

## Independent Plug-In Heated Hose and Control Module

3A5362D

EN

***For spraying or dispensing polyurea coatings and polyurethane foam. For use with Graco equipment only. For professional use only.***

***Not approved for use in explosive atmospheres or hazardous locations.***

See page 3 for model information.

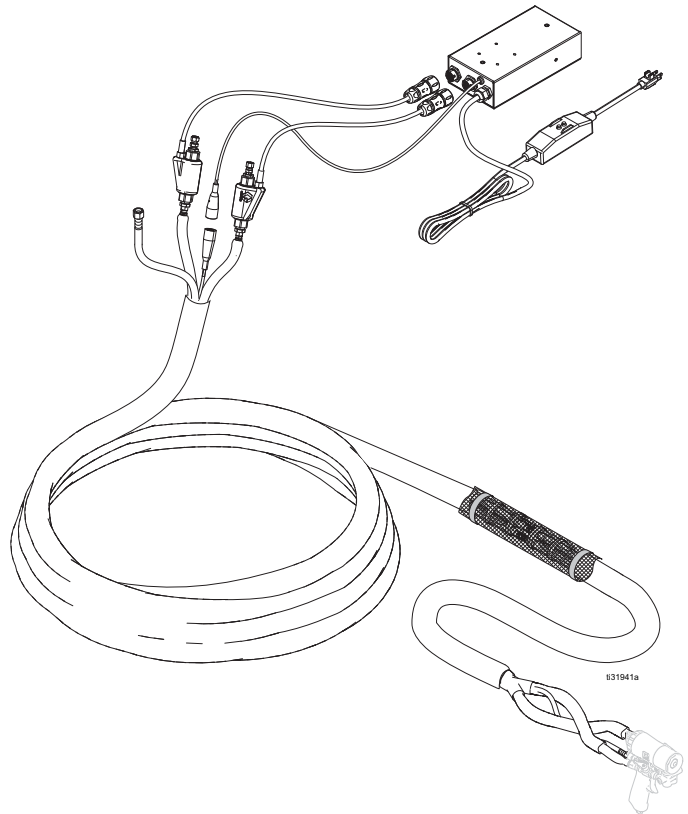
3000 psi (24.1 MPa, 241 bar) Maximum Fluid Working Pressure

160°F (71°C) Maximum Hose Operating Temperature



### **Important Safety Instructions**

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



1031941a



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## Related Manuals

Manual in English	Description
3A1602	Reactor® E-8p
311075	Reactor E-10
332144	Reactor E-10hp

## Models

				
To prevent risk of fire, explosion, and electric shock, the Independent Plug-In Heated Hose must be used with a corresponding Graco control module of similar voltage.				

## Packages

Model	Description	Control Module	Installation Kit	Fluid Temperature Sensor (FTS)	Whip Hose
25M750	Control Module, 120 V, °F, E-8p, whip	24Z964	17T871	261669	26A501
25M751	Control Module, 120 V, °F, E-10 / E-10hp, whip	24Z964	17T663	261669	26A501
25M752	Control Module, 240 V, °F, E-8p, whip	25C958	17T871	261669	26A501
25M753	Control Module, 240 V, °F, E-10 / E-10hp, whip	25C958	17T663	261669	26A501
25M754	Control Module, 240 V, °C, E-8p, whip	25M591	17T871	261669	26A501
25M755	Control Module, 240 V, °C, E-10 / E-10hp, whip	25M591	17T663	261669	26A501

## Hoses

Hose	Description	Length (ft)	Voltage (VAC)	Current (A)
26C013	Independent Plug-In Heated Hose, 50 ft, 120 V	50	120	12
26C014	Independent Plug-In Heated Hose, 100 ft, 120 V	100	120	12
26C015	Independent Plug-In Heated Hose, 50 ft, 240 V	50	240	6
26C016	Independent Plug-In Heated Hose, 100 ft, 240 V	100	240	12
26C017	Independent Plug-In Heated Hose, 150 ft, 240 V	150	240	16
Whip Hose	Description	Length (ft)	Voltage (VAC)	Current (A)
26A501	10 ft Whip for Independent Plug-In Heated Hose	10	-	-

## Control Modules

Control Module	Description	Voltage (VAC)	Max Current (A)
24Z964	120 V, °F	120	12
25C958	240 V, °F	240	16
25M591	240 V, °C	240	16

## Installation Kits

Install Kit	Description
17T871	E-8p Install Kit
17T663	E-10, E-10hp Install Kit with Recirculation Bypass

## Overview

The Independent Plug-In Heated Hose and Control Module should only be installed on a Reactor E-8p, E-10, E-10 OEM, or E-10hp.

The heated hose maintains fluid temperature at desired set point when spraying. See **Performance Chart**, page 52.



# 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.

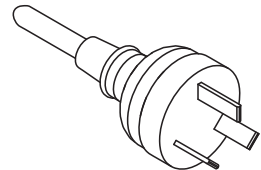
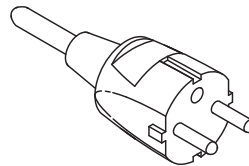
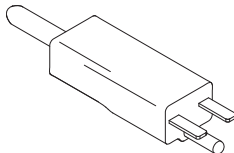
## WARNING



### GROUNDING

This product must be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. This product is equipped with a cord having a grounding wire with an appropriate grounding plug. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

- Improper installation of the grounding plug is able to result in a risk of electric shock.
- When repair or replacement of the cord or plug is required, do not connect the grounding wire to either flat blade terminal.
- The wire with insulation having an outer surface that is green with or without yellow stripes is the grounding wire.
- Check with a qualified electrician or serviceman when the grounding instructions are not completely understood, or when in doubt as to whether the product is properly grounded.
- Do not modify the plug provided; if it does not fit the outlet, have the proper outlet installed by a qualified electrician.
- This product is for use on a nominal 120 V or 200-240 V circuit and has a grounding plug similar to the plugs illustrated in the figure below.












- Only connect the product to an outlet having the same configuration as the plug.
- Do not use a 3-2 adapter with this product.

#### Extension Cords:







- Use only a 3-wire extension cord that has a grounding plug and a grounding receptacle that accepts the plug on the product.
- Make sure your extension cord is not damaged.
- An undersized cord results in a drop in line voltage and loss of power and overheating.






# WARNING

   	<p><b>FIRE AND EXPLOSION HAZARD</b></p> <p>Flammable fumes, such as solvent and paint fumes, in <b>work area</b> can ignite or explode. Paint or solvent flowing through the equipment can cause static sparking. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> <li>• Use equipment only in well-ventilated area.</li> <li>• Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static sparking).</li> <li>• Ground all equipment in the work area. See <b>Grounding</b> instructions.</li> <li>• Never spray or flush solvent at high pressure.</li> <li>• Keep work area free of debris, including solvent, rags and gasoline.</li> <li>• Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.</li> <li>• Use only grounded hoses.</li> <li>• Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are anti-static or conductive.</li> <li>• <b>Stop operation immediately</b> if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem.</li> <li>• Keep a working fire extinguisher in the work area.</li> </ul>
 	<p><b>ELECTRIC SHOCK HAZARD</b></p> <p>This equipment must be grounded. Improper grounding, set-up, or usage of hoses can cause electric shock.</p> <ul style="list-style-type: none"> <li>• Turn off and disconnect power before installing or 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>
  	<p><b>SKIN INJECTION HAZARD</b></p> <p>High-pressure fluid from 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. <b>Get immediate surgical treatment.</b></p> <ul style="list-style-type: none"> <li>• Inspect hose before each use for cuts, bulges, kinks or any other damage.</li> <li>• Replace damaged hose immediately.</li> <li>• Replace hoses proactively at regular intervals based on your operating conditions.</li> <li>• Tighten all fluid connections before operating the equipment.</li> <li>• Keep clear of leaks.</li> <li>• Do not stop or deflect leaks with your hand, body, glove, or rag.</li> <li>• Never exceed hose Maximum Pressure or Temperature ratings.</li> <li>• Only use chemicals that are compatible with hose materials. See in this manual. Read Safety Data Sheets (SDSs) and fluid and solvent manufacturer's recommendations.</li> <li>• Follow the <b>Pressure Relief Procedure</b> in proportioner manual when you stop spraying/dispensing and before cleaning, checking, or servicing equipment.</li> </ul>

# **WARNING**

 	<p><b>EQUIPMENT MISUSE HAZARD</b></p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> <li>• Do not operate the unit when fatigued or under the influence of drugs or alcohol.</li> <li>• Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See in all equipment manuals.</li> <li>• Use fluids and solvents that are compatible with equipment wetted parts. See 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.</li> <li>• Do not leave the work area while equipment is energized or under pressure.</li> <li>• Turn off all equipment and follow the <b>Pressure Relief Procedure</b> in proportioner manual when equipment is not in use.</li> <li>• Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.</li> <li>• Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.</li> <li>• Make sure all equipment is rated and approved for the environment in which you are using it.</li> <li>• Use equipment only for its intended purpose. Call your distributor for information.</li> <li>• Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.</li> <li>• Do not kink or over bend hoses or use hoses to pull equipment.</li> <li>• Keep children and animals away from work area.</li> <li>• Comply with all applicable safety regulations.</li> </ul>
	<p><b>PRESSURIZED ALUMINUM PARTS HAZARD</b></p> <p>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.</p> <ul style="list-style-type: none"> <li>• Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents.</li> <li>• Do not use chlorine bleach.</li> <li>• Many other fluids may contain chemicals that can react with aluminum. Contact your material supplier for compatibility.</li> </ul>
  	<p><b>THERMAL EXPANSION HAZARD</b></p> <p>Fluids subjected to heat in confined spaces, including hoses, can create a rapid rise in pressure due to the thermal expansion. Over-pressurization can result in equipment rupture and serious injury.</p> <ul style="list-style-type: none"> <li>• Open a valve to relieve the fluid expansion during heating.</li> <li>• Replace hoses proactively at regular intervals based on your operating conditions.</li> </ul>

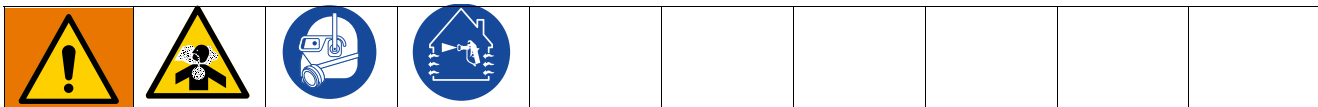
# **WARNING**

	<p><b>TOXIC FLUID OR FUMES HAZARD</b></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"> <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 Personal Protective Equipment warnings in this manual.</li> <li>• Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.</li> </ul>
	<p><b>BURN HAZARD</b></p> <p>Equipment surfaces and fluid that is heated can become very hot during operation. To avoid severe burns:</p> <ul style="list-style-type: none"> <li>• Do not touch hot fluid or equipment.</li> </ul>
	<p><b>PERSONAL PROTECTIVE EQUIPMENT</b></p> <p>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:</p> <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>

# 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



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



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

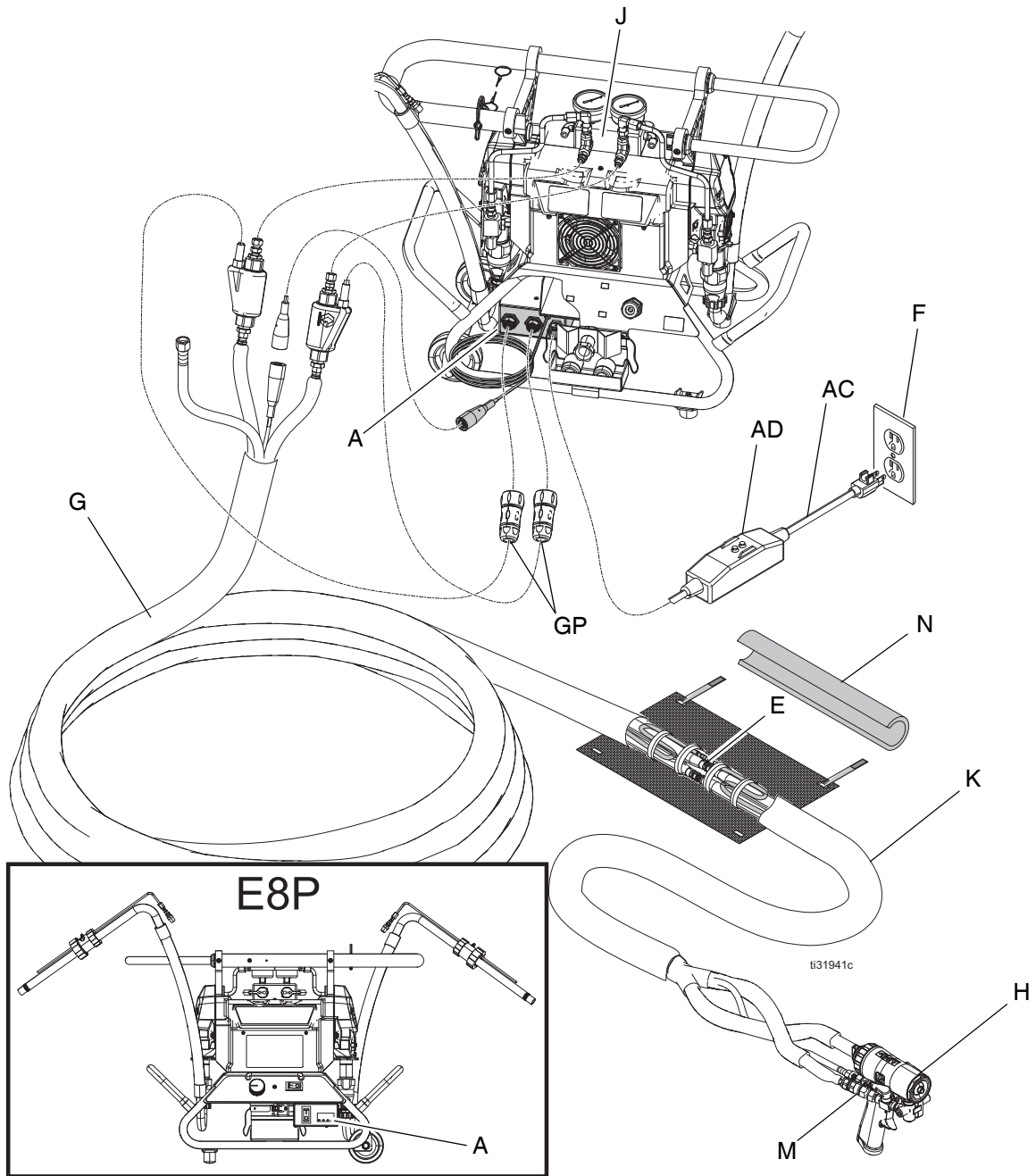
### **NOTICE**

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 A (hardener) side. Polyureas often have amines on the B (resin) side.

# Typical Installation

## E-8p (120 V shown)



**FIG. 1: Typical Installation**

**Key:**

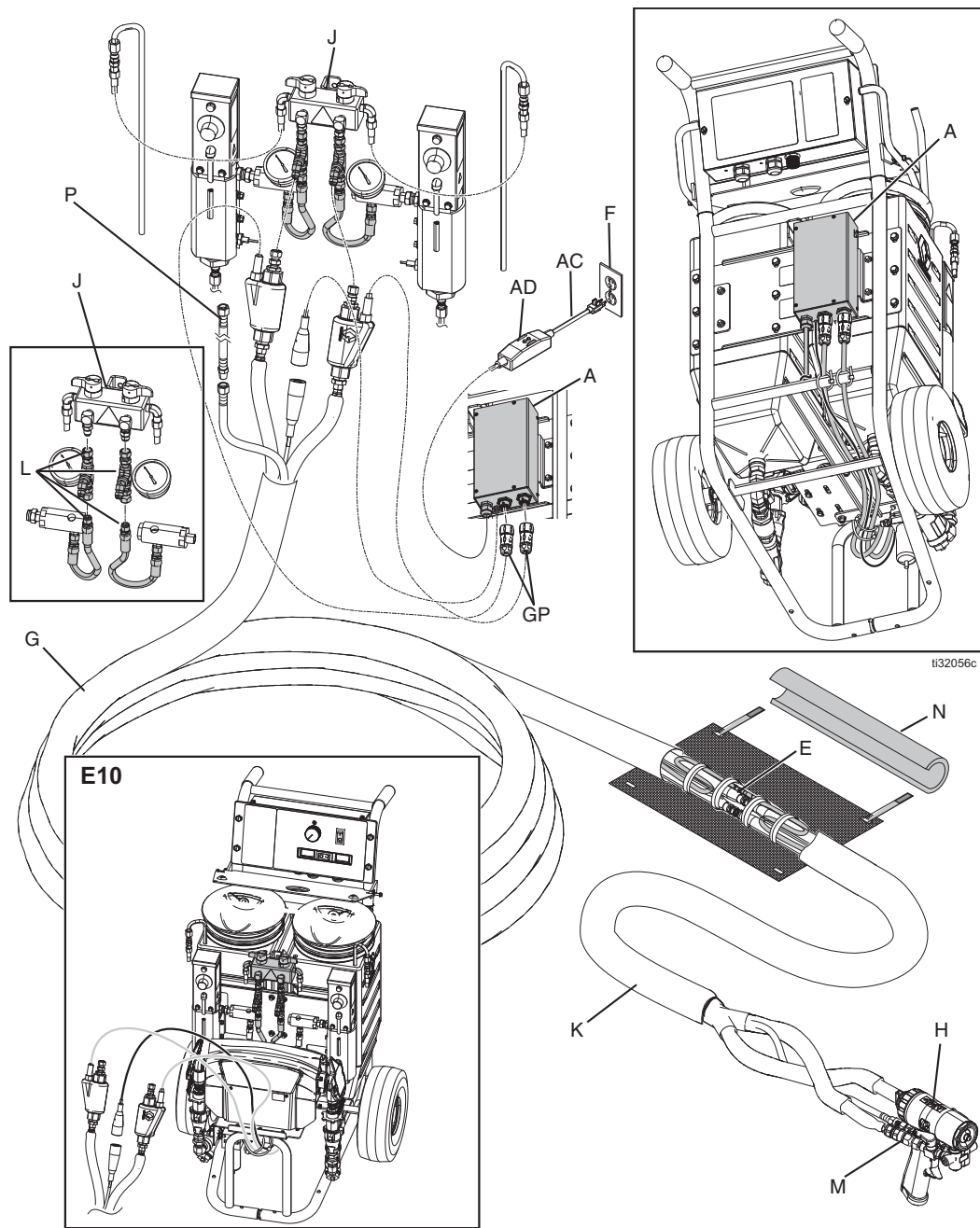
- A Control Module
- AC Power Cord
- AD Ground Fault
- E Fluid Temperature Sensor (FTS)
- F 120 V Outlet (not included)
- G Independent Plug-In Hose

**Key:**

- GP Heated Hose Power Connection
- H Gun or Applicator (not included)
- J Proportioner Fluid Manifold (not included)
- K Unheated Whip Hose for Independent Plug-In Hose
- M Wire Stop
- N FTS Insulation



## E-10 (120 V shown)



**FIG. 2: Typical Installation**

**Key:**

- A Control Module
- AC Power Cord
- AD Ground Fault
- E Fluid Temperature Sensor (FTS)
- F 120 V Outlet (not included)
- G Independent Plug-In Hose
- GP Heated Hose Connection

**Key:**

- H Gun or Applicator (not included)
- J Proportioner Fluid Manifold (not included)
- K Whip Hose for Independent Plug-In Hose
- L Recirculation Bypass
- M Wire Stop
- N FTS Insulation
- P Air Hose Extension

# E-10hp (120 V shown)

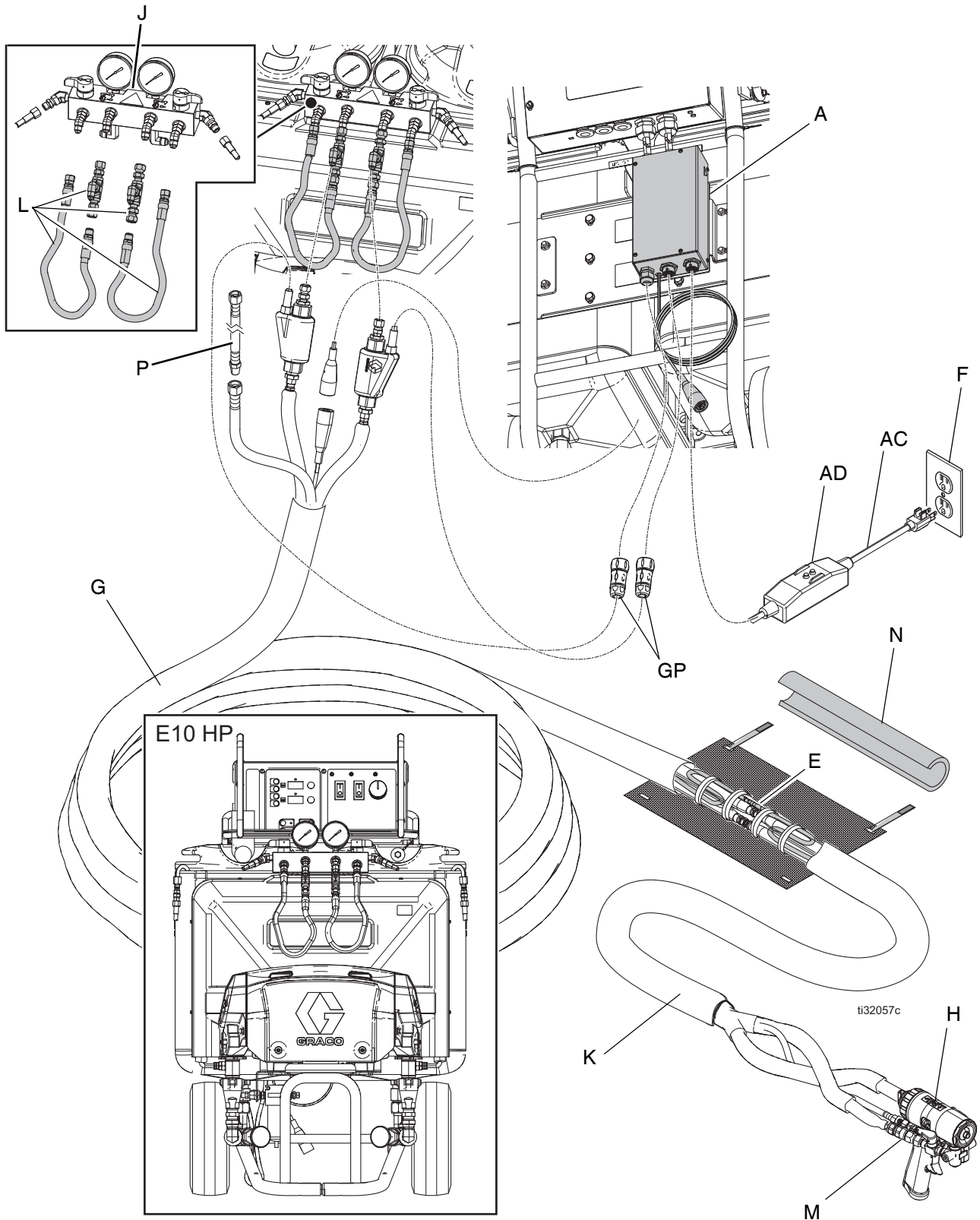


Fig. 3: Typical Installation

**Key:**

- A Control Module
- AC Power Cord
- AD Ground Fault
- E Fluid Temperature Sensor (FTS)
- F 120 V Outlet (not included)
- G Independent Plug-In Hose
- GP Heated Hose Connection

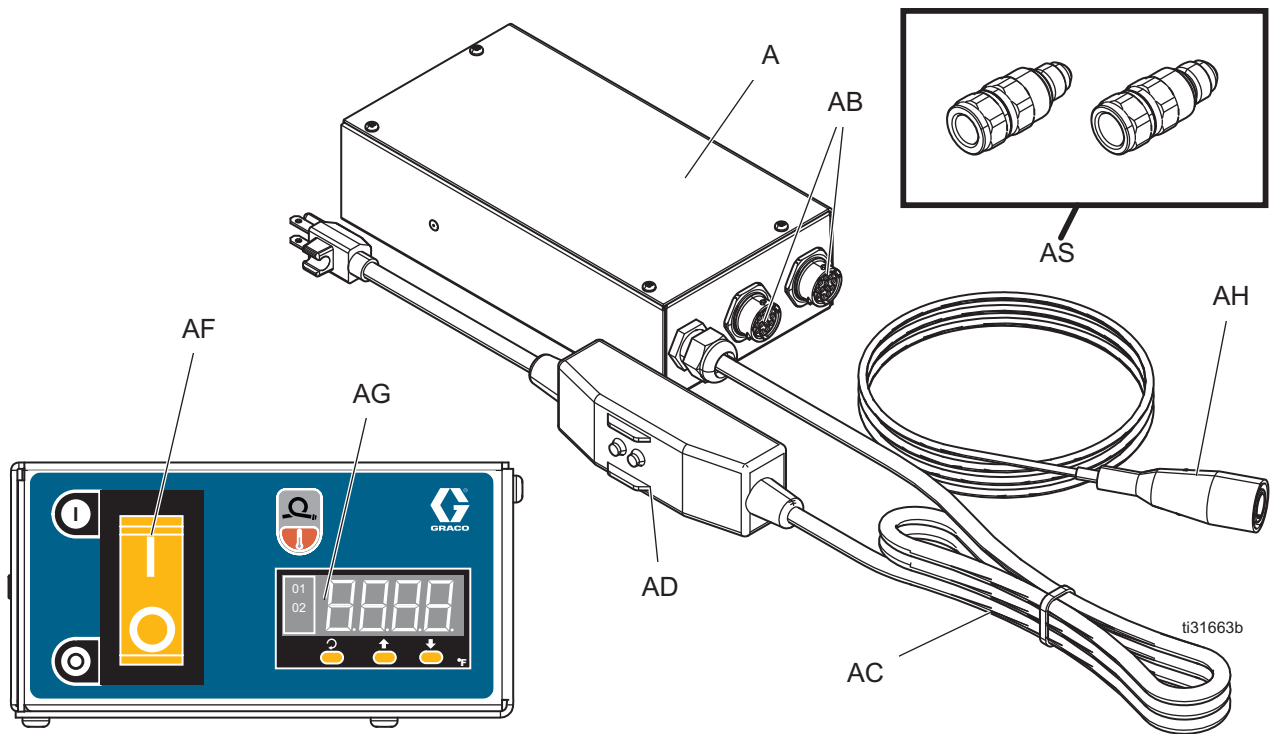
**Key:**

- H Gun or Applicator (not included)
- J Proportioner Fluid Manifold (not included)
- K Whip Hose for Independent Plug-In Hose
- L Recirculation Bypass
- M Wire Stop
- N FTS Insulation
- P Air Hose Extension

# Component Identification

## Independent Hose Temperature Control Module

24Z964 (120 V, °F)



**Fig. 4: Control Module Component Identification**

**Key:**

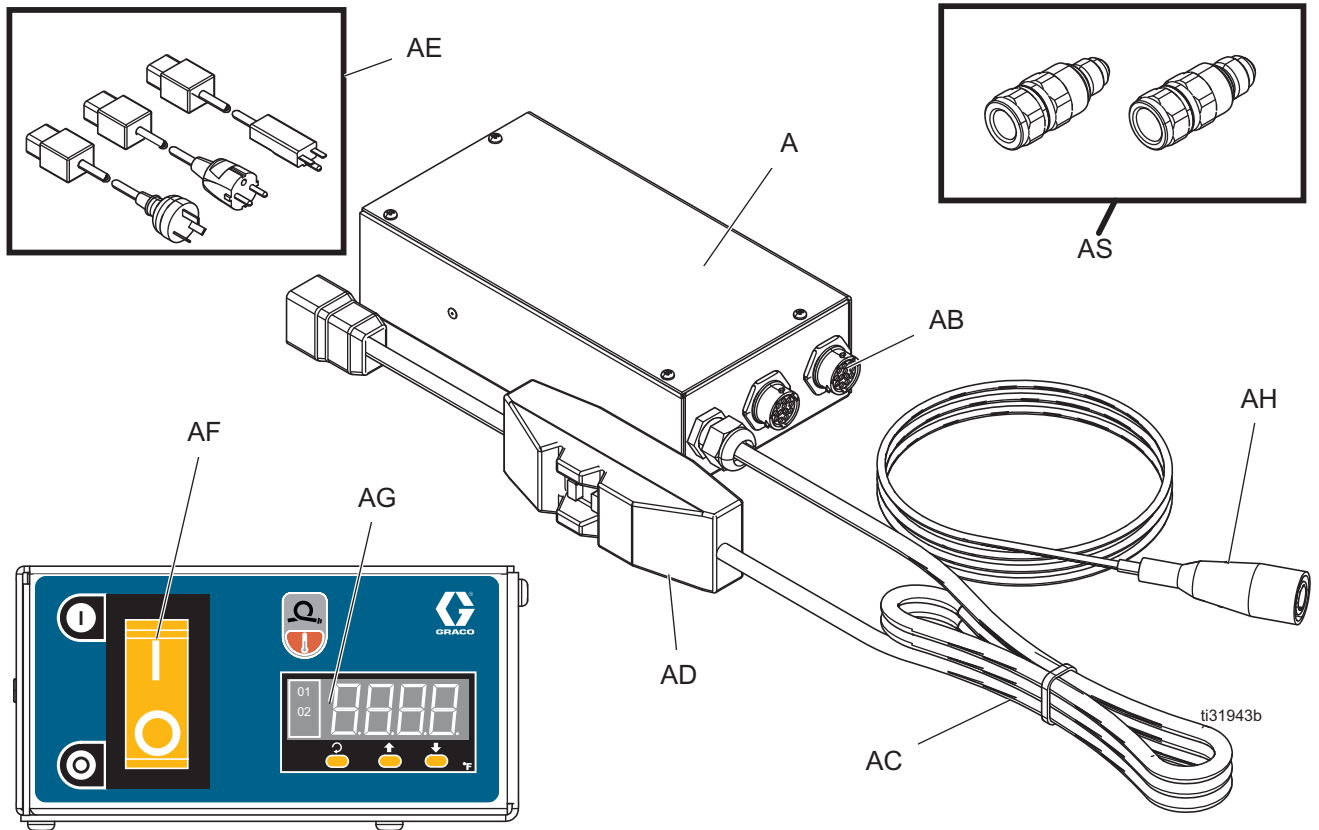
- A Control Module
- AB Heated Hose Connection
- AC Power Cord
- AD Ground Fault

**Key:**

- AF ON/OFF Switch
- AG Temperature Control
- AH Fluid Temperature Sensor (FTS) Cable
- AS Wire Stop

25M958 (240 V, °F)

25M591 (240 V, °C)



**FIG. 5: Control Module Component Identification**




**Key:**




- A Control Module
- AB Heated Hose Connection
- AC Power Cord
- AD Ground Fault
- AE Power Cord Adapter

**Key:**

- AF ON/OFF Switch
- AG Temperature Control
- AH Fluid Temperature Sensor (FTS) Cable
- AS Wire Stop

# Installation

				
<p>This equipment is used with heated fluid, which can cause equipment surfaces to become very hot. To avoid severe burns:</p> <ul style="list-style-type: none"> <li>• Do not touch hot fluid or equipment.</li> <li>• Do not turn on hose heat without fluid in hoses.</li> <li>• Allow equipment to cool completely before touching it.</li> <li>• Wear gloves if fluid temperature exceeds 110°F (43°C).</li> </ul>				

				
<p>Thermal expansion can cause over-pressurization, resulting in equipment rupture and serious injury, including fluid injection. Do not pressurize system when preheating hose.</p>				

Fluid hoses are marked with red tape for ISO/hardener/minor volume side (A-side) and blue tape for RES/resin/major volume side (B-side).

<b>NOTICE</b>
<p>Incorrect connection of fittings can cause fluid cross-over and permanently damage the hose. Fittings have different sized threads to prevent incorrect connection. Only connect fittings with matching thread sizes.</p>

<b>NOTICE</b>
<p>Heated hose must always contain fluid when hose power is on. Never apply power to an empty heated hose. Powering empty hoses may cause equipment damage.</p>

<b>NOTICE</b>
<p>Always completely unroll and bleed the air from the hose before each use. If the air is not bled from the hose, heat transfer from the heating conductor will not be uniform. In the worst case, the conductor can be damaged. The warranty is void in such cases.</p>

## Location

- Do not expose the Independent Plug-In Heated Hose to rain.

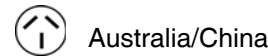
## Electrical Requirements

- 120 V, 50/60 Hz required power source: single, dedicated circuit rated at a minimum of 15 A.
- 200-240 V, 50/60 Hz required power source: single, dedicated circuit rated at a minimum of 16 A.

- Power cord connector (120 V):



- Power cord connector (200-240 V):



- Extension cord requirements:

Required Wire Size	
Up to 50 ft (15 m)	Up to 100 ft (30 m)
AWG 12	AWG 10

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

## 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.

**Reactor:** grounded through power cord.

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

**Spray gun:** connect whip hose ground wire to FTS. See **Connect Whip Hose to FTS**, page 22. Do not disconnect ground wire or run equipment without whip hose.

**Control module:** grounded through power cord.

**Fluid hoses:** grounded through a properly grounded proportioner and the control module.

**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/dispense valve firmly to the side of a grounded metal pail, then trigger the gun/valve.

## Connect Fluid Temperature Sensor (FTS) to Heated Hose

### NOTICE

To prevent damage to FTS probe (EF), do not kink or excessively bend hose or probe. Do not coil hose tighter than a bend radius of 1.5 ft (0.5 m). Do not subject hose to excessive weight, impact, or other abuse.

1. Assemble JIC swivel fitting (EC) in female end of temperature sensor (EA). Straighten probe. Torque connection to 14 ft-lb (19 N•m). Do not over-torque. Assemble JIC swivel fitting (ED) into female end of B hose coupler (EB). Torque to a maximum of 20 ft-lb (27 N•m). Do not over-torque.
2. Prepare the heating elements (GC, GD) for assembly.
  - a. Extend the heating elements out straight.
  - b. Remove any twists and kinks in the heating elements.
  - c. Locate the end of the heating element. Pinch the heating element wire with your fingers to create a tight tip.
3. Feed A-side hose heating elements (GC) through the FTS assembly (EA, EC).
  - a. Ensure heating element passes below the temperature sensor probe as shown in FIG. 6.

- b. Slide the FTS down the heating wire to within 24 in. of the hose fitting (GA).

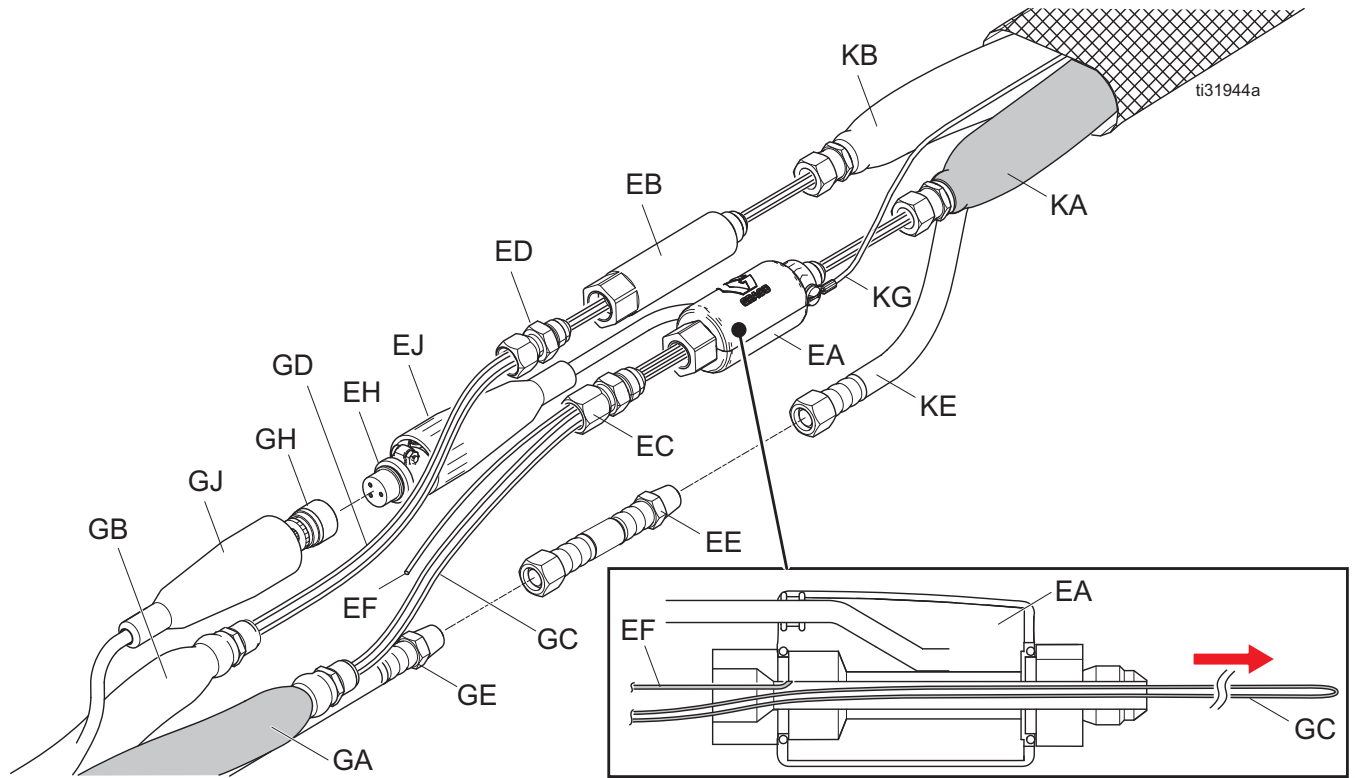
4. Carefully insert FTS probe into the A hose (GA). While holding the A-side heating elements taut:
  - a. Hand-tighten the JIC swivel fitting (EL) while ensuring that approximately 1 in. of the heating element can still be pushed in and pulled out of the FTS and hose connection.
  - b. Torque fitting connections to 14 ft-lb (19 N•m). Do not over-torque.

### NOTICE

To avoid damage to FTS sensor cable, rotate FTS body so the cable lays between both fluid hoses to protect it from abrasive damage during use.

5. Feed B-side hose heating element (GD) through the B hose coupler assembly (EB, ED).
  - a. Slide the coupler down the heating wire to within 6 in. of the hose fitting.
6. While holding the B-side heating elements taut:
  - a. Hand-tighten the JIC swivel fitting (ED) while ensuring that approximately 1 in. of the heating element can still be pushed in and pulled out of the B hose coupler and hose connection.
  - b. Torque fitting connections to 20 ft-lb (27 N•m). Do not over-torque.





**FIG. 6: Connect Unheated Whip Hose to FTS**

## Connect Whip Hose to FTS

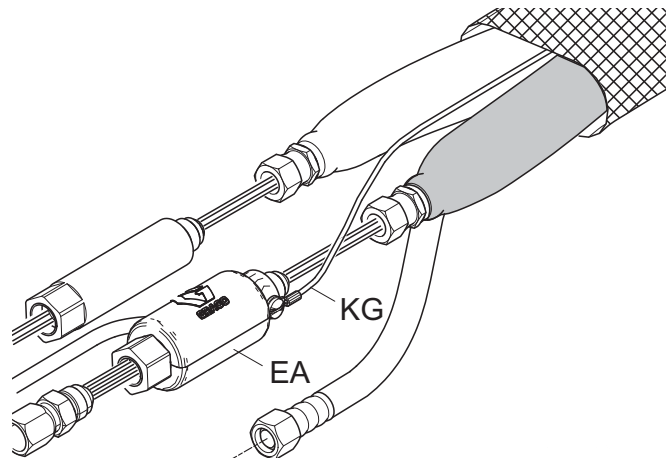
**NOTE:** Refer to FIG. 6, page 21, and FIG. 7, page 22.

1. Feed A-side hose heating elements (GC) into the A side whip (KA). Keep whip hose as straight as possible to aid in insertion.
  - a. If heating element becomes difficult to push into the hose, gently shake the hose to reduce binding. Resume insertion until the hose fittings meet.
  - b. Tighten the swivel while gently shaking the hoses until the fittings are hand tight.
  - c. Torque fitting connections to 14 ft-lb (19 N•m). Do not over-torque.
2. Feed B-side hose heating elements (GD) into the B side whip (KB).
  - a. Keep whip hose as straight as possible to aid in insertion.
  - b. If heating element becomes difficult to push into the hose, gently shake the hose to reduce binding. Resume insertion until the hose fittings meet.
  - c. Tighten the swivel while gently shaking the hoses until the fittings are hand tight.
  - d. Torque fitting connections to 20 ft-lb (27 N•m). Do not over-torque.

3. Connect ground wire (KG) of whip hose to the ground screw on the FTS (EA). See FIG. 7.



**NOTE:** Whip hose ground wire (KG) must be connected to the ground screw on the FTS (EA) in order to drain static from the gun.



**FIG. 7: Connect Ground Wire to Ground Screw**

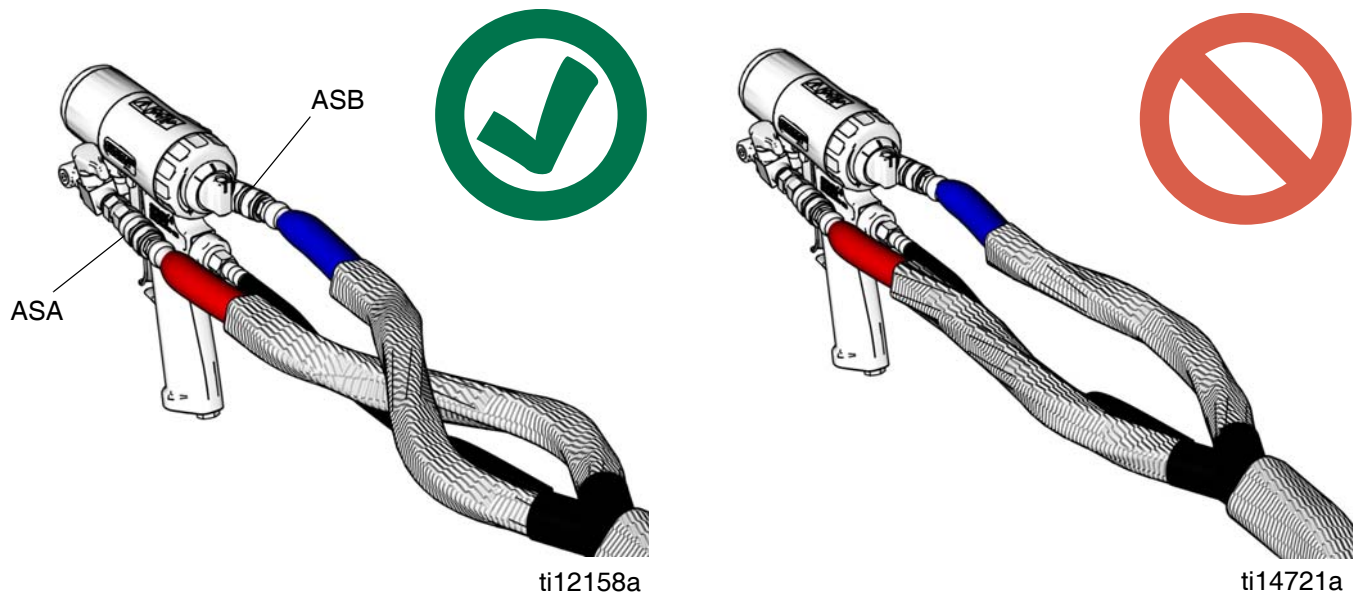
4. Connect the FTS air line coupler (EE) between the air hoses (GE, KE).
5. Connect the sensor cable of the hose (GH) to the sensor cable of the FTS (EH). Slide the insulator sleeves (EJ, GJ) over the connection. Leave slack in the cables to provide stress relief and to prevent cable failure or errors.

## Connect Whip Hose to Gun or Gun Manifold

Install hose in a helix configuration for:

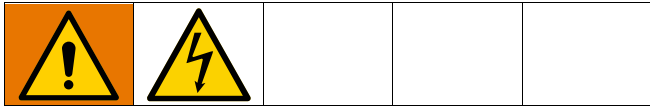
- Easy gun movement
- Large spraying motion
- Ability to spray in tight areas and odd angles
- Reduced operator fatigue
- Maximum hose life

1. Install the A- and B-side wire stops (ASA, ASB) onto the whip hose fittings. Tighten the A-side wire stop (ASA) to 14 ft-lb (18.98 N•m). Tighten the B-side wire stop (ASB) to 20 ft-lb (27.12 N•m).
2. Overlap A-side and B-side component hoses and assemble to gun or gun manifold fittings as shown in FIG. 8.
3. Tighten the wire stop fittings to the A-side and B-side gun manifold fittings. Ensure hose remains flat after fittings are tightened. Loosen and retighten the fittings as necessary to eliminate any torque on hoses. This will help achieve a flat profile on the hose.



**FIG. 8: Overlap of A-side and B-side Component Hoses**

## Mount Control Module



### To Reactor E-8p

1. Disconnect the system from the power source.
2. Remove the four fasteners (10) from the E-8p bottom electrical cover. Set fasteners aside. Remove the cover (92).

3. Install the new bottom electrical cover (AK) with captured nuts positioned closest to the B-side pump of the E-8P.
4. Reinstall the four fasteners (10) from step 3. Torque to 150 in-lb (17 N•m).
5. Attach the flat adapter bracket (AJ) to the control box (A) using two of the included fasteners (AL). Torque to 150 in-lb (17 N•m).
6. Position the control box (A) so the display faces the same direction as the E-8p display. Ensure control box (A) is positioned on the B-side of the system. Attach the box with three of the included fasteners (AL). Torque to 150 in-lb (17 N•m).

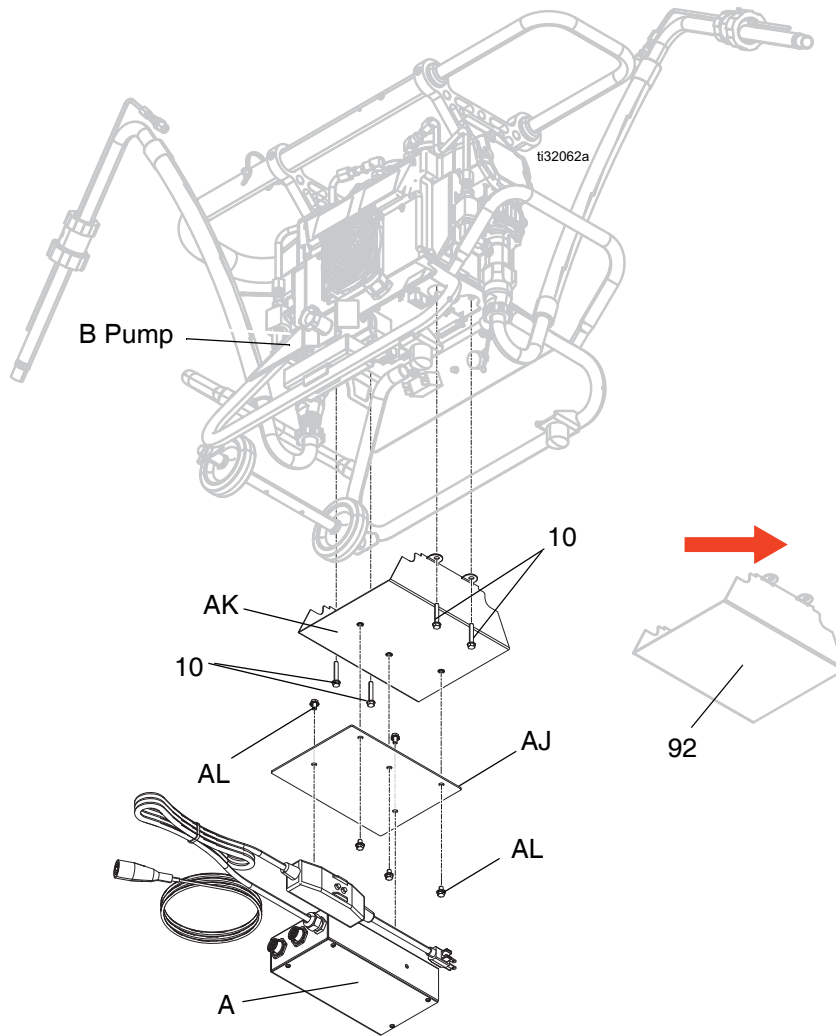


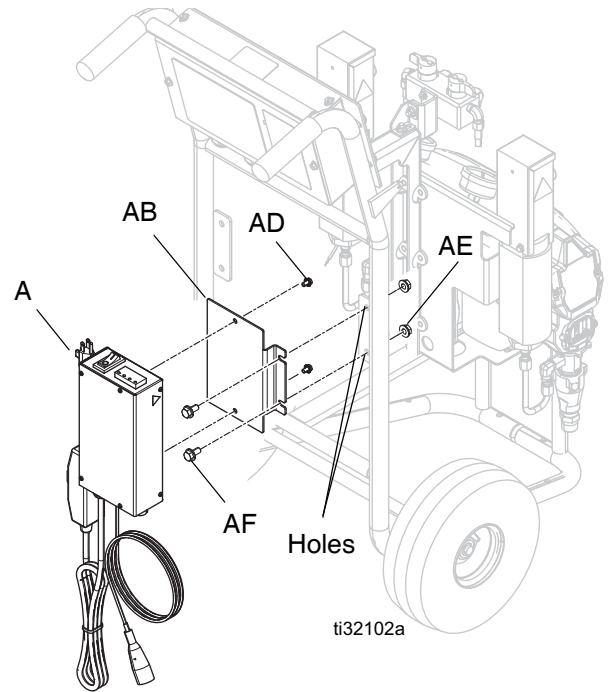
FIG. 9: E-8p Back/Bottom View (120 V)

**To Reactor E-10, E-10 OEM, E-10hp**

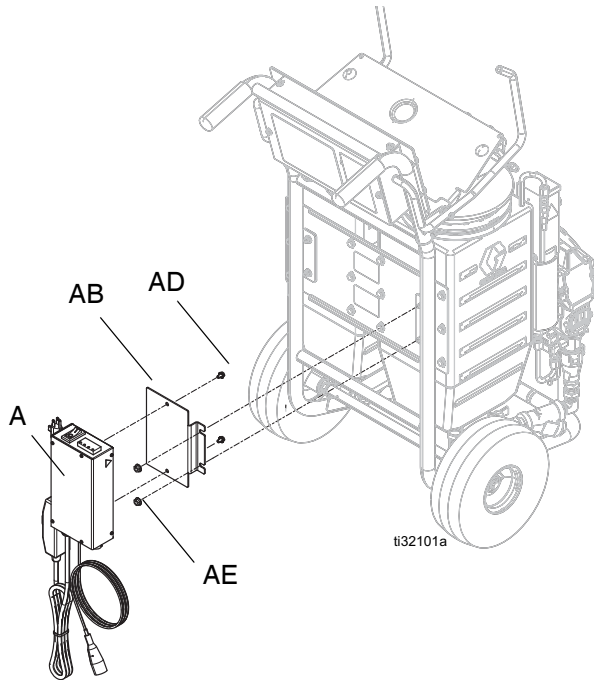
1. Disconnect the system from the power source.
2. Attach adapter bracket (AB) to the control box (A). Torque fasteners (AD) to 150 in-lb (17 N•m).
3. **E-10 and E-10hp:** Loosen nuts (AE) to create a 1/8 in. (3.2 mm) gap. Do not remove nuts.

**E-10 OEM:** Using the supplied fasteners (AF) and nuts (AE), insert fasteners through holes (see FIG. 11). Begin to tighten the nuts until a 1/8 in. (3.2 mm) gap is left between the nuts and the cart frame.

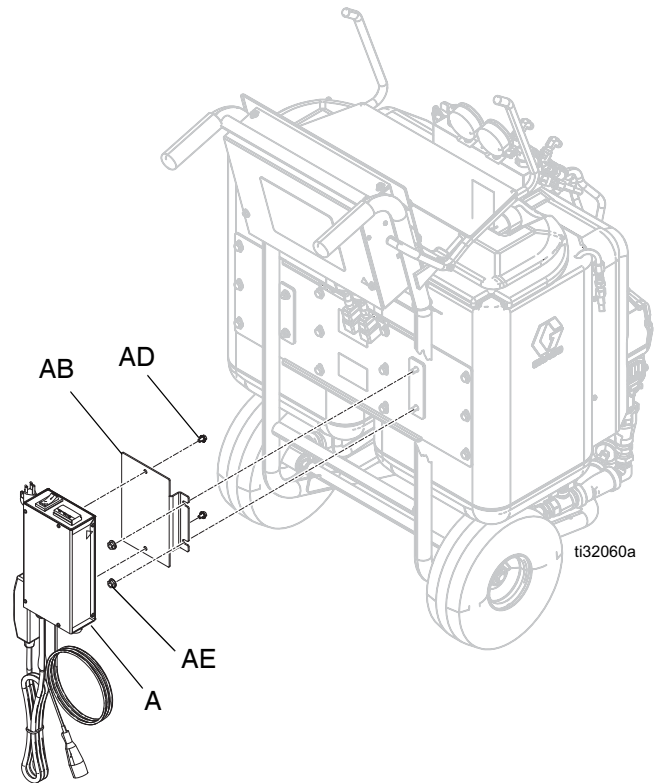
4. Install the control module (A) by inserting the bracket (AB) into the gap between the nuts and the cart frame.
5. Tighten the nuts (AE) to secure the control module to the proportioner frame. Torque nuts to 150 in-lb (17 N•m).



**FIG. 11: Mount Control Module on E-10 OEM**



**FIG. 10: Mount Control Module on E-10**



**FIG. 12: Mount Control Module on E-10hp**

## Install Recirculation Hose Bypass



**NOTE:** Nonheated Reactor E-10 and Reactor E-8p do not use a recirculation hose bypass.

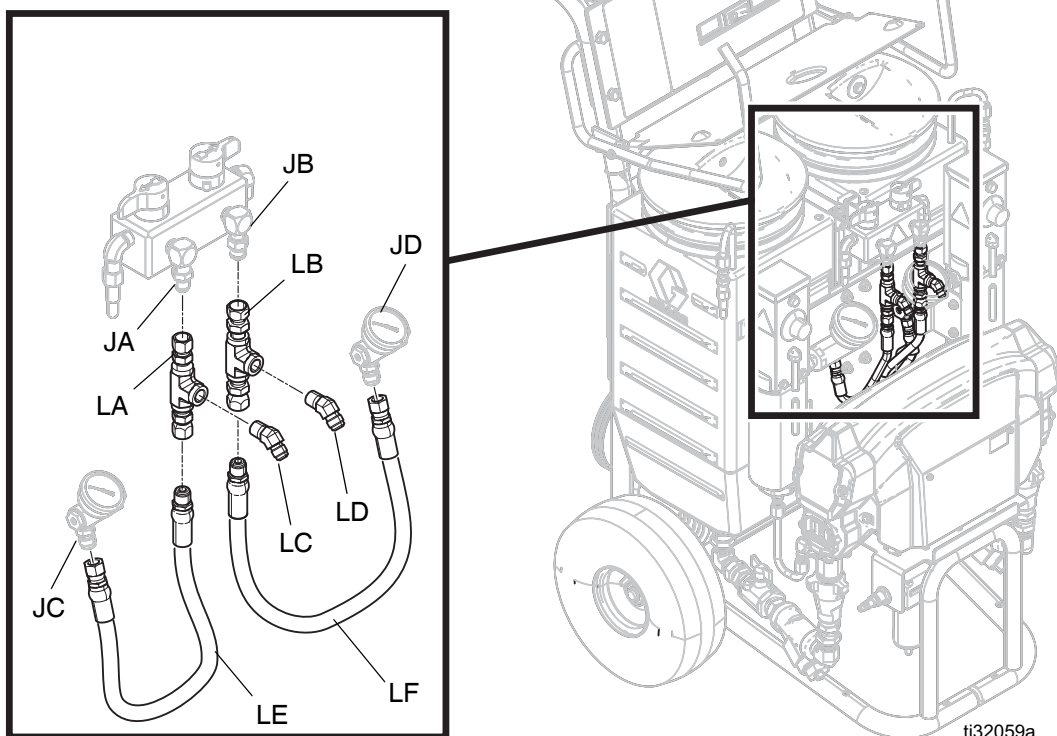
**NOTE:** Grease swivel fittings with Graco Fusion<sup>®</sup> grease prior to connection. Fluid hoses are marked with red tape for ISO/hardener/minor volume side (A-side) and blue tape for RES/resin/major volume side (B-side).

**NOTE:** Torque hose fittings to:

- A side (-5 JIC) to 14 ft-lb (19 N•m)
- B side (-6 JIC) to 20 ft-lb (27 N•m)

### To Reactor E-10, E-10 OEM

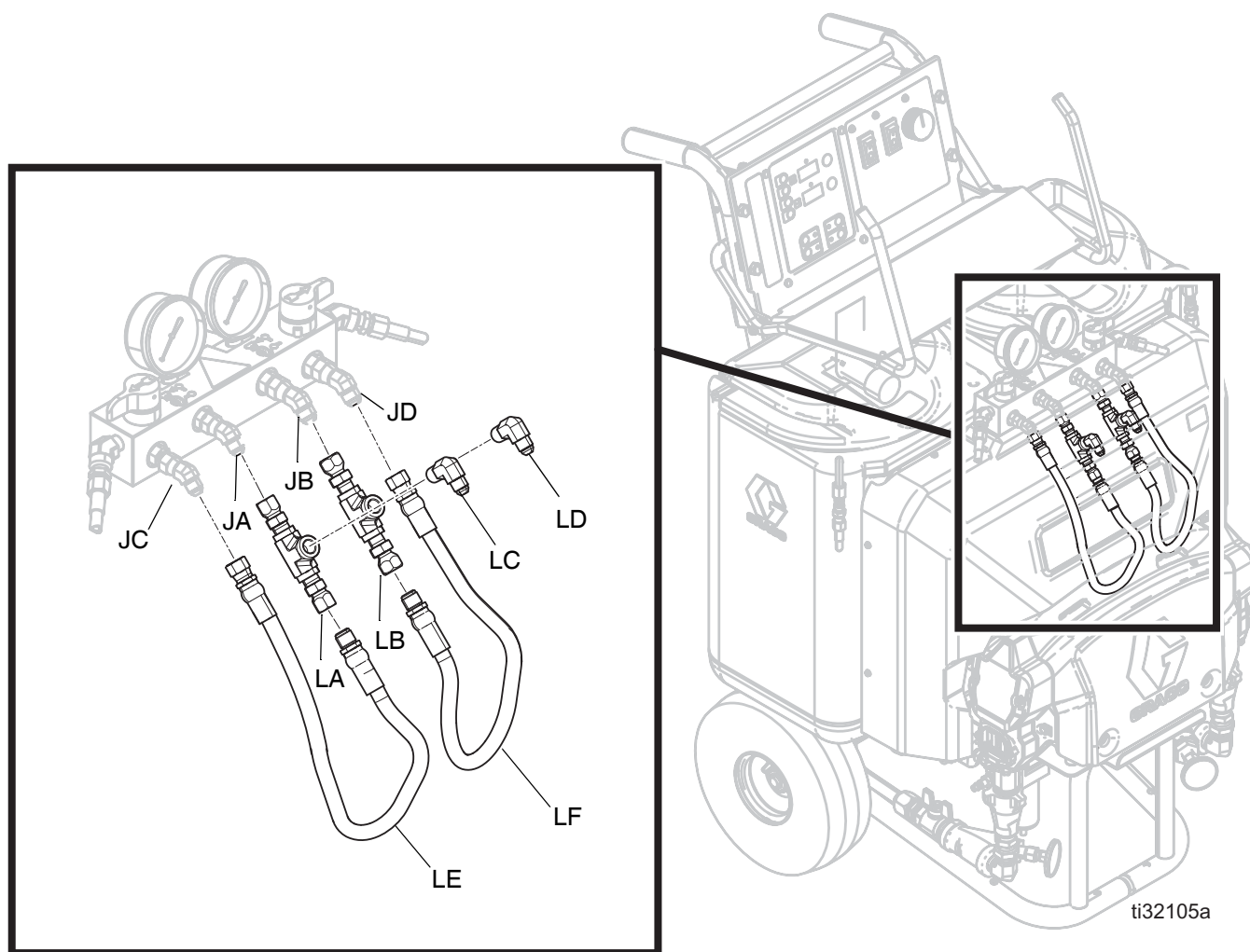
1. Before installing Independent Plug-In Heated Hose, prepare all previously installed fluid hoses for long term storage.
  - a. Follow the **Pressure Relief Procedure**, page 37.
  - b. Flush fluid hoses with the appropriate solvent.
  - c. Fill fluid hoses with hydraulic oil and cap hose ends.
2. Disconnect the proportioner from power source.
3. Assemble the supplied 45° JIC adapters (LC, LD) to the corresponding bypass tee (LA, LB). Apply thread sealant to all non-swiveling pipe threads.
4. Connect the bypass tee swivel fitting (LA, LB) to the corresponding manifold outlet fitting (JA, JB).
5. Attach short hoses (LE, LF) to the corresponding bypass tee swivel fitting (LA, LB). Attach the other end of hose (LE, LF) to the corresponding heater outlet (JC, JD).



**FIG. 13: Install Recirculation Hose Bypass on E-10**

## To Reactor E-10hp

1. Before installing Independent Heated Hose, prepare all previously installed fluid hoses for long term storage.
  - a. Follow the **Pressure Relief Procedure**, page 37.
  - b. Flush fluid hoses with the appropriate solvent.
  - c. Fill fluid hoses with hydraulic oil and cap hose ends.
2. Disconnect the proportioner from power source.
3. Assemble the supplied 90° JIC adapters (LC, LD) to the corresponding bypass tee (LA, LB). Apply thread sealant to all non-swiveling pipe threads.
4. Connect the bypass tee swivel (LA, LB) fitting to the corresponding manifold outlet fitting (JA, JB).
5. Attach short hoses (LE, LF) to the corresponding bypass tee swivel fitting (LA, LB). Attach the other end of the hose (LE, LF) to the corresponding manifold recirculation inlet (JC, JD).



**FIG. 14: Install Recirculation Hose Bypass on E-10hp**



## Connect Hoses to Proportioner



### NOTICE

Heated hose must always contain fluid when hose power is on. Never apply power to an empty heated hose. Powering empty hoses may cause equipment damage.

### NOTICE

Always completely unroll and bleed the air from the hose before each use. If the air is not bled from the hose, heat transfer from the heating conductor will not be uniform. In the worst case, the conductor can be damaged. The warranty is void in such cases.

**NOTE:** Grease swivel fittings with Graco Fusion<sup>®</sup> grease prior to connection. Fluid hoses are marked with red tape for ISO/hardener/minor volume side (A-side) and blue tape for RES/resin/major volume side (B-side).

**NOTE:** Torque hose fittings to:

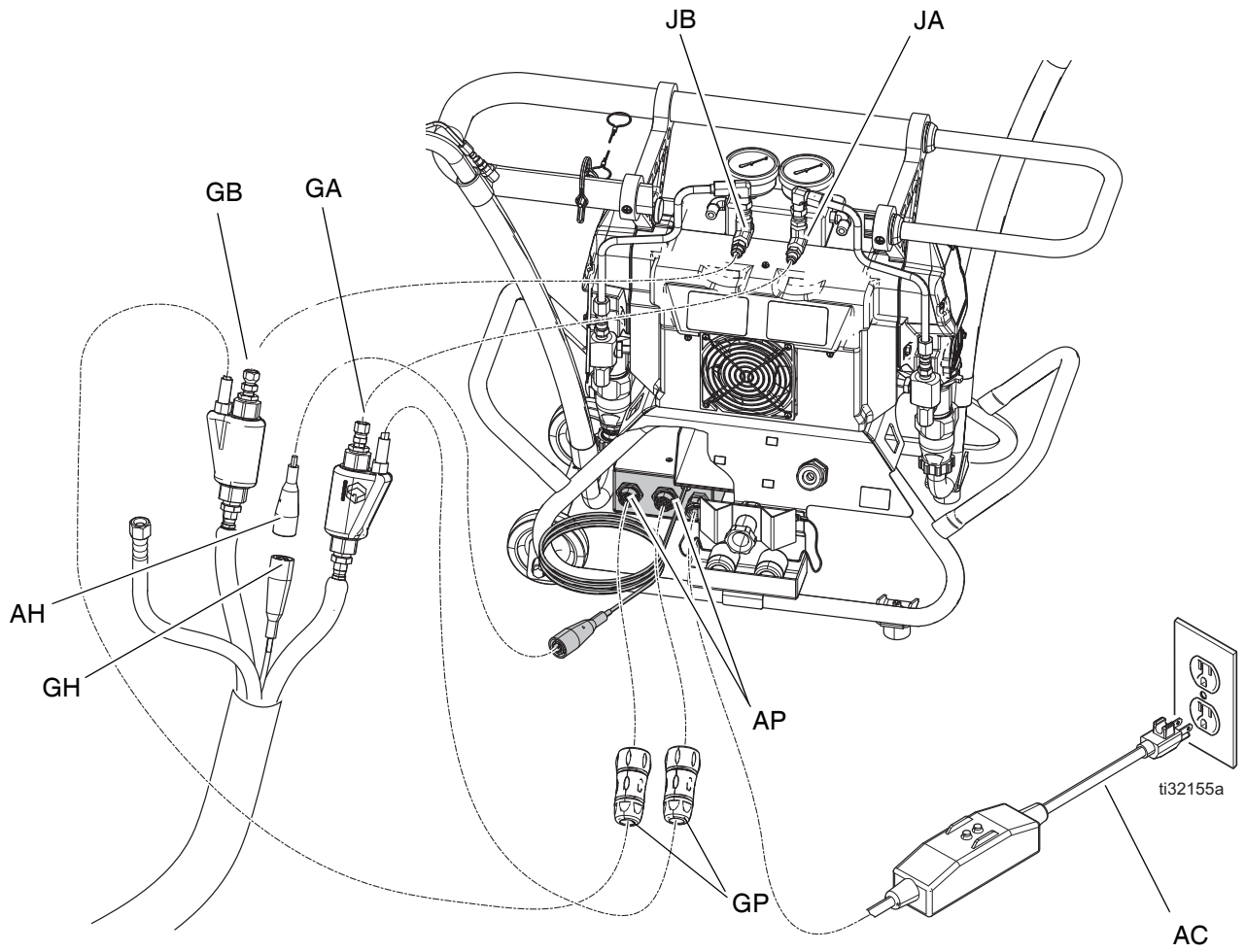
- A side (-5 JIC) to 14 ft-lb (19 N•m)
- B side (-6 JIC) to 20 ft-lb (27 N•m)

## E-8p Heated Hose Connection

1. Before installing Independent Plug-In Heated Hose, prepare all previously installed fluid hoses for long term storage.
  - a. Follow the **Pressure Relief Procedure**, page 37.
  - b. Flush fluid hoses with the appropriate solvent.
  - c. Fill fluid hoses with hydraulic oil and cap hose ends.
2. Attach the heated hose inlet fittings (GA, GB) to the E-8P outlet manifold (JA, JB). See FIG. 15.
3. Connect the hose power cords (GP) to the control box connectors (AP).
4. Connect the FTS cable (AH) from the control box to the hose FTS extension cable (GH).
5. **Purge Air and Flush Fluid from Lines (Prime)**, page 32. Ensure clean material is exiting both fluid hoses before connecting the control module power cord (AC) to a power source.

**NOTE:** If installing a 200-240 V control box, choose the correct power cord adapter for your region. See page 46 for power cord adapter parts.



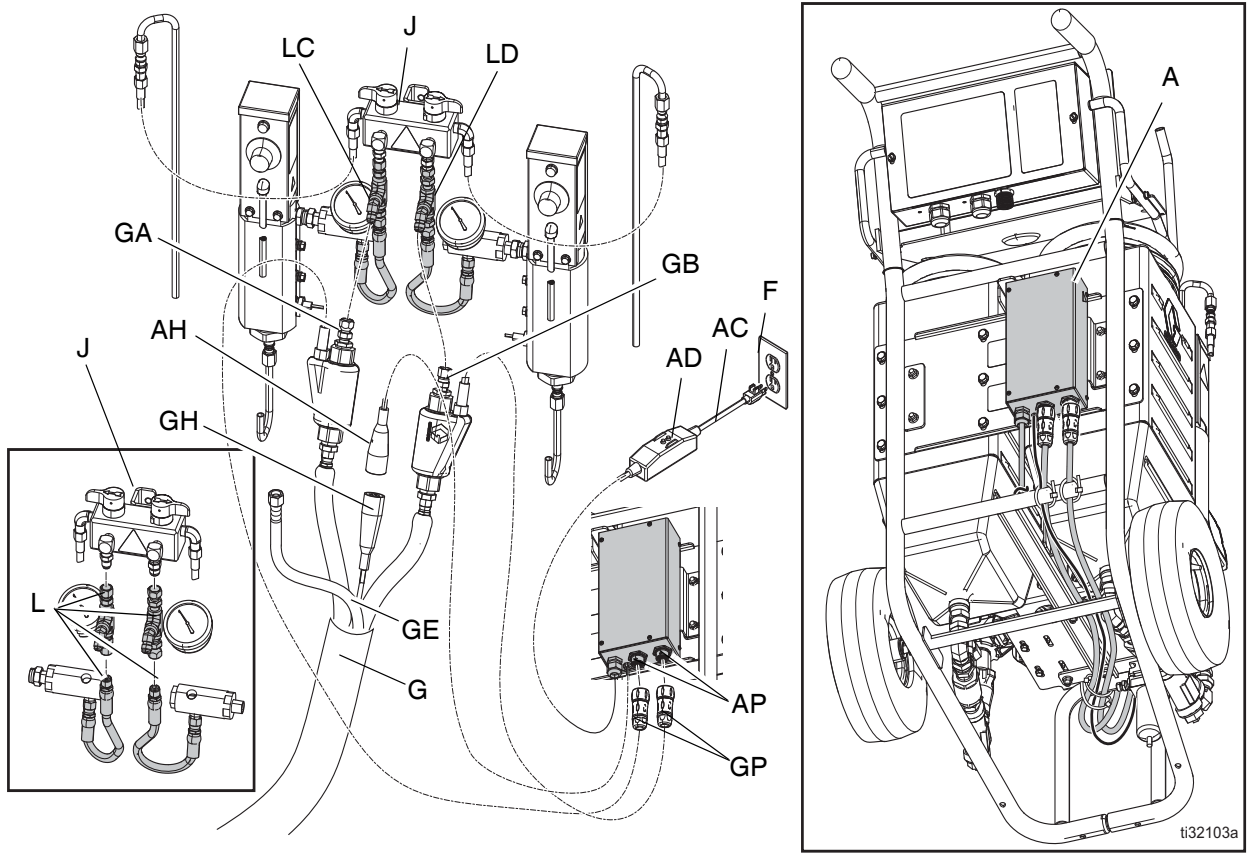


**FIG. 15: E-8p Hose Installation (120 V shown)**

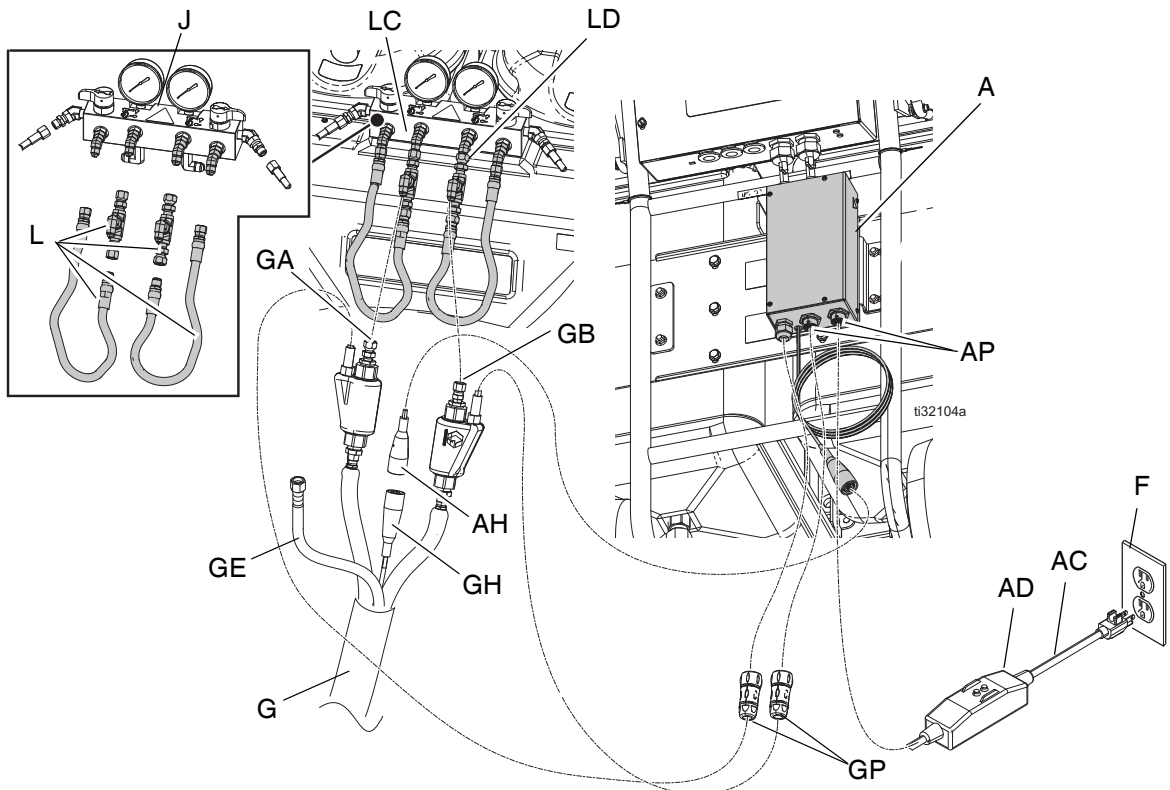
## E-10, E-10 OEM, E-10hp Heated Hose Connection

1. Before installing Independent Plug-In Heated Hose, prepare all previously installed fluid hoses for long term storage.
  - a. Follow the **Pressure Relief Procedure**, page 37.
  - b. Flush fluid hoses with the appropriate solvent.
  - c. Fill fluid hoses with hydraulic oil and cap hose ends.
2. Attach the hose inlet fittings (GA, GB) to the corresponding E-10 bypass fittings (LC, LD).
3. Connect the hose power cords (GP) to the control box connectors (AP).
  - a. Route hose power cords below proportioner and above the cart axle.
4. Connect the FTS cable (AH) from the control box to the FTS extension cable (GH).
  - a. Route FTS cable below proportioner and above the cart axle.
5. Secure cables to cart frame using supplied cable ties.
  - a. Apply cable ties as necessary to ensure cables will not be damaged during system operation/transportation.
6. **Purge Air and Flush Fluid from Lines (Prime)**, page 32. Ensure clean material is exiting both fluid hoses before connecting the control module power cord (AC) to a power source.

**NOTE:** If installing a 200-240 V control box, choose the correct power cord adapter for your region. See page 46 for power cord adapter parts.



**FIG. 16: E-10 and E-10 OEM Hose Installation (120 V shown)**










**FIG. 17: E-10hp Hose Installation (120 V shown)**

## Purge Air and Flush Fluid from Lines (Prime)



**NOTE:** The following steps apply generally to the Graco Reactor E-8p, E-10, and E-10hp proportioning equipment. Refer to your specific Reactor manual for more information.

1. If equipped, remove any recirculation plumbing from supply tanks and secure outlet end of recirculation plumbing to a dedicated waste container.
2. Set function knob to STOP/PARK .
3. Plug in power cord(s).
4. Open both pump fluid inlet valves from supply tanks.
5. Turn on proportioner power.
6. Set RECIRC/SPRAY valves to RECIRC.
7. Set function knob to SLOW RECIRC  or FAST RECIRC .
8. When clean fluid exits both recirculation outlets, set function knob to STOP/PARK .
9. Replace recirculation plumbing to supply tanks.
10. Set the RECIRC/SPRAY valves to SPRAY.
11. Set function knob to SLOW RECIRC  or FAST RECIRC .
12. With the gun manifold positioned to dispense A and B fluids into dedicated waste containers, open gun manifold valves.
13. When clean material exits gun manifold, close gun manifold valves and set function knob to STOP/PARK .

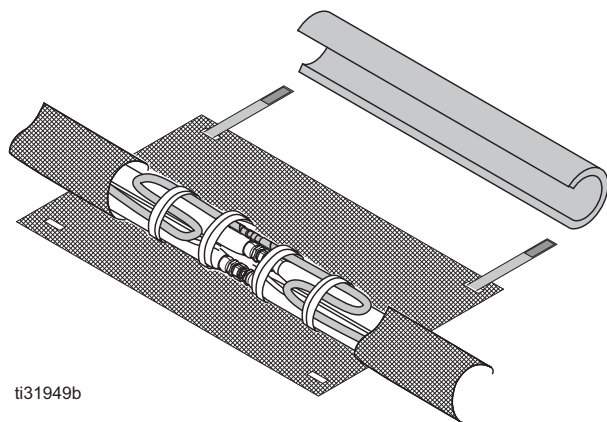
## Check Hoses for Leaks



1. Pressure check hose. See **Purge Air and Flush Fluid from Lines (Prime)**, page 32.
2. After all lines are free of air, check for leaks. If there are leaks, relieve pressure as instructed in **Pressure Relief Procedure**, page 37.
3. Tighten connections, then pressurize again to ensure leaks have stopped.
4. Follow **Pressure Relief Procedure**, page 37.

## Protective Covering

1. Wrap all fluid hose connections with electrical tape.
2. Fold FTS cable wire back on hose to ensure adequate strain relief. Wrap all electrical connections and cable connections with electrical tape to protect from pulling apart and abrasion.



ti31949b

**FIG. 18: Protector**

3. Position the FTS insulation centered over the electrical and cable connections.
4. Lay the protector flat and center over the joint. With the straps on each side secured, wrap the sleeve over the joint.

## Connect Gun Air Hose

1. Connect gun air hose inlet (GE) to a filtered, compressed air source. If you are using more than one hose bundle, join the air hoses with the nipple provided with the hose bundle.
2. Connect the gun air hose outlet to the gun air inlet using the couplers supplied with the gun.

## Connect Main Air Supply


See proportioner manual for procedure.

# Temperature Control Setup

Temperature controls are factory-programmed. The only user-programmable parameters are temperature set-point “SP1” and temperature units “uniT” (°C or °F).



Thermal expansion can cause over-pressurization, resulting in equipment rupture and serious injury, including fluid injection. Do not pressurize system when preheating hose.



To avoid fire and explosion, use only Graco-supplied, pre-programmed temperature controls. If you encounter a problem with a temperature control, order a replacement.






## Adjust Temperature Set Point

**NOTICE**

Heated hose must always contain fluid when hose power is on. Never apply power to an empty heated hose. Powering empty hoses may cause equipment damage.

**NOTICE**

Always completely unroll and bleed the air from the hose before each use. If the air is not bled from the hose, heat transfer from the heating conductor will not be uniform. In the worst case, the conductor can be damaged. The warranty is void in such cases.

1. Turn on power to control module (A) using ON / OFF switch (AF).
2. Wait five seconds. Initial information displayed on temperature control (AG) during startup is background data that does not affect hose performance.
3. Press  (SCROLL).
4. When module screen displays “SP1,” use  (UP) and  (DOWN) to select desired set point.
5. Once desired set point is reached, press both  (UP) and  (DOWN) at the same time to return to actual temperature display. Hose is now controlling temperature to desired set point.

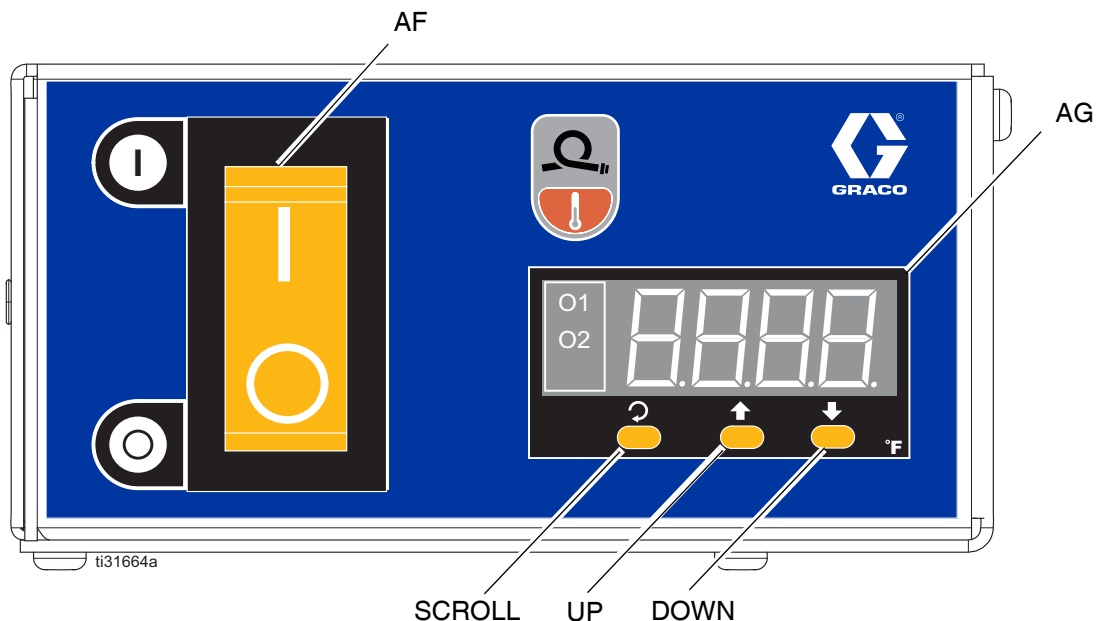














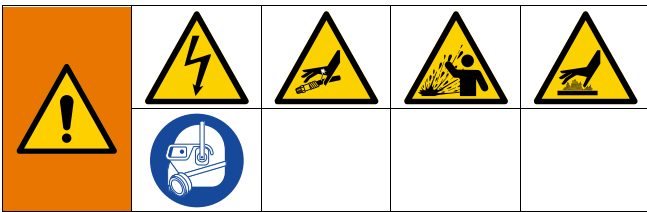


Fig. 19: Control Module Display and Switch

## Change Temperature Units

1. Enter the setup menu by pressing  (SCROLL).  
“SP1” is shown on the display.
2. Press  (SCROLL) repeatedly until “LOCK” is shown on the display.
3. Press  (UP) or  (DOWN) arrow until “nonE” is shown on the display.
4. Press  (SCROLL) again until “UNIT” is shown on the display.
5. Press  (UP) or  (DOWN) arrow buttons until the desired unit of °C or °F is shown on the display.
6. Press  (SCROLL) to return to the setup menu.  
“uniT” will be shown on the display again.
7. Press  (SCROLL) repeatedly until “LOCK” is shown on the display again.
8. Press  (UP) or  (DOWN) arrow buttons until “uSEr” is shown on the display.
9. Press  (SCROLL) to return to the setup menu.  
“LOCK” will be shown on the display again.
10. Return to the actual temperature display and normal operation by pressing  (UP) and  (DOWN) buttons at the same time.

# Operation



Do not operate a coiled hose. A coiled hose creates uneven heat buildup, which can result in hose rupture and cause serious injury, including skin injection.

To prevent hose rupture, hose must be properly supported. Avoid excessive strain due to weight, bending, sharp edges, or stress caused by running over a roof edge.

To prevent over-pressurization caused by thermal expansion, do not pressurize system when pre-heating hose. Set RECIRC/SPRAY valves to RECIRC to relieve the fluid expansion during heating.

**NOTICE**

Heated hose must always contain fluid when hose power is on. Never apply power to an empty heated hose. Powering empty hoses may cause equipment damage.

**NOTICE**

Always completely unroll and bleed the air from the hose before each use. If the air is not bled from the hose, heat transfer from the heating conductor will not be uniform. In the worst case, the conductor can be damaged. The warranty is void in such cases.

1. Connect air hose (GE) to main air supply, if equipped.

**NOTE:** For best handling of gun, see **Connect Whip Hose to Gun or Gun Manifold**, page 23, for proper hose connection.

2. Connect whip air hose to gun air inlet if equipped. See gun manual.

3. Plug in control module (A).

4. Test the GFCI:
  - a. Press the TEST button. The indicator will change from active to inactive, indicating that the GFCI has tripped.
  - b. Press the RESET button. The indicator will change back to active when the GFCI has been reset to active.

**NOTE:** Test the GFCI on a daily basis.

5. Follow Setup, Startup, and Operation procedures in proportioner manual.

6. Turn on hose heat with ON/OFF switch (AF). Heated hose is ready for operation.



**Fig. 20: ON/OFF Switch**

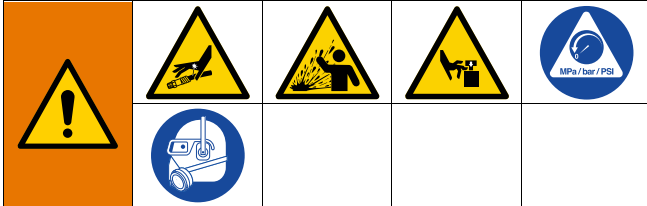
**NOTE:** Unplug control module power cord (AC) when not in use.



# Pressure Relief Procedure



Follow the Pressure Relief Procedure in your proportioner manual 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.

**NOTE:** The following steps apply generally to the Graco Reactor E-8p, E-10, and E-10hp proportioning equipment. Refer to your specific Reactor manual for more information.

1. Engage gun piston safety lock or trigger safety lock.
2. Set function knob to STOP/PARK .
3. Turn RECIRC/SPRAY valves to RECIRC. Ensure gauges indicate 0 psi.
4. Disengage gun piston safety lock or trigger safety lock. Trigger gun into dedicated waste container to relieve pressure.
5. Engage gun piston safety lock or trigger safety lock.


## Flushing







To avoid fire and explosion:



- Flush equipment only in a well-ventilated area.
  - Ensure main power is off and all heaters are cool before flushing.
  - Do not turn on heaters until fluid lines are clear of solvent.
- Generally, flush equipment if it will be shut down for more than 3 days. Flush more often if material is moisture-sensitive, if 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-brand Mesamoll® plasticizer, or, at minimum, clean motor oil.

**NOTE:** The following steps apply generally to the Graco Reactor E-8p, E-10, and E-10hp proportioning equipment. Refer to your specific Reactor manual for more information.

1. Engage gun piston safety lock or trigger safety lock. Close fluid valves ISO and RES. Leave air on.
2. Set function knob to STOP/PARK .
3. Shut off hose control module (A) power using ON/OFF switch (AF).
4. Shut off proportioner heater power. Allow system to cool.
5. If equipped, remove any recirculation plumbing from supply tanks and secure outlet end of recirculation plumbing to the original fluid container or to a dedicated waste container.
6. Turn RECIRC/SPRAY valves to RECIRC.

7. Set function knob to FAST RECIRC . Pump material from supply tanks until no more comes out.
8. Set function knob to STOP/PARK .
9. Wipe out any remaining material from the supply tanks. Fill each supply tank with 1-2 gal. (3.8-7.6 l) of solvent recommended by your material manufacturer.
10. Set function knob to FAST RECIRC . Pump solvent through system to waste containers.
11. When nearly clear solvent comes from recirculation tubes, set proportioner control to a fluid pressure of 0 psi. Return recirculation tubes to supply tanks.
12. Set function knob to FAST RECIRC . Circulate solvent through system for 10-20 minutes to ensure thorough cleaning.
13. Flush gun. Refer to gun instruction manual.

### Flush Hoses

14. Disconnect A-side and B-side hoses from gun or gun manifold and secure each hose back into the appropriate RES or ISO supply tank.
15. Turn the RECIRC/SPRAY valves to SPRAY.
16. Set function knob to SLOW RECIRC . Circulate solvent through system for 10-20 minutes to ensure thorough cleaning.
17. Set function knob to STOP/PARK .
18. Solvent flushing is a two step process. Go back to step 5, drain solvent, and flush again with fresh solvent.
19. Leave unit filled with solvent, plasticizer, clean motor oil, or refill supply tanks with new material and repeat the **Purge Air and Flush Fluid from Lines (Prime)** procedure, page 32.

**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.

# Shutdown

**NOTE:** The following steps apply generally to the Graco Reactor E-8p, E-10, and E-10hp proportioning equipment. Refer to your specific Reactor manual for more information.

**NOTE:** For longer breaks (more than 10 minutes), use the following procedure. If the equipment will be shut down for more than 3 days, follow **Replace Whip Hose**, page 39, before shutdown.

1. Shut off hose control module power using ON/OFF switch (AF).
2. Shut off proportioner heater power.
3. Shut off proportioner power.
4. Unplug all power cords from the power source.
5. Follow **Pressure Relief Procedure**, page 37.
6. Close ISO and RES gun fluid valves. This will keep the internal parts of the gun cleaner and prevent fluid crossover.
7. Shutdown gun. Refer to your separate gun manual for gun shutdown procedure.

# Repair

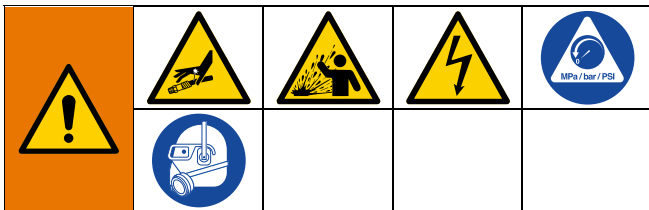
**NOTE:** Main heated hose sections contain no serviceable components. Replace as necessary.

## Replace Whip Hose



1. Follow **Flushing**, page 38.
2. Follow **Shutdown**, page 39.
3. Disconnect whip hose fittings from FTS and B hose coupler.
4. Carefully slide heating elements out of A and B whip hoses.
5. Inspect both heating elements for damage. If damaged, replace main hose section.
6. Follow **Connect Whip Hose to FTS**, page 22.

# Troubleshooting



## Online Troubleshooting

To quickly view online help for error codes or troubleshooting, scan the QR code with your smartphone or visit [help.graco.com](http://help.graco.com).

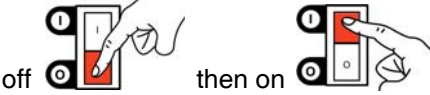


1. Follow **Pressure Relief Procedure**, page 37.
2. Disconnect power to control module (A).

Problem	Cause	Solution
Hose heats up slower than usual or does not reach set temperature.	Fluid temperature is too cold.	Ensure fluid temperature is within the equipment specifications. Ensure fluids are stored at chemical supplier specifications. Raise fluid temperatures as necessary.
	FTS failed or not installed correctly.	Verify correct FTS installation, page 20.
	Low supply voltage.	Verify line voltage. Low line voltage significantly reduces power available to hose heat system.
Hose temperature exceeds set point.	A and/or B heaters are overheating material.	Check primary heaters for faulty temperature sensors or heating elements. Consult proportioner manual for further troubleshooting steps.
	Faulty FTS connections.	Verify that all FTS connections are snug and that the connector pins are clean. See <b>Wiring Schematic</b> , page 53. Examine connection of FTS to temperature control (AG) terminals. Unplug and re-plug FTS wires, cleaning off any debris. Unscrew wire terminals (TCM 1-9, TCM 1-10) on temperature control, clean the FTS wires, and re-tighten terminal screws.
	Missing/damaged insulation around FTS, causing the hose heat to be ON constantly.	Ensure hose bundle has adequate insulation evenly covering the entire length and connection joints.

Problem	Cause	Solution
Erratic hose temperature.	Faulty FTS connections.	Verify that all FTS connections are snug and that the connector pins are clean. See <b>Wiring Schematic</b> , page 53. Examine connection of FTS to temperature control (AG) terminals. Unplug and re-plug FTS wires, cleaning off any debris. Unscrew wire terminals (TCM 1-9, TCM 1-10) on temperature control, clean the FTS wires, and re-tighten terminal screws.
	FTS not installed correctly.	FTS should be installed close to the end of the hose in the same environment as the gun. Verify correct FTS installation, page 20.
	Missing/damaged insulation around FTS, causing the hose heat to be ON constantly.	Ensure hose bundle has adequate insulation evenly covering the entire length and connection joints.
Hose temperature below set point or hose does not maintain temperature while spraying.	A and B set points too low.	Increase A and B primary heater set points. Hose is designed to maintain temperature and provide the temperature increase shown in <b>Performance Chart</b> , page 52.
	Fluid temperature is too cold.	Ensure fluid temperature is within the equipment and chemical product specifications. Raise fluid temperatures as necessary.
	Fluid entering hose is below the minimum fluid inlet temperature to achieve the desired output temperature.	Review hose <b>Performance Chart</b> , page 52, and ensure the hose is operating within the hose performance limits. Solutions may require: <ul style="list-style-type: none"> <li>• Increasing the inlet fluid temperature.</li> <li>• Increasing the primary heater temperature setting.</li> <li>• Reducing the flow rate to increase thermal transfer to fluids.</li> </ul>
	Flow too high.	Use smaller mix chamber. Decrease pressure.
	Hose was not fully preheated.	Wait for hose to preheat to correct temperature before spraying. Although the fluid within the hose may be at the desired operating temperature, the hose bundle may still be cool, reducing hose performance.
	Low supply voltage.	Verify line voltage. Low line voltage significantly reduces power available to hose heat system.
	Loose hose electrical connections.	Check all electrical connections inside control module (A). See <b>Wiring Schematic</b> , page 53. Inspect control module power cord and hose power cords. Repair or replace as necessary.

Problem	Cause	Solution
Hose does not heat.	Faulty FTS connections.	Verify that all FTS connections are snug and that the connector pins are clean. See <b>Wiring Schematic</b> , page 53. Examine connection of FTS to temperature control (AG) terminals. Unplug and re-plug FTS wires, cleaning off any debris. Unscrew wire terminals (TCM 1-9, TCM 1-10) on temperature control, clean the FTS wires, and re-tighten terminal screws.
	FTS not installed correctly.	FTS should be installed close to the end of the hose in the same environment as the gun. Verify correct FTS installation, page 20.
	Temperature control error or alarm.	Check temperature display for <b>Temperature Control Error Codes</b> . See page 44.
	Loose hose electrical connections.	Check all electrical connections inside control module (A). See <b>Wiring Schematic</b> , page 53. Inspect control module power cord and hose power cords. Repair or replace as necessary.
	Hose zone not turned on.	Increase hose setpoint if necessary.
	Failed SSRs.	With hose heat on, verify line voltage at hose plug connectors (AP).
		Open control module (A). Inspect wiring to temperature control and SSRs. Replace SSRs or temperature control as necessary.
	Shorted connection or failed hose heating element.	Check hose resistance. Compare to , page 53.
Inspect the power supply for a tripped breaker and reset breaker as necessary.		
Inspect the GFCI for tripping and reset as necessary.		
GFCI trips immediately.	Incorrect outlet wiring.	Make sure the power outlet is wired correctly with line and neutral wires in the correct locations.
	Shorted connection or failed hose heating element.	Check hose resistance. Compare to values in , page 53.
	Unexpected current flow.	Inspect temperature control (AG) wiring. Repair/replace as necessary.

Problem	Cause	Solution
No temperature display.	Control module (A) power switch circuit breaker tripped.	Display is powered from control module power circuit breaker. To reset breaker, cycle control module power 
	Loose display cables on control board.	Check all electrical connections inside control module (A). See <b>Wiring Schematic</b> , page 53. Inspect control module power cord and hose power cords. Repair or replace as necessary.
	Failed temperature control (AG).	Open control module (A). Ensure ON/OFF switch is operational. Inspect wiring to temperature control (AG). See <b>Wiring Schematic</b> , page 53. If switch and wiring is correct, replace temperature control (AG).
	Inadequate power to temperature control (AG).	Check that power supply meets requirements.
	No electrical power (tripped electrical breaker or GFCI).	Plug in the control module (A). Inspect the power supply for a tripped breaker and reset breaker as necessary. Inspect the GFCI for tripping and reset as necessary.
	Shorted connection or failed hose heating element.	With hose heat on, verify line voltage at hose plug connectors (AP). Check hose resistance. Compare to , page 53. Inspect the power supply for a tripped breaker and reset breaker as necessary. Inspect the GFCI for tripping and reset as necessary.
Wrong temperature displayed.	Incorrect temperature control (AG) programming.	Check temperature control (AG) programming for correct units (°F/°C). Replace temperature control (AG).
	Faulty FTS connections.	Verify that all FTS connections are snug and that the connector pins are clean. See <b>Wiring Schematic</b> , page 53. Examine connection of FTS to temperature control (AG) terminals. Unplug and re-plug FTS wires, cleaning off any debris. Unscrew wire terminals (TCM 1-9, TCM 1-10) on temperature control, clean the FTS wires, and re-tighten terminal screws.
	FTS not installed correctly.	FTS should be installed close to the end of the hose in the same environment as the gun. Verify correct FTS installation, page 20.

## Temperature Control Error Codes

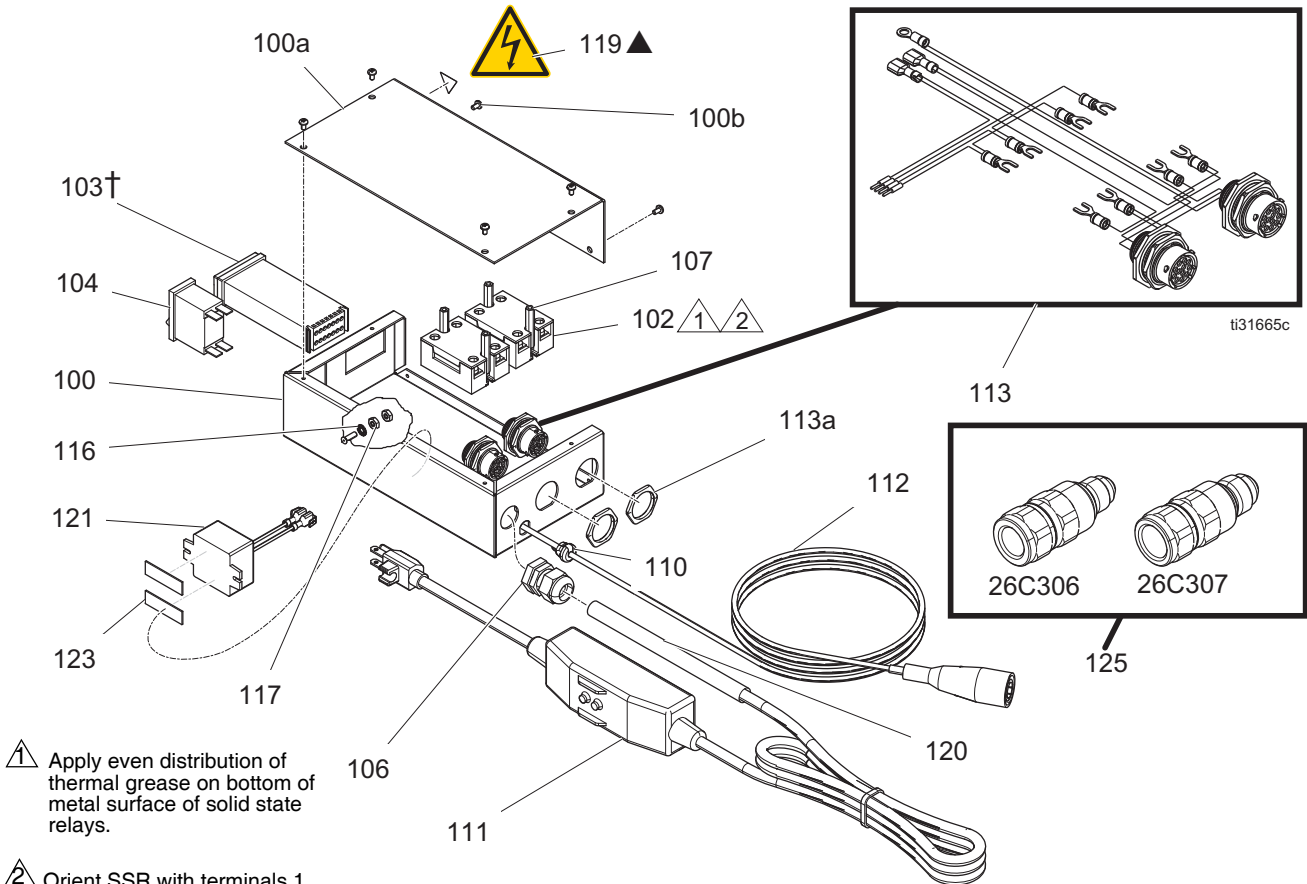
Display Symbol	Error Description	Corrective Action
Er04	Illegal setup values	Do not modify temperature control parameters. Replace temperature control.
Er10	Communication error	Inspect temperature control wiring. See <b>Wiring Schematic</b> , page 53.
Er11	Communication error	Inspect temperature control wiring. See <b>Wiring Schematic</b> , page 53.
Er14	Communication error	Inspect temperature control wiring. See <b>Wiring Schematic</b> , page 53.
Er15	Communication error	Inspect temperature control wiring. See <b>Wiring Schematic</b> , page 53.
AtEr	Fail to perform auto-tuning function	Do not modify temperature control parameters. Replace temperature control.
EEPE	EEPROM write error	Replace temperature control.
CJEr	Cold junction compensation for thermocouple malfunction	Replace temperature control.
SbEr	Input sensor failure	Inspect FTS cabling and FTS sensor. Replace/repair as necessary.
AdEr	A to D converter malfunction	Replace temperature control.



# Parts

## Independent Hose Temperature Control Module

24Z964 (120 V)



▲ Apply even distribution of thermal grease on bottom of metal surface of solid state relays.

▲ Orient SSR with terminals 1 and 2 towards the bottom.

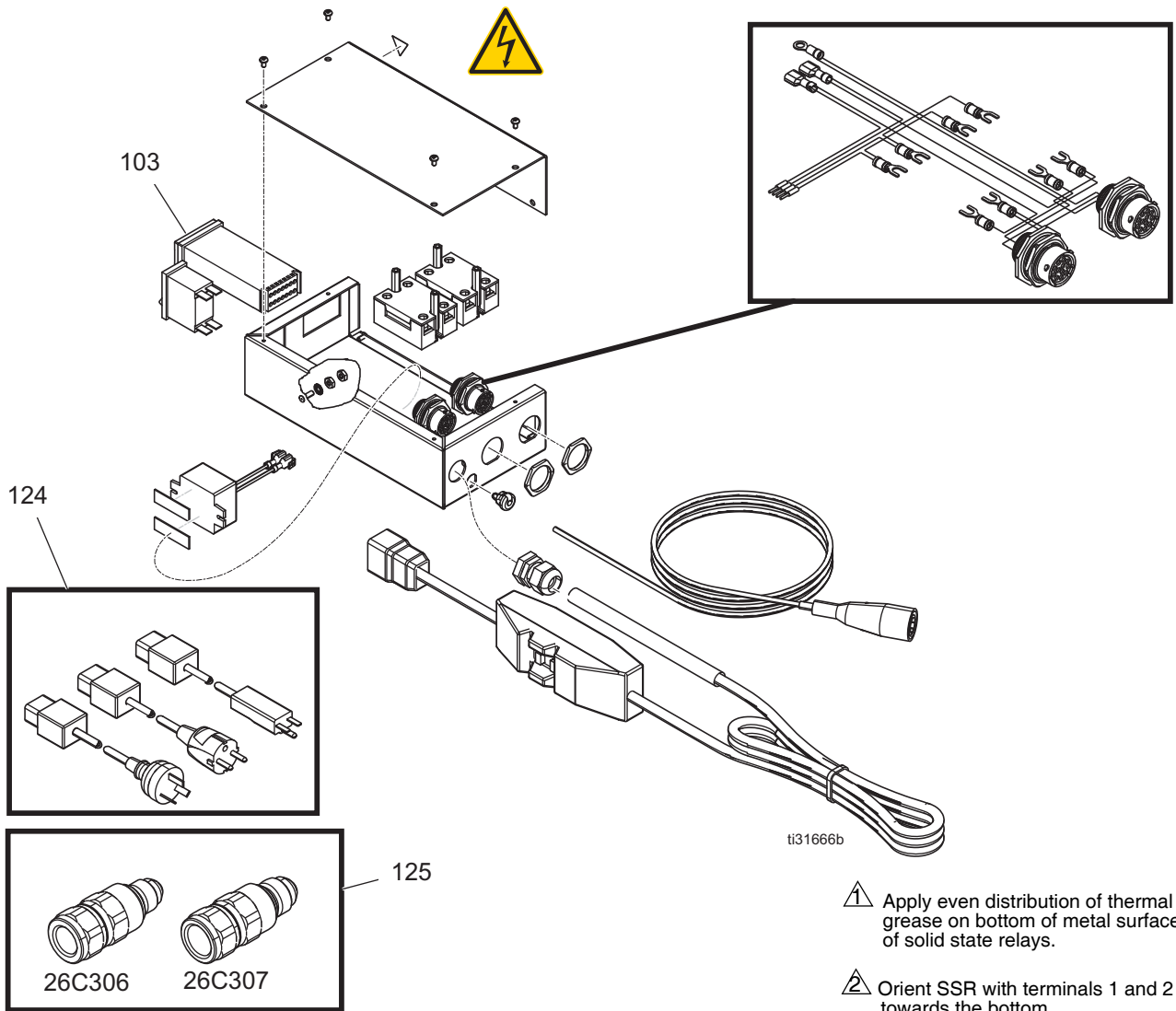
Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
100	17S446	ENCLOSURE, electrical, painted	1	113	17T137	HARNES, electrical, heater	1
100a	----	COVER, enclosure (included in 100)	1	113a	----	NUT, harness (included in 113)	2
100b	----	SCREW, enclosure (included in 100)	6	116	555628	WASHER, #8 lock external	1
102	129913	RELAY, solid state, 20 A, 24 VDC	2	117	555388	NUT, hex, machine, 8-32	2
103	131372	CONTROL, temperature, °F	1	119▲	189930	LABEL, warning	1
104	24K983	SWITCH, rocker, w/ breaker, 240 V, 20 A	1	120	127371	SLEEVE, split, wired, 0.38 ID	1
106	114421	BUSHING, strain relief	1	121	25D308	FILTER, quick disconnect	1
107	128046	FASTENER, hex standoff	4	123	115711	TAPE, foam, 1/2 wide	2
110	129598	GRIP, cord, snap-in	1	125	26C306	FITTING, wire stop, A-side	1
111	17S973	CORD, power, heater, 120 V	1		26C307	FITTING, wire stop, B-side	1
112	17T493	CABLE, hose, control, 76 in.	1				

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

NOTE: See Wiring Schematic, page 53.

25C958 (240 V, °F)

25M591 (240 V, °C)



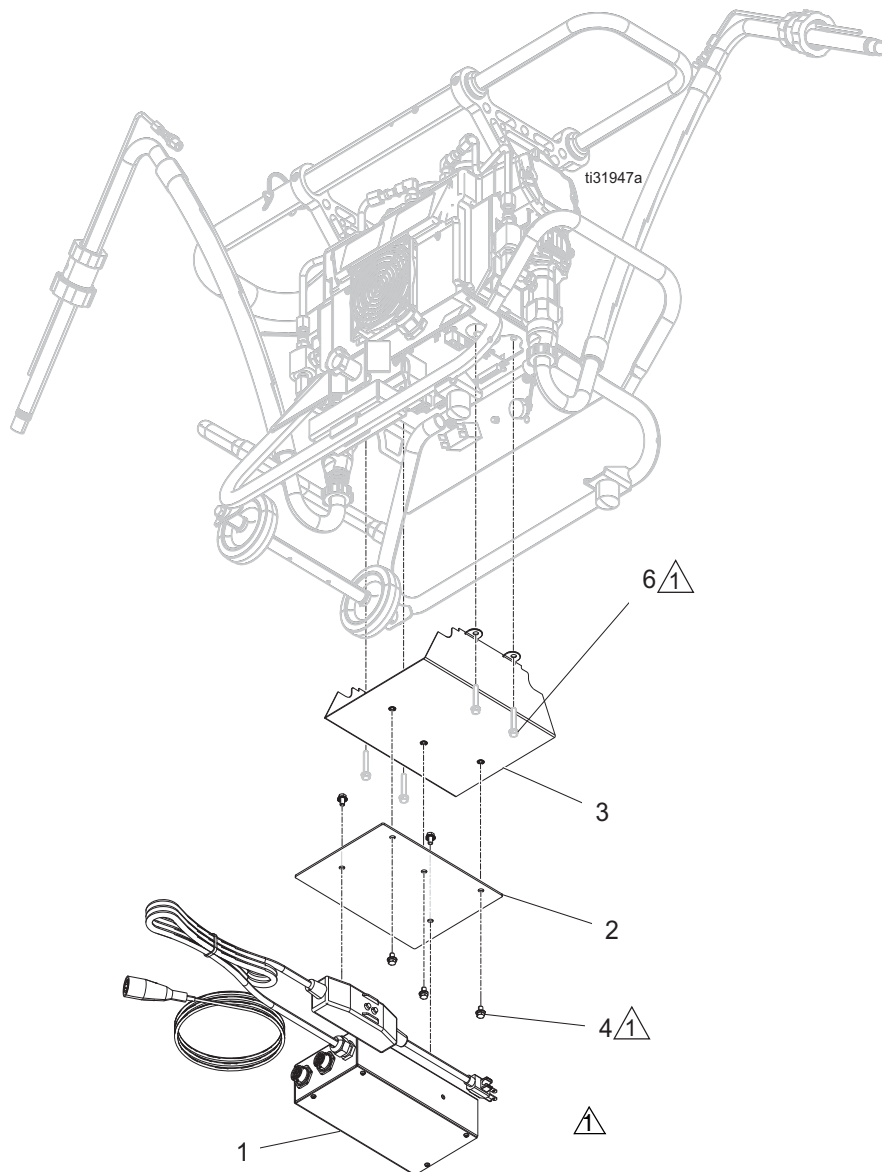
- ⚠ Apply even distribution of thermal grease on bottom of metal surface of solid state relays.
- ⚠ Orient SSR with terminals 1 and 2 towards the bottom.

Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
100	17S446	ENCLOSURE, electrical, painted	1	121	25D308	FILTER, quick disconnect	1
100a	-----	COVER, enclosure (included in 100)	1	123	115711	TAPE, foam, 1/2 wide	2
100b	-----	SCREW, enclosure (included in 100)	6	124†	16W239	CORD SET, adapter, North America	1
102	129913	RELAY, solid state, 20 A, 24 VDC	2	◆	15G958	CORD SET, adapter, Europe, 1.5 mm	1
103	131372	CONTROL, temperature, °F	1		15G962	CORD SET, adapter, Australia, 1.5 mm	1
	131373	CONTROL, temperature, °C	1	125	26C306	FITTING, wire stop, A-side	1
104	24K983	SWITCH, rocker, w/breaker, 240 V, 20 A	1		26C307	FITTING, wire stop, B-side	1
106	114421	BUSHING, strain relief	1	▲	<i>Replacement safety labels, tags, and cards are available at no cost.</i>		
107	128046	FASTENER, hex standoff	4	†	<i>Part included in Kit 25C958 (purchase separately).</i>		
110	129598	GRIP, cord, snap-in	1	◆	<i>Part included in Kit 25M591 (purchase separately).</i>		
111	17S974	CORD, power, heater, 240 V	1				
112	17T493	CABLE, hose, control, 76 in.	1				
113	17T137	HARNESS, electrical, heater	1				
113a	-----	NUT, harness, (included in 113)	2				
116	555628	WASHER, #8 lock external	2				
117	555388	NUT, hex, machine, 8-32	1				
119▲	189930	LABEL, warning	2				
120	127371	SLEEVE, split, wired, 0.38 ID	1				

**NOTE:** See **Wiring Schematic**, page 53.

# Heated Hose Install Kit

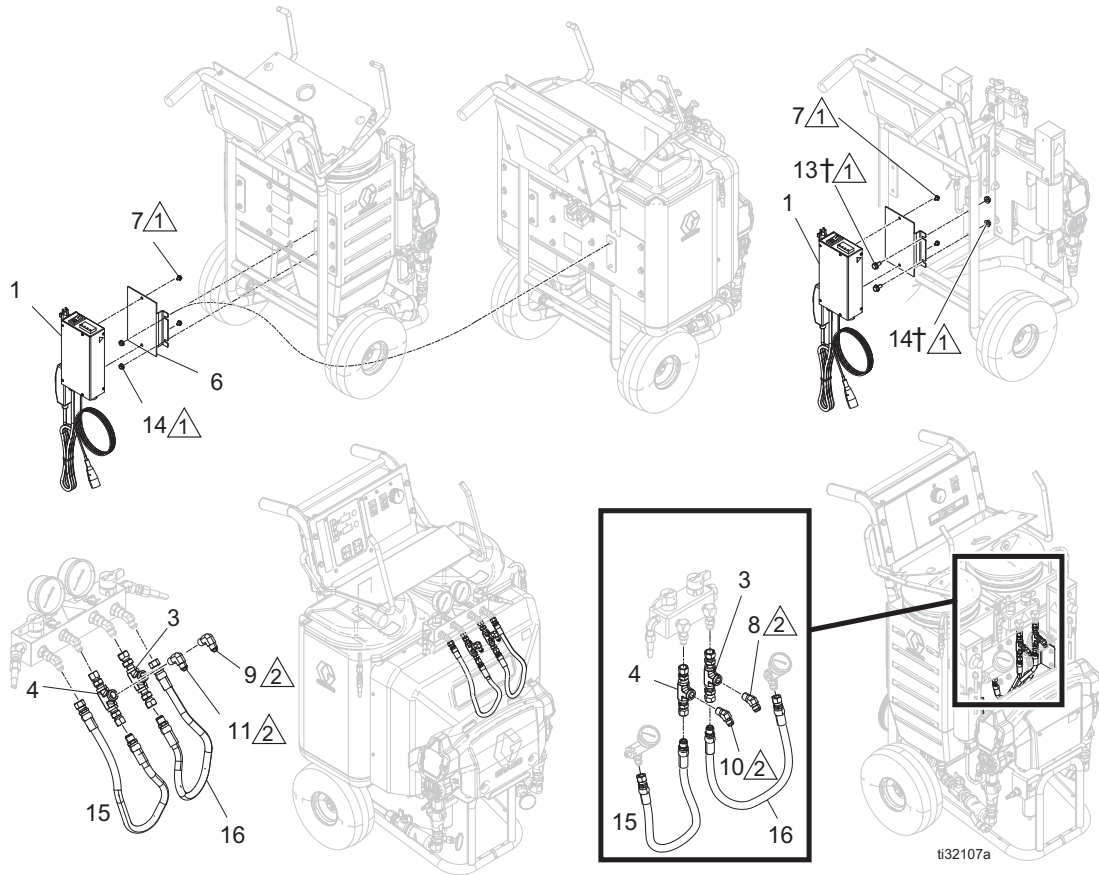
17T871 (E-8p)



Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
1*	24Z964	ENCLOSURE, electrical, heater, 120 V, °F	1	4	119865	SCREW, mach, hex serrated	5
	25C958	ENCLOSURE, electrical, heater, 240 V, °F	1	5	128801	TIE, 14.5 in., cable	5
	25M591	ENCLOSURE, electrical, heater, 240 V, °C	1	6†	117493	SCREW, mach, hex washer, hd	4
2	17S442	BRACKET, electrical enclosure, painted, E-8P	1	* Not included in kit. See <b>Independent Hose Temperature Control Module</b> , page 45.			
3	17S440	COVER, electronics, painted, E-8P	1	† Not included in kit. Included with Reactor E-8p proportioner.			

# Heated Hose Installation and Recirculation Kit

17T663 (E-10, E-10 OEM, E-10hp)



Torque

Apply sealant to all non-swiveling pipe threads.

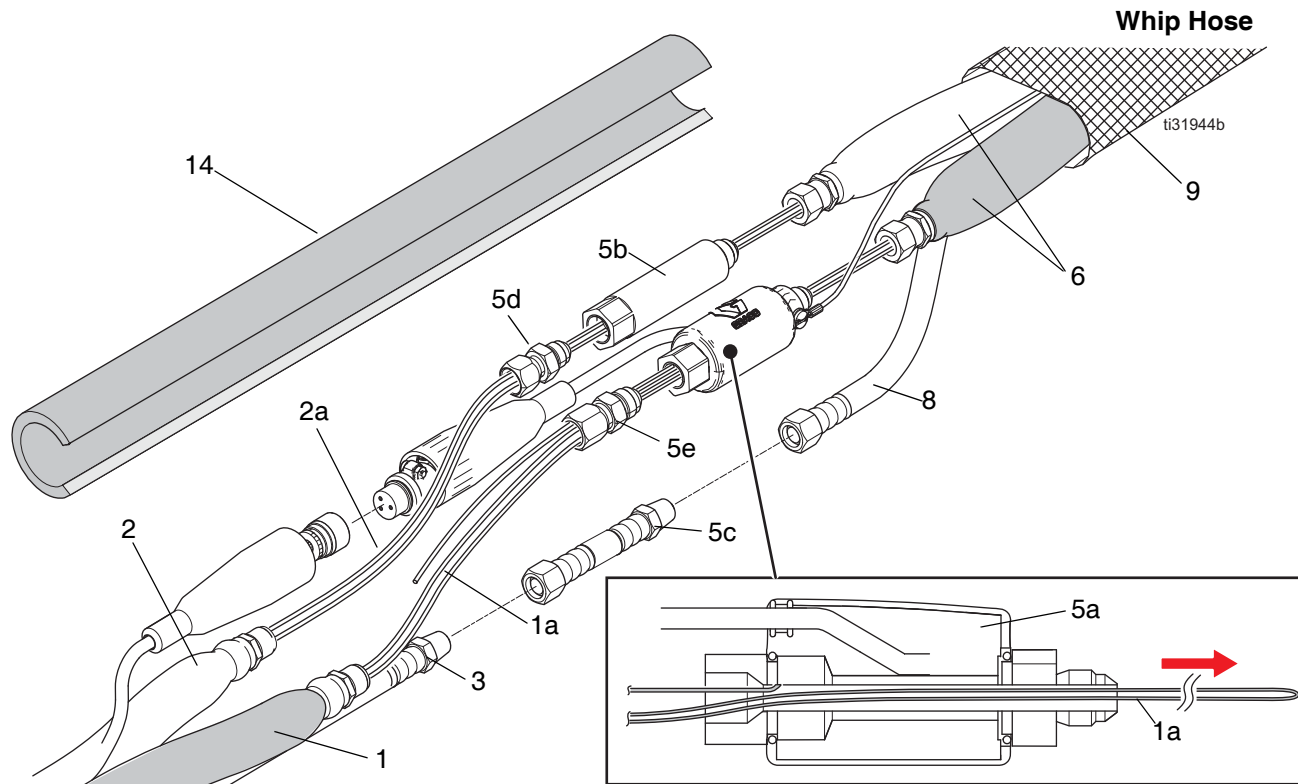
Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
1*	24Z964	ENCLOSURE, electrical, heater, 120 V, °F	1	10	123788	FITTING, elbow, 45°, 5/16 JIC x 1/4 npt	1
	25C958	ENCLOSURE, electrical, heater, 240 V, °F	1	11	131236	FITTING, 1/2-20 JIC-5 x 1/4 npt	1
	25M591	ENCLOSURE, electrical, heater, 240 V, °C	1	12	110110	SEALANT, pipe, sst	1
3	26A526	KIT, fitting, hose bypass, RESIN	1	13†	111800	SCREW, cap, hex hd	2
4	26A527	KIT, fitting, hose bypass, ISO	1	14†	110996	NUT, hex, flange head	2
5	128801	TIE, 14.5 in., cable	5	15	17T618	HOSE, cpld, 1/4 in. X 18 in., ISO	1
6	17S444	BRACKET, electrical enclosure, painted, E-10	1	16	17T619	HOSE, cpld, 1/4 in. X 18 in., RESIN	1
7	119865	SCREW, mach, hex serrated	2				
8	123787	FITTING, elbow, 45°, 3/8 JIC x 1/4 npt	1				
9	122311	FITTING, 9/16-18 JIC x 1/4 npt	1				

\* Not included. See **Independent Hose Temperature Control Modules**, page 45.

† Only used for installation on E-10 OEM (25C350).

# Fluid Temperature Sensor (FTS)

261669



Heated Fluid Hose

Ref.	Part	Description	Qty	Ref.	Part	Description	Qty
1†	----	HOSE, component A (ISO)	1	8	15B280	HOSE, whip, air, 10 ft (3 m)	1
1a	----	HEATING ELEMENT, component A	1	9	----	SCUFF GUARD (see <b>Accessories</b> , page 51)	1
2†	----	HOSE, component B (RES)	1	13▲	15B679	LABEL, safety, English (not shown)	1
2a	----	HEATING ELEMENT, component B	1		16M219	LABEL, safety, Spanish/French (not shown)	1
3†	----	HOSE, air	1	14†	17X760	INSULATOR, FTS Protection	1
5‡	261669	KIT, FTS, coupler	1				
5a	----	SENSOR, fluid temperature, -5 JIC	1				
5b	----	FITTING, FTS coupler, -6 JIC	1				
5c	24V454	HOSE, air, 4.75 in. (120.65 mm)	1				
5d	127596	FITTING, swivel, -6 JIC x -6 JIC, mxf	1				
5e	127597	FITTING, swivel, -5 JIC x -5 JIC, mxf	1				
6	26A501	HOSE, whip	1				

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

† Included in Independent Plug-In Heated Hose, see **Models**, page 3. A-side and B-side hoses are not repairable. Replace as necessary.

‡ Included in **Independent Hose Temperature Control Module**, see page 45.

## Accessories

### Scuff Guard / Protective Cover

Use to keep hose clean and protect it from damage.

Part	Description
246077	7 ft (2.1 m) braided polyester mesh. For whip hose. Fold back over itself for easy installation.
246078	50 ft (15.2 m) braided polyester mesh. Fold back over itself for easy installation.
246805	25 ft (7.6 m) braided polyester mesh. Fold back over itself for easy installation.
246456	50 ft (15.2 m) polyethylene bag. Inflate with air for easy installation.
25M494	Graco Xtreme-Wrap™ abrasion-resistant sleeve for whip hose
25M493	Full length Graco Xtreme-Wrap abrasion-resistant woven nylon sleeve for 50 ft (15.2 m) hoses
25M495	13 ft (4.0 m) Joint Cover

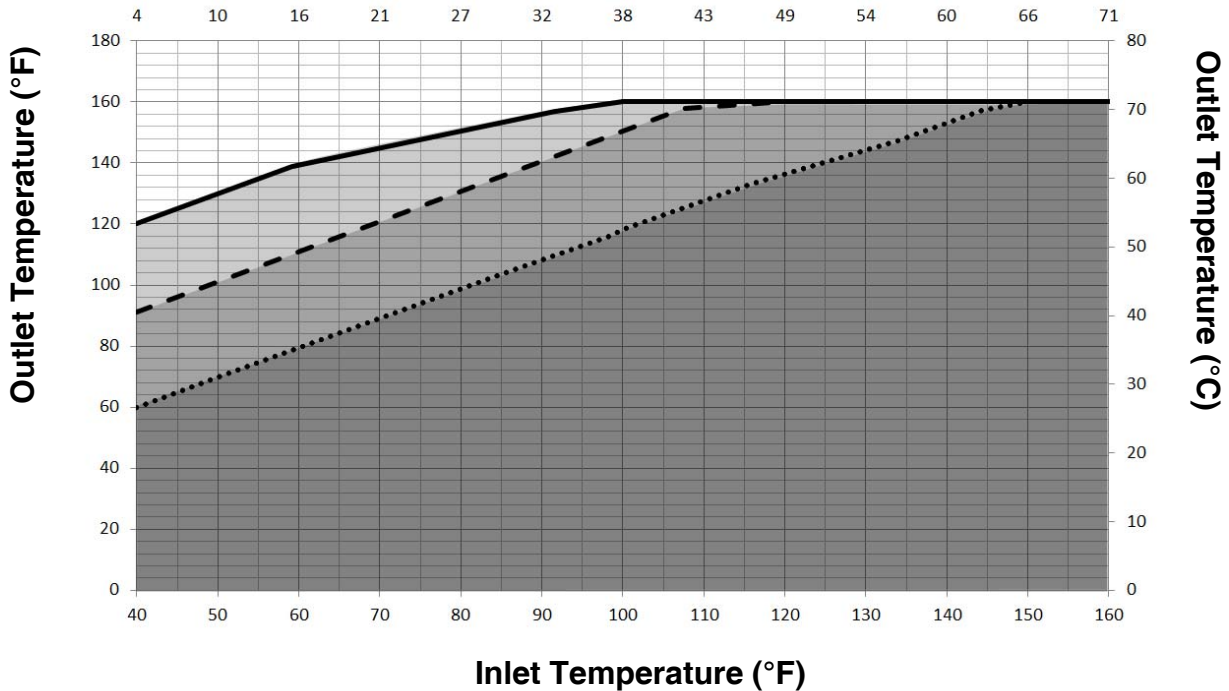
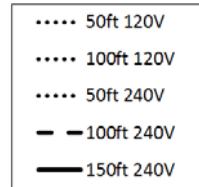
# Performance Chart

## Maximum Hose Outlet Temperature

1 gpm Total Flow (A+B)

50% Duty Cycle

Inlet Temperature (°C)



**Example:**

If desired application temperature is 120° F:

- Minimum inlet temperature of 105° F required for 50 ft 120 V, 100 ft 120 V, and 50 ft 240 V hoses.
- Minimum inlet temperature of 70° F required for 100 ft 240 V hose.
- Minimum inlet temperature of 40° F required for 150 ft 240 V hose.

**NOTE:** 50% Duty Cycle calculated by applicator triggered ON time / OFF time.

Maximum applicator triggered ON time is dependent on hose length:

- 50 ft hoses: 15 seconds
- 100 ft hoses: 30 seconds
- 150 ft hoses: 45 seconds



# Wiring Schematic

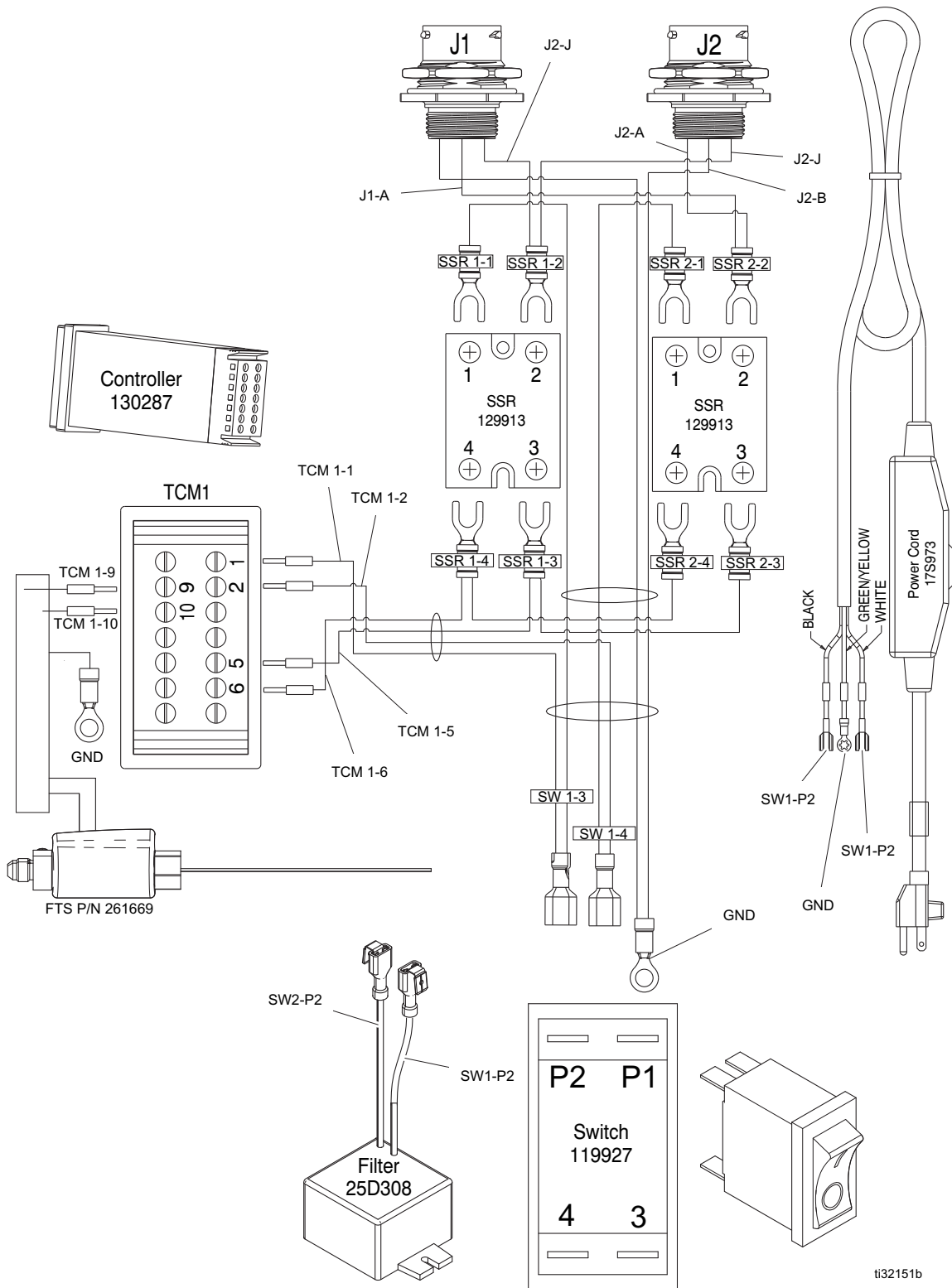


FIG. 21: Wiring Schematics



# Technical Specifications

<b>Independent Plug-In Heated Hose</b>				
	<b>US</b>	<b>Metric</b>		
Maximum Air Working Pressure	130 psi	0.9 MPa, 9 bar		
Minimum Fluid Operating Temperature	40° F	4° C		
Maximum Fluid Operating Temperature	160° F	71° C		
Maximum Fluid Working Pressure	3000 psi	20.6 MPa, 206 bar		
<b>Fluid Outlets</b>				
Component A (ISO)	#5 JIC			
Component B (RES)	#6 JIC			
<b>Electrical Requirements</b>				
<b>Part, Description</b>	<b>Volts (V AC)</b>	<b>Current (A)</b>	<b>Power (W)</b>	<b>Resistance (Ω)</b>
26C013, 120 V 50 ft Heated Hose	120	12	1400	22.0-25.0
26C014, 120 V 100 ft Heated Hose	120	12	1400	18.7-21.7
26C015, 240 V 50 ft Heated Hose	240	6	1400	77.8-80.8
26C016, 240 V 100 ft Heated Hose	240	12	2800	41.3-44.3
26C017, 240 V 150 ft Heated Hose	240	16	3800	27.8-30.8
<b>Control Module</b>				
<b>Part, Description</b>	<b>Volts (V)</b>	<b>Maximum Current (A)</b>	<b>Frequency (Hz)</b>	
24Z964	120	12	50/60	
25C958	240	16	50/60	
25M591	240	16	50/60	
<b>Wetted Parts</b>				
Wetted Parts	Nickel, zinc, PE-RT, ETFE, nitrile rubber, aluminum, zinc plating, carbon steel, brass			

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**International Offices:** Belgium, China, Japan, Korea

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