

# **REACTOR<sup>®</sup>** *E-8p and E-15p*

Portable Plural Component Sprayer

3A5743C

EN

***For spraying 1:1 mix ratio formulated no-heat polyurethane foams and dispensing 1:1 mix ratio polyurea joint-fill materials. For professional use only.***

***Not approved for use in European explosive atmosphere locations.***

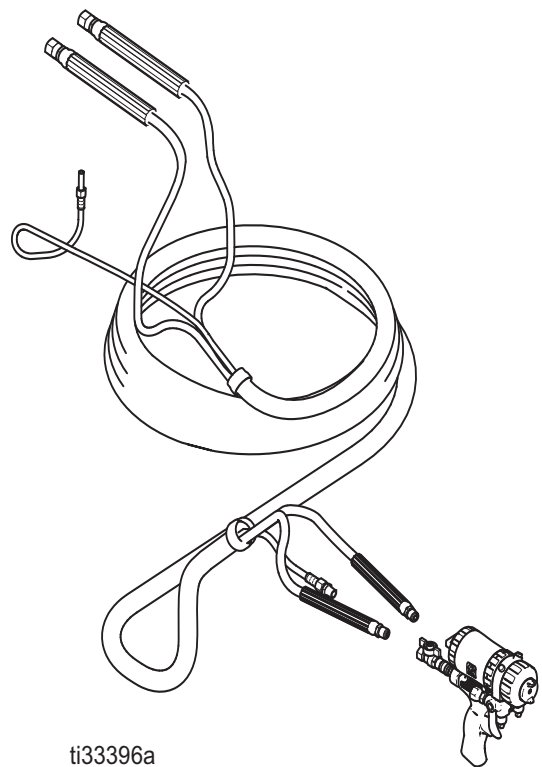
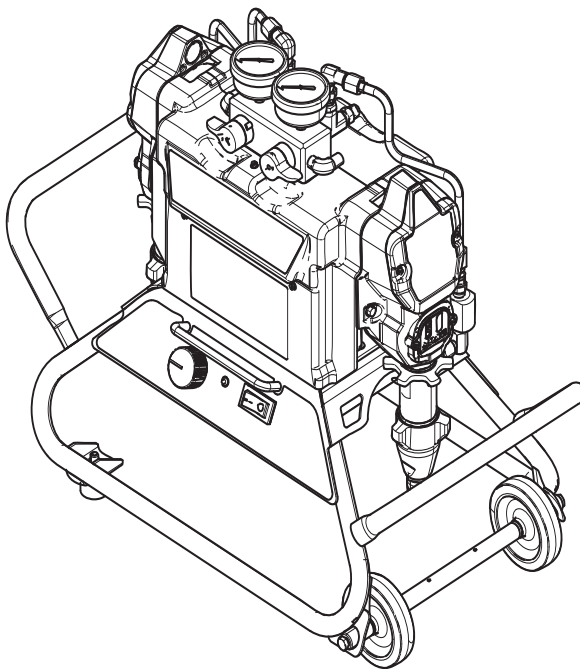
2000 psi (14 MPa, 138 bar) Maximum Working Pressure

See page 3 for a list of models.



## **Important Safety Instructions**

Read all warnings and instructions in this manual before using this equipment.  
Save these instructions.



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# Systems

Model	Part	Maximum Working Pressure, psi (MPa, var)	Proportioner (see Proportioners)	Gun Model	
				Model	Part
E-8p	25N014	2000 (14, 140)	25A836	Fusion® Air Purge	247124
E-15p	25N015		26C023		

## Proportioners

The model number, series letter, and serial number are located on the back of the system.

Model	Part	Maximum Working Pressure, psi (MPa, bar)	Volts	* Electrical Connection
E-8p	25A836	2000 (14, 140)	120 V	15 A cord
E-15p	26C023			

\* See page 12 for detailed electrical requirements.






## Related Manuals

Manuals are available at [www.graco.com](http://www.graco.com).

Manual in English	Description	Related Proportioner
313123	Displacement Pump Repair-Parts	25A836
309577	Displacement Pump Repair-Parts	26C023
309550	Fusion AP Spray Gun Instructions-Parts	-----

# Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

 <b>WARNING</b>	
 	<b>ELECTRIC SHOCK HAZARD</b> This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock. <ul style="list-style-type: none"> <li>• Turn off and disconnect power cord before servicing equipment.</li> <li>• Connect only to grounded electrical outlets.</li> <li>• Use only 3-wire extension cords.</li> <li>• Ensure ground prongs are intact on power and extension cords.</li> <li>• Do not expose to rain. Store indoors.</li> </ul>
	<b>TOXIC FLUID OR FUMES HAZARD</b> Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled or swallowed. <ul style="list-style-type: none"> <li>• Read Safety Data Sheets (SDSs) for handling instructions and to know the specific hazards of the fluids you are using, including the effects of long-term exposure.</li> <li>• When spraying, servicing equipment, or when in the work area, always keep work area well-ventilated and always wear appropriate personal protective equipment. See <b>Personal Protective Equipment</b> warnings in this manual.</li> <li>• Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.</li> </ul>
	<b>PERSONAL PROTECTIVE EQUIPMENT</b> Always wear appropriate personal protective equipment and cover all skin when spraying, servicing equipment, or when in the work area. Protective equipment helps prevent serious injury, including long-term exposure; inhalation of toxic fumes, mists or vapors; allergic reaction; burns; eye injury and hearing loss. This protective equipment includes but is not limited to: <ul style="list-style-type: none"> <li>• A properly fitting respirator, which may include a supplied-air respirator, chemically impermeable gloves, protective clothing and foot coverings as recommended by the fluid manufacturer and local regulatory authority.</li> <li>• Protective eyewear and hearing protection.</li> </ul>



# WARNING



## SKIN INJECTION HAZARD

High-pressure fluid from gun, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. **Get immediate surgical treatment.**

- Do not spray without tip guard and trigger guard installed.
- Engage trigger lock when not spraying.
- Do not point gun at anyone or at any part of the body.
- Do not put your hand over the spray tip.
- Do not stop or deflect leaks with your hand, body, glove, or rag.
- Follow the **Pressure Relief Procedure** when you stop spraying and before cleaning, checking, or servicing equipment.
- Tighten all fluid connections before operating the equipment.
- Check hoses and couplings daily. Replace worn or damaged parts immediately.



## FIRE AND EXPLOSION HAZARD

Flammable fumes, such as solvent and paint fumes, in **work area** can ignite or explode. Paint or solvent flowing through the equipment can cause static sparking. To help prevent fire and explosion:

- Use equipment only in well-ventilated area.
- Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static sparking).
- Ground all equipment in the work area. See **Grounding** instructions.
- Never spray or flush solvent at high pressure.
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.
- Use only grounded hoses.
- Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are anti-static or conductive.
- **Stop operation immediately** if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.



## PRESSURIZED ALUMINUM PARTS HAZARD

Use of fluids that are incompatible with aluminum in pressurized equipment can cause serious chemical reaction and equipment rupture. Failure to follow this warning can result in death, serious injury, or property damage.

- Do not use 1, 1, 1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents.
- Do not use chlorine bleach.
- Many other fluids may contain chemicals that can react with aluminum. Contact your material supplier for compatibility.



# WARNING



## EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Specifications** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Specifications** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheets (SDSs) from distributor or retailer.
- Do not leave the work area while equipment is energized or under pressure.
- Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.



## MOVING PARTS HAZARD

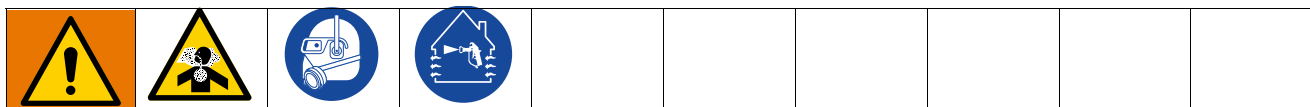
Moving parts can pinch, cut or amputate fingers and other body parts.

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** and disconnect all power sources.

# Important Isocyanate (ISO) Information



Isocyanates (ISO) are catalysts used in two component materials.

## Isocyanate Conditions





Spraying or dispensing fluids that contain isocyanates creates potentially harmful mists, vapors, and atomized particulates.

- Read and understand the fluid manufacturer's warnings and Safety Data Sheets (SDSs) to know specific hazards and precautions related to isocyanates.
- Use of isocyanates involves potentially hazardous procedures. Do not spray with this equipment unless you are trained, qualified, and have read and understood the information in this manual and in the fluid manufacturer's application instructions and SDSs.
- Use of incorrectly maintained or mis-adjusted equipment may result in improperly cured material, which could cause off gassing and offensive odors. Equipment must be carefully maintained and adjusted according to instructions in the manual.
- To prevent inhalation of isocyanate mists, vapors and atomized particulates, everyone in the work area must wear appropriate respiratory protection. Always wear a properly fitting respirator, which may include a supplied-air respirator. Ventilate the work area according to instructions in the fluid manufacturer's SDSs.
- Avoid all skin contact with isocyanates. Everyone in the work area must wear chemically impermeable gloves, protective clothing and foot coverings as recommended by the fluid manufacturer and local regulatory authority. Follow all fluid manufacturer recommendations, including those regarding handling of contaminated clothing. After spraying, wash hands and face before eating or drinking.
- Hazard from exposure to isocyanates continues after spraying. Anyone without appropriate personal protective equipment must stay out of the work area during application and after application for the time period specified by the fluid manufacturer. Generally this time period is at least 24 hours.
- Warn others who may enter work area of hazard from exposure to isocyanates. Follow the recommendations of the fluid manufacturer and local regulatory authority. Posting a placard such as the following outside the work area is recommended:




 <b>WARNING</b>	
	<b>TOXIC FUMES HAZARD</b>
DO NOT ENTER DURING SPRAY FOAM APPLICATION OR FOR ____ HOURS AFTER APPLICATION IS COMPLETE	
<b>DO NOT ENTER UNTIL:</b>	
DATE: _____	
TIME: _____	

## Material Self-ignition

				
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Some materials may become self-igniting if applied too thick. Read material manufacturer's warnings and Safety Data Sheets (SDSs).

## Keep Components A and B Separate

				
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Cross-contamination can result in cured material in fluid lines which could cause serious injury or damage equipment. To prevent cross-contamination:

- **Never** interchange component A and component B wetted parts.
- Never use solvent on one side if it has been contaminated from the other side.

## Moisture Sensitivity of Isocyanates

Exposure to moisture (such as humidity) will cause ISO to partially cure, forming small, hard, abrasive crystal that become suspended in the fluid. Eventually a film will form on the surface and the ISO will begin to gel, increasing in viscosity.

NOTICE				
Partially cured ISO will reduce performance and the life of all wetted parts.				
<ul style="list-style-type: none"> <li>• Always use a sealed container with a desiccant dryer in the vent, or a nitrogen atmosphere. <b>Never</b> store ISO in an open container.</li> <li>• Keep the ISO pump wet cup or reservoir (if installed) filled with appropriate lubricant. The lubricant creates a barrier between the ISO and the atmosphere.</li> <li>• Use only moisture-proof hoses compatible with ISO.</li> <li>• Never use reclaimed solvents, which may contain moisture. Always keep solvent containers closed when not in use.</li> <li>• Always lubricate threaded parts with an appropriate lubricant when reassembling.</li> </ul>				

**NOTE:** The amount of film formation and rate of crystallization varies depending on the blend of ISO, the humidity, and the temperature.

## Foam Resins with 245 fa Blowing Agents

Some foam blowing agents will froth at temperatures above 90°F (33°C) when not under pressure, especially if agitated. To reduce frothing, minimize preheating in a circulation system.

## Changing Materials

NOTICE				
Changing the material types used in your equipment requires special attention to avoid equipment damage and downtime.				
<ul style="list-style-type: none"> <li>• When changing materials, flush the equipment multiple times to ensure it is thoroughly clean.</li> <li>• Always clean the fluid inlet strainers after flushing.</li> <li>• Check with your material manufacturer for chemical compatibility.</li> <li>• When changing between epoxies and urethanes or polyureas, disassemble and clean all fluid components and change hoses. Epoxies often have amines on the B (hardener) side. Polyureas often have amines on the B (resin) side.</li> </ul>				



# Overview

The system is a portable, electric-powered, 1:1 mix ratio proportioner. It is for use with formulated no-heat polyurethane foams that may be applied with impingement mix spray guns and for use with polyurea joint fill materials that may be applied with static mix guns.

Severe duty, positive displacement reciprocating piston pumps meter fluid flow to the gun for mixing and applying. When set to recirculation mode, the system will circulate fluids back to the supply pails.

An electronic processor controls the motor, monitors fluid pressures, and alerts the operator if errors occur. See **STATUS Indicator**, page 11, for further information.

The system has two recirculation speeds: slow and fast, and an adjustable pressure/flow output.

## Slow Recirculation

- Use for pump priming.

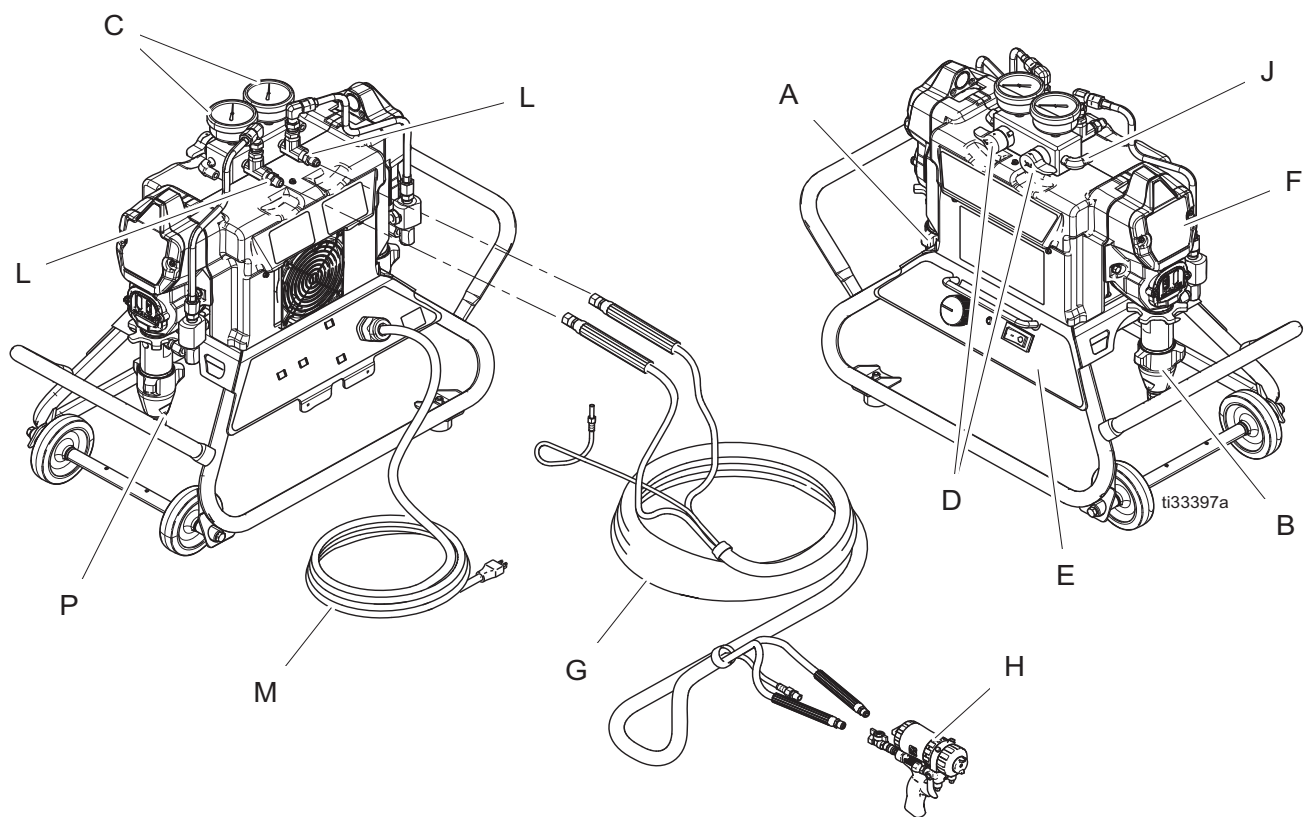
## Fast Recirculation

- Use for flushing.
- Use for pump priming.

## Output Adjust

Automatically maintains selected pressure/flow output for spraying.

# Component Identification

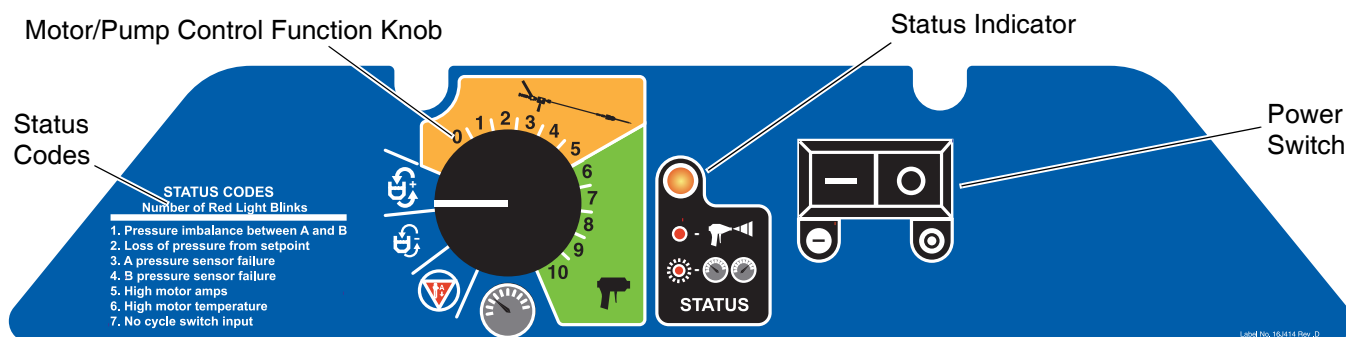


**FIG. 1: Component Identification**

**Key:**

- |   |                                      |   |                         |
|---|--------------------------------------|---|-------------------------|
| A | Pump A                               | G | Hose Bundle             |
| B | Pump B                               | H | Spray Gun               |
| C | Fluid Pressure Gauges                | J | Recirculation Outlet    |
| D | Spray and Overpressure Relief Valves | L | Outlet Hose Connections |
| E | Control Panel                        | M | Power Cord              |
| F | Electric Motor and Drive Housings    | P | Fluid Inlet             |

# Controls and Indicators



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**FIG. 2: Controls and Indicators**

## Power Switch

Powers the system on and off.

## Motor/Pump Control Function Knob

Use the knob to select desired function.

Icon	Setting	Function
	Park	Stops motor and automatically parks pumps.
	Slow Recirc	Slow recirculation speed.
	Fast Recirc	Fast recirculation speed.
	Static Mix	Use fluid flow settings 1-5 to dispense polyurea joint-fill materials through a static mixer.
	Spray	Use fluid pressure settings 6-10 to spray polyurethane foam.

## STATUS Indicator

Indicates the system status, including power and error codes.

- Indicator steady on: power switch is turned on.
- Indicator blinking: If an error occurs, the status indicator light will blink one to seven times to indicate a specific status code, pause, and then repeat. The following table provides a brief description of each status code. For more detailed information and corrective action, see **Status Codes** on page 21.

**Table 1: Status Codes**  
(also located on the front of the Reactor)

Code	Code Name
1	Pressure imbalance between A and B sides
2	Unable to maintain pressure setpoint
3	Pressure transducer A failure
4	Pressure transducer B failure
5	Excessive current draw
6	High motor temperature
7	No cycle counter switch input

**NOTE:** The default is to shut down if a status code indication occurs. Codes 1 and 2 may be set to disable automatic shutdown if desired; see page 22. You cannot set the other codes.

# Setup

## Location

- The system should always be used on a level surface.
- Do not expose the system to rain.

## Electrical Requirements

- Required power source: single dedicated circuit that is rated at a minimum of 15A.

**NOTE:** Cords must be 3-conductor grounded, rated for your environment.

- Power cord connector (120V):



One NEMA 5-15T

- Extension cord requirements:

Required Wire Size	
Up to 50 ft (15 m)	Up to 100 ft (30 m)
AWG 14	AWG 12

## Grounding

The equipment must be grounded to reduce the risk of static sparking and electric shock. Electric or static sparking can cause fumes to ignite or explode. Improper grounding can cause electric shock. Grounding provides an escape wire for the electric current.

**System:** grounded through power cord.

**Generator (if used):** follow your local code and manufacturer’s recommendations. Start and stop the generator with power cord(s) disconnected.

**Spray gun:** ground through connection to a properly grounded fluid hose and system.

**Fluid supply container:** follow local code.

**Object being sprayed:** follow local code.

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

**To maintain grounding continuity when flushing or relieving pressure:** hold metal part of the spray gun firmly to the side of a grounded metal pail, then trigger the gun.

## Connect Fluid Hoses

Connect the fluid supply hoses to outlet hose connections (FIG. 3). Red hoses for component A (ISO), blue for component B (RES). Fittings are sized to prevent connection errors. Connect the other end of hoses to A and B inputs of the gun.

### NOTICE

To prevent pressure fluctuations and equipment damage, only operate equipment with fluid supply hoses longer than 25 ft.

## Connect Gun to Air Hose (Air-Operated Guns Only)

Connect the gun air hose to the gun air input and to the air filter outlet. If you are using more than one hose bundle, join the air hoses with the nipple provided with the hose bundle.

## Connect Main Air Supply

The system requires 4 scfm (0.112 m<sup>3</sup>/min) compressed air for the air operated spray guns to work correctly.

Connect the main air supply to the quick disconnect fitting on the unit. The air supply hose must be at least 5/16 in. (8 mm) ID up to 50 ft (15 m) or 3/8 in. (10 mm) ID up to 100 ft (30 m).

## Flush Before Using Equipment

The equipment was tested with lightweight oil, which is left in the fluid passages to protect parts. To avoid contaminating your fluid with oil, flush the equipment with a compatible solvent before using the equipment. See **Flushing**, page 19.

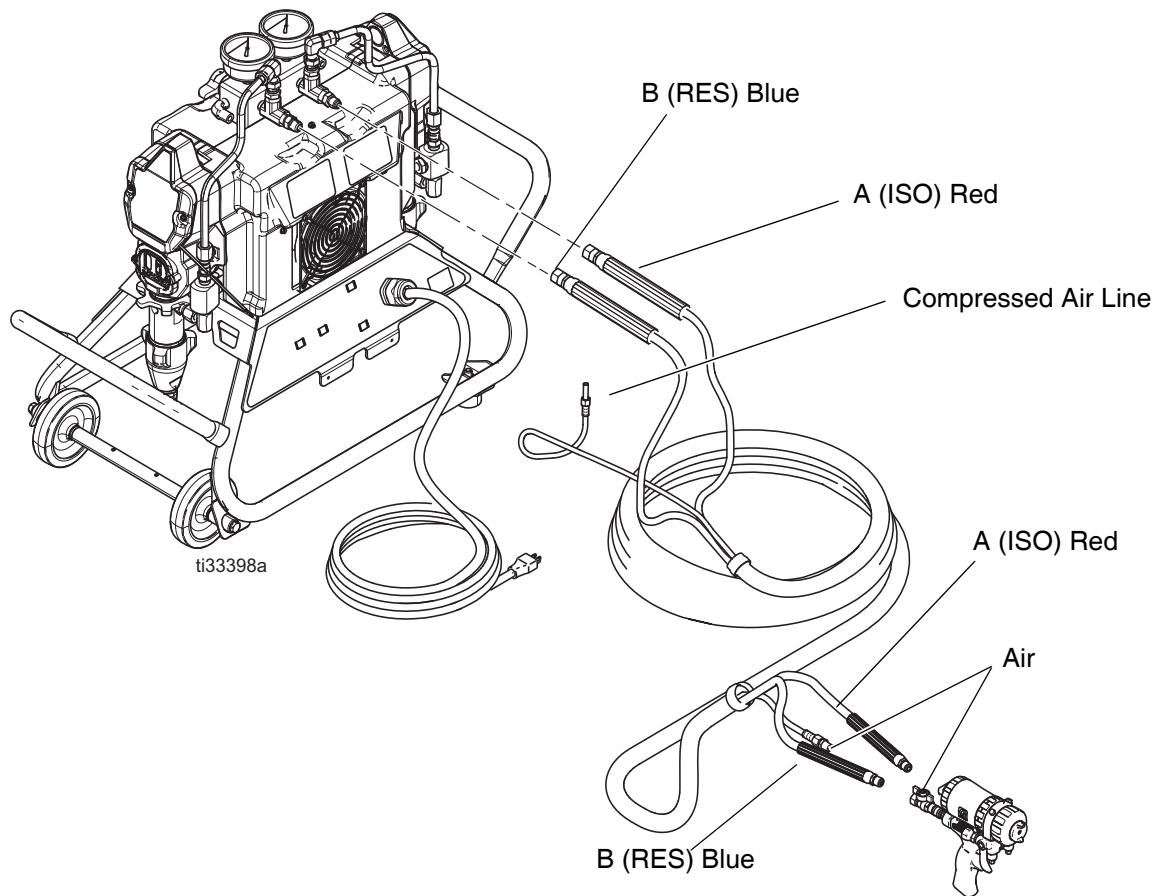


FIG. 3 Hose and Air Connections

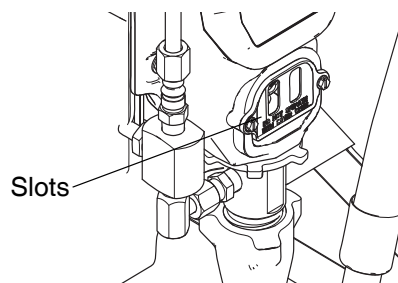
## Fill Wet-cups

Keep the felt washers in the pump wet-cups saturated with ISO pump oil. The lubricant creates a barrier between the ISO and the atmosphere.



The pump rod and connecting rod move during operation. Moving parts can cause serious injury such as pinching or amputation. Keep hands and fingers away from the wet-cup during operation. Shut off power before filling the wet-cup.

Fill wet-cups through the slots in the plate, or remove a screw and swing the plate to the side.



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**FIG. 4 Fill Wet Cup**

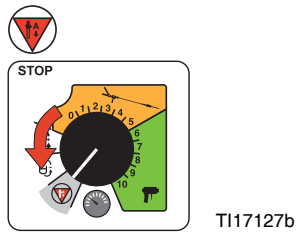
## Recirculate Material

The system circulates material from the fluid manifold back to the supply container.



1. Insert inlet tubes into the pails.

2. Set the function knob to Park .



**FIG. 5 Set the Function Knob to Park**

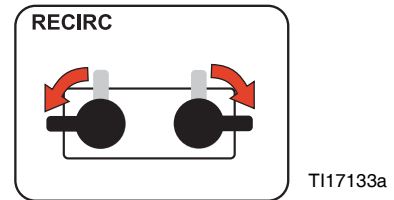
3. Plug in the power cord.

4. Turn on the power.





**FIG. 6 Turn on the Main Power**

5. Set the Spray valves to Recirc.




**FIG. 7 Set the Spray Valves to Recirc.**

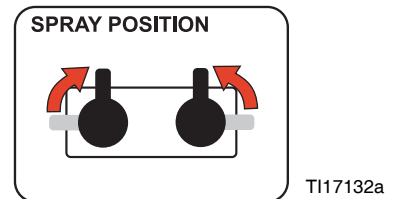
6. Set the function knob to Slow Recirc  or Fast Recirc .



**FIG. 8 Set the Function Knob to Slow or Fast Recirc.**




7. When material exits both recirculation tubes, set the function knob to Park .

8. Set the Spray valves to Spray.



**FIG. 9 Set the Spray Valves to Spray**

## Flush Fluid

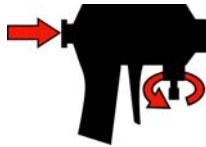
1. Insert inlet tubes into pails of solvent.
2. Insert recirculation tubes into waste containers.
3. Set the function knob to Park. See FIG. 5, page 15.
4. Plug in the power cord.
5. Turn on the power. See FIG. 6, page 15.
6. Set the Spray valves to Recirc. See FIG. 7, page 15.
7. Set the function knob to Slow Recirc  or Fast Recirc . See FIG. 8, page 15.
8. When clean solvent exits both recirculation tubes, set the function knob to Park .
9. Insert inlet tubes into the material containers.
10. Set the Spray valves to Spray. See FIG. 9, page 15.
11. Run until material exits the gun manifold.



# Spraying



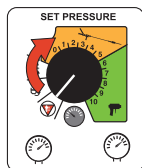
For air operated guns, air is supplied to spray gun with the gun piston safety lock engaged and gun fluid manifold valves A and B closed (if present).



**FIG. 10 Engage the Safety Lock and Fluid Manifold**

1. Set the function knob to Park. See FIG. 5, page 15.
2. Engage the piston safety lock.
3. Open the gun manifold.
4. Set the Spray valves to Spray. See FIG. 9, page 15.
5. Turn the pressure control knob to the right until the fluid pressure gauges show desired pressure.

**NOTE:** Use lower pressure for joint filling applications.

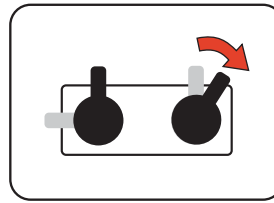


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**FIG. 11 Lower the Pressure**

6. Check fluid pressure gauges to ensure proper pressure balance. If imbalanced, reduce the pressure of the higher component by slightly turning the Spray valve for that component toward Recirc, until the gauges show balanced pressures.

**NOTE:** The pressure imbalance alarm (Status Code 1) is inactive for 10 seconds after entering spray pressure mode, to allow time to balance pressures.



In this example, the B side pressure is higher, so use the B side valve to balance pressures.

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**FIG. 12 Balance the Pressure**

**NOTE:** Watch the gauges for 10 seconds to ensure pressure holds on both sides and pumps are not moving.

7. Open the gun fluid manifold valves A and B (impingement mix guns only).

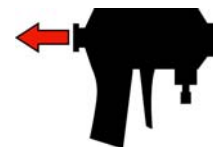


**FIG. 13 Open the Fluid Manifold**

## NOTICE

On impingement guns, never open the fluid manifold valves or trigger the gun while pressures are imbalanced. Opening the valves or triggering the gun during a pressure imbalance can cause material crossover in the gun, leading to equipment damage.

8. Disengage the piston safety lock.



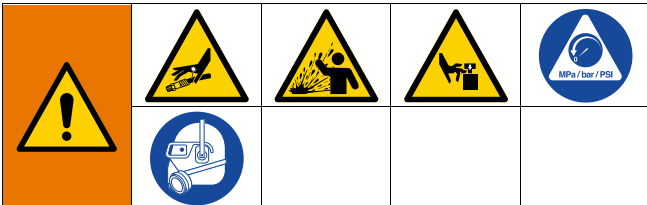
**FIG. 14 Disengage the Safety Lock**

9. Test spray onto cardboard or a plastic sheet. Verify that the material fully cures in the required length of time, and is the correct color. Adjust the pressure and temperature to get desired results. The equipment is ready to spray.

# Pressure Relief Procedure



Follow the Pressure Relief Procedure whenever you see this symbol.



This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the Pressure Relief Procedure when you stop spraying and before cleaning, checking, or servicing the equipment.

1. Perform the gun pressure relief procedure. Refer to your separate spray gun manual.
2. Set the function knob to Park. See FIG. 5, page 15.
3. Turn the Spray valves to Recirc. See FIG. 7, page 15. Fluid will be returned to the material pails. The pumps will move to the bottom of their stroke. Ensure that the gauges drop to 0.

# Shutdown

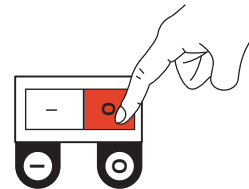
For longer breaks (more than 10 minutes), use the following procedure. If the equipment will be shut down for more than three days, perform the **Flushing** procedure, page 19, first.

1. Relieve the pressure. Follow the **Pressure Relief Procedure**, page 18.
2. Close gun fluid valves A and B. Doing this will keep the internal parts of the gun cleaner and prevent crossover.



**FIG. 15 Close the Fluid Valves**

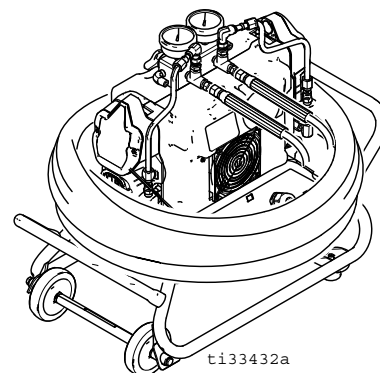
3. Shut off the power.



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**FIG. 16 Turn off the Power**

4. Perform the gun shutdown procedure. Refer to your separate spray gun manual.
5. Wrap the hoses around the sprayer.



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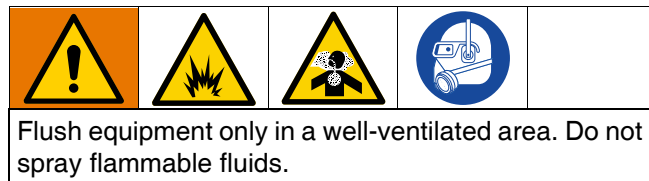
**FIG. 17 Wrap the Hoses Around the Sprayer**



6. Disconnect the power cord before moving.



## Maintenance

- Check the pump wet-cups fluid level daily. Refer to **Fill Wet-cups**, page 14.
- Do not overtighten the packing nut/wet-cup. The throat u-cup is not adjustable.
- Keep component A from exposure to moisture in the atmosphere to prevent crystallization.
- Generally, flush if you will shutdown for more than three days. Flush more often if material is moisture sensitive and humidity is high in the storage area, or if material may separate or settle out over time.
- Close gun fluid valves A and B when not spraying. See FIG. 15, page 18. Doing this will keep the internal parts of the gun cleaner and prevent crossover. See spray gun manual.
- Always grease the gun after use. See your spray gun manual.

## Flushing






- Generally, flush if you will be shut down for more than three days. Flush more often if material is moisture sensitive and humidity is high in the storage area, or if material may separate or settle out over time.
  - Flush out old fluid with new fluid, or flush out old fluid with a compatible solvent before introducing new fluid.
  - Use the lowest possible pressure when flushing.
  - Always leave some type of fluid in system. Do not use water.
  - For long term storage, flush out the solvent with a storage fluid or, at minimum, clean motor oil.
1. Engage the piston safety lock or trigger safety lock. Close fluid valves A and B. See FIG. 10, page 17. Leave air on.
  2. Set the function knob to Park. See FIG. 5, page 15.
  3. Remove both recirculation tubes from the material containers and secure each one to a dedicated waste container.
  4. In the material containers, pull the fluid inlet tubes out of the material.
  5. Turn the Spray valves to Recirc. See FIG. 7, page 15.
  6. Set the function knob to Fast Recirc . See FIG. 8, page 15. Pump material from the fluid inlet tubes until no more comes out.
  7. Set the function knob to Park . See FIG. 5, page 15.

8. Remove the fluid inlet tubes from the material containers and place the tubes in the solvent containers.
9. Set the function knob to Fast Recirc . See FIG. 8, page 15. Pump solvent through system into the waste containers.
10. When nearly clear solvent exits the recirculation tubes, set the function knob to Park . See FIG. 5, page 15.

**NOTE:** To flush the spray gun, refer to your separate spray gun instruction manual.

11. Purge the gun hoses.
  - a. Disconnect the hoses from the gun and secure to a pail of solvent.
  - b. Turn Spray valve A to Spray. See FIG. 9, page 15.
  - c. Open the gun into waste container A.

- d. Set the function knob to Slow Recirc  until the hose is flushed. See FIG. 9, page 15.
- e. Set the function knob to Park . See FIG. 5, page 15.
- f. Repeat for B side.

12. Set the function knob to Park . See FIG. 5, page 15.

13. Solvent flushing is a two step process. Go back to step 3, drain solvent, and flush again with fresh solvent.

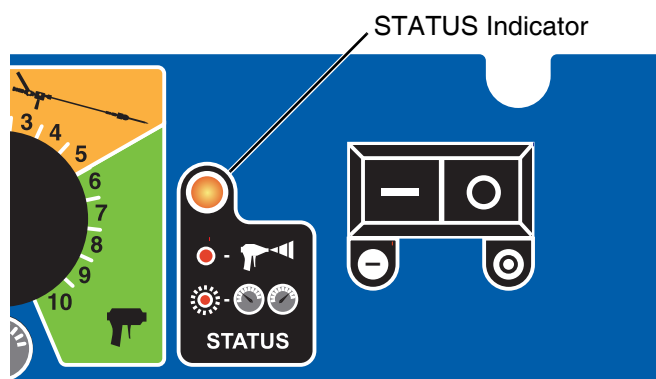
14. Place the fluid inlet tubes in a pail of plasticizer or clean motor oil and circulate fluid through the system. Leave fluid in the unit.

**NOTE:** Never leave the unit dry unless it has been disassembled and cleaned. If fluid residue dries in the pumps, the ball checks may stick the next time you use the unit.

# Troubleshooting

## Status Codes

Determine the status code by counting the number of times the status indicator blinks.



TI17123b1

**FIG. 18 The Status Indicator**

### Status Code 1: Pressure Imbalance

**NOTE:** The unit does not check for pressure imbalance at setpoints less than 250 psi (1.75 MPa, 17.5 bar). The unit does not check for pressure imbalance for 10 seconds after entering pressure mode.

The unit senses pressure imbalance between components A and B, and warns or shuts down, depending on settings of DIP switches 1 and 2. To turn off automatic shutdown and/or tighten pressure

tolerances for status code 1, see **Status Code 1 and 2 Settings**.

1. Check the fluid supply of the lower pressure component and refill if necessary.
2. Reduce the pressure of the higher component by slightly turning the Spray valve for that component toward Recirc, until the gauges show balanced pressures. See FIG. 12, page 17.

**NOTE:** Turn the Spray valve only enough to balance pressure. If turned completely, all pressure will bleed off.

3. Check the fluid inlet strainers and fluid filters at the gun.

### Status Code 2: Pressure Deviation from Setpoint

The unit does not check for pressure deviation at setpoint less than 400 psi (2.8 MPa, 28 bar).

The unit senses pressure deviation from a setpoint, and warns or shuts down, depending on settings of DIP switches 3 and 4. If equipment cannot maintain enough pressure for a good mix at the gun, try using a smaller mix chamber or nozzle.

To turn off automatic shutdown and/or tighten pressure tolerances for status code 2, see **Status Code 1 and 2 Settings**.

## Status Code 1 and 2 Settings

1. Locate switch SW2 on the control board.
2. Set the four DIP switches to the desired positions.  
See FIG. 19 and Table 2.

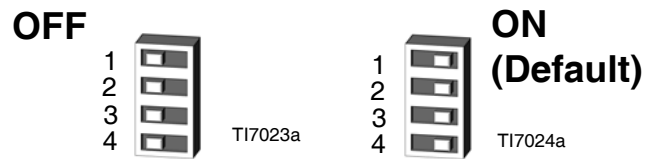


FIG. 19 DIP Switch (SW2) Settings

Table 2: Status Code 1 and 2 Settings

DIP Switch and Function	Left	Right (default setting)
<b>DIP Switch 1</b> If selected, causes shutdown or displays an advisory if the pressure imbalance exceeds selection made in DIP Switch 2	ADVISORY	SHUTDOWN
<b>DIP Switch 2</b>  If selected, causes shutdown if A and B pressure imbalance is greater than  If selected, causes <i>advisory</i> if A and B pressure imbalance is greater than	500 psi (3.5 MPa, 35 bar) (60% if < 800 psi [5.6 MPa, 56 bar] running)	800 psi (5.6 MPa, 56 bar) (70% if < 800 psi [5.6 MPa, 56 bar] running)
	300 psi (2.1 MPa, 21 bar) (50% if < 800 psi [5.6 MPa, 56 bar] running)	500 psi (3.5 MPa, 35 bar) (60% if < 800 psi [5.6 MPa, 56 bar] running)
<b>DIP Switch 3</b> If selected, causes shutdown or displays an advisory due to deviation of pressure from setpoint exceeds selection made in DIP Switch 4	ADVISORY	SHUTDOWN
<b>DIP Switch 4</b> Causes advisory if deviation of pressure from setpoint is greater than	300 psi (2.1 MPa, 21 bar) (25% if < 800 psi [5.6 MPa, 56 bar])	500 psi (3.5 MPa, 35 bar) (40% if < 800 psi [5.6 MPa, 56 bar])

## Status Code 3: Transducer A Failure

1. Check transducer A electrical connections (J3) at the board, page 25.
2. Reverse A and B transducer electrical connections at the board, FIG. 21, page 25. If the error moves to transducer B (Status Code 4), replace transducer A, **Control Board**, page 24.

## Status Code 4: Transducer B Failure

1. Check transducer B electrical connections (J8) at the board, FIG. 21, page 25.
2. Reverse A and B transducer electrical connections at the board, FIG. 21, page 25. If the error moves to transducer A (Status Code 4), replace transducer B, **Control Board**, page 24.

## Status Code 5: Excessive Current Draw

Shut off the unit and contact your distributor before resuming operation.

1. Locked rotor: motor unable to turn. Replace the motor.
2. Short on control board. Replace the board, **Control Board Replacement**, page 24.
3. Worn or hung up motor brush causing arching of brush at commutator. Replace the brushes.

**Status Code 6: High Motor Temperature**

The motor is running too hot.

1. The motor temperature too high. Reduce pressure duty cycle, gun tip size, or move system to a cooler location. Allow 1 hour for cooling.
2. Check fan operation. Clean the fan and motor housing.

**Status Code 7: No Cycle Counter Switch Input**

Have not received input from the cycle counter switch for 10 seconds after selecting Recirculation Mode.

1. Check the cycle counter switch connection to the board (J10, pins 5, 6), FIG. 21, page 25 (figure control module wiring connections).
2. Check that the magnet (224) and cycle counter switch (223) are in place under the B side motor end cover (227). Replace if necessary.

# Repair

## Control Board

### Power Bootup Check

There is one red LED (D11) on the board. Power must be on to check. See FIG. 21 for location. Function is:

- Startup: 1 blink for 60 Hz, 2 blinks for 50 Hz.
- Motor running: LED on.
- Motor not running: LED off.
- Status code (motor not running): LED blinks status code

### Control Board Replacement



Check motor before replacing board.

1. Relieve the pressure. Follow the **Pressure Relief Procedure**, page 18.
2. Carefully lay the sprayer on its side on a level surface. Rotate the sprayer and rest upside-down on blocks.

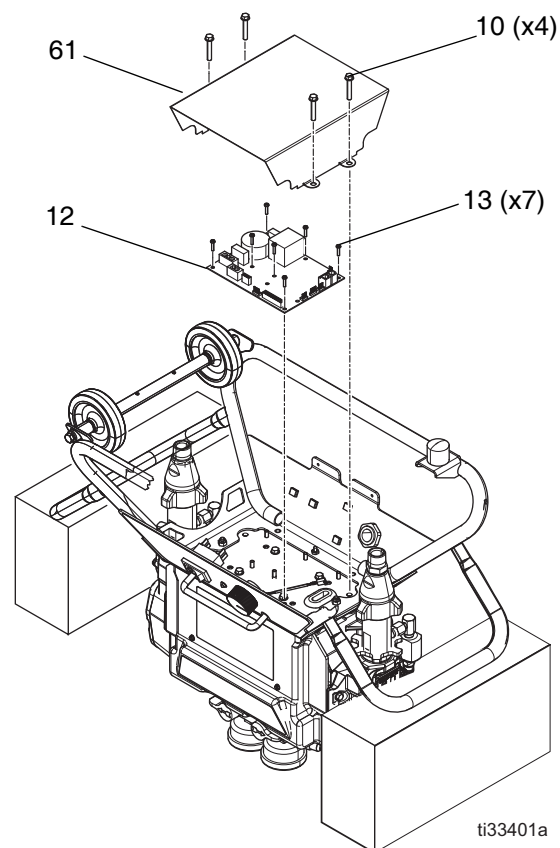
**NOTE:** Always use two people when lifting the sprayer on to a workbench.

3. Remove the four screws (10) and control board cover (61) to expose the control board (12).
4. Disconnect all cables and connectors from the board.
5. Remove the seven screws (13) and remove the board.
6. Install the new board in reverse order.

**NOTE:** Apply thermal compound between the square steel piece on the back of the board and the main aluminum plate.

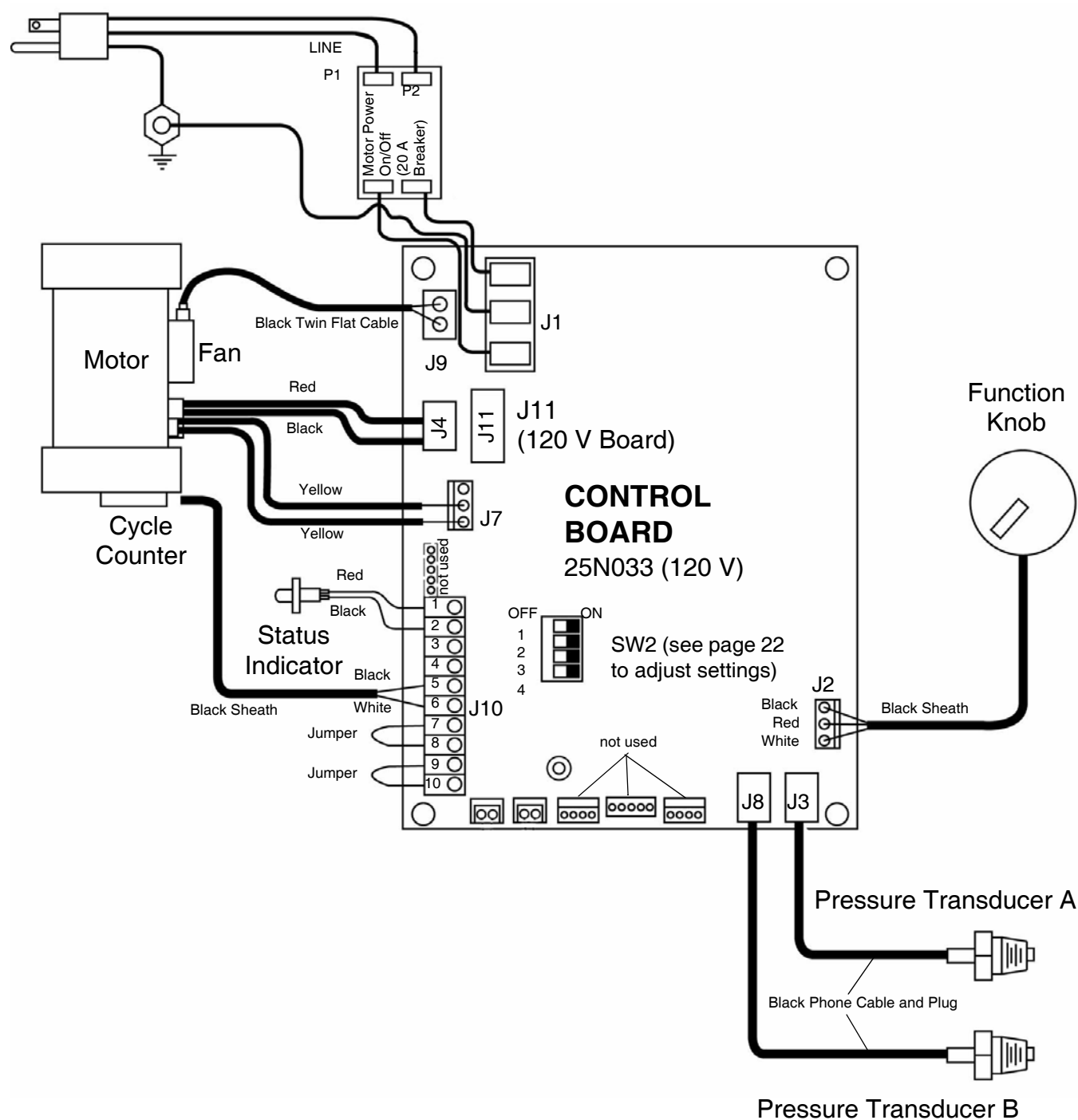
**Table 3: Control Board Connectors**  
(see FIG. 21)

Board Jack	Pin	Description
J1	n/a	Main power from breaker
J2	n/a	Function knob
J3	n/a	Transducer A
J4	n/a	Motor power (230 V units)
J7	1, 2	Motor thermal overload signal
J8	n/a	Transducer B
J9	n/a	Fan
J10	1, 2	Status Indicator
	3, 4	Not used
	5, 6	Cycle switch signal
	7, 8	Jumpered
	9, 10	Jumpered
J11	n/a	Motor power (120 V)



**FIG. 20 Control Board Removal**



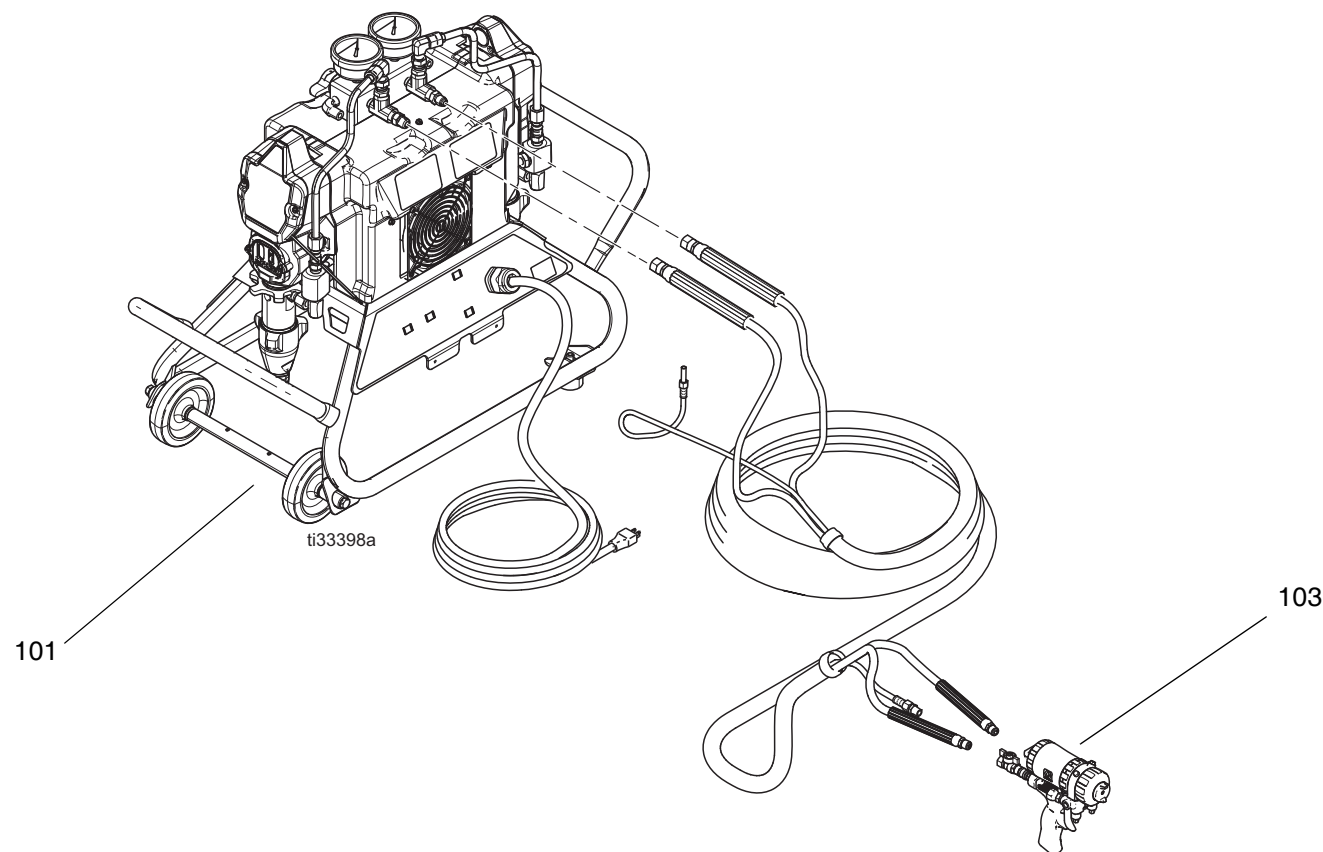


**FIG. 21 Control Module Wiring Connections**

## This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

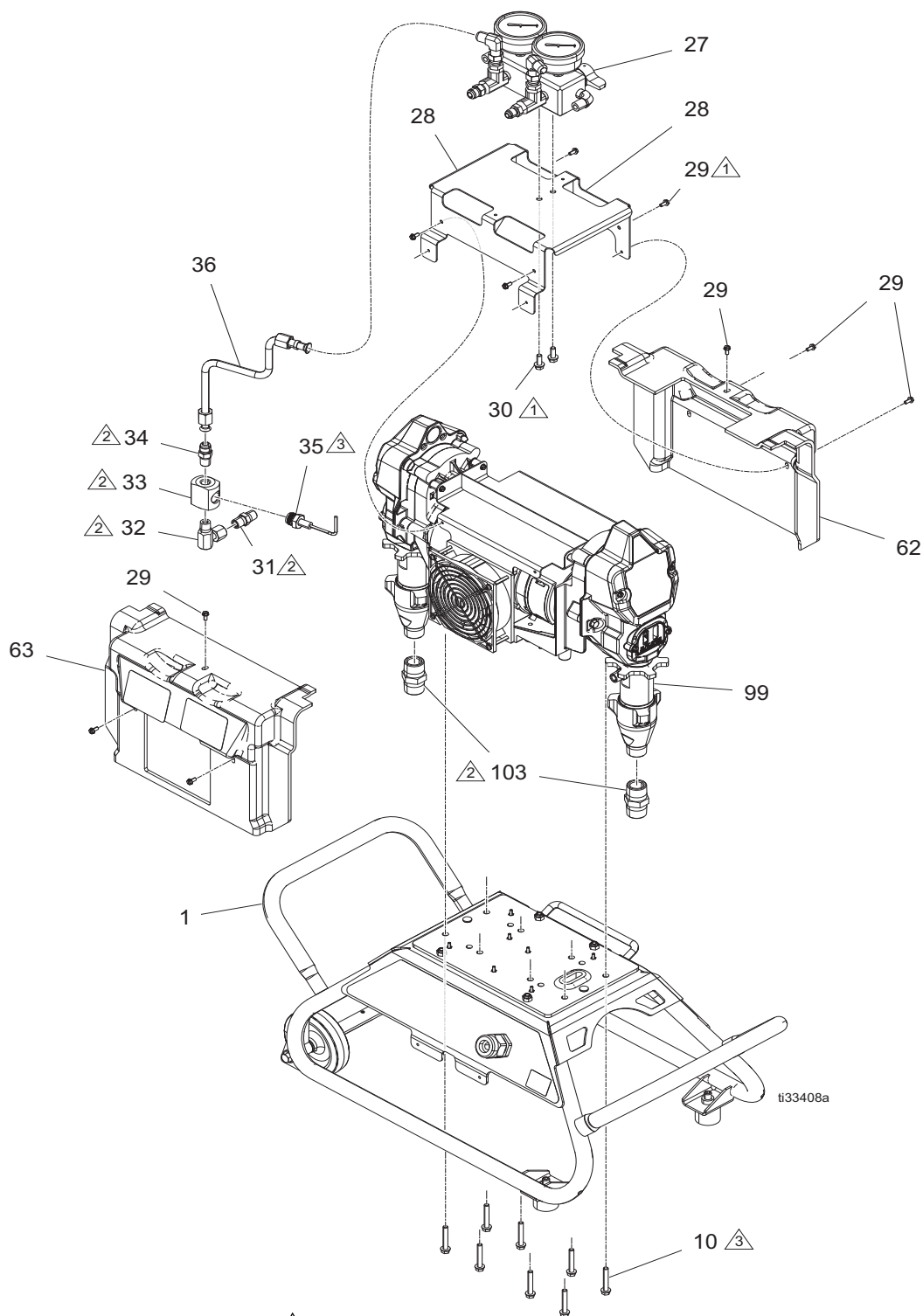
# Parts

## 120 V Fusion Air Purge System Packages



System Package	Volts	Description	Bare Proportioner (101)	Gun (103)
25N014	120 V	Fusion Air Purge Proportioner Packages for E-8p	25A836	247124
25N015		Fusion Air Purge Proportioner Packages for E-15p	26C023	

## 25A836 and 26C023, Bare Proportioner



① Apply sealant to threads.

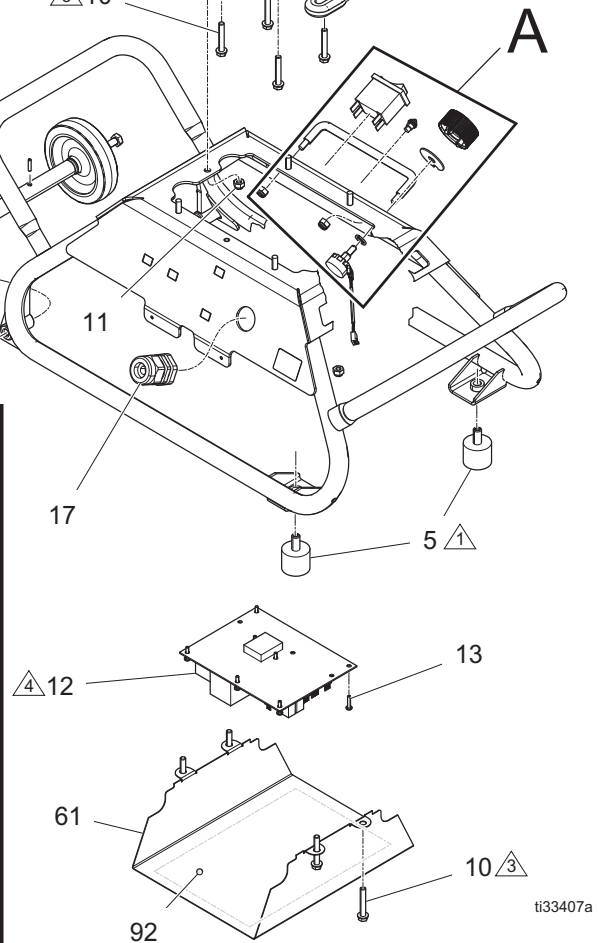
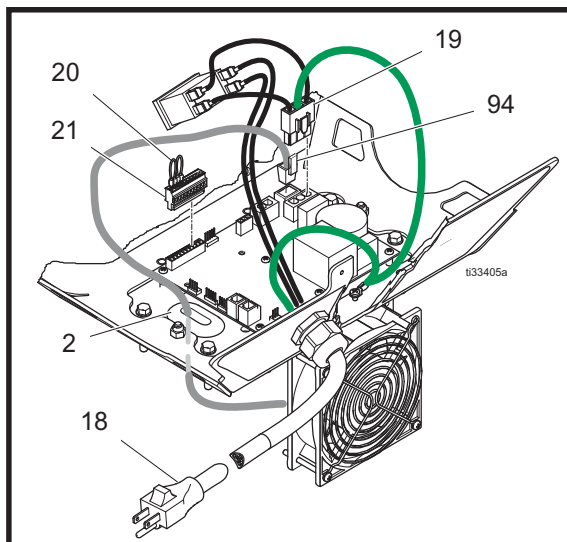
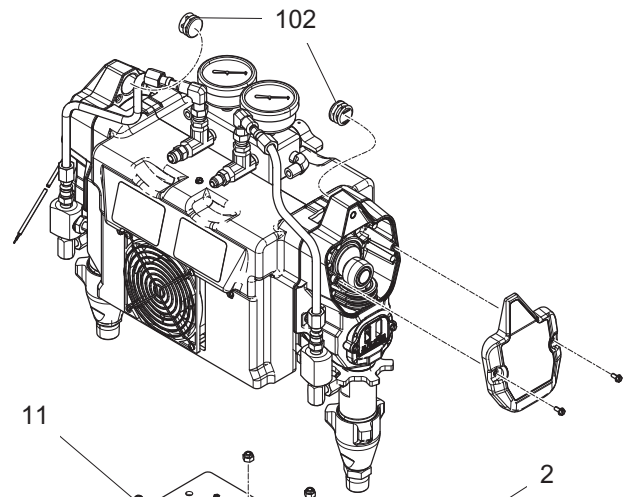
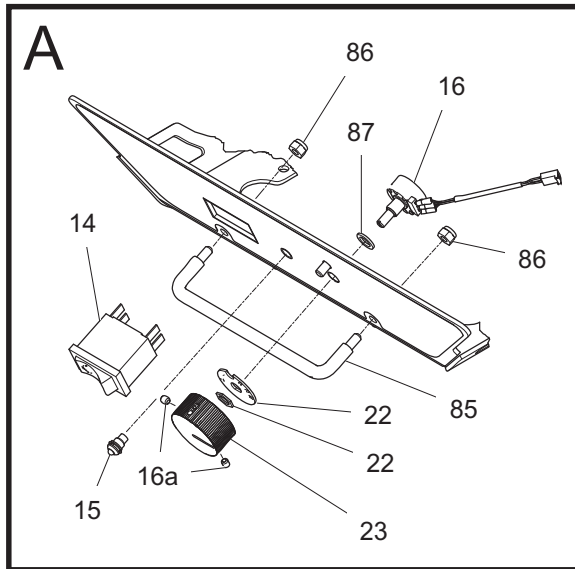
② Apply sealant to all non-swiveling pipe threads.

③ Apply lubricant to all o-rings and bolt-wheel connection (3, 91).

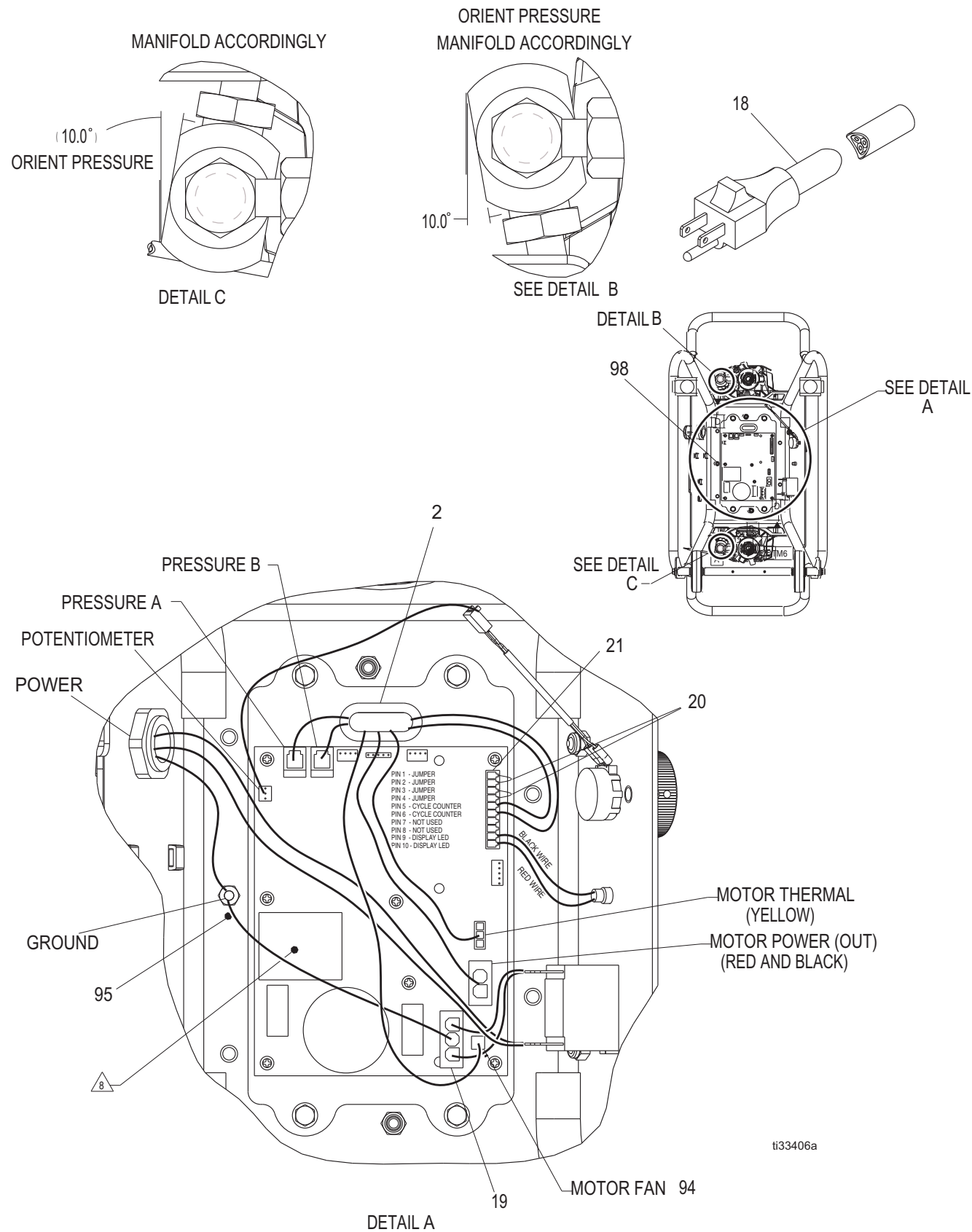
④ Cover entire surface of sensor probe with lubricant before assembling onto motor plate (8).

⑤ Torque to 5-6 ft-lb (6.7-8 N•m).

# 25A836 and 26C023, Bare Proportioner (continued)



25A836 and 26C023, Bare Proportioner (continued)



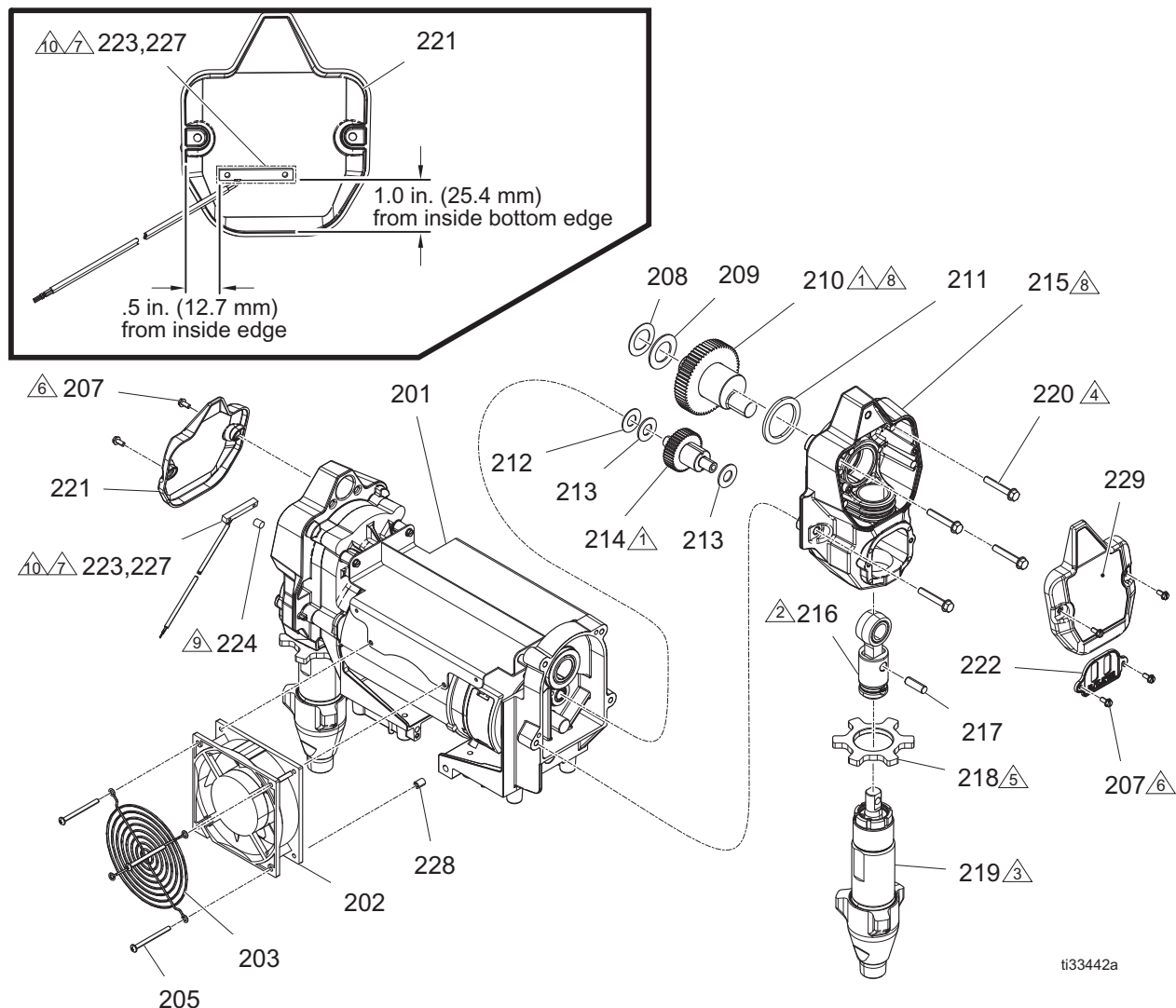
**25A836 and 26C023, Bare Proportioner (continued)**

Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
1	24J139	CART, painted	1	35	24K999	TRANSDUCER, pressure, control	2
2	16H888	GROMMET, push-in, 7/8 id	1	36	16H530	TUBE, fluid	2
3	16F820	WHEEL, caster	2	45	249629	HOSE, cpld, 1/4" x 48", moistgard	1
4	16H352	SPACER, axle	1	46	249630	HOSE, cpld, 1/4" x 48", resin	1
5	121573	BUMPER, urethane, 3/8-16, 80-90 dur	2	58	103473	STRAP, tie, wire	4
7	120454	WASHER, flat	4	61	24J141	COVER, electronics, painted, E-8P	1
8	16G939	PLATE, motor mount	1	62	24J151	COVER, shroud, front, painted	1
10	117493	SCREW, mach, hex washer hd	8	63	24J152	COVER, shroud, back, painted	1
11	102040	NUT, lock, hex	6	67▲	16H569	LABEL, warning	1
12	25N033	BOARD, circuit assy	1	85	16H543	HANDLE, pull	1
13	107156	SCREW, mach, pan hd	7	86	121114	NUT, hex, self locking	2
14	24K983	SWITCH, rocker, w/breaker, 240V, 20A	1	87	261866	WASHER, flat	1
15	119930	DIODE, light-emitting	1	90	112154	PIN, straight, slotted	2
16	24L002	POTENTIOMETR, adjustment, pressure	1	91	15M314	SCREW, cap	2
17	119897	FITTING, bulkhead, cable, 0.250	1	92▲	189930	LABEL, caution	1
18	24K995	CORD SET, power, 125V	1	93▲	16H902	TAG, informational	1
19	15G230	CABLE, harness, power	1	94	15G458	CABLE, fan, 46" w/plug/board conn	1
20	15C866	WIRE, jumper	1	96	217374	LUBRICANT, ISO pump	1
21	116773	CONNECTOR, plug, 3.81 mm (10 position)	1	98	113505	NUT, keps, hex hd	1
22	15G053	PLATE, detent, display	1	99	26A503	PROPORTIONER, 120V, E-15P, OEM	1
23	24L001	KNOB, control, w/ball plunger	1		25A835	PROPORTIONER, 120 V, E-8p, OEM	1
27	24J147	MANIFOLD, recirculation	1	102	17L272	PLUG, rubber	2
28	24J140	BRACKET, recirc mnfld, painted	1	103*	119992	FITTING, pipe, nipple, 3/4 x 3/4 npt	2
29	115492	SCREW, mach, slot hex wash hd	10				
30	108296	SCREW, mach, hex wash hd	2				
31	156971	FITTING, nipple, short	2				
32	155541	FITTING, swivel, 90 degree	2				
33	15G292	MANIFOLD, pressure transducer	2				
34	116704	ADAPTER, 9/16-18 jic x 1/4 npt	2				

▲ Replacement safety labels, tags, and cards are available at no cost.

\* Only used with Reactor E-8p (25A836).

## 25A836 and 26C023, Bare Proportioner



- ① Apply lubricant to all gear teeth, motor pinion, and motor end bell on both sides of the motor.
- ② Apply lubricant to rectangular cavity on connecting link.
- ③ Apply lubricant to threads of cylinder before assembly into housing.
- ④ Torque to 150+/-10 in.-lb.
- ⑤ Tighten by hand only.

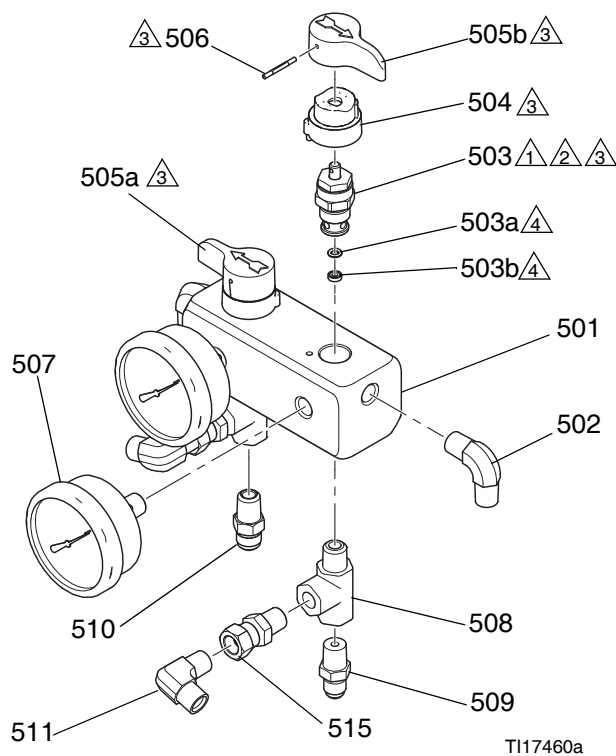
- ⑥ Torque fasteners to 30-35 in.-lb. Applies only when fasteners are assembled in plastic housings (215).
- ⑦ Switch mounts to cover opposite brush end of motor only.
- ⑧ Housing must be installed on motor with crankshafts aligned with each other.
- ⑨ Assemble magnet to center of offset crankshaft on switch cover side of motor and adjust for park location.
- ⑩ Affix switch to motor cover with double-sided tape. Cut to 2 in. (51 mm). Mount cover on side opposite the brush end of motor.

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Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
201	24E355	MOTOR, 120V	1		195150	NUT, jam, pump, E-8p	2
202	24K985	FAN, cooling, 120 VAC	1	219	245970	PUMP, displacement, E-15p	2
203	115836	GUARD, finger	1		24L006	PUMP, displacement, E-8p	2
204	103646	RIVET, blind	1	220‡	117493	SCREW, mach, hex washer hd	8
205	120094	SCREW, pan hd, phil, zinc	3	221	15B254	COVER, front, Graco, paint	2
207‡	115492	SCREW, mach, slot hex wash hd	8	222‡	15B589	COVER, pump rod	2
208*	116074	WASHER, thrust	2	223	117770	SWITCH, reed w/cable	1
209*	107434	BEARING, thrust	2	224	24K982	MAGNET, disc, 0.38 dia, 0.100 thick	1
210*	248231	CRANK, 595	2				
211*	180131	BEARING, thrust	2	227	115711	TAPE, foam, 1/2 wide	1
212	116073	WASHER, thrust	2	228	119997	INSERT, thread, knock-in, 8/32 unc	1
213	116079	BEARING, thrust	4				
214	249194	GEAR, reducer (first stage)	2	229	15F849	LABEL, side, Reactor, Graco	2
215	26A505	HOUSING, drive, assembly, E-15p	2				
	‡ 287000	HOUSING, drive, assembly, E-8p	2	* Included in 248231 Crankshaft Kit.			
216◆	287053	ROD, connecting	2	‡ Included in 287055 Drive Housing Kit.			
217◆	196762	PIN, straight	2	◆ Included in 287053 Connecting Rod Kit.			
218	17A257	NUT, jam, pump, E-15p	2				

## Recirculation Manifold, 24J147



1 Torque to 250 in-lb (28 N•m).

2 Use blue threadlocker on valve cartridge threads into manifold.

3 Apply lubricant to mating surfaces.

4 Part of item 503.

Ref.	Part	Description	Qty.
501	24K993	MANIFOLD, recirculation	1
502	111763	ELBOW; 1/4 npt (mbe)	4
503	239914	VALVE, Spray; includes items 503a, 503b	2
503a	15E022	SEAT, valve	1
503b	111699	GASKET, seat, valve	1
504	224807	BASE, valve	2
505a	17X499	HANDLE, valve, drain (Red)	1
505b	17X521	HANDLE, valve, drain (Blue)	1
506	111600	PIN, grooved	2
507	113641	GAUGE, pressure, fluid	2
508	116504	TEE; 1/4 npt(m) x 1/4 npt(f) run; 1/4 npt(f) branch	2
509	119998	ADAPTER; 5/16 JIC x 1/4 npt(m)	1
510	116704	ADAPTER; 3/8 JIC x 1/4 npt(m)	1
511	556765	ELBOW, tube; 1/4 npt(m) x 3/8 in. (10 mm) OD tube	2
515	156823	UNION, swivel; 1/4-18 npt	2

## Suggested Spare Replacement Parts

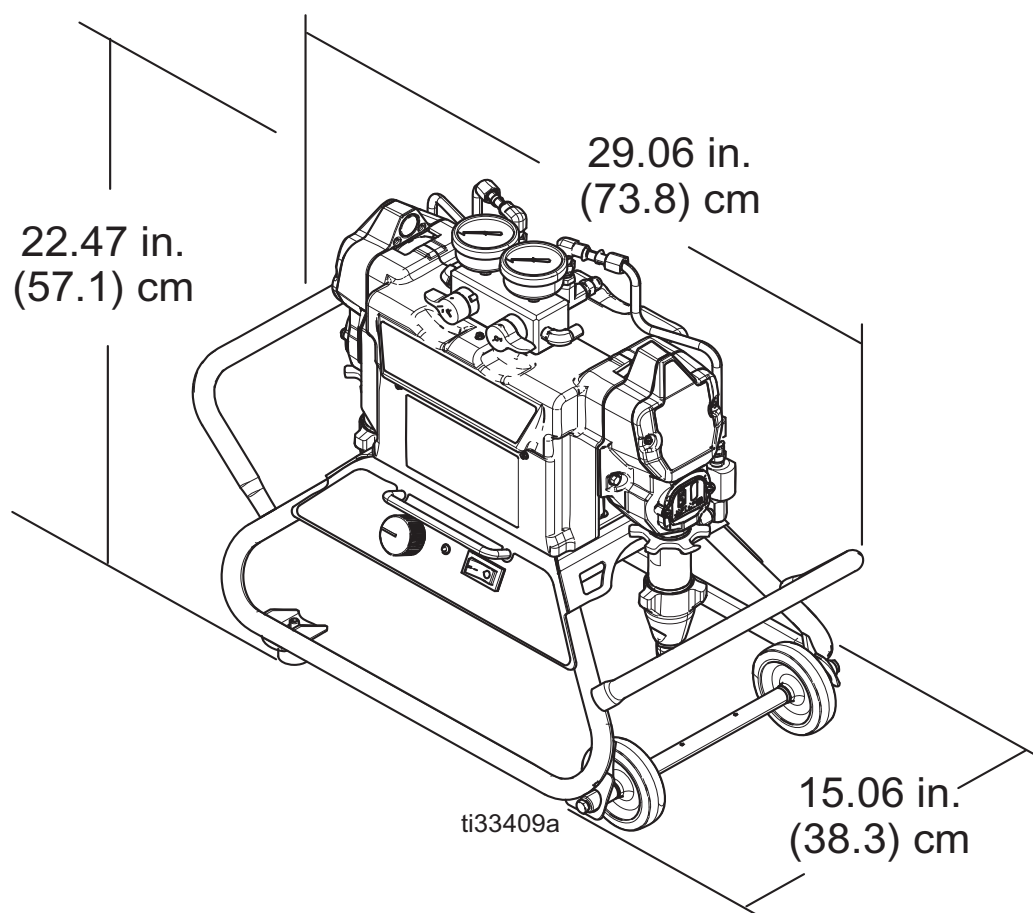
Part	Description
24K983	SWITCH, motor power, with circuit breaker
113641	GAUGE, pressure, fluid; sst
239914	VALVE, Spray; includes seat and gasket
24L002	POTENTIOMETER, control knob
24K999	TRANSDUCER, pressure
24L006	PUMP, displacement; fits either side, E-8p only
249855	REPAIR KIT, displacement pump; includes seals, balls, bearings, intake valve seat)

## Accessories

### Fusion Air Purge Gun

Air purge gun, available in round or flat patterns. See your gun manual.

## Dimensions



# Technical Specifications

Reactor E-8p and E-15p		
	US	Metric
Maximum fluid working pressure	2000 psi	14 MPa, 138 bar
Electrical requirements	120 Vac, 1 phase, 50/60 Hz, 1800 W; requires a single dedicated 15 A circuit	
Generator Size	2500 W minimum	
Minimum hose length	25 ft	7.6 m
Maximum Ambient Temperature	110°F	43°C
Overpressure Relief	Spray valves automatically relieve excessive fluid pressure back to supply tanks	
Maximum Output at 340 cycles/min		
E-8p	12 lb/min	5.4 kg/min
E-15p	15 lb/min	6.8 kg/min
Output per Cycle (A and B)		
E-8p	0.00352 gal.	0.0133 liter
E-15p	0.0044 gal.	0.0167 liter
Sound Pressure		
In fast circulation mode	78.7 dB(A)	
At 2000 psi (14 MPa, 138 bar), 0.72 gpm (2.7 lpm)	84.5 dB(A)	
Sound Pressure per ISO 9614-2		
In fast circulation mode	88.6 dB(A)	
At 2000 psi (14 MPa, 138 bar), 0.72 gpm (2.7 lpm)	94.4 dB(A)	
Inlet/Outlet Sizes		
Fluid Outlet - Component A (ISO)	-5 JIC male	
Fluid Outlet - Component B(RES)	-6 JIC male	
Fluid Circulation Return - Component A (ISO)	-5 JIC male	
Fluid Circulation Return - Component B(RES)	-6 JIC male	
Air Inlet	1/4 in. quick-disconnect industrial type pin fitting	
Air Outlet	1/4 npsm(m)	
Hose Markings		
A Side	Red	
B Side	Blue	
Weight (empty), without gun and hose	95 lb.	43.1 kg
Wetted Parts	Aluminum, stainless steel, carbon steel, brass, carbide, chrome, chemically resistant o-rings, PTFE, ultra-high molecular weight polyethylene	
Maximum Hose Length	105 ft	32 m

# Graco Standard Warranty

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

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

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Revision C, June 2019