

ProMix™ Easy

309909 rev.D

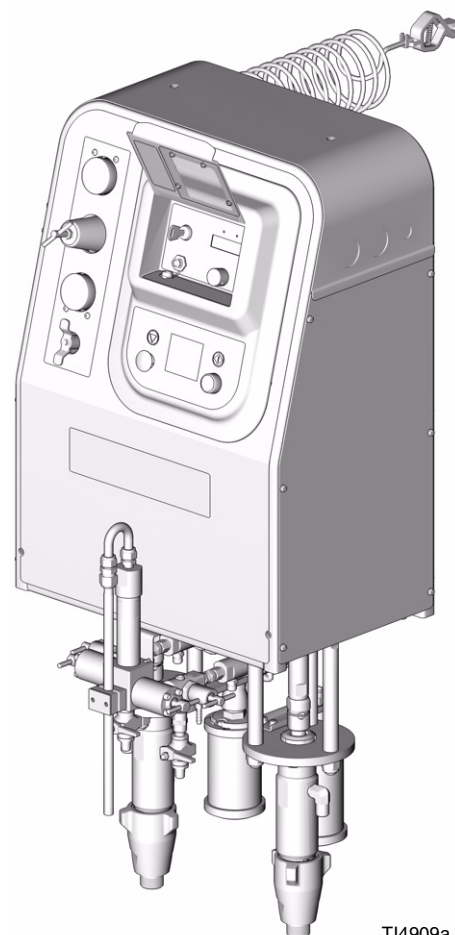
Plural Component Proportioner



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.



TI4909a


PROVEN QUALITY. LEADING TECHNOLOGY.


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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.

ProMix Easy 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)				
ProMix Easy Part No.	Series	Description	Maximum Working Pressure psi (MPa, bar)	Approvals
234596	A	Cart mount, UltraMix™ cst* Pumps, hose and gun	250 (1.7, 17)	 APPROVED Conforms to FM std 3600 & 3610 for use in Class I Div 1 Group D T3 Hazardous Locations
234597	A	Wall mount, UltraMix cst* Pump/G3000 Meter	250 (1.7, 17)	
234598	A	Wall mount, UltraMix sst** Pump/G3000 Meter	250 (1.7, 17)	
234599	A	Wall mount, UltraMix cst* Pumps	250 (1.7, 17)	
234601	A	Wall mount, UltraMix sst** Pumps	250 (1.7, 17)	
234602	A	Wall mount, HydraMix™ 500 cst* Pump/G3000 Meter	2400 (16, 166)	 ISSeP 04 ATEX 020X EEx ia p IIA T3   CAN/CSA 22.2 No. 157-92 & No. 1010.1-92
234603	A	Wall mount, HydraMix 500 sst** Pump/G3000 Meter	2400 (16, 166)	
234604	A	Wall mount, HydraMix 600 cst* Pump/G3000 Meter	3400 (23, 234)	
234605	A	Wall mount, HydraMix 600 sst** Pump/G3000 Meter	3400 (23, 234)	
234606	A	Wall mount, HydraMix 500 cst* Pumps	2400 (16, 166)	
234608	A	Wall mount, HydraMix 500 sst** Pumps	2400 (16, 166)	
234609	A	Wall mount, HydraMix 600 cst* Pumps	3400 (23, 234)	
234611	A	Wall mount, HydraMix 600 sst** Pumps	3400 (23, 234)	
234612	A	Wall mount, HydraMix 700 cst* Pumps	4700 (32, 324)	
234613	A	Wall mount, HydraMix 700 sst** Pumps	4700 (32, 324)	
234618	A	Wall mount, G3000 Meter, cst* mix manifold	4000 (28, 280)	
234619	A	Wall mount, G3000 Meter, sst** mix manifold	4000 (28, 280)	
Approved for Non-hazardous Location				
234600	A	Wall mount, UltraMix cst* Pumps	250 (1.7, 17)	 Conforms to UL std 61010A-1 CSA std C22.2 No. 1010.1-92 
234825	A	Wall mount, UltraMix sst** Pumps	250 (1.7, 17)	
234607	A	Wall mount, HydraMix 500 cst* Pumps	2400 (16, 166)	
234826	A	Wall mount, HydraMix 500 sst** Pumps	2400 (16, 166)	
234610	A	Wall mount, HydraMix 600 cst* Pumps	3400 (23, 234)	
234827	A	Wall mount, HydraMix 600 sst** Pumps	3400 (23, 234)	

* cst=carbon steel.

** sst=stainless steel.

Related Manuals

Component Manuals in English





Manual	Description
309908	ProMix Easy Operation
309909	ProMix Easy Repair-Parts
310654	Fluid Mix Manifold
310655	Dispense Valve
310662	UltraMix and HydraMix Displacement Pumps
310671	UltraMix Pumps
310672	HydraMix Pumps
310673	Circulation Kits
310674	Stand and Caster Kits
310675	AC Power Supply
310676	Remote Manifold Kit
310677	Heater Installation Kit
310678	TSL Pump Kits
309192	ISO Supply Kit
309623	Data Download Kits
308778	G3000 Flowmeter
308034	Turbine Alternator Repair Kit

This manual available in the following languages:

Manual	Language
309909	English
310680	French
310682	Spanish
310684	German
310686	Italian
310688	Chinese
310690	Japanese
310769	Dutch
310771	Finnish
310773	Swedish

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 manual where applicable.

 WARNING	
	<p>FIRE AND EXPLOSION HAZARD</p> <p>Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> • Use equipment only in well ventilated area. • Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc). • Keep work area free of debris, including solvent, rags and gasoline. • Do not plug or unplug power cords or turn lights on or off when flammable fumes are present. • Ground equipment and conductive objects in work area. See Setup instructions. • Use only grounded hoses. • Hold gun firmly to side of grounded pail when triggering into pail. • If there is static sparking or you feel a shock, stop operation immediately. Do not use equipment until you identify and correct the problem. • Keep a fire extinguisher in the work area.
	<p>INJECTION HAZARD</p> <p>High-pressure fluid from gun, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. Get immediate surgical treatment.</p> <ul style="list-style-type: none"> • Do not 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.
	<p>MOVING PARTS HAZARD</p> <p>Moving parts can pinch 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 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 kink or overbend hoses or 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.



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



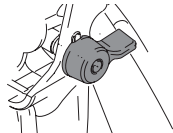
Relieve pressure from fluid manifold to gun whenever you stop spraying and before servicing gun or removing spray tip.

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.

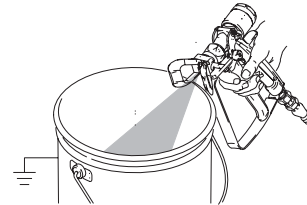


2. Press .

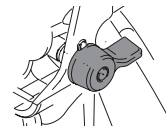
3. Disengage trigger lock.



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

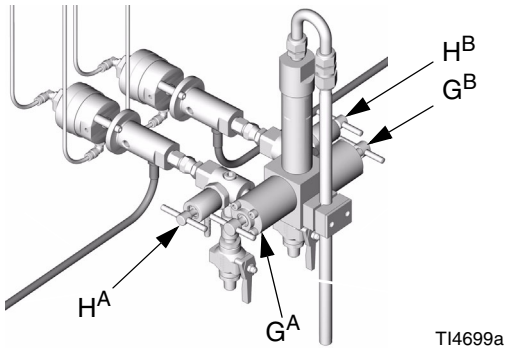


5. Engage trigger lock.

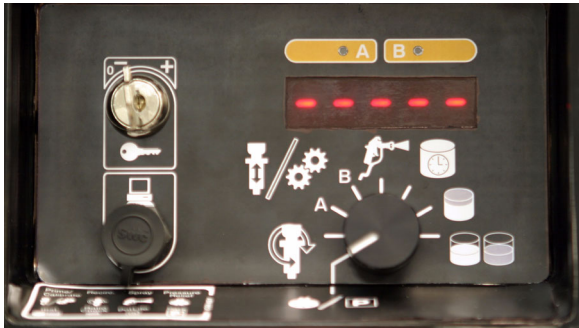


Pump to Fluid Manifold

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 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 ProMix Easy 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

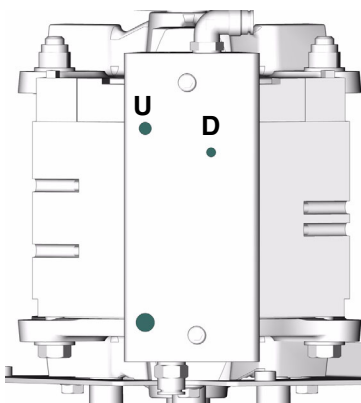
Before storing the pump, always flush it, see ProMix Easy Operation manual. Relieve the pressure, page 7.

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).	

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.
	Power not connected to unit (non-IS units only).	Ensure that power cord is plugged in. Check that cord is connected properly; see ProMix Easy Operation manual.
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 ProMix Easy Operation manual, and applicable pump manual. Check board calibration and recalibrate if necessary. See ProMix Easy 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 ProMix Easy Operation manual.
	Material not mixing correctly.	Test pump. Page 9. Make sure mixer is clean; flush as needed. See ProMix Easy 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.
ProMix Easy 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	Spray Test Batch	Pump does not stall after top change over Pump cavitating excessively	Intake valve leak Air in lines caused by loose fitting or use of agitator Empty fluid supply
05	not used			
06	Pump Error A**			
07	Pump Error B**			
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 Pro-Mix Easy 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 (45). Gently pull user interface (11) away from pneumatic control (10).

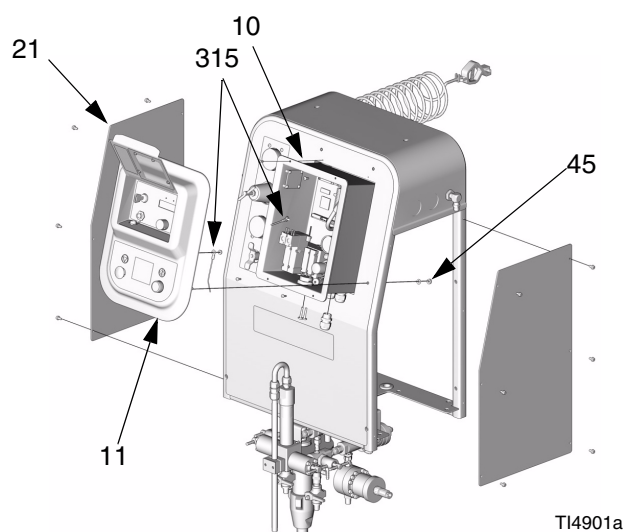


FIG. 1

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.

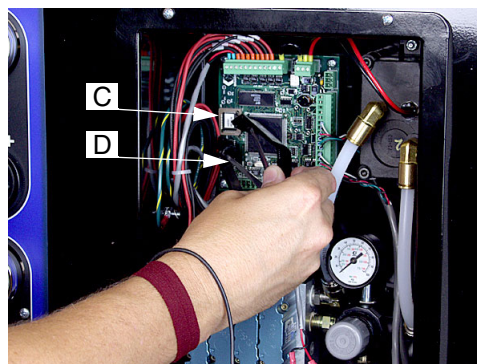


FIG. 2

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

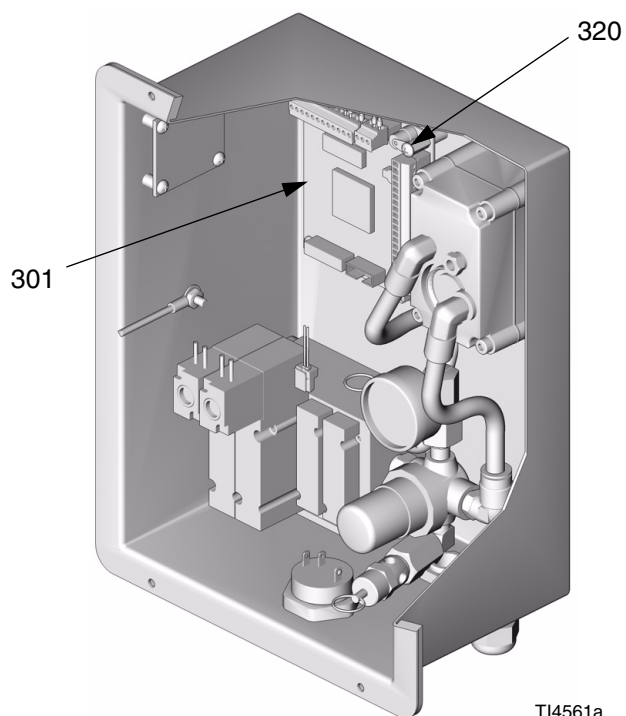
Replacing Main Circuit Board

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 ProMix Easy Operation Manual.



NOTE: If the main control board is replaced on units that use a flow meter, the flow meter calibration data must be set using a PC and a Data Download Kit (Graco P/N 248403 for hazardous locations or graco P/N 248404 for non-hazardous locations).



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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.

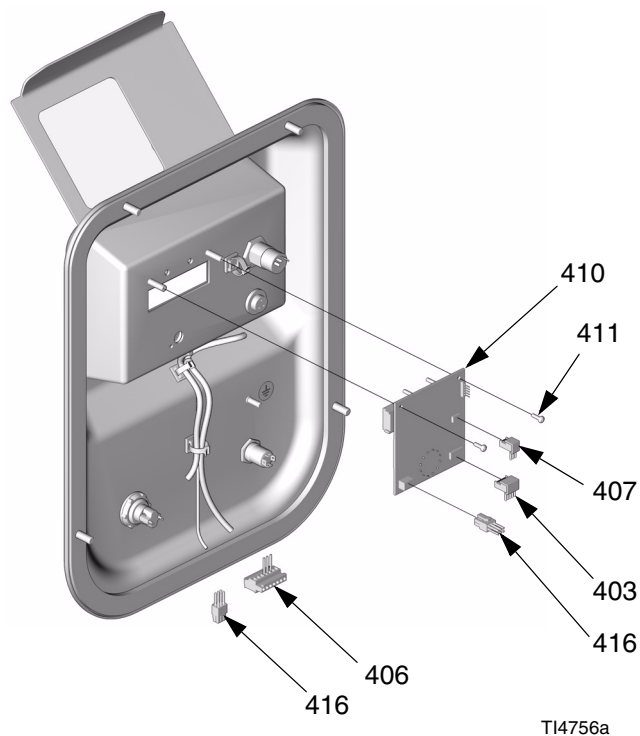
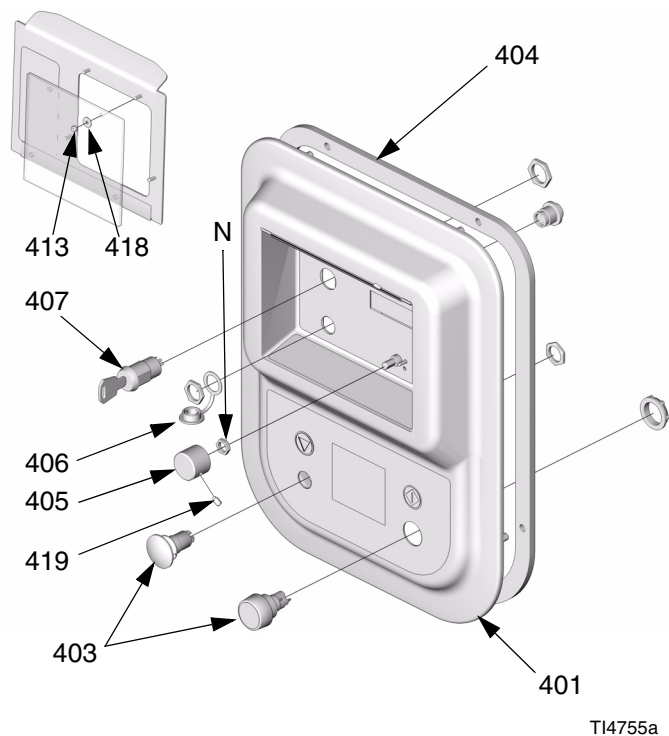


FIG. 4

Pneumatic Control

Alternator Repair

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

1. Remove User Interface cover. See page 16.

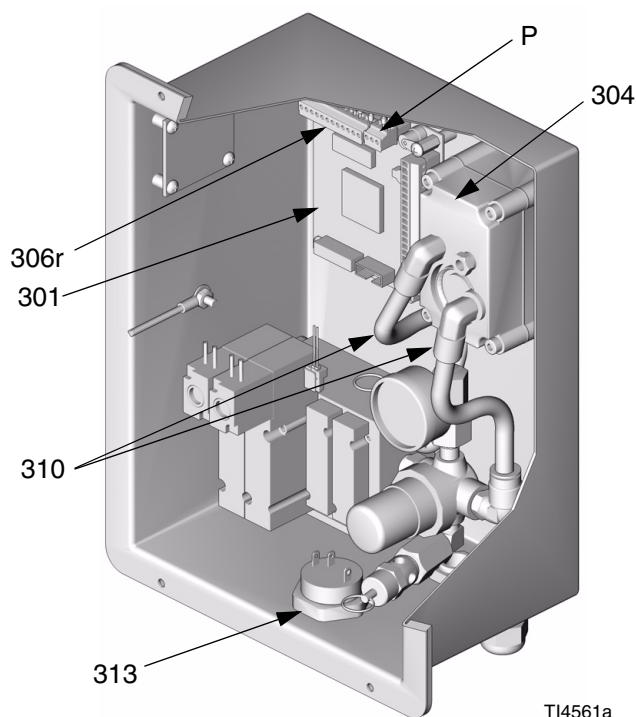


FIG. 5

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.

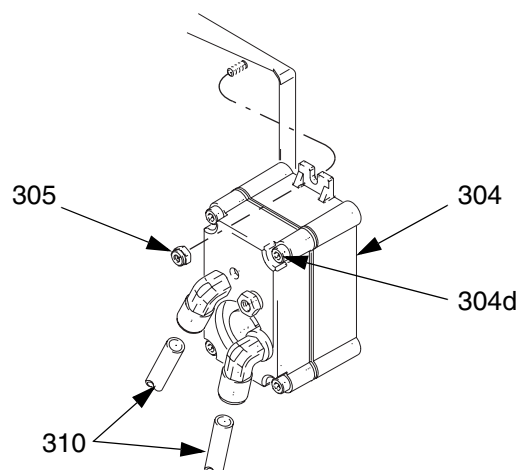
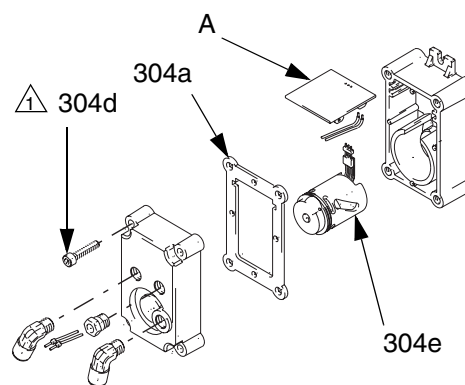


FIG. 6



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 dispense valve pilot lines (A1, A2, B1, B2). FIG. 8.
4. Remove two screws (S).
5. Remove and replace solenoid (306b).



From left to right, solenoid functions are as follows:

- Component A
- Component B

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

A2 (on), black tube

B1 (off), green tube

B2 (on), red tube

① Set regulator pressure to 24 psi (160 kPa, 16 bar).

② Safety relief valve (306t) is required on all IS units.

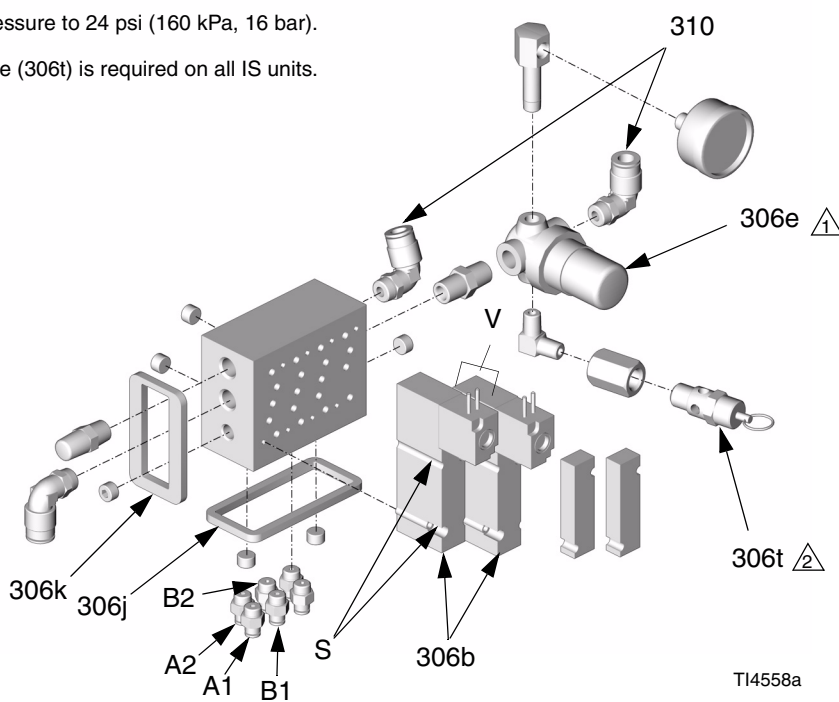
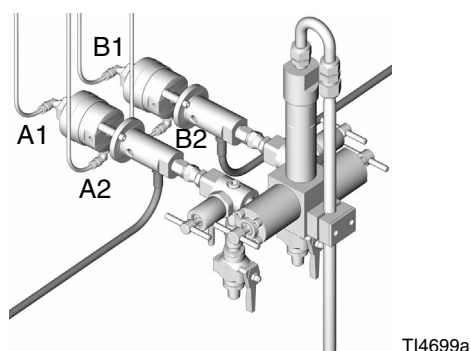


FIG. 8

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

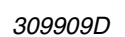
 **WARNING**

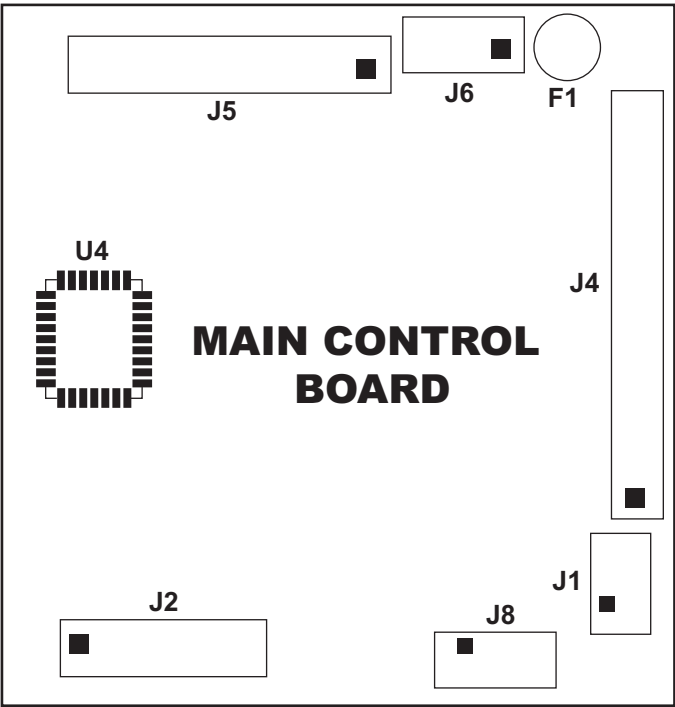
Read warnings, page 5.

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.

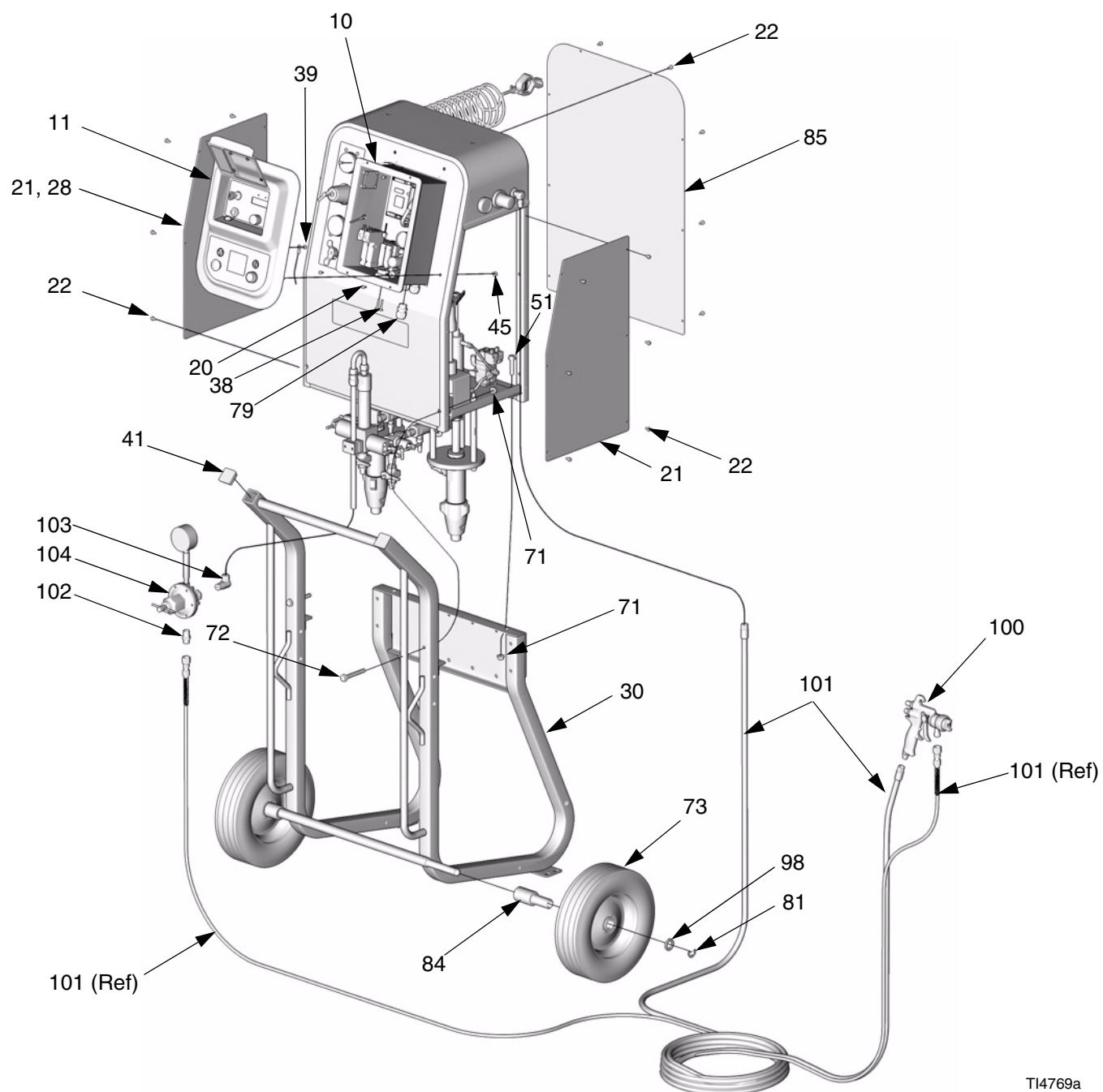


Main Control Board Schematic



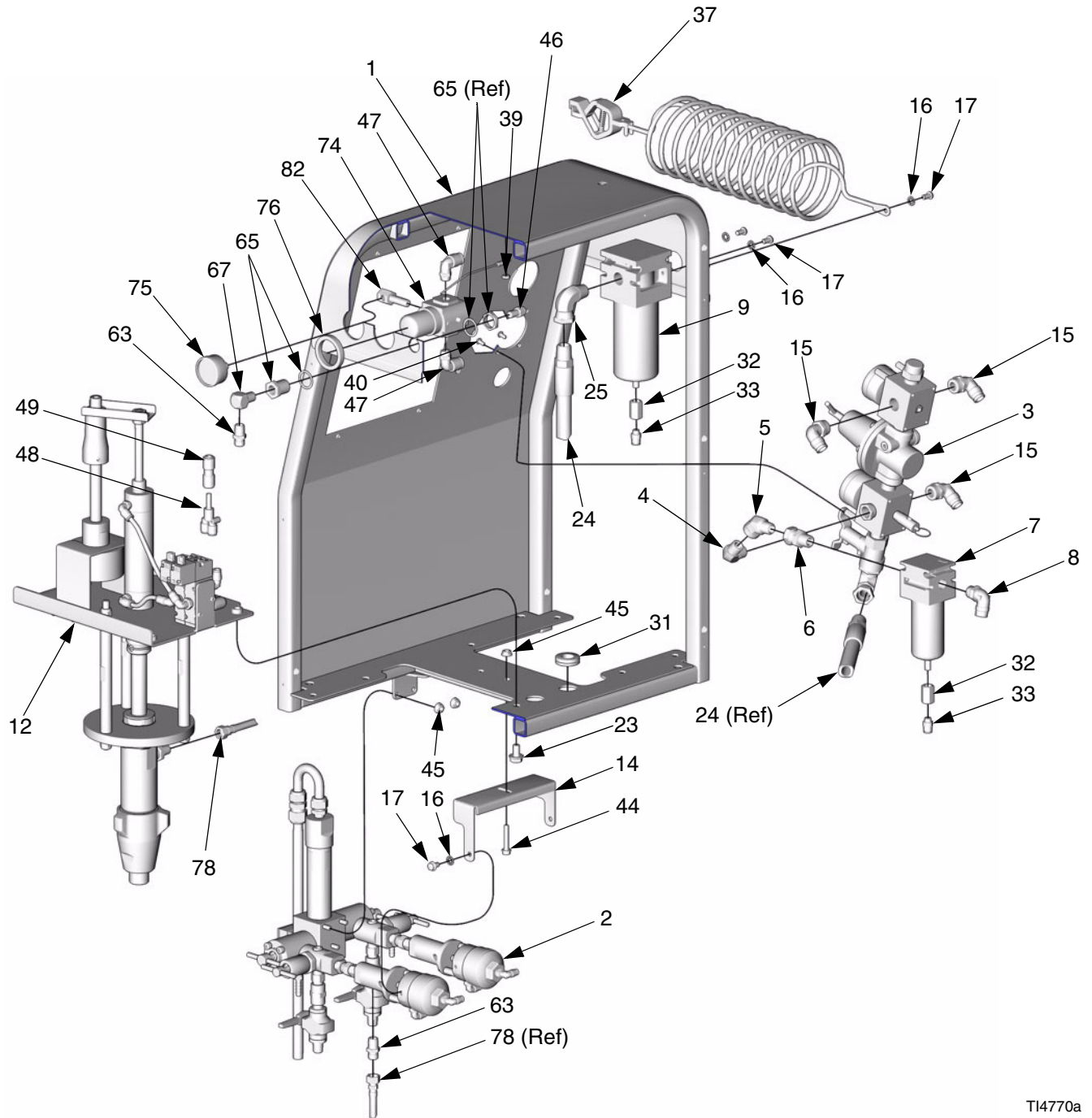
Parts

Part No. 234596 Series A, Pump-based, Cart-mounted Air Spray Unit



TI4769a

Part No. 234596 Series A, Pump-based, Cart-mounted Air Spray Unit, continued



TI4770a

Part No. 234596 Series A, Pump-based, Cart-mounted Air Spray Unit, continued

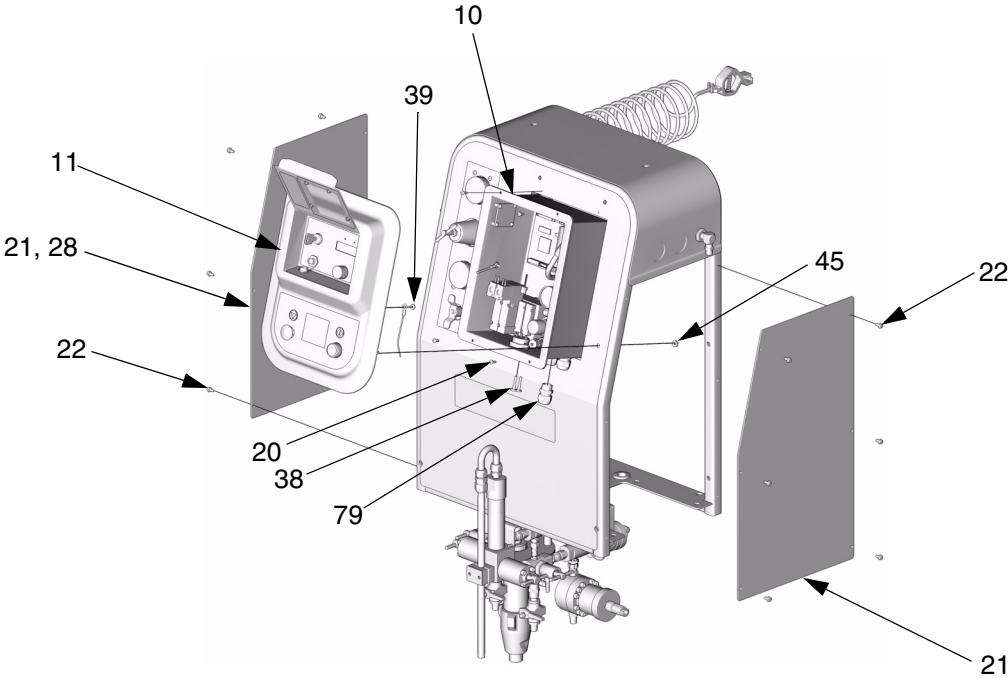
Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	15D771	FRAME, wall mount	1	46	113319	FITTING, air; 1/4 npt(m) x 3/8 in. (10 mm) OD tube	1
2	234593	MIX MANIFOLD; see 310654	1	47	115841	ELBOW; 1/4 npt(m) x 3/8 in. (10 mm) OD tube	2
3	287230	CONTROL, air; see page 53	1	48	114158	FITTING, Y-adapter; 1/4 in. (6 mm) OD tube	2
4	109544	ELBOW, pipe; 3/8 npt (mbe)	1	49	115743	ADAPTER; 3/8 in (10 mm) tube x 1/4 in. (6 mm) tube	2
5	116756	ELBOW, street, 45°; 3/8 npt (m x f)	1	51	116780	SCREW, hex hd flanged; 3/8-16 x 1-3/4 in. (44 mm)	2
6	155665	UNION, adapter; 3/8 npsm(f) x 3/8 npt(m)	1	56	598095	TUBE; nylon; 5/32 in. (4 mm) OD; clear; see pages 44 and 47	2 ft
7	117629	FILTER, air; 5 micron	1	57	054753	TUBE; nylon; 5/32 in. (4 mm) OD; black; see pages 44 and 47	2 ft
8	114316	ELBOW; 3/8 npt(m) x 3/8 in. (10 mm) OD tube fitting	1	58	054754	TUBE; nylon; 5/32 in. (4 mm) OD; red; see pages 44 and 47	2 ft
9	15D795	FILTER, air; 40 micron	1	59	054757	TUBE; nylon; 5/32 in. (4 mm) OD; green; see pages 44 and 47	2 ft
10	248270	PNEUMATIC CONTROL, intrinsically safe; see page 54	1	60	590385	TUBE; polyethylene; 3/8 in. (10 mm) OD; see pages 44 and 47	9 ft
11	234620	USER INTERFACE; see page 52	1	63	162453	NIPPLE; 1/4 npsm x 1/4 npt	3
12	248570	PUMP, UltraMix; see 310671	2	65	104641	FITTING, bulkhead	1
14	15D873	BRACKET, support, fluid manifold	1	67	100840	ELBOW, street; 1/4 npt (m x f)	1
15	C38211	ELBOW; 1/2 npt(m) x 3/8 in. (10 mm) OD tube	3	70	054123	TUBE; nylon; 1/4 in. (6 mm) OD; see pages 44 and 47	4.2 ft
16	C19038	WASHER, lock; 1/4	5	71	112958	NUT, hex, flange hd; 3/8-16	4
17	112925	SCREW, cap, button hd; 1/4-20 x 3/8 in. (10 mm)	5	72	116935	SCREW, cap; 3/8-16 x 3 in. (76 mm)	2
20	103196	SCREW, machine, phillips; 8-32 x 7/16 in. (11 mm)	4	73	198720	WHEEL	2
21	15D767	PLATE, side	2	74	116513	REGULATOR, air	1
22	119291	SCREW, self-tapping	20	75	108190	GAUGE, pressure, air	1
23	113802	SCREW, hex hd, flanged; 3/8-16 x 5/8 in. (16 mm)	8	76	116514	NUT, regulator	1
24	220598	HOSE, air; nitrile; 1/2 in. (13 mm) ID; 1/2 npt (mbe); 18 in. (457 mm); see also pages 44 and 47	1	78	206966	HOSE, fluid; 1/4 npsm (fbe); PTFE; 1/4 in. (6 mm) ID; 18 in. (457 mm); see also pages 44 and 47	2
25	C19024	ELBOW, swivel; 1/2 npt(m) x 1/2 npsm(f)	1	79	195889	BUSHING, strain relief	2
26	15D607	CABLE, sensor; see Electrical Schematic , page 22	2	81	113436	RING, retaining	2
27	15D794	HARNES, connector; see Electrical Schematic , page 22	2	82	160701	ELBOW, street; 1/8 npt (m x f)	1
28▲	290331	LABEL, warning	1	84	15E106	BUSHING, wheel	2
30	15D775	CART	1	85	15D986	PLATE, rear	1
31	101765	GROMMET	2	98	154628	WASHER	2
32	100451	COUPLING; 1/8 npt (fbe)	2	100	239561	GUN, spray, HVLP; see 308741	1
33	115671	CONNECTOR; 1/8 npt(m) x 1/4 in. (6 mm) OD tube	2	101	233498	HOSE ASSEMBLY; 3/8 npsm (f) nylon fluid hose; 1/4 npsm(f) air hose; 25 ft (7.6 m)	1
37	244524	GROUND WIRE	1	102	162485	NIPPLE; 3/8 npt x 3/8 npsm	1
38	113279	PLUG, tube fitting; 5/32 in. (4 mm) OD tube	2	103	155495	ELBOW, swivel; 3/8 npt(m) x 1/4 npsm(f)	1
39	113505	NUT, keps, hex hd; 10-24	2	104	214706	REGULATOR, pressure, fluid; see 307212	1
40	551787	SCREW, cap, button hd; 10-32 x 3/8 in. (10 mm)	4				
41	111218	CAP	2				
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				

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

Pump and Meter-based, Wall-mounted Air Spray Units

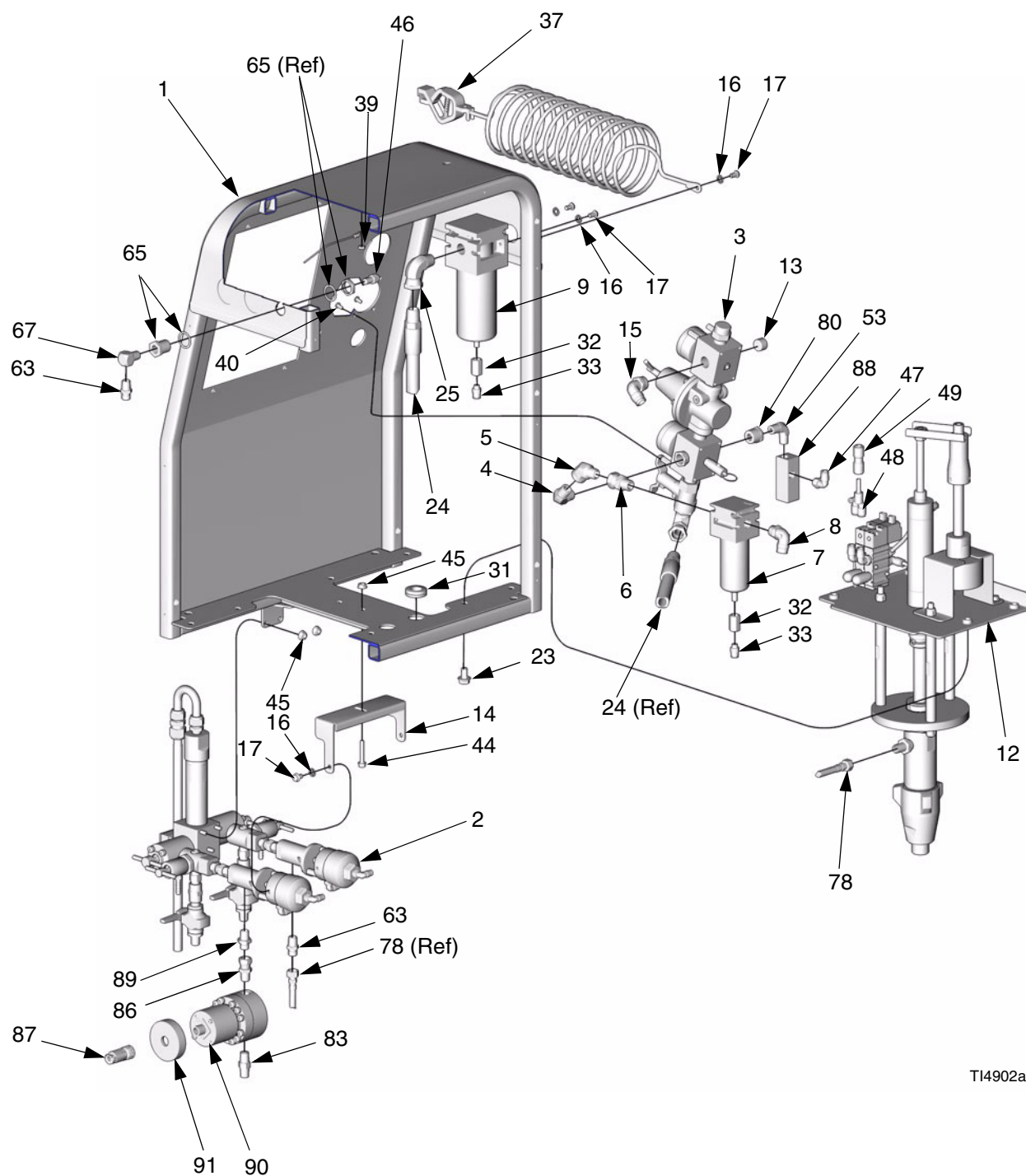
Part No. 234597 Series A, UltraMix carbon steel pump and G3000 Meter

Part No. 234598 Series A, UltraMix stainless steel pump and G3000 Meter



TI4901b

Pump and Meter-based, Wall-mounted Air Spray Units, continued



TI4902a

Pump and Meter-based, Wall-mounted Air Spray Units, continued

See page 27 for model numbers and descriptions.

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	15D771	FRAME, wall mount	1	38	113279	PLUG, tube fitting; 5/32 in. (4 mm) OD tube	2
2	234593	MIX MANIFOLD; cst; carbon steel models only; see 310654	1	39	113505	NUT, keps, hex hd; 10-24	2
	234451	MIX MANIFOLD; sst; stainless steel models only; see 310654	1	40	551787	SCREW, cap, button hd; 10-32 x 3/8 in. (10 mm)	4
3	287230	CONTROL, air; see page 53	1	44	114104	SCREW, machine; 1/4-20 x 1-1/2 in. (38 mm)	1
4	109544	ELBOW, pipe; 3/8 npt (mbe)	1	45	115942	NUT, hex, flange hd; 1/4-20	7
5	116756	ELBOW, street, 45°; 3/8 npt (mxf)	1	46	113319	FITTING, air; 1/4 npt(m) x 3/8 in. (10 mm) OD tube	1
6	155665	UNION, adapter; 3/8 npsm(f) x 3/8 npt(m)	1	47	115841	ELBOW; 1/4 npt(m) x 3/8 in. (10 mm) OD tube	1
7	117629	FILTER, air; 5 micron	1	48	114158	FITTING, Y-adapter; 1/4 in. (6 mm) OD tube	1
8	114316	ELBOW; 3/8 npt(m) x 3/8 in. (10 mm) OD tube fitting	1	49	115743	ADAPTER; 3/8 in (10 mm) tube x 1/4 in. (6 mm) tube	1
9	15D795	FILTER, air; 40 micron	1	53	111763	ELBOW; 1/4 npt (mbe)	1
10	248270	PNEUMATIC CONTROL, intrinsically safe; see page 48	1	56	598095	TUBE; nylon; 5/32 in. (4 mm) OD; 2 ft clear; see pages 44, 46, and 47	2 ft
11	234620	USER INTERFACE; see page 52	1	57	054753	TUBE; nylon; 5/32 in. (4 mm) OD; 2 ft black; see pages 44, 46, and 47	2 ft
12	248570	PUMP, UltraMix, cst; carbon steel models only; see 310671	1	58	054754	TUBE; nylon; 5/32 in. (4 mm) OD; 2 ft red; see pages 44, 46, and 47	2 ft
	248571	PUMP, UltraMix, sst; stainless steel models only; see 310671	1	59	054757	TUBE; nylon; 5/32 in. (4 mm) OD; 2 ft green; see pages 44, 46, and 47	2 ft
13	100361	PLUG, pipe; 1/2 npt	1	60	590385	TUBE; polyethylene; 3/8 in. (10 mm) OD; see pages 44, 46, and 47	4.7 ft
14	15D873	BRACKET, support, fluid manifold	1	63	162453	NIPPLE; 1/4 npsm x 1/4 npt	2
15	C38211	ELBOW; 1/2 npt(m) x 3/8 in. (10 mm) OD tube fitting	2	65	104641	FITTING, bulkhead	1
16	C19038	WASHER, lock; 1/4	5	67	100840	ELBOW, street; 1/4 npt (m x f)	1
17	112925	SCREW, cap, button hd; 1/4-20 x 3/8 in. (10 mm)	5	70	054123	TUBE; nylon; 1/4 in. (6 mm) OD; 4.2 ft see pages 44, 46, and 47	4.2 ft
20	103196	SCREW, machine, phillips; 8-32 x 7/16 in. (11 mm)	4	78	206966	HOSE, fluid; 1/4 npsm (fbe); PTFE; 1/4 in. (6 mm) ID; 18 in. (457 mm); see also pages 44 and 47	1
21	15D767	PLATE, side	2	79	195889	BUSHING, strain relief	1
22	119291	SCREW, self-tapping	12	80	100206	BUSHING; 1/2 npt(m) x 1/4 npt(f)	1
23	113802	SCREW, hex hd, flanged; 3/8-16 x 5/8 in. (16 mm)	4	83	501867	CHECK VALVE	1
24	220598	HOSE, air; nitrile; 1/2 in. (13 mm) ID; 1/2 npt (mbe); 18 in. (457 mm); see also pages 44, 46, and 47	1	86	114339	UNION, swivel; 1/4 npsm(f) x 1/4 npt(m)	1
25	C19024	ELBOW, swivel; 1/2 npt(m) x 1/2 npsm(f)	1	87	15D957	HARNESS, wire	1
26	15D607	CABLE, sensor; see Electrical Schematic , page 22	2	88	119159	SWITCH, air flow	1
27	15D794	HARNESS, connector; see Elec- trical Schematic , page 22	2	89	166846	ADAPTER; 1/4 npsm x 1/4 npt (mbe)	1
28▲	290331	LABEL, warning	1	90	239716	METER, G3000; see 308778	1
31	101765	GROMMET	2	91	195283	SHIELD, ESD, G3000	1
32	100451	COUPLING; 1/8 npt (fbe)	2				
33	115671	CONNECTOR; 1/8 npt(m) x 1/4 in. (6 mm) OD tube	2				
37	244524	GROUND WIRE	1				

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

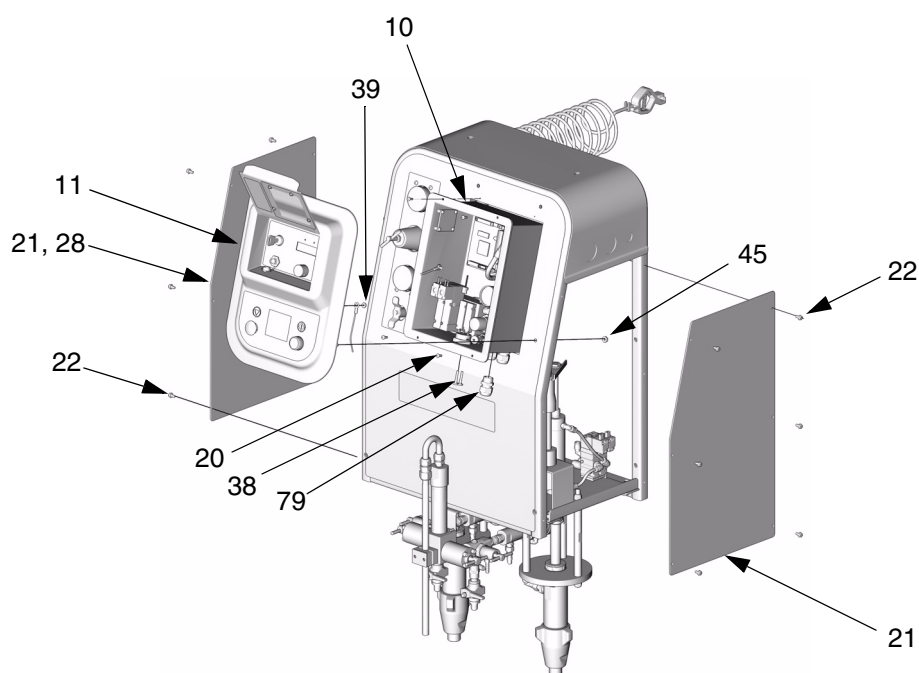
Pump-based, Wall-mounted Air Spray Units

Part No. 234599 Series A, carbon steel, intrinsically safe

Part No. 234600 Series A, carbon steel, non-intrinsically safe

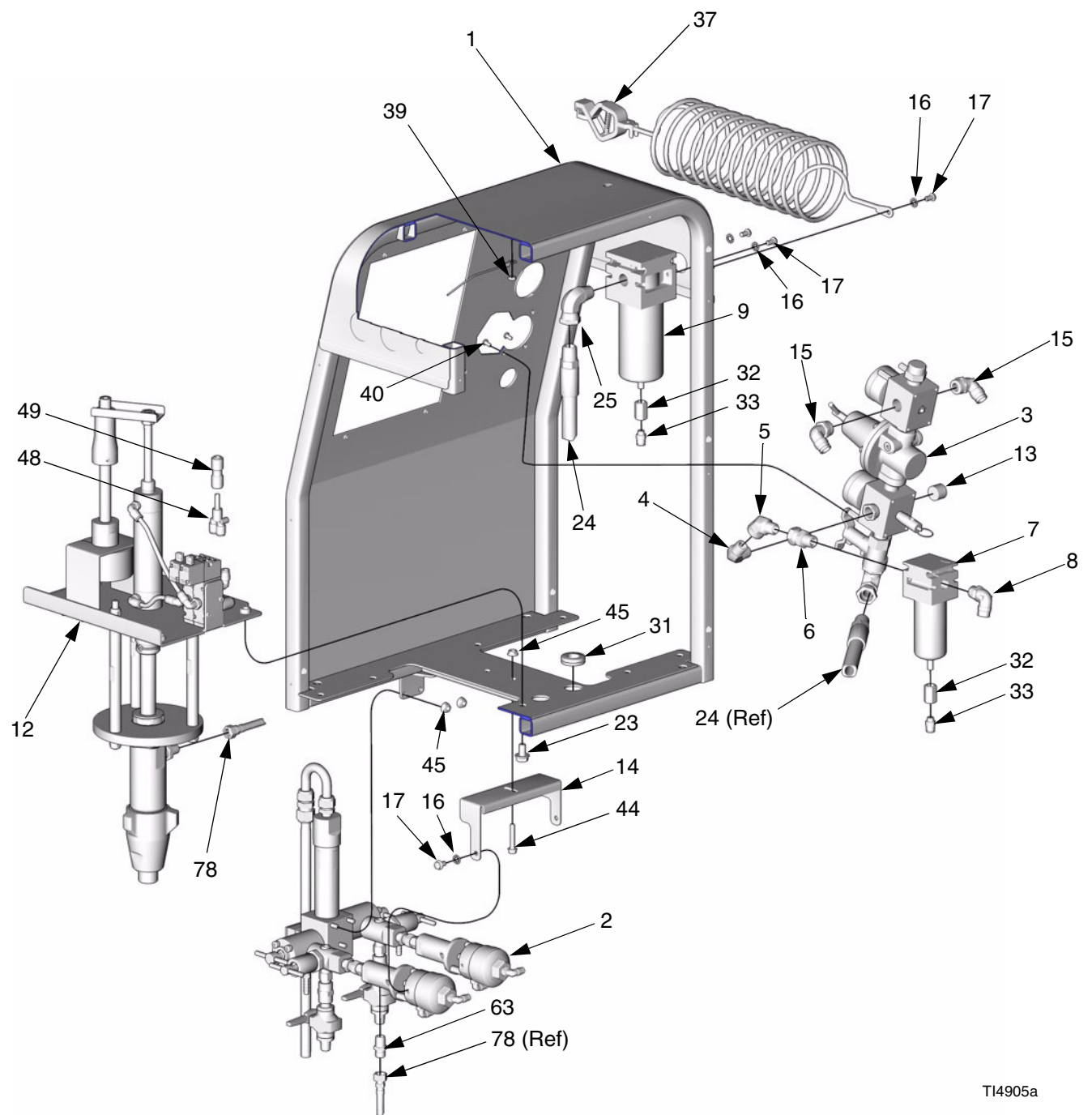
Part No. 234601 Series A, stainless steel, intrinsically safe

Part No. 234825 Series A, stainless steel, non-intrinsically safe



TI4904b

Pump-based, Wall-mounted Air Spray Units, continued



TI4905a

Pump-based, Wall-mounted Air Spray Units, continued

See page 30 for model numbers and descriptions.

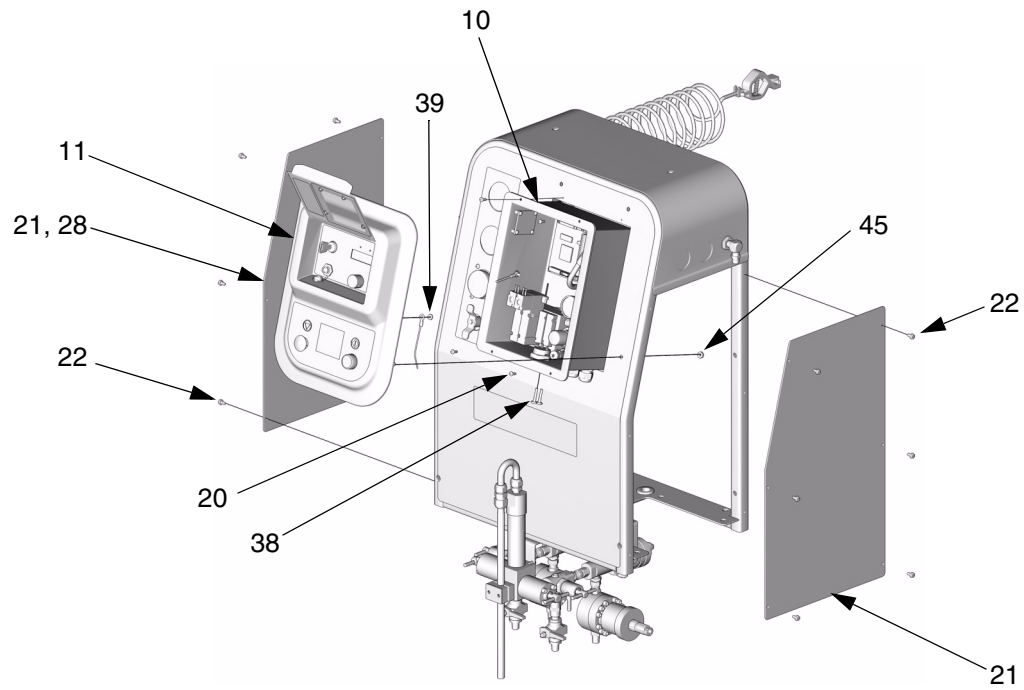
Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	15D771	FRAME, wall mount	1	26	15D607	CABLE, sensor; see Electrical Schematic , page 22	2
2	234593	MIX MANIFOLD; cst; carbon steel models only; see 310654	1	27	15D794	HARNESS, connector; see Electrical Schematic , page 22	2
	234451	MIX MANIFOLD; sst; stainless steel models only; see 310654	1	28▲	290331	LABEL, warning	1
3	287230	CONTROL, air; see page 53	1	31	101765	GROMMET	2
4	109544	ELBOW, pipe; 3/8 npt (mbe); intrinsically safe models only	1	32	100451	COUPLING; 1/8 npt (fbe); intrinsically safe models only	2
	114316	ELBOW; 3/8 npt(m) x 3/8 in. (10 mm) OD tube fitting; non-intrinsically safe models only	1		100451	COUPLING; 1/8 npt (fbe); non-intrinsically safe models only	1
5	116756	ELBOW, street, 45°; 3/8 npt (mx); intrinsically safe models only	1	33	115671	CONNECTOR; 1/8 npt(m) x 1/4 in. (6 mm) OD tube; intrinsically safe models only	2
6	155665	UNION, adapter; 3/8 npsm(f) x 3/8 npt(m); intrinsically safe models only	1		115671	CONNECTOR; 1/8 npt(m) x 1/4 in. (6 mm) OD tube; non-intrinsically safe models only	1
7	117629	FILTER, air; 5 micron; intrinsically safe models only	1	37	244524	GROUND WIRE	1
8	114316	ELBOW; 3/8 npt(m) x 3/8 in. (10 mm) OD tube fitting; intrinsically safe models only	1	38	113279	PLUG, tube fitting; 5/32 in. (4 mm) OD tube	2
9	15D795	FILTER, air; 40 micron	1	39	113505	NUT, keps, hex hd; 10-24	2
10	248270	PNEUMATIC CONTROL; intrinsically safe models only; see page 48	1	40	551787	SCREW, cap, button hd; 10-32 x 3/8 in. (10 mm)	4
	248316	PNEUMATIC CONTROL; non-intrinsically safe models only; see page 50	1	44	114104	SCREW, machine; 1/4-20 x 1-1/2 in. (38 mm)	1
11	234620	USER INTERFACE; see page 52	1	45	115942	NUT, hex, flange hd; 1/4-20	7
12	248570	PUMP, UltraMix, cst; carbon steel models only; see 310671	2	48	114158	FITTING, Y-adapter; 1/4 in. (6 mm) OD tube	2
	248571	PUMP, UltraMix, sst; stainless steel models only; see 310671	2	49	115743	ADAPTER; 3/8 in (10 mm) tube x 1/4 in. (6 mm) tube	2
13	100361	PLUG, pipe; 1/2 npt	1	56	598095	TUBE; nylon; 5/32 in. (4 mm) OD; clear; see pages 44 and 47	2 ft
14	15D873	BRACKET, support, fluid manifold	1	57	054753	TUBE; nylon; 5/32 in. (4 mm) OD; black; see pages 44 and 47	2 ft
15	C38211	ELBOW; 1/2 npt(m) x 3/8 in. (10 mm) OD tube fitting	2	58	054754	TUBE; nylon; 5/32 in. (4 mm) OD; red; see pages 44 and 47	2 ft
16	C19038	WASHER, lock; 1/4	5	59	054757	TUBE; nylon; 5/32 in. (4 mm) OD; green; see pages 44 and 47	2 ft
17	112925	SCREW, cap, button hd; 1/4-20 x 3/8 in. (10 mm)	5	60	590385	TUBE; polyethylene; 3/8 in. (10 mm) OD; see pages 44 and 47	6.7 ft
20	103196	SCREW, machine, phillips; 8-32 x 7/16 in. (11 mm)	4	63	162453	NIPPLE; 1/4 npsm x 1/4 npt	2
21	15D767	PLATE, side	2	70	054123	TUBE; nylon; 1/4 in. (6 mm) OD; see pages 44 and 47	4.2 ft
22	119291	SCREW, self-tapping	12	78	206966	HOSE, fluid; 1/4 npsm (fbe); PTFE; 1/4 in. (6 mm) ID; 18 in. (457 mm); see also pages 44 and 47	2
23	113802	SCREW, hex hd, flanged; 3/8-16 x 5/8 in. (16 mm)	8	79	195889	BUSHING, strain relief	2
24	220598	HOSE, air; nitrile; 1/2 in. (13 mm) ID; 1/2 npt (mbe); 18 in. (457 mm); see also pages 44 and 47	1				
25	C19024	ELBOW, swivel; 1/2 npt(m) x 1/2 npsm(f)	1				

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

Meter-based, Wall-mounted High Pressure Units

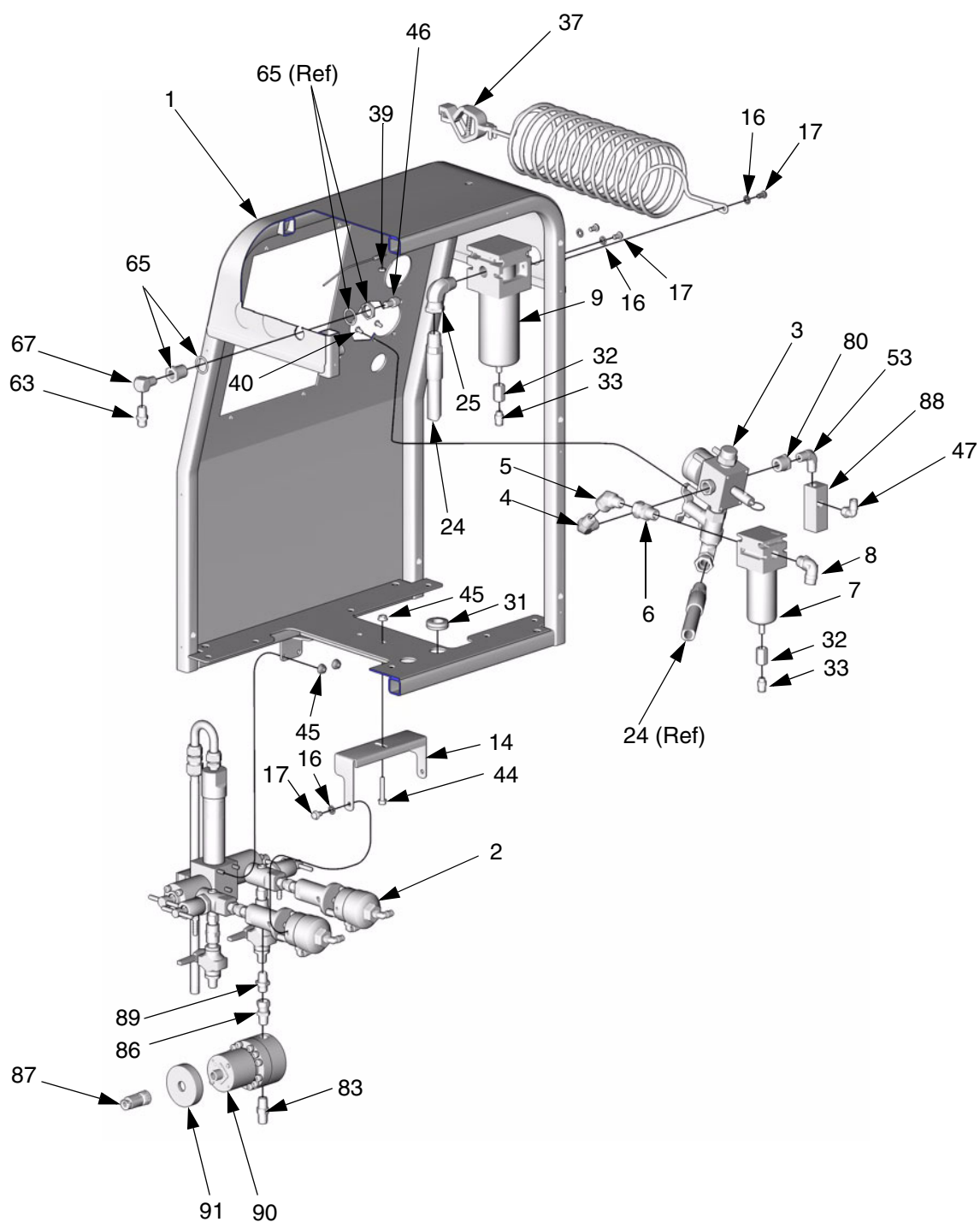
Part No. 234618 Series A, carbon steel

Part No. 234619 Series A, stainless steel



TI4917a

Meter-based, Wall-mounted High Pressure Units, continued



TI4918a

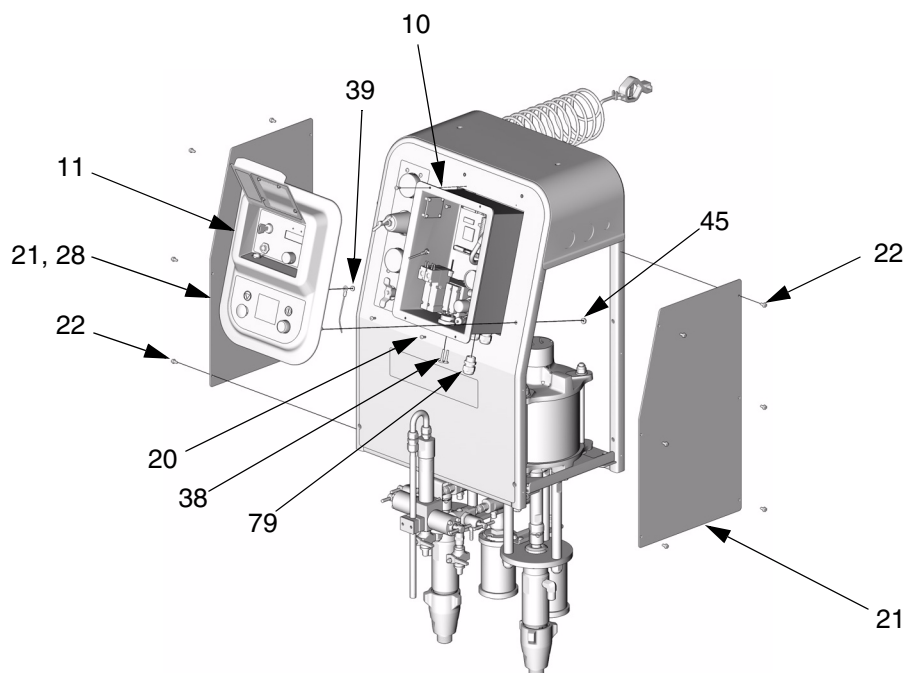
Meter-based, Wall-mounted High Pressure Units, continued

See page 33 for model numbers and descriptions.

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	15D771	FRAME, wall mount	1	40	551787	SCREW, cap, button hd; 10-32 x 3/8 in. (10 mm)	4
2	234593	MANIFOLD, mix (234618); cst; see 310654	1	44	114104	SCREW, machine; 1/4-20 x 1-1/2 in. (38 mm)	1
	234451	MANIFOLD, mix (234619); sst; see 310654	1	45	115942	NUT, hex, flange hd; 1/4-20	7
3	287231	CONTROL, air; see page 53	1	46	113319	FITTING, air; 1/4 npt(m) x 3/8 in. (10 mm) OD tube	1
4	109544	ELBOW, pipe; 3/8 npt (mbe)	1	47	115841	ELBOW; 1/4 npt(m) x 3/8 in. (10 mm) OD tube	1
5	116756	ELBOW, street, 45°; 3/8 npt (m x f)	1	53	111763	ELBOW; 1/4 npt (mbe)	1
6	155665	UNION, adapter; 3/8 npsm(f) x 3/8 npt(m)	1	56	598095	TUBE; nylon; 5/32 in. (4 mm) OD; clear; see pages 46 and 47	2 ft
7	117629	FILTER, air; 5 micron	1	57	054753	TUBE; nylon; 5/32 in. (4 mm) OD; black; see pages 46 and 47	2 ft
8	114316	ELBOW; 3/8 npt(m) x 3/8 in. (10 mm) OD tube	1	58	054754	TUBE; nylon; 5/32 in. (4 mm) OD; red; see pages 46 and 47	2 ft
9	15D795	FILTER, air; 40 micron	1	59	054757	TUBE; nylon; 5/32 in. (4 mm) OD; green; see pages 46 and 47	2 ft
10	248270	PNEUMATIC CONTROL, intrinsically safe; see page 54	1	60	590385	TUBE; polyethylene; 3/8 in. (10 mm) OD; see pages 46 and 47	3.5 ft
11	234620	USER INTERFACE; see page 52	1	63	162453	NIPPLE; 1/4 npsm x 1/4 npt	1
14	15D873	BRACKET, support, fluid manifold	1	65	104641	FITTING, bulkhead	1
16	C19038	WASHER, lock; 1/4	5	67	100840	ELBOW, street; 1/4 npt (m x f)	1
17	112925	SCREW, cap; 1/4-20 x 3/8 in. (10 mm)	5	70	054123	TUBE; nylon; 1/4 in. (6 mm) OD; see pages 46 and 47	4 ft
20	103196	SCREW, machine, phillips; 8-32 x 7/16 in. (11 mm)	4	80	100206	BUSHING; 1/2 npt(m) x 1/4 npt(f)	1
21	15D767	PLATE, side	2	83	501867	CHECK VALVE	2
22	119291	SCREW, self-tapping	12	86	114339	UNION, swivel; 1/4 npsm(f) x 1/4 npt(m)	2
24	220598	HOSE, air; nitrile; 1/2 in. (13 mm) ID; 1/2 npt (mbe); 18 in. (457 mm); see also pages 46 and 47	1	87	15D957	HARNESS, wire	1
25	C19024	ELBOW, swivel; 1/2 npt(m) x 1/2 npsm(f)	1	88	119159	SWITCH, air flow	1
28▲	290331	LABEL, warning	1	89	166846	ADAPTER; 1/4 npsm x 1/4 npt (mbe)	2
31	101765	GROMMET	2	90	239716	METER, G3000; see 308778	2
32	100451	COUPLING; 1/8 npt (fbe)	2	91	195283	SHIELD, ESD, G3000	2
33	115671	CONNECTOR; 1/8 npt(m) x 1/4 in. (6 mm) OD tube	2	▲ Replacement Danger and Warning labels, tags, and cards are available at no cost.			
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				

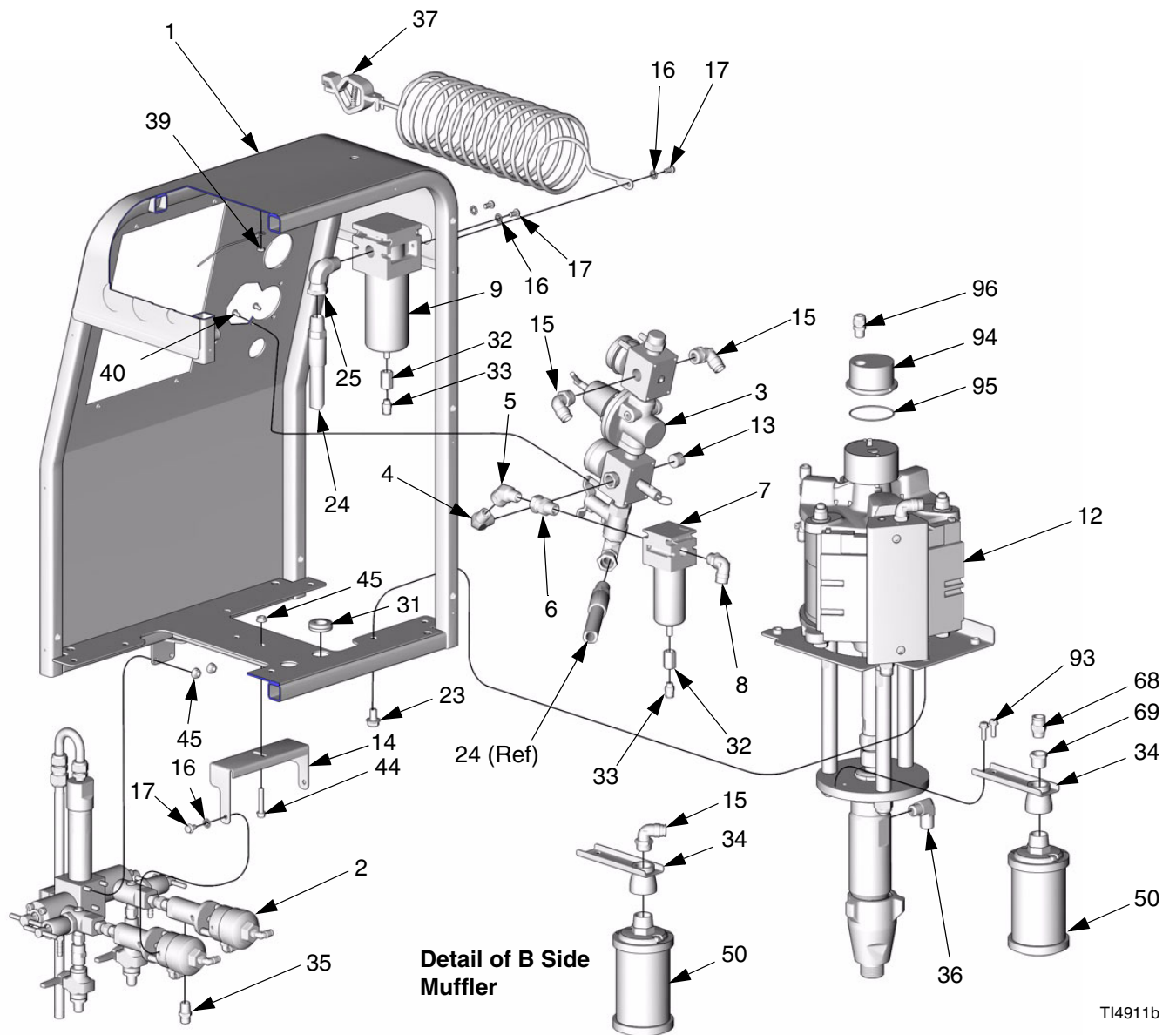
Pump-based, Wall-mounted High Pressure Units

Part No. 234606 Series A, HydraMix 500 carbon steel, intrinsically safe
 Part No. 234607 Series A, HydraMix 500 carbon steel, non-intrinsically safe
 Part No. 234609 Series A, HydraMix 600 carbon steel, intrinsically safe
 Part No. 234610 Series A, HydraMix 600 carbon steel, non-intrinsically safe
 Part No. 234612 Series A, HydraMix 700 carbon steel, intrinsically safe
 Part No. 234608 Series A, HydraMix 500 stainless steel, intrinsically safe
 Part No. 234826 Series A, HydraMix 500 stainless steel, non-intrinsically safe
 Part No. 234611 Series A, HydraMix 600 stainless steel, intrinsically safe
 Part No. 234827 Series A, HydraMix 600 stainless steel, non-intrinsically safe
 Part No. 234613 Series A, HydraMix 700 stainless steel, intrinsically safe



T14910b

Pump-based, Wall-mounted High Pressure Units, continued



Pump-based, Wall-mounted High Pressure Units, continued

See page 36 for model numbers and descriptions.

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	15D771	FRAME, wall mount	1	22	119291	SCREW, self-tapping	12
2	234593	MIX MANIFOLD; cst; carbon steel models only; see 310654	1	23	113802	SCREW, hex hd, flanged; 3/8-16 x 5/8 in. (16 mm)	8
	234451	MIX MANIFOLD; sst; stainless steel models only; see 310654	1	24	220598	HOSE, air; nitrile; 1/2 in. (13 mm) ID; 1/2 npt (mbe); 18 in. (457 mm); see also pages 45 and 47	1
3	287230	CONTROL, air; see page 53	1	25	C19024	ELBOW, swivel; 1/2 npt(m) x 1/2 npsm(f)	1
4	109544	ELBOW, pipe; 3/8 npt (mbe); intrinsically safe models only	1	26	15D607	CABLE, sensor; see Electrical Schematic , page 22	2
	114316	ELBOW; 3/8 npt(m) x 3/8 in. (10 mm) OD tube fitting; non-intrinsically safe models only	1	27	15D794	HARNESS, connector; see Electrical Schematic , page 22	2
5	116756	ELBOW, street, 45°; 3/8 npt (mxf); intrinsically safe models only	1	28▲	290331	LABEL, warning	1
6	155665	UNION, adapter; 3/8 npsm(f) x 3/8 npt(m); intrinsically safe models only	1	31	101765	GROMMET	2
7	117629	FILTER, air; 5 micron; intrinsically safe models only	1	32	100451	COUPLING; 1/8 npt (fbe); intrinsically safe models only	2
8	114316	ELBOW; 3/8 npt(m) x 3/8 in. (10 mm) OD tube fitting; intrinsically safe models only	1		100451	COUPLING; 1/8 npt (fbe); non-intrinsically safe models only	1
9	15D795	FILTER, air; 40 micron	1	33	115671	CONNECTOR; 1/8 npt(m) x 1/4 in. (6 mm) OD tube; intrinsically safe models only	2
10	248270	PNEUMATIC CONTROL; intrinsically safe models only; see page 48	1		115671	CONNECTOR; 1/8 npt(m) x 1/4 in. (6 mm) OD tube; non-intrinsically safe models only	1
	248316	PNEUMATIC CONTROL; non-intrinsically safe models only; see page 50	1	34	15D966	BRACKET, muffler	2
11	234620	USER INTERFACE; see page 52	1	35	15E020	FITTING, compression; cst; carbon steel models only; 1/4 npt(m) x 1/2 in. (13 mm) tube	2
12	248572	PUMP, HydraMix 500, cst; 234606 and 234607; see 310672	2		15E021	FITTING, compression; sst; stainless steel models only; 1/4 npt(m) x 1/2 in. (13 mm) tube	2
	248573	PUMP, HydraMix 500, sst; 234608 and 234826; see 310672	2	36	15E018	ELBOW, compression; cst; carbon steel models only; 3/8 npt(m) x 1/2 in. (13 mm) tube	2
	248574	PUMP, HydraMix 600, cst; 234609 and 234610; see 310672	2		15E019	ELBOW, compression; sst; stainless steel models only; 3/8 npt(m) x 1/2 in. (13 mm) tube	2
	248575	PUMP, HydraMix 600, sst; 234611 and 234827; see 310672	2	37	244524	GROUND WIRE	1
	248576	PUMP, HydraMix 700, cst; 234612; see 310672	2	38	113279	PLUG, tube fitting; 5/32 in. (4 mm) OD tube	2
	248577	PUMP, HydraMix 700, sst; 234613; see 310672	2	39	113505	NUT, keps, hex hd; 10-24	2
13	100361	PLUG, pipe; 1/2 npt	1	40	551787	SCREW, cap, button hd; 10-32 x 3/8 in. (10 mm)	4
14	15D873	BRACKET, support, fluid manifold	1	42	15D998	TUBE, fluid, A component; see pages 45 and 47	1
15	114110	ELBOW; 1/2 npt(m) x 1/2 in. (13 mm) OD tube fitting	3	43	15D999	TUBE, fluid, B component; see pages 45 and 47	1
16	C19038	WASHER, lock; 1/4	5	44	114104	SCREW, machine; 1/4-20 x 1-1/2 in. (38 mm)	1
17	112925	SCREW, cap, button hd; 1/4-20 x 3/8 in. (10 mm)	5	45	115942	NUT, hex, flange hd; 1/4-20	7
20	103196	SCREW, machine, phillips; 8-32 x 7/16 in. (11 mm)	4	50	102656	MUFFLER	2
21	15D767	PLATE, side	2				

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
56	598095	TUBE; nylon; 5/32 in. (4 mm) OD; clear; see pages 45 and 47	2 ft	70	054123	TUBE; nylon; 1/4 in. (6 mm) OD; see pages 45 and 47	4 ft
57	054753	TUBE; nylon; 5/32 in. (4 mm) OD; black; see pages 45 and 47	2 ft	79	195889	BUSHING, strain relief	2
58	054754	TUBE; nylon; 5/32 in. (4 mm) OD; red; see pages 45 and 47	2 ft	93	113796	SCREW, hex hd, flange; 1/4-20 x 3/4 in. (19 mm)	4
59	054757	TUBE; nylon; 5/32 in. (4 mm) OD; green; see pages 45 and 47	2 ft	94	15A818	COVER, sensor; non-intrinsically safe carbon steel models only	2
60	590385	TUBE; polyethylene; 3/8 in. (10 mm) OD; see pages 45 and 47	0.7 ft	95	C20272	O-RING; non-intrinsically safe carbon steel models only	2
61	061134	TUBE; nylon; 1/2 in. (13 mm) OD; see pages 45 and 47	5.2 ft	96	15E383	BUSHING, strain relief; non-intrinsically safe carbon steel models only	2
68	114129	FITTING; 3/8 npt(m) x 1/2 in. (13 mm) OD tube fitting	1	▲ <i>Replacement Danger and Warning labels, tags, and cards are available at no cost.</i>			
69	100081	BUSHING, pipe; 1/2 npt(m) x 3/8 npt(f)	1				

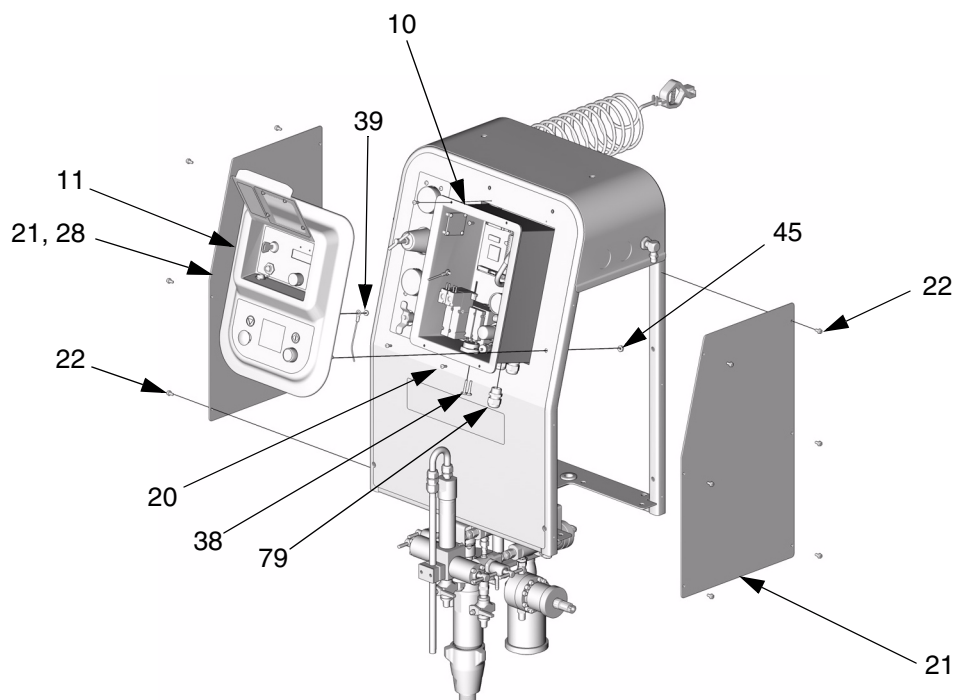
Pump and Meter-based, Wall-mounted High Pressure Units

Part No. 234602 Series A, HydraMix 500 carbon steel pump and G3000 Meter

Part No. 234603 Series A, HydraMix 500 stainless steel pump and G3000 Meter

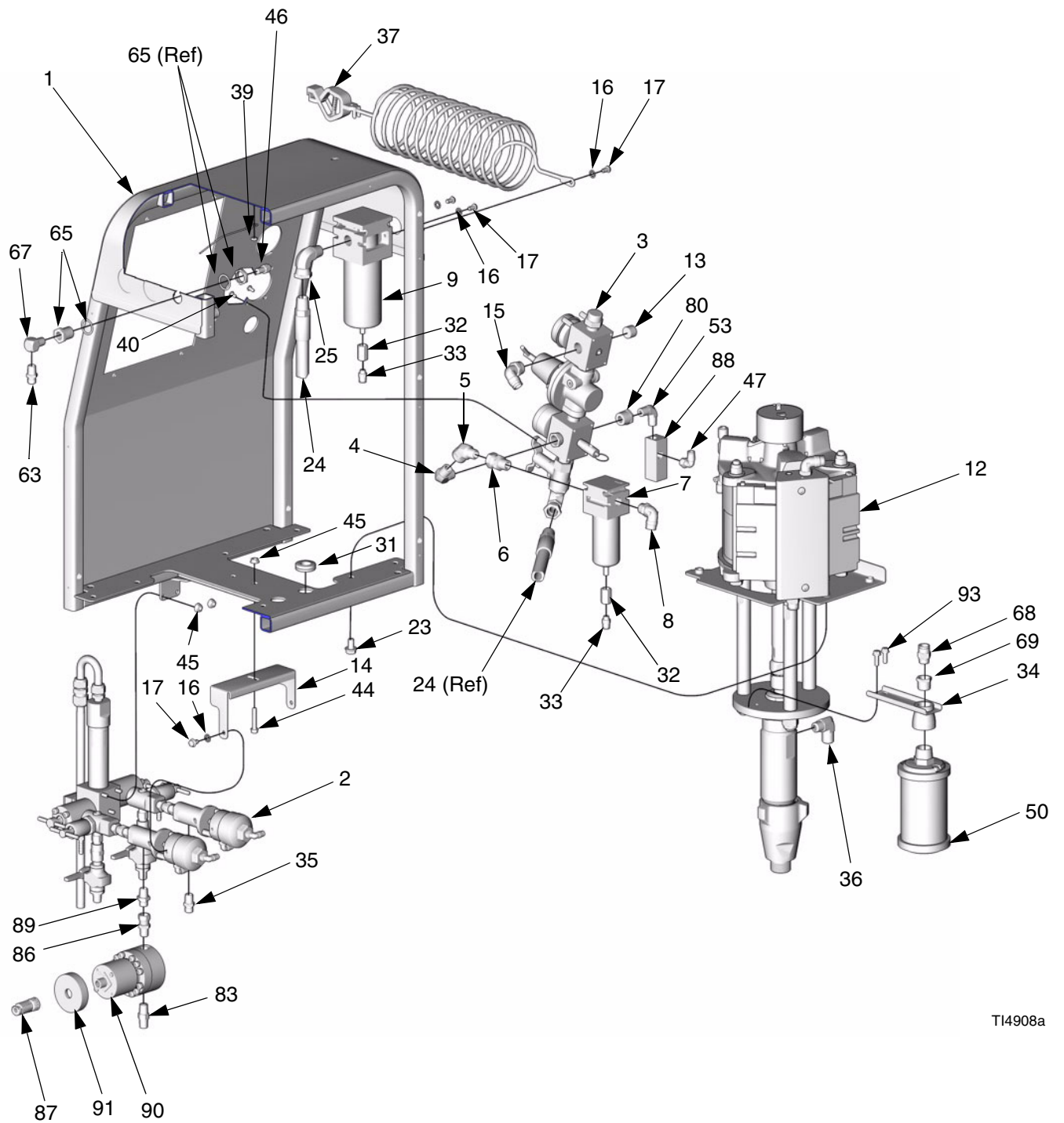
Part No. 234604 Series A, HydraMix 600 carbon steel pump and G3000 Meter

Part No. 234605 Series A, HydraMix 600 stainless steel pump and G3000 Meter



TI4907b

Pump and Meter-based, Wall-mounted High Pressure Units, continued



TI4908a

Pump and Meter-based, Wall-mounted High Pressure Units, continued

See page 40 for model numbers and descriptions.

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	15D771	FRAME, wall mount	1	33	115671	CONNECTOR; 1/8 npt(m) x 1/4 in. (6 mm) OD tube	2
2	234593	MIX MANIFOLD; cst; carbon steel models only; see 310654	1	34	15D966	BRACKET, muffler	1
	234451	MIX MANIFOLD; sst; stainless steel models only; see 310654	1	35	15E020	FITTING, compression; cst; carbon steel models only; 1/4 npt(m) x 1/2 in. (13 mm) tube	1
3	287230	CONTROL, air; see page 53	1		15E021	FITTING, compression; sst; stainless steel models only; 1/4 npt(m) x 1/2 in. (13 mm) tube	1
4	109544	ELBOW, pipe; 3/8 npt (mbe)	1				
5	116756	ELBOW, street, 45°; 3/8 npt (mx f)	1				
6	155665	UNION, adapter; 3/8 npsm(f) x 3/8 npt(m)	1	36	15E018	ELBOW, compression; cst; carbon steel models only; 3/8 npt(m) x 1/2 in. (13 mm) tube	1
7	117629	FILTER, air; 5 micron	1		15E019	ELBOW, compression; sst; stainless steel models only; 3/8 npt(m) x 1/2 in. (13 mm) tube	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	37	244524	GROUND WIRE	1
10	248270	PNEUMATIC CONTROL, intrinsically safe; see page 48	1	38	113279	PLUG, tube fitting; 5/32 in. (4 mm) OD tube	2
11	234620	USER INTERFACE; see page 52	1	39	113505	NUT, keps, hex hd; 10-24	2
12	248572	PUMP, HydraMix 500, cst; 234602; see 310672	1	40	551787	SCREW, cap, button hd; 10-32 x 3/8 in. (10 mm)	4
	248573	PUMP, HydraMix 500, sst; 234603; see 310672	1	42	15D998	TUBE, fluid, A component; see pages 45 and 47	1
	248574	PUMP, HydraMix 600, cst; 234604; see 310672	1	44	114104	SCREW, machine; 1/4-20 x 1-1/2 in. (38 mm)	1
	248575	PUMP, HydraMix 600, sst; 234605; see 310672	1	45	115942	NUT, hex, flange hd; 1/4-20	7
13	100361	PLUG, pipe; 1/2 npt	1	46	113319	FITTING, air; 1/4 npt(m) x 3/8 in. (10 mm) OD tube	1
14	15D873	BRACKET, support, fluid manifold	1	47	115841	ELBOW; 1/4 npt(m) x 3/8 in. (10 mm) OD tube	1
15	114110	ELBOW; 1/2 npt(m) x 1/2 in. (13 mm) OD tube fitting	1	50	102656	MUFFLER	1
16	C19038	WASHER, lock; 1/4	5	53	111763	ELBOW; 1/4 npt (mbe)	1
17	112925	SCREW, cap, button hd; 1/4-20 x 3/8 in. (10 mm)	5	56	598095	TUBE; nylon; 5/32 in. (4 mm) OD; clear; see pages 45, 46, and 47	2 ft
20	103196	SCREW, machine, phillips; 8-32 x 7/16 in. (11 mm)	4	57	054753	TUBE; nylon; 5/32 in. (4 mm) OD; black; see pages 45, 46, and 47	2 ft
21	15D767	PLATE, side	2	58	054754	TUBE; nylon; 5/32 in. (4 mm) OD; red; see pages 45, 46, and 47	2 ft
22	119291	SCREW, self-tapping	12	59	054757	TUBE; nylon; 5/32 in. (4 mm) OD; green; see pages 45, 46, and 47	2 ft
23	113802	SCREW, hex hd, flanged; 3/8-16 x 5/8 in. (16 mm)	4	60	590385	TUBE; polyethylene; 3/8 in. (10 mm) OD; see pages 45, 46, and 47	4.6 ft
24	220598	HOSE, air; nitrile; 1/2 in. (13 mm) ID; 1/2 npt (mbe); 18 in. (457 mm); see also pages 45, 46, and 47	1	61	061134	TUBE; nylon; 1/2 in. (13 mm) OD; see pages 45, 46, and 47	1 ft
25	C19024	ELBOW, swivel; 1/2 npt(m) x 1/2 npsm(f)	1	63	162453	NIPPLE; 1/4 npsm x 1/4 npt	1
26	15D607	CABLE, sensor; see Electrical Schematic , page 22	1	65	104641	FITTING, bulkhead	1
27	15D794	HARNESS, connector; see Electrical Schematic , page 22	1	67	100840	ELBOW, street; 1/4 npt (m x f)	1
28▲	290331	LABEL, warning	1	68	114129	FITTING; 3/8 npt(m) x 1/2 in. (13 mm) OD tube fitting	1
31	101765	GROMMET	2	69	100081	BUSHING, pipe; 1/2 npt(m) x 3/8 npt(f)	1
32	100451	COUPLING; 1/8 npt (fbe)	2				

Ref.					Ref.				
No.	Part No.	Description	Qty.		No.	Part No.	Description	Qty.	
70	054123	TUBE; nylon; 1/4 in. (6 mm) OD; see pages 45, 46, and 47	3.5 ft		87	15D957	HARNESS, wire	1	
79	195889	BUSHING, strain relief	1		88	119159	SWITCH, air flow	1	
80	100206	BUSHING; 1/2 npt(m) x 1/4 npt(f)	1		89	166846	ADAPTER; 1/4 npsm x 1/4 npt (mbe)	1	
83	501867	CHECK VALVE	1		90	239716	METER, G3000; see 308778	1	
86	114339	UNION, swivel; 1/4 npsm(f) x 1/4 npt(m)	1		91	195283	SHIELD, ESD, G3000	1	

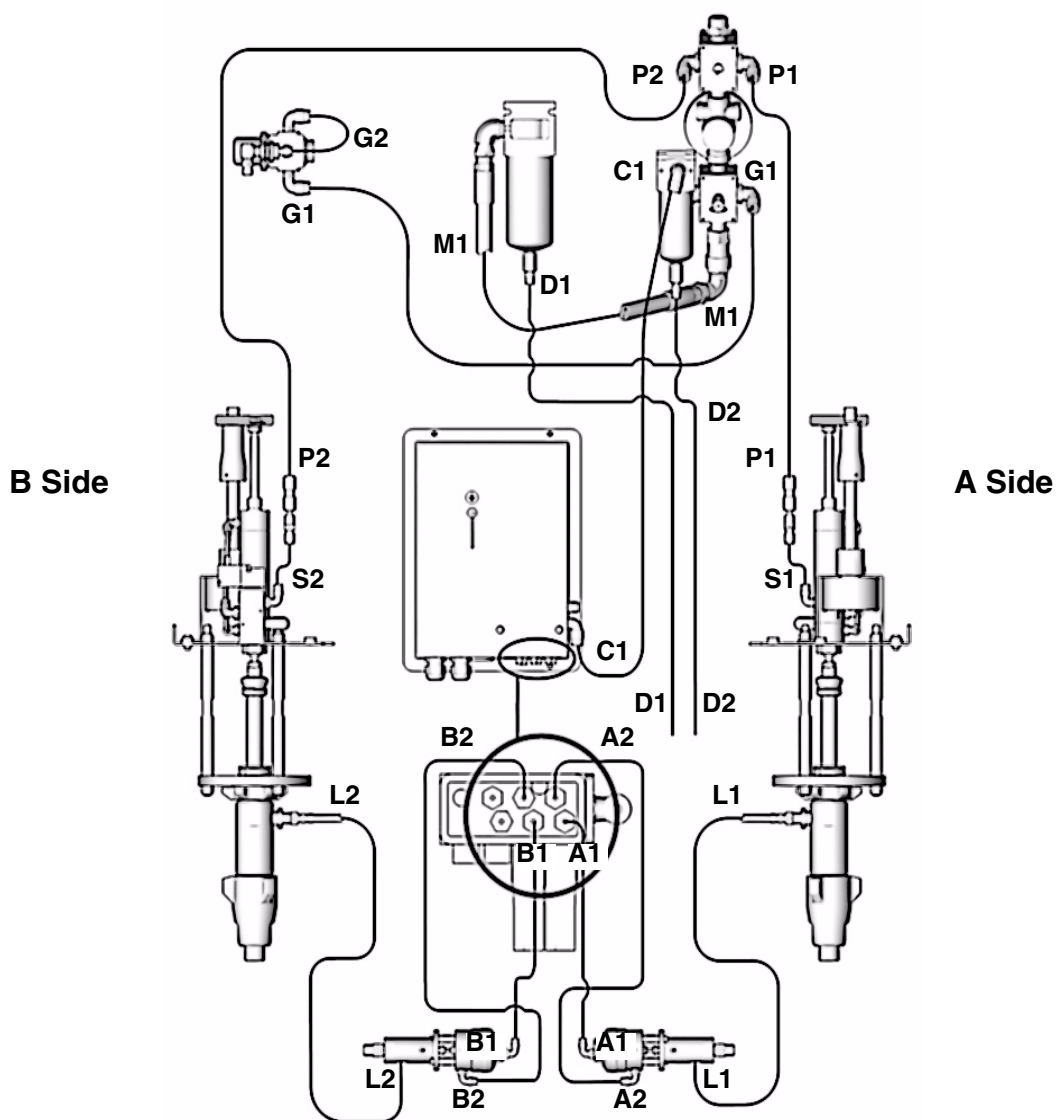
▲ *Replacement Danger and Warning labels, tags, and cards are available at no cost.*

Tube Connections, Low Pressure Pumps

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)	60	8 (203)
D1	Air Filter (9) Drain Tube	70	24 (610)
D2	Air Filter (7) Drain Tube	70	18 (457)
G1	Gun Air Regulator (74) Input	60	31 (787)

Key	Description	Ref. No.	Length, in. (mm)
G2	Gun Air Regulator (74) Output	60	30 (762)
L1	Fluid Line, Pump A to Dispense Valve A	78	18 (457)
L2	Fluid Line, Pump B to Dispense Valve B	78	18 (457)
M1	Air Filter (9) to Air Control (3)	24	18 (457)
P1	Pump A Input Air	60	17 (432)
P2	Pump B Input Air	60	21 (533)
S1	Pump A Solenoid Inputs (2 tubes)	70	2 (51)
S2	Pump B Solenoid Inputs (2 tubes)	70	2 (51)



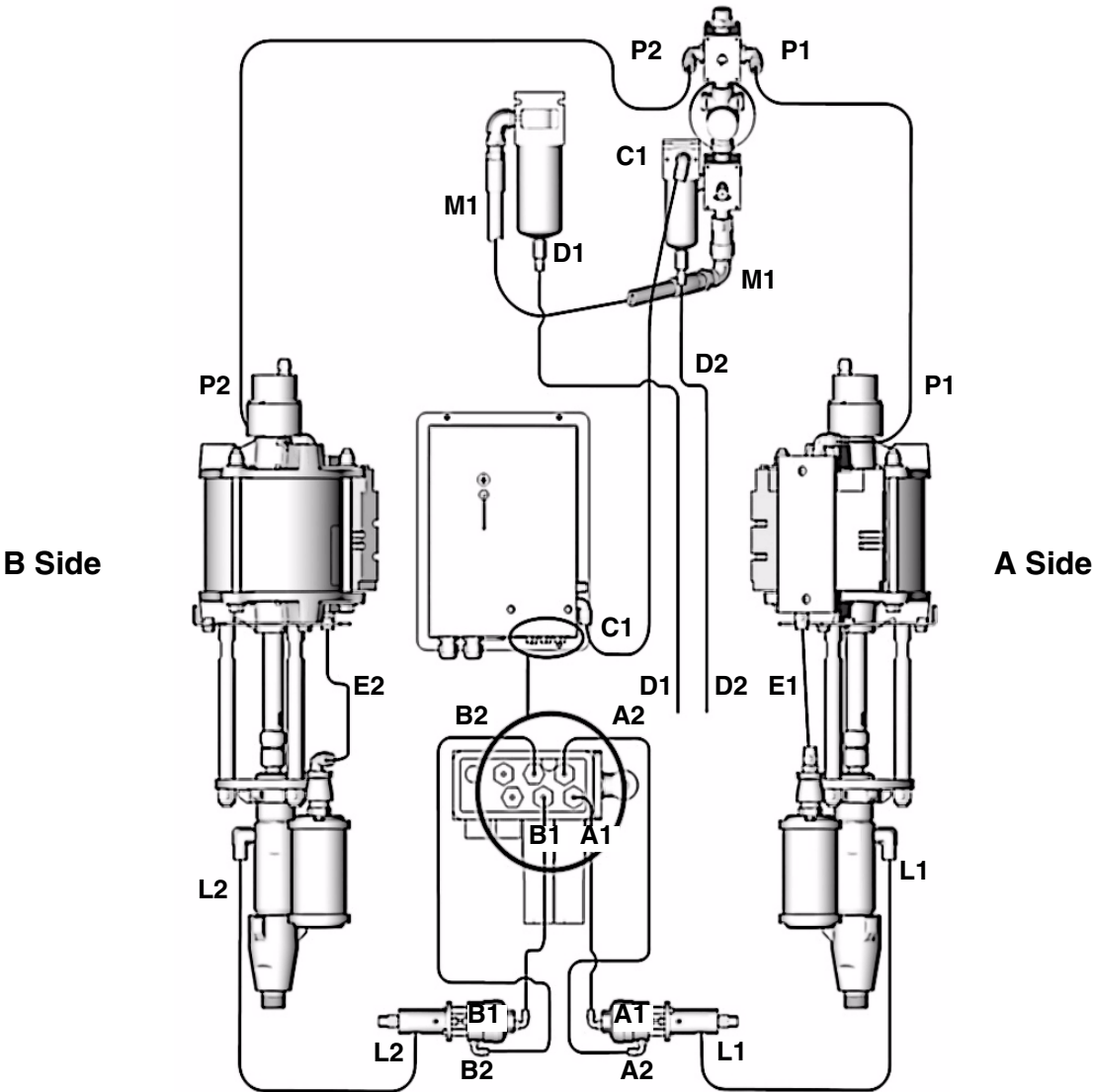
TI5278a

Tube Connections, High Pressure Pumps

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)	60	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)



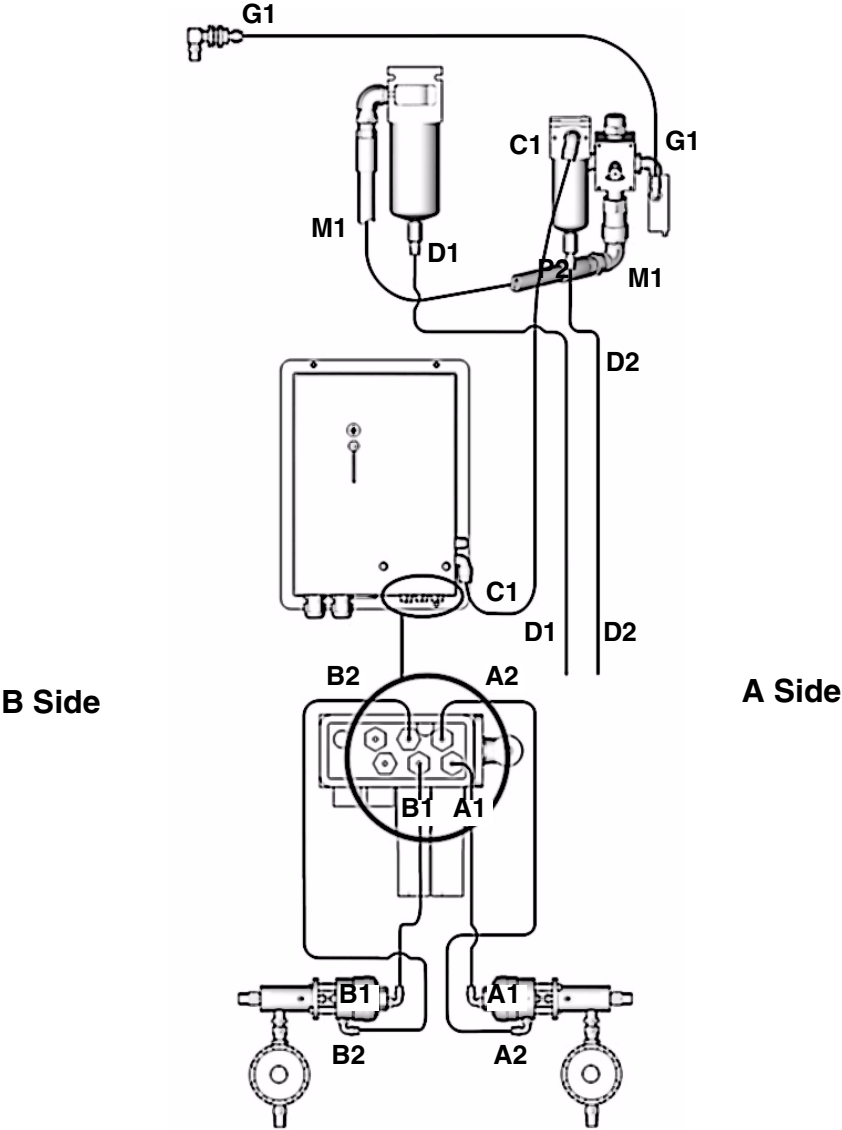
T15279a

Tube Connections, Meters

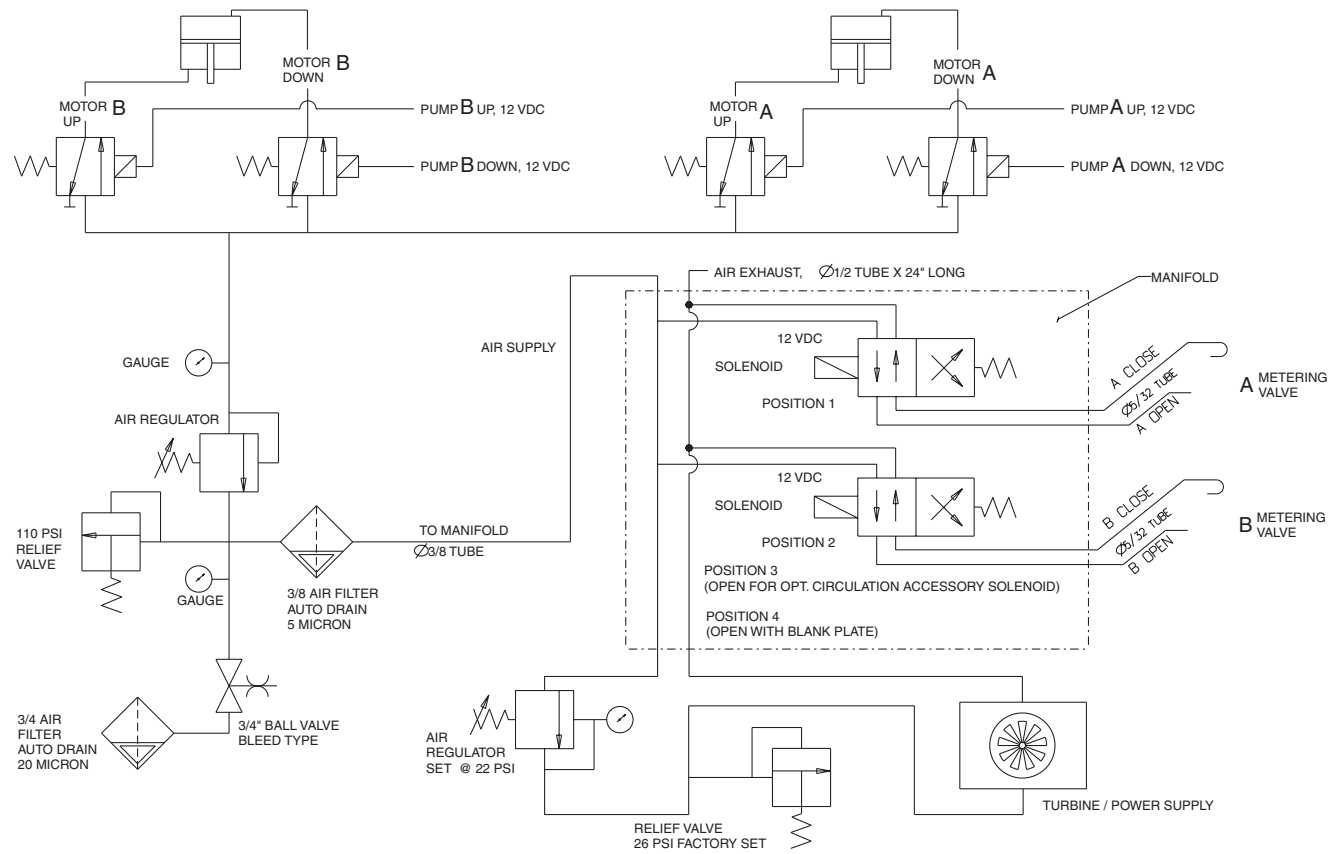
Find the keys on the drawing to ensure proper connections. This page shows a unit with meters on both sides. If your model is a pump/meter combination unit, also refer to pages 44 and 45 for additional connections.

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)	60	8 (203)

Key	Description	Ref. No.	Length, in. (mm)
D1	Air Filter (9) Drain Tube	70	24 (610)
D2	Air Filter (7) Drain Tube	70	18 (457)
G1	Gun Air Flow Switch (88) to Gun Air Line	60	30 (762)
M1	Air Filter (9) to Air Control (3)	24	18 (457)



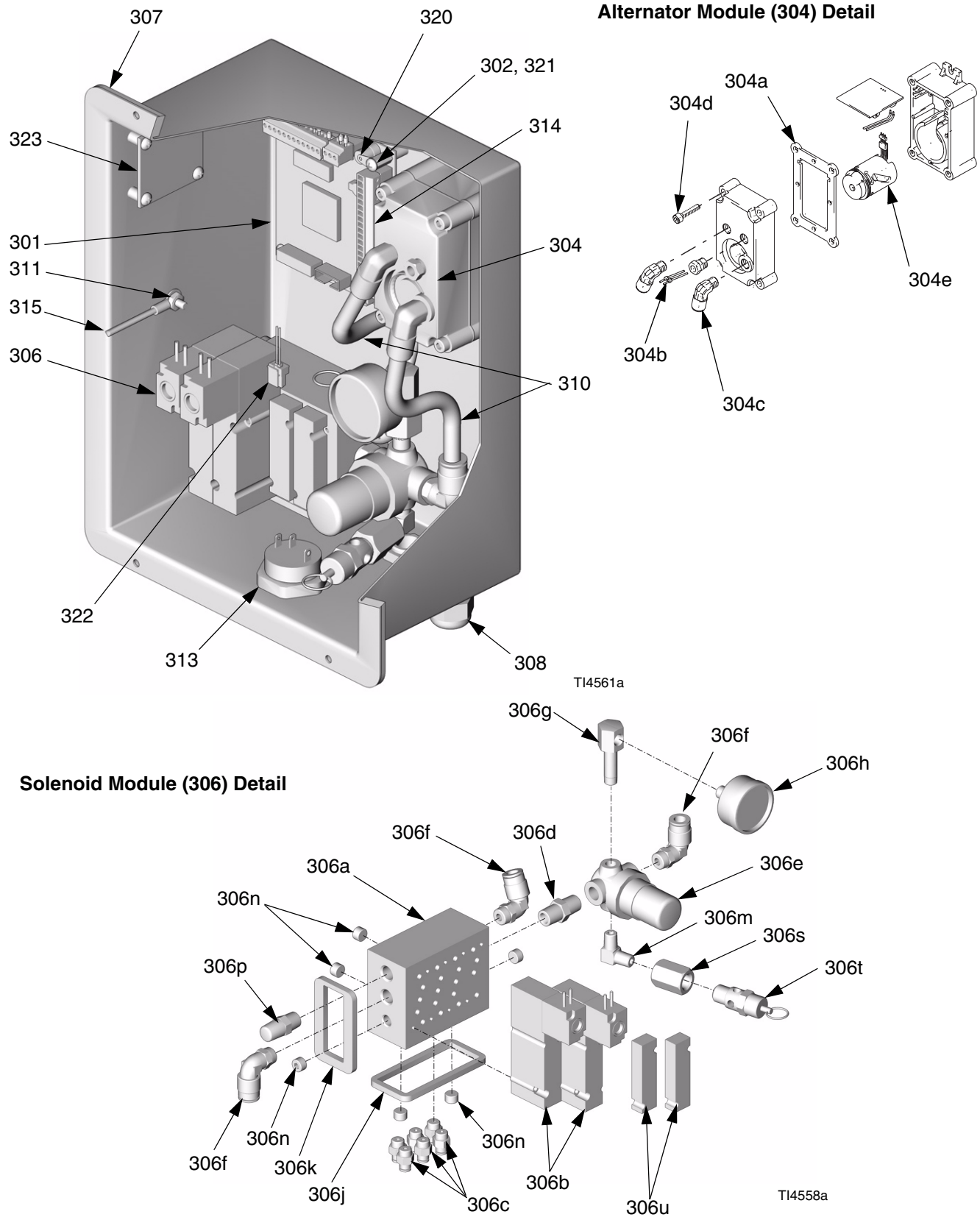
Pneumatic Schematic



248270 Intrinsically Safe Pneumatic Control

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

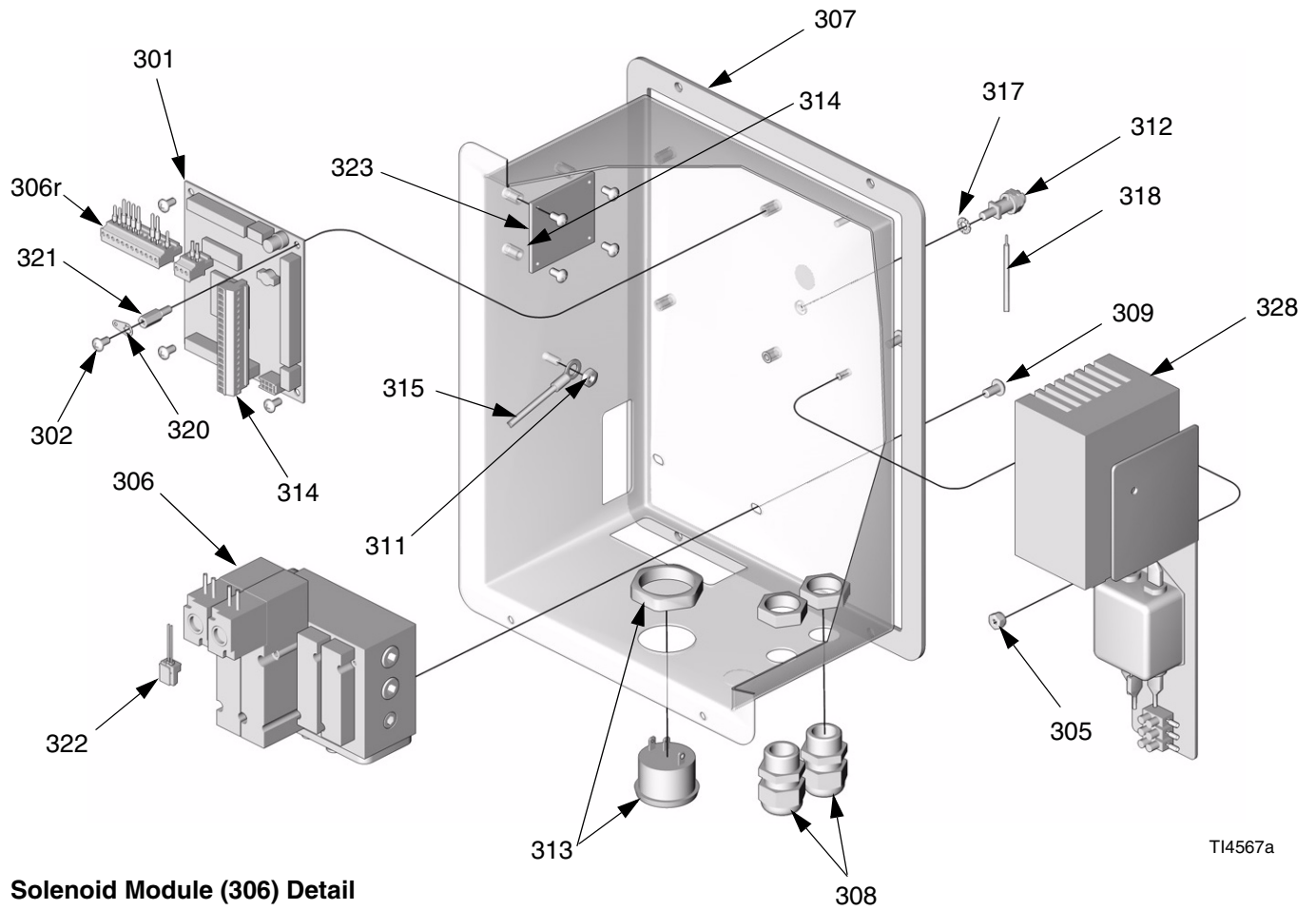
248270 Intrinsically Safe Pneumatic Control, continued



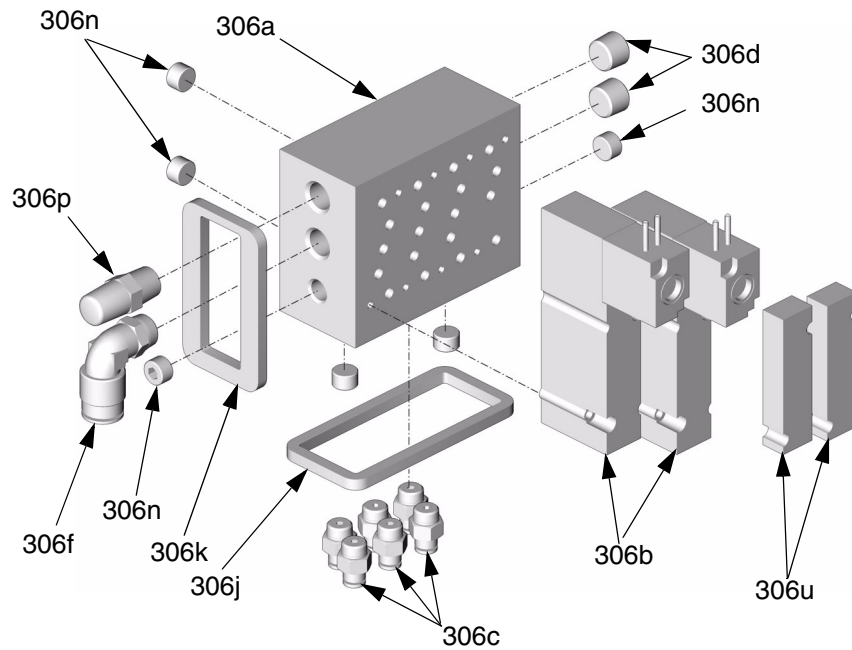
248316 Non-intrinsically Safe Pneumatic Control

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
301	248349	CIRCUIT BOARD	1	308	114421	BUSHING, strain relief	2
302	100035	SCREW, machine, phillips; 8-32 x 5/16 in. (8 mm)	8	309	106084	SCREW, machine; M5 x 0.8; 10 mm	2
305	109466	NUT, lock, w/nylon insert; 8-32	2	311	113505	NUT, keps; 10-24	1
306	248297	MODULE, solenoid, non-IS	1	312	104029	CLAMP, ground	1
306a	15A822	• MANIFOLD	1	313	15A849	HARNESS, wire, alarm	1
306b	117357	• VALVE, 12 VDC, non-IS	2	314	117442	CONNECTOR, plug, 18 position	1
306c	114263	• FITTING; 1/8 npt x 5/32" (4 mm) tube	6	315	15B090	WIRE, grounding, door	1
306d	100721	• PLUG, pipe	2	317	111307	WASHER, lock, external tooth; M5	1
306f	115841	• ELBOW, swivel; 1/4 npt x 3/8" (9.5 mm) tube	1	318	065213	WIRE, copper; 18 AWG; green w/yellow stripe	3 ft
306j	15A798	• GASKET, neoprene	1	320	118132	TERMINAL, lug, lockwasher	1
306k	15A799	• GASKET, neoprene	1	321	118129	SPACER	1
306n	104765	• PLUG, pipe; 1/8 ptf	6	322	114213	HARNESS, connector	1
306p	517449	• MUFFLER	1	323	246899	CIRCUIT BOARD	1
306q	112512	• WIRE FERRULE, orange (not shown)	8	324	112512	FERRULE, wire	2
306r	117369	• CONNECTOR, 12 position	1	325	065165	WIRE, copper; 18 AWG; blue	2 ft
306u	552183	• PLATE	2	326	101845	SCREW, self-tapping; 6-32 x 3/8 in. (10 mm)	1
307	15A800	GASKET; neoprene	1	327	15D821	BRACKET	1
				328	248325	POWER SUPPLY, 12 VDC	1

248316 Non-intrinsically Safe Pneumatic Control, continued



Solenoid Module (306) Detail

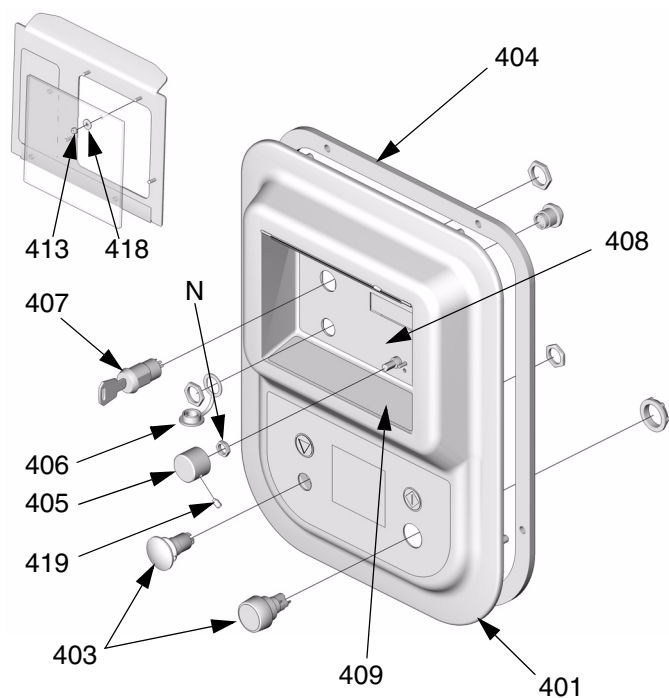


User Interface

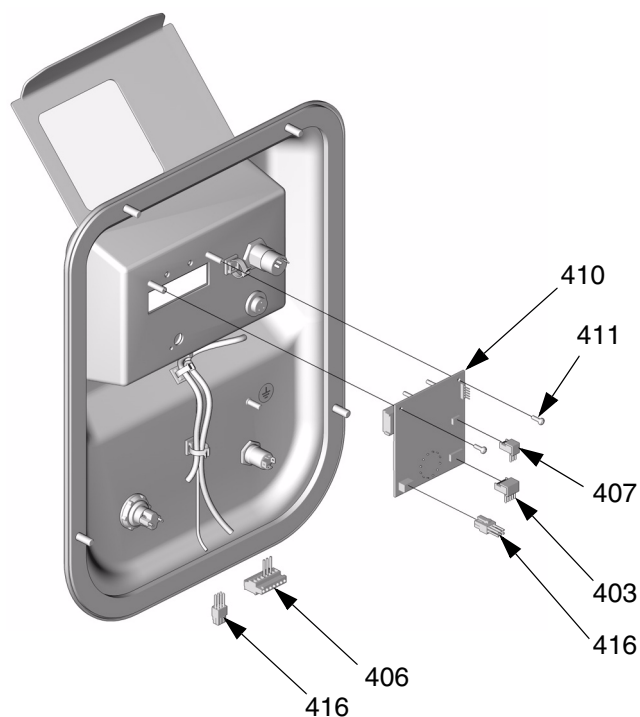
234620, for pump-based and pump/meter units

234621, for meter-based units only

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
401	15B062	DISPLAY	1	411	112546	SCREW, machine; 4-40 x 3/8 in. (10 mm)	2
403	15A851	HARNESS, wire	1	412	15A856	PANEL, display	1
404	15A801	GASKET; neoprene	1	413	C27076	NUT, lock, w/nylon insert; 4-40	4
405	15D853	KNOB, control	1	414	111907	MOUNT, tie wrap	3
406	15A850	HARNESS, wire	1	416	15A854	HARNESS, wire, display	1
407	15A852	HARNESS, wire, switch	1	418	188438	WASHER; 0.120 in.	4
408	15D796	LABEL, control, upper; 234620 only	1	419	101366	SCREW, set; socket hd; 10-24 x 5/16 (8 mm)	1
	15D797	LABEL, control, upper; 234621 only	1				
409	15D798	LABEL, control, lower; 234620 only	1				
	15D799	LABEL, control, lower; 234621 only	1				
410	245706	CIRCUIT BOARD, display; includes jam nut (N)	1				



TI4755a



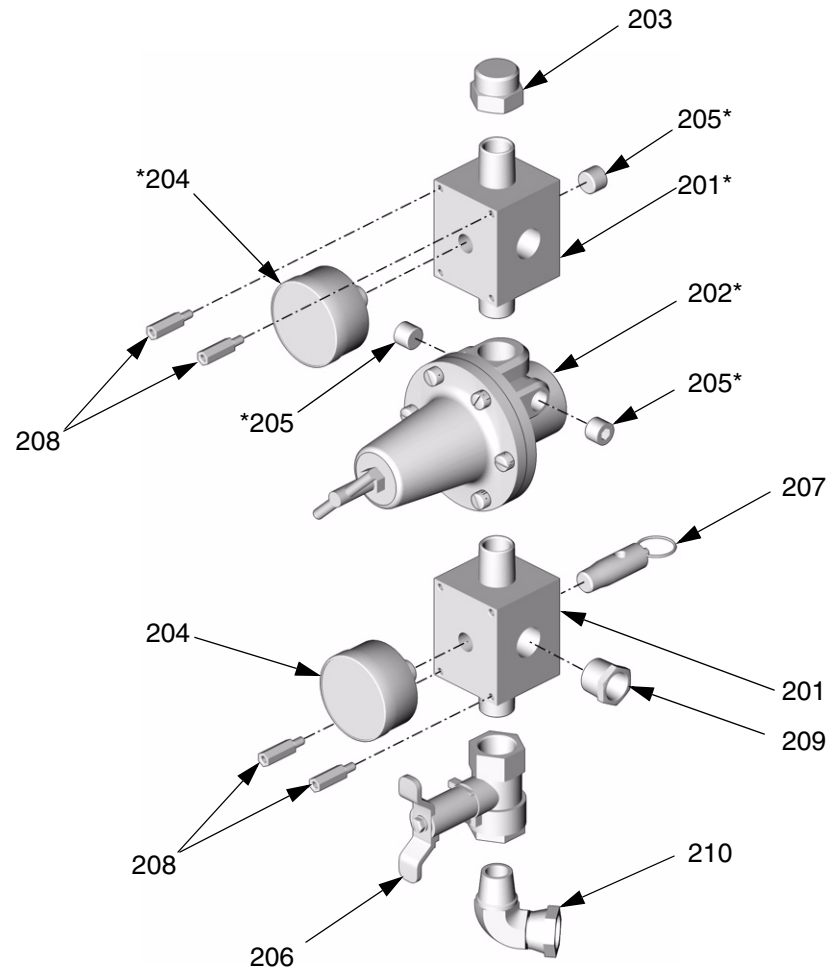
TI4756a

287230 Pump Air Control

287231 Meter Air Control

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
201	15D814	MANIFOLD, air; 287230 only	2	207	113498	VALVE, safety relief; 110 psi (0.8 MPa, 8 bar)	1
202	206197	REGULATOR, air; 1/2 npt(f) inlet and outlet; 287230 only; see manual 308168	1	208	119246	STANDOFF	4
203	119240	CAP, pipe, 1/2 in. (13 mm)	1	209	100081	BUSHING, pipe; 1/2 npt(m) x 3/8 npt(f)	1
204	101689	GAUGE, air pressure; 287230 only	2	210	C19024	ELBOW, swivel; 1/2 npt(m) x 1/2 npsm(f)	1
205	112678	PLUG; 1/4 npt; 287230 only	3				
206	118762	VALVE, ball, bleed-type; 1/2 npt(fbe)	1				

* These parts are included in 287230 Air Control only.



T14601a

Technical Data

Mix ratio range	0.1:1-10:1 (in 0.1 increments), pump-based systems
	0.1:1-30:1 (in 0.1 increments), meter-based systems
Ratio tolerance range	up to +/- 1%
Flow rates	
Minimum	0.02 qt/min (0.02 lpm)*, pump-based systems
	0.1 qt/min (0.1 lpm)*, meter-based systems
Maximum	1 gpm (3.8 lpm)
Pump size	
UltraMix	54 cc/cycle
HydraMix	92 cc/cycle
Pump cycle length (one cycle = one upstroke and one downstroke)	
UltraMix	6 in. (152 mm)/cycle
HydraMix	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	
2.5:1 UltraMix	250 psi (1.7 MPa, 17 bar)
24:1 HydraMix	2400 psi (16 MPa, 166 bar)
34:1 HydraMix	3400 psi (23 MPa, 234 bar)
47:1 HydraMix	4700 psi (32 MPa, 324 bar)
Meter-based systems	4000 psi (28 MPa, 280 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)	
2.5:1 UltraMix	10.8 scfm at 1 gpm (0.30 m ³ /min at 3.8 lpm)
24:1 HydraMix	40.5 scfm at 1 gpm (1.13 m ³ /min at 3.8 lpm)
34:1 HydraMix	54.7 scfm at 1 gpm (1.53 m ³ /min at 3.8 lpm)
47:1 HydraMix	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)

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

External Power Supply Requirements	93-250 Vac, 50/60 Hz, 1.2 amps maximum draw 15 amp maximum circuit breaker required 14 AWG power supply wire gauge
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
Meters	See 308778
PC Communications	RS-232

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