

ProBlue Flex Adhesive Melter with BBconn Controls

Core Customer Product Manual

Part 1128350_02

Issued 06/20



This document contains important safety information.
Be sure to read and follow all safety information in this
document and any other related documentation.



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Table of Contents

Safety	1-1
Safety Alert Symbols	1-1
Responsibilities of the Equipment Owner	1-2
Safety Information	1-2
Instructions, Requirements, and Standards	1-2
User Qualifications	1-3
Applicable Industry Safety Practices	1-3
Intended Use of the Equipment	1-3
Instructions and Safety Messages	1-4
Installation Practices	1-4
Operating Practices	1-4
Maintenance and Repair Practices	1-5
Equipment Safety Information	1-5
Equipment Shutdown	1-6
Relieving System Hydraulic Pressure	1-6
De-energizing the System	1-6
Disabling the Applicators	1-6
General Safety Warnings and Cautions	1-7
Other Safety Precautions	1-10
First Aid	1-10
Safety Labels and Tags	1-11
 Description	 2-1
Key Components	2-2
Melter User Interface	2-3
Product Description	2-4
Intended Use	2-5
Limitations of Use	2-5
Electromagnetic Compatibility (EMC)	2-5
Residual Risks	2-6
Experience of Installation Personnel	2-6
Theory Of Operation	2-7
Functional Blocks	2-8
Low Voltage Controller (LVC)	2-8
Power Distribution and Control	2-9
DC Power supply	2-9
Temperature Control Modules	2-9
User Interface(s)	2-10
Adhesive Level Sensor	2-10
Optional Functional Blocks	2-10
How the Blocks Operate as a System	2-11
Melter Configuration Codes	2-12
Melter Identification	2-13
Other Sources of Information	2-14
Installation Guide	2-14
User Interface Quick Reference Guide	2-14
ProBlue Flex Manuals and Service Kit Instruction Sheets	2-14

Installation	3-1
Overview	3-1
Quick-Start	3-2
Additional Information	3-2
Experience of Installation Personnel	3-2
Melter Installation	3-3
Installation Tasks	3-3
Installation Requirements	3-4
Melter Clearances	3-4
Ventilation	3-6
Electrical Power	3-6
Compressed Air	3-7
Melter Mounting Considerations	3-8
Unpack the Melter	3-9
Contents of the Installation Kit	3-9
Customer-Supplied Materials	3-10
Mount the Melter	3-10
Removing the Melter from the Sub-base	3-11
Mounting the Melter	3-15
Connecting Incoming Power	3-16
Configure the Electrical Service	3-17
Melter Power Requirements	3-17
4 Kg Tank (T04, X04)	3-17
7 Kg and 10 Kg Tank (T07, X07, T10, X10)	3-18
7 Kg/Hr MOD (M07, Z07)	3-18
14 Kg/Hr MOD (M14, Z14)	3-19
15 Kg Tank (T15, X15)	3-19
21 Kg/Hr MOD (M21, Z21)	3-20
Connecting Power Cables	3-21
Connect a Pump Control Signal	3-25
Connecting Power to the Solenoid Valve	3-26
Single Acting Pump Operation Notes	3-27
Connect a Compressed Air Supply	3-28
Connect Hoses and Applicators	3-31
Connecting the Hoses	3-31
Connecting the Applicators	3-34
Set Up the Melter	3-35
Using the OLED User Interface	3-35
Set Up the Melter Inputs and Outputs (I/O)	3-36
I/O Connections	3-36
Input Parameters	3-37
Output Parameters	3-38
Install Optional Accessories	3-40

Basic Melter Operation	4-1
Operator Level Tasks	4-1
Additional Information	4-1
Melter Operation	4-2
Filling the Melter Tank	4-2
Starting the Melter for the First Time	4-4
OLED User Interface	4-5
Commissioning Setup Wizard	4-5
Describing the Home Screen	4-7
Navigation Controls	4-8
Master Controls	4-10
System LED Indicators	4-11
System Status Chart	4-12
Toggle Switch	4-13
Shutting Down the Melter	4-14
 Maintenance	 5-1
Relieving System Pressure	5-2
Locking Out External Communications	5-3
Cleaning the Melter	5-3
Servicing the Pump	5-4
Supplies	5-4
Lubricating the Pump	5-5
Service Kit	5-5
Replacing the Filter	5-5
Draining the Tank	5-6
Cleaning the Tank	5-8
 Troubleshooting	 6-1
About This Section	6-1
Safety	6-1
Troubleshooting Checklist	6-2
Overview	6-2
AC Power	6-2
DC Power	6-2
Level	6-2
Fill	6-3
Lid Switch	6-3
Temperature Control	6-3
Pump, Pneumatics and Pressure Control	6-4
User Interface	6-4
Standard I/O	6-4
USB	6-5
Clock/Scheduler	6-5
Communications	6-5
Remote Color Touchscreen (if used)	6-5
Software	6-5
Melters with 480V Transformer Base	6-6
Other Options, Accessories, Upgrades, Future Product Enhancements	6-6
400/480 Volt Melters	6-6

About Built-in Diagnostics	6-7
About Nordnet	6-8
Troubleshooting Nordnet	6-8
Electrical Box - Internal Board Connections	6-9
Identifying Electrical Components	6-10
Melter Pneumatic Flow Control	6-16
Pressure Control and Pump Compatibility	6-17
Troubleshoot the Melter	6-20
Checking the Melt or Manifold RTD	6-20
Checking the Operation of the Thermostats	6-20
Removing the Level Sensor, Melt RTD, or Melt Thermostat	6-21
Remove Melter Panels	6-21
Access the Components	6-22
Removing the Manifold RTD	6-24
Checking the Operation of the Power Relay	6-24
Checking the Operation of the Tank, Grid, or Manifold TRIAC	6-25
Checking the Resistance of the Tank, Grid, and Manifold Heaters	6-25
Troubleshoot the Fill System	6-29
Fill Time Limit	6-29
Fill System Troubleshooting Table	6-30
Calibrating the Level Sensor	6-31
Cleaning Adhesive Bin Blockage	6-31

Technical Data	7-1
General Specifications	7-1
Pump Specifications	7-2
Melter Specifications	7-3
4, 7, 10 Kg Tank Melters	7-3
7 and 14 Kg MOD Melters	7-3
A and B Chassis for 240V and 480V Melters	7-3
Electrical Specifications	7-4
Melter Power Requirements	7-4
4 Kg Tank (T04, X04)	7-4
7 Kg and 10 Kg Tank (T07, X07, T10, X10)	7-5
7 Kg/Hr MOD (M07, Z07)	7-5
14 Kg/Hr MOD (M14, Z14)	7-6
15 Kg Tank (T15, X15)	7-6
21 Kg/Hr MOD (M21, Z21)	7-7
Discrete I/O	7-7
Standard Remote Input/Output	7-7
Communication	7-8
Pressure Management	7-8
Fill System Specifications	7-9
Melter Dimensions	7-10
Melter Sub-base Dimensions	7-13
Wiring Diagram - Electrical Box Enclosure Layout	7-14
Wiring Diagram - Input Power	7-15
Wiring Diagram - Power Distribution	7-16
Wiring Diagram - Power Distribution Expansion Board	7-17
Wiring Diagram - Low Voltage Control Board	7-18
Wiring Diagram - Melt and Manifold (Melt on Demand)	7-21
Wiring Diagram - Hoses and Applicators	7-22
Wiring Diagram - 4 Channel Power Module #2	7-24
Wiring Diagram - TB3 Variations	7-25
Wiring Diagram - Light Tower	7-26
Wiring Diagram - Legacy Inputs/Outputs	7-27
Wiring Diagram - Chassis Ground	7-28
Wiring Diagram - Hose/Applicator Expansion Base	7-29
Wiring Diagram - Hose/Applicator Ground Tree	7-30
Wiring Diagram - Hose/Applicator Expansion Power Module #3	7-31
Wiring Diagram - Hose/Applicator Expansion Power Module #4	7-32
Wiring Diagram - Adhesive Tracking Board	7-33

Parts	8-1
Using the Illustrated Parts Lists	8-1
ProBlue Flex Melter Assembly	8-2
Chassis	8-6
4 Kg Tank Module	8-8
7 Kg Tank Module	8-12
10 Kg Tank Module	8-14
Melt On Demand Melter	8-16
Additional Tank Components	8-19
Manifold Modules	8-20
Filter Manifold for Double Acting Pumps	8-24
Filter Manifold for Single Acting Pumps	8-26
Hose Manifold	8-28
Pump Parts	8-29
Manifold Heater Module	8-30
Heater Plate Parts	8-32
Lid Module	8-34
Fill Lid Module	8-36
Electrical Cabinet Assembly	8-38
Blank Hose/Applicator Module	8-41
4/6 Channel Hose/Applicator Module	8-41
OLED Electrical Enclosure Door	8-42
OEM Electrical Enclosure Door	8-43
Heater Harness	8-44
Standard Double Acting Regulator	8-45
Double Acting Regulator with Transducer	8-46
Standard Double Acting Remote Run up Regulator	8-47
P1 Single Acting Pneumatic Panel Assembly Service Kit	8-48
P2 Single Acting Pneumatic Panel Assembly Service Kit	8-48
P1 and P2 Single Acting Airline Service Kit	8-48
Standard Single Acting Regulator Module with Gauge	8-49
Standard Single Acting Regulator Module with Transducer	8-50
Lid Switch Module	8-51
Lid Switch Replacement Parts	8-52
Enclosure Module	8-54
4 Kg/7 MOD/14 MOD Enclosure Module	8-54
7 Kg Enclosure Module	8-56
10 Kg Enclosure Module	8-57
Electrical Cables and Fuses	8-58
Ship-with Kit	8-60
Service Kits	8-61
E-Box Enclosure Service Kits	8-61
Assorted Jumper Harness Pack Kit	8-61
OLED Electrical Door Service Kit	8-61
OEM Electrical Door Service Kit	8-61
E-Box Knockout Service Kit	8-61
E-Box Full Replacement Service Kit	8-62
LVC Replacement Service Kit	8-62
Power Supply Service Kit	8-62
Power Distribution Replacement Service Kit	8-62
4-Channel Hose/Applicator Module Service Kit	8-63
Temperature Control Module Service Kit	8-63
4-Channel Hose/Applicator Blank Service Kit	8-63
Power Distribution Expansion Service Kit	8-63
15 Amp Fuse Service Kit	8-64
20 Amp Fuse Service Kit	8-64
3.15 Amp Fuse Service Kit	8-64
Pump Service Kits	8-65
Pump Replacement Service Kit	8-65

Pump Service Kit	8-65
High Output Double Acting Pump Replacement Service Kit	8-66
High Output Double Acting Pump Service Kit	8-67
Single Acting High Output Pump Replacement Service Kit	8-67
Single Acting High Output Pump Service Kit	8-68
Low Viscosity Pump Replacement Service Kit	8-68
Low Viscosity Pump Service Kit	8-69
Low Pressure Pump Replacement Service Kit	8-69
Low Pressure Pump Service Kit	8-70
Low Pressure/Low Viscosity Pump Replacement Service Kit ..	8-70
Low Pressure Low Viscosity Pump Service Kit	8-71
Magnetic Actuator Service Kit	8-72
Air Valve Assembly Service Kit	8-72
Magnetic Fork Service Kit	8-72
Airline Service Kit	8-72
Pump and PDV Fittings Service Kit	8-73
Single Acting Airline , P1 and P2 Service Kit	8-73
Lid Service Kits	8-73
Lid Switch Service Kit	8-73
Fill Lid Filter Service Kit	8-73
FF Inlet Tube Service Kit	8-74
Size A Replacement Lid Service Kit	8-74
Size B Replacement Lid Service Kit	8-74
Size A Fill Lid Replacement Service Kit	8-74
Size B Fill Lid Replacement Service Kit	8-75
Tank Service Kits	8-75
4/7kg and 7/14 kg/hr MOD Level Sensor Service Kit	8-75
10 Kg Level Sensor Service Kit	8-75
4 Kg 230V Tank Service Kit	8-76
7 Kg 230V Tank Service Kit	8-76
10 Kg 230V Tank Service Kit	8-76
4 Kg 400/480V Tank Service Kit	8-77
7 Kg 400/480V Tank Service Kit	8-77
10 Kg 400/480V Tank Service Kit	8-77
Grid/Hopper Service Kits	8-78
MOD 7 Kg, 700W, 230V Grid/Hopper Service Kit	8-78
MOD 14 Kg, 1200W, 230V Grid/Hopper Service Kit	8-78
MOD 7 Kg, 700W, 400/480V Grid/Hopper Service Kit	8-79
MOD 14 Kg, 1200W, 400/480V Grid/Hopper Service Kit	8-79
Manifold Service Kits	8-80
Standard Hose Manifold Service Kit	8-80
Manifold Filter Service Kit	8-80
Manifold Center Service Kit	8-80
Single Acting Pump Manifold Filter Service Kit	8-81
Heater Service Kits	8-81
480V, 2500W Heater Block Service Kit	8-81
230V, 2500W Heater Block Service Kit	8-81
480V, 1000W Heater Block Service Kit	8-82
230V, 1000W Heater Block Service Kit	8-82
Enclosure Service Kits	8-83
Mounting Plate (Sub-base) Service Kit, 4 Kg Tank and 7/14 MOD	8-83
Mounting Plate (Sub-base) Service Kit, 7/10 Kg Tank	8-83
Insulation Service Kits	8-84
4 Kg Tank Insulation Service Kit	8-84
7 Kg Tank Insulation Service Kit	8-84
10 Kg Tank Insulation Service Kit	8-84
MOD Insulation Service Kit	8-84

Manifold Insulation Service Kits	8-85
Standard Manifold Kit Guard Service Kit	8-85
Manifold Insulation Service Kit	8-85
MOD Manifold Insulation Service Kit	8-85
Upgrade Kits	8-86
Fill Upgrade Kit, Size A	8-86
Fill Upgrade Kit, Size B	8-86
4 to 6 H/A Expansion Kit	8-87
2 to 4 H/A Expansion Kit	8-87
2 to 6 H/A Expansion Kit	8-87
Legacy I/O Kit	8-88
External USB Kit	8-88
Size A Tank Lock Kit	8-88
Size B Tank Lock Kit	8-89
MOD 14, 1200W, 400/480V Kit	8-89
MOD 7, 700W, 400/480V Kit	8-89
MOD 14, 1200W, 200/240V Kit	8-89
MOD 7, 700W, 200/240V Kit	8-90
App Module Upgrade Kit	8-90
Pneumatic Assembly P2 Upgrade Kit	8-90
Pneumatic Assembly P3 Upgrade Kit	8-91
Spare Parts List	8-92
Basic Spare Parts Service Kit	8-92
Basic Expanded Spare Parts Service Kit	8-92
Pneumatic Filter Service Kit	8-92
Pneumatic Filter and Bulkhead Bracket Service Kit	8-93
Flex RTD Replacement Service Kit	8-93
Pneumatic Transducer Service Kit	8-93
Drain Chute Replacement Service Kit	8-93
Drain Valve Replacement Service Kit	8-94
Wireway Cover Service Kit	8-94
P4/P7/P10 Pressure Discharge Valve Service Kit	8-94
100 Mesh Saturn Filter Service Kit	8-94
Pneumatic Panel Assembly Service Kit	8-95
P2 Pneumatic Panel Assembly Service Kit	8-95
P3 Pneumatic Panel Assembly Service Kit	8-95
Thermostat Service Kit	8-95
Single Acting P1 Pneumatic Assembly Service Kit	8-96
Single Acting P2 Pneumatic Assembly Service Kit	8-96
General Parts	8-97
ProBlue Flex Common Hardware	8-97
ProBlue Flex Jumper Pack, 3/PE, 200/240V, 25	8-97
ProBlue Flex Jumper Pack, 3/N/PE, 200/400V, 25	8-97
ProBlue Flex Jumper Pack, 1/PE, 200/240V, 25	8-97
ProBlue Flex Jumper Pack, 1/N/PE, 200/240V, 25	8-98
ProBlue Flex Jumper Pack, 3/PE, 200/240V, 10	8-98
ProBlue Flex Jumper Pack, 3/N/PE, 200/400V, 10	8-98
ProBlue Flex Jumper Pack, 1/PE, 200/240V, 10	8-98
ProBlue Flex Jumper Pack, 1/N/PE, 200/240V, 10	8-98
ProBlue Flex Assorted Jumper Pack	8-99
Hydraulics Fittings, 90 Degree, 10	8-99
Hydraulics Fittings, 90 Degree, 25	8-99
Hydraulics Fittings, 45 Degree, 10	8-99
Hydraulics Fittings, 45 Degree, 25	8-99
Hydraulics Fittings Straight, 10	8-100
Hydraulics Fittings Straight, 25	8-100

Appendix A	
Calculating Melter Power Requirements	A-1
 Appendix B	
SP Pump Diagnostics and Repair	B-1
Introduction	B-1
Available Pump Options	B-1
Pump Function	B-2
Double Acting Pump	B-2
Pump Isolation Valve	B-3
Pressure Discharge Valve	B-3
Single Acting Pump	B-3
Pump Diagnostics	B-4
Double Acting Pump Diagnostics	B-4
Single Acting Pump Diagnostics	B-6
Pump Disassembly and Reassembly	B-8
Melter Preparation	B-8
Required Tools and Materials	B-8
Tools	B-8
Service Parts	B-9
Supplies	B-9
Remove the Pump from the Melter (All Pumps)	B-10
Remove the Actuator Assembly (Double Acting Pumps Only)	B-13
Remove the Magnetic Actuator Assembly (Double Acting Pumps Only)	B-13
Remove the Air Valve Assembly (Double Acting Pumps Only) ..	B-14
Special Reassembly Instructions	B-14
Remove the Shifter Fork (Double Acting Pumps Only)	B-15
Special Reassembly Instructions	B-15
Remove the Cylinder Head and Cylinder (All Pumps)	B-15
Remove the Piston Cups (All Pumps)	B-16
Special Reassembly Instructions	B-16
Remove the Siphon Check Valve Assembly and Hydraulic Piston Assembly (All Pumps)	B-16
Remove the Pressure Check Valve for Double Acting Pumps ..	B-17
Special Reassembly Instructions	B-17
Remove the Pressure Check Valve for Single Acting Pumps	B-17
Replace the Hydraulic Piston Seal (All Pumps)	B-18
Installing the Pump (All Pumps)	B-19
Standard Double Acting Pump Assembly Parts List	B-20
High Output Double Acting Pump Assembly Parts List	B-22
Low Viscosity Double Acting Pump Assembly Parts List	B-24
Low Pressure Double Acting Pump Assembly Parts List	B-26
Low Pressure/Low Viscosity Double Acting Pump Assembly Parts List	B-28
High Output Single Acting Pump Assembly Parts List	B-30
Actuator Assembly Parts List	B-32
Piston Assembly Hydraulics Parts List	B-34
High Output Double Acting Hydraulic Piston Assembly	B-35
Low Viscosity Double Acting Hydraulic Piston Assembly	B-36
 Appendix C	
The BBconn Cloud	C-1
Web Address	C-1
List Of Browsers	C-1
Key Functions	C-1
Importing and Exporting Files	C-2

Appendix D	
Adhesive Tracking System	D-1
Overview	D-1
Intended Use	D-2
Unintended Use	D-2
Theory of Operation	D-3
Technical Data	D-5
Specifications	D-5
Useful Calculations and Conversion Formulas	D-6
Specific Gravity Calculation	D-6
K-Factor Calculation	D-6
Conversions	D-7
I/O Declarations on the ATS Board	D-8
Flow Meter Assembly Parts Lists	D-10
Flow Meter and Sensor Parts	D-10
Flow Meter Parts	D-12
ATS Service Kits	D-14
ATS Upgrade Kit	D-14
ATS Hose Manifold Kit	D-14
ATS PCA Kit	D-15
Inductive Sensor Cable Kit	D-15
ATS Manifold Guard Kit	D-15
ATS Service Kit	D-16

Appendix E	
Optional Accessories	E-1
Available Accessories	E-1
Air Pressure Relief Valve	E-2
Air Pressure Relief Valve Kit	E-2
Wi-Fi Module	E-3
Wi-Fi Module Service Kit	E-3
Light Tower	E-4
Light Tower Board and Light Tower Service Kit	E-5
Light Tower Board Only Service Kit	E-5
Communication Cards	E-6
Profibus Communication Service Kit	E-6
EtherCAT Communication Service Kit	E-6
CC Link Communication Service Kit	E-6
Sercos III Communication Service Kit	E-6
DeviceNet Communication Service Kit	E-7
Powerlink Communication Service Kit	E-7
CC Link IE Communication Service Kit	E-7
Remote Touchscreen User Interface	E-8
PB Touchscreen Service Kit	
(Comes with 5m communication harness)	E-8
5 m Communication Cable	E-9
10 m Communication Cable	E-9
20 m Communication Cable	E-9
30 m Communication Cable	E-9
Remote Touchscreen T50 Service Kit	E-9

Fulfill System	E-10
Dimensions	E-10
Adhesive Storage Bin Dimensions	E-11
Fulfill System Specifications	E-13
Single-Feed Adhesive Storage Bin	E-14
Multi-Feed Adhesive Storage Bin	E-16
Sequencer	E-18
Adhesive Transfer Hose Parts	E-22
Adhesive Bin Pump Parts	E-24
Suction Lance Kit	E-26
Transfer Hose Solenoid Harnesses	E-28
Quick Disconnect Kits (Optional)	E-29
Service Kits	E-30
Field Install Kits	E-30

Appendix F

ProBlue Flex 400/480 Volt Transformer	F-1
Overview	F-1
Intended Use	F-2
Unintended Use	F-2
Transformer Function	F-2
Installation	F-3
Installation Tasks	F-3
Transformer Sizing	F-4
Clearances	F-6
Ship-with Kit Components	F-8
Preparing the Transformer for Installation	F-9
Mounting the Transformer on the Parent Machine	F-11
Connecting Electrical Service to the Transformer	F-12
Preparing the 400/480V Melter for Installation on the Transformer	F-14
Sub-base Removal	F-15
Mounting the 400/480V Melter on the Transformer	F-17
Connecting Transformer to the Melter	F-18
Troubleshooting	F-20
Parts	F-22
3 KVA 480V Transformer Assembly, Size A	F-22
3 KVA 480V Transformer Assembly, Size B	F-24
Transformer PCA Tray Assembly	F-25
3 KVA 480V Transformer Top Assembly, Sizes A and B	F-26
Ship-with Kit	F-27
3 KVA Transformer PCA Service Kit	F-27
3 KVA 400/480V Transformer Service Kit	F-27
Transformer Solid State Relay Service Kit	F-28
Transformer 8A Fuse Service Kit	F-28
Transformer 10A Fuse Service Kit	F-28
Wiring Diagrams	F-29

Appendix G	
Hose/Applicator Expansion Base	G-1
Overview	G-1
Safety	G-2
Intended Use	G-2
Unintended Use	G-2
Melter Firmware Requirements	G-2
Installation	G-2
Installation Clearances	G-3
Power Requirements	G-4
Removing the Melter from the Sub-Base	G-4
Mounting the Expansion Base to the Sub-Base	G-7
Mounting the Melter to the Expansion Base	G-8
Connecting Expansion Base and	
Sub-base Wiring to the Melter	G-10
Using Melter with Expansion Base in a	
Water Wash Environment	G-12
Troubleshooting	G-13
General Troubleshooting	G-13
Troubleshooting Specific to Expansion Base	G-14
Expansion Base Circuit Board Indicators	G-15
I/O Declarations for the 4 Channel Temperature Control	
Expansion Board	G-16
Block Diagrams	G-17
Expansion Base Selection	G-19
240 Voltage - Legacy and Standard Warmup	G-19
480 Voltage - Legacy and Standard Warmup	G-20
Expansion Base Parts	G-22
Wiring Diagrams	G-24

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. This equipment has not been certified for compliance with the ATEX directive nor as nonincendive and should not be installed in potentially explosive environments.
- Ensure that the processing characteristics of the material will not create a hazardous environment. Refer to the Safety Data Sheet (SDS) 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 SDS for PPE requirements.
- Do not use equipment that is malfunctioning or shows signs of a potential malfunction.

Maintenance and Repair Practices

- Allow only personnel with appropriate training and experience to operate or service the equipment.
- 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 Nordson-authorized refurbished or replacement parts.
- Read and comply with the manufacturer's instructions and the SDS supplied with equipment cleaning compounds.

NOTE: SDSs 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 SDS 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, applicators, 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 Applicators

NOTE: Adhesive dispensing applicators are referred to as “guns” in some previous publications.

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

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

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, applicators, etc.)

PC = Process control

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

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 SDS. 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 SDS 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 applicators 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.
Continued...	

General Safety Warnings and Cautions *(contd)*

Table 1-1 General Safety Warnings and Cautions *(contd)*

Equipment Type	Warning or Caution
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 applicators. Before working on or near an operating applicator, disable the applicator's triggering device and remove the air supply to the applicator's solenoid valve(s). Failure to disable the applicator'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.
HM, CA, PC	 WARNING! Risk of fire or explosion! Nordson adhesive equipment is not rated for use in explosive environments and has not been certified for the ATEX directive or as nonincendive. In addition, this equipment should not be used with solvent-based adhesives that can create an explosive atmosphere when processed. Refer to the SDS 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.

Equipment Type	Warning or Caution
HM	 CAUTION! Hot surfaces! Avoid contact with the hot metal surfaces of applicators, 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 SDS 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

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 SDS 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 and tags affixed to the equipment. Table 1-2 provides an illustration of the hazard identification symbols that appear on each safety label and tag, the meaning of the symbol, or the exact wording of any safety message.

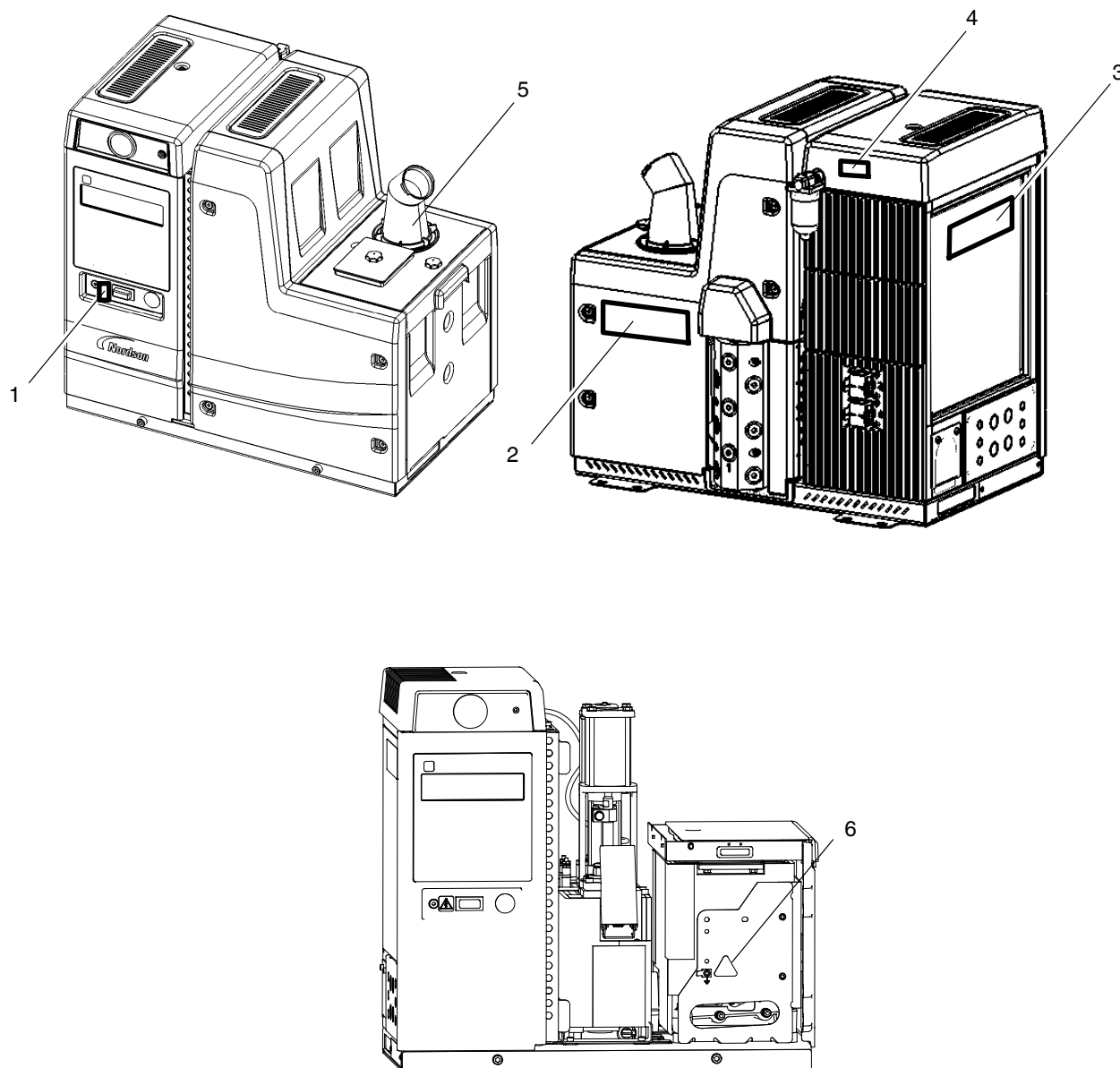
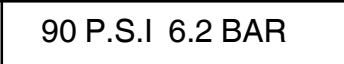


Figure 1-1 Location of Safety Labels

Safety Labels and Tags (contd)

Table 1-2 Safety Labels and Tags

Item	Part	Label	Description
1.	242867		TAG, WARNING, .78x.78
2.	1100256		TAG, WARNING, HOT ADH/HYD PRESS, 1.6X6.5
3.	1025795		TAG, WARNING, HAZARDOUS VOLTS, DURABLE
4.	1024721		TAG, MAXIMUM AIR PRESSURE, 1.55X.287
5.	1127475		TAG, WARNING, BURN HAZARD. HOT ADHESIVE. POWER OFF FILL SYSTEM BEFORE SERVICING
6.	1087951		TAG, WARNING, HYD PRESSURE, TRIANGLE ONLY

Section 2

Description

This manual describes how to install and use the Series 200/240V and 400/480V *ProBlue Flex* Adhesive Melter with *BBconn Controls*.

These melters are designed to be configurable, which means that each system is built according to the selection of options made by the customer at the time of purchase. If optional hardware is not installed, then the unique functionality of the optional hardware is not available for use. However, an option can be purchased at any time based on the manufacturing needs.

To determine the exact configuration of your melter, refer to *Melter Configuration Codes* given later in this section.

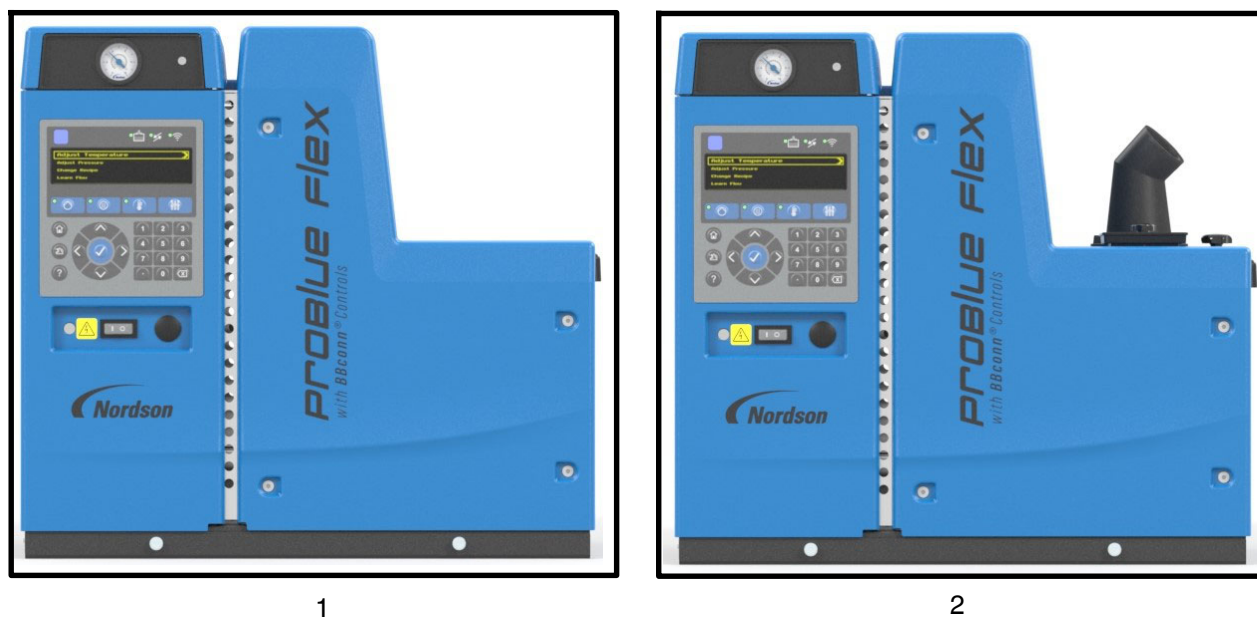


Figure 2-1 ProBlue Flex adhesive melter versions

1. ProBlue Flex adhesive melter

2. ProBlue Flex adhesive melter with Fill System
(Fill System is a customer option.)

Key Components

Figures 2-2 and 2-3 display the name and the location of key melter components.

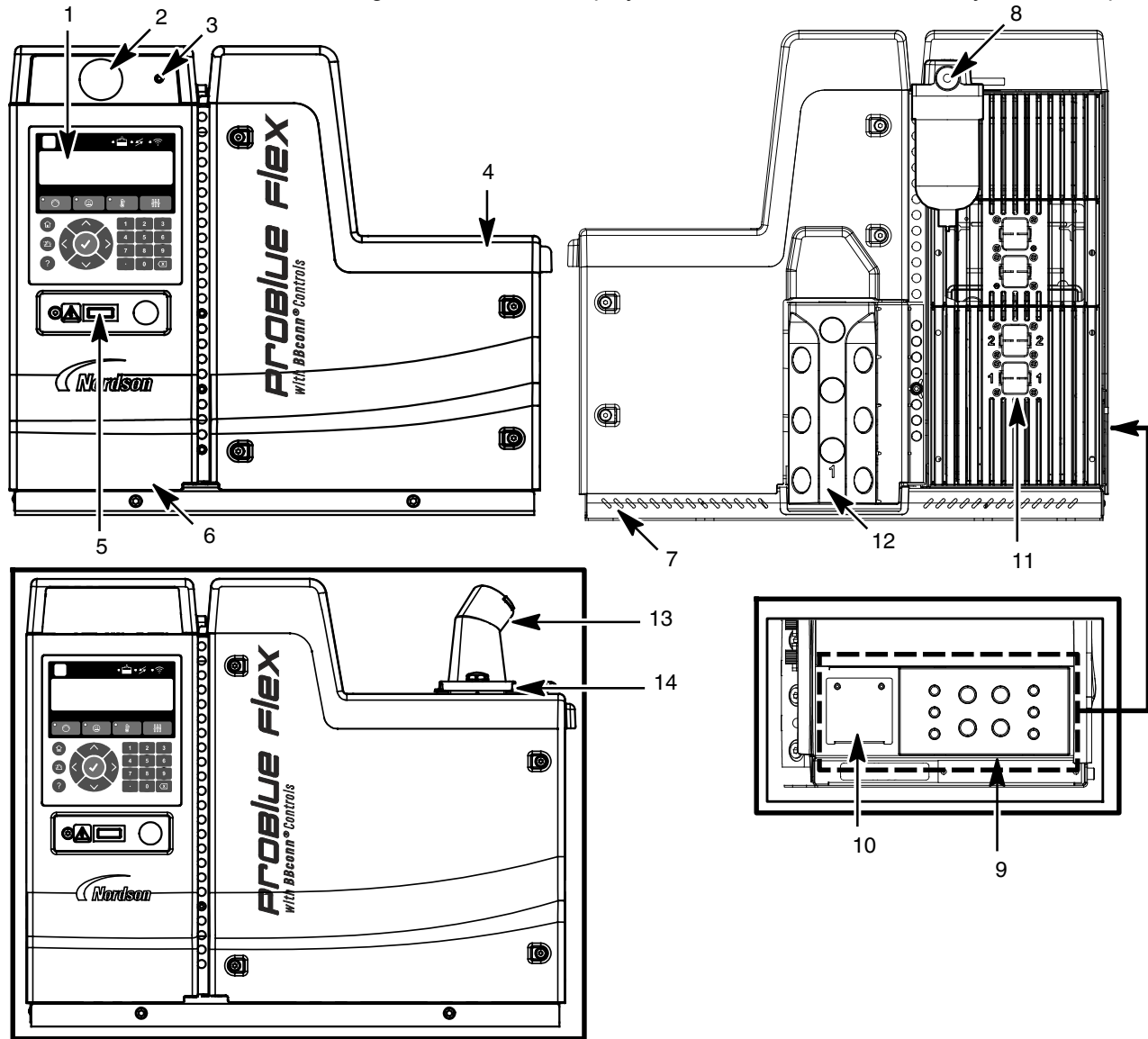


Figure 2-2 Key melter components

- | | | |
|----------------------------------|---|---|
| 1. OLED user interface | 6. Electrical enclosure door | 12. Hose manifold assembly |
| 2. Air pressure gauge (optional) | 7. Chassis | 13. Adhesive transfer hose connection (optional with Fill system) |
| 3. Air pressure adjustment screw | 8. Incoming air filter | 14. Fill system air filter (optional with Fill System) |
| 4. Lid assembly | 9. Customer I/O knockout panel | |
| 5. Melter On/Off switch | 10. Incoming AC power plate | |
| | 11. Hose and applicator 12-pin connectors | |

Melter User Interface

The melter's Organic Light Emitting Diode (OLED) user interface is used to navigate, configure, and fine-tune the system settings.

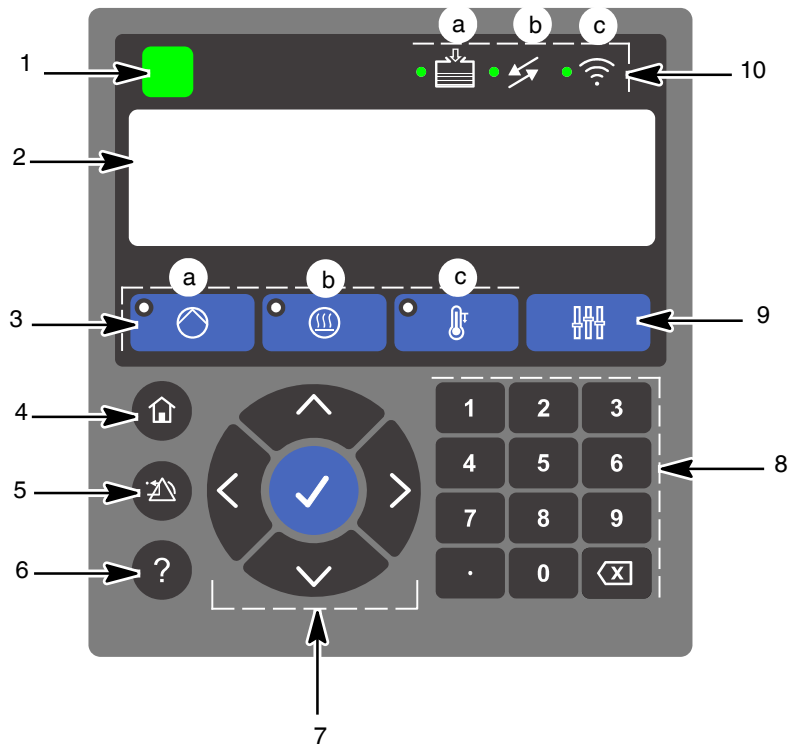


Figure 2-3 OLED User Interface

- | | | |
|--|--------------------------------------|--|
| 1. System Status LED | 5. Clear Reset button | 10. Indicators:
a. Fill (optional)
b. System I/O or PLC
Communication
c. Wireless LED (optional) |
| 2. OLED Display | 6. Help button | |
| 3. Master Controls buttons
a. Master Pump buttons with indicator
b. Master Heater Control with indicator
c. Master Temperature Setback with indicator | 7. Navigation buttons | |
| 4. Home button | 8. Numeric keypad | |
| | 9. Additional Master Controls button | |

Product Description

The ProBlue Flex adhesive melters are used in conjunction with Nordson hot melt hoses and applicators to create a complete hot melt application system.

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

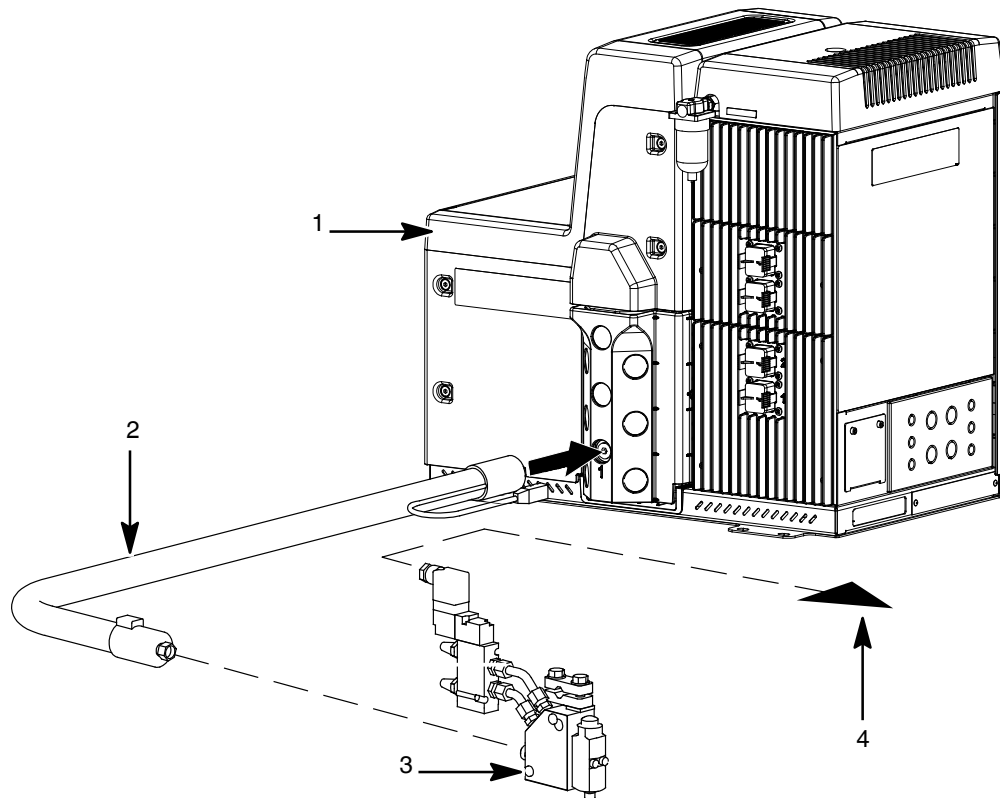


Figure 2-4 Basic hot melt system

- | | | | |
|------------------------|---------|---------------|--|
| 1. ProBlue Flex melter | 2. Hose | 3. Applicator | 4. Solenoid connects to parent machine or Nordson controller |
|------------------------|---------|---------------|--|

ProBlue Flex Melters with Melt-on-Demand (MOD)

The MOD melters are tankless with an automated fill system. This integration enables hot melt adhesive application to be delivered on demand.

Intended Use

Observe the safety instructions prior to using the ProBlue Flex adhesive melter. Nordson recommends obtaining detailed information on the materials to be used. Nordson will not be liable for personal injury or property damage resulting from unintended use.

The ProBlue Flex adhesive melter is designed to be used:

- Only to melt and convey suitable materials, such as thermoplastic hot melt adhesives
- With compatible equipment manufactured by Nordson Corporation
- In non-explosive environments

Limitations of Use

Use the ProBlue Flex adhesive melter only for the purpose for which it is designed. The melter should not be used:

- In a defective condition
- With the electrical cabinet door open
- With the tank lid open
- In a potentially explosive atmosphere
- When the melter is not in compliance with the related specifications

The melter may not be used to process the following:

- Polyurethane hot melt adhesive (PUR) or thermoplastic with melt index (extruder based materials)
- Explosive and flammable materials
- Erosive and corrosive materials
- Food products

Electromagnetic Compatibility (EMC)

The ProBlue Flex adhesive melter is intended for use in industrial applications.

When operated in residential or commercial areas, the melter may cause interference in other electrical devices.

Residual Risks

In the design of the unit, every measure is taken to protect personnel from potential danger. However, some residual risks cannot be avoided, such as:

- Burns from hot material
- Burns when filling the tank, from the tank lid, and from the tank lid supports
- Burns when conducting maintenance and repair work for which the melter must be heated up
- Burns when attaching and removing heated hoses
- Inhaling potentially hazardous material fumes
- Damage to cables/lines belonging to the customer if they were installed such that they come into contact with hot or rotating parts
- Automatic Pressure Discharge (APD) valve malfunction due to hardened or charred material

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

Theory Of Operation

The following diagram gives an overview of the system and its architecture. Understanding the functional blocks within the system and how they relate to each other can help with understanding the entire system and how it operates.

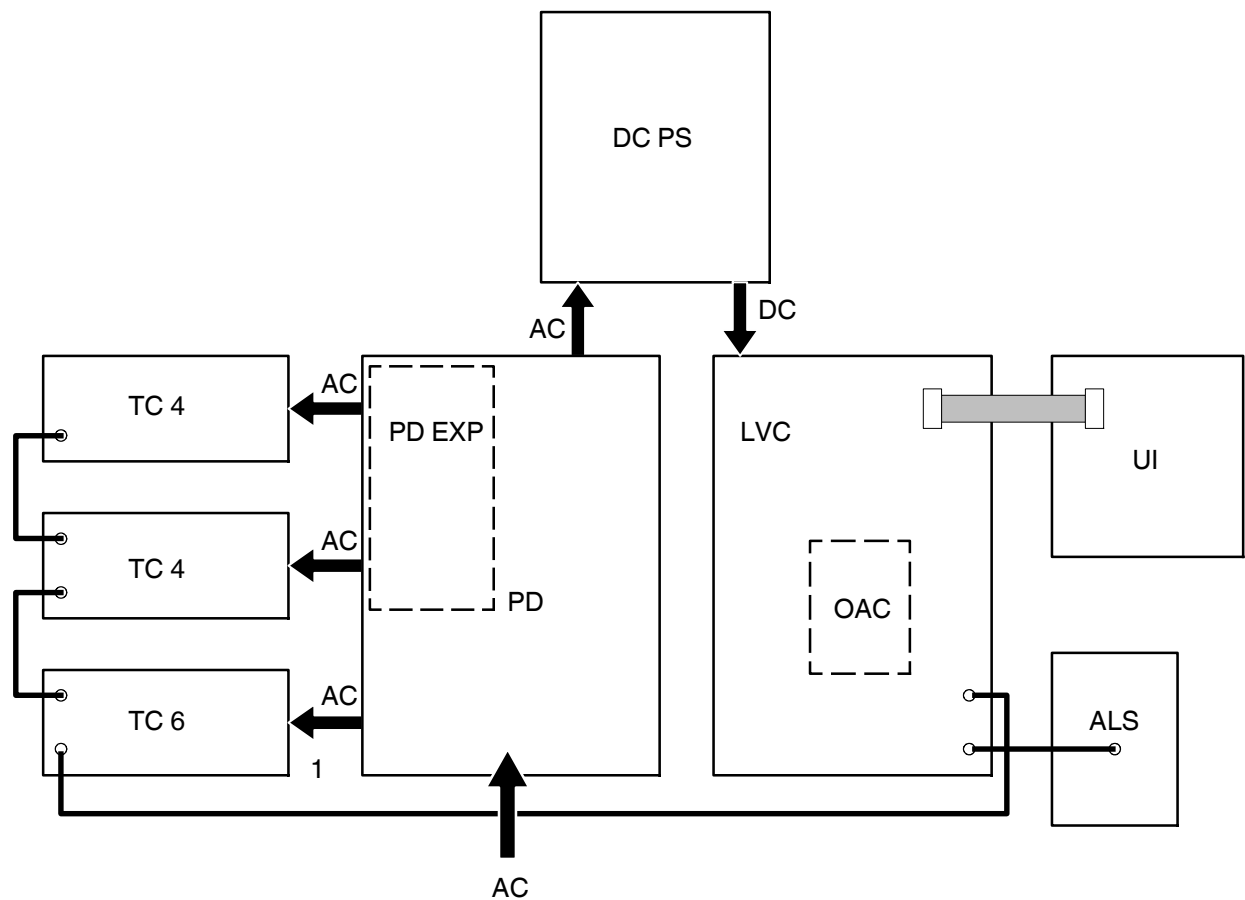


Figure 2-5 Block diagram

Key to the block diagram:			
TC	Temperature Control	OAC	Optional Accessory Cards
PD	Power Distribution	DC PS	DC Power Supply
PD EXP	Power Distribution Expansion	UI	User Interface
LVC	Low Voltage Controller	ALS	Adhesive Level Sensor

Functional Blocks

The following is a brief description of the functional blocks within the system.

Low Voltage Controller (LVC)

The LVC is the brains of the system. It coordinates the activities of the entire system using extensive communications capability. The following communications channels are supported:

- Communication to the OLED user interface is located on the electrical enclosure box (E-Box) door.
- Four external Ethernet ports
- Two Nordnet Master connectors
- Fieldbus communications slot (CompactCom)
- Wireless module connector

In addition, the LVC controls some system I/O directly such as:

- AC power contactors (in connection with the overtemperature thermostat)
- Pump solenoid
- Remote pressure adjust
- Fill system
- Standard I/O (1 isolated input; 1 relay output)

Data storage is an important capability of this system. Examples of tasks include recipe saving and loading, software upgrades and capturing the event log for analysis. Storage is handled by an on-board micro SD card and a USB port for flash (or thumb drives). The system is designed so that a user can perform all needed tasks involving storage using the USB port. The micro SD card is intended for internal use only. In general, it is best to leave the micro SD card alone.

Finally, the LVC supports expansion through the use of daughter cards and the various communication mechanisms.

Power Distribution and Control

The incoming AC power attaches to this board. This board is relatively simple and performs the following functions:

- AC input voltage configuration is performed using voltage plugs or personality plugs. This allows adaption to the intended plant power source. It also supports improved balancing of power loads by using all three AC lines in 3-phase systems.
- Power contactors which are controlled by an output from the LVC are located on this board.
- Fuses are located on this board.
- LEDs indicate when AC is applied to the input of the board and when the contactor is on.
- Supplies AC to the DC power supply.
- Connects to the power distribution expansion board when the unit is configured for more than 2 hoses and applicators. All ProBlue Flex melters with 4 to 8 hoses have this board.

DC Power supply

The power supply converts AC line voltage to a regulated 24 VDC. The input is from the power distribution board and the output attaches to the LVC. The power supply is located above the E-Box under the pneumatic cover.

Temperature Control Modules

The temperature controls are intelligent, distributed controls on the Nordnet serial network that are commanded by the LVC. They control the heaters with a Proportional Integral Derivative (PID) algorithm based on their RTD sensor readings. They report status back to the LVC. There are at least two types of temperature control modules:

- The 6-channel base module controls the internal zones and the first 2 hose/applicator pairs
- The optional 4-channel modules control 2 pairs of hoses and applicators.

There can be up to four temperature control modules in a system with eight hoses and applicators for a total of 18 channels.

Resistance Temperature Detectors (RTDs) and heaters are isolated from the low voltage of the circuit boards. An AC fault on the RTD lines should not propagate past the affected module.

User Interface(s)

The system supports three kinds of user interface. The system can be configured at purchase as well as changed in the field.

- The OLED HMI features a display that can display 4 lines of text. This interface is located on the E-Box door.

For details on the OLED user interface, refer to the *ProBlue Flex Adhesive Melter Using the OLED User Interface* (P/N 1128351).

- The Original Equipment Manufacturer (OEM) user interface has discrete LEDs and buttons but no display. It is intended to be used when the primary interface and control of the melter is by communications to a Programmable Logic Control (PLC). This interface is also located on the E-Box door.

For details on the OEM user interface, refer to the *ProBlue Flex OEM Users' Guide* (P/N 1129255).

- There is a color LCD (Liquid Crystal Display) touchscreen. It connects to the LVC by Ethernet and can be located remotely.

Adhesive Level Sensor

The capacitive level sensor is located on the wall of the melt section (tank or MOD). It is connected via a triaxial cable to the LVC. The adhesive level is an analog value continuously available to the user for monitoring and can be used to refill the unit.

Optional Functional Blocks

Air pressure sensor is a small board located above the E-Box in the pneumatic enclosure. It senses air pressure before the pump solenoid and enables this to be read electronically with high accuracy and displayed or transmitted via factory communications (if installed).

Legacy I/O is a daughter card that attaches to the LVC to provide 4 isolated inputs and 3 relay outputs in the same format as a ProBlue melter. It has identical circuitry and pinouts to the legacy melter to support easy upgrade from Nordson's Blue Series melters to the ProBlue Flex melters. The control for the I/O is through the LVC; this board has no controller.

Adhesive Tracking System (ATS) is a daughter card that attaches to the LVC to provide adhesive tracking functionality similar to Nordson's ProBlue ATS. This board is an intelligent subsystem that operates in parallel with the LVC but under its control. It is connected the LVC via Ethernet in order to support the higher data bandwidths needed.

Fieldbus Communications Module is an intelligent communications option that plugs into the LVC. Several types of modules are available to support different field buses.

Fill System controls an attached adhesive storage container to deliver adhesive to the melt section when needed.

Wireless Module supports wireless communications. It mounts to a connector on the LVC.

Transformer Base mounts under the melter and provides the ability to run the melter on up to 480VAC. Incoming power attaches to a board in the base. Internal zones run off the AC line voltage. Hoses and applicators are transformed to run from the standard 240VAC. Wiring harnesses attached to the power distribution board and the 6 channel base coordinate functions.

8 Hose Base mounts under the melter and provides an expansion to 8 hoses and applicators. It contains a 4 channel temperature control module communicating on Nordnet.

Future Features and Functions – the system supports several expansion mechanisms including daughter cards mounted to the LVC, boards connected by Ethernet and boards connected by NordNet.

How the Blocks Operate as a System

The AC power line voltage enters the unit and energizes the DC power supply. The DC power supply powers the LVC and all other DC circuits. The LVC controls power to the AC power relays on the power distribution board.

The LVC is the main control (CPU) and communications controller for the entire system. Communications is both within the system and outside the system. The primary function of the LVC is to interface with the user, communicate with the outside world, and direct the temperature controls. It also handles some I/O directly.

Melter Configuration Codes

The configuration code indicates the features that are included in your system that was purchased. The *system* configuration code appears on the ID plate on the unit, refer to *Melter Identification* given in the following page.

Melter Series	Melt Section	Pump	Warm-up Performance	#Hose/ Applicator	Pressure Management	Product Performance Upgrades	User Interface
PBF240	T04	STD	LW	2H	P1	PPU	UI
PBF240: ProBlue Flex 200/240V PBF480: ProBlue Flex 400/480V	T04: 4 Kg Tank T07: 7 Kg Tank T10: 10 Kg Tank X04: 4 Kg Tank - No PTFE X07: 7 Kg Tank - No PTFE X10: 10 Kg Tank - No PTFE M07: Melt on Demand (MOD) Tankless, [7 Kg/hr] M14: Melt on Demand (MOD) Tankless, [14 Kg/hr] Z07: MOD 7-No PTFE Z14: MOD 14-No PTFE	STD: STD-DA HOD: HO-DA SHO: HO-SA LBD: LP-DA WAD: LV-DA COD: LP, LV-DA	LW: Legacy Warm-up FW: Fast Warm-up	2H: 2H/A 4H: 4H/A 6H: 6H/A	P1: Manual Mechanical Pressure Adjust P2: Manual Mechanical Pressure Adjust/ Transducer P3: Electronic Pressure Setting P4: Pressure Run-up	XXX: None APP: Premium ATS: Flow monitor	I: Integrated OLED O: Minimal

Melter Identification

You will need the configuration code 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 under the customer I/O knockout panel (see Figure 2-6).

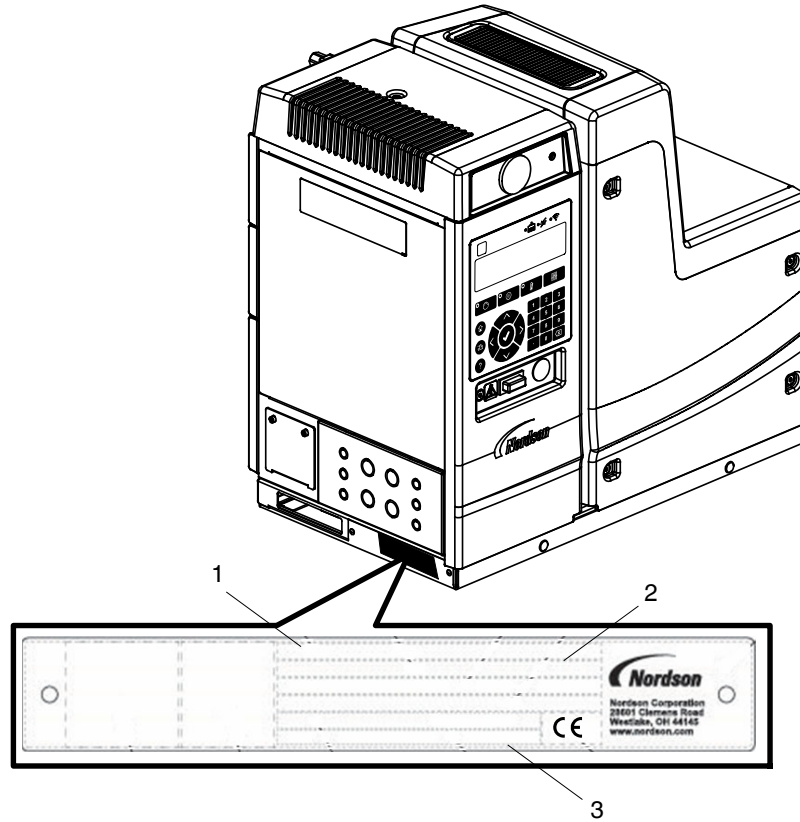


Figure 2-6 Melter identification plate

1. Unique number/Part number

2. Configuration number

3. Serial number

Other Sources of Information

Refer to the following resources for getting the most out of your ProBlue Flex melter.

Installation Guide

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

User Interface Quick Reference Guide

The user's guide shipped with the melter provides a visual quick-reference to the most common operator-level tasks.

ProBlue Flex Manuals and Service Kit Instruction Sheets

Visit the Adhesives Digital Library at www.NordsonADHinfo.com to view and download the ProBlue Flex product manuals, guides, and service kit instruction sheets.

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.

Overview

ProBlue Flex adhesive melters are factory-configured for each order, and are required to be mounted, installed, and connected for operation. If your melter was ordered as a complete system, the shipping container will also contain one or more hot melt hoses and applicators.

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

The ProBlue Flex 400/480 volt melters include a transformer assembly that is shipped separately from the melter. Refer to *ProBlue Flex 400/480 Volt Transformer* (Appendix F) for installation instructions, parts information, and wiring details.

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

Quick-Start

If you have already installed the melter using the *Installation Guide* (P/N 1128353) that is provided inside the shipping container, and you have no questions concerning the installation, refer to the accompanying *Quick Reference Guide* (P/N 1128354) for setting up the melter using the OLED user interface.

For detailed user interface setup instructions refer to one of the following manuals:

- *ProBlue Flex Adhesive Melter Using the OLED User Interface Manual* (P/N 1128351).
- *ProBlue Flex Adhesive Melter OEM User Interface Users' Guide* (P/N 1129255).

Additional Information



This section presents installation procedures in their most commonly used form. Procedural variations or special considerations are explained in the additional information that follows most procedures.

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

Melter Installation



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

Installation Tasks

The installation sequence is as follows:

1. Verify that the required environmental conditions and utilities exist.
2. Unpack and inspect the melter.
3. Mount the melter onto the parent machine or support structure.
4. Configure the electrical service.
5. Connect a compressed air supply.
6. Connect hot melt hoses and applicators.
7. Set up the melter to work with the manufacturing process.
8. Set up the melter's inputs and outputs.
9. Install optional equipment.

Installation Requirements

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

Melter Clearances

Figures 3-1 and 3-2 show the recommended clearances around the melter. Using the figures will ensure setting of the *minimum* clearances that are required between the melter and:

- Hoses
- Cordsets
- Power cabling
- Tank lid
- E-Box door
- Air supply
- Pump

NOTE: For melter dimensions and drawings, refer to *Technical Data* (Section 7).

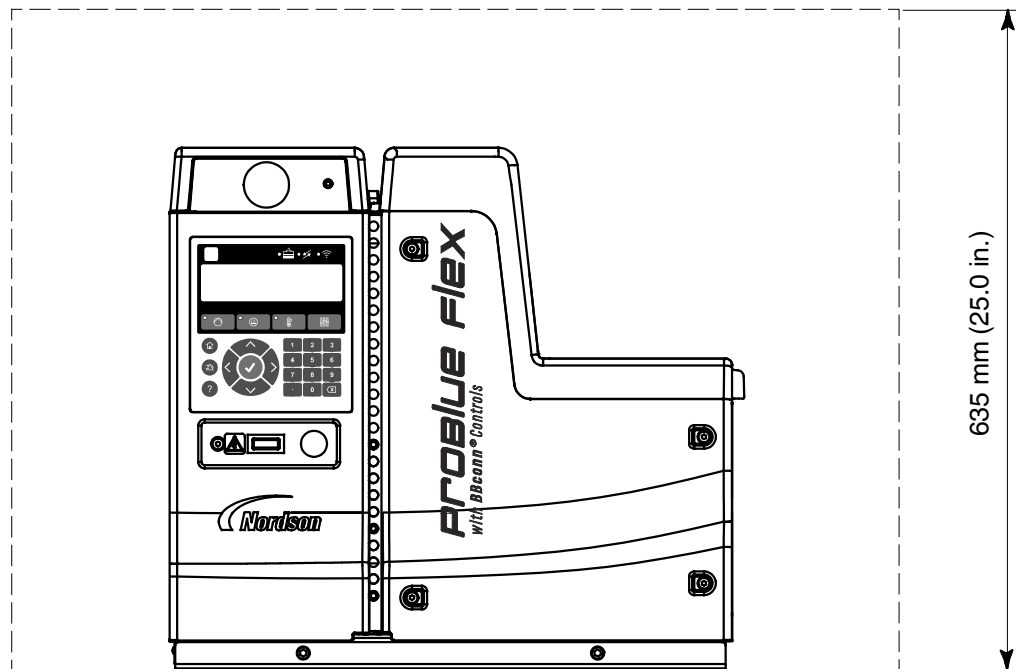


Figure 3-1 Installation clearances around the melter

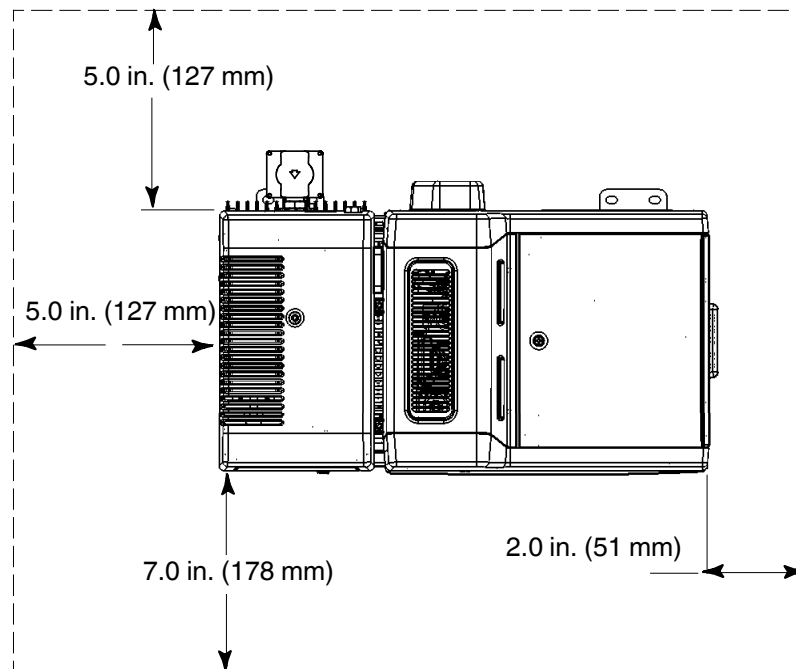


Figure 3-2 Installation clearances - melter top

Ventilation

See Figure 3-3. Melters are cooled by convection. Air is drawn in through openings in the chassis of the melter and is exhausted out of the ventilation slots at the top of the melter.

CAUTION! Do not block the air intake openings and ventilation slots.

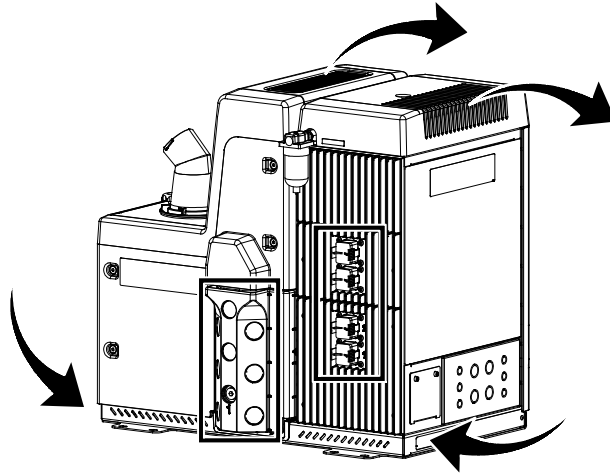


Figure 3-3 Melter ventilation slots

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 applicators that you plan to use.

Refer to *Calculating Melter Power Requirements* (Appendix A) for information about how to calculate the maximum allowable hose lengths and applicator wattage 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.

Compressed Air

To achieve maximum hot melt output, the melter must be connected to an air supply that is capable of providing 6.2 bar (90 psi) of dry, non-lubricated air. The actual pressure required for the melter to support your manufacturing process will depend on such factors as the type of hot melt and applicator you are using and the required dimensions of the hot melt bead.

NOTE: The operating air pressure range for the melter is 0.69 to 6.2 bar (10 to 90 psi). Operating the melter with air pressure less than the minimum may cause the pump to function erratically.

Air consumption during operation:

Depending on the type of pump being used, follow these specifications for air consumption:

Standard Double-Acting	High-output Double-Acting	Single-Acting
2.0 SCFM at 60 psi and 1.2 lb/min (56 l/min at 4.1 bar and 0.54 kg/min output)	3.5 SCFM at 60 psi and 2 lb/min output (100 l/min at 4.1 bar and 0.91 kg/min output)	4.7 SCFM at 60 psi and maximum output (133 l/min at 4.1 bar and maximum output)

Air consumption with fill system by transfer rate:

- 17 SCFM at 3.4 bar (50 psi) to transfer 105 kg/hr (232 lb/hr) with a 4 m hose at a 4 m rise
- 22 SCFM at 4.1 bar (60 psi) to transfer 113 kg/hr (248 lb/hr) with a 9 m hose at a 4 m rise
- 30 SCFM at 6.2 bar (90 psi) to transfer 91 kg/hr (200 lb/hr) with an 18 m hose at a 4 m rise
- Average: 1.3 SCFM for a complete system [melter, 4 m transfer hose, 4.1 bar (60 psi)] operating at 11 kg/hr (25 lbs/hr) adhesive output

NOTE: Nordson recommends that an isolation valve be installed in the plant air supply line just before the melter for safety and maintenance purposes.

Melter Mounting Considerations

The following are some important factors when evaluating where to mount and install the melter:

- The maximum distance between the melter and each applicator is dictated by the power requirement of each hose. Refer to *Calculating Melter Power Requirements* (Appendix A), for information about how to determine the maximum allowable length.
- When selecting the parent machine or support structure, follow these guidelines:
 - It must be level with respect to the floor.
 - It must provide an even mounting surface.
 - It must be capable of supporting the weight of the melter including hot melt.
 - It must not be exposed to excessive vibration.
- The melter must be installed so that it can be safely removed from its sub-base.
- 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 Safety Data Sheet for the hot melt being used.
- The operator must be able to safely observe the level of hot melt inside the tank.
- The operator must be able to safely access and accurately monitor the user interface.

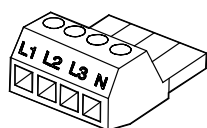
Unpack the Melter

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.

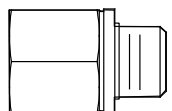
Contents of the Installation Kit

The installation kit (P/N 1127598) provided with the melter contains the components shown in Figure 3-4. The quantity and type of hose fittings provided in the kit depends upon the melter's model number and configuration.

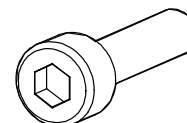
The installation kit also contains a package of safety label overlays that are printed in different languages. If required by local regulations, the appropriate language overlay should be applied over the English version of the same label. Refer to *Safety Labels and Tags* in *Safety* (Section 1) for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



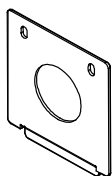
P/N 1022993



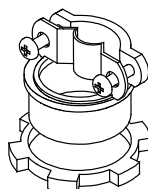
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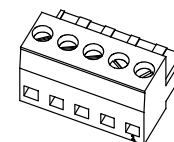
P/N 105800



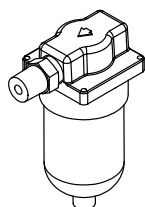
P/N 1127292



P/N 331872



P/N 173871



P/N 1127671

Figure 3-4 Ship-with kit contents

NOTE: 400/480 volt transformers are shipped with a separate installation kit. Refer to *ProBlue Flex 400/480 Volt Transformer* (Appendix F) for installation instructions, parts information, and wiring details.

Customer-Supplied Materials

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

- Power cable (if the cable clamp provided in the installation kit is not used, a rigid or flexible electrical conduit will be required.)
- Four 8 mm ($\frac{5}{16}$ in.) machine bolts with locking hardware
- A plant air supply with an in-line isolation valve

Mount the Melter

ProBlue Flex adhesive melters come factory-installed with the sub-base. At the time of mounting, the sub-base needs to be removed from the melter and mounted onto the parent machine or support structure. The melter is then remounted onto the sub-base.

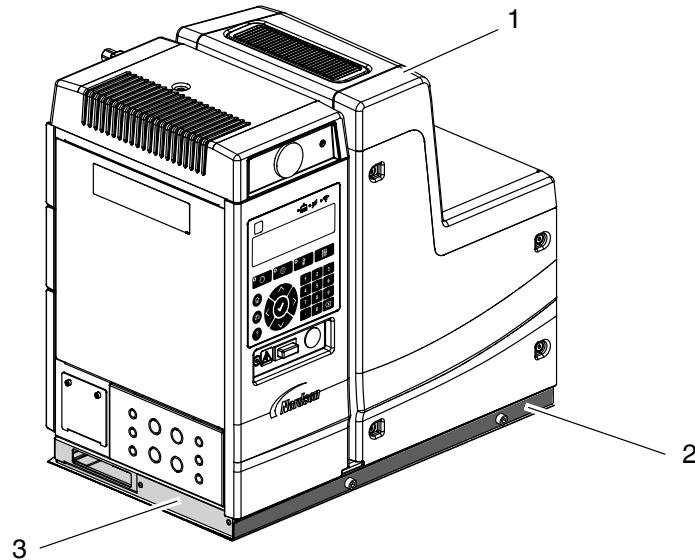


Figure 3-5 Melter with the chassis and sub-base

- | | |
|------------------------|------------|
| 1. ProBlue Flex melter | 3. Chassis |
| 2. Sub-base | |

Refer to *Technical Data* (Section 7) for the dimensions of the melter and the sub-base. Refer to the technical data provided by the hot melt manufacturer for information about the volumetric weight of the hot melt.

Refer to the *Melter Clearances* given earlier under *Installation Requirements* for the recommended clearances required between the melter and surrounding objects.

Refer to *Melter Mounting Considerations* given earlier under *Installation Requirements* before mounting the melter.

Removing the Melter from the Sub-base

1. See Figure 3-6. Remove the melter from the sub-base plate by loosening the two M8 socket head cap screws on the front of the chassis using an M6 hex wrench.

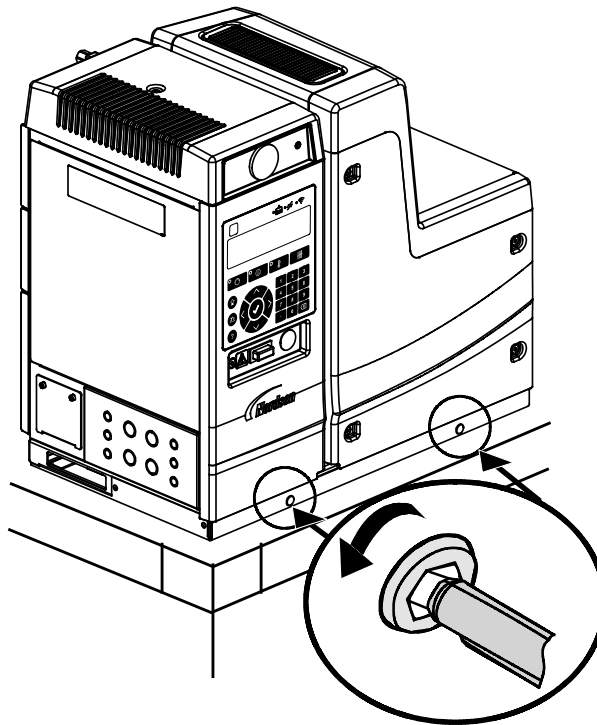


Figure 3-6 Removing melter from the sub-base

Removing the Melter from the Sub-base *(contd)*

2. Open the E-Box enclosure door and remove the enclosure side panel to access the chassis cover plate and chassis to sub-base ground wire.

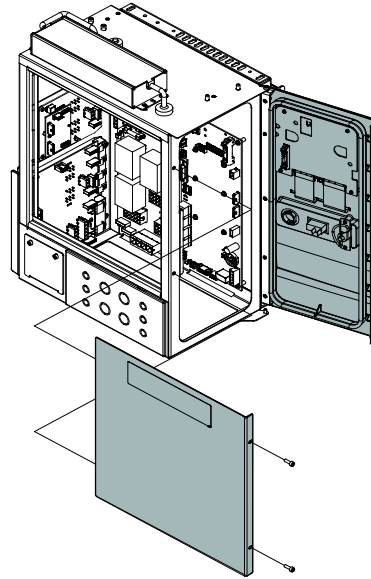


Figure 3-7 Opening the E-Box door and removing the side panel

3. See Figure 3-8. Disconnect the ground wire from the chassis to sub-base by doing the following:
 - a. Remove the chassis cover plate screw and then slide the cover plate.
 - b. Locate the ground wire and disconnect.

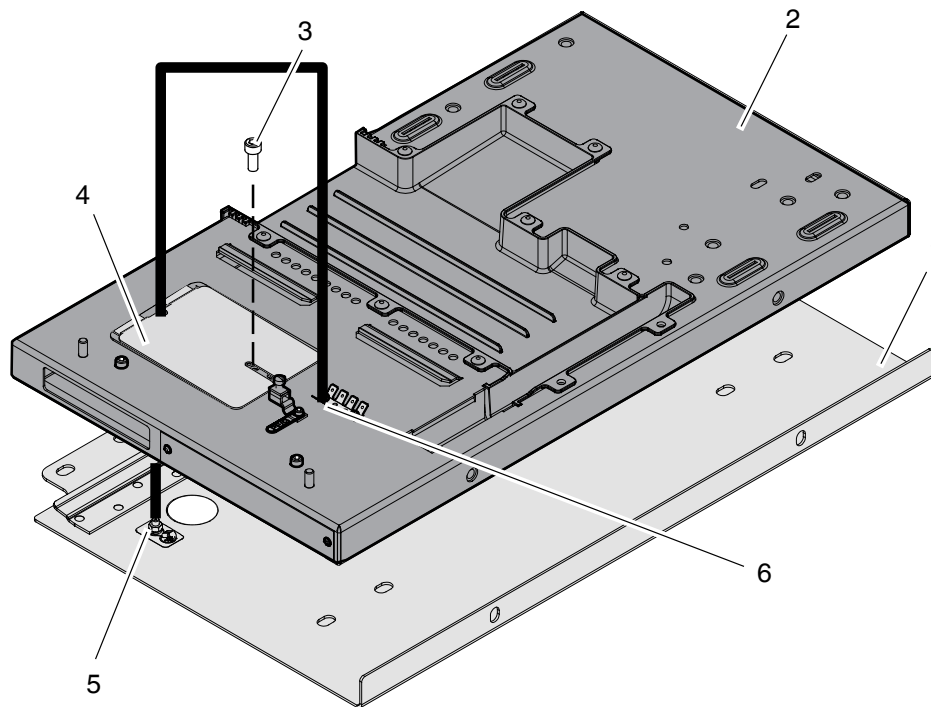


Figure 3-8 Disconnecting ground wire (some components not shown)

- | | | |
|-------------|------------------------------|------------------------------------|
| 1. Sub-base | 3. Chassis cover plate screw | 5. Sub-base ground wire connection |
| 2. Chassis | 4. Chassis cover plate | 6. Chassis ground wire connection |

Removing the Melter from the Sub-base *(contd)*

4. Push the melter backwards to disengage the locking tabs on the sub-base, and lift the melter from the sub-base.

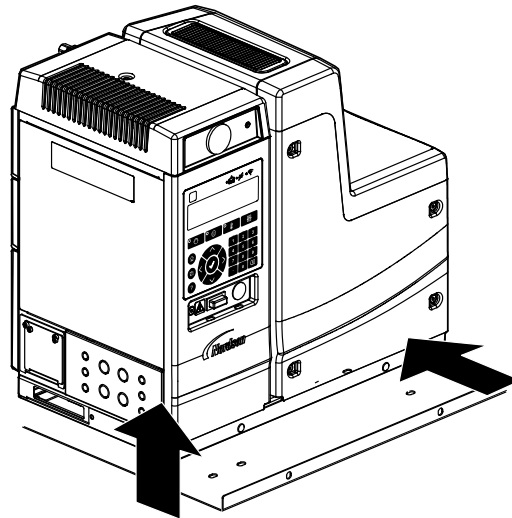
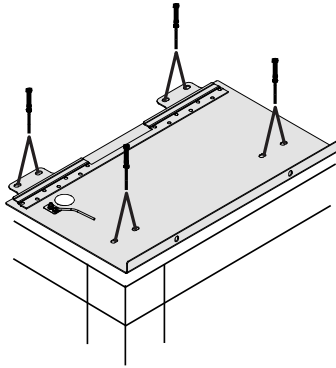


Figure 3-9 Disengaging the melter from sub-base

Mounting the Melter

1. Mark the sub-base bolt pattern on the parent machine or support structure and then drill holes for four 8 mm ($\frac{5}{16}$ in.) mounting bolts (customer-supplied).

NOTE: The mounting sub-base has the same bolt-mounting pattern as Nordson's ProBlue® melters.



2. Bolt the sub-base to the parent machine using four 8-mm ($\frac{5}{16}$ in.) machine bolts with locking hardware. See figure on the left.

NOTE: If you want to route the incoming power line from underneath the melter and through the sub-base, refer to *Connecting Incoming Power* given in the following page.

3. Carefully lower the melter onto the sub-base.
4. Slide the melter forward so that the sub-base locking tabs securely connect with the melter.
5. Lock the melter to the sub-base by reattaching the two M8 socket head cap screws located on the front of the chassis using an M6 hex wrench.

NOTE: Torque the M8 socket head cap screws to 17 ft-lb (23 Nm).

6. Connect the ground wire from the ground wire connection on the sub-base plate into the ground wire connection on the chassis. Reinstall the cover plate and fasten the screw.

Connecting Incoming Power



WARNING! Risk of electrical shock or short circuit. Use the cable clamp that is provided or use electrical conduit to protect the power cable from the sharp edge of the conduit knockout.

1. Use one of the following methods to connect the incoming power:
 - a. If the incoming power to the melter is coming from below the chassis, remove the 35 mm conduit knockout from the sub-base plate. See item **a** in Figure 3-10.
 - b. If incoming power is from the E-Box side, remove existing AC power plate and then install plate adapter (included in the ship-with kit). See item **b** in Figure 3-10.

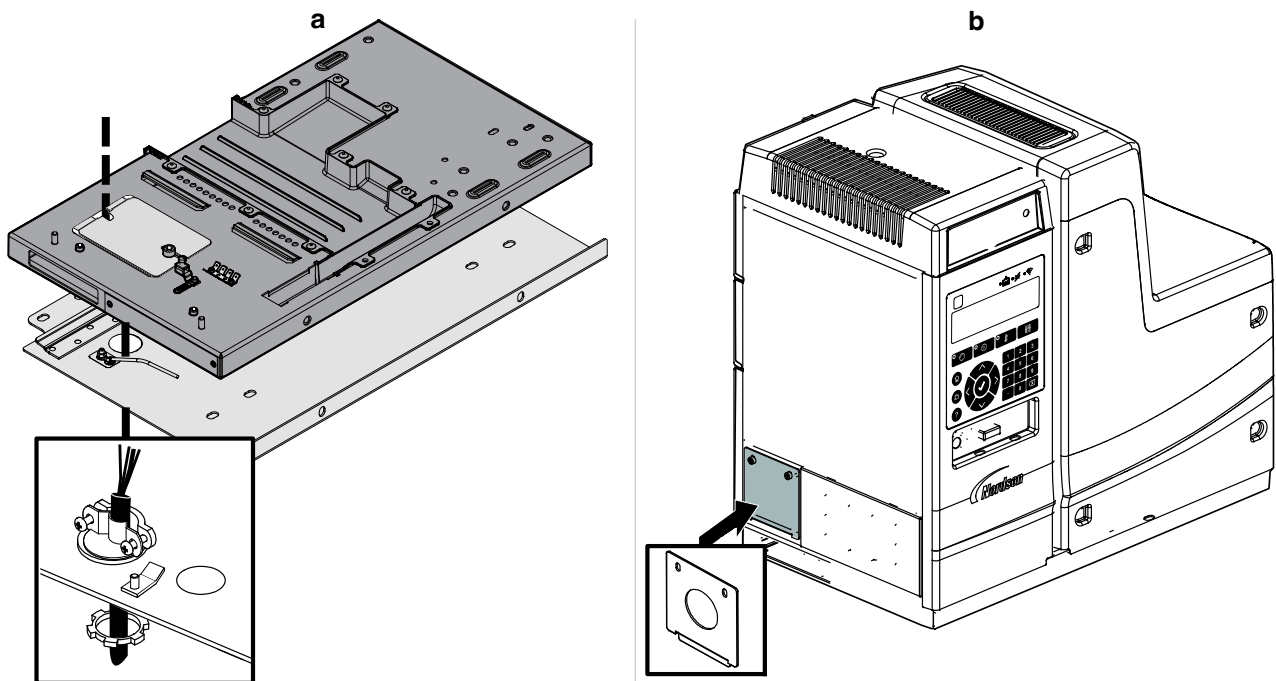


Figure 3-10 Routing incoming power

2. Install the cable clamp from the ship-with kit in the sub-base or adapter plate.
3. Route the power cable through the cable clamp. Tighten the cable clamp.

Configure the Electrical Service

ProBlue Flex adhesive melters are shipped from the factory without an attached power cable, an electrical service type specified, and Nordson recommended voltage plug. Be sure to order these items prior to making electrical connections.

Melter Power Requirements

CAUTION! The following tables are specific to melters without transformers. Melters using optional transformers are limited to 3 kVA for external hose/applicators.

The ProBlue Flex 400/480 volt melters include a transformer assembly that is shipped separately from the melter. Refer to *ProBlue Flex 400/480 Volt Transformer* (Appendix F) for installation instructions, parts information, and wiring details.

4 Kg Tank (T04, X04)

		Maximum Amperage							
		Legacy				Fast Warm Up			
	Voltage (VAC)	2 H/A	4 H/A	6 H/A	8 H/A	2 H/A	4 H/A	6 H/A	8 H/A
Δ	200-240, 1-phase	19	28	37	N/A	26	35	N/A	N/A
	200-240, 3-phase	13	21	24	28	19	22	30	34
Y	400-230, 1-phase	18	27	36	N/A	25	34	N/A	N/A
	400-230, 3-phase	10	14	14	18	11	14	20	20

7 Kg and 10 Kg Tank (T07, X07, T10, X10)

		Maximum Amperage							
		Legacy				Fast Warm Up			
	Voltage (VAC)	2 H/A	4 H/A	6 H/A	8 H/A	2 H/A	4 H/A	6 H/A	8 H/A
Δ	200-240, 1-phase	20	29	38	N/A	27	36	N/A	N/A
	200-240, 3-phase	14	21	31	29	19	23	31	34
Y	400-230, 1-phase	19	28	37	N/A	26	34	N/A	N/A
	400-230, 3-phase	10	14	14	18	11	14	20	20

7 Kg/Hr MOD (M07, Z07)

		Maximum Amperage							
		Legacy				Fast Warm Up			
	Voltage (VAC)	2 H/A	4 H/A	6 H/A	8 H/A	2 H/A	4 H/A	6 H/A	8 H/A
Δ	200-240, 1-phase	18	27	36	N/A	25	34	N/A	N/A
	200-240, 3-phase	13	19	23	29	19	21	29	34
Y	400-230, 1-phase	17	26	34	N/A	24	32	N/A	N/A
	400-230, 3-phase	10	12	14	18	11	12	20	20

14 Kg/Hr MOD (M14, Z14)

		Maximum Amperage							
		Legacy				Fast Warm Up			
	Voltage (VAC)	2 H/A	4 H/A	6 H/A	8 H/A	2 H/A	4 H/A	6 H/A	8 H/A
Δ	200-240, 1-phase	20	29	38	N/A	27	36	N/A	N/A
	200-240, 3-phase	14	21	31	29	19	23	29	34
Y	400-230, 1-phase	19	28	37	N/A	26	34	N/A	N/A
	400-230, 3-phase	10	14	14	18	11	14	20	20

15 Kg Tank (T15, X15)

		Maximum Amperage					
		Legacy			Fast Warm Up		
	Voltage (VAC)	2 H/A	4 H/A	6 H/A	2 H/A	4 H/A	6 H/A
Δ	200-240, 1-phase	24	33	N/A	30	N/A	N/A
	200-240, 3-phase	17	25	28	19	26	34
Y	400-230, 1-phase	23	31	N/A	29	38	N/A
	400-230, 3-phase	10	18	18	11	18	20

21 Kg/Hr MOD (M21, Z21)

		Maximum Amperage					
		Legacy			Fast Warm Up		
	Voltage (VAC)	2 H/A	4 H/A	6 H/A	2 H/A	4 H/A	6 H/A
Δ	200-240, 1-phase	25	34	N/A	32	N/A	N/A
	200-240, 3-phase	18	26	29	19	27	35
Y	400-230, 1-phase	24	32	N/A	30	39	N/A
	400-230, 3-phase	10	19	19	11	19	20

Connecting Power Cables

See Figure 3-11.

To configure the melter to function in your facility, you must connect a power cable and a Nordson voltage plug to the melter.

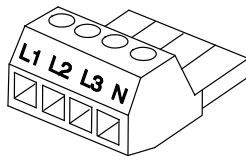
1. Select a power cable rated for the maximum amperage required by the melter. Ensure that the power cable meets applicable electrical codes and standards.

The maximum power draw for each melter shipping configuration, operating at 240 volts, in both 1-phase and 3-phase is listed in Table 3-3. The values presented in the table assume that each hose/applicator module is being used at its maximum capacity of 2000 watts.

NOTE: Contact your Nordson representative for assistance in calculating the melter's power draw for operating voltages other than 230 volts or for assistance in calculating the exact power draw for specific hoses and applicators that are manufactured by Nordson Corporation. Also refer to *Calculating Melter Power Requirements* (Appendix A).



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.



2. Access the electrical boards in the E-Box enclosure. To open the E-Box enclosure door and remove the enclosure side panel, refer to step 2 in *Removing the Melter from the Sub-base* given earlier in this section.
3. Connect each power cable lead to the appropriate terminal on the electrical connector (P/N 1022993). See figure on the left.

Connecting Power Cables *(contd)*



WARNING! Risk of electrical shock. Steps 4 - 6 must be completed before using the melter.

4. Connect the ground lead (external protective grounding conductor) from the power cable to the ground lug that is located on the chassis. The lug is marked PE/G.

5. Insert the correct voltage plug into receptacle X10 on the power distribution PCA board. Ensure that the plug snaps into place.

If the plug contains a neutral lead, connect the neutral lead to receptacle X9 and X11 on the power distribution PCA board.

6. Plug the electrical connector into receptacle TB1 on the power distribution PCA board.
7. When the electrical service is completely installed and inspected in accordance with local electrical codes and standards, close the E-Box door and reinstall the E-Box enclosure side panel. Switch on the local power disconnect switch.

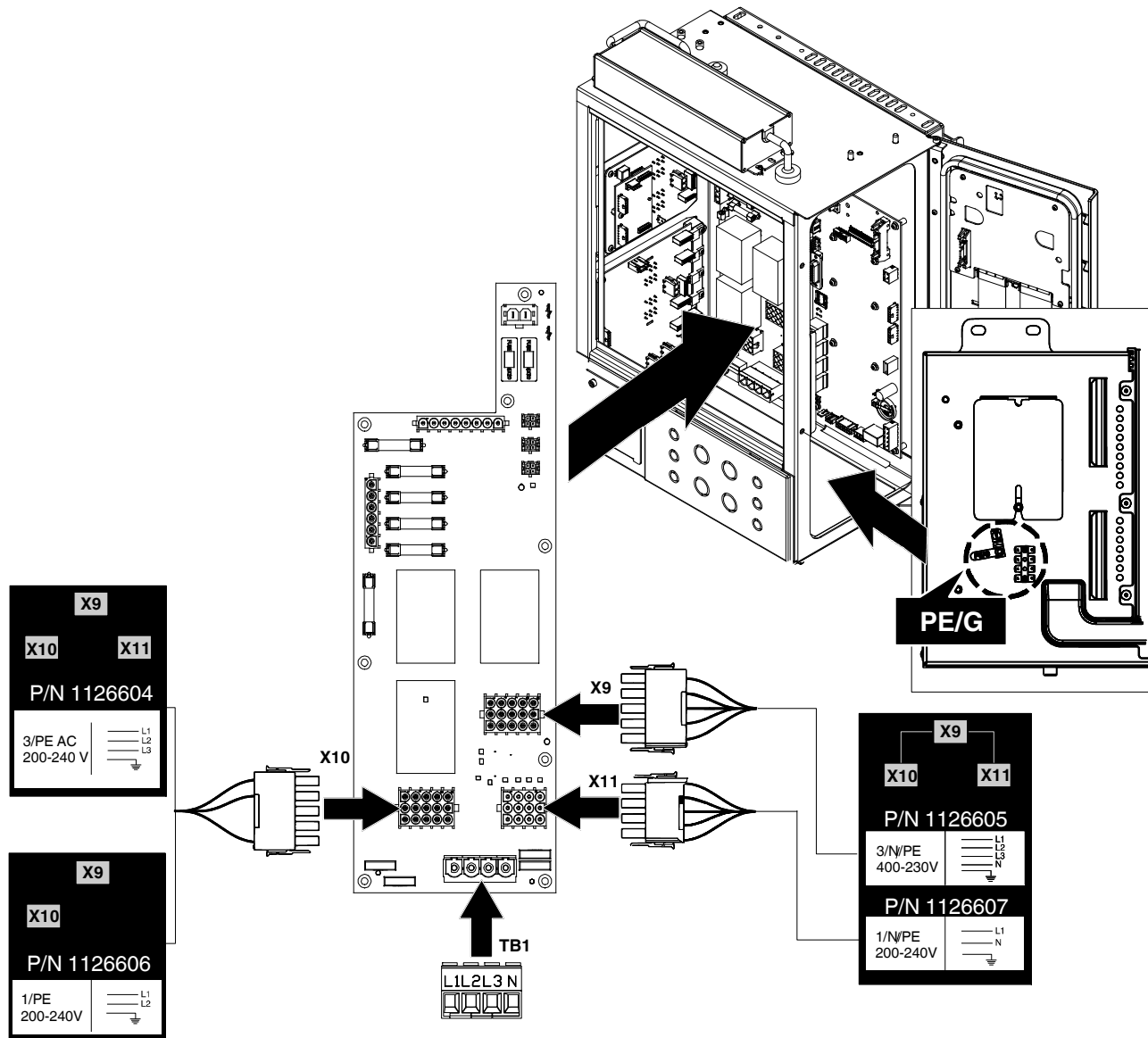


Figure 3-11 Connecting the power cable, ground lead, voltage plugs, and ground jumper

Connecting Power Cables *(contd)*

Table 3-3 Electrical Service Information

If the Electrical Service Type is..		Use Electrical Connector Terminals..				Use Voltage Plug
		L1	L2	L3	N	
400/230VAC 3-phase (4-wire service, including a neutral) See note.	3/N/PE AC 400/230V	●	●	●	●	1126605
230VAC 1-phase (2-wire service, including a neutral) See note.	1/N/PE AC 200–240V	●			●	1126607
200 to 240VAC 3-phase (3-wire service without a neutral)	3/PE AC 200–240V	●	●	●		1126604
200 to 240VAC 1-phase (2-wire service without a neutral)	1/PE AC 200–240V	●	●			1126606
400/230VAC 3-phase service		Includes the 415/240VAC 3-phase voltage (4-wire service including neutral)				
230VAC 1-phase service		Includes the 240VAC 1-phase voltage (2-wire service, including neutral)				

Connect a Pump Control Signal

If your melter has a single acting pump, you must provide 24VDC power to operate the pump.

The single acting pump is controlled by a 24VDC, 2.6 W solenoid valve. When power is applied to the solenoid valve, the pump piston moves downward, producing pressure and flow. Once the pump reaches the bottom of its stroke it will remain there until power is removed. When power is removed from the solenoid valve, the pump piston moves upward, drawing adhesive from the tank and refilling the pump. When the pump reaches the top of its stroke it will stop until power is again applied.

NOTE: For a comprehensive diagnostic and repair information of the double and single acting pumps, refer to *SP Pump Diagnostics and Repair* (Appendix B).

For a list of the pump service kit parts, refer to *Pump Service Kits* given in *Parts* (Section 8).

Connecting Power to the Solenoid Valve

See Figure 3-12.

1. Make sure that the melter is turned off.
2. Remove the regulator cover.
3. Remove the entire connector and coil assembly from the upper solenoid valve.
4. Connect the 24VDC control wiring to terminals 1 and 2 of the connector.
5. Reinstall the connector and coil assembly to the upper solenoid valve.
6. Route the 24VDC control wiring to the back corner of the electrical enclosure farthest from the power supply. This will prevent the wiring from being pinched by the regulator cover.
7. Reinstall the regulator cover.

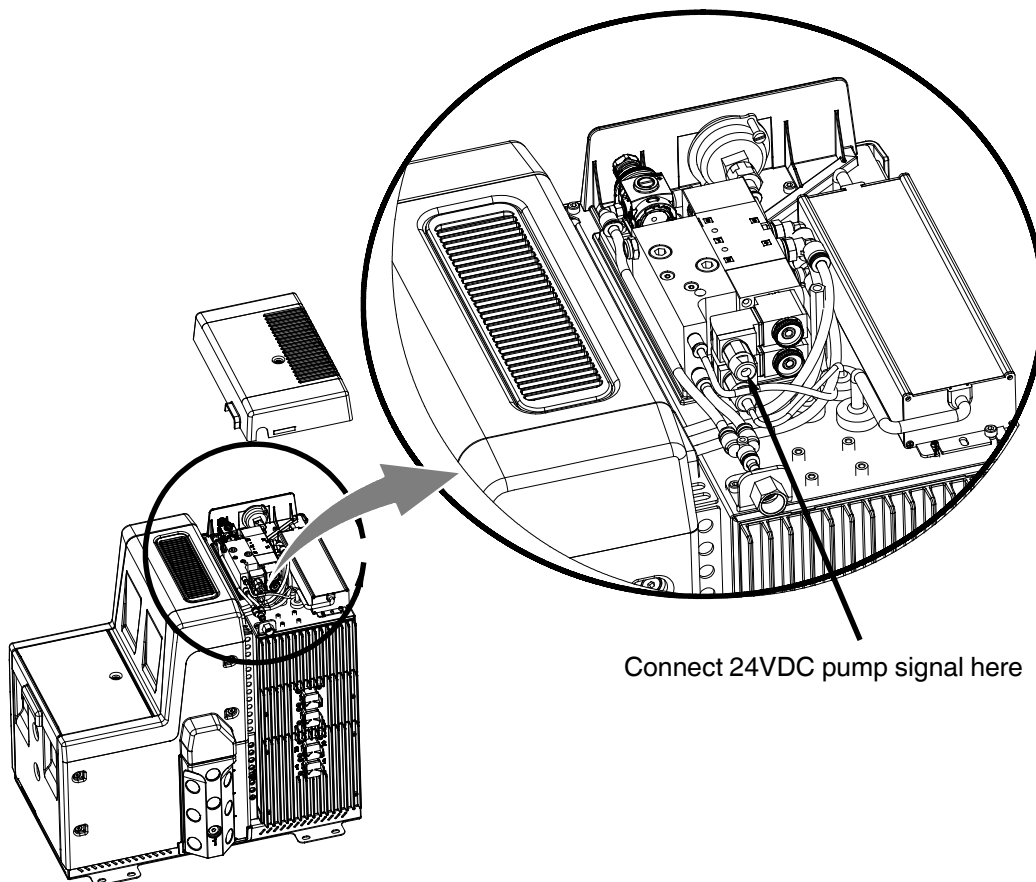


Figure 3-12 Connect 24 VDC pump signal location

Single Acting Pump Operation Notes

1. The maximum number of products per minute that can be glued depends on:
 - The amount of time required to apply adhesive per product
 - The pump's recharge time
2. Pump recharge time depends on:
 - The amount of adhesive dispensed per pump cycle
 - The adhesive viscosity
 - The air pressure supplied to the pump
3. For a full stroke (2.2 cu. in., 36 cc), expect between 750 milliseconds and 1 second to recharge. Less than a full stroke will take less time.
4. To ensure full pressure is available at the applicators, trigger the pump about 1 second before triggering the applicators.
5. The pump must be cycled to pressurize the system after pressure is relieved, for example, shutting off the melter, or the pump, or triggering an applicator without triggering the pump.
6. System pressure will gradually decrease when the pump is not cycling frequently. Cycle the pump to pressurize the system if it has been idle for more than 5 minutes.

Connect a Compressed Air Supply

CAUTION! Do not force the air pressure adjustment screw beyond its normal range of adjustment. Forcing the adjustment screw beyond its normal range of adjustment will damage the pneumatic assembly.

1. Use a 5 mm hex wrench to turn the air pressure adjustment screw counterclockwise until it stops (Off).

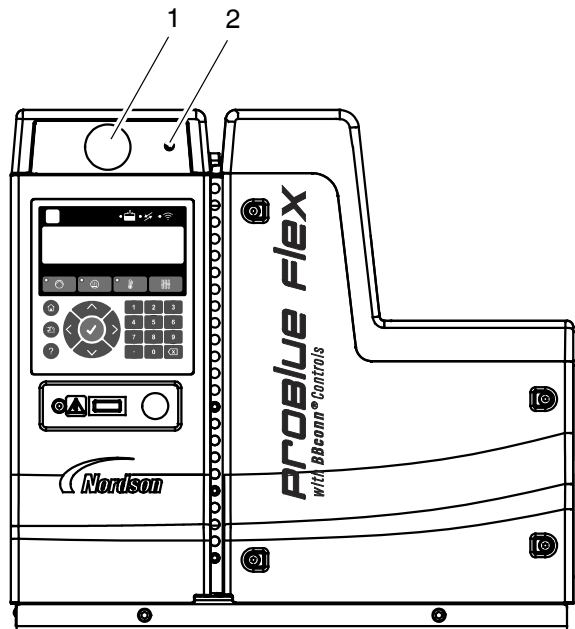
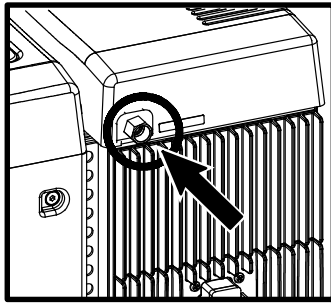


Figure 3-13 Pressure regulator (gauge) and adjustment screw

1. Air pressure gauge

2. Air pressure adjustment screw



2. Install the male fitting on the air filter assembly into the female fitting on the melter, and tighten. See figure on the left for the location.

See Figure 3-14.

3. Position the air filter vertically with the filter bowl in the downward position.

To correctly position the air filter, do the following:

- a. Remove the M5 screw from the regulator cover.
- b. Loosen the bulkhead fitting and nut, and then remove the cover.
- c. Align the air filter in the correct position, and tighten the bulkhead fitting and nut.
- d. Reinstall the regulator cover and retaining screw.

CAUTION! Rigidly support the plant air supply before connecting it to the air filter.

4. Connect a regulated plant air supply to the air filter inlet. If required, use the $\frac{1}{4}$ NPTF-to-G $\frac{1}{4}$ BSPP male adapter fitting (P/N 1034145) provided in the installation kit.

NOTE: The air filter inlet is threaded to receive a male G $\frac{1}{4}$ BSPP fitting.

Connect a Compressed Air Supply *(contd)*

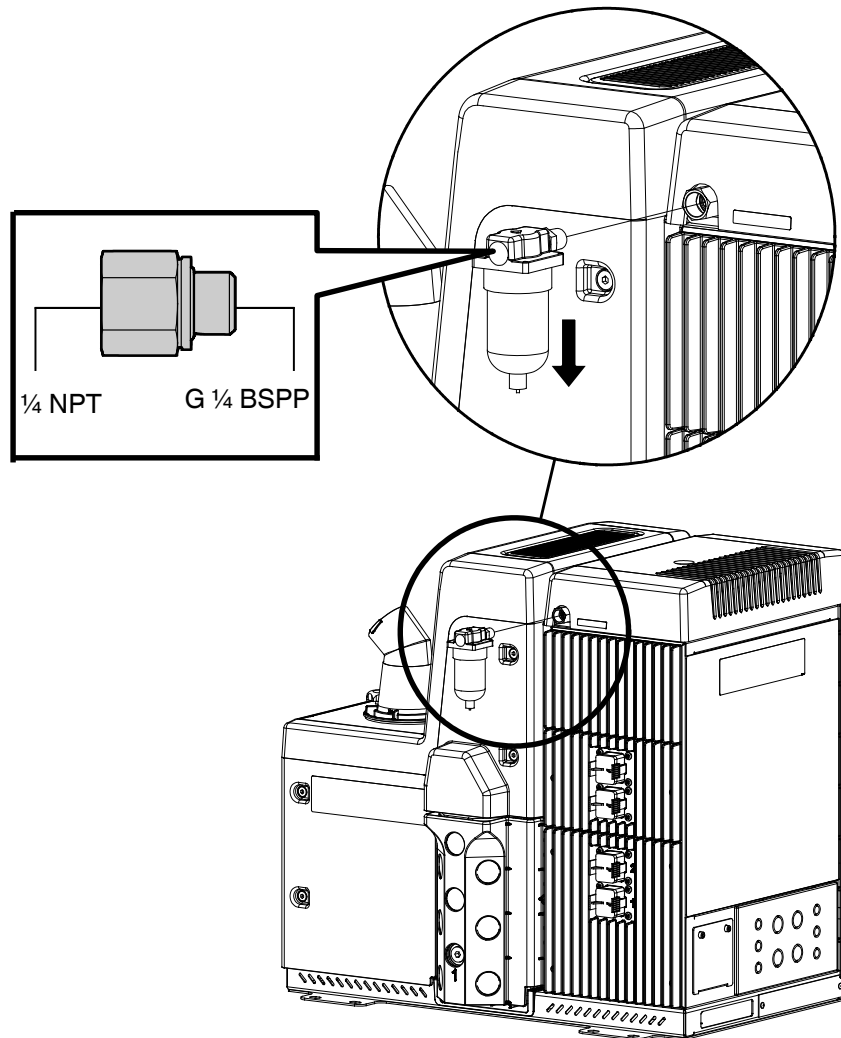


Figure 3-14 Connecting air filter and plant air supply

5. Open the plant air supply to the melter.
6. Turn the pressure regulator adjustment clockwise to set the melter's operating air pressure (pressure supplied to the pump) to 1.4 bar (20 psi). The operating air pressure should be adjusted later to meet the requirements of the manufacturing process.

NOTE: The minimum operating air pressure is 0.7 bar (10 psi). Operating the melter with the air pressure set to less than 0.7 bar (10 psi) may cause the pump to function erratically.

Connect Hoses and Applicators

ProBlue Flex adhesive melters use standard Nordson hoses and applicators. The melters support the connection of up to six hose/applicator pairs.

The hose/applicator capacity of each melter is determined by the number of hose/applicator modules installed on the melter. Each hose/applicator module supports the connection of two hose/applicator pairs. The hose/applicator capacity of melters that were ordered with less than their full hose/applicator capacity can be increased by adding additional hose/applicator modules. Unused hose/applicator module positions are covered by blank modules.



WARNING! Risk of fire or equipment damage. Before connecting hoses and applicators to the melter, confirm that the power required by each hose/applicator pair and each hose/applicator module does not exceed the maximum wattages specified in Table A-2, *Maximum Allowable Wattages in Calculating Melter Power Requirements* (Appendix A).

Connecting the Hoses

See Figures 3-15 and 3-16.

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 *Replacement Parts Catalog* or contact your Nordson representative.
- Refer to the user's guide provided with each Nordson hose. The guide contains important information about routing and installing the hose.
- Always use hose Port 1 first. The position of Port 1 is stamped on the face of the manifold.
- If you install an additional hose/applicator module, you must restart the melter and enter a set point temperature for each hose/applicator that you connect to the new module in order for the new hoses/applicators to be recognized.

Connecting the Hoses (contd)

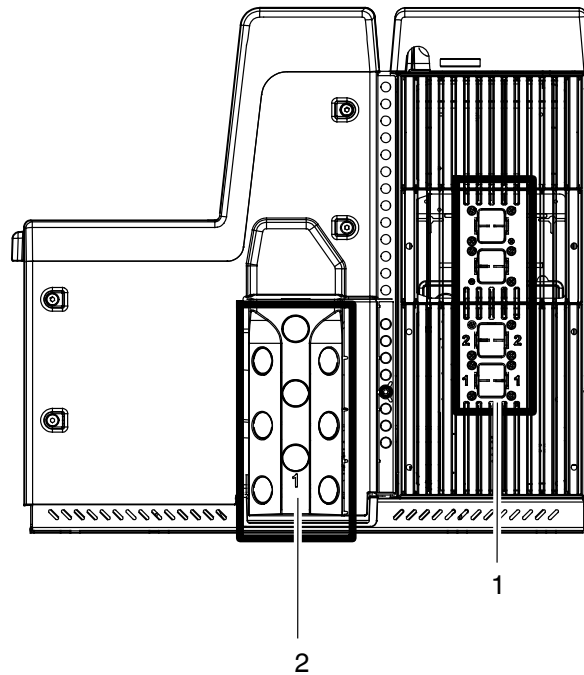


Figure 3-15 Hydraulic and electrical connections

1. Hydraulic connections (hose)
2. Electrical connections (applicator)

CAUTION! Failure to connect a hose to Port 1 may create spaces within the manifold where hot melt will not circulate. The presence of these spaces can result in the build-up of hot melt char, which can lead to clogged applicator nozzles.

- Save all of the port plugs removed from the manifold. A port plug will need to be reinstalled into the manifold if a hose is later removed.
- Use the 45- or 90-degree or straight hose fittings.

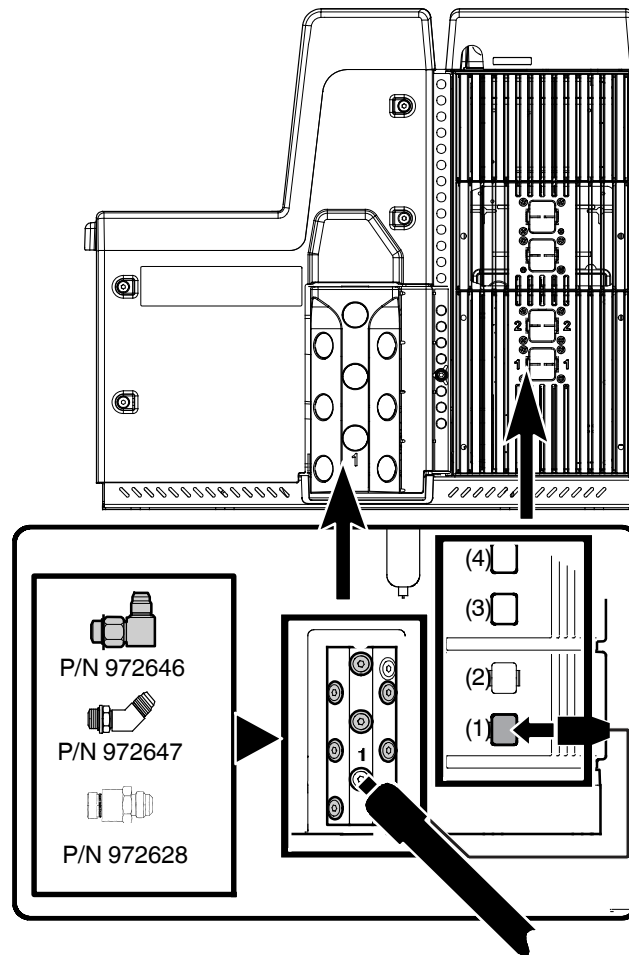


Figure 3-16 Connecting hoses and applicators

Connecting the Applicators

Note the following guidelines:

- ProBlue Flex adhesive melters support all hand-held and automatic applicators.
- For information about choosing the most appropriate Nordson hot melt applicator 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 *Calculating Melter Power Requirements* (Appendix A) for information about how to calculate the power required by Nordson hot melt applicators.
- Refer to the user's guide that is shipped with each applicator for information about installing the applicator and connecting a hose to the applicator.

Set 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 applicator 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.

Using the OLED User Interface

Use the components on the melter's OLED user interface to navigate the different menus for setting up, operating, and fine-tuning the system settings.

Refer to the accompanying *Quick Reference Guide* (P/N 1128354) for an overview of the OLED user interface and the menu structure.

Refer to the *ProBlue Flex Adhesive Melter Using the OLED User Interface Manual* (P/N 1128351) for detailed and advanced instructions on setting up the menus for operation.

Set Up the Melter Inputs and Outputs (I/O)

To access the electrical boards in the E-Box enclosure, make sure that the E-Box enclosure door is open and the enclosure side panel is removed. Refer to step 2 in *Removing the Melter from the Sub-base* given earlier in this section.

I/O Connections

Refer to *Technical Data* (Section 7) given later in this manual for specific board details.

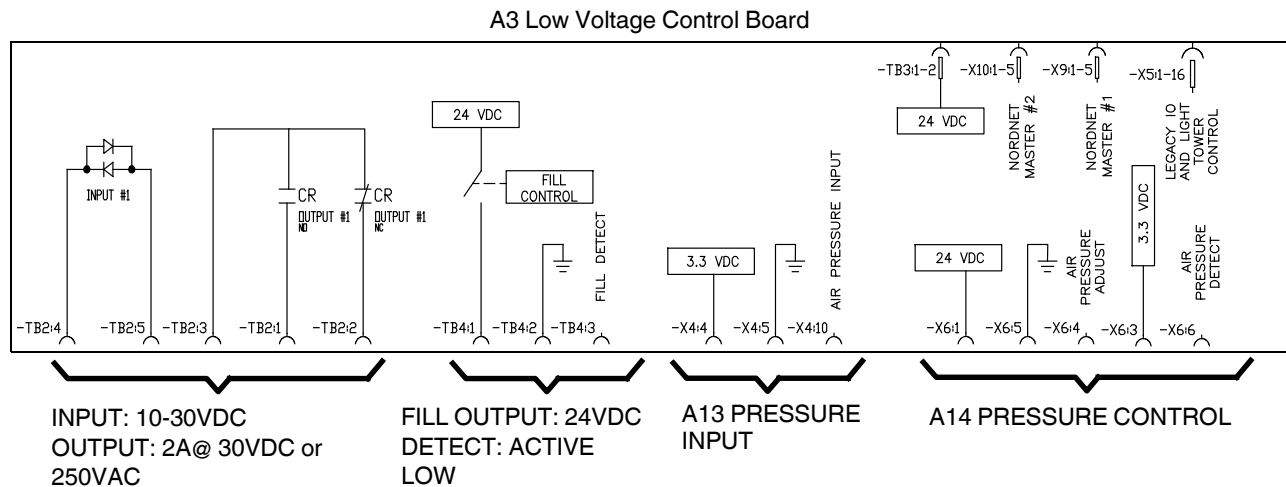


Figure 3-17 Low voltage controller board I/O connections

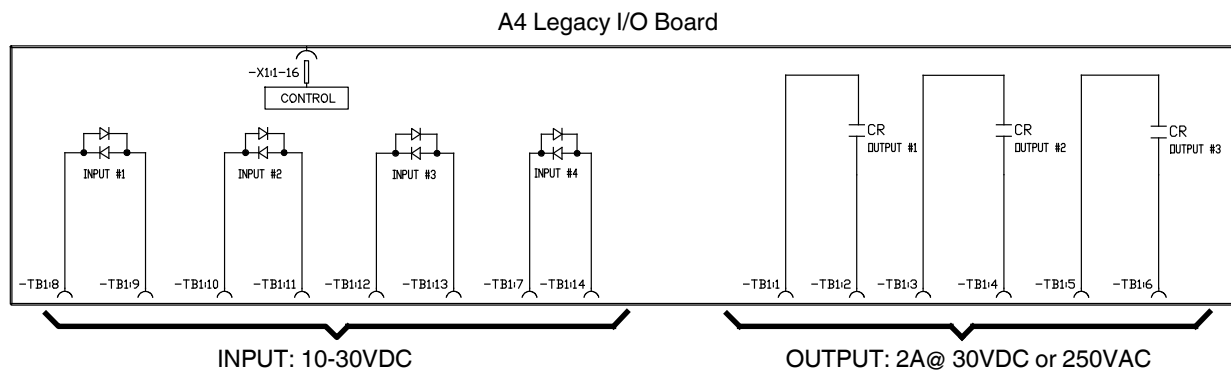


Figure 3-18 Legacy board I/O connections

Input Parameters

Table 3-4 Input Parameters

Selection	Functions	Hardware Option Required
Disabled	Input not used	N/A
Setback Control	- Active state causes the system to go into setback - Deactivated state causes system to return to set point temperature	N/A
Heater Control	- Active state turns heaters on - Deactivated state turns heaters Off	N/A
Pump Control	- Active state turns pump on - Deactivated state turns pump Off	N/A
Automatic Setback	When active signal removed, system goes into Automatic Setback after Auto Setback Start Time elapses.	N/A
Fill Control	- Active state turns on fill system - Deactivated state turns fill system Off	Fill System
Flow Monitor	Enables flow monitoring when active	Flow Board and License
System Enable	- When active, allows system to operate normally. - When deactivated, heaters, pumps and pattern outputs are off. Prevents system from moving from Idle to Run.	N/A
Remote Recipe 0	Remote recipe recall inputs can be configured for 2, 3, 4 or 5 binary weighted inputs: 2 Inputs = 3 recipes 3 Inputs = 7 recipes 4 inputs = 15 recipes 5 inputs = 31 recipe	Legacy I/O or Expanded I/O
Remote Recipe 1		Legacy I/O or Expanded I/O
Remote Recipe 2		Legacy I/O or Expanded I/O
Remote Recipe 3		Legacy I/O or Expanded I/O
Remote Recipe 4		Legacy I/O or Expanded I/O
	Recipe inputs = 0 is reserved for UI recipe selection Customer will select the number of inputs to dedicate and the inputs will be automatically assigned.	
SA Pump Reset	Used for Single Acting Pumps to reset the pump between products.	Single Acting Pump

Output Parameters

Table 3-5 Output Parameters

Selection	Functions	Hardware Option Required
Disabled	Output not used	N/A
Temperature Ready	All temp zones within 5 °F set point, no faults or alerts, system not in setback, ready delay complete	N/A
System Run-Ready	System State = Run (Temp Ready, Pump On, Patterns Enabled)	N/A
Fill Ready	Fill system is enabled and no fill faults	Fill System
Temperature Ready-Pump On	Temp Ready and Pump On conditions met (Does not include other subsystems such as fill, flow or pattern) - for legacy support	N/A
Fill Active	Active fill signal causes output active	Fill System
Fill Overfill Alarm	Max Fill time exceeded (overfill alarm) causes output active	Fill System
Fill Stop	Fill system stop causes output active	Fill System
Tank Low System Alert	Adhesive level in tank low causes output active Any active system alert causes output active NOTE: System Alert and fault are inverted and the check-box is selected. The invert check-box is automatically selected on factory reset.	Level Sensor (Basic/Legacy) N/A
System Fault	Any active system fault causes output active. NOTE: System Alert and fault are inverted and the check-box is selected. The invert check-box is automatically selected on factory reset.	N/A
High Flow Alert	Flow Monitor related alert causes output active when above the alert limit	Flow Board and License
Low Flow Alert	Flow Monitor related alert causes output active when below the alert limit	Flow Board and License
High Flow Stop	Flow Monitor related stop causes output active when above the stop limit	Flow Board and License
Low Flow Stop	Flow Monitor related stop causes output active when below the stop limit	Flow Board and and License
Continued...		

Selection	Functions	Hardware Option Required
Light Tower 1 (White)	Power On	N/A
Light Tower 2 (Green)	System State = Run	N/A
Light Tower 3 (Red)	Any Active Fault (Stop=Flashing)	N/A
Light Tower 4 (Amber)	Any Active Alert	N/A
Light Tower 4 (Blue)	System State = Idle	N/A
Audible Alarm Horn	Enunciates on Fault or Stop (optionally on Alert)	N/A
Adhesive Empty	Used to indicate an empty tank (mod or tank unit) condition	MOD or Tank unit

Install Optional Accessories

A list of optional accessories with connection information and service kit details is available in *Optional Accessories* (Appendix E).

For installing the optional accessory, refer to the installation instruction sheet shipped in the dedicated service kit.

For detailed user interface setup instructions, refer to one of the following manuals:

- *ProBlue Flex Adhesive Melter Using the OLED User Interface Manual* (P/N 1128351).
- *ProBlue Flex Adhesive Melter OEM User Interface Users' Guide* (P/N 1129255).

Section 4

Basic Melter Operation



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

Operator Level Tasks

The following is a list for accomplishing operator-level tasks:

1. Filling the melter tank.
2. Starting the melter.
3. Operating the melter.
4. Shutting the melter down.

Before proceeding with the next set of tasks make sure the melter is fully installed and connected as described in the accompanying *Installation Guide* (P/N 1128353).

Additional Information



This section presents operating procedures in their most commonly used form. Procedural variations or special considerations are explained in the additional information that follows most procedures.

Melter Operation

This section provides information about basic melter operating tasks.

The melter can be customized with several set up options. For detailed instructions on how to set up the menus for specific and advanced melter operating tasks, refer to one of the following manuals:

- *ProBlue Flex Adhesive Melter Using the OLED User Interface Manual* (P/N 1128351).
- *ProBlue Flex Adhesive Melter OEM User Interface Manual* (P/N 1129255).

Filling the Melter Tank

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

The tank is equipped with a sensor, which allows you to configure the system to set an alert when the volume of adhesive in the tank reaches approximately one-half of the tank's rated capacity.

IMPORTANT:

- If you have the optional Fill system, the tank will start filling once the tank/grid is at its set point temperature.
Refer to *Optional Accessories* (Appendix E) for dimensions, technical specifications, and parts information.
- If you do not have the optional Fill system, follow the instructions given in the following page.



WARNING! Hot! Risk of burns. Wear heat-protective clothing, safety goggles, and/or heat-protective gloves. Hot melt material may be released forcefully.



CAUTION: If the hot melt is in the form of pellets or slats, use a scoop to fill the tank. Never use your bare hands. Using your bare hands to fill the tank may result in personal injury.

1. Open the tank lid.

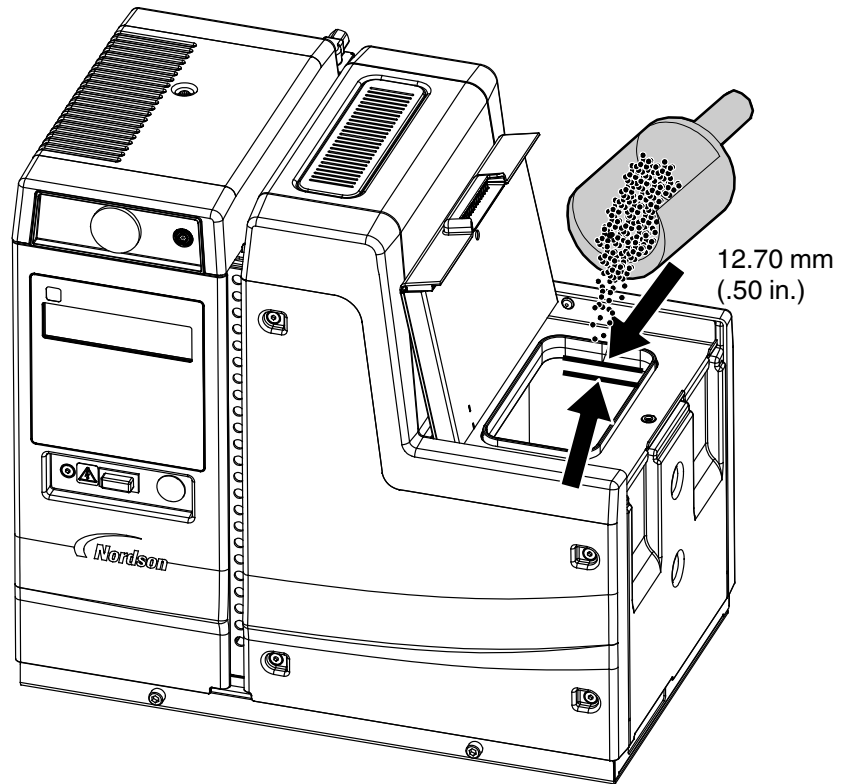
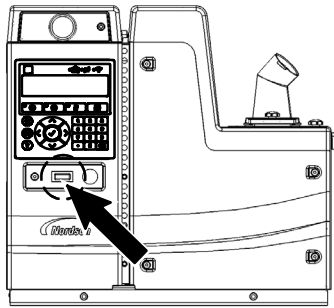


Figure 4-1 Tank fill line

2. Fill the tank with hot melt up to the tank fill line. See Figure 4-1.
3. Close the tank lid when you are finished filling the tank.

Starting the Melter for the First Time

Before starting the melter for the first time, confirm that the melter is fully installed, including hoses and applicators, and any optional equipment.



1. Switch the melter On. See figure on the left for the melter power switch location.

NOTE: The melter goes through a self-check, and after all the LEDs and indicators briefly illuminate, the Commissioning Setup Wizard starts. Refer to *Commissioning Setup Wizard* given in the following page.

2. Fill the tank with adhesive and wait a few minutes until enough has melted to purge the air from the new pump.
3. Remove the front panel of the melter by loosening the four latches.
4. See Figure 4-2. Lower the drain valve chute and open the drain valve.
5. Set the pump air pressure to 1.03 bar (15 psi).
6. Press  on the OLED user interface to enable the pump.
7. Allow adhesive to flow from the drain valve until there are no air bubbles present.

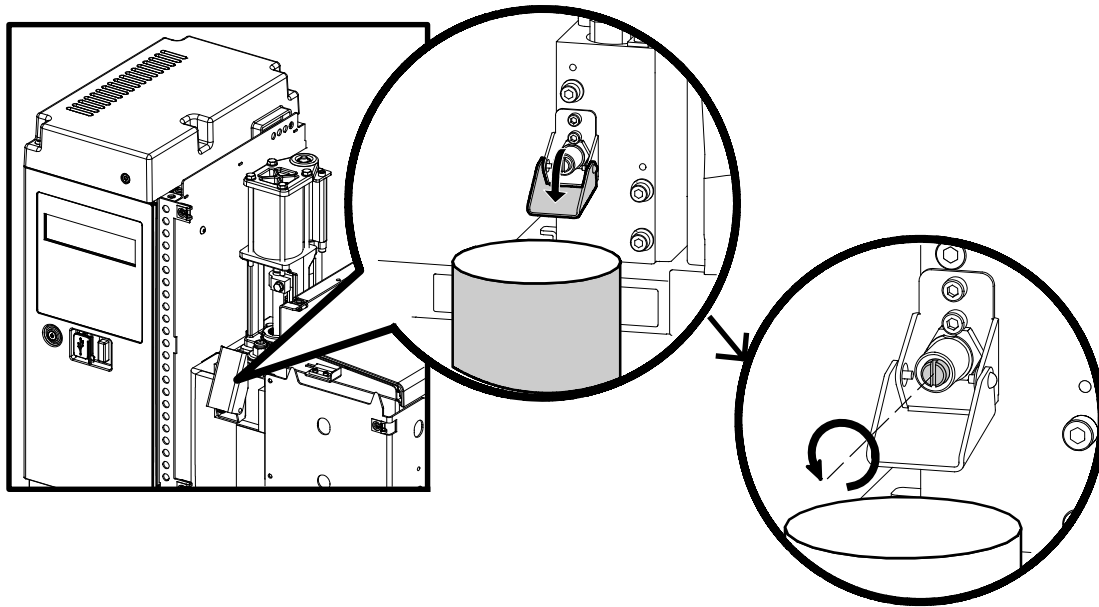


Figure 4-2 Location of the drain chute and the drain valve

8. Close the drain valve.

OLED User Interface

The melter's OLED user interface allows you to navigate to the different menus for setting up, operating, and fine-tuning the system settings.

Commissioning Setup Wizard

The Commissioning Wizard starts upon first time power-up or after a factory reset.

You must complete the Commissioning Wizard's setup menu sequence. The Commissioning Setup Wizard menus are as follows:

Menu Screens	Function
Language	Select from any of the nine language options by pressing the ▲ or ▼ buttons. Press ✓ to select and continue. NOTE: There is a lag of about 30 seconds when a different language is selected.
Start Wizard Or Load Settings from USB	Press ✓ to select and start the wizard. Load Settings from USB option allows you to quickly load melter system settings from an existing backup file. If you do not have a backup file, the select <i>Start Wizard</i> to continue.
Date Format	Press the ▲ or ▼ to select from the following date formats: DD/MM/YYYY, MM/DD/YYYY, YYYY/DD/MM Press ✓ to select and continue.
Date	Use the numeric keypad to set the current date.
Time Format	Select from the following time formats by pressing the ▲ or ▼ buttons: 12-hour clock or 24-hour clock Press ✓ to select and continue.
Set Clock	Use the numeric keypad to set the current time. Press ✓ to select and continue.
Continued...	

Commissioning Setup Wizard (contd)

Menu Screens	Function
Temperature Unit	Select an option by pressing the ▲ or ▼ buttons: Celsius or Fahrenheit Press ✓ to select and continue.
Pressure Unit	Select an option by pressing the ▲ or ▼ buttons: kPa, BAR, PSI Press ✓ to select and continue.
Mass Unit	Select from the following options by pressing the ▲ or ▼ buttons: kg or lb Press ✓ to select and continue.
Recipes	Select to enable or disable recipes by pressing the ▲ or ▼ buttons. Enabling Recipes allows you to save and recall job specific settings.
Heat Schedule	Select to enable or disable the heat schedule by pressing the ▲ or ▼ buttons. Enabling Heat Schedule allows you to define daily and weekly scheduled Heat On/Off and Setback events.
Melter ID	Use the keypad to assign a unique melter ID. Press ✓ to confirm.

NOTES:

- Complete making your Commissioning Wizard selections before switching on the *Master Heater* control.
- If you have the optional Fill system, the *Master Fill* control switches on automatically, and will start filling once the tank has reached its set point temperature.
- By default, all external zones are disabled. You must individually enable each zone, one at a time.
- You can rerun the Commissioning Wizard at any time by navigating to:
Home screen > System Settings > Preferences > Restart Wizard

Describing the Home Screen

After the *Commissioning Setup Wizard* process is complete, the **Home** screen appears.

NOTE: On subsequent melter power-up, the **Home** screen appears after the system completes a self-check.



Figure 4-3 Home screen

Refer to the accompanying *User Interface Quick Reference Guide* (P/N 1128354) for an overview of how to use the OLED user interface and the menu structure.

The melter can be customized with several set up options. For detailed instructions on how to set up the menus for specific and advanced melter operating tasks, refer to one of the following manuals:

- *ProBlue Flex Adhesive Melter Using the OLED User Interface Manual* (P/N 1128351).
- *ProBlue Flex Adhesive Melter OEM User Interface Manual* (P/N 1129255).

Navigation Controls

Use the Home screen components to monitor and change the melter settings. See Figure 4-4 for the location of the navigation controls. The descriptions of the functionalities are given in the following page.

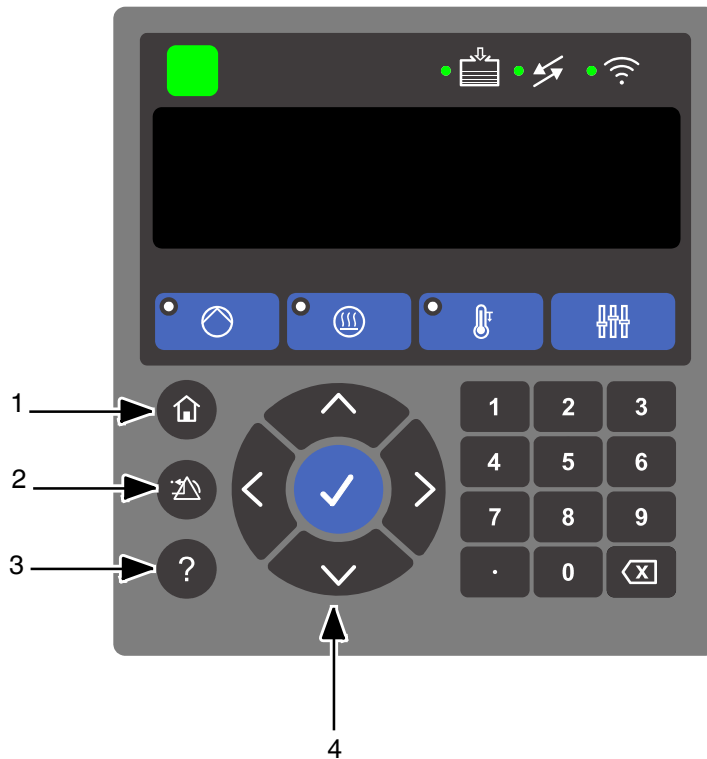


Figure 4-4 Navigation buttons

NOTE: You can adjust system pressure if you have an optional pressure transducer. Without an optional pressure transducer, you can only view the current system pressure.

See Figure 4-4 for the location of the navigation controls:

Item	Component	Type	Function
1	Home		Navigates to the top of the Home screen menus. Allows access to the menu screens.
2	Clear/Reset		Acknowledges, closes and resets the Temperature, Pressure and Fill Alert, Fault and Stop conditions.
3	Help		Allows access to the context sensitive help system.
4	User Control/Arrow keys		• Accepts a user selection or input. • Selects an option from a list. • Toggles an option On or Off.
			Navigates to the next menu. The > appears on the right side when an additional menu option is available.
			Navigates to the previous menu.
			Move up to the previous selection in a list.
			Move down to the next selection in a list.

Master Controls

See Figure 4-5 for the master system On/Off components.

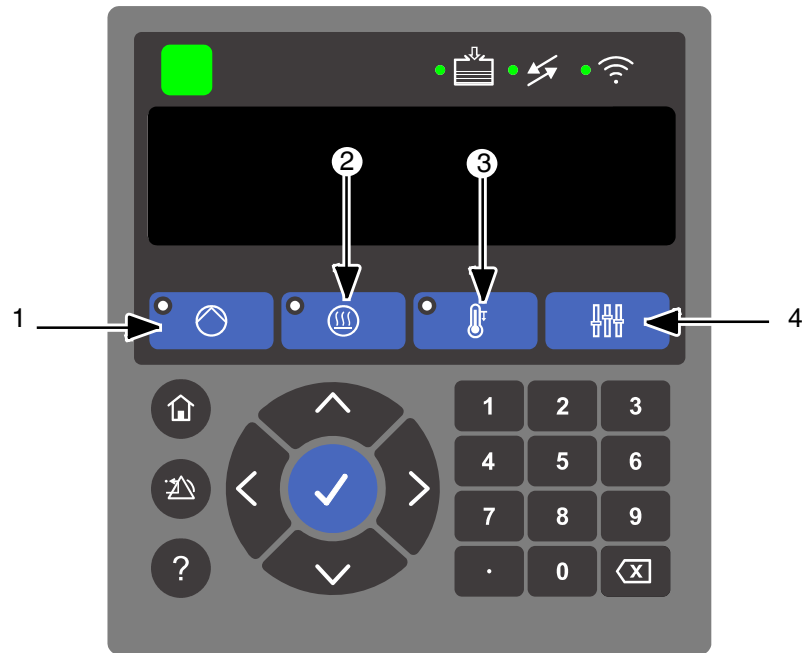


Figure 4-5 Control buttons

Item	Component	State	Function
1	Master Pump Control	○ 	Enables or disables the Master Pump Control. - The Master Pump Control LED is illuminated when the pump is On. - The LED flashes when the Auto Pump option is enabled while waiting for Temperature Ready. Once Temperature Ready is reached, the LED stops flashing and remains illuminated.
2	Master Heater Control	○ 	Enables or disables the Master Pump Control. The LED is illuminated when the Master Heater Control is On.
3	Master Temperature Setback Control	○ 	Enables or disables the Master Temperature Setback Control. The LED is illuminated when the Temperature Setback control is On.
4	Access Additional Master Controls		Enables or disables the additional Master Controls.

System LED Indicators

See Figure 4-6 for the system LED indicators.

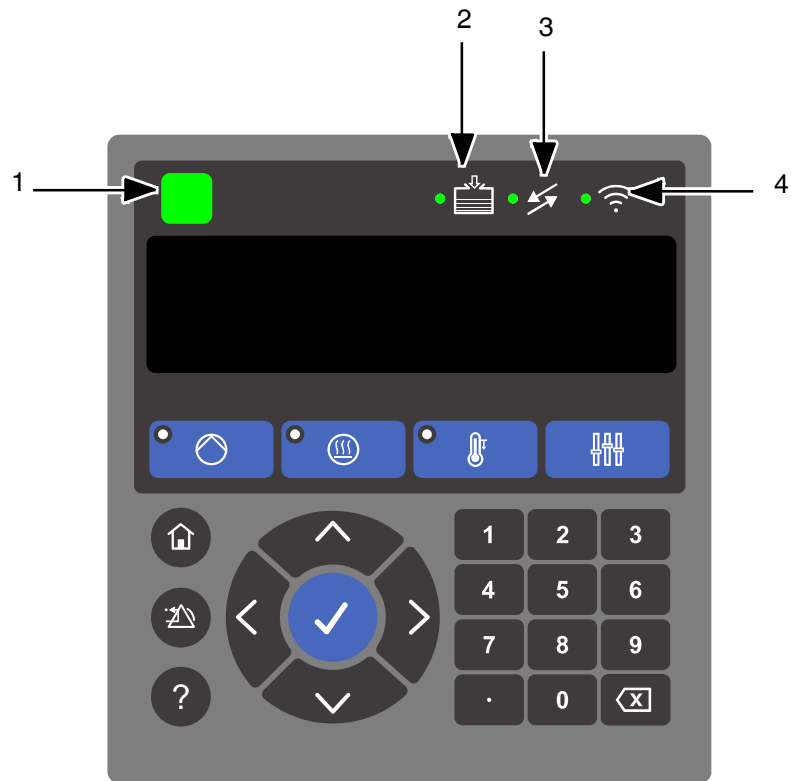


Figure 4-6 System LED indicators

Item	Component	LED	Function
1	System Status LED		Indicates at a glance the system status. See the System Status Chart given in the following page.
2	Tank Fill/Fill Level LED		<i>This is an option.</i> The LED illuminates when the fill system is actively filling the tank.
3	System I/O or PLC Communications LED		The LED illuminates when any remote interface is enabled, such as System I/O or PLC communications.
4	Wireless LED		Future release.

System Status Chart

The following system LEDs show at a glance the status of the system.

System State	LED	Color	Description
Run		Green	- No alert or fault condition exists. All conditions have been met for running production. - The Master Heat and Pump controls must be ON.
Idle		Blue	No alert or fault condition, waiting for run condition to be met. - Master Heat is On (heating). - Master Heat is Off. - Temperature Ready, but other master controls, such as Pump or optional Fill master controls, are still toggled Off. - Ready Delay is enabled and in use. - Setback is enabled and/or in use.
Alert		Yellow	- An Alert condition exists, caused by an issue with either the system itself or a component. - Although product is still being produced, there may be issues that require your attention.
Fault		Red	- A Fault condition exists, caused by a failure with either the system itself or a component. - The Master Heater and Pump controls are automatically toggled Off. - Production is halted until the Fault condition is resolved.

System State	LED	Color	Description
Stop		Flashing red	• An issue exists with one or more of the subsystems, causing production to temporarily stop. • The Master Heater control remains on, but the Master Pump control is automatically toggled Off. • The optional Master Fill control remains On.
Offline		White	The system is Off.

Toggle Switch

Do the following to enable or disable a component:



- Press **X** on the toggle switch to disable a component.
- Press **✓** on the toggle switch to enable a component.

Shutting Down the Melter

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

1. Switch the melter Off.

The Automatic Pressure Discharge (APD) valve relieves the hydraulic pressure back to the tank.

2. Disable the applicators as follows:

- Air-operated applicators: Turn off the air supply to the applicators.
- Electric applicators: Turn off the applicator driver, pattern controller, or timer.

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.



WARNING! Attempting any other maintenance procedures can result in equipment damage, improper system operation, or personal injury.

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

Table 5-1 Preventive Maintenance Tasks

Tasks	Frequency
Relieving system pressure	Before performing any maintenance task that requires opening a hydraulic connection or port
Lockout external communications	Before performing any maintenance task
Cleaning the melter exterior	Daily
Lubricating the piston pump	At least quarterly
Replacing the adhesive filter	• As needed • When changing the type or grade of hot melt
Cleaning the tank	• When changing the type or grade of hot melt • When excessive charring occurs

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 applicators.

1. Switch the melter Off.

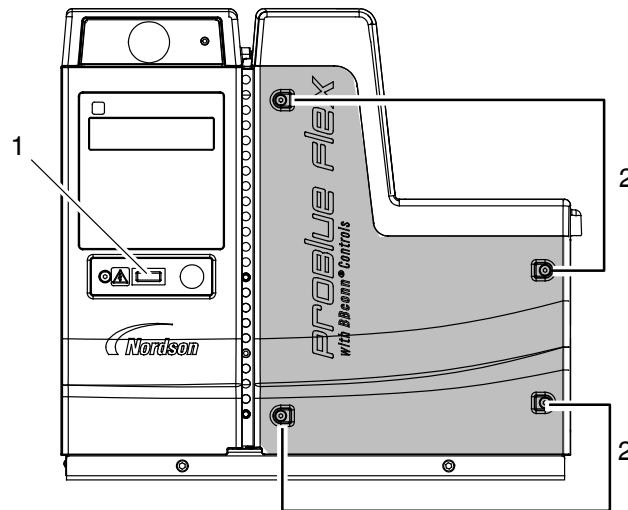


Figure 5-1 Melter front view

1. Melter power switch
2. Melter latches

2. Remove the front panel cover of the melter by loosening the four latches.
3. Lower the drain chute and place a suitable waste container under the drain port. See Figure 5-2.
4. Using a flat-tip screwdriver, slowly turn the drain valve counterclockwise three turns.
5. Turn the drain valve clockwise until it stops (valve closed), and then wipe off and raise the drain chute.
6. Reinstall the front panel cover of the melter by refastening the four latches
7. Trigger the applicators until hot melt no longer flows from the applicators.

Locking Out External Communications



WARNING! Disable external inputs and field-bus communications (if installed) with the melter before performing maintenance. Failure to disable external inputs or field-bus communications with the melter can result in personal injury due to unexpected operation of the melter while performing maintenance.

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 applicators.

If hot melt inadvertently spills inside the pump compartment or other interior spaces, the exterior panels can be removed in order to clean out the spilled hot melt.



WARNING! Risk of electrocution 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.

Clean the Exterior of the Melter

- Use citrus-based cleaning compounds that are compatible with polyester, or use any of the following Nordson recommended cleaning agents:

Part Number	Description
7334087	CLEANER C ODORLESS, 12-PCK 0.5l, NON-HZD
7334088	CLEANER C ODORLESS, 4-PCK 0.5L, NON-HZD
7334104	CLEANER C NF, 4-PACK 0.5L, NON-HAZARDOUS
7334112	CLEANER C NF, 12-PACK 0.5L, NON-HAZARDOUS

- Apply cleaning compounds using a soft cloth.
- Do not use pointed or sharp tools to clean the exterior surface.

Servicing the Pump

For comprehensive pump diagnostic and repair information, refer to *SP Pump Diagnostics and Repair* (Appendix B).

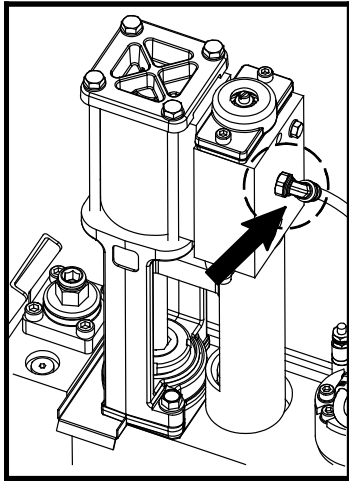
Supplies

The following table describes the lubricants and other compounds that are required during the re-assembly of the pump. Lubricants and other compounds are indicated in the illustrations by the symbols shown in Table 5-2.

Table 5-2 Lubricants and Compounds

Description	Part Number	Symbol
Never-Seez™	900344	
O-Ring Lubricant	1120201	
Loctite 272™ Threadlocking Adhesive	900470	
SP Lubricating Oil	1120290	
Type-R Fluid (1 gal)	270755	--

Lubricating the Pump



1. Switch the melter Off.
2. Remove the pump covers, and then disconnect the air inlet line. See figure on the left for the air inlet line location.

NOTE: For instructions on how to remove the pump covers, refer to steps 1 - 3 in *Remove the Pump from the Melter (All Pumps)* in *SP Pump Diagnostics and Repair* (Appendix B).

3. Place 3 - 4 drops of lubricant in the air inlet elbow. Use only SP Lubricating Oil, P/N 1120290.
4. Reconnect the air line.
5. Open the drain valve and operate the pump at high speed for 10 - 15 seconds.
6. Close the drain valve and resume normal operation.
7. Reinstall the pump covers.

Service Kit

For a complete listing of pump-related parts, refer to the *SP Pump Diagnostics and Repair* (Appendix B) and for service kits see *Service Kits* under *Parts* (Section 8).

Replacing the Filter

Instructions for replacing the filter are also provided on the inside of the pump enclosure door.

1. Relieve the system pressure. Refer to *Relieving System Pressure* at the beginning of this section.
2. Use a 16 mm hex 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.
5. Screw the filter into the pump body and then tighten the filter to 4.5 N•m (40 in.-lb).
6. Reinstall the front panel cover of the melter by refastening the four latches.
7. Resume normal operation.

Draining the Tank



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

1. Relieve the system pressure. Refer to *Relieving System Pressure* at the beginning of this section.
2. Remove the front panel from the melter by loosening the four latches. See Figure 5-1.
3. Lower the drain chute and place a suitable container under it to collect the material you will be pumping from the tank.

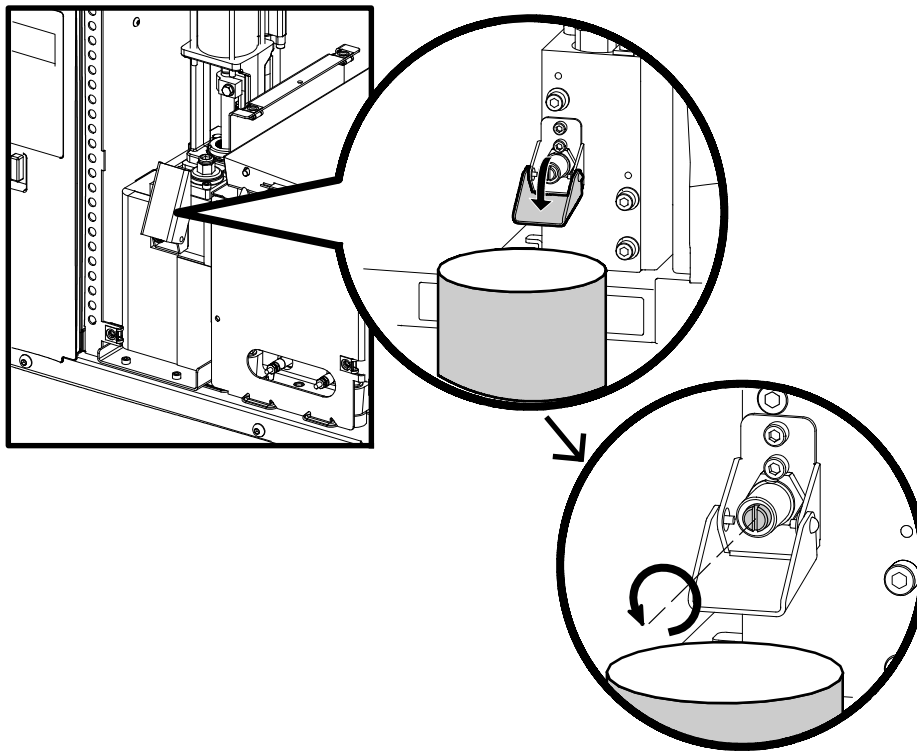


Figure 5-2 Lowering the drain chute and opening the drain valve

4. Set the pump air pressure to 1.37 bar (20 psi) and press  on the OLED user interface to enable the pump.
5. Using a flat tip screwdriver, slowly turn the drain valve tip counterclockwise until a steady stream of material flows. Continue pumping material until the tank is empty.
6. Press  on the OLED user interface to disable the pump.
7. Close the drain valve by turning the drain valve tip clockwise until it stops.
8. Wipe off the drain chute and raise it.
9. Install the front panel and secure it by tightening the four latches.

Cleaning the Tank

To avoid 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 hot melt system cleaner be used to soften or dissolve residual hot melt. If you are uncertain what type of hot melt system cleaner is appropriate for the adhesives you are using, contact your hot melt supplier.



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

1. Empty the tank either by operating the system until the tank is empty or by pumping out the contents using the drain valve. Refer to *Draining the Tank* given earlier in this section.
2. While the tank is at normal operating temperature, and while wearing appropriate protective equipment, wipe residual hot melt and loose char from the tank. **Do not** use sharp objects to scrape the tank as damage to the release coating may result.
3. Add hot melt system cleaner to the tank and clean the tank following the cleaner manufacturer's instructions.
4. Using the drain valve, pump the cleaner out of the tank. Refer to *Draining the Tank* given earlier in this section.
5. If necessary, while wearing appropriate protective equipment, wipe the inside of the tank clean again.
6. Replace the adhesive filter with a new one.
7. If you are changing to a different type of hot melt adhesive, flush the system by pumping a minimum of one tank of the new adhesive through the system.
8. Return the system to normal operation.

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 troubleshooting section covers only the most common problems you may encounter. If you cannot resolve the problem using the information provided in this section, contact your Nordson representative for technical assistance.

For troubleshooting details also refer to one of the following manuals:

- *ProBlue Flex Adhesive Melter Using the OLED User Interface Manual* (P/N 1128351).
- *ProBlue Flex Adhesive Melter OEM User Interface Manual* (P/N 1129255).

About This Section

This section is organized as follows:

- Melter troubleshooting information—includes melter-related troubleshooting procedures.
- Fill system troubleshooting information—includes fill system-related troubleshooting tables and procedures.

Safety

- Never disconnect cables from, or reconnect cables to, the power distribution PCA board while the melter is energized.
- Before breaking any hydraulic connection, always relieve system pressure. Refer to *Relieving System Pressure* in *Maintenance* (Section 5).
- Refer to the safety information provided with optional equipment.
- If the melter is removed from its sub-base for diagnostic checks or service, ensure that the ground lead between the chassis and the sub-base is re-attached when the melter is reconnected to the sub-base.

Troubleshooting Checklist

Check the following information before troubleshooting the melter.

Overview

Problems with melter controls are often simple. There are several things that can be checked quickly and may resolve a problem with low effort.

The following is a list of items that can be verified before extensive and more time-consuming troubleshooting is needed. It is organized by functional area. Just find the area and check the related items.

AC Power

- Incoming power LED ON (Power Distribution Board DS1)
- Check that *upstream* AC disconnect is ON
- Check that TB1 is attached to Power Distribution board
- Check that LED DS2 is ON
- Check voltage plugs or personality plugs (X9, X10, X11)
- Check power switch on door and connection to LVC
- Check contactors (DS1 on Power Distribution Board and DS1 on LVC)
- Check cable between LVC X3 and the PDB (one of X4, X6, X7, X12)
- Check fuses on power distribution board
- Check harness between PDB and PDB Expansion Board (if present)

DC Power

- Check AC input connections at PDB X2
- Check power supply LED on power supply under the pneumatic cover
- Check DC output connections at LVC TB1
- Check power switch on E-Box door

Level

- Check cable connections to LVC X18 and X20
- Check cable connections to the level sensor
- Check sensor calibration

Fill

- Check level items (see *Level*, given in the previous page)
- Check Master Controls
- Check output connection at LVC TB4
- Check LED DS27 on LVC
- Check air supply to adhesive storage container (tote/bin)

Lid Switch

Check connection at LVC X21

Temperature Control

All/General

- Check Temperature Settings button
- Check Setback Settings button
- Check Nordnet cable from LVC X10 to 6-channel temperature control X7
- Check that the SYNC LED on each module flashes briefly approximately every 2.3 seconds
- Check that zones are enabled

6 channel module (2 internal zones plus H/A 1 and 2)

- Check RTD inputs at X10
- Check AC input at X2 and X3
- Check heater outputs at X4
- Check heater control connections at X12 (if unit has 480V transformer)
- Check 12-position H/A connectors 1 and 2 on the back of the melter E-Box

H/A 3-6

- Check Nordnet cables between temperature controls
- Check AC supply connection at X4
- Check fuses F3 – F6 on PDB Exp
- Check 12-position H/A connectors 3-6 on the back of the melter E-Box

Temperature Control (contd)

H/A 7 and 8

- Check Nordnet cables between temperature controls
- Check AC supply connection at PDB Exp X2
- Check fuses F1 and F2 on PDB Exp
- Check 12-position H/A connectors 7 and 8 on the back of the melter base

Pump, Pneumatics and Pressure Control

General

- Check that incoming air supply is attached to the unit
- Check that any cutoff valve supplying the unit is open
- Check the pressure gauge or onscreen readout
- Check air tubing for leaks

Pump

- Check all general items above
- Check Pump button
- Check Master Controls
- Check solenoid connection to LVC X4
- Check that nothing is stuck to or interfering with the shifter magnet

Pressure

- Check connection at LVC X4 (pump control and pressure sensor input)
- Check connection at LVC X6 (remote pressure control)

User Interface

- Check ribbon cable between LVC and UI boards
- Check power LED on UI board
- Check two membrane panel connections to UI board
- Check membrane LED self-test sequence at power on
- Basic UI should display the splash screen with the Nordson logo after power up

Standard I/O

- Check connections at LVC TB2
- Check that I/O functions are enabled and the desired function is selected
- Check LEDs DS24 (input) and DS25 (output)

USB

- Check external connection at LVC X13
- Check LVC DS14 status

Clock/Scheduler

- Check that coin cell battery is installed on BT1 on LVC
- Check battery voltage
- Check that this feature is enabled

Communications

NordNet Masters (two available)

- Check connections to X9 and X10
- Check associated power LEDs (DS9 and DS11)
- Check associated data Tx/Rx LEDs (DS8 and DS10)

Ethernet (if used)

- X14, X15, X16, X17
 - Check for LED activity on the RJ-45 connectors

Fieldbus Module (if present)

- Check that the module is seated at LVC X1
- Check the wiring connection to the module

Wireless Module (if present)

- Check that the module is seated at LVC X8
- Check that DS4 is on
- Check for presence of access point using a phone or tablet

Remote Color Touchscreen (if used)

- Check Ethernet cable at LVC and at remote touchscreen
- Check that screen backlight is on
- Check that a color graphic screen appears

Software

- Ensure micro SD card is present and secure in its socket (X11)
- Check any daughter cards attached to the LVC
- Check green power LEDs on LVC (DS6, DS13, DS15). Red or Off indicates a problem.

Melters with 480V Transformer Base

The board is located in the drawer in the transformer base.

Power

- Check that LED DS2 is ON (AC power in)
- Check that LED DS1 is ON (relays energized)
- Check power input connection at J2
- Check voltage selection plug (J1)
- Check connections at J6 and J7
- Check fuses

Internal Zone temperature control

- Check heater control connections at X12 on the 6-channel base module
- Check RTD connections to X10 on the 6-channel base module

Other Options, Accessories, Upgrades, Future Product Enhancements

Additional (and more detailed) information will typically be supplied along with the added features. Refer to the documentation associated with those features.

400/480 Volt Melters

The ProBlue Flex 400/480 volt melters include a transformer assembly that is shipped separately from the melter. Refer to *ProBlue Flex 400/480 Volt Transformer* (Appendix F) for installation instructions, parts information, and wiring details.

NOTE: With the exception of power supply and heater failure problems, the information provided in this section applies to all ProBlue Flex adhesive melters.

About Built-in Diagnostics

There are many diagnostics that are built into the system. The system continually checks for problems and alerts the user if problems are found. In many cases, enough information is presented to rapidly solve the problem.

The ProBlue Flex system provides troubleshooting tools, like:

- Text messages (instead of error codes)
For the OLED and touchscreen user interfaces, these are available on the display.
- Event log (a record of past events occurring in the melter)
For the OLED and touchscreen user interfaces, these are available on the display.
- Recipes – which are a software function of the system - can help with troubleshooting. Once a system has been set up, saving a recipe can function as a sort of backup for the system configuration. Later, the system settings can be restored to a known good state by (re-) loading the recipe.

About Nordnet

Nordnet is a serial expansion network (or bus) that includes power, data, and automatic termination. It is implemented as a master-slave architecture. The LVC is the master and all other devices are slaves. The most common slaves are temperature controls, but Nordnet can support many other types of devices as well.

At power up, all slave modules are off (unpowered). Then the first module is powered up, identified and initialized. Next, the LVC enables the next attached module and performs the same steps working its way down the bus one module at a time. By this method, all attached Nordnet modules are discovered and put into operation.

Once operating, the master gives commands and the slaves respond with the requested action and/or data.

Troubleshooting Nordnet

See Figure 6-1 for the location of the boards.

1. Check the Nordnet cables that are routed from board to board, starting at the LVC master.
2. Observe the transmit/receive LEDs for the Nordnet master on the LVC board. Typically, both LEDs flash to indicate data transfer on the bus.
3. Observe the LEDs on each board. In operation, all Nordnet nodes should have power. If you watch immediately after applying power, you should see each board power up in turn. Note that there is an order or sequence to the bus.
4. One technique that should only be needed rarely is to add slaves to the bus one-at-a-time. You must power the unit off when connecting or disconnecting slaves. **Do not** connect or disconnect Nordnet with DC power applied.

Electrical Box - Internal Board Connections

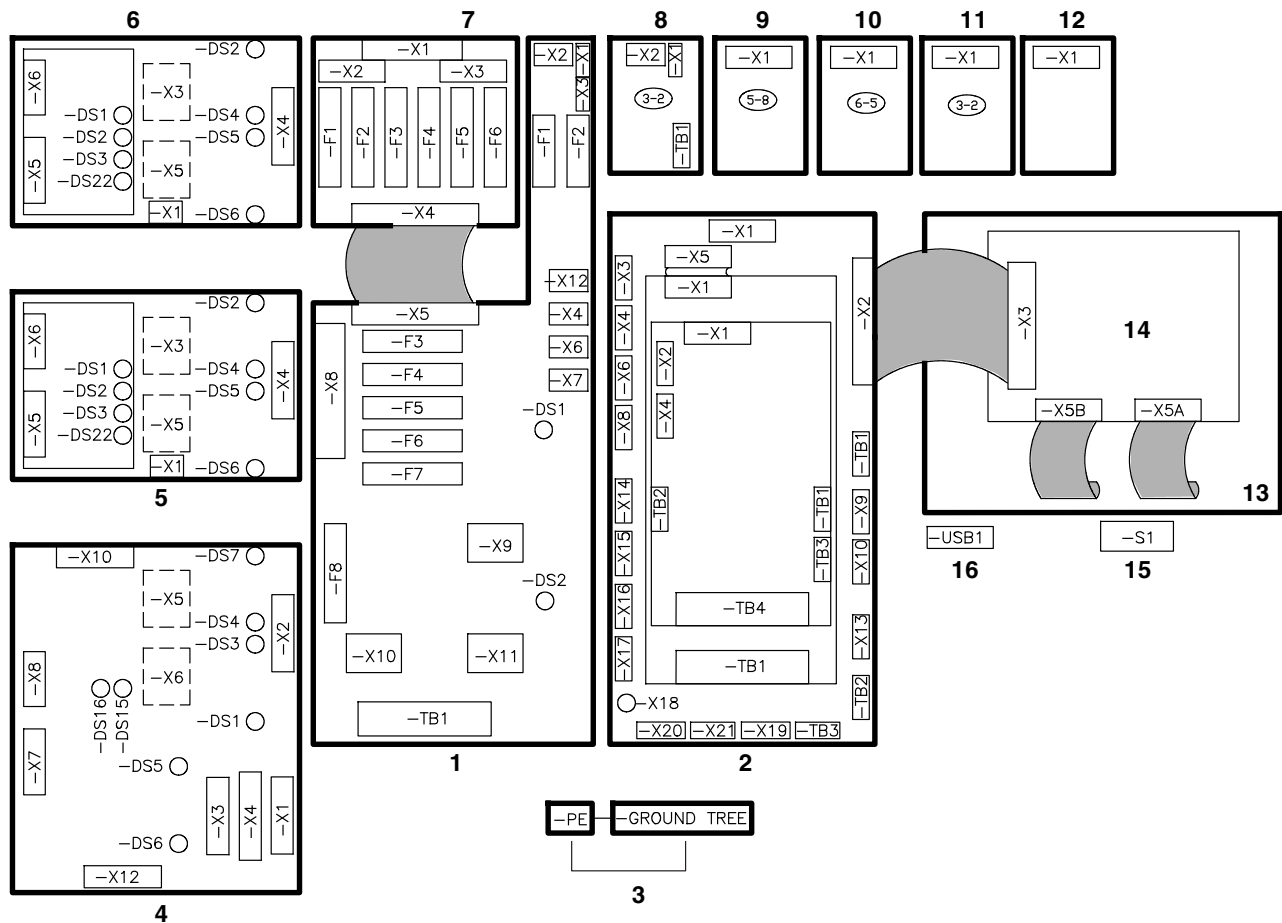


Figure 6-1 Internal board layout

- | | | |
|---------------------------------|---------------------------------------|-----------------------------------|
| 1. Power distribution board | 6. 4-channel power module #2 | 11. Pump pressure control valve |
| 2. Low voltage controller board | 7. Power distribution expansion board | 12. Pump direction solenoid valve |
| 3. Chassis ground | 8. 24V power supply | 13. Membrane switch panel |
| 4. 6-channel power module | 9. Pump solenoid valve | 14. Basic UI Board |
| 5. 4-channel power module #1 | 10. Air pressure sensor board | 15. On/Off switch |
| | | 16. USB 1 |

Refer to *Technical Data* (Section 7) for the individual board wiring diagrams.

Identifying Electrical Components

Figure 6-1 illustrates the location of each of these circuit board components.

Tables 6-1 through 6-7 describe the circuit board indicators, connection points, and test points.

Table 6-1: Power Distribution PCA

Item Number	Type	Description
<i>Indicators</i>		
DS1	LED (Yellow)	Control signal for power relays
DS2	LED (Yellow)	Power available into power distribution board
<i>Fuses</i>		
F1/F2	—	3.15 A, 250 V, Slow-blow, 5 x 20 mm
F3/F4	—	15 A, 250V, Fast-acting, ¼ inch
F5/F6	—	20 A, 250V, Fast-acting, ¼ inch
F7/F8	—	20 A, 250V, Fast-acting, ¼ inch
<i>Connection Points</i>		
X9, X10, X11	Jumper	Voltage configuration connections with and without neutral
TB1	Input	AC power into board
X1, X3	Input/output	Chassis ground for 24VDC power supply
X4, X6, X7, X12	Input/output	Control signal for power relays
X2	Output	AC power to 24VDC power supply
X8	Output	AC power to 6CH power module (INT, H/A 1 and 2)
X5	Output	AC power to power distribution expansion board

Table 6-2: Power Distribution Expansion PCA

Item Number	Type	Description
<i>Fuses</i>		
F1/F2	—	15 A, 250V, Fast-acting, ¼ inch
F3/F4	—	15 A, 250V, Fast-acting, ¼ inch
F5/F6	—	15 A, 250V, Fast-acting, ¼ inch
<i>Connection Points</i>		
X4	Jumper	AC power into board from power distribution board
X3	Output	AC power to 4 channel board #1 (H/A 3 and 4)
X1	Output	AC power to 4 channel board #2 (H/A 5 and 6)
X2	Output	AC power to 4 channel board #3 (H/A 7 and 8)

Table 6-3: Low Voltage Control Board

Item Number	Type	Description
<i>Indicators</i>		
DS1	Green LED	Indicates power relay control signal is enabled
DS2	Green LED	Indicates that pump is enabled
DS3	Green LED	Indicates pump direction is enabled
DS4	Green LED	Indicates off-board 24V supply is enabled
DS5	Green LED	Indicates off-board 3.3V supply is enabled
DS6	Green/Red LED	Green indicates 24V input from power supply is present with the correct polarity and red indicates the input is present with reversed polarity
DS7	Red LED	Indicates 24V input voltage has dropped below 16V
DS8	Green/Red LED	Red indicates NordNet bus #1 transmit activity and green indicates receive activity is present
DS9	Green LED	Indicates NordNet bus #1 24V supply is enabled
DS10	Green/Red LED	Red indicates NordNet bus #2 transmit activity and green indicates receive activity is present
DS11	Green LED	Indicates NordNet bus #2 24V supply is enabled
DS12	Green LED	Indicates SD Card power is enabled
DS13	Green/Red LED	Green indicates 5V supply is enabled and red indicates 5V power supply failure
DS14	Green/Red LED	Green indicates USB 5V supply is enabled and red indicates USB 5V power supply failure
DS15	Green/Red LED	Green indicates 3.3V supply is enabled and red indicates 3.3V power supply failure
DS16	Green/Yellow/Red LED	Indicates LVC board status
DS20	Green LED	Indicates 24V supply to Ethernet and TB3 is enabled
DS21	Green/Yellow LED	Green indicates power switch is in the ON position and yellow indicates the power switch is ON and the power relay control is in power-saving mode
DS22	Green/Red	Green indicates no thermostat fault is present and red indicates a thermostat fault is present
DS23	Red LED	Indicates LVC board is in reset state
DS24	Green LED	Indicates basic input #1 is energized
DS25	Green LED	Indicates basic output #1 is energized
DS26	Yellow LED	Indicates adhesive lid is open
DS27	Green LED	Indicates fill control signal is active
<i>Connection Points</i>		
X3	Output	Power relay control signal to power distribution board
X4	Input/Output	Control signals for pump enable and direction solenoid and pump air pressure input
<i>Continued on next page</i>		

Identifying Electrical Components *(contd)*

Table 6-3: Low Voltage Control Board (contd)

Item Number	Type	Description
X1	Input/Output	CompactCom M40 interface
X2	Input/Output	Local user interface
X6	Input/Output	Control signals for pump pressure control
X5	Input/Output	Stacking I/O expansion interface
TB1	Input	24V power supply input to board
X8	Input/Output	Wireless Ethernet Interface
X9	Input/Output	NordNet bus #1
X10	Input/Output	NordNet bus #2
X13	Input/Output	USB A interface
X14	Input/Output	Ethernet (public), reporting, Profinet, Ethernet-IP, OPC-UA
X15	Input/Output	Ethernet (private), expanded I/O, remote basic user interface
X16	Input/Output	Ethernet (private), remote touch screen user interface
X17	Input/Output	Ethernet (private), pattern control, adhesive tracking system
TB3	Output	24V supply
TB2	Input/Output	Basic I/O, 1 input and 1 output channel
X18, X20	Input	Adhesive level sensor input
X21	Input	Lid position sensor input
X19	Input	Input signals for over-temperature thermostats and power switch
TB4	Input/Output	Control signals for fill enable input and fill output

Table 6-4: 6-channel Power Module (INT + H/A 1 and 2)

Item Number	Type	Description
<i>Indicators</i>		
DS1	LED (Yellow)	Hose 1 heater
DS2	LED (Yellow)	Applicator 2 heater
DS3	LED (Yellow)	Applicator 1 heater
DS4	LED (Yellow)	Hose 2 heater
DS5	LED (Yellow)	Melt zone heater
DS6	LED (Yellow)	Manifold zone heater
DS7	LED (Green)	H/A 1 and 2, AC OK
DS8	LED (Green)	Melt AC OK
DS9	LED (Green)	Manifold AC OK
DS10	LED (Green)	5VDC power OK
DS11	LED (Green)	Nordnet terminated
DS12	-	-
DS13	LED (Green)	NordNet Downstream Power
DS14	LED (Green/Red)	NordNet Communication Activity; green indicates incoming and red indicates outgoing.
DS15	LED (Green/Red)	Heater Status
DS16	LED (Green/Red)	Power Module Status
DS17	LED (Green)	Sync
DS22	LED (Green/Red)	3.3VDC Power Supply Status
<i>Continued on next page</i>		

Identifying Electrical Components *(contd)*

Table 6-4: 6-channel Power Module (INT + H/A 1 and 2) (contd)

Item Number	Type	Description
<i>Connection Points</i>		
X1	Input	Chassis ground
X4	Input	AC power to Melt and Manifold heaters from power distribution board
X3	Output	Switched AC power to Melt and Manifold zone heaters
X10	Input	RTD input from melt and manifold zones
X12	Output	400/480V sub-base control signals
X2	Input	AC power to H/A 1 and 2 from power distribution board
X5	Input/Output	AC power outputs to H/A 1 heaters and H/A 1 RTD inputs
X6	Input/Output	AC power outputs to H/A 2 heaters and H/A 2 RTD inputs
X8	Input/Output	NordNet downstream to other power modules
X7	Input/Output	NordNet upstream to LVC

Table 6-5: 4-channel Power Module (H/A 3 and 4, 5 and 6)

Item Number	Type	Description
<i>Base Board Indicators</i>		
DS1	LED (Green)	AC power available to hose and applicator heaters
DS2	LED (Yellow)	Applicator 2 heater control signal
DS3	LED (Green)	5VDC supply available
DS4	LED (Yellow)	Hose 2 heater control signal
DS5	LED (Yellow)	Applicator 1 heater control signal
DS6	LED (Yellow)	Hose 1 heater control signal
<i>Base Board Connection Points</i>		
X6,X2	Input/output	Control signals between temperature core board and 4-channel base board
X4	Input	AC power input to hose and applicator heaters
X5	Input/output	Hose and applicator 1 heater outputs and RTD inputs
X3	Input/output	Hose and applicator 2 heater outputs and RTD inputs
X1	Input	Chassis Ground
<i>Core Board Indicators</i>		
DS1	LED (Green/Yellow/Red)	RTD status listed in order of priority: No base power board detected at startup = red solid, else no communication to ADC = yellow blink, else 1+ open/shorted RTDs detected = yellow blink, else: = green blink

Continued on next page

Table 6-5: 4-channel Power Module (H/A 3 and 4, 5 and 6) (contd)

Item Number	Type	Description
DS2	LED (Green/Yellow/Red)	Heater status listed in order of priority: No base power board detected at startup = red solid, else AC power out of range high = red blink, else 1+ short circuit detected at heaters = red blink, else latched on condition detected at heaters = red blink, else no base board i/o communications = red blink, else 1+ open circuit detected at heaters = yellow blink, else AC power out of range low = yellow blink, else: = green blink
DS3	LED (Green/Red)	NordNet bus communication activity; green indicates incoming and red is outgoing
DS5	LED (Green)	Sync
DS6	LED (Green)	NordNet bus termination; green indicates end of bus
DS7	LED (Green)	NordNet bus downstream 24V power
DS22	LED (Green/Red)	3.3VDC supply status
<i>Core Board Connection Points</i>		
X3,X2	Input/output	5VDC supply available
X5	Input/output	NordNet communication bus upstream toward LVC
X6	Input/output	NordNet communication bus downstream away from LVC

Table 6-6: Basic User Interface PCA

Item Number	Type	Description
<i>Indicators</i>		
DS1	LED (Green/red)	5VDC power supply, green = OK, red = fail
DS6	LED (Green)	3.3VDC power available
<i>Connection Points</i>		
X4	Jumper	AC power into board from power distribution board
X3	Output	AC power to 4-channel board #1 (H/A 3 and 4)
X1	Output	AC power to 4-channel board #2 (H/A 5 and 6)
X2	Output	AC power to 4-channel board #3 (H/A 7 and 8)

Table 6-7: Pressure Transducer PCA

Item Number	Type	Description
<i>Indicators</i>		
DS1	LED (Green)	3.3VDC power available
<i>Connection Points</i>		
X1	Input/Output	Control signals to LVC

Melter Pneumatic Flow Control

See Figures 6-2 and 6-3.

ProBlue Flex melters come with four different pressure control options:

- **P1 – Manual Pressure Adjustment with Analog gauge pressure readout**

This pressure control option allows the user to manually adjust the system to the desired set point, with a 4 mm hex key. The pressure is then displayed to the user by means of an analog gauge adjacent to the adjustment feature.

- **P2 – Manual Pressure Adjustment with Digital pressure readout**

This pressure control option allows the user to manually adjust the system to the desired set point, with a 4 mm hex key. The pressure is then displayed digitally on the melter's OLED display, or on the remote touchscreen user interface for OEM interface units.

- **P3 – Remote Pressure Adjustment with Digital pressure readout**

This pressure control option allows the user to locally or remotely adjust the system to the desired set point.

- For local adjustment, the pressure is set via the OLED interface
- For remote adjustment, the pressure is set via the customer's PLC or web server.

Once set, the pressure can be password protected to prevent un-intended adjustment. The pressure is then displayed digitally on the melter's OLED display, or on the remote touchscreen user interface for OEM interface units.

- **P4 – Remote Pressure Adjustment with Digital pressure readout, and run-up control**

This pressure control option allows the user to locally or remotely adjust the system to the desired set point.

- For local adjustment, the pressure is set via the OLED interface.
- For remote adjustment, the pressure is set via the customer's PLC or web server.

Once set, the pressure can then also be password protected, to prevent un-intended adjustment. The pressure is then displayed digitally on the melter's OLED display, or on the remote touchscreen user interface for OEM interface units.

The run up control associated with this pressure option also allows for pressure adjustment by means of the control system, as derived accordingly from the line speed input.

Pressure Control and Pump Compatibility

The following table details the available compatibility between the pressure control options and ProBlue Flex pump options.

Pressure Control Option	Pump Options					
	Standard Double Acting	High Output Double Acting	Single Acting	Low Pressure Double Acting	Low Viscosity Double Acting	Low Pressure/ Low Viscosity Double Acting
P1	✓	✓	✓	✓	✓	✓
P2	✓	✓	✓	✓	✓	✓
P3	✓	✓	✗	✓	✓	✓
P4	✓	✓	✗	✓	✓	✓

Melter Pneumatic Flow Control *(contd)*

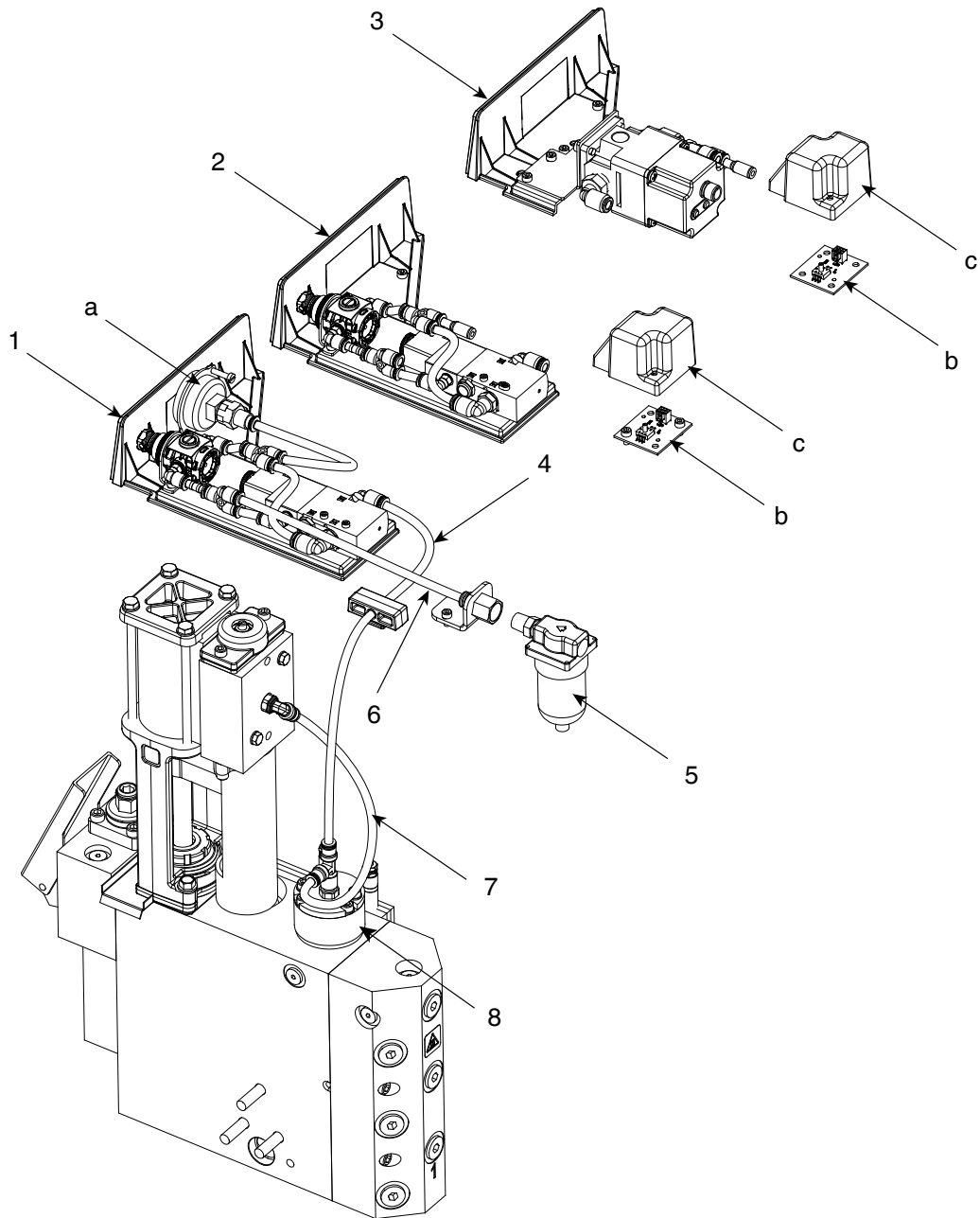


Figure 6-2 Melter pneumatic flow components

- | | | |
|--|--|--|
| 1. P1 Pressure regulator and solenoid assembly
a: Analog Pressure Gauge (P1 Only) | 2. P2 Pressure regulator and solenoid assembly
b: Pressure transducer board (P2 and P3)
c: Pressure transducer board cover (P2 and P3) | 3. P3 Pressure regulator and solenoid assembly
b: Pressure transducer board (P2 and P3)
c: Pressure transducer board cover (P2 and P3) |
| 4. Tubing - Regulator to PDV | 6. Tubing - Filter to Regulator | 8. Pressure dump valve (PDV) |
| 5. Pneumatic Filter | 7. Tubing - PDV to Pump | |

NOTE: For the P4 Pressure Control option (Pressure Run-Up), the P3 regulator assembly is used to control the associated pressure.

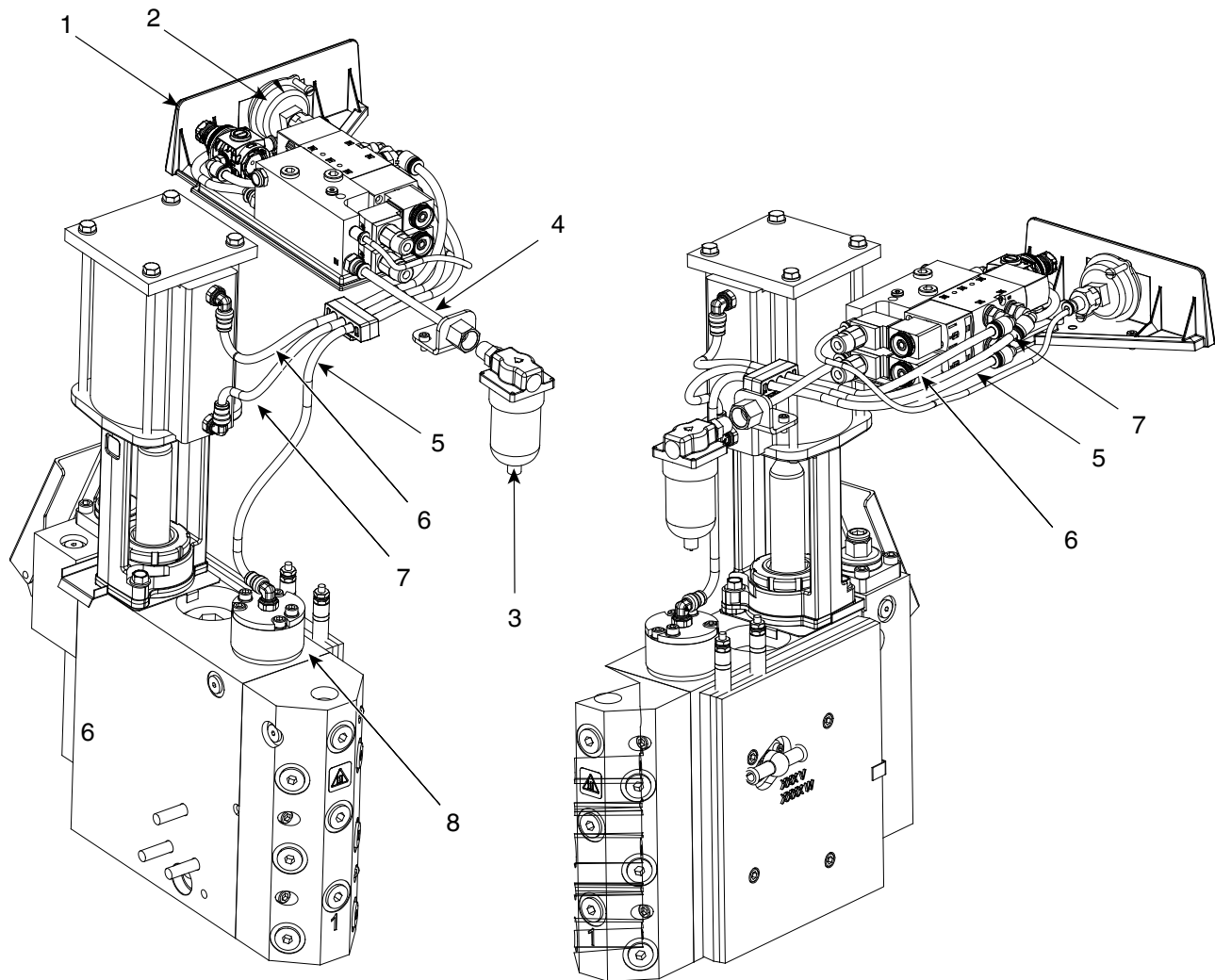


Figure 6-3 Melter pneumatic flow components

- | | | |
|--|---------------------------------|--------------------------------------|
| 1. P1 Pressure regulator and solenoid assembly | 3. Pneumatic filter | 6. Tubing – Regulator to Pump Top |
| 2. Analog pressure gauge | 4. Tubing – Filter to Regulator | 7. Tubing – Regulator to Pump Bottom |
| | 5. Tubing – Regulator to PDV | 8. Pressure Dump Valve (PDV) |

NOTE: Only P1 Configuration is shown for single acting pump.

Troubleshoot the Melter

If the following procedures fail to correct the problem, contact your Nordson representative for technical assistance.

Checking the Melt or Manifold RTD

1. De-energize the melter. Refer to *Safety* (Section 1).
2. Remove the RTD from its retention slot.
 - For the melt RTD, refer to *Removing the Level Sensor, Melt RTD, or Melt Thermostat* in the following page.
 - For the manifold RTD, refer to *Removing the Manifold RTD*.
3. Allow the RTD to cool to room temperature or use a pyrometer to accurately determine the temperature of the RTD.
4. When the temperature of the RTD is known, measure the resistance of the RTD across terminals 1 and 2 (melt RTD) or 4 and 5 (manifold RTD).
5. Determine the expected resistance of the RTD at the known temperature. Compare the expected and measured resistance values and then do *one* of the following:
 - If the measured resistance is within the expected resistance range, the RTD is functioning properly. Replace the 6-channel power module.
 - If the measured resistance is not within the expected resistance range, the RTD is defective. Replace the RTD.

Checking the Operation of the Thermostats

1. De-energize the melter. Refer to *Safety* (Section 1).
2. With receptacle X19 removed from the LVC board, check the continuity between X19 pins 1 and 2. The correct measurement is a short circuit. If the measurement is an open circuit, check the thermostat, thermostat harness connections, or the X19-to-thermostat harness. Replace the faulty component.

Removing the Level Sensor, Melt RTD, or Melt Thermostat

Remove Melter Panels

1. De-energize the melter. Refer to *Safety* (Section 1).
2. Disconnect the melter air supply and remove the air filter.
3. Remove the front panel of the melter by loosening the four latches. See Figure 6-4.

NOTE: For MOD systems, remove the right and rear panels.

4. Remove the pump cover by unfastening the two screws.

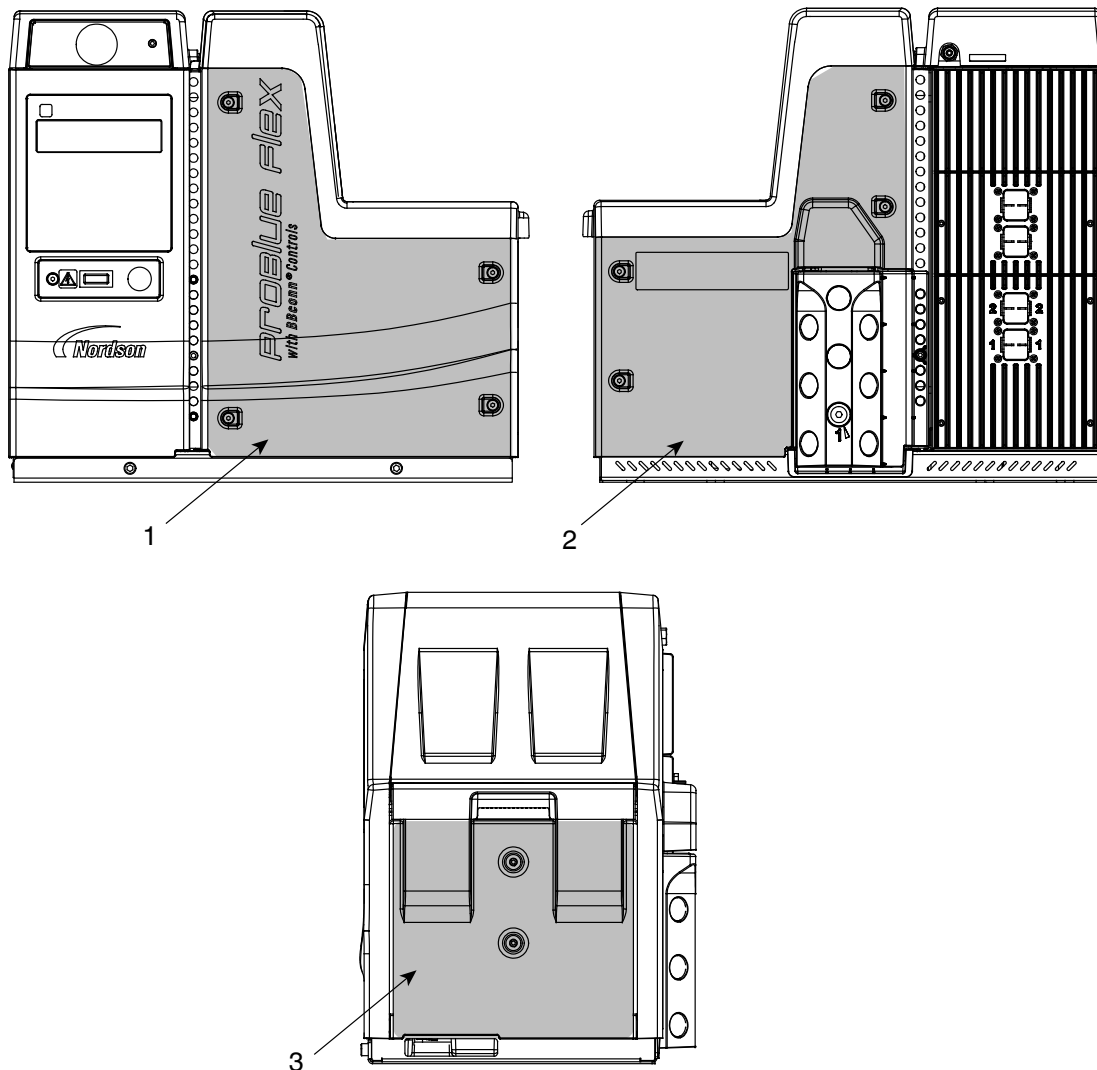


Figure 6-4 Melter panels

1. Front panel

2. Rear panel

3. Right panel

Access the Components

See Figures 6-5 and 6-6.

1. Remove the four screws that secures the melt section bracket from the chassis.
2. Fold the melt section bracket to a horizontal position. If required, remove from the chassis.
3. Unfasten the adhesive strips that secure the insulation and then fold the insulation down.

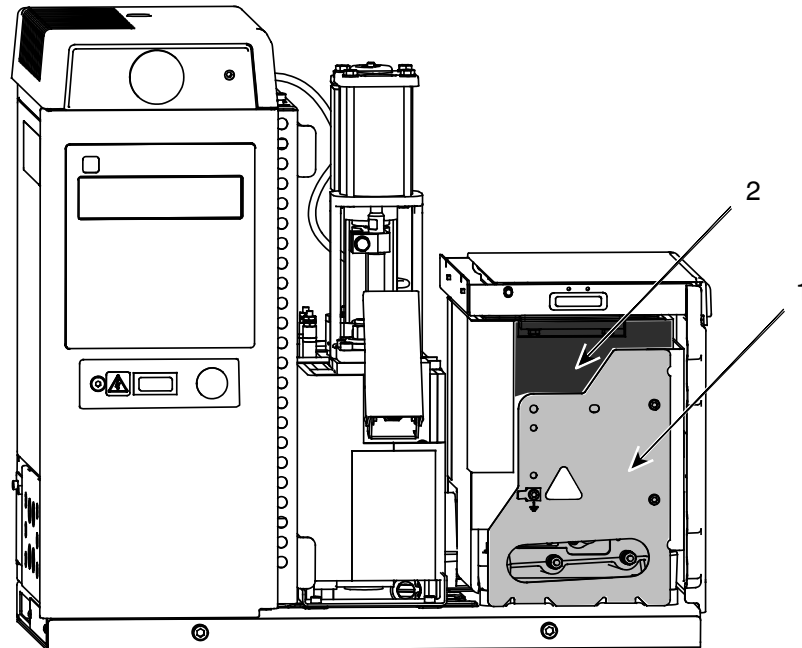


Figure 6-5 Melt section bracket and insulation

1. Bracket

2. Insulation

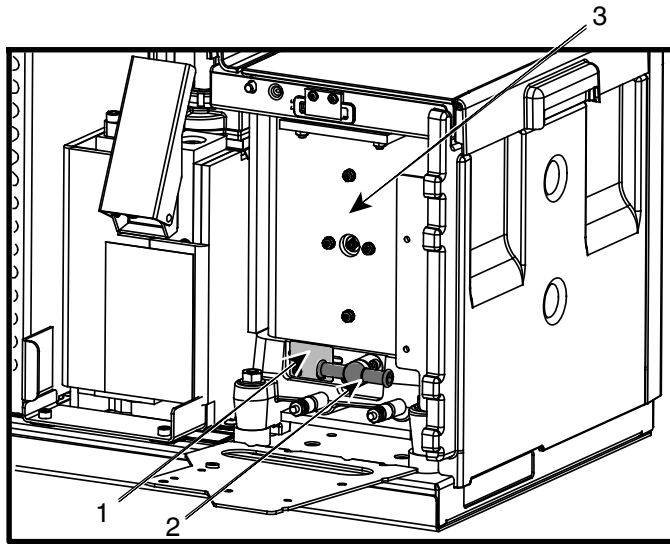


Figure 6-6 Accessing components

- | | |
|---|--|
| <ul style="list-style-type: none"> 1. RTD 2. Thermostat | <ul style="list-style-type: none"> 3. Level sensor location (inside the tank) |
|---|--|

See Figure 6-6.

- 4. To remove the RTD:
Loosen the two screws that secure the retaining plate, and then slide the RTD out from under it.
- 5. To remove the thermostat:
Remove the rubber boot, disconnect the wires, and then remove the two screws.
- 6. To remove the level sensor:
Remove the four or six retaining nuts, and then remove the level sensor and gasket from inside the tank.

Removing the Manifold RTD

1. Remove the RTD from its retention hole.
2. To replace the RTD, insert the RTD into its retention hole.

Checking the Operation of the Power Relay

See Figure 6-1 for the location of the indicators on the board.

The pre-conditions for this diagnostic procedure are as follows:

- The power switch is On and indicator DS21 on the LVC is illuminated.
- Indicator DS22 illuminates to green.
If DS22 illuminates to red, go to *Removing the Level Sensor, Melt RTD, or Melt Thermostat* given earlier in this section.

NOTE: If a zone is undertemperature, under voltage, or an open heater fault reoccurs after re-energizing the melter, reset the fault and turn the Master Heater control back On.

1. Press  on the OLED user interface to enable the Master Heater Control.
2. Check LVC indicator DS1 and do one of the following:
 - a. If DS1 does not illuminate, go to step 3.
 - b. If indicator DS1 does illuminate, go to step 4.
3. Isolate the failing component:
 - a. De-energize the melter.
 - b. Remove the cable connected to LVC X3.
 - c. Re-energize the melter.
 - d. Set the Master Heater Control On.
4. Check if indicator LVC DS1 illuminates.
If DS1 illuminates, replace the power distribution board or replace the LVC board.

Checking the Operation of the Tank, Grid, or Manifold TRIAC

See Figure 6-1 for the location of the indicators on the board.



WARNING! Risk of electrocution! Ensure that disconnect switch that serves the melter is in the off position and locked.

1. De-energize the melter. Refer to *Safety* (Section 1).
2. Remove the protective rubber cover from the grid or the manifold heater terminals (whichever component is faulting).
3. Re-energize the melter and turn the heaters back on.
4. Press  on the OLED user interface to enable the Master Heater Control.
5. While watching indicators DS5 and DS6 on the 6-channel power board, measure the voltage across the heater terminals as follows:
 - For an undertemperature or open heater fault, the voltage across the terminals should be within 10 VAC of the voltage being supplied to the melter when DS5 and DS6 are illuminated.
 - For a temperature run-away or stuck-on heater fault, the voltage across the terminals should be less than 5 VAC when DS5 and DS6 are *not* illuminated.

Replace the 6-channel power board if either of the above voltage conditions are incorrect.

Checking the Resistance of the Tank, Grid, and Manifold Heaters



WARNING! Risk of electrocution! Ensure that disconnect switch that serves the melter is in the off position and locked.

See Figure 6-1 for the location of the connections on the board.

1. De-energize the melter. Refer to *Safety* (Section 1).
2. Disconnect the power harness plug from receptacle X3 on the 6-channel power board.
3. Measure the resistance across pins 1 and 2 (melt) or pins 3 and 4 (manifold) on the power harness plug, and then do *one* of the following:
 - If the resistance *is* within the range shown in the following tables, go to step 4.
 - If the resistance is *not* within the range shown in the following tables, go to step 8.

Checking the Resistance of the Tank, Grid, and Manifold Heaters (contd)

Table 6-8 Heater Resistance

Model	Grid Marking	Grid Heater Cold Resistance (See Note A)
7 kg/hr Model 1/3 Ø AC 200-240V 50/60 HZ 1/3 Ø N/PE AC 400/230V 50/60 HZ	700W, 230V	68 – 79 ohms
7 kg/hr Model 3 Ø AC 480V 50/60 HZ 3 Ø AC 400V 50/60HZ	700W, 400/480V	273 – 316 ohms
14 kg/hr Model 1/3 Ø AC 200-240V 50/60 HZ 1/3 Ø N/PE AC 400/230V 50/60 HZ	1200W, 230V	40 – 46 ohms
14 kg/hr Model 3 Ø AC 480V 50/60 HZ 3 Ø AC 400V 50/60HZ	1200W, 400/480V	159 – 184 ohms
NOTE A: Resistance across two heaters wired in series.		

Table 6-9 Manifold Heater Cold Resistance

Manifold Heater	Cold Resistance
230V, 1000W	48 – 55 ohms
230V, 2500W	19 – 22 ohms
480V, 1190W	175 – 203 ohms
480V, 2500W	83 – 96 ohms

Table 6-10 Tank Heater Cold Resistance

Model	Tank Marking	Cold Resistance
4 kg Tank	230V, 1000W	48 – 55 ohms
4 kg Tank	480V, 1190W	175 – 203 ohms
7 kg Tank	230V, 1200W	40 – 46 ohms
7 kg Tank	480V, 1700W	122 – 142 ohms
10 kg Tank	230V, 1200W	40 – 46 ohms
10 kg Tank	480V, 1700W	122 – 142 ohms

4. Individually check the resistance between the chassis and pins 1 and 2 (melt) or pins 3 and 4 (manifold) on the power harness plug, and then do *one* of the following:
 - If the resistance is greater than 1 Megohm, return to the troubleshooting chart.
 - If the resistance is less than 1 Megohm, go to step 5.
5. Remove the front and rear panels from the melter. For the procedure to remove the melter cover panels, refer to *Remove Melter Panels* given earlier in this section.

CAUTION! Use two wrenches and minimal force when loosening or tightening the heater terminal connections. Using a single wrench or excessive force to remove or tighten the terminals nuts can damage the heater.

6. Using two wrenches, loosen the nuts that hold the power harness leads to the melt or the manifold heater terminal posts.
7. Individually check the resistance between the chassis and *each* grid or each manifold heater terminal post, and then do *one* of the following:
 - If the resistance is *greater* than 1 Megohm, replace the power harness.
 - If the resistance is *less* than 1 Megohm for the melt heater, replace the melt reservoir. If the resistance is less than 1 Megohm for the manifold, replace the manifold heater. Refer to *Parts* (Section 8).
8. Remove the front and rear panels from the melter. For the procedure to remove the melter cover panels, refer to *Remove Melter Panels* given earlier in this section.
9. Measure the resistance across the grid heater posts and the manifold heater posts terminals, and then do *one* of the following:
 - If the resistance *is* within the range shown in Tables 6-9 and 6-10, replace the melt section harness.
 - If the resistance is *not* within the range shown in Tables 6-9 and 6-10, replace the melt reservoir or replace the manifold heater.

NOTE: The melt reservoir heater cannot be replaced independently.

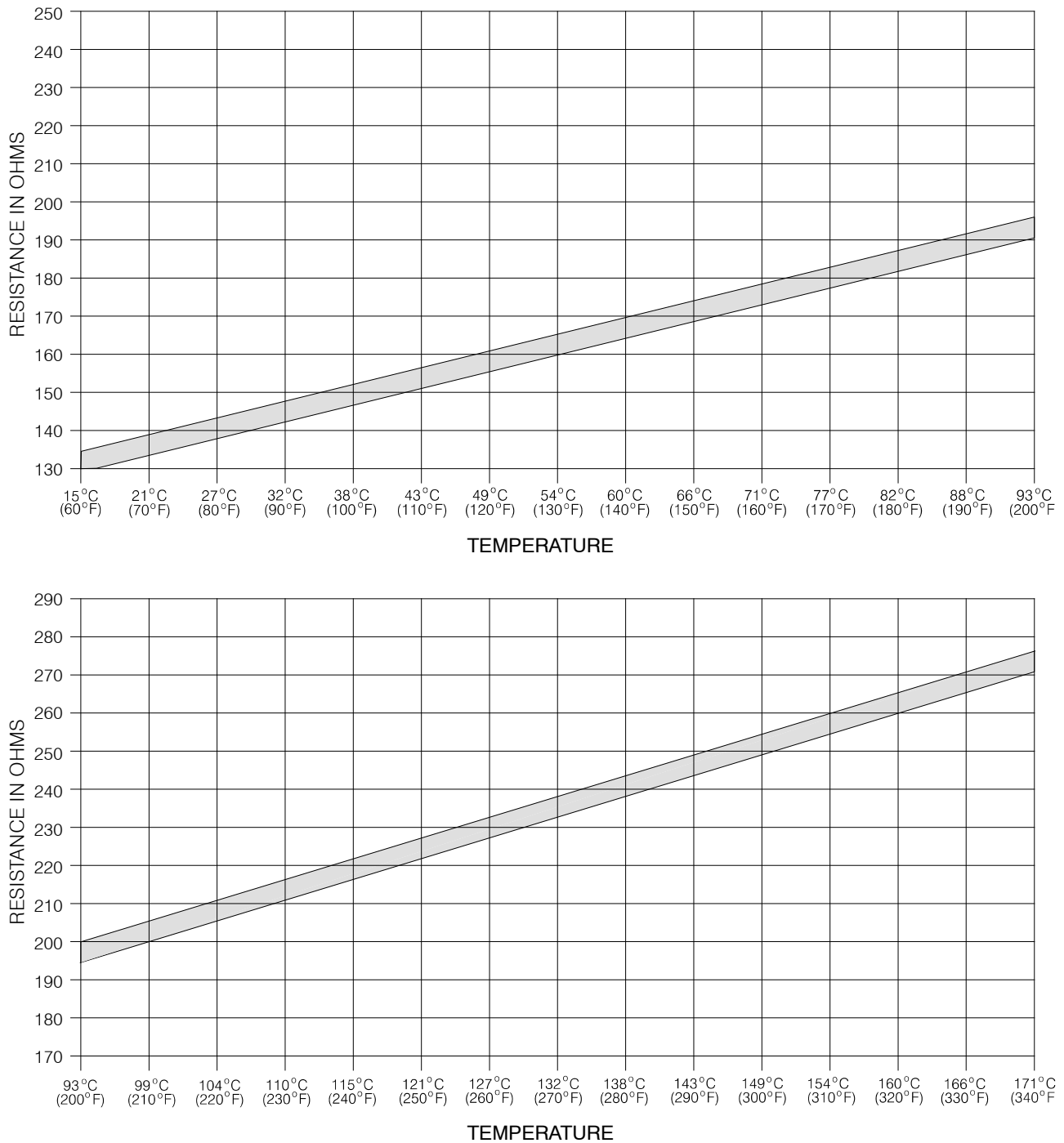
Checking the Resistance of the Tank, Grid, and Manifold Heaters (contd)

Figure 6-7 RTD resistance vs. temperature

Troubleshoot the Fill System



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

This fill system troubleshooting section covers only the most common problems you may encounter. If you cannot resolve the problem using the information provided in this section, contact your Nordson representative for technical assistance.

Fill Time Limit

The Fill Time Limit or maximum fill time is a user-specified amount of time that the fill system operates. When the fill system is operating, it activates for no less than 2 seconds and no more than 10 seconds at a time, then it has a 20 second Off interval. The Fill Time Limit is the sum of all the On times that occur between the time the system calls for adhesive and the time the Fill Time Limit is reached.

If the level sensor is not satisfied by the end of the Fill Time Limit, the control system generates a fault. When a fill fault occurs, the heaters remain On but the control system disables the fill system.

For detailed for troubleshooting fill system problems refer to one of the following manuals:

- *ProBlue Flex Adhesive Melter Using the OLED User Interface Manual* (P/N 1128351).
- *ProBlue Flex Adhesive Melter OEM User Interface Manual* (P/N 1129255).

NOTE: For dimensions, parts information, and wiring details, refer to *Fulfill System* in *Optional Accessories* (Appendix E).

Fill System Troubleshooting Table

Problem	Possible Cause	Corrective Action
1. System overfilled	Level sensor out of calibration	Calibrate the level sensor at application temperature with the melter empty.
	Level sensor ground wires loose or disconnected	Connect the level sensor cable ground wires or replace the level sensor cable.
	Level sensor cable loose or disconnected	Check the level sensor cable connections.
	Level sensor failure	Replace the level sensor board.
	Fill board failed	Replace the low-voltage controller board.
	Adhesive bin solenoid valve stuck open	Clean or replace the solenoid valve.
2. System underfilled	Too little adhesive in bin	Add adhesive to the bin.
	No power	Connect power.
	Fill system power cable loose	Make sure the transfer hose and/or sequencer solenoid cable is securely connected to the melter, sequencer, and adhesive bin.
	Inadequate air supply	Check the air supply by comparing the following pressure gauge readings: - When air is not flowing (static) to the pump and vibrator - When air is flowing (dynamic) to the pump and vibrator Make sure the difference between the two readings does not exceed 0.7 bar (10 psi).
	No or low air pressure	Check the air supply to the adhesive bin.
	Air pressure regulator failed	Replace the regulator.
	Fill Time Limit too short	Adjust the Fill Time Limit setting.
	Foreign material or incorrect adhesive in bin	Inspect the adhesive in the bin for contamination.
	Adhesive bridging in bin	Dislodge the adhesive.
	Vibrator failed	Replace the vibrator.
	Adhesive transfer hose blocked	Disconnect the adhesive transfer hose from the adhesive bin and clear the blockage from the pump. Refer to <i>Maintenance</i> (Section 5).
	Adhesive bin solenoid valve failed	Clean or replace the solenoid valve.
	Refill PCA failed	Replace the refill PCA.
	Level sensor out of calibration	Calibrate the level sensor at application temperature with the melter empty.

Calibrating the Level Sensor

Calibrate the level sensor when:

- The level sensor, level sensor cable, refill PCA, grid, or reservoir is replaced.
- The grid (or global) temperature set point is changed by more than 25 °C (50 °F).
- The type of adhesive is changed.
- Calibration is required as a result of troubleshooting activities.

Cleaning Adhesive Bin Blockage

1. Disable the fill system.
2. Disconnect the compressed air supply to the adhesive bin.
3. Disconnect the adhesive transfer hose and use a rod with a diameter less than 19 mm ($\frac{3}{4}$ in.) to break up the blockage.
4. Reconnect the hose and restore the system to normal operation.

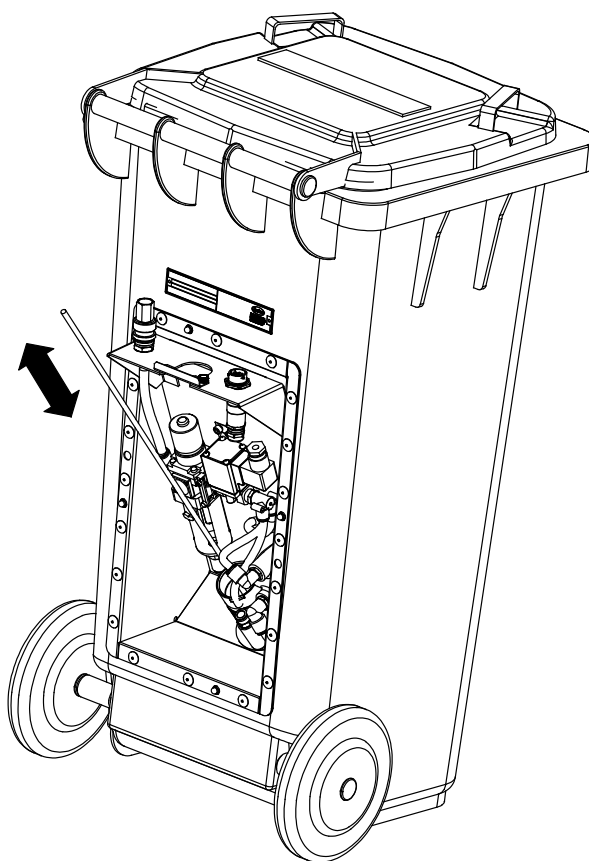


Figure 6-8 Using a rod to remove adhesive bin blockage

Section 7

Technical Data

General Specifications

Item	Data
Type of system	Non-circulating tank
Filter Type	Inside-out disposable
Viscosity:	
Range	800 - 10,000 cP
Range with reduced performance	10,000 - 30,000 cP
Temperature range:	
Melt section	40 to 204°C (100 to 400 °F)
Hose and Applicators	40 to 230°C (100 to 450 °F)
Ambient temperature range	-5 to 50°C (23 to 122 °F)
Temperature control stability	±0.5°C (1°F) NOTE: Built-in automatic tuning of PID control available, if needed).
Hose ports (hydraulic)	9
Hose/Applicator power:	
Number of pairs per power module	2
Number of H/A pairs	2, 4, or 6
Maximum power per power module	2000 W
Maximum power per pair	1200 W
Minimum power per channel	1000 W
Ingress Protection (IP) rating	IP54
Noise	64 dB (A) at maximum pump speed

Pump Specifications

Specifications	Standard Double-Acting	High-output Double-Acting	Single-Acting	Low Pressure Double-Acting	Low Viscosity Double-Acting	Low Pressure/ Low Viscosity Double-Acting
Pressure ratio	15:1	16:1	12:1	6:1	15:1	6:1
Viscosity range	800-10,000 cP				1-800 cP	
Test viscosity	1100 cP				4 cP	
Maximum Pump Rate	0.54 kg/min (1.2 lb/min.)	0.98 kg/min (2.17 lb/min.)	1.8 kg/min (4.0 lb/min.)	0.54 kg/min (1.2 lb/min.)		
Displacement	7.20 cc/stroke (0.44 cu in/stroke)	16 cc/stroke (1.0 cu in/stroke)	36 cc/stroke (2.2 cu in/stroke)	7.20 cc/stroke (0.44 cu in/stroke)		
Operating air pressure	15 to 90 psi (.69 to 6.2 bar)			20 to 90 psi	15 to 90 psi	20 to 90 psi
Reset time at 60 psi	N/A		800 milliseconds	N/A		
Air consumption	2.0 SCFM at 60 psi and 1.2 lb/min output (56 l/min at 4.1 bar and 0.54 kg/min output)	3.5 SCFM at 60 psi and 2 lb/min output (100 l/min at 4.1 bar and 0.91 kg/min output)	4.7 SCFM at 60 psi and maximum output (133 l/min at 4.1 bar and maximum output)	0.8 SCFM at 60 psi and 1.2 lb/min output (23 l/min at 4.1 bar and 0.54 kg/min output)	2.0 SCFM at 60 psi and 1.2 lb/min output (56 l/min at 4.1 bar and 0.54 kg/min output)	0.8 SCFM at 60 psi and 1.2 lb/min output (23 l/min at 4.1 bar and 0.54 kg/min output)

Melter Specifications

4, 7, 10 Kg Tank Melters

Tank Size			
Specifications	4	7	10
Melt Rate	5 kg/hr (11 lb/hr)	7 kg/hr (15.4 11 lb/hr)	11 kg/hr (24 11 lb/hr)
Throughput			
Weight of empty melter	49.8 kg (109.8 lbs)	50.9 kg (112.2 lbs)	53.7 kg (118.4 lbs)
Holding capacity	4.5 kg (9.9 lb)	6.7 kg (14.8 lb)	9.7 kg (21.4 lb)
Dimensions - mm (in.):			
Overall	570 mm x 517 mm x 367 mm (22.5 in x 20.5 in x 14.5 in)	634 mm x 517 mm x 367 mm (25 in x 20.5 in x 14.5 in)	
Mounting	381 mm x 249 mm (15 in x 9.8 in)	436 mm x 249 mm (17.1 in x 9.8 in)	
Service	748 mm x 635 mm x 672 mm (29.5 in x 25 in x 26.5 in)	812 mm x 635 mm x 672 mm (32 in x 25 in x 26.5 in)	
Optional 3kVA transformer dimensions for 480V	570 mm x 593 mm x 367 mm (22.5 in x 23.5 in x 14.5 in)	634 mm x 593 mm x 367 mm (25 in x 23.5 in x 14.5 in)	

7 and 14 Kg MOD Melters

Tank Size		
Specifications	7	14
Melt Rate - kg/hr (lb/hr)	7 kg (15.4 lb/hr)	14 kg (30.8 lb/hr)
Throughput - kg/hr (lb/hr)		
Weight of empty melter	50 kg (110.3 lbs)	
Weight of melter with full tank	52 kg (114.64 lbs)	
Holding capacity	1 kg (2.2 lb)	
Dimensions - mm (in.):		
Overall	570 mm x 517 mm x 367 mm (22.5 in x 20.5 in x 14.5 in)	
Mounting	381 x 249 (15 x 9.8)	
Service	748 mm x 635 mm x 672 mm (29.5 in x 25 in x 26.5 in)	
Optional 3kVA transformer dimensions for 480V	570 mm x 593 mm x 367 mm (22.5 in x 23.5 in x 14.5 in)	

A and B Chassis for 240V and 480V Melters

Chassis Type	Melter Tank Type
Size A	4 kg, MOD7, and MOD14
Size B	7 kg and 10 kg tank

Electrical Specifications

Item	Data
Electrical service	200 to 240 VAC 1Ø or 3Ø 50/60 Hz
	200 to 240 VAC 1Ø N/PE 50/60 Hz
	400/230 VAC 3Ø N/PE 50/60 Hz
With optional transformer	400 to 480 VAC 3Ø 50/60 Hz
Input voltage tolerance	+10%, -15%

Melter Power Requirements

CAUTION! The following tables are specific to melters without transformers. Melters using optional transformers are limited to 3 kVA for external hose/applicators.

The ProBlue Flex 400/480 volt melter transformer assembly is shipped separately. Refer to *ProBlue Flex 400/480 Volt Transformer* (Appendix F) for installation instructions, parts information, and wiring details.

4 Kg Tank (T04, X04)

		Maximum Amperage							
		Legacy				Fast Warm Up			
	Voltage (VAC)	2 H/A	4 H/A	6 H/A	8 H/A	2 H/A	4 H/A	6 H/A	8 H/A
Δ	200-240, 1-phase	19	28	37	N/A	26	35	N/A	N/A
	200-240, 3-phase	13	21	24	28	19	22	30	34
Y	400-230, 1-phase	18	27	36	N/A	25	34	N/A	N/A
	400-230, 3-phase	10	14	14	18	11	14	20	20

7 Kg and 10 Kg Tank (T07, X07, T10, X10)

		Maximum Amperage							
		Legacy				Fast Warm Up			
	Voltage (VAC)	2 H/A	4 H/A	6 H/A	8 H/A	2 H/A	4 H/A	6 H/A	8 H/A
Δ	200-240, 1-phase	20	29	38	N/A	27	36	N/A	N/A
	200-240, 3-phase	14	21	31	29	19	23	29	34
Y	400-230, 1-phase	19	28	37	N/A	26	34	N/A	N/A
	400-230, 3-phase	10	14	14	18	11	14	20	20

7 Kg/Hr MOD (M07, Z07)

		Maximum Amperage							
		Legacy				Fast Warm Up			
	Voltage (VAC)	2 H/A	4 H/A	6 H/A	8 H/A	2 H/A	4 H/A	6 H/A	8 H/A
Δ	200-240, 1-phase	18	27	36	N/A	25	34	N/A	N/A
	200-240, 3-phase	13	19	23	29	19	21	29	34
Y	400-230, 1-phase	17	26	34	N/A	24	32	N/A	N/A
	400-230, 3-phase	10	12	14	18	11	12	20	20

14 Kg/Hr MOD (M14, Z14)

		Maximum Amperage							
		Legacy				Fast Warm Up			
	Voltage (VAC)	2 H/A	4 H/A	6 H/A	8 H/A	2 H/A	4 H/A	6 H/A	8 H/A
Δ	200-240, 1-phase	20	29	38	N/A	27	36	N/A	N/A
	200-240, 3-phase	14	21	31	29	19	23	29	34
Y	400-230, 1-phase	19	28	37	N/A	26	34	N/A	N/A
	400-230, 3-phase	10	14	14	18	11	14	20	20

15 Kg Tank (T15, X15)

		Maximum Amperage					
		Legacy			Fast Warm Up		
	Voltage (VAC)	2 H/A	4 H/A	6 H/A	2 H/A	4 H/A	6 H/A
Δ	200-240, 1-phase	24	33	N/A	30	N/A	N/A
	200-240, 3-phase	17	25	28	19	26	34
Y	400-230, 1-phase	23	31	N/A	29	38	N/A
	400-230, 3-phase	10	18	18	11	18	20

21 Kg/Hr MOD (M21, Z21)

		Maximum Amperage					
		Legacy			Fast Warm Up		
	Voltage (VAC)	2 H/A	4 H/A	6 H/A	2 H/A	4 H/A	6 H/A
Δ	200-240, 1-phase	25	34	N/A	32	N/A	N/A
	200-240, 3-phase	18	26	29	19	27	35
Y	400-230, 1-phase	24	32	N/A	30	39	N/A
	400-230, 3-phase	10	19	19	11	19	20

Discrete I/O

Standard Remote Input/Output

Item	Data
Input	1 standard input - programmable for function
Output	1 standard output - programmable for function

Communication

Item	Data
RJ-45 ports	4
Speed	10/100 Mbps
Protocols supported	Ethernet I/P, Profinet

Pressure Management

Item	Data
Air pressure range	103 to 689 KPa (15 to 100 psi)
Maximum hydraulic pressure	Up to 11 MPa (1600 psi) depending on pump

Fill System Specifications

Item	Data
Adhesive forms Maximum size	Pellets, pastilles, mini-slats - Pastilles: 12 mm (0.472 in.) diameter - Mini-slats: 12 mm X 12 mm (0.472 in. X 0.472 in.) in length
Adhesive transfer maximum rate	275 kg (600 lb)/hour (dependent on adhesive type)
Transfer hose length	4 m (13 ft), 9 m (29.5 ft), or 18 m (59 ft)
Total air consumption	By transfer rate: 17 SCFM at 3.4 bar (50 psi) to transfer 105 kg/hr (232 lb/hr) with a 4 m hose at a 4 m rise 22 SCFM at 4.1 bar (60 psi) to transfer 113 kg/hr (248 lb/hr) with a 9 m hose at a 4 m rise 30 SCFM at 6.2 bar (90 psi) to transfer 91 kg/hr (200 lb/hr) with an 18 m hose at a 4 m rise Average: 1.3 SCFM for a complete system [melter, 4 m transfer hose, 4.1 bar (60 psi)] operating at 11 kg/hr (25 lbs/hr) adhesive output
Conditioning	Dry, non-lubricated
Operating air:	
Dynamic	Minimum Pressure 2.75 bar (0.275 MPa or 40 psi) Maximum Pressure 5.5 bar (0.55 MPa or 80 psi)
Static	Maximum Pressure 6.9 bar (0.69 MPa or 100 psi)
Air line tubing size (between solenoid valve and suction lance)	10 mm OD, 8 mm ID
Inlet air connection	¼ in. NPT female ¼ in. BSPP female G ¼ female
Dimensions (W x D x H):	
Single-feed Adhesive Container Clearance	480 x 554 x 917 mm (19 x 22 x 36 in)
Multi-feed Adhesive Container Clearance	688 x 667 x 1656 mm (26 x 27 x 65 in)
Adhesive storage bin capacity:	
Single-feed bin	40 kg (88 lb) with optional grate 64 kg (141 lb) usable without grate
Multi-feed bin	40 kg (88 lb) usable with grate 64 kg (141 lb) usable without grate
IP rating (sequencer and adhesive storage bin)	IP54
Adhesive Bin Factory Pressure Setting	Single Feed: 65 psi (4.48 bar) Multi-Feed: 75 psi (5.17 bar)
Noise Emission	76 dBa

Melter Dimensions

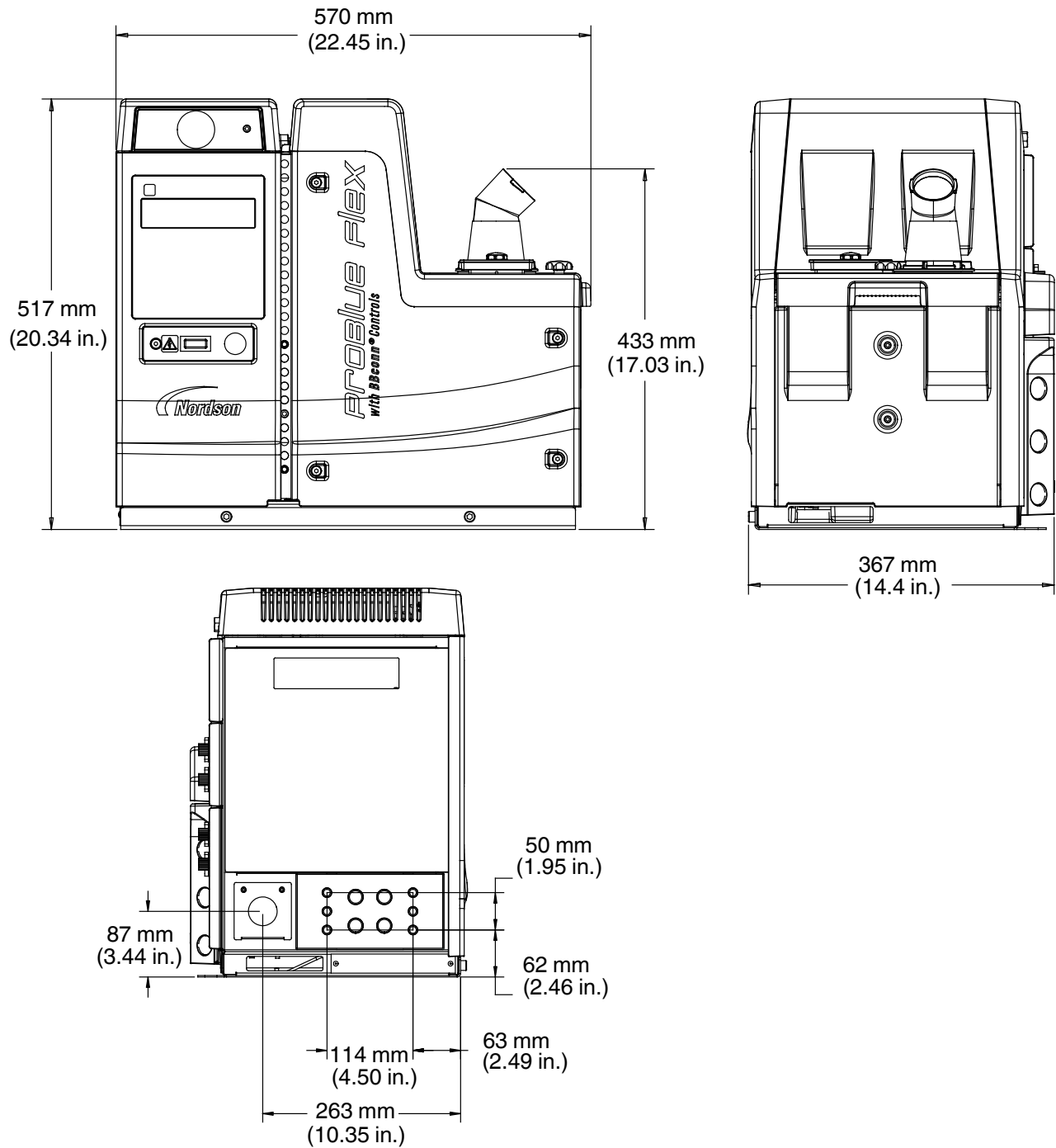


Figure 7-1 4 Kg and MOD (7 kg per hour and 14 kg per hour) tank melter dimensions

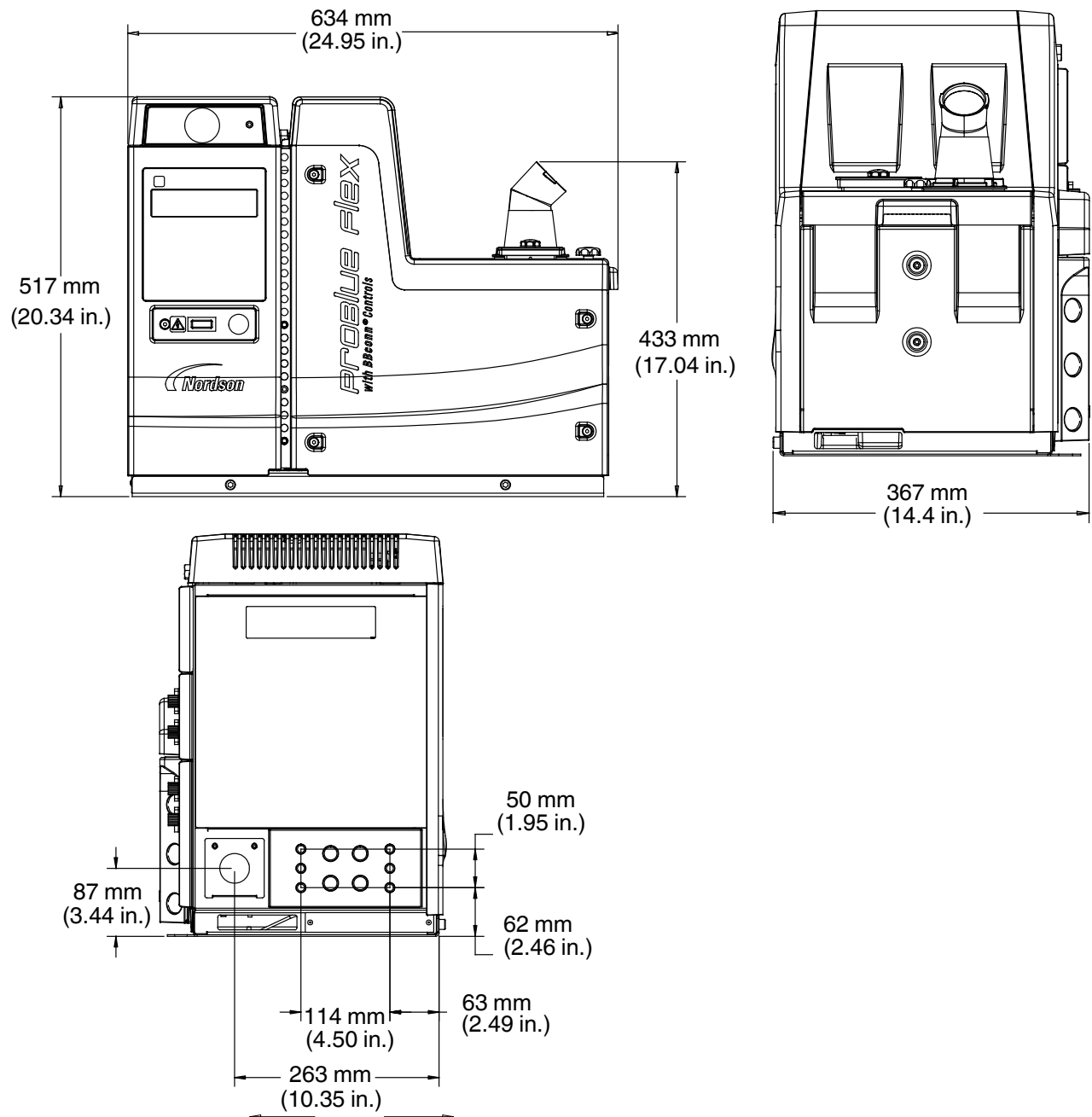


Figure 7-2 7 kg tank model dimensions

Melter Dimensions *(contd)*

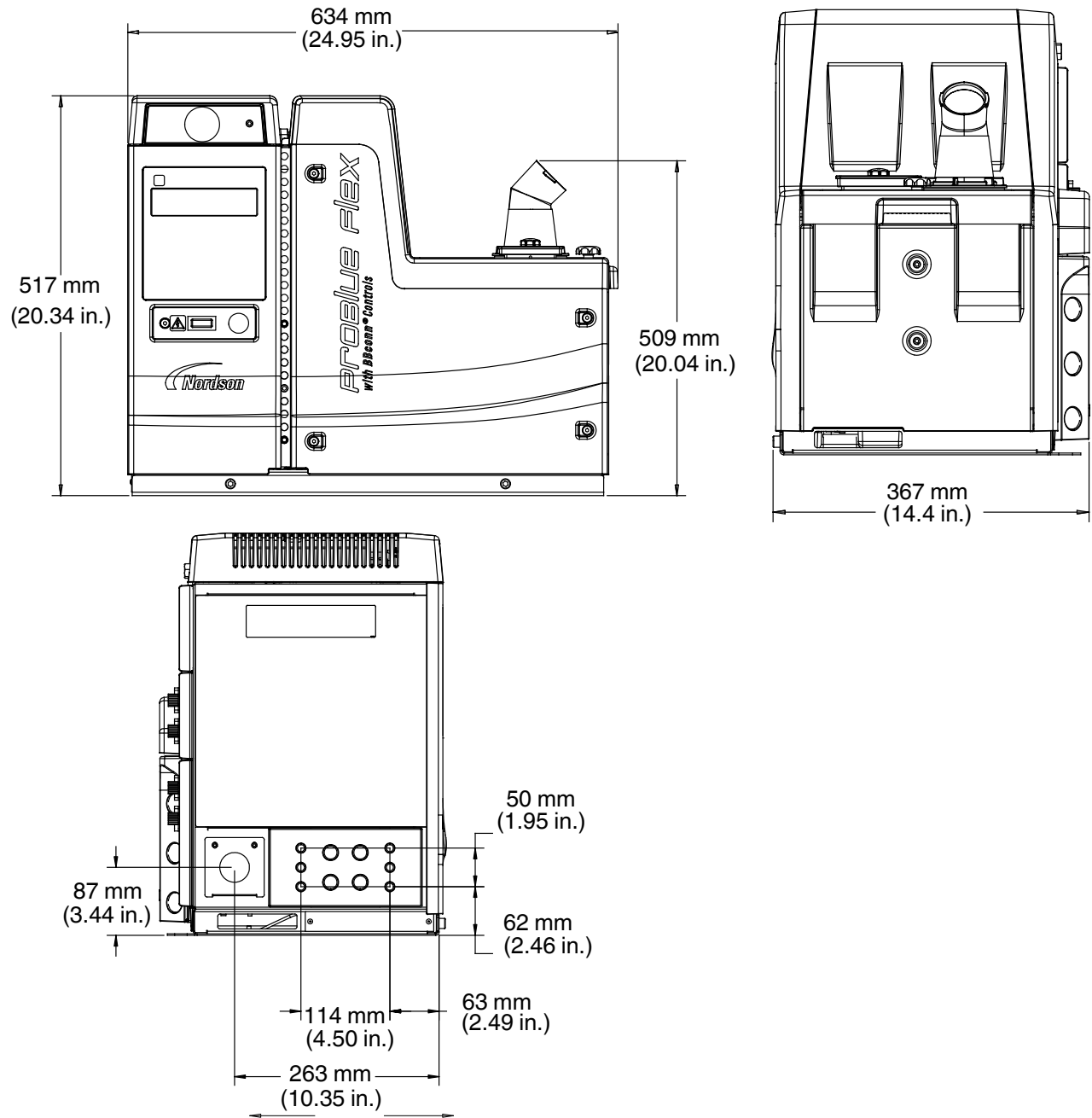


Figure 7-3 10 kg tank model dimensions

Melter Sub-base Dimensions

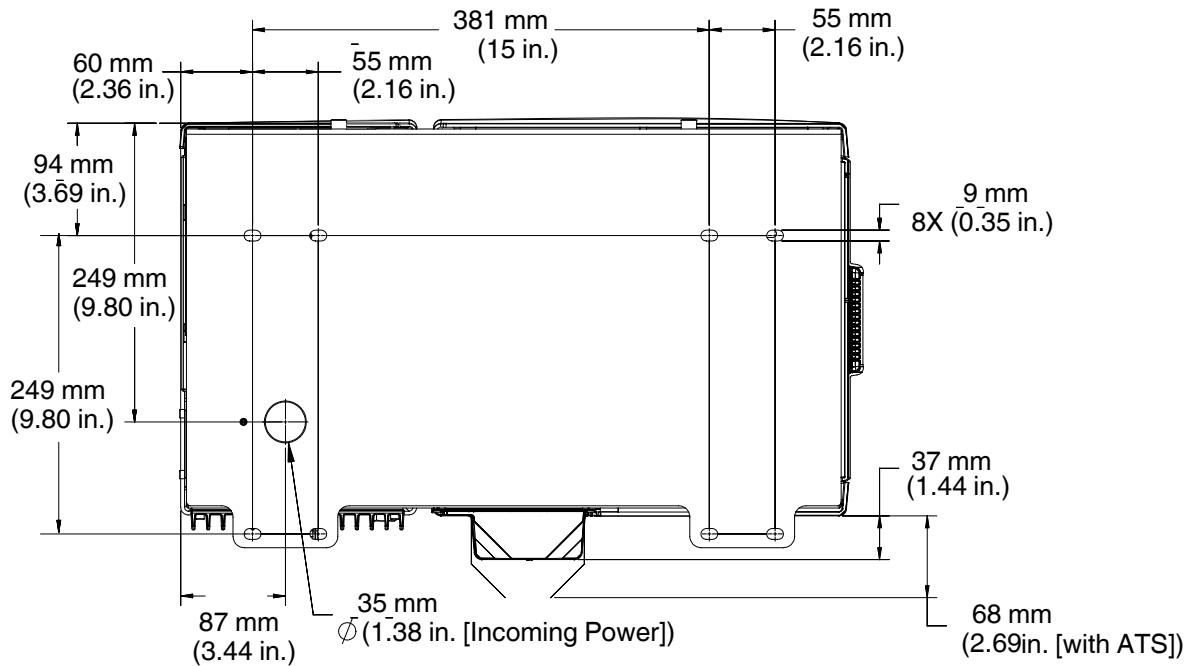


Figure 7-4 4 kg melter chassis dimensions

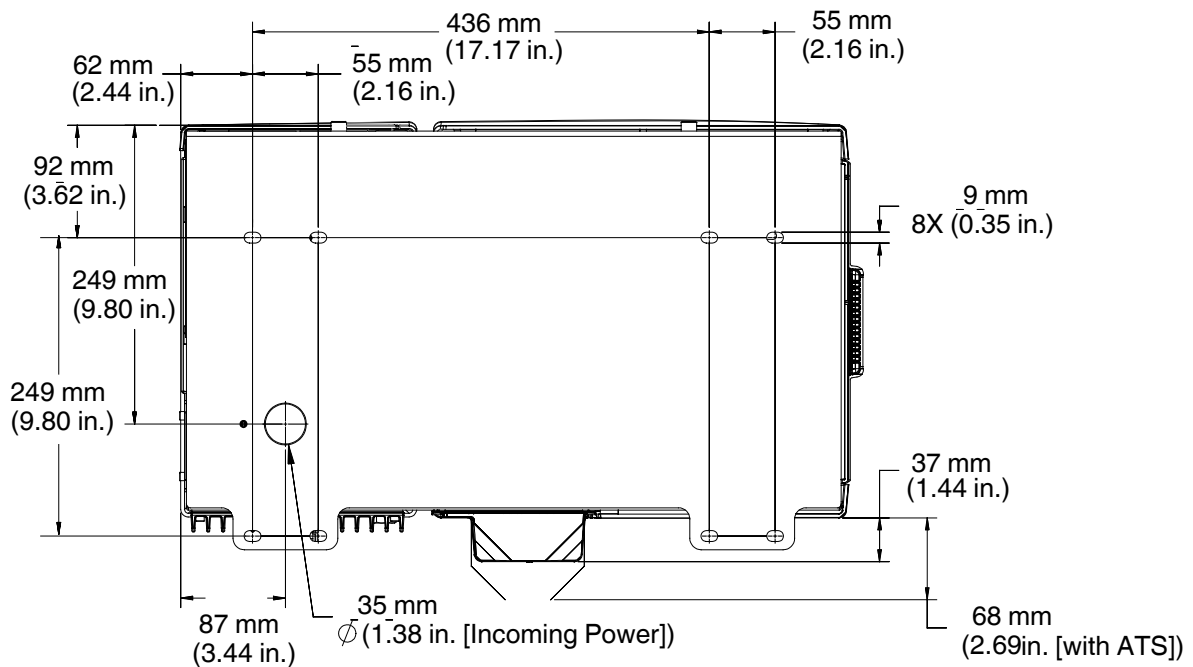
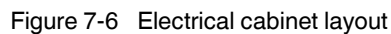


Figure 7-5 7 and 10 kg melter chassis dimensions



Wiring Diagram - Input Power

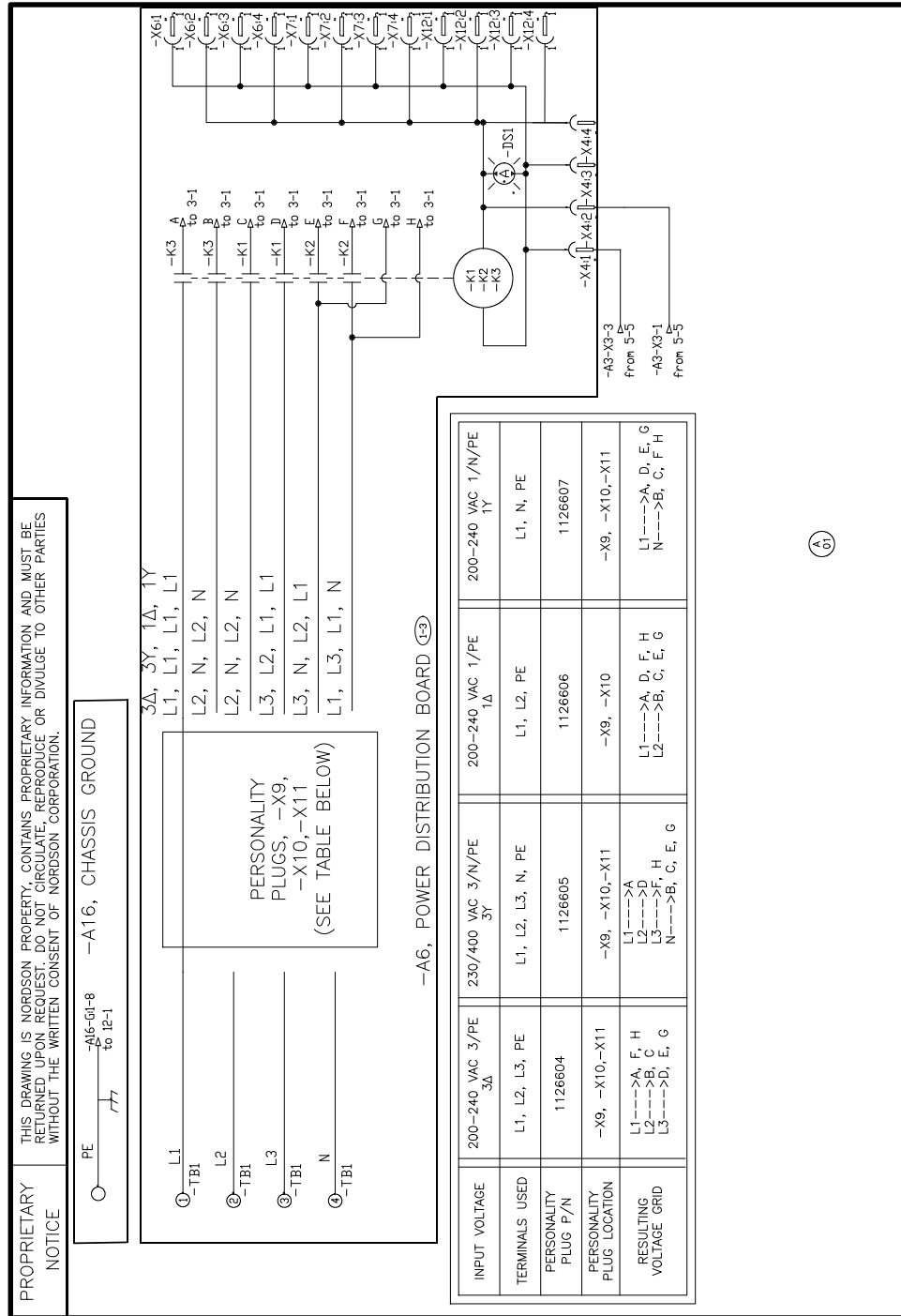


Figure 7-7 Input power layout

Wiring Diagram - Power Distribution

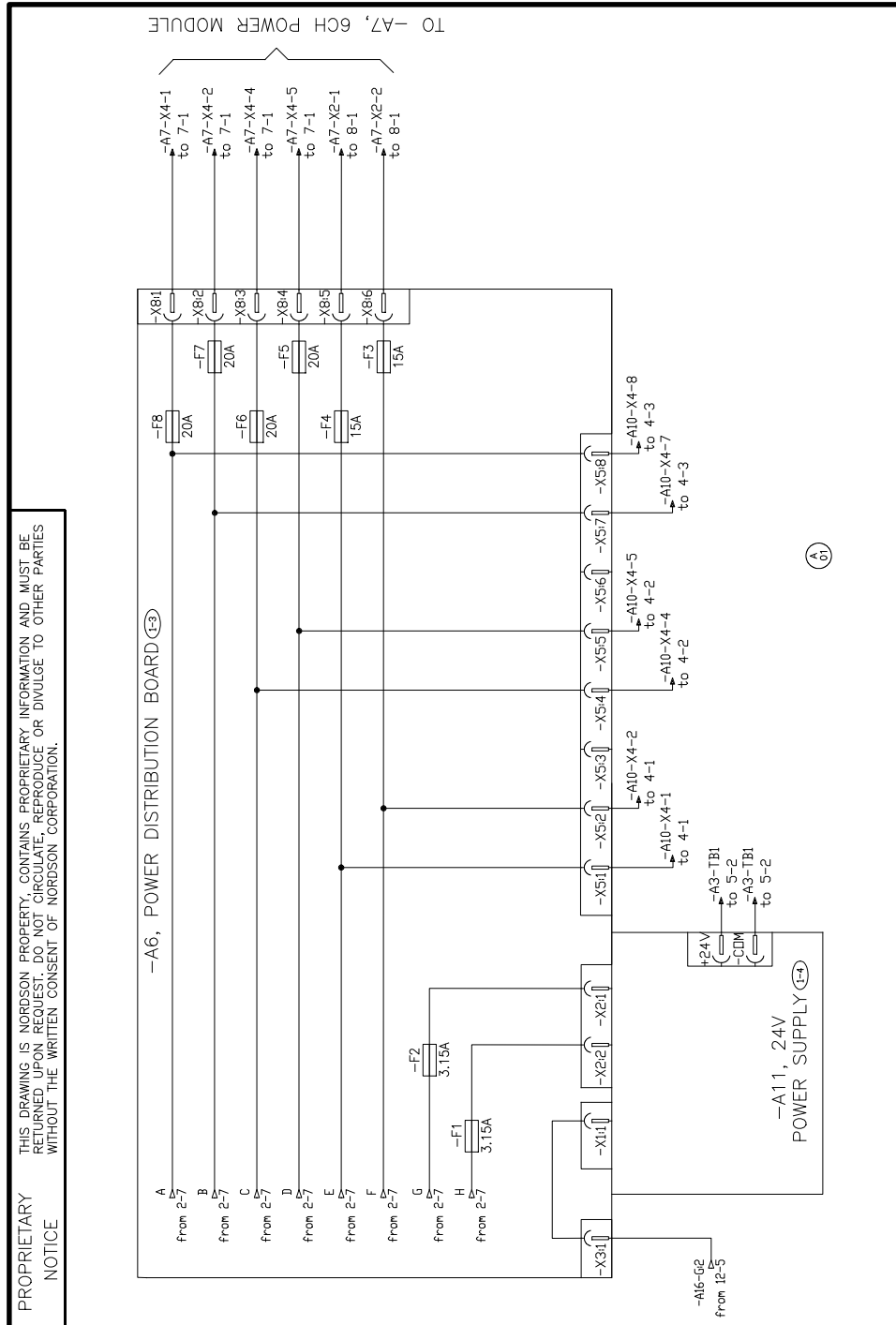


Figure 7-8 Power distribution layout

Wiring Diagram - Power Distribution Expansion Board

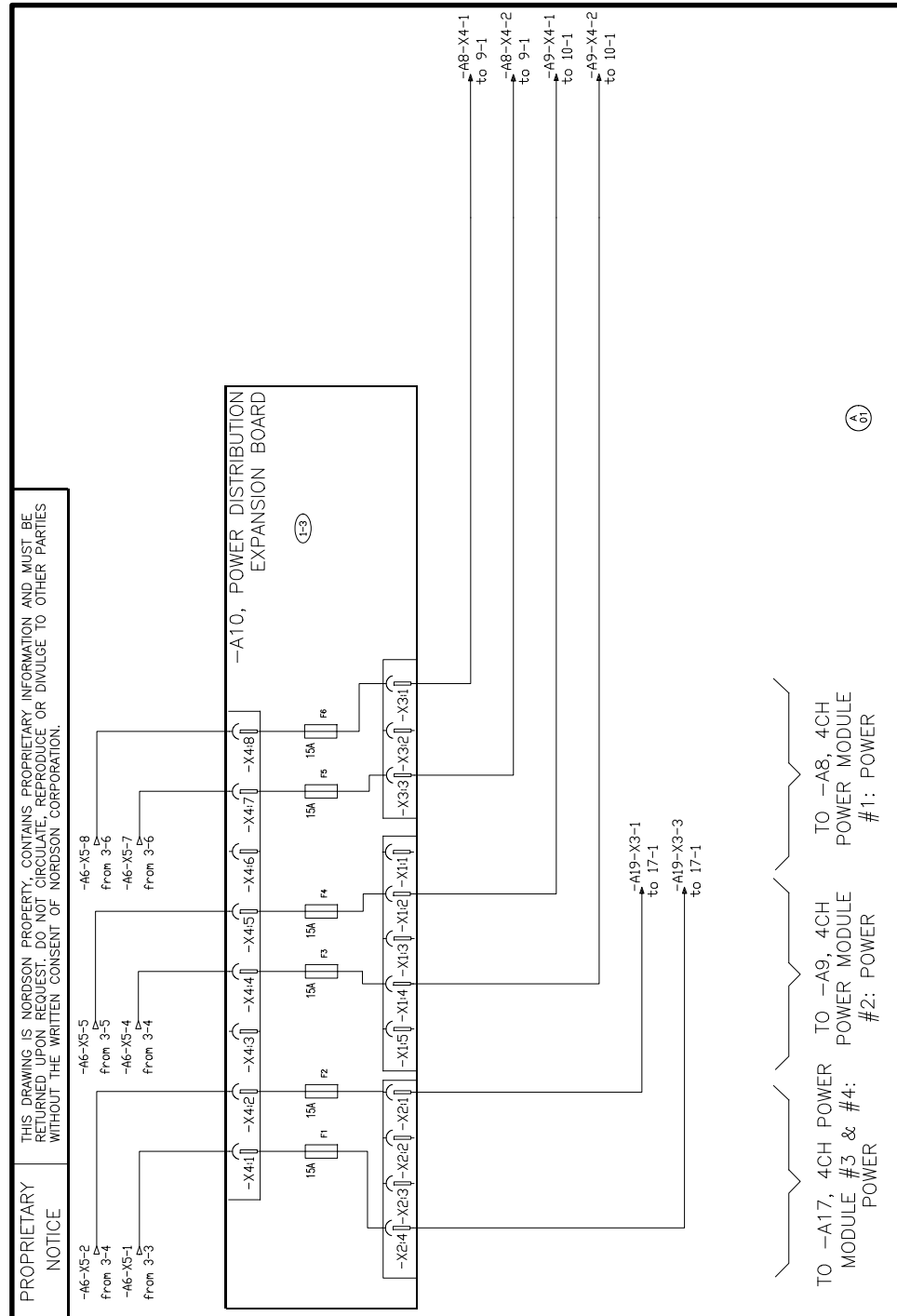


Figure 7-9 Power distribution expansion board

Wiring Diagram - Low Voltage Control Board

See Figures 7-10, 7-11, and 7-12.

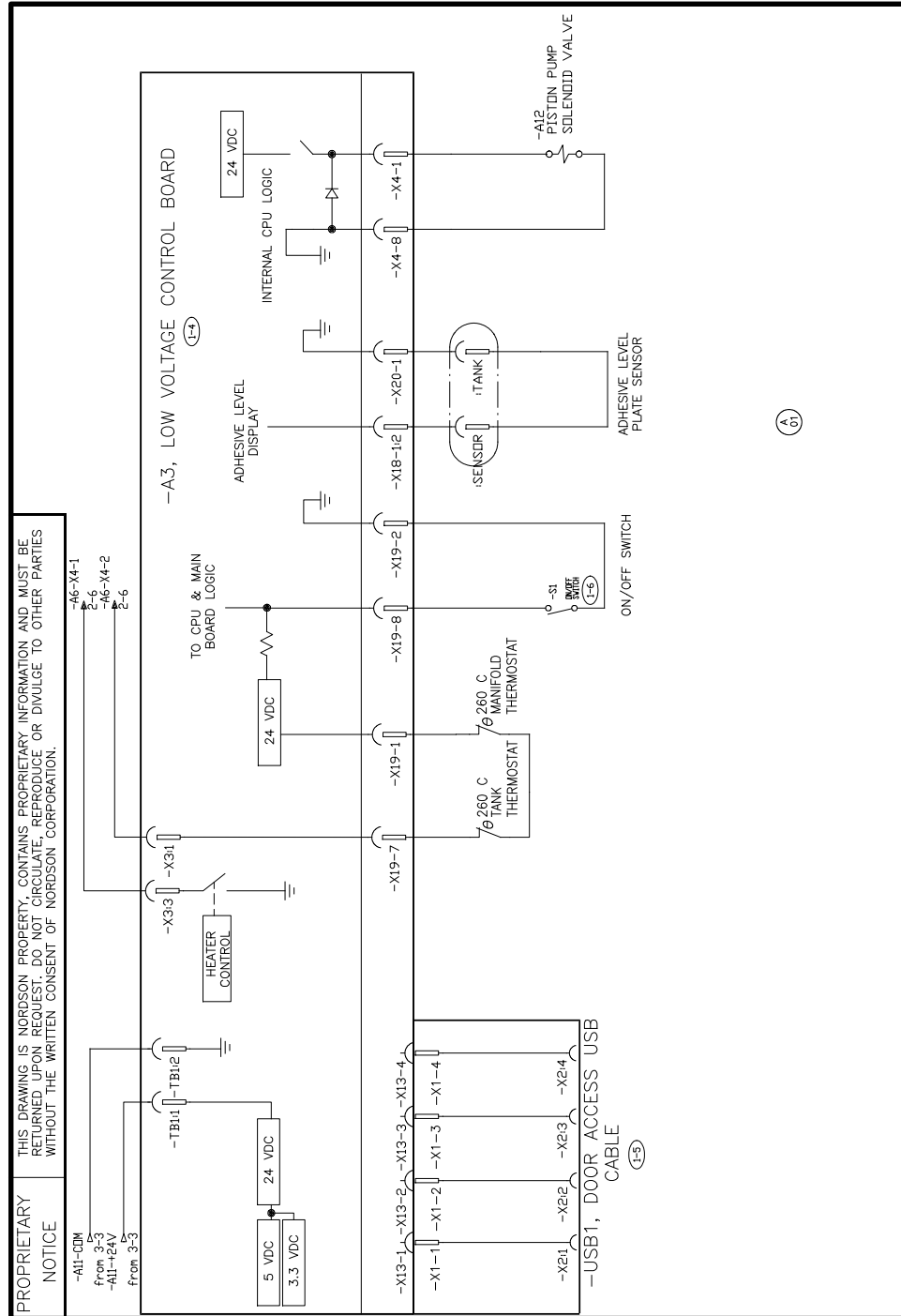
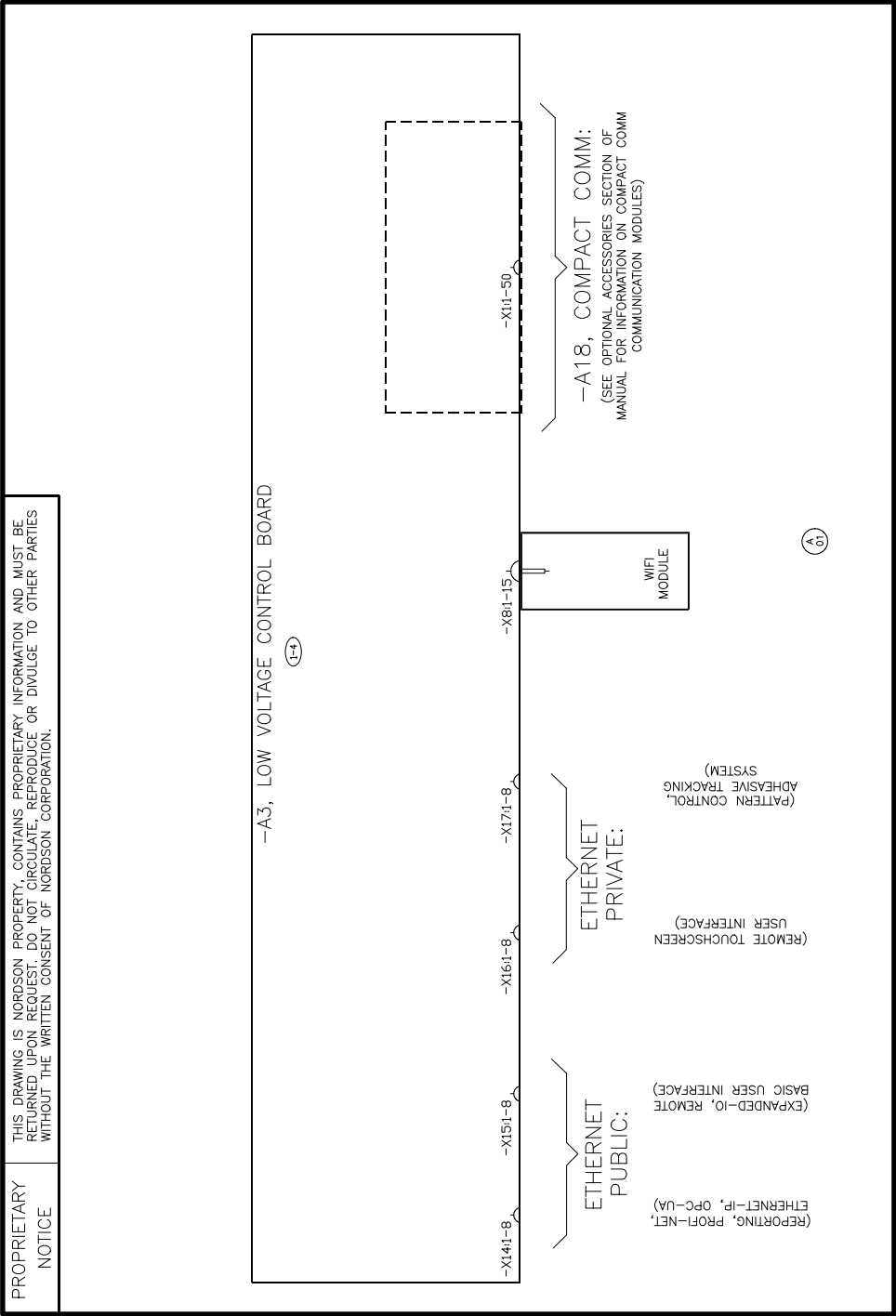


Figure 7-10 Low Voltage Control board (1 of 3)

Wiring Diagram - Low Voltage Control Board (contd)



NOTE: For Communication Cards see *Optional Accessories* (Appendix E) given later in this manual.

Figure 7-12 Low Voltage Control board (3 of 3)

Wiring Diagram - Melt and Manifold (Melt on Demand)

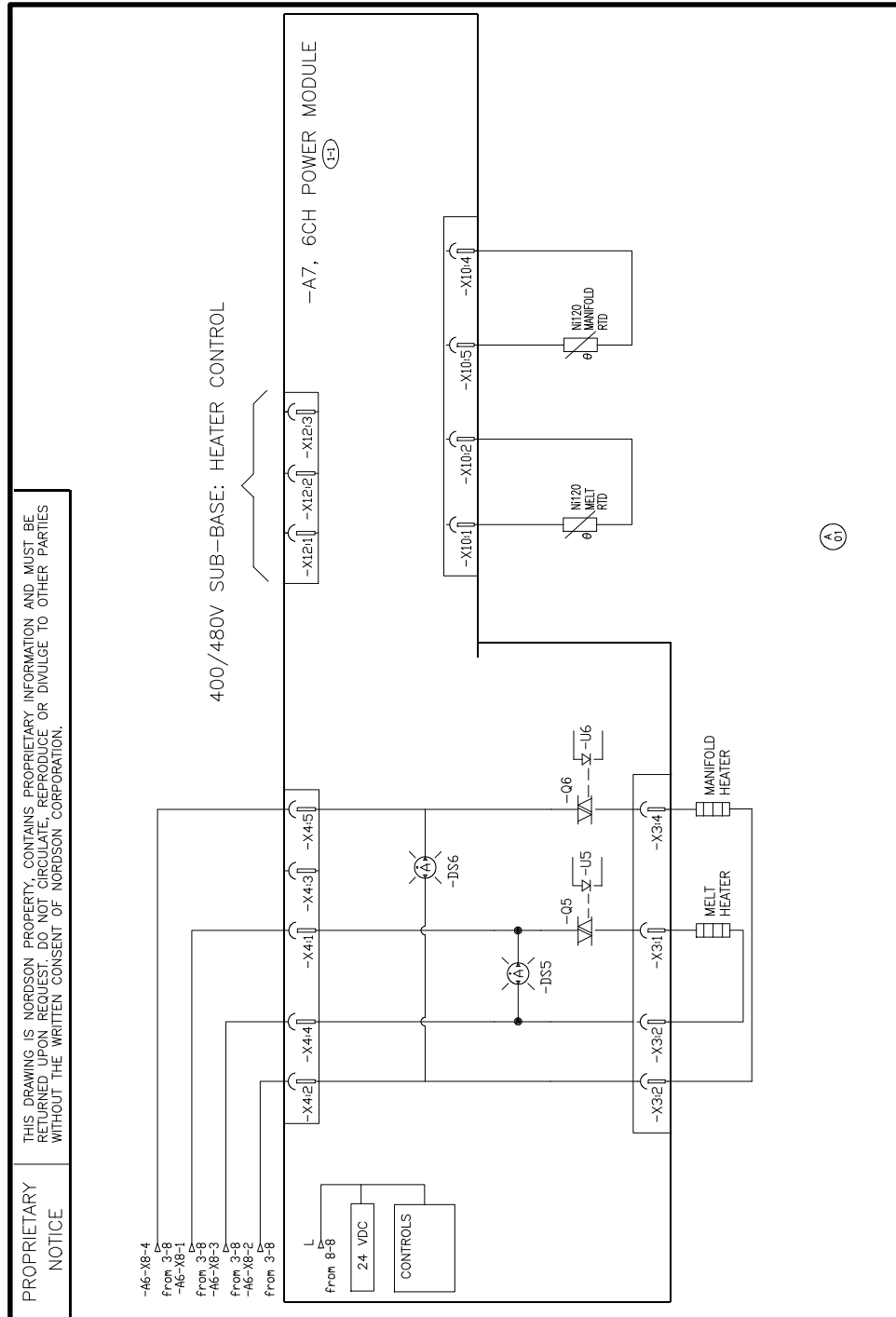


Figure 7-13 Melt and manifold

Wiring Diagram - Hoses and Applicators

See Figures 7-14 and 7-15 for hose and applicator wiring diagrams.

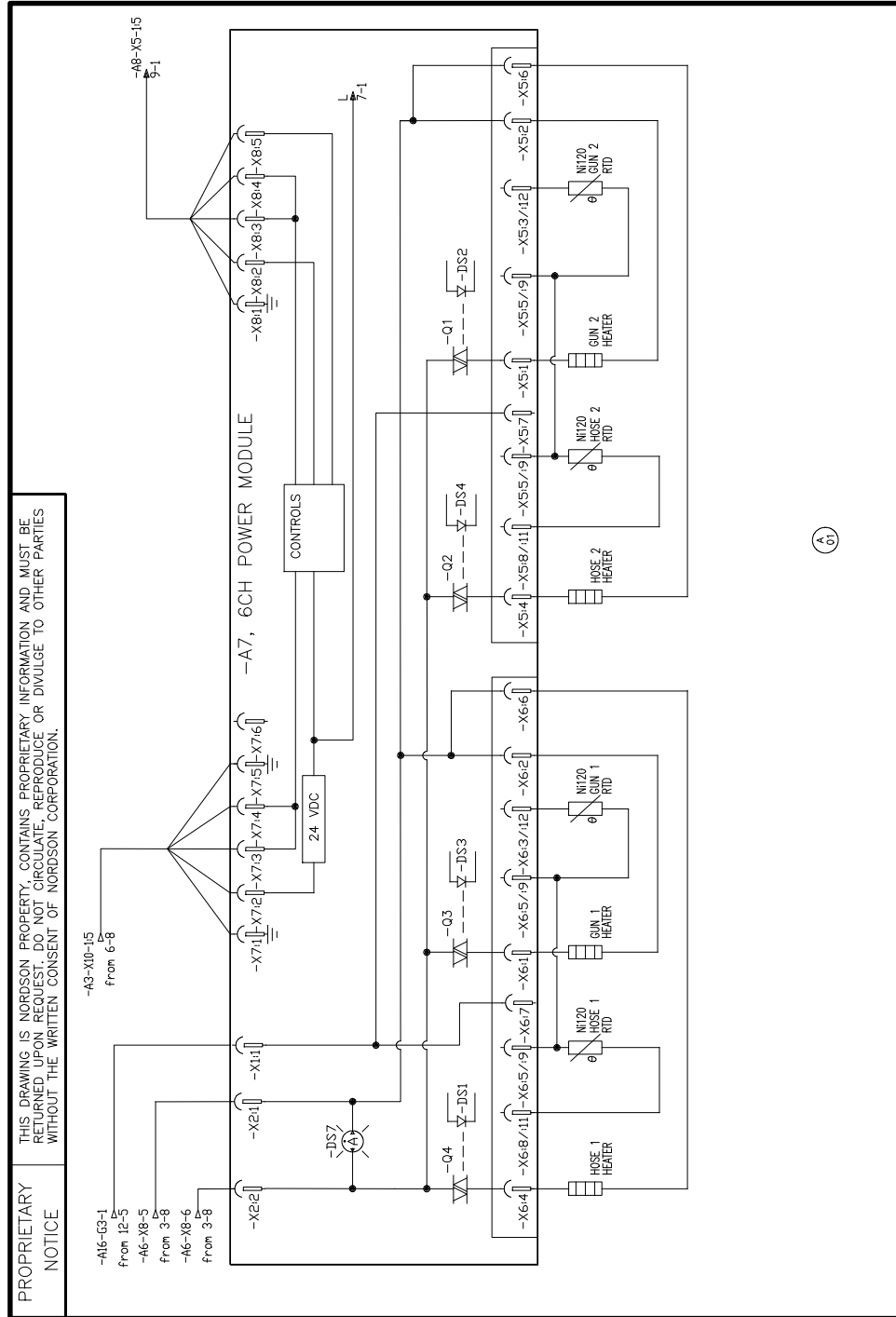


Figure 7-14 Hoses and Applicators (1 of 2)

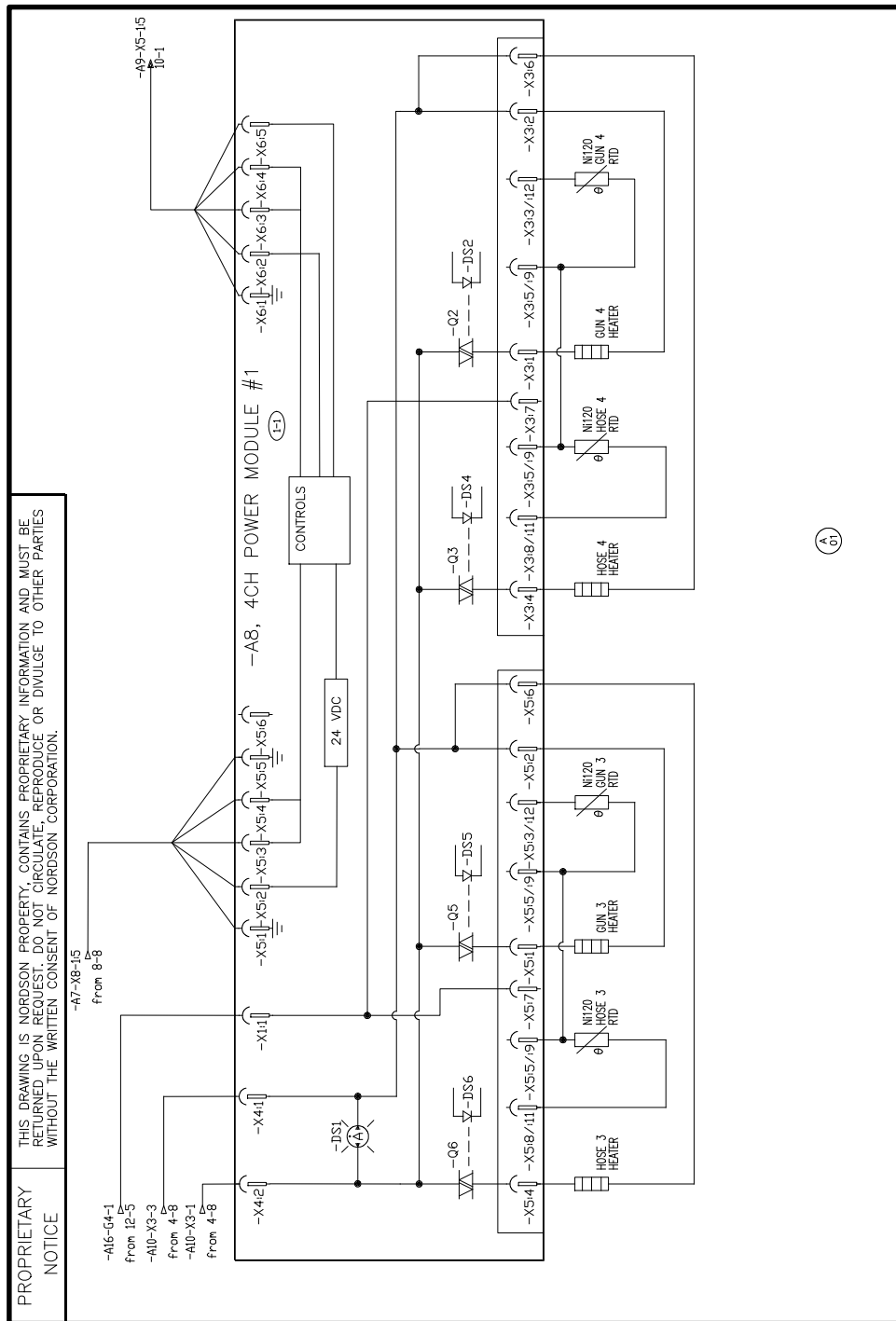


Figure 7-15 Hoses and Applicators (2 of 2)

Wiring Diagram - 4 Channel Power Module #2

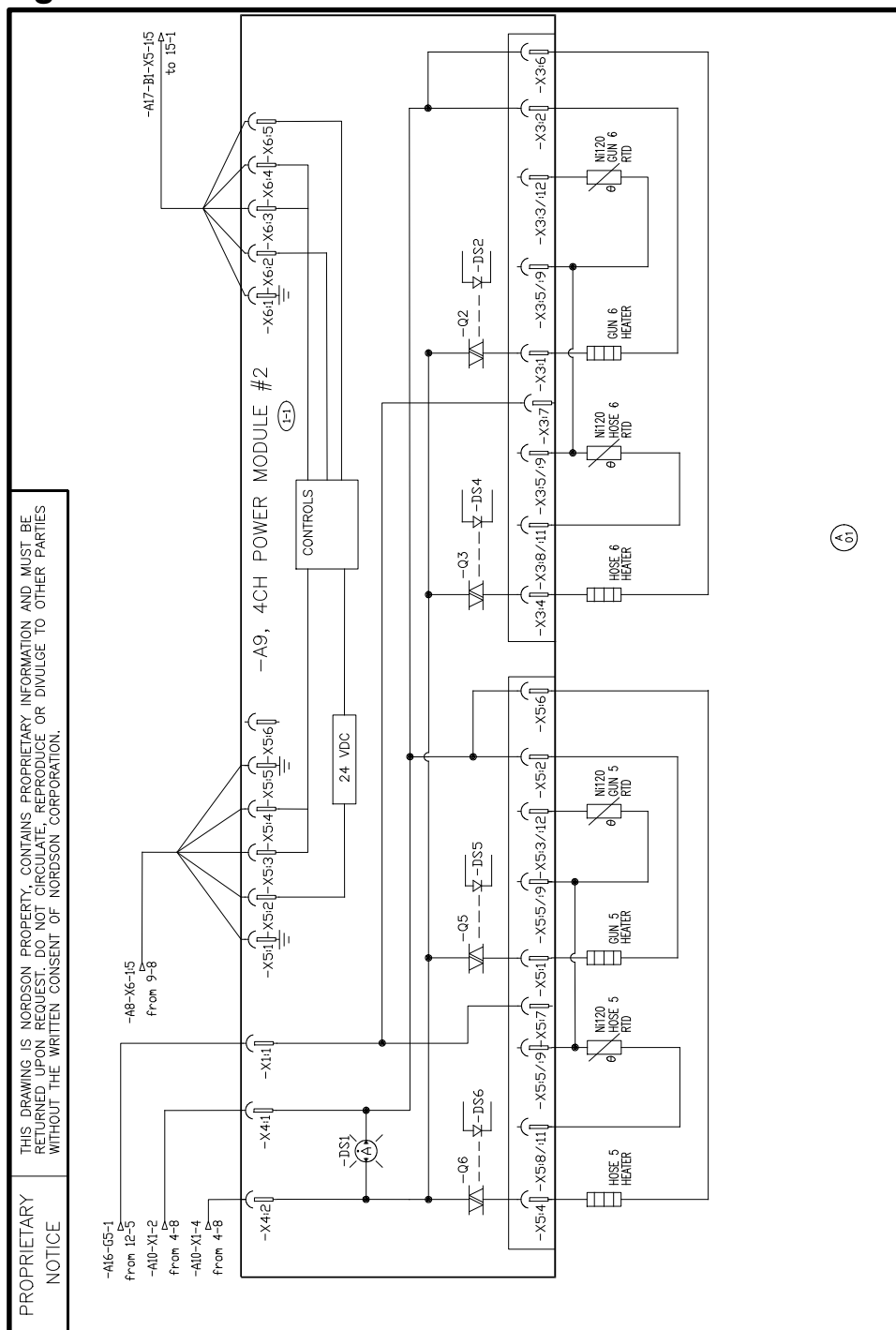


Figure 7-16 4 Channel power module

Wiring Diagram - TB3 Variations

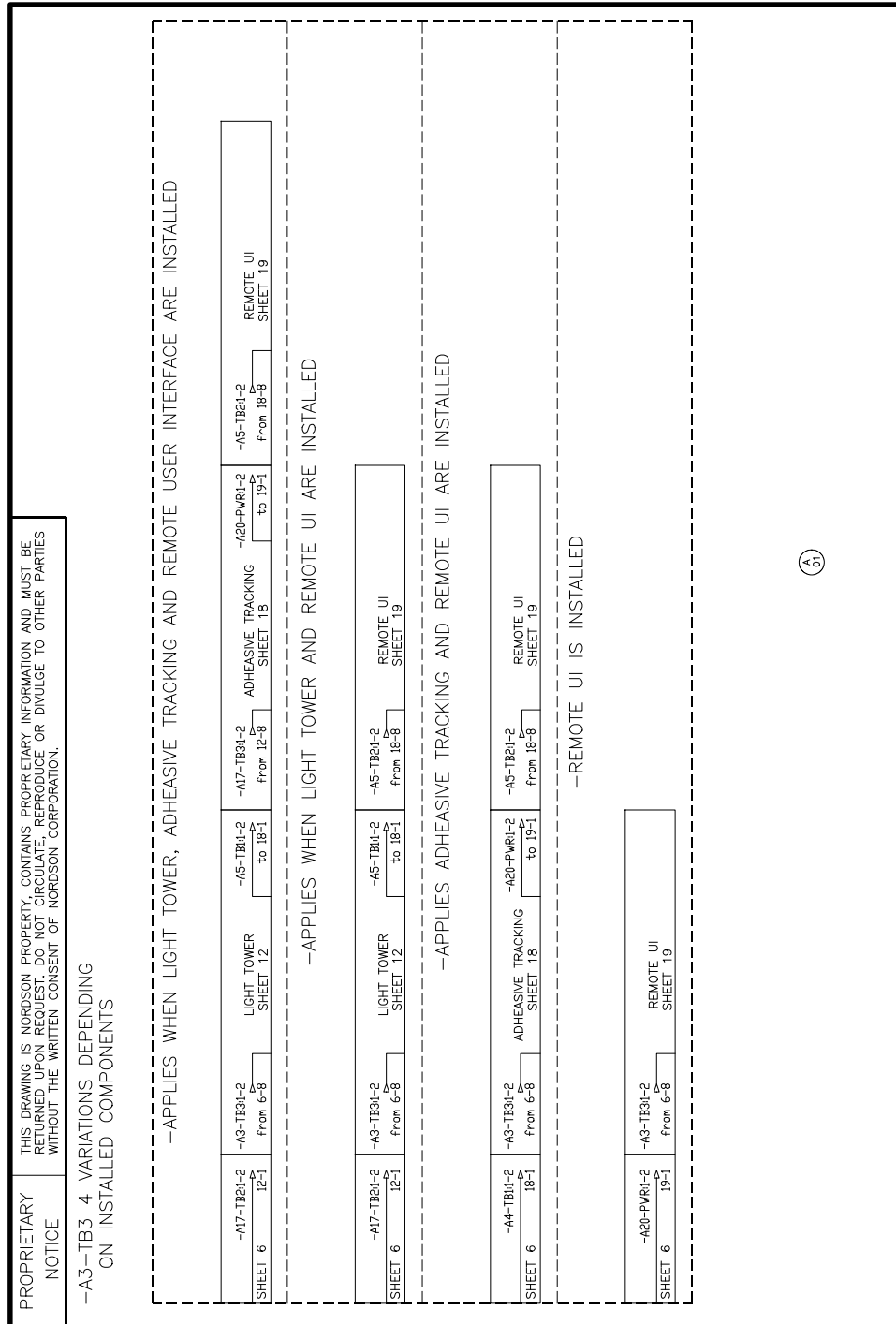


Figure 7-17 TB3 Variations

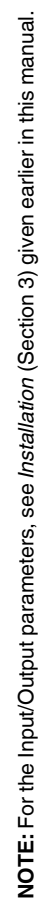


Figure 7-18 Light tower board

Wiring Diagram - Legacy Inputs/Outputs

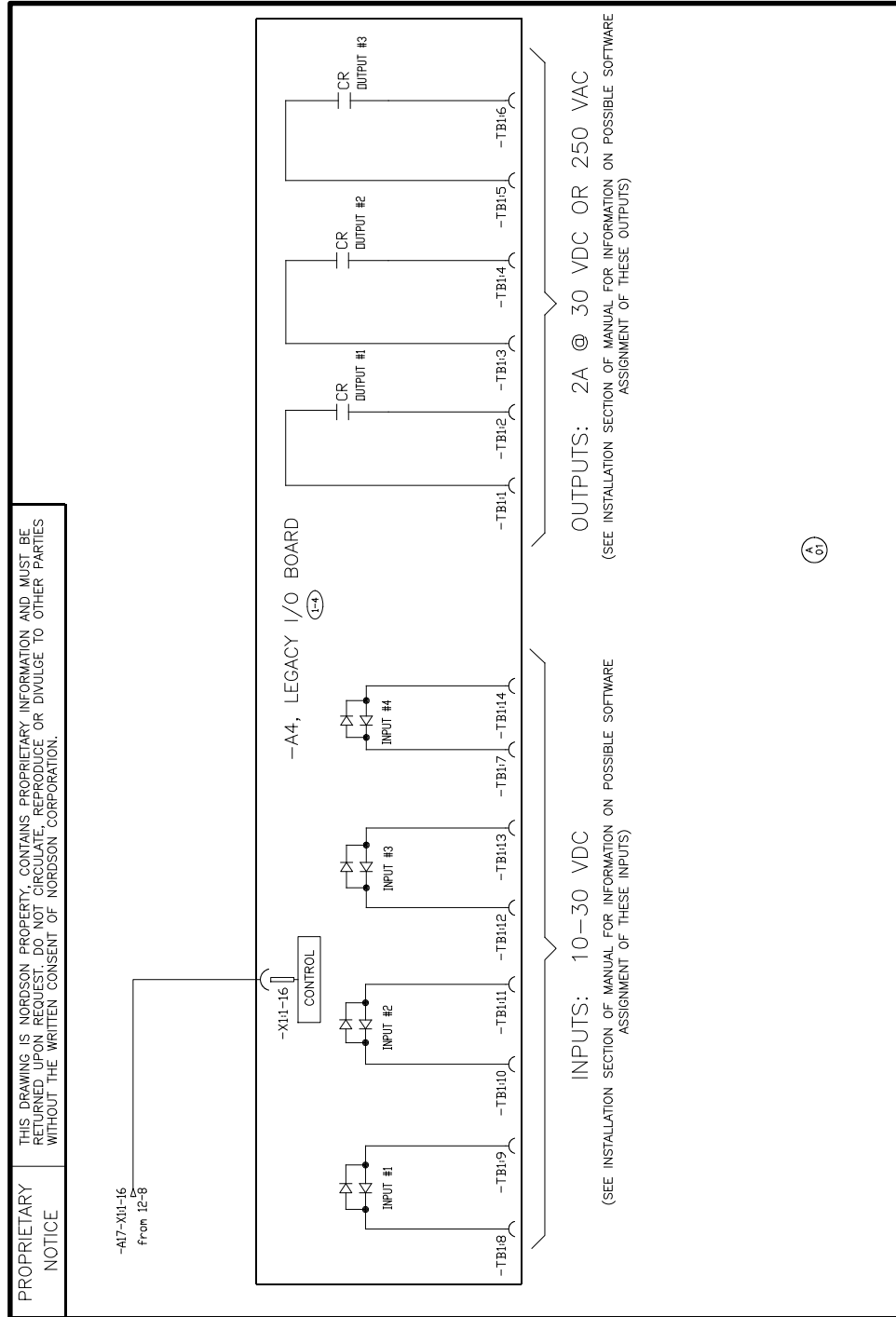


Figure 7-19 Legacy Input/output

NOTE: For the Input/Output parameters, see *Installation* (Section 3) given earlier in this manual.

Wiring Diagram - Chassis Ground

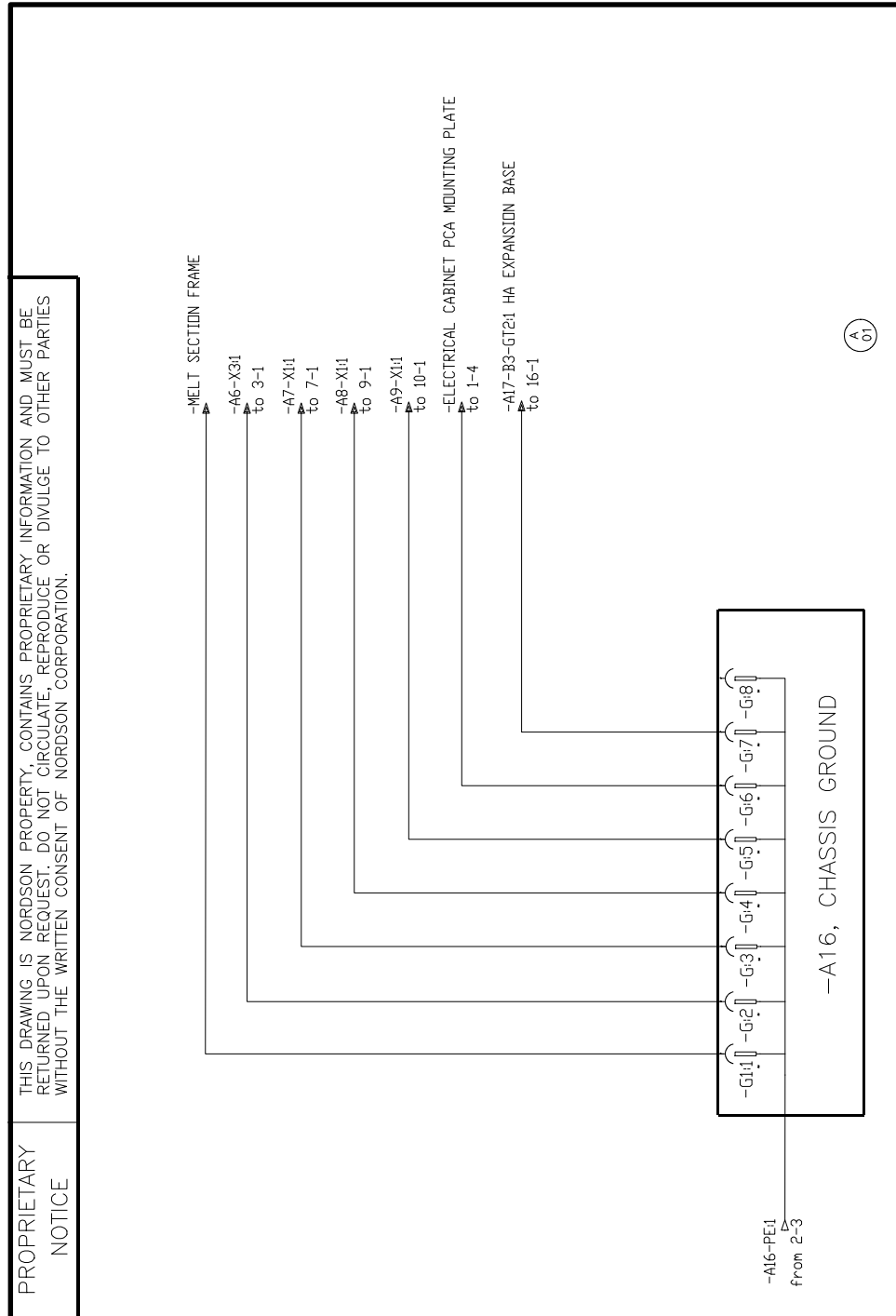


Figure 7-20 Chassis ground

Wiring Diagram - Hose/Applicator Expansion Base

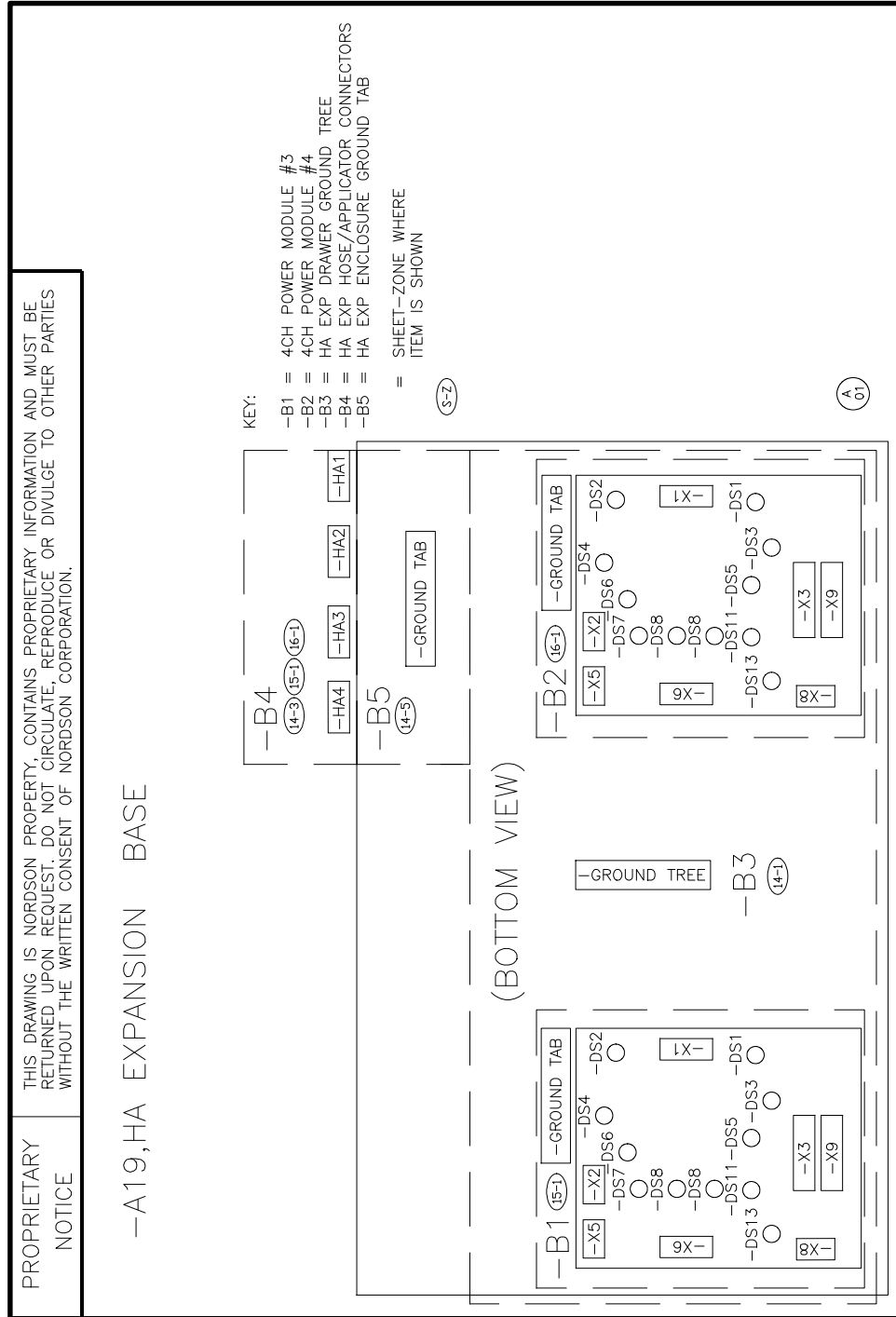


Figure 7-21 Hose/Applicator base

Wiring Diagram - Hose/Applicator Ground Tree

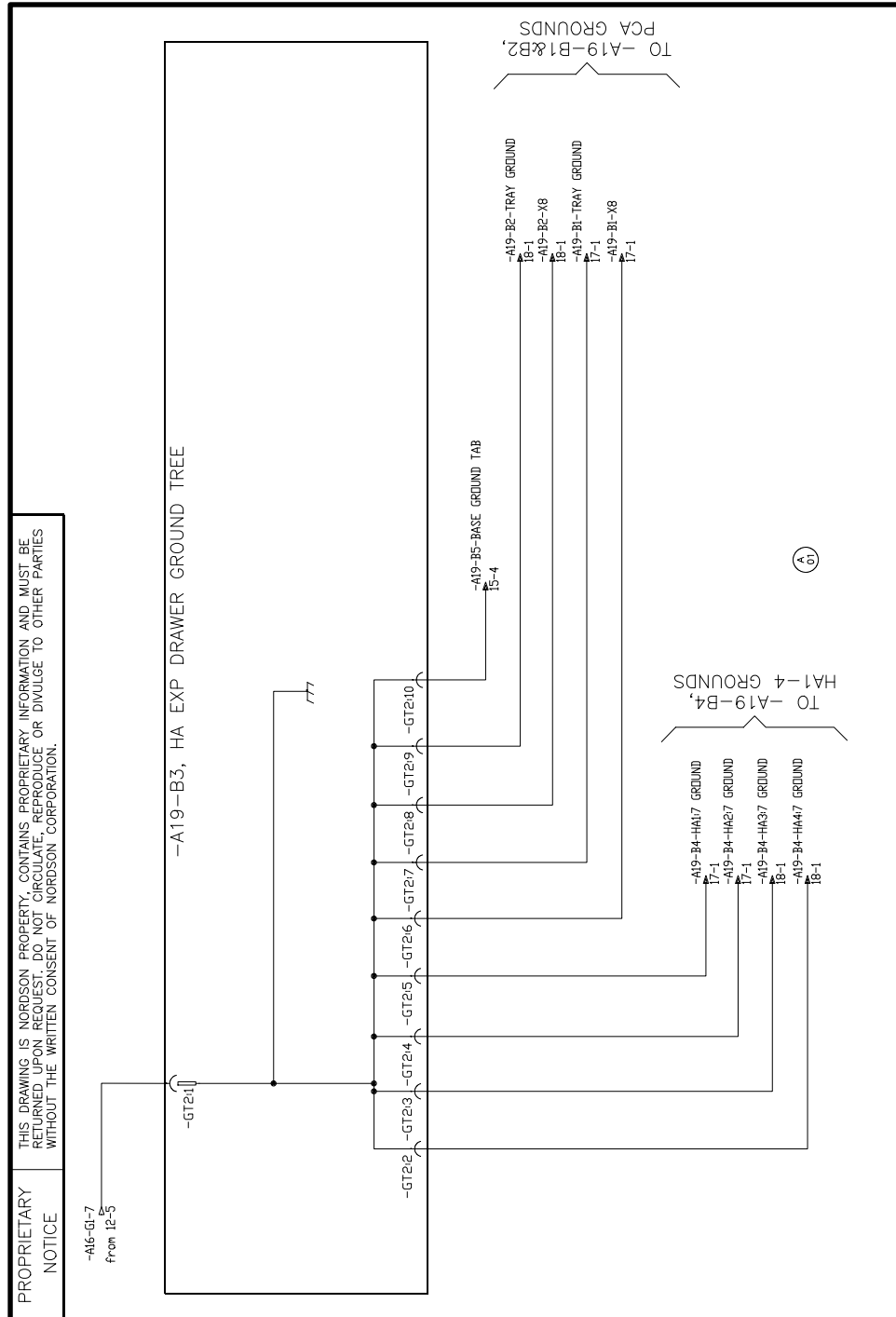


Figure 7-22 Hose/Applicator drawer ground tree

Wiring Diagram - Hose/Applicator Expansion Power Module #3

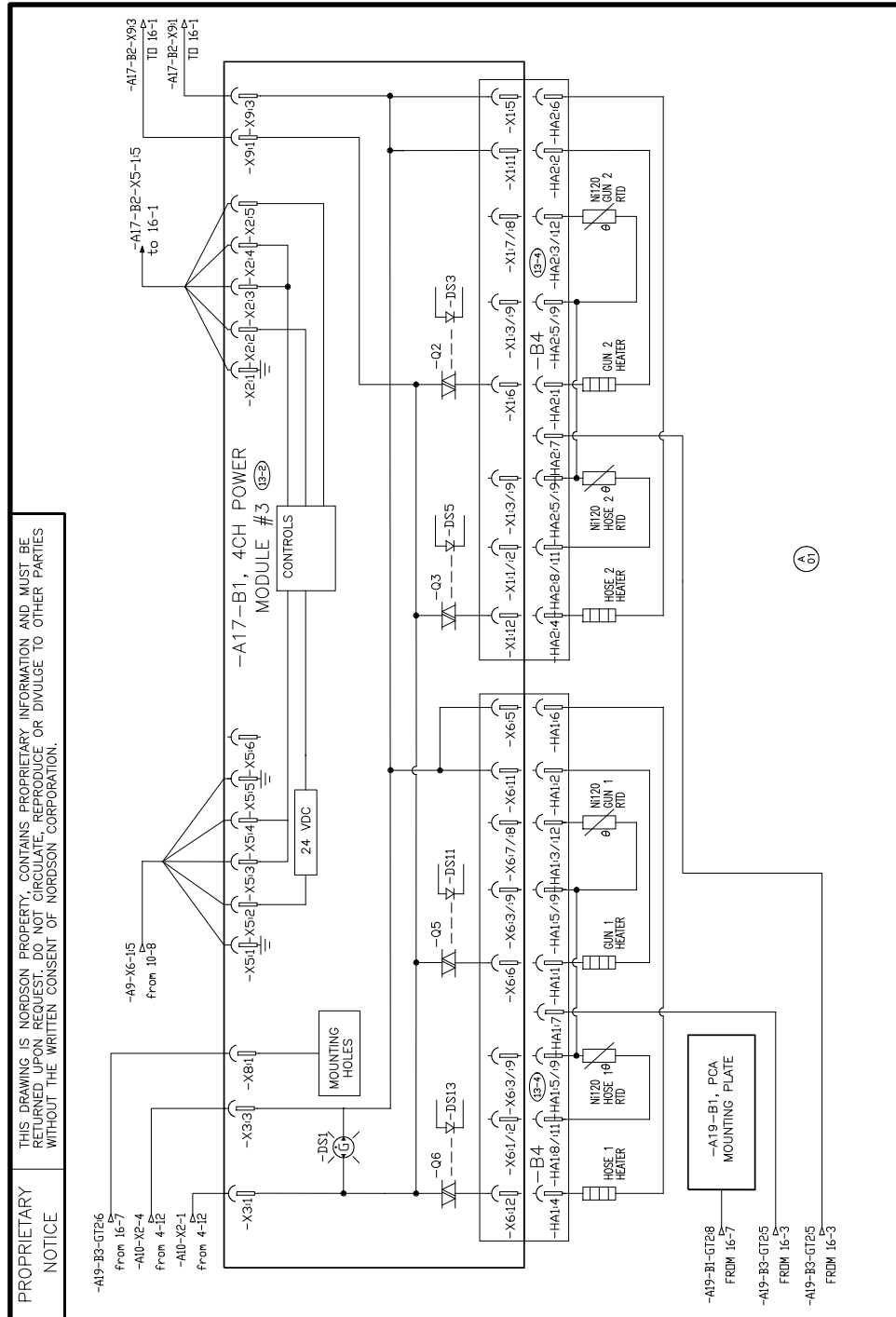


Figure 7-23 Hose/Applicator expansion power module #3

Wiring Diagram - Hose/Applicator Expansion Power Module #4

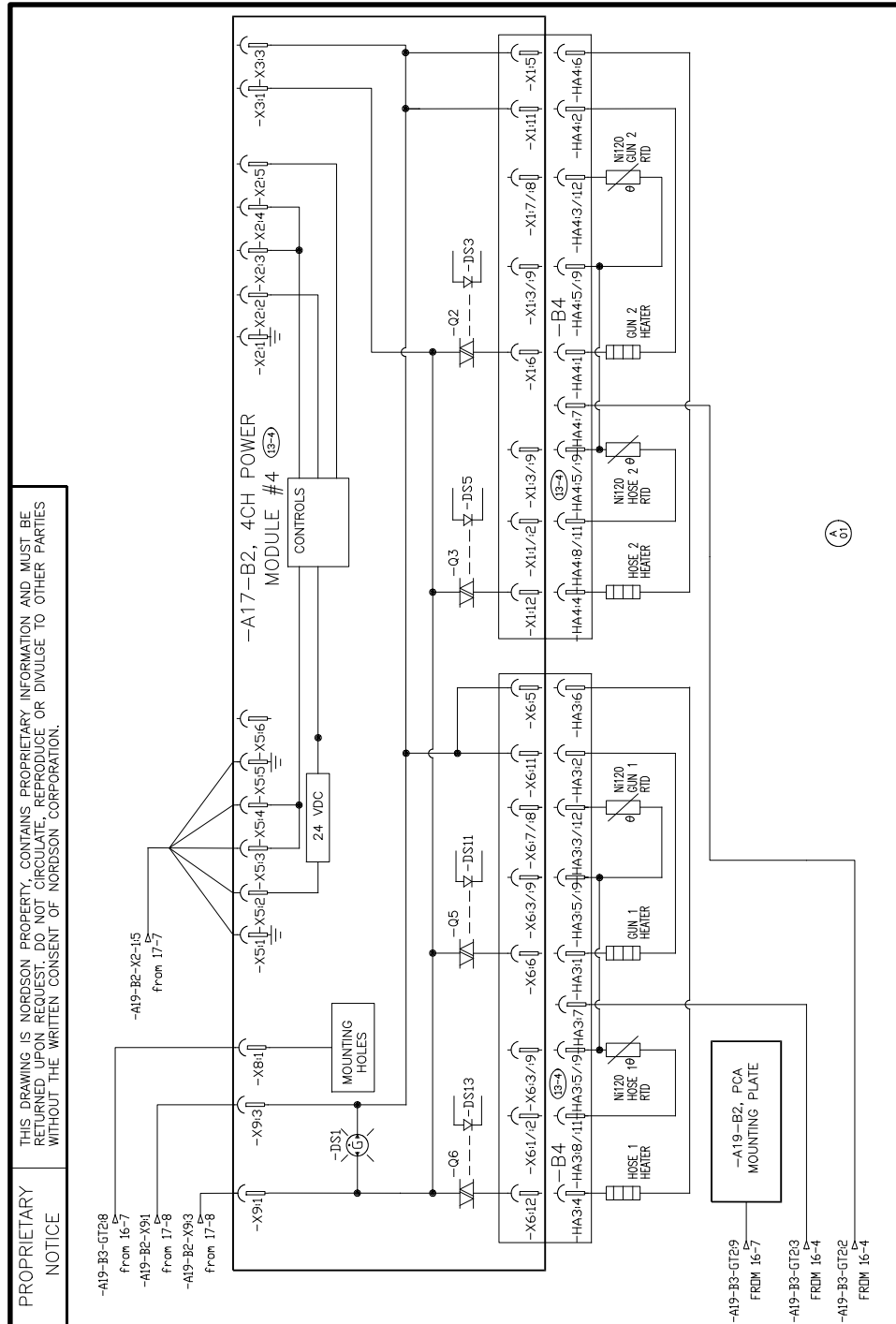


Figure 7-24 Hose/Applicator expansion power module #4

Section 8

Parts

Using the Illustrated Parts Lists

To order parts, call the Nordson Customer Service Center or your local Nordson representative. Use these five-column parts lists, and the accompanying illustrations, to describe and locate parts correctly. The following chart provides guidance for reading the parts lists.

The number in the Item column corresponds to the circled item number in the parts list illustration. A dash in this column indicates that the item is an assembly.

The number in the Part column is the Nordson part number you can use to order the part. A series of dashes indicates that the part is not saleable. In this case, you must order either the assembly in which the part is used or a service kit that includes the part.

The Description column describes the part and sometimes includes dimensions or specifications.

The Note column contains letters that refer to notes at the bottom of the parts list. These notes provide important information about the part.

The Quantity column tells you how many of the part is used to manufacture the assembly shown in the parts list illustration. A dash or AR in this column indicates that the amount of the item required in the assembly is not quantifiable.

Item	Part	Description	Quantity	Note
—	0000000	Assembly A	—	
1	000000	• Part of assembly A	2	A
2	-----	• • Part of item 1	1	
3	0000000	• • • Part of item 2	AR	
NS	000000	• • • • Part of item 3	2	
NOTE A: Important information about item 1				
AR: As Required				
NS: Not Shown				

ProBlue Flex Melter Assembly

See Figures 8-1 and 8-2.

Item	Part	Description	Quantity	Kit P/N
	-----	MELTER, PROBLUE FLEX		
100	-----	• MODULE, CHASSIS (All Sizes)	1	
200	-----	• MODULE, MELT SECTION (TANK)	1	
		• • TANK (4, 7, AND 10 KG)		
		• • MELT ON DEMAND (7 AND 14 KG/HR)		
300	-----	• MODULE, CENTER, MANIFOLD	1	
400	-----	• MODULE, FILTER, MANIFOLD	1	
		• • STANDARD		
		• • SINGLE ACTING		
500	-----	• MODULE, HOSE, MANIFOLD	1	
		• • STANDARD MANIFOLD		
		• • ATS MANIFOLD (See Appendix D)		
600	-----	• PUMP (See Appendix B)	1	
700	-----	• MODULE, MANIFOLD HTR	1	
		• • LEGACY (1000W)		
		• • STANDARD (2500W)		
800	-----	• MODULE, LID	1	
		• • STANDARD LID		
		• • FILL LID		
1100	-----	• ASSEMBLY, ELECTRICAL CABINET, BASE	1	
1200	-----	• MODULE, ELECTRICAL, HOSE/APPLICATOR	1	
1300	-----	• MODULE, ELECTRICAL DOOR	1	
		• • OLED DOOR		
		• • OEM DOOR		
1400	-----	• MODULE, HARNESS, HEATER, TANK	1	
1600	-----	• MODULE, REGULATOR	1	
		• • STANDARD (P1, P2, P3)		
		• • SINGLE ACTING (P1, P2)		
1700	-----	• MODULE, LID SWITCH	1	
1800	-----	• MODULE, ENCLOSURE (All Sizes)	1	
2100	-----	• KIT, SHIP WITH	1	1127598

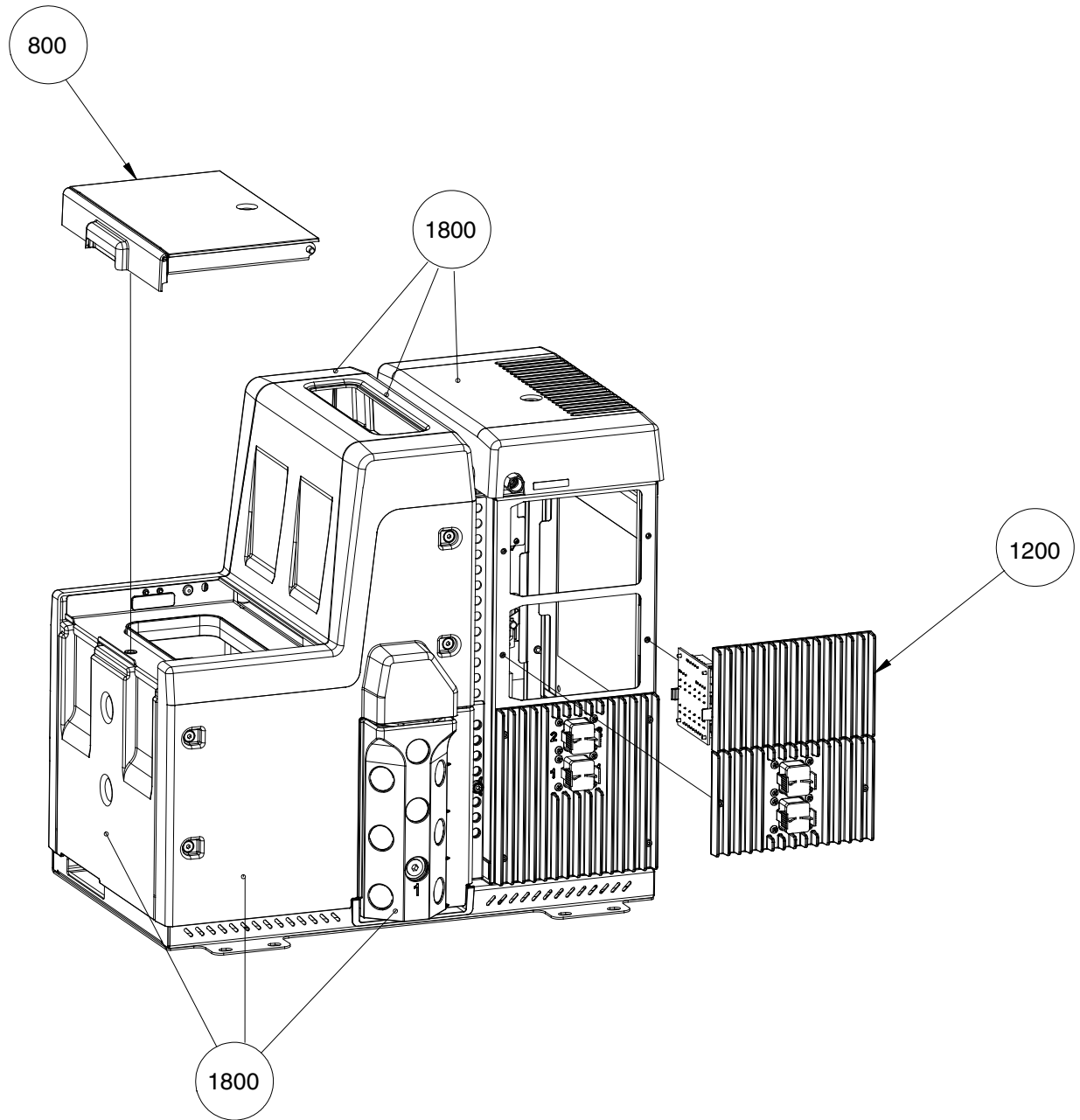


Figure 8-1 Melter parts (1 of 2)

ProBlue Flex Melter Assembly *(contd)*

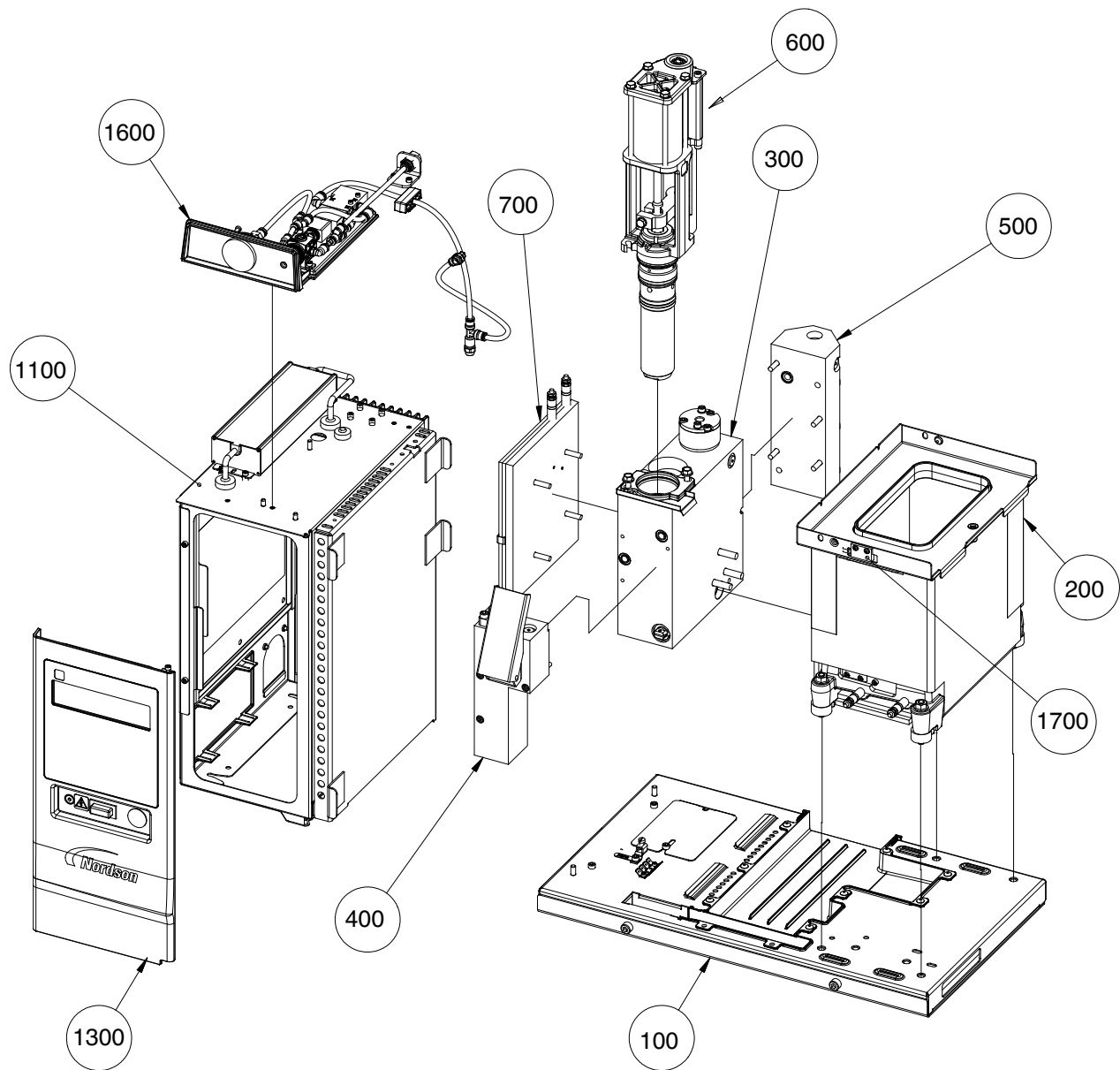


Figure 8-2 Melter parts (2 of 2)

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Chassis

See Figure 8-3 for the base plate (sub base) parts and Figure 8-4 for the chassis parts.

Item	Part	Description	Quantity	Kit P/N
	-----	MODULE,CHASSIS, 1 KG, 4 KG		
	-----	MODULE,CHASSIS, PBF 7/10 KG		
101	-----	• CHASSIS,BASE	1	
102	-----	• BASE PLATE,ASSEMBLY,SIZE 4KG, 7 MOD, 14 MOD	1	1128265
	-----	• BASE PLATE,ASSEMBLY,SIZE 7/10 KG		1128266
1	-----	• • BASE PLATE,WELDMENT	1	
2	240674	• • TAG,GROUND	1	
3	1126601	• • HARNESS,GRND,BASE	1	
4	983401	• • WASHER,LK,M,SPT,M5,STL,ZN	1	
5	984706	• • NUT,HEX,M5,STL,ZN	1	
103	1127014	• BRACKET,ACCESS COVER,EBOX	1	
104	1127135	• TBACCY,GROUNDING TREE, 8 POS,45 -.25	1	
105	230261	• TERMLUG,GROUND,6-14AWG	1	
106	1025295	• TAG,PE/G,INPUT POWER,GROUND	1	
107	982780	• SCR,SKT,M5X10,ZN	4	
108	1037910	• SCREW, SHCS M3X8 ZINC PLATE	2	
109	982006	• SCR,SKT,M8X20,ZN	2	
110	-----	• TAG,ID PLATE,BLANK	1	
111	-----	• RIVET,POP, 1/8X.125,CARBON STL	2	
112	-----	• MODULE,TAG,STAMPING	1	

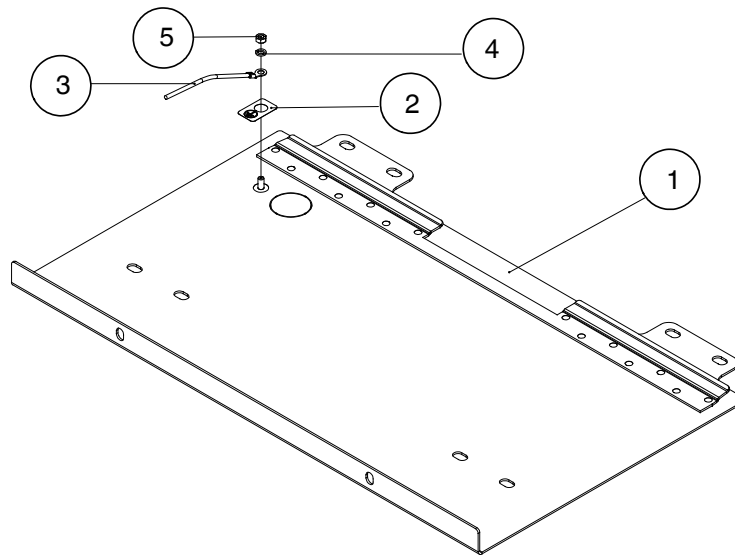


Figure 8-3 Base plate (sub base)

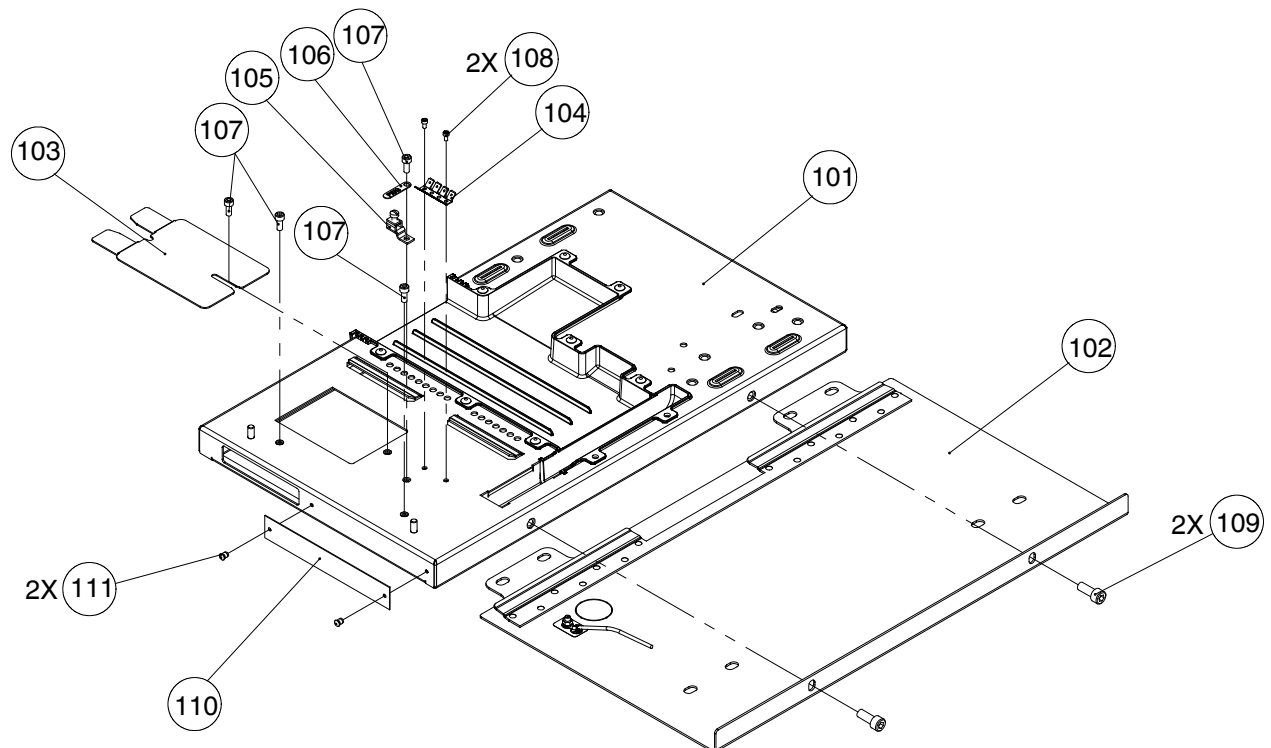
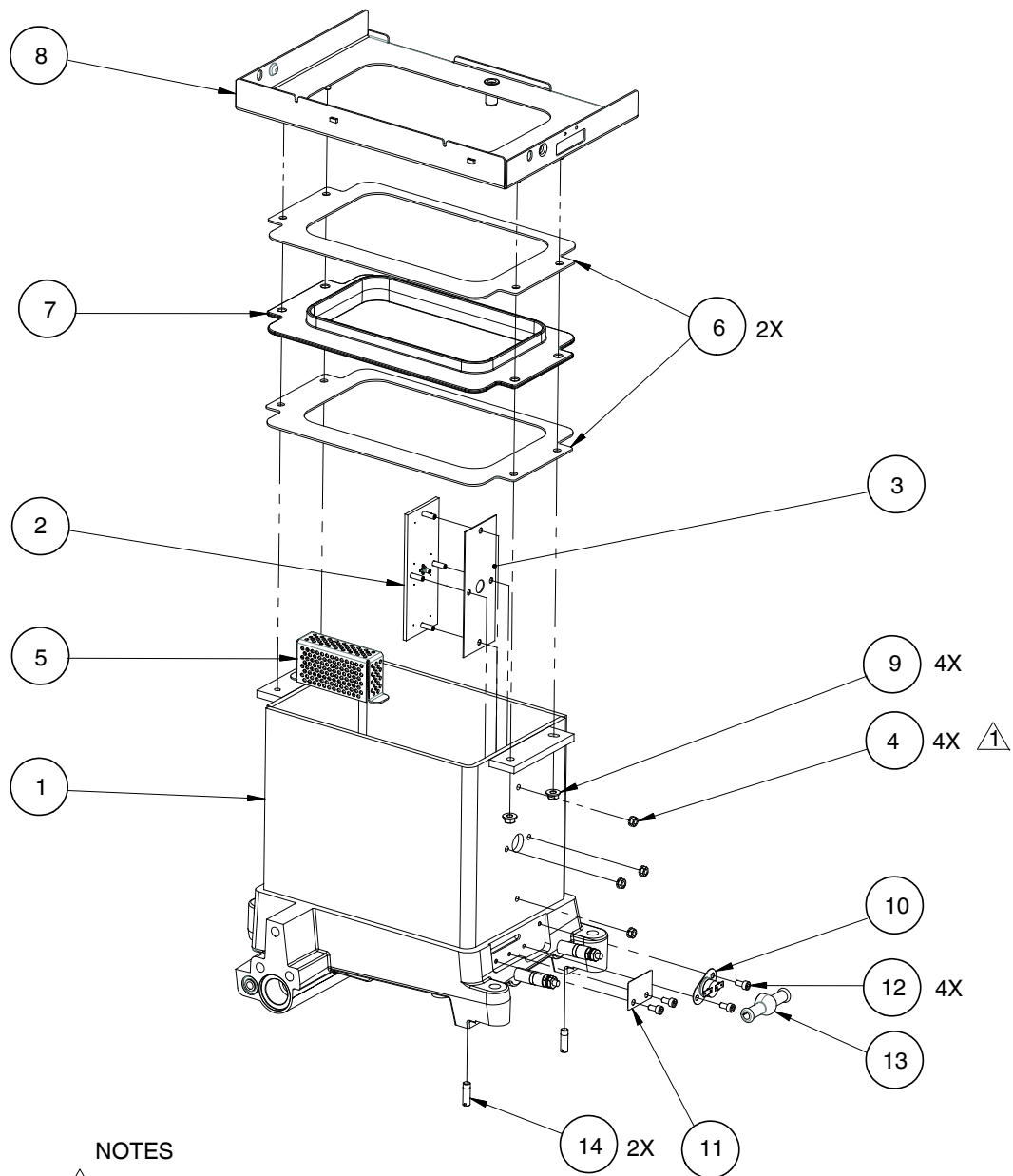


Figure 8-4 Chassis

4 Kg Tank Module

See Figures 8-5 and 8-6.

Item	Part	Description	Quantity	Kit P/N
—	—	MODULE,TANK,4L,200/240V		1128151
—	—	MODULE,TANK, 4KG, 400/480V		1128148
—	—	MODULE,TANK,4KG,200/240V, NO PTFE		—
—	—	MODULE,TANK,4KG, 400/480V, NO PTFE		—
201	—	• TANK ASSEMBLY,4KG	1	
1	-----	• • TANK,4KG	1	
2	-----	• • PCA,SENSOR,PLATE,STUD	1	1128263
3	1127057	• • GASKET,LEVEL SENSOR	1	
4	1040011	• • NUT,HEX W/EXT TOOTH WASHER,M4	4	
5	1127668	• • STRAINER,TANK	1	
6	1127058	• • GASKET,TANK TOP,4KG	2	
7	1127059	• • EXTENSION,TANK TOP, 4KG	1	
8	1128520	• • PAN,TANK TOP,SIZE A,PB FLEX	1	
9	1600563	• • NUT,HEX,FLANGED,SERRATED,M5	4	
10	-----	• • THERMOSTAT,0OR,500DEG F,PUSH-ON TERM	1	1028321
11	1018189	• • CLIP,RETAINING,RTD	1	
12	1003505	• • SCR,SKT,M4X8,SST	4	
13	1031007	• • INSULATOR,BOOT,T-STAT,DOUBLE,SILICONE	1	
14	1056021	• • SCREW,SET,PARTIAL THD,M6X20	2	
202	1127051	• TUBE,CROSSOVER,TANK	1	
203	1127215	• ORING,VITON,.859X1.137X1.39,-212	1	
204	940141	• O RING,VITON,.489ID X .070W,BR,10414	1	
205	1127251	• STUD,THREADED,M8x60	4	
206	1091006	• NUT, HEX, FLANGED, SERRATED, M8	4	
207	-----	• INSULATION,TANK,A	1	1128254
208	-----	• INSULATION,TRANSFER JOINT	1	
209	1017603	• SPACER,BOTTOM, TANK	4	



NOTES

 TIGHTEN TO 9 - 10 IN-LBS.

Figure 8-5 4 Kg Tank assembly parts

4 Kg Tank Module (contd)

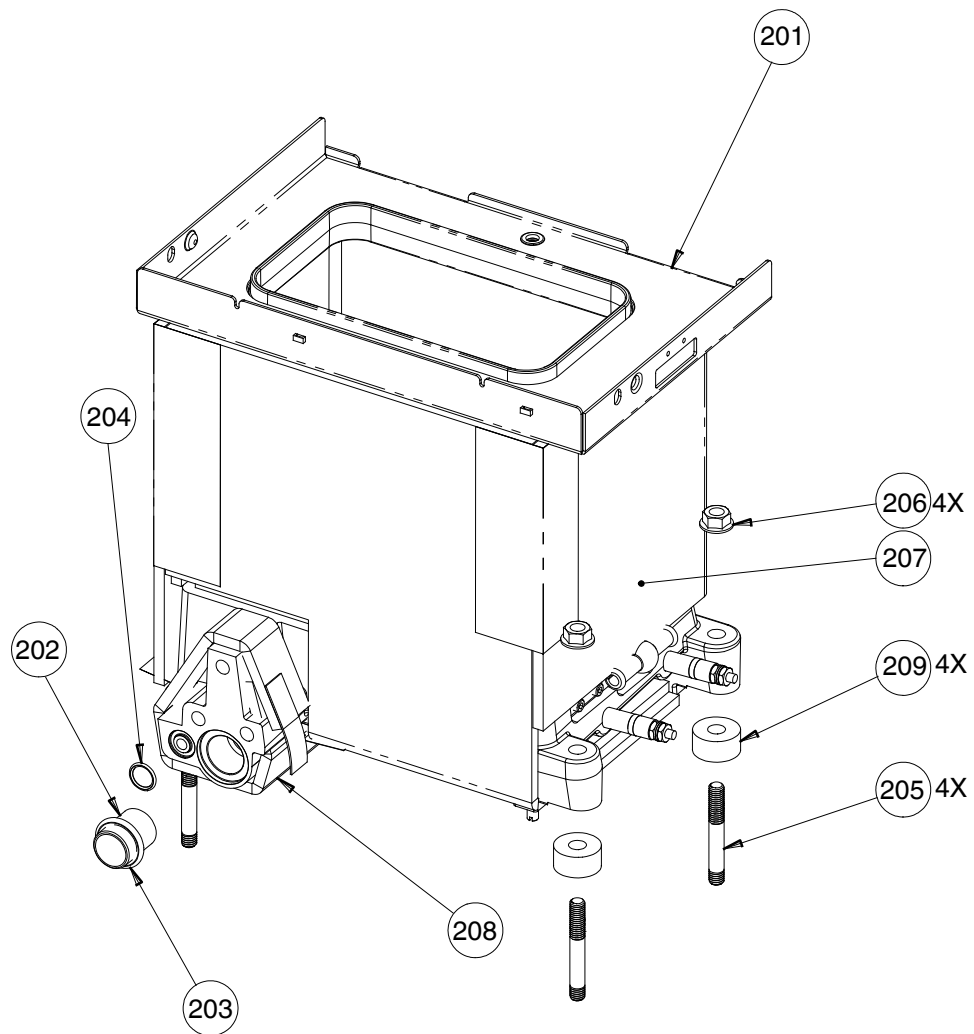


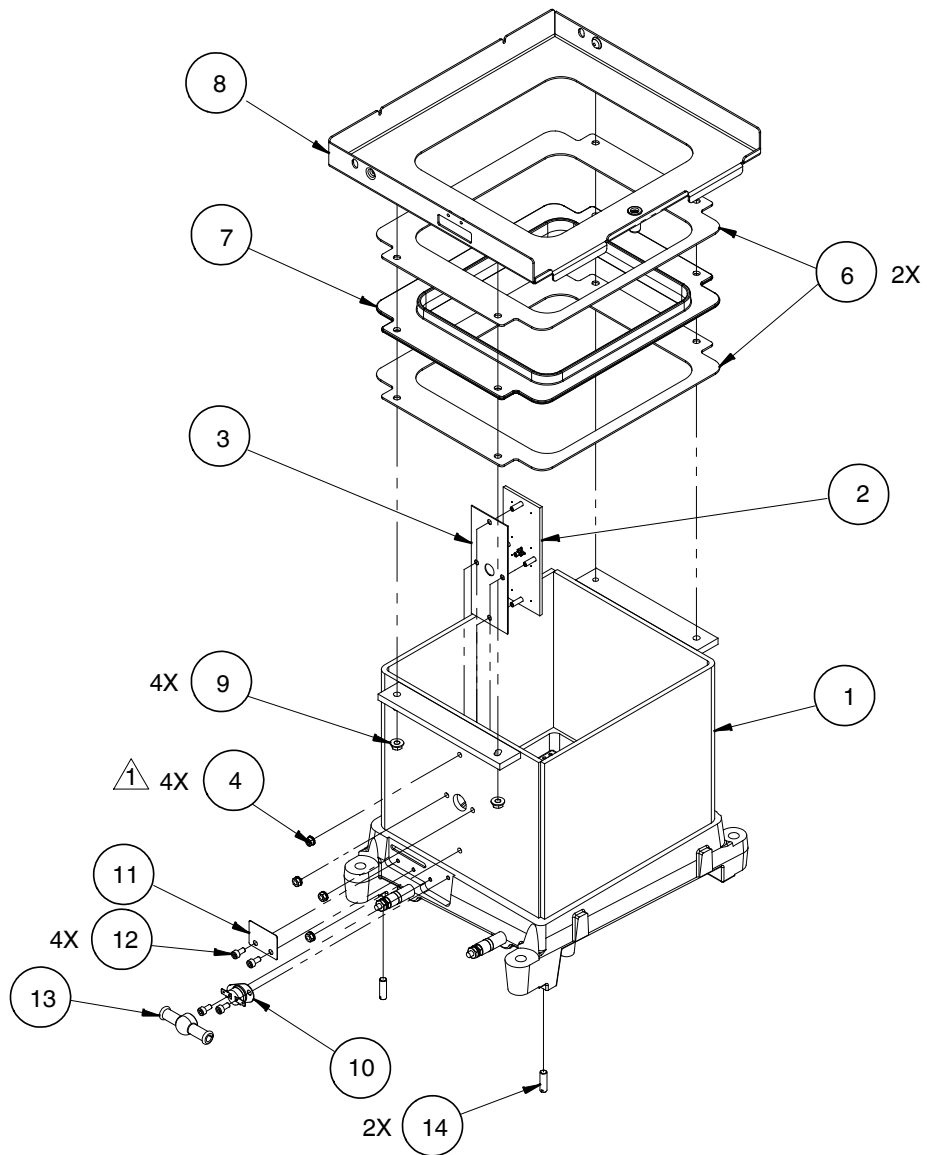
Figure 8-6 4 Kg Tank parts

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7 Kg Tank Module

See Figures 8-7 and 8-6.

Item	Part	Description	Quantity	Kit P/N
—	—	MODULE,TANK,7L,200/240V		1128152
—	—	MODULE,TANK, 7KG, 400/480V		1128149
—	—	MODULE,TANK,7KG,200/240V, NO PTFE		—
—	—	MODULE,TANK,7KG, 400/480V, NO PTFE		—
201	—	• TANK ASSEMBLY,7KG	1	
1	-----	• • TANK,7KG	1	
2	-----	• • PCA,SENSOR,PLATE,STUD	1	1128263
3	1127057	• • GASKET,LEVEL SENSOR	1	
4	1040011	• • NUT,HEX W/EXT TOOTH WASHER,M4	4	
5	1127668	• • STRAINER,TANK	1	
6	1127304	• • GASKET,TANK TOP,7/10KG	2	
7	1127299	• • EXTENSION,TANK TOP, 7/10KG	1	
8	1128731	• • PAN,TANK,TOP,SIZE B,PB FLEX	1	
9	1600563	• • NUT,HEX,FLANGED,SERRATED,M5	4	
10	-----	• • THERMOSTAT,OOR,500DEG F,PUSH-ON TERM	1	1028321
11	1018189	• • CLIP,RETAINING,RTD	1	
12	1003505	• • SCR,SKT,M4X8,SST	4	
13	1031007	• • INSULATOR,BOOT,T-STAT,DOUBLE,SILICONE	1	
14	1056021	• • SCREW,SET,PARTIAL THD,M6X20	2	
202	1127051	• TUBE,CROSSOVER,TANK	1	NS
203	1127215	• ORING,VITON,.859X1.137X1.39,-212	1	NS
204	940141	• O RING,VITON,.489ID X .070W,BR,10414	1	NS
205	1127251	• STUD,THREADED,M8x60	4	NS
206	1091006	• NUT, HEX, FLANGED, SERRATED, M8	4	NS
207	-----	• INSULATION,TANK,7 KG	1	1128255 NS
208	-----	• INSULATION,TRANSFER JOINT	1	NS
209	1017603	• SPACER,BOTTOM, TANK	4	NS
NS: Not Shown. The 7 kg and 10 kg tanks are similar (see Figure 8-6).				
				Continued...

**NOTES**

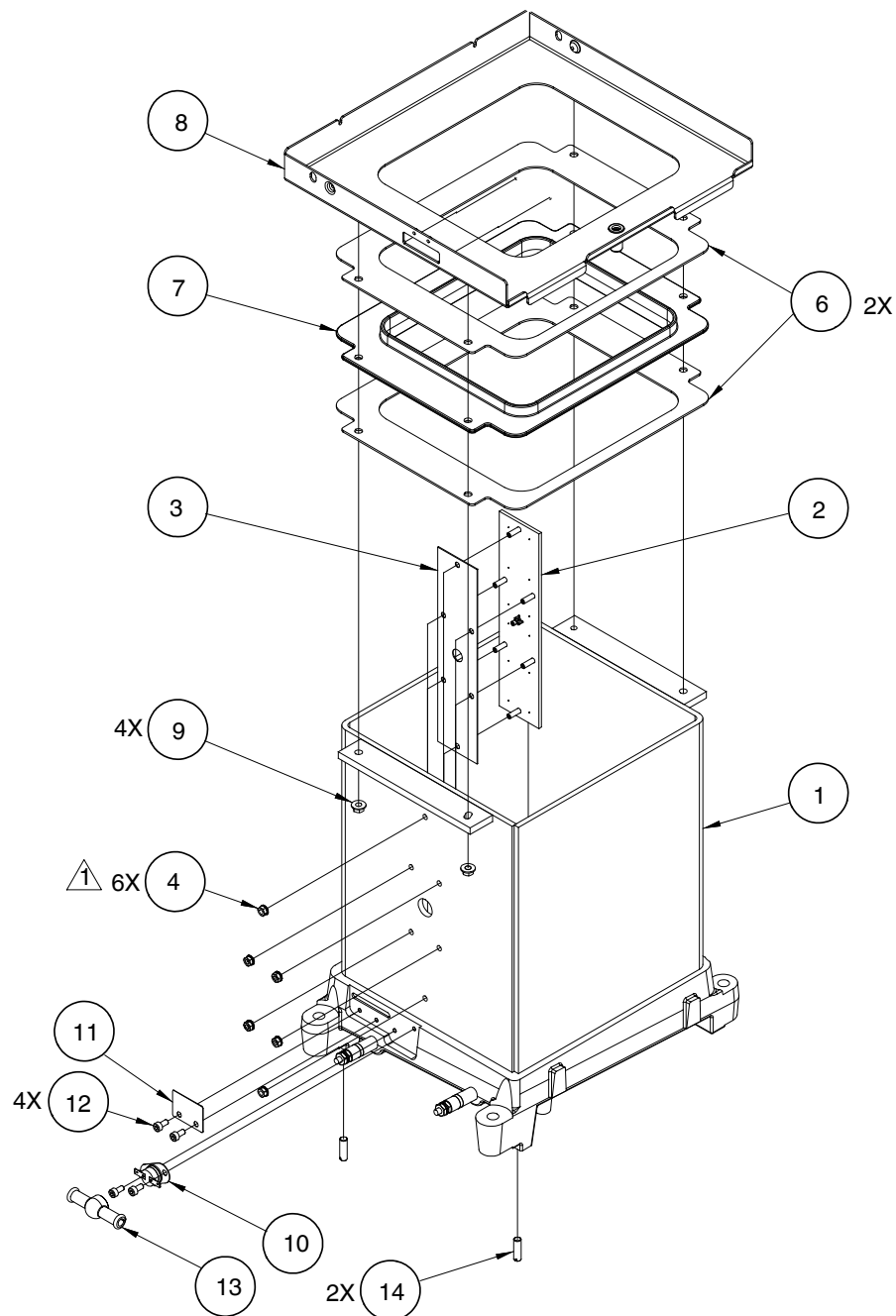
 TIGHTEN TO 9 - 10 IN-LBS.

Figure 8-7 7 Kg Tank assembly parts

10 Kg Tank Module

See Figures 8-8 and 8-6.

Item	Part	Description	Quantity	Kit P/N
—	—	MODULE,TANK,10L,200/240V		1128153
—	—	MODULE,TANK, 10KG, 400/480V		1128150
—	—	MODULE,TANK,10KG,200/240V, NO PTFE		—
—	—	MODULE,TANK,10KG, 400/480V, NO PTFE		—
201	—	• TANK ASSEMBLY,10KG	1	
1	-----	• • TANK,10KG	1	
2	-----	• • PCA,SENSOR,PLATE,STUD	1	1128264
3	1127370	• • GASKET,LEVEL SENSOR, 10L, STUD	1	
4	1040011	• • NUT,HEX W/EXT TOOTH WASHER,M4	4	
5	1127668	• • STRAINER,TANK	1	
6	1127304	• • GASKET,TANK TOP,7/10KG	2	
7	1127299	• • EXTENSION,TANK TOP, 7/10KG	1	
8	1128731	• • PAN,TANK,TOP,SIZE B,PB FLEX	1	
9	1600563	• • NUT,HEX,FLANGED,SERRATED,M5	4	
10	-----	• • THERMOSTAT,00R,500DEG F,PUSH-ON TERM	1	1028321
11	1018189	• • CLIP,RETAINING,RTD	1	
12	1003505	• • SCR,SKT,M4X8,SST	4	
13	1031007	• • INSULATOR,BOOT,T-STAT,DOUBLE,SILICONE	1	
14	1056021	• • SCREW,SET,PARTIAL THD,M6X20	2	
202	1127051	• TUBE,CROSSOVER,TANK	1	NS
203	1127215	• ORING,VITON,.859X1.137X1.39,-212	1	NS
204	940141	• O RING,VITON,.489ID X .070W,BR,10414	1	NS
205	1127251	• STUD,THREADED,M8x60	4	NS
206	1091006	• NUT, HEX, FLANGED, SERRATED, M8	4	NS
207	-----	• INSULATION,TANK,10 KG	1	1128256 NS
208	-----	• INSULATION,TRANSFER JOINT	1	NS
209	1017603	• SPACER,BOTTOM, TANK	4	NS
NS: Not Shown. The 7 kg and 10 kg tanks are similar (see Figure 8-6).				



NOTES

⚠ TIGHTEN TO 9 - 10 IN-LBS.

Figure 8-8 10 Kg Tank assembly parts

Melt On Demand Melter

See Figures 8-9 and 8-10.

Item	Part	Description	Quantity	Kit P/N
—	—	MODULE,TANK,7KG,200/240V		—
—	—	MODULE,TANK, 7KG, 400/480V		—
—	—	MODULE,TANK,14KG,200/240V		—
—	—	MODULE,TANK,14KG, 400/480V		—
201	—	• MODULE, MELT ON DEMAND	1	
1	1128091	• • RESERVOIR,COATED,7&14 KG/HR	1	
2	-----	• • GRID,COATED,7 KG/HR	1	1128147
	-----	• • GRID,COATED,7 KG/HR, 480V		1128145
	-----	• • GRID,COATED,14 KG/HR		1128146
	-----	• • GRID,COATED,14 KG/HR, 480V		1128144
3	1127162	• • GASKET,GRID&HOPPER	1	
4	1127163	• • HOPPER,EXTENSION,MOD	1	
5	1127164	• • O RING,VITON,7.237ID X .103W,-168	1	
6	-----	• • PCA,SENSOR,PLATE,STUD	1	1128263
7	1128520	• • PAN,TANK TOP,SIZE A,PB FLEX	1	
8	1127058	• • GASKET,TANK TOP,4 KG	2	
9	1127059	• • EXTENSION,TANK TOP,4 KG	1	
10	815927	• • CAPSCREW,SOCKETHD,M6X20MM,STL-ZINC	4	
11	1003505	• • SCR,SKT,M4X8,SST	4	
12	1600563	• • NUT,HEX,FLANGED,SERRATED,M5	4	
13	1040011	• • NUT,HEX W/EXT TOOTH WASHER,M4	4	
14	-----	• • THERMOSTAT,0OR,500DEG F,PUSH-ON TERM	1	1028321
15	1018189	• • CLIP,RETAINING,RTD	1	
16	1127057	• • GASKET,LEVEL SENSOR	1	
17	6119193	• • SOC HD CAP, M4 X 0.7 X 18 (91292A013)	4	
18	1031007	• • INSULATOR,BOOT,T-STAT,DOUBLE,SILICONE	1	
19	1056021	• • SCREW,SET,PARTIAL THD,M6X20	2	
20	983047	• • WASHER,FLT,M,REG,4,SSTL		
202	1127051	• TUBE,CROSSOVER,TANK	1	
203	1127215	• ORING,VITON,.859X1.137X.139,-212	1	
204	940141	• O RING,VITON,.489ID X .070W,BR,10414	1	
205	1127251	• STUD,THREADED,M8x60	4	
206	1091006	• NUT, HEX, FLANGED, SERRATED, M8	4	

Continued...

Item	Part	Description	Quantity	Kit P/N
207	1017603	• SPACER,BOTTOM, TANK	4	1128257
208	-----	• INSULATION,MOD GRID,7/14 KG/HR,BOT-SIDE	1	
209	-----	• INSULATION,MOD GRID,7/14 KG/HR,SIDE	1	
210	-----	• INSULATION, MOD, HOPPER	1	

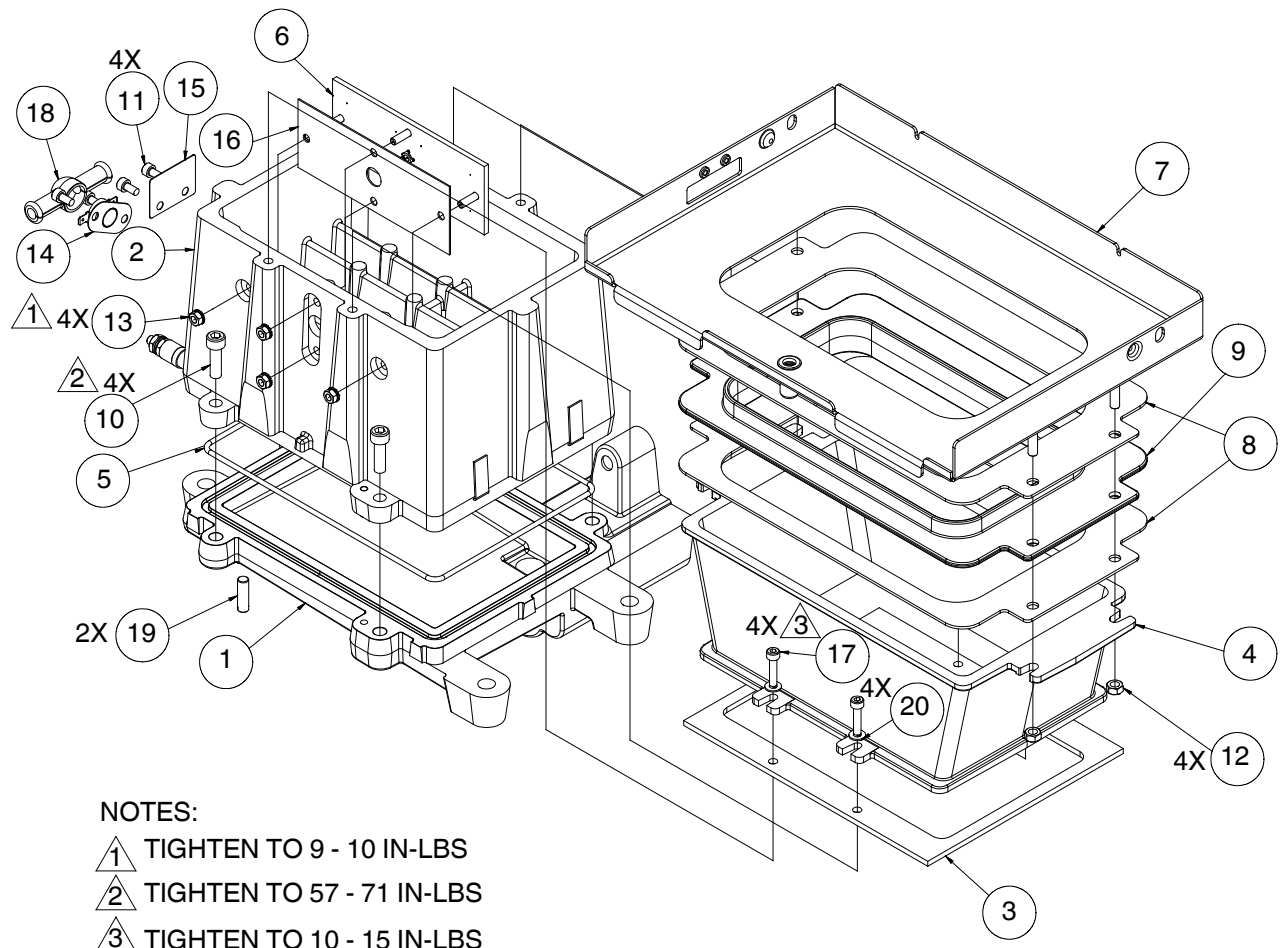


Figure 8-9 MOD tank modules (1 of 2)

Melt On Demand Melter (contd)

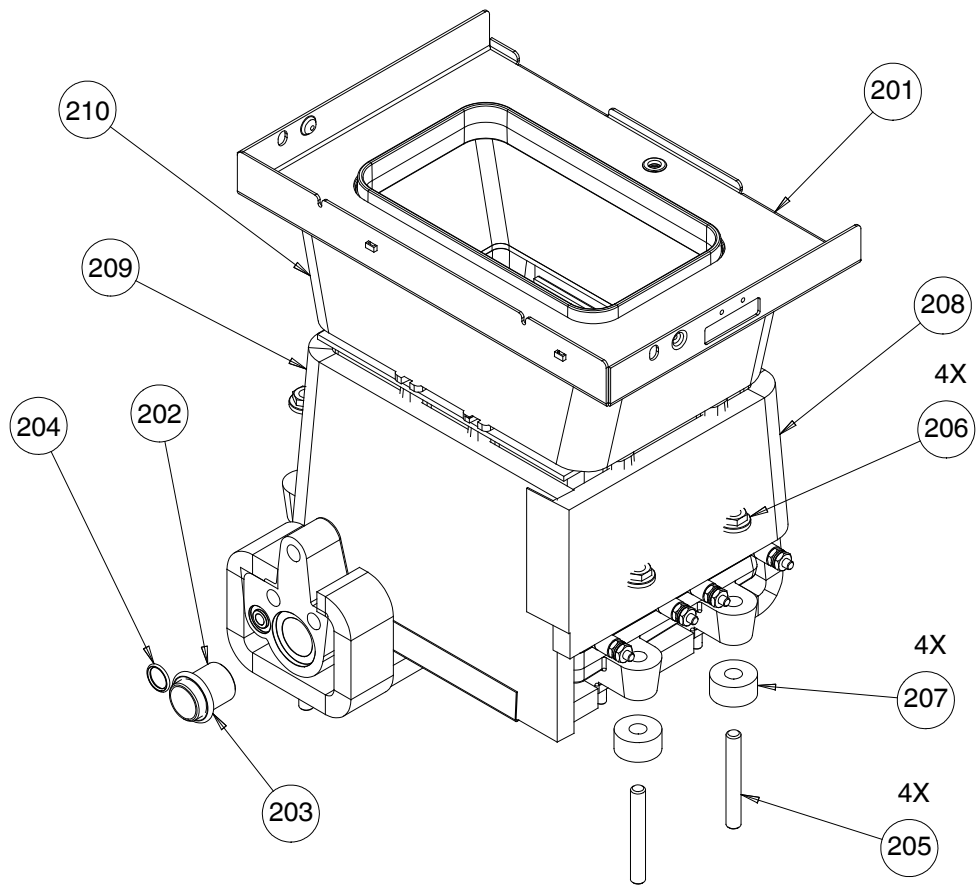


Figure 8-10 MOD tank modules (2 of 2)

Additional Tank Components

Item	Part	Description	Quantity	Kit P/N
—	—	TANK		—
1	-----	• TANK, MACHINED	1	
2	-----	• SEALANT,RTV,RED,10.3 OZ. TUBE	1	
3	1127373	• WASHER,.218"IDX.438"ODX.125"THK,SILICONE	2	
4	1127245	• INSULATOR,CERAMIC,.218 IDX.430 ODX.375LG	2	
5	1127306	• WASHER,FLT,.203X.406X.040,ZN	4	
6	984120	• NUT,HEX,MACH,#10-32,STL,ZN,14448-FA	4	

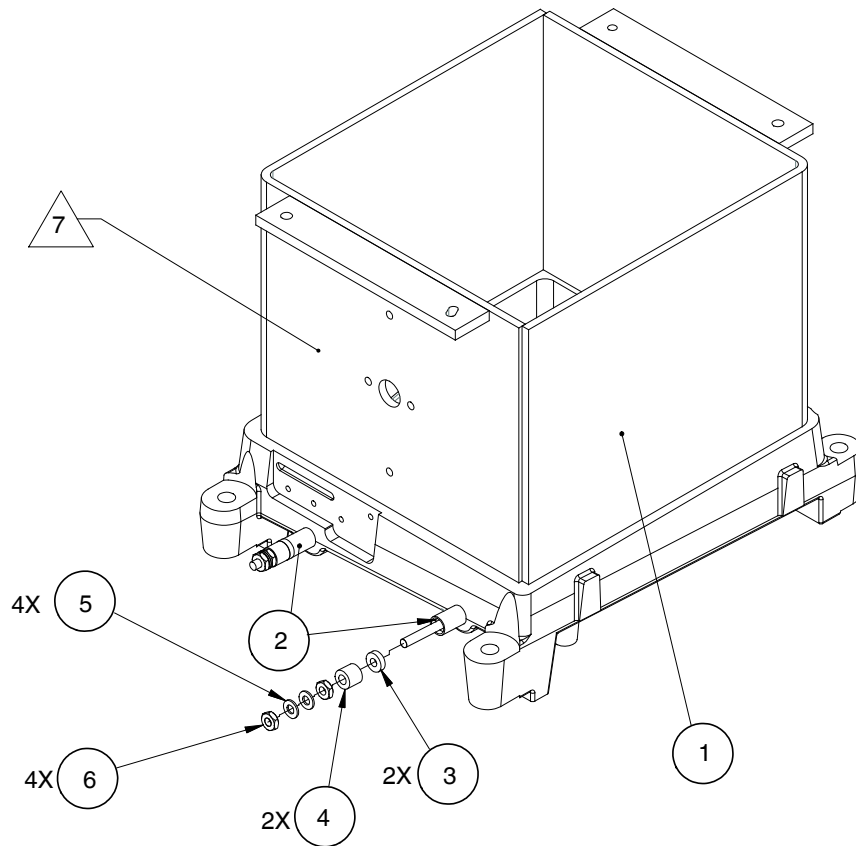
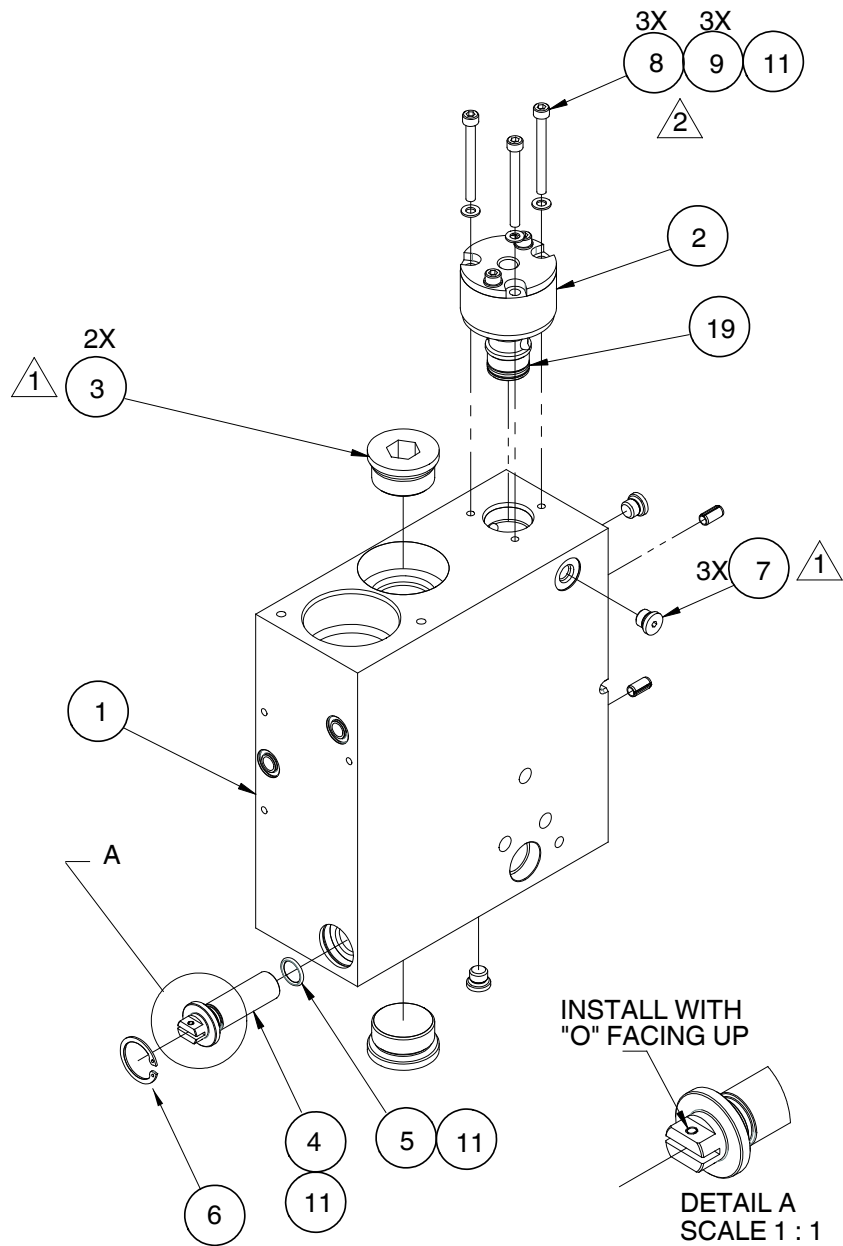


Figure 8-11 Coated tank parts

Manifold Modules

See Figures 8-12 and 8-13.

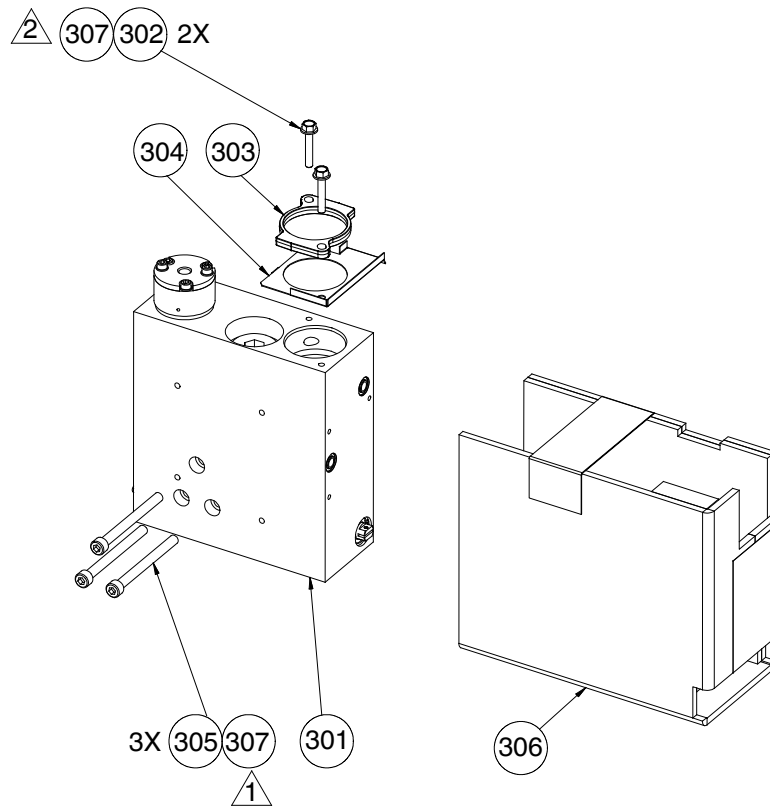
Item	Part	Description	Quantity	Kit P/N
—	—	MODULE, MANIFOLD, CENTER		
301	—	• MANIFOLD ASSEMBLY, CENTER	1	1128158
1	-----	• • MANIFOLD, CENTER	1	
2	-----	• • VALVE ASSY, PRESSURE DISCHARGE	1	1028308
3	973583	• • PLUG, O RING, STR THD, 1 5/16-12	2	
4	1127054	• • SPOOL, ISOLATION VALVE	1	
5	940141	• • O RING, VITON, .489ID X .070W, BR, 10414	1	
6	986702	• • RETAINING RING, INT, 100, BASIC	1	
7	973537	• • PLUG, O RING, STR THD, 3/8-24, STL	2	
8	982178	• • SCR, SKT, M5X50, BL	3	
9	983035	• • WASHER, FLT, M, REG, M5, STL, ZN	3	
10	985135	• • PIN, ROLL, .250X .500, STL, ZN	2	
11	-----	• • LUBRICANT, NEVER-SEEZ, NSF-H1, FOOD GRADE	0	
302	1610583	• SCR, HEX, FLANGE, M6X35, ZN	2	
303	1127055	• INSULATOR, PUMP FRAME	1	
304	1127060	• PAN PUMP	1	
305	1127189	• SCR SKT, M8X90 SS	3	
306	-----	• MANIFOLD INSULATION	1	
	-----	• • INSULATION, MANIFOLD		1128328
	-----	• • INSULATION, MANIFOLD, SEWN		1128329
307	-----	• LUBRICANT, NEVER-SEEZ, NSF-H1, FOOD GRADE	0	

**NOTES**

- 1** INSTALL PER NORDSON SPECIFICATION DRAWING 1071551
- 2** TIGHTEN TO 30-37 IN-LBS

Figure 8-12 Manifold module parts (1 of 2)

Manifold Modules *(contd)*



NOTES

1 TIGHTEN TO 128 - 160 IN-LBS

2 TIGHTEN TO 51 - 64 IN -LBS

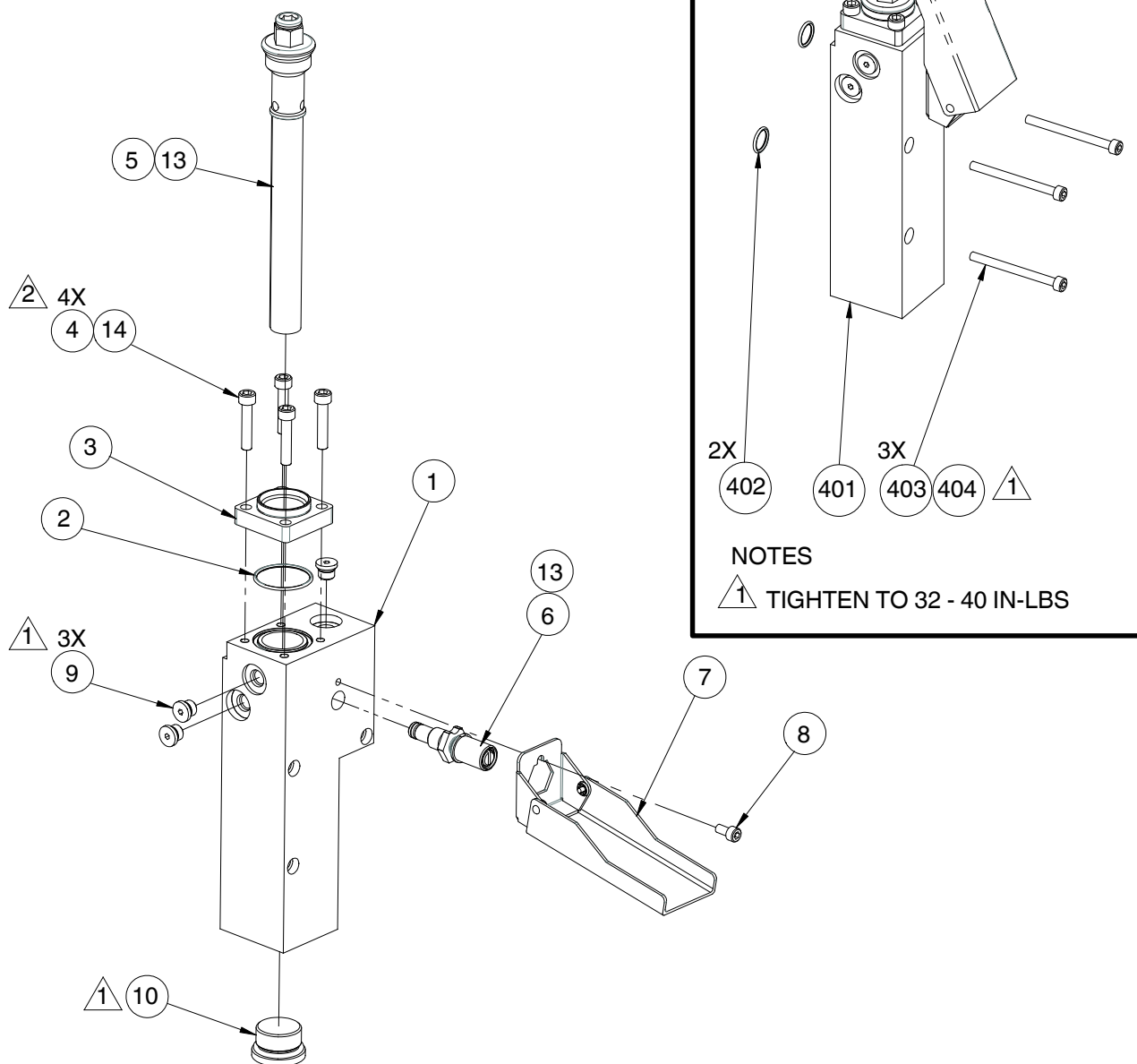
Figure 8-13 Manifold modules parts (2 of 2)

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Filter Manifold for Double Acting Pumps

See Figure 8-14.

Item	Part	Description	Quantity	Kit P/N
—	—	MODULE, FILTER MANIFOLD, DA		
401	—	• MANIFOLD ASSEMBLY, FILTER, DA	1	1128159
1	-----	• • MANIFOLD, FILTER, D/A PUMP	1	
2	940261	• • O RING, VITON, 1.250X1.375X.063	1	
3	1127053	• • ADAPTER, FILTER	1	
4	1610605	• • SCR, SKT, M6X30, ZN	4	
5	-----	• • FILTER, ASSEMBLY, 100 MESH, W/ O-RING	1	1028305
6	-----	• • VALVE ASSY, DRAIN	1	1128268
7	-----	• • CHUTE, DRAIN, ASSY	1	1128267
8	982780	• • SCR, SKT, M5X10, ZN	1	
9	973537	• • PLUG, O RING, STR THD, 3/8-24, STL	3	
10	973591	• • PLUG, O RING, STR THD, 1 1/16-12	1	
11	940141	• • O RING, VITON, .489ID X .070W, BR, 10414	2	
12	1127190	• • SCR, SKT, M5X60, SS	3	
13	1120201	• • LUBRICANT, O-RING, NSF-H1, 10 ML TUBE	0	
14	-----	• • LUBRICANT, NEVER-SEEZ, NSF-H1, FOOD GRADE	0	
402	940141	• O RING, VITON, .489ID X .070W, BR, 10414	2	
403	1127190	• SCR, SKT, M5X60, SS	3	
404	-----	• LUBRICANT, NEVER-SEEZ, NSF-H1, FOOD GRADE	0	



NOTES

1 INSTALL PER NORDSON SPECIFICATION DRAWING 1071551.

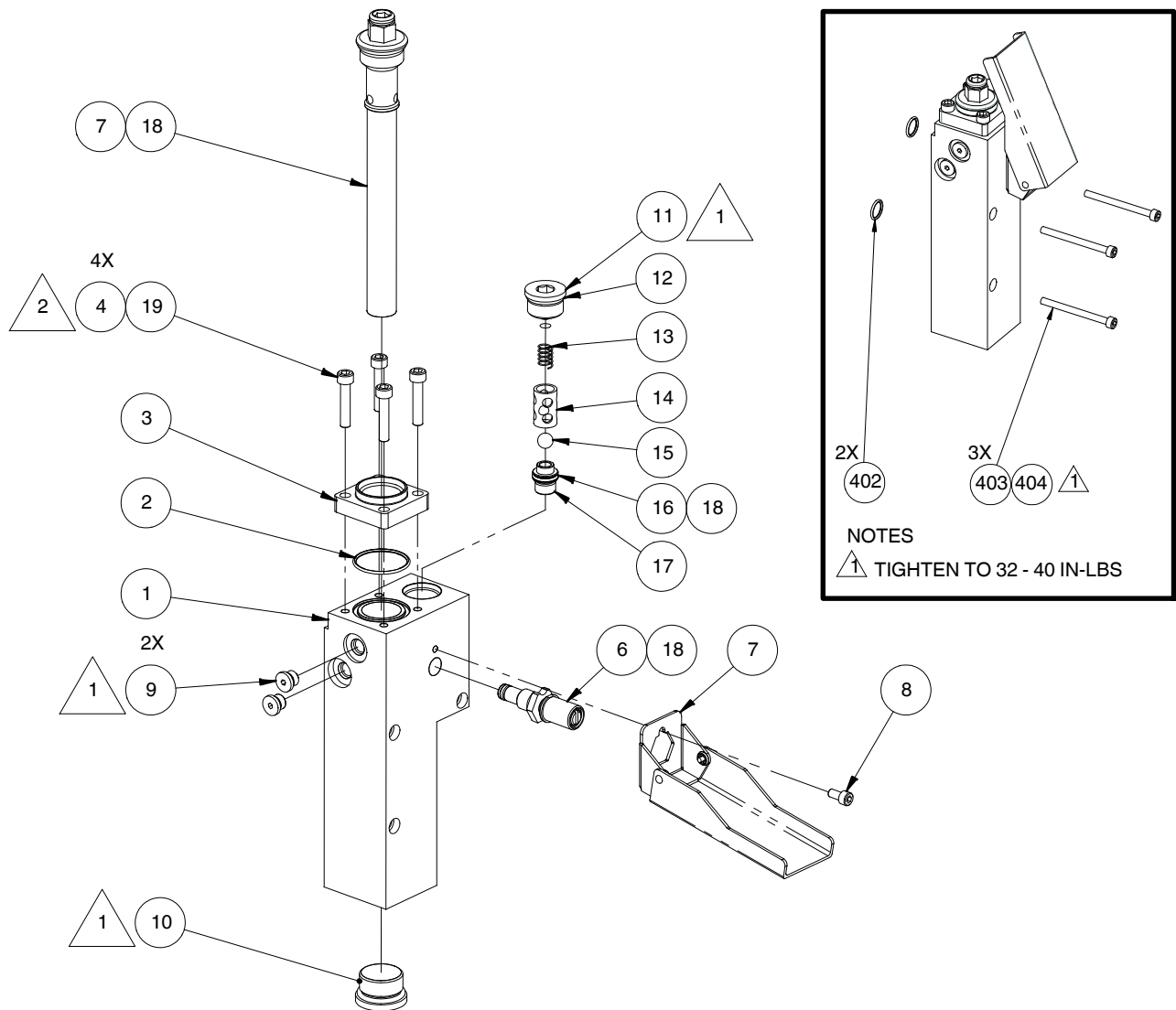
2 TIGHTEN TO 45 - 55 IN-LBS.

Figure 8-14 Manifold filter module parts

Filter Manifold for Single Acting Pumps

See Figure 8-15.

Item	Part	Description	Quantity
—	—	MANIFOLD ASSEMBLY, FILTER, S/A	
1	—	MANIFOLD, FILTER, S/A PUMP	1
2	940261	O RING, VITON, 1.250X1.375X.063	1
3	1127053	ADAPTER, FILTER	1
4	1610605	SCR, SKT, M6X30, ZN	4
5	1021919	FILTER, ASSEMBLY, 100 MESH, W/ O-RING	1
6	276024	VALVE ASSY, DRAIN	1
7	1127635	CHUTE, DRAIN, ASSY	1
8	982780	SCR, SKT, M5X10, ZN	1
9	973537	PLUG, O RING, STR THD, 3/8-24, STL	2
10	973591	PLUG, O RING, STR THD, 1 1/16-12	1
11	1128608	PLUG, PRESSURE CHECK VALVE, S/A PUMP	1
12	945025	O RING, VITON, 5/8 TUBE	1
13	1047432	SPRING, COMP, .360 OD X .750 LG X .026	1
14	1128607	GUIDE, BALL, PRESSURE CHECK VALVE, S/A PUMP	1
15	900000	BALL, 440SSTL, .375, 50	1
16	940141	O RING, VITON, .489ID X .070W, BR, 10414	1
17	1128606	SEAT, PRESSURE CHECK VALVE, S/A PUMP	1
18	1108372	LUBRICANT, O-RING, NSF-H1, FOOD GRADE, 4L	1
19	1108371	LUBRICANT, NEVER-SEEZ, NSF-H1, FOOD GRADE	1
402	940141	O RING, VITON, .489ID X .070W, BR, 10414	2
403	1127190	SCR, SKT, M5X60, SS	3
404	-----	LUBRICANT, NEVER-SEEZ, NSF-H1, FOOD GRADE	0



NOTES

1 INSTALL PER NORDSON SPECIFICATION DRAWING 1071551.

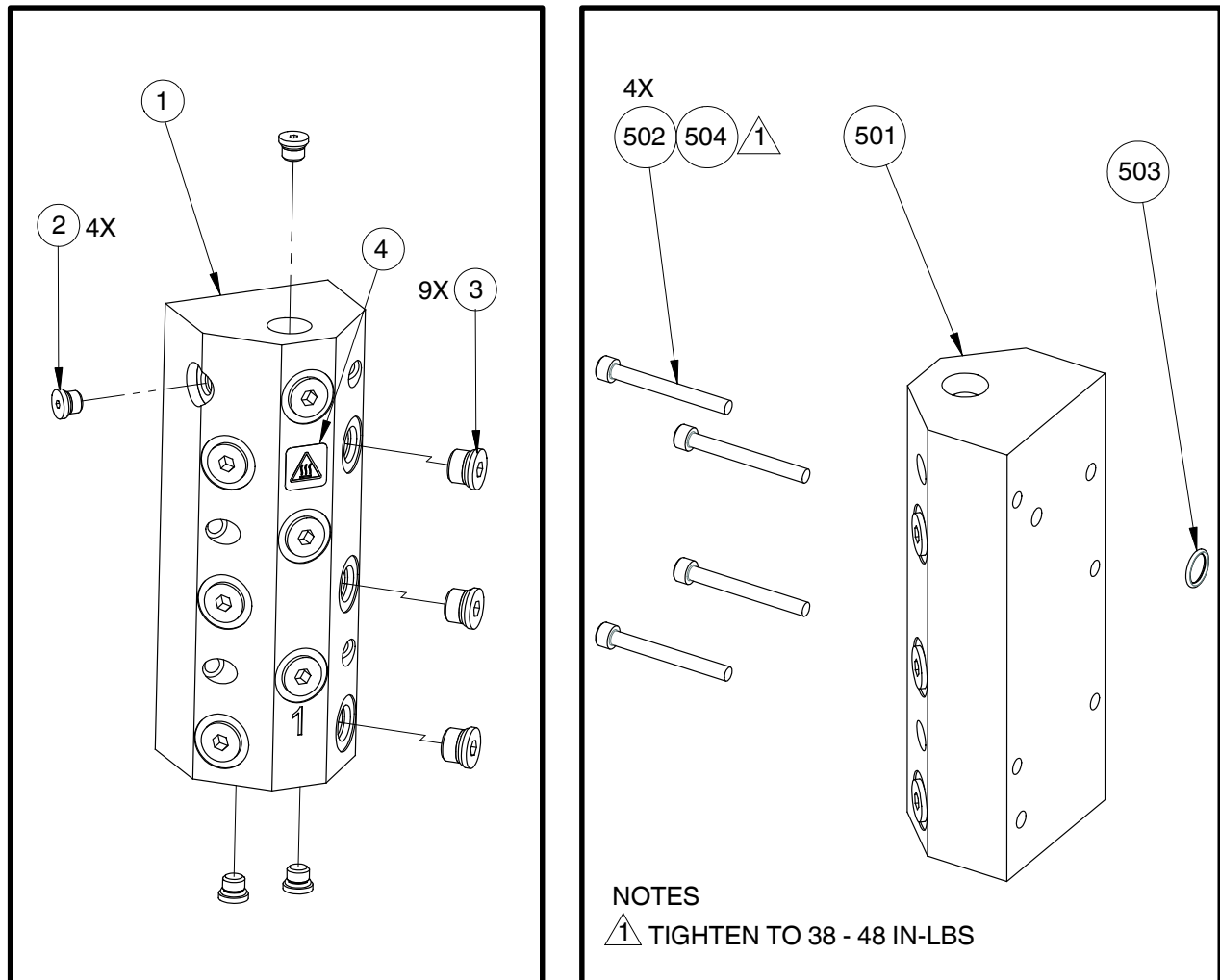
2 TIGHTEN TO 45 - 55 IN-LBS.

Figure 8-15 Manifold assembly

Hose Manifold

See Figure 8-16.

Item	Part	Description	Quantity	Kit P/N
	—	MODULE, HOSE MANIFOLD, STD		
501	-----	• MANIFOLD ASSEMBLY, HOSE	1	1128160
1	-----	• • MANIFOLD, HOSE	1	
2	973537	• • PLUG, O RING, STR THD, 3/8-24, STL	4	
3	973574	• • PLUG, O RING, STR THD, 9/16-18	9	
4	-----	• • TAG, HOT SURFACE	1	
502	1127194	• SCREW, SKT, M6X55, SS	4	
503	940141	• O RING, VITON, .489ID X .070W, BR, 10414	1	
504	-----	• LUBRICANT, NEVER-SEEZ, NSF-H1, FOOD GRADE	0	



Pump Parts

(Item 600)

For a complete listing of pump-related parts, refer to *SP Pump Diagnostics and Repair* (Appendix B).

For a list of the pump service kit parts, refer to *Pump Service Kits* given later in this section under *Service Kits*.

Manifold Heater Module

See Figures 8-17 and 8-18.

Item	Part	Description	Quantity	Kit P/N
	—	MODULE, MANIFOLD HTR,200/240V,LOW		
	—	MODULE, MANIFOLDHTR,200/240V,STD		
	—	MODULE, MANIFOLD HTR,480V,LOW		
	—	MODULE, MANIFOLD HTR,480V,STD		
701	-----	• HEATER,ASSEMBLY,MANIFOLD,230V,1000W	1	1128154
	-----	• HEATER,ASSEMBLY,MANIFOLD,230V,2500W		1128156
	-----	• HEATER,ASSEMBLY,MANIFOLD,480V,1000W		1128155
	-----	• HEATER,ASSEMBLY,MANIFOLD,480V,2500W		1128157
1	-----	• • PLATE,HEATER,SEALED	1	
2	-----	• • THERMOSTAT,OOR,500DEG F,PUSH-ON TERM	1	1028321
3	1003505	• • SCR,SKT,M4X8,SST	1	
702	311059	• SCREW, ALLENHEAD, M6x35, DIN912, A2	4	
703	1108371	• LUBRICANT,NEVER-SEEZ,NSF-H1,FOOD GRADE	0	
704	1031007	• INSULATOR,BOOT,T-STAT,DOUBLE,SILICONE	1	

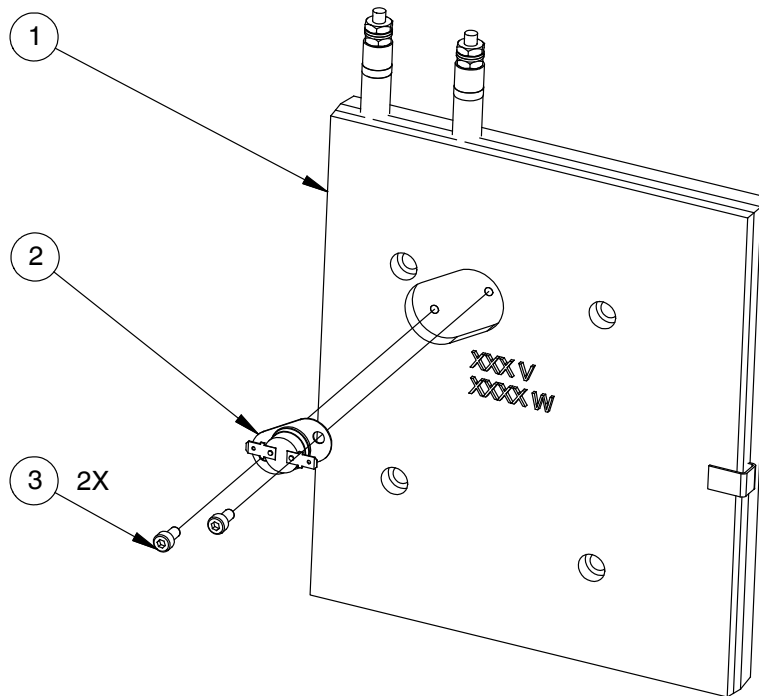
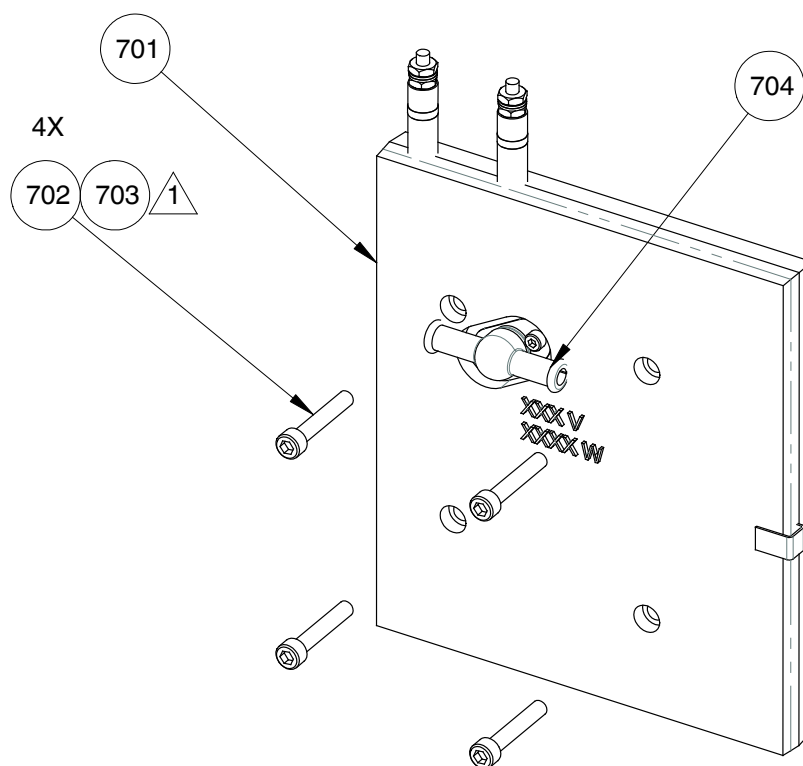


Figure 8-17 Manifold heater module parts (1 of 2)



NOTE

1 TIGHTEN TO 38 - 48 IN-LBS

Figure 8-18 Manifold heater module parts (2 of 2)

Heater Plate Parts

Item	Part	Description	Quantity	Kit P/N
	—	PLATE,HEATER,SEALED		
1	-----	• PLATE,HEATER,MACHINED	1	
2	-----	• SEALANT,RTV,RED,10.3 OZ. TUBE	2	
3	940141	• O RING,VITON, .489ID X .070W,BR,10414	2	
4	1127245	• INSULATOR,CERAMIC, .218 IDX.430 ODX.375LG	2	
5	1127306	• WASHER,FLT, .203X.406X.040,ZN	4	
6	984120	• NUT,HEX,MACH,#10-32,STL,ZN,14448-FA	4	

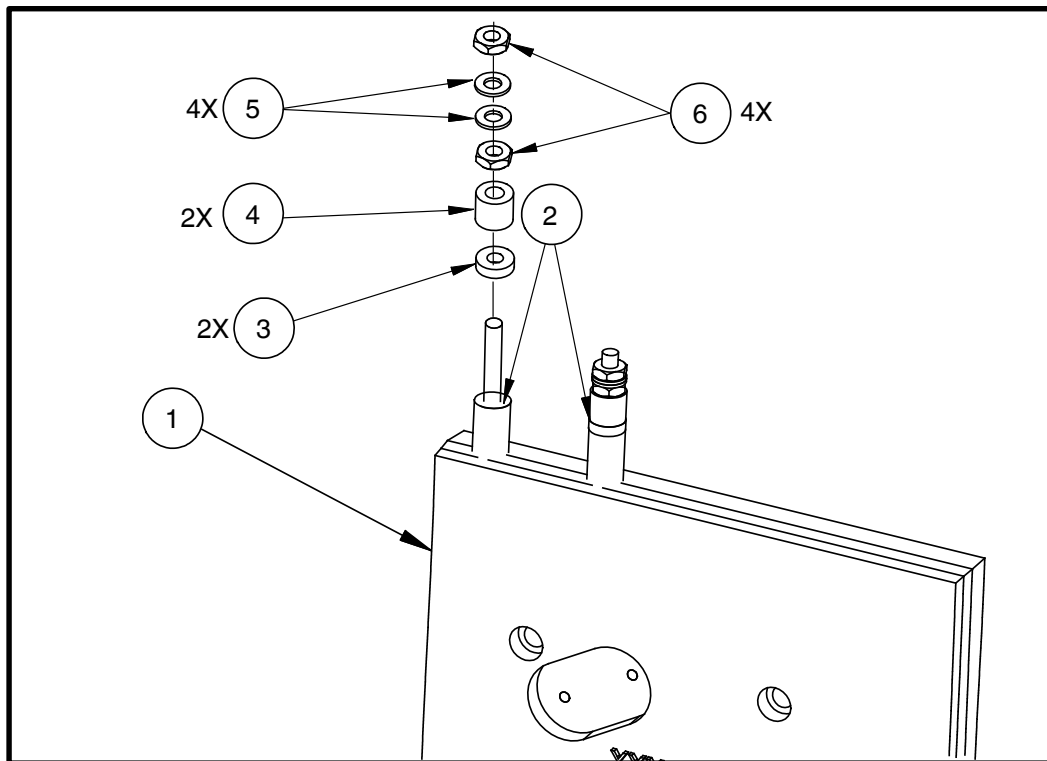


Figure 8-19 Heater plate parts

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Lid Module

See Figure 8-20.

Item	Part	Description	Quantity	Kit P/N
800	-----	MODULE,LID,SIZE A, STD		1128162
	-----	MODULE,LID,SIZE B, STD		1128163
1	1127498	• LID,COVER,SIZE A	1	
	1127365	• LID,COVER,SIZE, B		
2	-----	• LID INNER	1	
3	1127146	• HANDLE, LID	1	
4	1127665	• SCR,FLNBTN,SKT,M5X8,ZN	5	
5	986039	• RETAINING RING,EXT,18,E-RING	1	
6	1127619	• ROD,HINGE,LID,PB FLEX	1	
7	220571	• SPRING,COMP,.36ODX.038X1.75LG	1	
8	1093724	• ACTUATOR,SWITCH,MAGNETIC	1	

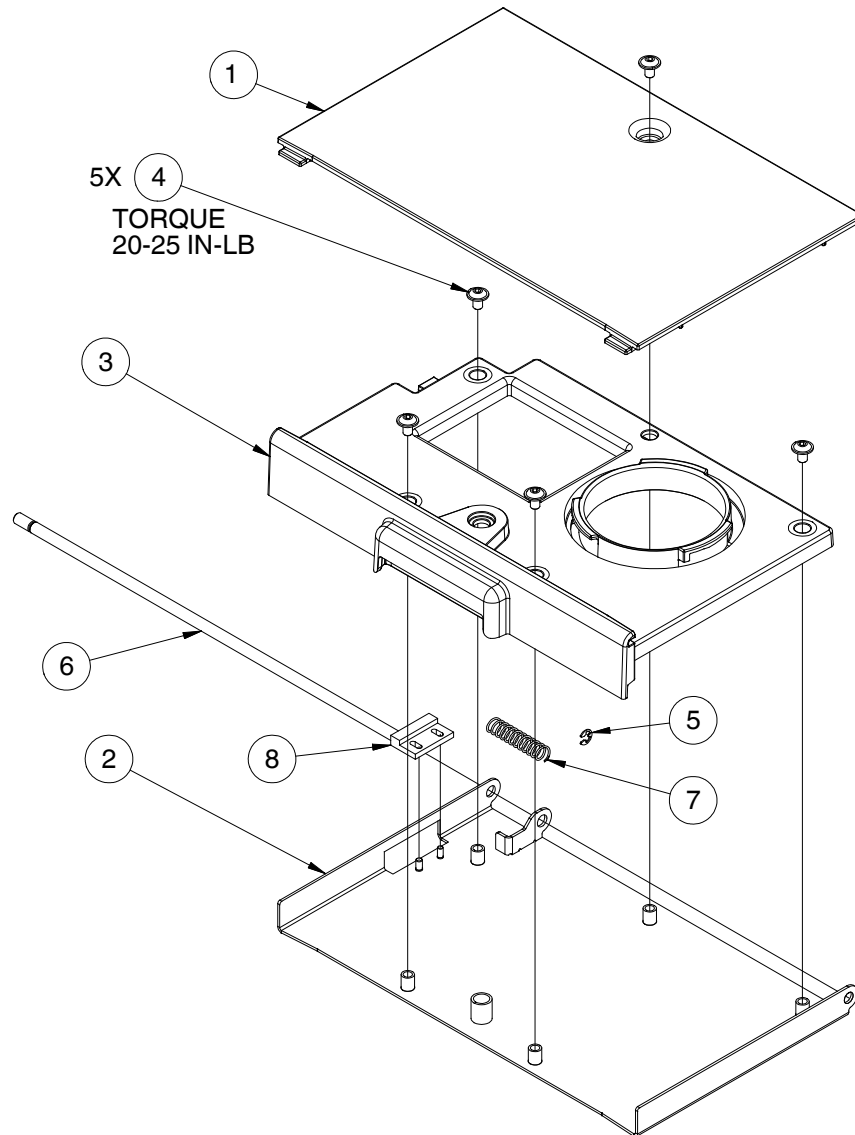


Figure 8-20 Lid module parts

Fill Lid Module

See Figure 8-21.

Item	Part	Description	Quantity	Kit P/N
	-----	MODULE,LID,SIZE 4 KG, 7/14 MOD, FILL		1128171
	-----	MODULE,LID,SIZE,7 & 10 KG,FILL		1128172
1	1127500	• LID,COVER,FILL SIZE 4KG, 7/14 MOD	1	
	1127365	• LID,COVER,FILL SIZE, 7/14, STD		
2	-----	• LID INNER	1	
3	1127146	• HANDLE, LID	1	
4	1127665	• SCR,FLNBTN,SKT,M5X8,ZN	5	
5	1127142	• TUBE,INLET,FILL	1	
6	1127147	• COUPLING,INLET TUBE,FILL LID	1	
7	986039	• RETAINING RING,EXT,18,E-RING	1	
8	1128519	• ROD,HINGE,LID,PB FLEX	1	
9	220571	• SPRING,COMP,.36ODX.038X1.75LG	1	
10	1093724	• ACTUATOR,SWITCH,MAGNETIC	1	
11	1128083	• COVER,FILTER,FILL LID	1	
12	-----	• FILTER,AIR,FILL,LID	1	1128174
13	1098106	• KNOB,BLACK PLASTIC WITH M5X10 LG STUD	1	
14	1127792	• KNOB,M6X35,MULTILOBE,BLK	1	
15	1127148	• SPACER,KNOB ASSY,FILL LID	1	
16	345616	• NUT,HEX,JAM,M6,SS	1	
17	1098727	• WASHER,LOCK,M6,316 SST	1	
18	1127240	• ORING,VITON,66.27X3.5	1	
19	1128189	• TAG,FILTER CHANGE,INLET TANK	1	
20	1127475	• TAG,WARNING,HOT ADH,INLET AIR TUBE	1	

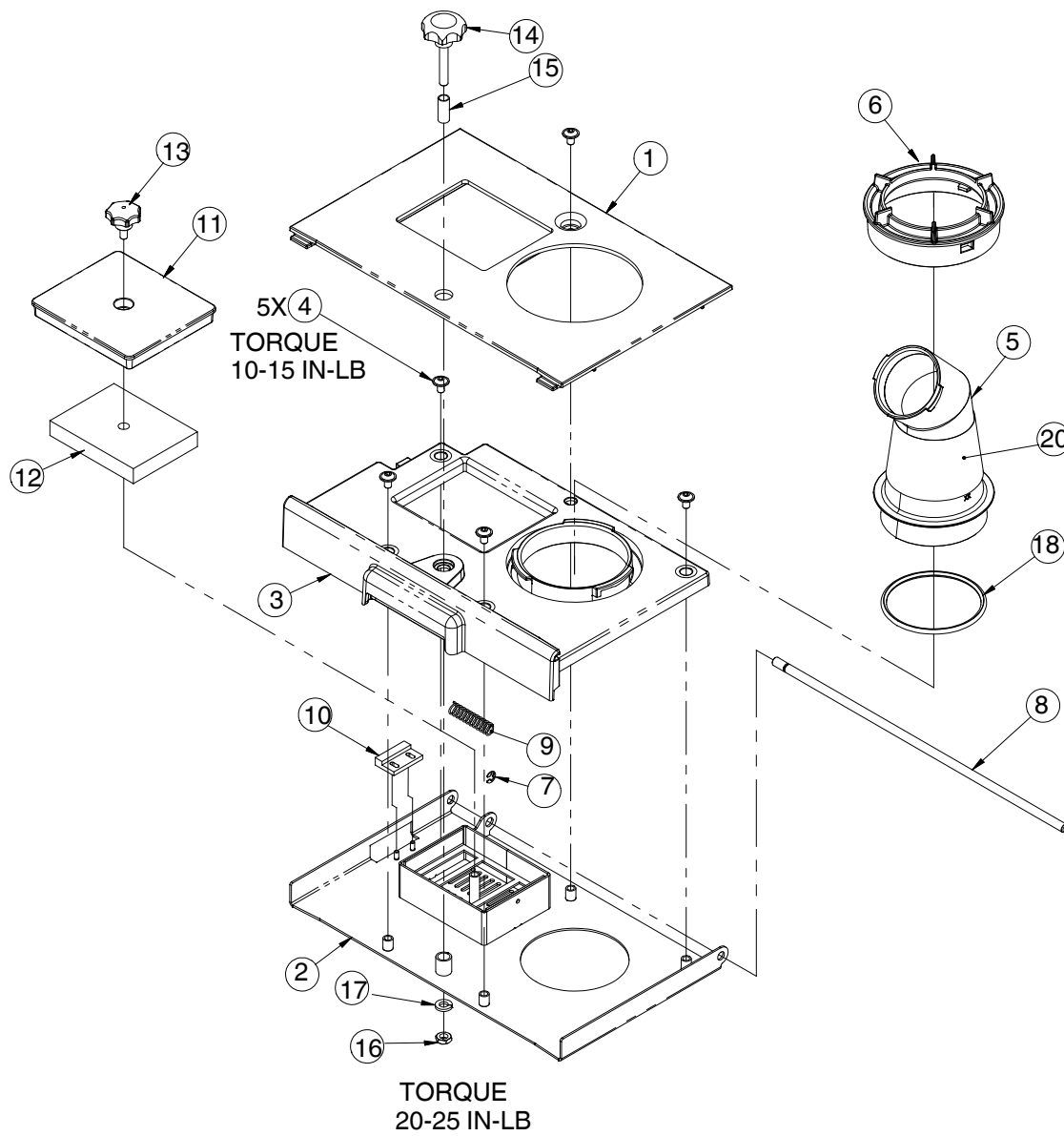


Figure 8-21 Fill lid module parts drawing

Electrical Cabinet Assembly

See Figures 8-22 and 8-23.

Item	Part	Description	Quantity	Kit P/N
	-----	ASSEMBLY,ELECTRICAL CABINET		1128102
1101	1127685	• ASSEMBLY ,EBOX,BAREBONE	1	
1	-----	• • CHASSIS,EBOX,WELDMENT	1	
2	-----	• • MODULE,HA ASSY,6CH	1	1128099
3	1126418	• • WIRE HARNESS,POWER SUPPLY, PBFLEX	1	
4	-----	• • PCA,POWER DISTRIBUTION	1	1128095
5	-----	• • PCA,CONTROLLER,LOW VOLTAGE	1	1128096
6	1126988	• • PANEL,CENTER,A2	1	
7	105800	• • SCREW,SKTHD,M4X.7X8,ZN	6	
8	982503	• • SCR,BTN,SKT,M5X10,ZN	4	
9	1036625	• • MACHSCRM,PAN,REC,M3X8,SEMS	18	
10	1127846	• • BATTERY,BR2032,80C	1	
11	1128983	• • HARNESS,WIRE,GND,PLATE/GND TREE	1	
1102	1127652	• PANEL,EBOX SIDE,WELDMENT	1	
1104	1025795	• TAG,WARNING,HAZARDOUS VOLTAGE	1	
1105	-----	• PANEL,KNOCKOUT PLATE, EBOX	1	1128135
1106	1127244	• GASKET,PANEL,KNOCKOUT	1	
1107	1127068	• GROMMET,4-7mm DIA,TUBING	1	
1108	105800	• SCREW,SKTHD,M4X7X8,ZN	4	
1109	1127278	• PLATE,POWER BLANK,EBOX	1	
1110	1128261	• WIRE HARNESS,JUMPER,4TO3POS,PD/LVC	1	
1111	1126590	• HARNESS,MODULE 1,POWER	1	
1112	1126574	• HARNESS,NORDNET COMM,6CH to LVC	1	
1113	1126599	• HARNESS,GRND,6CH	1	
1114	1126972	• RIBBON,LVC TO UI	1	
1115	1128021	• HARNESS,WIRE,GND,PD/GROUND TREE	1	

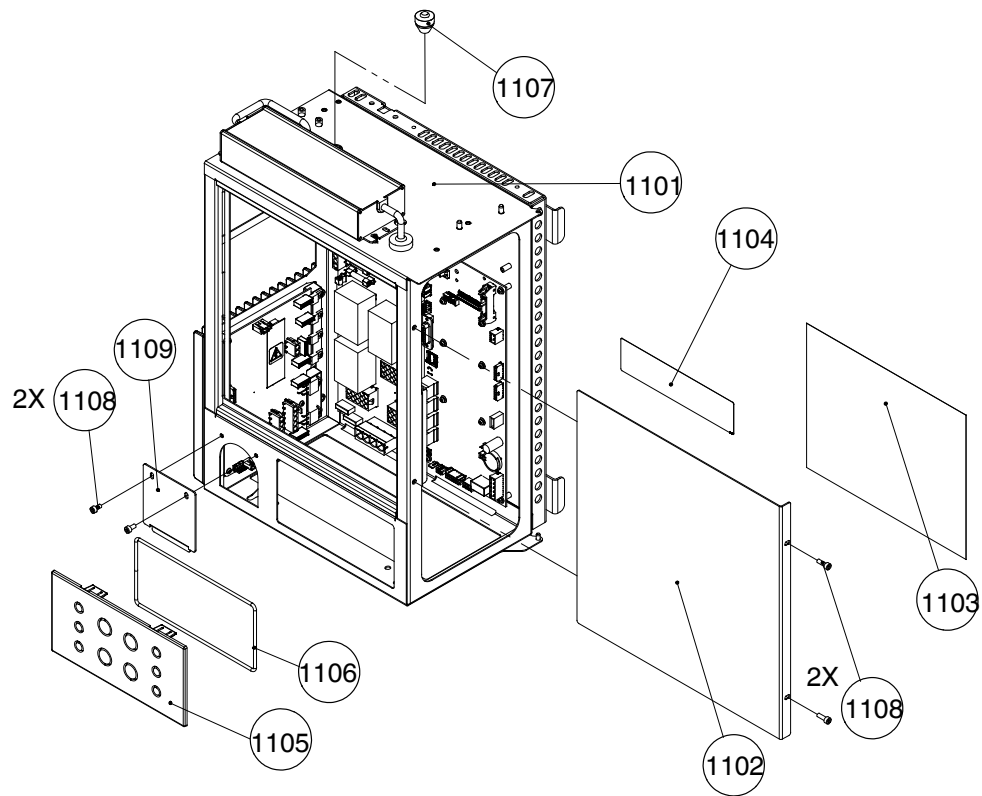


Figure 8-22 Electrical cabinet parts (1 of 2)

Electrical Cabinet Assembly *(contd)*

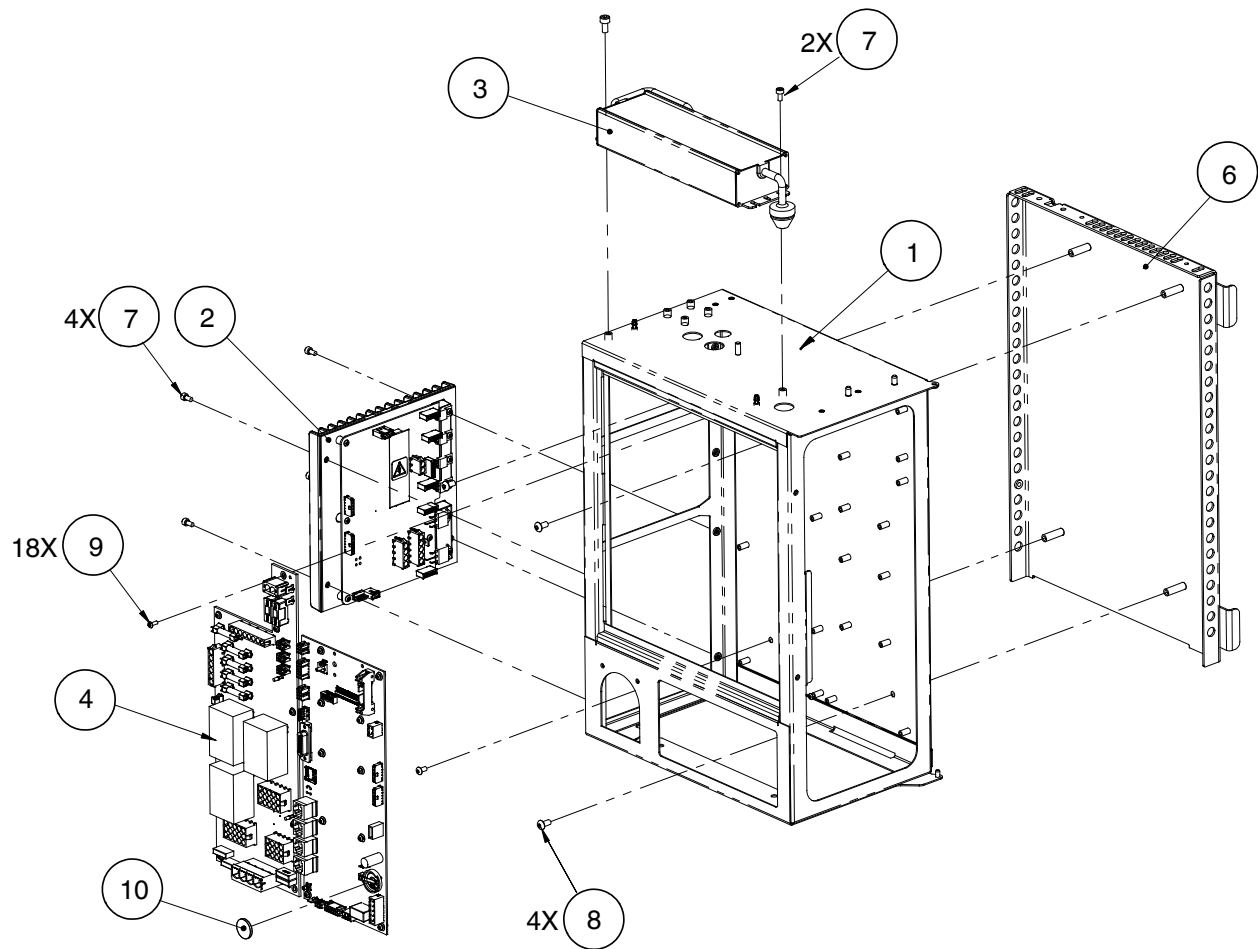


Figure 8-23 Electrical cabinet parts (2 of 2)

Blank Hose/Applicator Module

Item	Part	Description	Quantity	Kit P/N
1201	-----	BLANK	1	1128093
1202	-----	GASKET	1	

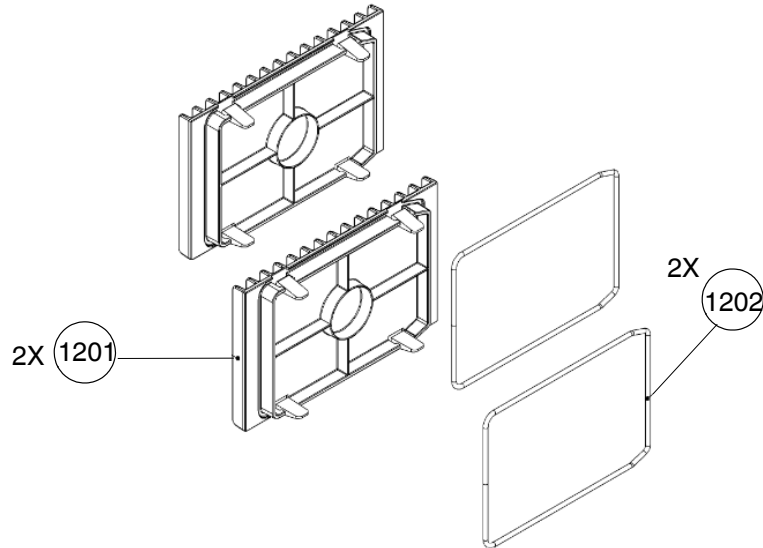


Figure 8-24 Blank modules

4/6 Channel Hose/Applicator Module

Item	Part	Description	Quantity	Kit P/N
1201	-----	MODULE,HA ASSY,4CH	1	1128092
1202	1126544	HARNESS, NORDNET 6Ch to 4ChI	1	
1203	1127002	HARNESS, MODULE 2 POWER	1	
1204	105800	SCREW,SKTHD,M4X.7X8,ZN	2	
1205	-----	PCA,POWER DISTRIBUTION EXP,ENDEAVOUR	1	1128096
1206	1127000	HARNESS,JUMPER,PD EXPANSION	1	
1207	1036625	MACHSCRM,PAN,REC,M3X8,SEMS	4	
1208	1127078	PLUG,4 CH HA,EBOX	1	
1209	1127156	GASKET,PLUG,4CH	1	
1210	1127954	GUARD,EXP BOARD, FUSES	1	
1211	1126600	HARNESS,WIRE,GND,4CHI/GROUND TREE	1	

OLED Electrical Enclosure Door

Item	Part	Description	Quantity	Kit P/N
	-----	MODULE,ELECTRICAL DOOR,OLED		1128094
1301	-----	• PANEL,EBOX DOOR,ASSYOLED	1	
1	-----	• • PANEL,EBOX DOOR,PAINTED	1	
2	1127655	• • BRACKET,DOOR HINGE,EBOX	1	
3	1127232	• • SWITCH,ROCKER,SPST,250V,16A,GOLD	1	
4	1122904	• • PLUG,DOME,.875,2D,BLACK	1	
5	1127234	• • SCREW,M3X10,STL,ZNC,TORQ,THREADFORMING	8	
6	1127683	• • PCA,UI ASSY,EBOX,OLED	1	
7	208498	• • LATCH,SPRING,MED,4MM HEX HD	1	
8	1128659	• • GASKET,BULB SEAL,.28 X .66	AN	
9	1127165	• • MEMBRANE,PANEL,UI,EBOX	1	
1302	105800	• SCREW,SKTHD,M4X.7X8,ZN	1	

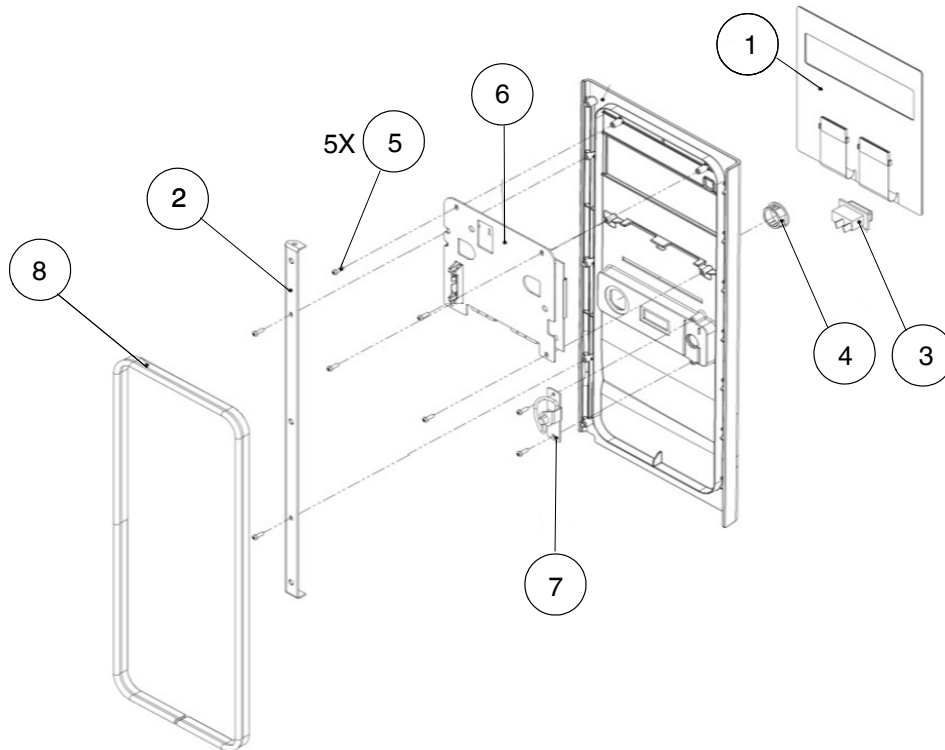


Figure 8-25 OLED electrical door

OEM Electrical Enclosure Door

Item	Part	Description	Quantity	Kit P/N
	-----	MODULE,ELECTRICAL DOOR,OEM		1128356
1301	-----	• PANEL,EBOX DOOR,ASSY OEM	1	
1	-----	• • PANEL,EBOX DOOR,PAINTED	1	
2	1127655	• • BRACKET,DOOR HINGE,EBOX	1	
3	1127232	• • SWITCH,ROCKER,SPST,250V,16A,GOLD	1	
4	1122904	• • PLUG,DOME, .875,2D,BLACK	1	
5	1127234	• • SCREW,M3X10,STL,ZNC,TORQ, THREADFORMING	8	
6	1127180	• • PCA,UI ,OEM	1	
7	208498	• • LATCH,SPRING,MED,4MM HEX HD	1	
8	1128659	• • GASKET,BULB SEAL,.28 X .66	AN	
9	1127796	• • MEMBRANE,PANEL,UI,OEM	1	
1302	105800	• SCREW,SKTHD,M4X.7X8,ZN	1	

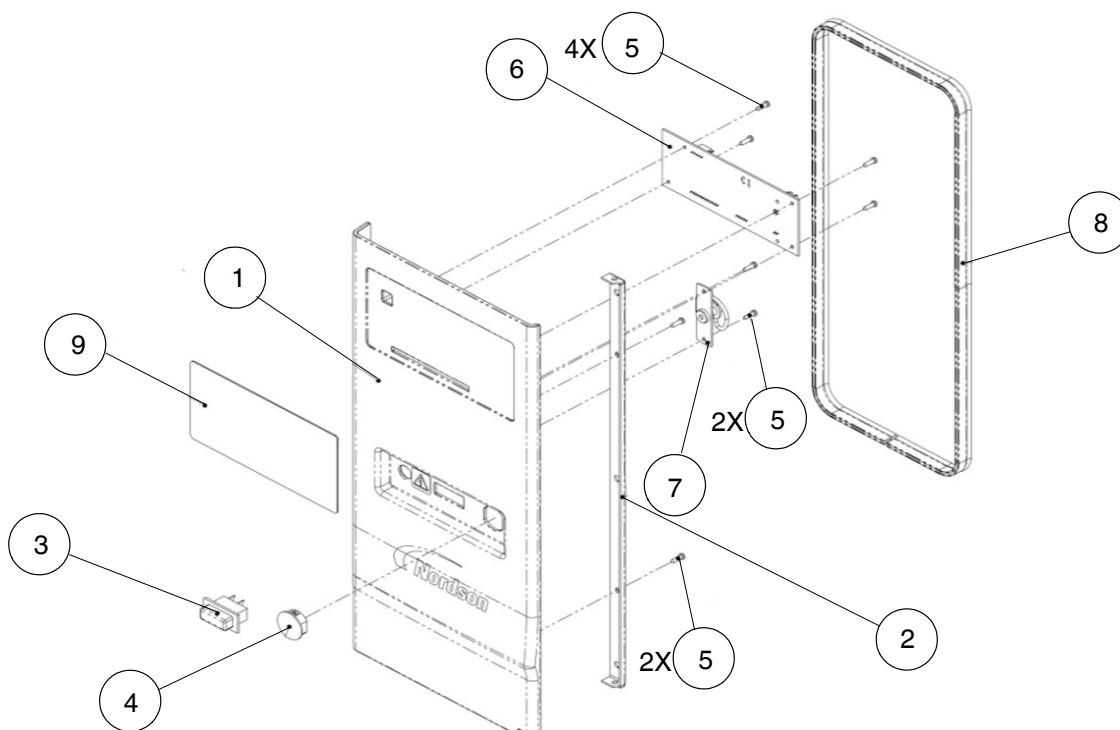


Figure 8-26 OEM electrical door

Heater Harness

Item	Part	Description	Configuration
1401	1127567	MODULE,HARNESS,HEATER, 240V,TANK	T01, X01, T04, X04
	1127568	MODULE,HARNESS,HEATER, 240V,TANK	T07, X07, T10, X10
	1127570	MODULE,HARNESS,HEATER, 240V,MOD	M07, Z07, M14, Z14
	1127572	MODULE,HARNESS,HEATER, 480V,TANK	T01, X01, T04, X04
	1127573	MODULE,HARNESS,HEATER, 480V,TANK	T07, X07, T10, X10
	1127575	MODULE,HARNESS,HEATER, 480V,MOD	M07, Z07, M14, Z14

Standard Double Acting Regulator

Item	Part	Description	Quantity	Kit P/N
	1127580	MODULE,REGULATOR,STD-DA,W/ GAUGE	1	
1601	-----	• REGULATOR,ASSY,STD,W/BKT	1	1128140
1602	1127485	• TUBING,FILTER TO REGULATOR,6MM	1	
1604	1023855	• TUBING,PDV TO PUMP,6MM	1	
1605	1019511	• TEE,RUN,6MM TUBE X G1/8	1	
1606	1023307	• ELBOW, MALE,6 MM TUBE X G 1/8	1	
1607	105800	• SCREW,SKTHD,M4X.7X8,ZN	4	
1608	1127793	• HARNESS,WIRE,PUMP SOL	1	
1609	1128024	• GROMMET,TUNNEL,6MM AIR LINE	1	
1610	1127723	• BRACKET,WITH 1/4BPST,6MM BULKHEAD	1	

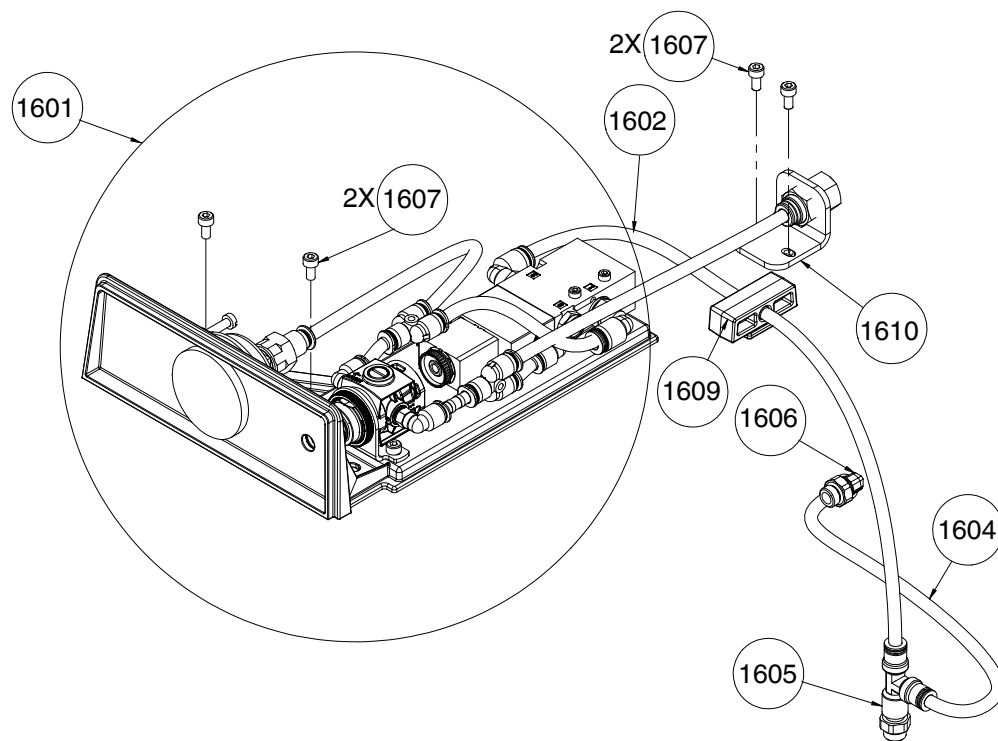


Figure 8-27 Standard regulator parts drawing

Double Acting Regulator with Transducer

Item	Part	Description	Quantity	Kit P/N
	1127581	MODULE,REGULATOR,STD-DA,W/XDCR	1	
1601	-----	• REGULATOR,ASSY,STD,W/BKT	1	1128326
1602	1127485	• TUBING,FILTER TO REGULATOR,6MM	1	
1604	1023855	• TUBING,PDV TO PUMP,6MM	1	
1605	1019511	• TEE,RUN,6MM TUBE X G1/8	1	
1606	1023307	• ELBOW, MALE,6 MM TUBE X G 1/8	1	
1607	105800	• SCREW,SKTHD,M4X.7X8,ZN	4	
1608	1127835	• WIRE HARNESS,LVC/SOL/AIR PRESSURE	1	
1609	1128024	• GROMMET,TUNNEL,6MM AIR LINE	1	
1610	1127310	• PCA, PRESSURE TRANSDUCER	1	
1611	1127013	• COVER, XDCR, CIRCUIT BOARD	1	
1612	1127723	• BRACKET, WITH 14 BPST, 6MM BULKHEAD		

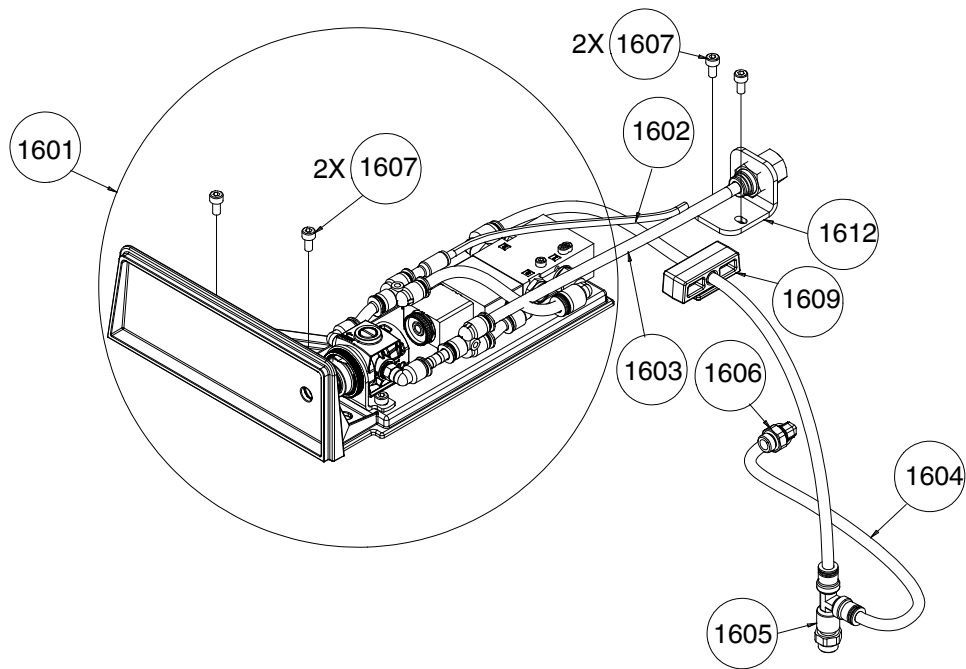


Figure 8-28 Regulator with transducer parts drawing

Standard Double Acting Remote Run up Regulator

Item	Part	Description	Quantity	Kit P/N
	1127582	MODULE,REG,STD-DA, REMOTE RUN-UP	1	
1601	-----	• REGULATOR,REMOTE ADJUST, W/BKT	1	1128327
1602	1127485	• TUBING,FILTER TO REGULATOR,6MM	1	
1604	1023855	• TUBING,PDV TO PUMP,6MM	1	
1605	1019511	• TEE,RUN,6MM TUBE X G1/8	1	
1606	1023307	• ELBOW, MALE,6 MM TUBE X G 1/8	1	
1607	105800	• SCREW,SKTHD,M4X.7X8,ZN	4	
1608	1127983	• HARNESS, WIRE, AIR PRESSURE, REMOTE ADJ	1	
1609	1128024	• GROMMET,TUNNEL,6MM AIR LINE	1	
1610	1127310	• PCA, PRESSURE TRANSDUCER	1	
1611	1127013	• COVER, XDCR, CIRCUIT BOARD	1	
1612	1127723	• BRACKET, WITH 14 BPST, 6MM BULKHEAD	1	

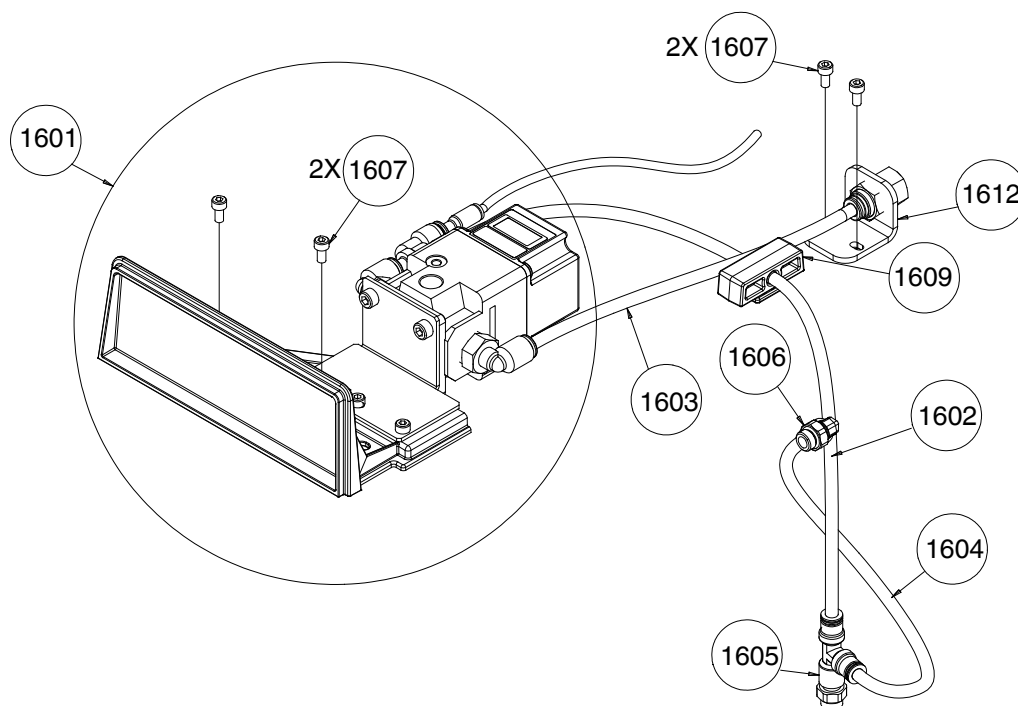


Figure 8-29 Regulator with transducer parts drawing

P1 Single Acting Pneumatic Panel Assembly Service Kit

Item	Part	Description	Quantity
	1128900	KIT,SERVICE,PNEUMATIC PANEL,SA,ASSY,P1	
1	-----	• REGULATOR,ASSY,SA,P1	1
2		• RESERVED	1
3	-----	• CARTON,MISC PARTS,(11.25 X 9.00 X 4.00)	1
4	-----	• SCREW,SKTHD,M4X.7X8,ZN	2
5	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1
6	-----	• LABEL,BLANK,3.50"X1.375"	2

P2 Single Acting Pneumatic Panel Assembly Service Kit

Item	Part	Description	Quantity
	1128904	KIT,SERVICE,PNEUMATIC PANEL,SA,ASSY,P2	
1	-----	• REGULATOR,XDCR,STD-SA,W/BKT	1
2		• RESERVED	
3	-----	• CARTON,MISC PARTS,(11.25 X 9.00 X 4.00)	1
4	-----	• SCREW,SKTHD,M4X.7X8,ZN	2
5	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1
6	-----	• LABEL,BLANK,3.50"X1.375"	2

P1 and P2 Single Acting Airline Service Kit

Item	Part	Description	Quantity
	1129045	KIT,SERVICE,AIRLINE,SA,P1&P2	
1	-----	• TUBING,REGULATOR TO PDV,6MM	1
2	-----	• TUBING,FILTER TO REGULATOR,6MM OD	1
3	-----	• TUBING,REGULATOR TO PUMP BOTTOM,6MM	1
4	-----	• GROMMET,TUNNEL,3 AIR LINES	1
5	-----	• TUBING,PDV TO PUMP,6MM	1
6	-----	• PLUG-TYPE THREAD-IN FTG.-G-D06-G1/8-0000	3
7	-----	• BAG,PLASTIC,10.5"X16"	1
8	-----	• LABEL,BLANK,3.50"X1.375"	1

Standard Single Acting Regulator Module with Gauge

Item	Part	Description	Quantity
	1128901	MODULE,REGULATOR,STD-SA,W/ GAUGE	
1601	1128900	• REGULATOR,ASSY,STD-SA,W/BKT	1
1602	1023307	• ELBOW, MALE,6 MM TUBE X G 1/8	3
1603	1128089	• GROMMET,TUNNEL,3 AIR LINES	1
1604	1127723	• BRACKET, WITH 1/4BPST,6MM BULKHEAD	1
1605	105800	• SCREW,SKTHD,M4X.7X8,ZN	4
1606	1023853	• TUBING,REGULATOR TO PDV,6MM	1
1607	1052021	• TUBING,REGULATOR TO PUMP BOTTOM,6MM	1
1608	1023855	• TUBING,PDV TO PUMP,6MM	1

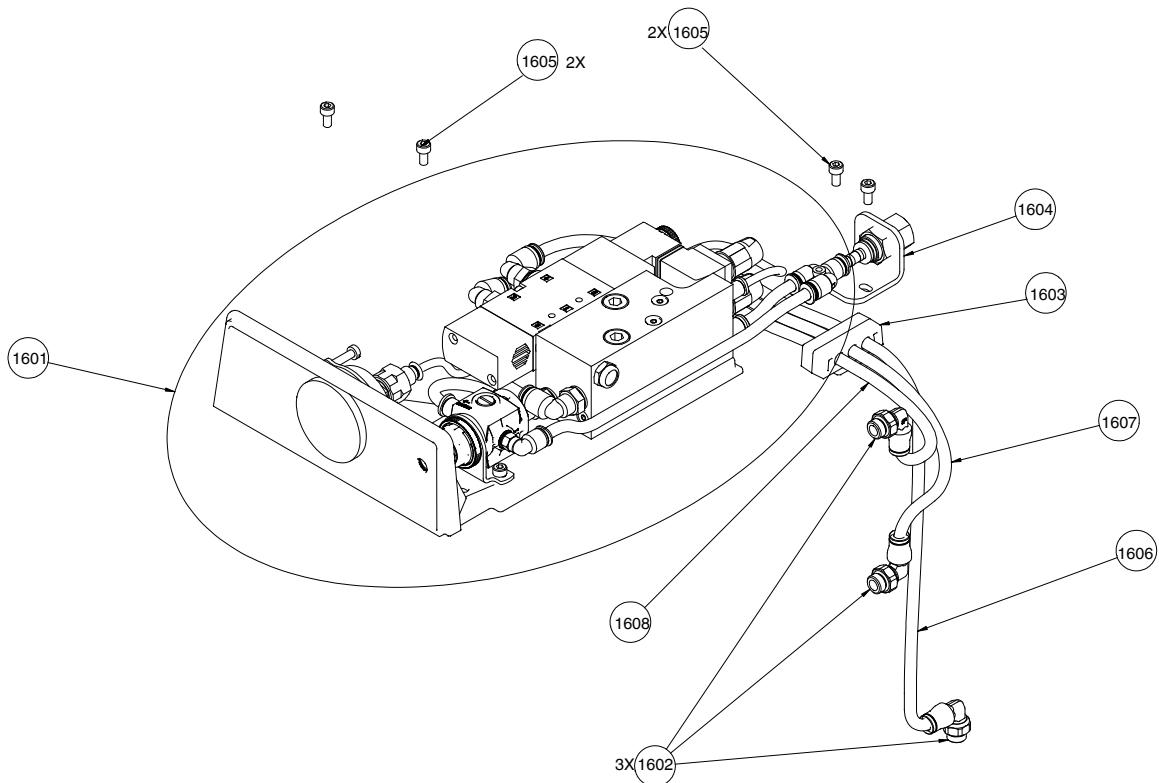


Figure 8-30 Standard single acting regulator with gauge parts drawing

Standard Single Acting Regulator Module with Transducer

Item	Part	Description	Quantity
	1128903	MODULE,REGULATOR,STD-SA,W/ XDCR	
1601	1128904	• REGULATOR,XDCR,STD-SA,W/BKT	1
1602	1023307	• ELBOW, MALE,6 MM TUBE X G 1/8	3
1603	1128089	• GROMMET,TUNNEL,3 AIR LINES	1
1604	1127723	• BRACKET, WITH 1/4BPST,6MM BULKHEAD	1
1605	105800	• SCREW,SKTHD,M4X.7X8,ZN	4
1606	1023853	• TUBING,REGULATOR TO PDV,6MM	1
1607	1052021	• TUBING,REGULATOR TO PUMP BOTTOM,6MM	1
1608	1023855	• TUBING,PDV TO PUMP,6MM	1

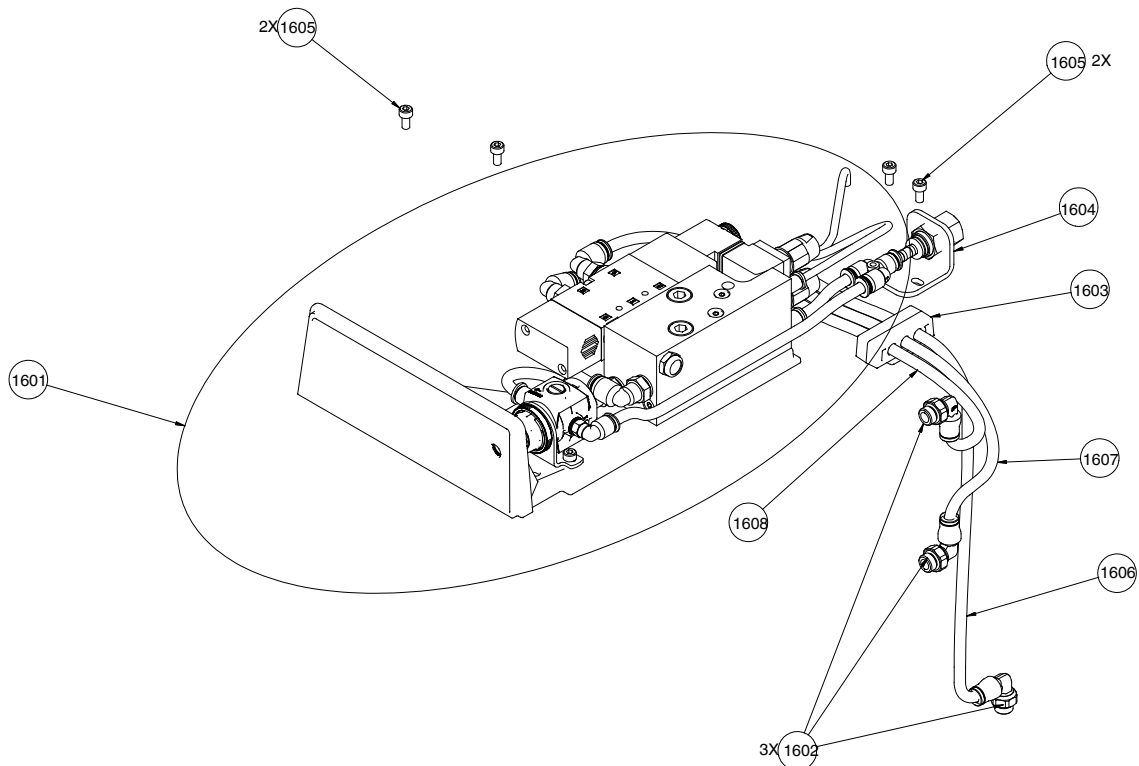


Figure 8-31 Standard single acting regulator module with transducer parts drawing

Lid Switch Module

Item	Part	Description	Quantity
1701	1127669	COVER, LID SWITCH	1

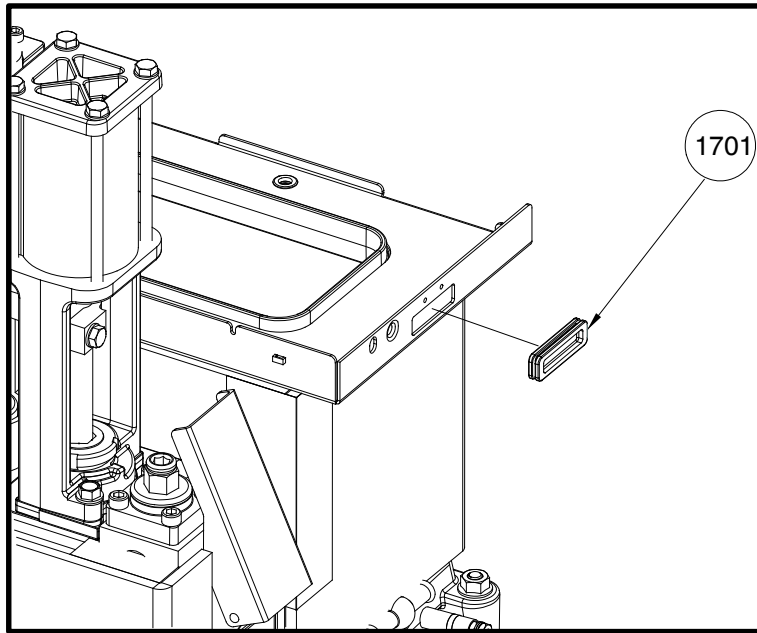


Figure 8-32 Lid switch cover

Lid Switch Replacement Parts

See Figures 8-33 and 8-34.

Item	Part	Description	Quantity
	-----	MODULE,LID SWITCH	
1701	1127089	• HARNESS,LID SWITCH	1
1	1127176	• • SWITCH,MAGNETIC,SPST-NO, 35"	1
2	1125541	• • CONN, HOUSING, 2 POS, 1 ROW	1
3	1127672	• • CONN PIN,FEMALE,MICROFIT,GOLD,20-24AWG	2
4	-----	• • CABLETIE, BLUE	1
5	-----	• • LABEL,WRAP AROUND,VINYL,WHITE,1.0 X 1.44	1
6	-----	• • SLEEVING,BRAID,FIBERGLASS,.208ID	1.42
7	-----	• • CABLETIE,4 IN,338F/170C,PTFE,BLUE	2
1702	982824	• SCR,PAN,REC,M3X8,W/INT LKW BZ	2

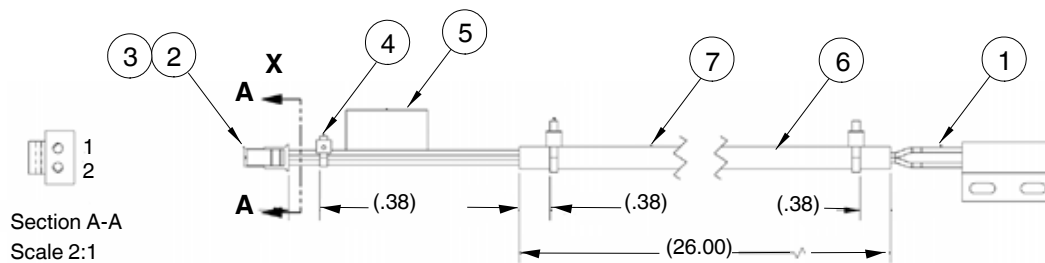


Figure 8-33 Lid switch harness parts

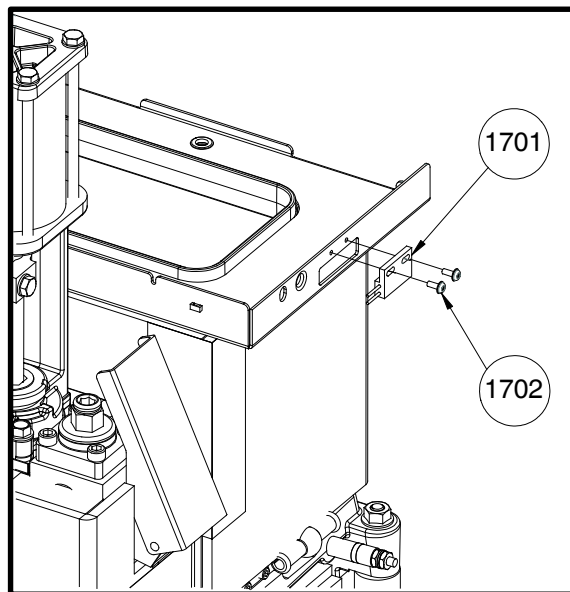


Figure 8-34 Lid switch parts

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Enclosure Module

4 Kg/7 MOD/14 MOD Enclosure Module

See Figure 8-35.

Item	Part	Description	Quantity	Kit P/N
	-----	MODULE,ENCLOSURE,4KG/ 7 MOD / 14 MOD		
1801	1127676	• SUPPORT,PANEL,FRONT, SIZE A	1	
1802	1127677	• SUPPORT,PANEL,REAR, SIZE A	1	
1803	1127680	• SUPPORT,PANEL,END, SIZE A/B	1	
1804	-----	• COVER,WIREWAY	1	1128270
1805	1128654	• SPACER,10MM HEX X 51MM LG M5 FEM ALUM	1	
1806	982780	• SCR,SCKT,M5X10,ZN	13	
1807	-----	• TAG,WARNING,HYD PRESSURE,TRIANGLE ONLY	1	
1808	933618	• LUG,45,SINGLE,.250X.032	1	
1809	-----	• KIT,ENCLOSURE PANELS,SIZE A	1	
1	1126982	• • PANEL,END, SIZE A/B	1	
2	1127252	• • PANEL,ASSY, FRONT,SIZE A	1	
3	1127253	• • PANEL,ASSY, REAR,SIZE A	1	
4	1127254	• • COVER,ASSY,PUMP,SIZE A/B	1	
5	1127728	• • COVER,ASSY,REGULATOR	1	
1810	-----	• GUARD,MELTER,MANIFOLD STANDARD	1	1127877
1811	1127861	• INSULATION,MANIFOLD,TOUCHSAFE	1	
1812	-----	• TAG,FILTER CHANGE/SHUT OFF VALVE		
1813	-----	• TAG,WARNING,HOT ADH/HYD PRESS,1.6X6.5		
1814	1127869	• VENT,PUMP COVER,MOLDED		
1815	-----	• TAG,MAXIMUM AIR PRESSURE,1.55X.287		

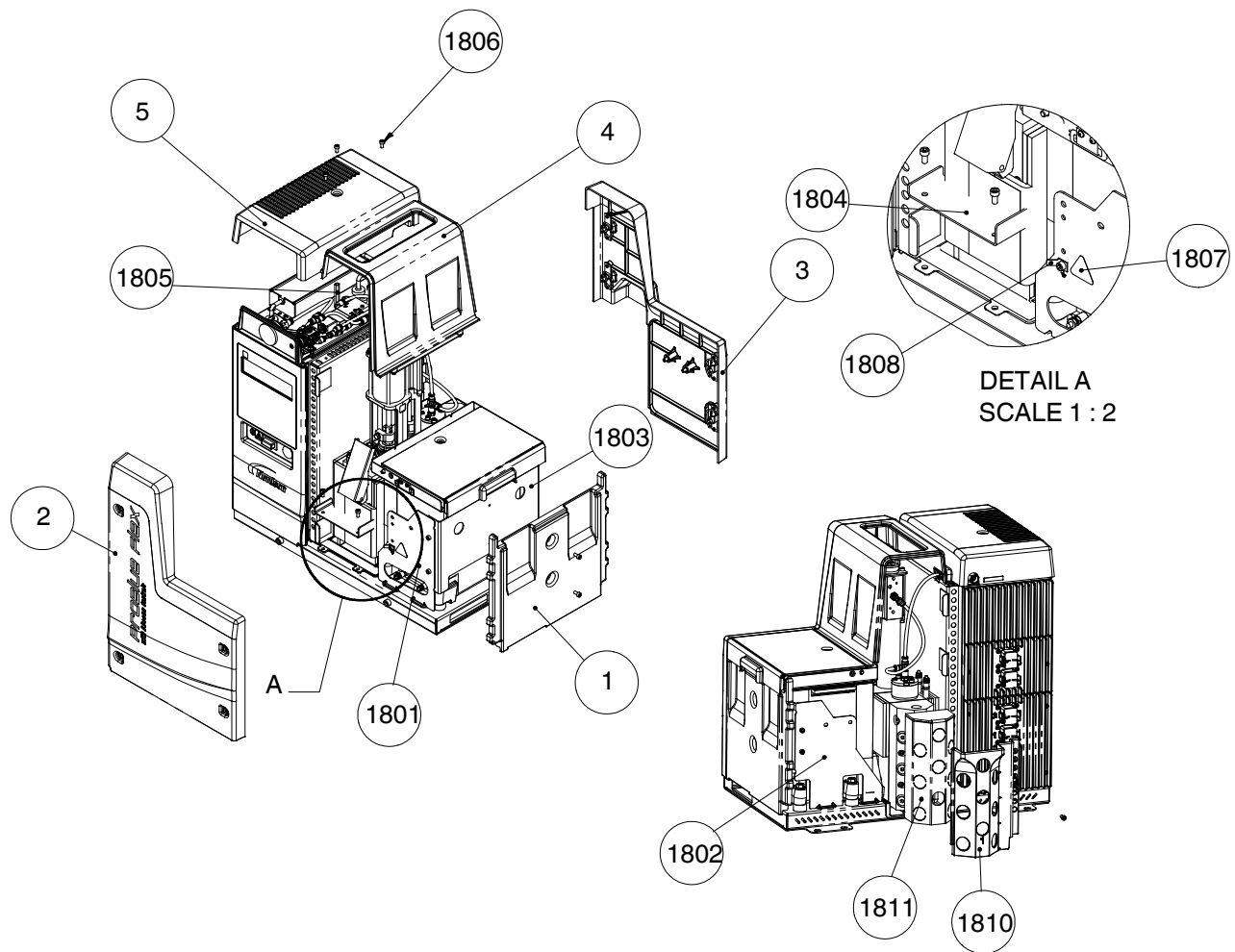


Figure 8-35 Melter enclosure

7 Kg Enclosure Module

See Figure 8-35.

Item	Part	Description	Quantity	Kit P/N
	-----	MODULE,ENCLOSURE,SIZE 7KG		
1801	1128294	• SUPPORT,PANEL,FRONT, SIZE B	1	
1802	1128295	• SUPPORT,PANEL,REAR, SIZE B	1	
1803	1127680	• SUPPORT,PANEL,END, SIZE A/B	1	
1804	-----	• COVER,WIREWAY	1	1128270
1805	1128654	• SPACER,10MM HEX X 51MM LG M5 FEM ALUM	1	
1806	982780	• SCR,SCKT,M5X10,ZN	13	
1807	-----	• TAG,WARNING,HYD PRESSURE,TRIANGLE ONLY	1	
1808	933618	• LUG,45,SINGLE,.250X.032	1	
1809	-----	• KIT,ENCLOSURE PANELS,SIZE B	1	
1	1126982	• • PANEL,END, SIZE A/B	1	
2	1127343	• • PANEL,ASSY, FRONT,SIZE B	1	
3	1127344	• • PANEL,ASSY, REAR,SIZE B	1	
4	1127254	• • COVER,ASSY,PUMP,SIZE A/B	1	
5	1127728	• • COVER,ASSY,REGULATOR	1	
1810	-----	• GUARD,MELTER,MANIFOLD STANDARD	1	1127877
1811	1127861	• INSULATION,MANIFOLD,TOUCHSAFE	1	
1812	-----	• TAG,FILTER CHANGE/SHUT OFF VALVE		
1813	-----	• TAG,WARNING,HOT ADH/HYD PRESS,1.6X6.5		
1814	1127869	• VENT,PUMP COVER,MOLDED		
1815	-----	• TAG,MAXIMUM AIR PRESSURE,1.55X.287		

10 Kg Enclosure Module

See Figure 8-35.

Item	Part	Description	Quantity	Kit P/N
	-----	MODULE,ENCLOSURE,SIZE10KG		
1801	1128296	• SUPPORT,PANEL,FRONT, 10KG TANK	1	
1802	1128297	• SUPPORT,PANEL,REAR, 10KG TANK	1	
1803	1127405	• SUPPORT,PANEL,END, 10KG TANK	1	
1804	-----	• COVER,WIREWAY	1	1128270
1805	1128654	• SPACER,10MM HEX X 51MM LG M5 FEM ALUM	1	
1806	982780	• SCR,SCKT,M5X10,ZN	13	
1807	-----	• TAG,WARNING,HYD PRESSURE,TRIANGLE ONLY	1	
1808	933618	• LUG,45,SINGLE,.250X.032	1	
1809	-----	• KIT,ENCLOSURE PANELS, 10KG TANK	1	
1	1127411	• • PANEL,END, 10KG TANK	1	
2	1127406	• • PANEL,ASSY, FRONT, 10KG TANK	1	
3	1127407	• • PANEL,ASSY, REAR, 10KG TANK	1	
4	1127416	• • COVER,ASSY,PUMP, 10KG TANK	1	
5	1127728	• • COVER,ASSY,REGULATOR	1	
1810	-----	• GUARD,MELTER,MANIFOLD STANDARD	1	1127877
1811	1127861	• INSULATION,MANIFOLD,TOUCHSAFE	1	
1812	-----	• TAG,FILTER CHANGE/SHUT OFF VALVE		
1813	-----	• TAG,WARNING,HOT ADH/HYD PRESS,1.6X6.5		
1814	1127869	• VENT,PUMP COVER,MOLDED		
1815	-----	• TAG,MAXIMUM AIR PRESSURE,1.55X.287		

Electrical Cables and Fuses

See Figure 8-36.

Part Number	Description
1126418	WIRE HARNESS, POWER SUPPLY, PBFLEX
1126544	HARNESS, NORDNET 6 Ch to 4 CHI
1126574	HARNESS, NORDNET COMM, 6 CH to LVC
1126590	HARNESS, MODULE 1, POWER
1126972	RIBBON CABLE,LVC TO UI
1127000	HARNESS,JUMPER,PD EXPANSION
1127002	HARNESS,MODULE 2,POWER
1127003	HARNESS,MODULE 3,POWER
1127217	HARNESS,NORDNET,COMM, 4CH
1127567	MODULE,HARNESS,HEATER,240V,TANK
1127568	MODULE,HARNESS,HEATER,240V,TANK
1127570	MODULE,HARNESS,HEATER,240V,MOD
1127973	TANK ASSEMBLY,4KG,480V,1190W,NO PTFE
1127835	WIRE HARNESS,LVC/SOL/AIR PRESSURE
1127983	HARNESS,WIRE,AIR PRESSURE,REMOTE ADJ
1128075	KIT, SERVICE, FUSE, POWER DIST.
1128076	KIT, SERVICE, FUSE, POWER DIST. EXP
1128101	KIT, SERVICE, FUSE, 3.15 AMP, 10 CT

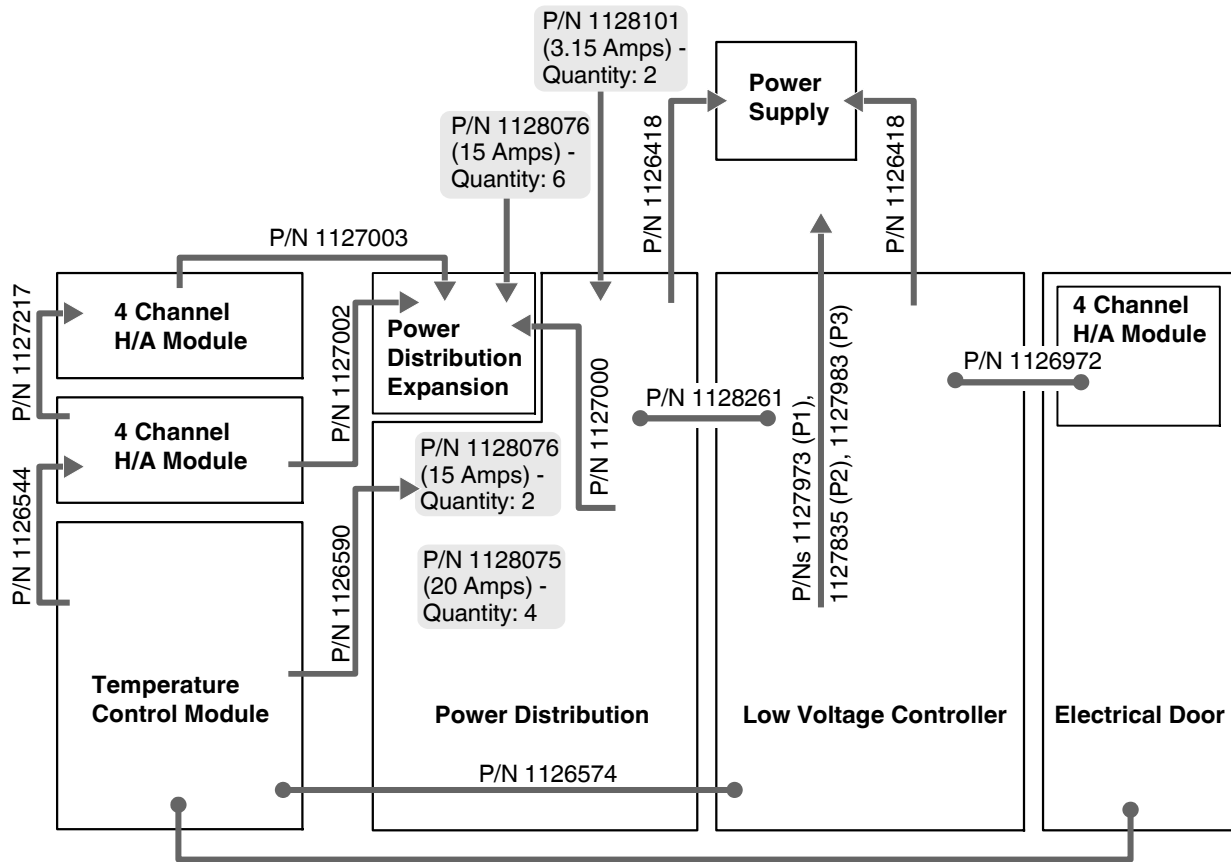


Figure 8-36 Cables and fuse connections with part numbers

Ship-with Kit

(Item 2100)

Part Number	Description
1127598	MODULE, SHIP WITH KIT
1128269	KIT, SERVICE, FILTER, PNEUMATIC
1022993	CONN,4-POS,FEM,RT ANGLE,630V,41A,20-7AWG
1127292	PLATE,POWER,ADAPTER,EBOX
1034145	ADAPTER,PNEUMATIC,MALE 1/4 BSPP X 1/4NPT
105800	SOCKET HEAD SCREW,M4X.7X8,ZN
331872	CLAMP,CABLE,1.0 KO,THRD SADDLE
173871	CONN,PLUG-IN,F,5POS,12-28AWG
1128353	PROBLUE FLEX WITH BBCONN CONTROLS MELTER INSTALLATION GUIDE
1128354	PROBLUE FLEX WITH BBCONN CONTROLS MELTER OPERATORS CARD
1128391	PROBLUE FLEX WITH BBCONN CONTROLS MELTER SAFETY GUIDE

Service Kits

E-Box Enclosure Service Kits

Assorted Jumper Harness Pack Kit

Kit Part	Part	Description	Quantity
1127708	—	KIT, JUMPER HARNESS, 240V	—
	1126604	• HARNESS, JUMPER, 3/PE, 200-240 V	1
	1126605	• HARNESS, JUMPER, 3/N/PE, 400-230V	1
	1126606	• HARNESS, JUMPER, 1/PE, 200-240V	1
	1126607	• HARNESS, JUMPER, 1/N/PE, 200-240V	1

OLED Electrical Door Service Kit

Kit Part	Part	Description	Quantity
1128094	—	KIT, SERVICE, ELECTRICAL DOOR, OLED	—
	-----	• MODULE, ELECTRICAL DOOR, OLED	1
	-----	• RIBBON CABLE, LVC TO UI	1
	-----	• SCREW, SKTHD, M4X.7X6, ZN	1
	-----	• LABEL, BLANK, 3.50"X1.375"	1
	-----	• BAG, POLY, KITS, ROLLS, 3 1/2X5 1/2	1
	-----	• BOX, HANDGUN, 23 X 14 X 5.25	1

OEM Electrical Door Service Kit

Kit Part	Part	Description	Quantity
1128356	—	KIT, SERVICE, ELECTRICAL DOOR, OEM	—
	-----	• MODULE, ELECTRICAL DOOR, MINIMAL	1
	-----	• RIBBON CABLE, LVC TO UI	1
	-----	• SCREW, SKTHD, M4X.7X6, ZN	1
	-----	• LABEL, BLANK, 3.50"X1.375"	1
	-----	• BAG, POLY, KITS, ROLLS, 3 1/2X5 1/2	1
	-----	• BOX, HANDGUN, 23 X 14 X 5.25	1

E-Box Knockout Service Kit

Kit Part	Part	Description	Quantity
1128135	—	KIT, SERVICE, EBOX KNOCKOUT	—
	-----	• PANEL, KNOCKOUT PLATE, EBOX	1
	-----	• GASKET, KNOCKOUT, EPDM	1
	-----	• BOX, HANDGUN, 8.75 L X 6.875 W X 2.00 D	1
	-----	• LABEL, BLANK, 3.50"X1.375"	1

E-Box Full Replacement Service Kit

Kit Part	Part	Description	Quantity
1128102	—	KIT, SERVICE, EBOX REPLACEMENT, FULL	—
	-----	• ASSEMBLY,ELECTRICAL CABINET,BASE	1
	-----	• MODULE,ELECTRICAL,H/A BLANK	2
	-----	• MODULE,ELECTRICAL DOOR,OLED	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• BOX,CARDBOARD,26LX18.5HX13D	1
	-----	• PACKAGING,INSTAPAK QUICK,FOAMINBAG,15X18	1

LVC Replacement Service Kit

Kit Part	Part	Description	Quantity
1128097	—	KIT, SERVICE, LVC, REPLACEMENT	—
	-----	• PCA,CONTROLLER,LOW VOLTAGE, ENDEAVOUR	1
	-----	• MACHSCRM,PAN,REC,M3X8,SEMS	10
	-----	• BATTERY, BR2032, 80C	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• BOX,HANDGUN,23 X 14 X 5.25	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1

Power Supply Service Kit

Kit Part	Part	Description	Quantity
1128098	—	KIT, SERVICE, POWER SUPPLY	—
	-----	• WIRE HARNESS, POWER SUPPLY, PBFlex	1
	-----	• SCREW,SKTHD,M4X.7X6,ZN	2
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• CARTON,MISC PARTS (11.25 X9.00 X4.00)	1
	-----	• BOX,POLY,KITS,ROLLS,3 1/2X5 1/2	1

Power Distribution Replacement Service Kit

Kit Part	Part	Description	Quantity
1128095	—	KIT, SERVICE, POWER DIST, REPLACEMENT	—
	-----	• PCA, POWER DISTRIBUTION, ENDEAVOUR	1
	-----	• MACHSCRM,PAN,REC,M3X8,SEMS	4
	-----	• BOX,HANDGUN,23 X 14 X 5.25	1
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• LABEL,BLANK,3.50"X1.375"	1

4-Channel Hose/Applicator Module Service Kit

Kit Part	Part	Description	Quantity
1128092	—	KIT, SERVICE, H/A MODULE, 4 CH	—
	-----	• MODULE,HA ASSY, 4CH	1
	-----	• SCREW,SKTHD,M4X.7X6,ZN	2
	-----	• BOX,HANDGUN, 8.75 L X 6.875 W X 2.00 D	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1

Temperature Control Module Service Kit

Kit Part	Part	Description	Quantity
1128099	—	KIT, SERVICE, TEMP CONTROL MODULE	—
	-----	• MODULE,HA ASSY, 6CH	1
	-----	• SCREW,SKTHD,M4X.7X6,ZN	4
	-----	• BOX,HANDGUN, 8.75 L X 6.875 W X 2.00 D	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1

4-Channel Hose/Applicator Blank Service Kit

Kit Part	Part	Description	Quantity
1128093	—	KIT, SERVICE, H/A MODULE, BLANK	—
	-----	• MODULE,ELECTRICAL,H/A BLANK	1
	-----	• BOX,HANDGUN, 8.75 L X 6.875 W X 2.00 D	1
	-----	• LABEL,BLANK,3.50"X1.375"	1

Power Distribution Expansion Service Kit

Kit Part	Part	Description	Quantity
1128096	—	KIT, SERVICE, POWER DIST. EXP, REPLACEMENT	—
	-----	• PCA, POWER DISTRIBUTION EXP	1
	-----	• MACHSCRM,PAN,REC,M3X8,SEMS	4
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• CARTON,MISC PARTS (6" X 4" x 2")	1
	-----	• BOX,POLY,KITS,ROLLS,3 1/2X5 1/2	1

15 Amp Fuse Service Kit

Kit Part	Part	Description	Quantity
1128076	—	KIT, SERVICE, FUSE, 15 AMP, 10 CT	—
	-----	• FUSE,15.00,NONTIME-DELAY,250V	10
	-----	• COVER,FUSE,.25 X 1.25	10
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1

20 Amp Fuse Service Kit

Kit Part	Part	Description	Quantity
1128075	—	KIT, SERVICE, FUSE, 20 AMP, 10 CT	—
	-----	• FUSE,20,NON-TIME DELAY,250V	10
	-----	• COVER,FUSE,.25 X 1.25	10
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1

3.15 Amp Fuse Service Kit

Kit Part	Part	Description	Quantity
1128101	—	KIT, SERVICE, FUSE, 3.15 AMP, 10 CT	—
	-----	• FUSE,TIMEDELAY,215SERIES,3.15AX20MM	10
	-----	• COVER,FUSE,5X20MM	10
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1

Pump Service Kits

Pump Replacement Service Kit

Kit Part	Part	Description	Quantity
1128176	—	KIT, SERVICE, PUMP REPLACEMENT	—
	-----	• PUMP,STANDARD DOUBLE ACTING	1
	-----	• ELBOW, MALE,6 MM TUBE X G 1/8	1
	-----	• LUBRICANT,O-RING,NSF-H1,10 ML TUBE	1
	-----	• INSERT SET,PUMP,STD D/A	1
	-----	• CAP/PLUG,TAPERED, .240 O.D.	2
	-----	• BOX,MPL PUMP,22 1/8" X 6 X 11	1
	-----	• LABEL,BLANK,3.50"X1.375"	4
	-----	• TAPE,REINFORCED STRAPPING 3/4	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	-----	• CAP/PLUG,TAPERED, .302 O.D.	1
	-----	• LUBRICANT,HIGH-TEMP,NSF-H1,1 OZ. BOTTLE	1
	-----	• TAG,CAUTION,OIL AIR LINE,SP PUMP LUB	1
	-----	• BAG,POLY,KITS,ROLLS,6X10	1

Pump Service Kit

Kit Part	Part	Description	Quantity
1128177	—	KIT, SERVICE, PUMP	—
	-----	• O RING,VITON, 2.000X2.125X.063	2
	-----	• O RING,VITON,.739ID X .070W,BR,10418	4
	-----	• CUP,U,VITON	1
	-----	• CUP,PISTON,SP	2
	-----	• SEAL,PUMP	1
	-----	• RETAINING RING,INT,100,PUSHON	1
	-----	• NUT,HEX,LOCK,TORQUE,M6X1, DIN 980V,V3	1
	-----	• O RING,VITON,BLK,1.812X2.000	1
	-----	• ORING,VITON,1.609x1.887x139,-223	1
	-----	• O RING,VITON,BLK,1.562X1.750	1
	-----	• O RING,VITON, .938X1.063X.063-021	1
	-----	• LUBRICANT,O-RING,NSF-H1,10 ML TUBE	1
	-----	• LUBRICANT,HIGH-TEMP,NSF-H1,1 OZ. BOTTLE	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• BAG,POLY,KITS,ROLLS,5X7	3
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	8
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1

High Output Double Acting Pump Replacement Service Kit

Kit Part	Item	Part	Description	Quantity
1129104		—	KIT,SERVICE,PUMP REPLACEMENT,H/O,D/A	—
	1	-----	• PUMP,HIGH OUTPUT DOUBLE ACTING,PB FLEX	1
	2	-----	• ELBOW, MALE,6 MM TUBE X G 1/8	1
	3	-----	• LUBRICANT,O-RING,NSF-H1,10 ML TUBE	1
	5	-----	• INSERT,SET,PUMP,HO,FLEX	1
	6	-----	• CAP/PLUG,TAPERED, .240 O.D.	2
	7	-----	• BOX,MPL PUMP,22 1/8" X 6 X 11	1
	8	-----	• LABEL,BLANK,3.50"X1.375"	4
	10	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	11	-----	• CAP/PLUG,TAPERED, .302 O.D.	1
	12	-----	• LUBRICANT,HIGH-TEMP,NSF-H1,1 OZ. BOTTLE	1
	13	-----	• TAG,CAUTION,OIL AIR LINE,SP PUMP LUB	1
	14	-----	• BAG,POLY,KITS,ROLLS,6X10	1

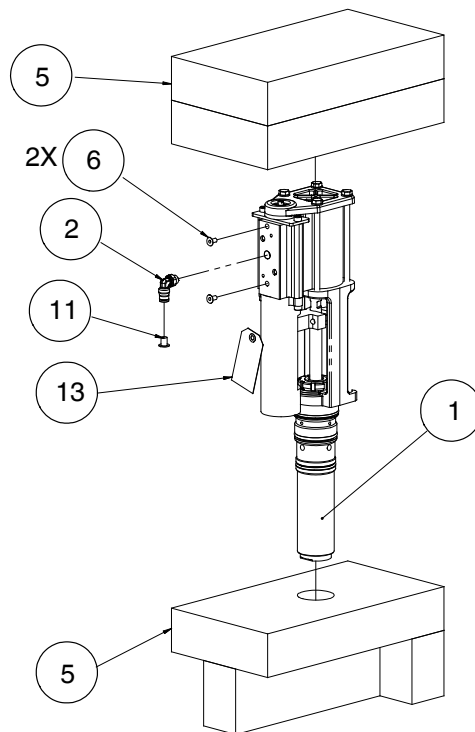


Figure 8-37 Double acting standard pump service kit parts

Note: Items 3, 4, 7, 8, 9, 10, 14 are not shown in the above figure.

High Output Double Acting Pump Service Kit

Kit Part	Part	Description	Quantity
1129105	—	KIT,SERVICE,PUMP,H/O,D/A	—
	-----	• CUP,PISTON,PUMP,HIGH OUTPUT	2
	-----	• SEAL,PUMP,HI VOL,MPL	1
	-----	• O RING,VITON, 3.250X3.375X.063	2
	-----	• O RING,VITON,BLK,1.812X2.000	1
	-----	• O RING,VITON,1.609x1.887x139,-223	1
	-----	• O RING,VITON,BLK,1.562X1.750	1
	-----	• O RING,VITON, 1.500X1.625X.063,-029	1
	-----	• UCUP,.500 ID,1.000 OD, .250,VITON	1
	-----	• O RING,VITON,.301ID X .070W,BR, 10411 SB	2
	-----	• RETAINING RING,INT,125,PUSHON	1
	-----	• NUT,HEX,LOCK,TORQUE,M6X1, DIN 980V,V3	1
	-----	• LUBRICANT,O-RING,NSF-H1,10 ML TUBE	1
	-----	• LUBRICANT,HIGH-TEMP,NSF-H1,1 OZ. BOTTLE	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• BAG,POLY,KITS,ROLLS,5X7	3
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	8
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1

Single Acting High Output Pump Replacement Service Kit

See Figure 8-37.

Kit Part	Item	Part	Description	Quantity
1129106		—	KIT,SERVICE,PUMP REPLACEMENT,H/O,S/A	—
	1	-----	• PUMP,HIGH OUTPUT SINGLE ACTING,PB FLEX	1
	2	-----	• ELBOW, MALE,6 MM TUBE X G 1/8	2
	3	-----	• LUBRICANT,O-RING,NSF-H1,10 ML TUBE	1
	5	-----	• INSERT,SET,PUMP,HO,FLEX	1
	7	-----	• BOX,MPL PUMP,22 1/8" X 6 X 11	1
	8	-----	• LABEL,BLANK,3.50"X1.375"	4
	10	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	11	-----	• CAP/PLUG,TAPERED, .302 O.D.	2
	14	-----	• BAG,POLY,KITS,ROLLS,6X10	1

Single Acting High Output Pump Service Kit

Kit Part	Part	Description	Quantity
1129107	—	KIT,SERVICE,PUMP,H/O,S/A	—
	-----	• O RING,VITON, 3.250X3.375X.063	2
	-----	• NUT,HEX,LOCK,TORQUE,M6X1, DIN 980V,V3	1
	-----	• CUP,PISTON,PUMP,HIGH OUTPUT	2
	-----	• RETAINING RING,INT,125,PUSHON	1
	-----	• UCUP,.500 ID,1.000 OD, .250,VITON	1
	-----	• O RING,VITON, 1.500X1.625X.063,-029	1
	-----	• SEAL,PUMP,HI VOL,S/A	1
	-----	• O RING,VITON,BLK,1.812X2.000	1
	-----	• O RING,VITON,1.609x1.887x139,-223	1
	-----	• O RING,VITON,BLK,1.562X1.750	1
	-----	• LUBRICANT,O-RING,NSF-H1,10 ML TUBE	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• BAG,POLY,KITS,ROLLS,5X7	3
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	8
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1

Low Viscosity Pump Replacement Service Kit

See Figure 8-37.

Kit Part	Item	Part	Description	Quantity
1129109		—	KIT,SERVICE,PUMP REPLACEMENT,L/V, D/A	—
	1	-----	• PUMP,LOW VISCOSITY,D/A	1
	2	-----	• ELBOW, MALE,6 MM TUBE X G 1/8	1
	3	-----	• LUBRICANT,O-RING,NSF-H1,10 ML TUBE	1
	5	-----	• INSERT SET,PUMP,STD D/A	1
	6	-----	• CAP/PLUG,TAPERED, .240 O.D.	2
	7	-----	• BOX,MPL PUMP,22 1/8" X 6 X 11	1
	8	-----	• LABEL,BLANK,3.50"X1.375"	4
	10	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	11	-----	• CAP/PLUG,TAPERED, .302 O.D.	1
	12	-----	• LUBRICANT,HIGH-TEMP,NSF-H1,1 OZ. BOTTLE	1
	13	-----	• TAG,CAUTION,OIL AIR LINE,SP PUMP LUB	1
	14	-----	• BAG,POLY,KITS,ROLLS,6X10	1

Low Viscosity Pump Service Kit

Kit Part	Part	Description	Quantity
1129110	—	KIT,SERVICE,PUMP,L/V, D/A	—
	-----	• O RING,VITON, 2.000X2.125X.063	2
	-----	• O RING,VITON,.301ID X .070W,BR, 10411 SB	4
	-----	• CUP,U,VITON	1
	-----	• CUP,PISTON,SP	2
	-----	• SEAL,PUMP	1
	-----	• RETAINING RING,INT,100,PUSHON	1
	-----	• NUT,HEX,LOCK,TORQUE,M6X1, DIN 980V,V3	1
	-----	• O RING,VITON,BLK,1.812X2.000	1
	-----	• O RING,VITON,1.609x1.887x139,-223	1
	-----	• O RING,VITON,BLK,1.562X1.750	1
	-----	• O RING,VITON, .938X1.063X.063-021	1
	-----	• LUBRICANT,O-RING,NSF-H1,10 ML TUBE	1
	-----	• LUBRICANT,HIGH-TEMP,NSF-H1,1 OZ. BOTTLE	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• BAG,POLY,KITS,ROLLS,5X7	3
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	8
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1

Low Pressure Pump Replacement Service Kit

See Figure 8-37.

Kit Part	Item	Part	Description	Quantity
1129111		—	KIT,SERVICE,PUMP REPLACEMENT,L/P, D/A	—
	1	-----	• PUMP,LOW PRESSURE,D/A,PB FLEX	1
	2	-----	• ELBOW, MALE,6 MM TUBE X G 1/8	1
	3	-----	• LUBRICANT,O-RING,NSF-H1,10 ML TUBE	1
	5	-----	• INSERT SET,PUMP,STD D/A	1
	6	-----	• CAP/PLUG,TAPERED, .240 O.D.	2
	7	-----	• BOX,MPL PUMP,22 1/8" X 6 X 11	1
	8	-----	• LABEL,BLANK,3.50"X1.375"	4
	10	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	11	-----	• CAP/PLUG,TAPERED, .302 O.D.	1
	12	-----	• LUBRICANT,HIGH-TEMP,NSF-H1,1 OZ. BOTTLE	1
	13	-----	• TAG,CAUTION,OIL AIR LINE,SP PUMP LUB	1
	14	-----	• BAG,POLY,KITS,ROLLS,6X10	1

Low Pressure Pump Service Kit

Kit Part	Part	Description	Quantity
1129112	—	KIT,SERVICE,PUMP,L/P,L/P/V,D/A	—
	-----	• CUP,PISTON,6:1	2
	-----	• SEAL,PUMP	1
	-----	• O RING,VITON, 2.000X2.125X.063	2
	-----	• O RING,VITON,BLK,1.812X2.000	1
	-----	• O RING,VITON,1.609x1.887x139,-223	1
	-----	• O RING,VITON,BLK,1.562X1.750	1
	-----	• O RING,VITON, .938X1.063X.063-021	1
	-----	• CUP,U,VITON	1
	-----	• RETAINING RING,INT,100,PUSHON	1
	-----	• NUT,HEX,LOCK,TORQUE,M6X1, DIN 980V,V3	1
	-----	• O RING,VITON, .301ID X .070W,BR, 10411 SB	4
	-----	• LUBRICANT,O-RING,NSF-H1,10 ML TUBE	1
	-----	• LUBRICANT,HIGH-TEMP,NSF-H1,1 OZ. BOTTLE	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• BAG,POLY,KITS,ROLLS,5X7	3
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	8
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1

Low Pressure/Low Viscosity Pump Replacement Service Kit

See Figure 8-37.

Kit Part	Item	Part	Description	Quantity
1129113		—	KIT,SERVICE,PUMP REPLACEMENT,L/P/V, D/A	—
	1	-----	• PUMP,LOW PRESSURE/VISCOSITY,D/A	1
	2	-----	• ELBOW, MALE,6 MM TUBE X G 1/8	1
	3	-----	• LUBRICANT,O-RING,NSF-H1,10 ML TUBE	1
	5	-----	• INSERT SET,PUMP,STD D/A	1
	6	-----	• CAP/PLUG,TAPERED, .240 O.D.	2
	7	-----	• BOX,MPL PUMP,22 1/8" X 6 X 11	1
	8	-----	• LABEL,BLANK,3.50"X1.375"	4
	10	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	11	-----	• CAP/PLUG,TAPERED, .302 O.D.	1
	12	-----	• LUBRICANT,HIGH-TEMP,NSF-H1,1 OZ. BOTTLE	1
	13	-----	• TAG,CAUTION,OIL AIR LINE,SP PUMP LUB	1
	14	-----	• BAG,POLY,KITS,ROLLS,6X10	1

Low Pressure Low Viscosity Pump Service Kit

Kit Part	Part	Description	Quantity
1129112	—	KIT,SERVICE,PUMP,L/P,L/P/V,D/A	—
	-----	• CUP,PISTON,6:1	2
	-----	• SEAL,PUMP	1
	-----	• O RING,VITON, 2.000X2.125X.063	2
	-----	• O RING,VITON,BLK,1.812X2.000	1
	-----	• O RING,VITON,1.609x1.887x139,-223	1
	-----	• O RING,VITON,BLK,1.562X1.750	1
	-----	• O RING,VITON, .938X1.063X.063-021	1
	-----	• CUP,U,VITON	1
	-----	• RETAINING RING,INT,100,PUSHON	1
	-----	• NUT,HEX,LOCK,TORQUE,M6X1, DIN 980V,V3	1
	-----	• O RING,VITON,.301ID X .070W,BR, 10411 SB	4
	-----	• LUBRICANT,O-RING,NSF-H1,10 ML TUBE	1
	-----	• LUBRICANT,HIGH-TEMP,NSF-H1,1 OZ. BOTTLE	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• BAG,POLY,KITS,ROLLS,5X7	3
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	8
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1

Magnetic Actuator Service Kit

Kit Part	Part	Description	Quantity
164606	—	SERVICE KIT,MAG ACTUATOR,SP	—
	-----	• ACTUATOR,MAGNETIC,ASSY,SP	1
	-----	• TUBE,RETAINING,MAG/ACTUATOR,SP	1
	-----	• CAP/PLUG,STRAIGHT,1.500I.D.	2
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1
	-----	• LABEL,BLANK,3.50"X1.375"	1

Air Valve Assembly Service Kit

Kit Part	Part	Description	Quantity
1006027	—	SERVICE KIT,VALVE ASSY,G2SP	—
	-----	• VALVE ASSY,AIR,SP PUMP	1
	-----	• BAG,POLY,KITS,ROLLS,5X7	1
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• SPRING,WAVE,INCONEL,SP PUMP	1

Magnetic Fork Service Kit

Kit Part	Part	Description	Quantity
166880	—	SERVICE KIT,FORK,MAGNETIC,SP	—
	-----	• FORK,MAGNETIC,ASSY	1
	-----	• SCR,PAN,10-32X1.000,SL,BR	1
	-----	• SCR,HEX,CAP,M6X30,ZN	1
	-----	• WASHER,FLT,M,NARROW,M6,STL,ZN	1
	-----	• WASHER,PISTON SEAL,SP	2
	-----	• NUT,HEX,MACH,#10-32,BRASS	1
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1
	-----	• LABEL,BLANK,3.50"X1.375"	1

Airline Service Kit

Kit Part	Part	Description	Quantity
1128316	—	KIT,SERVICE,AIRLINE	—
	-----	• TUBING,FILTER TO REGULATOR,6MM	1
	-----	• TUBING, REGULATOR TO PDV, 6MM	1
	-----	• TUBING,PDV TO PUMP,6MM	1
	-----	• GROMMET,TUNNEL,6MM AIR LINE	1
	-----	• BAG,PLASTIC,10.5"x16"	1
	-----	• LABEL,BLANK,3.50"X1.375"	1

Pump and PDV Fittings Service Kit

Kit Part	Part	Description	Quantity
1128323	—	KIT,SERVICE,PUMP & PDV FITTINGS	—
	-----	• TEE,RUN,6MM TUBE X G1/8	1
	-----	• ELBOW, MALE,6 MM TUBE X G 1/8	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1
	-----	• LABEL,BLANK,3.50"X1.375"	1

Single Acting Airline , P1 and P2 Service Kit

Kit Part	Part	Description	Quantity
1129045	—	KIT,SERVICE,AIRLINE,SA,P1&P2	—
	-----	• TUBING,REGULATOR TO PDV,6MM	1
	-----	• TUBING,FILTER TO REGULATOR,6MM OD	1
	-----	• TUBING,REGULATOR TO PUMP BOTTOM,6MM	1
	-----	• GROMMET,TUNNEL,3 AIR LINES	1
	-----	• TUBING,PDV TO PUMP,6MM	1
	-----	• PLUG-TYPE THREAD-IN FTG.-G-D06-G1/8-0000	3

Lid Service Kits***Lid Switch Service Kit***

Kit Part	Part	Description	Quantity
1128173	—	KIT, SERVICE, POWER SUPPLY	—
	-----	• HARNESS, LID SWITCH	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1

Fill Lid Filter Service Kit

Kit Part	Part	Description	Quantity
1128174	—	KIT, SERVICE, FILTER, FF	—
	-----	• FILTER,AIR,FILL,LID	10
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• BAG,POLY,KITS,ROLLS,5X7	1

FF Inlet Tube Service Kit

Kit Part	Part	Description	Quantity
1128175	—	KIT, SERVICE, INLET TUBE, FF	—
	-----	• TUBE,INLET,FILL	1
	-----	• COUPLING,INLET TUBE,FILL LID	1
	-----	• ORING,VITON,66.27x3.5	1
	-----	• BAG,POLY,KITS,ROLLS,6X10	1
	-----	• BOX,8" X 5"X 5"	1
	-----	• LABEL,BLANK,3.00X5.00	1

Size A Replacement Lid Service Kit

Kit Part	Part	Description	Quantity
1128162	—	KIT, SERVICE, REPLACEMENT LID, SIZE A	—
	-----	• MODULE,LID, SIZE A,STD	1
	-----	• CARTON,MISC PARTS,(11.25 X 9.00 X 4.00)	1
	-----	• LABEL,BLANK,3.50"X1.375"	1

Size B Replacement Lid Service Kit

Kit Part	Part	Description	Quantity
1128163	—	KIT, SERVICE, REPLACEMENT LID, SIZE B	—
	-----	• MODULE,LID, SIZE B,STD	1
	-----	• BOX,13.50 L X 12.75 W X 10.50 D	1
	-----	• LABEL,BLANK,3.50"X1.375"	1

Size A Fill Lid Replacement Service Kit

Kit Part	Part	Description	Quantity
1128171	—	KIT,SERVICE,REPLACEMENT LID,FILL,SIZE A	—
	-----	• MODULE,LID, SIZE A,FILL	1
	-----	• SCR,SKT,M6X35,ZN	1
	-----	• NUT,HEX,JAM,M6,SS	1
	-----	• WASHER,LOCK,M6, 316 SST	2
	-----	• SPACER,KNOB ASSY,FILL LID	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	4
	-----	• BOX,13.50 L X 12.75 W X 10.50 D	1
	-----	• LABEL,BLANK,3.50"X1.375"	1

Size B Fill Lid Replacement Service Kit

Kit Part	Part	Description	Quantity
1128172	—	KIT,SERVICE,REPLACEMENT LID,FILL,SIZE B	—
	-----	• MODULE,LID, SIZE B,FILL	1
	-----	• SCR,SKT,M6X35,ZN	1
	-----	• NUT,HEX,JAM,M6,SS	1
	-----	• WASHER,LOCK,M6, 316 SST	2
	-----	• SPACER,KNOB ASSY,FILL LID	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	4
	-----	• BOX,13.50 L X 12.75 W X 10.50 D	1
	-----	• LABEL,BLANK,3.50"X1.375"	1

Tank Service Kits**4/7kg and 7/14 kg/hr MOD Level Sensor Service Kit**

Kit Part	Part	Description	Quantity
1128263	—	KIT,SERVICE,LEVEL SENSOR, SIZE A,B	—
	-----	• PCA,SENSOR,PLATE,STUD	1
	-----	• GASKET,LEVEL SENSOR	1
	-----	• NUT,HEX W/EXT TOOTH WASHER,M4	4
	-----	• BAG,POLY,KITS,ROLLS,5X7	1
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1

10 Kg Level Sensor Service Kit

Kit Part	Part	Description	Quantity
1128264	—	KIT,SERVICE,LEVEL SENSOR, 10 KG	—
	-----	• PCA,SENSOR,PLATE,10L,STUD,ENDEAVOUR	1
	-----	• GASKET,LEVEL SENSOR,10KG	1
	-----	• NUT,HEX W/EXT TOOTH WASHER,M4	6
	-----	• BAG,POLY,KITS,ROLLS,5X7	1
	-----	• BOX,HANDGUN, 8.75 L X 6.875 W X 2.00 D	1

Tank Service Kits (contd)**4 Kg 230V Tank Service Kit**

Kit Part	Part	Description	Quantity
1128151	—	SERVICE KIT, TANK, 4KG, 230V	—
	-----	• MODULE, TANK, 4L, 200/240V	1
	-----	• LABEL, BLANK, 3.50"X1.375"	1
	-----	• CARTON, OUTER, CORR. CARDBOARD, 16X16X16"	1
	-----	• LUBRICANT, O- RING, NSF- H1, 10 ML TUBE	1
	-----	• PACKAGING, INSTAPAK QUICK, FOAMINBAG, 15X18	7
	-----	• WRENCH, HEATER TERMINAL	2
	-----	• BAG, POLY, KITS, ROLLS, 5X7	2

7 Kg 230V Tank Service Kit

Kit Part	Part	Description	Quantity
1128152	—	SERVICE KIT, TANK, 7KG, 230V	—
	-----	• MODULE, TANK, 7L, 200/240V	1
	-----	• LABEL, BLANK, 3.50"X1.375"	1
	-----	• CARTON, OUTER, CORR. CARDBOARD, 16X16X16"	1
	-----	• LUBRICANT, O- RING, NSF- H1, 10 ML TUBE	1
	-----	• PACKAGING, INSTAPAK QUICK, FOAMINBAG, 15X18	7
	-----	• WRENCH, HEATER TERMINAL	2
	-----	• BAG, POLY, KITS, ROLLS, 5X7	2

10 Kg 230V Tank Service Kit

Kit Part	Part	Description	Quantity
1128153	—	SERVICE KIT, TANK, 10KG, 230V	—
	-----	• MODULE, TANK, 10L, 200/240V	1
	-----	• LABEL, BLANK, 3.50"X1.375"	1
	-----	• CARTON, OUTER, CORR. CARDBOARD, 16X16X16"	1
	-----	• LUBRICANT, O- RING, NSF- H1, 10 ML TUBE	1
	-----	• PACKAGING, INSTAPAK QUICK, FOAMINBAG, 15X18	7
	-----	• WRENCH, HEATER TERMINAL	2
	-----	• BAG, POLY, KITS, ROLLS, 5X7	2

4 Kg 400/480V Tank Service Kit

Kit Part	Part	Description	Quantity
1128148	—	SERVICE KIT, TANK, 4KG, 400/480V	—
	-----	• MODULE,TANK,4KG,400/480 V	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• CARTON,OUTER,CORR.CARDBOARD,16X16X16"	1
	-----	• LUBRICANT,O- RING,NSF- H1,10 ML TUBE	1
	-----	• PACKAGING,INSTAPAK QUICK,FOAMINBAG,15X18	7
	-----	• WRENCH,HEATER TERMINAL	2
	-----	• BAG,POLY,KITS,ROLLS,5X7	2

7 Kg 400/480V Tank Service Kit

Kit Part	Part	Description	Quantity
1128149	—	SERVICE KIT, TANK, 7KG, 400/480V	—
	-----	• MODULE,TANK,7KG,400/480 V	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• CARTON,OUTER,CORR.CARDBOARD,16X16X16"	1
	-----	• LUBRICANT,O- RING,NSF- H1,10 ML TUBE	1
	-----	• PACKAGING,INSTAPAK QUICK,FOAMINBAG,15X18	7
	-----	• WRENCH,HEATER TERMINAL	2
	-----	• BAG,POLY,KITS,ROLLS,5X7	2

10 Kg 400/480V Tank Service Kit

Kit Part	Part	Description	Quantity
1128150	—	SERVICE KIT, TANK, 10KG, 400/480V	—
	-----	• MODULE,TANK,10KG,400/480 V	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• CARTON,OUTER,CORR.CARDBOARD,16X16X16"	1
	-----	• LUBRICANT,O- RING,NSF- H1,10 ML TUBE	1
	-----	• PACKAGING,INSTAPAK QUICK,FOAMINBAG,15X18	7
	-----	• WRENCH,HEATER TERMINAL	2
	-----	• BAG,POLY,KITS,ROLLS,5X7	2

Grid/Hopper Service Kits

MOD 7 Kg, 700W, 230V Grid/Hopper Service Kit

Kit Part	Part	Description	Quantity
1128147	—	SERVICE KIT, GRID/HOPPER, MOD7, 700W, 230V	—
	-----	• GRID,COATED,7 KG/HR	1
	-----	• GASKET,LEVEL SENSOR	1
	-----	• PCA,SENSOR,PLATE,STUD	1
	-----	• THERMOSTAT,00R,500DEG F,PUSH- ON TERM	1
	-----	• CLIP,RETAINING,RTD	1
	-----	• SCR,SKT,M4X8,SST	4
	-----	• NUT,HEX W/EXT TOOTH WASHER,M4	4
	-----	• CAPSCREW,SOCKETHD,M6X20MM,STL- ZINC	4
	-----	• INSULATOR,BOOT,T- STAT,DOUBLE,SILICONE	1
	-----	• GASKET,GRID&HOPPER	1
	-----	• PROTECTOR,SHIPPING,GRID,FLEX	1
	-----	• STRAP,CABLE,.06- 4.00,NATURAL	1
	-----	• PACKAGING,INSTAPAK QUICK,FOAMINBAG,15X18	2
	-----	• BOX,HEATER PAD,11X9X8"	1
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BAG,POLY,KITS,ROLLS,6X10	5
	-----	• LABEL,BLANK,3.50"X1.375"	5

MOD 14 Kg, 1200W, 230V Grid/Hopper Service Kit

Kit Part	Part	Description	Quantity
1128146	—	SERVICE KIT, GRID/HOPPER, MOD14, 1200W, 230V	—
	-----	• GRID,COATED,14 KG/HR	1
	-----	• GASKET,LEVEL SENSOR	1
	-----	• PCA,SENSOR,PLATE,STUD	1
	-----	• THERMOSTAT,00R,500DEG F,PUSH- ON TERM	1
	-----	• CLIP,RETAINING,RTD	1
	-----	• SCR,SKT,M4X8,SST	4
	-----	• NUT,HEX W/EXT TOOTH WASHER,M4	4
	-----	• CAPSCREW,SOCKETHD,M6X20MM,STL- ZINC	4
	-----	• INSULATOR,BOOT,T- STAT,DOUBLE,SILICONE	1
	-----	• GASKET,GRID&HOPPER	1
	-----	• PROTECTOR,SHIPPING,GRID,FLEX	1
	-----	• STRAP,CABLE,.06- 4.00,NATURAL	1
	-----	• PACKAGING,INSTAPAK QUICK,FOAMINBAG,15X18	2
	-----	• BOX,HEATER PAD,11X9X8"	1
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BAG,POLY,KITS,ROLLS,6X10	5
	-----	• LABEL,BLANK,3.50"X1.375"	5

MOD 7 Kg, 700W, 400/480V Grid/Hopper Service Kit

Kit Part	Part	Description	Quantity
1128145	—	SERVICE KIT, GRID/HOPPER, MOD7, 700W, 400/480V	—
	-----	• GRID,COATED,7KG/HR,480V	1
	-----	• GASKET,LEVEL SENSOR	1
	-----	• PCA,SENSOR,PLATE,STUD	1
	-----	• THERMOSTAT,OOR,500DEG F,PUSH- ON TERM	1
	-----	• CLIP,RETAINING,RTD	1
	-----	• SCR,SKT,M4X8,SST	4
	-----	• NUT,HEX W/EXT TOOTH WASHER,M4	4
	-----	• CAPSCREW,SOCKETHD,M6X20MM,STL- ZINC	4
	-----	• INSULATOR,BOOT,T- STAT,DOUBLE,SILICONE	1
	-----	• GASKET,GRID&HOPPER	1
	-----	• PROTECTOR,SHIPPING,GRID,FLEX	1
	-----	• STRAP,CABLE,.06- 4.00,NATURAL	1
	-----	• PACKAGING,INSTAPAK QUICK,FOAMINBAG,15X18	2
	-----	• BOX,HEATER PAD,11X9X8"	1
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BAG,POLY,KITS,ROLLS,6X10	5
	-----	• LABEL,BLANK,3.50"X1.375"	5

MOD 14 Kg, 1200W, 400/480V Grid/Hopper Service Kit

Kit Part	Part	Description	Quantity
1128144	—	SERVICE KIT, GRID/HOPPER, MOD14 1200W, 400/480V	—
	-----	• GRID,COATED,14KG/HR,480V	1
	-----	• GASKET,LEVEL SENSOR	1
	-----	• PCA,SENSOR,PLATE,STUD	1
	-----	• THERMOSTAT,OOR,500DEG F,PUSH- ON TERM	1
	-----	• CLIP,RETAINING,RTD	1
	-----	• SCR,SKT,M4X8,SST	4
	-----	• NUT,HEX W/EXT TOOTH WASHER,M4	4
	-----	• CAPSCREW,SOCKETHD,M6X20MM,STL- ZINC	4
	-----	• INSULATOR,BOOT,T- STAT,DOUBLE,SILICONE	1
	-----	• GASKET,GRID&HOPPER	1
	-----	• PROTECTOR,SHIPPING,GRID,FLEX	1
	-----	• STRAP,CABLE,.06- 4.00,NATURAL	1
	-----	• PACKAGING,INSTAPAK QUICK,FOAMINBAG,15X18	2
	-----	• BOX,HEATER PAD,11X9X8"	1
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BAG,POLY,KITS,ROLLS,6X10	5
	-----	• LABEL,BLANK,3.50"X1.375"	5

Manifold Service Kits

Standard Hose Manifold Service Kit

Kit Part	Part	Description	Quantity
1128160	—	SERVICE KIT, HOSE, MANIFOLD, STD	—
	-----	• MANIFOLD ASSEMBLY,HOSE	1
	-----	• SCR,SKT,M6X55,SS	4
	-----	• O RING,VITON, .489ID X .070W,BR,10414	1
	-----	• LUBRICANT,NEVER SEEZE,NSF-H1,FOOD GRADE	1
	-----	• LUBRICANT,O-RING,NSF-H1,10 ML TUBE	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	-----	• BOX,RBX PC BOARD	1
	-----	• LABEL,BLANK,3.50"X1.375"	5

Manifold Filter Service Kit

Kit Part	Part	Description	Quantity
1128159	—	SERVICE KIT, FILTER MANIFOLD	—
	-----	• MANIFOLD ASSEMBLY,FILTER,D/A	1
	-----	• O RING,VITON, .489ID X .070W,BR,10414	2
	-----	• SCR,SKT,M5X60,SS	3
	-----	• LUBRICANT,NEVER SEEZE,NSF- H1,FOOD GRADE	1
	-----	• LUBRICANT,O- RING,NSF- H1,10 ML TUBE	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	-----	• BOX,RBX PC BOARD	1
	-----	• LABEL,BLANK,3.50"X1.375"	5

Manifold Center Service Kit

Kit Part	Part	Description	Quantity
1128158	—	SERVICE KIT, CENTER MANIFOLD	—
	-----	• MANIFOLD ASSEMBLY,CENTER	1
	-----	• SCR,HEX,FLANGE,M6X35,ZN	2
	-----	• INSULATOR,PUMP FRAME	1
	-----	• PAN,PUMP	1
	-----	• SCR,SKT,M8X90,SS	3
	-----	• INSULATION,MANIFOLD	1
	-----	• LUBRICANT,NEVER SEEZE,NSF- H1,FOOD GRADE	1
	-----	• LUBRICANT,O- RING,NSF- H1,10 ML TUBE	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	-----	• BOX,CARDBOARD, 12 x 10 x 5	5
	-----	• LABEL,BLANK,3.50"X1.375"	5

Single Acting Pump Manifold Filter Service Kit

Kit Part	Part	Description	Quantity
1129108	—	KIT,SERVICE,MANIFOLD,FILTER,S/A	—
	-----	• MANIFOLD ASSEMBLY,FILTER,S/A	1
		• O RING,VITON, .489ID X .070W,BR,10414	2
		• SCR,SKT,M5X60,SS	3
		• LUBRICANT,NEVER SEEZE,NSF-H1,FOOD GRADE	1
		• LUBRICANT,O-RING,NSF-H1,10 ML TUBE	1

Heater Service Kits**480V, 2500W Heater Block Service Kit**

Kit Part	Part	Description	Quantity
1128157	—	SERVICE KIT, HEATER BLOCK, 480V, 2500 W	—
	-----	• HEATER ASSEMBLY,MANIFOLD,480V,2500W	1
	-----	• SCREW, ALLENHEAD, M6x35, DIN912, A2	4
	-----	• LUBRICANT,NEVER SEEZE,NSF- H1,FOOD GRADE	1
	-----	• INSULATOR,BOOT,T- STAT,DOUBLE,SILICONE	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	-----	• BAG,POLY,KITS,ROLLS,5X7	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• BOX,CARDBOARD, 12 x 10 x 5	1
	-----	• WRENCH,HEATER TERMINAL	2

230V, 2500W Heater Block Service Kit

Kit Part	Part	Description	Quantity
1128156	—	SERVICE KIT, HEATER BLOCK, 230V, 2500 W	—
	-----	• HEATER ASSEMBLY,MANIFOLD,230V,2500W	1
	-----	• SCREW, ALLENHEAD, M6x35, DIN912, A2	4
	-----	• LUBRICANT,NEVER SEEZE,NSF- H1,FOOD GRADE	1
	-----	• INSULATOR,BOOT,T- STAT,DOUBLE,SILICONE	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	-----	• BAG,POLY,KITS,ROLLS,5X7	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• BOX,CARDBOARD, 12 x 10 x 5	1
	-----	• WRENCH,HEATER TERMINAL	2

Heater Service Kits (contd)**480V, 1000W Heater Block Service Kit**

Kit Part	Part	Description	Quantity
1128155	—	SERVICE KIT, HEATER BLOCK, 230V, 2500 W	—
	-----	• HEATER ASSEMBLY,MANIFOLD,480V,1190W	1
	-----	• SCREW, ALLENHEAD, M6x35, DIN912, A2	4
	-----	• LUBRICANT,NEVER SEEZE,NSF- H1,FOOD GRADE	1
	-----	• INSULATOR,BOOT,T- STAT,DOUBLE,SILICONE	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	-----	• BAG,POLY,KITS,ROLLS,5X7	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• BOX,CARDBOARD, 12 x 10 x 5	1
	-----	• WRENCH,HEATER TERMINAL	2

230V, 1000W Heater Block Service Kit

Kit Part	Part	Description	Quantity
1128154	—	SERVICE KIT, HEATER BLOCK, 230V, 2500 W	—
	-----	• HEATER,ASSEMBLY,MANIFOLD,230V,1000W	1
	-----	• SCREW, ALLENHEAD, M6x35, DIN912, A2	4
	-----	• LUBRICANT,NEVER SEEZE,NSF- H1,FOOD GRADE	1
	-----	• INSULATOR,BOOT,T- STAT,DOUBLE,SILICONE	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	-----	• BAG,POLY,KITS,ROLLS,5X7	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• BOX,CARDBOARD, 12 x 10 x 5	1
	-----	• WRENCH,HEATER TERMINAL	2

Enclosure Service Kits

Mounting Plate (Sub-base) Service Kit, 4 Kg Tank and 7/14 MOD

Kit Part	Part	Description	Quantity
1128265	—	KIT, SERVICE, MOUNTING PLATE,SIZE A	—
	-----	• BASE PLATE,ASSEMBLY,SIZE A	1
	-----	• SCR,SKT,M8X20,ZN	2
	-----	• BOX,SUB BASE,P7/10	1
	-----	• LABEL,BLANK,3.50"X1.375"	2
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1

Mounting Plate (Sub-base) Service Kit, 7/10 Kg Tank

Kit Part	Part	Description	Quantity
1128266	—	KIT, SERVICE, MOUNTING PLATE,SIZE B	—
	-----	• BASE PLATE,ASSEMBLY,SIZE B	1
	-----	• SCR,SKT,M8X20,ZN	2
	-----	• BOX,SUB BASE,P7/10	1
	-----	• LABEL,BLANK,3.50"X1.375"	2
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1

Insulation Service Kits

4 Kg Tank Insulation Service Kit

Kit Part	Part	Description	Quantity
1128254	—	KIT,SERVICE,INSULATION,4 KG TANK	—
	-----	• INSULATION,TANK,A	1
	-----	• INSULATION, TRANSFER JOINT	1
	-----	• LABEL, BLANK, 3.50"X1.375"	1
	-----	• BOX,13.50 L X 12.75 W X 10.50 D	1
	-----	• TAPE,INSULATION,FOIL	2.5

7 Kg Tank Insulation Service Kit

Kit Part	Part	Description	Quantity
1128255	—	KIT,SERVICE,INSULATION,7 KG TANK	—
	-----	• INSULATION,TANK,7KG	1
	-----	• INSULATION, TRANSFER JOINT	1
	-----	• LABEL, BLANK, 3.50"X1.375"	1
	-----	• BOX,13.50 L X 12.75 W X 10.50 D	1
	-----	• TAPE,INSULATION,FOIL	2.5

10 Kg Tank Insulation Service Kit

Kit Part	Part	Description	Quantity
1128256	—	KIT,SERVICE,INSULATION,10 KG TANK	—
	-----	• INSULATION,TANK,10KG	1
	-----	• INSULATION, TRANSFER JOINT	1
	-----	• LABEL, BLANK, 3.50"X1.375"	1
	-----	• BOX,13.50 L X 12.75 W X 10.50 D	1
	-----	• TAPE,INSULATION,FOIL	2.5

MOD Insulation Service Kit

Kit Part	Part	Description	Quantity
1128257	—	KIT,SERVICE,INSULATION,MOD	—
	-----	• INSULATION,MOD GRID,7/14 KG/HR,BOT-SIDE	1
	-----	• INSULATION,MOD GRID,7/14 KG/HR,SIDE	1
	-----	• INSULATION, MOD, HOPPER	1
	-----	• LABEL, BLANK, 3.50"X1.375"	1
	-----	• CARTON,MISC PARTS,(11.25 X 9.00 X 4.00)	1

Manifold Insulation Service Kits

Standard Manifold Kit Guard Service Kit

Kit Part	Part	Description	Quantity
1127877	—	KIT, GUARD, MANIFOLD, STANDARD	—
	-----	• GUARD, MELTER, MANIFOLD, STANDARD	1
	-----	• INSULATION, MANIFOLD, TOUCHSAFE	1
	-----	• INSTR, MANIFOLD GUARD, KIT	1
	-----	• LABEL, BLANK, 3.50"X1.375"	1
	-----	• CARTON,MISC PARTS,(11.25 X 9.00 X 4.00)	1

Manifold Insulation Service Kit

Kit Part	Part	Description	Quantity
1128328	—	KIT,SERVICE,INSULATION,MANIFOLD	—
	-----	• INSULATION,MANIFOLD	1
	-----	• LABEL, BLANK, 3.50"X1.375"	1
	-----	• BOX,CARDBOARD, 12 x 10 x 5	1
	-----	• TAPE,INSULATION,FOIL	1

MOD Manifold Insulation Service Kit

Kit Part	Part	Description	Quantity
1128329	—	KIT,SERVICE,INSULATION,MANIFOLD,MOD	—
	-----	• INSULATION,MANIFOLD,SEWN	1
	-----	• LABEL, BLANK, 3.50"X1.375"	1
	-----	• BOX,CARDBOARD, 12 x 10 x 5	1

Upgrade Kits

Fill Upgrade Kit, Size A

Part	Part	Description	Quantity
1127696	—	KIT,FILL UPGRADE, SIZE A	—
	-----	• MODULE,LID,SIZE A,FILL	1
	-----	• HARNESS, LID SWITCH	1
	-----	• HARNESS,FILL,3P3.81TO2PUFIT,5IN.	1
	-----	• INSTR, FULFILL UPGRADE	1
	-----	• BOX,13.50 L X 12.75 W X 10.50 D	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• SCR,SKT,M6X35,ZN	1
	-----	• NUT,HEX,JAM,M6,SS	1
	-----	• WASHER,LOCK,M6, 316 SST	2
	-----	• SPACER,KNOB ASSY,FILL LID	1
	-----	• HARNESS,SOLENOID,FULFILL RETROFIT	1
	-----	• SCREW, SHCS M3X8 ZINC PLATE	2
	-----	• INSTR,LID,LOCK	1
	-----	• LICENSE,SOFTWARE,UPGRADE,FILL,PG BLEX	1

Fill Upgrade Kit, Size B

Part	Part	Description	Quantity
1128271	—	KIT,FILL UPGRADE, SIZE B	—
	-----	• MODULE,LID,SIZE B,FILL	1
	-----	• HARNESS, LID SWITCH	1
	-----	• HARNESS,FILL,3P3.81TO2PUFIT,5IN.	1
	-----	• INSTR, FULFILL UPGRADE	1
	-----	• BOX,13.50 L X 12.75 W X 10.50 D	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• SCR,SKT,M6X35,ZN	1
	-----	• NUT,HEX,JAM,M6,SS	1
	-----	• WASHER,LOCK,M6, 316 SST	2
	-----	• SPACER,KNOB ASSY,FILL LID	1
	-----	• HARNESS,SOLENOID,FULFILL RETROFIT	1
	-----	• SCREW, SHCS M3X8 ZINC PLATE	2
	-----	• INSTR,LID,LOCK	1
	-----	• LICENSE,SOFTWARE,UPGRADE,FILL,PG BLEX	1

4 to 6 H/A Expansion Kit

Kit Part	Part	Description	Quantity
1127710	—	KIT,6 H/A EXPANSION	—
	-----	• MODULE,HA ASSY, 4CH	1
	-----	• HARNESS,MODULE 3,POWER	1
	-----	• HARNESS,NORDNET,COMM, 4CH	1
	-----	• SCREW,SKTHD,M4X.7X8,ZN	2
	-----	• INSTR, HA EXTENSION KIT	1
	-----	• BOX,HANDGUN, 8.75 L X 6.875 W X 2.00 D	1
	-----	• BAG,POLY,KITS,ROLLS,5X7	2
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• HARNESS,WIRE,GND,4CHI/GROUND TREE	1

2 to 4 H/A Expansion Kit

Kit Part	Part	Description	Quantity
1127709	—	KIT,4 H/A EXPANSION	—
	-----	• MODULE,HA ASSY, 4CH	1
	-----	• PCA, POWER DISTRIBUTION EXP, ENDEAVOUR	1
	-----	• HARNESS,MODULE 2,POWER	1
	-----	• HARNESS, NORDNET 6Ch to 4ChI	1
	-----	• HARNESS,JUMPER,PD EXPANSION	1
	-----	• MACHSCRM,PAN,REC,M3X8,SEMS	4
	-----	• SCREW,SKTHD,M4X.7X8,ZN	2
	-----	• BOX,HANDGUN, 8.75 L X 6.875 W X 2.00 D	1
	-----	• BAG,POLY,KITS,ROLLS,5X7	2
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• HARNESS,WIRE,GND,4CHI/GROUND TREE	1

2 to 6 H/A Expansion Kit

Use:

KIT, 6 H/A EXPANSION (P/N 1127710) and KIT, 4 H/A EXPANSION (1127709).

Legacy I/O Kit

Kit Part	Part	Description	Quantity
1127717	—	KIT, LEGACY IO	—
	-----	• PCA, LEGACY IO, ENDEAVOUR	1
	-----	• HARNESS,RIBBON,2MM,4IN,16POS,REV	1
	-----	• THRDSPCRMM,MALE/FEM,SS,HEX,M3,19MMLG	6
	-----	• MACHSCRM,PAN,REC,M3X8,SEMS	6
	-----	• INSTR, LEGACY IO, ENDEAVOUR	1
	-----	• BOX,HANDGUN, 8.75 L X 6.875 W X 2.00 D	1
	-----	• LABEL,BLANK,3.50"X1.375"	1

External USB Kit

Kit Part	Part	Description	Quantity
1127726	—	KIT, EXT USB	—
	-----	• CABLE,USB-A,M/F,1M,PINLMNT	1
	-----	• CAP,DUST,USB,PINLMNT	1
	-----	• INSTR, EXTERNAL USB	1
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1
	-----	• LABEL,BLANK,3.50"X1.375"	3
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1

Size A Tank Lock Kit

Part	Part	Description	Quantity
1127747	—	KIT,TANK,LOCK, SIZE A	—
	-----	• LID,COVER,LOCK	1
	-----	• SCR,SKT,M6X35,ZN	1
	-----	• SPACER,KNOB ASSY,FILL LID	1
	-----	• WASHER,LOCK,M6, 316 SST	1
	-----	• NUT,HEX,JAM,M6,SS	1
	-----	• INSTR,LID,LOCK	1
	-----	• CARTON,MISC PARTS,(11.25 X 9.00 X 4.00)	1

Size B Tank Lock Kit

Part	Part	Description	Quantity
1128272	—	KIT,TANK,LOCK, SIZE B	—
	-----	• LID,COVER,LOCK, B	1
	-----	• SCR,SKT,M6X35,ZN	1
	-----	• SPACER,KNOB ASSY,FILL LID	1
	-----	• WASHER,LOCK,M6, 316 SST	1
	-----	• NUT,HEX,JAM,M6,SS	1
	-----	• INSTR,LID,LOCK	1
	-----	• CARTON,MISC PARTS,(11.25 X 9.00 X 4.00)	1

MOD 14, 1200W, 400/480V Kit

Part	Part	Description	Quantity
1128337	—	KIT,MOD14,1200W,400/480V	—
	-----	• MODULE,TANK,MOD,14KG,400/480 V	1
	-----	• CARTON,OUTER,CORR.CARDBOARD,16X16X16"	1
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BAG,POLY,KITS,ROLLS,6X10	1

MOD 7, 700W, 400/480V Kit

Part	Part	Description	Quantity
1128338	—	KIT,MOD7,700W,400/480V	—
	-----	• MODULE,TANK,MOD,7KG,400/480 V	1
	-----	• CARTON,OUTER,CORR.CARDBOARD,16X16X16"	1
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BAG,POLY,KITS,ROLLS,6X10	1

MOD 14, 1200W, 200/240V Kit

Part	Part	Description	Quantity
1128339	—	KIT,MOD14.1200W,200/240V	—
	-----	• MODULE,TANK,MOD,14KG,200/240 V	1
	-----	• CARTON,OUTER,CORR.CARDBOARD,16X16X16"	1
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BAG,POLY,KITS,ROLLS,6X10	1

MOD 7, 700W, 200/240V Kit

Part	Part	Description	Quantity
1128340	—	KIT,MOD7,700W,200/240V	—
	-----	• MODULE,TANK,MOD,7KG,200/240V	1
	-----	• CARTON,OUTER,CORR.CARDBOARD,16X16X16"	1
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BAG,POLY,KITS,ROLLS,6X10	1

App Module Upgrade Kit

Kit Part	Part	Description	Quantity
1128343	—	KIT, MODULE,APP UPGRADE	—
	-----	• HARNESSS, LID SWITCH	1
	-----	• SCR,PAN,REC,M3x8mW/INT LKW BZ	2
	-----	• CABLE,USB0A,M/F,1M,PNLMNT	1
	-----	• CAP,DUST,USB,PNLMNT	1
	-----	• REGULATOR,XDCR, W/BKT	1
	-----	• WIRE HARNESS,LVC/SOL/AIR PRESSURE	1
	-----	• PCA, PRESSURE TRANSDUCER	1
	-----	• COVER,XDCR,CIRCUIT BOARD	1
	-----	• SCREW,SKTHD,M4X.7X8,ZN	6
	-----	• CARTON,MISC PARTS,(11.25 X 9.00 X 4.00)	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1
	-----	• LABEL,BLANK,3.50"X1.375"	1

Pneumatic Assembly P2 Upgrade Kit

Kit Part	Part	Description	Quantity
1128344	—	KIT, UPGRADE, PNEUMATIC ASSY, P2	—
	-----	• REGULATOR,XDCR, W/BKT	1
	-----	• WIRE HARNESS,LVC/SOL/AIR PRESSURE	2
	-----	• PCA, PRESSURE TRANSDUCER	1
	-----	• COVER,XDCR,CIRCUIT BOARD	1
	-----	• SCREW,SKTHD,M4X.7X8,ZN	6
	-----	• CARTON,MISC PARTS,(11.25 X 9.00 X 4.00)	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1
	-----	• LABEL,BLANK,3.50"X1.375"	1

Pneumatic Assembly P3 Upgrade Kit

Kit Part	Part	Description	Quantity
1128345	—	KIT, UPGRADE, PNEUMATIC ASSY, P3	—
	-----	• REGULATOR,REMOTE ADJUST, W/BACKET	1
	-----	• WIRE HARNESS,AIR PRESSURE	2
	-----	• PCA, PRESSURE TRANSDUCER	1
	-----	• COVER,XDCR,CIRCUIT BOARD	1
	-----	• SCREW,SKTHD,M4X.7X8,ZN	6
	-----	• CARTON,MISC PARTS,(11.25 X 9.00 X 4.00)	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1
	-----	• LABEL,BLANK,3.50"X1.375"	1

Spare Parts List

Basic Spare Parts Service Kit

Part	Part	Description	Quantity
1128142	—	KIT, SERVICE, BASIC SPARE PARTS	—
	-----	• KIT,FILTER,SATURN,MELTER,100 MESH	1
	-----	• SERVICE KIT,RTD REPLACEMENT,FLEX	1
	-----	• SERVICE KIT,THERMOSTAT,500F,OOR	1
	-----	• KIT, SERVICE, H/A MODULE, 4 CH	1
	-----	• KIT, SERVICE, FUSE, 15 AMP, 10 CT	1
	-----	• KIT, SERVICE, FUSE, 20 AMP, 10 CT	1
	-----	• KIT, SERVICE, FUSE, 3.15 AMP, 10 CT	1
	-----	• BOX,CARDBOARD,20.0 L X 13.5 W X 8.0 D	1
	-----	• LABEL,BLANK,3.50"X1.375"	2

Basic Expanded Spare Parts Service Kit

Part	Part	Description	Quantity
1128143	—	KIT, SERVICE, BASIC EXPANDED PARTS	—
	-----	• KIT,FILTER,SATURN,MELTER,100 MESH	5
	-----	• SERVICE KIT,RTD REPLACEMENT,FLEX	1
	-----	• SERVICE KIT,THERMOSTAT,500F,OOR	1
	-----	• KIT, SERVICE, H/A MODULE, 4 CH	1
	-----	• KIT, SERVICE, FUSE, 15 AMP, 10 CT	1
	-----	• KIT, SERVICE, FUSE, 20 AMP, 10 CT	1
	-----	• KIT, SERVICE, FUSE, 3.15 AMP, 10 CT	1
	-----	• KIT, SERVICE, PUMP	1
	-----	• KIT, SERVICE, MANIFOLD	1
	-----	• FILTER ASSY, AIR, 1/4 BPST	1
	-----	• BOX,19 3/8X17 3/8 X 8 3/4	1
	-----	• LABEL,BLANK,3.50"X1.375"	2

Pneumatic Filter Service Kit

Part	Part	Description	Quantity
1128269	—	KIT, SERVICE, FILTER, PNEUMATIC	—
	-----	• FILTER ASSY, AIR, 1/4 BPST	1
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1
	-----	• LABEL,BLANK,3.50"X1.375"	2
	-----	• ADAPTER,PNEUMATIC,MALE 1/4 BSPP X 1/4NPT	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1

Pneumatic Filter and Bulkhead Bracket Service Kit

Part	Part	Description	Quantity
1128324	—	KIT,SERVICE,PNEU. FILTER & BULKHEAD BRACKET	—
	-----	• BRACKET,WITH 1/4BPST,6MM BULKHEAD	1
	-----	• SCREW,SKTHD,M4X.7X8,ZN	2
	-----	• BAG,POLY,KITS,ROLLS,5X7	1
	-----	• LABEL,BLANK,3.50"X1.375"	1

Flex RTD Replacement Service Kit

Part	Part	Description	Quantity
1128290	—	KIT,SERVICE,RTD REPLACEMENT,FLEX	—
	-----	• SENSOR,TEMP,RTD,THIN-FILM,26IN LEADS	1
	-----	• SCR,SKT,M3X20 LG,BL	1
	-----	• SPCLWSHRM,SPRING,WAVE,M3,STL,ZINCPL	1
	-----	• TERMINAL BLOCK,380V	1
	-----	• COMPOUND,THERMAL,NTE303,1 GRAM	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	7
	-----	• INSERT,FOAM,5 7/8X3 7/8X3/16"	1
	-----	• LABEL,BLANK,3.50"X1.375"	9

Pneumatic Transducer Service Kit

Part	Part	Description	Quantity
1128325	—	KIT, SERVICE, PNEUMATIC TRANSDUCER	—
	-----	• PCA,PRESSURE TRANSDUCER	1
	-----	• COVER,XDCR,CIRCUIT BOARD	1
	-----	• TUBE,POLYURETHANE,4MM OD,CLEAR	1.1
	-----	• SCREW,SKTHD,M4X.7X8,ZN	4
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1
	-----	• LABEL,BLANK,3.50"X1.375"	2

Drain Chute Replacement Service Kit

Part	Part	Description	Quantity
1128267	—	KIT, SERVICE, DRAIN CHUTE REPLACEMENT	—
	-----	• CHUTE,DRAIN,ASSY	1
	-----	• SCR,SKT,M5X10,ZN	1
	-----	• LABEL,BLANK,3.50"X1.375"	2
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1

Drain Valve Replacement Service Kit

Part	Part	Description	Quantity
1128268	—	KIT, SERVICE, DRAIN VALVE REPLACEMENT	—
	-----	• VALVE ASSY,DRAIN	1
	-----	• LUBRICANT,O- RING,NSF- H1,10 ML TUBE	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1

Wireway Cover Service Kit

Part	Part	Description	Quantity
1128270	—	KIT, SERVICE, WIREWAY COVER	—
	-----	• COVER,WIREWAY	1
	-----	• SCR,SKT,M5X10,ZN	2
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1

P4/P7/P10 Pressure Discharge Valve Service Kit

Part	Part	Description	Quantity
1028308	—	KIT,PRESSURE DISCHARGE VALVE,P4,P7 &P10	—
	-----	• COVER,WIREWAY	1
	-----	• SCR,SKT,M5X50,BL	3
	-----	• TEE,RUN,6MM TUBE X G1/8	1
	-----	• INST,PDV SVCE KIT,PROBLUE	1
	-----	• BAG,POLY,KITS,ROLLS,6X10	1
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	-----	• LABEL,BLANK,3.50"X1.375"	5

100 Mesh Saturn Filter Service Kit

Part	Part	Description	Quantity
1028305	—	KIT,FILTER,SATURN,MELTER,100 MESH	—
	-----	• FILTER,ASSEMBLY,100 MESH, W/ O-RING	1
	-----	• LABEL,BLANK,3.50"X1.375"	3

Pneumatic Panel Assembly Service Kit

Part	Part	Description	Quantity
1128140	—	KIT, SERVICE, PNEUMATIC PANEL ASSY	—
	-----	• REGULATOR,ASSY,STD,W/BKT	1
	-----	• CARTON,MISC PARTS,(11.25 X 9.00 X 4.00)	1
	-----	• SCREW,SKTHD,M4X.7X8,ZN	2
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1
	-----	• LABEL,BLANK,3.50"X1.375"	2

P2 Pneumatic Panel Assembly Service Kit

Part	Part	Description	Quantity
1128326	—	KIT, SERVICE, PNEUMATIC PANEL ASSY, P2	—
	-----	• REGULATOR,XDCR, W/BKT	1
	-----	• CARTON,MISC PARTS,(11.25 X 9.00 X 4.00)	1
	-----	• SCREW,SKTHD,M4X.7X8,ZN	2
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1
	-----	• LABEL,BLANK,3.50"X1.375"	2

P3 Pneumatic Panel Assembly Service Kit

Part	Part	Description	Quantity
1128327	—	KIT, SERVICE, PNEUMATIC PANEL ASSY, P3	—
	-----	• REGULATOR, REMOTE ADJUST, W/BACKET	1
	-----	• CARTON,MISC PARTS,(11.25 X 9.00 X 4.00)	1
	-----	• SCREW,SKTHD,M4X.7X8,ZN	2
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1
	-----	• LABEL,BLANK,3.50"X1.375"	2

Thermostat Service Kit

Part	Part	Description	Quantity
1028321	—	SERVICE KIT,THERMOSTAT,500F,OOR	—
	-----	• THERMOSTAT,OOR,500DEG F,PUSH-ON TERM	1
	-----	• SCR,SHCS,M4X6,BL	2
	-----	• BAG,POLY,KITS,ROLLS,5X7	2
	-----	• LABEL,BLANK,3.50"X1.375"	1
	-----	• INST,THERMOSTAT SVCE KIT,PROBLUE	1
	-----	• COMPOUND,THERMAL,NTE303,1 GRAM	1
	-----	• INSULATOR,BOOT,T- STAT,DOUBLE,SILICONE	1

Single Acting P1 Pneumatic Assembly Service Kit

Part	Part	Description	Quantity
1128900	—	KIT,SERVICE,PNEUMATIC PANEL,SA,P1	—
		• REGULATOR,ASSY,ST	1
		• CARTON,MISC PARTS,(11.25 X 9.00 X 4.00)	1
		• SCREW,SKTHD,M4X.7X8,ZN	2
		• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1
		• LABEL,BLANK,3.50"X1.375"	2

Single Acting P2 Pneumatic Assembly Service Kit

Part	Part	Description	Quantity
1128904	—	KIT,SERVICE,PNEUMATIC PANEL,SA,ASSY,P2	—
		• REGULATOR,XDCR,STD-SA,W/BKT	1
		• CARTON,MISC PARTS,(11.25 X 9.00 X 4.00)	1
		• SCREW,SKTHD,M4X.7X8,ZN	2
		• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	1
		• LABEL,BLANK,3.50"X1.375"	2

General Parts

ProBlue Flex Common Hardware

Part	Part	Description	Quantity
1029103	—	KIT,SERVICE,PB FLEX,COMMON HARDWARE	—
	-----	• SCREW,SKTHD,M4X.7X8,ZN	20
	-----	• SCR,SKT,M8X20,ZN	10
	-----	• MACHSCRM,PAN,REC,M3X8,SEMS	20
	-----	• SCR,SKT,M5X10,ZN	20
	-----	• BAG,POLY,KITS,ROLLS,6X10	4
	-----	• BOX,HANDGUN, 8.75 L X 6.875 W X 2.00 D	1

ProBlue Flex Jumper Pack, 3/PE, 200/240V, 25

Part	Part	Description	Quantity
1029067	—	KIT,PB FLEX,JUMPER PACK,3/PE,200/240V,25	—
	-----	• HARNESS, JUMPER, 3/PE, 200-240 V	25
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BOX,HANDGUN,23 X 14 X 5.25	1

ProBlue Flex Jumper Pack, 3/N/PE, 200/400V, 25

Part	Part	Description	Quantity
1029066	—	KIT,PB FLEX,JUMPER PACK,3/N/PE,200/400V,25	—
	-----	• HARNESS, JUMPER,3/N/PE,400-230V	25
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BOX,HANDGUN,23 X 14 X 5.25	1

ProBlue Flex Jumper Pack, 1/PE, 200/240V, 25

Part	Part	Description	Quantity
1029065	—	KIT,PB FLEX,JUMPER PACK,1/PE,200/400V,25	—
	-----	• HARNESS, JUMPER,1/PE,200-240V	25
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BOX,HANDGUN,23 X 14 X 5.25	1

ProBlue Flex Jumper Pack, 1/N/PE, 200/240V, 25

Part	Part	Description	Quantity
1029064	—	KIT,PB FLEX,JUMPER PACK,1/N/PE,200/240V,25	—
	-----	• HARNESS, JUMPER,1/PE,200-240V	25
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BOX,HANDGUN,23 X 14 X 5.25	1

ProBlue Flex Jumper Pack, 3/PE, 200/240V, 10

Part	Part	Description	Quantity
1029072	—	KIT,PB FLEX,JUMPER PACK,3/PE,200/240V,10	—
	-----	• HARNESS, JUMPER,1/PE,200-240V	10
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BOX,HANDGUN,23 X 14 X 5.25	1

ProBlue Flex Jumper Pack, 3/N/PE, 200/400V, 10

Part	Part	Description	Quantity
1029071	—	KIT,PB FLEX,JUMPER PACK,3/N/PE,200/400V,10	—
	-----	• HARNESS, JUMPER,1/PE,200-240V	10
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BOX,HANDGUN,23 X 14 X 5.25	1

ProBlue Flex Jumper Pack, 1/PE, 200/240V, 10

Part	Part	Description	Quantity
1029070	—	KIT,PB FLEX,JUMPER PACK,1/PE,200/240V,10	—
	-----	• HARNESS, JUMPER,1/PE,200-240V	10
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BOX,HANDGUN,23 X 14 X 5.25	1

ProBlue Flex Jumper Pack, 1/N/PE, 200/240V, 10

Part	Part	Description	Quantity
1029069	—	KIT,PB FLEX,JUMPER PACK,1N/PE,200/240V,10	—
	-----	• HARNESS, JUMPER,1/PE,200-240V	10
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BOX,HANDGUN,23 X 14 X 5.25	1

ProBlue Flex Assorted Jumper Pack

Part	Part	Description	Quantity
1127708	—	KIT,PB FLEX,JUMPER PACK,ASSORTED	—
	-----	• BOX,HANDGUN, 8.75 L X 6.875 W X 2.00 D	1
	-----	• HARNESS, JUMPER, 3/PE, 200-240 V	1
	-----	• HARNESS, JUMPER,3/N/PE,400-230V	1
	-----	• HARNESS, JUMPER,1/PE,200-240V	1
	-----	• HARNESS, JUMPER,1/N/PE,200-240V	1
	-----	• LABEL,BLANK,3.50"X1.375"	1

Hydraulics Fittings,90 Degree, 10

Part	Part	Description	Quantity
1129084	—	KIT,FITTINGS,HYDRAULIC,90 DEG,10	—
	-----	• CONN ASSY,90,9/16-18X9/16-18	10
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BOX,HANDGUN,23 X 14 X 5.25	1

Hydraulics Fittings, 90 Degree, 25

Part	Part	Description	Quantity
1129085	—	KIT,FITTINGS,HYDRAULIC,90 DEG, 25	—
	-----	• CONN ASSY,90,9/16-18X9/16-18	25
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BOX,HANDGUN,23 X 14 X 5.25	1

Hydraulics Fittings, 45 Degree, 10

Part	Part	Description	Quantity
1129086	—	KIT,FITTINGS,HYDRAULIC,45 DEG, 10	—
	-----	• CONN ASSY,90,9/16-18X9/16-18	10
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BOX,HANDGUN,23 X 14 X 5.25	1

Hydraulics Fittings, 45 Degree, 25

Part	Part	Description	Quantity
1129087	—	KIT,FITTINGS,HYDRAULIC,45 DEG, 25	—
	-----	• CONN ASSY,90,9/16-18X9/16-18	25
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BOX,HANDGUN,23 X 14 X 5.25	1

Hydraulics Fittings Straight, 10

Part	Part	Description	Quantity
1129088	—	KIT,FITTINGS,HYDRAULIC,STRAIGHT	—
	-----	• CONN W/O RING,HOSE,9/16-18	10
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BOX,HANDGUN,23 X 14 X 5.25	1

Hydraulics Fittings Straight, 25

Part	Part	Description	Quantity
1129089	—	KIT,FITTINGS,HYDRAULIC,STRAIGHT,25	—
	-----	• CONN W/O RING,HOSE,9/16-18	25
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BOX,HANDGUN,23 X 14 X 5.25	1

Appendix A

Calculating Melter Power Requirements

Before locating the melter on the production floor or attaching hoses and applicators to the melter, you must calculate the electrical power required by the hoses and applicators 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 the power required by the hoses and applicators.

- **Single-component maximum**—The wattage of any single hose or applicator
- **Hose/applicator pair maximum**—The wattage of any hose and applicator (hose/applicator pair)
- **Hose/applicator module maximum**—The wattage of any two hoses and two applicators (two hose/applicator pairs)

If your Nordson representative has already calculated the hose/applicator 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 applicator power requirements before you:

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

To evaluate the hose/applicator power requirements

1. Match each hose and applicator pair and then match each pair to the hose/applicator module it will be connected to on the back of the melter.
2. Examine the identification tag or plate on each hose and applicator and record the wattage of each in Table A-1.
3. Add the sum of the wattages for each hose/applicator pair and the combined total wattage for each hose/applicator module.
4. Compare the wattages tabulated in Table A-1 with the associated maximum allowable wattages listed in Table A-2.
5. Do *one* of the following:
 - If each of the wattages calculated in step 3 *does not* exceed the associated maximum allowable wattages listed in Table A-2, then the power required by the hoses and applicators is within acceptable limits.
 - If any of the wattages calculated in step 3 *does* exceed an associated maximum allowable wattage listed in Table A-2, then the configuration or position of the hose/applicator pairs must be rearranged or shorter hoses must be used in order to reduce the power requirement.

Table A-1 Hose/Applicator Wattages

Module	Component Number	Type/Size	Wattage	Total Wattage
Hose/Applicator Module 1	Hose 1			
	Applicator 1			
	Hose 2			
	Applicator 2			
Total wattage of hose/applicator module 1 =				
Hose/Applicator Module 2	Hose 3			
	Applicator 3			
	Hose 4			
	Applicator 4			
Total wattage of hose/applicator module 2 =				
Hose/Applicator Module 3	Hose 5			
	Applicator 5			
	Hose 6			
	Applicator 6			
Total wattage of hose/applicator module 3 =				

Table A-2 Maximum Allowable Wattages

Component	Plant Voltage			
	200 VAC	220 VAC	230 VAC	240 VAC
Any hose or applicator	870 W	957 W	1000 W	1043 W
Any hose/applicator pair	1071 W	1179 W	1233 W	1286 W
Any hose/applicator module	1740 W	1913 W	2000 W	2086 W

Appendix B

SP Pump Diagnostics and Repair



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

Introduction

This appendix provides comprehensive diagnostic and repair information for the SP pump used in all ProBlue Flex adhesive melters. Before using the information provided in this appendix to diagnose or repair your pump, ensure that you have eliminated all conditions that might otherwise be mistaken for a failure of the pump. Refer to *Troubleshooting* (Section 6).

NOTE: The procedures and illustrations in this section are specific to 15:1 pumps, but can be used for 6:1 pumps as well. Refer to the pump-specific parts lists in *Parts* (Section 8) when performing the procedures in this section.

Available Pump Options

- Standard double acting
- High output double acting
- Low pressure double acting
- Low viscosity double acting
- Low pressure/Low viscosity double acting
- High output single acting

Pump Function

The ProBlue Flex adhesive melters may have either a double acting or a single acting piston pump.

Double Acting Pump

The double acting pump discharges material during both the upward and downward stroke of the piston.

The pump consists of an air section and a hydraulic section. Air is supplied to the pump through an air filter and a regulator. From the regulator, air flows to an air valve inside the air section. The air valve directs air into either the upper or lower portion of the air cylinder, which forces the piston assembly up or down. The lower end of the piston assembly contains a pressure ball valve. At the bottom of the hydraulic section is a siphon ball valve.

When the air valve directs the stroke of the piston upwards, the piston creates suction within the pump body, which opens the siphon ball valve and closes the pressure ball valve. As the piston moves upwards, material is simultaneously drawn into the pump below the pressure ball valve and forced out of the pump chamber above the pressure ball valve. Material leaving the pump chamber passes through a filter and then into a manifold, where it is distributed to the hoses/applicators.

Attached to the piston assembly is a shifter fork. The fork travels along the shaft of the actuator assembly that has a magnet at both ends. When the stroke of the piston carries the shifter fork upwards, a magnet in the shifter fork attracts the magnet at the end of the actuator, which shifts the position of the air valve. When the valve shifts, air is redirected to the opposite side of the air cylinder, which forces the piston downwards.

On the piston downward stroke, material pressure below the piston closes the siphon ball valve and opens the pressure ball valve. As the piston moves downwards, material below the pressure ball valve is displaced, and forced through the pressure ball valve and out of the pump chamber, where again, it passes through the filter and into the manifold.

Pump Isolation Valve

The isolation valve is used to prevent:

- material from the melt section (tank) from filling the pump cavity in the manifold.
- material spillage when the pump is removed and replaced in cases when the tank cannot be emptied beforehand.

Pressure Discharge Valve

The manifold is equipped with a pressure discharge valve. When the pump is switched off at the control panel, air is removed from the top of the valve causing it to open. When the valve opens, pressurized material within the pump and manifold is bypassed through the pressure discharge valve back to the tank.

Single Acting Pump

A single acting pump delivers adhesive on the downward stroke and draws in fresh adhesive from the melt section (tank) on the upward stroke.

A solenoid valve controls the pump by supplying compressed air to the air motor. The customer must provide 24 VDC power to the solenoid valve. When power is applied to the solenoid, the pump piston moves downward. When the power is removed, the pump piston moves upward.

Pump Diagnostics

To determine why the pump has failed, you will, in most cases, have to partially or fully disassemble the pump. To assist you in determining the appropriate level of disassembly, Tables B-1 and B-2 provide a breakdown of pump failures, the potential conditions that could produce each failure, and the disassembly procedure(s) in which potential condition(s) can be examined.

Disassembly procedures are provided in *Pump Disassembly and Reassembly*.

Double Acting Pump Diagnostics

Table B-1 Double Acting Pump Diagnostics

Problem	Possible Cause	Corrective Action
1. Pump not stroking	Air valve requires lubrication	Lubricate air valve.
	Air valve is dirty	Remove and inspect the air valve.
	Air valve is damaged	
	Shifter fork is damaged	Remove and inspect the shifter fork.
	Shifter fork is installed upside down	
	Magnetic actuator assembly is loose or damaged	Inspect and tighten or repair.
2. Pump strokes erratically with reduced output	Tank is empty	Fill the tank.
	Isolation valve is closed	Open the isolation valve.
	Tank drain is clogged	Remove the tank strainer if equipped and clear the drain.
	Siphon check valve is loose, damaged, or dirty	Inspect and repair the siphon valve.
	Pressure check valve is loose, damaged or dirty	Inspect and repair the pressure check valve.
3. Pump leaks adhesive from between the piston shaft and hydraulic body	Piston shaft seal is worn or damaged	Replace the seal.
4. Pump leaks adhesive from between the pump frame and manifold	Damaged or missing O-rings on pump body	Replace the pump body O-rings.
	Pump is not fastened to manifold	Fasten the pump to the manifold.

Continued...

Problem	Possible Cause	Corrective Action
5. Pump leaks air from the exhaust ports	Missing or damaged O-rings on valve assembly	Remove the valve assembly and replace the O-rings.
	Loose air piston assembly	Inspect and repair the air piston assembly.
	Damaged or missing air piston cups	
6. Pump leaks air from between the air cylinder and cylinder head	Missing or damaged O-ring	Replace the O-ring.
	Loose cylinder screws	Tighten the screws to 25 – 31 in-lbs.
7. Pump leaks air from between the air cylinder and pump frame	Missing or damaged O-ring	Replace the O-ring.
	Loose cylinder screws	Tighten the screws to 25 – 31 inch lbs.
8. Pump leaks air from between the piston shaft and the underside of the air motor	Air motor piston shaft seal missing, worn, or damaged	Replace the air motor piston shaft seal.
9. Pump leaks air from between the air cylinder and the actuator assembly	Missing or damaged O-rings	Replace the O-rings.
	Loose screws holding the actuator assembly to the air cylinder	Tighten the screws.

Single Acting Pump Diagnostics

Table B-2 Single Acting Pump Diagnostics

Problem	Possible Cause	Corrective Action
1. Pump not stroking	Pump not turned on	Turn on pump at the user interface.
	No 24V DC provided to solenoid valve	Check for customer-provided 24VDC at solenoid valve.
	No air pressure	Check gauge or display for air pressure.
		Adjust air pressure at regulator.
		Check for air pressure at supply connection.
		Check regulator for proper operation.
		Check solenoid valves for proper operation.
	Applicators not firing	Check applicators.
2. Pump strokes erratically with reduced output	Tank is empty	Fill the tank.
	Isolation valve is closed	Open the isolation valve.
	Tank drain is clogged	Remove the tank strainer if equipped and clear the drain.
	Siphon check valve is loose, damaged, or dirty	Inspect and repair the siphon valve valve.
	Pressure check valve is loose, damaged or dirty	Inspect and repair the pressure check valve located in the filter manifold.
3. Pump leaks adhesive from between the piston shaft and hydraulic body	Piston shaft seal is worn or damaged	Replace the seal.
4. Pump leaks adhesive from between the pump frame and manifold	Damaged or missing O-rings on pump body	Replace the pump body O-rings.
	Pump is not fastened to manifold	Fasten the pump to the manifold with the two screws.
<i>Continued...</i>		

Problem	Possible Cause	Corrective Action
5. Air leaking from the exhaust ports on the air manifold located under the regulator cover when the pump is not moving	Loose air piston assembly	Inspect and repair the air piston assembly.
	Damaged or missing air piston cups	
6. Pump leaks air from between the air cylinder and cylinder head	Missing or damaged O-ring	Replace the O-ring.
	Loose cylinder screws	Tighten the screws to 25 – 31 in-lbs.
7. Pump leaks air from between the air cylinder and pump frame	Missing or damaged O-ring	Replace the O-ring.
	Loose cylinder screws	Tighten the screws to 25 – 31 inch lbs.
8. Pump leaks air from between the piston shaft and the underside of the air motor	Air motor piston shaft seal missing, worn, or damaged	Replace the air motor piston shaft seal.

Pump Disassembly and Reassembly

This section provides sequential pump disassembly procedures. Unless otherwise noted in the *Special Reassembly Instructions*, which are provided in each procedure, reassembly of the pump is the reverse of the disassembly.

Within each disassembly procedure there is a check/repair table that describes specific conditions (from Tables B-1 and B-2) to look for while disassembling the pump, service details, and component part numbers.

Melter Preparation

The melter must be brought up to operating temperature before the pump can be removed and disassembled. Once the pump is removed, the molten material within the pump will remain workable only for a short period of time. If necessary, use a heat applicator to warm the pump assembly during disassembly.

Required Tools and Materials

Tools

- Heat applicator
- 4mm hex wrench
- 5 mm hex wrench
- 2.5 mm wrench
- 1/8-in. steel rod or equivalent tool
- 8 mm open-end wrench
- 10 mm socket and ratchet
- Bench vise or suitable mount to hold the pump during repairs
- Suitable vessel to heat Type R fluid



WARNING! Do not heat Type R fluid with an open flame or in an unregulated heating device. Do not heat Type R fluid above 246 °C (475 °F).

Service Parts

In most cases, you will need the pump service kit P/N 1128177 to complete pump repairs. This kit contains all of the seals, O-rings, and other parts that are necessary to service the pump. Refer to the pump-specific parts lists in Section 7, *Parts*, for a complete listing of pump-related parts.

Supplies

The following table describes the lubricants and other compounds that are required during the reassembly of the pump. Lubricants and other compounds are indicated in the illustrations by the symbols shown in Table B-3.

Table B-3 Lubricants and Compounds

Description	Part Number	Symbol
Never-Seez™	900344	
O-Ring Lubricant	1120201	
Loctite 272™ Threadlocking Adhesive	900470	
SP Lubricating Oil	1120290	
Type-R Fluid (1 gal)	270755	--

Remove the Pump from the Melter (All Pumps)

1. Remove the front panel of the melter by loosening the four latches.
2. Remove the rear panel by loosening the four latches.
3. Remove the pump cover by removing the two screws.

NOTE: If possible, pump out the contents of the tank using the drain valve.

4. Relieve system pressure. Refer to *Relieving System Pressure* (Section 5).

See Figures B-1 and B-2 for the locations of the isolation valve and isolation valve close/open slots.

5. If the pump cannot be used to pump out the contents of the tank, rotate the isolation valve at the front of the manifold to the closed position (**X**, see Figure B-2). Then remove adhesive from the tank until the level is below the top of the manifold. This can be done with a ladle or similar tool.

NOTE: Taking these precautions before removing the pump will prevent material from spilling out of the hole in the manifold when the pump is removed and replaced.

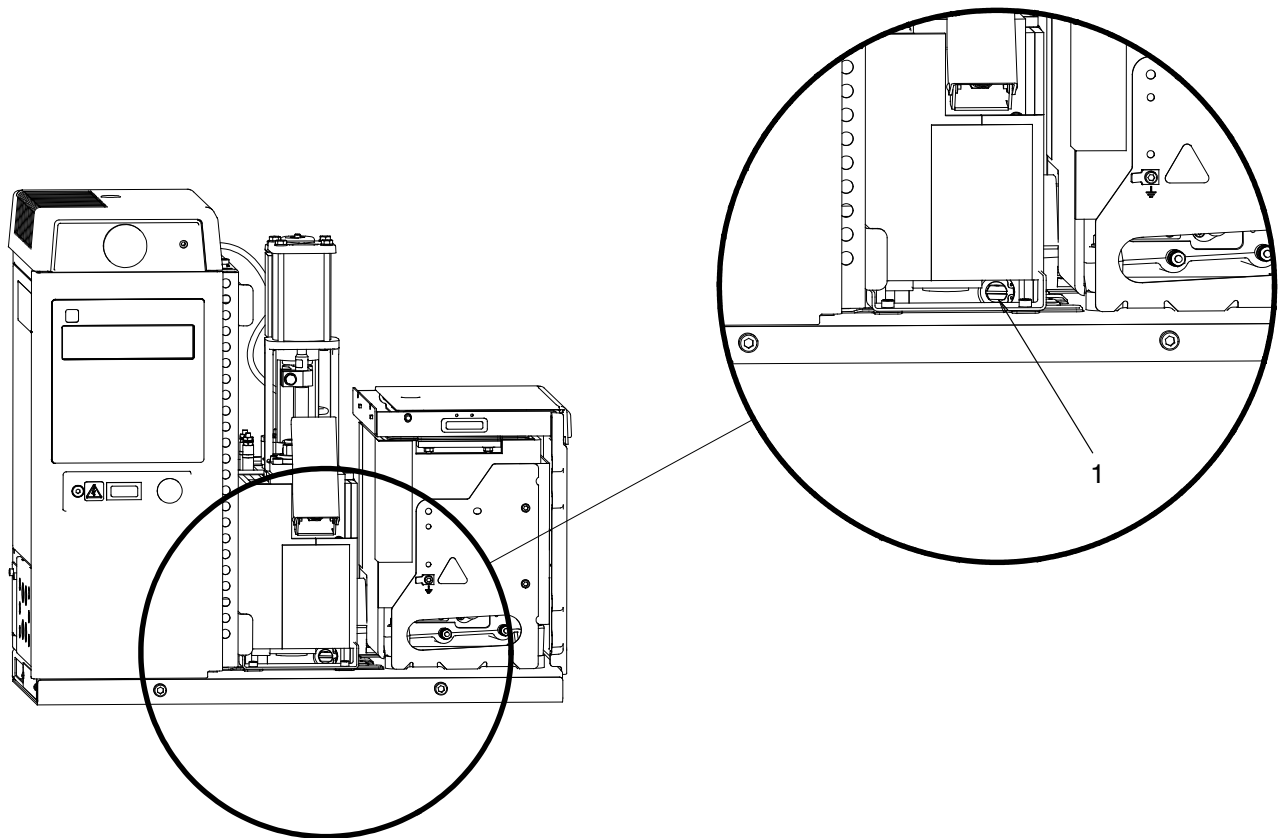


Figure B-1 Isolation valve location

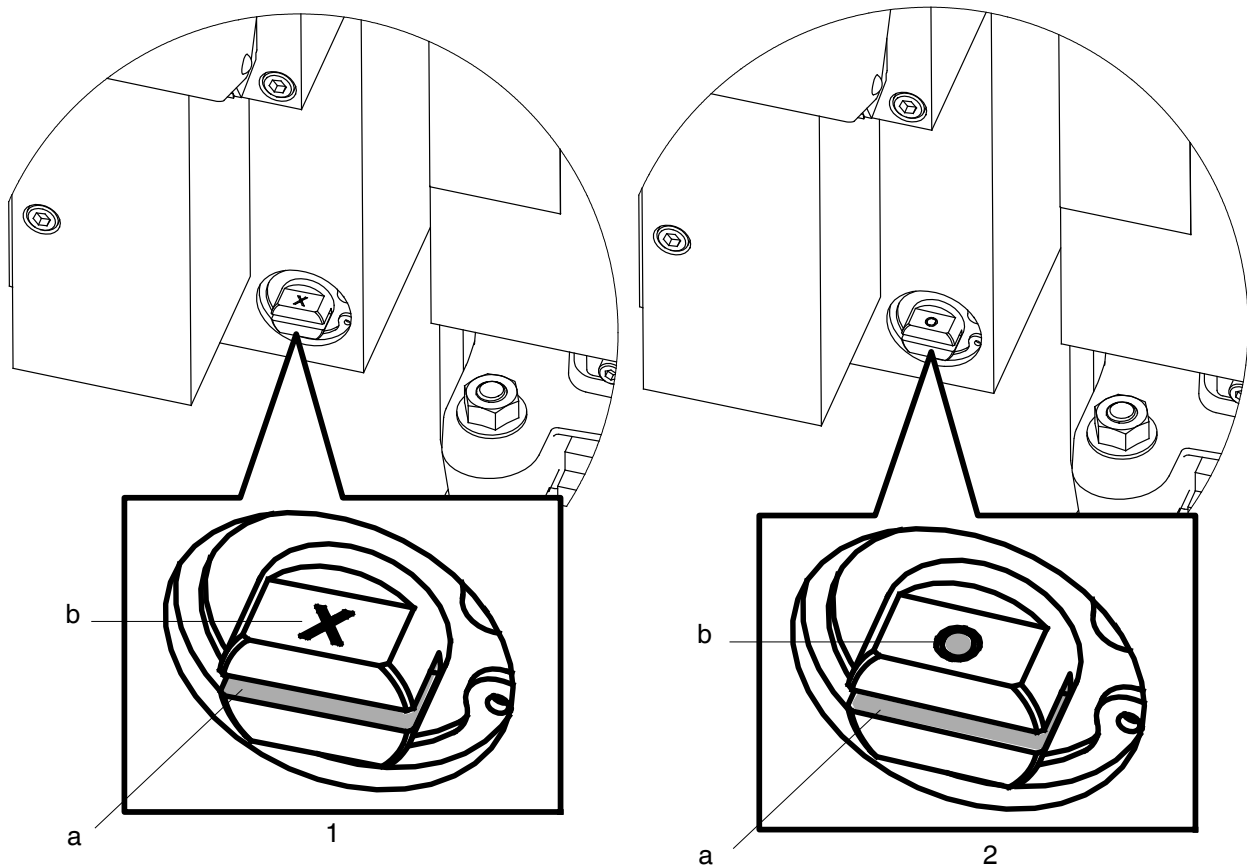


Figure B-2 Isolation valve close/open slots locations

1. Isolation valve is closed; the “X” mark is visible on the valve
a: Isolation valve slot/b: X mark (closed)
2. Isolation valve is open; the “O” mark is visible on the valve
a: Isolation valve slot/b: O mark (open)

To make sure that the isolation valve is closed, the slot must be positioned horizontal with the “X” mark visible. See item 1 in Figure B-2.

To make sure that the isolation valve is open, the slot must be positioned horizontal with the “O” mark visible. See item 2 in Figure B-2.

6. Disconnect the air line from the back of the pump.
7. Loosen, but do not remove, the two M6 screws at the base of the pump.
8. Grasp the pump and rotate it clockwise to disengage it from the two M6 screws.

Remove the Pump from the Melter (All Pumps) *(contd)*

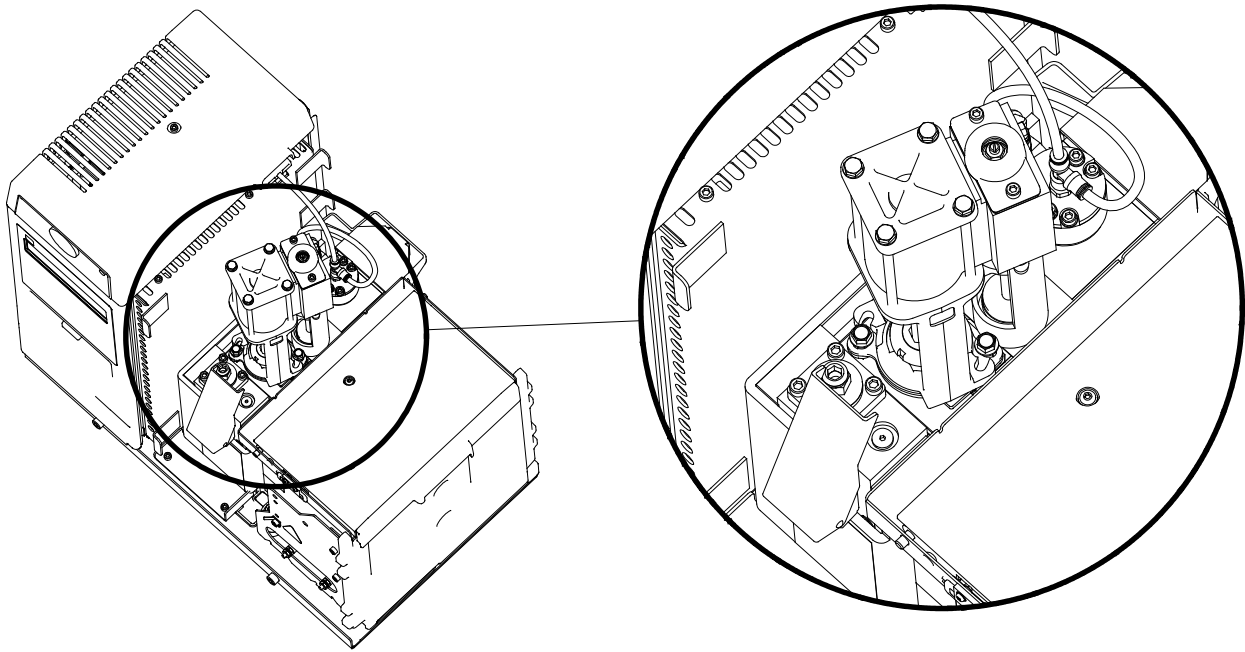


Figure B-3 Disengaging the pump

9. Pull the pump straight up and out of the manifold. Place it in a bench vise or other suitable mount.

Check/Repair		
Pump-to-manifold O-rings P/Ns 941332, 1127239, 941290	Inspect for nicks, gouging, or swelling	Apply O-ring lubricant during reassembly

Remove the Actuator Assembly (Double Acting Pumps Only)

1. Remove the two M5 screws holding the actuator assembly to the air cylinder.
2. Pull the actuator assembly away from the air cylinder.

Check/Repair	
O-rings, P/N 940111	Inspect for nicks, gouging, or swelling.

Remove the Magnetic Actuator Assembly (Double Acting Pumps Only)

1. Remove the two M5 screws holding the can to the valve body.
2. Remove the can.
3. Pull the magnetic actuator assembly away from the valve body. This will expose the tool hole in the magnetic actuator's shaft.
4. Place a screwdriver or wrench in the tool hole to hold the actuator.
5. Remove the two M5 screws holding the valve cap to the valve body.
6. Remove the valve cap.
7. While holding the magnetic actuator stationary, place a wrench on the nut above the bumper and loosen it. The entire spool and bumper assembly should turn.
8. Continue turning the spool and bumper assembly until the magnetic actuator is free.

Check/Repair		
Magnetic Actuator P/N 164606	Magnets are secured to the actuator shaft, undamaged, and free of debris	Clean, tighten the magnets, or replace as needed.
Bumper assembly P/N 1014650	Check for wear	Replace if worn.

Remove the Air Valve Assembly (Double Acting Pumps Only)

CAUTION! Handle the valve spool and sleeve with care. Damaging the precision machined surfaces of the spool and sleeve can cause the valve assembly to bind

1. Hold the valve flange in place and carefully pull the spool and bumper assembly out of the valve body.
2. Place the valve spool on a clean cloth.
3. Remove the valve flange.
4. Remove the two M4 screws holding the upper detent to the valve body.
5. Remove the upper detent and the spring.
6. Use a socket or similar object inserted in the detent end of the valve body to press the valve sleeve out of the valve body.

NOTE: The valve spool and sleeve are a matched set and cannot be exchanged with parts from another air valve assembly. If either the spool or sleeve is damaged, they must be replaced with a new valve assembly.

CAUTION! Do not scrape the valve spool or sleeve. Clean them with mineral spirits or other non-chlorinated solvent and a soft cloth. Do not use abrasives.

Check/Repair		
Valve spool*	Spool lands are nicked, gouged, corroded, or dirty	Clean with mineral spirits or any non-chlorinated solvent and a soft cloth. Apply SP lubricating oil to the lands before inserting the spool back into the sleeve.
Valve sleeve*	Broken, corroded, or dirty	Clean with mineral spirits or any non-chlorinated solvent and a soft cloth.
O-rings, P/N 940181	Inspect for nicks, gouges, or swelling	Apply O-Ring lubricant during reassembly.

*Available only as part of valve assembly P/N 1006027

Special Reassembly Instructions

- Use the flange to press the sleeve back into the air manifold.
- Apply one drop of lubricating oil to each spool land.
- Ensure that the valve spool slides freely inside the sleeve.

Remove the Shifter Fork (Double Acting Pumps Only)

CAUTION! Handle the shifter fork with care. Dropping or otherwise mishandling the shifter fork may damage the magnet.

1. Remove the hex-head screw and the washer from the shifter fork.
2. Remove the shifter fork from the piston by sliding the fork up to the narrowest point on the piston.

Check/Repair		
Shifter fork assembly P/N 166880	Word "UP" is facing upwards	Replace fork if bent or magnet is damaged.
	Securely attached to piston	
Shifter fork assembly high output pump, P/N 1060354	Resting on piston shoulder	
	Bent Magnets secure/undamaged	

Special Reassembly Instructions

- The fork must be resting on the shoulder of the piston.
- The word "UP" must be facing the top of the pump frame.

Remove the Cylinder Head and Cylinder (All Pumps)

1. Remove the four M6 screws and washers securing the cylinder head and cylinder to the pump frame.
2. Remove the cylinder head.
3. Remove the cylinder by sliding it off the piston.

Check/Repair	
O-ring P/Ns 940332 and P/N 940420	Inspect for nicks, gouging, or swelling
O-ring for high output pump, P/N 940420	

Remove the Piston Cups (All Pumps)

1. While holding the piston in-place by its wrench flats, remove the M6 torque nut.
2. Remove the two piston cups and the piston seal washers.

Check/Repair	
Piston cup, P/N 163039 Piston cup for high output pump, P/N 1044068 Piston cup for low pressure pumps, P/N 1065445	Not torn or deteriorated, pliable

Special Reassembly Instructions

- To prevent damage to the upper piston cup when reinstalling the cylinder, install only the bottom seal washer, the bottom piston cup, center seal washer, and the M6 nut.
- Slide the cylinder over these components.
- Remove the M6 nut.
- Install the top piston cup and top seal washer.
- Reinstall and tighten the M6 nut.

Remove the Siphon Check Valve Assembly and Hydraulic Piston Assembly (All Pumps)

CAUTION! Handle the piston with care. Damaging the surface of the piston or bending the piston can cause pump leakage and/or failure.

1. Wrap shop rags or other cushioning material around the lower section of the pump body to protect it from damage and clamp it securely in a vise.
2. Heat the siphon seat, the lower part of the pump body, and the upper part of the pump body to ensure that the adhesive within is melted.
3. Unscrew the siphon seat.
4. Remove the siphon seat, cage, and ball.
5. Push the piston assembly out of the bottom of the pump body.

Check/Repair
Inspect piston assembly for damage. Inspect siphon check valve parts for damage or deposits.

Remove the Pressure Check Valve for Double Acting Pumps

NOTE: The pressure check valve seat is tightened to a high torque and thread locker is applied at the factory. Nordson does not recommend removing the pressure check valve. If it is contaminated with char or foreign material, try cleaning it with heated solvent first.

1. Unscrew the pressure check valve seat.
2. Remove the check ball.

Special Reassembly Instructions

- Tighten the pressure check valve seat to 100 – 120 in-lbs (11.3 – 13.6 N m).

Remove the Pressure Check Valve for Single Acting Pumps

The pressure check valve for single acting pumps is located in the filter manifold. See figure 8-14 in *Parts* (Section 8).

1. Remove the pressure check valve plug (item 11 in figure 8-14).
2. Remove the following components:
 - Spring (item 13 in figure 8-14)
 - Guide (item 14 in figure 8-14)
 - Ball (item 15 in figure 8-14)
3. Use a 6 mm hex key to remove the seat (item 17 in figure 8-14). Turn counterclockwise to remove.

Replace the Hydraulic Piston Seal (All Pumps)

1. Wrap shop rags or other cushioning material around the lower section of the pump body to protect it from damage and clamp it securely in a vise.
2. Use a open end wrench to loosen the lock nut holding the pump frame to the pump body. If a spanner is not available, you can use a screwdriver and a hammer to loosen the lock nut.
3. Remove the lock nut.
4. Separate the pump frame from the pump body.
5. Unscrew the pump body retainer from the pump body.
6. Carefully pry the old seal out of the pump body retainer.
7. Clean the pump body retainer.
8. Inspect the O-ring and replace if necessary.
9. Install a new seal by hand into the pump body retainer. When properly installed, the open side of the seal with the spring will be visible.

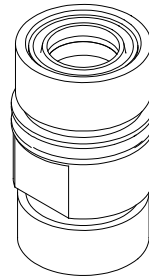


Figure B-4 Seal in the pump body retainer

Installing the Pump (All Pumps)

1. Lubricate the O-rings on the outside of the replacement pump.
2. Insert the pump into the manifold.
3. Rotate the pump counterclockwise to engage the two M6 screws.
4. Tighten the two M6 screws.
5. Connect the air line to the pump.

NOTE: Make sure the isolation valve is open.

6. If the tank was drained before removing the pump, fill the tank with adhesive and wait a few minutes until enough has melted to purge the air from the new pump.
7. Lower the drain valve chute and open the drain valve.
8. Set the pump air pressure to 15 psi.
9. Press  on the OLED user interface to enable the pump.
10. Allow adhesive to flow from the drain valve until there are no air bubbles present.
11. Close the drain valve.
12. Install the pump covers and the front panel.

Standard Double Acting Pump Assembly Parts List

See Figure B-5.

Item	Part	Description	Quantity
-----	-----	PUMP,STD DOUBLE ACTING,PB FLEX	
1	1127179	SCR,HEX,CAP,M6X110,ZN,CLASS 8.8	4
2	982135	SCR,HEX,CAP,M6X30,ZN	1
3	983410	WASHER,FLT,M,NARROW,M6,STL,ZN	5
4	163039	CUP,PISTON,SP	2
5	983445	WASHER,PISTON SEAL,SP	1
6	983446	WASHER,PISTON CUP,SP	2
7	273139	SEAL,PUMP.	1
8	1128302	CYLINDER,AIR,PUMP,STD D/A,PB FLEX	1
9	155079	FORK,MAGNETIC,ASSY	1
10	503696	CAGE,BALL,SIPHON	1
11	900001	BALL,440SSTL,.500, 50	1
12	1128405	PISTON ASSY,HYDRAULIC,PROBLUE	1
13	940332	O RING,VITON, 2.000X2.125X.063	2
14	941332	O RING,VITON,BLK,1.812X2.000	1
15	1127239	ORING,VITON,1.609x1.887x139,-223	1
16	941290	O RING,VITON,BLK,1.562X1.750	1
17	940211	O RING,VITON, .938X1.063X.063-021	1
18	952100	CUP,U,VITON	1
19	986331	RETAINING RING,INT,100,PUSHON	1
20	1064157	NUT,HEX,LOCK,TORQUE,M6X1, DIN 980V,V3	1
21	1127042	BODY,PUMP,STD D/A	1
22	503695	SEAT,BALL,SIPHON	1
23	1127056	RETAINER,PUMP BODY,STD D/A	1
24	1126357	LOCKNUT,BEARING,PN-05,STEEL,ZINC PLTG	1
25	1127038	FRAME,PUMP,STD D/A,MACHINED	1
26	274523	HEAD, AIR CYLINDER	1
27	1128330	ACTUATOR ASSEMBLY,PUMP	1
28	982298	SCR,HEX,CAP,M5X50,BL	2
29	983408	WASHER,FLT,M,NARROW,M5,STL,ZN	2
30	940111	O RING,VITON,.301ID X .070W,BR, 10411 SB	4
31	1108372	LUBRICANT,O-RING,NSF-H1,FOOD GRADE,4L	1
32	1108371	LUBRICANT,NEVER-SEEZ,NSF-H1,FOOD GRADE	1
NOTE: See the <i>Pump Assembly Parts List</i> drawing for torquing information.			

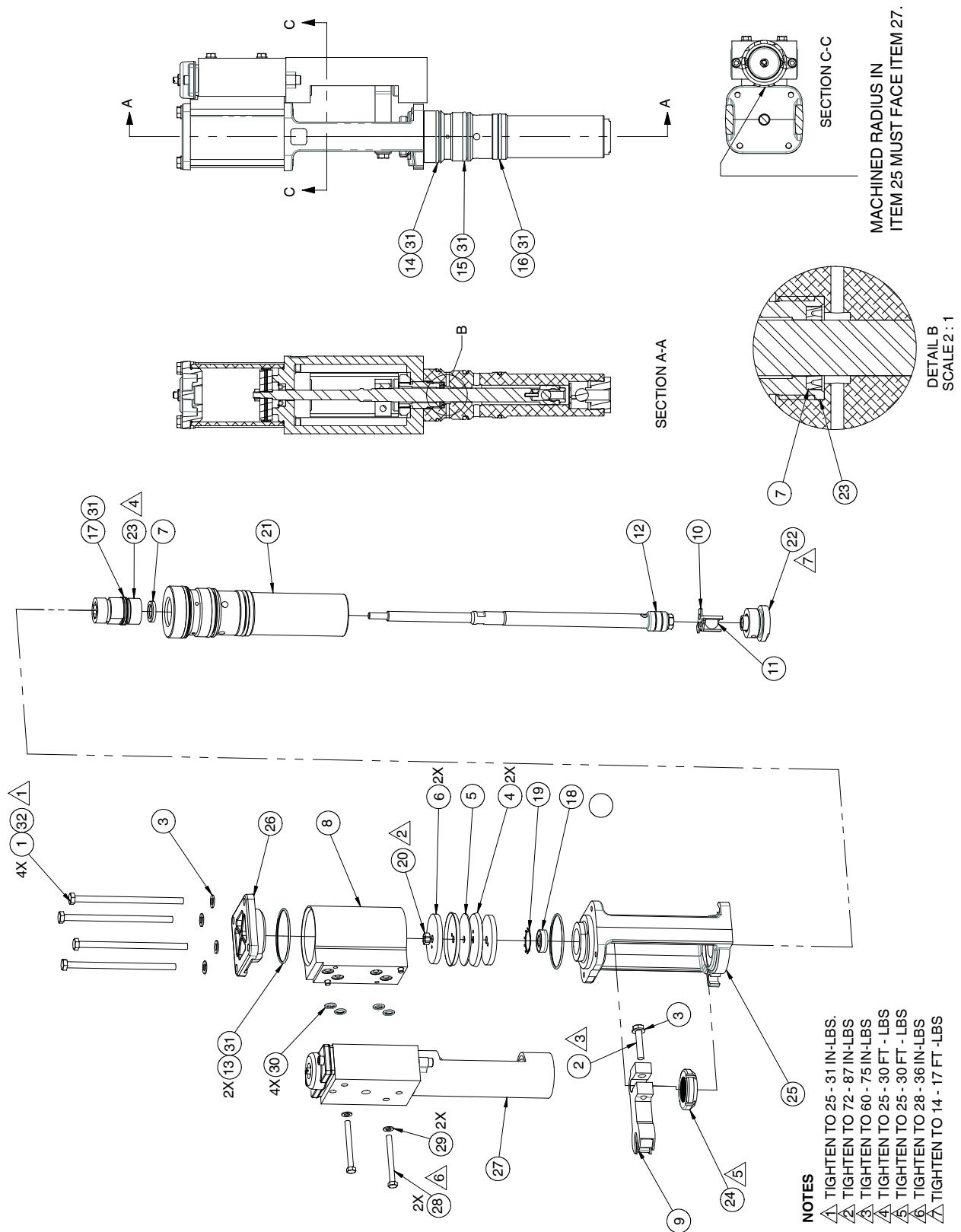


Figure B-5 Standard double acting pump assembly parts drawing

High Output Double Acting Pump Assembly Parts List

See Figure B-6.

Item	Part	Description	Quantity
-----	-----	PUMP,HIGH OUTPUT DOUBLE ACTING,PB FLEX	
1	1127179	SCR,HEX,CAP,M6X110,ZN,CLASS 8.8	4
2	982237	SCR,HEX,CAP,M6X35,ZN	1
3	983410	WASHER,FLT,M,NARROW,M6,STL,ZN	5
4	1044068	CUP,PISTON,PUMP,HIGH OUTPUT	2
5	1044070	WASHER,SEAL,PISTON,PUMP,HIGH OUTPUT	1
6	1044069	WASHER,CUP,PISTON,PUMP,HIGH OUTPUT	2
7	288122	SEAL,PUMP,HI VOL,MPL	1
8	1126626	CYLINDER,AIR,PUMP,HO D/A	1
9	1044791	FORK ASSEMBLY,MAGNETIC,PUMP,H.O.	1
10	1044790	CAGE,BALL,SIPHON,HIGH OUTPUT	1
11	900023	BALL,440SSTL, .750, 50	1
12	1128546	PISTON ASSEMBLY,HYD,HO, D/A,PB FLEX	1
13	940420	O RING,VITON, 3.250X3.375X.063	2
14	941332	O RING,VITON,BLK,1.812X2.000	1
15	1127239	ORING,VITON,1.609x1.887x139,-223	1
16	941290	O RING,VITON,BLK,1.562X1.750	1
17	940293	O RING,VITON, 1.500X1.625X.063,-029	1
18	1044194	UCUP,.500 ID,1.000 OD, .250,VITON	1
19	1047615	RETAINING RING,INT,125,PUSHON	1
20	1064157	NUT,HEX,LOCK,TORQUE,M6X1, DIN 980V,V3	1
21	1126624	BODY,PUMP,HO D/A	1
22	240534	SEAT,SIPHON BALL	1
23	1126627	RETAINER,PUMP BODY,HO D/A	1
24	1126628	NUT,LOCK,BRG,N-07,STL,ZN	1
25	1126625	FRAME,PUMP,HO,MACHINED	1
26	1044053	HEAD,CYLINDER PUMP,HIGH OUTPUT	1
27	1128330	ACTUATOR ASSEMBLY,PUMP	1
28	982298	SCR,HEX,CAP,M5X50,BL	2
29	983408	WASHER,FLT,M,NARROW,M5,STL,ZN	2
30	940111	O RING,VITON,.301ID X .070W,BR, 10411 SB	2
31	1108372	LUBRICANT,O-RING,NSF-H1,FOOD GRADE,4L	1
32	1108371	LUBRICANT,NEVER-SEEZ,NSF-H1,FOOD GRADE	1

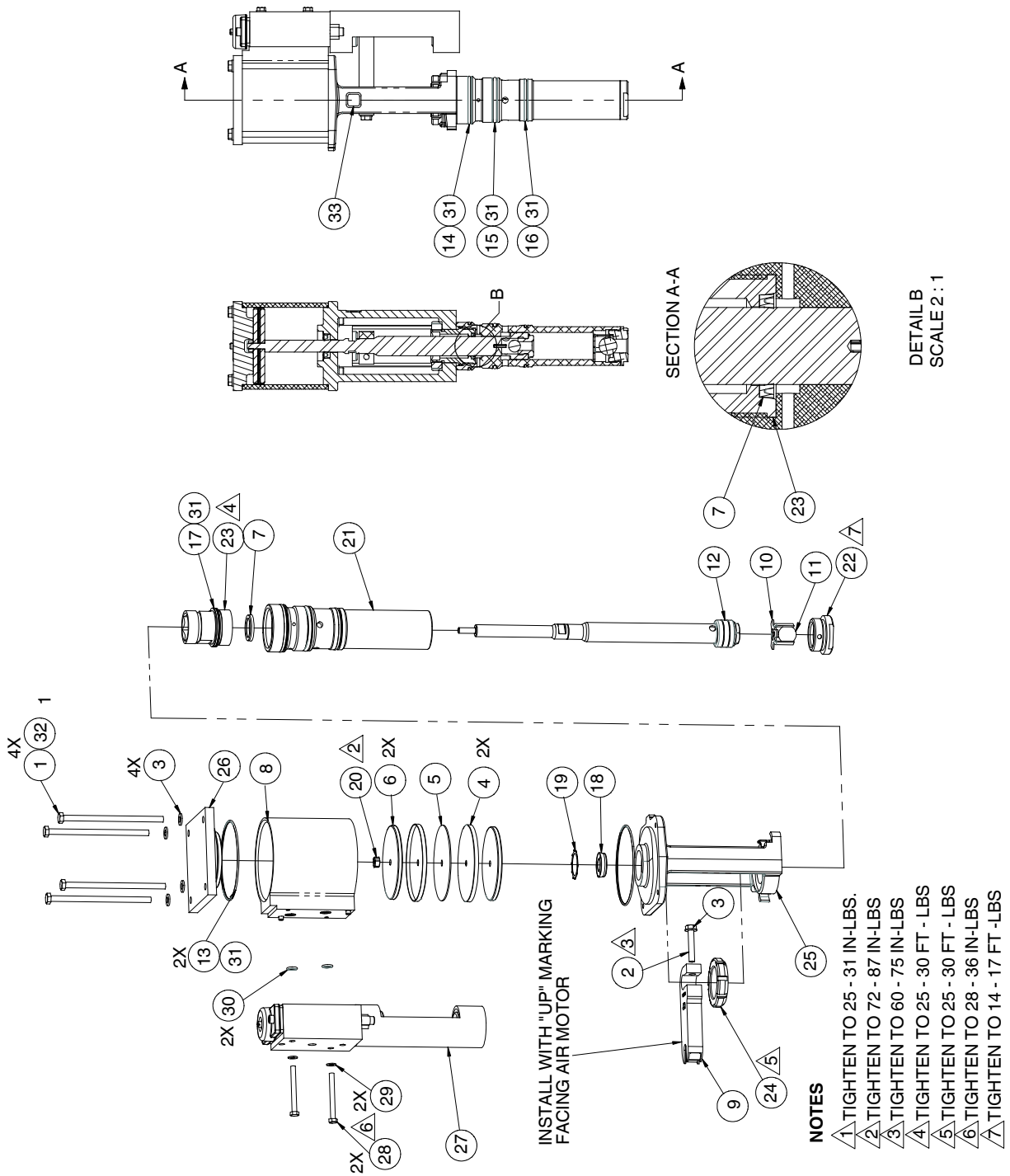


Figure B-6 High output double acting pump assembly parts drawing

Low Viscosity Double Acting Pump Assembly Parts List

See Figure B-7.

Item	Part	Description	Quantity
-----	-----	PUMP,LOW VISCOSITY,D/A	
1	1127179	SCR,HEX,CAP,M6X110,ZN,CLASS 8.8	4
2	982135	SCR,HEX,CAP,M6X30,ZN	1
3	983410	WASHER,FLT,M,NARROW,M6,STL,ZN	5
4	163039	CUP,PISTON,SP	2
5	983445	WASHER,PISTON SEAL,SP	1
6	983446	WASHER,PISTON CUP,SP	2
7	273139	SEAL,PUMP	1
8	1128590	CYLINDER,AIR,PUMP,STD D/A,PB FLEX	1
9	155079	FORK,MAGNETIC,ASSY	1
10	503696	CAGE,BALL,SIPHON	1
11	900001	BALL,440SSTL,.500, 50	1
12	1128655	PISTON ASSY,HYD,LV,PB FLEX	1
13	940332	O RING,VITON, 2.000X2.125X.063	2
14	941332	O RING,VITON,BLK,1.812X2.000	1
15	1127239	ORING,VITON,1.609x1.887x139,-223	1
16	941290	O RING,VITON,BLK,1.562X1.750	1
17	940211	O RING,VITON, .938X1.063X.063-021	1
18	952100	CUP,U,VITON	1
19	986331	RETAINING RING,INT,100,PUSHON	1
20	1064157	NUT,HEX,LOCK,TORQUE,M6X1, DIN 980V,V3	1
21	1127042	BODY,PUMP,STD D/A	1
22	503695	SEAT,BALL,SIPHON	1
23	1127056	RETAINER,PUMP BODY,STD D/A	1
24	1126357	LOCKNUT,BEARING,PN-05,STEEL,ZINC PLTG	1
25	1127038	FRAME,PUMP,STD D/A,MACHINED	1
26	274523	HEAD, AIR CYLINDER	1
27	1128330	ACTUATOR ASSEMBLY,PUMP	1
28	982298	SCR,HEX,CAP,M5X50,BL	2
29	983408	WASHER,FLT,M,NARROW,M5,STL,ZN	2
30	940111	O RING,VITON,.301ID X .070W,BR, 10411 SB	4
31	1108372	LUBRICANT,O-RING,NSF-H1,FOOD GRADE,4L	1
32	1108371	LUBRICANT,NEVER-SEEZ,NSF-H1,FOOD GRADE	1

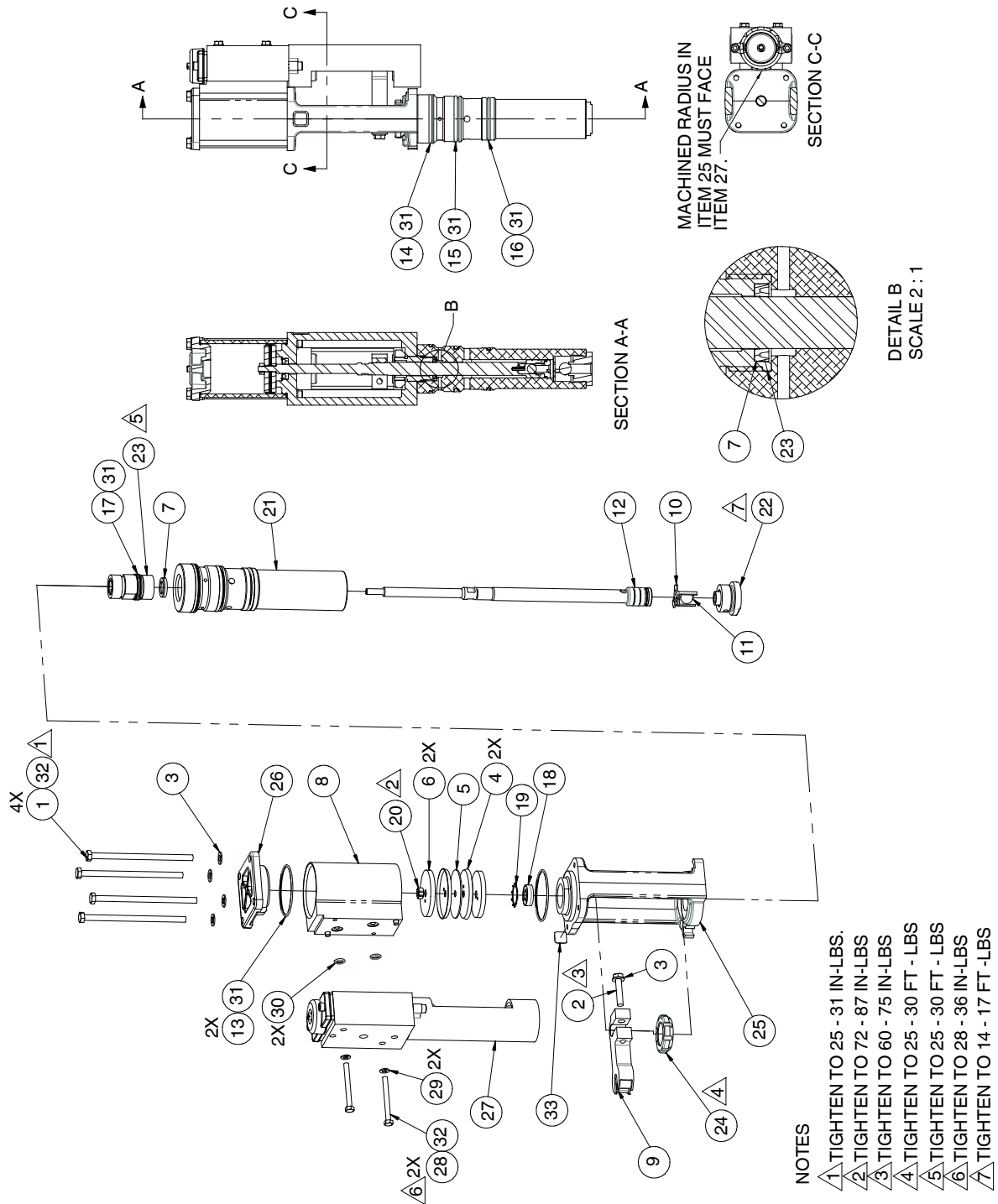


Figure B-7 Low viscosity double acting pump assembly parts drawing

Low Pressure Double Acting Pump Assembly Parts List

See Figure B-8.

Item	Part	Description	Quantity
-----	-----	PUMP,LOW PRESSURE,D/A,PB FLEX	
1	1127179	SCR,HEX,CAP,M6X110,ZN,CLASS 8.8	4
2	982135	SCR,HEX,CAP,M6X30,ZN	1
3	983410	WASHER,FLT,M,NARROW,M6,STL,ZN	5
4	1065445	CUP,PISTON,6:1	2
5	1065446	WASHER,PISTON SEAL,6:1	1
6	1065447	WASHER,PISTON CUP,6:1	2
7	273139	SEAL,PUMP	1
8	1128590	CYLINDER,AIR,PUMP,STD D/A,PB FLEX	1
9	155079	FORK,MAGNETIC,ASSY	1
10	503696	CAGE,BALL,SIPHON	1
11	900001	BALL,440SSTL,.500, 50	1
12	1128405	PISTON ASSY,HYDRAULIC,STD D/A	1
13	940332	O RING,VITON, 2.000X2.125X.063	2
14	941332	O RING,VITON,BLK,1.812X2.000	1
15	1127239	ORING,VITON,1.609x1.887x139,-223	1
16	941290	O RING,VITON,BLK,1.562X1.750	1
17	940211	O RING,VITON, .938X1.063X.063-021	1
18	952100	CUP,U,VITON	1
19	986331	RETAINING RING,INT,100,PUSHON	1
20	1064157	NUT,HEX,LOCK,TORQUE,M6X1, DIN 980V,V3	1
21	1127042	BODY,PUMP,STD D/A	1
22	503695	SEAT,BALL,SIPHON	1
23	1127056	RETAINER,PUMP BODY,STD D/A	1
24	1126357	LOCKNUT,BEARING,PN-05,STEEL,ZINC PLTG	1
25	1127038	FRAME,PUMP,STD D/A,MACHINED	1
26	274523	HEAD, AIR CYLINDER	1
27	1128330	ACTUATOR ASSEMBLY,PUMP	1
28	982298	SCR,HEX,CAP,M5X50,BL	2
29	983408	WASHER,FLT,M,NARROW,M5,STL,ZN	2
30	940111	O RING,VITON,.301ID X .070W,BR, 10411 SB	4
31	1126643	SLEEVE,PUMP,LOW PRESSURE	1
32	941340	ORING,-134,VITON	2
33	1108372	LUBRICANT,O-RING,NSF-H1,FOOD GRADE,4L	1
34	1108371	LUBRICANT,NEVER-SEEZ,NSF-H1,FOOD GRADE	1

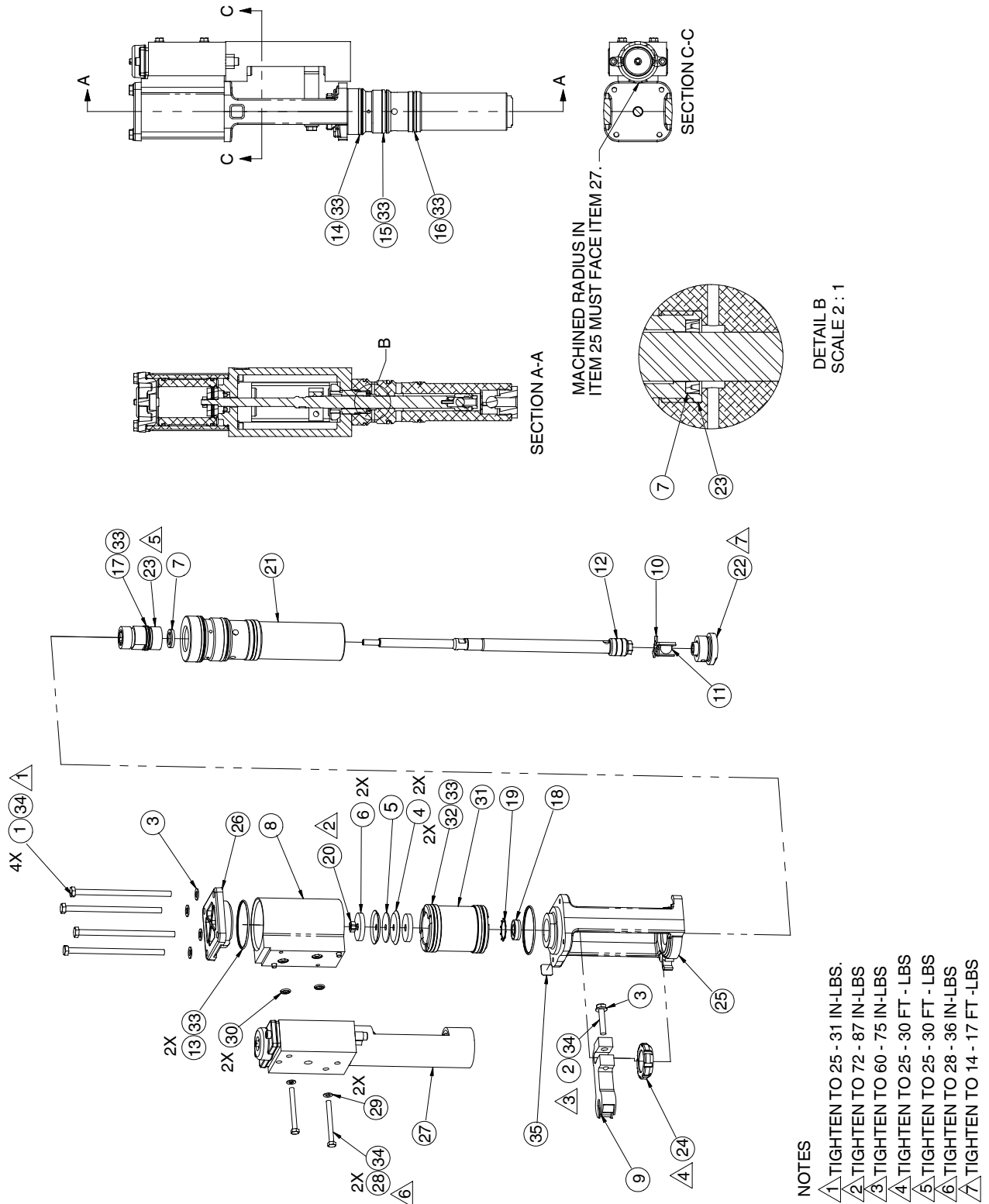


Figure B-8 Low pressure double acting pump assembly parts drawing

Low Pressure/Low Viscosity Double Acting Pump Assembly Parts List

See Figure B-9.

Item	Part	Description	Quantity
-----	-----	PUMP,LOW PRESSURE/VISCOSITY,D/A	
1	1127179	SCR,HEX,CAP,M6X110,ZN,CLASS 8.8	4
2	982135	SCR,HEX,CAP,M6X30,ZN	1
3	983410	WASHER,FLT,M,NARROW,M6,STL,ZN	5
4	1065445	CUP,PISTON,6:1	2
5	1065446	WASHER,PISTON SEAL,6:1	1
6	1065447	WASHER,PISTON CUP,6:1	2
7	273139	SEAL,PUMP	1
8	1128590	CYLINDER,AIR,PUMP,STD D/A,PB FLEX	1
9	155079	FORK,MAGNETIC,ASSY	1
10	503696	CAGE,BALL,SIPHON	1
11	900001	BALL,440SSTL,.500, 50	1
12	1128655	PISTON ASSY,HYD,LV,PB FLEX	1
13	940332	O RING,VITON, 2.000X2.125X.063	2
14	941332	O RING,VITON,BLK,1.812X2.000	1
15	1127239	ORING,VITON,1.609x1.887x139,-223	1
16	941290	O RING,VITON,BLK,1.562X1.750	1
17	940211	O RING,VITON, .938X1.063X.063-021	1
18	952100	CUP,U,VITON	1
19	986331	RETAINING RING,INT,100,PUSHON	1
20	1064157	NUT,HEX,LOCK,TORQUE,M6X1, DIN 980V,V3	1
21	1127042	BODY,PUMP,STD D/A	1
22	503695	SEAT,BALL,SIPHON	1
23	1127056	RETAINER,PUMP BODY,STD D/A	1
24	1126357	LOCKNUT,BEARING,PN-05,STEEL,ZINC PLTG	1
25	1127038	FRAME,PUMP,STD D/A,MACHINED	1
26	274523	HEAD, AIR CYLINDER	1
27	1128330	ACTUATOR ASSEMBLY,PUMP	1
28	982298	SCR,HEX,CAP,M5X50,BL	2
29	983408	WASHER,FLT,M,NARROW,M5,STL,ZN	2
30	940111	O RING,VITON,.301ID X .070W,BR, 10411 SB	4
31	1126643	SLEEVE,PUMP,LOW PRESSURE	1
32	941340	ORING,-134,VITON	2
33	1108372	LUBRICANT,O-RING,NSF-H1,FOOD GRADE,4L	1
34	1108371	LUBRICANT,NEVER-SEEZ,NSF-H1,FOOD GRADE	1

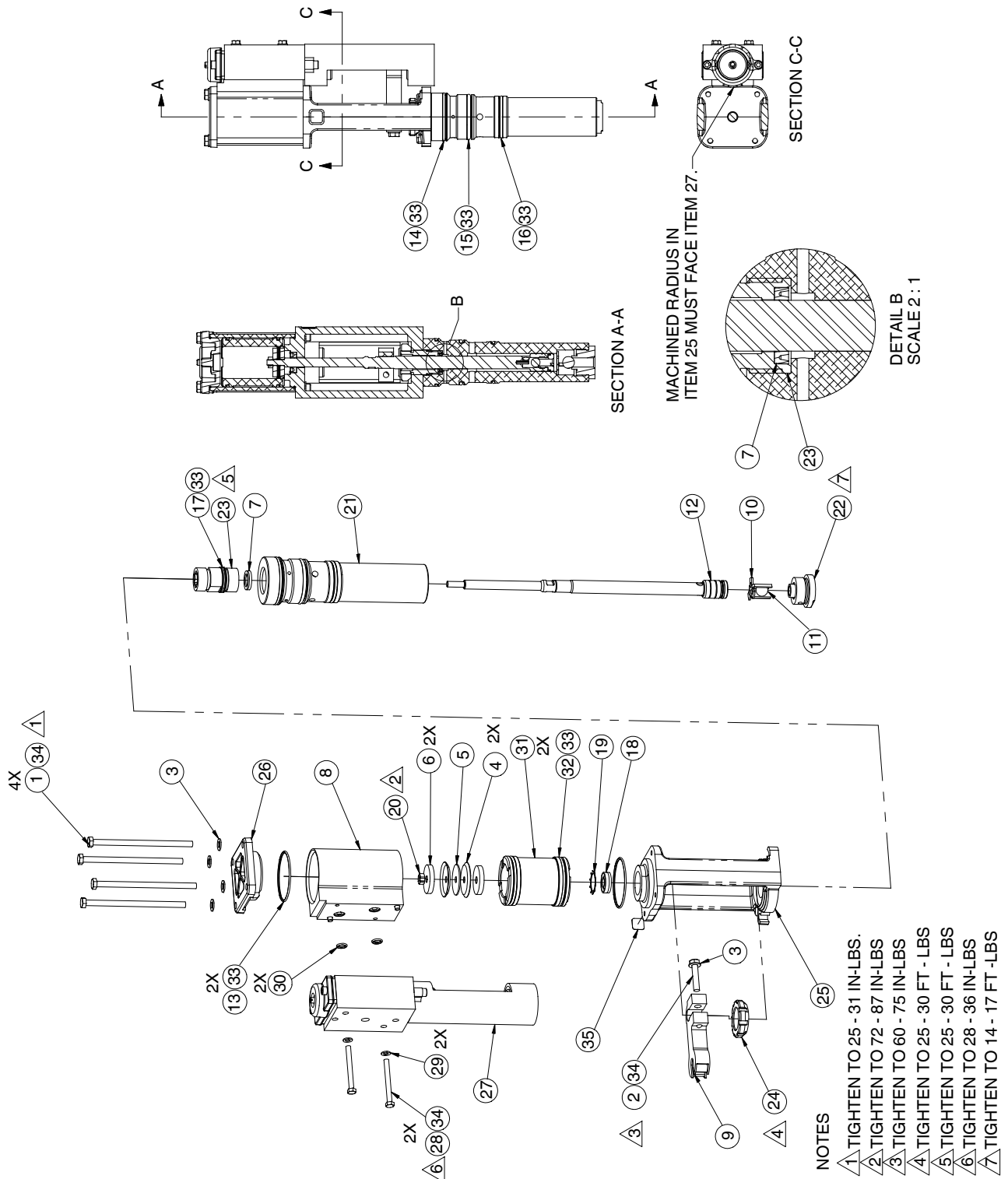
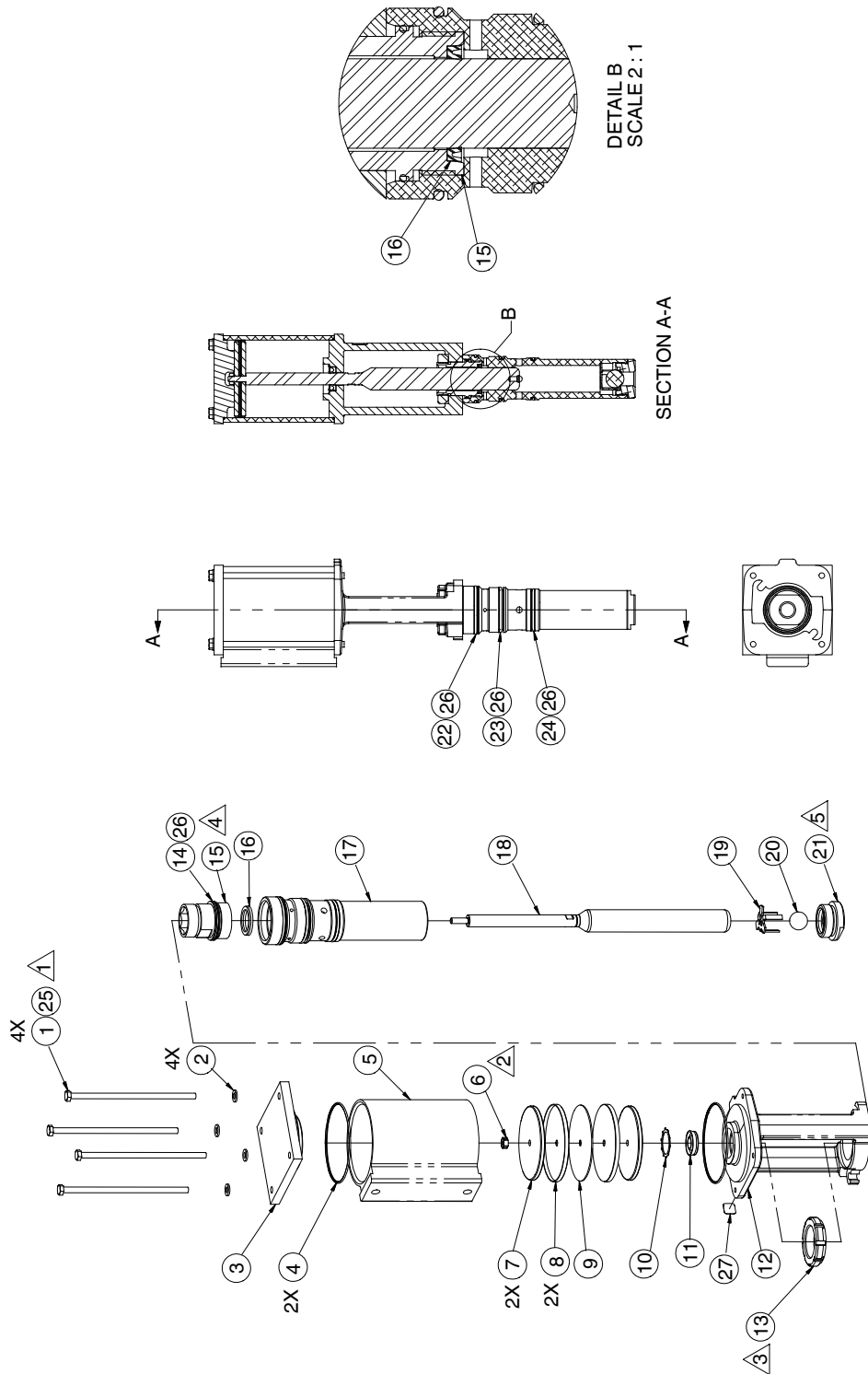


Figure B-9 Low pressure/low viscosity double acting pump assembly parts drawing

High Output Single Acting Pump Assembly Parts List

See Figure B-10.

Item	Part	Description	Quantity
-----	-----	PUMP,HIGH OUTPUT SINGLE ACTING,PB FLEX	
1	1047450	SCR,HEX,CAP,M6 X 140, BL	4
2	983410	WASHER,FLT,M,NARROW,M6,STL,ZN	4
3	1044053	HEAD,CYLINDER PUMP,HIGH OUTPUT	1
4	940420	O RING,VITON, 3.250X3.375X.063	2
5	1126632	CYLINDER,AIR,PUMP,HO S/A	1
6	1064157	NUT,HEX,LOCK,TORQUE,M6X1, DIN 980V,V3	1
7	1044069	WASHER,CUP,PISTON,PUMP,HIGH OUTPUT	2
8	1044068	CUP,PISTON,PUMP,HIGH OUTPUT	2
9	1044070	WASHER,SEAL,PISTON,PUMP,HIGH OUTPUT	1
10	1047615	RETAINING RING,INT,125,PUSHON	1
11	1044194	UCUP,.500 ID,1.000 OD, .250,VITON	1
12	1126625	FRAME,PUMP,HO,MACHINED	1
13	1126628	NUT,LOCK,BRG,N-07,STL,ZN	1
14	940293	O RING,VITON, 1.500X1.625X.063,-029	1
15	1126631	RETAINER,PUMP BODY,HO S/A	1
16	1047747	SEAL,PUMP,HI VOL,S/A	1
17	1126633	BODY,PUMP,HO S/A	1
18	1047430	PLUNGER,PUMP,SINGLE ACTING	1
19	240533	CAGE,BALL,SIPHON	1
20	900023	BALL,440SSTL, .750, 50	1
21	240534	SEAT,SIPHON BALL	1
22	941332	O RING,VITON,BLK,1.812X2.000	1
23	1127239	ORING,VITON,1.609x1.887x139,-223	1
24	941290	O RING,VITON,BLK,1.562X1.750	1
25	1108371	LUBRICANT,NEVER-SEEZ,NSF-H1,FOOD GRADE	1
26	1108372	LUBRICANT,O-RING,NSF-H1,FOOD GRADE,4L	1



NOTES

- 1 TIGHTEN TO 25 - 31 IN-LBS
- 2 TIGHTEN TO 72 - 87 IN-LBS
- 3 TIGHTEN TO 25 - 30 FT - LBS
- 4 TIGHTEN TO 25 - 30 FT - LBS
- 5 TIGHTEN TO 14 - 17 FT - LBS

Figure B-10 High output single acting pump assembly parts drawing

Actuator Assembly Parts List

See Figure B-11.

Item	Part	Description	Quantity
-----	-----	ACTUATOR ASSEMBLY,PUMP	
1	1128298	BODY,AIR VALVE,PUMP	1
2	1128090	CAP,VALVE,SP,CAST	1
3	1098815	VALVE ASSY,AIR,SP PUMP	1
4	155057	DETENT,UPPER,SP	1
5	155067	DETENT,LOWER ,SP	1
6	155068	CAN,SP	1
7	333560	SPRING,WAVE,INCONEL,SP PUMP	1
8	155075	ACTUATOR,MAGNETIC,ASSY,SP	1
9	1108370	LUBRICANT,HIGH TEMP,NSF-H1,FOOD GRADE	1
10	982028	SCR,SKT,M5X20,BL	4
11	982059	SCR,SKT,M4X8,BL	2
12	986714	RETAINING RING,INT,156,BOWED	1
13	166885	SPECIFICATION,ACTUATOR,SP	1
NOTE: See the <i>Actuator Assembly Parts List</i> drawing for torquing information.			

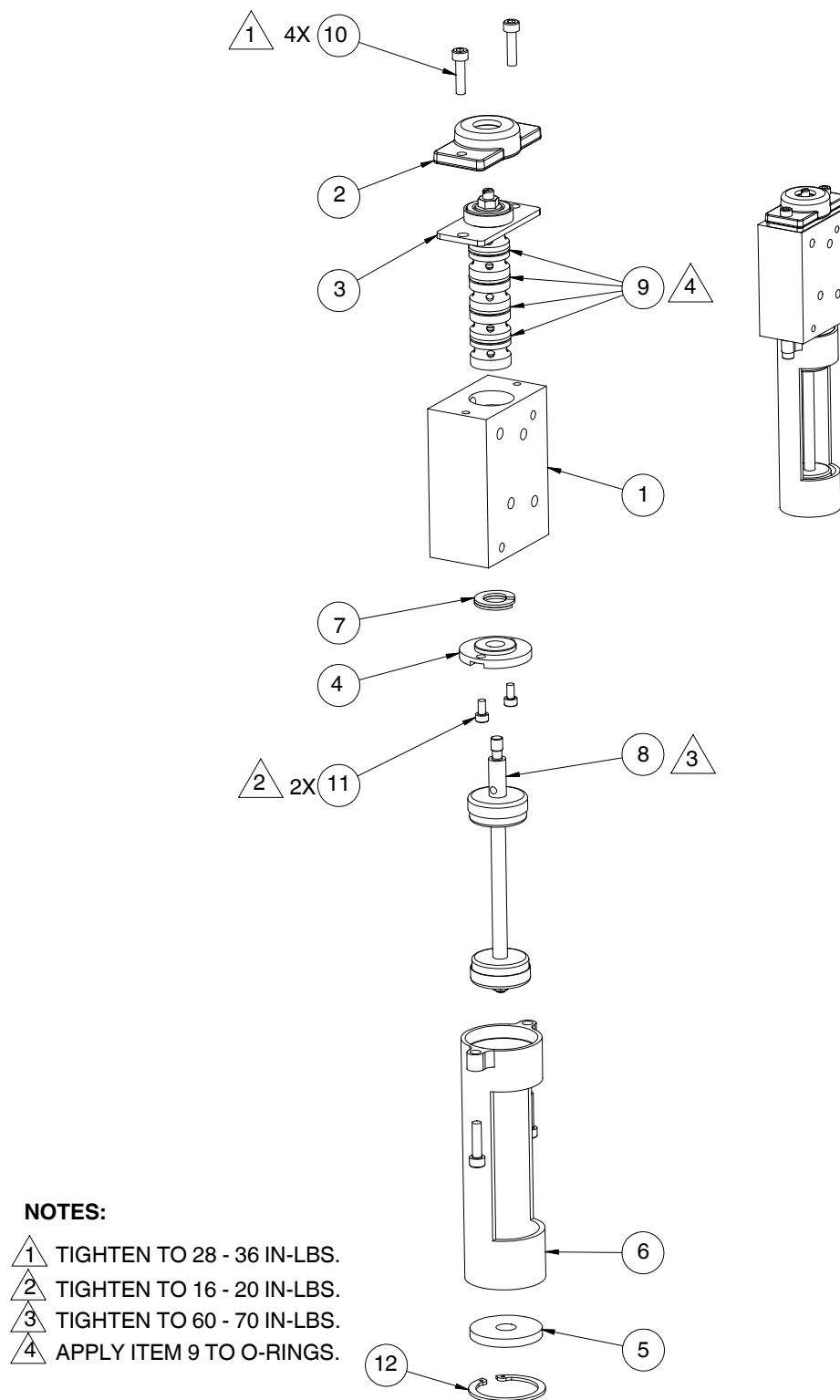


Figure B-11 Actuator assembly parts drawing

Piston Assembly Hydraulics Parts List

See Figure B-12.

Item	Part	Description	Quantity	Note
—	1128405	PISTON ASSY, HYDRAULIC, PROBLUE	—	
1	1127450	• PISTON, PUMP, 15:1	1	
2	985302	• PIN, ROLL, .125X .500, STL, ZN	1	
3	900000	• BALL, 440SSTL, .375, 50	1	
4	503709	• SEAT, BALL, PRESSURE	1	
5	900470	• ADHESIVE, LOCTITE 272, RED, HI TEMP, 50ML	AR	
AR: As Required				

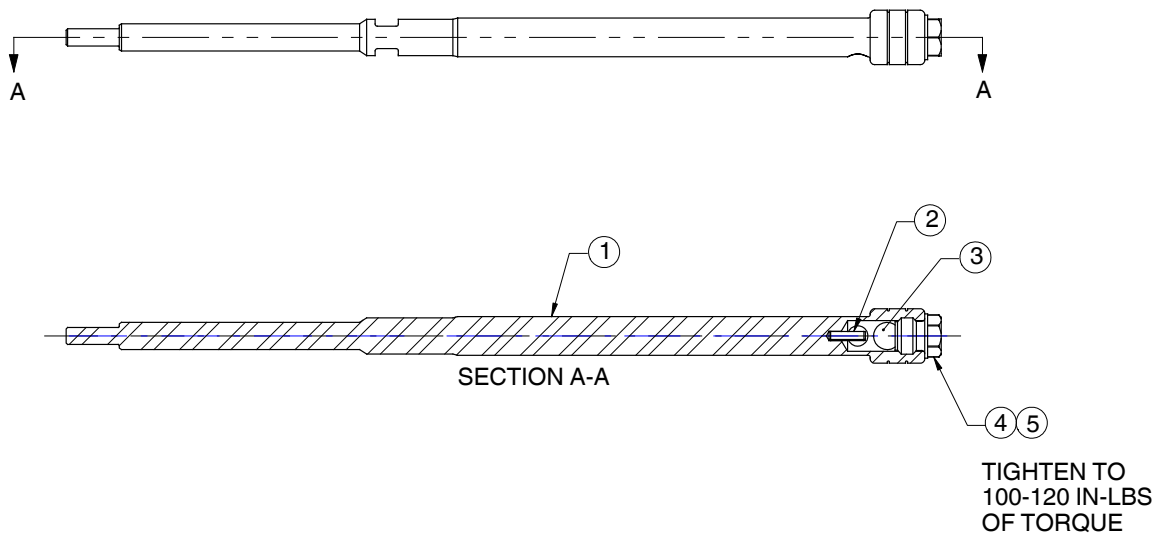


Figure B-12 Piston pump assembly hydraulics parts drawing

High Output Double Acting Hydraulic Piston Assembly

Item	Part	Description	Quantity
-----	1128546	PISTON ASSY, HYDRAULIC, HO, D/A	
1	1128545	PISTON, PUMP, HO, D/A, PB FLEX	1
2	985302	PIN, ROLL, .125X .500, STL, ZN	1
3	900001	BALL, 440SSTL, .500, 50	1
4	1050826	SEAT, PRESSURE BALL, .500 DIA	1
5	900470	ADHESIVE, LOCTITE 272, RED, HI TEMP, 50ML	1

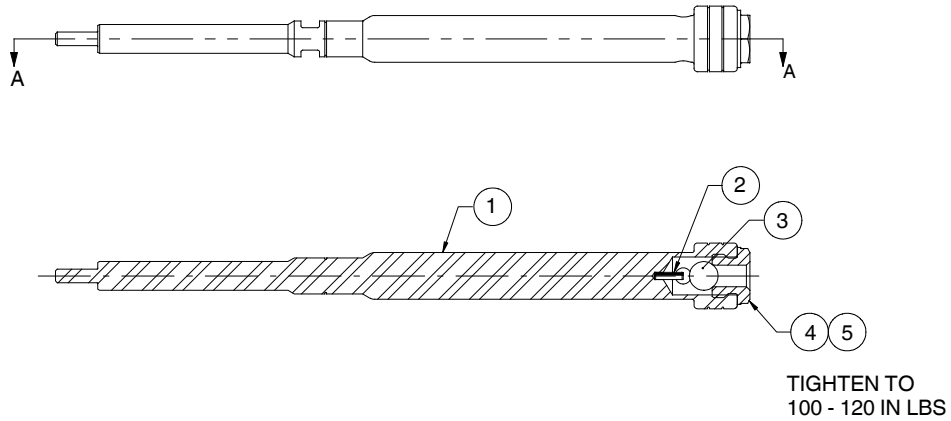
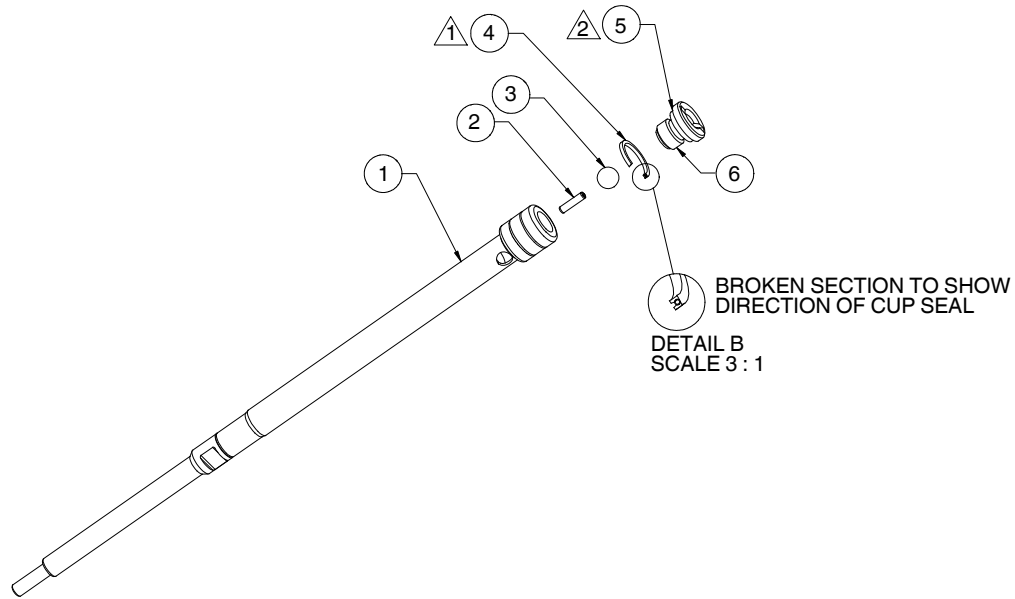


Figure B-13 High output hydraulic piston assembly parts drawing

Low Viscosity Double Acting Hydraulic Piston Assembly

Item	Part	Description	Quantity
-----	1128655	PISTON ASSY, HYD, LV, PB FLEX	
1	1127450	PISTON, PUMP, STANDARD DOUBLE ACTING	1
2	985302	PIN, ROLL, .125X .500, STL, ZN	1
3	900000	BALL, 440SSTL, .375, 50	1
4	706009	SEAL, PACKING	1
5	705975	SEAL, BALL, PRESSURE, HMIV PUMP	1
6	900470	ADHESIVE, LOCTITE 272, RED, HI TEMP, 50ML	1



NOTES:

- 1 ENSURE ITEM 4 OPEN SIDE IS FACING AWAY FROM ITEM 5.
- 2 TIGHTEN ITEM 5 TO 100-120 IN-LBS TORQUE.

Figure B-14 Low viscosity double acting hydraulic piston assembly parts drawing

Appendix C

The BBconn Cloud

BBconn Cloud is a web application designed to enhance the functionality of the ProBlue Flex control systems. The application runs in a browser on any desktop computer or handheld device. Further instructions and detailed help for BBconn Cloud can be found online within the application.

Web Address

<https://www.bbconncloud.nordson.com>

List Of Browsers

Use any of the following browsers to access the application.

- Chrome
- Edge
- Safari
- Mozilla Firefox
- UC browser

Key Functions

- Allows you to set up the system in the cloud by programming runtime settings, recipes, and system settings for download into the system.
- The application supports viewing, modifying, saving, and creating new setup files.
- Setup files are imported to and exported from the system via a USB memory stick. These files are stored in the cloud as a backup for future reference.
- The application allows you to view, sort, and filter the event log files from the system (up to 1,000 events are stored).

Key Functions *(contd)*

- The application includes a media center, which is a convenient library of support resources available for the equipment. Product manuals, feature licenses, software upgrades and more are available from one central location.
- Using the cloud application allows you to share setup and diagnostic information with Nordson technical support personnel who can better help you troubleshoot and repair your hot melt system using the detailed information from the equipment.

Importing and Exporting Files

The application supports the import and export of various information in the system.

The backup file (which has the extension .nor) contains a complete set of data for the system

- System settings
- Recipes/runtime settings
- Communications settings
- Event log files

NOTE: The system allows you to separately import and export recipes. Recipe files use the extension .xml.

NOTE: You can also separately export the Event Log. Event log files use the extension .csv.

For additional details refer to *ProBlue Flex BBconn Cloud Manual* (P/N 1129243).

Appendix D

Adhesive Tracking System

Overview

The ProBlue Flex adhesive melter can either come configured with the Adhesive Tracking System (ATS), or it can be retrofitted onto the melter.

The ATS monitors the adhesive system for adhesive consumption and add-on weights, including the total amount of adhesive dispensed and the average adhesive dispensed per product, referred to as add-on weight, or just add-on.

The ATS uses a flow meter to directly measure adhesive output. The flow meter sensors determine product counts and add-on weights. The measurement and reporting data collected by the ATS can be used to improve process control.

The ATS provides the following capabilities:

- Simplifies setup by teaching the system the average add-on.
- Displays the following real-time data on the OLED user interface:
 - Average add-on per product
 - Total add-on
 - Average add-on per hour
 - Total product count and defective product count
 - Alarm status and total alarms
- Maintains and stores data logs for retrieval:
 - Every 24 hours (updated every minute)
 - Every week (updated every hour)
 - Quarterly (3 months, updated every hour)
- Connects Enabled Output or Alarm Output signal to stop production if dispensing deviates beyond user-specified upper and lower limits.

Intended Use

The ATS is specifically designed to be used:

- With compatible equipment manufactured by Nordson Corporation
- In non-explosive environments

Unintended Use

Use the ATS only for the purpose for which it is designed. **Do not** use:

- With any material that creates a health or safety hazard when heated
- In an environment that will require the system to be cleaned using a water wash or spray

Theory of Operation

The ATS flow meter and ATS circuit board attaches to the Low Voltage Controller (LVC) for providing adhesive tracking functionality. The ATS circuit board is an intelligent subsystem that operates in parallel with the LVC, but is under its control. It is connected to the LVC board via Ethernet in order to support the higher data bandwidths needed.

An ATS system includes the manifold, flow meter, and flow meter sensors.

- The flow meter is installed on the melter manifold, and provides a resolution of approximately 25 mg. A calibration factor (K-Factor) allows fine-tuning of the flow meter for different operating conditions.
- The flow meter sensor senses products from leading edge to leading edge as they move along the production line. Adhesive is measured over the product detector's pitch to provide an average adhesive weight per product, even if there are multiple dispensing stations in different locations on the production line. A skip count is used to ignore products at startup to ensure that all applicators are applying adhesive before the system begins monitoring products.

For detailed user interface setup instructions refer to:

- *ProBlue Flex Adhesive Melter Using the OLED User Interface Manual* (P/N 1128351).
- And/Or
- *ProBlue Flex Adhesive Melter OEM User Interface Manual* (P/N 1129255).

The setup involves ensuring that the flow meter accurately measures the amount of adhesive, referred to as add-on, applied to products.

Upon initial startup, the Target Add-On value must be either manually entered or "taught" to the system. During the teaching process, the ATS measures 8 grams of adhesive or 10 products (whichever is greater) to calculate the Target Add-On.

After the system has learned the amount of adhesive to apply per product (Target Add-On), the ATS calculates how many products to average. This value is calculated by dividing 8 grams of adhesive by the taught Target Add-On value.

The system can be calibrated by adjusting the K-Factor value. To do this, the actual adhesive weight from one or more products is measured and compared to the displayed adhesive weight. A formula is used to calculate the new K-Factor value: $\text{New K-Factor} = \text{Old K-Factor} * \text{Displayed Weight} / \text{Actual Weight}$. When the K-Factor value is changed, the Target Add-On value automatically adjusts.

Theory of Operation *(contd)*

Once the system is set up and is accurately measuring add-on weights, the system can generate alarms for high or low output. The high and low thresholds for generating alarms are user-adjustable. The number of products that are allowed to pass with either too-high or too-low output is also user-adjustable.

During the monitoring process, the ATS calculates a running average using the last “N” products to compare to the alarm thresholds, where “N” is the user-specified or taught number of products to average to determine add-on. If the running average moves outside the alarm threshold and the number of consecutive out-of-tolerance products exceeds the user-allowed number of out-of-tolerance products, the ATS generates an alarm.

The add-on data measured by the ATS can be downloaded onto a USB drive for process improvement purposes.

Technical Data

Specifications

Item	Specification
Maximum system operating pressure	10 MPa (1,450 psi)
Instantaneous flow rate range	0.03 – 91 kg/hr (0.07–200.6 lb/hr) (assuming SG* = 1.0)
Displacement	1.0 cc/rev = 1 g/rev = 0.001 kg/rev = 0.0022 lb/rev (assuming SG* = 1.0)
Resolution	0.025 cc (25 mg) or (0.055 lb) (assuming SG* = 1.0)
Viscosity range	600 – 10,000 mPa-s (cP)
Output signals	2 (Enabled Output and Alarm Output) 24 VDC sourcing (PNP) 25 mA each
Flow meter construction	Gears: 86L20 steel, case-hardened Gear shafts: Carbon steel, hardened and grounded (DIN 6325, M6) Body: 316 stainless steel
Flow meter sensors	Inductance: 1 mH (+/-10%) Resistance: 15 ohm (+/-10%) Frequency: 60 kHz (+/-10%)
Temperature rating	204 °C (400 °F) maximum
Working temperature range	-5–50 °C (23 – 122 °F)
*SG = specific gravity	

Useful Calculations and Conversion Formulas

These calculations and conversion formulas are provided for your reference as needed.

Specific Gravity Calculation

The specific gravity (SG) of adhesive is the ratio of the adhesive density over water density:

$$SG_a = \rho_{\text{adhesive}} / \rho_{\text{water}}$$

For the adhesive density (ρ_{adhesive}), refer to the adhesive manufacturer's Safety Data Sheet (SDS) or Technical Data Sheet (TDS).

NOTE: Some adhesive manufacturers provide specific gravity on the SDS, some provide it on the TDS, and some do not provide it all. If you cannot find the specific gravity, contact the adhesive manufacturer. If you are unable to obtain the specific gravity, you can use the default specific gravity value to calibrate using the K-factor. Note, however, that if you eventually update the specific gravity value, you will need to recalibrate the system.

For water density (ρ_{water}), refer to the following table:

Water density [26.7 °C (80 °F) at sea level]	
0.997	g/cm ³
997	g/L
0.997	kg/L
62.24	lb/ft ³
8.320	lb/US gal

Refer to the SDS/TDS to obtain the density of the adhesive in kg/L or lb/gal. You can use the density to calculate the specific gravity.

K-Factor Calculation

Refer to *Calibrate the Flow Meter* under *System Setup* for an explanation of how to use the K-Factor parameter to fine-tune the accuracy of flow meter measurement results.

Old K-Factor times (*) the displayed Add-On/Product divided (÷) by the actual total add-on weight equals (=) the new K-Factor.

Conversions

1 US gallon = 8.34 lb (adhesive; SG=1.0)

1 liter = 2.20 lb (adhesive; SG=1.0)

Table D-1 Useful Metric-to-English Conversions for ATS System Setup

Unit of Measure of X Quantity	Multiply the Quantity by this Conversion Factor	Example
Micrograms (μg)	Multiply by 0.0000000022 1 μg = 0.0000000022 or (2.2e-9) lb	300 μg times (*) 0.0000000022 = 0.00000066 lb NOTE: Micrograms are used in laboratory measurements.
Milligrams (mg)	Multiply by 0.0000022 1 mg = 0.0000022 lb	500 mg times (*) 0.0000022 = 0.0011023 lb NOTE: Milligrams are used in laboratory measurements.
Centigrams (cg)	Multiply by 0.000022 1 cg = 0.000022 lb	80 cg times (*) 0.000022 = 0.0017637 lb
Kilograms (kg)	Multiply by 2.205 (1 kg = 2.205 lb)	5 kg times (*) 2.205 = 11.025 lb
Grams (g)	Multiply by 0.0022046 1 g = 0.0022046 lb	700 g times (*) 0.0022046 = 1.5432358 lb

I/O Declarations on the ATS Board

See Figure D-1 for the ATS board.

Connector	Terminals	Type	Rating	Use
X2, X4	1 - 8	Standard RJ45 Ethernet	10/100 Ethernet	
TB1, TB2	1	24VDC Input/Output	24VDC @ 650 mA	Used to supply 24VDC to the ATS board. Two identical connectors provided so power can be daisy-chained to other expansion boards.
TB3	1, 4	Inductive sensor inputs	3.3V logic	The inductive sensor attached completes an RLC oscillator. The frequency shifts slightly when a flow meter gear tooth passes by the sensor.
TB3	2, 3, 5, 6	Circuit Common	Circuit Common	
TB4	1	24VDC Output	24 VDC @ 100 mA	
TB4	2	Analog input signal	0-10V; 4-20 mA	Line speed input signal provided by customer.
TB4	3, 4	Circuit Common	Circuit Common	
TB5	1	24VDC Output	24 VDC @ 200 mA	24VDC provided to power external encoder device.
TB5	2, 3, 4, 5	Encoder signals	24VDC logic	Inputs for quadrature, differential encoder signals.
TB5	7, 8	Circuit Common	Circuit Common	
TB6	1	Ejector 24V output	24VDC @ 300 mA	Ejector output used by customer to signal bad products
TB6	2, 5, 6, 9, 10	Circuit Common	Circuit Common	
TB6	3, 7	24VDC Output	24 VDC @ 100 mA	24VDC provided to power external photosensor device.
TB6	4, 8	Trigger inputs	24VDC logic	Input for photosensor signal. Can support NPN (sinking) or PNP (sourcing) signals.

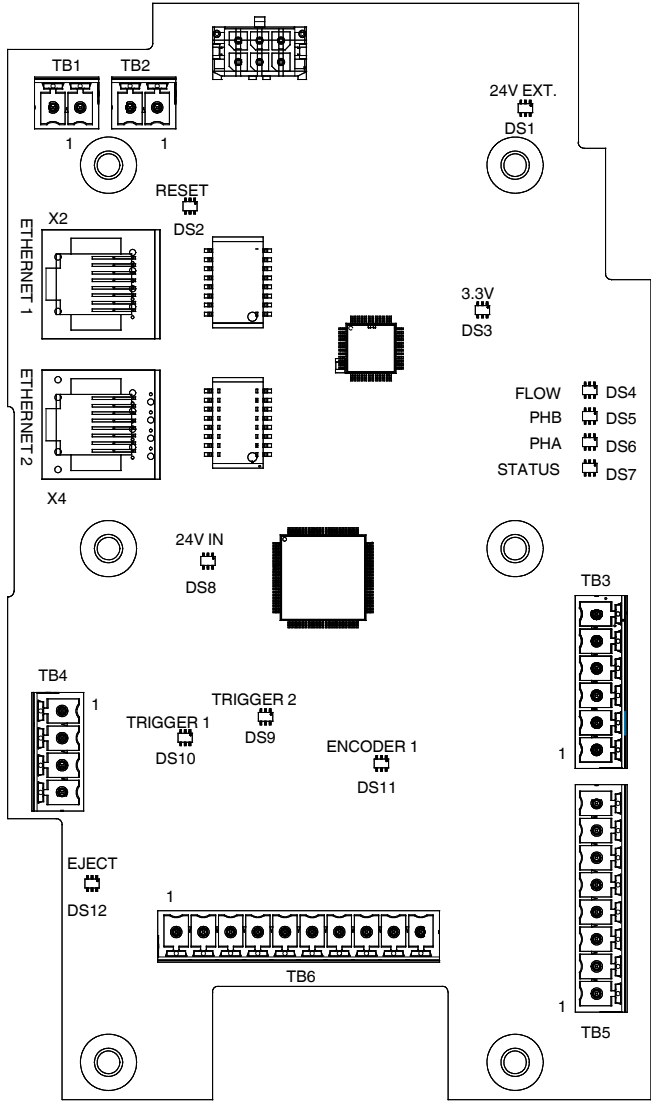


Figure D-1 ATS board I/O designations

Flow Meter Assembly Parts Lists

Flow Meter and Sensor Parts

See Figure D-2.

Item	Part	Description	Quantity	Note
1	-----	• FLOWMETER, ATS	1	A
2	-----	• SENSOR, INDUCTIVE,ATS	2	B
3	-----	• RETAINER	1	
4	-----	• O-RING,VITON	2	
5	-----	• WASHER,M5,ZN	2	

NOTE A: Refer to the next parts list, *Flow Meter Parts*.
B: To replace this part, order service kit 1125799 for a sensor with a 1.8 m (6 ft) cable.

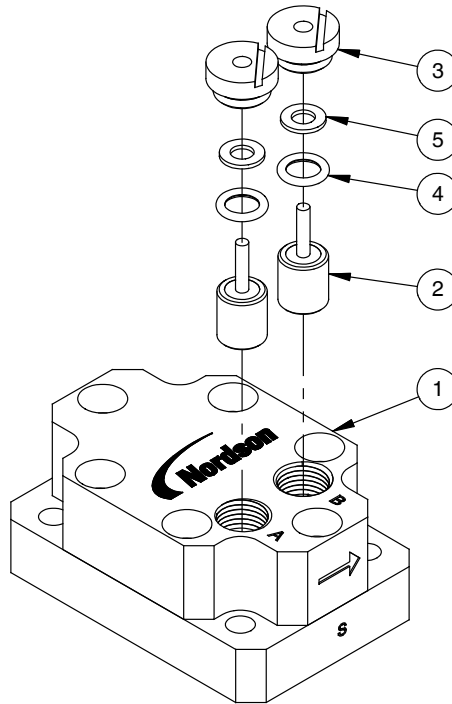


Figure D-2 Flow meter and sensor assembly parts

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Flow Meter Parts

See Figure D-3.

Item	Part	Description	Quantity	Note
—	-----	FLOWMETER, .150 THK GEAR, ATS	—	A
1	-----	• BODY, FLOWMETER, ATS	1	
2	940310	• O RING, VITON, 1.750X1.875X.063	1	
3	-----	• PIN, GEAR, FLOWMETER	2	
4	-----	• GEAR, .150 THICK, FLOWMETER	2	
5	-----	• COVER, FLOWMETER, ATS	1	
6	-----	• SCR, SKT, M6X25, ZN	6	
7	-----	• ADHESIVE, LOCTITE 242, BLUE, REMOVABLE, 50M		B
NOTE A: To replace the complete flow meter assembly, order service kit 1125294.				
B: For additional Loctite 242, order Nordson P/N 900200 (0.5 ml tube).				

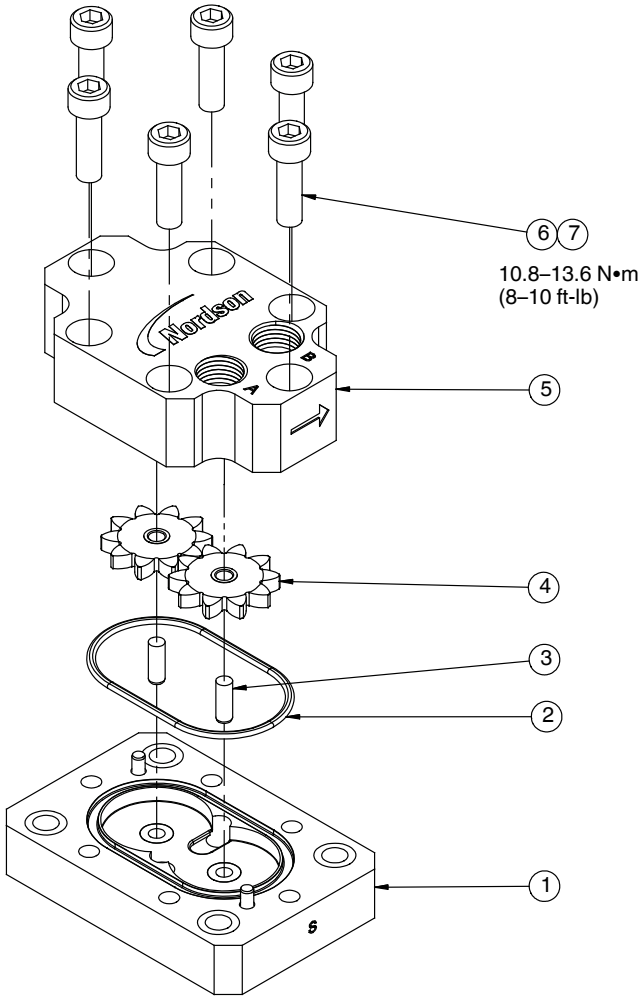


Figure D-3 Flow meter parts

ATS Service Kits

ATS Upgrade Kit

Kit Part	Part	Description	Quantity
1129052	—	KIT, UPGRADE, ATM, FULL	—
	1128875	• KIT, HOSE MANIFOLD, ATM	1
	1128916	• KIT,PCA, ATM, RUN-UP, PB FLEX	1
	1128343	• KIT,MODULE,APP UPGRADE	1
	1129054	• KIT, GUARD, MANIFOLD, ATM	1
	-----	• BAG,CARDBOARD,26.25 L X 16.75 W X 9.25 D	1
	-----	• LABEL,BLANK,3.00X5.00	1

ATS Hose Manifold Kit

Kit Part	Part	Description	Quantity
1128875	—	KIT, SERVICE, HOSE MANIFOLD, ATM	—
	-----	• MANIFOLD ASSEMBLY, HOSE ,ATM	1
	-----	• ALLAN HEAD CAP SCREW M6X80 DIN912 SST	4
	-----	• O RING,VITON, .489ID X .070W,BR,10414	1
	-----	• LUBRICANT,NEVER SEEZE,NSF-H1,FOOD GRADE	1
	-----	• LUBRICANT,O-RING,NSF-H1,10 ML TUBE	1
	-----	• BOX, C-2 TIMER	1
	-----	• LABEL,BLANK,3.50"X1.375"	3
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	3

ATS PCA Kit

Kit Part	Part	Description	Quantity
1128916	—	KIT,PCA, ATS, PB FLEX	—
	-----	• PCA, ATS, PB FLEX	1
	1125222	• CABLE ASSY,8-COND,CAT5E,HMI,RJ45,1 FT	1
	1128858	• HARNESS, LVC TO ATS PCA, 24VDC PWR	1
	-----	• SENSOR,DIFFUSE MODE	1
	1015904	• THRDSPCRMM,MALE/FEM,SS,HEX,M3,19MMLG	6
	1036625	• MACHSCRM,PAN,REC,M3X8,SEMS	6
	-----	• BOX,SMALL PARTS	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	-----	• BAG,POLY,KITS,ROLLS,6X10	3
	-----	• LABEL,BLANK,3.00X5.00	

Inductive Sensor Cable Kit

Kit Part	Part	Description	Quantity
1128986	—	KIT,SENSOR,INDUCTIVE,4FT CBL	—
	-----	• SENSOR ASSY, INDUCTIVE,4FT CBL,ATS	2
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1
	-----	• BAG,POLY,KITS,ROLLS,6X10	1

ATS Manifold Guard Kit

Kit Part	Part	Description	Quantity
1129054	—	KIT, GUARD, MANIFOLD, ATM	—
	-----	• GUARD, MELTER MANIFOLD, ATS	1
	1129181	• INSULATION, MANIFOLD, ATS, TOUCHSAFE	1
	982780	• SCR,SKT,M5X10,ZN	1
	-----	• LABEL, BLANK, 3.50"X1.375"	1
	-----	• CARTON,MISC PARTS,(11.25 X 9.00 X 4.00)	1

ATS Service Kit

Kit Part	Part	Description	Quantity
1129053	—	SERVICE KIT, HOSE, MANIFOLD, ATM	—
	-----	• MANIFOLD,HOSE,ATM	1
	-----	• ALLAN HEAD CAP SCREW M6X80 DIN912 SST	4
	-----	• O RING,VITON,.489ID X .070W,BR,10414	1
	-----	• LUBRICANT,NEVER SEEZE,NSF-H1,FOOD GRADE	1
	-----	• LUBRICANT,O-RING,NSF-H1,10 ML TUBE	1
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	-----	• BOX,RBX PC BOARD	1
	-----	• LABEL,BLANK,3.50"X1.375"	5

Appendix E

Optional Accessories

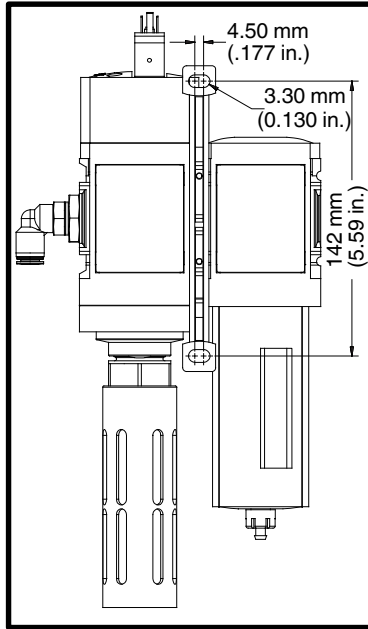
Available Accessories

The ProBlue adhesive melter can either come configured with the selected optional accessories or they can be retrofitted onto the melter. The following optional accessories are available for use with the melter:

- Air Pressure Relief Valve
- Wi-Fi Module
- Light Tower
- Communication cards
- Remote Touchscreen User Interface
- Fulfill System

NOTE: For board diagrams, refer to *Wiring Diagrams* in *Technical Data* (Section 7) given earlier in this manual.

Air Pressure Relief Valve



The air pressure relief valve is mounted on a customer-preferred parent machine and connected to the melter's air filter via a tube. The figure on the left displays the safe air pressure relief valve dimensions.

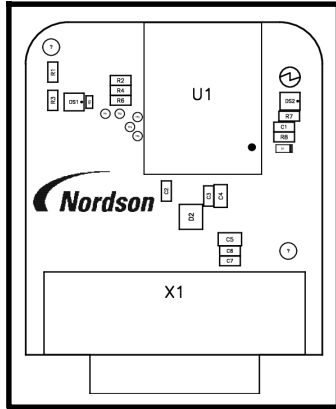
The air pressure relief valve is used to relieve pneumatic pressure instantly in the melter's melt section (tank).

Refer to the *Air Pressure Relief Valve Kit* instruction sheet included in the service kit for installation details.

Air Pressure Relief Valve Kit

Kit Part	Part	Description	Quantity
1129099	—	KIT,ACCESS	—
	-----	• VALVE,ASSEMBLY,ZPS	

Wi-Fi Module



The Wi-Fi card is installed on the LVC board's DB15 female connector. This card functions as a Wi-Fi Access Point (AP) and allows wireless access to the BBconn Cloud web page user interface. The figure on the left displays the Wi-Fi card.

When installed on the LVC board, the software automatically detects the Wi-Fi module presence at startup and loads it with the necessary software driver. In addition, if the melter does not have an external web access license, it will automatically be marked as having a license based on having detected module presence.

Several configuration settings must be changed to configure the Wi-Fi AP. These configuration parameters are available in:

- BBconn Cloud (required usage for OEM units), for accessing the web page go to <https://bbconncloud.nordson.com>:

Settings > Networking

and

- Navigable menus of the OLED user interface:

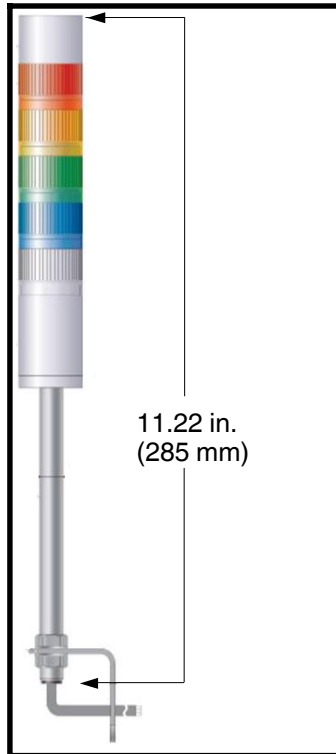
Home screen > System Settings > Networking > Wi-Fi

Refer to the *Wi-Fi Card* instruction sheet included in the service kit for installation details.

Wi-Fi Module Service Kit

Kit Part	Part	Description	Quantity
1129094	—	KIT,ACCESS,PB FLEX,WIFI CARD	—
	-----	• PCA,PB FLEX,WIFI	1
	-----	• CARTON,MISC PARTS (6" X 4" X 2")	1

Light Tower



The light tower is installed on the LVC board in the E-Box electrical enclosure.

The light tower colors indicate the system operating conditions. See the figure on the left for the light tower dimensions.

NOTE: The light tower board must be first installed on the LVC board. If there are other boards installed on the LVC board, temporarily uninstall them. Then mount the light tower board and remount the other boards.

CAUTION! If there are multiple boards, make sure to install one board at a time. After installing the first board, power up the melter for 5 minutes before installing the next board. Failure to follow this procedure may result in loss of nameplate data (see *Melter Identification in Description* [Section 2]) and disabled licenses.

NOTE: If there is a remote touchscreen user interface, connect it directly onto TB1 on the light tower board.

Refer to the *PB Flex Light Tower PCA Kit* instruction sheet included in the service kit for installation details.

Light Tower Board and Light Tower Service Kit

Kit Part	Part	Description	Quantity
1129090	—	KIT,ACCESS,PB FLEX,LIGHT TOWER & PCA	
	-----	• PCA,PB FLEX,LIGHT TOWER	1
	1127941	• HARNESS,RIBBON,PB FLEX,LIGHT TOWER	1
	1015904	• THRDSPCRMM,MALE/FEM,SS,HEX,M3,19MMLG	6
	10336625	• MACHSCRM,PAN,REC,M3X8,SEMS	6
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	5
	1125519	• LIGHT TOWER,24VDC,RYGBW,LED	1
	1084187	• CABLE,4COND,24AWG,300V,105C,TR	5
	1106982	• SPLICE,PARALLEL,3WIRE,W-LEVERS,600V,20A	3
	933607	• STRAIN RELIEF,PG11,NYLN,STD,W/LK NUT,BLK	1
	982212	• SCR,HEX,CAP,M8X30,ZN	2
	984707	• NUT,HEX,M8,STL,ZN	2
	983013	• WASHER,FLT,M,REG,M8,STL,ZN	4
	983150	• WASHER,LK,E,SPT,5/16,STL,NI	2
	-----	• BAG,POLY, 5" X 8", ZIPPER	1
	-----	• LABEL,BLANK,3.00X5.00	1
	-----	• BOX,MAILER	1

Light Tower Board Only Service Kit

Kit Part	Part	Description	Quantity
1129063	—	KIT,ACCESS,PB FLEX,LIGHT TOWER,PCA	—
	-----	• PCA,PB FLEX,LIGHT TOWER	1
	1127941	• HARNESS,RIBBON,PB FLEX,LIGHT TOWER	1
	1015904	• THRDSPCRMM,MALE/FEM,SS,HEX,M3,19MMLG	6
	10336625	• MACHSCRM,PAN,REC,M3X8,SEMS	6
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	-----	• BOX,HANDGUN, 8.75 L X 6.875 W X 2.00 D	1
	-----	• LABEL,BLANK,3.50"X1.375"	1

Communication Cards

Communications cards enable the Nordson melter to communicate with other process equipment or controllers that use standard network protocols.

Refer to the *ProBlue Flex Compact Communication* instruction sheet included in each service kit for installation details.

Profibus Communication Service Kit

Kit Part	Part	Description	Quantity
1129161	—	KIT,ACCESS, PB FLEX,COMM,PROFIBUS	—
	-----	• M40 PROFIBUS MODULE WITHOUT HOUSING	1
	-----	• MOUNTING KIT FOR M30/M40 MODULES	1

EtherCAT Communication Service Kit

Kit Part	Part	Description	Quantity
1129162	—	KIT,ACCESS, PB FLEX,COMM,ETHERCAT	—
	-----	• M40 ETHERCAT MODULE WITHOUT HOUSING	1
	-----	• MOUNTING KIT FOR M30/M40 MODULES	1

CC Link Communication Service Kit

Kit Part	Part	Description	Quantity
1129163	—	KIT,ACCESS, PB FLEX,COMM,CCLINK	—
	-----	• M40 CC-LINK MODULE WITHOUT HOUSING	1
	-----	• MOUNTING KIT FOR M30/M40 MODULES	1

Sercos III Communication Service Kit

Kit Part	Part	Description	Quantity
1129164	—	KIT,ACCESS, PB FLEX,COMM,SERCOS III	—
	-----	• M40 SERCOS III MODULE WITHOUT HOUSING	1
	-----	• MOUNTING KIT FOR M30/M40 MODULES	1

DeviceNet Communication Service Kit

Kit Part	Part	Description	Quantity
1129165	—	KIT,ACCESS, PB FLEX,COMM,DEVICENET	—
	-----	• M40 DEVICENET MODULE WITHOUT HOUSING	1
	-----	• MOUNTING KIT FOR M30/M40 MODULES	1

Powerlink Communication Service Kit

Kit Part	Part	Description	Quantity
1129166	—	KIT,ACCESS, PB FLEX,COMM,POWERLINK	—
	-----	• M40 POWERLINK MODULE WITHOUT HOUSING	1
	-----	• MOUNTING KIT FOR M30/M40 MODULES	1

CC Link IE Communication Service Kit

Kit Part	Part	Description	Quantity
1129167	—	KIT,ACCESS, PB FLEX,COMM,CCLINK IE	—
	-----	• M40 CC-LINK IE MODULE WITHOUT HOUSING	1
	-----	• MOUNTING KIT FOR M30/M40 MODULES	1

Remote Touchscreen User Interface

The color Liquid Crystal Display (LCD) remote touchscreen user interface connects to the LVC by Ethernet and can be located remotely.

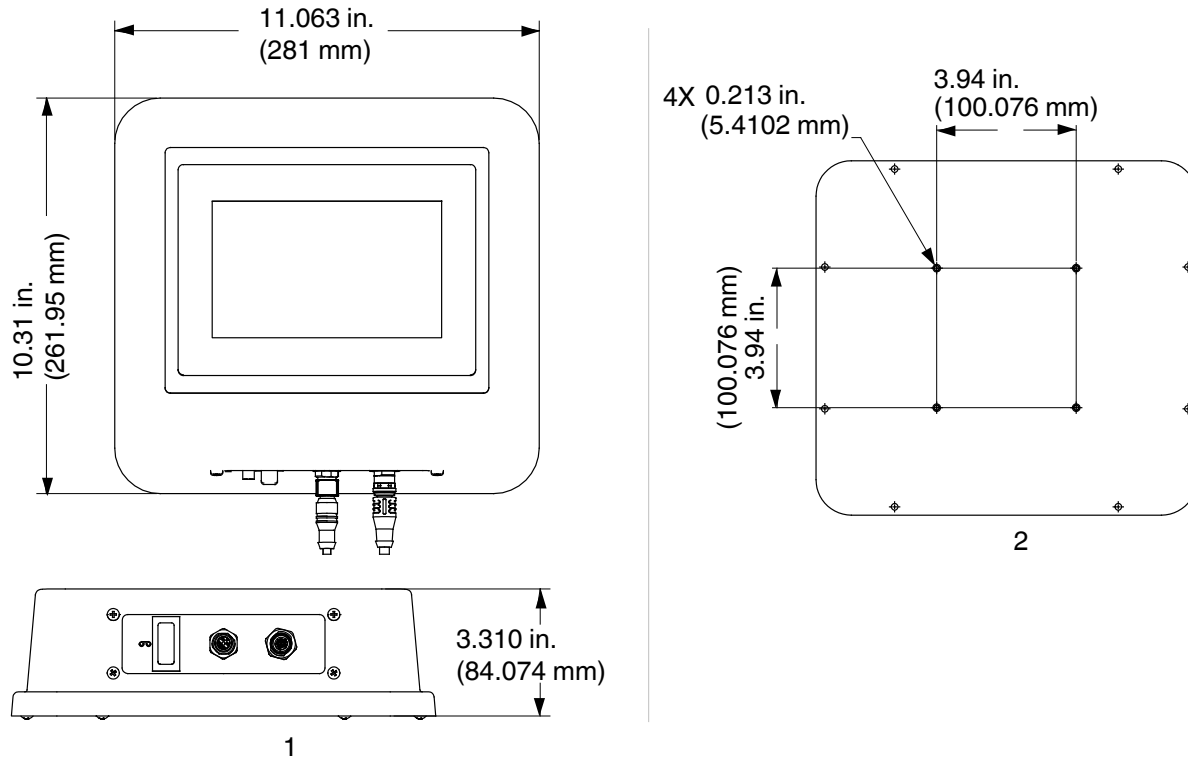


Figure E-1 Remote touchscreen

1. Touchscreen dimensions

2. Touchscreen mounting pattern

Refer to the *ProBlue Flex Touchscreen Panel* instruction sheet included in the service kit for installation details.

PB Touchscreen Service Kit (Comes with 5m communication harness)

Kit Part	Part	Description	Quantity
1129200		KIT,ACCESS, PB FLEX,TCH SCRNR	—
	-----	• CONTROL UNIT, ASSY,T50 PANEL,PB FLEX	1

5 m Communication Cable

Kit Part	Part	Description	Quantity
11129202		KIT,ACCESS,PB FLEX,TCH SCRN,CABLE,5M	—
	-----	• HARNESS,HMI,RUI,5M,PB FLEX	1

10 m Communication Cable

Kit Part	Part	Description	Quantity
11129203		KIT,ACCESS,PB FLEX,TCH SCRN,CABLE,10M	—
	-----	• HARNESS,HMI,RUI,10M,PB FLEX	1

20 m Communication Cable

Kit Part	Part	Description	Quantity
11129204		KIT,ACCESS,PB FLEX,TCH SCRN,CABLE,20M	—
	-----	• HARNESS,HMI,RUI,20M,PB FLEX	1

30 m Communication Cable

Kit Part	Part	Description	Quantity
11129205		KIT,ACCESS,PB FLEX,TCH SCRN,CABLE,30M	—
	-----	• HARNESS,HMI,RUI,30M,PB FLEX	1

Remote Touchscreen T50 Service Kit

Kit Part	Part	Description	Quantity
1129148	—	KIT,PB FLEX,TCH SCRN,T50 PANEL	—
	-----	• CONTROL PANEL,T50,RUI,PB FLEX	1
	1128918	• PLATE,T50 MOUNT,RUI,PB FLEX	1
	1128917	• GASKET,FRONT,RUI,PB FLEX	1
	345610	• NUT,HEX,JAM,M4X0.7,STL,ZN	10
	1120272	• WASHER,FLT,M,REGULAR,M4,STL,ZN	10
	-----	• BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	2
	-----	• BOX,CARDBOARD, 12 x 10 x 5	1

Fulfill System

The ProBlue Flex melters that are integrated with the Fulfill system, automatically transfer solid adhesive stored in an adhesive bin to the melter as needed. A vibrator on the adhesive bin helps prevent adhesive bridging and ensures consistent adhesive delivery from the bin to the melter.

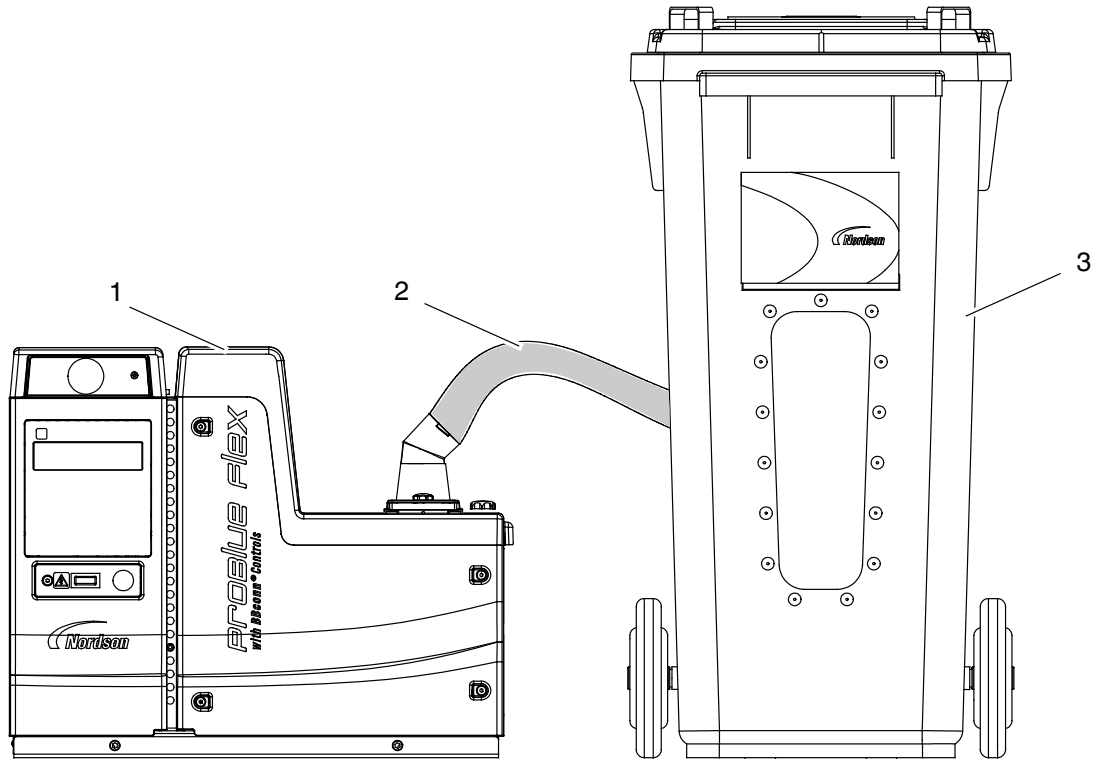


Figure E-2 ProBlue Flex melter integrated with the Fulfill system

- | | | |
|--|---------------------------|-------------------------|
| 1. ProBlue Flex adhesive melter with Fill System | 2. Adhesive transfer hose | 3. Adhesive storage bin |
|--|---------------------------|-------------------------|

Dimensions

For melter dimensions, refer to the following sections given earlier in this manual before installing the fulfill system:

- *Melter Clearances* in *Installation* (Section 3)
- *Melter Dimensions* in *Technical Data* (Section 7)

Adhesive Storage Bin Dimensions

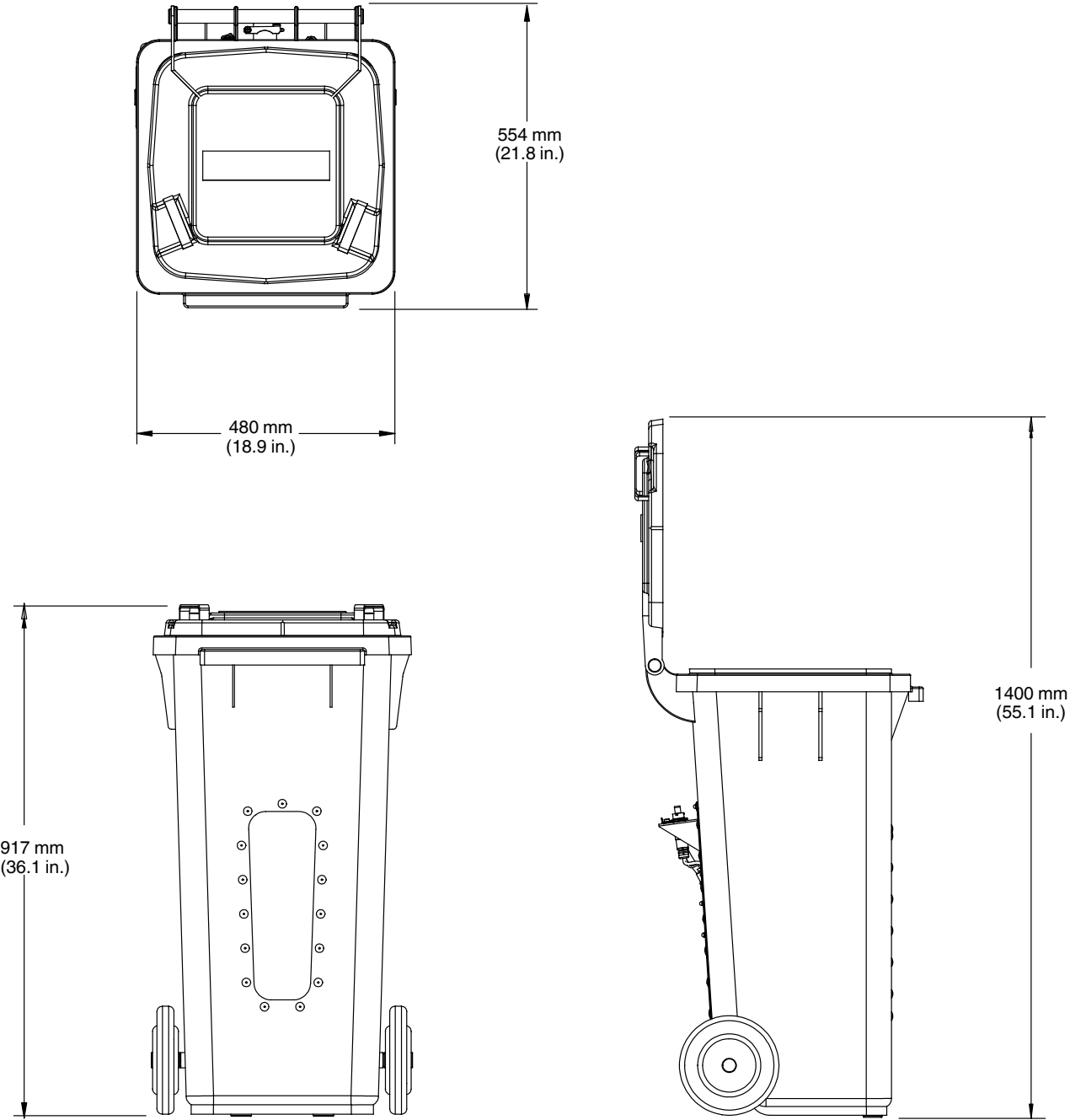


Figure E-3 Single-feed adhesive storage bin dimensions and clearances

Adhesive Storage Bin Dimensions (contd)

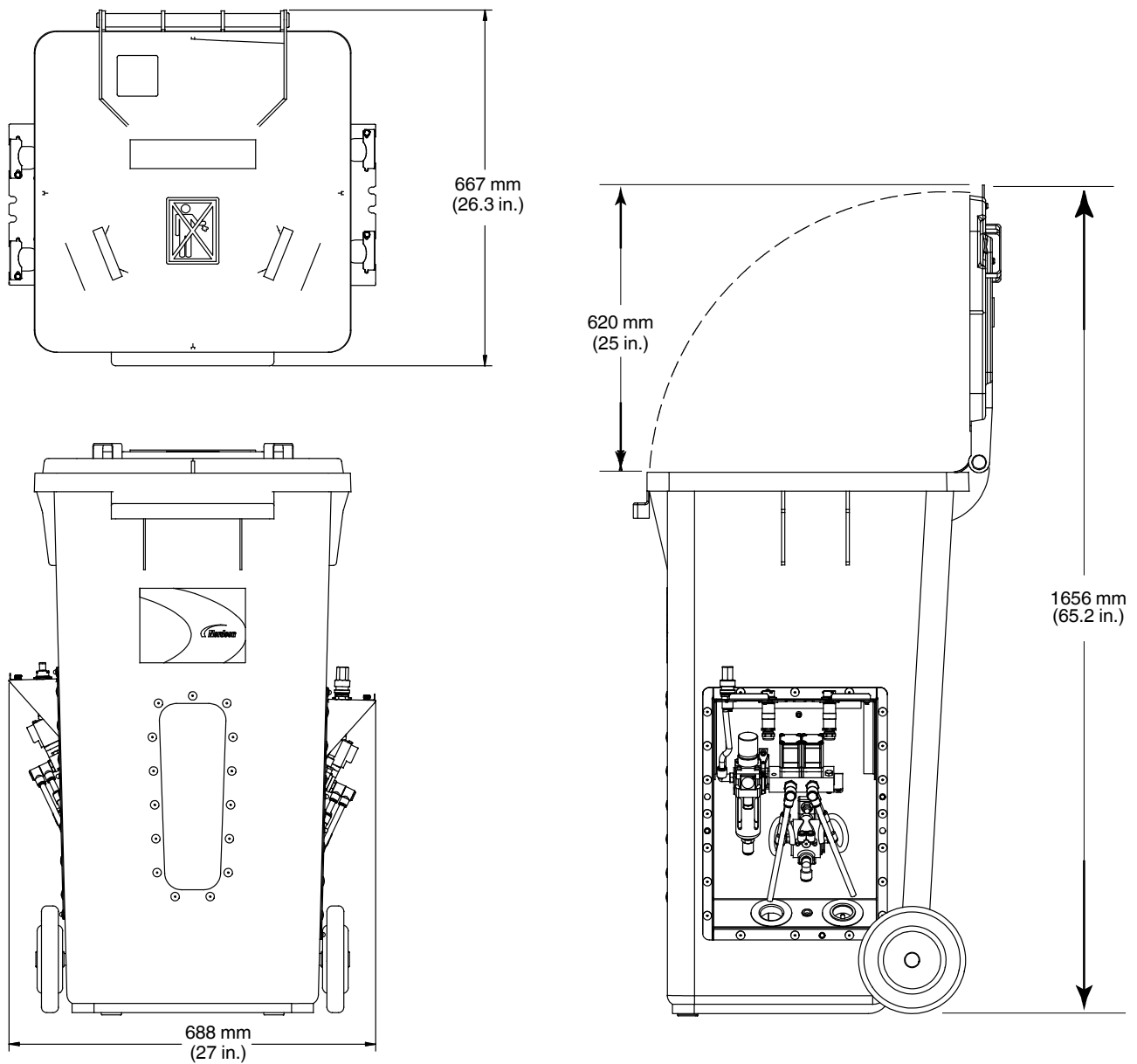


Figure E-4 Multi-feed adhesive storage bin dimensions and clearances

Fulfill System Specifications

The following specifications are specific to the Fulfill integrated fill system.
For general ProBlue melter specifications, refer to the melter manual.

Parameter	Specification
Melter operating temperature range	40-205 °C (104-400 °F)
Adhesive forms	Pellets, pastilles, mini-slats
Maximum size	- Pastilles: 12 mm (0.472 in.) diameter - Mini-slats: 12 mm X 12 mm (0.472 in. X 0.472 in.) in length
Input voltage	100-240/1Ø VAC, 1 A
Adhesive transfer maximum rate	275 kg (600 lb)/hour (dependent on adhesive type and air pressure)
Transfer hose length	4 m (13 ft), 9 m (29.5 ft), or 18 m (59 ft)
Operating air	Minimum: 4.5 bar (0.45 MPa or 65 psi) Maximum: 8.6 bar (0.86 MPa or 125 psi)
Air line tubing size (between solenoid valve and suction lance)	10-mm OD, 8-mm ID
Total air consumption	17 CFM @ 50 psi to transfer 105.3 kg/hr (223.2 lb/hr) with 4m hose @ 4m rise 22 CFM @ 60 psi to transfer 112.5 kg (248 lb/hr) with 9m hose @ 4m rise 30 CFM @ 90 psi to transfer 90.7 kg/hr (200 lb/hr) with 18m hose @ 4m rise NOTE: The sequencer ensures that only one melter is filled with adhesive when multiple melters generate a low level signal at the same time.
Conditioning	Dry, non-lubricated
Inlet air connection	¼-in. NPT female ¼-in. BSPP female G ¼ female
Pump type	Venturi
Noise emission	76 dBA
Suction lance dimensions (optional)	(L) 615 mm x (W) 105 mm maximum (24.21 in. x 4.14 in. maximum)
Adhesive storage bin capacity	120 L (264 lb) or 240 L (528 lb)
Enclosure rating	IP54
Single-feed bin adhesive container capacity	40 kg (88 lb) usable with grate; 64 kg (141 lb) usable without grate
Multi-feed bin adhesive container capacity	110 kg (242 lb) usable with grate; 128 kg (282 lb) usable without grate

Single-Feed Adhesive Storage Bin

See Figure E-5.

Item	Part	Description	Quantity	Note
1A	1121952	ASSY, BIN, FF2	—	
1B	-----	• ASSY, PUMP BOX, FF2	—	A
01	-----	• • BOX, PUMP, WELDED, DS1	1	
02	1121515	• • VIBRATOR	1	
03	1058085	• • NUT, HEX, FLANGE, M10	2	
04	972125	• • AIR FITTING, 10MM ELBOW	1	
05	1121125	• • KIT, PNEUMATIC CONTROLS, DS1 BIN	1	B
06	982364	• • SCREW, SOC HD, M6 X 12	4	
09	1121580	• • CLAMP, PIVOT, HOSE, DS1	1	
10	1121621	• • SCREW, SHLDR, 6 DIA., M5 X 4MM	1	
11	1121137	• • CLIP, VALVE SECURE, DS1	1	
12	983029	• • WASHER, FLAT, M6	4	
15	1121622	• • TUBE, 12MM O.D., 180MM LG., DS1 BIN	1	
16	972094	• • CONN, MALE, ELBOW, 12MM T X 3/8UNI	1	
17	983264	• • WASHER, FLT, M, REG, M5, SSTL	1	
18	983401	• • WASHER, LK, M, SPT, M5, STL, ZN	1	
19	1091885	• • GROMMET, .438 ID X .75 OD, RUBBER	1	
NOTE A: Pump box assemblies are available as a kit. For a multi-feed pump box kit, order part 1123015.				
B: To replace the solenoid, order service kit 1121549.				

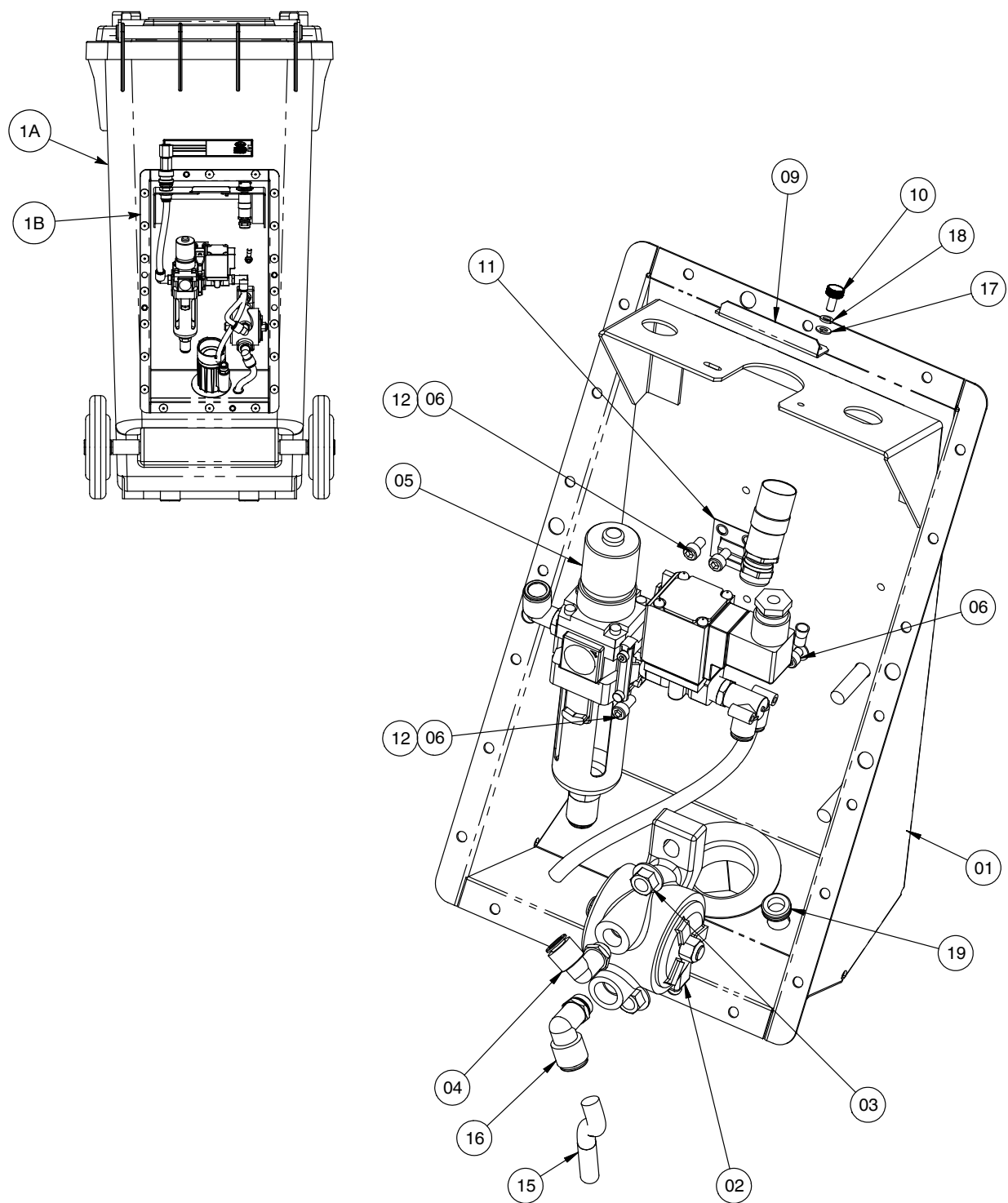


Figure E-5 Single-feed adhesive storage bin parts

Multi-Feed Adhesive Storage Bin

See Figure E-6.

Item	Part	Description	Quantity	Note
1A	1121953	ASSY, BIN, FF2, 2 PUMP	—	
	1122081	ASSY, BIN, FF2, 4 PUMP	—	
1B	-----	• BOX, PUMP,WELDED,MULTI	—	A
1C	1121951	• ASSY, PNEUMATIC KIT, MULTI FF2	—	
1	1120516	• • FITTING,PNEUMATIC BULKHEAD	1	
2	1121515	• • VIBRATOR	1	
3	1058085	• • NUT,HEX,FLANGE,M10	2	
4	1121934	• • AIR FITTING, BRANCH UNION ELBOW	1	
5	1121949	• • PNEUMATIC CONTROLS,MULTI	1	
6	982364	• • SCREW, SOC HD, M6 X 12	5	
7	1121580	• • CLAMP,PIVOT,HOSE,DS1	2	
8	1121621	• • SCREW,SHLDR,6 DIA.,M5 X 4MM	2	
9	1121672	• • QUICKDISC ,COUPLING, STRAIGHT THRU, 3/8,1/4	1	
10	983029	• • WASHER,FLAT,M6	5	
11	1121622	• • TUBE,12MM O.D.,180MM LG.,DS1 BIN	1	
12	972094	• • CONN,MALE,ELBOW,12MM T X 3/8UNI	1	
13	983264	• • WASHER,FLT,M,REG,M5,SSTL	2	
14	983401	• • WASHER,LK,M,SPT,M5,STL,ZN	2	
15	1091885	• • GROMMET,.438 ID X .75 OD,RUBBER	1	
16	7012885	• • BOX, 18X13.5X6.5	1	
17	981549	• • SCREW, 5/16-18-1.5", HEX HEAD, SS	1	
18	1085340	• • LOCKNUT, NYLON INSERT, 5/16-18	1	
19	1121880	• • BRACKET, SOLENOID SUPPORT	1	
NOTE A: Pump box assemblies are available as a kit. For a multi-feed pump box kit, order part 1123101.				

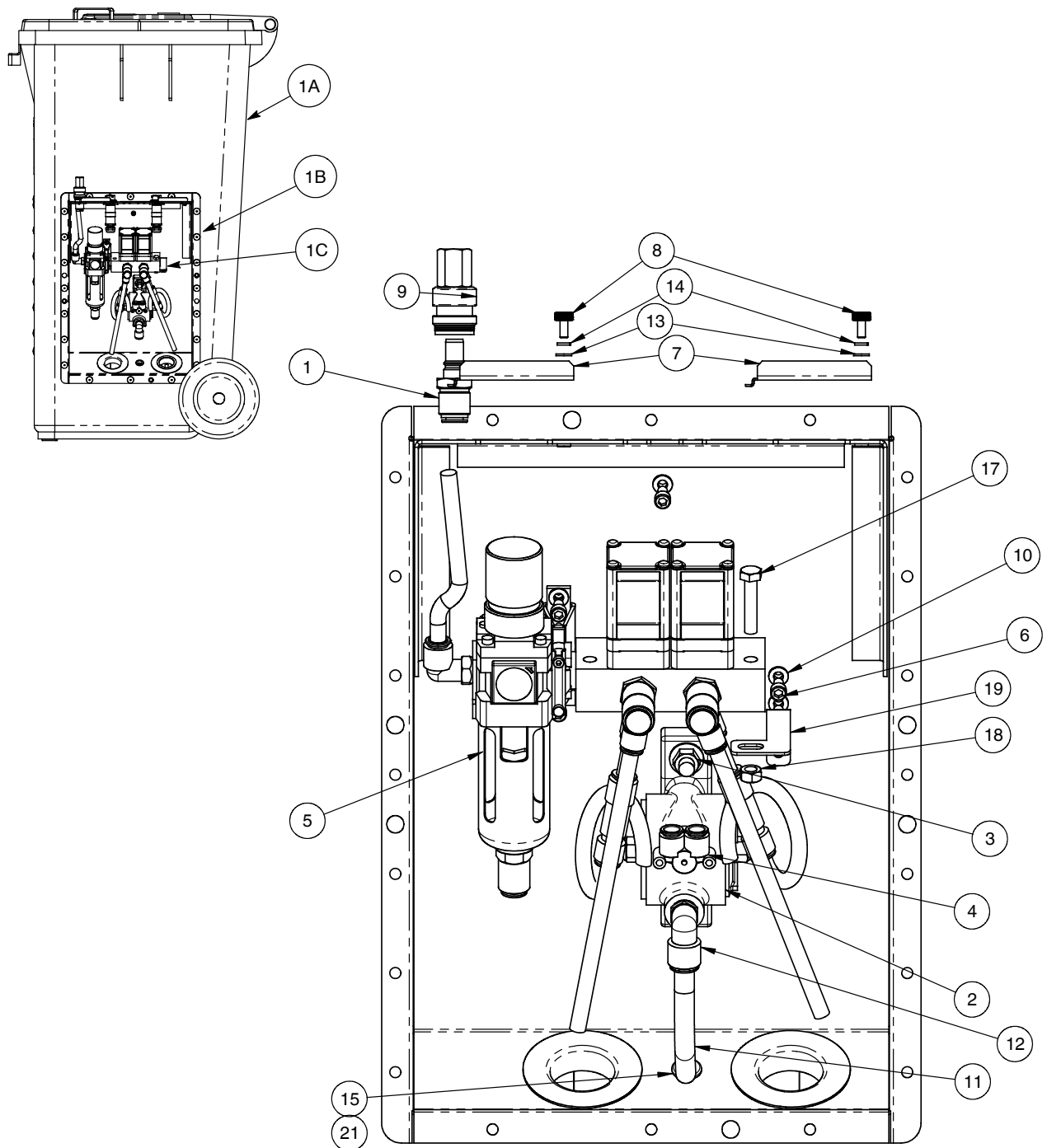


Figure E-6 Multi-feed adhesive storage bin parts

Sequencer

See Figures E-7 and E-8.

Item	Part	Description	Quantity	Note
—	1122857	KIT,CTL.ASSY,2-MELTER,SEQUENCER,FF2	—	
—	1122858	KIT,CTL.ASSY,4-MELTER,SEQUENCER,FF2	—	
—	1122922	KIT,CTL.ASSY,4-MELTER,SEQUENCER,QD,FF2	—	
—	1122923	KIT,CTL.ASSY,2-MELTER,SEQUENCER,QD,FF2	—	
—	1122855	• CONTROL UNIT,2-MELTER,SEQUENCER,FF2	—	
—	1122856	• CONTROL UNIT,4-MELTER,SEQUENCER,FF2	—	
—	1122924	• CONTROL UNIT,2-MELTER,SEQUENCER,QD	—	
—	1122922	• CONTROL UNIT,4-MELTER,SEQUENCER,QD	—	
1	1122398	• • BRACKET,CTL.BOX,SEQUENCER,FF2	1	
2	1122960	• • ENCLOSURE,POLY,MACH.,2-POS,SEQ'R,FF2	1	
2	1122399	• • ENCLOSURE,POLY,MACH.,4-POS,SEQ'R,FF2	1	
3	1120614	• • BOARD,POWER SUPPLY,24V,MINT1065,M2012	1	
4	1122103	• • PCA,SEQUENCER,FF2	1	
5	1121499	• • GUARD, TOUCH, FULFILL RETROFIT	1	
6	1122793	• • HARNESS, LINE IN, RETROFIT	1	
7	1094551	• • TBACCY,QUICK CONN.,.25-IN,MALE,DUAL,5POS	1	
8	933607	• • CONNECTOR,STRAIN RELIEF,PG-11	1	
9	1122794	• • CABLE,OUTPUT,STD.CONN.,SEQUENCER,FF2	2	A
9	1122927	• • CABLE,OUTPUT,STD.CONN.,SEQUENCER,QD,FF2	2	A
10	1123749	• • PLUG,EXPANSION,.50 DIA. HOLE	1	
12	982023	• • SCR,SKT,M3X8,BL	8	
13	1121500	• • STANDOFF, M-F, M3 X 31MM, NYLON	4	
14	1033409	• • MACHSCRM,PAN,REC,M3X6,SEMS	2	
15	983157	• • SCR,SKT,M3X14,BL	2	
17	1123480	• • PLUG,EXPANSION,.75 DIA. HOLE	1	
20	982680	• • SCR,HEX,WASHHD,TF,M5X12,BLK	4	
21	983604	• • SCR,PANHD,THD FORM,M4X12,BL	4	
22	939411	• • MARKER,NO. 1	2	
23	939412	• • MARKER,NO. 2	2	
24	939413	• • MARKER,NO. 3	2	B
25	939414	• • MARKER,NO. 4	2	B
26	984447	• • NUT,HEX,JAM,M5,STL,ZN	4	
27	983401	• • WASHER,LK,M,SPT,M5,STL,ZN	4	
				Continued...

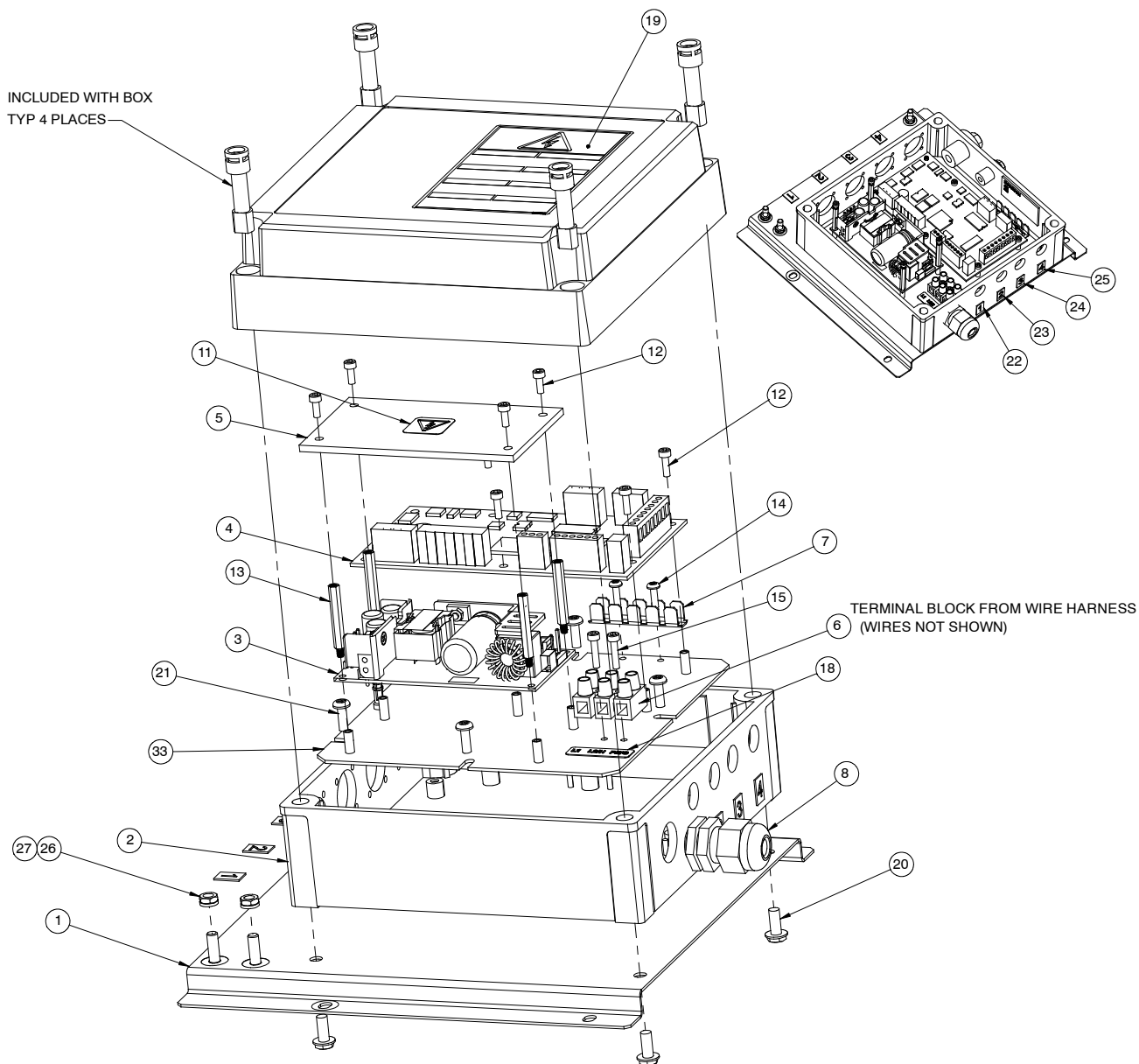


Figure E-7 Sequencer parts (1 of 2)

Sequencer (contd)

Item	Part	Description	Quantity	Note
28	1122930	• • SPLICE, PARALLEL, 5-WIRE, W-LEVERS, 600V, 20A	1	
29	1122928	• • CABLE, INPUT, FREEDOM, SEQUENCER, FF2	2	
30	1104037	• • NUT, HEX W/EXT TOOTH WASHER, M3	8	A
31	982528	• • SCR, SKT, CAP, M3 X 12MM, ZN	8	A
33	1122951	• • PANEL, CKT. BRD. MTG., CTL. BOX, SEQUENCER, FF2	1	
34	1122955	• • WIRE, GND, SEQUENCER BOX, FF2	1	
35	1123177	• • GASKET, SOLENOID CONN, 4-POS.	2	A
36	173943	• • DIODE, GENP, 1N4001, 50V, 1A, AXL	2	A
37	1122941	• • HARNESS, 24VDC, RETROFIT	1	
38	226903	• • TBCONN, MSTB, 3POS, 5.08MM, FEM	1	
39	933751	• • CONNECTOR, MC PLUG, 6 POS	1	
40	305988	• • TBCONN, 8POS, 3.81MM, MCVR1-5ST	1	
41	345913	• • WASHER, FLAT, REG, $\frac{1}{4}$, ZN	1	
42	345929	• • WASHER, FLAT, REG, $\frac{3}{8}$, ZN	1	
43	1123477	• • SPCLSCR, HEXHEADCAP, $\frac{1}{4}$ -20, .75, NYLON, SLOTTED	1	
44	1123478	• • SPCLSCR, HEXHEADCAP, $\frac{3}{8}$ -16, .75, NYLON, SLOTTED	1	
NOTE A: Double the quantity shown for a 4-melter sequencer.				
B: Used only with the 4-melter sequencer				

4 - MELTER CONTROL UNIT ASSEMBLY SHOWN

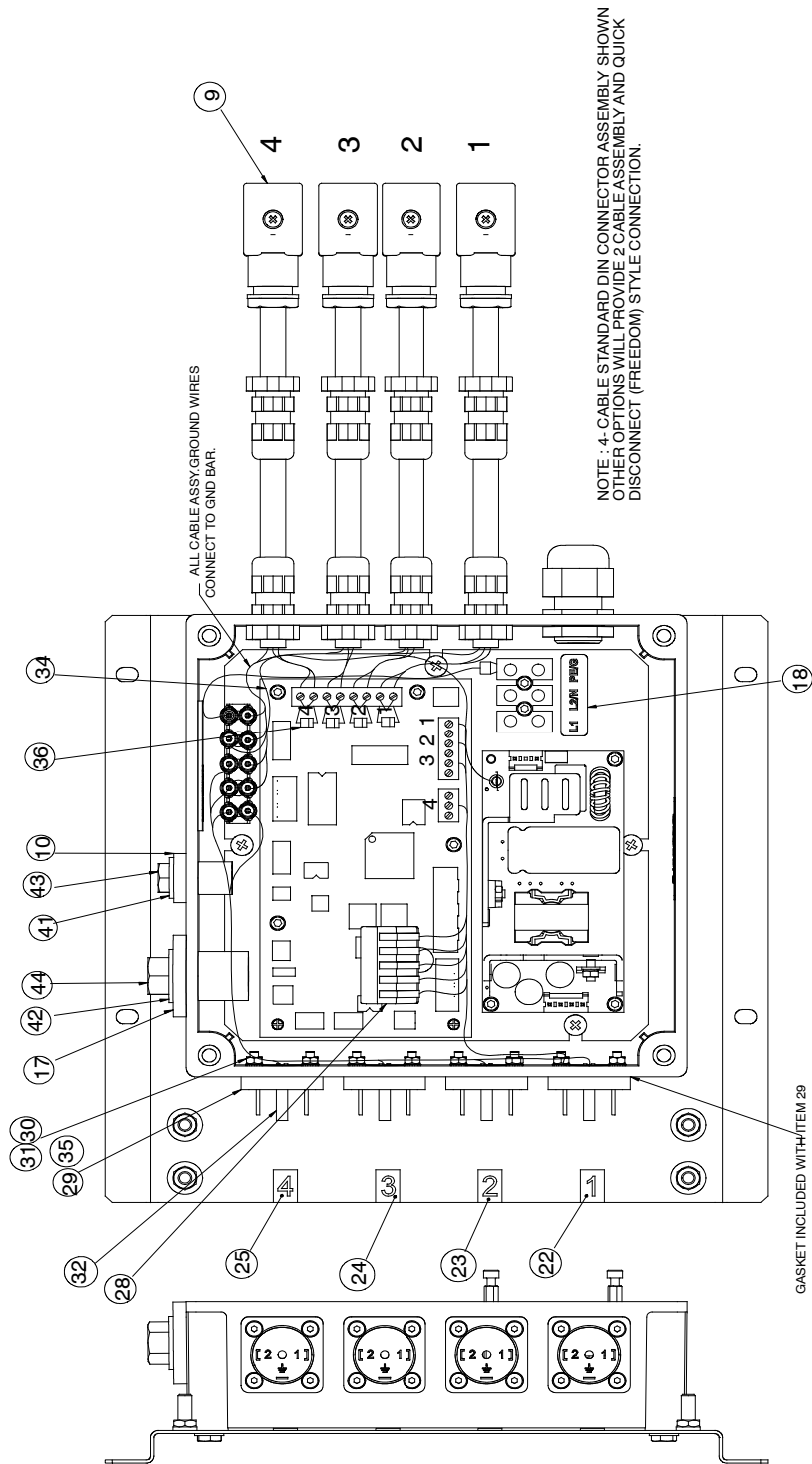


Figure E-8 Sequencer parts (2 of 2)

Adhesive Transfer Hose Parts

See Figure E-9.

NOTE: Refer to the hose manual for adhesive delivery hose (melter to applicator) information.

Item	Part	Description	Quantity	Note
—	1121967	KIT, HOSE & PUMP W/ HARNESS, 4M STD, FF	—	
—	1121954	KIT, HOSE & PUMP W/ HARNESS, 4M CLEAR, FF	—	
—	1121955	KIT, HOSE & PUMP W/ HARNESS, 9M CLEAR, FF	—	
—	1121956	KIT, HOSE & PUMP W/ HARNESS, 18M CLEAR, FF	—	
1	-----	• HOSE,TRANSFER,1.25"X4M	1	
2	-----	• CUFF,TRANSFER HOSE CUFF,DS1	2	A
3	-----	• RETAINING RING,TRANS HOSE CUFF, FREEDOM	2	A
4	-----	• O RING,VITON, 1.750X1.875X.063	2	A
5	-----	• SCR,PAN,SELF TAP,M5X10,ZN,FOR PLASTIC	4	A
7	-----	• CABLE,PRO-FF-FREE BIN,SOL CONN	1	B
8	939004	• STRAP,CABLE,.06-1.75,NATURAL,12260-4	12, 31, or 64	C
9	231362	• CLAMP,HOSE,WORM DR,1.06-2".SS	1	D
10	-----	• PUMP ASSY, SOLIDS TRANSFER, PNEUMATIC	1	E
NOTE A: To replace this item, order service kit 1121555. B: Refer to <i>Cables</i> later in this section. C: Kit part 1121955 includes 31 cable straps. Kit part 1121956 includes 64 cable straps. All other kits include 12 cable straps. D: Present only on the standard hose (part 1121967). E: Refer to <i>Adhesive Bin Pump Parts</i> later in this section. The 18 m hose (part 1121956) includes a high flow pump. All other hoses include a standard flow pump. F: Present only on the high flow hose (part 1121956).				

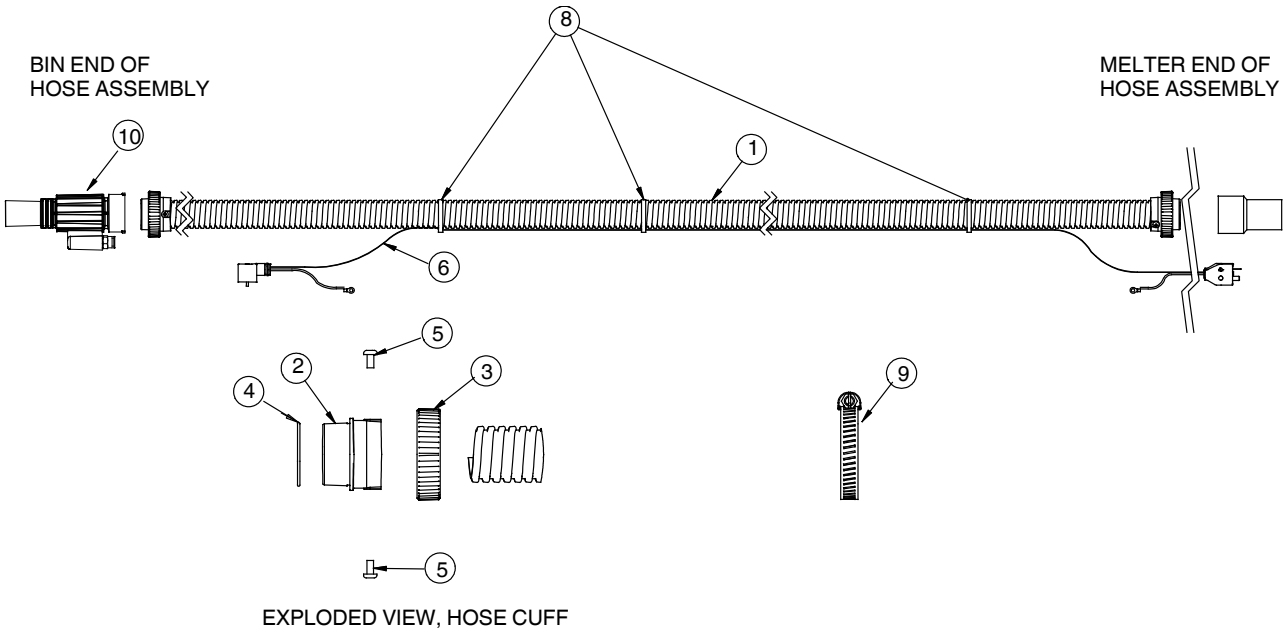


Figure E-9 Adhesive transfer hose parts

Adhesive Bin Pump Parts

See Figure E-10.

Item	Part	Description	Quantity	Note
—	-----	PUMP ASSY, SOLIDS TRANSFER, DS1	—	A
1	-----	• BODY,TRANSFER PUMP,SOLIDS TRANSFER	1	
2	-----	• SLEEVE,TRANSFER PUMP,SOLIDS TRANSFER	1	
3	1121320	• ORING,BUNA N, -324	1	B
4	942200	• O RING,HOTPNT,1.375X1.625X.125	3	B
NS	971102	• CONN,MALE,10MM T X 3/8UNI	1	
NOTE A: To replace this item, order service kit 1121546 for a standard flow pump or service kit 1121947 for a high flow pump. B: Service kit 1121550 contains these O-rings. NS: Not Shown				

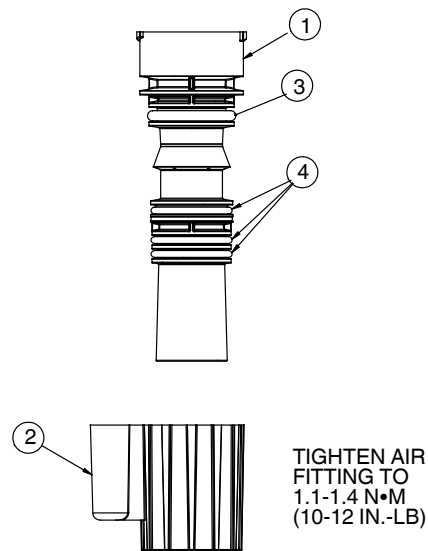


Figure E-10 Adhesive bin pump parts

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Suction Lance Kit

See Figure E-11. Suction lance (wand) kits allow you to transfer adhesive from other types of adhesive storage containers, such as large boxes, to the melter.

Item	Part	Description	Quantity	Note
—	1122763	KIT, WAND, FF2, 4M CLEAR	—	
—	1122764	KIT, WAND, FF2, 9M CLEAR	—	
—	1122765	KIT, WAND, FF2, 18M CLEAR	—	
—	1122132	KIT, WAND, FF2, 4M GRAY	—	
1	1121970	• HOSE, TRANSFER, FF2, 4M	1	A
1	1121109	• HOSE, TRANSFER, 1.25"X13',DS1	1	B
1	1121120	• HOSE, TRANSFER, 1.25"X30',DS1	1	B
1	1121121	• HOSE, TRANSFER, 1.25"X60',DS1	1	B
NS	1123391	• CABLE,4m,PRO-FF-FREE BIN,SOL CONN	1	
NS	1123392	• CABLE,9m,PRO-FF-FREE BIN,SOL CONN	1	
NS	1123393	• CABLE,18m,PRO-FF-FREE BIN,SOL CONN	1	
7	1121125	• KIT,PNEUMATIC CONTROLS,DS1 BIN	1	
9	982364	• SCREW, SOC HD, M6 X 12	2	
10	983029	• WASHER,FLAT,M6	2	
11	972124	• CONN, MALE, ELBOW, 10MM X 3/8	1	
12	900613	• TUBING, 12MM OD, BLUE	3	
13	7408012	• SUCTION WAND W/BOX	1	
16	1122131	• BRACKET, SOLENOID MOUNT, FF2	1	
NOTE A: Gray transfer hose B: Clear transfer hose NS: Not Shown				

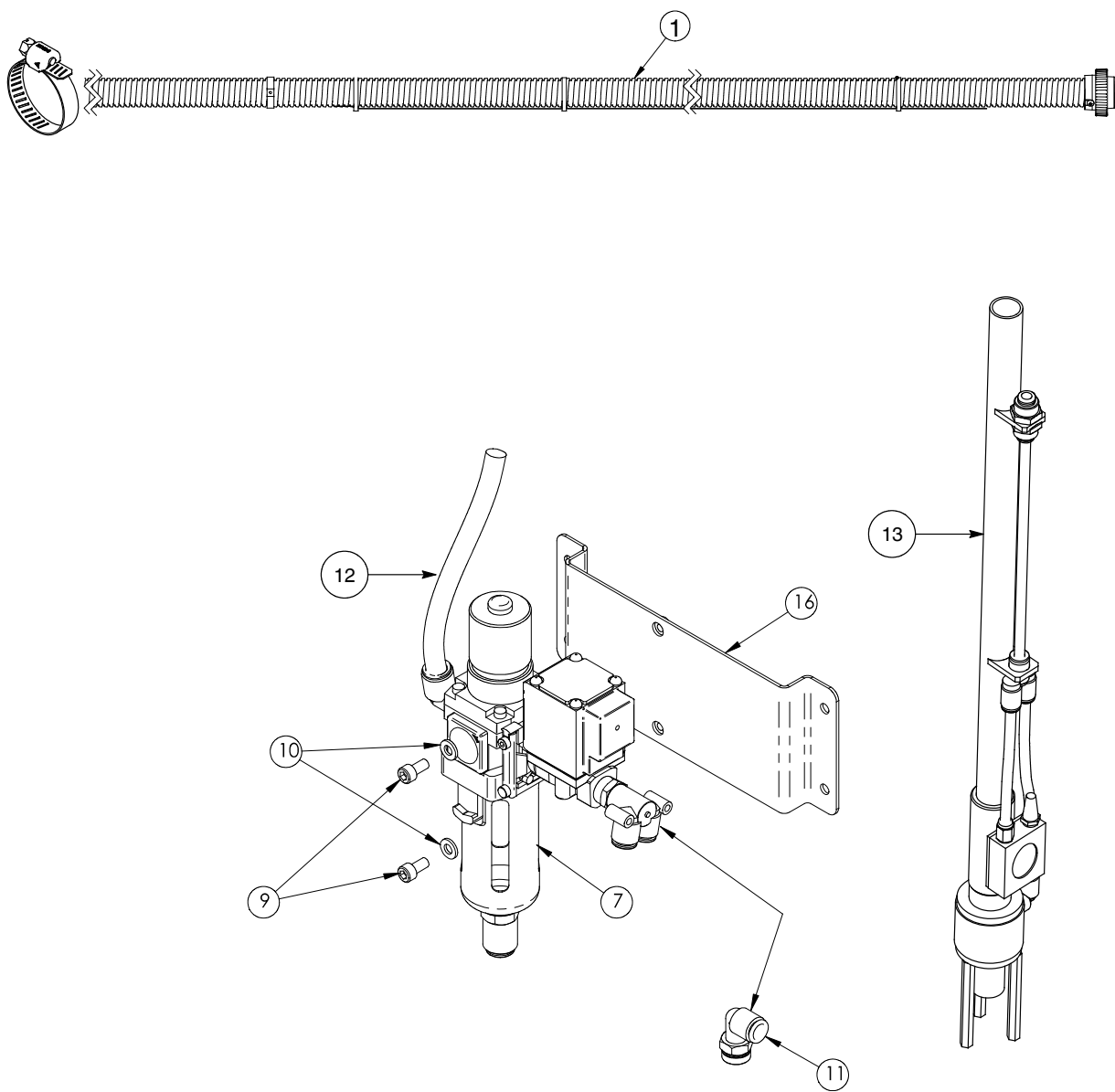


Figure E-11 Suction lance kit parts

Transfer Hose Solenoid Harnesses

See Figure -12. This harness connects to the melter solenoid harness and to either the sequencer (if applicable) or to the adhesive storage bin.

Item	Part	Description	Quantity	Note
—	1123391	CABLE,4M,PRO-FF-FREE BIN,SOL CONN	1	
—	1123392	CABLE,9M,PRO-FF-FREE BIN,SOL CONN	1	
—	1123393	CABLE,18M,PRO-FF-FREE BIN,SOL CONN	1	

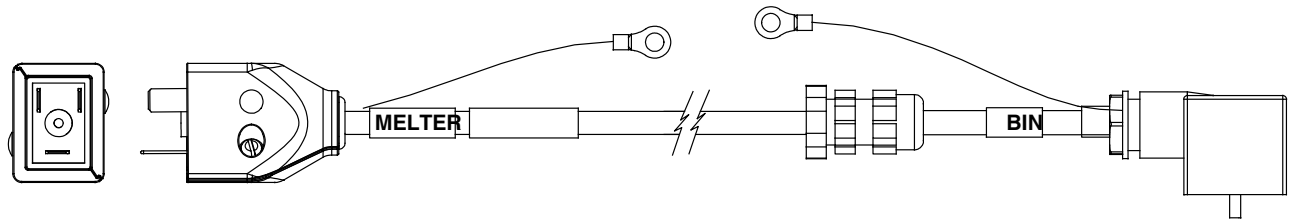


Figure E-12 Transfer hose solenoid harness

Quick Disconnect Kits (Optional)

Kits have both the bin adapter cable and the QD transfer solenoid harness.

Item	Part	Description	Quantity	Note
—	1123394	KIT, CABLE, FF2 QUICK DISC, 4M	—	
—	1123395	KIT, CABLE, FF2 QUICK DISC, 9M	—	
—	1123396	KIT, CABLE, FF2 QUICK DISC, 18M	—	
1	-----	• HARNESS,BIN,FREEDOM	1	
2	-----	• CABLE,PRO-FF-FREE BIN,QUICK DISC	1	

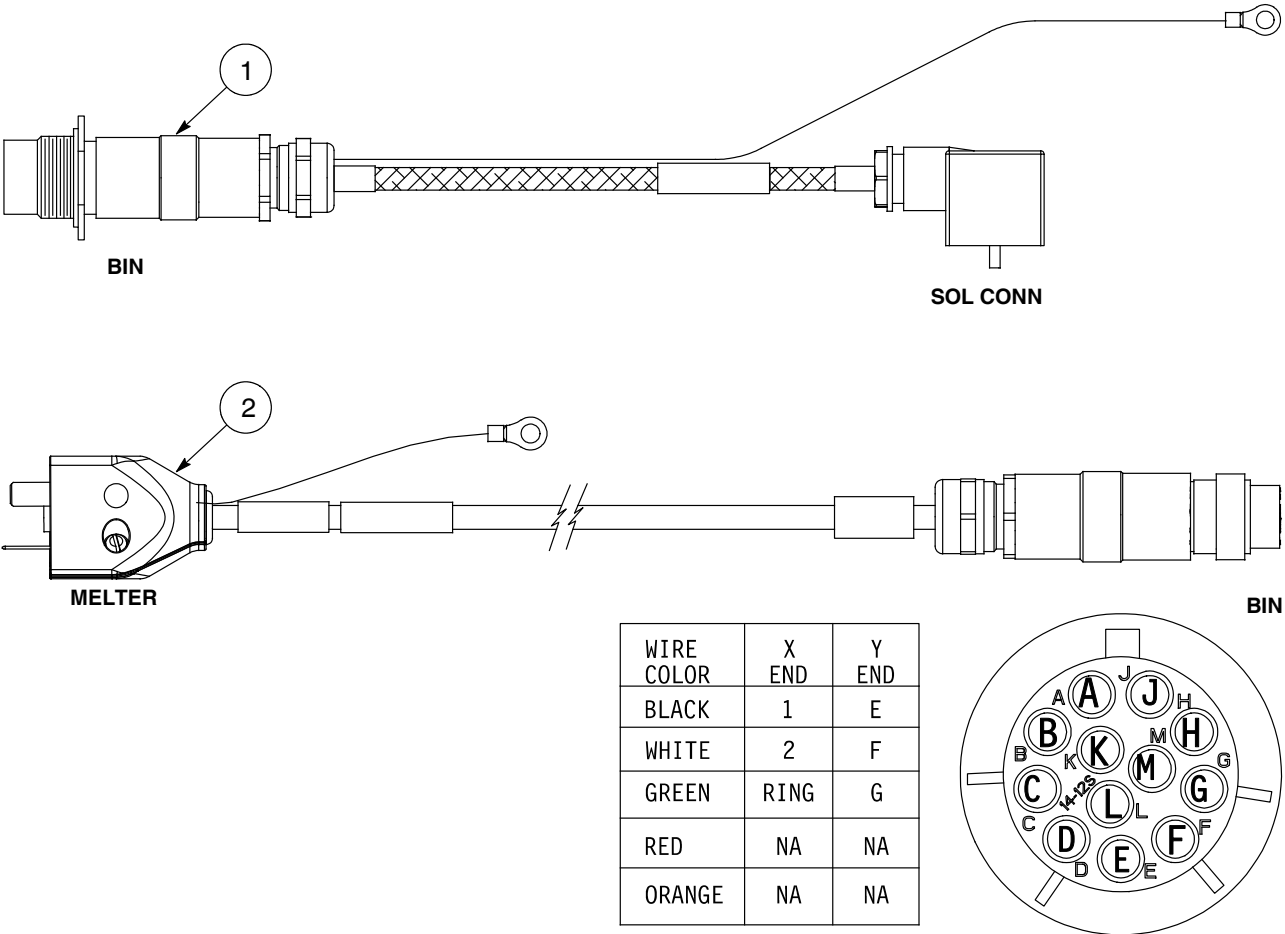


Figure E-13 Quick disconnect kit parts

Service Kits

Field Install Kits

Part	Description
1122085	KIT, GRATE, 120L FF2, PELLETS
1122086	KIT, GRATE, 240L FF2, PELLETS
1122769	KIT, GRATE, 120L FF2 SLATS
1122770	KIT, GRATE, 240L FF2 SLATS
1123346	KIT, AIR FLUSH
1123002	KIT, PNEUMATIC, 2 FEED TO 4 FEED CONVERSION, MULTI FF2
1121550	KIT,TOTE BIN LOCK KIT
1121983	KIT, CABLE, FF2 QUICK DISC, 4M
1121999	KIT, CABLE, FF2 QUICK DISC, 9M
1122000	KIT, CABLE, FF2 QUICK DISC, 18M
1121806	KIT, LIGHT TOWER, FF GEN III

Appendix F

ProBlue Flex 400/480 Volt Transformer

Overview

The ProBlue Flex adhesive melter is installed directly above the ProBlue Flex 400/480 volt transformer. The 400/480 volt transformer provides the ability to operate the melter up to 480 VAC.

The transformers are shipped separately from the ProBlue Flex adhesive melters. These come with an installation kit, which in addition to the ship-with kit components also includes an instruction manual. The manual contains the following key information:

- Transformer sizing guidance
- Installing the transformer on the parent machine or support structure
- Troubleshooting the transformer
- Transformer parts and service kits
- Wiring diagrams

For installation, operation, troubleshooting, and parts information of the ProBlue Flex adhesive melter, refer to the *Core ProBlue Flex Adhesive Melter manual* (P/N 1128350).

For detailed user interface setup instructions refer to:

- *ProBlue Flex Adhesive Melter Using the OLED User Interface manual* (P/N 1128351).

And/Or

- *ProBlue Flex Adhesive Melter OEM User Interface manual* (P/N 1129255).

Intended Use

- 3.0 kVA transformers can only be used with ProBlue Flex adhesive melters that are specifically designed for 400/480 Volt electrical service.
- Use an input electrical service rated at:
 - 400 volts 3-phase without a neutral
 - Or*
 - 480 volts 3-phase without a neutral

Unintended Use

- Water wash-down environment
- Explosive atmosphere

Transformer Function

Input electrical service of 400 or 480 volts is split between the melter heaters and the transformer(s). The melter's manifold and tank heaters operate on line voltage, which is passed through the transformer to the melter using a special wire harness. The melter's CPU controls the duty cycle of the heaters. No change in melter programming is required in order for the transformer to operate.

The transformers reduce the input electrical service to 230 volts and direct the reduced voltage to the melter's power distribution board. The power distribution board uses this voltage to power the hoses and applicators and provide control power to the CPU.

CPU-generated control signals are fed to a driver board in the transformer which uses high-power Triode for Alternating Current (TRIAC) to switch power to the manifold and tank heaters.

Installation



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

Installation Tasks

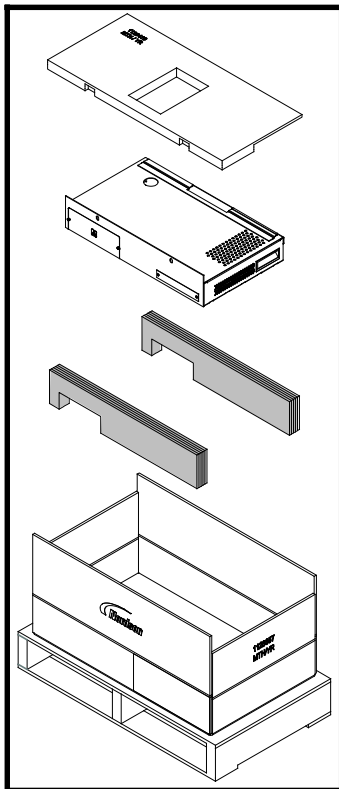
Before starting the installation, locate the ship-with kit and inspect for damaged and missing parts. Report any problems to your Nordson representative.

The installation sequence is as follows:

1. Verify that the desired installation location provides the required clearance, environmental conditions, and utilities.
2. Remove the transformer from the shipping container and inspect.

NOTE: Retain the two side spacers from the transformer shipping container. These are used while installing the ProBlue Flex melter on the transformer. See figure on the left (spacers highlighted in grey).

3. Verify that the transformer is correctly sized for the number and type of hoses/applicators you intend to use.
4. Mount the transformer onto the parent machine or support structure.
5. Mount the melter onto the transformer.
6. Configure the electrical service.



Transformer Sizing

Review the following transformer sizing procedure to ensure that your transformer is correctly sized for the number and type of hoses/applicators you intend to use.

1. Determine the total power consumption (in watts) at 230 volts for all of your hoses and applicators. Table F-1 lists the wattage of common Nordson Corporation hoses and applicators.
2. Calculate the kVA rating by dividing the total wattage calculated in step 1 by 1000. The rating should be less than 3 kVA.

See the following list for wattage of common hoses and applicators that are sold by Nordson Corporation. If your hose or applicator is not listed in this table, refer to the identification tag that is affixed to the hose/applicator.

Table F-1 Hose and Applicator Power Consumption

Hose/Applicator	Wattage (230 Volts)
<i>Hoses</i>	
Auto hose 0.6 m (2 ft.)	51.5
Auto hose 1.2 m (4 ft.)	110
Auto hose 1.8 m (6 ft.)	169
Auto hose 2.4 m (8 ft.)	228
Auto hose 3 m (10 ft.)	287
Auto hose 3.6 m (12 ft.)	345
Auto hose 4.8 m (16 ft.)	463
Auto hose 7.2 m (24 ft.)	698
Manual hose 2.4 m (8 ft.)	228
Manual hose 4.8 m (16 ft.)	463
<i>Applicators</i>	
H-201 or 401 (T or T-L)	140
H-202 or 402 (T or T-L)	210
H-204 or 404 (T or T-L)	260
H-208 or 408 (T or T-L)	405
H-202 or 402 (T-E or T-E-L)	335
H-204 or 404 (T-E or T-E-L)	350
H-202 or 402 (T-LP or T-LP-L)	185
H-204 or 404 (T-LP or T-LP-L)	285
H-208 or 408 (T-LP or T-LP-L)	390
H-20 (T or T-L0)	135
H-20 w/micro (T)	160

Clearances

Figures F-1, F-2, and F-3 show the recommended clearances around the melter installed on the transformer. Referring to the following figures will assure the setting of the *minimum* clearances that are required between the melter and:

- Hoses
- Cordsets
- Power cabling
- Tank lid
- E-Box door
- Air supply
- Pump

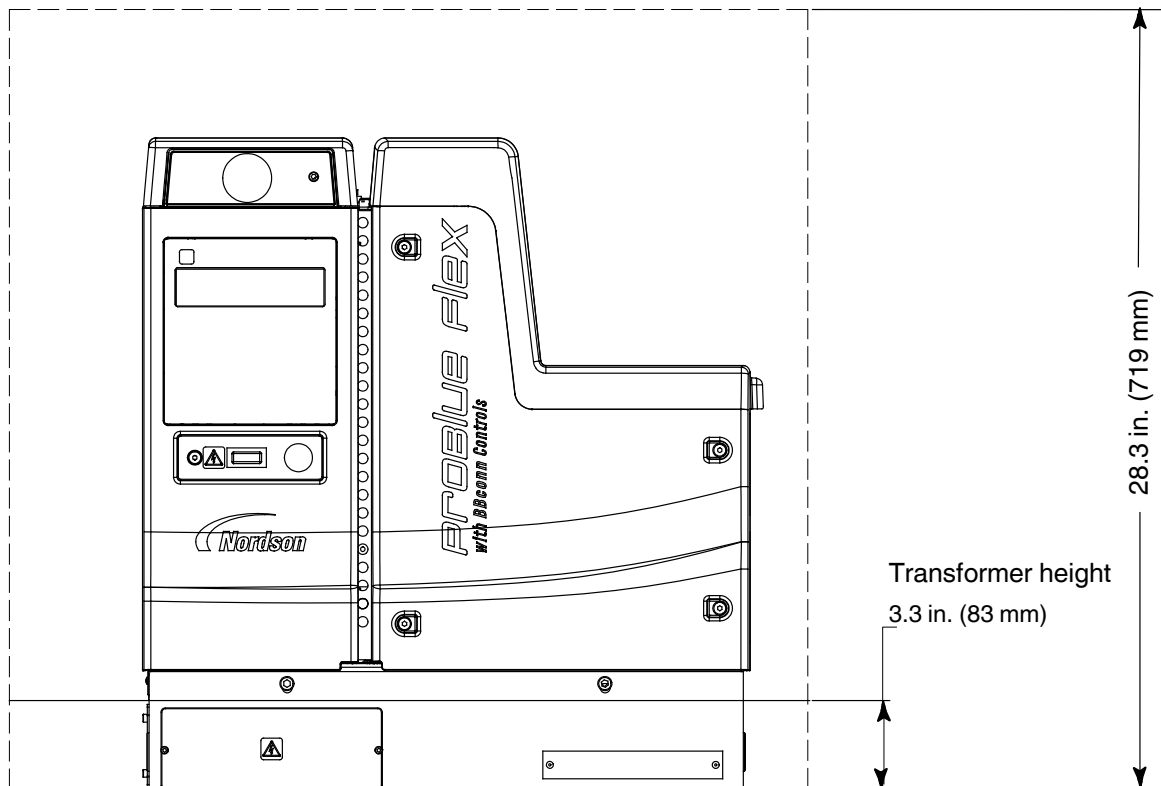


Figure F-1 Clearances around the melter and transformer

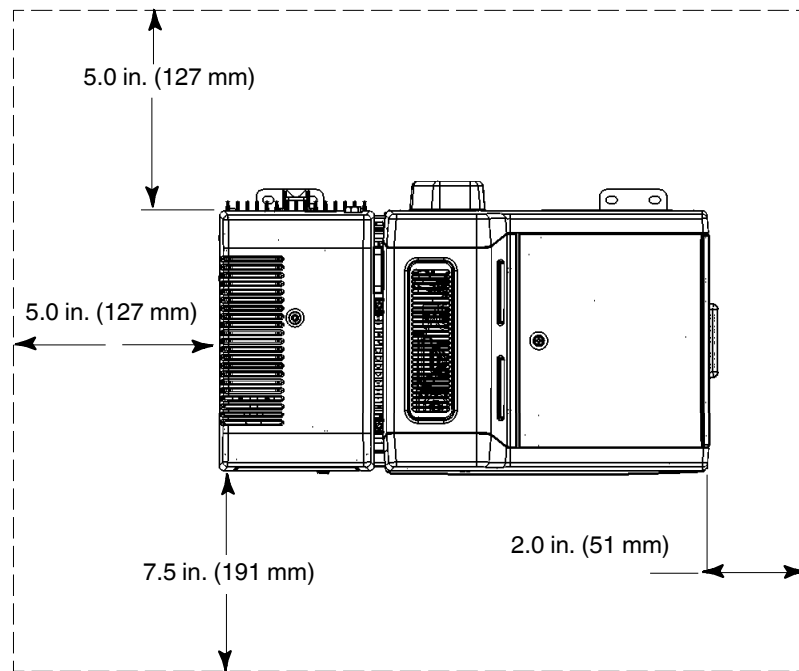


Figure F-2 Melter top clearances

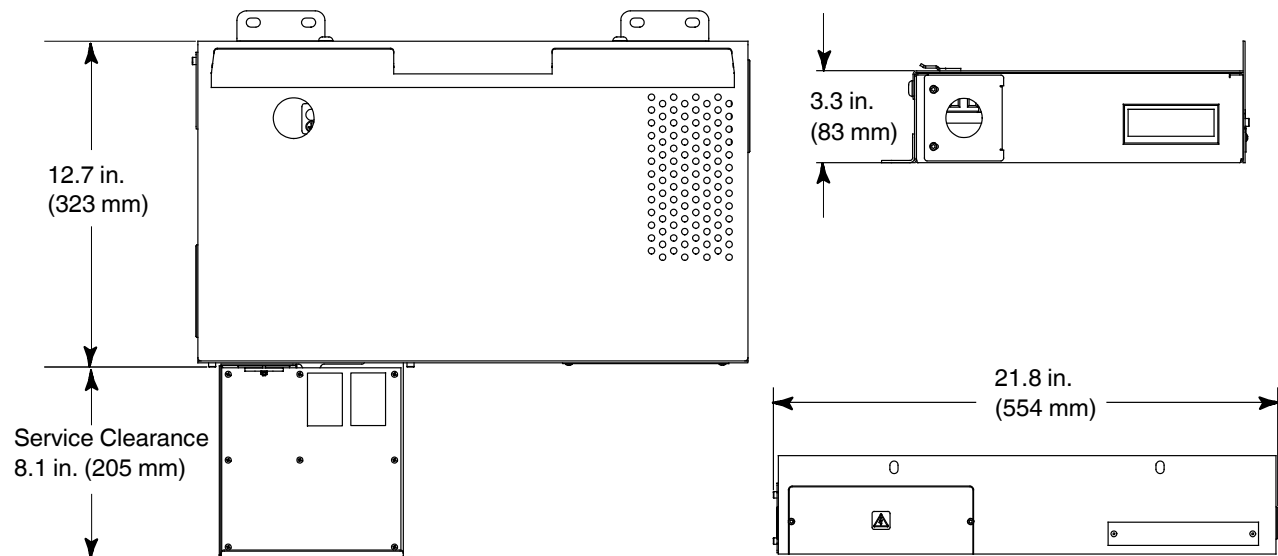
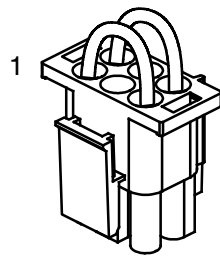


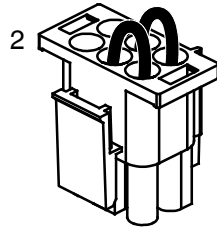
Figure F-3 Transformer dimensions

Ship-with Kit Components

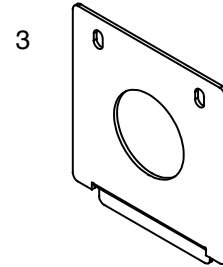
The ship-with kit (P/N 1128419) provided with the transformer contains the components shown in Figure F-4.



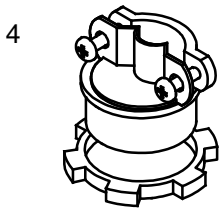
1039790



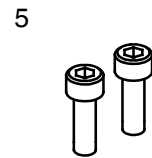
1039789



1127292



331872



105800

Figure F-4 Ship-with kit contents

1. 480V voltage plug (White wires)
2. 400V voltage plug (Black wires)

3. E-Box adapter power plate
4. Cable clamp

5. M4X.7X8 screws (Quantity: 2)

Preparing the Transformer for Installation

See Figures F-5 and F-6.

1. Unfasten the two screws to remove the transformer cover.

NOTE: The cover is connected to the transformer chassis by a ground lead.

2. Disconnect the ground lead from the transformer chassis to the ground connection inside the transformer cover.

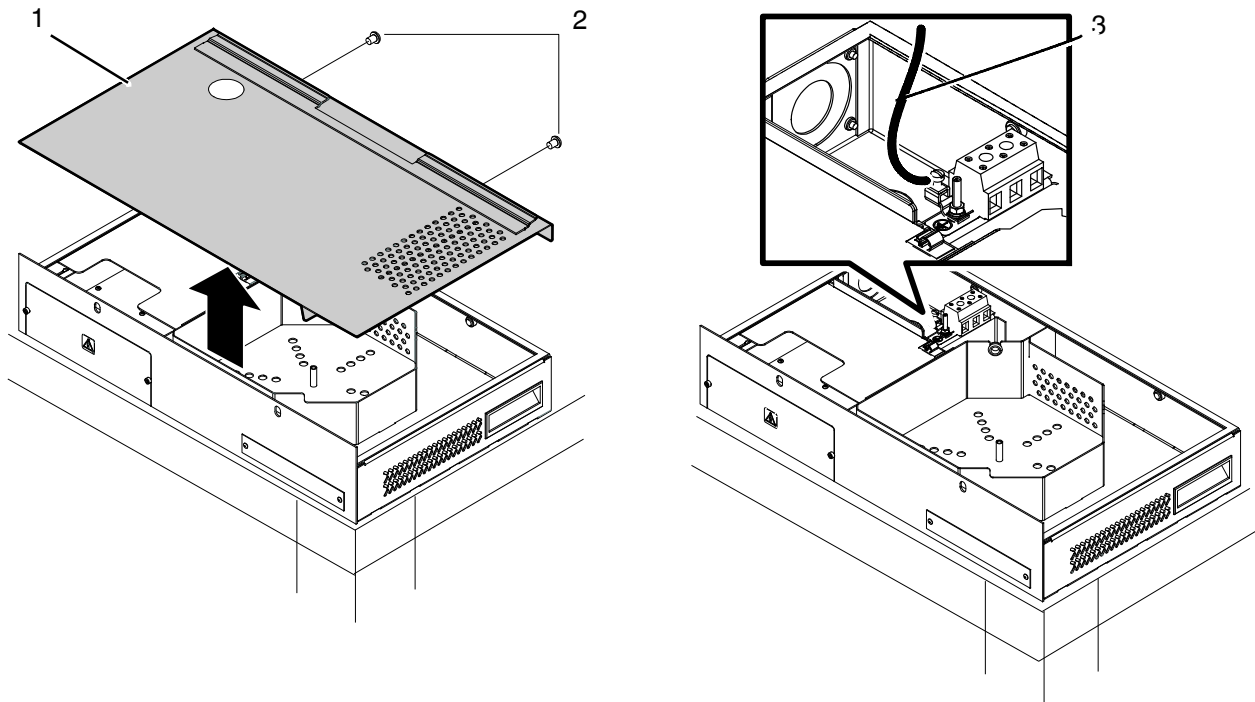


Figure F-5 Preparing the transformer for installation

1. Transformer cover

2. Transformer cover screws

3. Transformer ground wire

Preparing the Transformer for Installation *(contd)*

3. Attach the 400 Volt plug (P/N 1039789/Black wires) or the 480 Volt plug (P/N 1039790/White wires) on the transformer PCA tray's J1 terminal.

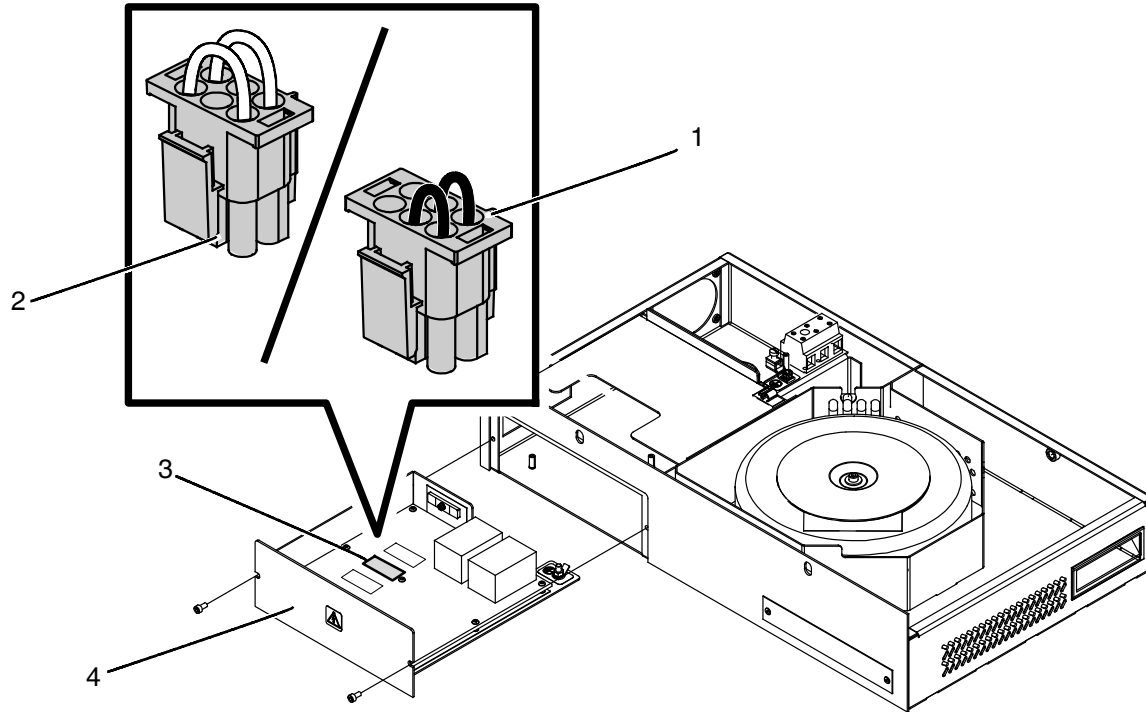


Figure F-6 Connecting the voltage plugs

1. 400 VAC

2. 480 VAC

3. J1 terminal

4. PCA tray

Mounting the Transformer on the Parent Machine

1. See Figure F-7. Mark the bolt pattern on the parent machine or support structure and then drill holes for four 8 mm ($\frac{5}{16}$ in.) mounting bolts (customer-supplied).

NOTE: Open the PCA tray to access the bolt hole location under it (highlighted in grey in the following figure).

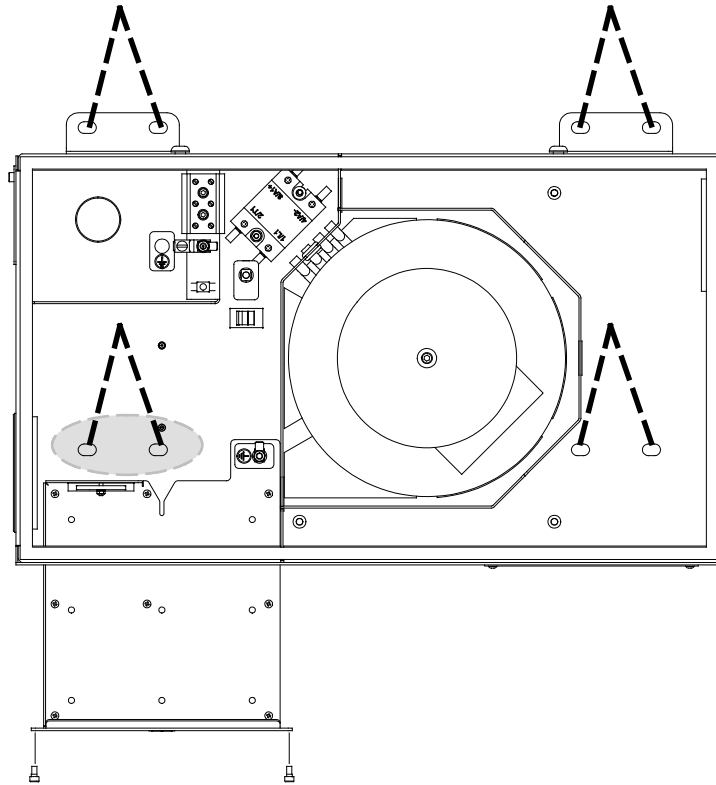


Figure F-7 Bolt hole location on the transformer base

2. Attach the transformer to the parent machine using four 8-mm ($\frac{5}{16}$ in.) machine screws. Make sure the screws securely fasten the transformer to the support structure.

Mounting the Transformer on the Parent Machine (contd)

- See Figure F-8. Remove the 1-inch conduit knockout from the transformer and install the cable clamp (P/N 331872) that is provided in the installation kit.

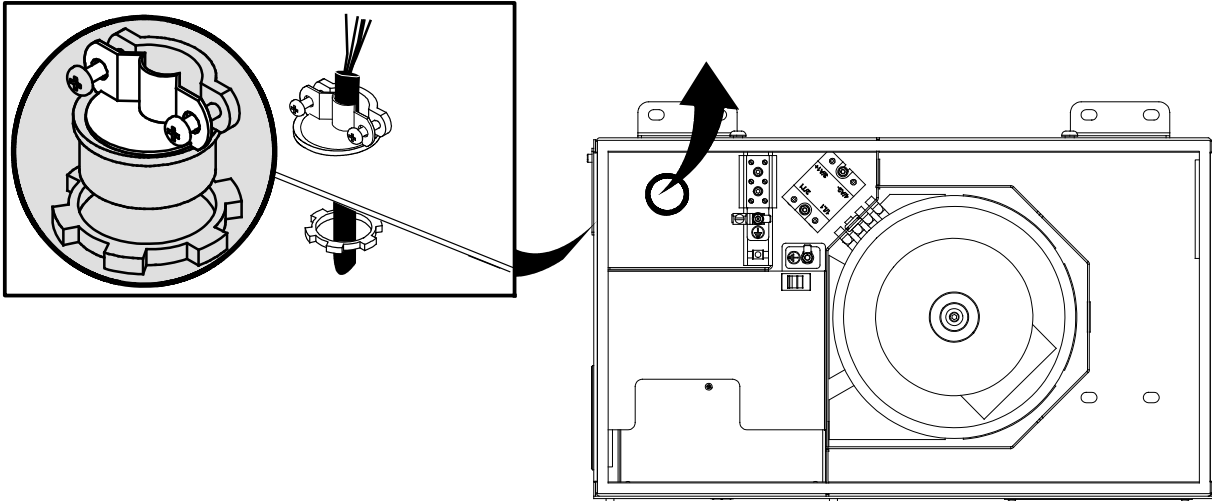


Figure F-8 Cable clamp installation

Connecting Electrical Service to the Transformer



WARNING! Risk of electrocution! ProBlue Flex melters must be installed with a lockable power disconnect switch that completely de-energizes the melter by isolating it from its power source. Failure to de-energize the melter when required can result in personal injury, including death.



WARNING! Risk of electrical shock or short circuit. Use rigid or flexible conduit or an appropriately sized strain relief to protect the power cable from the sharp edge of the conduit knockout.

- Select a 3-wire (plus ground) power cable rated for the maximum amperage required by the melter. Be sure that the power cable meets applicable electrical codes and standards. See Table F-2 for the maximum amperage (per line) for the 400/480 Volt ProBlue Flex adhesive melters.

Table F-2 Maximum Melter Amperage

Transformer	Maximum Amperage
3.0 kVA	11 A

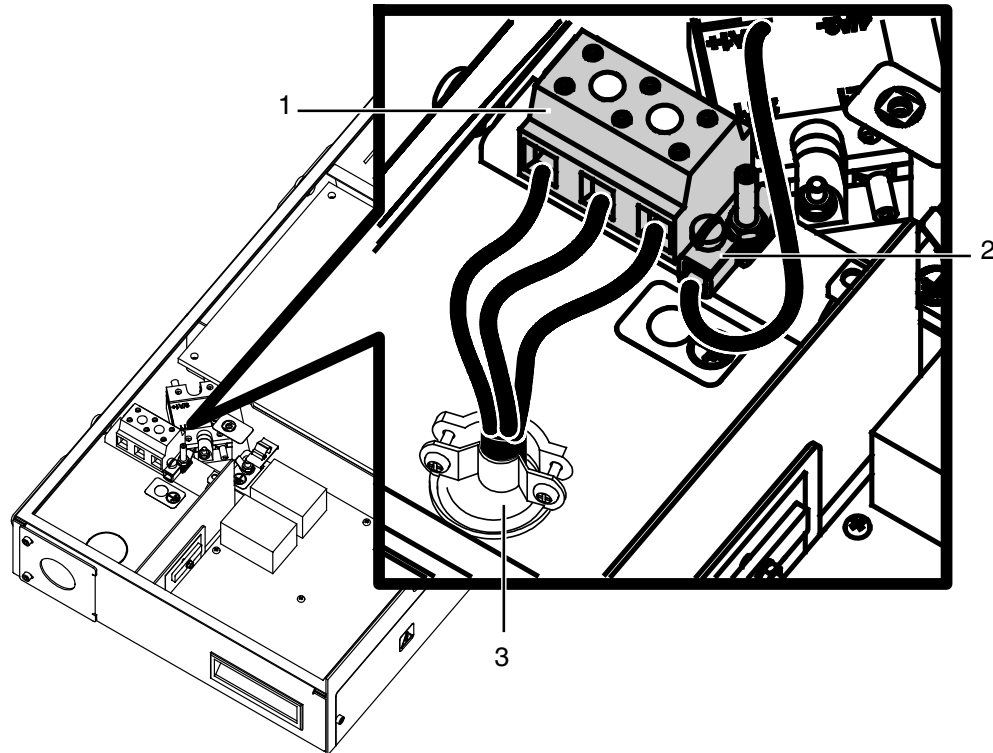


Figure F-9 Wiring the transformer chassis

1. Terminal block

2. Ground lug

3. Cable clamp

2. Connect the power cable to the terminal block (terminals 1, 2, and 3).



WARNING! Risk of electrical shock. Be sure that steps 3, 4, and 5 are completed before installing and using the melter.

3. Connect the power cable ground lead to the ground lug that is located on the transformer chassis.
4. Reconnect the ground lead from the transformer chassis to the ground connection inside the transformer cover.
5. Reinstall the transformer cover and refasten the two screws.

Preparing the 400/480V Melter for Installation on the Transformer



WARNING! Risk of personal injury or equipment damage. Installation of the melter requires two people.

Before installing the melter on the transformer, locate the installation kit and inspect the melter for damaged and missing parts. Report any problems to your Nordson representative.

The 400/480V ProBlue Flex melters come with the sub-base factory installed. Prior to mounting the melter onto the transformer, be sure to remove the sub-base from the melter.

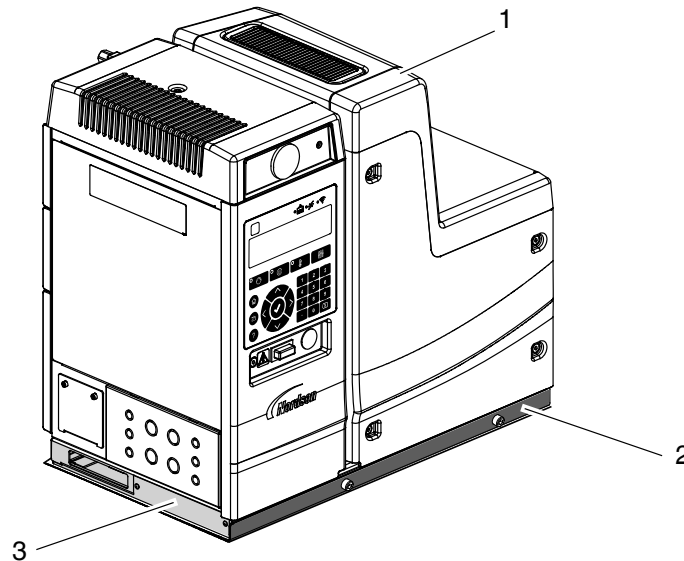


Figure F-10 Melter with the chassis and sub-base

- | | |
|------------------------|------------|
| 1. ProBlue Flex melter | 3. Chassis |
| 2. Sub-base | |

Sub-base Removal

1. Loosen the two M8 socket head cap screws on the front of the chassis using an M6 hex wrench.

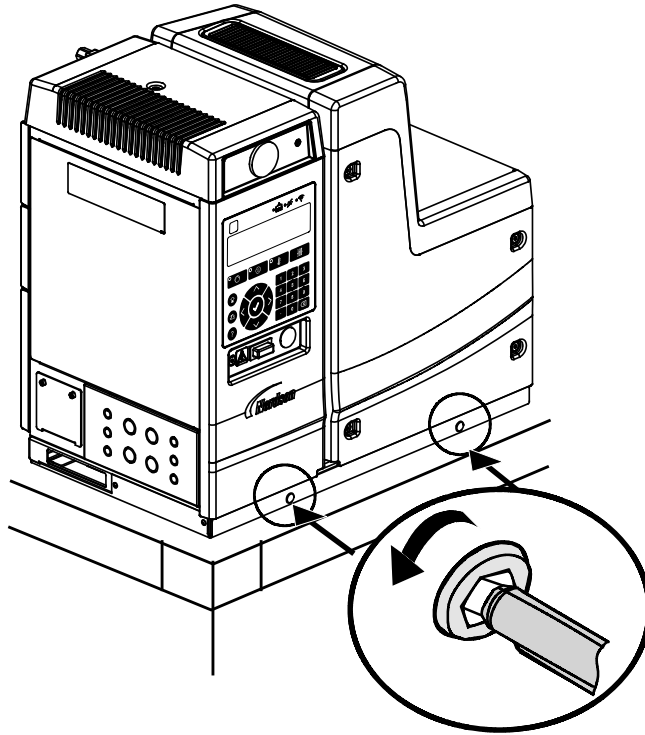
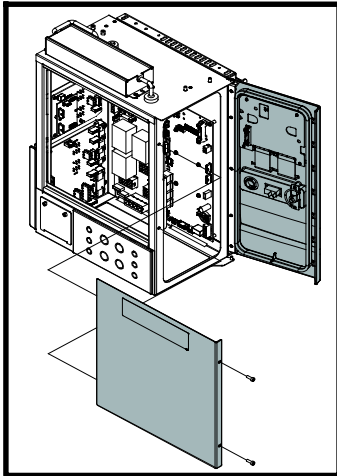


Figure F-11 Remove melter from the sub-base

2. Open the E-Box enclosure door and remove the side enclosure panel. See figure on the left (E-Box enclosure door and side enclosure panel highlighted in grey).

Opening the E-Box enclosure door and removing the side enclosure panel allows access to the chassis, chassis cover plate, and chassis-to-sub-base ground wire.



Sub-base Removal (contd)

3. See Figure F-12. Disconnect the ground wire from the chassis to sub-base by doing the following:
 - a. Remove the chassis cover plate screw and then remove the cover plate.
 - b. Locate the ground wire and disconnect.

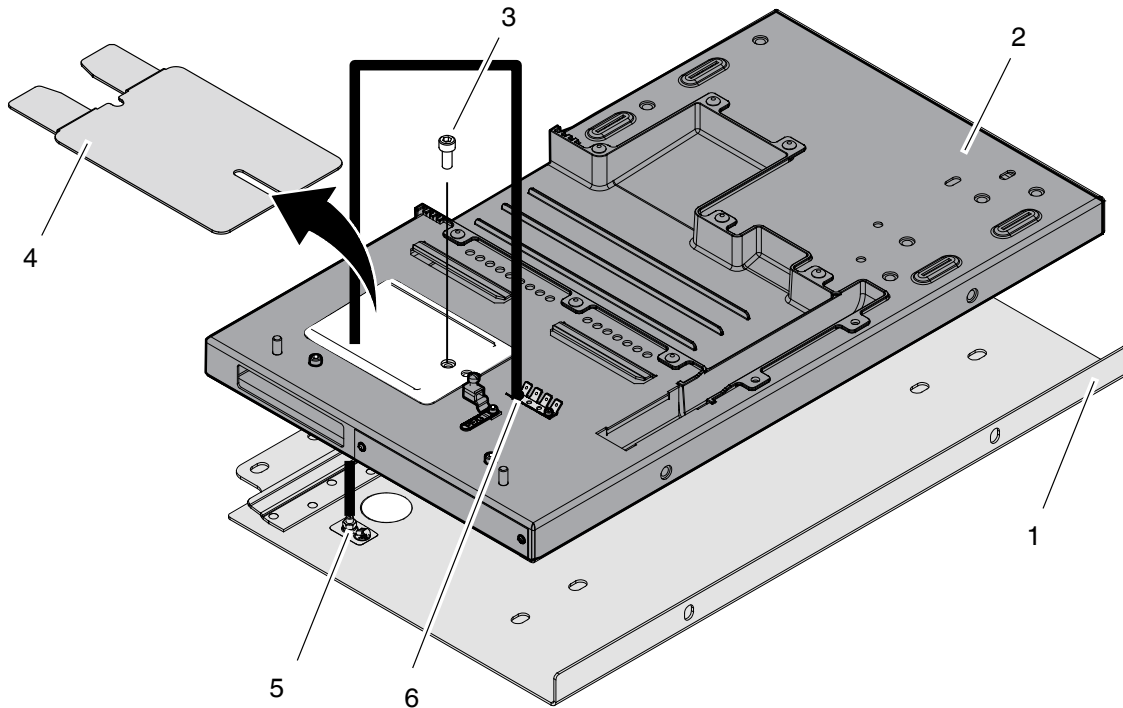


Figure F-12 Disconnecting ground wire

- | | | |
|-------------|------------------------------|------------------------------------|
| 1. Sub-base | 3. Chassis cover plate screw | 5. Sub-base ground wire connection |
| 2. Chassis | 4. Cover plate (removed) | 6. Chassis ground wire connection |

4. Push the melter backwards to disengage the locking tabs on the sub-base.
5. Lift the melter from the sub-base to remove.

Mounting the 400/480V Melter on the Transformer

CAUTION! Be sure that the transformer wire harnesses are not pinched between the transformer and the melter.

1. Position the two side spacers retained from the transformer shipping container on the installed transformer. Maintain the orientation of the notches as shown in Figure F-13.
2. Carefully lower the melter onto the transformer.

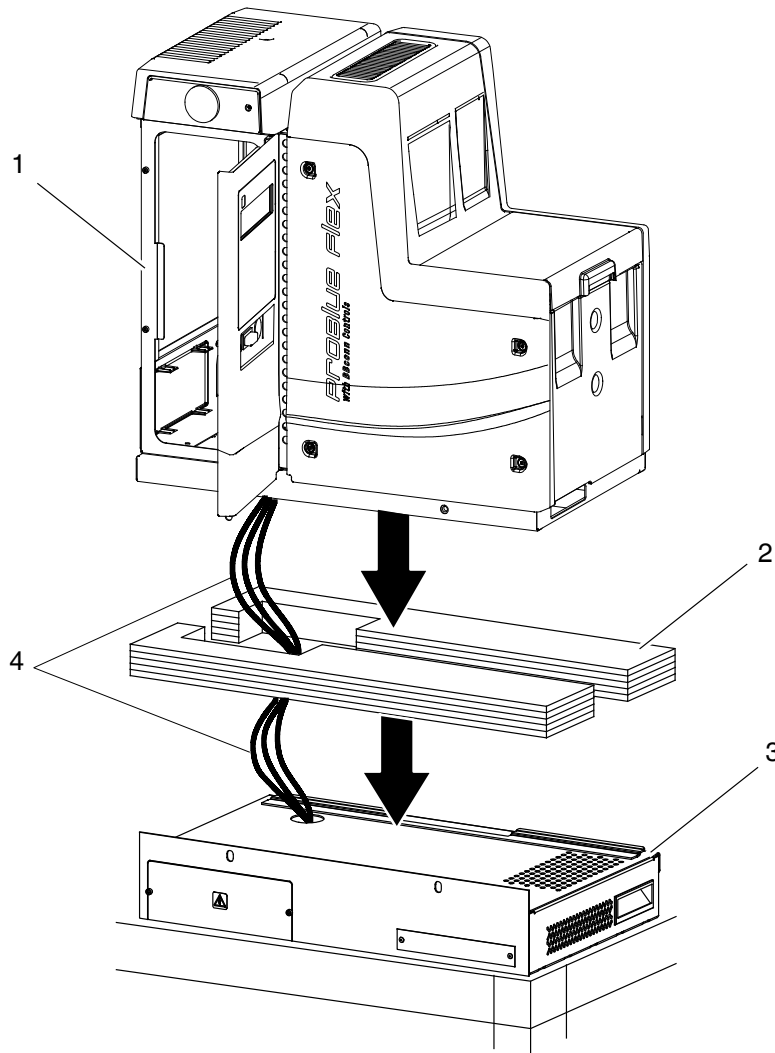


Figure F-13 Mounting the melter to the transformer

- | | | | |
|------------------------|-----------------------|----------------|----------------------|
| 1. ProBlue Flex melter | 2. Side spacers (two) | 3. Transformer | 4. Routing of cables |
|------------------------|-----------------------|----------------|----------------------|

Mounting the 400/480V Melter on the Transformer (contd)



WARNING! Risk of personal injury or equipment damage. Installation of the melter requires two people.

3. Route cables between the transformer and the ProBlue Flex melter through the two side spacers as shown in Figure F-13.
4. Slide the melter forward so that the melter locking tabs securely connect with the transformer.
5. Secure the melter to the transformer using the two M8x1.25X20 screws that are provided in the installation kit.
6. Coil the three transformer wire harnesses and temporarily stow them in the terminal block area.

Connecting Transformer to the Melter

Refer to the *Wiring Diagrams* given later in the manual for individual electrical board drawings.

1. Route one wire harness from the transformer up into the melter's E-Box enclosure as shown in Figure F-13.

See Figure F-14.

2. Connect the transformer's power harness into terminals X9 and X10 on the E-Box's power distribution board.
3. Connect two control harnesses from the transformer into terminal X6 and X12 on the E-Box's 6-Channel power board.
4. Connect the heater power harness from the transformer to the heater power harness plug that enters the bottom of the melter's electrical enclosure.
5. Connect the ground lead (external protective grounding conductor) to the ground tree that is located on the melter chassis.

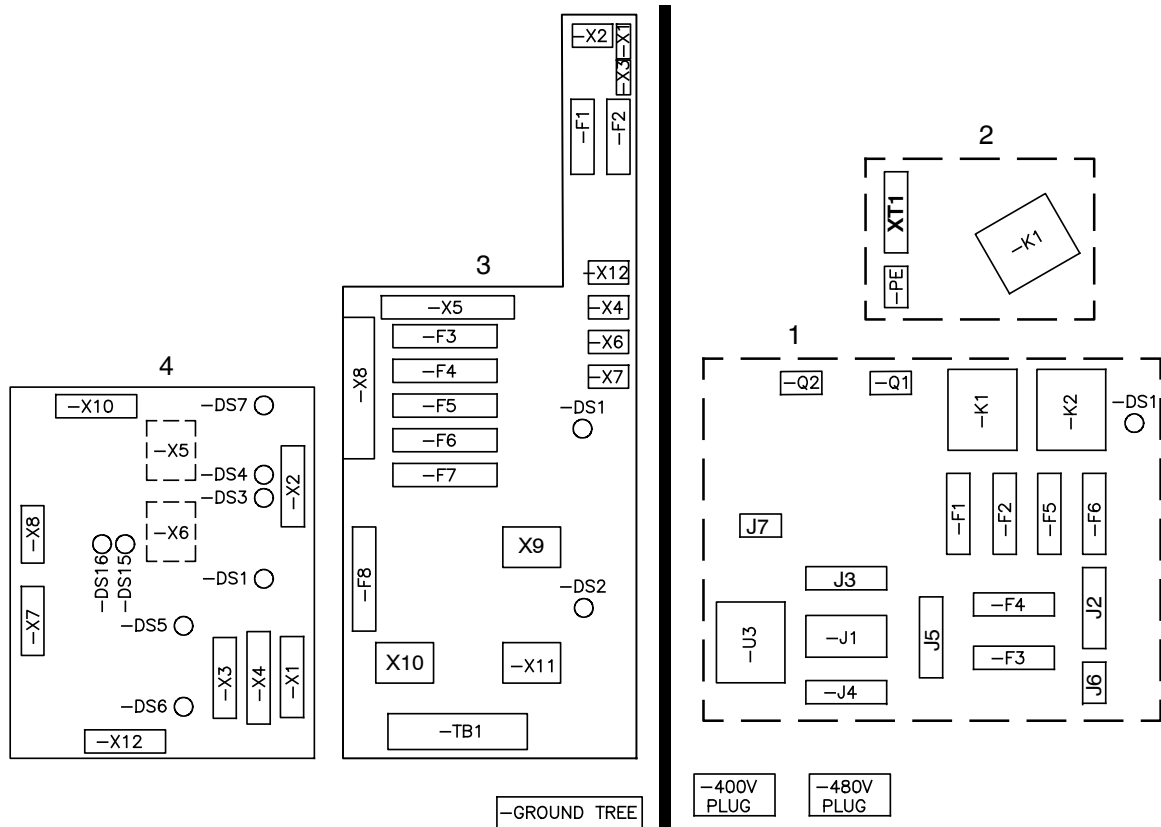


Figure F-14 Connecting the electrical service in the E-Box

1. Transformer PCA tray electrical layout
2. Transformer base
3. Melter E-box power distribution board
4. Melter E-box 6-Channel power board

6. After the electrical service is completely installed and inspected in accordance with local electrical codes and standards:
 - a. Remove the two side spacers positioned between the melter and transformer.
 - b. Close the melter's E-Box door and reinstall the side enclosure panel.
7. Switch on the local power disconnect switch.

Troubleshooting

The following table provides transformer-specific troubleshooting guidance. For melter related troubleshooting information refer to one of the following manuals:

- Section 6, *Troubleshooting* in the *Core ProBlue Flex Adhesive Melter Manual* (P/N 1128350)
- *ProBlue Flex Adhesive Melter Using the OLED User Interface Manual* (P/N 1128351).
- *ProBlue Flex Adhesive Melter OEM User Interface Manual* (P/N 1129255).

Problem	Possible Cause	Corrective Action
1. No power to melter	Problem with customer power source	Check all three phases at terminal block.
	No voltage plug installed	Install correct voltage plug at J1 on the transformer PCA tray.
	Loose/disconnected cables	Check cable between transformer and J4 on the transformer PCA tray.
		Check connections between transformer service terminal block and J2 on the transformer PCA tray.
		Check connections at J5 on the transformer PCA tray.
	Blown fuse	Check fuses F3 and F4 on the transformer PCA tray.
2. Tank and/or manifold not heating, but power to melter	Problem with transformer	Check voltage into primary of transformer(s) and voltage at secondaries.
	Programming/control issue	Turn heaters on/check that tank set point is correct (not 0).
	Loose/disconnected cables	Check connection at X10 on 6 channel.
		Check connection at J6 and J7 on the transformer PCA tray.
		Check connections along heater harness (intermediate connections, terminals of heaters, connection back to J3 on the transformer PCA tray).
	Problem in heater	Check the resistance of the tank, grid, and manifold heaters; refer to <i>Troubleshooting in the Core ProBlue Flex Adhesive Melter Manual</i> (P/N 1128350).
Continued...		

Problem	Possible Cause	Corrective Action
2. Tank and/or manifold not heating, but power to melter, <i>contd.</i>	Blown fuse	Check F2/F6 on the transformer PCA tray for the melt (tank or grid) section.
		Check F1 and F5 on the transformer PCA tray for the manifold.
	Power problem	Check all three phases at terminal block.
	Problem with transformer PCA tray	Replace module.
3. Fuse(s) fail frequently	F2 or F6 fault: short circuit in the melt (tank or grid) section	Locate and correct short.
	F1 or F5 fault: short circuit in manifold heater or harness	
	F3 or F4 fault: transformer is overloaded	Verify that total hose/applicator power does not exceed capability of transformer.
4. Overtemperature fault on tank or manifold	Shorted TRIAC(s)	Replace the transformer PCA tray.
	Noise problem	Isolate sources of noise, change phases of incoming supply, or add filter/snubber to incoming supply line.

Parts

3 KVA 480V Transformer Assembly, Size A

See Figure F-15.

Item	Part	Description	Quantity
—	1128321	ASSEMBLY, XFMR, 3KVA,480V,SIZE A	
1	—	CHASSIS,XFMR,3KVA,480V,SIZE A	1
2	—	ASSEMBLY, PCA TRAY,XFMR,3KVA,480V	1
3	1128348	ASSEMBLY,XFMR TOP,3KVA,480V,SIZE A	1
4	1127292	PLATE,POWER,ADAPTER,EBOX	1
5	—	TRANSFORMER,3KVA,400/480V PRI,230V SEC	1
6	—	PAD,TOROIDAL,XFMR,3KVA,480V	1
7	1128367	HANDLE,SNAP IN,NYLON,BLACK,3.25 X 1.25,FLUSH	2
8	1128364	GASKET,EPDM,ADHESIVE BACKED,.062X.375	5.5
9	983418	WASHER,FLT,M,OVERSIZED,5,STL,Z	1
10	982373	SCR,SKT,M5X45,BL	1
11	1128478	WIRE ASSY,GRND,10GA,SPD/RING,18INCH LG	1
12	982006	SCR,SKT,M8X20,ZN	2
13	105800	SCREW,SKTHD,M4X.7X8,ZN	4
14	984702	NUT,HEX,M5,BRASS	1
15	983401	WASHER,LK,M,SPT,M5,STL,ZN	1
16	—	TAG,ID PLATE,BLANK	1
17	230261	TERMLUG,GROUND,6-14AWG	1
18	—	MOUNT,CABLE STRAP	1
19	—	MOUNT,CABLE BUNDLE,PANEL MNT,SNAP IN,NYLON	1
20	1128620	GROMMET,SPLIT,10MM,NYLON,BLACK	1
21	—	TAG,GROUND	1
22	1040003	SCR,SKT,M4X25,ZN	2
23	1040056	PANELTB,3POS,750V,76A,SCREW,G10	1
24	983035	WASHER,FLT,M,REG,M5,STL,ZN	1
25	1128510	WIRE ASSY,GRND,10GA,SPD/RING,12INCH LG	1
26	—	RIVET,POP, 1/8X.125,CARBON STL	2
27	—	MODULE,SHIPPING,SUBBASE,PB FLEX	1
28	1128419	KIT,SHIP WITH,BASE,XFMR,FLEX	1
29	—	RELAY,SOLID STATE,PEAK SWITCHING	1
30	—	PAD,THERMAL,SSR,57MM X 44MM	1
31	1128479	HARNESS,XFMR,PBFLEX	1
32	1128839	HARNESS, XFMR, SSR, PBFLEX	1
33	984715	NUT,HEX,M4,STL,ZN	2
34	983402	WASHER,FLT,M,NARROW,M4,STL,ZN	2

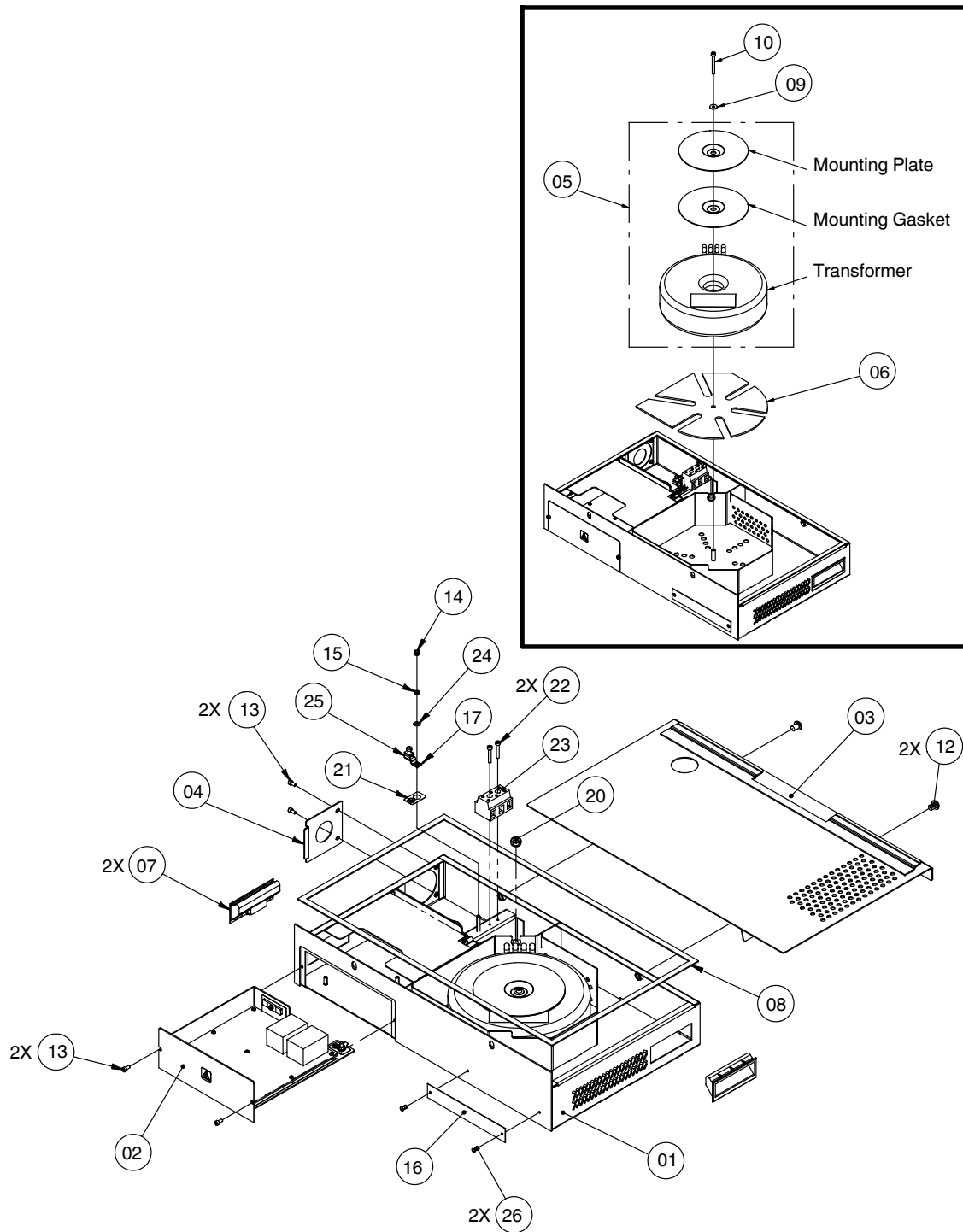


Figure F-15 Transformer assembly parts

3 KVA 480V Transformer Assembly, Size B

See Figure F-15.

Item	Part	Description	Quantity
—	1128322	ASSEMBLY, XFMR, 3KVA, 480V, SIZE B	
1	—	CHASSIS, XFMR, 3KVA, 480V, SIZE B	1
2	—	ASSEMBLY, PCA TRAY, XFMR, 3KVA, 480V	1
3	1128395	ASSEMBLY, XFMR TOP, 3KVA, 480V, SIZE B	1
4	1127292	PLATE, POWER, ADAPTER, EBOX	1
5	—	TRANSFORMER, 3KVA, 400/480V PRI, 230V SEC	1
6	—	PAD, TOROIDAL, XFMR, 3KVA, 480V	1
7	1128367	HANDLE, SNAP IN, NYLON, BLACK, 3.25 X 1.25, FLUSH	2
8	1128364	GASKET, EPDM, ADHESIVE BACKED, .062X.375	6
9	983418	WASHER, FLT, M, OVERSIZED, 5, STL, Z	1
10	982373	SCR, SKT, M5X45, BL	1
11	1128478	WIRE ASSY, GRND, 10GA, SPD/RING, 18INCH LG	1
12	982006	SCR, SKT, M8X20, ZN	2
13	105800	SCREW, SKTHD, M4X.7X8, ZN	4
14	984702	NUT, HEX, M5, BRASS	1
15	983401	WASHER, LK, M, SPT, M5, STL, ZN	1
16	—	TAG, ID PLATE, BLANK	1
17	230261	TERMLUG, GROUND, 6-14AWG	1
18	—	MOUNT, CABLE STRAP	1
19	—	MOUNT, CABLE BUNDLE, PANEL MNT, SNAP IN, NYLON	1
20	1128620	GROMMET, SPLIT, 10MM, NYLON, BLACK	1
21	—	TAG, GROUND	1
22	1040003	SCR, SKT, M4X25, ZN	2
23	1040056	PANELTB, 3POS, 750V, 76A, SCREW, G10	1
24	983035	WASHER, FLT, M, REG, M5, STL, ZN	1
25	1128510	WIRE ASSY, GRND, 10GA, SPD/RING, 12INCH LG	1
26	—	RIVET, POP, 1/8X.125, CARBON STL	2
27	—	MODULE, SHIPPING, SUBBASE, PB FLEX	1
28	1128419	KIT, SHIP WITH, BASE, XFMR, FLEX	1
29	—	RELAY, SOLID STATE, PEAK SWITCHING	1
30	—	PAD, THERMAL, SSR, 57MM X 44MM	1
31	1128479	HARNESS, XFMR, PBFLEX	1
32	1128839	HARNESS, XFMR, SSR, PBFLEX	1
33	984715	NUT, HEX, M4, STL, ZN	2
34	983402	WASHER, FLT, M, NARROW, M4, STL, ZN	2

Transformer PCA Tray Assembly

Item	Part	Description	Quantity
—	—	ASSEMBLY, PCA TRAY,XFMR,3KVA,480V	
1	—	PLATE,WMT,CARRIER PLATE,XFMR	1
2	—	PCA, 400/480, Driver	1
3	—	PAD,COND,THERMAL,MODULE	1
4	—	PLATE,CLAMPING,TRIAC,PWR DISTRIBUTION	1
5	1023299	LUG,45,SINGLE,M5 X .032	1
6	—	TAG,GROUND	1
7	—	INSULATION,PCA CARRIER,3KVA,480V,XFMR	1
8	984702	NUT,HEX,M5,BRASS	1
9	983401	WASHER,LK,M,SPT,M5,S	1
10	984700	NUT,HEX,M3,STL,ZN	1
11	1033409	MACHSCRM,PAN,REC,M3	8
12	—	TAG,WARNING, .78x.78	1

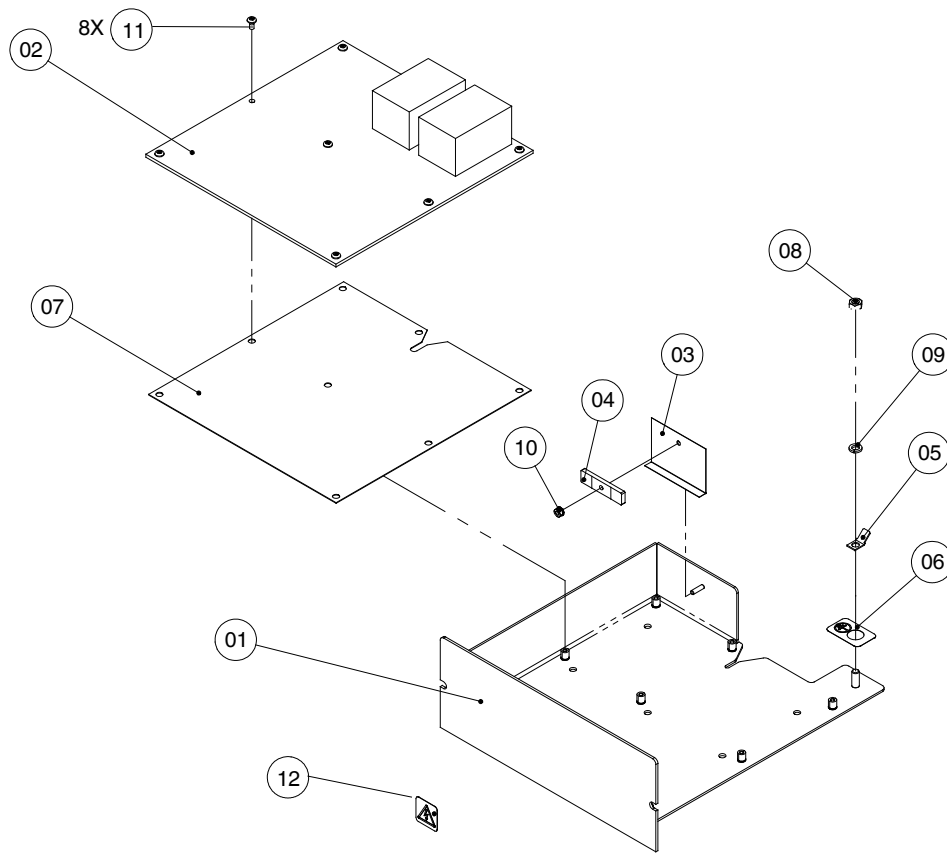


Figure F-16 Transformer tray assembly parts

3 KVA 480V Transformer Top Assembly, Sizes A and B

Item	Part	Description	Quantity
—	1128348	ASSEMBLY,XFMR TOP,3KVA,480V,SIZE A	
1	—	PANEL,TOP WMT,XFMR,3KVA,480V,SIZE A	1
—	1128395	ASSEMBLY,XFMR TOP,3KVA,480V,SIZE B	
1	—	PANEL,TOP WMT,XFMR,3KVA,480V,SIZE B	1
2	1023299	LUG,45,SINGLE,M5 X .032	1
3	240674	TAG,GROUND	1
4	1128369	INSULATION,XFMR TOP,3KVA,480V	1
5	984702	NUT,HEX,M5,BRASS	5
6	983401	WASHER,LK,M,SPT,M5,S	1
7	983035	WASHER,FLT,M,REG,M5,STL,ZN	4

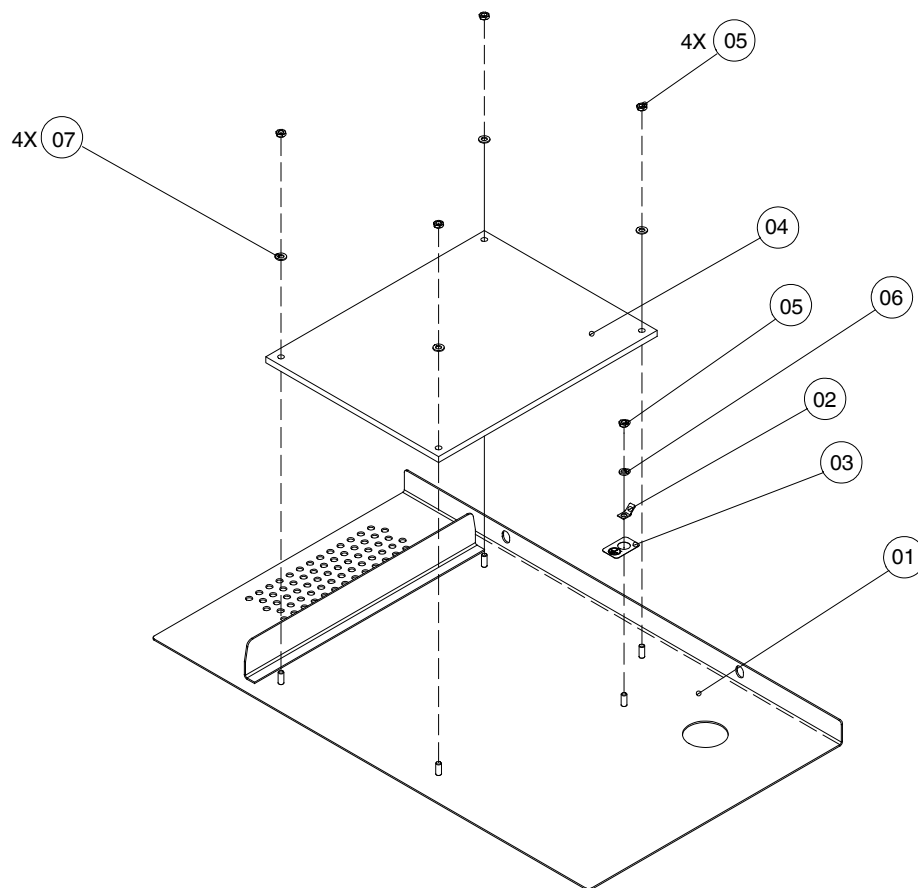


Figure F-17 Transformer top assembly

Ship-with Kit

Item	Part	Description	Quantity
—	1128419	KIT,SHIP WITH,BASE,XFMR,FLEX	
1	1039790	PLUG ASSY,TRANSFORMER,480V	1
2	1039789	PLUG ASSY,TRANSFORMER,400V	1
3	—	LABEL,BLANK,3.50"X1.375"	1
4	—	BAG,POLY,KITS,ROLLS,5X7	1
5	1127292	PLATE,POWER,ADAPTER,EBOX	1
6	331872	CLAMP,CABLE,1.0 KO,THRD SADDLE	1
7	105800	SCREW,SKTHD,M4X.7X8,ZN	2

3 KVA Transformer PCA Service Kit

Kit Part Number	Item	Description	Quantity
1129056		KIT,SERVICE,XFMR,PCA,3KVA	
	1	• ASSEMBLY, PCA TRAY,XFMR,3KVA,480V	1
	2	• SCREW,SKTHD,M4X.7X8,ZN	2

3 KVA 400/480V Transformer Service Kit

Kit Part Number	Item	Description	Quantity
1129057		KIT,SERVICE,XFMR,3KVA,400/480V	
	1	• TRANSFORMER,3KVA,400/480V PRI,230V SEC	1
	2	• PAD,TOROIDAL,XFMR,3KVA,480V	1
	3	• SCR,SKT,M5X45,BL	1
	4	• WASHER,FLT,M,OVERSIZED,5,STL,Z	1

Transformer Solid State Relay Service Kit

Kit Part Number	Item	Description	Quantity
1129058		KIT,SERVICE,XFMR,SSR	
	1	• RELAY,SOLID STATE,PEAK SWITCHING	1
	2	• PAD,THERMAL,SSR,57MM X 44MM	1
	3	• HARNESS, XFMR, SSR, PBFLEX	1
	4	• NUT,HEX,M4,STL,ZN	2
	5	• WASHER,FLT,M,NARROW,M4,STL,ZN	2

Transformer 8A Fuse Service Kit

Kit Part Number	Item	Description	Quantity
1129059		KIT,SERVICE,XFMR,FUSE,8A	
	1	• FUSE,8A,FAST-ACTING,600V,REJ	10
	2	• COVER,FUSE,.41 X 1.5	10

Transformer 10A Fuse Service Kit

Kit Part Number	Item	Description	Quantity
1129060		KIT,SERVICE,XFMR,FUSE,10A	
	1	• FUSE,T-D,CC-REJ,600V,10A (TRANSFORMER)	10
	2	• COVER,FUSE,.41 X 1.5	10

Wiring Diagrams

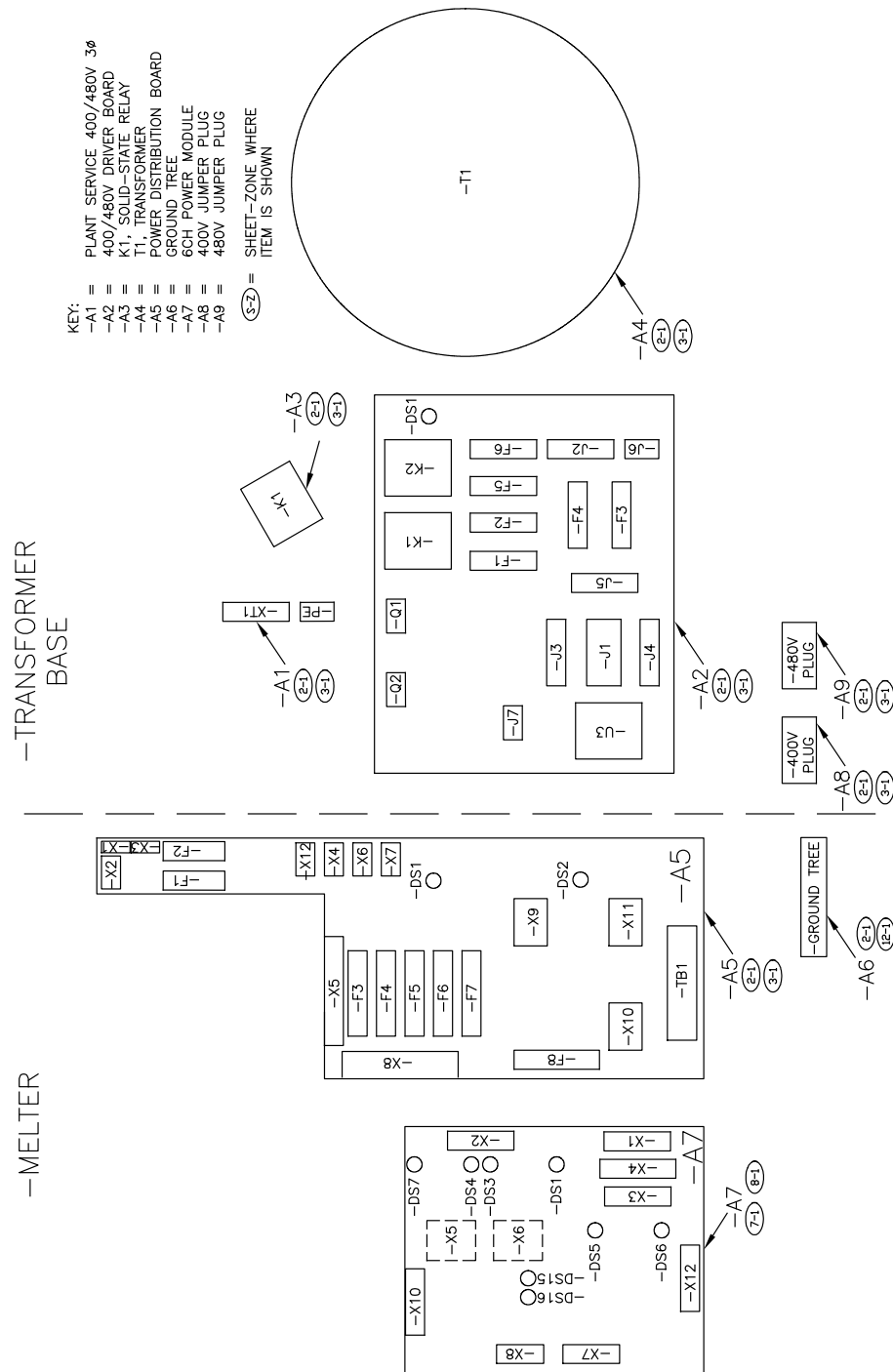


Figure F-18 ProBlue Flex 400/480V, electrical cabinet layout



Wiring Diagrams *(contd)*

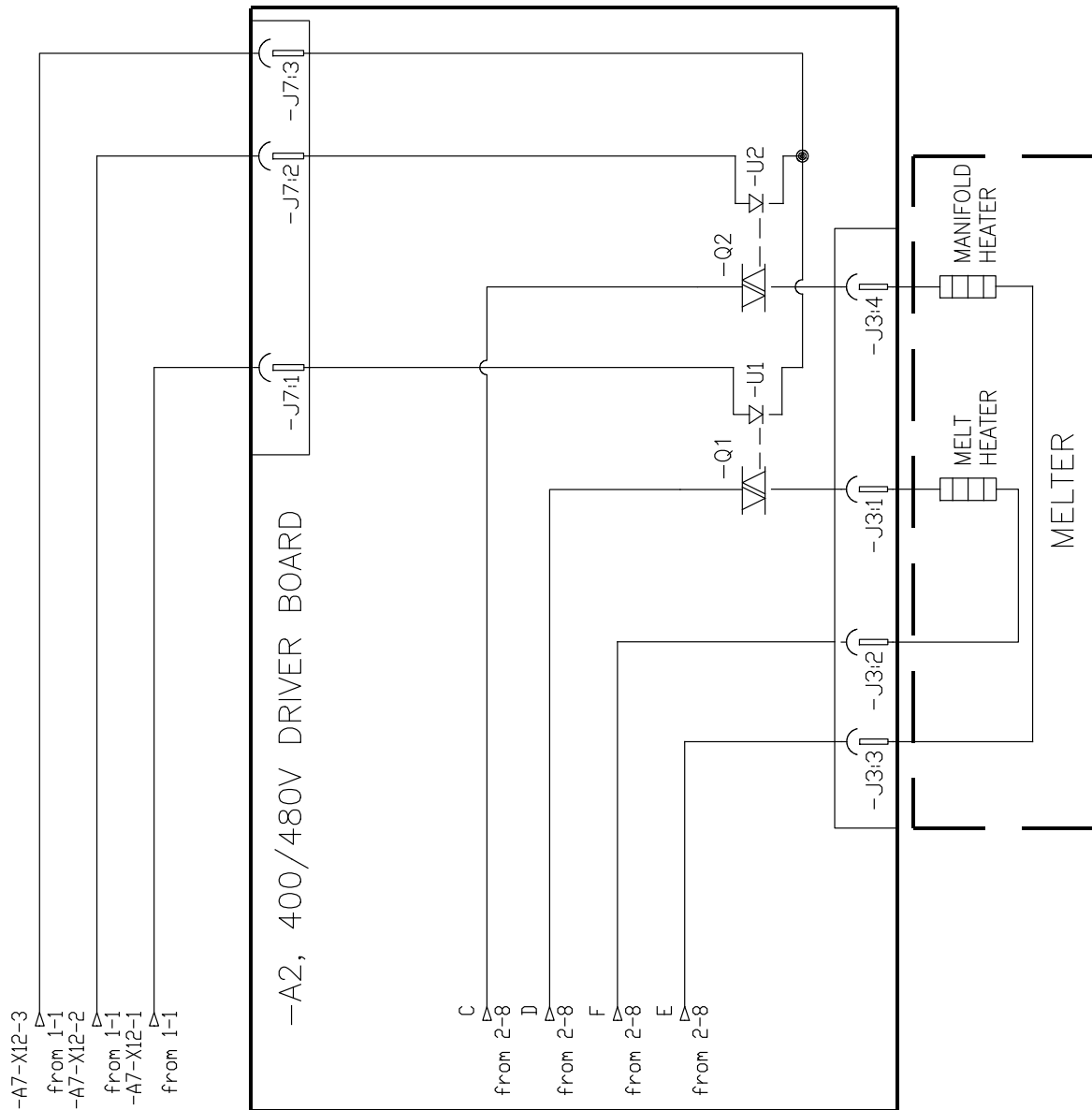


Figure F-21 ProBlue Flex 400/480V, melt and manifold

Appendix G

Hose/Applicator Expansion Base

Overview



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.

This appendix provides information about the hose/applicator expansion base for the ProBlue Flex adhesive melter. The expansion base expands the hose/applicator capacity of a 6-hose/applicator adhesive melter to an additional 2- or 4-hoses/applicators.

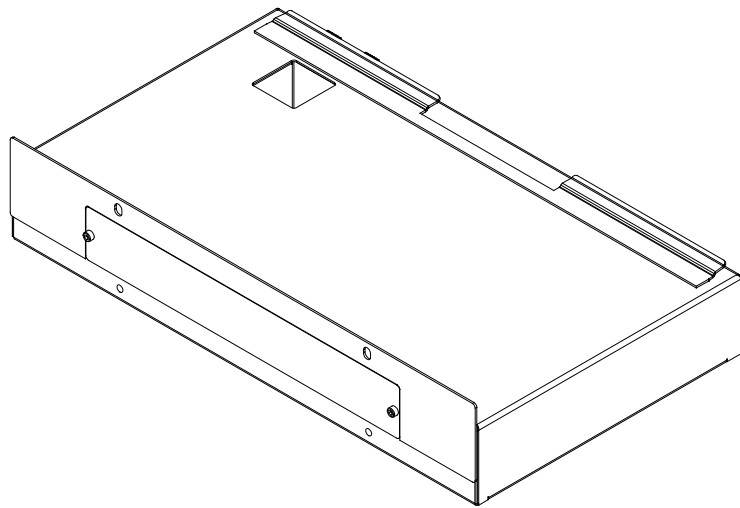


Figure G-1 Expansion base assembly

Overview *(contd)*

For general melter setup, operation, troubleshooting, and parts information, refer to the sections given earlier in the manual.

Safety

Before installing or operating the expansion base or melter, read the safety information provided in the *Safety* (Section 1) given earlier in the manual.

Intended Use

The expansion base can only be used with ProBlue Flex melters.

Unintended Use

- Single-phase operation
- Water wash-down environments
- Explosive atmospheres

Melter Firmware Requirements

Operation of the expansion base requires that melter firmware version 2.000 or later be installed in the melter. Firmware updates are available from www.enordson.com/support.

Installation



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

Before installing the expansion base, familiarize yourself with *Installation* (Section 3) of the melter manual.

Installation Clearances

See Figure G-2. Each expansion base has the same depth and width as the melter for which it is designed. The expansion base increases the height of the overall melter assembly by 81.1 mm (3.19 inches).

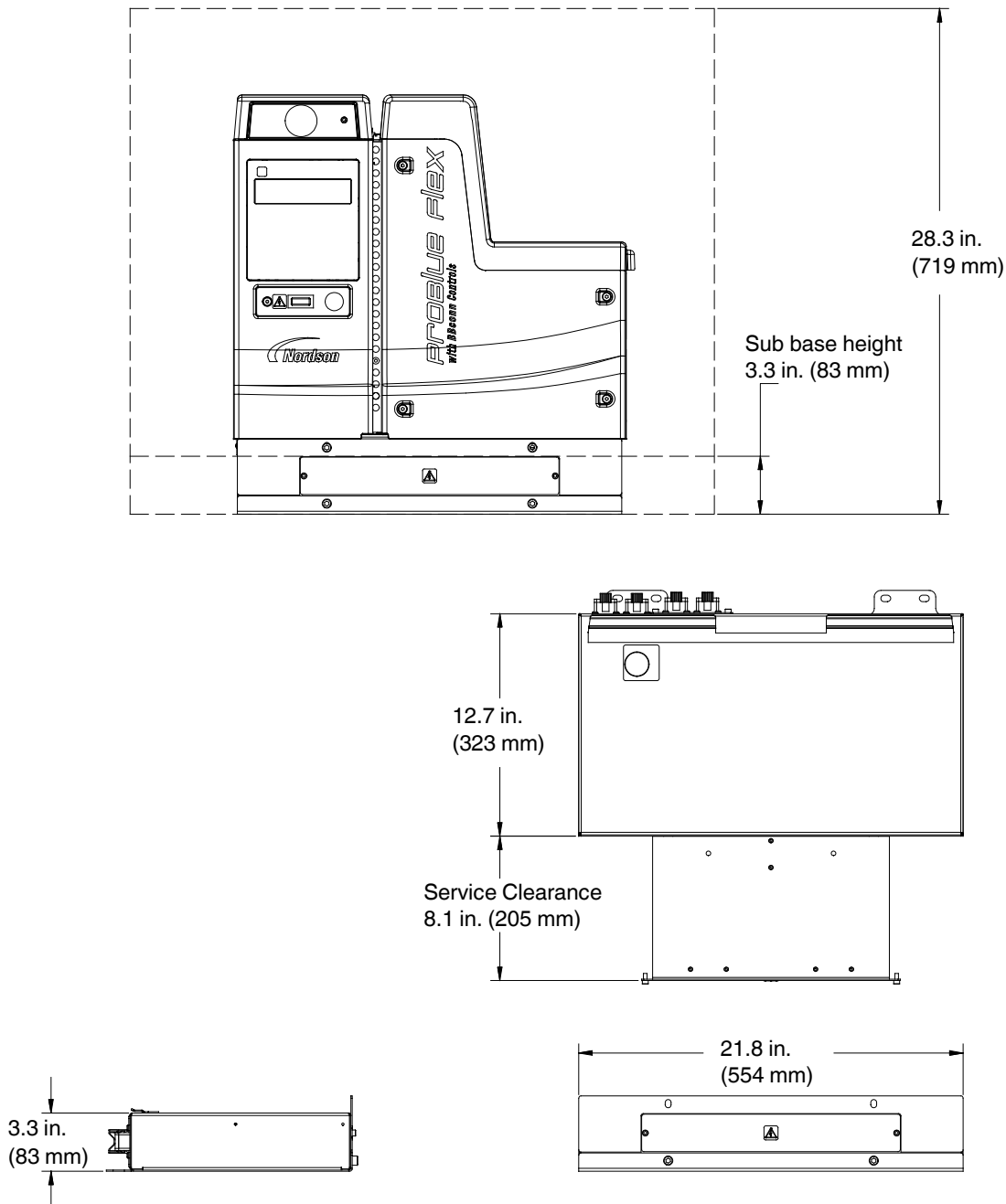


Figure G-2 Expansion base clearances

Power Requirements

If the melter's electrical service wiring is already sized to support 6 hoses/applicators, then no changes are required when installing the hose/applicator expansion base. For information about sizing the melter electrical service, refer to *Configure the Electrical Service* given earlier manual in *Installation* (Section 1).

Removing the Melter from the Sub-Base

To install the expansion base on the melter, you must first remove the sub-base from the melter.

1. Disconnect supply power to the melter.
2. Disconnect melter hoses and air supply line.
3. (Optional) If the input power cable was routed into the melter through the knockout in the sub-base, disconnect the power cable from TB1 on the main board, and then remove the cable from the sub-base.
4. See Figure G-3. Use a 6 mm hex wrench to remove the two M8 socket-head cap screws on the front of the chassis. Retain the screws.

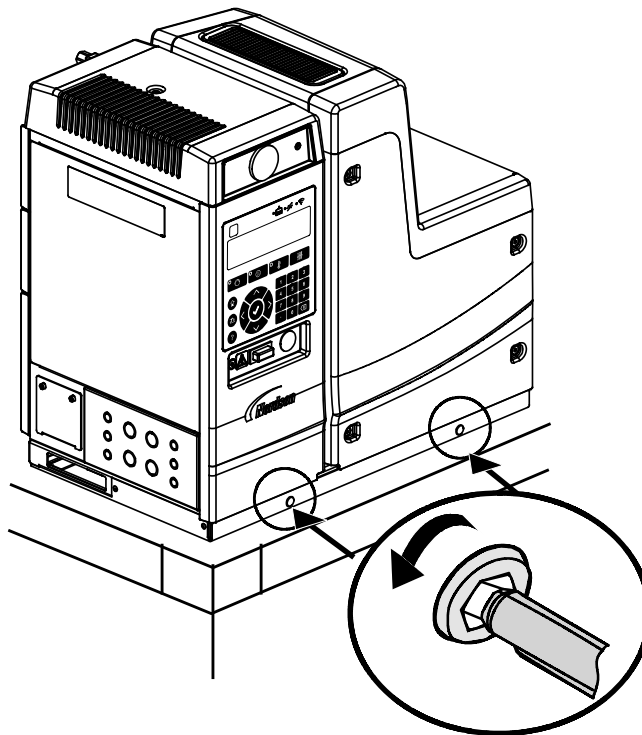
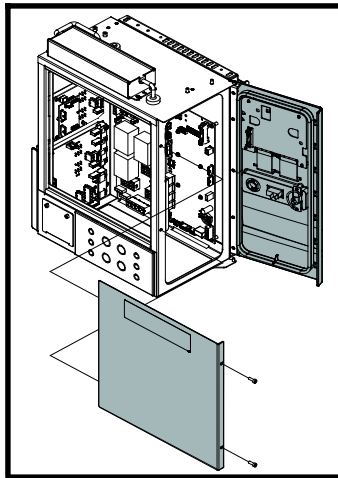


Figure G-3 Remove melter from the sub-base



5. Open the E-Box enclosure door and remove the side enclosure panel to the chassis cover plate and chassis-to-sub-base ground wire.

See figure on the left (E-Box enclosure door and side enclosure panel highlighted in grey).

6. See Figure G-4. To disconnect the ground wire from the chassis to sub-base, do the following:
 - a. Remove the chassis cover plate screw, and remove and retain the cover plate.
 - b. Locate the ground wire from the sub-base and disconnect it from the chassis.

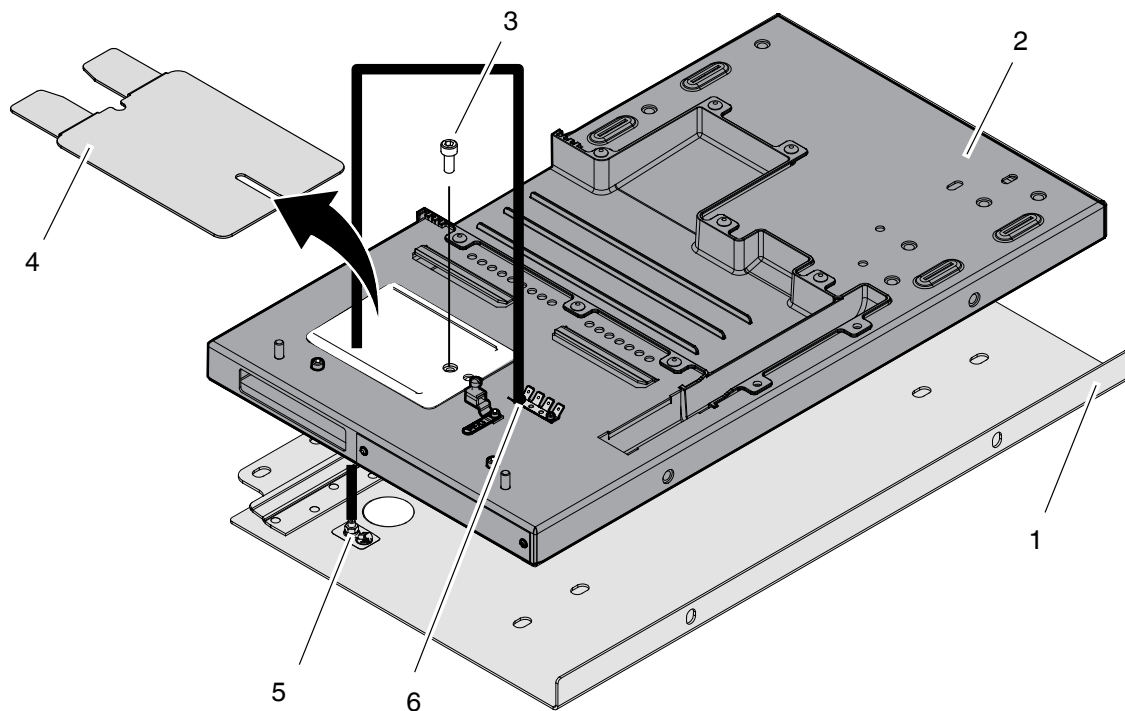
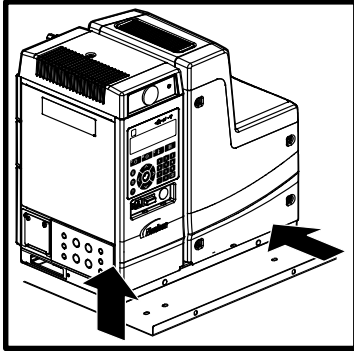


Figure G-4 Disconnecting ground wire

- | | | |
|-------------|------------------------------|------------------------------------|
| 1. Sub-base | 3. Chassis cover plate screw | 5. Sub-base ground wire connection |
| 2. Chassis | 4. Cover plate (removed) | 6. Chassis ground wire connection |

Removing the Melter from the Sub-Base *(contd)*



7. Push the melter backwards to disengage the locking tabs on the sub-base, and lift the melter from the sub-base.

Figure on the left shows the melter being disengaged from the sub-base.

NOTE: Be careful not to damage the ground wire.

8. Lift the melter from the sub-base to remove.

Mounting the Expansion Base to the Sub-Base

CAUTION! Ensure that the sub-base ground lead is properly routed and is not pinched between the sub-base and the expansion base.

1. Route the sub-base ground lead through the pass-through in the expansion base.
2. Carefully lower the expansion base onto the sub-base.
3. Slide the expansion base forward so that the sub-base locking tabs securely connect with the expansion base.
4. Secure the expansion base to the sub-base using the two M8 x 20 socket-head screws provided in the installation kit. Use a 6mm hex wrench to tighten the screws.

NOTE: Torque the M8 socket-head cap screws to 17 ft-lb (23 Nm).

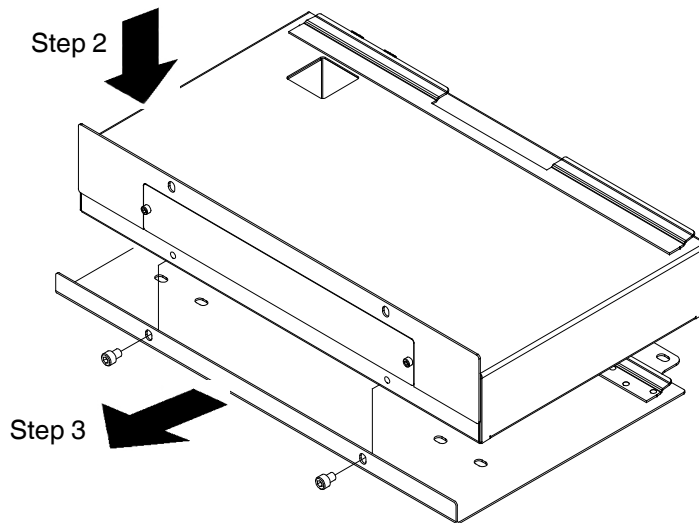


Figure G-5 Mounting the expansion base to the sub-base

Mounting the Melter to the Expansion Base

CAUTION! Ensure that all wires are properly routed and not pinched between the expansion base and the melter.



WARNING! Risk of personal injury or equipment damage. Mounting the melter requires two people.

NOTE: Have a second person route cables through the melter as another person holds the melter above the expansion base.

1. Carefully lower the melter onto the expansion base.
2. Slide the melter forward so that the expansion base locking tabs securely connect with the melter.
3. Secure the expansion base to the melter using the two M8 x 20 socket-head screws removed previously. Use a 6 mm hex wrench to tighten the screws.

4. Secure the expansion base to the melter using the two M8 x 20 socket-head screws removed previously. Use a 6mm hex wrench to tighten the screws.

NOTE: Torque the M8 socket-head cap screws to 17 ft-lb (23 Nm).

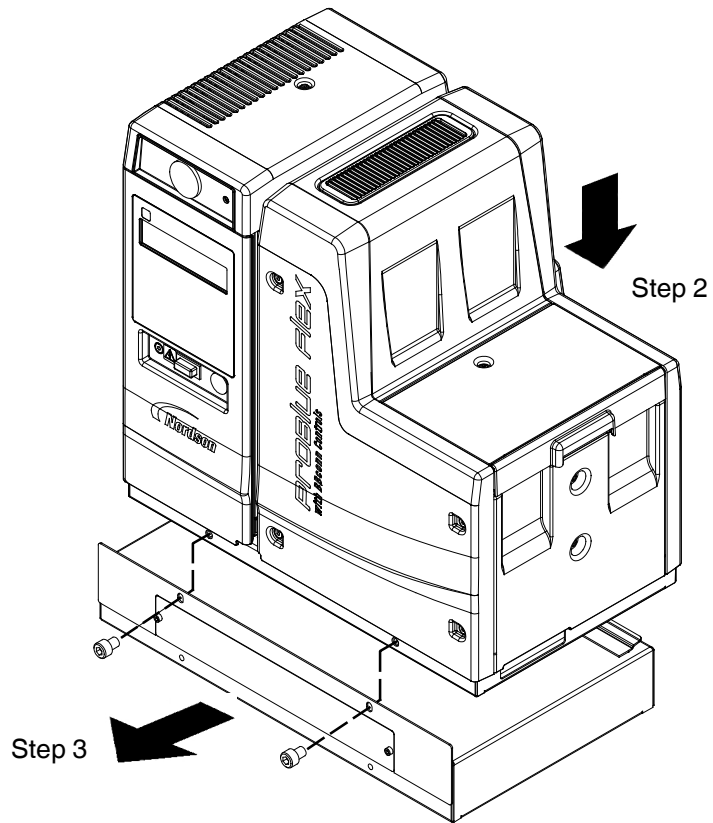


Figure G-6 Mounting the melter to the expansion base

Connecting Expansion Base and Sub-base Wiring to the Melter

Figure G-8 shows the location of the connections on the boards.

1. To connect the wiring from the expansion base to the melter do the following:
 - a. Connect the ground lead from the sub-base to the lug at the bottom of the melter electrical enclosure (Figure G-7).
 - b. Connect the ground lead from the expansion base to the lug at the bottom of the melter electrical enclosure (below the cards).
2. Slide the chassis cover plate into place and install the chassis cover screw.

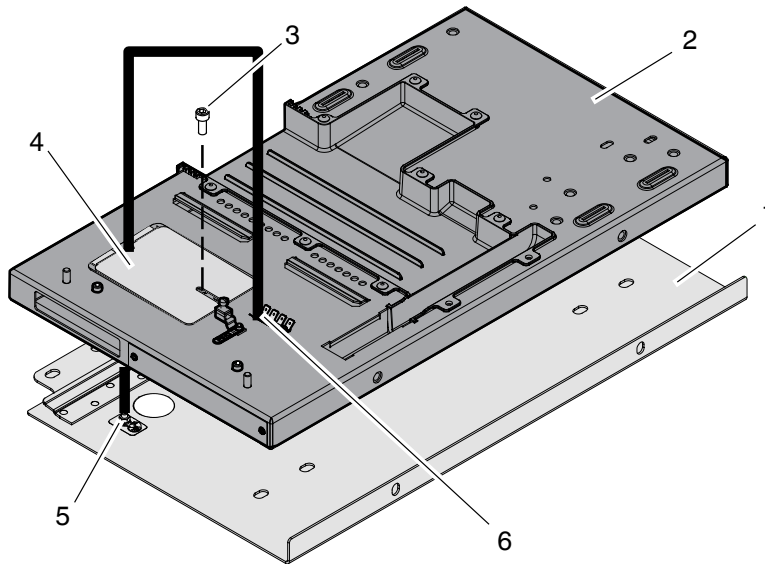


Figure G-7 Connecting ground wire from expansion base (some components not shown)

- | | | |
|-------------|------------------------------|------------------------------------|
| 1. Sub-base | 3. Chassis cover plate screw | 5. Sub-base ground wire connection |
| 2. Chassis | 4. Chassis cover plate | 6. Chassis ground wire connection |

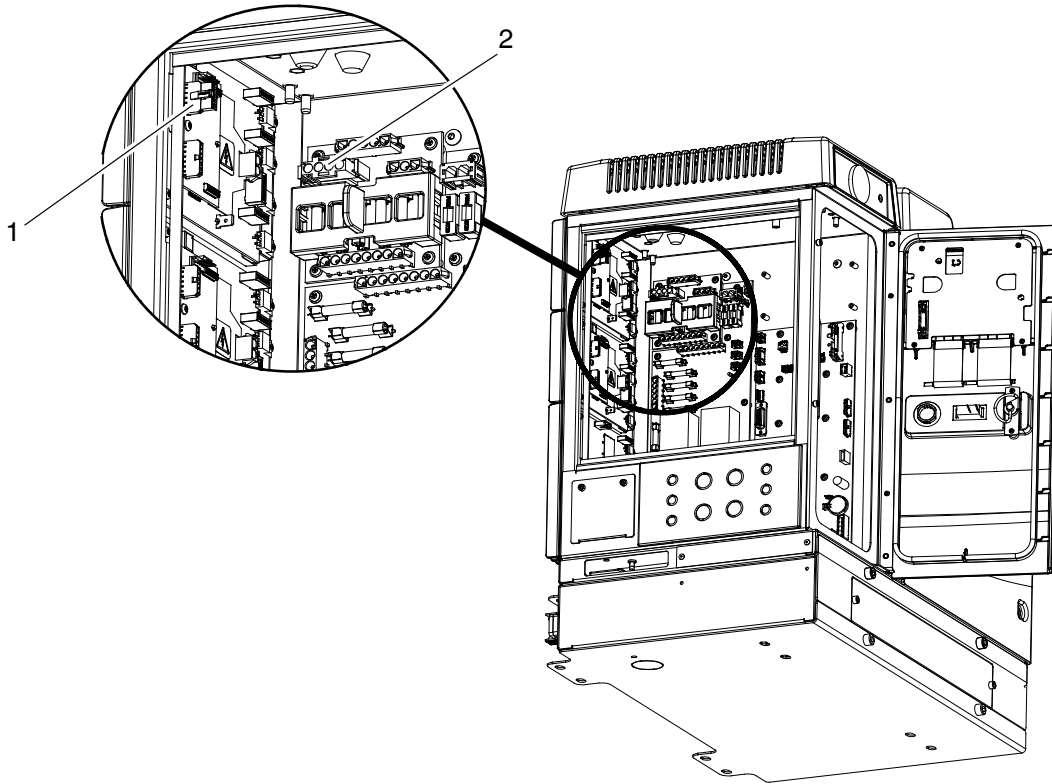


Figure G-8 Connecting the expansion board power cables

- | | |
|---|---|
| 1. Nordnet Temperature Control Module
- X6 | 2. Hose/Applicator Expansion
Module - X2 |
|---|---|



CAUTION: Do not plug the Nordnet cable into the Nordnet Master #2 connector on the LVC. The system may not work properly. See *Wiring Diagram - Hose/Applicator Expansion Power Module #3* (Figure 7-23) in *Technical Data* (Section 7).

3. Connect the power cable to the receptacle.
4. Close the melter's E-Box door and reinstall the side enclosure panel.
5. Connect the wires from the base into the E-Box.

Using Melter with Expansion Base in a Water Wash Environment

Perform the following step in instances when the melter with the expansion base may be sprayed with water from the bottom:

Prior to mounting the expansion base on to the sub-base, place the water wash stickers over the internal screw holes that do not have mounting screws installed.

NOTE: Each sub-base includes a set of two stickers (P/N 1129206) for use in a water wash environment.

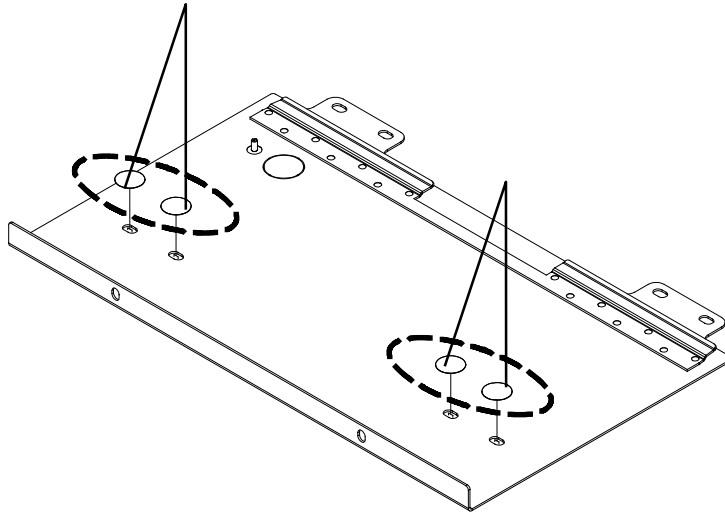


Figure G-9 Placing stickers on the sub-base

For instructions on mounting the expansion base on to the sub-base refer to *Mounting the Expansion Base to the Sub-Base* given earlier in this appendix.

Troubleshooting

The following tables provides expansion base-specific troubleshooting guidance. Refer to the melter manual, Section 6, *Troubleshooting* for general melter troubleshooting information.

General Troubleshooting

Problem	Possible Cause	Corrective Action
1. No power to entire melter	Problem with customer power source	Check all three phases at terminal block.
	No voltage plug (or wrong voltage plug) installed	Install correct voltage plug.
	Loose/disconnected cables	Check connections at following locations: • X4 on PDB • X3 on LVC • TB1 on LVC • X2 on PDB
	Blown fuses	Check fuses on power distribution board in the E-Box.

Troubleshooting Specific to Expansion Base

Problem	Possible Cause	Corrective Action
1. Fuses fail frequently	Expansion base is overloaded.	Verify that total hose/applicator power does not exceed capability of expansion base (2000W max).
2. All LEDs OFF on circuit board or no DC power on circuit board	Loose or disconnected Nordnet cable from power module 3 (H/A 5 and 6) in E-Box	Check Nordnet connections at power module 3 X6 in expansion base.
		Check Nordnet connections at X5 in expansion base.

Continued...

Troubleshooting Specific to Expansion Base *(contd)*

Problem	Possible Cause	Corrective Action
3. No AC power to circuit board (DS1 is OFF.)	Blown or missing fuse on power distribution expansion board in E-Box	Check/replace fuses.
	Loose or disconnected cable from power distribution expansion board in E-Box	Check AC power connections: • X2 on PDB Expansion PCA • X4 on PDB Expansion PCA • X5 on PDB PCA • X3 on Expansion power module • X9 on Expansion power module
4. Diagnostic indicates overloaded zone or channel	Excessive current draw overloading a channel	Reduce device (hose/applicator) current.
5. Diagnostic indicates overloaded power module	Excessive current draw (should be less than 2000W)	Reduce current on one or more zones.
6. Incorrect melter firmware	Old revision LVC installed	Update firmware (.DAT file) to Version 2.000 or later. Download and install from www.enordson.com/support .
7. Incorrect power module firmware	Old revision power module installed	Update firmware (.DAT file) to Version 2.000 or later. Download and install from www.enordson.com/support .
8. Unusual or excessive temperature fluctuations or offsets	Electromagnetic Interference (EMI) noise	Find and mitigate source of EMI noise.
9. Channels 9 and 10 do not work but channels 7 and 8 work	Wiring between power modules	Check the following connections: • X9 to X3 • X2 to X5

Expansion Base Circuit Board Indicators

Table G-1 Expansion base circuit board indicator descriptions

Indicator	Description
DS1 (AC)	ON = AC Power is available
DS13	ON = Power to heater 1
DS11	ON = Power to heater 2
DS5	ON = Power to heater 3
DS3	ON = Power to heater 4
DS4	3.3V power
DS2	5V power
DS9 (SYNC)	Flashes briefly each control period
DS7 (Status)	RTD problems
DS8 (Heaters)	Heater problems
DS12	Nordnet Comms (flashes red/green when communicating)
DS10	Nordnet Termination ON
DS6	Nordnet Downstream Power

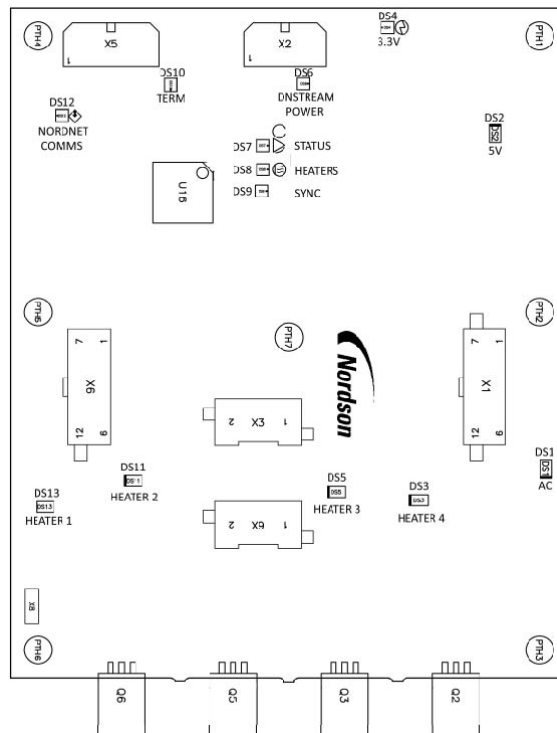


Figure G-10 Expansion base circuit board indicators and I/O declaration locations

I/O Declarations for the 4 Channel Temperature Control Expansion Board

Connector	Terminals	Type	Rating	Use
X5, X2	1 to 5	Nordnet	24VDC @ 2000 mA, 3.3V serial communication	X5 is used to supply 24VDC and serial communication to the 4 channel temperature control board X2 is used to supply 24VDC and serial communication to the expansion 4 channel temperature control board.
X8	1	Chassis Ground	Chassis Ground	Used to supply chassis ground to the 4 channel temperature control board.
X3, X9	1, 2	Heater Power	240VAC @ 2000W	Used to supply heater power to the 4 channel temperature control board and to the expansion 4 channel temperature control board.
X6, X1	1, 2, 3, 7, 8, 9	RTD Sensor	5V logic	The RTD sensor inputs provide the heater control feedback from hose and applicator.
	5, 6, 11, 12	Heater Output	240VAC @ 1000W per zone, 1200W per pair and 2000W for base	240VAC provided to hose and applicator heaters.

Block Diagrams

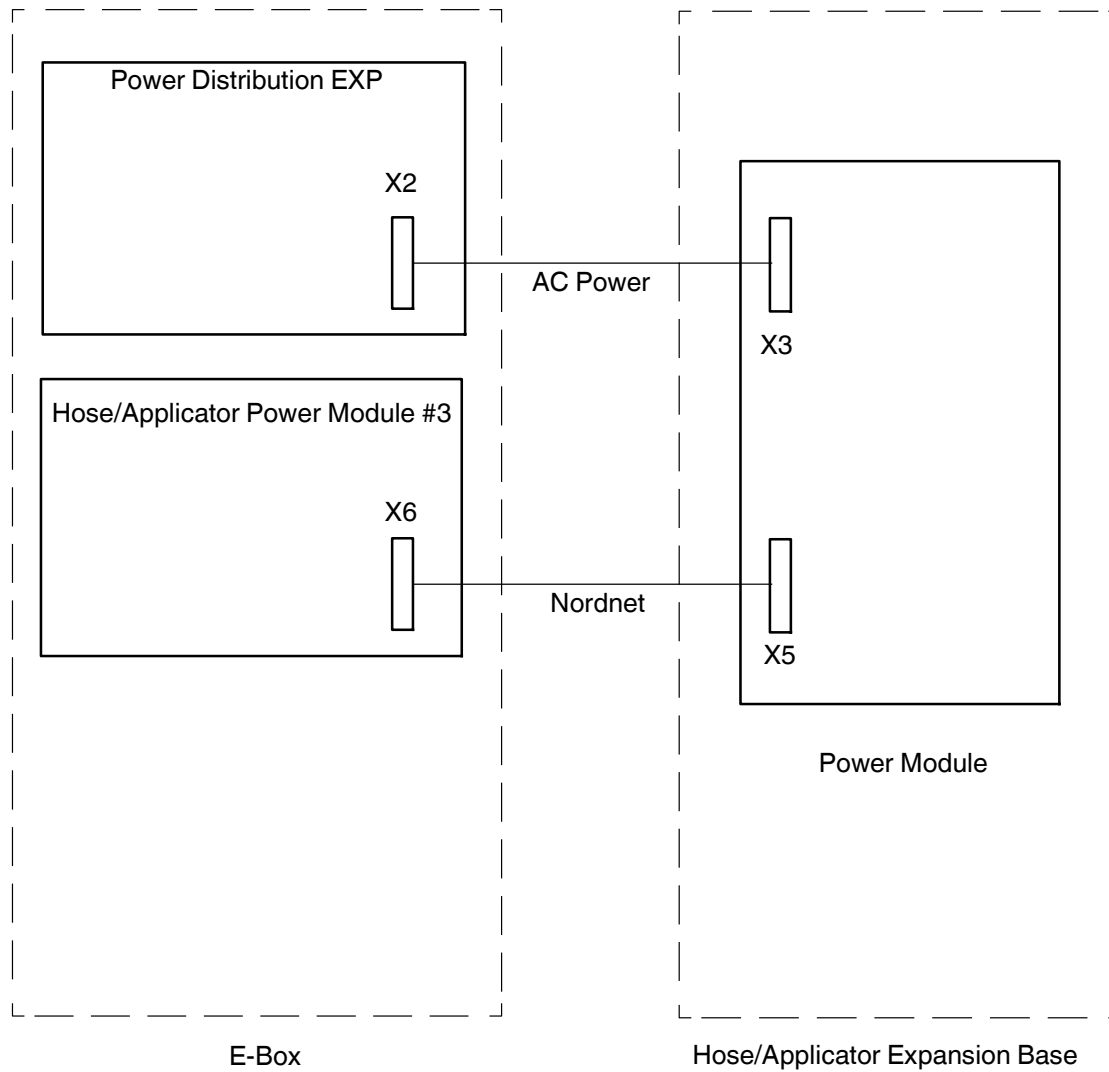


Figure G-11 Connecting the expansion board power cables - 8 Hose/Applicator Base

Block Diagrams *(contd)*

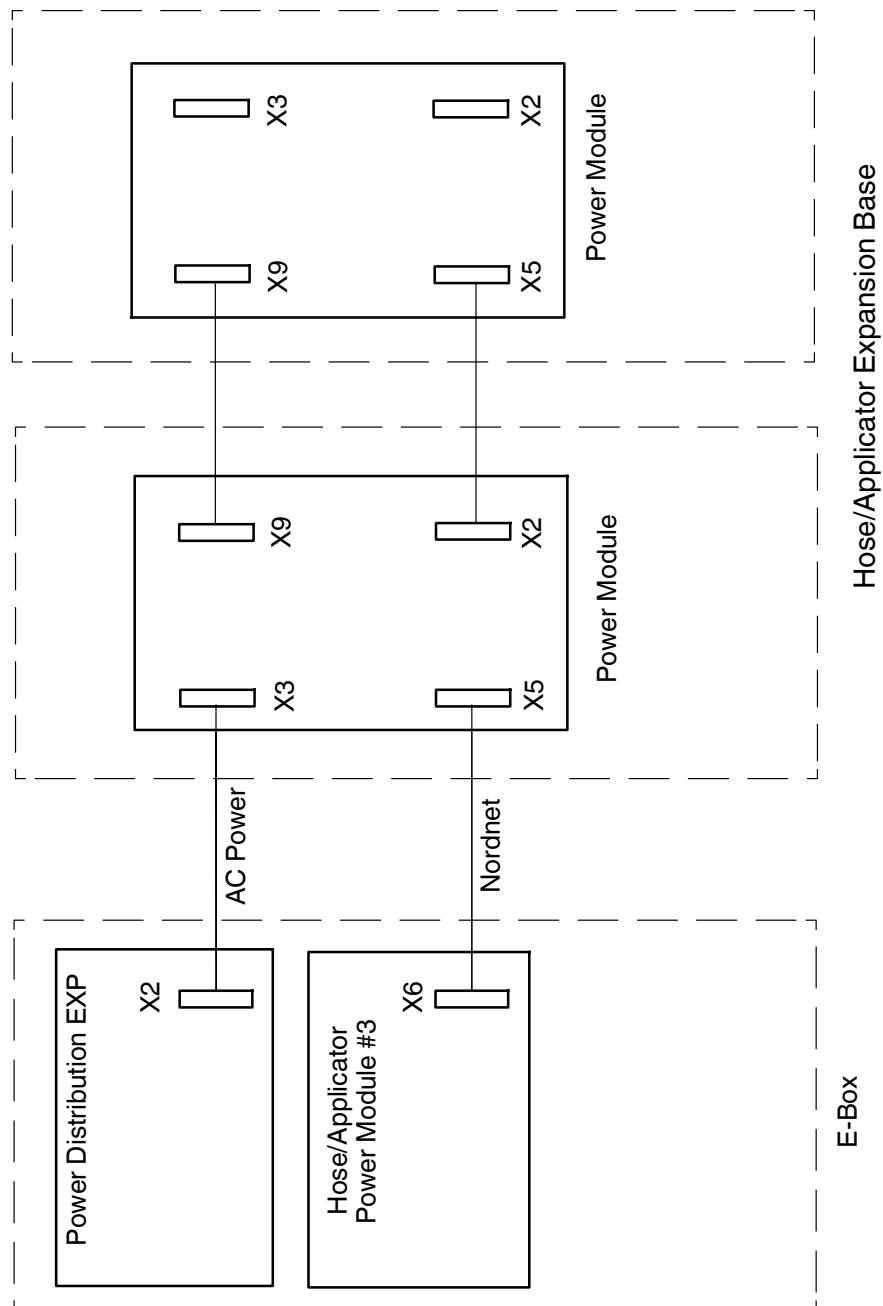


Figure G-12 Connecting the expansion board power cables - 10 Hose/Applicator Base

Expansion Base Selection

Refer to the following table for selecting the expansion base that matches your melter configuration.

240 Voltage - Legacy and Standard Warmup

Voltage	Warmup	# of Channel Pairs	Melter Size	Part Number	Description
240	Legacy Warmup	Single - 8 Hose	TANK 4 KG	1129012	BASE,HA EXP,SIZE A,SINGLE,240V, T04,LW
			TANK 7/10 KG	1129021	BASE,HA EXP,SIZE B,SINGLE,240V, T07&10,LW
			MOD 7 KG/HR	1129011	BASE,HA EXP,SIZE A,SINGLE,240V, M07,LW
			MOD 14 KG/HR	1129013	BASE,HA EXP,SIZE A,SINGLE,240V, M14,LW
		Double - 10 Hose	TANK 4 KG	1129026	BASE,HA EXP,SIZE A,DOUBLE,240V, T04,LW
			TANK 7/10 KG	1129035	BASE,HA EXP,SIZE B,DOUBLE,240V, T07&10,LW
			MOD 7 KG/HR	1129025	BASE,HA EXP,SIZE A,DOUBLE,240V, M07,LW
			MOD 14 KG/HR	1129027	BASE,HA EXP,SIZE A,DOUBLE,240V, M14,LW
	Standard Warmup	Single - 8 Hose	TANK 4 KG	1129015	BASE,HA EXP,SIZE A,SINGLE,240V, T04,FW
			TANK 7/10 KG	1129022	BASE,HA EXP,SIZE B,SINGLE,240V, T07&10,FW
			MOD 7 KG/HR	1129014	BASE,HA EXP,SIZE A,SINGLE,240V, M07,FW
			MOD 14 KG/HR	1129016	BASE,HA EXP,SIZE A,SINGLE,240V, M14,FW
		Double - 10 Hose	TANK 4 KG	1129029	BASE,HA EXP,SIZE A,DOUBLE,240V, T04,FW
			TANK 7/10 KG	1129036	BASE,HA EXP,SIZE B,DOUBLE,240V, T07&10,FW
			MOD 7 KG/HR	1129028	BASE,HA EXP,SIZE A,DOUBLE,240V, M07,FW
			MOD 14 KG/HR	1129030	BASE,HA EXP,SIZE A,DOUBLE,240V, M14,FW

480 Voltage - Legacy and Standard Warmup

Voltage	Warmup	# of Channel Pairs	Melter Size	Part Number	Description
480	Legacy Warmup	Single - 8 Hose	TANK 4 KG	1129020	BASE,HA EXP,SIZE A,SINGLE,480V, T04,LW
			TANK 7/10 KG	1129024	BASE,HA EXP,SIZE B,SINGLE,480V, T07&10,LW
			MOD 7 KG/HR	1129019	BASE,HA EXP,SIZE A,SINGLE,480V, M07,LW
			MOD 14 KG/HR	1129018	BASE,HA EXP,SIZE A,SINGLE,480V, M14,LW
		Double - 10 Hose	TANK 4 KG	1129034	BASE,HA EXP,SIZE A,DOUBLE,480V, T04,LW
			TANK 7/10 KG	1129038	BASE,HA EXP,SIZE B,DOUBLE,480V, T07&10,LW
			MOD 7 KG/HR	1129033	BASE,HA EXP,SIZE A,DOUBLE,480V, M07,LW
			MOD 14 KG/HR	1129032	BASE,HA EXP,SIZE A,DOUBLE,480V, M14,LW
	Standard Warmup	Single - 8 Hose	TANK 4 KG	1129017	BASE,HA EXP,SIZE A,SINGLE,480V, M07,FW
			TANK 7/10 KG	1129023	BASE,HA EXP,SIZE B,SINGLE,480V, T07&10,FW
			MOD 7 KG/HR	1129017	BASE,HA EXP,SIZE A,SINGLE,480V, M07,FW
			MOD 14 KG/HR	1129361	BASE,HA EXP,SIZE A,SINGLE,480V, M14,FW
		Double - 10 Hose	TANK 4 KG	1129031	BASE,HA EXP,SIZE A,DOUBLE,480V, M07,FW
			TANK 7/10 KG	1129037	BASE,HA EXP,SIZE B,DOUBLE,480V, T07&10,FW
			MOD 7 KG/HR	1129031	BASE,HA EXP,SIZE A,DOUBLE,480V, M07,FW
			MOD 14 KG/HR	1129362	BASE,HA EXP,SIZE A,DOUBLE,480V, M14,FW

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Expansion Base Parts

See Figure G-13.

Item	Part Number	Description	Quantity
01	—	CHASSIS,H/G EXP,SIZE A	1
	—	CHASSIS,HA EXP,SIZE B	1
02	—	TRAY,BOARD MOUNT,H/G EXP	1
03	1129102	KIT,SERVICE,H/A EXP BASE,PCA REPL	1
04	1128771	SHIELD,WIREWAY,H/G EXP	1
05	1128772	PLATE,BLANK,H/G EXP	1
	1129062	HARNESS,HA EXP,DOUBLE	1
06	310674	SCREW,PANHD,8-16X .38,PLA	8
07	274653	COVER,CONNECTOR,SOCKET, 12 PIN	2
08	982780	SCR,SKT,M5X10,ZN	4
09	933618	LUG,45,SINGLE,.250X.032	1
10	1052143	NUT,HEX,W/EXT TOOTH WASHER,M5,STL,ZN	2
11	1094551	TBACCY,QUICK CONN,.25-IN,MALE,DUAL,5POS	1
12	1104459	SCR,SKT,M3X0.5X6,ZN	2
13	982528	SCR,SKT,M3 X 12MM,ZN	2
14	1129101	KIT,SERVICE,H/A EXP BASE,12 PIN REPL	1
NS	1128744	HARNESS,10HA BASE,PWR VERT,PBFLEX	1
NS	1128746	WIRE GROUP,10HA BASE, GND,PBFLEX	1
NS: Not Shown			

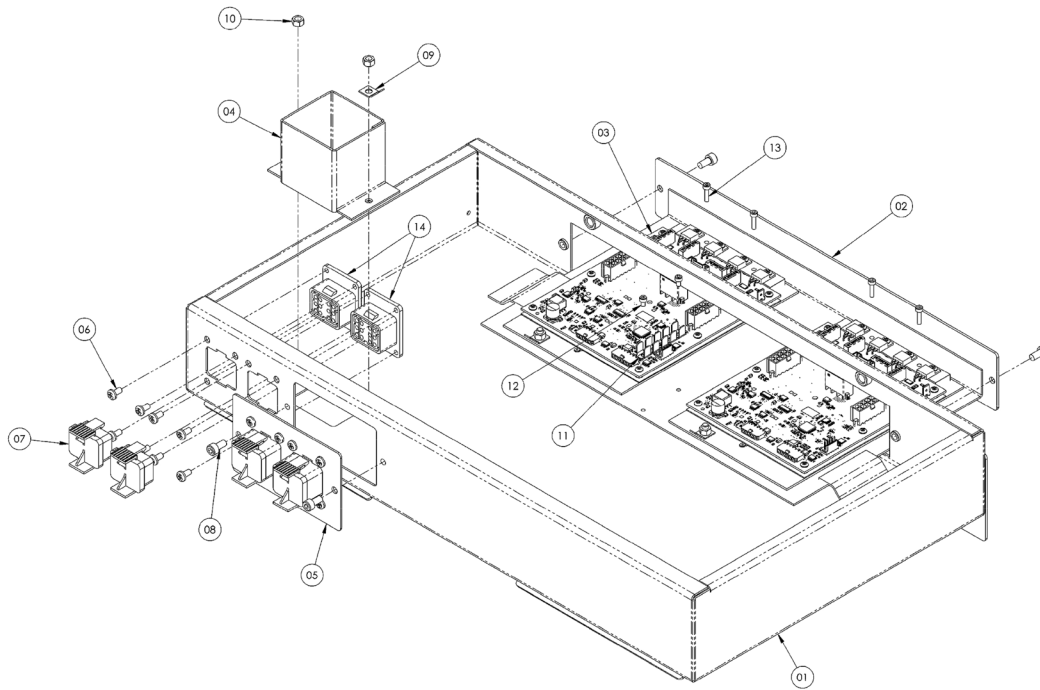


Figure G-13 Expansion base parts

Wiring Diagrams

HA EXPANSION BASE

KEY:

- A1 = PE, GROUND TREE
- A2 = POWER DISTRIBUTION BOARD
- A3 = POWER DISTRIBUTION EXPANSION BOARD
- A4 = 6CH POWER MODULE
- A5 = 4CH POWER MODULE #1
- A6 = 4CH POWER MODULE #2
- A7 = 4CH POWER MODULE #3
- A8 = 4CH POWER MODULE #4
- A9 = HA EXP DRAWER GROUND TREE
- A10 = HA EXP HOSE/APPLICATOR CONNECTORS
- A11 = HA EXP ENCLOSURE GROUND TAB

(S-Z) = SHEET-ZONE WHERE
ITEM IS SHOWN

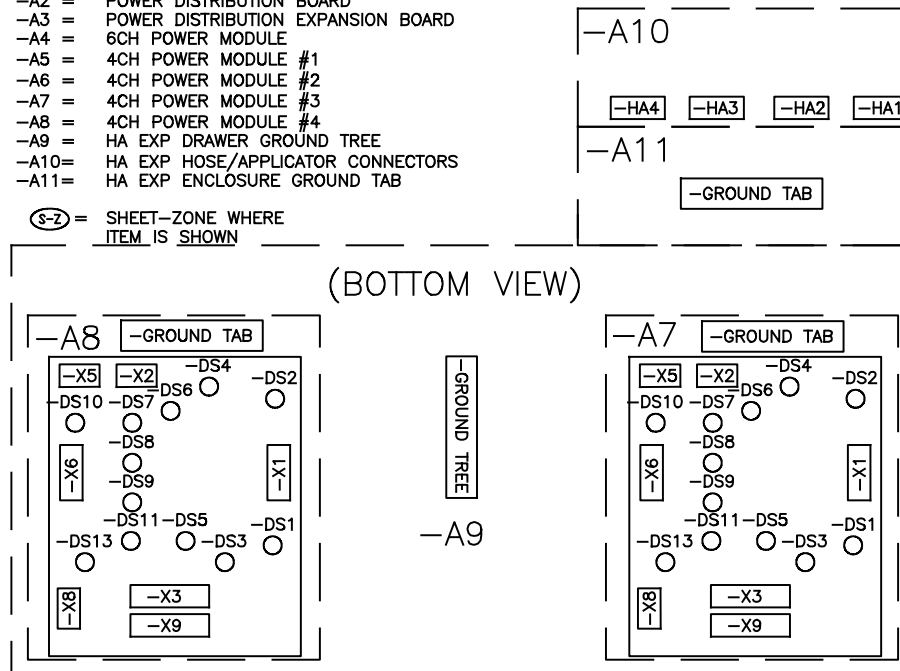


Figure G-14 Expansion base boards

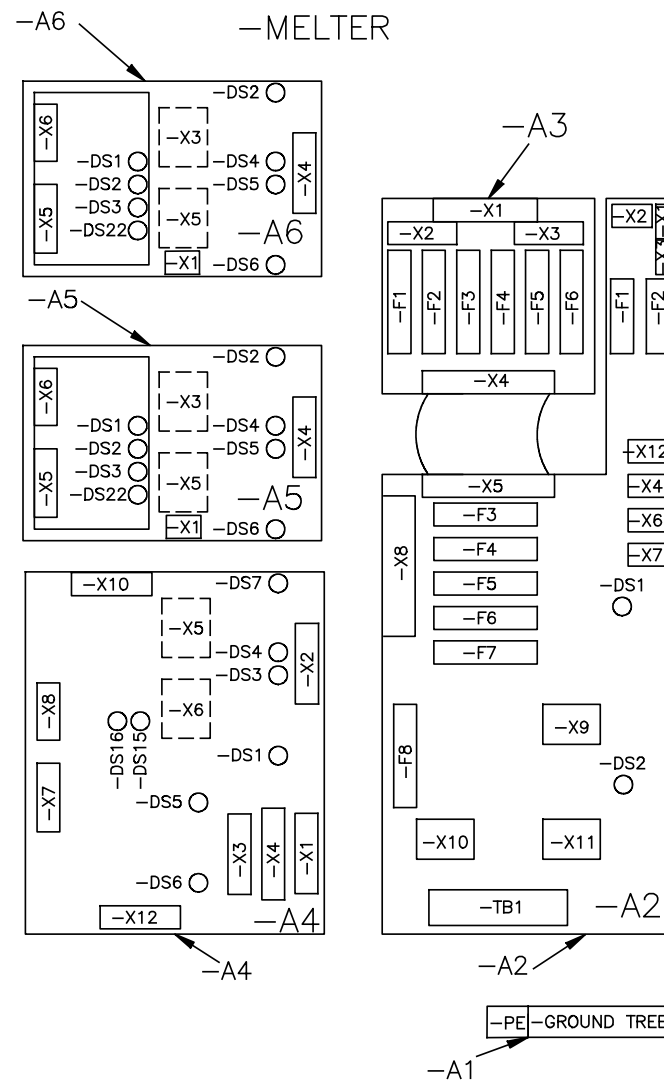


Figure G-15 Melter boards

Wiring Diagrams (contd)

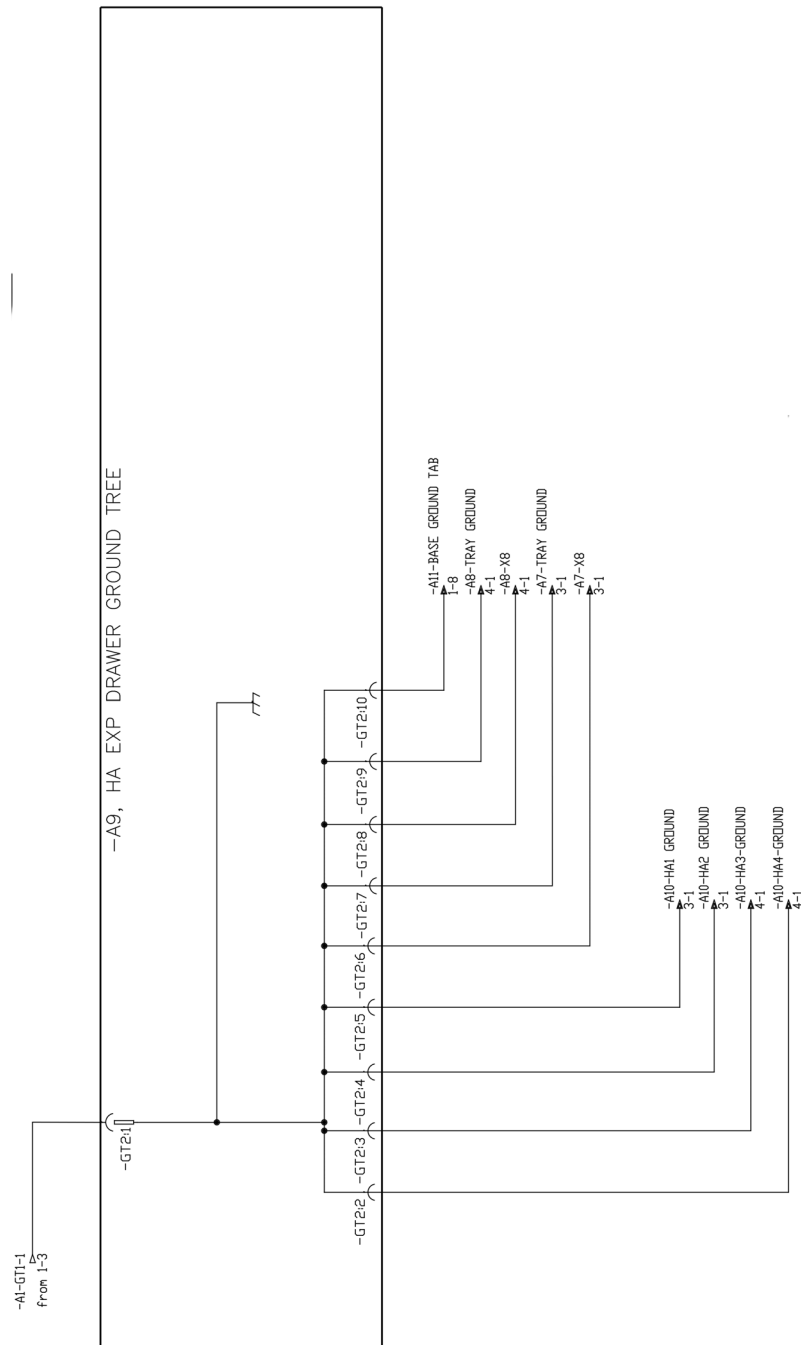


Figure G-16 Expansion base parts (bottom view)

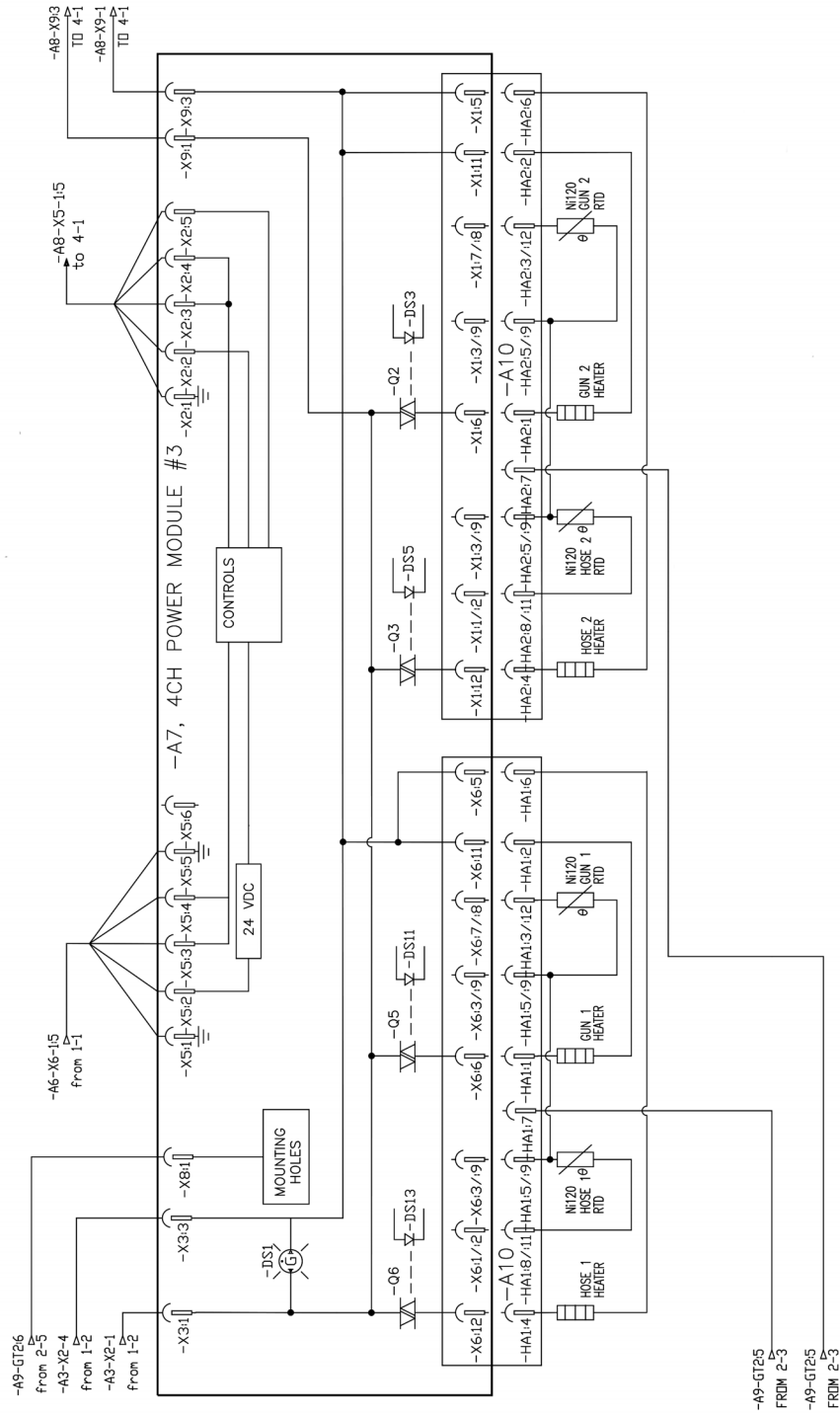


Figure G-17 Power Module #3

Wiring Diagrams (contd)

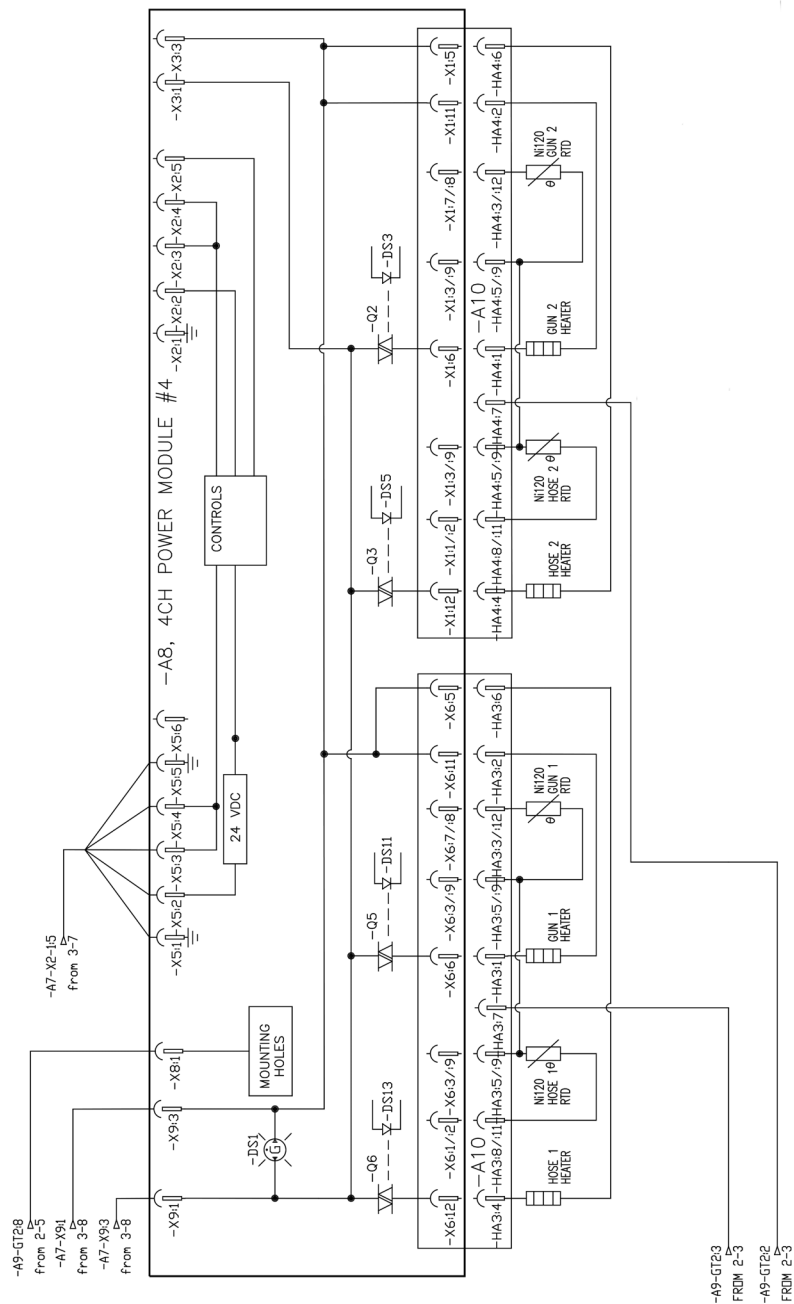


Figure G-18 Power Module #4

