Instructions

200 Liter (55 Gallon) Drum Size

Therm-O-Flow 200®

311208K

ENG

EasyKey™ Hot Melt Drum Unloaders

For applying hot melt sealant and adhesive materials.
For professional use only. Not approved to European explosive atmosphere requirements.

Maximum Operating Temperature (All Models): 400°F (204°C)

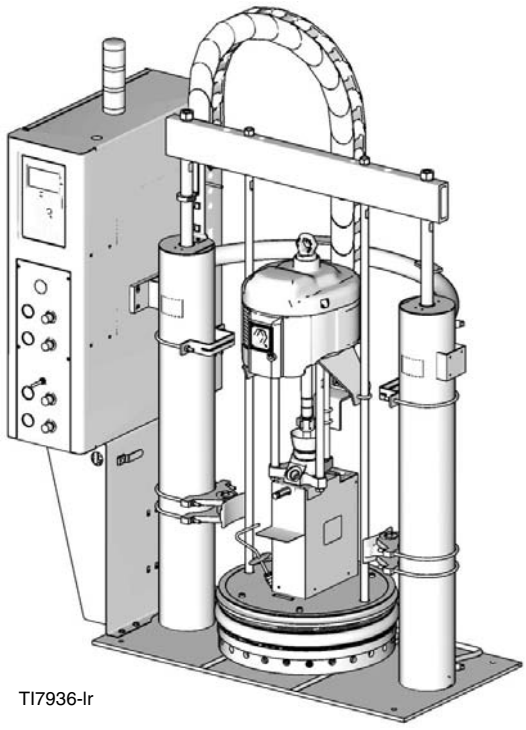
NXT 2200 Powered Unloaders, Models A-1 and A-4
2300 psi (15.9 MPa, 159 bar) Maximum Fluid Working Pressure
125 psi (0.85 MPa, 8.5 bar) Maximum System Air Pressure (Ram)
100 psi (0.7 MPa, 7 bar) Maximum Air Motor Pressure

NXT 3400 Powered Unloaders, Models A-2 and A-5
3000 psi (20.7 MPa, 207 bar) Maximum Fluid Working Pressure
125 psi (0.85 MPa, 8.5 bar) Maximum System Air Pressure (Ram)
82 psi (0.57 MPa, 5.7 bar) Maximum Air Motor Pressure

NXT 6500 Powered Unloaders, Models A-3 and A-6
3000 psi (20.7 MPa, 207 bar) Maximum Fluid Working Pressure
125 psi (0.85 MPa, 8.5 bar) Maximum System Air Pressure (Ram)
43 psi (0.29 MPa, 2.9 bar) Maximum Air Motor Pressure

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

See page 2 for **Contents**.



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Contents

Warnings

The following are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbol refers to procedure-specific risk. Refer back to these warnings. Additional product-specific warnings may be found throughout the body of this manual where applicable.

⚠ WARNING

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.

SPLATTER HAZARD

During blow off of platen splatter may occur.

- Use minimum drum removal air pressure.

MOVING PARTS HAZARD

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

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

ELECTRIC SHOCK HAZARD

Improper grounding, setup, or usage of the system can cause electric shock.

- Turn off and disconnect power at main switch before disconnecting any cables and before servicing equipment.
- Connect only to grounded power source.
- All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.

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.

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. For complete information about your material, request MSDS from distributor or retailer.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine Graco replacement parts only.
- 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 over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Do not operate when fatigued or under the influence of drugs or alcohol.
- Comply with all applicable safety regulations.

⚠ WARNING

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.

SKIN INJECTION HAZARD

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

- Do not point gun at anyone or at any part of the body.
- Do not put your hand over the spray tip.
- Do not stop or deflect leaks with your hand, body, glove, or rag.
- Do not spray without tip guard and trigger guard installed.
- Engage trigger lock when not spraying.
- Follow **Pressure Relief Procedure** in this manual, when you stop spraying and before cleaning, checking, or servicing equipment.

FIRE AND EXPLOSION HAZARD

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

- Use equipment only in well ventilated area.
- Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.
- Ground equipment and conductive objects in work area. See **Grounding** instructions.
- Use only grounded hoses.
- Hoses are for indoor use only. Do not get hose wet.
- 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.

Overview

How the Therm-O-Flow 200 Works

A heated platen melts the sealant or adhesive and directs the molten material to the pump inlet. The material then travels through a heated Check–Mate pump and heated fluid moves to the application tool.

Model Numbers

This manual refers to the typical model number listed below when defining parts in your application. The model number stamped on your machine defines the equipment in the following 10 categories:

1. Motor
2. Heated Platen
3. Follower Seals
4. Drum Ram
5. Number of Heat Zones
6. Heat Controls Supply Voltage
7. Control Panel
8. Drum Unloader Options
9. Application Accessories
10. Hose Kit Layout

Typical Model Number: TOF200A–D–1–A–1–P–6–2–A–F–1–N–1–1–D–P–N-N

Model	Product Description
TOF200A	55 gal./200 liter Hot Melt Drum Unloader
Code A	**Air Motor Selection**
1	NXT 2200 HLS quiet air motor (23:1 Power Ratio) with pump
2	NXT 3400 HLS quiet air motor (36:1 Power Ratio) with pump
3	NXT 6500 HLS quiet air motor (70:1 Power Ratio) with pump
N	No air motor or pump
4	NXT 2200 HLS quiet air motor (23:1 Power Ratio) with pump and heavy duty packings
5	NXT 3400 HLS quiet air motor (36:1 Power Ratio) with pump and heavy duty packings
6	NXT 6500 HLS quiet air motor (70:1 Power Ratio) with pump and heavy duty packings
Code B	**Heated Platen Style**
A	Mega-Flo™ high flow drum platen
B	Standard fin design drum platen
C	Smooth bottom (no fin) drum platen
Code C	**Tire Plate Seal Style**
1	2 Black EPDM/EPDM, SS wire braid 400°F hose wipers w/spring retention
2	1 lower Black EPDM/Chlorobutyl, SS wire braid 375°F hose wiper and 1 upper White Silicone 375°F T-wiper
3	1 lower Black EPDM/Chlorobutyl, SS wire braid 400°F hose wiper and 1 upper Green Silicone, fiberglass braid 400°F, hose wiper
4	2 White Silicone 250°F T-Wipers
Code D	**Drum Ram Style**
P	Pneumatic Ram
H	Hydraulic Ram
Code E	**Number of Heat Zones**
6	6 Zones
8	8 Zones
N	No electrical control panel (includes pneumatic controls, independently mounted)

If Code E option N is selected, then Codes F and G must also be option N and Code H is ignored.

Code F	Customer's Power Supply Voltage
2	220/240 Vac 50/60 Hz 3 phase
3	380/400 Vac 50/60 Hz 3 phase
4	470/490 Vac 50/60 Hz 3 phase
5	570/590 Vac 50/60 Hz 3 phase
N	No electrical control panel
Code G	**Display and Interface Options**
B	Standard unit – uses EasyKey
A	Advanced unit – EasyKey with discrete I/O, Ethernet, light tower, and proximity switches.
T	Tandem primary unit – Unloader A in a primary unit.
S	Tandem secondary unit – Unloader B in a tandem unit.
N	No electrical control panel
Code H	**Language Selection**
E	English
F	French
G	German
S	Spanish
J	Japanese
C	Chinese (Simplified)
Code J	**Drum Clamp Options**
1	Fiber drum reinforcement clam shell
2	Heavy duty drum band clamp
3	Drum ram post saddle clamps
N	No drum clamp option
Code K	**Vent Hood Kit**
N	None
Y	Vent Hood Kit
Code L	**Swirl Solenoid Kit**
N	None
1	Single Swirl Solenoid Kit
2	Dual Swirl Solenoid Kit

Code M	Type of Hose Connection
N	None
1	Single hose and end-of-hose device
2	Dual hose and end-of-hose device from tee kit
3	Hose to (compensator or regulator) with either (second hose to dispense valve and end-of-hose device) or to (end-of-hose device) without a second hose.
Code N	**Hose 1**
B	-8 (.41” ID) by 10 feet, 3000 psi
C	-8 (.41” ID) by 15 feet, 3000 psi
D	-8 (.41” ID) by 10 feet for Air Swirl, 3000 psi
E	-8 (.41” ID) by 15 feet for Air Swirl, 3000 psi
H	-10 (.51” ID) by 6 feet, 3000 psi
J	-10 (.51” ID) by 10 feet, 3000 psi
K	-10 (.51” ID) by 15 feet, 3000 psi
L	-10 (.51” ID) by 20 feet, 3000 psi
M	-10 (.51” ID) by 25 feet, 3000 psi
N	None
P	-12 (.62” ID) by 10 feet, 3000 psi
Q	-12 (.62” ID) by 15 feet, 3000 psi
R	-12 (.62” ID) by 20 feet, 3000 psi
S	-12 (.62” ID) by 25 feet, 3000 psi
T	-16 (.87” ID) by 6 feet, 3000 psi
U	-16 (.87” ID) by 10 feet, 3000 psi
V	-16 (.87” ID) by 15 feet, 3000 psi
W	-16 (.87” ID) by 20 feet, 3000 psi
X	-16 (.87” ID) by 25 feet, 3000 psi
Y	-20 (1.13” ID) by 10 feet, 3000 psi
Z	-20 (1.13” ID) by 15 feet, 3000 psi
Code P	**End of Hose 1 Device**
A	240V 23:1 heated pressure compensator valve
B	240V 51:1 heated pressure compensator valve
C	Heated distribution manifold
D	Heated air operated mastic pressure regulator
E	Manual gun with top feed swivel
F	Manual gun top feed with electric switch
G	Manual gun with bottom feed swivel
H	Manual gun with bottom feed with electric switch
J	Air operated heated dispense valve
K	Air operated high flow heated dispense valve
L	Air operated snuff-back heated dispense valve
M	45” distribution header with valve
N	None
P	Manual gun bottom feed with Swirl & .030 orifice
Q	Manual gun top feed with Swirl & .030 orifice
R	243694 with Swirl & .030 orifice
S	244909 with Swirl & .030 orifice
Code Q	**Hose 2**
B	-8 (.41” ID) by 10 feet, 3000 psi
C	-8 (.41” ID) by 15 feet, 3000 psi
D	-8 (.41” ID) by 10 feet for Air Swirl, 3000 psi
E	-8 (.41” ID) by 15 feet for Air Swirl, 3000 psi
H	-10 (.51” ID) by 6 feet, 3000 psi
J	-10 (.51” ID) by 10 feet, 3000 psi
K	-10 (.51” ID) by 15 feet, 3000 psi
L	-10 (.51” ID) by 20 feet, 3000 psi
M	-10 (.51” ID) by 25 feet, 3000 psi
N	None
P	-12 (.62” ID) by 10 feet, 3000 psi
Q	-12 (.62” ID) by 15 feet, 3000 psi
R	-12 (.62” ID) by 20 feet, 3000 psi
S	-12 (.62” ID) by 25 feet, 3000 psi
T	-16 (.87” ID) by 6 feet, 3000 psi
U	-16 (.87” ID) by 10 feet, 3000 psi
V	-16 (.87” ID) by 15 feet, 3000 psi
W	-16 (.87” ID) by 20 feet, 3000 psi
X	-16 (.87” ID) by 25 feet, 3000 psi
Y	-20 (1.13” ID) by 10 feet, 3000 psi
Z	-20 (1.13” ID) by 15 feet, 3000 psi
Code R	**End of Hose 2 Device**
E	Manual gun with top feed swivel
F	Manual gun top feed with electric switch
G	Manual gun with bottom feed swivel
H	Manual gun with bottom feed with electric switch
J	Air operated heated dispense valve
K	Air operated high flow heated dispense valve
L	Air operated snuff-back heated dispense valve
M	45” distribution header with valve
N	None
P	Manual gun bottom feed with Swirl & .030 orifice
Q	Manual gun top feed with Swirl & .030 orifice
R	243694 with Swirl & .030 orifice
S	244909 with Swirl & .030 orifice

TOF200A Code	___ - ___ - ___ - ___ - ___ - ___ - ___ - ___ - ___ - ___ - ___ - ___ - ___ - ___ - ___ - ___ - ___ - ___ - ___
	A B C D E F G H J K L M N P Q R

Model Code Layout

Component Identification

Before installing the system you should be familiar with all the system components. See FIG. 1 for Therm-O-Flow system components.

Air and Fluid Hoses

The Therm-O-Flow 200 requires Graco single-circuit material hoses rated at a maximum of 1250 watts.

When installing a system make sure:

- All air and fluid hoses are properly sized for the system.

Heat Control Zone Selection

The Therm-O-Flow 200 has 6 or 8 heat zones. Zones 1 and 2 are always used for the heated drum platen and the heated pump. Zones 3 and 4, 5 and 6, and 7 and 8 are each available as paired zones through 16-pin connectors. The heated hoses have a 16-pin connector on the inlet end cable, and an 8-pin connector on the outlet end cable. All heated valves, manifolds, and heaters are equipped with an 8-pin matching connector.

User Display (EasyKey)

- A simple user interface consisting of an LCD display and keypad.
- Keypad contains the buttons which control the Therm-O-Flow 200 operations.

Air Line Components

The following components are included with the unit. See FIG. 1.

- System Master Air Valve (A) is used to shut off the air supply to the system.
- Air Line Filter (B) removes dirt and moisture from the compressed air supply.
- Air Motor Air regulator (C) and (V) control the outlet pressure by adjusting the air pressure to the air motor.
- Air Motor Master Air Valve (D) shuts off the air supply to the air motor and bleeds trapped air from the air motor.
- Air motor Air Supply Hose connects the air regulator to the air motor.

Pneumatic Control Panel

The pneumatic control panel includes the following. See FIG. 1.

- Auto Depressurization Valve exhausts air from the air motor at shutoff. The built-in control delays start-up to allow material to thoroughly heat.
- Ram Air Regulators (N, P) control the air pressure to the ram. There are separate air regulators to control the ram pressure in the up and down directions.
- Ram Up/Down Lever (R) changes the direction of the ram.
- Blow-off air regulator (T) controls the air pressure to the platen blow-off valve.
- Platen Blow-off Valve (S) directs air to the underside of the platen when depressed.

Vent Hood Kit (if supplied)

The vent hood assembly is designed to efficiently draw fumes to the factory exhaust system during drum change-out. This assembly requires a connection to a factory ventilation system that draws a minimum air flow of 8.4 m^3/min (300 scfm). This kit is recommended for Polyurethane Reactive (PUR) applications.

Component Identification

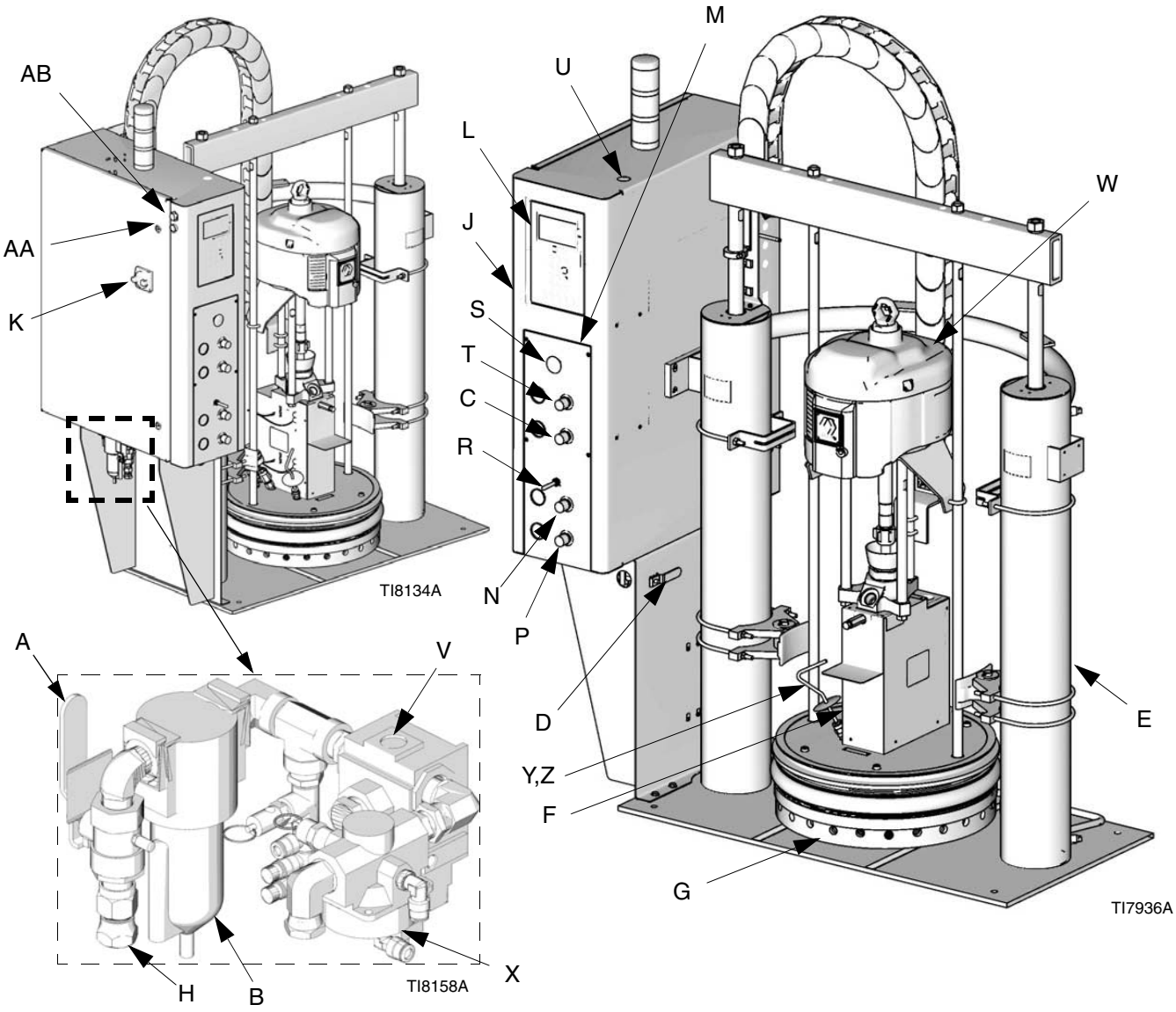


FIG. 1: Component Identification

Key:

A System Master Air Valve (bleed-type)
B Air Line Filter
C Air Motor Air Regulator (bleed-type)
D Air Motor Master Air Valve (bleed-type)
E Ram
F Heated Pump
G Platen
H Air Inlet (1/2” npt)
J Electrical Control Panel
K Main Power Disconnect Switch
L EasyKey Display and Keypad
M Pneumatic Control Panel
N Ram Up Air Regulator
P Ram Down Air Regulator
R Ram Up/Down Lever
S Platen Blow-off Valve
T Blow-Off Air Regulator
U Electrical Power Input
V Air Motor Enable Solenoid/Depressurization Valve
W NXT Air Motor
X Air Motor Remote Piloted Air Regulator
Y Ram Plate Bleed Stick
Z Drum Blow Off Valve (behind ram plate bleed stick Y)
AA Maintenance Call
AB Ethernet Connection

Typical Installation

The typical installation discussed and shown is only a guide for selecting and installing system components and accessories. See FIG. 2. Contact your Graco distributor for help in designing a system to suit your particular needs.

The air-powered ram extruder forces high viscosity fluids into the intake valve of the fluid pump. Wiper rings and other accessory equipment for use with this ram are listed in **Technical Data** on page 97.

For information about converting the ram from air to hydraulic operation, contact your Graco distributor.

Power Requirements

See **Technical Data** on page 97.

Selecting a Location for the Ram

Refer to the **Dimensions** drawing on page 96 for ram mounting and clearance dimensions.

When selecting a location for the ram keep the following in mind:

1. There should be sufficient space for installing and using the equipment.
   - Make sure there is sufficient overhead clearance for the pump and ram when the ram is in the fully raised position.
   - If you are installing a vent hood make sure there is sufficient horizontal clearance for it.
   - Make sure the air regulators for the pump and ram are fully accessible.
   - Make sure there is easy access to an appropriate electrical power source. The National Electrical Code requires 3 feet of open space in front of the electrical panel.
2. Make sure that you will be able to level the base of the ram using metal shims.
3. When you bolt the ram to the floor the anchors should be long enough to prevent the unit from tipping. Refer to the **Dimensions** drawing on page 96 for more information.
4. If you are installing a vent hood, make sure the ram is installed near a connection to the factory ventilation system.

System Accessories and Modules

Before you install the system you should be familiar with all the parts and system requirements for the Therm-O-Flow 200.

Typical Installation (Advanced Unit Shown)

101 Electrical Control Panel
102 Ram Module
104 Heated Follower Plate
106 Depressurization Valve/Air Motor Enable Solenoid
109 Pump and Air Motor Assembly
115 Air Motor Mounting Bracket
202 Air Filter
204 Air Motor Remote-Piloted Air Regulator
211 Ram Up/Ram Down Lever
214 System Master Air Valve (required)
226 Main Air Line Inlet
319 Ram Plate Bleed Stick
327 Lower Wiper
329 Upper Wiper
330 Drum Blow Off Valve
332 Drum Low and Empty Sensors

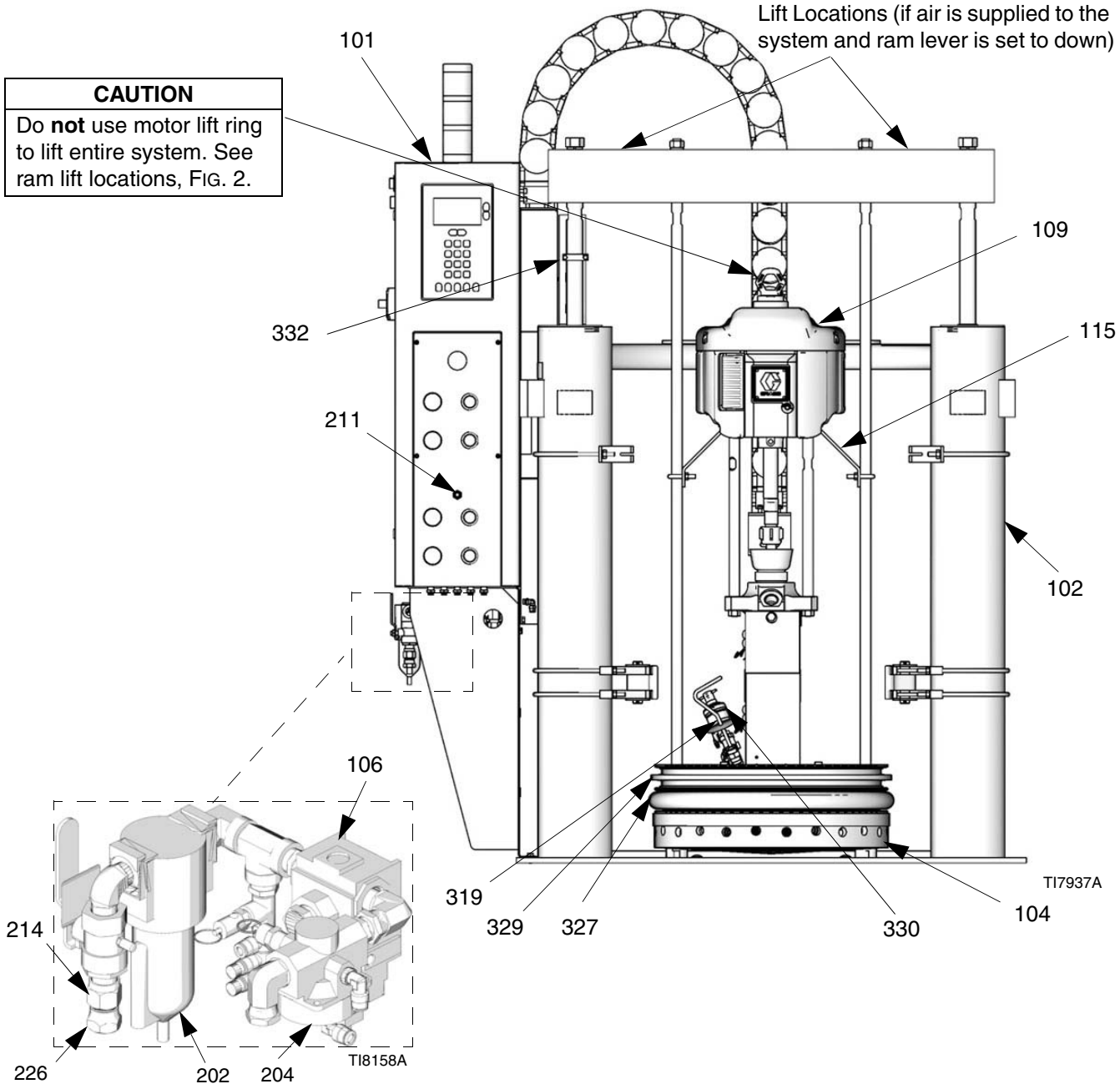


FIG. 2: Typical Installation

Heat Control Zone Selection

The Therm–O–Flow 200 can be ordered with 6 (code E–6) or 8 (code E–8) heat zones (see Fig.3). Zones 1 and 2 are always used for the heated drum platen and the heated pump. Zones 3 and 4, 5 and 6, and optional zones 7 and 8 are each available as paired zones through a 16–pin connector.

The heated hoses have a 16–pin connector on the inlet end cable, and an 8–pin connector on the outlet end cable. All heated valves, manifolds and heaters are equipped with an 8–pin matching connector. Accessory cables are available for other possible combinations. See FIG. 3.

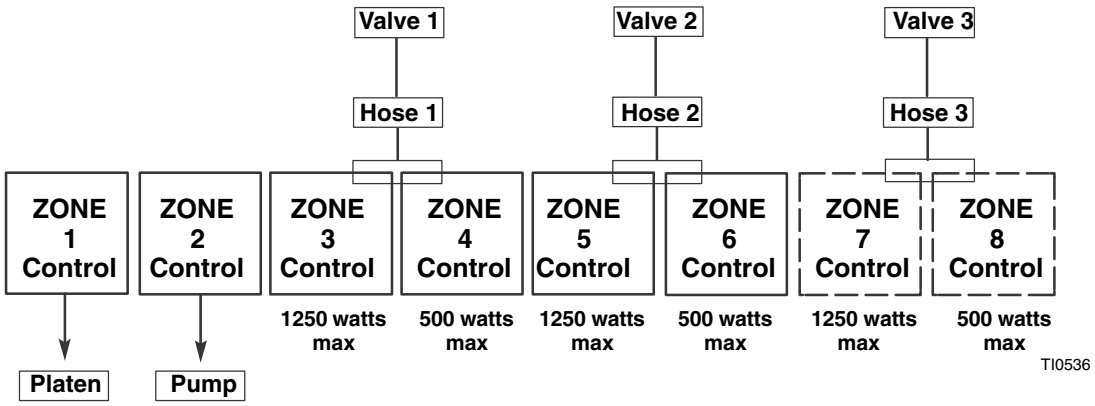


FIG. 3: Heat Control Zone Selection

Air Line Modules

The Air Motor bleed-type master air valve (D) is required in your system to relieve motor air pressure. Trapped air can cause the pump to cycle unexpectedly, which can result in serious bodily injury.

4-Regulator Air Control Module (shown)
For more information, refer to FIG. 1 on page 9. The following components are included with the module:

- System Master Air Valve (bleed-type) (D) is used to shut off the air supply to the entire supply unit.
- Air Motor Master Air Valve (bleed-type) (D) is supplied in your system to relieve air trapped between it and the air motor when the valve is energized **(see Warning above)**. This bleed valve should be easily accessible and located downstream from the air regulator.
- Air Motor Air Regulator (C) controls the pump outlet pressure by adjusting the air pressure to the air motor. It is located on the pneumatic control panel.
- The Air Motor Enable Solenoid, see FIG. 1 page 9, letter (X) delays startup to allow material to heat thoroughly.
- Ram Air Regulator (N,P) controls the air pressure to the ram. There are separate air regulators to control the ram pressure in the up and down directions.
- Ram Plate Blow-off Valve (S,T) controls the air to the ram plate blow-off.

Part No. 297401 is used if “None” is selected for Configurator Code E, F, and G.

Fluid Line Accessories (Typical)

A pressure compensator valve controls fluid pressure to the gun/valve, and dampens pressure surges. Install the pressure compensator valve using adapters as necessary.

Installation Procedure

CAUTION
Do **not** use motor lift ring to lift entire system. See lift locations, FIG. 2.

The installation procedure includes:

- unpacking the ram
- locating and installing the ram
- mechanical setup
- electrically connecting hoses to the electrical control panel
- grounding the system
- connecting the electrical control panel to a power source
- connecting to an air source
- setting controls on the electrical control panel

Unpacking

1. Inspect the shipping box carefully for damage. Contact the carrier promptly if there is damage.
2. Open the box and inspect the contents carefully. There should not be any loose or damaged parts in the box.
3. Compare the packing slip against all items in the box. Report any shortages or other inspection problems immediately.

CAUTION
Do **not** use motor lift ring to lift entire system. See lift locations, FIG. 2.

4. Remove the unit from the skid and place it in the desired location (See “Location Requirements” on page 13).

Location Requirements

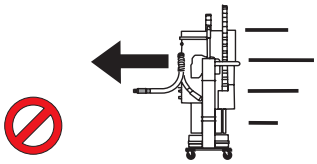
1. Make sure there is sufficient overhead clearance for the pump and ram when the ram is in the fully raised position (approximately 110 in. [280 cm]).
2. If you are installing a vent hood, make sure there is sufficient horizontal clearance for it. Locate the ram near a connection to the factory ventilation system.
3. Make sure the air regulators for the pump and ram are fully accessible, with room to stand directly in front of the pneumatic control panel and the electrical control panel.
4. Make sure there is easy access to an appropriate electrical power source. The National Electrical Code requires 3 ft (0.9 m) of open space in front of the electrical panel.
5. Apply 50 psi download pressure to ram.
6. Wrap the bar with the lifting sling. See FIG. 2 for proper lift spots.

CAUTION
Do **not** use motor lift ring to lift entire system. See lift locations, FIG. 2.

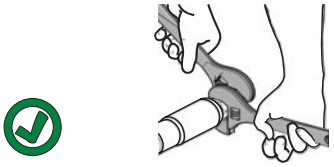
7. Lift off the pallet using a crane or a forklift.
8. Position the ram in the desired location.
9. Level the base of the ram, using metal shims.
10. Bolt the ram to the floor, using anchors that are long enough to prevent the unit from tipping.
11. If your unit is equipped with optional level controls, remove from the electrical control panel and twist into place on top of the electrical control panel.

Hose Installation and Care

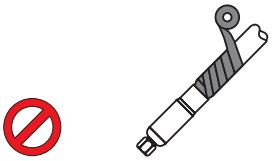
1. Do not use hose to pull equipment.



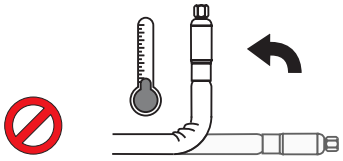
2. Use 2 wrenches to tighten. Torque to 470-550 in-lbs (53.1-62.1 N•m).



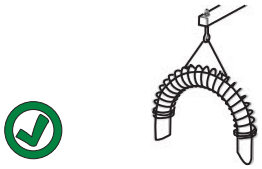
3. Do not tape or cover hose.



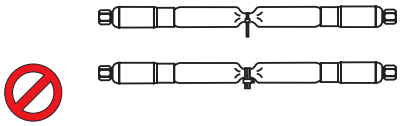
4. Do not flex hose when cold.



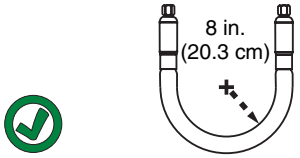
5. Use hose support spring.



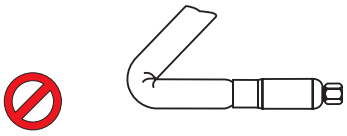
6. Do not clamp, squeeze, or zip tie hose.



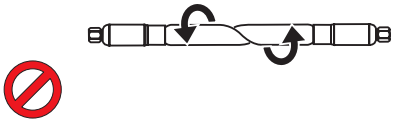
7. Minimum bend radius is 8 in. (20.3 cm).



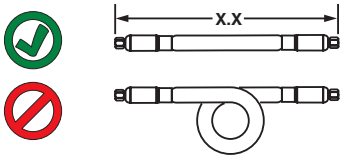
8. Do not bend or crimp hose.



9. Do not twist hose.



10. Use proper length hose.



Mechanical Setup

1. Check, and if necessary, tighten the heated hose connection at the pump outlet.
2. Wrap exposed fittings on the pump outlet with Nomex insulation and secure insulation using fiberglass tape.
3. Fill displacement pump wet cup 2/3 full with Graco Throat Seal Liquid (TSL).
4. Back-off all air regulators to their full counterclockwise position.

The ram UP/DOWN lever is shipped inside the pneumatic control panel and should now be screwed onto the face of the control.

5. Connect a 1/2 in. (13 mm) air line from an air source to the system air inlet, see FIG. 1, page 9, letter (H) capable of delivering a minimum of 15 cfm (0.4 m^3/m) at 100 psi (0.7 MPa, 7.0 bar). **Do not use quick disconnects.**

Electrical Setup

Electrically Connect Hoses

The Therm-O-Flow 200 requires Graco single-circuit material hoses rated at a maximum of 1250 watts.

1. Securely tighten the 16-pin electrical connectors on long heated hose leads into 16-socket receptacles located on the back of the electrical control panel. See FIG. 4.
2. Securely tighten the 8-socket electrical connectors on short heated hose leads into 8-pin receptacle located on the dispense valves.

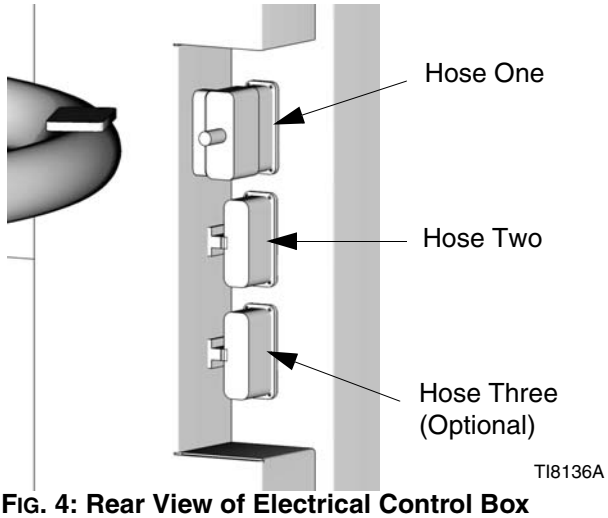


FIG. 4: Rear View of Electrical Control Box

Connect Power Source

The electrical control panel comes already attached and wired to the ram, however before the supply unit becomes functional you must connect the electrical control panel to a power source.

Required voltage and amperage is noted on the control panel label. Also see Table 1. Before running power to the unit, make sure the plant electrical service meets the machine's electrical requirements.

1. Open electrical enclosure door and locate the main disconnect.
2. Have a qualified electrician connect your plant power to the electrical control panel disconnect switch according to local codes. A 1-3/8 in. (35 mm) diameter opening is provided on top of the panel above the connections. This opening is suitable for a 1 in. npt conduit or strain relief fitting.

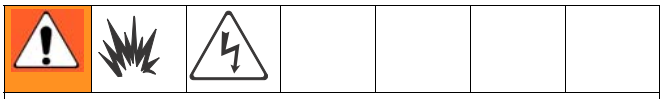
Table 1 Electrical Requirements

AC Panel Voltage	HZ	Phase	Platen Selection	Full Load Amps
220 / 240	50/60	3	BB & BC	70
			BA	80
380 / 400	50/60	3	BB & BC	42
			BA	48
470 / 490	50/60	3	BB & BC	35
			BA	40
570 / 590	50/60	3	BB & BC	29
			BA	32

BB = Standard grid platen: 18 Kw
BA = Mega-Flo™ platen: 21 Kw
BC = Smooth bottom platen: 18 Kw

Grounding

Ground the supply unit as instructed here and in the individual component manuals.



To reduce the risk of fire, explosion, or electric shock:

- The power source conduit is not an adequate ground for the system. The unit must be bonded to either the building ground or a true earth ground.

To reduce the risk of static sparking, ground the pump, the object being dispensed to, and all other spraying/dispensing equipment used or located in the spraying/dispensing area. Check your local electrical code for detailed grounding instructions for your area and type of equipment.

- *Air and fluid hoses:* Use only electrically conductive hoses.
- *Dispensing/Spray Gun:* Follow the dispensing/spray gun grounding instructions.
- *Object material is applied to:* Ground according to your local code.
- *Material drums:* Ground according to your local code. Use only metal drums placed on a grounded surface. Do not place the drum on a nonconductive surface, such as paper or cardboard, which interrupts the grounding continuity.
- *Maintain grounding continuity when flushing or relieving pressure:* Follow the instructions in your separate gun manual for safely grounding your gun while flushing.

Connecting the Electrical Control Panel to a Power Source

The electrical control panel (FIG. 5) comes already attached and wired to the ram, however before the supply unit becomes functional, you must connect the electrical control panel to a power source.

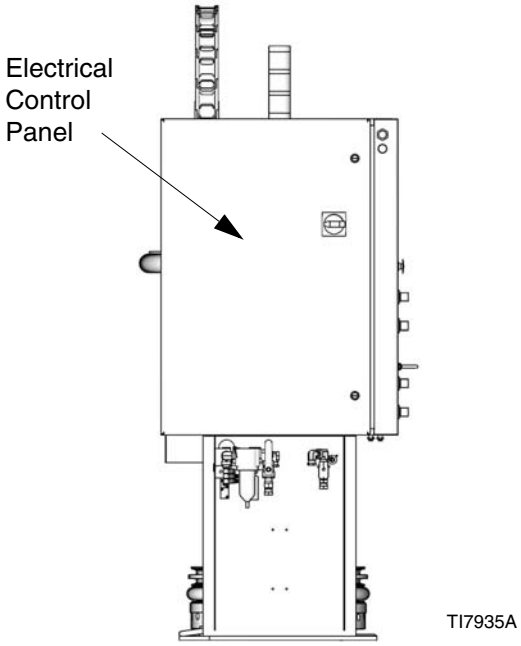


FIG. 5: Electrical Control Panel

Have a trained electrician connect the electrical control panel (Fig. 5) to a grounded electrical source that has the required service ratings, see **Electrical Requirements** on page 16.

CAUTION
If power and grounding connections are not done properly, the equipment will be damaged and the warranty will be voided. Check the label on the control box for the proper voltage.

BB = Standard grid platen: 18 Kw

BA = Mega–Flo platen: 21 Kw

BC = Smooth bottom platen: 18 Kw

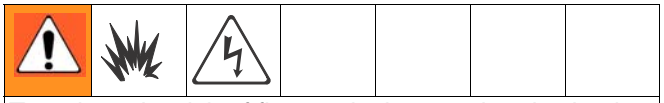
For information about specific terminal locations and connections, see **Advanced Units** on page 80.

To connect the control panel to the electrical source:

1. Locate the opening in the control panel's top housing for the conduit that will enclose the wire from the facility's power source. The hole will accept a 1" conduit fitting. It is 1.3" dia. (33mm).

2. Thread the wire from the power source into the control panel housing, and then connect the power source wires to the appropriate terminals on the DISCONNECT switch.

Check the Resistance Between the Supply Unit and the True Earth Ground.

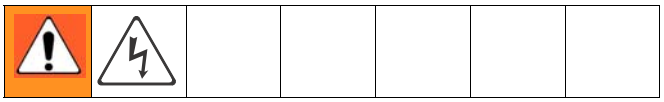


To reduce the risk of fire, explosion, or electric shock the resistance between the supply unit components and true earth ground must be less than 0.25 ohms.

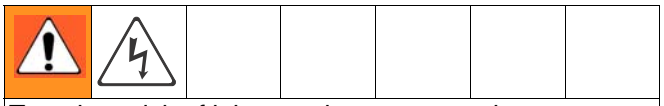
Have a qualified electrician check the resistance between each supply unit component and the true earth ground. The resistance must be less than 0.25 ohms. If the resistance is greater than 0.25 ohms a different ground site may be required. Do not operate the system until the problem is corrected.

Use a meter that is capable of measuring resistance at this level.

Checking Resistance.



Sensor Resistance Checks.



To reduce risk of injury or damage to equipment, conduct these electrical checks with the main disconnect OFF.

The package includes up to eight heat sensors and controllers for each of the heated zones. To check sensor resistance:

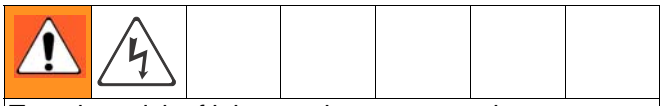
1. Make sure the power is off and that the disconnect switch is in the OFF position.
2. Make electrical resistance checks for the components.
3. Replace any parts whose resistance readings do not comply with the ranges listed in the RTD Sensors chart below.

Check resistance at ambient room temperature (63°– 77° Fahrenheit).

RTD Sensors

Zone	Component	Terminals	Value Range
1	Ram Plate	2011 & 2021	108 +/- 2% ohms
2	Fluid Pump	2051 & 2061	108 +/- 2% ohms
3	Dispense Hose 1	2081 & 2091	108 +/- 2% ohms
4	Dispense Gun 1	2111 & 2121	108 +/- 2% ohms
5	Dispense Hose 2	2261 & 2271	108 +/- 2% ohms
6	Dispense Gun 2	2291 & 2301	108 +/- 2% ohms
7	Dispense Hose 3	2321 & 2331	108 +/- 2% ohms
8	Dispense Gun 3	2351 & 2361	108 +/- 2% ohms

Heater Resistance Checks.



To reduce risk of injury or damage to equipment, conduct these electrical checks with the main power disconnect OFF.

To check heater resistance:

1. Make sure the power is off and that the disconnect switch is in the OFF position.
2. Make electrical resistance checks for the components. Refer to **Electrical Schematics** on page 52 for wiring diagram information.
3. Replace any parts whose resistance readings do not comply with the ranges listed in Table 2 or Table 3.

Check resistance at ambient room temperature (63°– 77°F) (17°– 25°C).

Table 2 Heaters

Zone	Component	Between Terminals	For Unit Voltage	Platen Model Code	Resistance Values (ohms)
1	Platen	AB, BC, CD, DE, EF, FA	220/240 VAC	BA	16.5Ω +1 / -2
				BB, BC	19.5Ω +2 / -3
		AB, BC, CD, DE, EF, FA	380/400 VAC	BA	16.5Ω +1 / -2
				BB, BC	19.5Ω +2 / -3
			470/490 VAC	BA	16.5Ω +1 / -2
				BB, BC	19.5Ω +2 / -3
		AB, BC, CD, DE, EF, FA	570/590 VAC	BA	16.5Ω +1 / -2
				BB, BC	19.5Ω +2 / -3
		Any to GND			100,000Ω Min

Table 3 Heaters

Zone	Component	Between Terminals	For Unit Voltage	Platen Model Code	Resistance Values (ohms)
2	Pump	T1/T3, T2/T3, B1/B3, B2/B3	Any	Any	192.0 +/- 19.2Ω
		T1/T3, T2/T3, B1/B3, B2/B3	380/400	BA	
				BB, BC	
			470/490	BA	
				BB, BC	
		Same	570/590	BA	
				BB, BC	

Overview of the Temperature Controller Settings

Temperature controls are set in the zone configuration setup screens. See **Run Screens** on page 23 for information about setting temperature controls.

P, I, and D settings are preset for device types and will not need to be changed. Refer to the **Zone Setup Screens** on page 24 for a list of device types and how to set them for each zone.

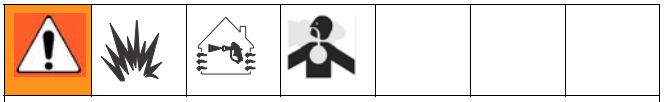
Purging the System

Purging the system before the initial use can prevent material contamination, which may cause the material to fail or perform poorly.

CAUTION
Purge the system before performing the initial **material loading procedure.** The system was factory- tested using a light soluble oil, a soybean oil, or some other oil as tagged. Flush the system to avoid contaminating the material that has been designated for initial material loading.

To purge the system perform the following procedure:

1. Select the material for the initial material load.
2. Verify whether the factory-test oil and the initial material load are compatible:
   a. If the two substances are compatible omit the remaining steps in this procedure and refer to the start up and operation instructions.
   b. If the two substances are incompatible perform the remaining steps in this procedure to flush the system.



Use fluids that are chemically compatible with the equipment wetted parts. See the **Technical Data** sections of all the equipment manuals.

This equipment should not be used with more than one type of fluid due to potential compatibility issues which could result in an unpredictable reaction. Graco recommends using new hoses when chemicals are changed or care must be taken to assure that all traces of one chemical are removed before introducing a second chemical.

3. Select a drum of material that can eliminate the factory-test oil from the system. If necessary, check with Graco or the material supplier for a recommended solvent.
4. Before purging be sure the entire system and waste drum are properly grounded. Refer to **Grounding** on page 16.
5. Turn all heat zones to 70°F (21.1°C). This allows air to the air motor, with no alarms, in a cold state.

Remove any dispense valve orifices before purging. Reinstall after purging has been completed.

6. Purge the material through the system for approximately 1 to 2 minutes.
7. Remove the drum if purge material was used.

Operator Controls

Main Power Disconnect

Turns system power on or off. Includes system circuit breaker. See FIG. 6.

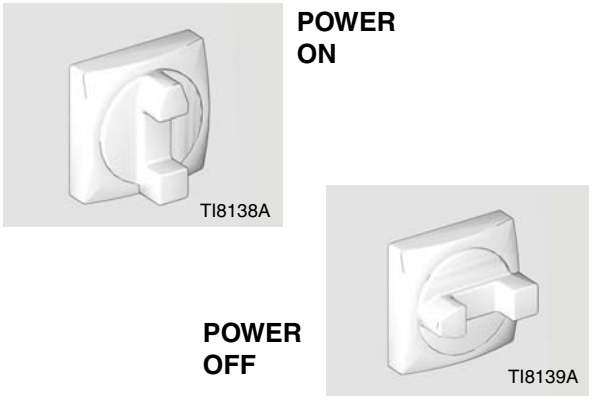


FIG. 6: Main Power Disconnect

In a Tandem System, the secondary unloader provides 24VDC power to the EasyKey display. This allows the primary unloader to be powered down for maintenance without interrupting production. All accessories (light tower, swirl, etc.) and the display board on the primary system will have power when the secondary unloader is powered on and the primary unloader is powered off.

EasyKey Display and Keypad

The EasyKey Display is a simple user interface consisting of an LCD display (A) and keypad (B). See FIG. 7.

Use to input numerical data, enter Setup screens, scroll through screens, and select setup values. See EasyKey Display Screens page 23 for additional keypad/screen navigation information. The EasyKey includes numbered keys to enter values in setup and the function keys listed in Table 4.

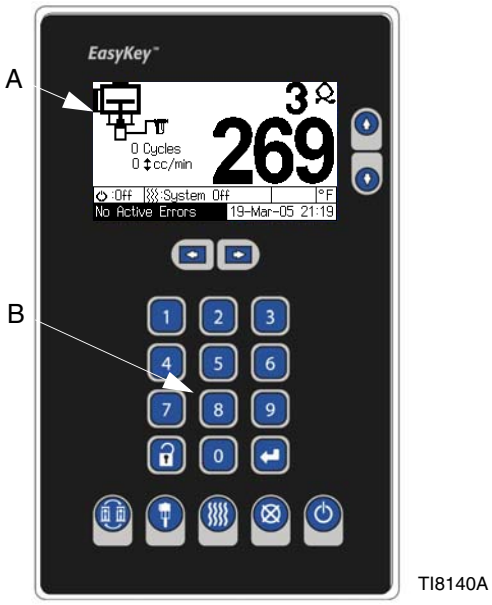


FIG. 7: EasyKey Display and Keypad

NOTICE

To prevent damage to soft key buttons, do not press the buttons with sharp objects such as pens, plastic cards, or fingernails.

Table 4: Key Descriptions

Key	Function
	Setup: press to enter or exit Setup mode.
	Enter: if cursor is in drop-down list box, press Enter key to view drop-down list. Press Enter to save a value either keyed in from the numerical keypad or selected from a drop-down list.
	Up Arrow: move to previous field or drop-down list item.
	Down Arrow: move to next field, or drop-down list item.
	Left Arrow: move to previous screen.

Table 4: Key Descriptions

	*Right Arrow:* move to next screen.
	*System On/Off: on* starts system. Activates  ,  ,  , and  keys.
	*Heat State Toggle:* starts heaters in all zones where they are enabled. Cycles through heat states (Heat Off, Heat On/Heat Soak/Run, Setback).
	*Clear:* clears alarms and warnings.
	*Pump Ready:* allows pump to cycle after a DRUM EMPTY condition is removed or a MOTOR ERROR is cleared.
	*Pump Crossover*: transitions the active system to the inactive unloader.

LCD Display

The two run screens show graphical and text information related to setup and spray operations.

A screen saver option is available in the Advanced Setup screen 4 (see Table 7, page 28).

A **Animation:** when there is flow the air motor piston and pump displacement rod move and the gun appears to spray.

B **Total Job Volume:** recorded in units selected in Table 7, see page 28. Press twice to reset Total Job Volume to zero.

C **Current Flow Rate:** flow rate displayed in units selected in Adv tab of setup. See Table 7 on page 28.

D **Zone Number and Icon:** shows which zone data is currently being displayed. Icon indicates component for that zone.

E **Temperature Readout:** shows current temperature of each zone, in temperature units selected in Table 7, see page 28.

F **Status Bar:** shows current operation mode or alarm.

G **Current Date and Time**

H **Security Level:** a padlock appears on the screen if a password is required to enter Setup mode. If the password was set to 0, no padlock appears and setup can be entered without a password.

You must be in system off mode to enter setup  .

Alarm

Alerts the user to an alarm condition. Press  to clear the alarm.

EasyKey Display Screens

Power Up Screens

When the EasyKey power switch is turned on the Graco logo screen and the phrase establishing communication displays for several seconds before the system run screen appears.

If the EasyKey cannot communicate with any board during the power on phase, the phrase “Communication Error” displays on the Graco Logo screen. Once communications are established the System Run Screen appears. See FIG. 9.

Run screens and setup screens are the two main screen types that provide information and system control.

Run Mode

Run Screens

System Run Screen

From the Zone Run screen, press ◄ or ► to access the System Run screen. This screen displays a summary of all zones. See FIG. 8.

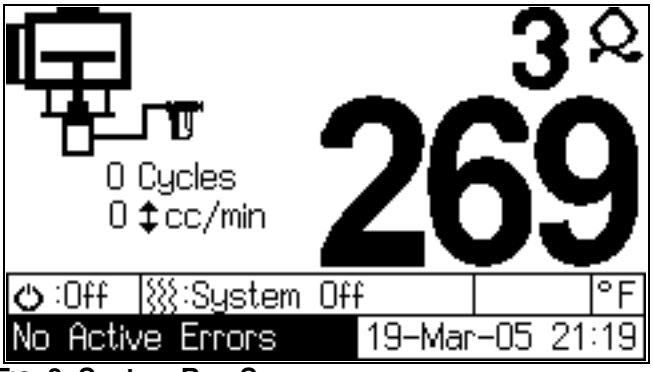


FIG. 8: System Run Screen

Zone Run Screen

This screen contains all specific zone information for each zone in the system. Tandem and expansion systems will contain two zone run screens A and B, one for each set of 4,6, or 8 zones. The Zone Run screen steps through the operating status of each zone in sequence. See FIG. 9.

Temperature setpoints are adjustable on this screen if Setpoint Adjust is turned on. See **Advanced Screens**, page 27. Setpoints will be highlighted in a box. Use the ▲ or ▼ keys to move through the setpoints.

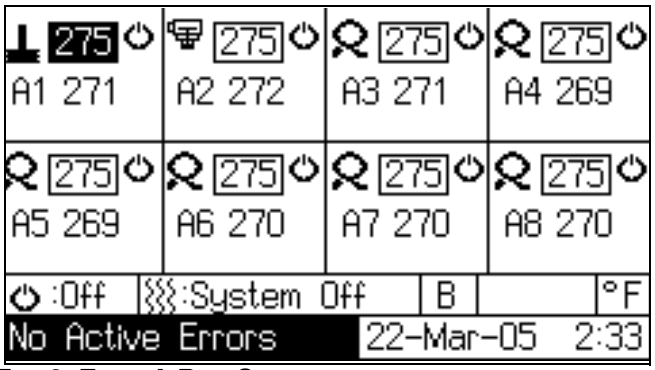


FIG. 9: Zone A Run Screen

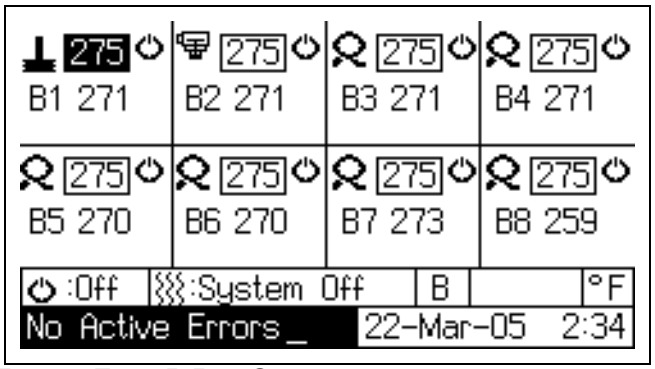


FIG. 10: Zone B Run Screen

Setup Mode

Entering Setup

Press to enter or exit Setup. You must be in system off state to enter setup.

Password Screen

If a password was enabled you must enter the password before entering Setup mode. See Table 7, page 28. Entering the wrong password returns you to the Run screens.

If a password is enabled, “Setup Locked” displays momentarily after exiting Setup mode and returning to the Run screens.

Setup Screen Menu

The setup screens, contains all four tabs across the bottom of the screen for zone, timer, report, and advanced screens. The Setup screen menu appears at the bottom of all Setup screens, with the current screen highlighted. See FIG. 11 and FIG. 12.

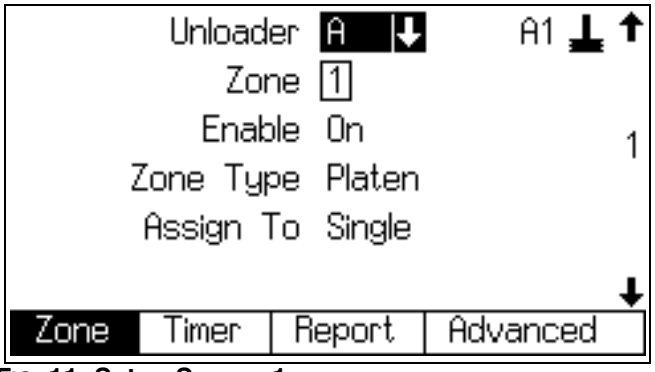


FIG. 11: Setup Screen 1

Zone Setup Screens

Zone Setup has 2 screens. The screen number appears on the right side of the screen. See FIG. 11 and FIG. 12. See Table 5 **: Zone Setup Screens** on page 25 for settings.

Press to show drop-down lists and to enter your selection.

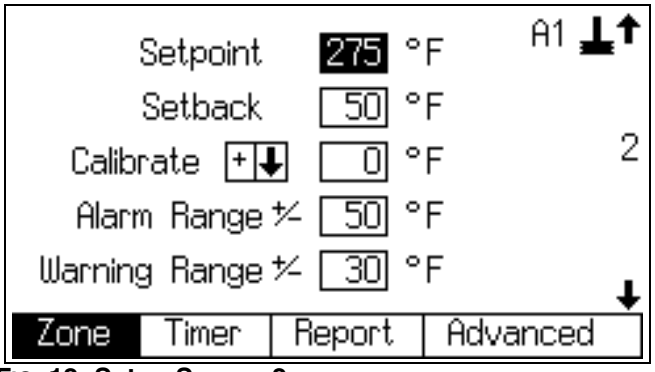


FIG. 12: Setup Screen 2

Table 5: Zone Setup Screens

Screen	Setting	Selection	Description
1 See (FIG. 11)	Unloader		In single system always A. In tandem or expansion system it is selectable between A and B.
	Zone	Numeric	Enter desired zone (1-8). Zone 1 (platen) and zone 2 (pump) are fixed. All other zones are selectable (hose, gun, regulator, manifold, meter).
	Enable	On/Off	Select On or Off to turn zone heat on or off.
	Zone Type	Hose/ Gun/ Regulator/ Manifold/ Meter	Select desired component for heat zones 3 through 8. Zone 1 (platen) and zone 2 (pump) are fixed. Zone icons on Run screens will match selections.
	Assign to		Tandem system only. Determines unloader zone is assigned to for heat control.
2 See (FIG. 12)	Setpoint	Numeric	Enter the temperature to which material needs to be heated. Consult material supplier for recommended material application temperatures.
	Setback	Numeric	Enter desired temperature to maintain during downtime, so material will not cool completely.
	Calibrate	+/- Numeric	Select +/ -, then enter desired calibration temperature. Use if Zone Temp reading does not match ambient temperature of location.
	Alarm Range +/-	Numeric	Enter temperature range from setpoint at which an alarm condition will occur.
	Warning Range +/-	Numeric	Enter temperature range from setpoint at which a warning condition will occur.

Timer Screen

Timer settings are explained in Table 6 **: Timer Setup Screen**. See also FIG. 13 and FIG. 14.

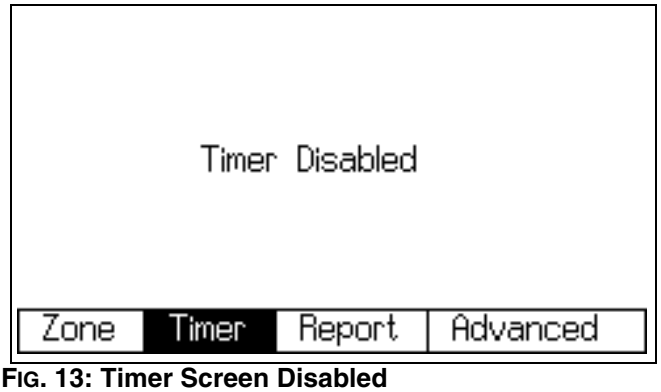


FIG. 13: Timer Screen Disabled

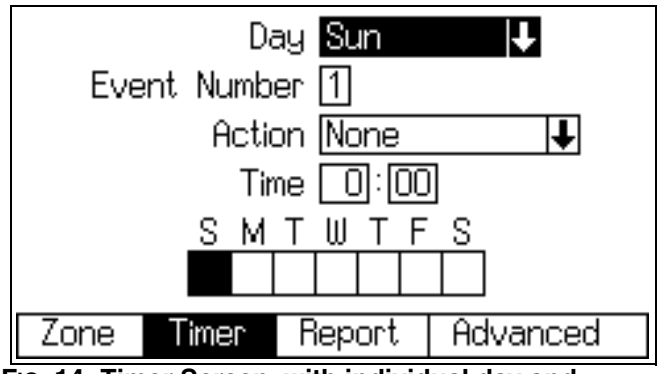


FIG. 14: Timer Screen, with individual day and setback action selected

Report Screen

The Report screen shows the most recent 12 alarms, with the date and time. Use the ▲ or ▼ keys to see all the alarms. See FIG. 15.

Grand total is displayed in liters, gallons, pounds, kilograms, or cycles, based on the units set in Advanced screen 2. See Table 7, page 28. Grand total cannot be reset.

There are no selectable settings on the Report screen.

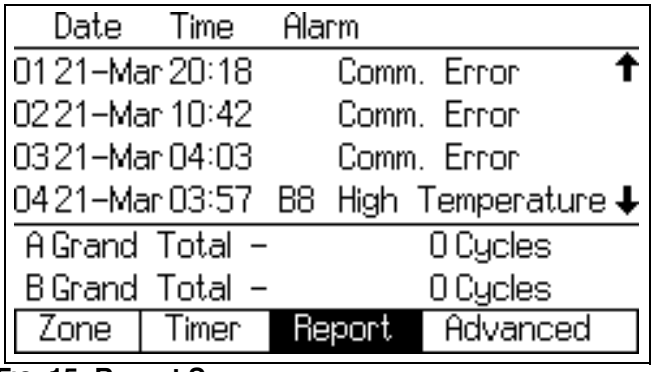


FIG. 15: Report Screen

Table 6: Timer Setup Screen

Setting	Selection	Description
Day	Individual/ M-F/ S-S/ All	Select desired day(s). Selected days will be highlighted in calendar on screen.
Event Number	1-5	Select desired event number (maximum of 5 events per day).
Action	None	No timer value entered for selected event.
	Off	Turns off timer for selected event.
	On	Turns on timer for selected event.
	Setback	Turns on setback function for selected event.
	Clear All	Clears all timer events for selected day.
Time	Numeric	Enter hours (0-23) and minutes (0-59).

Advanced Screens

Advanced setup has 3 screens. The screen number appears on the right side of the screen. See FIG. 16 through FIG. 18, and Table 7 **: Advanced Setup Screens** on page 28.

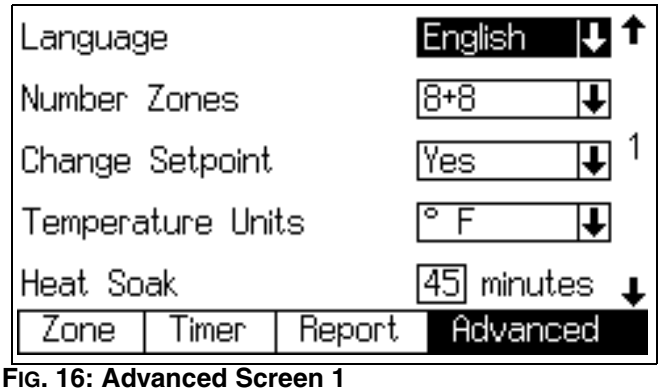


FIG. 16: Advanced Screen 1

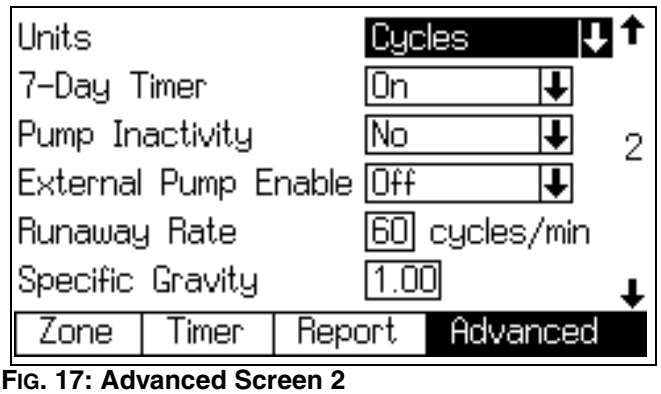


FIG. 17: Advanced Screen 2

The specific gravity listed in the material data sheet may be for solid form at room temperature. For accurate weight calculations, specific gravity at the application temperature should be used otherwise these weight calculations may be inaccurate.

Press ↵ to show drop-down lists and to enter your selection.

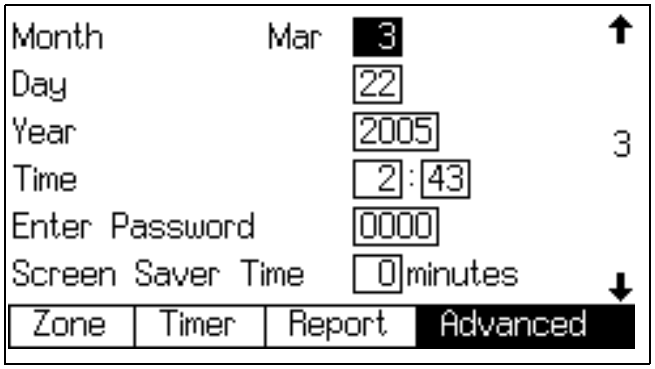


Table 7: Advanced Setup Screens

Screen	Setting	Selection	Description
1 See (FIG. 16)	Language	English, Spanish, German, French, Japanese, Chinese, custom	Language displayed. The language is set at factory.
	Number Zones	6+8 / 6+4 / 8+4 / 6+6 / 8+8	The number of zones in system is set at the factory.
	Change Setpoint	Yes/No	Select Yes or No to allow operator to change setpoints from the Zone Run screen.
	Tempera-ture Units	°F/°C	Select desired temperature units.
	Heat Soak	Numeric	Enter time (in minutes) to delay air motor start after all zones reach tempera-ture setpoints.
2 See (FIG. 17)	Units	cycles/ gallons/ liters/ lbs/ kg	Select desired units. Affects units used for Run screen job totalizers and Report screen grand total volume.
	7-Day Timer	On/Off	(Enable / Disable 7 day timer).
	Pump Inac-tivity	Yes/No	If pump does not move for 2 hours, zones switch to setback temperatures. If 2 more hours pass without pump movement, system shuts off. Select Yes or No.
	External Pump Enable	On/Off	Allows external device to control pump.
	Runaway Rate	Numeric	Enter speed (cycles/min) at which air motor will be shutdown, to prevent run-away.
	Specific Gravity	Numeric	Used to determine units when weights are selected (Lbs / Kgs).
3 See (FIG. 18)	Month	Numeric	Select current month (1-12).
	Day	Numeric	Select current day (1-31).
	Year	Numeric	Select current year (4 digits).
	Time	Numeric	Enter hours (0-23) and minutes (0-59).
	Password	Numeric	Is only used to enter Setup mode. Default is 0, which means no password is required to enter setup. To set a password, enter a number (1–9999).
	Screen Saver Time	Numeric	Enter minutes (1-99) for screen to be inactive before screen saver turns on (screen dims). Press any key to restore. Default is 0 (screen saver off).

Setup

Purge Before Using Equipment

The equipment was tested with lightweight oil, which is left in the fluid passages to protect parts. To avoid contaminating your fluid with oil, purge the equipment with a compatible material before using the equipment. See **Purging the System**, page 20.

Set Values on EasyKey

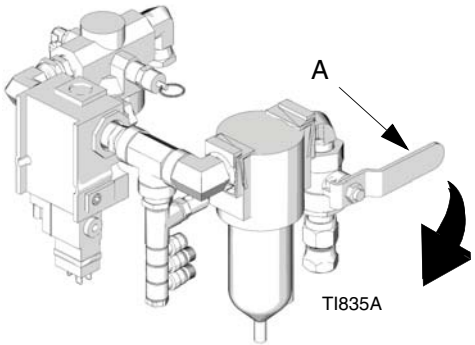
Set desired values on EasyKey setup menus. See **Setup Mode**, page 24.

Material Loading

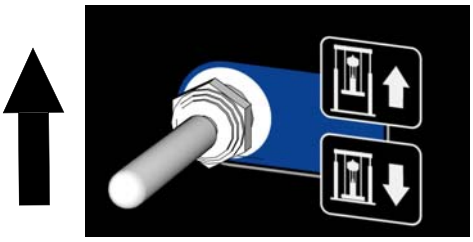
CAUTION
Do not use a drum of material that has been dented or otherwise damaged; damage to the platen wipers can result. **An empty drum clamp can interfere with up and down operation of the ram.** When raising or lowering the ram, make sure the drum clamp stays clear of the platen assembly.

Before loading material, make sure there is a minimum overhead clearance of 110" (2.8 m) and all air regulators are backed off to their full counterclockwise position.

1. Open the system master air valve (bleed-type) (A).



2. Place the ram UP/DOWN lever in the UP position.



3. Slowly turn the ram UP regulator (N) clockwise until the ram begins to rise See. FIG. 19.

4. When the ram is fully raised, install the drum centering guides.

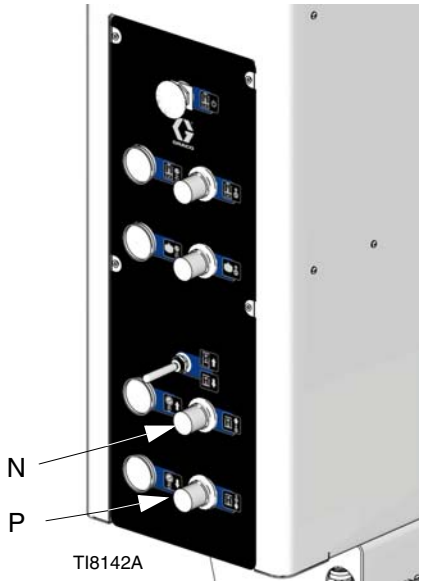


FIG. 19: Pneumatic Control Panel

5. Apply a thin coating of high temp grease lubricant (part no. 115982) to the platen drum seals (V). See FIG. 20.

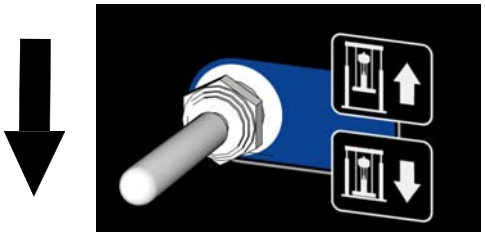
6. Add TSL fluid to wet cup. Fill approximately 2/3 full.

7. Open drum, remove any packing material, and inspect material for any contamination.

8. Slide the drum into position, positioning it evenly between the drum centering guides. Be sure it is pushed all the way against the stops at the back of the ram baseplate.

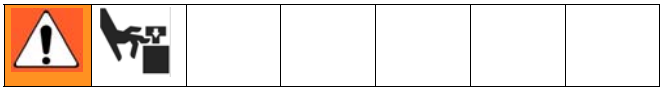
9. Remove the platen bleed handle (W). See FIG. 20.

10. Place the ram UP/DOWN lever in the DOWN position.



CAUTION
Lowering the ram without a drum in place can damage the drum centering guides (if equipped).

11. See FIG. 19. Slowly turn the ram DOWN regulator (P) clockwise to approximately 5-10 psi (34-69 kPa, 0.3-0.7 bar). The platen will begin to lower into the drum.



12. After the platen seals (V) enter the material drum, adjust the ram DOWN air regulator (P) to 30-50 psi (207-345 kPa, 2.1-3.4 bar). See FIG. 19 and FIG. 20.

13. When the ram stops, reinsert the platen bleed handle (W) and hand tighten. See FIG. 20.

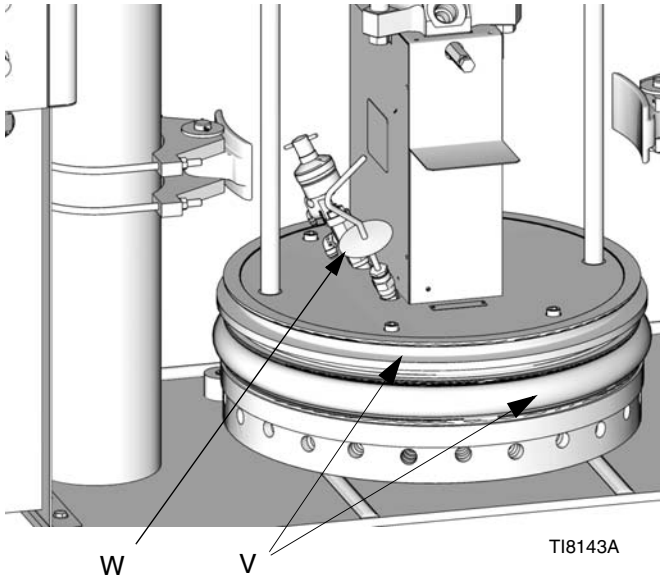


FIG. 20: Platen

System Heat Up

To reduce the risk of bursting a hose, never pressurize a hot melt system before turning on the heat. The air will be locked from the air motor until all temperature zones are within a preset window of the temperature set points.

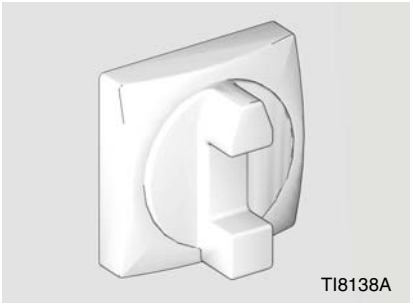
CAUTION

The dispense valve must be kept open over a waste container while the system is heating up and also when cooling down. This will prevent a pressure build-up caused by fluids or gasses expanding from the heat.

Operate at the lowest temperature and pressure necessary for your application.

1. Turn the main disconnect on the electrical control panel door to the ON position.

POWER ON



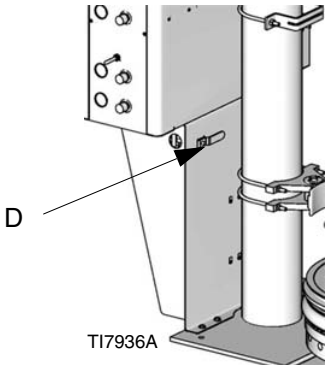
2. Press ⏻. Display status bar reads **Heat Off**.
3. Press ♨. The zones begin to heat (provided they are enabled). Display status bar reads **Heat On**. When temperature reaches setpoint, display status bar reads **Run Mode**.

The air will be locked from the air motor until all temperature zones are within a preset window of the temperature set points, allowing the system to heat fully and complete the material heat soak period.

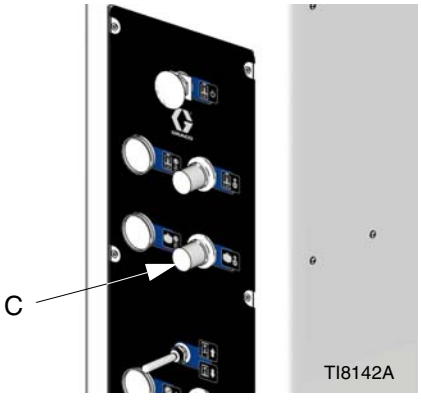
Prime Pump

In a Tandem system, after a drum change has occurred on the inactive unloader, pressing the Pump Ready button will allow five minutes of air to the air motor to allow for the pump to be primed. The inactive unloader must be within its warning deviation setpoints and in the Ready or Heat On state. If the five minute timer runs out before the inactive unloader is primed, pressing the Pump Ready button again will repeat the air to the air motor.

1. Make sure the system has completed the approximately 40 minute heat soak cycle and is up to temperature.
2. Close the air motor valve (D).



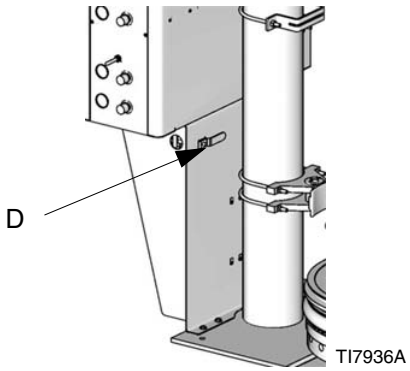
3. Adjust the air motor air regulator (C) to approximately 20 psi (138 kPa, 1.38 bar) on pneumatic panel.



4. Place a waste container under the bleed stem (Z). Using an adjustable wrench, open the bleed stem counterclockwise 1/3 -1/2 turn. See FIG. 21.

5. If a new drum was installed and the unit is equipped with proximity sensors, press the Pump Ready button . If the unit is not equipped with proximity sensors, press the Clear button if a motor error is present, then press the Pump Ready button .

6. With waste container in place, slowly open the air motor valve (D).



7. Make sure the pump begins to cycle and heated material flows from the bleed stem (Z) after several cycles of the pump.

8. If the pump does not cycle, close the pump bleed-type master air valve (D), adjust the air motor air regulator (C) up by 5 psi (34 kPa, 0.3 bar). Never adjust the regulator by more than 5 psi (34 kPa, 0.3 bar) increments.

9. Prime the pump until it moves smoothly in both directions with no air popping or erratic movement and close the pump bleed-type master air valve (D).

10. Close the bleed stem (Z). See FIG. 21.

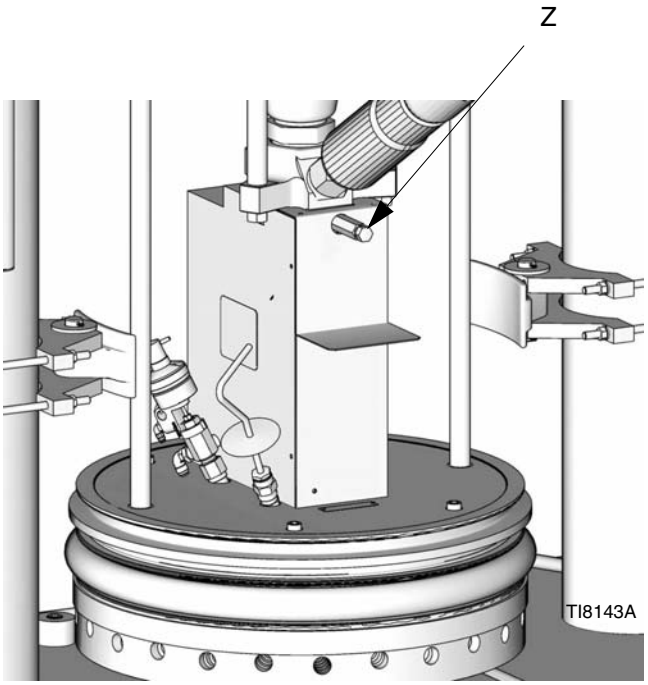
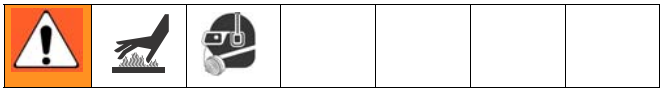
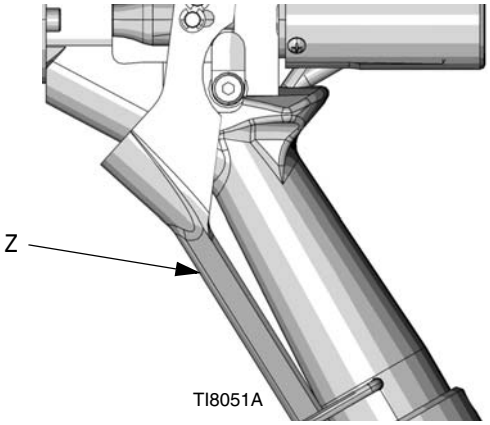


FIG. 21: Bleed Stem

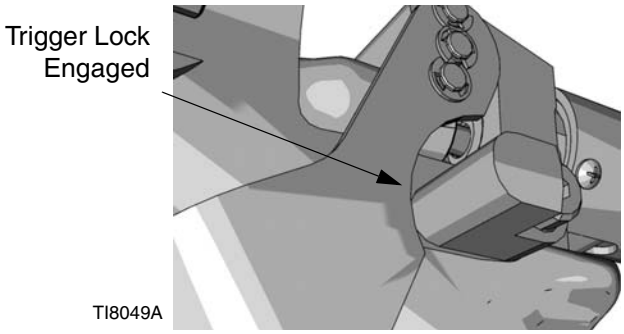
Prime System



1. Close the system master air valve (bleed-type) (A).
2. If using a manual gun, lock the dispense valve trigger open by pulling and securing the trigger using the trigger retainer (Z).



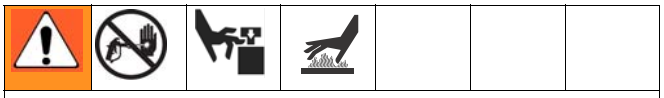
3. Place the dispense valve over a waste container.
4. Slowly open the system master air valve.
5. Prime the system until a smooth flow of material dispenses from the dispense valve.
6. Close the system master air valve and release trigger lock.
7. Engage trigger lock.



The system is now ready to operate.

Operation

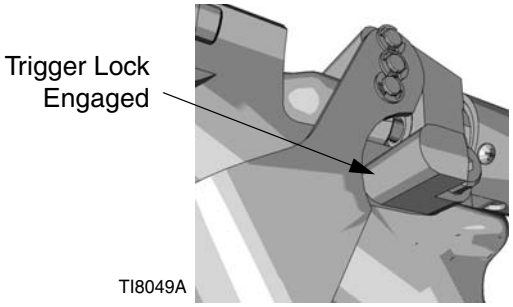
Pressure Relief Procedure



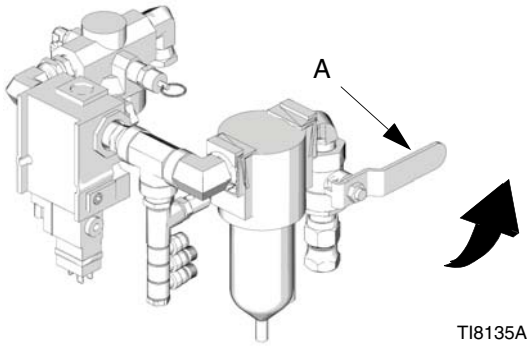
Follow **Pressure Relief Procedure** when you stop spraying and before cleaning, checking, servicing, or transporting equipment.

This procedure describes how to relieve pressure for the supply unit. Use this procedure whenever you shut off the unit and before checking or adjusting any part of the system to reduce the risk of serious injury.

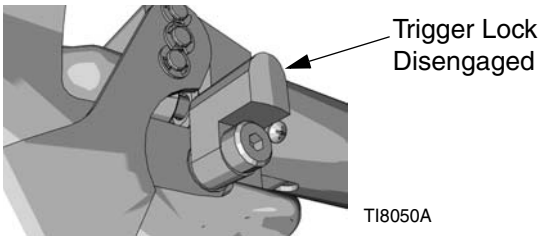
1. Engage trigger lock.



2. Close the system master air valve (bleed-type) (A).

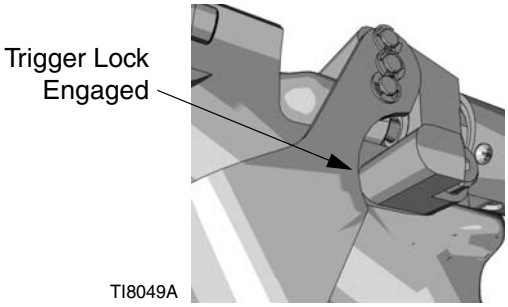


3. Disengage trigger lock.



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

5. Engage trigger lock.



6. Open all fluid drain valves in the system, having a waste container ready to catch drainage. Leave drain valve(s) open until you are ready to dispense again.

If you suspect the tip or hose is clogged or that pressure has not been fully relieved after following the steps above, VERY SLOWLY loosen hose end coupling to relieve pressure gradually, then loosen completely. Clear hose or tip obstruction.

7. To relieve pressure in the ram, see page 35.

Trigger Lock

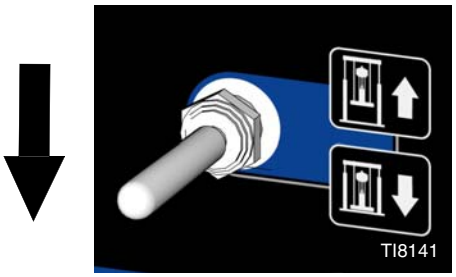
Always engage the trigger lock when you stop dispensing to prevent the gun from being triggered accidentally by hand or if dropped or bumped.

Ram Pressure Relief Procedure

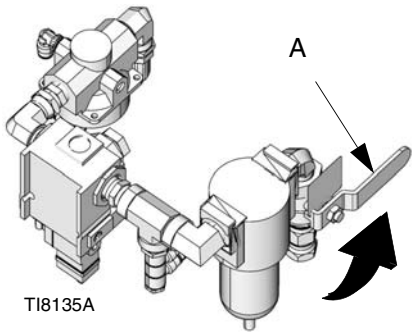
Follow **Pressure Relief Procedure** when you stop spraying and before cleaning, checking, servicing, or transporting equipment.

To relieve air pressure in the ram:

1. Relieve the supply unit pressure, see page 34.
2. Place the ram UP/DOWN lever in the DOWN position. Move the ram to the DOWN position.

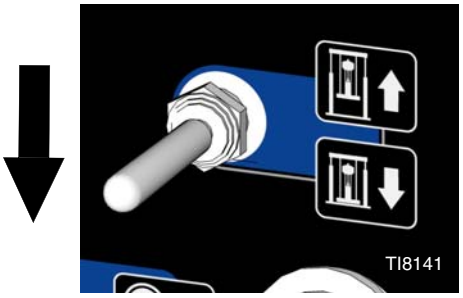


3. When the ram reaches the full down position, place the ram UP/DOWN lever in the center position (off).
4. Close the system master air valve (bleed-type) (A).

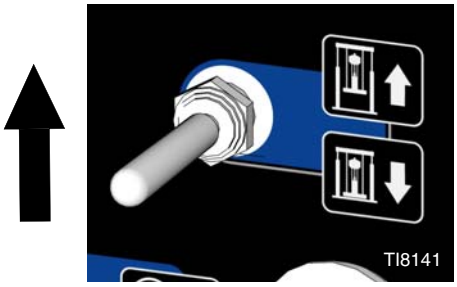


5. Exhaust air from both sides of the ram:

a. Move the ram UP/DOWN lever to the DOWN position until all air is exhausted from one side of the ram.



b. Move the ram UP/DOWN lever to the UP position until all air is exhausted from the other side of the ram.



Drum Changing

Follow the procedure below to change the drum on a fully heated machine.

CAUTION

Be sure to reload the empty supply unit with a full drum of material immediately. Do not raise the ram and remove the platen from the empty drum until you are ready to immediately install a new drum.

Do not raise the ram and remove the platen from the empty drum unless the supply unit is at full operating temperature. Drum changes can only be performed when the system is heated.

An empty drum clamp can interfere with the up and down operation of the ram. When raising or lowering the ram, make sure the drum clamp stays clear of the platen assembly.

Do not use a drum of material that has been dented or otherwise damaged; damage to the platen wipers can result.

No Proximity Sensors

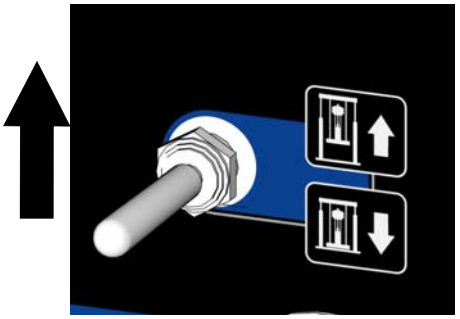
The pump will cavitate and a motor error will appear in the EasyKey status bar. The air motor will shut off and the heat will continue to be applied for approximately 1 hour.

With Proximity Sensors

Drum empty will appear in the EasyKey status bar. The air motor will shut off and the heat will continue to be applied for approximately 1 hour. If the light tower kit is installed a flashing yellow light indicates that the drum is empty and ready to change. In a tandem system a flashing red light means that both drums are empty and the system has shut down.

In a Tandem system, after a drum change has occurred on the inactive unloader, pressing the Pump Ready button will allow five minutes of air to the air motor to allow for the pump to be primed. The inactive unloader must be within its warning deviation setpoints and in the Ready or Heat On state. If the five minute timer runs out before the inactive unloader is primed, pressing the Pump Ready button again will repeat the air to the air motor.

1. Place the ram UP/DOWN lever in the UP position.



TI8135A

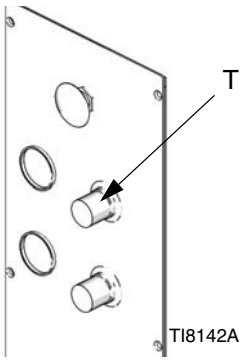
2. Dial ram up regulator pressure to 0 psi.

Excessive air pressure in the material drum could cause the drum to rupture, causing serious injury. The platen must be free to move out of the drum. Attempting to change a drum when the supply unit is cold could result in injury, damage to the equipment, or rupture of the material drum. Never use drum blow-off air with cold adhesive or a damaged drum.

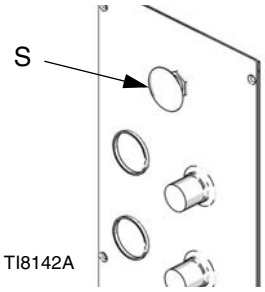
Positive pressure is released from the drum when the platen seal is pulled clear.

A splatter shield accessory for low viscosity material is available.

3. Adjust the platen blow-off air regulator (T) to 20-30 psi (138-207 kPa, 1.4-2.1 bar).



4. Push and hold the blow-off air push button (S). The platen will begin to raise.



5. When platen is clear of the drum, increase the ram up pressure to 10-15 psi (69-103 kPa, 0.69-1.03 bar) to continue to raise the heated follower plate.

6. Once the ram is in the full up position place the drip shield tray in the brackets provided.

Never reach under the heated platen after it leaves the drum. Serious burns could result from dripping material.

7. Follow the steps in **Material Loading** (page 29) and **Prime Pump** (page 31).

8. After drum change, press the Pump Ready Button to reverse the air motor control.

9. Prime the pump.

It is only necessary to lubricate the platen seals on initial material loading.

For tandem systems the pump ready button will turn the air motor on for approximately 5 minutes to prime the pump. This can be repeated as necessary.

If both unloaders in the system are empty, the pump ready and transition sequence will depend on the unloader to transition to the Run state.

✓ Active unloader cleared. Inactive unloader empty.

- Pressing the pump ready button while the active unloader is in the Heat On state will cause the active unloader to transition to the Run state.

✓ Inactive unloader cleared. Active unloader empty.

- Pressing the pump ready button while the inactive unloader is in the Heat On state will cause the inactive unloader to transition to the Ready state. The active state can then be transitioned to the loaded unit.

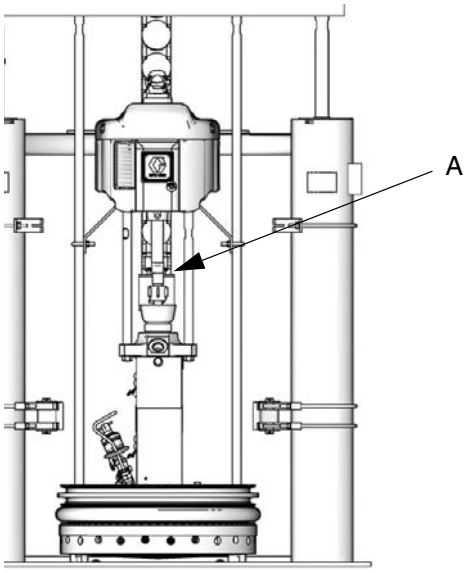
✓ Both unloaders cleared before pressing Pump Ready.

- Pressing the pump ready button while the inactive unloader is in the Heat On state will cause the inactive unloader to transition to the Ready state. The Transition button must be pressed to transfer active unloader status to the Ready unloader. Pressing the Pump Ready button again while the now inactive loader is in the Heat On state, will cause the inactive unloader to transition to the ready state.
- Pressing the Pump Ready button while the inactive unloader is in the Heat Off state and the active unloader is in the Heat On state will cause the active unloader to transition to the Run state.
- This sequence is required to force the user to only engage one unloader at a time. This prevents accidental pumping of air into the system.

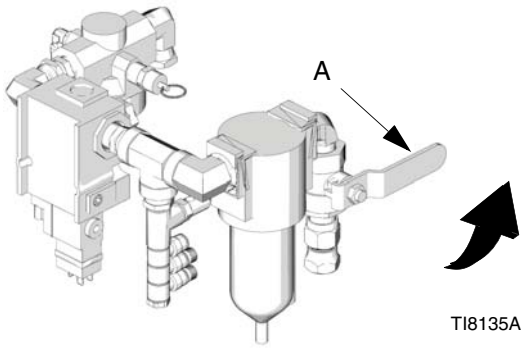
System Shutdown

Follow the procedure below for normal system shut down, such as at the end of the work day.

1. Make sure the pump rod (Y) is parked in the down position.

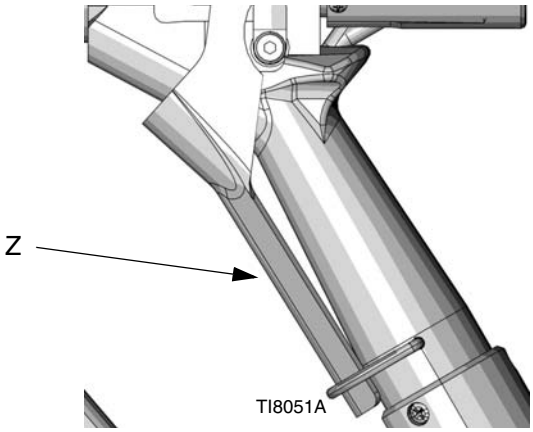


2. Close the system master air valve (bleed-type)(A).



3. If a 7-day timer is not being used, enable Pump Inactivity (see Table 7, page 28).

4. Lock the dispense valve trigger open by pulling and securing the trigger using the trigger retainer (Z).



CAUTION
Many hot melt materials tend to expand when heating up and may cause a heated hose to burst. Avoid the potential of bursting a hose by opening the dispense valve during system heat up and lock the dispense valve trigger open every time you shut the system down.

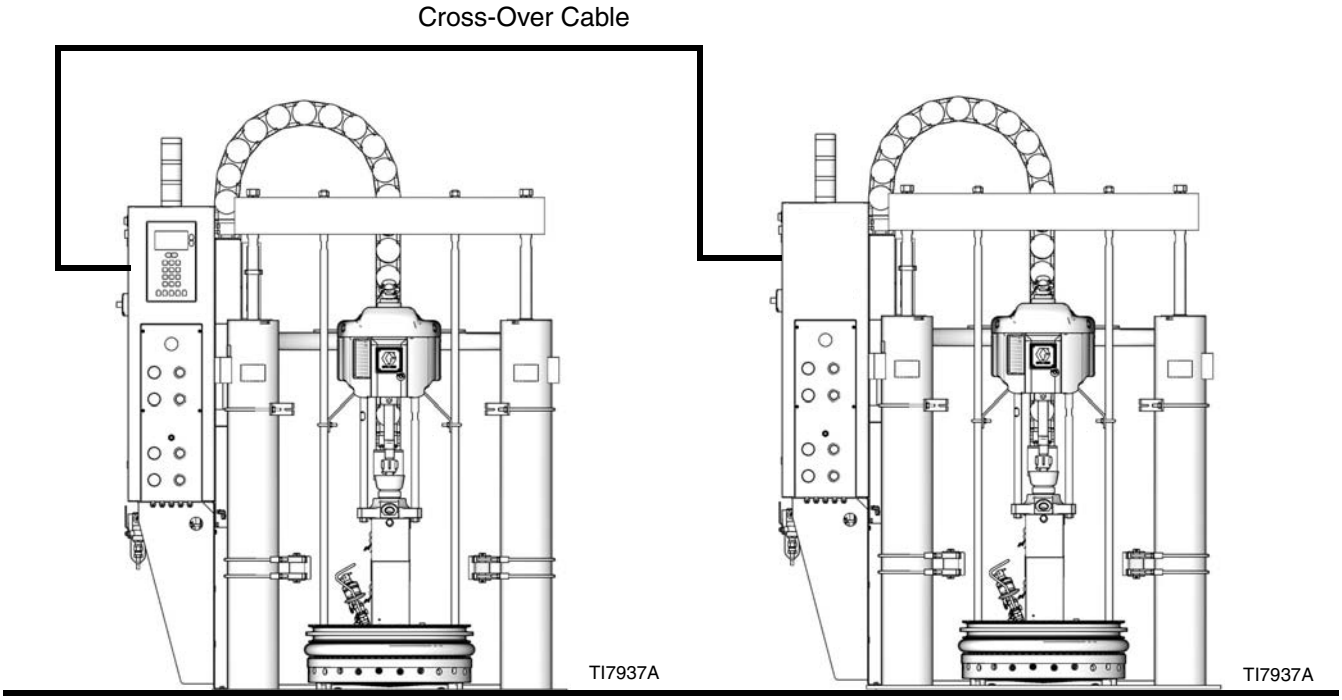
5. If the optional 7-day timer is not being used, set the main disconnect to OFF.

If 7-day timer is required, system need to be in the system on or heat off state.

Dual Ram Cross-Over Installation

Typical Installation

Cross-Over cable (Part No.15H385) was included with the Dual Ram prior to 6/19/2008. Use can cable, (Part No. 121228) for units dated after 6/19/2008).



EasyKey Setup

See **EasyKey Display Screens** on page 23.

Drum Change Procedure

See **Drum Changing** on page 36.

Maintenance

Ram

Periodically (at least once a month), inspect the ram guide sleeves, rods and cylinders for wear or damage. See instruction manual 310523.

Ground Fault Interrupt

Periodically (at least once a month) test the ground fault interrupt switch by pushing the TEST button.

Power in a Tandem System

In a Tandem System, the secondary unloader provides 24VDC power to the EasyKey display. This allows the primary unloader to be powered down for maintenance without interrupting production. All accessories (light tower, swirl, etc.) and the display board on the primary system will have power when the secondary unloader is powered on and the primary unloader is powered off.

Resetting the Ground Fault Interrupt

This electrical control panel is equipped with a ground fault interrupt (GFPE) circuit breaker. If the disconnect switch is ON, but all lights on the electrical control panel are off review troubleshooting procedures.

Alarm Troubleshooting

The Therm-O-Flow alarms alert you to a problem and help prevent system shut downs or application errors. If an alarm occurs, operation may stop and the following occurs.

- Light Tower Changes (if equipped)
- Status bar on the EasyKey Display shows the description
- Alarm out puts a signal sent to I/O

To Clear the alarm and restart the TOF 200 press the Error Clear key on the EasyKey display.

See Table 8 **: Therm-O-Flow Alarms**.

Table 8: Therm-O-Flow Alarms

Warnings
Cause
With optional light tower, the yellow light illuminates and green light remains on if in run mode.
High Temperature - occurs when a zone temperature is above the setpoint plus warning deviation specified in the zone tab of the setup screen.
Low temperature - occurs when a zone temperature is below the setpoint minus warning deviation specified in the zone tab of the setup screen,
Drum Low - occurs when the drum low proximity sensor is activated due to the ram position.
Alarms
Cause
W*ith optional light tower, the red light illuminates.*
High Temperature - occurs when a zone temperature is above the setpoint plus alarm deviation specified in the zone tab of the setup screen,
Low Temperature - occurs when the zone temperature is below the setpoint minus alarm deviation specified in the zone tab of the setup screen while the unloader is in the run state.
Sensor Error - occurs in the following conditions when an enabled zone does not increase in temperature within two minutes while the system is in the Heat On state. This is the short circuit state o f an RTD sensor. Or when a zone temperature exceeds 500°F (260°C). This is the open circuit state of an RTD sensor
Heat Control Error - occurs if the conductor relay on a temperature board is not closed when a zone of the temperature board is enabled and in a heat state for the active unloader**,**
Communication Error - there are two possibilities: • Start up - Occurs if the EasyKey display board cannot communicate with any board in the system. • Normal Operation - occurs if any board in the system, including tandem unloader, cannot communicate with the EasyKey Display board.
Events
Cause
Drum Empty - occurs when the drum empty proximity sensor is activated for the ram position. *With optional light tower the yellow light begins flashing and the green light turns off.*
Motor Shutdown - occurs when the pump exceeds the runaway rate set in the advanced tab of the setup screen. *With optional light tower the red light turns on and the green light turns off.*
Maintenance Call - occurs in advanced unit if user presses maintenance call button. See “Maintenance Call Kit (253548)” on page 90 for additional information. *With optional light tower the yellow light turns on.* *See “Light Tower Kit (253547)” on page 80 for additional information.*

Ram Troubleshooting

Problem	Cause	Solution
Ram will not raise or lower.	Closed main air valve or clogged air line,	Open air valve; clear air line.
	Not enough ram air pressure.	Increase ram air pressure.
	Worn or damaged ram piston.	Replace piston. See instruction manual 310523.
	Platen not fully up to temperature.	Wait for full temperature.
	Ram air pressure too high.	Decrease ram air pressure.
	Dented drum has stopped platen.	Fix or replace drum.
Ram raises or lowers too fast.	Ram “up / down” air pressure too high.	Decrease ram air pressure.
Air leaks around cylinder rod.	Worn rod seal.	Replace o-rings in guide sleeve. See instruction manual 310523.
Fluid squeezes past platen wipers.	Ram air pressure too high.	Decrease ram air pressure.
	Worn or damaged wipers.	Replace wipers.
	Directional valve not in the down position.	Position handle in the down position.
Pump will not prime properly, or pumps air.	Closed main air valve or clogged air line.	Open air valve; clear air line.
	Not enough air pressure.	Increase air pressure.
	Worn or damaged ram piston.	Replace piston. See instruction manual 310523.
	Ram directional valve closed or clogged.	Open valve; clear valve or exhaust.
	Ram directional valve dirty, worn, or damaged.	Clean; repair valve.
	Dented drum has stopped platen.	Fix or replace drum.
Air pressure will not push platen out of drum.	Closed main air valve or clogged air line.	Open air valve; clear air line.
	Platen no fully up to temperature.	Wait for full temperature.
	Not enough blow-off air pressure.	Increase blow-off air pressure.
	Blow-off valve passage clogged.	Clean valve passage.
	Dented drum has stopped platen.	Fix or replace drum.
	Wipers bonded to drum or drum liner.	Lubricate wipers with high temperature grease at every drum change.

Heated Pump Troubleshooting

For additional troubleshooting information about the pump, see the pump's documentation.

Problem	Cause	Solution
Rapid downstroke or upstroke (pump cavitation).	Material not heated to proper temperature.	Check and adjust temperature to proper set point. Wait for pump/platen to heat up.
	Air is trapped in pump.	Bleed air from pump. See **Prime Pump**, page 31.
	Downstroke: Dirty or worn pump intake valve.	Clean or repair. See Pump Manual.
	Upstroke: Dirty or worn pump piston valve.	Clean or repair.
Material leaks around pump outlet.	Loose outlet fitting.	Tighten outlet fitting.
Material leaks around bleed port.	Loose bleed port fitting.	Tighten bleed port fitting.
Pump will not move up and down.	Problem with air motor.	See Air Motor Manual.
	Foreign object lodged in pump.	Relieve pressure. See Pump Manual.
	Platen no fully up to temperature.	Wait for full temperature.
Leak around pump wet-cup.	Worn throat seals.	Replace throat seals. See Servicing the Throat packings in manual 308570 or 311536.

Air Motor Troubleshooting

For additional air motor troubleshooting information, see the air motor manual supplied.

Problem	Cause	Solution
Air motor will not run.	Air motor solenoid is off.	Wait for heat zones in use to reach "window" around temperature set values.
Air motor stalled.	Damaged main air valve spool or poppets.	Inspect and clean poppets. See Air Motor Manual.
		Rebuild main air valve. See Air Motor Manual.
Air continuously exhausting around air motor shaft.	Damaged air motor shaft seal.	Replace air motor shaft seal. See Air Motor Manual.
Air continuously exhausting around air valve/slide valve.	Air valve/slide valve gasket is damaged.	Replace the valve gasket. See Air Motor Manual.
Air continuously exhausting from muffler when motor is idle.	Internal seal damage.	Rebuild air motor. See Air Motor Manual.
Icing on muffler.	Air motor operating at high pressure or high cycle rate.	Reduce pressure, cycle rate, or duty cycle of motor.

Electrical Control Panel Troubleshooting

Problem	Cause	Solution
Disconnect is ON, but EasyKey not lit.	The ground fault interrupt has been activated.	Have a qualified electrician check wiring.
	One or more fuses or circuit breakers tripped.	Have a qualified electrician check wiring.
High temperature alarm.	The temperature of a heated component has gone out of range.	Supply unit automatically turns off power to supply unit components and air motor. Unit turns power back on when overheated components reach appropriate temperatures.
Heat is turned off after a period of pump inactivity.	Pump has not moved within the programmed time period and the inactivity timer has been triggered.	See Table 7, page 28.
Pump Ready button does not clear flashing pump ready icon.	Unloader not in Heat On state and/or zones have not reached warning deviation level.	Turn system to Heat On state and wait until all zones reach warning deviation level.

Service

Ram

To relieve ram air pressure, follow the **Ram Pressure Relief Procedure** on page 35.

Ram Pressure relief Procedure

To reduce the risk of serious injury whenever you service the ram, always follow the **Ram Pressure Relief Procedure** on page 35.

Periodically (once a month), inspect the ram guide sleeves, rods and cylinders for wear or damage, replace all worn parts. See the **Service** section of Form 310523 for instructions on replacing worn parts.

Pump

See the material pump instructions for its inspection frequency.

Ground Fault interrupt

Periodically (at least once a month) test the ground fault interrupt switch by pushing the TEST button.

Power in a Tandem System

In a Tandem System, the secondary unloader provides 24VDC power to the EasyKey display. This allows the primary unloader to be powered down for maintenance without interrupting production. All accessories (light tower, swirl, etc.) and the display board on the primary system will have power when the secondary unloader is powered on and the primary unloader is powered off.

Servicing Wipers

1. To replace a worn or damaged wiper (V) raise the ram plate up out of the drum. Be sure to follow all the cautions and warnings. Perform steps 1 through 7 of the **Drum Changing** procedure on page 36. See Instruction manual 309196 for instructions about replacing tee wipers. See FIG. 22:

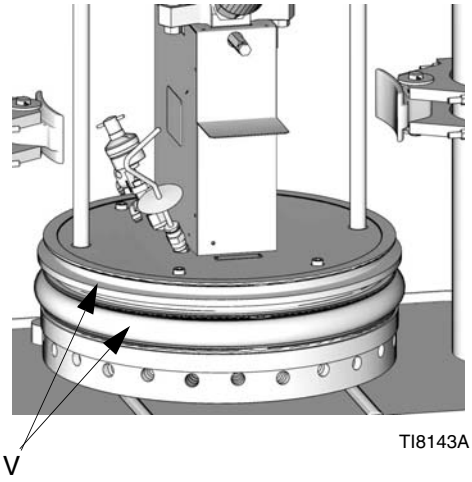
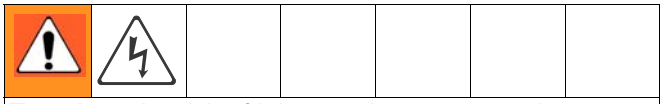


FIG. 22 Wipers

Replacing Heat Sensors

1. If the material drum has already been removed from the supply unit, go to step 2. If you need to remove the material drum, follow the procedure for **Drum Changing** on page 36.
2. Make sure the ram plate is down and the ram hand valve is in the OFF position. See page 45.



To reduce the risk of injury or damage to equipment, make sure the main disconnect is off before continuing with this procedure.

3. Turn OFF the main electrical disconnect switch.
4. Remove the front and right side pump cover.
5. Remove the sensor from the ram plate.
6. Disconnect the two sensor wires from the J1 or J2 of PCB201. See Fig FIG. 23.

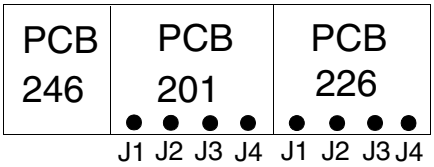


FIG. 23

7. Attach the leads from the new sensor to the leads of the old sensor and pull the new sensor leads into the main control panel.
8. Install the new sensor into the follower/tire plate after coating with non-silicone heat sink compound. Tighten compression nut.
9. Connect the two wires from the new sensor to the J1 or J2 of PCB201.
10. Replace the pump covers.

Pump Removal and Replacement

For information about servicing the Check-Mate™ 800 Displacement Pump, see Instruction Manual 308570.

1. If the material drum has already been removed from the supply unit, go to step 2. If you need to remove the material drum, perform steps 1 through 6 of the **Drum Changing** procedure on page 36. It is important that the pump rod is in the fully down (parked) position.

2. Make sure the ram plate is down and the ram hand valve is in the neutral position.

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 34.

3. Bleed off excess material and pressure in the system by opening the dispense gun and catching the material in a waste container.

4. On the electrical control panel, turn off the system heat (D). See FIG. 24.

5. Turn OFF the main electrical power supply to the unit. Follow all applicable safety procedures and lockout rules.

6. Turn OFF the main electrical disconnect (E) located on the left side of the Them-O-Flow 200.

To reduce the risk of injury or damage to equipment, make sure the main disconnect is off before continuing with this procedure.

7. Disconnect all material hoses.

8. Remove the pump sheet metal enclosure (A). See FIG. 24.

   a. Remove the cover screws (B).

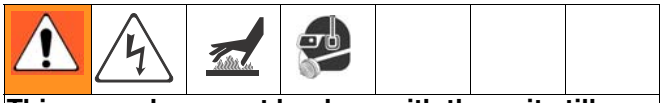
   b. Disconnect the pump heater wires, the ground wire, and the sensor mounted to the pump.

   c. Remove the follower sensor (C).

9. Pump must be in the full down position (air motor shaft fully extended).

Reverse the above procedure to reinstall a new or rebuilt pump.

Separating the Air Motor from the Pump



This procedure must be done with the unit still warm. The material and equipment will be hot!

1. If vent hood is installed, remove it.

2. Remove the air motor top cover.

3. Disconnect electrical cable from air motor.

4. Remove air line from air motor and air lines to the follower blow-off valve.

5. Tightly strap the air motor to the tie bar with a cable through the air motor lift ring and around the tie bar.

6. Loosen U-bolts from follower lift rods.

7. Remove nuts (F) from pump/air motor stand-off rods at the pump end. See FIG. 24.

8. Remove nuts and bolts holding cable tract to air motor support plate.

9. Slide end of cable track outboard of the mounting plate.

10. Remove nuts (2) from follower lift rods.

11. Fully loosen pump rod coupler to the air motor rod (G).

12. Slowly raise elevator to achieve enough separation of the pump (air motor) tie rods to remove the pump.

13. Remove the pump.

14. Reverse this procedure to reinstall the new or rebuilt air motor.

Removing the Follower Plate

1. Disconnect the follower power wires and the follower ground wire from within the main control panel and pull out of conduit.
2. Remove the follower plate assembly from the ram.
3. Reverse this procedure to reinstall the new or rebuilt follower plate assembly.

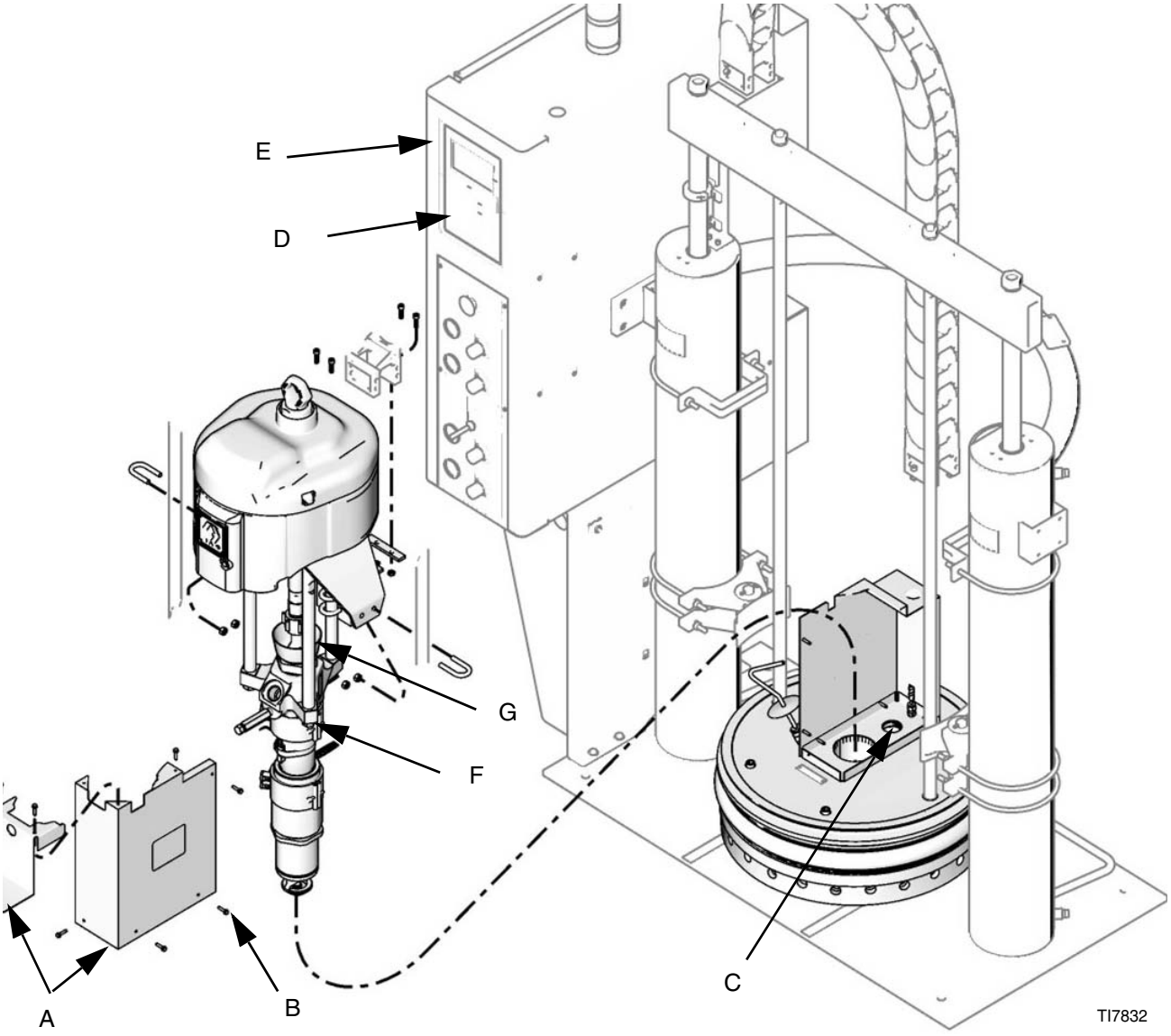


FIG. 24

Replacing Heater Bands and Sensors in Pump Module

Module heaters and sensor can be serviced without removing the pump module from the supply unit. Remove the front shrouds. When finished servicing the pump module re-attach shrouds.

This procedure can be done when the Therm-O-Flow 200 is cool.

Removing/Replacing Heater Band

1. Remove the screws that hold the front shroud in place and remove the front shroud.
2. Disconnect the electrical wires from heater band (3). See FIG. 25.
3. Remove the screw that holds the heater band in place.
4. Remove the heater band from pump.
5. Coat the inside of the heater with non silicone heat sink compound before mounting. Maximum thickness is 0.005”. Coat only to within 3/4” of vertical ends.
6. Install a new heater band in the same location as the old heater band:
   a. Locate heater terminals so they line up with back of pump.
   b. Tighten the heater band.

Re-connect heater wires and re-attach ceramic caps that insulate terminal.

Removing/Replacing Sensor

1. Remove the screws that hold the front shroud in place and remove front shroud.
2. If sensor wire is connected to electrical enclosure, disconnect it.
3. Loosen the clamp holding sensor on pump (G). See FIG. 25.

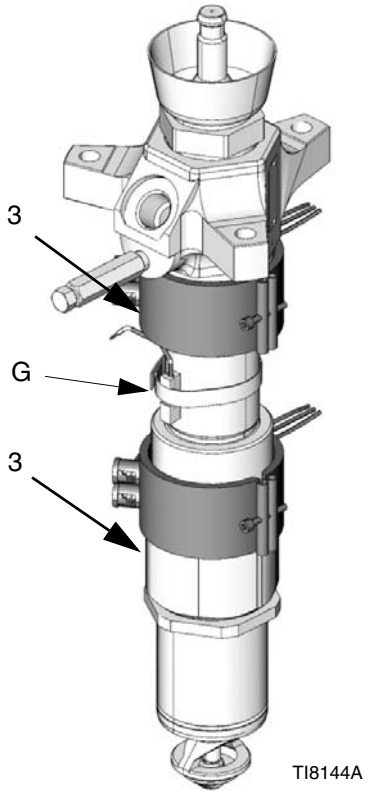


FIG. 25

4. Tie the leads of the new sensor to the old sensor and remove the old sensor. The leads of the new sensor will be easily drawn through the conduit for reconnecting.
5. Replace the sensor (H) in clamp:
   a. Place sensor approximately 30° counter clock-wise from pump outlet.
   b. Tighten clamp.
6. Re-connect sensor wire to electrical enclosure.

Removing/Replacing RTD Sensor

1. Remove the screws that hold the front shroud in place and remove front shroud.
2. If RTD sensor wire is connected to electrical enclosure, disconnect it.
3. Loosen the clamp holding sensor on pump.
4. Tie the leads of the new RTD sensor to the old RTD sensor and remove the old sensor. The leads of the new sensor will be easily drawn through the conduit for reconnecting.
5. Remove RTD sensor.
6. Replace the sensor (H) in clamp:
   a. Place RTD sensor approximately 30° counter clock-wise from pump outlet.
   b. Tighten clamp.
7. Re-connect sensor wire to electrical enclosure.

Inspection/Maintenance Frequency

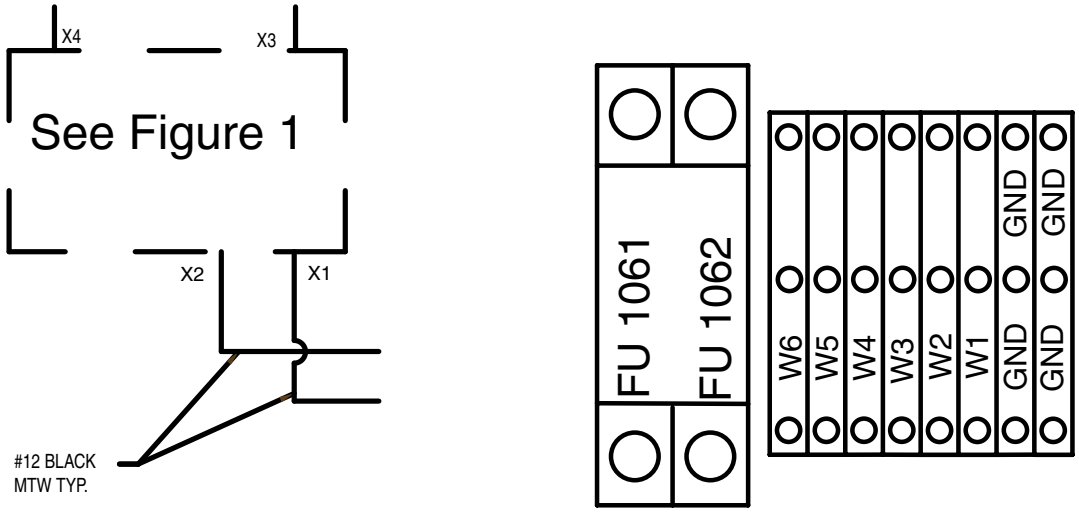
The pump packings do not require any other service or maintenance, except as described in the Daily Maintenance Procedures. See 308570 for inspection frequency of the pump.

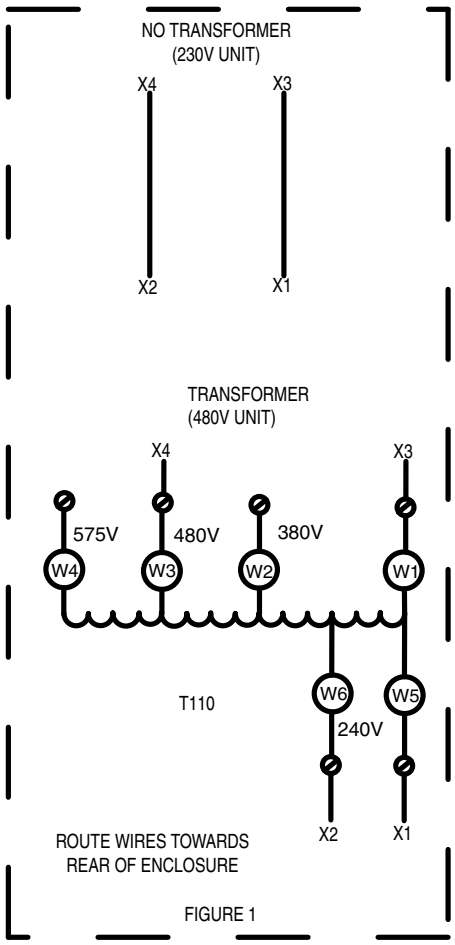
Throat Packings

Refer to manual 308570 for a list of throat packing kits and replacement instructions.

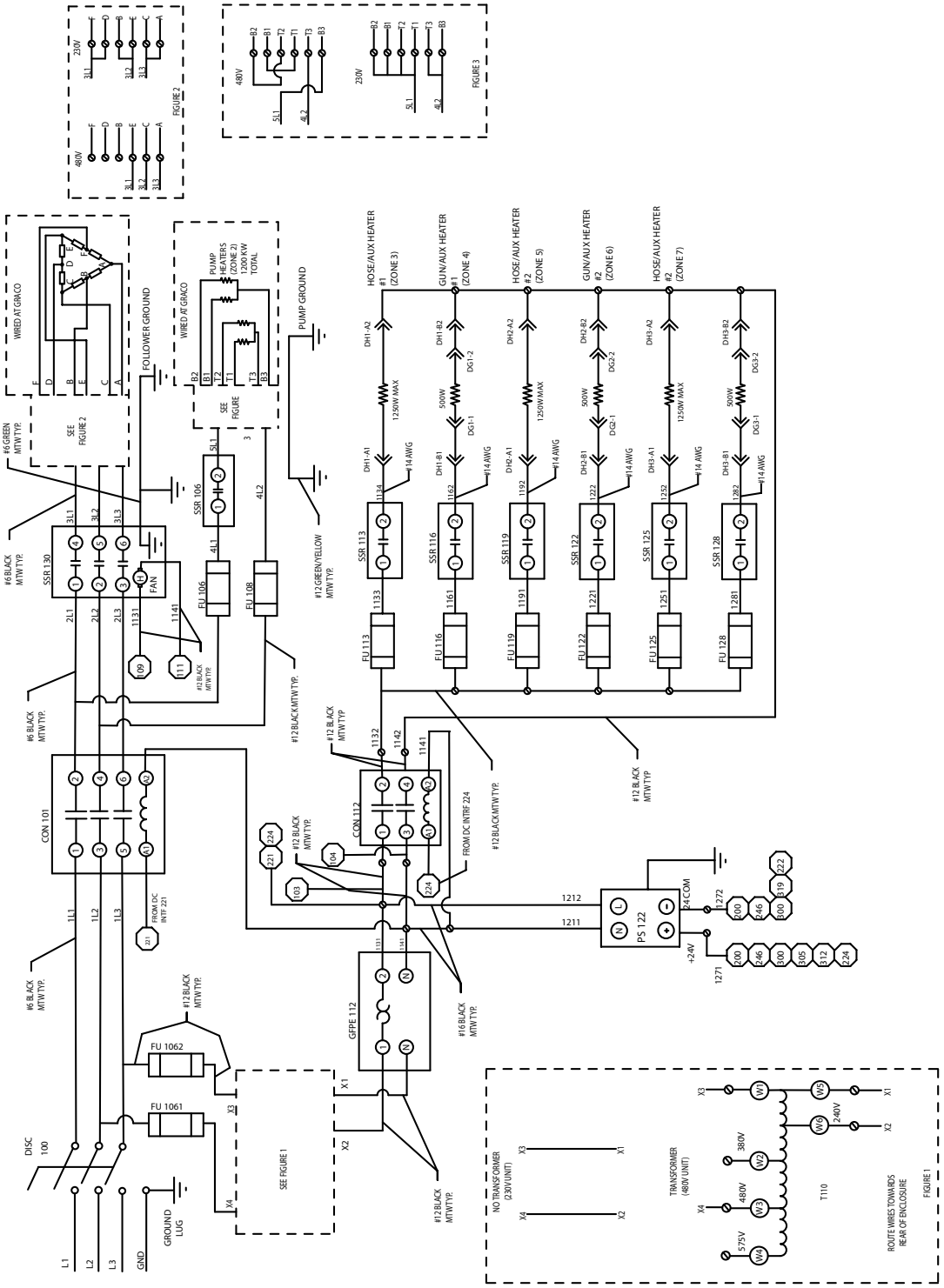
Electrical Schematics

240 VAC Supply - Internal Control Box





Electrical Control Schematics



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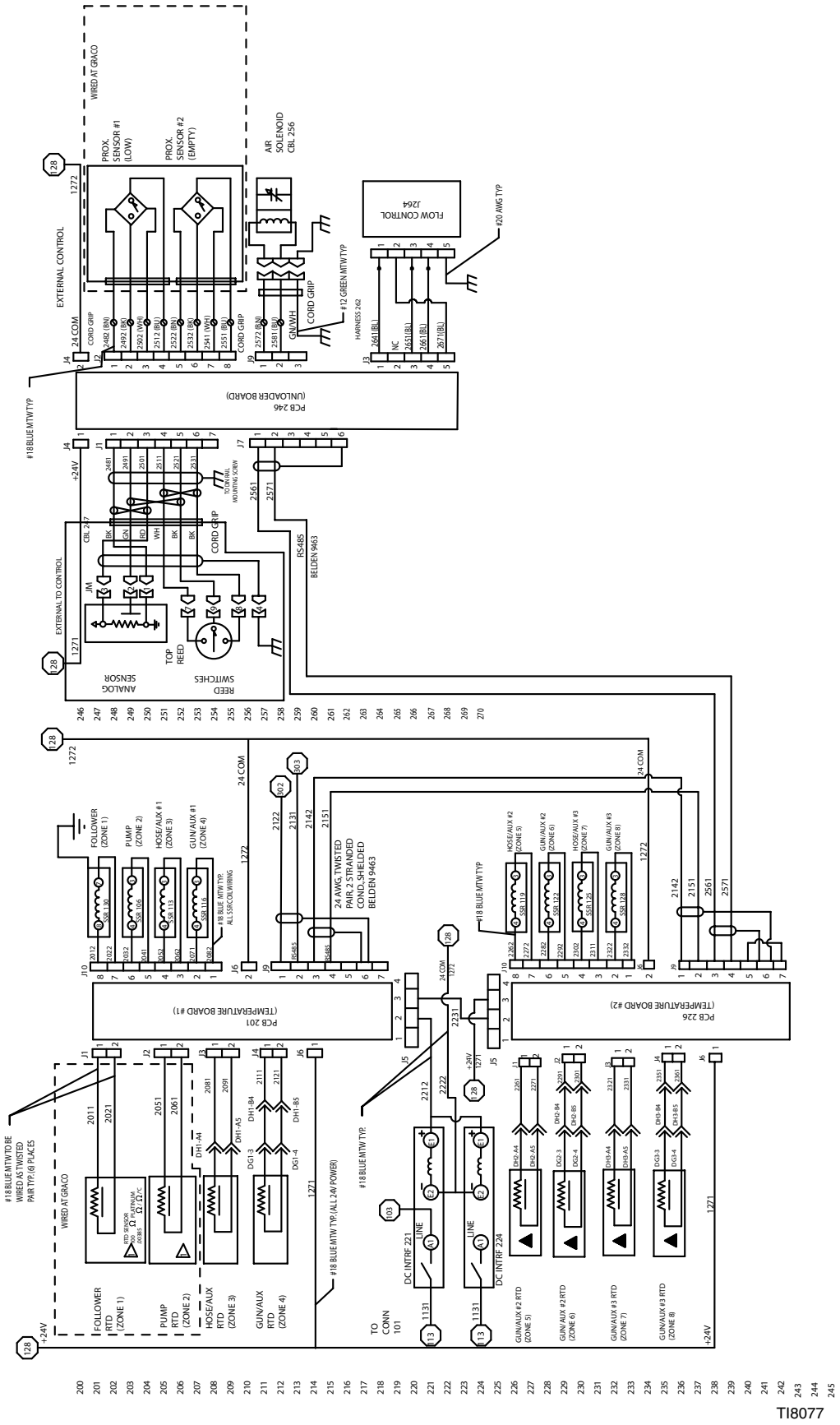
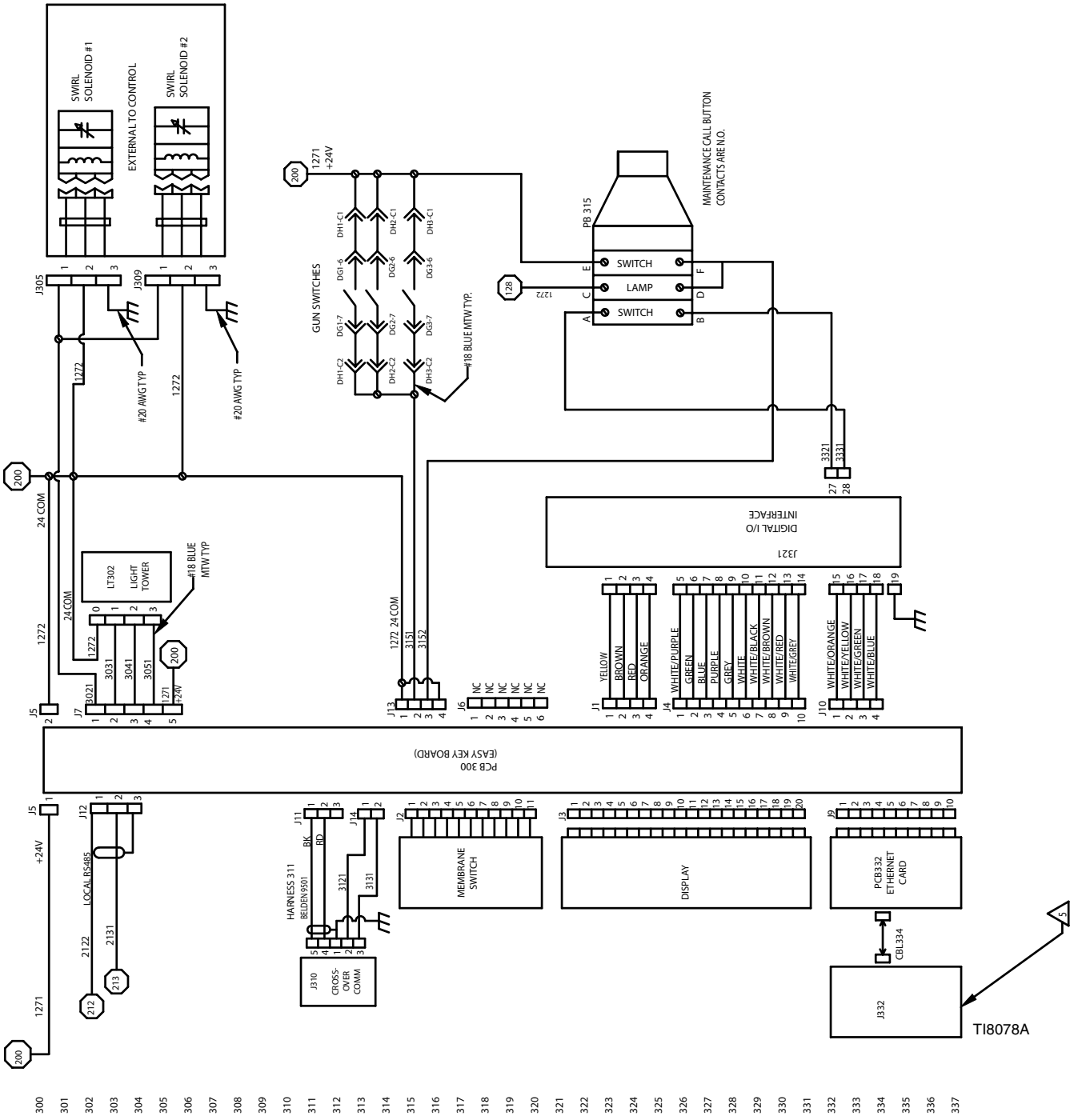
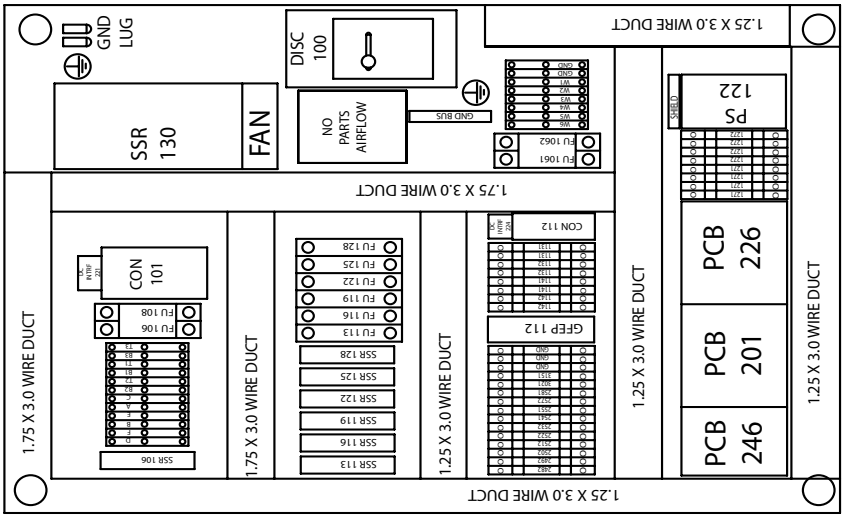
Electrical Control Schematics

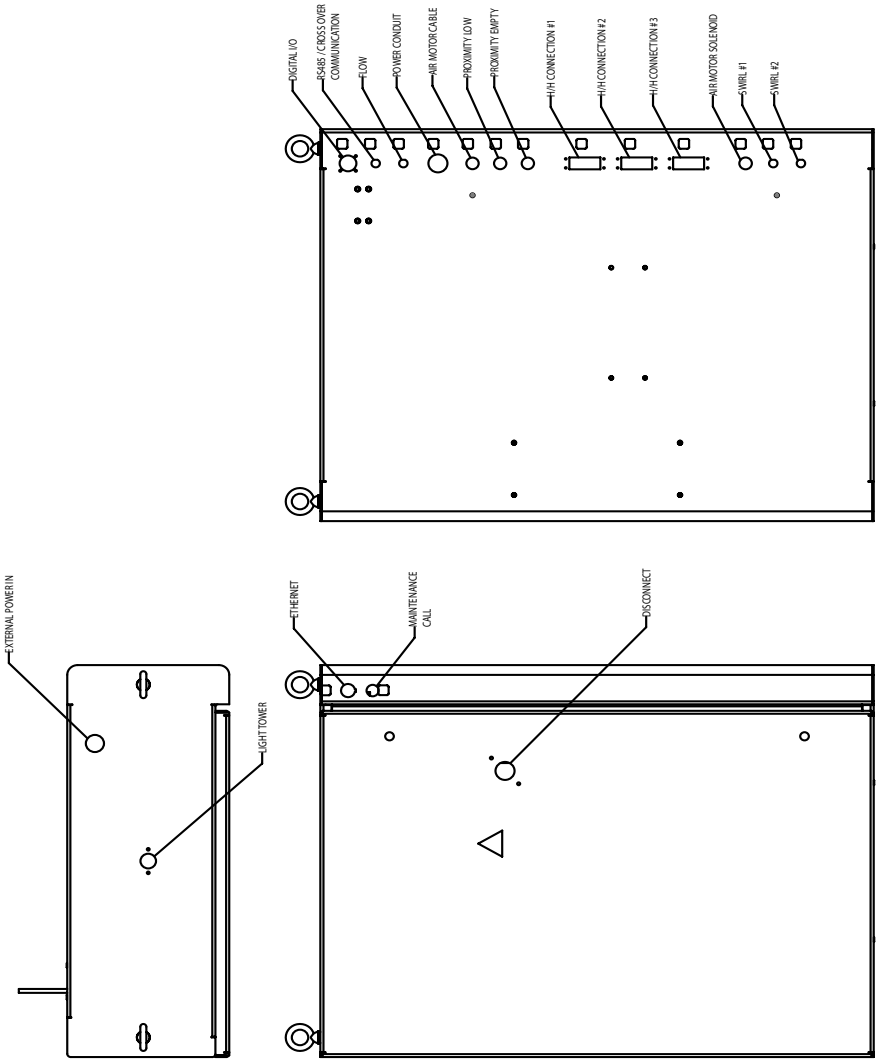


Electrical Control Schematics



Electrical Control Schematics

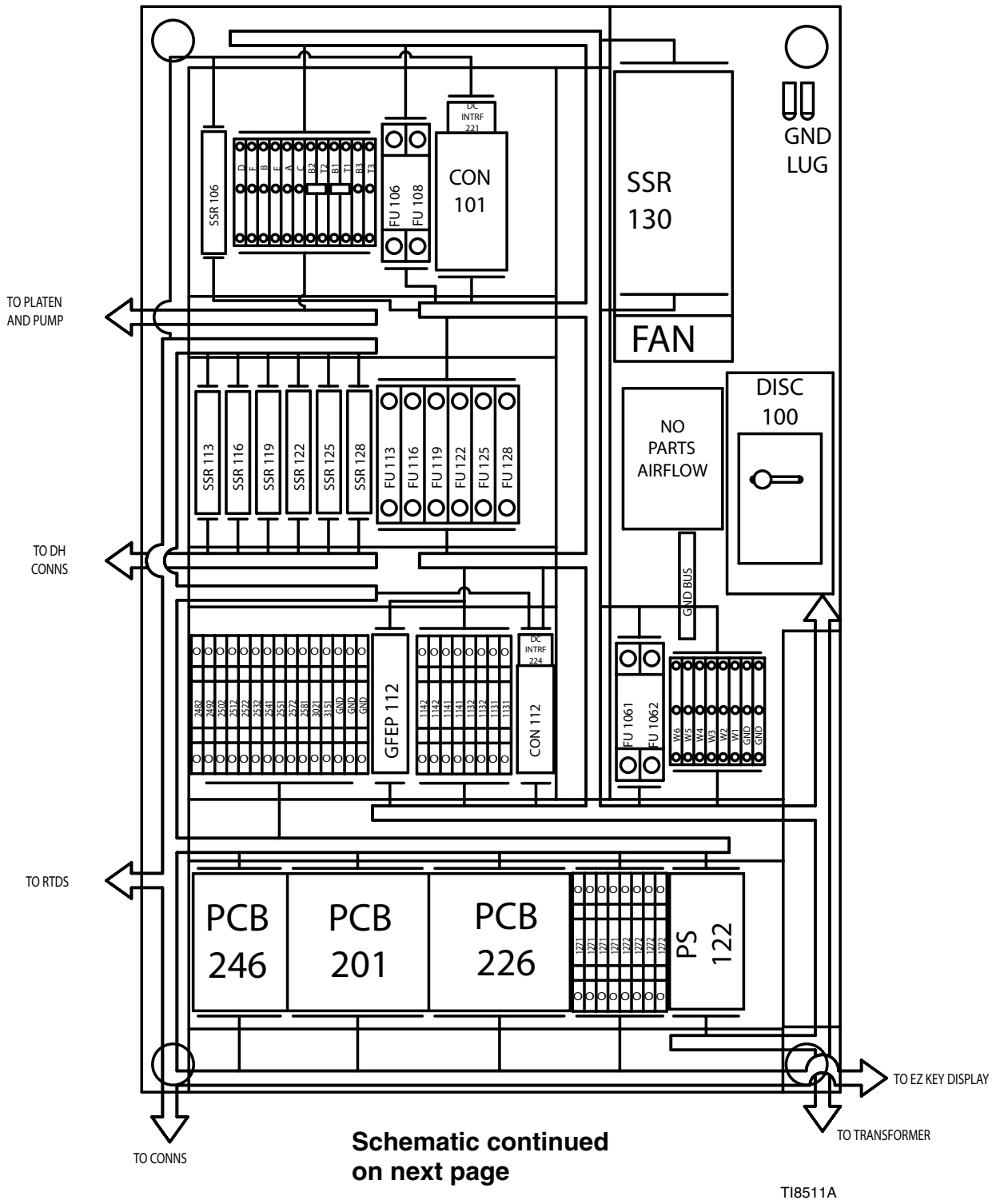




Advanced Unit Shown

TI8079

Electrical Connections Schematic

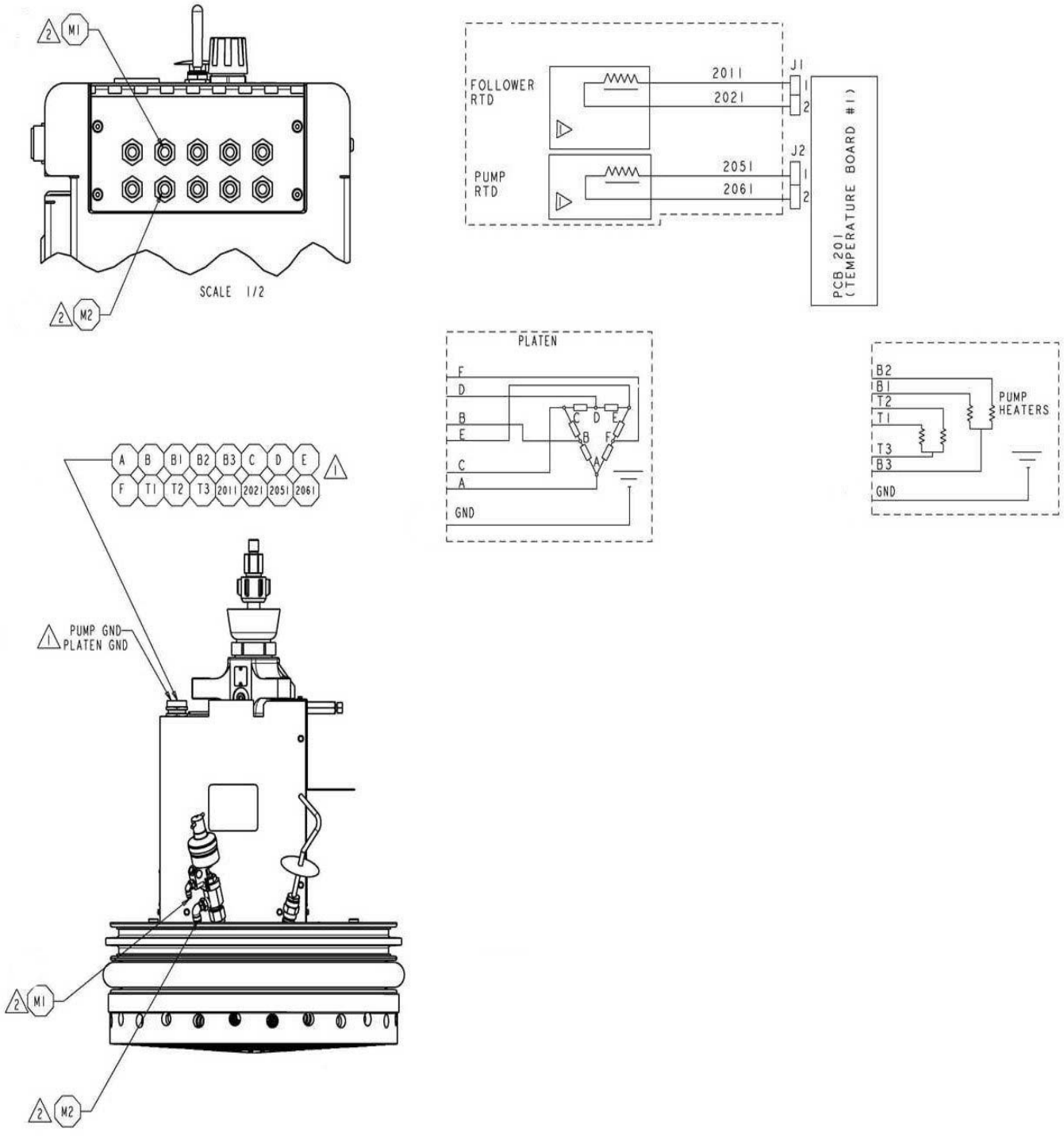


Schematic continued on next page

TI8511A

Electrical Connections Schematic

Schematic continued on

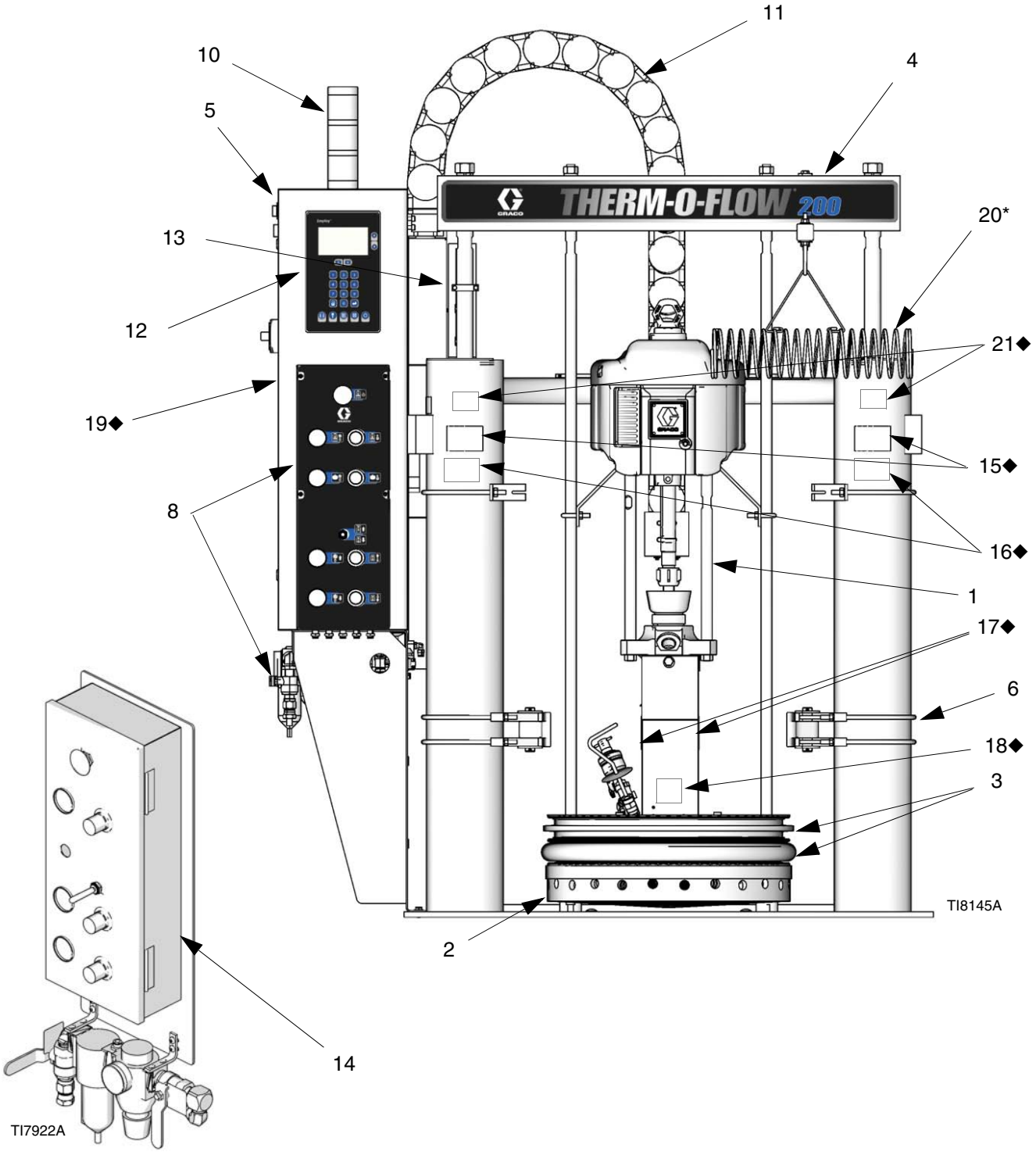


1 All wires to be run through conduit and into enclosure. Conduit to be run through cable track.

2 All hoses to be run through cable track. Through 2 x 3 slot in pedestal. And through ∅ 1.75 hole in pedestal.

Parts

All Models Supply Unit



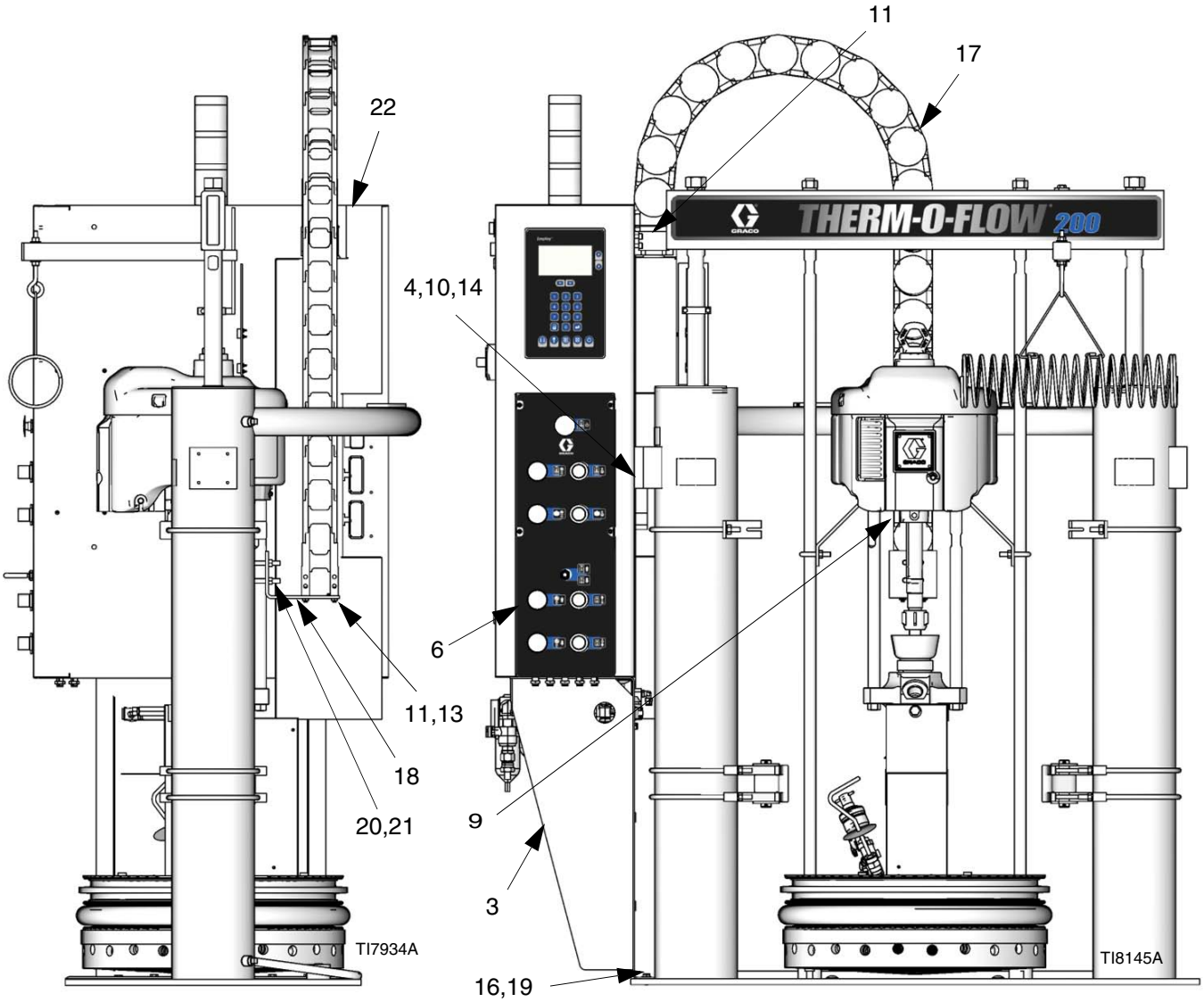
All Models Supply Unit

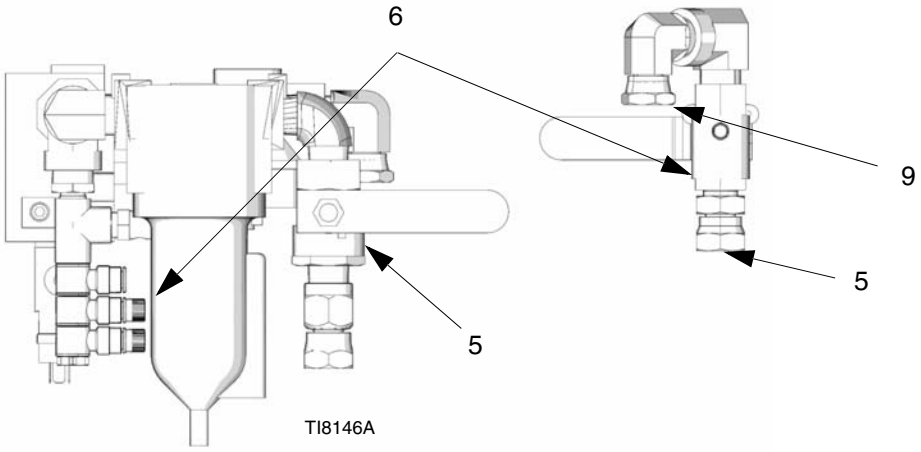
Ref No.	Part No.	Description	Qty
1		6” motor w/glass-filled tfe seals and 50 psi relief valve	1
		7.5” motor w/glass-filled tfe seals and 85 psi relief valve	1
		10.375” motor w/glass-filled tfe seals and 100 psi relief valve	1
		6” motor with cf/tfe grease pack seals and 50 psi relief valve	1
		7.5” motor with cf/tfe grease pack seals and 85 psi relief valve	1
		10.375” motor with cf/tfe grease pack seals and 100 psi relief valve	1
2		Drum Platen, see **Heated Platens** on page 70	1
3		Tire Plate Seals, see manual 309196 for a list of replacement parts	1
4		RAM, see manual 310523	1
5		Electrical Enclosure	1
6	C32463	CLAMPS, see parts starting on page 76	1
7	233559	Vent Hood Kit, see page 79	1
8	253137	Pneumatic controls	1
10	253547	KIT, light tower	
11	253288	CABLE, way	1
12	253147	EasyKey, display	1
13	253559	KIT, drum low and empty sensor (included on Adv. and TS units)	1
14	297401	Stand Alone Pneumatic Controls, see manual 310523	1
15◆	15J074	LABEL, warning	4
16◆	15H668	LABEL, warning	2
17◆	15J075	LABEL, warning	2
18◆	184090	LABEL, warning	2
19◆	196548	LABEL, warning	1
20*	234966	KIT, TOF Hose Hanger	1
21◆	15J076	LABEL, warning	2

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

* *234966 hose hanger kit contains parts to support one hose.*

Therm-O-Flow Pump

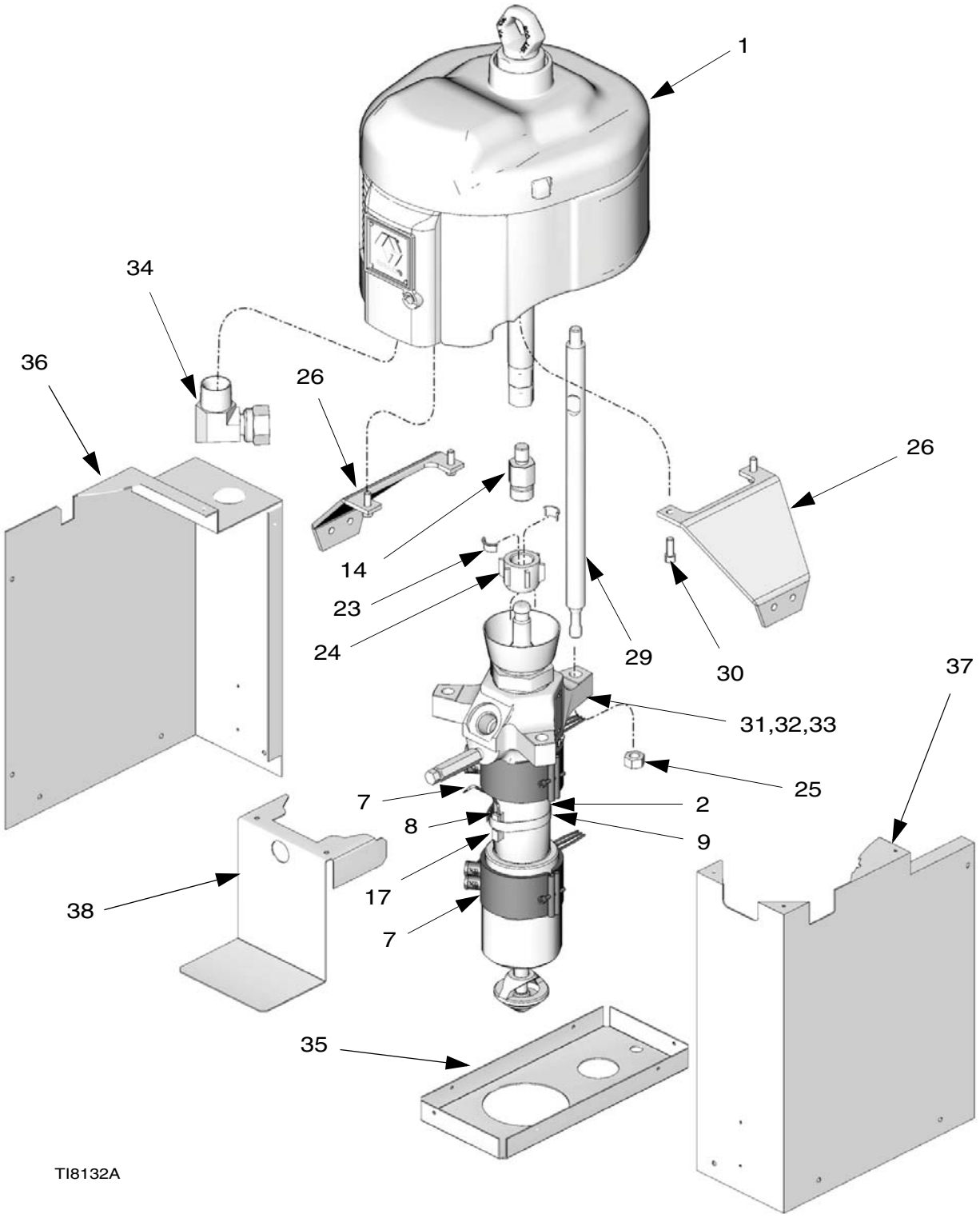




Therm-O-Flow Pump

Ref No.	Part No.	Description	Qty.
3		PEDESTAL, TOF 200	1
4		BRACKET, mounting enclosure	1
5	218093	HOSE, coupled	1
6	253137	CONTROL, air assembly	1
9	253229	HOSE coupled	1
10	100016	WASHER, lock	8
11	101864	SCREW, cap	12
13	111303	NUT, hex	4
14	110298	SCREW, cap sch	8
15	100214	WASHER, lock	4
16	100575	SCREW, cap hex head	4
17	253288	CABLE, track	1
18	15H543	BRACKET, mounting	1
19	100023	WASHER, thrust	4
20	100307	NUT, hex	4
21	120186	BOLT, mounting u-bolt	2
22		SCREW, button head	2

Therm-O-Flow Pump Module using NXT 3400 and NXT 6500 Models

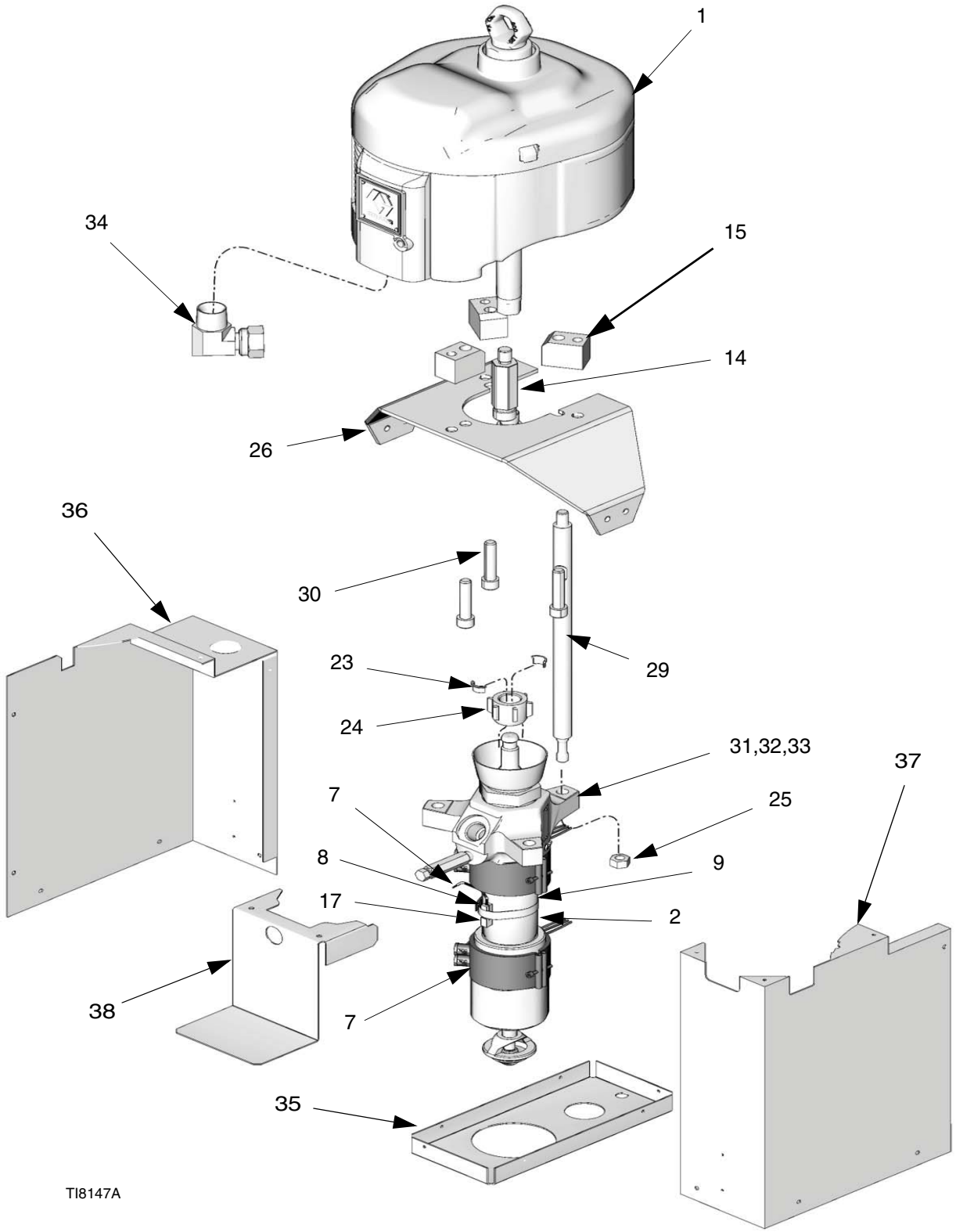


Therm-O-Flow Pump Module using NXT 3400 and NXT 6500 Models

Ref No.	Part No.	Description	Qty.
1	See Table	MOTOR, Air	1
2	See Table	PUMP	1
7	120271	HEATER	2
8	120275	SENSOR, RTD	1
9	C31012	CLAMP	1
14	15H396	ADAPTER, rod pump	1
16	See Table	VALVE, safety (not shown)	1
17	C03507	SUPPORT, sensor	1
23	184129	COLLAR, coupling	2
24	186925	NUT, coupling	1
25	106166	NUT, mach, hex	3
26	15H542	BRACKET, motor mount	2
29	15H395	ROD, tie	3
30	C19837	SCREW, cap, sch	4
31		CONDUCTOR, ground	1
32	C38162	SCREW, machine	1
33	C38163	WASHER, lock, ext tooth	1
34		ADAPTER, elbow, 3/4” NPTI x 1/2” NPTE	1
35	15H592	COVER, pump bottom	1
36	15H593	COVER, pump left	1
37	15H594	COVER, pump right	1
38	15H595	COVER, pump front	1

Description	Ratio	Max Air Pressure	Max Fluid Pressure	Ref No. 1	Qty.	Ref No. 2	Qty.	Ref No. 16	Qty.
NXT 3400 GF/TFE	36:1	.57 MPA (5.7 Bar) 83 psi	20.7 MPa (207 Bar) 3000 psi	N32LH0	1	237795	1	120306	1
NXT 6500 GF/TFE	70:1	.29 MPA (2.9 Bar) 43 psi	20.7 MPa (207 Bar) 3000 psi	N65LH0	1	237795	1	120012	1
NXT 3400 CF/TFE	36:1	.57 MPA (5.7 Bar) 83 psi	20.7 MPa (207 Bar) 3000 psi	N34LH0	1	253141	1	120306	1
NXT 6500 CF/TFE	70:1	.29 MPA (2.9 Bar) 43 psi	20.7 MPa (207 Bar) 3000 psi	N65LH0	1	253141	1	120012	1

Therm-O-Flow Pump Module using NXT 2200 Models



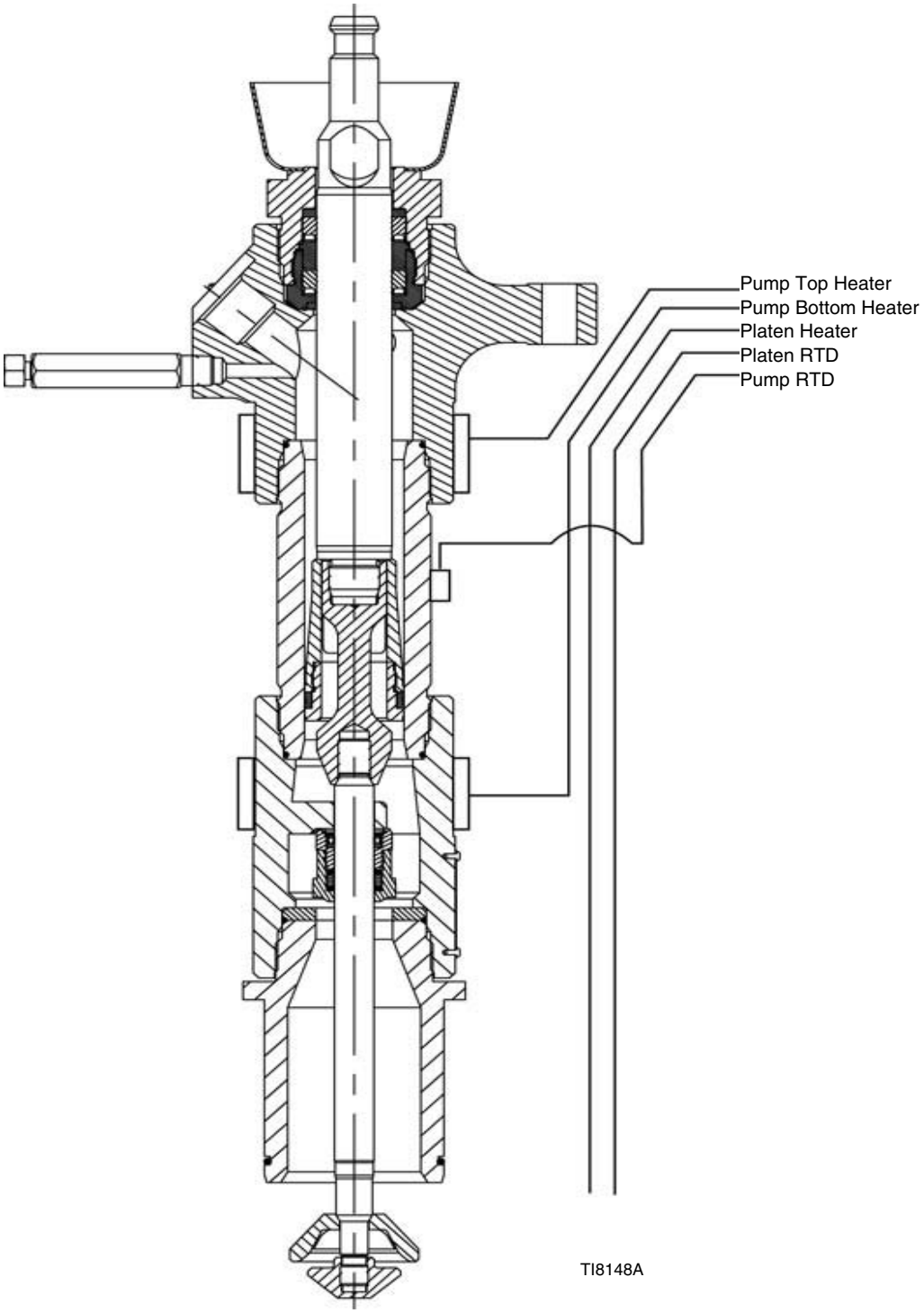
Therm-O-Flow Pump Module using NXT 2200 Models

For NXT 2200 Models

Ref No.	Part No.	Description	Qty.
1	N22LH0	NXT 2200 AIR MOTOR	1
2	See Table	PUMP	1
7	120271	HEATER	2
8	120275	SENSOR, RTD	1
9	C31012	CLAMP	1
14	15H397	ADAPTER, rod pump	1
15	15H398	ADAPTER, motor mount	3
16	103347	VALVE, safety (not shown)	1
17	C03507	SUPPORT, sensor	1
23	184129	COLLAR, coupling	2
24	186925	NUT, coupling	1
25	106166	NUT, mach, hex	3
26		BRACKET, motor mount	1
29	15H395	ROD, tie	3
30	109211	SCREW, cap, sch	3
31		CONDUCTOR, ground	1
32	C38162	SCREW, machine	1
33	C38163	WASHER, lock, ext tooth	1
34		ADAPTER, elbow, 3/4” NPTI x 1/2” NPTE	1
35	15H592	COVER, pump bottom	1
36	15H593	COVER, pump left	1
37	15H594	COVER, pump right	1
38	15H595	COVER, pump front	1

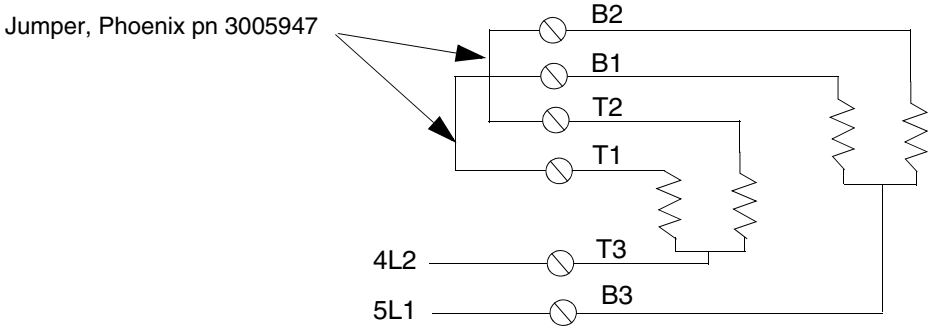
Description	Ref No. 2	Max Air Pressure	Max Fluid Pressure	Qty.
NXT 2200 GF/TFE	237795	0.7 MPA (7 Bar) 100 psi	15.9 MPa (159 Bar) 2300 psi	1
NXT 2200 CF/TFE	237141	0.7 MPA (7 Bar) 100 psi	15.9 MPa (159 Bar) 2300 psi	1

Series A Heated Pump

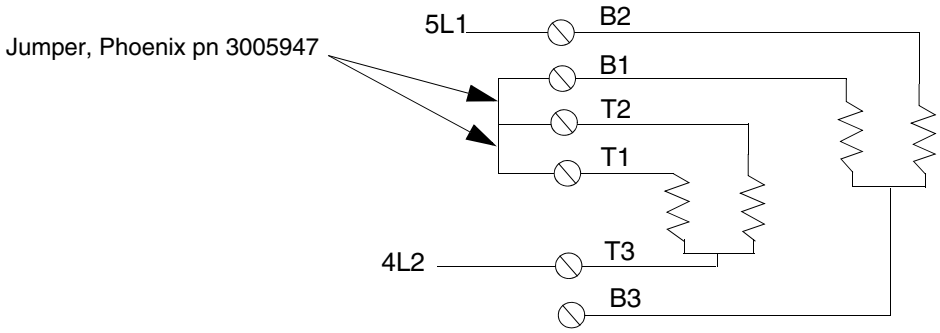


Electrical wiring shown below is located in the electrical enclosure.

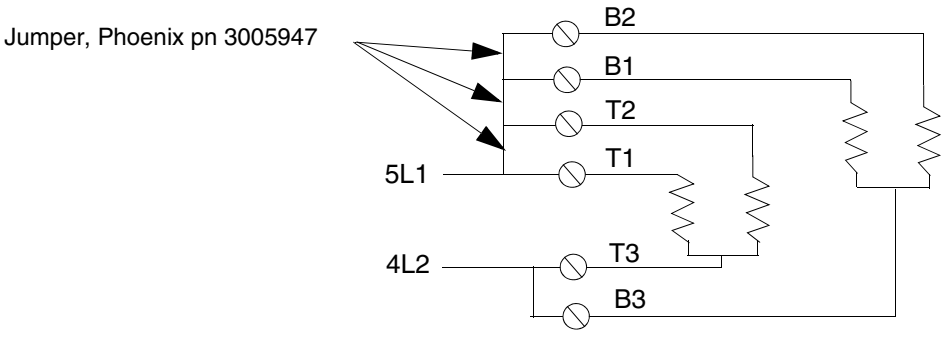
380 and 480V Pump Heater



575V Pump Heater



230V Pump Heater

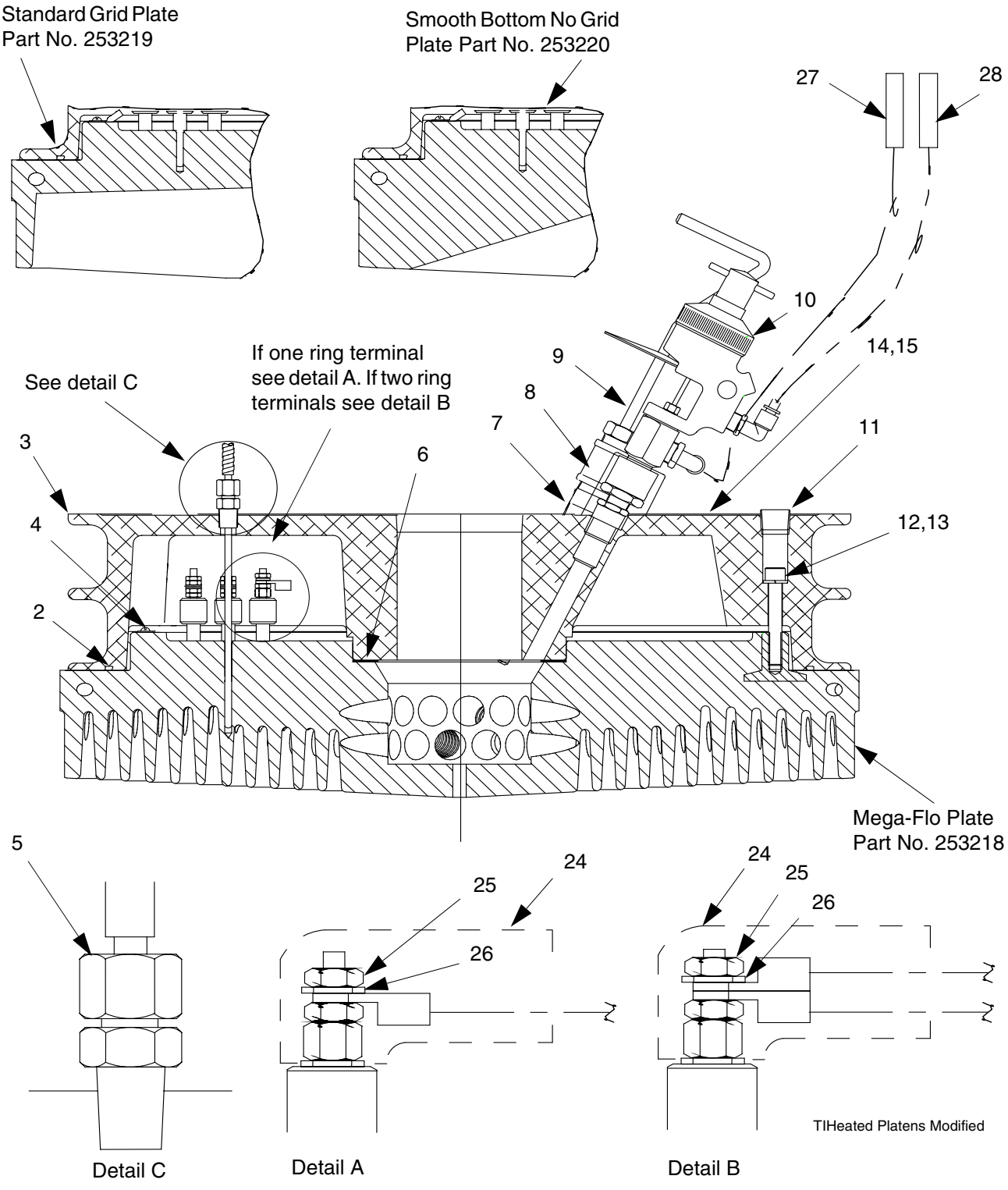


Heated Platens

Part No, 253218 Heated Drum Platen, Mega-Flo (Code B - option A)

Part No, 253219 Heated Drum Platen, Standard Grid (Code B - Option B)

Part No. 253220 Drum Heated Platen, Smooth Bottom (no fin) (Code B - Option C)



Part No, 253218 Heated Drum Platen, Mega-Flo (Code B-A)

Part No, 253219 Heated Drum Platen, Standard Grid (Code B-B)

Part No. 253220 Drum Heated Platen, Smooth Bottom (no fin) (Code B-C)

Ref No.	Part No.	Description	Qty
1		See Table 9 Drum Platen Chart Below	1
2	C32204	PACKING, O-ring	1
3	15G967	PLATE, tire	1
4	C19049	SCREW, mach, slotted, RND HD	1
5	15H298	SENSOR, temperature	1
6	C32201	GASKET, follower	1
7	158491	FITTING, nipple	1
8	158581	COUPLING, hex	1
9	617227	HANDLE, follower, bleed	1
10	246501	VALVE, blow off	1
11	100361	PLUG, pipe	4
12	100133	WASHER, lock	6
13	C19846	SCREW, cap socket, HD	6
14	150707	PLATE, designation	1
15	100508	SCREW, drive	2
18		See Table 9 Drum Platen Chart Below	--
19		See Table 9 Drum Plated Chart Below	--
20		CONDUCTOR	2
21		CONDUCTOR	4
23		CONDUCTOR	1
24		SLEEVE, fiberglass, hi-temp	3
25	112901	NUT, hex	12
26	111640	WASHER, lock, internal	12

Table 9 Drum Platen Chart

Part No.	Description	Item 1	Qty	Element Resistance
253218	Mega-Flo Plate	194254	1	16.5Ω +1 / -2
253219	Standard Grid Plate	617225	1	19.2Ω +2 / -3
253220	Smooth Plate	C57358	1	19.2Ω +2 / -3

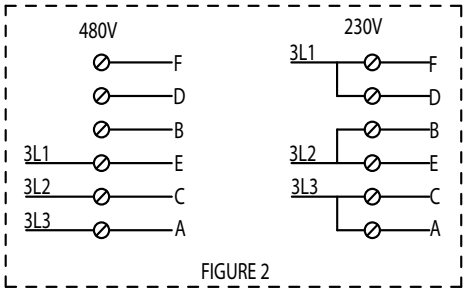
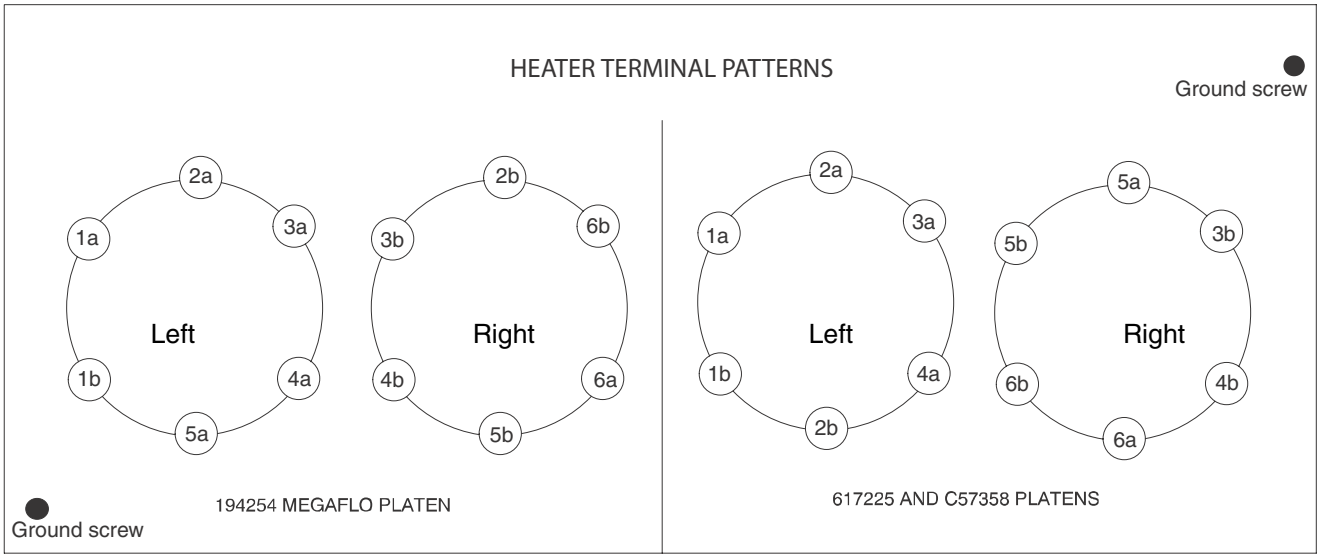


FIGURE 2

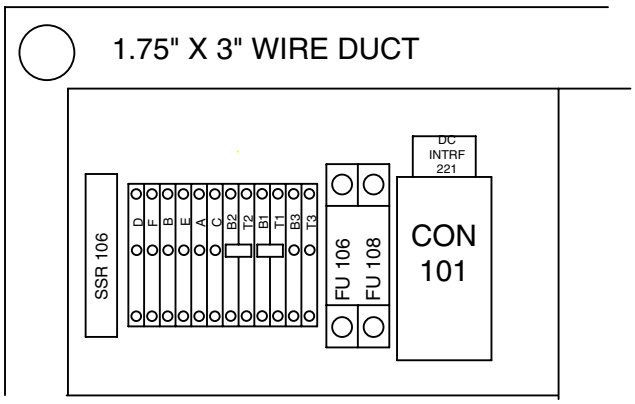


16.5 Ohms across pairs

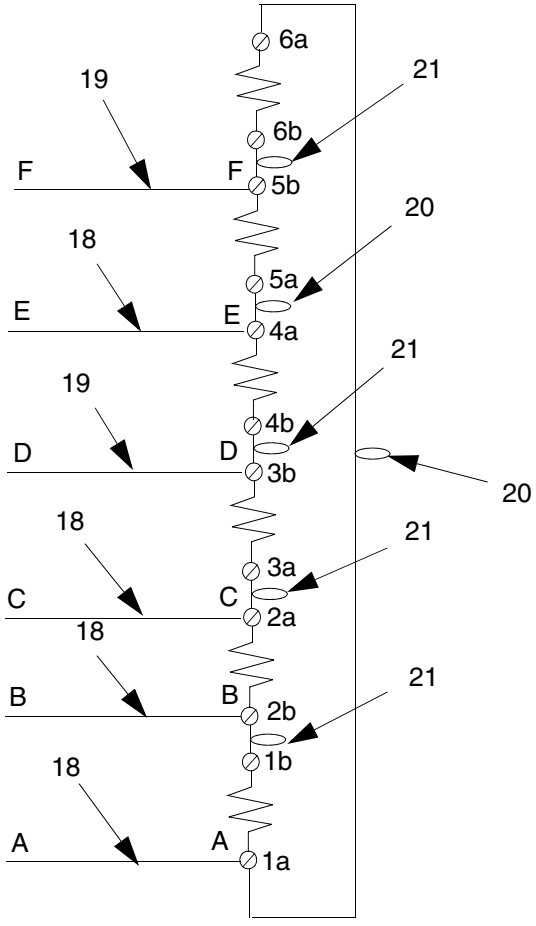
19.25 Ohms across pairs

Platen Coil Checking

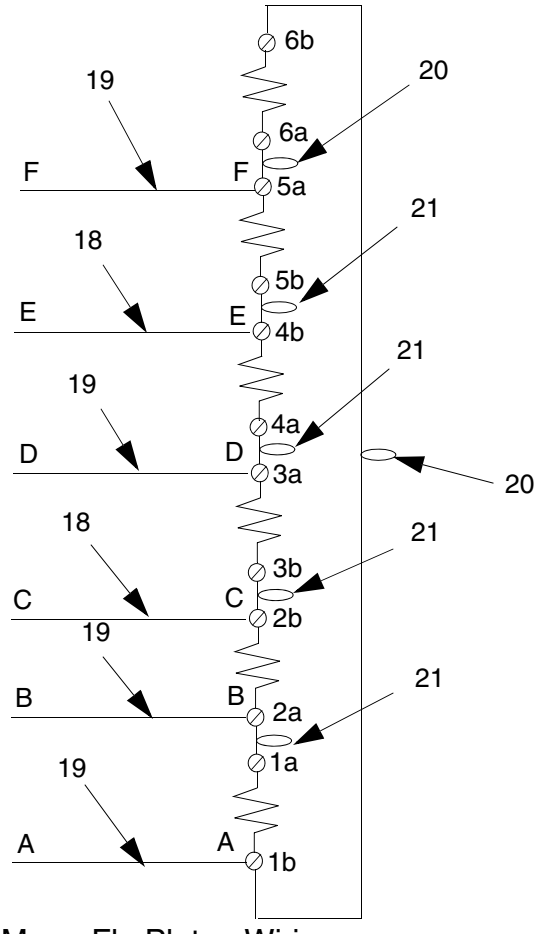
To check resistance across each coil to ensure that each is working properly place an ohm meter across the platen coils as shown in the Heater Terminal Pattern illustration, or place an ohm meter across the terminals in the Therm-O-Flow control box shown below.



Therm-O-Flow Control Box

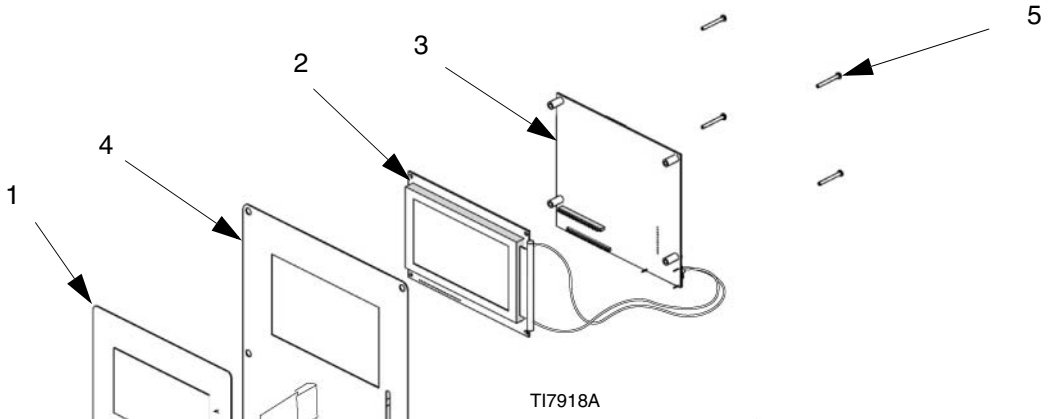


Smooth and Standard Platen Wiring

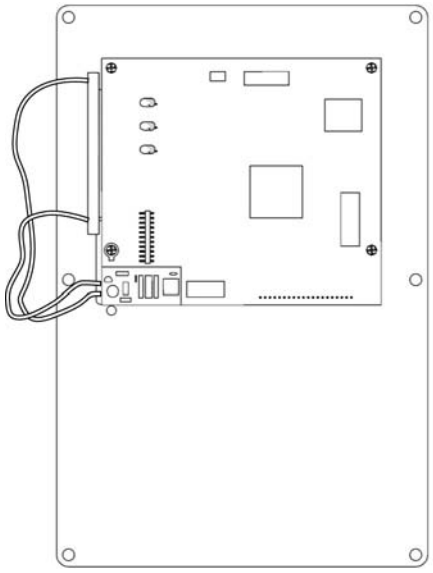


Mega-Flo Platen Wiring

EasyKey Assembly, Part No. 253147



TI7918A

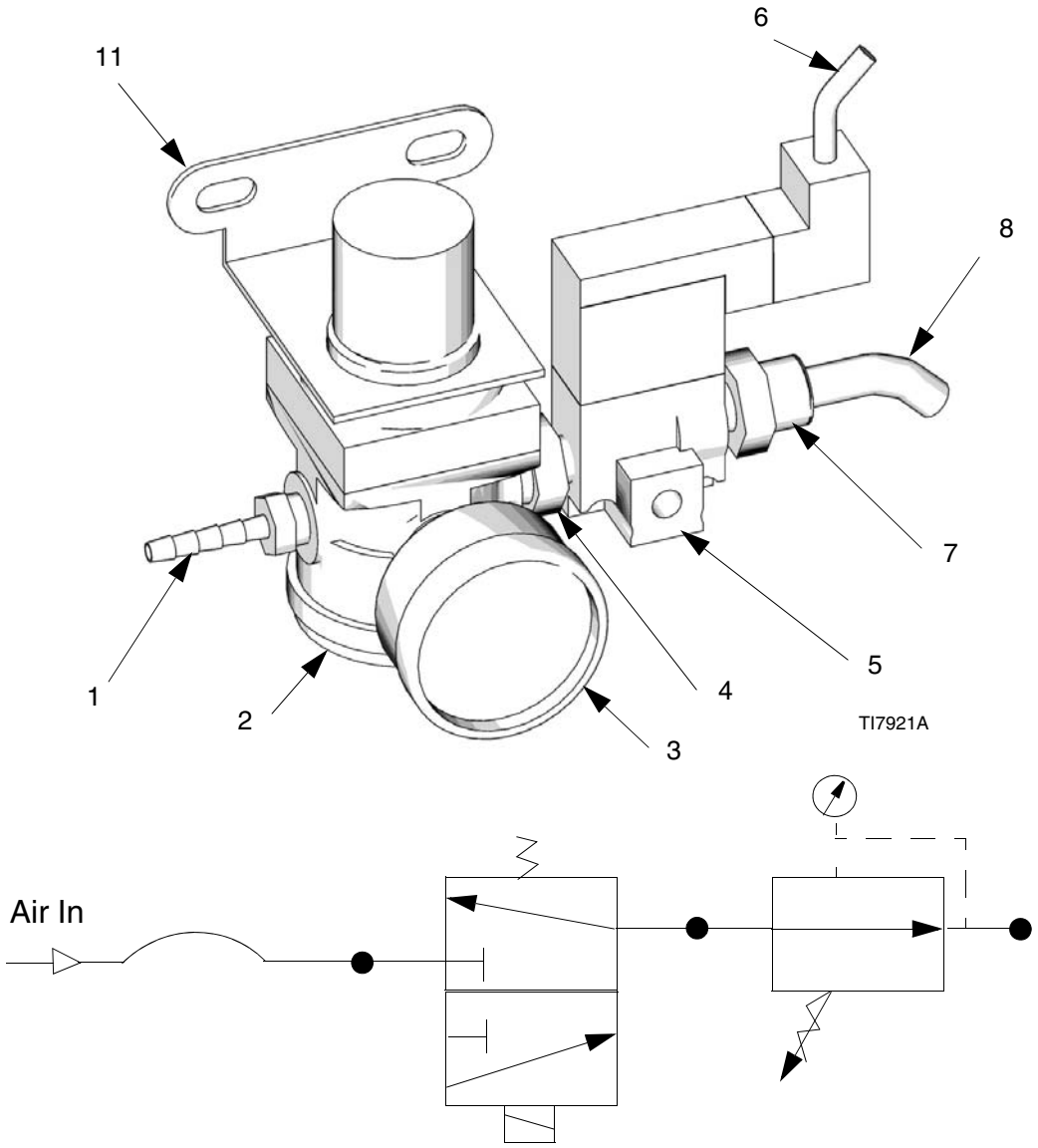


TI7919A

Back of EasyKey Assembly

Ref No.	Part No.	Description	Qty
1		LABEL, operations	1
2	117769	DISPLAY, graphics	1
3		BOARD, circuit assembly	1
4		PLATE, blank	1
5		SCREW, pan head cross 4-40	4

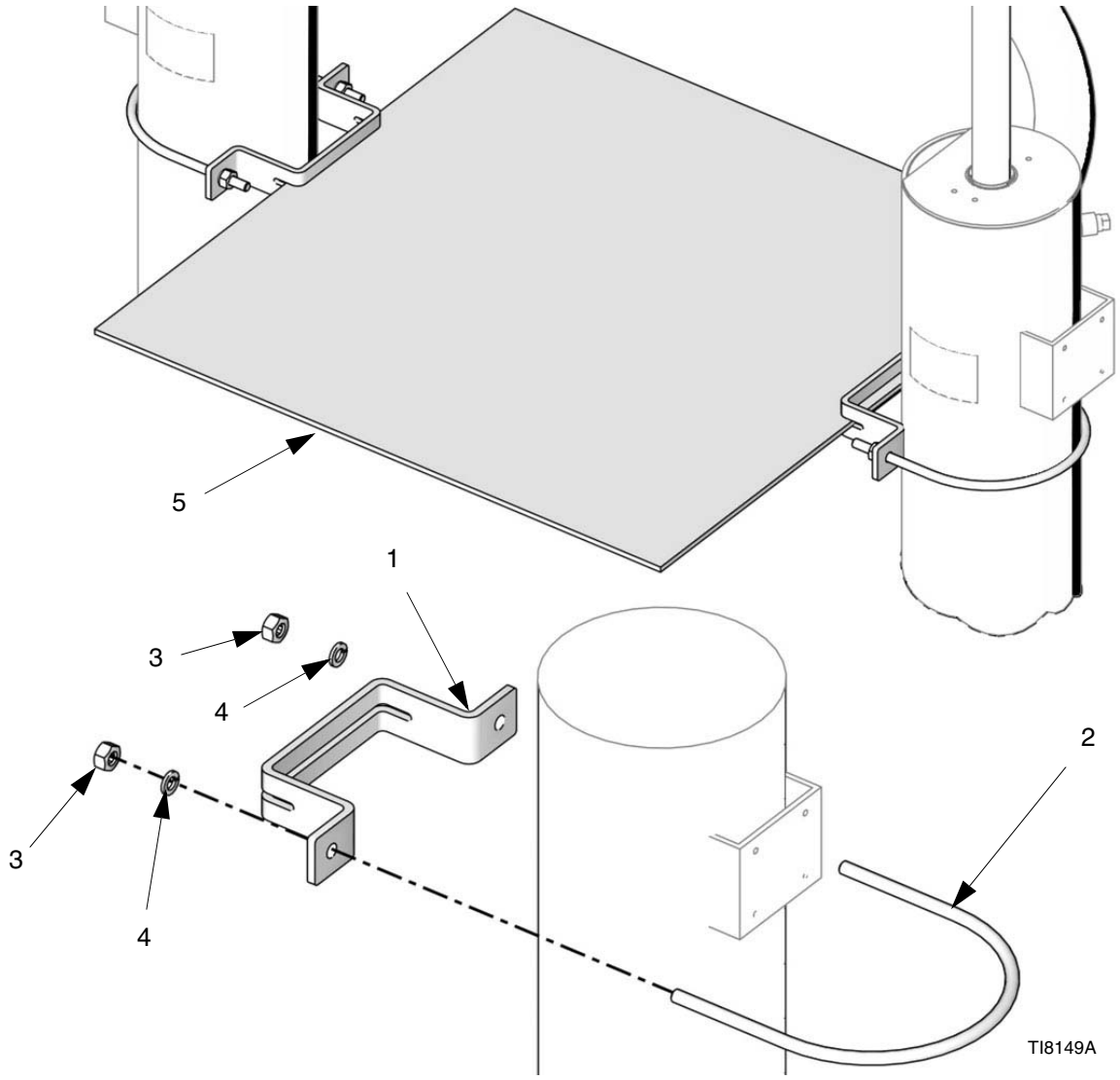
Swirl Kit, Part No. 253263



Ref. No.	Part No.	Description	Qty.
1		.125 ID hose barb x 1/4 NPT Male brass fitting	1
2		Regulator	1
3		Gauge	1
4		1/4 to 1/8 Brass Hex Nipple	1
5		Solenoid Valve	
6	120384	Cable	1
7		Tube Fitting	1
8		Nylon tube	3 ft.
9		Socket head cap screw (not shown)	2
10		Tube Clamp (not shown)	1
11		Regulator mounting bracket	1

Drip Shield Mount Kit, Part No. 253479

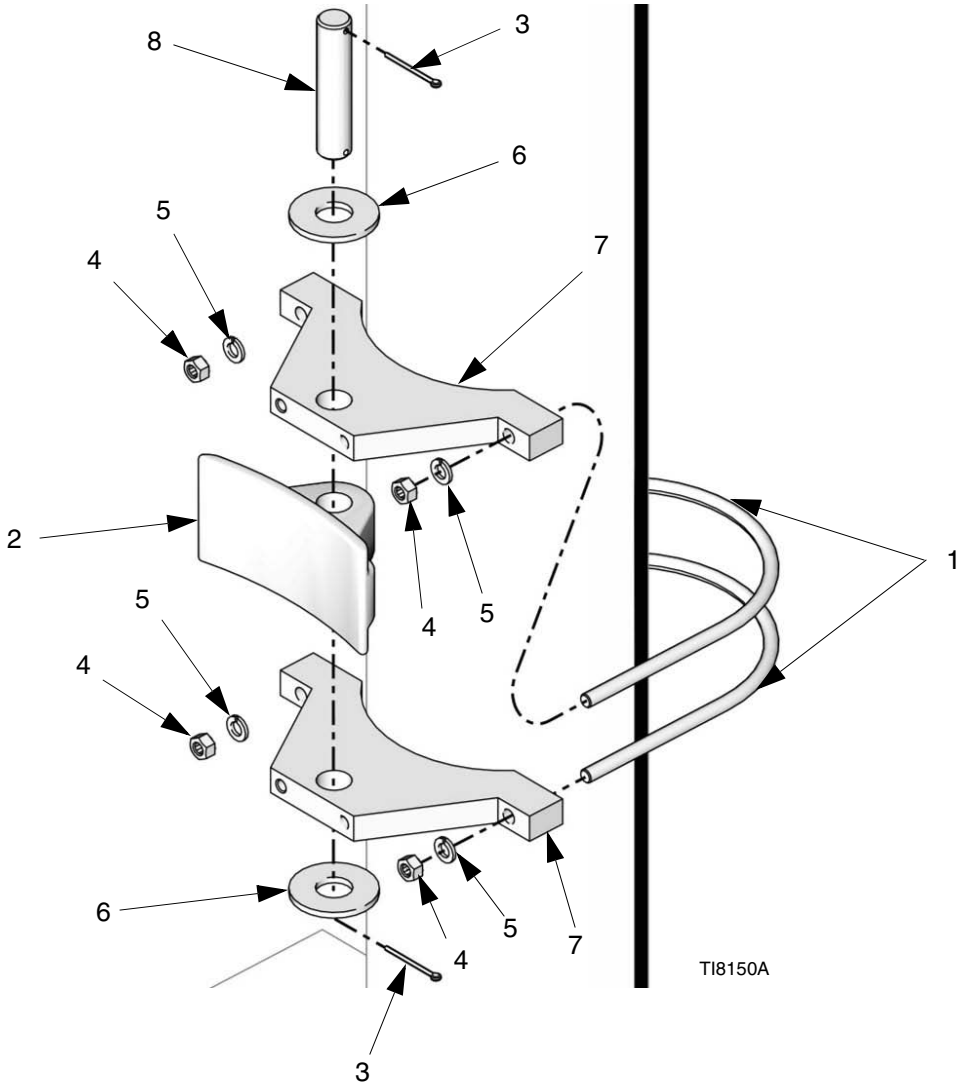
Ref. No.	Part No.	Description	Qty
1		BRACKET, tray	2
2		BOLT, U 7.5 LG x 6” pipe	2
3	100131	NUT, full hex	4
4	100133	WASHER, lock	4
5	115694	TRAY, drip shield, hot melt	2



Drum Ram Post Saddle Clamp, Part No. C32463

Option Code J-3

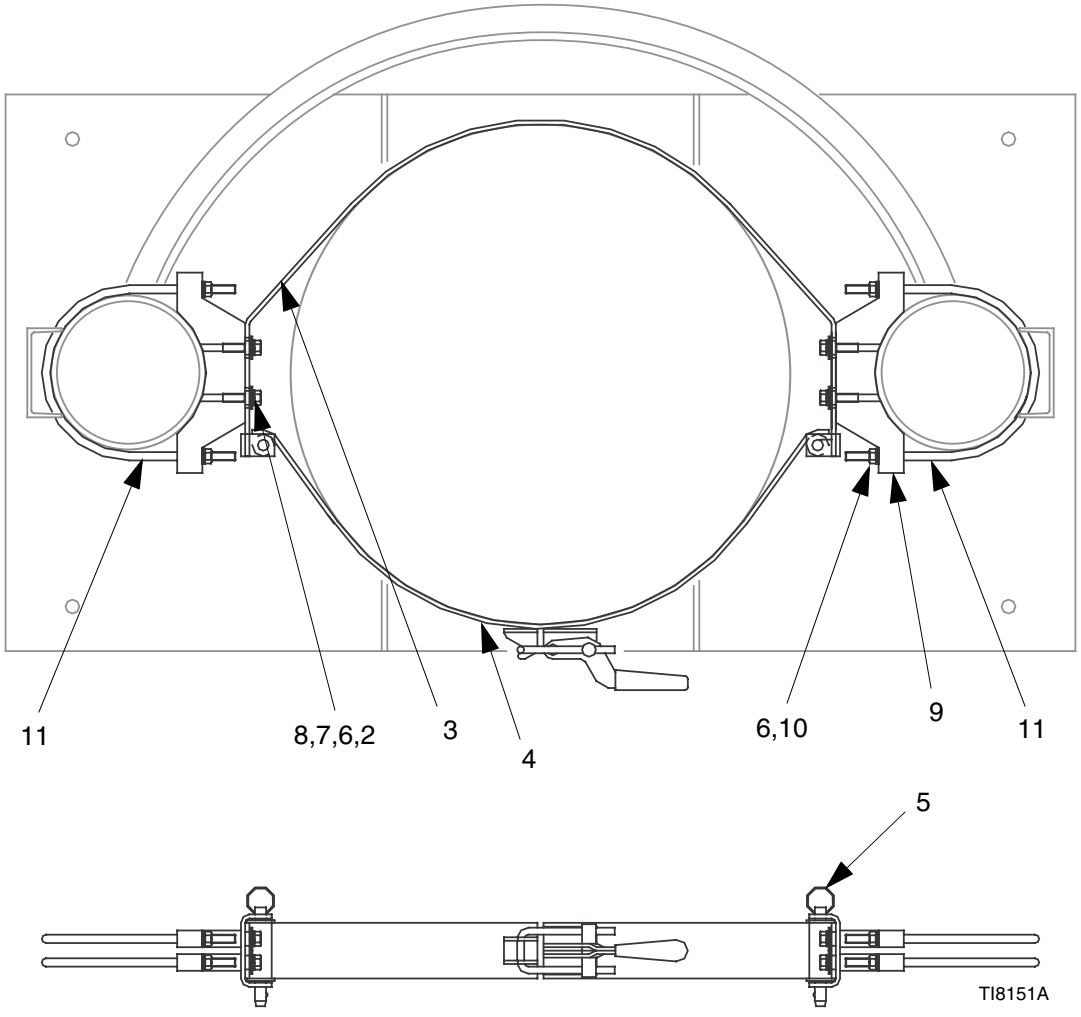
Ref No.	Part No.	Description	Qty
1	C32424	BOLT, U, 7”	2
2	160111	CLAMP, barrel	1
3	100103	PIN, cotter	2
4	100307	NUT, hex	4
5	100133	WASHER, lock	4
6	C38182	WASHER, plain	2
7	C32461	CLAMP, saddle	2
8	166265	PIN, pivot	1



Heavy Duty Drum Band Clamp, Part No. 918395

Option Code J-2

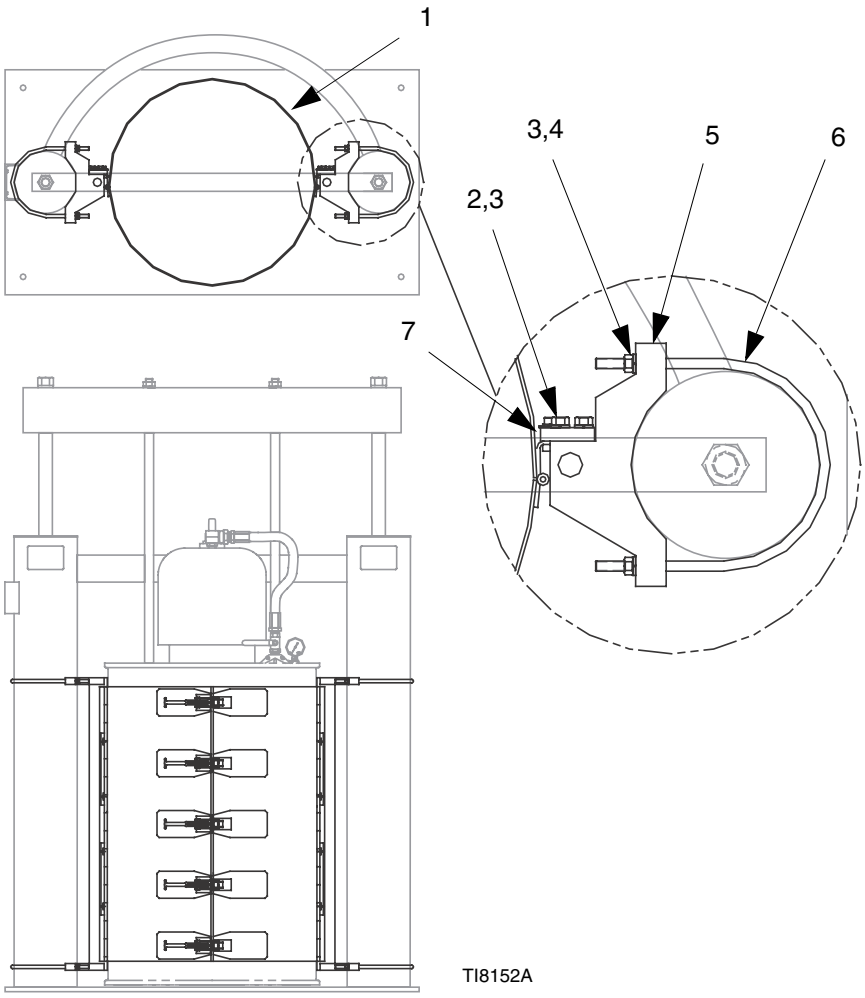
Ref No.	Part No.	Description	Qty
2	100101	SCREW, cap, hex HD	8
3	918421	CLAMP, back half assembly	1
4	918423	KIT, repair	1
5	617395	PIN, quick release	2
6	100133	WASHER, lock	8
7	C19200	WASHER, plain	8
8	617433	SPACER, drum clamp	8
9	617395	CLAMP, saddle	4
10	100131	NUT, full hex	8
11	C32424	BOLT, U 7”	4



Fiber Drum Reinforcement Clam Shell Clamp, Part No. 918397

Option Code J-1

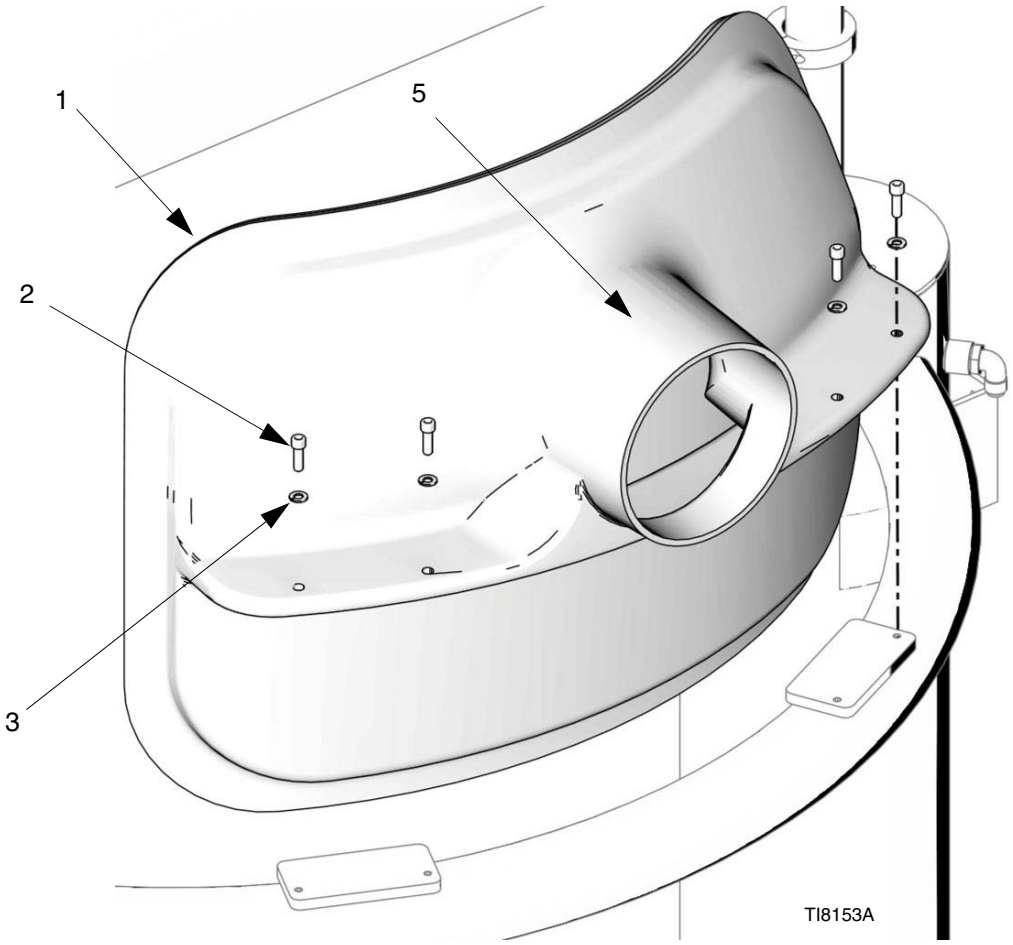
Ref No.	Part No.	Description	Qty
1	C32271	CLAMSHELL	1
2	C19126	SCREW, cap hex HD	8
3	100133	WASHER, lock	12
4	100307	NUT, hex	8
5	617340	CLAMP, saddle	4
6	C32424	BOLT, U, 7”	4
7	617341	MOUNT, clam shell	2



Vent Hood Accessory Kit for 6-1/2 In. Ram, Part No. 233559

Ref No.	Part No.	Description	Qty
1		VENT hood	1
2	112166	SCREW, cop sch	4
3	100016	WASHER, LOCK	4
5◆	C14038	LABEL, warning	1

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



Advanced Units

Light Tower Kit (253547)

The optional light tower kit has the following color and flashing lights to signal warnings and alarms. See FIG. 26.

Green denotes an active system where the pump will activate when material is needed.

Yellow denotes user attention is required.

Flashing yellow denotes a drum is empty (when equipped with proximity sensors).

Red denotes immediate user attention is required due to an alarm condition or interruption of material flow. The user should be aware that in the case of a motor error on a Single or Tandem system, or a Tandem system with both drums empty, heat may be applied to the platen and pump to allow for a drum change.

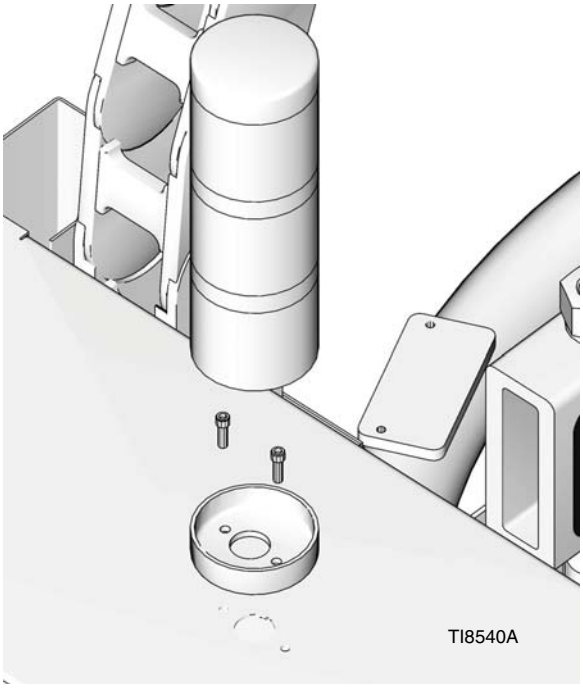


FIG. 26

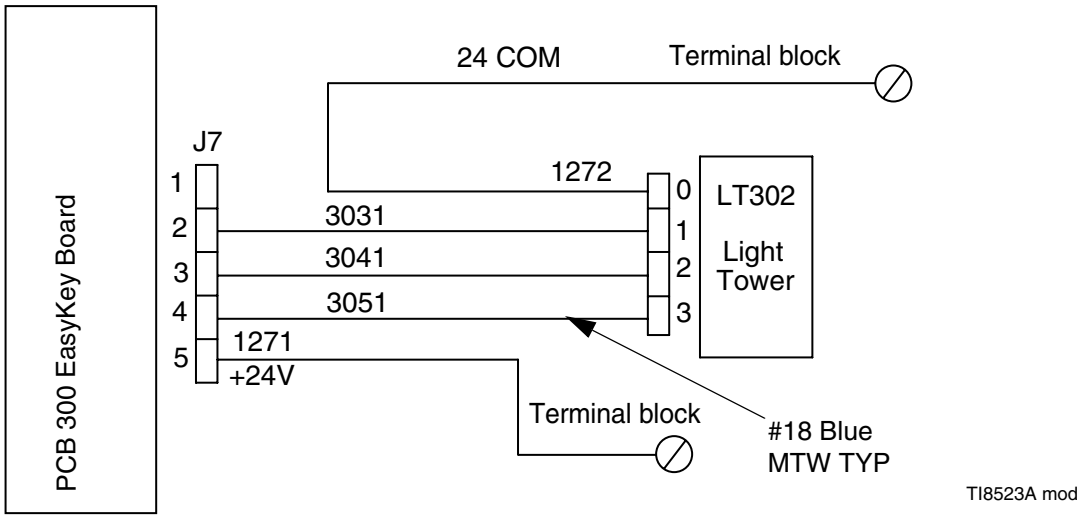


FIG. 27

Light Tower Kit Recommended Wire Routing

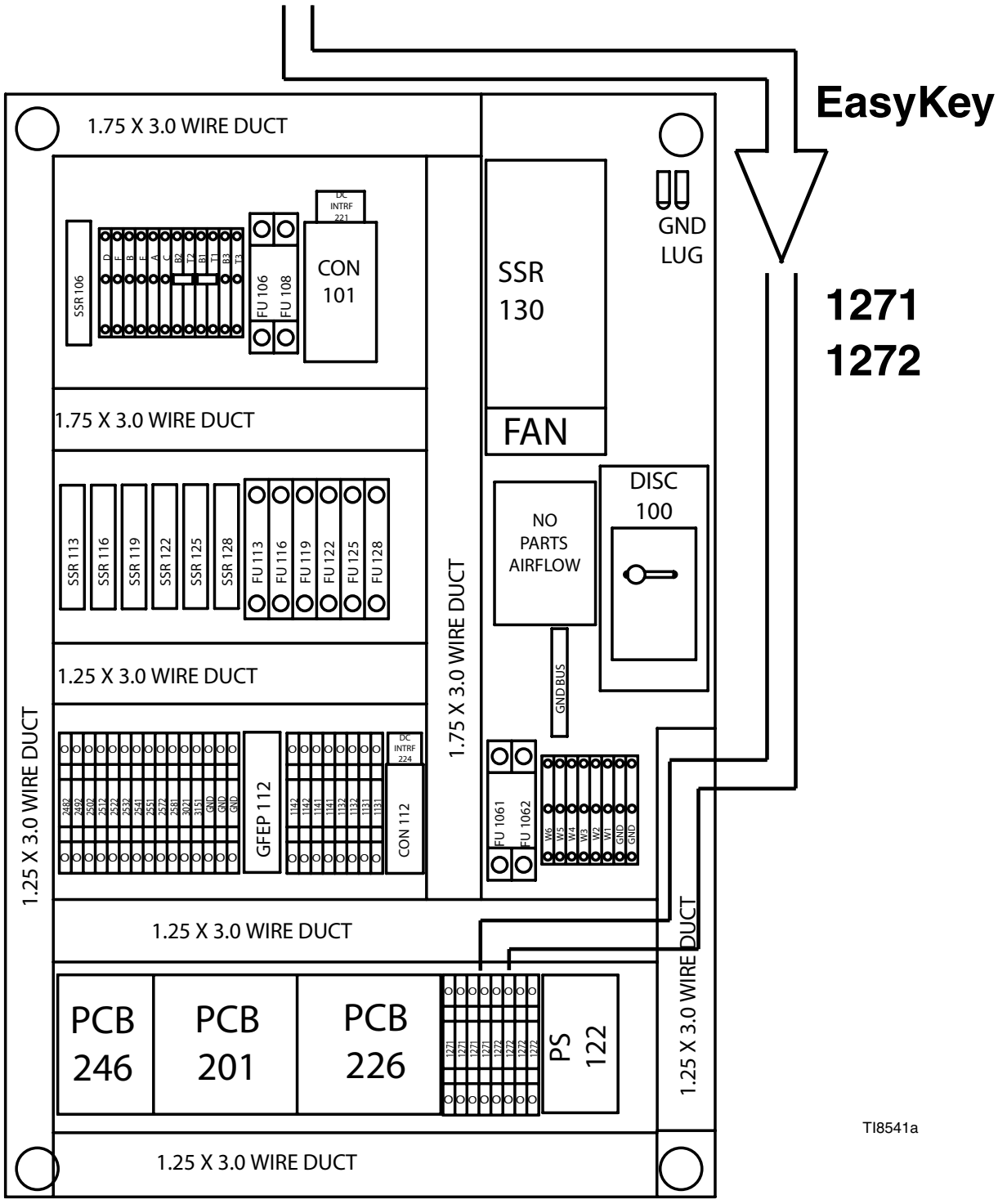


FIG. 28

Drum Low and Empty Sensor Kit 253559

This kit is standard on Code G options A,T, and S. The kit must be purchased if Code G option B is selected.

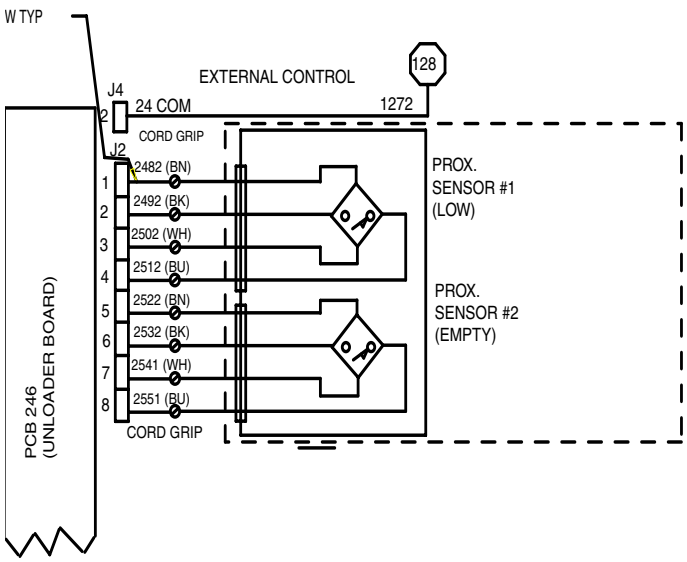
The Drum Low and Empty Sensor Kit is used to indicate that a drum is EMPTY or LOW, depending on the adjustment of the proximity switch. The kit contains a sensor mounting bracket (A), activator (B), sensors (C), and a cable for connecting to the Therm-O-Flow 200 control panel. See FIG. 29.

The low and empty conditions will be displayed in the status bar of the EasyKey display. An optional light tower is also available.

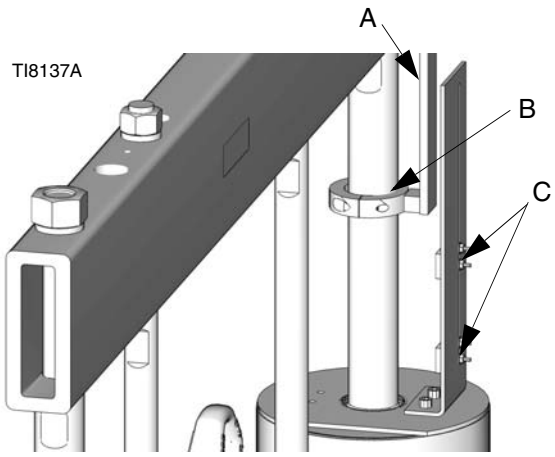
With the optional light tower a yellow light indicates a drum low condition. A flashing yellow light indicates a drum empty condition. In a tandem system a red light indicates both drums are empty. See “Light Tower Kit (253547)” on page 80.

When ordering this kit individually to connect to an existing Therm-O-Flow 200 unloader assembly, use the bolts, screws and washers provided to mount to the closest ram post to the control box. Mount the limit switches to the bracket as shown.

Increasing the distance between the low and empty sensors (C) increases the heat up time for the tandem secondary system. Lowering the drum empty sensor forces the heated follower plate lower into the drum. If this is set too low the pump could cavitate causing a system alarm.



mity Sensor
ections



Therm-O-Flow 200 with Proximity Switches Installed. **Ram is in full down position.**

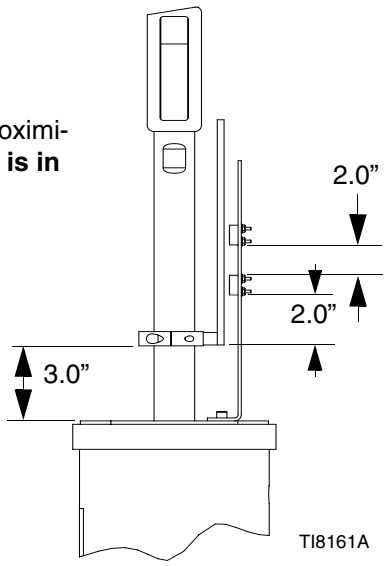


FIG. 29: Optional Low level Kit

Ethernet Kit (253566)

This kit is intended for use with the TOF 200 unloaders and accessory box. The ethernet kit is designed so that the user will have network access to the Therm-O-Flow 200 unit and can clear, display, download, restore, and reset various values from a remote location. This kit includes a Graco Ethernet Expansion Board (15H816), internal Cat 5E patch cord, and the RJ45 panel mount jack.

Web Interface

Web Interface - allows users to connect, view, and change the setup, log, and error files. It does not display run data.

Use the web I/F Software to:

- Install EasyKey Software
- View
  - ➜ error log
  - ➜ material usage report
  - ➜ setup values
- Upload
  - ➜ setup values
  - ➜ a custom language to view on screen
- Download
  - ➜ setup values
  - ➜ error log
  - ➜ a custom language file
- Clear
  - ➜ error log
  - ➜ material usage report
- Reset
  - ➜ settings to factory default
  - ➜ password
- Record
  - ➜ temperature and cycle data

If Java Error appears when running the program for the first time, you must download Java RTE (Run Time Environment) for the program to operate correctly. Follow the screen link to Java version 1.4.2.09 or newer. Or enter http://java.sun.com/j2se/1.4.2/download.html and select **Download J2SE JRE**. The file is approximately 15 MB.

✓	***If the Graco program will not start, check the following.***
	Is the power on?
	Are the cables fully seated in both the PC and Therm-O-Flow 200 ports?
	• Are the LEDs on the PC ethernet connector illuminated? • Are the LEDs on the EasyKey ethernet mod illuminated? The bottom left LED should be constantly illuminated showing a network connection. The bottom right LED should illuminate when network traffic is occurring. If there are no LEDs illuminated check for loose connections or a loose board.
	To isolate the problem, try communicating with a different PC.
	Check **Local Network Connection**. See page 85.

Web Interface

There are two possible ways to connect a PC to the TOF 200.

- **Local Network Connection** (most common). Patch cable from the local network plugs into the TOF 200 Web Interface connection. See FIG. 30 and page 85.
- **Direct Connection** to the TOF 200 crossover cable from the PC plugs into the TOF 200 Web Interface connection. See FIG. 30 and page 88.

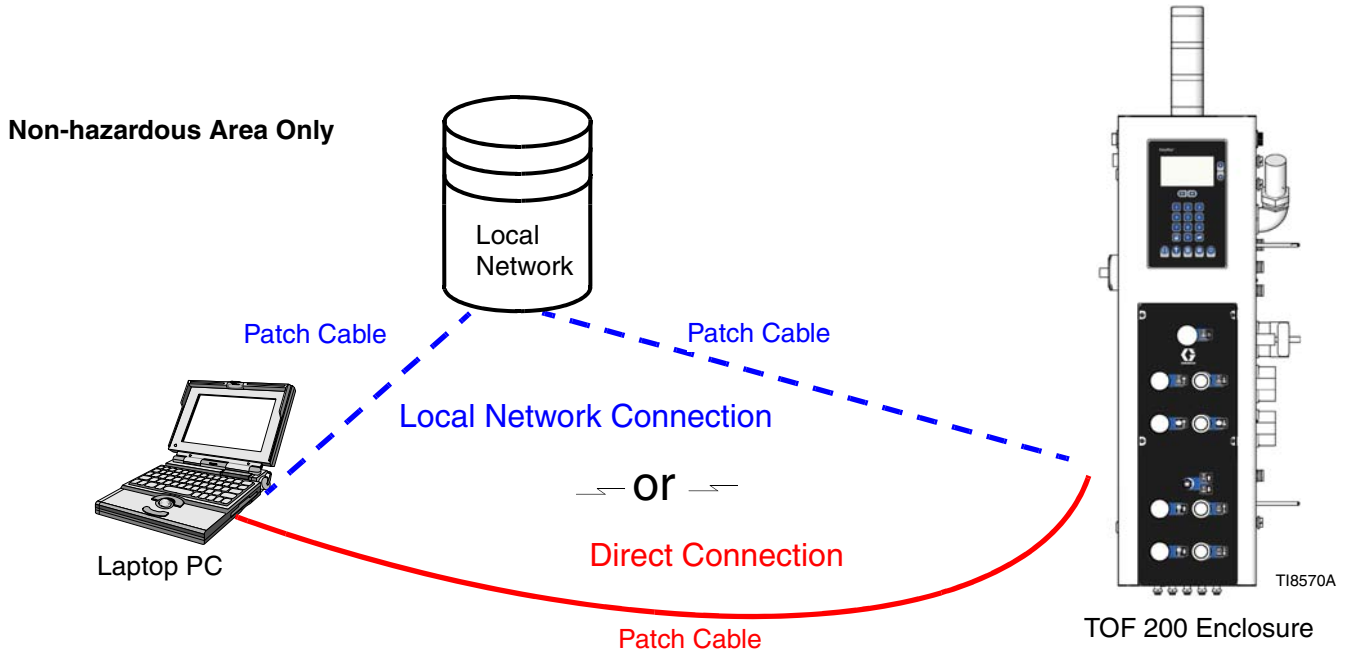


FIG. 30 Network Selection

Local Network Connection

Hardware and Software Configuration

Hardware

Patch cables are used to connect each TOF 200 unit to the local network and to the Web connection (A) on the EasyKey panel. See FIG. 31

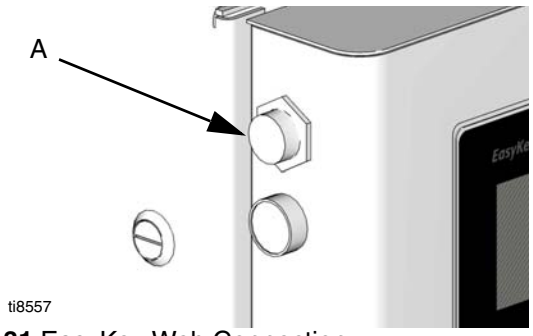


FIG. 31 EasyKey Web Connection

Microsoft Browser Configuration

8. Establish a connection/address to the local network.
   a. Open the PC control panel.
   b. Select Network Connections.
   c. Double click on the local area connection.
   d. Select Properties.
   e. Select Internet Protocol (TCP/IP).
   f. Select Properties.
   g. Select the appropriate Internet connection and key in address 192.168.0.10
9. The TOF 200 EasyKey software requires Sun java to operate. Open your web browser options advanced tab and select Java (Sun) and deselect the Microsoft VM selection. See FIG. 32. If the Sun Java option is not available follow the **Software Operation** procedure and load the Sun Java program when the appropriate screen and link appear.

Browser must be closed and restarted for change to be effective.

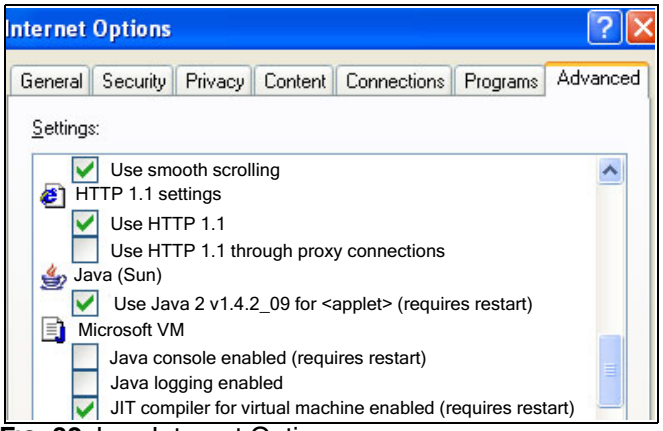


FIG. 32 Java Internet Options

It may be necessary to change the Java selection from Sun to Microsoft for other software applications to run correctly on your PC.

If you cannot make these changes contact your I.S. department and request they change your computer access rights. **You must have administrative rights to change the settings.**

Software Operation

1. Open Microsoft Internet Explorer.
2. In the address area type http://192.168.0.1
3. Click Enter.
4. Select yes when security screen appears.
5. Main software screen appears. See FIG. 33.
   - If “Cannot Read Firmware” appears check for loose hardware connections.
   - If “Java script needs to be loaded” appears follow the screen link to install this freeware.

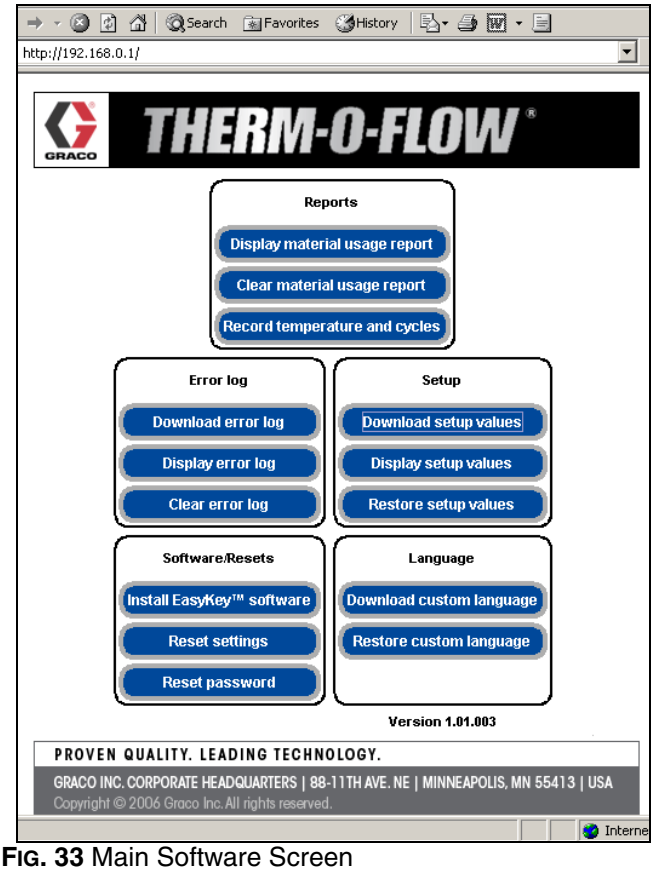


FIG. 33 Main Software Screen

Web Navigation Screens

From the main screen (see FIG. 33) the operator can select buttons for reports, error log, setup, software/resets, or language.

Reports

Display material usage report - shows the material pumped from the TOF 200. See FIG. 34.

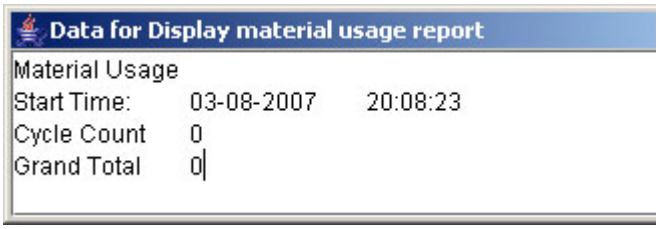


FIG. 34 Display Material Usage report

Clear material usage report - deletes the material usage from the system run screen batch total. Does not reset grand total in setup.

Record Temperature and Cycles - records temperature and cycle information once per minute. A file is opened and data recorded. See FIG. 35.

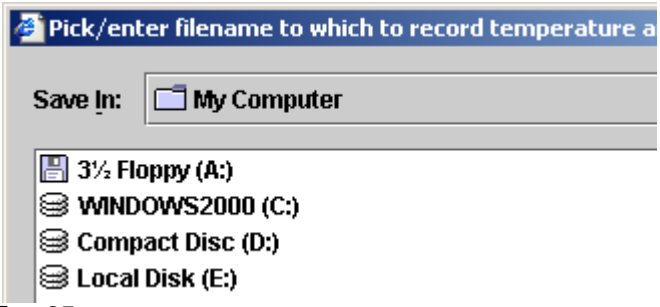


FIG. 35

While data is recorded other web functions are unavailable. See FIG. 36.

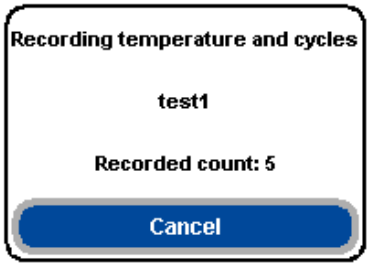


FIG. 36

Error Log

Download error log - downloads the error log to the PC.

Display error log - displays the number of alarms, date, time, recipe and what the error was. See FIG. 37.

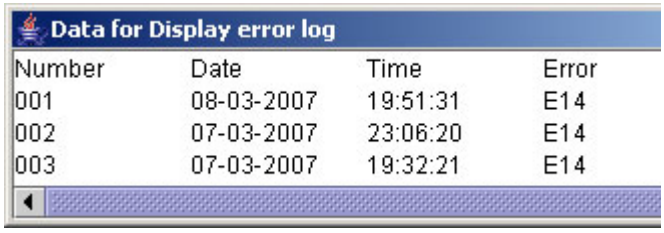


FIG. 37 Display Error Log

Clear error log - deletes the errors from the display.

Setup

Download setup values - saves the TOF configuration to the PC. This file can be opened and edited using Microsoft Excel, or used to set up multiple systems.

Display setup values - indicates what values are currently being used for the system. Allows the operator to verify that the right values are being used. See FIG. 38.

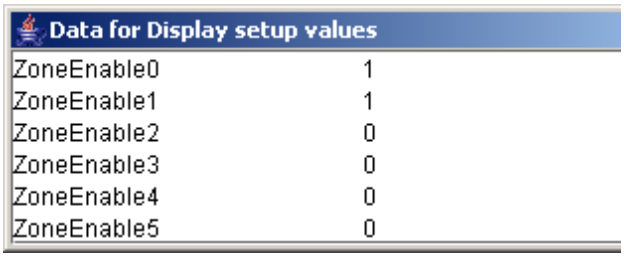


FIG. 38 Display Set up

Restore setup values - allows files to be uploaded and restored to the TOF.

Software/Resets

Install EasyKey software - downloads the Graco provided software to the PC (approximately 5 minutes). Once complete the control panel will be reprogrammed from the EasyKey.

Reset settings - places system back to factory default mode.

Reset password - clears password if lost or forgotten.

Language

Download custom Language - saves the current system language to the PC. This file is opened and a custom language added to the B column of the Excel file. See FIG. 39.

Custom languages are limited to Ascii and Ascii extended characters and a maximum of 32 characters. Save the Excel file as a tab delineated file for uploading purposes.

Restore custom language - allows the custom language file to be uploaded to the TOF.

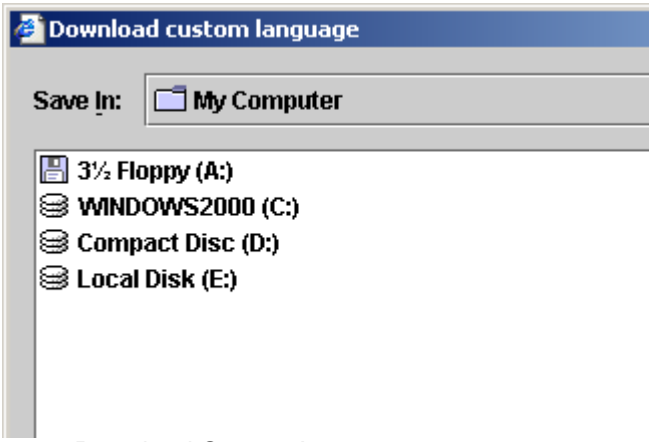


FIG. 39 Download Custom Language

Advanced Configuration

To change IP settings use the freeware configuration program available from www.lantronix.com/device-networking/utilities-tools/device-installer.html.

Ethernet Kit Installation

Graco Kit 253566 is required for this connection.

Do not operate Therm-O-Flow 200 with equipment enclosure doors/covers open. Disconnect power source before servicing or electrically wiring.						

Kit Installation

1. Power the Therm-O-Flow system off and disconnect power source.
2. Open the control panel door.
3. Remove the EasyKey Display shield.
4. Locate the 10 pin Expansion Connector J9 (A) on the lower right of the EasyKey Display Assembly 249480 (B). See FIG. 41.
5. Plug the Ethernet Assembly 249183 (C) into J9 making sure the RJ45 connector is oriented down. See FIG. 42 and FIG. 43.
6. Secure the Ethernet Assembly 249183 (C) to the EasyKey Display 249480 (B) using the hardware provided.
7. Remove plug (D) covering Ethernet opening at the upper right corner of the Control Panel. See FIG. 40.
8. Secure Bulkhead Receptacle in the Ethernet opening at the upper right corner of the Control Panel.
9. Connect one end of the Ethernet cable to Ethernet Assembly 249183 (C).
10. Replace EasyKey Display shield connecting ground terminal from Ethernet Bulkhead connector to upper right stud.
11. Connect the other end of the Ethernet cable to the Ethernet bulkhead receptacle.
12. Close the Control Panel door.

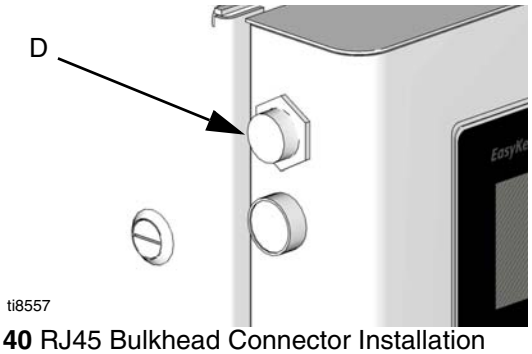


FIG. 40 RJ45 Bulkhead Connector Installation

Changing Network Configuration

1. Connect PC to ethernet connection on EasyKey with the crossover cable.
2. Connect network to PC with DeviceInstaller.
3. Run DeviceInstaller program.

A freeware configuration program is available from www.lantronix.com/device-networking/utilities-tools/device-installer.html

4. To change IP Address from Default setting 192.168.0.1
   a. Run DeviceInstaller
   b. Click “Search”
   c. Select device
   d. Click “Assign IP”

      Select and assign specific IP address.

      i. Input address

      ii. Enter subnet mask 255.255.255.0

      iii. Click “Assign” (unit is programmed and will now reboot)

      iv. Click “Finish”

      v. Close/Exit DeviceInstaller

Alternate method via telnet and port 9999.

Serial Port Setup

Kit is pre-programmed with these settings.

- 57,600 baud, 8-bit, no parity, 1-stop bit.

EasyKey Modbus / TCP Wiring Diagram

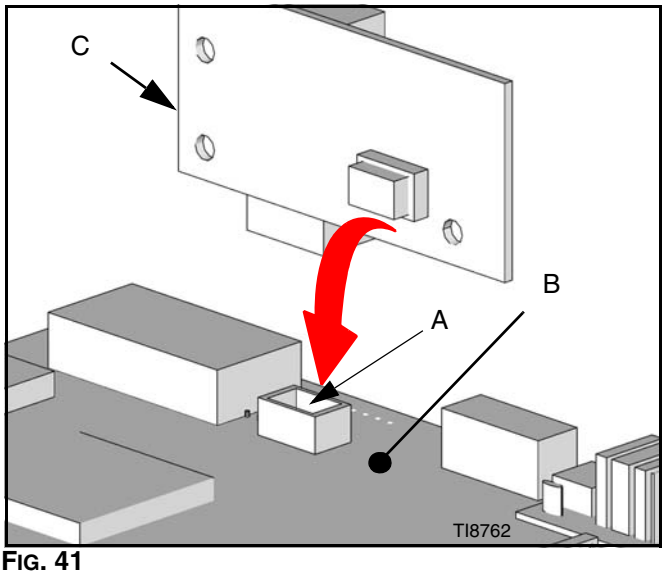


FIG. 41

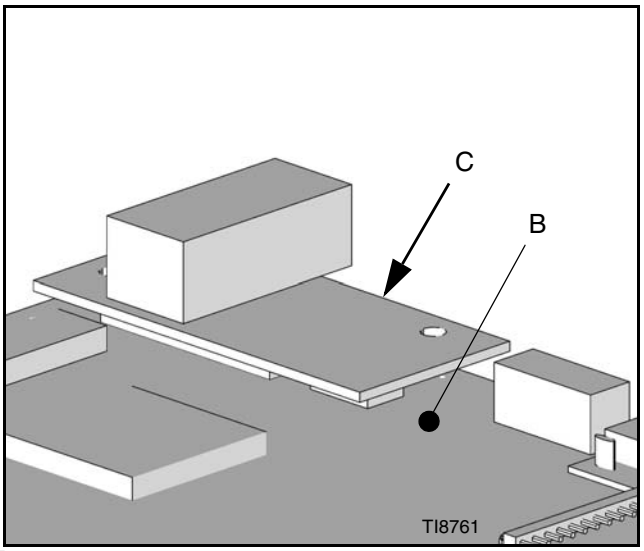


FIG. 42

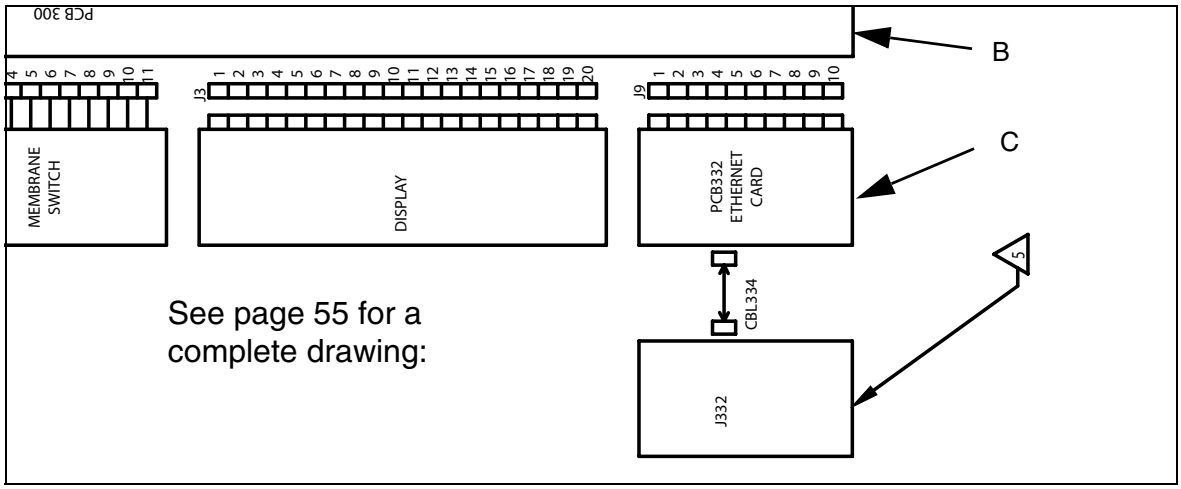


FIG. 43

Maintenance Call Kit (253548)

The maintenance call kit is designed for the user to indicate an issue has occurred and needs to be addressed, but the unit keeps operating if no serious faults have occurred. With the optional light tower kit the maintenance call button (E) causes the yellow light to flash making the problem more obvious. See FIG. 44. This kit includes the push button actuator and internal harness to connect the button. For additional light tower information see “Light Tower Kit (253547)” on page 80.

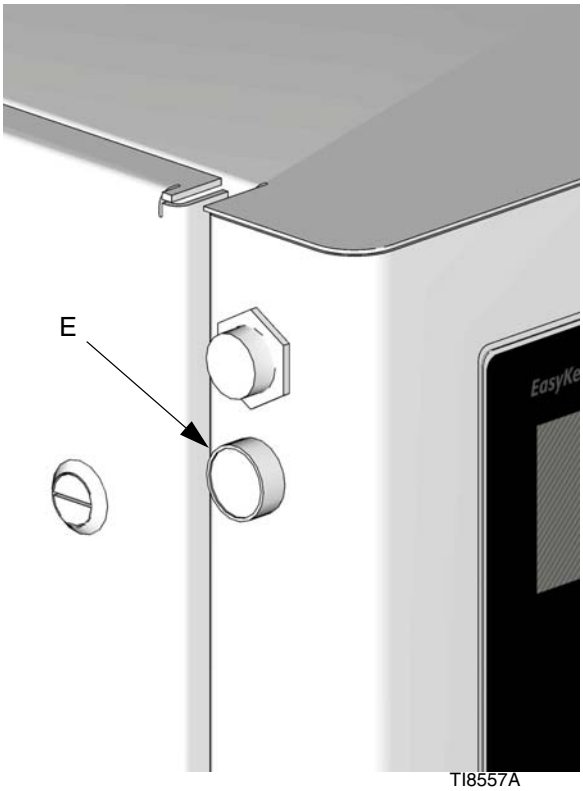


FIG. 44

Maintenance Call Kit (253548) Wiring

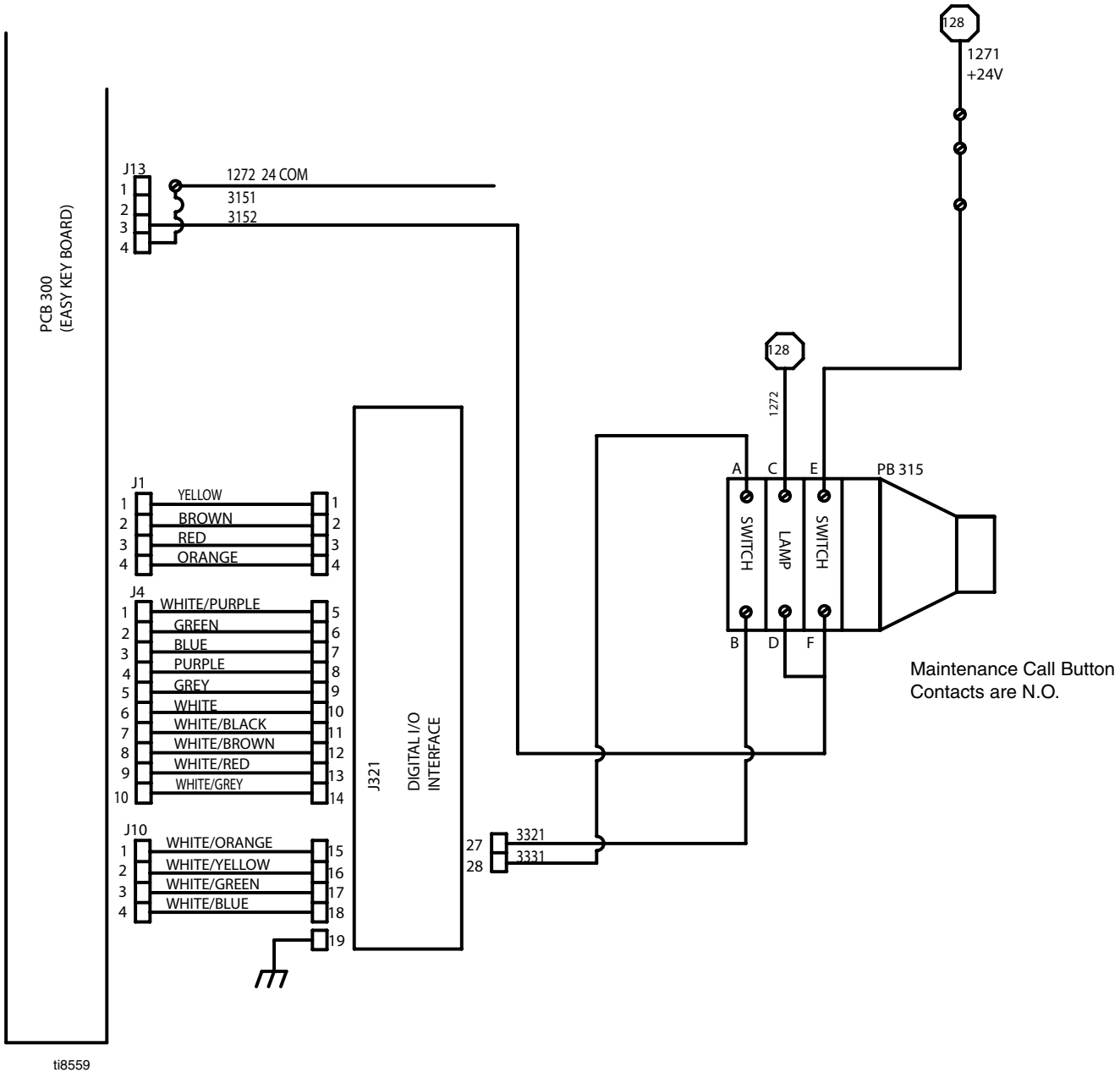


FIG. 45

Discrete I/O Kit (253567)

The discrete I/O kit is designed to connect to robots or PLC that control the primary unit. This connection allows the communication of System On/Off, Heat On/Heat Soak/Ready, Setback, Drum Empty, Warnings, Alarms, Maintenance, and Gun switch. Included in this kit is the Internal Cable Harness to convert the primary unit and the 40 ft external cable, which has individual wire on the robot/PLC end for the user to install.

Digital Output

See FIG. 48. Connect +Vdc to pins 5 or 14. EasyKey will toggle outputs to +Vdc when activated.

Digital Inputs

See FIG. 48. Connect “Digital Reference” to pin 1. All unused inputs must be tied “low” to “Digital Reference.” To activate signal, toggle from “Digital Reference” to +Vdc. To deactivate signal, toggle from +Vdc to “Digital Reference”.

Examples

System On/Off

- Toggle from “Digital Reference” to +Vdc to turn system on.
- Toggle from +Vdc to “Digital Reference” to turn system off.

Heat On/Off

- Toggle from “Digital Reference” to +Vdc to turn heat on.
- Toggle from +Vdc to “Digital Reference” to turn heat off.

Pump On/Off

- Toggle from “Digital Reference” to +Vdc to turn air motor solenoid on.
- Toggle from +Vdc to “Digital Reference” to turn air motor solenoid off.

+Vdc can range from 10-30 Vdc.

“Digital Reference” is the ground reference for the +Vdc coming from the robot or PLC.

FIG. 46

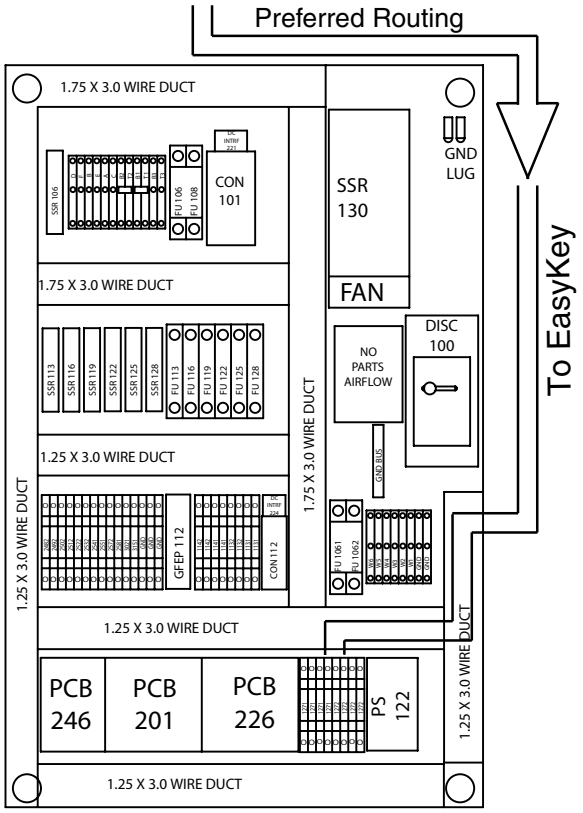


FIG. 47

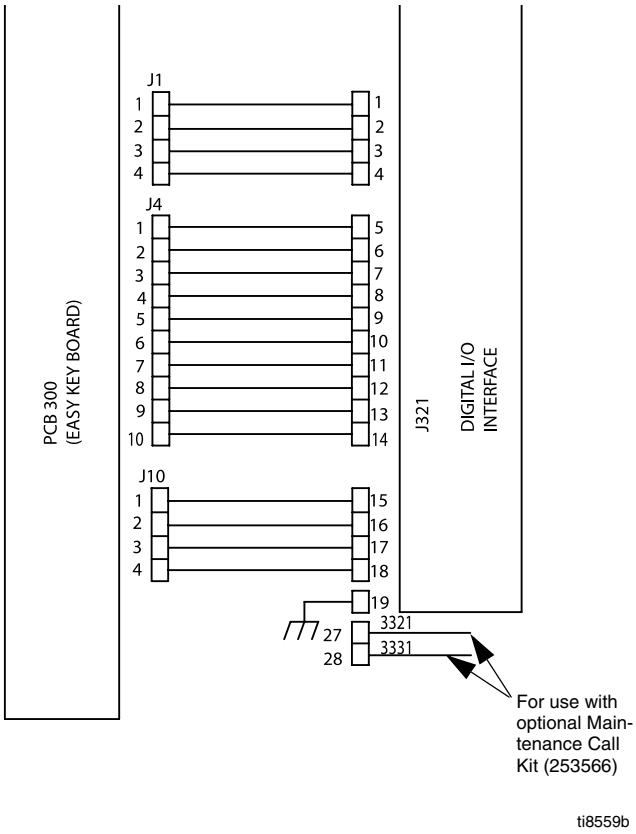
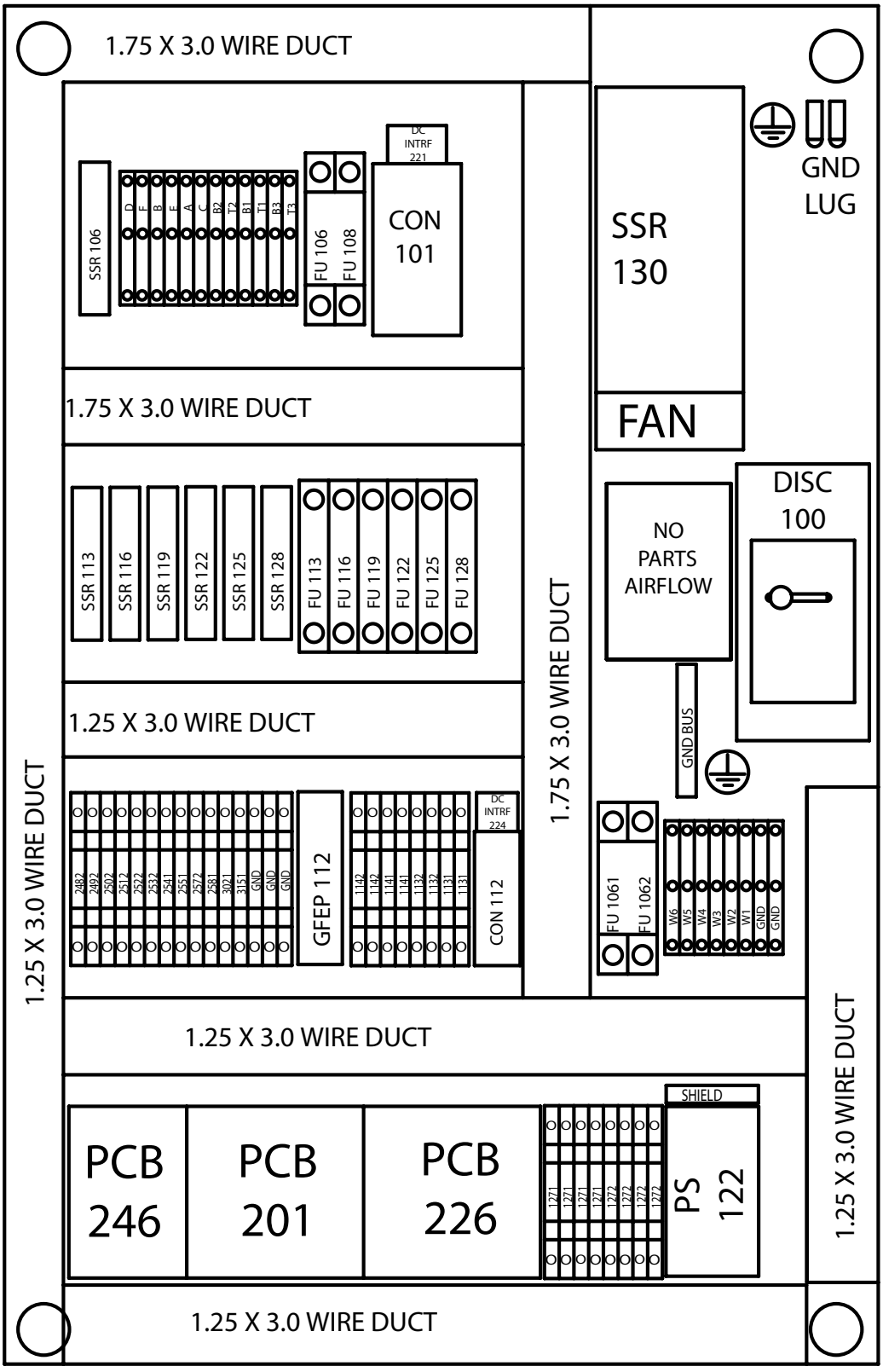


FIG. 48

Robot I/O Cable, Part No. 120400			
Pin No.	**Signal Description**	**Signal Type**	**Wire Color**
1	Digital Input Reference	Digital Input Ref	Yellow
2	System On/Off	Digital Input	Brown
3	Heat On/Off	Digital Input	Red
4	Pump On/Off	Digital Input	Orange
5	24 Vdc from Robot/PLC	Digital Input Ref	Tan
6	System On/Off	Digital Output	Green
7	System Run	Digital Output	Blue
8	Heat On/Heat Soak Ready	Digital Output	Violet
9	Setback	Digital Output	Gray
10	Drum Empty	Digital Output	White
11	Warning	Digital Output	White/Black
12	Alarm	Digital Output	Pink
13	Maintenance	Digital Output	White/Red
14	24 Vdc from Robot/PLC	Digital Input Ref	Red/Green
15	Analog Gnd Ref	Analog Gnd Ref	Red/Yellow
16		Analog Input	White/Yellow
17	Analog Gnd Ref	Analog Gnd Ref	White/Green
18		Analog Output	White/Blue
19	Ground	Shield Connection	
27	Maintenance Call Button	Digital Output	Black
28	Maintenance Call Button	Digital Input Ref	Red/Black

All Models Control Panel Component Layout



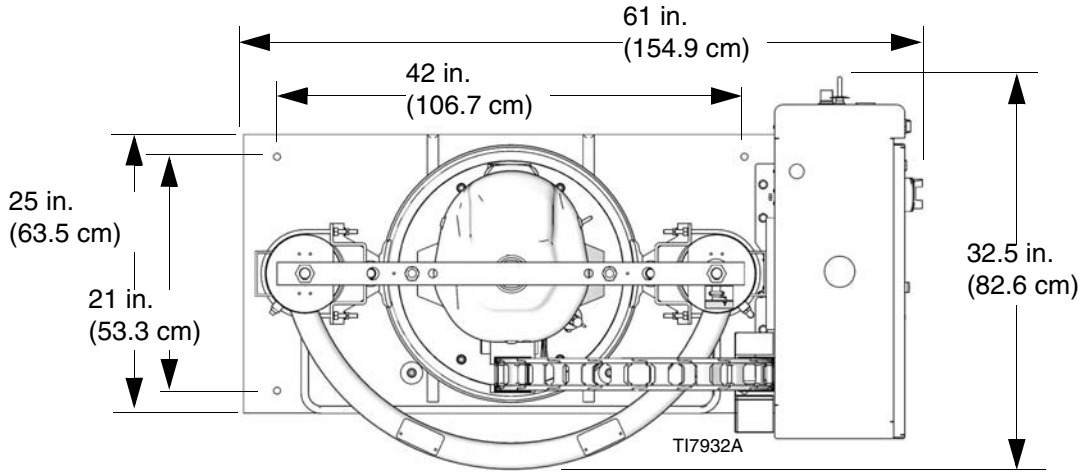
Spare Parts

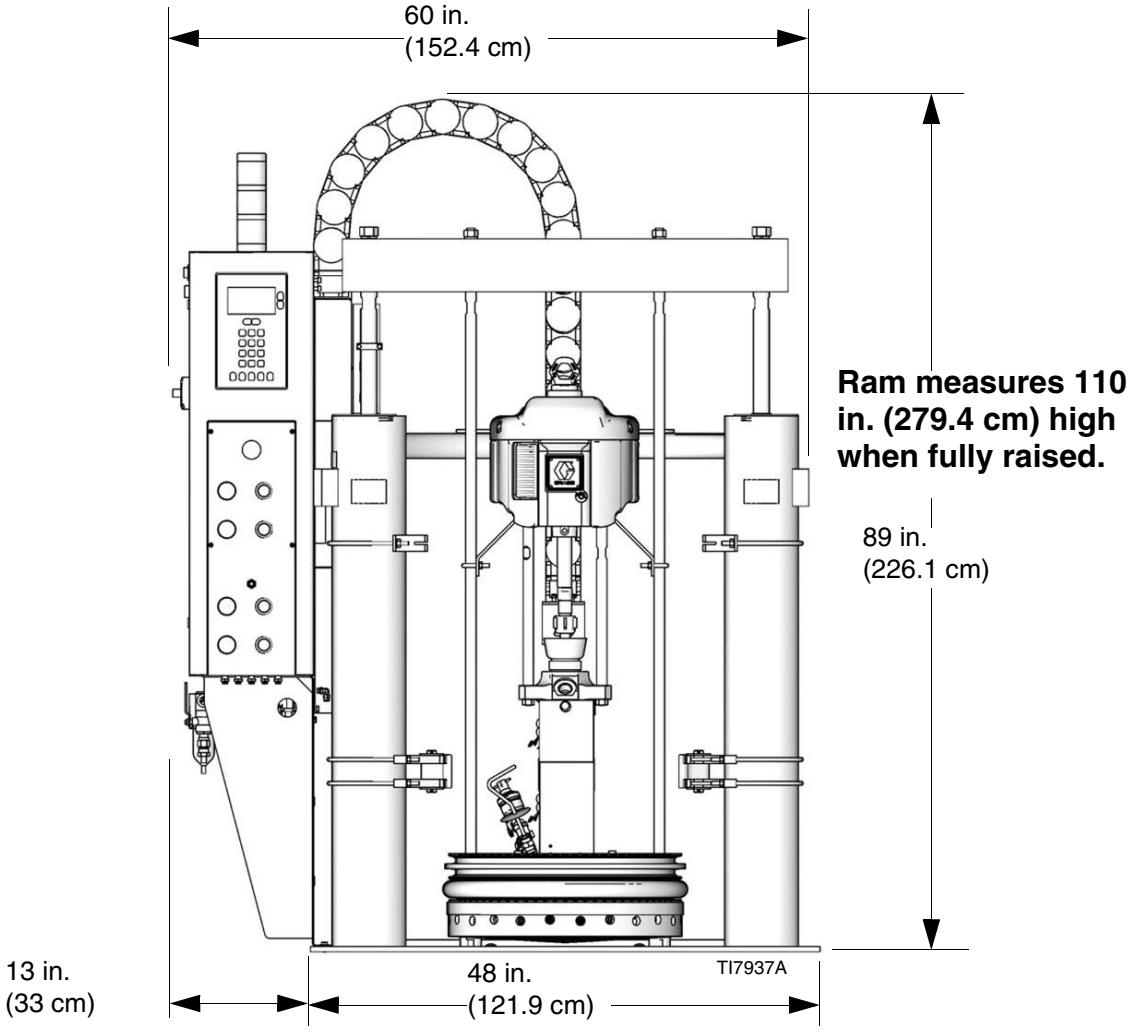
Spare parts	
Graco Part No.	**Description**
253566	Ethernet Kit
253147	EasyKey Display Kit
117769	LCD Graphic Display
253603	Drum Low and Empty Sensors
253547	Light Tower Kit
120400	Discrete I/O Cable
15H386	Air Motor Sensor Cable
15H385 121228	Crossover Comm Cable Can Cable (for units dated after 6/19/2008)
120384	Swirl Cable
15H298	Platen RTD Sensor
120275	Pump RTD Sensor
120271	Pump Heater 600W
253548	Maintenance Call Button Kit
253567	Discrete I/O Kit
253559	Drum Low and Empty Sensor kit
15H592	Pump Bottom Cover
15H593	Pump Left Cover
15H594	Pump Right Cover
15H595	Pump Front Cover

Electrical Enclosure Spare Parts				
Reference No.	**Graco Part No.**	**Description**	**6 Zone**	**8 Zone**
PCB246	249404	Unloader Board	1	1
PCB201, 226	249405	Temperature Board	2	2
SR106, 113, 116, 119, 122, 125, 128	120398	18 amp Watlow SSR	5	7
SSR130	120399	65 amp Watlow SSR	1	1
DISC 100	120437	Disconnect 60A	1	
DISC 100	120438	Disconnect 80A		1
N/A	120439	Door Operating Mech - Disconnect	1	1
N/A	120440	Shaft Disconnect	1	1
FU1061, 1062	116214	15A Fuse	2	2
FU106, 108	120426	7A Fuse	2	2
FU113, 119, 125	116208	6A Fuse	2	3
FU116, 122, 128	116209	2-1/4A Fuse	2	3
PS122	120427	DC Pwr Supply 24V	1	1
GFPE112	120428	GFPE	1	1
N/A	120430	5KVA Transformer	1	1

Dimensions

Ram Mounting and Clearance Dimensions





Technical Data

Displacement pump effective area	1.24 in.^{2} (8 cm^2)
Volume per cycle	11.7 in.^{3} (192 cm^3)
Pump cycles per 1 gal. (3.8 liters)	21
Maximum fluid working pressure	
NXT 2200	2300 psi (15.9 MPa, 159 bar)
NXT 3400	3000 psi (20.7 MPa, 207 bar)
NXT 6500	3000 psi (20.7 MPa, 207 bar)
Maximum air input pressure (Ram)	125 psi (0.85 MPa, 8.5 bar)
Maximum air input pressure (Pumps)	
NXT 2200	100 psi (0.7 MPa, 7 bar)
NXT 3400	82 psi (0.57 MPa, 5.7 bar)
NXT 6500	43 psi (0.29 MPa, 2.9 bar)
Maximum pump operating temperature	400°F (204°C)
Air motor piston effective area	
NXT 2200	28.3 in.^{2} (182 cm^2)
NXT 3400	44.2 in.^{2} (285 cm^2)
NXT 6500	84.5 in.^{2} (545 cm^2)
Air inlet size	1/2 npsm(f)
Pump fluid outlet size	1 in. npt(f)
Wetted parts	Carbon steel; brass; chrome, zinc, and nickel plating; 304, 316, 440, and 17-4 PH grades of stainless steel; alloy steel; ductile iron; PTFE
Weight	1200 lb (545 kg)
Displacement pump weight	81 lb (37 kg)
Instruction Manuals	
Heated Hoses	309160
Wiper Kits	309196
Bare Displacement Pump Lower	308570
6.5 in. (165 mm) Global Ram Module	310523
Power requirements	
Compressed air	25-50 scfm (typical)
Voltage (as selected)	220/240 V, 3-phase, 50/60 Hz 380/400 V, 3-phase, 50/60 Hz 470/490 V, 3-phase, 50/60 Hz 575 V, 3-phase, 50/60 Hz
Peak consumption*	
with standard melt grid	24.5 kVa
with Mega-Flo melt grid	27.5 kVa
with smooth melt grid	24.5 kVa

* Includes drum melt grid, pump, and a 5 kVa transformer for the 230 V hoses and accessories.

Graco Standard Warranty

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

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

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

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Original instructions. This manual contains English. MM 311208

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