Electronic Distributor Control

Installation and Operation Manual

PNEG-1813

Date: 08-22-12

GSI GROUP

PNEG-1813

Contents

Safety Guidelines

This manual contains information that is important for you, the owner/operator, to know and understand. This information relates to protecting ***personal safety*** and ***preventing equipment problems.*** It is the responsibility of the owner/operator to inform anyone operating or working in the area of this equipment of these safety guidelines. To help you recognize this information, we use the symbols that are defined below. Please read the manual and pay attention to these sections. Failure to read this manual and its safety instructions is a misuse of the equipment and may lead to serious injury or death.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE is used to address practices not related to personal injury.

Safety Instructions

Our foremost concern is your safety and the safety of others associated with this equipment. We want to keep you as a customer. This manual is to help you understand safe operating procedures and some problems that may be encountered by the operator and 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 in the area. Safety precautions may be required from the personnel. Avoid any alterations to the equipment. Such alterations may produce a very dangerous situation where SERIOUS INJURY or DEATH may occur.

This equipment shall be installed in accordance with the current installation codes and applicable regulations, which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.

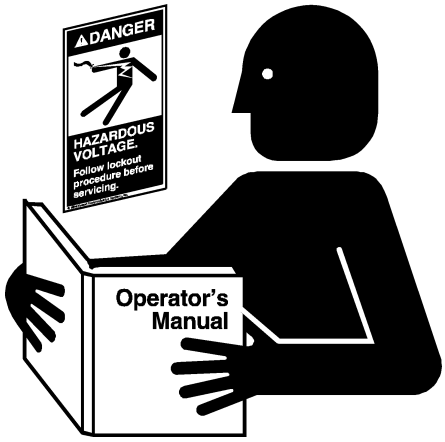
Follow Safety Instructions

Carefully read all safety messages in this manual and safety signs on your machine. Keep signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from the manufacturer.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machinery in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you do not understand any part of this manual or need assistance, contact your dealer.



Read and Understand Manual

Practice Safe Maintenance

Understand service procedures before doing work. Keep area clean and dry.

Never lubricate, service, or adjust machine while it is in operation. Keep hands, feet and clothing away from rotating parts.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any built-up grease, oil, and debris.

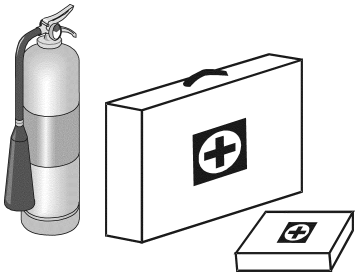
Maintain Equipment and Work Area

Prepare for Emergencies

Be prepared if fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



Keep Emergency Equipment Quickly Accessible

Wear Protective Clothing

Wear close-fitting clothing and safety equipment appropriate to the job.

Remove all jewelry.

Tie long hair up and back.

Wear safety glasses at all times to protect eyes from debris.

Wear gloves to protect your hands from sharp edges on plastic or steel parts.

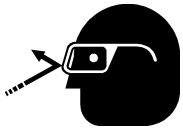
Wear steel-toed boots to help protect your feet from falling debris. Tuck in any loose or dangling shoestrings.

A respirator may be needed to prevent breathing potentially toxic fumes and dust.

Wear a hard hat to help protect your head.

Wear appropriate fall protection equipment when working at elevations greater than six feet (6').

Eye Protection



Gloves

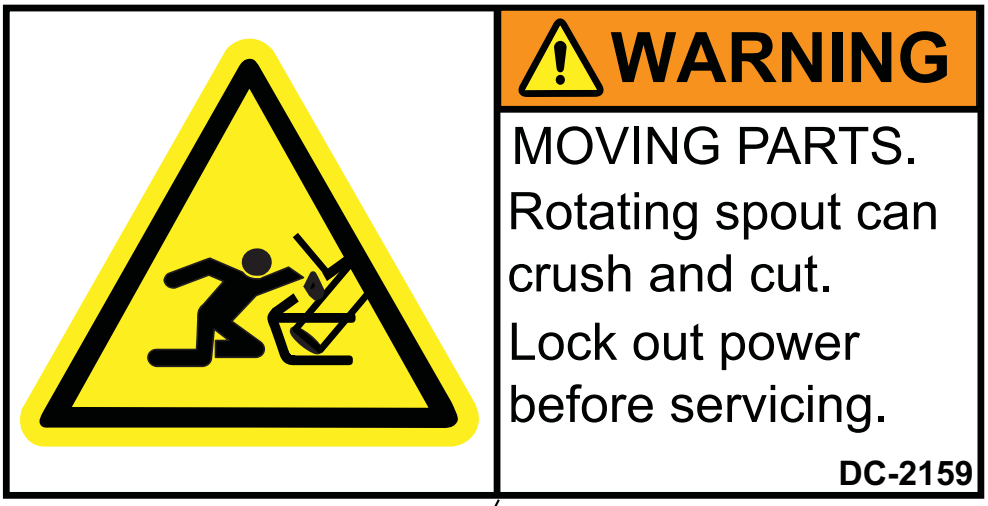
Steel-Toed Boots

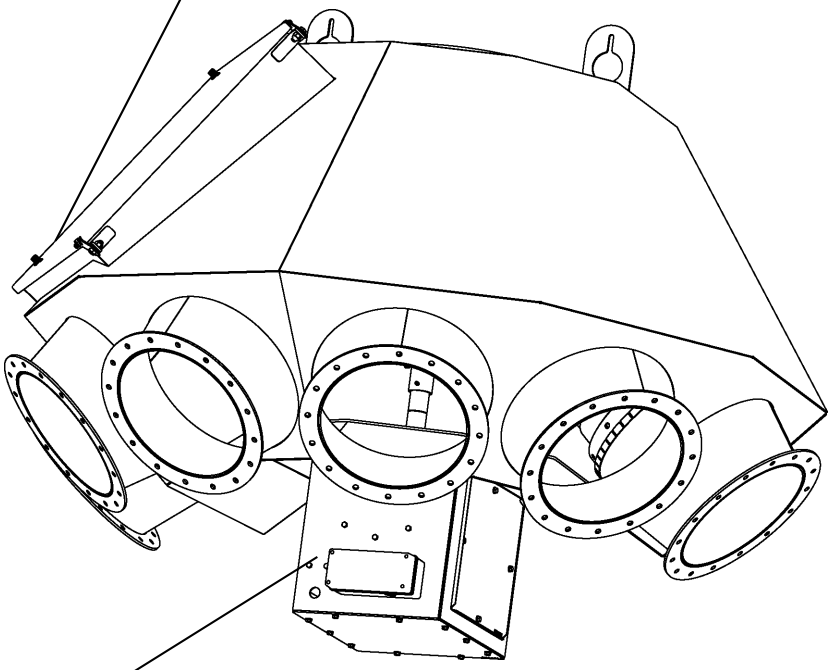
Respirator

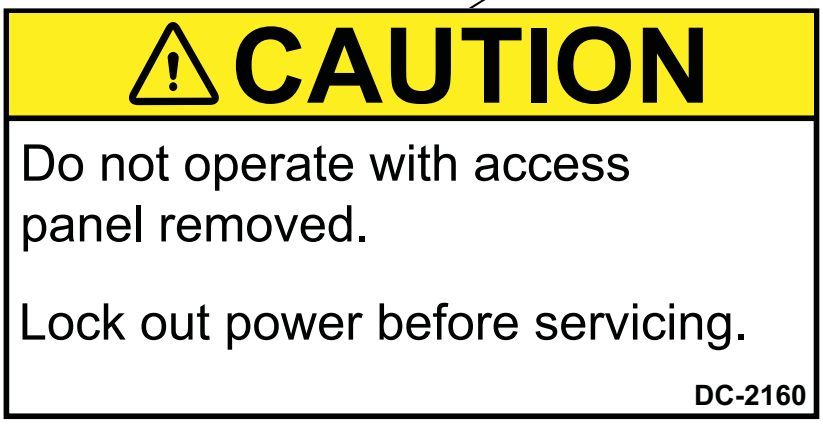
Hard Hat

Fall Protection

The decals are located as shown below:







Electronic Distributor Control Shaft Installation

Install the shaft (DEC0009) to the distributor shaft using two (2) roll pins (S-9288). **NOTE:** *Flag extension should be installed in line with the spout to ensure proper alignment with the sensor.* *(See Figure 3A.)*

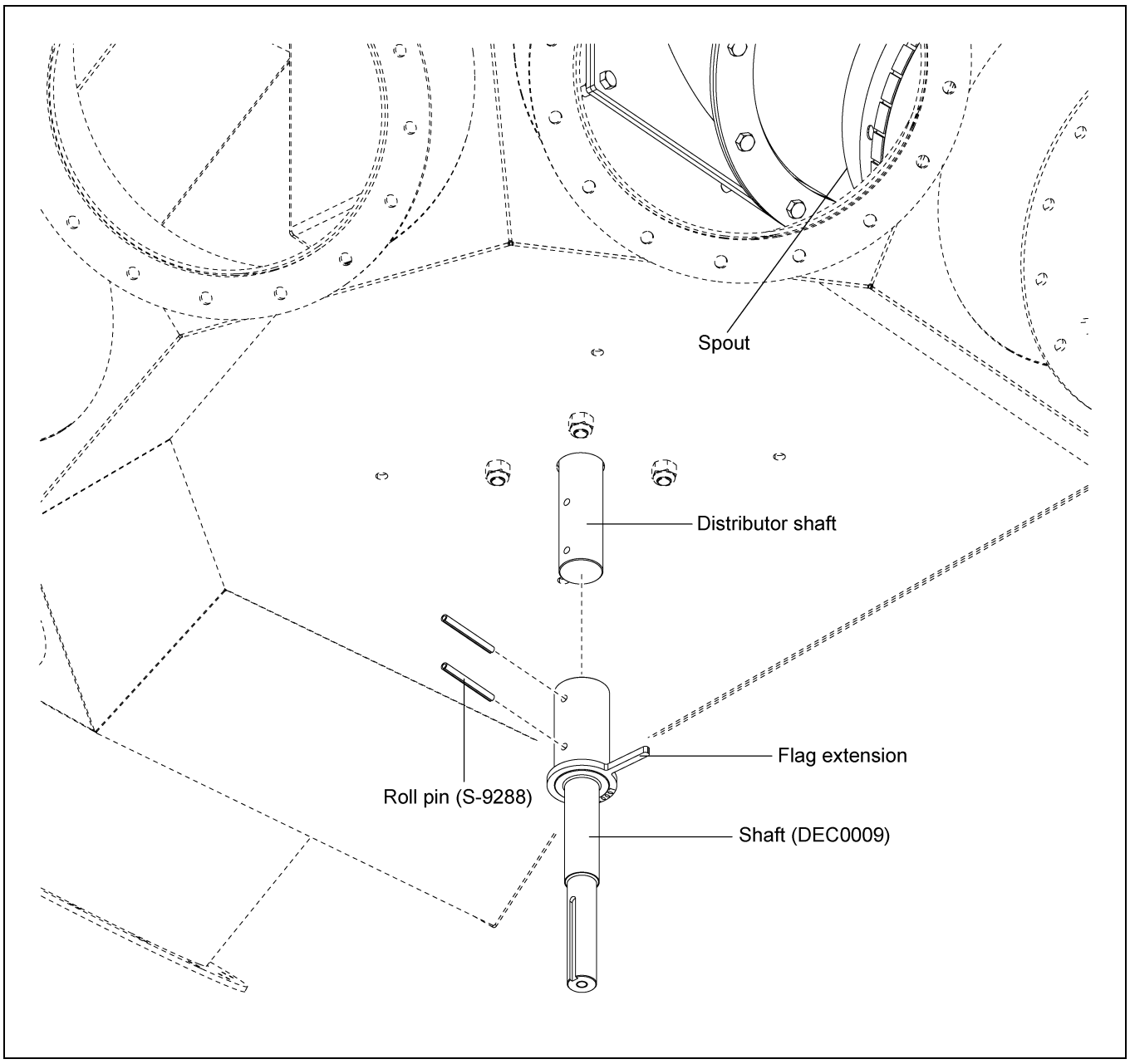


Figure 3A *Electronic Distributor Control Shaft*

Electronic Distributor Enclosure Installation

Install the enclosure (DEC0005) to the distributor using four (4) 3/8 bolts (S-7469) and nylock nuts (S-7383). *(See Figure 3B.)*

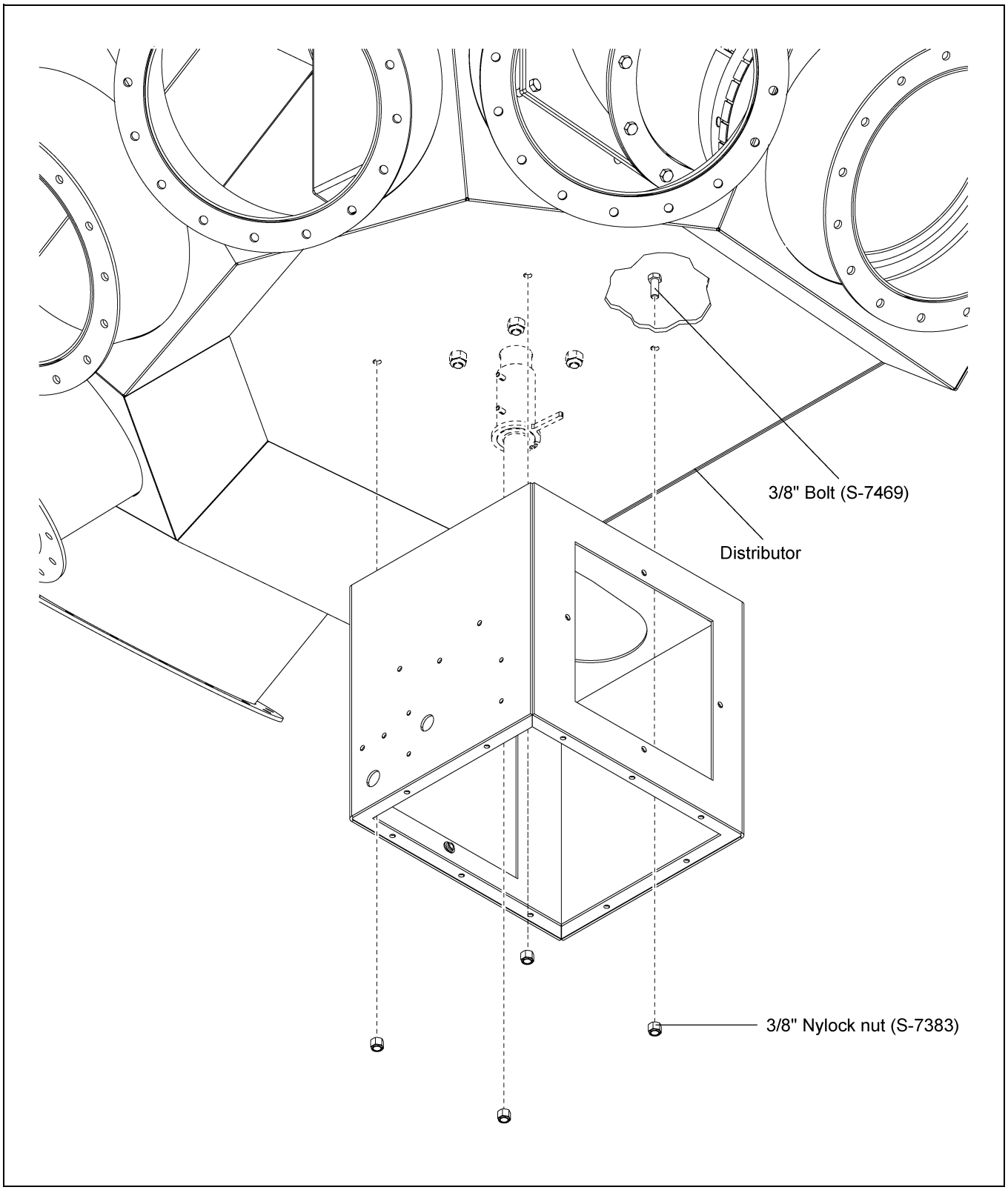


Figure 3B *Electronic Distributor Enclosure*

Junction Box Installation

Install the junction box (DEC0019) to the enclosure (DEC0005) using four (4) self-drilling screws (S-280). Install the chase nipple, washer and lock nut. *(See Figure 3C.)*

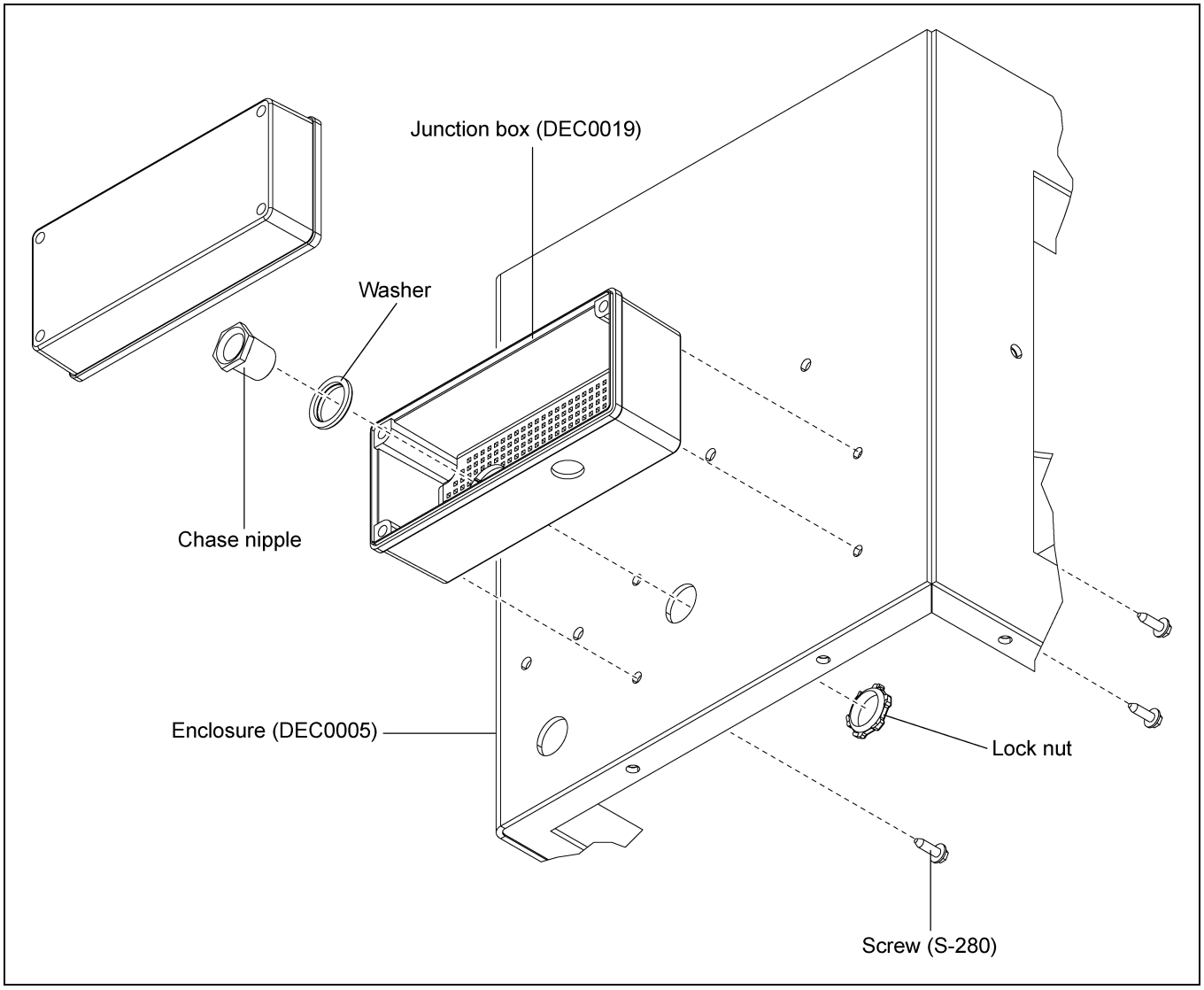


Figure 3C *Junction Box*

Sensor Plate Angle and Proximity Sensor Bracket Installation

Assemble the sensor plate angle (DEC0014) to the proximity sensor bracket (DEC0006) using three (3) 1/4"-20 x 3/4" HHCS bolts (S-1429) and 1/4"-20 nylock nuts (S-7025) as shown in *Figure 3D*.

Attach the proximity sensor bracket (DEC0006) to the inside of the enclosure (DEC0005) using three (3) 1/4"-20 x 3/4" HHCS bolts (S-1429) and 1/4"-20 nylock nuts (S-7025). *(See Figure 3D.)*

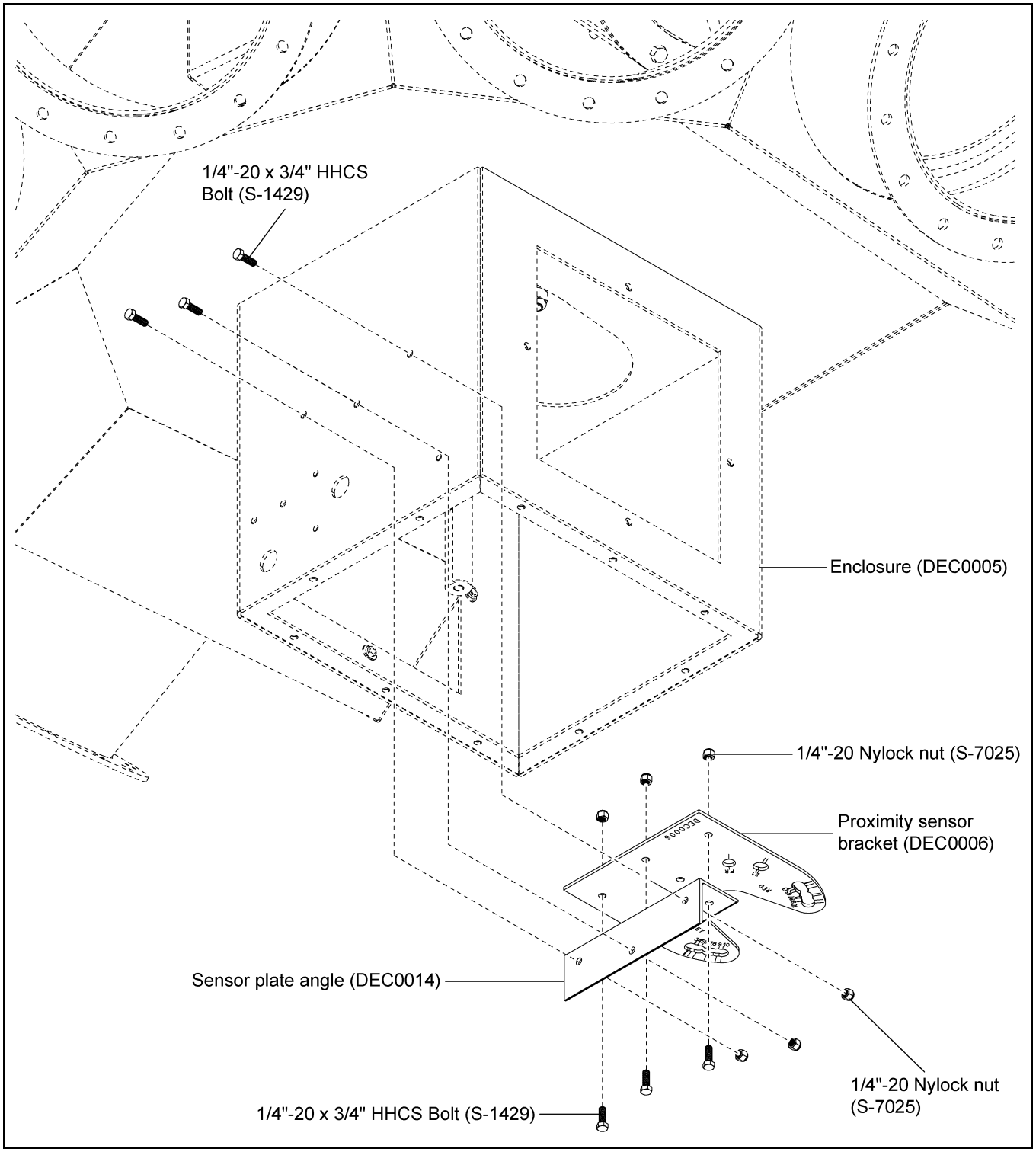
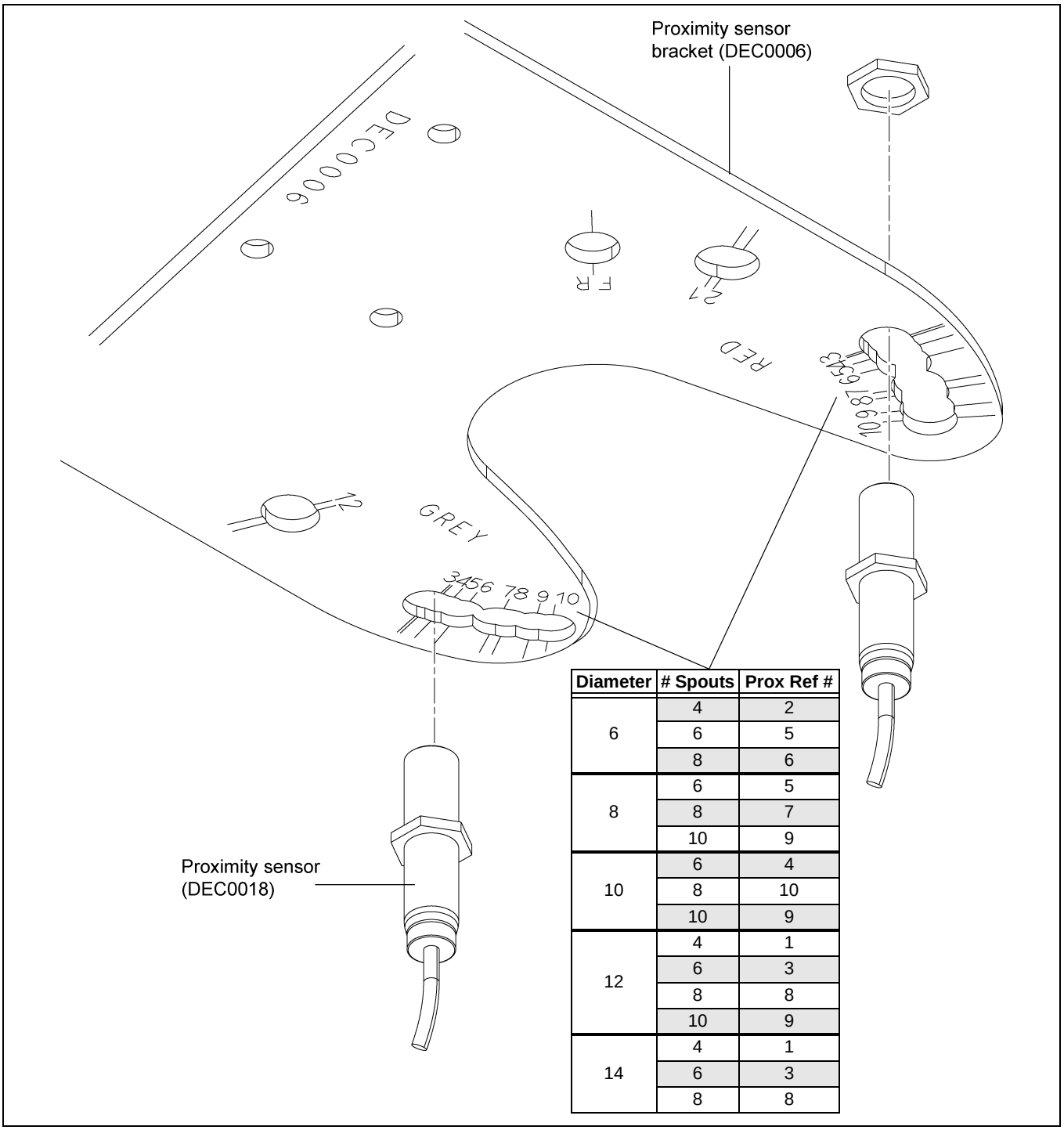


Figure 3D *Sensor Plate Angle and Proximity Sensor Bracket*

Proximity Sensor Location and Installation

NOTE: *The location of the proximity sensor will be determined by the size of the distributor.* Using the table shown in *Figure 3E*, locate the diameter and number of spouts of the distributor being used and note the proximity sensor reference number. This reference number is marked on the bottom of the proximity sensor bracket (DEC0006) and identifies the location for installing the proximity sensors (DEC0018).

Install the two (2) proximity sensors (DEC0018) into the proximity sensor bracket (DEC0006) at the appropriate locations determined from the table. *(See Figure 3E below and Figure 3G on Page 14.)*



Diameter	# Spouts	Prox Ref #
6	4	2
	6	5
	8	6
8	6	5
	8	7
	10	9
10	6	4
	8	10
	10	9
12	4	1
	6	3
	8	8
	10	9
14	4	1
	6	3
	8	8

Figure 3E *Proximity Sensor Location*

Proximity Sensor Location and Installation (Continued)

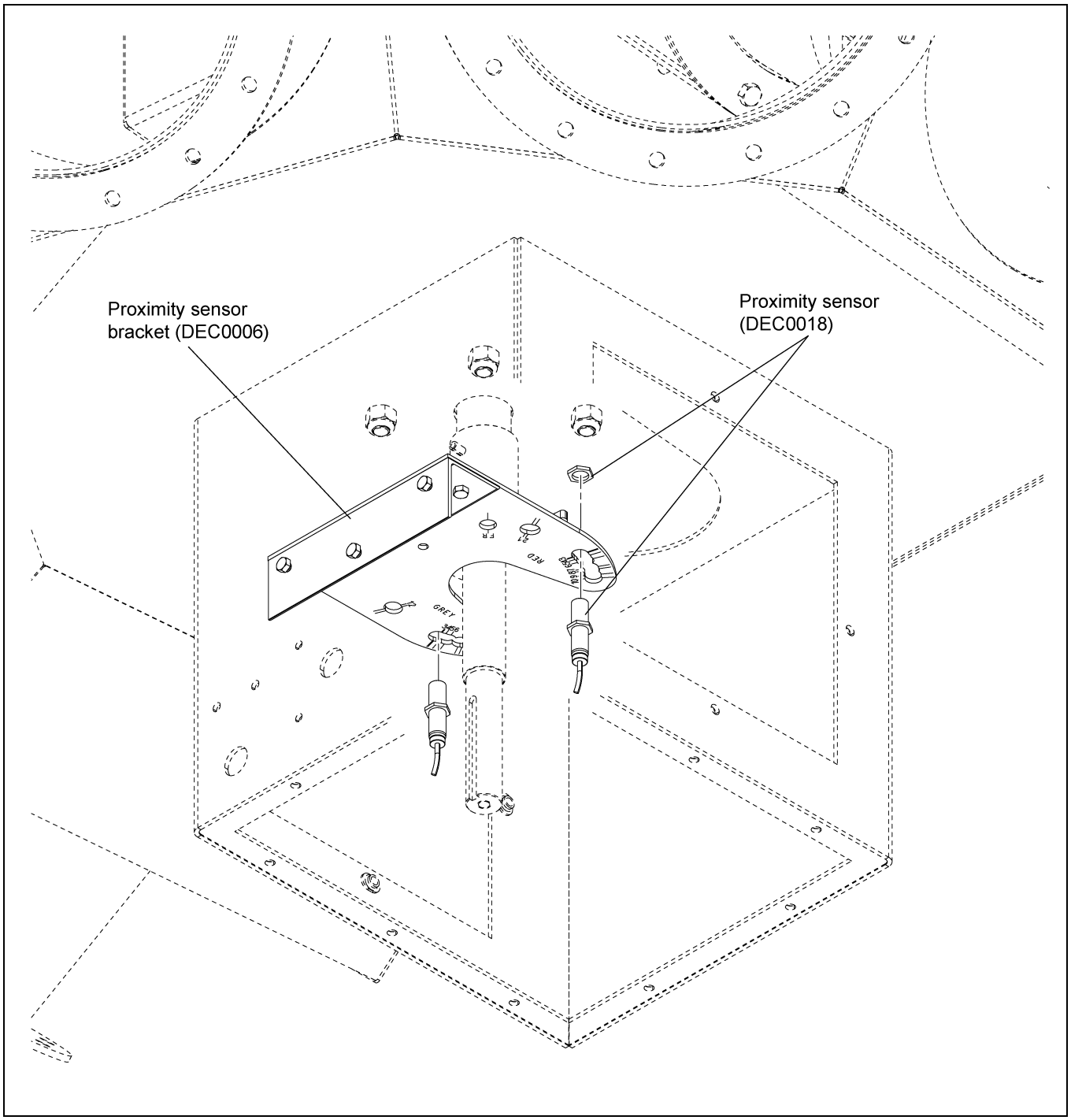


Figure 3F *Proximity Sensor Installation*

Proximity Sensor Adjustment

Set the clearance of the two (2) proximity sensors (DEC0018) to 0.050" ± 0.01" from the face of each sensor to the flag on the shaft (DEC0009). *(See Figure 3G.)*

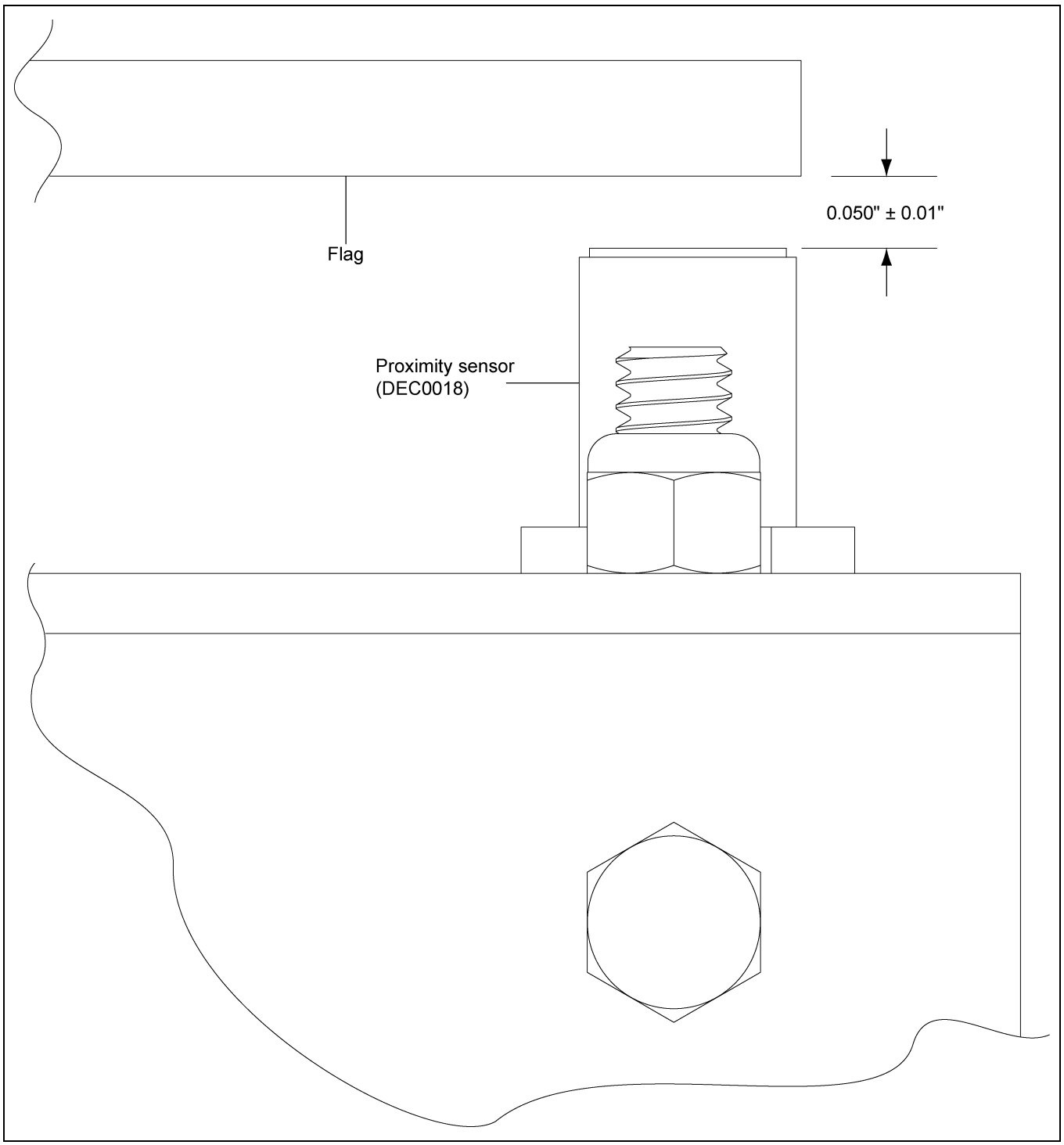


Figure 3G *Proximity Sensor Adjustment*

Encoder and Bracket Installation

Install the encoder (DEC0017) to the encoder mounting bracket (DEC0016) using the three (3) #10-32 bolts (S-10167) and #10 washers (S-7223) as shown in *Figure 3H*.

Tighten the encoder collar set screw as shown in *Figure 3I on Page 16* to 8 in-lbs.

Install the encoder mounting bracket (DEC0016) to the proximity sensor bracket (DEC0006) using the 1/4"-20 x 3/4" HHCS bolt (S-1429), 1/4" washer (S-2126) and 1/4"-20 nylock nut (S-7025) as shown in *Figure 3J on Page 17*.

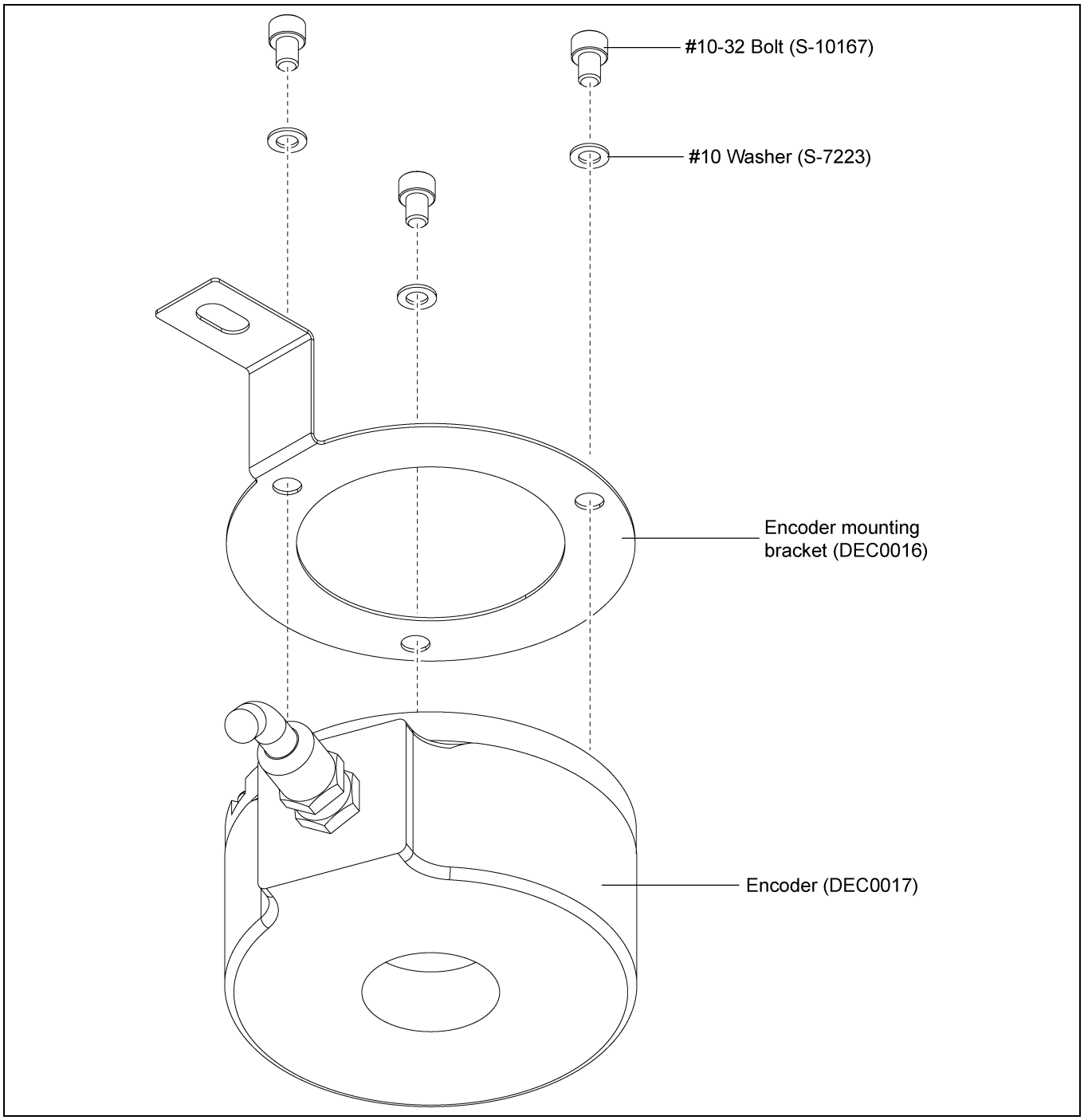


Figure 3H *Encoder to Mounting Bracket*

Encoder and Bracket Installation (Continued)

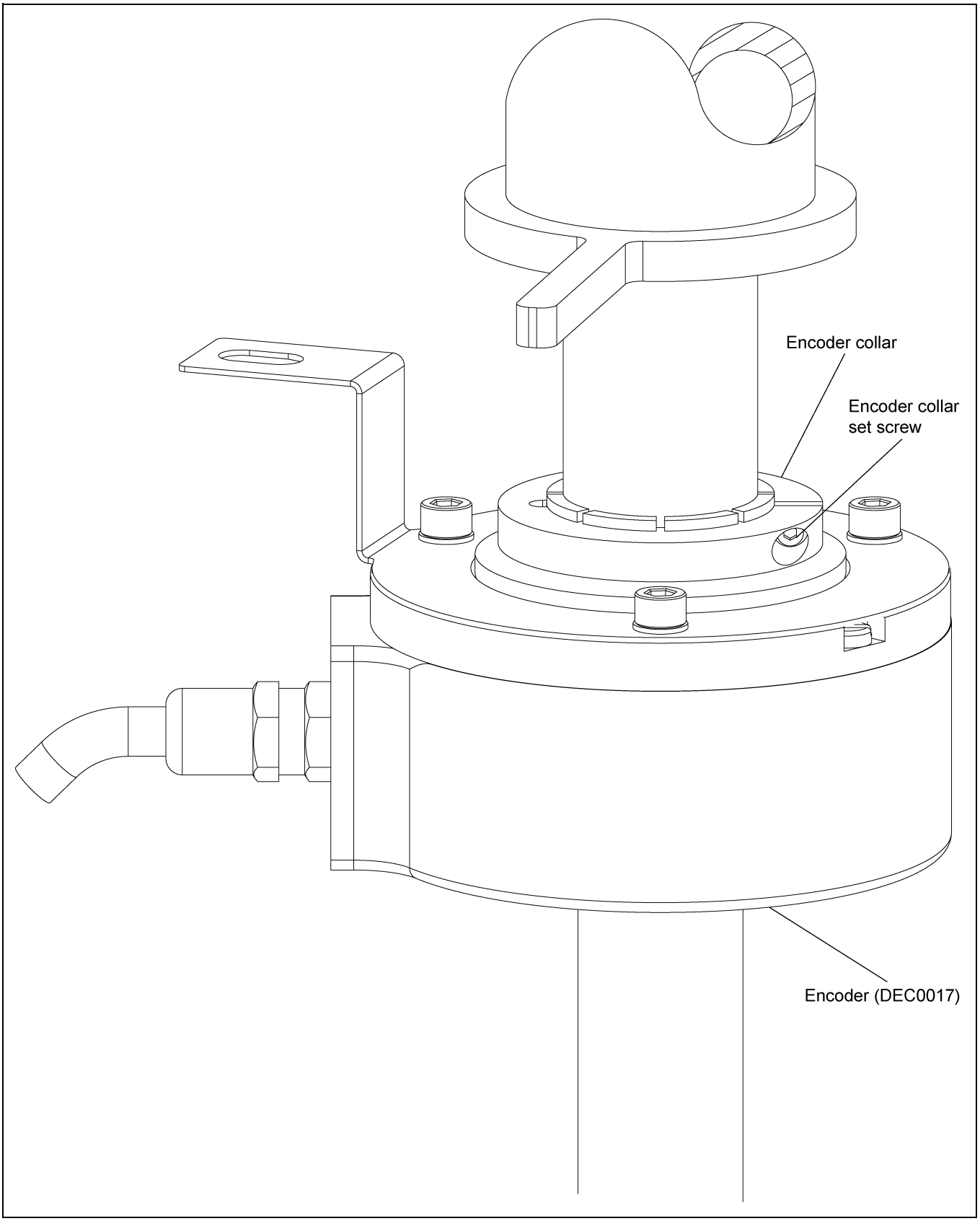


Figure 3I *Encoder Collar Set Screw*

Encoder and Bracket Installation (Continued)

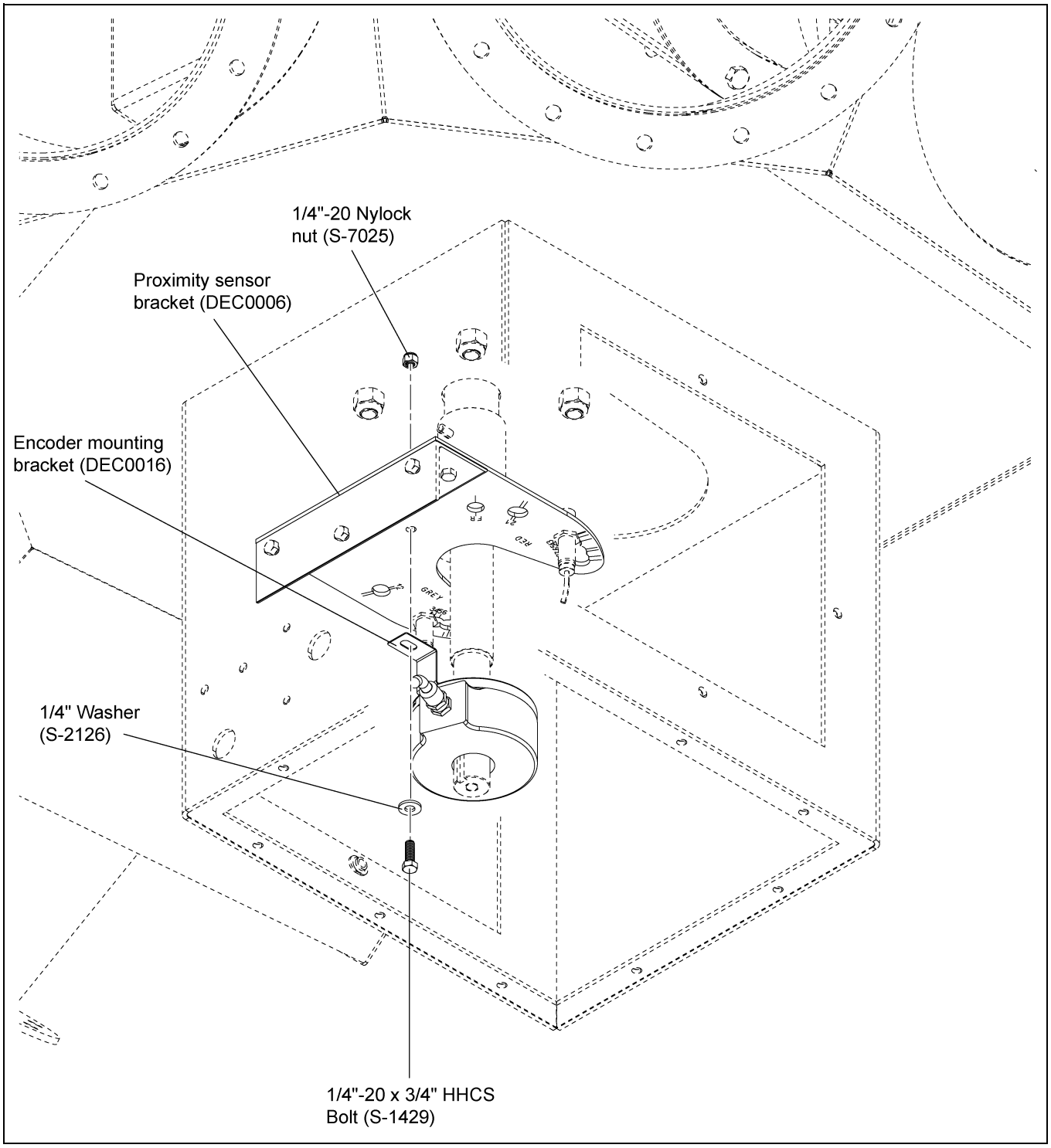


Figure 3J *Mounting Bracket to Proximity Sensor Bracket*

Motor Mounting Bracket Installation

Install the motor mounting bracket (DEC0003) to the enclosure (DEC0005) using two (2) 1/4"-20 x 3/4" HHCS bolts (S-1429), 1/4" washers (S-2126) and 1/4"-20 nylock nuts (S-7025) as shown in *Figure 3K*.

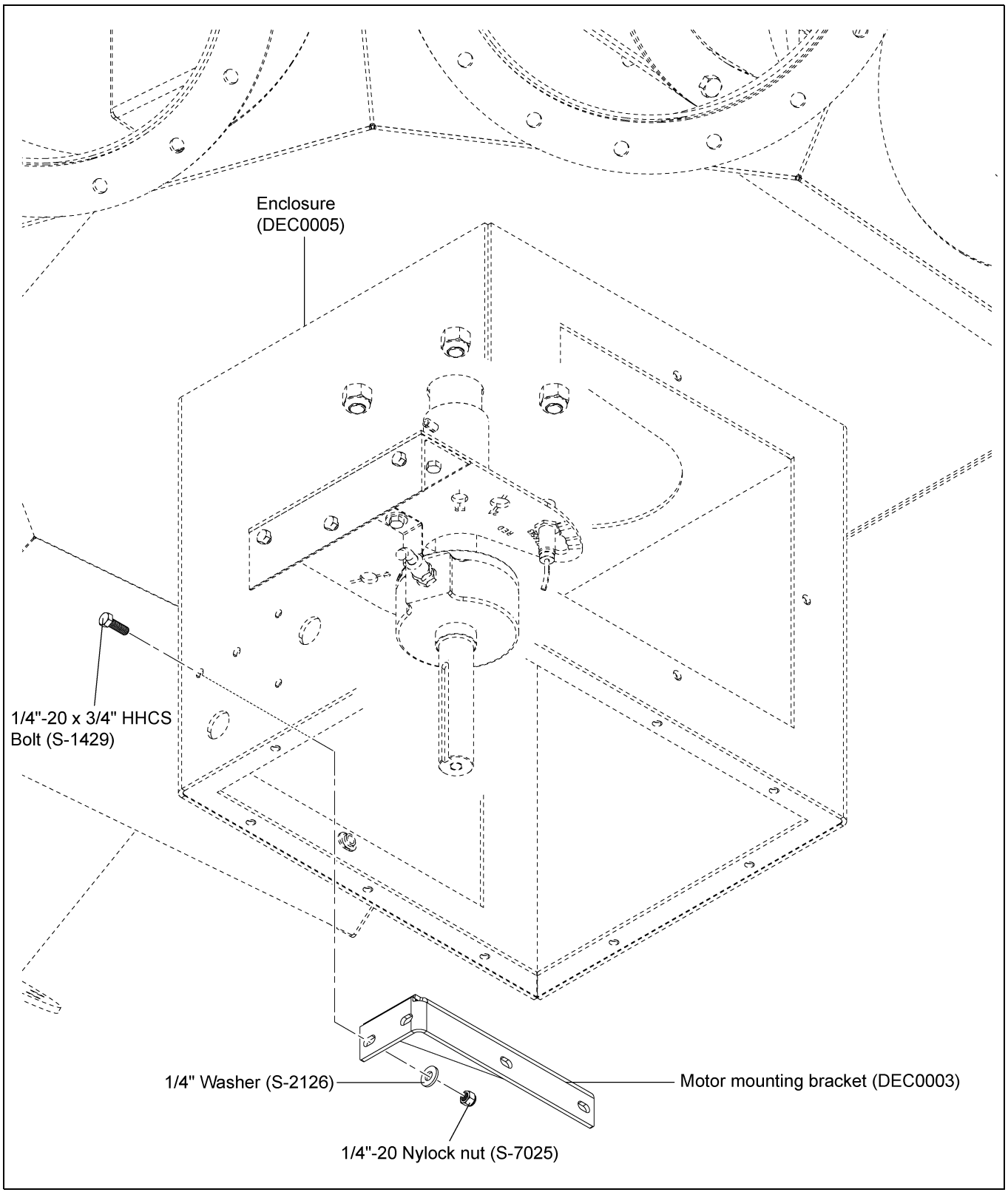


Figure 3K *Motor Mounting Bracket*

Control Motor Installation

Install the motor (DEC0015) to the motor mounting bracket (DEC0003) using two (2) 1/4"-20 x 1" HHCS bolts (S-6998), four (4) 1/4" washers (S-2126) and two (2) 1/4"-20 nylock nuts (S-7025) as shown in *Figure 3L*.

Install second motor mounting bracket (DEC0021) to the enclosure (DEC0005) using two (2) 1/4"-20 x 3/4" HHCS bolts (S-1429), 1/4" washers (S-2126) and 1/4"-20 nylock nuts (S-7025). Then install the motor to the motor mounting bracket (DEC0021) using two (2) 1/4"-20 x 1" HHCS bolts (S-6998), four (4) 1/4" washers (S-2126) and two (2) 1/4"-20 nylock nuts (S-7025) as shown in *Figure 3L*.

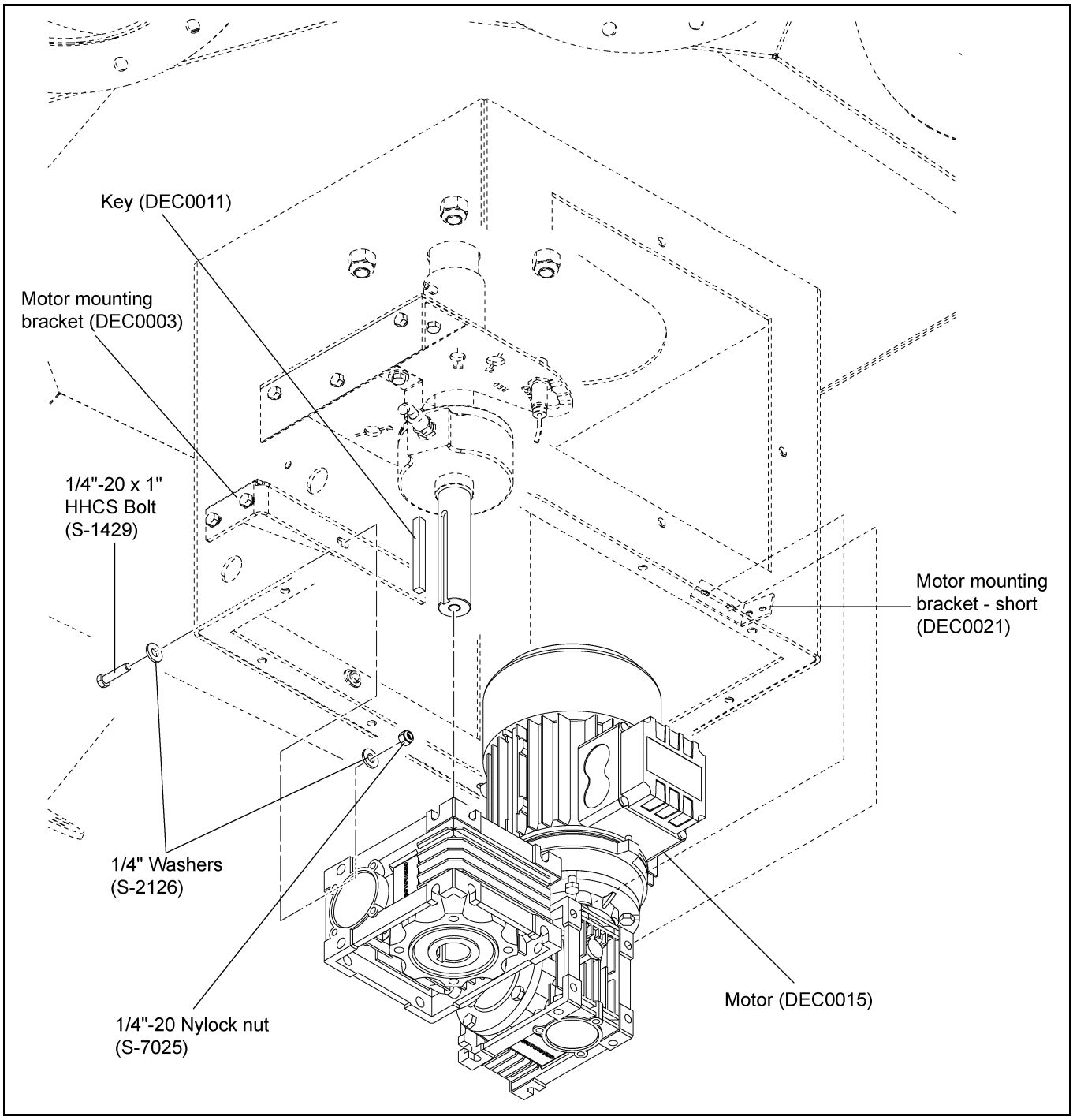


Figure 3L *Control Motor Installation*

Wire and Fitting Selection Recommendations

NOTE: *The power cable, encoder cable, proximity sensor cables, motor cable and electrical fittings are not supplied with the electronic distributor control. The following recommendations must be followed when selecting wire types and electrical fittings:*

For the proximity sensor and encoder cables from the junction box to the control panel, use ten (10) conductor or greater shielded cable, 22 AWG or larger and rated for the environment. If the wiring is run outside of conduit, it should be rated for UV.

For the motor cable from the motor to the control panel, use four (4) conductor cable, shielded, 16 AWG or larger and rated for the environment. If the wiring is run outside of conduit, it should be rated for UV.

All conduit and fittings should be outdoor-rated to keep things adequately sealed.

Distributor to Junction Box Electrical Connections

Connect wiring from proximity sensors (DEC0018) and encoder (DEC0017) to junction box terminal block as shown in *Figure 3M*. **NOTE:** *The grey and red color identifiers indicate the location of the proximity sensors and are shown on the bottom of the proximity sensor bracket (DEC0006).*

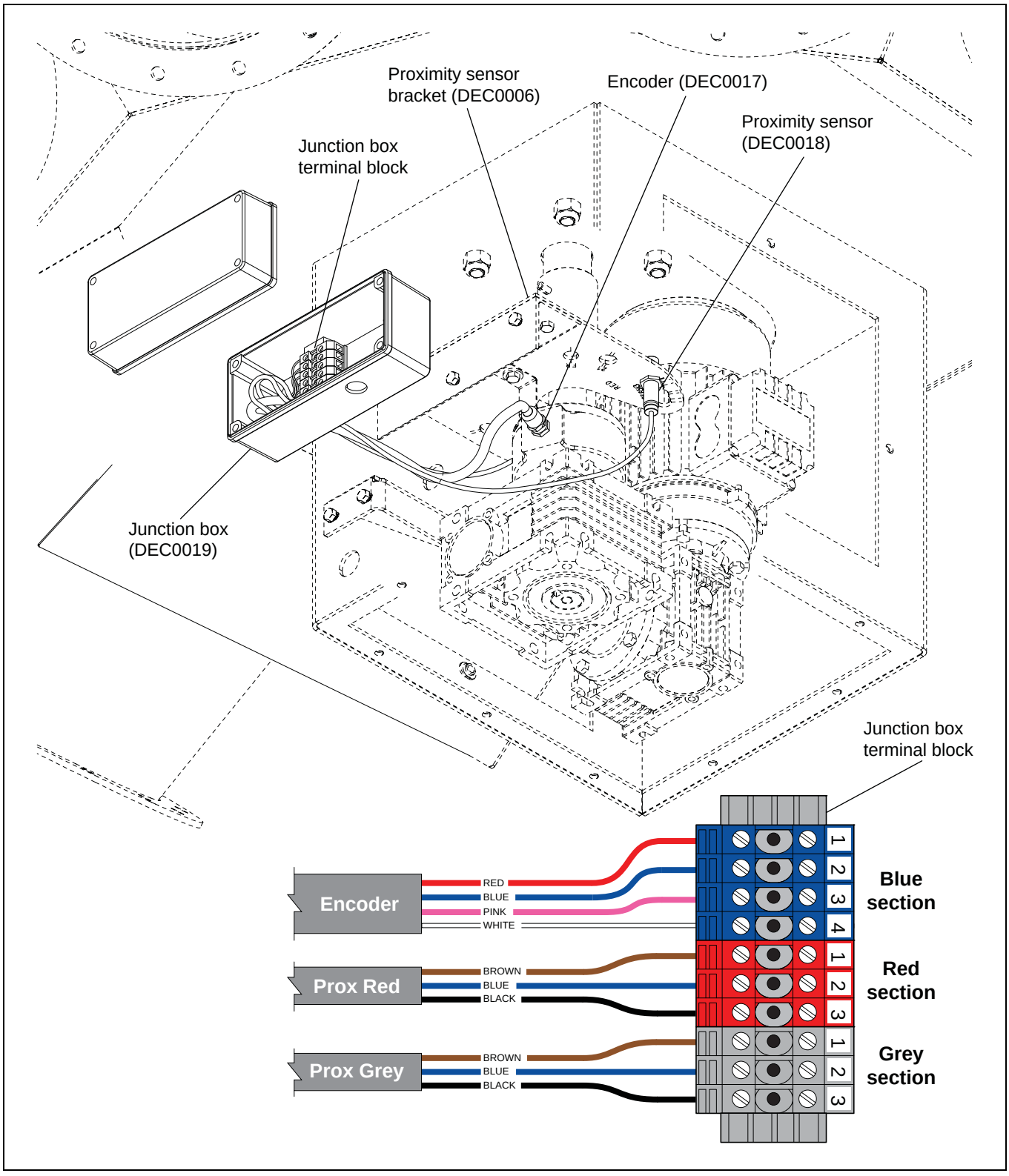


Figure 3M *Distributor to Junction Box Electrical Connections*

Control Panel Cable to Distributor Fitting Connections

Connect the motor cable from the control panel to the distributor enclosure (DEC0005) and connect the proximity sensors and encoder cable from the control panel to the junction box (DEC0019) using suitable fittings. *(See Figure 3N.)*

Figure 3N *Cable fitting connections to distributor enclosure and junction box.*

Motor Cable to Motor Junction Box Fitting Connections

Remove the four (4) motor junction box cover screws and the motor junction box cover as shown in *Figure 3O*.

Connect the motor cable to the motor junction box using suitable fittings. *(See Figure 3O.)*

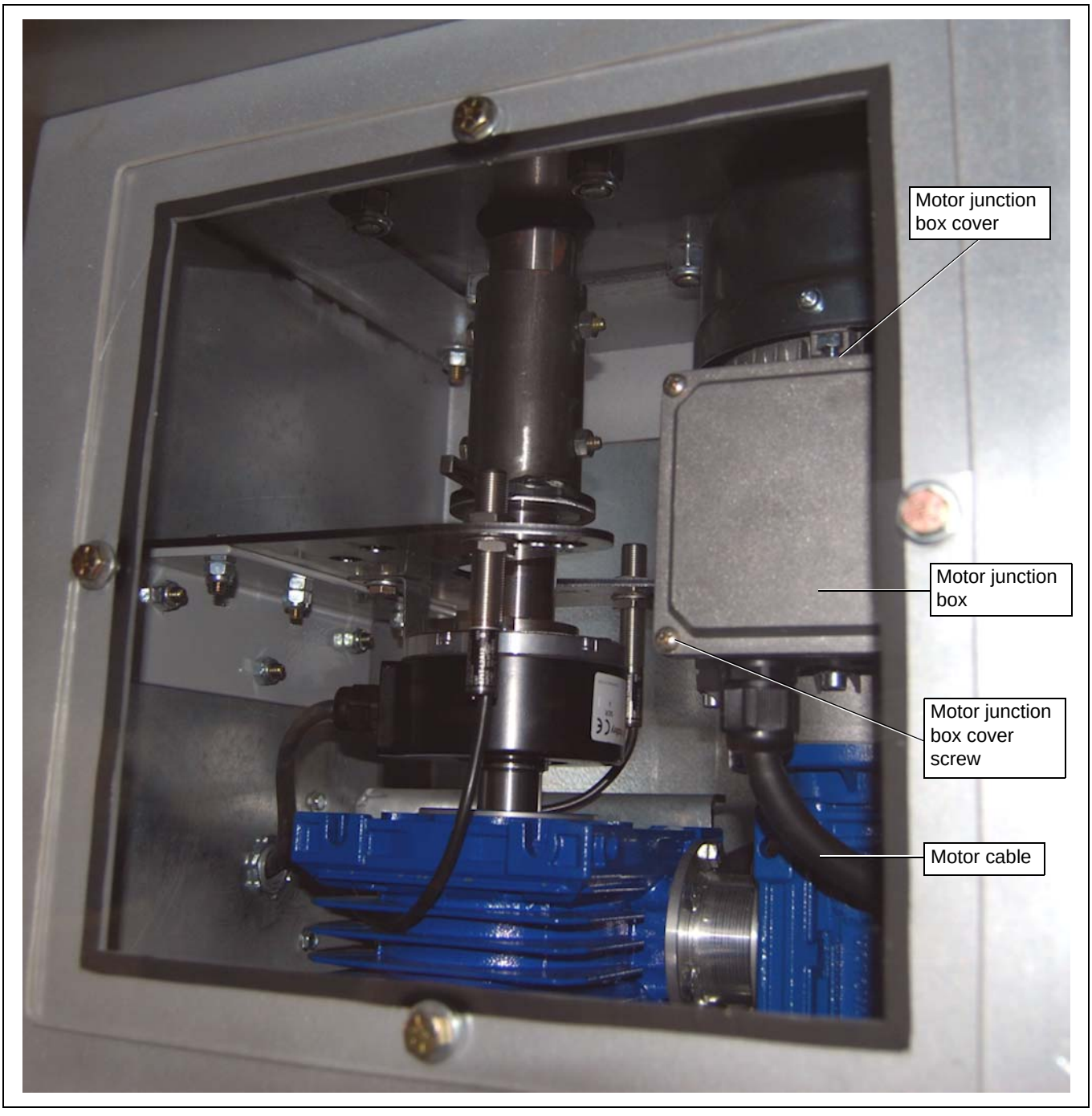


Figure 3O *Cable fitting connection to motor junction box.*

Electronic Distributor Wiring Diagram

The electric motor supplied with the GSI Electronic Distributor Control system is designed to be capable of running on either low or high voltage. The variable frequency drive (VFD) supplied with the system supplies 230V 3 phase power and requires that the electric motor be configured for **low voltage** operation. In order to ensure proper operation, ensure the motor jumpers are configured in accordance with the wiring diagram shown for low voltage operation. *(See Figure 3P.)*

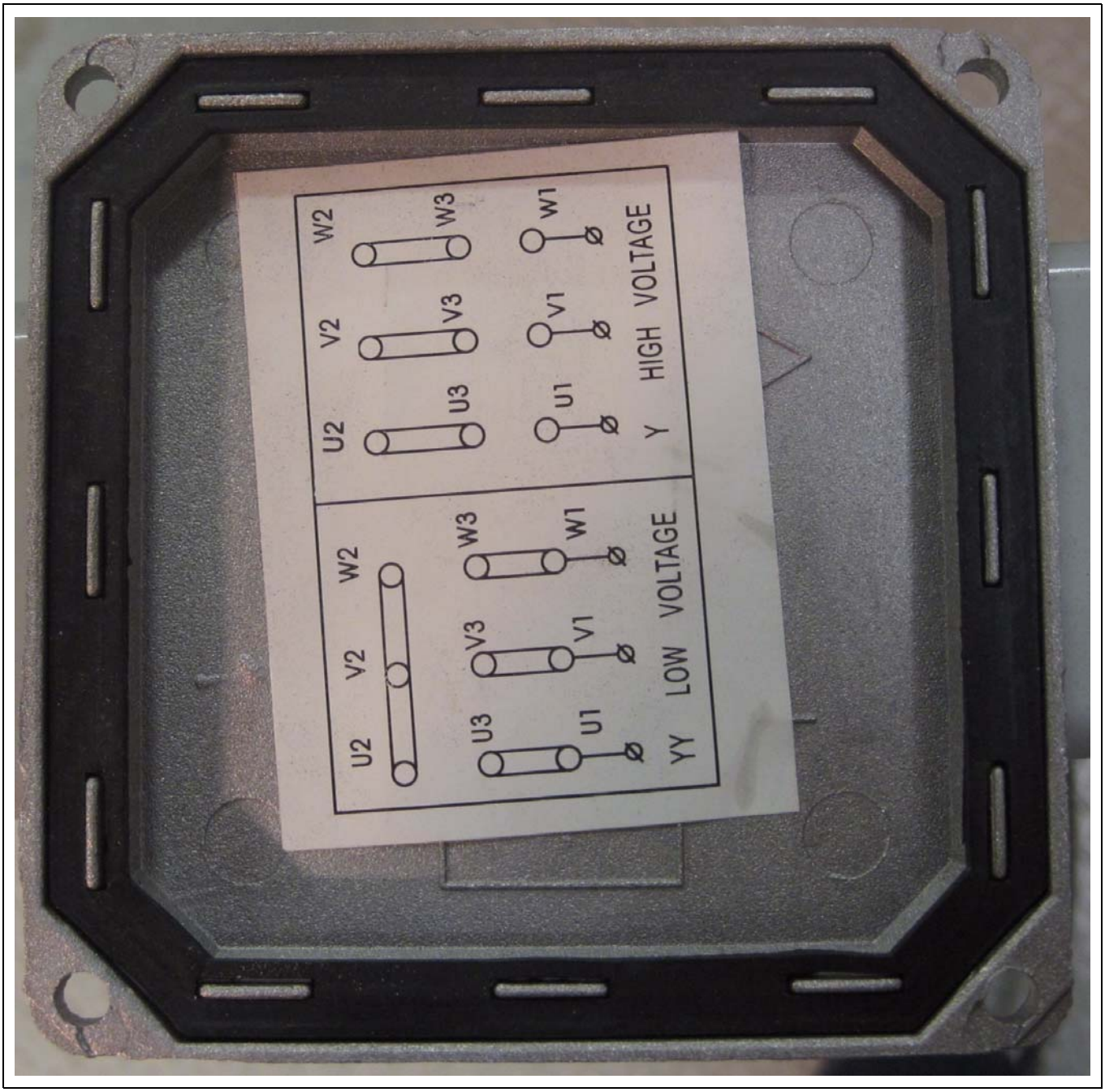


Figure 3P

Motor Wiring to Motor Junction Box Electrical Connections

Connect the motor wiring to the motor wiring terminal block as shown in *Figure 3Q* and re-install the motor junction box cover and screws.

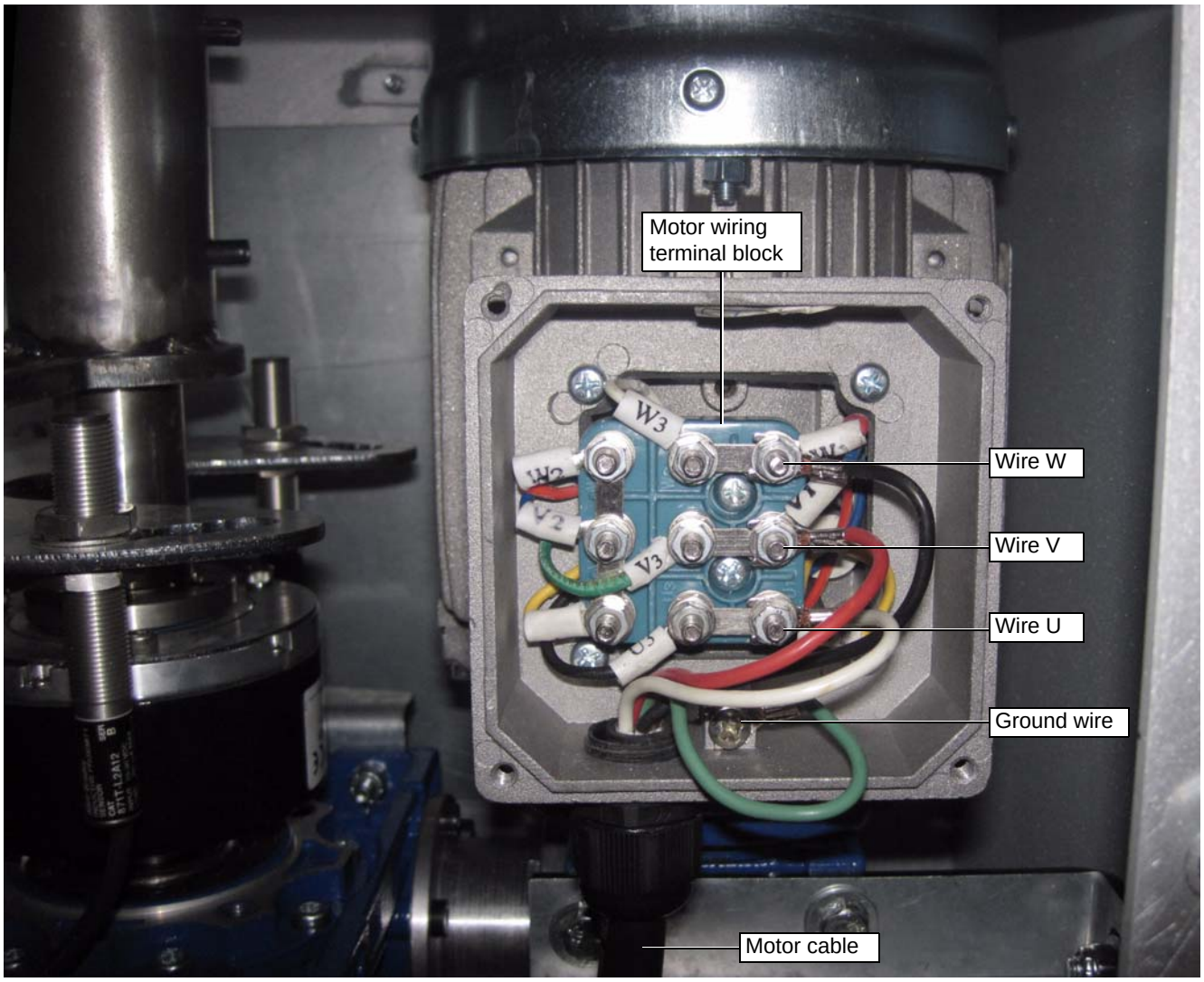


Figure 3Q *Motor Wiring to Motor Junction Box Electrical Connections*

Control Panel Wiring to Junction Box Electrical Connections

Connect the wiring from the control panel to the junction box (DEC0019) terminal block as shown in *Figure 3R*. **NOTE:** *The grey and red color identifiers indicate the location of the proximity sensors and are marked on the bottom of the proximity sensor bracket (DEC0006).*

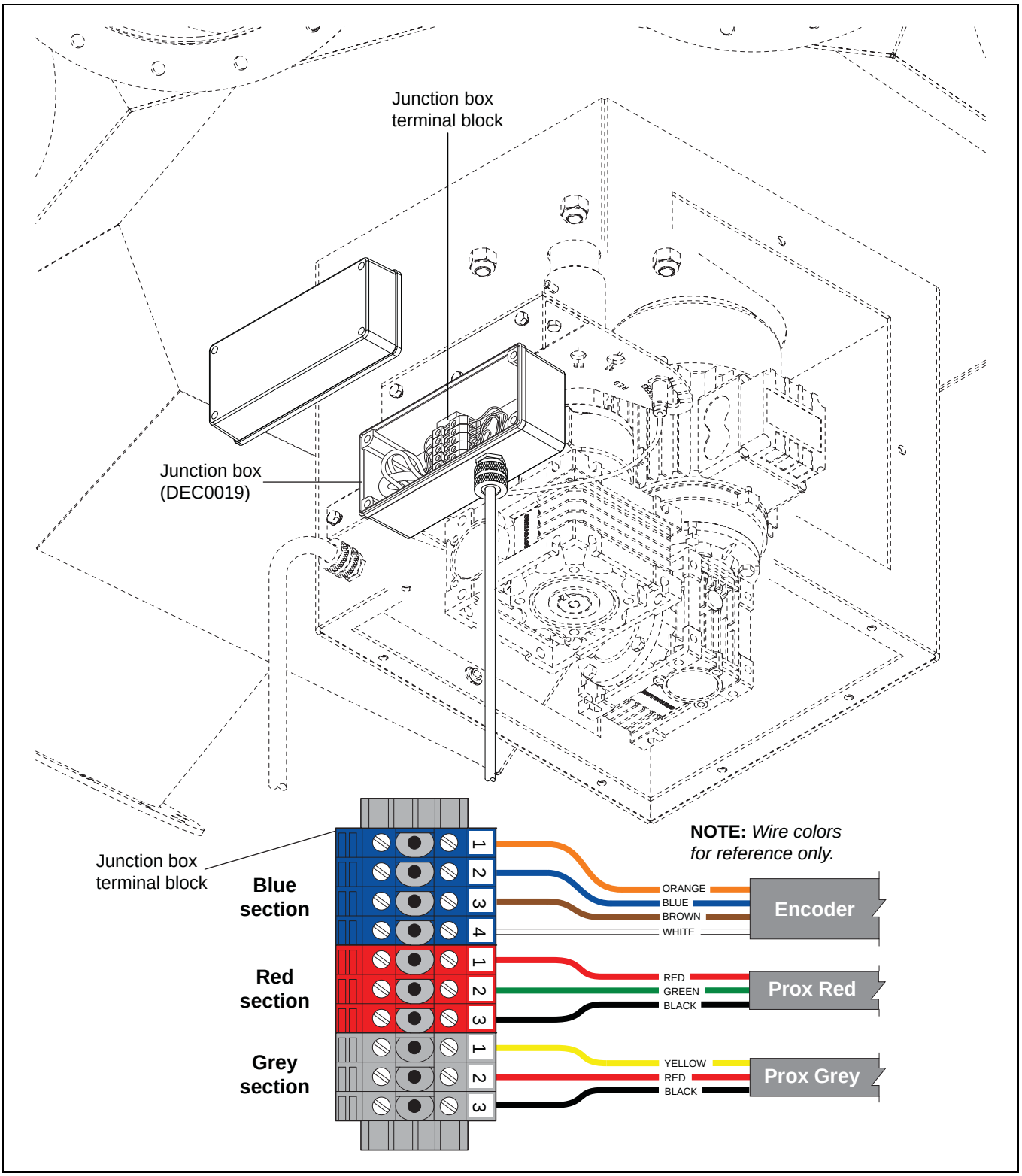


Figure 3R *Control Panel Wiring to Junction Box Electrical Connections*

Enclosure Covers Installation

Install the two (2) side access covers (DEC0012) using four (4) 1/4"-20 x 3/4" HHCS bolts (S-1429) and 1/4" lock washer (S-2041) each and install the bottom enclosure cover (DEC0013) using ten (10) 1/4"-20 x 3/4" HHCS bolts (S-1429) and 1/4" lock washers (S-2041) as shown in *Figure 3S*.

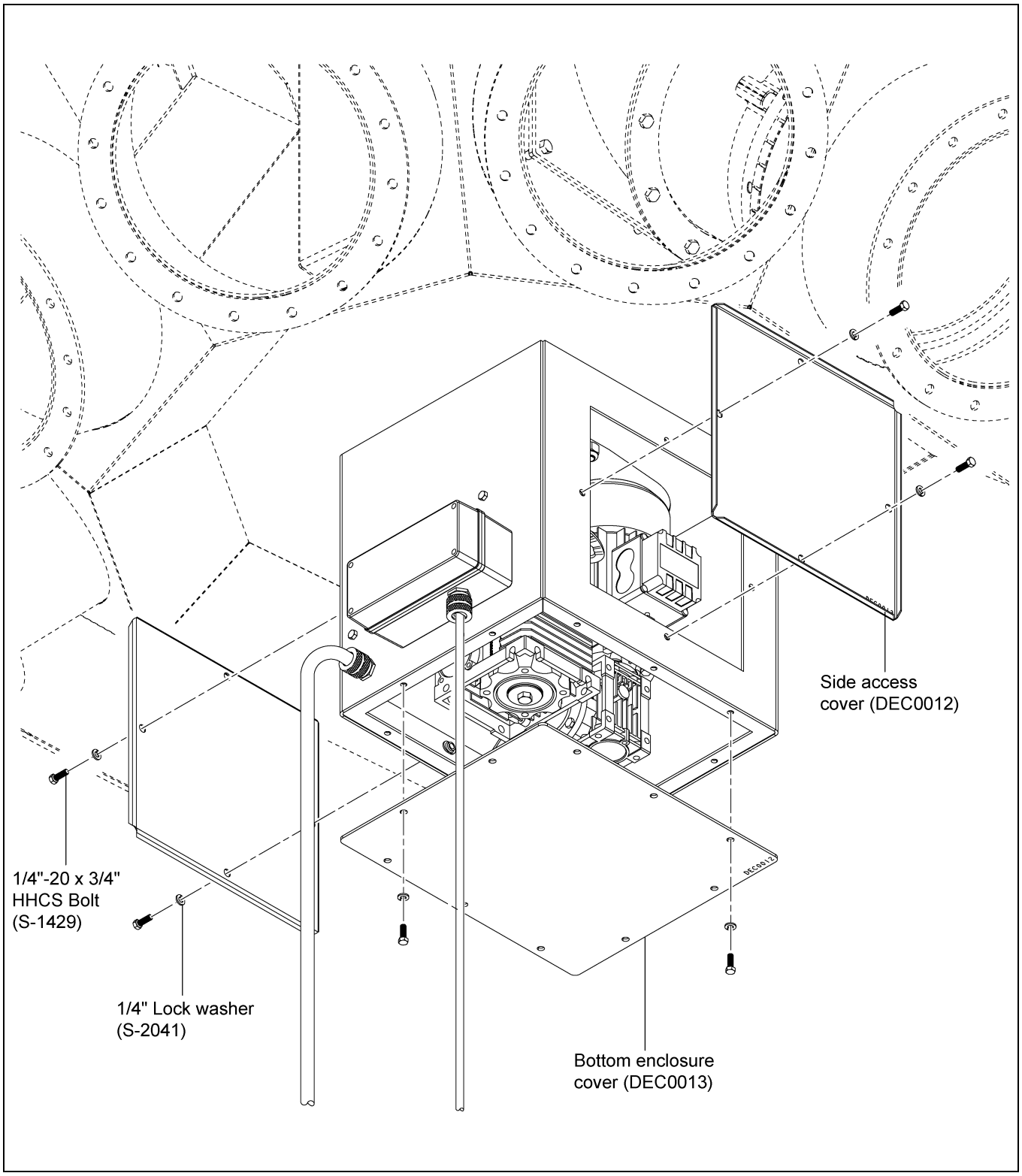


Figure 3S *Enclosure Covers Installation*

Control Panel Wiring from Motor Electrical Connections

Connect the motor wiring to the motor power terminal block in the control panel as shown in *Figure 3T*.

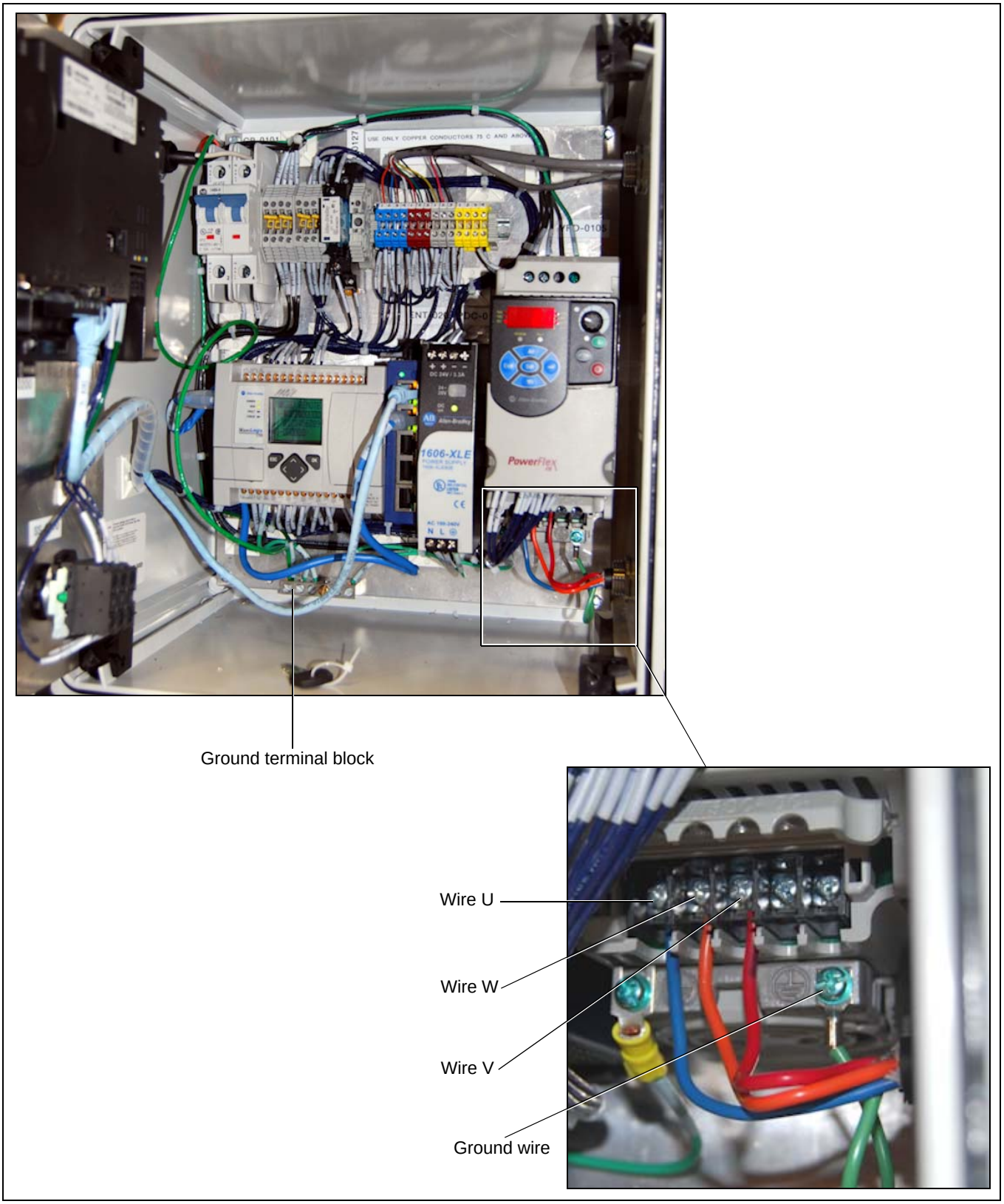


Figure 3T *Control Panel Wiring from Motor Electrical Connections*

Power Supply Wiring to Control Panel Electrical Connections

NOTE: *Ensure the power supply voltage source is OFF before installation.*

Install power supply cable through the control panel using suitable hardware as shown in *Figure 3U*.

Connect the power supply hot wires to the control panel circuit breakers as shown in *Figure 3U*.

Connect the power supply ground wire as shown in *Figure 3U* to the ground terminal block as shown in *Figure 3T on Page 28*.

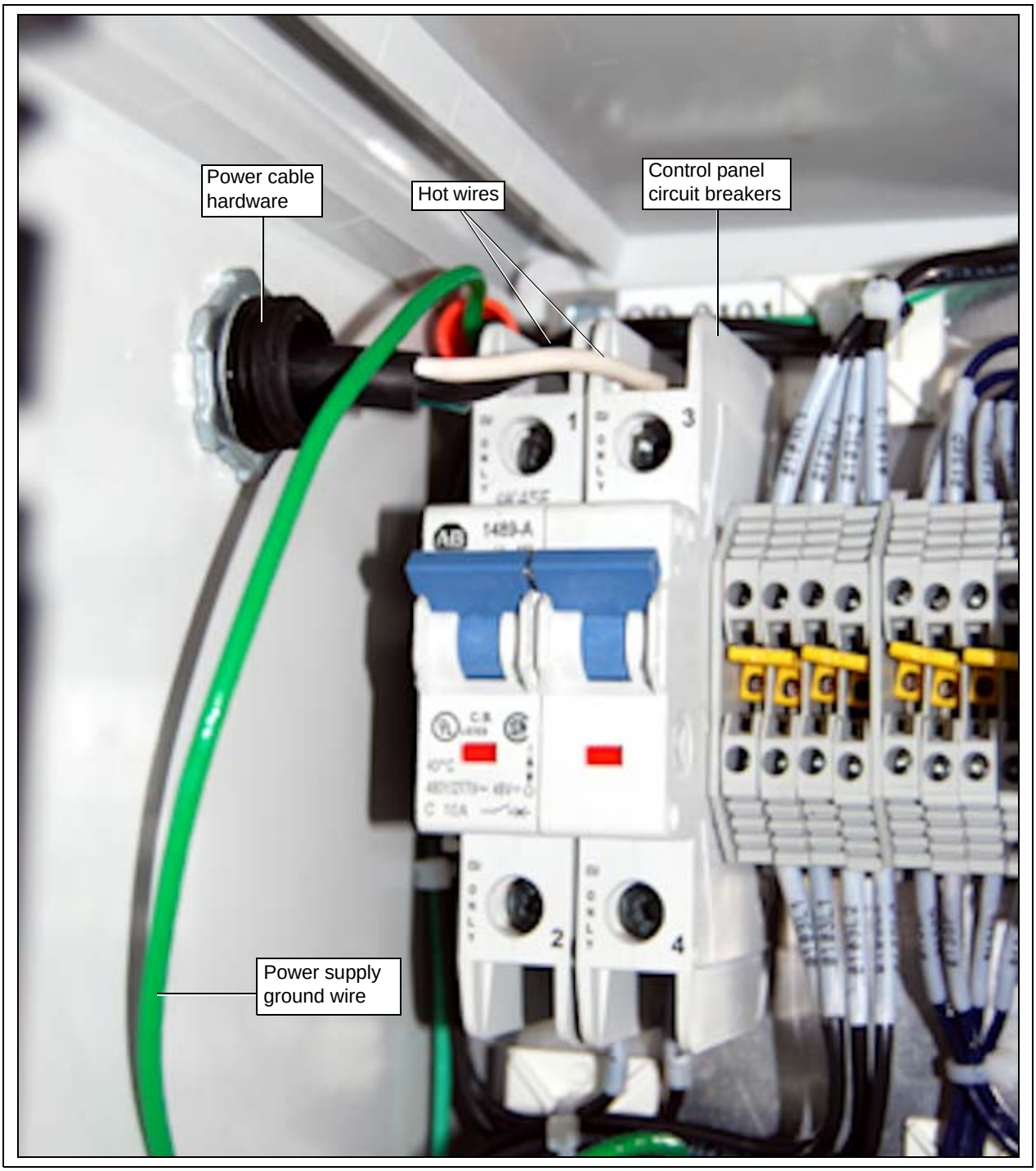


Figure 3U *Control Panel Wiring from Motor Electrical Connections*

Control Panel Installation Guidelines

The following recommendations must be followed when installing and mounting the control panel:

All wiring should be performed by a licensed/qualified electrician in accordance with the National Electric Code (NEC), state codes and local codes.

Never mount the control panel immediately beside or above heat generating equipment or directly below water or steam pipes.

The atmosphere surrounding the control panel must be free of combustible vapors, chemical fumes and corrosive materials.

The location of the control panel and the routing of cables should provide safe access for maintenance and suitable operation of the control panel.

Mount the control panel on a flat, vertical surface using 1/4" fasteners.

Ensure that the mounting surface is sufficient to support the weight of the control panel.

Initializing Screen

When powering up the distributor the first screen that appears is the “Initializing” screen. *(See Figure 4A.)* Press “OK” to proceed to the “Main” screen. See “Main Screen” *on Page 32*.

NOTE: *Pressing “OK” button after first time power up after a retrofit will bring you to the configuration screen.*

Figure 4A *Help Menu*

NOTE: *The following screens are taken from various models of distributors, which may result in differences between this manual and that of the actual display.*

Main Screen

Depending on the number of spouts in the current configuration, one of the following screens will be displayed. *(See Figure 4B, Figure 4C, Figure 4D and Figure 4E.)* The name of the current spout is indicated at the top of the screen and is indicated in the graphic with a green circle. At the bottom of the screen are three (3) buttons to navigate to either the Help Menu, Move Screen or Setup Menu.

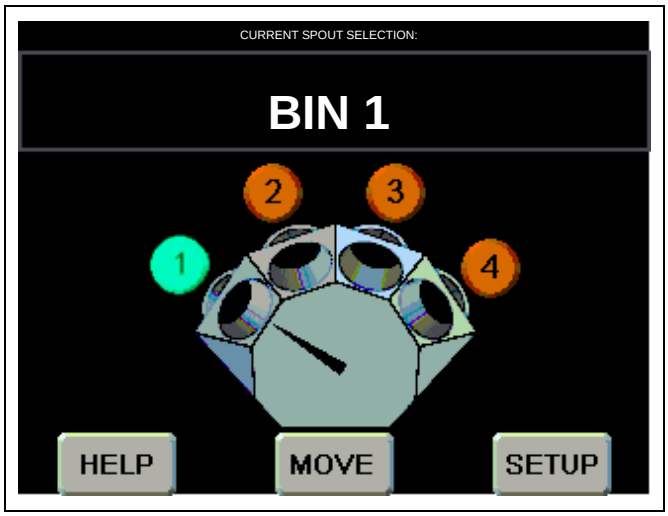


Figure 4B *Four (4) Spout Main Screen*

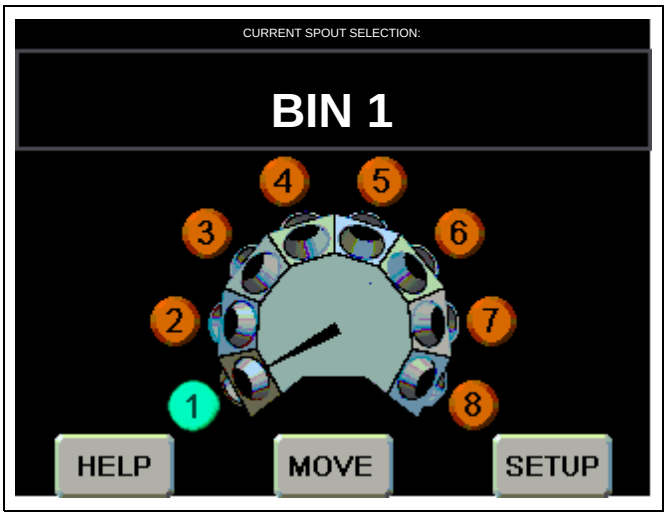


Figure 4D *Eight (8) Spout Main Screen*

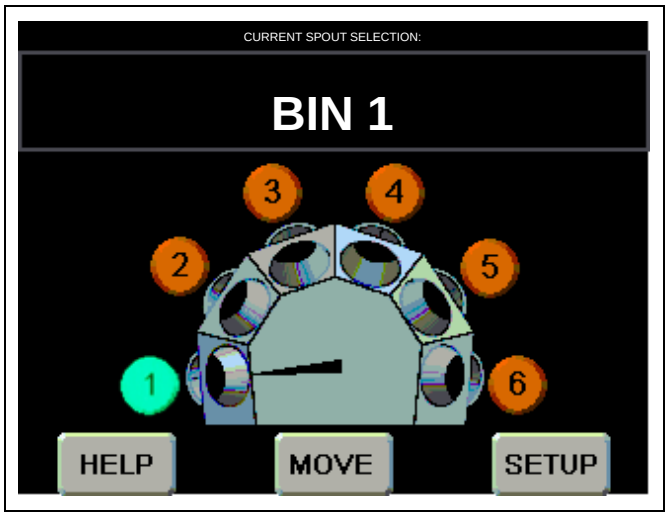


Figure 4C *Six (6) Spout Main Screen*

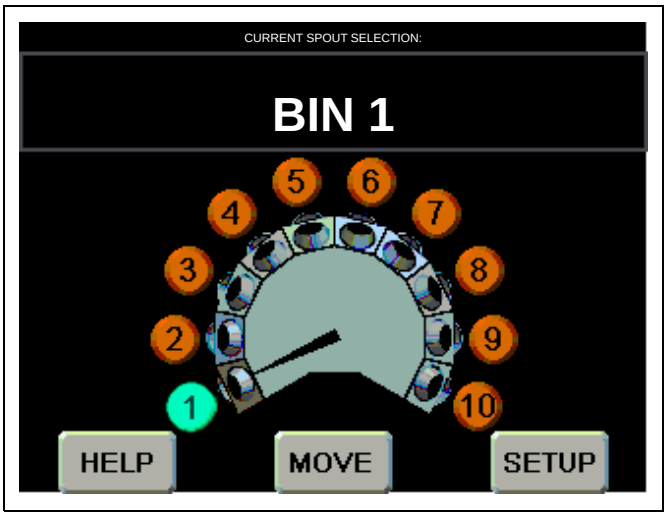


Figure 4E *Ten (10) Spout Main Screen*

Help Menu Screen

The help menu has three (3) options for displaying troubleshooting information for different faults that may appear during the operation of the distributor. *(See Figure 4F.)*

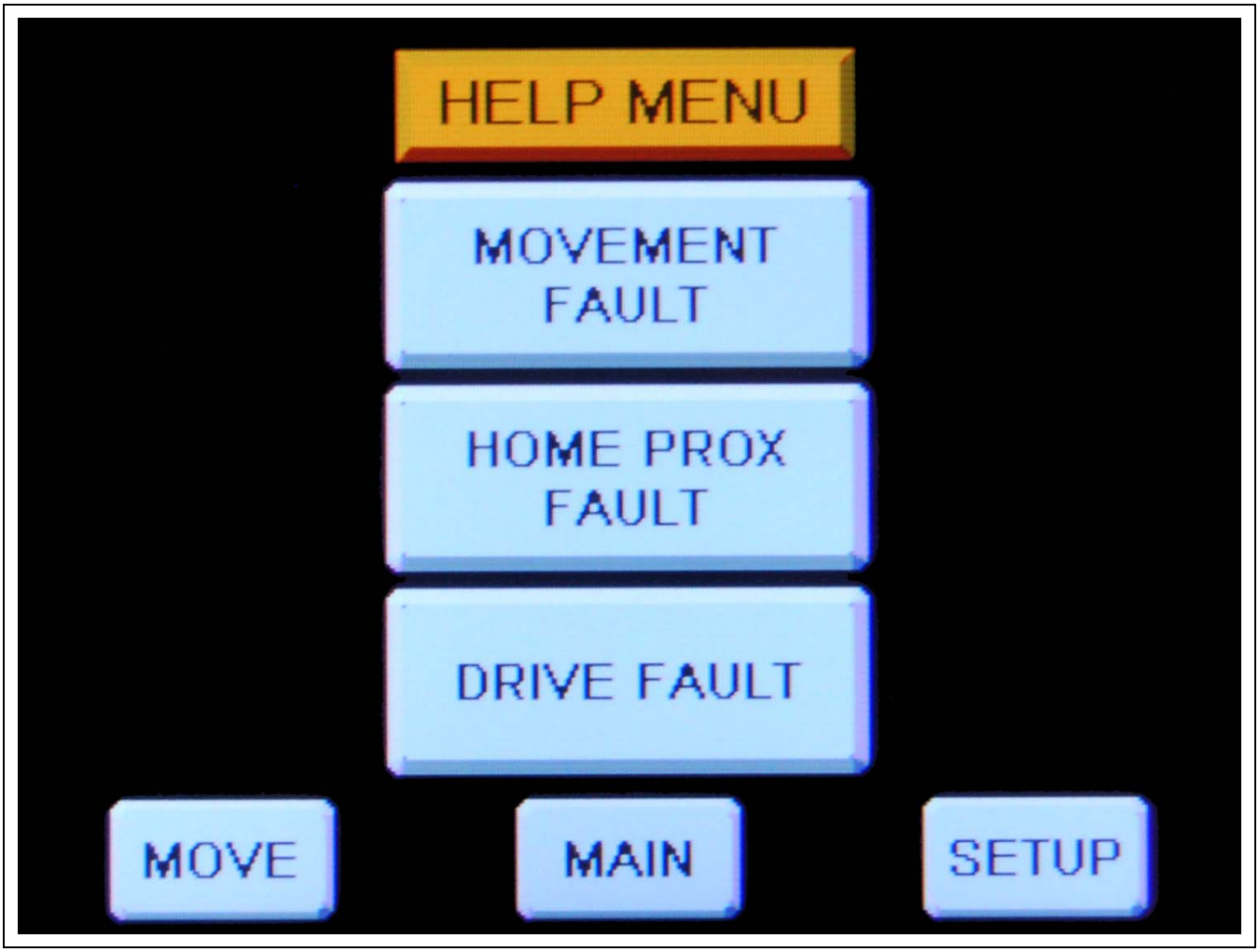


Figure 4F *Help Menu Screen*

Movement Fault: Displays the “Movement Fault” screen which offers possible causes and solutions to faults caused by distributor movement. *(See Figure 4G on Page 34.)*

Home Prox Fault: Displays the “Home Sensor Fault” screen which offers possible causes and solutions to faults caused by a proximity switch failure. *(See Figure 4H on Page 34.)*

Drive Fault: Displays the “VFD” Fault screen which offers possible causes and solutions to faults caused by the variable frequency drive. *(See Figure 4I on Page 35.)*

Movement Fault Screen

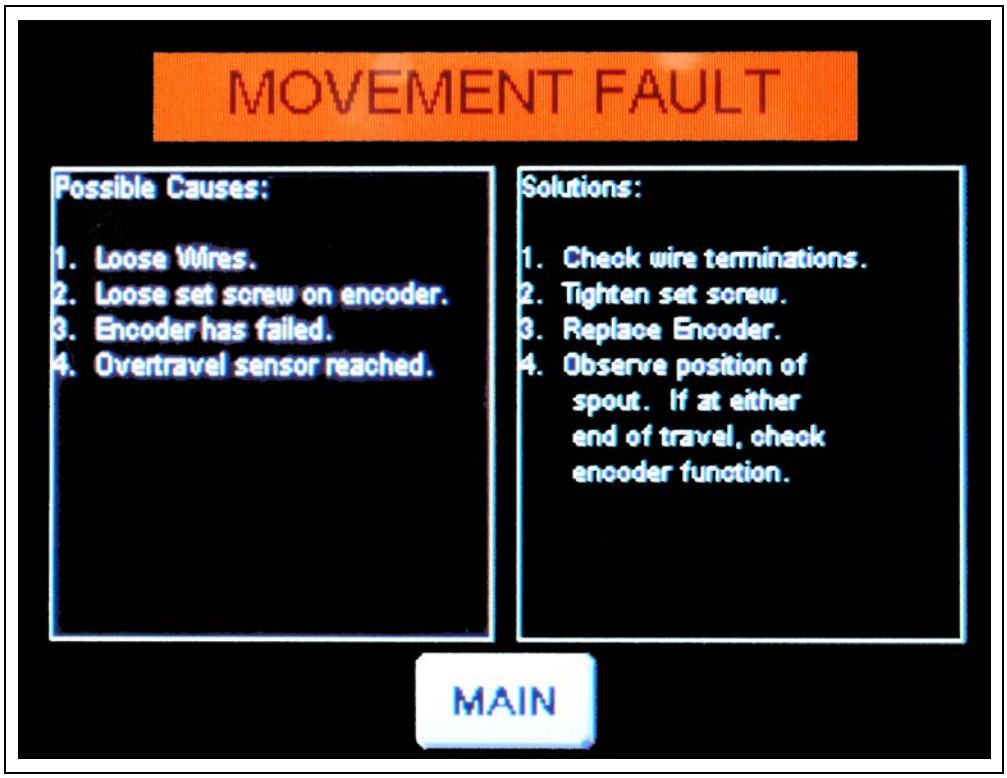


Figure 4G *Movement Fault Screen*

Home Prox Fault Screen

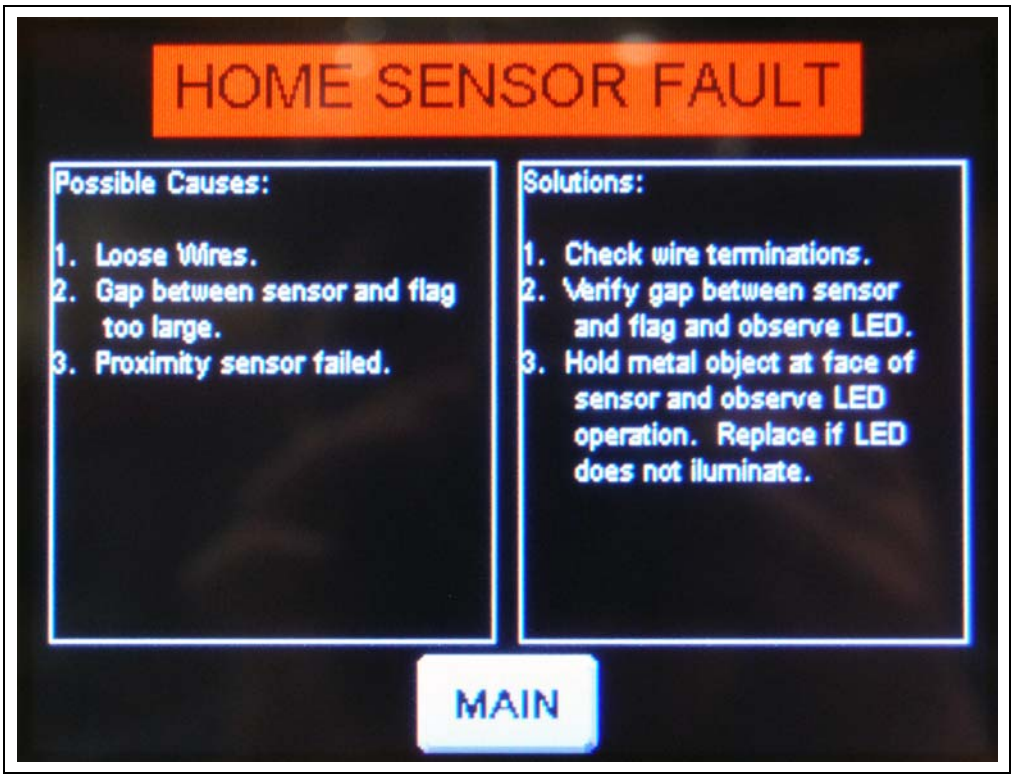


Figure 4H *Home Prox Fault Screen*

Drive Fault Screen

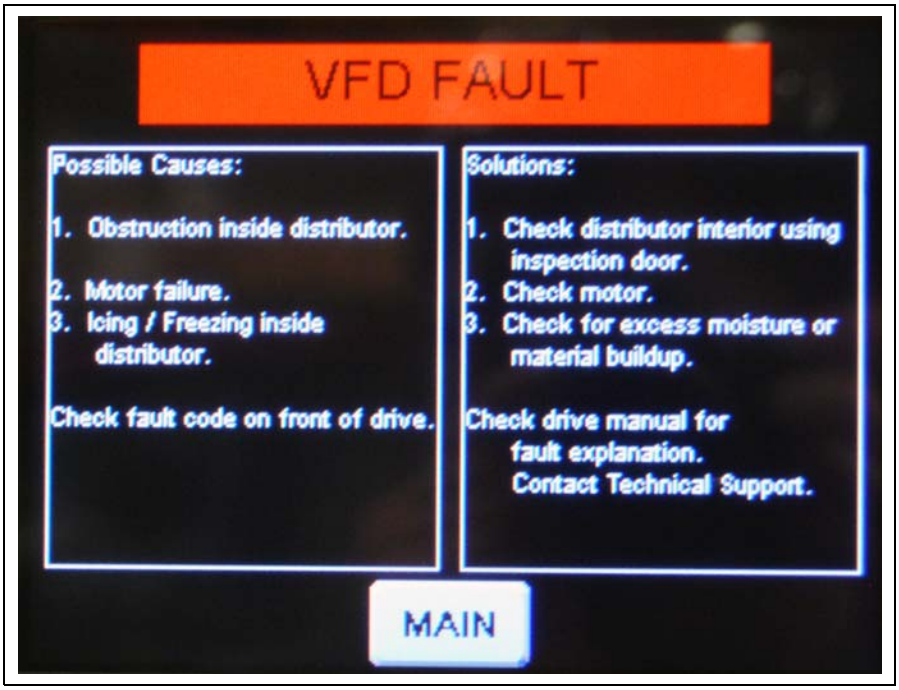


Figure 4I *Drive Fault Screen*

Move Screen

This screen allows the user to change the distributor's current spout position. The green highlighted spout number indicates the current selection. A spout number with a red circle with a line through it indicates a position that is currently locked out. (See "Position Lock-Out Screen" *on Page 42*.) *(See Figure 4J.)*

NOTE: *The default names for each spout will be "BIN #", see "Position Names Screen" on Page 38 for customizing the spout names.*

Figure 4J *Move Screen*

Moving Spout Position

1. From the “Main” screen or the “Setup Menu” select “MOVE” to view the “Move Position” screen. *(See Figure 4J on Page 35.)*
2. On the “Move Position” screen, select the position you want the spout to move to by pressing the spout name on the screen.
3. The “Main Menu” screen will now display a flashing message “Moving to” at the top of the screen, the selected spout number will flash yellow while the pointer is moving to the selected spout. The destination spout number will turn green when the move is complete.

Verifying Spout Alignment

NOTE: *In the following steps, the distributor must be in a position to view the spout location in the distributor to verify that it lines up correctly. If the distributor is installed above ground level, two (2) people will be needed; one to verify the alignment of the distributor spout and one to operate the controller.*

1. From the “Main” screen or the “Setup Menu” select “MOVE” to view the “Move Position” screen. *(See Figure 4J on Page 35.)*
2. On the “Move Position” screen, select the position you want the spout to move to by pressing the spout name on the screen.
3. The “Main Menu” screen will now display a flashing message “Moving to” at the top of the screen, the selected spout number will flash yellow while the pointer is moving to the selected spout. The destination spout number will turn green when the move is complete.
4. Once the spout has finished moving, visually check and verify the spout is centered with the distributor discharge spout. If alignment requires adjustment, see “Position Locations Screen” *on Page 40* to adjust the positioning.
5. Repeat procedure for any other spouts that were re-positioned.

Setup Menu Screen

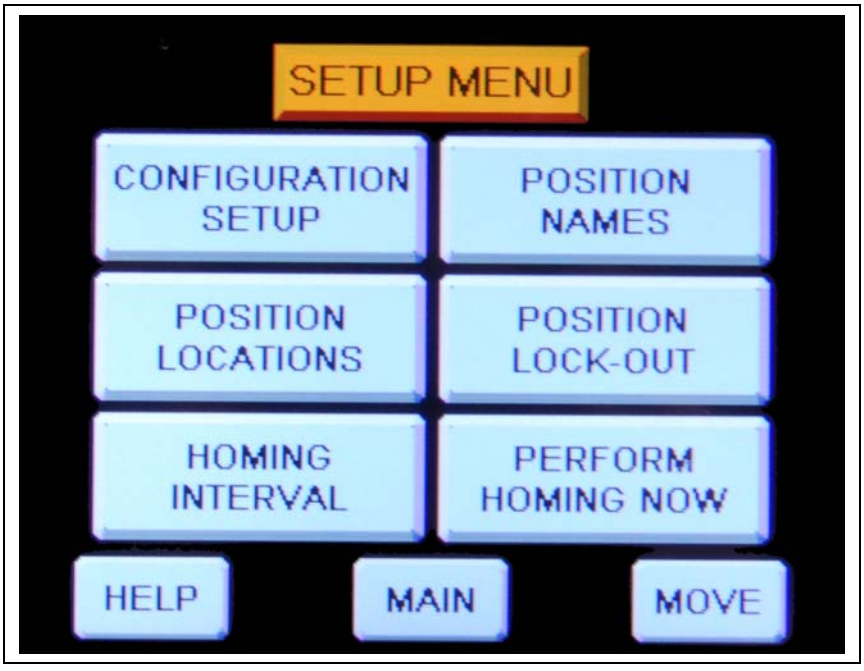


Figure 4K *Setup Menu Screen*

Configuration Setup: Displays the machine setup screen that allows the user to change the distributor's parameters or reload default values. See "Configuration Setup Screen" *on Page 37*.

Position Names: Allows the user to assign or change the name of each spout position and to create or change a name for the distributor. See "Position Names Screen" *on Page 38*.

Position Locations: Displays the positioning screen which allows the user to set the value that aligns the spouts with the distributor. See "Position Locations Screen" *on Page 40*.

Position Lock-Out: Allows the user to lock or unlock spouts from being used. See "Position Lock-Out Screen" *on Page 42*.

Homing Interval: Allows the user to set the number of times before the "Perform Homing Now" warning appears. See "Homing Interval Screen" *on Page 43*.

Perform Homing Now: Press this to perform the homing operation to re-calibrate the distributor.

Configuration Setup Screen

This screen allows the user to change the distributor's spout diameter property, total of number of spouts and for resetting the distributor back to the default settings. *(See Figure 4L.)*

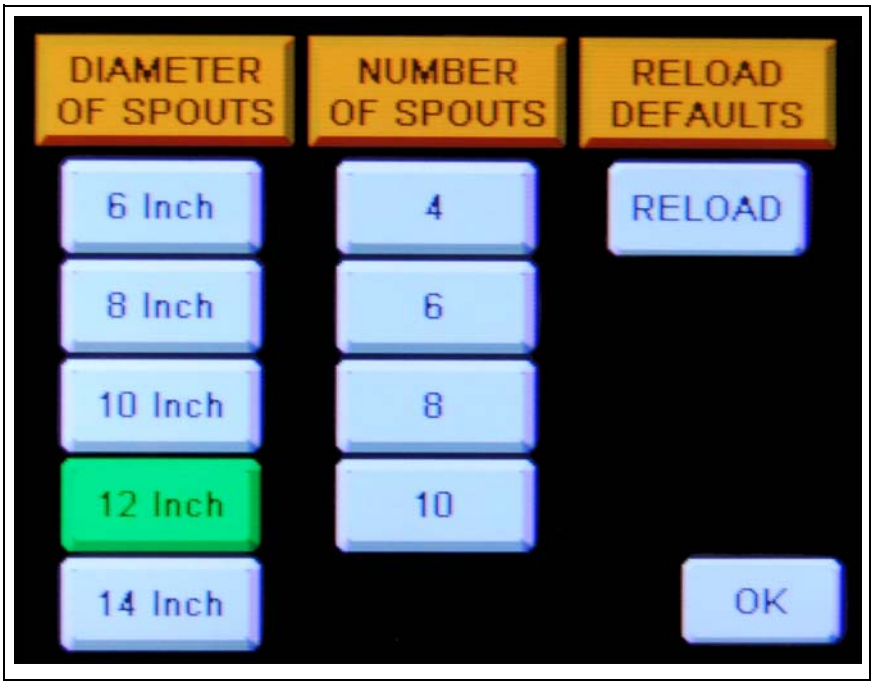


Figure 4L *Configuration Setup Screen*

Diameter of Spouts: Press the button that matches the size of the spout that is currently installed on the distributor. The diameter that is selected will turn green and the number of spouts available for that diameter will be displayed.

Number of Spouts: Press the button that matches the current configuration of the distributor. The number that is selected will turn green. The number of spout options will change according to the diameter of spout selected.

Reload Defaults: If during operation, any configuration parameters are altered from the original settings, pressing this button will revert settings to the default values.

OK: Press this button to save the current configuration and be brought back to the Setup Menu.

NOTE: *A warning message will appear if distributor has already been previously configured. (See Figure 4M.)*

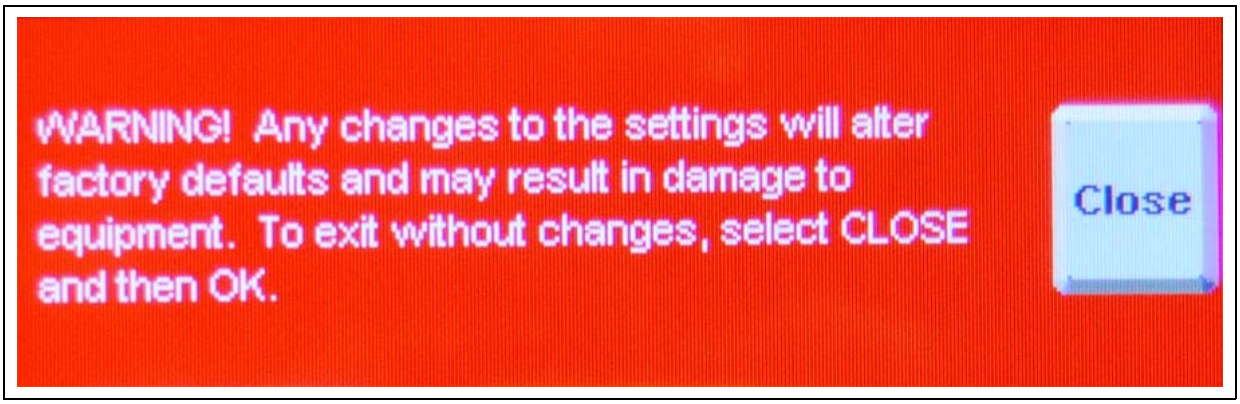


Figure 4M

Position Names Screen

This screen allows the user to individually name each of the distributor discharge spouts and is also used to create or modify a distributor name. *(See Figure 4N.)*

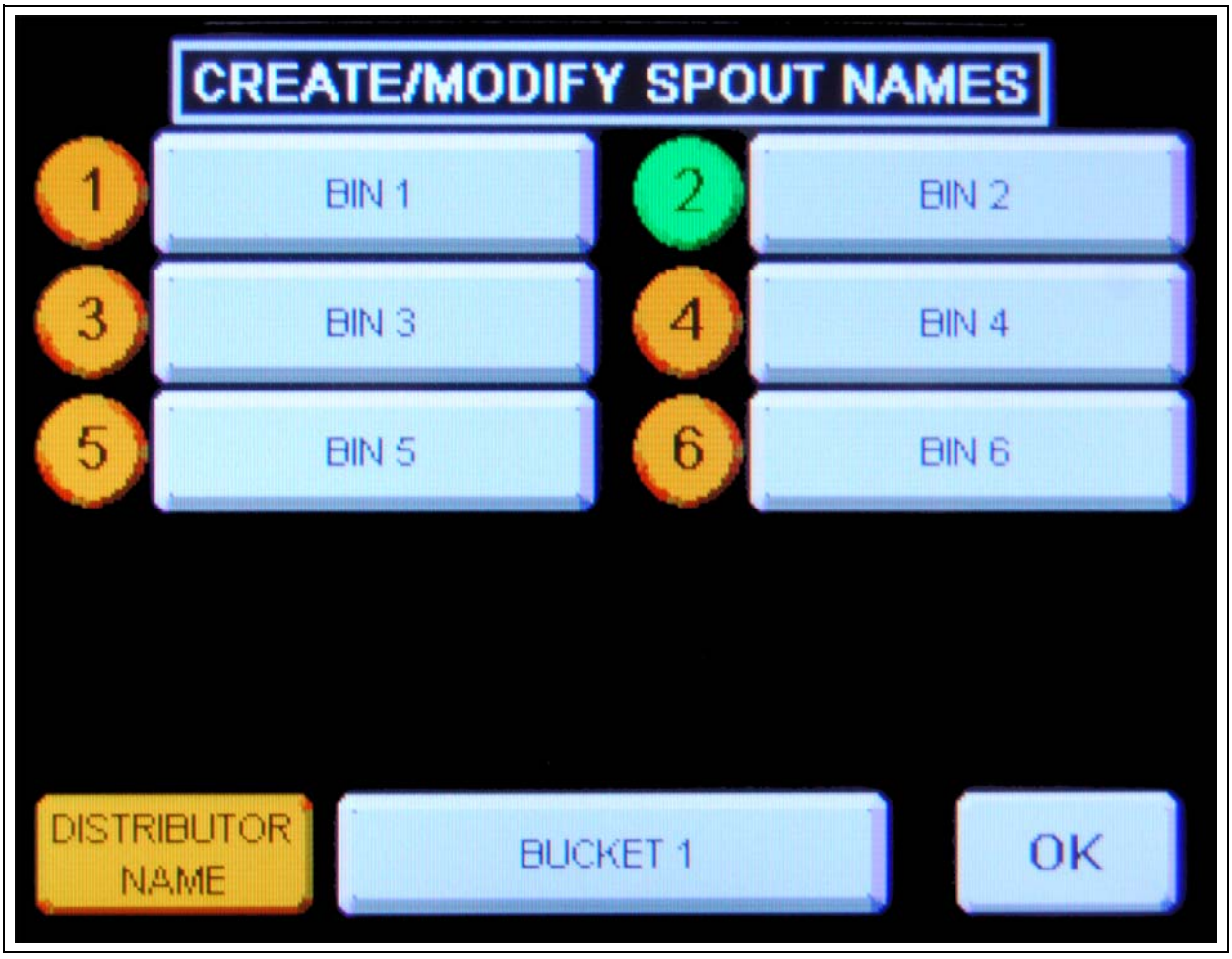


Figure 4N *Create/Modify Spout Names*

Create/Modify Spout Name

1. From the “Setup Menu”, select “Position Names” to bring up the “Create/Modify Spout Names” screen.
2. Press the spout name to be modified to display an alphanumeric keypad. *(See Figure 4O.)*

Figure 4O *Alphanumeric Keypad*

3. Type in the desired name for the spout position and press “enter”. ↵
4. Select “OK” to return to “Setup Menu”.

Create/Modify Distributor Name

1. From the “Setup Menu”, select “Position Names” to bring up the “Create/Modify Spout Names” screen.
2. Next to ochre “Distributor Name” label, press the distributor name to display an alphanumeric keypad. *(See Figure 4O.)*
3. Type in the desired name for the spout position and press “enter”. ↵
4. Select “OK” to return to “Setup Menu”.

Position Locations Screen

This screen allows the user to adjust the spout positioning so it lines up with the center of the distributor discharge. Adjustments can be made individually or an offset can be used to adjust all spouts by the same amount. *(See Figure 4P.)*

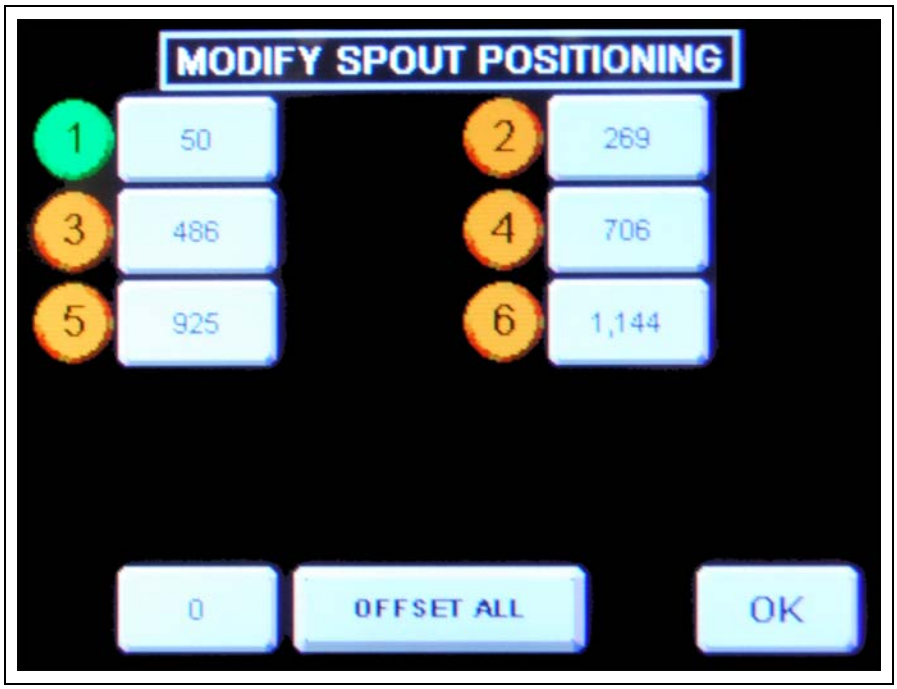


Figure 4P *Modify Spout Positioning*

Modify Spout Positioning

1. From the “Setup Menu”, select “Position Locations” to bring up the “Modify Spout Positioning” screen.
2. In the “Modify Spout Positioning” screen select the spout that requires adjustment by touching the value pad next to the spout number balloon. A number keypad will display. *(See Figure 4Q.)*

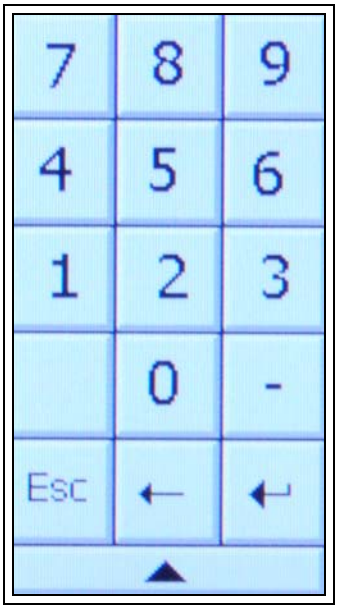


Figure 4Q *Number Keypad*

3. Insert the desired value and press “enter”. ↵

   NOTE: *Entering a value larger than the existing value will move spout position to the left, entering a smaller value will move the position to the right.*

4. Select “OK” to return to “Setup Menu”.

5. Verify spout alignment with distributor. See “Verifying Spout Alignment” *on Page 36*.

Offset All

1. From the “Setup Menu”, select “Position Locations” to bring up the “Modify Spout Positioning” screen.

2. In “Modify Spout Positioning” screen select the “0” key pad next to “OFFSET ALL”. A number keypad will display. *(See Figure 4R.)*

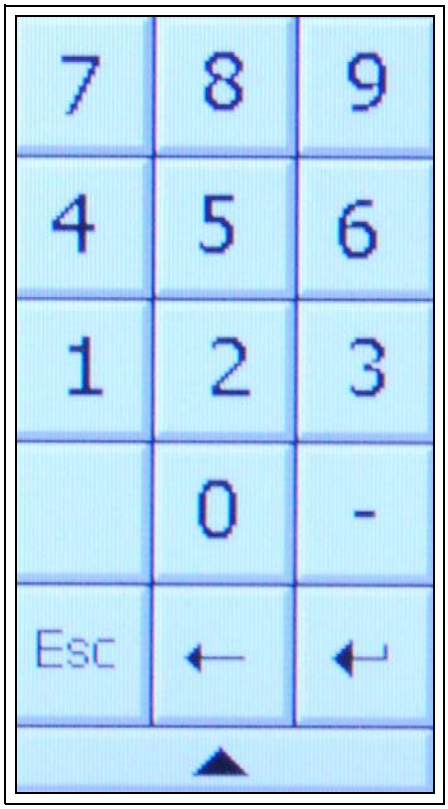


Figure 4R *Help Menu Screen*

3. Insert the desired value and press “enter”. ↵

   To offset the spouts to the left, use a positive value and to offset to the right, use a negative value.

   NOTE: *A maximum offset at any one time is ± 5.*

4. Select “OK” to return to “Setup Menu”.

5. Verify each spout alignment with distributor. See “Verifying Spout Alignment” *on Page 36*.

Position Lock-Out Screen

The position lock-out allows you to lock-out a distributor discharge spout position so it can not be used until it is manually unlocked. *(See Figure 4S.)*

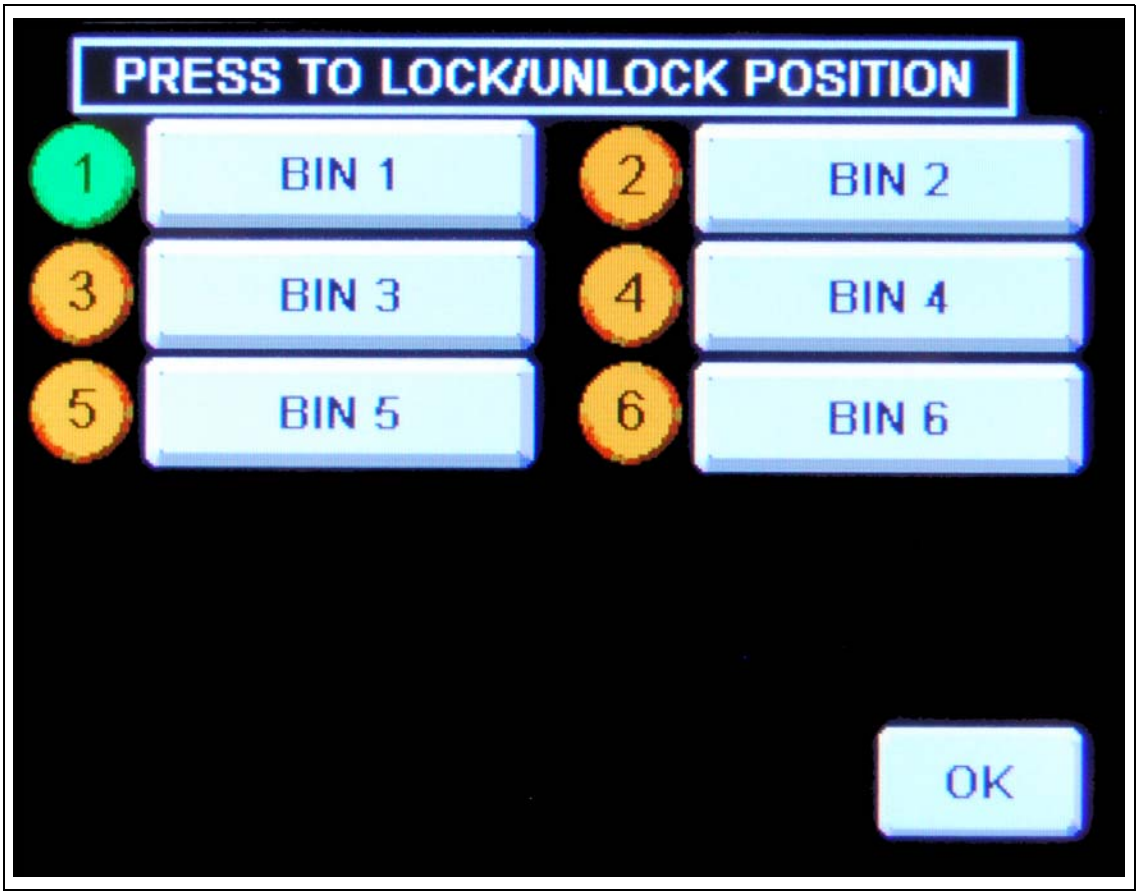


Figure 4S *Lock/Unlock Position*

Lock/Unlock Position

1. From the “Setup Menu”, select “Position Lock-Out” to display the “Lock/Unlock Position” setup screen.
2. Press name of spout to toggle between locked and unlocked. When in the locked position the number balloon will change to a red circle with a line through it.

   NOTE: *The position that the distributor is currently located, indicated by a green number balloon icon, can not be locked out. Move the spout position to a different location then try again. See “Move Screen” on Page 35.*

3. Select “OK” to apply changes and return to “Main Menu”.

Homing Interval Screen

The homing interval screen allows the user to set the number of times the distributor position may be moved before a warning displays for home position re-calibration. The lower value of this number, the greater the positioning accuracy. A default value of 50 is standard. *(See Figure 4T.)*

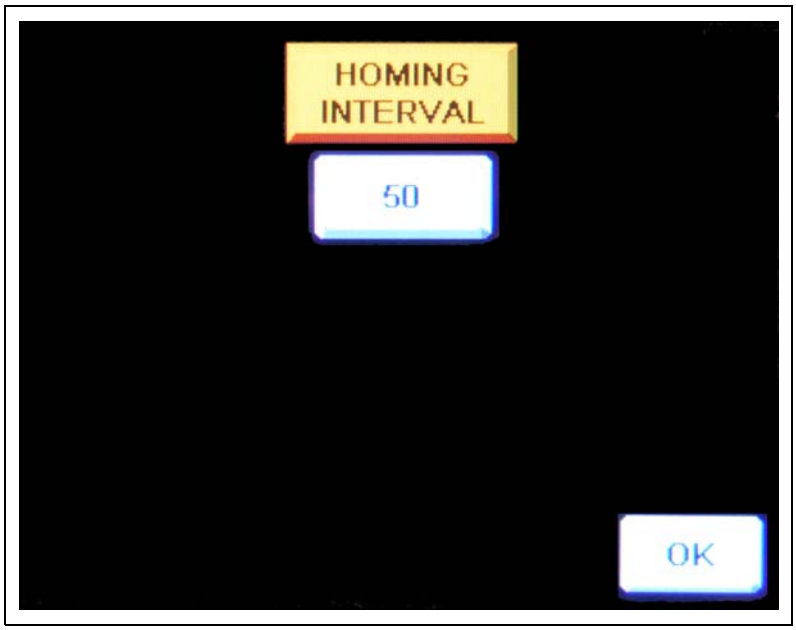


Figure 4T *Homing Interval Screen*

Setting Homing Interval

1. To access the homing interval from the “Setup Menu”, select “Homing Interval” to display the “Homing Interval” setup screen.
2. Press the button under the “Homing Interval” label. A number keypad will display. *(See Figure 4U.)*

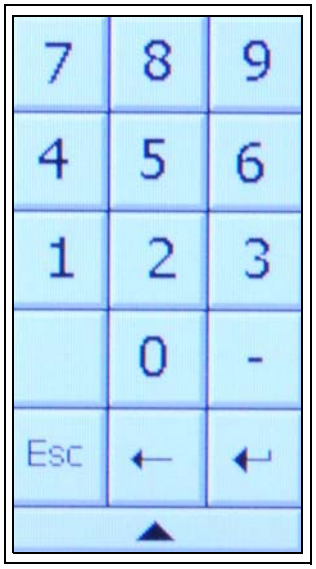


Figure 4U

3. Insert the desired value and press “enter”. 
4. Select “OK” to apply changes and return to “Main Menu”.

Homing Warning

To help ensure accurate positioning of the distributor a homing warning will display when the number of times the distributor is repositioned is equal to the homing interval. This message will occur every time that a spout move is attempted until the homing procedure is completed. The user will be given two (2) options: “Home Now” and “Home Next Move”. *(See Figure 4V.)*

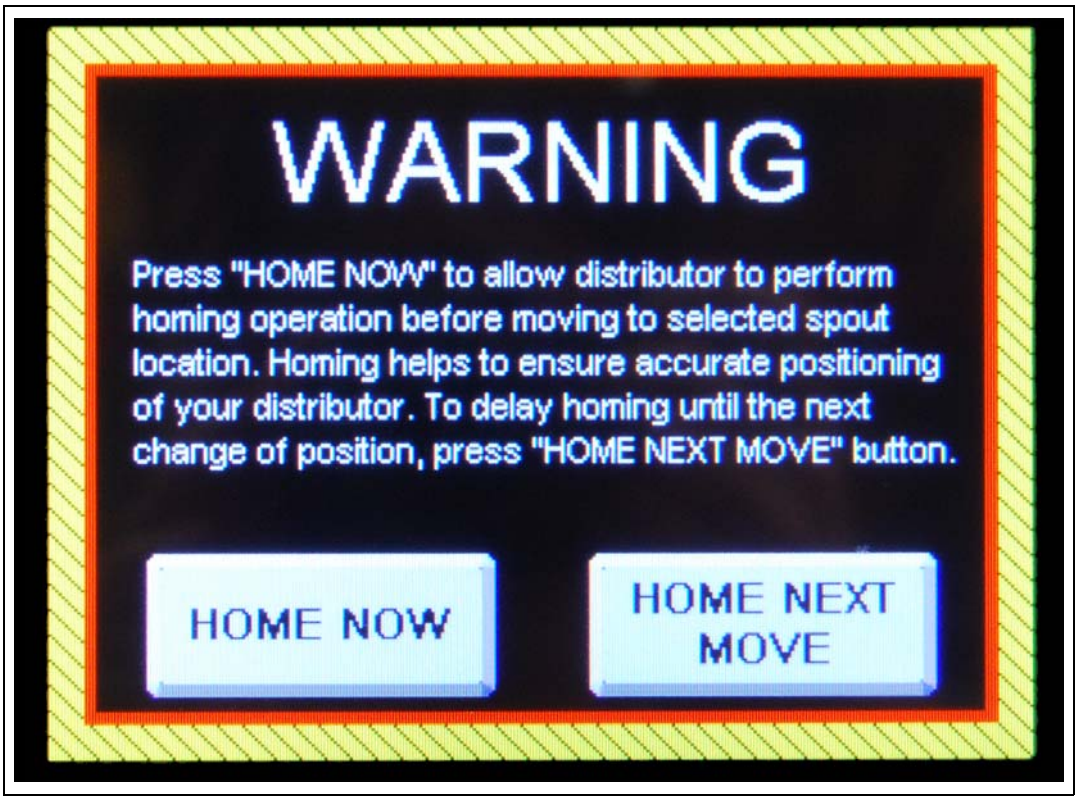


Figure 4V *Homing Warning*

Home Now

Select to perform the homing calibration immediately. The user interface will return to the “MAIN” screen and “Homing” will flash ON and OFF in yellow. After homing is complete, the spout will return to the selected position.

Home Next Move

Select “Home Next Move” to skip the homing operation and move to the selected position. The user interface will continue to prompt you to home the unit during every subsequent move until homing is performed.

Manual Override

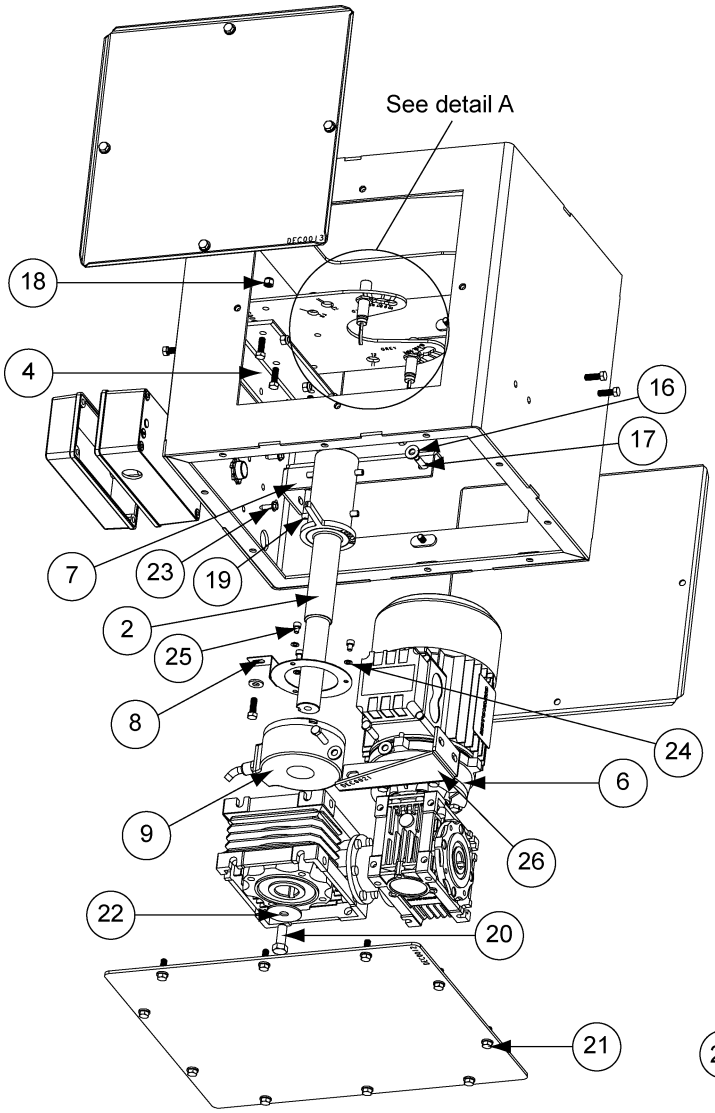
Located on the front of the controller is a manual/jog dial. This manual override is key locked and should only be used in case of a major equipment failure. It allows for manually moving the spout in the direction you turn the dial when the key is inserted.

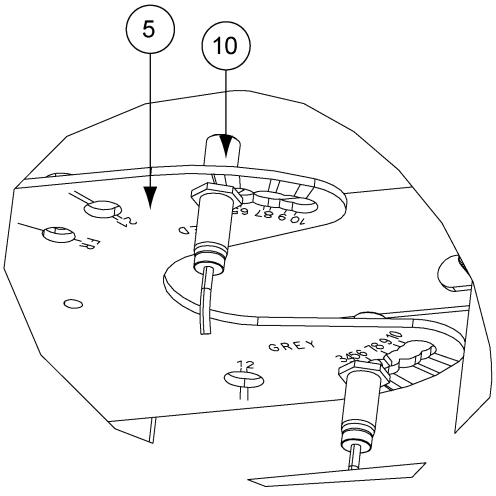
It is recommended that two (2) people perform this procedure. One person to operate the manual/jog dial and another to look through the distributor and verify alignment of the spout. *(See Figure 4W.)*

NOTE: *Panel will not close with key inserted in the manual/jog dial. Always keep key in a safe location for access by authorized personnel only.*

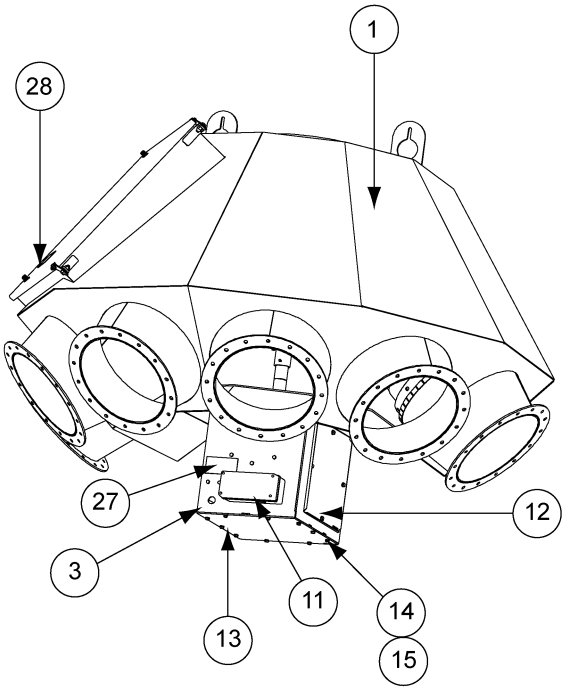
Figure 4W

12" 6 Hole 45° Distributor Assembly Electronic Control (DFB12645G-EC)





Detail A



Assembly Procedure:

1. Install shaft (DEC0009) with provided roll pins (S-9288).
2. Install enclosure (DEC0005) with 3/8" bolts and nylock nuts.
3. Install junction box (DEC0019) with self-drilling screws (S-280).
4. Install sensor mounting angle (DEC0014) and plate (DEC0006).
5. Install sensors (DEC0018, 2 EA) and set clearance. (See detail A.)
6. Install encoder (DEC0017), torque set screw to 8 in-lbs.
7. Install motor (DEC0015) and mount brackets (DEC0003 and DEC0021).
8. Install bottom (DEC0021) and side (DEC0013) covers.

NOTE: *Install sensors in #3 hole on both sides. Set 0.050" ± 0.01" clearance from face of each sensor to flag on shaft.*

12" 6 Hole 45° Distributor Assembly Electronic Control (DFB12645G-EC) Parts List

Ref #	Part #	Description	Qty
1	DFB12645G	12" 6 Hole 45° Distributor Assembly	1
2	DEC0009	Weldment, Shaft and Flag, 1/2 HP Distributor Control	1
3	DEC0005	Weldment, Enclosure, 1/2 HP Distributor Control	1
4	DEC0014	Angle, Sensor Plate Mounting, 1/2 HP Distributor Control	1
5	DEC0006	Bracket, Proximity Sensor, 1/2 HP Distributor Control	1
6	DEC0015	Gear Motor, DBL WRM, 1/2 HP, 400:1, Distributor Control	1
7	DEC0003	Bracket, Motor Mount, 1/2 HP Distributor Control	1
8	DEC0016	Bracket, Encoder Mount, Distributor Control	1
9	DEC0017	Encoder, INCR, 2048 PPR, 30 mm, Distributor Control	1
10	DEC0018	Sensor, Proximity, Inductive, 12 mm, S=4	2
11	DEC0019	Box, Junction, 1/2 HP Distributor Control	1
12	DEC0013	Cover, Side Access, 1/2 HP Distributor Control	2
13	DEC0012	Cover, Enclosure Bottom, 1/2 HP Distributor Control	1
14	S-2041	Split Lock Washer 1/4" ZN	18
15	S-1429	Bolt, HHCS 1/4"-20 x 3/4" ZN Grade 2	29
16	S-2126	Flat Washer 1/4" x 2-5/8" SAE ZN Grade 2	11
17	S-6998	Bolt, HHCS 1/4"-20 x 1" ZN Grade 5	4
18	S-7025	Nylock Nut 1/4"-20 ZN Grade 5	15
19	S-9288	Spring Pin 1/4" x 2-1/2" Plain Steel Slotted Rolled	2
20	S-7469	Bolt, HHCS 3/8"-16 x 1" ZN Grade 5	5
21	S-7383	Nylock Nut 3/8"-16 ZN Grade 5	4
22	S-10200	Fender Washer 3/8" x 1-1/2" O.D. ZN	1
23	S-280	Screw, SDS #10-16 x 5/8" HWH ZN	4
24	S-7223	Split Lock Washer #10 ZN	3
25	S-10167	Bolt, SHCS #10-32 x 1/4" ZN	3
26	DEC0021	Bracket, Motor Mount Short, 1/2 HP Distributor Control	1
27	DC-2160	Decal, Caution, Do not Operate with Access Panel	1
28	DC-2159	Decal, Warning, Rotating Spout can Crush and Cut	1

Error Messages

Message

The value entered was greater than the allowable deviation from the original position. Please enter a value between "X" and "Z".

Reason

This error is displayed when a position count value outside the acceptable range is entered while in the "Modify Spout Position" screen.

Remedy

Enter a value between "X" and "Z" on the "Modify Spout Position" screen.

Message

Any changes to the settings will alter factory defaults and may result in damage to equipment. To exit without changes, select CLOSE and then OK.

Reason

This message is displayed as you enter the "Configuration Setup" screen.

Message

The home proximity sensor was not detected. The homing process failed. Please check for proper operation of the sensor.

Reason

This error is displayed when attempting to perform a "Homing" operation and the controller fails to receive a proximity sensor signal before the time out period is reached.

Remedy

Check wiring, wiring connections and proximity sensors. Repair or replace as necessary.

Message

The position feedback does not match expected behavior. Please check for proper operation of the encoder.

Reason

This error is displayed if the spout does not reach the desired position count while performing a "MOVE" operation.

Remedy

Check wiring, wiring connections and encoder. Repair or replace as necessary.

Message

The VFD has faulted. Please check for proper operation of the VFD.

Reason

This error displays when the variable frequency drive does not perform properly.

Remedy

Repair or replace the VFD as necessary.

Message

The bucket elevator is running. Please stop feed before moving.

Reason

This error displays when trying to perform a move while bucket elevator is running.

Remedy

Stop bucket elevator before performing spout move.

Message

You cannot lock-out this position because it is currently in use. Move the spout to a different position and then lock-out this position.

Reason

This error displays when trying to lock-out a spout position that is in use.

Remedy

Move spout to a different position and then lock-out this position.

Message

You are attempting to move to the currently selected position. Please select a different position.

Reason

This error displays when trying to move spout to current position.

Remedy

Select a different position.

Message

You cannot select a locked-out position. Please select a different position.

Reason

This error displays when trying to choose a spout position that is locked out.

Remedy

Select a different position.

Message

The spout has drifted out of position. Please verify current position of the spout.

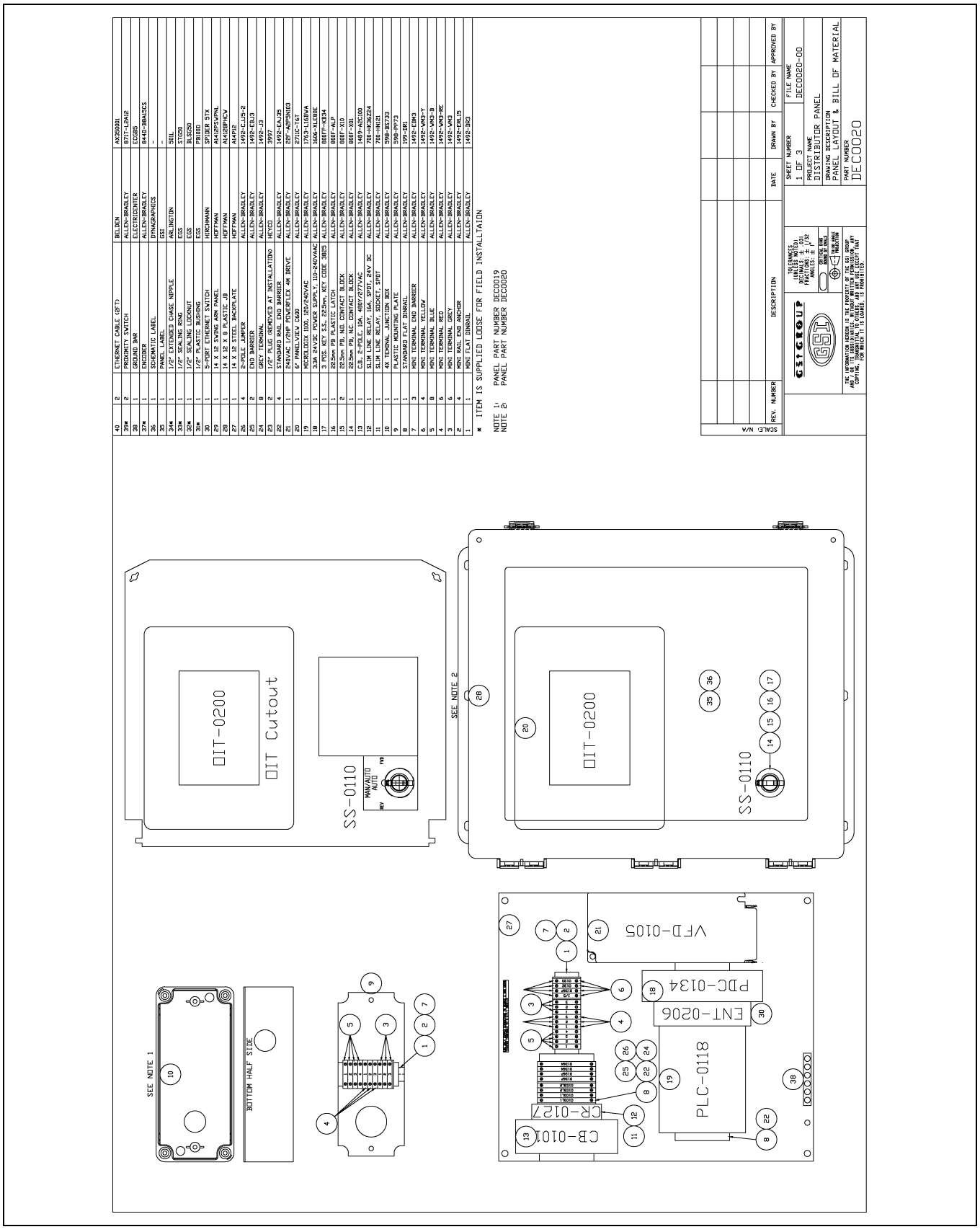
Reason

This error occurs when spout position reading changes without a move command being issued.

Remedy

Check mechanical components for looseness, wear or damage. Repair or replace as necessary.

White Panel Layout



ITEM	QTY	DESCRIPTION	BELDEN	AK2S0001
40	2	ETHERNET CABLE (OPT)	BELDEN	AK2S0001
39*	2	PROXIMITY SWITCH	ALLEN-BRADLEY	871T-L2AU2
38	1	GROUND BAR	ELECTRICENTER	EGGBS
37*	1	ENCODER	ALLEN-BRADLEY	845D-SBAJSCS
36	1	SCHEMATIC LABEL	DYNAGRAPHICS	-
35	1	PANEL LABEL	GSI	-
34*	1	1/2" STAINLESS CHASE NIPPLE	ARLINGTON	SNNL
33*	1	1/2" SEALING RING	EGS	STCSO
32*	1	1/2" SEALING LOCKNUT	EGS	BLSCSO
31*	1	1/2" PLASTIC BUSHING	EGS	PBUOD
30	1	5-PORT ETHERNET SWITCH	HIRCHMANN	SPIDER 5TX
29	1	14 X 12 SWING ARM PANEL	HOFFMAN	A1412PSVPNL
28	1	14 X 12 X 8 PLASTIC JB	HOFFMAN	A1412BPHCV
27	1	14 X 12 STEEL BACKPLATE	HOFFMAN	A14P12
26	4	2-POLE JUMPER	ALLEN-BRADLEY	1492-CAJ5-2
25	2	DIN RAIL 35MM	ALLEN-BRADLEY	1492-EAJ35
24	8	GREY TERMINAL	ALLEN-BRADLEY	1492-J5
23	2	1/2" PLUG REMOVED AT INSTALLATION	HEYCO	3997
22	4	STANDARD RAIL END BARRIER	ALLEN-BRADLEY	1492-EAJ35
21	1	240VAC 1/8HP POWERFLEX 4M DRIVE	ALLEN-BRADLEY	22F-ABPN003
20	1	6" PANELVIEW C600	ALLEN-BRADLEY	2711C-T6T
19	1	MICROLOGIX 1100, 120/240VAC	ALLEN-BRADLEY	1763-L16BWA
18	1	3.3A 24VDC POWER SUPPLY, 110-240VAC	ALLEN-BRADLEY	1606-XLE80E
17	1	3 POS. KEY 3.5", 22.5mm, KEY CODE 3825	ALLEN-BRADLEY	800T-H2B4
16	1	22.5mm PB, ALT. ACTION, 1 NO/1 NC	ALLEN-BRADLEY	800T-A1A
15	2	22.5mm PB, ALT. CONTACT BLOCK	ALLEN-BRADLEY	800T-X10
14	1	22.5mm PB, NC, CONTACT BLOCK	ALLEN-BRADLEY	800T-X01
13	1	CB, 2-POLE, 10A, 480Y/277VAC	ALLEN-BRADLEY	1489-A2C100
12	1	SLIM LINE RELAY, 16A, SPDT, 24V DC	ALLEN-BRADLEY	700-HK36Z24
11	1	SLIM LINE RELAY, SOCKET, SPDT	ALLEN-BRADLEY	700-HN121
10	1	4X TERMINAL JUNCTION BOX	ALLEN-BRADLEY	598-BS733
9	1	PLASTIC MOUNTING PLATE	ALLEN-BRADLEY	598-PP73
8	1	STANDARD FLAT DINRAIL	ALLEN-BRADLEY	199-DR1
7	3	MINI TERMINAL END BARRIER	ALLEN-BRADLEY	1492-EWM3
6	4	MINI TERMINAL YELLOW	ALLEN-BRADLEY	1492-WM3Y
5	8	MINI TERMINAL BLUE	ALLEN-BRADLEY	1492-WM3-B
4	6	MINI TERMINAL RED	ALLEN-BRADLEY	1492-WM3-RE
3	6	MINI TERMINAL GREY	ALLEN-BRADLEY	1492-WM3
2	4	MINI RAIL END ANCHOR	ALLEN-BRADLEY	1492-ERLIS
1	1	MINI FLAT DINRAIL	ALLEN-BRADLEY	1492-DR3

* ITEM IS SUPPLIED LOOSE FOR FIELD INSTALLATION

NOTE 1: PANEL PART NUMBER DECO019
NOTE 2: PANEL PART NUMBER DECO020

REV.	NUMBER	DESCRIPTION	DATE	DRAWN BY	CHECKED BY	APPROVED BY

SCALE: N/A

GSI GROUP

TOLERANCES UNLESS NOTED (1) DECIMALS: ± .031 FRACTIONS: ± 1/32 ANGLES: ± 1°

DO NOT SCALE DRAWING

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SHEET NUMBER: 1 OF 3
FILE NAME: DECO020-00
PROJECT NAME: DISTRIBUTOR PANEL
DRAWING DESCRIPTION: PANEL LAYOUT & BILL OF MATERIAL
PART NUMBER: DECO020

Figure 7A

White Panel Electrical Schematic

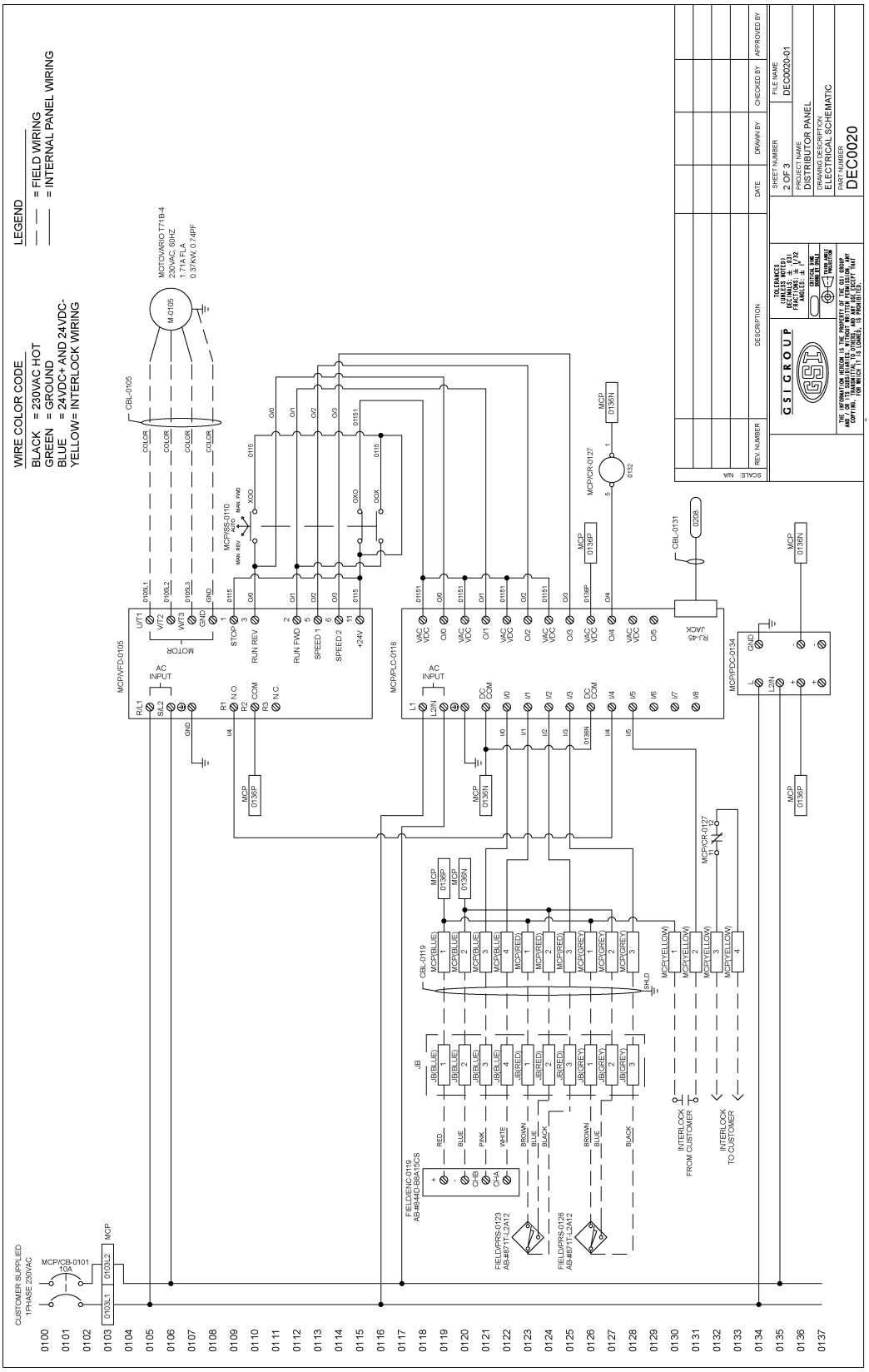

Figure 7B

White Panel Electrical Schematic (Continued)

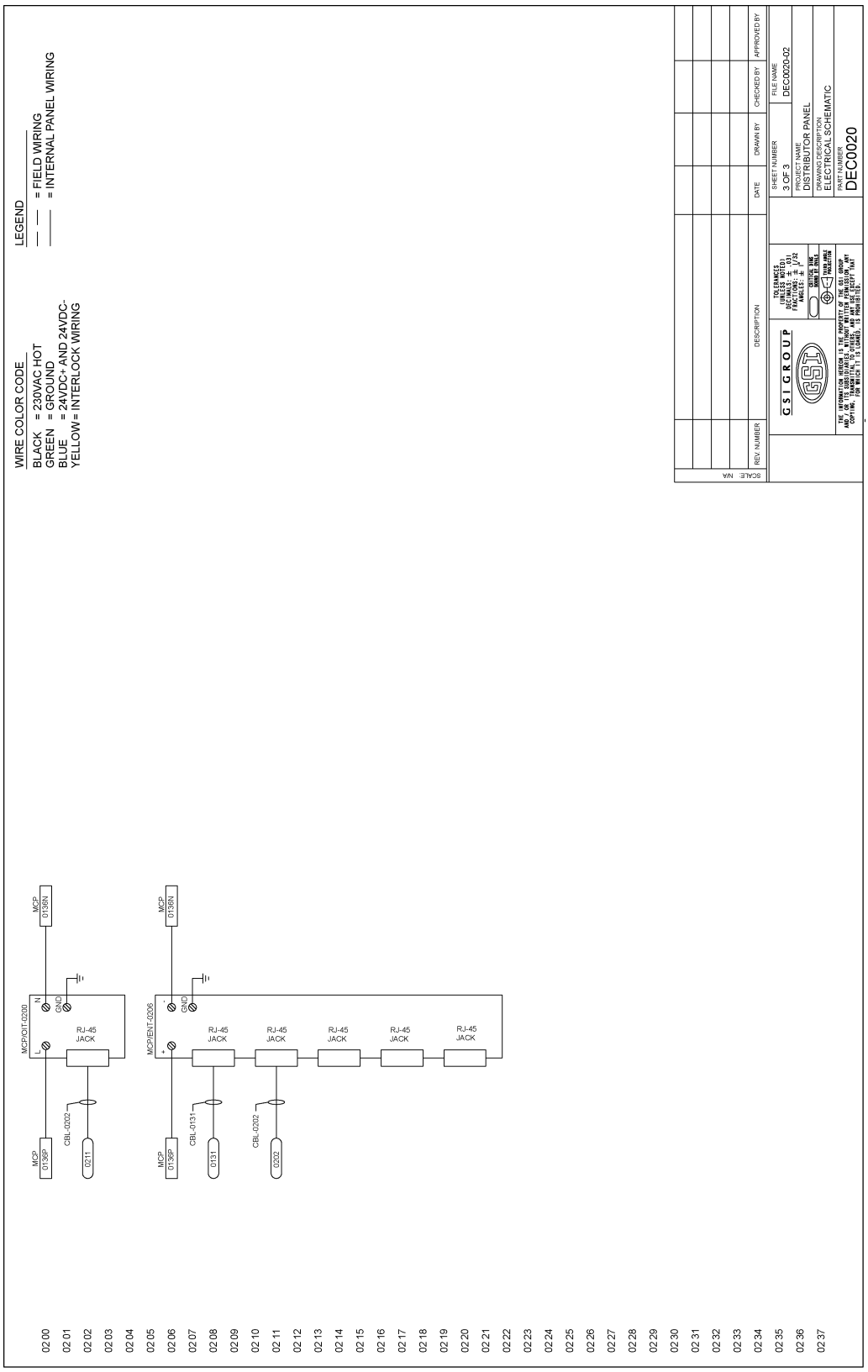

Figure 7C

NOTES

GSI Group, LLC Limited Warranty

The GSI Group, LLC ("GSI") warrants products which it manufactures to be free of defects in materials and workmanship under normal usage and conditions for a period of 12 months after sale to the original end-user or if a foreign sale, 14 months from arrival at port of discharge, whichever is earlier. The end-user's sole remedy (and GSI's only obligation) is to repair or replace, at GSI's option and expense, products that in GSI's judgment, contain a material defect in materials or workmanship. Expenses incurred by or on behalf of the end-user without prior written authorization from the GSI Warranty Group shall be the sole responsibility of the end-user.

Warranty Extensions:

The Limited Warranty period is extended for the following products:

	Product	Warranty Period
AP Fans and Flooring	Performer Series Direct Drive Fan Motor	3 Years
	All Fiberglass Housings	Lifetime
	All Fiberglass Propellers	Lifetime
Cumberland Feeding/Watering Systems	Feeder System Pan Assemblies	5 Years **
	Feed Tubes (1-3/4" and 2.00")	10 Years *
	Centerless Augers	10 Years *
	Watering Nipples	10 Years *
Grain Systems	Grain Bin Structural Design	5 Years
Grain Systems Farm Fans Zimmerman	Portable and Tower Dryers	2 Years
	Portable and Tower Dryer Frames and Internal Infrastructure †	5 Years

* Warranty prorated from list price:
0 to 3 years - no cost to end-user
3 to 5 years - end-user pays 25%
5 to 7 years - end-user pays 50%
7 to 10 years - end-user pays 75%

** Warranty prorated from list price:
0 to 3 years - no cost to end-user
3 to 5 years - end-user pays 50%

† Motors, burner components and moving parts not included. Portable dryer screens included. Tower dryer screens not included.

GSI further warrants that the portable and tower dryer frame and basket, excluding all auger and auger drive components, shall be free from defects in materials for a period of time beginning on the twelfth (12^{th}) month from the date of purchase and continuing until the sixtieth (60^{th}) month from the date of purchase (extended warranty period). During the extended warranty period, GSI will replace the frame or basket components that prove to be defective under normal conditions of use without charge, excluding the labor, transportation, and/or shipping costs incurred in the performance of this extended warranty.

Conditions and Limitations:

THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED WARRANTY DESCRIPTION SET FORTH ABOVE. SPECIFICALLY, GSI MAKES NO FURTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE IN CONNECTION WITH: (I) PRODUCT MANUFACTURED OR SOLD BY GSI OR (II) ANY ADVICE, INSTRUCTION, RECOMMENDATION OR SUGGESTION PROVIDED BY AN AGENT, REPRESENTATIVE OR EMPLOYEE OF GSI REGARDING OR RELATED TO THE CONFIGURATION, INSTALLATION, LAYOUT, SUITABILITY FOR A PARTICULAR PURPOSE, OR DESIGN OF SUCH PRODUCTS.

GSI shall not be liable for any direct, indirect, incidental or consequential damages, including, without limitation, loss of anticipated profits or benefits. The sole and exclusive remedy is set forth in the Limited Warranty, which shall not exceed the amount paid for the product purchased. This warranty is not transferable and applies only to the original end-user. GSI shall have no obligation or responsibility for any representations or warranties made by or on behalf of any dealer, agent or distributor.

GSI assumes no responsibility for claims resulting from construction defects or unauthorized modifications to products which it manufactured. Modifications to products not specifically delineated in the manual accompanying the equipment at initial sale will void the Limited Warranty.

This Limited Warranty shall not extend to products or parts which have been damaged by negligent use, misuse, alteration, accident or which have been improperly/inadequately maintained. This Limited Warranty extends solely to products manufactured by GSI.

Prior to installation, the end-user has the responsibility to comply with federal, state and local codes which apply to the location and installation of products manufactured or sold by GSI.

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This equipment shall be installed in accordance with the current installation codes and applicable regulations, which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.

GSI GROUP

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