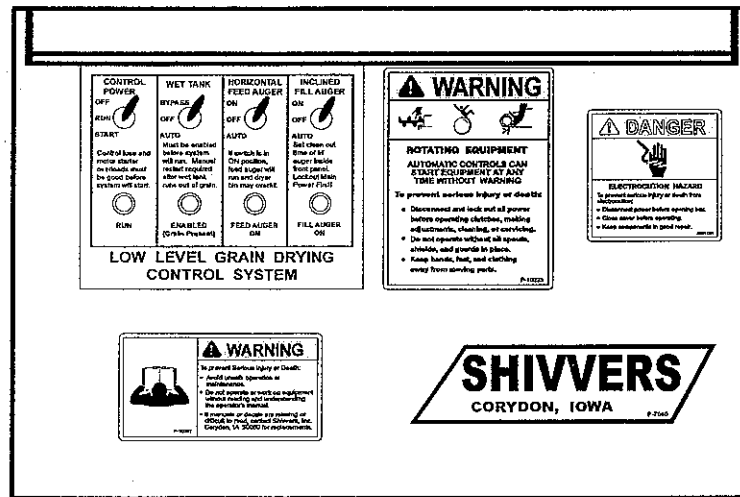


# LOW LEVEL GRAIN DRYING CONTROL SYSTEM



## Installation and Operating Instructions For Model 630C-001A



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P-12329

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# INTRODUCTION

The 630C-001A is a control box used to keep the grain level between two limit switches in a grain drying bin. The grain is supplied from a wet holding tank. The control will turn on a horizontal feed auger and an inclined fill auger when the drying bin requires grain. When the top limit is reached, the control will shut off the horizontal feed auger and clean out the inclined fill auger. The augers will stay off until grain falls below the low limit.

The motor starters and heater strips for the two augers are ordered separately with the same numbers as those used for the Compudry Command Center.

A circuit is provided for an optional wet tank empty switch to be wired into the control. This will keep the augers from running empty when the wet tank runs out of grain.

Contact the factory or your dealer for the availability of bin level switches.

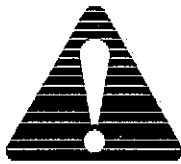
# SAFETY INFORMATION

COMPLETELY READ THESE INSTRUCTIONS AND THE OPERATOR'S SAFETY MANUAL BEFORE STARTING THE LOW LEVEL GRAIN DRYING CONTROL SYSTEM.

The operator of this machinery must assume the responsibility for his own safety, and that of those who are working with him. He must also make sure the equipment was installed properly. Factors that contribute to the overall safety of operation are: proper use, maintenance, and frequent inspection of the equipment. All of these are the operator's responsibility.

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

SHIVVERS is genuinely interested in providing the safest practical equipment to our customers. If you have a suggestion which you believe will enhance the safety of this product, please write us and let us know.



TAKE NOTE ANYTIME THIS SAFETY ALERT SYMBOL APPEARS. YOUR SAFETY, AND THAT OF PERSONS AROUND YOU IS AT STAKE.

The safety alert symbol will be accompanied by one of three signal words whose definitions are given as:

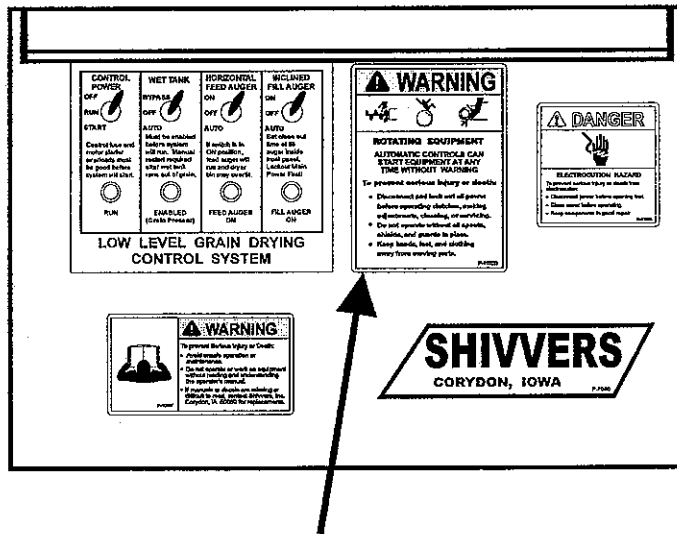
**DANGER:** Red and white. Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.

**WARNING:** Orange and black. Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

**CAUTION:** Yellow and black. Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

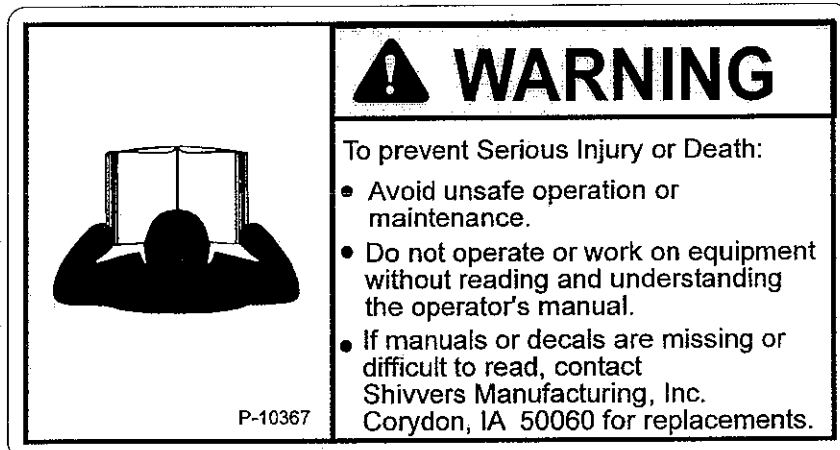
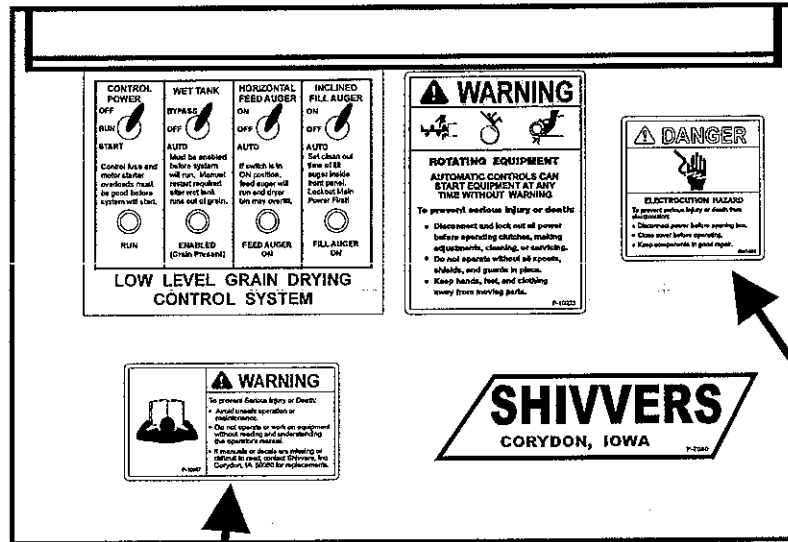
# LOCATION OF SAFETY DECALS

This manual shows the location of safety decals that apply to the Low Level Grain Drying Control System Box. For complete instructions on where to find safety decals for other installed equipment, consult your Operator's Safety Manual (P-10001).



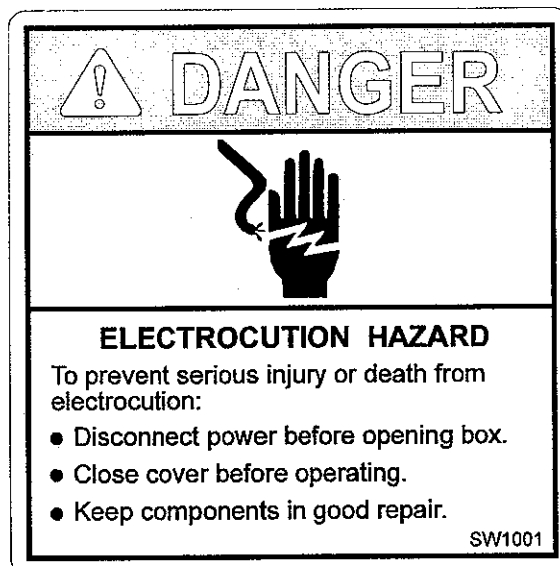
**P-10223**

**Location of safety decals, cont'd:**

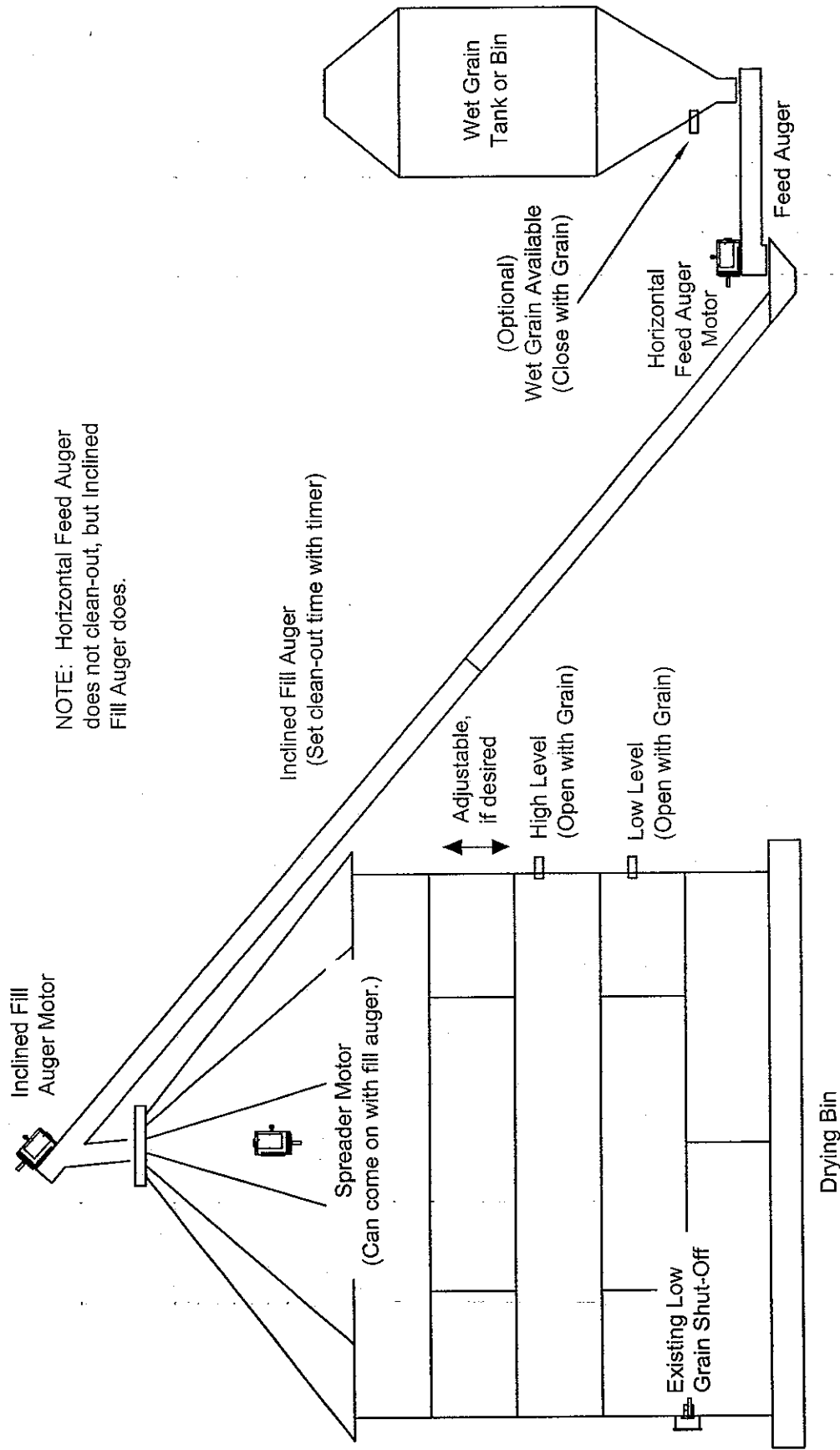


**P-10367**

**P-11146**



# Schematic Representation of Typical System

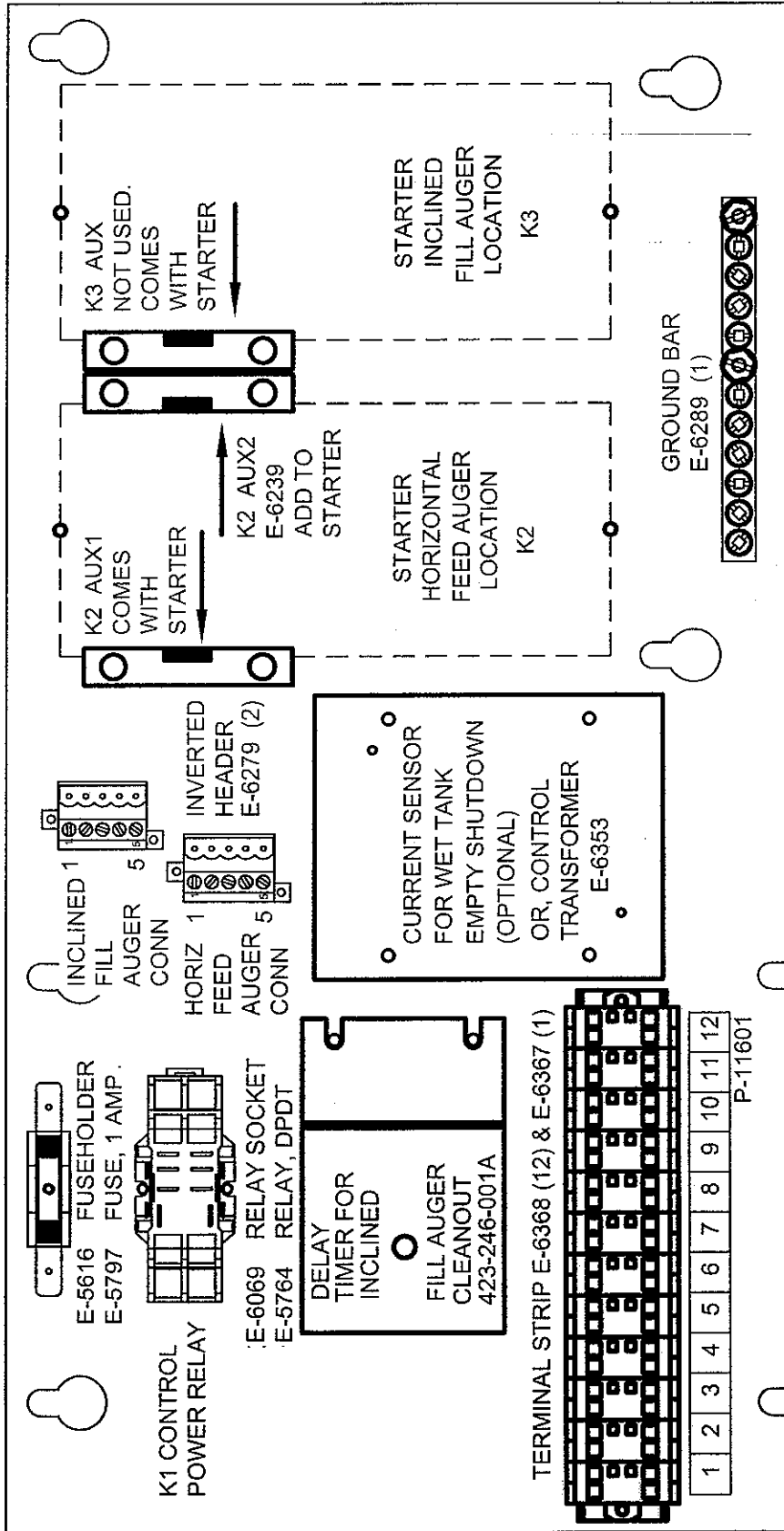


NOTE: Horizontal Feed Auger does not clean-out, but Inclined Fill Auger does.



# IDENTIFICATION OF PARTS

## 630C-001A LOW LEVEL GRAIN DRYING CONTROL SYSTEM



### ADDITIONAL PARTS, NOT SHOWN

- E-5868 SWITCH, OFF-RUN-START (1)
- E-6300 SWITCH, SPDT, CEN. OFF (3)
- E-6131 LAMP, ULTRA-BRIGHT (4)
- E-6278 PLUG, 5 POLE (2) (WITH STARTERS)

### AVAILABLE STARTERS

- 641C-001A 2 POLE, 1 PHASE, 10 HP MAX, 60 AMP
- 641D-001A 3 POLE, 1 PHASE, 5 HP MAX, 40 AMP
- 641Q-001A 3 POLE, 1 PHASE, 10 HP MAX, 60 AMP
- 641E-001A 3 POLE, 3 PHASE, 15 HP MAX, 60 AMP
- 641F-001A 4 POLE, 3 PHASE, 10 HP MAX, 40 AMP

# ELECTRICAL WIRING

**! DANGER**

Disconnect and lock out all power before opening main cover on box.

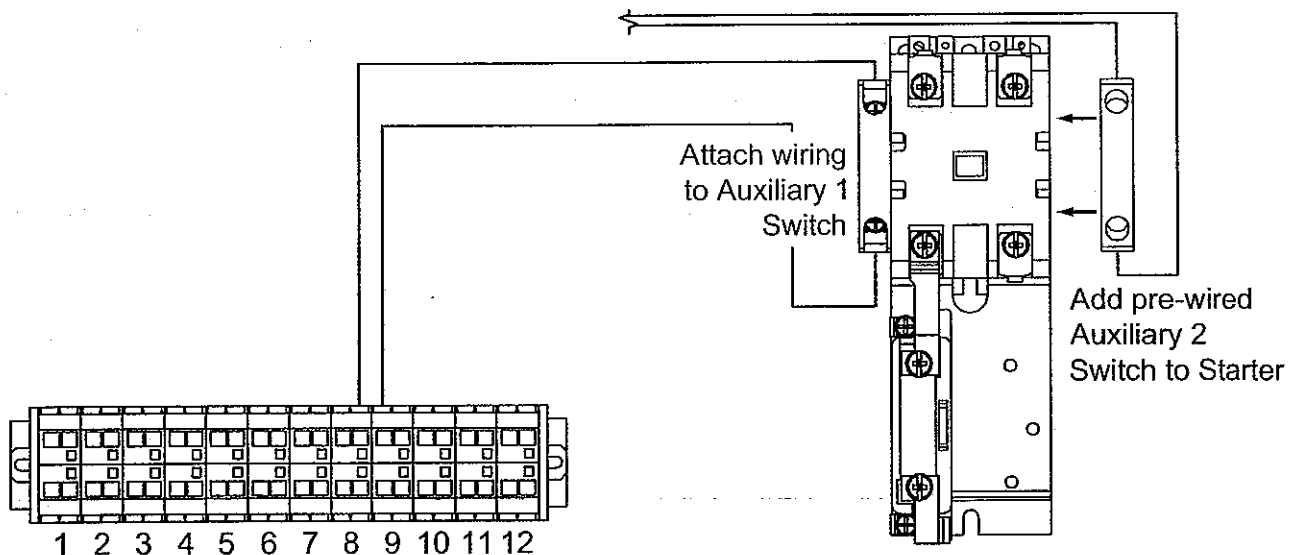
Mount the Low Level Grain Drying Control Box in a convenient location.

## **INSTALLING THE STARTER(S):**

(See the starter installation manual for more details.)

Find the mounting location on the panel for the starter to be installed. Make sure the starter is sized properly for the motor it will be running. Check the motor name plate for the full load amps and check it against the information on the starter to see if the starter is sized correctly.

To mount the starters, take the 2 mounting screws supplied with the starter installation kit and start them in the mounting holes. Do not tighten the screws down, just get them started. At the top of the starter bracket in the center there is a large hole with a slot at the top. The hole will allow the head of the screw to pass through. The bottom of the bracket has a slot to slide over the screw. Place the starter over both mounting screws and slide it down. The heads of the screws should hold the starter in place. Before installing the horizontal feed auger starter attach the pre-wired auxiliary switch to the right hand side of the starter. Also, connect the two bare wires in the control box to the left hand auxiliary switch.



On some starter configurations it may be necessary to remove the auxiliary switch from the inclined fill auger starter. The auxiliary switch may also be moved to the other side of the inclined fill auger starter, if the starters are too close to each other.

Tighten the mounting screws to secure the starters.

## WIRING THE STARTERS:

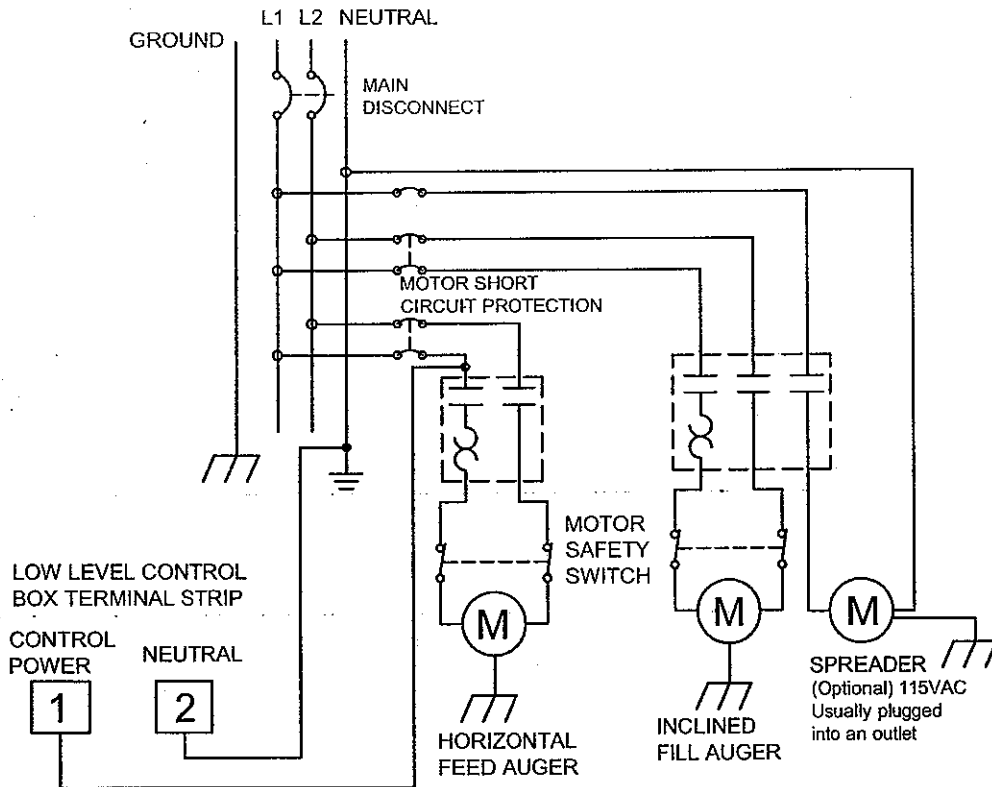
Plug the starter wiring harness into the 5 pole connector on the panel that corresponds to the starter being installed. See the identification of parts page in this manual for more details.

Run power wires for each starter and a good ground from the breaker panel, through conduit, to the Low Level Control box. Check motor amperage at desired voltage on single or three phase applications for wire sizing. If the 120 Volt AC control voltage will be taken from the top of one of the starters, pull a neutral wire also. The wiring for the spreader motor (if applicable) should be run at the same time. It may require a larger neutral wire. Starters can be ordered with an extra contact (both single and three phase) that can be used to run the spreader motor. The spreader motor(s) will also need to have a separate breaker. Route the wires in the control box so they will terminate at the top of each starter. (See the following illustrations below for more details.)

## INCOMING POWER AND MOTOR WIRING

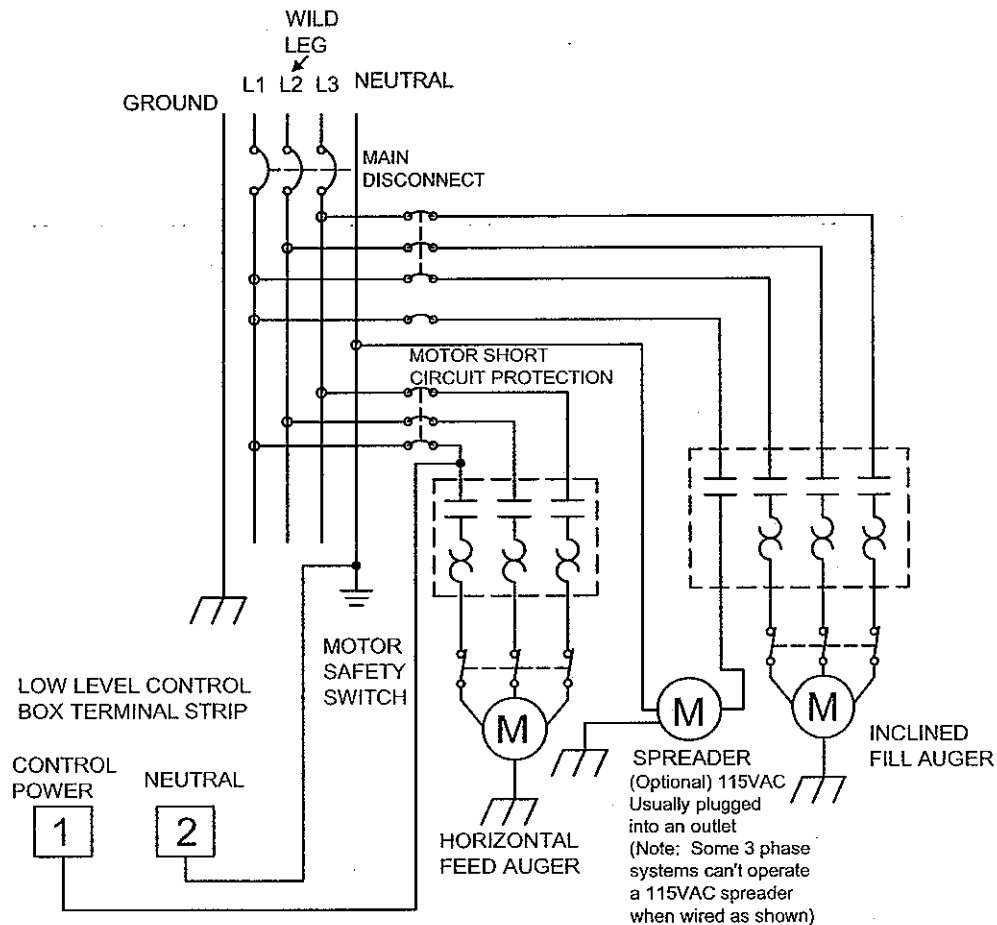
### SINGLE PHASE

(see next page for three phase)



# INCOMING POWER AND MOTOR WIRING

## THREE PHASE



NOTE: Some 3 phase systems can't supply 115VAC when wired as shown. A Control Transformer (E-6353) will be required.

Run wires from the bottom side of the starter and overload relay(s) to the auger motor and spreader motor (if applicable). The wires should be in conduit and have a separate ground wire for each circuit. The ground wires will connect to the ground bar at the bottom right hand corner of the panel.

Install heater strips in the overload relay(s). Make sure heater strips are sized properly. There are 2 types of heater strips, the bar type and the spring type. The amperage rating will determine the type. See P-11349 Starter Installation Instructions for more details.

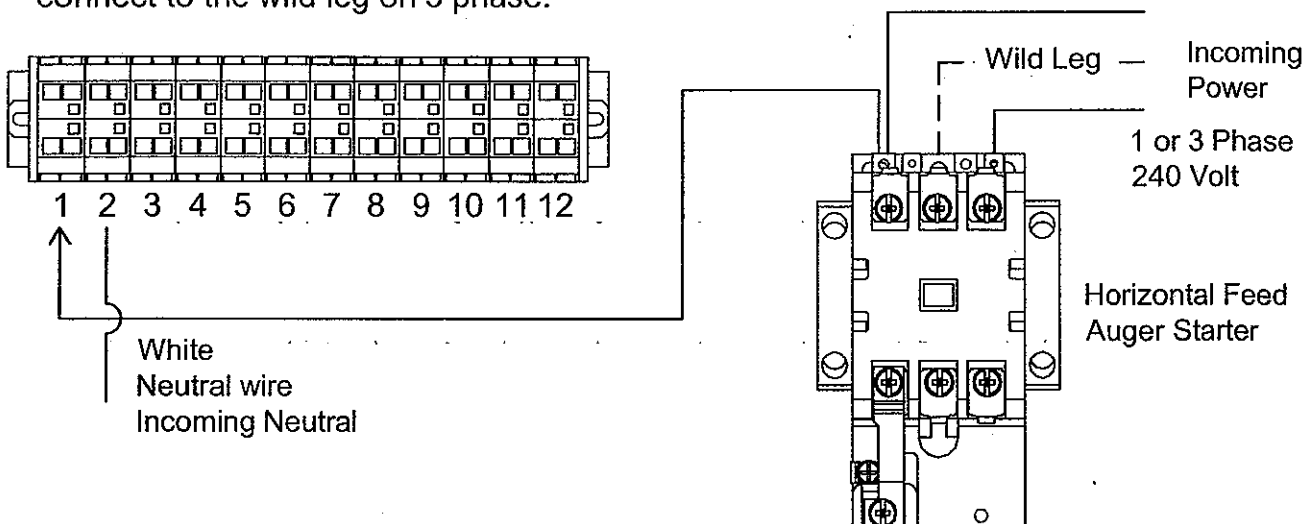
Fill in the decal on the inside front cover with voltage, phase, horsepower, and full load amps (FLA) information for the system.

MODEL 630C-001A	
MAX MOTOR VOLTAGE 600VAC	
MAX HP DETERMINED BY STARTER SIZE	
ACTUAL MOTOR VOLTAGE	_____
PHASE 1 OR 3	_____
HORIZONTAL FEED	
AUGER HP	_____ FLA _____
INCLINED FILL	
AUGER HP	_____ FLA _____
120VAC SPREADER (IF CONNECTED)	
FILL AUGER	
SPREADER HP	_____ FLA _____

**CONTROL WIRING:**

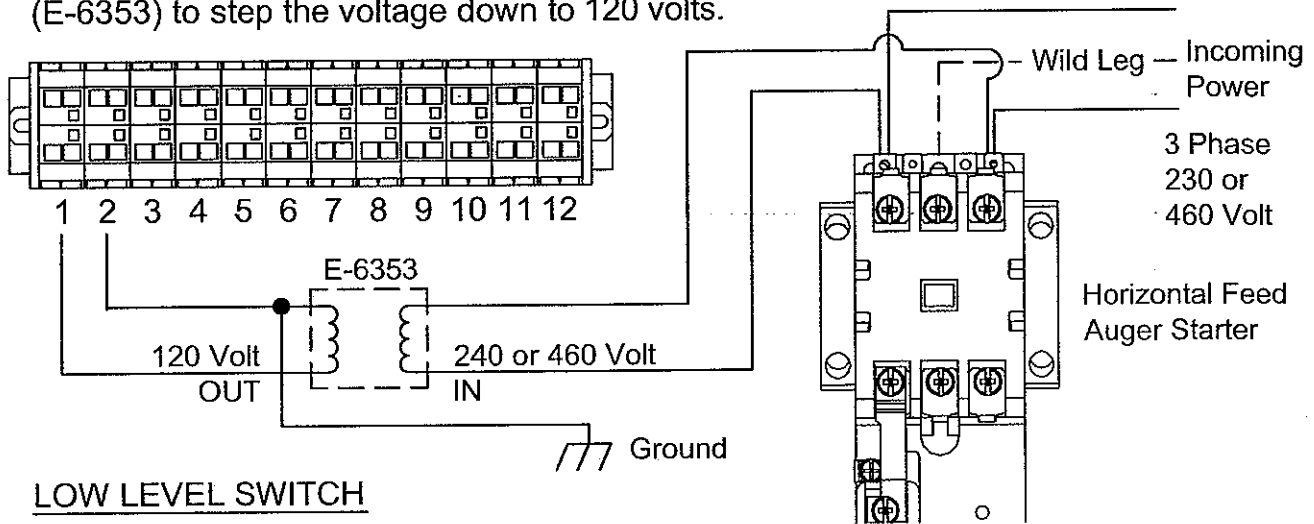
CONTROL POWER

Control power is 120VAC. It may be brought in from its own breaker or it may be picked up from one leg of the Horizontal Feed Auger incoming power for 1 phase applications and for most 240 Volt 3 phase applications. Just be sure not to connect to the wild leg on 3 phase.



## CONTROL POWER, cont'd

For 3 phase applications where 120VAC control power cannot be picked off one leg, or for 460VAC power, order and install the optional Control Transformer (E-6353) to step the voltage down to 120 volts.

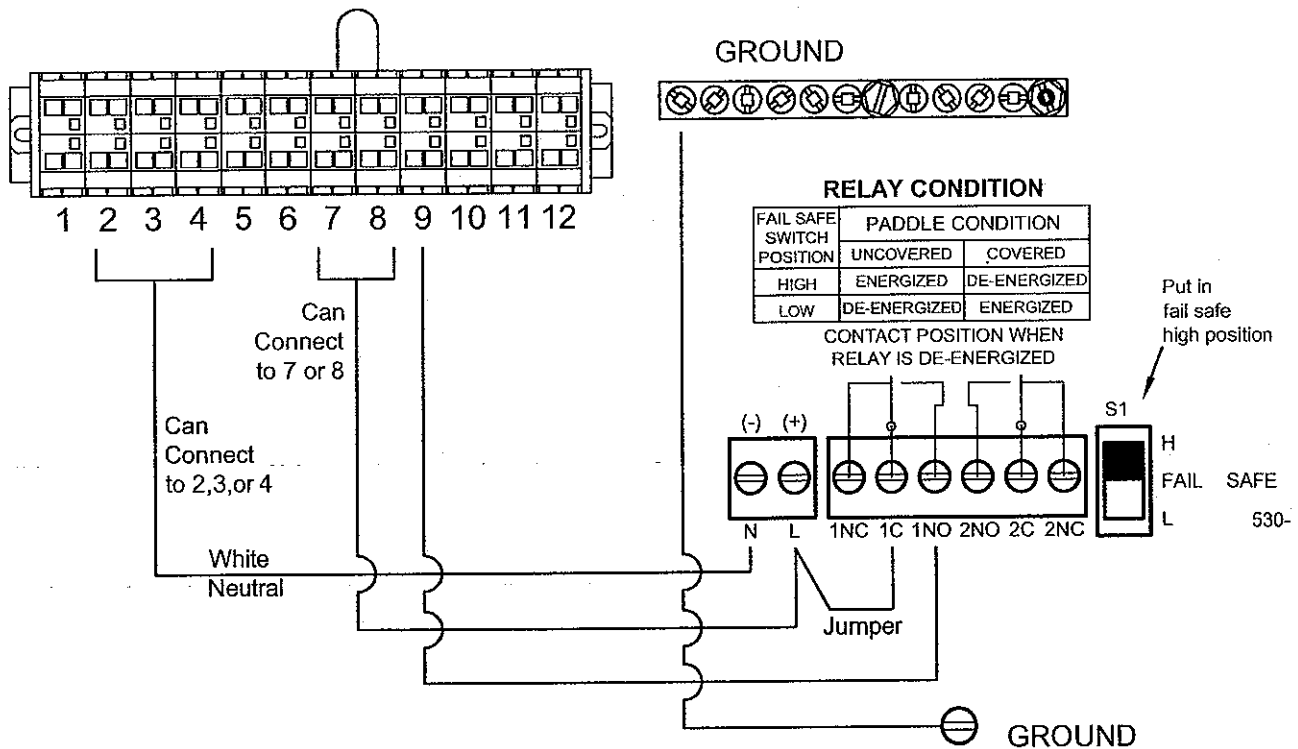


## LOW LEVEL SWITCH

The Low Level switch should have closed contacts between terminals 8 and 9 without grain on the switch. The contacts should open when grain is present.

Powered level switches can get control power from terminals 7 or 8 and neutral from terminal 2, 3, or 4.

Typical wiring for a BinMaster BMRX powered rotary switch is shown.

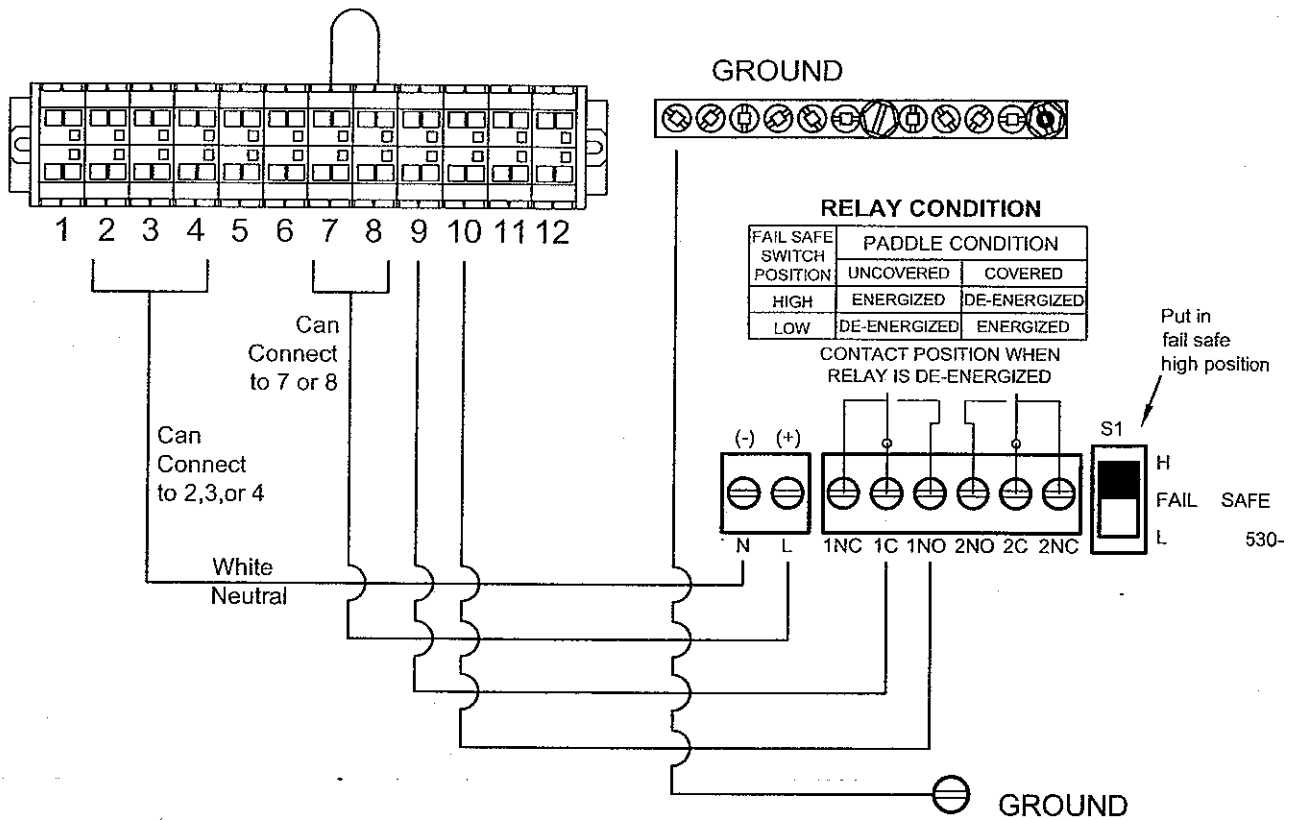


## HIGH LEVEL SWITCH

The High Level switch should have closed contacts between terminals 9 and 10 without grain on the switch. The contacts should open when grain is present.

Powered level switches can get control power from terminals 7 or 8 and neutral from terminals 2, 3, or 4. It would also be possible to get power from the low level switch.

Typical wiring for a BinMaster BMRX powered rotary switch is shown.

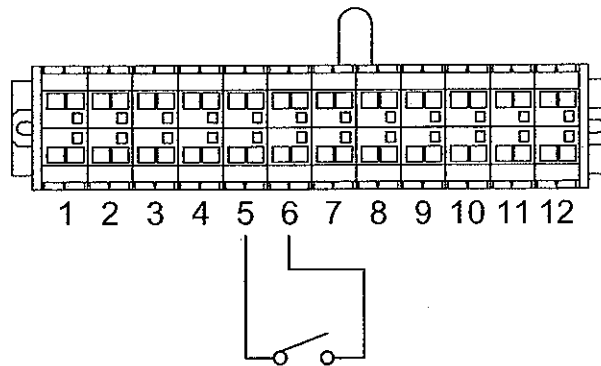


## WET TANK EMPTY SWITCH (Optional)

The Wet Tank Empty switch should have closed contacts between terminals 5 and 6 when grain is on the switch. The contacts should open when grain is no longer on the switch.

Powered level switches can get control power from terminals 7 or 8 and neutral from terminals 2, 3, or 4.

It may also be possible to use a current sensor on the Inclined Fill Auger to act as the wet bin empty switch. Contact the factory for more details on this option.



Wet Tank Empty  
(close with grain)  
(open without grain)

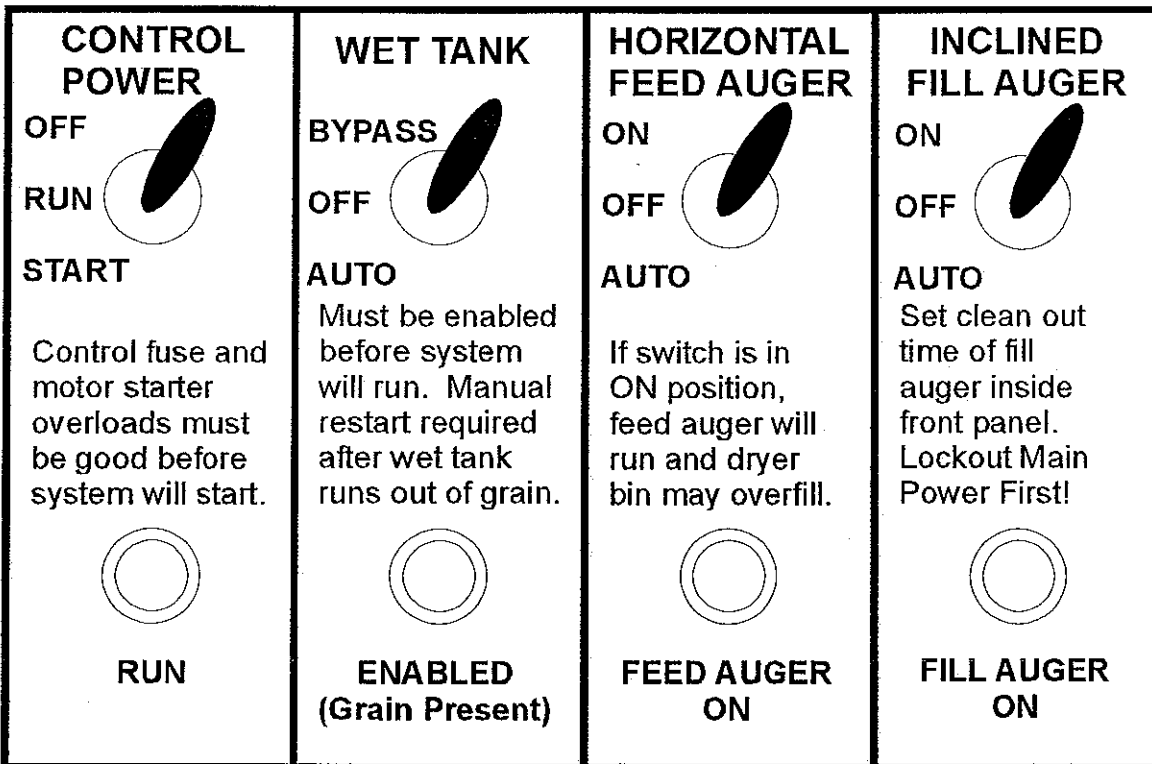


# OPERATION OF LOW LEVEL GRAIN DRYING CONTROL SYSTEM

Put the Control Power switch in the RUN position. Put the Horizontal Feed Auger and Inclined Fill Auger switches in the center OFF position.

Make sure the Wet Tank Shutdown enabled light is ON. If there is a wet tank level switch installed, and there is grain in the wet tank, place the switch in the AUTO position. This will allow the control to shut off when the wet tank becomes empty. If there isn't a wet tank level switch installed, the Wet Tank Shutdown switch will need to be placed in the BYPASS position for the light to come on. If the switch is in BYPASS, the control will not shut down when the wet tank runs out of grain.

Press the Control Power switch to the START position and release it. The RUN light should come on and stay on.



## LOW LEVEL GRAIN DRYING CONTROL SYSTEM

The Inclined Fill Auger and Horizontal Feed Auger switches can be placed in the ON or AUTO positions. Just make sure the grain has a place to go. Under normal operation, the switches are placed in the AUTO position. If the switches are placed in the ON position, the drying bin level switches are bypassed and the dryer bin may overflow.

If the grain level in the dryer bin is below the low limit, the horizontal feed auger and the inclined fill auger will come on. They will run until the grain gets to the high limit. The horizontal feed auger will shut off and the inclined fill auger will clean out for a time delay set by the timer in the panel. Make sure all power is locked out before opening the front cover to adjust the timer. The augers will remain off until the grain level in the dryer bin falls below the low limit.

If a wet tank limit switch is installed and the Wet Tank Shutdown switch is in the AUTO position, the control power and horizontal feed auger will shut off. The inclined fill auger will clean out then shut off. Once grain is re-filled into the wet tank, or the Wet Tank Shutdown switch is placed in the BYPASS position, the Control Power switch will need to be pressed down to START to begin filling again.

If either starter overload relay trips, the Low Level Box control power will shut down, and all augers will shut off immediately. Make sure all power is disconnected and locked off before opening the box to reset the overload.

# LOW LEVEL CONTROL SCHEMATIC

