Repair - Parts

XTREME™ Mix 185

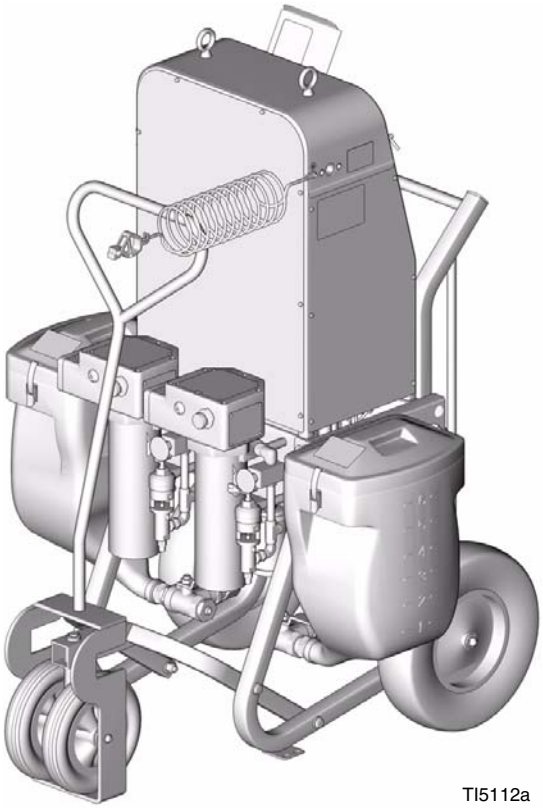
310666 rev.G

Plural Component Proportioner

Important Safety Instructions
Read all warnings and instructions in this manual.
Save these instructions.

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

Heated Units



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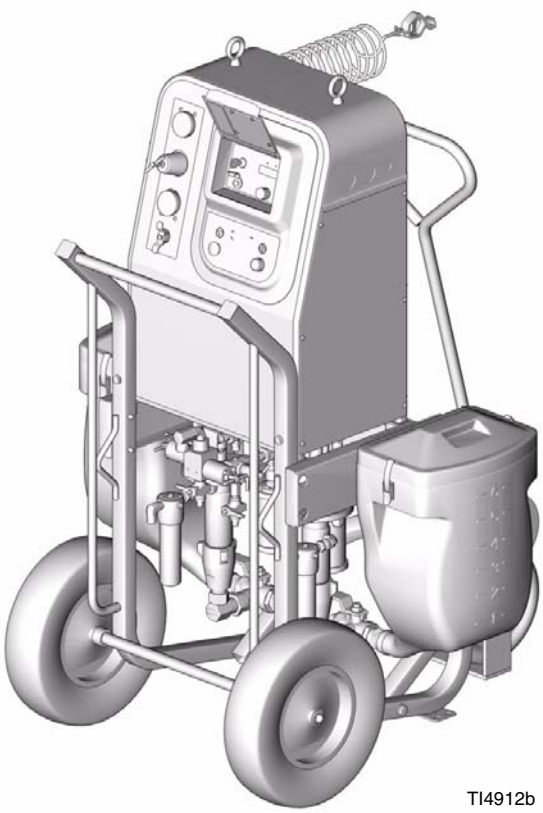
Non-heated Units



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PROVEN QUALITY. LEADING TECHNOLOGY.

Graco Inc. P.O. Box 1441 Minneapolis, MN 55440-1441

Contents

Manual Conventions

⚠ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

Warnings included in instructions generally have a symbol indicating the hazard. Follow the instructions and read the hazard section on warning pages 5 to 6 for additional information.

CAUTION
CAUTION indicates a potentially hazardous situation which, if not avoided, may result in property damage or destruction of equipment.

Note

A note indicates additional helpful information.

Xtreme Mix 185 Models

WARNING

Do not install equipment approved only for non-hazardous location in a hazardous area. Substitution of components may impair intrinsic safety and cause personal injury. Read page 5.

Approved for Hazardous Location Class I, Div 1, Group D (North America); Class I, Zones 1 and 2 (Europe)				
Non-heated Units				
Xtreme Mix 185 Part No.	**Series**	**Description**	**Maximum Working Pressure psi (MPa, bar)**	**Approvals**
234614	A	Wall mount, HydraMix 700 carbon steel Pumps, with hose and gun	4700 (32, 324)	FM APPROVED Conforms to FM std 3600 & 3610 for use in Class I Div 1 Group D T3 Hazardous Locations; Ex II 2 G ISSeP 04 ATEX 020X EEx ia p IIA T3; CE; CSA CAN/CSA 22.2 No. 157-92 & No. 1010.1-92
234616	A	Cart mount, HydraMix 700 carbon steel Pumps, with hose and gun	4700 (32, 324)	
Heated Units				
234838	A	Cart mount, HydraMix 700 carbon steel Pumps, 240V Heaters (16.2 A each, 32.4 A total), with hose and gun	4700 (32, 324)	FM APPROVED Conforms to FM std 3600 & 3610 for use in Class I Div 1 Group D T2 Hazardous Locations; Ex II 2 G ISSeP04ATEX098X EEx ia p d IIA T2; CE; CSA CAN/CSA 22.2 No. 157-92 & No. 1010.1-92
234840	A	Cart mount, HydraMix 700 carbon steel Pumps, 480V Heaters (8.3 A each, 16.6 A total), with hose and gun	4700 (32, 324)	

Continued on page 4.

Approved for Non-hazardous Location				
234615	A	Wall mount, HydraMix 700 carbon steel Pumps, Non-heated, with hose and gun	4700 (32, 324)	Conforms to UL std 61010A-1 CSA std C22.2 No. 1010.1-92
234617	A	Cart mount, HydraMix 700 carbon steel Pumps, Non-heated, with hose and gun	4700 (32, 324)	
234839	A	Cart mount, HydraMix 700 carbon steel Pumps, 240V Heaters (16.2 A each, 32.4 A total), with hose and gun	4700 (32, 324)	
234841	A	Cart mount, HydraMix 700 carbon steel Pumps, 480V Heaters (8.3 A each, 16.6 A total), with hose and gun	4700 (32, 324)	

Related Manuals

Component Manuals in English

Manual	Description
310665	Xtreme Mix 185 Operation
310666	Xtreme Mix 185 Repair-Parts
310654	Fluid Mix Manifold
310655	Dispense Valve
310662	Displacement Pumps
310672	HydraMix Pumps
310673	Circulation Kits
310675	AC Power Supply
310676	Remote Manifold Kit
310677	Heater Installation Kit
310678	TSL Pump Kits
309192	ISO Supply Kit
310743	XTR™ Airless Spray Gun
309524	VISCON HP Heater
309623	Data Download Kits
308034	Turbine Alternator Repair Kit

This manual available in the following languages:

Manual	Language
310666	English
310702	French
310704	Spanish
310706	German
310708	Korean
310710	Chinese
310712	Japanese

Warnings

The following general warnings are related to the safe setup, use, grounding, maintenance, and repair of this equipment. Additional more specific warnings may be found throughout the text of this manuals where applicable.

⚠ WARNING

FIRE AND EXPLOSION HAZARD

Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. To help prevent fire and explosion:

- Use equipment only in well ventilated area.
- Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords or turn lights on or off when flammable fumes are present.
- Ground equipment and conductive objects in work area.
- Use only grounded hoses.
- Hold gun firmly to side of grounded pail when triggering into pail.
- If there is static sparking or you feel a shock, **stop operation immediately.** Do not use equipment until you identify and correct the problem.

SKIN INJECTION HAZARD

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

- Do not 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.
- Do not spray without tip guard and trigger guard installed.
- Engage trigger lock when not spraying.
- Follow **Pressure Relief Procedure** in this manual, when you stop spraying and before cleaning, checking, or servicing equipment.

MOVING PARTS HAZARD

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

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** in this manual. Disconnect power or air supply.

⚠ WARNING

EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- 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.
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Do not alter or modify equipment.
- For professional use only.
- Use equipment only for its intended purpose. Call your Graco distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not use hoses to pull equipment.
- Comply with all applicable safety regulations.

TOXIC FLUID OR FUMES HAZARD

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.

- Read MSDS's 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.

BURN HAZARD

Equipment surfaces and fluid that's heated can become very hot during operation. To avoid severe burns, do not touch hot fluid or equipment. Wait until equipment/fluid has cooled completely.

PERSONAL PROTECTIVE EQUIPMENT

You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, inhalation of toxic fumes, burns, and hearing loss. This equipment includes but is not limited to:

- Protective eyewear
- Clothing and respirator as recommended by the fluid and solvent manufacturer
- Gloves
- Hearing protection

Pressure Relief Procedure

WARNING

Relieve pressure from fluid manifold to gun whenever you stop spraying and before servicing gun or removing spray tip.

In addition, relieve pressure from pump to fluid manifold at end of day and before cleaning, checking, or servicing pump, manifold, or fluid line accessories or transporting equipment.

Read warnings, page 5.

Fluid Manifold to Gun

1. Engage trigger lock.

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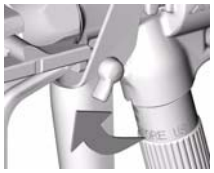
2. Press  .

3. Disengage trigger lock.



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4. Hold a metal part of the gun firmly to a grounded metal pail. Trigger gun to relieve pressure.

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5. Engage trigger lock.

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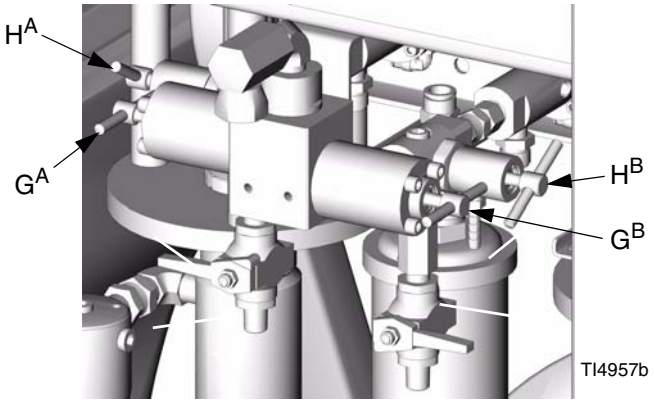
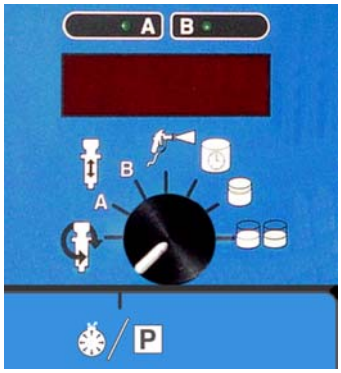
Pump to Fluid Manifold

1. Close shutoff valves G^A and G^B.
2. Place waste container under sampling valves H^A and H^B.



3. Turn function knob to pressure relief/park  .



4. Press  . Indicator A comes on, and Pump A pressurizes.
5. Open sampling valve A slowly to bleed off pressure. Indicator A will stay on for 5 sec after Pump A reaches Park position, then go off.

Pump air supply pressure must be sufficient to cause pumps to stroke to bottom-most position when function knob to is set to pressure relief/park  .

6. Indicator B comes on and Pump B pressurizes.
7. Open sampling valve B slowly to bleed off pressure. Indicator B will stay on for 5 sec after Pump B reaches Park position, then go off.

If both pumps are not parked after 1 min, Alarm 26 will sound.

8. Close sampling valves A and B before restarting system.

Maintenance

Preventive Maintenance Schedule

Establish a preventive maintenance schedule, based on the pump's repair history.

Mix Manifold

See mix manifold manual 310654.

Dispense Valve

See dispense valve manual 310655.

Pump

See applicable pump manual 310671, 310672, or 310662.

Turbine Alternator

Replace bearings every 2000 hours. See page 19.

Air Filters

Check daily. Drain and clean as necessary. See page 15.

Pump Test/Meter Calibration

See Xtreme Mix 185 Operation manual. If pumps/meters fail test, see **Troubleshooting**, page 10.

Wet Cup

Check pump and dispense valve wet-cups daily. Keep filled with Graco Throat Seal Liquid (TSL), Part No. 206995.

Storage

Before storing the pump, always flush it, see Xtreme Mix 185 Operation manual. Relieve the pressure, page 7.

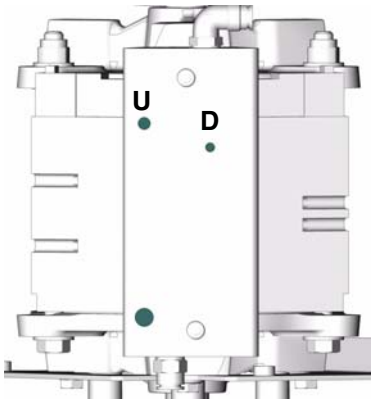
Icing

If you experience icing at the pump air manifold:

- Reduce pump input air pressure below 80 psi (0.56 MPa, 5.6 bar), if required spray pressure allows.
- Reduce moisture in compressed air supply, or use heated air.

If icing persists, see table below.

Problem	Solution
Pump slows on both up and down stroke.	Turn D port bleed screw 60° (1/6 turn) counter-clockwise, to bleed 1 cfm air to melt ice.
Pump slows on down stroke.	Turn D port bleed screw 60° (1/6 turn) counter-clockwise, to bleed 1 cfm air to melt ice. If icing continues, turn screw to 90° (1/4 turn) to increase air flow to 2 cfm. If necessary, increase air flow to 3 cfm by turning screw to 270° (3/4 turn). Do not exceed 3 cfm (3/4 turn maximum).
Pump slows on up stroke.	Turn U port bleed screw 90° (1/4 turn) counter-clockwise, to bleed 1 cfm air to melt ice. If icing continues, turn screw to 120° (1/3 turn) to increase air flow to 2 cfm. If necessary, increase air flow to 3 cfm by turning screw to 180° (1/2 turn). Do not exceed 3 cfm (1/2 turn maximum).



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Troubleshooting

WARNING

Read warnings, page 5-6.

If an alarm code displays, see page 13.

Problem	Cause	Solution
Display not lit. No electric power.	Air valve not turned on.	Turn on main air valve to system.
	Air supply pressure too low.	Increase pressure to 60 psi (0.42 MPa, 4.2 bar) or greater.
	Air supply filters plugged.	Clean filter bowls; replace filter elements. Page 15.
	Turbine air regulator set too low.	Adjust to proper setting.
	Turbine alternator failure.	Repair or replace turbine. Page 19.
	Power supply not connected to main board.	Check power connections to main board. See **Electrical Schematic**, page 22.
	Main board not connected to display board.	Check electrical connections between display and main board. See **Electrical Schematic**, page 22, and **Main Control Board Schematic**, page 23.
	Display board failure.	Replace display board. Page 18.
Pumps do not run.	Air pressure to pumps too low.	Increase pressure to 50 psi (0.35 MPa, 3.5 bar).
	Solenoid valve stuck.	Actuate solenoid manually, if it does not operate, replace solenoid. Page 20.
	Dispense valve(s) not opening.	Service or replace valve(s). See 310655.
Pump test volume is not correct.	Air pressure to pumps too low	Increase pressure to 50 psi (0.35 MPa, 3.5 bar).
	Sensors not functioning properly.	Check position of sensors. See Xtreme Mix 185 Operation manual, and applicable pump manual. Check board calibration and recalibrate if necessary. See Xtreme Mix 185 Operation manual. Replace sensors. See pump manual 310671 or 310672.
	Pump cavitating excessively.	Check for air in lines caused by loose fitting or use of agitator. Material too viscous. Use heater.

Problem	Cause	Solution
Paint does not cure consistently.	Ratio not set correctly.	Check that correct ratio is set and set by volume. See Xtreme Mix 185 Operation manual.
	Material not mixing correctly.	Test pump. Page 9. Make sure mixer is clean; flush as needed. See Xtreme Mix 185 Operation manual.
	Pump not operating correctly.	Observe whether pumps are loading and checking correctly, if not, clean and repair pump. See displacement pump manual 310662.
Poor spray pattern.	Fluid pressure too low.	Increase pump pressure.
	Spray tip dirty or worn.	Relieve pressure. Clean or replace tip. Follow gun manual instructions.
	Fluid A or B filters plugged.	Clean filters.
	Mixer or hoses partially plugged or too restrictive.	Inspect parts for cured material. Clean or replace, or use larger hoses and mixer.
System runs erratically.	Air filter(s) clogged. Replace elements.	Clean. Replace element(s). See page 15.
	Air supply hoses undersized.	Replace hoses with appropriate size.
	Air compressor undersized.	Use larger air compressor.
	Air supply pressure tank undersized.	Use larger pressure tank.
Air supply relief valve opens.	Turbine air regulator set too high.	Lower setting to 23-25 psi (172-241 kPa, 1.7-2.4 bar).
Turbine alternator makes high-pitched whining noise.	Turbine bearings worn. (Setting turbine air regulator too high, wears bearings.)	Replace bearings. Page 19.
Display shows 88888 or unit reboots unexpectedly.	Turbine is not supplying enough power to board.	Increase turbine regulator setting to 23-25 psi (172-241 kPa, 1.7-2.4 bar).
		Check turbine and electrical control exhaust air for restrictions.
		Replace turbine bearings. Page 19.
Xtreme Mix 185 does not start when start button is pressed.	Faulty start switch or wire harness.	Check start switch and wiring harness continuity; switch is normally open circuit. See **Electrical Schematic**, page 22.
	Faulty stop switch or wiring harness.	Check stop switch and wiring harness continuity; stop switch is normally closed circuit. See **Electrical Schematic**, page 22.
	Bad I/O port on display board.	Replace board. Page 18.
	Bad I/O port on main board.	Replace board. Page 17.
Dispense valves leaking.	Loose or worn packings.	Tighten packing nut. If leak continues, replace packings. See 310655.

Problem	Cause	Solution
Flow rate too low.	Inadequate air supply.	Use larger CFM compressor.
	Air pressure to pumps too low.	Increase pressure.
	Fluid A or B filters plugged.	Clean filters.
	Spray tip too small.	Relieve pressure. Install larger tip. Follow gun manual instructions.
	Mixer or hoses partially plugged or too restrictive.	Inspect parts for cured material. Clean or replace, or use larger hoses and mixer.
	Insufficient dispense valve travel.	Increase travel. See 310655.
	Shutoff valves are not fully open.	Ensure that shutoff valves are fully open and sampling valves are closed.
Pump stops after 12 cycles.	Knob is set to Run pump A  or B  independently.	Turn knob to spray  if spraying material.
Pump cycle rate slows and eventually stops.	Icing at pump air manifold.	See **Icing**, page 9.

Alarms

* Indicates error where audible alarm sounds once briefly. ** Indicates error where audible alarm sound pulses.

Code	Alarm	Active	Problem	Cause
	Startup Errors			
01	Sensor Error A*	Always	No signal from pump A sensor	Loose cable, failed sensor or cable, failed magnet assembly
02	Sensor Error B*	Always	No signal from pump B sensor	Loose cable, failed sensor or cable, failed magnet assembly
03	Communication Error*	Always	Loss of communication between main and display boards	Loose cable, failed board
	Operating Errors			
04	not used			
05	not used			
06	Pump Error A**	Spray Test Batch	Pump does not stall after top change over	Intake valve leak
07	Pump Error B**		Pump cavitating excessively	Air in lines caused by loose fitting or use of agitator Empty fluid supply
08	Sensor Code Error	Always	Sensor values reverted to default	Sensor value data corrupt; board needs replacement and /or recalibration
09	Metering Error A**	Spray	A dose too great	Dispense valve A leak Empty B fluid supply Clogged flow meter
10	Metering Error B**	Spray	B dose too great	Dispense valve B leak Empty A fluid supply Clogged flow meter
11	Sensor Reading Low A*	Spray Test Batch	Pump stroke travels beyond sensor range at top change over	Sensor or bracket loose Sensor magnet dirty
12	Sensor Reading Low B*			
13	Sensor Reading High A*	Spray Test Batch	Pump stroke travels beyond sensor range at bottom change over	Sensor or bracket loose Sensor magnet dirty
14	Sensor Reading High B*			
21	Pot Life Error	Spray first, then Always	Pot life timer timed out	Not enough material sprayed after last reset

Code	Alarm	Active	Problem	Cause
	Operating Errors (continued)			
22	High Ratio (units with meter[s] only)	Spray	Mix ratio higher than Target + Tolerance	Flow rate too high Slow actuation of dispense valve A or B Clogged flow meter
23	Low Ratio (units with meter[s] only)	Spray	Mix ratio lower than Target - Tolerance	
24	Dose Timeout A (units with meter[s] only)	Spray	Air flow switch indicates more than 40 sec of air flow without dose completing	Air flow switch stuck open. Atomizing air leak downstream of air flow switch. Clogged flow meter. Gun triggered without fluid (dusting parts)
25	Dose Timeout B (units with meter[s] only)			
26	Park Timeout (pump-based units only)	Park	Pumps not at bottom of stroke	Sampling valves closed, or gun not triggered.
	Testing Error			
15	Piston packing/ball A*	Test	Pump does not completely stall in up stroke	Piston packing or ball check failure
16	Piston packing/ball B*			
17	Inlet Ball A*	Test	Pump does not completely stall in downstroke	Intake valve ball check failure
18	Inlet Ball B*			
19	Dispense Valve A*	Test	Pump does not completely stall in both up and down strokes	Throat packing or dispense valve failure
20	Dispense Valve B*			
27	Pump Calibration Timeout A	Run A	Pump doesn't run through calibration.	Sampling valves closed.
28	Pump Calibration Timeout B	Run B		

Repair

Flush before repairing equipment, if possible. See Xtreme Mix 185 Operation manual.

WARNING

Read warnings, page 5.

Follow **Pressure Relief Procedure**, page 7, if service time may exceed pot life time, before servicing fluid components, and before transporting equipment to a service area.

Replacing Air Filter Element

There are 2 air filters on the unit: the 5 micron air manifold filter (7) and 40 micron pump air filter (9). Check filters daily and replace element as needed. Order 15D909 5 micron filter and 15D890 40 micron filter.

WARNING

Removing the bowl of a pressurized air filter could cause serious injury. Do not service air filter until air line is depressurized.

1. Close main air shutoff valve on air supply line and on unit.
2. Remove left side plate (21).
3. Unlock filter bowl guard and remove.
4. Unscrew filter bowl.

5. Remove and replace element.
6. Screw filter bowl on securely.
7. Reassemble.

User Interface

Removal

1. Close main air shutoff valve on air supply line and on unit.
2. Remove side panels (21).
3. Remove fasteners. Gently pull user interface (11) away from pneumatic control (10).

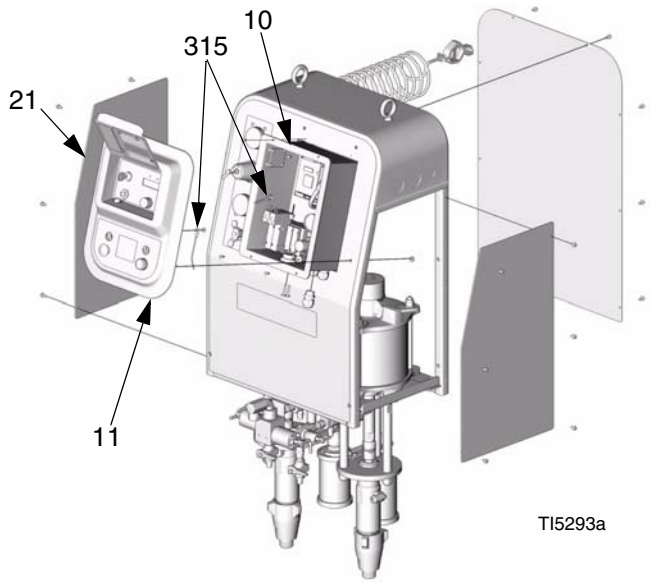


FIG. 1

4. To completely remove user interface (11), disconnect ground wire (315), and wires (416 and 406) from main control board (301). See **Electrical Schematic**, page 22.

Software Upgrades

CAUTION
To avoid damaging circuit board, wear a grounding strap.

1. Remove User Interface cover. See above.
2. Use a chip remover (D) to remove software chip (C). FIG. 2.

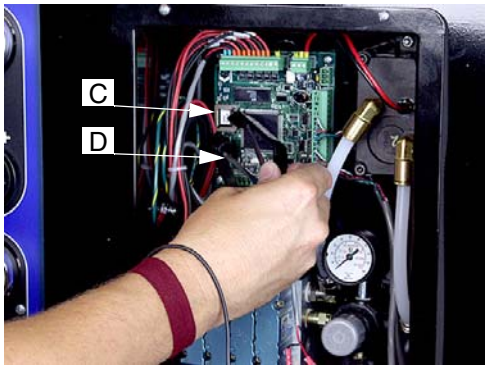


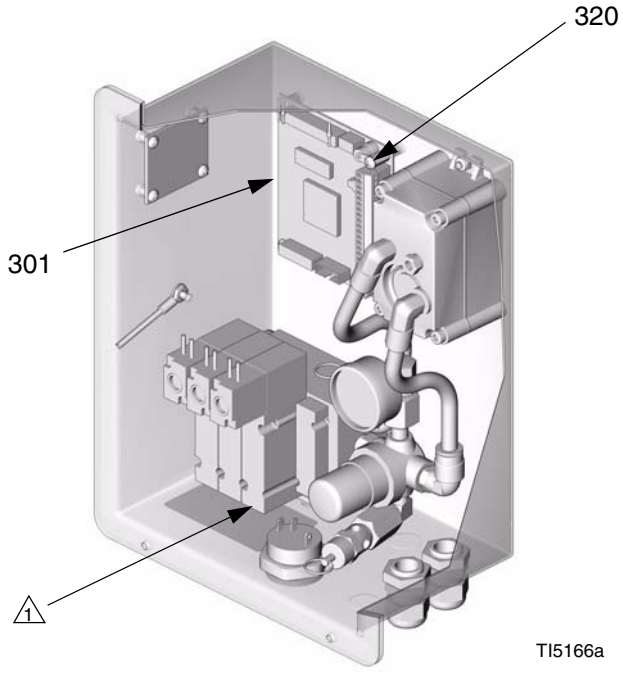
FIG. 2

3. Install new chip (beveled corner down).
4. Reassemble.
5. Recalibrate main circuit board. See Xtreme Mix 185 Operation Manual.

Replacing Main Circuit Board

CAUTION
To avoid damaging circuit board, wear a grounding strap.

1. Remove User Interface cover. See page 16.
2. Disconnect all wire connectors from board (301). FIG. 3.
3. Remove four screws (302) and replace board (301).
4. Reassemble. Refer to **Electrical Schematic**, page 22.
5. Recalibrate system. See Xtreme Mix 185 Operation Manual.



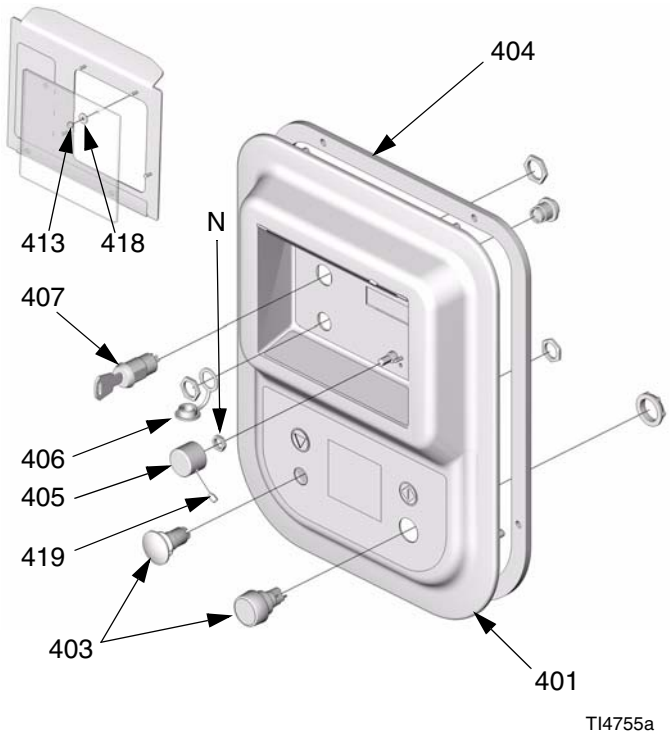
1 Third solenoid is present on heated units only.

FIG. 3

Replacing Display Circuit Board

CAUTION
To avoid damaging circuit board, wear a grounding strap.

1. Remove User Interface cover. See page 16.
2. Disconnect wires from display board (410). FIG. 4.
3. Remove two screws (411).
4. Loosen setscrew (419) from knob (405) and remove knob assembly. Remove jam nut (N).
5. Remove and replace display board (410).
6. Reassemble. Refer to **Electrical Schematic**, page 22.



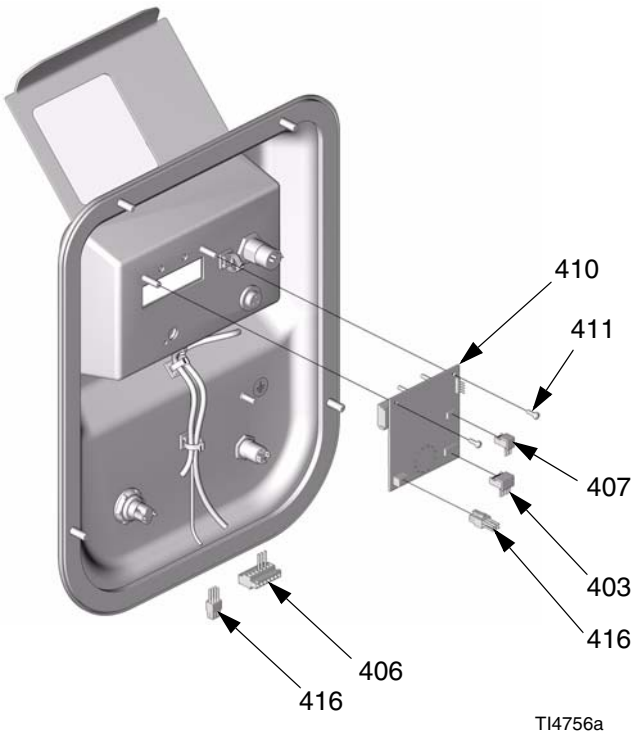


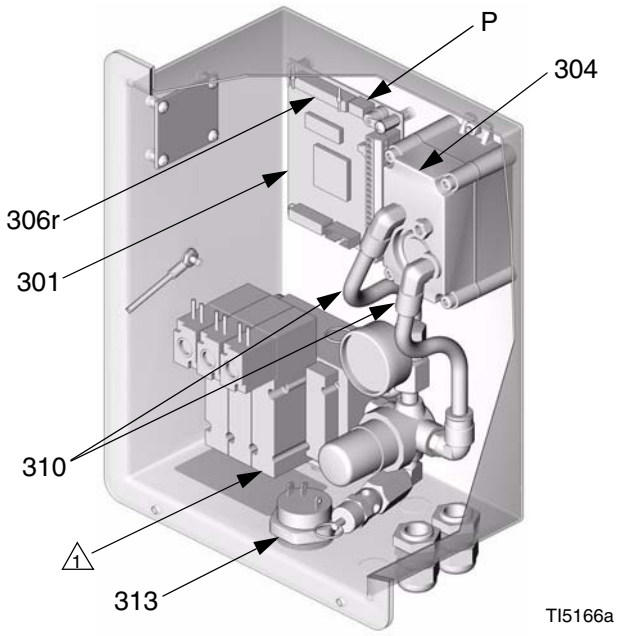
FIG. 4

Pneumatic Control

Alternator Repair

Turbine Alternator Repair Kit 223688 is available to replace turbine bearings.

1. Remove User Interface cover. See page 16.



1 Third solenoid is present on heated units only.

FIG. 5

2. Disconnect power supply wires (P). FIG. 5.
3. Disconnect two air lines (310) from alternator (304). FIG. 6.
4. Remove top nut (305) and loosen bottom nut. Slide alternator up and off bottom nut.
5. Remove four screws (304d) to separate alternator housings. FIG. 7.
6. Disconnect turbine (304e) from board (A). Follow instructions in turbine kit manual 308034 to remove and repair turbine.
7. Replace gasket (304a) if damaged. Place between housings before securing with screws (304d).
8. Reassemble. Refer to **Electrical Schematic**, page 22.

- Lightly lubricate turbine o-ring before installing turbine in housing.
- Connect alternator red wire to + side and black wire to – side of main circuit board.
- Connect turbine to 3-pin connector on main circuit board.

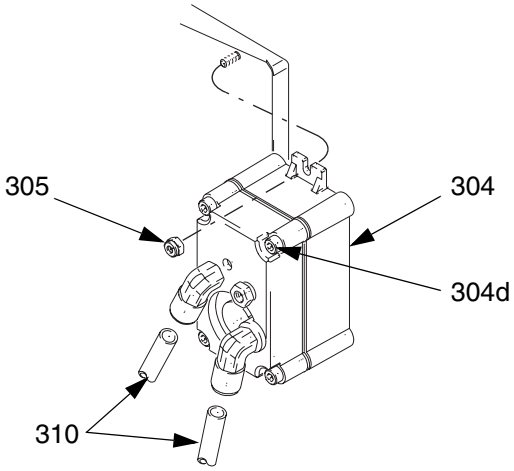
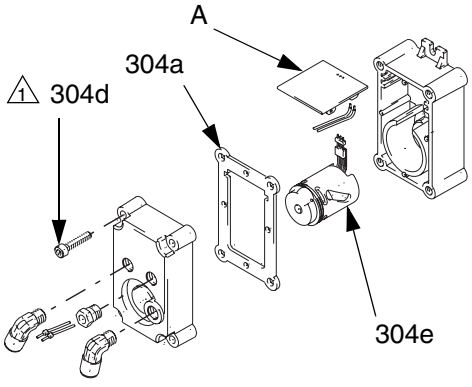


FIG. 6



1 Torque to 20 in-lbs (2 N•m)

FIG. 7

Replacing Solenoids

Follow this procedure to replace a single solenoid.

1. Remove User Interface cover. See page 16.
2. Disconnect two solenoid wires (V) from main board. FIG. 8.
3. Disconnect pneumatic tubes from solenoid. FIG. 8.
4. Remove two screws (S).
5. Remove and replace solenoid (306b or 132).

From left to right, solenoid functions are as follows:
- Component A
- Component B
- Circulation valves (heated units only)

6. Reassemble. Solenoid wires are polarized (red +, black –). Refer to **Electrical Schematic**, page 22.

Replacing Alternator Regulator

1. Remove User Interface cover. See page 16.
2. Remove two screws (309) from the back of the control box.
3. Disconnect supply and exhaust air lines (310). FIG. 5, page 19.
4. Disconnect solenoid wires 12 position Phoenix connector (306r) from main board.
5. Remove solenoid module (306) with regulator (306e). FIG. 8.
6. Unscrew and replace regulator (306e).
7. Reassemble. Refer to **Electrical Schematic**, page 22.

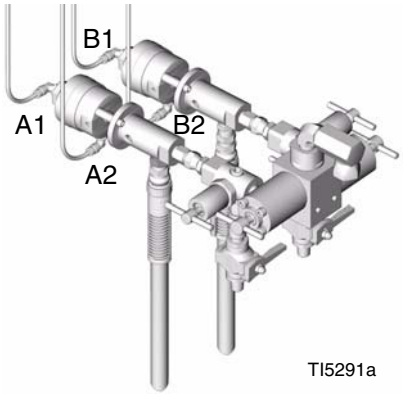
Make sure gaskets (306j, 306k) are in place when reinstalling solenoid module.

8. Set regulator to 24 psi (160 kPa, 1.6 bar).

Replacing Alarm

1. Remove User Interface cover. See page 16.
2. Disconnect alarm wires from main board.
3. Unscrew alarm (313) and replace. FIG. 5, page 19.
4. Reassemble. Refer to **Electrical Schematic**, page 22.

Dispense Valve Pilot Lines
A1 (off), clear tube, see below
A2 (on), black tube, see below
B1 (off), green tube, see below
B2 (on), red tube, see below
R1 (circulation valves off), black tube, see page 40
R2 (circulation valves on), clear tube, see page 40



1 Set regulator pressure to 24 psi (160 kPa, 16 bar).
2 Safety relief valve (306t) is required on all IS units.
3 Third solenoid is present on heated units only.

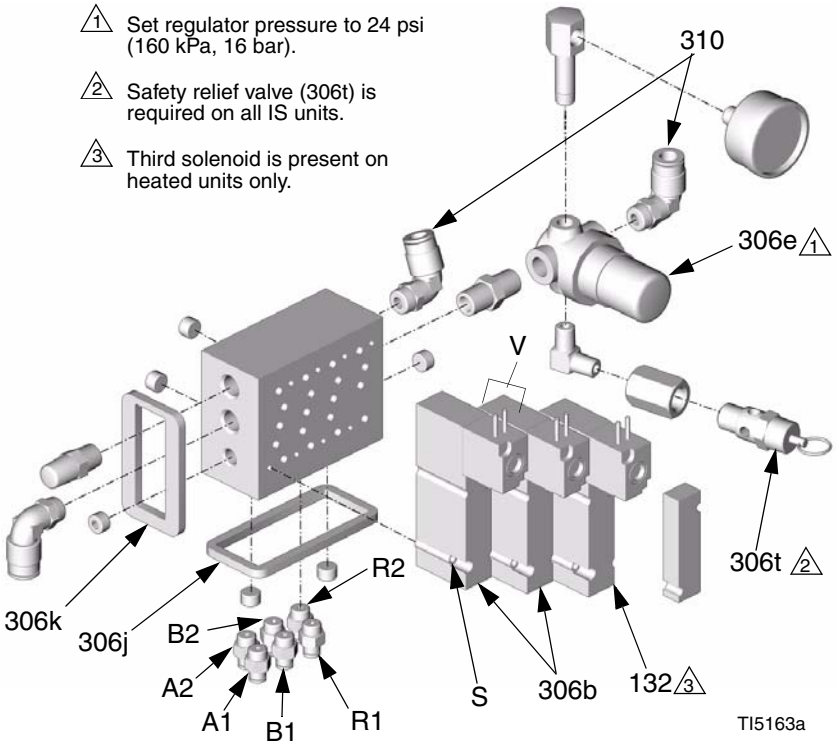


FIG. 8

Dispense Valve/Mix Manifold Assembly

WARNING

Read warnings, page 5.

See the **Parts** drawing for your model.

1. Follow **Pressure Relief Procedure**, page 7.
2. Label all air and fluid lines and disconnect from fittings on manifold assembly.
3. Remove fasteners.
4. Remove mix manifold (2).
5. To repair mix manifold, see manual 310654. To repair dispense valves, see manual 310655.
6. Reassemble.

Pump Assembly

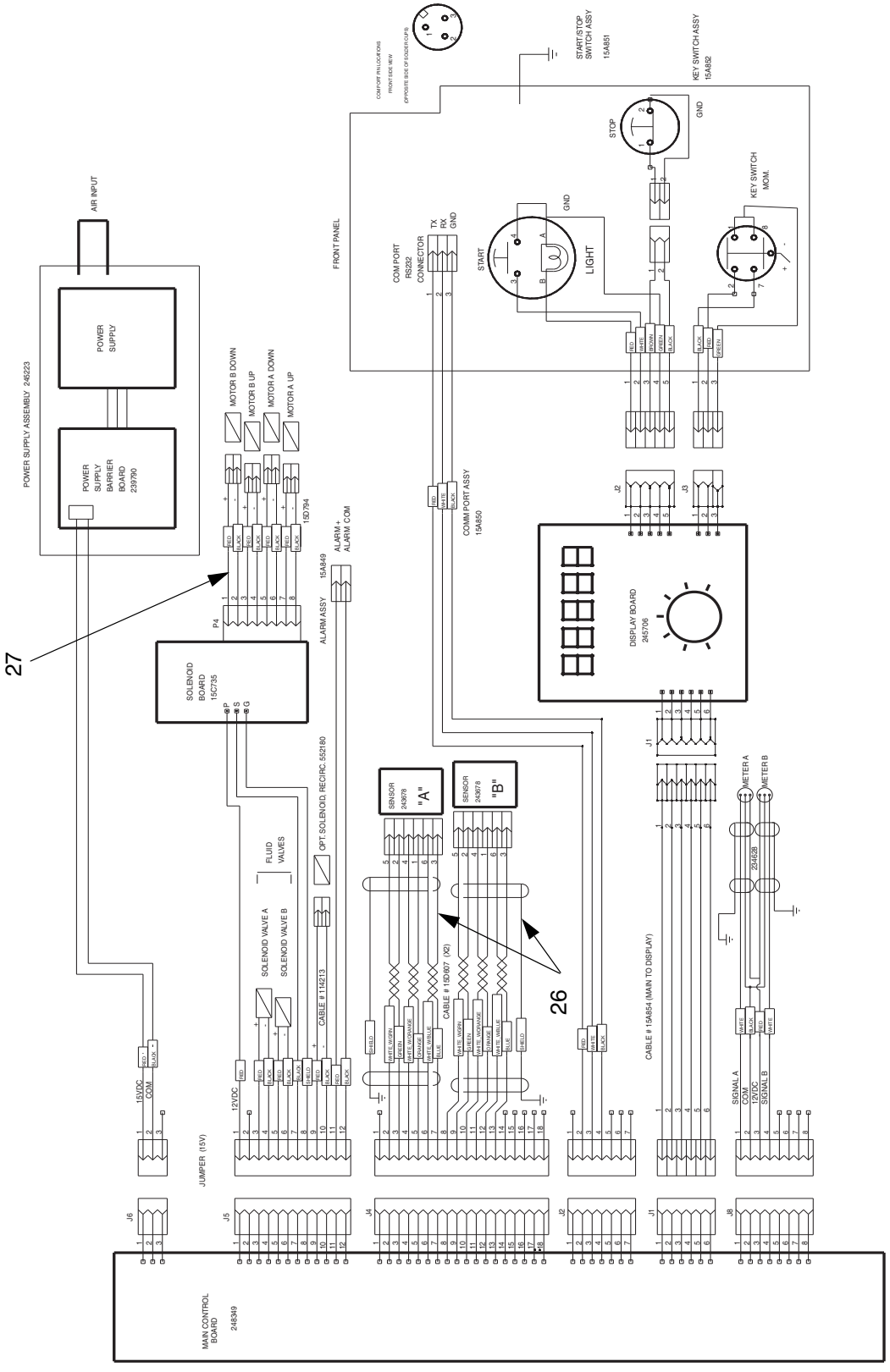
WARNING

Read warnings, page 5.

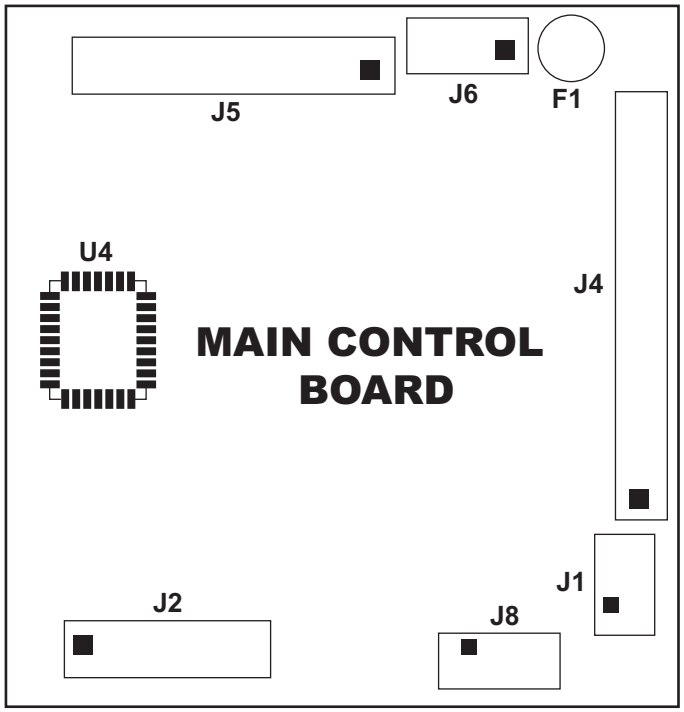
See the **Parts** drawing for your model.

1. Follow **Pressure Relief Procedure**, page 7.
2. Remove side plates (21).
3. Remove wire harnesses from sensor and solenoids. Refer to **Electrical Schematic**, page 22.
4. Disconnect fluid inlet and outlet lines from pump lower. Disconnect air supply from pump.
5. Label all tubing and disconnect from fittings on pump assembly.
6. Remove mounting hardware and slide pump out of frame.
7. Repair as instructed in pump manuals 310671, 310672, or 310662.
8. Reassemble.

Electrical Schematic

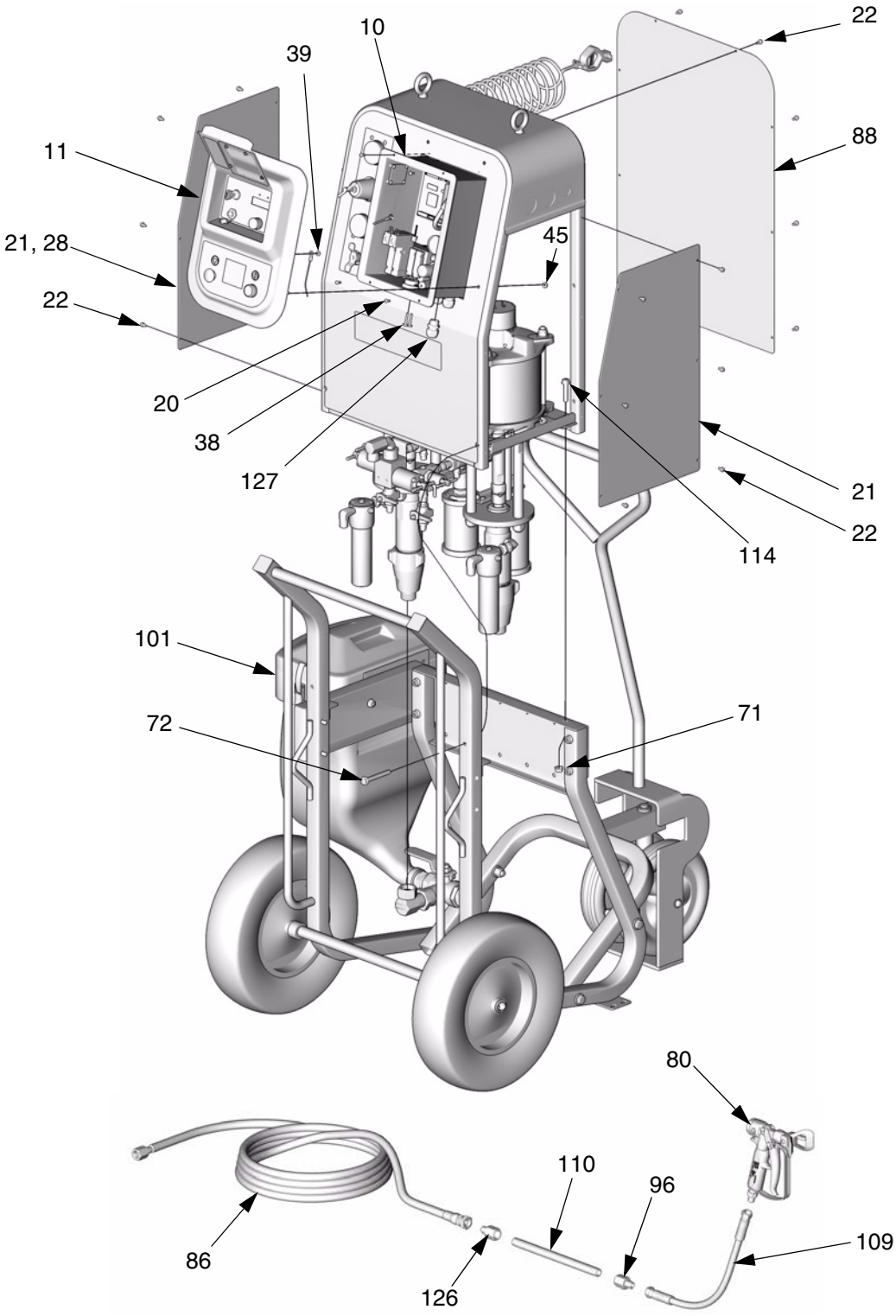


Main Control Board Schematic

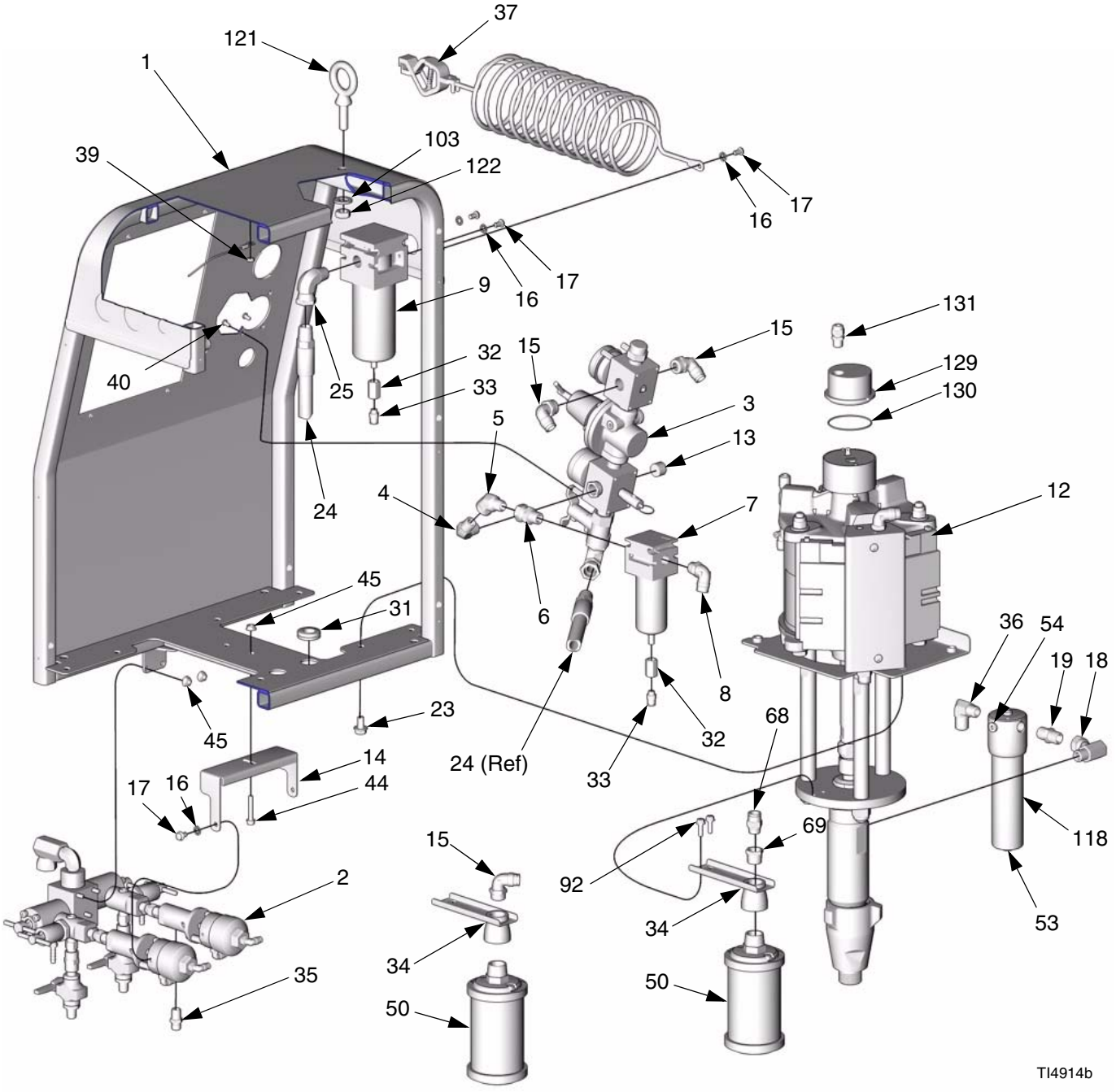


Parts

Part No. 234616, 3, Non-heated, Intrinsically Safe
Part No. 234617, Xtreme Mix 185, Non-heated, Non-intrinsically Safe

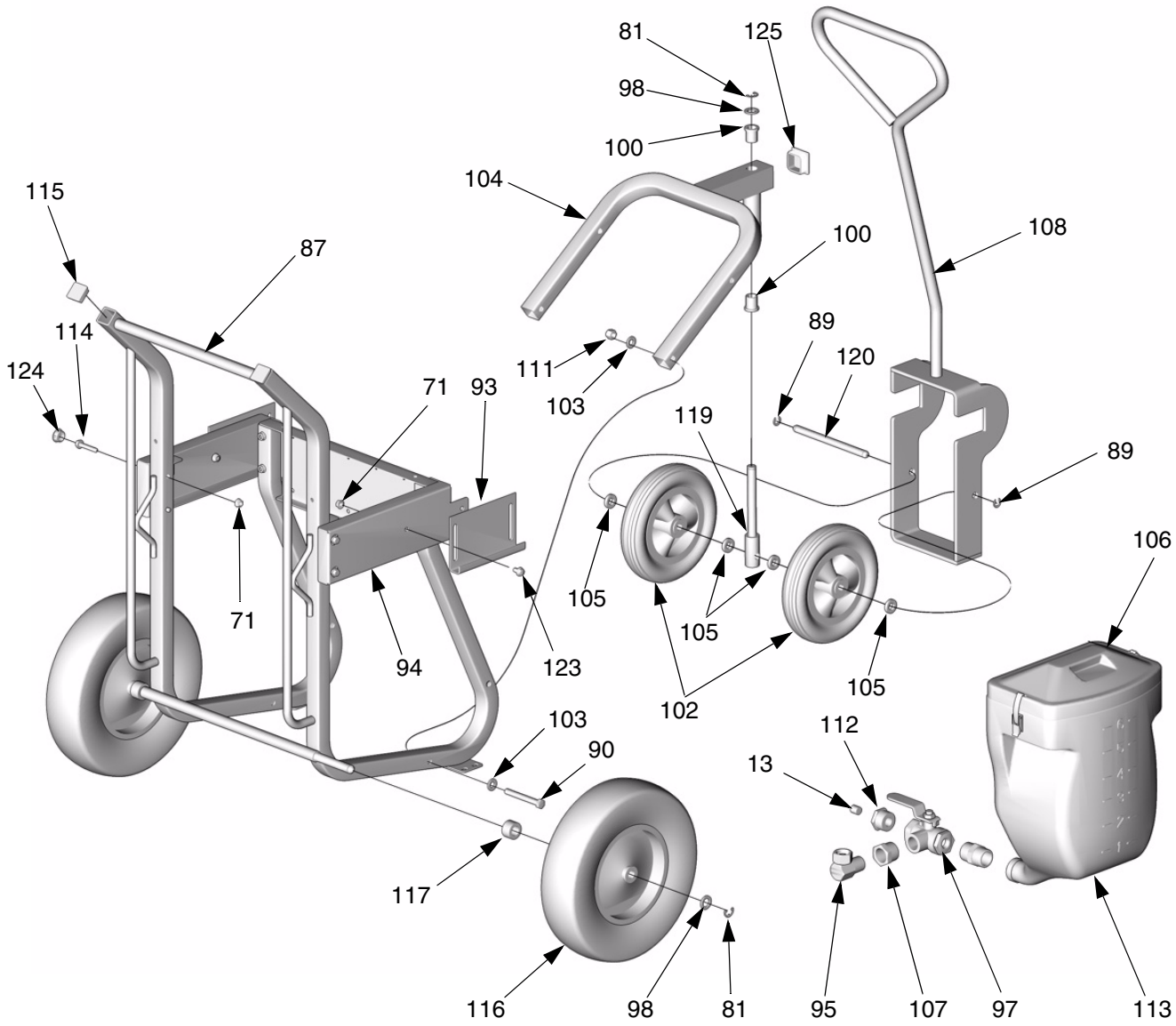


Part No. 234616, Xtreme Mix 185, Non-heated, Intrinsically Safe, continued
Part No. 234617, Xtreme Mix 185, Non-heated, Non-intrinsically Safe, continued



Detail of B Side Muffler

Part No. 234616, Xtreme Mix 185, Non-heated, Intrinsically Safe, continued
Part No. 234617, Xtreme Mix 185, Non-heated, Non-intrinsically Safe, continued



TI4915b

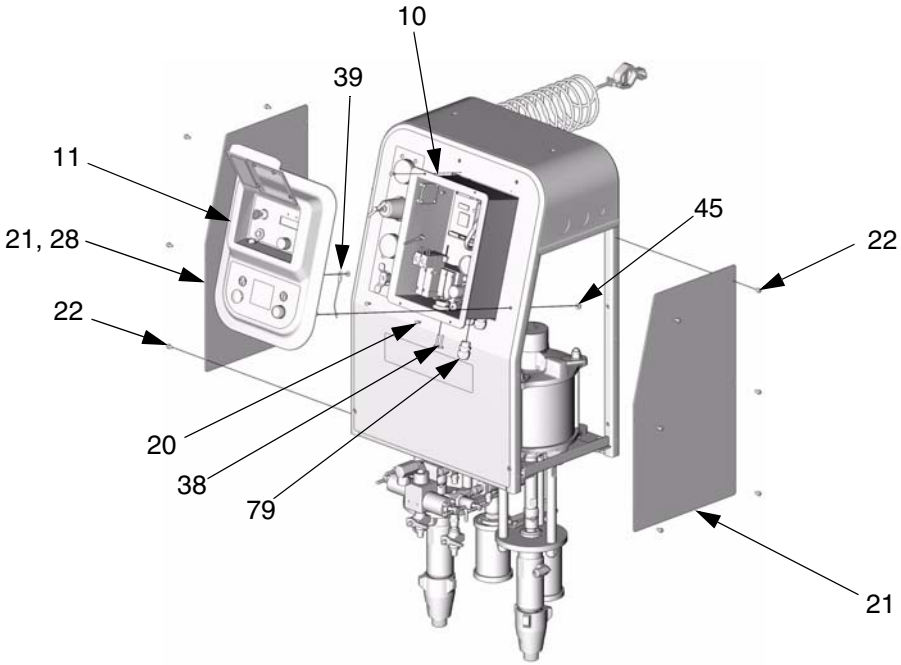
Part No. 234616, Xtreme Mix 185, Non-heated, Intrinsically Safe, continued
Part No. 234617, Xtreme Mix 185, Non-heated, Non-intrinsically Safe, continued

Ref. No.	Part No.	Description	Qty.
1	15D988	FRAME, wall mount	1
2	234450	MIX MANIFOLD; see 310654	1
3	287230	CONTROL, air; see page 45	1
4	109544	ELBOW, pipe; 3/8 npt (mbe)	1
5	116756	ELBOW, street, 45°; 3/8 npt (m x f)	1
6	155665	UNION, adapter; 3/8 npsm(f) x 3/8 npt(m)	1
7	117629	FILTER, air; 5 micron	1
8	114316	ELBOW; 3/8 npt(m) x 3/8 in. (10 mm) OD tube fitting	1
9	15D795	FILTER, air; 40 micron	1
10	248270	PNEUMATIC CONTROL; see page 47	1
11	234621	USER INTERFACE; see page 44	1
12	273011	PUMP; see 310672	1
13	100361	PLUG, pipe; 1/2 npt	3
14	15D873	BRACKET, support, fluid manifold	1
15	114110	ELBOW; 1/2 npt(m) x 1/2 in. (13 mm) OD tube fitting	3
16	C19038	WASHER, lock; 1/4	5
17	112925	SCREW, cap, button hd; 1/4-20 x 3/8 in. (10 mm)	5
18	155494	ELBOW, swivel; 3/8 npt(m) x 3/8 npsm(f)	2
19	156849	NIPPLE; 3/8 npt	3
20	103196	SCREW, machine, phillips; 8-32 x 7/16 in. (11 mm)	4
21	15D987	PLATE, side	2
22	119291	SCREW, self-tapping	20
23	113802	SCREW, hex hd, flanged; 3/8-16 x 5/8 in. (16 mm)	8
24	220598	HOSE, air; nitrile; 1/2 in. (13 mm) ID; 1/2 npt (mbe); 18 in. (457 mm); see also pages 39 and 41	1
25	C19024	ELBOW, swivel; 1/2 npt(m) x 1/2 npsm(f)	1
26	15D607	CABLE, sensor; see **Electrical Schematic**, page 22	2
27	15D794	HARNESS, connector; see **Electrical Schematic**, page 22	2
28▲	290331	LABEL, warning	1
31	101765	GROMMET	2
32	100451	COUPLING; 1/8 npt (fbe)	2
33	115671	CONNECTOR; 1/8 npt(m) x 1/4 in. (6 mm) OD tube	2
34	15D966	BRACKET, muffler	2
35	15E020	FITTING, compression; cst; 1/4 npt(m) x 1/2 in. (13 mm) tube	2
36	15E018	ELBOW, compression; cst; 3/8 npt(m) x 1/2 in. (13 mm) tube	2
37	244524	GROUND WIRE	1
38	113279	PLUG, tube fitting; 5/32 in. (4 mm) OD tube	2
39	113505	NUT, keps, hex hd; 10-24	2
40	551787	SCREW, cap, button hd; 10-32 x 3/8 in. (10 mm)	4
42	15D998	TUBE, fluid, A component; see pages 39 and 41	1
43	15D999	TUBE, fluid, B component; see pages 39 and 41	1
44	114104	SCREW, machine; 1/4-20 x 1-1/2 in. (38 mm)	1
45	115942	NUT, hex, flange hd; 1/4-20	7
50	102656	MUFFLER	2
53	101754	PLUG; 3/8 npt	2
54	100721	PLUG; 1/4 npt	6
56	598095	TUBE; nylon; 5/32 in. (4 mm) OD; clear; see pages 39 and 41	2 ft
57	054753	TUBE; nylon; 5/32 in. (4 mm) OD; black; see pages 39 and 41	2 ft
58	054754	TUBE; nylon; 5/32 in. (4 mm) OD; red; see pages 39 and 41	2 ft
59	054757	TUBE; nylon; 5/32 in. (4 mm) OD; green; see pages 39 and 41	2 ft
61	061134	TUBE; nylon; 1/2 in. (13 mm) OD; see pages 39 and 41	5.8 ft
68	114129	FITTING; 3/8 npt(m) x 1/2 in. (13 mm) OD tube fitting	1
69	100081	BUSHING, pipe; 1/2 npt(m) x 3/8 npt(f)	1
70	054123	TUBE; nylon; 1/4 in. (6 mm) OD; see pages 39 and 41	3.5 ft
71	112958	NUT, hex, flange hd; 3/8-16	16
72	116935	SCREW, cap; 3/8-16 x 3 in. (76 mm)	6
80	XTR704	GUN, spray, airless; see 310743	1
81	113436	RING, retaining	3
86	H53850	HOSE, fluid; nylon; 3/8 in. (10 mm) ID; 3/8 npsm(fbe); 50 ft (15 m)	1
87	15D775	CART	1
88	15D974	PLATE, rear	1
89	101242	RING, retaining	2
90	106123	SCREW, cap, hex hd; 1/2-13 x 4 in. (102 mm)	4
92	113796	SCREW, hex hd, flange; 1/4-20 x 3/4 in. (19 mm)	4
93	15C567	BRACKET, hopper	2
94	15D875	BRACKET, hopper, mount	2
95	119363	ELBOW, swivel; 1 in. npt(m) x 1 in. npsm(f)	2
96	150287	ADAPTER; 1/4 npt(m) x 3/8 npt(f)	1
97	117366	VALVE, ball, 3 way; 1-1/4 npt (f)	2
98	154628	WASHER	3

Ref. No.	Part No.	Description	Qty.
100	15A892	BEARING, bronze	2
101	234097	HOPPER, A component; green	1
102	113807	WHEEL	2
103	101044	WASHER; 1/2	10
104	15E143	SUPPORT, wheel	1
105	191824	WASHER	4
106▲	193185	LABEL, warning	2
107	500054	BUSHING, hex hd; 1 in. npt(f) x 1-1/4 in. npt(m)	2
108	246127	HANDLE, cart	1
109	H72506	HOSE, fluid; nylon; 1/4 in. (6 mm) ID; 1/4 npsm(fbe); 6 ft (1.8 m)	1
110	511352	MIXER, static	1
111	801020	NUT, lock, hex	4
112	C19660	BUSHING; 1-1/4 in. npt(m) x 1/2 npt(f)	2
113	234017	HOPPER, B component; blue	1
114	111194	SCREW, cap, flange hd; 3/8-16 x 2 in. (51 mm)	6
115	111218	CAP, tube	2
116	113362	WHEEL	2
117	15B755	SPACER	2
118	238782	FILTER, fluid; stainless steel; 30 mesh screen	2
119	15A912	AXLE	1
120	15A913	AXLE	1
121	15E187	LIFT RING	2
122	100338	NUT, jam; 1/2-13	2
123	113956	BOLT, carriage; 3/8-16 x 1 in. (25 mm)	4
124	114606	PLUG	4
125	114552	CAP, square	1
126	15B729	COUPLING; 3/8 npsm(m) x 3/8 npt(f)	1
127	195889	BUSHING, strain relief	2
129	15A818	COVER, sensor	2
130	C20272	O-RING	2
131	15E383	BUSHING, strain relief	2

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

Part No. 234614, Xtreme Mix 185, Non-heated, Wall Mount, Intrinsically Safe
Part No. 234615, Xtreme Mix 185, Non-heated, Wall Mount, Non-intrinsically Safe



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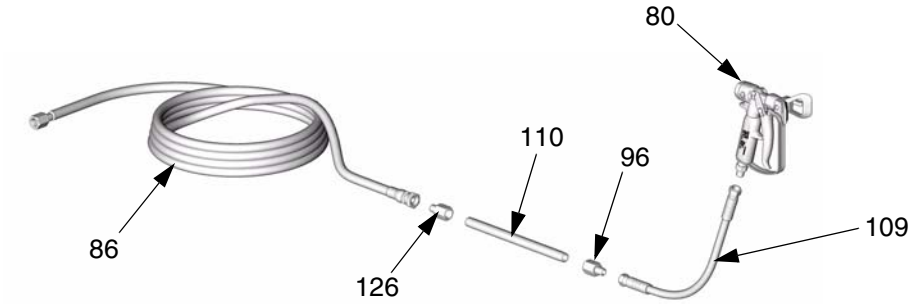

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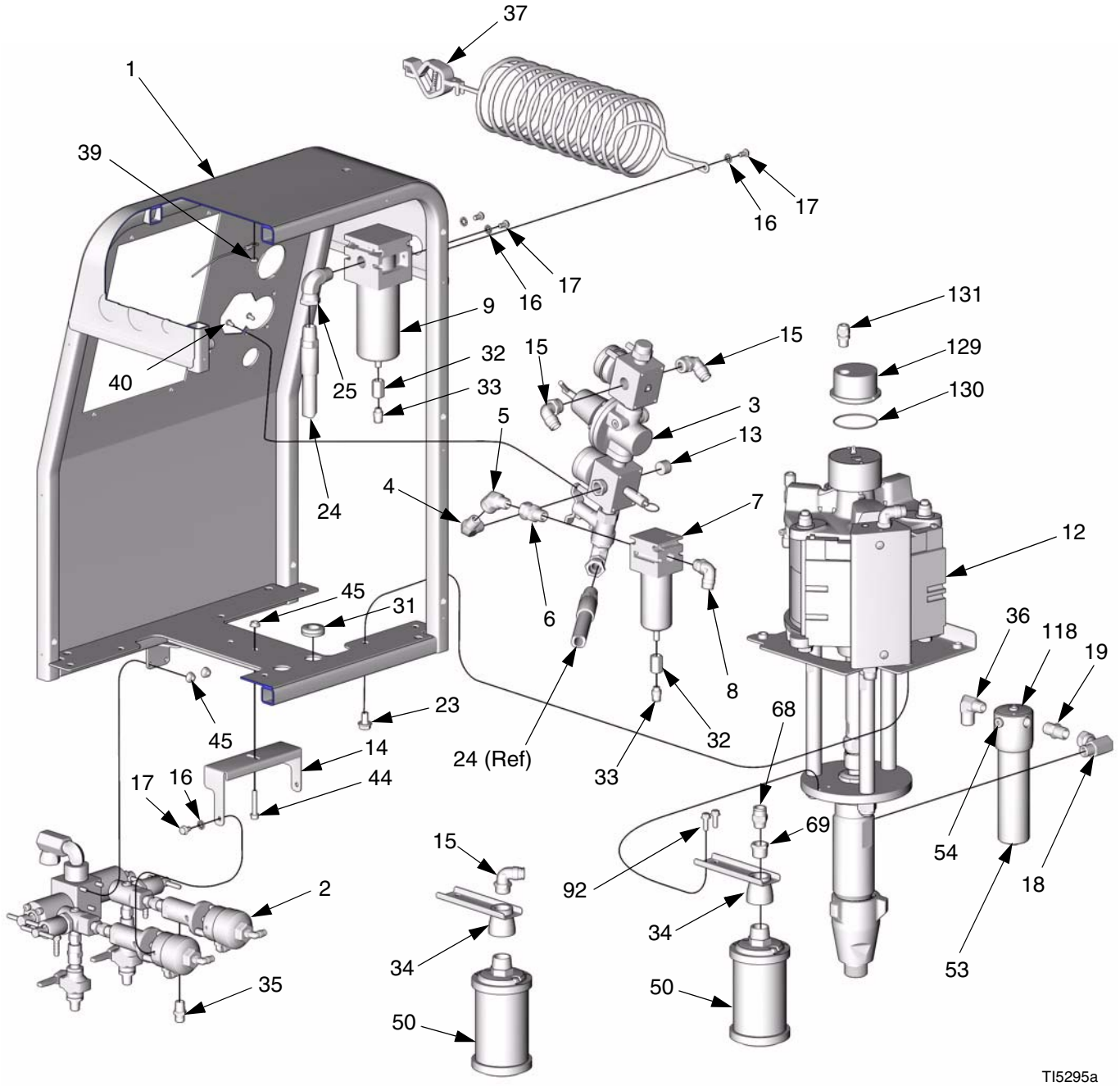
Part No. 234614, Xtreme Mix 185, Non-heated, Wall Mount, Intrinsically Safe, continued
Part No. 234615, Xtreme Mix 185, Non-heated, Wall Mount, Non-intrinsically Safe, continued



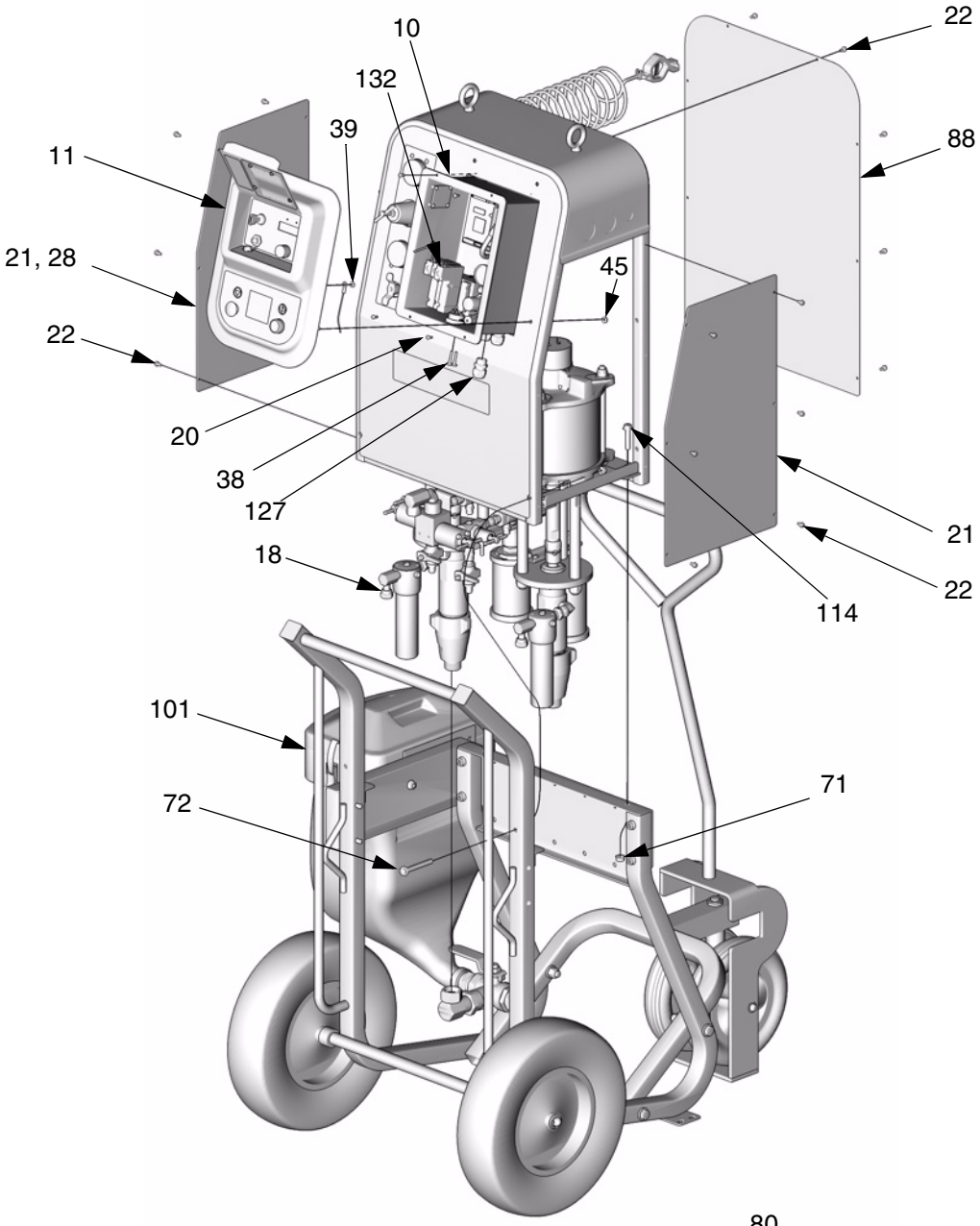
Detail of B Side Muffler

Part No. 234614, Xtreme Mix 185, Non-heated, Wall Mount, Intrinsically Safe, continued
Part No. 234615, Xtreme Mix 185, Non-heated, Wall Mount, Non-intrinsically Safe, continued

Ref. No.	Part No.	Description	Qty.
1	15D988	FRAME, wall mount	1
2	234450	MIX MANIFOLD; see 310654	1
3	287230	CONTROL, air; see page 45	1
4	109544	ELBOW, pipe; 3/8 npt (mbe)	1
5	116756	ELBOW, street, 45°; 3/8 npt (mxf)	1
6	155665	UNION, adapter; 3/8 npsm(f) x 3/8 npt(m)	1
7	117629	FILTER, air; 5 micron	1
8	114316	ELBOW; 3/8 npt(m) x 3/8 in. (10 mm) OD tube fitting	1
9	15D795	FILTER, air; 40 micron	1
10	248270	PNEUMATIC CONTROL; see page 42	1
11	234621	USER INTERFACE; see page 44	1
12	273011	PUMP, HydraMix 700, cst; see 310672	2
13	100361	PLUG, pipe; 1/2 npt	1
14	15D873	BRACKET, support, fluid manifold	1
15	114110	ELBOW; 1/2 npt(m) x 1/2 in. (13 mm) OD tube fitting	3
16	C19038	WASHER, lock; 1/4	5
17	112925	SCREW, cap, button hd; 1/4-20 x 3/8 in. (10 mm)	5
18	155494	ELBOW, swivel; 3/8 npt(m) x 3/8 npsm(f)	2
19	156849	NIPPLE; 3/8 npt	3
20	103196	SCREW, machine, phillips; 8-32 x 7/16 in. (11 mm)	4
21	15D987	PLATE, side	2
22	119291	SCREW, self-tapping	12
23	113802	SCREW, hex hd, flanged; 3/8-16 x 5/8 in. (16 mm)	8
24	220598	HOSE, air; nitrile; 1/2 in. (13 mm) ID; 1/2 npt (mbe); 18 in. (457 mm); see also pages 39 and 41	1
25	C19024	ELBOW, swivel; 1/2 npt(m) x 1/2 npsm(f)	1
26	15D607	CABLE, sensor; page 22	2
27	15D794	HARNESS, connector; page 22	2
28▲	290331	LABEL, warning	1
31	101765	GROMMET	2
32	100451	COUPLING; 1/8 npt (fbe)	2
33	115671	CONNECTOR; 1/8 npt(m) x 1/4 in. (6 mm) OD tube	2
34	15D966	BRACKET, muffler	2
35	15E020	FITTING, compression; cst; 1/4 npt(m) x 1/2 in. (13 mm) tube	2
36	15E018	ELBOW, compression; cst; 3/8 npt(m) x 1/2 in. (13 mm) tube	2
37	244524	GROUND WIRE	1
38	113279	PLUG, tube fitting; 5/32 in. (4 mm) OD tube	2
39	113505	NUT, keps, hex hd; 10-24	2
40	551787	SCREW, cap, button hd; 10-32 x 3/8 in. (10 mm)	4
42	15D998	TUBE, fluid, A component; see pages 39 and 41	1
43	15D999	TUBE, fluid, B component; see pages 39 and 41	1
44	114104	SCREW, machine; 1/4-20 x 1-1/2 in. (38 mm)	1
45	115942	NUT, hex, flange hd; 1/4-20	7
50	102656	MUFFLER	2
53	101754	PLUG; 3/8 npt	2
54	100721	PLUG; 1/4 npt	6
56	598095	TUBE; nylon; 5/32 in. (4 mm) OD; clear; see pages 39 and 41	2 ft
57	054753	TUBE; nylon; 5/32 in. (4 mm) OD; black; see pages 39 and 41	2 ft
58	054754	TUBE; nylon; 5/32 in. (4 mm) OD; red; see pages 39 and 41	2 ft
59	054757	TUBE; nylon; 5/32 in. (4 mm) OD; green; see pages 39 and 41	2 ft
60	C12508	TUBE; nylon; 3/8 in. (10 mm) OD; black; see pages 39 and 41	0.7 ft
61	061134	TUBE; nylon; 1/2 in. (13 mm) OD; see pages 39 and 41	5.2 ft
68	114129	FITTING; 3/8 npt(m) x 1/2 in. (13 mm) OD tube fitting	1
69	100081	BUSHING, pipe; 1/2 npt(m) x 3/8 npt(f)	1
70	054123	TUBE; nylon; 1/4 in. (6 mm) OD; see pages 39 and 41	4 ft
79	195889	BUSHING, strain relief	2
80	XTR704	GUN, spray, airless; see 310743	1
86	H53850	HOSE, fluid; nylon; 3/8 in (10 mm) ID; 3/8 npsm(fbe); 50 ft (15 m)	1
92	113796	SCREW, hex hd, flange; 1/4-20 x 3/4 in. (19 mm)	4
96	165198	NIPPLE, reducing; 1/4 npt(m) x 3/8 npt(m)	1
109	H72506	HOSE, fluid; nylon; 1/4 in. (6 mm) ID; 1/4 npsm (fbe); 6 ft (1.8 m)	1
110	511352	MIXER, static	1
118	238782	FILTER, fluid; sst; 30 mesh	2
126	15B729	COUPLING; 3/8 npsm(m) x 3/8 npt(f)	1
129	15A818	COVER, sensor	2
130	C20272	O-RING	2
131	15E383	BUSHING, strain relief	2

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

Part No. 234838, Xtreme Mix 185, 240V Heaters, Intrinsically Safe
Part No. 234839, Xtreme Mix 185, 240V Heaters, Non-intrinsically Safe
Part No. 234840, Xtreme Mix 185, 480V Heaters, Intrinsically Safe
Part No. 234841, Xtreme Mix 185, 480V Heaters, Non-intrinsically Safe



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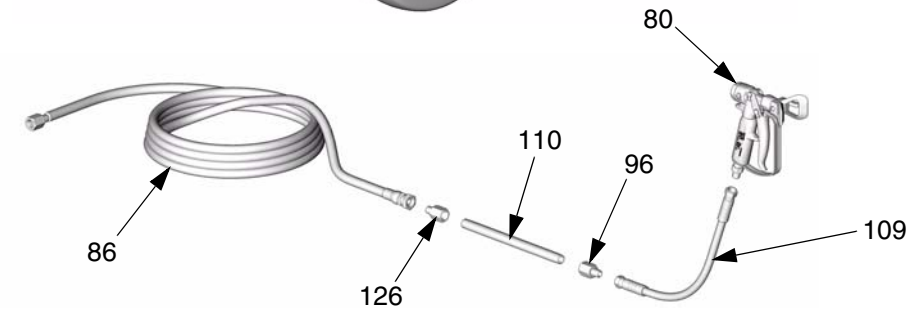

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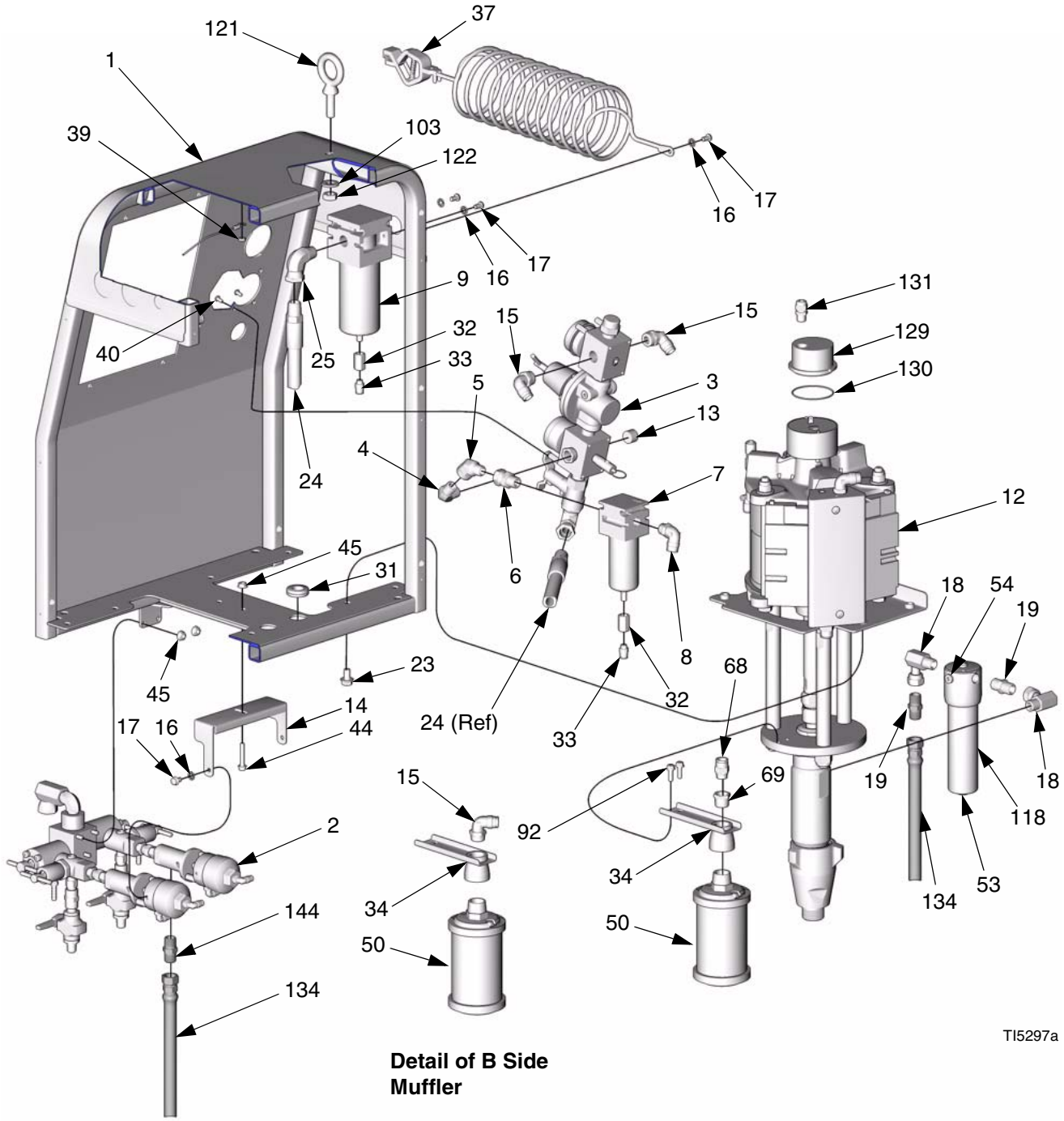
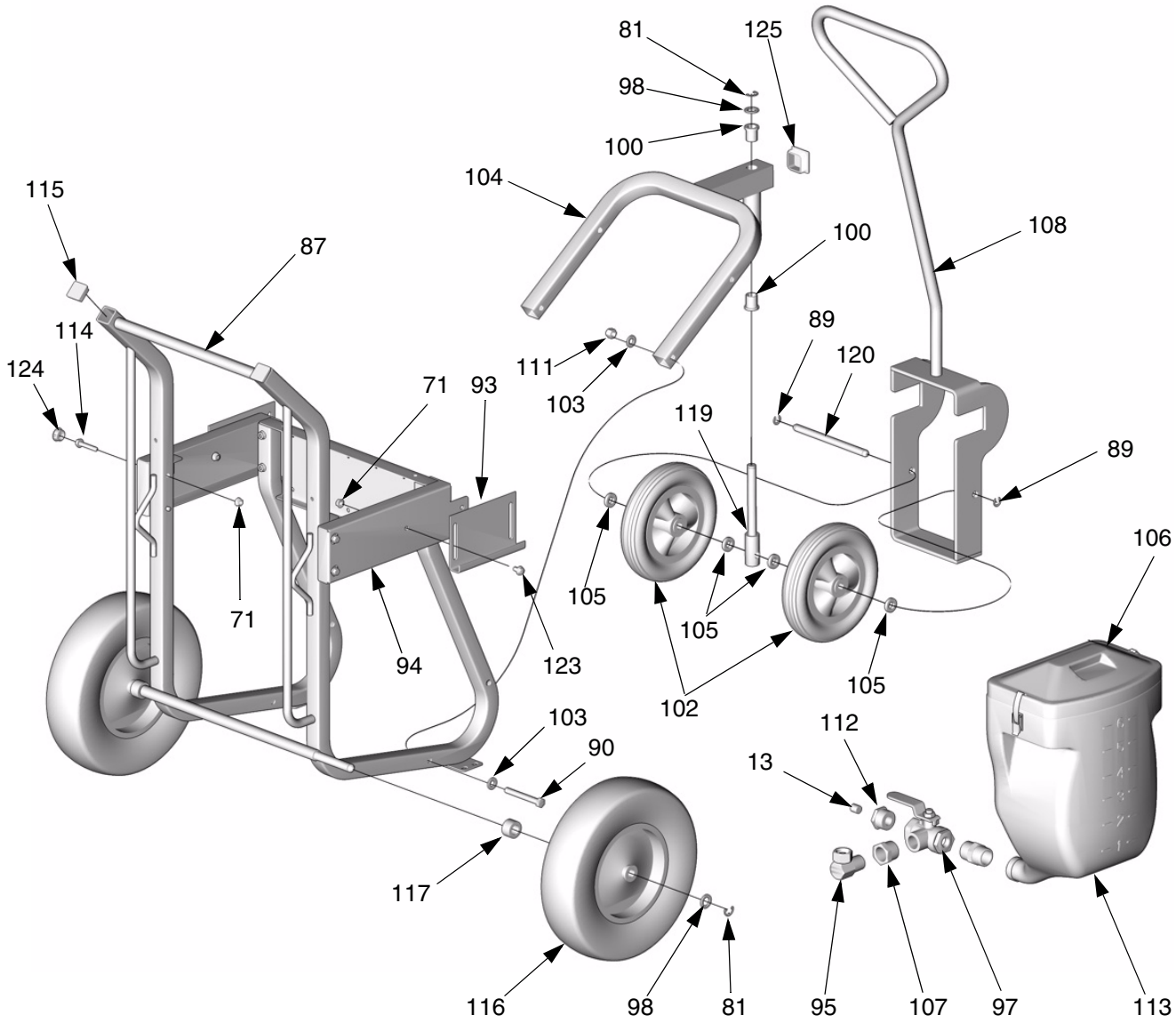
Part No. 234838, Xtreme Mix 185, 240V Heaters, Intrinsically Safe, continued
Part No. 234839, Xtreme Mix 185, 240V Heaters, Non-intrinsically Safe, continued
Part No. 234840, Xtreme Mix 185, 480V Heaters, Intrinsically Safe, continued
Part No. 234841, Xtreme Mix 185, 480V Heaters, Non-intrinsically Safe, continued



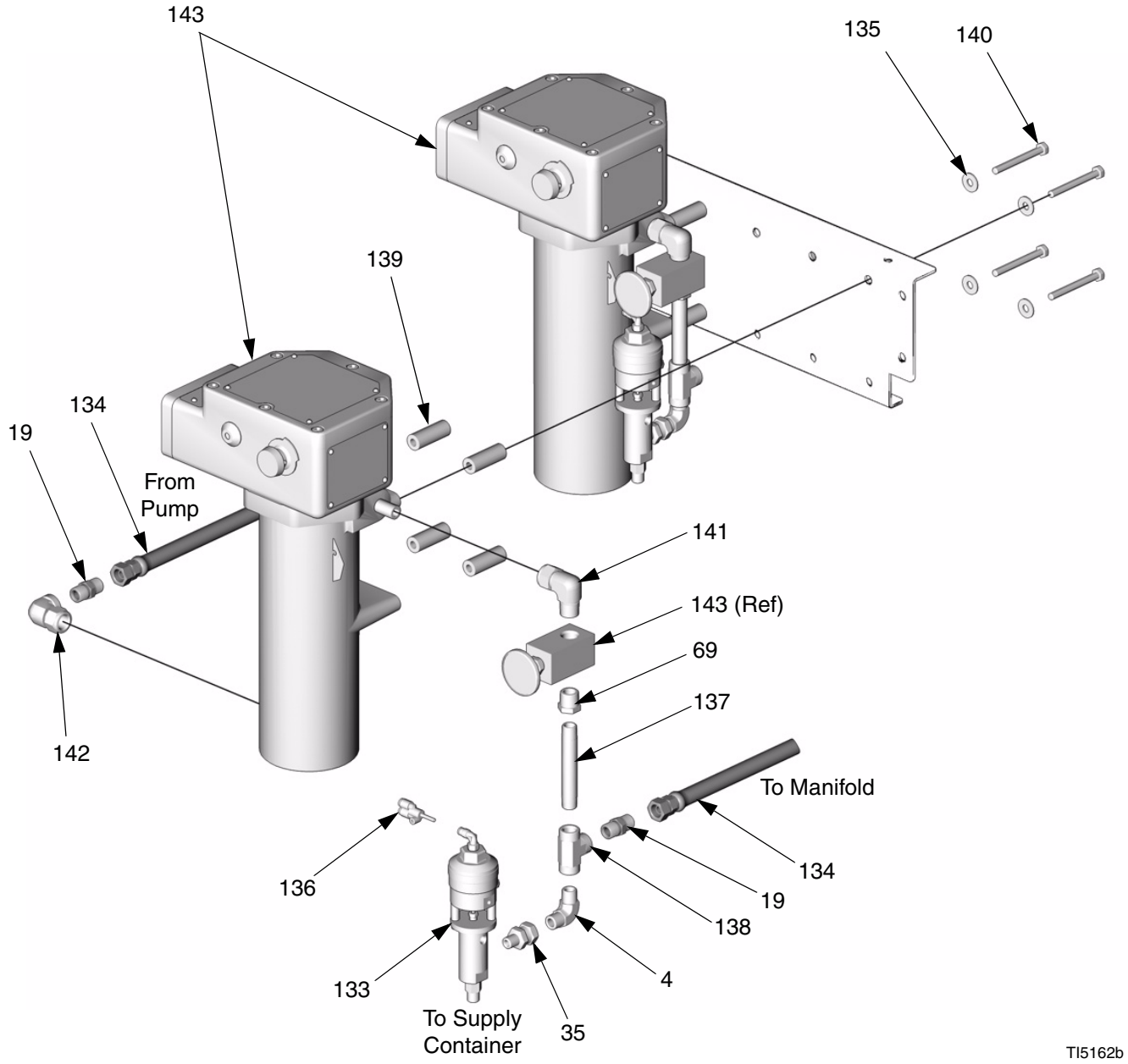
Detail of B Side Muffler

Part No. 234838, Xtreme Mix 185, 240V Heaters, Intrinsically Safe, continued
Part No. 234839, Xtreme Mix 185, 240V Heaters, Non-intrinsically Safe, continued
Part No. 234840, Xtreme Mix 185, 480V Heaters, Intrinsically Safe, continued
Part No. 234841, Xtreme Mix 185, 480V Heaters, Non-intrinsically Safe, continued



TI4915b

Part No. 234838, Xtreme Mix 185, 240V Heaters, Intrinsically Safe, continued
Part No. 234839, Xtreme Mix 185, 240V Heaters, Non-intrinsically Safe, continued
Part No. 234840, Xtreme Mix 185, 480V Heaters, Intrinsically Safe, continued
Part No. 234841, Xtreme Mix 185, 480V Heaters, Non-intrinsically Safe, continued



Part No. 234838, Xtreme Mix 185, 240V Heaters, Intrinsically Safe, continued
Part No. 234839, Xtreme Mix 185, 240V Heaters, Non-intrinsically Safe, continued
Part No. 234840, Xtreme Mix 185, 480V Heaters, Intrinsically Safe, continued
Part No. 234841, Xtreme Mix 185, 480V Heaters, Non-intrinsically Safe, continued

Ref. No.	Part No.	Description	Qty.
1	15D988	FRAME, wall mount	1
2	234450	MIX MANIFOLD; see 310654	1
3	287230	CONTROL, air; see page 45	1
4	109544	ELBOW, pipe; 3/8 npt (mbe)	3
5	116756	ELBOW, street, 45°; 3/8 npt (m x f)	1
6	155665	UNION, adapter; 3/8 npsm(f) x 3/8 npt(m)	1
7	117629	FILTER, air; 5 micron	1
8	114316	ELBOW; 3/8 npt(m) x 3/8 in. (10 mm) OD tube fitting	1
9	15D795	FILTER, air; 40 micron	1
10	248270	PNEUMATIC CONTROL; see page 47	1
11	234621	USER INTERFACE; see page 44	1
12	273011	PUMP; see 310672	1
13	100361	PLUG, pipe; 1/2 npt	3
14	15D873	BRACKET, support, fluid manifold	1
15	114110	ELBOW; 1/2 npt(m) x 1/2 in. (13 mm) OD tube fitting	3
16	C19038	WASHER, lock; 1/4	5
17	112925	SCREW, cap, button hd; 1/4-20 x 3/8 in. (10 mm)	5
18	155494	ELBOW, swivel; 3/8 npt(m) x 3/8 npsm(f)	4
19	156849	NIPPLE; 3/8 npt	9
20	103196	SCREW, machine, phillips; 8-32 x 7/16 in. (11 mm)	4
21	15D987	PLATE, side	2
22	119291	SCREW, self-tapping	20
23	113802	SCREW, hex hd, flanged; 3/8-16 x 5/8 in. (16 mm)	8
24	220598	HOSE, air; nitrile; 1/2 in. (13 mm) ID; 1/2 npt (mbe); 18 in. (457 mm); see also pages 40 and 41	1
25	C19024	ELBOW, swivel; 1/2 npt(m) x 1/2 npsm(f)	1
26	15D607	CABLE, sensor; see **Electrical Schematic**, page 22	2
27	15D794	HARNESS, connector; see **Electrical Schematic**, page 22	2
28▲	290331	LABEL, warning	1
31	101765	GROMMET	2
32	100451	COUPLING; 1/8 npt (fbe)	2
33	115671	CONNECTOR; 1/8 npt(m) x 1/4 in. (6 mm) OD tube	2
34	15D966	BRACKET, muffler	2
35	157705	UNION, swivel; 1/4 npt(m) x 3/8 npsm(f); cst	2
37	244524	GROUND WIRE	1
38	113279	PLUG, tube fitting; 5/32 in. (4 mm) OD tube	2
39	113505	NUT, keps, hex hd; 10-24	2
40	551787	SCREW, cap, button hd; 10-32 x 3/8 in. (10 mm)	4
42	15D998	TUBE, fluid, A component; see pages 40 and 41	1
43	15D999	TUBE, fluid, B component; see pages 40 and 41	1
44	114104	SCREW, machine; 1/4-20 x 1-1/2 in. (38 mm)	1
45	115942	NUT, hex, flange hd; 1/4-20	7
50	102656	MUFFLER	2
53	101754	PLUG; 3/8 npt	2
54	100721	PLUG; 1/4 npt	6
56	598095	TUBE; nylon; 5/32 in. (4 mm) OD; clear; see pages 40 and 41	6.8 ft
57	054753	TUBE; nylon; 5/32 in. (4 mm) OD; black; see pages 40 and 41	6.8 ft
58	054754	TUBE; nylon; 5/32 in. (4 mm) OD; red; see pages 40 and 41	2 ft
59	054757	TUBE; nylon; 5/32 in. (4 mm) OD; green; see pages 40 and 41	2 ft
61	061134	TUBE; nylon; 1/2 in. (13 mm) OD; see pages 40 and 41	5.8 ft
68	114129	FITTING; 3/8 npt(m) x 1/2 in. (13 mm) OD tube fitting	1
69	100081	BUSHING, pipe; 1/2 npt(m) x 3/8 npt(f)	3
70	054123	TUBE; nylon; 1/4 in. (6 mm) OD; see pages 40 and 41	3.5 ft
71	112958	NUT, hex, flange hd; 3/8-16	16
72	116935	SCREW, cap; 3/8-16 x 3 in. (76 mm)	6
80	XTR702	GUN, spray, airless; see 310743	1
81	113436	RING, retaining	3
86	H53850	HOSE, fluid; nylon; 3/8 in. (10 mm) ID; 3/8 npsm(fbe); 50 ft (15 m)	1
87	15D775	CART	1
88	15D974	PLATE, rear	1
89	101242	RING, retaining	2
90	106123	SCREW, cap, hex hd; 1/2-13 x 4 in. (102 mm)	4
92	113796	SCREW, hex hd, flange; 1/4-20 x 3/4 in. (19 mm)	4
93	15C567	BRACKET, hopper	2
94	15D875	BRACKET, hopper, mount	2
95	119363	ELBOW, swivel; 1 in. npt(m) x 1 in. npsm(f)	2
96	150287	ADAPTER; 1/4 npt(m) x 3/8 npt(f)	1

Ref. No.	Part No.	Description	Qty.
97	117366	VALVE, ball, 3 way; 1-1/4 npt (f)	2
98	154628	WASHER	3
100	15A892	BEARING, bronze	2
101	234097	HOPPER, A component; green	1
102	113807	WHEEL	2
103	101044	WASHER; 1/2	10
104	15E143	SUPPORT, wheel	1
105	191824	WASHER	4
106▲	193185	LABEL, warning	2
107	500054	BUSHING, hex hd; 1 in. npt(f) x 1-1/4 in. npt(m)	2
108	246127	HANDLE, cart	1
109	H72506	HOSE, fluid; nylon; 1/4 in. (6 mm) ID; 1/4 npsm(fbe); 6 ft (1.8 m)	1
110	511352	MIXER, static	1
111	801020	NUT, lock, hex	4
112	C19660	BUSHING; 1-1/4 in. npt(m) x 1/2 npt(f)	2
113	234017	HOPPER, B component; blue	1
114	111194	SCREW, cap, flange hd; 3/8-16 x 2 in. (51 mm)	6
115	111218	CAP, tube	2
116	113362	WHEEL	2
117	15B755	SPACER	2
118	238782	FILTER, fluid; stainless steel; 30 mesh screen	2
119	15A912	AXLE	1
120	15A913	AXLE	1
121	15E187	LIFT RING	2
122	100338	NUT, jam; 1/2-13	2
123	113956	BOLT, carriage; 3/8-16 x 1 in. (25 mm)	4
124	114606	PLUG	4
125	114552	CAP, square	1
126	15B729	COUPLING; 3/8 npsm(m) x 3/8 npt(f)	1
127	195889	BUSHING, strain relief	2
129	15A818	COVER, sensor	2
130	C20272	O-RING	2
131	15E383	BUSHING, strain relief	2
132	552180	VALVE, solenoid; 12 Vdc	1
133	287222	VALVE, circulation; see 310655	2
134	H53803	HOSE; nylon; 3/8 npt(fbe); 3/8 in. (10 mm) ID; 3 ft (0.9 m); see also pages 40 and 41	4
135	100023	WASHER, flat; 3/8	8
136	198175	Y-CONNECTOR, push-in tube; 5/32 in. (4 mm) OD tube	2
137	100195	NIPPLE; 3/8 npt; cst	2
138	105690	TEE; 3/8 npt(f); cst	2
139	15E391	SPACER, heater mount	8
140	107557	SCREW, cap, hex hd; M8-1.25 x 75 mm	8
141	15E272	ELBOW, tube; 1/2 npt(m) x 5/8 in. (16 mm) OD tube; cst	2
142	15E273	ELBOW, tube; 3/8 npt(f) x 5/8 in. (16 mm) OD tube; sst	2
143	245863	HEATER, fluid; see 309524; used on 240V models only	2
	245864	HEATER, fluid; see 309524; used on 480V models only	2
144	165198	NIPPLE, reducing; 1/4 npt(m) x 3/8 npt(m)	2

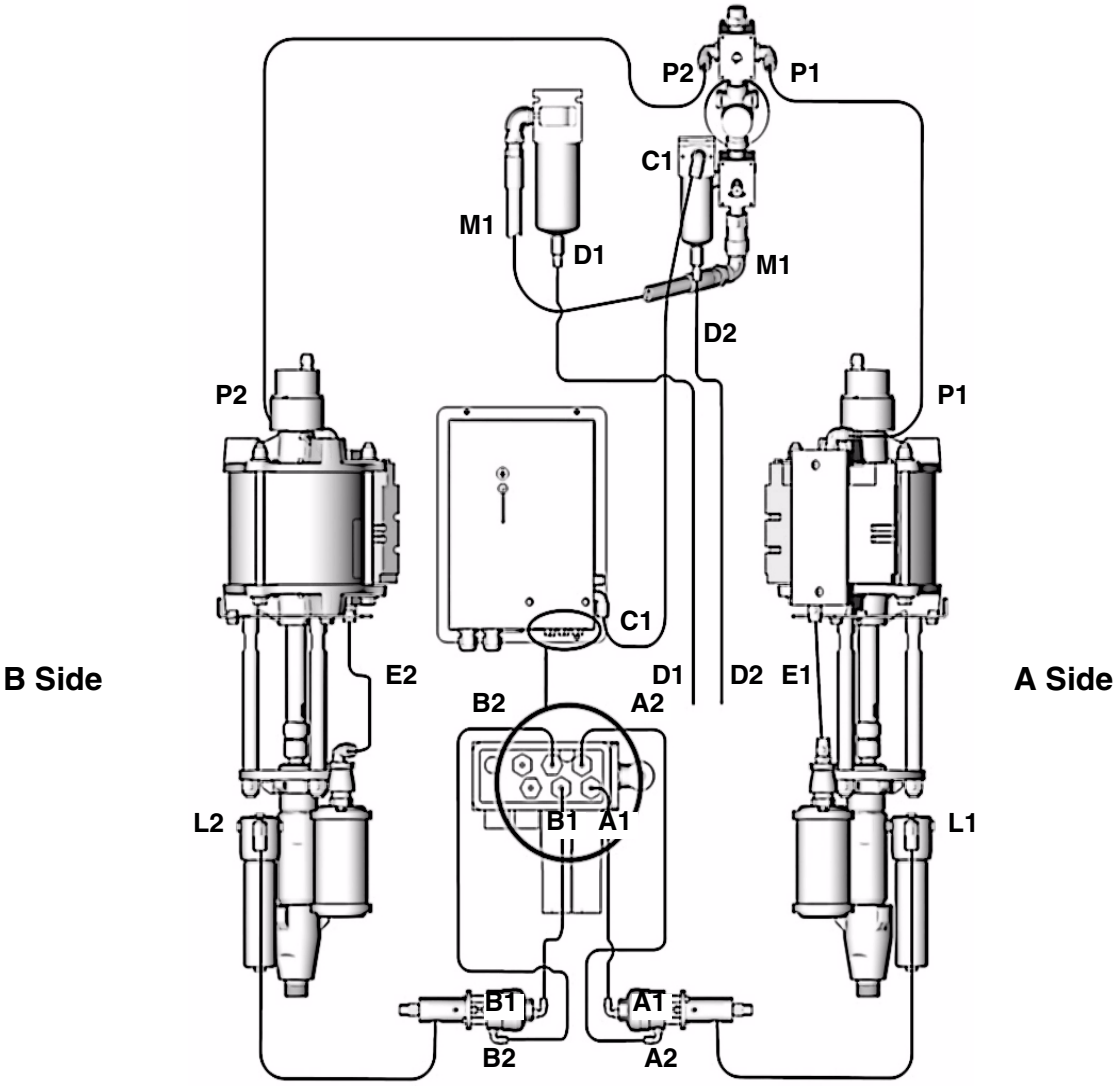
▲ *Replacement Danger and Warning labels, tags, and cards are available at no cost.*

Tube Connections, Non-heated Units

Find the keys on the drawing to ensure proper connections.

Key	Description	Ref. No.	Length, in. (mm)
A1	Dispense Valve A OFF	56	24 (610)
A2	Dispense Valve A ON	57	24 (610)
B1	Dispense Valve B OFF	59	24 (610)
B2	Dispense Valve B ON	58	24 (610)
C1	Air to Pneumatic Control (10)	61	8 (203)
D1	Air Filter (9) Drain Tube	70	24 (610)
D2	Air Filter (7) Drain Tube	70	18 (457)

Key	Description	Ref. No.	Length, in. (mm)
E1	Pump A Exhaust	61	8 (203)
E2	Pump B Exhaust	61	12 (305)
L1	Fluid Line, Pump A to Dispense Valve A	42	molded tube
L2	Fluid Line, Pump B to Dispense Valve B	43	molded tube
M1	Air Filter (9) to Air Control (3)	24	18 (457)
P1	Pump A Input Air	61	18 (457)
P2	Pump B Input Air	61	24 (610)



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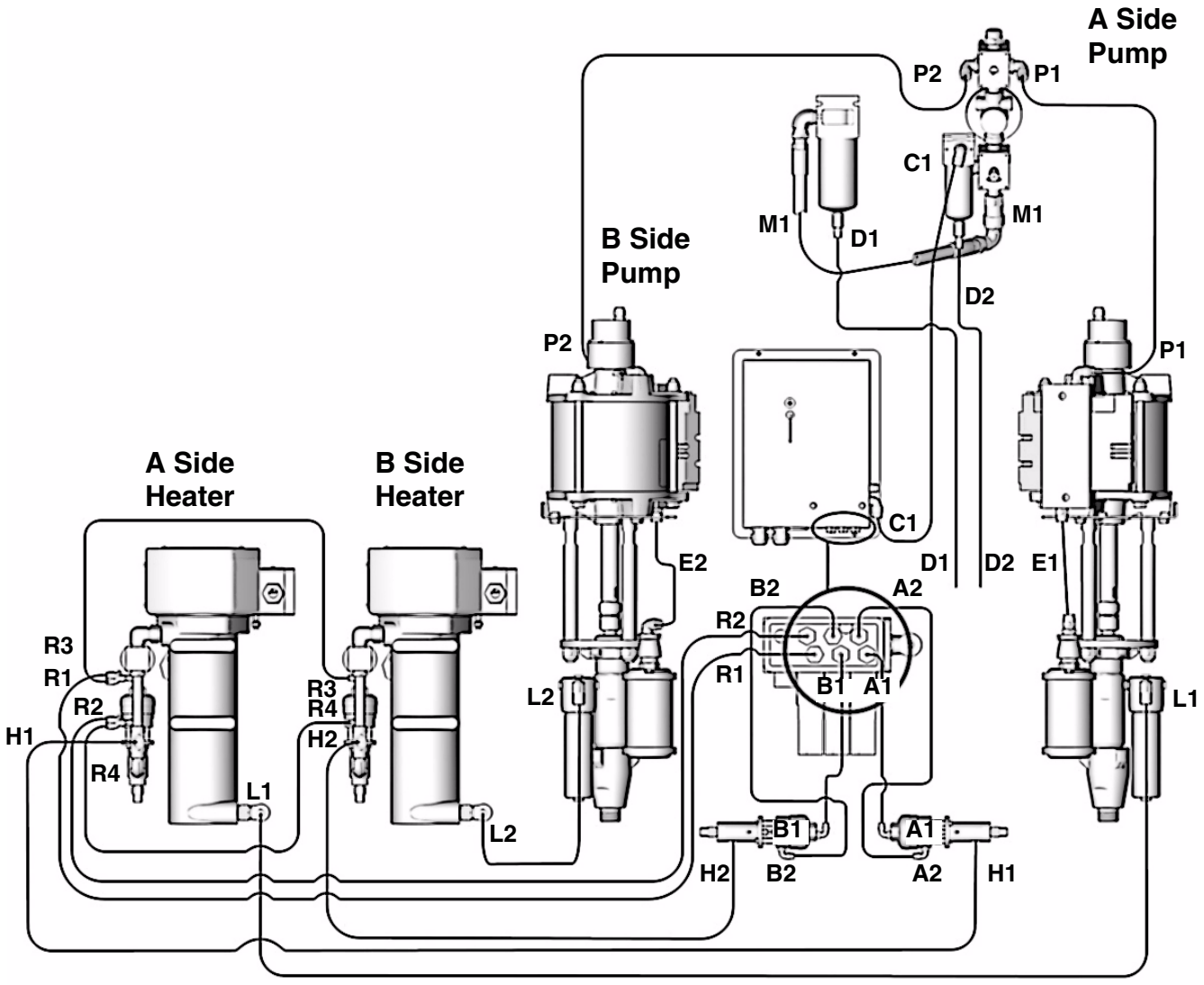
Tube Connections, Heated Units

Find the keys on the drawing to ensure proper connections.

Key	Description	Ref. No.	Length, in. (mm)
A1	Dispense Valve A OFF	56	24 (610)
A2	Dispense Valve A ON	57	24 (610)
B1	Dispense Valve B OFF	59	24 (610)
B2	Dispense Valve B ON	58	24 (610)
C1	Air to Pneumatic Control (10)	61	8 (203)
D1	Air Filter (9) Drain Tube	70	24 (610)
D2	Air Filter (7) Drain Tube	70	18 (457)
E1	Pump A Exhaust	61	8 (203)
E2	Pump B Exhaust	61	12 (305)
H1	Fluid Line, Heater A to Dispense Valve A	134	36 (915)
H2	Fluid Line, Heater B to Dispense Valve B	134	36 (915)
L1	Fluid Line, Pump A to Heater A	134	36 (915)
L2	Fluid Line, Pump B to Heater B	134	36 (915)
M1	Air Filter (9) to Air Control (3)	24	18 (457)
P1	Pump A Input Air	61	18 (457)
P2	Pump B Input Air	61	24 (610)
R1	Circulation Valve A OFF	56	36 (915)
R2	Circulation Valve A ON	57	36 (915)
R3	Circulation Valve B OFF	56	20 (508)
R4	Circulation Valve B ON	57	20 (508)



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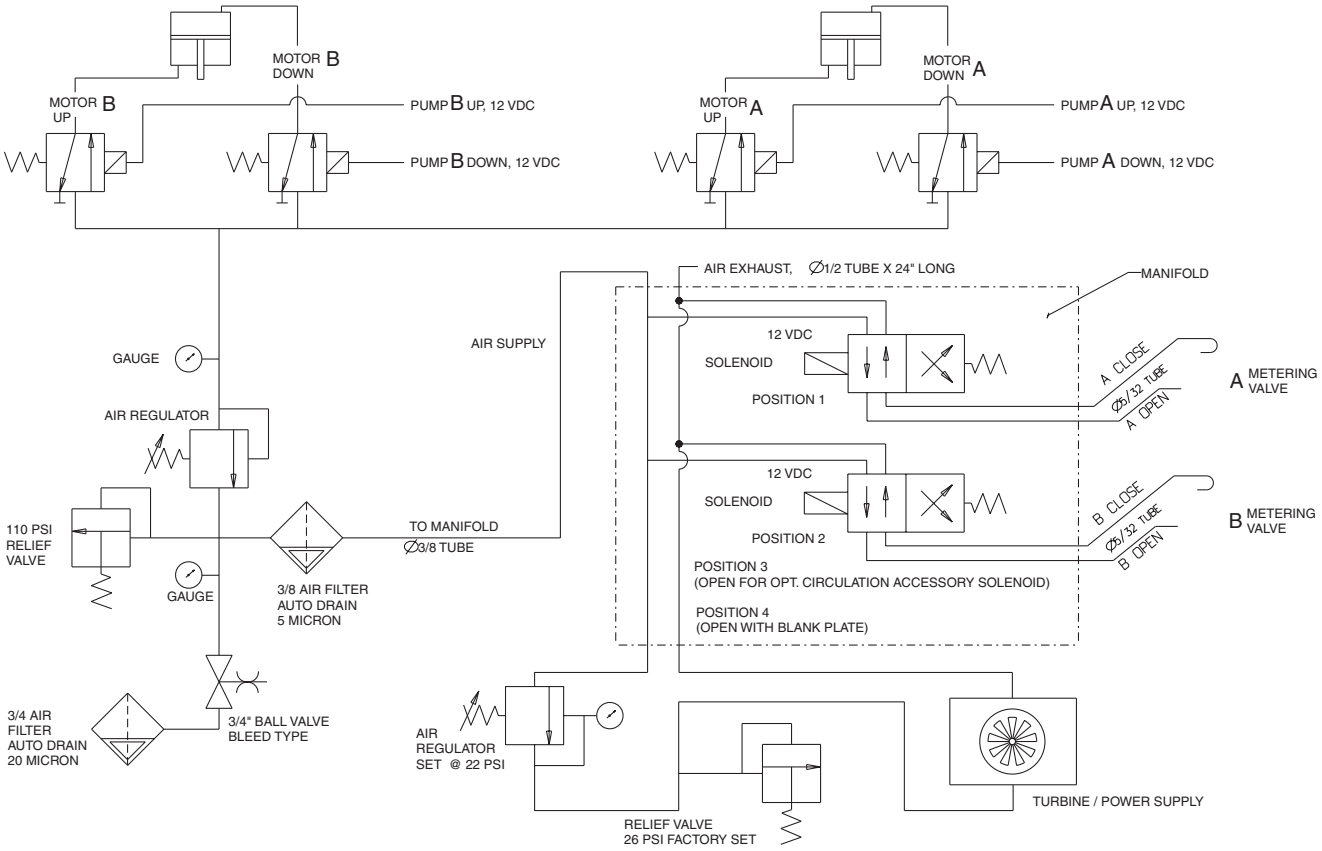
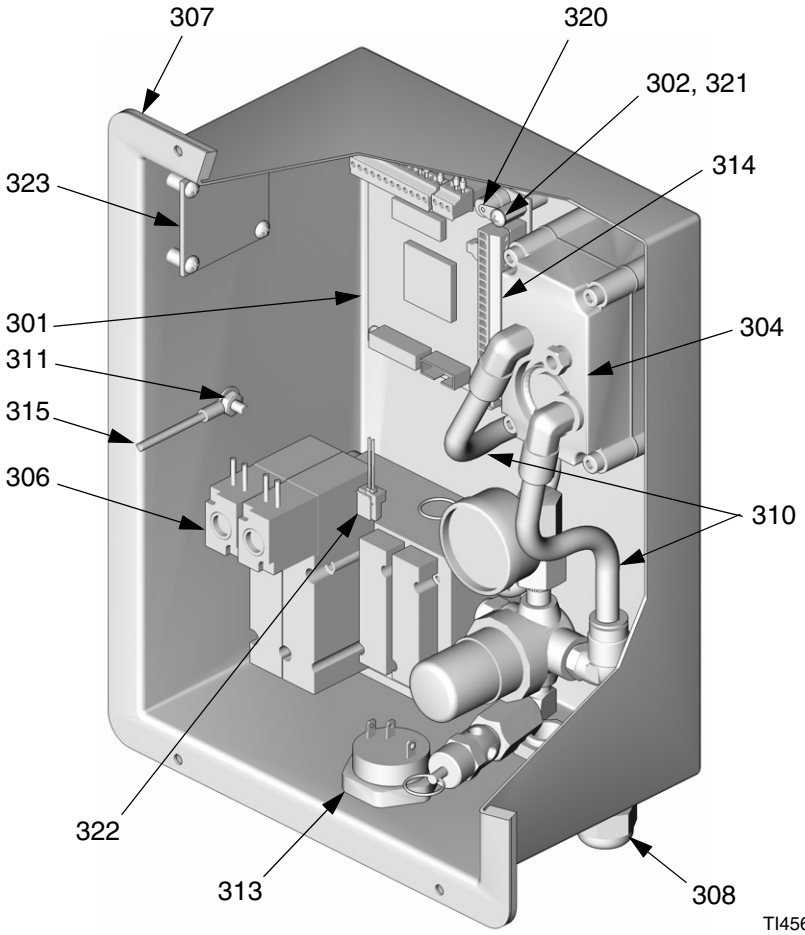
Pneumatic Schematic



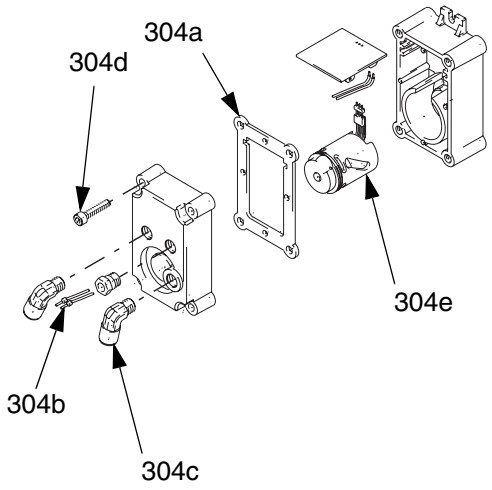
248270 Pneumatic Control

Ref. No.	Part No.	Description	Qty.
301	248349	CIRCUIT BOARD, main	1
302	100035	SCREW, machine, phillips; 8-32 x 5/16 in. (8 mm)	8
304	245854	MODULE, alternator; includes items 304a-304e	1
304a	193154	• GASKET; LDPE foam	1
304b	15A853	• WIRE HARNESS	1
304c	111225	• ELBOW; 1/8 npt(m) x 3/8 in. (10 mm) tube fitting	2
304d	114380	• SCREW; M5 x 25	4
304e	249254	• TURBINE ALTERNATOR	1
305	109466	NUT, lock, w/nylon insert; 8-32	2
306	248268	MODULE, solenoid; includes items 306a-306u	1
306a	15A822	• MANIFOLD	1
306b	117356	• VALVE, 12 VDC, IS	2
306c	114263	• FITTING; 1/8 npt x 5/32 in. (4 mm) tube	6
306d‡	156971	• NIPPLE; 1/4 npt	1
306e	115243	• AIR REGULATOR; 1/4 npt	1
306f	115841	• ELBOW; 1/4 npt x 3/8 in. (10 mm) tube fitting	3
306g	160701	• ELBOW, street; 1/8 npt(m x f)	1
306h	108190	• GAUGE	1
306j‡	15A798	• GASKET, neoprene	1
306k‡	15A799	• GASKET, neoprene	1
306m	110207	• ELBOW; 1/8 npt (mbe)	1
306n‡	104765	• PLUG, pipe; 1/8 ptf	6
306p	517449	• MUFFLER	1
306q†	112512	• WIRE FERRULE, orange (not shown)	8
306r	117369	• CONNECTOR, 12 position	1
306s	150278	• ADAPTER, 1/4 x 1/8 npt	1
306t	117480	• SAFETY RELIEF VALVE, 26 psi (179 kPa, 1.8 bar)	1
306u	552183	• PLATE	2
307	15A800	GASKET; neoprene	1
308	114421	BUSHING, strain relief	2
309	106084	SCREW, machine; M5 x 0.8; 10 mm	2
310	590385	TUBE, poly-flo	1 ft
311	113505	NUT, keps; 10-24	1
312	104029	CLAMP, ground	1
313	15A849	HARNESS, wire, alarm	1
314	117442	CONNECTOR, plug, 18 position	1
315	15B090	WIRE, grounding, door	1
317	111307	WASHER, lock, external tooth; M5	1
318	065213	WIRE, copper	3 ft
320	118132	TERMINAL, lug, lockwasher	1
321	118129	SPACER	1
322	114213	HARNESS, connector	1
323	246899	CIRCUIT BOARD	1
324	112512	FERRULE, wire	2

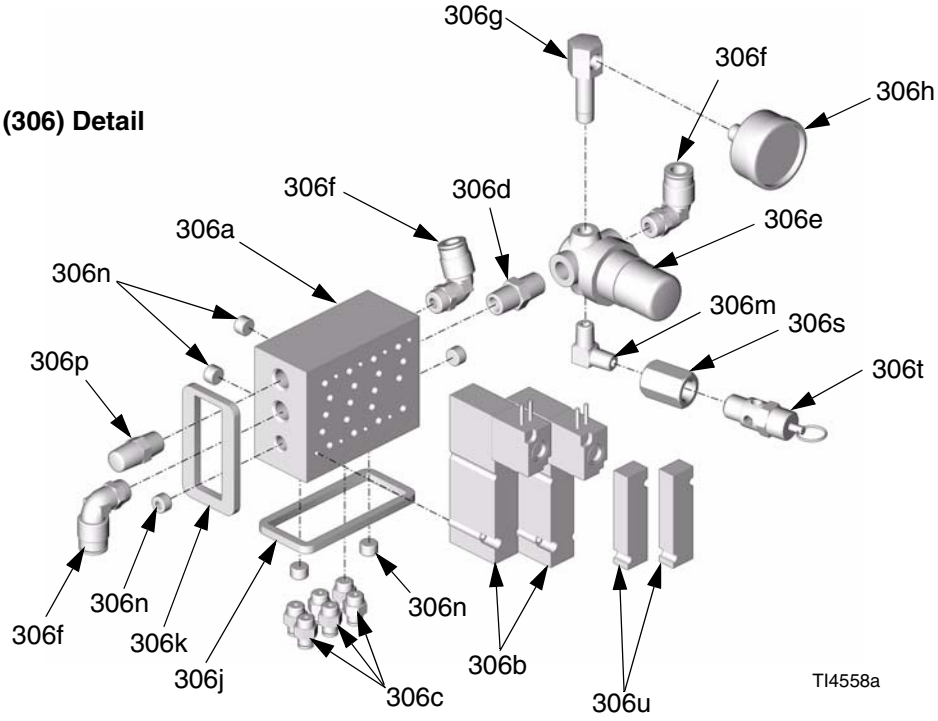
248270 Pneumatic Control, continued



Alternator Module (304) Detail

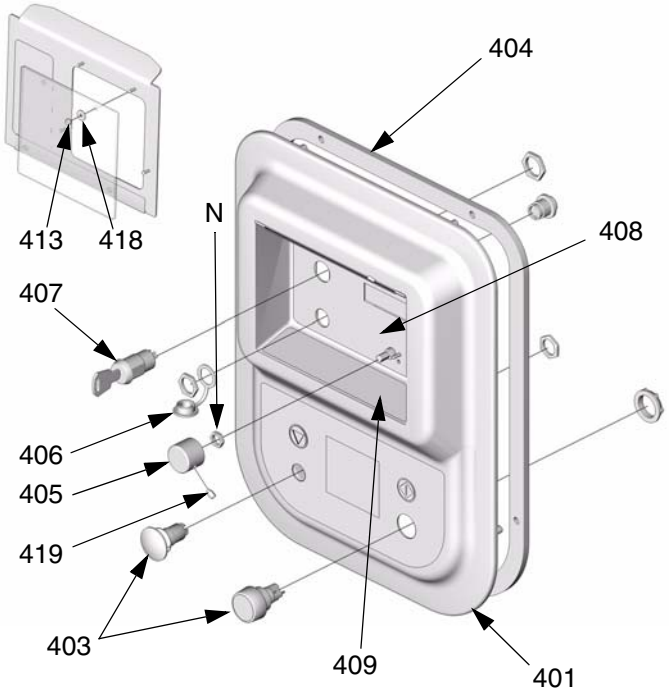


Solenoid Module (306) Detail



234621 User Interface

Ref. No.	Part No.	Description	Qty.
401	15B062	DISPLAY	1
403	15A851	HARNESS, wire	1
404	15A801	GASKET; neoprene	1
405	15D853	KNOB, control	1
406	15A850	HARNESS, wire	1
407	15A852	HARNESS, wire, switch	1
408	15D796	LABEL, control, upper	1
409	15D798	LABEL, control, lower	1
410	245706	CIRCUIT BOARD, display; includes jam nut (N)	1
411	112546	SCREW, machine; 4-40 x 3/8 in. (10 mm)	2
412	15A856	PANEL, display	1
413	C27076	NUT, lock, w/nylon insert; 4-40	4
414	111907	MOUNT, tie wrap	3
416	15A854	HARNESS, wire, display	1
418	188438	WASHER; 0.120 in.	4
419	101366	SCREW, set; socket hd; 10-24 x 5/16 (8 mm)	1



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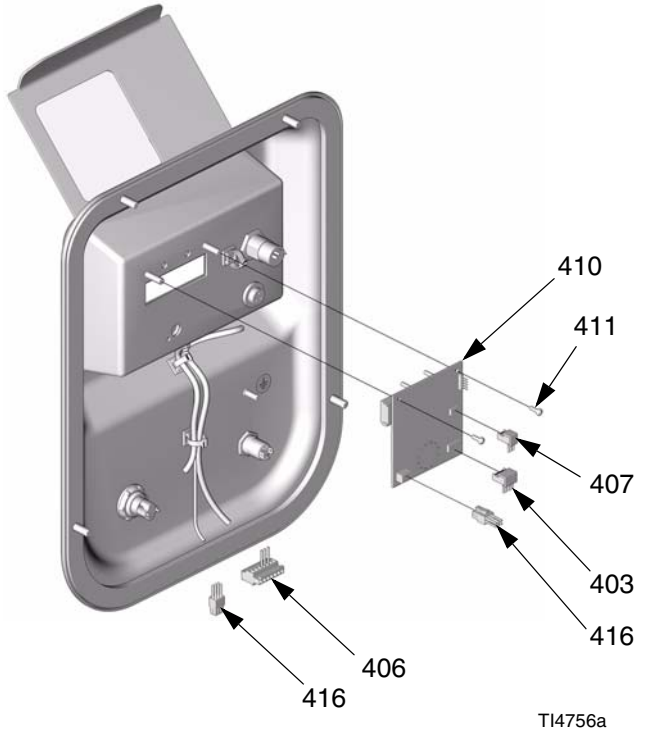
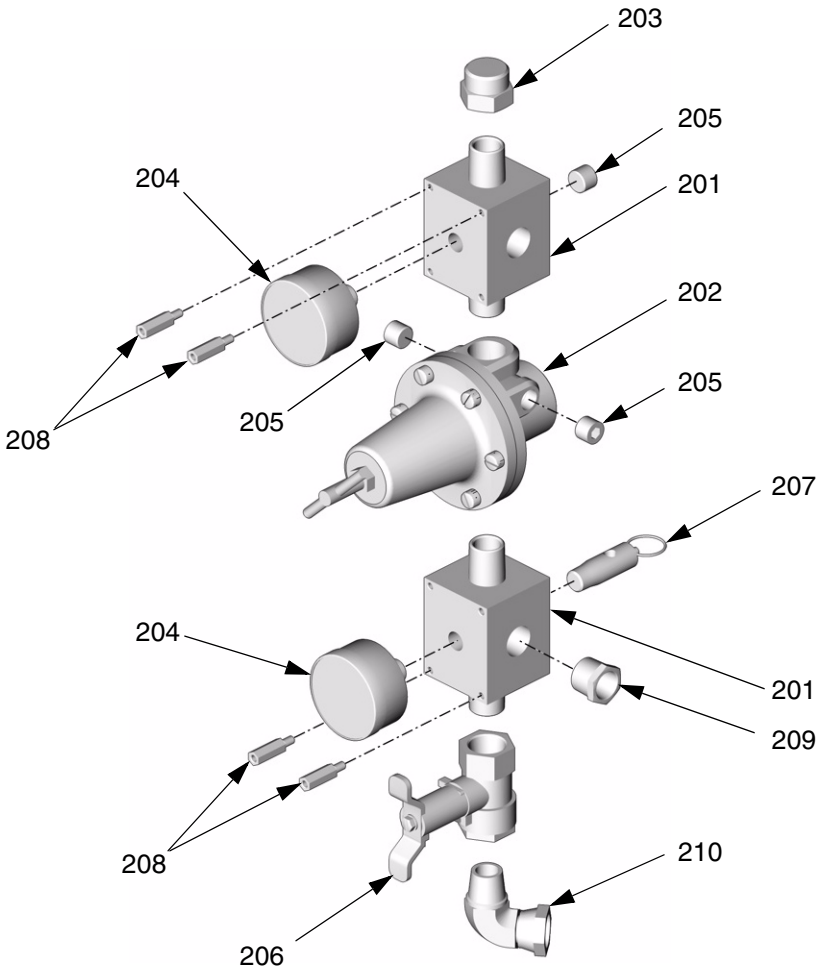


TI4756a

287230 Pump Air Control

Ref. No.	Part No.	Description	Qty.
201	15D814	MANIFOLD, air	2
202	206197	REGULATOR, air; 1/2 npt(f) inlet and outlet; see manual 308168	1
203	119240	CAP, pipe, 1/2 in. (13 mm)	1
204	101689	GAUGE, air pressure	2
205	112678	PLUG; 1/4 npt	3
206	118762	VALVE, ball, bleed-type; 1/2 npt(fbe)	1
207	113498	VALVE, safety relief; 110 psi (0.8 MPa, 8 bar)	1
208	119246	STANDOFF	4
209	100081	BUSHING, pipe; 1/2 npt(m) x 3/8 npt(f)	1
210	C19024	ELBOW, swivel; 1/2 npt(m) x 1/2 npsm(f)	1



TI4601a

Technical Data

Mix ratio range	0.1:1-10:1 (in 0.1 increments),
Ratio tolerance range	up to +/- 1%
Flow rates	
Minimum	0.02 qt/min (0.02 lpm)*
Maximum	1 gpm (3.8 lpm)
Pump size	92 cc/cycle
Pump cycle length (one cycle = one upstroke and one downstroke)	7.6 in. (193 mm)/cycle
Fluid viscosity range	50-20,000 cps (heavier viscosities can be mixed with use of optional heaters, heated hoses, and hardware)
Fluid filtration	60 mesh (238 micron) standard
Maximum fluid working pressure	4700 psi (32 MPa, 324 bar)
Air supply pressure range	60-110 psi (420-800 kPa, 4.2-8 bar)
Maximum air consumption at 100 psi (0.7 MPa, 7 bar)	63.0 scfm at 1 gpm (1.76 m^3/min at 3.8 lpm)
Ambient temperature range	
Operating	32-104° F (0-40° C)
Storage	30-160° F (–1-71° C)
External Power Supply Requirements	85-250 Vac, 50/60 Hz, 2 amps maximum draw 15 amp maximum circuit breaker required 14 AWG power supply wire gauge
Heater Power Requirements	240 Vac Heater: 16.2 A each heater, 32.4 A total 480 Vac Heater: 8.3 A each heater, 16.6 A total
Environmental Conditions Rating	Indoor/outdoor Altitude up to 4000 meters Maximum relative humidity to 99% up to 40° C Pollution degree (1) Installation category (2)
Sound pressure	98 dBA at 100 psi (0.7 MPa, 7 bar)
Wetted parts	
Pumps	See 310662
Dispense Valves	See 310655
Mix Manifold	See 310654
PC Communications	RS-232

* *Minimum flow rate is dependent on the material being sprayed and mixing capability. Test your material for specific flow rate.*

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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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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