

REACTOR[®] E-8p

Portable Plural Component Sprayer

3A1602J

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.

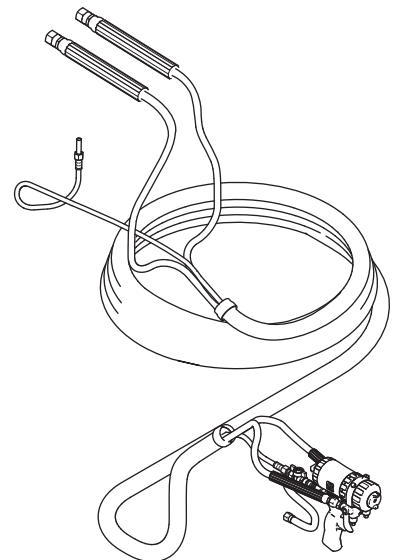
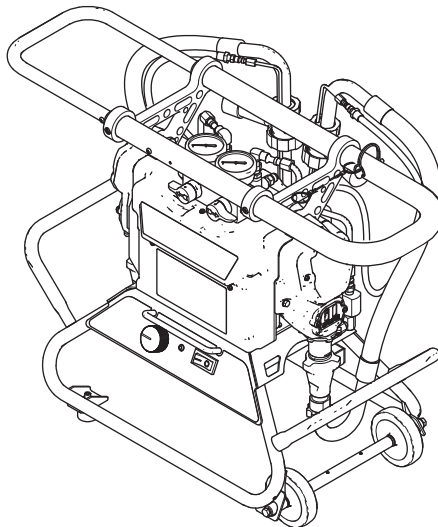
2000 psi (14 MPa, 138 bar) Maximum Working Pressure

See page 3 for a list of models.



Important Safety Instructions

Read all warnings and instructions in all supplied manuals. Save all instructions.



TI17120a



Contents

Systems	3	Repair	33
Proportioners	3	Before Beginning Repair	33
Related Manuals	3	Recirculation/Spray Valves	33
Warnings	4	Displacement Pump	34
Important Isocyanate (ISO) Information	7	Replace Function Knob/Potentiometer	35
Material Self-ignition	8	Control Board	37
Keep Components A and B Separate	8	Pressure Transducers	39
Moisture Sensitivity of Isocyanates	8	Drive Housing	39
Foam Resins with 245 fa Blowing Agents	9	Cycle Counter Switch Replacement	42
Changing Materials	9	Electric Motor	43
Overview	10	Motor Brushes	44
Component Identification	11	Fan	44
Controls and Indicators	12	Spout Adapter	45
Setup	13	Parts	46
Location	13	Suggested Spare Replacement Parts	55
Electrical Requirements	13	Accessories	55
Grounding	13	Dimensions	56
Lock/Unlock Handle	14	Technical Data	57
Install 38 mm Spout Adapter	14	Graco Standard Warranty	58
Install Desiccant Dryers	14		
Install Optional Recirculation Kit	15		
Connect Fluid Hoses	17		
Connect Gun to Air Hose (Air Operated Guns Only)	17		
Connect Main Air Supply	17		
Flush Before Using Equipment	17		
Fill Wet-cups	19		
Install Pail Heaters	19		
Recirculate Material	19		
Purge Air and Flush Fluid	20		
Connect Fluid Inlet Tubes	21		
Spraying	22		
Pressure Relief Procedure	23		
Shutdown	23		
Maintenance	24		
Flushing	25		
Troubleshooting	27		
Status Codes	27		
Troubleshooting Chart	30		

Systems

Part	Maximum Working Pressure, psi (MPa, var)	Proportioner (see Proportioners)	Hose		Gun Model	
			Part	Length	Model	Part
AP9082	2000 (14, 140)	259082	24M653	50 (15.2)	Fusion™ Air Purge	246100
CS9082	2000 (14, 140)	259082	24M653	50 (15.2)	Fusion™ CS	CS00RD
P29082	2000 (14, 140)	259082	24M653	50 (15.2)	Probler P2	GCP2R0
AP9083	2000 (14, 140)	259083	24M653	50 (15.2)	Fusion™ Air Purge	246100
CS9083	2000 (14, 140)	259083	24M653	50 (15.2)	Fusion™ CS	CS00RD
P29083	2000 (14, 140)	259083	24M653	50 (15.2)	Probler P2	GCP2R0
24R151	2000 (14, 140)	259082	24R823	35 (10.7)	Manual 2K	24R021
24R154	2000 (14, 140)	259083	24R823	35 (10.7)	Manual 2K	24R021
25A846	2000 (14, 140)	25A836	24R823	35 (10.7)	Manual 2K	24R021

Proportioners

The model no., series letter, and serial no. are located on the back of the Reactor E-8p™.

Part	Volts	* Electrical Connection (motor only)	Application	Maximum Working Pressure, psi (MPa, bar)
★259082	120 V	15 A cord	No-heat polyurethane foam. Polyurea joint-fill materials.	2000 (14, 140)
259083	240 V	10 A cord		
25A836	120 V	15 A cord		

* See page 13 for detailed electrical requirements.

★ Approvals:



Related Manuals

Manuals are available at www.graco.com.





Manual	Description
313123	Displacement Pump Repair-Parts
311076	Displacement Pump Repair-Parts
309550	Fusion™ Air Purge Spray Gun Instruction-Parts

Manual	Description
312666	Fusion™ CS Spray Gun Instruction-Parts
313213	Probler® P2 Spray Gun Instruction-Parts
332198	Joint Fill Gun Instructions-Parts

NOTE: The pail heaters are shipped with the manual supplied by their manufacturer.

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, 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.

 WARNING	
	<p>ELECTRIC SHOCK HAZARD</p> <p>This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock.</p> <ul style="list-style-type: none"> • Turn off and disconnect power cord before servicing equipment. • Use only grounded electrical outlets. • Use only 3-wire extension cords. • Ensure ground prongs are intact on power and extension cords. • Do not expose to rain. Store indoors.
	<p>TOXIC FLUID OR FUMES HAZARD</p> <p>Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled or swallowed.</p> <ul style="list-style-type: none"> • Read Safety Data Sheet (SDS) for handling instructions and to know the specific hazards of the fluids you are using, including the effects of long-term exposure. • When spraying, servicing equipment, or when in the work area, always keep work area well ventilated and always wear appropriate personal protective equipment. See Personal Protective Equipment warnings in this manual. • Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.
	<p>PERSONAL PROTECTIVE EQUIPMENT</p> <p>Always wear appropriate protective equipment and cover all skin when spraying, servicing equipment, or when in the work area. Protective equipment helps 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:</p> <ul style="list-style-type: none"> • 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. • Protective and hearing protection.

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. 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 arc).
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.
- Ground all equipment in the work area. See **Grounding** instructions.
- Use only grounded hoses.
- Hold gun firmly to side of grounded pail when triggering into pail.
- If there is static sparking or you feel a shock, **stop operation immediately**. Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.



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.
- 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 Data** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Data** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS 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.
- 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.



BURN HAZARD





Equipment surfaces and fluid that's heated can become very hot during operation. To avoid severe burns:

- Do not touch hot fluid or equipment.

Important Isocyanate (ISO) Information


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

Isocyanate Conditions

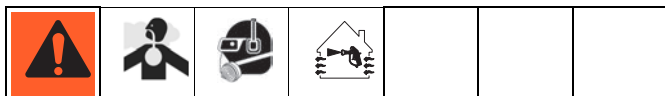
									
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Spraying or dispensing fluids that contain isocyanates creates potentially harmful mists, vapors, and atomized particulates.

- Read and understand the fluid manufacturer's warnings and Safety Data Sheet (SDS) 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 SDS.
- 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 SDS.
- 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:



For all applications except spray foam



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 Sheet (SDS) 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 SDS.
- Use of incorrectly maintained or mis-adjusted equipment may result in improperly cured material. 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 SDS.

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.

Material Self-ignition



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

Keep Components A and B Separate



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.

- Always use a sealed container with a desiccant dryer in the vent, or a nitrogen atmosphere. **Never** store ISO in an open container.
- 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.
- Use only moisture-proof hoses compatible with ISO.
- Never use reclaimed solvents, which may contain moisture. Always keep solvent containers closed when not in use.
- Always lubricate threaded parts with an appropriate lubricant when reassembling.

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.

- When changing materials, flush the equipment multiple times to ensure it is thoroughly clean.
- Always clean the fluid inlet strainers after flushing.
- Check with your material manufacturer for chemical compatibility.
- 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.

Overview

The Reactor E-8p 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 Reactor E-8p 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 12, for further information.

The Reactor E-8p has two recirculation speeds: slow and fast, and an adjustable pressure output.

Slow Recirculation

- Use for pump priming.

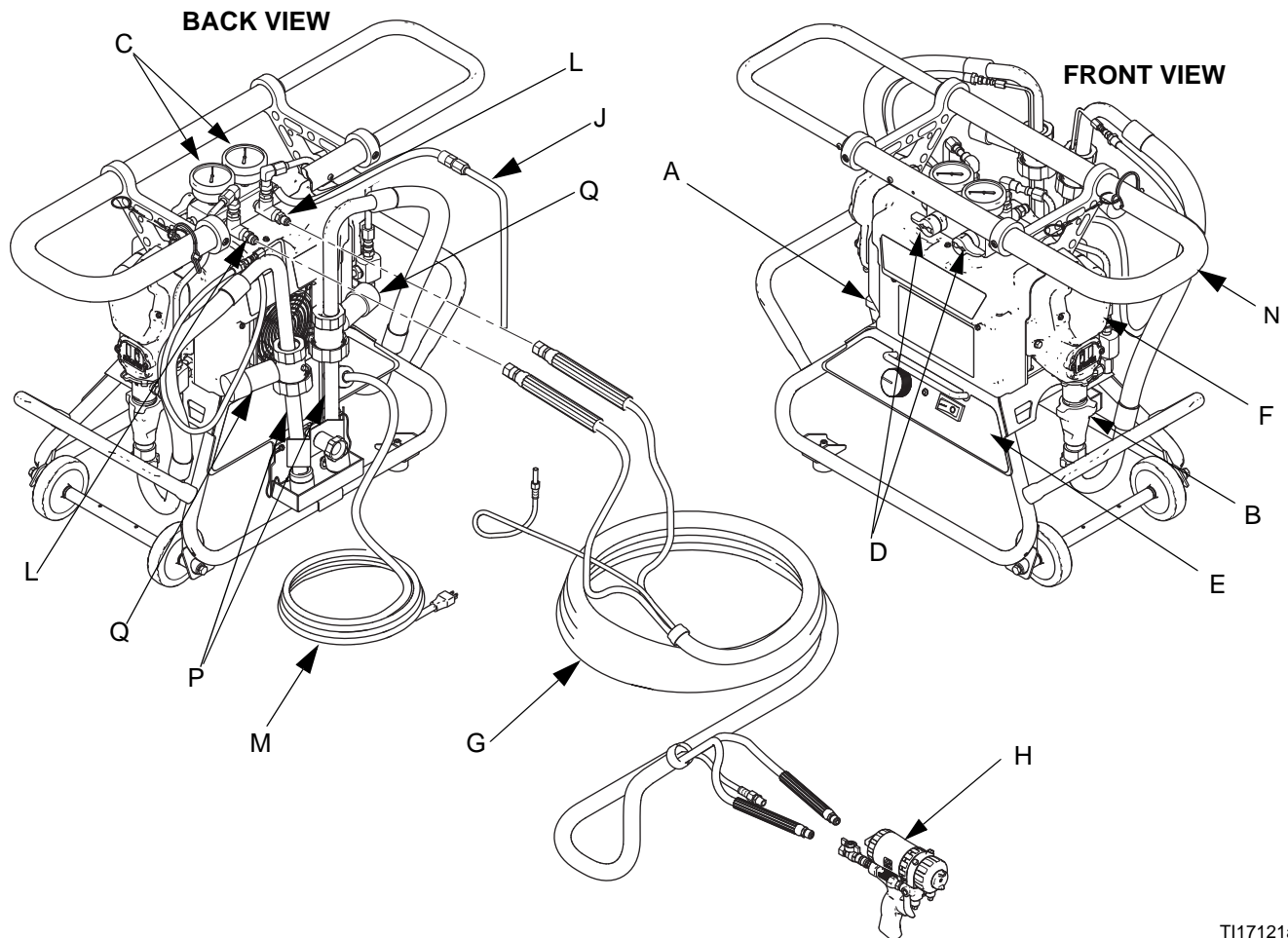
Fast Recirculation

- Use for flushing.
- Use for pump priming.

Pressure Adjust

Automatically maintains selected pressure output for spraying.

Component Identification



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FIG. 1: Component Identification

Key:

- A Pump A
- B Pump B
- C Fluid Pressure Gauges
- D Recirc/Spray and Overpressure Relief Valves
- E Control Panel
- F Electric Motor and Drive Housings
- G Hose Bundle
- H Spray Gun
- J Recirculation Tubes
- K Air Line Inlet (quick-disconnect fitting)
- L Outlet Hose Connections
- M Power Cord
- N Lift Ring/Handle/Hose Rack
- P Fluid Inlet Tubes
- Q Desiccant Dryers

Controls and Indicators

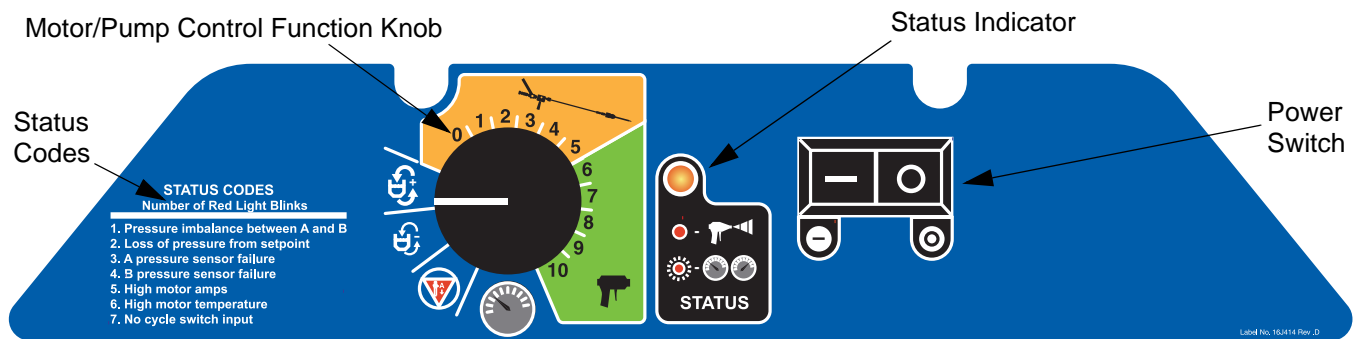


FIG. 2: Controls and Indicators

Power Switch

Powers the Reactor E-8p on and off.

Motor/Pump Control Function Knob

Use knob to select desired function.

Icon	Setting	Function
	Stop/Park	Stops motor and automatically parks pumps.
	Slow Recirc	Slow recirculation speed.
	Fast Recirc	Fast recirculation speed.
	Static Mix	Use fluid pressure 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 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 27.

Table 1: Status Codes
(also located on front of 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 28. You cannot set the other codes.

Setup

Location

- The Reactor E-8p should always be used on a level surface.
- Do not expose the Reactor E-8p to rain.

Electrical Requirements

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Improper wiring may cause electric shock or other serious injury if work is not performed properly. Have a qualified electrician perform any electrical work. Be sure your installation complies with all National, State and Local safety and fire codes.

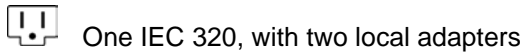
- Required power source: single dedicated circuit that is rated at a minimum of 15A.

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

- Power cord connector (120V):



- Power cord connector (240 V):



- Extension cord requirements:

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

Grounding

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The equipment must be grounded. Grounding reduces the risk of static and electric shock by providing an escape wire for the electrical current due to static build up or in the event of a short circuit.

Reactor E-8p: 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 grounded Reactor E-8p. Do not operate without at least one grounded fluid hose.

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.

Lock/Unlock Handle

Lock the handle when the sprayer is moved, laid on its side, or turned upside down.

Unlock

To unlock the handle, remove lanyard and locking pin from cart handle. Pull on handle to extend cart handle and move sprayer.

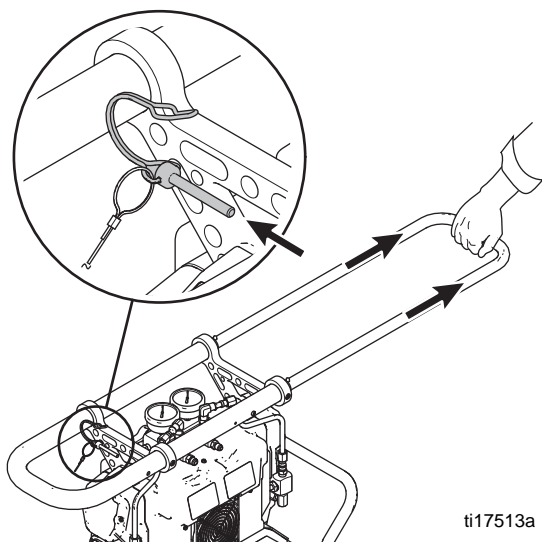


FIG. 3

Lock

To lock the handle, press down handle pins and slide cart handle through tubes. Insert pin through cart handle and lock with lanyard.

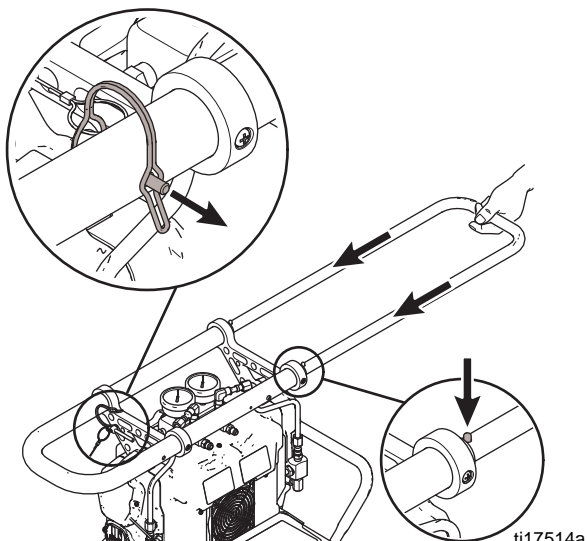


FIG. 4

Install 38 mm Spout Adapter

The sprayer is supplied with a 40 mm spout adapter. Install 38 mm spout adapters if necessary.

1. Loosen containment knob.
2. Remove suction tube caps and place in containment tray.
3. For installation instructions, see **Spout Adapter**, page 45.

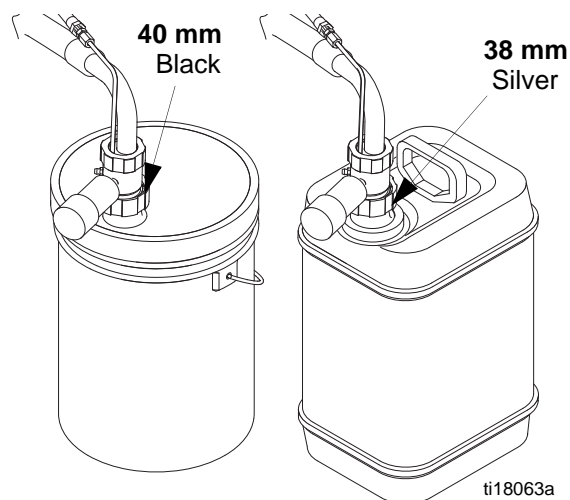


FIG. 5: Spout Adapters

Install Desiccant Dryers

1. Use needle nose pliers to remove two plugs (P) from the dryer (73).
2. Remove plug from adapter housing (57).
3. Screw the dryer into the adapter housing (57) hand-tight only. Do not overtighten.

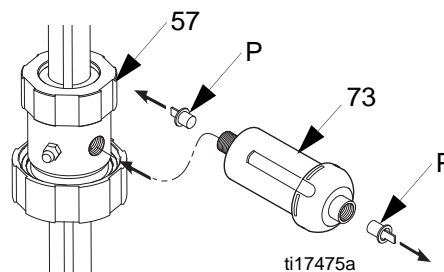


FIG. 6: Desiccant Dryer Installation

Install Optional Recirculation Kit

Use Hose Recirculation Kit 24M654 to help evenly distribute heat when using supplemental heaters and circulate material through the fluid manifold, out to the gun, and back to the material supply container. See **Accessories**, page 55.

Apply thread sealant to all non-swiveling pipe threads.

NOTICE

To prevent cross-contamination of fluids and equipment parts, **never** interchange component A (isocyanate) and component B (resin) parts or containers.

1. Relieve pressure. See **Pressure Relief Procedure**, page 23.
2. Flush. See page **Flushing**, page 25.
3. Remove fluid tubes (36).

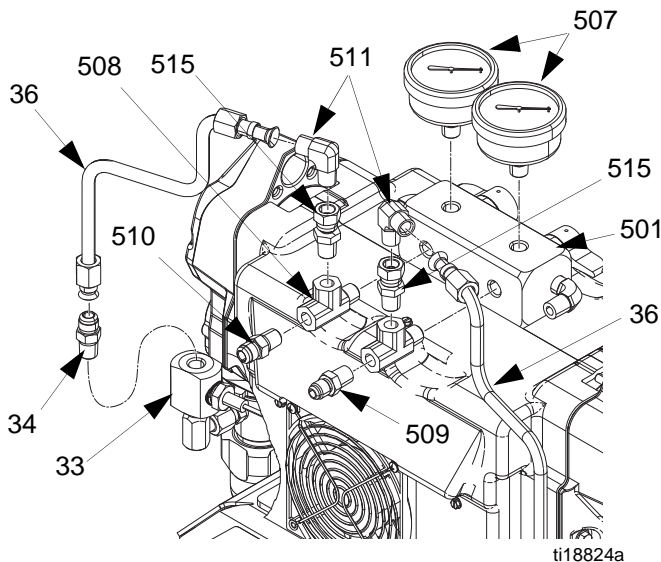
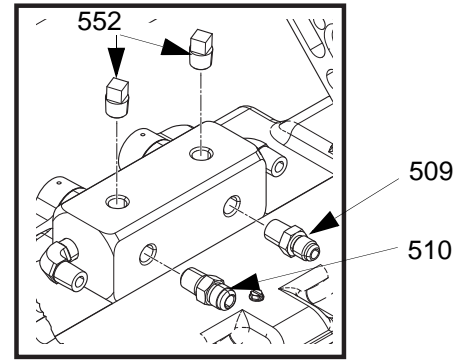


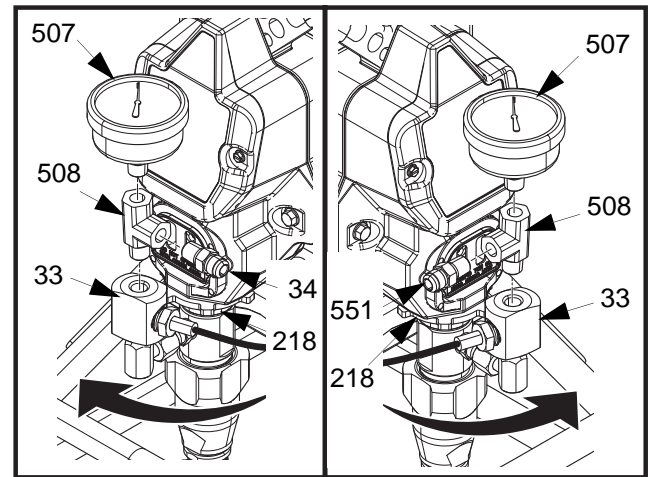
FIG. 7

4. Place a wrench on the pressure transducer manifold (33) and remove the adapters (34). Set A and B side adapters aside.
5. Remove fittings (509) and (510). Remove two swivel fittings (515) and elbow fittings (511) from tee fitting (508). Remove tee fittings and gauges (507) from manifold (501). Set A and B side parts aside. Elbow fittings (511) are not used with recirculation setup.
6. Install 1/4 npt x -6 JIC adapter fitting (510) in the B side fluid manifold outlet port. Install 1/4 npt x -5 JIC fitting (509) in the A side fluid manifold outlet port.



B Side

A Side



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FIG. 8

7. Install plugs (552).
 8. Loosen pump lock nut (218) by hitting firmly with right-to-left with a non-sparking hammer. Rotate pump until there is enough space to install pressure gauges. If the transducer cable is tight, remove bottom cover and cut cable ties. See FIG. 56, page 36.
 9. Install A and B side tee fittings (508) in the pressure transducer manifolds (33). Install adapter fitting (551) and adapter fitting (34) in tee fittings (508).
 10. Install gauges (507) in tee fittings (508).
- NOTE:** Ensure that there is enough space to dispense Graco ISO pump oil in the wet cup through the pump cover.
11. Tighten locknut (218) by hitting firmly with a non-sparking hammer.
 12. Install fluid tubes (36).

Connect Fluid Hoses

Connect fluid supply hoses to outlet hose connections (FIG. 9 and FIG. 10). Red hoses for component A (ISO), blue for component B (RES). Fittings are sized to prevent connection errors. Connect other end of hoses to A and B inputs of gun.

NOTE: If using the Recirculation Hose Kit 24M654, connect hoses to Recirculation Gun Manifold Kit 249523. See FIG. 10.

Connect Gun to Air Hose (Air Operated Guns Only)

Connect 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

NOTE: The Reactor E-8p requires 4 scfm (0.112 m³/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 25.

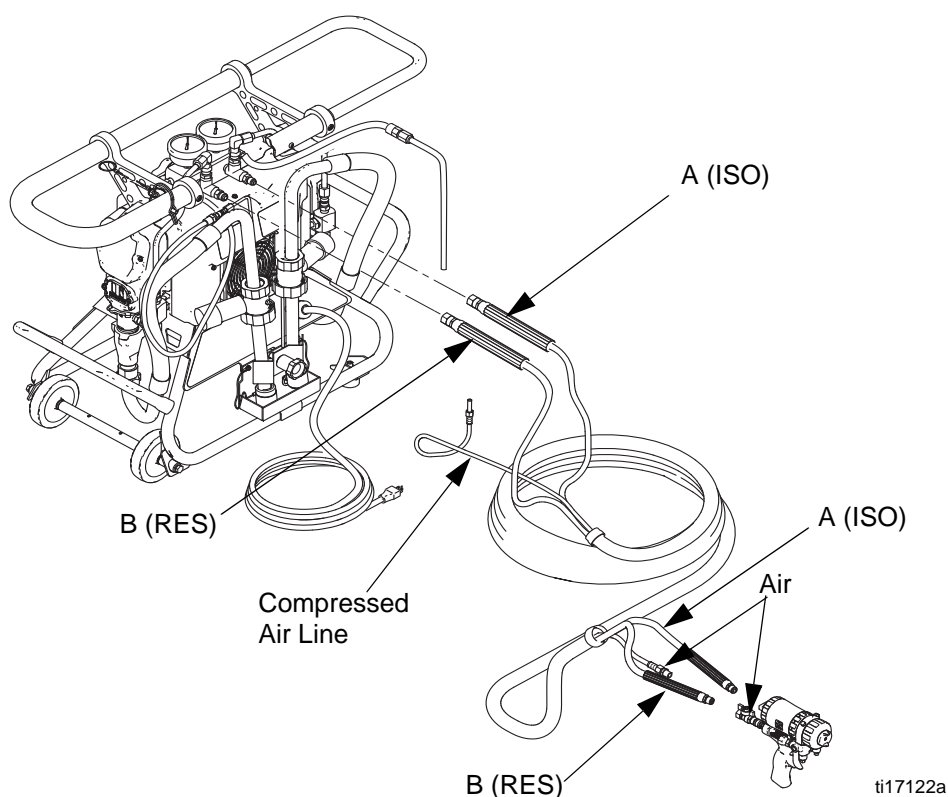


FIG. 9: Hose and Air Connections

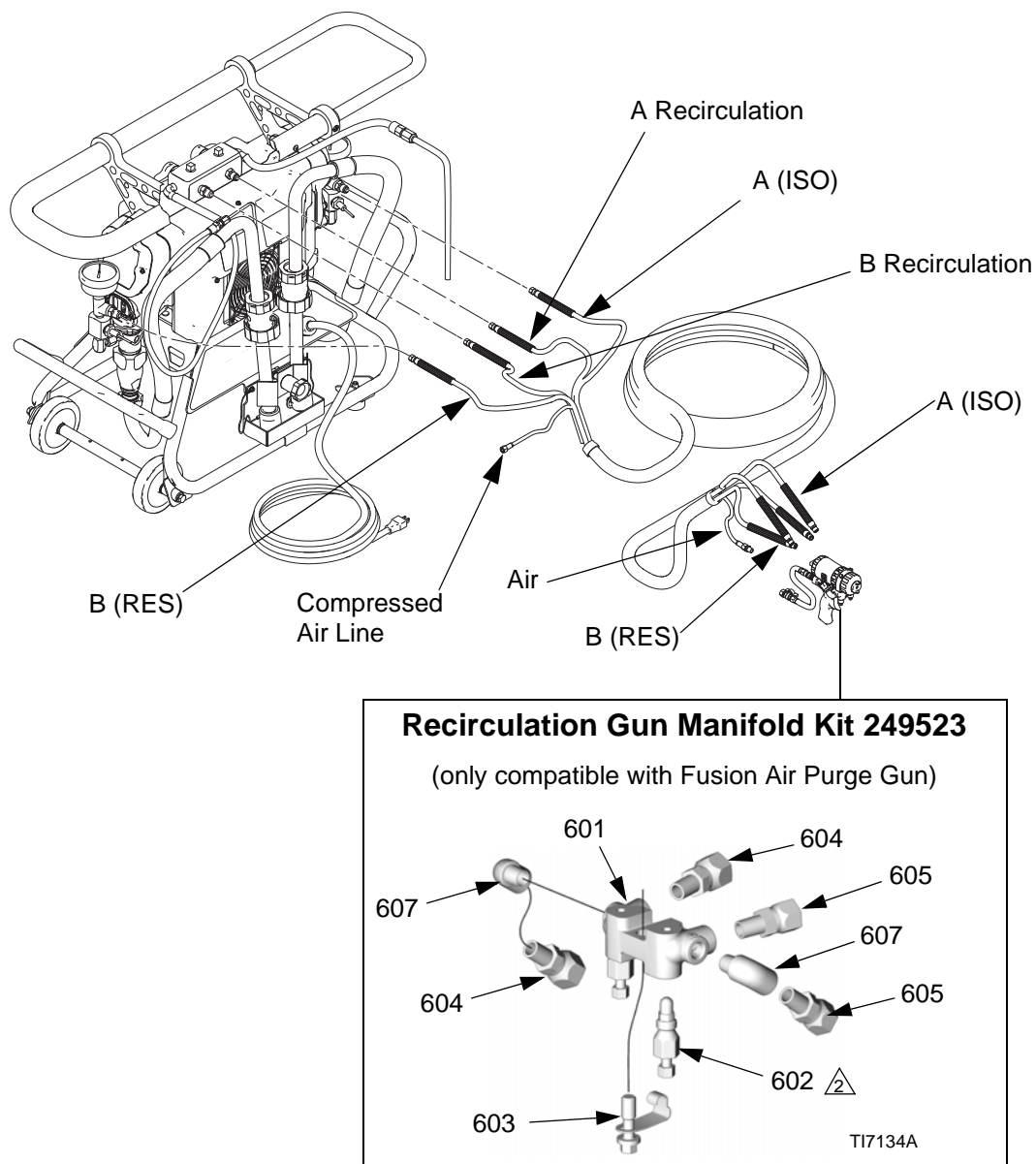
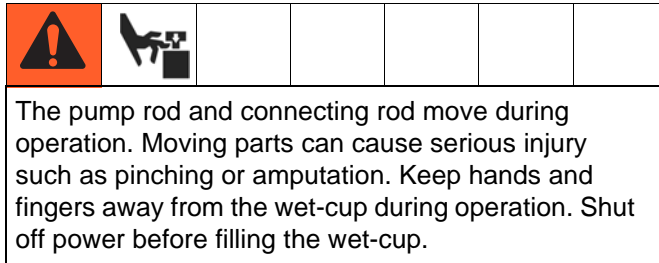


FIG. 10: Hose and Air Connections - Recirculation Hose Kit 24M654

Fill Wet-cups

Keep the felt washers in the pump wet-cups saturated with Graco ISO pump oil, Part No. 217374. The lubricant creates a barrier between the ISO and the atmosphere.



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

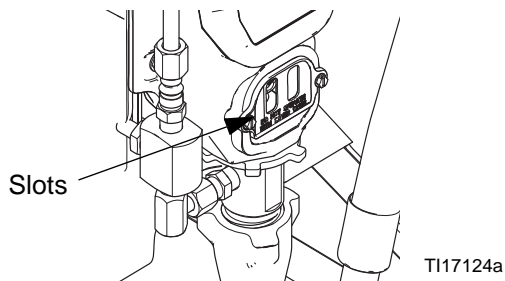
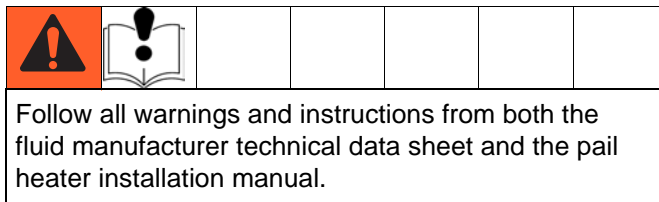


FIG. 11: Fill Wet Cup

Install Pail Heaters



If the material viscosity at room temperature is greater than 2000 centipoise the pump may not siphon feed on-ratio. Purchase and install the optional flexible pail heaters so the material can be warmed, resulting in a lower viscosity and enabling the pump to properly siphon feed. See **Accessories** on page 55.

Install and operate according to the included pail heater manufacturer's installation manual.

Recirculate Material

The standard system circulates material from the fluid manifold back to the supply container. To circulate material from the gun back to the material supply container, purchase and install Hose Recirculation Kit 24M654. See **Install Optional Recirculation Kit** on page 15.



1. Insert inlet tubes into pails. See **Connect Fluid Inlet Tubes**, page 21.
2. Set function knob to Stop/Park.

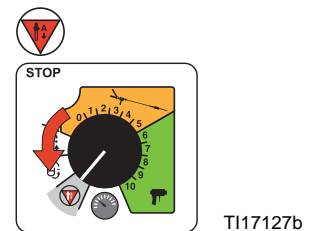


FIG. 12

3. Plug in power cord.
4. Turn on power.



FIG. 13

5. Set the Recirc/Spray valves to Recirc.

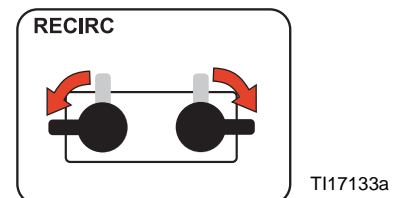



FIG. 14

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



FIG. 15

7. When material exits both recirculation tubes, set the function knob to Stop/Park .
8. Set the Recirc/Spray valves to Spray.

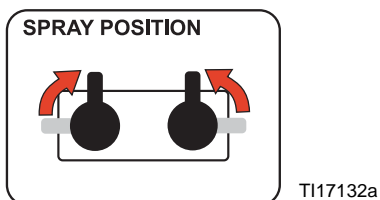
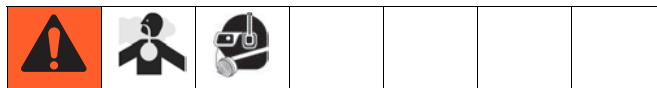


FIG. 16

Purge Air and Flush Fluid



1. Insert inlet tubes into pails of solvent.

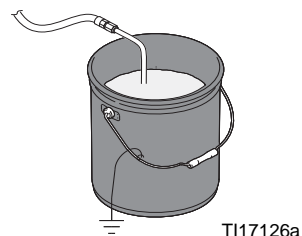


FIG. 17

2. Insert recirculation tubes into waste containers.
3. Set function knob to Stop/Park.

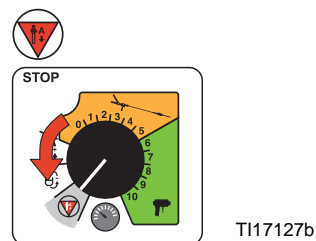


FIG. 18

4. Plug in power cord.
5. Turn on power.

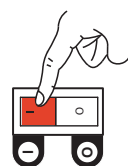


FIG. 19

6. Set the Recirc/Spray valves to Recirc.

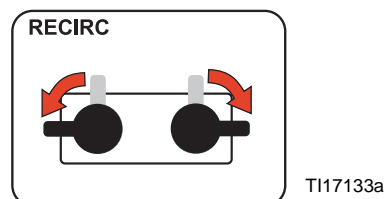


FIG. 20




7. Set function knob to Slow Recirc  or Fast Recirc .



FIG. 21

8. When clean solvent exits both recirculation tubes, set the function knob to Stop/Park .
9. Insert inlet tubes into pails. See **Connect Fluid Inlet Tubes**, page 21.
10. Set the Recirc/Spray valves to Spray.

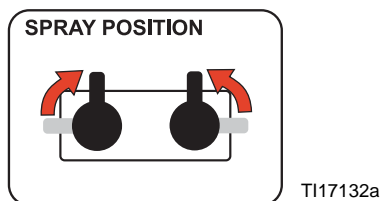
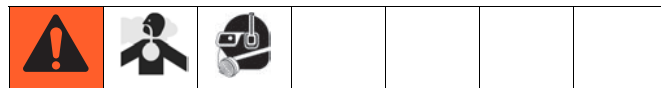


FIG. 22

11. Run until material exits gun manifold.

Connect Fluid Inlet Tubes



1. Loosen containment knob.
2. Remove suction tube caps and place in containment tray.
3. Insert each fluid inlet tube through the pour spout on the appropriate five-gallon pail. Tighten the ring to the pour spout.

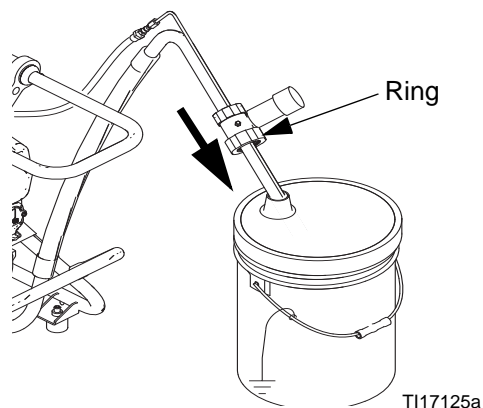


FIG. 23

NOTICE

To prevent cross-contamination of fluids and equipment parts, **never** interchange component A (isocyanate) and component B (resin) parts or containers.

Label one pail "A" and the other "B", using the red and blue labels provided. Always double check which material you have before placing fluid inlet tube into the pail.

NOTE: Use a drill and mixing blade to mix filled or separated materials in the pail before placing fluid inlet tube into the pail.

Spraying



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

NOTE: If using the Manual 2K gun, refer to the Manual 2K gun instruction manual.

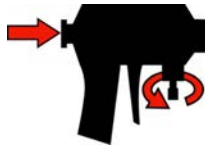
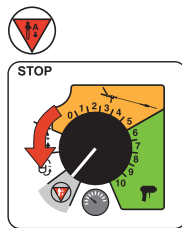


FIG. 24

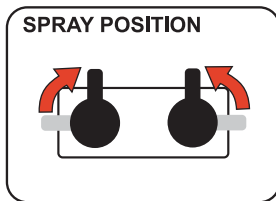
1. Set function knob to Stop/Park.



TI17127b

FIG. 25

2. Engage piston safety lock.
3. Open gun manifold.
4. Set Recirc/Spray valves to Spray.

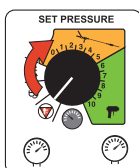


TI17132a

FIG. 26

5. Turn the pressure control knob to the right until fluid pressure gauges show desired pressure.

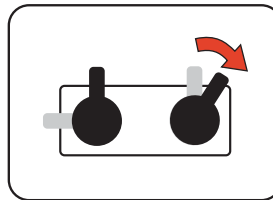
NOTE: It is desirable to use lower pressure for joint filling applications.



TI17129b

FIG. 27

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

TI17137a

FIG. 28

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

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



FIG. 29

NOTE: On impingement guns, **never** open fluid manifold valves or trigger gun if pressures are imbalanced.

8. Disengage piston safety lock.

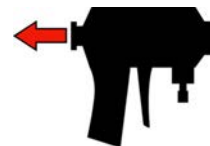
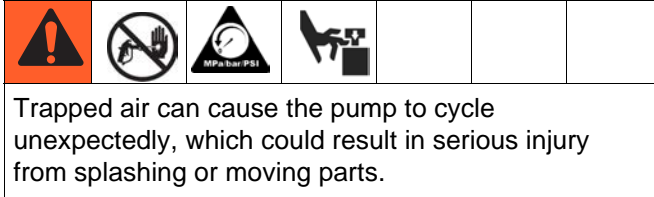


FIG. 30

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

Pressure Relief Procedure



NOTE: If using the Manual 2K gun, refer to the Manual 2K gun instruction manual.

1. Engage piston safety lock.

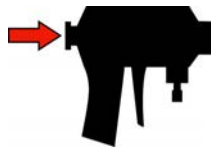
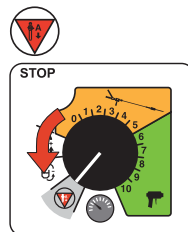


FIG. 31

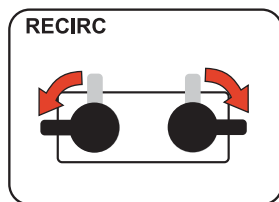
2. Set function knob to Stop/Park.



TI17127b

FIG. 32

3. Turn Recirc/Spray valves to Recirc. Fluid will be returned to material pails. Pumps will move to the bottom of their stroke. Ensure gauges drop to 0.



TI17133a

FIG. 33

Shutdown

NOTE: For longer breaks (more than 10 minutes), use the following procedure. If you will be shut down for more than three days, perform the **Flushing** procedure, page 25, first.

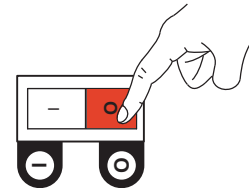
NOTE: If using the Manual 2K gun, refer to the Manual 2K gun instruction manual.

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



FIG. 34

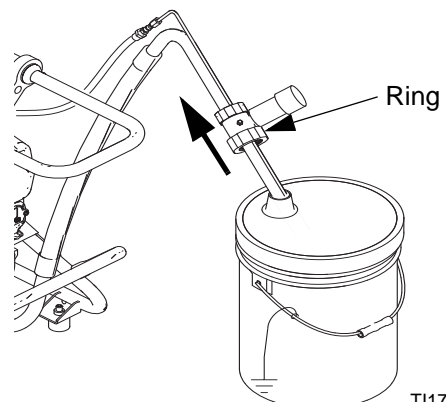
3. Shut off power.



TI17135a

FIG. 35

4. Loosen rings from pour spouts and remove fluid inlet tubes from pails. Allow residual fluid to drain into the appropriate pail.



TI17125a

FIG. 36

5. Use solvent to wipe down fluid inlet tubes.
6. Install suction tube caps on each fluid inlet tube and rest in the containment tray. Tighten the containment knob to press the bracket against the fluid inlet tubes.

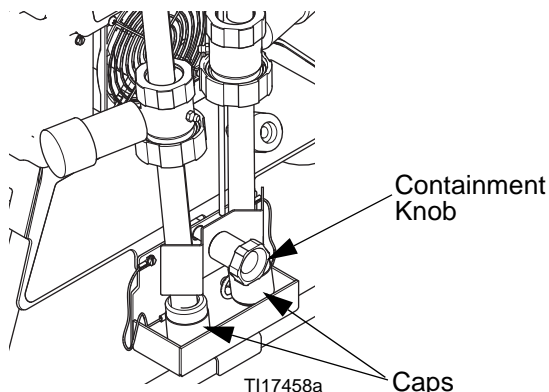


FIG. 37

7. Refer to your separate spray gun manual to perform the gun shutdown procedure.
8. Wrap hoses around sprayer.
9. Disconnect power cord before moving.

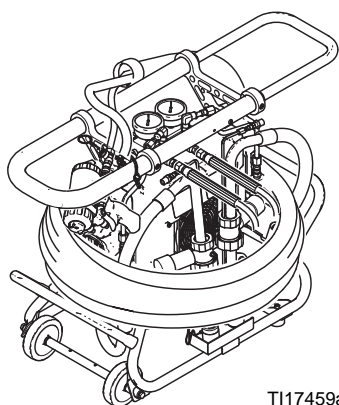


FIG. 38

Maintenance

- Check pump wet-cups fluid level daily. Refer to **Fill Wet-cups**, page 19.
- Do not overtighten packing nut/wet-cup. Throat u-cup is not adjustable.
- Keep component A from exposure to moisture in atmosphere, to prevent crystallization.
- Check desiccant filters weekly. Filter is blue when fresh, and turns pink when saturated.
- 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. Doing this will keep the internal parts of the gun cleaner and prevent crossover. Clean gun mix chamber ports and check valve screens regularly. See spray gun manual.

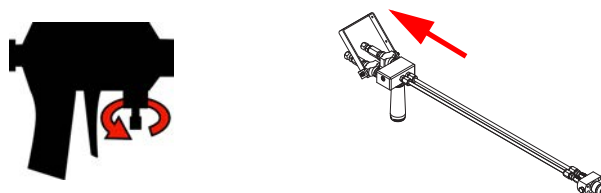
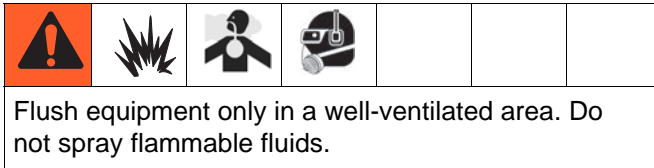


FIG. 39

- Always grease the gun after use until purge air carries grease mist out the front of the gun. Use Part No. 117773 Grease. See spray gun manual.
- Always grease the inlet tube spout adapters after use. Use Part No. 117773 Grease and grease gun supplied with spray gun.
- Remove any material from containment tray with solvent.

Flushing



- Generally, flush if you will be shut down for more than 3 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 such as Bayer Mesamoll plasticizer or, at minimum, clean motor oil.
1. Engage piston safety lock or trigger safety lock. Close fluid valves A and B. Leave air on.

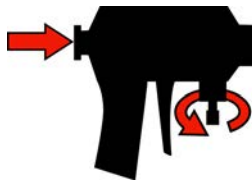


FIG. 40

2. Set function knob to Stop/Park.

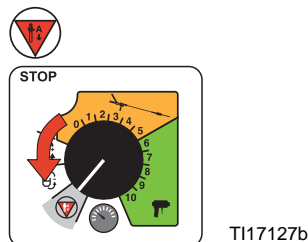


FIG. 41

3. Remove both recirculation tubes from material pails and secure each one to a dedicated waste container.

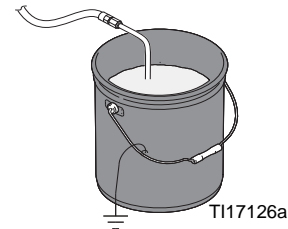


FIG. 42

4. Turn Recirc/Spray valves to Recirc.

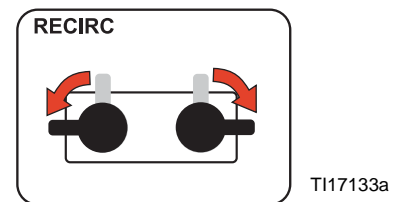



FIG. 43

5. Set function knob to Fast Recirc . Pump material from fluid inlet tubes until no more comes out.

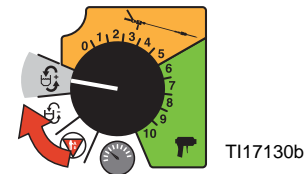





FIG. 44

6. Set function knob to Stop/Park .
7. Set function knob to Fast Recirc . Pump solvent through system into waste containers.
8. When nearly clear solvent exits the fluid inlet tubes, set function knob to Stop/Park .

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

9. Purge gun hoses.
 - a. Disconnect hoses from gun and secure to a pail of solvent.
 - b. Turn Recirc/Spray valve A to Spray.

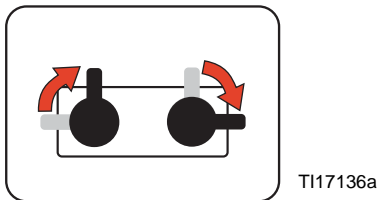





FIG. 45

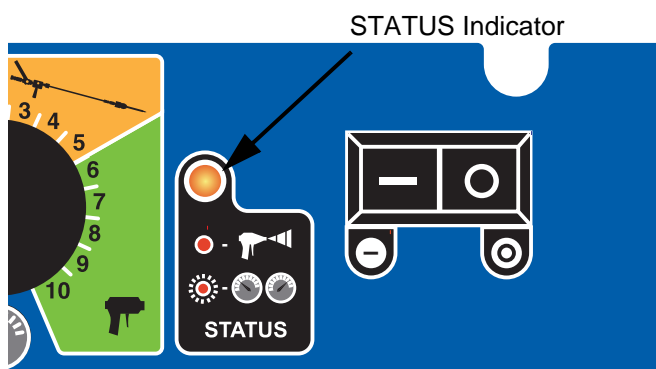
- c. Open gun into waste container A.
 - d. Set function knob to Slow Recirc  until hose is flushed.
 - e. Set function knob to Stop/Park .
 - f. Repeat for B side.
10. Set function knob to Stop/Park .
11. Solvent flushing is a two step process. Go back to step 3, drain solvent, and flush again with fresh solvent.
12. Place 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.



T117123b1

FIG. 46

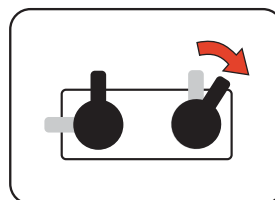
Status Code 1: Pressure Imbalance

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.

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 fluid supply of lower pressure component and refill if necessary.

2. Reduce pressure of higher component by **slightly** turning Recirc/Spray valve for that component toward Recirc, until gauges show balanced pressures.



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FIG. 47

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

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

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

Status Code 2: Pressure Deviation from Setpoint

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

Unit senses pressure deviation from 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. 48 and Table 2.

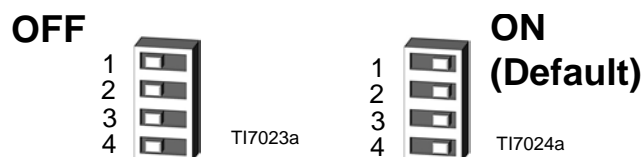


FIG. 48. DIP Switch (SW2) Settings

Table 2: Status Code 1 and 2 Settings

DIP Switch and Function	Left	Right (default setting)
DIP Switch 1 If selected, causes shutdown or displays a warning if the pressure imbalance exceeds selection made in DIP Switch 2	WARNING	SHUTDOWN
DIP Switch 2 If selected, causes <i>shutdown</i> if A and B pressure imbalance is greater than If selected, causes <i>warning</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)
DIP Switch 3 If selected, causes shutdown or displays a warning due to deviation of pressure from setpoint exceeds selection made in DIP Switch 4	WARNING	SHUTDOWN
DIP Switch 4 Causes warning 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 board, page 38.
2. Reverse A and B transducer electrical connections at board, page 38. If error moves to transducer B (Status Code 4), replace transducer A, page 37.

Status Code 4: Transducer B Failure

1. Check transducer B electrical connections (J8) at board, page 38.
2. Reverse A and B transducer electrical connections at board, page 38. If error moves to transducer A (Status Code 4), replace transducer B, page 37.

Status Code 5: Excessive Current Draw

Shut off unit and contact distributor before resuming operation.

1. Locked rotor: motor unable to turn. Replace motor, page 43.
2. Short on control board. Replace board, page 37.
3. Worn or hung up motor brush causing arching of brush at commutator. Replace brushes, page 44.

Status Code 6: High Motor Temperature

Motor is running too hot.




1. Motor temperature too high. Reduce pressure duty cycle, gun tip size, or move Reactor E-8p to a cooler location. Allow 1 hour for cooling.
2. Check fan operation. Clean fan and motor housing.



Status Code 7: No Cycle Counter Switch Input

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

1. Check cycle counter switch connection to board (J10, pins 5, 6), page 38 (figure control module wiring connections).
2. Check that magnet (224) and cycle counter switch (223) are in place under B side motor end cover (227). Replace if necessary.

Troubleshooting Chart

Problem	Cause	Solution
Reactor E-8p does not operate.	No power.	Plug in power cord.
		Cycle Motor Power off  , then on  to reset breaker.
Motor does not operate.	Power turned on with function knob set to a run position.	Set function knob to Stop/Park  , then select desired function.
	Loose connection on control board.	Check connection at J11 (120V models) or J4 (240V models). See page 37.
	Worn brushes.	Check both sides. Replace brushes worn to less than 1/2 in. (13 mm), see page 44.
	Broken or misaligned brush springs.	Realign or replace, page 44.
	Brushes or springs binding in brush holder.	Clean brush holder and align brush leads for free movement.
	Shorted armature.	Replace motor, page 43.
	Check motor commutator for burn spots, black pitting, or other damage.	Remove motor. Have motor shop resurface commutator, or replace motor, page 43.
	Failed control board.	Replace board. See page 37.
Fan not working.	Loose fan cable.	Check that cable is connected at fan and at J9 on control board. See pages 44 and 37.
	Defective fan.	Test and replace if necessary, page 44.
Pump output low.	Plugged fluid inlet strainer.	Clear, see page 24.
	Plugged disposable mixer.	Clean or replace.
	Leaking or plugged piston valve or intake valve in displacement pump.	Check valves. See pump manual.
One side doesn't come up to pressure in spray mode.	Dirty or damaged Recirc/Spray valve.	Clean or repair, page 33.
	Plugged fluid inlet strainer.	Clear, see page 24.
	Pump intake valve plugged or stuck open.	Clean pump intake valve. See page 34.
	Material is too viscous to siphon feed.	Warm the material feed pails with flexible band heaters. See Accessories on page 55.

Problem	Cause	Solution
Pressure is higher on one side when setting pressure with function knob.	Pump intake valve partially plugged.	Clean pump intake valve. See page 34.
	Air in hose. Fluid is compressible.	Purge air from hose.
	Unequal size hoses or unequal hose construction.	Use matching hoses, or balance pressures before spraying.
Pressures are not balanced when running, but pressure is generated and holds on both strokes.	Unequal viscosities.	Check that A and B chemicals are within the chemical manufacturer's specified application temperature range.
		Change restrictor at mix point to balance back pressure.
	Restriction on one side.	Clean mix module or restrictor at mix manifold.
		Clean gun check valve screens.
Fluid leak in pump packing nut area.	Worn throat seals.	Replace. See pump manual.
Pressure doesn't hold when stalled against gun in spray mode.	Leaking Recirc/Spray valve.	Repair, page 33.
	Leaking piston valve or intake valve in displacement pump.	Repair. See pump manual.
	Leaking gun shutoff.	Repair. See gun manual.
Pressure is higher on B side during startup of recirculation, especially in High Recirc mode.	This is normal. Component B is typically higher viscosity than component A until the material is heated during recirculation.	No action required.
One gauge shows half as many pulses as the other when pumps are cycling.	Loss of pressure on downstroke.	Intake valve is leaking or not closing. Clean or replace valve; see page 34.
	Loss of pressure on upstroke.	Piston valve is leaking or not closing. Clean or replace valve or packings; see page 34.
Status indicator (red LED) not lit.	Motor Power switch off.	Cycle Motor Power off  , then on  to reset breaker.
	Loose indicator cable.	Check that cable is connected at J10 pins 1 (red) and 2 (black) on control board. See page 37.
	Failed control board.	Replace board. See page 37.

Problem	Cause	Solution
A side rich; lack of B side.	A side gauge is low.	B side restriction downstream of gauge. Check gun check valve screen, mix module, or mix manifold restrictor.
	B side gauge is low.	B side material supply problem. Check B side inlet strainer and pump intake valve.
B side rich; lack of A side.	A side gauge is low.	A side material supply problem. Check A side inlet strainer and pump intake valve.
	B side gauge is low.	A side restriction downstream of gauge. Check gun check valve screen, mix module, or mix manifold restrictor.

Repair

Before Beginning Repair

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Repairing this equipment requires access to parts which may cause electric shock or other serious injury if work is not performed properly. Have a qualified electrician connect power and ground to main power switch terminals, see page 13. Be sure to shut off all power to the equipment before repairing.

1. Flush if possible, see page 25. If not possible, clean all parts with solvent immediately after removal, to prevent isocyanate from crystallizing due to moisture in the atmosphere.
2. Set function knob to Stop/Park.

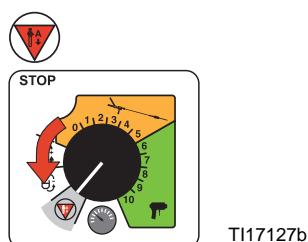


FIG. 49

3. Shut off power.

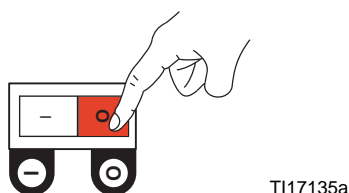
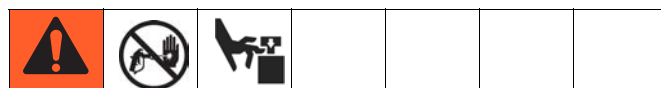


FIG. 50

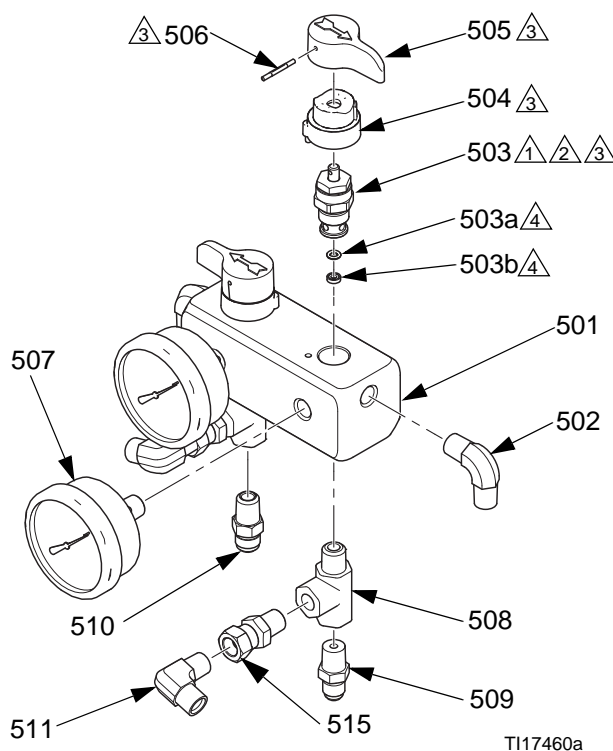
4. Relieve pressure, page 23.

Recirculation/Spray Valves

1. See **Before Beginning Repair**, page 33. Relieve pressure, page 23.



2. Clean and inspect all parts for damage. Ensure that the seat (503a) and gasket (503b) are positioned inside each valve cartridge (503).
3. Apply PTFE pipe sealant to all tapered pipe threads before reassembling.
4. Reassemble in reverse order, following all notes in FIG. 51.



- 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.

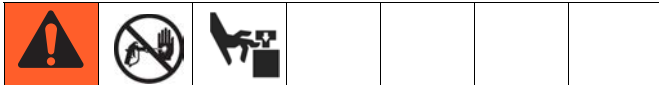
FIG. 51: Recirculation/Spray Valves

Displacement Pump



Displacement pump repair and parts information is included in manual 311076, which is supplied with your unit.

NOTE: Use drop cloth or rags to protect Reactor E-8p and surrounding area from spills.



See **Before Beginning Repair**, page 33. Relieve pressure, page 23.

To remove intake valve only

NOTE: If pump is not generating any pressure, the intake ball check may be stuck closed with dried material.

If the pump is not generating pressure on the down-stroke, intake ball check may be stuck open.

Either of these conditions can be serviced with the pump in place.

1. Loosen nut and press the inlet tube down away from the pump intake valve. Inspect the two o-rings (52) for damage and replace if necessary. Move the inlet tube (53) aside.
2. Remove intake valve by hitting ears (E) firmly right-to-left with a non-sparking hammer. Unscrew from pump. See manual 313123 for repair and parts.

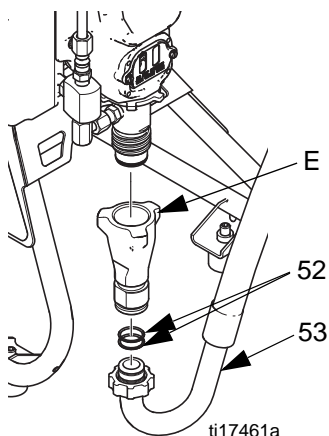
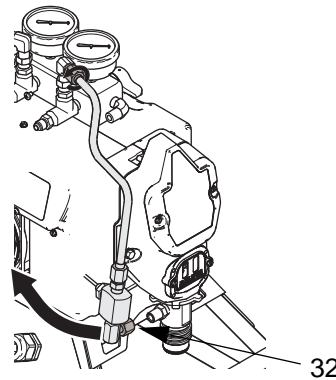


FIG. 52: Fluid Inlet Tube

To remove entire pump assembly

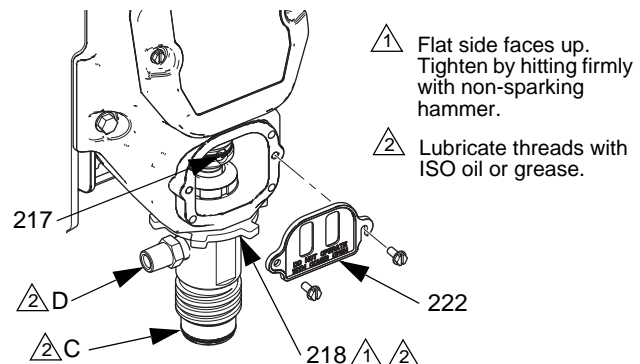
1. Loosen nut and press the inlet tube down away from the pump intake valve.
2. Disconnect swivel (32) from pump outlet and loosen swivel at the fluid manifold. Turn the fluid outlet line out of the way of the sprayer.



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FIG. 53: Fluid Outlet Line

3. Remove pump rod cover (222). Push clip up in back and push pin (217) out. Loosen locknut (218) by hitting firmly right-to-left with a non-sparking hammer. Unscrew pump. See manual 311076 for pump repair and parts.



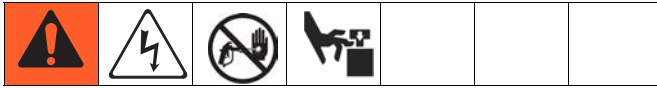
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FIG. 54

4. Install pump in reverse order of disassembly, following all notes in FIG. 54. Reconnect fluid inlet (C) and outlet (D) lines.
5. Tighten fluid outlet fitting (D), then tighten locknut (218) by hitting firmly with a non-sparking hammer.
6. Set function knob to Slow Recirc . Purge air and prime. See page 20.

Replace Function Knob/Potentiometer

10. Reconnect potentiometer wires to J2 as shown in Fig 12.



1. See **Before Beginning Repair**, page 33. Relieve pressure, page 23.
2. Insert pin through cart handle and lock with lanyard.

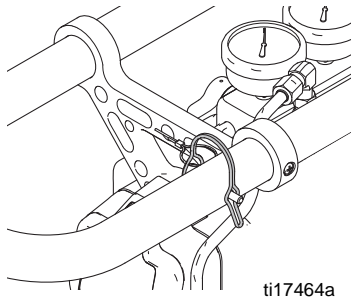


FIG. 55

3. Carefully lay sprayer on its side on a level surface.
4. Carefully lay sprayer on it's side on a level surface. Rotate sprayer and rest upside down on cart handle.

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

5. Remove four screws (10) and control board cover (61) to expose the control board (12).
6. Disconnect potentiometer wires from J2 on control board (12). See Fig 12.
7. See Fig 11. Remove two setscrews (16a) and pull function knob (23) off potentiometer (16) shaft.
8. Remove nut (N, part of 16) and detent plate (22). Remove potentiometer (16) and washer (87).
9. Install new potentiometer (16) in reverse order. Position potentiometer so slot (S) is horizontal. Position knob (16) so pointer (P) faces toward the top. Install knob on shaft so slot (S) engages alignment pin in knob. Push knob onto shaft against detent spring before tightening setscrews (16a).

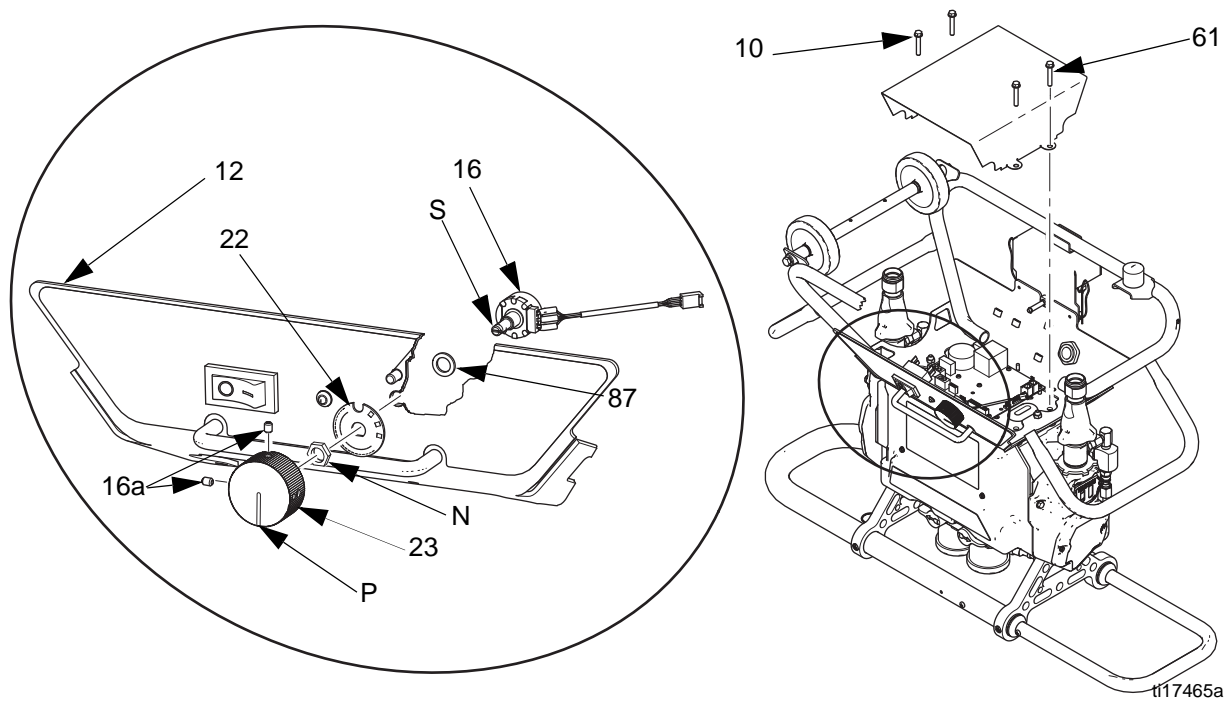


FIG. 56. Function Knob/Potentiometer

Control Board

Power Bootup Check

NOTE: There is one red LED (D11) on the board. Power must be on to check. See FIG. 58 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

NOTE: Check motor before replacing board. See **Electric Motor**, page 43.

1. See **Before Beginning Repair**, page 33. Relieve pressure, page 23.
2. Insert pin through cart handle and lock with lanyard.
3. Carefully lay sprayer on it's side on a level surface. Rotate sprayer and rest upside down on cart handle.

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

4. Remove four screws (10) and control board cover (61) to expose the control board (12).
5. Disconnect all cables and connectors from board.
6. Remove seven screws (13) and remove board.
7. Install 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. Order Part No. 110009 Thermal Compound.

**Table 3: Control Board Connectors
(see FIG. 58)**

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)

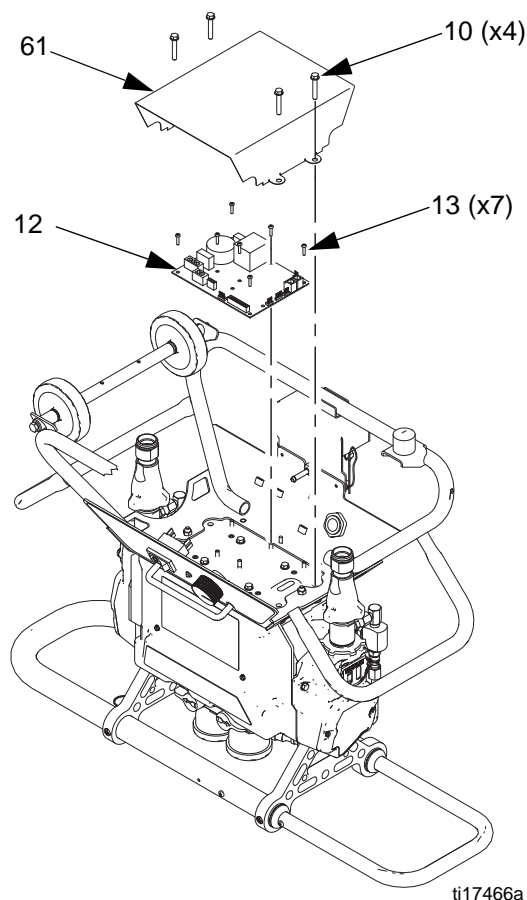


FIG. 57: Control Board Removal

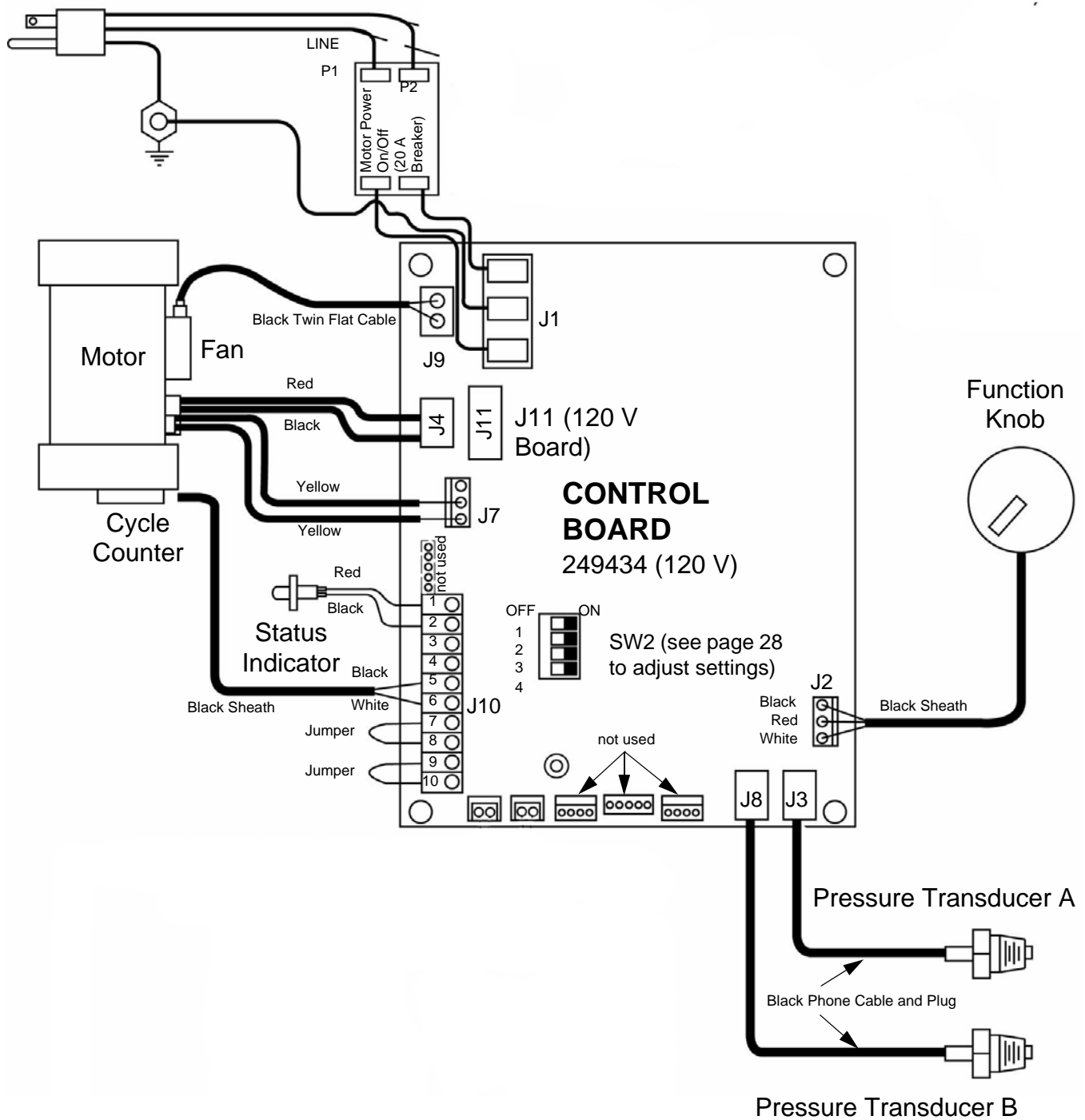


FIG. 58: Control Module Wiring Connections

Pressure Transducers



1. See **Before Beginning Repair**, page 33. Relieve pressure, page 23.
2. Insert pin through cart handle and lock with lanyard.
3. Carefully lay sprayer on it's side on a level surface. Rotate sprayer and rest upside down on cart handle.

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

4. Remove four screws (10) and control board cover (61) to expose the control board (12).
5. Disconnect transducer cables from J3 and J8 at board; see FIG. 58. page 38. Reverse A and B connections and check if status code follows the bad transducer, page 28.
6. Reconnect good transducer to proper connector. Disconnect failed transducer from board, and unscrew from base of transducer manifold.
7. Install new transducer (35) in manifold (33). Mark board end of cable with tape (red=transducer A, blue =transducer B).
8. Route cable under the electric motor and through grommet to control board (12).
9. Connect transducer cable at board; see FIG. 58. page 38.

Drive Housing

Removal

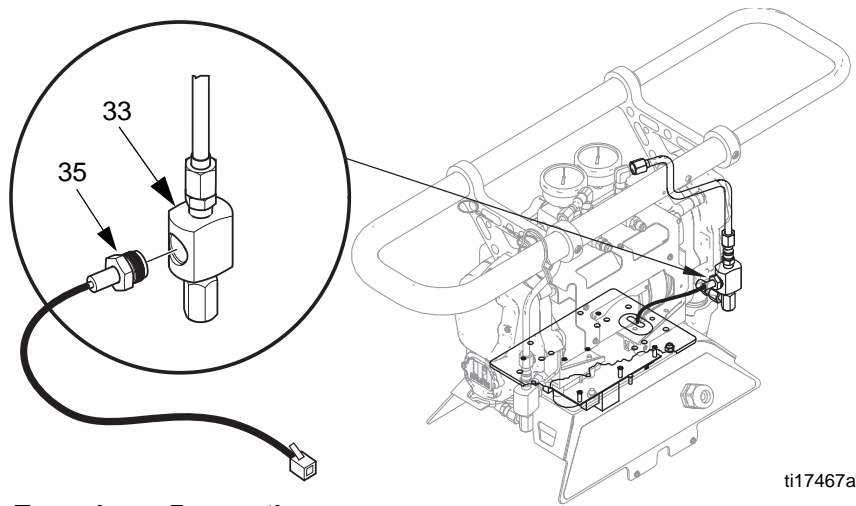


1. See **Before Beginning Repair**, page 33. Relieve pressure, page 23.
1. Loosen nut and press the fluid inlet tube down away from the pump intake valve.
2. Disconnect swivel (32) from pump outlet and loosen swivel at the fluid manifold. Turn the fluid outlet line toward the center of the sprayer.
3. Disconnect pressure transducer (35) from manifold.
4. Disconnect swivel (32) from pump outlet and loosen fluid outlet line swivel (36) at the fluid manifold. Turn the fluid outlet lines toward the center of the sprayer.
5. Remove screws (207) and end covers (221, 227), FIG. 61, page 42.

NOTE: Examine connecting rod (216). If rod needs replacing, first remove the pump (219), page 34.

NOTICE

Do not drop gear reducer (214) and crank shaft (210) when removing drive housing (215). These parts may stay engaged in motor end bell (MB) or may pull away with drive housing.



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FIG. 59: Pressure Transducer Connection

6. Disconnect cart handles.
 - a. Remove screws (42) from handle (37).
 - b. Hold pin (40) and remove screw (10).
 - c. Gently tap the top-center of the handle with a rubber mallet until the handle is disengaged from the drive housing.
 - d. If removing both drive housings, complete steps 6a-6c on the other handle to remove the entire cart handle assembly.

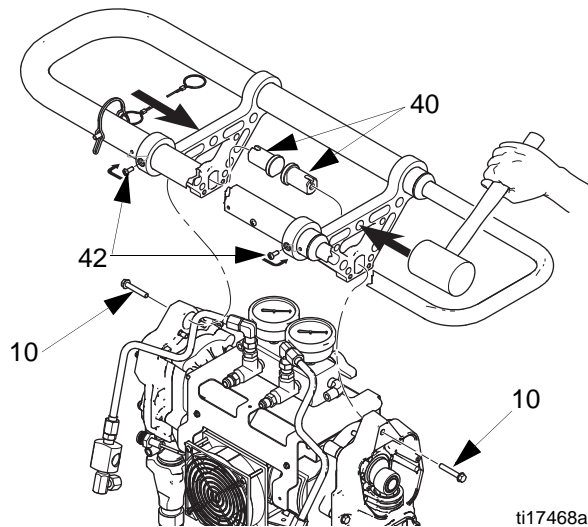


FIG. 60: Cart Handle Removal

7. Remove screws (220) and pull drive housing (215) off motor (201). Connecting rod (216) will disengage from crankshaft (210).
8. Examine crankshaft (210), gear reducer (214), thrust washers (208, 212), and bearings (209, 211, 213). See FIG. 61, page 42.

Installation

1. Apply grease liberally to washers (208, 212), bearings (209, 211, 213), gear reducer (214), crankshaft (210), and inside drive housing (215). Grease is supplied with replacement parts kits. See FIG. 61, page 42.

NOTE: B side crankshaft (210) includes the cycle counter magnet (224). When reassembling, be sure to install crankshaft with magnet on B side.

If replacing crankshaft, remove magnet (224). Reinstall magnet in center of offset shaft on new crankshaft. Position shaft in Park position.

2. Install bronze bearings (211, 213) in drive housing (215), as shown.
3. Install bronze bearings (209, 211) and steel washer (208) on crankshaft (210). Install bronze bearing (213) and steel washer (212) on gear reducer (214).
4. Install gear reducer (214) and crankshaft (210) into motor end bell (MB).

NOTE: Crankshaft (210) must be inline with crankshaft at other end of motor. Pumps will move up and down together.

If connecting rod (216) or pump (219) were removed, reassemble rod in housing and install pump, page 34.

5. Push drive housing (215) onto motor (201). Install screws (220).
6. Install cart handle assembly.
 - a. Engage handle through back of drive housing. Install screws in driver housing. Repeat for other drive housing if entire cart handle assembly was removed. See FIG. 60.
 - b. Gently tap the handle (39) and align holes of handle (37) and tube (38).
 - c. Apply medium strength anaerobic thread sealant on screw threads (42) and install in handle (37).

NOTICE

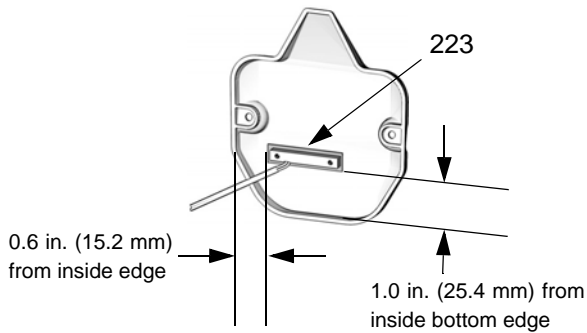
To prevent stripping threads inside handle tube (38), do not overtighten screws (42).

7. Install drive housing covers (221 on A side, 227 on B side) and screws (207). Pumps must be in phase (both at same position in stroke).

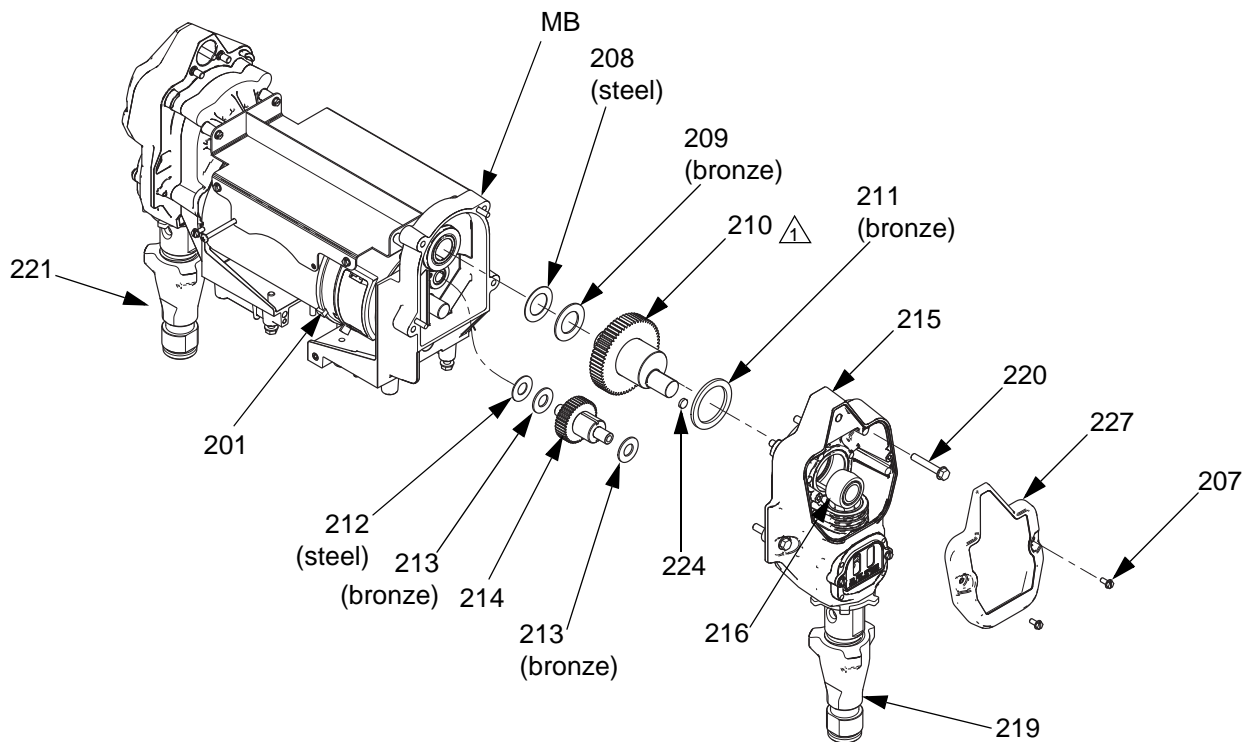
Cycle Counter Switch Replacement


NOTE: B side drive housing cover (227) includes the cycle counter switch (223), mounted in the cover. When reassembling, be sure to install cover with switch on B side.

Feed the cable under the electric motor and through the grommet and connect to the control board.



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 Crankshaft must be in line with crankshaft at other end of motor, so pumps move up and down in unison.

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FIG. 61: Drive Housing

Electric Motor

Test Motor

If motor is not locked up by pumps, it can be tested using a 9 V battery.

1. Open recirculating valves, disconnect J4 or J11 from control board, see FIG. 58, page 38.
2. Touch jumpers from battery to motor connections. Motor should turn slowly and smoothly.

Removal



1. See **Before Beginning Repair**, page 33. Relieve pressure, page 23.
2. Carefully lay sprayer on it's side on a level surface. Rotate sprayer and rest upside down on cart handle assembly.

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

3. Remove screws (10) and control board cover (61) to expose the control board (12).
4. Disconnect all cables and connectors from board (12).
5. Unplug cable (94) from fan (202). See FIG. 63, page 44.
6. Remove screws (13) and board (12).
7. Remove screws (10).
8. Feed proportioner cables out of grommet in the cart (1) and lift the cart off of the motor.
9. Remove drive housing/pump assemblies and cart handle assembly, page 39.

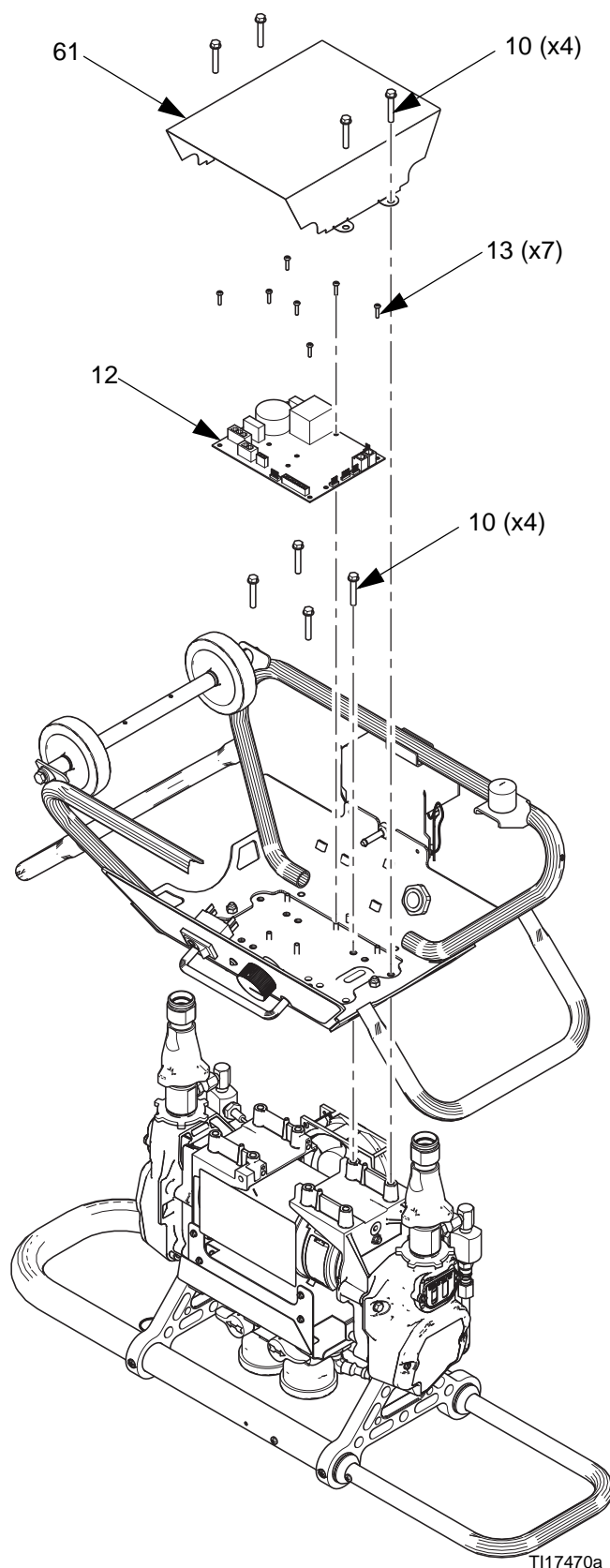


Fig. 62: Electric Motor Removal

Installation

See FIG. 62, page 43.

1. If replacing motor, install fan assembly and fan mount threaded bushing on new motor.
2. Place cart (1), with motor plate (8) installed, on bottom of the motor and fan. Feed motor cables through grommet.
3. Fasten motor to cart with four screws (10).
4. Fasten board to cart with seven screws (13). Connect all cables. See FIG. 58, page 38.
5. Install cover (61) with screws (10).

NOTE: Apply thermal compound between the square steel piece on the back of the board and the main aluminum plate. Order Part No. 110009 Thermal Compound.

6. Carefully rotate cart to the upright position.
7. Install bracket (28) and screws (29).
8. Install drive housing/pump assemblies, page 39. Reconnect inlet assemblies to pumps.
9. Connect fluid inlet and outlet lines.
10. Return to service.

Motor Brushes

NOTE: Replace brushes worn to less than 1/2 in. (13 mm). Brushes wear differently on each side of motor; check both sides. Brush Repair Kit 287735 is available; kit includes instruction sheet 406582.

Motor commutator should be smooth. If not, resurface commutator or replace motor.



1. See **Before Beginning Repair**, page 33. Relieve pressure, page 23.
2. See instruction sheet 406582, included with Brush Repair Kit 287735. Remove old brushes and install new ones supplied in kit.

Fan

1. Disconnect fan cable (94) from fan (202). With Motor Power on, test cable connector for line voltage (120 V or 240 V).
2. *If voltage is correct*, fan is defective. Remove screws holding fan to shield (206). Install new fan in reverse order.
3. *If voltage is not correct*, check fan cable connection at J9 on control board; see FIG. 58, page 38.

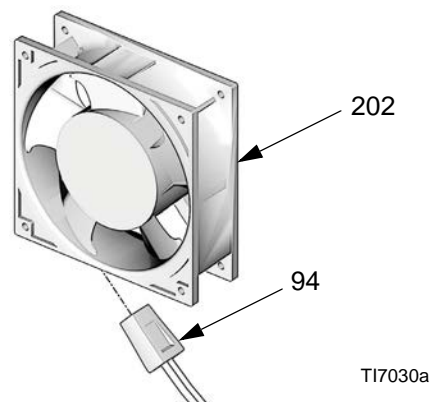


FIG. 63: Fan

Spout Adapter

The sprayer is supplied with a 40 mm spout adapter. Follow these instructions to install 38 mm spout adapters or repair the A and B side spout adapters.

See **Pour Spout Adapter**, page 54 for parts.

1. Loosen containment knob.
2. Remove adapter.
 - a. Use a small flat head screwdriver to remove retaining ring (405) from adapter.
 - b. Loosen housing (403) from nut cap (402).
 - c. Slide spout adapter (404), housing (403), plate (401), and nut cap (402), off fluid tube (P).
 - d. Remove spout adapter (404) from housing. Remove nut cap (402).
3. Connect 38 mm or 40 mm spout adapter.
 - a. Place spout adapter (404) on a flat level surface. Place retaining ring (405) above housing base (403) and insert the bottom of the housing in the spout adapter (404).
 - b. Use two flat head screwdrivers to insert the bottom of the retaining ring (405) in the groove. After the bottom has gotten started in the groove, continue to press down on the retaining ring with one screwdriver and rotate the spout adapter (404) with your other hand until the retaining ring snaps in the groove.
 - c. Install nut cap (402) and plate (AP) on fluid tube (P).
 - d. Apply grease on o-rings (406, 407) and slide over fluid tube threads and recirculation tube.
 - e. Slide housing (403) on fluid tube (P) and align orings (406, 407) in grooves of housing (403).
 - f. Tighten nut cap (402) on housing (403).

NOTICE

To prevent damage to spout adapter o-ring, gently remove adapter housing from fluid tube.

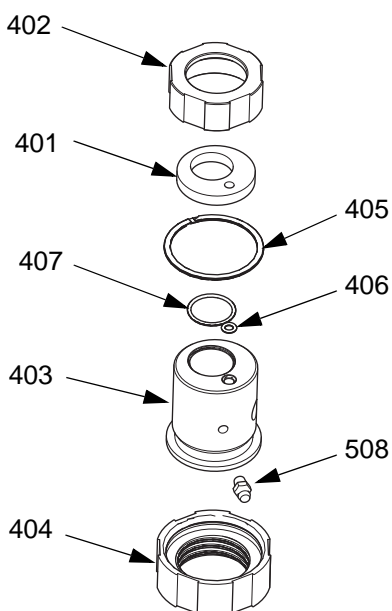
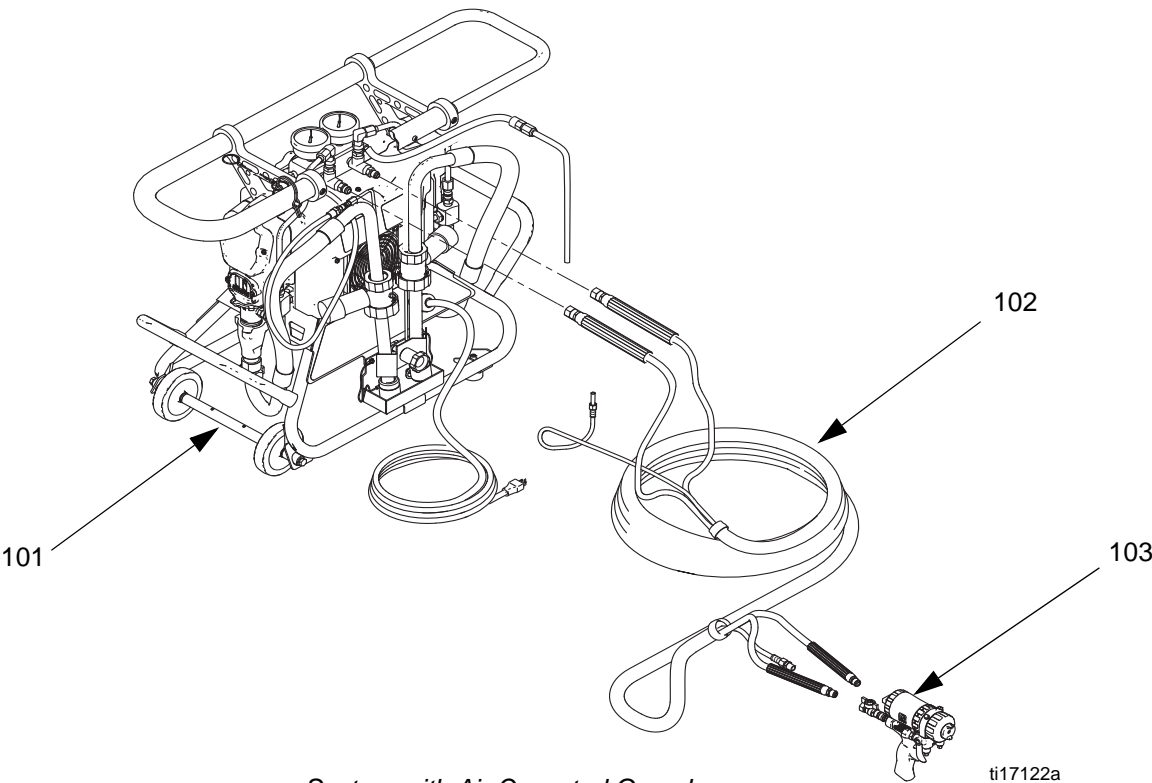


FIG. 64

Parts

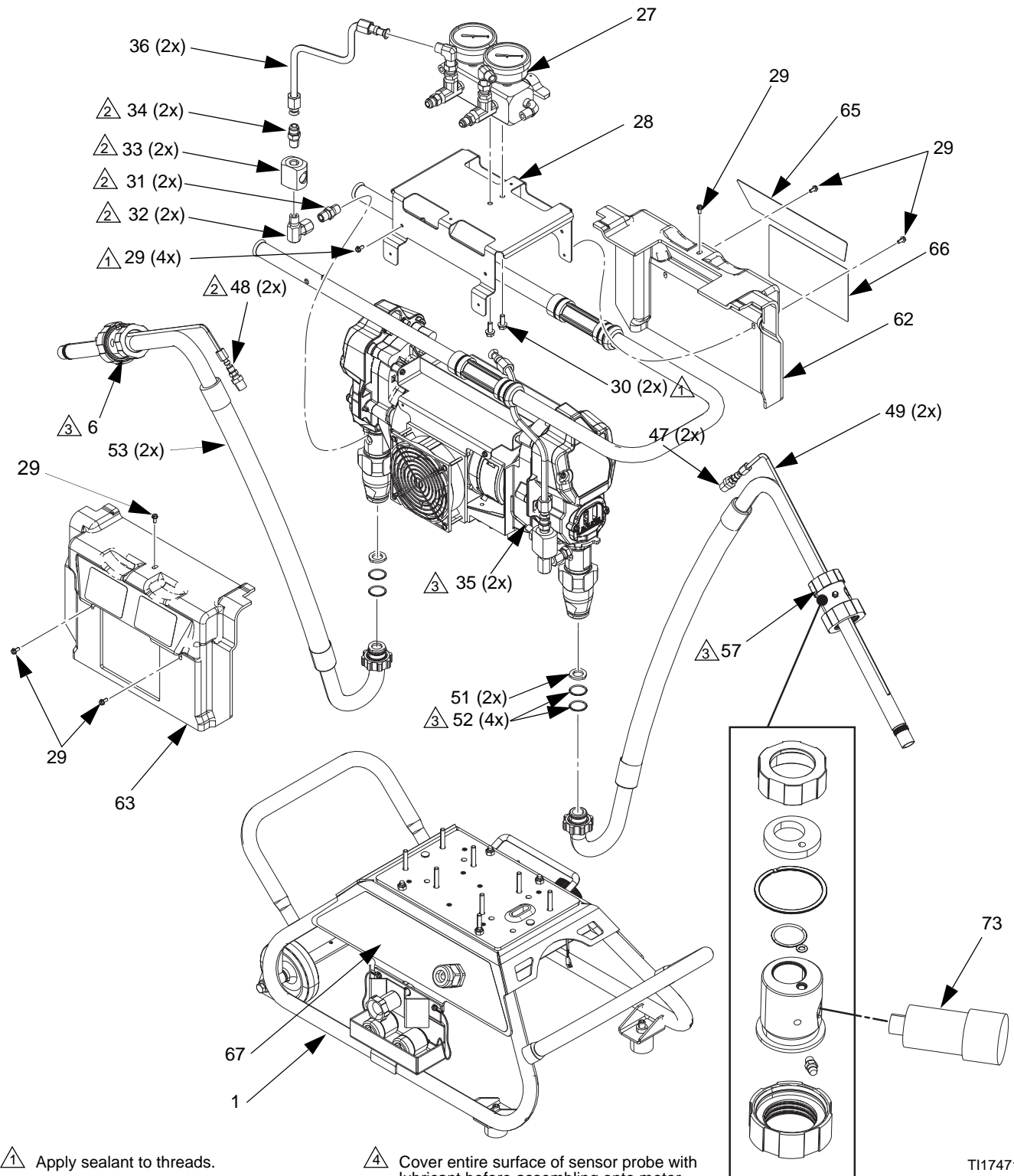
- 120 V and 240 V Fusion Air Purge System Packages
- 120 V and 240 V Fusion CS System Packages
- 120 V and 240 V P2 System Packages
- 120 V and 230 V Manual 2K System Packages



System with Air Operated Gun shown

System Package	Volts	Description	Bare Proportioner (101) see page 47	Hose (102) see page 52	Gun (103) see gun manual
AP9082	120V	Fusion Air Purge Proportioner Package	259082	24M653	246100
AP9083	240V	Fusion Air Purge Proportioner Package	259083	24M653	246100
CS9082	120V	Fusion CS Proportioner Package	259082	24M653	CS00RD
CS9083	240V	Fusion CS Proportioner Package	259083	24M653	CS00RD
P29082	120V	P2 Proportioner Package	259082	24M653	GCP2R0
P29083	240V	P2 Proportioner Package	259083	24M653	GCP2R0
24R151	120V	Manual 2K Proportioner Package	259082	24R823	24R021
24R154	240V	Manual 2K Proportioner Package	259083	24R823	24R021
25A846	120V	Manual 2K Proportioner Package	25A836	24R823	24R021

259082, 25A836 (120V) and 259083 (240V), Bare Proportioner



① Apply sealant to threads.

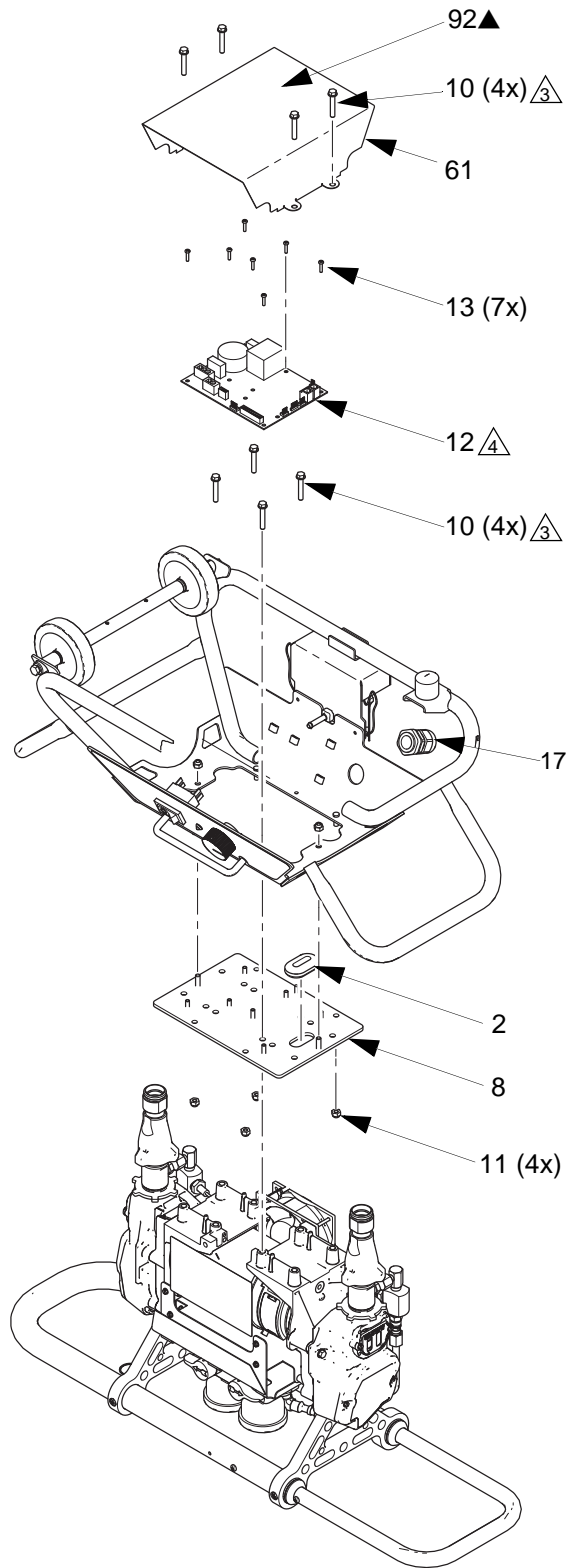
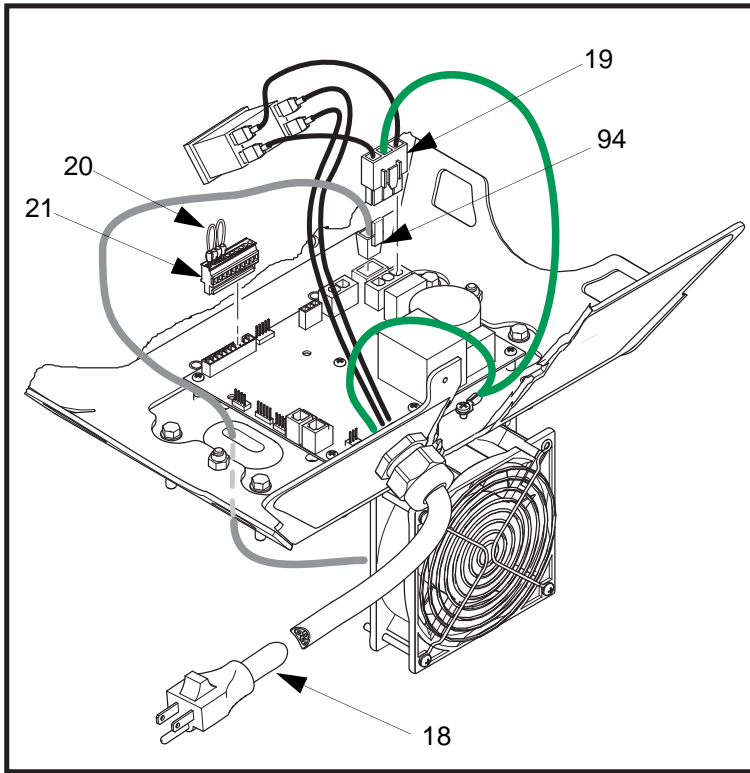
② Apply sealant to all non-swiveling pipe threads.

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

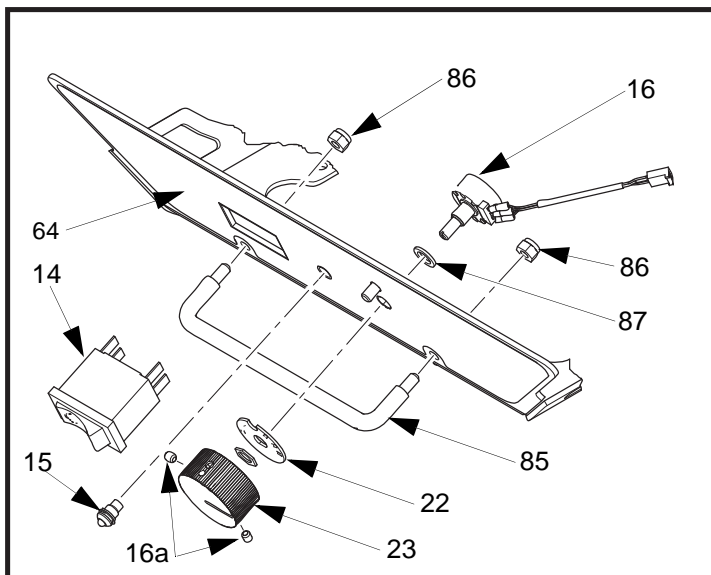
④ Cover entire surface of sensor probe with lubricant before assembling onto motor plate (8).

⑤ Torque to 5-6 ft-lbs (6.7-8 N•m).

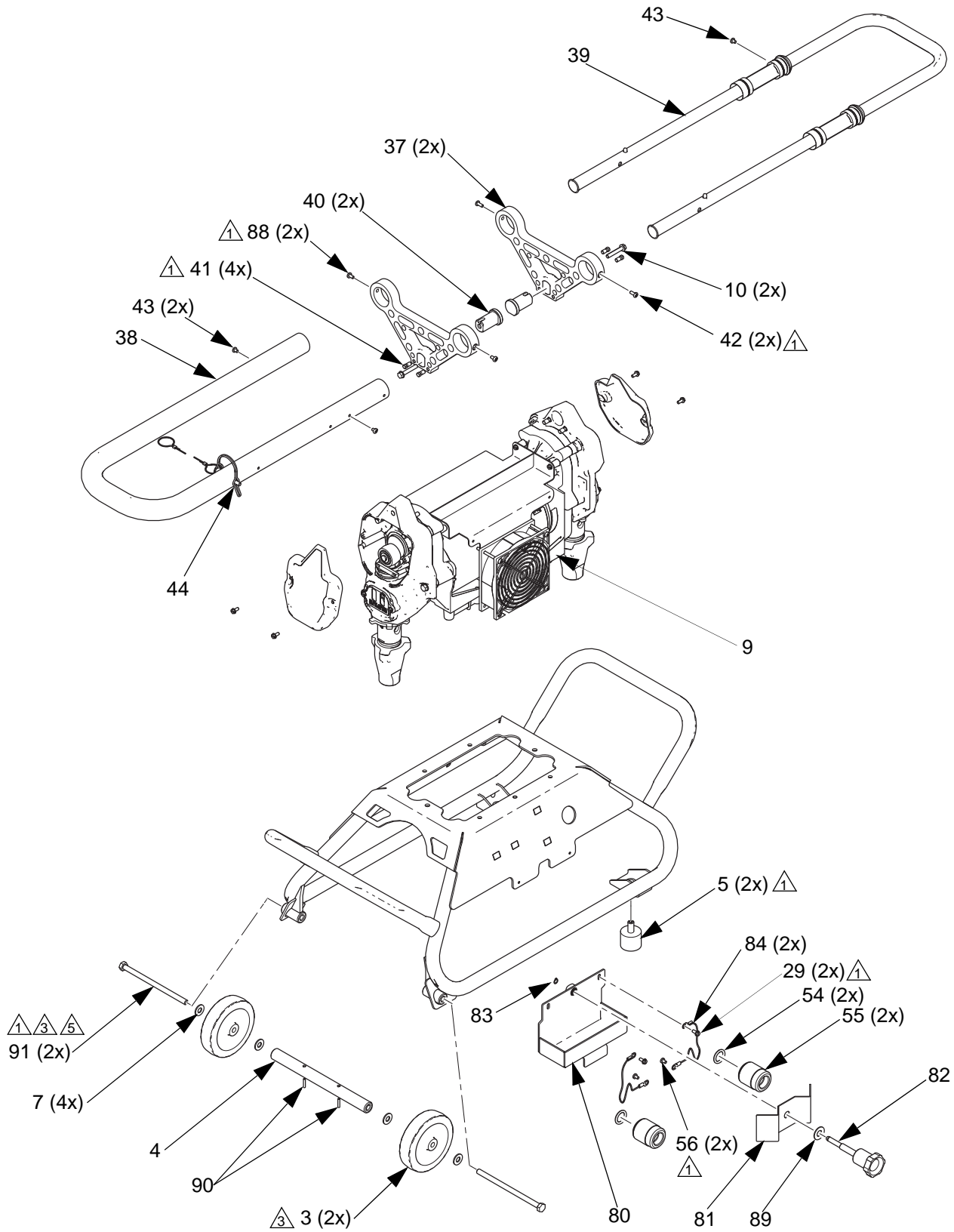
259082, 25A836 (120V) and 259083 (240V), Bare Proportioner (continued)



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259082, 25A836 (120V) and 259083 (240V), Bare Proportioner (continued)



259082, 25A836 (120V) and 259083 (240V), Bare Proportioner (continued)

Ref.	Part	Description	Qty	Ref.	Part	Description	Qty
1	24J139	CART	1	146	249630	HOSE, component B (resin), 1/4 in. (6 mm) ID; thermoplastic hose; 1/4 npsm(f) x 48 in. (1219 mm)	1
2	16H888	GROMMET, 7/8 in. ID	1				
3	16F820	WHEEL, caster	2				
4	16H352	SPACER, axle	147	◆X100030	BUSHING		2
5	121573	BUMPER, urethane, 3/8-16, 80-90 dur	248	◆X125212	FITTING, -3 JIC x 1/8 npt(m)		2
6	◆X24J766	ADAPTER, spout, pour, 40 mm assembly, B; see page 54	49	◆X16H615	TUBE, recirculation		2
7	120454	WASHER, flat	151	◆X115099	WASHER, garden hose		2
8	16G939	PLATE, motor mount	52	◆X117559	O-RING		4
9	◆24L885,	PROPORTIONER, 120V	453	◆X246010	HOSE, suction		2
	X24L979,	PROPORTIONER, 240V	154	◆X113575	O-RING		2
	★25A835	PROPORTIONER, 120V	155	◆X15W249	CAP, tube, suction		2
10	117493	SCREW, mach, hex washer hd	56	◆X112144	SCREW, mach, pan hd		2
11	102040	NUT, lock, hex	57	◆X24J155	ADAPTER, spout, pour, 40 mm assembly, A; see page 54		1
12	◆★249434,	BOARD, circuit 120V	10				
	X249432	BOARD, circuit 240V	658	103473	STRAP, TIE, WIRE		4
13	107156	SCREW, mach, pan hd	161	24J141	COVER, electronics		1
14	24K983	SWITCH, rocker, w/breaker, 240V, 20A	62	24J151	COVER, shroud, front		1
15	119930	DIODE, light-emitting	763	24J152	COVER, shroud, back		1
16	24L002	POTENTIOMETER, adjustment, pressure	164	16J414	LABEL, control		1
17	119897	FITTING, bulkhead, cable, 0.250	65	16H202	LABEL, branding		1
18	★◆24K995,	CORD SET, power, 120V	166	16J415	LABEL, quick start		1
	X15G220	CORD SET, power, 240V	167▲	16H569	LABEL, warning		1
19	15G230	CABLE, harness, power	73	◆X24K984	DRYER, desiccant, mini in-line		2
20	15C866	WIRE, jumper	80	◆X16H809	TRAY, containment		1
21	116773	CONNECTOR, plug, 3.81 mm (10 position)	181	◆X16H810	BRACKET, containment		1
22	15G053	PLATE, detent, display	182	◆X16H811	KNOB, containment		1
23	24L001	KNOB, control	84	◆X125321	CABLE, sst lanyard, 10 in.		2
27	24J147	MANIFOLD, recirculation	185	16H543	HANDLE, pull		1
28	24J140	BRACKET, recirculation manifold	286	121114	NUT, hex, self locking		2
29	115492	SCREW, mach, slot hex wash hd	187	261841	WASHER, flat		1
30	108296	SCREW, mach, hex wash hd	88	◆X104859	SCREW, tapping pan hd		2
31	156971	NIPPLE, short	189	◆X111743	WASHER, flat		1
32	155541	SWIVEL, 90°	190	112154	PIN, straight, slotted		2
33	15G292	MANIFOLD, pressure transducer	191	15M314	SCREW, cap		2
34	116704	ADAPTER, #6 JIC x 1/4 npt	192▲	189930	LABEL, caution		1
35	24K999	TRANSDUCER, pressure, control	1293	★◆16H902,	TAG, informational 120V; not shown		1
36	16H530	TUBE, fluid	2	X16M900	TAG, informational 240V; not shown		
37	◆X16G943	BRACKET, lift handle	294	15G458	CABLE, fan		1
38	◆X16G945	TUBE, lift handle, fixed	295	◆X16H984	CAP, adapting cap, 38 mm		1
39	◆X24J244	HANDLE, lift, sliding	296	X242001	CORD SET, adapter, Europe (240V); not shown		1
40	◆X16H546	PIN, mounting, lift handle	2				
41	◆X16H547	PIN, alignment, lift handle	297	X242005	CORD SET, adapter, Australia (240V); not shown		1
42	◆X110037	SCREW, mach, pnh	2				
43	◆X109032	SCREW, mach, pnh	1				
44	◆X24J154	PIN, W/LANYARD	1▲				
45	249629	HOSE, component A; 1/4 in. (6 mm) ID; thermoplastic hose with moisture guard; 1/4 npsm(f) x 48 in. (1219 mm)	2				

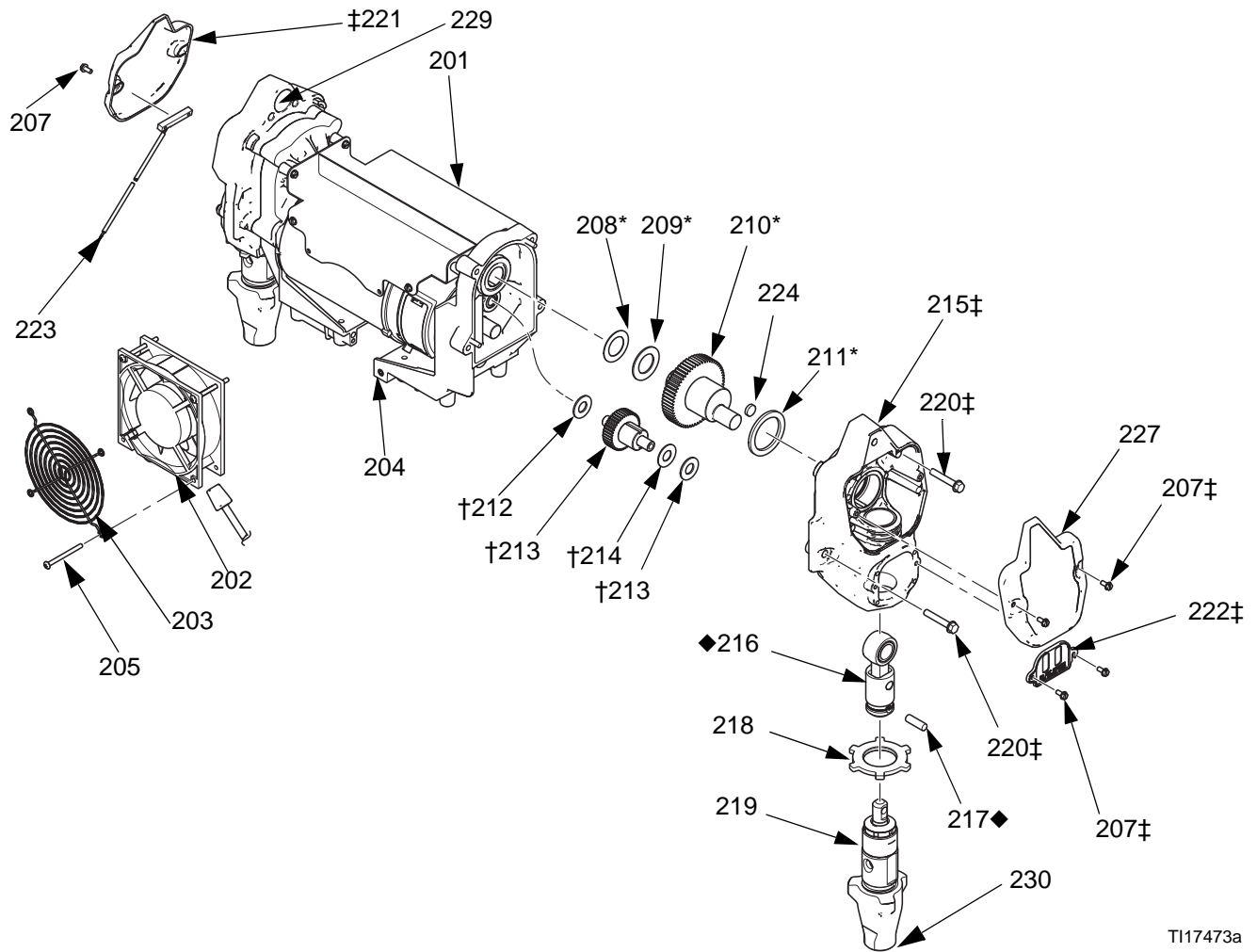
1▲ Replacement Danger and Warning labels, tags, and cards are available at no cost.

4◆ Only used with proportioner 259082.

2X Only used with proportioner 259083.

1★ Only used with proportioner 25A836.

25A835, 120 V Bare Proportioner
24L885, 120 V Bare Proportioner
24L979, 240 V Bare Proportioner

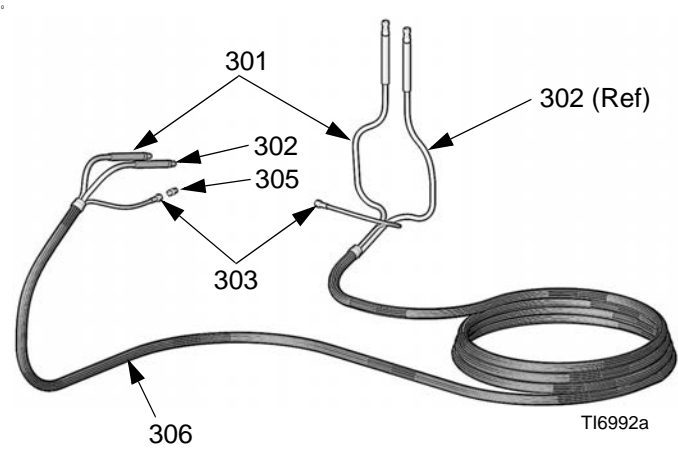


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Ref.	Part	Description	Qty	Ref.	Part	Description	Qty
201	24E355,	MOTOR, electric, 120V (24L885 and 25A835 only)	1	218	195150	NUT, jam, pump	2
	24E356	MOTOR, electric, 240V (24L979 only)		219	256767,	PUMP, displacement (24L885 and 24L979 only)	2
202	24K985,	FAN, cooling, 120V (24L885 and 25A835 only)	1		24L006	PUMP, displacement (25A835 only)	
	24K986	FAN, cooling, 240V (24L979 only)		220†	117493	SCREW, machine, hex washer hd; 1/4-20 x 1-1/2 in. (38 mm)	8
203	115836	GUARD, finger	1	221†	15B254	COVER, drive housing, A side	1
204		RIVET, blind; 5/32 x 3/8 grip	1	222†	15B589	COVER, pump rod	2
205		SCREW, machine, slotted hd; 8-32 x 2 in. (51 mm)	3	223	117770	SWITCH, reed, w/cable	1
207†	115492	SCREW, machine, hex washer hd; 8-32 x 3/8 in. (10 mm)	8	224	24K982	MAGNET	1
208*	116074	WASHER, thrust; steel	2	227	249854	COVER, drive housing, B side; includes item 223 and 228	1
209*	107434	BEARING, thrust; bronze	2	228	115711	TAPE, mounting, reed switch; not shown	1
210*	248231	CRANKSHAFT KIT	2	229	17L272	PLUG (25A835 only)	2
211*	180131	BEARING, thrust; bronze	2	230	119992	NIPPLE, 3/4 x 3/4 (25A835 only)	2
212†	116073	WASHER, thrust; steel	2				
213†	116079	BEARING, thrust; bronze	4				
214†	287057	GEAR REDUCER KIT	2				
215†	24L979	DRIVE HOUSING KIT	2				
216◆	287053	CONNECTING ROD KIT	2				
217◆	196762	PIN, straight	2				

* Included in 248231 Crankshaft Kit.
† Included in 287057 Gear Reducer Kit.
‡ Included in 287055 Drive Housing Kit.
◆ Included in 287053 Connecting Rod Kit.

3/8 in. ID x 50 ft Insulated Hose Bundle without Recirculation Lines with Air Hose, 24M653

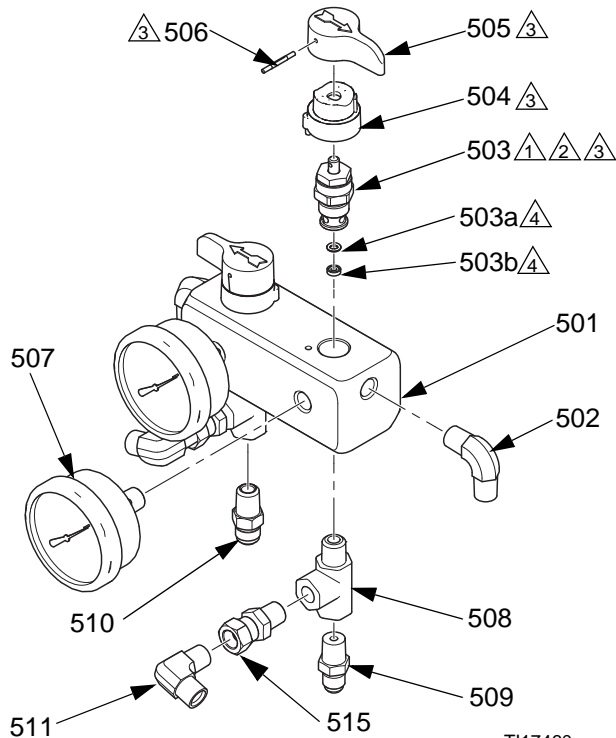


Ref.	Part	Description	Qty
301	16V331	HOSE, fluid (component A), moisture guard; grounded, 3/8 in. (9.5 mm) ID; no. 5 JIC fittings (mxf); 50 ft (15 m)	1
302	24M671	HOSE, fluid (component B); 3/8 in. (9.5 mm) ID; no. 6 JIC fittings (mxf); 50 ft (15 m)	1
303	261535	HOSE, air; 3/8 in. (9.5 mm) ID; 3/4 npsm (fbe); 50 ft (15 m)	1
305	156971	NIPPLE; 3/8 npt; for joining air line to another hose bundle	1
306	---	INSULATION	1

1/4 in. ID x 35 ft Non-Insulated Hose Bundle without Recirculation Lines and No Air Hose, 24R823

Ref.	Part	Description	Qty
351	249508	HOSE, coupled, 35 ft x 1/4 in., 1/2-20 UNF, moisture guard, static dissipative	1
352	249509	HOSE, coupled, 35 ft, x 1/4 in., 9/16-18 UNF, static dissipative	1

Recirculation Manifold, 24J147

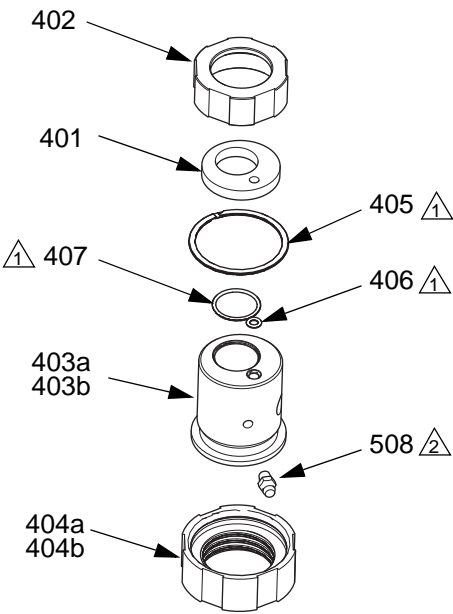


- ¹ Torque to 250 in-lb (28 N•m).
² Use blue threadlocker on valve cartridge threads into manifold.
³ Apply lubricant to mating surfaces.
⁴ Part of item 503.

Ref.	Part	Description	Qty
501	24K993	MANIFOLD, recirculation	1
502	111763	ELBOW; 1/4 npt (mbe)	4
503	239914	VALVE, recirc/spray; includes items 503a, 503b	2
503a	15E022	. SEAT	1
503b	111699	. GASKET	1
504	224807	BASE, valve	2
505	187625	HANDLE, valve, drain	2
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

Pour Spout Adapter

Part	Description
24J155	40 mm A Side Pour Spout Adapter
24J766	40 mm B Side Pour Spout Adapter
24M052	38 mm B Side Pour Spout Adapter
24M053	38 mm A Side Pour Spout Adapter



Ref.	Part	Description	Qty
401	16H539	PLATE, crush, inlet	1
402	16H540	CAP, spout, pour	1
403		HOUSING, inlet tube, 403a or 403b	1
403a	15H541	HOUSING, inlet tube, A side	1
403b	16H882	HOUSING, inlet tube, B side	1
404		CAP, adapting, 40 mm; 404a or 404b	1
	16H542	CAP, adapting, 40 mm; black	1
	16H984	CAP, adapting, 38mm; silver	1
405	125179	RING, retaining	1
406	112319	PACKING, o-ring	1
407	117559	O-RING	1
408	100846	FITTING, lubrication	1

- △1 Lubricate o-rings and retaining ring with grease.
- △2 Apply sealant to threads.

Suggested Spare Replacement Parts

Part	Description
24K984	DRYER, desiccant
246385	STRAINER, pump inlet
24K983	SWITCH, motor power, with circuit breaker
113641	GAUGE, pressure, fluid; sst
239914	VALVE, recirc/spray; includes seat and gasket
24L002	POTENTIOMETER, control knob
24G886	BOARD, control; 120 V units only
24G887	BOARD, control; 240 V units only
24K999	TRANSDUCER, pressure
24L006	PUMP, displacement; fits either side
249855	REPAIR KIT, displacement pump; includes seals, balls, bearings, intake valve seat)
246010	SUCTION HOSE, pump to 5 gallon pail
24M115	ADAPTER, spout, pour, assembly A; 40 mm
24M114	ADAPTER, spout, pour, assembly B; 40 mm
24M052	ADAPTER, spout, pour, assembly A; 38 mm
24M053	ADAPTER, spout, pour, assembly B; 38 mm
16H615	TUBE, recirculation

Unheated Hoses with Scuff Guard, 2000 psi (138 bar, 13.8 MPa)

24R823	HOSE BUNDLE, 1/4 in. (6.4 mm), 35 ft (10 m), no air hose, uninsulated
249633	HOSE BUNDLE, 1/4 in. (6.4 mm), 35 ft (10 m), air, uninsulated
24R137	HOSE BUNDLE, 3/8 in. (9.5 mm), 50 ft (15 m), no air hose, uninsulated
24M653	HOSE BUNDLE, 3/8 in. (9.5 mm), 50 ft (15 m), air, insulated

Accessories

Fusion Air Purge Gun

Air purge gun, available in round or flat patterns. See manual 309550.

Fusion ClearShot™

Air purge gun with ClearShot Liquid Technology, available in round or flat patterns. See manual 312666.

Probler® P2

Air purge gun, available in round or flat patterns. See manual 313213.

Manual 2K Gun

Manually opened and closed, two-component gun. See manual 332198.

Pail Heater, 16U623

Flexible band heaters for 5 gallon pails.

Recirculation Hose Kit, 24M654

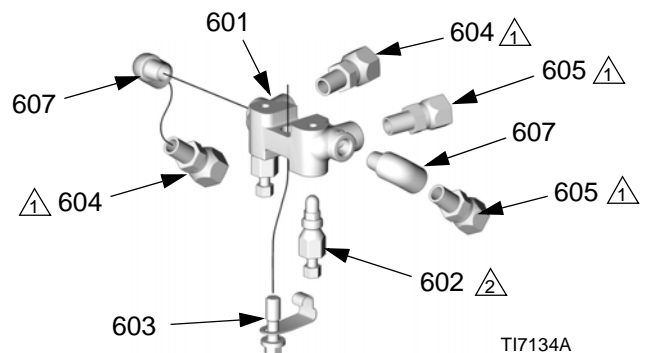
3/8 in. (9.5 mm), 50 ft. (15 m)

Ref.	Part	Description	Qty
550	24M939	HOSE, non-heated, insulated, recirculation, quad, 2000 psi (14 MPa, 138 bar), 3/8 in. (9.5 mm), 50 ft. (15 m)	1
551	111697	ADAPTER, #5 JIC x 1/4 NPT	1
552	119998	PLUG, pipe	2
553	249523	MANIFOLD, gun, assembly, 4-hose	1

Recirculation Gun Manifold Kit, 249523

Only compatible with Fusion Air Purge Gun.

Ref.	Part	Description	Qty
601	---	MANIFOLD	1
602	246356	VALVE, fluid	2
603	15B221	BOLT; 5/16-24	1
604	117634	SWIVEL, B side; 1/8 npt(m) x # 6 JIC(f)	2
605	117635	SWIVEL, A side, 1/8 npt(m) x #5 JIC(f)	2
606	15B993	SPRING, ring, lock	1
607	112307	ELBOW, street; 1/8 npt (m x f); round and flat pattern guns only	2

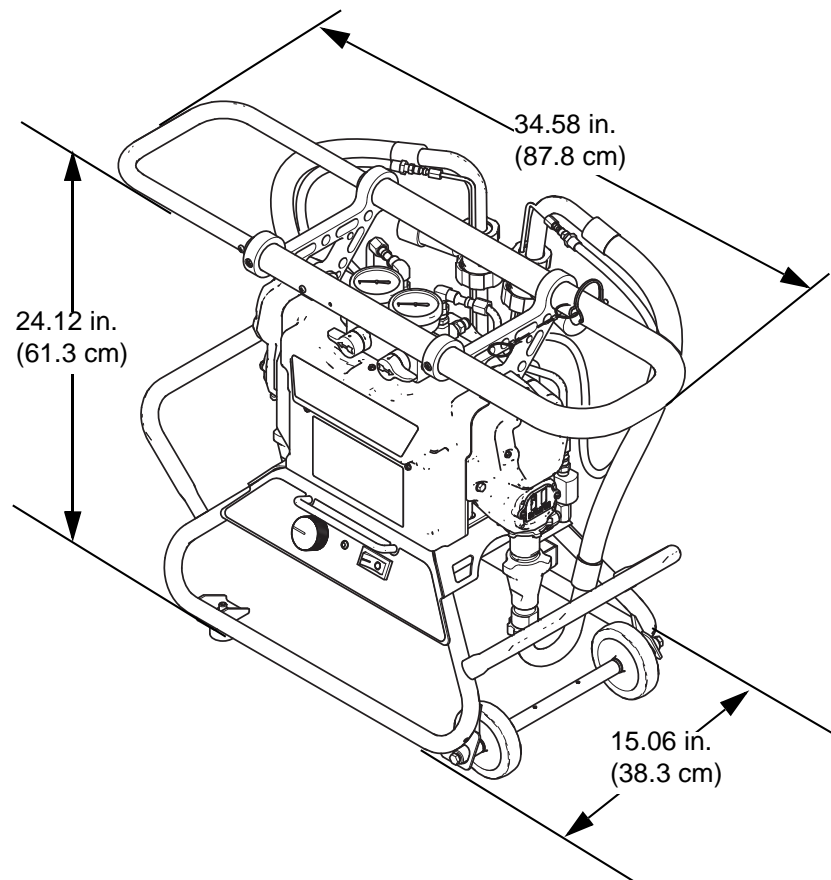


TI7134A

△1 Torque to 235-245 in.-lb (26.6-27.7 N•m).

△2 Torque to 32-40 ft.-lb (43-54 N•m).

Dimensions



T117120a

Technical Data

Reactor E-8p		
	US	Metric
Maximum fluid working pressure	2000 psi	14 MPa, 138 bar
Electrical requirements	Model 259082: 120 Vac, 1 phase, 50/60 Hz, 1800 W; requires a single dedicated 15 A circuit	
Generator Size	2500 W minimum	
Maximum Ambient Temperature	110°F	43°C
Maximum Output at 340 cycles/min	12 lb/min	5.4 kg/min
Output per Cycle (A and B)	.00352 gal.	(.0133 liter)
Overpressure Relief	Recirc/Spray valves automatically relieve excessive fluid pressure back to supply tanks	
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 lbs.	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

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