

Booster Heater Upgrade Kit

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EN

Install to reach temperatures above 140°F(60°C) on Reactor[®] 2 Elite Integrated Proportioning Systems.

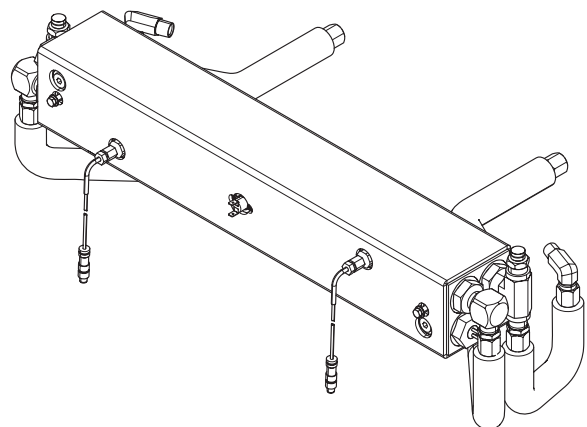
Not approved for use in explosive atmospheres or hazardous locations. Not for outdoor use. For professional use only.

Part No. 24U181



Important Safety Instructions

Read all warnings and instructions in this manual and in the Reactor 2 Elite Integrated Proportioning System Operation manual. Save all instructions.



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Related Manuals

Manuals are available at www.graco.com

Manual	Description
332636	Reactor 2 Elite Integrated Proportioning System, Operation
332637	Reactor 2 Elite Integrated Proportioning System, Repair-Parts




Warnings

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

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. • Connect only to 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>SKIN INJECTION HAZARD</p> <p>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.</p> <ul style="list-style-type: none"> • 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 in Reactor manual 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.
	<p>BURN HAZARD</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"> • Do not touch hot fluid or equipment.

! WARNING

	<p>FIRE AND EXPLOSION HAZARD</p> <p>Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> • Use equipment only in well ventilated area. • Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc). • Keep work area free of debris, including solvent, rags and gasoline. • Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present. • Ground all equipment in the work area. See Grounding instructions. • Use only grounded hoses. • Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are antistatic or conductive. • Stop operation immediately if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem. • Keep a working fire extinguisher in the work area.
	<p>PERSONAL PROTECTIVE EQUIPMENT</p> <p>Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. This protective equipment includes but is not limited to:</p> <ul style="list-style-type: none"> • Protective eyewear, and hearing protection. • Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.
	<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 MSDSs to know the specific hazards of the fluids you are using. • Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines. • Always wear chemically impermeable gloves when spraying, dispensing, or cleaning equipment.

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. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

Installation

<p>Repairing this equipment requires access to parts that may cause electric shock or other serious injury if work is not performed properly. Be sure to shut off all power to equipment before repairing.</p>						

1. Flush system. See Reactor 2 Elite Integrated Proportioner operation manual for complete instructions.
2. Shutdown system. See Reactor 2 Elite Integrated Proportioner operation manual for complete instructions.
3. Remove four plugs (P) from system frame located near the pumps. Use a screwdriver to remove the top plug first and then press the larger plug out of the frame.

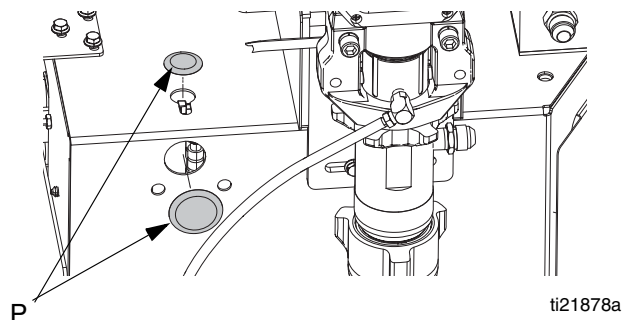
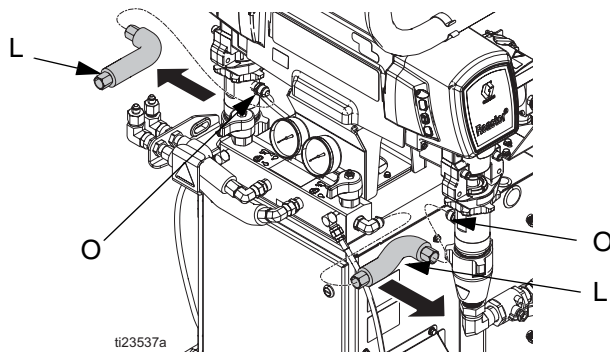


FIG. 1

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Rotate Displacement Pumps

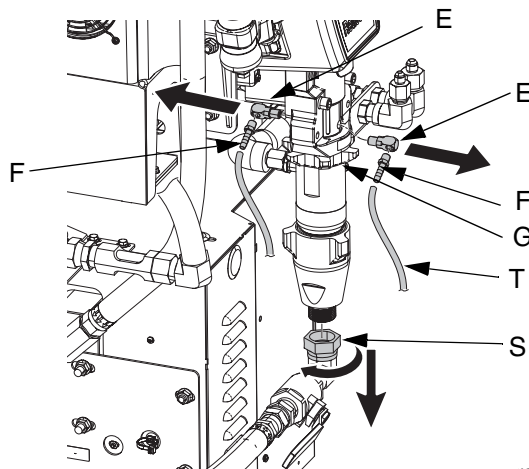
1. Remove fluids lines (L) between the pump fluid outlets and fluid manifold inlets.



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FIG. 2

2. Remove fittings (O) from pump fluid outlets.
3. Cut the ISO lubrication tubing (T) at the end of the barbed fittings (F). Cut remaining tubing from barbed fittings.



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FIG. 3

4. Use a 7/16 wrench to remove the two barbed fittings (F) and 1/2 in. wrench to remove elbow fittings (E). Do not discard.
5. Loosen bottom pump fluid inlet swivel (S).
6. Loosen locknut (G) by hitting firmly with a non-sparking hammer.

- Grab cylinder with hands and rotate the pump until the outlet port is facing outward.

NOTE: Remove plugs from exposed ISO lube ports if necessary.

- To have more access during the heater installation, remove the fuel tank. See Reactor 2 Elite Integrated Proportioner repair manual for complete instructions.

Install Heater and Tubing

- Apply thread sealant on elbow (9) threads and tighten in fluid outlet until the outlet faces downward.

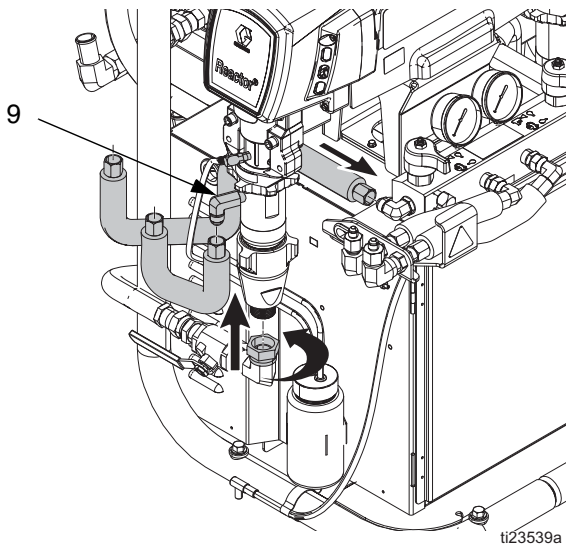
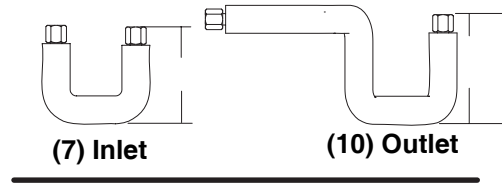


FIG. 4: A Side Fluid Outlet

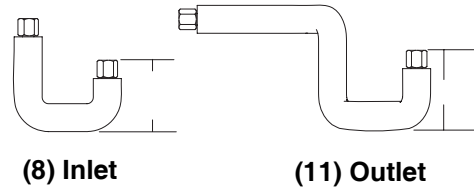
- Install two grommets (18) in frame ports. See FIG. 7, page 7.
- Partially install screws (16) in the bottom mounting threads on the heater (1).
- Mount heater (1) behind the motor, with the B side RTD facing upward and the A side FTS facing inward. Rotate heater and position on frame so that screws (16) drop in key holes. Leave screws loose.

- Remove plugs from fluid tubes (7, 8, 10, and 11).

A Side Fluid Tubes



B Side Fluid Tubes



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FIG. 5: Fluid Tubes

6. Install heater outlet tubes (10, 11) between heater outlets and fluid manifold (not shown). Torque to 43 ft-lbs (4.8 N•m).
7. Install u-shaped heater inlet tubes (7, 8) between the heater (1) and pumps. Torque to 43 ft-lbs (4.8 N•m).

NOTE: If outlet tubes (10,11) do not align with manifold, loosen four mounting screws under the manifold. If the tubes do not align with the heater outlet, rotate the pump to align the elbow (9).

8. Tighten swivel (S) at pump inlet. See FIG. 3, page 5.
9. Tighten pump locknut (G) by hitting firmly with a non-sparking hammer. See FIG. 3, page 5.

NOTE: Ensure top threads of pump are +/- 1/16 in. (2 mm) of bearing face (N).

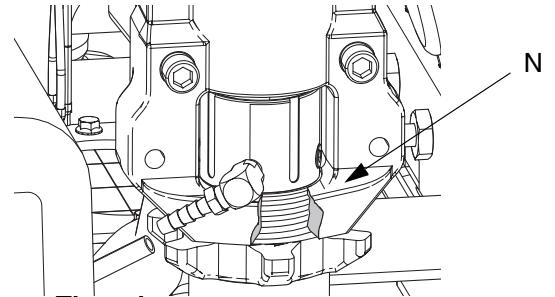


FIG. 6: Pump Threads

10. Install barbed fittings (F) in the ISO pump. Apply thin film of TSL to barbed fittings (F). Using two hands, support tubes (T) while pushing straight onto barbed fittings. **Do not let tubes (T) kink or buckle.** Secure each tube with a wire tie between two barbs. See FIG. 3, page 5.

11. Use a 3/8 hex wrench to tighten heater screws (16).

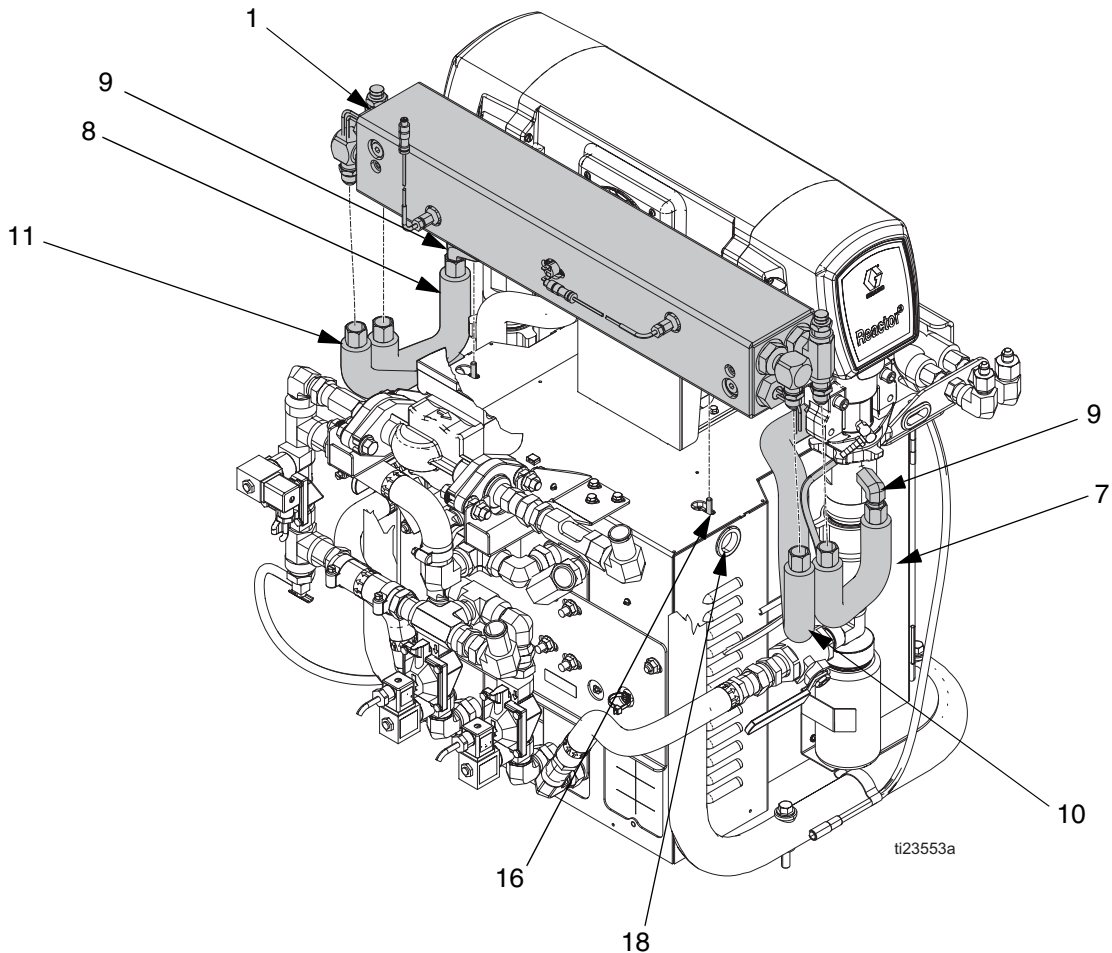


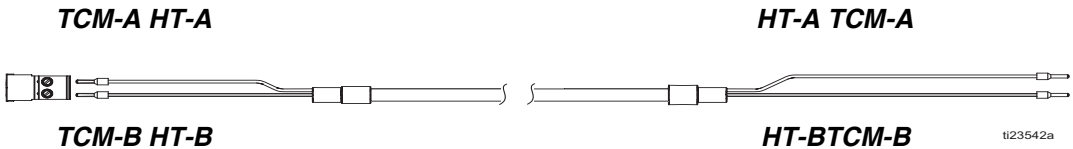
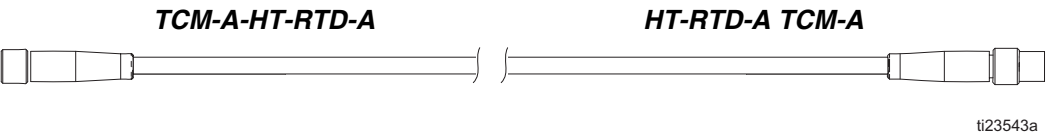
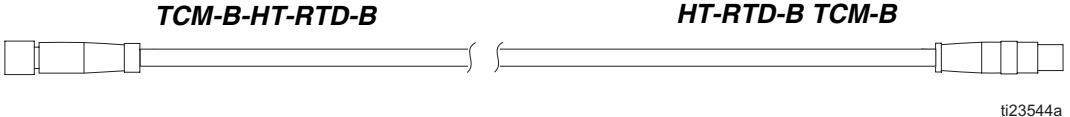
FIG. 7: Heater Installation

Connect Cables

Apply Labels

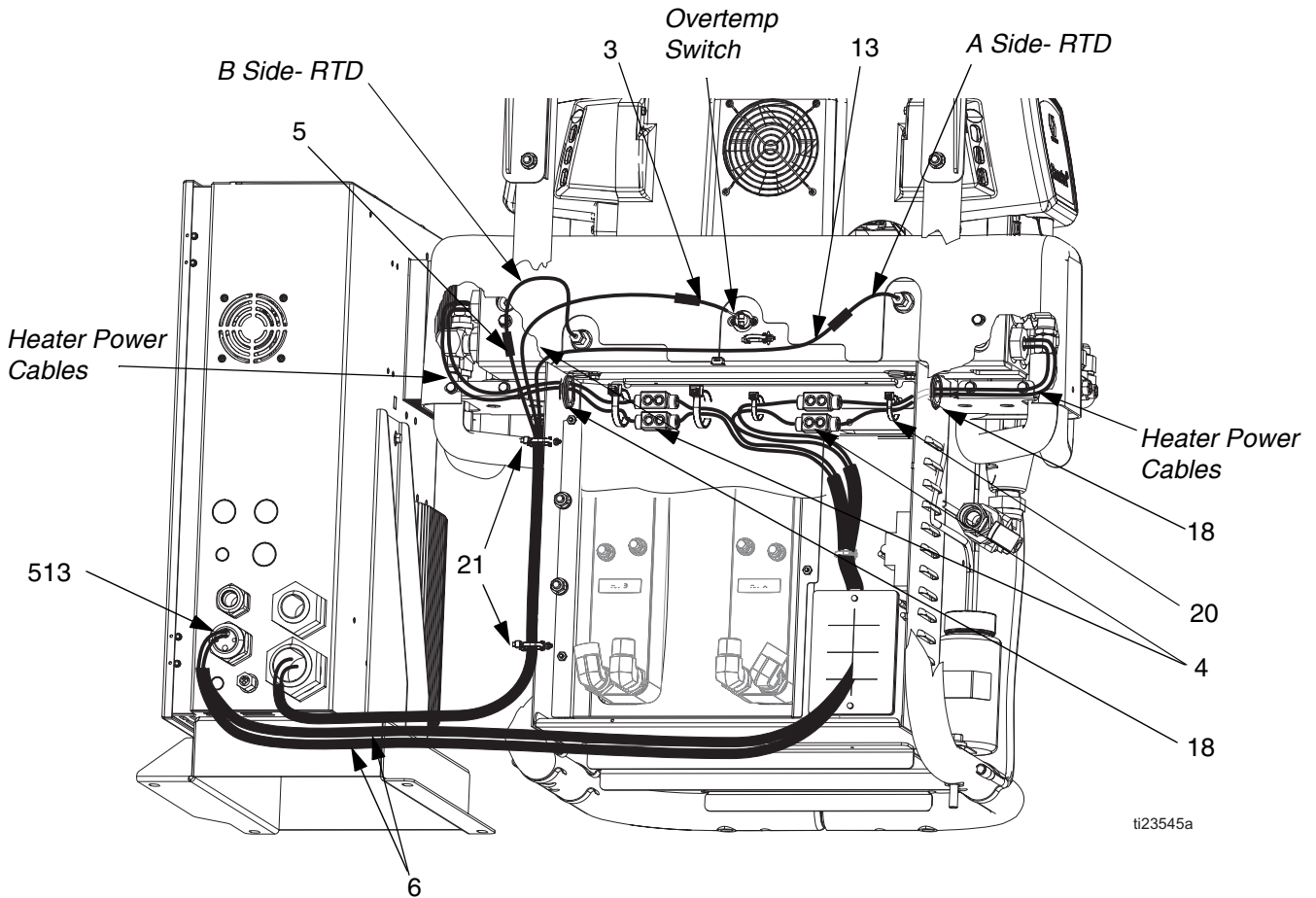
1. Apply heater and module labels from label (22) on all supplied cables and system parts. See **Parts**, page 12.

NOTE: Some identification labels will need to be applied to cables already installed on the system.

Cable Ref.	Cable and Label Identification	Qty.
5		2
6		1
13		1

Connect Heater Wires

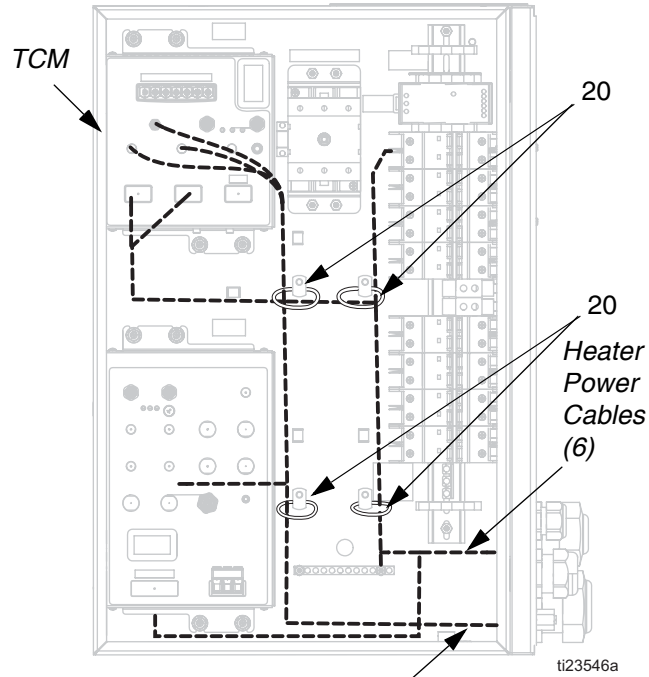
1. Insert black wire leads through side grommets (18) on frame cabinet.
2. Connect power splice connectors (4) to black heater rod wires.
3. Loosen clamp nut on strain relief (513) and push plug insert to inside of electrical cabinet and discard.
4. Connect A and B side heater power cables (6) to TCM and feed cable through strain relief (513) to outside of cabinet.
5. Connect appropriate A and B side heater power cables to connectors (4). Secure cables to inside of cabinet with cable ties (20).
6. Route heater power cables (6) with high voltage cables (not shown) and cable tie to pallet (not shown).
7. Pull A side RTD and overtemp switch cable towards the B side RTD and cable tie (20) above the B side RTD.
8. Connect overtemp cable (3) to overtemp switch.
9. Connect longer A side RTD extension cable (13) to the A side RTD and shorter B side RTD extension cable (5) to the B side RTD.



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FIG. 8: Heater Wire Routing (Back View)

10. Connect appropriate A and B side RTD extension cables (5,13) connectors to TCM.
11. Connect over temp switch cable (3) to TCM
12. Add cable ties (20) to hold heater power cables (6) near the DIN rail and heater signal cables (3, 5, 15) along the left side with other signal cables.



RTD extension cables (5, 13) and Overtemp cable (3)

FIG. 9: Cable Routing

13. Use cable ties (20) to bundle cables inside of existing split loom. Use fir tree cable tie (21) to secure split loom against cabinet. See FIG. 8, page 9.

14. Install heater cover (2) with screws (16) on heater.
15. Install heater guards (14, 15) with screws (16).

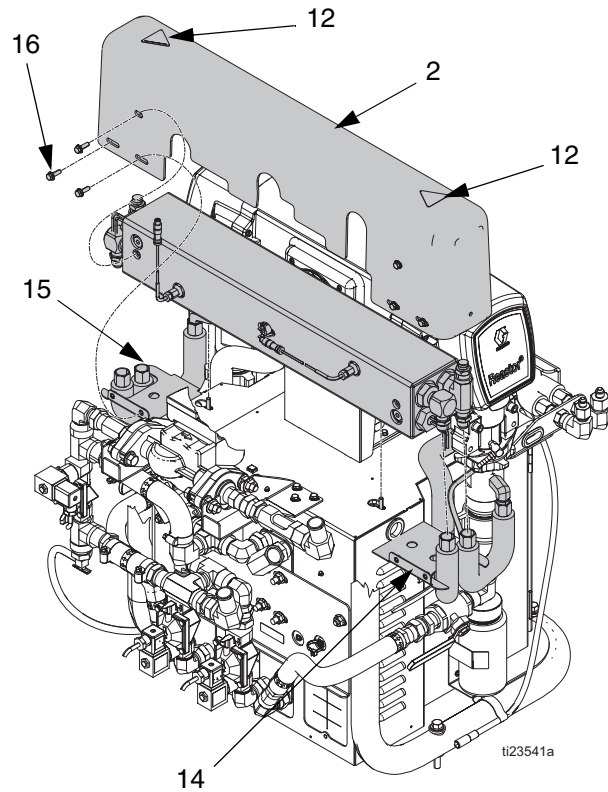
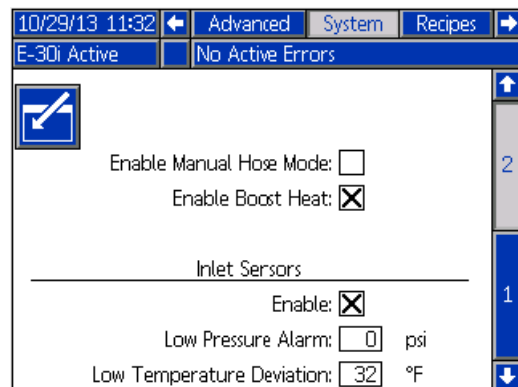


FIG. 10: Heater Guards

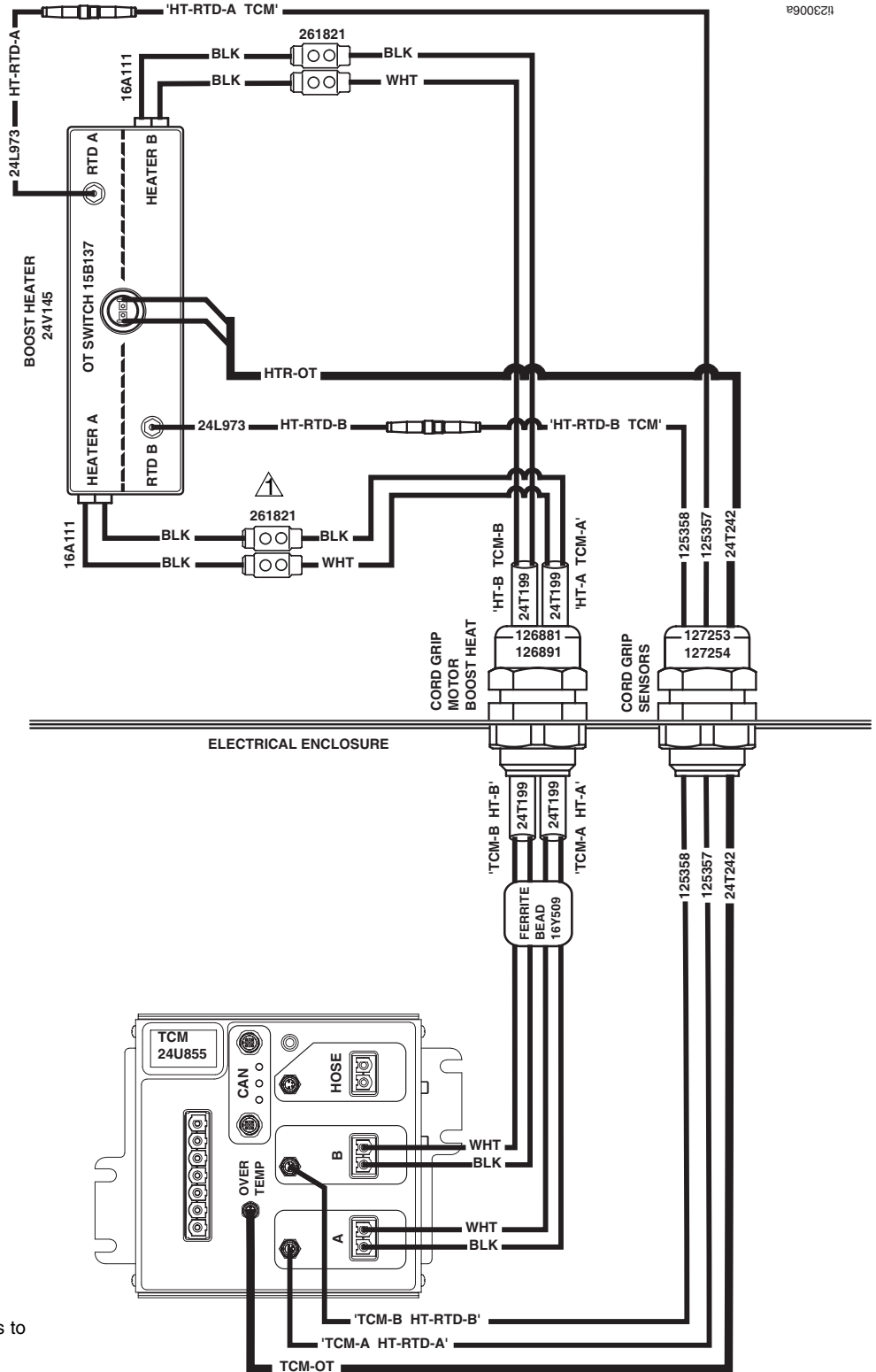
Startup

1. Power on system. See Reactor 2 Elite Integrated Proportioner operation manual for instructions.
2. Check all fluid connections for leaks.
3. On the ADM, check the box to “Enable Boost Heat:” in the Setup Screen - System #2.



Electrical Schematics

Booster Heater Wiring Diagram



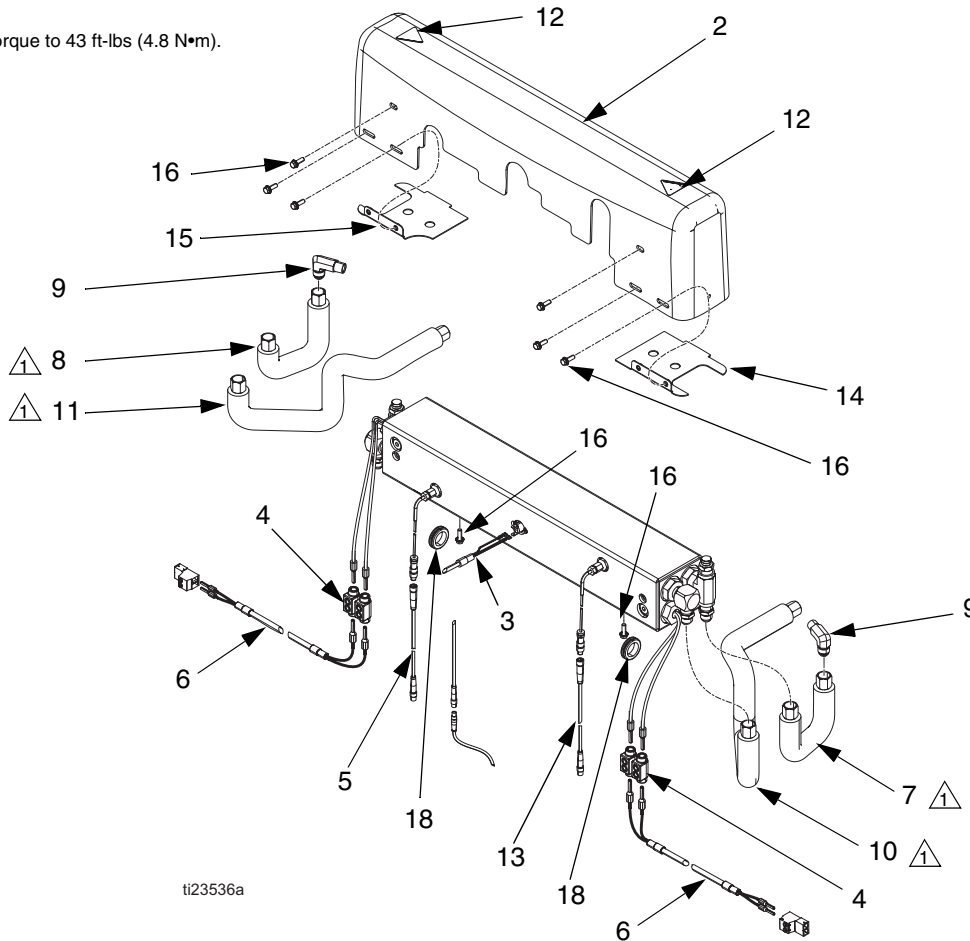
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⚠ Torque power wire connections to 55-62 in.-lbs (6.2-7 N·m).

Parts

24U181, Boost Heater Upgrade Kit

 Torque to 43 ft-lbs (4.8 N*m).



Ref.	Part	Description	Qty	Ref.	Part	Description	Qty
1	24U204	HEATER, assy, 4.0kw, hybrid,2 zone	1	14	17A064	GUARD, heater, a side	1
2	16K361	COVER, horizontal heater	1	15	17A066	GUARD, heater, b side	1
3	24T242	CABLE, over-temp, single reactor	1	16	113796	SCREW, flanged, hex hd	8
4	255716	KIT, heater wire connector	1	18	114269	GROMMET, rubber	2
5*	125358	CABLE, m8,4-pin,mf,.5meter, mold	1	20*	125871	TIE, cable, 7.50 inch	10
6*	24T199	CABLE, control module, heater	2	21*	125625	TIE, cable, fir tree	2
7	16W199	TUBE, a-side, inlet	1	22*	16W539	LABEL, cable, self-lam,top level	1
8	16W202	TUBE, b-side, inlet	1				
9	125643	FITTING, elbow, 3/8 npt x #8 JIC	2				
10	16W201	TUBE, a-side, outlet	1				
11	16W203	TUBE, b-side, outlet	1				
12▲	189285	LABEL, caution	2				
13*	125357	CABLE, m8,4-pin, mf, 1 meter, molded	1				

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

* See cable identification table, page 8.

* Not shown.

Graco Standard Warranty

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

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

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

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

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

GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

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For the latest information about Graco products, visit www.graco.com.

For patent information, see www.graco.com/patents.

TO PLACE AN ORDER, contact your Graco distributor or call to identify the nearest distributor.

Phone: 612-623-6921 **or Toll Free:** 1-800-328-0211 **Fax:** 612-378-3505

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Original instructions. This manual contains English. MM 332738

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Revision A, April 2014