Instructions – Parts List

Parts

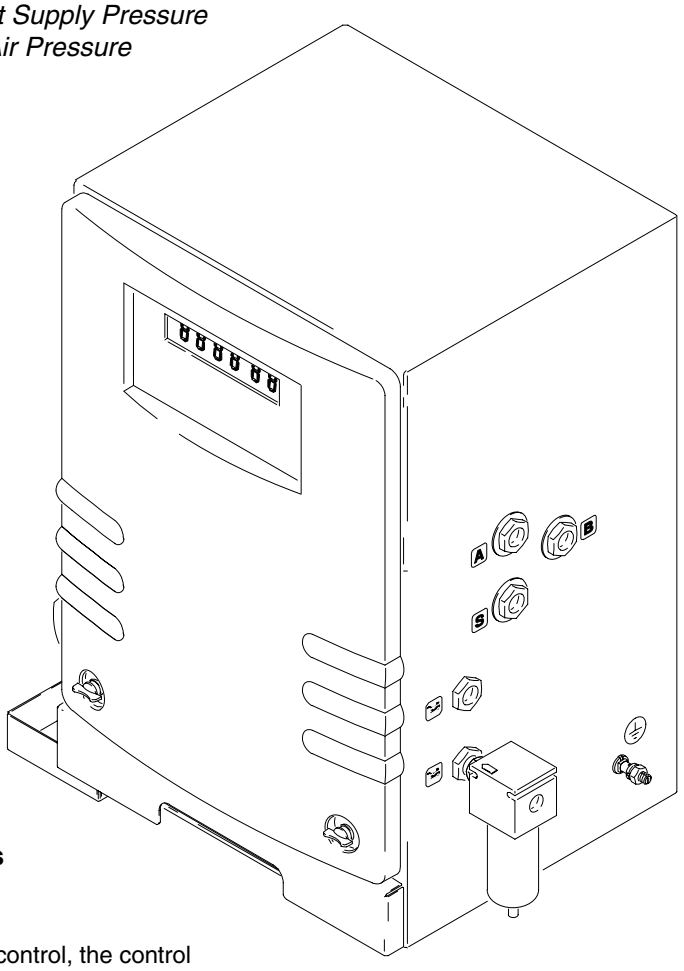
ProMix™ Control Assembly

308783 Rev.D

For proportional mixing of plural component coatings

3000 psi (21 MPa, 207 bar) Maximum Working Fluid Pressure
4000 psi (28 MPa, 276 bar) Maximum Fluid Working Pressure
with Part No. 239954 High Pressure Spring Kit
3000 psi (21 MPa, 207 bar) Maximum Solvent Supply Pressure
100 psi (0.7 MPa, 7 bar) Maximum Working Air Pressure

Part No. 239735



Recognized Component

Conforms to ANSI/UL standard 2279

Certified to CAN/CSA 22.2 No. E79–11–95

EExia II A T4

98D.123384

Read warnings and instructions.
See page 2 for Table of Contents.

Intrinsically Safe for Hazardous Locations
Class I; Division 1; Group D*

* If an external power supply is connected to the control, the control is no longer intrinsically safe and the control, as well as the power supply, must not be operated in hazardous locations.

If a printer is connected to the control, Printer Barrier Kit 240652 must be installed to maintain intrinsic safety. If the printer is installed without the Printer Barrier Kit, the control is no longer intrinsically safe and the control and printer must not be installed or operated in hazardous locations.

PROVEN QUALITY. LEADING TECHNOLOGY.

GRACO INC. P.O. BOX 1441 MINNEAPOLIS, MN 55440–1441

Symbols

Warning Symbol

⚠ WARNING

This symbol alerts you to the possibility of serious injury or death if you do not follow the instructions.

Caution Symbol

⚠ CAUTION

This symbol alerts you to the possibility of damage to or destruction of equipment if you do not follow the instructions.

Table of Contents

⚠ WARNING

INJECTION HAZARD

Spray from the gun, hose leaks, or ruptured components can inject fluid into your body and cause extremely serious injury, including the need for amputation. Splashing fluid in the eyes or on the skin can also cause serious injury.

- Fluid injected into the skin might look like just a cut, but it is a serious injury. **Get immediate medical attention.**
- Do not point the spray gun at anyone or at any part of the body.
- Do not put hand or fingers over the spray tip.
- Do not stop or deflect fluid leaks with your hand, body, glove, or rag.
- Follow the **Pressure Relief Procedure** on page 17 whenever you: are instructed to relieve pressure; stop spraying; clean, check, or service the equipment; or install or clean the spray tip.
- Tighten all the fluid connections before operating the equipment.
- Check the hoses, tubes, and couplings daily. Replace worn, damaged, or loose parts immediately. Permanently coupled hoses cannot be repaired; replace the entire hose.

FIRE, EXPLOSION, AND ELECTRIC SHOCK HAZARD

Improper grounding, poor air ventilation, open flames, or sparks can cause a hazardous condition and result in fire or explosion and serious injury.

- Ground the equipment and the object being sprayed. See “Ground the System” on page 13.
- The ProMix control is intrinsically safe when used without any external electrical components connected to it. If an external power supply or printer is connected to the control, the control is no longer intrinsically safe and the control, as well as the power supply and printer, must not be operated in hazardous locations, as defined in article 500 of the National Electrical Code (USA) or your local electrical code.
- If using an external power supply, do not exceed the +24 volts maximum applied voltage. Disconnect electrical power at the main switch before servicing the equipment.
- Turn off the air to the air driven power supply before servicing the equipment.
- Provide fresh air ventilation to avoid the buildup of flammable vapors from solvent or the fluid being sprayed.
- Extinguish all the open flames or pilot lights in the spray area.
- Keep the spray area free of debris, including solvent, rags, and gasoline.
- Do not turn on or off any light switch in the spray area while operating or if fumes are present.
- Do not smoke in the spray area.
- Do not operate a gasoline engine in the spray area.
- If there is any static sparking while using the equipment, **stop spraying immediately**. Identify and correct the problem.
- Keep liquids away from the electrical components.

Continued on the next page.

⚠ WARNING

EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the equipment to rupture, malfunction, or start unexpectedly and result in serious injury.

- This equipment is for professional use only.
- Read all instruction manuals, tags, and labels before operating the equipment.
- Use the equipment only for its intended purpose. If you are uncertain about usage, call your Graco distributor.
- Do not alter or modify this equipment. Use only genuine Graco parts and accessories.
- Check the equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure of the system components. See the instruction manuals of the individual system components for their maximum working pressures. The ProMix control has a **3000 psi (21 MPa, 207 bar) maximum working fluid pressure or 4000 psi (28 MPa, 276 bar) maximum working fluid pressure with kit 239954 installed and 100 psi (0.7 MPa, 7 bar) maximum working air pressure**.

  The solvent supply line inside the control has a **3000 psi (21 MPa, 207 bar) maximum working fluid pressure**. The fluid supply for solvent purging must not exceed this maximum working pressure.
- Route the hoses away from the traffic areas, sharp edges, moving parts, and hot surfaces. Do not expose Graco hoses to temperatures above 180°F (82°C) or below –40°F (–40°C).
- Use only Graco approved hoses. Do not remove hose spring guards, which help protect the hose from rupture caused by kinks or bends near the couplings.
- Do not use the hoses to pull the equipment.
- Use fluids or solvents that are compatible with the equipment wetted parts. See the **Technical Data** section of all the equipment manuals. Read the fluid and solvent manufacturer's warnings.
- Comply with all applicable local, state and national fire, electrical and other safety regulations.

TOXIC FLUID HAZARD

Hazardous fluids or toxic fumes can cause serious injury or death if splashed in the eyes or on the skin, swallowed, or inhaled.

- Know the specific hazards of the fluid you are using. Read the fluid manufacturer's warnings.
- Store hazardous fluid in an approved container. Dispose of hazardous fluid according to all local, state and national guidelines.
- Wear the appropriate protective clothing, gloves, eyewear, and respirator.

Icons

Product Icons

Control Assembly

The following icons are on the outside of the control case. They indicate air, fluid, and cable connections. See the **Installation** section for more information.

Component A fluid line connection

Component B fluid line connection

Solvent fluid line connection

Ground wire connection

Air line connection

Gun air outlet

Air signal outlet

Alarm air outlet

External power connector

Printer cable connector

Operator station connector

Operator Station

The following icons are on the front of the operator station. They indicate the three operation modes (mix standby, and purge) and the report function. See page 14 for more information.

Mix

Standby

Purge

Report

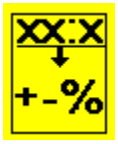
Icons

Operation Mode Icons

The system is in Operation Mode when it is powered up. The operations that are commonly used in everyday operation appear as icons on the keypad. These icons include:

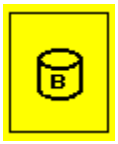
TARGET RATIO: Press to display the ratio that the ProMix Proportioner has been setup to produce.

ACTUAL RATIO: Press to display the actual ratio the ProMix is producing.



TOLERANCE: Press to display the ratio tolerance that the ProMix Proportioner is currently producing.

COMPONENT A: Press to display the amount of component A that has been dispensed since the last time the report button on the operator station was pressed. Amount will be in gallons or liters, depending on how system was setup.



COMPONENT B: Press to display the amount of component B that has been dispensed since the last time the report button on the operator station was pressed. Amount will be in gallons or liters, depending on how system was setup.

POT LIFE TIME: Press to display the pot life time remaining in minutes.

Note: Pot life is the approximate length of time mixed fluid can remain in the system and stay at its normal viscosity. The time length is entered during setup.

FLOW RATE: Press to display the current flow rate the system is producing in cc per minute.

Setup Mode Icons

Read page 15 for information on the **Reference Card** and how to use it to select setup functions, which are represented by the following icons.

When a key for a function is pressed, the light below that function will turn green and the last known value for that function will display.

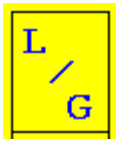
Adjust the displayed values using the up and down arrow keys (△▽) .

RETURN: The system enters setup at level 1. Press the return arrow to direct the control to the next level of setup, which is level 2; then level 3; then back to level 1.

Level 1 Icons

SOLVENT VALVE: Hold down the key to open the solvent valve to clean the ratio check valves after a ratio check. The valve closes when the key is released.

TARGET RATIO: Press to adjust the desired ratio. Can be set from 0.6:1 to 20.0:1.

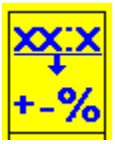


LITER/GALLON: Press to set value to liters or gallons for totalizer display values.

Icons

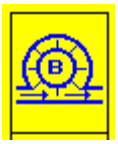
Setup Mode Icons

Level 1 Icons (continued)



TOLERANCE: Press to adjust the ratio tolerance. If the system operates outside the tolerance, an alarm will occur.

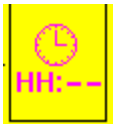
FLOW METER A CALIBRATION: Hold down the key for two seconds to initiate a flow meter ratio check/calibration procedure, which enables the user to see and adjust the amount of component A dispensed during that procedure. Amount is displayed in cc.



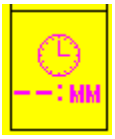
FLOW METER B CALIBRATION: Hold down the key for two seconds to initiate a flow meter ratio check/calibration procedure, which enables the user to see and adjust the amount of component B dispensed during that procedure. Amount is displayed in cc.

POT LIFE TIME: Press to adjust the pot life time in minutes.

Level 2 Icons



HOUR: Press to adjust the hour setting of the clock.



MINUTE: Press to adjust the minute setting of the clock.

DAY: Press to adjust the day setting of the clock.

MONTH: Press to adjust the month setting of the clock.

YEAR: Press to adjust the year setting of the clock.

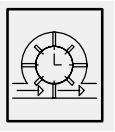
PURGE TIME: Press to adjust the purge time in seconds. The default purge time is 62 seconds. Shots of air and solvent alternate during the purge time.

Level 3 Icons

OPEN COMPONENT A VALVE: Hold down the key to open the component A valve. The valve closes when the key is released. Used for manual purging and color change.

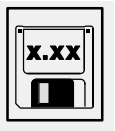
OPEN COMPONENT B VALVE: Hold down the key to open the component B valve. The valve closes when the key is released. Used for manual purging and color change.

POT LIFE VOLUME: Press to adjust the volume of mixed fluid that must pass through the system before the pot life timer resets. The value should represent the amount of mixed fluid in cubic centimeters (cc) that could be in the integrator (50 cc), static mixer, hoses, and gun.



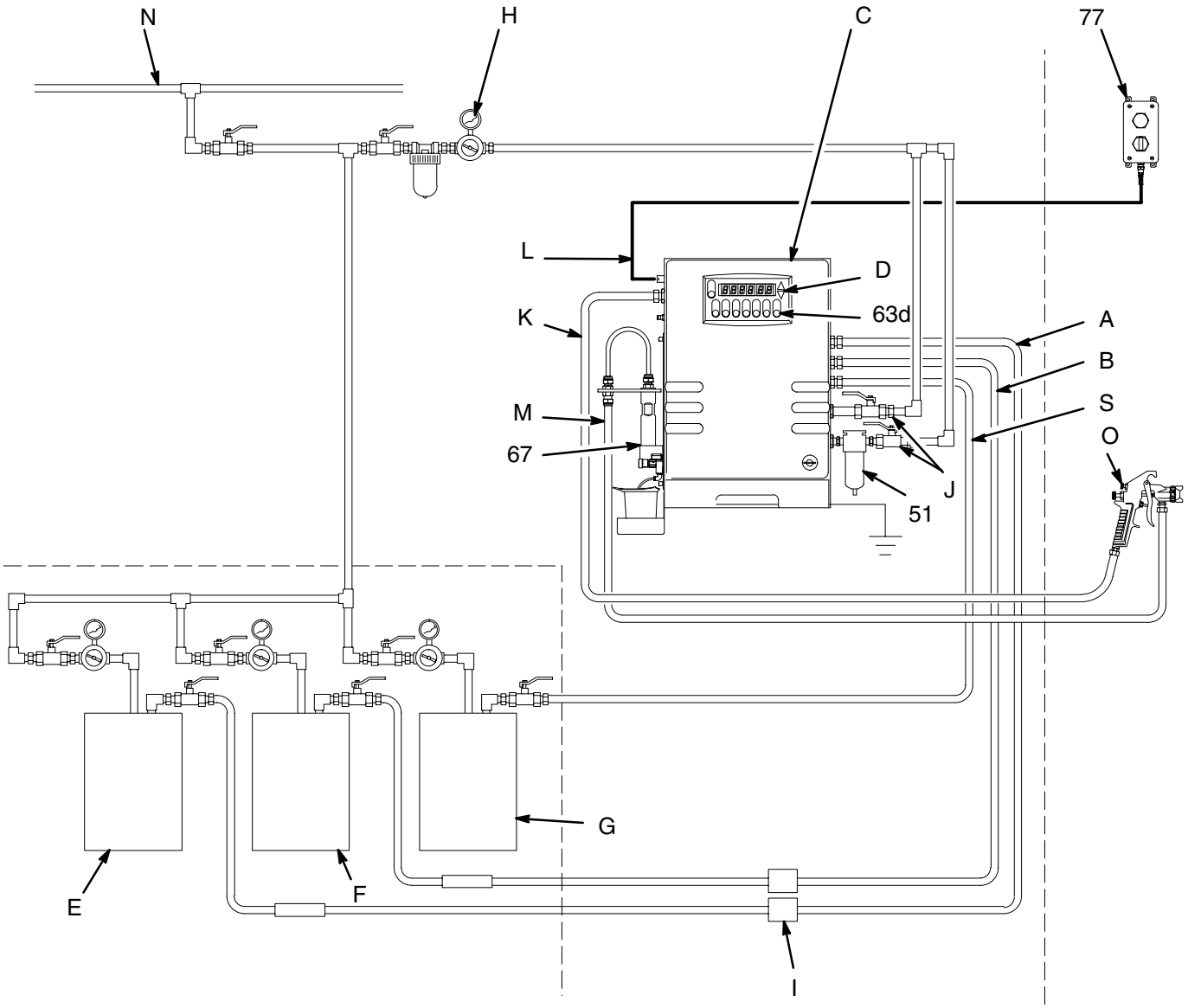
IDLE TIME: Press to adjust the idle time in minutes. The idle time sets how long the operator switch can be set to mix without any meter pulses before the dispense valves will close.

OPERATE/SIMULATE: Press to change to OPERATE or SIMULATE function. OPERATE is the default setting and should be selected for normal operation. SIMULATE is only used for demonstration or training purposes.



SOFTWARE REVISION: Press to display the current software revision installed in the control.

ProMix Proportioner Overview



7487A

Fig. 1

KEY

A Component A Line
B Component B Line
C ProMix Control
D LED Display
E Component A Supply
F Component B Supply
G Solvent Supply
H Air Regulator
I Fluid Filter , 100 mesh minimum
J Shut-off Valve
K Gun Air Line
L Operator Station Cable
M Gun Fluid Line
N Main Air Line
O Spray Gun
S Solvent Line
51 Air Filter
63d Keypad
67 Mix Manifold
77 Operator Station

Installation

NOTE:

- Reference numbers and letters in parentheses in this text refer to the numbers and letters in the illustrations.
- Icons in the text refer to the icons on the equipment, keypad, or reference card.
- Fig. 1 shows a typical installation. It is not an actual system design. To design your system, contact your Graco representative.
- Be sure all accessories are adequately sized and pressure-rated to meet the system requirements.
- For maintenance and safety, you must have a ball valve between each fluid supply line and the ProMix system.
- A 100 mesh fluid minimum fluid filter (I) must be installed on the component A and component B fluid supply lines. See Fig. 1.
- See page 42 for dimensions.

⚠ CAUTION

The ProMix pot life timer will not function properly when used with multiple guns that are operating simultaneously. To avoid having mixed material set in the equipment, carefully monitor the pot life by some other means.

Location

⚠ WARNING

FIRE AND EXPLOSION HAZARD

The ProMix control is intrinsically safe when used without any external electrical components connected to it. If an external power supply or printer is connected to the control, the control is no longer intrinsically safe and the control, as well as the power supply and printer, must not be operated in hazardous locations, as defined in article 500 of the National Electrical Code (USA) or your local electrical code.

The Typical Installation shown in Fig. 1 is only a guideline for selecting and installing system components and accessories, and is not an actual system design. Follow the installation schematic in the system binder provided by Graco or contact your Graco representative for assistance.

Fluid Supply

The following installation and operation instructions generally presume the system is using pressure tanks to supply the paint components and solvent. The **Optional Fluid Supplies** listed below are two possible variations and their effect on the instructions.

Optional Fluid Supplies

The fluid supply must be free of pressure spikes, which are commonly caused by a pump stroke changeover. If necessary, install pressure regulators or a surge tank on the fluid inlets to the ProMix, to reduce the fluid supply pulsation. Contact your Graco representative for information on fluid pressure regulators.

Supplying Fluid Through Circulating Lines

If there is a central paint recirculating line in your shop, the ProMix can be connected to it instead of to pressure tanks. Other than references to the pressure tanks, operation is the same as described in this manual.

Supplying Fluid Through Pail or Drum Pumps

Instead of pressure tanks, the ProMix can be supplied by pail or drum pumps. Operation is the same, other than references to the pressure tanks.

Installation

Setup

1. Tighten the fluid line connections between the flow meter, mix manifold, and other system components as they may have loosened during shipment.

2. Mount the ProMix control (C). See Fig. 2. Make sure the mounting surface can support the weight of the control and any hoses and accessories connected to it and any stress that may be applied during operation.

3. Install the beaker tray (58) with the two screws, and place the beakers (61) in the tray.

4. Screw the air filter (51) into the purge air inlet. See Fig. 3.

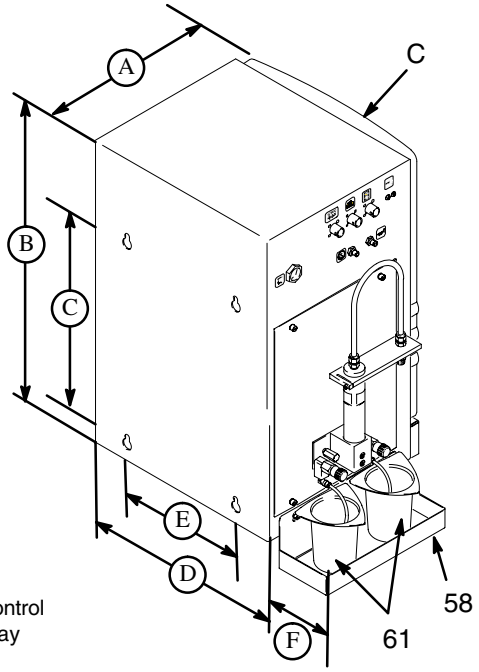
5. Install a shut-off valve (J^{-1}) into the air filter (51) to shut off the air to the mix manifold.

6. Install a shut-off valve (J^{-2}) into the control air inlet to shut off the air to the control.

7. Connect two separate air lines to the two control air inlets.

   a. Connect an air line to the shut-off valve (J^{-1}).

   NOTE: This line supplies the air for the mix manifold solvent/air purge sequence.

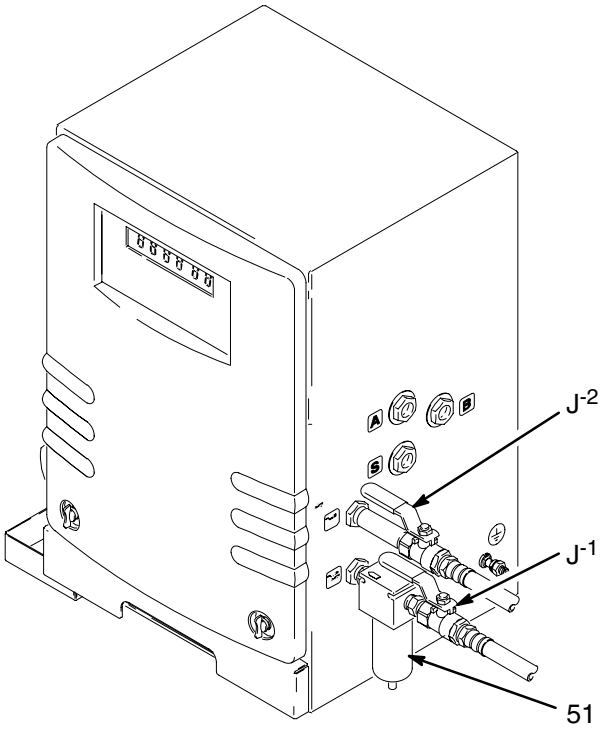


KEY

C ProMix Control
58 Beaker Tray
61 Beaker

Dimensions, inches (mm)					
A	**B**	**C**	**D**	**E**	**F**
14.6 (370.8)	24 (609.6)	16 (406.4)	16 (406.4)	10 (254)	4.5 (114.3)

Fig. 2 7488A



KEY

A	Component A Inlet	J^{-1}	Shut-off Valve for Purge Air
B	Component B Inlet	J^{-2}	Shut-off Valve for Control Air
S	Solvent Inlet	51	Air Filter
	Control Air Inlet (top)		
	Purge Air Inlet (bottom)		

Fig. 3 7489A

b. Connect an air line to the shut-off valve (J^{-2}).

NOTE: This line supplies the air to the control solenoids and air driven power supply and to the spray gun.

⚠ WARNING

COMPONENT RUPTURE HAZARD
To avoid component rupture and serious injury, including injection, do not exceed the maximum working pressure of the system components.

- The ProMix control has a 3000 psi (21 MPa, 207 bar) maximum working fluid pressure or 4000 psi (28 MPa, 276 bar) maximum working fluid pressure with kit 239954 installed and 100 psi (0.7 MPa, 7 bar) maximum working air pressure.
- The solvent supply line inside the control has a 3000 psi (21 MPa, 207 bar) maximum working fluid pressure. The fluid supply for solvent purging must not exceed this maximum working pressure.

8. Connect the fluid supply lines to the ProMix control connectors. See Fig. 1 and 3.

   a. Connect the component A (resin) line from the fluid supply to control connector **A**.

   b. Connect the component B (catalyst) line from the fluid supply to control connector **B**.

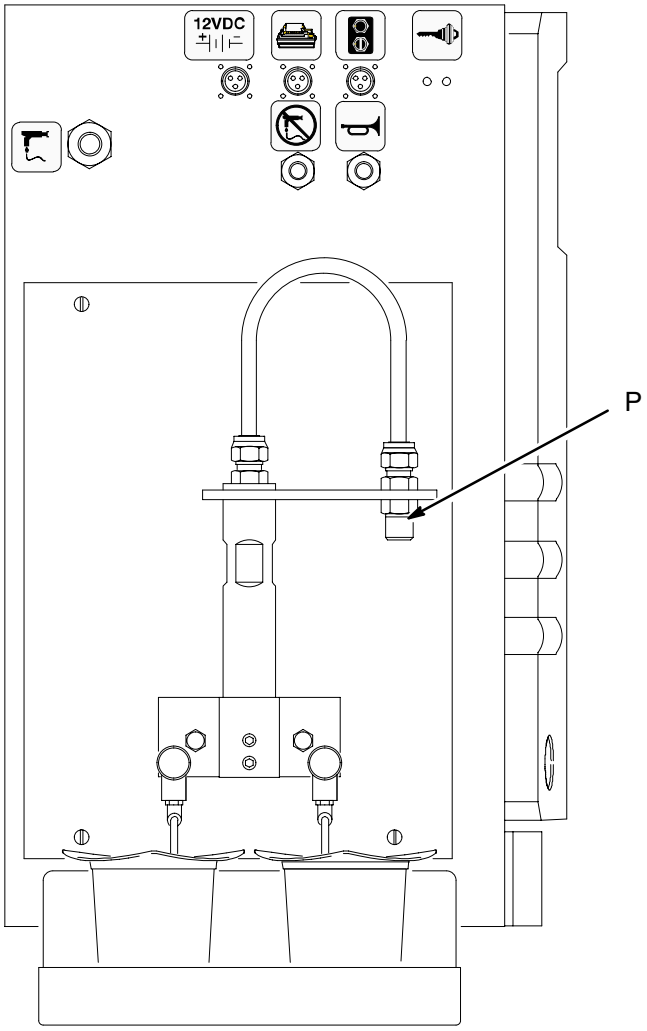
   c. Connect the solvent line from the fluid supply to control connector **S**.

9. Connect fluid and air supply lines to the spray gun. See Fig. 1 and 4.

   a. Connect the gun fluid supply line (M) between the manifold's static mixer outlet (P) and the gun fluid inlet.

KEY

- Gun Air Outlet
- Air Signal Outlet (optional)
- Alarm Air Outlet (optional)
- Operator Station Connector
- Printer Cable Connector
- External Power Connector
- P Manifold Static Mixer Outlet



7472A

Fig. 4

b. Connect the gun air supply line (K) between the ProMix gun air outlet and the gun air inlet.

NOTE: Install an air shut off valve in the gun air supply line or at the gun air inlet.

⚠ WARNING

FIRE AND EXPLOSION HAZARD
To reduce the risk of fire and explosion, an automatic shutoff valve must be properly installed in the gun air line if using a Graco electrostatic PRO™ Gun.

Contact your Graco representative for information on air shutoff valves for electrostatic applications.

10. Plug the operator station (77) into the connector on the ProMix control, using the 50 ft. cable supplied. See Fig. 1 and 4.

    Mount the operator station in an area where the operator can easily access it.

⚠ WARNING

FIRE AND EXPLOSION HAZARD
The ProMix control is intrinsically safe when used without any external electrical components connected to it. If an external power supply or printer is connected to the control, the control is no longer intrinsically safe and the control, as well as the power supply and printer, must not be operated in hazardous locations, as defined in article 500 of the National Electrical Code (USA) or your local electrical code.

11. If using a printer, plug the printer cable into the printer cable connector on the ProMix control. See Fig. 4.

12. If the external power option is used instead of the air driven power supply (74) inside the control, disconnect the wire harness from the power supply connector (74b). See Fig. 5.

    Plug the power cable into the external power connector . See Fig. 4, page 11. Use a 12–18 Vdc, 0.3 amp power supply. Do not exceed the +24 volts maximum applied voltage.

13. If the alarm option is used, connect an air line between the alarm air outlet on the control and the air inlet on the alarm. See Fig. 4.

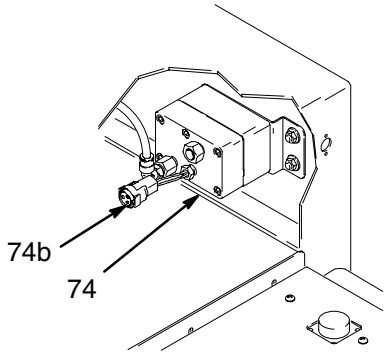


Fig. 5

14. Ground the system. See Fig. 6.

⚠ WARNING

FIRE, EXPLOSION, AND ELECTRIC SHOCK HAZARD

To reduce the risk of fire, explosion, or electric shock, the system must be properly grounded. Follow the **Fire, Explosion, and Electric Shock Hazard** warnings on page 3 and follow the instructions below.

a. Connect the ground wire (R) supplied to the ProMix control ground lug (Q). See Fig. 6. Connect the ground wire clamp to a true earth ground as defined in your local code.

b. Ground the other system components (including fluid supply units and spray gun) as instructed in their separate instruction manuals.

c. Use only grounded air and fluid hoses.

d. Ground the fluid supply container according to your local code.

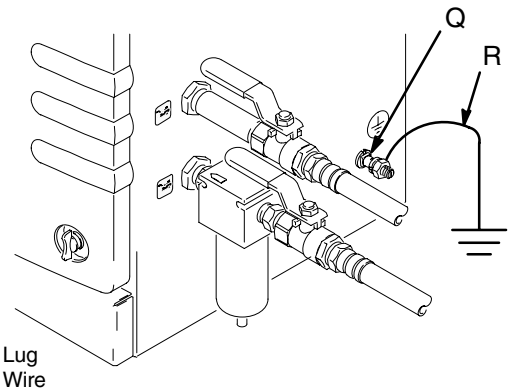
e. Ground the object being sprayed according to your local code.

f. Ground the solvent pails according to your local code. Use only metal pails, which are conductive, placed on a grounded surface. Do not place the pail on a nonconductive surface, such as paper or cardboard, which interrupts the grounding continuity.

g. Maintain grounding continuity when purging or relieving pressure. Follow the instructions in your separate gun manual for safely grounding your gun while purging.

15. Check grounding continuity.

    Have a qualified electrician check the resistance between each ProMix component and the true earth ground. The resistance must be less than 25 ohms. If the resistance is greater than 25 ohms, a different ground site may be required. Do not operate the system until the problem is corrected.



KEY

Q Ground Lug
R Ground Wire

Fig. 6 7491A

Operator Controls

Two devices provide operator interface; they are the *Operator Station*, located in the spray booth, and the *Keypad*, located on the control.

Operator Station

The Operator Station consists of an *Operator Switch* and a *Report Button*. See Fig. 7.

Operator Switch

There are three operator switch input settings: mix, standby, and purge.

Mix

Set the operator switch to mix to start normal operation (mixing and dispensing) of the system.

Standby

Set the operator switch to standby to stop the system.

Purge

Set the operator switch to purge the system. The solenoid outputs signal the system to cycle between the air and solvent purge valves.

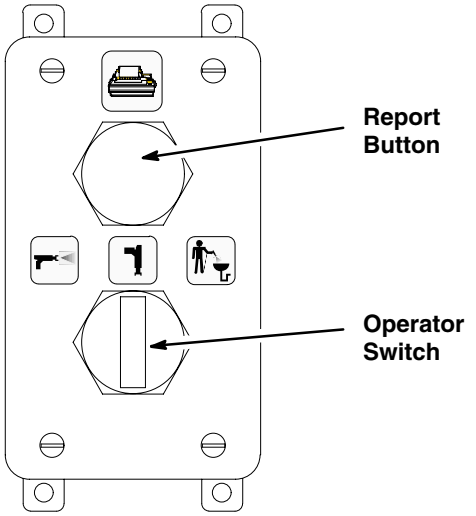
NOTE: Purge will not start until two seconds after the operator switch has been moved to the purge position. This two second delay allows time to turn the switch to clear an alarm; see **Clearing Alarms**, below.

Clearing Alarms

All alarms, except the Pot Life Alarm, can be cleared by moving the operator switch from mix to standby to purge to standby. See page 28 for information on alarms. Turn to mix to resume operation after clearing the alarm.

Report Button

If a printer is connected to the control, press the report button to generate a report from the printer. This also clears the A and B totalizer.



Operator Station

Fig. 7 7475A

Keypad

The keypad has a six digit display, eight LED indicators, eight keys to operate and set up the control, and an up and down arrow to adjust values during setup. See Fig. 8.

Operation Mode

The system is in Operation Mode when it is powered up. The functions that are commonly used in everyday operation appear as icons on the keypad. The meaning of each operation icon is described in **Operation Mode Icons**, page 6.

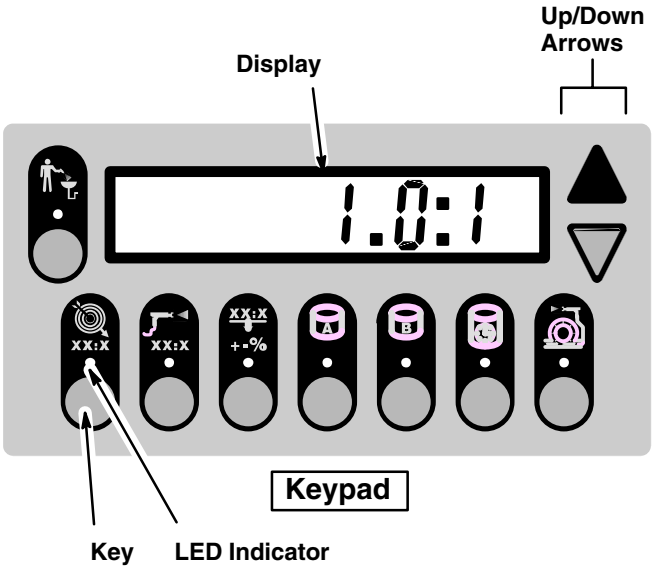
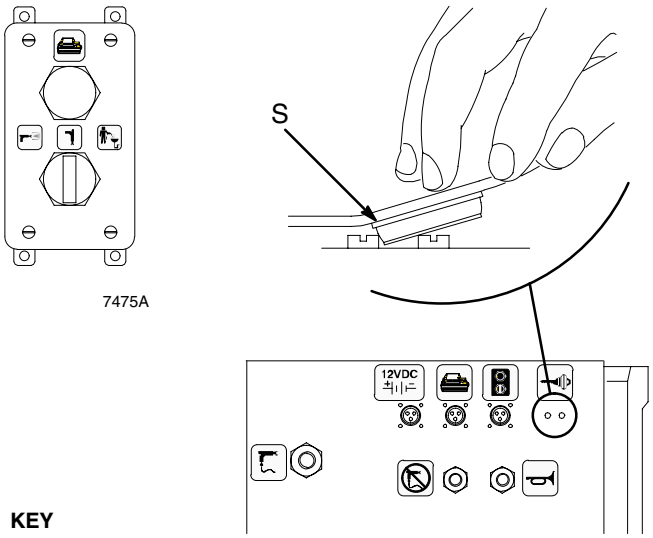


Fig. 8

Setup Mode

The Setup Mode is accessed by turning the operator switch to Standby and touching the token on the back of the *Reference Card* to the setup contacts on the ProMix control. See Fig. 9.



KEY

S Token

Fig. 9

There are three levels of setup. The active setup level number will appear in the left most digit position on the control display. Level 1 appears when setup is initially accessed. See Fig. 10.

The first setup function at level 1 is Target Ratio, so the LED under that icon will be green and the last known target ratio will be displayed. At startup, that would be 1.0:1.

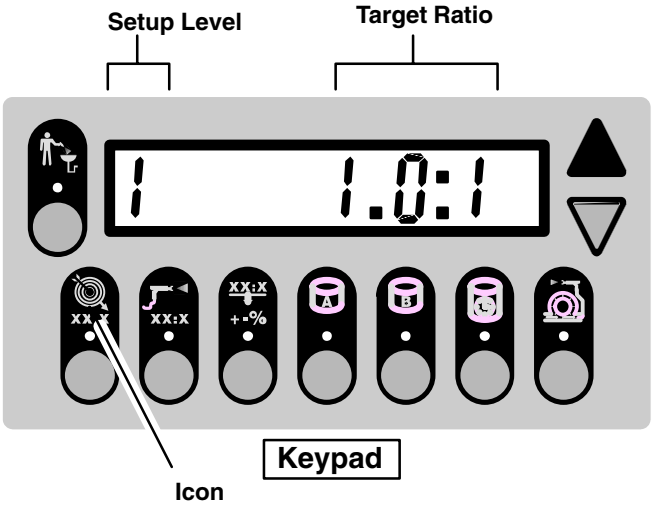


Fig. 10

Reference Card

The Setup Mode icons, which represent setup options, are on the Reference Card provided. See Fig. 11. The meaning of each setup icon is described in **Setup Mode Icons** on page 6.

The icons are lined up horizontally according to the setup level where their function is available. They are lined up vertically with the corresponding Operation Mode icons, which are the icons seen on the keypad.

The return key ⟨↵) moves the system to the next setup level.

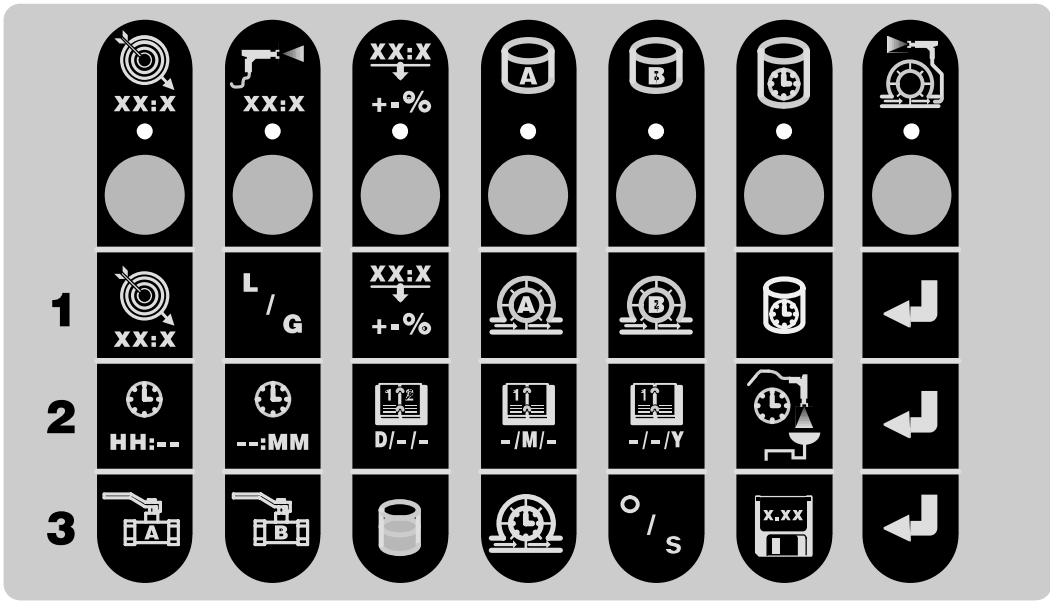


Fig. 11

Setup Mode

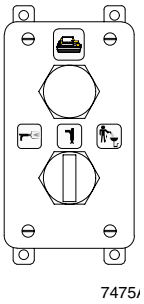
Adjusting Setup Values

In setup mode, the operator may adjust the values using the up and down arrow keys (△▽).

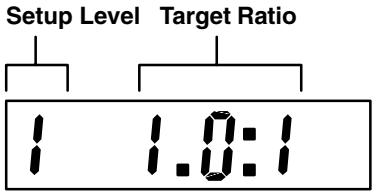
Example:

An operator wanting to change the purge time would take the following steps.

1. Make sure the operator switch is set at standby.



2. Touch the token to the setup contacts. 1 appears on the display, indicating the control is at level 1 setup. The last known target ratio will also display.

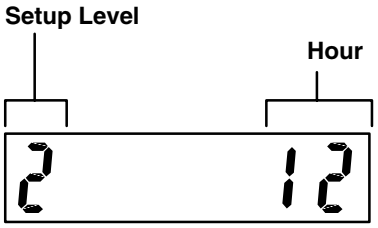


3. Refer to the reference card.

4. Press the return key (↵) to move to level 2 setup.

   The return key is the key under the  icon on the keypad.

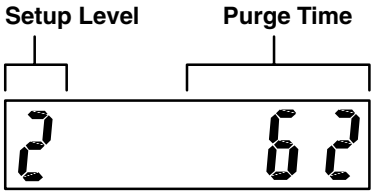
5. 2 appears on the display, indicating that the system is at level 2 setup. The first setup function at level 2 is for setting the Hour, so the last known hour will be displayed.



6. Press the purge time icon  .

   This is the key under the  icon on the keypad. The light under the icon will turn green to indicate that function has been activated and the last known purge time setting will display.

   NOTE: The purge time displays in seconds and up to three digits can be entered. The default purge time is 62 seconds.



7. Press the arrow keys (△▽) up or down to change the purge time until the desired value is displayed.

   NOTE: If you were changing or checking more than one setup function, you could press the key for another function, adjust the value, and continue to change setup functions until you are finished and ready to return to operation.

8. Touch the token to the setup contacts to save the new value.

9. The control will retain the new value and return to operation mode.

10. Turn the operator switch to mix to begin spraying again.

Pressure Relief Procedure

⚠ WARNING

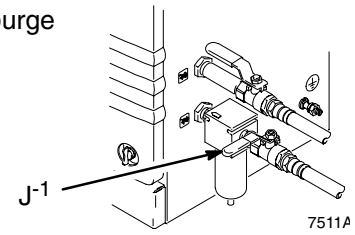
INJECTION HAZARD

The system pressure must be manually relieved to prevent the system from starting or spraying accidentally. Fluid under high pressure can be injected through the skin and cause serious injury. To reduce the risk of an injury from injection, splashing fluid, or moving parts, follow the **Pressure Relief Procedure** whenever you:

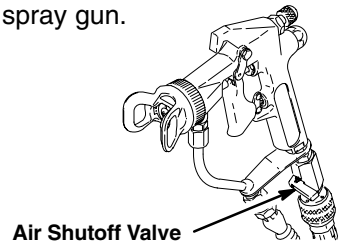
- are instructed to relieve the pressure,
- stop spraying,
- check or service any of the system equipment,
- install or clean the spray tip.

1. Set the operator switch to standby .

2. Shut off the control purge air (J^{-1}).



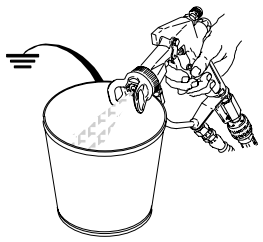
3. Shut off the air at the spray gun.



4. Relieve fluid and air pressure at the component and solvent feed pumps or pressure pots, as explained in their separate instruction manuals.

5. Set the operator switch to mix .

6. Hold a metal part of the spray gun firmly to the side of a grounded metal pail, and trigger the gun to relieve fluid pressure.



7. Set the operator switch to standby .

8. If you suspect that the spray tip or hose is completely clogged or that pressure has not been fully relieved after following the steps above, very slowly loosen the hose end coupling and relieve pressure gradually, then loosen the coupling completely. Now clear the tip or hose obstruction.

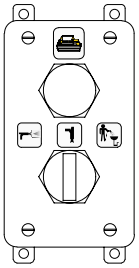
Startup

⚠ CAUTION

The ProMix pot life timer will not function properly when used with multiple guns that are operating simultaneously. To avoid having mixed material set in the equipment, carefully monitor the pot life by some other means.

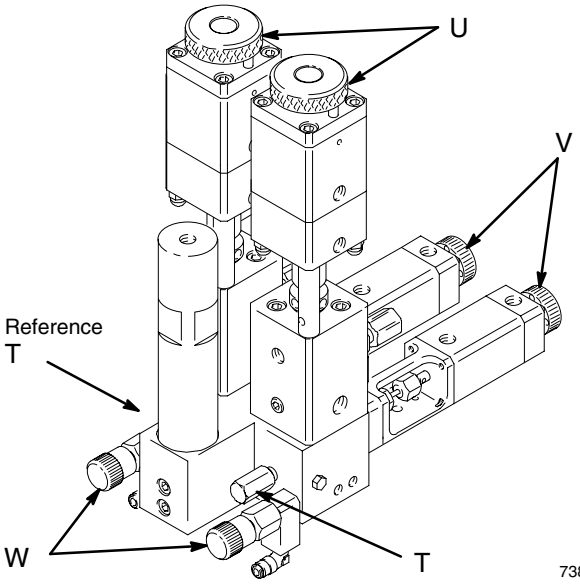
NOTE: If the ratio is set to 0.6:1 to 20:1, the ratio will remain at its setting when powered off and on. If the ratio is set to 0.5:1 or less and the system is powered off and on, the ratio will reset to the default of 1:1. All other settings will also reset to their default.

1. Make sure the operator switch is set at standby to avoid mixing or purging material at startup.



7475A

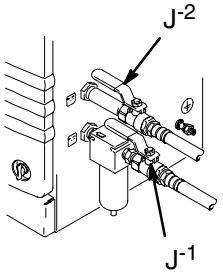
2. Check that the supply containers for component A and B and solvent are filled.
3. Check that the mix manifold fluid shut-off knobs, dispense valve knobs, and purge valve knobs are set as follows:
   - (T) Fluid Shut-off Knobs: fully open
   - (U) Dispense Valve Knobs: three “clicks” open from fully closed setting
   - (V) Purge Valve Knobs: two turns open from fully closed setting
   - (W) Ratio Check Valve Knobs: fully closed



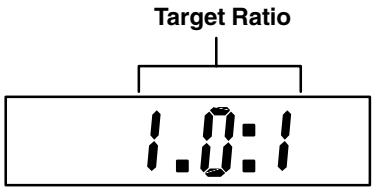
7384B

4. Turn the control air supply on (J^{-1}, J^{-2}).

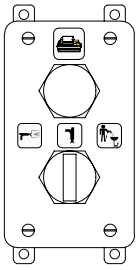
   A diagnostic test will run and the last known Target Ratio will display on the LED panel. This will be a 1.0:1 ratio on the initial startup.



7492A



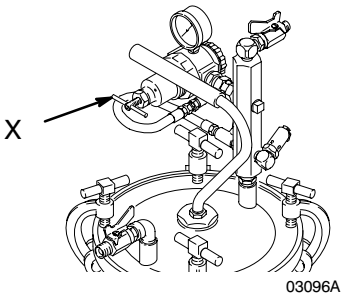
5. If this is the first startup of the system, purge it as instructed in **Purging the Fluid Supply** on page 22. The system was tested with light-weight oil, which should be flushed out to avoid contaminating the fluid you will spray.
6. You can check the tolerance, pot life time, and other operation status information by pressing the proper key on the keypad. See **Operation Mode Icons** on page 6.
7. Setup the ratio and other values as needed. See **Setup Mode**, page 15, for setup information.
8. Make sure the operator switch is set at standby.



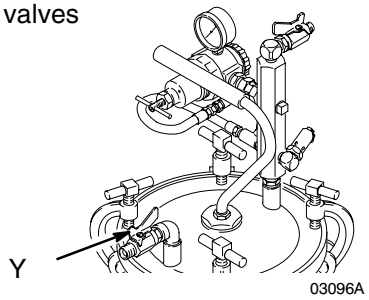
7475A

Startup

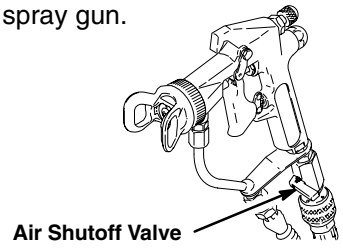
9. Check that the component A and B fluid supply pressure (X) is properly set for your application. Do not exceed the controller's 3000 psi (21 MPa, 207 bar) maximum working fluid pressure or 4000 psi (28 MPa, 276 bar) maximum working fluid pressure with kit 239954 installed.



10. Check that the fluid valves (Y) are open.



11. Shut off the air at the spray gun.



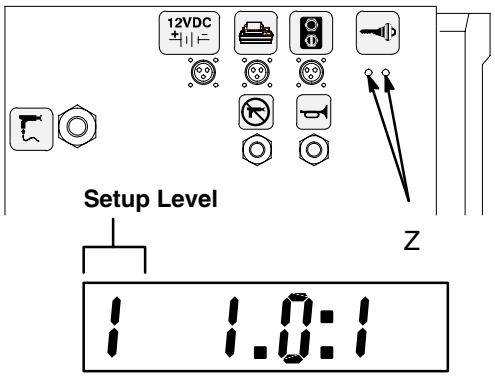
12. Prime the system.

⚠ CAUTION

Do not use the first 4 to 5 oz. (120 to 150 ml) of material from the system, as it may not be thoroughly mixed due to alarms while priming the system.

NOTE: If the flow meters overrun because of air in the system, operation will stop. See **Alarm Troubleshooting** on page 28.

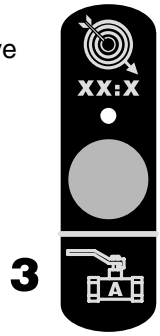
a. Touch the token (on the back of the reference card) to the setup contacts (Z). Number 1 appears on the display, indicating the control is at level 1 setup.



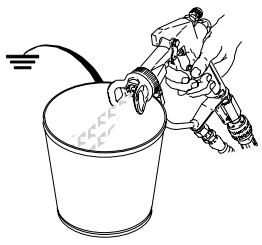
b. Refer to the reference card, and press the return key (↵) on the keypad twice to move to level 3 setup.

c. 3 appears on the display, indicating that the system is at level 3 setup, and the light under the first icon lights up.

d. Refer to the reference card and hold down the component A valve key to open the component A valve.



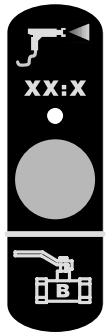
e. Trigger the gun into a grounded waste container until component A flows from the gun.



Startup

f. Release the component A valve key to close the valve.

g. Hold down the component B valve key to open the component B valve. Trigger the gun into a grounded waste container until component B flows from the gun.

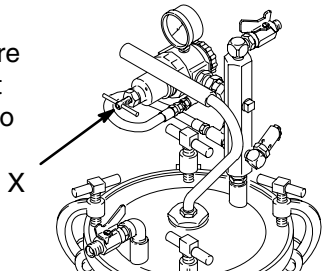


h. Release the component B valve key to close the valve.

13. Clear the lines of unmixed material by purging with solvent.

a. Press the return key ⟨↵) to move to level 1 setup.

b. Adjust the solvent fluid supply pressure (X). Use the lowest pressure possible to avoid splashing.



c. Hold down the solvent valve key to open the solvent valve.

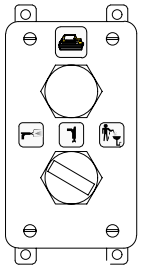
d. Trigger the gun into a grounded waste container until solvent flows from the nozzle.

e. Release the solvent valve key to close the valve.

f. Touch the token to the setup contacts to exit setup mode.

14. Prime the lines with mixed material.

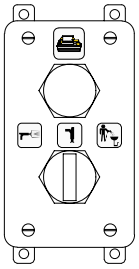
a. Turn the operator switch to mix.



7476A

b. Trigger the gun into a grounded waste container until mixed material flows from the nozzle.

c. Turn the operator switch to standby.

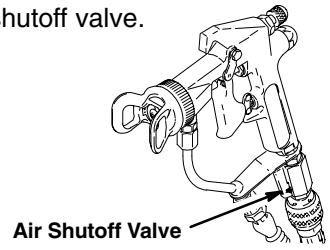


7475A

Startup

15. Spray

a. Open the gun air shutoff valve.



b. Turn the operator switch to mix.

c. Spray the material as instructed in your spray gun manual.

d. **If the fluid output is too low,** increase the air pressure to the component A and B fluid supplies or increase the regulated fluid pressure.

If the fluid output is too high, reduce the air pressure, close the manifold dispense valves further, or adjust the fluid pressure regulator.

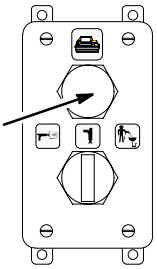
NOTE: The pressure adjustments of each component will vary with the viscosity. In general, start with the same feed pressures for component A and B and then adjust as needed.

⚠ CAUTION

Never allow the fluid supply tanks to empty completely while the ProMix is operating. Fill them periodically, as needed. Failure to fill the tanks when they are low may allow air or off-ratio material into the fluid lines, causing an alarm condition and stopping production.

Reporting

If a printer is connected to the ProMix control, set the operator switch to standby and press the report button to generate a report.



7475A

NOTE: The system must be in standby mode to run a report.

The control will reset the component A and B totalizers andl send the following information to the printer:

Start Date and Time
End Date and Time
Consumption A
Consumption B
Desired Ratio
Ratio Tolerance
Maximum Ratio Deviation

Shutdown

⚠ WARNING

INJECTION HAZARD
To reduce the risk of a serious injury, follow the **Pressure Relief Procedure** on page 17 whenever you:

- are instructed to relieve the pressure,
- stop spraying,
- check or service any of the system equipment,
- install or clean the spray tip.

Stop production at any time by setting the operator switch to standby. If your stop time will not exceed the pot life, no additional action is needed, except to relieve the system pressure. If your stop time will exceed the pot life, you must purge the mixing system. See **Purging the ProMix of Mixed Material**, page 22.

NOTE: If the ratio is set to 0.6:1 to 20:1, the ratio will remain at its setting when powered off and on. If the ratio is set to 0.5:1 or less and the system is powered off and on, the ratio will reset to the default of 1:1. All other settings will also reset to their default values.

Purging

There are two purging procedures: one for purging the ProMix control of mixed materials, and one for purging the fluid supply system.

Purging the ProMix of Mixed Material

Follow the procedure below:

- After a ratio check,
- Before any break or service procedure that exceeds the pot life of the fluid,
- Before servicing the control assembly.

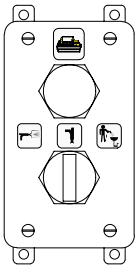
NOTE: In general, the ratio check valves only need to be purged after a ratio check. To purge the ratio check valves, see page 27.

⚠ WARNING

INJECTION HAZARD
To reduce the risk of a serious injury, follow the **Pressure Relief Procedure** on page 17 whenever you are instructed to relieve the pressure.

1. Make sure the solvent is compatible with the equipment wetted parts and with the fluid being sprayed.

2. Make sure the operator switch is set at standby.

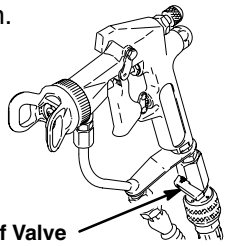


7475A

⚠ WARNING

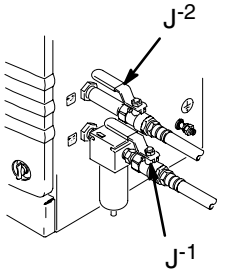
FIRE, EXPLOSION, AND ELECTRIC SHOCK HAZARD
To reduce the risk of fire, explosion, or electric shock, the air to the gun must be shut off on a Graco PRO™ electrostatic spray gun to ensure the electrostatic power is not on when purging.

3. Shut off the air at the spray gun.



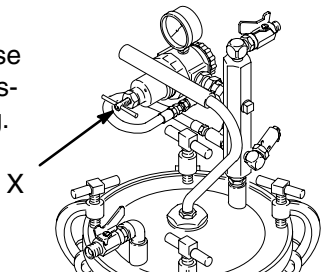
4. If you are using a high pressure gun*, relieve the pressure as instructed on page 17, and remove the spray tip before purging the system. Clean the tip separately.

5. Turn the control air supply on (J^{-1}, J^{-2}).

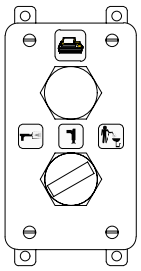


7492A

6. Adjust the solvent fluid supply pressure (X). Use the lowest pressure possible to avoid splashing.



7. Turn the operator switch from standby to purge.

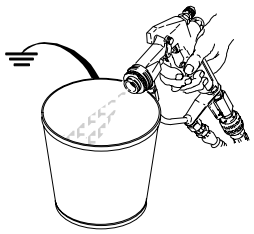


7477A

* A gun is considered *high pressure* when its maximum working pressure is 900 psi [6.2 MPa, 62 bar] or greater.

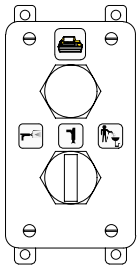
Purging

8. Trigger the gun into a grounded waste container. The control will run, alternating solvent and air, until the set purge time is over.



If the fluid section is not clean after completing the purge sequence, repeat the purge by turning the operator switch to standby and back to purge. If the purge time is repeatably too short, change to setup mode and lengthen the purge time.

9. Turn the operator switch to standby.



7475A

10. Relieve the pressure as instructed on page 17.

Purging the Fluid Supply

Follow the procedure below:

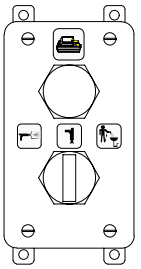
- During initial startup,
- Before changing colors,
- At the end of each workday,
- Before servicing the system if possible or after servicing if production will not resume right away.

⚠ WARNING

INJECTION HAZARD
To reduce the risk of a serious injury, follow the **Pressure Relief Procedure** on page 17 whenever you are instructed to relieve the pressure.

1. Make sure the solvent is compatible with the equipment wetted parts and with the fluid being sprayed.

2. Make sure the operator switch is set at standby.

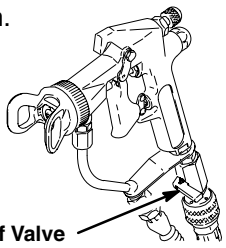


7475A

⚠ WARNING

FIRE, EXPLOSION, AND ELECTRIC SHOCK HAZARD
To reduce the risk of fire, explosion, or electric shock, the air to the gun must be shut off on a Graco PRO™ electrostatic spray gun to ensure the electrostatic power is not on when purging.

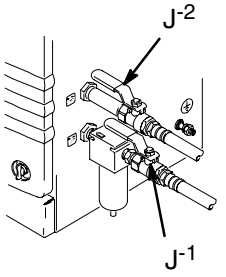
3. Shut off the air at the spray gun.



4. Relieve the pressure as instructed on page 17.

5. Disconnect the component A and B fluid supplies, and connect regulated solvent supply lines in their place.

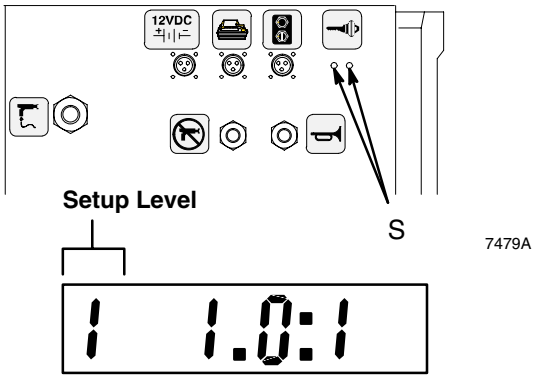
6. Turn the control air supply on (J^{-1}, J^{-2}).



7492A

Purging

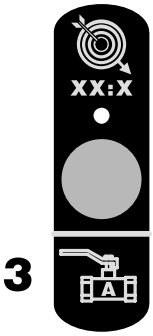
7. Touch the token to the setup contacts (S). Number 1 appears on the display, indicating the control is at level 1 setup.



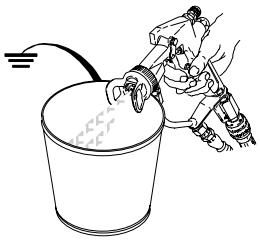
8. Refer to the reference card, and press the return key (↵) on the keypad twice to move to level 3 setup.

9. 3 appears on the display, indicating that the system is at level 3 setup, and the light under the first icon lights up.

10. Refer to the reference card and hold down the component A valve key to open the component A valve.

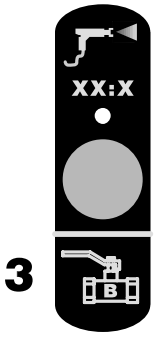


11. Trigger the gun into a grounded waste container until the component A fluid lines are clean.



12. Release the component A valve key to close the valve.

13. Hold down the component B valve key to open the component B valve. Trigger the gun into a grounded waste container until the component B fluid lines are clean.



14. Release the component B valve key to close the valve.

15. If changing colors/materials, change the ratio and other values as needed.

16. Touch the token to the setup contacts to save any new values that were entered and exit setup mode.

17. Relieve the pressure as instructed on page 17.

18. Disconnect the solvent supply lines, and reconnect the component A and B fluid supplies.

19. See page 18 for startup procedure.

Ratio Check

Check the ratio at least once per month, as part of a regular maintenance routine, and anytime a flow meter is changed.

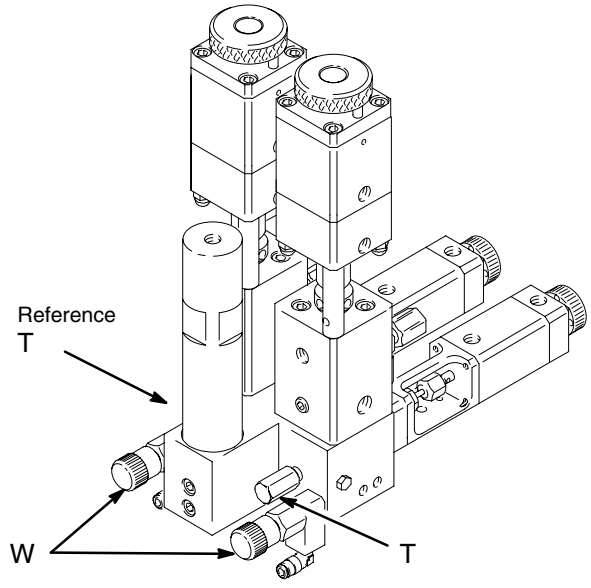
⚠ WARNING

PRESSURIZED EQUIPMENT HAZARD
To avoid splashing fluid in the eyes when performing a ratio check or purging:

- Wear eye protection.
- Only open the ratio check valves enough to allow fluid to flow at a rate of 100 to 200 cc per minute.

⚠ CAUTION

The fluid shut-off valves and ratio check valves are retained in their housings by mechanical stops that prevent accidental removal of the valve stem while the manifold is pressurized. If manual force cannot turn the valve stems, the system pressure must be relieved and the valve properly disassembled and cleaned to remove the resistance.

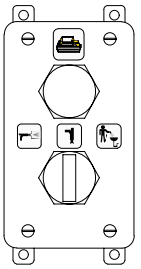


7384B

KEY

T Fluid Shut-off Knobs
W Ratio Check Valve Knobs

1. Make sure the operator switch is set at standby.



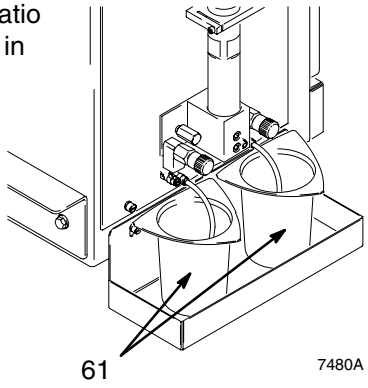
7475A

2. Turn off all the spray or dispense devices connected to the ProMix.

3. Close both fluid shut-off valves (T) and ratio check valves (W) by turning the knobs in.

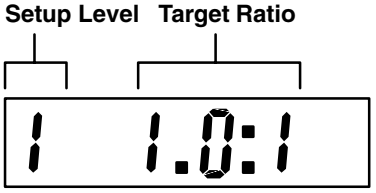
4. Make sure the two beakers (61) and the ratio dispense tubes are in place.

NOTE: Use 5/32" I.D. tubing for the ratio dispense tubes.



7480A

5. Touch the token to the setup contacts. 1 appears on the display, indicating the control is at level 1 setup. The last known target ratio will also display.

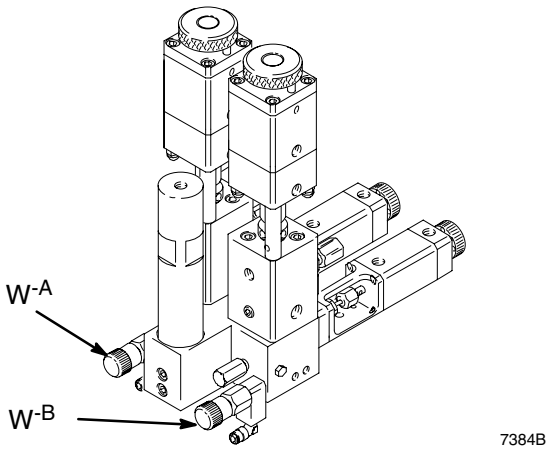


Ratio Check

6. Refer to the reference card. Hold down either the flow meter A key or flow meter B key for two seconds. The light under the icon will turn green to indicate that the ratio check function has been activated.

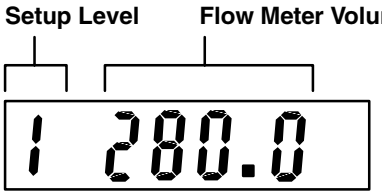
7. To avoid splashing, slowly open the component A ratio check valve (W^{-A}) by turning the knob out. After one shot of component A has dispensed, slowly open the component B ratio check valve (W^{-B}).

   The ProMix will run and dispense 10 doses of component A and B into the separate beakers.

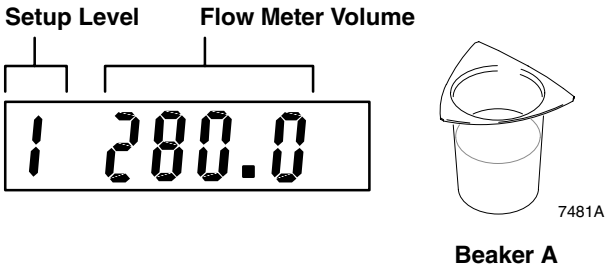


8. After completing the ratio check, close both of the ratio check valves (W^{-A}, W^{-B}).

9. Press the flow meter A key . The amount of fluid dispensed will display in cubic centimeters (cc).



10. Compare the amount on the display to the amount in the component A beaker. For maximum accuracy, use a gravimetric (mass) method to determine the actual dispensed volumes.

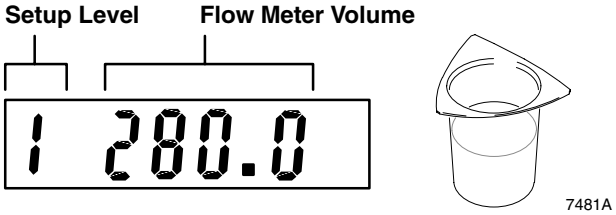


Beaker A

11. If the amounts are different, press the arrow keys (△▽) up or down to change the displayed dispense amount to equal the actual dispensed amount in the beaker.

12. Press the flow meter B key .

13. Compare the amount on the display to the amount in the component B beaker.



Beaker B

14. If the amounts are different, press the arrow keys (△▽) up or down to change the displayed dispense amount to equal the actual dispensed amount in the beaker.

Ratio Check

15. **Always purge the ratio check valves after a ratio check.**

    a. Make sure both component A and B fluid shut-off valves (T^{-A}, T^{-B}) are still closed.

    b. Place an empty beaker under each ratio check valve.

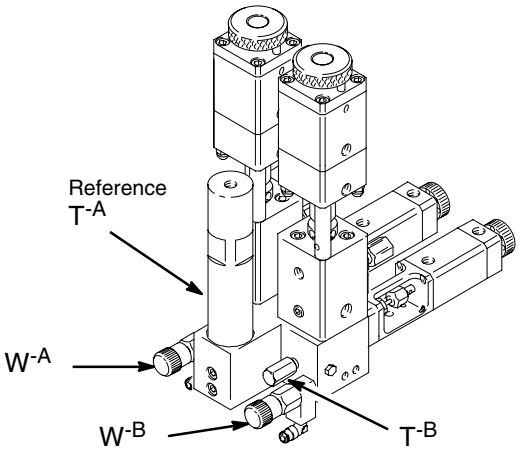
    c. Hold down the ratio valve purge key to open the solvent valve.

    NOTE: If the purge valve does not remain open while the key is pressed, service the fluid dispense valves.

    d. Slowly open the component B ratio check valve (W^{-B}) one-half turn to one full turn. Purge until clean solvent flows from the check valve, then close the valve.

    e. Open the component B fluid shut-off valve (T^{-B}) , and trigger the gun until clean solvent flows from it.

    f. Fully open the component A fluid shut-off valve (T^{-A}), and slowly open the component A ratio check valve (W^{-A}) one-half to one full turn. Purge until clean solvent flows from the check valve, then close the valve.



7384B

    g. Release the ratio valve purge key to close the solvent valve.

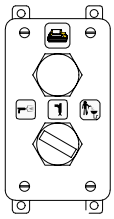
16. Make sure both component A and B ratio check valves (W^{-A}, W^{-B}) are closed and both fluid shut-off valves (T^{-A}, T^{-B}) are fully open.

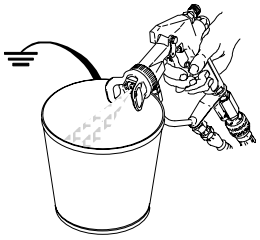
17. Touch the token to the setup contacts to save the new value entered during the ratio check and exit setup.

18. The control will retain the new value and return to operation mode.

19. Purge the system as instructed on page 23 if you are not loading paint into the system to start production. If you are starting production, follow the purging procedure on page 22.

20. Before you begin production, clear the system of solvent and prime it with material by turning the operator switch to mix and triggering the gun into a grounded waste container until mixed material comes out of the gun nozzle. The system is now ready to apply material.


7476A



Alarm Troubleshooting

⚠ WARNING

INJECTION HAZARD
To reduce the risk of a serious injury, follow the **Pressure Relief Procedure** on page 17 before checking or servicing the equipment.

⚠ CAUTION

Do not use the fluid in the line that was dispensed off ratio as it may not cure properly.

If the system stops from an alarm condition, the alarm output air will be active. The alarm outputs are described below and on the following pages.

ProMix has alarms to alert you of a problem. If an alarm is tripped, operation will stop and a front panel light will glow a steady red ● or blink ☼ below the appropriate icon.

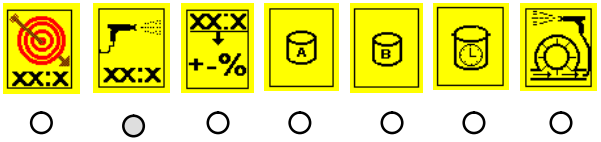
To Clear the Alarm and Restart the System

Except for Pot Life Exceeded, all alarms can be cleared by turning the operator switch momentarily from mix, to standby, to purge**, and back to standby. Turn to mix to resume operation.

To clear a Pot Life Exceeded Alarm, the operator must turn the operator switch to purge and purge the system until the preset purge time is complete.

** *To allow time for alarm resetting, there is a two second delay after turning the operator switch to purge before the actual purge begins.*

Off Ratio Alarm



The system is off ratio when the amount of component A compared to the amount of component B dispensed in the previous cycle does not meet the tolerances that have been set for the system.

Common Causes for an Off Ratio Alarm

- The flow rate is too high
- Highly unbalanced pressures from the fluid supply system
- Slow actuation of the component A or B valves

Checking the Flow Rate

If the alarm occurs while starting up the system after purging, the flow rate was probably too high.

Restrict the gun needle travel to slow down the initial fluid delivery rate until the fluid hoses are loaded with material.

Checking for Unbalanced Pressures

If the alarm occurred after you have been spraying for some time, the pressures from the fluid supplies could be unbalanced.

1. Check the component A and B pressures.
2. *If the pressures are not about equal,* adjust both fluid supply pressures with the fluid regulators, until the pressures are about the same.
3. *If the pressures are already about equal,* verify that the component A and B valves are operating properly.

Checking the Actuation of the Valves

Manually operate the valves by going to level 3 setup and pressing and releasing the component A and then the component B valve keys. The valves should snap open and shut quickly.

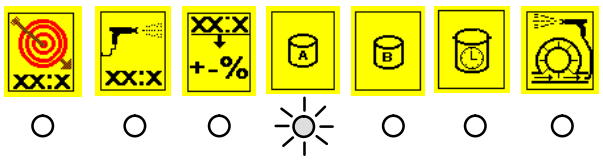
If the valves move slowly, it could be caused by:

- air pressure to the valve actuators is too low,
- an interruption in the valve actuating air caused by dirt or water in the air,
- there is something restricting the solenoid or tubing,
- the packings on the mix manifold dispense valves are too tight,
- a dispense valve knob is turned in too far. Refer to page 18, step 3, for proper adjustment of the mix manifold. You may want to put a piece of tape on the knobs after they are properly set to discourage anyone from changing the setting, or
- the fluid pressure is high and the air pressure is low. See **Accessories**, page 37, to order the high pressure spring kit 239954.

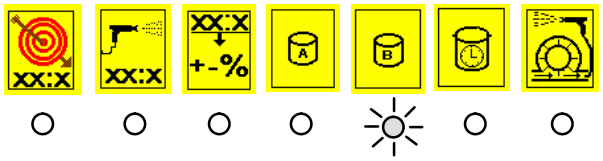
Alarm Troubleshooting

Dose Time of Component A or B Exceeded

Dose Time of Component A Exceeded



Dose Time of Component B Exceeded



When the air flow switch is activated (gun is triggered), and it takes too long for a dose of A or B to load, the Dose Time A or B Alarm will occur.

Maximum dose time is calculated by the controller. Dose times are proportional to the ratio, with the combined dose time of A and B equaling 60 seconds. For example, at a 2.0:1 ratio, a Dose Time alarm will occur if component A is not dispensed in 40 seconds or component B is not dispensed in 20 seconds.

Common Causes for a Dose Time Alarm

- The system is in the mix mode and the gun is only partially triggered, allowing air but no fluid to pass through the gun
- The fluid flow rate becomes too low
- The flow meter or cable fails

If a flow meter or cable fails, component A or B will flow to the gun without the flow being read through the meter pulses. The ProMix could keep the dispense valve open indefinitely because the control will never see the target value being reached. This condition could cause the operator to spray pure component A or B onto a part.

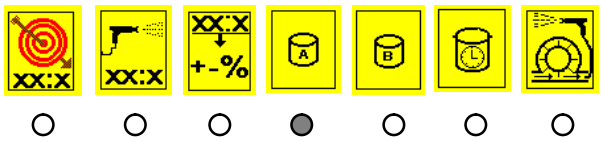
To prevent this from happening, the control will only allow the component A or B valve to remain open for the duration of the dose time. The dose time begins when the flow switch detects air flow to the gun. The alarm will alert the user if the dose time is exceeded.

Checking for a Flow Meter or Cable Failure

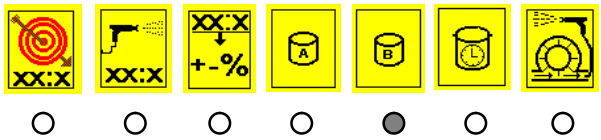
Follow the Ratio Check procedure on page 25. If the meter or cable are failing, there will be a large difference between the amount of fluid dispensed and the flow meter volume displayed by the control.

Overdose A or Overdose B

Overdose of Component A



Overdose of Component B



An overdose alarm occurs if the fluid continues to dispense on the one side of the manifold after the valves have opened on the other side of the manifold.

Common causes for an Overdose Alarm are:

- Valve(s) packings or needle/seat are leaking
- Ratio check valve is leaking
- Flow meter fluctuations caused by pressure pulsations,
- Slow actuation of the component A or B valves

Continued on the next page.

Alarm Troubleshooting

Overdose A or Overdose B (continued)

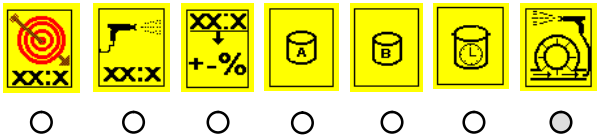
Checking for Pressure Pulsations

1. Close all the manifold valves.
2. Turn on the circulating pumps and all the booth equipment (such as fans and conveyors).
3. Check to see if the ProMix is reading any fluid flow.
4. If the ProMix shows there is fluid flow and there are no leaks from the gun or any other packings or fittings, the flow meters are probably being affected by pressure pulsations.
5. Close the fluid shut-off valve between the fluid supply system and the flow meter. The flow indication should stop.
6. If necessary, install pressure regulators or a surge tank on the fluid inlets to the ProMix, to reduce the fluid supply pressure. Contact Graco for information on fluid pressure regulators.

Checking the Actuation of the Valves

See page 28.

Idle Time Exceeded



This alarm will occur if the operator switch has been turned to mix and the time elapsed since the ProMix control has received a flow meter pulse exceeds the idle time entered during setup.

NOTE: If the Pot Life Time is set at 15 minutes and the Idle Time is set at 12 minutes and the system is in mix mode but not spraying, the Idle Time Alarm will occur before the Pot Life Alarm, giving the operator time to spray or move material through the system so a full purge is not necessary.

Common Causes for an Idle Time Alarm

- Operator switch turned to mix for too long when no fluid is being dispensed.
- If the gun air is being used when the alarm occurs, the air flow switch and a flow meter have failed.
- If spraying airless or air is supplied to gun by other means than the ProMix unit and the alarm occurs, the flow meter has failed.

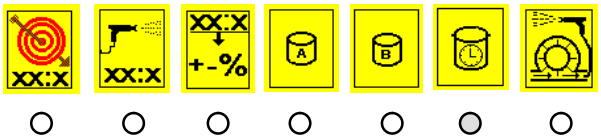
Checking for an Air Flow Switch Failure

If the operator switch was turned to mix for too long when no fluid was being dispensed, trigger the gun to turn on the gun air to clear the alarm. If the alarm does not clear, the air flow switch has failed and should be replaced.

Checking for a Flow Meter or Cable Failure

Follow the Ratio Check procedure on page 25. If the meter or cable are failing, there will be a large difference between the amount of fluid dispensed and the flow meter volume displayed by the control.

Pot Life Exceeded



⚠ CAUTION

The ProMix pot life timer will not function when the ProMix is used with multiple guns. To avoid having mixed material set in the equipment, carefully monitor the pot life by some other means.

This alarm will occur if the time the mixed material has been in the lines exceeds the pot life time that was entered during setup.

A dose of catalyst (or a complete cycle) is needed to start the pot life timer. The pot life time resets whenever the specified amount of material has moved through the system.

The alarm becomes inactive if the system has been purged and no new material has been mixed since that purge.

To Remove the Alarm

Clear the alarm by turning the operator switch to purge. The system will purge until the preset purge time is complete. Refer to page 22.

Service

⚠ WARNING

INJECTION HAZARD
To reduce the risk of a serious injury, follow the **Pressure Relief Procedure** on page 17 before checking or servicing the equipment.

⚠ WARNING

ELECTRIC SHOCK HAZARD
To reduce the risk of electric shock, the air to the air driven power supply must be shut off before servicing the control. If an external power supply is used, make sure its power is turned off.

⚠ CAUTION

Wear the grounding strap provided when servicing the control to avoid shorting out the circuit board.

⚠ CAUTION

Do not use any fluid in the line that was dispensed off ratio as it may not cure properly.

NOTE: If the ratio is set to 0.6:1 to 20:1, the ratio will remain at its setting when powered off and on. If the ratio is set to 0.5:1 or less and the system is powered off and on, the ratio will reset to the default of 1:1. All other settings will also reset to their default values.

Instruction Manuals

Additional instruction manuals are included with the ProMix control. To maintain, service, or order parts for an individual component, such as the meter, refer to its instruction manual.

Description	Part No.	Instruction Manual No.
G3000 Meter	239716	308778
Mix Manifold	239732	308288

Hardware or Software Updates

Check with your Graco representative periodically to see if hardware or software updates are available.

Service

Blinking or Blank Display

NOTE: Do not exceed 100 psi (0.7 MPa, 7 bar) air supply pressure to the ProMix air driven power supply.

Blinking Display

A blinking display is caused by low voltage to the circuit board. Low voltage may indicate that the airsupply pressure is too low or the air line filter is dirty. Check the air supply pressure or replace the air line filter with 114228 Air Filter Element.

Blank Display

A blank display indicates that there is no voltage to the circuit board. This could be caused by failure of the power supply turbine alternator (74g) or filter (74d). See Fig. 18, page 36. It could also occur if the air supply pressure is set above 100 psi (0.7 MPa, 7 bar). If the alternator is spinning too quickly, the power supply output will shut off to alert you to take action and avoid damaging the alternator.

Make sure the air pressure to the power supply is not set above 100 psi (0.7 MPa, 7 bar). Service the power supply as instructed on page 36 if necessary.

Replacing the Circuit Board or Keypad

1. Relieve the pressure as instructed on page 17.
2. Turn off the power to the control (air and/or electrical).
3. Put on the grounding strap provided.
4. Remove the control front cover (2). See Fig. 12.
5. Loosen the two screws (21) from the control panel (63) to allow the panel to drop forward.
6. Disconnect the wire harnesses (94, 95) from the two circuit board connectors (AC).
7. Unscrew the four screws (63c) and remove the circuit board cover (AA).
8. Disconnect the ribbon cable (AB).

Replacing the Keypad

9. Pull the keypad (63d) off the front of the control panel (63), and slide the ribbon cable (AB) out of the panel slot. See Fig. 12.
10. Remove the adhesive liner from the back of the keypad (63d) to expose the sticky backing.
11. Slide the ribbon cable (AB) through the panel slot, align the keypad (63d) with the recessed area on the panel, and press it into place.

Replacing the Circuit Board

12. Unscrew the four hex standoffs (63b), and remove the circuit board (63a). See Fig. 12.
13. Secure the new circuit board (63a) to the panel with the hex standoffs (63b).

Reassembly

14. Connect the ribbon cable (AB) to the circuit board (63a). See Fig. 12.
15. Place the cover (AA) over the circuit board (63a), and secure it with the screws (63c).
16. Connect the wire harnesses (94, 95) to the two circuit board connectors (AC).
17. Close the panel (63); be sure not to crimp or pinch the wires. Secure the panel with the screws (21).
18. Install the front cover (2).

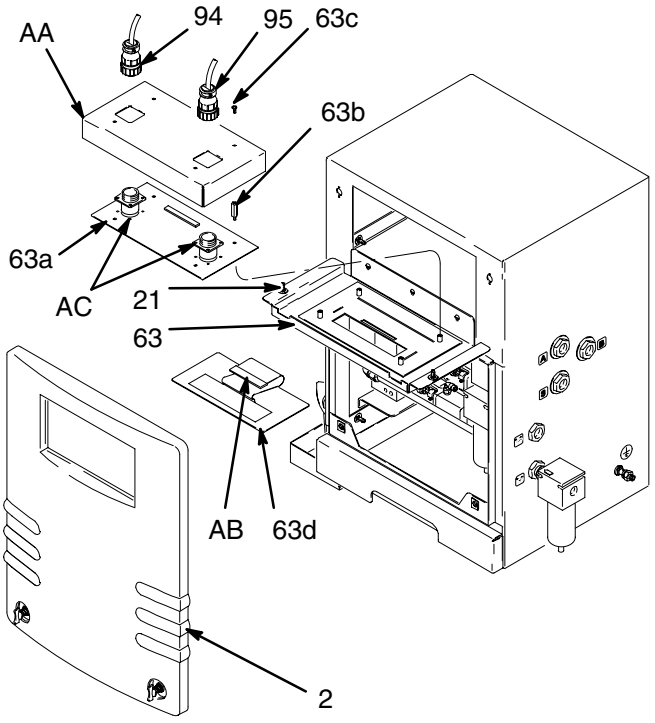


Fig. 12 7493A

Replacing the Solenoids

Use the table below to help identify the failing solenoid and to properly reconnect the numbered air lines to the manifold ports. Refer also to the mix manifold manual 308288.

1. Relieve the pressure as instructed on page 17.
2. Turn off the power to the control (air and/or electrical).
3. Put on the grounding strap provided.
4. Remove the front cover (2). See Fig. 12.
5. Loosen the two screws (21) from the control panel (63) to allow the panel to drop forward.
6. Disconnect the wire harness (95) from the solenoid electrical connector. See Fig. 13.
7. Unscrew the two allen screws (AD), and remove the solenoid (75a).
8. Make sure the gasket is in place on the new solenoid and secure it to the solenoid manifold (75h) with the screws (AD).
9. Connect the wire harness (95) to the solenoid electrical connector.
10. Close the panel (63); be sure not to crimp or pinch the wires. Secure the panel with the screws (21).
11. Install the front cover (2). See Fig. 12.

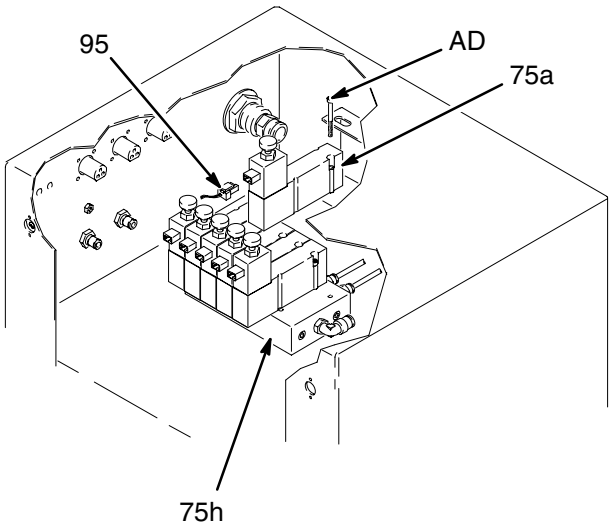


Fig. 13

Solenoid Identification

Solenoid 1		Solenoid 2		Solenoid 3		Solenoid 4		Solenoid 5		Solenoid 6	
Component B		Component A		Solvent Purge		Air Purge		Alarm Signal		Gun Air Shutoff	
Manifold Port	Hose No.	Manifold Port	Hose No.	Manifold Port	Hose No.	Manifold Port	Hose No.	Manifold Port	Hose No.	Manifold Port	Hose No.
A	2	A	4	A	6	A	8	A	9	A	10
B	1	B	3	B	5	B	7	B	plug	B	plug

Service

Removing and Installing the Meters

1. Relieve the pressure as instructed on page 17.
2. Turn off the power to the control (air and/or electrical).
3. Remove the front cover (2). See Fig. 12.
4. Disconnect the three fluid lines from the check valves (13). See Fig. 14.
5. Loosen the four screws (21), and slide out the fluid panel (4). See Fig. 14 and 15.
6. Disconnect the meter fluid lines (16, 46, and/or 17, 45).
7. Disconnect the wire harness (94) from the meter electronic sensor.
8. Remove the screws (68) from the back of the meter (20), and remove the meter.
9. Repair the meter as instructed in the separate meter manual.
10. Secure the meter (20) to the control cabinet with the screws (68).
11. Connect the wire harness (94) to the meter electronic sensor.
12. Connect the meter fluid lines (16, 46, and/or 17, 45).
13. Push in the fluid panel (4) and secure it with the screws (21).
14. Connect the fluid lines to the check valves (13).
15. Install the front cover (2). See Fig. 12.

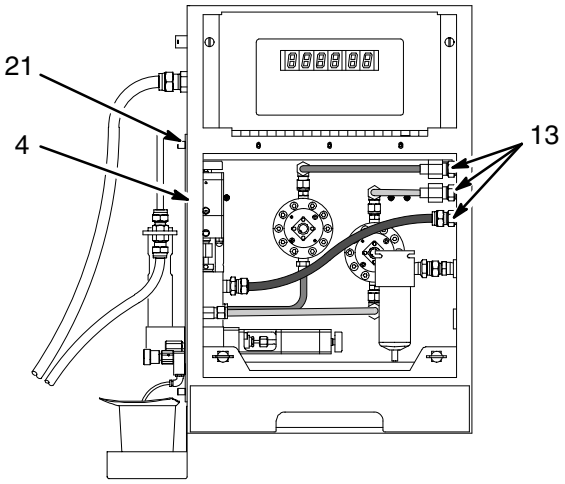


Fig. 14 7490A

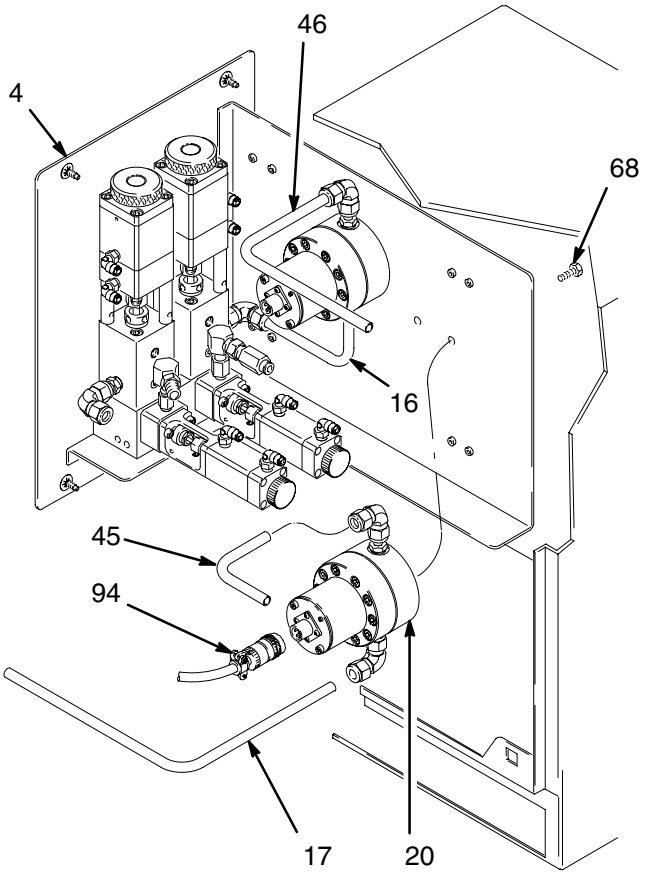


Fig. 15 7495A

Service

Removing and Installing the Mix Manifold

1. Relieve the pressure as instructed on page 17.
2. Turn off the power to the control (air and/or electrical).
3. Remove the front cover (2). See Fig. 12.
4. Disconnect the three fluid lines from the check valves (13). See Fig. 14.
5. Loosen the four screws (21), and slide out the fluid panel (4). See Fig. 14 and 15.
6. Unscrew the nut (AE) to disconnect the static mixer (81) from the integrator housing (AF). See Fig. 16.
7. Unscrew the screw (87) from the plate (84) and move the plate out of the way.
8. Unscrew the integrator housing (AF).
9. Unscrew the integrator tube (AG).
10. Remove the ratio check valves (AH).
11. Disconnect the three fluid lines (A, B, S) and air purge line (P). See Fig. 17.
12. Disconnect the air lines (c–k).
13. Unscrew the four screws (68) from the bottom of the plate (4), and slide out the mix manifold (67). See Fig. 16.
14. Repair the manifold as instructed in the separate mix manifold manual.
15. Place the mix manifold (67) on the plate (4), and secure it with the screws (68).
16. Connect the air lines and fluid lines. Refer to Fig. 17.

Continued on the next page.

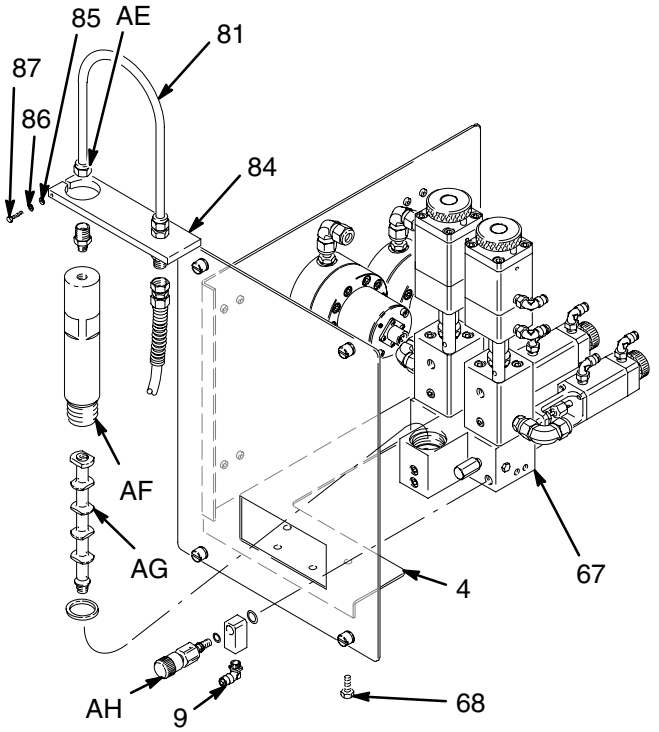
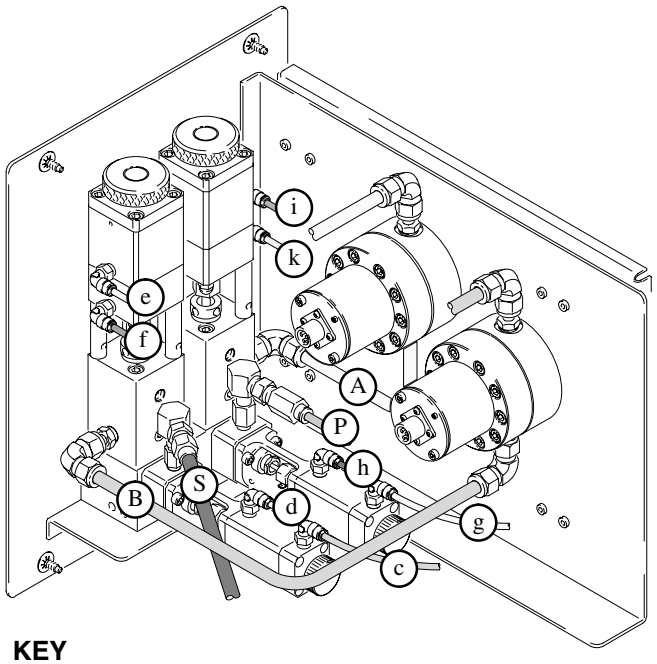


Fig. 16



KEY

A	Component A Fluid Line	f	Component B ON Air Pilot Line *(red)*
B	Component B Fluid Line	g	Air Purge OFF Air Pilot Line *(yellow)*
P	Air Purge Line	h	Air Purge ON Air Pilot Line (blue)
S	Solvent Purge Line	i	Component A OFF Air Pilot Line *(yellow)*
c	Solvent Purge OFF Air Pilot Line *(black)*	k	Component A ON Air Pilot Line *(blue)*
d	Solvent Purge ON Air Pilot Line *(red)*		
e	Component B OFF Air Pilot Line *(black)*		

Fig. 17

17. Install the ratio check valves (AH), integrator tube (AG), and integrator housing (AF). See Fig. 16.

18. Tighten the screw (87) with the washer (85) and lockwasher (86) into the plate (84).

19. Secure the static mixer (81) with the nut (AE).

20. Push in the fluid panel (4) and secure it with the screws (68).

21. Connect the fluid lines to the check valves (13). See Fig. 14.

22. Install the front cover (2). See Fig. 12.

Power Supply Turbine Alternator Service

NOTE: Replace turbine bearings after 2000 hours of operation. A Turbine Alternator Repair Kit is available. See **Accessories** on page 37.

1. Relieve the pressure as instructed on page 17.

2. Turn off the power to the control (air and/or electrical).

3. Remove the front cover (2). See Fig. 12.

4. See the parts drawing–Detail C, page 38, for the location of the power supply.

5. Disconnect the electrical connector (74b) from the wire harness (95).

6. Remove the two screws (73) and remove the power supply (74) from the control. See Fig. 18.

7. Remove the six screws (74f) and carefully separate the power supply housings (AI, AJ).

8. Disconnect the 3-wire connector (AK) from the circuit board (74c).

9. Carefully pull the alternator (74g) out of the housing (AI).

10. Use an ohmmeter to test the turbine alternator coil. Measure the resistance between the two outer terminals of the 3-wire connector (AK). The resistance should be 3 to 5 ohms. If the reading varies from this value, replace the alternator.

11. Measure the resistance between each outer terminal of the 3-wire connector and the turbine alternator housing. The resistance should be infinite. If the resistance is not infinite, replace the alternator.

12. Inspect the gasket (74a), o-ring (74h), and cushion (74j) and replace if damaged or worn.

13. Push the alternator (64g) into the housing (AI).

14. Connect the 3-wire connector (AK) to the circuit board (74c).

15. Assemble the power supply housings (AI, AJ) and secure them with the screws (74f).

16. Secure the power supply (74) to the bracket (43) with the screws (73).

17. Connect the electrical connector (74b) to the wire harness (95).

18. Install the front cover (2). See Fig. 12.

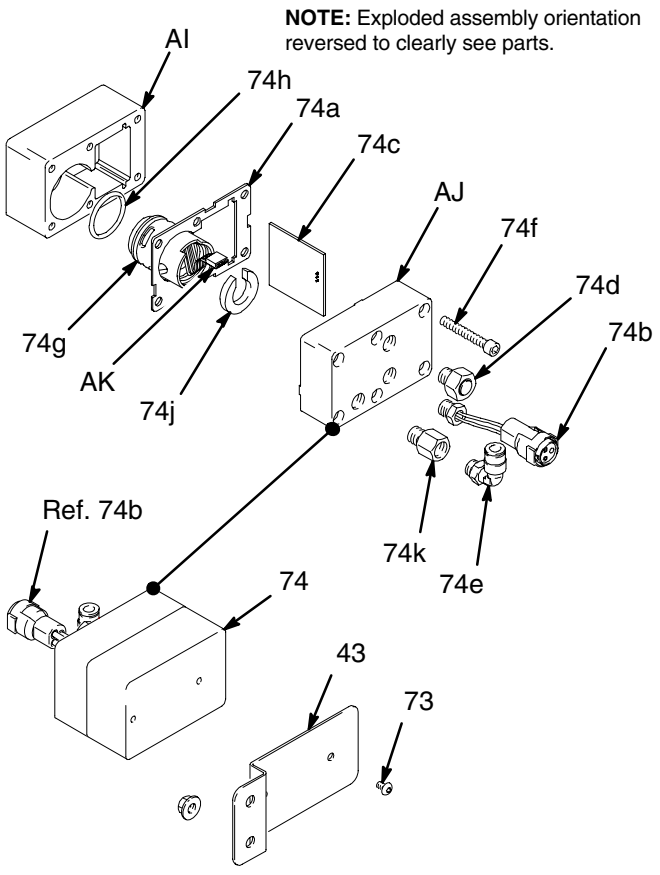


Fig. 18

Accessories

⚠ WARNING

FIRE AND EXPLOSION HAZARD
If an external power supply or printer is connected to the control, the control is no longer intrinsically safe and the control, as well as the power supply and printer, must not be operated in hazardous locations.

239810 Universal AC Power Supply Kit
Includes power supply and 6.56 ft. (2 m) cable.100–250 Vac input

239873 Printer Kit
Includes:

113774 Printer
192491 Power Cable: 25 ft. (7.6 m)

The printer will print out individual job tickets after each dispense transaction is complete. These dispense reports can be torn off immediately or saved for later analysis.

514037 Printer Paper Roll
Single roll of paper for 113774 printer.

511270 Air Horn Alarm
Provides an audible alarm when connected to the control alarm air outlet. 92 decibels at 100 ft. (30.5)

239811 Reference Card with Token
For setup access and reference to available options.

223688 Turbine Alternator Repair Kit
Includes two bearings and a fan. Bearings should be replaced after 2000 hours of operation.To maintain intrinsic safety, only use this Graco kit to replace bearings and follow the service instructions provided with the kit.

239954 High Pressure Spring Kit
For use when operating at fluid pressures above 3000 psi (21 MPa, 207 bar). Install high pressure spring in place of standard 111092 shutoff spring in mix manifold. Kit includes two springs.

114228 Air Filter Element
Air filter replacement element for air filter 114124.

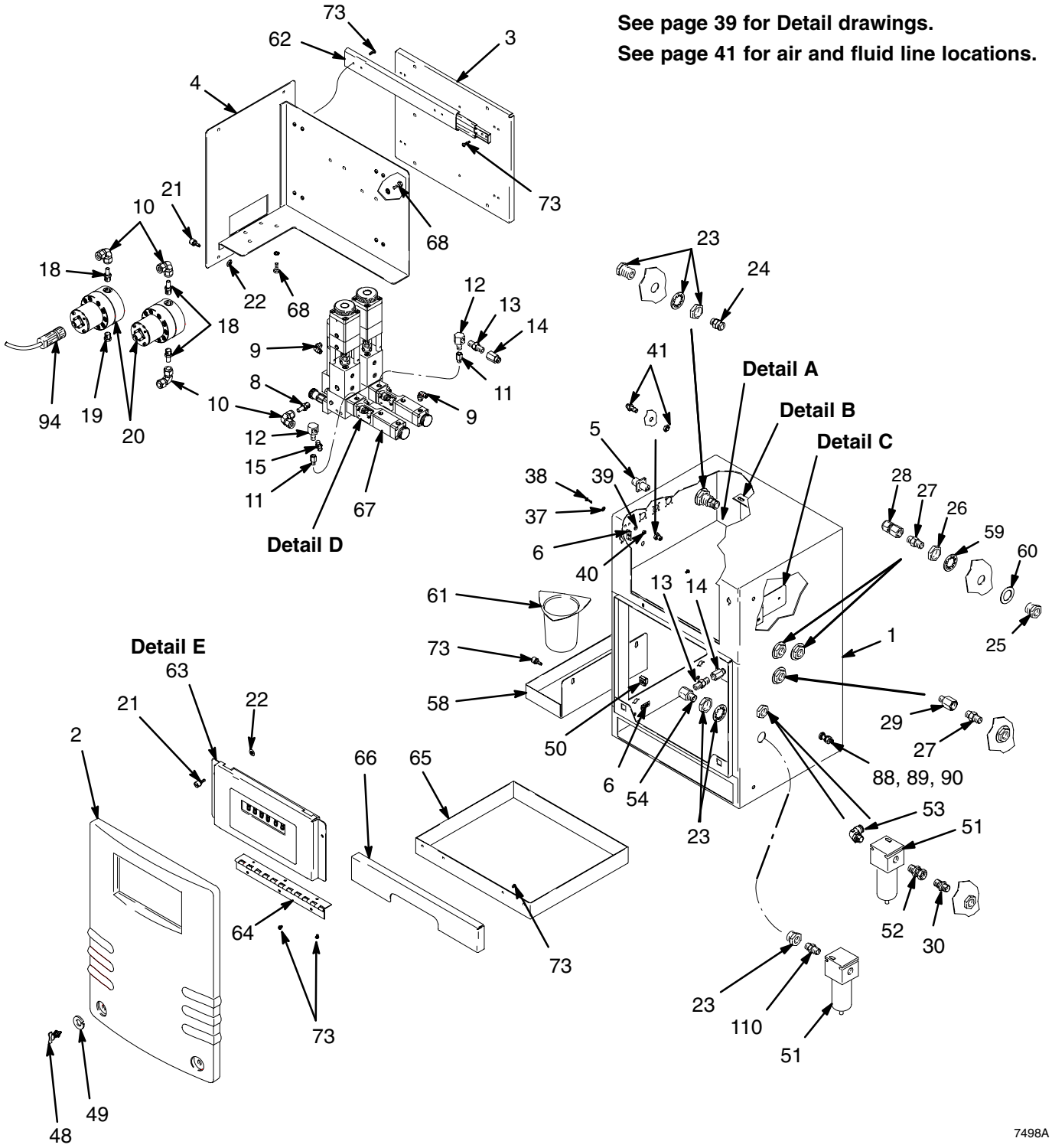
192673 Adapter Fitting
3/8 npt(m) x 3/8 BSPT(f), steel

192674 Adapter Fitting
3/8 npt(m) x 3/8 BSPT(f), stainless steel

114312 Control Panel Paint Shield
Includes 10 disposable plastic shields to cover the control panel and shield it from paint.

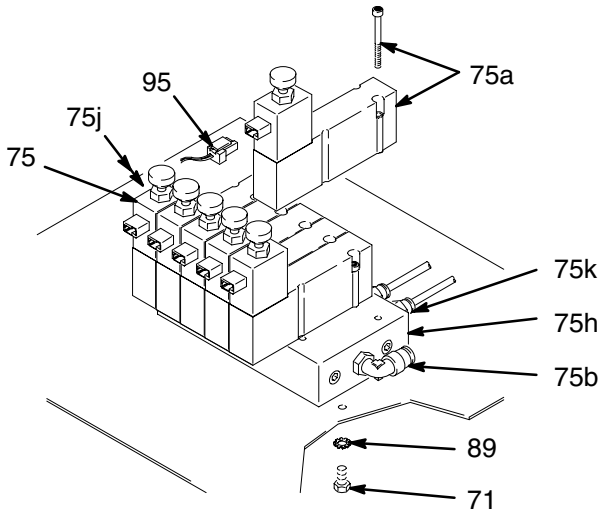
Parts

See page 39 for Detail drawings.
See page 41 for air and fluid line locations.

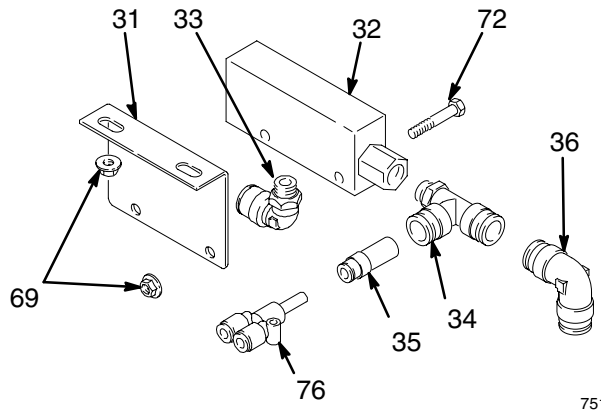


Parts

Detail A – Solenoid

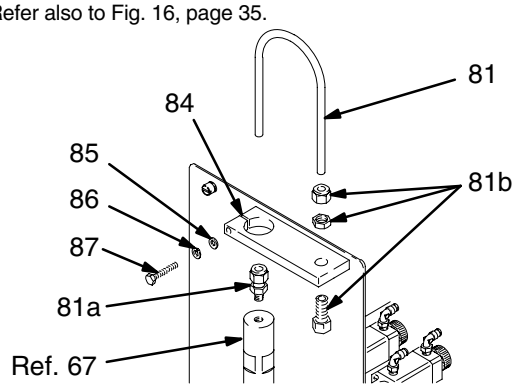


Detail B – Flow Control



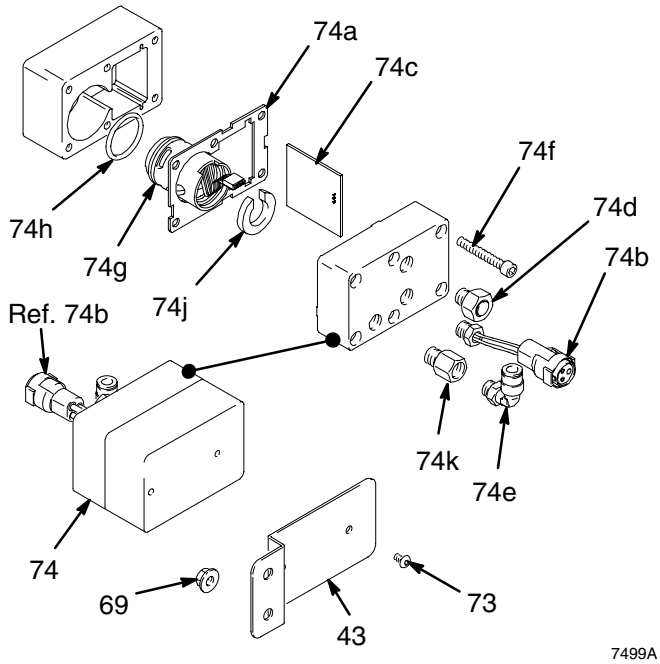
Detail D – Static Mixer

NOTE: Refer also to Fig. 16, page 35.

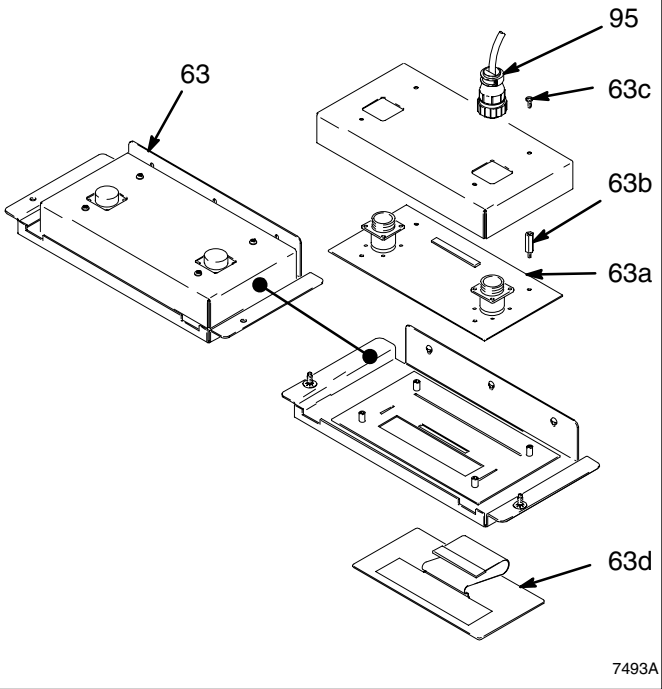


Detail C – Power Supply

NOTE: Exploded assembly orientation reversed to clearly see parts.



Detail E – Control Panel



Parts

Part No. 239735

Ref. No.	Part No.	Description	Qty.
1	192475	CABINET	1
2	192200	COVER, front	1
3	192466	PANEL, back	1
4	192470	PANEL, fluid access	1
6	114145	RECEPTACLE	6
8	114121	ADAPTER; 3/8” OD tube x 1/4 BSPT	2
9	114151	ELBOW, swivel; 5/32” OD tube x 1/8 npt	10
10	114119	ELBOW, union; 3/8” OD tube	5
11	513174	ADAPTER; 1/8 npt(f) x 1/8 BSPT(m)	2
12	158962	ELBOW, street; 1/4 npt(f) x 1/8 npt(m)	2
13	501867	VALVE, check; 1/4 npt(m); with Teflon® seal	2
14	114112	CONNECTOR; 1/4” OD tube x 1/4 nptf	2
15	156971	NIPPLE, short; 1/4 npt	1
16	192458	TUBE, fluid (resin), SST	1
17	192459	TUBE, fluid (catalyst), SST	1
18	114120	ADAPTER; 3/8” OD tube x 1/4 npt	3
19	513308	CONNECTOR; 3/8” OD tube x 1/4 npt	1
20	239716	G3000 GEAR METER; See manual 308778 for parts	2
21	114143	SCREW, captive	6
22	114144	RETAINER	6
23	113159	BULKHEAD; 3/8 npt	3
24	114129	CONNECTOR; 1/2” OD tube x 3/8 npt	1
25	191586	BULKHEAD; 3/8 npt	3
26	100056	NUT, jam, hex; 7/8–14 UNF	3
27	501684	VALVE, check; 3/8 npt(m); with Teflon® seal	3
28	513843	CONNECTOR; 3/8” OD tube x 3/8 npt	2
29	150287	COUPLING; 1/4 npt(m) x 3/8 npt(f)	1
30	162485	NIPPLE, adapter; 3/8 npt x 3/8 npsm	1
31	192519	BRACKET, flow control	1
32	192652	SWITCH, air flow	1
33	114128	ELBOW, swivel; 1/2” OD tube x 1/4 npt	1
34	114130	TEE, swivel; 1/2” OD tube x 1/4 npt	1
35	114156	REDUCER; 1/4” x 1/2” OD push-in tube	1
36	114157	ELBOW, union; 1/2” OD push-in tube	1
37	114163	WASHER, shoulder, nylon; 0.174”	4
38	114165	SCREW, machine; M4 x 16	2
39	114164	WASHER, flat, nylon; 3/8”	4
40	105689	NUT, machine, hex; M4 x 0.7	4
41	113284	BULKHEAD, 5/32” OD push-in tube	2
43	192520	BRACKET, alternator	1
45	192461	TUBE, fluid (catalyst), SST	1
46	192460	TUBE, fluid (resin), SST	1
47	205324	HOSE, Teflon®; 1/4 npsm coupled; 3000 psi (21 MPa, 207 bar);1’ (305 mm) long	1
48	114125	SCREW, wing; 1/4 turn	2
49	114126	RETAINER	2
50	114127	RECEPTICAL	2
51	114124	FILTER, air; 3/8 npt	2
52	155665	UNION; 3/8 npt x 3/8 npsm	1
53	114114	ELBOW, swivel; 1/2” OD tube x 3/8 nptf	1
54	164259	ELBOW, street; 1/4 npt(f) x 3/8 npt(m)	1
58	192471	TRAY, beaker	1
59	113348	WASHER, lock; 7/8”	3
60	114170	WASHER, flat; 3/8”	3
61	114169	BEAKER	2
62	114122	SLIDE	1
63	239792	PANEL, access, electronic; includes items 63a–63d	1
63a	239791	• CIRCUIT BOARD	1
63b	114162	• STANDOFF, hex; M4 x 0.7	4
63c	114185	• SCREW; M4 x 6	4
63d	290421	• KEYPAD	1
64	192524	HINGE	1
65	192469	PAN, drip	1
66	192468	PLATE, cover, drip pan	1
67	239732	MIX MANIFOLD; See manual 308288 for parts	1
68	114182	SCREW, machine, hex flange head; M6 x 16	13
69	114183	NUT, hex, flange; M6	6

Parts

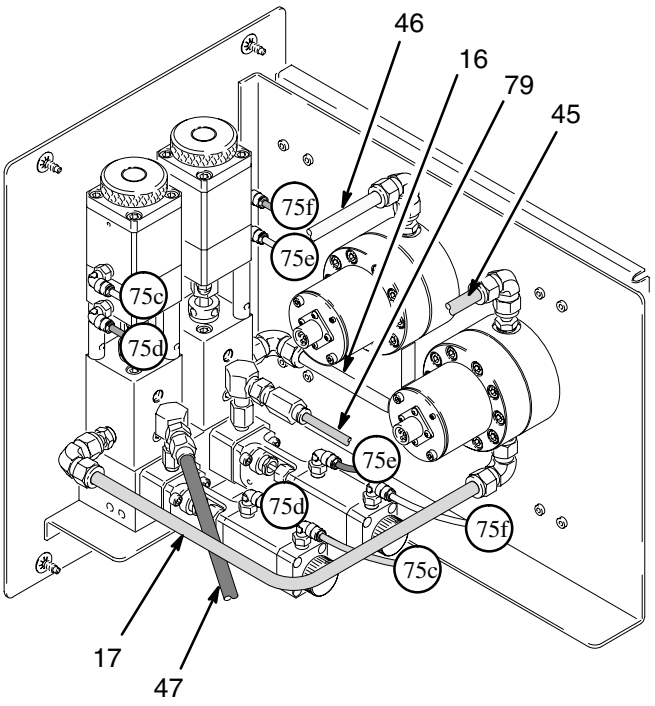
Ref. No.	Part No.	Description	Qty.
71	110880	SCREW, cap, socket head; M4 x 35	2
72	114187	SCREW, cap, hex head; M5 x 10	2
73	114185	SCREW; M4 x 6	32
74	239844	POWER SUPPLY; Includes items 74a–74k	1
74a	192556	• GASKET	1
74b	239845	• HARNESS, connector	1
74c	239790	• BOARD, circuit	1
74d	114177	• FILTER	1
74e	112698	• ELBOW, swivel, 1/8 npt	1
74f	110420	• SCREW, cap, socket head; 10–24 UNC x 1.5”	6
74g	222319	• ALTERNATOR, turbine; Includes items 74h, 74j	1
74h	110073	•• O-RING, Viton®	1
74j	185124	•• CUSHION	1
74k	114197	• RESTRICTOR, air	1
75	239733	SOLENOID ASSEMBLY; Includes items 75a–75k	1
75a	114123	• SOLENOID	6
75b	112698	• ELBOW, swivel; 1/8 npt	2
75c	114215	• TUBE, nylon, black; 0.156” OD	☆
75d	114216	• TUBE, nylon, red; 0.156” OD	☆
75e	114217	• TUBE, nylon, blue; 0.156” OD	☆
75f	114218	• TUBE, nylon, yellow; 0.156” OD	☆
75g	114220	• TUBE, nylon, orange; 0.156” OD	☆
75h	114230	• MANIFOLD	1
75j	104765	• PLUG, pipe; 1/8 npt	1
75k	114263	• FITTING; 5/32 OD tube x 1/8 npt	10
76	114158	ADAPTER, Y, push-in tube; 1/4” OD	1
77	114173	OPERATOR STATION; *not shown*	1
78*	112190	GROUNDING STRAP, wrist; *not shown*	1
79	114221	TUBE, nylon, clear; 1/4” OD	☆☆
80	192935	TUBE, nylon, white; 1/2” OD	☆
81	239862	MIXER, static; Includes items 81a, 81b	1
81a	513697	• ADAPTER; 3/8” OD tube x 1/4 BSPT	1
81b	513817	• BULKHEAD; 3/8 x 1/4 npt	1
84	192590	BRACKET, static mixer	1
85	110755	WASHER, plain; 1/4”	1
86	100016	WASHER, lock; 1/4”	1
87	114238	SCREW, cap, hex head; 1/4-20 UNC x 1.5	1
88	104029	LUG, ground	1
89	111307	WASHER, lock, external; M5	3
90	110911	NUT, hex; M5	1
94	192552	HARNESS, wire	1
95	192553	HARNESS, wire	1
96	114215	TUBE, nylon, black; 0.156” OD	☆
97	237569	GROUND WIRE ASSEMBLY; 25 ft. (7.6 m)	1
105▲	290331	LABEL, warning; *not shown*	1
106▲	186531	LABEL, warning; *not shown*	1
107▲	513310	LABEL, safety instruction; *not shown*	1
109	239811	REFERENCE CARD AND TOKEN; *not shown*	1
110	156849	NIPPLE, pipe; 3/8 npt	1

☆ *Supplied in 50 ft. (15.25 m) length to be cut to length needed.*

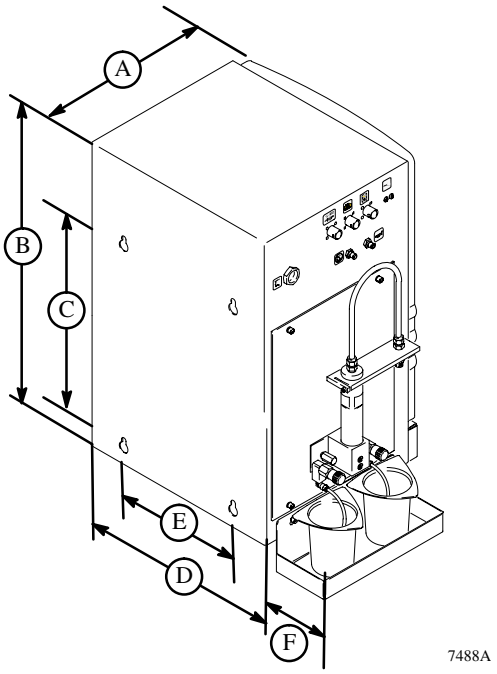
☆☆ *Supplied in 100 ft. (30.5 m) length to be cut to length needed.*

▲ *Replacement Danger and Warning labels, tags and cards are available at no cost.*

Fluid and Air Lines



Dimensions



Dimensions, inches (mm)					
A	**B**	**C**	**D**	**E**	**F**
14.6 (370.8)	24 (609.6)	16 (406.4)	16 (406.4)	10 (254)	4.5 (114.3)

Technical Data

Maximum Fluid Working Pressure	3000 psi (21 MPa, 207 bar)
With Part No. 239954 High Pressure Spring Kit installed	*4000 psi (28 MPa, 276 bar)*
Maximum solvent supply pressure	3000 psi (21 MPa, 207 bar)
Maximum working air pressure	100 psi (0.7 MPa, 7 bar)
Air supply	80–100 psi (0.5–0.7 MPa, 5.5–7 bar). 10 micron (minimum) filtration required.
Average air consumption (includes air supply to the gun)	30 scfm (0.84 m^3/min.)
Mixing ratio range	0.6:1 to 20:1*
On-ratio accuracy	up to $\pm$ 1%
Fluids handled	Two-component epoxy or polyurethane paints
Viscosity range of fluid	20 to 5000 cps*
Fluid filtration	100 mesh minimum
Fluid flow rate range	3.4 to 68 oz./min. (100 to 2000 cc/min.)*
Operating temperature range	41 to 104° F (5 to 40° C)
External Power Supply Requirements	12–24 Vdc, 0.3 amp
Weight	115 lbs. (52 kg)
Wetted parts	303, 304 SST, 17–4 SST, Tungsten carbide (with nickel binder), Chemraz®; Teflon®; CV75

NOTE: See the individual component manuals listed on page 31 for additional technical data.

* *Dependant on application. For more detailed information on viscosities, flow rates, or mixing ratios, consult your Graco representative.*

Chemraz® is a registered trademark of the Green, Tweed, & Company.

Teflon® is a registered trademark of the DuPont Company.

Graco Standard Warranty

Graco warrants all equipment manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized Graco distributor 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.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

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