

# 1999 Series 2000 Autoflow

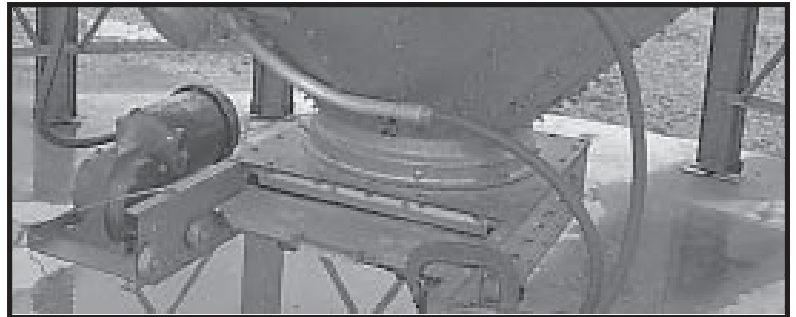
## Supplemental Instructions for Electrical Interconnection

**Fill System Control Box to  
Automatic Electric Gate Valve**

MODEL # TF - 1531-3

Interconnection  
Manual

PNEG-921



a division of

THE GSI GROUP





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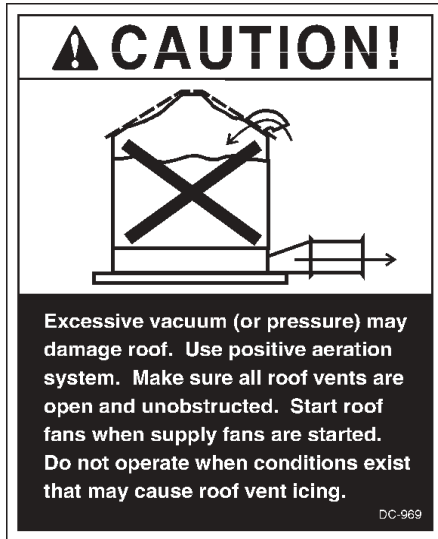
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**Roof Damage Warning and Disclaimer**



GSI DOES NOT WARRANT ANY ROOF DAMAGE CAUSED BY EXCESSIVE VACUUM OR INTERNAL PRESSURE FROM FANS OR OTHER AIR MOVING SYSTEMS. ADEQUATE VENTILATION AND/OR "MAKEUP AIR" DEVICES SHOULD BE PROVIDED FOR ALL POWERED AIR HANDLING SYSTEMS. GSI DOES NOT RECOMMEND THE USE OF DOWNWARD FLOW SYSTEMS (SUCTION). SEVERE ROOF DAMAGE CAN RESULT FROM ANY BLOCKAGE OF AIR PASSAGES. RUNNING FANS DURING HIGH HUMIDITY/COLD WEATHER CONDITIONS CAN CAUSE AIR EXHAUST OR INTAKE PORTS TO FREEZE.

**Series 2000 Autoflow Installation & Operating Instructions**

Thank you for choosing a Top Dry Series 2000 Autoflow unit. It is designed to give excellent performance and service for many years.

This manual describes the electrical installation for automatic gate valves when utilized with the Series 2000 Auoflow.

Please consult the manual shipped with the gate valve to insure proper installation. If the manual shipped with the automatic gate valve, and this manual are inconsistent, please contact the manufacturer of the gate valve and GSI before installation.

The principal concern of the GSI Group, Inc. ("GSI") is your safety and the safety of others associated with grain handling equipment. This manual is

written to help you understand safe operating procedures, and some of the problems that may be 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 fan area. Avoid any alterations to the equipment. Such alterations may produce a very dangerous situation, where serious injury or death may occur.

**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.



**WARNING! BE ALERT!**

Personnel operating or working around electric fans should read this manual. This manual must be delivered with the equipment to its owner. Failure to read this manual and its safety instructions is a misuse of the equipment.


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

Safety decals should be read and understood by all people in the grain handling area. The rotating blade, fire warning decals and voltage danger decal must be displayed on the fan can. The bottom right decal should be present on the inside bin door cover of the two ring door, 24" porthole door cover and the roof manway cover.

If a decal is damaged or is missing contact:

The GSI Group, Inc.  
 1004 E. Illinois St.  
 Assumption, IL 62510  
 217-226-4421

A free replacement will be sent to you.



**! WARNING**

Stay clear of rotating blade. Blade could start automatically. Can cause serious injury. Disconnect power before servicing.

DC-1225



**! WARNING**

Flame and pressure beyond door. Do not operate with service door removed. Keep head and hands clear. Can cause serious injury.

DC-1227




**! DANGER!**



**High voltage. Will cause serious injury or death. Lockout power before servicing.**

DC-1224

**! DANGER**

 <p>Rotating flighting can kill or dismember.</p>	 <p>Flowing material can trap and suffocate.</p>	 <p>Crusted material can collapse and suffocate.</p>
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**Keep clear of all augers. DO NOT ENTER this bin!**

If you must enter this bin:

1. Shut off and lock out all power.
2. Use safety harness and safety line.
3. Station another person outside the bin.
4. Avoid the center of the bin.
5. Wear proper breathing equipment or respirator.

**Failure to heed these warnings will result in serious injury or death.**

DC-552

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

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

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 propellor, 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.

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.

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**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 this 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 above before attempting to operate the dryer.

**Proper Use of Product**

**This product is intended for the use of drying small grains only.**

**Any other use is a misuse of the product!**

**This product has sharp edges! These sharp edges may cause serious injury. To avoid injury handle sharp edges with caution and use proper protective clothing and equipment at all times.**

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



## Power Supply

An adequate power supply and proper wiring are important factors for maximum performance and long life of the dryer. Electrical service must be adequate enough to prevent low voltage damage to motors and control circuits (see Electrical Load Information on page 10).

## Transformer and Wiring Voltage Drop

It is necessary to know the distance from the unit to the available transformer, and the horsepower of your fan unit. Advise the service representative of your local power supplier that an additional load will be placed on the line. Each fan motor should be wired through a fused or circuit breaker disconnect switch. Check on KVA rating of transformers, considering total horsepower load. The power supply wiring, main switch equipment and transformers must provide adequate motor starting and operating voltage. Voltage drop during motor starting should not exceed 14% of normal voltage, and after motor is running at full speed it should be within 8% of normal voltage. Check Electrical Load Information for HP ratings and maximum amp loads to properly size wire and fusing elements. Standard electrical safety practices and codes should be used. (Refer to National Electrical Code Standard Handbook by National Fire Protection Association).

## Machine to Earth Grounding

It is very important that a *Machine To Earth Ground Rod* be installed at the fan. This is true even if there is a ground at the pole 15 feet away. Place the ground rod that comes standard, within 8 feet of the dryer and attach it to the dryer control panel with at least a #6 solid, bare, copper ground wire and the clamp provided. The grounding rod located at the power pole will not provide adequate grounding for the dryer. The proper grounding will provide additional safety in case of any short and will ensure long life of all circuit

boards, and the ignition system. The ground rod must be in accordance with local requirements.

## Proper Installation of Ground Rod

It is not recommended that the rod be driven into dry ground.

Follow these instructions for proper installation:

1. Dig a hole large enough to hold 1 to 2 gallons of water.
2. Fill hole with water.
3. Insert rod through water and jab it into the ground.
4. Continue jabbing the rod up and down. The water will work its way down the hole, making it possible to work the rod completely into the ground. This method of installing the rod gives a good conductive bond with the surrounding soil.
5. Connect the bare, copper ground wire to the rod with the proper ground rod clamp. See Figure 12.
6. Connect the bare copper ground wire to the fan control boxes with a grounding lug.



7. Ground wire must not have any breaks or splices.

**Dig a hole large enough to hold 1 or 2 gallons of water. Work the ground rod into the earth until it is completely in the ground.**



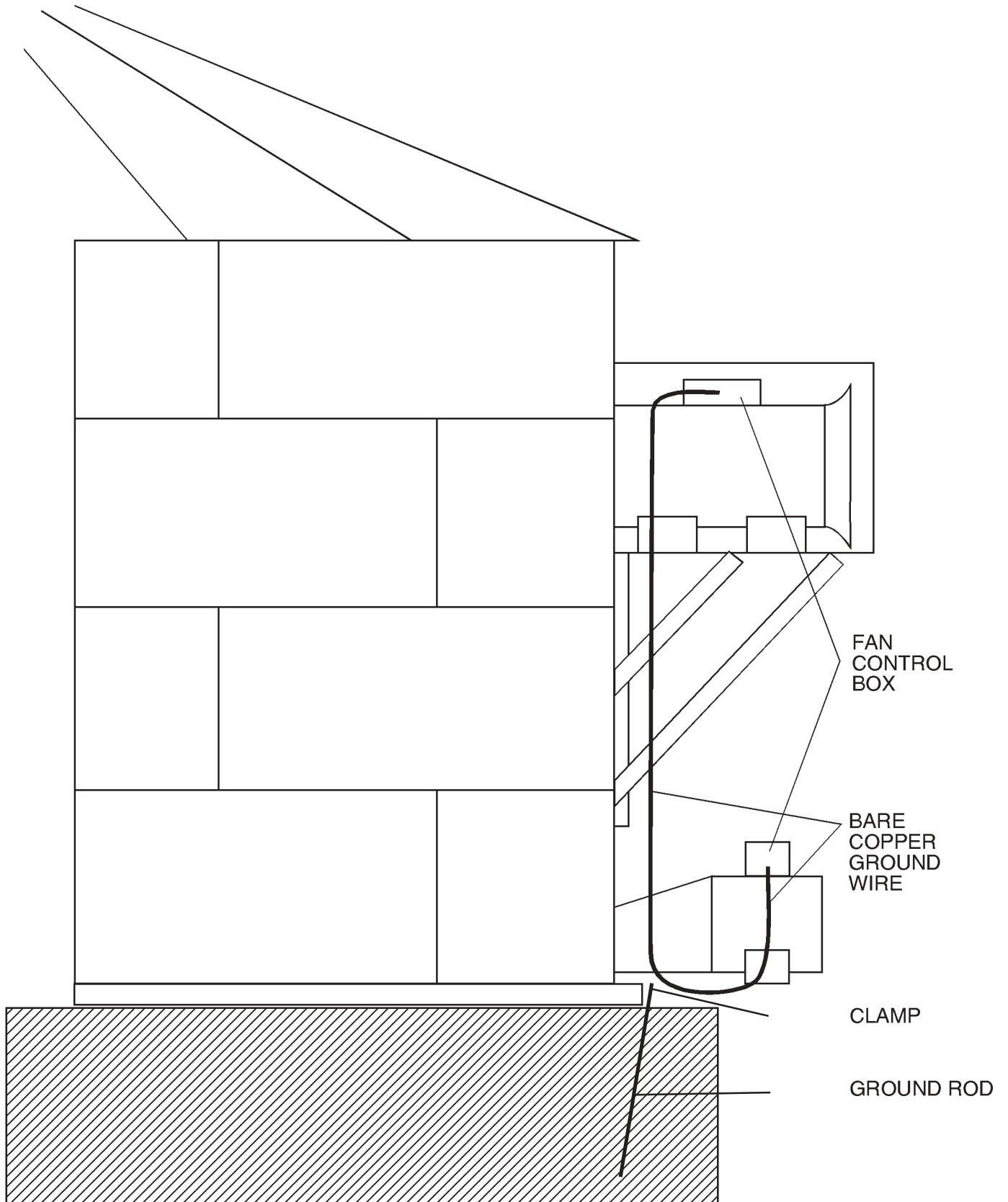


Figure 12: The Top Dry and ground rod attachment illustration.

**Fill System Control Box Electrical Load Information**

The following charts provide information for the electrician wiring the grain dryer, and are a reference guide for parts. It is recommended that you contact your local power company and have a representative survey the installation to see that your wiring is compatible with their system and that adequate power is supplied to your unit. Remember that the only thing connected to the recommended service amps should be your grain dryer. Standard electrical safety should be used. (Refer to the National Electrical Code Standard handbook by the National Fire Protection Association.) A qualified electrician should make all electrical wiring installations.

Fill System HP	Voltage	Full Load Amps	Motor Starter	Relay Heater Strips
3 HP	220v1ph	13	30	C137B
	220v3ph	7	30	C104B
	380v50hz	4	30	C630A
	460v3ph	4	30	C630A
	575v3ph	3	30	C630A
5 HP	220v1ph	21	30	C228B
	220v3ph	12	30	C163B
	380v50hz	7	30	C955A
	460v3ph	6	30	C778A
	575v3ph	5	30	C630A
7.5 HP	220v1ph	32	40	C303B
	220v3ph	18	30	C228B
	380v50hz	11	30	C151B
	460v3ph	9	30	C125B
	575v3ph	7	30	C955B

Fill System HP	Voltage	Full Load Amps	Motor Starter	Relay Heater Strips
10 HP	220v1ph	42	60	C366B
	220v3ph	25	30	C303B
	380v50hz	14	30	C180B
	460v3ph	12	30	C163B
	575v3ph	9	30	C137B
15 HP	220v1ph	64	75	F658B
	220v3ph	37	40	C400B
	380v50hz	21	30	C273B
	460v3ph	18	30	C214B
	575v3ph	14	30	C180B
20 HP	220v3ph	49	60	C500B
	380v50hz	28	40	C330B
	460v3ph	23	30	C303B
	575v3ph	19	30	C228B
25 HP	220v3ph	61	75	F719B
	380v50hz	35	40	C400B
	460v3ph	29	40	C330B
30 HP	575v3ph	23	30	C273B
	220v3ph	73	75	F772B
	380v50hz	43	60	C440B
	460v3ph	35	40	C400B
	575v3ph	28	40	C330B

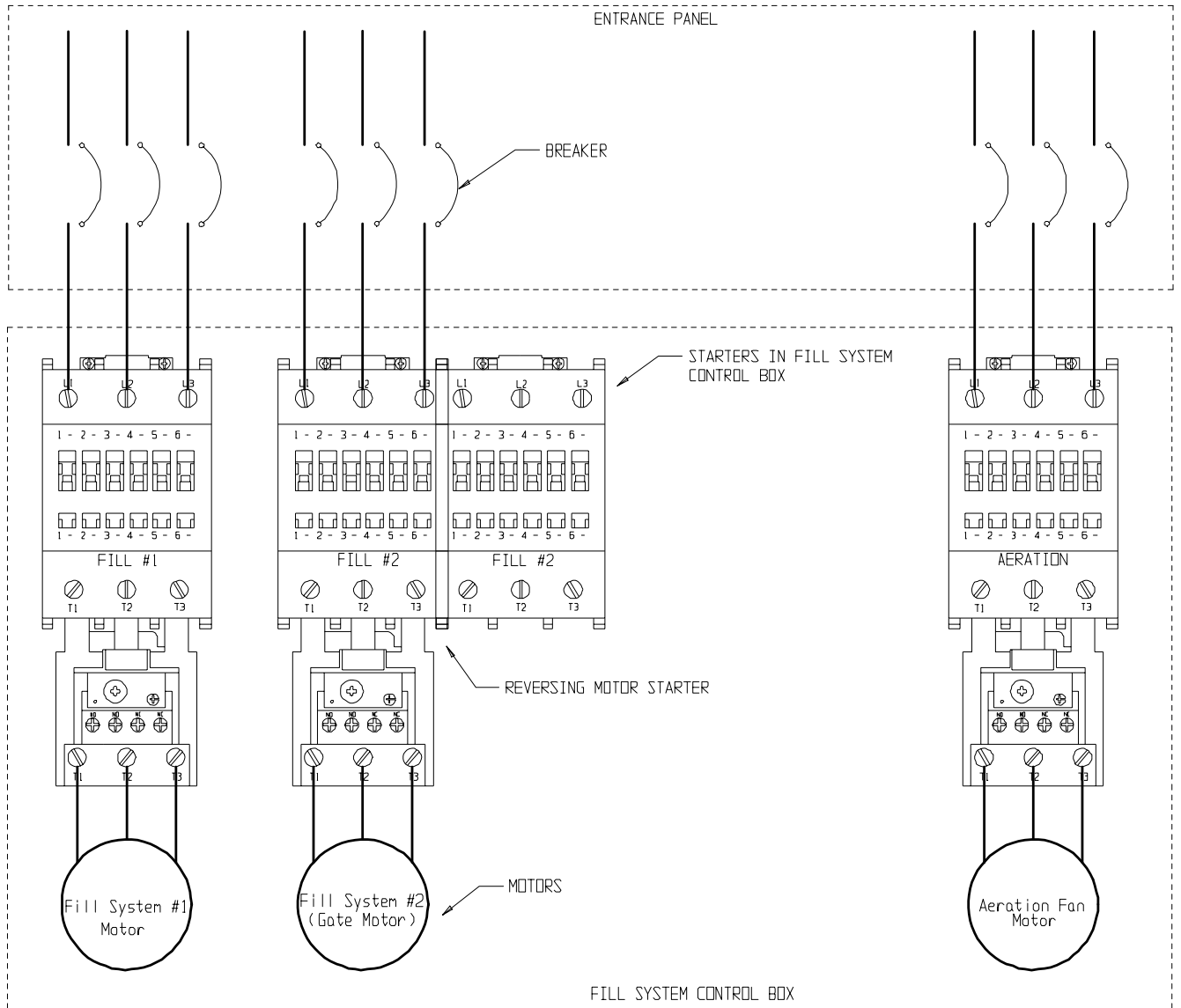


Figure 1

## Gate Valve Limit Switches to Fill System Control Box Interconnect

The Fill System Control Box houses the starter (s) for the gate valve. DO NOT run the limit switch wires for the gate valve in the same conduit used for the power wires for the gate valve motor. To wire the Fill System Control to the gate valve limit switches do the following.

- 1) Run four (4) control wires from the Autoflow Control Box to the Fill System Control Box.
- 2) Connect the wires as shown in figure 2.

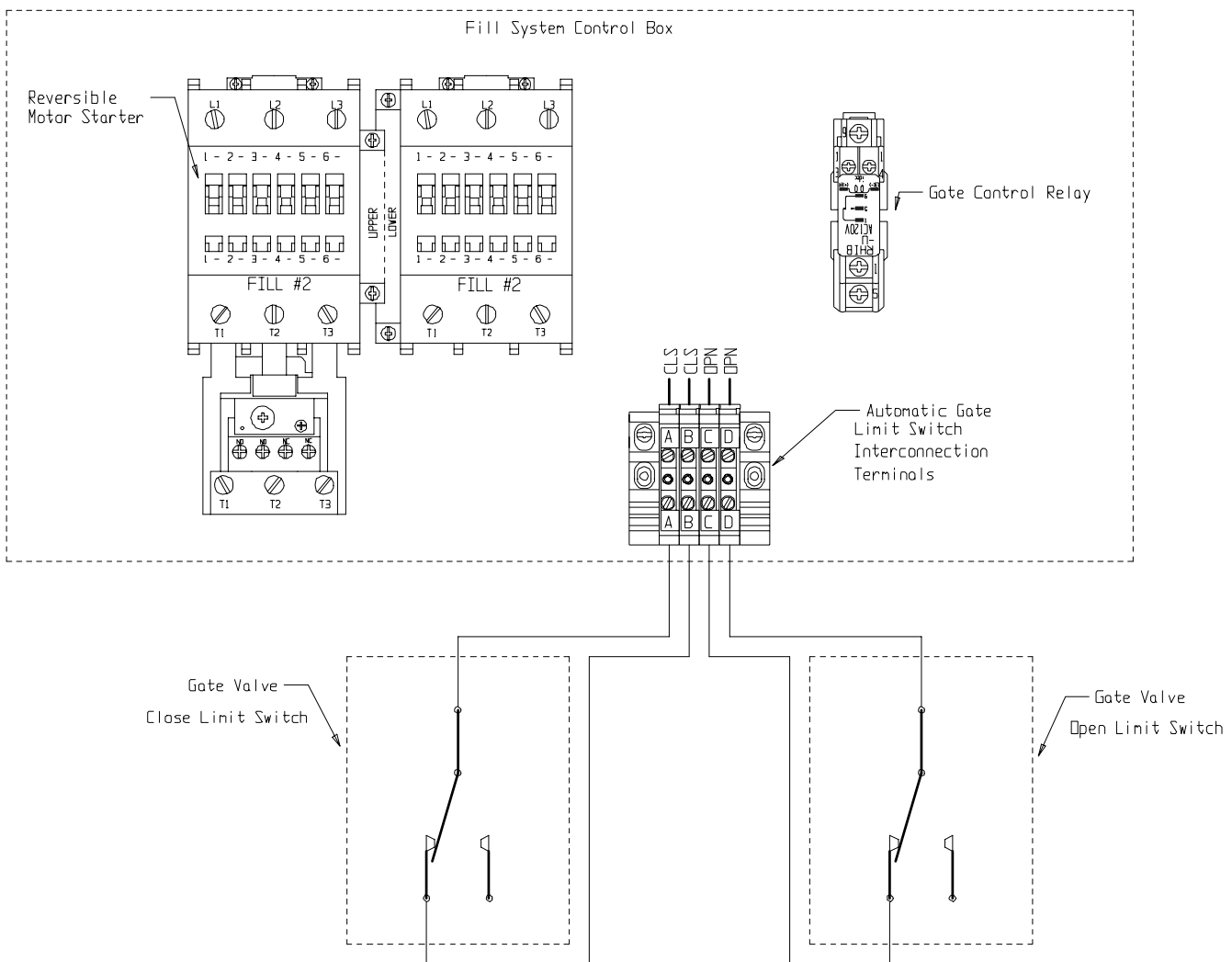
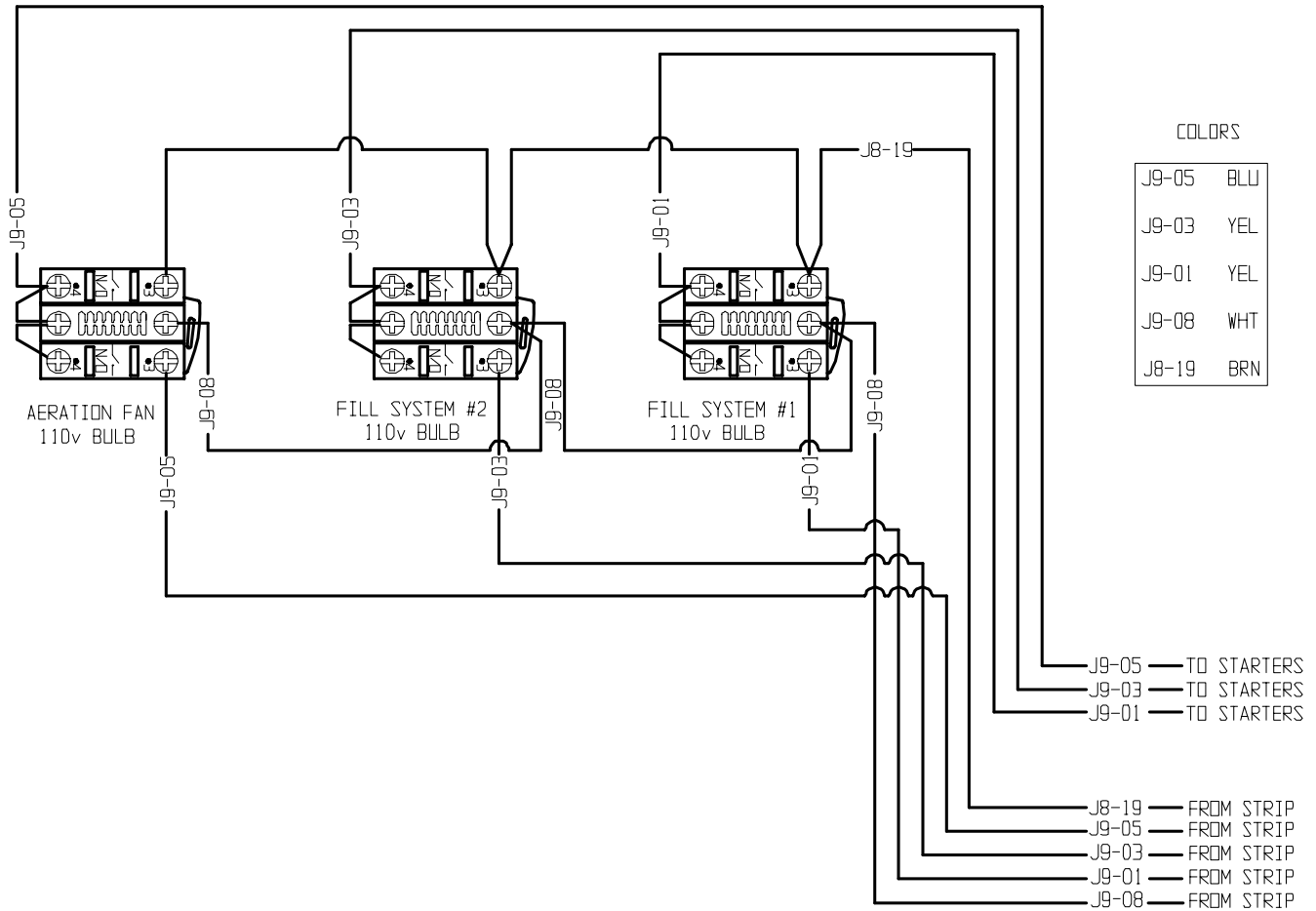


Figure 2



Fill System Control Box with Reversible Motor Starter External Wiring



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