

XM PFP

3A2989G
EN

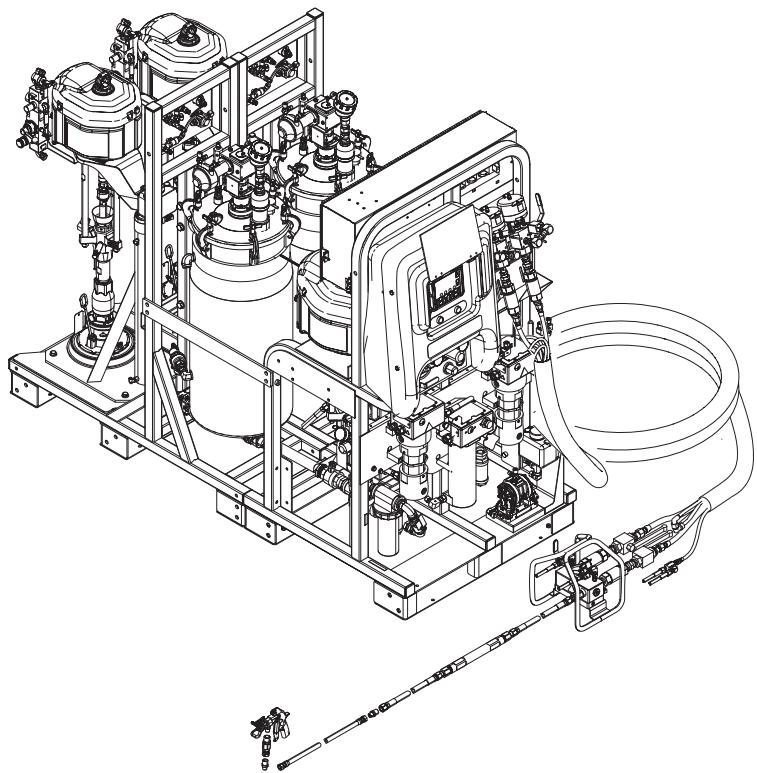
**For spraying two-component intumescent epoxies. For professional use only.
Not for use in explosive atmospheres or hazardous locations.**



Important Safety Instructions

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

See page 3 for model information, including maximum working pressure and approvals.



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Models

Models	Maximum Fluid Working Pressure	Maximum Air Working Pressure	Approvals
262869 24W626	<p><i>A and B Materials:</i> 6000 psi (41 MPa, 414 bar)</p> <p><i>Flushing Fluid:</i> 4500 psi (31 MPa, 310 bar)</p> <p><i>Heating Fluid:</i> 100 psi (0.7 MPa, 7 bar)</p>	<p><i>Supply:</i> 150 psi (1.0 MPa, 10.3 bar)</p> <p><i>Max. Setpoint:</i> 100 psi (0.7 MPa, 7 bar)</p>	  <p>Intertek 9902471 Certified to CAN/CSA C22.2 No. 88 Conforms to UL 499</p>

Related Manuals

Manuals are available at www.graco.com. Component manuals in English:

Manual	Description
3A2776	XM PFP Setup - Operation
3A2988	XM PFP Mix Manifold Instructions - Parts
3A2799	XHF Spray Gun
Heaters	
309524	Viscon® HP High Pressure Fluid Heater Instructions - Parts
3A2954	Viscon HF High Flow, High Pressure Fluid Heater Instructions - Parts
3A2824	Viscon LT Fluid Heater Instructions - Parts
Pumps, Motors, Supply Systems	
308652	Husky™ 205 Air-Operated Diaphragm Pumps Instructions - Parts
311238	NXT® Air Motor Instructions - Parts
311762	Xtreme® Lowers Instructions - Parts
312375	Check-Mate® Displacement Pumps Instructions - Parts
312376	Check-Mate Pump Packages Instructions - Parts
312792	Merkur® Pump Repair - Parts
312794	Merkur Pump Assembly Instructions - Parts
312796	NXT Air Motor Instructions - Parts
313526	Supply Systems Operation
313527	Supply Systems Repair - Parts
312374	Air Control Instructions - Parts

Manual	Description
Accessories	
332073	Hot Water Flush Kit Instructions
3A2987	Air Dryer Kit Instructions
Other	
313342	Dosing Valve Instructions - Parts
306861	Ball Valves Instructions - Parts
307005	High Pressure Swivel Instructions - Parts
308169	Air Filters, Lubricators, and Kits Instructions - Parts
407061	Simulation XM PFP Display Module
3A1244	Graco Control Architecture Module Programming

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	
	ELECTRIC SHOCK HAZARD <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 at main switch before disconnecting any cables and before servicing or installing equipment. Connect only to grounded power source. All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.
	SKIN INJECTION HAZARD <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 when you stop spraying and before cleaning, checking, or servicing equipment. Tighten all fluid connections before operating the equipment. Check hoses and couplings daily. Replace worn or damaged parts immediately.
	FIRE AND EXPLOSION HAZARD <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.
	BURN HAZARD <p>Equipment surfaces and fluid that's 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>MOVING PARTS HAZARD</p> <p>Moving parts can pinch, cut or amputate fingers and other body parts.</p> <ul style="list-style-type: none"> • Keep clear of moving parts. • Do not operate equipment with protective guards or covers removed. • Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the Pressure Relief Procedure and disconnect all power sources.
 	<p>EQUIPMENT MISUSE HAZARD</p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> • 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.
	<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.
	<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>SPLATTER HAZARD</p> <p>Hot or toxic fluid can cause serious injury if splashed in the eyes or on skin. During blow off of platen, splatter may occur.</p> <ul style="list-style-type: none"> • Use minimum air pressure when removing platen from drum.

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.

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 any fluid inlet strainers after flushing.
- Check with your material manufacturer for chemical compatibility.
- When changing between epoxies and urethanes or polyureas, disassemble and clean all fluid components and change hoses. Epoxies often have amines on the B (hardener) side. Polyureas often have amines on the B (resin) side.

Components A and B

IMPORTANT!

Material suppliers can vary in how they refer to plural component materials.

Be aware that in this manual:

Component A refers to resin or major volume.

Component B refers to the hardener or minor volume.

This equipment doses the B component into the A component flow. An integration hose must always be used after the mix manifold and before the static mixer.

Component Identification

See XM PFP Operation manual for component identification.

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.

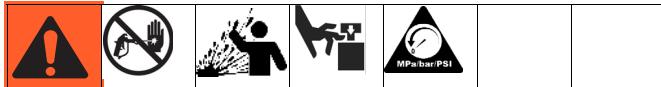
Improper grounding can cause electric shock. Grounding provides an escape wire for the electric current.

Ground the electrical connection properly according to local codes.

Pressure Relief Procedure

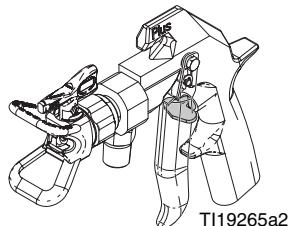


Follow the Pressure Relief Procedure whenever you see this symbol.



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

1. Engage trigger lock.



2. If the system will be shut down for more than a few hours, perform **Park Fluid Pump Rods** procedure in XM PFP Operation manual to prevent fluid hardening on the pump shaft.
3. Press  (Stop button).
4. Slide the feed pump air supply valve (DF) and director valve air supply valve (DA) to the OFF position.

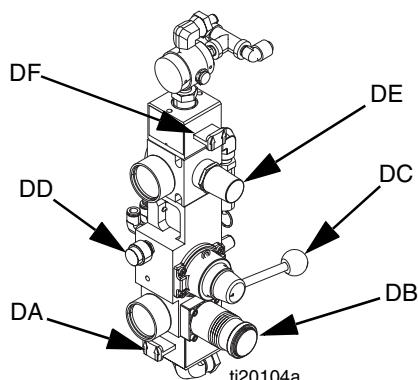


FIG. 1: Feed Pump Controls

NOTICE

The material may expand when air pressure is removed. This can cause the tank to overfill and damage the parts attached to the tank lid. To prevent overfilling the tank, never relieve air pressure in the tank unless the tank is less than half full. Verify tank material level on the user interface, see **Appendix A - User Interface Display** section in XM PFP Operation manual.

5. If necessary to relieve tank air pressure: close both feed system air control ball valves and back out the air pressure regulator. Open the brass valves on the tank lids for full tank de-pressurization. Pressure gauge should read 0 psi.

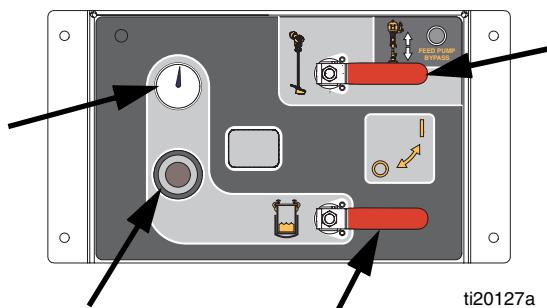
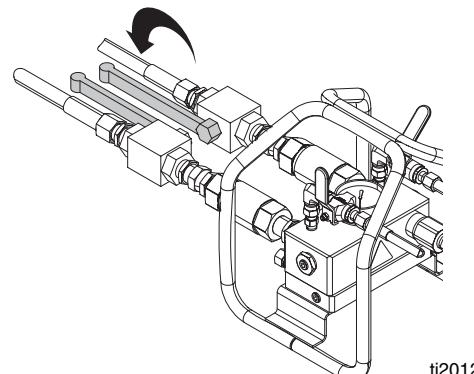
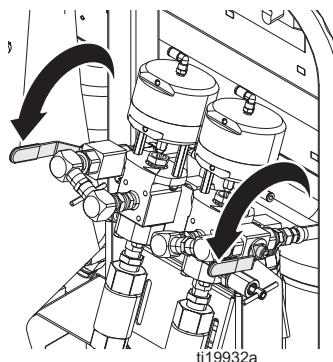


FIG. 2

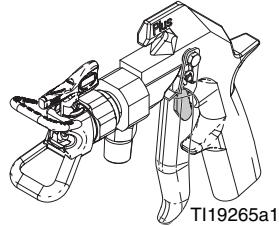
6. Open mix manifold ball valves.



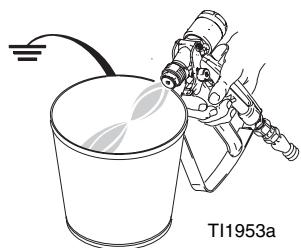
7. Open recirculation ball valves.



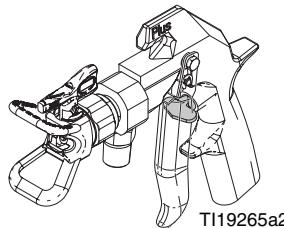
8. Disengage trigger lock.



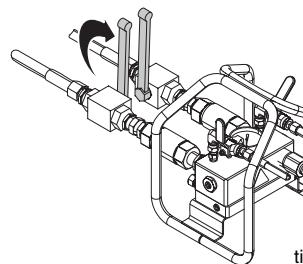
9. Hold a metal part of the gun firmly to a grounded metal pail. Trigger gun to relieve pressure in material hoses. Use a pail lid with a hole to dispense through. Seal around hole and gun with a rag to prevent splash back.



10. Engage trigger lock.

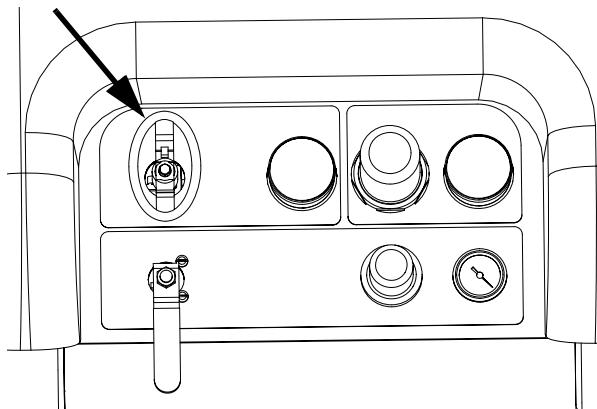


11. Close mix manifold material ball valves.



12. Perform **Flush Mixed Material** procedure in XM PFP Operation manual to prevent mixed material curing in the system and to relieve pressure in the solvent lines.

13. Close metering pump air supply ball valve.



14. If the system will be shutdown for more than a few hours, fill pump A and B packing nuts with throat seal liquid (TSL™).

NOTE: Fluid pressure in the system is now relieved.

Troubleshooting

See XM PFP Operation manual 3A2776 for troubleshooting details.

Repair

NOTICE

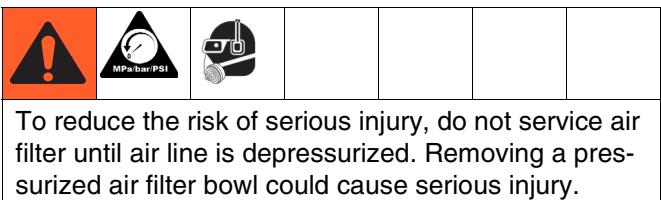
Do not use air motor lift rings to lift the entire assembly. This will damage the system. The system must be lifted from the bottom.



Follow **Pressure Relief Procedure** on page 7 if service time may exceed pot life time, before servicing fluid components, and before transporting sprayer.

Replace Air Filter Element

There are two air filters on the system: the inlet air regulator filter on the air controls and the main air inlet manifold filter. Check filters weekly and replace element as needed.

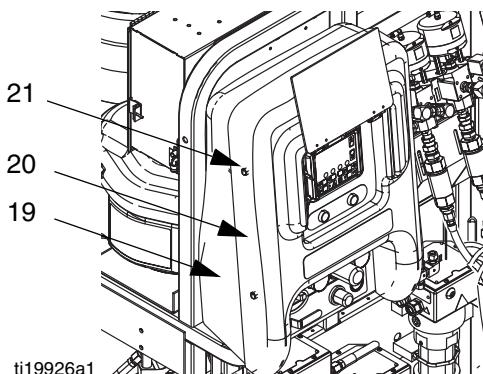


Both Filters

1. Close main air shutoff valve on air supply line and on system. Depressurize air line.

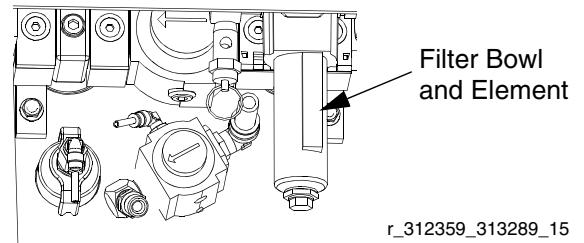
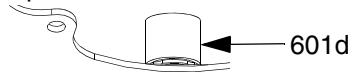
Control Air Regulator Filter

2. Remove four nuts (21) and then remove front and rear shrouds (19, 20).



3. Unscrew filter bowl from inlet air regulator (601d).

4. Remove and replace element.

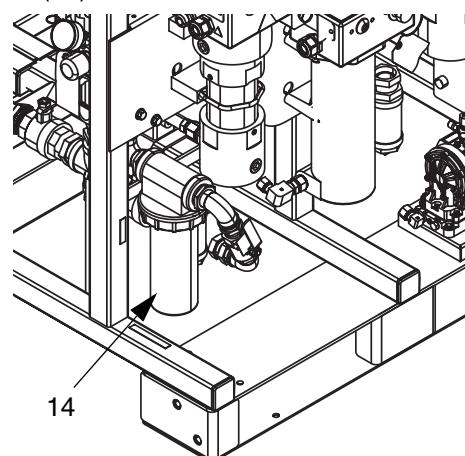


5. Screw filter bowl on securely.

6. Replace front and rear shrouds (19, 20) using four nuts (21).

Main Air Inlet Manifold Filter

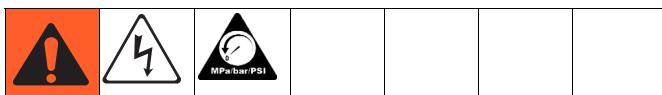
2. Unscrew filter bowl collar from main air inlet filter (14).



3. Remove and replace filter element (701a). See **Air Filter (24P899)**, page 49.

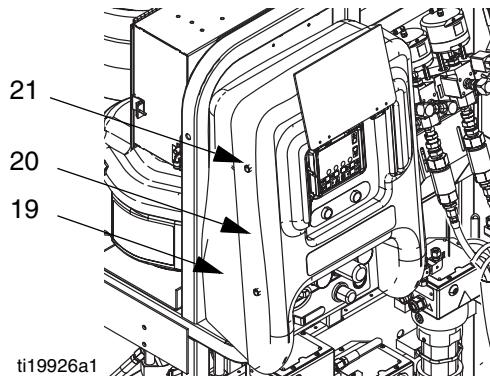
4. Reassemble filter bowl.

User Interface/Control Box



Remove Shroud and Front Panel of Control Box

1. Close main air shutoff valve on air supply line and on system. Depressurize air line.
2. Remove four nuts (21) and then remove front and rear shrouds (19, 20).



3. Disconnect power.
4. Remove four nuts (17); leave two nuts on left side of panel tight. Open front panel of control box (16). See FIG. 3.

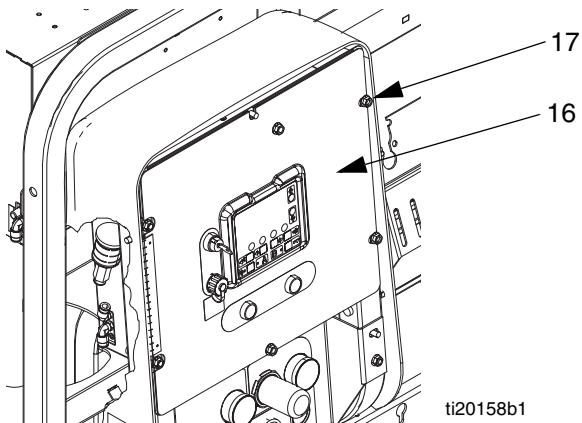


FIG. 3

2. Disconnect solenoid cable connector (542) from the solenoid (509a) being replaced.
3. Remove two screws (509b) from the solenoid being replaced then remove solenoid (509a). See FIG. 4.

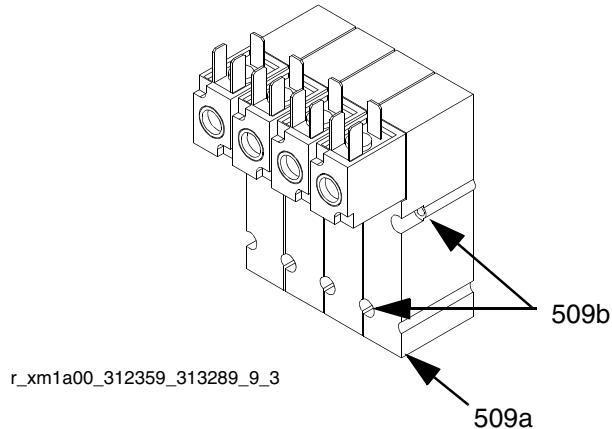


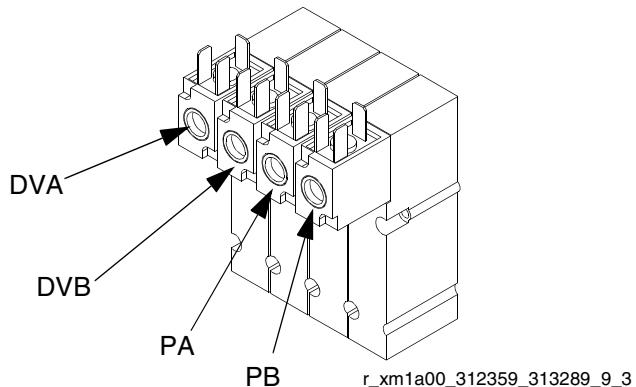
FIG. 4

4. Use screws (509b) to install new solenoid (509a).
5. Reconnect solenoid cable connectors (542). See **Control Box (255771)** on page 47.

NOTE:

From left to right, solenoid functions are as follows:

- Dosing valve A (DVA) (normally open)
- Dosing valve B (DVB) (normally open)
- Pump A (PA) (normally closed)
- Pump B (PB) (normally closed)

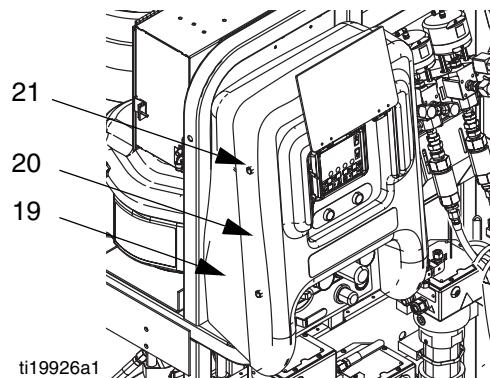


Replace Single Solenoid Module

1. Remove Shroud and Front Panel of Control Box, see page 10.

Update USB Module Software

1. Remove four nuts (21) and then remove front and rear shrouds (19, 20).



2. Use software token 16P644. See Graco Control Architecture™ Module Programming manual for instructions.

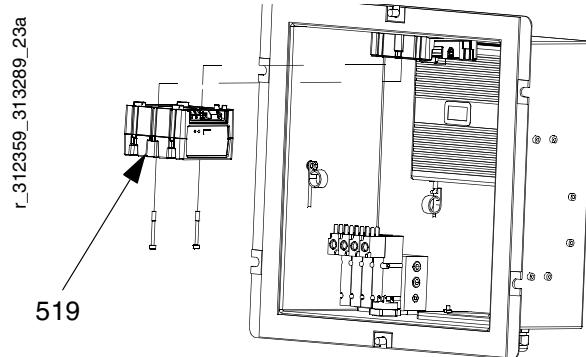
NOTE: Upgrade all modules in the system to the software version on the token, even if you are replacing only one or two modules. Different software versions may not be compatible.

All data in the module may be reset to factory default settings. Record all settings and user preferences before the upgrade, for ease of restoring them following the upgrade.

The latest software version for each system can be found at Tech Support at www.graco.com.

Replace USB Module

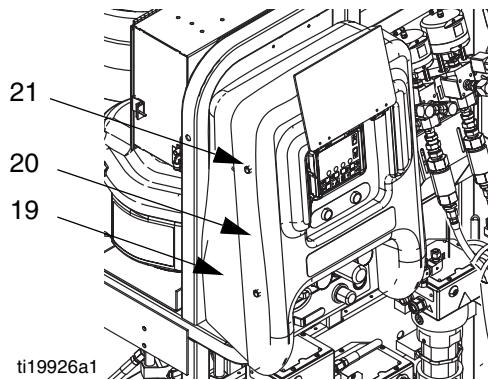
1. **Remove Shroud and Front Panel of Control Box,** see page 10.
2. Disconnect CAN cables and USB cable from USB module (519).
3. Remove two mounting screws from USB module and remove module from base.



4. Follow steps in reverse order to install new USB module.
5. Load software. See **Update USB Module Software.**

Update Fluid Control Module (FCM) Software

1. Remove four nuts (21) and then remove front and rear shrouds (19, 20).



2. Use software token 16P644. See Graco Control Architecture™ Module Programming manual for instructions.

NOTE: Upgrade all modules in the system to the software version on the token, even if you are replacing only one or two modules. Different software versions may not be compatible.

All data in the module may be reset to factory default settings. Record all settings and user preferences before the upgrade, for ease of restoring them following the upgrade.

The latest software version for each system can be found at Tech Support at www.graco.com.

Replace Fluid Control Module (FCM)

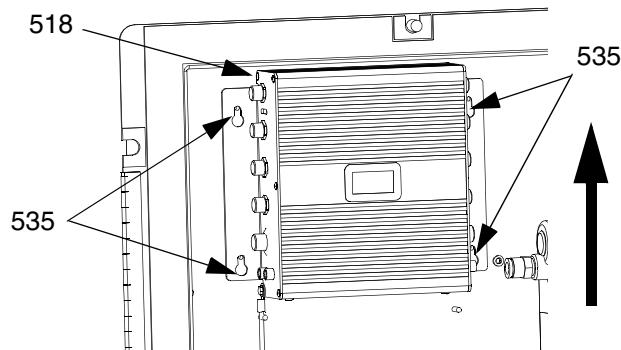
NOTE:

The USB module does not need to be removed prior to replacing the FCM.

1. **Remove Shroud and Front Panel of Control Box**, see page 10.
2. Remove all cables from FCM (518). Take note of cable locations.

3. Loosen four mounting screws (535).

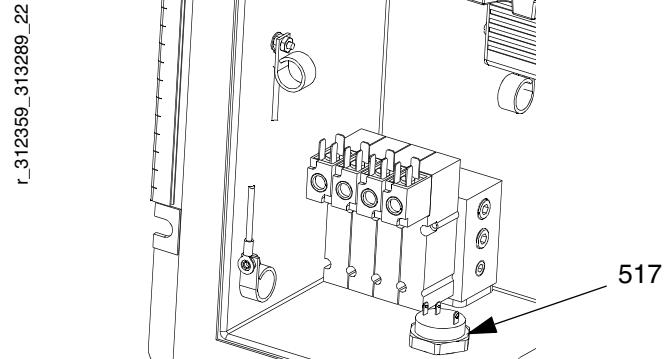
r_312359_313289_26



4. Slide FCM up and out of keyhole slots.
5. Follow steps in reverse order to install new FCM.
6. Load software. See **Update Fluid Control Module (FCM) Software**.
7. Most of the system configuration is stored in the FCM. Use the display to change the configuration to the values in the old FCM. See XM PFP operation manual for instructions.

Replace Alarm

1. **Remove Shroud and Front Panel of Control Box**, see page 10.
2. Disconnect alarm wires from alarm (517).
3. Unscrew alarm (517) and replace.
4. Screw in new alarm. Reconnect alarm wires.
5. Reinstall front panel of control box and reinstall shrouds.



Display

Upgrade Software

NOTICE

To avoid damaging circuit board, wear a grounding strap.

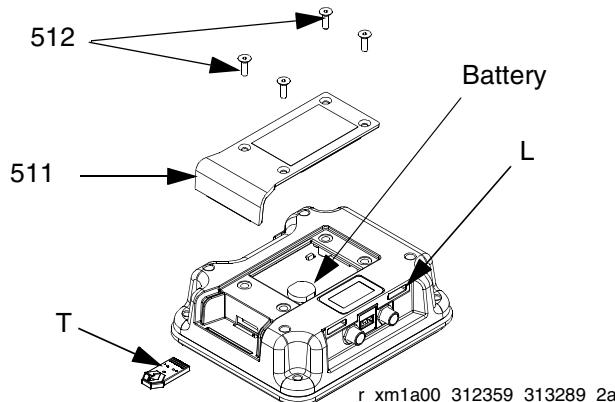
Use software token 16P644. See Graco Control Architecture™ Module Programming manual for instructions.

NOTE: Upgrade all modules in the system to the software version on the token, even if you are replacing only one or two modules. Different software versions may not be compatible.

All data in the module may be reset to factory default settings. Record all settings and user preferences before the upgrade, for ease of restoring them following the upgrade.

The latest software version for each system can be found at Tech Support at www.graco.com.

1. **Remove Shroud and Front Panel of Control Box**, see page 10.
2. Remove four screws (512) then remove access cover (511).



3. Insert and press token (T) firmly into slot.

NOTE:

There is no preferred orientation of token.

4. Turn power on.
5. The red indicator light (L) will flash until new software is completely loaded.

6. Turn power off.

7. Remove token (T).

8. Use screws (512) to install access cover (511).

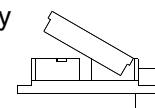
Replace Display Battery

NOTICE

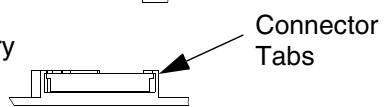
To avoid damaging circuit board, wear a grounding strap.

1. Perform steps 1-2 in the **Upgrade Software** section on page 13.
2. Use a flat head screwdriver to pry out old battery.

Remove Old Battery



Insert New Battery



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3. Replace with new battery. Ensure battery fits under connector tabs before snapping other end in place.

NOTE:

Use only Panasonic CR2032 batteries for replacement.

4. Use screws (512) to install access cover (511).

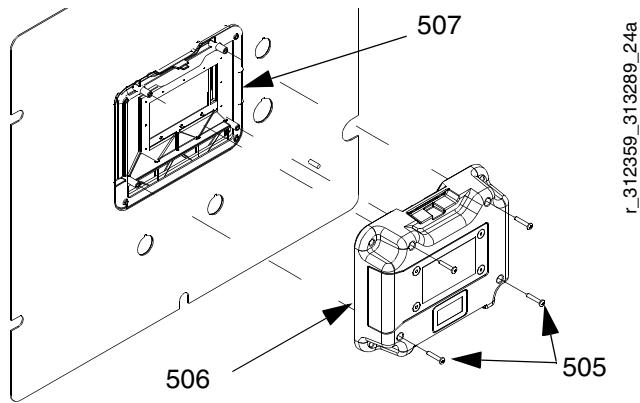
Replace Display**NOTE: Order display kit 257484 for replacement.****NOTICE**

To avoid damaging circuit board, wear a grounding strap.

1. **Remove Control Box Shrouds**, see page 17.
2. Disconnect CAN cable from display module.
3. Remove four screws (505) from rear display panel (506) while holding front display panel (507) in place.

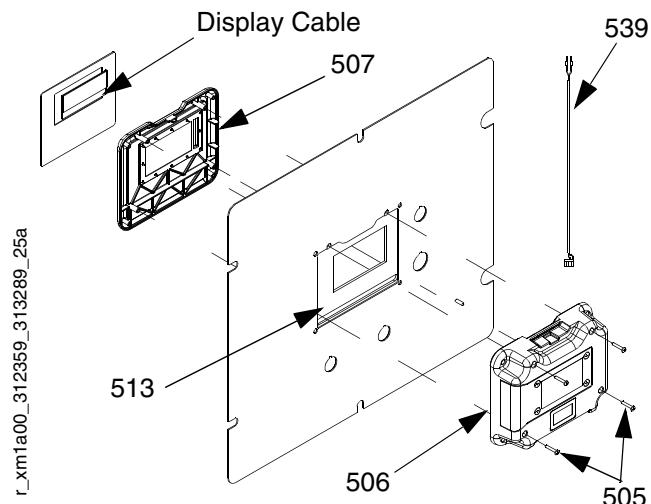
NOTE:

To ease removal use clear tape to hold front display panel (507) in place.



r_312359_313289_24a

4. Remove rear display panel (505) and disconnect display cable and key switch cable (539) from circuit board.
5. Remove front display panel (507) and gasket (513).



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6. Discard old display assembly.

7. Place new front display panel (507) and gasket (513) on front panel of control box (16).

NOTE:

To ease installation use clear tape to hold front display panel in place.

8. Carefully connect display cables and key switch cable to new circuit board.
9. Install new rear display panel (506) and secure with four screws (505). Ensure key switch cable protrudes from opening in top of display module.
10. Install access cover and screws. Apply warning label to access cover.
11. Reconnect CAN cable to display module.
12. Reconnect power.
13. Load software. See **Upgrade Software**, page 13.
14. Replace shroud.
15. Configure system settings as they were set on old display. See XM PFP Operation manual for instructions.

Replace Front Panel

See **Replace Display**, page 14, for instructions.

Junction Box

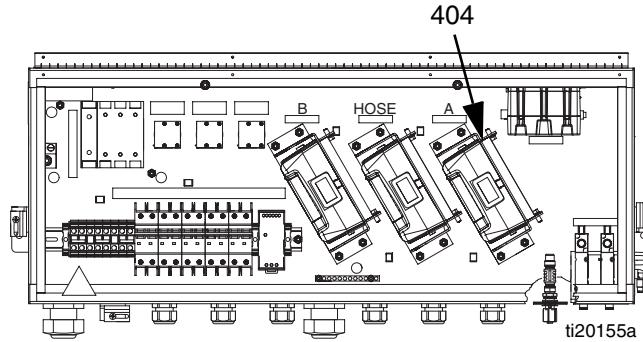
Update High Power Temperature Control Module (HPTCM, ref. 404) Software

NOTE: Upgrade all modules in the system to the software version on the token, even if you are replacing only one or two modules. Different software versions may not be compatible.

All data in the module may be reset to factory default settings. Record all settings and user preferences before the upgrade, for ease of restoring them following the upgrade.

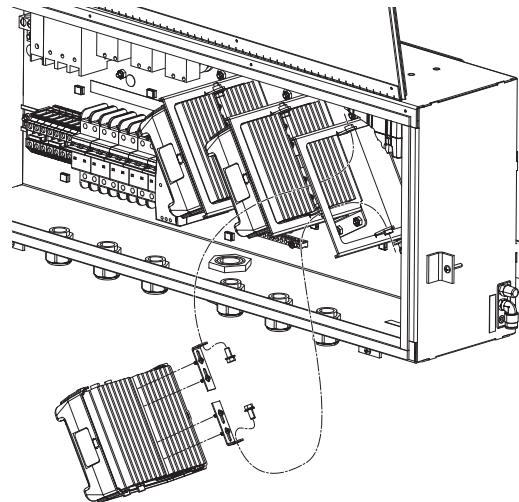
The latest software version for each system can be found at Tech Support at www.graco.com.

1. Open junction box.

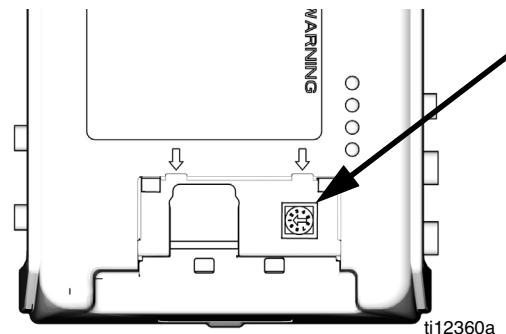


2. Use software token 16P644. See Graco Control Architecture™ Module Programming manual for instructions.

Replace High Power Temperature Control Module (HPTCM, ref. 404)



1. Turn system main power switch OFF.
2. Open junction box.
3. Unplug all connections on the HPTCM.
4. Remove screws securing HPTCM then remove HPTCM.
5. Remove access door on new HPTCM. Set rotary switches to the same number as the old module. B module = 1. Hose module = 2. A module = 0.



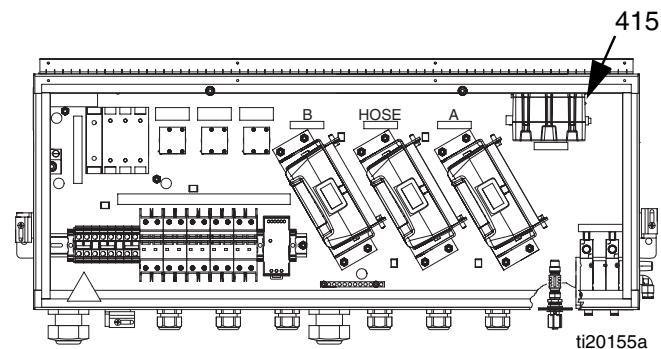
6. Use screws to install HPTCM.
7. Reattach HPTCM connections.
8. Close junction box.

Update Fluid Control Module Cube (FCM3, ref. 415) Software

NOTE: Upgrade all modules in the system to the software version on the token, even if you are replacing only one or two modules. Different software versions may not be compatible.

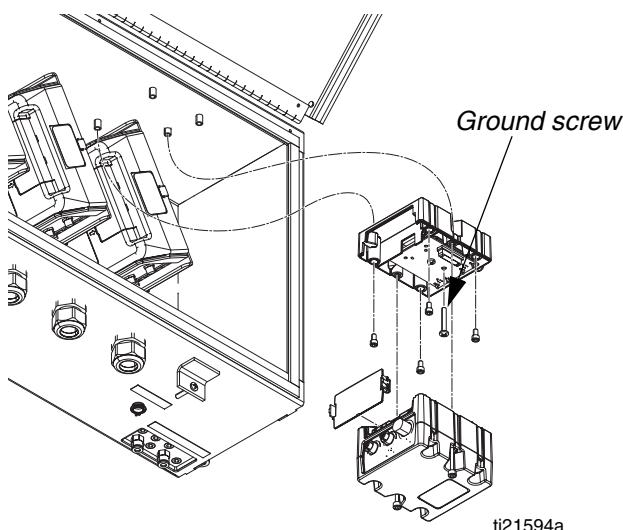
All data in the module may be reset to factory default settings. Record all settings and user preferences before the upgrade, for ease of restoring them following the upgrade.

The latest software version for each system can be found at Tech Support at www.graco.com.



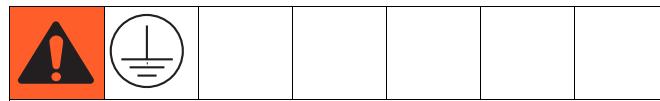
1. Open junction box.
2. Use software token 16P644. See Graco Control Architecture™ Module Programming manual for instructions.

Replace Fluid Control Module Cube (FCM3, ref. 415)



1. Turn system main power switch OFF.
2. Open junction box.

3. Unplug all connections on the FCM3.
4. Remove two screws securing FCM3 then remove FCM3.



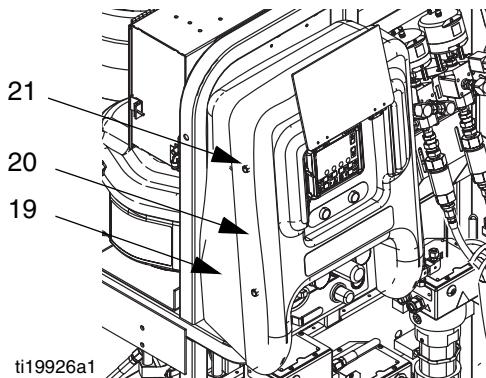
Center ground screw in the Fluid Control Module Cube must be used to avoid serious injury due to electric shock.

5. Use screws to install FCM3.
6. Reattach FCM3 connections.
7. Perform **Update Fluid Control Module Cube (FCM3, ref. 415) Software** on page 16.
8. Close junction box.

Air Controls

Remove Control Box Shrouds

1. Close main air shutoff valve on air supply line and on system. Depressurize air line.
2. Remove four nuts (21) and then remove front and rear shrouds (19, 20).



Remove Air Control Assembly

1. **Remove Control Box Shrouds.**
2. Disconnect air motor air lines and system air line.
3. Remove four nuts (17) from front of air controls (18). See page 36.
4. Pull out assembly.
5. Follow steps in reverse order to reinstall air control assembly.

Replace Solvent Pump Air Ball Valve

1. **Remove Control Box Shrouds.**
2. Disconnect air motor air lines and system air line.
3. Remove four nuts (17) from front of air controls (18). See page 36.
4. Pull out assembly.
5. Remove two nuts (630) from front of air control bracket (619). See FIG. 5 on page 18.
6. Disconnect air line (632) running to ball valve assembly (626).
7. Replace with new ball valve assembly. See part number shown in the **System Air Controls Module (255761)** section beginning on page 44.

8. Follow steps in reverse order to reassemble.

Replace Solvent Air Regulator

1. **Remove Control Box Shrouds.**
2. Disconnect air motor air lines and system air line.
3. Remove four nuts (17) from front of air controls (18). See page 36.
4. Pull out assembly.
5. Remove regulator nut (631), and disconnect air lines (632, 633) running to regulator (625). See FIG. 5 on page 18.
6. Remove regulator assembly and replace with new. See part number shown in the **System Air Controls Module (255761)** section beginning on page 44.
7. Follow steps in reverse order to reassemble.

Replace System Air Regulator

1. **Remove Control Box Shrouds.**
2. Disconnect air motor air lines and system air line.
3. Remove four nuts (17) from front of air controls (18). See page 36.
4. Pull out assembly.
5. Remove regulator nut (601h) and disconnect system air line.
6. Remove screws from quick clamps and open clamps (601f) at hinge.
7. Remove regulator assembly (601c) and replace with new. See part number shown in the **System Air Controls Module (255761)** section beginning on page 44.
8. Follow steps in reverse order to reassemble.

Replace Solenoid Inlet Air Regulator

1. **Remove Control Box Shrouds.**
2. Disconnect air motor air lines and system air line.
3. Remove four nuts (17) from front of air controls (18). See page 36.
4. Pull out assembly.

5. Disconnect air line.
6. Remove gauge (606) from block (601e).
7. Remove screws from quick clamps (601f) holding air regulator assembly (601c) in place.
8. Open clamps (601f) at hinge and pull apart from block (601e).
9. Remove regulator assembly (601d) and replace with new. See part number shown in the **System Air Controls Module (255761)** section beginning on page 44.
10. Follow steps in reverse order to reassemble.
11. Set new air pressure regulator to at least 80-85 psi (0.55-0.58 MPa, 5.5-5.8 bar).

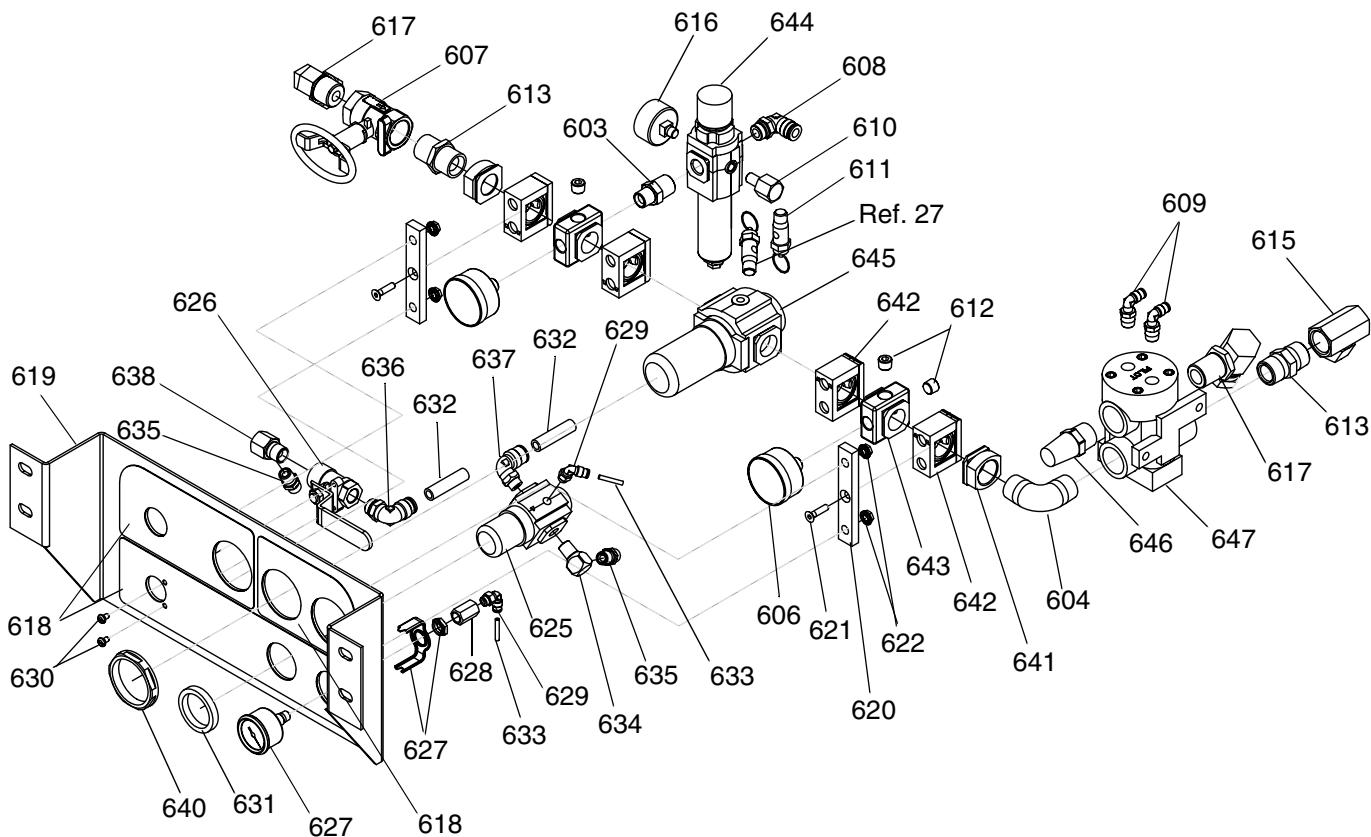


FIG. 5

Dosing Valve Assembly



1. Follow **Pressure Relief Procedure**, page 7.
2. Disconnect all fluid lines from dosing valves (28 or 29). See FIG. 6.
3. Remove two bolts (31) securing dosing valve to bracket.
4. Unscrew dosing valve nipple fitting (36 or 37) from dosing valve outlet.
5. Disconnect pressure sensor (831) from dosing valve. See page 50.
6. Remove dosing valves.
7. See **Ratio Control Valve Assemblies** on page 50 for disassembly illustration.
8. Follow steps in reverse order to reassemble dosing valve assembly. See **Ratio Control Valve Assemblies** on page 50 for assembly illustration and specifications.

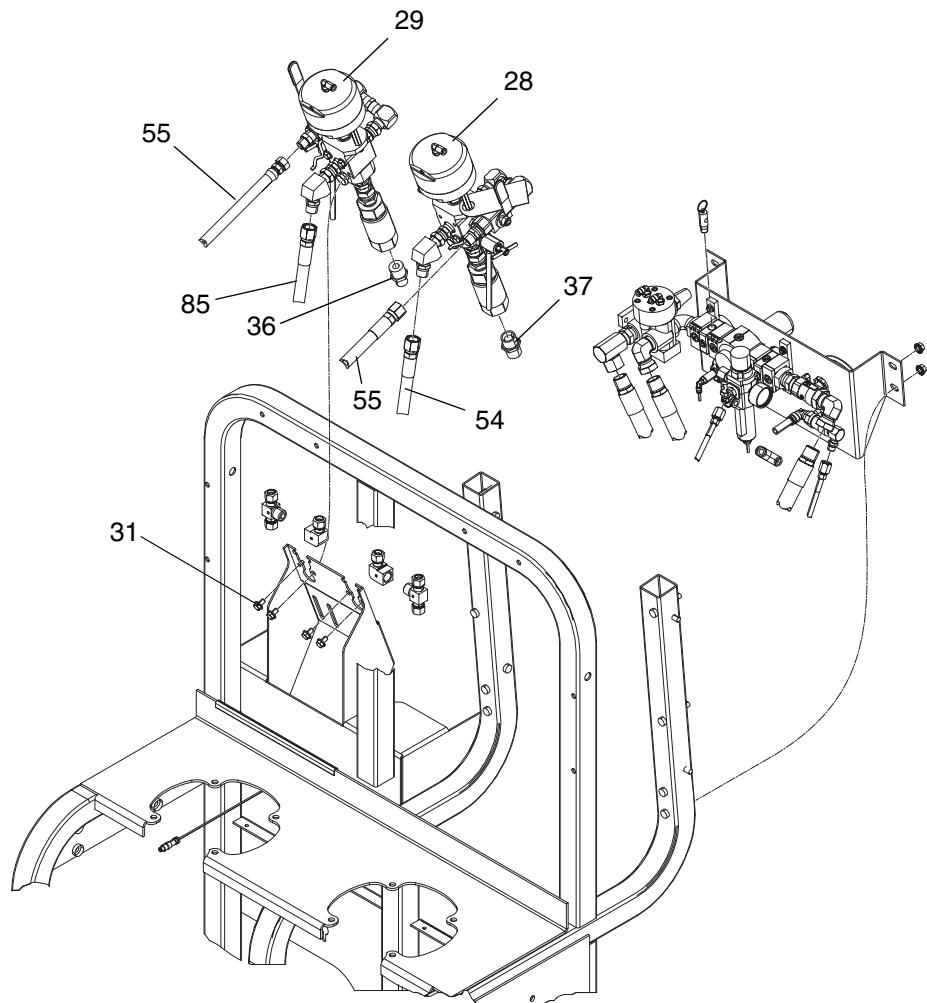


FIG. 6

Sensors



Replace Fluid Pressure Sensor

1. Close main air shutoff valve on air supply line and on system.
2. Follow **Pressure Relief Procedure**, page 7.
3. Open control box cover. See **User Interface/Control Box**, page 10.
4. Disconnect pressure sensor (831) from dosing valve. See **Ratio Control Valve Assemblies** on page 50.
5. Disconnect other end of pressure sensor (831) from FCM (518). See **Control Box (255771)** on page 47.
6. Replace with new fluid pressure sensor, and reconnect pressure sensor to FCM and dosing valve.

Hose Bundle Temperature Sensor (93)

1. Disconnect the M8 cable connection going into the hose bundle.
2. Open up the hose bundle wrap and insulation until sensor (93) can be removed easily without pulling on cable.
3. Remove sensor.
4. Push new sensor fully into insulated portion of hose bundle.
5. Close insulation and hose bundle wrap and re-tape. Ensure there is no stress on the cable.
6. Reconnect M8 connector.

Replace Temperature (RTD) Sensors

This procedure applies to:

- Tank sensors mounted in the side of each tank near the bottom (209).
- Glycol heater for hose outlet manifold sensor (100).

1. Close main air shutoff valve on air supply line and on system.
2. Follow **Pressure Relief Procedure**, page 7.
3. Disconnect the M8 cable connection.
4. Loosen the compression nut. Pull sensor straight out of fitting.
5. Remove fitting (82 or 208).

NOTE: The compressed ferrule cannot be removed from the sensor. A new compression fitting must be used.

6. Apply thread sealant then replace compression fitting (82 or 208). Tighten fitting in place.
7. Position sensor (100 or 209):
 - **Tank:** Insert sensor, leaving 5/8 in. sheath outside fitting.
 - **Heater manifold:** Insert sensor, leaving 1/8 in. sheath outside fitting.
8. Install compression nut on sheath hand-tight then tighten an additional 3/4 turn.

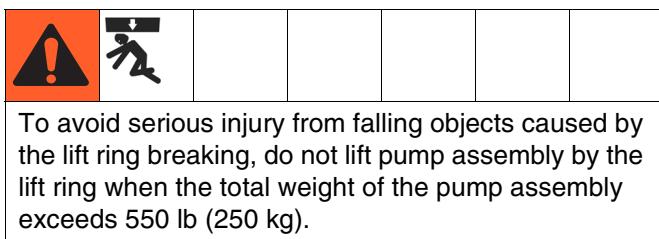
Pump Assembly (System Module)



Prior to servicing the pump assembly you must first remove either the entire pump assembly or the displacement pump and air motor individually.

Remove Pump Assembly

1. Follow **Pressure Relief Procedure**, page 7.
2. Close ball valve at metering pump inlet.
3. Disconnect fluid inlet line from the displacement pump. Leave line connected to the tank.
4. Disconnect air motor.
 - a. Disconnect sensor cable, air line, and ground wire from air motor.
 - b. Remove mounting screws (5) and washers (4) holding air motor (2 or 3) to mounting bracket. See FIG. 7 on page 22.
5. Use lift ring on air motor to remove pump assembly.

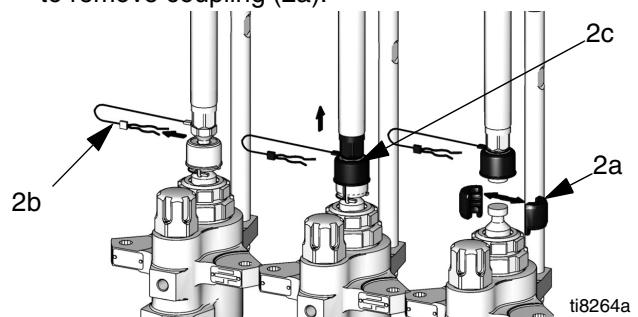


6. Refer to Xtreme Displacement Pump manual 311762 to service or repair the displacement pump. Refer to NXT Air Motor manual 311238 to service or repair the air motor.
7. Follow steps in reverse order to reinstall pump assembly.

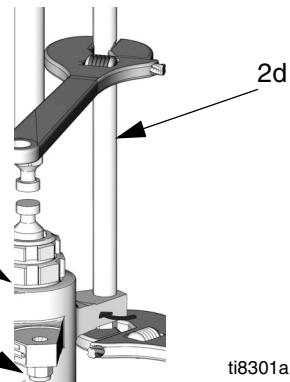
Remove Displacement Pump

Follow these instructions for removing only the displacement pump; the air motor will remain installed.

1. Follow **Pressure Relief Procedure**, page 7.
2. Close ball valve on tank outlet.
3. Disconnect fluid inlet line from the displacement pump. Leave line connected to the tank.
4. Remove clip (2b), and slide coupling cover (2c) up to remove coupling (2a).



5. Use a wrench to hold the tie rod flats to keep the rods from turning. Unscrew the nuts (2e) from the tie rods (2d) and carefully remove the displacement pump (2f).



6. Refer to the Xtreme Displacement Pump manual 311762 to service or repair the displacement pump.
7. Follow steps in reverse order to reinstall displacement pump.

Remove Air Motor

1. Follow **Pressure Relief Procedure**, page 7.
2. Disconnect displacement pump from air motor. See steps 2 and 3 under **Remove Displacement Pump**, page 21.
3. Disconnect sensor cable, air line, and ground wire from air motor.
4. Remove mounting screws (5) and washers (4) holding air motor (2 or 3) to mounting bracket.

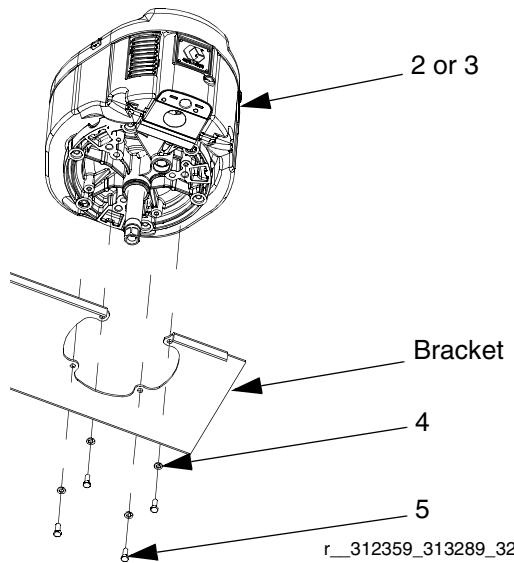


FIG. 7

5. Refer to NXT Air Motor manual 311238 to service or repair the air motor.
6. Follow steps in reverse order to reinstall air motor.

Pail Feed RAM Pump Assembly (Feed Module)

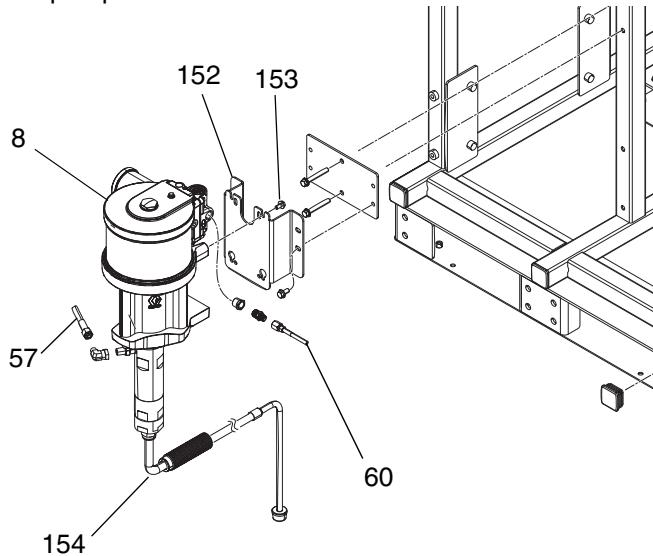
NOTE: See Pail Feed RAM Pump assembly (227) in parts breakdown beginning on page 40.

See Supply Systems manual 313527 for service and repair instructions and parts.

Solvent Pump



1. Follow **Pressure Relief Procedure**, page 7.
2. Disconnect pump inlet line (154) and air lines (57, 60) from solvent pump.
3. Disconnect fluid outlet line.
4. Remove four screws (153) that attach solvent pump (8) to bracket (152) and remove solvent pump.



5. Refer to Merkur Pump Assembly manual 312794 to service or repair solvent pump 257463.
6. Follow steps in reverse order to reinstall solvent pump.

Heaters



NOTE:

See applicable heater manual for wiring, repair, and parts information. See **Related Manuals** on page 3.

Service and Repair

1. Follow **Pressure Relief Procedure**, page 7.
2. Disconnect fluid lines and electrical wiring from fluid heater.
3. Refer to heater manual to service or repair heater.
4. Reconnect fluid lines and electrical wiring.

Replace

1. Follow **Pressure Relief Procedure**, page 7.
2. Disconnect fluid lines and electrical wiring from fluid heater.
3. *System Module Heaters:* See FIG. 8. Loosen four mounting screws, lock washers, and plain washers on back of heater (12 or 13) that secure it to the system frame. Slide heater up and remove from mounting plate.
4. *Feed Module Heaters:* See page 41. Remove 2 screws (224) then remove heater (226) from feed module frame.
5. Replace heater. Follow steps in reverse order to install new heater.

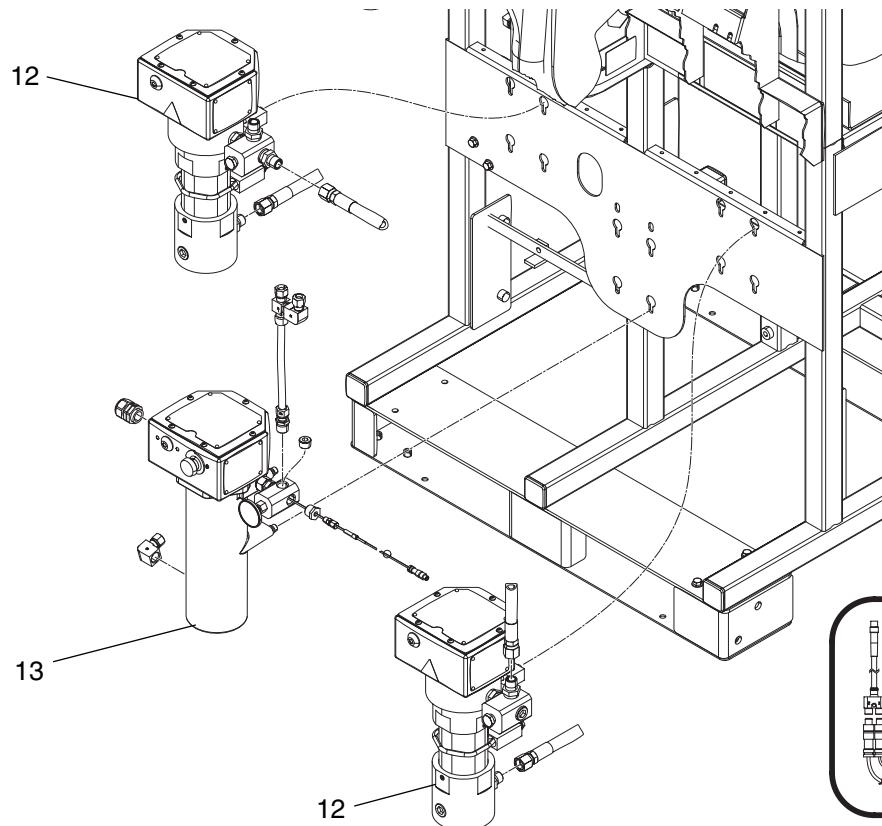


FIG. 8: Heaters on System Module

Replace Radar Level Sensor



NOTE: Order radar level sensor kit 24T052. See **Feed Module (24P883)** on page 40 for kit contents.

NOTE: Tank level sensors changed in 2014. The old sensors were red. The new sensors are blue. The blue sensors can be used as direct replacements for the red sensors.

1. With the tank empty, close the tank air supply ball valve then open brass valve on tank lid to de-pressurize the tank. See FIG. 9.

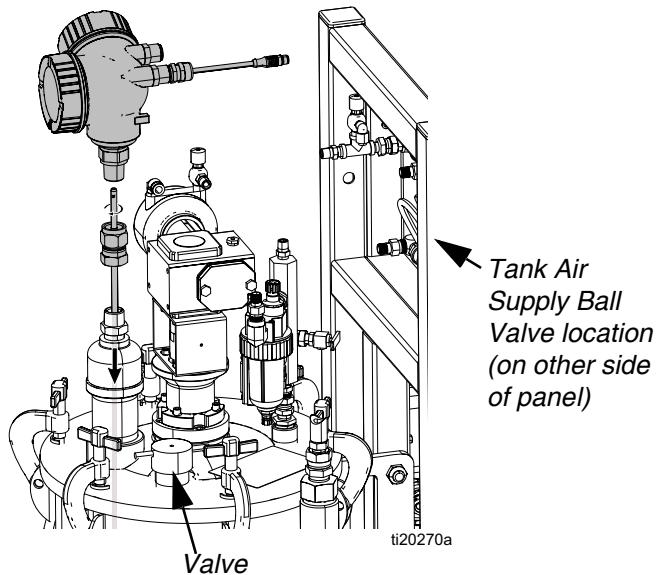


FIG. 9: Level Sensor Installation

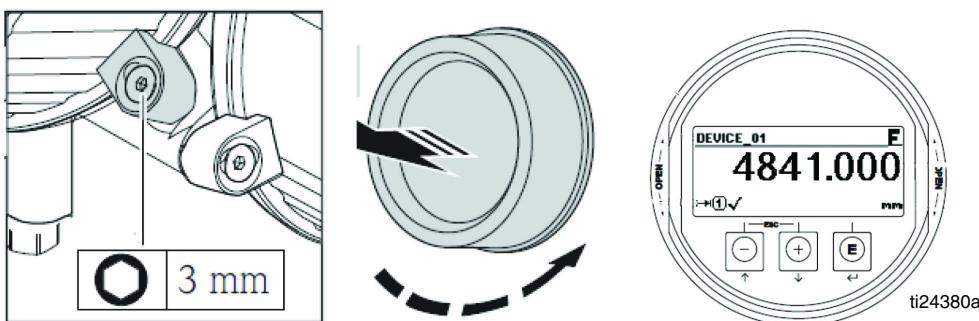
2. Disconnect cable at the bottom of the feed module.
NOTE: Always use the new cable supplied with the sensor. It has different connections than the old sensor.
3. Disconnect 3/4 in. union that holds the level sensor on top of the tank.
4. Pull the old sensor straight up out of the tank.
5. Remove plugs from new sensor and discard plugs. Move fittings from old sensor to new sensor.
6. If the sensor rod was removed for shipping, apply blue thread-lock to the threads in the end of the rod.
7. Feed the rod into the sensor head and screw the threaded end into the sensor head.

8. Use a wrench to hold the 3/8 in. flats on the sensor rod.
9. Tighten to approximately 25 - 30 in-lb (2.8 - 3.4 N•m). Do not over-tighten.
10. Reconnect sensor cable.
11. See **Set Up a New Guided Level Sensor**, page 25.

Set Up a New Guided Radar Level Sensor

Level sensors need to have three settings setup after installing on the tank of the PFP machine. The tank must be empty, or the level needs to be at least below the bottom of the installed probe with the tank cover closed.

1. Open the sensor head cover over the display:
 - a. Loosen the securing clamp with an Allen wrench (if clamp is present).
 - b. Unscrew the round cover and pull away.

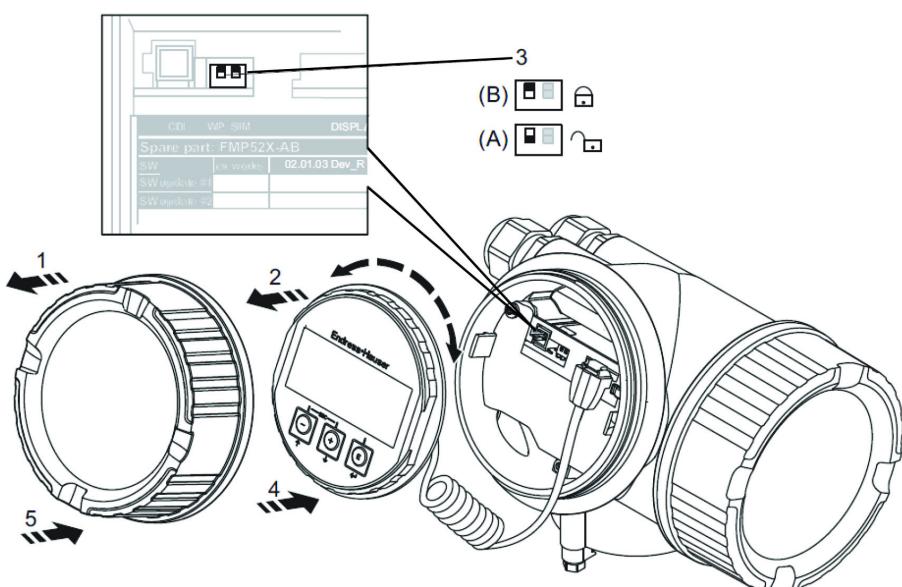


Use the operating keys to navigate within the operating menu and to select options from a list.

Key	Meaning
	“Minus” Key <ul style="list-style-type: none"> In a selection list, this key will move the selection bar upward. In an input matrix, this key will move the selection bar backward.
	“Plus” Key <ul style="list-style-type: none"> In a selection list, this key will move the selection bar downward. In an input matrix, this key will move the selection bar forward.
	“Enter” Key <ul style="list-style-type: none"> Opens the marked sub-menu or parameter. Confirms a changed parameter value.
	“Escape” Key combination (press keys simultaneously) <ul style="list-style-type: none"> Closes a parameter without accepting the changes. Quits the current menu layer and returns to the next higher layer.

2. Turn power on the machine. Set **EMPTY CAL**, then **FULL CAL**, then do a mapping of the Empty Tank.
3. Set **EMPTY CAL** to .939 meters:
 - a. Press **E**, then **+**, **+**, to get to **Set Up**. Then press **E** to get to **EMPTY CAL**, then press **E**.
 - b. Press **+** until decimal point (.) appears, then press **E**.
 - c. Press **+** until 9 appears, then press **E**.
 - d. Press **+** until 3 appears, then press **E**.
 - e. Press **+** until 9 appears, then press **E**.
 - f. Press and hold **E** until the hourglass appears, then release.

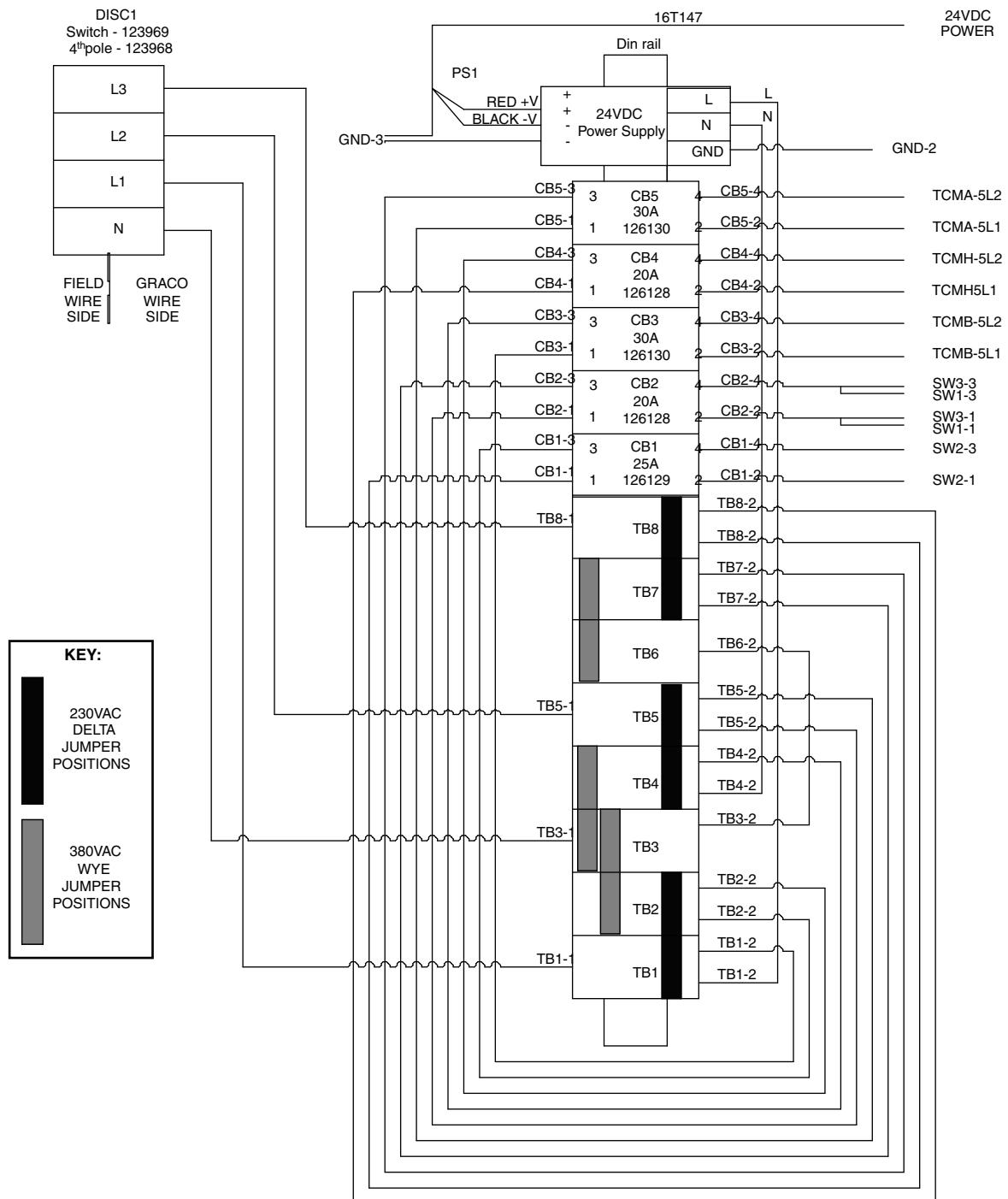
4. Set **FULL CAL** to .691 meters.
 - a. Press **+** to get to **FULL CAL**, then press **E**.
 - b. Press **+** until decimal point (.) appears, then press **E**.
 - c. Press **+** until 6 appears, then press **E**.
 - d. Press **+** until 9 appears, then press **E**.
 - e. Press **+** until 1 appears, then press **E**.
 - f. Press and hold **E** until the hourglass appears, then release.
5. Map **EMPTY TANK**.
 - a. Press **+** to get to **MAPPING**, then press **E**.
 - b. Press **E** to get to **CONFIRM DISTANCE**.
 - c. Press **+** until **TANK EMPTY** appears, then press **E**.
 - d. Press **+** under the check mark to confirm, **END OF SEQUENCE** will appear. Press and hold **E** until the hourglass appears, then release.
 - e. You are now finished. Press **+** and **-** together until the hourglass appears, then release.
6. The transmitter display should show nothing in the tank. Check the level display on the PFP machine control. It should also show the tank as empty.
7. These settings can now be locked from display control so they will not be inadvertently changed.
8. Set display to lock ON:
 - a. Turn display counter-clockwise to release it as shown below (2).
 - b. Set the dip switch to the lock position as shown below (3).
 - c. Replace display (4).
 - d. Replace screw on lid (5).
 - e. Engage cover securing clamp.

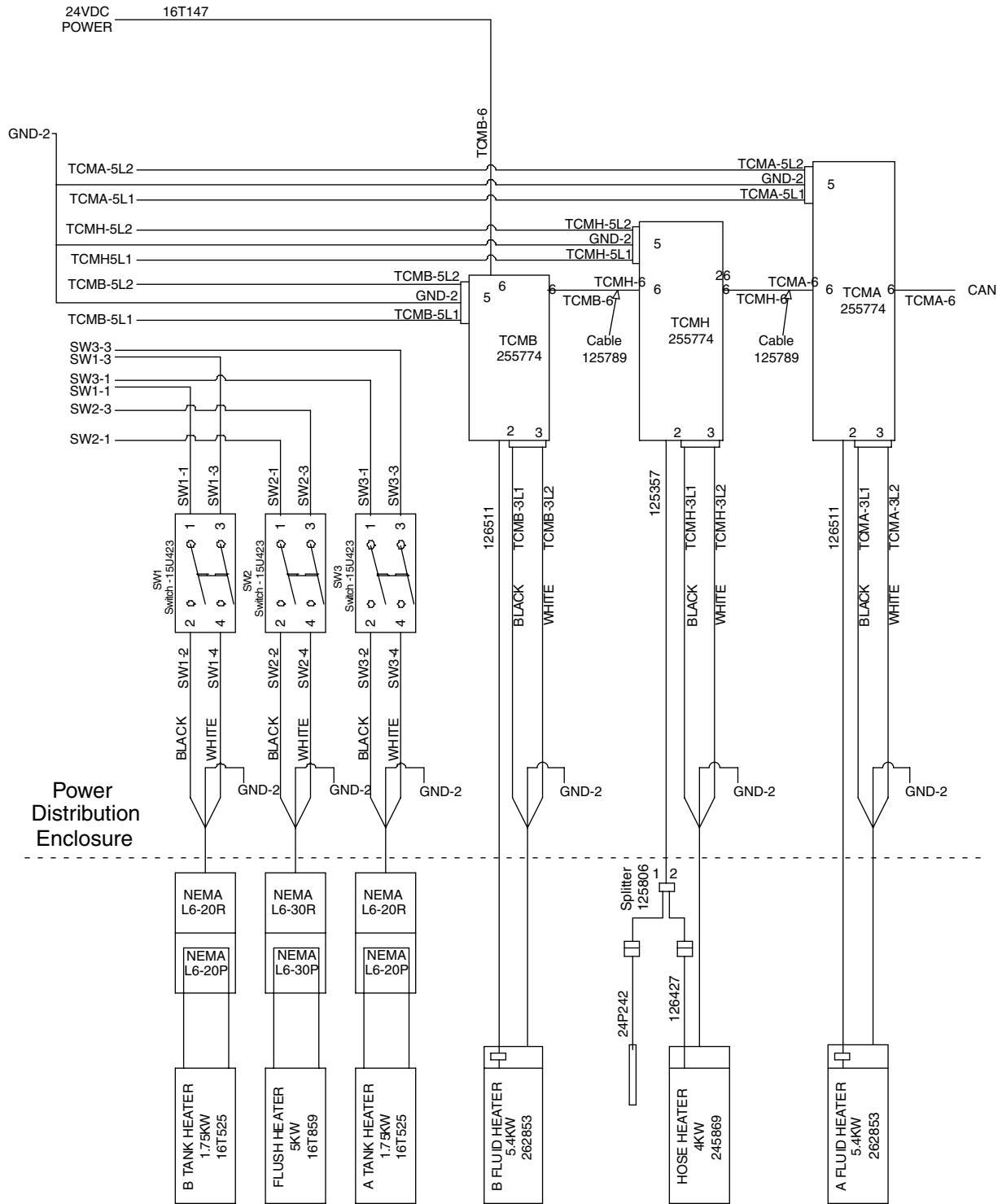


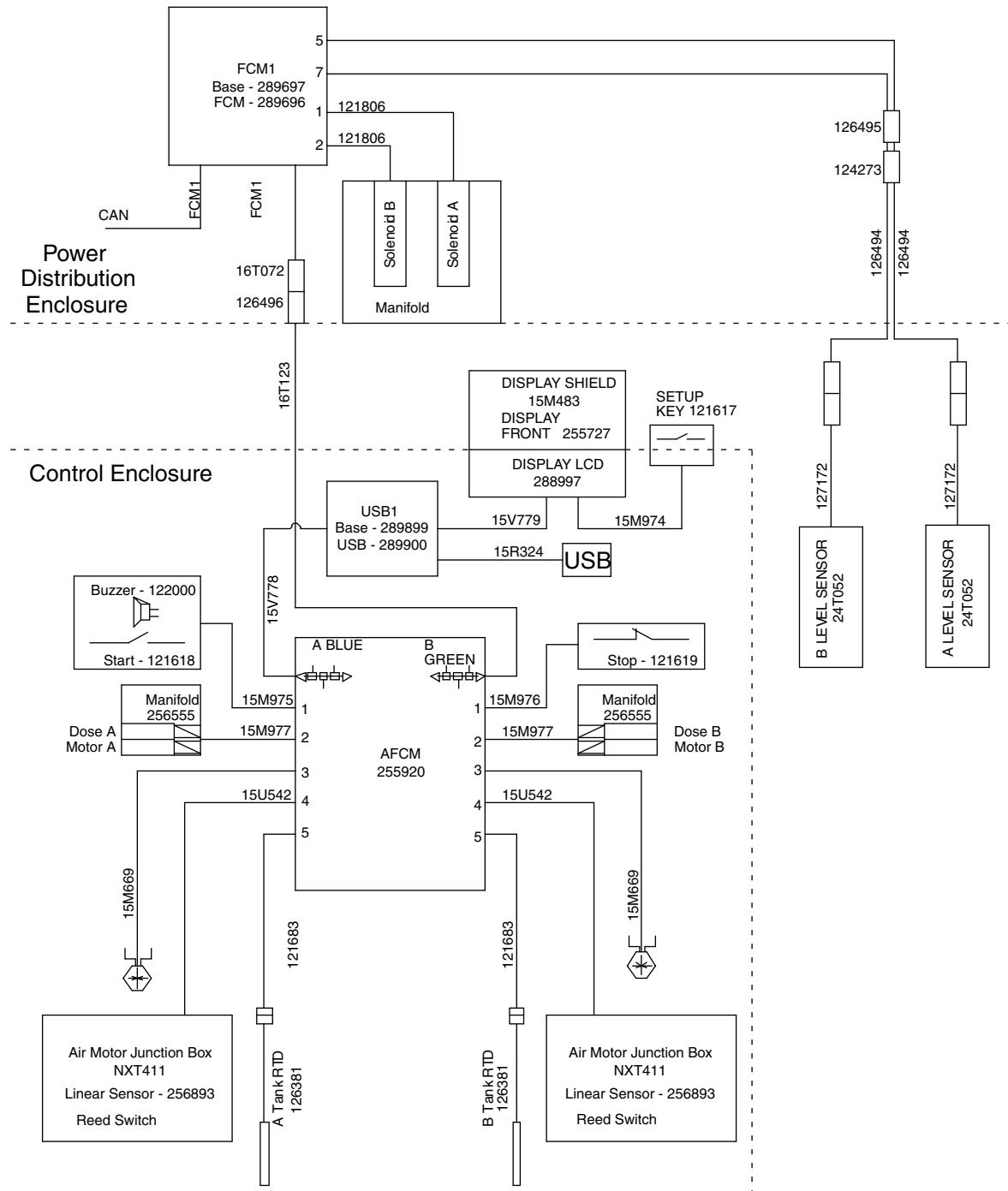
Electrical Schematics

Simplified Electrical Schematic

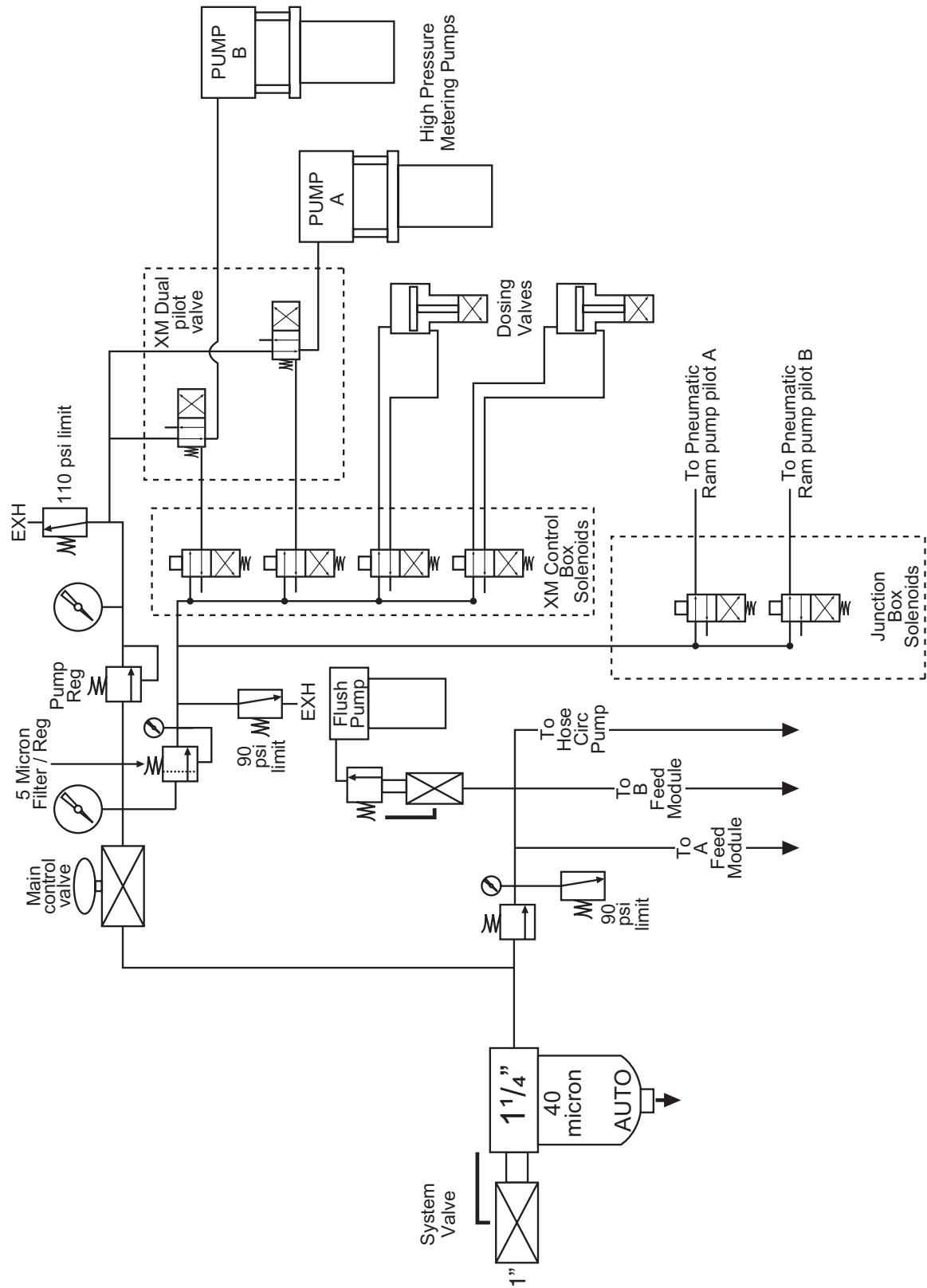
Page 1 of 3



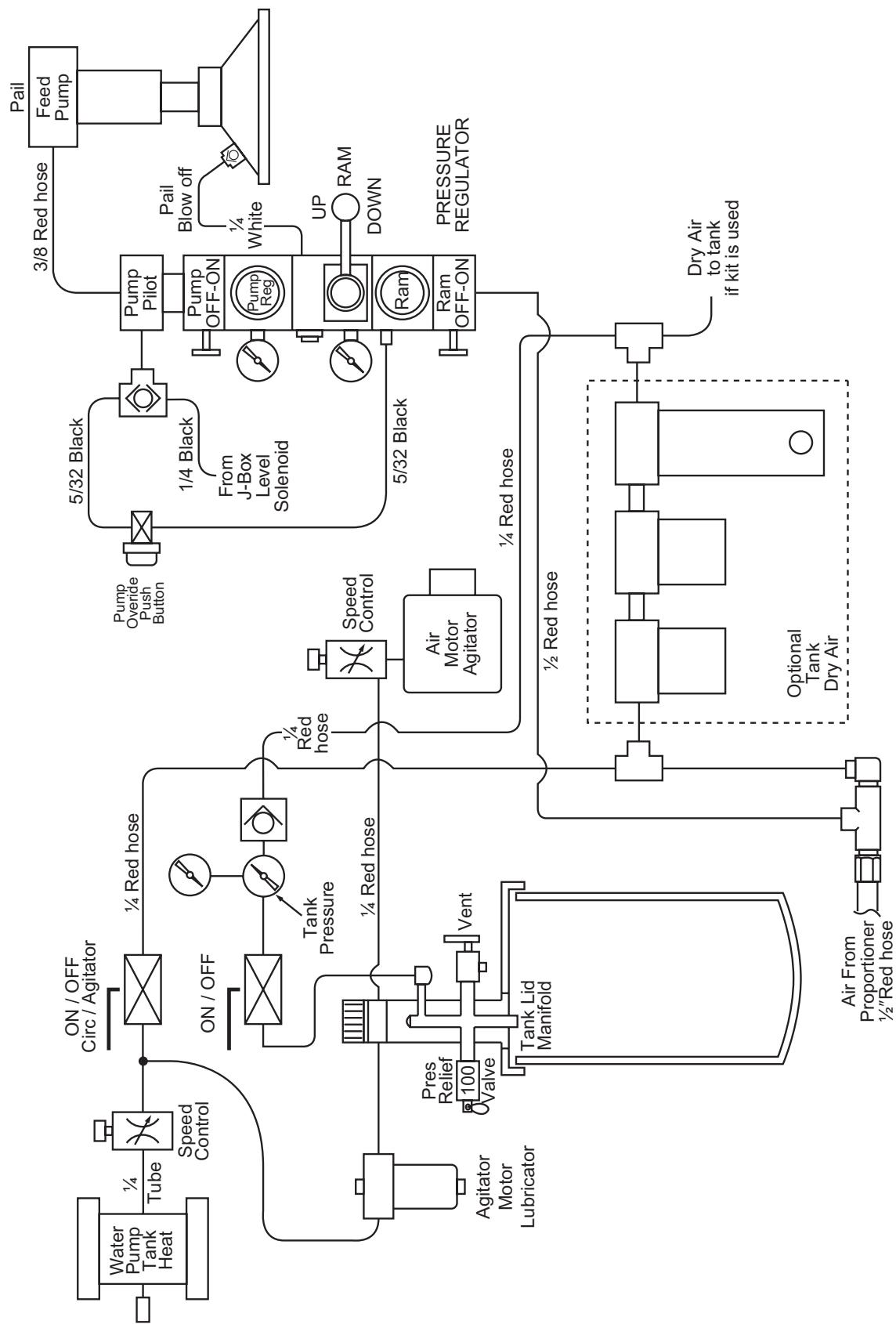




XM PFP Air Logic Schematic



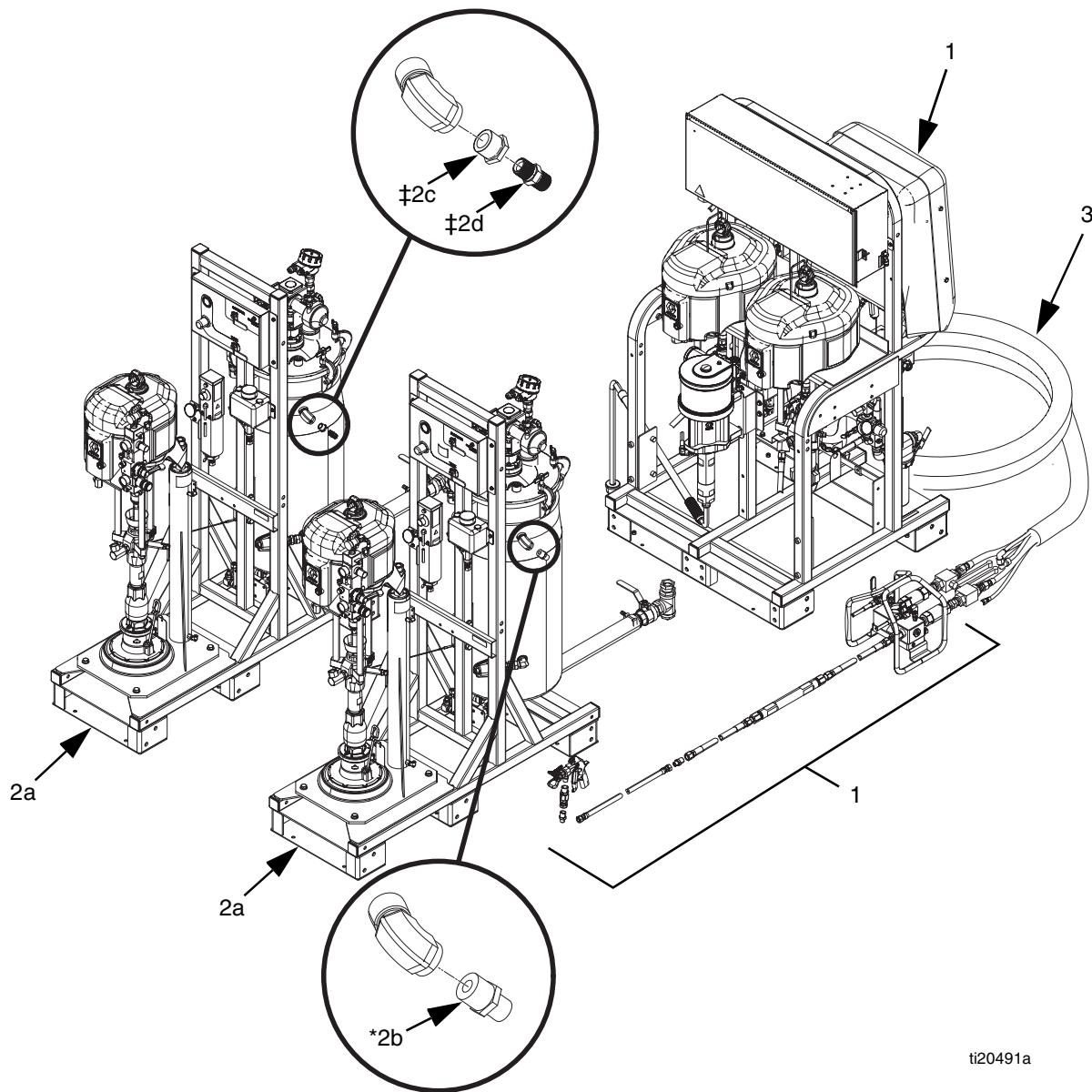
Feed Module Air Controls Schematic



Parts

XM PFP System (262869, 24W626)

Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
1	262878	SYSTEM MODULE AND MIX LINE	1	2g◆	061134	HOSE, nylon	2.5
	262869	Model 262869		2h◆	---	CABLE TIE	8
2	24W648	Model 24W626		3		HEATED HOSE BUNDLE	1
	24P202	FEED MODULES ASSEMBLY	1	16T121	Model 262869		
	24W628	Model 262869		16T122	Model 24W626		
2a	24P883	FEED MODULE	2			--- Not for sale.	
2b*	C20461	NIPPLE, reducing	1			◆ Not shown.	
2c‡	100505	BUSHING	1			‡ Not required for model 24W626.	
2d‡	156849	NIPPLE	1			* Qty. 2 required for 24W626.	
2f◆	15U654	LABEL, A/B Identification	1				

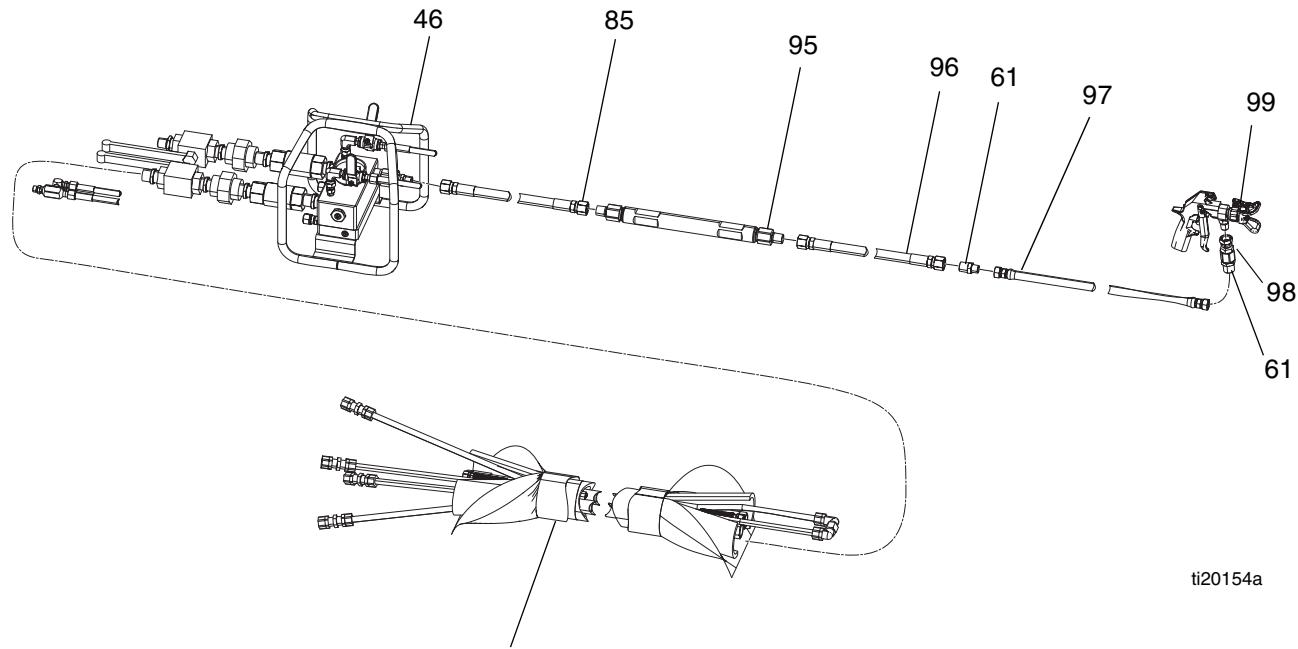


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XM PFP System (262869, 24W626) Subassemblies

Base System (262878, 24W648)

Page 1 of 5

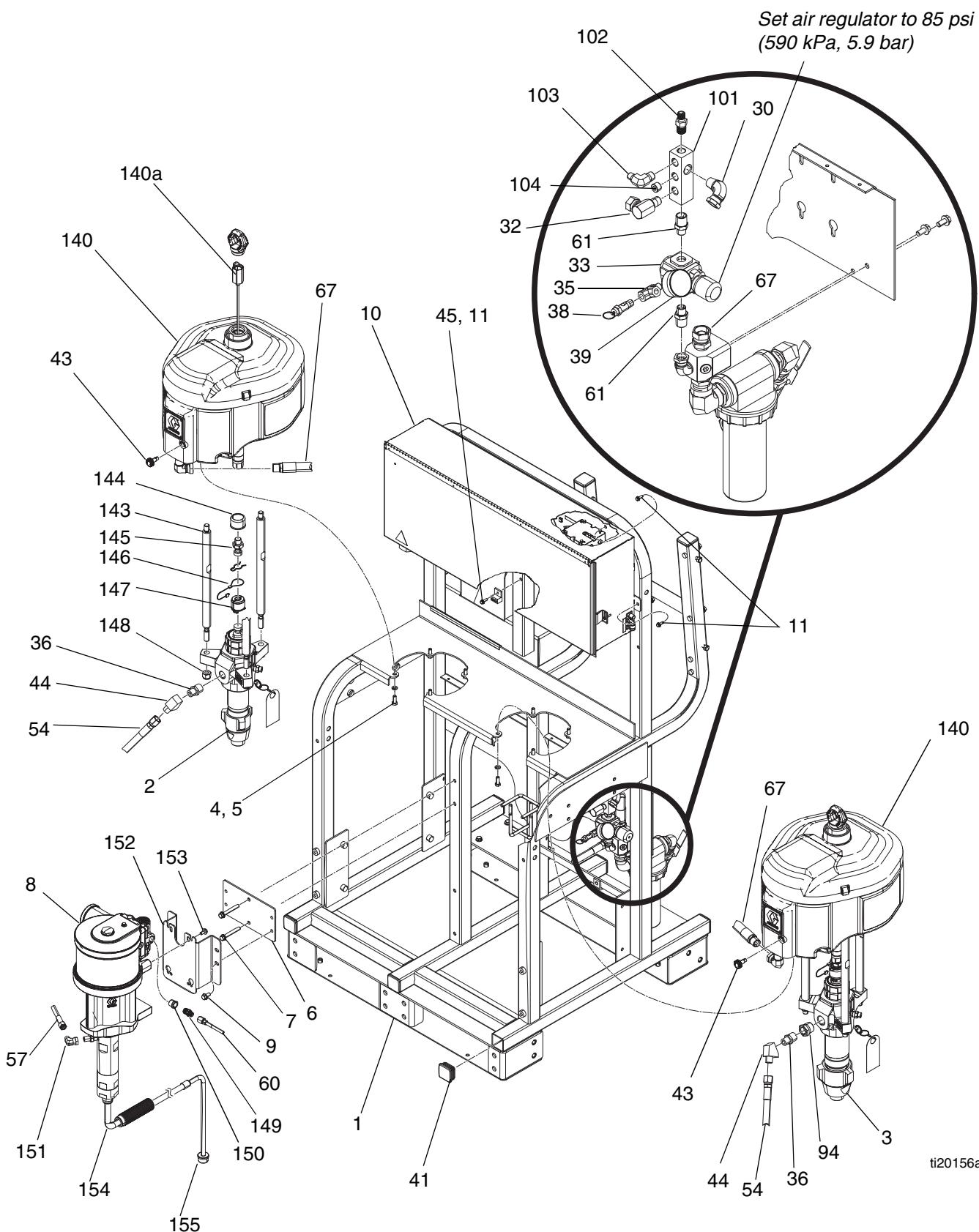


*Heated Hose Bundle 16T121. Not included with assemblies 262878 and 262869.
Shown for reference only.*

*Heated Hose Bundle 16T122 not included with assembly 24W648 and 24W626.
Shown for reference only.*

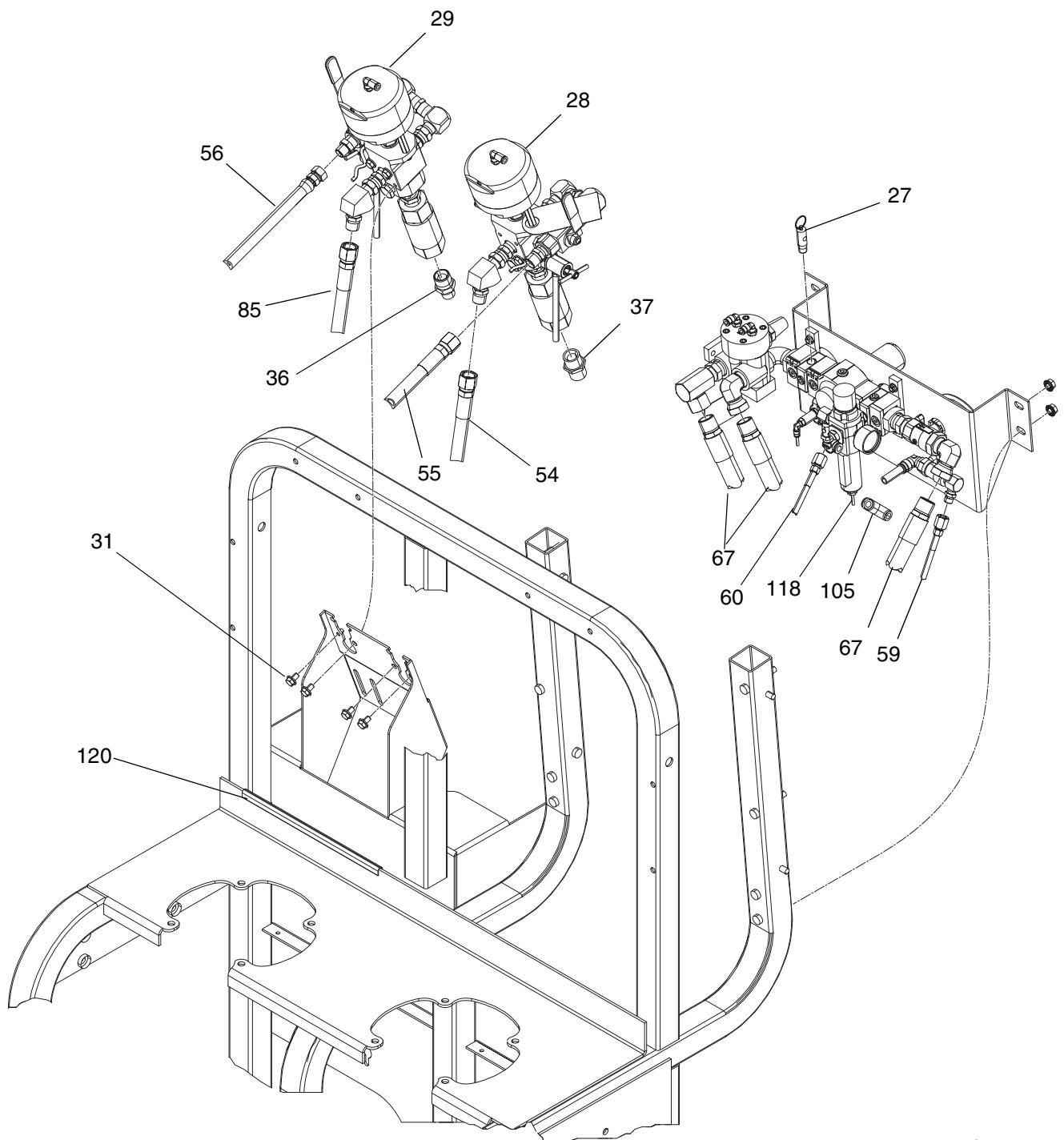
NOTE: Apply pipe sealant to all non-swiveling pipe threads.

Base System (262878, 24W648) page 2 of 5



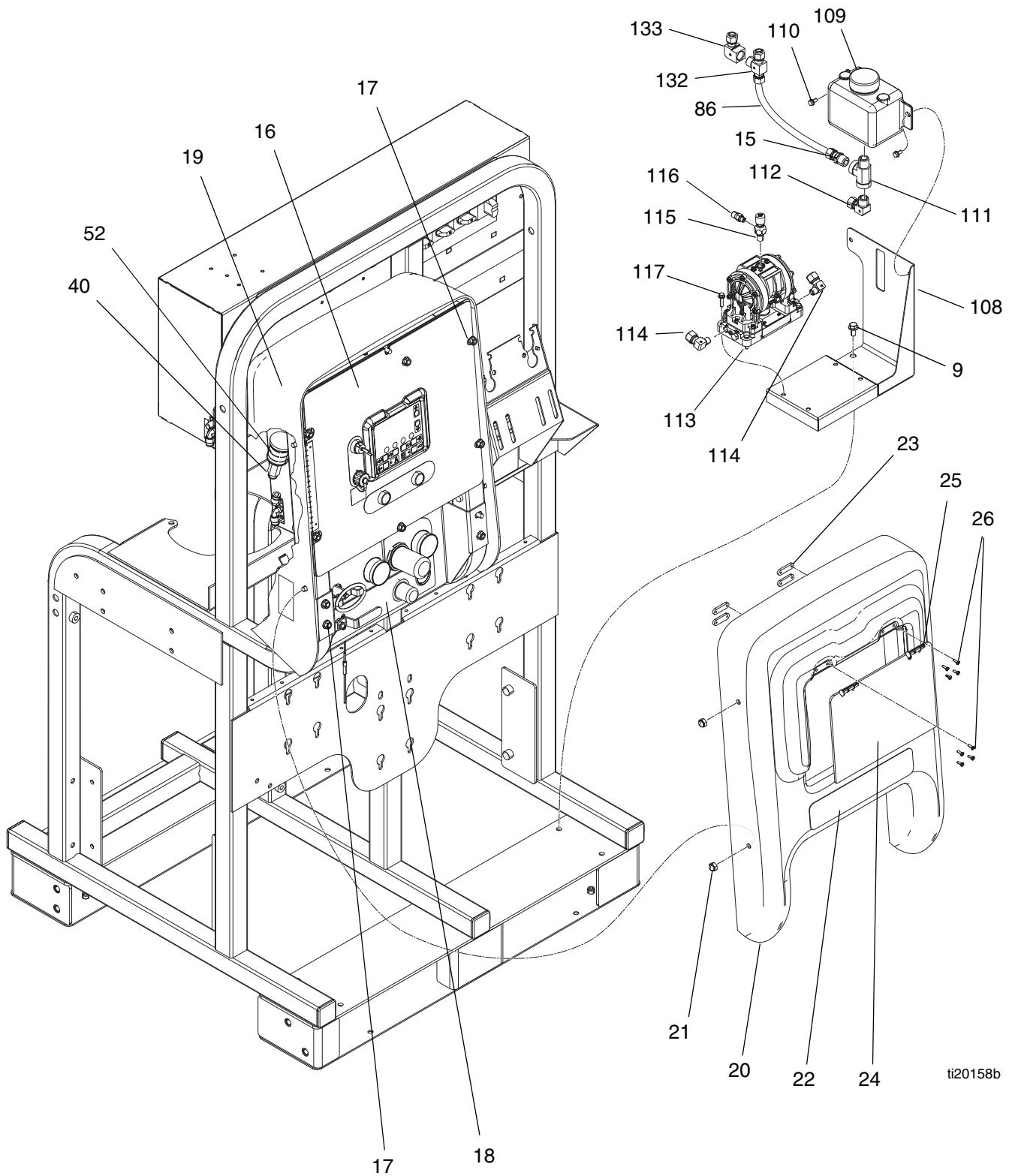
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Base System (262878, 24W648) page 3 of 5

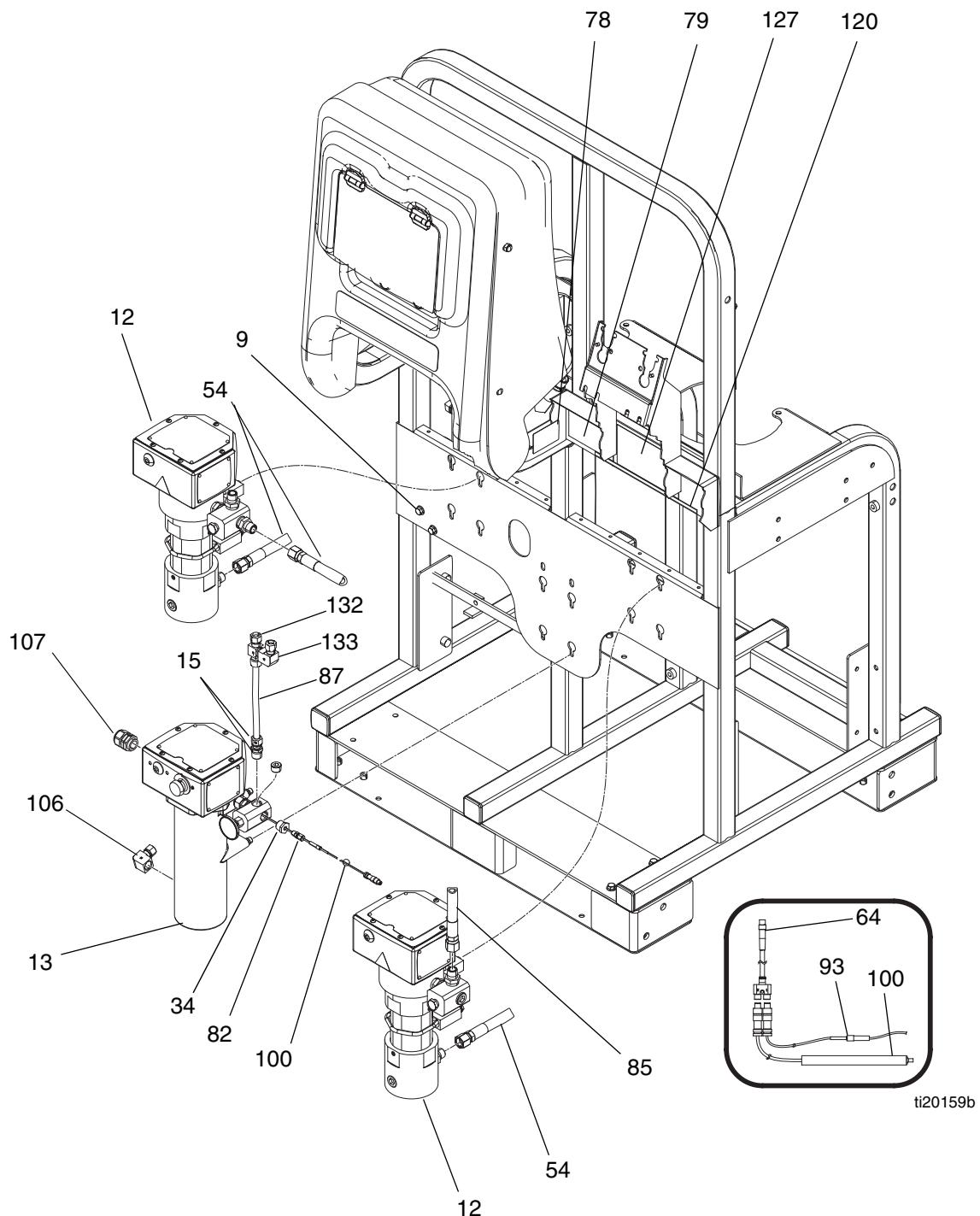


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Base System (262878, 24W648) page 4 of 5



Base System (262878, 24W648) page 5 of 5



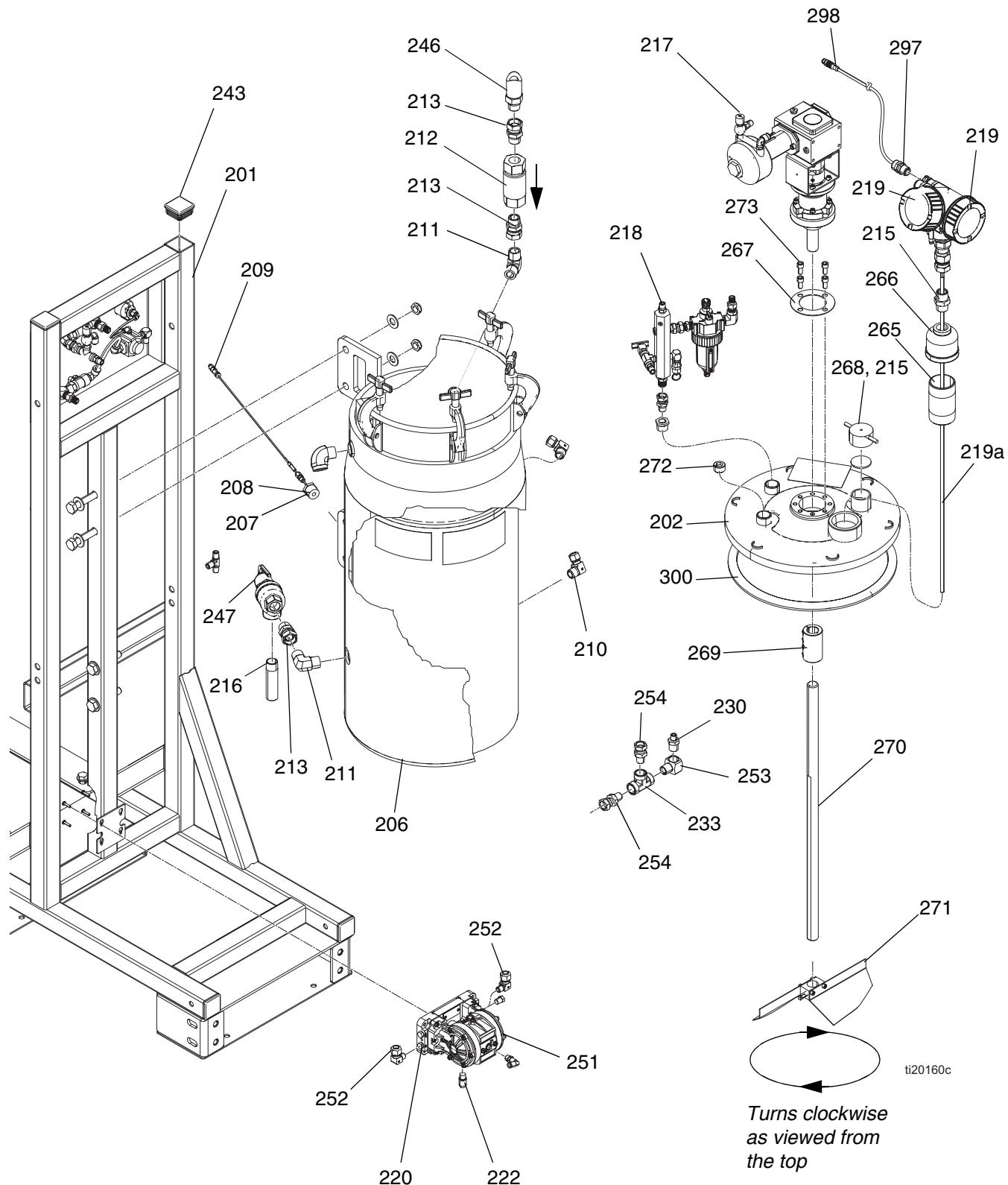
Base System (262878, 24W648)

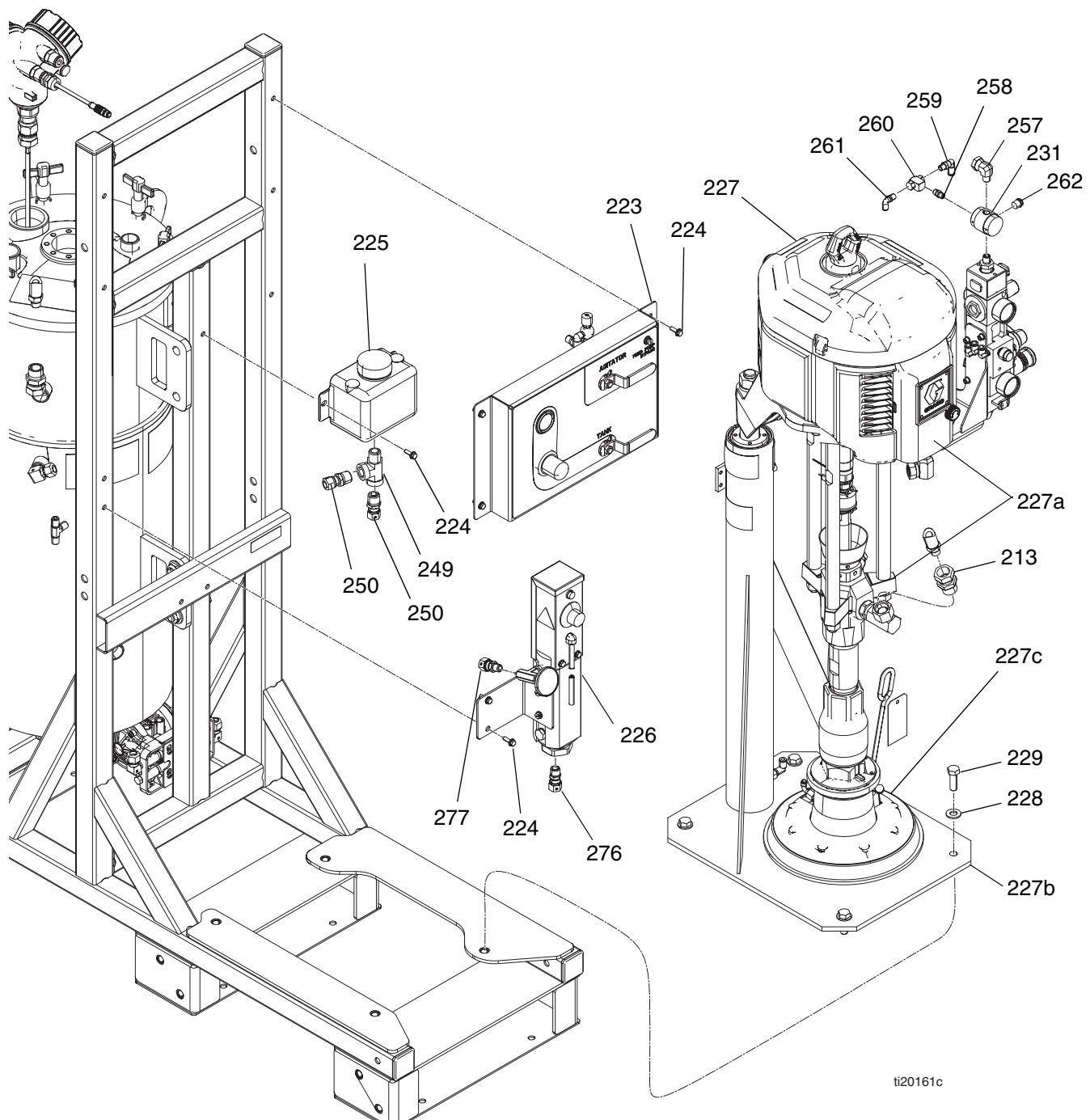
Ref	Part	Description	Qty	Ref	Part	Description	Qty
1	---	FRAME	1	43	15J277	CONTROL, de-ice, assembly	2
2	L180C9	PUMP; B side lower	1	44	15M987	FITTING, elbow, 60 degree	2
3	L220C9	PUMP; A side lower	1	45	117666	TERMINAL, ground	1
4	100133	WASHER, lock, 3/8	8	46	262893	MANIFOLD, mix; see manual	1
5	100101	SCREW, cap, hex head	8	3A2988			
6	256169	PLATE, solvent pump	1	47	---	SEALANT, pipe, stainless steel	1
7	121488	SCREW, hex head, flanged	2	48	---	LUBRICANT, thread	1
8	W30CAS	PUMP, solvent, 6.0 in, 75 cc; see 312794	1	49	---	SEALANT, anaerobic	1
9	112395	SCREW, cap, flange head	8	50	206995	FLUID, TSL, 1 qt.	1
10	24N598	JUNCTION BOX; see page 45	1	52	108636	MUFFLER	1
11	113796	SCREW, flanged, hex head	6	53▲	15X393	LABEL, warning, USB, all languages	1
12	262853	HEATER, Viscon HF	2	54	H75003	HOSE, coupled, 7250 psi, 0.50 in. ID, 3 ft	3
13	245869	HEATER, Viscon HP	1	55	H75004	HOSE, coupled, 7250 psi, 0.50 in. ID, 4 ft	
14	24P899	FILTER, air, 1-1/4, assembly	1			Model 262878	3
15	126899	FITTING, compression, straight	2			Model 24W648	5
16	255771	BOX, control, air/electric	1	56	H73806	HOSE, coupled, 7250 psi, 0.375 in. ID, 6 ft	1
17	112958	NUT, hex, flanged	10			(Model 262878 only)	
18	255761	MODULE, air controls, upper	1	57	H42506	HOSE, coupled, 4500 psi, 0.25 in. ID, 6 ft	1
19	---	COVER, shroud, rear	1	58	205418	HOSE, coupled, air, 1/2 x 6 ft	2
20	256177	COVER, shroud, front	1	59	16P244	HOSE, coupled, air, 5/16 x 3 ft	2
21	117623	NUT, cap, 3/8-16	4	60	248208	HOSE, coupled, air, 5/16 x 4 ft	1
22	---	LABEL, XM PFP	1	61◆	159239	FITTING, nipple, pipe, reducing	4
23	15T567	NUT, backup plate, hinge	4	62	16A004	FLASH DRIVE, USB, 2.0	1
24	15T568	DOOR, control shroud	1	63	121456	CONNECTOR, power, male, 3 pin	1
25	121471	HINGE, friction, positioning	2	64	125806	CABLE, splitter, M8, 4-pin, female/female/male, 1.5 m	1
26	112380	SCREW, mach, pan head	8	65	126511	CABLE, GCA, M8, 4-pin, 1.5 m, male/female	2
27	113498	VALVE, safety, 110 psi	1	66	16T123	CABLE, GCA, CAN, male/female, 1.0 m	1
28	---	VALVE, ratio control, left; see page 50	1	67	240900	HOSE, coupled, air, 30 in. x 3/4 in.	3
29	---	VALVE, ratio control, right; see page 50	1	68	054172	TUBE, nylon, round, black, 1/4 in.	26.5
30	C19024	FITTING, elbow, swivel	1	69	054175	TUBE, nylon, round, natural, 1/4 in.	8.5
31	111801	SCREW, cap, hex head	8	70	551390	SIGHTGLASS, beaker, graduated	10
32	217430	FITTING, swivel, union, 90 degree	1	71	---	STRAP, tie	20
33	15T536	REGULATOR, air, 3/8 npt	1	72	238909	WIRE, grounding assembly	1
34	100329	BUSHING, pipe	1	73	C12508	TUBING, nylon, round, black, 3/8 in.	
35	116504	FITTING, tee, run	1	74			
36	C20461	FITTING, nipple, reducing, hex Model 262878	3	75	109025	TERMINAL, ring	1
		Model 24W648	2	76	16P856	LABEL, codes, alerts; all languages	1
37	160032	FITTING, nipple Model 262878	4	77	125357	CABLE, M8, 4-pin, male/female, 1 meter	1
		Model 24W648	1	78	126494	CABLE, M12, 5p, 4-wire with drain	2
38	116643	VALVE, safety, relief, air	1	79	126351	FITTING, compression, thermocouple	1
39	101689	GAUGE, press, air	1				
40	121688	CONNECTOR, 3/8 npt x 3/8 tube ptc	1				
41	115313	PLUG, tube	8				
42	160327	FITTING, union adapter, 90 degree	2				

Ref	Part	Description	Qty	Ref	Part	Description	Qty		
85◆	H75002	HOSE, coupled, 7250 psi, 0.5 in. (12 mm) ID, 2 ft	2	131	16F366	FITTING, 1/4 in. x 1/4 in. push to connect	2		
86	---	TUBE, 0.375 in. (9.5mm) ID blue nylon	6	132	126346	FITTING, tee, tube x tube x nptm	2		
87	---	TUBE, 0.375 in. (12 mm) ID red nylon	1.5	133	126345	FITTING, elbow, tube x nptf	2		
88	114601	CONDUIT, flexible, non-metallic	3.5	135	121683	CABLE, M8, 4-pin, male/female, 3 meter	2		
92	15T258	TOOL, wrench, Xtreme, 145/290	1	136	122032	NUT, wire	2		
93	24P242	SENSOR, RTD, 1k ohm, insulated	1	137	15V778	CABLE, CAN, female-female, 20 in.	1		
94	158586	FITTING, bushing	1	138	15V779	CABLE, CAN, female-female, 34 in.	1		
95◆	16T316	MIXER, static, assembly	1	140	257055	MOTOR, 6500 with sensor	2		
96◆	H75010	HOSE, coupled, 7250 psi, 0.50 ID, 10 ft	1	140a	256893	LINEAR SENSOR ASSEMBLY			
97◆	H73803	HOSE, coupled, 7250 psi, 0.375 ID, 3 ft	1	141	100133	WASHER, lock	8		
98◆	24P834	SWIVEL, straight	1	142	100101	SCREW	8		
99◆	262854	GUN, spray	1	143	257150	ROD, tie	6		
100	126427	SENSOR, RTD, 1K ohm, 4 pin, 8 in.	1	144	197340	COVER, coupler	2		
101	158990	MANIFOLD, air	1	145	15H392	ROD, adapter	2		
102	165198	FITTING, nipple, reducing	1	146	244820	CLIP, hairpin lanyard	2		
103	121858	FITTING, elbow, 3/8 npte x 1/4 npte	1	147	244819	COUPLING, assembly rod	2		
104	101754	PLUG, pipe	1	148	101712	NUT, nyloc	6		
105	119798	CONNECTOR, tee, push-tube	1	149	157350	ADAPTER, 3/8 x 1/4	1		
106	126896	FITTING, elbow, tube	1	150	100081	BUSHING	1		
107	121603	GRIP, cord, 0.51-0.71, 3/4	1	151	116395	UNION, 90 degree, 1/4 male x 3/8 swivel	1		
108	16T745	BRACKET, water circulation, mount	1	152	256561	PLATE, mount, pump	1		
109	16R871	BOTTLE, overflow, 1/2npt	1	153	111799	SCREW, M8 x 1.25 x 16 mm	4		
110	113161	SCREW, flange, hex head	2	154	256421	HOSE, siphon	1		
111	108126	FITTING, tee, street	1	155	181073	STRAINER, inlet	1		
112	126898	FITTING, elbow	1	--- Not for sale.					
113	D11021	PUMP, diaphragm	1	▲ Replacement Danger and Warning labels, tags and cards are available at no cost.					
114	126897	FITTING, elbow	2	◆ Included in mix line and gun kit 24P833.					
115	206264	VALVE, needle	1						
116	151519	FITTING, nipple, reducing	1						
117	15R472	FASTENER, hex head, flanged, 1/4 x 1	4						
118	054760	TUBE, polyurethane, round, black	5						
119	100028	WASHER, lock	1						
120	115901	TRIM, edge, protection	2						
121	16T171	STRAP, frame connector	2						
122	100679	SCREW, cap, hex head	8						
123	115211	SCREW, cap, hex head	2						
124	---	SCREW, hex head with serrated face flange base, 1/2-13	8						
125	109570	WASHER, plain	20						
126	112731	NUT, hex, flanged	10						
127▲	15W598	LABEL, warning	1						
128	15U654	LABEL, identification, A/B	1						
129	---	FLUID, ethylene glycol/water	2						

Feed Module (24P883)

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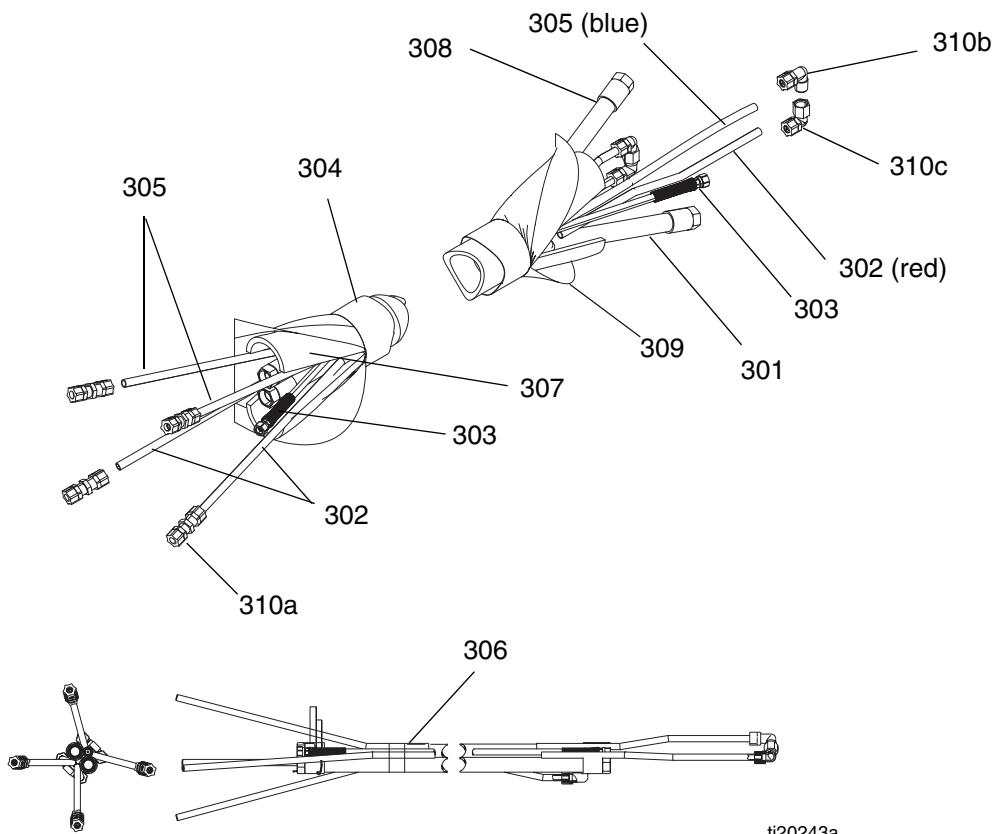
Feed Module (24P883)

Ref	Part	Description	Qty	Ref	Part	Description	Qty
201	---	FRAME	1	248	---	TIE, cable, 14 in.	20
202	24M683	TANK, pressure, assembly	1	249	108126	FITTING, tee, street	1
203	---	BOLT, hex head, 3.25 in. long, 5/8-11	4	250	126899	FITTING, compression, straight	2
204	111841	WASHER, plain 5/8	8	251	112782	ELBOW, swivel, 90 degree	1
205	---	NUT, self-locking hex, nylon insert, 5/8-11	4	252	126897	FITTING, elbow	2
206	16R869	COVER, tank wrap	1	253	115764	FITTING, elbow, 90 degree	1
207	---	BUSHING, pipe, hex head, 3/4 npt x 1/8 npt, steel	1	254	190451	UNION, adapter	2
208	126351	FITTING, compression, thermo-couple	1	255	---	LABEL, part description	1
209	126381	SENSOR, RTD, 1k ohm, 4 pin, 3 in.	1	257	116395	FITTING, swivel, elbow	1
210	126898	FITTING, elbow	2	258	103656	FITTING, pipe, hex	1
211	295847	FITTING, elbow, 90, 3/4 mpt	2	259	198171	FITTING, elbow	1
212	16T481	VALVE, check (see page 57)	1	260	593538	VALVE, shuttle 1/8 nptf	1
213	157785	FITTING, swivel	4	261	112781	ELBOW, swivel, 90 degree	1
215	171988	GASKET, inspection cap	1	262	24K976	MUFFLER, 1/4 npt	1
216	16T619	FITTING, nipple, thread on one end	1	263	100505	BUSHING, pipe	1
217	24P885	AGITATOR, assembly, air (see page 51)	1	264	155665	UNION, adapter	1
218	---	MANIFOLD, assembly, air (see page 53)	1	265	16R985	FITTING, nipple, 2 npt	1
219	24T052	SENSOR ASSEMBLY, level	1	266	16R983	FITTING, adapter, 2 npt to 3/4 npt	1
220	D11021	PUMP, diaphragm	1	267	24P837	GASKET, agitator	1
221	100016	WASHER, lock	4	268	210575	CAP, filler	1
222	102040	NUT, lock, hex	4	269	16T245	COUPLING, shaft, one piece clamp	1
223	262860	PANEL, assembly, air	1	270	16T396	SHAFT, agitator, lower	1
224	113796	SCREW, flanged, hex head	8	271	257604	BLADE ASSEMBLY	1
225	16R871	BOTTLE, overflow, 1/2 npt	1	272	102726	PLUG, pipe headless	1
226	16T525	HEATER, fluid, 240V, Viscon LT	1	273	109212	SCREW, socket cap head	1
227◆	262868	SUPPLY UNIT, 40:1, 0 volt, S20, 20L	1	274	115219	FITTING, tee, 1/4 npt	1
227a	P40DCS	PUMP AND MOTOR, see manual 312376	1	275	262820	KIT, fluid outlet, flexible	1
227b	257620	S20 RAM, see 313527	1	276	126900	CONNECTOR, male	1
227c	257727	PLATEN, pail, see 313527	1	277	126692	CONNECTOR, male	1
228	GC2041	WASHER, flat, std, 1/2	4	296	156172	FITTING, union, swivel	1
229	100017	SCREW, cap, hex head	4	297	260067	FITTING, strain relief	1
230	117426	INSERT, tube	6	298★	127172	CABLE, M12, 5-pin, 4-wire	1
231	104633	VALVE, pilot	1	299	102726	PLUG, pipe, headless	1
232	---	SEALANT, pipe, stainless steel	1	300	117571	GASKET, santoprene	1
233	103475	FITTING, tee, pipe	1				
234	---	TUBE, 0.375 in. (9.5mm) ID red nylon	3.8				
235	---	TUBE, 0.375 in. (9.5mm) ID blue nylon	4.2				
236	205418	HOSE, coupled	1				
237	109130	HOSE, coupled, 48 in.	1				
238	16P244	HOSE, coupled, 3 feet	3				
239	15B772	HOSE, air, 18 inch	3				
240	054172	TUBE, nylon, round	12				
241	054753	TUBE, nylon, round, black	8				
242	---	TUBE, 0.275 in. ID black nylon	5.5				
243	115313	PLUG, tube	6				
246	215241	HOSE, 3/4 in. x 6 ft, 6000 psi (41 MPa, 410 bar)	1				
247	16T244	VALVE, pressure relief, 3/4 in. female npt	1				

--- *Not for sale.*◆ *See Supply Systems manuals 313526 and 313527 for detailed instructions and parts list for the S20 Supply Unit (262868).*★ *Included in radar level sensor kit 24T052. See Replace Radar Level Sensor on page 24.***NOTE:** 24T052 Level sensor with the blue head replaces the 24P884 sensor with the red head. 24T052 includes #298

Heated Hose Bundle

16T121 - 3/4 in. x 1/2 in. (included in model 262869)
 16T122 - 3/4 in. x 3/4 in. (included in model 24W626)



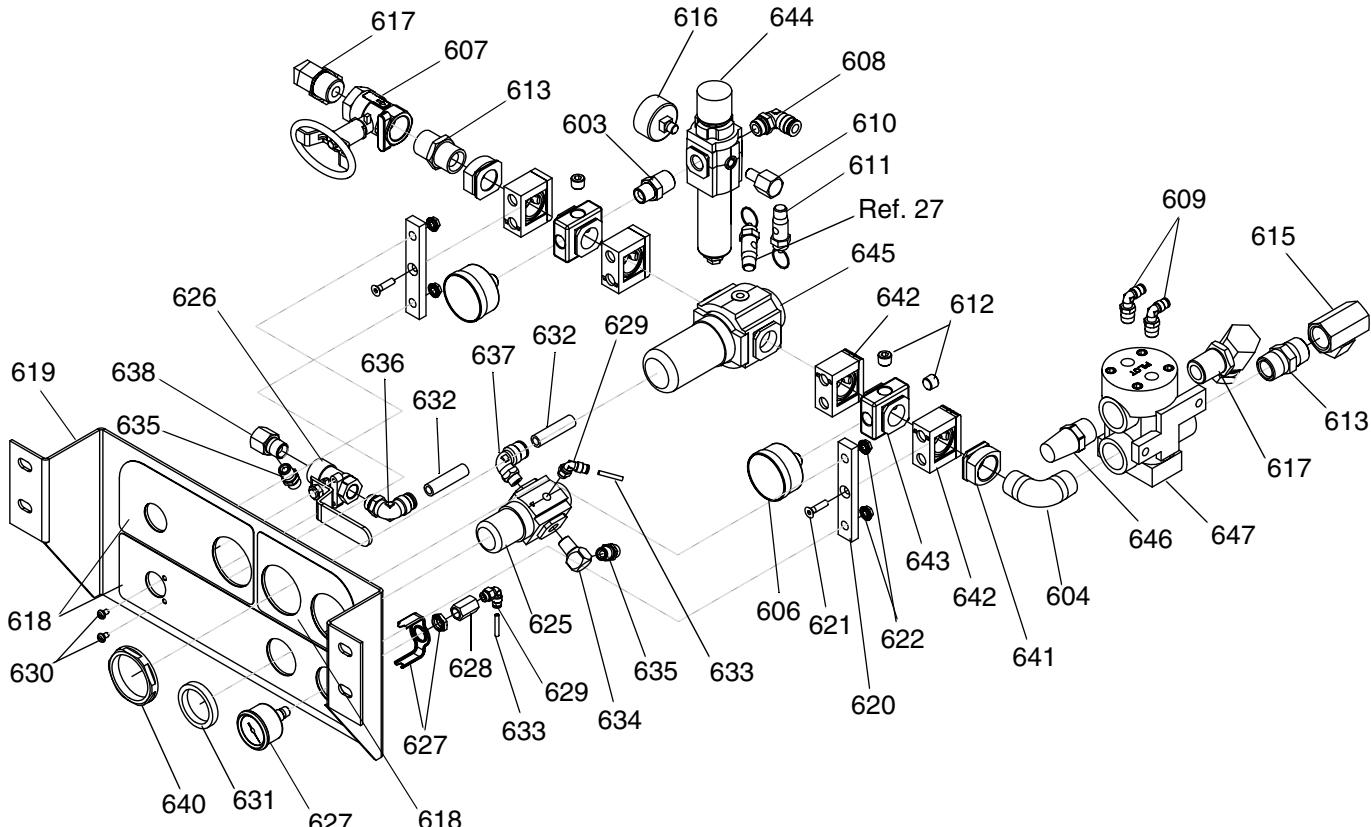
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Ref	Part	Description	Qty	Ref	Part	Description	Qty
301	H67550	HOSE, coupled, 3/4 in., 6500 psi; <i>Model 16T121 - Qty 1</i> <i>Model 16T122 - Qty 2</i>		310c	126896	ELBOW, 1/2 in. tube x 1/2 nptf	2
302	16X027	KIT, tube, 0.375 (9.5mm) ID red nylon	2	311◆	16U111	KIT, fittings, hose connection	1
303	H42550	HOSE, coupled, 4500 psi, 1/4 in. ID, 50 ft (15.2 m)	1	311a◆	C20487	NIPPLE, hex	2
304	---	LABEL, identification	1	311b◆	158491	NIPPLE	1
305	16X028	KIT, tube, 0.375 in. (9.5mm) ID blue nylon	2	311c◆	156823	UNION, swivel	2
306	---	TAPE, electrical	1	311d◆	156971	NIPPLE, short	1
307	---	TUBE, insulation, 2-5/8 in. ID, 50 ft (15.2 m)	1	◆ Not shown.			
308	H75050	HOSE, coupled, 7250 psi, 1/2 in. ID, 50 ft (15.2 m); <i>Model 16T121 only</i>	1	Not for sale.			
309	16T138	JACKET, scuff, 50 ft (15.2 m)	1				
310	16U666	KIT, tube fittings	1				
310a	126894	UNION, 1/2 in. tube x 1/2 in. tube	4				
310b	126898	ELBOW, 1/2 in. tube x 1/2 nptm	2				

Base System (262878, 24W648) Subassemblies

System Air Controls Module (255761)

NOTE: For **Feed Module Air Panel (262860)** parts, see page 55.

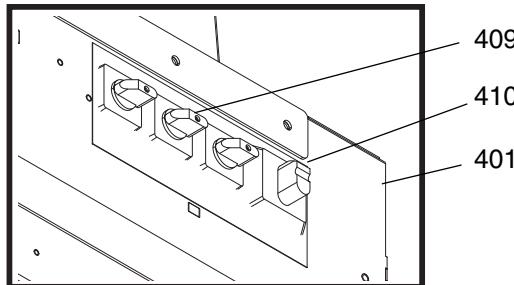
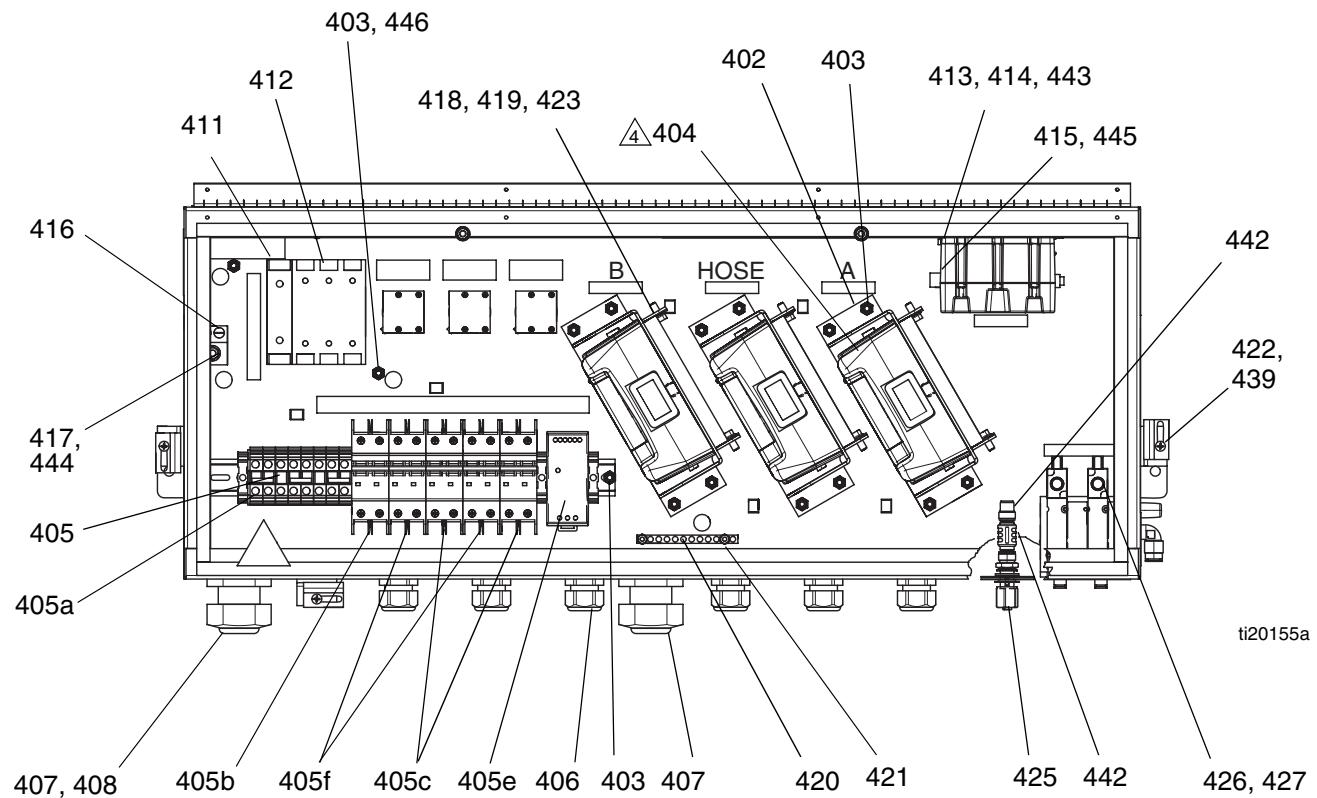


Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
603	157350	NIPPLE, pipe; 1/2 x 3/8 npt	1	632	054760	TUBE, polyurethane, round, black; 1.25 in.	-
604	108307	ELBOW, pipe, male	1	633	---	TUBE, polyurethane, round; 0.6 ft.	-
606	101689	GAUGE, press, air	2	634	100840	ELBOW, street	1
607	117346	VALVE, ball, vented	1	635	162453	FITTING; 1/4 npsm x 1/4 npt	2
608	114316	ELBOW, male, swivel	1	636	114114	ELBOW, male, swivel	1
609*	114109	ELBOW, male, swivel; 1/4 OD tube	2	637	114128	ELBOW, male, swivel	1
610	158962	ELBOW, street; 1/4(f) x 1/8(m)	1	638	164259	ELBOW, street	1
611	116643	VALVE, safety, relief, air	1	640★	122336	NUT, panel, regulator	1
612	100721	PLUG, pipe	3	641★	113440	ADAPTER	2
613	119992	PIPE, nipple; 3/4 x 3/4 npt	2	642★	113431	CLAMP, quick	4
615	156589	ADAPTER, union; 90 deg.	1	643★	113442	BLOCK, porting	2
616	113911	GAUGE, pressure, air	1	644★	15R488	REGULATOR	1
617	160327	ADAPTER, union; 90 deg.	2	644a	123454	FILTER, element; 5 micron	1
618	15T119	LABEL, control	1	645★	15R487	REGULATOR	1
619	---	BRACKET, air controls	1	646★	15R486	MUFFLER	1
620	15R437	BRACKET, adapter, air controls	2	647★	15R485	VALVE, dual pilot	1
621	121432	SCREW, machine, hex flat head	2				
622	115942	NUT, hex, flange head	4				
625	116513	REGULATOR, air	1			★ Parts included in Air Controls Kit 255772 (purchase separately).	
626	121457	VALVE, ball, air, panel mounted	1				
627	121424	GAUGE, pressure, panel mount, 1.5 in.	1			---	
628	100451	COUPLING	1			Not for sale.	
629	114151	ELBOW, male, swivel	2				
630	100264	SCREW, machine, pan head	2				
631	116514	NUT, regulator	1				

★ *Parts included in Air Controls Kit 255772 (purchase separately).*

--- *Not for sale.*

Junction Box (24N598)



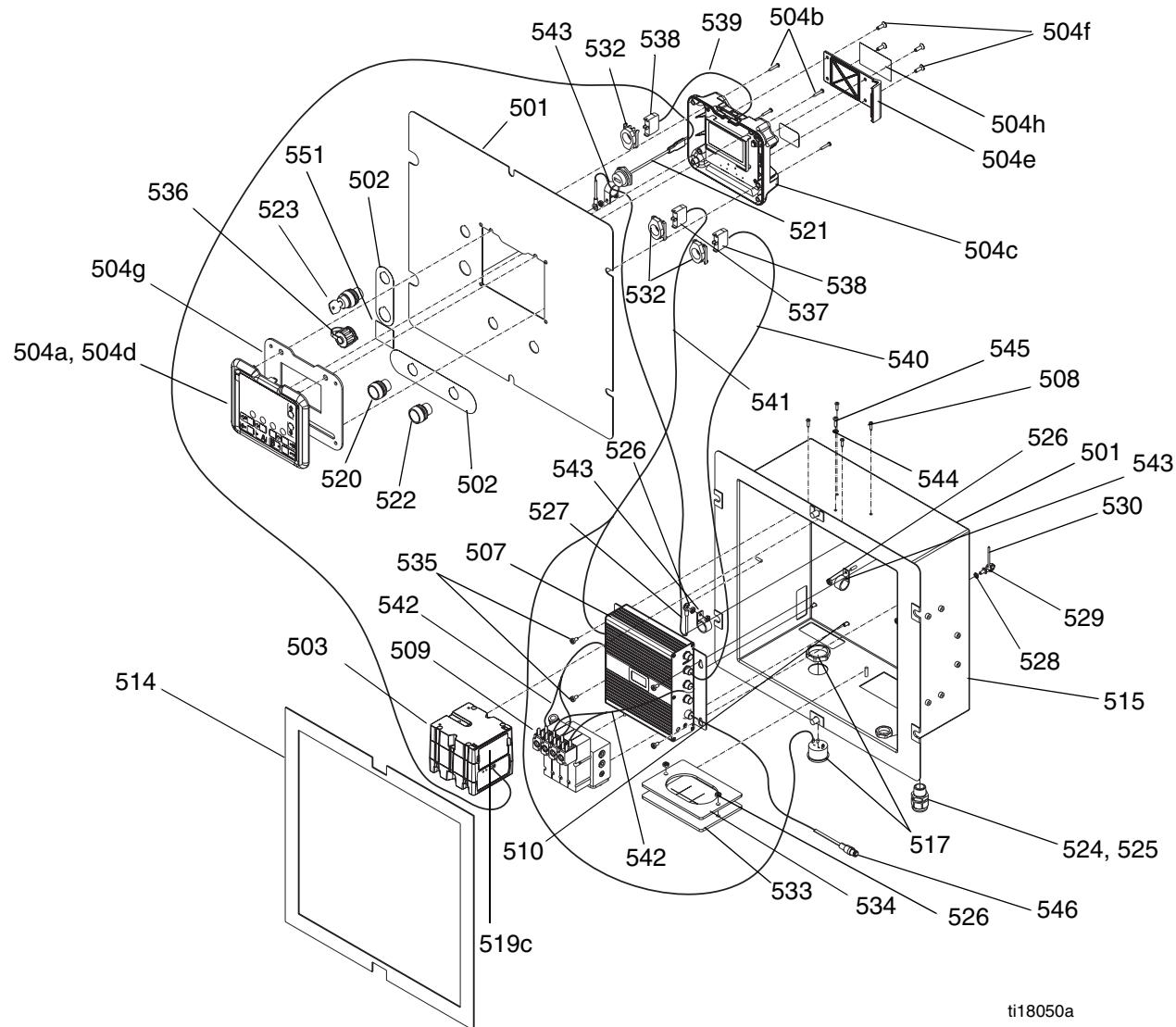
4 Set High Power Temperature Control Module zone addresses on dial under cover when installing modules (404). Addresses: B Module =1, Hose Module = 2, A Module = 0.

NOTE: See **Electrical Schematics** beginning on page 27 for cable identification.

Junction Box (24N598)

Ref	Part	Description	Qty	Ref	Part	Description	Qty
401	---	ENCLOSURE	1	440▲	16T278	LABEL, multi-purpose; including warnings text, shock arrow, ground symbol, and various informational stickers	1
402	---	BRACKET, module	3	442	16T072	ADAPTER, cable, CAN	1
403	114231	NUT, lock, hex	16	443	126687	SCREW, machine, pan head	1
404◆	255774	MODULE, GCA, HPTCM	3	444	558685	WASHER, lock, external type, 1/4	1
405	---	MODULE, breaker	1	445†	277674	ENCLOSURE, cube door	1
405a	126382	BLOCK, terminal	8	446	555629	WASHER, lock, external type, #10	2
405b	126129	BREAKER, 25A	1				
405c	126130	BREAKER, 30A	2				
405d	126684	JUMPER, red	3				
405e	126453	POWER SUPPLY, 24V	1				
405f	126128	BREAKER, 20A	2				
406	121603	GRIP, cord, 0.51-0.71, 3/4	6				
407	255047	BUSHING, strain relief, M40 thread	2				
408	255048	NUT, strain relief, M40 thread	2				
409	15U423	SWITCH, 2p, 25a	3				
410	123967	KNOB, operator disconnect	1				
411	123968	SWITCH, disconnect, 100 amp	1				
412	123969	SWITCH, disconnect, 100 amp	1				
413†	289697	MODULE, GCA, cube, base	1				
414	104371	SCREW, cap sch 10 x 0.375	4				
415●†	289696	MODULE, GCA, cube, FCM	1				
416	117666	TERMINAL, ground	1				
417	115942	NUT, hex, flange head	1				
418	15U651	BRACKET, high power, GCA	6				
419	117831	SCREW, machine, pan head	12				
420	---	BAR, ground	1				
421	109466	NUT, lock, hex	2				
422	104387	SCREW, machine, pan head	4				
423	113161	SCREW, flange, hex head	6				
425	126496	CONNECTOR, thru, M12, male x female, reverse key	1				
426	---	MODULE, solenoid	1				
426a	121636	VALVE, solenoid	2				
426b	15A798	GASKET, outlet	1				
426c	15A799	GASKET, inlet	1				
427	106084	SCREW, machine, pan head	2				
428	125789	CABLE, CAN, female / female, 0.5 m	2				
429	123422	CABLE, CAN, 5-pin, female / female, 0.4 m	2				
430	121615	HARNESS, splitter, M8, 4-pin, female/female/male, 3 m	1				
432	126495	CABLE, splitter, 4-20ma, 2 circuit	1				
433	124273	CONNECTOR, splitter	1				
434	---	STRAP, tie	14				
435	126494	CABLE, M12, 5p, 4wire with drain	2				
436	121806	CABLE, solenoid	2				
437	---	STRIP, foam, neoprene	10				
438	16T147	CABLE, can power, M12 female, pigtail	1				
439	16P626	LATCH, enclosure	4				

Control Box (255771)



Ref.	Part	Description	Qty	Ref.	Part	Description	Qty
501	---	BOX, control	1	505†	24R897	KIT, replacement, display; includes 504 and 506	1
502	---	LABEL, control display	1	506*	16P644	TOKEN, software	1
503†	24R899	KIT, replacement, USB; includes 519 and 506	1	507†	24R898	KIT, replacement, FCM; includes 518 and 506	1
504●	257484	MODULE, display, kit		508	---	SCREW, pan head	4
504a	15M483	SHIELD, membrane, display (qty. 10)	1	509	256555	MODULE, solenoid, IS version	1
504b	---	SCREW, pan head; #6 x 7/8 in.	4	509a	121636	VALVE, solenoid, din connector	4
●504c	288997	CASE, rear, display module, IS version	1	509b	15A798	GASKET, solenoid, outlet	1
				509c	15A799	GASKET, solenoid, inlet/exhaust	1
504d	255727	CASE, front, data module	1	510	106084	SCREW, machine, pan head	2
504e	277463	COVER, access, low level display	1	514	15R379	GASKET, box, control	1
504f	113768	SCREW, socket, flat head	4	515	---	LABEL	1
504g	15R458	GASKET, control, front panel	1	516*	15B056	LABEL, air motor/dosing valve	1
▲504h	15W958	LABEL, warning, battery	1	517	122000	ALARM, panel mount	1
				518●	255920	MODULE, fluid control	1

Ref.	Part	Description	Qty
519●	257088	MODULE, USB, assy.	.
519a	289899	BASE	1
●519b	289900	MODULE, USB	1
519c	277674	DOOR, module	1
520	121618	SWITCH, start, push button, green	1
521	15R324	HARNESS, USB, plug/bulkhead; 32 in.	1
522	121619	SWITCH, stop, push button, red	1
523	121617	SWITCH, 2 position, key, controls	1
523a*	123412	KEY, replacement (pair)	
524	117745	BUSHING, strain relief	1
525	117625	NUT, locking	1
526	113505	NUT, keps, hex head	6
527	15B090	WIRE, grounding, door	1
528	---	WASHER, lock, external, 1/4 in.	1
529	15R343	CLAMP, ground, electrical	1
530	---	WIRE, copper	3
531*	172953	LABEL, designation	2
532	120493	LATCH, mounting	3
533	15H189	BOOT, wire feed through	1
534	15G816	COVER, plate, wire	1
535	110637	SCREW, machine, pan head	4
536	15R325	COVER, dust, bulkhead receptacle	1
537	120494	BLOCK, switch, normally open	2
538	120495	BLOCK, switch, normally closed	1
539	15M974	HARNESS, key switch	1
540	15M975	HARNESS, start/alarm	1
541	15M976	HARNESS, stop	1
542	15M977	HARNESS, solenoid	2
543	121988	RETAINER, routing, wire harness	4
544	195875	SCREW, machine, pan head	1
545	102063	WASHER, lock	1
546	15U542	CABLE, motor	2
551▲		LABEL, warning, USB	1
	15X214	English	
	15X393	All languages	
552*	122829	CONDUIT; 0.75 ft.	-

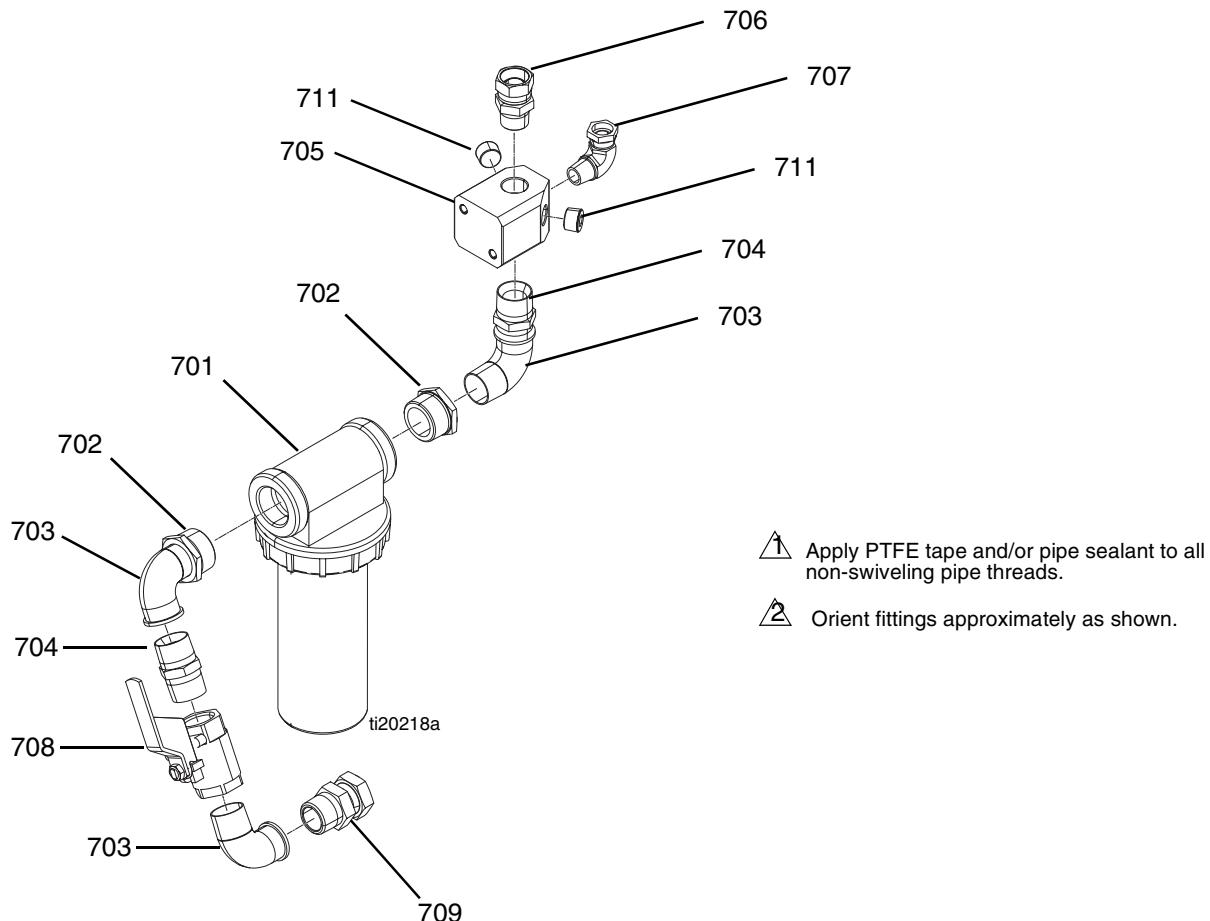
▲ Replacement Danger and Warning labels, tags, and cards are available at no cost.

--- Not for sale.

* Not shown.

● Base electronic components do not have XM PFP-specific software installed. Therefore, use software upgrade token (506) to install software before use.

† Includes software token (506) and instruction sheet.

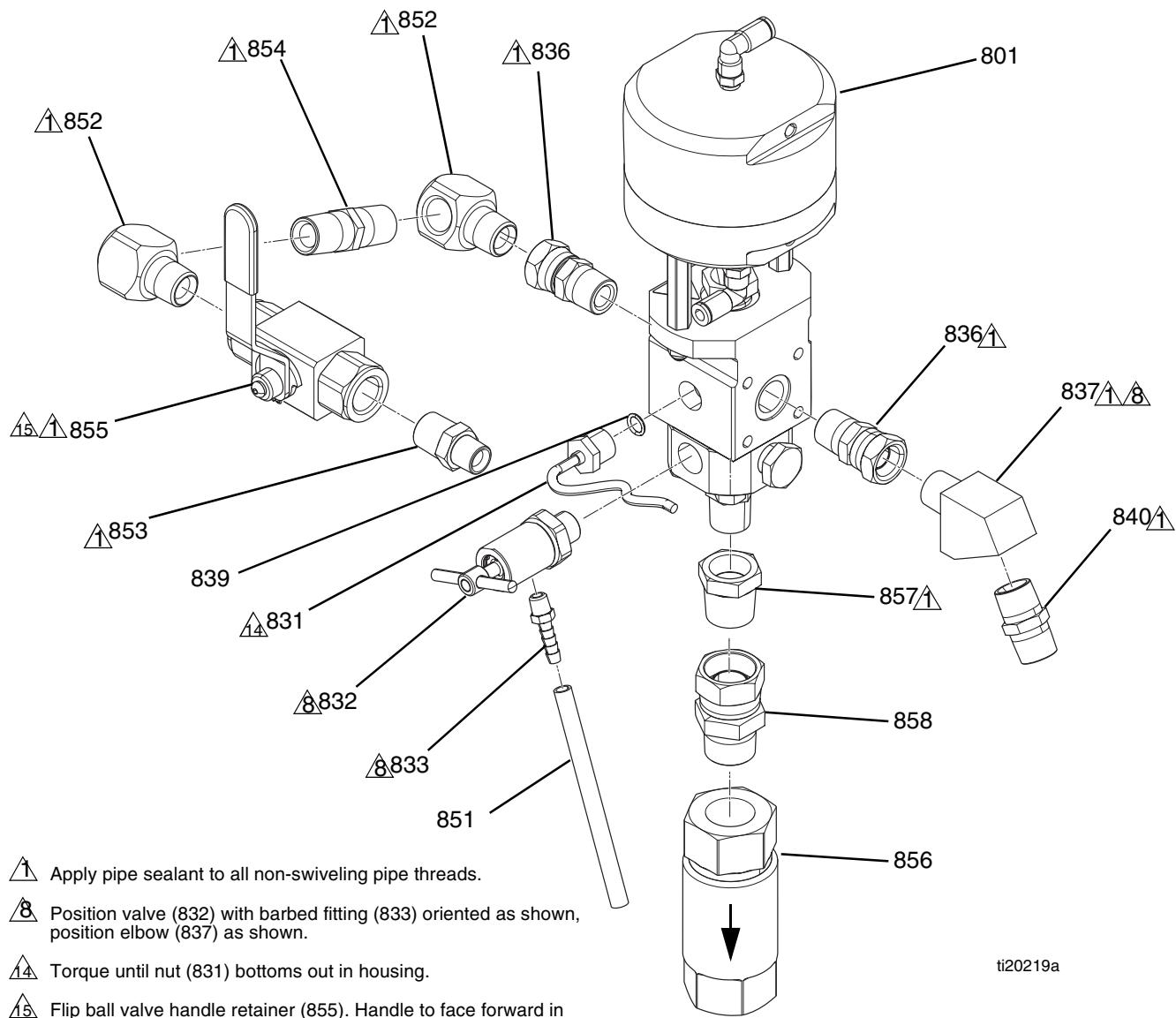
Air Filter (24P899)

Ref	Part	Description	Qty
701	16T236	FILTER, air, 1-1/4, auto drain	1
701a◆	106204	FILTER ELEMENT	1
702	C19662	BUSHING, 1-1/4 x 1 npt carbon steel	2
703	110300	FITTING, elbow, street, pipe	3
704	158585	FITTING, nipple	2
705	16R951	MANIFOLD, air distribution	1
706	157785	FITTING, swivel	1
707	C19024	FITTING, elbow, swivel	1
708	113163	VALVE, ball, vented, 1.00 in.	1
709	160022	FITTING, union, adapter	1
710	---	SEALANT, pipe, stainless steel	1
711	100361	PLUG, pipe	2

--- Not for sale.

◆ Not shown.

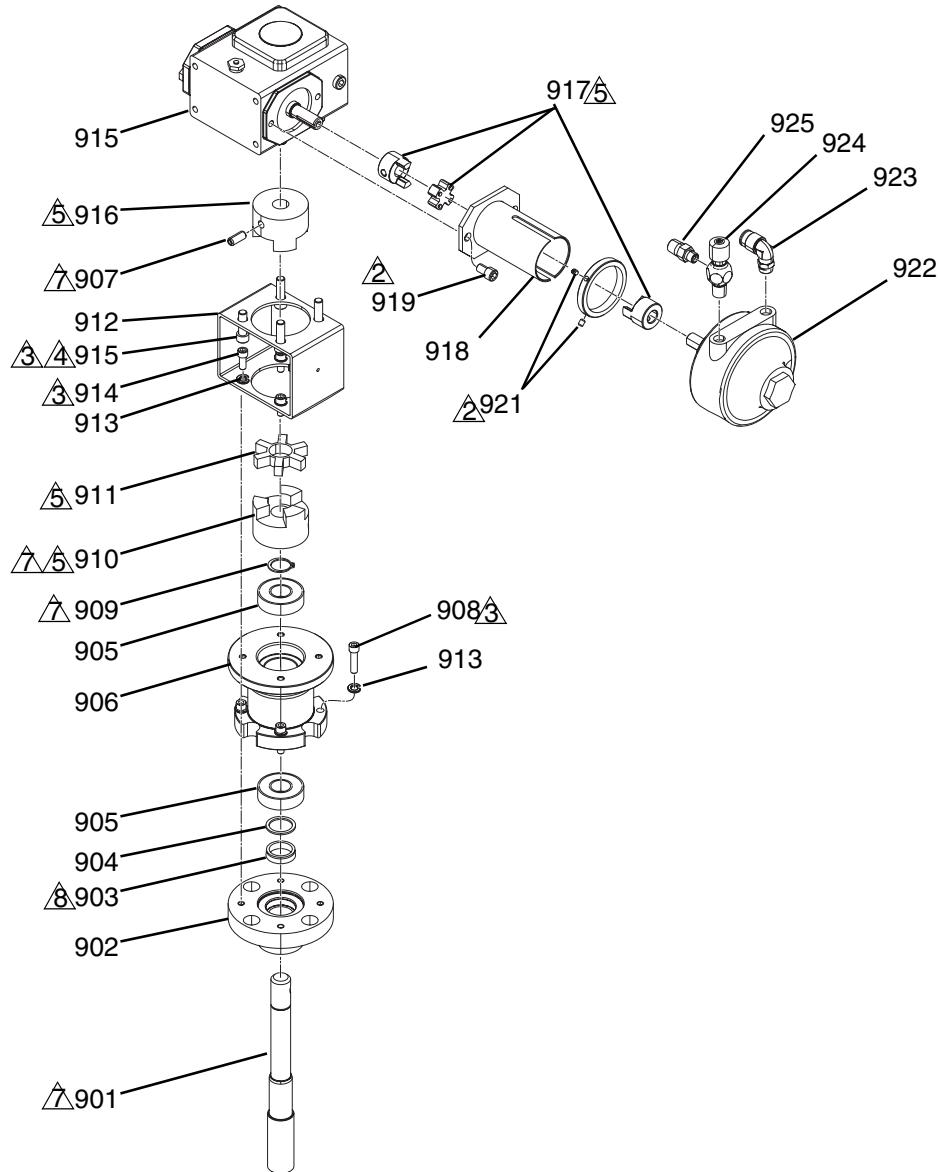
Ratio Control Valve Assemblies



Ref	Part	Description	Qty	Ref	Part	Description	Qty		
801†	255478	VALVE, dosing	1	854	156877	FITTING, nipple, long	1		
831	15M669	SENSOR, pressure, fluid outlet	1	855	262739	VALVE, ball, 1/2 in.	1		
832	262872	VALVE, pressure, bleed, PFP	1	856	16T481	VALVE, check; see page 57	1		
833	116746	FITTING, barbed, plated	1	857	502033	FITTING, bushing, pipe	1		
836	156684	FITTING, union, adapter	2	858	157785	FITTING, swivel	1		
837	15M987	FITTING, elbow, 60 degree	1	† See Dosing Valve Instructions - Parts manual referenced on page 3 for further details.					
839	121399	PACKING, o-ring	1	† See Dosing Valve Instructions - Parts manual referenced on page 3 for further details.					
840	158491	FITTING, nipple (B side only - Qty 1) (A side only - Qty 2)	1	† See Dosing Valve Instructions - Parts manual referenced on page 3 for further details.					
851	116750	TUBE, nylon	1	† See Dosing Valve Instructions - Parts manual referenced on page 3 for further details.					
852	158683	FITTING, elbow, 90 degree	2	† See Dosing Valve Instructions - Parts manual referenced on page 3 for further details.					
853	159239	FITTING, nipple, pipe, reducing (B side only)	1	† See Dosing Valve Instructions - Parts manual referenced on page 3 for further details.					

Feed Module (24P883) Sub-Assemblies

Air Powered Agitator (24P885)



- 1 Apply pipe sealant to all non-swiveling pipe threads.
- 2 Apply low strength threadlocker.
- 3 Apply blue thread locker.
- 4 Remove four screws from gear reducer (915), pass them through bracket (912) and back into gear reducer (915) then torque to 150-170 in-lb (17-19 N•m).

- 5 Leave a 0.015 in. gap between each half of couplings (910, 911, 916, 917).
- 7 When ordering a replacement coupling: Remove set screw supplied with couplings (910, 916) and discard. Replace with set screw (931).
- 8 Open side of u-cup seal (903) must face down inside housing (902).

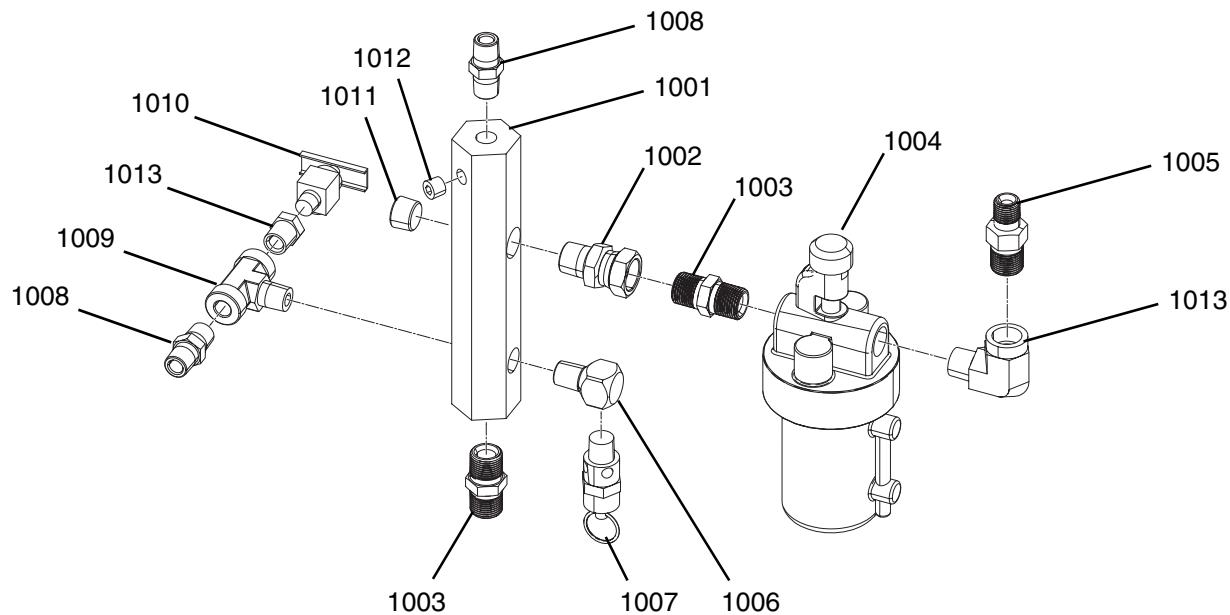
Air Powered Agitator (24P885)

Ref	Part	Description	Qty
901	16P919	SHAFT, agitator, upper	1
902	16U219	HOUSING, agitator	1
903	---	SEAL, 0.875 in. ID x 1.125 in. OD, PTFE	1
904	---	SPACER, shaft, agitator, ASME	1
905	122774	BEARING, ball, 3/4bore x 1-3/4 dia. x 1/2	2
906	16P920	HOUSING, bearing, agitator	1
907	---	SCREW, socket head set screw, 5/16-18 x 0.75	2
908	112222	SCREW, socket cap head	4
909	---	RING, retaining, external, 0.750 in.	1
910	122761	HOUSING, alignment, hub	1
911	122760	COUPLING, alignment, disk, TPE	1
912	16P922	BRACKET, adapter, agitator	1
913	C19209	WASHER, lock	8
914	101682	SCREW, socket cap head	4
915	181794	GEAR, reducer	1
916	16P923	COUPLER, adapter	1
917	100828	COUPLING, flexible	1
918	16T063	COLLAR, mounting	1
919	116940	SCREW, cap, socket head, 5/16-18	2
920	181849	COLLAR	1
921	101118	SCREW	2
922	111310	MOTOR, air, rotary	1
923	115841	FITTING, elbow	1
924	206264	VALVE, needle	1
925	191872	FITTING, nipple, reducing	1
926	---	SEALANT, pipe, stainless steel	1
927	---	SEALANT, low strength thread locker	1
928	---	SEALANT, blue thread locker	1
929▲	15A722	TAG, warning, agitator	1
930▲	16A614	TAG, label, caution	1

--- Not for sale.

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

Tank Air Manifold Assembly



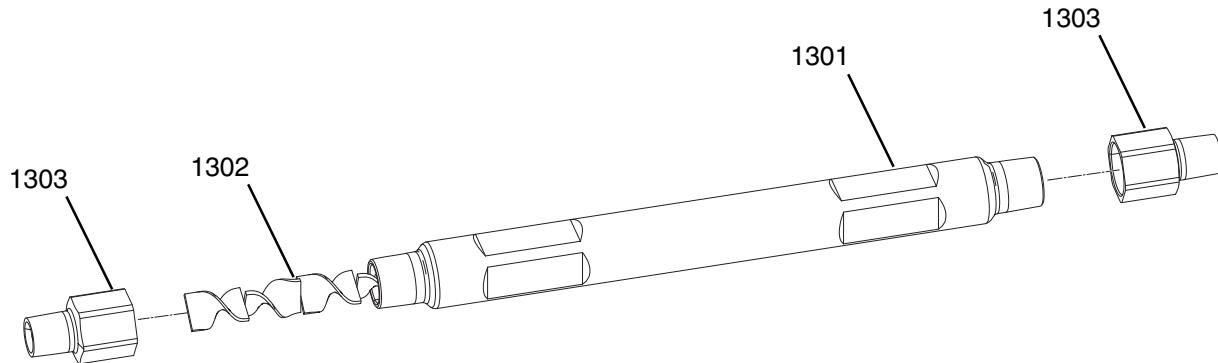
 Apply pipe sealant to all non-swiveling pipe threads.

 Orient all fittings as shown.

Ref	Part	Description	Qty
1001	189016	MANIFOLD, air, inlet	1
1002	155665	UNION, adapter	1
1003	156849	PIPE, nipple	2
1004	214847	LUBRICATOR, air line	1
1005	165198	FITTING, nipple, reducing	1
1006	100840	FITTING, elbow, street	1
1007	103347	VALVE, safety, 100 psi	1
1008	156971	FITTING, nipple, short	2
1009	108638	FITTING, pipe, tee	1
1010	101759	FITTING, drain cock	1
1011	101754	PLUG, pipe	1
1012	100139	PLUG, pipe	1
1013	100030	BUSHING	1
1014	111856	FITTING, elbow, street	1
1015	---	SEALANT, stainless steel	1

--- Not for sale.

Static Mixer (16T316)



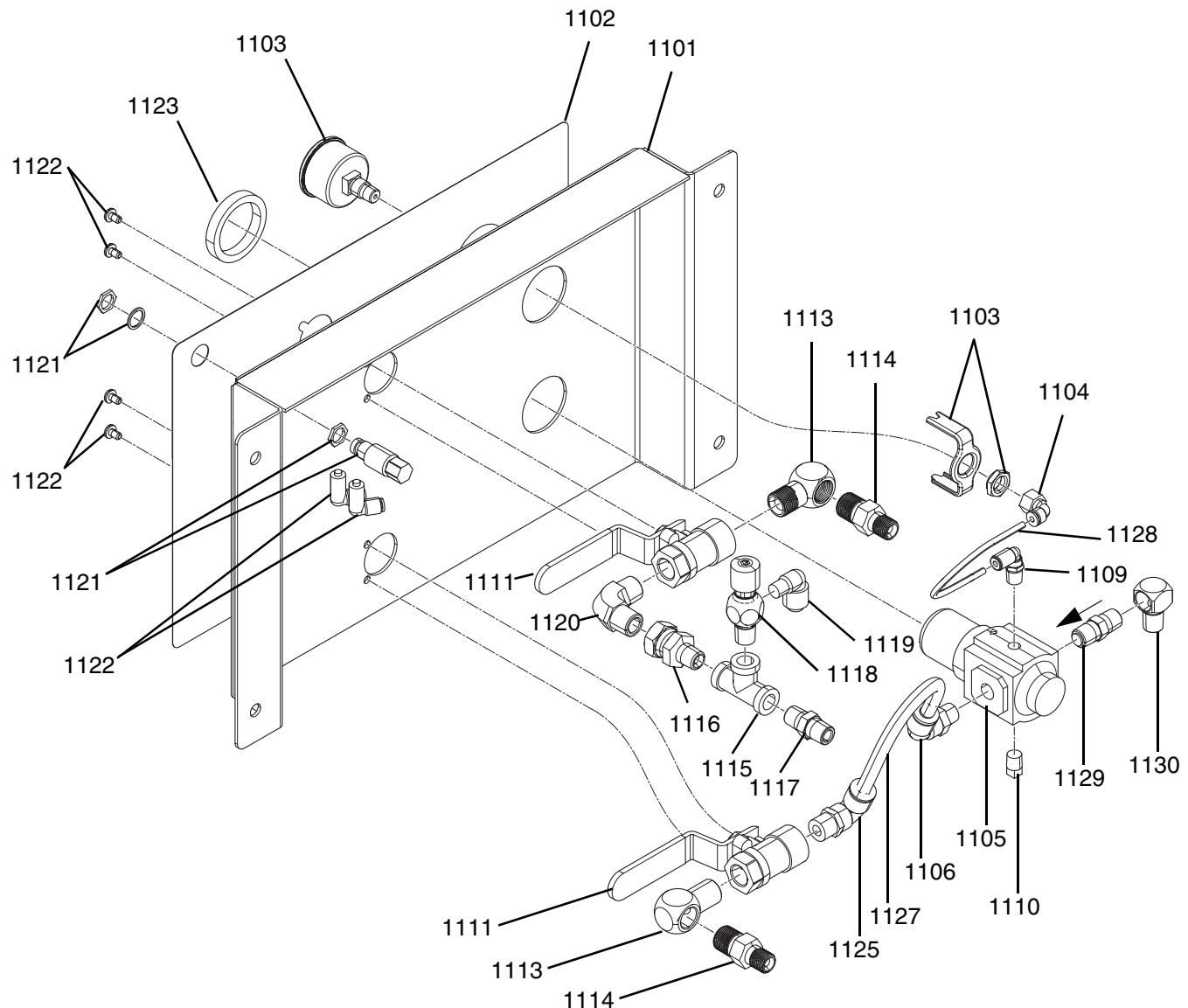
 Apply pipe sealant to all non-swiveling pipe threads.

Ref	Part	Description	Qty
1301	---	TUBE, mixer	1
1302	24P886	MIXER, 12 element, stainless steel	1
1303	16T315	BUSHING, reducing 3/4 nptf x 1/2 npt	2
1304	---	SEALANT, pipe, stainless steel	1

--- Not for sale.

Feed Module Air Panel (262860)

NOTE: For **System Air Controls Module (255761)** parts, see page 44.

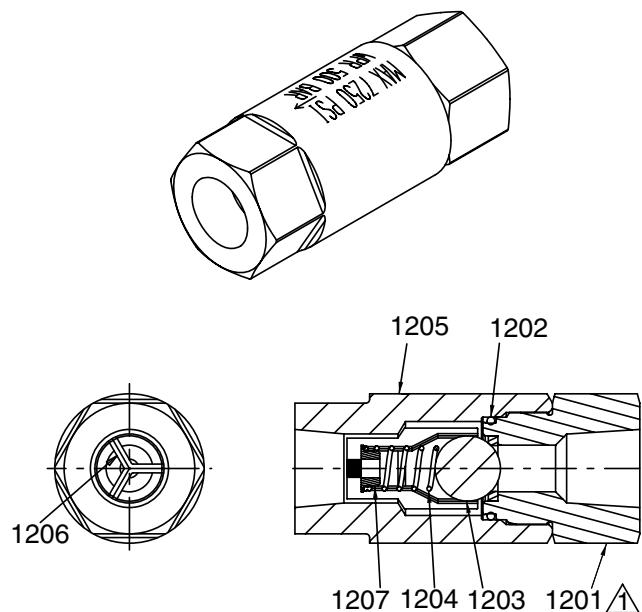


 Apply pipe sealant to all non-swiveling pipe threads.

Air Panel (262860)

Ref	Part	Description	Qty
1101	---	BRACKET, air control	1
1102	---	LABEL, instructions	1
1103	121424	GAUGE, pressure, panel mount, 1.5 in.	1
1104	15T498	FITTING, 90 degree, swivel, 5/32 in. tee x 1/8 in. female npt	1
1105	116513	REGULATOR, air	1
1106	121141	FITTING, elbow, swivel, 3/8 tee, 1/4 in. male npt	1
1109	198171	FITTING, elbow	1
1110	100403	PLUG, pipe	1
1111	121457	VALVE, ball, air, panel mounted	2
1113	155699	FITTING, elbow, street	3
1114	165198	FITTING, nipple, reducing	3
1115	104984	FITTING, tee, pipe	1
1116	157705	UNION, swivel	1
1117	156971	FITTING, nipple, short	1
1118	206264	VALVE, needle	1
1119	114367	FITTING, tube, qd, 90 degree elbow	1
1120	109544	FITTING, elbow, pipe, male	1
1121	110914	VALVE, button, push	1
1122	100264	SCREW, mach, panhead	4
1123	116514	NUT, regulator mount	1
1124	109193	FITTING, tube, male, elbow	2
1125	16F151	FITTING, elbow, swivel, 3/8 tee, 3/8 npt	1
1126	---	SEALANT, pipe, stainless steel	1
1127	054134	TUBE, nylon, 3/8 in. OD	1.1
1128	517305	TUBE, nylon, 5/32 in. OD	0.7
1129	106495	VALVE, check, brass, 1/4 MBE	1
1130	100840	FITTING, elbow, street	1

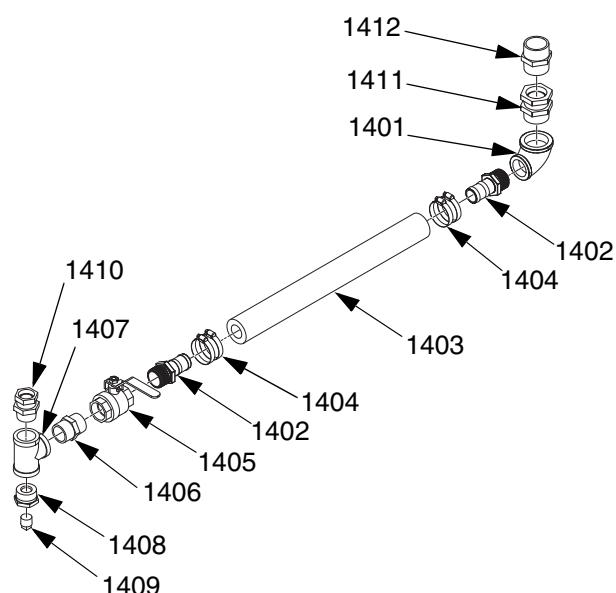
--- Not for sale.

Check Valve (16T481)

Torque to 75-80 ft-lb (102-108 N·m).

Ref	Part	Description	Qty
1201	---	NUT, seat	1
1202	102595	PACKING, o-ring	1
1203	100279	BALL, metallic	1
1204	108361	SPRING, compression	1
1205	---	HOUSING, ball check	1
1206	181492	GUIDE, ball	3
1207	181535	RETAINER, spring	1

--- Not for sale.

Flexible Fluid Connection Kit (262820)

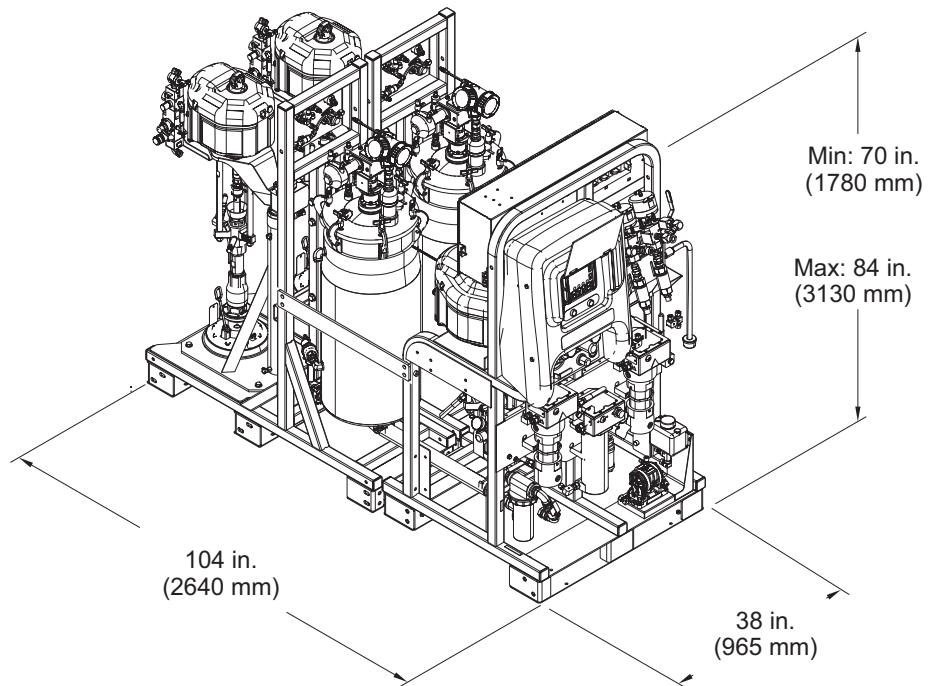
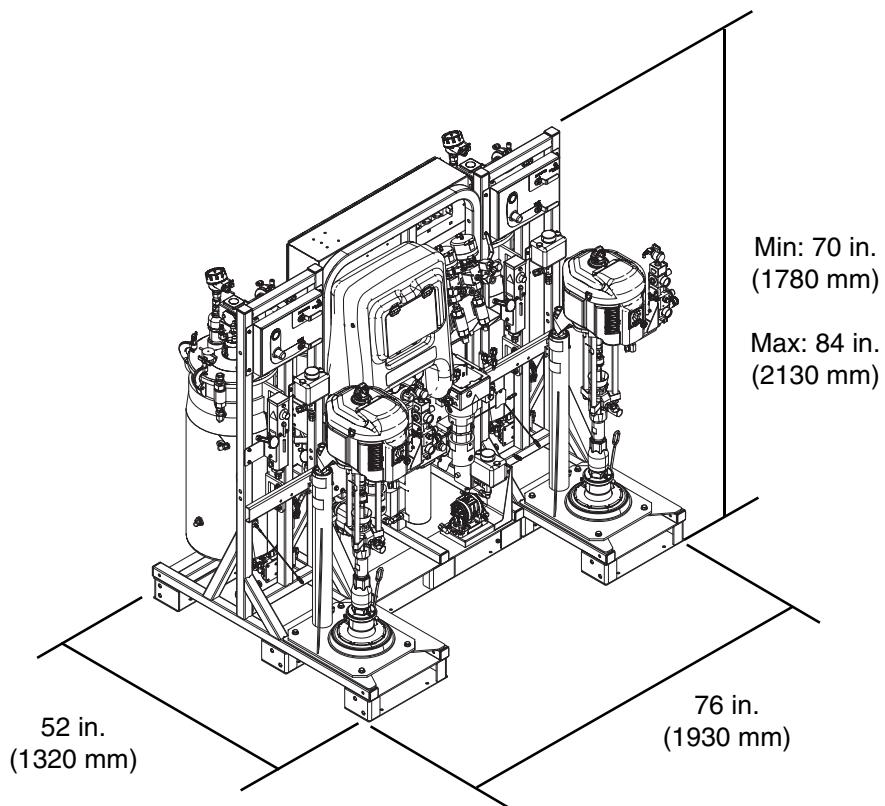
Ref	Part	Description	Qty
1401	120291	PIPE, elbow female	1
1402	125995	FITTING, hose, barbed, 1-1/2 npt	2
1403	126320	HOSE, 1-1/2 ID, 200 psi, 3 ft	1
1404	126889	CLAMP, hose	2
1405	121440	VALVE, ball, 1-1/2 npt	1
1406	121441	FITTING, nipple, hex, 1-1/2 npt	1
1407	121443	FITTING, tee, 1-1/2 npt	1
1408	101496	BUSHING, pipe	1
1409	104663	PLUG, pipe	1
1410	121445	SWIVEL, reducing, 1-1/2 x 1-1/4	1
1411	121436	FITTING, swivel, male, 2 in.	1
1412	121435	FITTING, nipple, hex, 2 in.	1

Technical Data

XM PFP		
	US	Metric
Mix Ratio Range	1:1-10:1 (in 0.01 increments)	
Ratio Tolerance Range (before alarm)	+/- 5%	
Maximum Flow Rate (measured with oil)	3 gallons per minute	13.6 liters per minute
Fluid Viscosity Range	Handles mastic materials which are loaded into heated tanks with ram-fed priming piston pumps	
Air Inlet	1 in. npt(f)	
Fluid Inlets	Pail (Pail Feed RAM Pumps)	
Maximum Fluid Working Pressure for A and B Materials	6000 psi	41 MPa, 414 bar
Maximum Fluid Working Pressure for Flushing Fluid	4500 psi	31 MPa, 7 bar
Maximum Fluid Working Pressure for Heating Fluid	100 psi	0.7 MPa, 7 bar
Maximum Fluid Temperature	160°F	70°C
System Inlet Supplied Air Pressure Range	80-150 psi	0.5-1.0 MPa, 5.5-10.3 bar
Maximum Pump Air Pressure	100 psi	0.7 MPa, 7 bar
Maximum Tank Air Pressure	90 psi	0.6 MPa, 6 bar
Air Filtration	40 micron main filter, 5 micron control air filter	
Ambient Operating Temperature Range	32 to 130°F	0 to 54°C
Ambient Storage Temperature Range	30 to 160°F	-1 to 71°C
Environmental Conditions Rating	Altitude up to 13,123 ft	Altitude up to 4000 m
Sound Pressure *	86 dBA at 100 psi	86 dBA at 0.7 MPa, 7 bar
Sound Power **	98 dBA at 100 psi	98 dBA at 0.7 MPa, 7 bar
System Weight (empty, no fluid)	2175 lb	987 kg
Air Consumption		
Minimum	100 scfm	2.8 meter ³ /min
Maximum	250 scfm	7.1 meter ³ /min
Typical Application	125-175 scfm	3.5-5.0 meter ³ /min
Power Requirements		
Voltage (can be set with jumpers)	Option 1: 220-240V, 3 phase DELTA (3 wire plus ground) Option 2: 380-400V, 3 phase WYE (4 wire including neutral plus ground)	
Wattage	18,400 watts (23,400 with optional flush water heater)	
Amps	240V, 3-phase models: 65 Amps per phase full load 380V, 3-phase models: 38 Amps per phase full load	

XM PFP		
	US	Metric
Wetted Parts		
Suction Tube (Flush)	Aluminum	
Tanks	Stainless Steel	
Flush Pump	Carbide, PTFE, stainless steel, UHMWPE	
Hoses	Nylon	
Pumps (A, B and Feed Pail)	Carbon steel, alloy steel, 303, 440, 17-ph grades stainless steel, zinc and nickel plating, ductile iron, tungsten carbide, PTFE	
Dosing Valves	Carbon Steel, nickel plating, carbide, polyethylene, leather	
Manifold	Carbon steel, nickel plating, carbide, 302 stainless steel, PTFE, UHMWPE	
Mixer	Stainless steel housing with stainless elements	
Approvals		
Machine	CE, ETL	
Pressure Tanks	ASME, PED	
Notes		
* Sound pressure measured 3.3 feet (1 meter) from equipment.		
** Sound power measured per ISO-9614-2.		

Dimensions



ti20267b

Notes

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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.

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Original instructions. This manual contains English. MM 3A2989

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Revision G, January 2015