

1053/1093

3A0261H

Control Box

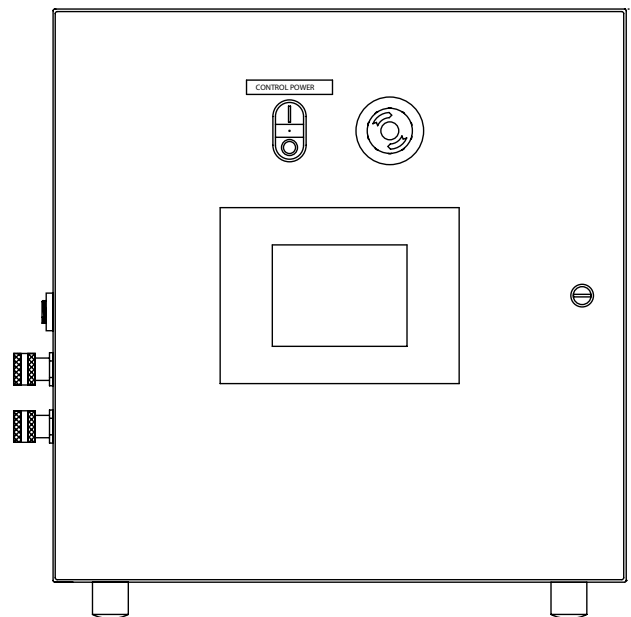
EN

Patented meter and dispense system for precise one-component micro-dispensing. Not for use in explosive atmospheres.



Important Safety Instructions

Read all warnings and instructions in this manual. Save these instructions.



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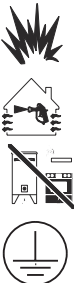

Related Manuals

Component manuals in U.S. English.





Part	Description
313812	Dispensit 1093
313566	Dispensit 1053-10B
334001	1053 Valve 24V Solenoid Replacement Kit, Instructions
334002	1093 Valve 24V Solenoid Replacement Kit, Instructions

Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbol refers to procedure-specific risk. Refer back to these warnings. Additional, product-specific warnings may be found throughout the body of this manual where applicable.

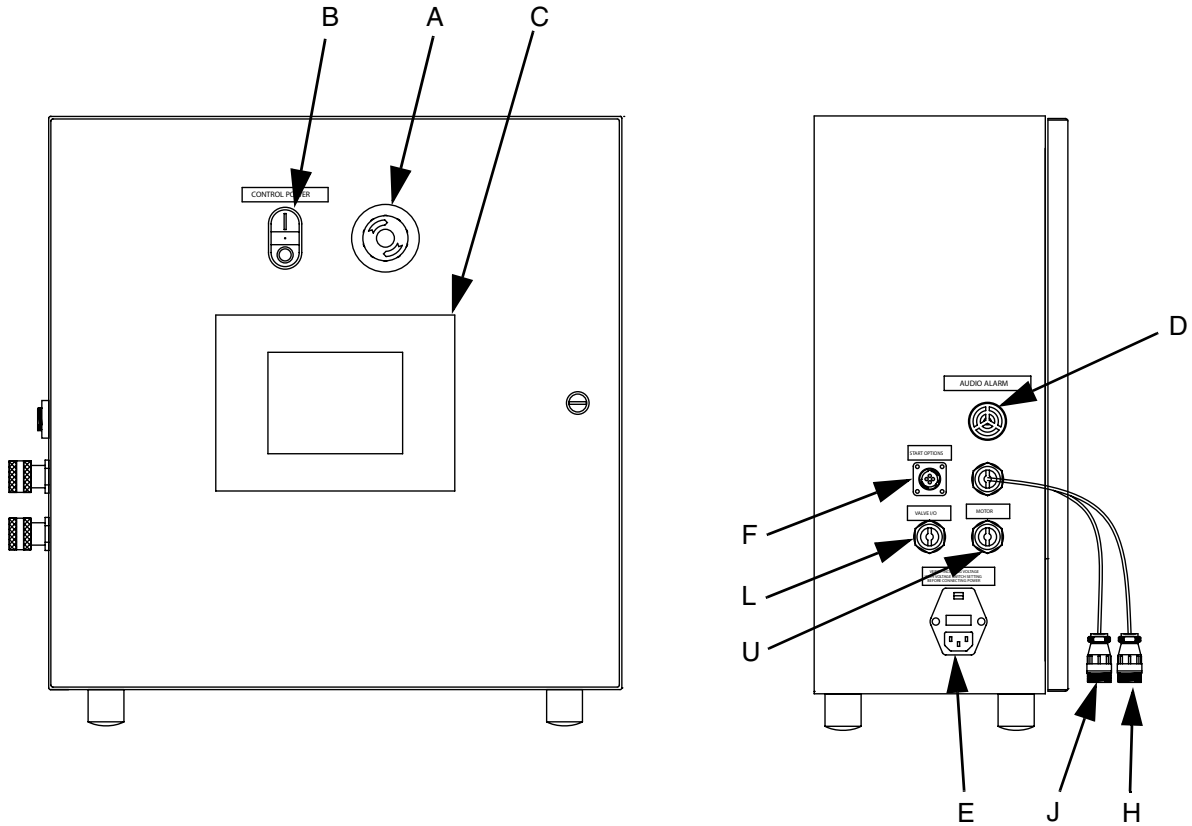
 WARNING	
	<p>TOXIC FLUID OR FUMES HAZARD</p> <p>Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.</p> <ul style="list-style-type: none"> • Read MSDS's to know the specific hazards of the fluids you are using. • Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines. • Always wear impervious gloves when spraying or cleaning equipment. • If this equipment is used with isocyanate material, see additional information on isocyanates in Iso-cyanate Conditions Section of this manual.
	<p>PERSONAL PROTECTIVE EQUIPMENT</p> <p>You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, inhalation of toxic fumes, burns, and hearing loss. This equipment includes but is not limited to:</p> <ul style="list-style-type: none"> • Protective eyewear • Clothing and respirator as recommended by the fluid and solvent manufacturer • Gloves • Hearing protection
	<p>FIRE AND EXPLOSION HAZARD</p> <p>Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> • Use equipment only in well ventilated area. • Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc). • Keep work area free of debris, including solvent, rags and gasoline. • Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present. • Ground all equipment in the work area. See Grounding instructions. • Use only grounded hoses. • Hold gun firmly to side of grounded pail when triggering into pail. • If there is static sparking or you feel a shock, stop operation immediately. Do not use equipment until you identify and correct the problem. • Keep a working fire extinguisher in the work area.
	<p>ELECTRIC SHOCK HAZARD</p> <p>This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock.</p> <ul style="list-style-type: none"> • Turn off and disconnect power cord before servicing equipment. • Use only grounded electrical outlets. • Use only 3-wire extension cords. • Ensure ground prongs are intact on power and extension cords. • Do not expose to rain. Store indoors.


WARNING

	<p>PRESSURIZED EQUIPMENT HAZARD</p> <p>Fluid from the gun/dispense valve, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury.</p> <ul style="list-style-type: none"> • Follow Pressure Relief Procedure in this manual, when you stop spraying and before cleaning, checking, or servicing equipment. • Tighten all fluid connections before operating the equipment. • Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.
	<p>EQUIPMENT MISUSE HAZARD</p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> • Do not operate the unit when fatigued or under the influence of drugs or alcohol. • Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See Technical Data in all equipment manuals. • Do not leave the work area while equipment is energized or under pressure. Turn off all equipment and follow the Pressure Relief Procedure in this manual when equipment is not in use. • Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only. • Do not alter or modify equipment. • Use equipment only for its intended purpose. Call your distributor for information. • Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces. • Do not kink or over bend hoses or use hoses to pull equipment. • Keep children and animals away from work area. • Comply with all applicable safety regulations.
	<p>PLASTIC PARTS CLEANING SOLVENT HAZARD</p> <p>Use only compatible water-based solvents to clean plastic structural or pressure-containing parts. Many solvents can degrade plastic parts and cause them to fail, which could cause serious injury or property damage. See Technical Data in this and all other equipment instruction manuals. Read fluid and solvent manufacturer's warnings.</p>
	<p>BURN HAZARD</p> <p>Equipment surfaces and fluid that's heated can become very hot during operation. To avoid severe burns:</p> <ul style="list-style-type: none"> • Do not touch hot fluid or equipment.

Component Identification

Control Boxes



Key:

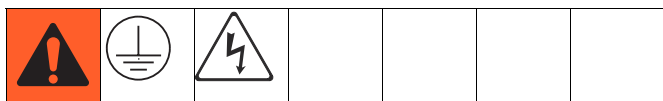
- A Emergency Stop
- B Control Power Switch
- C Touch Panel
- D Alarm Speaker
- E Power Input
- F Start Options Connection
- H A Tank Level Controls Connection
- J B Tank Level Controls Connection
- L Dispense Valve I/O Connection
- U Motor Connection

FIG. 1: Motor Driven Control Box

Power input/fuse holder, 81/0365-3/11, can be set to either 115V or 230V. To determine what voltage it is currently set to, look at the port and read what is showing through the cover window. To switch voltage, open the fuse holder cover with a small screwdriver, pull the fuse holder out, flip the fuse holder 180°, push the fuse holder back in, and snap the fuse holder cover back into place.

NOTE: Fuse part number: V-21610P
120 V power cord part number: 81/1051-1/11
240 V power cord part number: 121054

Grounding



This product must be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current.

Grounding plug units: this product is equipped with a cord having a grounding wire with an appropriate grounding plug. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Hard-wired units: the grounding wire must be used. All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.

Air and fluid hoses: use only electrically conductive hoses.

Fluid supply container: follow local code.

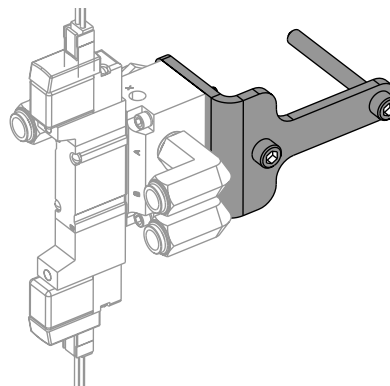
Solvent pails used when flushing: follow local code. Use only conductive metal pails, placed on a grounded surface. Do not place the pail on a non-conductive surface, such as paper or cardboard, which interrupts grounding continuity.

Kits

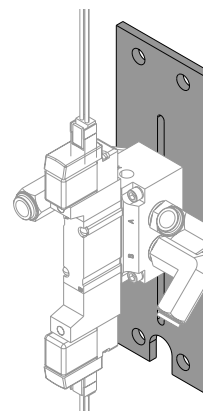
NOTE: 80/2957-1/50 1053/1093 control requires three sensor switches to operate. Valve, control, and connection kits are sold separately. Some assembly required.

Part	Description
24E845★	Connection kit; for 1053 models that include 1 switch
24E846★	Connection kit; for 1053 models that include 2 switches, including the following assemblies: A2A10007, A2A10008, A2A10009, A2A10010, A2A10011, A2A1001, A2A10015, A2A10016, A2A10018, A2A10019, A2A10020, A2A10200, A2A10300, A2A10301, A2A10302, A2A10303, A2A10304, A2A10305, A2A10306, A2A10307, A2A10308, A2A10309
24E847‡	Connection kit; for 1093 models, including the following assemblies: A2A05401, A2A05402, A2A05403, A2A05404, A2A05405, A2A05406

★ *Mounting adapter kit 24V674 may be required for mounting the solenoid to the 1053 valve.*



‡ *Mounting side plate 01/2983/97 may be required for mounting the solenoid to the 1093 valve.*

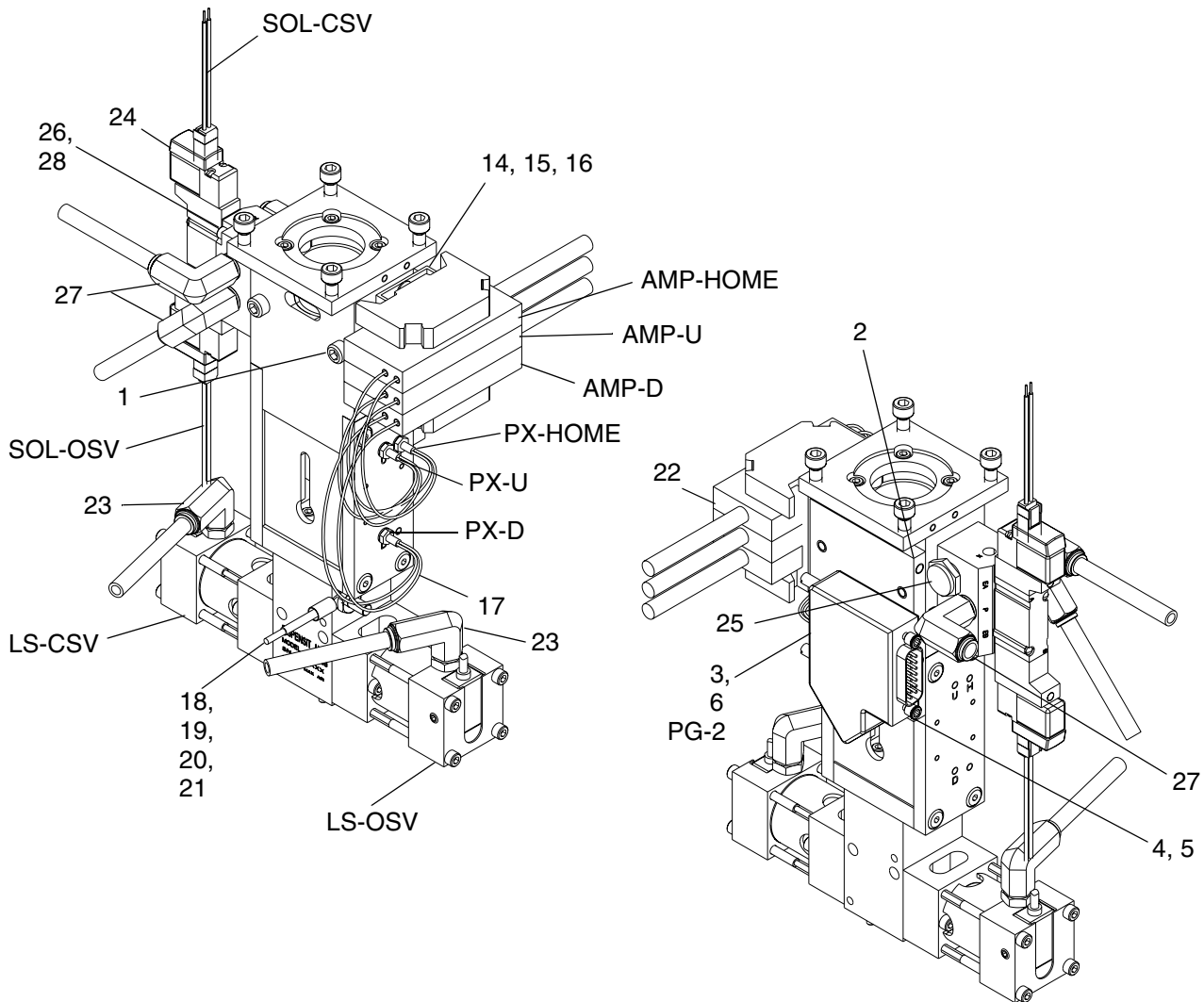


Valve Connection Kits

These valve connection kits enable certain valves to be used with this control package. Each kit contains the mechanical, electrical, and pneumatic hardware needed to install the valve. See associated drawing for hardware location and wiring information.

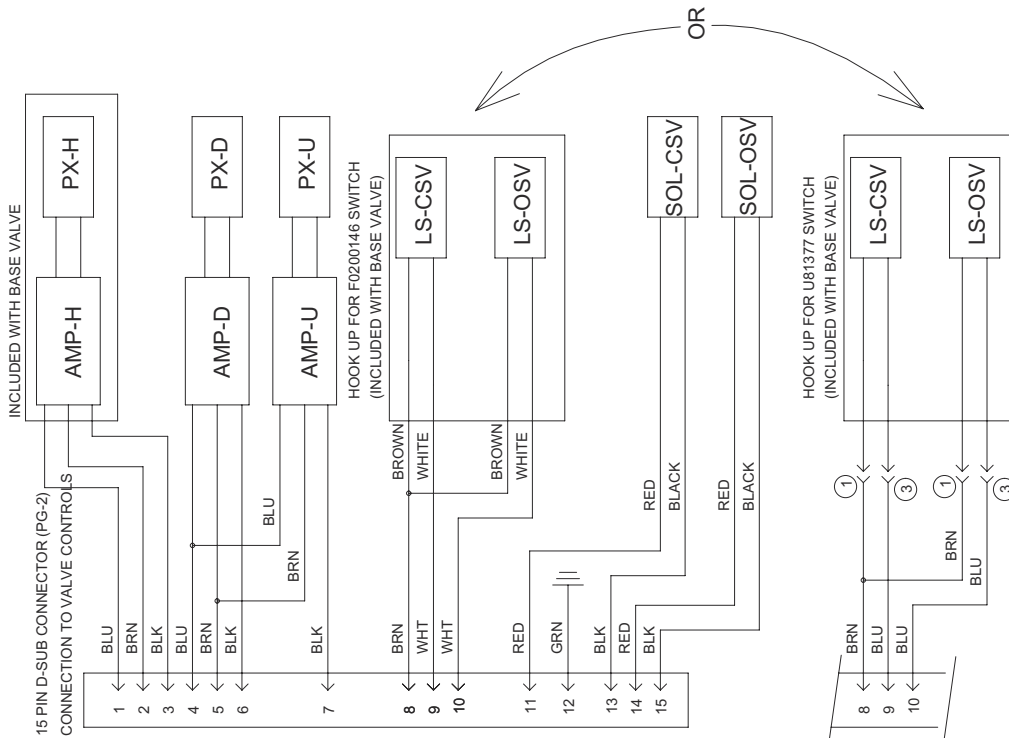
24E845, 1053 Dispense Valve with Added Up and Down Validation/Actuation Kit

NOTE: PX-HOME must be below PX-UP. PX-HOME may have been supplied in top hole. If so move to the appropriate location as shown.



Ref	Part	Description	Quantity
1	96/0098/99	SCREW, socket head, 10-24x1.50	2
2	16C798	PLATE, mounting, 1053, dsub, 15 pin	1
3	ADM00022	COVER, connector, dsub, 15p, 45deg	1
4	81/0360-N/11	SCREW, jack, connector, dsub, type a	2
5	B2050001	NUT, allen, 4-40, alloy	2
6	297331	SCREW, cap, 4x1/4	2
14	81/1265/11	BRACKET, end	2
15	297639	SCREW, cap, button head	2
16	81/0283-DIN/11	RAIL, din	0.01
17	F0200075	CABLE, prox-photo	2
18	81/0378-2/25	STRAP, ground, ring, #10, 16ga	1
19	100166	NUT, full hex	1
20	96/0005-2/99	WASHER, lock, ext, #10	1
21	84/0130-25/11	LABEL, prot earth(grnd).375x.375	1
22	16D050	AMPLIFIER, 1chan, photo, pnp, 24vdc	2
23	94/0740-A/99	FITTING, elbow, swivel, 1/4tubex10-32	2
24	127629	VALVE, solenoid, 4 way, 3 position, 24V	1
25	82/0217-A/11	MUFFLER, air, 1/8 NPT	2
26	127632	SCREW, socket head, 4-40x1.00	2
27	94/0705-1/96	FITTING, elbow, swivel, 1/4 tube	3
28	17A412	WASHER, split, #4	2

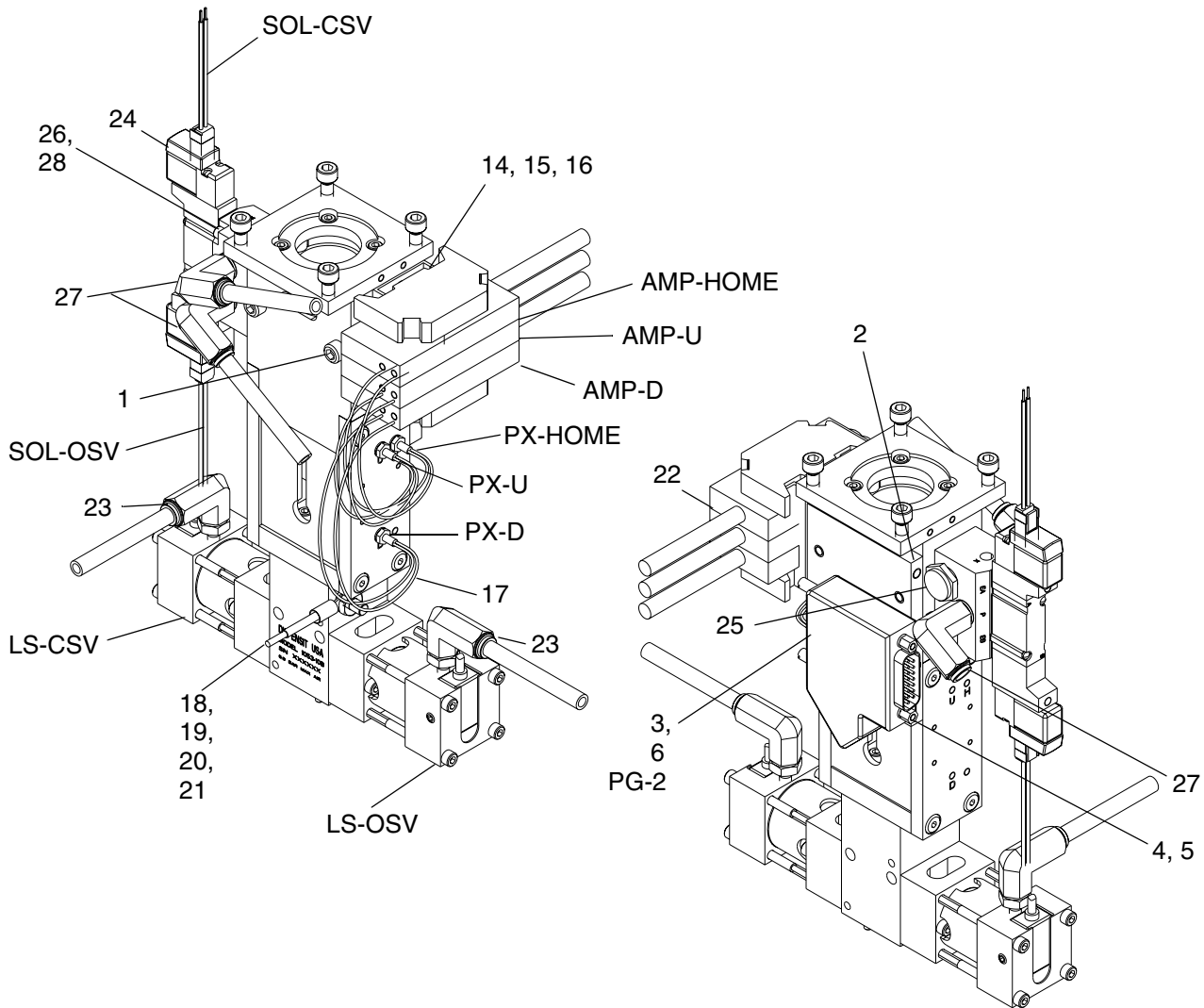
24E845 Electrical socket schematic



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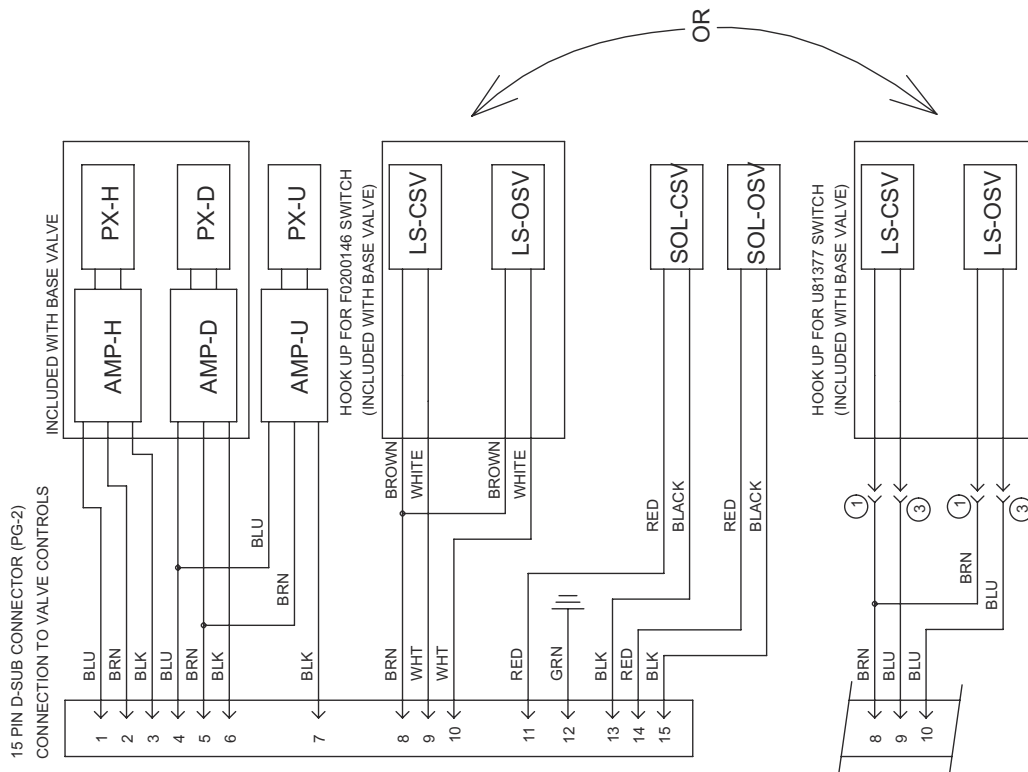
24E846, 1053 Dispense Valve with Added Up Validation/Actuation Kit

NOTE: PX-HOME must be below PX-UP. PX-HOME may have been supplied in top hole. If so move to the appropriate location as shown.



Ref	Part	Description	Quantity
1	96/0098/99	SCREW, socket head, 10-24x1.50	2
2	16C798	PLATE, mounting, 1053, dsub, 15 pin	1
3	ADM00022	COVER, connector, dsub, 15p, 45deg	1
4	81/0360-N/11	SCREW, jack, connector, dsub, type a	2
5	B2050001	NUT, allen, 4-40, alloy	2
6	297331	SCREW, cap, 4x1/4	2
14	81/1265/11	BRACKET, end	2
15	297639	SCREW, cap, button head	2
16	81/0283-DIN/11	RAIL, din	0.01
17	F0200075	CABLE, prox-photo	1
18	81/0378-2/25	STRAP, ground, ring, #10, 16ga	1
19	100166	NUT, full hex	1
20	96/0005-2/99	WASHER, lock, ext, #10	1
21	84/0130-25/11	LABEL, prot earth(grnd).375x.375	1
22	16D050	AMPLIFIER, 1chan, photo, pnp, 24vdc	1
23	94/0740-A/99	FITTING, elbow, swivel, 1/4tubex10-32	2
24	127629	VALVE, solenoid, 4 way, 3 position, 24V	1
25	82/0217-A/11	MUFFLER, air, 1/8 NPT	2
26	127632	SCREW, socket head, 4-40x1.00	2
27	94/0705-1/96	FITTING, elbow, swivel, 1/4 tube	3
28	17A412	WASHER, split, #4	2

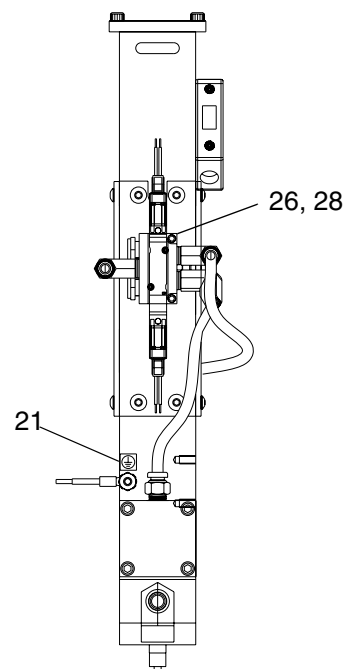
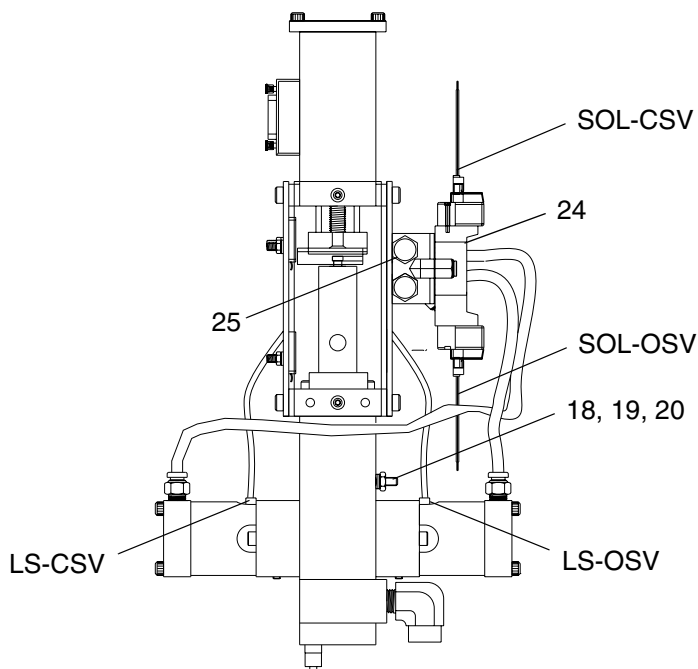
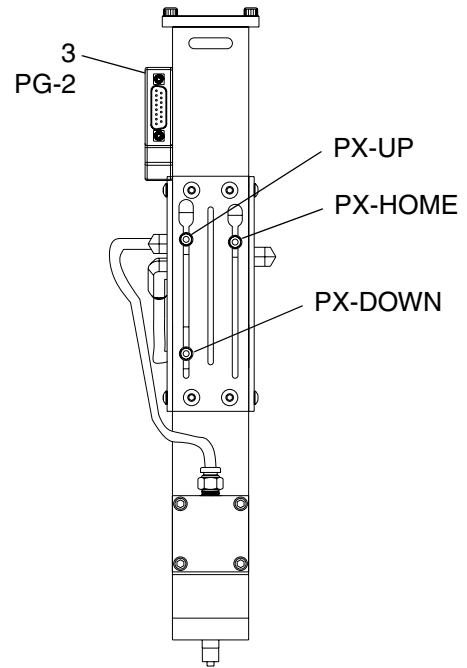
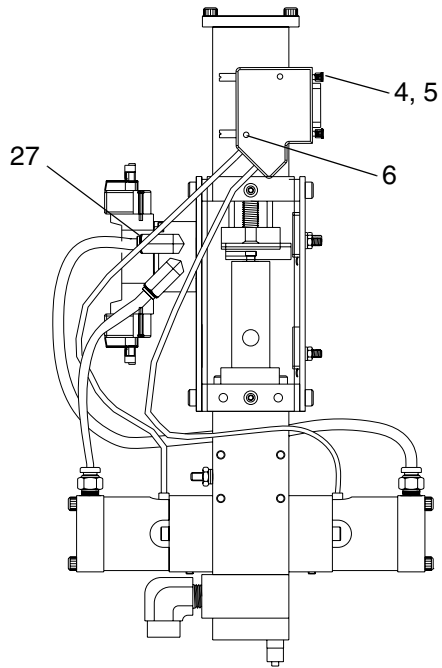
24E846 Electrical socket schematic



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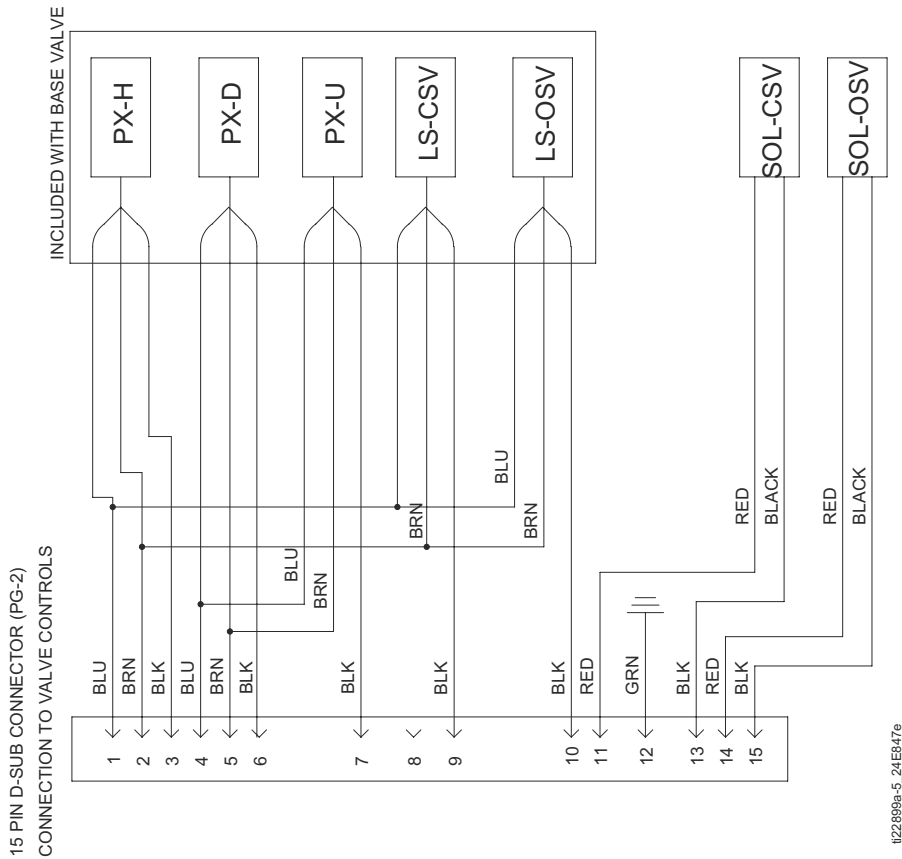
24E847, 1093 Dispense Valve with Added Actuation Kit

NOTE: PX-HOME must be below PX-UP. PX-HOME may have been supplied in top hole. If so move to the appropriate location as shown.



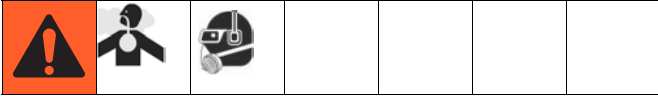
Ref	Part	Description	Quantity
3	ADM00022	COVER, connector, dsub, 15p, 45deg	1
4	81/0360-N/11	SCREW, jack, connector, dsub, type a	2
5	B2050001	NUT, allen, 4-40, alloy	2
6	297331	SCREW, cap, 4x1/4	2
18	81/0378-2/25	STRAP, ground, ring, #10, 16ga	1
19	100166	NUT, full hex	1
20	96/0005-2/99	WASHER, lock, ext, #10	1
21	84/0130-25/11	LABEL, prot earth(grnd).375x.375	1
24	127629	VALVE, solenoid, 4 way, 3 position, 24V	1
25	82/0217-A/11	MUFFLER, air, 1/8 NPT	2
26	127632	SCREW, socket head, 4-40x1.00	2
27	94/0705-1/96	FITTING, elbow, swivel, 1/4 tube	3
28	17A412	WASHER, split, #4	2

24E847 Electrical socket schematic



Setup

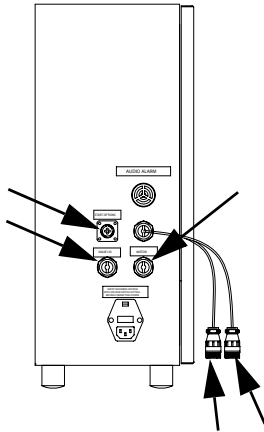
Motor Driven



1. Connect Dispense Valve I/O, Start Options, and Motor logic cables. If level controls are installed, connect Level Controls logic cables.

NOTICE

Feed system and main logic control system must use separate air supplies.



2. Adjust customer supplied air pressure regulator to 80 psi (0.6 MPa, 6 bar).
3. Perform Setup procedure for dispense valve and feed system components. See **Related Manuals** on page 3.

Adjust Amplifier

The amplifier should be adjusted if:

- Debris or vibration changed the distance/axis between the sensor and metering block (13).
- Replacing the sensor.

1. Navigate to the Motor Status screen.
2. Ensure the metering rod connection block (13) is aligned with the sensor.
3. If the display shows a “0” for the sensor switch being adjusted, increase the amplifier intensity adjustment screw until the sensor switch display changes to “1”.
4. Repeat for each sensor switch installed on assembly.

Startup

NOTE: See **HMI Operation** starting on page 16 for detailed HMI instructions.

1. Press the Control Power On button.



2. Navigate to the Metering Valve Control screen.
3. Press the Retract button.

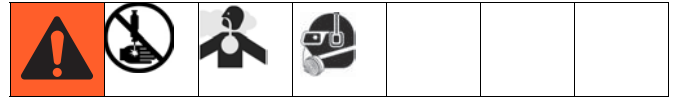
NOTE: On Motor Driven models, when there is an Emergency Stop condition or the system power is lost, the shot selection resets to “0”. The operator must then select a shot.

4. Navigate to the Supervisor screen.
5. Press the Valve Type selection button to select your configuration.
6. Navigate to the Shot Size screen.
7. Select a shot number.
8. Navigate to the Metering Valve Control screen.
9. Press the Shot button to select Shot Mode.
10. Verify air pressure is set to 80 psi (5.6 bar).
11. Perform feed system startup procedure(s). See **Related Manuals** on page 3.
12. Perform dispense valve startup procedure. See **Related Manuals** on page 3.

Dispensing Operation

NOTE: See **HMI Operation** on page 16 for detailed HMI instructions.

The foot switch, the “Start” button, and the optional Customer Start Signal can be used to initiate shots. These are referred to as start devices.



Perform a Shot

1. Navigate to the Metering Valve Control screen.
2. Press the Retract button.
3. Press the Shot button to select Shot Mode.
4. Press and release the start device to perform one shot.

Dispense Continuously

The valve dispenses continuously until the end of the stroke is reached.

1. Navigate to the Metering Valve Control screen.
2. Under Metering Valve Control, press the Retract button.
3. Press the Continuous button.
4. **On Motor Driven models,** press and hold the start device to dispense continuously. Release the start device to stop dispensing and retract the metering rods.

Retract Piston

1. Navigate to the Metering Valve Control screen.
2. Under Metering Valve Control, press the Retract button.

Extend Piston

1. Navigate to the Metering Valve Control screen.
2. Under Metering Valve Control, press the Extend button.

HMI Operation

Screen Navigation Diagrams

Motor Driven

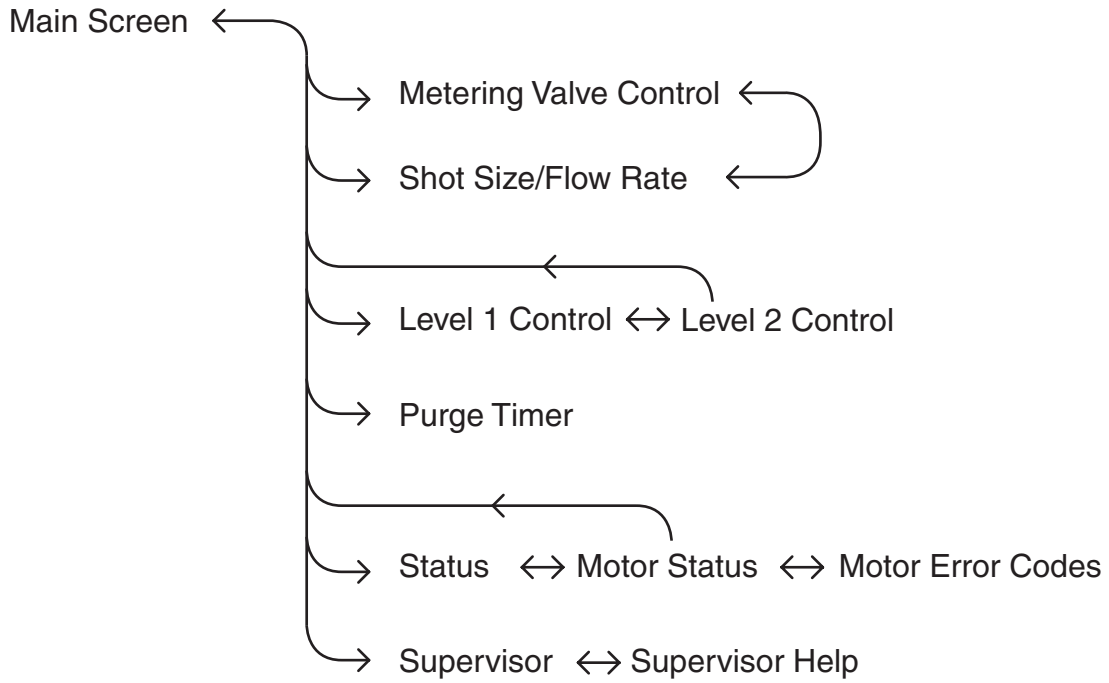
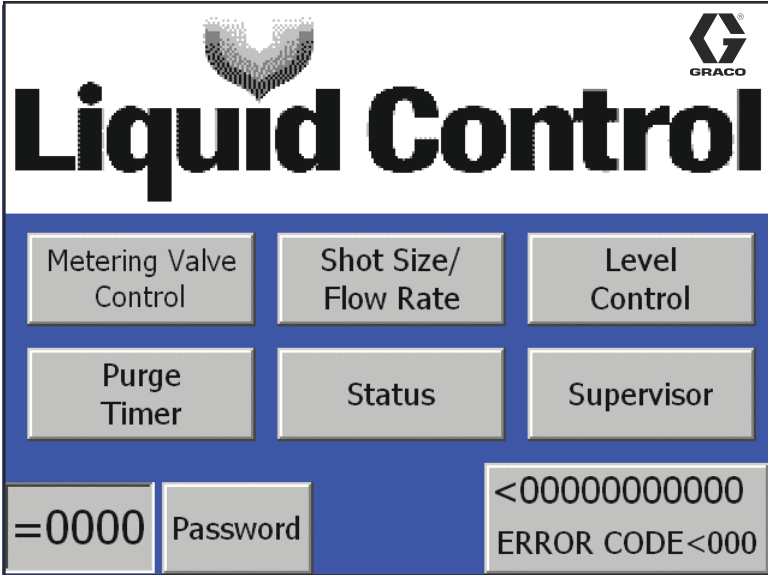


FIG. 2

Main Screen

NOTE: The Error Code button is shown on every screen on the Motor Driven model.



Screen Access Buttons

All buttons on the main screen except for the Password and Error Code buttons open a new specified screen. For example, pressing the “Status” button opens the Status screen.

Password

The password button enables the user to change values in certain screens.

To access the password press the Password Access button (shown as “=0000”). When the keyboard appears enter “**5810**” then press the Enter key.

Error Code

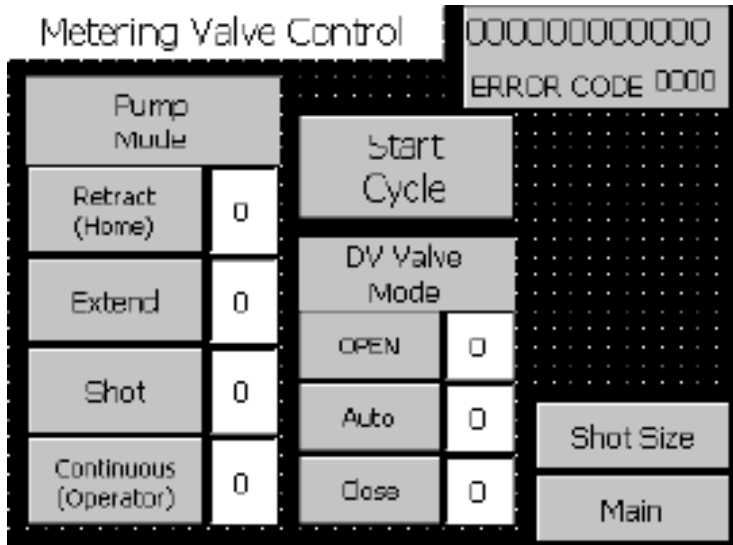
NOTE: The Error Code button is shown on every screen

On all screens that it is shown, the Error Code button resets the error seen in the error string (shown as “<0000000000”) and the error code number (shown as “<000”). See the Motor Error Codes screen for more information, page 31.

Metering Valve Control Screen

NOTE: A “1” indicates that the button is in the “ON” position. A “0” indicates that the button is in the “OFF” position.

NOTE: The Error Code button is shown on every screen. See the Main screen for definition.



Start button



When the Start button is pressed, the machine starts the cycle for the selected Pump Mode.

Pump Mode

NOTE: The metering rods must be retracted prior to changing any setting under Pump Mode. See **Retract Piston**, page 15.

Retract Mode

The air cylinder and pumps immediately retract and remain in the retracted position. This is used for maintenance purposes only.

Extend Mode



The air cylinder and pumps immediately extend and remain in the extended position. This position must be selected when the pump is idle for a long period of time.

Shot Mode

The machine cycles the number of times displayed in the Cycle Counter field when the start device is pressed and released. The machine cycles continuously when the start device is pressed and held.

Continuous (Operator Control) Mode

In this mode, the machine to dispense while the start device is pressed. When the start device is released the metering rods retract to the home position.

DV Valve Mode

This mode actuates an optional dispense valve.

OPEN

In this mode, the dispense valve is held in the open position, allowing material to pass through.

AUTO

In this mode, the dispense valve opens automatically whenever the pump is cycled.

CLOSE

In this mode, the dispense valve is held closed.

Shot Size Screen

<000000000000 ERROR CODE<000		Shot Size (percent)	Flow Rate (mm/sec)	
		1	=000.00	=0.00
Select Shot Size/Flow Rate Combination		2	=000.00	=0.00
		3	=000.00	=0.00
		4	=000.00	=0.00
		5	=000.00	=0.00
		6	=000.00	=0.00
		7	=000.00	=0.00
		=0		
Amount Per Stroke % <000	Number of Strokes <00000	Metering Valve Control	Main	

NOTICE

Erratic operation results if the shot size value entered is not greater than the absolute value of the Shot Size Offset setting. For example, if the Shot Size Offset setting is -1%, a shot size greater than 1% must be entered. See Supervisor screen, page 28.

Select Shot Size/Flow Rate Combination

Use this to change the selected shot by entering a number between 1 and 7. The selected shot size and flow rate is shown in the Shot Size (percent) section and Flow Rate (mm/sec) section.

Number of Strokes

This displays the number of shots of material when the machine is dispensing.

For example, if the purge shot size is set at 150%, Number of Strokes displays a “2”, and the Amount Per Stroke % displays “75.00”.

Amount Per Stroke %

This displays the stroke per shot in percent of stroke.

For example, if the purge shot size is set at 340%, Amount Per Stroke % displays “85.00” and Number of Strokes During Purge displays a “4”.

Shot Size (percent), Flow Rate (mm/sec)

These are the 7 preset Shot Size (percent) and Flow Rate (mm/sec) values. Shot size is in percent of stroke. The preset values can be selected using Select Shot Size/Flow Rate Combination.

To edit the preset Shot Size or Flow Rate values, log-in as the supervisor. See Main Screen, page 17.

Below is the minimum and maximum field allowance for this design.

Shot Size:

Minimum = 2.5%
Maximum = 500.0%

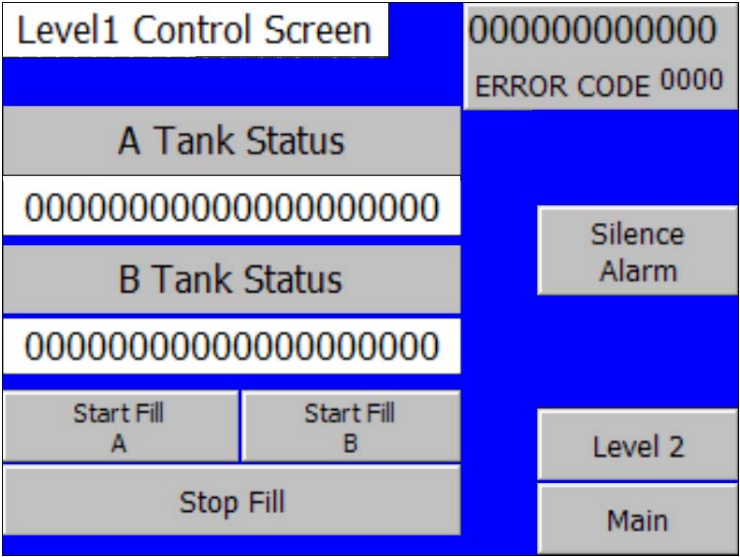
Flow Rate:

Minimum = 0.50 mm/second
Maximum = 25.00 mm/second

Level 1 Control Screen

NOTE: The Error Code button is shown on every screen. See the Main screen for definition, page 17.

NOTE: If 'A Tank Status' and 'B Tank Status' both display 'Levels Not Active' then the level control feature is not installed on this machine.



A Tank Status, B Tank Status

This displays information about each component tank filling process. The following are the possible messages.

Message	Description
Material High	The tank level is at or above the high level sensor.
Material Low	The tank level is below the low level sensor.
Filling	The tank is currently refilling in the tank refilling process.
Material Present	The tank level is between the high and the low level sensors.
Level Sensor Fault	The machine senses material at the high level sensor but not at the low level sensor.
Levels Not Active	Level sensors are not installed for the tank.
Fill Fault	The tank began refilling and the fluid level did not reach the high level sensor within the preset time entered into the Fill Timer button seen in the Level2 Control screen. Tank has stopped refilling.

Start Fill A, Start Fill B button



When this button is pressed the transfer pump fills the tank until the material level reaches the high level sensor on that tank.

NOTE: The Start Fill A, Start Fill B and the Stop Fill buttons are inoperable if the high level automatic tank refilling feature was not purchased with this machine.

Stop Fill button

This button stops the automatic tank refilling process for both the A and B component material tanks.

Silence Alarm button

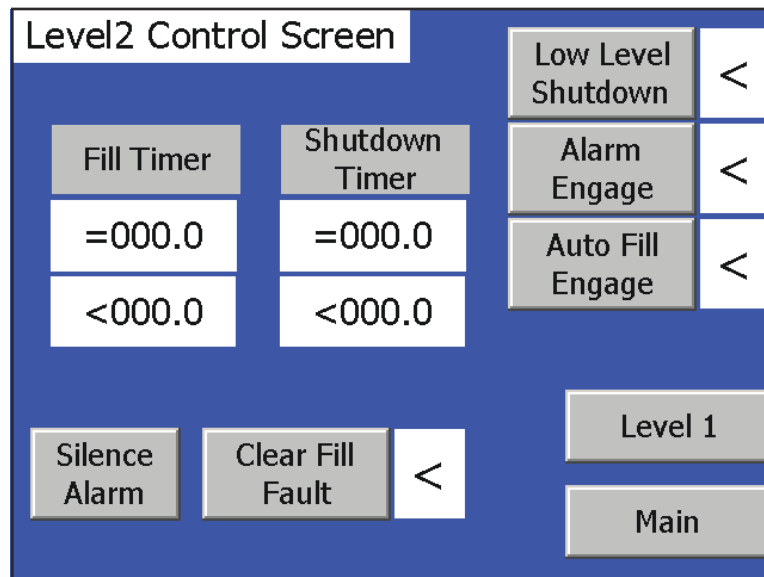
This button silences the audible alarm when pressed.

Level 2 Control Screen

NOTE: A “1” indicates that the button is in the “ON” position. A “0” indicates that the button is in the “OFF” position.

NOTE: The Error Code button is shown on every screen on the Motor Driven PD44. See the Main screen for definition, page 17.

NOTE: In the Level 1 Control Screen, if ‘A Tank Status’ and ‘B Tank Status’ both display ‘Levels Not Active’ then the level control feature is not installed on this machine. Press the Main button to exit from this screen.



Low Level Shutdown button

When this button displays ‘1’ and the material level of either the ‘A’ component tank or the ‘B’ component tank goes below the low level sensor, the machine shuts down. To recover, refill the component tank with material to above the low level sensor. When ‘0’ is displayed, the low level shutdown feature is disabled.

Alarm Engage button

When this button displays ‘1’ and the material level of either the ‘A’ component tank or the ‘B’ component tank goes below the low level sensor the audible alarm is activated.

Auto Fill Engage button

When this button displays ‘1’ the automatic filling function is activated.

Clear Fill Fault button

This button clears the Fill Timer Fault message displayed in the corresponding ‘A Tank Status’ or ‘B Tank Status’ field in the Level 1 Control screen.

Silence Alarm button

Press this button to silence the low fluid level audible alarm. The audible alarm will be activated again when the low level condition reoccurs.

Shutdown Timer button/indicator


NOTE: If the level control option has not been purchased the Shutdown Timer button is disabled.

This changes the delay before the Fill Timer Fault message is displayed in the corresponding 'A Tank Status' or 'B Tank Status' field on the Level 1 Control screen. If the material level is below the low level sensor for more than the duration of the Shutdown Timer setting, the machine shuts down.

To change the Shutdown Timer setting, perform the following steps.

1. Select the Shutdown Timer button (shown as "=00000"). A numeric keypad appears.
2. Enter the desired Shutdown Timer setting in tenths of a second.

NOTE: For example, if 15 is entered, the shutdown time is 1.5 seconds.

3. Press the  button. The new Shutdown Timer setting is shown.

NOTE: The current time of the Shutdown Timer is shown by "<00000". This counts up to the preset time.

Fill Timer


NOTE: If the automatic refilling option has not been purchased the Fill Timer function is disabled.

This changes the delay before the Fill Timer Fault message is displayed to the corresponding 'A Tank Status' or 'B Tank Status' field in the Level 1 Control screen. If the material level reaches the tank high level sensor before the preset fill time elapses, the 'Tank High Level' message is displayed in the Tank Status field and the Fill Timer is reset. If the preset fill time expires before material reaches the high level sensor, "Fill Timer Fault" appears in the Level1 Control Screen.

To change the Fill Timer setting, perform the following steps.

1. Select the Fill Timer button (shown as "=00000"). A numeric keypad appears.
2. Enter in the Fill Timer time in tenths of a second.

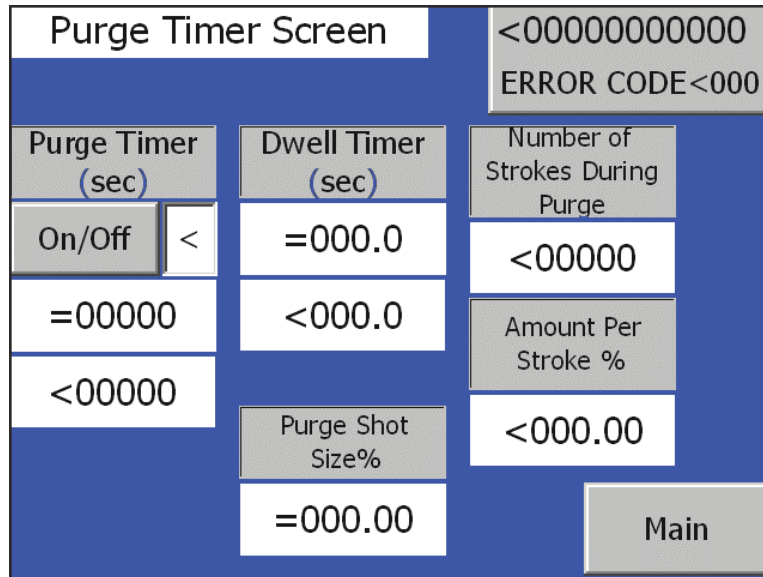
NOTE: For example, if 15 is entered, the Fill Timer setting is 1.5 seconds.

3. Press the  button. The new Fill Timer setting appears in the Fill Timer field.

NOTE: The current Fill Timer time is shown by "<00000". This counts up to the preset time.

Purge Timer Screen

NOTE: The Error Code button is shown on every screen. See the Main screen for definition, page 17.



Purge Timer On /Off

<p>Always set the dwell/alarm timer to a value that will give the user adequate warning that the machine is about to dispense a purge shot. See Dwell / Alarm Timer section on page 25.</p>						

The Purge Timer On/Off switch is used to enable/disable the Purge Timer.

OFF: The Purge Timer is disabled.

ON: The Purge Timer is enabled. The machine initiates a purge shot when the purge timer expires provided the fluid ball valves are open, Shot Mode is selected, and no errors exist.

Enter Purge Time Button

The Enter Purge Time button is shown as “=000.0” below the Purge Timer On /Off button. The Enter Purge Time button allows the operator to set the required time between cycles. When the Purge Timer switch is in the ON position and the Pump Mode switch is in the Shot or Operator Control position, the purge timer unit counts up to the preset time. When it reaches the preset time, a purge shot is initiated.

The timer then automatically resets and continues with the sequence of cycling and resetting. It continues until the Purge Timer is turned to the OFF position.

To change the Purge Timer setting, perform the following steps.

1. Select Purge Timer button. A numeric keypad appears.
2. Enter the desired purge time in seconds. Use the “.” button to enter tenths of a second.
3. Press the button. The Purge Timer screen appears. The new purge time appears in the Purge Timer button.

NOTE: The current Purge Timer time is shown in the bottom text box below the Purge Timer button.

Calculating the Purge Timer Setting





If the shot size is larger than the mixer volume, set the timer for one-half the gel time of the material. If the shot size is smaller, use the following formula to determine the Purge Timer setting.

$$\frac{\text{Gel Time X Shot Size}}{2 \text{ X Mixer Volume}} = \text{Timer Setting}$$

For example, with mixer volume = 13.3cc, shot size = 10cc, gel time = 10 minutes, use the following equation.


$$\frac{10 \text{ min X } 10 \text{ cc}}{2 \text{ X } 13.3 \text{ cc}} = \frac{100 \text{ cc*min}}{26.6 \text{ cc}} = 3.76 \text{ min}$$

Dwell / Alarm Timer

						
Always set the dwell/alarm timer to a value that will give the user adequate warning that the machine is about to dispense a purge shot.						

This changes the duration that the audible alarm is active prior to the purge shot being initiated.

To change the Dwell Timer, perform the following steps.


1. Select the Dwell Timer button. A numeric keypad appears.
2. Enter the desired Dwell Timer time in seconds. Use the “.” button to enter tenths of seconds.
3. Press the  button. The new Dwell Timer time appears in the Dwell Timer field.

NOTE: The current Dwell Timer time is shown by <000.0.

Purge Shot Size % button

This button shows the Shot Size volume in percent of stroke. This volume is dispensed during the ratio check.

To change the Purge Shot Size % volume, perform the following steps.

1. Select Purge Shot Size % button. A numeric keypad appears.
2. Enter the desired material shot size volume.
3. Press the  button. The Purge Timer screen appears. The new shot size percentage appears in the Purge Shot Size % field.

Number of Strokes During Purge button/indicator

This displays the number of strokes used during the purge shot.

For example, if the purge shot size is set at 150%, Number of Strokes During Purge displays “2” and Amount Per Stroke % displays “75”.

Amount Per Stroke %

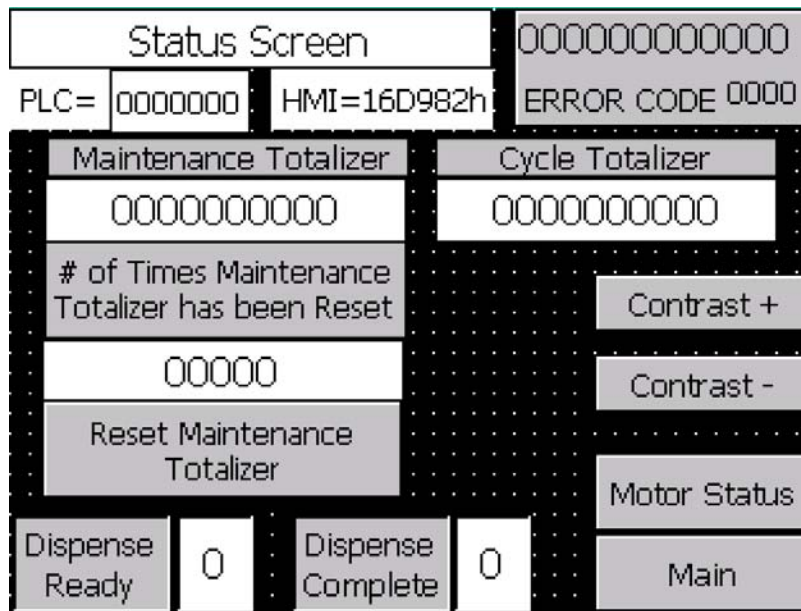
This displays the percent of the stroke used during a shot.

For example, if the shot size is set at 150%, Number of Strokes During Purge displays “2” and Amount Per Stroke % displays “75”.

Status Screen

NOTE: A “1” indicates that the button is in the “ON” position. A “0” indicates that the button is in the “OFF” position.

NOTE: The Error Code button is shown on every screen. See the Main screen for definition, page 17.



Maintenance Totalizer

This counter increments each time the machine cycles. Press the Reset Maintenance Totalizer button to reset. This counter is used for maintenance purposes.

Of Times Maintenance Totalizer has been Reset

This counter increments each time the Reset Maintenance Totalizer button is pressed.

Reset Maintenance Totalizer button

This button resets the Maintenance Totalizer.

Cycle Totalizer

This counter increments each time the machine cycles.

Dispense Ready

This displays “1” if the metering rods are loaded with material and ready to dispense. It displays a “0” if the metering tube is reloading or at the end of the dispense cycle.

Dispense Complete

This displays “1” if the metering rods are reloaded with material or at the end of the dispense cycle, and displays a “0” if the metering tube is loaded with material and ready to dispense.

Contrast + button

This button increases the contrast of the screen.

Contrast - button

This button decreases the contrast of the screen.

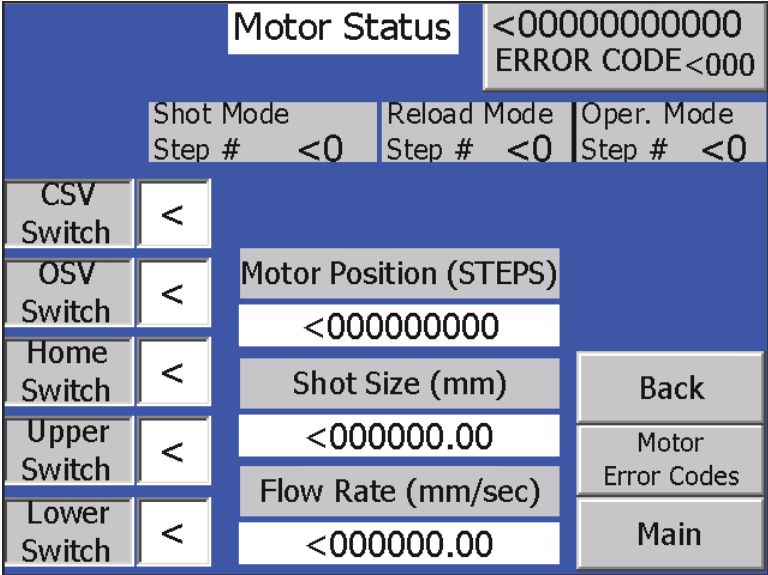
PLC=XXXX, HMI=XXXX

These fields display the programs downloaded into the PLC and HMI.

Motor Status Screen

NOTE: A “1” indicates that the button is in the “ON” position. A “0” indicates that the button is in the “OFF” position.

NOTE: The Error Code button is shown on every screen. See the Main screen for definition, page 17.



To navigate to the Motor Status screen, press the “Motor Status” button on the Status screen.

CSV Switch (Closed Spool Valve Switch)

This displays “1” when the spool valve is in the closed or reload position.

OSV Switch (Open Spool Valve Switch)

This displays “1” when the spool valve is in the open or dispense position.

Home Switch (Home Limit Switch)

This displays “1” when the metering valve rod home switch is activated.

Upper Switch (Upper Over Limit Switch, Extend)

This displays “1” when the metering valve rod upper over-travel limit switch is activated. The dispense valve is in the most-retracted position.

Lower Switch (Lower Over Limit Switch, Retract)

This displays “1” when the metering valve rod lower over-travel limit switch is activated. The dispense valve is in the most-extended position. Put the dispense valve in this position when it is idle for a long period of time.

Motor Position (Steps)

This gives the motor step position in terms of transducer steps.

Shot Size %

This shows the Shot Size volume in percent of stroke.

Flow Rate (mm/sec)

This allows the operator to view the current flow rate in millimeters per second.

Shot Mode Step

This gives the current step in the shot mode program. This is used for troubleshooting.

Reload Mode Step

This gives the current step in the reload mode program. This is used for troubleshooting.

Oper. Mode Step

This gives the current step in the operator mode program. This is used for troubleshooting.

Supervisor Screen

NOTE: A “1” indicates that the button is in the “ON” position. A “0” indicates that the button is in the “OFF” position.

Supervisor Screen		000000000000	
Reload Setup		ERROR CODE 0000	
Reload After Each Shot	0	Valve Type	
Reload After Multiple Shots	0	PD44/1093	0
Manual Reload W/ Cust. Signal	0	1053 - 2"	0
Feed Setup		1053 - 1"	0
Tanks	0	Reload Speed (mm/sec)	Help
Cartridges/ Syringes	0	00.00	Main

NOTE: To change the values on this screen, log-in as the supervisor. See Main Screen, page 17.

Error Code button

This button resets the error in the error string (shown as “<0000000000”) and the error code number (shown as “<000”). See the Motor Error Code screen for more information, page 31.

Reload Setup

Only one of the three Reload Setup Options can be enabled at any given time.

Reload After Each Shot button

In this mode, the metering rods retract after every shot. This is the default system setup.

Reload After Multiple Shots button

In this mode, the metering rods retract only when the metering rods are about to reach the end of the stroke. This feature is only available when in Operator Control mode.

For example, if the selected shot size is 30% of the metering rods stroke, three shots will be taken (90% of the stroke) then the metering rods will retract. The rods retract after three shots because it cannot do another shot without going over 100% stroke. If the selected shot size is greater than 50% of the metering rods stroke, the metering rods will retract after every shot.

Manual Reload W/ Customer Signal button

In this mode, the customer must send a signal to reload the valve before the lower switch is activated. Otherwise, the dispense valve will initiate a shot using the selected shot size and flow rate combination.

NOTE: This can be linked with a PLC input for system integration. See the logic drawings for more information.

Reload Speed (mm/sec) button

This allows the operator to change the retract or reload speed in millimeters per second.

Feed Setup

This allows the operator to choose the low level setting for the feed system with tanks or a feed system with cartridge or syringes. This inverts the switch function in the PLC logic.

Valve Type

Only one of the three valve type options can be enabled at any given time. This feature is enabled at the time of build based on Valve Type and should not be manipulated.

Enabling the Valve Type with a 1053 - 1 in. when a 1053 - 2 in. or 1093 is used will cause the improper maximum shot size allowed by the mechanics of the valve.

Enabling the Valve Type with the 1053 - 2 in. when a 1053 - 1 in. will cause the Low Switch to be tripped and will not allow the Valve to cycle.

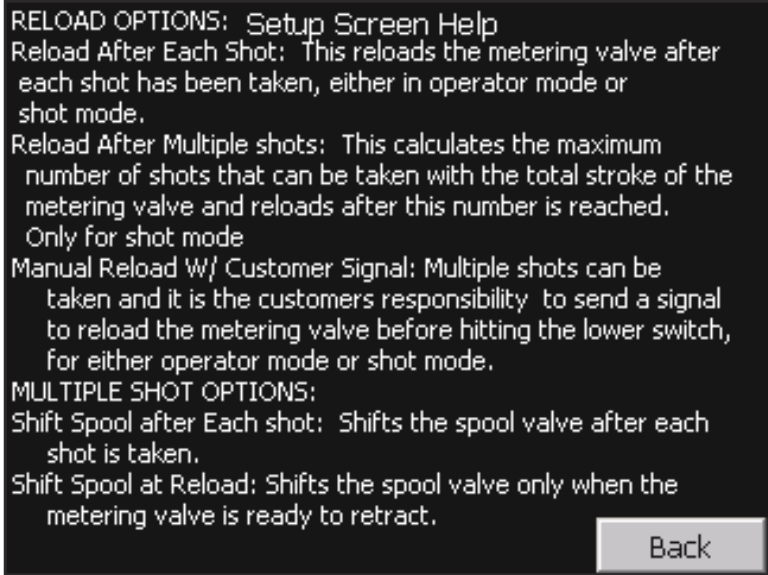
Enabling the Valve Type with the 1053 - 2 in. when a 1093 is used will cause the improper maximum shot size allowed by the mechanics of the valve.

Enabling the Valve Type with the 1093 when a 1053 - 1 in. or 1043 - 2 in. is used will cause the Low Switch or PF44 to be tripped and will not allow the Valve to cycle.

Supervisor Help Screen

This screen describes the various reload and shot options in the Supervisor screen.

To get to the Setup Help screen, press the “Help” button on the Supervisor screen.



RELOAD OPTIONS: Setup Screen Help

Reload After Each Shot: This reloads the metering valve after each shot has been taken, either in operator mode or shot mode.

Reload After Multiple shots: This calculates the maximum number of shots that can be taken with the total stroke of the metering valve and reloads after this number is reached. Only for shot mode

Manual Reload W/ Customer Signal: Multiple shots can be taken and it is the customers responsibility to send a signal to reload the metering valve before hitting the lower switch, for either operator mode or shot mode.

MULTIPLE SHOT OPTIONS:

Shift Spool after Each shot: Shifts the spool valve after each shot is taken.

Shift Spool at Reload: Shifts the spool valve only when the metering valve is ready to retract.

Back

Motor Error Codes Screen

These screens give descriptions of the motor error codes.

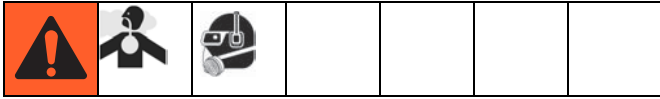
Error Codes:	
Error Code	Description
0	No error
1	Aborted by user
2	Configuration error Call LCC For Technical Help
3	Illegal command Call LCC For Technical Help
4	Aborted due to no valid configuration
5	Aborted due to no user power
6	Aborted due to no defined reference point
7	Aborted due to STOP input active
8	Aborted due to UPPER LIMIT input active
9	Aborted due to LOWER INPUT input active
10	Aborted due to problem executing motion
11	No profile block configured for specified profile

Page 2 Back

Error Codes:	
Error Code	Description
12	Illegal operation mode
13	Operation mode not supported for this command
14	Illegal number of steps in profile block
15	Illegal direction change
16	Illegal distance
17	RPS trigger occurred before target speed reached
18	Insufficient RPS active region width
19	Speed out of range
20	Insufficient distance to perform desired speed change
21	Illegal position
22	Zero position unknown
66	Spool shift to dispense did not occur
130	Position Module is not enabled(Occurs at Power Up)

Back

Pressure Relief Procedure



1. Turn main air supply shut-off/bleed valve to the off position. This will bleed air from the system.
2. Perform feed system pressure relief procedure. See **Related Manuals** on page 3.
3. Perform dispense valve pressure relief procedure. See **Related Manuals** on page 3.

Shutdown



1. Go to the Metering Valve Control screen.
2. Press the Retract button.
3. Press the Extend button.
4. Press the Emergency Stop button. Ensure everything is off.
5. Twist Emergency Stop to reset.
6. Perform **Pressure Relief Procedure**.
7. Perform feed system shutdown procedure. See **Related Manuals** on page 3.
8. Perform dispense valve shutdown procedure. See **Related Manuals** on page 3.

Customer Inputs

Name	Description
Customer Start (Input)	When a momentary contact closure is applied to this input, the start device is activated.
Customer Purge Start (Input)	When a momentary contact closure is applied to this input, the purge shot is activated.
Customer SS/FR Bit 1,2,3 (Input)	When these inputs are activated in the proper sequence, the machine activates the Shot Size and Flow Rate Combination seen on the Shot Sizes screen. See the machine logic drawings for more information.
Customer Signal Done (Output)	This output activates for 2 seconds after the dispense cycle is complete.
Customer Signal Dispense Ready (Output)	This output is active when the machine is in the Shot Mode and the dispense valve is retracted and loaded with material. This output deactivates when the dispense valve is dispensing or if the machine is not in the shot mode.
Customer Signal Time to Purge (Output)	If the Manual Reload W/ Customer Signal button under the Supervisor screen is selected, this output is active when it is time for the machine to take a purge shot. NOTE: The dispense valve will not perform a purge shot until the start device is activated.
Customer Signal Open Auxiliary Dispense Valve (Output)	This is to be used only when there is a metering valve feeding an on/off type dispense valve. This signal is used to open and close the dispense valve.
Customer Signal Reload (Input)	When in customer reload mode, after each shot the dispense "Done" signal is turned on for 2 seconds. During this time the customer can toggle the customer reload signal to reload the system. If the timer expires, the machines assumes the customer does not want to reload and finishes the sequence then turns on the ready signal and does not allow another reload until after the next shot.

Maintenance





NOTE: If material is leaking, see **Troubleshooting** on page 34.

See **Related Manuals** on page 3 for dispense valve and feed system maintenance socket schedule and procedures.

Air-Water Separator/Filter

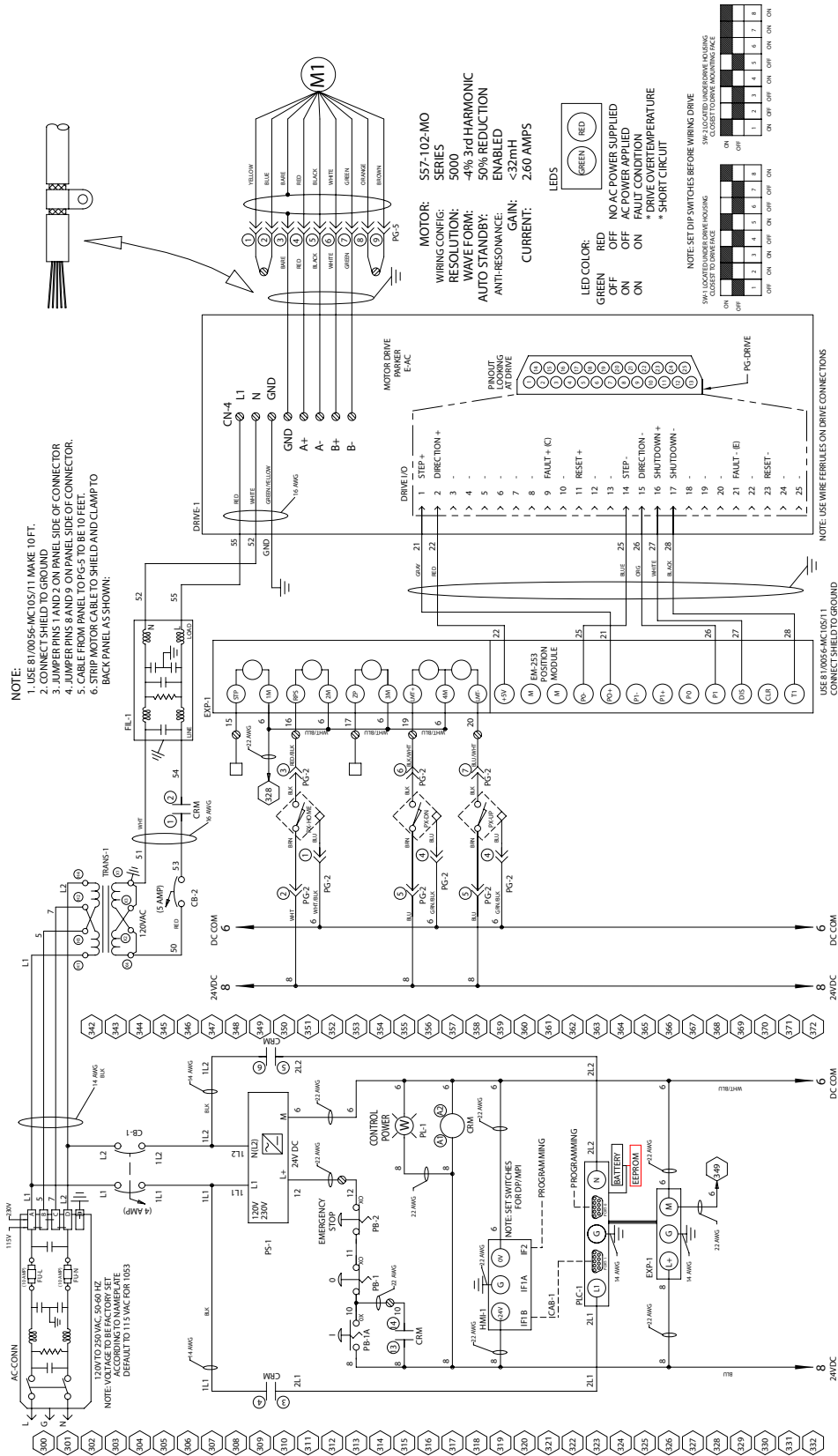
Drain water once a shift or as necessary.

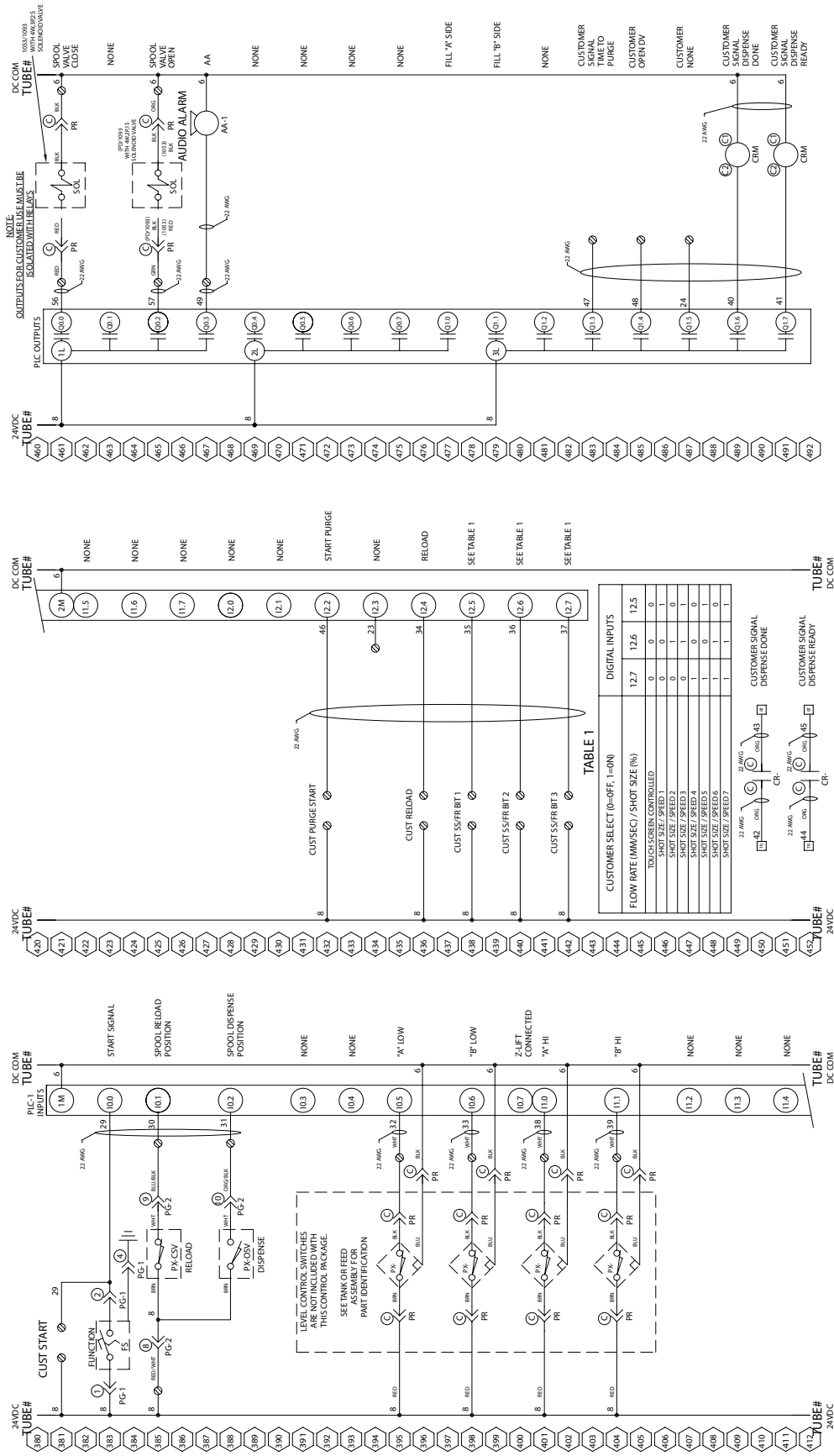
Troubleshooting

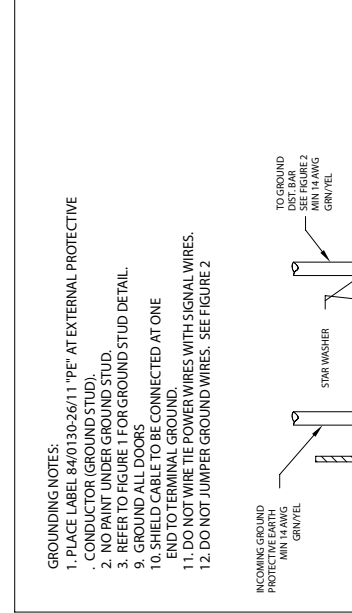
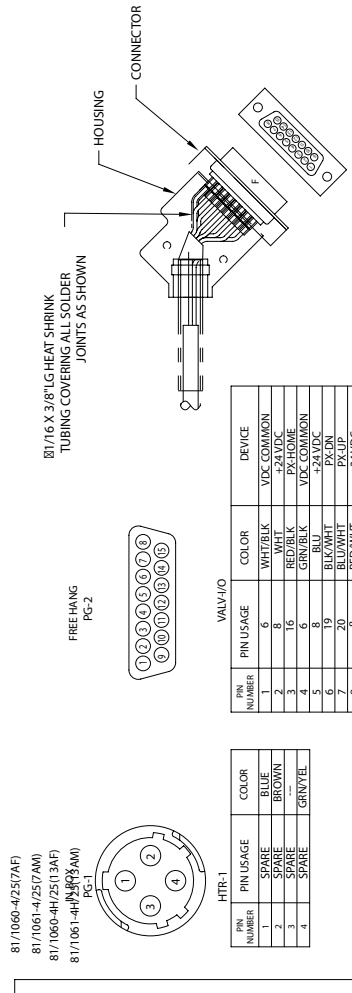
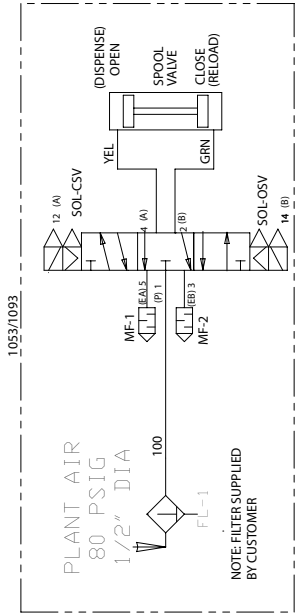
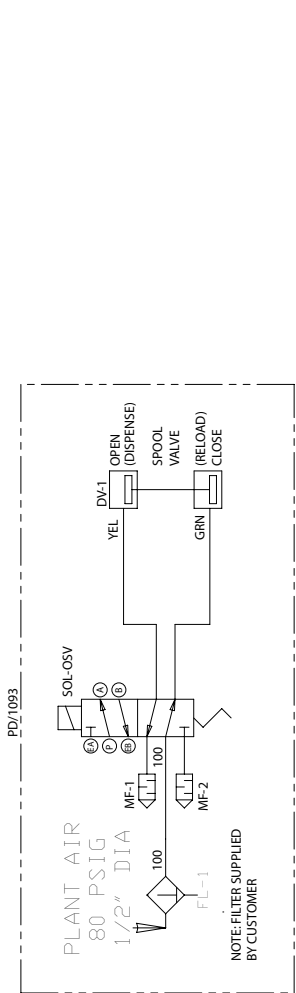
						
Perform Pressure Relief Procedure before performing any troubleshooting procedure.						

Problem	Cause	Solution
Dispense valve stalling and no material being dispensed despite adequate input pressure	Blocked needle	Check needle for cured material, replace mixer as required
	Flow control valve closed	Open
Dispense valve not discharging normal or full volume	Low material level in reservoirs	Fill material reservoirs and prime the machine
	Air in material tanks	Fill reservoirs and prime machine
Material leaks past spool valves	Spool valve worn or damaged	Replace the spool valve and sleeve
Material leaks around needle while dispensing	Cured material in needle	Check mixer for cured material, replace needle
The horn beeps after each shot	Dispense is longer than the dispense limit timer	Check mixer for cured material
The horn beeps continuously	If the low level sensors are on, the system may be low on material	Check level screen for low level condition, if low level condition is present, fill tank with material

Schematics







- GROUNDING NOTES:**
1. PLACE LABEL 84/0130-26/11 "PE" AT EXTERNAL PROTECTIVE CONDUCTOR (GROUND STUD).
 2. NO PAINT UNDER GROUND STUD.
 3. REFER TO FIGURE 1 FOR GROUND STUD DETAIL.
 9. GROUND ALL DOORS
 10. SHIELD CABLE TO BE CONNECTED AT ONE END TO TERMINAL GROUND.
 11. DO NOT WIRE THE POWER WIRES WITH SIGNAL WIRES.
 12. DO NOT JUMPER GROUND WIRES. SEE FIGURE 2

FREE HANG PG-2

PIN NUMBER	PIN USAGE	COLOR	DEVICE
1	6	WHT/BLK	VDC COMMON
2	8	WHT	-24VDC
3	16	RED/BLK	PX-HOME
4	8	GRN/BLK	VDC COMMON
5	8	BLK	-24VDC
6	19	BLK/WHT	PX-EN
7	20	BLU/WHT	PX-LIP
8	36	RED/WHT	-24VDC
9	36	RED/BLK	-24VDC
10	31	ORG/BLK	L5-OSV
11	56	RED	SOL-CSV-SIGNAL
12	6	GRN/WHT	GROUND
13	6	BLK	SOL-CSV-COMMON
14	6	GRN	SOL-CSV-COMMON
15	6	ORG	SOL-OSV-COMMON

VALV I/O

PIN NUMBER	PIN USAGE	COLOR
1	SPARE	BLUE
2	SPARE	BROWN
3	SPARE	BROWN
4	SPARE	GRN/YEL

HTR-1

PIN NUMBER	PIN USAGE	COLOR
1	SPARE	BLN
2	SPARE	ORG
3	SPARE	BLU
4	SPARE	RED
5	SPARE	WHT
6	SPARE	BLK
7	SPARE	---

HTR-1

PIN NUMBER	PIN USAGE	COLOR
1	SPARE	BLN
2	SPARE	ORG
3	SPARE	BLU
4	SPARE	RED
5	SPARE	WHT
6	SPARE	BLK
7	SPARE	---

HTR-1

PIN NUMBER	PIN USAGE	COLOR
1	SPARE	BLN
2	SPARE	ORG
3	SPARE	BLU
4	SPARE	RED
5	SPARE	WHT
6	SPARE	BLK
7	SPARE	---

HTR-1

PIN NUMBER	PIN USAGE	COLOR
1	SPARE	BLN
2	SPARE	ORG
3	SPARE	BLU
4	SPARE	RED
5	SPARE	WHT
6	SPARE	BLK
7	SPARE	---

HTR-1

NOTE: USE LEAD FREE SOLDER

81/1060-7/25
81/1061-7/25
81/1060-7H/25
81/1060-7H/25

81/1060-7/25
81/1061-7/25
81/1060-7H/25
81/1060-7H/25

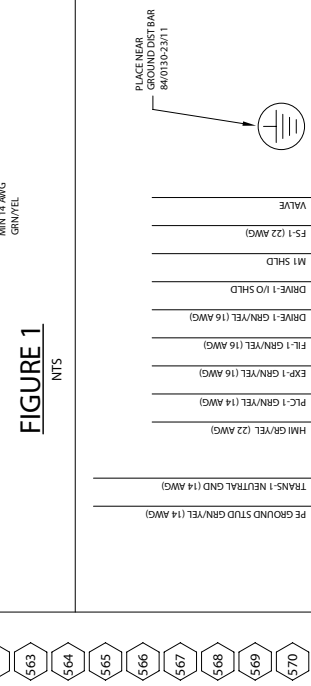
81/1060-7/25
81/1061-7/25
81/1060-7H/25
81/1060-7H/25

81/1060-7/25
81/1061-7/25
81/1060-7H/25
81/1060-7H/25

81/1060-7/25
81/1061-7/25
81/1060-7H/25
81/1060-7H/25

REFERENCE WIRE FERRULE CHART

WIRE	PART NUMBER	COLOR
12AWG	81/0723/11	GRN
14AWG	112516	BLU
16AWG	81/0724/11	BLK
18AWG	81/0727/11	RED
20AWG	81/0725/11	WHT
24AWG	81/0725/11	LT BLUE



- 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572

Technical Data

Maximum Ambient Temperature.....	110°F (43°C)
Maximum Operating Temp.....	150°F (65°C)
Electrical Requirements.....	120/240V, 50/60 Hz
Fuses Required.....	5 x 20 mm, 10A, fast, type F, 250 VAC (Graco part V-21610P, Qty = 2)
Maximum Amperage.....	10 amps
Dimensions (H x L x W).....	20 in. x 8 in. x 20 in. (508 mm x 203 mm x 508 mm)
Weight.....	60 lb (27.2 kg)

Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

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Original Instructions. This manual contains English. MM 3A0261

Graco Headquarters: Minneapolis

International Offices: Belgium, China, Japan, Korea

GRACO INC. AND SUBSIDIARIES • P.O. BOX 1441 • MINNEAPOLIS MN 55440-1441 • USA

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