

Series 5000 Drum Melter/Applicators

Model 5544

Customer Product Manual
Part 303 875B



NORDSON CORPORATION • DULUTH, GEORGIA • USA
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Section 1

Safety

Section 1

Safety

Refer to the instructions provided in the *Safety Notice* (available in www.emanuals.nordson.com under 5000 Series 55 Gallon Drum Melters).

1. Operate Safely

Safety instructions contained in this section and throughout this document apply to tasks that may be performed with or on the unit. Warnings related to specific safety concerns are included within the text as appropriate. It is very important that these safety instructions are always followed. Failure to do so could result in personal injury and/or damage to the unit or other equipment.

With this in mind, here are some basic safety recommendations:

- Read and become familiar with this *Safety* section prior to installing, operating, maintaining, or repairing the unit.
- Read and follow the warnings which appear within the text and are related to specific tasks.
- Store this document within easy reach of personnel operating or maintaining the unit.
- Wear personal protective equipment and clothing such as safety goggles and gloves.
- Familiarize yourself with and follow all safety instructions prescribed by your company, general accident-prevention regulations, and government safety regulations.

2. Safety Symbols

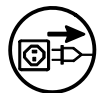
The following symbols are used to warn against dangers or possible sources of danger. Become familiar with them! Failure to heed a warning could lead to personal injury and/or damage to the unit or other equipment.



WARNING: Failure to observe may result in personal injury, death, or equipment damage.



WARNING: Risk of electrical shock. Failure to observe may result in personal injury, death, or equipment damage.



WARNING: Disconnect equipment from the line voltage.



WARNING: Hot! Risk of burns. Wear heat-protective clothing, safety goggles, and/or heat-protective gloves depending on the symbols shown.



WARNING: Risk of explosion or fire. Fire, open flames, and smoking prohibited.



WARNING: System or material pressurized. Relieve pressure. Failure to observe may result in serious burns.



CAUTION: Failure to observe may result in equipment damage.



CAUTION: Hot surface. Failure to observe may result in burns.

3. Qualified Personnel

“Qualified personnel” is defined here as individuals who thoroughly understand the equipment and its safe operation, maintenance, and repair. Qualified personnel are physically capable of performing the required tasks, familiar with all relevant safety rules and regulations, and have been trained to safely install, operate, maintain, and/or repair the equipment. It is the responsibility of the company operating the equipment to see that its personnel meet these requirements.



WARNING: Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others, and damage to the equipment

4. Intended Use

The unit is designed and intended to be used only for the purpose described in the *Description* section. Uses not in accordance with that section or as described in this document are considered unintended uses and not in accordance with governing regulations.



WARNING: Use of this equipment in ways other than described in this document may result in personal injury, death, or equipment damage.

The following actions of the owner or operator of the unit are some, but not all, examples of unintended use which would permit Nordson to claim it is not responsible for personal injury or property damage arising from such unintended use:

- Unapproved modifications or changes to the unit
- Failure to comply with the safety instructions
- Failure to comply with instructions concerning installation, use, operation, maintenance, or repair, or when these tasks are carried out by unqualified personnel
- Use of inappropriate or incompatible foreign materials or auxiliary equipment
- Failure to observe workplace safety rules or regulations issued by government authorities or safety councils

5. Installation and Electrical Connections



WARNING: Failure to follow the safety procedures can result in injury or death.

- All electrical, pneumatic, gas, and hydraulic connections and installations of hot melt equipment may only be carried out by qualified personnel. Be sure to observe installation instructions for components and accessories.
- Equipment must be properly grounded and fused according to its rated current consumption (see ID plate).
- Cables which run outside the unit must regularly be checked for wear or damage.
- Power supply wire gauge and insulation must be sufficient to handle rated current consumption.
- Cables must never be squeezed or pinched. Do not locate cables or hoses in high traffic areas.

6. Operation



WARNING: Failure to follow the safety procedures can result in injury or death.

- Never allow the unit to be operated by personnel under the influence of substances which reduce their reaction times, or who are not able to operate the equipment for physical reasons.
- Prior to each start-up of the unit, check protection and warning devices and make sure they are fully functional. Do not operate the unit if these devices are not functioning properly.
- When the removal of safety equipment is required for installation, maintenance, or repair of the unit, it must be re-connected immediately upon completion of the work.
- Prior to start-up of the unit, check to make sure all safety guards and safety equipment are in place and functioning properly.

6. Operation (contd)

- In a humid environment, only equipment featuring a corresponding class of protection may be operated.
- Do not operate the unit in an explosive environment.
- Keep parts of the body or clothing away from rotating parts. Do not wear loose articles of clothing when operating or servicing units with rotating parts. Take off wrist watches, rings, necklaces, or similar pieces of jewelry and pin up or cover long hair before performing any work on or with the unit.
- To carry out measurements on work pieces, switch off the unit and wait until it comes to a standstill.
- Never point hand guns or applicator nozzles at yourself or other persons.

Less-Obvious Dangers

WARNING: An operator or service technician working with the unit should be aware of less-obvious dangers that often cannot be completely minimized at production sites:

- Exposed surfaces of the unit which cannot be practically safeguarded. They may be hot and take time to cool after the unit has been operating.
- The possibility that electrical potentials may remain in the unit after the unit was de-energized
- Hot melt material and vapors
- Hydraulically or pneumatically operated parts of the unit
- Parts winding something up or down which are not covered

Action in the Event of Unit Malfunction

If the unit malfunctions, switch it off immediately.

- Turn the circuit breaker or main power switch OFF.
- Have the unit repaired by qualified personnel only.

Danger of Burns

Contact with hot melt materials or hot areas of the unit may produce a severe skin burn.



WARNING: Hot! Risk of burns. Wear heat-protective clothing, safety goggles, and/or heat-protective gloves depending on the symbols shown.



- Be extremely careful when using hot melt material. Even solidified material may still be very hot.
- Always wear protective clothing which safely covers all exposed parts of the body.

In case of burns:

- Immediately cool affected skin areas using cold, clean water.
- Do not forcefully remove hot melt material from the skin.
- Immediately seek medical attention.

7. Maintenance/Repair

Allow only qualified personnel to perform the procedures described in this document. When performing such tasks, wear protective clothing, and equipment.



WARNING: Even when the circuit breaker or main power switch is OFF, the unit is still electrically energized. Complete the following steps prior to maintenance or repair:



WARNING: DO NOT place torso, head, or arms between the drum and the air manifold, or between the platen and the air manifold when the drum is not place.

- Disconnect, lock out, and tag external power supply.
- Disconnect the air supply from the system before service.
- To ensure the external power supply is disconnected, attempt to operate the unit. If the unit does not energize, proceed with maintenance or repair work.
- If the unit energizes, repeat the disconnect, lock out, and tag procedure. Re-test the unit.

7. Maintenance/Repair

(contd)

- Follow the specific instructions provided in this manual to relieve the system pressure in the entire unit.
- Secure pneumatically- or hydraulically-operated equipment against uncontrolled movement.
- Only use parts which do not compromise the safety of the unit. Only use genuine Nordson parts.
- Always use tools with insulated handles when removing or installing components.

8. Cleaning

NOTE: Always refer to the material manufacturer's Material Safety Data Sheet (MSDS) or material information sheet before working with any material.



WARNING: Never clean any aluminum part or flush any system using halogenated hydrocarbon fluids. Examples of common halogenated hydrocarbons are: dichloromethylene, 1,1,1-trichloroethylene, and perchloroethylene. Halogenated hydrocarbons may react violently with aluminum parts.



WARNING: Fire, open flame, and smoking are prohibited when cleaning fluids are used. Observe all explosion prevention regulations. Cleaning fluids may only be heated using temperature-controlled and explosion-protected heaters.

- Never use an open flame to clean the unit or components of the unit.
- Use only cleaning fluids designed or intended to be used with the hot melt material being used in the unit. Never use paint fluids under any circumstances.
- Note the flash point of the cleaning fluid used. Only use a controlled heating method to heat fluids.
- Ensure sufficient room ventilation to draw off generated vapors. Avoid prolonged breathing of vapors.

9. Thermoplastic Hot Melt Material

NOTE: Always refer to the material manufacturer's Material Safety Data Sheet (MSDS) or material information sheet before working with any hot melt material.

- Ensure the work area is adequately ventilated.
- Do not exceed recommended processing temperatures. Doing so creates a danger to personnel due to decomposition of the material.

10. Equipment and Material Disposal

Dispose of equipment and materials used in operation and cleaning according to local regulations.

11. Polyurethane Reactive (PUR) Hot Melt Material

NOTE: Always refer to the material manufacturer's Material Safety Data Sheet (MSDS) or material information sheet before working with any hot melt material.



WARNING: Exercise extreme caution and always provide adequate ventilation when using reactive materials.



WARNING: Only use PUR material in units that are designed to process such material. Using PUR material in units that cannot process them can cause damage to the unit and premature reaction of the hot melt material.



WARNING: PUR material contains isocyanate ingredients which will irritate skin, mucous membranes of eyes and respiratory passages.



WARNING: Persons with existing asthmatic conditions may experience difficulty in breathing.

**11. Polyurethane Reactive
(PUR) Hot Melt Material**
(contd)

Because isocyanate ingredients are found in various concentrations in reactive materials produced by different manufacturers, it is imperative that the material manufacturer's MSDS or material information sheet be consulted before using reactive material. Pay particular attention to the discussion of material toxicity, health effects, and reactivity condition.

There are certain universal safety guidelines that should be followed when using any reactive material:

- Recommended processing temperatures must not be exceeded.
- When handling and using reactive material, always wear thermally protective gloves and long-sleeved clothing.
- Wear chemical goggles to reduce the potential of eye contact.
- Have eye washes available and provide a cold water source for burn treatment.
- The regular use of barrier cream for hands and face is recommended for skin protection.
- Do not eat, drink, smoke, or store food in working areas where PUR material is being processed.
- Wash hands thoroughly after working with reactive material.
- Remove hot melt material vapors using suitable extraction ventilation equipment.
- Use appropriate respiratory equipment where there is the danger of inhaling isocyanate vapors or other ingredients contained in the PUR material in concentrations exceeding permissible limit values.
- In case of very high concentrations of harmful substances, or if you are unsure of the environmental conditions, respiratory protective equipment (operating independent of the surrounding air) must be used.
- Do not operate the unit with PUR materials if you are unsure that all adequate safety measures have been taken.

SECTION 2

Section 2

Description

Section 2

Description

Refer to the instructions provided in the *Safety Notice* (available in www.emanuals.nordson.com under 5000 Series 55 Gallon Drum Melters).

1. Introduction

The Nordson Model 5544 drum melter is a non-circulating system that melts and pumps thermoplastic materials directly from 200-liter (55-gallon) drums. The platen melts the material and the pump transfers it into a distribution manifold. The material flows from the manifold to heated hoses and heated extrusion guns for delivery to the substrate.

The platen, hoses, and guns are electrically heated. The platen has six cast-in heaters, the hoses have a spiral wound heating element, and the guns have a cartridge heater. Resistance temperature detectors (RTDs) sense the temperature in the platen, hoses, and guns.

The Model 5544 drum melter is designed for applications that require a high volume of material and rapid delivery to the substrate.

Standard Features

The following features are standard on the Model 5544 drum melter:

- A modular gerotor pump
- A two-piece, PTFE-coated, aluminum platen with two seals and six cast-in heaters.
- Solid-state temperature controls
- A lockable electrical enclosure that houses the temperature controls
- Digital temperature display in degrees Fahrenheit or Celsius

Standard Features *(contd)*

- SYSTEM READY and SYSTEM FAULT LED indicators
- Exterior controls for POWER ON, STOP, PUMP OFF/ON, and PUMP SPEED
- Exterior lamps for POWER ON, LOW DRUM, and OVER-TEMPERATURE indication
- A permanently plumbed, low pressure, high volume air blow-off valve for efficient platen removal

Optional Features

- Temperature STANDBY circuitry to lower setpoint temperatures during periods when the drum melter is not in use

Additional optional features are described in the *Options* section.

2. Main Assemblies

Figure 2-1 illustrates the Model 5544 drum melter main assemblies.

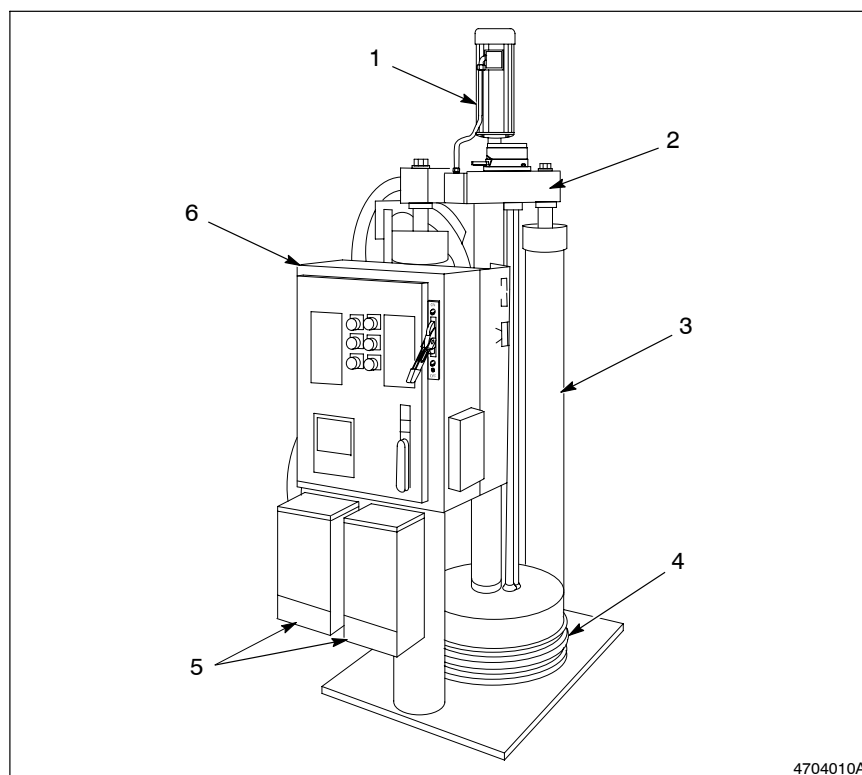


Fig. 2-1 Model 5544 Drum melter

- | | |
|--------------------------|-----------------------------|
| 1. Drive assembly | 4. Platen assembly |
| 2. Junction box | 5. Transformer assembly (2) |
| 3. Air cylinder assembly | 6. Electrical enclosure |

3. Controls and Indicators

Controls and indicators for the Model 5544 drum melter are located both inside and outside the electrical enclosure box.

Logic Control Unit

See Figure 2-2. The solid-state Logic Control Unit (LCU) is located inside the lockable electrical enclosure. The temperature control panel (1), LCU circuit board (2), and °F/°C display slide switch/display board (3) are components of the LCU.

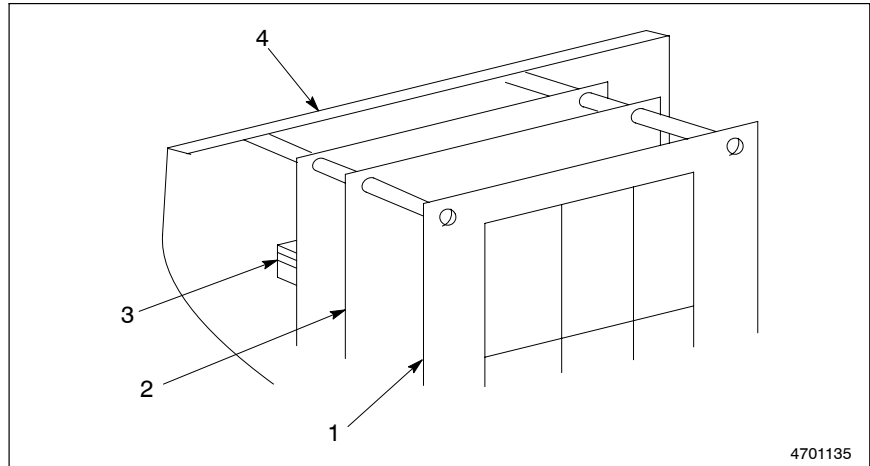


Fig. 2-2 LCU Organization

- | | |
|------------------------------|---|
| 1. Temperature control panel | 3. °F/°C display slide switch/display board |
| 2. LCU circuit board | 4. Enclosure door |

Temperature Control Panel

See Figure 2-3. The temperature control panel consists of dial potentiometers for setting the application temperature (setpoint) and over-temperature of each zone.

There are three zones in single-hose units which correspond to the PLATEN (1); HOSE 1 (2); and GUN 1 (3).

There are two additional zones in dual-hose units: HOSE 2 (4), and GUN 2 (5).

The temperature range for each zone is 38–232 °C (100–450 °F). The setpoint and over-temperature settings will vary according to the adhesive material you are using.

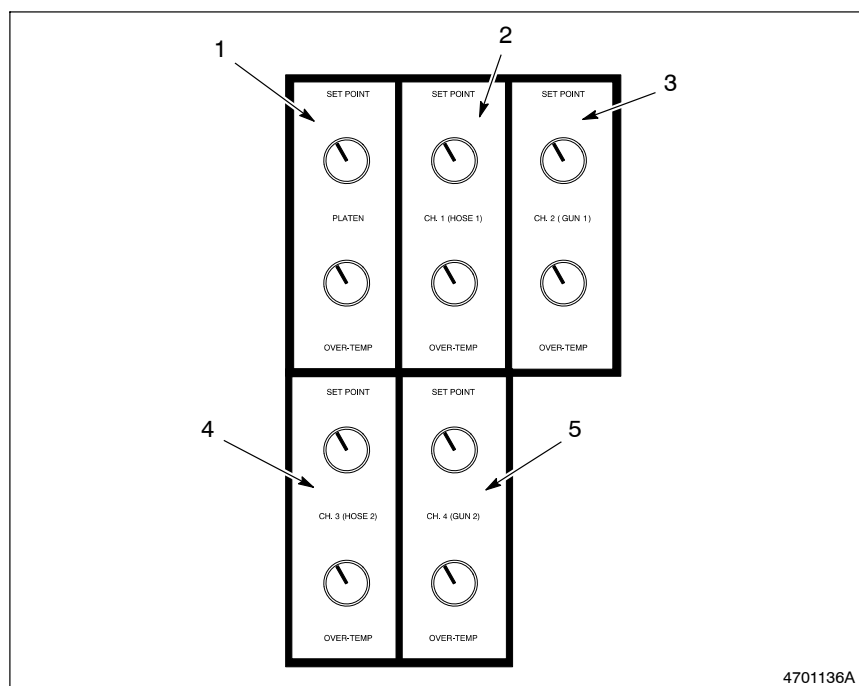


Fig. 2-3 Temperature Control Panel

1. PLATEN setpoint and over-temperature
2. HOSE 1 setpoint and over-temperature
3. GUN 1 setpoint and over-temperature
4. HOSE 2 setpoint and over-temperature (dual hose only)
5. GUN 2 setpoint and over-temperature (dual hose only)

LCU Circuit Board

See Figure 2-4. An optional temperature SETBACK switch (1) and platen heater control dip switch (2) are located on the LCU circuit board.

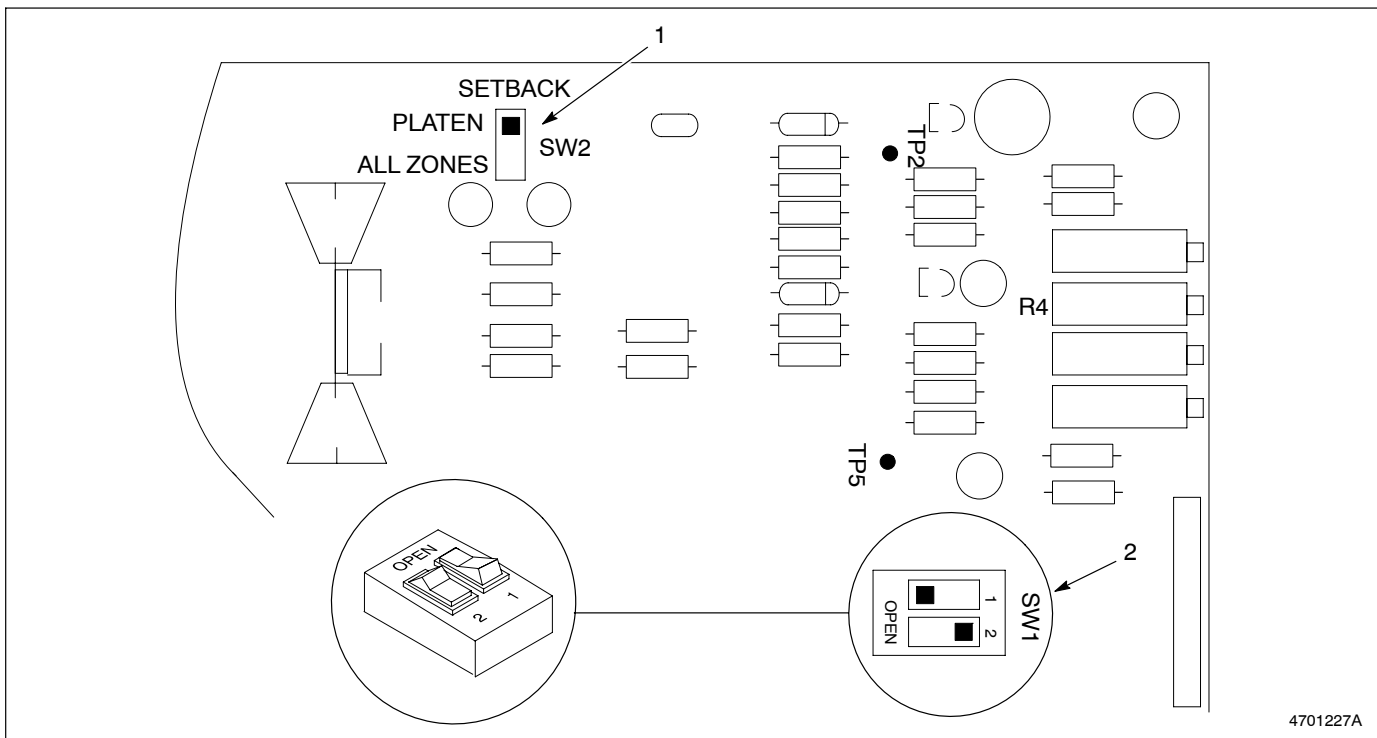


Fig. 2-4 LCU Circuit Board Detail

1. Setback slide switch SW2

2. Dip switch SW1

The temperature SETBACK switch (also referred to as the standby feature) allows a standby condition for the platen or all zones of the drum melter. The standby feature lowers the platen or all zones of the drum melter to a predetermined setback temperature during periods of inactivity.

The platen heater control dip switch SW1 is preset at the factory for maximum efficiency in the platen heating mechanism.

°F/°C Display Slide Switch

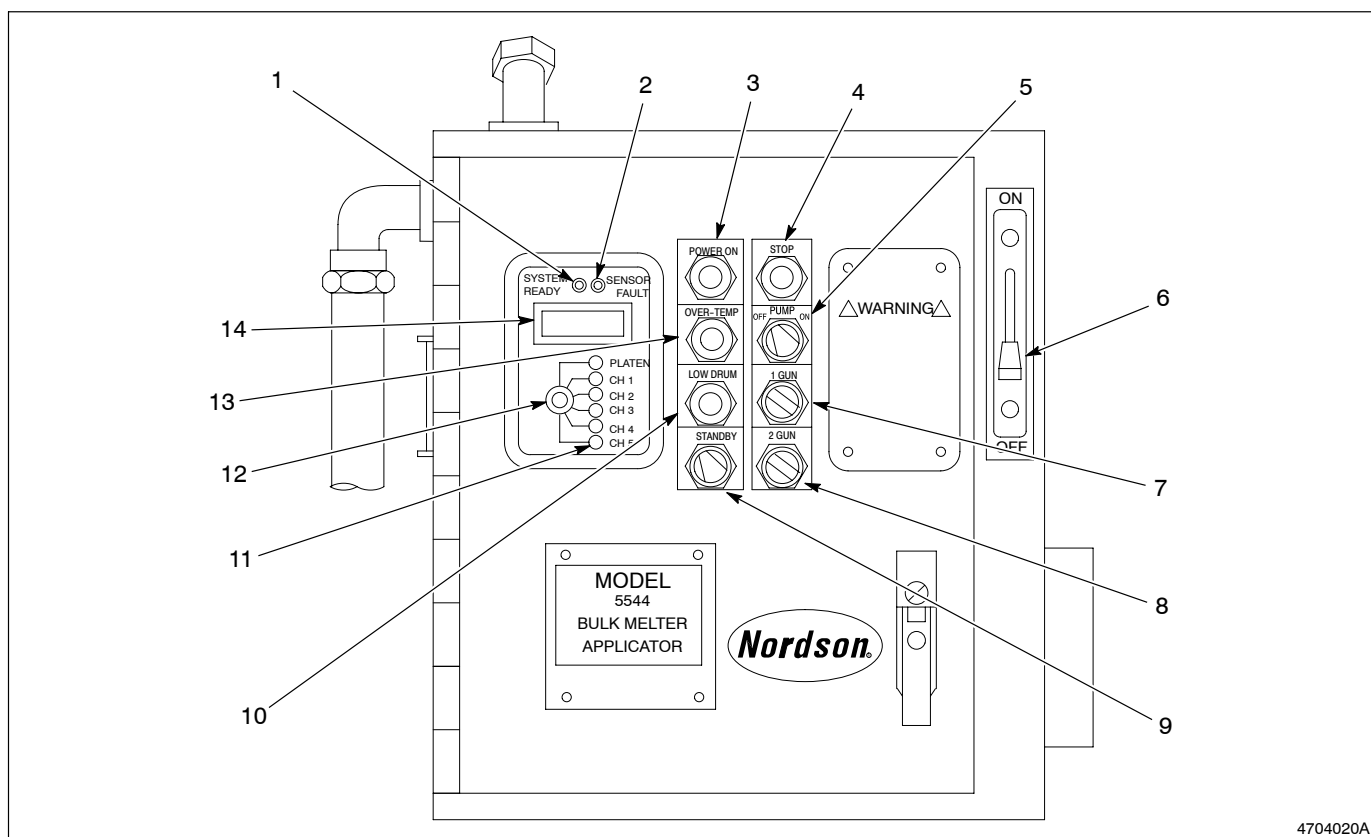
The °F/°C Display Switch allows the display of temperature zones in either degrees Fahrenheit or Celsius. Slide the switch into the up position for degrees Fahrenheit or into the down position for degrees Celsius.

Electrical Enclosure Panel

The LCU display panel, power/pump control panel, and main disconnect switch are located on the front panel of the electrical enclosure box. The air cylinder elevator control valve and platen removal selector switch are located on the side panel of the electrical enclosure box. The air filter/regulator and air pressure gauge are located along the back panel of the electrical enclosure box.

LCU Display Panel

See Figure 2-5. The LCU display panel consists of the digital temperature display (14), zone selector switch (12), zone output (amber) LEDs (11), SYSTEM READY (green) LED (1), and SENSOR FAULT (red) LED (2).



4704020A

Fig. 2-5 Electrical Enclosure Front Panel (Dual-Hose Version Shown)

- | | | |
|---------------------------|-------------------------------------|-------------------------------------|
| 1. SYSTEM READY LED | 7. Pump speed potentiometer (1 GUN) | 11. Zone output (amber) LEDs |
| 2. SENSOR FAULT LED | 8. Pump speed potentiometer (2 GUN) | 12. Zone selector switch |
| 3. POWER ON pushbutton | 9. STANDBY switch (optional) | 13. OVER-TEMPERATURE indicator lamp |
| 4. STOP pushbutton | 10. LOW DRUM indicator lamp | 14. Digital temperature display |
| 5. PUMP OFF/ON switch | | |
| 6. Main disconnect switch | | |

LCU Display Panel (contd)

During startup, all amber LEDs for the platen and any connected hoses or guns will remain on and the SYSTEM READY LED will remain off. Once the platen is within 14 °C (25 °F) of the setpoint, the green SYSTEM READY LED will come on. When the setpoint temperature is reached, power is cycled to the heaters and the amber LEDs will blink.

Turn the zone selector switch to a particular channel (CH1 for platen) to display the temperature in that zone.

If the temperature in any zone reaches the over-temperature setting, the OVER-TEMPERATURE INDICATOR LAMP will come on.

Power/Pump Control Panel

The power/pump control panel consists of the following controls and indicators:

- POWER ON pushbutton (3) (applies power to all heated zones and the pump motor)
- STOP pushbutton (4) (removes power from the pump control and heating zone circuitry)
- OVER-TEMPERATURE indicator lamp (13)
- PUMP OFF/ON switch (5)
- LOW DRUM (10) indicator lamp
- STANDBY (9) switch (optional)
- PUMP SPEED potentiometer(s) (7, 8) (one or two depending upon the number of hoses/guns)

Main Disconnect Switch

The main disconnect switch (6) routes electrical power to the drum melter master power contactor when set to the ON position.

Elevator Control Valve and Platen Removal Switch

See Figure 2-6. The three-position ELEVATOR CONTROL valve directs the air supply to either above or below the pistons located inside the air cylinders.

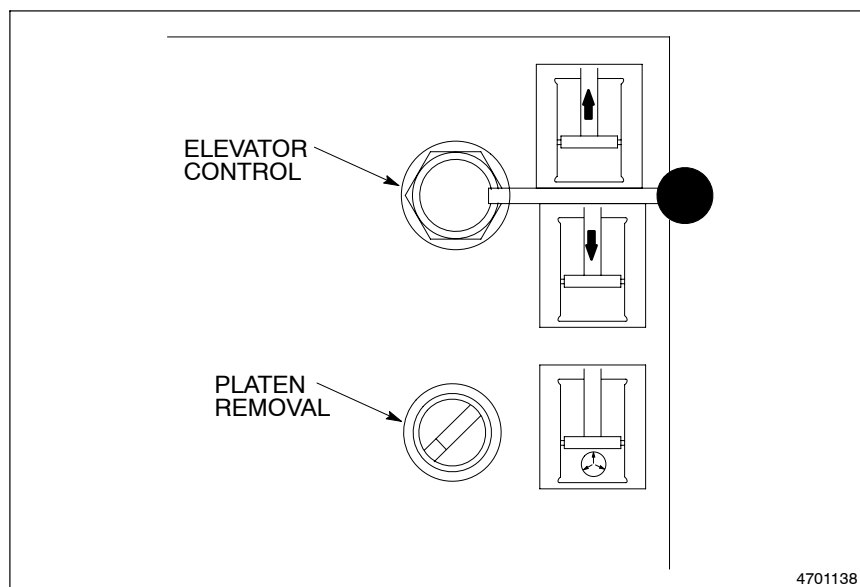


Fig. 2-6 Elevator Control Valve and Platen Removal Switch

When the ELEVATOR CONTROL valve is in the up position, air is forced into the air cylinders below the pistons; causing the piston, crossover assembly, drive assembly, and platen to move up.

When the ELEVATOR CONTROL valve is in the down position, air is forced into air cylinders above the pistons; causing the piston, crossover assembly, drive assembly, and platen to move down.

When the ELEVATOR CONTROL valve is in the neutral (center) position, no air is forced into the air cylinders; the piston, crossover assembly, drive assembly, and platen are held in a stationary position.

The PLATEN REMOVAL selector switch is engaged along with the elevator control valve to remove the platen from the drum of material.

When the PLATEN REMOVAL selector switch is engaged, 48 kPa (7 psi) of air is delivered to the platen removal blow-off valve. This air supply assists the platen removal assemblies in raising the platen out of the drum during the changeout procedure.

Air Filter/Regulator and Air Pressure Gauge

See Figure 2-7. The air filter/regulator (3) and air pressure gauge (4) are located along the back panel of the electrical enclosure box. The 551–689 kPa (80–100 psi) shop air supply, which controls air cylinder operation, is connected to the quick disconnect fitting (1) at this location. The unit operating air pressure is adjusted with the filter/regulator handle (2).

The air pressure gauge provides a visual means of checking the Unit operating air pressure.

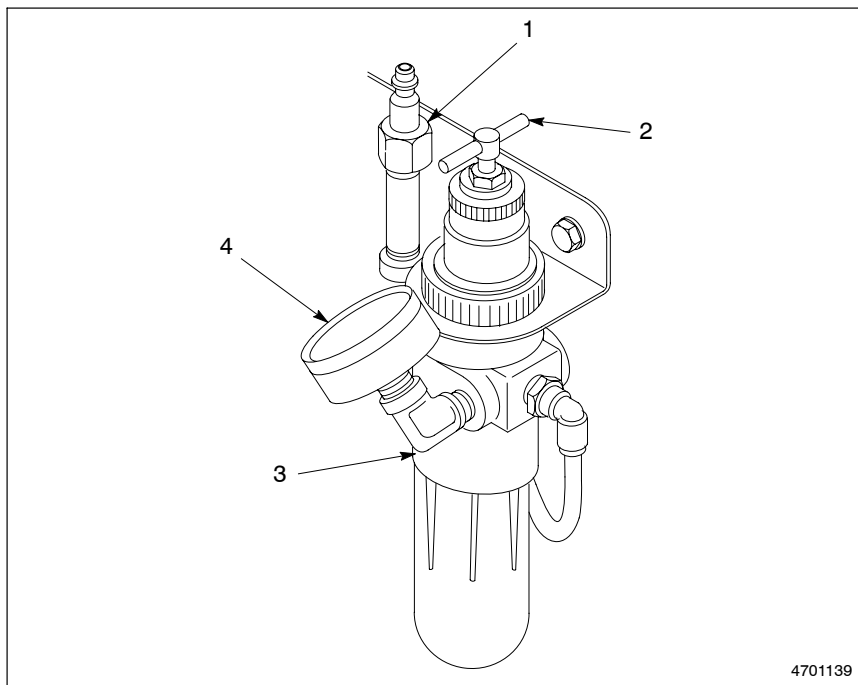


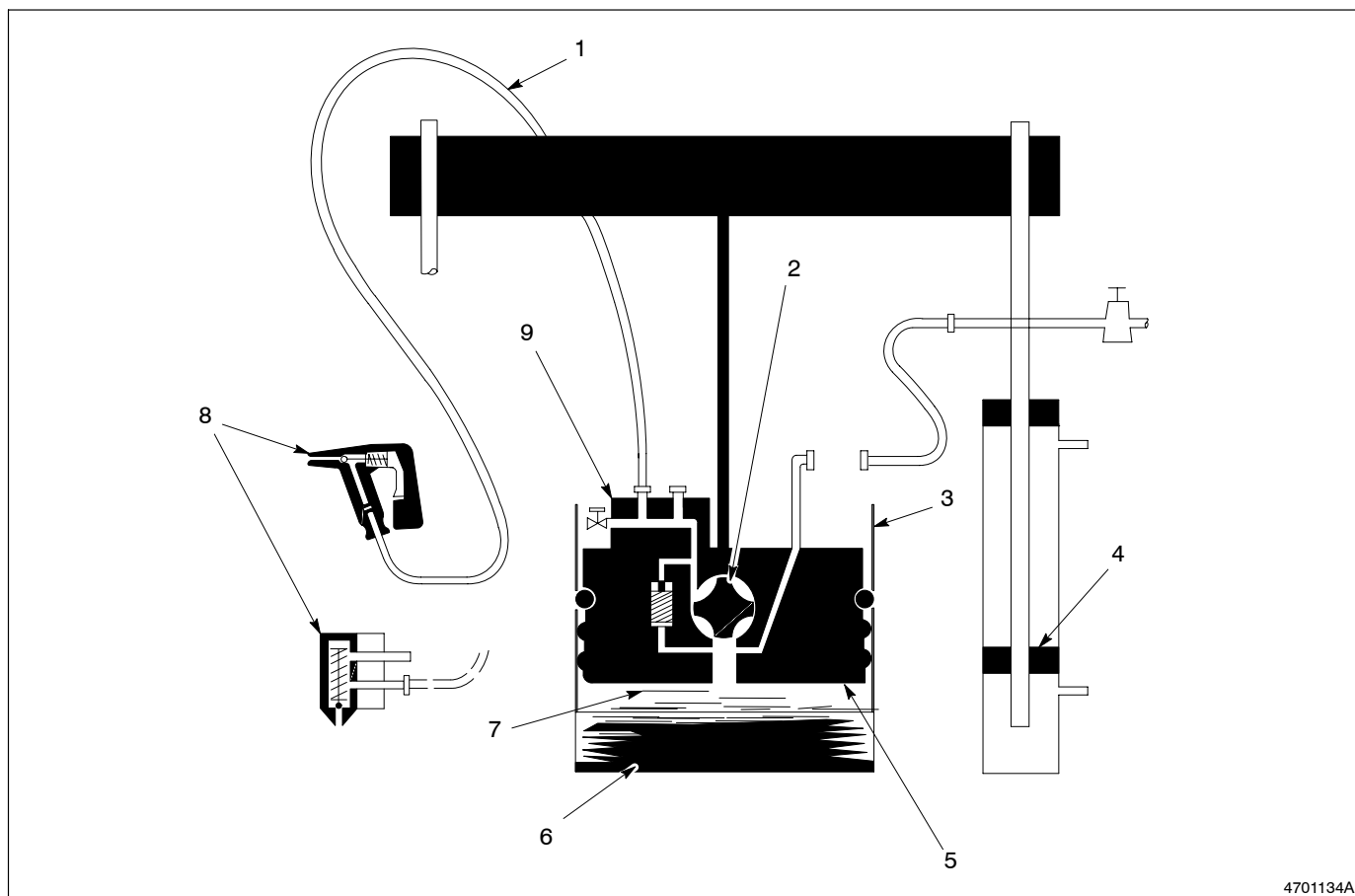
Fig. 2-7 Air Filter/Regulator and Air Pressure Gauge

- | | |
|-----------------------------|-----------------------|
| 1. Quick disconnect fitting | 3. Filter/Regulator |
| 2. Filter/Regulator handle | 4. Air pressure gauge |

4. Functional Description

When power is applied to the unit (place the main disconnect switch handle in the "ON" position and turn the heaters "ON" by pressing the "POWER ON" pushbutton), the temperature control circuitry for the platen, hose, and gun channels activates and continuously routes input power to the heating element in each component. The amber zone output LEDs will remain on while the input power is being routed to the channels.

See Figure 2-8. The green SYSTEM READY LED lights and the pump control is enabled when the platen is within 14 °C (25 °F) of the setpoint temperature and the motor start-up time delay has elapsed (if equipped with this option). Move the elevator control valve to the down position. The air-driven pistons (4) lower the platen (5) into the drum (3).



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Fig. 2-8 Material Flow Diagram

- | | | |
|-----------------|-------------------|--------------------|
| 1. Hose | 4. Piston | 7. Melted material |
| 2. Gerotor pump | 5. Platen | 8. Gun |
| 3. Drum | 6. Solid material | 9. Manifold |

4. Functional Description

(contd)

When the RTD senses that the component temperature has reached setpoint, power will begin cycling to the components to maintain this temperature and the amber LEDs will flash.

When the gun is triggered, the pump (2) draws the melted material directly below the platen (7) through a port in the bottom of the platen to the pump manifold (9). At the pump manifold, the adhesive material is fed into one or two hydraulic hoses (1). Automatic or hand-operated heated guns (8) at the end of the hoses distribute the adhesive onto the substrate.

Material that is not in direct contact with the platen (6) remains solid until the platen moves further down the drum.

The red OVER-TEMP indicator lights if a platen, hose, or gun over-temperature exists. The red SENSOR FAULT LED lights if the platen, hose, or gun RTDs fail. The amber LOW DRUM indicator lights if the material level in the drum is near empty. The LOW DRUM setting is user adjustable.

All channel temperatures or just the platen channel temperature can be lowered to STANDBY condition (setback temperature) for extended periods of inactivity.

The STANDBY feature and the drum changeout procedure are described in the *Operation* Section.

5. Specifications

Table 2-1 provides physical and operational specifications for the Model 5544 drum melter.

Table 2-1 Specifications

Part	Description	Note
Motor/Drive	3 hp, 1800 RPM DC motor, 4.06:1 gear reducer	
Pump	$\frac{3}{4}$ " gerotor, 11.6 cc/rev.	
Platen Type	Fins, High melt platen adaptor	
Maximum Melt Rate	272 kg/hr (500 lb/hr)	A
Maximum Pump Rate	309 kg/hr (680 lb/hr)	A
Platen Surface Area	15,570 cm ² (2413 in ²)	
Maximum Power Consumption (Service Required)	29 kW	B
Weight	794 kg (1750 lb)	
Dimensions (H x W x D) w/ elevator up	354 x 86 x 152 cm (141 x 34 x 60 in.)	
Operating Voltage and Current	200 Vac, 50 Hz, 3 phase, 92A 240 Vac, 60 Hz, 3 phase, 94A 380 Vac, 50 Hz, 3 phase, 54A 415 Vac, 50 Hz, 3 phase, 55A 480 Vac, 60 Hz, 3 phase, 47A	
Inside Drum Diameter	571 mm (22 $\frac{1}{2}$ in.)	
Capacity	200 l (55 gal)	
Supply Air Pressure	551–689 kPa (80–100 psi)	
Operating Temperature	38–232 °C (100–450 °F)	
Maximum Hose Capacity	2	
NOTE A: Depends on adhesive material type and viscosity. B: Depends on line voltage.		

SECTION 3

Section 3

Installation

Section 3

Installation

Refer to the instructions provided in the *Safety Notice* (available in www.emanuals.nordson.com under **5000 Series 55 Gallon Drum Melters**).



WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

1. Introduction

This section describes how to install the Model 5544 drum melter, hoses, and guns. Procedures for routine operation of the drum melter are located in the *Operation* section.

Unpacking the Drum Melter

No special instructions are necessary to unpack the drum melter. Normal care should be taken so that the equipment is not damaged during unpacking.

Inspecting the Drum Melter

After unpacking the drum melter, inspect the equipment for damage, integrity, and completeness.

- Compare the contents of the containers you received from Nordson to the bill of materials to verify that all necessary materials were received.
- Remove metal shavings, packing material, or any other foreign material that might be in the air or adhesive ports.
- Unlatch and open the electrical enclosure door. Check that all electrical connections inside the enclosure and on the inside of the door are tight.
- Check the hoses for broken connectors, tears in the outer cover, kinks, or other damage.
- Inspect all fasteners and mechanical connections for tightness.

Report any damage to your Nordson Corporation representative.

2. Drum Melter Installation

See Figure 3-1 and refer to the *Description* section for physical dimensions of the Model 5544 drum melter.

NOTE: Position the unit so the hose will reach from the pump to the gun without straining or crimping the hose.

Use the following procedure to install the drum melter.

1. Position the unit in a location that allows access to all controls and the platen area.
2. Level the unit as necessary by installing shims near the four bolt holes in the frame base. Then use $\frac{5}{16}$ in. bolts and washers to secure the unit to the floor.

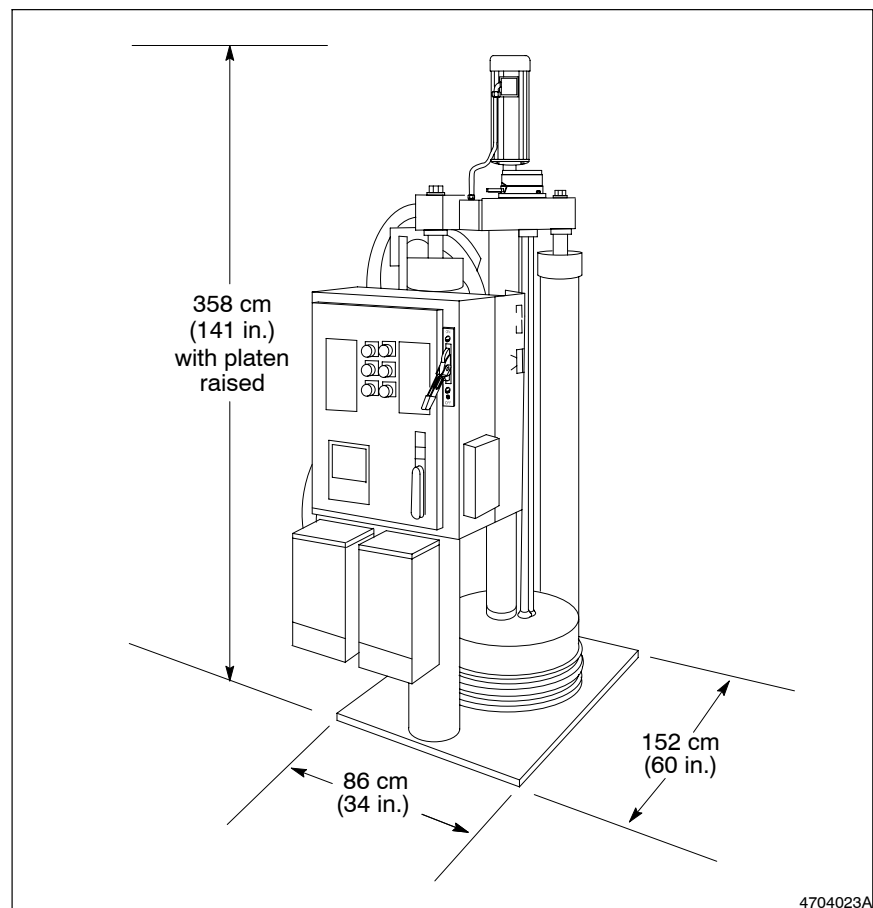


Fig. 3-1 Model 5544 Clearances

Drive Shaft Assembly

Secure the drive shaft assembly in place.

1. Loosen the driveshaft yoke assembly set screw.
2. Use a lifting device certified for at least 45.36 kg (100 lbs) to position the drive assembly (motor/clutch/speed reducer) over the driveshaft assembly.
3. Align the speed reducer arbor key with the driveshaft key.
4. Install the key, then lower the speed reducer shaft into the driveshaft.
5. Ensure that a 3 mm (0.12 in.) clearance gap exists between the speed reducer bottom plate and the top of the driveshaft yoke assembly.

NOTE: Failure to meet this clearance requirement may cause drive system binding and damage.

6. Tighten the yoke assembly set screw.
7. Remove the driveshaft securing device.
8. Lower the drive assembly onto its seat on the crossover support.
9. Align the four mounting holes in the speed reducer with their matching holes in the crossover support.
10. Install the four lockwashers and hex head screws through the speed reducer mounting holes and into the crossover support.
11. Remove the junction box cover.
12. Attach the motor and clutch (if present) electrical conduits to the top of the junction box.
13. Attach the ground wire of the motor conduit to the ground terminal inside the junction box. Attach wire 44B to junction box terminal XT3-7. Attach wire 45B to junction box terminal XT3-8.
14. If the unit is equipped with a clutch, attach wire 78B to junction box terminal YC-3, then attach wire 79 to junction box terminal YC-6. Ensure that the factory-installed jumper is in place between YC-3 and YC-7.
15. Replace the junction box cover.

Pneumatics

Install the pneumatic components as follows.

1. Check that the elevator control valve is in the neutral (center) position.

NOTE: Nordson Corporation recommends that a customer-supplied shut-off valve be installed in the air supply line in order to isolate the unit for maintenance or other procedures.

2. Set the main filter/regulator (2) (See Figure 3-2) to 0 kPa/psi. Secure an external, unlubricated air supply of at least 551–689 kPa (80–100 psi) to the quick disconnect fitting (1).

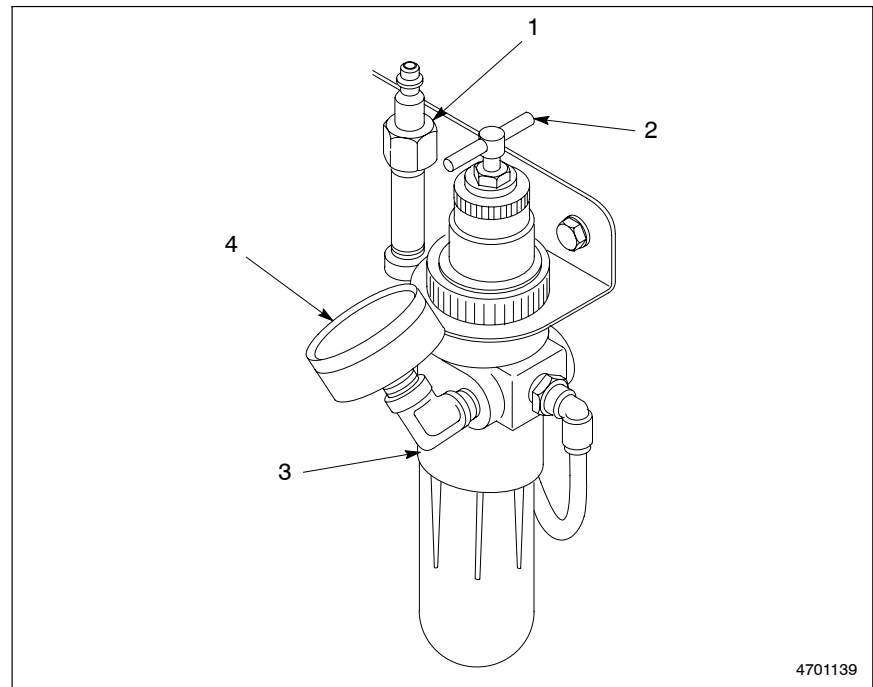


Fig. 3-2 Air Filter/Regulator and Air Pressure Gauge

- | | |
|-----------------------------|-----------------------|
| 1. Quick disconnect fitting | 3. Filter/Regulator |
| 2. Filter/Regulator handle | 4. Air pressure gauge |

Circuit Board Settings

Ensure that the LCU circuit board dip switches are set correctly.

1. Check that the °F/°C slide switch (3) (See Figure 3-3) is set for your application (UP = °F, DOWN = °C).

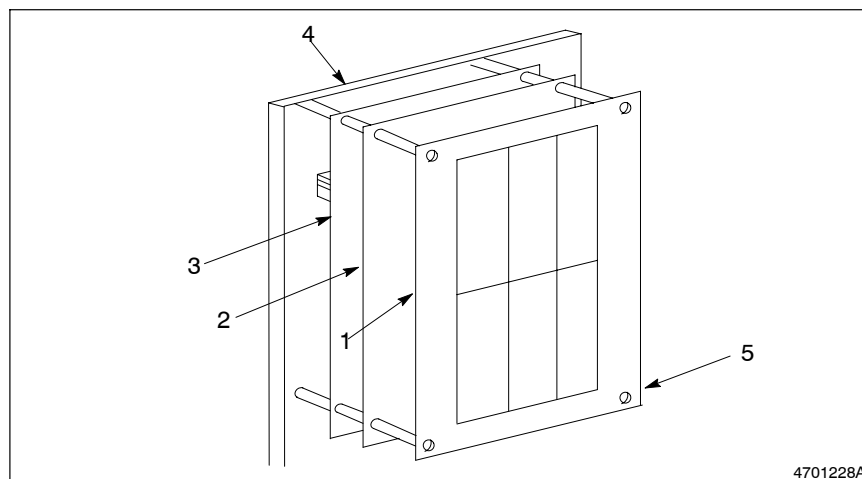


Fig. 3-3 LCU Organization

1. Temperature control panel
 2. LCU circuit board
 3. °F/°C display slide switch/display board
 4. Enclosure door
 5. Location of C4 on circuit board
2. See Figure 3-4. If melter is equipped with the optional standby feature, set SETBACK slide switch SW2 (1), on the LCU circuit board, to either PLATEN or ALL ZONES (the factory setting is ALL ZONES). Adjustment instructions for this feature are provided in the *Operation* section.

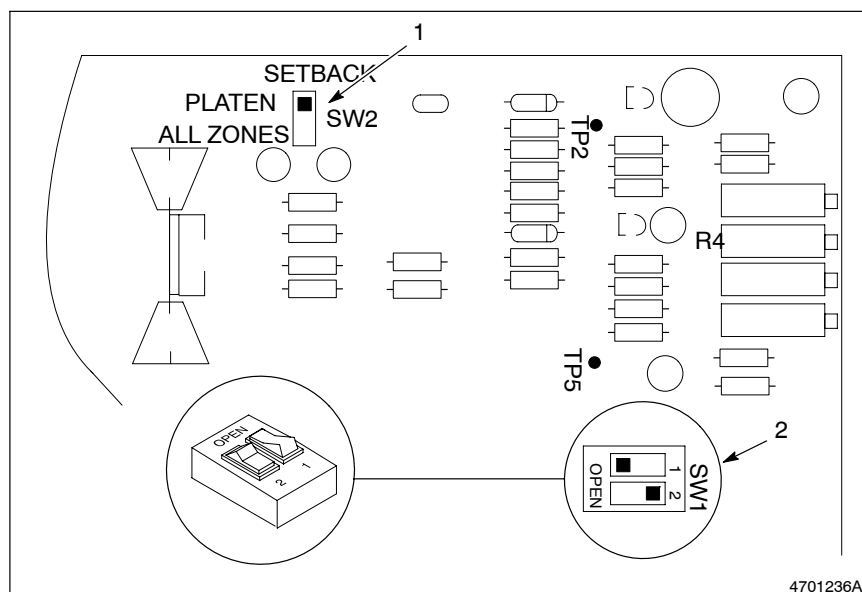


Fig. 3-4 LCU Circuit Board Detail

1. Setback slide switch SW2
2. Dip switch SW1

Circuit Board Settings (contd)

3. Locate the Platen Heater Control Circuit dip switch SW1 (2) on the LCU circuit board and verify the proper settings. Switch 1 should be set to OPEN and switch 2 should be set to CLOSED.
4. Units equipped with the Automatic Shutdown option:

See Figure 3-5. Locate the timer module (2) inside the electrical enclosure and note its setting (the factory-setting is position 3—approximately one hour). The timer is calibrated in increments of 1 through 6. One is equal to approximately 10 minutes and 6 is equal to approximately 120 minutes.

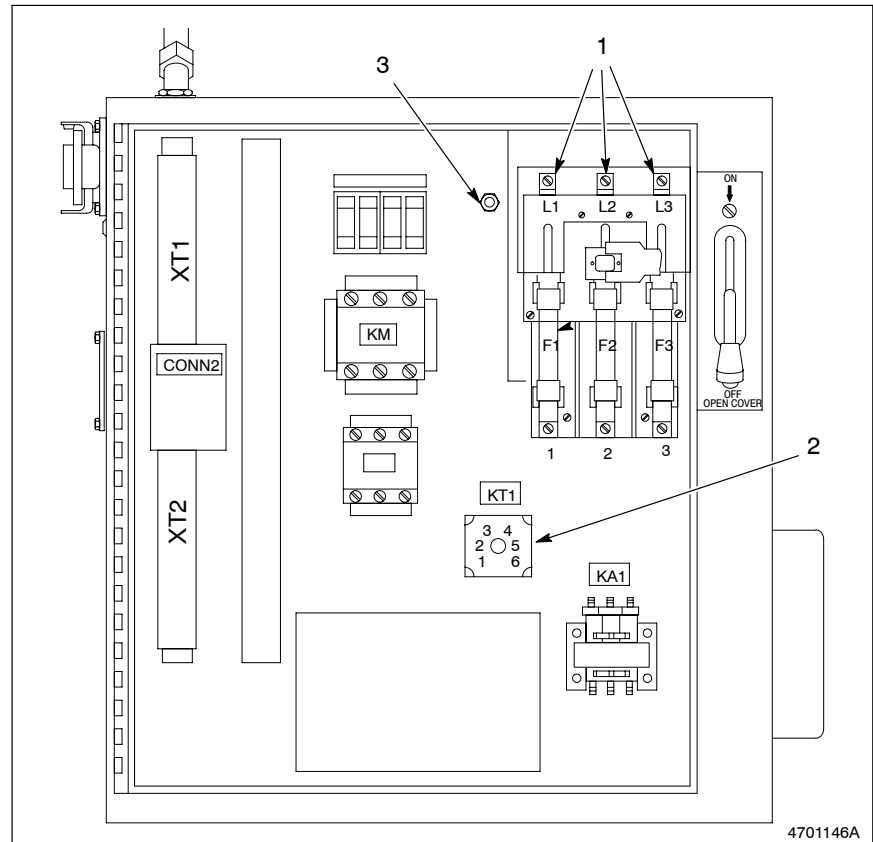


Fig. 3-5 Electrical Enclosure Interior

- | | |
|------------------------------------|----------------|
| 1. Input power terminals | 3. Ground stud |
| 2. Automatic shutdown timer module | |

3. Electrical Connections



WARNING: Risk of electrical shock. Disconnect and lock out input electrical power before connecting the input power supply line to this unit. Failure to observe could result in personal injury or death.

NOTE: Read and follow the procedures in the *Operation* section before supplying input power to the unit.

The Model 5544 drum melter is available with the following input voltages:

- 200 VAC
- 240 VAC
- 380 VAC
- 415 VAC
- 480 VAC

The input voltage for the unit is stamped on the nameplate on the front of electrical enclosure.

Use the following procedure to make the drum melter electrical connections.

1. Install a customer-supplied disconnect switch, with a lockout, in the input power supply line to the unit.
2. Remove the knockout plug in the top of the electrical enclosure and install a customer-supplied strain relief at this access hole.

NOTE: The input power supply line may be routed into the electrical enclosure by way of another location. However, this will require a customer-produced hole in the electrical enclosure.

3. Route a 3-phase input power supply line through the strain relief and into the electrical enclosure.

NOTE: The power supply must be rated according to the *Specifications* table at the end of the *Description* section and be within 10% of the voltage rating specified on the drum melter nameplate.

3. Electrical Connections

(contd)

4. See Figure 3-5. Unlatch and open the electrical enclosure and connect input power to terminals L1, L2, and L3 (1) at the main disconnect switch.
5. Connect the input power supply line ground wire to the copper terminal at the ground stud (3).
6. Connect a reliable, non-floating earth ground to the ground stud inside the enclosure by way of the input power supply line access hole.

NOTE: Do not connect the unit ground to any of the incoming power lines. Failure to observe this notice could lead to equipment failure.

NOTE: Do not apply input power to the unit until directed to do so in the *Operation* section.

4. Automatic Gun Installation



WARNING: Risk of electrical shock. Complete gun-to-hose connections before completing hose-to-unit electrical connections. Failure to observe could result in personal injury or death.

NOTE: Refer to the *Troubleshooting* section for wiring diagrams and schematics. Also, refer to the product manual for your particular extrusion gun.

NOTE: The gun mount should be protected from vibration and secured so that the gun will not change position during operation.

Use the following procedure to install automatic gun(s) to the drum melter.

1. See Figure 3-6. Install the gun on the parent machine in proper alignment with the substrate (1). If the mounting retainer is used for this purpose, use a 13 mm (0.5 in.) diameter bar. For optimum control of bead position, optimum response time, and minimum heat loss, nozzles should be positioned approximately 13 mm (0.5 in.) from the substrate.

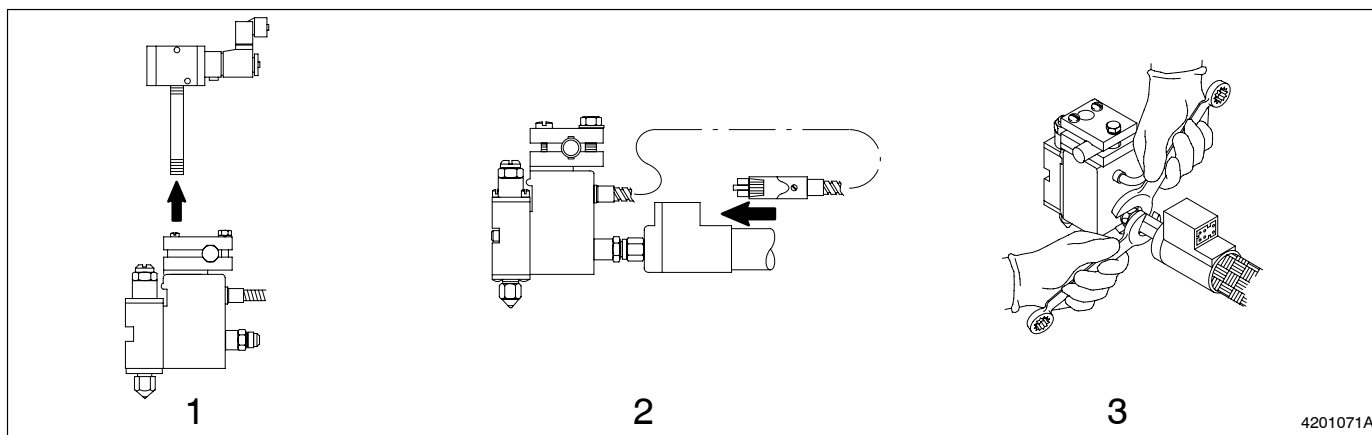


Fig. 3-6 Automatic Gun Installation

1. Installing the gun on the parent machine
2. Making the hydraulic and electric connections
3. Tightening the hydraulic connection

2. Coat the gun fitting threads with Never Seez and connect the hose swivel connector to the gun fitting (2).
3. Insert the gun's electrical plug into the socket at the end of the hose (2).
4. Use two wrenches to tighten the hose connection, one wrench to hold the gun fitting stationary and the other to tighten the hose swivel connector (3).
5. Wrap the hose/gun hydraulic connection with insulation.
6. Install a filter/regulator and solenoid (both customer-supplied) on the gun. Position the solenoid as close as practical to the gun in order to prevent lag time between the solenoid valve actuation and the gun operation.
7. Set the gun filter/regulator to 0 kPa/psi.

NOTE: Nordson recommends that a customer-supplied 3-way lockout valve be installed in the air supply line in order to isolate the gun for maintenance or other procedures.

8. Connect an external, unfiltered and unlubricated air supply to the gun solenoid. The recommended air supply pressure is 483–689 kPa (70–100 psi). The air supply pressure must not exceed 689 kPa (100 psi). The recommended operating pressure is 207–345 kPa (30–50 psi).

4. Automatic Gun Installation (contd)

9. Connect the 120 VAC gun solenoid valve leads to the following terminals inside the electrical enclosure.

- Single-Hose Units—XT1-13 and XT1-15
- Dual-Hose Units—XT1-11 and XT1-15 (Gun 1)/XT1-12 and XT1-15 (Gun 2)

10. Remove jumper J3 connected to C2-1 and C2-3.

11. Remove wires 21A (at C4-12), 86A (at C2-3) and 87A (at C2-2). Then connect the timer or triggering device output leads (must be dry contact, normally open) to the following terminals inside the electrical enclosure.

- Single-Hose Units—C4-12 and C2-3
- Dual-Hose Units—C4-12 and C2-3 (Gun 1)/C4-12 and C2-2 (Gun 2)

NOTE: The timer outputs should be dry contact closure or another type of solid-state switching device capable of switching 12 VDC.

12. Insert the hose electrical plug at the unit end of the hose into the upper socket on the side of the electrical enclosure. On dual hose units, insert the Hose 2 electrical plug into the lower socket.

5. Manual Gun Installation



WARNING: Risk of electrical shock. Complete gun-to-hose connections before completing hose-to-unit connections. Failure to observe could result in personal injury or death.

Refer to the manual for your particular handgun for installation procedures.

6. Drum Melter Hose Connections



WARNING: Risk of electrical shock. Do not connect the hose electrically until the hose hydraulic connections are completed. Failure to observe could result in personal injury or death.

Use the following procedure to connect the hose(s) to the drum melter.

1. See Figure 3-7. Route the hose from the drum melter to the production work station in accordance with the following guidelines:
 - Route the hoses without bundling or pinch points.
 - Do not allow hoses to contact sharp or abrasive surfaces.
 - Do not allow a large surface area of the hose to contact a cold surface, such as a floor, that will conduct heat away from the hose.
 - Keep a minimum of 13 mm (0.50 in.) between the hoses.
 - Do not place hoses inside a closed cover which insulates the hoses and prevents them from dissipating heat. This could cause overheating and damage to the equipment.

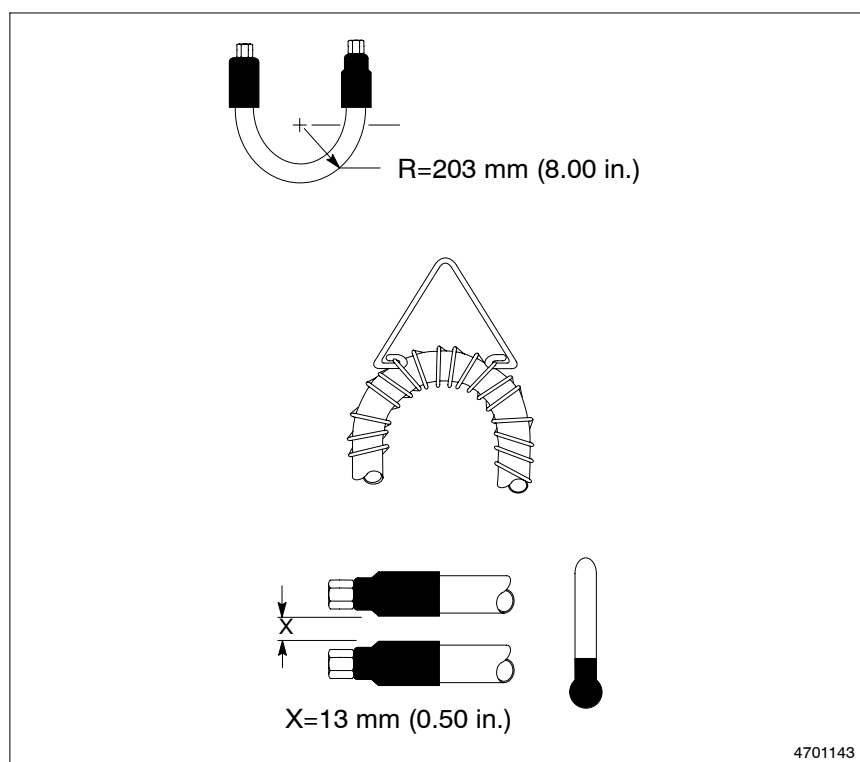


Fig. 3-7 Adhesive Hose Installation Guidelines

6. Drum Melter Hose Connections (contd)

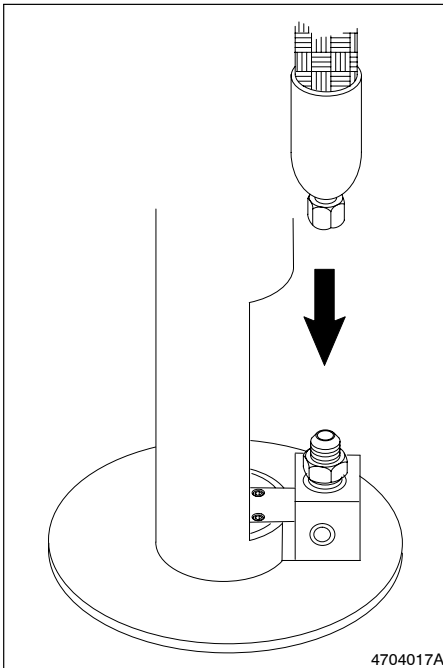


Fig. 3-8 Hose-to-Manifold Connection

NOTE: Each hose is equipped with a pigtail-type cordset at one end. Install each hose with this cordset closest to the manifold.

2. See Figure 3-8. Coat the hose fitting threads on the pump manifold with Never Seez. Then thread the hose swivel connector onto the manifold hose fitting.

NOTE: If you are using a dual-hose gear pump manifold and a second hose will not be used, install a pipe plug in the unused hose port.

3. Use two wrenches to tighten the hose connection, one wrench to hold the hose fitting stationary and another wrench to tighten the hose swivel connector.
4. Repeat steps 1–3 to install a second hose, if necessary.
5. Insert the hose 1 electrical plug at the cordset end of the hose into the upper socket on the side of the electrical enclosure. On dual-hose units, insert the hose 2 electrical plug into the lower socket.

7. Bulk Feed Installation

Use the following procedure when installing the bulk feed hoses.

1. Complete the hydraulic connections at the delivery end of the hose as required for your application.
2. If an external motor start trigger is not installed, then install a jumper between terminals C2-1 and C2-3 inside the electrical enclosure. Refer to the wiring diagram for your unit in the *Troubleshooting* section for the exact location of terminal block C2.

NOTE: Installation of this jumper enables the PUMP OFF/ON switch to energize the motor directly when the switch is set to the ON position.

3. Insert the hose 1 electrical plug at the cordset end of the hose into the upper socket on the side of the electrical enclosure. On dual hose units, insert the hose 2 electrical plug into the lower socket.

8. Miscellaneous

Install any options that were shipped separate from the Model 5544 unit after the above installations are complete. Refer to the *Options* section for descriptions of available options. Contact your Nordson Corporation representative if there are any questions.

Section 4

Operation

Section 4 Operation

Refer to the instructions provided in the *Safety Notice* (available in www.emanuals.nordson.com under 5000 Series 55 Gallon Drum Melters).



WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

1. Introduction

This section includes the procedures for operation of the Model 5544 drum melter. These procedures include the following:

- Preparation for routine operation
- Routine operation
- Normal shutdown
- Short-term shutdown and startup
- Temperature setback (STANDBY) adjustment
- Drum changeout
- Adhesive material changeout

Nordson recommends that you read the *Description* section before proceeding. This will help you gain an understanding of the drum melter assemblies and the controls and indicators. In addition:

- Read through the entire procedure while at the unit to become familiar with the required steps. It may be necessary to refer to the illustrated parts lists in the *Parts* section for exact component locations, sizes, etc.
- Be sure the required tools, replacement parts and service items are at hand.
- Read and follow all safety precautions.

2. Preparation for Routine Operation

Complete the following procedures before operating the drum melter for the first time or when changing operational settings or adhesive types:



WARNING: When using polyurethane reactive materials in this system, do not set the application temperatures or over-temperature limits of the platen, hose(s), and gun(s) without first consulting the adhesive manufacturer and the Technical Data Sheet. Failure to follow the recommendations in the Technical Data Sheet can lead to personal injury. If equipment is not operated in compliance with Technical Data Sheet recommendations, Nordson reserves the right to refuse service for this equipment.

Check that the hoses and guns have been installed as directed in the *Installation* section.

Setting the Temperatures

Set the application temperatures and over-temperatures as follows:

1. Check that the input power to the unit is OFF and that the main disconnect switch is in the OFF position.
2. Check that the elevator control valve is in the neutral (center) position.
3. Open the electrical enclosure door.



WARNING: The over-temperature setting must be at least 28 °C (50 °F) below the flash point of the adhesive being used. Failure to observe can cause personal injury or equipment damage.

4. Using the platen, hose, and gun setpoint potentiometers, set the application temperature at or below the temperature recommended in the Technical Data Sheet.

5. Using the platen, hose, and gun over-temperature potentiometers, set the over-temperature 28 °C (50 °F) above the application temperature and 28 °C (50 °F) below the flash point. The over-temperature potentiometers are located inside the electrical panel door.

On dual-hose units where only one hose and gun are being used, set the over-temperature of the unused channels at least 28 °C (50 °F) above the application temperature. Otherwise, false over-temperature warnings may occur.

6. If installed, verify that the factory default setting for the start-up timer will satisfy your application requirements. Refer to *Start-Up Timer* in the *Options* section for details.
7. Close and latch the electrical enclosure door.

Setting Other Controls

Set the other drum melter controls and check the hoses as follows:

1. If installed, check that the Temperature STANDBY switch on the electrical enclosure front panel is set to OFF. Setting this switch to ON disables the Automatic Shutdown feature.
2. Turn the PUMP SPEED potentiometer(s) on the electrical enclosure front panel fully counterclockwise.
3. Set the air filter/regulator to 138 kPa (20 psi) as indicated on its gauge.

NOTE: It may be necessary to increase or decrease the pressure at the filter/regulator from this original setting when using high or low viscosity material.

4. Check that the adhesive hoses are not kinked or pinched.

Loading the Drum



WARNING: Hot! Risk of burns. Wear heat-protective clothing and safety goggles, and heat-protective gloves.



CAUTION: Do not attempt this procedure unless the unit is at application temperature. Failure to observe this could cause damage to the platen seal.

Install the drum of material as follows:

1. Set the main disconnect switch to the ON position and press the POWER ON button.
2. Allow the drum melter to heat to the application temperature and check that the SYSTEM READY light is on.
3. Place the elevator control valve in the UP position, allowing the platen to reach its maximum height. Leave the elevator control valve in the UP position.
4. If installed, open the platen guard.



WARNING: Use only drums rated to withstand 103 kPa (15 psi) of air injection. Failure to observe and follow this warning may cause personal injury.



CAUTION: Check that the unit base is free of adhesive so that the drum sits squarely on the base. Failure to do so may result in a poor seal or incomplete emptying of the drum.



CAUTION: A dented or otherwise damaged drum may cause damage to the platen seal, resulting in faulty equipment operation.

5. Center an open drum of material on the frame base (or in the drum hold-down assembly) directly under the platen.
6. Close the platen guard.
7. Coat the platen seal with high temperature grease.
8. See Figure 4-1. Place a small tray or metal pan under the bleed port.

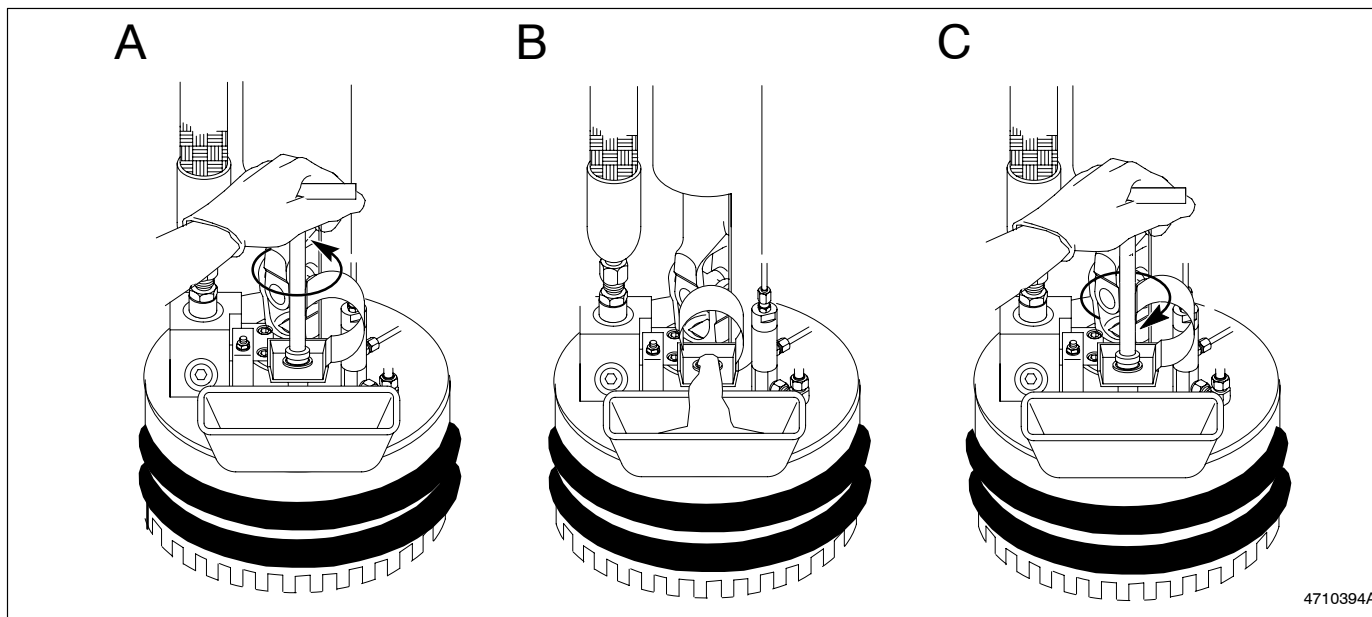


Fig. 4-1 Bleeding the System

9. Unscrew and remove the platen T-handle from the bleed port.
10. Use the elevator control valve to slowly lower the platen into the drum until there is a steady flow of material from the platen bleed port.



WARNING: Trapped air on hot material could be extruded out of the platen bleed hole with enough force to cause burns to nearby personnel. Wear safety glasses; long-sleeved, protective clothing; and gloves when performing this procedure. **DO NOT PEER DOWN DIRECTLY INTO THE PLATEN BLEED HOLE UNDER ANY CIRCUMSTANCES.** Failure to observe and follow this warning may result in serious personal injury.

11. Replace the platen T-handle back into the platen bleed port and tighten securely.

The drum melter is ready for routine operation.

3. Routine Operation

Use the following procedure to operate the drum melter on a routine basis.

1. Set the main disconnect switch to the ON position and press the POWER ON button.
2. Allow the drum melter to reach application temperature. Use the LCU zone selector switch to verify that all heating zones are at the setpoint temperature before proceeding.
3. Check to make sure that the material is not leaking past the platen seal.
 - a. If leakage is present, remove the platen from the drum and inspect the seal for damage. Replace if necessary. Refer to *Replacing the Platen Seal* in the *Repair* section.
 - b. If the seal is intact, try reducing the cylinder air pressure at the main filter/regulator.
4. Turn on the input air supply to the drum melter.
5. Place the elevator control valve in the DOWN position.
6. Set the PUMP OFF/ON switch to the ON position.
7. Adjust the pump speed potentiometer for the desired flow rate.
 - On dual-hose units, the 1 GUN (top) pump speed potentiometer sets the speed when one gun is triggered. The 2 GUN (bottom) pump speed potentiometer sets the speed when both guns are triggered at the same time.
 - On manual guns, the pump speed potentiometer should be adjusted so that material projects from the gun no more than 46 cm (18 in.).
8. Adjust the air pressure as required.

The unit is ready for adhesive application to the substrate.

4. Normal Shutdown

Use the following procedure to shutdown the drum melter for long periods, such as at the end of the work day.

1. Set the PUMP ON/OFF switch to the OFF position.
2. Press the STOP button on the electrical enclosure front panel.
3. Set the main disconnect switch to the OFF position.
4. Place the elevator control valve in the neutral (center) position.
5. Turn the air filter/regulator to 0 kPa/psi.
6. Trigger all guns to relieve residual hydraulic pressure.
7. On manual guns, set the trigger lock to the ON position.

5. Short-Term Shutdown and Startup

Use the following procedure to shutdown the drum melter for short periods, such as meal breaks and shift changes.

NOTE: If the unit is equipped with the Automatic Shutdown option, the heating channels and pump control circuitry will automatically de-energize if no guns are triggered for at least 60 minutes (unless otherwise set by the equipment operator).

1. Set the PUMP OFF/ON switch to the OFF position.
2. Place the elevator control valve in the neutral (center) position.
3. Turn the STANDBY switch to ON. If it becomes necessary to change the setback temperature from the factory setting, refer to *Temperature Setback (STANDBY) Adjustment* in this section.
4. To restart the unit, turn the STANDBY switch to OFF.
5. For units equipped with the Automatic Shutdown option, check that the unit is still ON. If the Auto Shutdown option has removed power, complete the *Routine Operation* procedure described in this section.
6. Place the elevator control valve in the DOWN position.
7. Set the PUMP OFF/ON switch to the ON position and resume normal operation.

6. Optional Temperature Setback (STANDBY) Adjustment

Use the following procedure to change the setback temperature of the adhesive material.

NOTE: The temperature setback feature is factory set to reduce temperatures 56 °C/100 °F below setpoint for all zones.



WARNING: Risk of electrical shock. Use extreme caution when performing voltage checks. Do NOT touch the meter probes when performing these checks. The input terminals on the fused main disconnect switch remain electrically energized even with the main disconnect switch set to the OFF position. Only qualified personnel should service this equipment. Failure to observe and follow this warning may result in personal injury or death.

1. Apply input power to the bulk melter and set the main disconnect switch to the ON position.
2. Unlatch the electrical enclosure door.
3. Use an insulated, flat-blade screwdriver to turn the recessed slot-head screw below the main disconnect switch counterclockwise. At the same time, open the electrical enclosure door.
4. See Figure 4-2. Locate the Logic Control Unit (LCU) (2) inside the lockable electrical enclosure.

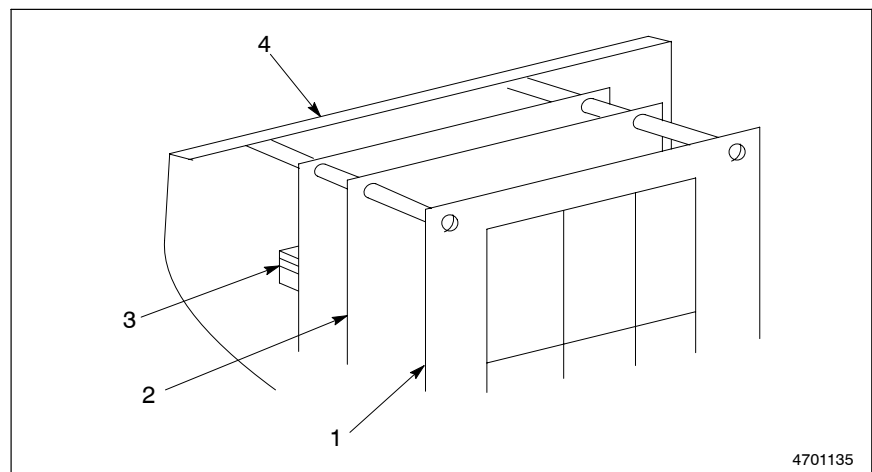


Fig. 4-2 LCU Organization

- | | |
|------------------------------|---|
| 1. Temperature control panel | 3. °F/°C display slide switch/display board |
| 2. LCU circuit board | 4. Enclosure door |

5. See Figure 4-3. Locate trim potentiometer R4 and test points TP2 and TP5.

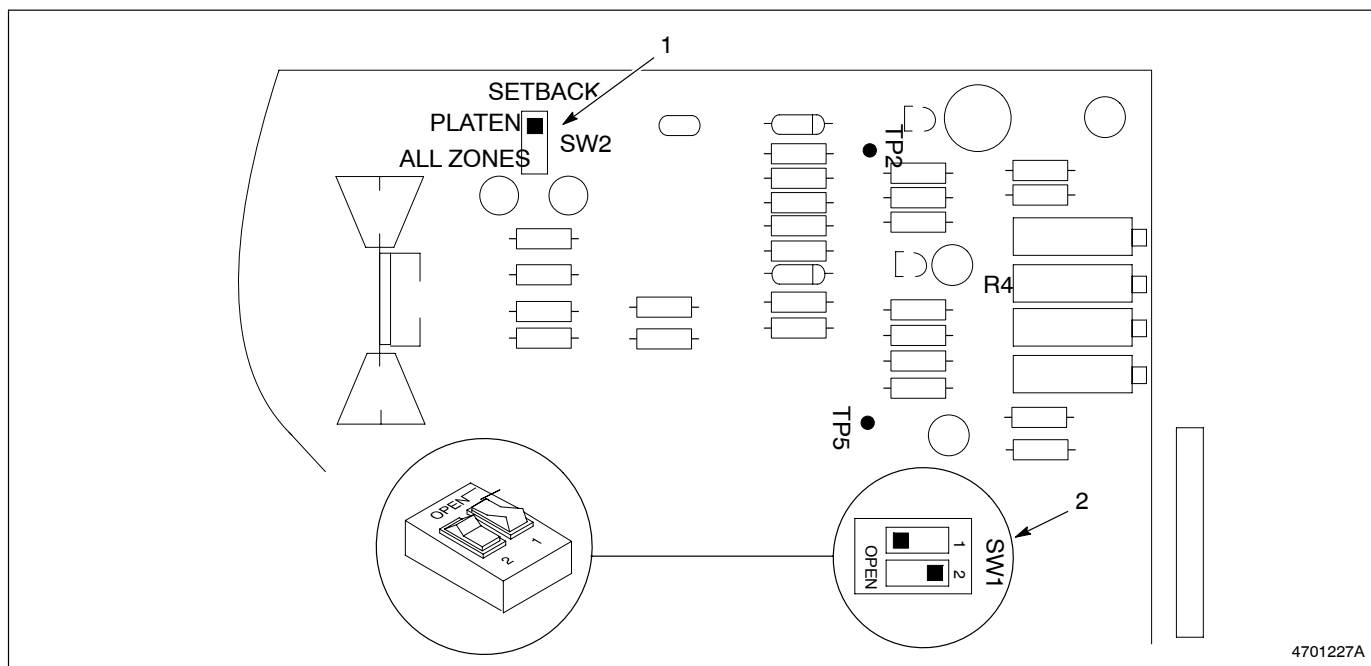


Fig. 4-3 LCU Circuit Board Detail

1. Setback slide switch SW2
2. Dip switch SW1

6. Connect a voltmeter (DC scale) to test points TP2 and TP5.

7. Use a short, insulated, flat-blade screwdriver to turn trim pot R4 clockwise to increase the number of setback degrees or counterclockwise to decrease the number of setback degrees.

NOTE: Two millivolts equals 1 °F. For example, to obtain a 28 °C (50 °F) setback differential, adjust the trim pot counterclockwise from the factory setting until the voltmeter displays 100 mVDC (0.1 VDC).

8. Locate switch SW2. Slide the switch to the PLATEN position if only the platen temperature should be set back. Slide the switch to ALL ZONES to set back all heating zones.

NOTE: If only the platen heating channel is set back, all other heating zones remain at their setpoint temperature.

9. Close and latch the electrical enclosure door and resume normal operation.

7. Drum Changeout



WARNING: Hot! Risk of burns. Wear heat-protective clothing safety goggles, and heat-protective gloves.



CAUTION: Do not attempt this procedure unless the unit is at application temperature. Failure to observe could cause damage to the platen seal.

Remote Platen Removal

The remote platen removal feature includes an air line that is permanently plumbed into a platen fitting and a platen removal pushbutton.

Removing the Old Drum

1. Check that the SYSTEM READY light is on.
2. Set the PUMP OFF/ON switch to the OFF position.
3. Place the elevator control valve in the neutral (center) position.
4. Place the elevator control valve in the UP position.
5. Press and hold the PLATEN REMOVAL air valve pushbutton in the ON position and place the elevator control valve in the up position. Air will flow from the blow-off valve and the platen will begin to rise.
6. When the platen clears the drum and reaches its maximum height, release the PLATEN REMOVAL pushbutton. Leave the elevator control valve in the up position.
7. If installed, open the platen guard.
8. Remove the drum.

Installing the New Drum



WARNING: Use only drums rated to withstand 103 kPa (15 psi) of air injection. Failure to observe and follow this warning may cause personal injury.



CAUTION: Check that the unit base is free of adhesive so that the drum sits squarely on the base. Failure to do so may result in a poor seal or incomplete emptying of the drum.

NOTE: A dented or otherwise damaged drum may cause damage to the platen seal, resulting in faulty equipment operation.

1. Center the new drum of material free of dents or other damage on the frame base (or in the drum hold-down assembly) directly under the platen.
2. Coat the platen seal with high temperature grease.
3. Close the platen guard.
4. See Figure 4-1. Place a small tray or metal pan under the bleeder port.
5. Unscrew and remove the platen T-handle from the bleed port.



WARNING: Trapped air or hot material could be extruded out of the platen bleed hole with enough force to cause burns to nearby personnel. Wear safety glasses; long-sleeved, protective clothing; and gloves when performing this procedure. **DO NOT PEER DOWN DIRECTLY INTO THE PLATEN BLEED HOLE UNDER ANY CIRCUMSTANCES.** Failure to observe and follow this warning may result in serious personal injury.

Installing the New Drum (contd)

6. Use the elevator control valve to slowly lower the platen into the drum until there is a steady flow of material from the platen bleed hole.
7. Replace the T-handle back into the bleed port and tighten securely.
8. Resume normal operation.

**8. Adhesive Material
Changeout**

When changing from one material to another, Nordson recommends that the system be flushed as detailed in the *Maintenance* section. Flushing the system removes traces of old material from the drum melter.

Section 5

Maintenance

Section 5 Maintenance

Refer to the instructions provided in the *Safety Notice* (available in www.emanuals.nordson.com under 5000 Series 55 Gallon Drum Melters).



WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.



CAUTION: Faulty or damaged hoses are not field-repairable and must be replaced. Contact your Nordson representative for replacement and return information.

1. Introduction

This section provides preventive maintenance procedures for the Model 5544 drum melter and hoses. Maintenance instructions for the guns can be found in the gun manual.

Complete the following tasks before attempting the procedures in this section:

- Read through the entire procedure while at the unit to become familiar with the required steps. It may be necessary to refer to the *Repair* section and the illustrated parts lists in the *Parts* section for exact component locations, sizes, etc.
- Check that the required tools, replacement parts, and service items are at hand.
- Read and follow all safety precautions in the *Safety* section and in this section.

2. Relieving System Pressure



WARNING: Hot! Risk of burns. Do not attempt to loosen any manifold, hose, or gun connection until system hydraulic pressure has been relieved. Failure to observe could result in serious personal injury.

Relieve system hydraulic pressure as follows:

1. Place the elevator control valve in the neutral (center) position,
2. Manually trigger the gun(s) until no material flows.
3. See Figure 5-1. Open the gear pump manifold drain valve to relieve residual hydraulic pressure.
4. Disconnect the air supply from the unit.

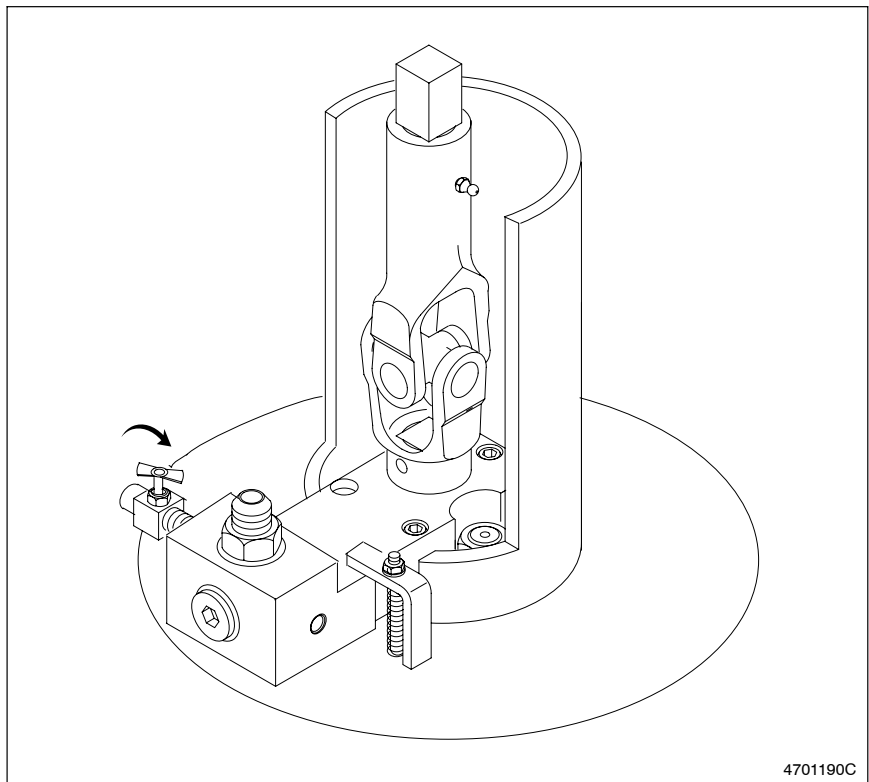


Fig. 5-1 Opening the Manifold Drain Valve

3. General System Maintenance

Use the guidelines in Table 5-1 to maintain your drum melter.

Table 5-1 Maintenance Schedule

Frequency	Procedure
Daily	Inspect the hose hydraulic connections. Refer to <i>Inspecting the Hose Hydraulic Connections</i>. Keep the adhesive material supply clean and free of contaminants that can lead to poor pump performance and/or clogged gun nozzles. Clean all applicator and hose exterior surfaces. Refer to <i>Cleaning the Exterior</i> in this section.
Weekly	Clean the top of the platen, frame, air cylinders, and electrical enclosure. Remove dirt, dust, and excess material buildup on the platen. Inspect the platen seals for excess material leakage. Replace the seals if necessary as described in the <i>Repair</i> section. Inspect the pneumatic tubing for kinks and bends. Repair or replace as necessary.
Monthly	Check the speed reducer lubricant level as described in this section. Inspect the electrical connections inside the electrical enclosure. Tighten any loose connections. Clean blow-off valve. Repair or replace as needed.
After the First 250 Hours of Service and Every Six Months or 2500 Hours of Service Thereafter	Change the speed reducer lubricant as described in this section.
As Required	Flush the system, especially when changing to a different adhesive. Refer to <i>Flushing the System</i> in this section.

4. Daily Maintenance

The following maintenance procedures should be performed on a daily basis.

Inspecting Hose Hydraulic Connections

Inspect the hose hydraulic connections as follows:

1. Relieve hydraulic pressure as described earlier in this section.
2. Inspect the hose fittings for tightness or cross-threading.
3. If the hose fittings are loose, use one wrench on the hose connector and another wrench on the hose fitting to tighten the hose connection.
4. If the hose fittings are cross-threaded, unscrew and reconnect properly.
5. Replace the hoses if damaged.
6. Close the manifold manual valve and reconnect the input air supply.

Cleaning the Exterior

Clean the exterior as follows:

1. Wipe off dirt, dust, and debris from the top of the platen, frame, air cylinders, and electrical enclosure.
2. Wipe off adhesive residue from the platen and manifold.
3. Wipe off adhesive residue from the hose fittings and the hose braid.

NOTE: It is important to keep the braid of the hose free of adhesive. Built-up material can cause kinking when the hose is moved from one position to another.

5. Blow-off Valve Maintenance



WARNING: Be sure to wear heat protective clothing and safety glasses. Failure to do so may result in severe burns.

Checking the Blow-off Valve

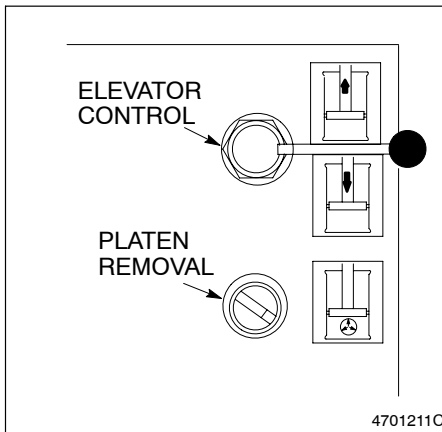


Fig. 5-2 Platen Elevator and Removal Controls

To check the blow-off valve, follow this procedure.

1. Raise the platen out of the drum by following the *Drum Changeout* instructions in the *Operation* section.
2. See Figure 5-2. Place the elevator control lever in the neutral position.
3. Turn the platen removal switch to OFF.
4. Place the elevator control lever in the UP position.
5. Turn the platen removal switch to ON.
6. Listen for air flow.
7. Wipe off surface of the platen with a plastic knife or spatula.
8. If possible, look to see if the needle lifts up from the surface of the platen.

Cleaning the Blow-off Valve

To clean the blow-off valve, follow this procedure.

1. Raise the platen out of the pail by following the *Pail Changeout* instructions in the *Operation* section.
2. Place the elevator control lever in the neutral position.
3. Turn the platen removal switch to OFF.
4. Place the elevator control lever in the UP position.
5. Wipe off the surface of the platen with a plastic knife or spatula.

Cleaning the Blow-off Valve (contd)

6. See Figure 5-3. Remove the 2 blow-off valve assembly screws (5) and remove the needle assembly (3) and tube (2).

NOTE: If you cannot remove the assembly, remove the valve assembly screws and thread them into the threaded holes (4). This will drive the assembly out.

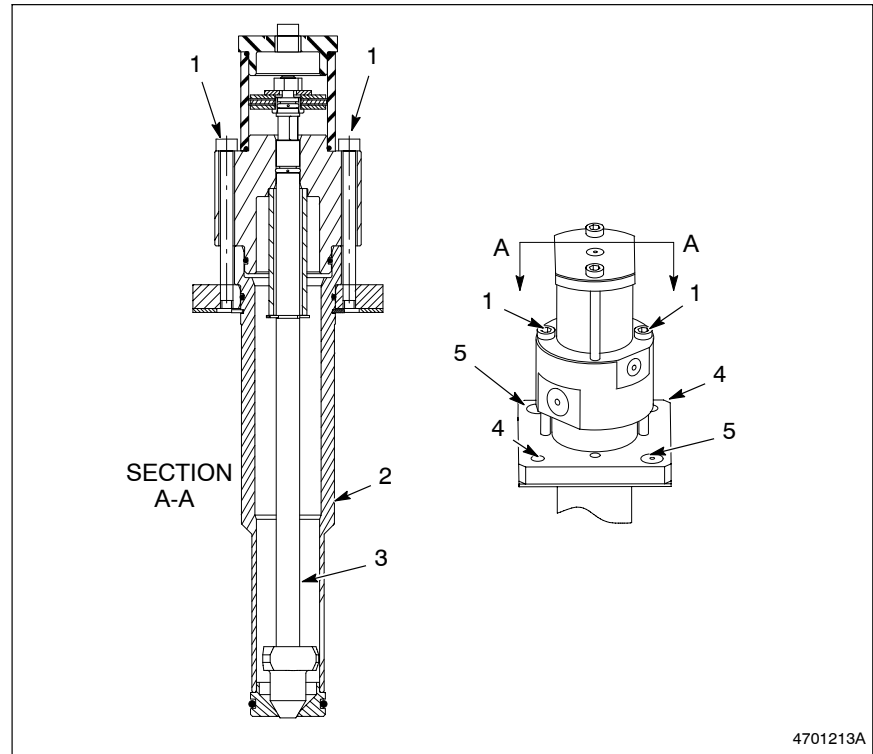


Fig. 5-3 Opening the Manifold Drain Valve

- | | |
|--------------------|----------------------------------|
| 1. Bolt | 4. Threaded Holes |
| 2. Tube | 5. Blow-off Valve Assembly Screw |
| 3. Needle Assembly | |

7. Remove the 2 bolts (1) and separate the needle assembly from the tube.
8. Clean needle assembly and tube of any adhesive.
9. Visually check to be sure no adhesive is working back into the tube or needle areas.
10. Check for any broken or worn parts. Replace as needed. Refer to *Platen Blow-off Assembly* in the *Parts* section.
11. Re-assemble and replace assembly.

6. Checking the Speed Reducer Lubricant

The speed reducer lubricant should be checked at least every month and more frequently under severe conditions (moist, dirty, or corrosive environments or where rapid temperature changes occur).

Use the following procedure to check the speed reducer lubricant level.

You will need a small tray or metal pan and a hex wrench to complete this procedure.

1. Press the STOP pushbutton and set the main disconnect switch to OFF.
2. See Figure 5-4. Unscrew the plastic plug (1) from the filler hole.

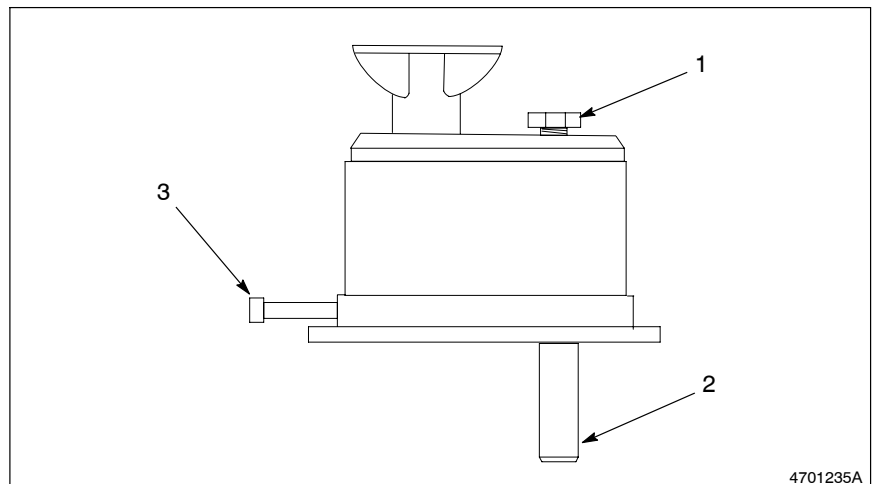


Fig. 5-4 Speed Reducer Filler Hole and Drain Opening

- | | |
|---------------------------------|-----------------------|
| 1. Plastic filler hole and plug | 3. Drain pipe and cap |
| 2. Speed reducer drive shaft | |

3. Use a customer-supplied dipstick to ensure that the oil level distance to the surface of the vent/fill plug is 4.13 cm (1 ⁵/₈ in.).

NOTE: Do not overfill or underfill the gear housing. Failure to observe and follow this note may cause excessive friction in the gear housing and premature wear and equipment failure.

4. If necessary, pour additional lubricant into the filler hole in the top of the gear housing, then recheck the lubricant level.

NOTE: Use only lubricants listed in Table 5-2 or equipment damage may occur.

6. Checking the Speed Reducer Lubricant (contd)

Table 5-2 Recommended Lubricants

Ambient Temperature Range	Boston Gear * Lubricant	ISO Grade	Viscosity cSt@ 40°C	AGMA Lub. No.
-20° to + 25° F	R&O Gear Oil-68 HD Gear Oil-68	68	61.2 to 74.8	2 or 2 EP
15° to 60° F	R & O Gear Oil-100 HD Gear Oil -100	100	90 to 110	3 or 3 EP
50° to 125° F	R & O Gear Oil-150 HD Gear Oil-150	150	135 to 165	4 or 4 EP
* Equivalent lubricant must conform to AGMA Standard Specification #250.03 or AGMA lubricant number indicated and pour point should be equal to or below the minimum ambient temperature encountered.				

5. When the lubricant level is correct, reinstall the plastic filler plug in the top of the gear housing.
6. Set the main disconnect switch to ON and resume normal operation.

7. Changing the Speed Reducer Lubricant

Use the following procedure to change the speed reducer lubricant level.

You will need a small tray or metal pan and a hex wrench to complete this procedure.

1. Press the STOP pushbutton and set the main disconnect switch to OFF.
2. See Figure 5-4. Place a small container under the drain pipe (3) then remove the pipe cap.
3. Unscrew the plastic plug (1) from the filler hole on the top of the speed reducer housing.
4. After the old lubricant has drained from the housing, reinstall the drain pipe cap.
5. Pour approximately 1.4 liters (1.5 quarts) of lubricant into the filler hole in the top of the gear housing.

NOTE: Use only lubricants listed in Table 5-2 or equipment damage may occur.

6. Use a customer-supplied dipstick to ensure that the oil level distance to the surface of the vent/fill plug is 4.13 cm (1 ⁵/₈ in.)

NOTE: Do not overfill or underfill the gear housing. Failure to observe and follow this note may cause excessive friction in the gear housing and premature wear and equipment failure.

7. Reinstall the plastic filler plug in the top of the gear housing.
8. Set the main disconnect switch to ON and resume normal operation.

8. Flushing the System



WARNING: Hot! Risk of burns. Wear heat-protective clothing and safety goggles. Failure to observe may result in serious personal injury.

Use the following procedure periodically to remove dirt and charred material from the adhesive passages and surfaces. You should also use this procedure before changing from one adhesive type to another when the two adhesives are not compatible.

If you are changing adhesives and need to determine whether the old and new adhesives are compatible, contact your adhesive supplier.

To determine the best flushing material to use, contact your adhesive supplier.

You will need a small tray or metal pan, an empty drum, high temperature grease, and the recommended flushing material to complete this procedure.



CAUTION: Under no circumstances is an open flame or unregulated hot plate to be used for heating solvent. A fire hazard may exist if an open flame or unregulated hot plate is used to heat solvent.

Installing the Flushing Material

Install the drum of flushing material as follows:

1. If a drum of material is installed, remove it as described in the *Drum Changeout* procedure in the *Operation* section.
2. Relieve system hydraulic pressure as described in this section.
3. Remove the gun(s) from the hose(s), then secure the free hose ends to an empty drum which will be used to collect flushing material pumped through the system.
4. Clean each gun in the system as needed. Refer to the gun manual for information on gun disassembly, cleaning, and rebuilding.



WARNING: Risk of electrical shock. Failure to disconnect and lock out input power may result in personal injury or death.

5. Press the STOP button, set the main disconnect switch to the OFF position, and lock out input power to the unit.
6. Refer to the wiring diagram for your unit in the *Troubleshooting* section. So the pump will activate and force flushing material through the system with the gun(s) removed, open the electrical enclosure door and install a jumper wire between terminals C2-1 and C2-3 if one is not already in place.



WARNING: Use the flushing material at the manufacturer's recommended temperature which is below the flushing material's flash point. Failure to observe could result in a fire hazard.

7. Adjust the platen and hose setpoints to the flushing material manufacturer's recommended temperature.
8. Close and latch the enclosure door.



CAUTION: Check that the unit base is free of adhesive so that the drum of flushing material sits squarely on the frame base. Failure to do so may result in a poor seal or incomplete emptying of the drum.



CAUTION: A dented or otherwise damaged drum may cause damage to the platen seal, resulting in faulty equipment operation.

9. Load a drum of flushing material on the frame base (or in the drum hold-down assembly) directly under the platen. Refer to *Loading the Drum* in the *Operation* section.
10. If installed, close platen guard.

Completing the Flushing Process

Pump the flushing material through the system as follows:

1. Pump the flushing material through the system and into the empty drum until the material is free of char and other contaminants.

NOTE: You can reuse the flushing material if you place a strainer over the top of the drum used to collect it.

2. Turn the PUMP ON/OFF switch to off, press the STOP button, set the main disconnect switch to the OFF position, and lock out input power to the unit.
3. Open the electrical enclosure door and remove the jumper wire from terminals C2-1 and C2-3. If your unit was factory equipped with a jumper, leave it in place. Reset the platen and hose setpoint temperatures. Close the electrical enclosure door.
4. Reattach the gun(s) to the hose(s).
5. Restore input power to the unit, set the main disconnect switch to ON, and press the POWER ON pushbutton.
6. Replace the drum of flushing material with a new drum of adhesive. Refer to *Drum Changeout* in the *Operation* section.
7. Turn the PUMP potentiometer to the ON position and trigger the gun(s) until all traces of the flushing material have been removed from the system.

The drum melter is ready for routine operation.

Section 6

Troubleshooting

Section 6

Troubleshooting



WARNING: Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.



WARNING: Risk of electrical shock. Lock out input power as directed. The input terminal block remains charged even when the main disconnect switch is set to OFF. Failure to observe could result in personal injury or death.

Refer to the instructions provided in the *Safety Notice* (available in www.emanuals.nordson.com under 5000 Series 55 Gallon Drum Melters).

1. Introduction

This section contains fault isolation and correction procedures for problems that can occur during operation of the drum melter. If you cannot solve the problem with this information, contact your Nordson representative.

General troubleshooting procedures for the hose and gun are included. Refer to your hose or gun manual for specific troubleshooting information.

The procedures are presented in tables that list the problems, possible causes, and corrective actions. Note that a problem may have more than one possible cause. Therefore, refer to all tables before beginning to correct a problem. Also, check that the required tools, replacement parts, and service items for the corrective action procedure are at hand.

During the daily visual inspection, correct obvious causes of malfunction such as broken or missing electrical pins or wires or damaged hose plugs.

Problem		Page
Adhesive Application Troubleshooting Procedures		
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2.	Waviness in bead deposit	6-4
3.	Excessive adhesive at beginning of bead	6-4
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2. Opening the Electrical Enclosure with Power On



WARNING: Risk of electrical shock. This procedure is used when measuring voltages across wiring connections. Exercise extreme caution when performing voltage checks. Failure to observe could result in personal injury or death.

See Figure 6-1. Some of the following troubleshooting procedures will require that you open the electrical enclosure door with the power to the unit on:

1. Unlatch the enclosure door (2).
2. Loosen the slot head screw (1) directly below the main disconnect switch.
3. Open the door.

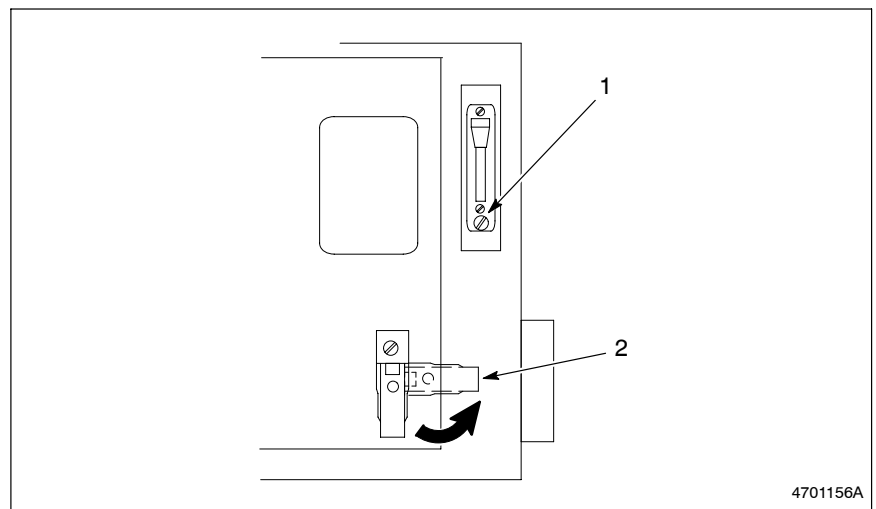


Fig. 6-1 Opening the Electrical Enclosure Door with Power On

1. Slot head screw

2. Latch

3. Adhesive Application Troubleshooting Procedures

The following table provides procedures for troubleshooting adhesive application problems.

Problem	Possible Cause	Corrective Action
1. Adhesive spitting on extrusion	Adhesive output exceeds maximum continuous delivery rate of system Air trapped under platen Adhesive level in drum is low	Lower the pump speed until a constant stream of adhesive is produced. Stop the system and open the bleed valve to remove trapped air. If the LOW DRUM indicator is on, complete the drum changeout procedure as described in the <i>Operation</i> section.
2. Waviness in bead deposit	Temperature setpoints lower than recommended application temperature Low ambient temperature in application area Guns and nozzles subject to draft or breeze Nozzle too far from substrate	Increase the temperature setpoints to recommended application temperature. Increase the ambient temperature in the application area (minimum recommended temperature is 0°C/32°F). Prevent draft or breeze at the nozzles. Reposition the nozzle closer to the substrate (recommended distance is 13 mm/0.50 in. from the substrate).
3. Excessive adhesive at beginning of bead	Nozzle too large, resulting in excessive instantaneous delivery rate Nozzle too far from substrate Partially plugged nozzle Insufficient air pressure to gun	Use the proper size nozzle. Reposition the nozzle closer to the substrate (recommended distance is 13 mm/0.50 in. from the substrate). Clean or replace the nozzle. Increase the air pressure to the gun as required.

Problem	Possible Cause	Corrective Action
4. Excessive adhesive at end of bead	Adhesive too cold	Increase the channel setpoints as required.
	Insufficient air pressure to gun	Increase the air pressure to the gun as required.
5. Adhesive stringing at cut-off	Nozzle positioned too far from the substrate	Reposition the nozzle closer to the substrate (recommended distance is 13 mm/0.50 in. from the substrate).
	Adhesive too viscous	Increase the channel setpoints slightly or change to an adhesive with a lower viscosity.
	Cold adhesive	Increase the gun channel setpoint(s) as required.
	Gun speed too slow	Use a faster-acting gun, use an air-piloted relay valve between the solenoid and the gun, or reduce the distance between the solenoid and the gun.
	Gun temperature too low	Increase the gun temperature as required.
6. Adhesive drooling from gun	Spring tension of gun too low	Re-adjust the gun spring tension as required. Refer to the gun manual.
	Ball or needle and/or seat of gun module worn or partially clogged by char	Clean or replace the gun module.

3. Adhesive Application Troubleshooting Procedures (contd.)

Problem	Possible Cause	Corrective Action
7. Unequal deposits between nozzles in multi-module installations	Different size nozzles are being used	Use the same size nozzles.
	Unequal spring tension or improper needle lift adjustment in zero-cavity guns	Adjust the gun modules as instructed in the gun manual.
	Nozzle clogged or damaged	Clean or replace the nozzle as instructed in the gun manual.
	Foreign adhesive in gun module	Rebuild or replace the gun module.
	Insufficient and/or unequal air pressure to guns	Adjust the air pressure as required.
	Hydraulic pressure not equal at guns	Compensate for the difference by using different nozzle sizes or adjusting the gun travel as described in the gun manual.
	Debris or slight imperfections in nozzles	Clean or replace the nozzles.
8. Adhesive bouncing or splashing from substrate	Adhesive too hot	Decrease the channel setpoints as required.
	Adhesive viscosity too low	Decrease the channel setpoints slightly or change to an adhesive with a higher viscosity.
	Nozzle diameter too small	Change to a larger diameter nozzle.
	Too much adhesive	Lower the pump speed.

Problem	Possible Cause	Corrective Action
9. Adhesive not penetrating substrate	Adhesive temperature too low	Increase the channel setpoints slightly.
	Special coating on substrate	Increase the channel setpoints slightly. If problem persists, check with the adhesive manufacturer for a compatible adhesive.
	Not enough adhesive being applied	Use a higher flow-rated nozzle, increase the channel setpoints slightly, or increase the pump speed.
	Adhesive viscosity too high	Increase the channel setpoints slightly or change to an adhesive with a lower viscosity.
10. Adhesive gelling	System not properly flushed before changing adhesives	Attempt to pump the remaining adhesive from the system. Then, flush the system.
	Type-R cleaning fluid used to flush a system that was operating with Polyamide, Surlyn, Polyester, or other high performance hot melt adhesives	Attempt to pump the remaining adhesive from the system. Then, flush the system. Consult with the adhesive manufacturer for recommendations. Refer to the Adhesive Safety Data Sheet for information about Type-R cleaning fluid.
	Adhesive heated for too long	Do not heat adhesive longer than recommended. Use the system STANDBY during prolonged holding periods.
	Adhesive temperature too high	Reduce the temperature or consult with an adhesive manufacturer about the recommended adhesive temperature range.
11. Adhesive charring in system	Temperature setpoints too high	Decrease the channel setpoints as required.
	Zone overheats	Complete the troubleshooting procedure to locate and repair the overheating component.
	System maintained at operating temperature with no delivery	If installed, use the system STANDBY during prolonged holding periods.
12. Adhesive fuming or smoking	Temperature setpoints too high	Decrease the channel setpoints as required.
	Use of unstable adhesive	Flush the system and change to a different adhesive.

4. Hydraulic Troubleshooting Procedures

The following table provides troubleshooting procedures for the drum melter's hydraulic system.

NOTE: Some materials may require 1–2 hours to reach application temperature.

Problem	Possible Cause	Corrective Action
1. No or little adhesive output (<i>Refer to electrical troubleshooting also</i>)	Lack of hydraulic flow due to malfunctioning hose, gun or nozzle	Verify that all zones are up to temperature. If yes: - Place the elevator control valve in the neutral (center) position. - Check that the T-handle bleed rod is in the bleed port. - Place a small tray or pan under the pump manifold drain valve. - Open the pump manifold drain valve and place the elevator control valve in the down position. - Turn the pump on at low speed. - If the adhesive output is normal at the manifold, turn off the pump, close the manifold drain valve, and remove the nozzle. - Turn the pump on and open the gun. If the output is normal without the nozzle, clean and replace the nozzle. - If there is no or little output with the nozzle removed, turn off the pump. Bleed off hydraulic pressure at the manifold drain valve, then re-close the valve. Remove the gun from the hose. - Turn the pump on. If the material does not flow freely through the hose with the gun removed, replace the hose. - If the hose is operating properly, rebuild or replace the gun (refer to specific gun manual).

Problem	Possible Cause	Corrective Action
1. No or little adhesive output (contd.)	Air trapped in pump/platen	Check for trapped air: a. Turn the PUMP selector switch to off and place the elevator control valve in the neutral (center) position. b. Unscrew and remove the T-handle bleed rod from the platen. c. Place a small tray or metal pan under the platen bleed port. d. Use the elevator control valve to lower the platen into the drum. If air is discharged from the bleed port, purge the trapped air from the system before resuming operation.
	Gear pump malfunctioning	Check that the drive shaft is rotating properly and in a clockwise direction as described in the <i>Drive shaft rotating counterclockwise</i> and <i>Drive shaft not rotating</i> problems in this section. Replace or rebuild the gear pump assembly as described in the <i>Repair</i> section.
	Cured PUR in pump cavity	Disassemble the pump as described in the <i>Repair</i> section and clean the pump as recommended by the adhesive supplier.
	Sheared coupling key or gerotor key	Disassemble the pump as described in the <i>Repair</i> section and replace the key if worn.
	Pressure relief valve open	Disassemble the pump as described in the <i>Repair</i> section and replace the pressure relief valve if open.
2. Adhesive leaking at hose connection	Loose or cross-threaded connection	Check the hose to manifold connection.
	Faulty hose connector O-ring at the hose to gun connection	Replace the O-ring as described in the <i>Repair</i> section.

5. Pneumatic Troubleshooting Procedures

Refer to the following tables for troubleshooting procedures for the drum melter's pneumatic system. See Figure 6-2 for the pneumatic wiring diagram.

Problem	Possible Cause	Corrective Action
1. Platen elevator not working	Air filter/regulator malfunctioning	Check the air filter/regulator: - Set the air filter/regulator pressure to 0 kPa/psi (never disconnect the input air line without first turning off the input (shop) air). Then disconnect the input air supply from the quick disconnect fitting. - Disconnect the air line from the output side of the filter/regulator and reconnect the input air supply to the unit at the quick disconnect fitting - Turn the filter/regulator handle clockwise to increase the air pressure and listen for air exhaust. Also, turn the handle counterclockwise and listen for exhaust. - If there is no air exhaust from the output side of the filter/regulator when the handle is turned clockwise, or if there is air exhaust when the handle is turned counterclockwise, set the filter/regulator pressure to 0 kPa/psi and disconnect the input air supply from the quick disconnect fitting. - Replace the filter/regulator.

Problem	Possible Cause	Corrective Action
1. Platen elevator not working <i>(contd.)</i>	Elevator control valve malfunctioning	Check the elevator control valve: - Set the air filter/regulator pressure to 0 kPa/psi, then disconnect both air lines from the output side of the elevator control valve. Tag each air line. - Set the filter/regulator pressure to 138 kPa (20 psi). - Place the elevator control valve in the up position to listen for air flow at the lower elbow fitting, in the down position to listen for air flow from the upper elbow fitting, and in the neutral (center) position to verify no air flow. - If air does not flow from the lower or upper elbow fitting, or flows when the elevator control valve is in the neutral position, set the filter/regulator pressure back to 0 kPa/psi, and replace the elevator control valve.
	Piston assemblies malfunctioning	Check the piston assemblies: - Set the filter/regulator pressure to 0 kPa/psi and place the elevator control valve in the neutral (center) position. - Disconnect the air line from the upper elbow fitting on the output side of the elevator control valve. - Set the filter/regulator pressure to 138 kPa (20 psi) and place the elevator control valve in the up position. - If the crossover assembly rises and/or air continues to flow from the open air line, replace or rebuild the piston assemblies as described in the <i>Repair</i> section.

5. Pneumatic Troubleshooting Procedures *(contd.)*

Problem	Possible Cause	Corrective Action
1. Platen elevator not working <i>(contd.)</i>	Piston assemblies malfunctioning <i>(contd.)</i>	e. If the crossover assembly does not rise and there is no air flow from the open air line then check the platen removal valve. f. Disconnect the air line elbow to the bottom air cylinder from the platen removal valve, place the elevator in the up position and note whether or not there is air flow. g. Place the elevator control valve in the neutral position, turn the platen removal valve on, return the elevator control valve to the up position, and note whether or not there is air flow. h. Refer to Table 6-1 for appropriate corrective action.

Table 6-1 Air Line Check for Platen Removal Valve

Raised Platen with Platen Removal Valve Off	Raised Platen with Platen Removal Valve On	Corrective Action
No air flow present	No air flow present	Replace platen removal valve.
No air flow present	Air flow present	Replace 30 psi regulator.
Air flow present	No air flow present	Replace 10 psi regulator.
Air flow present	Air flow present	Platen removal valve is okay. No action needed.

Problem	Possible Cause	Corrective Action
1. Platen elevator not working (contd.)	Air cylinder head leaking	Check for air leakage: - Use leak detector fluid around the shaft at the cylinder heads to check for excessive air leakage with the elevator control valve in the DOWN position. - If the air is leaking from the cylinder head, set the filter/regulator pressure to 0 kPa/psi and disconnect the input air supply from the quick disconnect fitting. - Replace or rebuild the cylinder head assemblies as described in the <i>Repair</i> section.
2. Platen removal mechanism not working	Platen removal switch malfunctioning	Check the removal switch: - Set the air filter/regulator pressure to 0 kPa/psi. - Disconnect the air line from the 90° elbow fitting at the platen blow-off valve. - Set the filter/regulator to 138 kPa (20 psi). - Place the elevator control valve in the up position, then engage the PLATEN REMOVAL selector switch. - If air flows from the air line: normal indication. Reconnect the air line, return the elevator control to neutral, and go to <i>Platen blow-off valve malfunctioning</i>. - No air flows from the air line: possible blockage at the PLATEN REMOVAL switch or bad air line connection. Clear the blockage at the PLATEN REMOVAL switch or correct the bad air line connection.

**5. Pneumatic
Troubleshooting
Procedures** (contd.)

Problem	Possible Cause	Corrective Action
2. Platen removal mechanism not working (contd.)	Preset regulator malfunctioning	Check the regulator: a. Set the air filter/regulator pressure to 0 kPa/psi. b. Disconnect the large, flexible air line from the fitting at the platen blow-off valve. c. Set the filter/regulator to 138 kPa (20 psi). d. Place the elevator control valve in the up position, then engage the PLATEN REMOVAL selector switch. - Air flows from the hose: reconnect hose and go to <i>Platen blow-off valve malfunctioning</i>. - No air flows from hose: defective preset regulator or bad air line connection. Repair or replace the preset regulator or correct the bad air line connection.

Problem	Possible Cause	Corrective Action
2. Platen removal mechanism not working <i>(contd.)</i>	Platen blow-off valve malfunctioning	Check the blow-off valve: - Visually inspect the bottom of the platen for adhesive that may be blocking the blow-off valve air outlet. Remove any adhesive blocking the air outlet. - Set the filter/regulator to 138 kPa (20 psi). - Place the elevator control valve in the up position, then engage the PLATEN REMOVAL selector switch. - If the platen blow-off valve does not trigger (needle retracts) or air does not flow out, set the filter/regulator pressure back to 0 kPa/psi and rebuild or replace the platen blow-off valve. Refer to <i>Platen Blow-off Assembly</i> in the <i>Parts</i> section. - Reassemble the valve and connect the air lines to the valve assembly. Check that the air lines are connected correctly. (See <i>Pneumatic Assembly Platen Removal</i> in the <i>Parts</i> section.)

5. Pneumatic Troubleshooting Procedures (contd.)

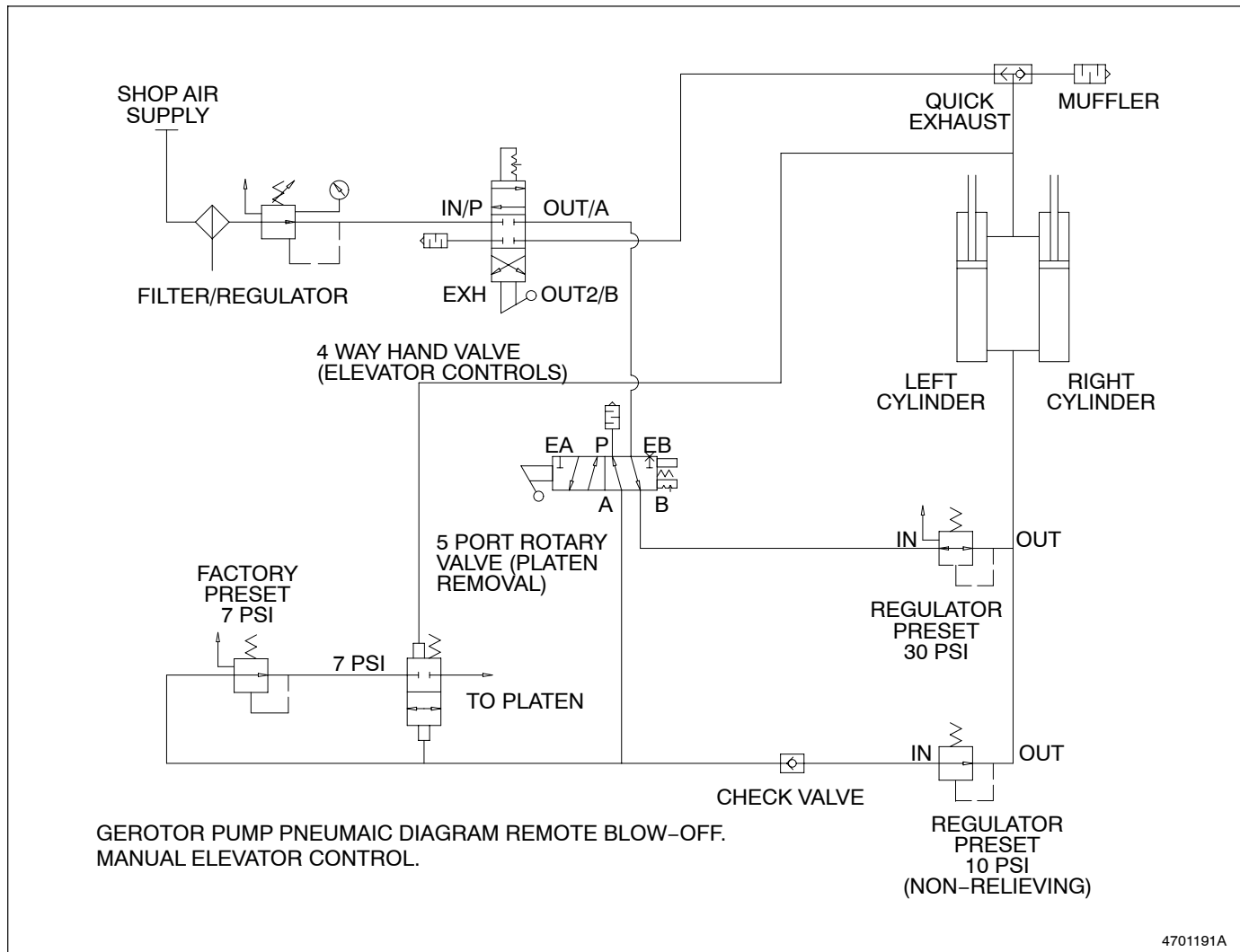


Fig. 6-2 Pneumatic Schematic Diagram

6. Electrical Troubleshooting Procedures

The following table provides troubleshooting procedures for the drum melter's electrical system.

Problem	Possible Cause	Corrective Action
1. System ready LED not illuminated	Empty drum	Replace drum.
	Platen temperature is not within 14 °C (25 °F) of setpoint	Refer to <i>Platen not heating</i> problem in this section.
	Start delay timer has not timed out	Verify the amount of time set on the timer. Timer starts when system is turned on.
	Heaters not turned on	Press the POWER ON button.
2. No or little adhesive output (Refer to hydraulic troubleshooting also)	No input power to the applicator	Check that input power is connected to the drum melter.
	Main disconnect switch not on	Set the main disconnect switch to the ON position.
	Unit not switched on	Press the POWER ON button; the white lamp should come on. If the white lamp does not come on or goes off, refer to the <i>POWER ON lamp stays off</i> problem in this section.
	Pump not on	Turn the PUMP selector switch to ON.
	Green SYSTEM READY light is off	Wait until the platen channel has reached setpoint temperature and the SYSTEM READY green light goes on.
	One or more zones are not heating	Use the zone selector switch and the digital display to check the platen, hose, and gun channel temperatures. If any zone fails to reach setpoint temperature, refer to the <i>Platen not heating</i> or the <i>hose or gun not heating</i> problem in this section.
	Red SENSOR FAULT indicator is on	Refer to the <i>Red SENSOR FAULT indicator lamp comes on</i> problem in this section.
	Temperature settings of one or more channels are too low for the adhesive	Increase the channel setpoints as required.

6. Electrical Troubleshooting Procedures *(contd.)*

Problem	Possible Cause	Corrective Action
2. No or little adhesive output (Refer to hydraulic troubleshooting also) <i>(contd.)</i>	No motor start trigger	Check to make sure one of the following is connected: - Manual gun trigger (connected through hose to unit cordset) - External level control trigger (must be dry contact closure, N.O., rated to switch 12 VDC connected across C4-12 and C2-3). - Jumper (18 AWG wire), J3, connected across C2-1 and C2-3. (Connect jumper for continuous motor operation).
3. Drive shaft rotating counterclockwise (when viewed from above the unit)	Wire connections reversed	Press the STOP button, disconnect and lock out input power. Remove the motor end cap and reverse the 44B and 45B wire connections at the motor.
4. Drive shaft not rotating	Drum empty Wires loose or damaged Gun trigger switch malfunctioning Pump selector switch malfunctioning	Replace drum. Press the STOP button, disconnect and lock out input power. Open the electrical enclosure door and reposition or replace any loose or damaged wires. Press the STOP button, disconnect and lock out input power. Open the electrical enclosure door and check for continuity between terminals C2-1 and C2-3 with the gun trigger switch activated. If continuity does not exist, replace the gun trigger switch. Press the STOP button, disconnect and lock out input power. Open the electrical enclosure door and check the PUMP selector switch for continuity with the switch set to on. If continuity does not exist, replace the PUMP switch.

Problem	Possible Cause	Corrective Action
4. Drive shaft not rotating <i>(contd.)</i>	LCU is defective	Check the LCU: a. Press the STOP button, disconnect and lock out input power. b. Open the electrical enclosure door and install a jumper wire between terminals C2-1 and C2-3. c. Close and latch the enclosure door, apply input power, and move the main disconnect switch to the ON position. d. Press the POWER ON button and wait for the SYSTEM READY indicator light to turn on. Turn the PUMP selector switch to ON. e. Check to make sure one of the following is connected: - Manual gun trigger (connected through hose to unit cordset) - External level control trigger (must be dry contact closure, N.O., rated to switch 12 VDC connected across C4-12 and C2-3). - Jumper (18 AWG wire), J3, connected across C2-1 and C2-3. (Connect jumper for continuous motor operation). f. Verify drum is not empty. g. Open the enclosure door with the power on as described in <i>Opening the Electrical Enclosure Door with Power On</i> in this section. Measure the voltage across the C3-10 and XT1-16 wire connections. h. If the voltage is not within the range of 103–127 VAC, replace the LCU.

6. Electrical Troubleshooting Procedures (contd.)

Problem	Possible Cause	Corrective Action
4. Drive shaft not rotating (contd.)	LCU parts are defective (dual-hose units)	Check the LCU: - Press the STOP button, disconnect and lock out input power. - Open the electrical enclosure door and install a jumper wire between terminals C2-1 and C2-3. - Close and latch the enclosure door, apply input power, and move the main disconnect switch to the ON position. - Press the POWER ON button and turn the PUMP selector switch to ON. - Open the enclosure door with the power on as described in <i>Opening the Electrical Enclosure Door with Power On</i> in this section. Measure the voltage across the XT1-16 and XT-10 wire connections. - If the voltage is not within the range of 103–127 VAC, replace the relay KS3 or the 2-gun speed controller card on the LCU.

Problem	Possible Cause	Corrective Action
4. Drive shaft not rotating <i>(contd.)</i>	Clutch not engaging when gun is triggered (units w/ optional clutch)	Check the clutch: - Press the STOP button, disconnect and lock out input power. - Open the electrical enclosure door and install a jumper wire between terminals C2-1 and C2-3. - Close and latch the enclosure door, apply input power, and move the main disconnect switch to the ON position. - Press the POWER ON button and turn the PUMP selector switch to ON. - Open the enclosure door with the power on as described in <i>Opening the Electrical Enclosure Door with Power On</i> in this section. Remove the junction box cover and measure the voltage across terminals 6 and 3, wires 78 and 79 at the clutch power supply. - Remove the jumper wire. - If the voltage is within the range of 89–99 VDC, push the STOP button, disconnect and lock out input power, and replace the clutch as described in the <i>Repair</i> section.
5. Drive motor not rotating	System not ready Over-temperature condition exists	Refer to <i>System ready LED not illuminated</i> problem in this section. If the OVER-TEMP indicator is on, refer to the <i>Red OVER-TEMP indicator lamp comes on</i> problem in this section.

6. Electrical Troubleshooting Procedures (contd.)

Problem	Possible Cause	Corrective Action
5. Drive motor not rotating (contd.)	Wires loose or damaged	Press the STOP button, disconnect and lock out input power. If the OVER-TEMP indicator is on, refer to the <i>Red OVER-TEMP indicator lamp comes on</i> problem in this section. Open the enclosure door and check for loose or broken wire connections throughout the circuit path. Repair or replace wires as necessary.
	Motor controller fuse is open	Press the STOP button, disconnect and lock out input power. Remove fuse F7 and test for continuity. Replace if necessary.
	Pump speed potentiometer malfunctioning	Press the STOP button, disconnect and lock out input power. Open the enclosure door and check the resistance at the pump speed potentiometer (1 GUN). A normal reading is 5000 ohms across wires 6 and 8 at terminals 3 and 5 of the motor controller. Replace the potentiometer if necessary.
	PUMP SPEED potentiometer turned fully counter clockwise	Rotate PUMP SPEED potentiometer clockwise until the desired pump speed is obtained.

Problem	Possible Cause	Corrective Action
5. Drive motor not rotating <i>(contd.)</i>	PUMP OFF/ON switch malfunctioning Drive motor malfunctioning	Press the STOP button, disconnect and lock out input power. Open the enclosure door and test for continuity between wires 16 and 17 at the PUMP OFF/ON switch. Replace if open. Check the drive motor: - Press the STOP button, disconnect and lock out input power. - Open the enclosure door and remove one wire at the motor controller and check the resistance between wires 44 and 45 at terminals A1 and A2 of the motor controller. A normal reading is 1.5–1.7 ohms. - If the resistance is not normal, check for loose or damaged wires and replace as necessary. - If no loose or damaged wires are found, replace the drive motor as described in the <i>Repair</i> section.

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Problem	Possible Cause	Corrective Action
6. Platen not heating (<i>contd.</i>)	Fuse is open	Press the STOP button, disconnect and lock out input power. Open the electrical enclosure door and remove and check fuses F1, F2, and F3 for continuity. Replace as necessary.
	Wires loose or damaged	Press the STOP button, disconnect and lock out input power. Open the enclosure door and check for loose or damaged wires at terminals L1, L2, and L3 on the main fused disconnect switch QS and throughout the circuit path to the platen heaters. Reposition or replace as necessary.
	Platen LED not functioning	Refer to <i>LCU not controlling channels</i> problem in this section.
	LCU malfunctioning	Check the LCU: a. Open the enclosure door as described in <i>Opening the Electrical Enclosure Door with Power On</i> in this section. b. Measure the voltage across terminals XT2-14 and XT1-15 (wires 43 and 38). c. If the voltage is not within the range of 103–127 VAC, measure the voltage across terminals C4-1 and C4-2 (wires 52 and 43). d. If the voltage across terminals C4-1 and C4-2 is within the range of 103–127 VAC, press the STOP button, disconnect and lock out input power, and replace the LCU.

6. Electrical Troubleshooting Procedures (contd.)

Problem	Possible Cause	Corrective Action
6. Platen not heating (contd.)	Solid-state relays have failed	Check the relays: - Open the enclosure door as described in <i>Opening the Electrical Enclosure Door with Power On</i> in this section. - Measure the voltage across the input to the solid state relay at terminals 3 and 4. - If the input voltage is 103–127 VAC, measure the voltage across the output terminals 1 and 2 (wires 1 and 140) at the solid-state platen heater relays KA1, KA3, and KA4. - If the input voltage to the solid state relay across terminals 3 and 4 is not 103–127 VAC, refer to <i>LCU Malfunctioning</i>. - If the solid state relay output voltage across terminals 1 and 2 is within $\pm 10\%$ of incoming line voltage for either relay, the relay is faulty. Press the STOP button, disconnect and lockout input power, and replace relay KA1, KA3, or KA4 as necessary.
	Master contactor (KM2) has failed	Check the contactor: - With the main switch set to ON, press the POWER ON switch. - Open the enclosure door as described in <i>Opening the Electrical Enclosure Door with Power On</i> in this section. - Measure the voltage across the following wire pairs at contactor KM2: - 140 and 141 - 141 and 142 - 140 and 142

Problem	Possible Cause	Corrective Action
6. Platen not heating <i>(contd.)</i>	Master contactor (KM2) has failed <i>(contd.)</i>	d. If the voltage is within $\pm 10\%$ of line voltage, go to step f. e. If the voltage is not within $\pm 10\%$ of line voltage, refer to <i>Solid state relays have failed</i>, <i>Motor controller fuse is open</i> or <i>LCU malfunctioning</i> in this section. f. Measure the voltage between line and load side of contactor KM2 at the following wires: - 142 and 32 - 141 and 31 - 140 and 30 g. If voltage is within $\pm 10\%$ of the line voltage, then go to step i to check coil voltage of contactor. h. If voltage is not within $\pm 10\%$ of the line voltage, the contactor is okay. Refer to <i>Platen heaters have failed</i> in this section. i. Measure contactor KM2 coil voltage at wires 38X and 42F. j. If the KM2 input coil voltage is within the range of 103–127 VAC, then press the STOP button, disconnect and lockout power, and replace the KM2 contactor. k. If the KM2 input coil voltage is not within the range of 103–127 VAC, then refer to <i>LCU malfunctioning</i> in this section.

6. Electrical Troubleshooting Procedures (contd.)

Problem	Possible Cause	Corrective Action
6. Platen not heating (contd.)	Platen thermostats have failed	Check the thermostats: NOTE: Platen over-temperature thermostats (2) are normally closed, open on rise. - Press the STOP button, disconnect and lock out power. - Remove the platen covers as described in the <i>Repair</i> section and disconnect the platen thermostat leads from the porcelain wire connectors and check for continuity. - Replace the faulty thermostat as described in the <i>Repair</i> section if necessary.
	Platen heaters have failed	Check the heaters: - Press the STOP button, disconnect and lock out power. - Remove the junction box cover. - Measure the resistance across the following wire pairs with the wires removed from terminal block XT4: - 30B and 31B - 30B and 32B - 31B and 32B - Compare the resistances with Table 6-2. - Call your Nordson representative if any heater is not within specifications.

Table 6-2 Platen Heater Cold Resistance Values in Ohms

Unit Input Voltage (VAC)	Cast-In Heater (Ohms)	Platen Heater Connections	Wire Pairs 30/31, 30/32, 31/32
200/240	13–15	Delta	4.3 –5.0
380/415	13–15	Wye	13.0 –15.0
480	13–15	Delta	17.3 –20.0

Problem	Possible Cause	Corrective Action
7. Hose or gun not heating	Sensor fault condition exists	If the SENSOR FAULT indicator is on and the gun is not heating, replace the gun RTD as described in the gun manual. If SENSOR FAULT indicator is on and the hose is not heating, replace the hose as described in the <i>Installation</i> section.
	Amber channel indicator light malfunctioning	If all amber channel indicator LEDs are on, refer to the <i>LCU not controlling channels</i> problem in this section.
	Fuse is open	Press the STOP button, disconnect and lock out input power. Open the enclosure door. Remove fuses F10, F11, F13, and F14 and check for continuity. Replace any open fuses.
	Wires loose or damaged	Press the STOP button, disconnect and lock out input power. Open the enclosure door and check for loose or damaged wires throughout the circuit path. Reposition or replace wires as necessary.
	Triac has failed	Check the triacs: - Press the STOP button, disconnect and lock out input power. - Unplug the hose electrical connections from the unit. - At the hose connector on the unit end, measure the resistance between C4 and A4 for a malfunctioning hose and between C3 and B4 for a malfunctioning gun. - If the resistance is within the range of 30–1100 ohms, replace the triac as follows: - Triac V1 for a malfunctioning hose (single-hose units) - Triac V2 for a malfunctioning gun (single-hose units) - Triac V3 for malfunctioning hose 2 - Triac V4 for malfunctioning gun 2

6. Electrical Troubleshooting Procedures (contd.)

Problem	Possible Cause	Corrective Action
7. Hose or gun not heating (contd.)	Gun heater cartridge malfunctioning	If the heater resistance measured in step d of the above procedure is outside the specified range, replace the gun heater cartridge. Refer to the gun manual.
8. Red OVER-TEMP indicator lamp comes on	Over-temperature settings too low Wires loose or damaged Platen relays have failed	Check the OVER-TEMP potentiometers and ensure that the settings are at least 28 °C (50 °F) above the application setpoint temperatures. Press the STOP button, disconnect and lock out input power. Open the enclosure door and check for loose or damaged wires throughout the circuit path. Reposition or replace as necessary. Check the relays: - Press the STOP button, disconnect and lock out input power. - Open the enclosure door and install a jumper wire across terminals C3-4 and C3-5 (wires 91 and 41). - Close and latch the enclosure door, apply input power, set the main disconnect switch to ON, and press the POWER ON button. - Open the enclosure door as described in <i>Opening the Electrical Enclosure Door with Power On</i> in this section. - Remove the junction box cover. - Measure the line voltage across the following wire pairs at terminal block XT4: - 30 and 31 - 30 and 32 - 31 and 32

Problem	Possible Cause	Corrective Action
8. Red OVER-TEMP indicator lamp comes on (contd.)	Platen relays have failed (<i>contd.</i>)	g. If line voltage exists between any wire pair, press the STOP button, disconnect and lock out input power, and remove the jumper wire. Replace the platen heater relays as follows: - Line voltage between 30 and 31, replace KA1 and KA3 - Line voltage between 30 and 32, replace KA1 and KA4 - Line voltage between 31 and 32, replace KA3 and KA4
	Platen is overheating	Refer to the <i>Channels overheating</i> problem in this section.
	Hose or gun triac has failed	Check the triacs: a. Press the STOP button and disconnect and lockout input power. b. Measure the voltage across main terminals of the suspect triac (using 300 VAC scale) indicated by the following wire pairs: - Hose 1: 19 and 63 - Gun 1: 19 and 67 - Hose 2: 22 and 82 - Gun 2: 22 and 83 c. Adjust the temperature control knob for that channel so that the heater is fully OFF (channel LED is OFF). Triac voltage should measure 210–250 VAC.

6. Electrical Troubleshooting Procedures (contd.)

Problem	Possible Cause	Corrective Action
8. Red OVER-TEMP indicator lamp comes on (contd.)	Hose or gun triac has failed (contd.) Hose or gun is overheating	d. Adjust the temperature control knob for that channel so that the heater is fully ON (channel LED is ON). Triac voltage should measure 0–5 VAC. e. If any voltage reading is outside the normal range, replace the triac. Refer to the <i>Channels overheating</i> problems in this section.
9. Red OVER-TEMP indicator lamp not working (unit shuts down)	Over-temperature limit is too close to the normal operating temperature	Check the settings: a. Open the electrical enclosure door as described in <i>Opening the Electrical Enclosure Door with Power On</i> in this section. b. Turn the temperature control potentiometer for the channel in question fully counterclockwise. c. Close the electrical enclosure door and observe the OVER-TEMP indicator lamp. d. If the OVER-TEMP lamp goes on, the over-temperature limit is set too close to the normal operating setpoint. e. Raise the over-temperature setting.

Problem	Possible Cause	Corrective Action
9. Red OVER-TEMP indicator lamp not working (unit shuts down) (contd.)	OVER-TEMP indicator lamp not accurate	Check the settings: a. Open the electrical enclosure door as described in <i>Opening the Electrical Enclosure with Power On</i> in this section. b. Compare the over-temperature setpoints with the LCU digital temperature displays for the platen, hose, and gun channels. c. If the displayed temperatures are not higher than the over-temperature settings, then an over-temperature condition does not exist. Refer to the <i>LCU not controlling channels</i> problem in this section.
	Wires loose or damaged	Press the STOP button, disconnect and lock out input power. Open the enclosure door and check for loose or damaged wires throughout the circuit path. Reposition or replace as necessary.

6. Electrical Troubleshooting Procedures (contd.)

Problem	Possible Cause	Corrective Action
10. Red SENSOR FAULT indicator lamp comes on	Wires loose or damaged	Press the STOP button, disconnect and lock out input power. Open the enclosure door and check for loose or damaged wires throughout the circuit path. Reposition or replace as necessary.
	Faulty ribbon cable	Check the ribbon cable: a. Use the zone selector switch to check for a high temperature (greater than or equal to 370 °C/700 °F) display. b. If an extremely high temperature reading is shown for any zone, press the STOP button, disconnect and lock out input power. c. Disconnect one RTD lead in the faulty channel and check the resistance between it and the other RTD lead. For hoses, check the reading between pins XS1-A2 and XS1-C1. d. If the reading is within the range of 100–500 ohms, replace the ribbon cable that connects the faulty channel RTD to the LCU.
	Platen, gun, or hose RTD has failed	If the reading in step d of the above procedure is not within the range of 100–500 ohms and the high temperature zone is the platen or gun, replace the RTD of that component or repair the RTD circuitry for that channel. If the reading is not within range and the high temperature zone is the hose, replace the hose.

Problem	Possible Cause	Corrective Action
10. Red SENSOR FAULT indicator lamp comes on <i>(contd.)</i>	Platen RTD has failed Hose RTD has failed Gun RTD has failed	Press the STOP button, unplug the hose electrical connections from the unit, and observe the SENSOR FAULT LED. If the SENSOR FAULT LED remains on, replace the platen RTD as described in the <i>Repair</i> section. If the SENSOR FAULT LED goes off in the above procedure, reconnect the hose and press the POWER ON button. If the hose channel continues to heat up after the setpoint temperature is reached, press the STOP button, disconnect and lock out input power, and replace the hose. If the SENSOR FAULT LED goes off in the above procedure, reconnect the hose and press the POWER ON button. If the gun channel continues to heat up after the setpoint temperature is reached, press the STOP button, disconnect and lock out input power and replace the gun RTD or repair the short in the gun sensor circuit.
11. POWER ON indicator lamp stays off	Lamp is blown Wires loose or damaged	Press the STOP button, disconnect and lock out input power. Open the enclosure door and check the POWER ON lamp for continuity. Replace the lamp if necessary. Press the STOP button, disconnect and lock out input power. Open the enclosure door and check for loose or damaged wires throughout the circuit path. Reposition or replace as necessary.

**6. Electrical
Troubleshooting
Procedures** (contd.)

Problem	Possible Cause	Corrective Action
11. POWER ON indicator lamp stays off (contd.)	Platen thermostat has opened	Check the thermostat: a. Press the STOP button, disconnect and lock out input power, and remove the junction box cover. b. Check for continuity between terminals XT3-3 and XT3-4 (wires 40 and 47). c. If continuity does not exist and the platen is hot, refer to the <i>Channels Overheating</i> problem in this section. d. If the platen is not hot, the platen thermostat has failed open. Replace the thermostat as described in the <i>Repair</i> section.

Problem	Possible Cause	Corrective Action
11. POWER ON indicator lamp stays off <i>(contd.)</i>	Over-temperature/sensor fault contact on the LCU has failed open between C3-4 and C3-5	Check the over temperature sensor fault contact: - Check to make sure there are no over-temperature or sensor faults. - Press the STOP button, disconnect and lock out input power. - Open the electrical enclosure door and temporarily remove wire 91 from LCU C3-4 and wire 41 from LCU C3-5. Cap both wires off with insulators to prevent contact with other components in the cabinet. - Close and latch the enclosure door and apply input power. Set main disconnect switch to ON. - Open the electrical door as described in <i>Opening the Electrical Enclosure with Power On</i> in this section. - Check for continuity between LCU C3-4 and C3-5. - If continuity exists, the LCU over-temperature/sensor fault contact is okay. Press STOP button, disconnect and lockout input power. Reconnect wire 91 to C3-4 and wire 41 to C3-5. - If no continuity exists, replace LCU.

6. Electrical Troubleshooting Procedures (contd.)

Problem	Possible Cause	Corrective Action
11. POWER ON indicator lamp stays off (contd.)	Fuse is open	Check the main power fuses: - Press the STOP button, disconnect and lock out input power. - Check fuses F1, F2, and F3 for continuity. - If fuses F1, F2, and F3 are not open, check fuse F5 for continuity and replace if open.
	POWER ON or STOP button has failed	Press the STOP button, disconnect and lock out input power. Open the enclosure door and check the POWER ON and STOP buttons for continuity (the POWER ON button is N.O. and the STOP button is N.C.). Replace the button if necessary.
	Main disconnect switch has failed	Check the switch: - Remove and lockout input power to the unit. - Set the main disconnect switch to ON. - Check all three legs of the main disconnect switch for continuity. - If any leg of the main disconnect switch is open, replace the main disconnect switch.

Problem	Possible Cause	Corrective Action
11. POWER ON indicator lamp stays off <i>(contd.)</i>	Transformer or main contactor has failed	Check the transformer and main contactor: - Open the electrical enclosure door as described in <i>Opening the Electrical Enclosure with Power On</i> in this section. - Measure the voltage between terminals XT2-4 and XT1-16 (wires 50 and 38). - If the reading is not within the range of 103–127 VAC and fuses F1 and F2 are okay, replace the transformer. - If the reading is within range, replace the main power contactor.
12. Amber LOW DRUM indicator lamp not working	Lamp is blown Limit switch arm out of position Wires loose or damaged	Press the STOP button, disconnect and lock out input power. Remove and check the bulb for continuity. Replace if necessary. Press the STOP button, disconnect and lock out input power. Check the limit switch arm for proper alignment so that contact is made when the drum gets low. Press the STOP button, disconnect and lock out input power. Open the enclosure door and check for loose or damaged wires throughout the circuit path. Reposition or replace as necessary.

6. Electrical Troubleshooting Procedures (contd.)

Problem	Possible Cause	Corrective Action
12. Amber LOW DRUM indicator lamp not working (contd.)	Limit switch has failed	Check the switch: - Press the STOP button, disconnect and lock out input power. - Disconnect wire 50E from terminal XT2-4. - Deflect the limit switch arm until it reaches the low drum position. Hold the arm in that position. - Check for continuity between the end of wire 50E removed from XT2-4 and wire 51 at the LOW DRUM lamp. Replace the limit switch if open.
13. LCU not controlling channels	Wires loose or damaged Jumpers/Shorting bars not installed Loose connectors or ribbon cable LCU malfunctioning	Press the STOP button, disconnect and lock out input power. Open the enclosure door and check for loose or damaged wires throughout the circuit path. Reposition or replace as necessary. Press the STOP button, disconnect and lock out input power. Check the following connections: - J1 at F4 and F5 (unless transformer control module on 380/415 VAC units is used) - Shorting bar at XT2-9 and 10 (unless auto shutdown option is used) Install jumpers as needed. Press the STOP button, disconnect and lock out input power. Check that connectors C2 and C3 are correctly oriented and plugged in securely (NOTE: Terminal #1 is at extreme left of PCB header). Check that the ribbon cable is plugged in properly and securely. Press the STOP button, disconnect and lock out input power. Replace the LCU.

Problem	Possible Cause	Corrective Action
14. Channels overheating	Non-standard equipment or wiring modification being used	Press the STOP button, disconnect and lock out input power. Check the following RTD inputs for correct voltage (less than 12 VDC): • Platen: C2-19 and 20 • Channel 1: C2-16 and 17 • Channel 2: C2-13 and 14 • Channel 3: C2-10 and 11 • Channel 4: C2-7 and 8 If the reading is higher than 12 VDC, remove any non-standard equipment or wiring modification causing the RTD to receive more than 12 VDC.
	Resistor not connected (Platen overheating)	Press the STOP button, disconnect and lock out input power. Check that the 1,750-ohm, 11-watt resistor is connected across terminals 3 and 4 of either KA1, KA3, or KA4. Install if necessary.
	Platen solid-state relays have failed closed	Check the relays: a. With main disconnect switch set to ON, press the POWER ON button. b. Check the solid-state relays KA1, KA2, and KA3 by turning the PLATEN SETPOINT potentiometer to low, but not off. c. Verify that amber LED on LCU temperature controller for platen does not come on. When the actual temperature is much higher than setpoint temperature, the controller will not turn on the platen solid state relays. d. Check for line voltage between wire pairs 140/141, 141/142, and 142/143. e. If there is line voltage for any pair, replace the faulty relay(s).

6. Electrical Troubleshooting Procedures (contd.)

Problem	Possible Cause	Corrective Action
14. Channels overheating (contd.)	Triacs have failed (hose or gun)	Check the triacs: - With main disconnect switch set to ON, press POWER ON button. - Measure the voltage across main terminals of the suspect triac (using 300 VAC scale) indicated by the following wire pairs: - Hose 1: 19 and 63 - Gun 1: 19 and 67 - Hose 2: 22 and 82 - Gun 2: 22 and 83 - Adjust the temperature control knob for that channel so that the heater is fully OFF (channel LED is OFF). Triac voltage should measure 210–250 VAC. - Adjust the temperature control knob for that channel so that the heater is fully ON (channel LED is ON). Triac voltage should measure 0–5 VAC. - If any voltage reading is outside the normal range, replace the triac.
	LCU malfunctioning	Press the STOP button, disconnect and lock out input power. Replace the LCU.

7. Electrical Schematics and Wiring Diagrams

See Figure 6-3 for the hose and gun wiring diagram.

See electrical schematic and wiring diagrams for the Model 5544 drum melter included with your melter.

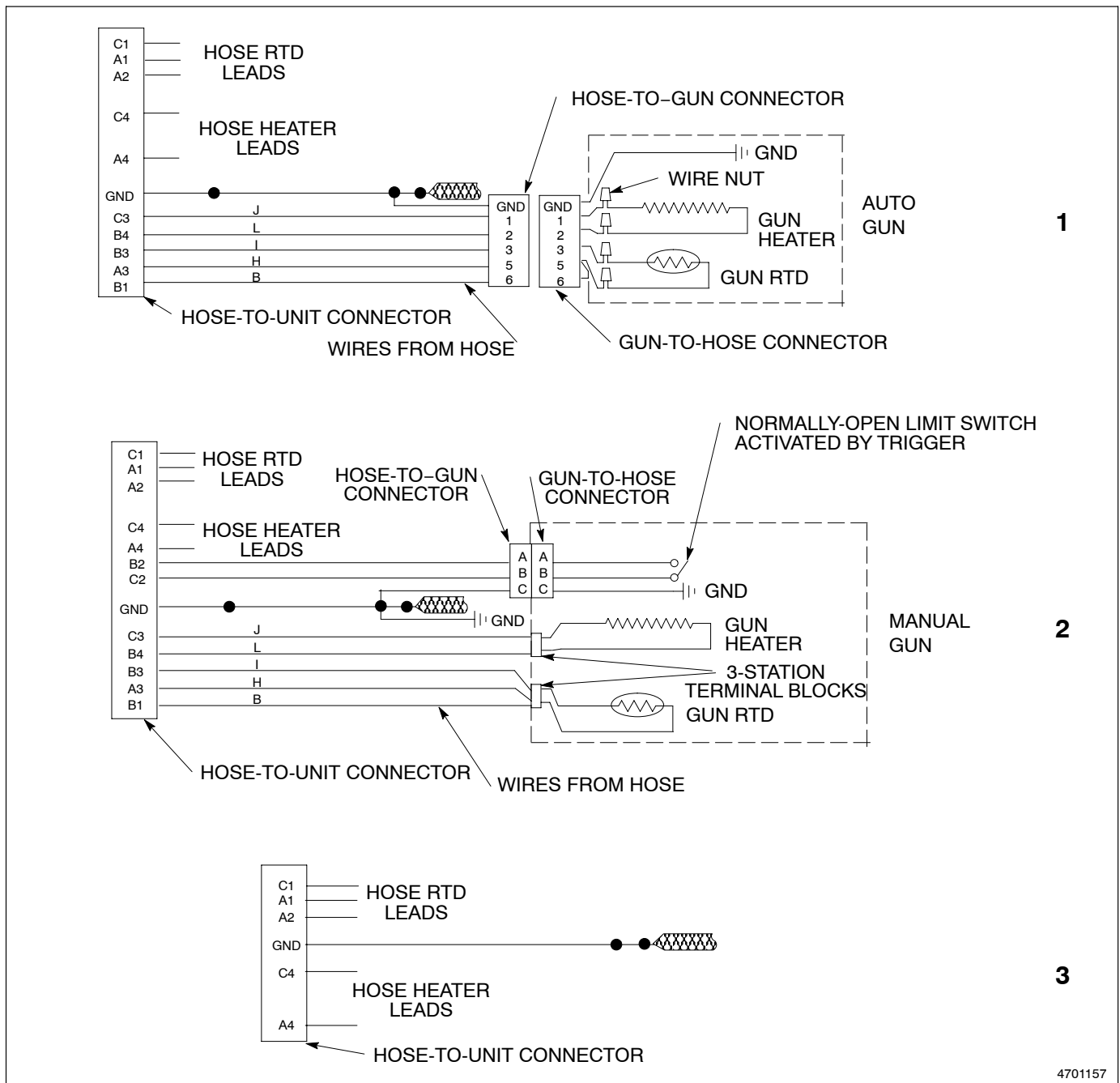


Fig. 6-3 Hose and Gun Wiring Diagram

1. Automatic gun and hose wiring diagram

2. Manual gun and hose wiring diagram

3. Transfer hose wiring diagram

Section 7

Repair

Section 7 Repair

Refer to the instructions provided in the *Safety Notice* (available in www.emanuals.nordson.com under 5000 Series 55 Gallon Drum Melters).



WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.



WARNING: Risk of electrical shock. Remove input power as directed. The input terminal block remains charged even when the main disconnect switch is set to OFF. Failure to observe could result in personal injury or death.



CAUTION: Faulty or damaged hoses are not field-repairable and must be replaced. Contact your Nordson representative for replacement and return information.

1. Introduction

This section describes repair and replacement procedures for the Model 5544 drum melter. Repair and/or replacement of parts may be necessary as routine maintenance or if a component has failed and been detected through the procedures in the *Troubleshooting* section.

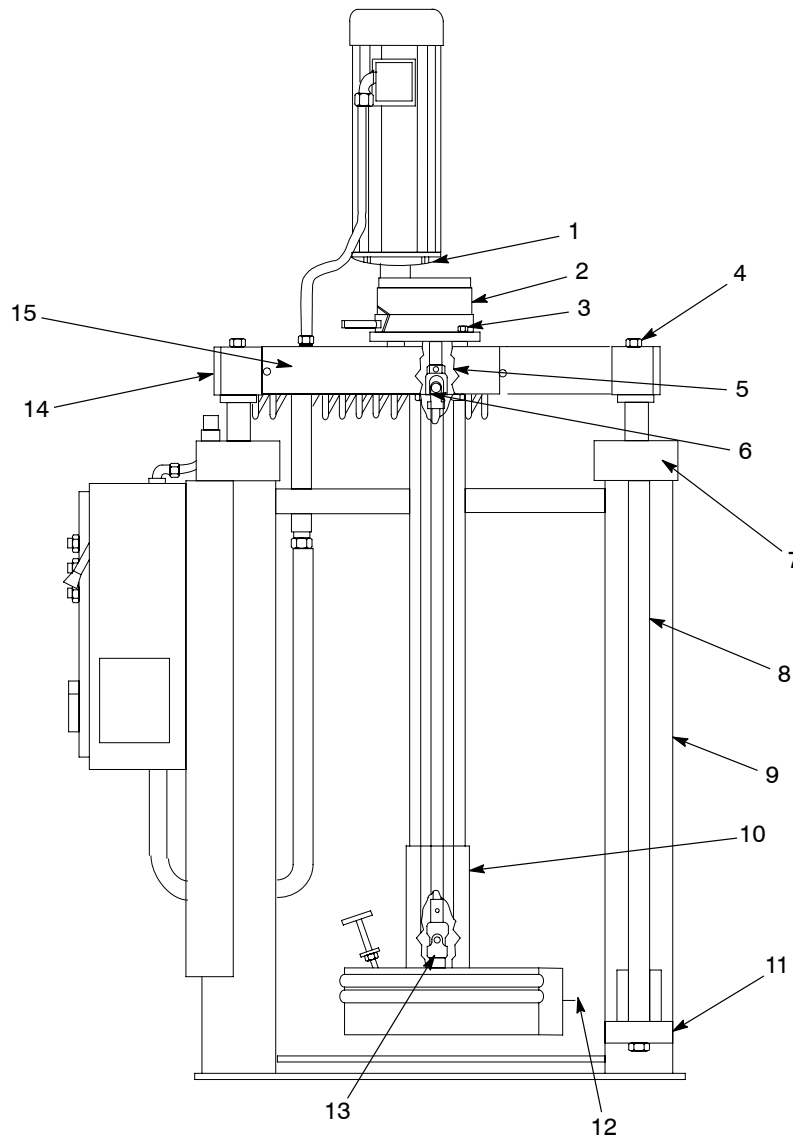
Gun disassembly and repair information is included in the gun manual.

Do the following before attempting any of the procedures in this section:

- Be sure you are performing the correct procedure to repair the unit. If a fault condition has occurred, refer to the *Troubleshooting* section to determine the appropriate procedure before attempting to repair or replace a part. If the fault condition is not covered in the *Troubleshooting* section, or if there is question about the proper course of action, contact your Nordson representative.
- Read the entire procedure while at the unit and become familiar with the required steps. It may be necessary to refer to the illustrated parts lists in the *Parts* section for exact component locations and sizes.

1. Introduction (contd)

- Check that the required tools, replacement parts, and service items are at hand.
- Read and follow all safety precautions in the *Safety* section and in this section.
- Review Figure 7-1 shown below. Although detailed parts illustrations accompany each repair procedure, Figure 7-1 provides exact locations of those parts on the drum melter.



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Fig. 7-1 Model 5544 Assemblies and Parts

- | | | |
|---|-------------------------------|-------------------------|
| 1. Motor/Speed reducer screws and washers | 5. Upper yoke assembly | 11. Air piston |
| 2. Speed reducer | 6. Driveshaft | 12. Platen assembly |
| 3. Speed reducer/crossover screws and washers | 7. Air cylinder head assembly | 13. Lower yoke assembly |
| 4. Air cylinder shaft screws and washers | 8. Air cylinder shaft | 14. Crossover |
| | 9. Air cylinder | 15. Junction box |
| | 10. Column collar | |

2. Hydraulic System



WARNING: Do not attempt to loosen any manifold, hose, or gun connection until system hydraulic pressure has been relieved. Refer to the *Maintenance* section for this procedure.



WARNING: Hot! Risk of burns. Wear heat-protective clothing and safety goggles. Failure to observe may result in serious personal injury.



WARNING: Never use a torch or other open flame device to heat a component. Use only a flameless electric heat gun or electric oven with forced air circulation. Failure to observe may result in personal injury and/or damage to the unit and nearby property.

Use the following procedures to repair components of the drum melter's hydraulic system.

Preparing for Hydraulic System Repairs

If the pump is operable, the entire system should be flushed as described in the *Maintenance* section before disassembly.

If the pump is not operable, but the heating system is functioning, bring the unit to application temperature before beginning disassembly. This will soften material throughout the system and make it easier to perform disassembly procedures.

If neither the pump nor heating system are functional, use only a flameless electric heat gun or similar device to melt solidified material during disassembly.

Replacing the O-rings

Use the following procedure to replace the O-ring (s) if there is leakage or the connection is broken. This procedure covers O-rings at the gun-to-hose connection, the hose-to-pump manifold joint, or on gun manifold pipe plugs installed to block off unused fluid ports.

You will need Nordson replacement O-rings, O-ring lubricant, and a torque wrench to complete this procedure.

1. Relieve system pressure as described in the *Maintenance* section.
2. Unscrew and remove the pipe plug or hose connector from the manifold as required.
3. Remove the existing O-ring from the hose connector or pipe plug.
4. Clean the O-ring groove in the hose connector or pipe plug. Lubricate with O-ring lubricant.
5. Stretch the new O-ring enough to roll it over the hose connector or pipe plug threads and into its groove. Do not stretch the new O-ring any more than necessary.
6. Coat the fitting and O-ring with additional O-ring lubricant.
7. Install the fitting back into the gun. Apply torque of 9.5–13.6 N•M (7–10 ft-lb).
8. Connect the hose to the gun fitting and tighten with two wrenches, one to hold the gun fitting stationary and the other to turn the hose swivel connector.
9. Resume operation with gun nozzles removed until all air is purged from the system. Then reinstall the gun nozzles and continue with normal operation.

Replacing the Platen Seals

This procedure details the seal replacement procedure for both PTFE-Encapsulated Silicone (TES) platen seals and non-TES seals. Refer to *Preparing for Hydraulic System Repairs* before proceeding. The 5544 drum melter uses two seals – both seals must be replaced at the same time.

You will need a piece of plywood or similar heat-resistant material slightly larger than the platen, a blade, and high temperature grease to complete this procedure.

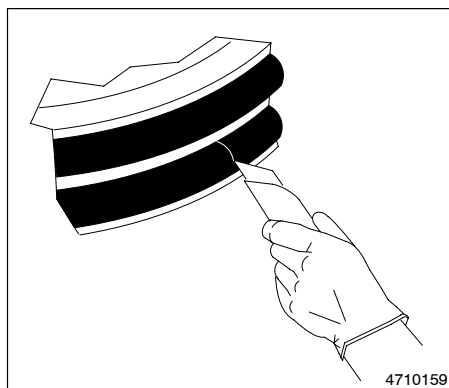


Fig. 7-2 Cutting the TES Seal from the Platen Groove

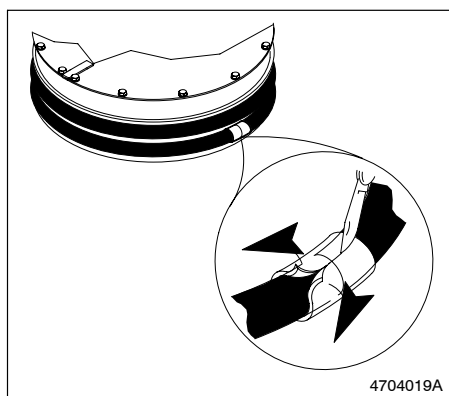


Fig. 7-3 Cutting the Non-TES Seal from the Platen Groove

1. Bring the unit to application temperature.
2. If a drum is installed on the unit, remove the platen from the drum as described in the *Drum Changeout* procedure in the *Operation* section. Position the platen so there is workspace between the platen and the top of the drum.
3. Place the plywood on top of the drum or the drum hold-down assembly.
4. (TES seals) Place a seal on the plywood. Use the elevator control valve to lower the platen until it touches the seal. Heat the seal with the platen for 30–45 minutes while performing steps 5 and 6.
5. See Figure 7-2. (TES seals) Carefully cut the old platen seals from the platen seal grooves.

(Non-TES seals) Carefully cut the heat shrink tubing at both seal joints for both seals, loosen the worm clamp at each seal and remove the seals.

NOTE: To adjust the positioning of the worm clamp, flex the end of the seal, then insert a screwdriver into the seal to loosen or tighten the clamp.

NOTE: Do not use sharp tools or disfigure the platen seal grooves. Leakage at the platen seals may result if either platen seal groove is damaged, requiring replacement of the platen.

6. Clean the platen seal grooves. Then lubricate the grooves with high temperature grease.
7. (TES seals) Use the elevator control valve to raise the platen off of the seal.

Replacing the Platen Seal (contd)

8. See Figure 7-4. (TES seals) Use tire irons or similar tools to aid in stretching the seal over the platen and into the upper seal groove. Use an electric heat gun and tools as required until the seal seats in its groove. Be careful not to damage the PTFE covering around the seal.

NOTE: This may require the assistance of another person.

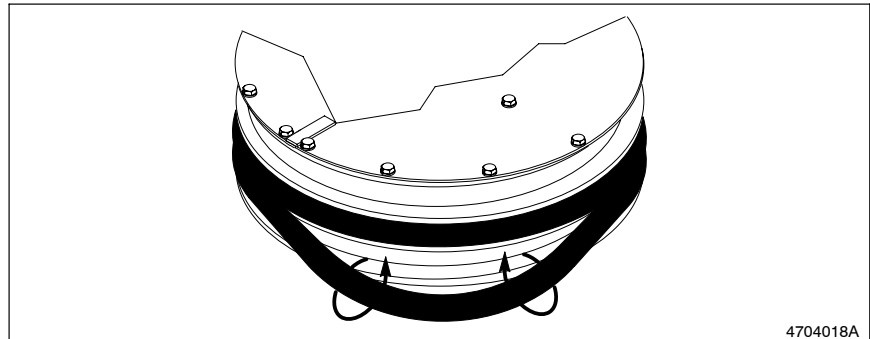


Fig. 7-4 Installing TES Platen Seals

See Figure 7-5. (Non-TES seals) Place the new seal in its groove on the platen follower plate. Center the heat shrink tubing over the seal seams, then tighten the worm clamps.

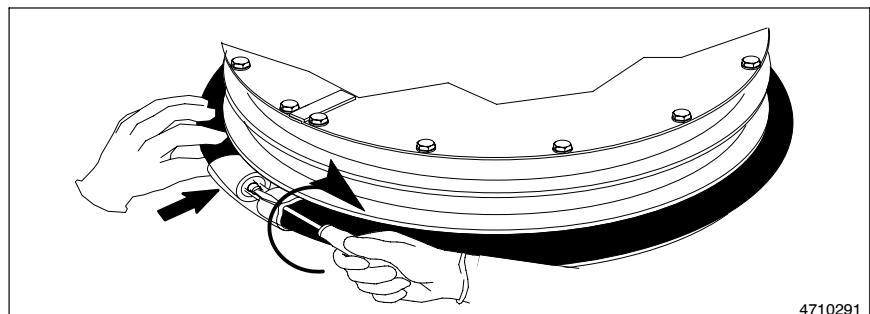


Fig. 7-5 Installing Non-TES Platen Seals

NOTE: To prevent damage to the seals, ensure that the seal seams are at opposite sides of the platen (180° apart) and that the seal gap is no more than 3 mm (0.12 in.).

(Non-TES seals) Use a flameless electric heat gun to heat the shrink tubing at the seal seams.

9. Apply a coating of high temperature grease to the platen seal.
10. Repeat steps 4–8 for the lower seal.
11. Remove the plywood and resume normal operation.

Replacing a Platen RTD

Use the following procedure to replace a platen RTD.

You will need a piece of plywood or other heat-resistant material slightly larger than the platen diameter, heat conductive paste, Never Seez, and a replacement RTD (refer to the *Parts* section for the part number) to complete this procedure.

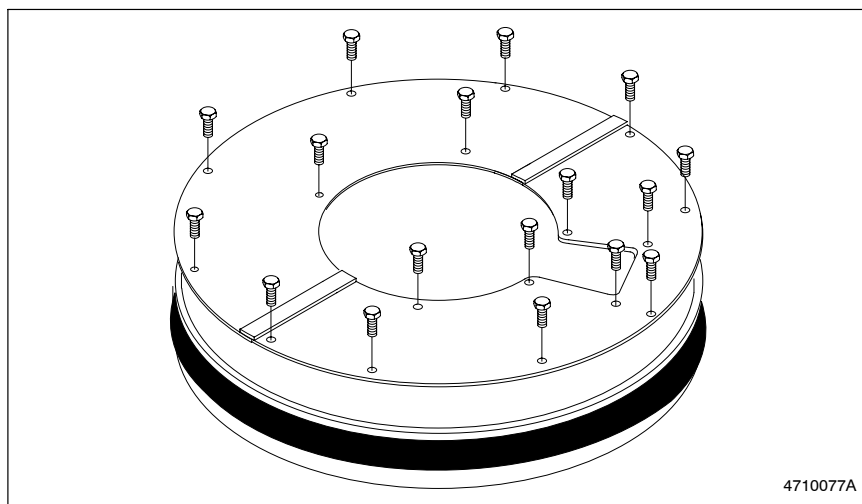
Remove the RTD

1. If a drum of material is installed on the unit, remove it as described in the *Drum Changeout* procedure in the *Operation* section.
2. Place the piece of plywood on the frame (or across the drum hold-down assembly).
3. Use the elevator control valve to lower the platen to within 5 inches of the plywood.



WARNING: Risk of electrical shock. Failure to disconnect and lock out power may result in death or personal injury.

4. Press the STOP button, set the main disconnect switch to the OFF position, and lock out input power to the unit.
5. See Figure 7-6. Remove the hex-head screws and washers that secure the front and rear cover plates to the platen. Remove the plates.



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Fig. 7-6 Removing the Cover Plates

Remove the RTD (contd)

6. Remove the RTD from the platen by unscrewing the connector nut.
7. See Figure 7-7. Cut the RTD leads at the platen. Remove the connector nut and attached RTD.
8. Discard the RTD and connector nut.

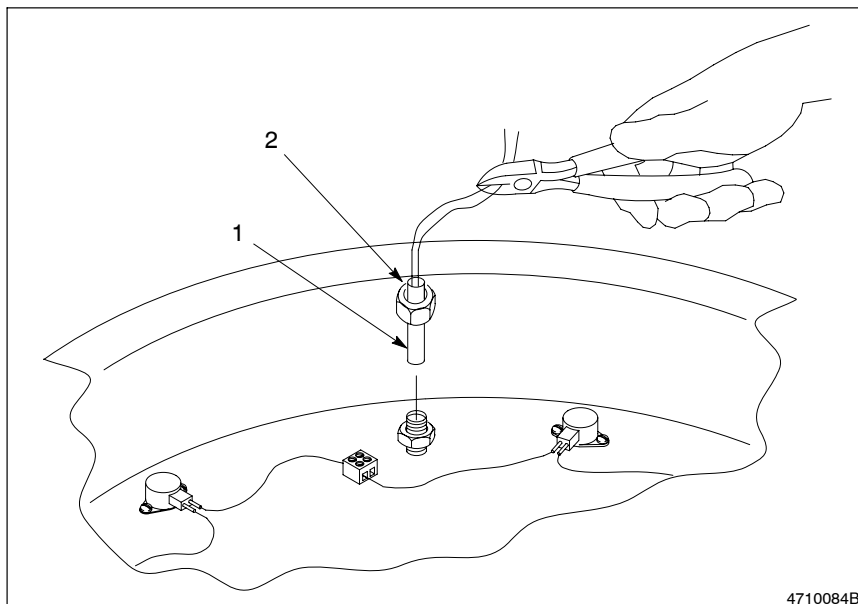


Fig. 7-7 Removing the RTD

1. RTD

2. Connector nut

Install the New RTD

1. Coat the replacement RTD with heat-conductive paste.
2. See Figure 7-8. Place the new connector nut from the RTD service kit onto the new RTD. Tie or tape the replacement RTD wires to the old RTD wires, which will be used to pull the new RTD wires through conduit.

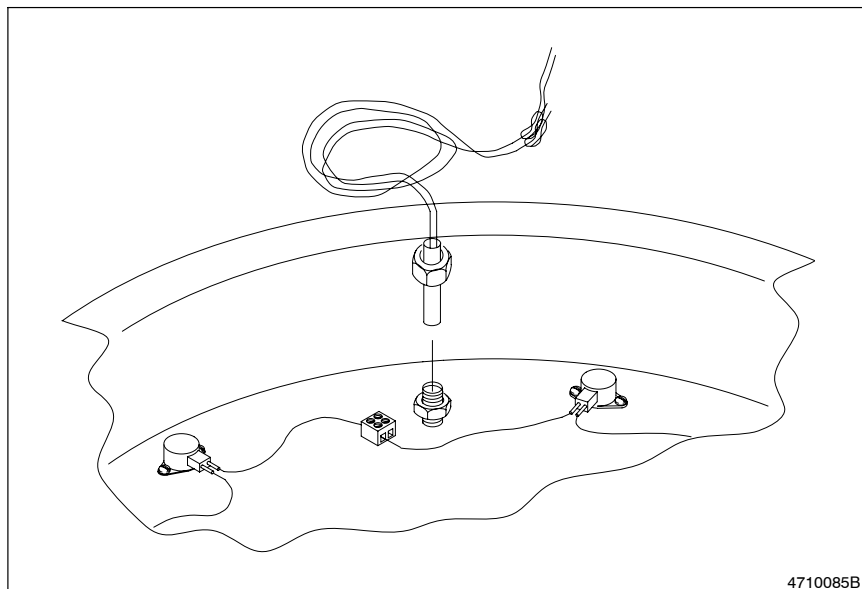


Fig. 7-8 Preparing to Route the Replacement RTD Wires

3. Remove the junction box cover.
4. See Figure 7-9. Disconnect platen RTD wires 58B and 59B from positions 1 and 2 at terminal block XT3.

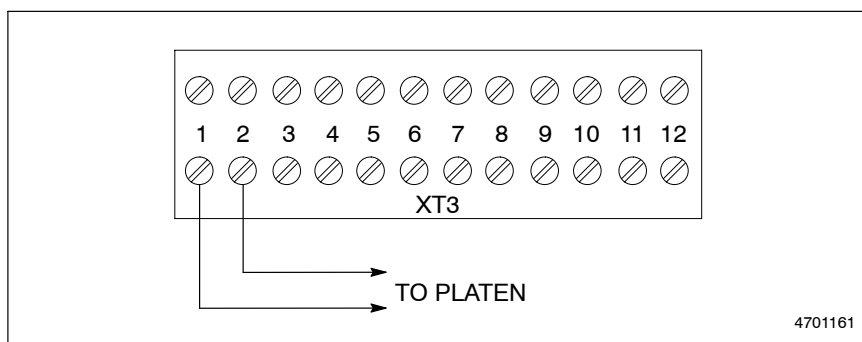


Fig. 7-9 Platen RTD Wire Connections

Install the RTD (contd)

5. Route the RTD wires through the conduit and into the junction box by pulling the old RTD wires out at the junction box.
6. Once you have pulled the replacement wires through the conduit and into the junction box, label the new wires and separate the new wires from the old ones. Discard the old RTD wires.
7. Connect the wires of the replacement RTD to positions 1 and 2 at terminal block XT3.
8. See Figure 7-10. Insert the RTD into the platen and push it down as far as it will go. Secure with the connector nut.

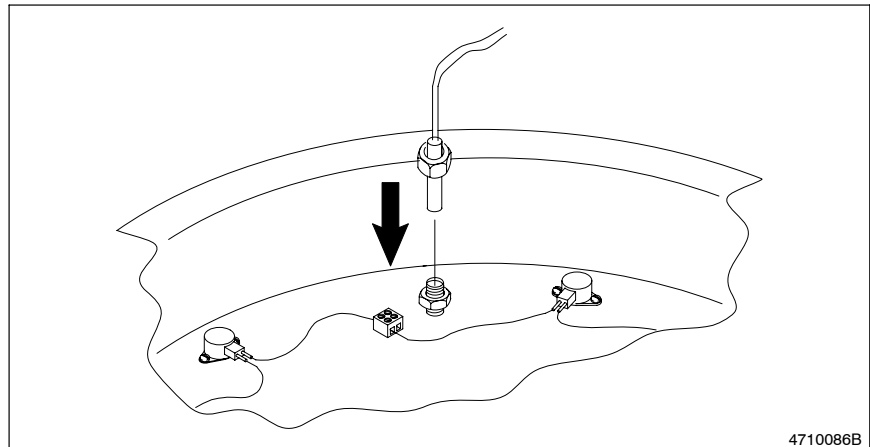


Fig. 7-10 Installing the Replacement RTD

9. Apply Never Seez to the threads of the hex-head screws. Replace the front and rear cover plates to the platen with the hex-head screws and washers.
10. Restore input power to the unit, set the main disconnect switch to the ON position, and press the POWER ON button.
11. Make sure there are no system electrical faults before continuing system restoration. If necessary, refer to the *Troubleshooting* section.
12. Use the elevator control valve to raise the platen enough to accommodate a drum of material, then remove the plywood and install the drum of material as described in *Loading the Drum* in the *Operation* section.
13. Resume normal operation.

Replacing a Platen Thermostat

Use the following procedure to replace a platen thermostat.

You will need a piece of plywood or other heat-resistant material slightly larger than the platen diameter, heat conductive paste, Never Seez, and a replacement thermostat (refer to the *Parts* section for the part number) to complete this procedure.

Remove the Thermostat

1. If a drum of material is installed on the unit, remove it as described in the *Drum Changeout* procedure in the *Operation* section.
2. Place the piece of plywood on the frame (or across the drum hold-down assembly).
3. Use the elevator control valve to lower the platen onto the plywood.



WARNING: Risk of electrical shock. Failure to disconnect and lock out power may result in death or personal injury.

4. Press the STOP button, set the main disconnect switch to OFF, and lock out input power to the unit.
5. See Figure 7-6. Remove the hex-head screws and washers that secure the front and rear cover plates to the platen. Remove the plates.
6. Disconnect the thermostat to be replaced from the platen terminal block.
7. See Figure 7-11. Remove the two screws that secure the thermostat to the platen. Remove and discard the thermostat.

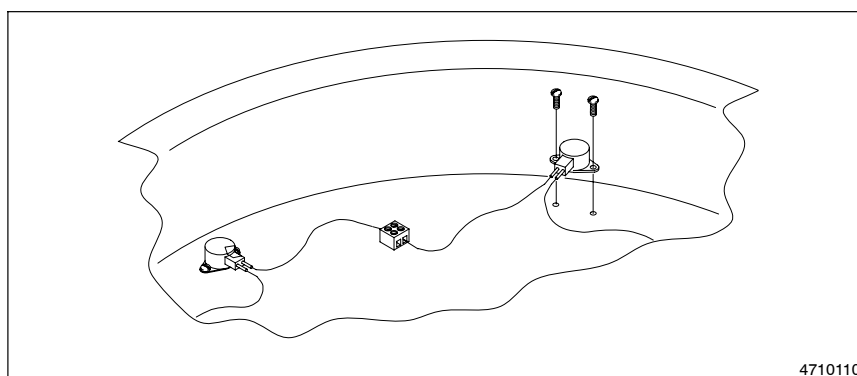


Fig. 7-11 Removing the Thermostat

Install the New Thermostat

1. Coat the mating surface of the replacement thermostat with heat conductive paste.
2. Secure the thermostat to the platen with the screws.
3. Make the thermostat terminal block connections.
4. Apply Never Seez to the threads of the hex-head screws. Replace the front and rear cover plates to the platen with the hex-head screws and washers.
5. Restore input power to the unit, set the main disconnect switch to the ON position, and press the POWER ON button.
6. Make sure there are no system electrical faults before continuing system restoration. If necessary, refer to the *Troubleshooting* section.
7. Use the elevator control valve to raise the platen enough to accommodate a drum of material, then remove the plywood and install the drum of material as described in *Loading the Drum* in the *Operation* section.
8. Resume normal operation.

Replacing the Blow-off Valve

Follow this procedure to replace the blow-off valve.

1. If there is a drum in the unit, remove it by following *Drum Changeout* instructions in the *Operation* section.
2. With the elevator still in the up position, wipe off the surface of the platen with a plastic knife or spatula.
3. Place a heat-resistant support on the frame base below the platen.
4. Use the elevator control to lower the platen onto the support.



WARNING: Risk of electrical shock. Disconnect equipment from line voltage before servicing.

5. Turn power off, place the main disconnect switch in the OFF position, and lock out power.



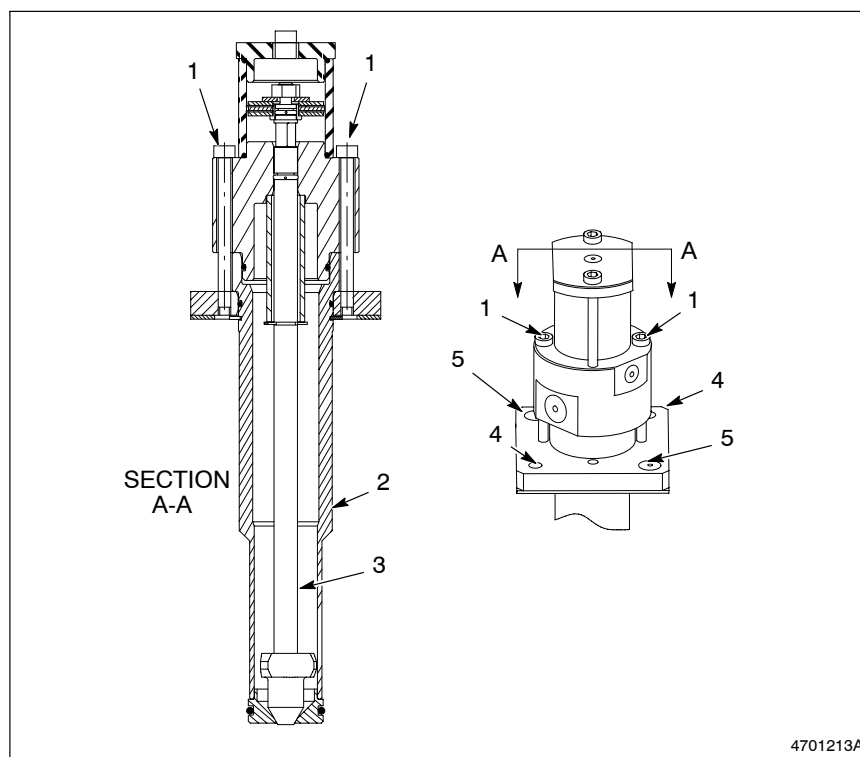
WARNING: System or material pressurized. Relieve pressure. Failure to observe may result in serious burns.

6. Set the air pressure regulator to 0 kPa/psi (fully counterclockwise); then disconnect the air supply from the unit.
7. Move the elevator control lever to the UP position to bleed all pneumatic pressure from the system.

To Remove the Blow Off Valve

1. Remove the 2 blow-off valve assembly screws (5) and remove the needle assembly (3) and tube (2).

NOTE: If you cannot remove the assembly, remove valve assembly screws and thread them into the threaded holes (4). This will drive the assembly out.



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Fig. 7-12 Removing the Platen Blow-off Valve

- | | |
|--------------------|----------------------------------|
| 1. Bolts | 4. Threaded holes |
| 2. Tube | 5. Blow-off valve assembly screw |
| 3. Needle assembly | |

To Remove the Blow Off Valve (contd)

2. Remove the 2 bolts (1) and separate the needle assembly from the tube.
3. Visually check to be sure no adhesive is working back into the tube or needle areas.
4. If you prefer to rebuild the valve, check for any broken or worn parts. Replace as needed. Refer to *Platen Blow-off Assembly* in the *Parts* section.
5. Re-assemble the valve.

To Install the Blow Off Valve



WARNING: Wear long-sleeved, heat-protective clothing, safety goggles, and heat-protective gloves.

NOTE: Inspect the hole in the platen making sure that it is clean before inserting the valve.

1. See Figure 7-13. Insert the valve as shown.

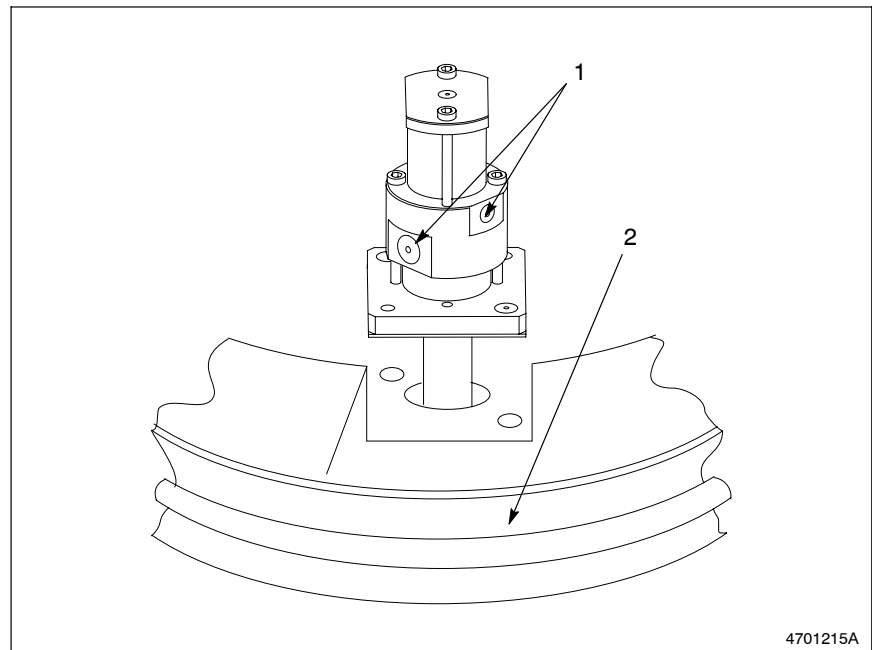


Fig. 7-13 Orientation of Blow Off Valve Air Ports

1. Blow off valve ports

2. Platen

2. See Figure 7-12. Replace blow-off valve assembly screws.
3. Restore power to the melter.
4. Install the drum by following the *Drum Changeout* instructions in the *Operation* section.
5. Resume normal operation.

Replacing or Rebuilding the Gear Pump

Use the following procedures to remove, rebuild, and install the gear pump. A comprehensive rebuild includes removing, disassembling, assembling, and installing the gear pump.

If you are removing and installing a new gear pump, you will need a torque wrench and O-ring lubricant to complete these procedures.

If you are removing the existing gear pump, replacing specific parts, and installing the existing gear pump, you will need a torque wrench, a hex wrench, O-ring lubricant, and specific Nordson parts (refer to the *Parts* section for part numbers) to complete these procedures.

If you are removing the existing gear pump, rebuilding it, and re-installing the existing gear pump, you will need a torque wrench, a hex wrench, O-ring lubricant, high-temperature grease, anti-seize compound, and the Nordson Uptime Plus Service Kit (refer to the *Parts* section for the part number) to complete these procedures.

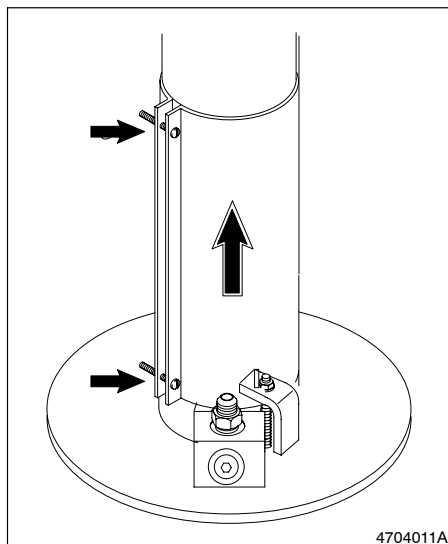


Fig. 7-14 Raising the Column Collar

Remove the Gear Pump

1. Bring the unit to application temperature.
2. If a drum is installed on the unit, remove the platen from the drum as described in the *Drum Changeout* procedure in the *Operation* section.
3. Place a heat-resistant support on the frame base below the platen.
4. Use the elevator control to lower the platen onto the support.
5. See Figure 7-14. Loosen the two round-head screws and hex nuts that secure the column collar in place. Slide the collar up to give access to the drive shaft-to-pump connection. Tighten the round-head screws and hex nuts to secure the collar in place.

Remove the Gear Pump (contd)

6. See Figure 7-15. Use the PUMP OFF/ON switch on the electrical enclosure front panel or the external gun trigger if one is installed to turn the driveshaft until the lower yoke assembly set screw is accessible.

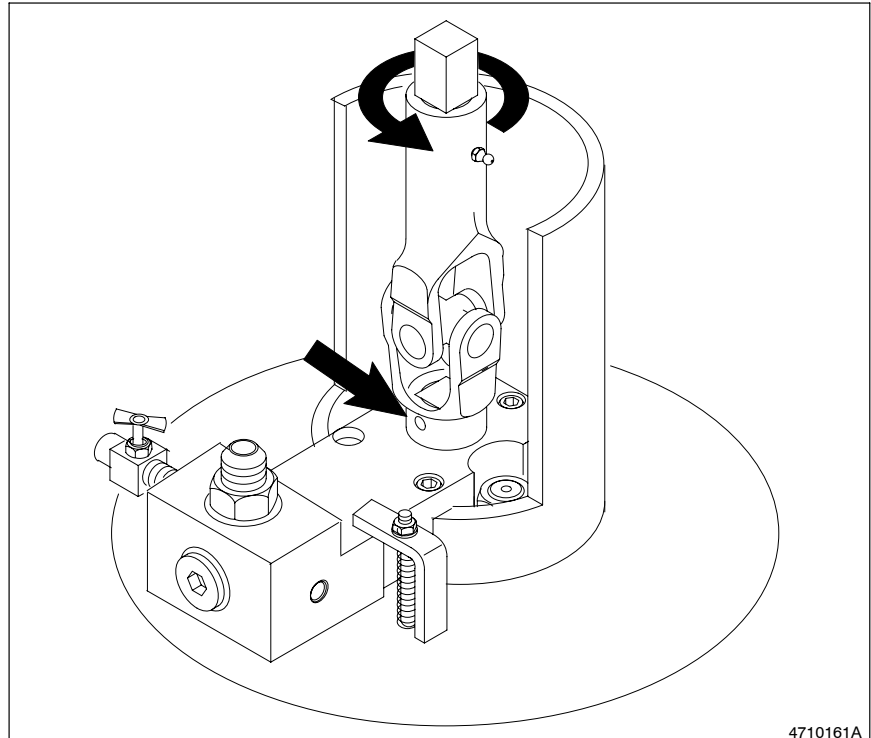


Fig. 7-15 Turning the Driveshaft to Access the Lower Yoke Assembly Set Screw

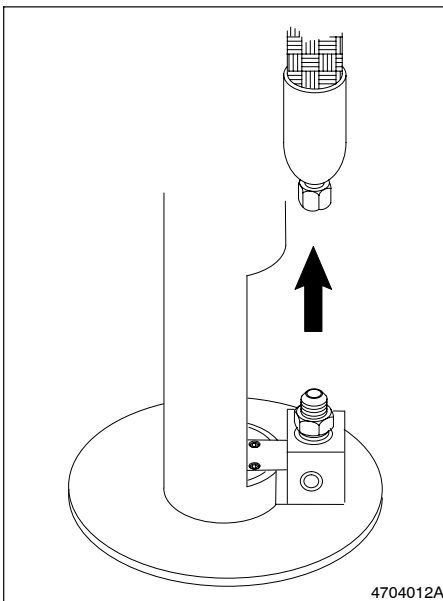


Fig. 7-16 Removing the Hose from the Manifold

7. Press the STOP button on the electrical enclosure front panel, set the main disconnect switch to the OFF position, and lock out input power to the unit.
8. Relieve system pressure as described in the *Maintenance* section.
9. See Figure 7-16. Remove the hose(s) from the hose connector(s) at the manifold.

10. See Figure 7-17. Loosen the lower yoke assembly set screw, lift the yoke assembly free of the pump shaft, and reposition the universal joint enough that the assembly can be removed from the driveshaft.

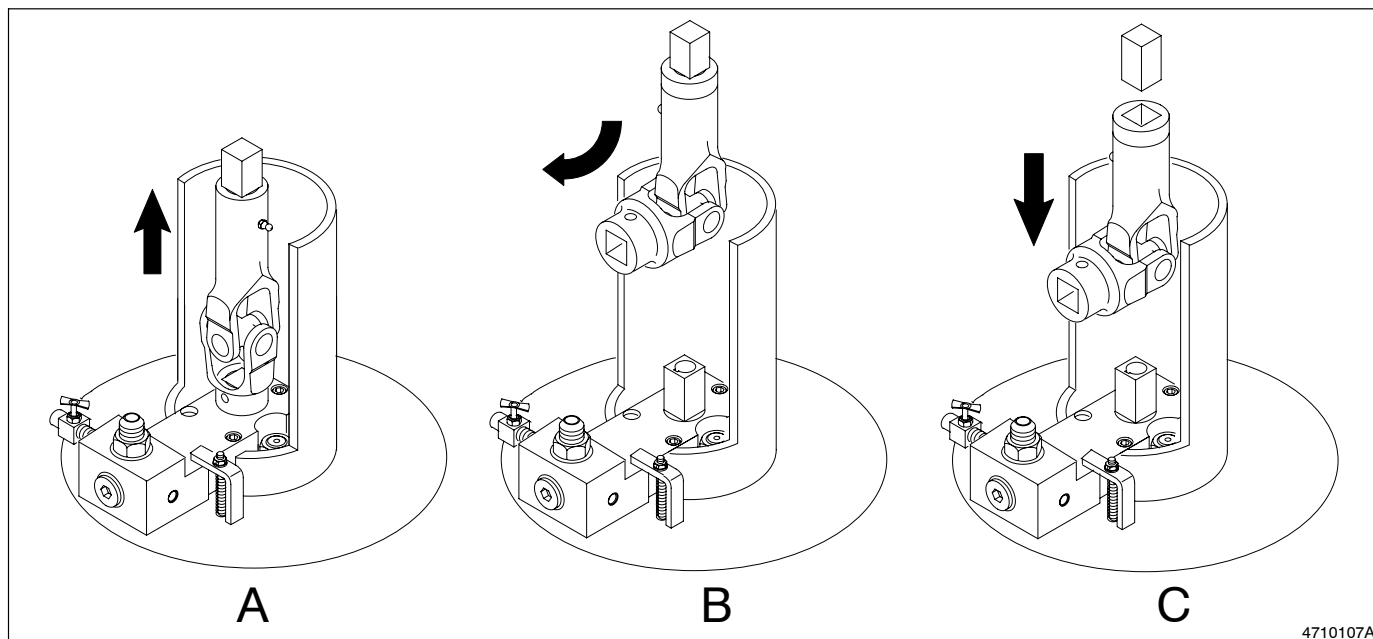


Fig. 7-17 Removing the Lower Yoke Assembly from the Driveshaft

11. See Figure 7-18. Loosen the manifold clamp nut and reposition the manifold clamp.

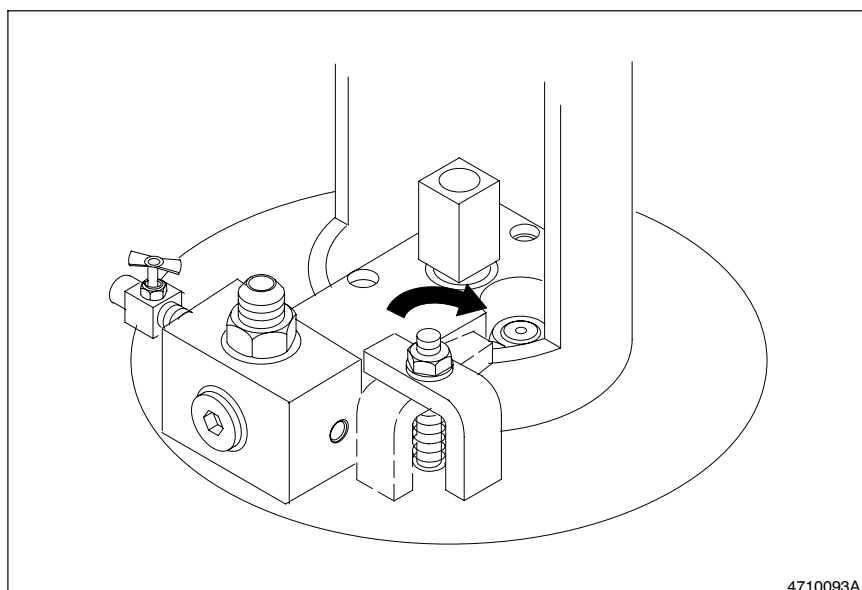
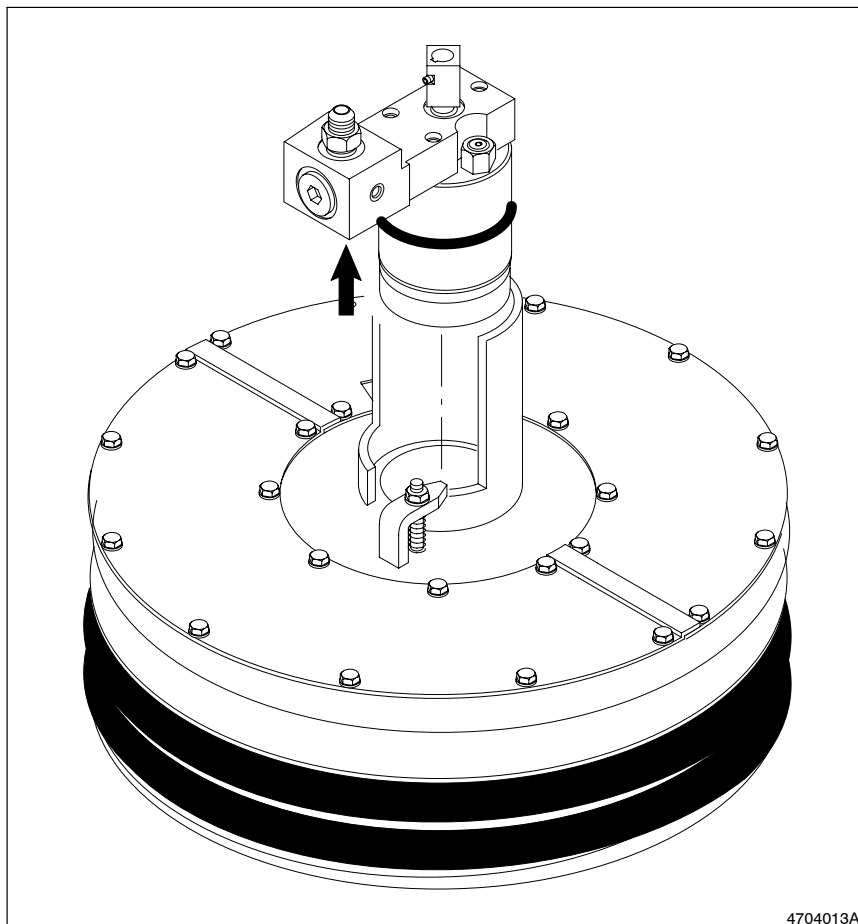


Fig. 7-18 Repositioning the Manifold Clamp

Remove the Gear Pump (contd)

12. See Figure 7-19. Use a flat blade screwdriver or similar tool to pry the pump manifold away from the platen. Lift the pump/manifold assembly free of the platen and place in a clean location for storage or disassembly.
13. If not rebuilding the gear pump, skip to *Install the Gear Pump*.

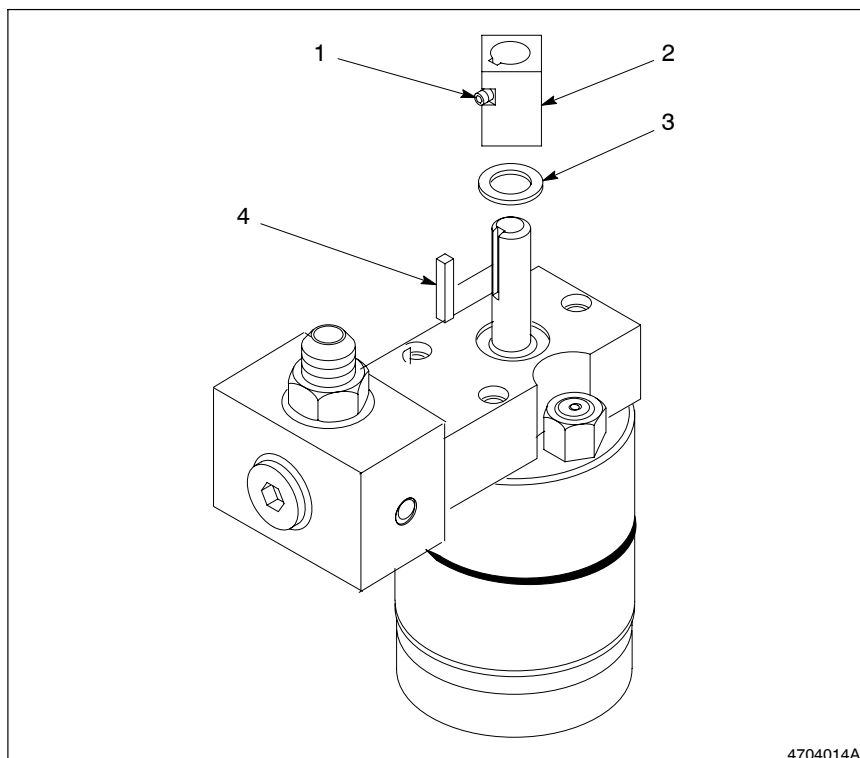


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Fig. 7-19 Lifting the Pump Assembly Out of the Platen

Disassemble the Gear Pump

1. Remove the gear pump/manifold assembly as described in the previous procedure.
2. See Figure 7-20. Loosen the socket set screw (1). Remove the coupling block (2), key (4), and bearing washer (3) from the pump shaft.



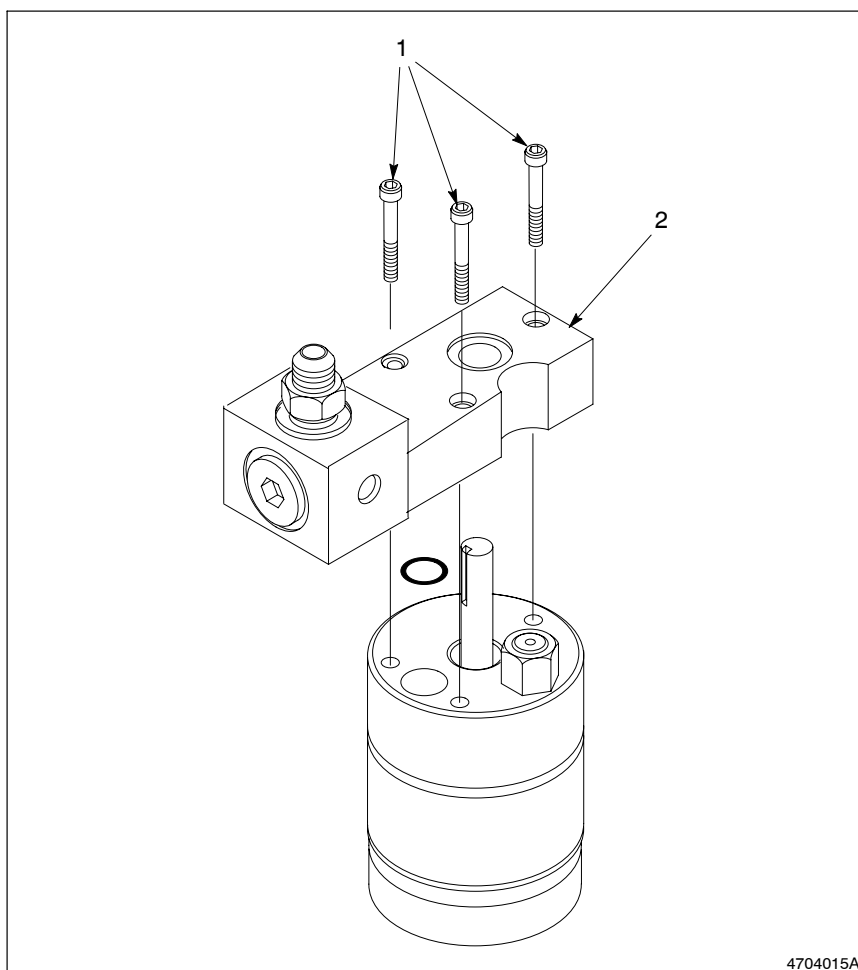
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Fig. 7-20 Removing the Coupling Block, Key, and Washer

- | | |
|---------------------|-------------------|
| 1. Socket set screw | 3. Bearing washer |
| 2. Coupling block | 4. Key |

Disassemble the Gear Pump (contd)

3. See Figure 7-21. Remove the three socket-head screws (1).
Remove the manifold (2) from the pump body.



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Fig. 7-21 Removing the Manifold

1. Socket-head screws

2. Manifold

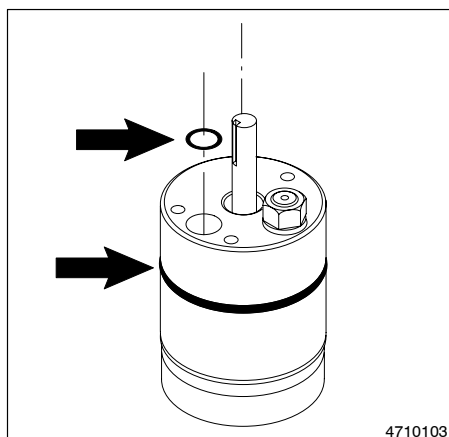


Fig. 7-22 Removing the Pump Body O-rings

4. Remove the pipe plugs, hose connector(s), and manifold drain valve from the end of the manifold.

NOTE: There are no pipe plugs on dual-hose systems.

5. See Figure 7-22. Remove and discard the pump body O-rings.

6. See Figure 7-23. Remove the pressure relief valve (1) from the pump body. Discard both O-rings (2) from the valve.

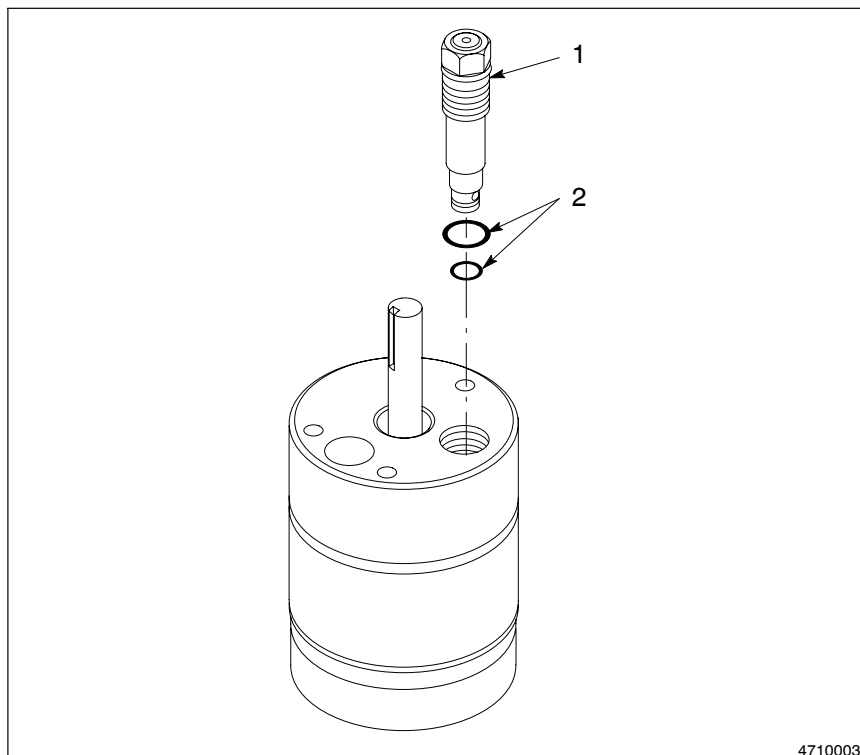


Fig. 7-23 Removing the Pressure Relief Valve and O-rings

1. Pressure relief valve

2. O-rings

Disassemble the Gear Pump (contd)

7. See Figure 7-24. Remove the six socket-head screws (1) from the lower pump plate (2). Remove the lower pump plate from the pump body. Discard the bearing and seal inside the plate. Keep the plate for rebuild.

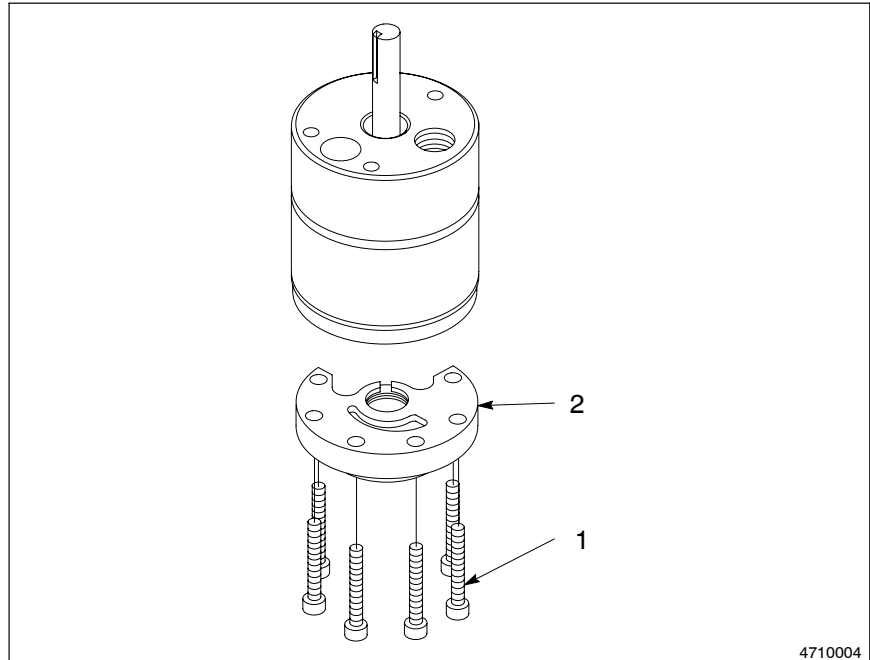


Fig. 7-24 Removing the Lower Pump Plate

1. Socket-head screws
 2. Lower pump plate
8. Remove the internal retainer ring and shaft seal from the lower pump plate.
 9. See Figure 7-25. Remove the two socket-head screws (5) from the gerotor retainer (4). Remove the gerotor retainer from the pump body.
 10. Remove the outer gerotor gear (3) from the gerotor retainer. Discard the outer gerotor gear.
 11. Carefully remove the pump shaft (1), complete with the inner gerotor gear (2) and Woodruff key, from the pump body. Discard the inner gerotor gear, the pump shaft, and the Woodruff key.

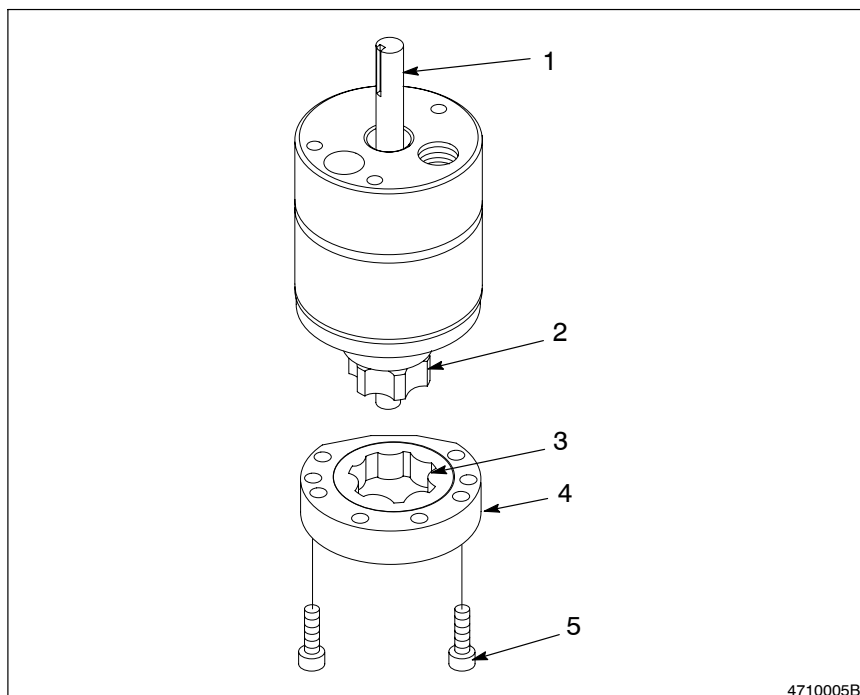


Fig. 7-25 Removing the Gerotor Assembly and Pump Shaft

- | | |
|-----------------------|-----------------------|
| 1. Pump shaft | 4. Gerotor retainer |
| 2. Inner gerotor gear | 5. Socket-head screws |
| 3. Outer gerotor gear | |

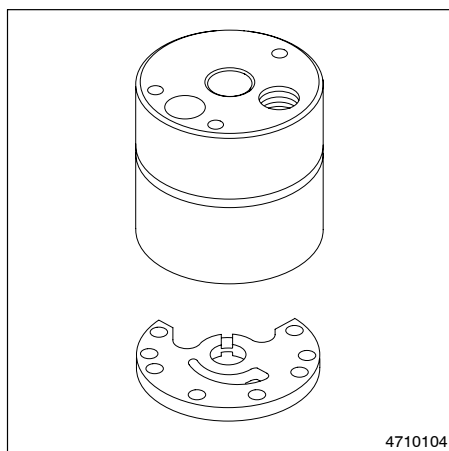


Fig. 7-26 Removing the Upper Pump Plate

12. See Figure 7-26. Remove the upper pump plate from the pump body. Discard the upper pump plate.

Disassemble the Gear Pump (contd)

13. See Figure 7-27. Press the upper needle bearing (1) and lower needle bearing (2) out of the pump body. Discard the needle bearings and the shaft seals (3).

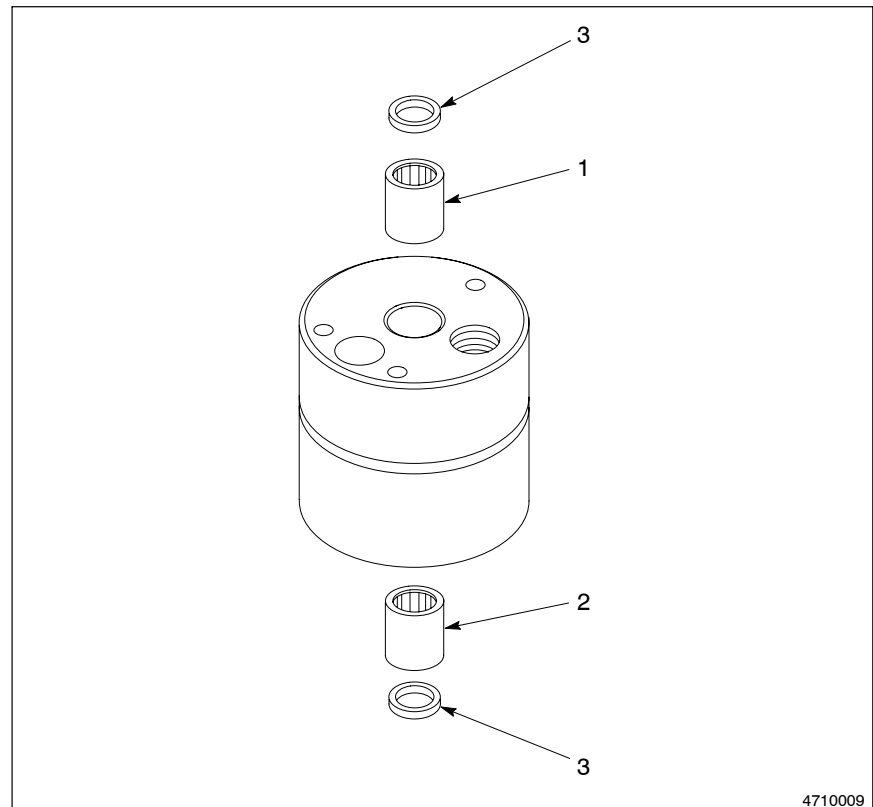


Fig. 7-27 Removing the Upper and Lower Open Needle Bearings

1. Upper open needle bearing 3. Shaft seal
2. Lower open needle bearing



WARNING: Do not clean components in halogenated hydrocarbon fluids. Using this fluid could cause an explosion.



WARNING: Contact your material supplier for the recommended cleaning fluid for your application. Failure to observe may cause damage to the equipment or personal injury.

14. Excluding the needle bearings and seals, clean the pump and manifold parts with a cleaning solution recommended by your adhesive supplier.

Assemble the Gear Pump

Assemble the gear pump components as follows:

Pump Bearings and Seals

1. See Figure 7-28. Coat the interior and exterior of the new open needle bearings (1, 2) with high temperature grease.
2. Press one of the open needle bearings into the top of the pump body until it is 10 mm (0.38 in.) below the top surface. Take care to press only against the flat side of the bearing race where the bearing designation is marked.
3. Press the other open needle bearing into the bottom of the pump body until it is 6 mm (0.25 in.) above the bottom surface.
4. Apply a light coating of high temperature grease to both of the new shaft seals (3). Install one shaft seal into the top of the pump body with the exposed spring facing out. Install the other shaft seal into the bottom with the exposed spring facing out.

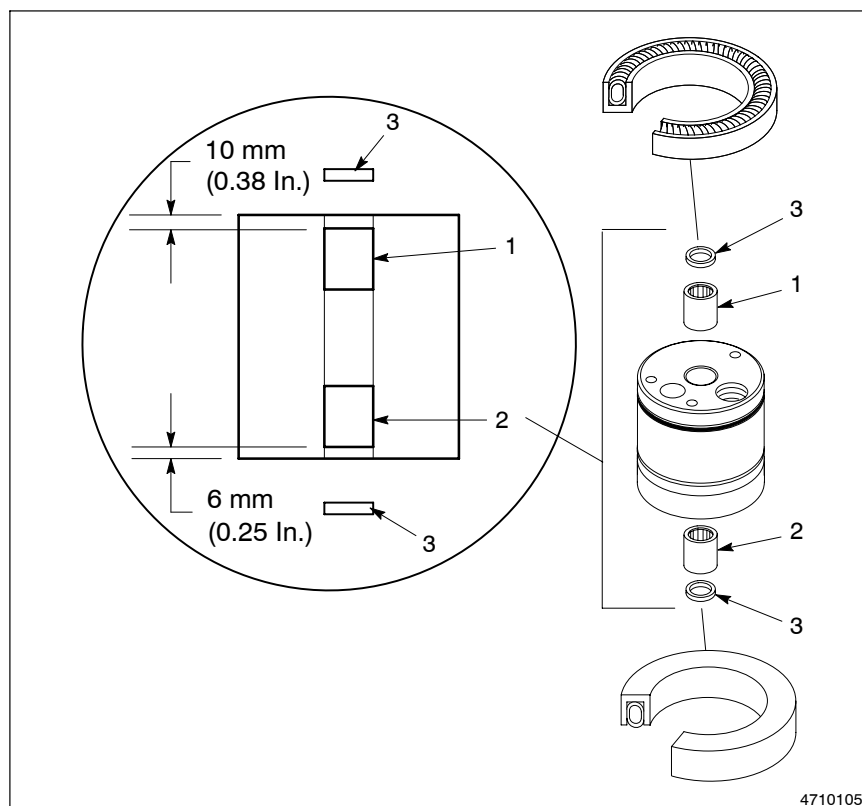


Fig. 7-28 Installing the Open Needle Bearings, Shaft Seals, and Retaining Ring

1. Upper open needle bearing
2. Lower open needle bearing

3. Shaft seal and backup ring

Upper Pump Plate and Gerotor Set

1. See Figure 7-29. Position the new upper pump plate (1) against the pump body.
2. Position the gerotor retainer (2) against the upper pump plate.

NOTE: Damage to the gear pump may result if items 1 and 2 are not positioned as shown.

3. Coat the threads of the two socket-head screws (1) with an anti-seize compound. Hand-tighten the screws into the pump body, plate, and retainer.

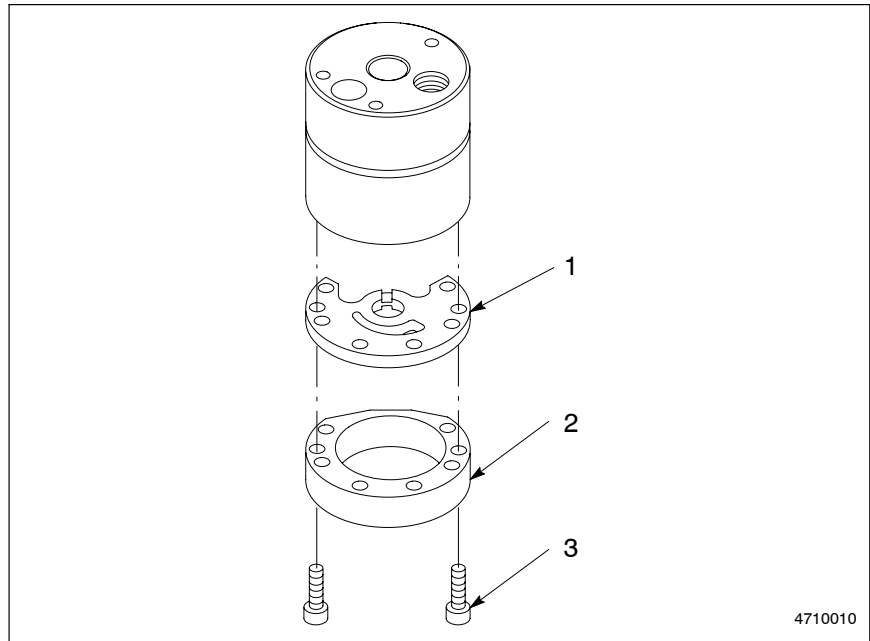


Fig. 7-29 Attaching the Upper Pump Plate and Gerotor Retainer

- | | |
|---------------------|-----------------------|
| 1. Upper pump plate | 3. Socket-head screws |
| 2. Gerotor retainer | |
4. Lightly coat the mating surfaces of the gerotor retainer and new outer gerotor gear with oil.
 5. Place the outer gerotor gear inside the gerotor retainer.

6. See Figure 7-30. Align the new inner gerotor gear (3) with the outer gerotor gear (1) until the inner gear goes in place and is flush with the gerotor retainer (2) surface.

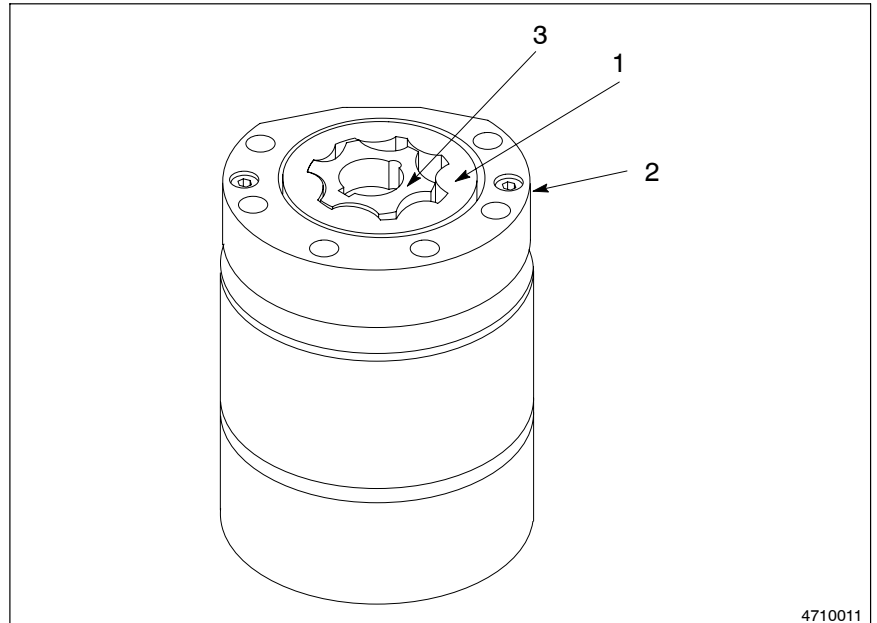


Fig. 7-30 Aligning the Gerotor Gears

- | | |
|-----------------------|-----------------------|
| 1. Outer gerotor gear | 3. Inner gerotor gear |
| 2. Gerotor retainer | |

Pump Shaft

1. Apply a light coating of high temperature grease to the new pump shaft.
2. Install the new Woodruff key on the pump shaft.
3. See Figure 7-31. Align the Woodruff key on the pump shaft with the inner gerotor gear keyway.

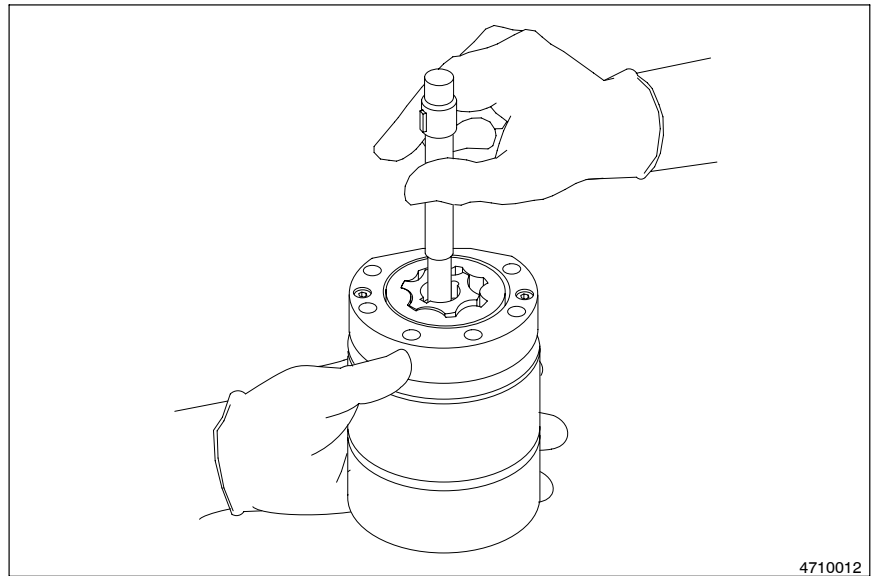


CAUTION: Do not let the shaft keyway rub against the shaft seals. The keyway can damage the seals.

4. Align the pump shaft woodruff key with the square shaped inner gerotor gear keyway. Then turn the outer gear to mesh with the inner gear as the inner gear is installed onto the pump shaft flush with the outer gear.

NOTE: It may be necessary to shift the gerotor retainer slightly to allow the inner gear to enter the out gear.

5. Turn the gears and shaft until the shaft can be pushed into place.



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Fig. 7-31 Aligning the Shaft Key with the Inner Gerotor Keyway

6. Tighten both screws on the gerotor retainer. Apply torque of 20.3 N•M (15 ft-lb). Turn the shaft to check that it rotates freely. If it does not rotate, tap the gerotor retainer lightly with a hammer and recheck.

Lower Pump Plate

1. See Figure 7-32. Coat the interior and exterior of the new closed needle bearing (1) with high temperature grease.
2. Press the closed needle bearing into the bottom of the new lower pump plate until the open end of the bearing is 6 mm (0.25 in.) from the inner face of the pump plate.
3. Apply a light coating of high temperature grease to the new shaft seal.
4. Install the new shaft seal and backup ring (2) into the lower pump plate with the exposed spring facing out. The seal and backup ring seat against the bearing.

NOTE: The gear pump will leak and may be damaged if the shaft seals are installed incorrectly.

5. Insert the new internal retainer ring (3) in the groove above the shaft seal in the lower pump plate.

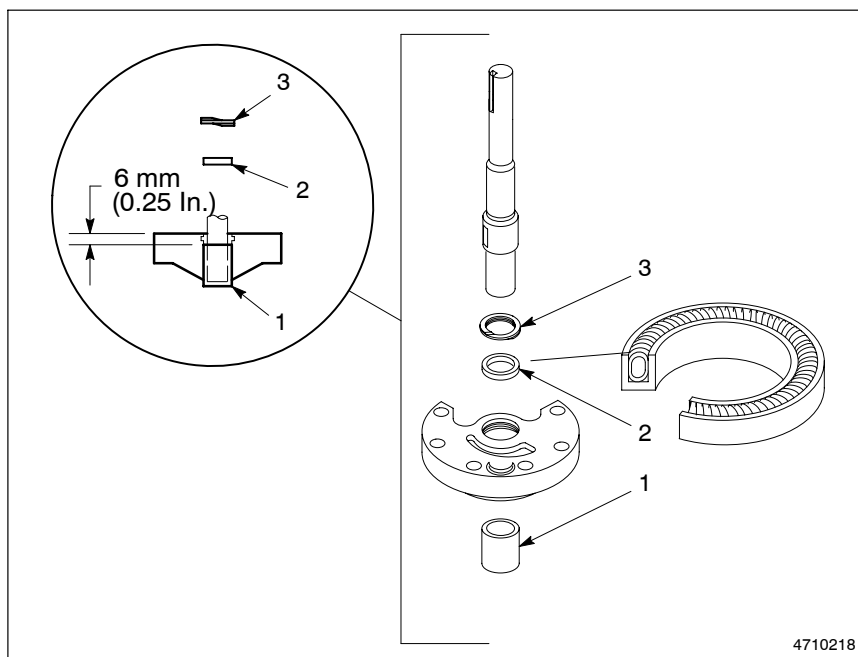


Fig. 7-32 Installing the Closed Needle Bearing, Shaft Seal, and Internal Retainer Ring

- | | |
|-------------------------------|---------------------------|
| 1. Closed needle bearing | 3. Internal retainer ring |
| 2. Shaft seal and backup ring | |

Lower Pump Plate *(contd)*

6. See Figure 7-24. Coat the threads of the six socket-head screws (1) with an anti-seize compound. Position the lower pump plate (2) against the gerotor retainer and secure with the screws. If you have a hardened pump, position the wear plate and then the lower pump plate against the gerotor retainer.
7. Tighten the screws alternately. Apply torque of 20.3 N•m (15 ft-lb). Turn the pump shaft to check that it rotates freely. If it does not rotate, tap the lower pump plate lightly with a hammer and recheck.

Pressure Relief Valve and O-rings

1. See Figure 7-23. Coat the pressure relief valve O-ring grooves with O-ring lubricant. Place the new O-rings in the grooves and apply additional lubricant to the O-rings.
2. Install the pressure relief valve into the pump body.
3. See Figure 7-22. Coat the O-ring groove on the pump body with O-ring lubricant. Place the new O-ring in the groove and apply additional O-ring lubricant to the O-ring.

Manifold

1. Coat the O-ring groove on the bottom of the manifold with O-ring lubricant. Place the new O-ring in the groove and apply additional O-ring lubricant to the O-ring.
2. Coat the threads of the manifold drain valve, pipe plugs, and hose connector(s) with anti-seize compound and thread them into the manifold ports and tighten. Overtightening may damage the threads.
3. See Figure 7-21. Attach the manifold (2) to the pump body (3) and secure with the three socket-head screws (1). Apply torque of 20.3 N•m (15 ft-lb) to the screws.
4. See Figure 7-20. Install the bearing washer (3), key (4), and shaft coupling block (2) onto the pump shaft.
5. Allow 0.38–0.76 mm (0.015–0.030 in.) of end play between the shaft coupling block and the manifold. Tighten the socket set screw (1) and check the end play.

Install the Gear Pump

1. Check that the pump pocket inside the platen is clean and free of adhesive and other debris.
2. See Figure 7-33. Coat the pump body O-ring with O-ring lubricant and slide the gear pump assembly into the pump pocket.

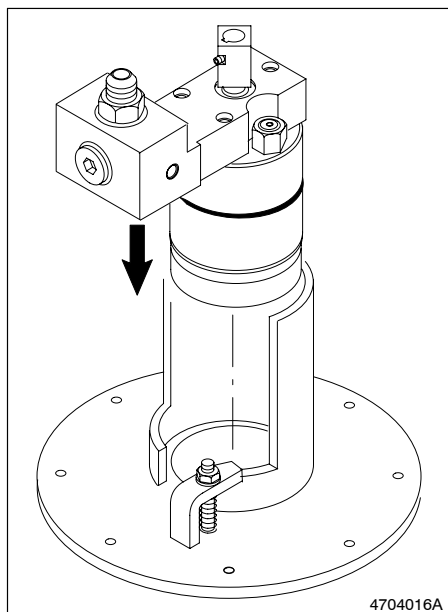


Fig. 7-33 Placing the Pump Assembly in the Platen

3. See Figure 7-34. Reposition the manifold clamp until it secures the manifold in place. Tighten the manifold clamp nut.

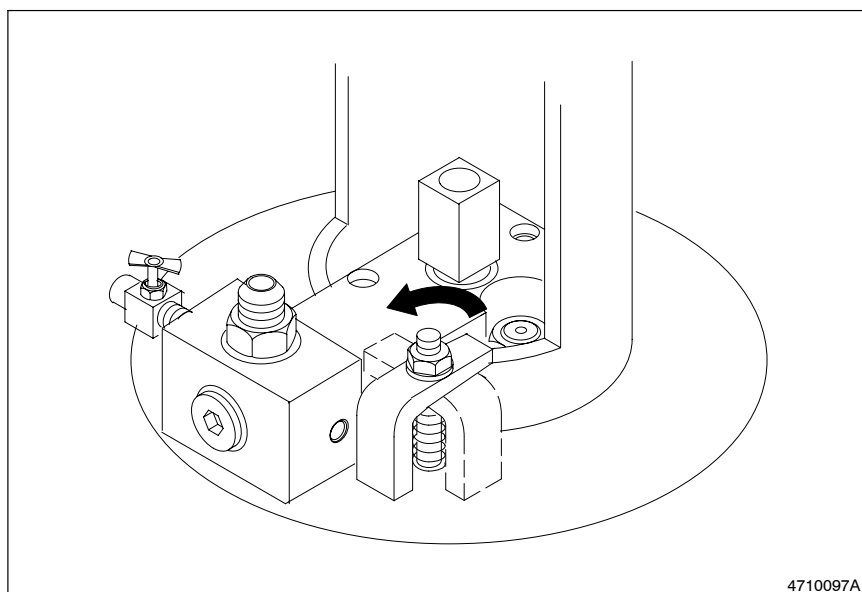


Fig. 7-34 Repositioning the Manifold Clamp

Install the Gear Pump (contd)

4. See Figure 7-35. Position the universal joint so that the lower yoke assembly can be slid onto the bottom of the driveshaft. Lower the yoke assembly onto the pump shaft and tighten with the set screw.

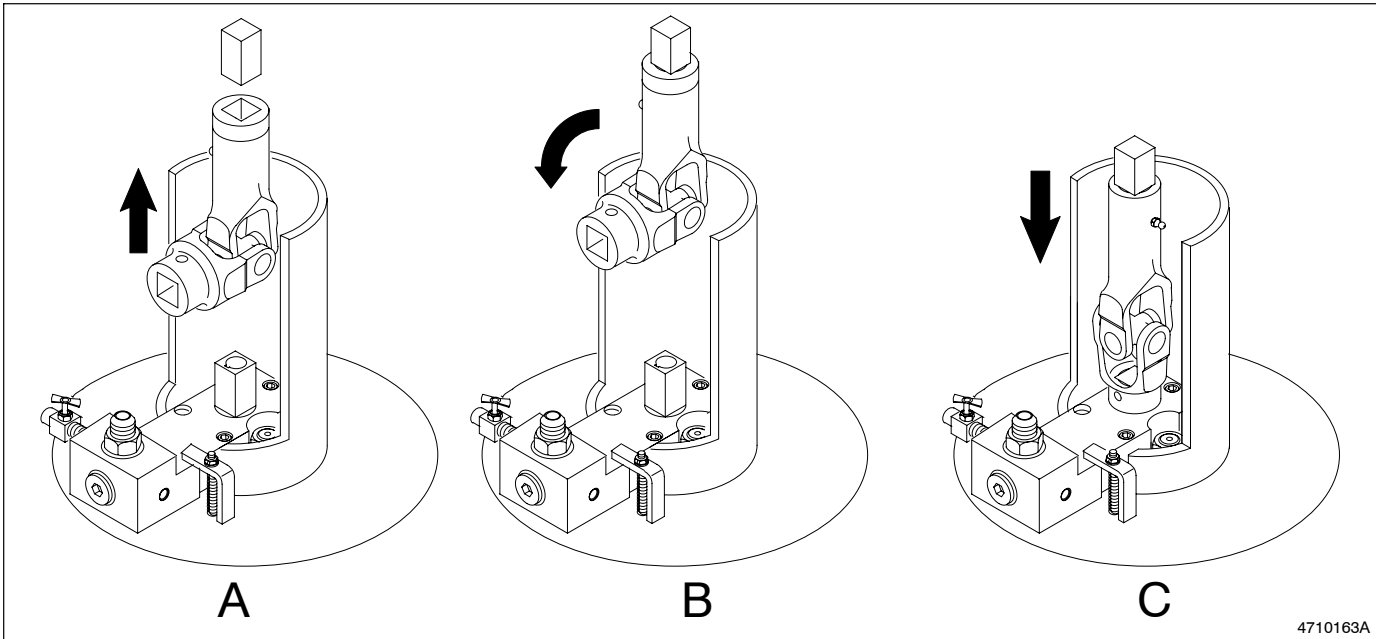


Fig. 7-35 Attaching the Lower Yoke Assembly to the Driveshaft

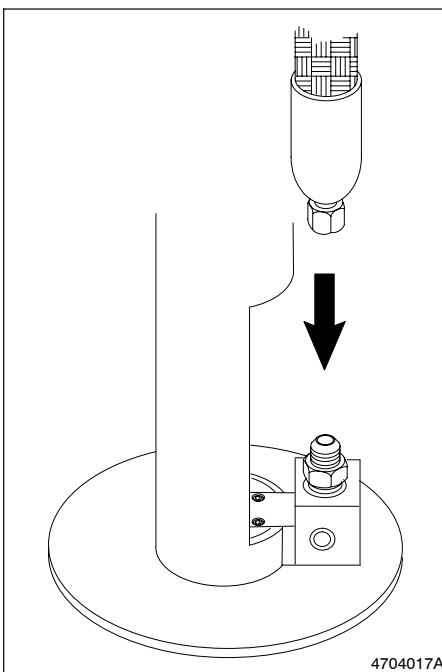


Fig. 7-36 Installing the Hose on the Manifold

5. See Figure 7-36. Reinstall the hose(s) onto the connector(s) at the pump manifold.
6. Close the manifold drain valve.

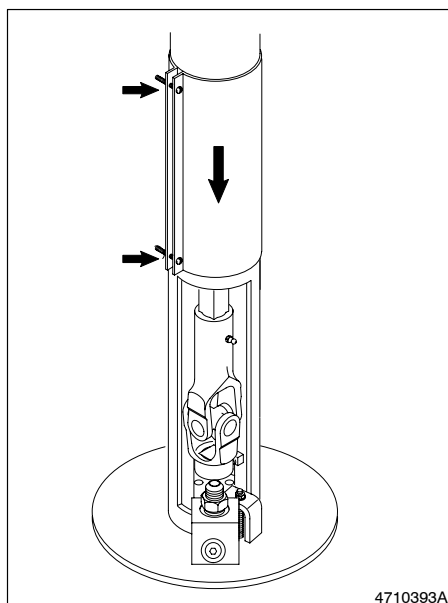


Fig. 7-37 Lowering the Column Collar

7. See Figure 7-37. Loosen the two round-head screws and machine hex nuts that secure the column collar in place. Slide the collar down until it seats on the follower plate across the drive shaft-to-pump connection. Tighten the round-head screws and hex nuts to secure the collar in place.
8. Set the main disconnect switch to the ON position and press the POWER ON button.
9. Bring the unit to application temperature. Lower the platen into the drum of material as described in the *Drum Changeout* procedure in the *Operation* section and resume normal operation.

3. Drive Assembly

Inspecting and Replacing the Drive Motor Brushes

Use the following procedures to repair and replace components of the drum melter's drive assembly.

Except for the motor brush, the drive motor is not field-repairable and can only be replaced as described in *Replacing the Drive Motor* in this section.

Use the following procedure to inspect and replace the drive motor brush.

You will need a device for measuring brush length to complete this procedure. If the brushes are worn, you will need new motor brushes (refer to the *Parts* section for the part number).

1. Press the STOP button on the electrical enclosure front panel and set the main disconnect switch to the OFF position.
2. Lock out input power to the unit.

**Inspecting and Replacing the
Drive Motor Brushes** (contd)

3. Remove the cover plates on both sides of the motor housing that secure the drive motor brushes in place.
4. Use a small screwdriver or similar tool to carefully pry the brush retaining spring up and free of its brush.

NOTE: Note the orientation of the brush with respect to any identifying features (notch or slanted pressure pad, for example). Use needle-nose pliers or a similar tool to carefully pull the brush out of its holder and inspect it.

5. Measure the brush length. Replace the brushes if they are shorter than 25.4 mm (1.00 in.).
6. Install the old/new brushes (noting any identifying features to assist with orientation) and reposition the retaining springs over the brushes.
7. Replace the cover plates and resume normal operation.

Replacing the Drive Motor

If a clutch is installed on your unit, refer to the *Drive Motor/Clutch Assembly Replacement* procedure in this section.

Use the following procedure to replace the drive motor.

You will need a lifting device certified to lift 40.8 kg (90 lb) to complete this procedure.

Remove the Drive Motor

1. Press the STOP button on the electrical enclosure front panel, set the main disconnect switch to the OFF position, and lock out input power to the unit.
2. Remove the junction box cover and disconnect the motor leads.
3. Disconnect the motor conduit connector at the junction box.
4. Secure the lifting device to the motor.

5. See Figure 7-38. Remove the four hex-head screws and split lockwashers (2) that secure the motor (1) to the speed reducer (3).

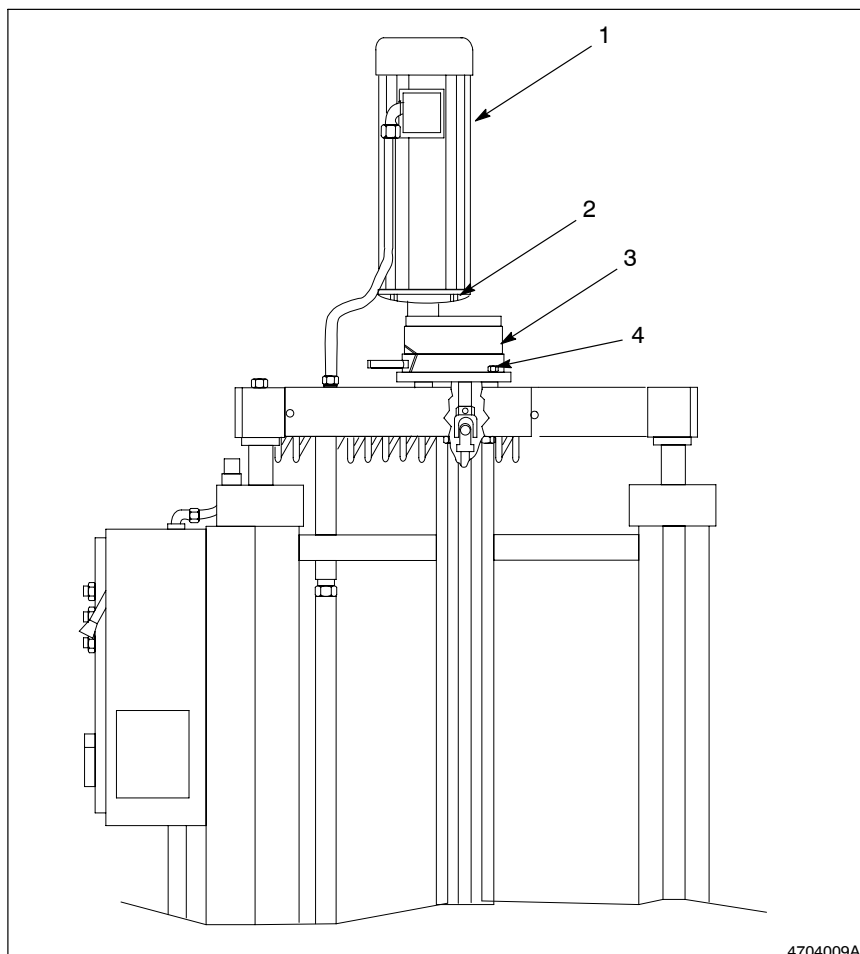


Fig. 7-38 Drive Assembly Details

- | | |
|---|---|
| 1. Motor | 3. Speed reducer |
| 2. Motor/Speed reducer screws and washers | 4. Speed reducer/Crossover screws and washers |
6. Lift the motor free of the unit while carefully guiding the motor leads free of the junction box.

Install the New Drive Motor

1. Secure the lifting device to the replacement motor and lower the motor until it is aligned with the speed reducer.
2. Align the motor keyway with the speed reducer keyway and install the key.
3. Replace the four hex-head screws and split lockwashers that secure the motor to the speed reducer.
4. Reconnect the motor conduit connector at the junction box.
5. Reconnect the motor leads. Wire 44B connects to motor terminal A1 and wire 45B connects to motor terminal A2.
6. Restore input power to the unit, set the main disconnect switch to the ON position, press the POWER ON button, and resume normal operation.

Replacing the Drive Motor/Clutch Assembly

The clutch is not field-repairable and can only be replaced.

Use the following procedure to replace the drive motor and clutch assembly.

You will need a lifting device certified to lift 44 kg (95 lb) to complete this procedure.

Remove the Drive Motor/Clutch Assembly

1. Press the STOP button on the electrical enclosure front panel, set the main disconnect switch to the OFF position, and lock out input power to the unit.
2. Remove the junction box cover and disconnect clutch leads 78B and 79 from the power supply.
3. Disconnect the motor leads.
4. Disconnect the clutch conduit connector and motor conduit connector.
5. Secure the lifting device to the motor/clutch assembly.

6. See Figure 7-38. Remove the four hex-head screws and split lockwashers (2) that secure the clutch (1) to the speed reducer (3). Remove the key from the clutch/speed reducer keyway.

NOTE: Do not lose the key from the clutch/speed reducer keyway.

7. Lift the motor/clutch assembly free of the unit while carefully guiding the clutch and motor leads free of the junction box.
8. To separate the drive motor from the clutch, remove the four hex-head screws and split lockwashers that secure the drive motor to the clutch. Remove the key from the motor/clutch keyway.

NOTE: Do not lose the key from the clutch/motor keyway.

Install the New Drive Motor/Clutch Assembly

1. Secure the replacement clutch to the drive motor and reinstall the key in the motor/clutch keyway.
2. Replace the four hex-head screws and split lockwashers that connect the clutch to the drive motor.
3. Secure the lifting device onto the motor/clutch assembly and lower the assembly onto the speed reducer.
4. Replace the key in the clutch/speed reducer keyway and replace the four hex-head screws and split lockwashers that connect the clutch to the speed reducer.
5. Reconnect the clutch conduit connector and motor conduit connector at the junction box.
6. Reconnect the motor leads inside the junction box. Wire 44B connects to motor terminal A1 and wire 45B connects to motor terminal A2.
7. Reconnect the clutch leads inside the junction box. Wire 78B connects to terminal YC-3 and wire 79 connects to terminal YC-6 on the clutch power supply socket.
8. Replace the junction box cover.
9. Restore input power to the unit, set the main disconnect switch to the ON position, press the POWER ON button, and resume normal operation.

Replacing the Speed Reducer

The speed reducer is not field-repairable and can only be replaced.

Use the following procedure to replace the speed reducer.

You will need a lifting device certified for at least 32 kg (70 lb), and a flat-head screwdriver to complete this procedure.

Remove the Speed Reducer

1. Press the STOP button on the electrical enclosure front panel, set the main disconnect switch to the OFF position, and lock out input power to the unit.
2. Remove the drive motor or drive motor/clutch assembly as described in this section.
3. Secure the lifting device to the speed reducer.
4. Remove the hex-head screws and split lockwashers that secure the speed reducer to the crossover.
5. See Figure 7-39. Lift the speed reducer until the upper yoke assembly is visible.

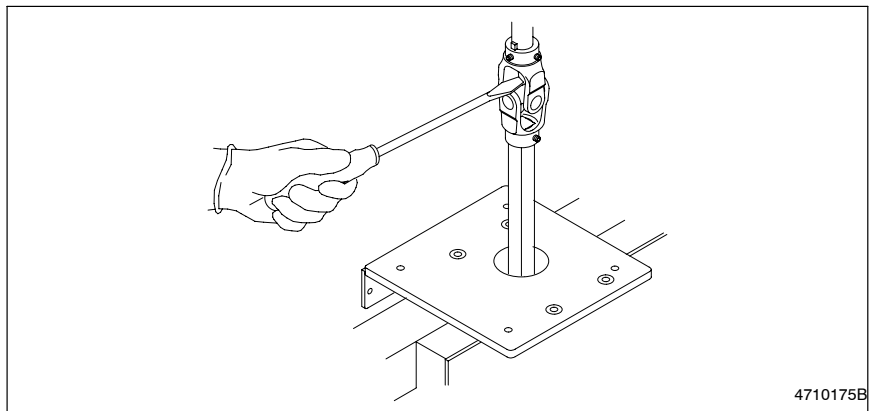


Fig. 7-39 Lifting the Speed Reducer to Access the Upper Yoke Assembly

6. Secure the drive shaft/yoke assembly in place by sliding a screwdriver through the yoke to prevent the drive shaft from dropping down into the column. The drive shaft will slide out of the lower yoke assembly which is coupled to the gear pump.
7. See Figures 7-40 and 7-41. Loosen the set screws in the upper yoke assembly and lift the speed reducer free of the unit.

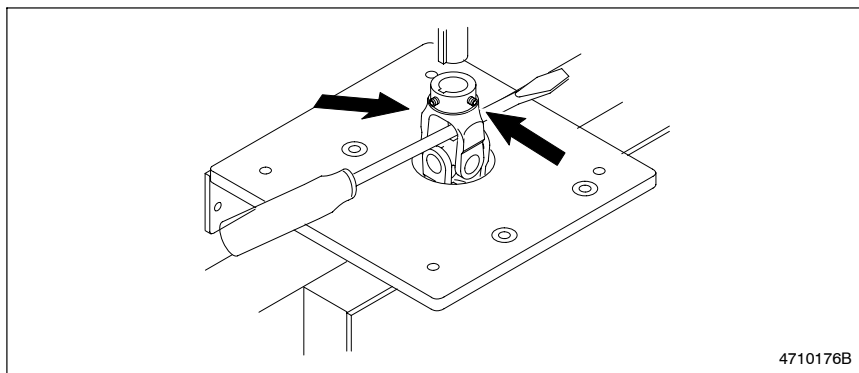


Fig. 7-40 Loosening the Upper Yoke Assembly Set Screws

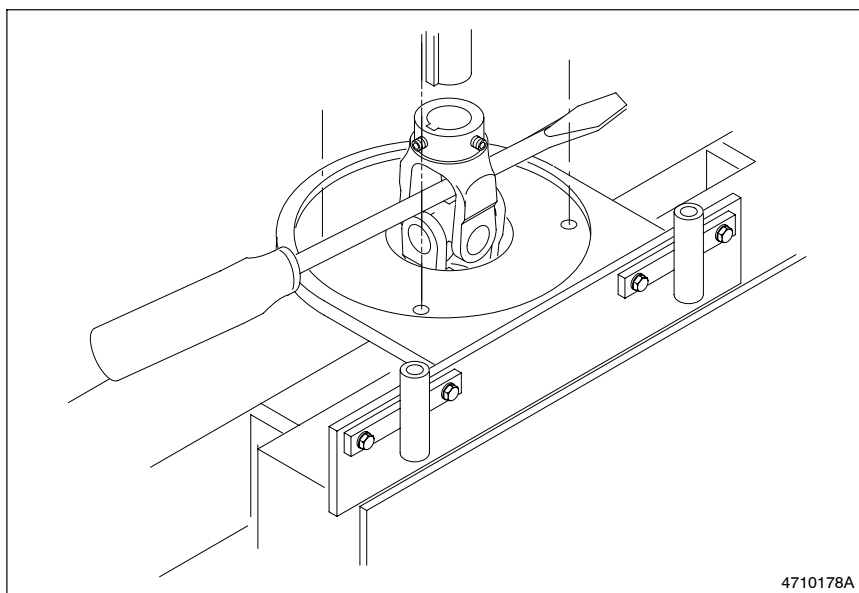


Fig. 7-41 Lifting the Speed Reducer from the Unit

Install the New Speed Reducer

1. Secure the lifting device to the replacement speed reducer and lower the speed reducer onto the unit.
2. See Figure 7-40. Tighten the set screws in the upper yoke assembly onto the speed reducer output shaft.
3. Remove the screwdriver and lower the speed reducer until it seats on the crossover. Check that the driveshaft is inserted in the lower yoke assembly.
4. Replace the hex-head screws and split lockwashers that secure the speed reducer to the crossover.
5. Remove the lifting device from the speed reducer.
6. Reinstall the drive motor or motor/clutch assembly as described in this section.
7. Restore input power to the unit, set the main disconnect switch to the ON position, press the POWER ON button, and resume normal operation.

4. Pneumatic System

Use the following procedures to repair and replace components of the drum melter's pneumatic system.

Rebuilding the Air Cylinder Assembly

Use the following procedure to rebuild the air cylinder(s). You will need the following items to complete this procedure:

- A piece of plywood or other heat-resistant material slightly larger than the platen diameter
- A spanner or similar tool
- A lifting device certified to lift 136 kg (500 lb)
- Snap-ring pliers
- A pair of cylinder head V-block packings
- A pair of cylinder head O-rings
- A pair of piston O-rings
- A pair of piston seals
- A pair of piston wear rings
- Thread locking adhesive
- Parker O-ring Lubricant
- Petroleum jelly

You will need the following items if the existing parts are damaged:

- Cylinder head assembly
- Air cylinder shaft
- Spacer

Remove the Air Cylinder Assembly

1. If a drum of material is installed on the unit, remove it as described in the *Drum Changeout* procedure in the *Operation* section.
2. Place the piece of heat-resistant material on the frame (or across the drum hold-down assembly) under the platen.
3. Use the elevator control valve to lower the platen onto the heat-resistant material.
4. Press the STOP button on the electrical enclosure front panel, set the main disconnect switch to the OFF position, and lock out input electrical power to the unit.
5. Disconnect the input air supply from the unit.
6. Set the elevator control valve to the UP position to vent residual air pressure from above the air pistons. Then place the elevator control valve in the DOWN position as a fail-safe to vent any remaining air pressure from below the air pistons. Set the elevator control valve to the center position.
7. See Figure 7-42. Using the spanner or a similar tool to keep the air cylinder shafts stationary, remove the hex-head screws and split lockwashers that secure the crossover in place.

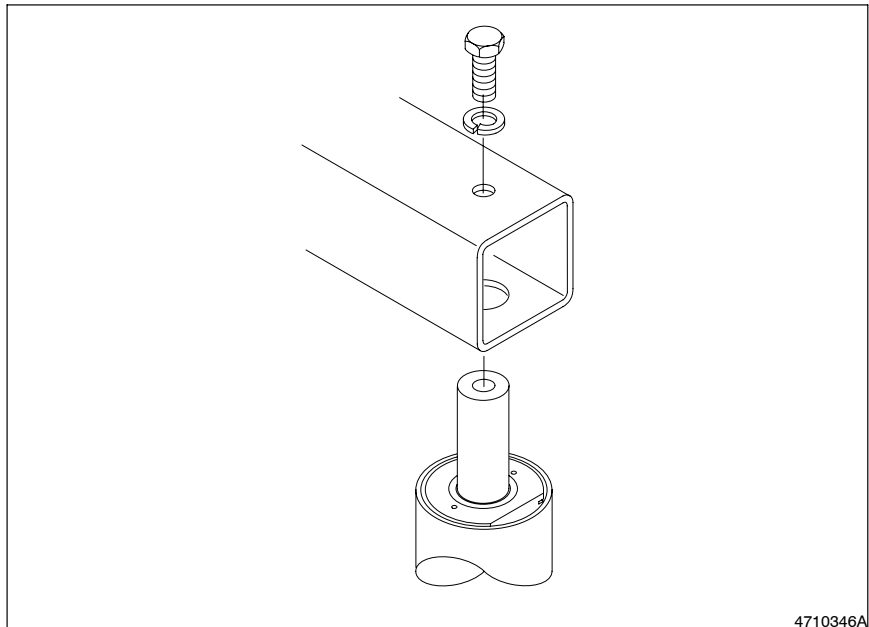


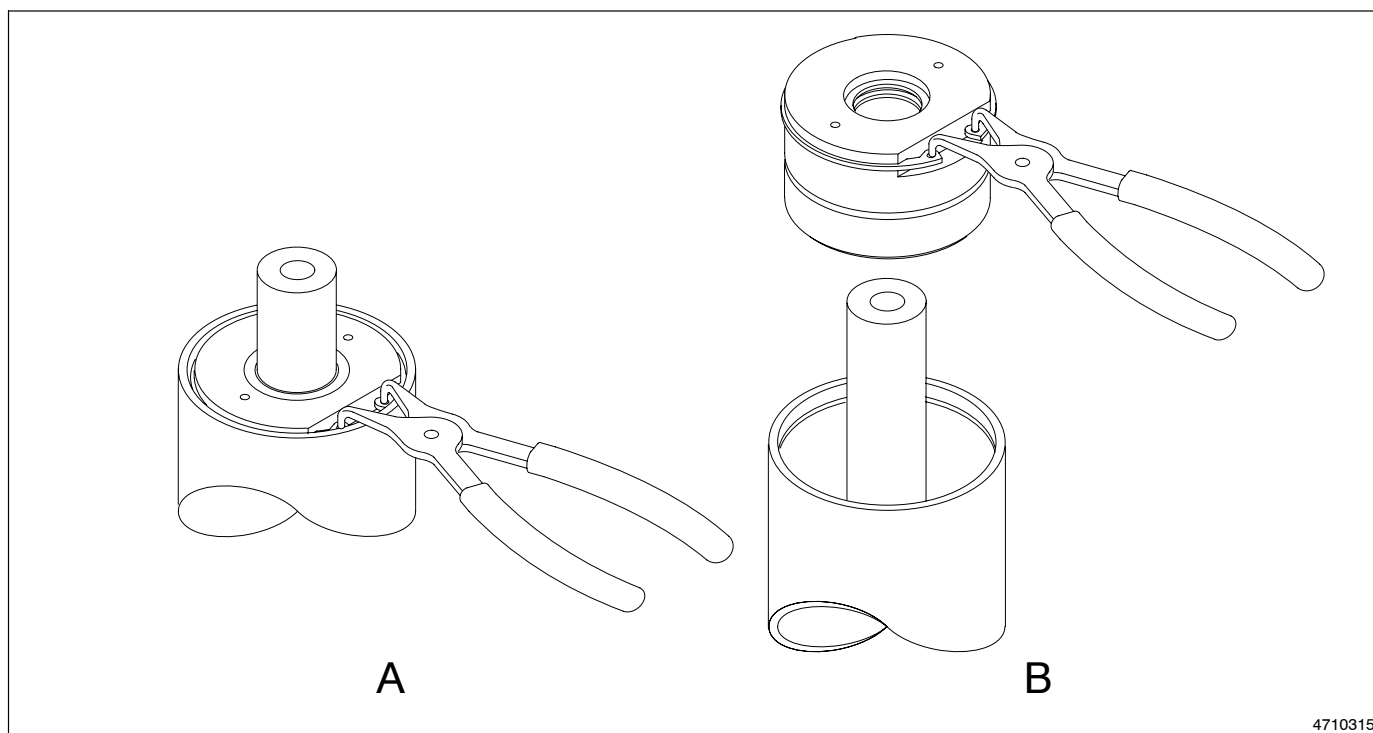
Fig. 7-42 Removing the Screws and Washers from the Crossover

8. Secure the lifting device to the crossover. Lift the crossover and rotate it enough to provide access to the air cylinder assembly.



CAUTION: Failure to observe and follow this procedure may result in personal injury or equipment damage.

9. Secure the crossover to prevent it from falling or interfering with your work in the air cylinder.
10. See Figure 7-43. Remove the cylinder head assembly by compressing the internal retaining ring with a pair of snap-ring pliers and lifting the assembly out of the air cylinder.



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Fig. 7-43 Removing the Cylinder Head Assembly



CAUTION: Do not bend, scratch, or otherwise damage the air cylinder shaft when performing the following step.

11. Carefully pull the air cylinder shaft straight up and out of the air cylinder. A piston assembly is attached to the bottom of the shaft.

Rebuild the Air Cylinder Assembly

1. See Figure 7-44. Remove the V-block packing (2) and Buna O-ring (1) from the cylinder head (3). Clean the cylinder head surfaces and grooves thoroughly.

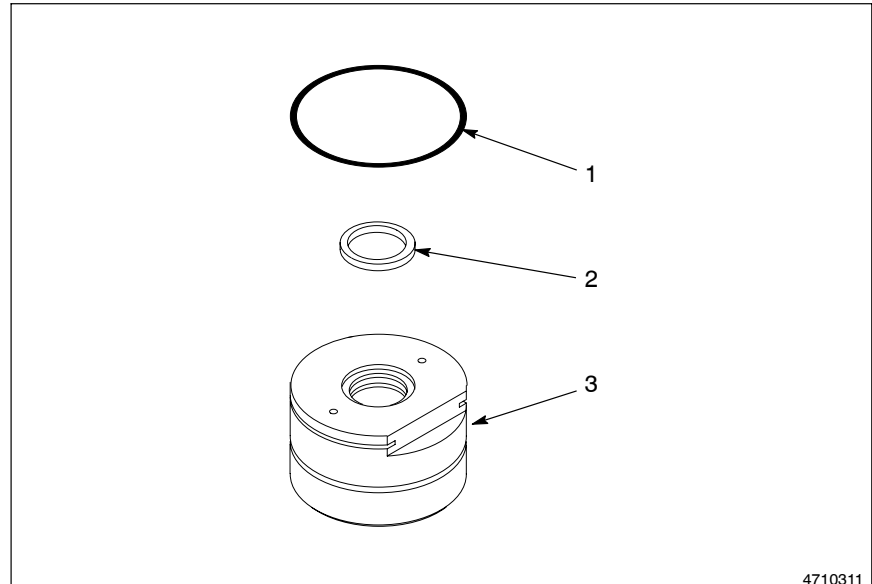


Fig. 7-44 Removing the O-ring and Packing from the Cylinder Head

- | | |
|--------------------|------------------|
| 1. O-ring | 3. Cylinder head |
| 2. V-block packing | |
-
2. Inspect the cylinder head for damage. If damaged, replace the entire cylinder head assembly, including the O-ring, V-block packing, wiper scraper and bushing. If it is not damaged, replace only the O-ring and packing.
 3. See Figure 7-45. Remove the hex-head screw (4), washer (2), and split lockwasher (3) that secure the piston assembly (1) to the air cylinder shaft.

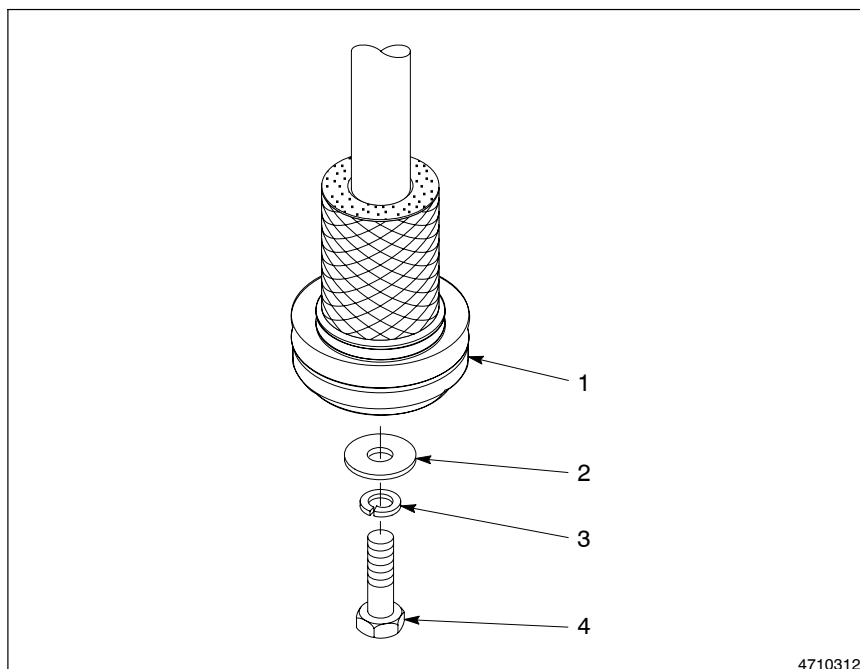


Fig. 7-45 Removing the Piston Assembly from the Shaft

- | | |
|--------------------|---------------------|
| 1. Piston assembly | 3. Split lockwasher |
| 2. Washer | 4. Hex-head screw |
4. Remove the wear rings, piston seals, and Buna O-rings from the piston. Clean the piston surfaces and grooves thoroughly.
 5. Remove the piston spacer from the end of the air cylinder shaft.
 6. Inspect the interior surfaces of the air cylinder for nicks, scratches or other damage. If the cylinder is damaged, contact your Nordson representative for further advice on replacement or repair.
 7. Inspect the air cylinder shaft for nicks, scratches, bending, or other damage. If damaged, replace the shaft.

Rebuild the Air Cylinder Assembly (contd)

8. See Figure 7-46. Orient the air cylinder shaft with the spanner hole at the top. The spanner hole is 10.8 cm (4.25 in.) from the top of the shaft.
9. Inspect the spacer for damage. If damaged, replace the spacer.
10. Slide the spacer onto the piston end of the shaft.
11. Install a new Buna O-ring on the piston.

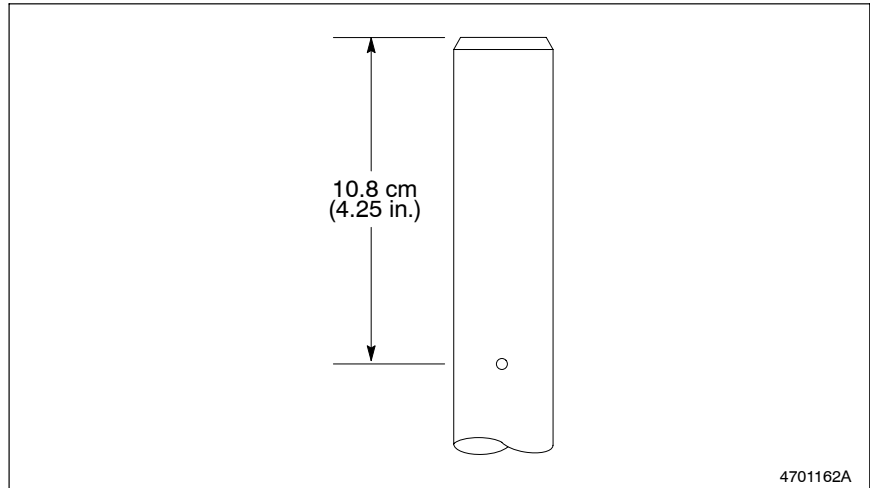


Fig. 7-46 Air Cylinder Shaft Orientation



CAUTION: The Buna O-ring must be installed before the seal or wear ring. Failure to observe and follow this procedure may result in a faulty seal and poor operation.

12. Install a new seal and wear ring on the piston.
13. Coat the threads of the hex-head screw with thread locking adhesive. Secure a piston to the bottom of the air cylinder shaft with the hex-head screw, washer, and split lockwasher.
14. Apply O-ring Lubricant to the inside surfaces of the air cylinder wall.
15. Coat the air cylinder shaft with petroleum jelly.

Install the Air Cylinder Assembly

1. Insert the shaft with attached piston assembly into the air cylinder.
Do not bend, scratch, or otherwise damage the shaft.
2. Guide the shaft to the bottom of the cylinder.
3. See Figure 7-47. Place the retaining ring in its groove on the cylinder head assembly.

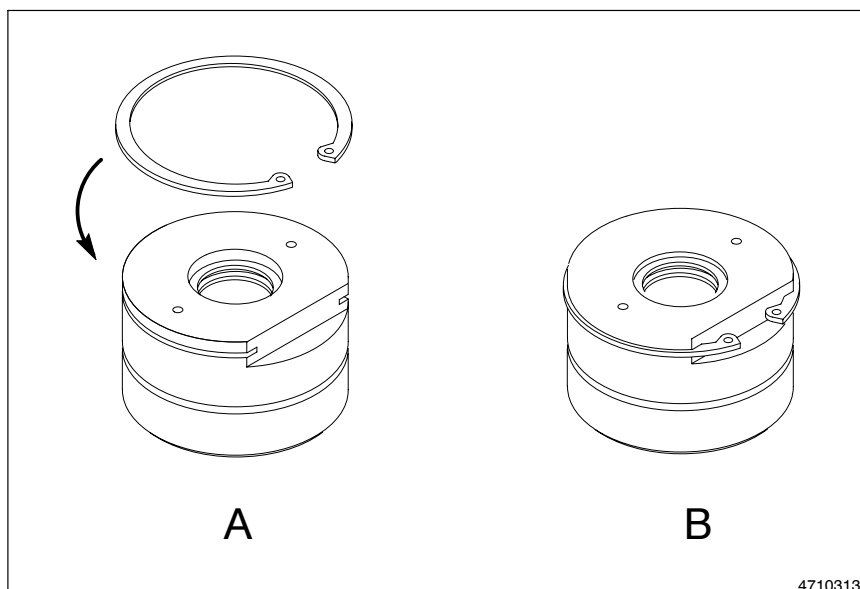


Fig. 7-47 Installing the Retaining Ring on the Cylinder Head Assembly

Install the Air Cylinder Assembly (contd)

4. See Figure 7-48. Using the snap-ring pliers, compress the retaining ring and install the cylinder head assembly into the top of the air cylinder.

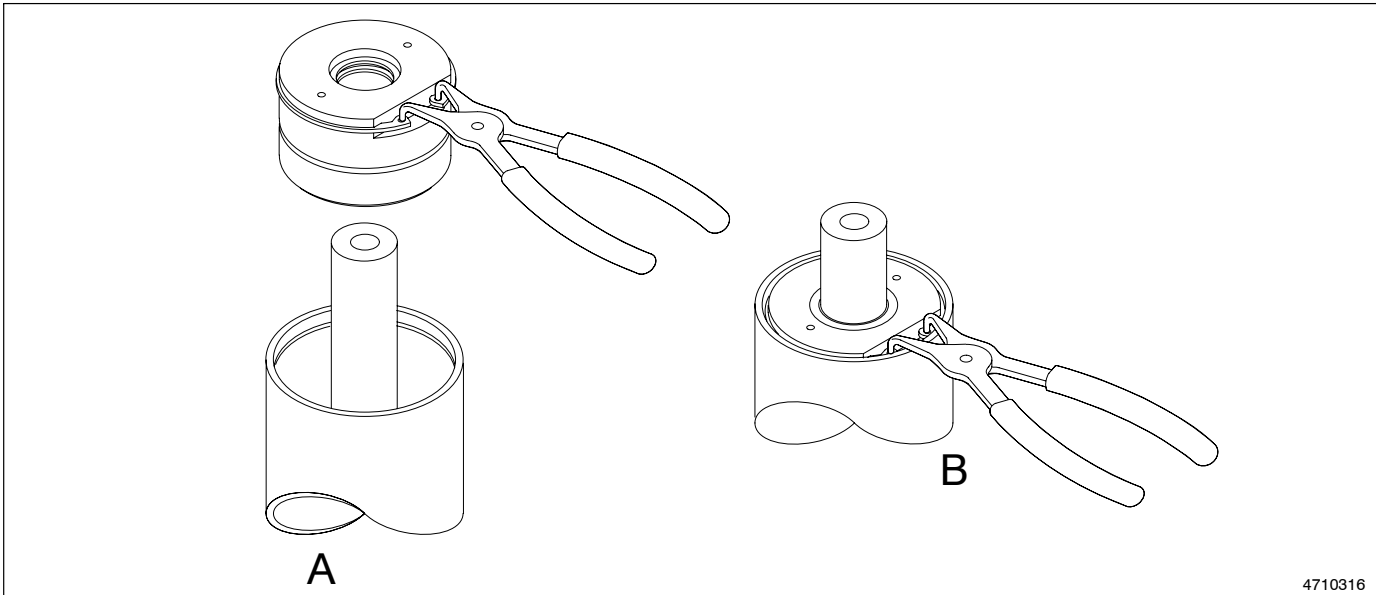


Fig. 7-48 Installing the Cylinder Head Assembly in the Air Cylinder

5. Rotate the crossover into position over the air cylinder shafts. Lower the crossover onto the air cylinder shafts.
6. See Figure 7-42. With the washers in place, hand thread the hex-head screws that secure the crossover to the air cylinder shafts.
7. Using the spanner or similar tool to keep the air cylinder shafts stationary, tighten the hex-head screws.
8. Remove the lifting equipment.
9. Restore input air pressure to the unit.
10. Restore input power to the unit, set the main disconnect switch to the ON position, and press the POWER ON button.
11. Check for proper operation of the platen elevator.
12. Install a drum of material on the unit, as described in the *Drum Changeout* procedure in the *Operation* section and resume normal operation.

Section 8

Parts

Section 8

Parts

1. Introduction

To order parts, call the Nordson Customer Service Center or the local Nordson representative. Use this five-column parts list, and the accompanying illustration, to describe and locate parts correctly.

Using the Illustrated Parts List

Numbers in the Item column correspond to numbers that identify parts in illustrations following each parts list. The code NS (not shown) indicates that a listed part is not illustrated. A dash (—) is used when the part number applies to all parts in the illustration.

The six-digit number in the Part column is the Nordson Corporation part number. A series of dashes in this column (- - - - -) means the part cannot be ordered separately.

The Description column gives the part name, as well as its dimensions and other characteristics when appropriate. Indentions show the relationships between assemblies, subassemblies, and parts.

Item	Part	Description	Quantity	Note
—	000 000	Assembly	1	
1	000 000	• Subassembly	2	A
2	000 000	• • Part	1	

- If you order the assembly, items 1 and 2 will be included.
- If you order item 1, item 2 will be included.
- If you order item 2, you will receive item 2 only.

The number in the Quantity column is the quantity required per unit, assembly, or subassembly. The code AR (As Required) is used if the part number is a bulk item ordered in quantities or if the quantity per assembly depends on the product version or model.

Letters in the Note column refer to notes at the end of each parts list. Notes contain important information about usage and ordering. Special attention should be given to notes.

2. Illustrated Parts Lists

The following parts lists include the assemblies and subassemblies of the Model 5544 drum melter.

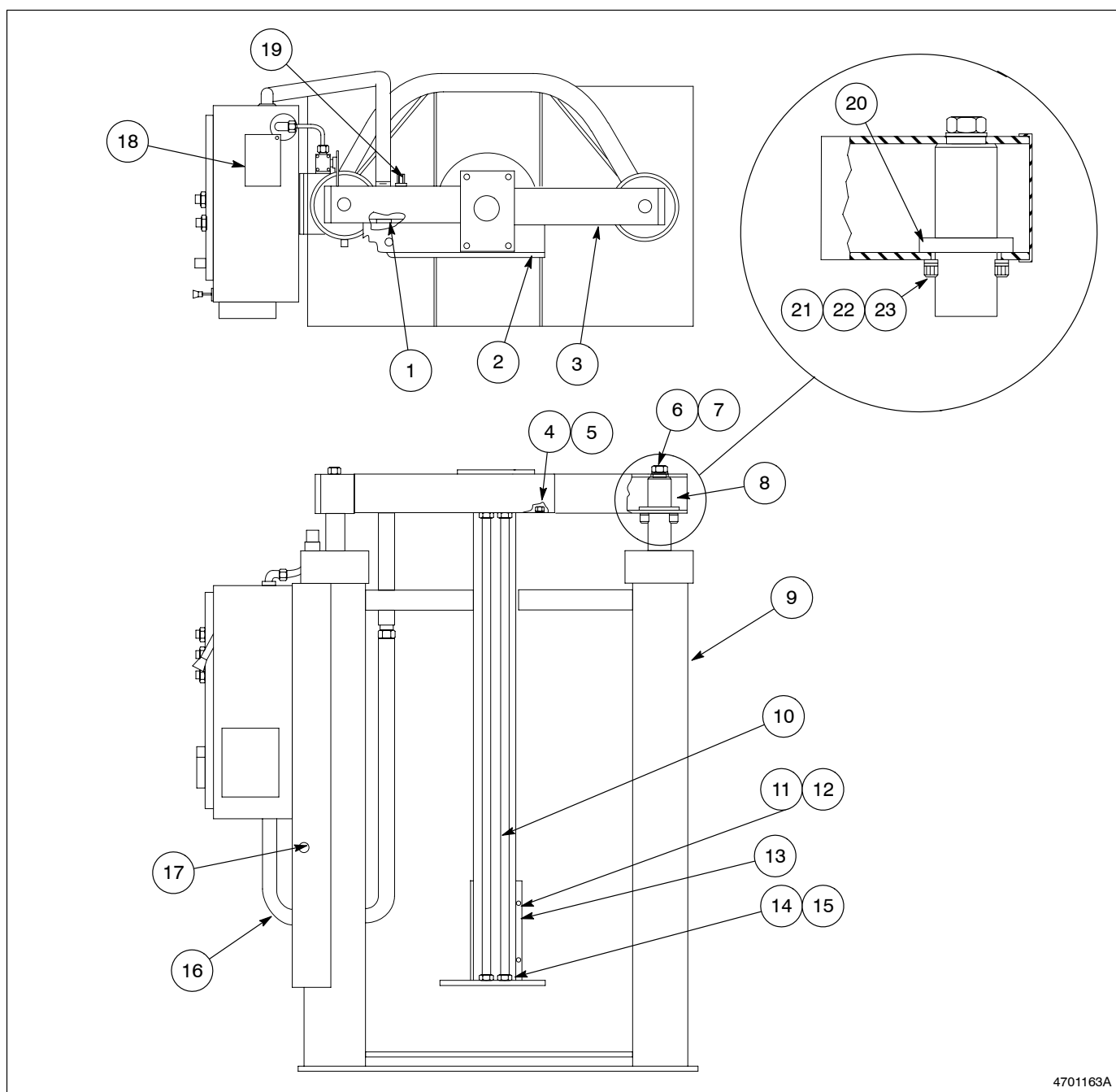
Crossover Assembly

See Figure 8-1.

Item	Part	Description	Quantity	Note
—	-----	Crossover assembly	1	
1	274 830	• Grommet, neoprene, 0.250 in. thick	1	A
2	-----	• Assembly, junction box	1	
3	326 834	• Crossover, painted, 5544	1	
4	982 134	• Screw, hex-head, M6 x 14, cap	4	
5	983 040	• Washer, flat, 0.266 x 0.625 x 0.049 in.	4	A
6	981 551	• Screw, hex-head, $\frac{7}{8}$ -14 x 1.125 in., cap	2	
7	983 501	• Washer, lock, split, $\frac{7}{8}$	2	
8	107 521	• Cap, end, 4 in. square, plastisol	2	
9	-----	• Assembly, frame, 55 gallon	1	
10	324 253	• Conduit, formed, $\frac{3}{4}$		
11	984 715	• Nut, Hex, machine, M4	2	
12	982 124	• Screw, pan-head, M4 x 20	2	
13	271 796	• Collar, column, painted	1	
14	272 059	• Connector, $\frac{3}{4}$, compression	4	
15	272 058	• Seal, conduit fitting, $\frac{3}{4}$	4	
16	803 877	• Assembly, harness	1	
17	324 896	• Grommet, rubber, 0.812 ID x 1.250 OD	2	
18	106 506	• Kit, instruction	1	
19	324 391	• Clip, wire, molded nylon, 0.750 in. diameter	1	
20	172 392	• Plate, retaining, rod	2	
21	982 160	• Screw, socket-head, M8 x 25	8	
22	983 414	• Washer, flat, narrow, M8	8	
23	983 404	• Washer, lock, split, M8	8	
NS	900 464	• Adhesive, thread locking	—	
NS	900 422	• Adhesive, bonding, instant	—	
NS	900 222	• Paint, touch-up, Nordson blue	—	

NOTE A: See separate parts lists.

NS: Not Shown



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Fig. 8-1 Crossover Assembly

Frame Assembly

See Figure 8-2.

Item	Part	Description	Quantity	Note
—	-----	Frame assembly	1	
1	933 079	• Connector, conduit	2	
2	803 819	• Conduit, flex, bulk, $\frac{3}{8}$	AR	
3	272 077	• Bracket, switch, painted	1	
4	981 402	• Screw, hex-head, $\frac{3}{8}$ -16 x 1.00, cap	1	
5	983 160	• Washer, lock, split, $\frac{3}{8}$	1	
6	986 306	• Retaining ring, interior, 650, basic	2	
7	271 780	• Assembly, cylinder head	2	
8	-----	• • Head, cylinder	1	
9	271 777	• • Packing, block vee, 2.00 in. ID	1	
10	271 778	• • Scraper, wiper, 2.00 in. ID	1	
11	-----	• • Bushing, 2.00 in. ID x 2.38 in. OD x 1.50 in.	1	
12	942 560	• • O-ring, Buna N, 5.75 x 6.00 x 0.125 in.	1	
13	271 800	• Shaft, air cylinder	2	
14	271 775	• Spacer, 2.25 in. ID x 3.00 in. OD x 4.00 in.	2	
15	271 774	• Ring, wear, 6.00 in. OD	2	
16	981 552	• Screw, hex-head, $\frac{7}{8}$ -14 x 2.25 in., cap	2	
17	983 501	• Washer, lock, split, $\frac{7}{8}$	2	
18	271 776	• Seal, piston	2	
19	942 560	• O-ring, Buna N, 5.75 x 6.00 x 0.125 in.	2	
20	271 781	• Piston	2	
21	973 411	• Plug, pipe, socket, flush, $\frac{1}{4}$	2	
22	271 487	• Cap, end, vinyl	1	
23	981 160	• Screw, pan-head, 10-32 x 0.500	2	
24	983 120	• Washer, lock, split, #10	2	
25	-----	• Actuator, limit switch w/ tip	1	A
26	939 813	• Switch, limit, heavy duty	1	A
27	-----	• Frame, drum, 5000	1	
28	972 200	• Ell, male, $\frac{9}{16}$ -18 x $\frac{1}{4}$ in.	1	
NS	900 464	• Adhesive, thread locking	—	
NS	900 223	• Lubricant, O-ring, Parker	—	

NOTE A: These parts are included in the limit switch repair kit, part 162 766.

NS: Not Shown

AR: As Required

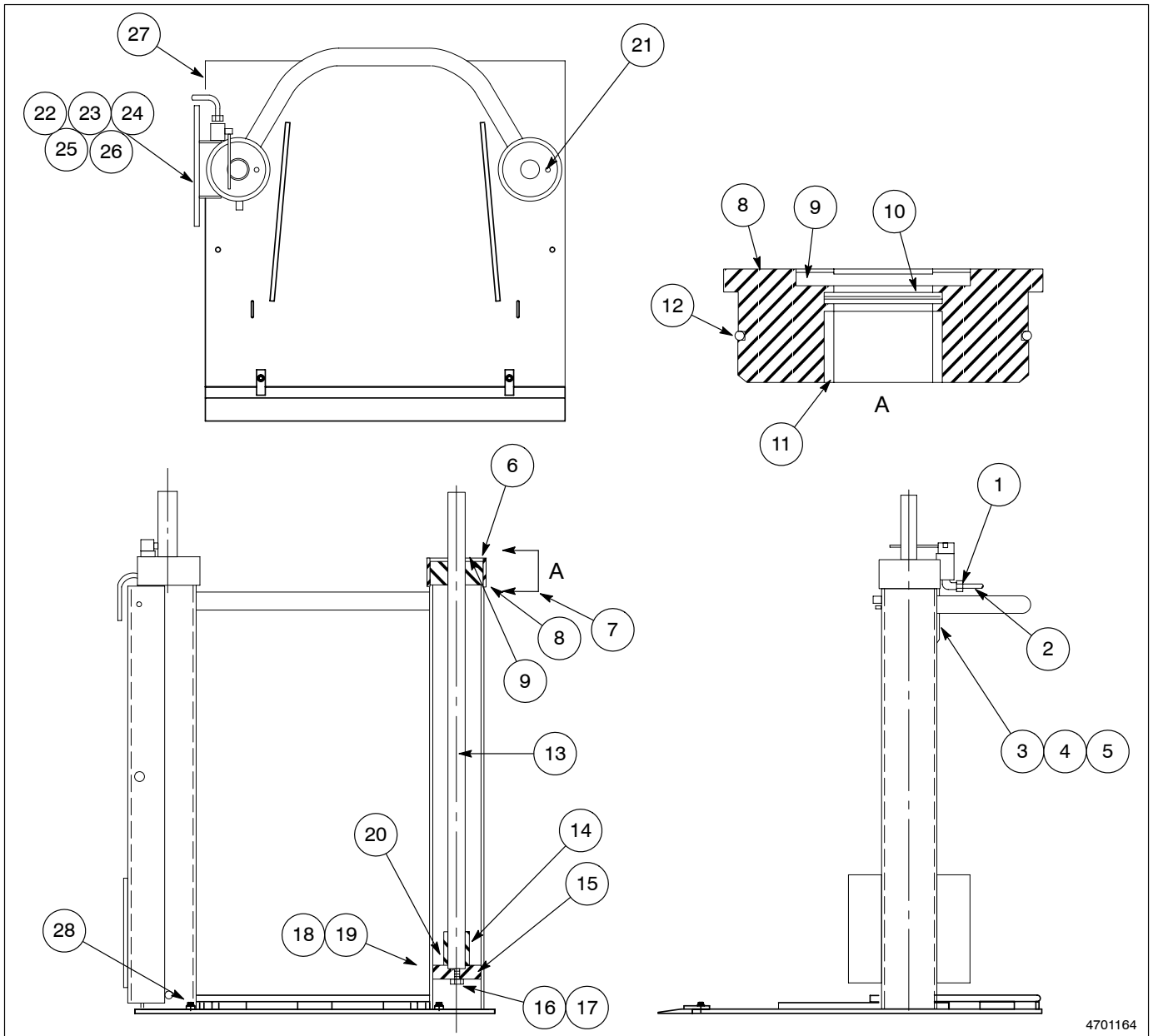
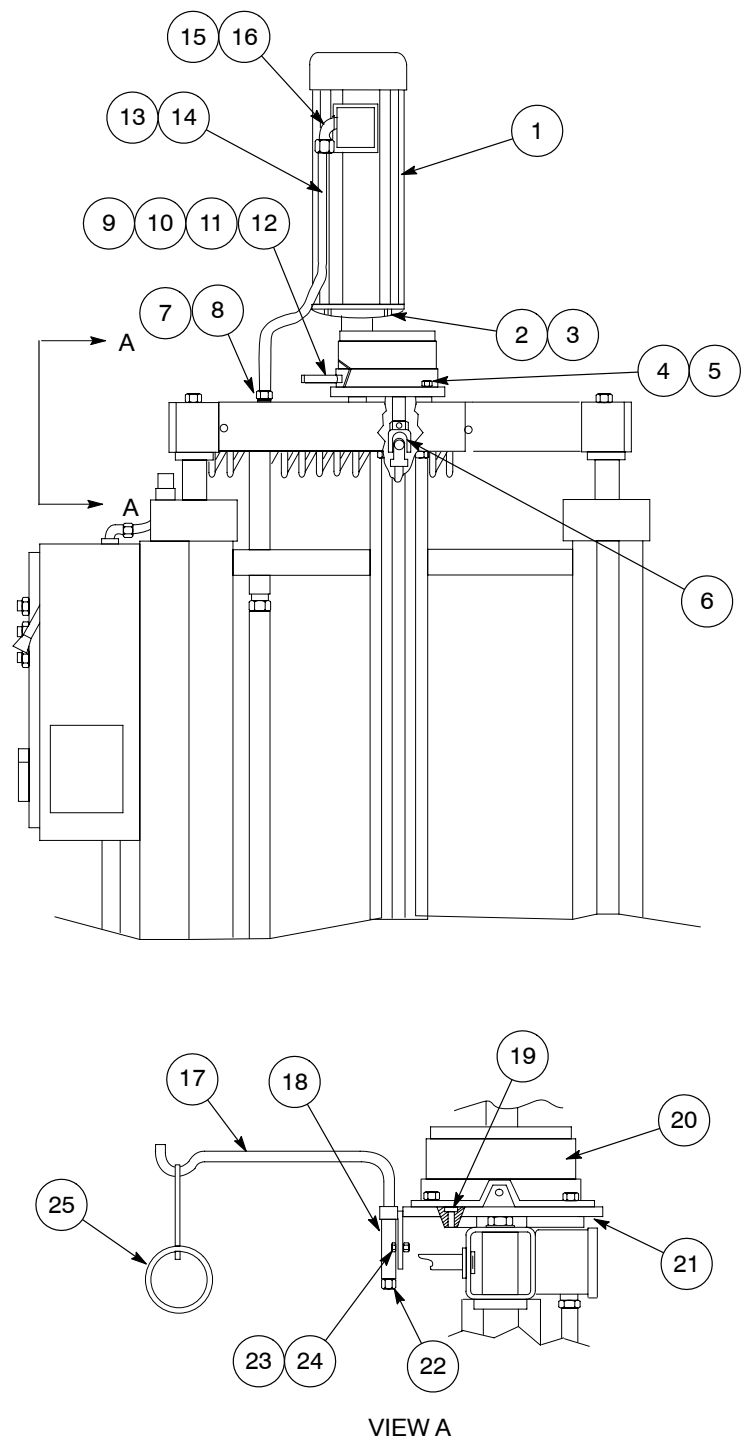


Fig. 8-2 Frame Assembly

Drive Assembly

See Figure 8-3.

Item	Part	Description	Quantity	Note
—	-----	Drive assembly	1	
1	272 020	• DC Motor, 3 hp, 1800 RPM	1	
2	983 160	• Washer, lock, split, $\frac{3}{8}$ in.	8	
3	981 408	• Screw, hex-head, $\frac{3}{8}$ -16 x 1.250 in., cap	4	
4	983 406	• Lockwasher, split, M12	4	
5	982 088	• Screw, hex-head, cap, M12 x 40	4	
6	324 730	• Drive shaft, 5540	1	
7	939 122	• Seal, conduit fitting, $\frac{1}{2}$	1	
8	933 078	• Connector, straight, $\frac{3}{8}$ in. conduit	1	
9	900 236	• Sealant, paste	—	
10	973 028	• Nipple, steel, sched 40, $\frac{1}{4}$, 4.00 in.	1	
11	973 960	• Cap, pipe	1	
12	973 151	• Ell, pipe, hyd., 90, $\frac{1}{4}$ in.	1	
13	933 077	• Conduit, flex, bulk, $\frac{3}{8}$	AR	
14	939 004	• Strap, cable, 0.06–1.75, natural	1	
15	933 079	• Connector, conduit	2	
16	324 947	• Washer, reducing, $\frac{3}{4}$ – $\frac{1}{2}$ NPT	2	
17	274 305	• Arm, support, hanger, welded	1	
18	274 307	• Pivot, tube, hose support	1	
19	982 895	• Screw, flat-head, socket, M10 x 25 mm	4	
20	-----	• Reducer, Heli Gear, 4.06:1	1	
21	330 597	• Plate, adapter, 5544	1	
22	984 172	• Nut, hex-head, lock, $\frac{1}{2}$ -13 UNC-2B	1	
23	982 006	• Screw, socket-head, M8 x 20, zinc	2	
24	983 404	• Washer, lock, split, M8	2	
25	274 174	• Hanger, hose, $\frac{5}{8}$ in. ID and 1- $\frac{1}{8}$ in. ID	1	
AR: As Required				



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Fig. 8-3 Drive Assembly

Pump Assembly

See Figure 8-4.

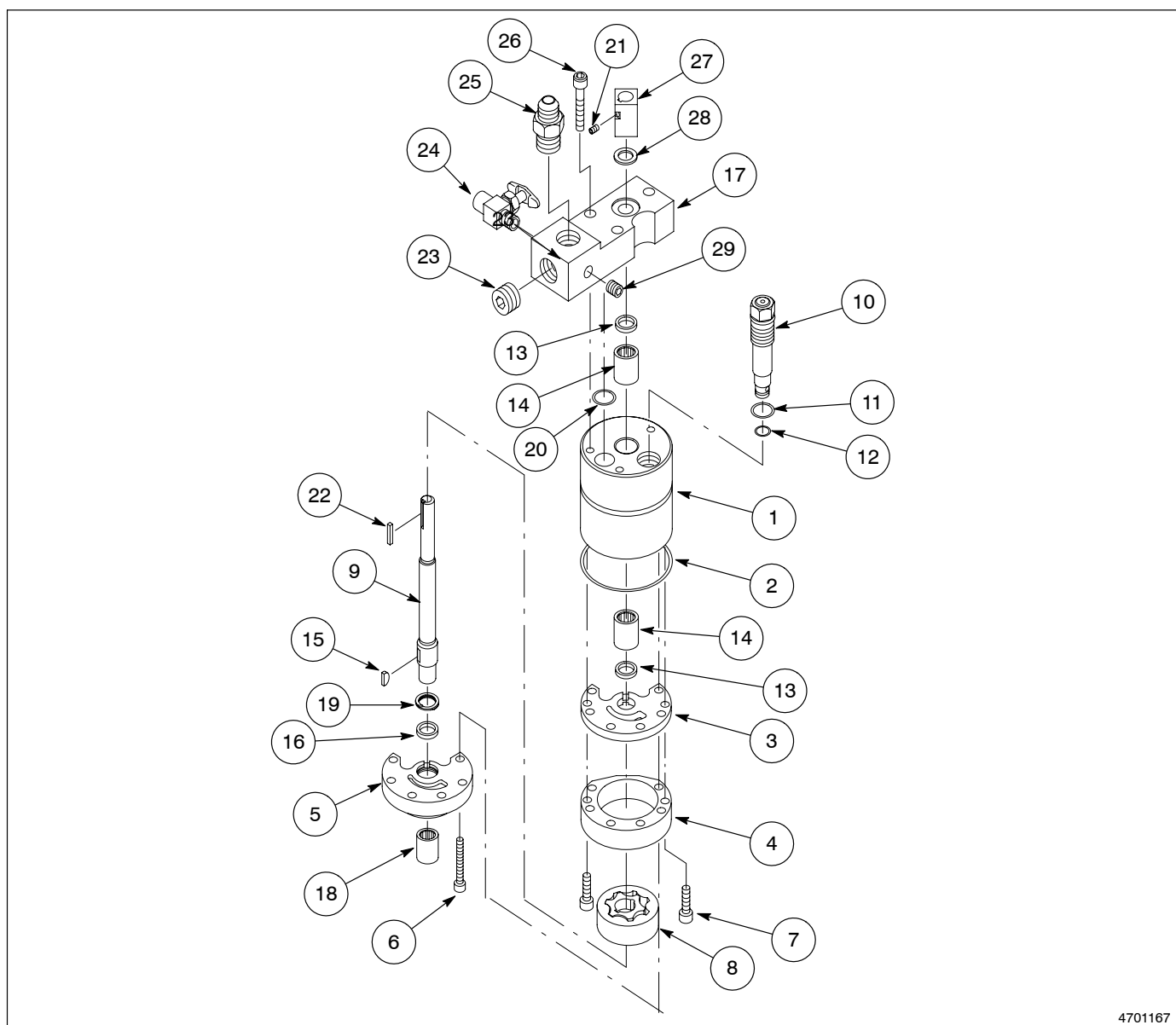
Item	Part	Part	Part	Description	Quantity	Note
—	272 041			Pump assembly, $\frac{3}{4}$ gerotor, 1500 psi ($\frac{5}{16}$ in. ID Hose)	—	A
—		272 040		Pump Assembly, $\frac{3}{4}$ gerotor, 1200 psi ($\frac{5}{8}$ in. ID Hose)	—	A
—			272 039	Pump Assembly, $\frac{3}{4}$ gerotor, 1000 psi (1 $\frac{1}{8}$ in. ID Hose)	—	A
1	274 312	274 312	274 312	• Body, pump	1	
2	942 371	942 371	942 371	• O-ring, Viton, 3.375 x 3.625 x 0.125 in.	1	
3	271 916	271 916	271 916	• Plate, pump, upper	1	
4	271 889	271 889	271 889	• Retainer, gerotor, 0.750 in. thick	1	
5	271 917	271 917	271 917	• Plate, pump, lower	1	
6	981 557	981 557	981 557	• Screw, socket-head, $\frac{1}{4}$ -20 x 1.750 in.	6	
7	981 233	981 233	981 233	• Screw, socket-head, $\frac{1}{4}$ -20 x 1.000 in.	2	
8	271 888	271 888	271 888	• Gerotor set, 6-tooth, 0.750 in. thick	1	
9	273 803	273 803	273 803	• Shaft, pump, 750 gerotor	1	
10	271 919	272 045	272 044	• Valve, relief, pressure	1	
11	945 025	945 025	945 025	• • O-ring, Viton, 0.755 x 0.970 in.	1	
12	940 141	940 141	940 141	• • O-ring, Viton, 0.500 x 0.625 x 0.063 in.	1	
13	274 301	274 301	274 301	• Seal, shaft, 0.625 x 0.875 in.	2	
14	274 300	274 300	274 300	• Bearing, needle, open, 0.625 in.	2	
15	168 054	168 054	168 054	• Key, woodruff, #3, hardened	1	
16	272 047	272 047	272 047	• Seal, shaft, 0.625 x 0.812 in.	1	
17	167 002	167 002		• Manifold, pump, single hose, ($\frac{5}{16}$ and $\frac{5}{8}$ in. ID)	1	
17	272 042	272 042		• Manifold, pump, dual hose, ($\frac{5}{16}$ and $\frac{5}{8}$ in. ID)	1	
17			272 043	• Manifold, pump, single hose, (1 $\frac{1}{8}$ in. ID)	1	
17			115 878	• Manifold, pump, dual hose, (1 $\frac{1}{8}$ in. ID)	1	
18	273 800	273 800	273 800	• Bearing, needle, closed, 0.625 in.	1	
19	986 310	986 310	986 310	• Retaining ring, internal, 84, spiral	1	
20	940 201	940 201	940 201	• O-ring, Viton, 0.864 x 0.070 in.	1	
21	981 101	981 101	981 101	• Screw, socket set, 10-32 x 0.187, cup	1	
22	178 170	178 170	178 170	• Key, $\frac{1}{8}$ x $\frac{1}{8}$ x 0.800 in.	1	
22	272 548	272 548	272 548	• Key, $\frac{1}{8}$ x $\frac{1}{8}$ x 0.500 in.	1	
23	973 431	973 431	973 431	• Plug, pipe, $\frac{1}{2}$ NPT	1	B
24	271 884	271 884	271 884	• Valve, manual, $\frac{1}{4}$ NPT	1	
25	972 619			• Connector, male, 37 in., $\frac{9}{16}$ -18 x $\frac{1}{2}$ NPT ($\frac{5}{16}$ in. ID)	1	B
25		972 620		• Connector, male, 37 in., 1 $\frac{1}{16}$ -12 x $\frac{1}{2}$ NPT ($\frac{5}{8}$ in. ID)	1	B
25			972 621	• Connector, male, 37 in., 1 $\frac{5}{8}$ -12 x 1 $\frac{1}{4}$ NPT (1 $\frac{1}{8}$ in. ID)	1	
25			803 536	• Connector, male, 37 in., 1 $\frac{5}{8}$ -12 x 1 NPT (1 $\frac{1}{8}$ in. ID)	2	
26	982 556	982 556	982 556	• Screw, socket-head, $\frac{5}{8}$ -18 x 0.75 in.	3	

NOTE A: Pump assembly only. Does not include items 17, 23, 24, 25, 26,

B: Two of these parts are enclosed with the dual hose manifold and pump assembly.

Item	Part	Part	Part	Description	Quantity	Note
27	172 328	172 328	172 328	• Block, coupling, shaft, 1.250 in. long	1	
28	272 046	272 046	272 046	• Washer, bearing, 0.620 x 0.960 x 0.062 in.	1	
29	973 402	973 402	973 402	• Plug, pipe, 1/8 NPT (single hose units only)	1	
NS	900 236	900 236	900 236	• Sealant, paste	—	
NS	900 318	900 318	900 318	• Grease, fluorinated, 2 oz.	—	
NS	902 504	902 504	902 504	• Tape	—	

NS: Not Shown



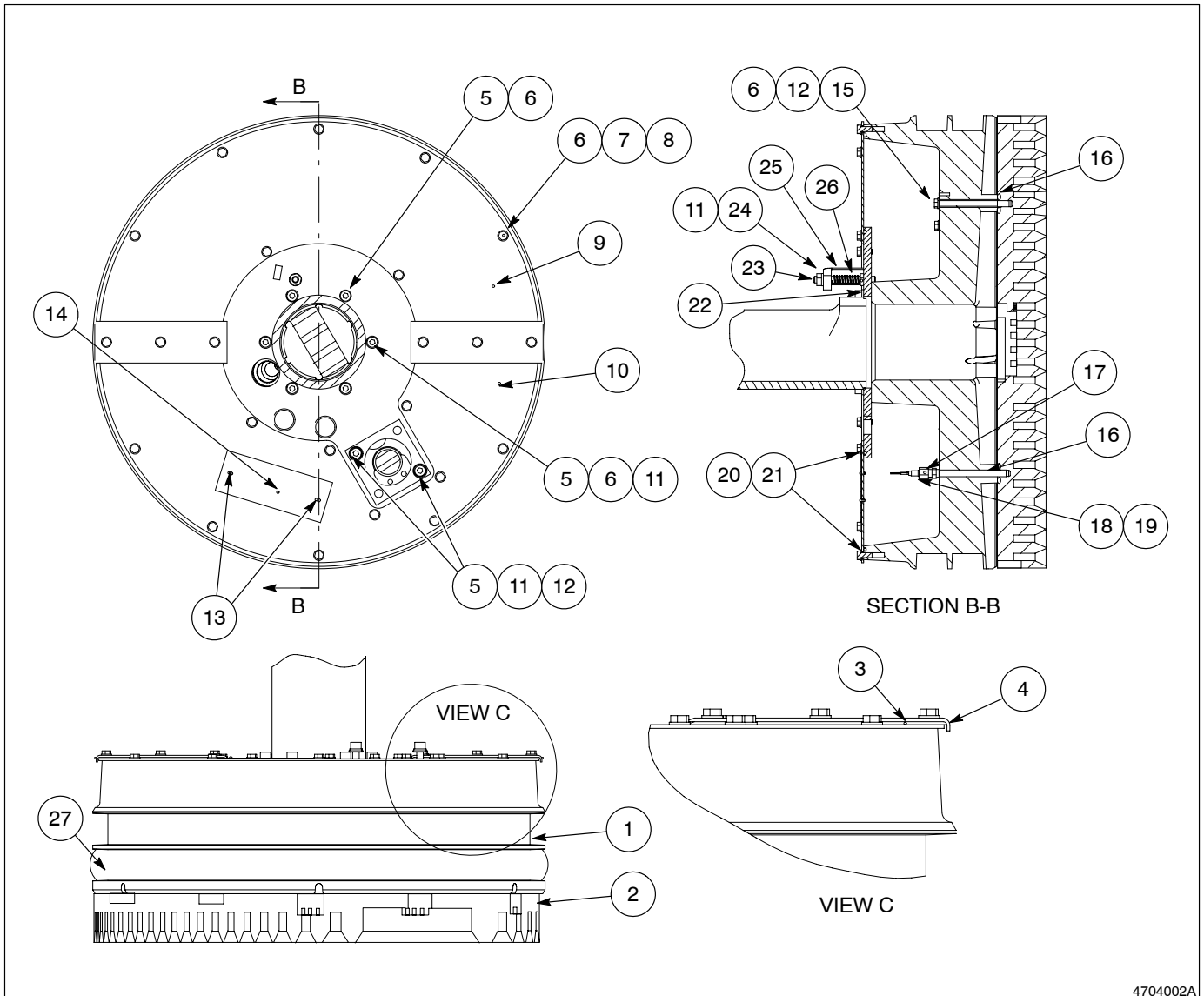
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Fig. 8-4 Pump Assembly

Platen Assembly

See Figure 8-5.

Item	Part	Description	Quantity	Note
—	-----	Platen assembly	1	
1	330 598	• Platen, machined, Hi-Flo, 5544	1	A
2	222 531	• Adapter, machined, platen, hi-melt	1	A
3	326 810	• Gasket, cover, seam	2	
4	326 809	• Plate, cover, seam	2	
5	981 528	• Screw, socket-head, M8 x 30	8	
6	900 236	• Sealant, paste	—	
7	982 134	• Screw, hex-head, cap, M6 x 14	23	
8	983 410	• Washer, flat, narrow, M6, stl	23	
9	326 792	• Cover, platen, rear	1	
10	326 791	• Cover, platen, front	1	
11	983 404	• Washer, lock, split, M8	1	
12	983 013	• Washer, flat, regular, M8	2	
13	981 905	• Screw, drive, round-head, 2 x 0.187 in.	2	
14	-----	• Tag, warning, disconnect power	1	
15	333 711	• Screw, spl, hex-head, M8-1.25 x 90 mm	11	C
16	940 151	• O-ring, Viton, 0.563 x 0.688 x 0.63 in.	13	
17	272 279	• Connector, temp sensor, 1/4 in.	1	
18	288 970	• RTD, nickel, tip, 0.250 x 5.00 in.	1	B
19	275 386	• Compound, thermal joint	—	
20	900 413	• Sealant, RTV, red	—	
21	185 377	• Tube, Viton, seal, platen cover	9 ft	
22	125 112	• Nut, hex, jam, M8	1	
23	185 376	• Stud, M8 x 75	1	
24	984 707	• Nut, hex, regular, M8	1	
25	272 069	• Clamp, manifold	1	
26	272 068	• Spring, comp, 2.000 x 0.328 ID x 0.042 in.	1	
27	276 977	• Seal, platen	1	B
NS	982 261	• Screw, pan-head, rec, M3.5 x 10	1	D
NS	226 831	• Washer, flat, M3.5	1	D
NS	983 424	• Washer, split lock, M3.5	1	D
NOTE A: Make sure mating surface is clean. B: Specific part numbers are given in the table of recommended spare parts. C: Tighten to 5-7 ft-lb (6.8-9.5 N•m) of torque. D: Used to secure ground wire NS: Not Shown				



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Fig. 8-5 Platen Assembly

T-Handle Assembly

See Figure 8-6.

Item	Part	Description	Quantity	Note
—	331 918	Module, T-Handle, non-PUR	1	
1	222 488	• Handle, T, 55 gal., long	1	
2	945 027	• O-ring, Viton, 1/2 tube	1	
3	324 131	• Tray, bleeder valve	1	
4	222 508	• Adapter assembly, 3/4 pipe	1	
5	986 029	• Retaining ring, external, 100, spiral	1	
6	331 919	• Adhesive, retaining cylindrical	1	

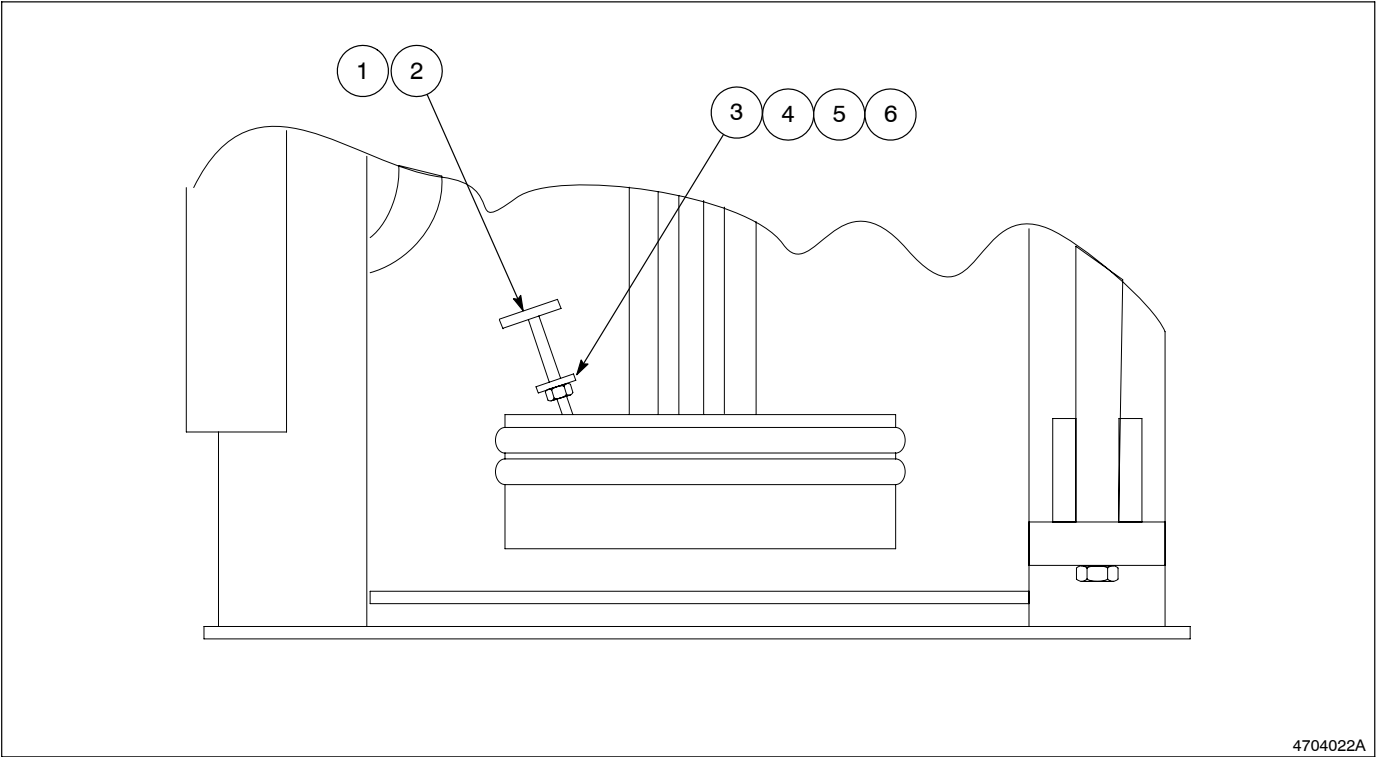


Fig. 8-6 T-Handle Assembly

Junction Box Assembly

See Figure 8-7.

Item	Part	Description	Quantity	Note
—	-----	Junction box	1	
1	324 344	• Assembly, cover, junction box w/ tag	1	
NS	985 101	• • Rivet, pop, $\frac{3}{32}$ x 0.125 in.		
2	981 428	• • Screw, captive, 10-32 x 0.432 in.	2	
3	983 122	• • Washer, retainer, #10	2	
NS	242 654	• • Gasket, cabinet	4 ft	
4	324 357	• • Cover, junction box, painted	1	
5	981 020	• Screw, pan-head, 6-32 x 0.250 in.	2	
6	983 100	• Washer, lock, interior, #6	2	
7	324 608	• Block, terminal, modular, 12-station	1	
8	939 355	• Socket, relay, 8-pin	1	
9	984 101	• Nut, hex, machine, 6-32	4	
10	933 281	• Block, terminal, 4-station	1	
11	324 358	• Junction box, crossover, painted	1	
12	983 120	• Washer, lock, split, #10	2	
13	984 129	• Nut, hex, machine, 10-32, brass	3	
14	271 221	• Lug, 45, double, 0.250 in., 0.438 in.	3	
15	240 674	• Tag, ground	1	

NS: Not Shown

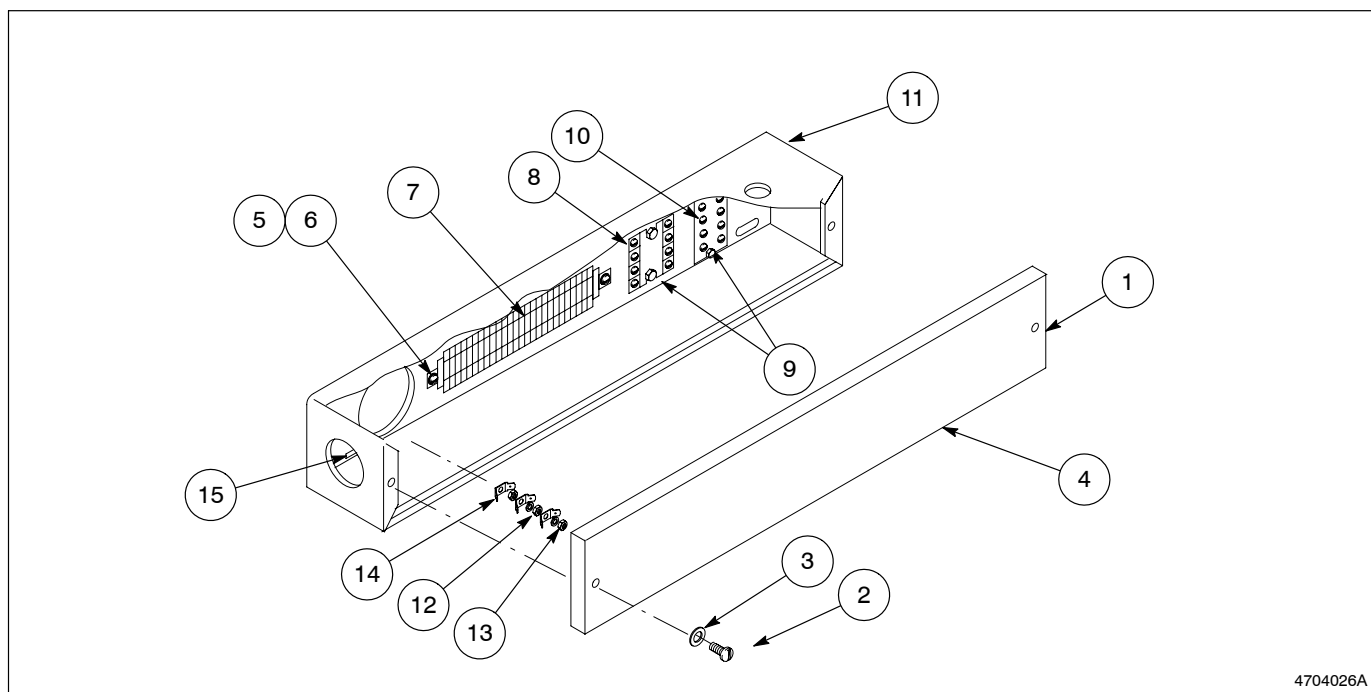


Fig. 8-7 Junction Box Assembly

**Basic Electrical Enclosure
Assembly (Outside)**

See Figures 8-8.

Item	Part	Description	Quantity	Note
—	-----	Basic electrical enclosure assembly	1	
1	-----	• Wire group, basic LCU	1	
2	939 331	• Light, pilot, 120 volt, red	1	
3	324 308	• Plate, legend, over-temperature	1	
4	939 811	• Button, push, illuminated, guarded	1	
5	324 306	• Plate, legend, power on	1	
6	939 353	• Switch, push button, stop	1	
7	-----	• Plate, legend, e-stop	1	
8	939 812	• Switch, selector, illuminated, 2-position	1	
9	324 311	• Plate, legend, pump on/off	1	
10	324 355	• Cabinet, electrical, painted	1	
11	-----	• Plate, on/off main breaker	1	
12	324 327	• Mechanism, handle, disconnect	1	
13	-----	• Tag, warning, disconnect power	1	
14	985 111	• Rivet, blind, $\frac{3}{32}$ x 0.125, aluminum	4	
15	324 328	• Handle assembly, door	1	
16	156 408	• Lock bar, lower	1	
17	156 407	• Lock bar, upper	1	
18	136 418	• Name plate, Nordson oval	1	
19	984 529	• Nut, spring, push on. 0.125 in.	3	
20	939 359	• Light, pilot, 120 volt, amber	1	
21	324 309	• Plate, legend, low drum	1	
22	240 674	• Tag, ground	2	
23	984 129	• Nut, hex, machine, 10-32, brass	5	
24	271 221	• Lug, 45, double, 0.250 in., 0.438 in.	4	
25	983 120	• Washer, lock, split, #10, nickel	5	
26	335 176	• Clamp, cable, ribbon, 3 in. maximum	1	
27	981 022	• Screw, fillister, 6-32 x 0.375 in.	8	
28	983 100	• Washer, lock, interior, #6	8	
29	939 644	• Triac, tank, control, 25 am	2	
30	981 544	• Screw, socket-head, 6-32 x 0.500	10	
31	119 030	• Heatsink, machined, electrical box	1	
32	939 637	• Connector, conduit	1	
33	274 385	• Seal, conduit fitting, 1 $\frac{1}{4}$ in.	1	
NS	275 386	• Compound, thermal joint, 2 oz.	—	
NS: Not Shown				

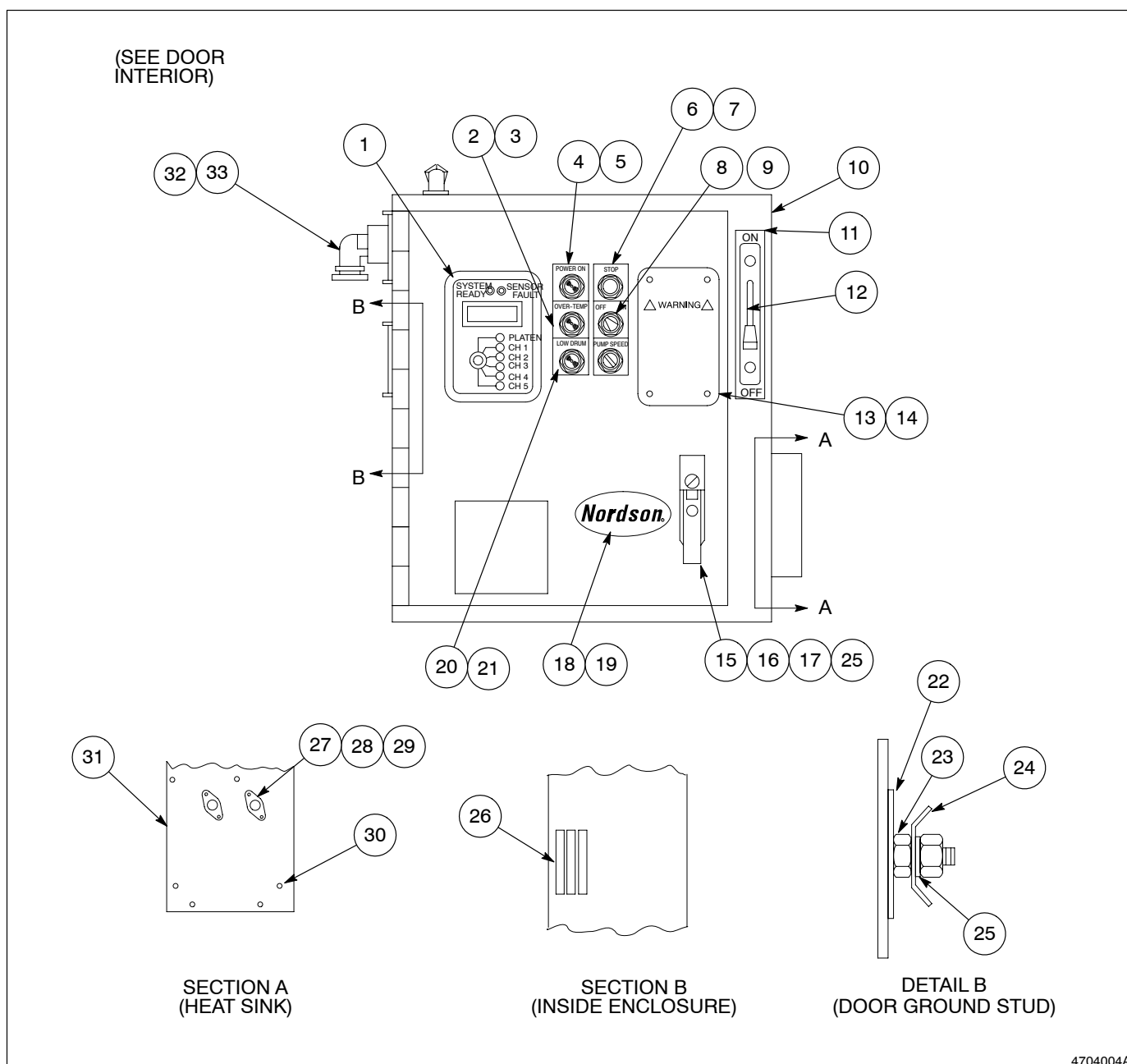


Fig. 8-8 Basic Electrical Enclosure Assembly (Outside)

**Basic Electrical Enclosure
Assembly (Inside)**

See Figure 8-9.

Item	Part	Description	Quantity	Note
—	-----	Basic electrical enclosure assembly	1	
1	939 762	• Fuse block, 8-pole	1	
2	981 022	• Screw, fillister, 6-32 x 0.375 in.	8	
3	983 100	• Washer, lock, interior, #6	8	
4	939 020	• Fuse, 30.00, fast-acting, 600 volt	2	
5	939 509	• Fuse, 5.00, time-delay, 250 volt	1	
6	939 295	• Fuse, 8.00, time-delay, 250 volt	2	
7	983 120	• Washer, lock, split, #10	5	
8	324 442	• Standoff, 10-32 m/f x 3.00 in. long	1	
9	981 160	• Screw, pan-head, 10-32 x 0.500 in.	2	
10	981 064	• Screw, pan-head, 8-32 x 0.375 in.	7	
11	324 335	• Contactor, main power	1	
12	983 011	• Washer, lock, interior, #8	7	
13	272 620	• Suppressor, arc, w/ terminals	1	
14	242 837	• Mount, cable strap	2	
15	939 827	• Block, fuse	1	
16	324 354	• Panel, inner, electrical enclosure, painted	1	
17	984 152	• Nut, hex, $\frac{3}{8}$ -16	4	
18	983 160	• Washer, lock, $\frac{3}{8}$	4	
19	271 964	• Duct, wire, 14-in.	1	
20	324 336	• Block, terminal, electrical box	1	
21	933 397	• Gasket, base, connector	2	
22	324 252	• Plate, cover, connector cut-out	1	
23	984 529	• Nut, spring, push on, 0.125 in.	3	
24	933 392	• Base, connector, panel mount	1	
25	933 395	• Insert, connector, receptacle	1	
26	939 528	• Socket, crimp contact	16	
27	933 396	• Receptacle cover	1	
28	981 029	• Screw, fillister, 6-32 x 0.500 in.	8	
29	984 101	• Nut, hex, machine, 6-32	8	
30	983 102	• Washer, lock, split, #6	8	
31	984 129	• Nut, hex, machine, 10-32, brass	5	
32	271 221	• Lug, 45, double, 0.250 in., 0.438 in.	4	
33	939 488	• Terminal, wire, ground	1	
34	240 674	• Tag, ground	2	
35	981 156	• Screw, pan-head, 10-32 x 1.000 in., brass	1	

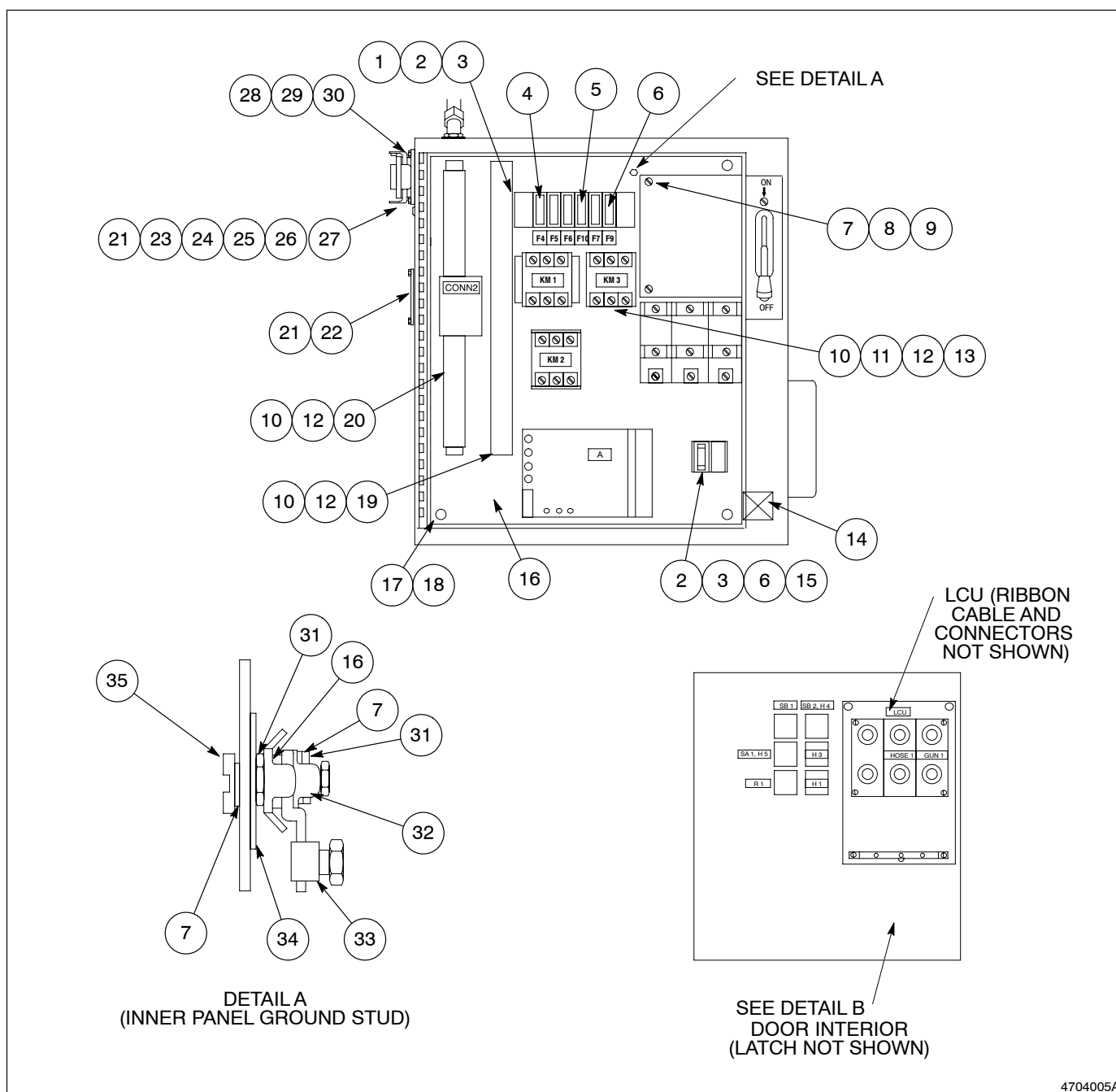
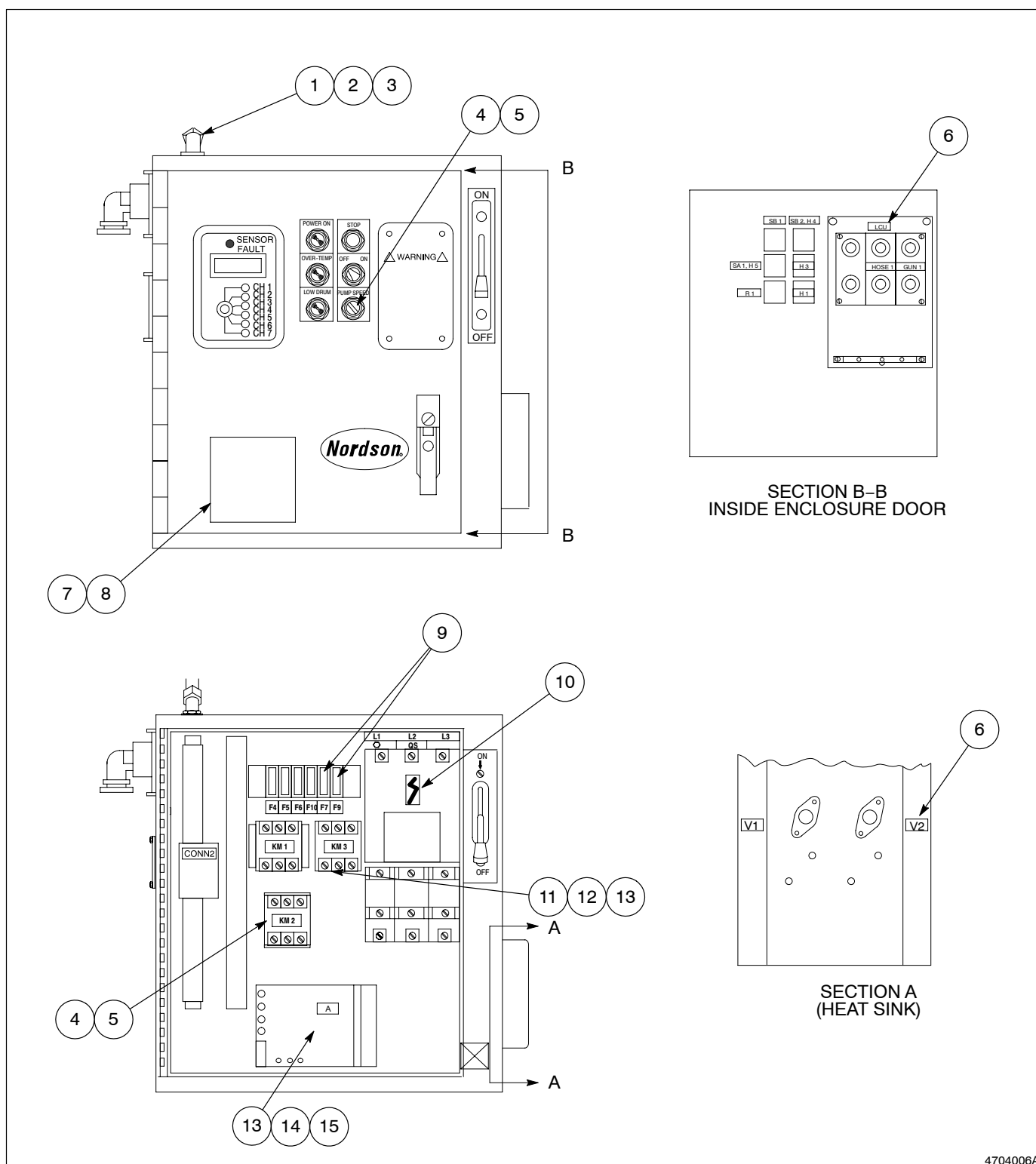


Fig. 8-9 Basic Electrical Enclosure Assembly (Inside)

Electrical Kit

See Figure 8-10.

Item	Part	Description	Quantity	Note
—	-----	Electrical kit	1	A
1	939 475	• Lock nut, conduit, 1/2	1	
2	939 122	• Seal, conduit fitting, 1/2	1	
3	933 079	• Connector, conduit	1	
4	324 313	• Plate, legend, pump speed	1	
5	939 489	• Potentiometer, 5000 ohms	1	
6	-----	• Label, box, electrical	1	
7	-----	• Name plate, 5544	1	
8	985 103	• Rivet, pop, 3/32 x 0.250 in., carbon	4	
9	939 021	• Fuse, 20 amp, fast-acting, 600V	1	
10	242 867	• Tag, warning	1	
11	937 289	• Contactor, 120V	1	
12	981 064	• Screw, pan-head, 8-32 x 0.375 in.	2	
13	983 011	• Washer, lock, int., #8	4	
14	324 331	• Controller, speed, 3 hp	1	
15	981 076	• Screw, round-head, 8-32 x 1.50 in.	2	
NS	900 517	• Tubing, polyester, spiral cut, 0.620 ID	1 ft	
NOTE A: Single hose units only.				



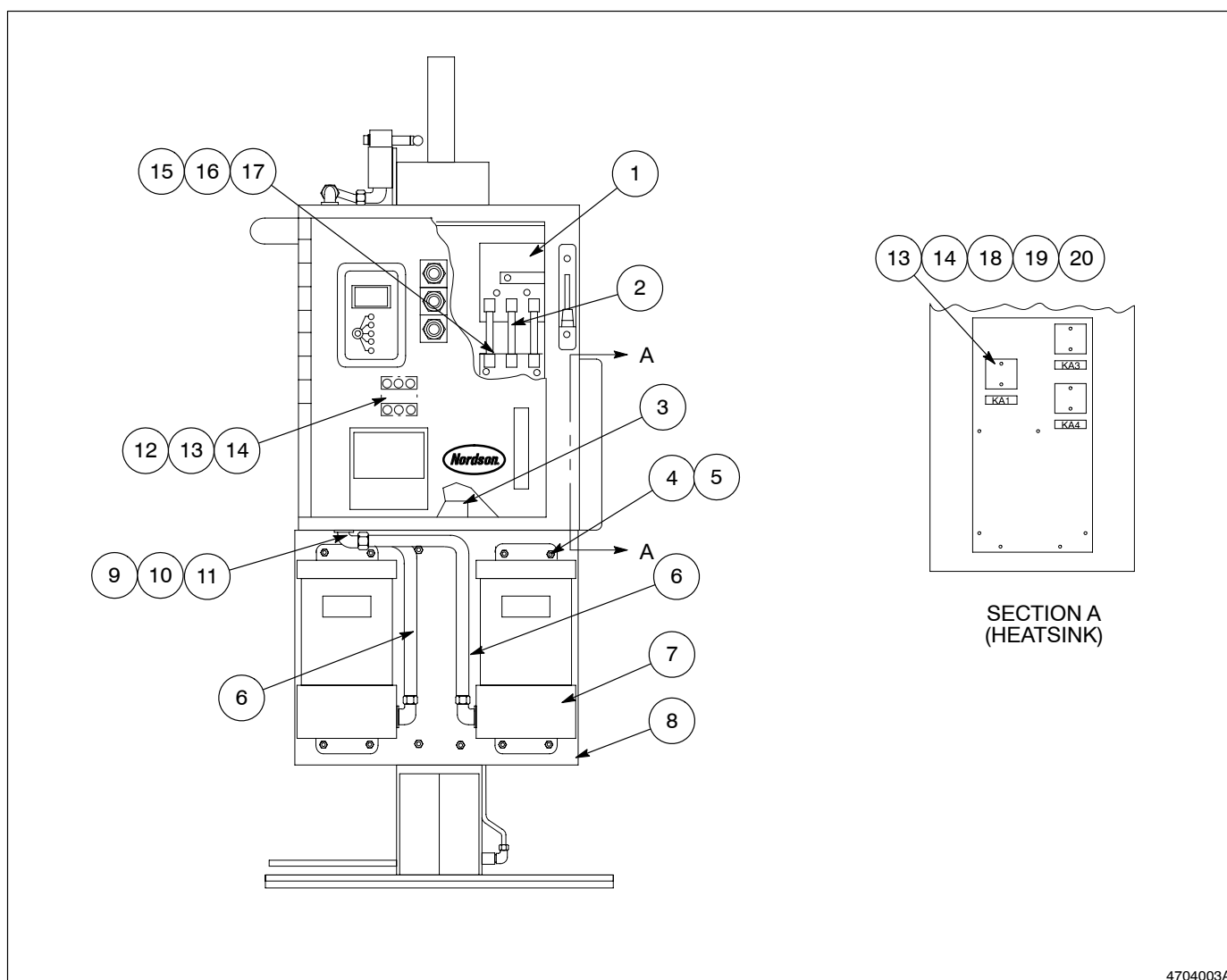
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Fig. 8-10 Electrical Kit

Voltage Kit

See Figure 8-11.

Item	Part	Description	Quantity	Note
—	-----	Voltage kit	1	A
1	324 326	• Switch, fusible, 100 amp (200/240/380/415 volt units)	1	
1	324 325	• Switch, fusible, 60 amp (480 volt units)	1	
2	939 056	• Fuse, 100 amp, 250 volt (200/240 volt units)	3	
2	939 369	• Fuse, 70 amp, 600 volt (380/415 volt units)	3	
2	939 420	• Fuse, 60 amp, 600 volt (480 volt units)	3	
3	816 232	• Transformer assembly, control (380/415 volt units)	1	
4	983 150	• Washer, lock, split, $\frac{5}{16}$	12	
5	984 140	• Nut, hex, regular, $\frac{5}{16}$ -18	12	
6	248 375	• Conduit, flex, bulk, $\frac{1}{2}$	3 ft	
7	939 823	• Transformer, 5 KVA (200/380/415 volt units)	2	
7	939 816	• Transformer, 5 KVA (240/480 volt units)	2	
8	324 706	• Plate, mount, transformer	1	
9	939 475	• Lock nut, conduit, $\frac{1}{2}$	4	
10	804 137	• Connector, 90° elbow, $\frac{1}{2}$ conduit	4	
11	939 122	• Seal, conduit fitting, $\frac{1}{2}$	4	
12	937 297	• Contactor, 63 amp, 120 VAC (200/240 volt units)	1	
12	937 289	• Contactor, 63 amp, 120 VAC (380/415/480)	1	
13	981 064	• Screw, pan-head, 8-32 x 0.375 in.	4	
14	983 011	• Washer, lock, interior, #8	4	
15	983 120	• Washer, lock, split, #10	1	
16	981 160	• Screw, pan-head, 10-32 x 0.500 in.	1	
17	111 962	• Standoff, 10-32 x 0.500 in.	1	
18	933 156	• Lug, 90°, double, 0.250 in., 0.438 in.	6	
19	939 763	• Relay, solid state, 660 VAC, 90 amp (200 volt units)	3	
19	939 764	• Relay, solid state, 530 VAC, 40 amp (all other units)	3	
20	900 298	• Compound, heat sink, 5 oz tube	—	
NOTE A: 200, 240, 380/415, or 480 volt kits available.				



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Fig. 8-11 Voltage Kit

Pneumatic Assembly Platen Removal

See Figure 8-12.

Item	Part	Description	Quantity	Note
—	-----	Pneumatic assembly	1	
1	973 996	• Disconnect, quick, $\frac{3}{8}$, male	1	
2	973 520	• Coupling, pipe, $\frac{3}{8}$	1	
3	973 067	• Nipple, extra-heavy, $\frac{3}{8}$ x 2.00	1	
4	973 175	• Ell, pipe, hyd, 90°, $\frac{3}{8}$	1	
5	972 183	• Elbow, male, $\frac{3}{8}$ tube x $\frac{1}{4}$ NPT	9	
6	900 564	• Tubing, nylon, black, 0.375 OD	30 ft	
7	973 275	• Tee, pipe, $\frac{1}{4}$ brass	1	
8	-----	• Regulator, pre-set	1	A
9	-----	• Valve, manual elevator	1	A
10	973 411	• Plug, pipe, socket, flush, $\frac{1}{4}$	1	
11	152 189	• Valve, 90°, 4-way, 5-port	1	
12	121 447	• Panel, pneumatic	1	
13	981 283	• Screw, pan-head, 8-32 x 0.375 in.	8	
14	973 085	• Nipple, steel, schedule 40, $\frac{1}{4}$, 0.870 in.	2	
15	971 265	• Connector, male, $\frac{1}{4}$ tube x $\frac{1}{4}$ NPT	2	
16	119 721	• Bracket, crossover, 5000	1	
17	982 134	• Screw, hex-head, M6 x 14, cap	2	
18	815 965	• Tubing, $\frac{1}{4}$ OD x 0.100	8.7 ft	
19	305 908	• Regulator, pre-set, 7 psi	1	
20	326 824	• Nipple, hose, $\frac{1}{2}$ x $\frac{1}{4}$ NPT	1	
21	160 927	• Clamp, tubing, worm drive, 0.560–1.060 in.	2	
22	326 823	• Hose, silicone, 0.500 ID x 0.130 wide	4.7 ft	
23	100 395	• Connector, male, $\frac{1}{4}$ tube	1	
24	100 423	• Elbow, male, $\frac{1}{4}$ tube x $\frac{1}{8}$ NPT	1	
25	326 825	• Nipple, hose, $\frac{1}{4}$ x $\frac{3}{8}$ NPT	1	
26	326 812	• Valve	1	
27	119 646	• Enclosure, pneumatic, painted	1	
31	272 556	• Muffler, low-profile, $\frac{1}{4}$ NP	1	
32	973 979	• Adapter, SAE, $\frac{3}{8}$ x $\frac{1}{4}$, brass	1	
33	338 336	• Filter, reg, $\frac{1}{4}$ NPTF, 5–150 psig	1	
34	972 659	• Connector, female, $\frac{1}{4}$ tube x $\frac{1}{8}$ NPT	1	
35	843 048	• Hose, 0.313 ID TFE, 4 ft	1	
36	972 200	• Ell, male, 37, $\frac{9}{16}$ -18 x $\frac{1}{4}$	1	
37	973 037	• Nipple, hex, $\frac{1}{4}$ x $\frac{1}{4}$ x 1.450 in.	1	
38	983 504	• Washer, flat, 0.281 x 0.734 x 0.630 in.	2	
39	984 210	• Nut, hex, jam, $\frac{1}{4}$ -20	4	
40	983 409	• Washer, lock, split, M6	2	
NS	900 419	• Adhesive, retaining, cylindrical	—	
NS	900 236	• Sealant, paste	—	

NOTE A: See separate parts list.

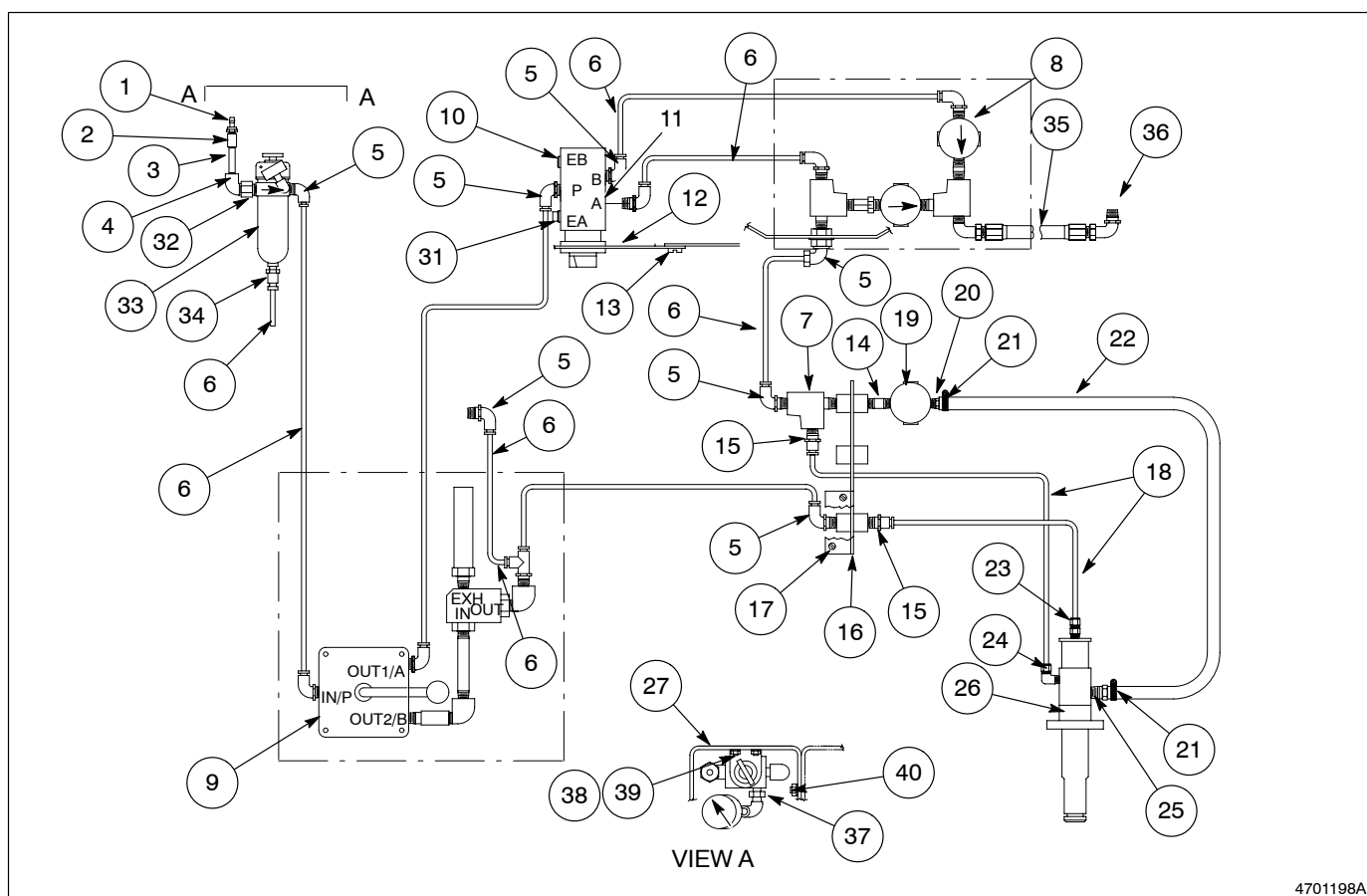


Fig. 8-12 Pneumatic Assembly/Platen Removal

**Pneumatic Assembly Platen
Removal** (contd)

See Figure 8-13.

Item	Part	Description	Quantity	Note
—	-----	Pneumatic assembly <i>contd.</i>	1	
8	-----	• Regulator, pre-set	1	A
9	-----	• Valve, manual elevator	1	A
11	152 189	• Valve, 90°, 4-way, 5-port	1	
12	121 447	• Panel, pneumatic	1	
13	981 283	• Screw, pan-head, 8-32 x 0.375 in.	8	
16	119 721	• Bracket, crossover, 5000	1	
18	815 965	• Tubing, 1/4 OD x 0.100	8.7 ft	
22	326 823	• Hose, silicone, 0.500 ID x 0.130 in.wide	4.7 ft	
27	119 646	• Enclosure, pneumatic, painted	1	
28	329 015	• Screw, oval, 5-40 x 0.750 in.	2	
29	326 828	• Clip, 2 tube, 3/8	2	
30	939 004	• Strap, cable, 0.060–1.750 in., natural	19	
39	983 504	• Washer, flat, E, 0.281 x 0.734 x 0.630 in.	2	

NOTE A: See separate parts list.

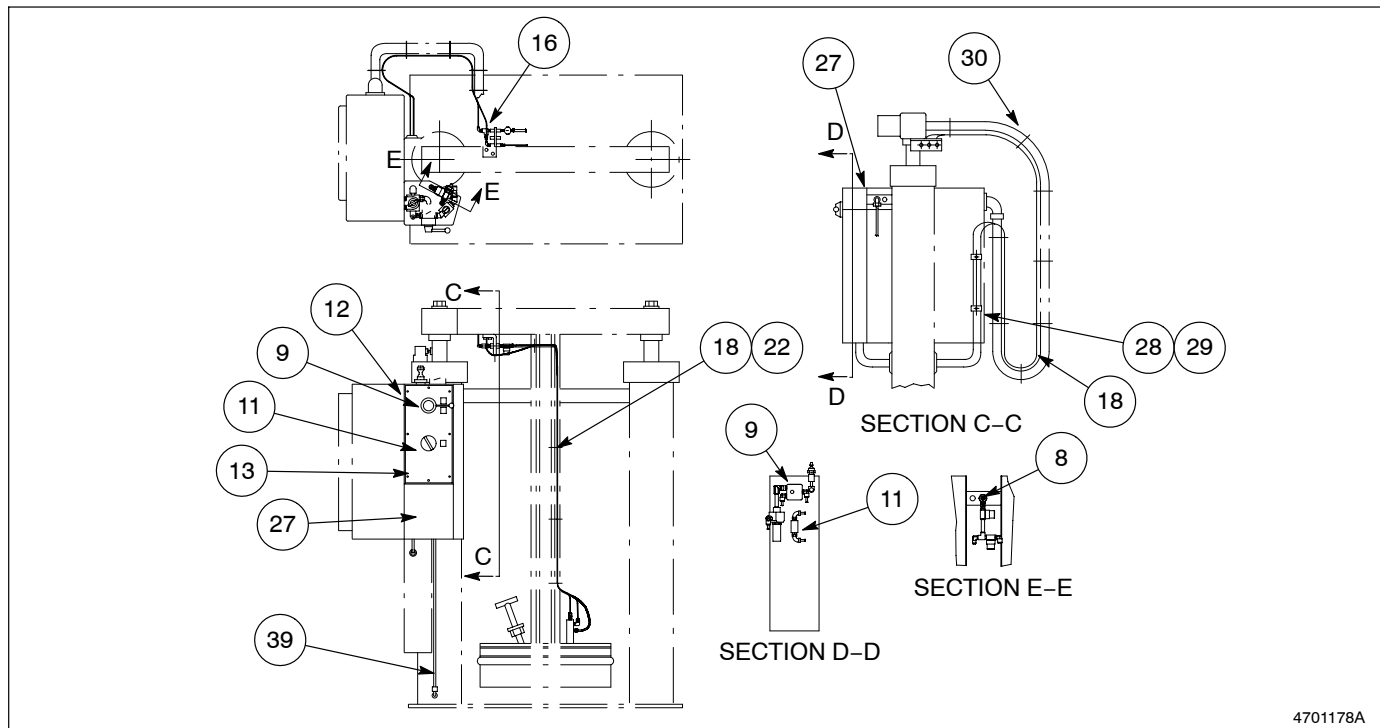


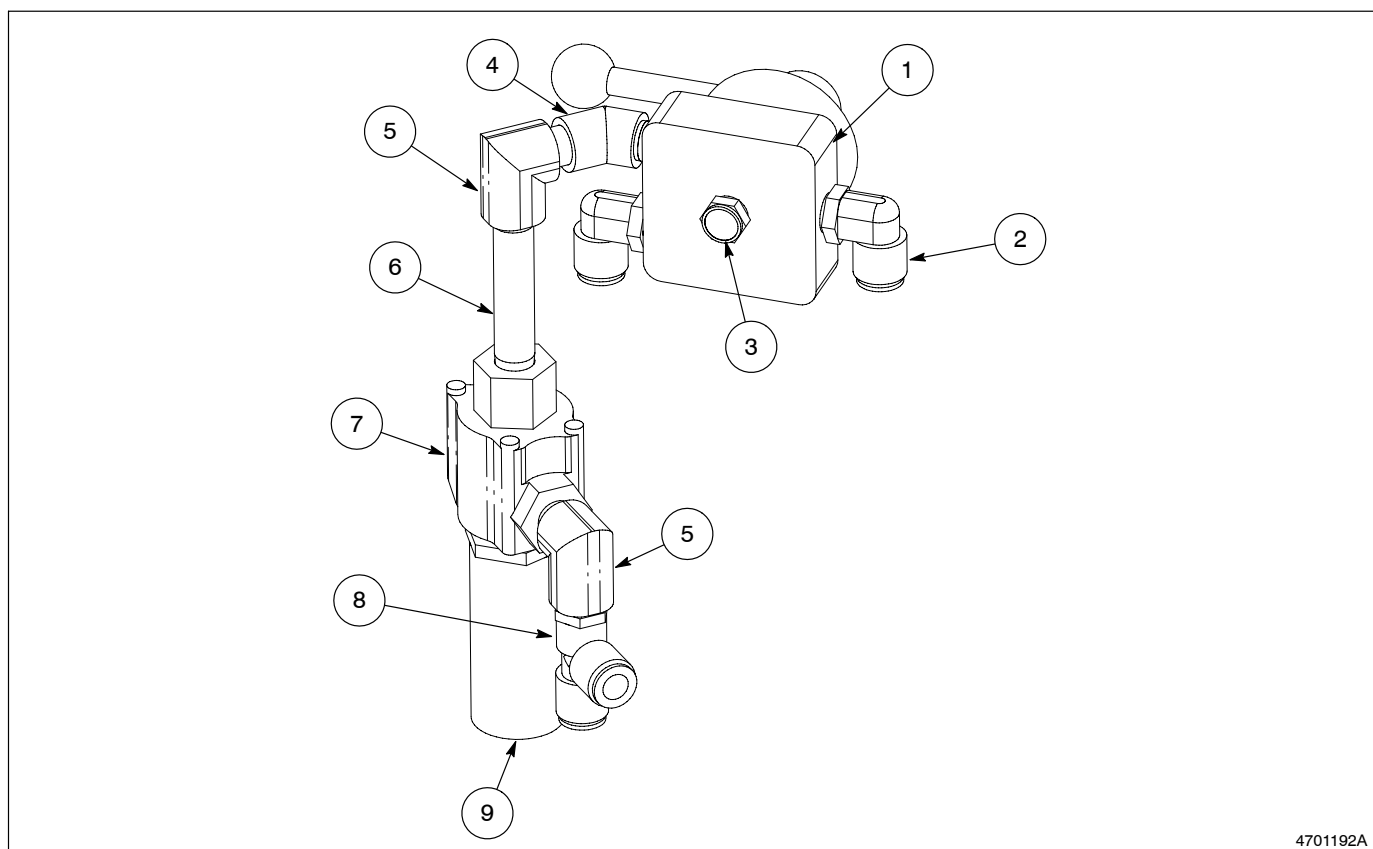
Fig. 8-13 Pneumatic Assembly/Platen Removal

Manual Elevator Valve Assembly

See Figure 8-14.

Item	Part	Description	Quantity	Note
—	-----	Valve, manual, elevator	1	
1	324 208	• Valve, handle, rotary, 1/4 NPT, 4-way	1	
2	972 183	• Elbow, male, 3/8 tube x 1/4 NPT	2	
3	272 556	• Muffler, low-profile, 1/4 NP	1	
4	973 588	• Elbow, pipe, 45°, 1/4	1	
5	973 151	• Ell, pipe, hyd, 90°, 1/4	2	
6	973 021	• Nipple, steel, schedule 40, 1/4, 3.00	1	
7	326 822	• Valve, quick dump	1	
8	971 655	• Tee, male run, 3/8 tube x 1/4 NPT	1	
9	326 821	• Muffler, 3/8 NPT	1	
NS	900 236	• Sealant, paste	—	

NS: Not Shown



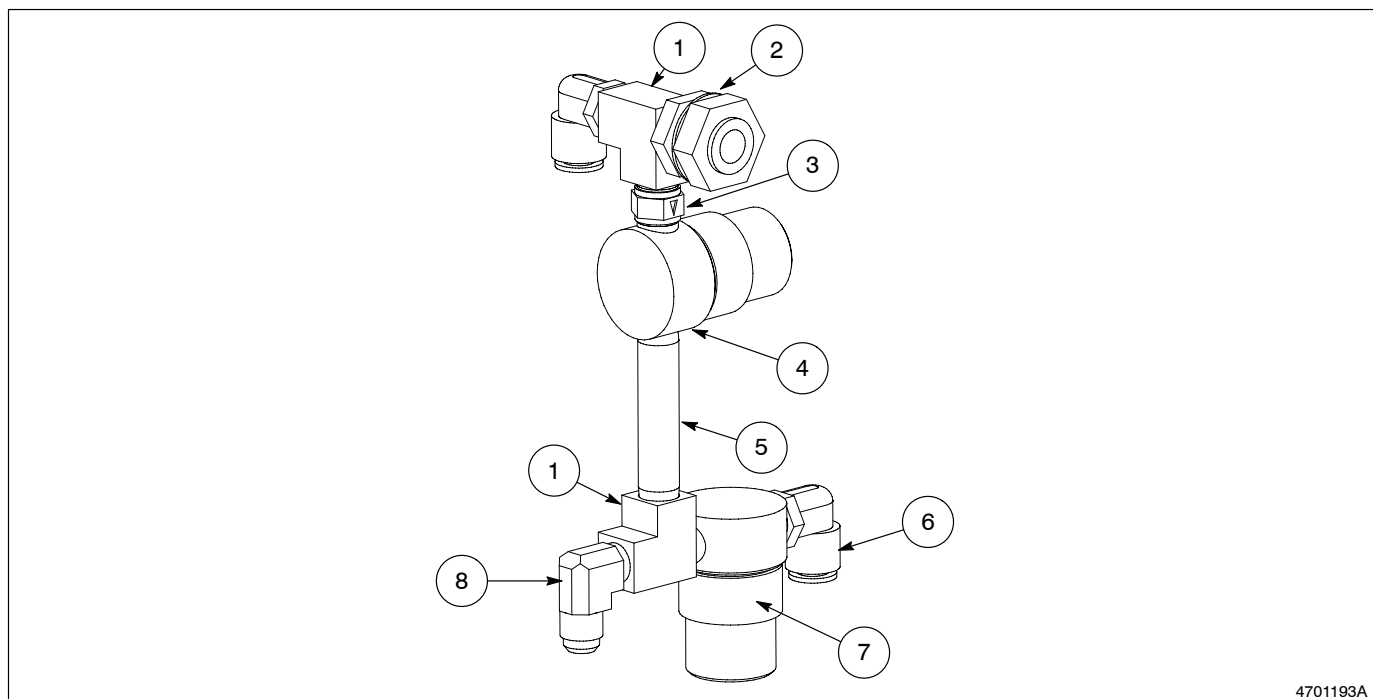
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Fig. 8-14 Manual Elevator Valve Assembly

Regulator Assembly

See Figure 8-15.

Item	Part	Description	Quantity	Note
—	-----	Regulator, pre-set	1	
1	973 275	• Tee, pipe, 1/4, brass	2	
2	973 978	• Adapter, bulkhead, 1/4 NPT	1	
3	330 483	• Valve, check, 1/4, male	1	
4	326 817	• Regulator, pre-set, 10 psi	1	
5	973 021	• Nipple, steel, schedule 40, 1/4, 3.00	1	
6	972 183	• Elbow, male, 3/8 tube x 1/4 NPT	2	
7	326 818	• Regulator, pre-set, 30 psi	1	
8	972 200	• Ell, male 37, 9/16-18 x 1/4	1	
NS	900 236	• Sealant, paste	—	
NS: Not Shown				



4701193A

Fig. 8-15 Regulator Assembly

Platen Blow-Off Assembly

See Figure 8-16.

Item	Part	Description	Quantity	Note
—	-----	Blow-off valve assembly	1	
1	326 796	• Body, gland, needle	1	
2	326 807	• Tube, base	1	
3	326 805	• Needle	1	
4	940 101	• O-ring, Viton, 0.239 ID x 0.070 in. wide, brass	1	
5	326 800	• Spring, 600 OD x 0.072 x 3.00 in.	1	
6	986 328	• Retaining ring, 37, e-ring	1	
7	940 090	• O-ring, Viton, 0.208 ID x 0.070 wide, brass	1	
8	240 275	• Retainer, piston	1	
9	240 300	• Disc, piston	2	
10	240 299	• Seal, piston	2	
11	326 802	• Spacer, piston, cup	1	
12	983 034	• Washer, flat, M, oversized, 6	1	
13	984 092	• Nut, hex, lock, torque, M6	1	
14	940 261	• O-ring, Viton, 1.250 x 1.375 x 0.063 in.	3	
15	326 797	• Cylinder	1	
16	326 798	• Head, cylinder	1	
17	982 171	• Screw, socket-head, M5 x 60	4	
18	940 281	• O-ring, Viton, 1.375 x 1.500 x 0.063 in.	1	
19	326 806	• Plate, mounting	1	
20	986 351	• Retaining ring, 150, invert	1	
21	941 201	• O-ring, Viton, 1.000 x 1.188 x 0.094 in.	1	
22	326 808	• Gasket, mounting	1	
NS	900 493	• Lubricant, Parker, hi-temperature.	—	

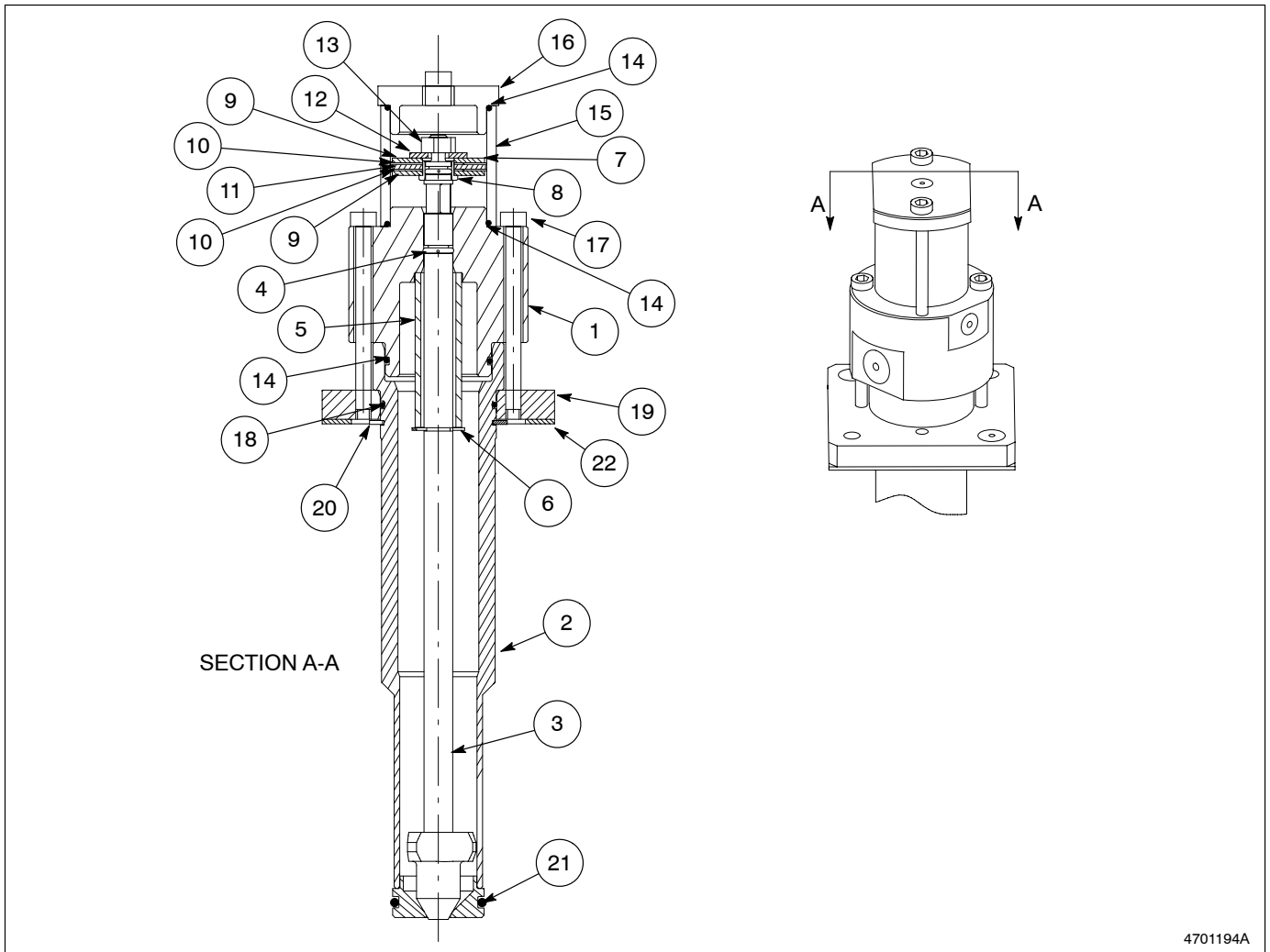


Fig. 8-16 Platen Blow-Off Assembly

Dual Hose Kit

See Figures 8-17 and 8-18.

Item	Part	Description	Quantity	Note
—	-----	Dual hose kit	1	
1	981 427	• Screw, pan-head, 6-32 x 0.250 in.	2	
2	324 912	• Module, temperature, 100°–450 °F	2	
3	324 337	• Bracket, support, module	1	
4	324 403	• Assembly, circuit board, 2-gun controller	1	
5	981 039	• Screw, pan-head, 6-32 x 0.312 in.	10	
6	983 100	• Washer, lock, interior, #6	10	
7	145 714	• Relay, solid-state, 4 amp, 240 volt	3	
8	939 644	• Triac, tank, control, 25 amp	2	
9	939 489	• Potentiometer, 5000 ohms	1	
15	308 939	• Assembly, pump and manifold, $\frac{5}{16}$ in. ID hose	1	A
15	272 037	• Assembly, pump and manifold, $\frac{5}{8}$ in. ID hose	1	A
15	115 785	• Assembly, pump and manifold, 1 $\frac{1}{8}$ in. ID hose	1	A
16	274 307	• Pivot, tube, hose support	1	
17	274 305	• Arm, support, hanger, welded	1	
18	274 174	• Hanger, hose, $\frac{5}{8}$ and 1 $\frac{1}{8}$ in. ID hose units	1	
19	982 006	• Screw, socket-head, M8 x 20, cap	2	
20	984 172	• Nut, hex, lock, $\frac{1}{2}$ -13	1	
21	324 391	• Clip, wire, molded nylon, 0.750 in diameter	1	
22	983 404	• Washer, lock, split, M8	2	
23	324 226	• Label, dual hose kit	1	
25	933 397	• Gasket, base, connector	1	
26	112 295	• Cover, module, LCU	1	
29	900 298	• Compound, heat sink, 5 oz. tube	—	
NOTE A: Part will vary depending on hose size.				

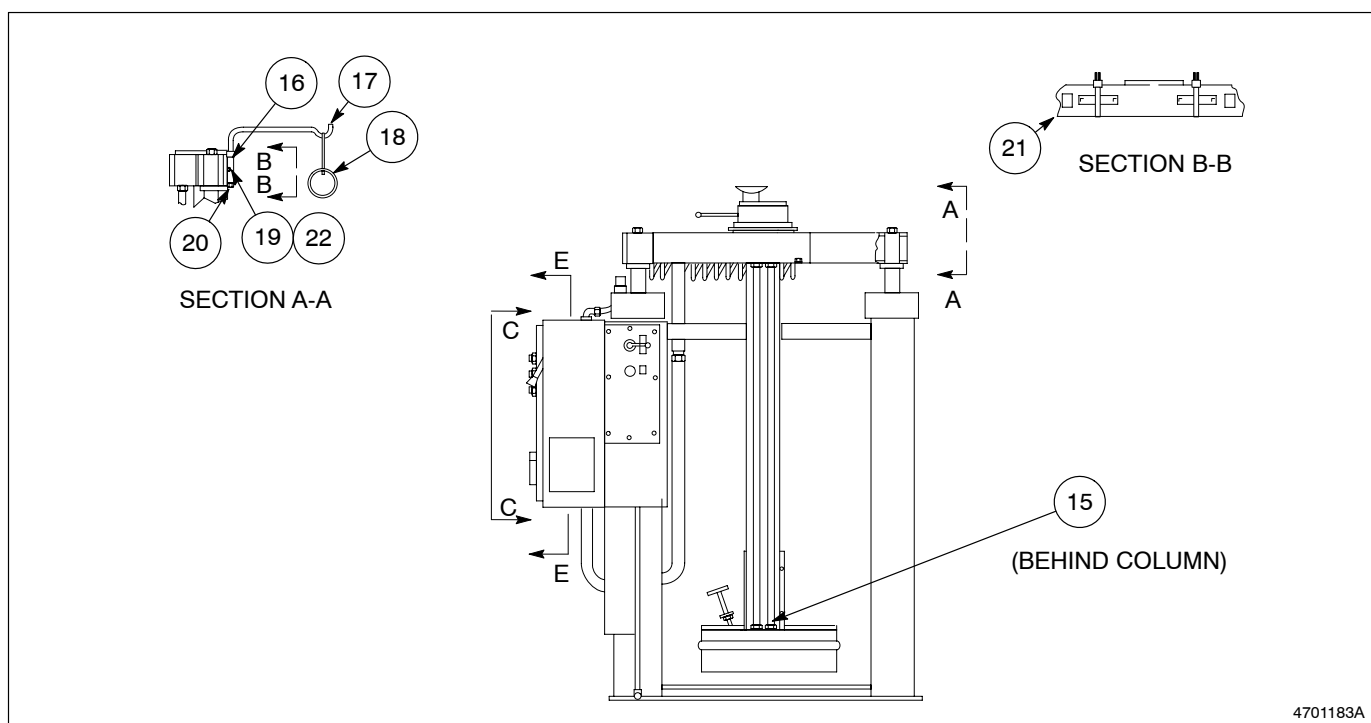


Fig. 8-17 Dual Hose Kit

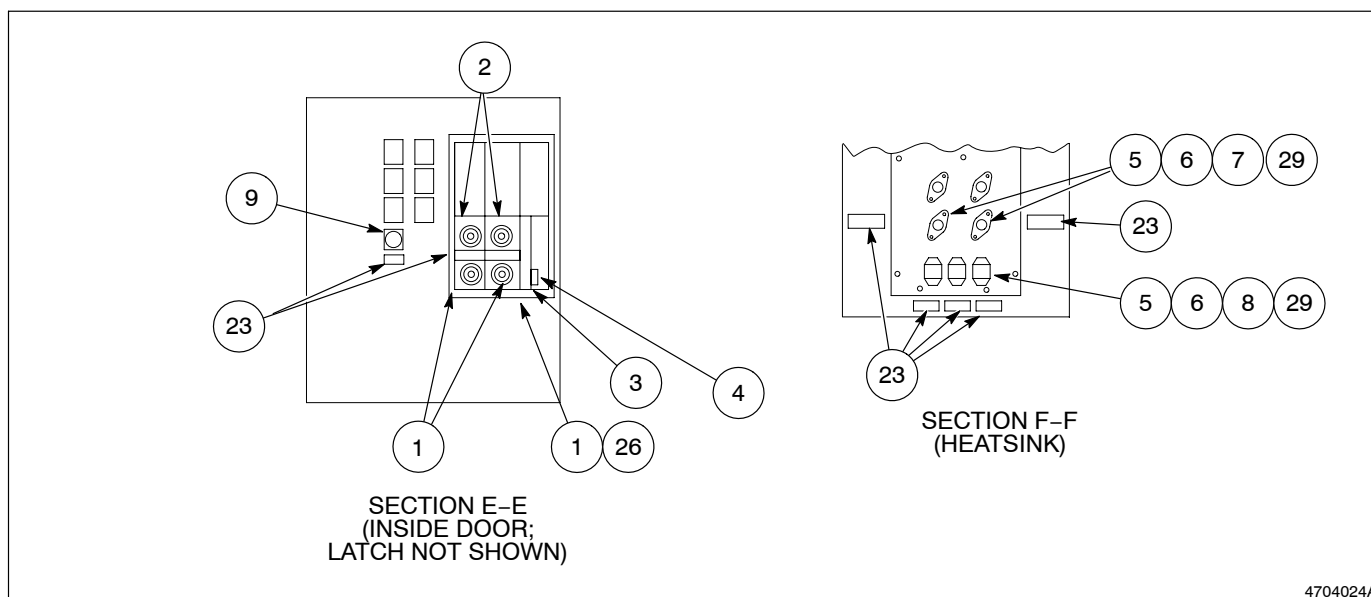


Fig. 8-18 Dual Hose Kit

Dual Hose Kit (contd)

See Figure 8-19.

Item	Part	Description	Quantity	Note
—	-----	Dual hose kit <i>contd.</i>	1	
9	939 489	• Potentiometer, 5000 ohms	1	
10	324 314	• Plate, legend, 2 guns	1	
11	324 315	• Plate, legend, 1 gun	1	
12	933 392	• Base, connector, panel mount	1	
13	933 395	• Insert, connector, receptacle	1	
14	939 528	• Socket, crimp contact, 20-16 gauge	16	
23	324 226	• Label, dual hose kit	1	
24	933 396	• Cover, receptacle	1	
25	933 397	• Gasket, base, connector	1	
27	104 050	• Jumper, terminal block	3	
28	104 049	• Barrier, terminal block	2	
30	325 084	• Wire group	1	
31	939 295	• Fuse, 8 amp, time-delay, 250 volt	2	

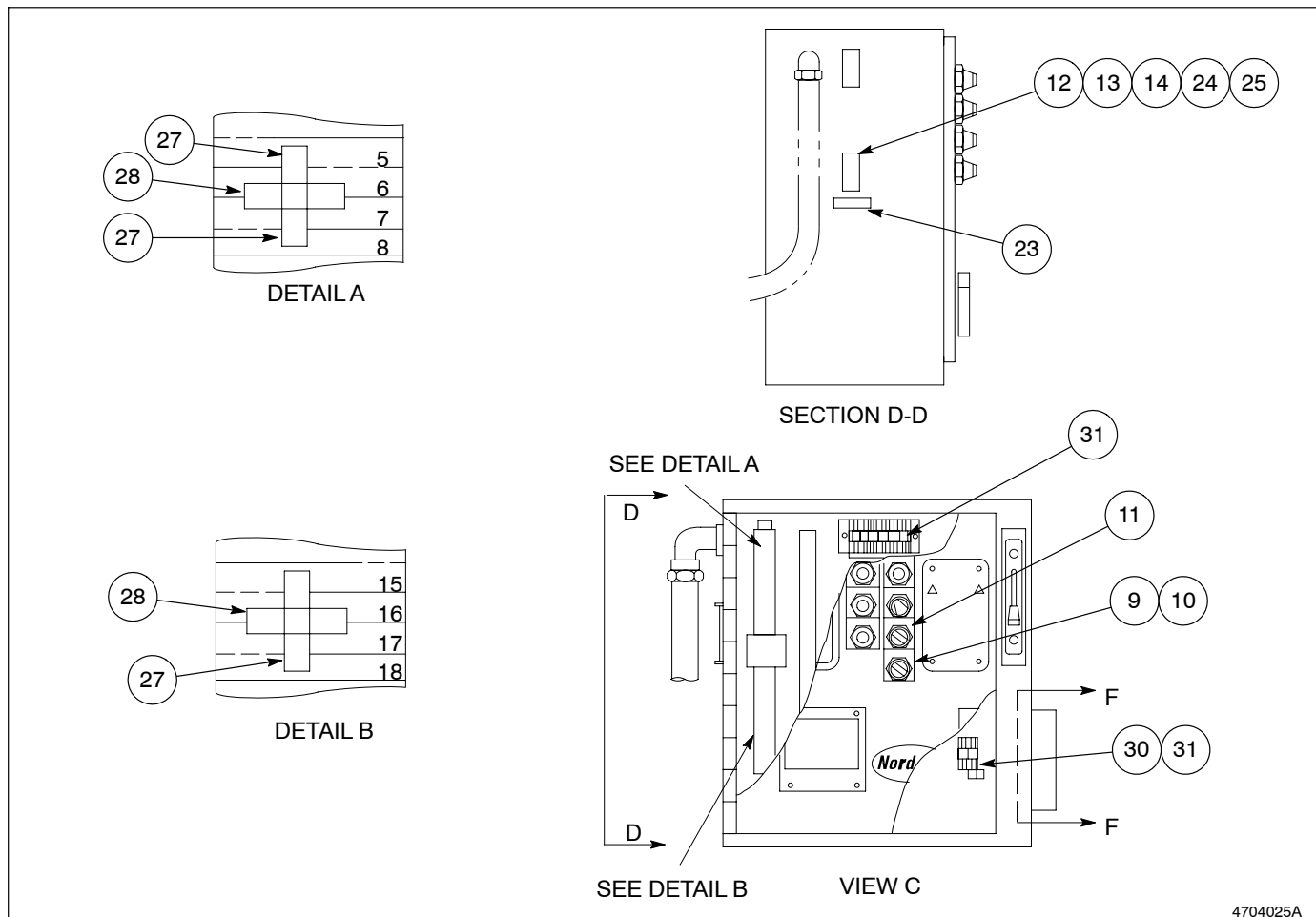


Fig. 8-19 Dual Hose Kit

3. Hose Parts Lists

The following parts lists include hoses for the Model 5544 drum melter.

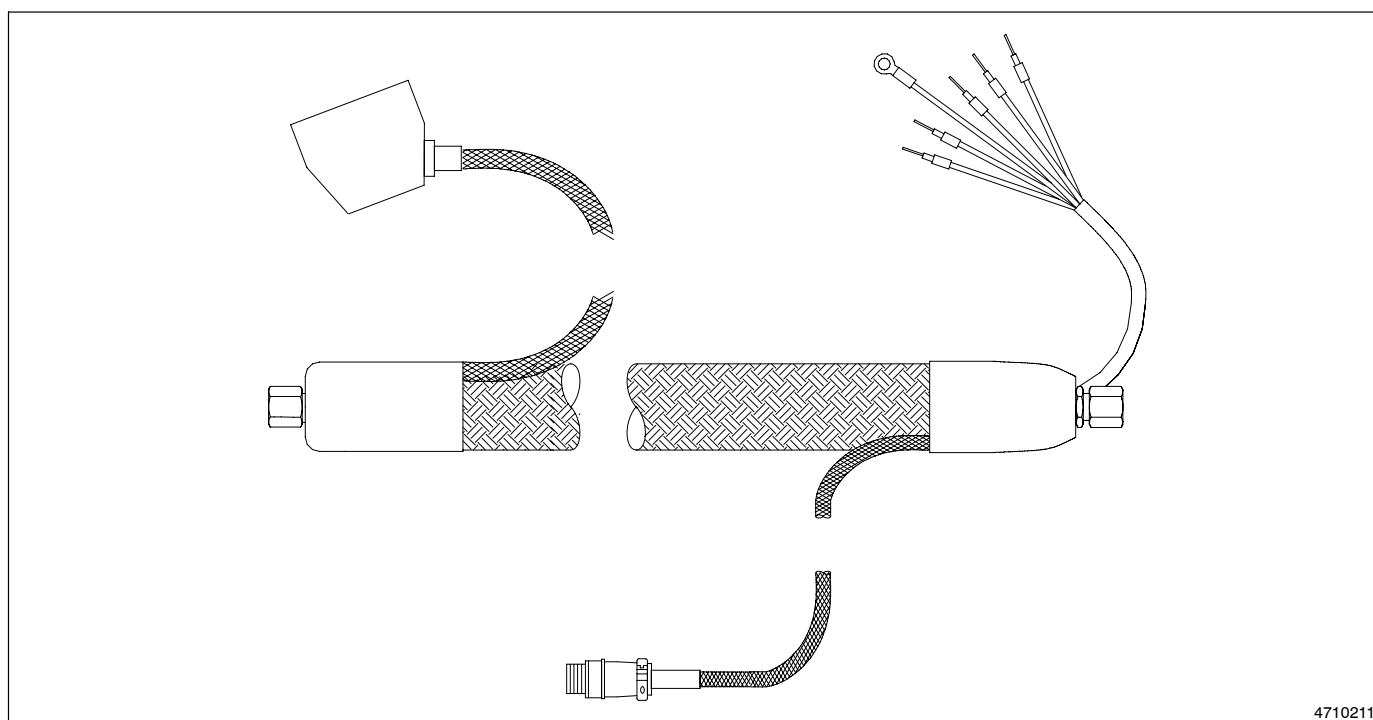
Hoses for Manual Guns

See Figure 8-20.

Item	Part	Description	Quantity	Note
—	276 950	Manual hose, 10 ft, $\frac{5}{16}$ in. ID	1	
—	276 951	Manual hose, 16 ft, $\frac{5}{16}$ in. ID	1	
—	276 952	Manual hose, 24 ft, $\frac{5}{16}$ in. ID	1	
—	276 953	Manual hose, 30 ft, $\frac{5}{16}$ in. ID	1	
—	276 938	Manual hose, 10 ft, $\frac{5}{8}$ in. ID	1	
—	276 939	Manual hose, 16 ft, $\frac{5}{8}$ in. ID	1	
—	276 940	Manual hose, 24 ft, $\frac{5}{8}$ in. ID	1	
—	276 941	Manual hose, 30 ft, $\frac{5}{8}$ in. ID	1	
—	120 958	Manual hose, 10 ft, $\frac{5}{16}$ in. ID	1	A
—	120 959	Manual hose, 16 ft, $\frac{5}{16}$ in. ID	1	A
—	127 317	Manual hose, 10 ft, $\frac{5}{8}$ in. ID	1	B
—	127 318	Manual hose, 16 ft, $\frac{5}{8}$ in. ID	1	B
—	127 319	Manual hose, 14 ft, $\frac{5}{8}$ in. ID	1	B

NOTE A: Equipped with corrugated cover for additional protection from abrasion.

B: For use with Series A-2 handguns only.



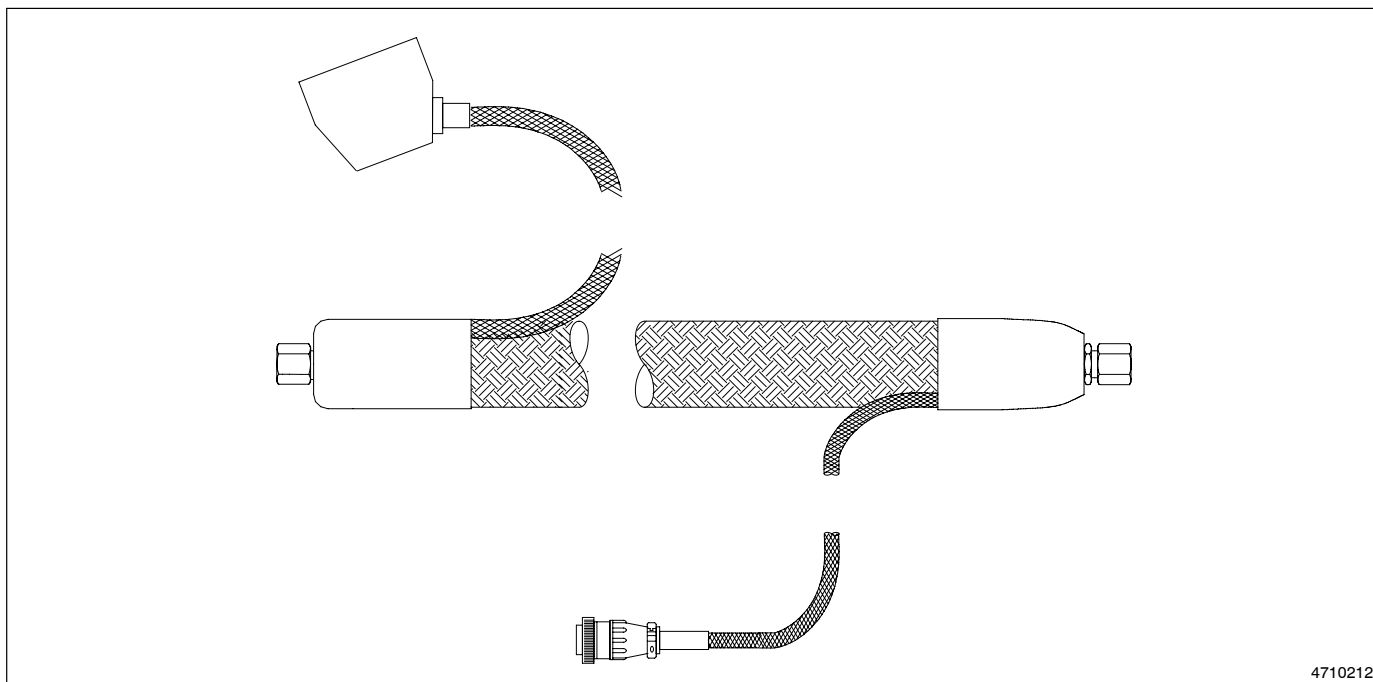
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Fig. 8-20 Manual Gun Hose

Hoses for Automatic Guns

See Figure 8-21.

Item	Part	Description	Quantity	Note
—	276 946	Automatic hose, 10 ft, $\frac{5}{16}$ in. ID	1	
—	276 947	Automatic hose, 16 ft, $\frac{5}{16}$ in. ID	1	
—	276 948	Automatic hose, 24 ft, $\frac{5}{16}$ in. ID	1	
—	276 949	Automatic hose, 30 ft, $\frac{5}{16}$ in. ID	1	
—	276 934	Automatic hose, 10 ft, $\frac{5}{8}$ in. ID	1	
—	276 935	Automatic hose, 16 ft, $\frac{5}{8}$ in. ID	1	
—	276 936	Automatic hose, 24 ft, $\frac{5}{8}$ in. ID	1	
—	276 937	Automatic hose, 30 ft, $\frac{5}{8}$ in. ID	1	
—	100 706	Automatic hose, 10 ft, $1\frac{1}{8}$ in. ID	1	
—	100 707	Automatic hose, 16 ft, $1\frac{1}{8}$ in. ID	1	



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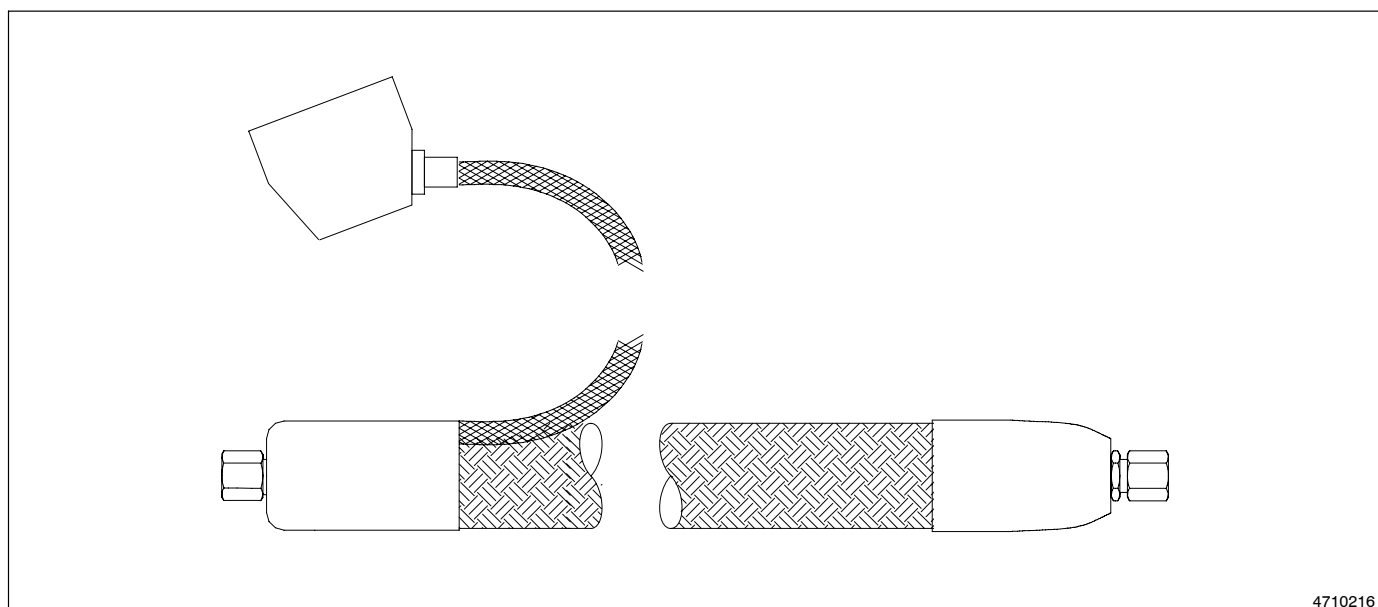
Fig. 8-21 Automatic Gun Hose

Transfer Hoses

See Figure 8-22.

Item	Part	Description	Quantity	Note
—	276 942	Transfer hose, 10 ft, $\frac{5}{8}$ in. ID	1	A
—	276 943	Transfer hose, 16 ft, $\frac{5}{8}$ in. ID	1	A
—	276 944	Transfer hose, 24 ft, $\frac{5}{8}$ in. ID	1	A
—	276 945	Transfer hose, 30 ft, $\frac{5}{8}$ in. ID	1	A
—	100 704	Transfer hose, 10 ft, $1\frac{1}{8}$ in. ID	1	A
—	100 705	Transfer hose, 16 ft, $1\frac{1}{8}$ in. ID	1	A

NOTE A: Transfer hoses are used only when there is no gun at the end of the hose



4710216

Fig. 8-22 Transfer Hose

4. Recommended Spare Parts and Kits

The following parts lists include spare parts and kits for the Model 5544 drum melter.

Spare Parts and Kits for the Main Assemblies

Item	Part	Description	Quantity	Note
—	338 336	Filter/regulator, $\frac{1}{4}$ NPTF, 5-150 psig	1	
—	324 208	Valve, rotary, hand, 4-way, $\frac{1}{4}$ NPT	1	
—	942 560	O-ring, Buna N (pistons and cylinder heads)	4	
—	272 020	Motor, electric, 3 hp	1	
—	113 170	Brush, motor, 3 hp	2	
—	333 719	Pump, replacement, 1000 psi	1	
—	333 720	Pump, replacement, 1200 psi	1	
—	333 721	Pump, replacement, 1500 psi	1	
—	272 045	Valve, relief, pressure, 1000 psi (1 $\frac{1}{8}$ in. ID hose)	1	
—	272 044	Valve, relief, pressure, 1200 psi ($\frac{5}{8}$ in. ID hose)	1	
—	271 919	Valve, relief, pressure, 1500 psi ($\frac{5}{16}$ in. ID hose)	1	
—	335 948	Kit, service, uptime	1	
—	942 371	• O-ring, Viton, 3 $\frac{3}{8}$ x 3 $\frac{5}{8}$ x $\frac{1}{8}$ in.	1	
—	942 201	• O-ring, Viton, 0.875 x 1.000 x 0.063 in.	1	
—	945 025	• O-ring, Viton, 0.750 x 0.950 in.	1	
—	940 141	• O-ring, Viton, 0.500 x 0.630 in.	1	
—	236 365	• Seal, shaft, 0.625 in. ID x 0.812 in. OD	1	
—	236 366	• Seal, shaft, 0.625 in. ID x 0.875 in. OD	2	
—	900 318	• Grease, fluorinated, 2 oz. tube	1	

Continued on next page

Item	Part	Description	Quantity	Note
—	335 946	Kit, service, uptime plus	1	
—	130 788	• Kit, service, uptime	1	
—	271 917	• Plate, pump, lower	1	
—	271 916	• Plate, pump, upper	1	
—	236 348	• Bearing, needle, close	1	
—	274 300	• Bearing, needle, open	2	
—	272 548	• Key, $\frac{1}{8} \times \frac{1}{8} \times \frac{1}{2}$ in. length	1	
—	168 054	• Key, woodruff, $\frac{1}{8} \times \frac{1}{2}$ in.	1	
—	272 046	• Washer, bearing, 0.520 x 0.875 x 0.062 in.	1	
—	986 310	• Ring, retainer, internal	1	
—	271 888	• Gerotor set, 6-tooth	1	
—	330 601	Thermostat, platen, 93 °C (200 °F)	1	
—	330 602	Thermostat, platen, 121 °C (250 °F)	1	
—	330 603	Thermostat, platen, 149 °C (300 °F)	1	
—	330 604	Thermostat, platen, 177 °C (350 °F)	1	
—	330 605	Thermostat, platen, 204 °C (400 °F)	1	
—	330 608	Thermostat, platen, 232 °C (450 °F)	1	
—	330 609	Thermostat, platen, 260 °C (500 °F)	1	
—	288 970	Sensor, temperature, RTD	1	
—	271 576	Seal, rubber	1	

Supplies for Maintenance and Repair

Item	Part	Description	Quantity	Note
—	324 618	Sealant, joint, TFE	—	
—	900 223	Lubricant, O-ring, Parker, 4-oz. can	1	
—	900 236	Sealant, Paste	—	
—	900 302	Grease, high-temperature	—	
—	900 419	Adhesive, retaining, cylindrical	—	
—	900 464	Adhesive, threadlocking, 50 ml	—	
—	900 439	Adhesive, threadlocking, 10 ml	—	
—	902 514	Gloves, protective	1	

Spare Parts for the Electrical System

Item	Part	Description	Quantity	Note
—	939 489	Potentiometer, 5000 ohms	1	A
—	939 359	Light, pilot, amber	1	
—	939 331	Light, pilot, red	1	
—	939 644	Triac, 25 amp	1	
—	939 763	Relay, solid-state, 660 VAC, 90 amp (200 Volt units)	1	
—	939 764	Relay, solid-state, 530 VAC, 40 amp (all other units)	1	
—	939 509	Fuse, 5 amp, time-delay, 250 VAC (all units)	1	B, C
—	939 295	Fuse, 8 amp, time-delay, 250 VAC (all units)	1	B, D
—	939 021	Fuse, 20 amp, fast-acting, 600 VAC (all units)	1	B, E
—	939 020	Fuse, 30 amp, fast-acting, 600 VAC (all units)	1	B, F
—	816 243	Fuse, 1.5 amp, time-delay, 500 VAC (380/415 Volt units)	1	B, G
—	939 056	Fuse, 100 amp, time-delay, 250 VAC (200/240 Volt units)	1	A
—	939 369	Fuse, 60 amp, time-delay, 600 VAC (380/415 Volt units)	1	B, H
—	939 420	Fuse, 50 amp, time-delay, 600 VAC (480 Volt units)	1	B, H
—	324 403	Board, circuit, 2-gun controller	1	
—	324 324	Supply, power, plug-in	1	
—	105 051	Kit, service, controller, LCU, 6-channel	1	
—	324 912	• Module, temperature, 38–232 °C(100 – 450 °F)	2	
—	324 995	• Controller, LCU, 6-channel	1	
—	939 823	Transformer, 5 KVA (200/380/415 units)	1	
—	939 816	Transformer, 5 KVA (240/480 units)	1	

NOTE A: Two provided for dual-hose units.

B: Refer to wiring diagrams in the *Troubleshooting* section for exact location(s) of fuse.

C: F5 at eight-point fuseblock.

D: F10 at eight-point fuseblock and F13 at one-point fuseblock (single-hose units); F11 at eight-point fuseblock and F14 at two-point fuseblock (dual-hose units).

E: F7 and F9 at eight-point fuseblock.

F: F4 and F6 at eight-point fuseblock.

G: F8 at eight-point fuseblock

H: F1, F2, and F3 at main disconnect switch

Section 9

Options

Section 9 Options

1. Descriptions

The following options are available for the model 5544 drum melter.

Parts lists and accompanying illustrations for the Clutch Kit and the Run-Up Control Kit follow these descriptions.

Instruction Sheets are available for those options that require further installation and/or operational instruction.

Clutch Kit

The clutch kit is a factory-installed option that allows the motor to remain on while the unit is powered up, coupling the motor to the speed reducer only when a gun is triggered.

The clutch allows for frequent starting and stopping of the pump while the motor keeps running, extending the life of the motor.

Automatic Shutdown

The automatic shutdown feature is a factory-installed option that turns off the bulk melter if the pump is not activated within a specified time period.

This feature is for operating conditions where the unit might be left on unexpectedly for an extended period of time and for use with the 7-day startup timer option. In these situations, the automatic shutdown option prevents degradation of the adhesive material.

Exhaust Hood Setup

Use the following procedure to connect the optional exhaust duct to the hood.

1. Attach a customer-supplied exhaust duct to the neck of the hood and secure it in place with customer-supplied duct tape or clamps.

NOTE: A minimum air flow of 142 liters/second (300 cfm) through the hood is required for proper operation.

2. Restore input power to the unit, activate the shop exhaust system, and proceed with operation as described in the *Operation* section.

7-Day Digital Startup Timer

The 7-day digital startup timer is a factory or customer-installed option that includes a solid state clock with a liquid crystal display (LCD), relay, and mounting hardware.

The clock can be programmed to automatically start up the bulk melter heater channels over a 7-day period. This feature brings the components of the unit and the adhesive material to application temperature before production personnel arrive, thereby reducing downtime.

Platen Guard Kit

The platen guard kit is a factory or customer-installed option that includes a fixed rear panel, hinged front panel, and mounting hardware.

The platen guard kit increases the safety of the operator(s) and prevents damage to the platen from foreign objects.

Drum Stop

The drum stop feature is a customer-installed option that positions the 55-gallon drum on the bulk melter frame base. The drum is automatically centered under the platen for smooth platen lowering and quick startup.

Drum Hold-Down

The drum hold-down feature is a factory or customer-installed option that positions the 55-gallon drum on the bulk melter frame base and secures it for easier platen removal.

Run-Up Control Kit

The run-up control kit is a factory-installed option that automatically adjusts pump speed as the production line speed varies. This feature maintains a consistent bead thickness.

NOTE: The run-up control kit requires a field-installable run-up sensor/gear kit.

Warning Beacon

The warning beacon is a factory or customer-installed option that includes a pre-assembled lens-and-bulb light tower and mounting hardware.

The amber portion of the warning beacon goes on when the low drum level is reached.

The red portion of the warning beacon flashes on and off when the specified empty drum level is reached. The empty drum warning option disengages the clutch from the speed reducer or shuts off the motor (units without a clutch).

The warning beacon alerts an operator that a low and/or empty drum level has been reached.

NOTE: The empty drum option must be installed on your unit for the warning beacon to operate properly.

Automatic Changeover

The automatic changeover feature is a factory-installed option that switches a two-bulk melter system from the unit with an empty drum to the unit with a full drum, allowing uninterrupted adhesive application. The option includes an enclosure, warning beacon, and control circuitry.

Motor Start-Up Timer

The motor start-up timer is a factory-installed option. Based on the user's setting, the motor start-up timer provides a time delay of up to two hours in which the motor is disabled. The time delay allows additional time for hard-to-melt materials to become liquid. The SYSTEM READY LED will not light until both conditions have been met.

2. Parts

Refer to the following tables for parts included in the Clutch and Run-Up Control options.

Parts lists for other options are included in the accompanying Instruction Sheet shipped with that option.

Clutch Kit Option

See Figure 9-1.

Item	Part	Description	Quantity	Note
—	-----	Clutch	1	
1	939 122	• Seal, conduit fitting, 1/2 in.	1	
2	933 078	• Connector, straight, 3/8 conduit	1	
3	933 077	• Conduit, flex, 3/8 in.	1 ft	
4	933 079	• Connector, conduit	1	
5	324 724	• Clutch, electric, 3 hp	1	
6	983 160	• Washer, lock, split, 0.375 in.	4	
7	981 408	• Screw, hex-head, 3/8-16 x 1.250 in.	4	
8	324 324	• Supply, power, plug-in	1	

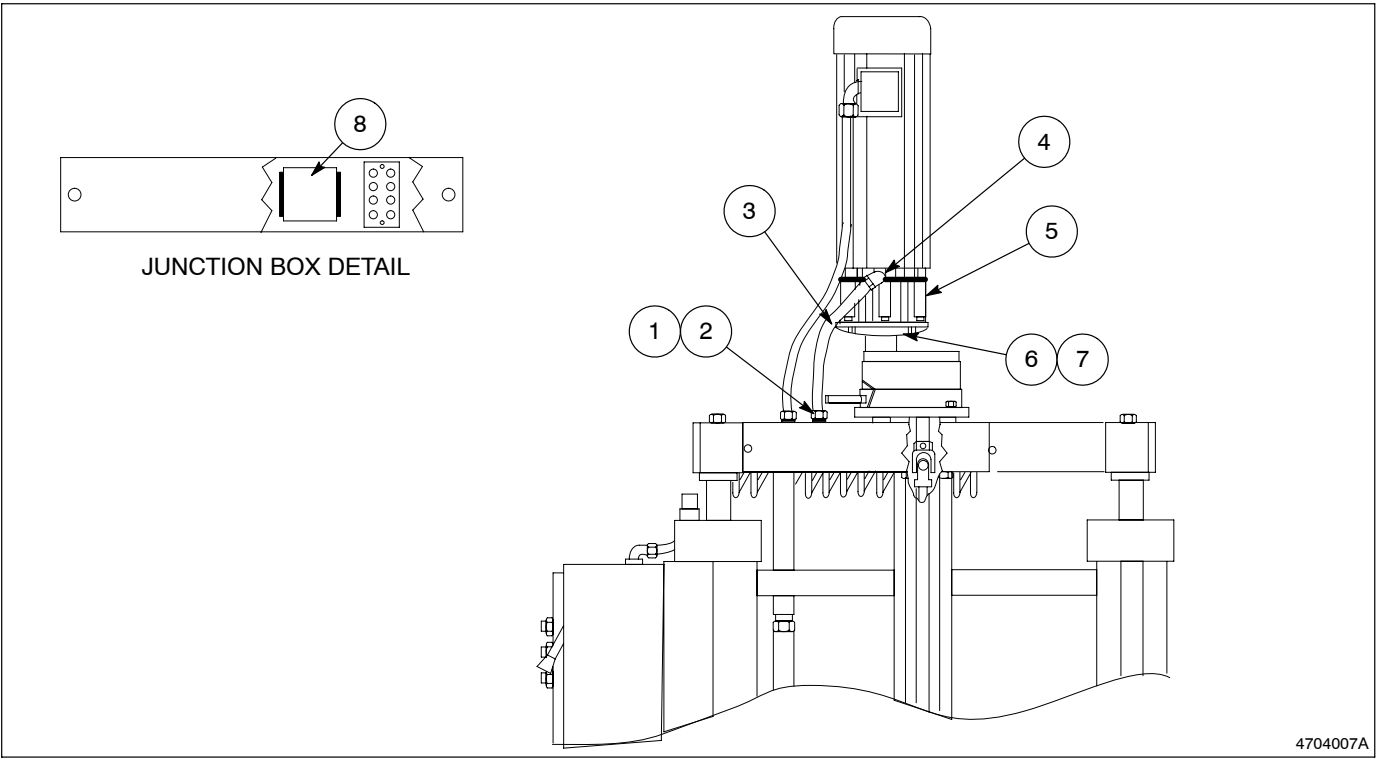


Fig. 9-1 Clutch

7-Day Timer

Item	Part	Description	Quantity	Note
—	129 948	Service kit, 7-day clock		
1	981 169	• Screw, pan-head, 6-32 x 0.312 in., slotted	2	
2	983 102	• Washer, locking split-e, #6	3	
3	983 111	• Washer, locking, split-e, #8	1	
4	981 064	• Screw, pan-head, 8-32 x 0.375 in.	1	
5	939 600	• Relay, time delay, 0.5 second	1	
6	981 577	• Screw, pan-head, 6-32 x 1.000 in.	1	
7	111 792	• Timer, programmable, digital	1	
8	336 115	• Label, 7-day clock	1	
9	933 162	• Terminal, Push-on, insulated 250V, 22–18	3	
10	104 704	• Wire, Vinyl, 18AWG, red	1 ft.	

Exhaust Hood Assembly

See Figure 8-2.

Item	Part	Description	Quantity	Note
—	331 914	Module, exhaust hood	1	
1	134 916	• Hood, exhaust	1	
2	132 655	• Clip, hood, mounting	3	
3	121 336	• Clamp, hose, worm drive	3	
4	983 410	• Washer, flat, M6	3	
5	983 409	• Washer, lock, split, M6	3	
6	982 135	• Screw, hex-head, M6 x 30, cap	3	
7	984 703	• Nut, hex, M6	3	
8	222 488	• Handle, T, 55 gal, long	1	
9	945 027	• O-ring, Viton, 1/2 in. tube	1	
10	324 131	• Tray, bleeder valve	1	
11	222 486	• Adapter, T-handle, 55 gal, long	1	
12	986 029	• Retaining ring, ext, 100, spiral	1	
13	900 419	• Adhesive, retaining cylindrical	AR	
AR: As Required				

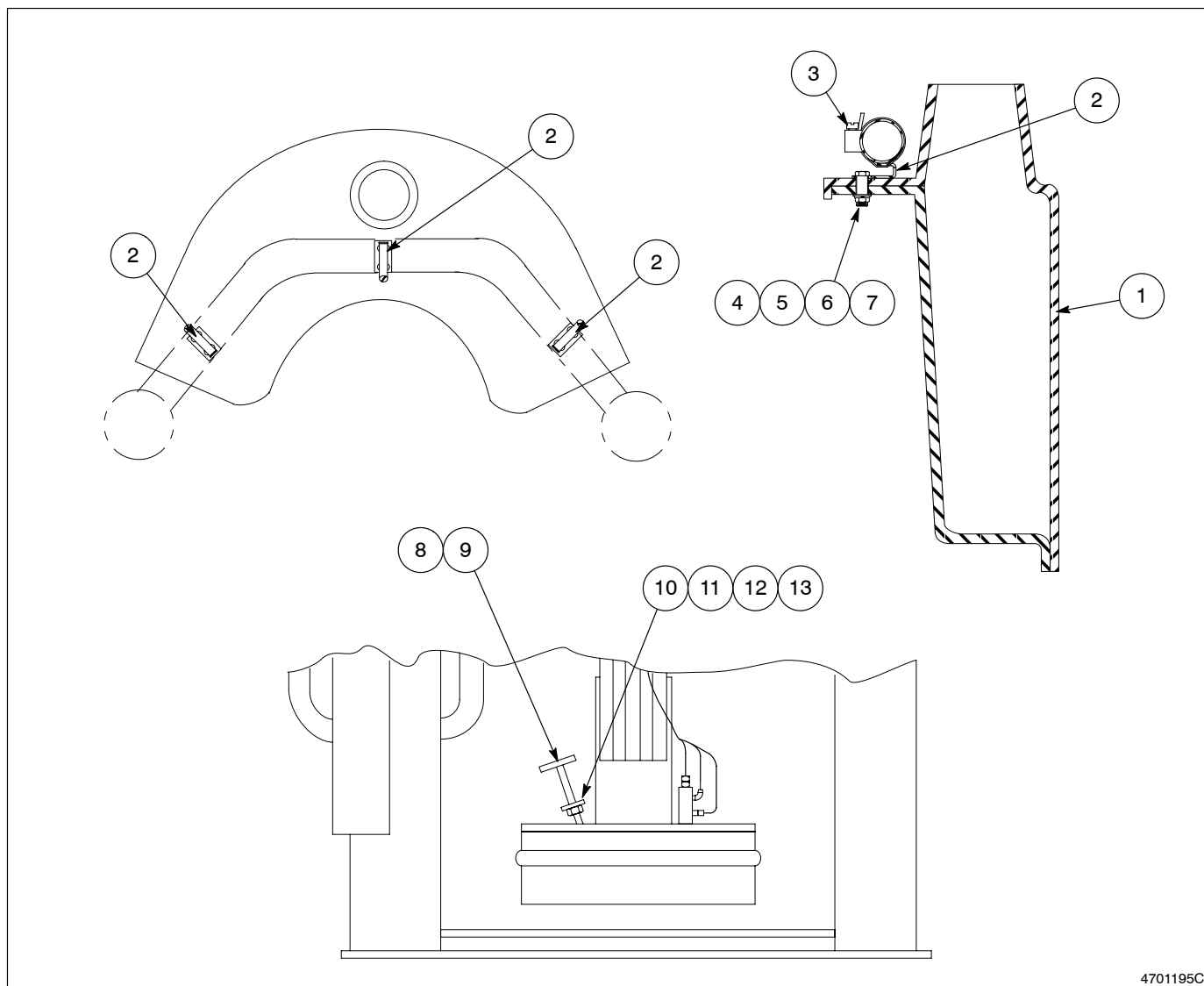


Fig. 9-2 Exhaust Hood Assembly

Platen Guard

Item	Part	Description	Quantity	Note
—	129 942	Platen Guard		
1	271 899	• Handle	1	
2	981 762	• Screw, pan-head, 10-32 x 0.875 in., slotted	2	
3	983 120	• Washer, lock, split-e, #10	2	
4	111 714	• Bracket, guard, outside, painted	2	
5	111 712	• Bracket, guard, inside, painted	1	
6	981 208	• Screw, hex-head, 1/4-20 x 0.625, cap	4	
7	983 051	• Washer, flat, e-ring, 0.344 x 0.688 x 0.065 in.	2	
8	324 958	• Bracket, door, rear	2	
9	981 353	• Screw, hex-head, 5/16-18 x 1.250 in., cap	2	
10	272 075	• Guard, rear, painted	1	
11	984 140	• Nut, hex, reg, 5/16-18	4	
12	981 521	• Screw, hex-head, 5/16-18 x 1.375 in.	2	
13	981 414	• Screw, socket-head, 3/8-16 x 1.00 in.	4	
14	981 759	• Screw, pan-head, 4-40 x 0.312 in., slotted	6	
15	983 526	• Lockwasher, split-e, #4	6	
16	271 905	• Magnet, door	3	
17	271 906	• Bracket, Mounting, magnet	3	
18	983 140	• Washer, lock, split-e, 1/4 in.	4	
19	983 040	• Washer, flat, e-ring, 0.266 x 0.625 x 0.049 in.	4	

Drum Stop

Item	Part	Description	Quantity	Note
—	133 285	Drum stop	1	
1	133 293	• Bracket assembly, drum stop	2	
2	981 273	• Screw, hex-head, 1/4-20 x 1.500 in.	2	
3	984 210	• Nut, hex, jam, 1/4-20	2	
4	983 061	• Washer, flat, e-ring, 0.406 x 0.812 x 0.065 in.	4	
5	603 348	• Label, blank, 3.000 in. x 5.000 in.	1	

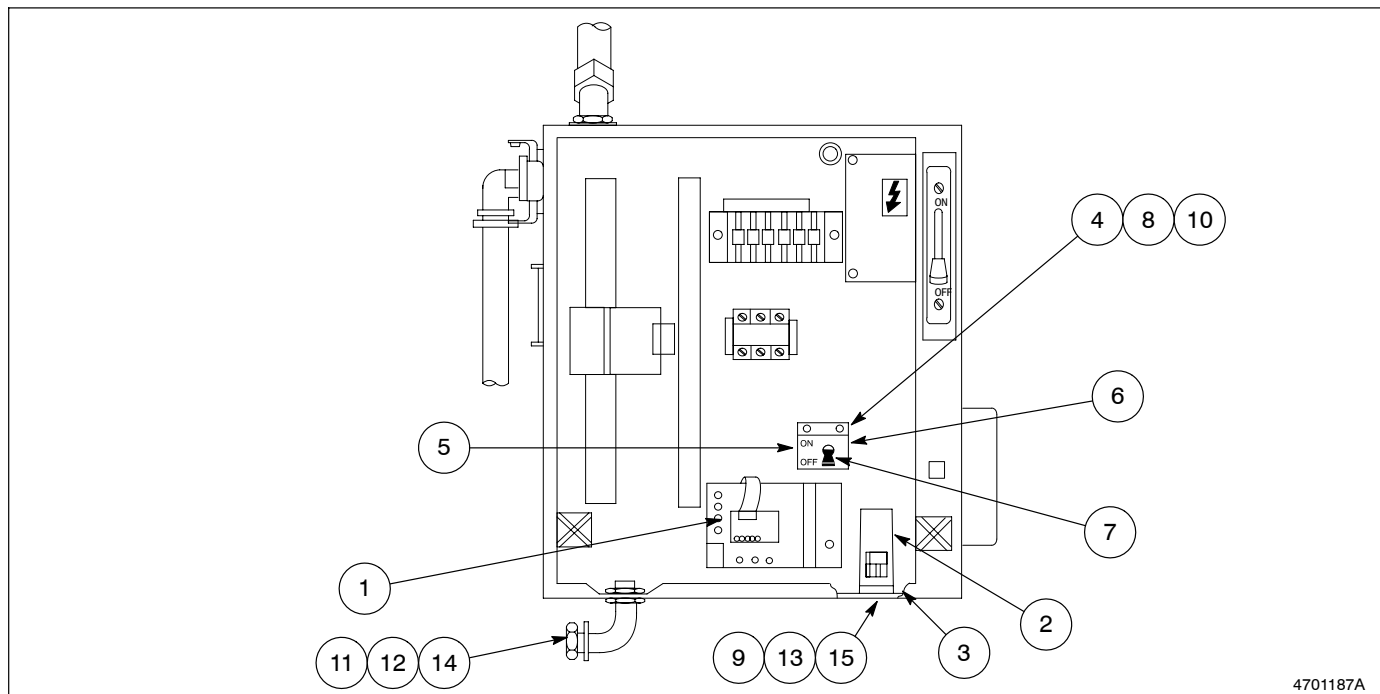
Drum Stop Clamp

Item	Part	Description	Quantity	Note
—	133 290	Clamp, stop, drum	1	
1	133 285	• Option package, drum stop	1	
2	981 273	• • Screw, hex-head, $\frac{1}{4}$ -20 x 1.5 in.	2	
3	984 210	• • Nut, hex, jam, $\frac{1}{4}$ -20	2	
4	981 403	• • Screw, hex-head, $\frac{3}{8}$ -16 x 2.750 in., cap	4	
5	983 061	• • Washer, flat, e-ring, 0.406 x 0.812 x 0.065 in.	4	
6	603 348	• • Label, blank, 3.00 x 5.00 in.	1	
7	133 283	• Option package, drum clamp	1	
8	133 294	• • Arm assembly, drum clamp	1	
9	983 007	• • • Washer, flat, e-ring, 0.531 x 1.000 x 0.063 in.	3	
10	983 180	• • • Washer, locking, split-e, $\frac{1}{2}$ in.	2	
11	984 171	• • • Nut, hex, jam, $\frac{1}{2}$ -20	2	
12	126 207	• • • Arm, drum clamp, 5000	1	
13	986 314	• • • Retaining ring, ext, 100 basic	1	
14	984 170	• • • Nut, hex, regular, $\frac{1}{2}$ -13	1	
15	133 298	• • Lever assembly, drum stop	1	
16	126 163	• • • Lever, drum clamp	1	
17	986 315	• • • Retaining ring, ext, 50, basic	2	
18	126 183	• • Retainer, clamp, drum, 5000	1	
19	981 833	• • Screw, flat-head, socket, $\frac{5}{16}$ -18 x 0.750 in.	12	
20	981 611	• • Screw, hex-head, $\frac{1}{2}$ -13 x 1.000, cap	1	
21	984 170	• • Nut, hex, reg, $\frac{1}{2}$ -13	1	
22	983 180	• • Washer, lock, split-e, $\frac{1}{2}$ in.	1	
23	981 350	• • Screw, hex-head, $\frac{5}{16}$ -18 x 2.750 in., cap	4	
24	983 150	• • Washer, lock, split-e, $\frac{5}{16}$ in.	4	
25	603 348	• • Label, blank, 3.00 in. x 5.00 in.	1	

Run-Up Control Kit Option

See Figure 9-3.

Item	Part	Description	Quantity	Note
—	-----	Run-up control	1	
1	324 450	• Board, isolation (for A2000)	1	
2	324 451	• Converter, analog gear to line	1	
3	324 452	• Socket, converter, gear to line	1	
4	324 453	• Mount, switch	1	
5	-----	• Label, switch, run-up	1	
6	-----	• Module, run-up, sensor/gear	1	
7	937 188	• Switch w/ plastic handle, toggle	1	
8	981 039	• Screw, pan head, 6-32 x 0.312 in.	2	
9	981 072	• Screw, pan head, 8-32 x 1.000 in.	2	
10	983 102	• Washer, lock, split, #6	2	
11	324 458	• Connector, relief, strain	1	
12	939 475	• Locknut, conduit, 1/2 in.	1	
13	983 010	• Washer, flat, 0.188 x 0.375 x 0.040 in.	2	
14	939 122	• Seal, conduit fitting, 1/2 in.	1	
15	983 111	• Washer, lock, split, #8	2	



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Fig. 9-3 Run-Up Control