Instructions

THERM-O-FLOW® Hot Melt Tank T7

309832 rev.D

For melting and pumping non-explosive hot melt thermoplastic adhesives. Not recommended for water-based curable or solvent-based adhesive.

Model 234251

115 VAC

Model 234252

230 VAC

300 psi (2.0 MPa, 20.6 bar) Maximum Working Pressure

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

See page 2 for table of contents.

PROVEN QUALITY. LEADING TECHNOLOGY.

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CE

Contents

Manual Conventions 2
Warnings 3
Installation 4
Melt unit 4
Accessories 5
Front panel display 7
Setup 10
Mounting hot melt tank 10
Connecting hose 11
Connecting applicator 12
Connecting timers and controllers 12
Adding material to tank 13
Electrical wiring 13
Operation 14
Pressure relief procedure 14
Flushing 14
Starting the hot melt system 15
Adjusting panel controls 15
Dispensing material 18
Adjusting timers and controllers 18
Maintenance 19
Daily Maintenance 19
Tank Screen Inspection 19
Troubleshooting 20
Repair 23
Tools Used 23
Replacing hose 23
Replacing front panel 25
Replacing front panel fuses 26
Removing tank cover 26
Replacing motor 27
Replacing coupling assembly 28
Replacing pump 29
Replacing pressure adjuster 31
Replacing fluid outlet fittings 33
Replacing motor control board fuse 118321 . . . 33
Replacing over temperature switch assembly . . 34
Replacing tank heaters and thermistor assembly 35
Parts 36
Housing assembly 36
Motor, pump to frame and tank assembly 38
Tank assembly 40
Pump and pressure adjuster assembly 42
Schematics 44
Front panel harness 44
Base harness 45
Base wiring 46
Dimensions 47
Technical Data 48
Graco Standard Warranty 50
Graco Information 50

Manual Conventions

⚠ WARNING

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

Warnings in the instructions usually include a symbol indicating the hazard. Read the general **Warnings** section for additional safety information.

CAUTION

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

Note

Additional helpful information.

Warnings

The following warnings include general safety information for this equipment. More specific warnings are included in the text where applicable.

⚠ WARNING	
	**ELECTRIC SHOCK HAZARD** Improper grounding, setup, or usage of the system can cause electric shock. • Turn off and disconnect power cord before servicing equipment. • Use only grounded electrical outlets. • Use only 3-wire extension cords. • Ensure ground prongs are intact on sprayer and extension cords.
	**PRESSURIZED EQUIPMENT HAZARD** Fluid from the gun/dispense valve, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury. • Follow **Pressure Relief Procedure** in this manual, when you stop spraying and before cleaning, checking, or servicing equipment. • Tighten all fluid connections before operating the equipment. • Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.
	**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.
	**PRESSURIZED ALUMINUM PARTS HAZARD** Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents in pressurized aluminum equipment. Such use can cause serious chemical reaction and equipment rupture, and result in death, serious injury, and property damage.
	**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

Installation

THERM-O-FLOW® T7 Hot Melt System is used for melting and pumping hot melt thermoplastic adhesives. The system consists of the melt unit, up to two heated supply hoses, and applicator. System operation is further enhanced by the use of pattern controllers, timers, foot switches, or other such devices. All temperatures in the hot melt system are controlled by closed loop electronics using thermistor-based sensors.

Melt unit

Includes heated melt tank with a motor-driven, positive displacement gear pump. Front panel controls temperatures and settings. Fluid pressure is supplied by the regulator that controls flow through a bypass mechanism.

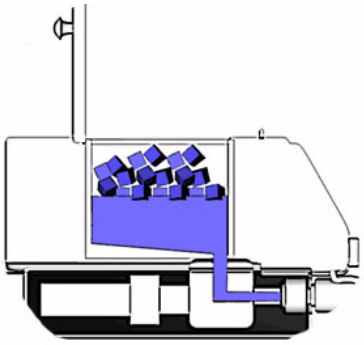


FIG. 1: Tank Dispensing Material

Pump and Motor

To prevent damage to the pump and/or motor with material that is too viscous or solid, operation of the pump motor is inhibited until the tank reaches approximately 90% of the selected temperature. The pump and motor are protected by a fuse that blows if a stall or overload condition occurs. See **Repair** starting on page 23, for replacement instructions.

Auxiliary Input Connection

One auxiliary connection is available for each hose/applicator employed in the system. Foot switches, timers, and air pattern controllers connect to the auxiliary input.

On/Off Switch and Circuit Breaker

The on/off switch and circuit breaker (R) is a manual circuit breaker and also a magnetic breaker. See FIG. 4, page 10.The magnetic breaker opens the circuit when the current exceeds 20 amps (at 115 VAC or 230 VAC) or when over-temperature conditions are sensed at the melt tank. See **Troubleshooting**, page 20.

Accessories

Install the following accessories shown in FIG. 2, using adapters as necessary.

Hoses

- **Heated Hose (J):** allows adhesive to flow from the tank to the applicator while maintaining the set temperature. Can install up to two hoses:
  - Extrusion Hose: for extrusion application
  - Spray/Swirl Hose: includes air line in the hose jacket.

Hose Part No.	Extrusion, Spray/Swirl Application	Length	VAC
117852	Extrusion	4 ft (1.2 m)	115
117853	Extrusion	6 ft (1.8 m)	115
117854	Extrusion	8 ft (2.4 m)	115
117855	Extrusion	10 ft (3 m)	115
117856	Extrusion	12 ft (3.6 m)	115
117857	Extrusion	16 ft (4.8 m)	115
117858	Extrusion	18 ft (5.4 m)	115
117859	Extrusion	24 ft (7.3 m)	115
117860	Extrusion	4 ft (1.2 m)	230
117861	Extrusion	6 ft (1.8 m)	230
117862	Extrusion	8 ft (2.4 m)	230
117863	Extrusion	10 ft (3 m)	230
117864	Extrusion	12 ft (3.6 m)	230
117865	Extrusion	16 ft (4.8 m)	230
117866	Extrusion	18 ft (5.4 m)	230
117867	Extrusion	20 ft (6 m)	230
117868	Extrusion	24 ft (7.3 m)	230
117872	Swirl/Spray	4 ft (1.2 m)	115
117873	Swirl/Spray	6 ft (1.8 m)	115
117874	Swirl/Spray	8 ft (2.4 m)	115
117875	Swirl/Spray	10 ft (3 m)	115
117876	Swirl/Spray	12 ft (3.6 m)	115
117877	Swirl/Spray	16 ft (4.8 m)	115
117878	Swirl/Spray	18 ft (5.4 m)	115
117879	Swirl/Spray	24 ft (7.3 m)	115
117880	Swirl/Spray	4 ft (1.2 m)	230
117881	Swirl/Spray	6 ft (1.8 m)	230
117882	Swirl/Spray	8 ft (2.4 m)	230
117883	Swirl/Spray	10 ft (3 m)	230
117884	Swirl/Spray	12 ft (3.6 m)	230
117885	Swirl/Spray	16 ft (4.8 m)	230
117886	Swirl/Spray	18 ft (5.4 m)	230
117887	Swirl/Spray	24 ft (7.3 m)	230

Applicators

See manual applicator instructions (310801) or automatic applicator instructions (310803) for specific instruction on how to install applicators to the hot melt tank.

- **EG Electric Head (D):** for automatic dispensing. No air needed for application. Use with timer and pattern controller.
- **COM-PAK Pneumatic (H):** for automatic dispensing. Use with timer and pattern controller.
- **AG Applicator (F):** for automatic dispensing. Use with timer and pattern contoller. Air-open, air-close with spring-assist closing action.
- **HG Handgun (G):** for manual dispensing. Top or bottom feed available. Control pump motor with reed relay switch on the gun.
- **Vertical Electric Applicator (VEA) (E):** for manual dispensing. One or two hand control options.

Timers and controllers

See EC-20/40 timer manual 310814 for instruction.

- **EC-20 (B):** 2- event pattern timer for automatic application.
- **EC-40 (B):** 4-event pattern timer for automatic application.
- **Air Saver Control Unit (C):** for spray or swirl pattern applications. Adjusts and regulates air to the applicator.

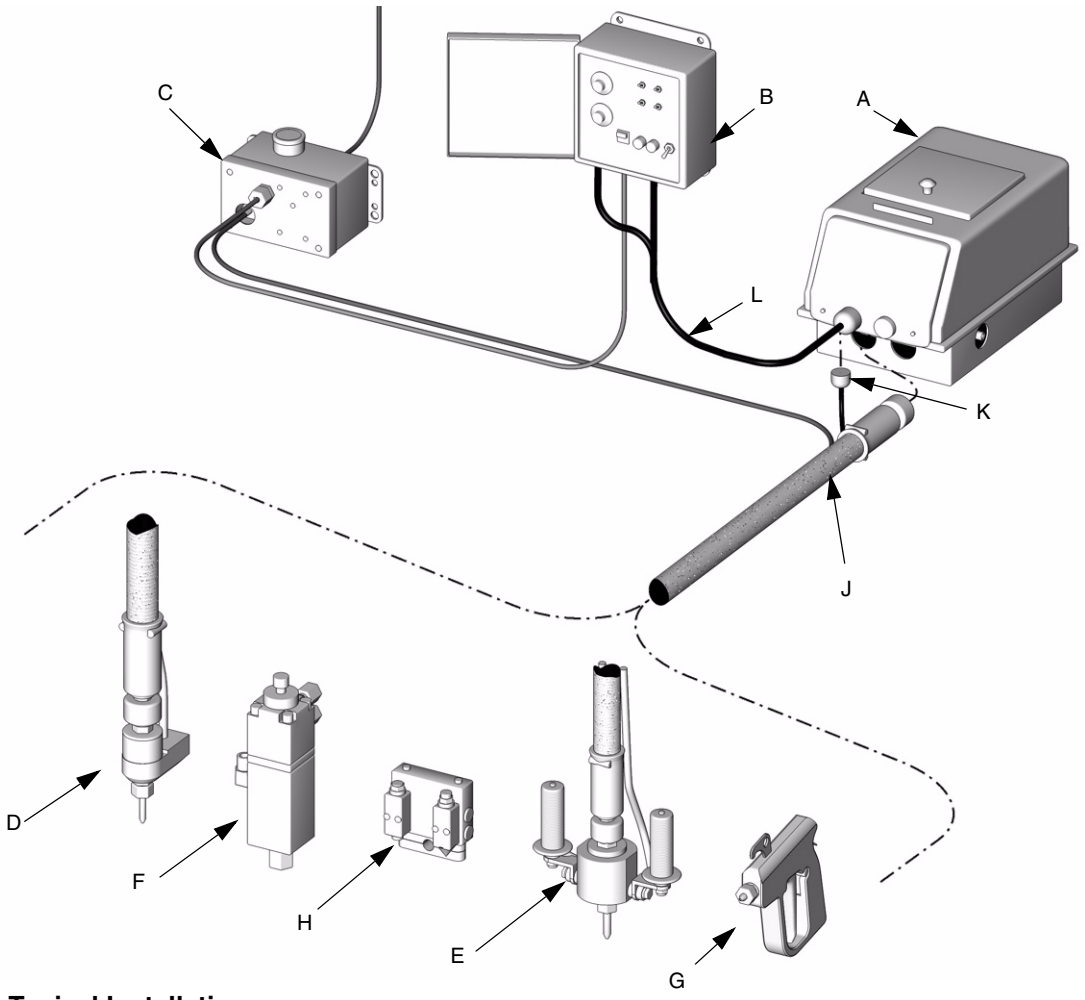


FIG. 2: Typical Installation

Key:

A T7 Hot Melt Tank
B Timer (required for automatic application)
C Air Controller (required for airspray and swirl application)
D EG Applicator
E VEA Applicator
F AG Applicator
G Handgun Applicator
H COM-PAK Applicator
J Fluid Hose
K Hose Electrical Connector
L Timer to Tank Power Cord

Front panel display

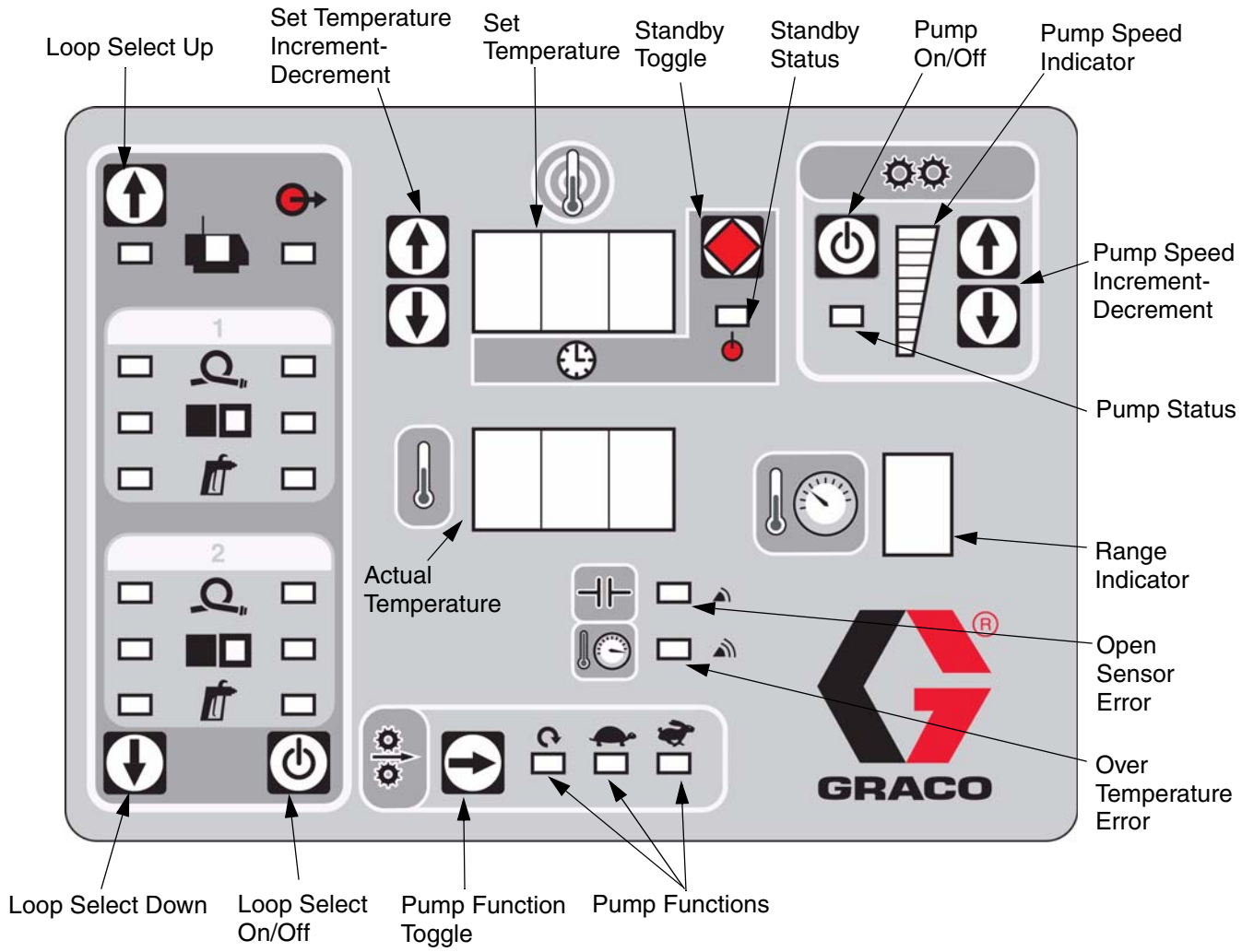
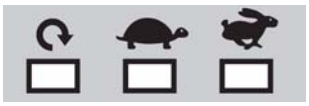
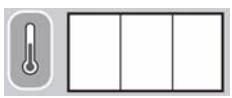
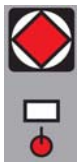
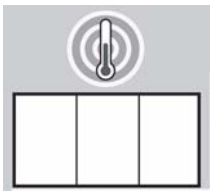


FIG. 3: Front Panel Display

Front panel display

See FIG. 3.

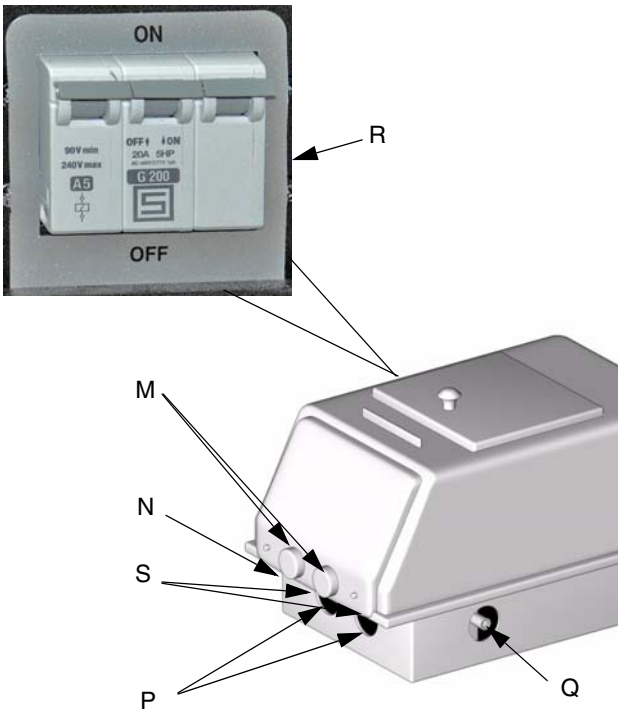
Control	Name	Function
	Loop Select Up/Down	Selects device for modification. Lights to the left of device signify the device is ready to be modified. Enables temperature Range Digit LED and Actual Temperature LED.
	Set Temperature Increment/Decrement	Selects the temperature range digit and set point temperature.
	Loop Select On/Off	Turns specified device settings (auxiliary, hose, head) on or off. Does not affect the tank zone. Lights to the right of the device will show if device is on or off. Changes °F or °C temperature setting.
	Pump Function Toggle	Selects the pump settings Cycle, Crawl, or Run: •  CYCLE: Pump runs when applicator is actuated. For automatic application, the pump will run when timer is activated. •  CRAWL: Pump is at a constant slow turning velocity, keeping constant pressure from the pump, to the hose and applicator. When applicator is actuated the pump switches to cycle setting. When applicator is off the pump switches back to crawl setting. •  RUN: Pump is always on.
	Pump Functions	Shows GREEN when ready. Shows RED when the tank is not ready or the Pump Control is off.
	Over Temperature Error	Flashes RED when over-temperature condition is detected. The loop indicator LED for the affected zone flashes RED. Heating is disabled. See **Troubleshooting**, page 20.
	Open Sensor Error	Shows RED when condition is sensed. The affected zone is automatically de-energized. The loop indicator LED for the affected zone flashes RED. See **Troubleshooting**, page 20.
	Actual Temperature	Displays actual temperature (°F or °C) for selected zone.

Control	Name	Function
	Range Digit	Shows the range currently set for the tank, hose, and head temperatures. See **Temperature Range Chart**, page 15.
	Pump Status 	Indicates if pump is on or off. Shows RED if pump is off or the tank is not ready. Shows GREEN when pump is on.
	Pump Speed Increment/Decrement 	Increases or decreases pump speed.
	Pump Speed Indicator 	Shows the current level of pump speed. Lights are GREEN to show speed level. The more lights are shown, the faster the pump is running.
	Pump Control On/Off 	Turns pump on or off.
	Standby Status	Shows GREEN when Standby Toggle is actuated.
	Standby Toggle	Starts cooling the tank, hoses, and applicators to approximately 75% of the set point.
	Set Temperature (Standby Timer)	Shows the set temperature (°F or °C) of selected device. Shows set time that you want the Standby activated.

Setup

Mounting hot melt tank

Bolt the hot melt tank securely to appropriate surface. Bolt holes are provided on the base of the tank. Mount tank where hose fittings are accessible from the bottom of the tank with wrenches. Floor mounting stand 118089 is available.



Key:

M Auxiliary Bypass Connection
N Power Cord (not shown)
P Fluid Outlet
Q Pressure Adjuster
R On/Off Power Switch
S Hose Electrical Receptacle (shown underneath cover)

FIG. 4: T7 connections and power supply

Connecting hose

WARNING

To avoid accidental system pressurization or electrical shock, disconnect power cord and turn the on/off switch to OFF. See **Warnings**, page 3.

WARNING

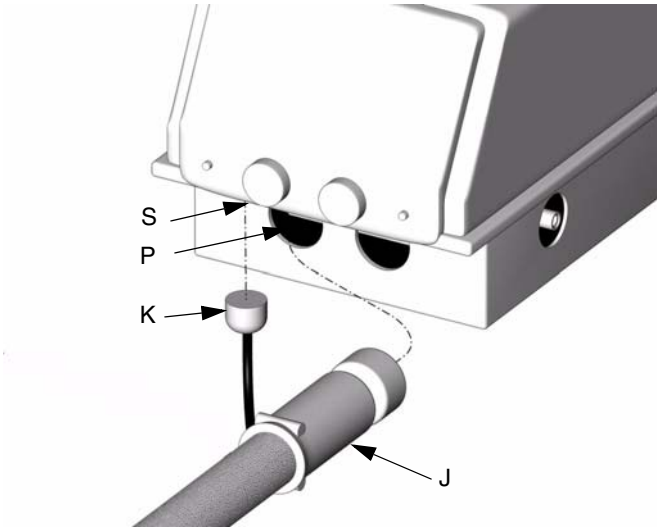
To prevent hose damage, do not flex hose when cold. When hot, the hoses have a minimum bend diameter of 16 in. (40.64 cm).
115 VAC tanks can support up to two 16 ft (4.8 m) of total hose. 230 VAC tanks can support up to two 24 ft (7.3 m) of total hose. Read **Warnings**, page 3.

WARNING

Wait until equipment/fluid has cooled completely. See **Warnings**, page 3.

1. Raise or tilt the melt unit backward to access the fluid outlet fittings.

2. Connect hose (J) to fluid outlet fitting (P). Tighten with 11/16 in (mm) opened end wrench.



To prevent leakage, make sure hose is seated securely on inlet fitting.

To insure proper seating of threads, make sure inlet threads are clean. See **Troubleshooting**, page 20.

3. Connect hose electrical connector (K) to hose electrical receptacle (S). Make sure pins align properly.

4. Screw bayonet ring of the plug onto the receptacle.

To connect second hose, repeat steps 1 through 4.

Connecting applicator

See hot melt tank applicator manuals for specific instruction on how to install applicators to the hot melt tank.

- 310801 Manual Applicator manual
- 310803 Automatic Applicator manual

Connecting timers and controllers

See EC-20/40 timer manual 310814 for instruction. See appropriate applicator manual for air saver control instructions.

- 310801 Manual Applicator manual
- 310803 Automatic Applicator manual

Pattern controllers supplied by Graco come with terminated cables to simplify connection to the melt system. A cable with one end unterminated (118243) is available to allow connection of a customer-supplied controller into the melt system.

Adding material to tank

WARNING

This equipment is designed for use with standard adhesive and sealant such as EVAs, butyls, and polyolefins with flash points above 450°F (232°C). Not recommended for water curable or solvent based adhesive. Do not use flammable material or material not compatible with the specifications of this equipment. Failure to follow this instruction can cause burn injury to operators and damage to equipment.

1. Make sure melt tank has been flushed and cleaned. See **Flushing** page 14.

If material to be added is compatible to existing material in tank, flushing is not necessary.

2. Fill the melt tank with the amount of adhesive material that will be used in one day. Material should not be higher than 1.5 in. (4 cm) from the top of the tank.

3. Follow the material manufacturer's instructions for operating temperature.

Electrical wiring

The hot melt tanks use single phase, 100 to 130 VAC or 200 to 240 VAC, 50 to 60 Hz power sources, each with earth ground for safety. The 115 VAC tanks come equipped with a 15 amp molded plug for convenient connection to a 115 VAC, 20 amp grounded receptacle. The 230 VAC tanks come with a molded plug for connection to an electrical circuit box or user-supplied plug.

Operation

Pressure relief procedure

WARNING

Follow **Pressure relief procedure** when you stop spraying and before cleaning, checking, servicing, or transporting equipment. Read **Warnings**, page 3.

1. Shut off pump motor.
2. Actuate applicator, dispensing material into an empty pail, until material stops dispensing through the applicator.
3. Follow **Pressure Relief Procedure**, page 14.

Flushing

WARNING

This equipment is designed for use with standard adhesive and sealant such as EVAs, butyls, and polyolefins with flash points above 450°F (232°C). Not recommended for water curable or solvent based adhesive. Do not use flammable material or material not compatible with the specifications of this equipment. Failure to follow this instruction can cause injury to operators and damage to equipment.

- Flush before changing materials.
- Flush at the lowest pressure possible. Check connectors for leaks and tighten as necessary.
- Flush with purging compound 118090.

1. Make sure material in tank is completely dispensed.
2. Follow **Pressure Relief Procedure**, page 14.
3. Remove nozzle and clean with compound.
4. From inside tank, pull out tank filter screen 118211. Clean with purging compound and inspect for damage and replace. See **Parts**, page 40.
5. Put compound into tank.
6. Start up the hot melt system. Follow instructions for **Starting the hot melt system**, page 15; **Adjusting panel controls,** page 15; and **Dispensing material**, page 18.
7. Trigger the gun until clean compound dispenses.
8. Turn on/off switch (R) OFF and unplug unit. See FIG. 4, page 10.
9. Remove gun from hose. See gun manual to further clean gun.

Starting the hot melt system

1. Plug in hot melt system.

2. Turn on/off switch (R) ON. See FIG. 4, page 10.

Adjusting panel controls

Refer to the material manufacturer's specifications for correct operating temperatures.

Temperature Range Chart

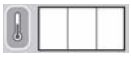
The temperature range chart shows each range number and its corresponding tank, hose, and applicator temperature range.

Range	Tank Temperature	Hose and Applicator Temperature
1	120 to 195°F 49 to 91°C	150 to 225°F 66 to 107°C
2	160 to 235°F 71 to 113°C	190 to 265°F 88 to 129°C
3	200 to 275°F 93 to 135°C	230 to 305°F 116 to 152°C
4	240 to 315°F 116 to 157°C	270 to 345°F 132 to 174°C
5	280 to 355°F 138 to 179°C	310 to 385°F 154 to 196°C
6	320 to 395°F 160 to 202°C	350 to 425°F 177 to 218°C

Setting temperature to Fahrenheit (°F) or Celsius (°C)

1. Use the loop select up/down  to select tank  . The LED to the left of the device should show GREEN.

2. Once the tank device is selected and LED is GREEN, press the loop select up  four times. The range indicator digit will begin flashing.

3. Press the loop select on/off  . Notice the actual temperature display  . If the temperature in the display is lower, it is set to °C. If the temperature in the display is higher, it is set to °F.

Selecting tank

Use the loop select up/down  to select tank  . The LED to the left of the device indicates selection.

Setting temperature range

The temperature range number reflects the setting for the tank, hose, and applicator. See **Temperature Range Chart**, page 15.

1. Select the tank  and press the loop select up  four times. The range indicator digit will begin flashing.

2. Press the set temperature increment or decrement  to set appropriate range digit. See **Temperature Range Chart**, page 15. This will only raise or lower the range digit value one level. To change the value, repeat steps 1 and 2.

Selecting hoses and applicators

1. Use the loop select up/down  to scroll through and select each device  .

2. Press the loop select on/off  ON. The LED to the right of the selected device should flash GREEN when ready and flash AMBER when heating.

Setting tank, hose, and applicator temperature

Once device is selected, press the set temperature increment or decrement  to set appropriate actual temperature within selected range. See **Temperature Range Chart**, page 15.

Setting pump control and speed

The pump will not operate until the tank is within 90% of set temperature. The tank is at temperature when all device LEDs are flashing GREEN.

1. Press the pump on/off  ON.

2. To set the pump to cycle, crawl, or run, press the pump function toggle  . For pump function description, see **Front panel display** chart on page 8. The LEDs will show RED when tank is not ready or pump control is off. The LEDs will show GREEN when ready.

3. Adjust pump speed by pressing the pump speed increment/decrement  . The pump speed indicator will illuminate showing current speed level.

If pump is in crawl setting, pump speed is not adjustable.

Setting auxiliary controls

Auxiliary input selection is accomplished on per channel basis and can only be accessed when the control is in standby mode.

1. Press the standby toggle  .

2. Press the loop select up/down  to select appropriate auxiliary channel  .

3. To activate or deactivate selected auxiliary, press the loop select on/off  . LEDs to the left of the selection will show GREEN if on.

4. To resume operation, press the standby toggle  .

Setting standby timer

Setting the standby will turn off the tank, hose, and applicator heat for a selected amount of time. When the standby time is complete, the tank settings automatically resume to previous set temperatures and heating continues.

1. Press the standby  toggle.

2. Press temperature increment/decrement  to increase or decrease time. Set time will appear in the set temperature display. You must enter a minimum of five minutes for standby time.

Dispensing material

Do not operate hot melt unit until material in tank is at set temperature. The pump will not operate until the tank is within 90% of set temperature. The tank is at temperature when all device LEDs are flashing GREEN.

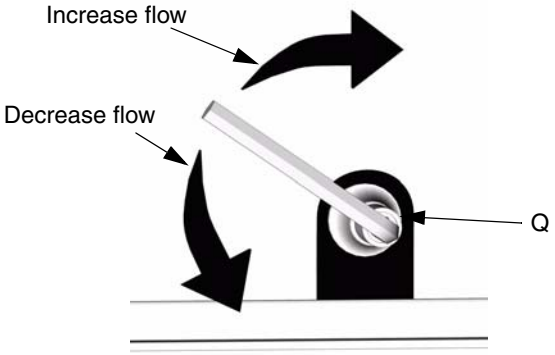
1. Adjust panel controls, see **Adjusting panel controls**, page 15.

2. When device indicators are flashing green, set pump function. See **Setting pump control and speed**, page 16.

- The normal mode of pump operation is the cycle mode.
- When setting pump speed for DC motors, set the pump speed to the lowest necessary speed. This will maintain operating fluid pressure and reduce the potential for glue degradation due to shearing in the pump.

3. Dispense the material as instructed in appropriate applicator manual.

4. To adjust flow of material, turn the pressure regulator (Q), using a 10 mm hex wrench.
   - To increase flow, turn regulator clockwise.
   - To decrease flow, turn regulator counterclockwise.



Adjusting timers and controllers

See Timer manual 310814 for instruction. See Air Saver Control instructions in appropriate applicator manual.

- 310801 Manual Applicator manual
- 310803 Automatic Applicator manual

Maintenance

Daily Maintenance

Before powering up the hot melt system perform the following checks.

1. Inspect the melt tank for foreign materials and/or charring of the adhesive. Wipe off all excess adhesives from all surfaces with purging compound 118090.

2. Check the hoses, applicator heads, and nozzles for wear and ensure integrity of all electrical connections.

3. Verify the hose is being properly supported so it is not stressed during use. The minimum bend radius is 16 in. (40.64 cm) when hot.

4. Look for leaks under the melt unit and at all mechanical connections.

Tank Screen Inspection

A screen 118211 is located at the bottom of the tank to prevent contaminants from damaging the pump assembly. Inspect and clean screen on a regular basis. Inspect when tank is close to or is empty of material. See **Flushing**, page 14.

Troubleshooting

Problem	Cause	Solution
Front panel not lit.	Unit not plugged in or turned on.	Plug in unit. Turn on/off switch ON.
	Wire harness connections not connected or need replacing. Fuse disconnected or needs replacing.	Check all power supply connections to the front panel. Replace if necessary, see **Replacing front panel**, page 25. Check fuse with ohmmeter, replace if necessary.
Open Sensor LED is activated and flashes RED. Affected zone LED will flash RED.	Sensor condition is detected in the applicator, melt unit, and/or hose.	Check hose and applicator electrical connections. Make sure pins are lined up correctly and are secure.
		Check tank thermistor assembly with ohmmeter, which should read approximately 100,000 ohms at room temperature. Replace if necessary, see **Replacing thermistor assembly**, page 33.
		Check hose thermistor assembly with ohmmeter. Replace hose. See **Replacing hose**, page 23.
		Check applicator thermistor assembly. See appropriate applicator manual.
Unit circuit breaker, on/off switch is tripped.	Operator significantly lowers tank set temperatures after tank has reached set temperature.	Turn the circuit breaker ON and quickly press temperature increment  , increasing desired tank temperature. Allow tank to cool below or equal to operator's set temperature.

Problem	Cause	Solution
Tank not heating or taking a long time to heat and front panel is lit.	Temperature range not selected. Power supply to the heaters not connected correctly. One or both heaters are damaged.	Check temperature range, see **Front panel display**, page 8. Check fuse and heaters with ohmmeter. Replace if necessary. Check power supply to the heaters, see **Replacing front panel**, page 25. Replace heaters, see **Replacing tank heaters and thermistor assembly**, page 35.
Hoses are not heating.	Hose not plugged into correct connector.	Properly connect hose, see **Connecting hose**, page 11.
	Tank temperature too low.	Wait for tank to heat up properly. Hose will not heat completely until tank reaches 65% of set temperature.
	Improper voltage rating hose.	A 230 VAC hose will connect to a 115 VAC receptacle. Make sure voltage rating on hose matches the voltage rating on the tank.
	Pins not aligned correctly at hose to tank connection.	Check connection for proper alignment of pins.
		Check pins 13 and 14 with ohmmeter for continuity.
	Power supply connections not connected or needs replacing.	Check all power supply connections to the front panel. Check fuses with ohmmeter. Replace if necessary, see **Replacing front panel**, page 25.
	Hose is damaged.	Replace hose. See **Replacing hose**, page 23.

Problem	Cause	Solution
Low or no flow of material from unit.	No power to tank.	Plug in unit. Turn on/off switch ON.
	Front panel settings not properly set.	See **Adjusting panel controls**, page 15.
	Not enough material in tank.	Add material. Material should not be higher than 1.5 in. (4 cm) from the top of the tank. See **Adding material to tank**, page 13.
	Pressure adjuster is set too low.	Adjust pressure adjuster, see **Dispensing material**, page 18.
	Set screw on pump/motor coupler is loose.	Tighten set screw (32) on shaft flat of pump/motor coupling.
	Viscosity of material too high.	Increase temperature settings. Reference material manufacturer's instruction and follow **Adjusting panel controls**, page 15.
		Increase orifice size.
	Gun nozzle plugged.	Clean nozzle or replace. See appropriate applicator manual.
	Hose is kinked or bent.	Check for kinks in hose, replace if damaged. See **Replacing hose**, page 23.
	Pump damaged.	Replace pump, see **Replacing pump**, page 28.
Material leaks from hose connection.	Threads at hose connection not seated properly.	Tighten connection. Clean threads by heating or using purging compound 118090.
Applicator not heating.	Front panel control not properly set.	See **Adjusting panel controls**, page 15.
	Tank has not yet reached set temperature.	See **Adjusting panel controls**, page 15.
	Applicator heater is damaged.	See appropriate gun manual.
	Applicator thermistor is damaged.	See appropriate gun manual.

Repair

Tools Used

• 11/16 in. wrench	• 3/16 in. hex wrench	• Phillips screw driver
• 1/8 in. hex wrench	• 1 in. wrench	• Krytox® lubricant
• 5/16 in. socket wrench	• 3/32 in. hex wrench	• Penetrating lubricant
• 7/16 in. wrench	• 5/8 in. wrench	• Heat gun

Replacing hose

WARNING

To avoid accidental system pressurization or electrical shock, disconnect power cord and turn the on/off switch to OFF. See **Warnings**, page 3.

WARNING

Wait until equipment/fluid has cooled completely. Read **Warnings**, page 3.

WARNING

To prevent hose damage, do not flex hose when cold. When hot, the hoses have a minimum bend radius of 16 in. (40.64 cm)
115 VAC tanks can support up to two 16 ft (4.8 m) of total hose. 230 VAC tanks can support up to two 24 ft (7.3 m) of total hose. Read **Warnings**, page 3.

1. Follow **Pressure relief procedure**, page 14.
2. See FIG. 5. Turn on/off switch (R) OFF. Unplug tank unit.

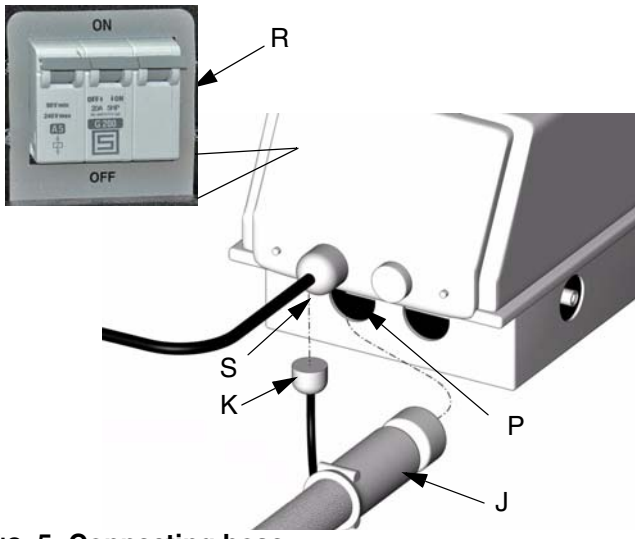


FIG. 5: Connecting hose

3. Allow tank unit to cool before repairing.

4. Disconnect applicator from hose. See appropriate applicator manual for instructions.

5. Remove bayonet ring from the electrical connector.

6. See FIG. 5. Pull electrical connector (K) from the hose electrical receptacle (S).

7. See FIG. 5. Using an 11/16 in. wrench, remove hose (J) from the fluid outlet fitting (P).

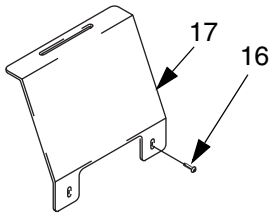
8. Replace hose. To reconnect hose, see **Connecting Hose**, page 11.

Replacing front panel

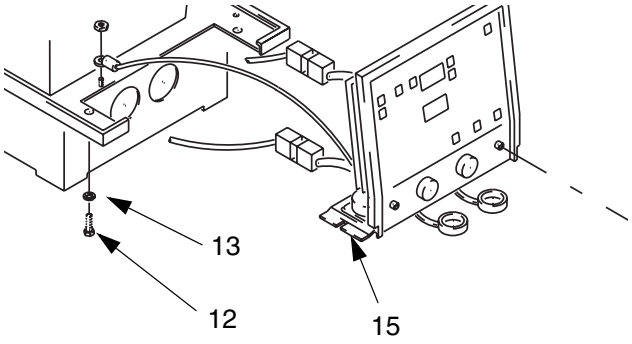
1. Disconnect hose, see **Replacing hose**, page 23.

2. Disconnect any accessories connected to the auxiliary bypass connector.

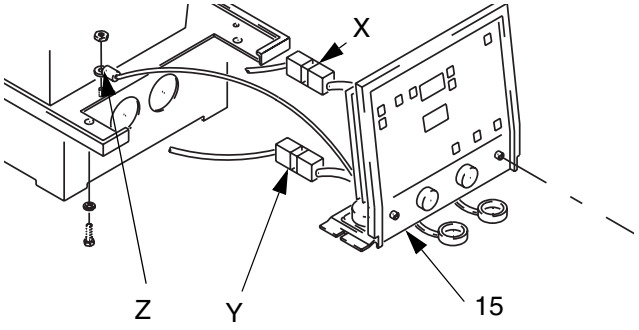
3. Using 3/32 in. hex wrench, remove screws (17) from front panel shield (16).



4. Using a 5/16 in. socket wrench, remove screws and washers (12, 13) from underneath front panel (15).



5. Pull front panel (15) from tank. Disconnect 9-pin (X), 12-pin (Y), and ground wire (Z) connections.

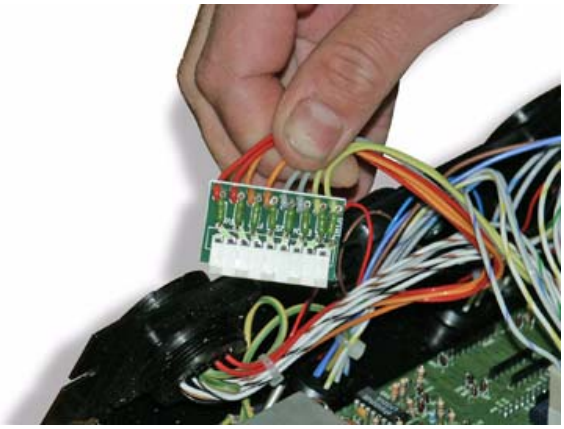


Replacing front panel fuses

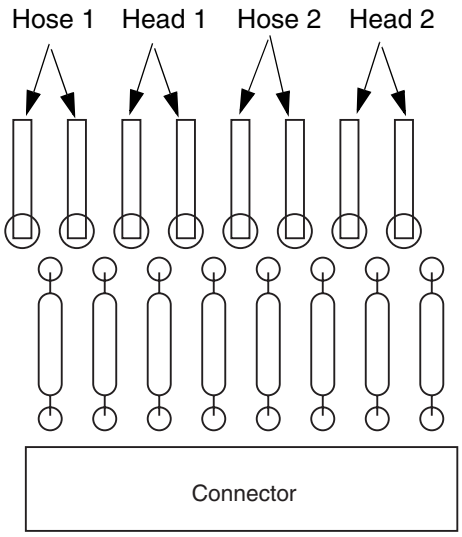
Replacement fuses are available in fuse kit 118252.

1. Remove front panel. See **Replacing front panel**, page 25.

2. Remove fuse board.



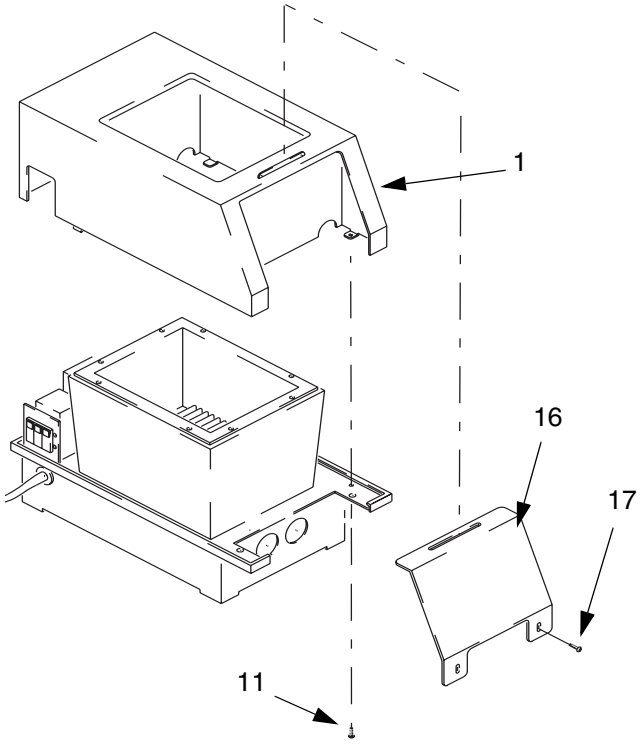
3. Check fuses with ohmmeter. If ohmmeter shows infinite resistance, fuses are bad. Use a pliers to remove bad fuses and replace.



4. Reconnect fuse board to front panel. Line up pins.

Removing tank cover

1. Using a 3/32 in. hex wrench, remove screws (17) and remove the front panel shield (16).



2. Remove front panel. See **Replacing front panel**, page 25.

3. Using a phillips screw driver, remove four screws (11) from the cover. Pull cover (1) from tank.

Replacing motor

For replacement parts, see **Parts**, page 38.

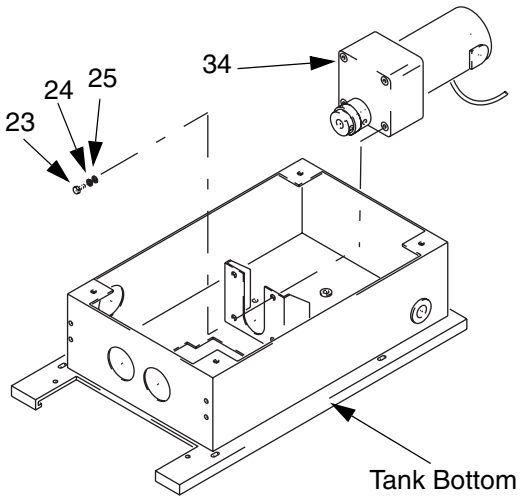
1. Remove front panel, see **Replacing front panel**, page 25.

2. Remove tank cover, see **Removing tank cover** page 26.

3. Remove two wire spade connections and ground wire from tank to motor.

4. Turn tank over to access the motor.

5. From bottom of tank, remove screws and washers (23, 24, 25). Pull motor (34) from tank.



6. Reassemble in reverse order.

Replacing coupling assembly

For replacement parts, see **Parts,** page 38.

WARNING

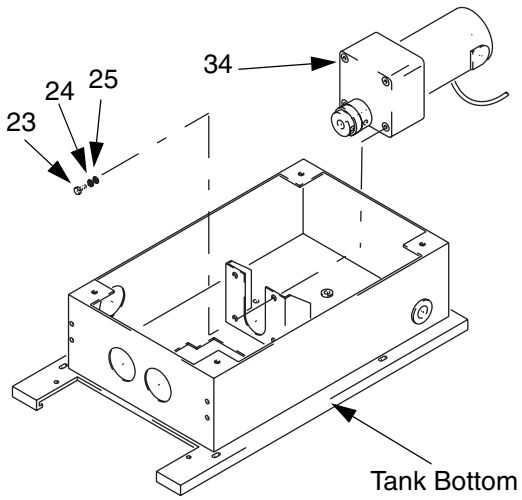
To avoid accidental system pressurization or electrical shock, disconnect power cord and turn the on/off switch to OFF. Read **Warnings**, page 3.

WARNING

Wait until equipment/fluid has cooled completely. Read **Warnings**, page 3.

1. Turn tank over to access the motor.

2. From bottom of tank, remove screws and washers (23, 24, 25). Pull motor (34) away from bottom of tank.



3. See FIG. 6. Using a 1/8 in. hex wrench, remove motor side set screw (35f). Slide motor side coupler (35a) from motor shaft.

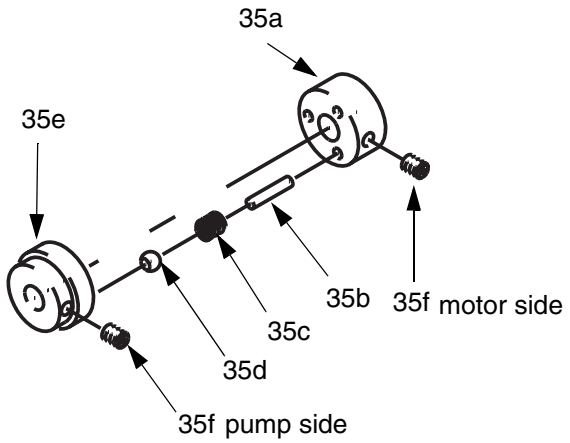


FIG. 6: Coupling Assembly 118158

4. See FIG. 6. Using a 1/8 in. hex wrench, remove pump side set screw (35f). Slide pump side coupler (35e) from pump.

5. See FIG. 6. Disassemble coupler assembly (35a-f) inspect for damage and replace.

6. See FIG. 6. Reassemble coupler in reverse order. Lubricate with Krytox® lubricant. Make sure set screws (35f) are assembled on motor shaft flat and are aligned with each other.

Replacing pump

WARNING

To avoid accidental system pressurization or electrical shock, disconnect power cord and turn the on/off switch to OFF. Read **Warnings**, page 3.

WARNING

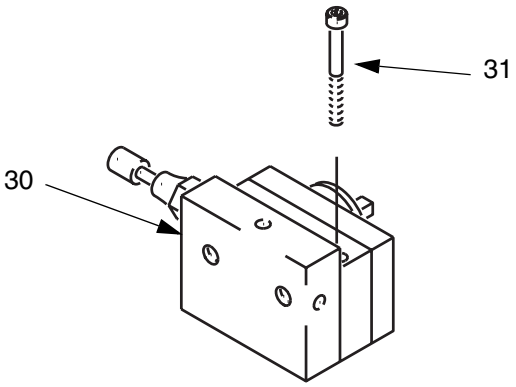
Wait until equipment/fluid has cooled completely. Read **Warnings**, page 3.

Pump assembly will not loosen if material in pump has cooled. Using a heat gun, heat the pump assembly before repairing. Wear gloves when handling heated parts.

When replacing o-ring seals, lubricate with Krytox® lubricant.

1. Turn tank over to access the pump.

2. Using a 1/4 in. hex wrench, remove cap screws (31). Pull pump (30) from tank.



3. See FIG. 7. Remove three cap screws (58) and pull off drive side plate (64).

4. See FIG. 7. Remove center section plate (71) from pump side plate (76). Remove o-rings (65) and replace.

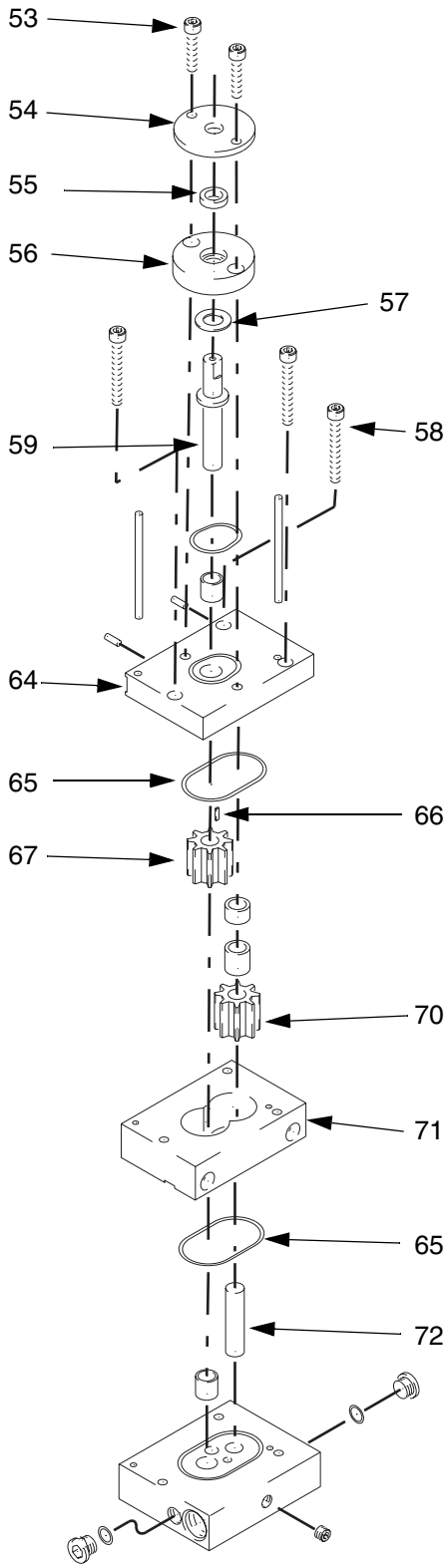


FIG. 7: Pump assembly

5. Using a 3/16 in. hex wrench, remove cap screw (53).

6. Remove housing retainer (54).

7. Remove pump seal housing (56). From housing (56), remove shaft seal (55) and thrust washer (57). Inspect for damage and replace.

8. Remove o-ring (61). Inspect for damage and replace.

9. Remove drive gear (67).

10. Remove pump shaft key (66) from shaft (59).

11. Remove pin (72) and slave gear (70).

12. Push drive shaft (59) through top of (64).

13. Reassemble pump in reverse order. Make sure to insert pump shaft from the top of drive side plate (64).

Replacing pressure adjuster

For replacement parts, see **Parts**, page 42.

WARNING

To avoid accidental system pressurization or electrical shock, disconnect power cord and turn the on/off switch to OFF. Read **Warnings**, page 3.

WARNING

Wait until equipment/fluid has cooled completely. Read **Warnings**, page 3.

Disassembly

Refer to FIG. 8 for the following instructions.

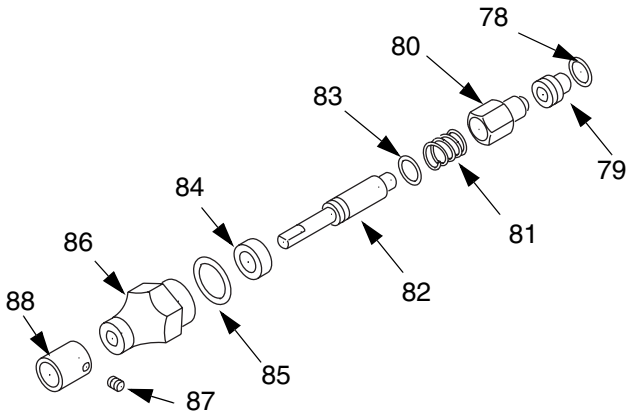


FIG. 8: Pressure adjuster assembly

1. Turn on/off switch OFF. Unplug tank unit.

2. Using a 1 in. wrench, remove pressure adjuster body (86).

3. Using a 3/32 in. hex wrench, loosen set screw (87). Loosen and remove knob (88).

4. From the body (86), remove shaft (82), u-cup (84), and o-ring (85). Inspect for damage and replace.

5. From shaft (82), remove o-ring (83). Inspect for damage and replace.

6. From pressure adjuster insert, use an o-ring pick to remove spring (81) and poppet (80). Inspect for damage and replace.

7. Using a 3/16 hex wrench, remove seat (79) and o-ring (78). Inspect for damage and replace.

Reassembly

Refer to FIG. 9 for the following instructions.

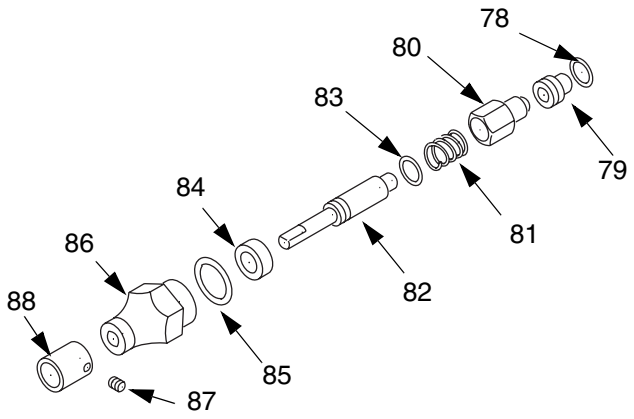


FIG. 9: Pressure adjuster assembly

Before reassembly, make sure all threads are free of material. Use a penetrating lubricant to loosen and remove material around threads.

When replacing o-ring seals, lubricate with Krytox lubricant.

1. Assemble o-ring (83) onto shaft (82). Lubricate.

2. Assemble u-cup (84) onto shaft (82). Make sure lips face towards tank.

3. Lubricate and assemble o-ring (85) into body (86). Assembly shaft (82) onto body (86).

4. Assemble knob (88) onto shaft (82). Tighten screw (87) on knob (88).

5. Lubricate and assemble o-ring (78) onto seat (79). Using a 3/16 in. hex wrench, thread seat (79) into pressure adjuster insert.

6. Place spring (81) into poppet (80). Rest poppet (80) onto shaft (82) and insert remaining pressure adjuster assembly into the pump. Tighten securely.

7. Assemble pump back onto tank. See **Replacing pump**, page 29.

Replacing fluid outlet fittings

For replacement parts, see **Parts**, page 38.

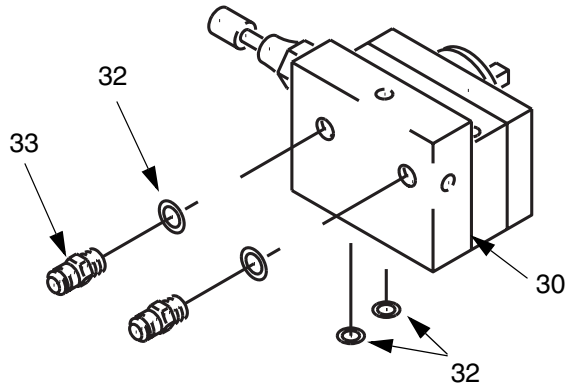
WARNING

To avoid accidental system pressurization or electrical shock, disconnect power cord and turn the on/off switch OFF. Read **Warnings**, page 3.

WARNING

Wait until equipment/fluid has cooled completely. Read **Warnings**, page 3.

1. Using an 11/16 in. wrench, remove fitting (33) and two o-rings (32) from pump assembly (30). Inspect for damage and replace. Lubricate with Krytox lubricant.



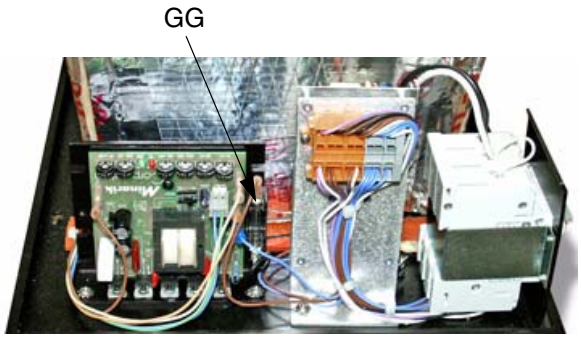
2. From bottom of pump assembly (30), remove and replace remaining o-rings (32). Lubricate with Krytox lubricant.

Replacing motor control board fuse 118321

1. Turn on/off switch to OFF. Unplug tank unit.

2. Remove tank cover, see **Removing tank cover**, page 25.

3. From the back of the tank, remove the motor control board fuse (GG). Test with ohmmeter. Replace if ohmmeter shows infinite resistance.



Replacing over temperature switch assembly

For replacement parts, see **Parts**, page 40.

1. Turn on/off switch to OFF. Unplug tank unit.

2. Remove tank cover, see **Removing tank cover**, page 25.

3. See FIG. 10. Using an ohmmeter, test over temperature switch wires (AA, BB) at the wire terminal. Ohmmeter should show open if switch is good. If switch is bad, continue to step 4.

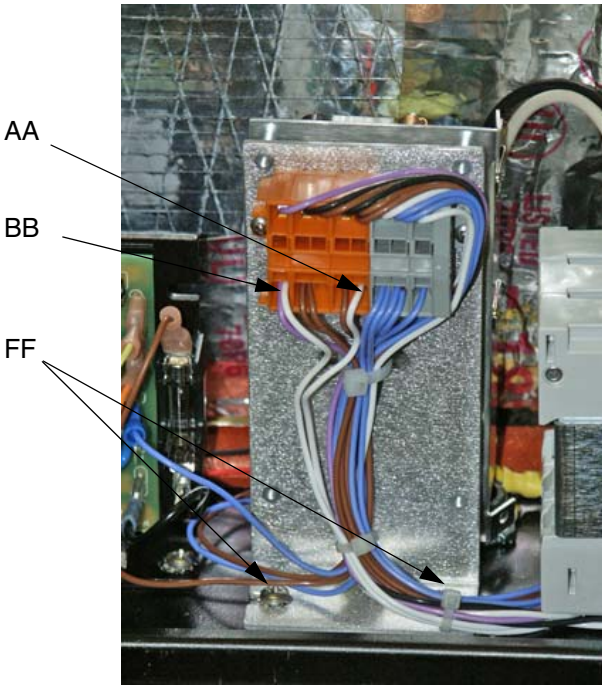


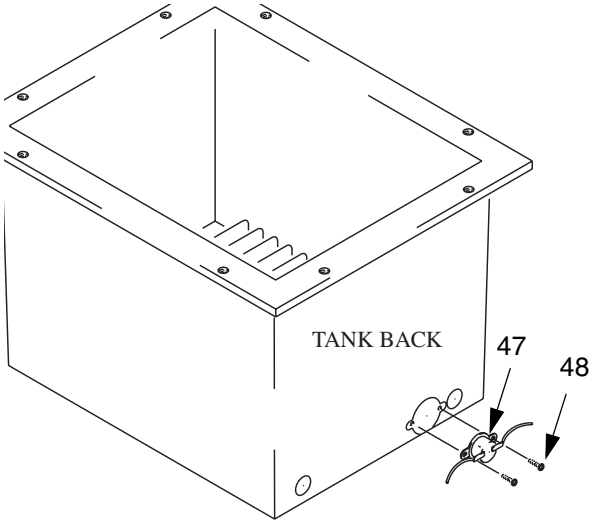
FIG. 10: Power supply

4. See FIG. 10. On the back of the tank, remove two 8-32 x 1/2 in. screws (FF) on the power supply.

5. From top of power supply, disconnect motor wire harness. Pull power supply away from the tank.

6. Cut tape around insulation and remove.

7. Remove screws (48) and pull switch assembly (47) from tank. Disconnect switch assembly wires from powers supply board. Check switch assembly with ohmmeter. Switch should be open or infinite value shown. If not, replace with new assembly.



8. Reassemble new switch assembly in reverse order.

Replacing tank heaters and thermistor assembly

For replacement parts, see **Parts** page 40.

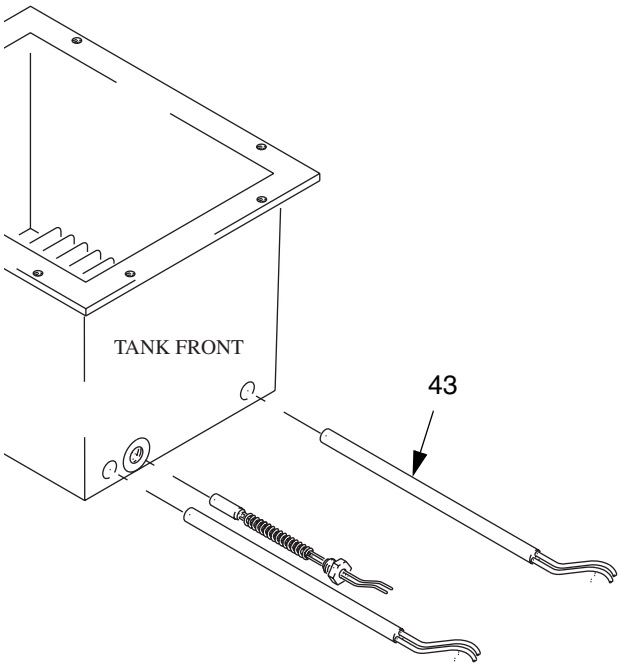
1. Remove front panel, see **Replacing front panel,** page 25.

2. Remove tank cover, see **Replacing tank cover**, page 26.

3. Remove tape from front of insulation.

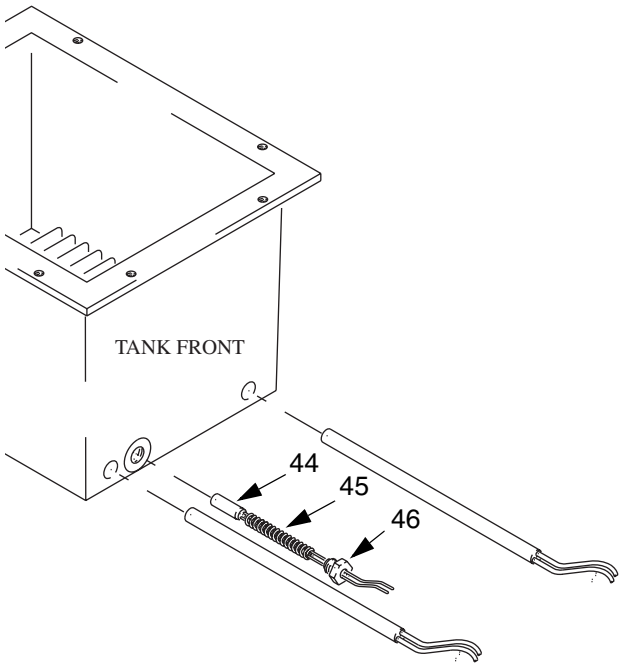
4. Pull back insulation to show heaters.

5. Pull out heaters (43) and disconnect wires.



6. To replace thermistor assembly, disconnect thermistor wire connection.

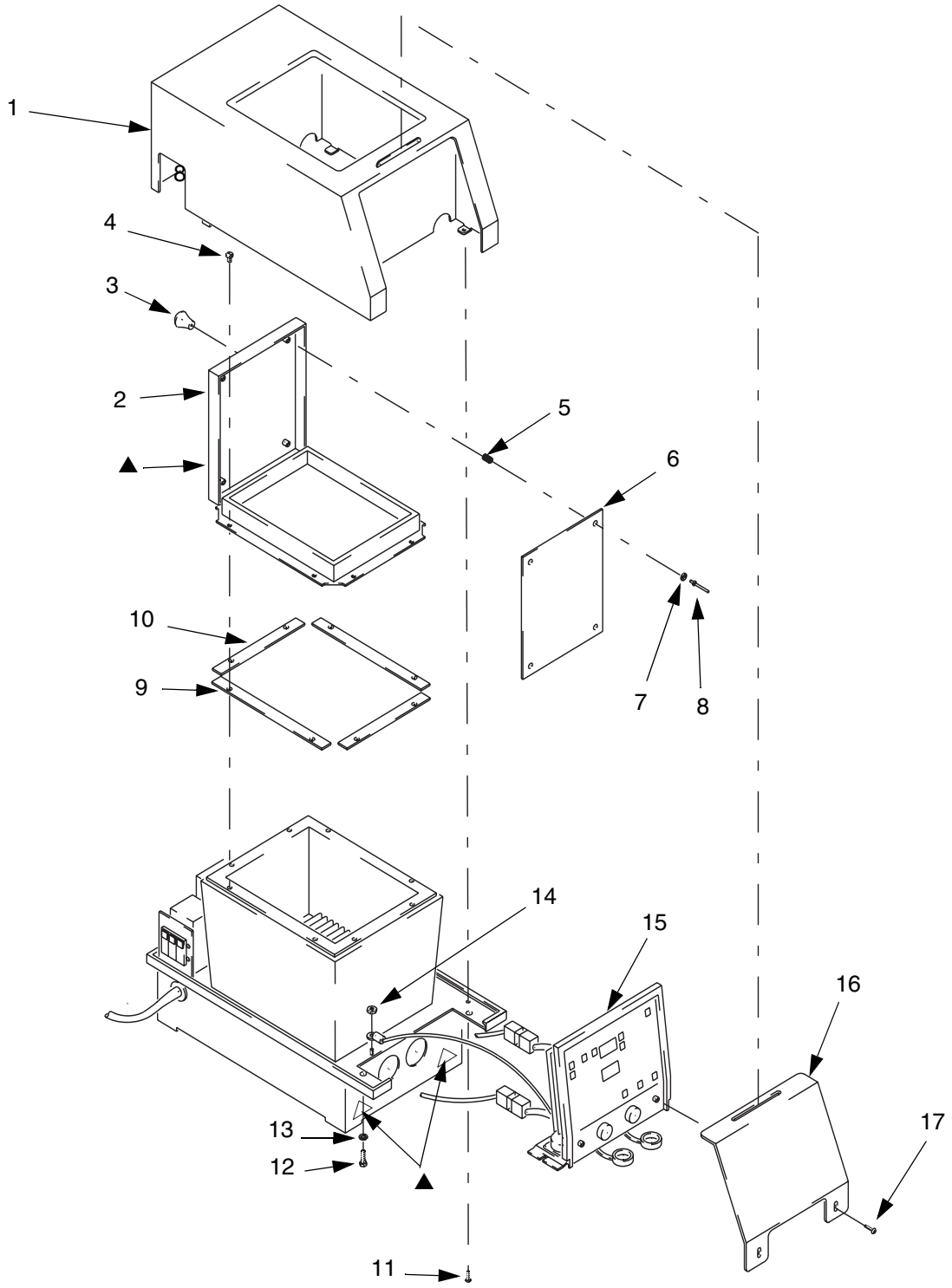
7. Using a 5/8 box wrench, slide thermistor wires through wrench and place wrench around retaining nut (46). Loosen and remove thermistor assembly (44, 45, 46), inspect for damage and replace.



8. Reassemble new thermistor in reverse order.

Parts

Housing assembly



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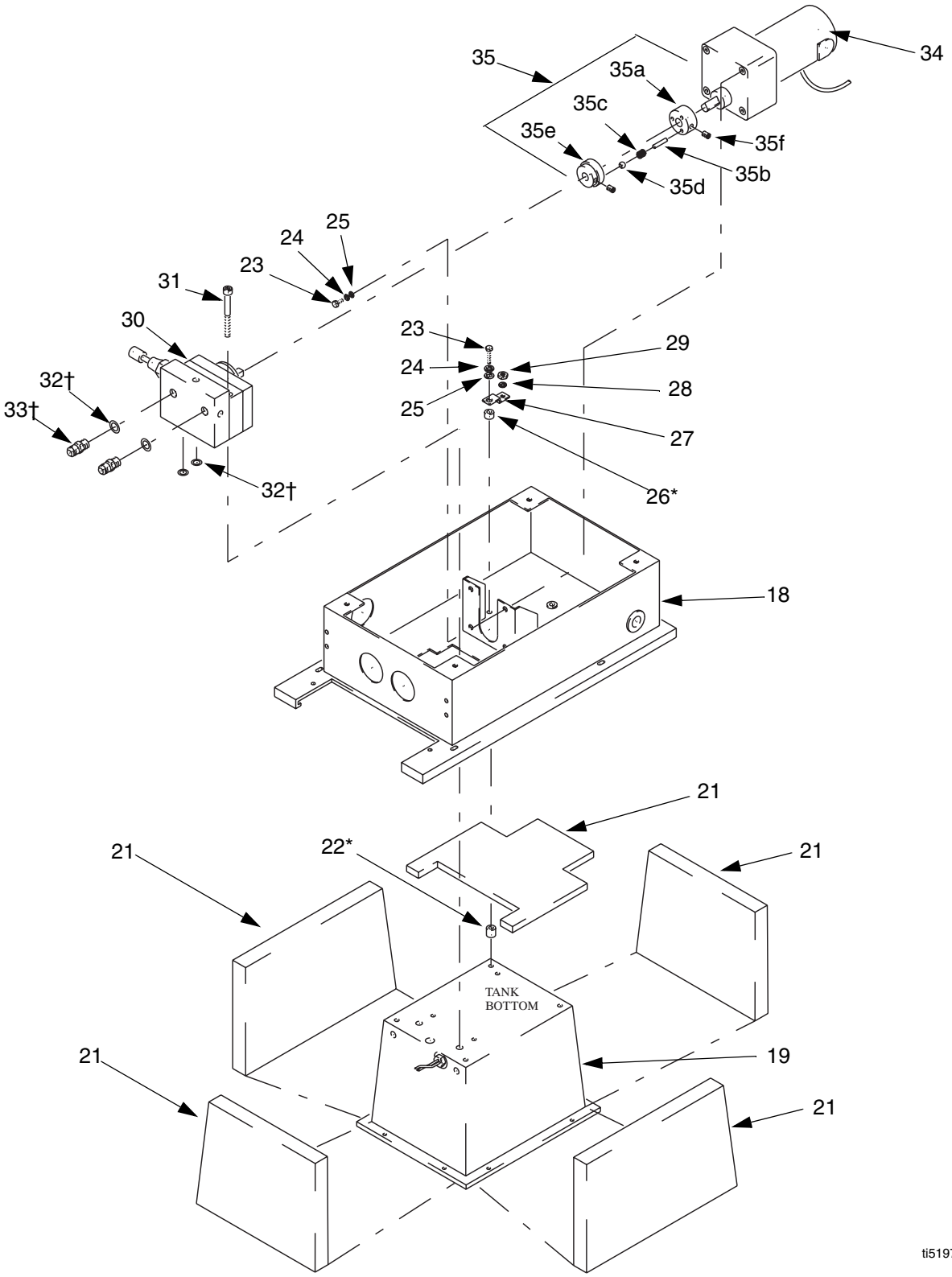
Housing Assembly

Ref. No.	Part No.	Description	Qty.
1	118195	HOUSING	1
2		COVER	1
3		KNOB	2
4		SCREW, 1/4-20 x 3/8 in	8
5		SPRING	4
6		SHIELD, cover	1
7		WASHER, flat #8 s.s.	4
8		RIVET, s.s. #43	4
9		GASKET, long	2
10		GASKET, short	2
11		SCREW, ph, #10 x 1/2 taping	4
12		SCREW, hex; #10-32 x 1/2 in	2
13		WASHER, lock #10 split	2
14		NUT, hex #10-32	1
15	118196	ELEC. ASSY., digital °F and °C; 115V	1
	118197	ELEC. ASSY., digital °F and °C; 230V	1
16	118201	SHIELD, front panel	1
17		SCREW, cap; #8-32 x 1/2 in.	2

▲ Free replacement of worn or damaged labels are available by ordering Safety Label Kit 119610.

* Replaceable front panel fuses are available in fuse kit 118252. See **Replacing front panel fuses**, page 26.

Motor, pump to frame and tank assembly



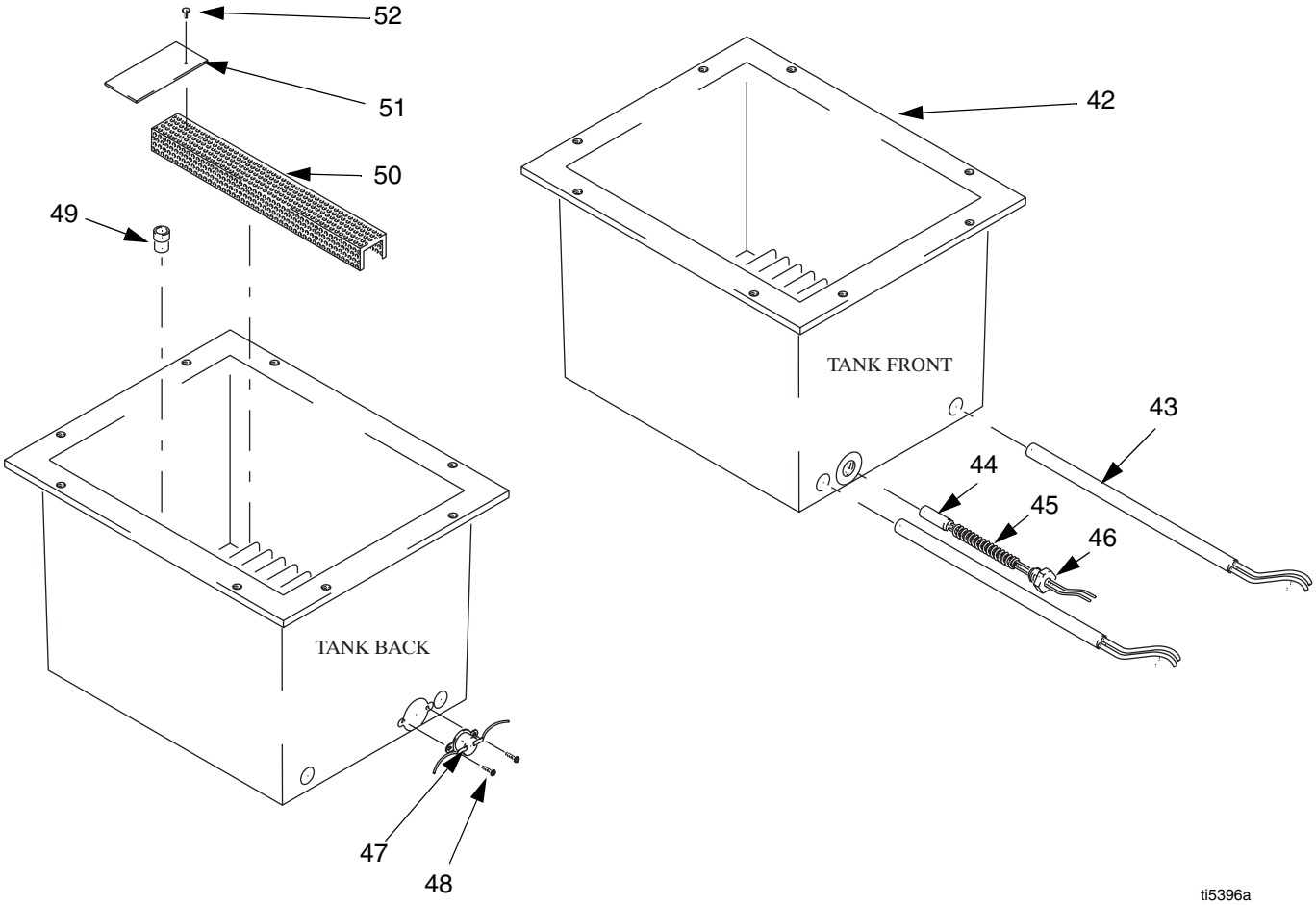
Motor, pump to frame and tank assembly

Ref. No.	Part No.	Description	Qty.
18		BASE	1
19	118197	TANK ASSEMBLY, 230V	1
	118196	TANK ASSEMBLY, 115V	1
21	119991	INSULATION KIT (5 pieces)	1
22*		WASHER, insulating; 3/8 x 3/4 in.	4
23		SCREW, hex; #10-32 x 1/2 in.	5
24		WASHER, lock #10 split	5
25		WASHER, flat #10	5
26*		WASHER, insulating 1/4 x 3/4 in.	4
27		STRAP, ground	1
28		WASHER, lock #10 internal tooth	1
29		NUT, hex #10-32	1
30	118439	PUMP ASSEMBLY, see page 42	1
31		SCREW, cap; 5/16-18 x 3-1/4 in.	2
32†		O-RING	4
33†		FITTING, JIC conn., straight	2
34	118203	MOTOR, 90V, 115 VAC	1
	118204	MOTOR, 180V, 230 VAC	1
35	118158	HUB ASSEMBLY, coupler (includes items 35a-f)	1
35a		HUB, motor slide	1
35b		PIn, dowel 3/16 diam. x 1 in.	3
35c		SPRING, 240 od x .020 wire x .385 long	3
35d		BEARING, coupler, pivot	3
35e		HUB, pump side	1
35f		SCREW, 1/4 x 20 x 3/8 in.	2

* *Available in T7 Tank Spacer Insulation Kit 118303.*

† *One of each item included in T7 and T18 Tank Fitting kit 118265.*

Tank assembly

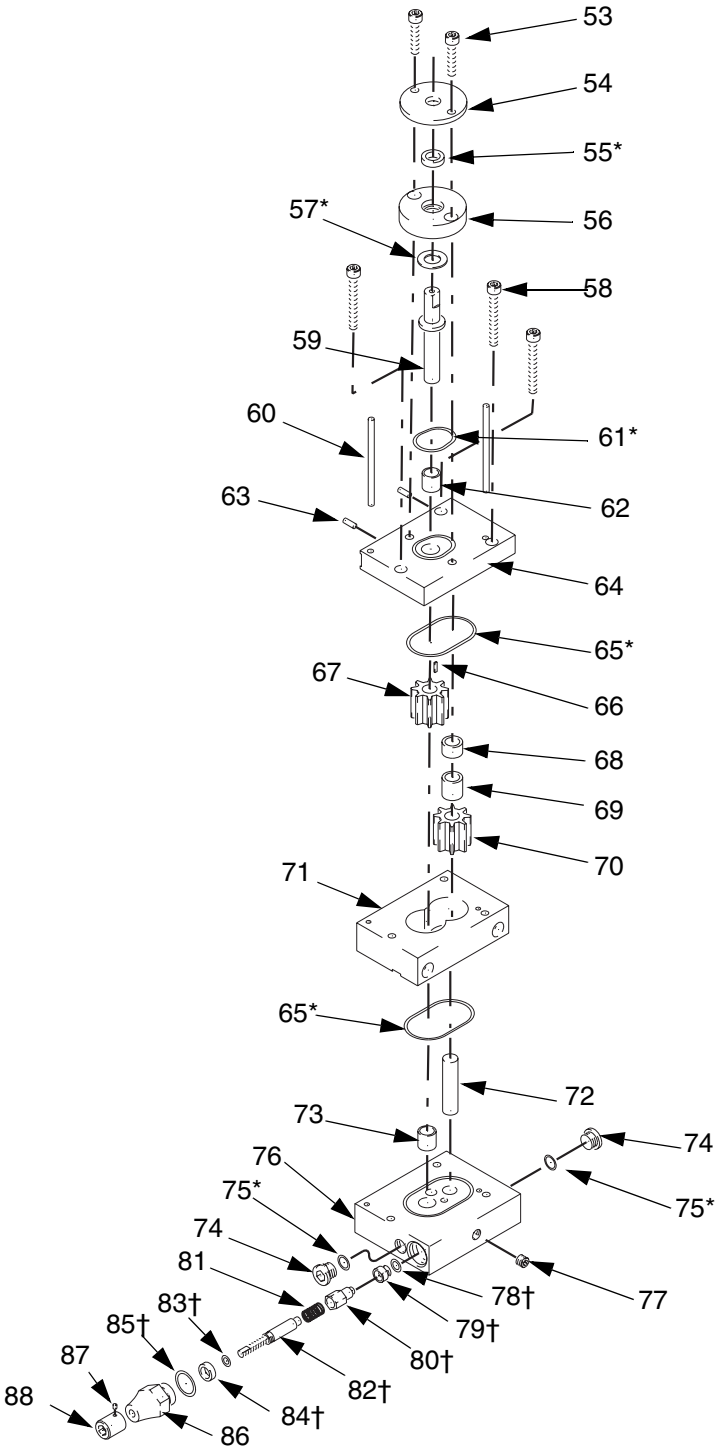


Ref. No.	Part No.	Description	Qty.
42		CASTING	1
43	118173	HEATER, tank; 115V	2
	118174	HEATER, tank; 230V	2
44	118209	THERMISTOR ASSY. (includes 45 and 46)	1
45		SPRING	1
46		NUT, retainer	1
47		SWTICH ASSY., over temp.	1
48		SCREW, cap #6-32 x 1/2 in.	2
49		FITTING, #14 tank insert	1
50	118211	SCREEN, tank filter; includes items 51 and 52.	1
51		PLATE, deflector	1
52		RIVET, pop; 1/8 x 1/8 in.	1

Pump and pressure adjuster assembly

Pump assembly 118439 includes items 53-79.

Pressure adjuster assembly 118180 includes items 80-88.



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Pump and pressure adjuster assembly

Pump assembly 118439 includes items 53-79.

Pressure adjuster assembly 118180 includes items 80-88.

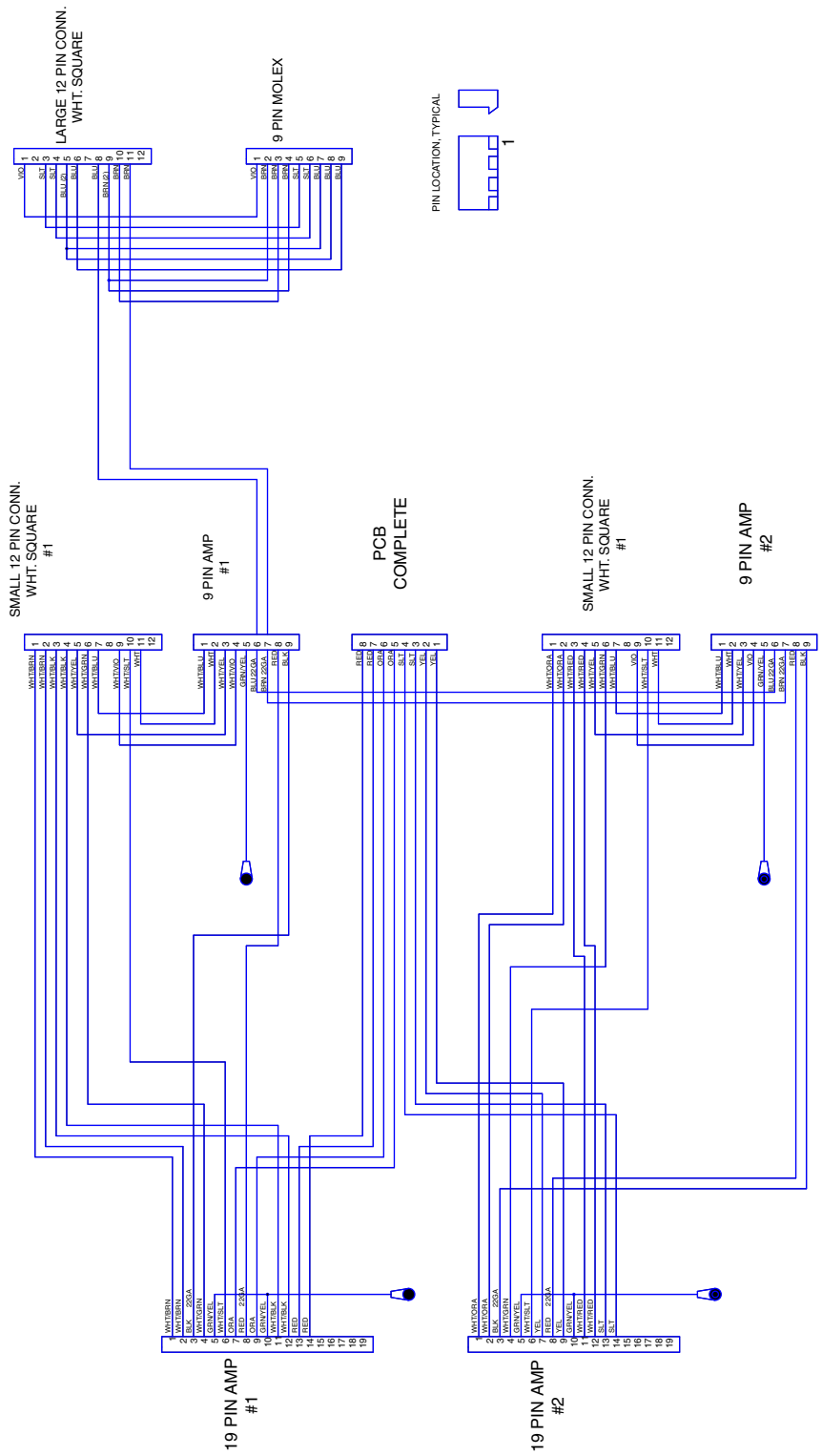
Ref. No.	Part No.	Description	Qty.
53		SCREW, cap 1/4-20 x 1	2
54		RETAINER, housing	1
55*		SEAL, shaft	1
56		HOUSING, pump seal	1
57*		WASHER, thrust	1
58		SCREW, cap 1/4-20 x 2	3
59		SHAFT, pump	1
60		PIN, dowel, 3/16 diam x 2 in	2
61*		O-RING	1
62		BUSHING	1
63		PIN, spring	2
64		PLATE, drive side	1
65*		O-RING	2
66		KEY, shaft	1
67		GEAR, drive	1
68		BUSING	1
69		BUSHING	1
70		GEAR, slave	1
71		PLATE, center section	1
72		PIN, dowel 1/2 x 2 diameter	1
73		BUSHING	1
74		PLUG, hollow hex	2
75*		O-RING	2
76		PLATE, pump side	1
77		PLUG, 1/8 npt	1
78†		O-RING	1
79†		SEAT, adjuster	1
80†		NEEDLE, pressure adjuster	1
81†		SPRING, pressure adjuster	1
82†		SHAFT, pressure adjuster	1
83†		O-RING	1
84†		SEAL, flow valve	1
85†		O-RING	1
86		BODY, pressure adjuster	1
87		SCREW, set 10-32 x 1/4	1
88		KNOB, pressure adjuster	1

† *Included in pressure adjuster repair kit 118150.*

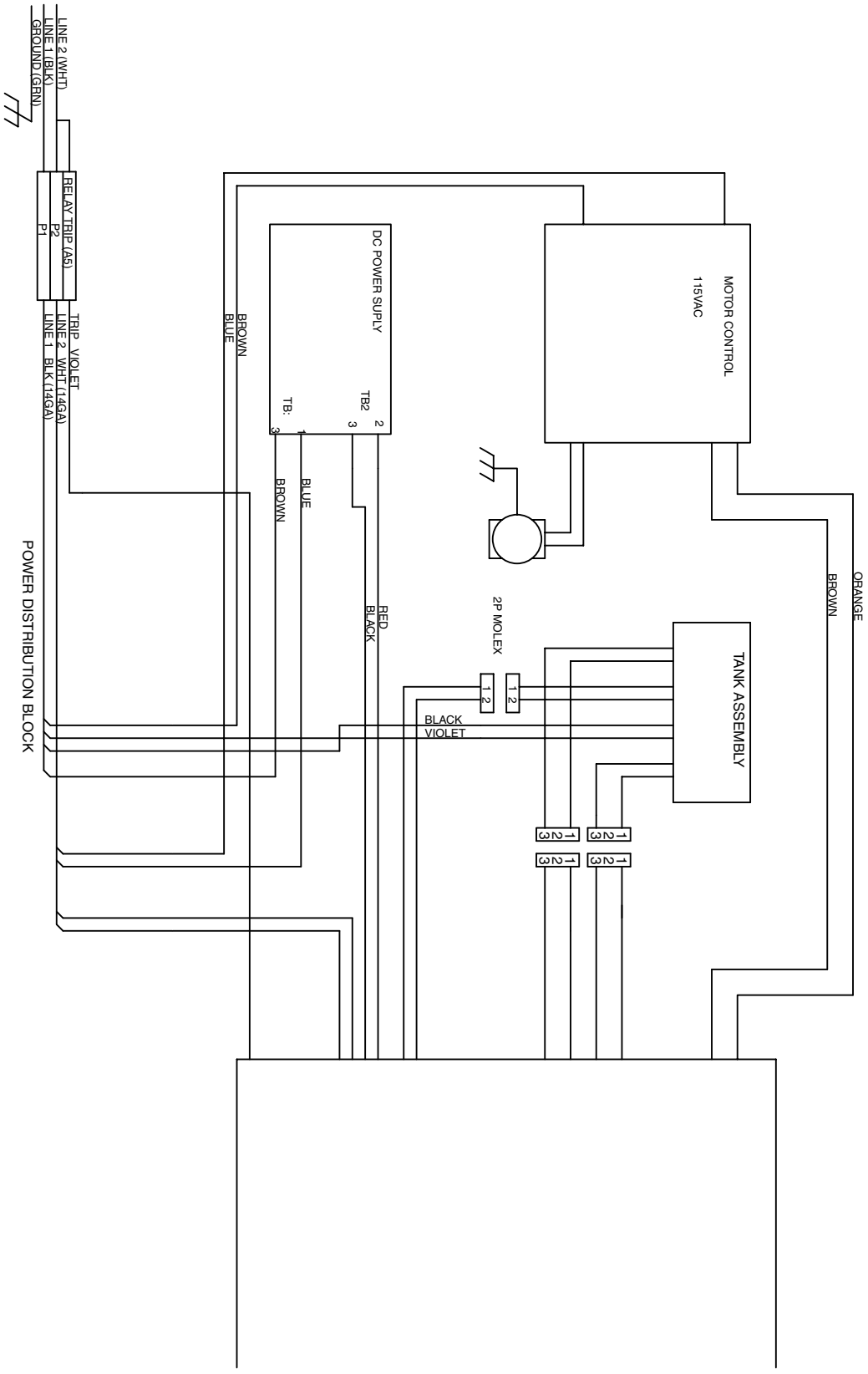
* *Included in T7 pump rebuild kit 118152. This kit also includes two O-rings (not pictured) that fit between the pump assembly and tank housing. See Parts page 38, item 32.*

Schematics

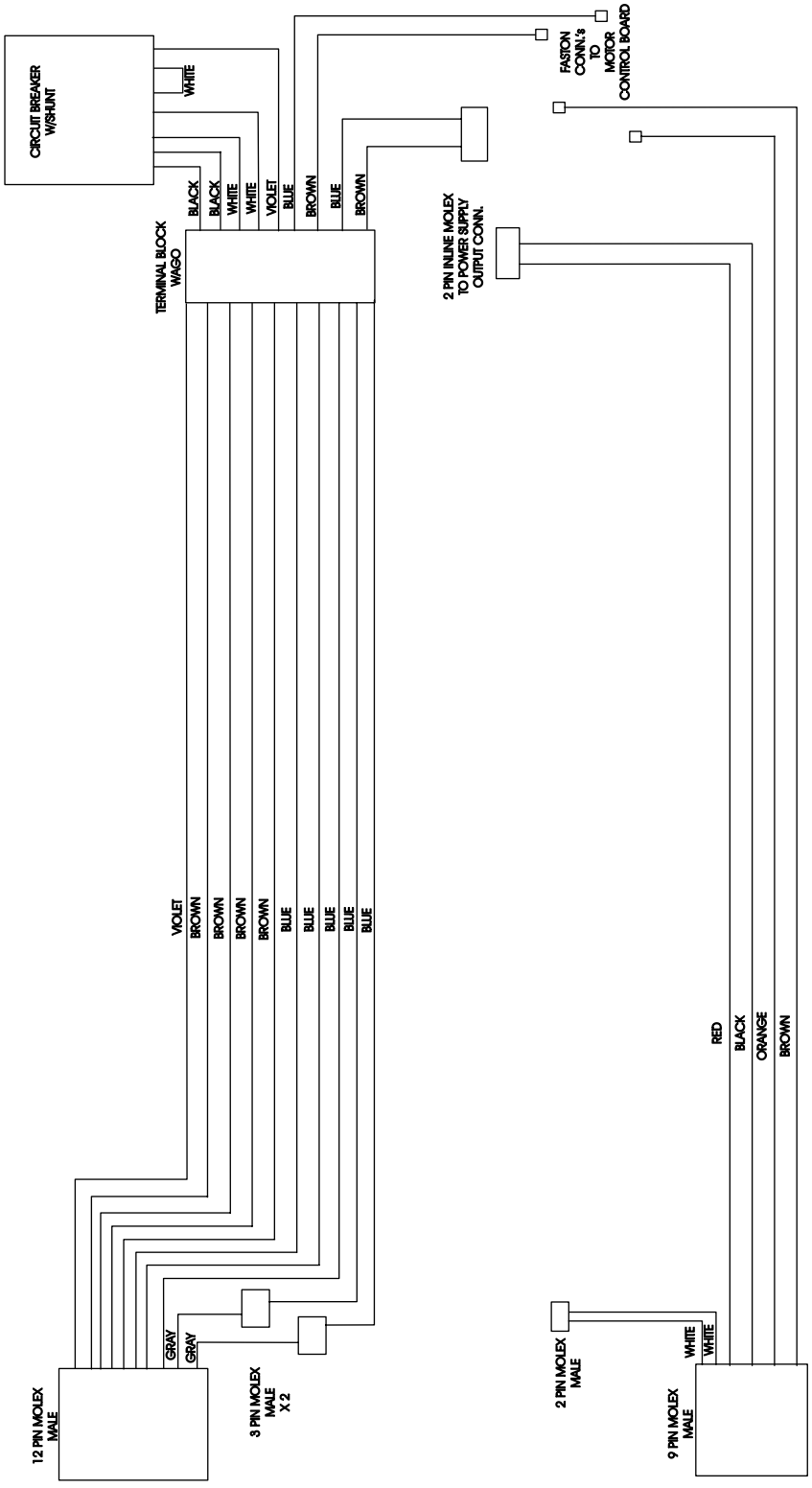
Front panel harness



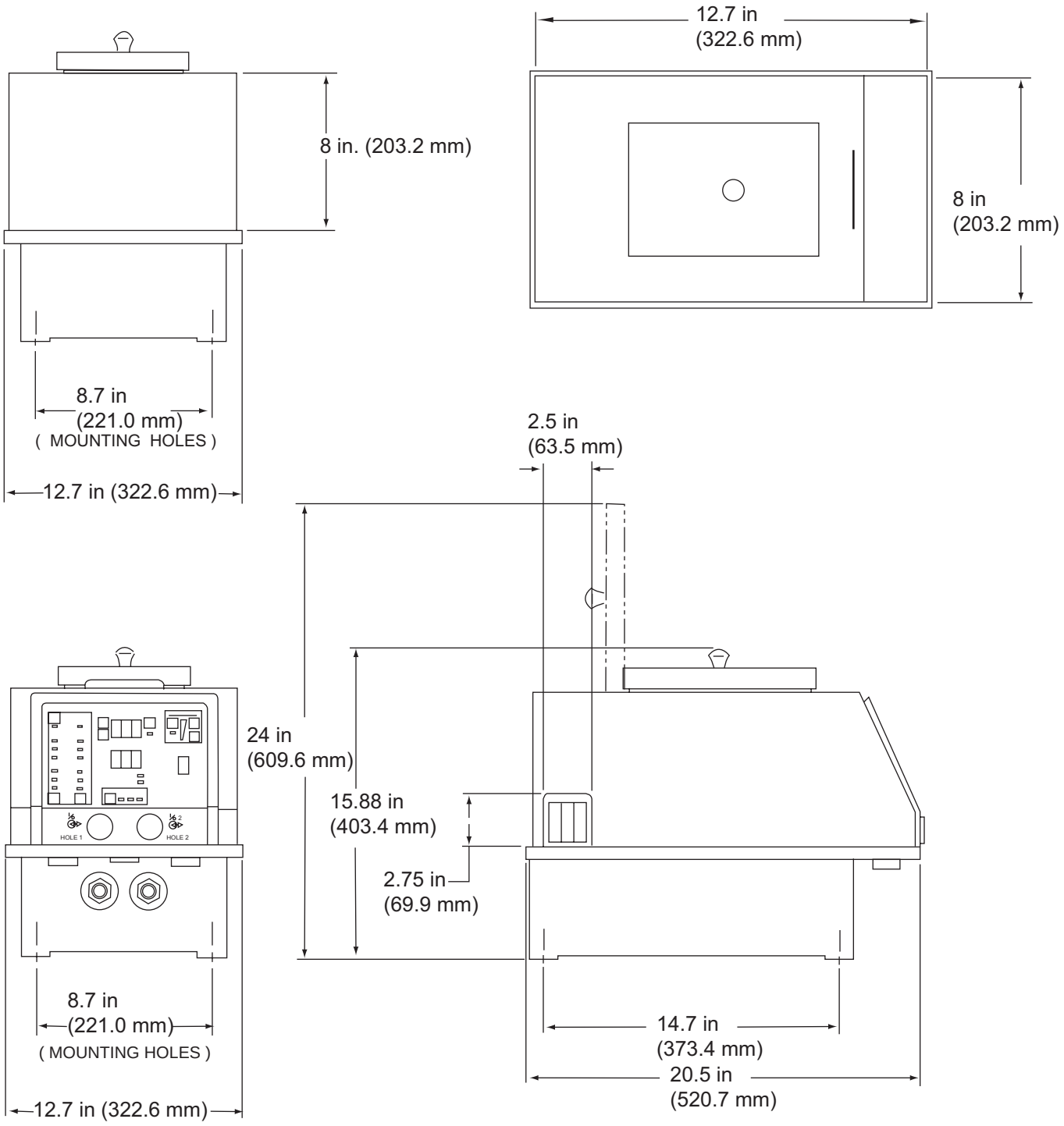
Base harness



Base wiring


CIRCUIT BREAKER W/SHUNT
WHITE
BLACK
BLACK
WHITE
WHITE
VIOLET
BLUE
BROWN
BLUE
BROWN
TERMINAL BLOCK WAGO
FASTON CONN.'s TO MOTOR CONTROL BOARD
2 PIN INLINE MOLEX TO POWER SUPPLY OUTPUT CONN.
VIOLET
BROWN
BROWN
BROWN
BROWN
BLUE
BLUE
BLUE
BLUE
BLUE
BLUE
GRAY
GRAY
12 PIN MOLEX MALE
3 PIN MOLEX MALE X 2
RED
BLACK
ORANGE
BROWN
2 PIN MOLEX MALE
WHITE
WHITE
9 PIN MOLEX MALE

Dimensions


12.7 in
(322.6 mm)
8 in. (203.2 mm)
8 in
(203.2 mm)
8.7 in
(221.0 mm)
(MOUNTING HOLES)
12.7 in (322.6 mm)
2.5 in
(63.5 mm)
24 in
(609.6 mm)
15.88 in
(403.4 mm)
2.75 in
(69.9 mm)
HOLE 1
HOLE 2
8.7 in
(221.0 mm)
(MOUNTING HOLES)
12.7 in (322.6 mm)
14.7 in
(373.4 mm)
20.5 in
(520.7 mm)

Technical Data

Application temperature	up to 425°F (218°C)
Tank temperature	up to 395°F (202°C)
Temperature accuracy	± 2%
Melt rate	28 lb/hr (12.7 kg/hr)
Viscosity range	up to 30,000 centipoise
Tank capacity	14 lbs (7 liters)
Power consumption	115V: 2300 watts max Melt unit: 900 watts 230V: 4600 watts max Melt unit: 1700 watts
Power requirements - single phase	115 VAC 50/60 Hz 230 VAC 50/60 Hz
Circuit breaker rating	20 amp
Empty weight	51 lb (23.1 kg)
Pump pressure	300 psi (2.0 MPa, 20.6 bar)
Hoses	*115 VAC* - For 1 hose and 1 applicator, up to 30 ft (9.1 m) total hose For 2 hoses and 2 applicators, up to 24 ft (7.3 m) total hose *230 VAC* - For 2 hoses and 2 applicators, up to 48 ft (14.6 m)
Wetted Materials	Aluminum, Carbon Steel, Brass, PTFE, and Viton®

Kevlar®, Viton®, and Krytox® are registered trademarks of the DuPont Company.

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

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