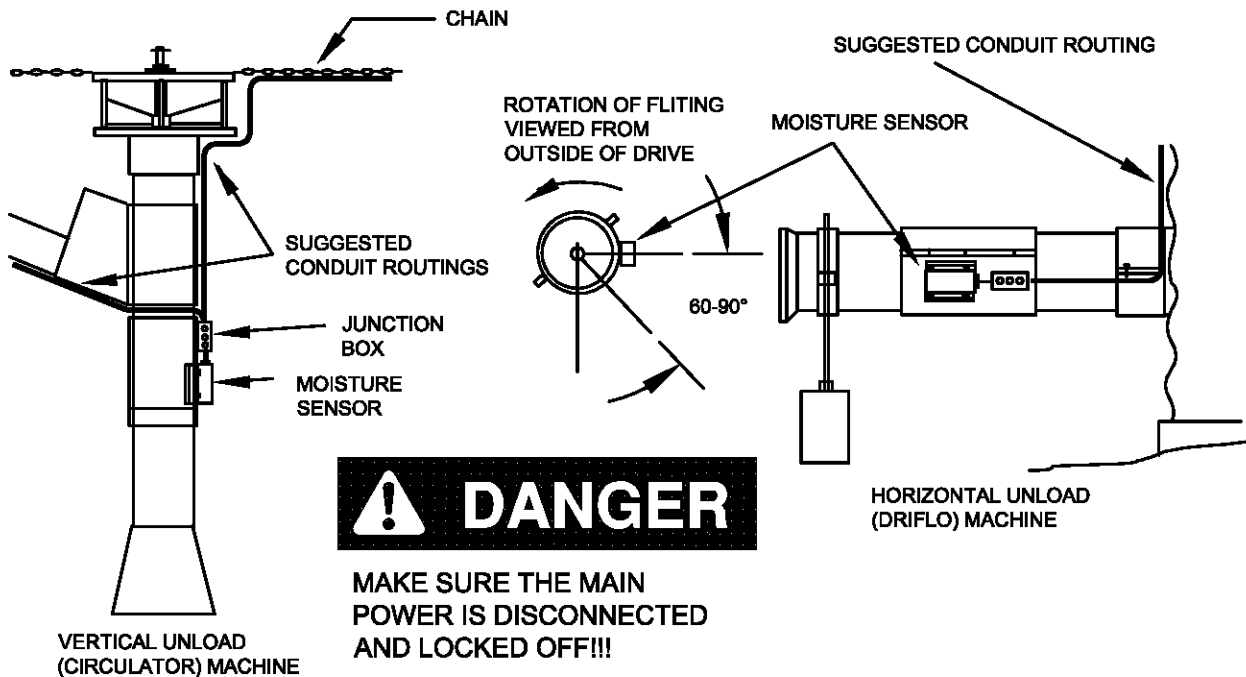


- 1.) REMOVE MOTION STOP BOLT
- 2.) SWING SWITCH ARM UP INTO GRAIN SHIELD
- 3.) REINSTALL MOTION STOP BOLT BELOW SWITCH ARM  
-DO NOT OVERTIGHTEN, TIGHTEN ONLY UNTIL  
BOLT HEAD AND NUT CONTACT SHIELD.

# MOISTURE SENSOR (MECHANICAL INSTALLATION)

For Center Vertical Machines the Moisture Sensor should be mounted below the lowest boot on the Center Vertical. There must be sufficient room above the Moisture Sensor for the wire conduit.

On bottom unloading machines the Moisture Sensor should be mounted on the climb side of the horizontal discharge tube at approximately 60-90 degrees from the bottom of the tube.



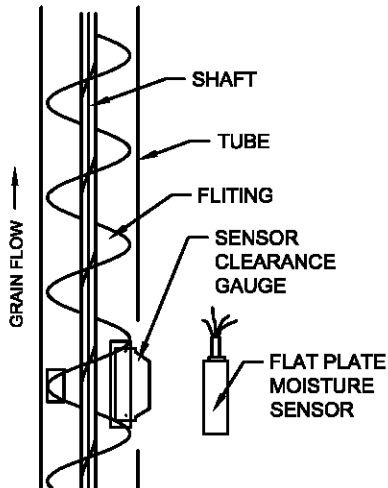
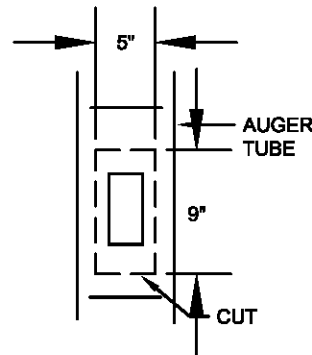
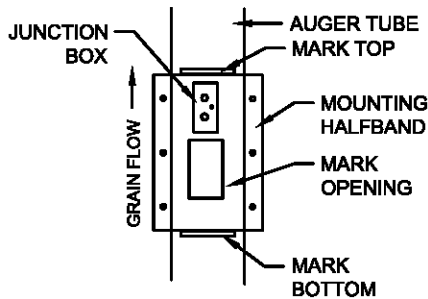
With the Flat Plate moisture sensor, at least 1-1/2" of fliting needs to be trimmed off the edge of the auger. Since it is not necessary to completely remove the fliting, a welder will not be required for most installations. On bottom unloading machines, the Moisture Sensor should be mounted 60-90 degrees up the climb side of the horizontal discharge auger. For bottom unloading machines with an 8" auger, the fliting should be completely removed to the shaft, unless Ultra High Capacity sweeps (1000 bu/hr, or higher) are used. Note that hanger bearing horizontal unloaders have the fliting pre-cut.

- (1) Hold the mounting halfband on the auger in the location desired. Make sure that the junction box on the halfband is towards conduit. Mark the outline of the rectangular opening, and both ends of the halfband, on the tube. Remove the halfband.

# MOISTURE SENSOR

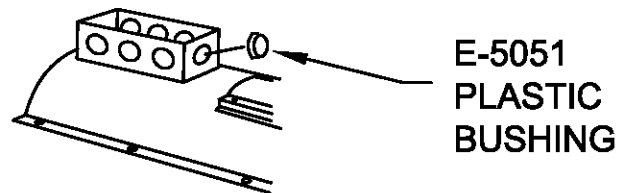
## (MECHANICAL INSTALLATION)

(2) Cut a rectangular hole in the auger tube approximately 1-1/2" - 2" larger than marked rectangle.



(3) Through this opening cut 1-1/2" off the edge of the fliting. Remove at least a 7" long strip to allow clearance for the sensor block. The cut edge can be reinforced, or hardfaced, if desired. It will wear faster than surrounding auger. For bottom unload machines with 8" augers and 500 bu/hr removal capacity, completely remove the fliting. Remember to weld the ends first.

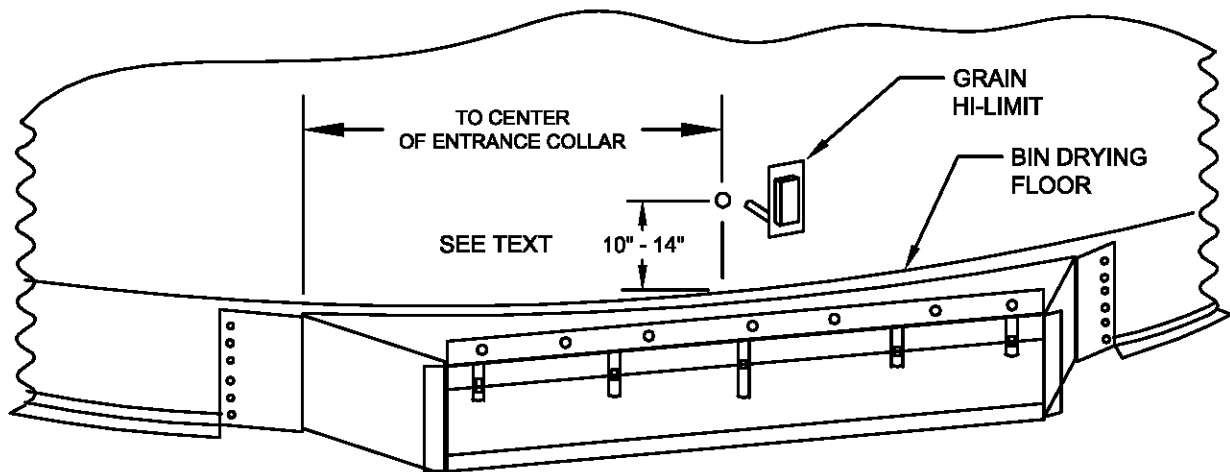
(4) Mount the halfbands on the auger tube. Then insert the Sensor Clearance Gage, Flat Plate, (597-643A), and have someone rotate the auger by hand to ensure clearance.



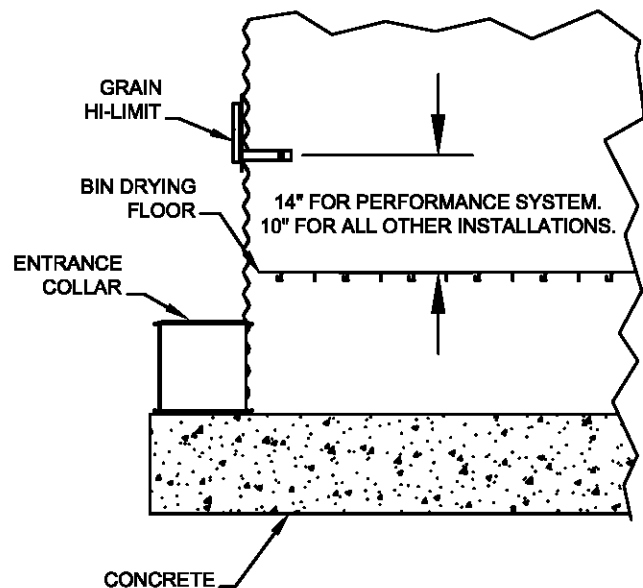
(5) Remove knockout in junction box nearest sensor opening and install plastic bushing into knockout. For bottom unload machines replace the plastic bushing with a cord grip or 2 screw connector to keep mice out of junction box. Put sensor wires through bushing in junction box. Attach the Moisture Sensor to the halfband with four 1/4-20x1/2" hex head cap screws and lock washers.

# GRAIN HIGH LIMIT (MECHANICAL INSTALLATION)

A Grain Hi-Limit is provided with each Shivers Blue Flame dryer. Install a Grain Hi-Limit for each fan/burner on the bin. The Grain Hi-Limit will shut down the fan(s) if the grain temperature exceeds 200°F. For Certified Performance Systems, the Grain Hi-Limit probe should be 14 inches above the bin drying floor to accommodate higher plenum temperatures. For other systems, the Grain Hi-Limit probe should be installed 10" above bin drying floor. If airway tubes are installed on the inside of the bin sidewall, make sure the Grain Hi-Limit is centered between them and as close to the center of the entrance collar as possible. Remove the black plastic shipping protector from the probe before installation. Use silicone or thum-seal around the probe to make a waterproof installation. For fans and burners without Grain Hi-Limits, purchase Shivers part # 527C-001A for each burner.



The Grain Hi-Limit contains a normally closed switch that opens at 200°F. If the grain gets too hot, it will open and shut off the fan(s). If there are two or more dryers on the bin, and one stops burning, the other one will try to make up all the heat and may trip the Grain Hi-Limit.





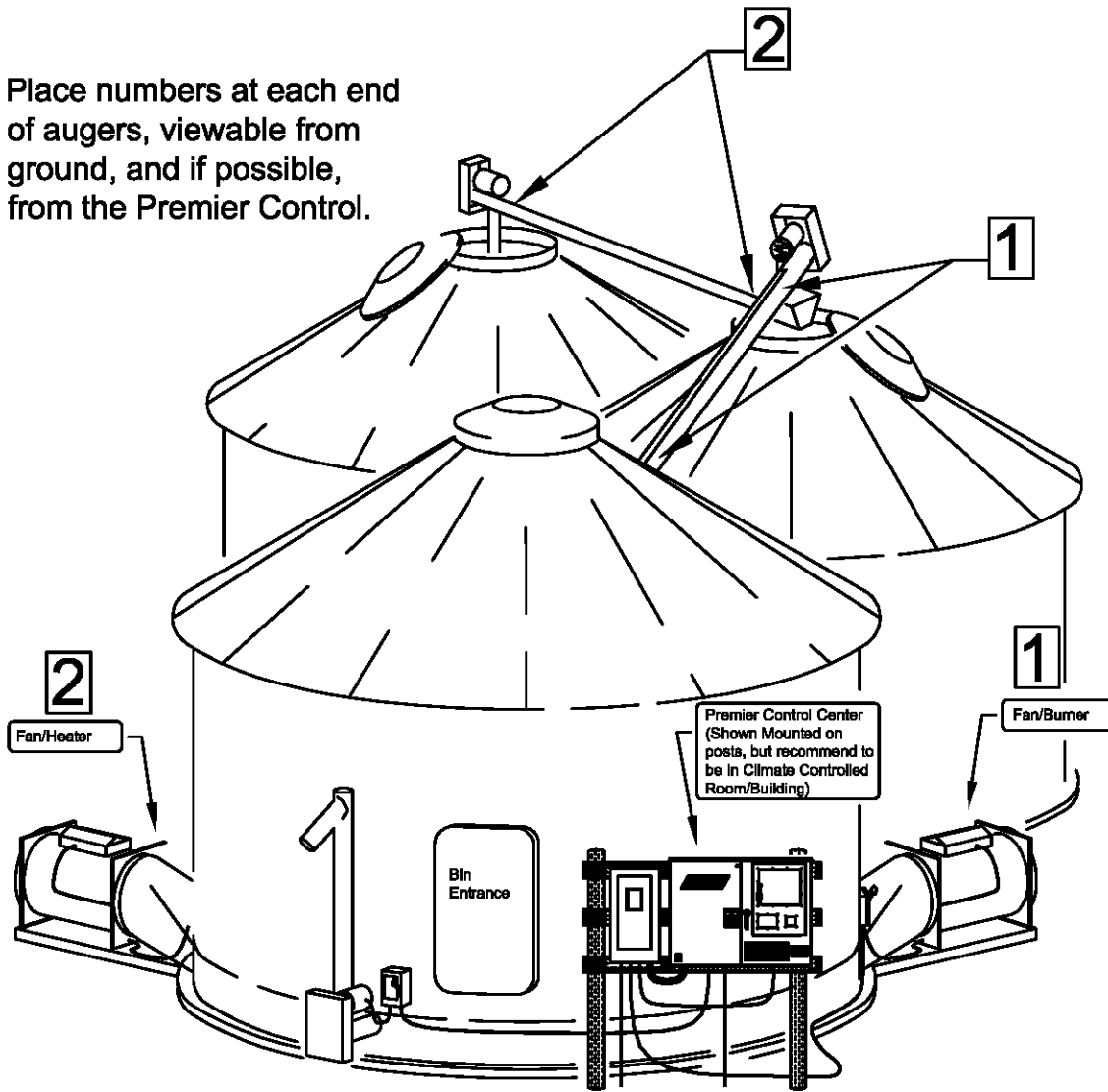
# NUMBERING EQUIPMENT (MECHANICAL INSTALLATION)

Located in the Manual Sack in the 641AH-001A is a set of 3" high self-stick numbers. These are to be applied to the transfer augers and fans/burners to identify them for wiring and operation. If more numbers are required, order them at Shivvers, Part# P-11342.

If possible, place numbers where they are easily viewable from the Premier Control Box. If not possible, make sure they are viewable from the ground and from near the auger motors. Place two numbers (one near each end) on each continuous flow and auxiliary auger.

Starting with 1 and going up, place one number on each fan/burner unit.

Place numbers at each end of augers, viewable from ground, and if possible, from the Premier Control.



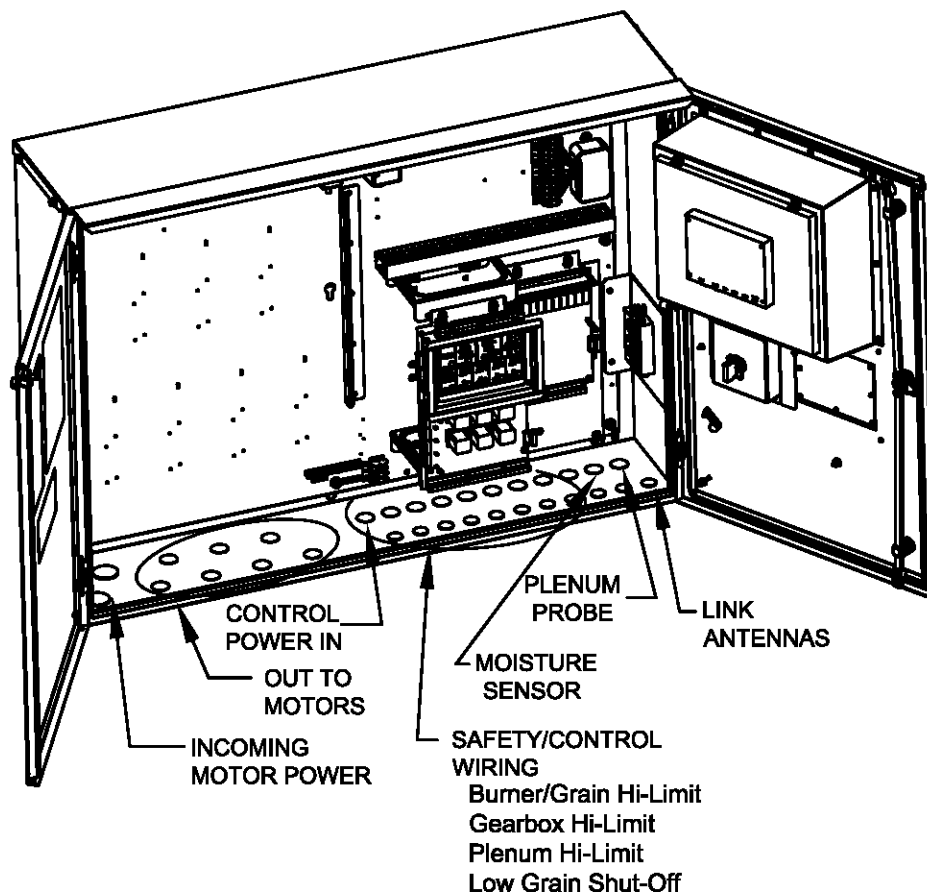
# ELECTRICAL INSTALLATION



**DANGER**

MAKE SURE THE MAIN  
POWER IS DISCONNECTED  
AND LOCKED OFF !!!

ALL ELECTRICAL WIRING SHALL BE INSTALLED IN COMPLIANCE WITH THE LATEST EDITION OF THE ANSI/NFPA STANDARD 70, NATIONAL ELECTRICAL CODE, AS A MINIMUM REQUIREMENT, AND IN COMPLIANCE WITH LOCAL WIRING CODES AS APPLICABLE. WIRING MUST BE DONE BY A COMPETENT ELECTRICIAN. A LICENSED ELECTRICIAN IS RECOMMENDED, AND MUST BE USED WHEN REQUIRED BY LOCAL OR STATE STATUTES.



## CONDUIT LOCATIONS DIAGRAM

Use these locations to help reduce electrical interference problems.

# **CONDUIT RUNS**

## **(ELECTRICAL INSTALLATION)**

### **PREMEIER CONTROL WIRING CONDUIT RUNS**

All control wires to be #14 AWG stranded unless otherwise noted:

#### **1.) BREAKER PANEL TO PREMIER CONTROL FOR CONTROL POWER:**

- 1 Black wire from 10 - 15 amp breaker.
- 1 White wire from neutral.
- 1 Green wire from ground.

Note 1: If optional control transformer is used, delete white wire, and add another black wire. Transformer must be installed in a separate Nema box.

Note 2: Do not run these wires in the same conduit as motor wires.

#### **2.) FROM EACH FAN/BURNER TO THE PREMIER CONTROL:**

- 7 Control wires.
- 1 ground wire.
- 2 Extra wires (optional).

Note 3: All wires may not be used depending on burner type.

#### **3.) GEARBOX HI-LIMIT TO PREMIER CONTROL:**

- 2 High temperature wires. (220 °F minimum) 70' provided with new systems.  
Located in the Horizontal Unloader Parts box.

#### **4.) PLENUM HI-LIMIT TO PREMIER CONTROL:**

- 2 Control wires.

#### **5.) LOW GRAIN SHUT OFF TO PREMIER CONTROL:**

- 2 Control wires.
- 1 White wire (optional) (May be required with some types of proximity sensors).

#### **6.) GRAIN HI-LIMIT TO EACH BURNER:**

- 2 Control wires.

Note 4: A green ground wire may be required with each conduit run. Check local regulations.

#### **7.) MOISTURE SENSOR TO Premier Control:**

- 75' of Shielded, 4-Wire Cable provided. Located in the 641AH-001A Parts Box.

#### **8.) PLENUM PROBE HOLDER TO Premier Control**

- 25' of Shielded, 2-Wire Cable provided. Located in the 641AH-001A Parts Box.

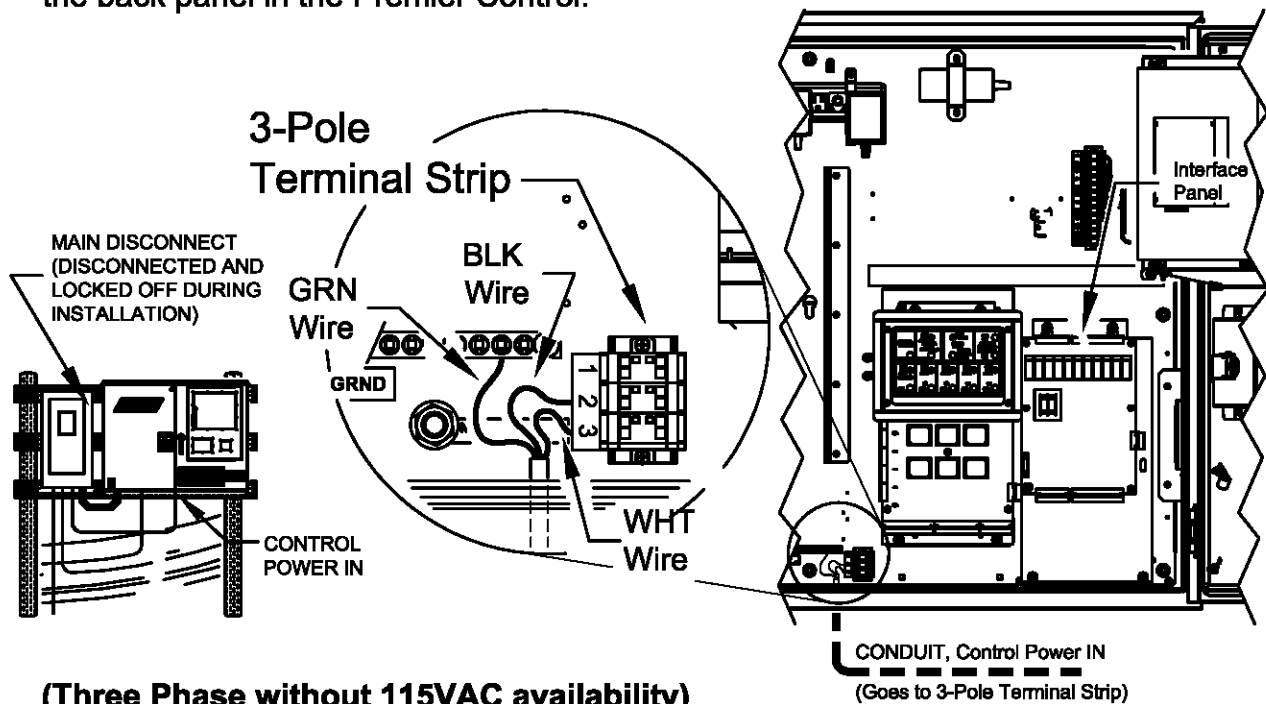
Note 5: The Premier Control left hand door can be removed by removing the hinge pins, and set aside for ease of wiring. Do not remove the door with the touchscreen.

# PREMIER CONTROL - 115VAC CONTROL VOLTAGE (ELECTRICAL INSTALLATION)

## WIRING CONTROL POWER FOR THE COMMAND CENTER

**(Single Phase and Three Phase with 115VAC availability)** (for other inputs see next section).

Control power for the Premier Control requires three wires in conduit from the main dryer disconnect supplied by a 10 - 15 amp breaker or fuse. (See the 1st Diagram in the Electrical Installation section for location of conduit into Premier Control). One each of black, white, and green #14 gauge wire is required. The black wire connects to the breaker or fuse in the Main Disconnect box. The other end of the black wire connects to terminal #2 of the 3-pole Terminal Strip on the panel. On three phase, make sure the 115VAC source is not on the wild leg. The white wire connects to neutral in the Main Disconnect panel. The other end of the white wire connects to the 3-pole terminal 3 on the panel. The green wire connects to ground in the Main Disconnect, the other end connects to Equip. Ground on the lower right-hand side of the back panel in the Premier Control.

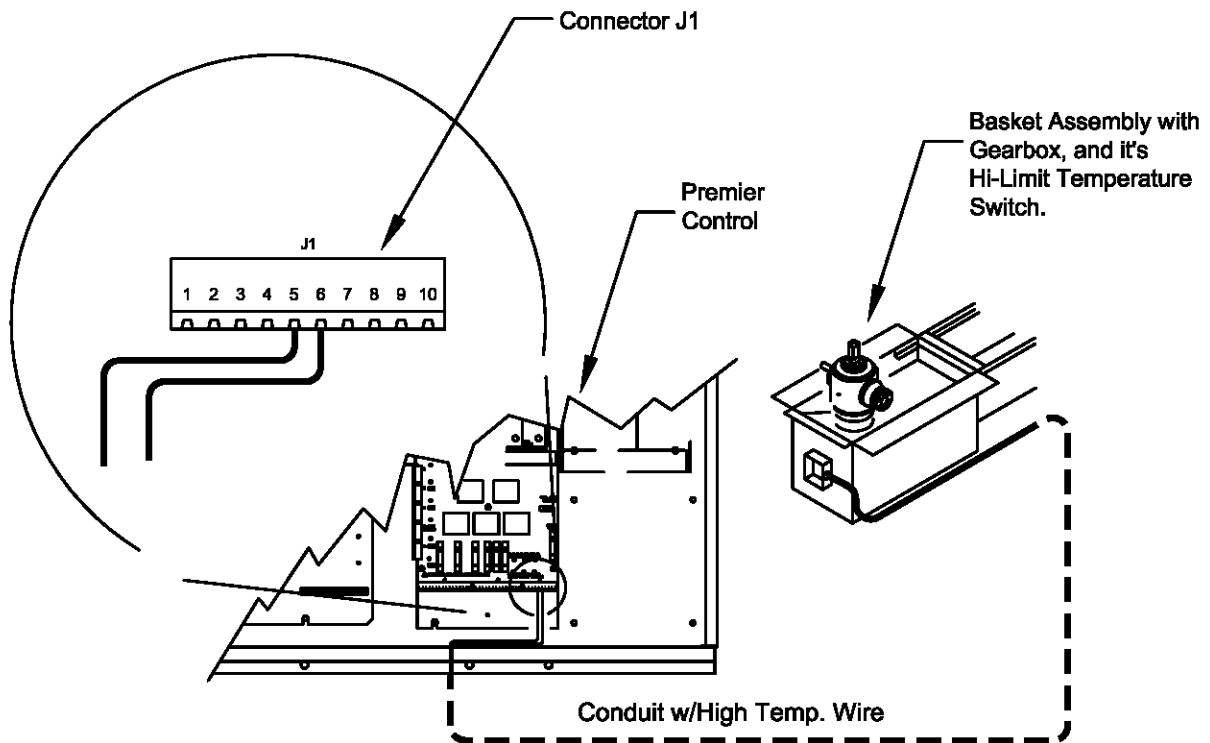


### **(Three Phase without 115VAC availability)**

The Premier Control must use a Transformer in Three Phase applications that don't have 115 VAC control power available. The white wire in the conduit run should be changed to black. The 2 black wires will come from the breaker or fuses in the Main Disconnect and will wire to transformer input. (See installation manual P-11354 supplied with the Shivers Transformer Installation Kit for complete wiring details). The Transformer must be mounted in its own box, not supplied.

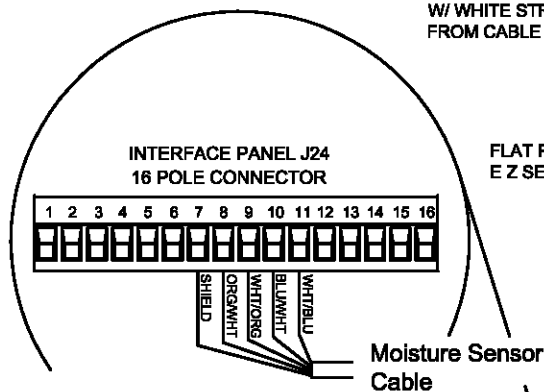
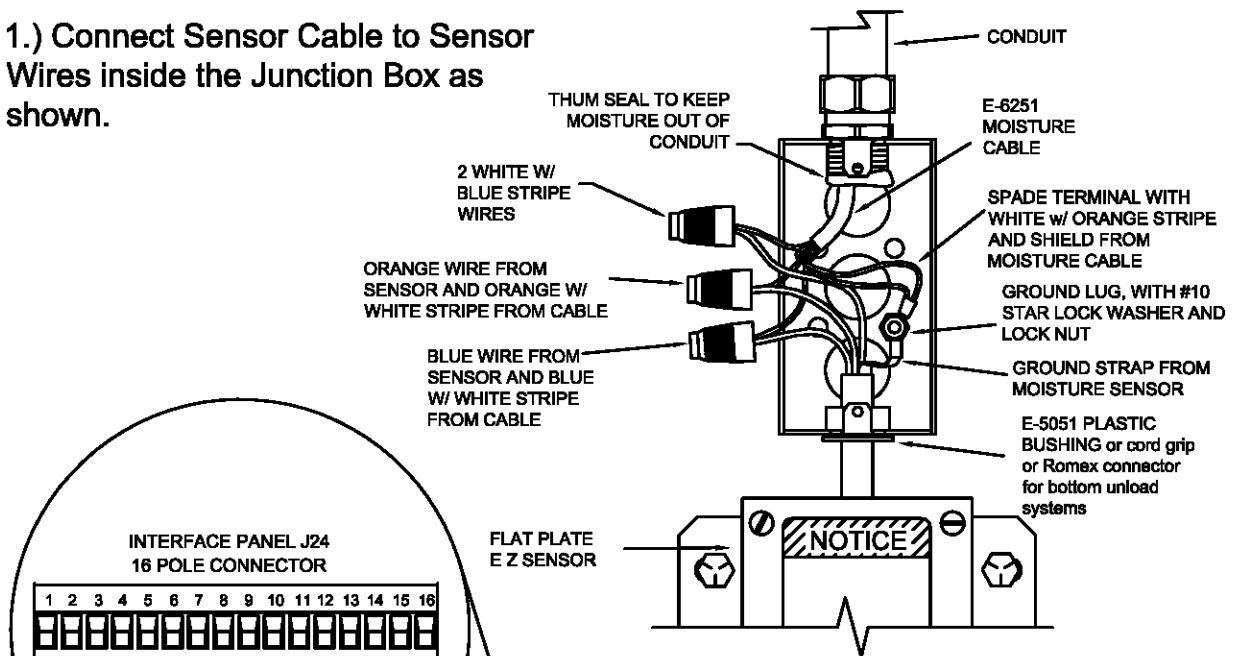
# **GEARBOX HI-LIMIT** **(ELECTRICAL INSTALLATION)**

The Gearbox Hi-Limit shuts the Fans and Burners down if high temperatures around the gearbox area occur. To wire up the Gearbox Hi-Limit, run conduit from the junction box on the gearbox basket assembly to the Premier Control. The wire must be high temperature wire, (220° F minimum) inside the bin. It is OK to change to regular temperature wire outside the bin. 641-046A Gearbox Hi-Limit Wire Assembly has 70' of high temperature wire provided. Locate it, in the Horizontal Unloader Parts Box. Bring the conduit into the Premier Control in the location shown in the 1st diagram in the Electrical Installation section. Connect the wires to terminals 5 & 6 on connector J1 of the Switch/Relay Panel. The Fans and Burners will not work with the Premier Control unless this circuit is hooked up.

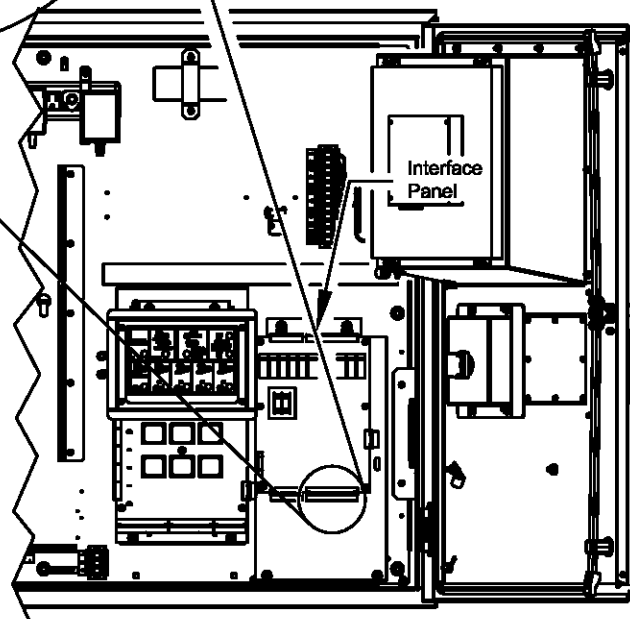


# MOISTURE SENSOR (ELECTRICAL INSTALLATION)

1.) Connect Sensor Cable to Sensor  
Wires inside the Junction Box as  
shown.



Note: Main Wire Color shown first. ORG/WHT=Orange Wire with a White Stripe.



NOTE: THE MOISTURE SENSOR CABLE CANNOT BE IN ANY CONDUIT OR TRAY WITH WIRES CARRYING ABOVE 50 VOLTS.

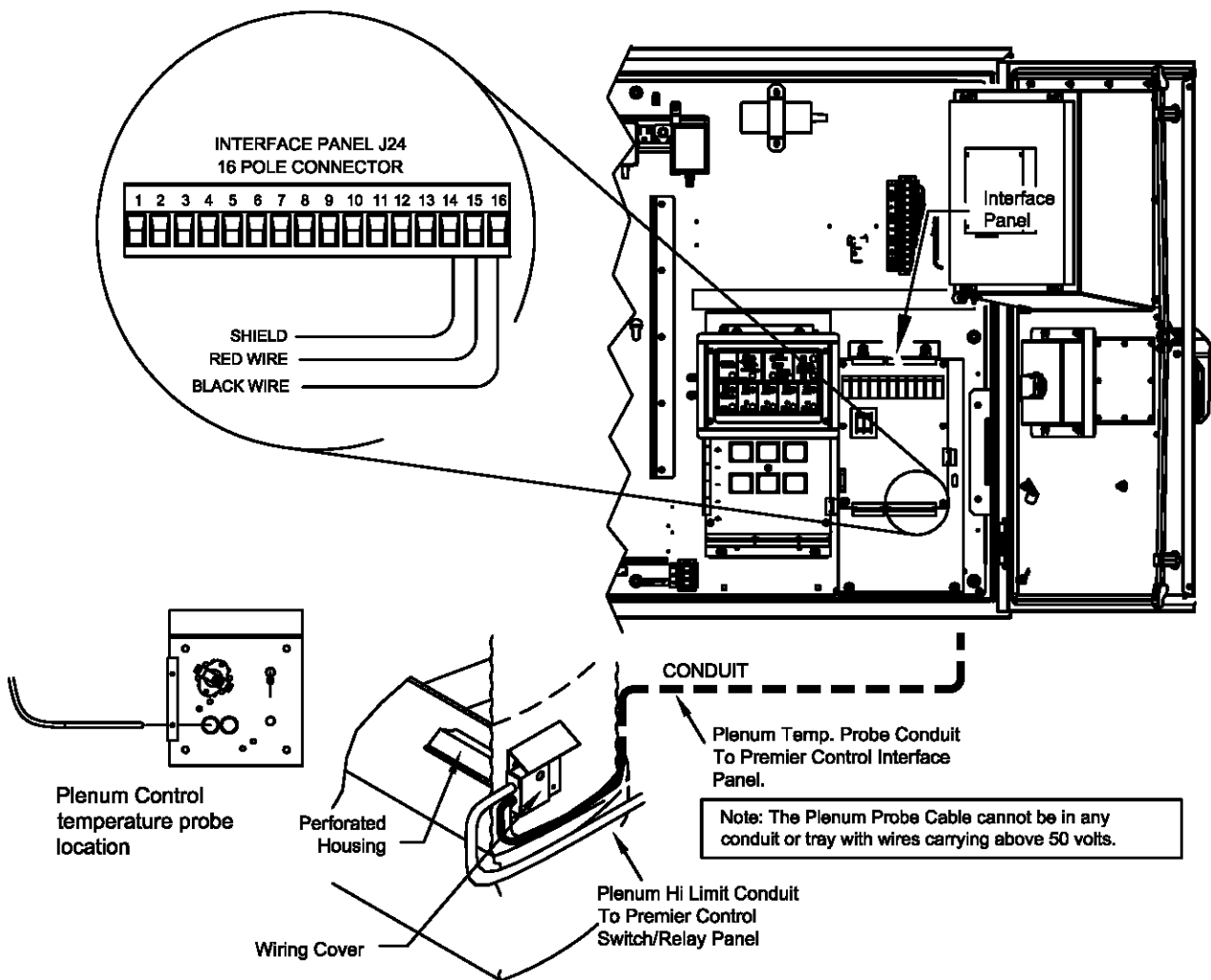
2.) Connect the wires to the J24 16-Pole Connector on the Interface Panel as shown in the enlarged view.

# PLENUM PROBE (ELECTRICAL INSTALLATION)

CONNECT PLENUM TEMP. PROBE TO THE INTERFACE PANEL IN THE PREMIER CONTROL.

Remove the wiring cover from the Plenum Probe Holder. Run conduit from the lower hole on the Plenum Temp Probe Holder to the Premier Control. (See Diagram below and 1st Diagram in the Electrical Installation section for conduit routing.) Pull the wire end of the Plenum Temp Probe assembly through the conduit, into the Premier Control, routing the cable as shown in the illustration. Leave enough cable at the probe holder to install the probe through the plastic bushing and up to 12 inches into the perforated housing. Trim off any excess wire from the plenum cable in the Premier Control.

Strip off 2.5" to 3" of the outer insulation of the plenum cable. Strip the wires and connect them to the 16 pole plug on the Interface Panel. The black wire connects to terminal 16, of the J24 plug, the red wire connects to terminal 15, of the J24 plug, and the shield connects to terminal 14, of the J24 plug.



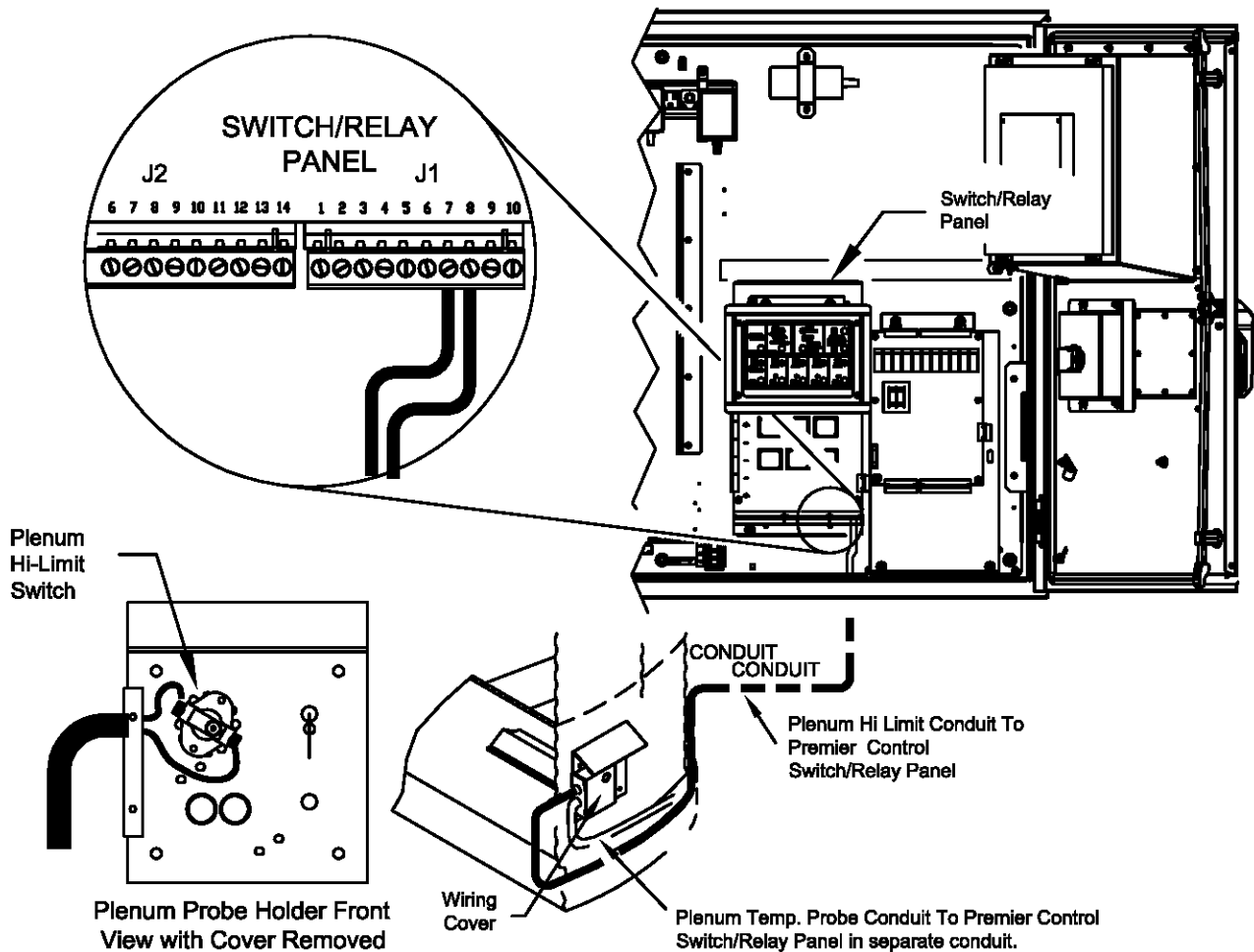
# PLENUM HI-LIMIT (ELECTRICAL INSTALLATION)

## WIRING THE PLENUM HI-LIMIT

The Plenum Hi-Limit shuts down the burners if the plenum temperature goes above 220°F.

Run conduit from the top hole in the Plenum Holder to the Premier Control using the 1st diagram in the Electrical Installation section and the diagram below as a guide. Pull 2 control wires through the conduit. Pull enough wire to connect to the bottom of the Switch/Relay Panel and to the Hi-Limit Switch in the Plenum Probe Holder. (DO NOT USE THE SAME CONDUIT AS THE TEMPERATURE SENSING PROBE !!!)

At the Plenum Probe Holder, connect a control wire to each screw or quick disconnect terminal on the Hi-Limit Switch. In the Premier Control connect one wire to J1 terminal 7. Connect the other wire to J1 terminal 8. The Wiring Decal inside the Main Cover can be used for reference if needed. Re-install the Wiring Cover on the Plenum Probe Holder. The Premier Control will not operate the burners if this circuit is not connected.

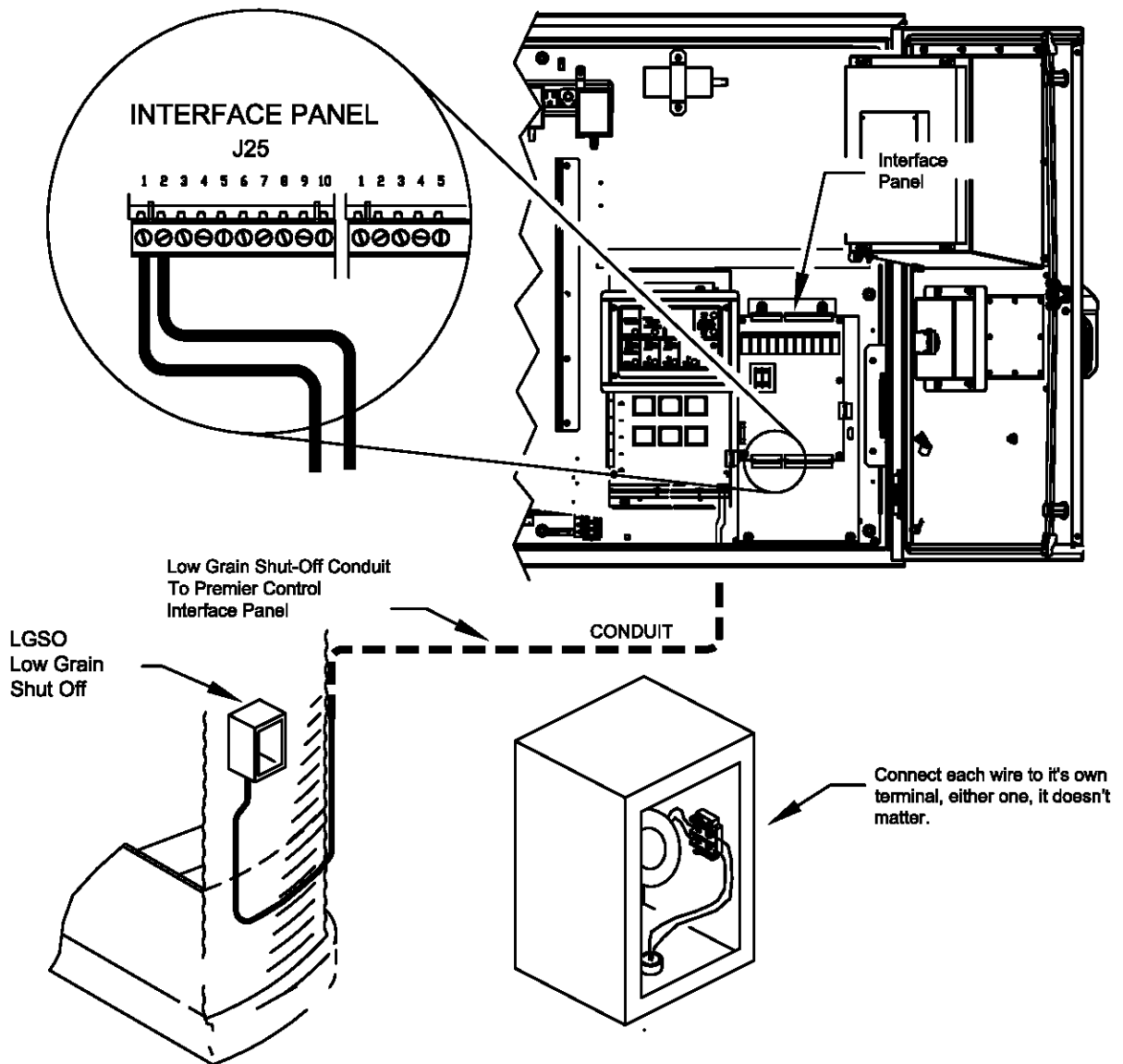




# LOW GRAIN SHUT OFF (ELECTRICAL INSTALLATION)

## WIRING THE LOW GRAIN SHUT OFF (LGSO)

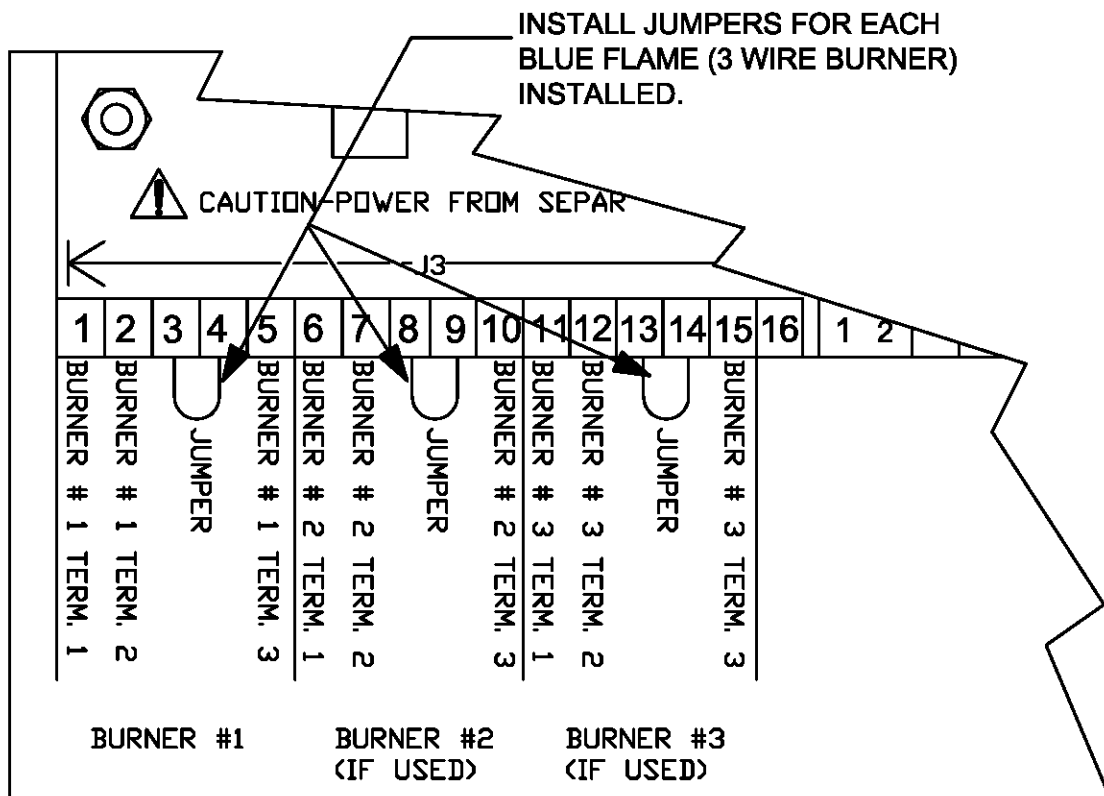
Install conduit from the Low Grain Shut Off to the Premier Control in the location shown on the 1st diagram in the Electrical Installation section. Pull 2 control wires through the conduit. Connect one wire to terminal 1 in the LGSO and connect the other wire to terminal 2. Connect the other end of the control wires to the 10 pole plug J25 on the Interface Panel. One wire connects to J25 terminal 1, (which is a 120VAC source), the other wire connects to J25 terminal 2.



# SHIVERS AXIAL BLUE FLAME MANUFACTURED AFTER 2003 (FANS AND BURNERS)

WIRING THE SHIVERS BLUE FLAME (manufactured after 2003) TO THE PREMIER CONTROL. (See appropriate section for other fans and burners.)

Install conduit to each fan/burner. Each run will require 7 control wires and one ground wire. Two extra control wires may be needed in some applications. Use the self sticking number decals in the manual sack to label the burners if more than one is being used. This will help in identification for wiring and operation. The green ground wire will connect to the ground lug inside the Blue Flame control box. The other end of the ground wire will connect to the Equipment ground in the Premier Control. The diagram below shows how the first three control wires connect to the Premier Control Switch/Relay Panel for each fan/burner. Be sure to install jumpers on Connector J3 for three wire operation.

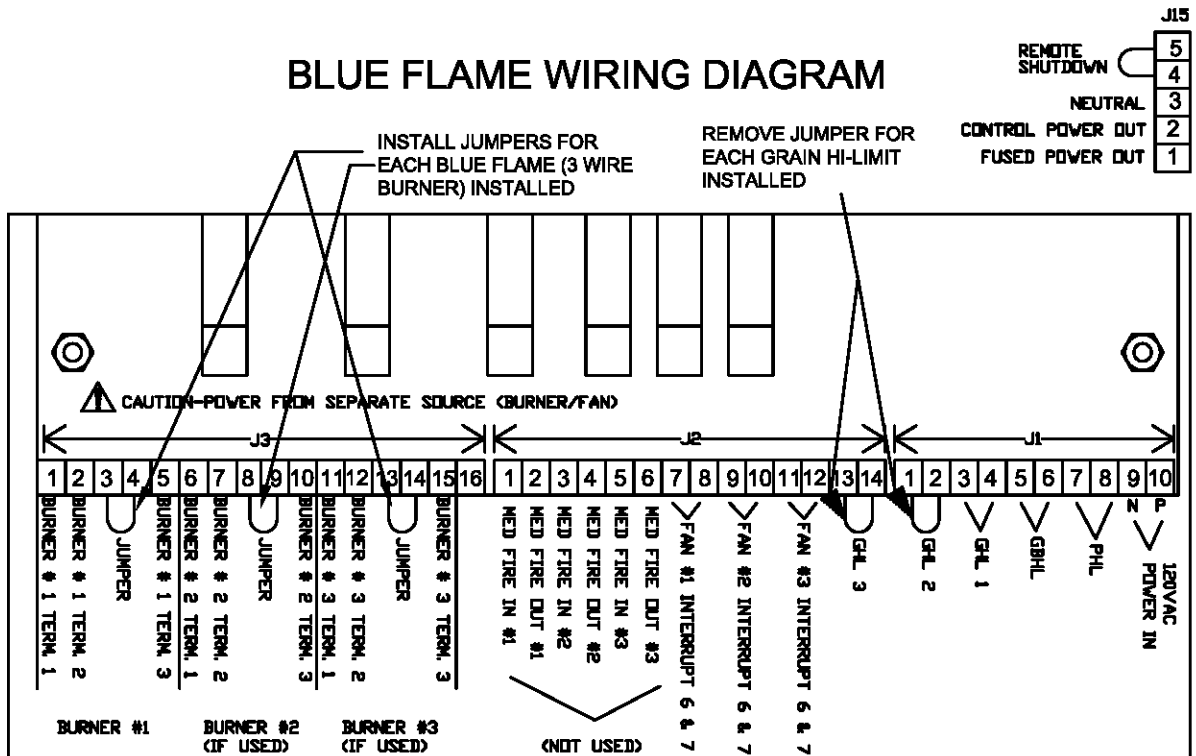


Note: Terminal numbers in the Burner refer to the large 12 pole terminal strip in the Blue Flame.

# SHIVERS AXIAL BLUE FLAME MANUFACTURED AFTER 2003 (continued) (FANS AND BURNERS)

The Grain Hi-Limit (GHL) must be wired for each Blue Flame Fan/Burner. The junction can be made in the Blue Flame Control Box or in a separate junction box on the bin sidewall. The GHL from Fan/Burner #1 connects to the 10 pole connector J1 terminals 3 and 4 on the Switch/Relay panel. If more than one GHL is to be wired to the Premier Control the jumpers for the corresponding GHL need to be removed. Do not remove any jumpers unless a GHL is being connected in its place. For GHL #2 remove the jumper from J1 terminals 1 and 2. For GHL #3 remove the jumper from J2 terminals 13 and 14.

To wire up the Fan Interrupt, terminals 6 and 7 in the Blue Flame control box need to be connected to 2 control wires running to the Premier Control. Terminals 6 and 7 come from the factory with a jumper installed between them. Remove the jumper in the Heater, and connect a control wire from the Premier Control to each terminal (6 & 7). In the Premier Control the 2 control wires connect to the Switch/Relay Panel 14 pole connector J2, terminals 7 and 8 for Fan # 1. Fan # 2 interrupt connects to J2 terminals 9 and 10. Fan # 3 connects to J2 terminals 11 and 12.

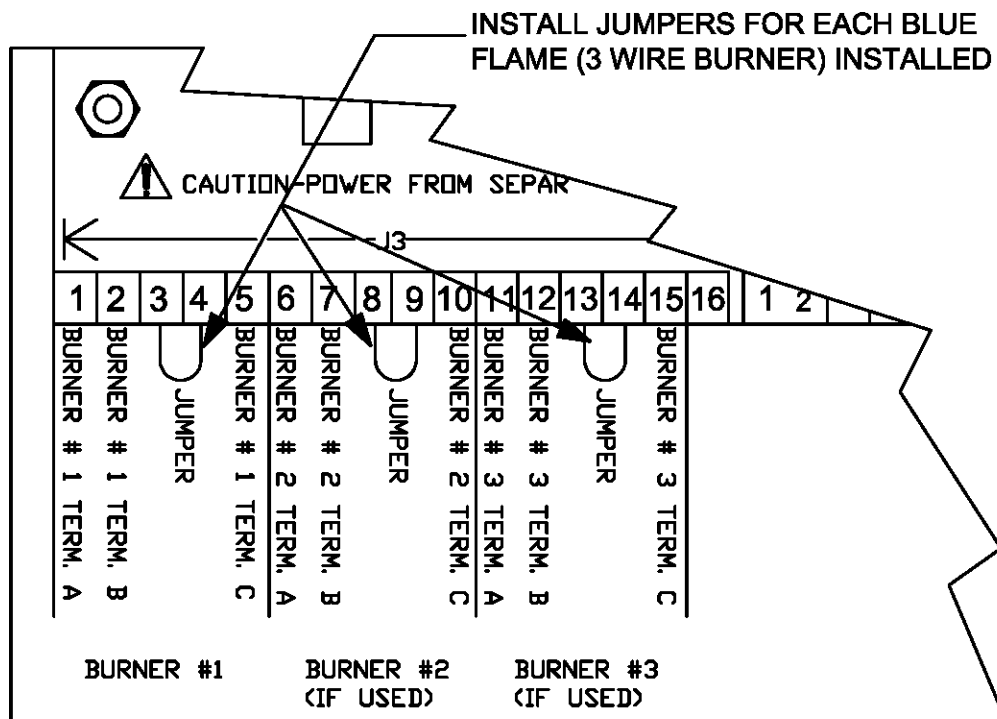


End of Axial Blue Flame Manufactured after 2003 Wiring, Go to page 37.

# SHIVERS AXIAL BLUE FLAME MANUFACTURED BEFORE 2003 (FANS AND BURNERS)

WIRING THE SHIVERS BLUE FLAME (manufactured before 2003) TO THE PREMIER CONTROL.

Install conduit to each fan/burner. Each run will require 7 control wires and one ground wire. Two extra control wires may be needed in some applications. Use the self sticking number decals in the manual sack to label the burners if more than one is being used. This will help in identification for wiring and operation. The green ground wire will connect to the ground lug inside the Blue Flame control box. The other end of the ground wire will connect to the Premier Control. The diagram below shows how the first three control wires connect to the Premier Control for each fan/burner. Be sure to install jumpers on Connector J3 for three wire operation.

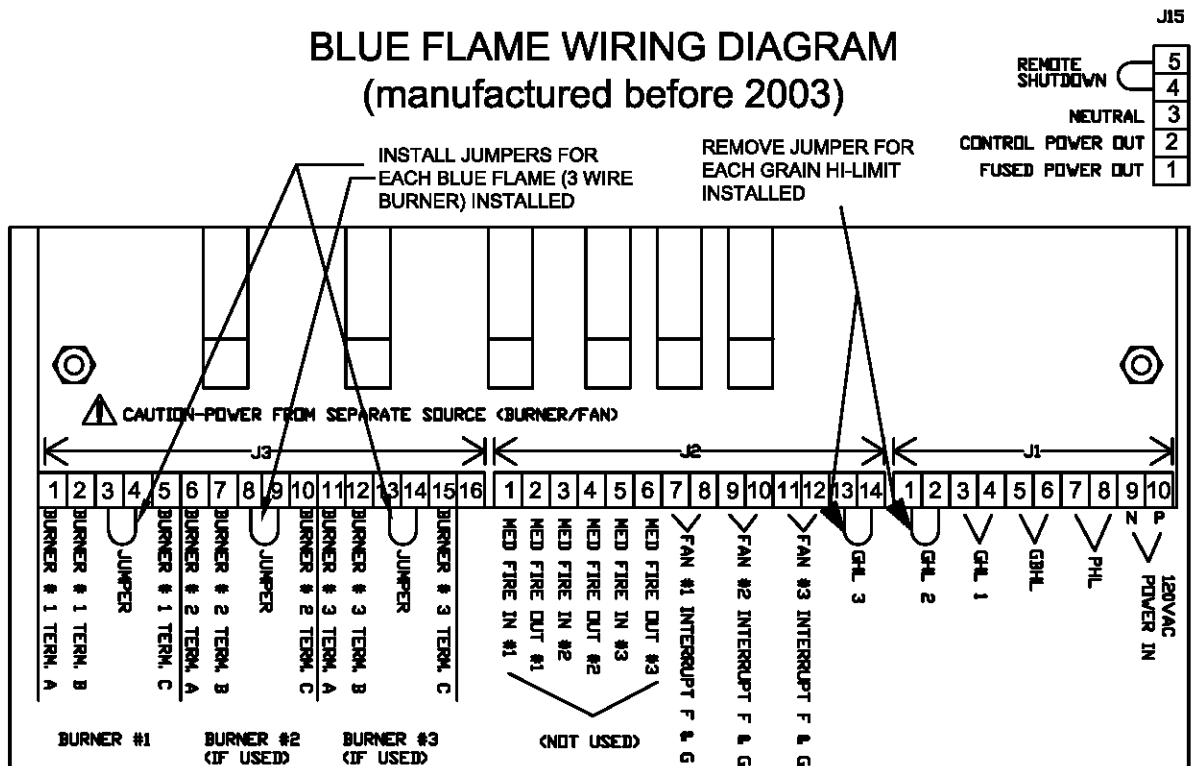


If the Gearbox Hi-Limit is connected to the fan/burner at terminals N and O, remove the gearbox wires from these terminals and install a jumper wire between terminals N and O. The Gearbox Hi-Limit wires will connect to 2 control wires coming from the Command Center. The other end of these control wires will connect to the 14 pole connector J1 terminals 5 and 6 on the Switch/Relay panel.

# SHIVERS AXIAL BLUE FLAME MANUFACTURED BEFORE 2003 (continued) (FANS AND BURNERS)

The Grain Hi-Limit (GHL) comes prewired to the Blue Flame Fan/Burner manufactured before 2003. This needs to be removed from terminals F and G in all fan/burners. If more than one fan/burner are present and a Grain Hi-Limit control box is used, unhook the Grain Hi-Limit control box. It is not needed. The GHL from Fan/Burner #1 connects to the 2 control wires coming from the Premier Control, and connects to the 10 pole connector J1 terminals 3 and 4 on the Switch/Relay panel. If more than one GHL is to be wired to the Premier Control the jumpers for the corresponding GHL need to be removed. Do not remove any jumpers unless a GHL is being connected in its place. For GHL #2 remove the jumper from J1 terminals 1 and 2. For GHL #3 remove the jumper from J2 terminals 13 and 14.

To wire up the Fan Interrupt, terminals F and G in the burner control box need to be connected to 2 control wires running to the Premier Control. Terminals F and G previously had the Grain Hi-Limit connected to them. In the Premier Control the 2 control wires connect to the Switch/Relay Panel 14 pole connector J2, terminals 7 and 8 for Fan # 1. Fan # 2 interrupt connects to J2 terminals 9 and 10. Fan # 3 connects to J2 terminals 11 and 12.

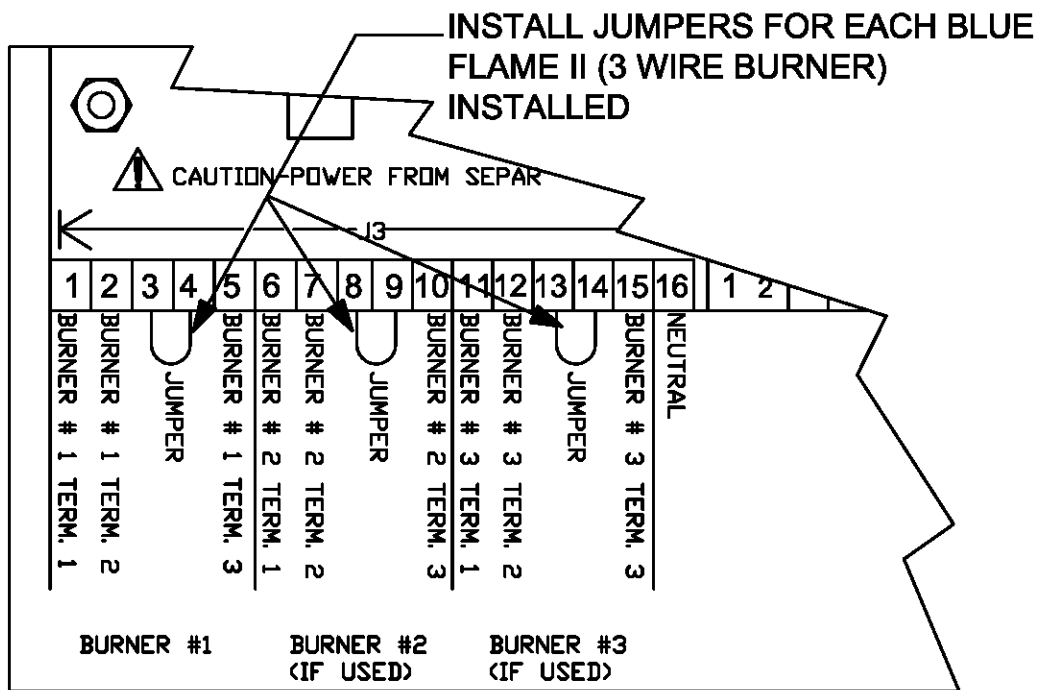


End of Axial Blue Flame Manufactured before 2003 Wiring, Go to page 37.

# SHIVERS CENTRIF. BLUE FLAME II MANUFACTURED AFTER 2003 (FANS AND BURNERS)

## WIRING THE SHIVERS CENTRIFUGAL BURNER BLUE FLAME II TO THE PREMIER CONTROL

Install conduit to each fan/burner. Each conduit will require 7 control wires and one ground wire. Two additional wires may be needed in some applications. Use the self sticking number decals in the manual sack to label the fan/burners if more than one is present. This will help in identification for wiring and operation. The ground wire will connect to the ground lug inside the burner control box. The other end of the ground wire will connect to the Equipment ground in the Premier Control. The diagram below shows how the first three wires connect to the Premier Control from the burner control box. Be sure to install jumpers on Connector J3 for three wire operation.



Note: Terminal numbers in the Burner refer to the large 12 pole terminal strip in the Blue Flame II.

# SHIVERS CENTRIF. BLUE FLAME II MANUFACTURED AFTER 2003 (continued) (FANS AND BURNERS)

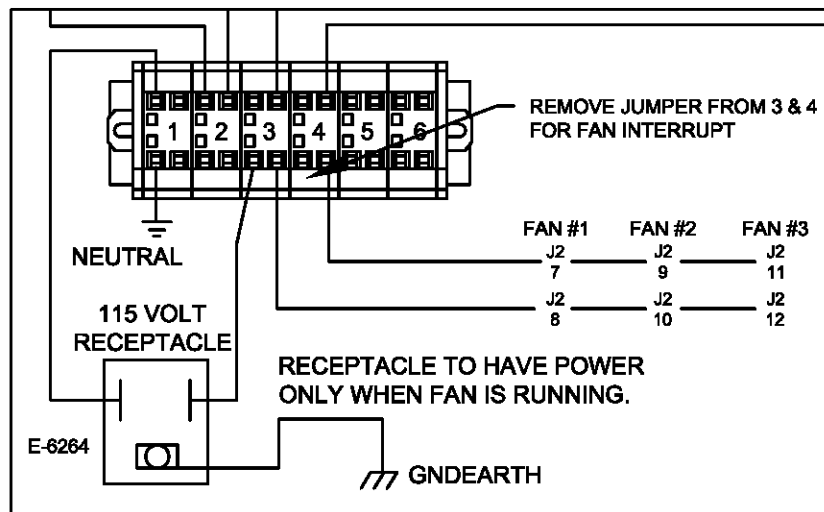
INSTALL CONDUIT FROM GRAIN HI-LIMIT TO THE BLUE FLAME II BURNER CONTROL BOX OR TO A JUNCTION BOX ON THE BIN SIDEWALL.

The Grain Hi-Limit (GHL) connects to 2 control wires running to the Premier Control. The GHL from Fan/Burner #1 connects to the 10 pole connector J1 terminals 3 and 4 on the Switch/Relay panel. If more than one GHL is to be wired to the Premier Control, the jumpers on connector J1 & J2 need to be removed for each Hi-Limit installed. See Diagram on next page for more information.

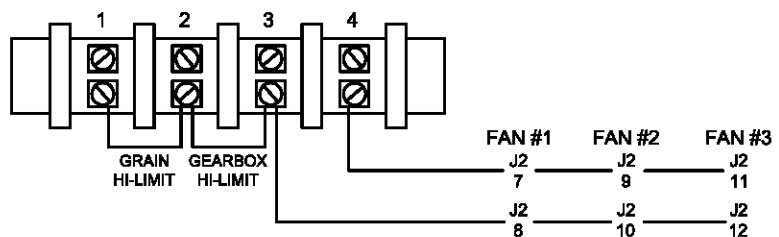
Select the appropriate section (1-3) for wiring the fan shutdown circuit.

- ① To wire up the Shivers Centrifugal Fans, see diagram below along with the diagram on the following page.

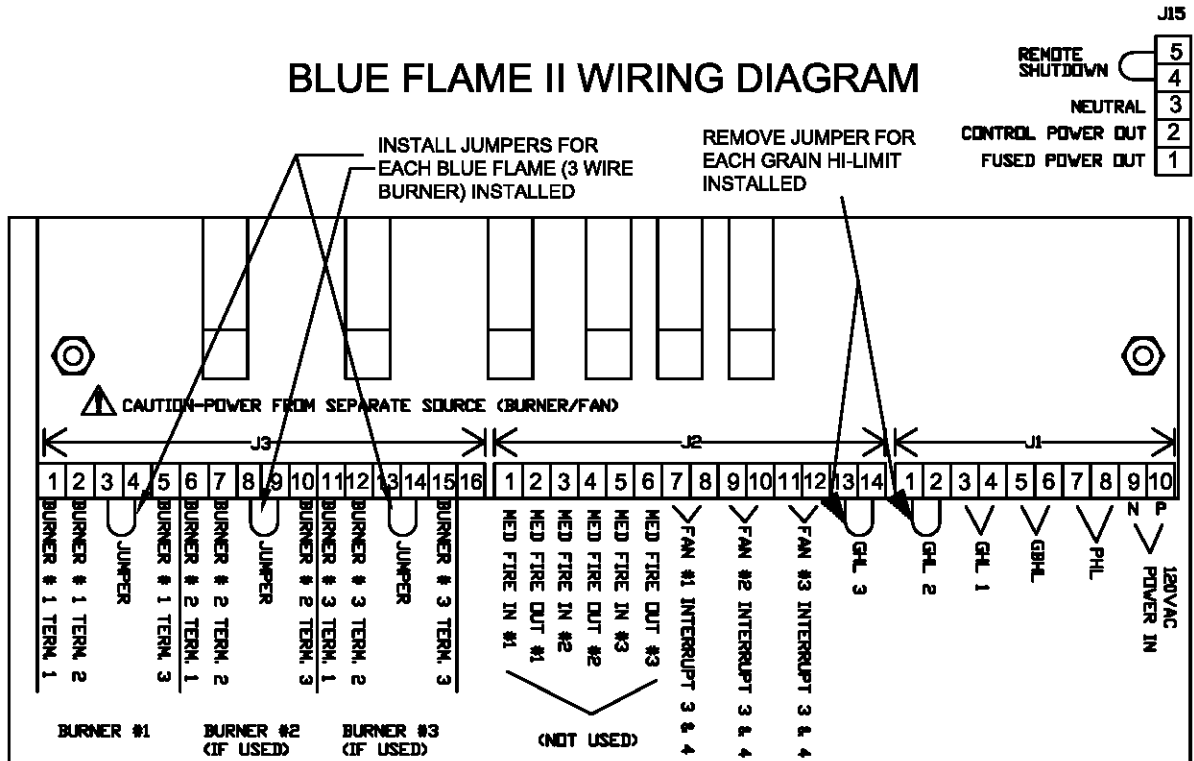
SHIVERS C-FAN(S) W/ GALVANIZED HOUSING



- ② When wiring up the CECO/Shivers Fan w/ 4 pole terminal strip, the Grain Hi-Limit and Gearbox Hi-Limit wire straight to the Premier Control. Put jumpers back in between terminals 1 & 2 and 2 & 3. Remove the jumper from 3 & 4 and wire to Premier Control Fan Interrupt.



# SHIVERS CENTRIF. BLUE FLAME II MANUFACTURED AFTER 2003 (continued) (FANS AND BURNERS)



- ③ To wire up the fan interrupt to the Shivers/Caldwell C-Fan, disconnect the wire going to the bottom side of the 3 amp fuse in the fan control box. Connect this wire to one of 2 control wires running to the Premier Control. Connect the other control wire to the bottom side of the 3 amp fuse. The other end of the control wires connect to the 14 pole connector J2 terminals 7 and 8 on the Switch/Relay panel for Fan #1. Fan #2 connects to J2 terminals 9 and 10. Fan #3 connects to J2 terminals 11 and 12.

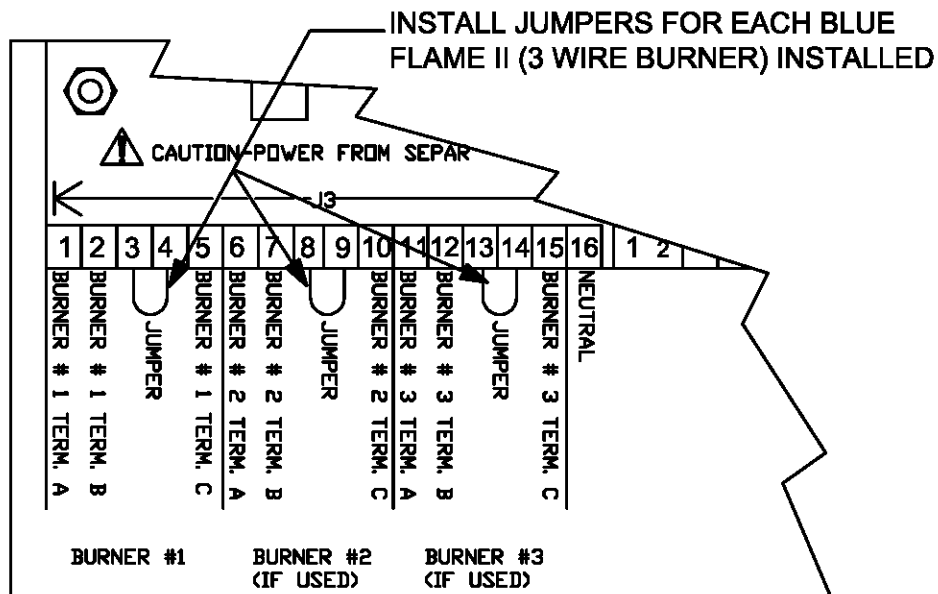
End of Blue Flame II Manufactured after 2003 wiring. Go to Page 37



# SHIVERS CENTRIF. BLUE FLAME II MANUFACTURED BEFORE 2003 (FANS AND BURNERS)

## WIRING THE SHIVERS CENTRIFUGAL BURNER BLUE FLAME II TO THE PREMIER CONTROL

Install conduit to each fan/burner. Each conduit will require 7 control wires and one ground wire. Two additional wires may be needed in some applications. Use the self sticking number decals in the manual sack to label the fan/burners if more than one is present. This will help in identification for wiring and operation. The ground wire will connect to the ground lug inside the burner control box. The other end of the ground wire will connect to the Equipment Ground in the Premier Control. The diagram below shows how the first three wires connect to the Premier Control from the burner control box. Be sure to install jumpers on Connector J3 for three wire operation.



If the Gearbox Hi-Limit is already installed in the fan circuit, remove it and connect the 2 Hi-Limit wires to 2 control wires running to the Premier Control. The 2 control wires connect to the 10 pole connector J1 terminals 5 and 6 on the Switch/Relay panel.

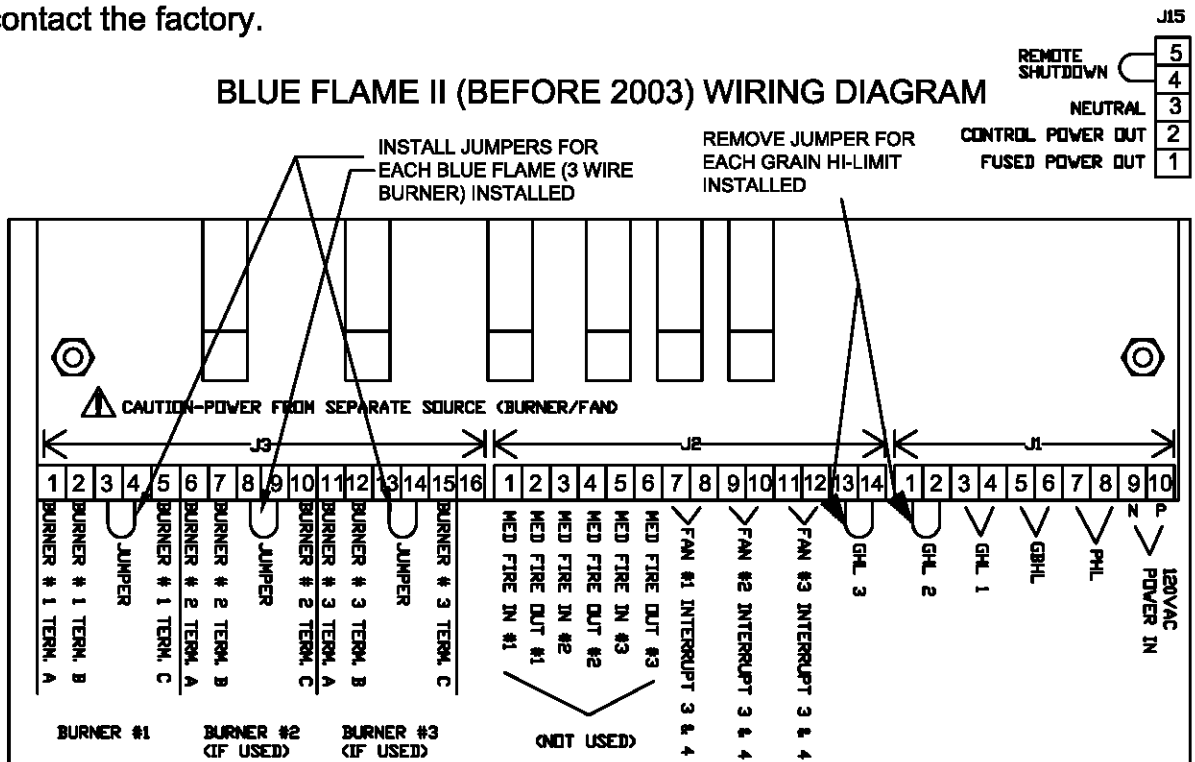
# SHIVERS CENTRIF. BLUE FLAME II MANUFACTURED BEFORE 2003 (continued) (FANS AND BURNERS)

INSTALL CONDUIT FROM GRAIN HI-LIMIT TO THE BLUE FLAME II BURNER CONTROL BOX

The Grain Hi-Limit (GHL) connects to 2 control wires running to the Premier Control. The GHL from Fan/Burner #1 connects to the 10 pole connector J1 terminals 3 and 4 on the Switch/Relay panel. If more than one GHL is to be wired to the Premier Control, the jumpers on connectors J1 & J2 need to be removed for each Hi-Limit installed. If the Premier Control is being wired to an existing system and a Grain Hi-Limit control box is installed, disconnect the wiring from the Grain Hi-Limit control box. It is not needed.

To wire up the fan interrupt to the Shivers/Caldwell C-Fan, disconnect the wire going to the bottom side of the 3 amp fuse in the fan control box. Connect this wire to one of 2 control wires running to the Premier Control. Connect the other control wire to the bottom side of the 3 amp fuse. The other end of the control wires connect to the 14 pole connector J2 terminals 7 and 8 on the Switch/Relay panel for Fan #1. Fan #2 connects to J2 terminals 9 and 10. Fan #3 connects to J2 terminals 11 and 12.

For other C-Fan interrupt wiring see the previous section, the generic section, or contact the factory.



End of Blue Flame II manufactured before 2003 wiring, Goto page 37

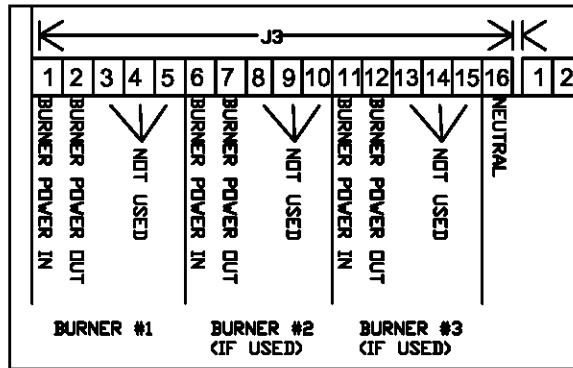
# GENERIC (FANS AND BURNERS)

GENERIC FAN/BURNER WIRING INSTRUCTIONS FOR THE Premier Control  
(See appropriate section to match fan/burner installed)

## 2 Wire Control (On/Off)

Three wires are needed for a two wire burner system. Two control wires and one ground wire. The two control wires connect to the 16 pole connector J3 to the Burner Power In and Low Fire Out. The ground wire connects to the Equipment ground in the Premier Control, and the ground lug in the burner control box.

TWO WIRE BURNER CONTROL

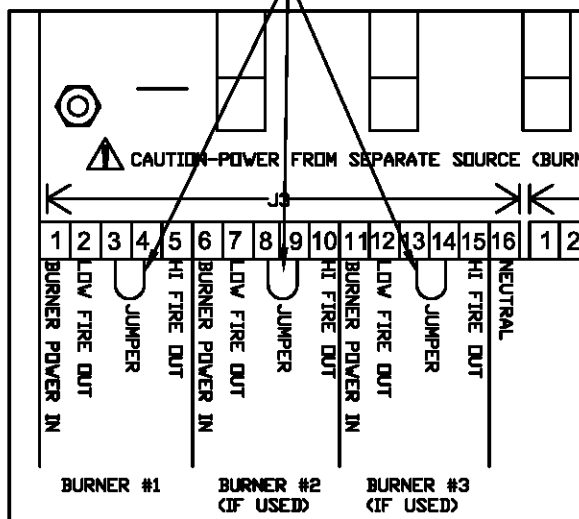


## 3 Wire Control (Hi-Low-Off) (Not very common unless it is a Shivers Burner)

Four wires are needed for a three wire burner control. Three control wires and one ground wire. The three control wires connect to the 16 pole connector J3 as indicated below. Small jumpers will need to be added to J3 terminals 3 and 4, 8 and 9, 13 and 14. The ground wire connects to the Equipment ground in the Premier Control and the ground lug in the burner control box.

THREE WIRE BURNER CONTROL

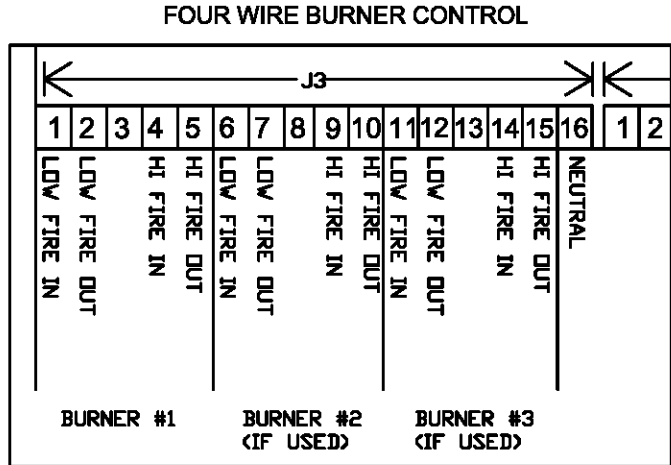
INSTALL JUMPER FOR EACH 3 WIRE  
CONTROL BURNER INSTALLED



# GENERIC (FANS AND BURNERS)

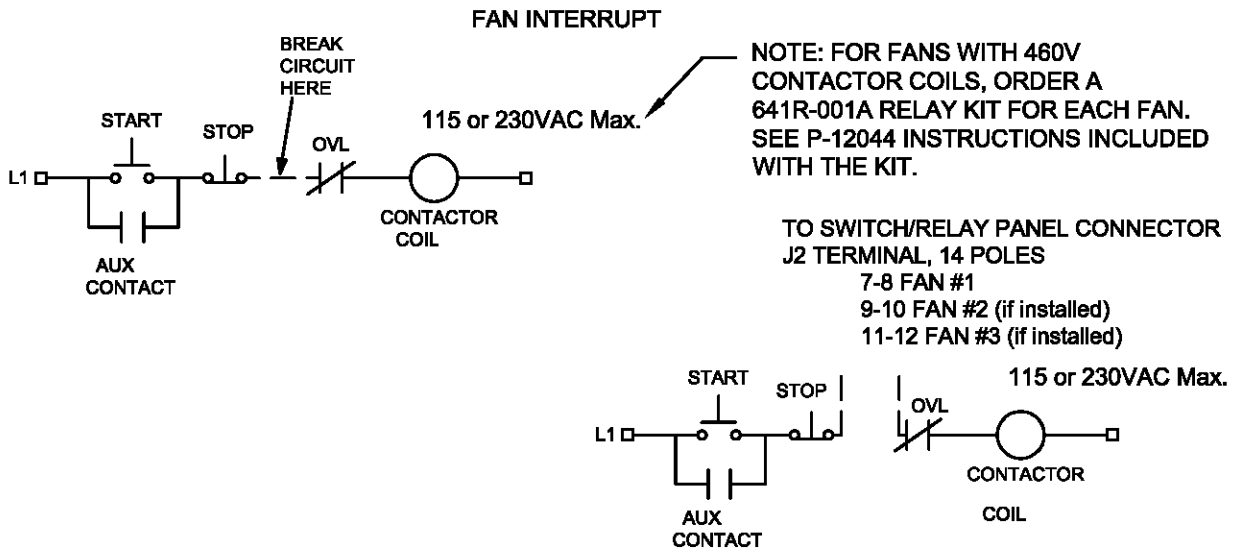
## 4 Wire Control

Five wires are needed for a four wire burner control. Four control wires and one ground wire. The ground wire connects to the Equipment ground in the Premier Control and the ground lug in the burner control box. The four control wires connect to the 16 pole connector J3 as indicated below.



## Wiring The Fan Interrupt

Wiring the fan interrupt requires 2 control wires. The fan control circuit must be broken to insert the Premier Control interrupt. See diagrams below for circuit wiring example. The control wires connect to the Switch/Relay panel on connector J2 terminals 7-8 for Fan #1, 9-10 for Fan #2, and 11-12 for Fan #3 (if installed). The decal inside the main cover can be used for reference.





# MAG. STARTERS

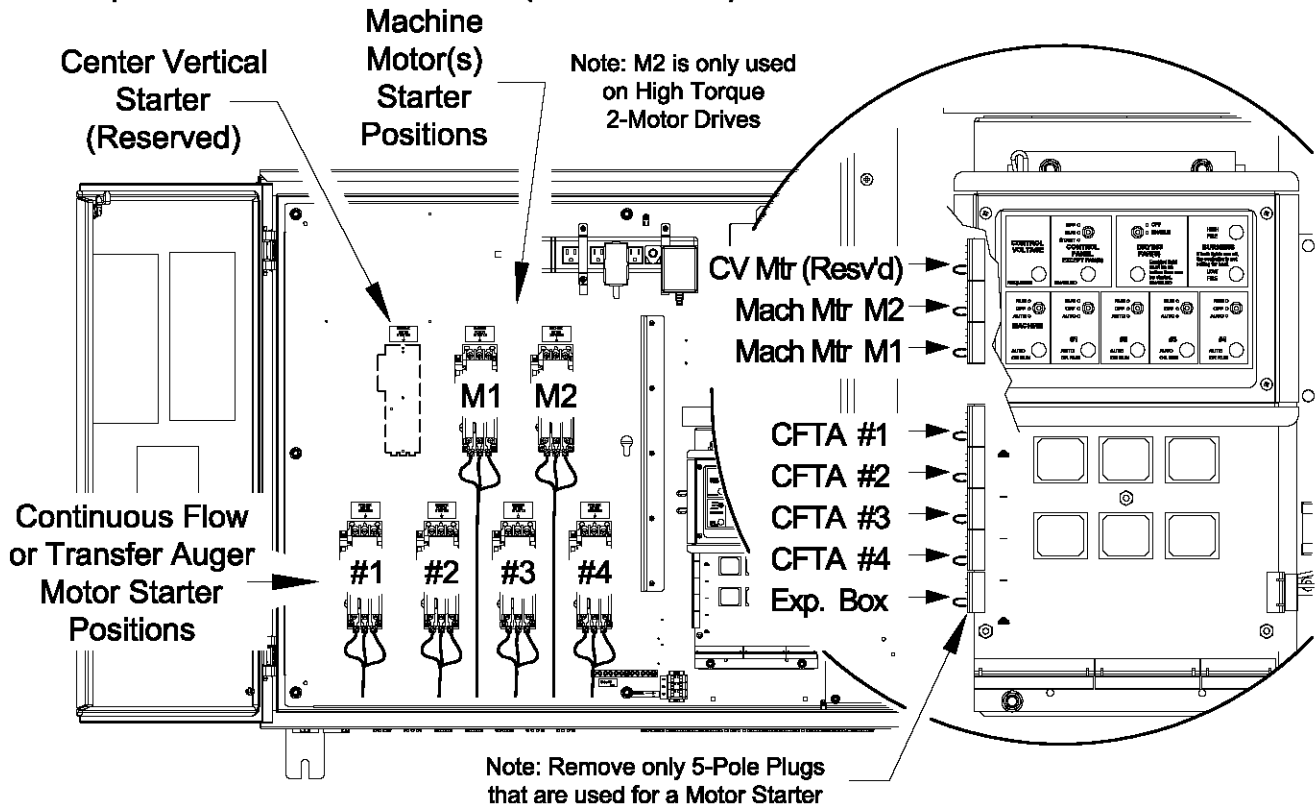
## MAGNETIC STARTERS

The Premier Control comes standard with 2 motor starters. The starters run off 115VAC control voltage. Up to two machine motors and four total transfer auger starters can be installed in the starter panel. Starters available for the Premier Control are:

641C-001A	3 POLE 60 AMP 1 PHASE
641D-001A	4 POLE 40 AMP 1 PHASE
641X-001A	4 POLE 40 AMP 3 PHASE 10-40 AMP OVERLOAD
641Y-001A	4 POLE 40 AMP 3 PHASE 3-12 AMP OVERLOAD
641Z-001A	3 POLE 60 AMP 3 PHASE 25-100 AMP OVERLOAD

Heater strips do not come with the motor starters but can be ordered. The heater strips must be sized properly for the motor being used. See starter Installation Manual P-11349 for installation of starters and proper heater strip sizing. See Starter Installation Manual for motor wiring. If more than 4 Cont. Flow/Aux augers will be required, order a 641N-001A, Add-On Box (or Expansion Box), to add up to 4 more augers.

The wire harness length on our older Starter Kits may not be long enough for mounting in the Premier Control Panel. The wires can be extended, or replacement harness ordered (Part# E-6293)



# **STATIC PRESSURE, AND TRANSFORMERS**

## **STATIC PRESURE**

Install and wire the Static Pressure Kit (641-089A) following Instructions provided with it, (P-13258).

## **TRANSFORMER**

The Premier Control uses 115 VAC control voltages. In some three phase applications 115VAC power may not be available, so a transformer assembly must be added to provide the proper control voltage. Three transformer models are available. If a transformer is required it will need to be mounted in a separate panel, (not supplied).

641I-001A operates on 220V/460V primary voltage.

641J-001A operates on 575V primary voltage.


641K-001A operates on 380V primary voltage.

Manual P-11354 explains the transformer installation procedure. If more information is needed about three phase power applications contact Shivvers at the address shown on the front page.

# FINAL LABELING

1. Disconnect and Lockout Main Power
2. Mark the machine type on the wiring decal located inside the main cover of the Command Center.
3. Fill in Motor details on the wiring decal. This will provide a record should any service be required in the future.

Fill in wiring decal located inside the main cover of the Command Center.

SHIVERS PREMIER MODEL 641AG-001A		 SHIVERS MFG INC. 614 W ENGLISH ST. CORYDON IA. 50060 (641) 872-1005
MAX MOTOR VOLTAGE 600VAC. MAX HP DETERMINED BY STARTER SIZE ! CAUTION – POWER FROM MORE THAN ONE SOURCE ! Conductor Sizing Determined by NEC and Local Codes Short Circuit Current Rating (SCCR) = 10,000 Amperes RMS Control Voltage = 120 VAC 50/60 HZ 3 AMPS MAX		
Serial # =	<input style="width: 90%; height: 20px;" type="text"/>	
ACTUAL MOTOR VOLTAGE _____	PHASE 1 OR 3 _____	
MACHINE CONFIGURATION <input type="checkbox"/> CENTER VERTICAL <input type="checkbox"/> BOTTOM UNLOAD	MACHINE MOTOR #1 HP _____ FLA _____	
	MACHINE MOTOR #2 HP _____ FLA _____	
	CONT. FLOW #1 HP _____ FLA _____	
	CONT. FLOW/AUX. AUGER #2 HP _____ FLA _____	
	CONT. FLOW/AUX. AUGER #3 HP _____ FLA _____	
	CONT. FLOW/AUX. AUGER #4 HP _____ FLA _____	
		120VAC SPREADER MOTORS # 1 SPREADER HP _____ FLA _____ # 2 SPREADER HP _____ FLA _____ # 3 SPREADER HP _____ FLA _____ # 4 SPREADER HP _____ FLA _____
P-13279		



# CHECKOUT PROCEDURE



DISCONNECT AND LOCKOUT ALL POWER BEFORE ATTEMPTING TO CHANGE DRIVE CLUTCHES. LOCK OFF BIN ENTRANCE, AND MAKE SURE ALL PERSONNEL ARE CLEAR BEFORE STARTING.

- 1.) Make sure all power to controls is locked off. Disengage the Machine motor from the augers so that only the motor will run (pull the 3 jaw clutch and unloader drive pin). Make sure bin and transfer equipment are clear of tools and all personnel. Set all switches in control panel to "OFF". Turn Main Power back on. The Control Voltage light should be lit when control power(115VAC) is restored.
- 2.) Press Control Power switch down to start position and release, the light should remain on. If light does not remain on, ensure that the motor starters are plugged in, and the overloads are not tripped.
- 3.) Turn Machine switch #1 to "RUN". Machine should run. Check rotation of motor. When facing the pulley rotation should be counter clockwise. Turn Machine switch "OFF".
- 4.) Turn Continuous Flow switch to "RUN". Cont. flow auger should run. Check all Cont. Flow and Auxiliary Auger switches. Check rotation of all motors. When facing the pulley, rotation should be clockwise. Turn Cont. Flow switches to "OFF".
- 5.) Set the drying fan(s) switch to enable. The red indicator light should come on. If it doesn't, check the gearbox and grain hi-limit(s) wiring. If possible start a fan, or just bump it on. Use caution if the bin is empty. The floor may lift with fans over 20 horsepower. The fan should start. If there are multiple fans test 1 fan at a time. Shut drying fan(s) enable switch off and fans should stop. Repeat this process for each fan.
- 6.) Turn all switches on the switch/relay panel to the off position, if they are not already. The only light that should still be lit is the Control Voltage light. Shut off the main power disconnect and lock it out. The Control Voltage light should be off.
- 7.) For touchscreen configuration procedure please see Premier Control operating instructions manual P-13281.

## **OTHER KITS**

E-6642                      Relative Humidity/Ambient Temperature Transmitter

## **REFERENCE**

PREMIER Accessory Parts Box (641AH-001A Manuals)  
(Premier Manual Sack: 641-139A)

P-13280                      Shivers PREMIER Control Installation Manual (This Manual)  
P-13281                      Shivers PREMIER Control Operating Instructions  
P-13258                      Static Pressure Gage Instructions  
P-10001                      Shivers Operators SAFETY Manual  
P-13265                      Shivers Link User Guide, Instructions

P-11342                      Numbers (Labels)  
P-13278                      Decal Custom Labels SW/R

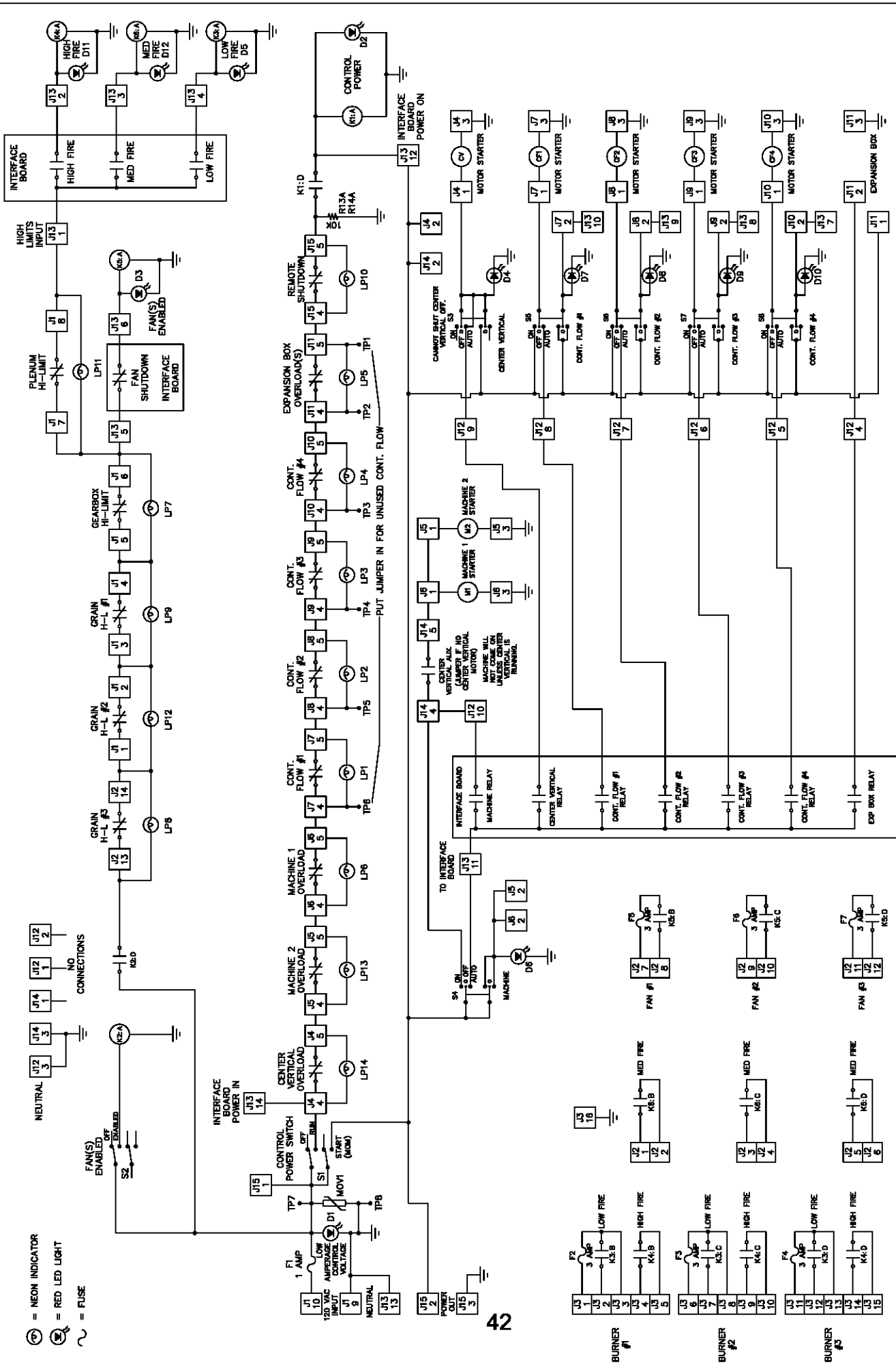
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Shivers Transformer Kits (641I, 641J, 641K-001A Kits)

P-11354                      Transformer Assembly Instructions

(N) = NEON INDICATOR  
 (R) = RED LED LIGHT  
 (F) = FUSE



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**SWITCH-RELAY**  
**SCHEMA TIC 2013a.dwg**  
 08/14/2013