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DuraBlue Adhesive Melters

Models D4L, D10L, and D16L

Customer Product Manual

Issued 07/03



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Section 1

Safety

Read this section before using the equipment. This section contains recommendations and practices applicable to the safe installation, operation, and maintenance (hereafter referred to as “use”) of the product described in this document (hereafter referred to as “equipment”). Additional safety information, in the form of task-specific safety alert messages, appears as appropriate throughout this document.



WARNING: Failure to follow the safety messages, recommendations, and hazard avoidance procedures provided in this document can result in personal injury, including death, or damage to equipment or property.

Safety Alert Symbols

The following safety alert symbol and signal words are used throughout this document to alert the reader to personal safety hazards or to identify conditions that may result in damage to equipment or property. Comply with all safety information that follows the signal word.



WARNING: Indicates a potentially hazardous situation that, if not avoided, can result in serious personal injury, including death.



CAUTION: Indicates a potentially hazardous situation that, if not avoided, can result in minor or moderate personal injury.

CAUTION: (Used without the safety alert symbol) Indicates a potentially hazardous situation that, if not avoided, can result in damage to equipment or property.

Responsibilities of the Equipment Owner

Equipment owners are responsible for managing safety information, ensuring that all instructions and regulatory requirements for use of the equipment are met, and for qualifying all potential users.

Safety Information

- Research and evaluate safety information from all applicable sources, including the owner-specific safety policy, best industry practices, governing regulations, material manufacturer's product information, and this document.
- Make safety information available to equipment users in accordance with governing regulations. Contact the authority having jurisdiction for information.
- Maintain safety information, including the safety labels affixed to the equipment, in readable condition.

Instructions, Requirements, and Standards

- Ensure that the equipment is used in accordance with the information provided in this document, governing codes and regulations, and best industry practices.
- If applicable, receive approval from your facility's engineering or safety department, or other similar function within your organization, before installing or operating the equipment for the first time.
- Provide appropriate emergency and first aid equipment.
- Conduct safety inspections to ensure required practices are being followed.
- Re-evaluate safety practices and procedures whenever changes are made to the process or equipment.

User Qualifications

Equipment owners are responsible for ensuring that users:

- Receive safety training appropriate to their job function as directed by governing regulations and best industry practices
- Are familiar with the equipment owner's safety and accident prevention policies and procedures
- Receive, equipment- and task-specific training from another qualified individual

NOTE: Nordson can provide equipment-specific installation, operation, and maintenance training. Contact your Nordson representative for information

- Possess industry- and trade-specific skills and a level of experience appropriate to their job function
- Are physically capable of performing their job function and are not under the influence of any substance that degrades their mental capacity or physical capabilities

Applicable Industry Safety Practices

The following safety practices apply to the use of the equipment in the manner described in this document. The information provided here is not meant to include all possible safety practices, but represents the best safety practices for equipment of similar hazard potential used in similar industries.

Intended Use of the Equipment

- Use the equipment only for the purposes described and within the limits specified in this document.
- Do not modify the equipment.
- Do not use incompatible materials or unapproved auxiliary devices. Contact your Nordson representative if you have any questions on material compatibility or the use of non-standard auxiliary devices.

Instructions and Safety Messages

- Read and follow the instructions provided in this document and other referenced documents.
- Familiarize yourself with the location and meaning of the safety warning labels and tags affixed to the equipment. Refer to *Safety Labels and Tags* at the end of this section.
- If you are unsure of how to use the equipment, contact your Nordson representative for assistance.

Installation Practices

- Install the equipment in accordance with the instructions provided in this document and in the documentation provided with auxiliary devices.
- Ensure that the equipment is rated for the environment in which it will be used and that the processing characteristics of the material will not create a hazardous environment. Refer to the Material Safety Data Sheet (MSDS) for the material.
- If the required installation configuration does not match the installation instructions, contact your Nordson representative for assistance.
- Position the equipment for safe operation. Observe the requirements for clearance between the equipment and other objects.
- Install lockable power disconnects to isolate the equipment and all independently powered auxiliary devices from their power sources.
- Properly ground all equipment. Contact your local building code enforcement agency for specific requirements.
- Ensure that fuses of the correct type and rating are installed in fused equipment.
- Contact the authority having jurisdiction to determine the requirement for installation permits or inspections.

Operating Practices

- Familiarize yourself with the location and operation of all safety devices and indicators.
- Confirm that the equipment, including all safety devices (guards, interlocks, etc.), is in good working order and that the required environmental conditions exist.
- Use the personal protective equipment (PPE) specified for each task. Refer to *Equipment Safety Information* or the material manufacturer's instructions and MSDS for PPE requirements.
- Do not use equipment that is malfunctioning or shows signs of a potential malfunction.

Maintenance and Repair Practices

- Perform scheduled maintenance activities at the intervals described in this document.
- Relieve system hydraulic and pneumatic pressure before servicing the equipment.
- De-energize the equipment and all auxiliary devices before servicing the equipment.
- Use only new or factory-authorized refurbished replacement parts.
- Read and comply with the manufacturer's instructions and the MSDS supplied with equipment cleaning compounds.

NOTE: MSDSs for cleaning compounds that are sold by Nordson are available at www.nordson.com or by calling your Nordson representative.

- Confirm the correct operation of all safety devices before placing the equipment back into operation.
- Dispose of waste cleaning compounds and residual process materials according to governing regulations. Refer to the applicable MSDS or contact the authority having jurisdiction for information.
- Keep equipment safety warning labels clean. Replace worn or damaged labels.

Equipment Safety Information

This equipment safety information is applicable to the following types of Nordson equipment.

- Hot melt and cold adhesive application equipment and all related accessories
- Pattern controllers, timers, detection and verification systems, and all other optional process control devices

Equipment Shutdown

To safely complete many of the procedures described in this document, the equipment must first be shut down. The level of shut down required varies by the type of equipment in use and the procedure being completed. If required, shut down instructions are specified at the start of the procedure. The levels of shut down are:

Relieving System Hydraulic Pressure

Completely relieve system hydraulic pressure before breaking any hydraulic connection or seal. Refer to the melter-specific product manual for instructions on relieving system hydraulic pressure.

De-energizing the System

Isolate the system (melter, hoses, guns, and optional devices) from all power sources before accessing any unprotected high-voltage wiring or connection point.

1. Turn off the equipment and all auxiliary devices connected to the equipment (system).
2. To prevent the equipment from being accidentally energized, lock and tag the disconnect switch(es) or circuit breaker(s) that provide input electrical power to the equipment and optional devices.

NOTE: Government regulations and industry standards dictate specific requirements for the isolation of hazardous energy sources. Refer to the appropriate regulation or standard.

Disabling the Guns

All electrical or mechanical devices that provide an activation signal to the guns, gun solenoid valve(s), or the melter pump must be disabled before work can be performed on or around a gun that is connected to a pressurized system.

1. Turn off or disconnect the gun triggering device (pattern controller, timer, PLC, etc.).
2. Disconnect the input signal wiring to the gun solenoid valve(s).
3. Reduce the air pressure to the gun solenoid valve(s) to zero; then relieve the residual air pressure between the regulator and the gun.

General Safety Warnings and Cautions

Table 1-1 contains the general safety warnings and cautions that apply to Nordson hot melt and cold adhesive equipment. Review the table and carefully read all of the warnings or cautions that apply to the type of equipment described in this manual.

Equipment types are designated in Table 1-1 as follows:

HM = Hot melt (melters, hoses, guns, etc.)

PC = Process control

CA = Cold adhesive (dispensing pumps, pressurized container, and guns)

Table 1-1 General Safety Warnings and Cautions

Equipment Type	Warning or Caution
HM	 WARNING: Hazardous vapors! Before processing any polyurethane reactive (PUR) hot melt or solvent-based material through a compatible Nordson melter, read and comply with the material's MSDS. Ensure that the material's processing temperature and flashpoints will not be exceeded and that all requirements for safe handling, ventilation, first aid, and personal protective equipment are met. Failure to comply with MSDS requirements can cause personal injury, including death.
HM	 WARNING: Reactive material! Never clean any aluminum component or flush Nordson equipment with halogenated hydrocarbon fluids. Nordson melters and guns contain aluminum components that may react violently with halogenated hydrocarbons. The use of halogenated hydrocarbon compounds in Nordson equipment can cause personal injury, including death.
HM, CA	 WARNING: System pressurized! Relieve system hydraulic pressure before breaking any hydraulic connection or seal. Failure to relieve the system hydraulic pressure can result in the uncontrolled release of hot melt or cold adhesive, causing personal injury.
HM	 WARNING: Molten material! Wear eye or face protection, clothing that protects exposed skin, and heat-protective gloves when servicing equipment that contains molten hot melt. Even when solidified, hot melt can still cause burns. Failure to wear appropriate personal protective equipment can result in personal injury.
HM, PC	 WARNING: Equipment starts automatically! Remote triggering devices are used to control automatic hot melt guns. Before working on or near an operating gun, disable the gun's triggering device and remove the air supply to the gun's solenoid valve(s). Failure to disable the gun's triggering device and remove the supply of air to the solenoid valve(s) can result in personal injury.
HM, CA, PC	 WARNING: Risk of electrocution! Even when switched off and electrically isolated at the disconnect switch or circuit breaker, the equipment may still be connected to energized auxiliary devices. De-energize and electrically isolate all auxiliary devices before servicing the equipment. Failure to properly isolate electrical power to auxiliary equipment before servicing the equipment can result in personal injury, including death.

Equipment Type	Warning or Caution
CA	 WARNING: Risk of fire or explosion! Nordson cold adhesive equipment is not rated for use in explosive environments and should not be used with solvent-based adhesives that can create an explosive atmosphere when processed. Refer to the MSDS for the adhesive to determine its processing characteristics and limitations. The use of incompatible solvent-based adhesives or the improper processing of solvent-based adhesives can result in personal injury, including death.
HM, CA, PC	 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 can damage to the equipment.
HM	 CAUTION: Hot surfaces! Avoid contact with the hot metal surfaces of guns, hoses, and certain components of the melter. If contact can not be avoided, wear heat-protective gloves and clothing when working around heated equipment. Failure to avoid contact with hot metal surfaces can result in personal injury.
HM	CAUTION: Some Nordson melters are specifically designed to process polyurethane reactive (PUR) hot melt. Attempting to process PUR in equipment not specifically designed for this purpose can damage the equipment and cause premature reaction of the hot melt. If you are unsure of the equipment's ability to process PUR, contact your Nordson representative for assistance.
HM, CA	CAUTION: Before using any cleaning or flushing compound on or in the equipment, read and comply with the manufacturer's instructions and the MSDS supplied with the compound. Some cleaning compounds can react unpredictably with hot melt or cold adhesive, resulting in damage to the equipment.
HM	CAUTION: Nordson hot melt equipment is factory tested with Nordson Type R fluid that contains polyester adipate plasticizer. Certain hot melt materials can react with Type R fluid and form a solid gum that can clog the equipment. Before using the equipment, confirm that the hot melt is compatible with Type R fluid.

Other Safety Precautions

- Do not use an open flame to heat hot melt system components.
- Check high pressure hoses daily for signs of excessive wear, damage, or leaks.
- Never point a dispensing handgun at yourself or others.
- Suspend dispensing handguns by their proper suspension point.

First Aid

Do the following if molten hot melt comes in contact with your skin.

1. Do NOT attempt to remove the molten hot melt from your skin.
2. Immediately soak the affected area in clean, cold water until the hot melt has cooled.
3. Do NOT attempt to remove the solidified hot melt from your skin.
4. In case of severe burns, treat for shock.
5. Seek expert medical attention immediately. Give the MSDS for the hot melt to the medical personnel providing treatment.

Safety Labels and Tags

Figure 1-1 illustrates the location of the product safety labels or tags that are affixed to the equipment. Table 1-2 provides the text of any safety message that appears on each tag or the meaning of symbols that appear without any safety message.

The installation kit provided with the melter may contain label overlays that are printed in a variety of languages. If required by governing safety regulations, apply the appropriate overlay to the text portion of the labels shown in Figure 1-1.

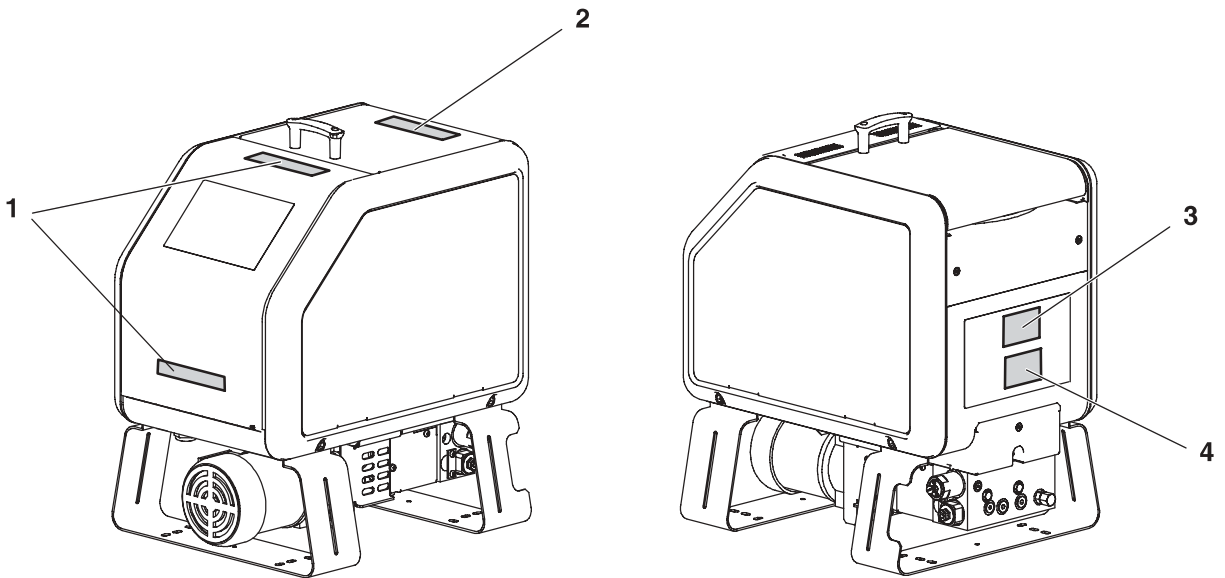


Figure 1-1 Location of safety labels and tags

Table 1-2 Safety Labels and Tags

Item	Description
1	WARNING: Hazardous voltage. Disconnect all power supply connections before servicing.
2	CAUTION: Burn hazard. Hot surfaces.
3	WARNING: Hazardous voltage. Disconnect all power supply connections before servicing.
4	CAUTION: Burn hazard. Hot surfaces.

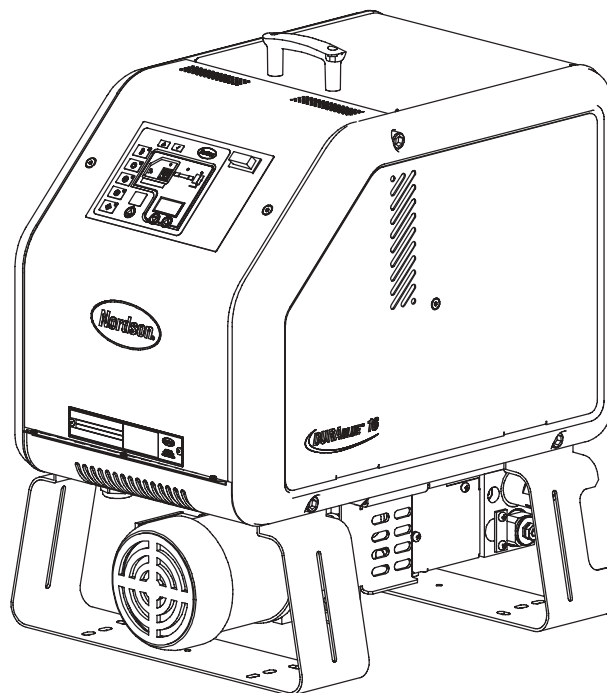
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Section 2

Introduction

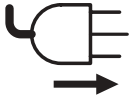
This manual describes the installation and use of the DuraBlue 4 L (D4L), DuraBlue 10 L (D10L), and DuraBlue 16 L (D16L) adhesive melters. When necessary, the reader is referred to the documentation supplied with other Nordson products or products supplied by third parties.

With the exception of tank capacity, hose/gun capacity, and exterior appearance, all DuraBlue melters are function identically. To simplify the presentation of information in this manual, depictions of the model D10L are used generically throughout this manual to represent all DuraBlue melters.



Other Sources of Information

Refer to the following additional resources for quick-reference information, technical support, and information about getting the most out of your DuraBlue melter.



Installation Guide

The installation guide shipped with the melter provides a visual quick-reference for installing the melter.



User's Guide

The user's guide shipped with the melter provides a visual quick-reference to the most common operator-level tasks. The guide is appropriately sized and laminated so that it can be kept with the melter on the production floor.



Product Resource CD

The resource CD, which is stored in the back of this manual, contains an electronic version of this manual, parts information, and other useful resources that are designed to assist you with using and servicing your melter.

Product Description

See Figure 2-1. Nordson DuraBlue adhesive melters are used in conjunction with Nordson hot melt hoses and guns to create a hot melt application system.

The melter liquifies solid-form hot melt and maintains the hot melt at the desired temperature. When the guns are activated, the melter pumps the liquified hot melt through the hoses and out the gun nozzles, where it is commonly applied to the surface of a product.

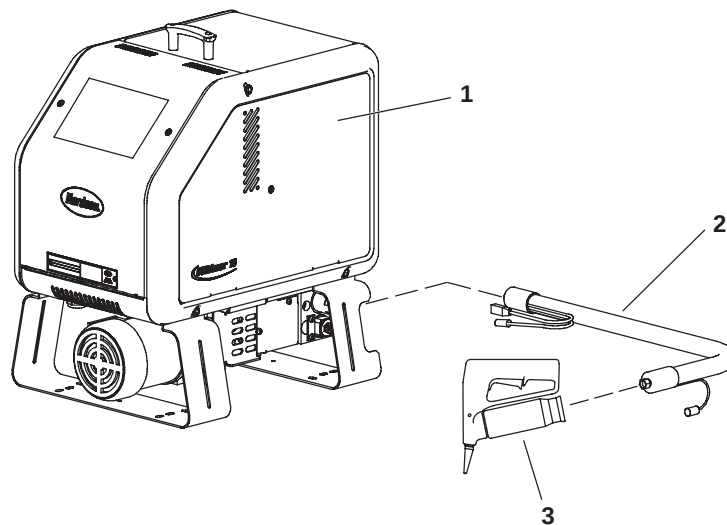


Figure 2-1 System components

- | | |
|--------------------|---------------------|
| 1. DuraBlue melter | 3. Hot melt handgun |
| 2. Hot melt hose | |

Intended Use

DuraBlue melters are specifically designed to:

- Melt and pump solid-form hot melt materials that are engineered to be liquified and extruded at temperatures below 230 °C (450 °F) for 240 VAC melters or below 200 °C (400 °F) for 120 VAC melters
- Be used with compatible hot melt hoses and guns that are manufactured by Nordson Corporation
- Be used in non-explosive environments

Limitations of Use

Use DuraBlue melters only for the purpose for which they are designed. DuraBlue melters should not be used:

- to melt or pump polyurethane reactive hot melt materials or any other material that creates a health or safety hazard when heated
- in environments that will require the melter to be cleaned using a water wash or spray

Modes of Operation

DuraBlue melters operate in the following modes:

Automatic scan—The melter automatically checks and displays the current temperature of the tank, hoses, and guns to confirm that they are within their pre-defined temperature range. By default, the melter is always in the automatic scan mode unless it is placed into another operating mode.

Standby—The temperatures of the tank, hoses, and guns are reduced down from their operating temperature (hereafter referred to as set-point temperature) by a pre-set number of degrees.

Setup—The setup mode is used to configure melter control options and features and to review stored operating data. To prevent unauthorized changes to the melter's configuration, the melter can be password-protected

Fault—The melter alerts the operator when an abnormal event occurs.

Melter Identification

See Figure 2-2. You will need the model and part number of your melter when requesting service or ordering spare parts and optional equipment. The model and part number are indicated on the equipment identification plate that is located on the front of the melter.

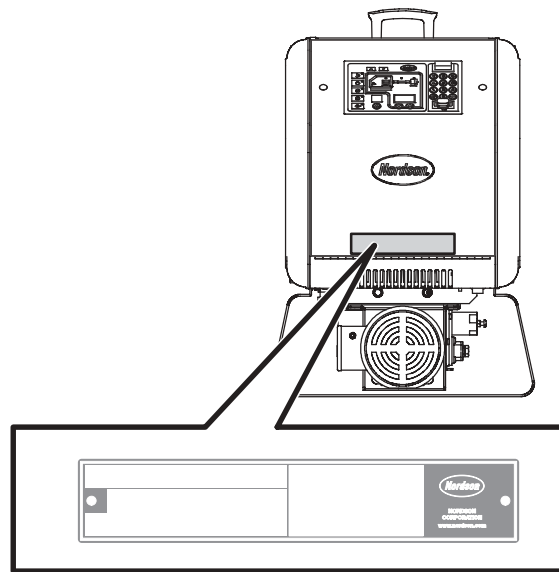


Figure 2-2 Equipment identification plate

Key Components

Figure 2-3 provides the name and the location of key melter components.

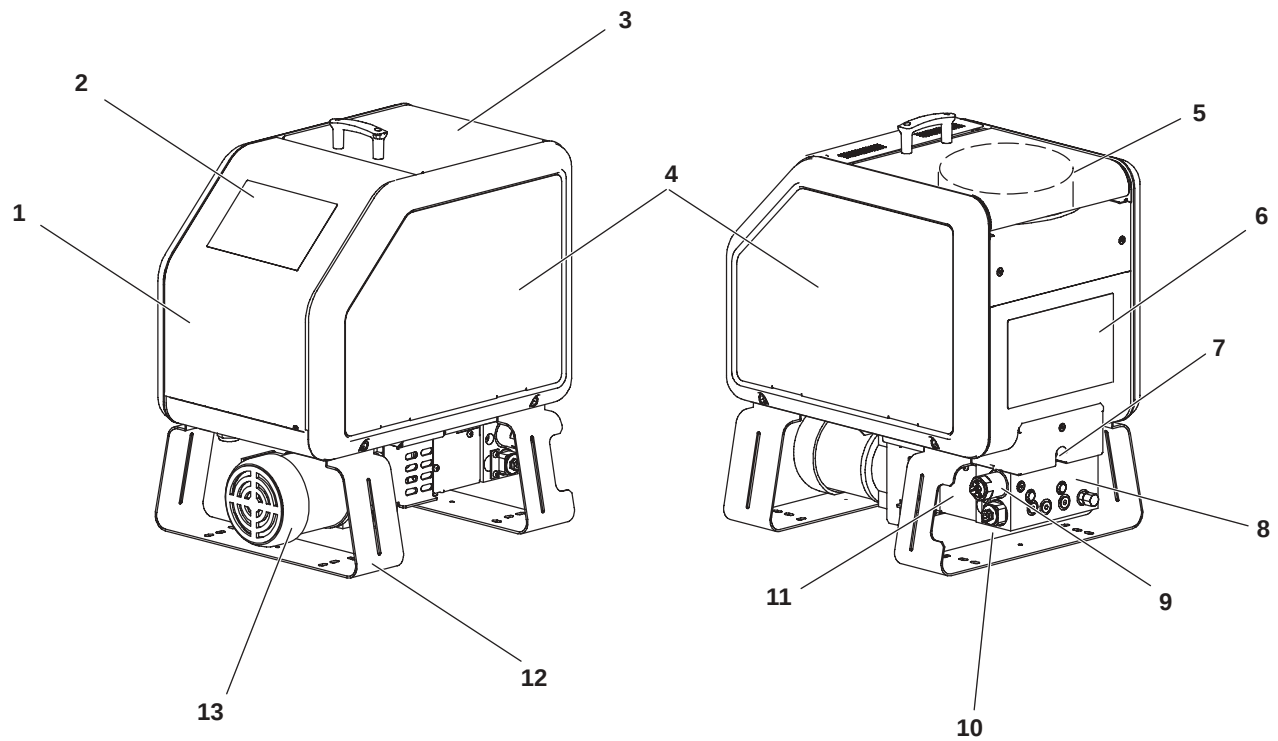


Figure 2-3 Key components

- | | | |
|-----------------------------------|--|---------------------------|
| 1. Electrical enclosure door | 5. Tank | 9. Pressure control valve |
| 2. Control panel (see Figure 2-4) | 6. Hose/gun receptacles | 10. Filter |
| 3. Tank lid | 7. Tank isolation valve (D10/D16 only) | 11. Pump |
| 4. Side panels | 8. Manifold | 12. Mounting bracket |
| | | 13. Motor |

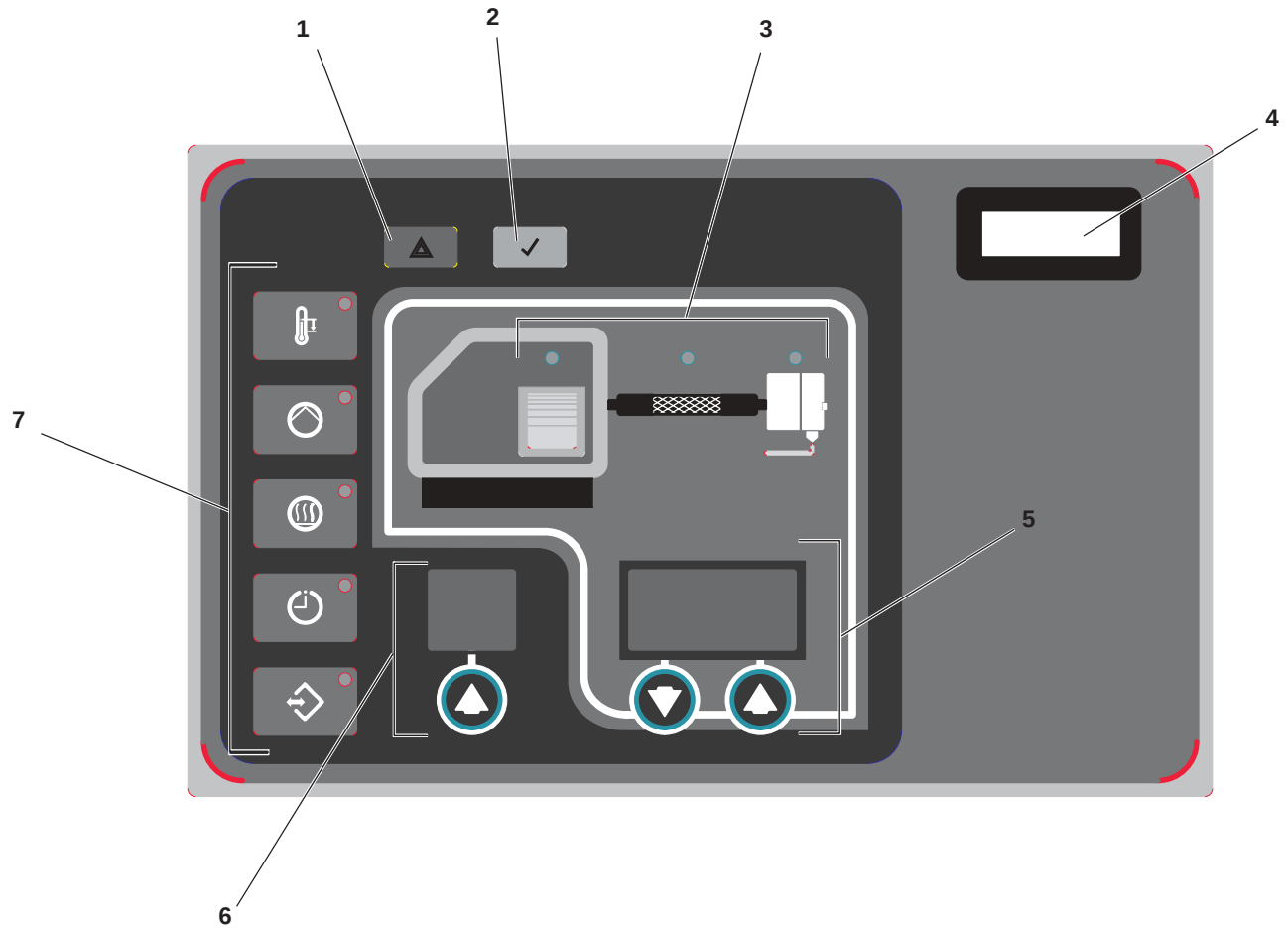


Figure 2-4 Control panel

- 1. Fault LED
- 2. Ready LED
- 3. Component keys/LEDs

- 4. Control switch
- 5. Right display and scroll keys

- 6. Left display and scroll key
- 7. Function keys

Optional Equipment

The following equipment may be ordered to expand the functionality of DuraBlue melters.

- **Communications cards** that allow the melter to communicate with other process equipment or a controller using standard network protocols.
- **Automatic pressure control** that allows the melter to automatically adjust adhesive output based on production requirements.
- **Pressure gauge** that provides a manifold hydraulic pressure reading.
- **Footswitch** that allows manual pump activation.
- **Air control kit** that controls the module-actuating air for a manual manifold-mounted gun or a manual spray gun.
- **Handgun hanger** that provides a convenient and safe method for storing a handgun that is not in use.
- **Pressure control valve knob** that replaces the hex screw pressure adjustment with a hand knob.

Refer to Section 7, *Parts*, for a complete list of optional equipment.

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Section 3

Installation



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

Quick-Start

If you have already installed the melter using the installation guide (P/N 1024498) that is provided inside the shipping container, and you have no questions concerning the installation, go to *Setting Up the Melter* later in this section for information about how to prepare the melter to operate with your manufacturing process.

Overview

DuraBlue melters are factory-configured for each order and require only the assembly and set up tasks described in this section. If your melter was ordered as a complete system, the shipping container will also contain one or more hot melt hoses and guns.

The melter is shipped from the factory with an installation kit that contains components that must be assembled on the melter by the customer. Some additional materials must also be supplied by the customer to complete the installation.

If optional equipment was ordered with the melter, refer to the documentation provided with the optional equipment for installation and operating instructions.

The illustrations accompanying the procedures in this section depict the D10L melter. Unless otherwise noted, the instructions also apply to the D4L and D16L melters.

Additional Information



This section presents installation procedures in their most commonly used form. Procedural variations or special considerations are explained in the additional information table that follows most procedures. Where applicable, some table entries also contain cross-reference information. Additional information tables are indicated by the symbol shown to the left.

Installation Tasks

The installation sequence is as follows:

1. Verify that the required installation conditions and utilities exist.
2. Unpack and inspect the melter.
3. Mount the melter on the parent machine or support structure.
4. Connecting the electrical service.
5. Connect hot melt hoses and guns.
6. Set up the melter to work with the manufacturing process.
7. Install optional equipment.
8. (If used) Connect a gun driver, pattern controller, or timer.
9. Flush the melter.
10. Adjust the pressure control valve.

Experience of Installation Personnel

The instructions provided in this section are intended to be used by personnel who have experience in the following subjects:

- Hot melt application processes
- Industrial power and control wiring
- Industrial mechanical installation practices
- Basic process control and instrumentation

Installation Requirements

Before installing the melter, ensure that the desired installation location provides the required clearances, environmental conditions, and utilities.

Clearances

Figure 3-1 illustrates the *minimum* clearances that are required between the melter and surrounding objects. Table 3-1 describes each clearance.

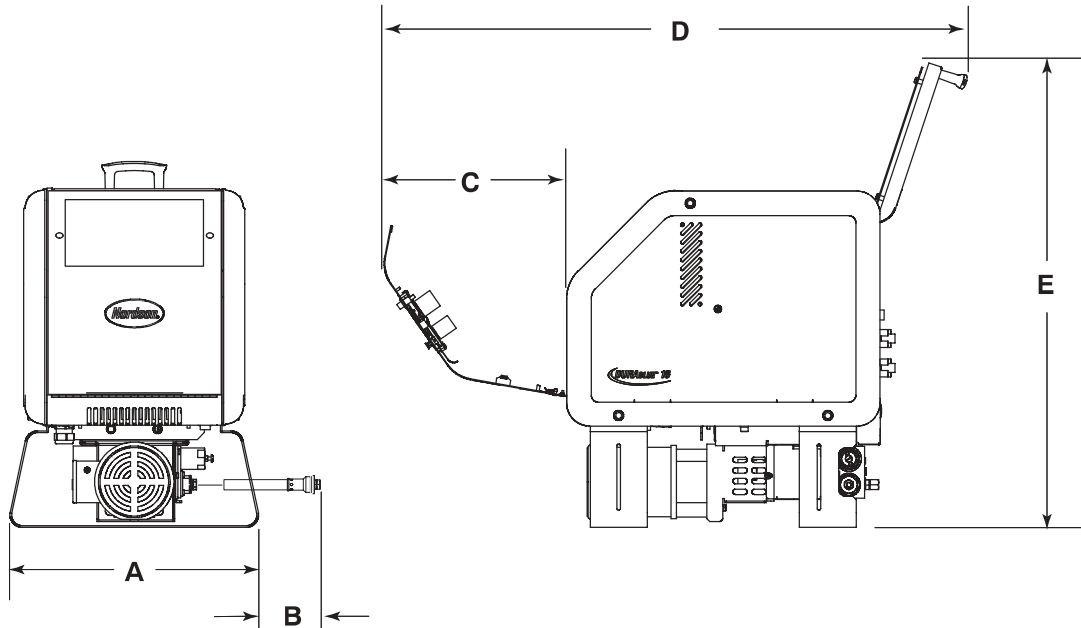


Figure 3-1 Minimum installation clearances

Table 3-1 Minimum Installation Clearances

Item	Description	Required Clearance	
		D10L D16L	D4L
A	Width of melter at the outside of the mounting brackets.	441 mm (17.36 in.)	334 mm (13.14 in.)
B	Clearance required between the melter and the nearest object in order to remove the filter.	203 mm (8.00 in.)	203 mm (8.00 in.)
C	Clearance required between the front end of the melter (control panel) and the nearest object in order to fully open the electrical enclosure door	330 mm (13.00 in.)	279 mm (11.00 in.)
D	Minimum horizontal space required for the melter when both the electrical enclosure door and tank lid are fully opened.	1126 mm (44.34 in.)	908 mm (35.73 in.)
E	Minimum vertical space required for the melter when the tank lid is at its highest point.	861 mm (33.90 in.)	623 mm (24.54 in.)

Electrical Power

Before installing the melter, ensure that the melter will not be overloaded and that the plant's electrical service is rated to handle the power required by the melter and the hoses and guns that you plan to use.

Refer to Appendix A, *Calculating Melter Power Requirements*, for information about how to calculate the maximum allowable hose lengths and gun wattages that can be used in your manufacturing application.



WARNING: Risk of electrocution! Install a lockable power disconnect switch between the electrical service and the melter. Failure to install or properly use the disconnect switch when servicing the melter can result in personal injury, including death.

Other Considerations

Consider the following additional factors when determining where to install the melter.

- The maximum distance between the melter and each gun is dictated by the power requirement of each hose. Refer to Appendix A, *Calculating Melter Power Requirements* for information about how to determine the maximum allowable length.
- The operator must be able to safely reach the control panel and accurately monitor the control panel indicators.
- The operator must be able to safely observe the level of hot melt inside the tank.
- The melter must be installed away from areas with strong drafts or where sudden temperature changes occur.
- The melter must be installed where it will be in conformance with the ventilation requirements specified in the Material Safety Data Sheet for the hot melt being used.

Unpacking the Melter

Before starting the installation, remove the melter from the pallet, locate the installation kit, and inspect the melter for damaged and missing parts. Report any problems to your Nordson representative.

Contents of the Installation Kit

The installation kit provided with the melter contains the components shown in Figure 3-2.

NOTE: All fuses are provided as spares.

The installation kit also contains a package of safety label overlays that are printed in variety of languages. If required by local regulations, the appropriate language overlay should be applied over the English version of the same label. Refer to *Safety Labels and Tags* in Section 1, *Safety*, for the location of each safety label.

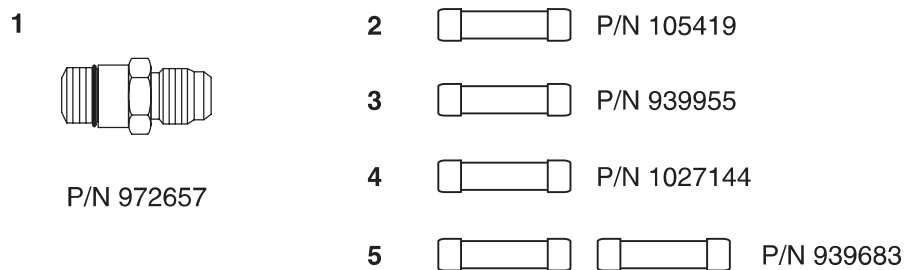


Figure 3-2 Installation kit components

- | | |
|------------------------------|-----------------------------|
| 1. Straight hose fitting | 4. Fuse, fast, 5 A, 250 VAC |
| 2. Fuse, fast, 10 A, 250 VAC | 5. Fuse, 6.3 A, 250 VAC (2) |
| 3. Fuse, slow, 2 A, 250 VAC | |

Customer-Supplied Materials

The following additional materials are also required to install the melter:

- Strain relief (at the disconnect switch box)
- 8 mm ($\frac{5}{16}$ in.) machine bolts and locking hardware for mounting the melter

Mounting the Melter

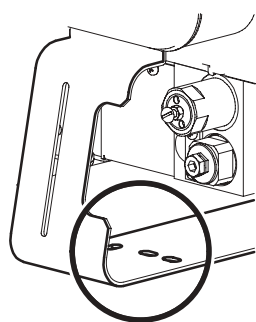
Before mounting the melter, ensure that the parent machine or support structure is level with respect to the floor, provides an even mounting surface, is not subject to extreme vibration, and is capable of supporting the weight of the melter, a full tank of hot melt, and the hoses and guns.

Refer to Section 8, *Technical Data*, for the weight of the melter. Refer to the technical data provided by the hot melt manufacturer for information about the volumetric weight of the hot melt.

To mount the melter

See Figure 3-3. Use 8 mm ($\frac{5}{16}$ in.) machine bolts and locking hardware to secure the melter mounting brackets to the mounting surface.

NOTE: The bolt mounting pattern of DuraBlue melters can be adapted to that of many other Nordson melters. Refer to Table 3-2.



Mounting holes

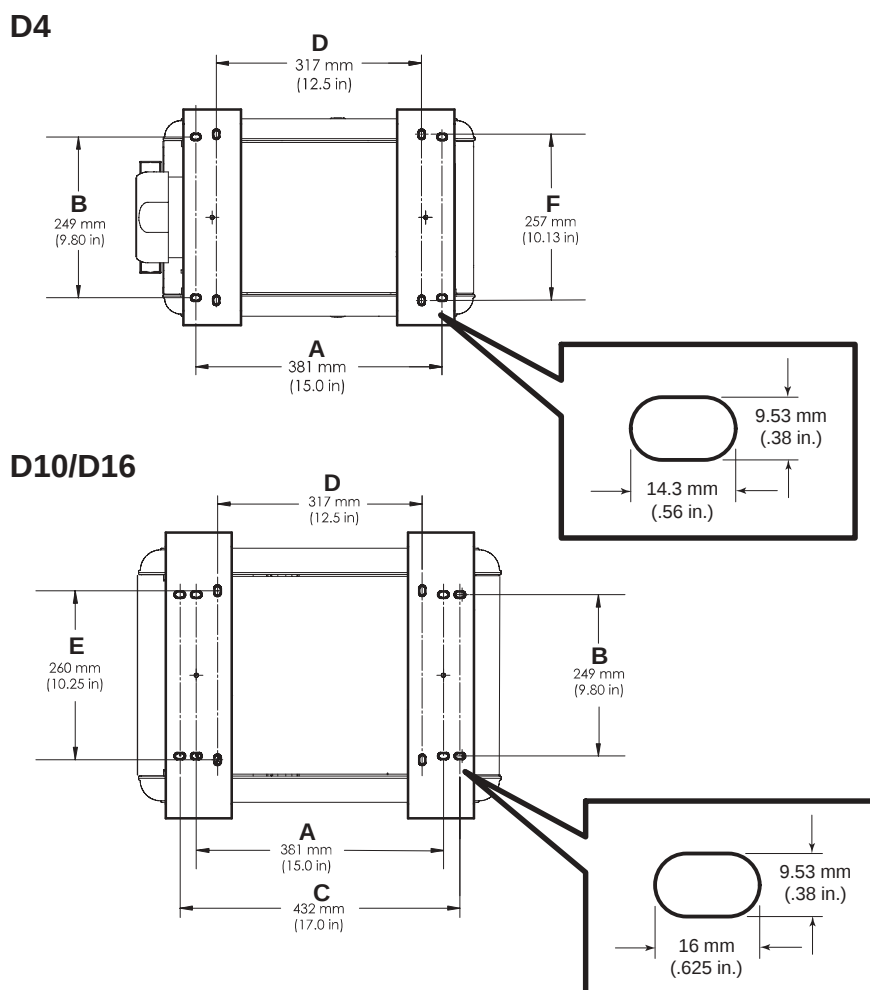


Figure 3-3 Bolt mounting patterns (Refer to Table 3-2)

Table 3-2 Comparison of DuraBlue Melter Dimensions with Other Melter Dimensions

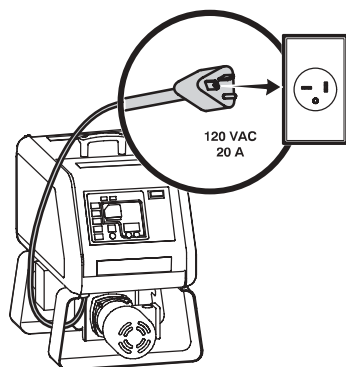
Dimension	3100 3400	3500 3700 3830 3930	LS10 LS20 KB10	KB20
A	●			
B	●	●		
C		●		
D			●	●
E				●
F			●	

Connecting the Electrical Service

DuraBlue melters are shipped from the factory in one of the following two electrical configurations:

- With an attached power cord that is ready to be plugged into a 120 volt 20 amp receptacle
- With an attached power cable that is ready to be wired to a 200–240 volt circuit

To connect a melter with an attached power cord



Melter with attached power cord

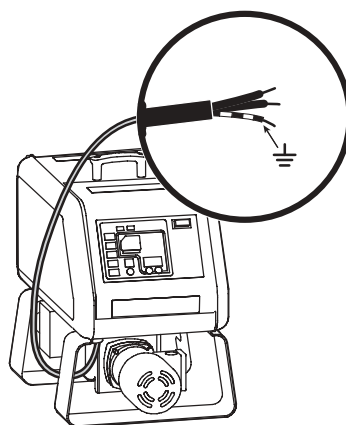
- Plug the power cable into an electrical outlet. The maximum unit amperage of 120 volt DuraBlue melters is 20 amp. Refer to Table 3-3 for the maximum amperages of 200–240 volt melters.

NOTE: DuraBlue melters with an attached power cable are not for use with residential electrical service.



WARNING: Risk of electrical shock or short circuit! Use an appropriately sized strain relief to protect the power cable from the sharp edge of the penetration into the disconnect switch.

To connect a melter with an attached power cable:



Melter with attached power cable

- Connect the power cable to a properly rated 200–240 volt circuit that includes a lockable electrical disconnect switch. The maximum amperages of DuraBlue melters operating at 200–240 volts are shown in Table 3-3.

Table 3-3 Maximum Amperages for 200–240 Volt Melters

Model	Maximum Amperage
D4L	14
D10L	17
D16L	19

NOTE: The ground conductor is the striped wire.

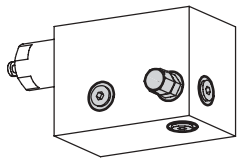
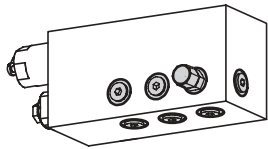
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Connecting Hoses and Guns

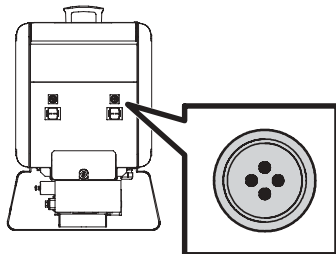
DuraBlue melters use standard Nordson hoses and guns and support the connection of up to two hose/gun pairs.



WARNING: Risk of fire or equipment damage! Before connecting hoses and guns to the melter, confirm that the power required by the hoses and the guns does not exceed the maximum wattages specified in Appendix A, *Calculating Melter Power Requirements*.



Hose ports
(Filtered and nonfiltered manifolds shown)



Switch receptacle

To connect hoses

See Figure 3-4.

Observe the following guidelines:

- For information about choosing the correct Nordson hot melt hose for your manufacturing process, refer to the latest edition of Nordson's hot melt dispensing equipment *Replacement Parts Catalog* or contact your Nordson representative.
- Connect hoses to any of the hose ports provided on the manifold. The melter is shipped with one hose fitting (capped) pre-installed on the manifold.
- Refer to the user's guide provided with each Nordson hose. The guide contains important information about routing and installing the hose.
- Save all of the plugs that were removed from the hose ports. A plug will need to be reinstalled into a hose port if a hose is later removed.
- Connect switched handgun hoses or footswitches, to the switch receptacles on the back of the melter.

NOTE: Only connect a switched handgun or the optional footswitch to the switch receptacle. The receptacle is not intended for automatic control of the motor.

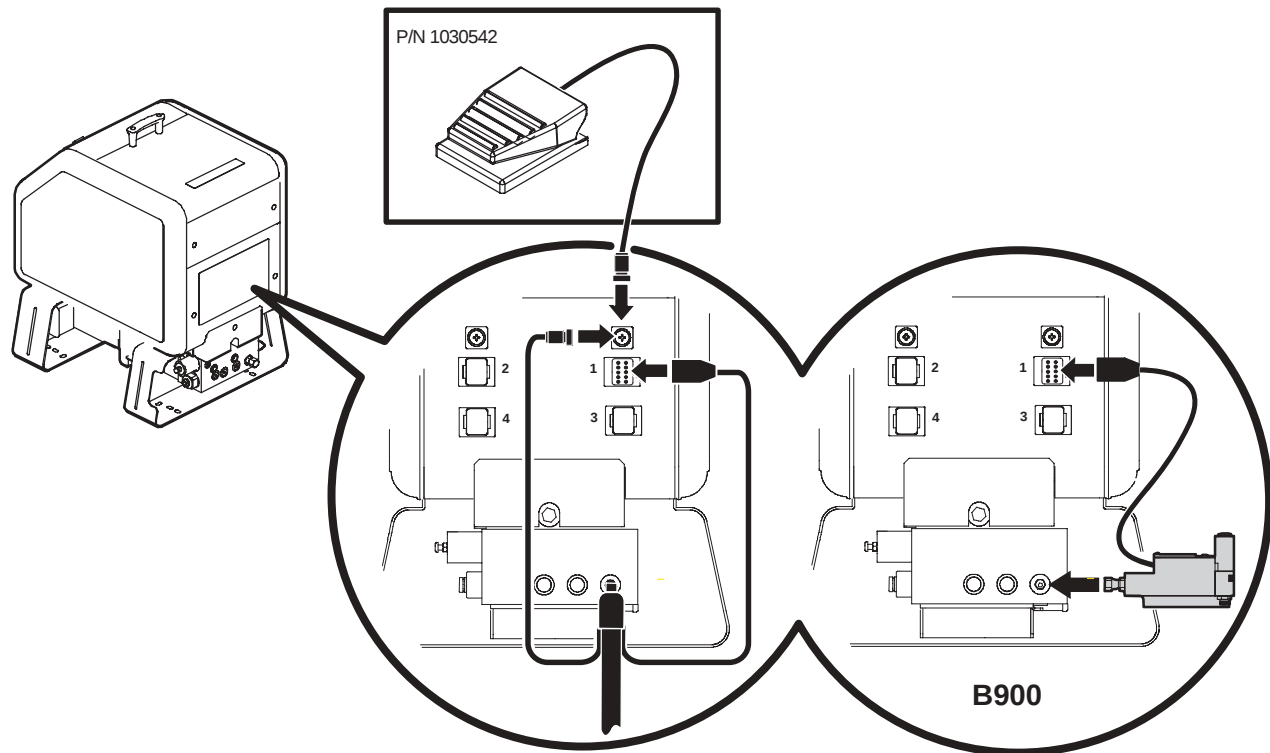


Figure 3-4 Connecting a switched handgun hose or footswitch

To connect guns

Observe the following guidelines:

- For information about choosing the most appropriate Nordson hot melt gun for your manufacturing process, refer to the latest edition of Nordson's hot melt dispensing equipment *Replacement Parts Catalog* or contact your Nordson representative. Refer to Appendix A, *Calculating Melter Power Requirements*, for information about how to calculate the power required by Nordson hot melt guns.
- Refer to the user's guide that is shipped with each gun for information about installing the gun and connecting a hose to the gun.
- See Figure 3-4. The B900N electric gun can be connected directly to the manifold. Operating parameter 12 or 13 must be enabled if a B900N is connected. Refer to Appendix A, *Operating Parameters*.

NOTE: DuraBlue melters are shipped with a 100-mesh (0.15 mm) hot melt filter installed in the pump body. Filters with 50- and 150-mesh screens (0.11 mm and 0.07 mm respectively) are also available. Order the appropriate filter based on the smallest nozzle size used in your application.

Setting Up the Melter

After physically installing the melter, it must be set up to support your manufacturing process. Melter setup consists of enabling or making changes to factory-set operating parameters that affect the use and function of the melter. The operating temperature (set-point) of the tank and each hose and gun is also established during melter setup.

The melter is shipped from the factory with the most commonly used operating parameters already set up. The factory setup can be modified at any time to suit your manufacturing process.

Quick Setup

Table 3-4 describes the most commonly used operating parameters and their factory settings. Review the table to determine if the factory settings for each parameter will support your manufacturing process. If the default values for each of these operating parameters are appropriate for your manufacturing process, then no melter setup is required.

Go directly to *Set-point Temperature of the Tank, Hoses, and Guns* later in this section to complete the installation process.

If you need to make changes to the factory setup or if you want to learn about other operating parameters, go to the next part in this section, *Operating Parameters*.

Table 3-4 Common Operating Parameters

Parameter	Parameter Name	Purpose	Default Value
4	Ready Delay Time	A timer that delays the activation of the ready LED for a pre-defined time period after the tank, hoses, and guns are at the desired set-point temperature. The ready delay timer will only activate if the temperature of the tank, at the time the melter is turned on, is below its assigned set-point temperature by 27 °C (50 °F) or more.	0 minutes
7	Motor Off Delay	If the switch receptacle is used, this parameter determines the amount of time the motor will remain on after the switched device is turned off.	0 seconds
8	Automatic Pump On	Allows the pump to start automatically when system ready is reached, provided that the pump has been enabled by pressing the pump key.	Enabled
20	Temperature Units	Sets the units of the temperature display to degrees Celsius (C) or to degrees Fahrenheit (F).	C
21	Over Temperature Delta	Sets the number of degrees that any heated component can exceed its assigned set-point temperature before an over temperature fault occurs.	15 °C (25 °F)
22	Under Temperature Delta	Sets the number of degrees that any heated component can drop below its assigned set-point temperature before an under temperature fault occurs.	25 °C (50 °F)
23	Standby Delta	Sets the number of degrees that the temperature of all heated components will be decreased when the melter is placed into the standby mode.	50 °C (100°F)
26	Manual Standby Time	Sets the amount of time the melter will remain in the standby mode after the standby key is pressed.	Disabled
50 to 77	Seven-day Clock	A group of parameters that control the melter's clock. The clock is used to automatically turn the heaters on and off and to place the melter into the standby mode.	Disabled

Operating Parameters

The melter uses operating parameters to store noneditable and editable values. Noneditable values are those that provide information about the historical performance of the melter. Editable values are either a numeric set-point or a control option setting. Control options settings affect the display of information or the function of the melter.

Operating parameters are stored in the melter's firmware in the form of a sequentially numbered list. The list is organized into the logical groups described in Table 3-5.

Table 3-5 Parameter Groups

Group	Parameter Numbers	Group Description
Standard	0 to 11	Noneditable and other frequently used parameters
Temperature Control	20 to 26	Control heaters
Seven-day Clock	50 to 77	Configure the clock feature

In addition to the ability to read and edit parameter values, you can also review a log of the last ten changes that were made to editable parameters.

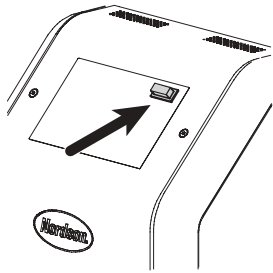
Selecting Operating Parameters

Table 3-6 provides a complete list of the operating parameters. Review the list to determine which operating parameters would best support your manufacturing process. Refer to Appendix B, *Operating Parameters*, for detailed information about each parameter. Appendix B contains a complete description of each parameter, including its affect on the melter, default value, and format.

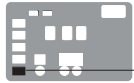
NOTE: Parameters that are used to configure optional equipment or that are otherwise reserved in the firmware are excluded from Table 3-6 and Appendix B.

Reading or Editing Operating Parameters

Regardless of whether a parameter's value is editable or not, the procedure for accessing each parameter in order to read or edit its current value is the same.



Control switch (on/off)



Setup key

**To read or edit a parameter**

1. Switch the melter on.
The melter performs a start-up check.
2. Press the **Setup** key.
The left display flashes parameter 1.
3. Use the left-display scroll key to scroll to the desired parameter number.
Refer to Table 3-6 for a complete list of parameters.

When you have finished entering the one- or two-digit parameter number, the right display indicates the parameter's current value.
4. Do *one* of the following:
 - If the value is noneditable, refer to *Monitor the Melter* in Section 4, *Operation*.
 - If the value is editable go to step 5.
5. Press a right-display scroll key.
The right display flashes.
6. Use the right-display scroll keys to enter the desired numeric set-point or control option into the right display. Refer to Appendix B, *Operating Parameters*, for information about the numeric value or control option choices for each parameter.
7. Press the left-display scroll key.
The melter checks that the new value or control option is acceptable.
 - If the numeric set-point or control option is accepted, the left and right displays index to the next sequential parameter number and value.
 - If the numeric set-point or control option is not accepted, the right display will indicate dashes (----) for three seconds and then it will change back to the original value.
8. Repeat step 5 through step 7 to read or change the next sequential parameter number or press the **Setup** key to exit the setup mode.

Table 3-6 Operating Parameters

Parameter	Name	Range of Values	Default Value
<i>Standard</i>			
1	Total Hours with Heaters On (noneditable)	9999	0
2	Fault Log (noneditable)	—	_-F0 (empty)
3	Change History Log (noneditable)	—	P-_ (empty)
4	Ready Delay Time	0 to 60 minutes	0 minutes
7	Motor Off Delay	0 to 360 seconds	0 seconds
8	Automatic Pump On	0 (disabled) or 1 (enabled)	1 (enabled)
12	Change Hose 1 Output to Electric Gun Activation	0 (disabled) or 1 (enabled)	0 (disabled)
13	Change Hose 2 Output to Electric Gun Activation	0 (disabled) or 1 (enabled)	0 (disabled)
<i>Temperature Control</i>			
20	Temperature Units (degrees °C or °F)	C (degrees Celsius) or F (degrees Fahrenheit)	C (degrees Celsius)
21	Over Temperature Delta	5 °C (10 °F) to 60 °C (110 °F)	15 °C (25 °F)
22	Under Temperature Delta	5 °C (10 °F) to 60 °C (110 °F)	25 °C (50 °F)
23	Standby Delta	25 °C (50 °F) to 190 °C (350 °F)	50 °C (100 °F)
26	Manual Standby Time	0 to 180 minutes	0 (disabled)
<i>Seven-day Clock</i>			
50	Current Day	1 to 7 (1 = Monday)	—
51	Current Time	0000 to 2359	—
55	Schedule 1 Heaters On	0000 to 2359	06:00
56	Schedule 1 Heaters Off	0000 to 2359	17:00
57	Schedule 1 Enter Standby	0000 to 2359	—:—
58	Schedule 1 Exit Standby	0000 to 2359	—:—
60	Schedule 2 Heaters On	0000 to 2359	—:—
61	Schedule 2 Heaters Off	0000 to 2359	—:—
62	Schedule 2 Enter Standby	0000 to 2359	—:—
63	Schedule 2 Exit Standby	0000 to 2359	—:—
65	Schedule 3 Heaters On	0000 to 2359	—:—
66	Schedule 3 Heaters Off	0000 to 2359	—:—
67	Schedule 3 Enter Standby	0000 to 2359	—:—
68	Schedule 3 Exit Standby	0000 to 2359	—:—
71	Schedule for Monday	0–7	0
72	Schedule for Tuesday	0–7	0
73	Schedule for Wednesday	0–7	0
74	Schedule for Thursday	0–7	0
75	Schedule for Friday	0–7	0
76	Schedule for Saturday	0–7	0
77	Schedule for Sunday	0–7	0



You can exit the setup mode at any time by pressing the **Setup** key.

Parameter numbers that are not applicable are skipped when you scroll through the operating parameter list in the left display.

When the right display is flashing, you can quickly set the value of the current parameter to its lowest possible value by simultaneously pressing both of the right-display scroll keys.

While in the setup mode, if no key is pressed for two minutes, the melter will return to the automatic scan mode.

You can also use the right-display scroll keys to enter or change a parameter's value or control option. After entering the parameter's number in the left display, press either of the right-display scroll keys to change the value or control option.

If password protection is enabled, the melter will return to the password protected mode whenever you exit the setup mode.

Appendix B, *Parameter 10*

Set-point Temperature of the Tank, Hoses, and Guns

The melter is shipped from the factory with the tank set-point temperature at 175 °C (350 °F) and the hose and gun set-point temperatures at 0 degrees (turned off).

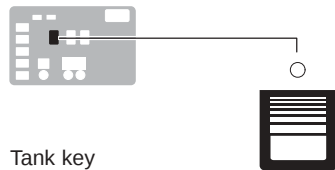
Before the melter can be used, a set-point temperature must be assigned to the tank, hoses, and guns. Assign set-point temperatures using any of the following methods:

- **Global**—The tank and all hoses and guns are set to the same set-point temperature.
- **Global-by-component group**—All of the hoses or all of the guns are set to the same set-point temperature.
- **Individual Component**—The set-point temperature of the tank and each hose and gun is set individually.

Since most manufacturing processes will require the tank, hoses, and guns to be set to the same temperature, only the global method of assigning set-point temperatures is described in this section. For information about the other two methods of assigning set-point temperatures, refer to Section 4, *Adjusting Component Temperatures*.

As with operating parameters, you can also review past changes that were made to set-point temperatures.

To assign a global set-point temperature



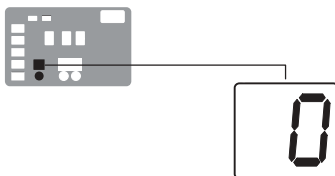
Tank key

1. Press and hold the **Tank** key for three seconds.

The left display flashes 1.

2. Scroll the left display to 0.

The right display indicates all dashes (----) and the LEDs on the tank, hose, and gun keys turn green.



Left display and scroll key

3. Press a right-display scroll key.

The right display flashes.

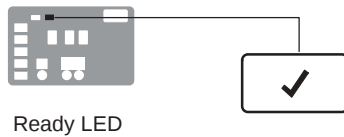
4. Use the right-display scroll keys to enter the set-point temperature recommended by the manufacturer of the hot melt.

Refer to the technical data sheet provided by the manufacturer of the hot melt to determine the optimal set-point temperature.

5. Press the **Tank** key.

Each component begins to heat or cool to the new global set-point temperature and the melter returns to the automatic scan mode.

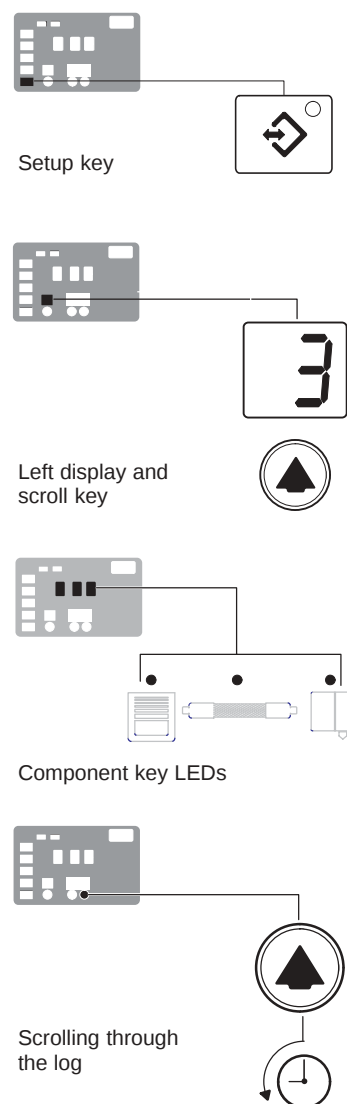
When all of the components reach the global set-point temperature, the ready LED turns on (green).



Ready LED

Review Parameter and Set-point Temperature Changes

The melter stores in a change history log, a record of the last ten changes that were made to either operating parameters or set-point temperatures. Since the log only stores ten changes, old log entries are overwritten beginning with the first log entry, by the eleventh and following log entries.



To review the change history log

1. Press the **Setup** key.
Operating parameter 1 flashes in the left display.
2. Press the left-display scroll key to change the display to parameter 3 (the change history log).

The following occurs:

- If the last change was to an editable parameter, all of the component key LEDs remain off.
or
- If the last change was to a set-point temperature, the LED on the associated component key(s) turns on.
and
- The right display indicates the four-digit log entry associated with the *last* change that was made.

Table 3-7 provides the meaning, from left to right, of each digit in the log entry. Following the table are two example log entries.

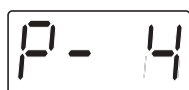
3. Press a right-display scroll key to review each of the remaining nine log entries. Each press of a scroll key displays a progressively older log entry.
4. Press the **Setup** key to return to the automatic scan mode.

Table 3-7 Change History Log

First Digit	Second Digit	Third and Fourth Digits			
P (Parameter)	—	<i>Indicates the number of the parameter that was changed</i>			
S (Set-point)		<i>Are used in conjunction with the LEDs on the component keys to indicate the location and method of a set-point temperature change.</i>			
		When this LED is on..	And the Fourth Digit Indicates..	The change was to..	And the Method of Change was..
		Tank Key	1	The tank	Individual
		Hose Key	1– 6	A single hose	Individual
		Gun Key	1– 6	A single gun	Individual
		All Keys	0	All components	Global
		Hose Key	0	All hoses	Global-by-component
		Gun Key	0	All guns	Global-by-component

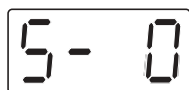
Change History Log Examples

Example 1:



Parameter 4 (ready delay) was changed.

Example 2:



If the LED on the gun key is on, then this display would indicate that the global-by-component method was used to change the temperature of the guns.



Unused log entries in the change history log are indicated by “P- _” in the right display.

To view how many heater hours have elapsed since a specific change (displayed) was made, simultaneously press both of the right-display scroll keys.

Installing Optional Equipment

Each item of optional equipment is shipped with instructions for installing and operating the equipment. Refer to Section 7, *Parts*, for equipment part numbers.

Connecting a Gun Driver, Pattern Controller, or Timer

If applicable, complete the melter installation by connecting the guns to the desired gun driver, pattern control, or timer. Refer to the product manual provided with the device for information about installing and operating the equipment.

Flushing the Melter



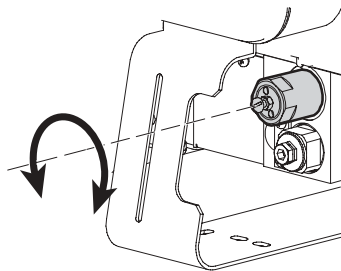
WARNING: Risk of Burns! New melters contain a small quantity of low-viscosity test fluid. Test fluid may splatter when discharged under high pressure. Before flushing the melter, ensure that the pressure control valve is set to low pressure.

Before using the melter for production, it should be flushed to remove any residue left over from factory-testing. Flushing the melter is accomplished by processing a minimum of one tank volume of hot melt through the melter, hoses, and guns.

Refer to Section 4, *Operation*, for information about filling the tank and operating the melter.

Adjusting the Pressure Control Valve

NOTE: The pressure control valve screw is turned fully counterclockwise (at or near the valve's lowest pressure setting) at the factory and then the lock nut is tightened.



Before placing the melter into routine operation, loosen the lock nut and adjust the pressure control valve to achieve the desired adhesive output rate for your manufacturing process. With the line running and the guns dispensing adhesive, turn the adjustment screw on the pressure control valve

- clockwise to increase the adhesive output
- counterclockwise to decrease the adhesive output

Adjusting the pressure control valve

Section 4

Operation



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

This section provides information about the following operator-level tasks:

- Filling the melter tank
- Starting the melter
- Monitoring melter operation
- Adjusting the operating temperature of heated components
- Using the melter function keys
- Shutting the melter down

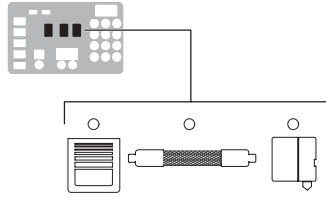
Most of the controls described in this section are located on the control panel. Refer to *Key Components* in Section 2, *Introduction*, for the location of the controls and indicators described in this section.

Additional Information



This section presents operating procedures in their most commonly used form. Procedural variations or special considerations are explained in the additional information table that follows most procedures. Where applicable, some table entries also contain cross-reference information. Additional information tables are indicated by the symbol shown to the left.

More about Heated Components



Component keys
(tank, hose, and gun)

The melter contains three groups of heated components. These are the tank group, which contains the tank and the pump, the hose group, and the gun group. Component groups are represented on the control panel by the component keys shown to the left.

Heated components within each group are identified by their position number. The position of the tank and pump is fixed at 1. Hose and gun position numbers are automatically assigned based on the hose/gun receptacle they are connected to. For example, the position numbers of a hose/gun pair that is connected to the second receptacle would be hose position 2 and gun position 2.

NOTE: In some installations, auxiliary devices (such as a heated air manifold) may be connected to a hose/gun receptacle. In such cases, you should label (or otherwise identify) the auxiliary device as to the hose or gun position number that represents the device. The control panel will identify such devices as a hose or gun, regardless of what the device actually is.

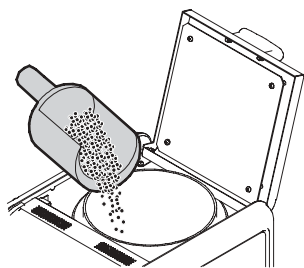
Filling the Tank

Before filling the tank, confirm that the hot melt material is compatible with the melter. Refer to *Intended Use* in Section 2, *Introduction*, for information about hot melt materials that should not be used in DuraBlue melters.

To fill the tank



WARNING: Hot! Risk of burns! Use a scoop to fill the tank with hot melt. Never use your bare hands. Using your bare hands to fill the tank may result in personal injury.



Filling the tank

1. Open the tank lid.
2. Use a scoop to fill the tank with hot melt. Table 4-1 lists the tank capacity of each DuraBlue melter.

NOTE: Nordson Corporation recommends that the tank be kept at least one-half full while the melter is operating.

3. Close the tank lid when you are finished filling the tank.

Table 4-1 Tank Capacity

Model	Capacity*		
	Liters	Kilograms	Pounds
D4L	4	4	9
D10L	10	10	22
D16L	16	16	35

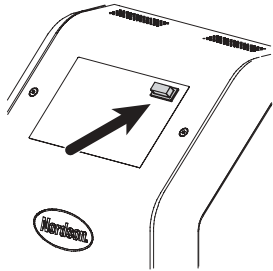
*Assumes a hot melt with a specific gravity of 1

Starting the Melter

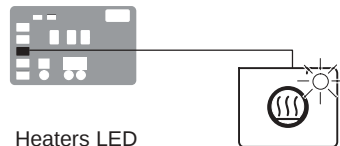
Before starting the melter for the first time, confirm that the

- melter is fully installed including any required inputs and outputs, gun drivers, pattern controllers, or timers.
- melter's operating parameters are set up to support the current manufacturing process.

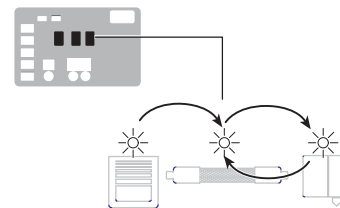
Refer to Section 3, *Installation*, if any of the items listed above are not complete.



Melter control switch (on/off)



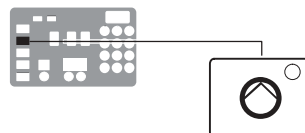
Heaters LED



Automatic scan sequence



Ready LED



Pump key

To start the melter

1. Switch the melter on.

The melter:

- Tests the control panel LEDs
 - Turns on the heaters (the heaters LED turns green)
 - Begins to automatically scan through and display the actual temperature of the tank and each hose and gun that has a set-point temperature that is greater than zero degrees. The sequence of the automatic scan is: tank, each hose and gun pair, and then back to the tank.
 - Turns on the ready LED (green) when the tank and all of the hoses and guns are within 3 °C (5 °F) of their assigned set-point temperature.
2. Press the pump key to enable the pump.
 - If the system has not reached the system-ready state at the time that the pump key is pressed, the LED on the pump key will turn yellow, indicating that the pump is enabled, but not started. The pump will start automatically when the system-ready state is reached.
 - If the system has reached the system-ready state at the time that the pump key is pressed, the pump will start and the LED on the pump key will turn green, indicating that the pump is running.
 - If the melter is set up for manual pump activation, the pump LED will not turn on and the pump will not start until the pump is manually started using the switching device.

NOTE: You can change the way the pump key operates by changing parameter 8 (automatic pump on). Refer to Appendix B, *Operating Parameters*.



If the melter is switched on when the temperature of the tank is 27 °C (50 °F) or greater below its assigned set-point temperature (cold start condition), the ready LED will not turn on until the ready delay (defined when the melter was set up) has elapsed.

Appendix B, parameter 4

The time remaining on the ready delay (in minutes) appears in the right display at the end of every scan cycle. When only one minute remains in the ready delay time, the right display counts down in seconds.

Appendix B, parameter 4

You can by-pass the ready delay time by pressing the **Heaters** key twice.

The appearance of F4 in the right display immediately after the melter is switched on indicates a problem with the melter's processor or main board.

Section 4, *Monitor Melter Faults*

The appearance of F1 in the right display immediately after starting the melter indicates that a hose or gun cordset may be loose or disconnected.

Section 6, *Troubleshooting*

If the melter is set up for manual pump activation and parameter 7 (motor off delay) has been changed from the default, the pump will not stop until a user-specified amount of time has elapsed.

Appendix B, parameter 7

If the seven-day clock feature was set up and turned on when the melter was last switched off, the clock will automatically turn on the next time the melter is switched on.

Section 4, *Using Melter Function Keys*

If a power failure occurs, the melter will restart in its normal heat-up cycle, even if the heaters were off or the melter was in standby prior to the power failure. If the seven-day clock was on prior to the power failure, the melter will restart in the mode dictated by the clock schedule at the time the melter restarts.

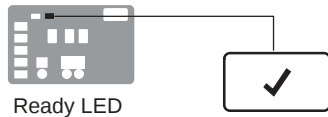
Monitoring the Melter

The melter provides indicators that allow you to:

- Quickly confirm that the melter is operating correctly
- Monitor the actual temperature of the tank group and each hose and gun
- Identify melter faults

The melter automatically determines the number and location of all hoses and guns that are connected to it. Refer to *More About Heated Components*, earlier in this section, for information about hose/gun capacity and the identification of heated components.

Confirm that the Melter is Operating Correctly



The ready LED turns on (green) when all of the heated components are within 3 °C (5 °F) of their set-point temperature.

The ready LED will not turn on, or will turn off, if any of the following events occur:

- The ready delay is still counting down.
- The operator places the melter into the standby mode.
- The seven-day clock places the melter in the standby mode.
- There is a fault (the fault LED will turn on).

Refer to *Monitor Melter Faults* and *Using Melter Function Keys* later in this section for information about melter faults and using the seven-day clock and standby functions. Refer to Appendix B, *Parameter 4*, for information about the ready delay.



Heated components with a set-point temperature of zero degrees are skipped during the automatic scan cycle.

The set-point temperature of the tank and the pump cannot be set independently.

The time remaining on the ready delay appears in the right display at the end of each scan cycle.

Appendix B, parameter 4

You can override the seven-day clock at any time. If the clock has turned the heaters off, pressing the heaters key will turn the heaters back on. If the clock has placed the melter into the standby mode, pressing the standby key will return the heated components to their assigned set-point temperature.

Section 4, *Using Melter Function Keys*

Monitor Component Temperatures

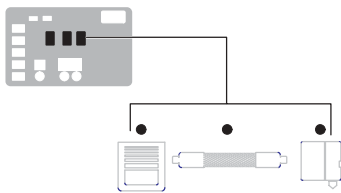
You can check the actual temperature of each heated component—the tank and each hose and gun—using the automatic scan mode or by manually selecting and checking each component.

By default, the melter remains in the automatic scan mode except when:

- The melter is placed into the setup mode
- The set-point temperature of all hoses and guns is set to zero degrees
- A fault occurs

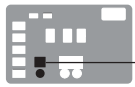
To check component temperatures using the automatic scan mode

1. When the ready LED is on, observe the LEDs on the component keys.
2. When the LED on the key that represents the desired component group (tank, hose, or gun) turns on, observe the left display until it indicates the position number of the specific component you want to check.
3. When the position number of the desired component appears in the left display, observe the right display to determine the component's actual temperature.



LEDs on component keys

To manually check a component's temperature



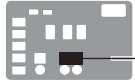
Left display and
scroll key



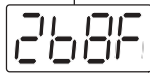
1. Press the key (tank, hose, or gun) that represents the component group you want to check.

The automatic scan stops and the left display indicates the number of the first sequential component in the selected component group. The right display indicates the component's actual temperature.

NOTE: When the tank key is pressed, the left display does not indicate a component number (blank display).



Component temperature display



2. If the first sequential component is not the component you want to check, use the left-display scroll key to change to the correct component number.

The right display indicates the actual temperature of the selected component.

3. Press the **Setup** key twice to return to the automatic scan mode.



When you scroll the left display past the number of the last sequential component in a component group, the number of the first sequential component in the next component group appears in the left display.

The melter will return to the automatic scan mode two minutes after the last key is pressed.

When you press the **Tank** key, it is the pump temperature that is actually indicated in the right display. To check the actual temperature of the tank, simultaneously press the **Tank** key and the left-display scroll key.

The default unit for temperature display is degrees Celsius (C). This may be changed to degrees Fahrenheit using operating parameter 20.

Appendix B, Parameter 20

The LEDs on each component key will change from green to yellow if any component in the component group drops more than 3 °C (5 °F) below its assigned set-point temperature.

You can check the set-point temperature of a component at any time, by pressing the right-display UP scroll key. Holding down the scroll key while the melter is in the automatic scan mode reveals the set-point of each component that is scanned.

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Monitor Melter Faults

The melter alerts the operator to the faults listed in Table 4-2. Faults affect the melter in one of three ways: the heaters turn off; the heaters remain on, but the fault condition persists; or the melter stops functioning.

When a fault occurs, you must diagnose and correct the fault condition and then place the melter back into operation. You can use the fault log to determine the type, order, and relative time of the last ten faults.

Table 4-2 Melter Faults

Display Code/Sub-code	Name	Affect on the Melter	Cause
F1/None	RTD	Heaters turn off	The RTD for the component indicated has failed or the component was disconnected from the melter.
F2/None	Under temperature	Heaters turn off	The actual temperature of the component indicated has dropped below the under temperature delta, which was set using parameter 22.
F3/None	Over temperature	Heaters turn off	The actual temperature of the component indicated has increased beyond the over temperature delta, which was set using parameter 21.
F4/1	RAM test	Melter stops functioning	Internal RAM failure
F4/2	Internal Clock time	Heaters remain on, but fault condition persists	Internal clock failure
F4/4	Internal clock battery backed RAM	Heaters remain on, but fault condition persists	Battery-backed RAM failure
F4/5	Internal clock battery	Heaters remain on, but fault condition persists	Battery-backed RAM battery dead
F4/6	Analog-to-digital	Melter stops functioning	RTD analog-to-digital converter failed
F4/7	Analog-to-digital calibration	Melter stops functioning	RTD analog-to-digital converter could not be calibrated
F4/8	Main board feedback	Melter stops functioning	Communication failure between main board and CPU
F4/A	Thermostat	Melter stops functioning	Tank or pump thermostat is open

How F1, F2, and F3 Faults are Handled

When the melter detects an F1, F2, or an F3 fault:

1. The automatic scan stops and the melter begins to monitor the potential fault for up to two minutes. The ready and heater LEDs remain on during the two-minute time period. If, at any time during the two-minute period, the melter detects that the fault condition no longer exists, the melter will return to the automatic scan mode.
2. The LED on the affected component key (tank, hose, or gun) turns on to indicate the type of component that has, or is, failing.
3. The right display indicates the type of fault (F1, F2, or F3).
4. The left display indicates, as follows, the component that has, or is, failing.
 - If the LED on the tank key is on, the left display will indicate either 1 for the tank or 2 for the pump.
 - If the LED on the hose or gun key is on, the left display will indicate the number of the affected hose or gun.
5. If the fault condition still exists at the end of the two-minute monitoring period, the ready LED will turn off, the red fault LED will turn on, the heaters turn off, and the melter records the fault in the fault log. Refer to *To review the fault log* later in this part.



Fault LED (red)

Monitor Melter Faults (contd)

How F4 Faults are Handled

When the melter detects an F4 fault:

1. The ready LED turns off and the red fault LED turns on.
2. All of the component key LEDs (tank, hose, and gun) turn off.
3. The right display indicates F4.
4. The left display indicates a sub-code. Sub-codes classify the fault as being fatal or nonfatal. The affect on the melter of each of these two classes of F4 faults is:

Fatal—The fault LED turns on and stays on and the melter stops functioning completely.

Nonfatal—The fault LED turns on for five seconds, but the heaters and pump continue to operate normally. Nonfatal faults only affect the internal clock.

Refer to Section 6, *Troubleshooting*, for information about diagnosing F4 faults.

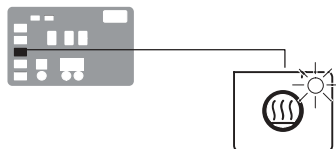
5. The melter records the fault in the fault log. Refer to *To review the fault log*, later in this part.

To put the melter back into operation

1. Diagnose and correct the fault condition. Refer to Section 6, *Troubleshooting*, for information about diagnosing and correcting fault conditions.

NOTE: When a fatal F4 fault exists, the control switch will not function. Remove power to the melter at the local disconnect switch.

2. Return the melter to the automatic scan mode by pressing the **Setup** key twice.
3. Cycle the control switch.
4. Press the **Heater** key to turn on the heaters.



Heater key



To view the temperature of a heated component when an F2 or F3 fault exists, simultaneously press and hold both of the right-display scroll keys.

You can temporarily dismiss an F1 fault (RTD) and return to the automatic scan mode by pressing the **Clear/Reset** key. The heaters will, however, remain off. If the fault condition still exists two minutes after pressing the clear/reset key, the fault LED will turn back on.

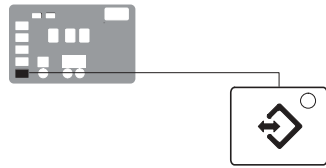
When an F1 fault code appears, you can determine whether the fault was caused by an open or a shorted RTD by simultaneously pressing both of the right-display scroll keys. If the right display indicates OP, the RTD is open, if it indicates SH, the RTD has shorted.

If, for any reason, a component reaches 235 °C (458 °F), an immediate F3 fault will occur (no two-minute monitoring period).

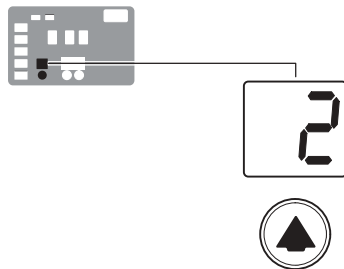
If F4 appears in the right display when you press the clock key, the internal clock function has failed.

Monitor Melter Faults (contd)

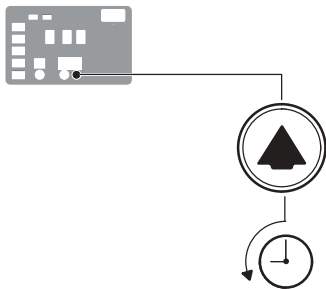
To review the fault log



Setup Key



Left display and scroll key



Scrolling through the fault log

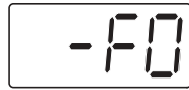
1. Press and hold the **Setup** key.
The automatic scan stops and operating parameter 1 appears in the left display.
2. Scroll the left display to parameter 2 (the fault log).
The right display indicates the last fault that occurred as follows:
 - If the last fault was an F1, F2, or F3 fault, then the LED on the affected component key turns yellow.
 - If the last fault to occur was an F4 fault, then the LEDs on all of the component keys turn off.
 - The right display indicates the log entry for the last fault to occur. Table 4-3 provides the meaning of each digit in the log entry. Following the table are two example fault log entries.
3. Press the right-display scroll key to review each of the remaining nine log entries. Each press of the scroll key displays a progressively older log entry.
NOTE: The fault log only stores the last ten faults. After ten faults occur, the existing log entries are overwritten, beginning with the oldest entry, by the eleventh and following log entries.
4. Press the **Setup** key to return to the automatic scan mode.

Table 4-3 Fault Log

First Digit	Second and Third Digits	Fourth Digit
<i>Component:</i> 1 = Tank or hose/gun 1 2 = Pump or hose/gun 2 3 = Hose 3 or gun 3 4 = Hose 4 or gun 4 5 = Hose 5 or gun 5 6 = Hose 6 or gun 6	- F	<i>Type of fault:</i> 0 = Unused log entry 1 = RTD (open or short) 2 = Component under temperature 3 = Component over temperature 4 = Processor or electrical failure

Fault Log Examples

Example 1:



An unused log entry.

Example 2:



If the LED on the tank key were on, this log entry would indicate that the tank is under temperature. If the LED on the hose key were on, this log entry would indicate that hose 1 is under temperature.



To view the number of heater hours that have elapsed since a log entry was created, simultaneously press both of the right-display scroll keys. The hours are indicated in the right display.

The melter will return to the automatic scan mode if the fault log is left open for a period of two minutes without any key being pressed.

When an F1 fault is the result of a hose/gun pair being disconnected from the melter, two fault log entries are created. The first entry is for the gun and the second entry is for the hose.

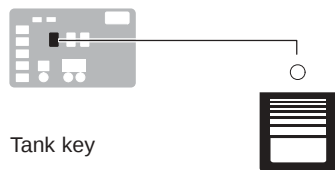
Adjusting Component Temperatures

You can adjust the set-point temperature of heated components using the following methods:

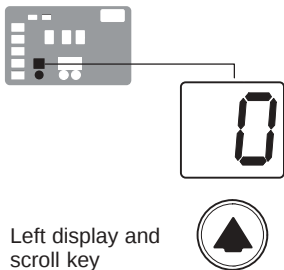
- **Global**—The tank and all hoses and guns are set to the same set-point temperature.
- **Global-by-component group**—All of the hoses or all of the guns are set to the same set-point temperature.
- **Individual Component**—The set-point temperature of the tank and each hose and gun is adjusted independently.

Before adjusting set-point temperatures, confirm that each hose/gun pair is connected to the correct hose/gun receptacle. For example, hose/gun pair 1 should be connected to the receptacle 1. Refer to *More About Heated Components* earlier in this section for information about hose/gun positions.

To adjust set-point temperatures using the global method



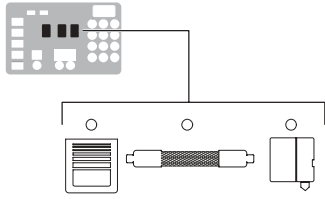
1. Press and hold the **Tank** key for three seconds.
The left display flashes 1.



2. Scroll the left display to 0 (flashing).
The right display indicates all dashes (----) and the LEDs on all of the component keys turn green.



3. Press a right-display scroll key.
The right display flashes.
4. Use the right-display scroll keys to enter the set-point temperature recommended by the manufacturer of the hot melt. Refer to the technical data sheet provided by the manufacturer of the hot melt to determine the optimal set-point temperature.
5. Press the **Tank** key.
All components begin to heat or cool to the new global set-point temperature. When all of the components reach their set-point temperature, the ready LED turns on (green).

To adjust the set-point temperature using the global-by-component method

Tank, hose, and gun keys

1. Press and hold the **Hose** or **Gun** key for three seconds.
The left display indicates the number of the first sequential hose or gun. The right display indicates the current set-point temperature of the hose or the gun.
2. Scroll the left display to 0.
The right display indicates all dashes (----).
3. Press a right-display scroll key.
The right display flashes.
4. Use the right-display scroll keys to enter the set-point temperature recommended by the manufacturer of the hot melt. Refer to the technical data sheet provided by the manufacturer of the hot melt to determine the optimal set-point temperature.
5. Press the left-display scroll key.
The hoses or the guns begin to heat or cool to their new set-point temperature.

To adjust the set-point temperature of an individual component

1. Press and hold the **Tank**, **Hose**, or **Gun** key for three seconds.
If the tank key was pressed, the left display indicates 1 (Flashing). If a hose or gun key was pressed, the left display indicates the number of the first sequential hose or gun (Flashing). The right display indicates the current set-point temperature of the component indicated in the left display.
2. Scroll the left display to the number of the desired component.
The right display indicates the current set-point temperature of the component that you selected in the left display.
3. Press a right-display scroll key.
The right display flashes.
4. Use the right-display scroll keys to enter the set-point temperature recommended by the manufacturer of the hot melt. Refer to the technical data sheet provided by the manufacturer of the hot melt to determine the optimal set-point temperature.
5. Do *one* of the following:
 - To register the new set-point temperature and then move on to change the set-point temperature of the next sequential component, press the left-display scroll key and then repeat steps 4 and 5.
 - To register the new set-point temperature and return to the automatic scan mode, go to step 6.
6. Press any component key (tank, hose, or gun).
The selected component begins to heat or cool to its new set-point temperature.



If you enter a valid set-point temperature for a hose/gun that is not connected to the melter or if you enter a set-point temperature that is out of range, the right display will indicate dashes (----) for three seconds and then change back to the original set-point temperature.

When the right display is flashing, you can quickly change the current set-point temperature to 0 degrees (off) by simultaneously pressing both of right-display scroll keys.

After removing a hose or a gun, use the individual component method of set-point temperature adjustment to set the component's temperature to zero degrees (off). This will avoid causing an F1 fault when a hose or gun is added, use the individual component method to set the desired temperature.

The factory set-point temperature of the tank is 175 °C (350 °F). The factory set-point temperature of all others components is zero degrees (off).

When the units of temperature is set to degrees Celsius, the minimum and maximum set-point temperatures are 40 °C and 230 °C. When the units of temperature are set to degrees Fahrenheit, the minimum and maximum set-point temperatures are 100 °F and 450 °F.

When using the scroll keys to adjust a set-point temperature, the right display automatically increments between 0, 175, and 230 °C or between 0, 350, and 450 °F.

The melter will exit the setup mode and return to the automatic scan mode two minutes after the last key is pressed.

A global set-point temperature of zero degrees (Celsius or Fahrenheit) turns all components off.

When scrolling through component numbers in the left display, component numbers that are associated with unused hose/gun receptacles are skipped.

The melter stores a record of the last ten changes made to the set-point temperatures (and operating parameters) in the change history log.

Section 3, *Installation, Review Parameter and Set-point Temperature Changes*

Using Melter Function Keys

The control panel provides the following standard and special function keys:

Standard function keys

- Heater
- Pump
- Setup

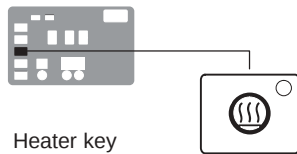
Special function keys

- Seven-day clock
- Standby



CAUTION: Unintentionally activating function keys can, under the correct circumstances, have undesirable effects on the melter or the manufacturing process. Only personnel who are familiar with the melter's setup should use the function keys. Improper use of the function keys can result in erratic process behavior or personal injury.

Heater Key

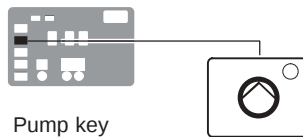


Heater key

Use the heater key to manually turn the component heaters on and off. Pressing the heater key overrides the control (on or off) of the heaters by the seven-day clock feature. The LED on the heater key illuminates when the heaters are on.

When a fault occurs (refer to *Monitor Melter Faults* earlier in this section) the heaters automatically turn off. The heater key is used to turn the heaters back on after correcting a fault condition.

Pump Key

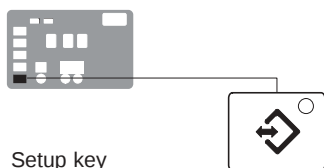


Pump key

Use the pump key to enable, start, and stop the pump. When a triggered handgun is connected to the melter, pressing the pump key enables the pump so that it can turn on when the trigger is activated. When the pump is enabled and waiting for a trigger signal, the pump LED is yellow. When the pump is running, the LED is green.

If the automatic pump on feature (parameter 8) is disabled, then the pump key must be used to start the pump when the melter is ready.

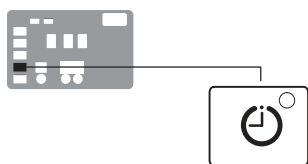
Setup Key



Setup key

Use the setup key to place the melter into and take the melter out of the setup mode. When the melter is placed into the setup mode, the automatic scan stops and the left and right displays are used to select and read or edit operating parameters.

Seven-day Clock Key



Seven-day clock key

Use the seven-day clock key to turn the melter's clock feature on and off. When the clock is on, the temperature of each heated component is automatically regulated based on a set of user-defined schedules.

To accommodate daily shift work and non-working days, four clock schedules are available. Schedules 1, 2, and 3 are used to specify when the heaters should turn on and off or when the melter should enter and exit the standby mode. Schedule 0 is used to keep the melter in the last condition dictated by the clock (heaters on or off, or standby).

When a clock schedule calls for the heaters to be on, the heaters are regulated at their pre-assigned set-point temperatures. When the clock activates the standby mode, the set-point temperature of each component is temporarily reduced by a pre-set standby delta.

Refer to Appendix B, *Operating Parameters, Seven-day Clock*, for information about setting up the seven-day clock and the standby delta.



If the melter is switched off while the clock is on, the clock will automatically turn back on the next time the melter is switched back on.

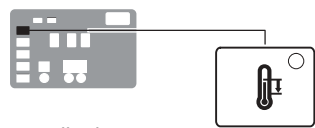
If the heaters are manually turned off at the time that a clock schedule calls for the heaters to be on, the heaters will not turn back on until the next clock schedule calls for them to be on.

The clock will still operate when the melter is faulting or is in the setup mode.

If F4 appears in the right display when you press the clock key, the internal clock function has failed.

Section 7, *Troubleshooting*

Standby Key



Standby key

Use the standby key to manually place the melter into, and take it out of, the standby mode. Using the standby mode during periods of time when the melter is inactive helps conserve energy and allows heated components to quickly return to their set-point temperatures when the melter is once again needed.

When the melter is placed into the standby mode, the temperatures of all components are reduced down from their set-point temperature by a pre-set standby delta. The melter will remain in the standby mode until the standby key is pressed or the function of one of the operating parameters takes the melter out of the standby mode.

If the melter was set up to use the manual standby timer (parameter 26), pressing the standby key will place the melter in the standby mode for the period of time specified by the timer. After the manual standby time has elapsed, the melter will once again begin heating all of the components to their assigned set-point temperature.

Using the standby key overrides the control of the melter (on or off) by the seven-day clock or a remote input.

Refer to Section 3, *Installation, Setting Up the Melter*, and to Appendix B, *Operating Parameters*, for information about setting the standby delta and the standby timer.



The melter may also be set up to automatically enter the standby mode using a variety of operating parameters.

Appendix B, Parameters 25, 26, 57, 62, and 67

Whenever manual standby is enabled, the standby LED blinks.

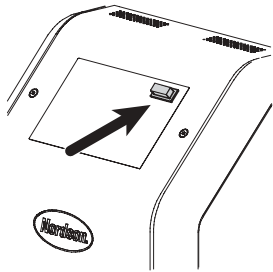
Appendix B, Parameter 26

Shutting Down the Melter

Shut the melter down when it will not be used for an extended period of time.

To shut the melter down

1. Switch the melter off.
2. Disable the guns as follows:
 - Air-operated guns: Turn off the air supply to the guns.
 - Electric guns: Turn off the gun driver, pattern controller, or timer.



Melter control switch (on/off)

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Section 5

Maintenance



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

Table 5-1 describes the preventive maintenance tasks required to keep DuraBlue melters operating within their specified limits and to prevent equipment malfunctions. For information about maintaining optional equipment that was supplied by Nordson, refer to the instructions provided with the equipment.

If the melter stops operating or is operating incorrectly, refer to Section 6, *Troubleshooting*, for information about diagnosing common problems and performing corrective maintenance.

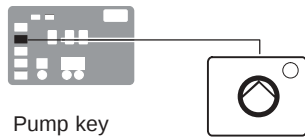
Table 5-1 Preventive Maintenance Tasks

Task	Frequency	Reference
Relieving system pressure	Before performing any maintenance task that requires opening a hydraulic connection or port	<i>Relieving System Pressure</i>
Cleaning the exterior of the melter, hoses, and guns	Daily	<i>Cleaning the Melter</i>
Replacing the filter NOTE: Some DuraBlue melters do not have a filter.	- As needed - When changing the type or grade of hot melt	<i>Replacing the Filter</i> Instruction sheet provided with replacement filter
Cleaning the tank	- When changing the type or grade of hot melt - When excessive charring occurs	<i>Cleaning the Tank</i>

Relieving System Pressure

Before disconnecting any hydraulic fitting or opening any pressurized port, always complete the following procedure to safely relieve hydraulic pressure that may be trapped inside the melter, hoses, and guns.

To relieve system pressure



Pump key

1. Press the **Pump** key to stop the pump.
2. Trigger the guns until hot melt no longer flows from the guns.

Cleaning the Melter

To prevent components from overheating due to heat build-up or loss of air circulation, regularly remove any hot melt that collects on the exterior of the melter, hoses, and guns.

If hot melt inadvertently spills inside the melter's interior spaces, the side panels can be removed in order to clean out the spilled hot melt.



WARNING: Risk of electricution and fire! Do not clean the melter with a direct stream of water or steam. Use only water or an appropriate, non-flammable cleaning solution that is applied using a clean cloth. Cleaning the melter using a direct stream of water or steam or a flammable solvent can result in property damage and personal injury, including death.

To clean the exterior of the melter

- Use only cleaning compounds that are compatible with polyester.
- Apply cleaning compounds using a soft cloth.
- Do not use pointed or sharp tools to clean the exterior surface.

To remove and replace the exterior panels

See Figure 5-1.

1. De-energize the melter. Refer to Section 1, *Safety*.
2. Use a 4 mm ($\frac{5}{32}$ -inch) hex-head wrench to turn the $\frac{1}{2}$ -turn fastener located in the center of each side panel counterclockwise.
3. Lift the panel out of the melter's frame.
4. Reverse steps 2 and 3 to reinstall each panel.

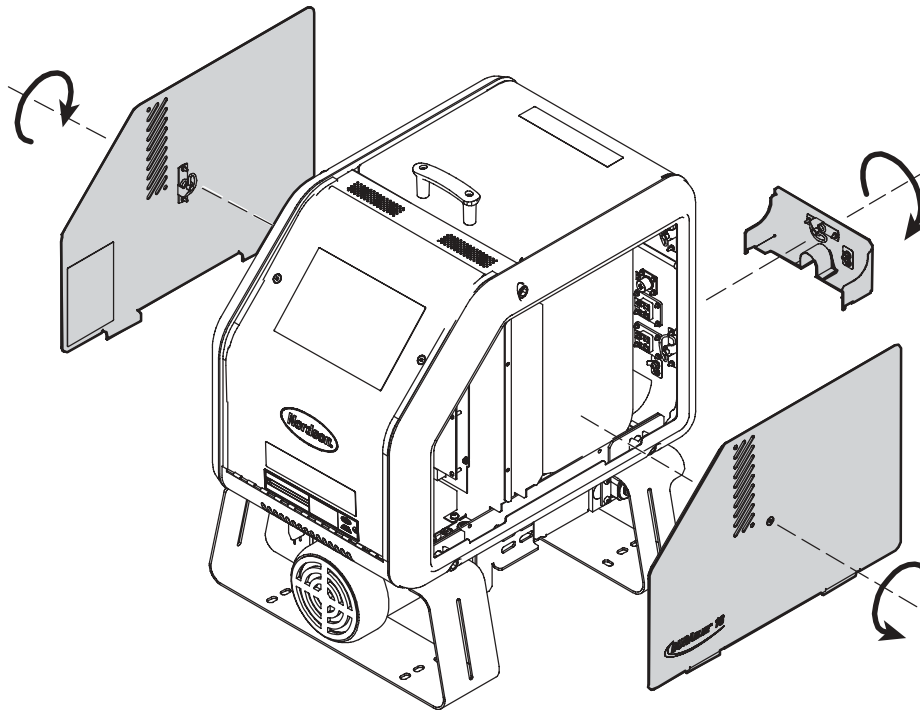


Figure 5-1 Removing the exterior panels

Replacing the Filter

Some DuraBlue melters are equipped with a 100-mesh (0.15-mm) disposable hot melt filter. The filter removes debris and char from the hot melt as it flows from the tank. Hot melt flows from the inside to the outside of the filter, trapping contaminants inside the filter. There is no need to back-flush or clean the filter.

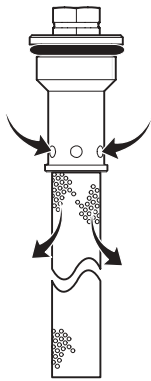
When the filter reaches the end of its service life, it should be replaced. The factors that determine the service life of the filter are:

- the type, grade, and purity of the solid-form hot melt
- the set point temperature of the tank
- the period of time that the hot melt remains in the tank

The filter should also be replaced when making the change to a different type or grade of hot melt.

To determine the optimal service life for the filter, monitor and compare the total number of hours that the heaters are on with observations of:

- the purity of the dispensed hot melt
- increases in operating pressure
- the frequency of gun nozzle replacement or cleaning



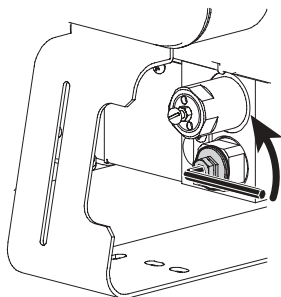
Hot melt flow path

To replace the filter

1. Relieve the system pressure. Refer to *Relieving System Pressure* at the beginning of this section.
2. Use an 8 mm ($\frac{5}{16}$ -inch) hex-head wrench or an adjustable wrench to loosen (counterclockwise) and then remove the filter.
3. Properly dispose of the old filter.
4. Confirm that the O-ring on the new filter is in good condition (100-mesh filter is P/N 1028305).

NOTE: 50- and 150-mesh filters are also available (P/Ns 1021941 and 1034720).

5. Screw the filter into the pump body and then tighten the filter to 4.5 N•m (40 in.-lb).
6. Resume normal operation.



Loosening the filter

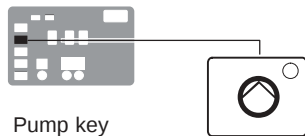
Cleaning the Tank

To avoid the problems that can occur when different hot melt materials are mixed or when hot melt char forms in the tank, clean the tank when:

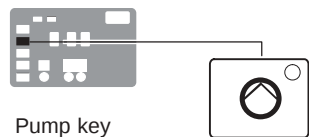
- changing to a different type of hot melt
- excessive char builds up inside the tank

NOTE: The tank cleaning procedures provided in this section require that an appropriate flushing material be used. The flushing material should be compatible with both the previous adhesive and the new adhesive, if applicable.

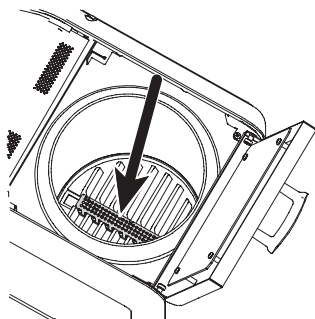
To clean the tank when changing hot melt



1. Operate the melter normally until the tank is empty.
2. Press the **Pump** key to stop the pump.
3. Allow the melter to heat or cool to the temperature recommended by the manufacturer of the flushing material.
4. While wearing the appropriate protective equipment, wipe any residual hot melt from the inside of the tank.
5. Add the appropriate type and quantity of flushing material to the tank.
6. Press the **Pump** key to start the pump.
7. Pump all of the flushing material from the tank and through the hoses and guns.
8. Return the melter to normal operation and pump a minimum of one tank volume of fresh hot melt through the tank, hoses, and guns.

To clean the tank of excessive char

Pump key

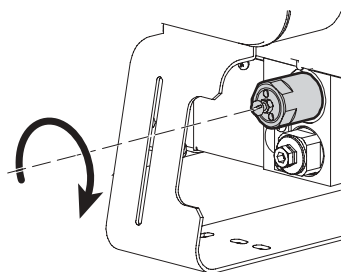


Tank strainer

1. Remove the old hot melt and loose char as follows:
 - a. Operate the melter normally until the tank is empty.
 - b. Press the **Pump** key to stop the pump.
 - c. Allow the melter to heat or cool to the temperature recommended by the manufacturer of the flushing material.
 - d. While wearing the appropriate protective equipment, wipe any residual hot melt and loose char from the inside of the tank.
 - e. Remove the tank strainer, clean it with an appropriate flushing material, and then reinstall it.
2. Add the appropriate type and quantity of hot melt solvent to the tank.
3. Disconnect a hose from a gun and direct the hose into a waste container.
4. Close the pressure control valve by turning the valve all the way clockwise.



WARNING: Risk of burns! Wear protective equipment and use caution when pumping hot material into a waste container.



Closing the pressure control valve

5. Press the **Pump** key to start the pump.
6. When the tank is empty, stop the pump.
7. Fill the tank with fresh hot melt.
8. Repeat steps 5 and 6 to pump all of the hot melt out of the tank.
9. Reconnect the disconnected hose to its gun.
10. Replace the filter. Refer to *Replacing the Filter* earlier in this section.
11. Fill the tank with fresh hot melt and then purge all of the hoses and guns with the fresh hot melt.
12. Restore the system to normal operation.

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Section 6

Troubleshooting



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

This section provides quick-reference information for diagnosing melter faults indications as well as comprehensive melter diagnostic information that is provided in flowchart format.

If you cannot resolve the problem using the troubleshooting flowchart, contact your Nordson representative for technical assistance.

Safety

- Never disconnect cables from, or reconnect cables to, any circuit board while the melter is energized.
- Before breaking any hydraulic connection, always relieve system pressure. Refer to Section 5, *Relieving System Pressure*.
- Refer to the safety information provided with optional equipment.

Melter Faults

Table 6-1 lists the four types of melter faults, potential causes, and expected corrective actions.

Table 6-1 Faults

Fault Code/Sub-code	Fault Name	Cause	Corrective Action
F1/None	RTD	The RTD for the component indicated has failed or the component was disconnected from the melter.	Replace RTD Check hose/gun connections See flowchart T.2
F2/None	Under temperature	The actual temperature of the component indicated has dropped below the under temperature delta, which was set using parameter 22.	Check for conditions that may cause a drop in ambient temperature Raise the set-point temperature of the component Replace RTD See flowchart T.2
F3/None	Over temperature	The actual temperature of the component indicated has increased beyond the over temperature delta, which was set using parameter 21.	Replace RTD See flowchart T.2
F4/1	RAM test	Internal RAM failure	Replace CPU
F4/2	Internal Clock time	Internal clock failure	Replace CPU
F4/4	Internal clock battery backed RAM	Battery-backed RAM failure	Replace CPU
F4/5	Internal clock battery	Battery-backed RAM battery dead	Replace CPU
F4/6	Analog-to-digital	RTD analog-to-digital converter failed	Replace main board or ribbon cable
F4/7	Analog-to-digital calibration	RTD analog-to-digital converter could not be calibrated	Replace main board or ribbon cable
F4/8	Main board feedback	Communication failure between main board and CPU	Replace main board, ribbon cable, or CPU
F4/A	Thermostat	Thermostat is open	Replace thermostat, XP6 harness, or main board

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Pump Operating Variables

When diagnosing apparent melter malfunctions, it is helpful to understand the following variables that control the status of the pump—enabled, disabled, running—and the associated indication that is provided by the pump LED.

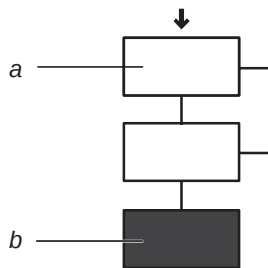
- Use/activation of a remote input to control the motor
- Use of parameter 8, *Automatic Pump On*
- Ready status of the melter
- Activation of a switched input (handgun or footswitch)
- Activation of the pump key

Table 6-2 provides the status of the pump LED for each combination of the pump operating variables.

Table 6-2 Pump Operating Variables

Automatic Pump On (Parameter 8)	Motor Mode	Ready Status	Pump Key Status	Switched Input Status	Pump LED Status
Disabled	Standard	No	Not active	N/A	Off
Disabled	Standard	Yes	Off	N/A	Off
Disabled	Standard	Yes	On	N/A	Green
Enabled	Standard	No	Off	N/A	Off
Enabled	Standard	No	On	N/A	Yellow
Enabled	Standard	Yes	Off	N/A	Off
Enabled	Standard	Yes	On	N/A	Green
Disabled	Manual	No	Not active	On/Off	Off
Disabled	Manual	Yes	Off	On/Off	Off
Disabled	Manual	Yes	On	Off	Yellow
Disabled	Manual	Yes	On	On	Green
Enabled	Manual	No	Off	On/Off	Off
Enabled	Manual	No	On	On/Off	Yellow
Enabled	Manual	Yes	Off	On/Off	Off
Enabled	Manual	Yes	On	On	Green
Enabled	Manual	Yes	On	Off	Yellow
Disabled	Standard	No	Not active	N/A	Off
Disabled	Standard	Yes	Off	N/A	Off
Disabled	Standard	Yes	On	N/A	Flashing Green
Disabled	Standard	Yes	On	N/A	Green
Enabled	Standard	No	Off	N/A	Off
Enabled	Standard	Yes	Off	N/A	Off
Enabled	Standard	No	On	N/A	Yellow
Enabled	Standard	Yes	On	N/A	Flashing Green
Enabled	Standard	Yes	On	N/A	Green

Using the Troubleshooting Flow Chart



Troubleshooting question and action blocks

a) Question b) Action

The flow chart is designed to assist you in diagnosing and correcting a complete or partial stop in hot melt output from the guns. The chart is organized in a simple question-action block format. If your response to a question is yes, continue downward in the chart to the next question or action block. If your response is no, continue to the right to the next question or action block. All diagnostic paths within the chart end with an action block that specifies one of the following three courses of action:

- Refer to information provided elsewhere in this manual
- Replace a component
- Contact Nordson Corporation for technical assistance

To return your melter to service as quickly as possible, the chart is designed under the assumption that it is preferable to immediately replace a faulty assembly as opposed to conducting detailed diagnostics and repair of the assembly while the melter is out of service.

Use of the chart assumes that the melter is installed correctly and that it is set up to support the current manufacturing process. Refer to Section 3, *Installation*, for information about installing and setting up the melter.

Identifying Electrical Components

Table 6-3 provides detailed descriptions of the circuit board indicators, connection points, and test points that are referred to in the troubleshooting chart. Figure 6-1 illustrates the location of each of these circuit board components.

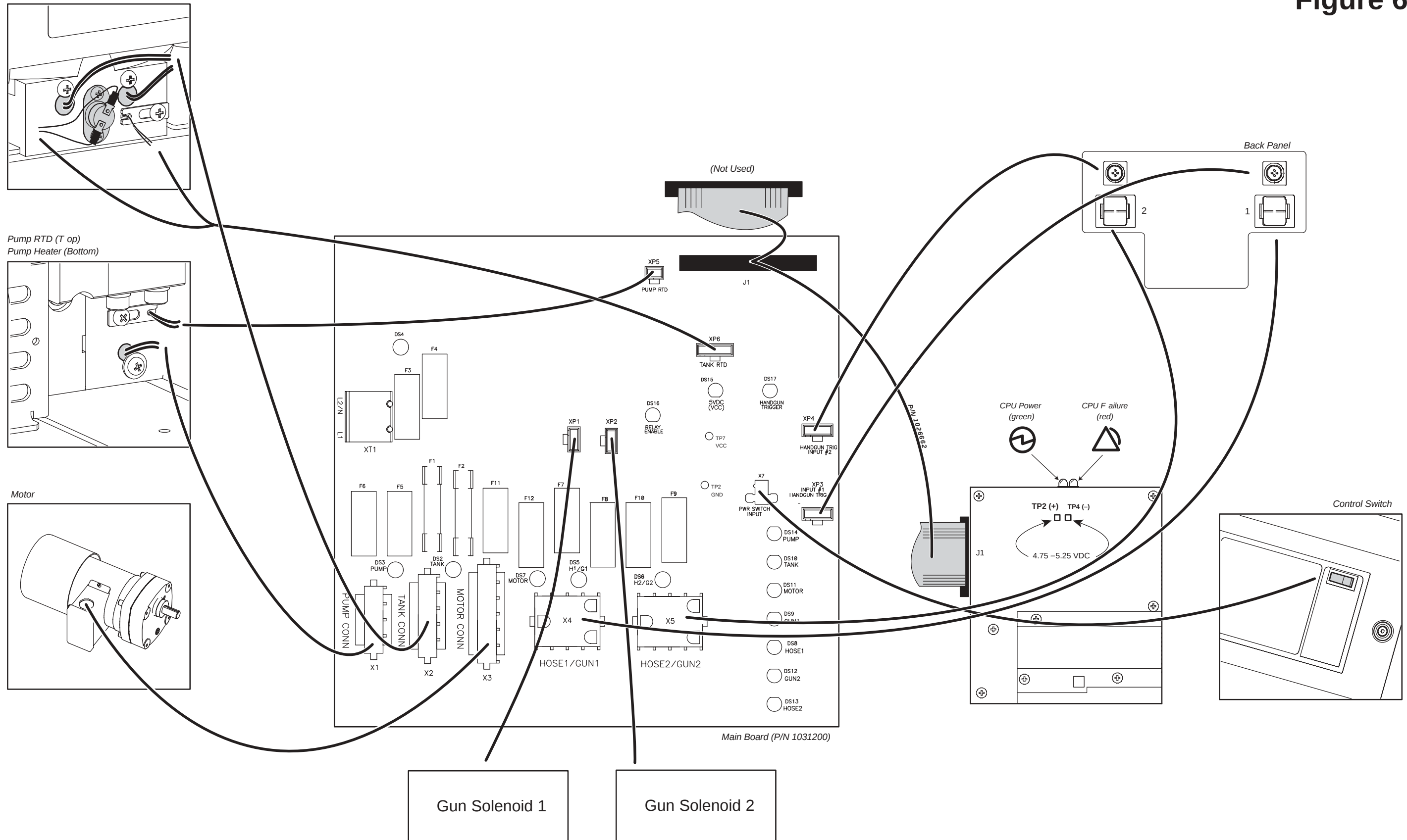
Table 6-3 Main Board Components

Item Number	Type	Description
<i>Indicators</i>		
DS2	Neon	Power to tank heaters
DS3	Neon	Power to pump heater
DS4	Neon	Power into board
DS5	Neon	Power to hose/gun 1 heaters
DS6	Neon	Power to hose/gun 2 heaters
DS7t	Neon	Power to motor
DS8	LED	Control signal for hose 1
DS9	LED	Control signal for gun 1
DS10	LED	Control signal for tank heaters
DS11	LED	Control signal for motor
DS12	LED	Control signal for gun 2
DS13	LED	Control signal for hose 2
DS14	LED	Control signal for pump heater
DS15	LED	+5 VDC out of low-voltage power supply
DS17	LED	Trigger closure present at XP3 or XP4
<i>Fuses</i>		
F1/F2	—	Tank heaters (10 A, 250 V, fast-acting)
F3/F4	—	Main power to board (2A, 250 V, slow-blow)
F5/F6	—	Pump heater (5 A, 250 V, fast-acting, 5 x 20 mm)
F7/F8	—	Hose/gun 1 heaters (6.3 A, 250 V, 5 x 20 mm)
F9/F10	—	Hose/gun 2 heaters (6.3 A, 250 V, 5 x 20 mm)
F11/F12	—	Motor power (6.3 A, 250 V, 5 x 20 mm)
<i>Connection Points</i>		
XT1	Input	High-voltage power connection to board
J1	Input/output	Signal ribbon cable between main board and CPU
XP1	Output	Control voltage to gun solenoid 1
XP2	Output	Control voltage to gun solenoid 2
XP3	Input	Switch closure from handgun 1
XP4	Input	Switch closure from handgun 2
XP5	Output	Control voltage to pump RTD
XP6	Output	Control voltage to tank RTD
X1	Output	High-voltage to pump heater
X2	Output	High-voltage to tank heaters
X3	Output	High-voltage to motor
X4	Input/output	High-voltage and control voltage out to hose/gun 1
X5	Input/output	High-voltage and control voltage out to hose/gun 2
X7	Input	Switch closure from melter control switch
<i>Test Points</i>		
TP7	Contact	+5 VDC out of low-voltage power supply
TP2	Contact	Circuit common of low-voltage power supply

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Tank Heater (Left and Right)
Thermostat (Center)
Tank RTD (Bottom right)

Figure 6–1



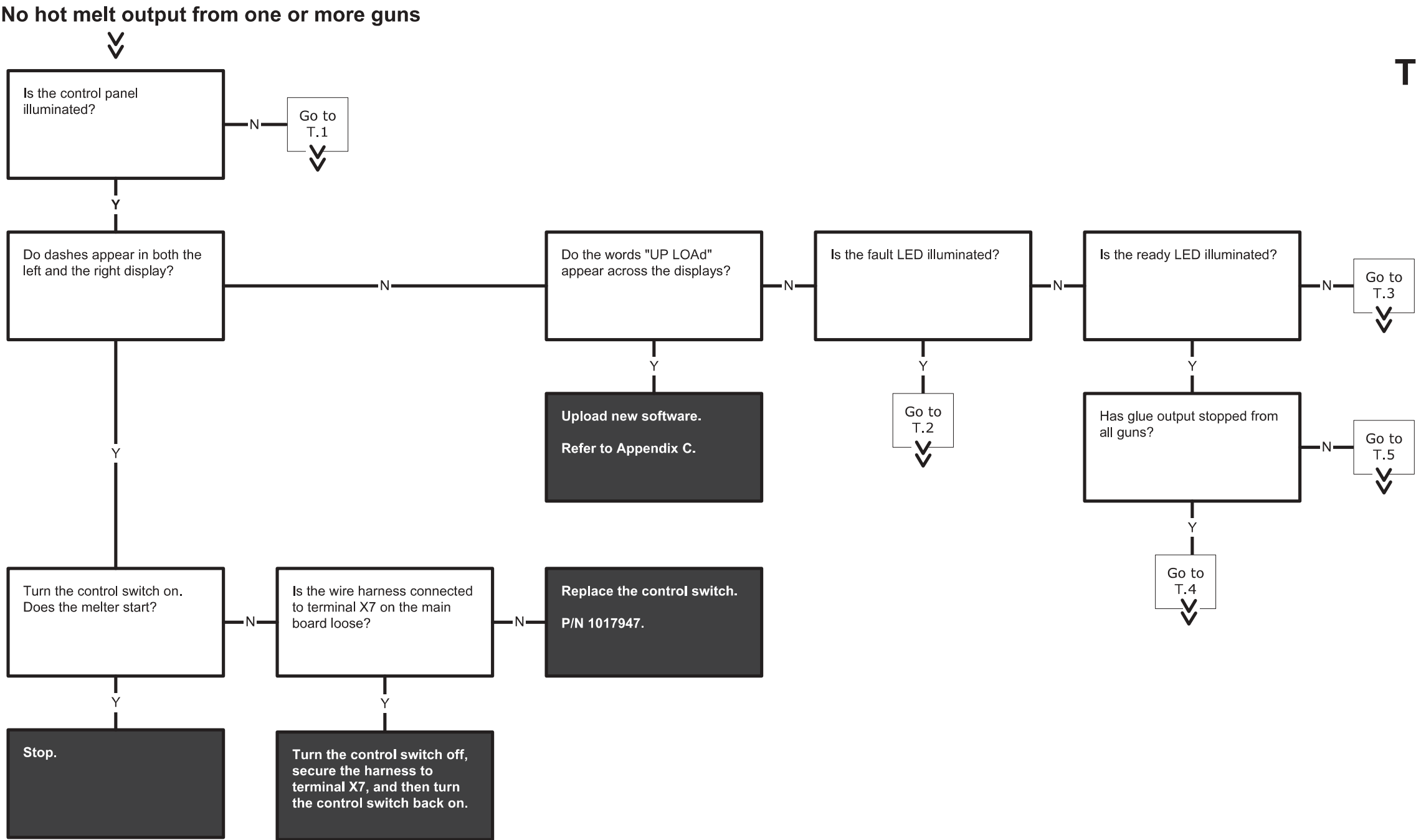
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DuraBlue

Troubleshooting

Chart

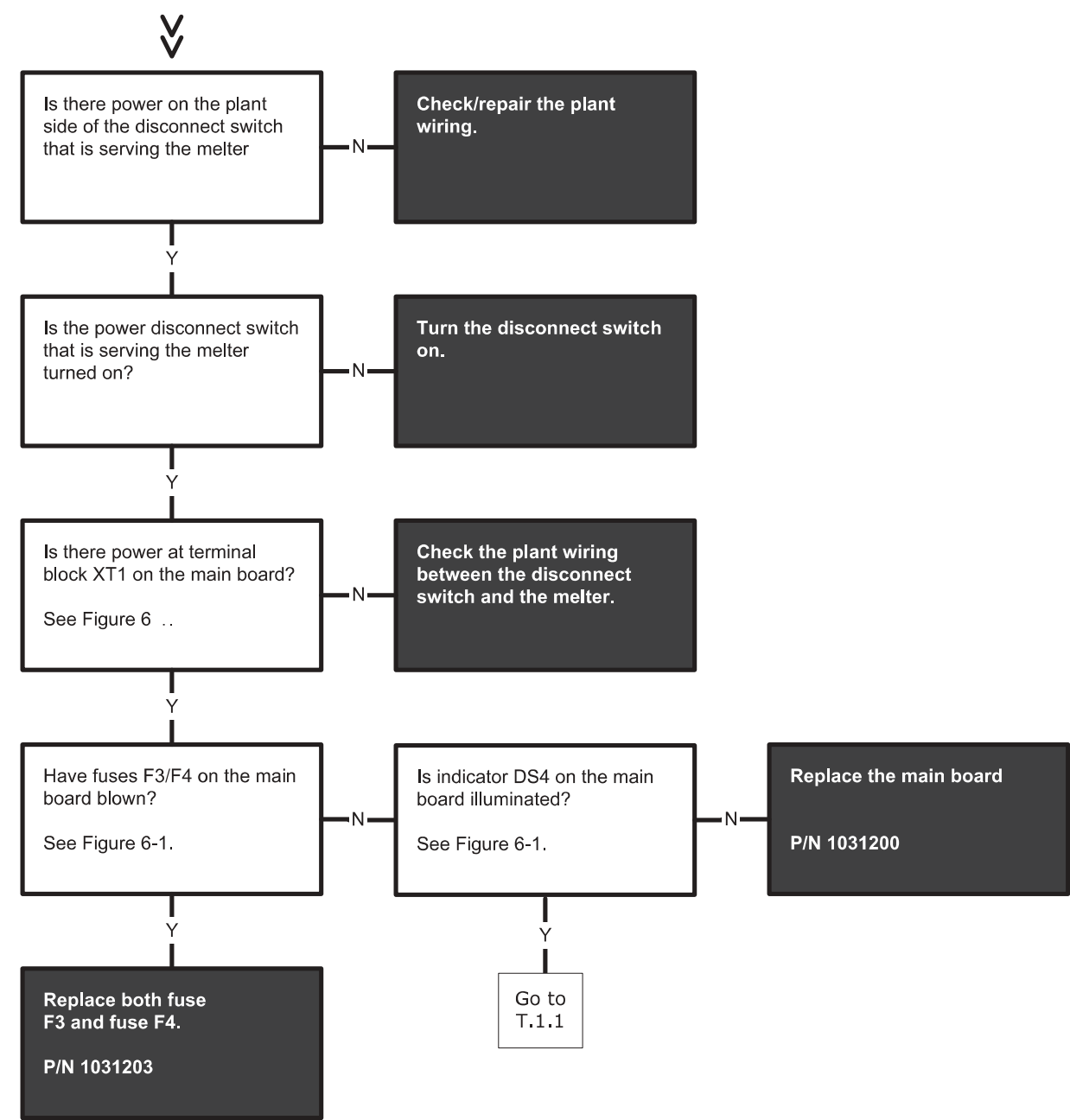
<< Start



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T.1

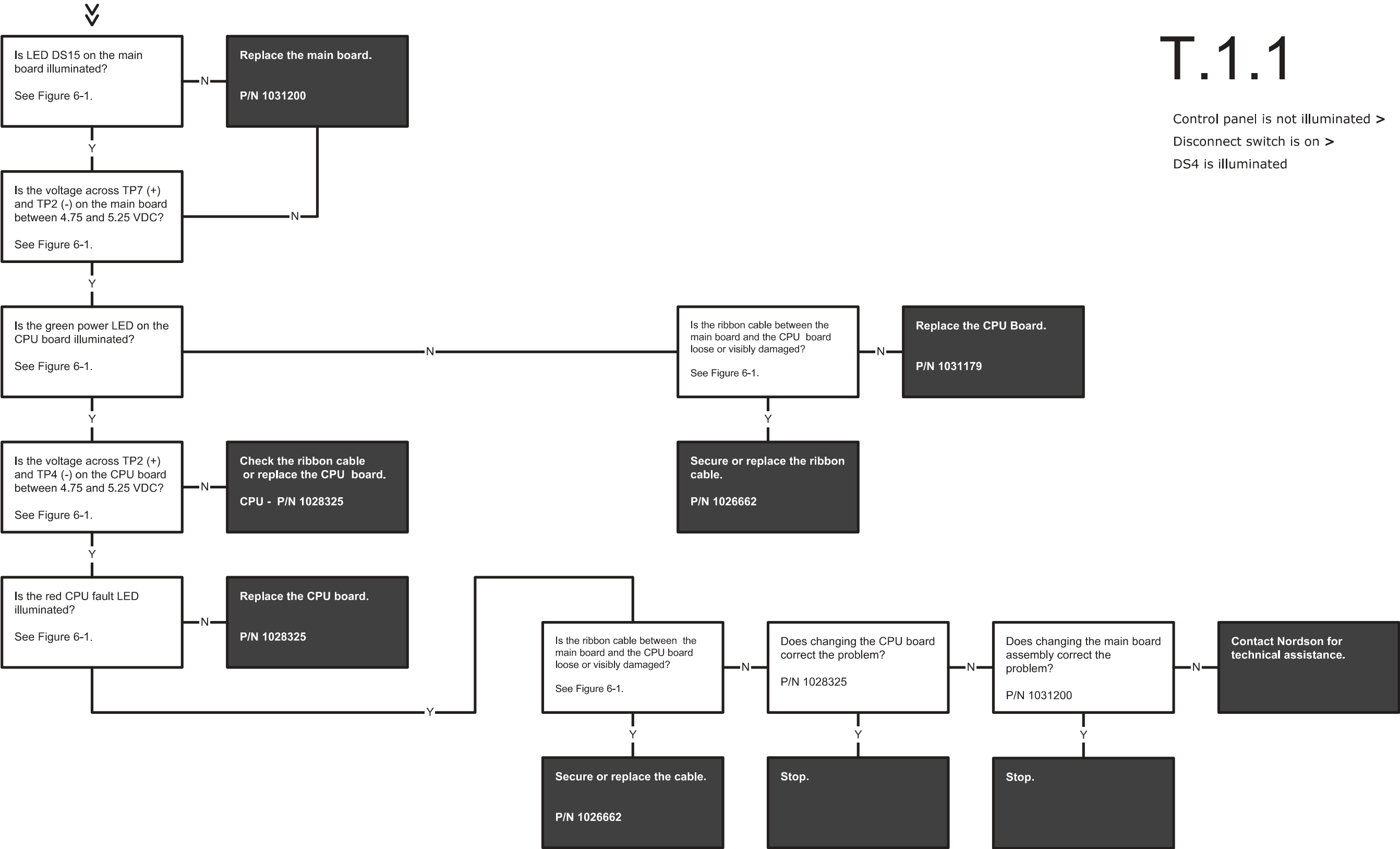
Control panel is not illuminated



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T.1.1

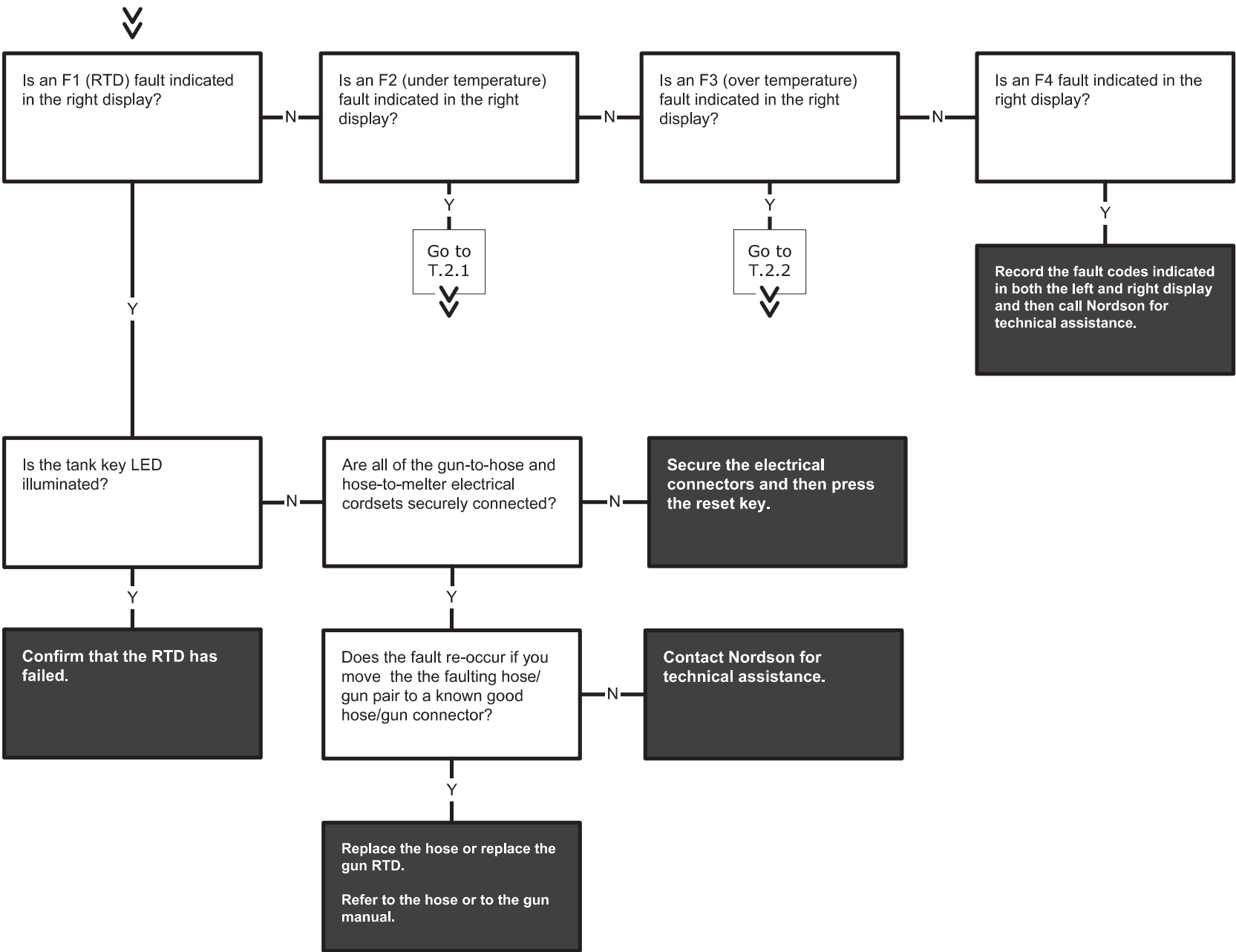
Control panel is not illuminated >
Disconnect switch is on >
DS4 is illuminated



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T.2

Fault LED is illuminated

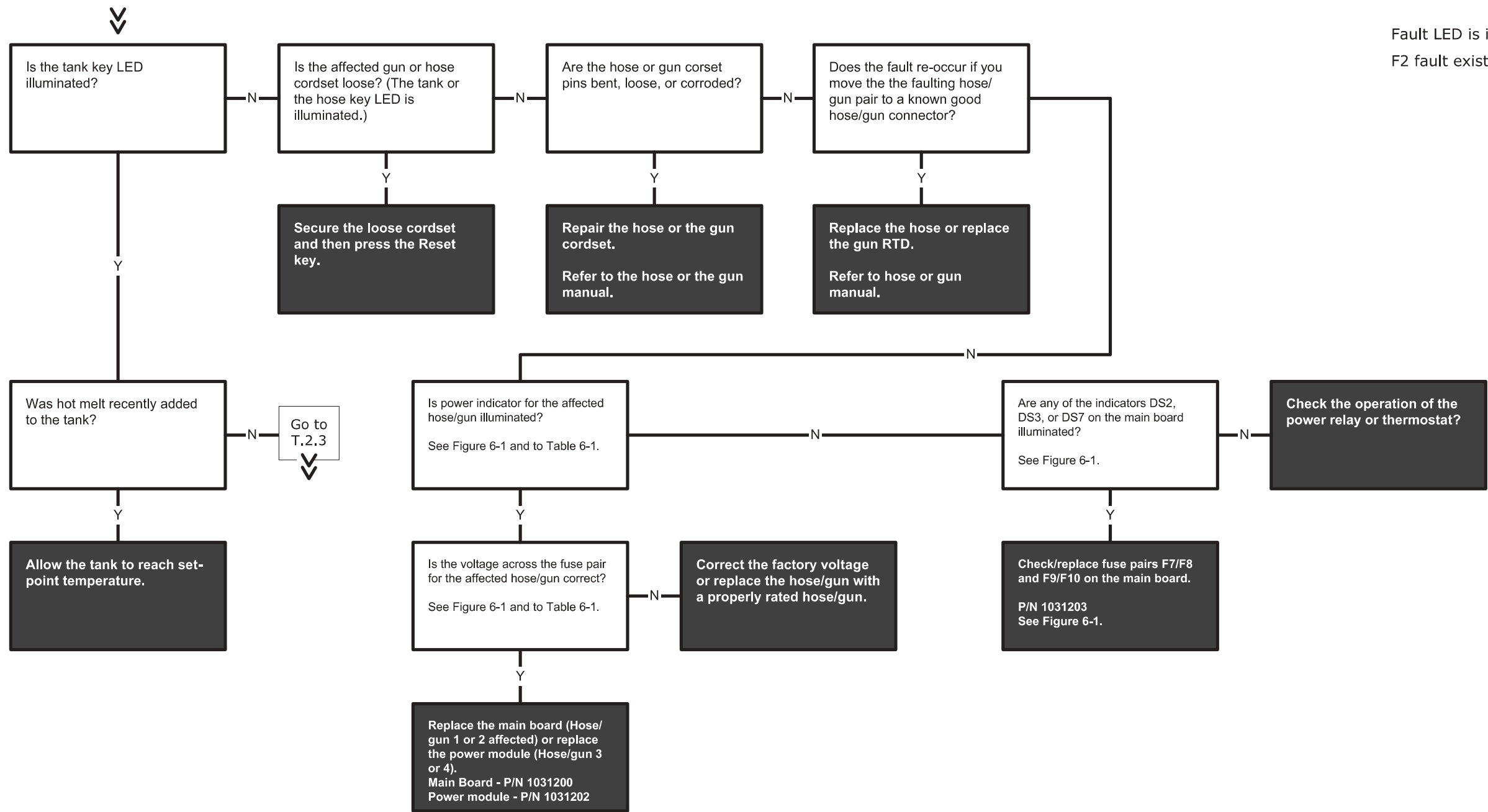


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T.2.1

Fault LED is illuminated >
F2 fault exists

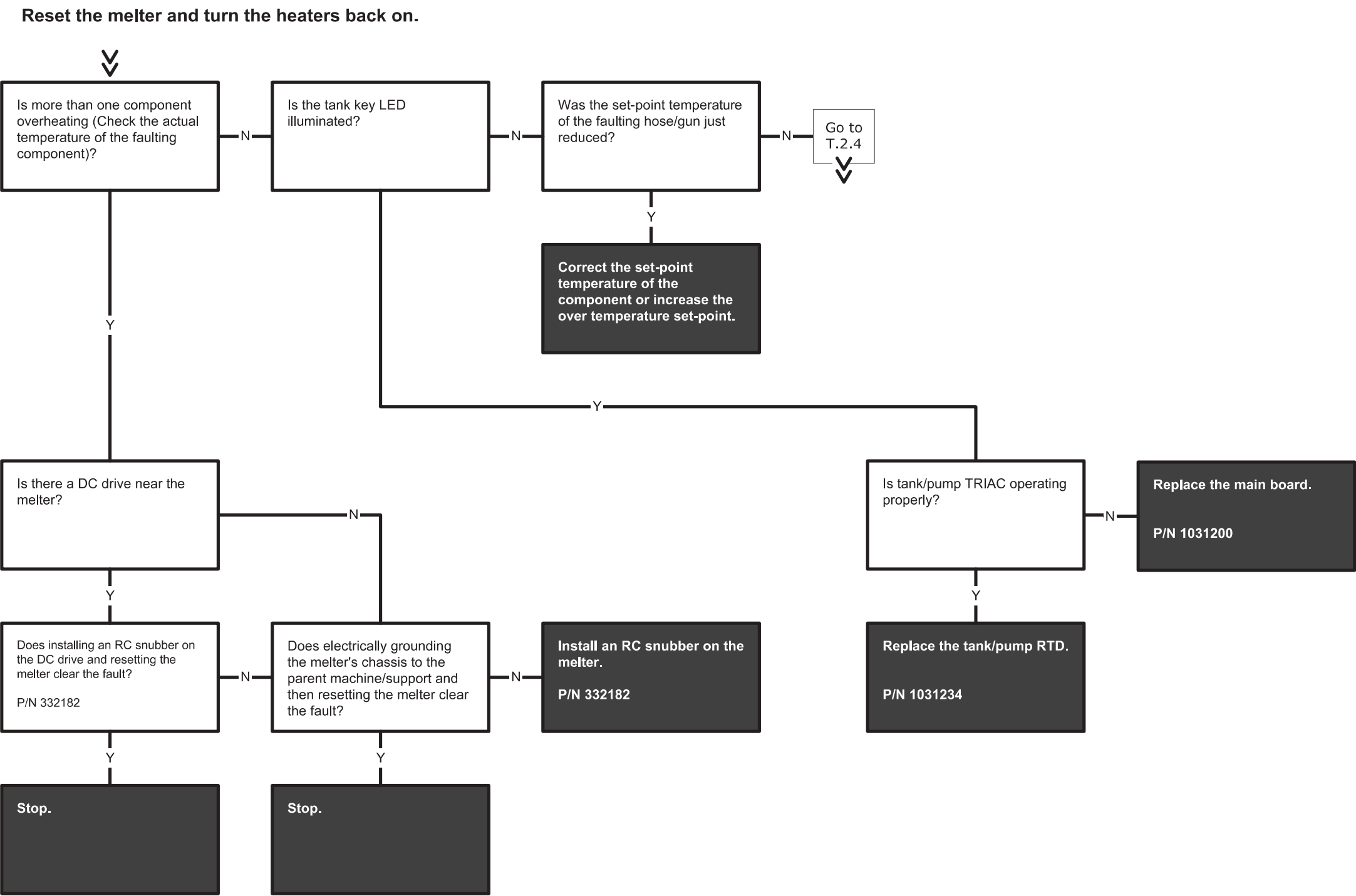
Reset the melter and turn the heaters back on.



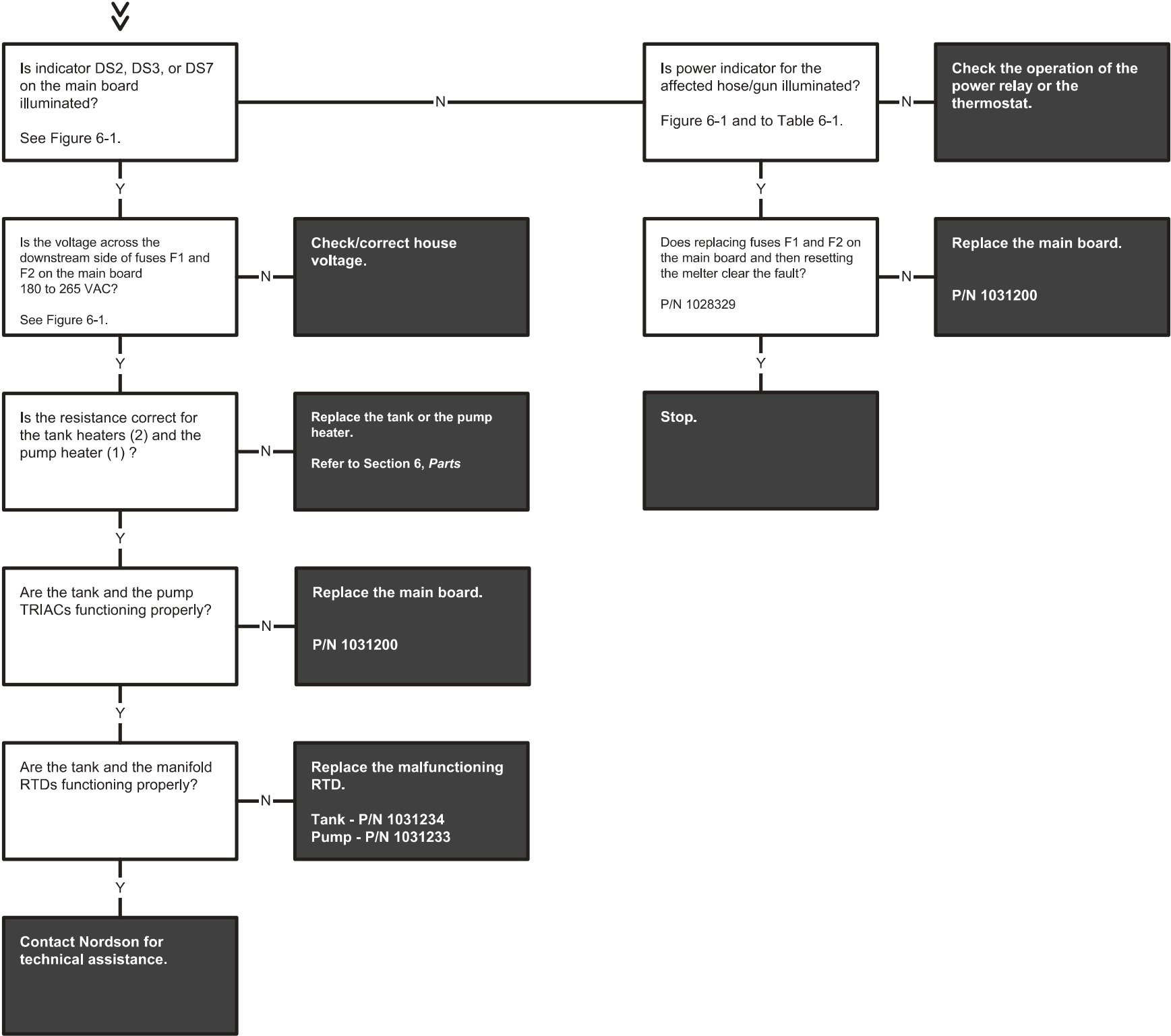
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T.2.2

Fault LED is illuminated >
F3 fault exists



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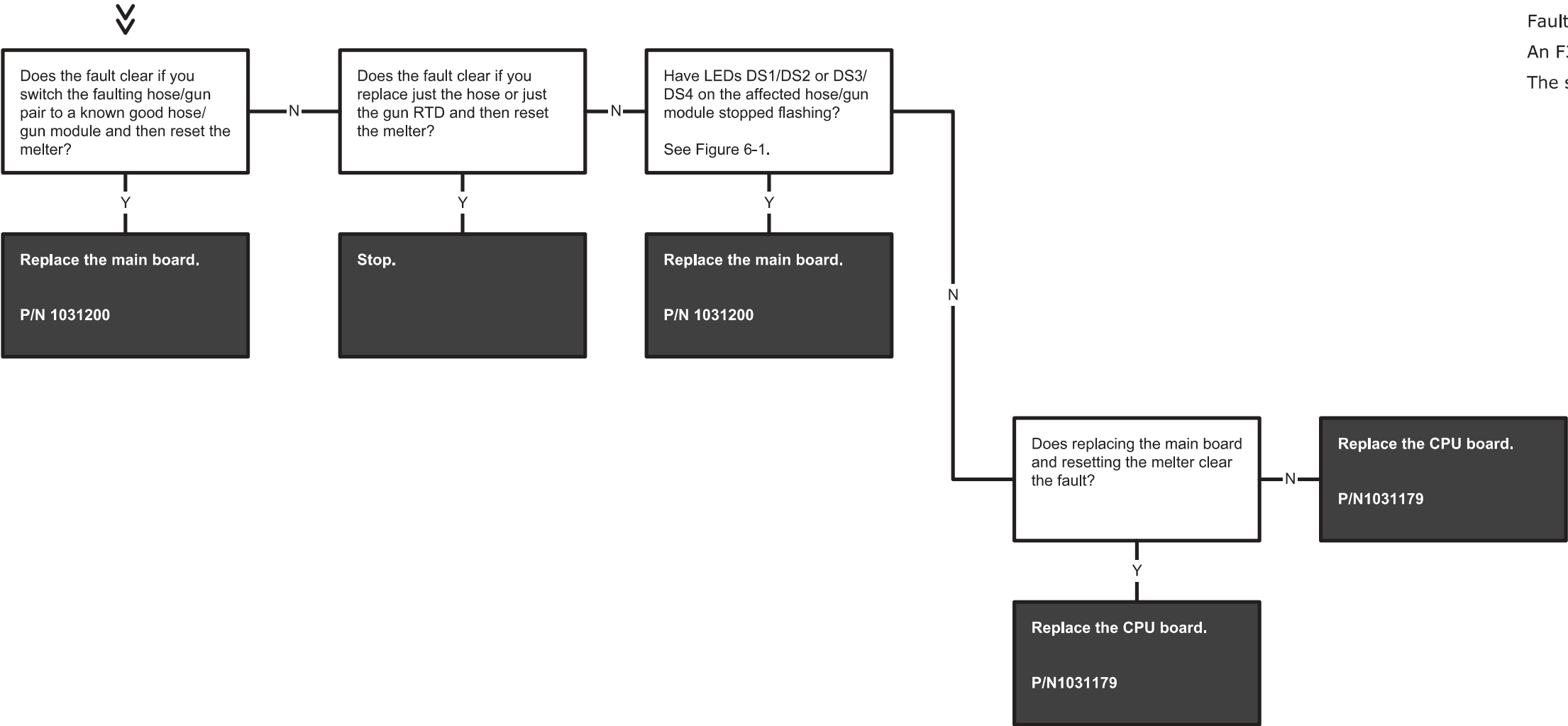
T.2.3

- Fault LED is illuminated >
- F2 fault exists >
- Tank key LED is illuminated >
- No hot melt was recently added to the tank

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T.2.4

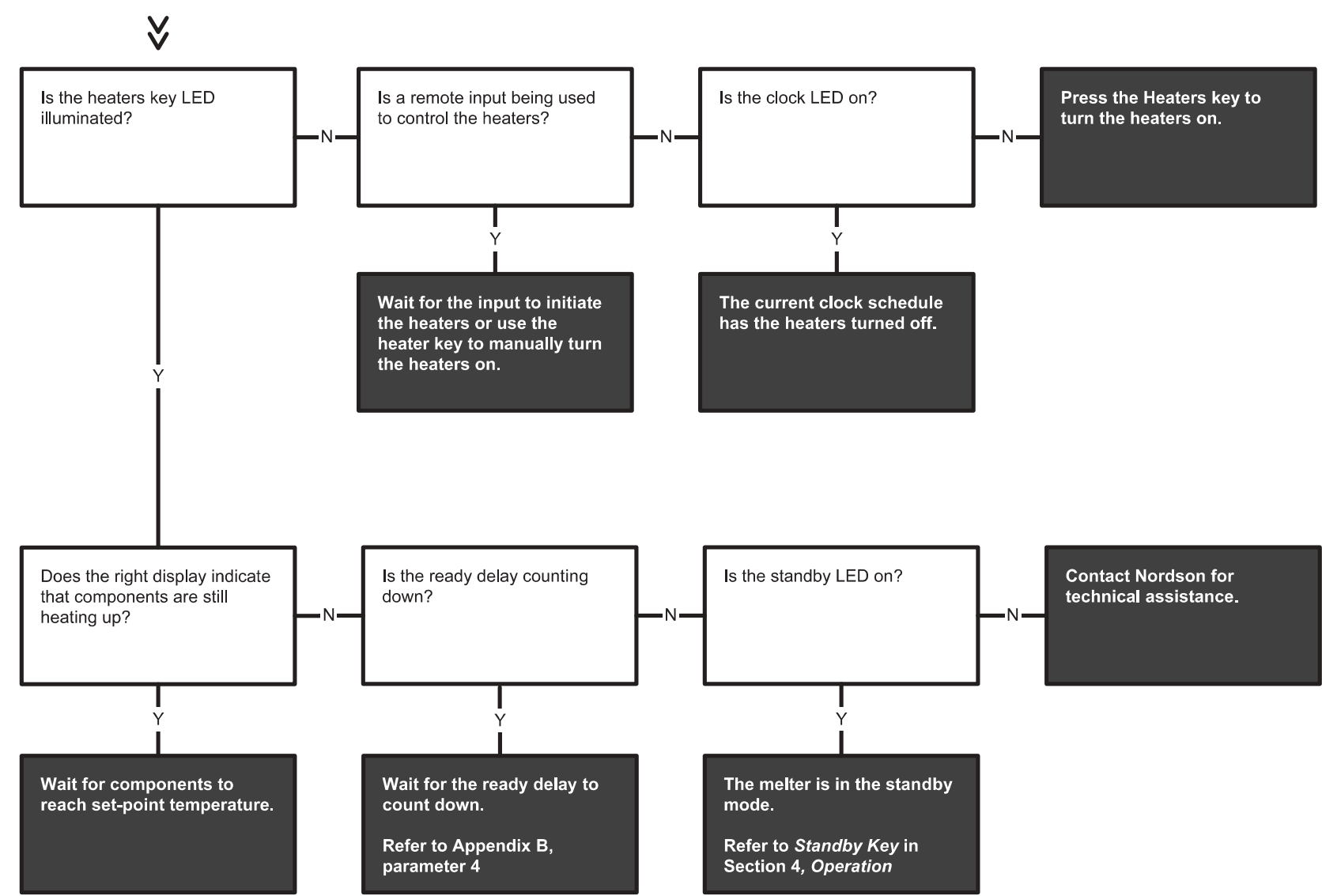
Fault LED is illuminated >
An F3 fault exists on a hose or or a gun >
The set-point temperature was not changed



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T.3

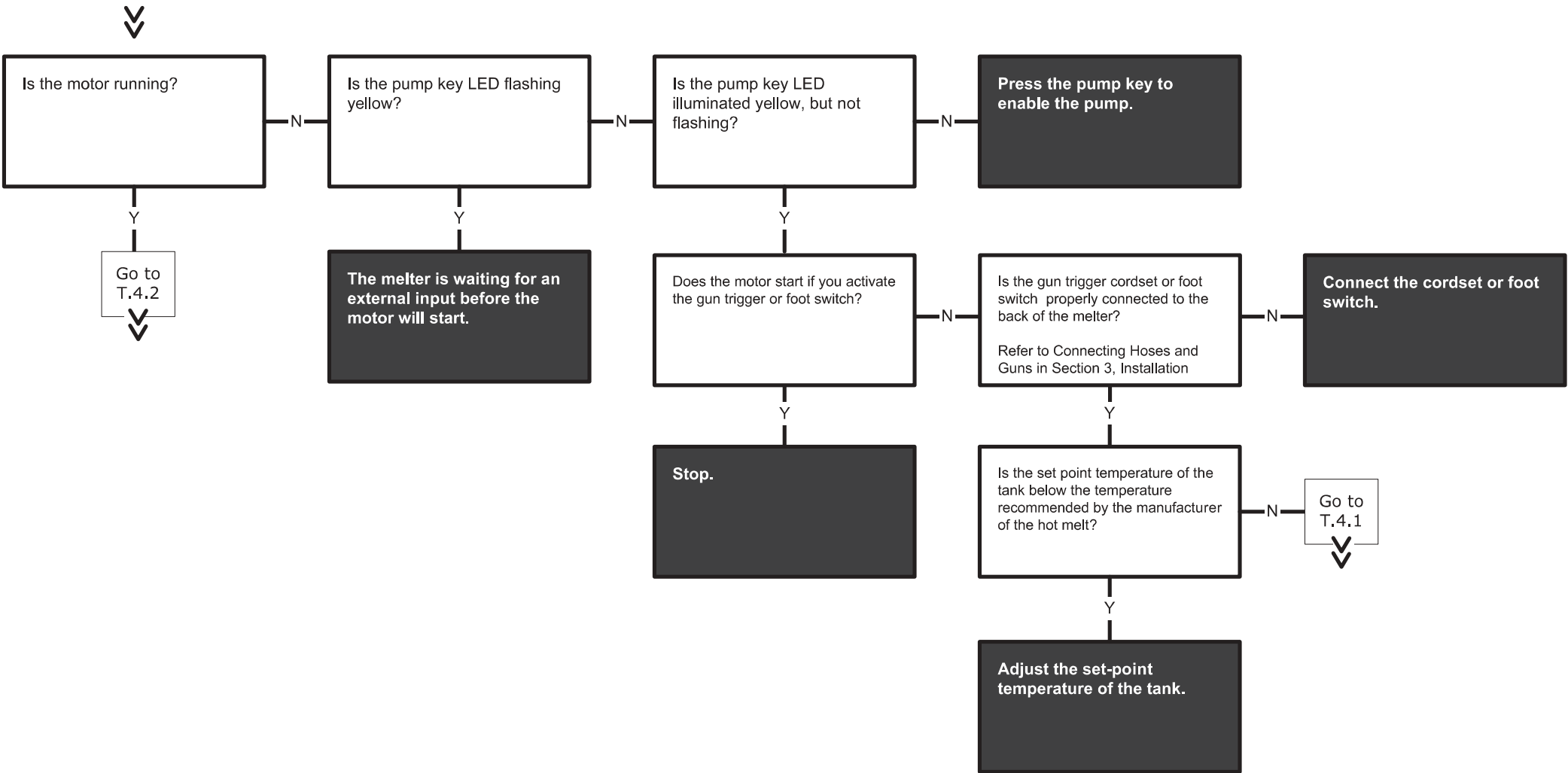
No faults >
Ready LED is not illuminated



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T.4

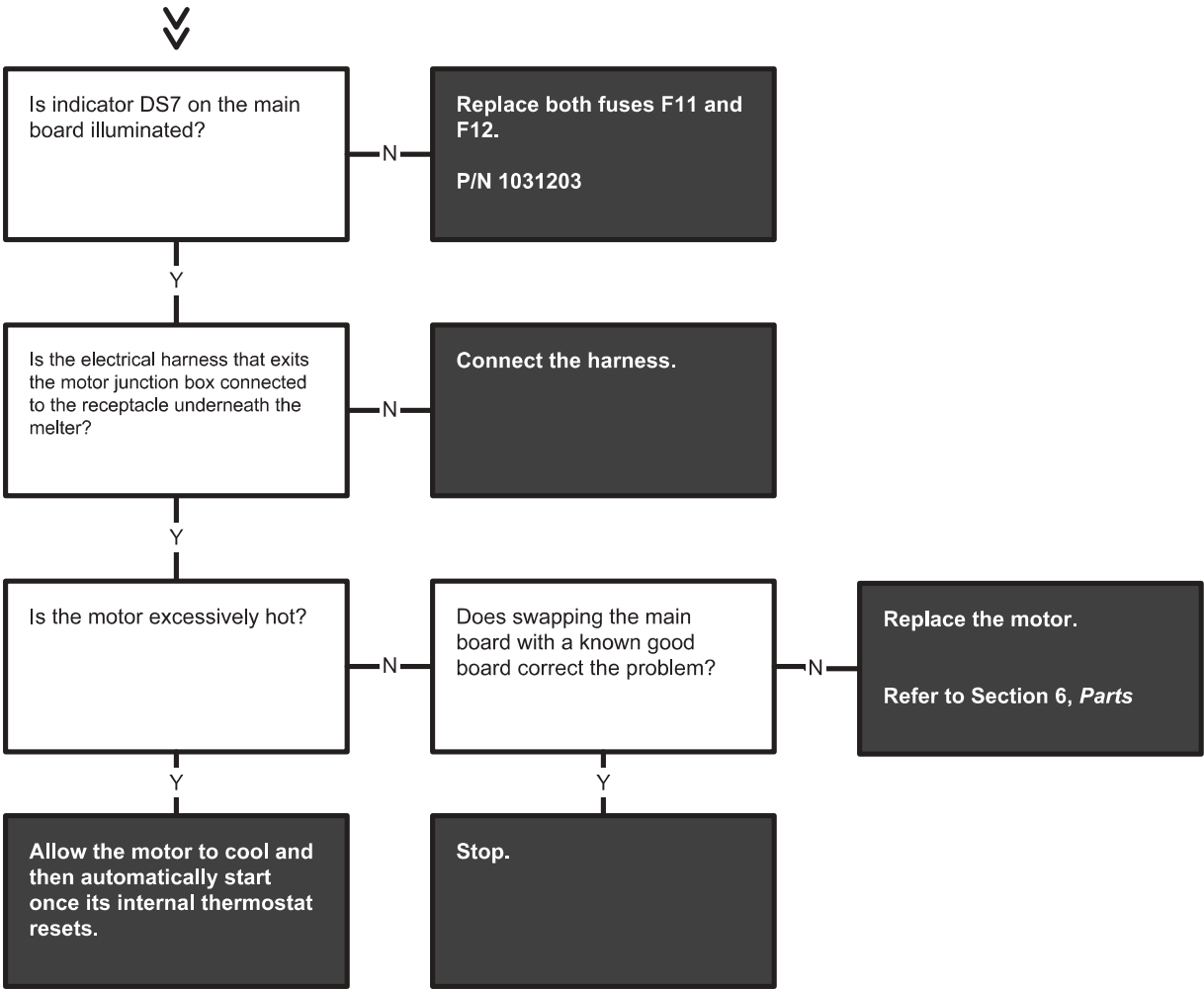
No faults >
Ready LED is illuminated >
No hot melt output from all guns



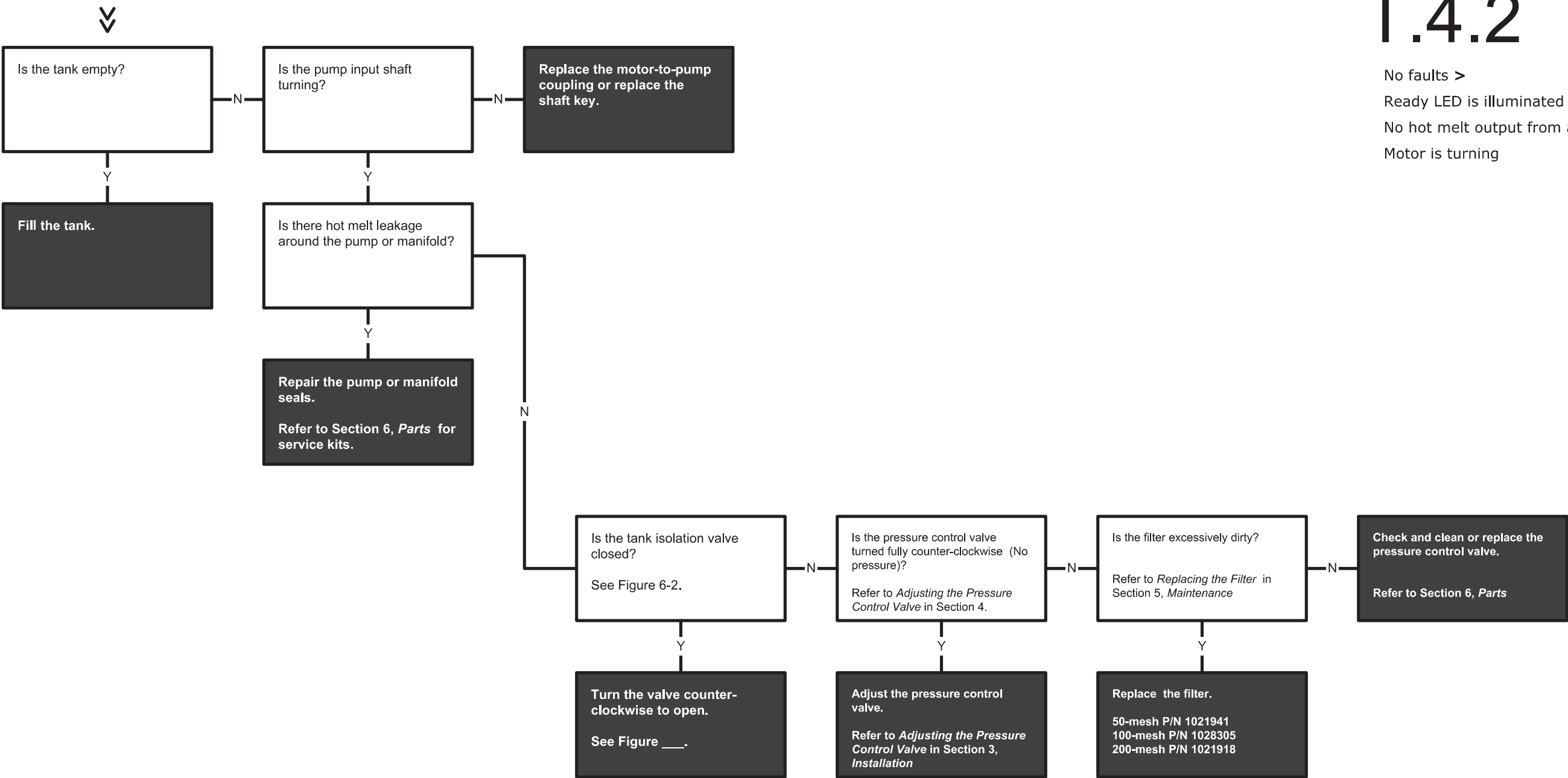
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T.4.1

- No faults >
- Ready LED is illuminated >
- No hot melt output from all guns >
- Motor is not turning >
- All motor start conditions are correct >
- Tank set-point temperature is correct



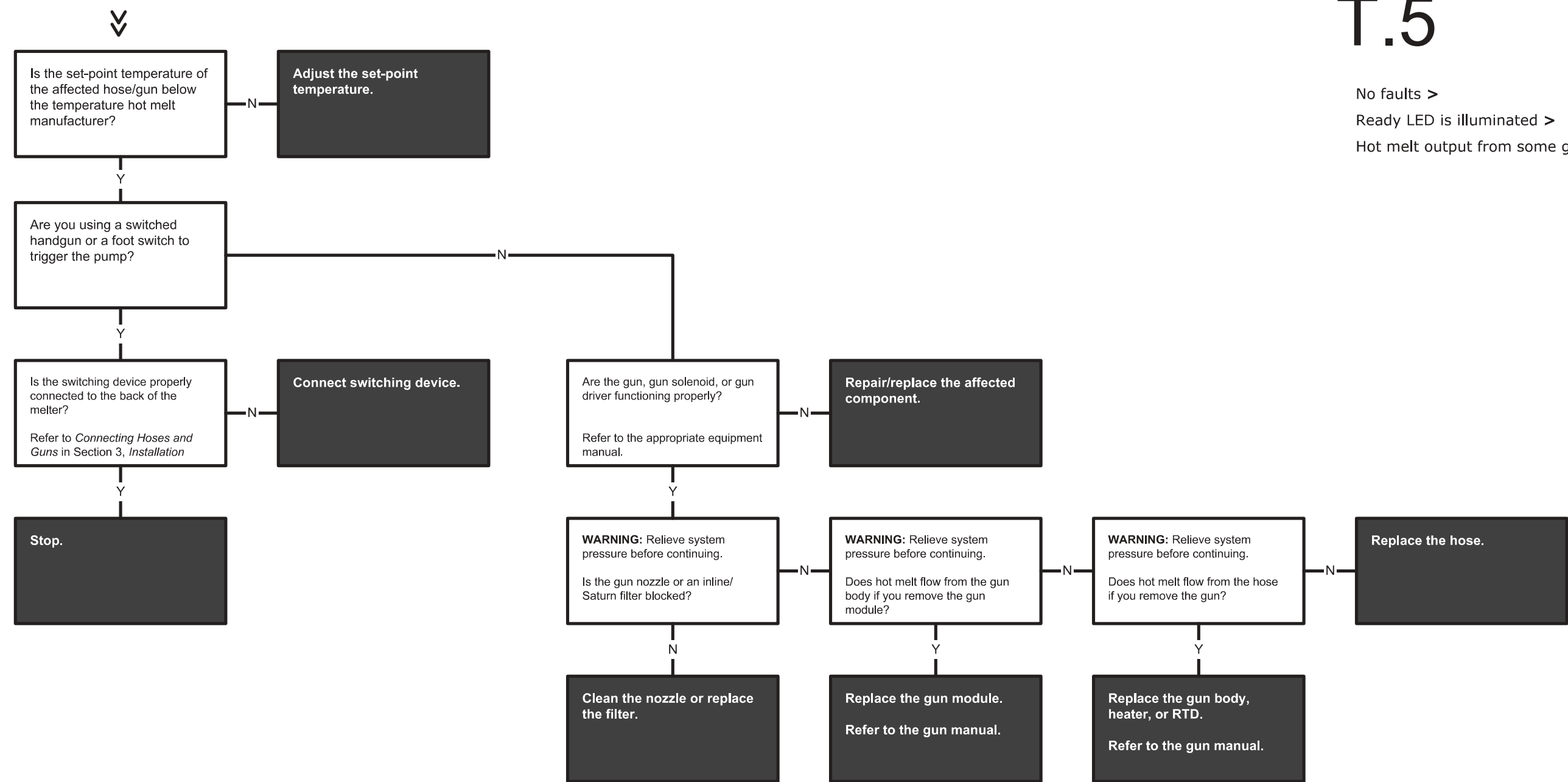
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T.5

No faults >
Ready LED is illuminated >
Hot melt output from some guns



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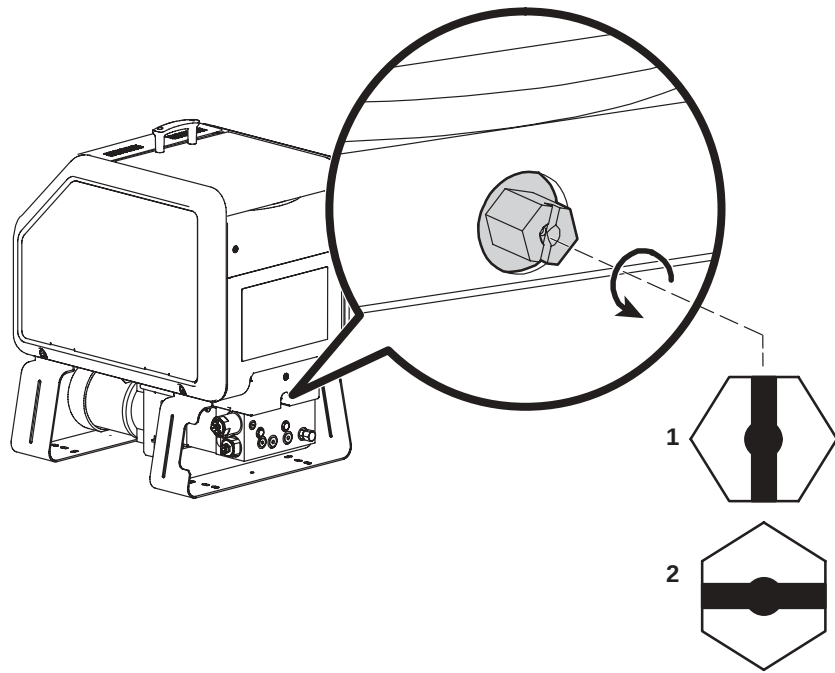


Figure NO TAG-2
Opening the tank isolation valve

1. Open
2. Closed

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Section 7

Parts

Using the Illustrated Parts List

The parts lists provided in this section are organized into the following columns:

Item—Identifies illustrated parts that are available from Nordson Corporation.

Part—Provides the Nordson Corporation part number for each saleable part shown in the illustration. A series of dashes in the parts column (- - - - -) means the part cannot be ordered separately.

Description—Provides the part name, as well as its dimensions and other characteristics when appropriate. Bullets in the description, indicate the relationships between assemblies, subassemblies, and parts.

Quantity—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.

NOTE: Illustrations of the model D10 melter are used throughout this section to represent all DuraBlue melters.

Front Panel Service Kits

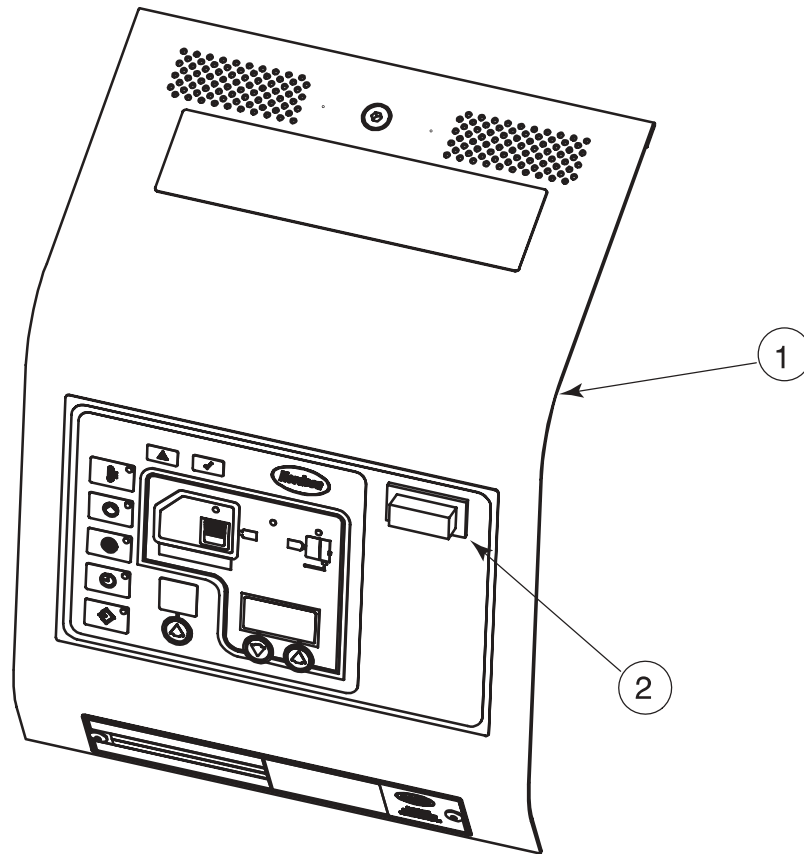


Figure 7-1 Front panel service kit parts

Item	Part	Description	Quantity	Note
—	1031176	Service kit, panel, front, D4L, with tags	—	
1	-----	• Panel, front	1	
—	1031177	Service kit, panel, front, D10L/D16L, with tags	—	
1	-----	• Panel, front	1	
2	1017947	Switch, rocker, SPST, 250 V, 16 A	1	

Electrical Component Service Kits

Electrical components include circuit boards, fuses, thermostats, heaters, RTDs, and ribbon cables.

Circuit Boards

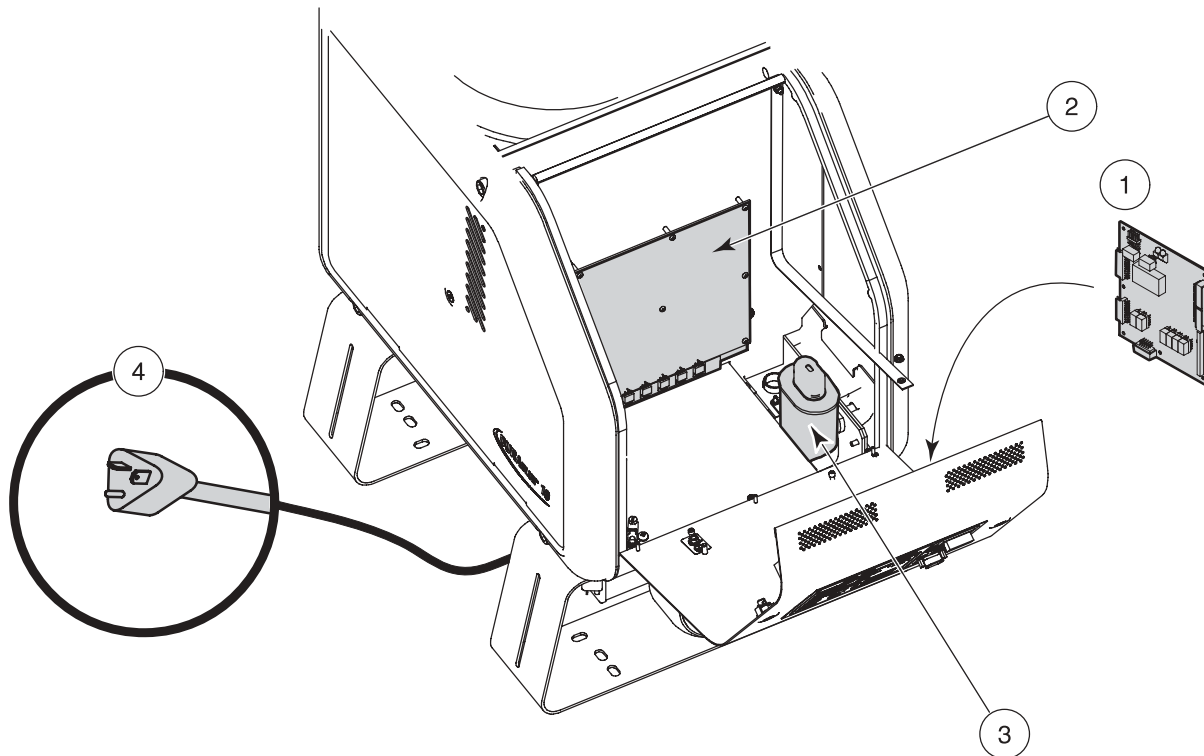


Figure 7-2 Circuit board service kit parts

Item	Part	Description	Quantity	Note
—	1028325	Service kit, board, display/central processing unit (CPU)	—	A
1	-----	• PCA, display/CPU	1	
NS	-----	• Stand-off, hex, M3 x 8 mm	6	
NS	-----	• Washer, lock, M3	6	
—	1031200	Board, main, with heat sink	—	A, B
2		• Board, with heat-sink	1	
3	-----	Capacitor	1	C
4	1033632	Cord, power, 120 V melter	1	D
NOTE A: Circuit board service kits include an anti-static wrist strap. B: For fuses, see Figure 7-3. C: A capacitor is provided in each motor service kit Refer to <i>Motor</i> , in <i>Drive Assembly Service Kits</i> later in this section. D: Available only for 120-volt melters.				

Fuses

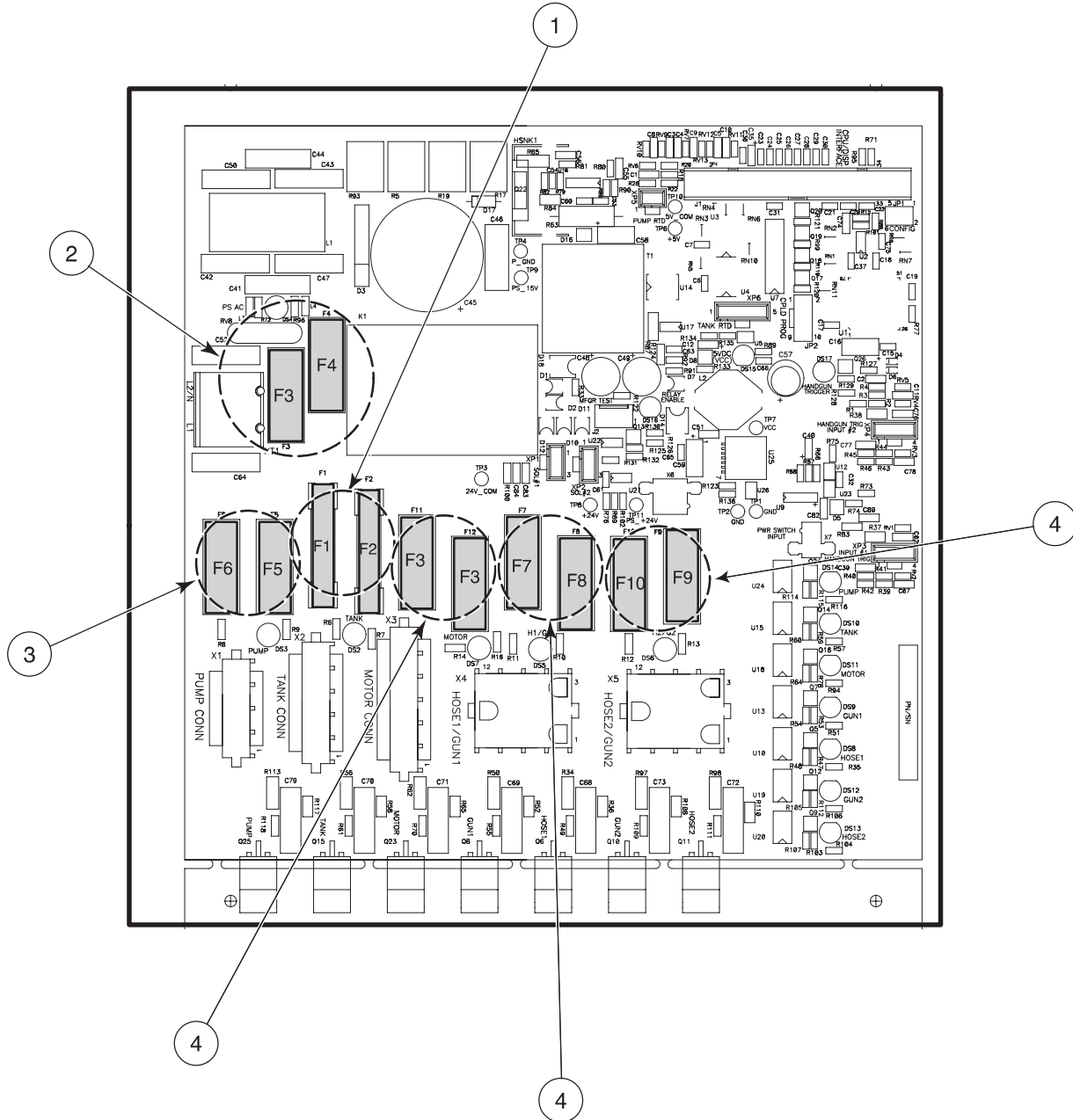


Figure 7-3 Fuse service kit parts

Item	Part	Description	Quantity	Note
—	1031203	Service kit, fuses, main board	—	
1	105419	• Fuse, fast, 10 A, 250 VAC, $\frac{1}{4} \times 1\frac{1}{4}$ in., F1–F2	2	
2	939955	• Fuse, slow, 2 A, 250 VAC, 5 x 20 mm, F3–F4	2	
3	-----	• Fuse, fast, 5 A, 250 VAC, 5 x 20 mm, F5–F6	2	
4	939683	• Fuse, 6.3 A, 250 VAC, 5 x 20 mm, F7–F12	6	

Thermostat, Heaters, and RTDs

Item	Part	Description	Quantity	Note
—	1028321	Service kit, thermostat,	—	
NS	-----	• Thermostat, 00R, 500 degree, open-on-rise	1	
NS	-----	• Screw, M4 x 6	2	
NS	-----	• Compound, thermal, 1 gram	1	
—	1031223	Service kit, heater, pump, D4L	—	A
NS	-----	• Heater assembly, 120 v, 350 W	1	
—	1031224	Service kit, heater, pump, D4L	—	A
NS	-----	• Heater assembly, 240 V, 350 W	1	
—	1031227	Service kit, heater, pump, D10L/D16L	—	A
NS	-----	• Heater assembly, 120 V, 300 W	1	
—	1031228	Service kit, heater, pump, D10L/D16L	—	A
NS	-----	• Heater assembly, 240 V 400 W	1	
—	1031225	Service kit, heater, tank, D4L	—	A
NS	-----	• Heater assembly, 120 V, 2 x 425 W	1	
—	1031226	Service kit, heater, tank, D4L	—	A
NS	-----	• Heater assembly, 240 V, 2 x 425 W	1	
—	1031231	Service kit, heater, tank, D10L/D16L	—	A
NS	-----	• Heater assembly, 120 V, 2 x 450 W	1	
—	1031229	Service kit, heater, tank, D10L	—	A
NS	-----	• Heater assembly, 240 V, 2 x 650 W	1	
—	1031230	Service kit, heater, tank, D16L	—	A
NS	-----	• Heater assembly, 240 V, 2 x 900 W	1	
—	1031233	Service kit, RTD, pump	—	A
NS	-----	• Sensor assembly, RTD	1	
—	1031234	Service kit, RTD, tank	—	A
NS	-----	• Sensor assembly, RTD and thermostat	1	
NOTE A: All heater and RTD service kits include thermal compound.				
NS: Not Shown				

Ribbon Cables

Item	Part	Description	Quantity	Note
NS	1026662	Cable assembly, ribbon, 34-position, 3 headers	—	A
NOTE A: Connects the CPU to the main board.				
NS: Not Shown				

Tank Strainer

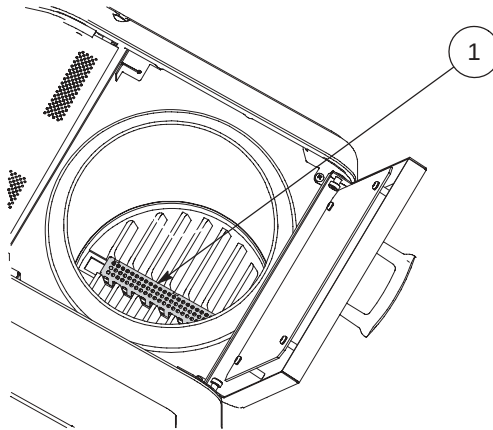


Figure 7-4 Tank strainer

Item	Part	Description	Quantity	Note
1	1028330	Strainer, tank, D4L	1	
1	1028334	Strainer, tank, D10L	1	
1	1028336	Strainer, tank, D16L	1	

Drive Assembly Service Kits

Table 7-1 lists the motor, pump, and manifold service kits associated with each melter part number. The seven-digit part number for your melter is provided on the ID plate, which is located on the front of the melter.

Table 7-1 Drive Assembly Components

Melter P/N	Motor P/N	Pump P/N	Manifold P/N	Complete Drive Assembly P/N
1026747	1031211	1031204	1031207	1031216
1026750	1031211	1031204	1031207	1031216
1026748	1031211	1031204	1031208	1031217
1026751	1031211	1031204	1031208	1031217
1026753	1031213	1031205	1031207	1031218
1026755	1031213	1031205	1031207	1031218
1026752	1031211	1031204	1031208	1031217
1026754	1031211	1031204	1031208	1031217
1026760	1031213	1031205	1031207	1031218
1026761	1031213	1031205	1031207	1031218
1031898	1031212	1031205	1031208	1031219

Pump

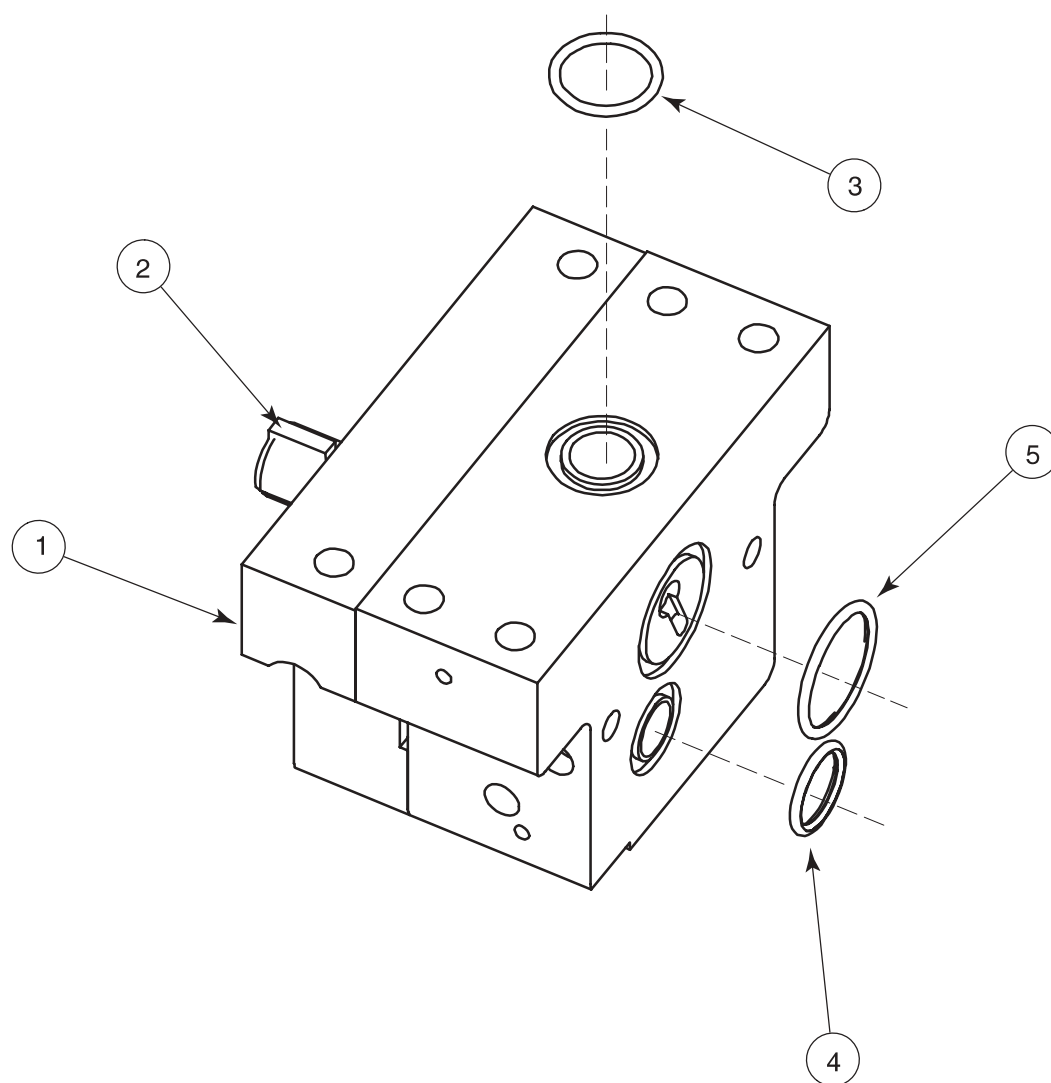


Figure 7-5 Pump service kit parts

Item	Part	Description	Quantity	Note
—	1031204	Service kit, pump, 4.9 cc/rev	—	
—	1031205	Service kit, pump, 7.8 cc/rev	—	
1	-----	• Pump	1	
2	1033445	• Key, machine drive, $\frac{3}{16} \times \frac{7}{16}$ in. (7.8 cc pump)	1	
2	1033444	• Key, machine drive, $\frac{1}{8} \times \frac{3}{4}$ in. (4.9 cc pump)	1	
3	-----	• O-ring, -118, Viton, 0.862 x 0.103 in.	1	
4	-----	• O-ring, Viton, 0.750 x 0.938 x 0.094 in.	1	
5	-----	• O-ring, Viton, 1.188 x 1.388 x 0.094 in.	1	
NS	-----	• Screw, hex, cap, M8 x 90	2	A
NS	-----	• Washer, flat, narrow, M8	2	A
NS	-----	• Grease, high-temperature, 0.50 oz	1	

Item	Part	Description	Quantity	Note
—	1031232	Service kit, pump O-rings	—	
3	-----	• O-ring, -118, Viton, 0.862 x 0.103 in.	1	
4	-----	• O-ring, Viton, 0.750 x 0.938 x 0.094 in.	1	
5	-----	• O-ring, Viton, 1.188 x 1.388 x 0.094 in.	1	
NS	-----	• Grease, high-temperature, 0.50 oz	1	
—	1037756	Service kit, seal, pump, 4.9 cc/rev	—	
NS	-----	• Shaft, pump, 4.9 cc	1	
NS	-----	• Retaining ring, external, 75	2	
NS	-----	• Pin, dowel, 0.185 x 1 x 0.250	1	
NS	-----	• Seal, spring, $\frac{1}{8}$ x 1 x 0.250	3	
NS	-----	• Washer, 0.989 x 0.789 x 0.040	1	
NS	-----	• Retaining ring, internal, 100, inverted	1	
NS	-----	• O-ring, Viton, 2 $\frac{11}{16}$ x 2 $\frac{7}{8}$ x $\frac{3}{32}$	1	
NS	-----	• O-ring, Viton, 0.750 x 0.938 x 0.094	1	
NS	-----	• O-ring, -188, Viton, 0.862 x 0.103	1	
NS	-----	• O-ring, Viton, 1.188 x 1.388 x 0.094	1	
NS	-----	• Grease, high-temperature, 0.50 oz.	1	
NS	-----	• Key, machine drive, 0.125 x 0.75	1	
NS	-----	• Tool, seal insertion	1	
—	1037757	Service kit, seal, pump, 7.8 cc/rev	—	
NS	-----	• Shaft, pump, 7.8 cc	1	
NS	-----	• Retaining ring, external, 75	2	
NS	-----	• Pin, dowel, 0.185/0.184 dia. x 0.438 long	1	
NS	-----	• Seal, spring, $\frac{1}{8}$ x 1 x 0.250	3	
NS	-----	• Washer, 0.989 x 0.789 x 0.040	1	
NS	-----	• Retaining ring, internal, 100, inverted	1	
NS	-----	• O-ring, Viton, 2 $\frac{11}{16}$ x 2 $\frac{7}{8}$ x $\frac{3}{32}$	1	
NS	-----	• O-ring, Viton, 0.750 x 0.938 x 0.094	1	
NS	-----	• O-ring, -188, Viton, 0.862 x 0.103	1	
NS	-----	• O-ring, Viton, 1.188 x 1.388 x 0.094	1	
NS	-----	• Grease, high-temperature, 0.50 oz.	1	
NS	-----	• Key, machine drive, 0.1875 x 0.70	1	
NS	-----	• Tool, seal insertion	1	
NOTE A: See Drive Assembly (Complete)				
NS: Not Shown				

Manifold

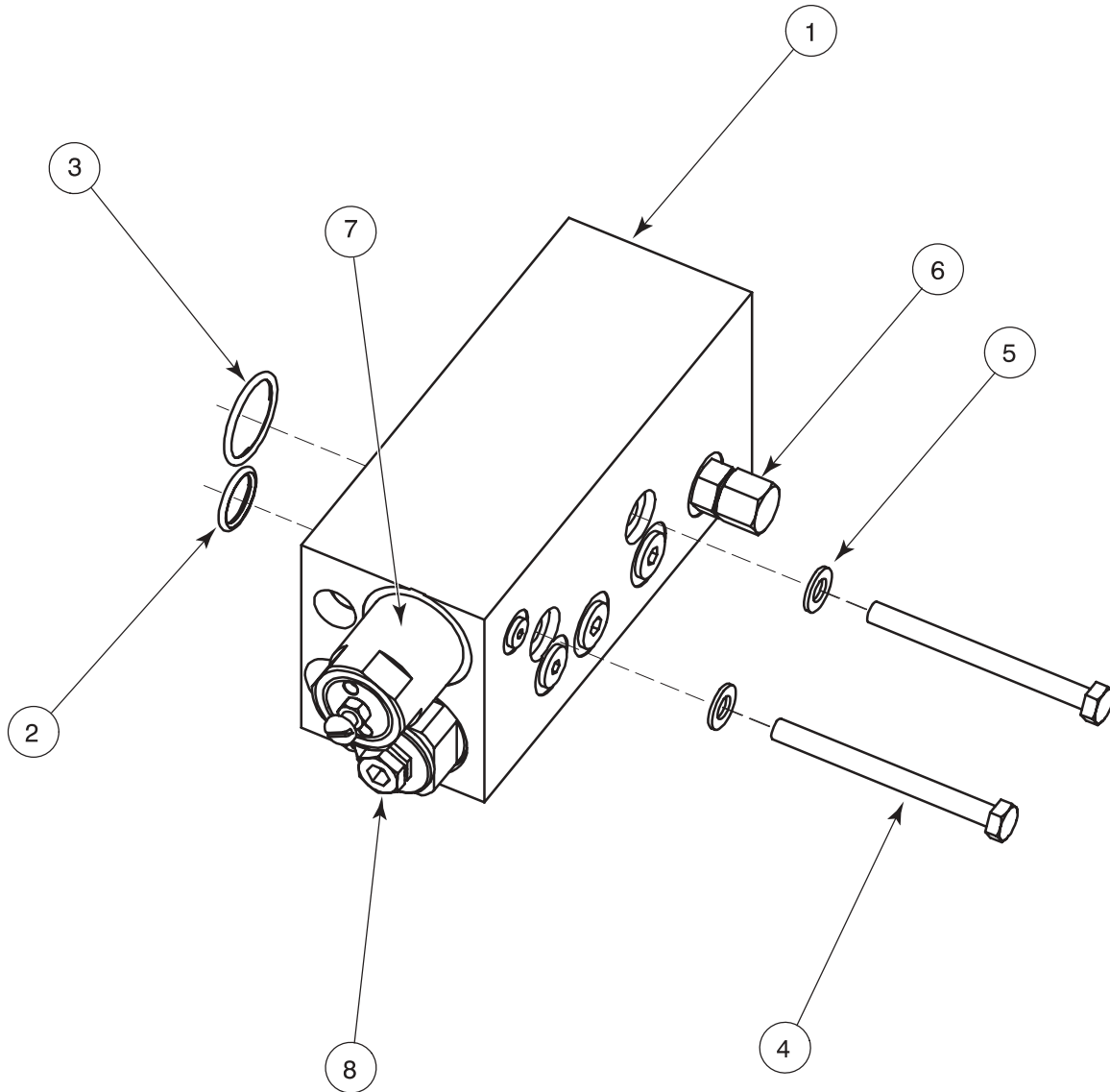


Figure 7-6 Manifold service kit parts

Item	Part	Description	Quantity	Note
—	1031207	Service kit, manifold, 2-port, 600 psi, unfiltered	—	
—	1031208	Service kit, manifold, 4-port, 1100 psi, filtered	—	
1	-----	• Manifold assembly	1	
2	-----	• O-ring, Viton, 0.750 x 0.938 x 0.094 in.	1	
3	-----	• O-ring, Viton, 1.188 x 1.388 x 0.094 in.	1	
4	-----	• Screw, hex, cap, M8 x 90, 304 stainless-steel	2	
5	-----	• Washer, flat, narrow, M8	2	
6	-----	• Connector, with O-ring, hose, $\frac{9}{16}$ -18	1 or 2	A
6	-----	• Connector, 90 degree, $\frac{9}{16}$ -18 x $\frac{9}{16}$ -18	1	B
NS	-----	• Grease, high-temperature, 0.50 oz	1	
—	1031221	Service kit, valve, pressure control, 600 psi	—	
7	-----	• Valve, PCV, 600 psi	1	
—	1031222	Service kit, valve, pressure control, 1100 psi	—	
7	-----	• Valve, PCV, 1100 psi	1	
8	1021941	Filter, with O-ring, 50-mesh	1	
	1028305	Filter, with O-ring, 100-mesh	1	
	1034720	Filter, with O-ring, 150-mesh	1	
NS	-----	• O-ring, Viton, $\frac{3}{4}$ in. tube	1	
NS	-----	• Lubricant, Parker, high-temperature	1	
NOTE A: The 2-port manifold service kits include one hose connector. The 4-port manifold service kit includes two hose connectors. B: This hose connector is included only in the 4-port manifold service kit. NS: Not Shown				

Motor

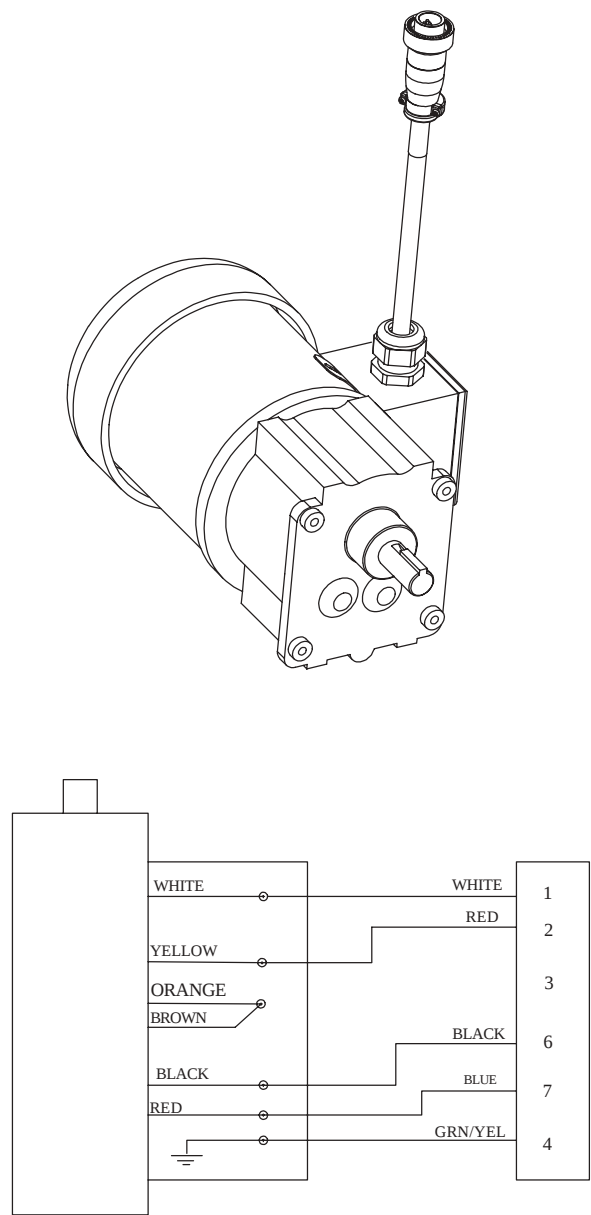


Figure 7-7 1/6 and 1/4 hp motor service kit parts

Item	Part	Description	Quantity	Note
1	1031211	Motor, 1/6 hp, with pigtail, 86 rpm	1	
NS	208276	• Capacitor, 10 μ F, 370 VAC	1	A
1	1031213	Motor, 1/4 hp, with pigtail, 131 rpm	1	
NS	-----	• Capacitor, 25 μ F, 440 VAC	1	A
1	1031212	Motor, 1/4 hp, with pigtail, 89 rpm	1	
NS	-----	• Capacitor, 25 μ F, 440 VAC	1	A

NOTE A: For the location of the capacitor, see Figure 7-2.

NS: Not Shown

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Drive Assembly (Complete)

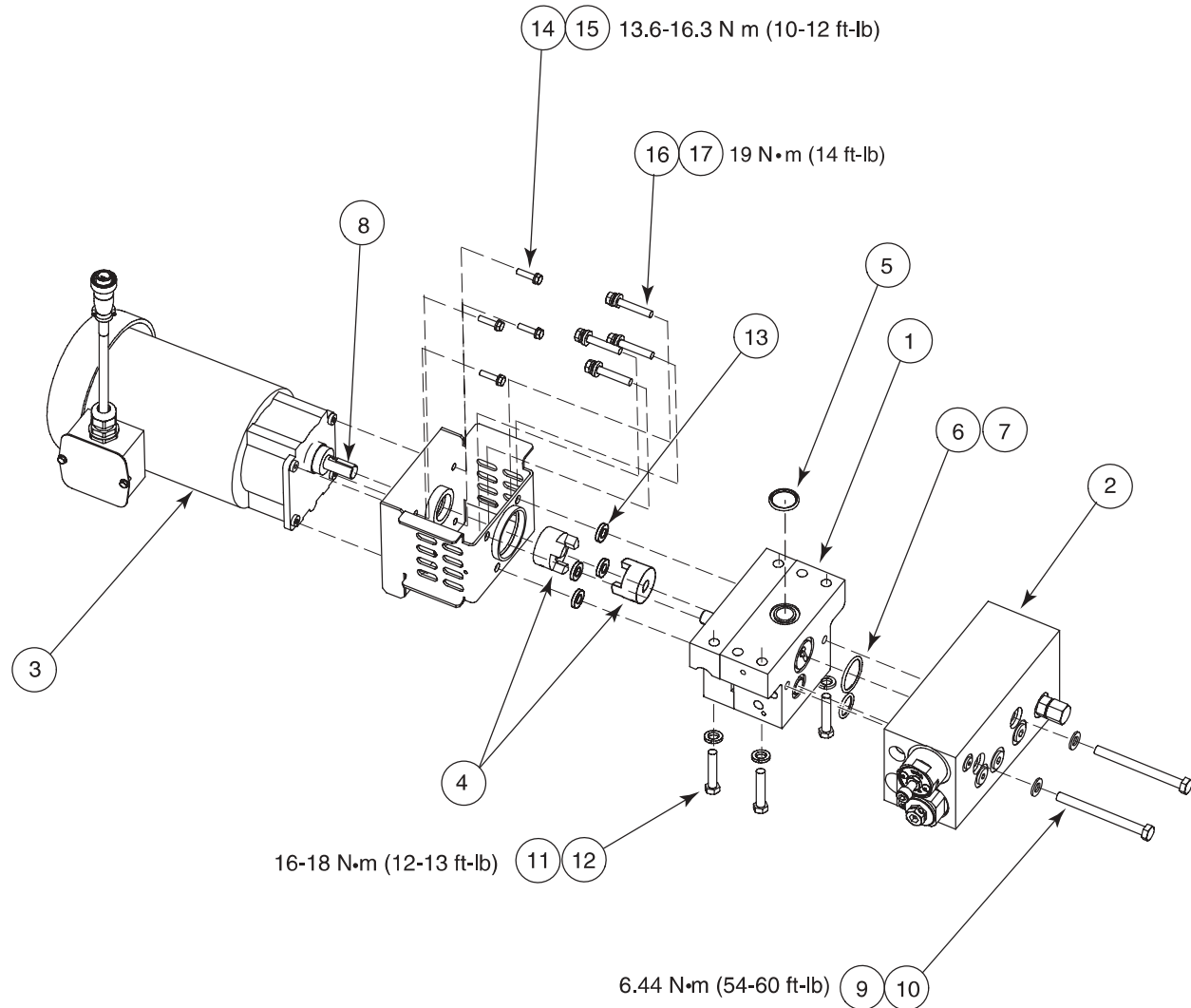


Figure 7-8 1/4 and 1/6 hp drive assembly

Item	Part	Description	Quantity	Note
—	1031216	Service kit, drive assembly, $\frac{1}{6}$ hp, 600 psi, non-filtered	—	
—	1031217	Service kit, drive assembly, $\frac{1}{6}$ hp, 1100 psi, filtered	—	
—	1031218	Service kit, drive assembly, $\frac{1}{4}$ hp, 600 psi, non-filtered	—	
—	1031219	Service kit, drive assembly, $\frac{1}{4}$ hp, 1100 psi, filtered	—	
1		• Pump	1	A
2		• Manifold	1	B
3		• Motor	1	C
4	1043466	• Coupling, drive, $\frac{1}{2} \times \frac{5}{8}$ ($\frac{1}{6}$ hp drive)	1	
	1043467	• Coupling, drive, $\frac{5}{8} \times \frac{5}{8}$ ($\frac{1}{4}$ hp drive)	1	
5		• O-ring, -118, Viton, 0.862 x 0.103 in.	1	
6		• O-ring, Viton, 1.188 x 1.388 x 0.094 in.	1	A
7		• O-ring, Viton, 0.750 x 0.938 x 0.094 in.	1	A
8		• Key, machine, $\frac{3}{16} \times 1$ inch long	1	
9		• Screw, hex, cap, M8 x 90, 304 stainless-steel	2	A
10		• Washer, flat, narrow, M8	2	A
11		• Screw, hex, cap, machine, M8 x 60	4	D
12		• Washer, lock, M8	4	D
13		• Spacer	4	
14		• Screw, hex, cap, M5 x 14	4	
15		• Washer, lock, M5	4	
16		• Screw, hex, cap, M8 x 50	4	
17		• Washer, lock, M8	4	
NS	-----	• Capacitor	1	C
NS	-----	• Grease, high-temperature, 0.50 oz	1	

NOTE A: Provided in pump service kit. Refer to *Pump* earlier in this section for kit part numbers.

B: Refer to *Manifold* earlier in this section.

C: Refer to *Motor* earlier in this section.

D: Shown for reference only. Not included in service kit.

NS: Not Shown

Optional Equipment

Software

Part	Description	Quantity
1018817	Kit, service, software ProBlue melter	—
-----	• Firmware, ProBlue melter controller, main, PLCC	1
-----	• Tool, chip removal, Connacccy	1
-----	• Strap, ground, wrist, anti-static	1

Air Control Kit

Part	Description	Quantity
1030533	Kit, air control	—

Pressure Control Valve Knob

Part	Description	Quantity
1034248	Kit, knob, adjustment, pressure control valve	—
-----	• Knob, assembly, M8 x 110, knurled	1

Footswitch Kit

Part	Description	Quantity
1030542	Kit, footswitch	—
-----	• Footswitch, momentary	1

Drain Valve Kit

Part	Description	Quantity
1037495	Kit, drain valve	—

Hose Support Kit

Part	Description	Quantity
1030539	Kit, support, hose, double	—
-----	• Bracket, support, hose, single	2
-----	• Nut, hex, M5, Nylok	2
-----	• Washer, flat, oversized, 5	2
-----	• Cuff, cap, hose, corrugated	2
-----	• Tube, Nylon, corrugated, split	2
-----	• Screw, pan-head, M4 x10	4
-----	• Cuff, hose, corrugated	2
-----	• Bracket, slide, support, 1-hose	2
-----	• Plate, hose support	1
-----	• Washer, flat, M6	2

Pressure Gage Kit

Part	Description	Quantity
1030537	Kit, gage, 1500 psi	—
-----	• Gage, 1500 psi, with chemical seal	1
-----	• Tape, roll	1
-----	• Swivel, 37, $\frac{9}{16}$ –18 x $\frac{1}{4}$	1
-----	• Connector with O-ring, hose, $\frac{9}{16}$ –18	1

Handgun Support Kit

Part	Description	Quantity
1030530	Kit, handgun support	—
-----	• Bracket, handgun support	1
-----	• Screw, hex, M5 x 30	2
-----	• Washer, flat, oversized, M5	2
-----	• Nut, hex, M5, Nylok	2

Automatic Pressure Control

Part	Description	Quantity
1028627	Assembly, tachometer, generator and cable	1
1032537	Controller, FC1, DuraBlue	1
1024689	Valve, run-up PCV, 1100 psi	1
1030537	Kit, gage, 1500 psi	1

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Section 8

Technical Data

General Specifications

Item	Data	Note
Weight of empty melter		
D4L	42 kg (92 lb)	
D10L	76 kg (168 lb)	
D16L	80 kg (176 lb)	
Weight of melter with full tank		
D4L	46 kg (101 lb)	
D10L	86 kg (190 lb)	
D16L	96 kg (212 lb)	
Hose ports	2	
Melt rate		
240 VAC		
D4L	4.7 kg/hr (10.3 lb/hr)	
D10L	7.7 kg/hr (17 lb/hr)	
D16L	11.2 kg/hr (24.7 lb/hr)	
120 VAC		
D4L	4.7 kg/hr (10.3 lb/hr)	
D10L	7.7 kg/hr (17.0 lb/hr)	
D16L	6.1 kg/hr (13.4 lb/hr)	
Noise	64dB (A) at maximum pump speed	A
Workplace temperature	0 to 50°C (32 to 120 °F)	
Throughput rate		
240 VAC		
D4L	6.3 kg/hr (13.9 lb/hr)	
D10L	12.5 kg/hr (27.5 lb/hr)	
D16L	20 kg/hr (44 lb/hr)	
120 VAC		
D4L	6.3 kg/hr (13.9 lb/hr)	
D10L	7.7 kg/hr (17 lb/hr)	
D16L	6.1 kg/hr (13.4 lb/hr)	
Pump rate	22, 35, or 50 kg/hr (48, 77, or 110 lb/hr) at 60 Hz	
	18, 29, or 42 kg/hr (40, 64, or 92 lb/hr) at 50 Hz	
NOTE A: The noise level is measured at a distance of 1 m (3.3 ft.) from the surface of the melter.		

Electrical Specifications

Item	Data	Note
Hose/gun heating capacity	2 hose/gun pairs	
Control temperature range (240 and 120 VAC)	40 to 230 °C (100 to 450 °F)	
Control temperature accuracy	± 0.5 °C (± 1 °F)	A
IP rating	IP 32	A
NOTE A: Flow setpoint at manifold outlet		

Motor and Pump Specifications

Item	Data	Note
Viscosity Range		
Melter <i>with</i> filter	1000–30000 cps.	
Melter <i>without</i> filter	1000–10000 cps	
Maximum hydraulic pressure		
Melter <i>with</i> filter	75 bar (1100 psi)	
Melter <i>without</i> filter	40 bar (600 psi)	
Displacement	4.9 cc/rev or 7.8 cc/rev	
Motor speed		
$\frac{1}{6}$ hp	86 rpm at 60 Hz or 72 rpm at 50 Hz	
$\frac{1}{4}$ hp	89 or 131 rpm at 60 Hz 74 or 109 rpm at 50 Hz	A
NOTE A: Depends on gear reducer used		

Dimensions

D4L Melter

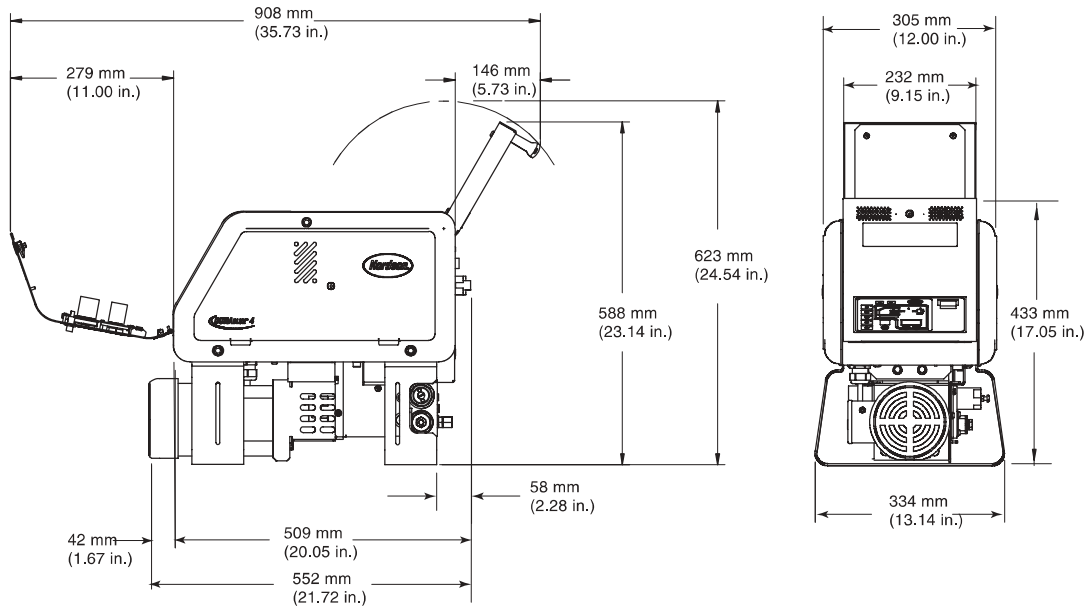


Figure 8-1 D4L melter dimensions

D10L and D16L Melter

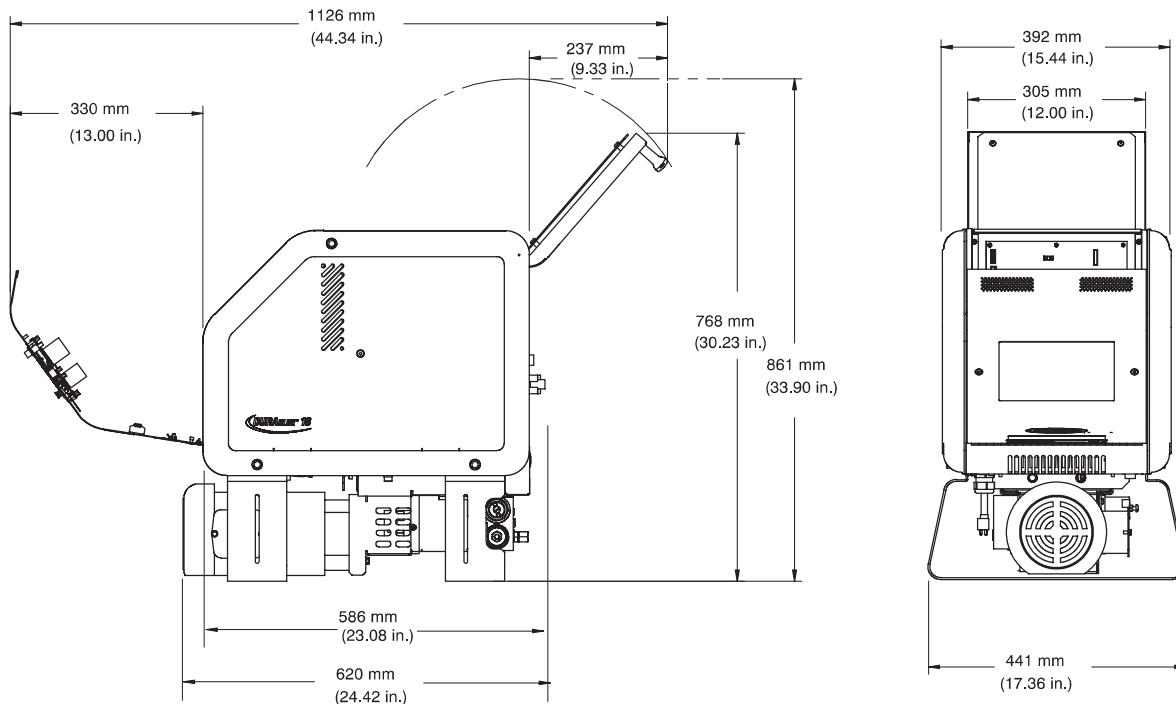


Figure 8-2 D10L/D16L melter dimensions

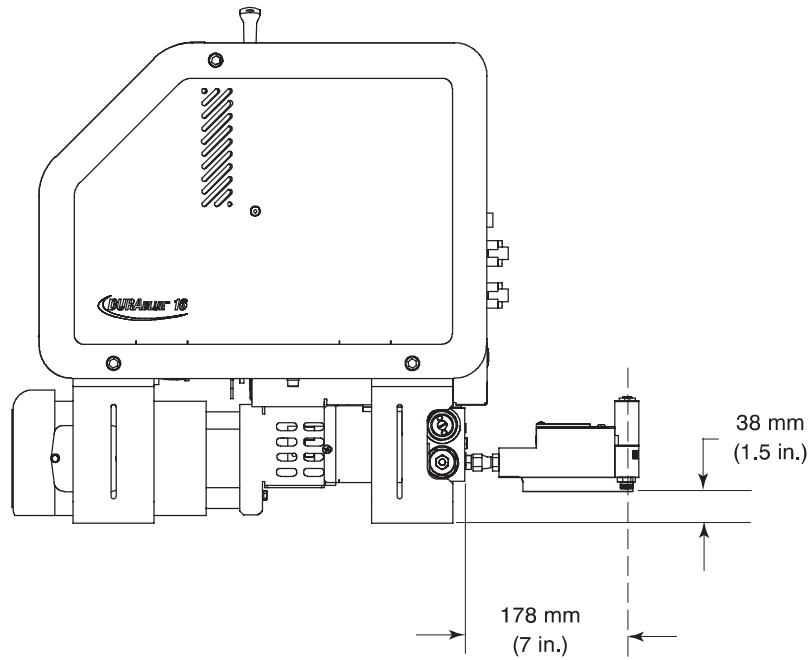


Figure 8-3 B900N mounting dimensions

Conduit Penetration Sizes

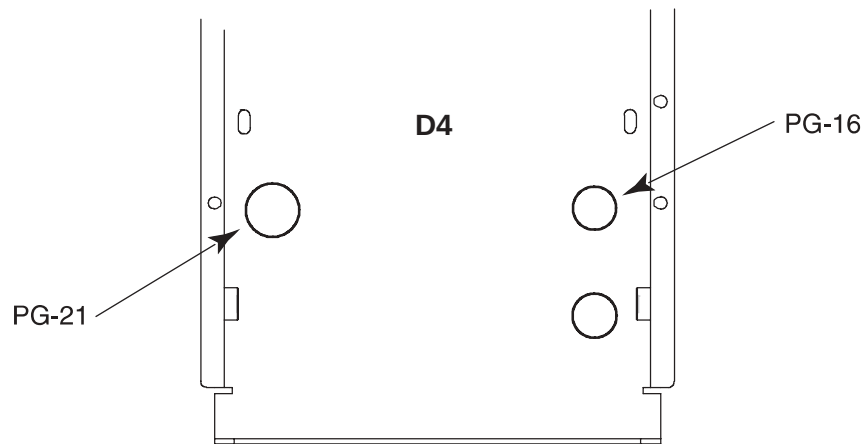
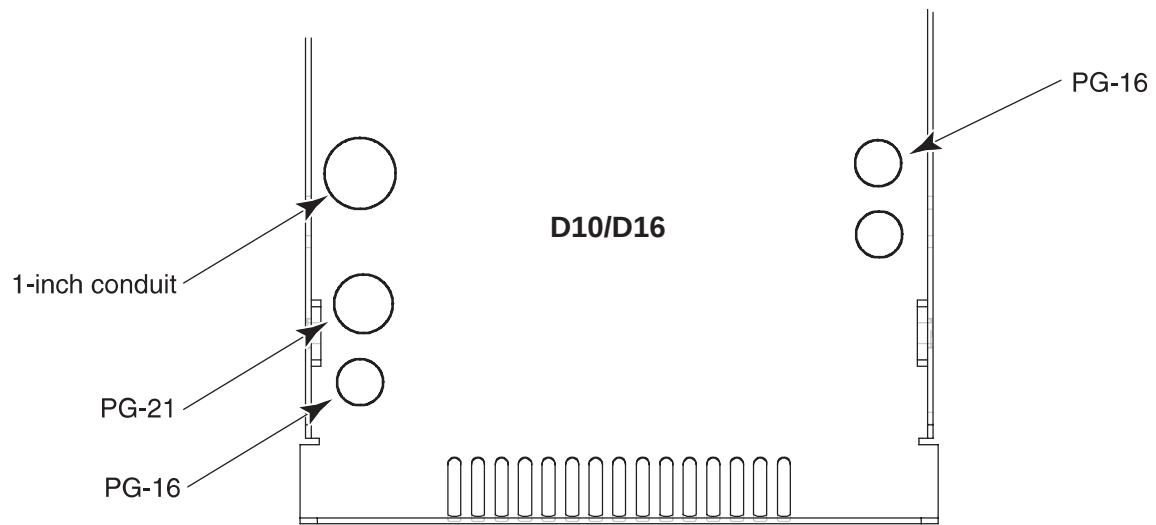


Figure 8-4 Electrical enclosure conduit penetrations

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Appendix A

Calculating Melter Power Requirements

Before locating the melter on the production floor or attaching hoses and guns to the melter, you must calculate the electrical power required by the hoses and guns and confirm that the required power does not exceed maximum allowable wattages. Properly calculating melter power requirements will prevent damage to the melter and identify the maximum allowable distance between the melter and the point at which the hot melt is dispensed.

The following three maximum wattages must be considered when calculating melter power requirements.

- **Single-component maximum**—The wattage of any single hose or gun
- **Hose/gun pair maximum**—The combined wattage of any hose and gun (hose/gun pair)
- **Two hose/gun pair maximum**—The combined wattage of hose/gun pairs 1 and 2

If your Nordson representative has already calculated the hose/gun power requirements and confirmed that the maximum allowable wattages will not be exceeded, then no further calculation is necessary. However, you should re-evaluate the hose and gun power requirements before you:

- add a new hose or gun to the melter that was not factored into the original wattage evaluation
- replace an existing hose with a longer hose or an existing gun with a larger gun

To evaluate the hose/gun power requirements

1. Identify all hose/gun pairs based on the hose/gun receptacle to which they are connected.
2. Examine the identification tag or plate on each hose and gun and record the wattage of each in Column A of Table A-1. Enter a zero for any hose or gun that is not installed.
3. Add the wattages of each hose/gun pair and place the sum in Column B of Table A-1.
4. Add the wattages of hose/gun pairs 1 and 2 and place the sum in Column C of Table A-1.
5. Compare each of the wattages tabulated in Columns A, B, and C of Table A-1 with the associated maximum allowable wattages in Table A-2 for 240 VAC melters or Table A-3 for 120 VAC melters.
6. Do *one* of the following:
 - If each of the wattages calculated in step 5 *do not* exceed the associated maximum allowable wattages listed in Tables A-2 and A-3, then the power required by the hoses and guns is within acceptable limits.
 - If any of the wattages calculated in step 5 *does* exceed an associated maximum allowable wattage listed in Tables A-2 and A-3, then the configuration or position of the hose/gun pairs must be rearranged, shorter hoses must be used, or lower power guns must be used in order to reduce the power requirement.

Table A-1 Hose/Gun Wattages

Component Number	Type/Size	A	B	C
		Component Wattage	Hose/Gun Pair Wattage	Two Hose/Gun Pair Wattage
Hose 1				
Gun 1				
Hose 2				
Gun 2				

Table A-2 Maximum Allowable Hose/Gun Wattages for 240 VAC Melters

Column in Table A-1	Component	Maximum Wattage
A	Any single hose or gun	1000 W
B	Any hose/gun pair	1200 W
C	Sum of hose/gun pairs 1 and 2	2000 W

Table A-3 Maximum Allowable Hose/Gun Wattages for 120 VAC Melters

Column in Table A-1	Component	Maximum Wattage
A	Any single hose or gun	500 W
B	Any hose/gun pair	600 W
C	Sum of hose/gun pairs 1 and 2 on a...	
	• D4L with $\frac{1}{16}$ hp motor*	1125 W
	• D4L with $\frac{1}{6}$ hp motor*	1045 W
	• D10L with $\frac{1}{6}$ hp motor*	1045 W
	• D10L with $\frac{1}{4}$ hp motor*	985 W
	• D16L with $\frac{1}{4}$ hp motor*	985 W

*Refer to the motor identification plate.

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Appendix B

Operating Parameters

Operating parameters are organized in this appendix according to the logical groups listed in Table B-1. For information about selecting and editing operating parameters, refer to Section 3, *Installation, Setting Up the Melter*.

NOTE: Parameter numbers that are reserved or that are not used do not appear in this appendix.

Table B-1 Parameter Groups

Group	Parameters	Description
Standard	0 to 11	Frequently used parameters
Temperature Control	20 to 26	Control heater function
Seven-day Clock	50 to 77	Configure the clock feature
PID Selection	80 to 91	Change preset PID settings

Standard

1 Total Hours with Heaters On (Noneditable)

Description:	A non editable value that indicates the total number of hours that the heaters have been on.
Value:	9999 (control panel) and 999,999 on the web browser
Resolution:	1 hour
Default Value:	0
Format:	—
Use:	The display registers up to 9999 hours and then rolls over to 0000. On the web browser, the register rolls over at 999,999 hours.

2 Fault Log (Noneditable)

Description:	Stores a record of the last ten faults.
Value:	—
Resolution:	—
Default Value:	_ -F0 (unused log entry)
Format:	F1, F2, F3, and F4
Use:	Use the right-display scroll keys to review the log entries for the last ten faults. Empty log entries are indicated by “_ -F0.” Refer to <i>Monitor the Melter</i> in Section 4, <i>Operation</i> .

3 Change History Log (Noneditable)

Description:	Records the last ten changes made to either the set-point temperatures or the operating parameters.
Value:	—
Resolution:	—
Default Value:	P- _ (unused log entry)
Format:	Refer to Section 3, <i>Installation. Review Parameter and Set-point Temperature Changes</i> .
Use:	Use the right-display key to review the log entries for the last ten changes that were made to the operating parameters or the set-point temperatures. Empty log entries are indicated by “P- _.”

4 Ready Delay Time

Description:	The amount of time that will elapse after all of the components have reached their set-point temperature before the ready LED will turn on. The ready delay time only functions when the temperature of the tank, at the time the melter is turned on, is more than 27 °C (50 °F) from its set-point temperature. The ready delay time begins when all components are within 3 °C (5 °F) of their respective set-point temperature.
Value:	0 to 60 minutes
Resolution:	1 minute
Default Value:	0 minutes
Format:	—
Use:	The ready delay allows the contents of the tank an additional amount of time to heat before pump turns on. NOTE: The time remaining on the ready delay is indicated in minutes in the right display at the end of every automatic scan cycle. When the delay time reaches 1 minute, the time remaining appears in seconds.

7 Motor Off Delay

Description:	Determines the amount of time the motor will remain on after the switching device turns off.
Value:	0 to 360 seconds OR - - - (infinite)
Resolution:	seconds
Default Value:	0 seconds
Format:	—
Use:	This parameter functions only when a switching device (switched handgun hose, footswitch, etc.) is connected to the switch receptacle.

8 Automatic Pump On

Description:	Determines if the pump can be enabled before the melter is ready.
Value:	0 = disabled or 1 = enabled
Resolution:	—
Default Value:	1 (enabled)
Format:	—
Use:	If enabled, the pump can be enabled before the melter is ready. Once enabled, the pump will start automatically when the melter is ready. If disabled, the pump must be started by pressing the pump key after the melter is ready. NOTE: If automatic pump on is disabled (0) while the pump is running, the pump will remain on until the pump key is pressed.

Standard *(contd)*

12 Change Hose 1 Output to Electric Gun Activation

Description:	Changes the proportioned 240 VAC current that is provided to the hose 1 heater to a switched 240 VAC current that is used to activate a manifold-mounted electric gun.
Value:	0 (disabled) 1 (enabled)
Resolution:	—
Default Value:	0 (disabled)
Format:	—
Use:	Use only when a Nordson manifold-mounted electric is installed and a switching device is connected to the melter's switch receptacle. Refer to the electric gun manual for information on mounting and using the gun.

13 Change Hose 2 Output to Electric Gun Activation

Description:	Changes the proportioned 240 VAC current that is provided to the hose 1 heater to a switched 240 VAC current that is used to activate a manifold-mounted electric gun.
Value:	0 (disabled) 1 (enabled)
Resolution:	—
Default Value:	0 (disabled)
Format:	—
Use:	Use only when a Nordson manifold-mounted electric is installed and a switching device is connected to the melter's switch receptacle. Refer to the electric gun manual for information on mounting and using the gun.

20 Temperature Units

Description:	Sets the units for temperature display.
Value:	C (degrees Celsius) or F (degrees Fahrenheit)
Resolution:	1 degree
Default Value:	C
Format:	—
Use:	—

21 Over Temperature Delta

Description:	The number of degrees that the temperature of any component can increase over its assigned set-point temperature before an over temperature fault (F3) will occur.
Value:	5 °C (10 °F) to 60 °C (110 °F)
Resolution:	1 °C 1 °F
Default Value:	15 °C (25 °F)
Format:	—
Use:	—

22 Under Temperature Delta

Description:	The number of degrees that the temperature of any component can decrease from its set-point temperature before an under temperature fault (F2) occurs.
Value:	5 °C (10 °F) to 60 °C (110 °F)
Resolution:	1 °C 1 °F
Default Value:	25 °C (50 °F)
Format:	—
Use:	—

23 Standby Delta

Description:	The number of degrees by which all heated components will be decreased when the applicator is placed into the standby mode.
Value:	25°C to 190°C (50°F to 350°F)
Resolution:	1 °C 1 °F
Default Value:	50 °C (100 °F)
Format:	—
Use:	A standby delta should be selected that results in a balance between melter energy savings during periods of inactivity, the amount of time and energy required to bring the melter back up to set-point temperature, and a temperature at which the hot melt can be held in the tank for extended periods of time without charring. Refer to Section 4, <i>Operation, Using Melter Function Keys</i> . NOTE: The standby delta does not affect the under temperature delta (parameter 22).

Standard *(contd)*

26 Manual Standby Time

Description:	The amount of time that the melter will remain in the standby mode after the standby key is pressed.
Value:	0 to 180 minutes
Resolution:	1 minute
Default Value:	0
Format:	—
Use:	Set the standby time when you want the operator to be able to place the melter into the standby mode for a limited period of time (break, lunch, etc.). When manual standby is enabled (value greater than 0 minutes), the standby LED blinks. Set the standby delta (parameter 23) to the desired value before setting parameter 26. Note: When a time value equal to or greater than 1 minute is entered, the standby LED will flash to indicate that the manual standby timer is counting down.

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Seven-day Clock

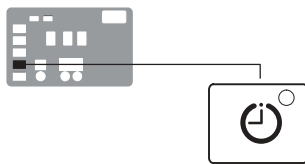
Before setting up the clock, refer to *Using Melter Function Keys* in Section 4, *Operation*, to familiarize yourself with the function and use of the clock feature.

If you are unfamiliar with the procedure for accessing and editing operating parameters, refer to Section 3, *Installation, Setting Up the Melter*.

To set the clock

Refer to the examples on the next page.

1. Use parameter 50 to select the current day of the week.
2. Use parameter 51 to set the current time of day.
3. Create schedule 1 by:
 - a. Setting parameters 55 and 56 to the time of the day that the heaters should turn on and off.
 - b. Setting parameters 57 and 58 to the time of the day that the melter should enter and exit the standby mode.
4. Using parameters 60 through 68, create schedules 2 and 3 by repeating step 3.
5. Use parameters 71 through 77 to assign which of the four schedules should be used on each day of the week. Up to three schedules may be assigned each day (to support three work shifts). Each of the eight control options (0 to 7) that is available in parameters 71 through 77 assigns a different combination of the three schedules. Option 0 is used hold the melter in the state dictated by the last clock transition until the next clock transition occurs.
6. Press the **Clock** key.



Seven-day clock key



In order for the clock to operate continuously throughout the week, a valid schedule must be assigned to every day of the week (parameters 71 through 77).

To prevent unintentional activation of the clock the default setting for parameters 71 through 77 is schedule 0, which has no time values assigned to it. With the default set to schedule 0, unintentionally pressing the clock key will have no affect on the melter.

Example 1

To turn the heaters on at 0600 and turn them off at 0015 every day of the week:

Par 55 = 0600
Par 56 = 0015
Par 60 = - - - - -
Par 61 = - - - - -
Par 71 through 77 = 1

Example 2

To turn the heaters on at 0700 and off at 1700 Monday through Friday, and turn the heaters off Saturday and Sunday:

Par 55 = 0700
Par 56 = 1700
Par 57 = - - - - -
Par 58 = - - - - -
Par 71 through 75 = 1
Par 76 and 77 = 0

Example 3

To turn the heaters on at 0600 each morning, go into standby for lunch at 1130, come out of standby after lunch at 1230, and turn the heaters off at 1600 at the end of the day, every day of the week:

Par 55 = 0600
Par 56 = 1600
Par 57 = 1130
Par 58 = 1230
Par 71 through 75 = 1
Par 71 and 77 = 1

Seven-day Clock *(contd)*

50 Current Day

Description:	Used to set the current day of the week.
Value:	1 to 7 (1 = Monday, 2 = Tuesday, etc.)
Resolution:	1
Default Value:	—
Format:	—
Use:	Refer to Section 4, <i>Operation, Using Melter Function Keys</i> , for information about the use and affects of the seven-day clock feature.

51 Current Time

Description:	Used to set the local time of the day.
Value:	0000 to 2359 (European time format)
Resolution:	1 minute
Default Value:	(Time set at factory)
Format:	<i>Hours, Hour: Minute, Minute</i>
Use:	This setting only needs to be made once for all daily schedules

55 Schedule 1 Heaters On

Description:	Used to set the time that the clock will turn on the heaters during schedule 1.
Value:	0000 to 2359, - - - -
Resolution:	1 minute
Default Value:	0600
Format:	<i>Hours, Hour: Minute, Minute</i>
Use:	Set the desired time for the heaters to turn on. To disable this parameter, set the parameter's value to "- - - -" by simultaneously pressing both of the right-display scroll keys.

56 Schedule 1 Heaters Off

Description:	Used to set the time that the clock will turn off the heaters during schedule 1.
Value:	0000 to 2359, - - - -
Resolution:	1 minute
Default Value:	1700
Format:	<i>Hours, Hour: Minute, Minute</i>
Use:	To disable this parameter, set the parameter's value to "- - - -" by simultaneously pressing both of the right-display scroll keys.

57 Schedule 1 Enter Standby

Description:	Used to set the time that the melter will enter the standby mode during schedule 1.
Value:	0000 to 2359, - - - -
Resolution:	1 minute
Default Value:	- - - -
Format:	<i>Hour, Hour: Minute, Minute</i>
Use:	Set the time that the applicator will enter the standby mode during schedule 1. To disable this parameter, set the parameter's value to "- - - -" by simultaneously pressing both of the right-display scroll keys. Note: Do not set an enter standby time that is outside of the time period defined by the schedule's heater on and off time. The melter cannot enter the standby mode when the heaters are off.

58 Schedule 1 Exit Standby

Description:	Used to set the time that the melter will exit the standby mode during schedule 1.
Value:	0000 to 2359, - - - -
Resolution:	1 minute
Default Value:	- - - -
Format:	<i>Hour, Hour: Minute, Minute</i>
Use:	Set the time that the applicator will exit the standby mode during schedule 1. To disable this parameter, set the parameter's value to "- - - -" by simultaneously pressing both of the right-display scroll keys. Note: Do not set an exit standby time that is outside of the time period defined by the schedule's heater on and off time. The melter cannot enter the standby mode when the heaters are off.

60 Schedule 2 Heaters On

Description:	Used to set the time that the clock will turn on the heaters during schedule 2.
Value:	0000 to 2359, - - - -
Resolution:	1 minute
Default Value:	- - - -
Format:	<i>Hours, Hour: Minute, Minute</i>
Use:	Set the desired time for the heaters to turn on. To disable this parameter, set the parameter's value to "- - - -" by simultaneously pressing both of the right-display scroll keys.

Seven-day Clock *(contd)*

61 Schedule 2 Heaters Off

Description:	Used to set the time that the clock will turn off the heaters during schedule 2.
Value:	0000 to 2359, - - - -
Resolution:	1 e
Default Value:	- - - -
Format:	<i>Hours, Hour: Minute, Minute</i>
Use:	To disable this parameter, set the parameter's value to "- - - -" by simultaneously pressing both of the right-display scroll keys.

62 Schedule 2 Enter Standby

Description:	Used to set the time that the melter will enter the standby mode during schedule 2.
Value:	0000 to 2359, - - - -
Resolution:	1 minute
Default Value:	- - - -
Format:	<i>Hour, Hour: Minute, Minute</i>
Use:	Set the time that the applicator will enter the standby mode during schedule 2. To disable this parameter, set the parameter's value to "- - - -" by simultaneously pressing both of the right-display scroll keys. Note: Do not set an enter standby time that is outside of the time period defined by the schedule's heater on and off time. The melter cannot enter the standby mode when the heaters are off.

63 Schedule 2 Exit Standby

Description:	Used to set the time that the melter will exit the standby mode during schedule 2.
Value:	0000 to 2359, - - - -
Resolution:	1 minute
Default Value:	- - - -
Format:	<i>Hour, Hour: Minute, Minute</i>
Use:	Set the time that the applicator will exit the standby mode during schedule 2. To disable this parameter, set the parameter's value to "- - - -" by simultaneously pressing both of the right-display scroll keys. Note: Do not set an exit standby time that is outside of the time period defined by the schedule's heater on and off time. The melter cannot enter the standby mode when the heaters are off.

65 Schedule 3 Heaters On

Description:	Used to set the time that the clock will turn on the heaters during schedule 3.
Value:	0000 to 2359, - - - -
Resolution:	1 minute
Default Value:	- - - -
Format:	<i>Hours, Hour: Minute, Minute</i>
Use:	Set the desired time for the heaters to turn on. To disable this parameter, set the parameter's value to "- - - -" by simultaneously pressing both of the right-display scroll keys.

66 Schedule 3 Heaters Off

Description:	Used to set the time that the clock will turn off the heaters during schedule 3.
Value:	0000 to 2359, - - - -
Resolution:	1 minute
Default Value:	- - - -
Format:	<i>Hours, Hour: Minute, Minute</i>
Use:	To disable this parameter, set the parameter's value to "- - - -" by simultaneously pressing both of the right-display scroll keys.

67 Schedule 3 Enter Standby

Description:	Used to set the time that the melter will enter the standby mode during schedule 3.
Value:	0000 to 2359, - - - -
Resolution:	1 minute
Default Value:	- - - -
Format:	<i>Hour, Hour: Minute, Minute</i>
Use:	Set the time that the applicator will enter the standby mode during schedule 3. To disable this parameter, set the parameter's value to "- - - -" by simultaneously pressing both of the right-display scroll keys. Note: Do not set an enter standby time that is outside of the time period defined by the schedule's heater on and off time. The melter cannot enter the standby mode when the heaters are off.

Seven-day Clock *(contd)*

68 Schedule 3 Exit Standby

Description:	Used to set the time that the melter will exit the standby mode during schedule 3.
Value:	0000 to 2359, - - - -
Resolution:	1 minute
Default Value:	- - - -
Format:	Hour, Hour: Minute, Minute
Use:	Set the time that the applicator will exit the standby mode during schedule 3. To disable this parameter, set the parameter's value to "- - - -" by simultaneously pressing both of the right-display scroll keys. Note: Do not set an exit standby time that is outside of the time period defined by the schedule's heater on and off time. The melter cannot enter the standby mode when the heaters are off.

71 Schedules for Monday

Description:	Used to select which schedule(s) should be used on Monday.
Value:	0 – Remain at last clock transition 1 – Use just schedule 1 2 – Use just schedule 2 3 – Use just schedule 3 4 – Use schedule 1 and 2 5 – Use schedule 2 and 3 6 – Use schedule 1 and 3 7 – Use schedule 1, 2, and 3
Resolution:	1
Default Value:	0
Format:	—
Use:	Selects the active schedule(s) for the day. NOTES: If the 0 schedule option is used, the heaters will not turn on again until the next scheduled heaters on time arrives.

72 Schedules for Tuesday

Description:	Used to select which schedule(s) should be used on Tuesday.
Value:	0 – Remain at last clock transition 1 – Use just schedule 1 2 – Use just schedule 2 3 – Use just schedule 3 4 – Use schedule 1 and 2 5 – Use schedule 2 and 3 6 – Use schedule 1 and 3 7 – Use schedule 1, 2, and 3
Resolution:	1
Default Value:	0
Format:	—
Use:	Selects the active schedule(s) for the day. NOTES: If the 0 schedule option is used, the heaters will not turn on again until the next scheduled heaters on time arrives.

73 Schedules for Wednesday

Description:	Used to select which schedule(s) should be used on Wednesday.
Value:	0 – Remain at last clock transition 1 – Use just schedule 1 2 – Use just schedule 2 3 – Use just schedule 3 4 – Use schedule 1 and 2 5 – Use schedule 2 and 3 6 – Use schedule 1 and 3 7 – Use schedule 1, 2, and 3
Resolution:	1
Default Value:	0
Format:	—
Use:	Selects the active schedule(s) for the day. NOTES: If the 0 schedule option is used, the heaters will not turn on again until the next scheduled heaters on time arrives.

Seven-day Clock *(contd)*

74 Schedules for Thursday

Description:	Used to select which schedule(s) should be used on Thursday.
Value:	0 – Remain at last clock transition 1 – Use just schedule 1 2 – Use just schedule 2 3 – Use just schedule 3 4 – Use schedule 1 and 2 5 – Use schedule 2 and 3 6 – Use schedule 1 and 3 7 – Use schedule 1, 2, and 3
Resolution:	1
Default Value:	0
Format:	—
Use:	Selects the active schedule(s) for the day. NOTES: If the 0 schedule option is used, the heaters will not turn on again until the next scheduled heaters on time arrives.

75 Schedules for Friday

Description:	Used to select which schedule(s) should be used on Friday.
Value:	0 – Remain at last clock transition 1 – Use just schedule 1 2 – Use just schedule 2 3 – Use just schedule 3 4 – Use schedule 1 and 2 5 – Use schedule 2 and 3 6 – Use schedule 1 and 3 7 – Use schedule 1, 2, and 3
Resolution:	1
Default Value:	0
Format:	—
Use:	Selects the active schedule(s) for the day. NOTES: If the 0 schedule option is used, the heaters will not turn on again until the next scheduled heaters on time arrives.

76 Schedules for Saturday

Description:	Used to select which schedule(s) should be used on Saturday.
Value:	0 – Remain at last clock transition 1 – Use just schedule 1 2 – Use just schedule 2 3 – Use just schedule 3 4 – Use schedule 1 and 2 5 – Use schedule 2 and 3 6 – Use schedule 1 and 3 7 – Use schedule 1, 2, and 3
Resolution:	1
Default Value:	0
Format:	—
Use:	Selects the active schedule(s) for the day. NOTES: If the 0 schedule option is used, the heaters will not turn on again until the next scheduled heaters on time arrives.

77 Schedules for Sunday

Description:	Used to select which schedule(s) should be used on Sunday.
Value:	0 – Remain at last clock transition 1 – Use just schedule 1 2 – Use just schedule 2 3 – Use just schedule 3 4 – Use schedule 1 and 2 5 – Use schedule 2 and 3 6 – Use schedule 1 and 3 7 – Use schedule 1, 2, and 3
Resolution:	1
Default Value:	0
Format:	—
Use:	Selects the active schedule(s) for the day. NOTES: If the 0 schedule option is used, the heaters will not turn on again until the next scheduled heaters on time arrives.

PID Selection

80–91

PID Selection for Hose/Gun Receptacles 1 and 2

Description:	Used to change the preset PID selections. Use parameter 80 to select the value for hose 1, parameter 81 to select the value for gun 1, and so on.
Value:	0 = Hose 1 = Standard gun 2 = Large gun 3 = Air heater
Resolution:	—
Default Value:	0 or 1 depending on the channel type (hose or gun)
Format:	—
Use:	Consult your Nordson representative before changing PID settings.