Pro-Flo® II System Dispensing Gun

Customer Product Manual
Part 106 568D

NORDSON CORPORATION ● AMHERST, OHIO ● USA

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Notice

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Section 1

Safety

Section 1
Safety

1. Introduction

Read and follow these safety instructions. Task- and equipment-specific warnings, cautions, and instructions are included in equipment documentation where appropriate.

Make sure all equipment documentation, including these instructions, is accessible to persons operating or servicing equipment.

2. Qualified Personnel

Equipment owners are responsible for making sure that Nordson equipment is installed, operated, and serviced by qualified personnel. Qualified personnel are those employees or contractors who are trained to safely perform their assigned tasks. They are familiar with all relevant safety rules and regulations and are physically capable of performing their assigned tasks.

3. Intended Use

Use of Nordson equipment in ways other than those described in the documentation supplied with the equipment may result in injury to persons or damage to property.

Some examples of unintended use of equipment include

- using incompatible materials
- making unauthorized modifications
- removing or bypassing safety guards or interlocks
- using incompatible or damaged parts
- using unapproved auxiliary equipment
- operating equipment in excess of maximum ratings

4. Regulations and Approvals

Make sure all equipment is rated and approved for the environment in which it is used. Any approvals obtained for Nordson equipment will be voided if instructions for installation, operation, and service are not followed.

5. Personal Safety

To prevent injury follow these instructions.

- Do not operate or service equipment unless you are qualified.
- Do not operate equipment unless safety guards, doors, or covers are intact and automatic interlocks are operating properly. Do not bypass or disarm any safety devices.
- Keep clear of moving equipment. Before adjusting or servicing moving equipment, shut off the power supply and wait until the equipment comes to a complete stop. Lock out power and secure the equipment to prevent unexpected movement.
- Relieve (bleed off) hydraulic and pneumatic pressure before adjusting or servicing pressurized systems or components. Disconnect, lock out, and tag switches before servicing electrical equipment.
- While operating manual spray guns, make sure you are grounded. Wear electrically conductive gloves or a grounding strap connected to the gun handle or other true earth ground. Do not wear or carry metallic objects such as jewelry or tools.
- If you receive even a slight electrical shock, shut down all electrical or electrostatic equipment immediately. Do not restart the equipment until the problem has been identified and corrected.
- Obtain and read Material Safety Data Sheets (MSDS) for all materials used. Follow the manufacturer's instructions for safe handling and use of materials, and use recommended personal protection devices.
- Make sure the spray area is adequately ventilated.
- To prevent injury, be aware of less-obvious dangers in the workplace that often cannot be completely eliminated, such as hot surfaces, sharp edges, energized electrical circuits, and moving parts that cannot be enclosed or otherwise guarded for practical reasons.

High-Pressure Fluids

High-pressure fluids, unless they are safely contained, are extremely hazardous. Always relieve fluid pressure before adjusting or servicing high pressure equipment. A jet of high-pressure fluid can cut like a knife and cause serious bodily injury, amputation, or death. Fluids penetrating the skin can also cause toxic poisoning.

If you suffer a fluid injection injury, seek medical care immediately. If possible, provide a copy of the MSDS for the injected fluid to the health care provider.

The National Spray Equipment Manufacturers Association has created a wallet card that you should carry when you are operating high-pressure spray equipment. These cards are supplied with your equipment. The following is the text of this card:

WARNING: Any injury caused by high pressure liquid can be serious. If you are injured or even suspect an injury:

- Go to an emergency room immediately.
- Tell the doctor that you suspect an injection injury.
- Show him this card.
- Tell him what kind of material you were spraying.

MEDICAL ALERT–AIRLESS SPRAY WOUNDS: NOTE TO PHYSICIAN

Injection in the skin is a serious traumatic injury. It is important to treat the injury surgically as soon as possible. Do not delay treatment to research toxicity. Toxicity is a concern with some exotic coatings injected directly into the bloodstream.

Consultation with a plastic surgeon or a reconstructive hand surgeon may be advisable.

The seriousness of the wound depends on where the injury is on the body, whether the substance hit something on its way in and deflected causing more damage, and many other variables including skin microflora residing in the paint or gun which are blasted into the wound. If the injected paint contains acrylic latex and titanium dioxide that damage the tissue's resistance to infection, bacterial growth will flourish. The treatment that doctors recommend for an injection injury to the hand includes immediate decompression of the closed vascular compartments of the hand to release the underlying tissue distended by the injected paint, judicious wound depravement, and immediate antibiotic treatment.

6. Fire Safety

To avoid a fire or explosion, follow these instructions.

- Ground all conductive equipment in the spray area. Use only grounded air and fluid hoses. Check equipment and workpiece grounding devices regularly. Resistance to ground must not exceed one megohm.
- Shut down all equipment immediately if you notice static sparking or arcing. Do not restart the equipment until the cause has been identified and corrected.
- Do not smoke, weld, grind, or use open flames where flammable materials are being used or stored.
- Do not heat materials to temperatures above those recommended by the manufacturer. Make sure heat monitoring and limiting devices are working properly.
- Provide adequate ventilation to prevent dangerous concentrations of volatile particles or vapors. Refer to local codes or your material MSDS for guidance.
- Do not disconnect live electrical circuits while working with flammable materials. Shut off power at a disconnect switch first to prevent sparking.
- Know where emergency stop buttons, shutoff valves, and fire extinguishers are located. If a fire starts in a spray booth, immediately shut off the spray system and exhaust fans.
- Shut off electrostatic power and ground the charging system before adjusting, cleaning, or repairing electrostatic equipment.
- Clean, maintain, test, and repair equipment according to the instructions in your equipment documentation.
- Use only replacement parts that are designed for use with original equipment. Contact your Nordson representative for parts information and advice.

Halogenated Hydrocarbon Solvent Hazards

Do not use halogenated hydrocarbon solvents in a pressurized system that contains aluminum components. Under pressure, these solvents can react with aluminum and explode, causing injury, death, or property damage. Halogenated hydrocarbon solvents contain one or more of the following elements:

Element	Symbol	Prefix
Fluorine	F	“Fluoro-”
Chlorine	Cl	“Chloro-”
Bromine	Br	“Bromo-”
Iodine	I	“Iodo-”

Check your material MSDS or contact your material supplier for more information. If you must use halogenated hydrocarbon solvents, contact your Nordson representative for information about compatible Nordson components.

7. Action in the Event of a Malfunction

If a system or any equipment in a system malfunctions, shut off the system immediately and perform the following steps:

- Disconnect and lock out system electrical power. Close hydraulic and pneumatic shutoff valves and relieve pressures.
- Identify the reason for the malfunction and correct it before restarting the system.

8. Disposal

Dispose of equipment and materials used in operation and servicing according to local codes.

Section 2

Description

Section 2
Description

1. Introduction

See Figure 2-1. The Nordson Pro-Flo II system dispensing gun is used in the robotic application of sealants and adhesives. The gun is part of the Pro-Flo system which consists of the gun and controller used in conjunction with a robot and its controller.

The dispensing rate is controlled by the Pro-Flo controller using feedback from the robot controller sensors. Consistent bead size is maintained by adjusting the module dispensing rate due to changes in robot speed, material viscosity, and material delivery pressure.

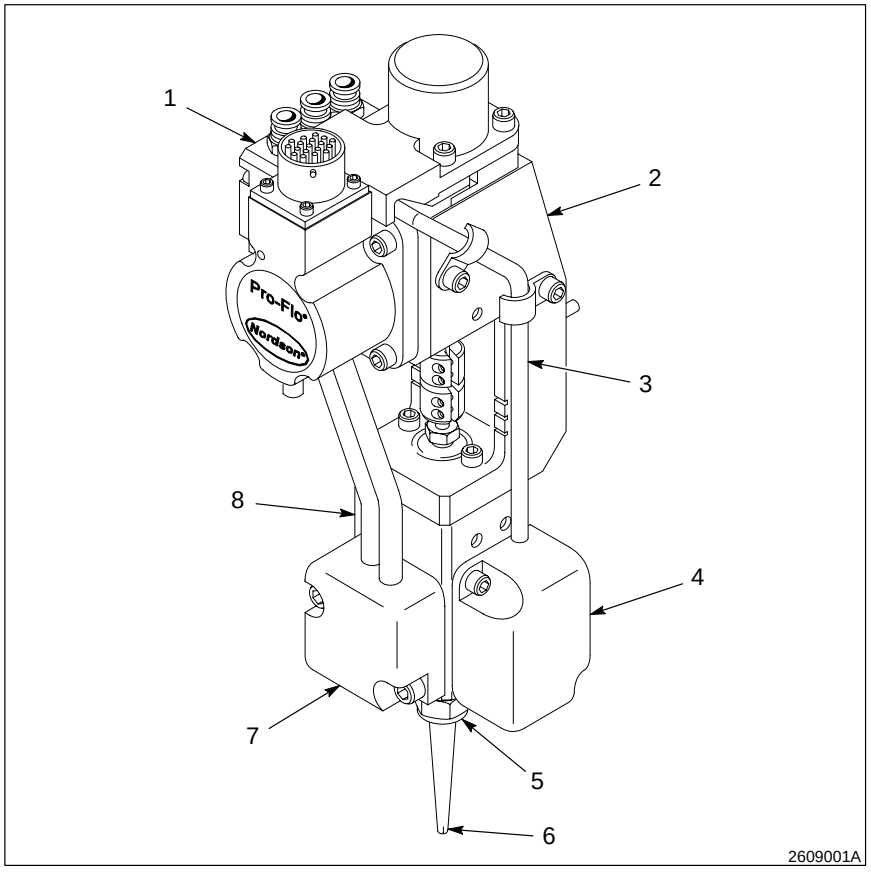

Fig. 2-1 Pro-Flo II System Dispensing Gun

1. Air manifold
2. Actuator assembly
3. Pressure transducer cordset
4. Pressure transducer
5. Nozzle nut
6. Nozzle
7. MCO
8. Trimset valve

2. Gun Components

See Figure 2-1. The dispensing gun consists of four major components:

- air manifold (1)
- actuator assembly (2)
- pressure transducer (4) and cordset (3)
- trimset valve (8)

Some dispensing guns are equipped with the following optional components:

- material cutoff module (MCO) (7) or special nozzles (6)
- heater or temperature conditioning module

Section 3

Installation

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.

1. Introduction

This section provides installation information for the dispensing gun.

WARNING: Disconnect the equipment from the line voltage.

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

2. Gun Mounting

CAUTION: Carefully route cables, air lines, and the material supply hose to avoid contact with the workpiece and damage from robot movement.

Refer to the *Specifications* section for clearance and mounting dimensions. Mount the gun to the robot arm using a customer-supplied adapter designed for the application. The adapter must accept two $^{1}/_{4}$-20 threaded bolts and two $^{1}/_{4}$ in., nominal, dowel pins spaced in a square pattern, 31.75 mm (1.250 in.) apart, center-to-center.

NOTE: Clearance dimensions may vary for guns equipped with special nozzles.

3. Gun Connections

See Figure 3-1. This section explains the dispensing gun connections.

Material Supply Line

Install a standard material inlet fitting (90 elbow, JIC-6, $^{9}/_{16}$-18 thread) or swivel connector to the material inlet (7). Contact your Nordson representative for assistance in selecting a swivel connector. Connect the material supply line.

Supply Air

Connect a supply air line to the control air inlet (1). Supply air must be oil-free and maintain a pressure of 4.83 to 8.28 bar (70 to 120 psi).

Gun Control Cable

Connect the gun control cable (3) to the gun control receptacle (2). Route the cable carefully around the robot arm to the controller to avoid damage to the cable.

Controller

Connect the gun control cable (3) to the controller.

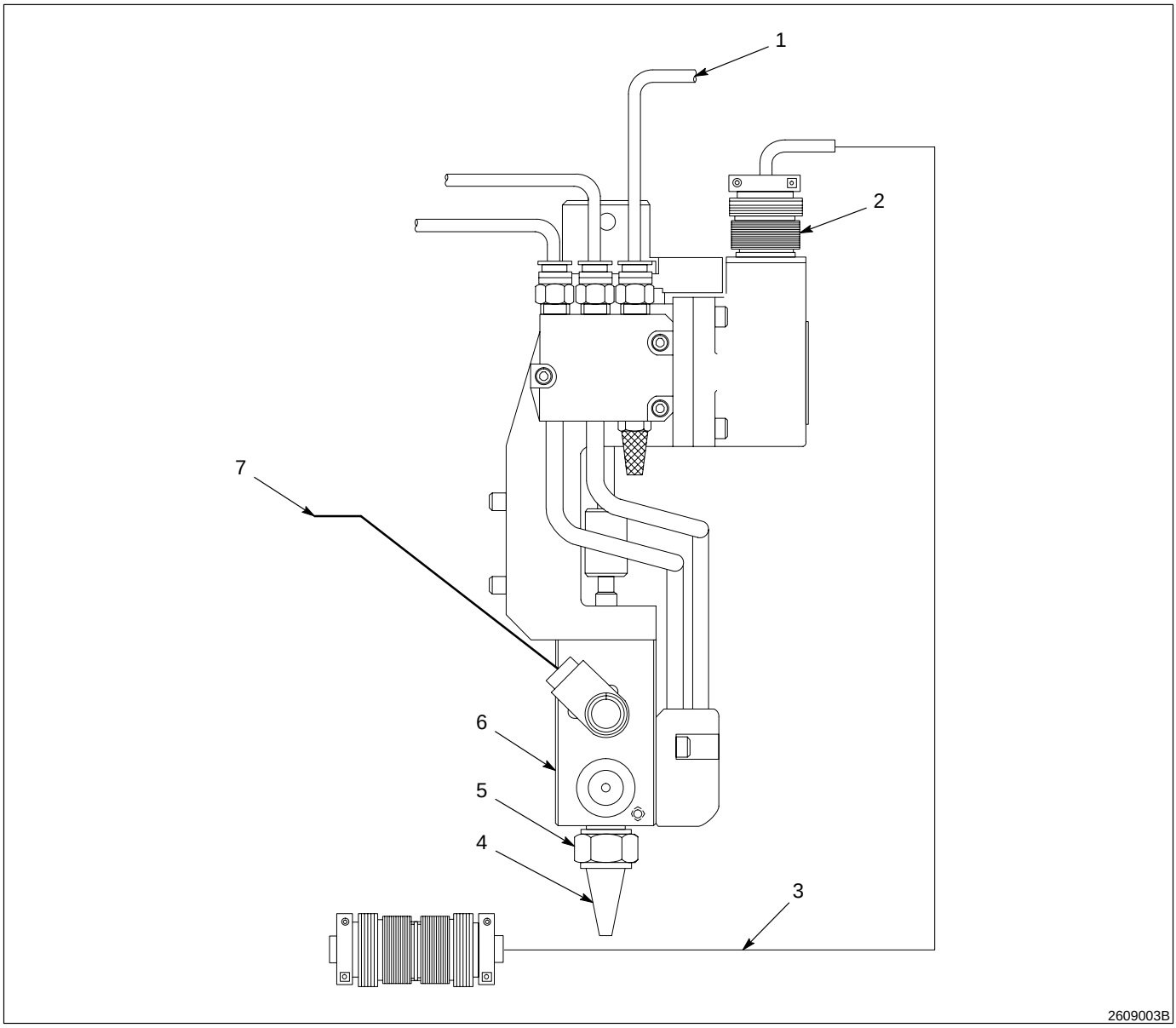

Fig. 3-1 Connection Requirements

1. Control air inlet
2. Gun control receptacle
3. Gun control cable
4. Nozzle
5. Nozzle nut
6. Trimset valve
7. Material inlet

Material Cutoff Module

If your gun is equipped with an MCO, refer to *Installing the MCO* in the *Repair* section.

Heater or Temperature Conditioner

If your gun is equipped with a heater or temperature conditioner, refer to *Heater Installation* in the *Repair* section.

4. Nozzle

Contact a Nordson representative to select the correct nozzle for your application.

Place the nozzle nut (5) over the nozzle (4) and tighten securely to the trimset valve (6).

Section 4

Operation

Section 4
Operation

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

1. Operation

Operation of the Pro-Flo II system dispensing gun is controlled by the Pro-Flo system controller. This section describes the gun purging and pressure transducer calibration pre-production procedures.

Gun Purging

Purge the gun before operation to remove air from the material hose, trimset valve, and nozzle.

Place a material waste container under the gun. Initiate a purge from the Pro-Flo controller or the robot controller. Purge the gun until material flows freely from the nozzle.

Pressure Transducer Calibration

Pro-Flo systems using an analog controller require periodic calibration of the pressure transducer. Calibrate the pressure transducer when a new gun is installed or the pressure transducer or cordset is replaced or modified.

Refer to the *Pro-Flo Analog Controller* manual for pressure transducer calibration procedures.

2. Maintenance

Use the following preventive maintenance schedule to keep the Pro-Flo II dispensing gun operating efficiently.

Daily

1. Check the nozzle for wear. Replace worn nozzle.
2. Check the cable connections. Secure loose cables.

Weekly

1. Check the trimset for leaks at the bonnet. Replace worn trimset.
2. Check the cable connectors. Replace as needed.

Periodically

1. Check the gun mounting. Secure as needed.
2. Check the cables for wear. Replace as needed.
3. Clean the air supply line filter.
4. Remove and clean the pressure transducer. Calibrate the pressure transducer (analog controller only).

Section 5

Troubleshooting

Section 5
Troubleshooting

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

1. Introduction

This section contains troubleshooting procedures. These procedures cover only the most common problems that you may encounter. If you cannot solve the problem with the information given here, contact your local Nordson representative for help.

2. Troubleshooting Chart

Problem	Possible Cause	Corrective Action
1. Gun does not dispense material	Material supply pressure low	Increase the material supply pressure.
	Nozzle blocked	Remove and clean the nozzle.
	Material supply hose blocked	Check and unblock the material supply hose.
2. Gun does not dispense material and does not open	Control air pressure absent or low	Check the supply air pressure. Increase the air pressure if necessary.
	Stem binding	Remove the trimset valve. Check and replace the stem and bonnet, if necessary.
	Actuator malfunctioning	Replace the actuator.
3. Gun does not dispense material but opens fully	Trimset valve blocked	Remove and clean the trimset valve.
4. Gun does not change dispensing rate to control bead size	Cordset damaged	Check the continuity of the cordset. Replace the cordset, if necessary.
	Gun control, or extension cable damaged	Check the continuity and replace the cables, if necessary.
5. Gun does not change dispensing rate to control bead size but opens fully	Pressure transducer in controller malfunctioning	Check the pressure output voltage of the controller board.

Problem	Possible Cause	Corrective Action
6. Gun continues to dispense after cycle; Controller indicates that gun is closed	Control air pressure low	Check the supply air pressure and increase it, if necessary.
	Needle not seating	Purge the gun.
	Stem and trimset valve seats worn	Replace the trimset valve.
7. Dispensing starts late	Gun On signal from robot controller to Nordson controller timed improperly (digital controller only)	Set the proper timing sequence.
	Stem binding (packing bonnet only)	Loosen the bonnet screw.
8. Bead deposition wiggles	Nozzle too high above workpiece	Lower the nozzle.
	Material velocity through nozzle too high	Decrease the bead size or install a larger nozzle.
9. Bead size changes unexpectedly	Nozzle partially blocked	Clean the nozzle.
	Material has exceeded shelf life	Use new material.
10. Material leaks from bonnet	Bonnet worn	Replace the bonnet.
	Packing bonnet screw loose	Tighten the bonnet screw.

Section 6

Repair

Section 6
Repair

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

1. Introduction

This section contains component-specific information about the Pro-Flo II extrude dispensing gun. This section provides the following general repair information:

- Clearing a blocked nozzle
- Clearing a blocked material supply hose
- Removing the gun from the robot

This section also provides repair information for the following gun components:

- Pneumatic actuator
- Air manifold
- Trimset valve
- Bonnet
- Pressure transducer and cordset
- Material cutoff module and special nozzles (optional)
- Heater and temperature conditioner (optional)

2. Clearing a Blocked Nozzle

1. Shut off the air pressure to the drum unloader.
2. Bleed off the residual pressure using the pressure relief valve in the material supply line. The valve is located near the drum unloader.
3. Shut off and lock out all power to the system.
4. See Figure 6-1. Remove the nozzle nut (6) and nozzle (7). Clean the nozzle thoroughly with an appropriate solvent.
5. Install the nozzle and secure in place with the nozzle nut.

2. Clearing a Blocked Nozzle (contd)

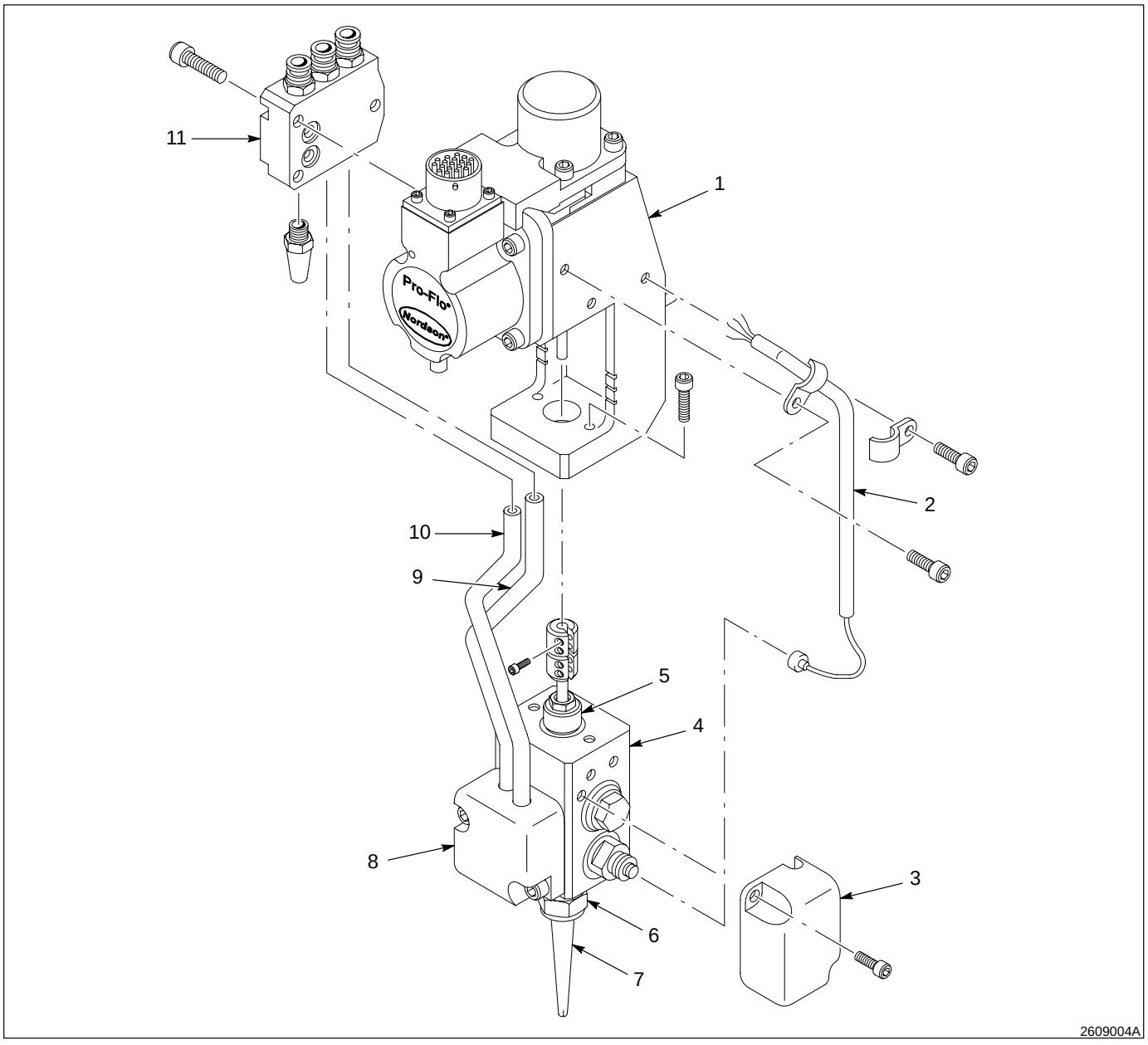

Fig. 6-1 Pro-Flo II Extrude Dispensing Gun Components

1. Actuator assembly
2. Pressure transducer cordset
3. Pressure transducer cover
4. Trimset valve
5. Bonnet
6. Nozzle nut
7. Nozzle
8. MCO housing
9. MCO retract air line
10. MCO extend air line
11. Air manifold

3. Clearing a Blocked Material Supply Hose

When clearing a blocked material supply hose, start at the drum unloader and work toward the gun. Repeat the procedure for each connection in the material supply hose.

1. Shut off the air pressure to the drum unloader.
2. Bleed off the residual pressure using the pressure relief valve in the material supply line. The valve is located near the drum unloader.
3. Disconnect the hose.
4. Turn on the drum unloader and check the flow.
   a. If the flow is good, turn off the drum unloader and relieve the system pressure. Reconnect the hose. Repeat steps 1 through 4 as needed for the next connection.
   b. If the flow is not good, turn off the drum unloader and relieve the system pressure. Remove the hose and clear the blockage or replace. Reconnect the hose.

4. Removing the Gun from the Robot

It may be necessary to remove the gun from the robot for repairs. To remove the gun from the robot, follow these steps:

1. Shut off the drum unloader.
2. Purge the gun to relieve the pressure in the hose and gun.
3. Shut off and lock out all power to the system.
4. See Figure 6-2. Disconnect the material supply hose from the material inlet (3).
5. Mark the control air inlet (1) and disconnect it from the air manifold.
6. If the gun has an MCO, mark and disconnect the MCO retract air (4) and MCO extend air (5) supply lines from the air manifold.
7. Disconnect the gun control cable (2).
8. Remove the two bolts securing the gun to the robot arm adapter.

4. Removing the Gun from the Robot (contd)

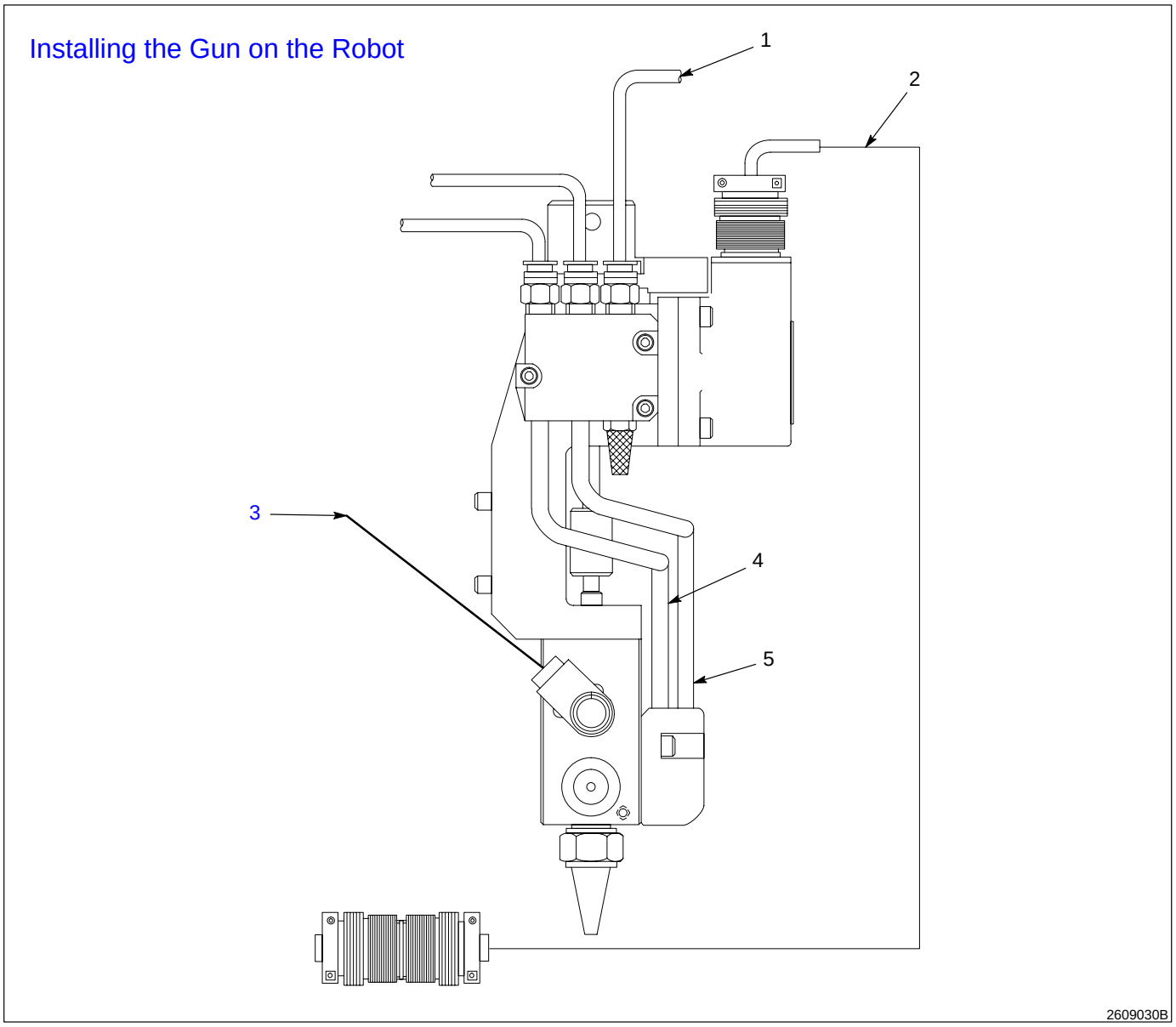

Fig. 6-2 Removing the Gun from the Robot

1. Control air inlet
2. Gun control cable
3. Material inlet
4. MCO retract air supply line
5. MCO extend air supply line

5. Installing the Gun on the Robot

1. See Figure 6-2. Mount the gun on the robot arm adapter. Secure with the two screws.
2. Connect the material supply hose to the material inlet (3) on the gun.
3. Connect the gun control cable (2) to the gun.
4. Connect the control air supply line to the air manifold control air inlet (1).
5. If the gun has an MCO, connect the MCO retract air (4) and extend air (5) supply lines to the air manifold.
6. Turn on the drum unloader and check for leaks in the hose and fittings.
7. Purge the gun to remove air from the hoses and gun.

6. Pneumatic Actuator

This section includes repair procedures for the Pro-Flo II extrude dispensing gun pneumatic actuator assembly.

To replace the actuator assembly, follow the instructions for removing and installing the actuator.

NOTE: Your gun may be equipped with optional components such as an MCO, heater, or temperature conditioner. Refer to the appropriate section for assembly/disassembly information.

Removing the Actuator

1. See Figure 6-3. Remove the gun from the robot. Refer to *Removing the Gun from the Robot.*

2. Loosen the screws and remove the pressure transducer cover (5) and unplug the cordset (4).

3. Remove the screws that hold the air manifold (9) on the actuator body (1). Remove the air manifold and O-rings (8).

NOTE: If the gun is equipped with an MCO or special nozzle, remove the retract and/or extend air supply lines from the MCO housing or nozzle.

4. Loosen the screws and remove the spring cover (10).

5. Loosen the set screws that hold the cordset wires to the terminal block (11). Remove the wires.

6. Loosen the screws and remove the cordset clamps (3).

7. Loosen the two upper screws (7) in the coupling assembly.

NOTE: For packing bonnets, loosen the bonnet screw.

8. Loosen the screws (2) and remove the actuator from the trimset valve (6).

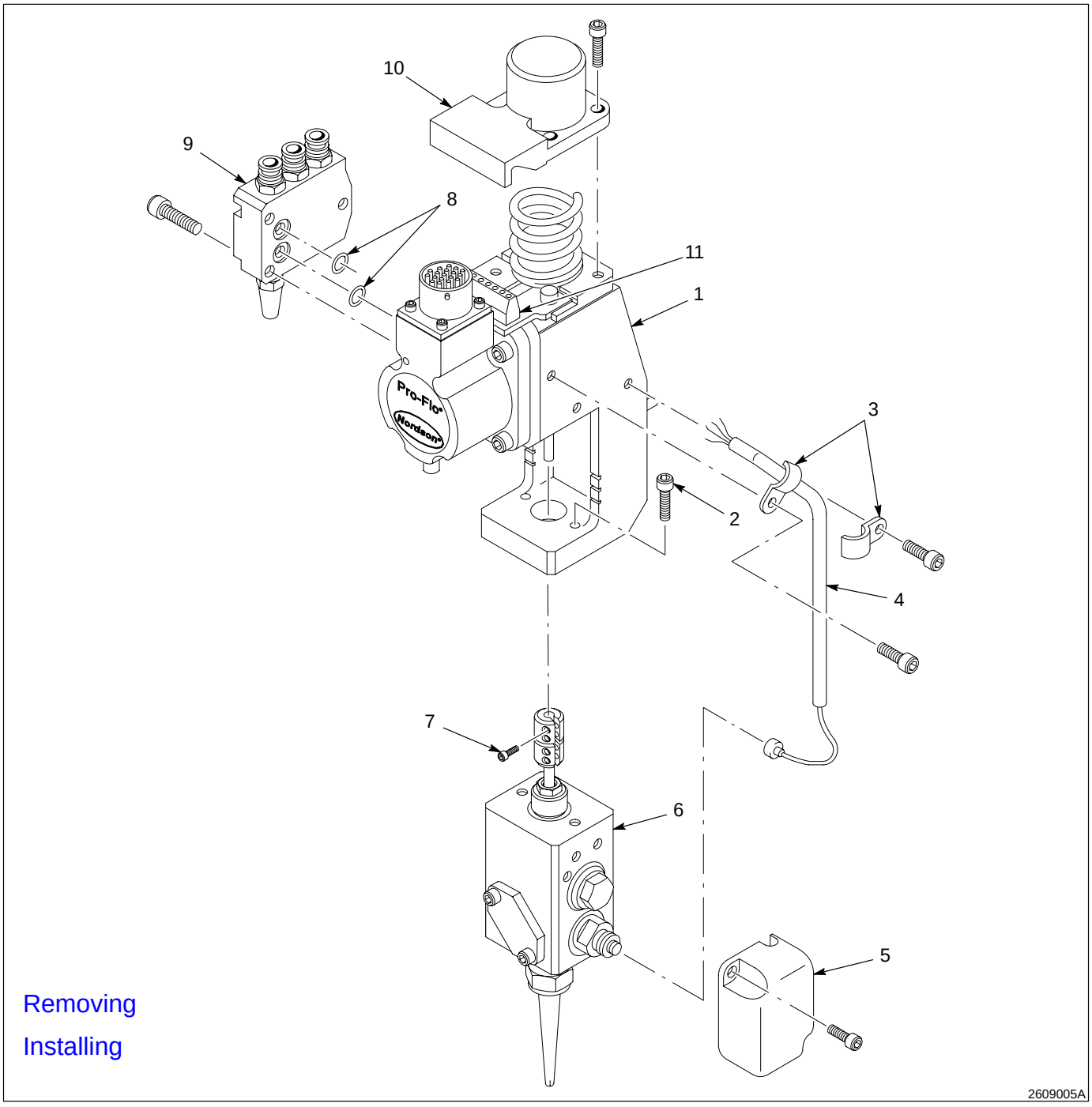

Fig. 6-3 Removing the Actuator Assembly

1. Actuator body
2. Screw
3. Clamps
4. Cordset
5. Pressure transducer cover
6. Trimset valve
7. Screw
8. O-rings
9. Air manifold
10. Spring cover
11. Terminal block

Installing the Actuator

1. See Figure 6-3. Remove the two upper screws (7) from the coupling assembly and place a small drop of thread lock adhesive on the threads.
2. Fully seat the actuator assembly stem into the coupling assembly. Tighten the coupling assembly screws.
3. Align the trimset valve (6) on the actuator body (1) and tighten the screws (2).
4. Attach the cordset (4) to the actuator body (1) and loosely tighten the cordset clamp (3) screws.
5. Attach the cordset (4) to the set screws on the terminal block (11). (See Figure 6-4 for the wiring diagram).
6. Loosely install the spring cover (10).
7. Connect the cordset plug to the pressure transducer. Replace the pressure transducer cover (5).
8. Adjust the position of the cordset (4) and tighten the cordset clamps (3) and the spring cover (10).
9. Replace the O-rings (8) and secure the air manifold (9) to the actuator body (1).
10. Install the gun on the robot. Refer to *Installing the Gun on the Robot.*

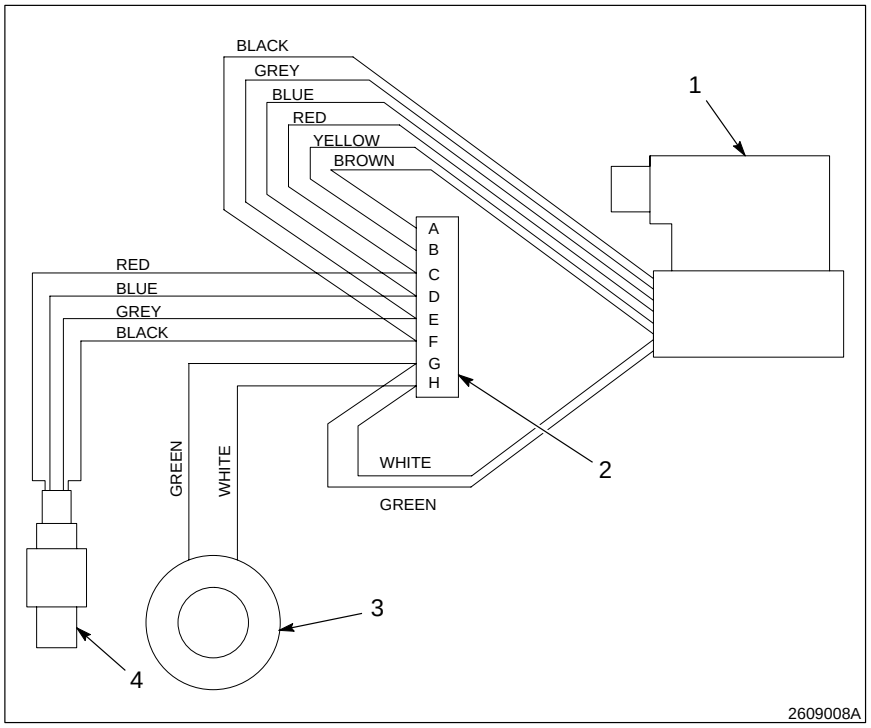

Fig. 6-4 Cordset Wiring

1. Gun
2. Terminal block
3. Coil
4. Pressure transducer

7. Air Manifold

The following section provides repair procedures for the Pro-Flo II extrude dispensing gun air manifold.

Removing the Air Manifold

1. Remove the gun from the robot. Refer to *Removing the Gun from the Robot.*

2. See Figure 6-5. Loosen the screws (4) securing the air manifold (5) to the actuator body and remove the air manifold.

3. If your gun is equipped with an optional material cutoff module or special nozzle:

   a. Mark and remove the material cutoff (MCO) or special nozzle extend air lines (6).

   b. Mark and remove the retract air lines (7). Keep the air lines with the MCO housing or the nozzle.

   c. Remove the air line O-rings (8).

Removing the Air Manifold
(contd)

4. Remove the O-rings (2).

5. Remove and replace the muffler (3) and air tube connectors (1) if necessary.

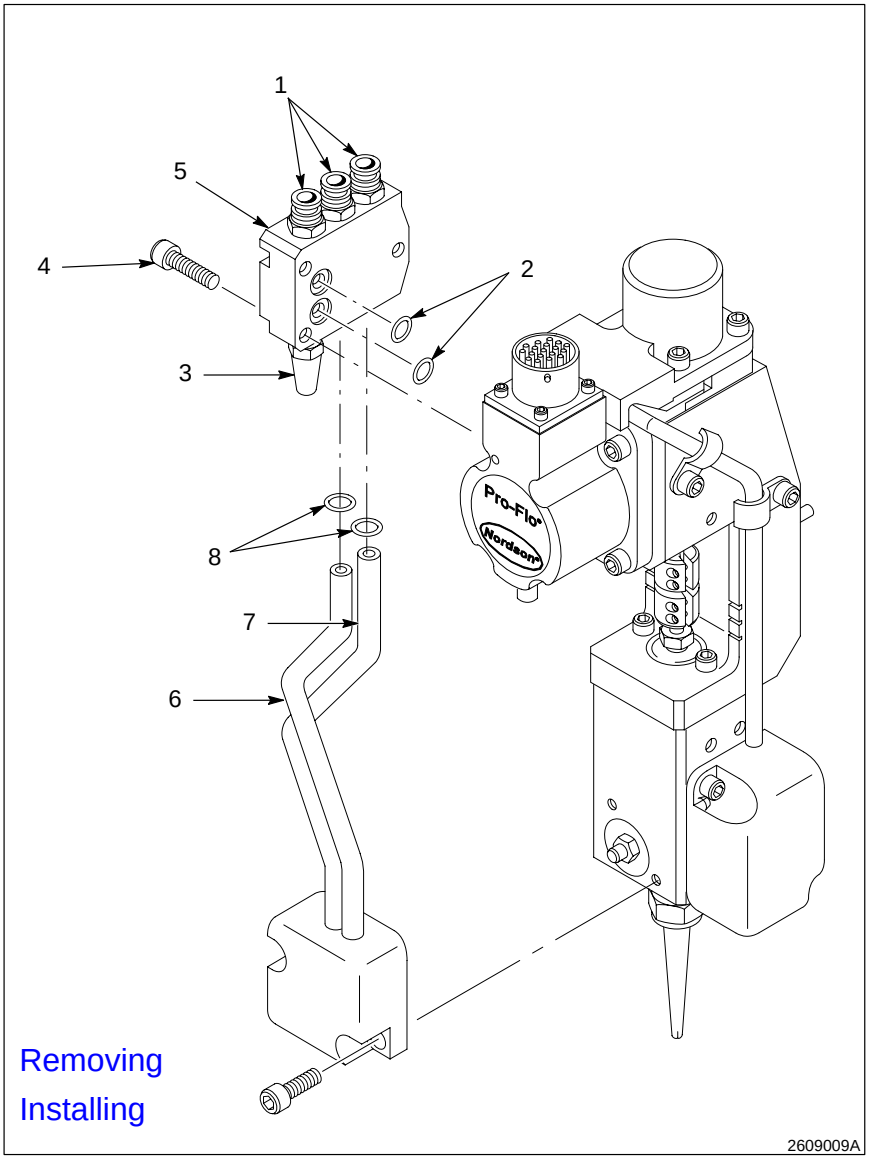

Fig. 6-5 Air Manifold

1. Air tube connectors
2. O-rings
3. Muffler
4. Screw
5. Air manifold
6. MCO extend air line
7. MCO retract air line
8. Air line O-rings

Installing the Air Manifold

1. See Figure 6-5. Install the muffler (3) and air tube connectors (1) on the air manifold (5).
2. Install new O-rings (2) and align the air manifold (5) on the actuator body.
3. If your gun is equipped with an optional material cutoff module or special nozzle:
   a. Install new O-rings (8).
   b. Insert the extend (6) and retract (7) air lines in the air manifold (5).
4. Insert the screws (4) in the air manifold (5) and tighten to the actuator.
5. Install the gun on the robot. Refer to *Installing the Gun on the Robot*.

8. Trimset Valve

The following section provides repair procedures for the Pro-Flo II extrude dispensing gun trimset valve, including procedures for removing and installing the trimset valve.

Removing the Trimset Valve

1. Remove the gun from the robot. Refer to *Removing the Gun from the Robot.*
2. See Figure 6-6. Loosen the two lower screws (21) in the coupling assembly (22).
3. Loosen the screws (8) and remove the pressure transducer cover (7). Disconnect the cordset plug (2).
4. Loosen the screws (23) that hold the trimset valve (20) to the actuator (1) and remove the trimset valve.
5. Remove the MCO plug (14), the pressure transducer (9), plugs (6, 17), swivel lock (18), nozzle (12), nozzle nut (11), material supply inlet, and all O-rings (5, 10, 15, 16) from the trimset valve.

NOTE: If applicable, remove the MCO, special nozzle, heater, or temperature conditioner from the trimset valve. Refer to the appropriate sections.

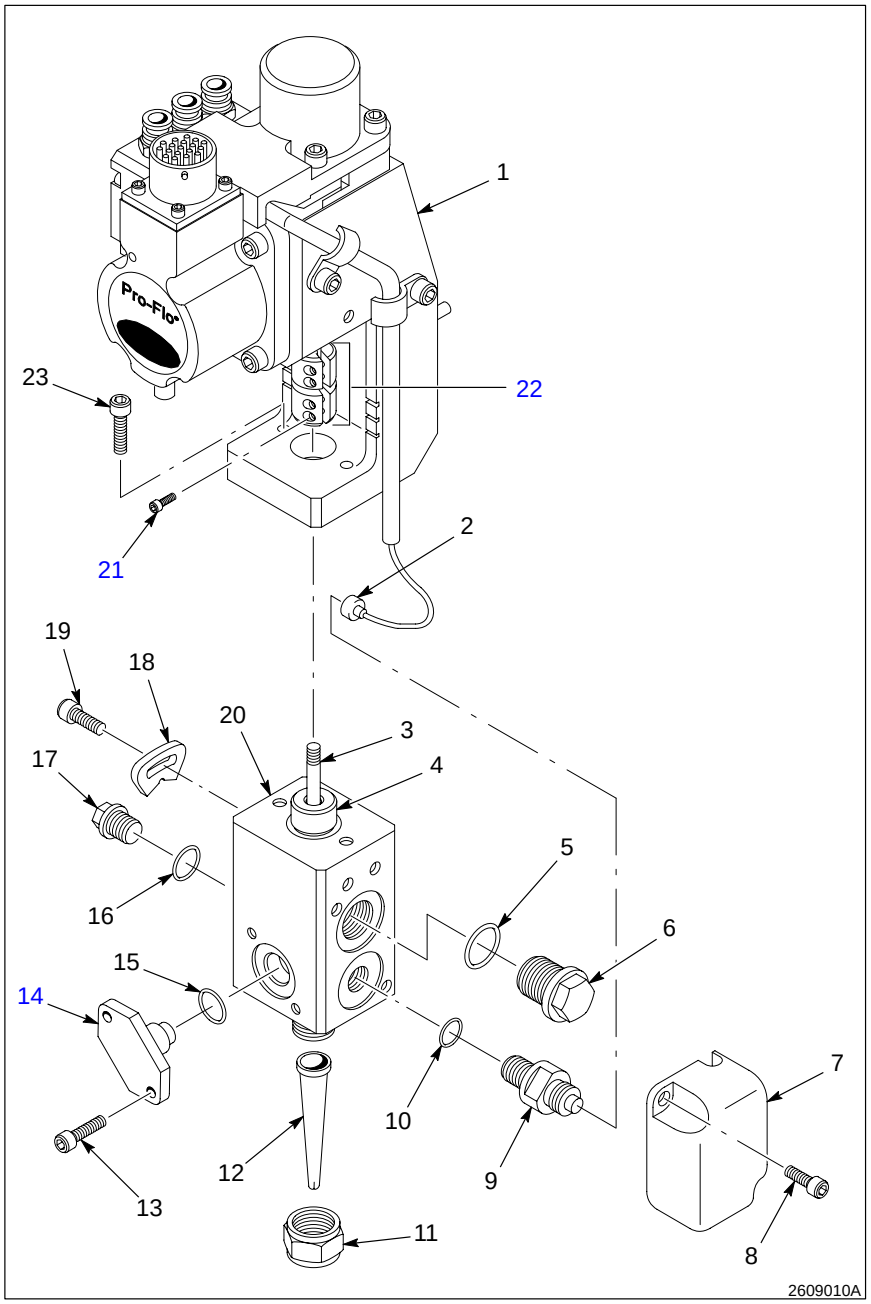

Fig. 6-6 Removing the Trimset Valve

1. Actuator
2. Cordset plug
3. Stem
4. Bonnet
5. O-ring
6. Plug
7. Pressure transducer cover
8. Screw
9. Pressure transducer
10. O-ring
11. Nozzle nut
12. Nozzle
13. Screw
14. MCO plug
15. O-ring
16. O-ring
17. Plug
18. Swivel lock
19. Screw
20. Trimset valve
21. Screw
22. Coupling assembly
23. Screw

Installing the Trimset Valve

1. See Figure 6-6. Install the MCO plug (14), the pressure transducer (9), plugs (6, 17), swivel lock (18), nozzle (12), nozzle nut (11), material supply inlet, and all O-rings (5, 10, 15, 16) in the trimset valve (20).

NOTE: If applicable, install the MCO, special nozzle, heater, or temperature conditioning option on the trimset valve. Refer to the appropriate sections.

2. Install the trimset valve (20) on the actuator (1). Insert the stem (3) in the coupling assembly (22) with the stem fully seated against the actuator plunger. Tighten the stem coupling screws (21).

3. Tighten the screws (23) to secure the trimset valve (20) to the actuator (1).

4. Connect the cordset plug (2) to the pressure transducer (9).

5. Replace the pressure transducer cover (7) and tighten the screws (8).

6. Install the gun on the robot. Refer to *Installing the Gun on the Robot.*

9. Bonnet

The following section provides repair procedures for the Pro-Flo extrude dispensing gun bonnet.

The bonnet is installed in the gun's trimset valve. To replace the bonnet, the trimset valve must be removed, the bonnet replaced, and the trimset valve installed.

Removing the Trimset Valve

1. Remove the gun from the robot. Refer to *Removing the Gun from the Robot.*

2. See Figure 6-7. Loosen the screws (6) and remove the pressure transducer cover (5) and disconnect the cordset plug (7).

3. Loosen the screws (2) that hold the trimset valve (8) to the actuator assembly (1) and remove the trimset valve. The stem (3) stays with the actuator assembly.

NOTE: If the gun has an MCO or special nozzle, remove the extend and retract air lines from the MCO housing or nozzle.

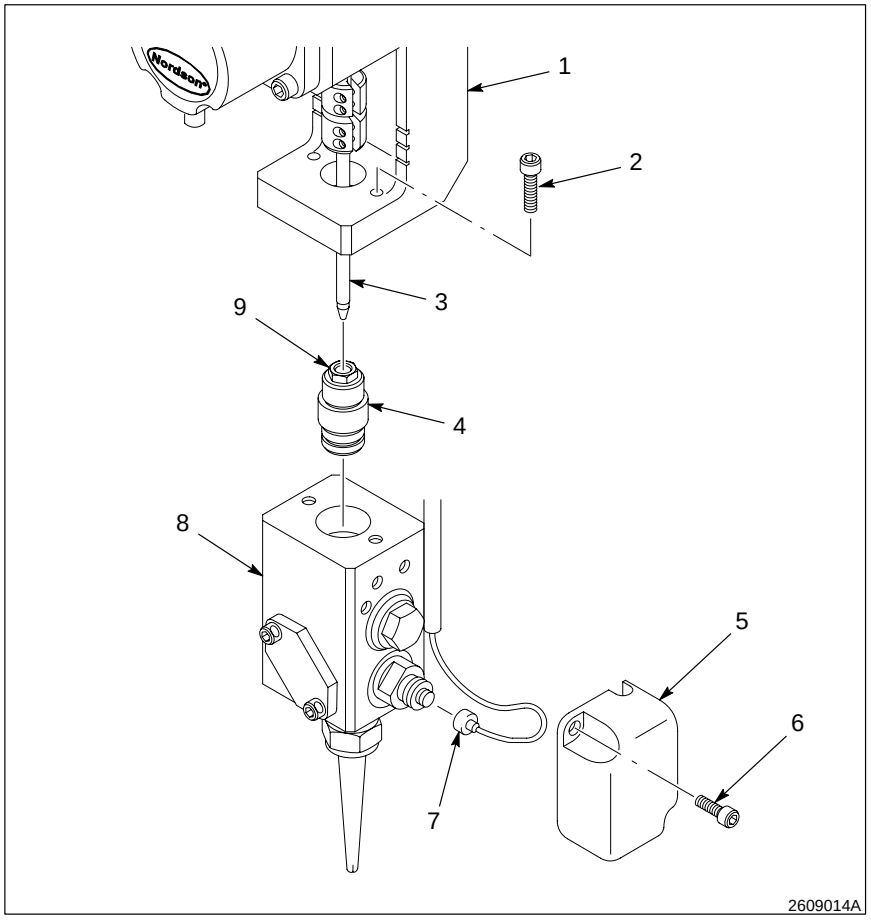

Fig. 6-7 Bonnet Removal

1. Actuator assembly
2. Screw
3. Stem
4. Bonnet
5. Pressure transducer cover
6. Screw
7. Cordset plug
8. Trimset valve
9. Bonnet screw

Replacing the Bonnet

1. See Figure 6-7. Remove the bonnet (4) from the trimset valve (8).
2. Coat the O-rings on the new bonnet with lubricant and install the bonnet in the trimset valve. Be sure it is fully seated.
3. If equipped with a packing bonnet, loosen the bonnet screw (9).

Installing the Trimset Valve

1. See Figure 6-7. Place the trimset valve (8) on the actuator assembly (1) and tighten the screws (2).
2. Connect the cordset plug (7).
3. Replace the pressure transducer cover (5) and tighten the screws (6).
4. If equipped with a packing bonnet, tighten the bonnet screw (9) finger tight.

NOTE: If the gun leaks around the stem during operation, tighten the bonnet screw $^1/_4$ turn beyond finger tight. Do not tighten the bonnet screw more than $^1/_2$ turn.

5. Install the gun on the robot. Refer to *Installing the Gun on the Robot.*

10. Pressure Transducer and Cordset

This section provides the following repair information about the Pro-Flo II extrude dispensing gun pressure transducer and cordset:

- replacing the pressure transducer
- replacing the cordset
- changing the cordset orientation
- checking cable continuity

Replacing the Pressure Transducer

See Figure 6-8. The pressure transducer is available in several pressure ratings. Refer to the *Parts* section for the part corresponding to your pressure transducer.

1. Loosen the screws (4) and remove the pressure transducer cover (3).
2. Disconnect the cordset plug (5).
3. Remove the pressure transducer (2) and O-ring (1).
4. Install a new O-ring coated with lubricant.
5. Install and tighten the new pressure transducer.
6. Connect the cordset plug.
7. Replace the pressure transducer cover and secure it with the screws.

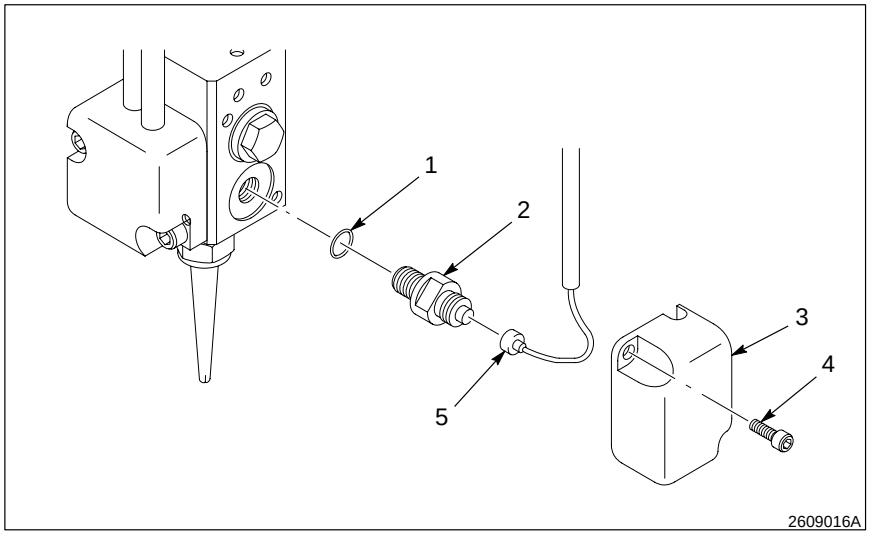

Fig. 6-8 Replacing the Pressure Transducer

1. O-ring
2. Pressure transducer
3. Pressure transducer cover
4. Screw
5. Cordset plug

Replacing the Cordset

1. Remove the gun from the robot. *Refer to Removing the Gun from the Robot.*
2. See Figure 6-9. Loosen the screws (1) and remove the spring cover (2).
3. Loosen the set screws on the terminal block (3) and remove the cordset (7) and its wires.
4. Loosen the screws (11) and remove the pressure transducer cover (10).
5. Unplug the cordset from the pressure transducer (12).
6. Loosen the screws (9) and remove the cordset clamps (8).
7. Install the wires of the new cordset in the proper terminal block (3) slots and tighten the screws.
8. Mount the new cordset and loosely install the cordset clamps and screws.
9. Connect the cordset plug to the pressure transducer and replace the pressure transducer cover and screws.
10. Replace and tighten the spring cover and screws.
11. Align the cordset and tighten the cordset clamps.

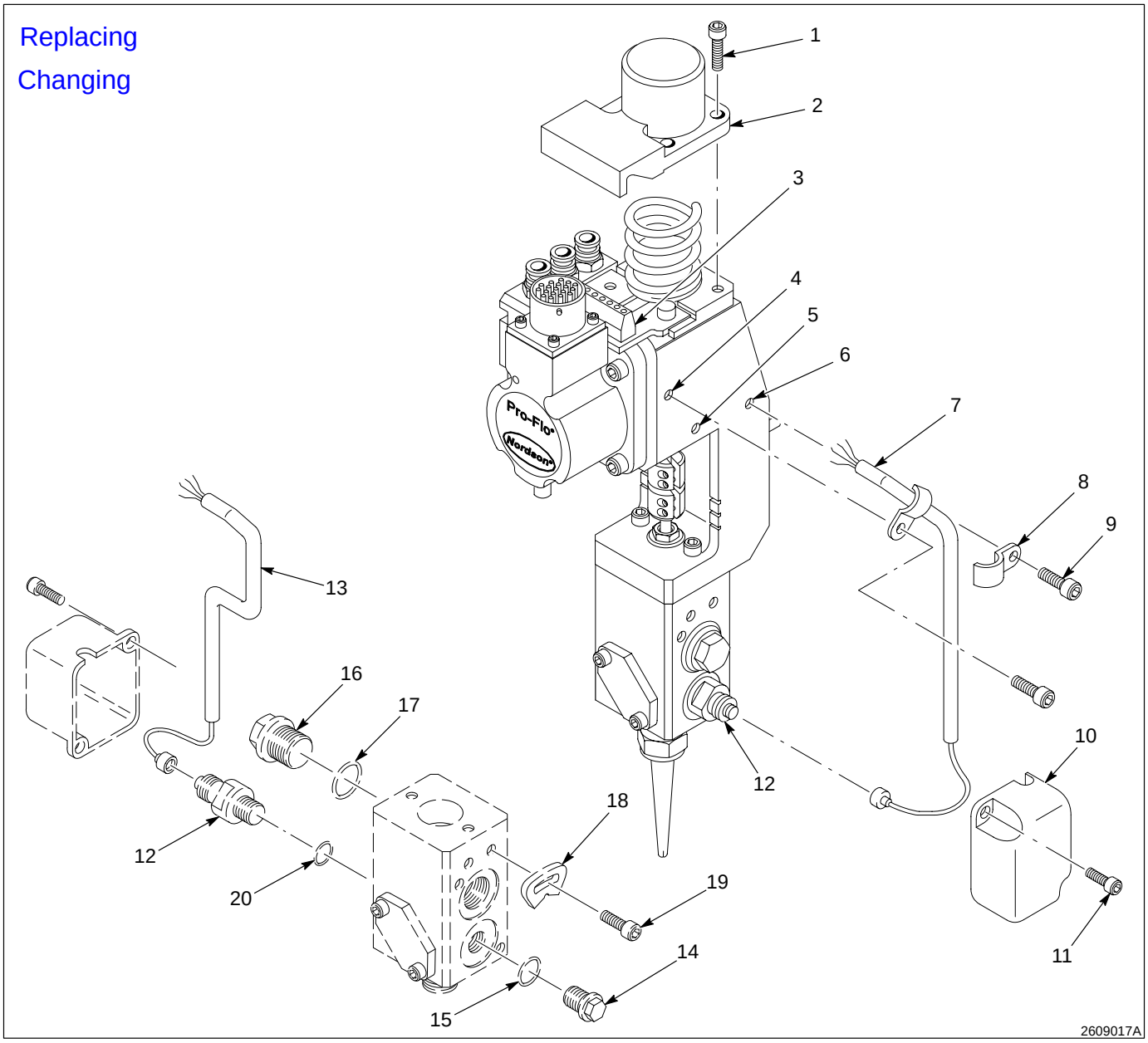

Fig. 6-9 Pressure Transducer Cordset

1. Screw
2. Spring cover
3. Terminal block
4. Mounting hole for left- and right-handed cordset
5. Mounting hole for left-handed cordset
6. Mounting hole for right-handed cordset
7. Cordset
8. Clamp
9. Screw
10. Pressure transducer cover
11. Screw
12. Pressure transducer
13. Left-handed cordset
14. Trimset plug
15. O-ring
16. Trimset plug
17. O-ring
18. Swivel lock
19. Screw
20. O-ring

Changing the Cordset Orientation

The pressure transducer cordset is available in a right- and left-hand orientation. Use the following steps to change from one orientation to the other.

1. Remove the gun from the robot. Refer to *Removing the Gun from the Robot.*
2. See Figure 6-9. Loosen the screws (1) and remove the spring cover (2).
3. Loosen the set screws on the terminal block (3) and remove the cordset (7) and its wires.
4. Loosen the screws (11) and remove the pressure transducer cover (10).
5. Unplug the cordset from the pressure transducer (12).
6. Loosen the screws (9) and remove the cordset clamps (8).
7. Loosen and remove the trimset plugs (14,16), swivel lock (18), material supply fitting, and pressure transducer (12) from one side of the gun and replace on the opposite side of the gun.
8. Install the wires of the new cordset in the proper terminal block slots and tighten the set screws.
9. Mount the new cordset and loosely install the cordset clamps and screws.
10. Connect the cordset plug to the pressure transducer and replace the pressure transducer cover and screws.
11. Replace and tighten the spring cover (2) and screws (1).
12. Align the left-handed cordset (13) and tighten the cordset clamps.

Checking Cable Continuity

1. See Figure 6-10 and refer to Table 6-1. Remove the pressure transducer cover and unplug the cordset.
2. Disconnect the gun control cable from the gun.
3. Using an ohmmeter, check the continuity of each wire from the cordset plug to the gun control cable receptacle.
4. Replace the cordset if the wiring is not continuous.

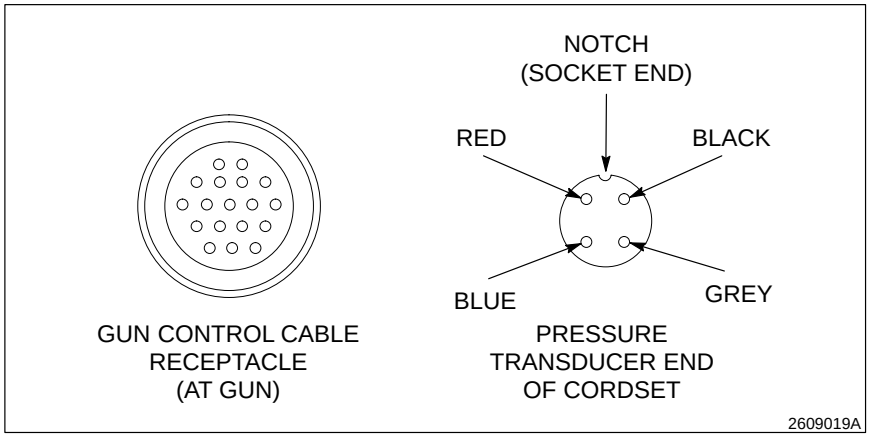

Fig. 6-10 Wiring Continuity

Table 6-1 Wire Connections on Cordset

Gun control cable receptacle pin	Pressure transducer cordset plug	Wire color
K	45 counterclockwise from notch	Red
M	135 counterclockwise from notch	Blue
L	135 clockwise from notch	Gray
J	45 clockwise from notch	Black

11. Material Cutoff Module

The following section provides repair procedures for the Pro-Flo II extrude dispensing gun material cutoff module (MCO).

The material cutoff module is an optional component of the Pro-Flo II extrude dispensing gun. It provides precise cutoff of dispensed materials in Pro-Flo system applications.

The following paragraphs are instructions for installing or replacing the material cutoff module, including removing the MCO plug, removing an existing MCO, and installing a new MCO.

Removing the MCO Plug

To install an MCO for the first time, follow these steps to remove the MCO plug:

1. See Figure 6-11. Loosen the screws (1) in the MCO plug (2).

2. Remove the plug and O-ring from the trimset valve.

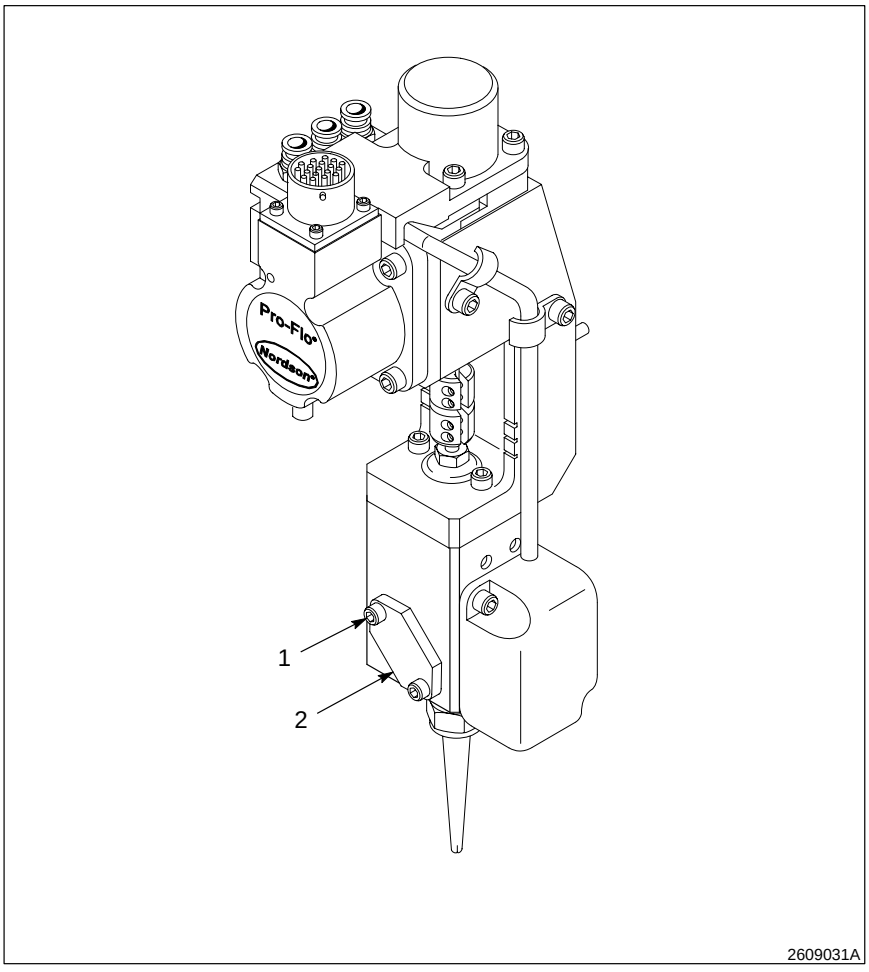

Fig. 6-11 MCO Plug

1. Screw
2. Plug

Removing the MCO

1. Remove the gun from the robot. Refer to *Removing the Gun from the Robot.*
2. See Figure 6-12. Remove the screws securing the air manifold (1) to the actuator body. Remove the air manifold from the actuator.
3. Mark the extend (13) and retract air lines (14) and remove them and the O-rings (3) from the air actuator.
4. Loosen the screws and remove the MCO housing (12). Remove the piston (7) from the trimset. Remove the MCO seal (4).
5. Remove dispensing material from the trimset cavity using a clean, lint-free cloth.

Removing the MCO *(contd)*

Removing

Installing

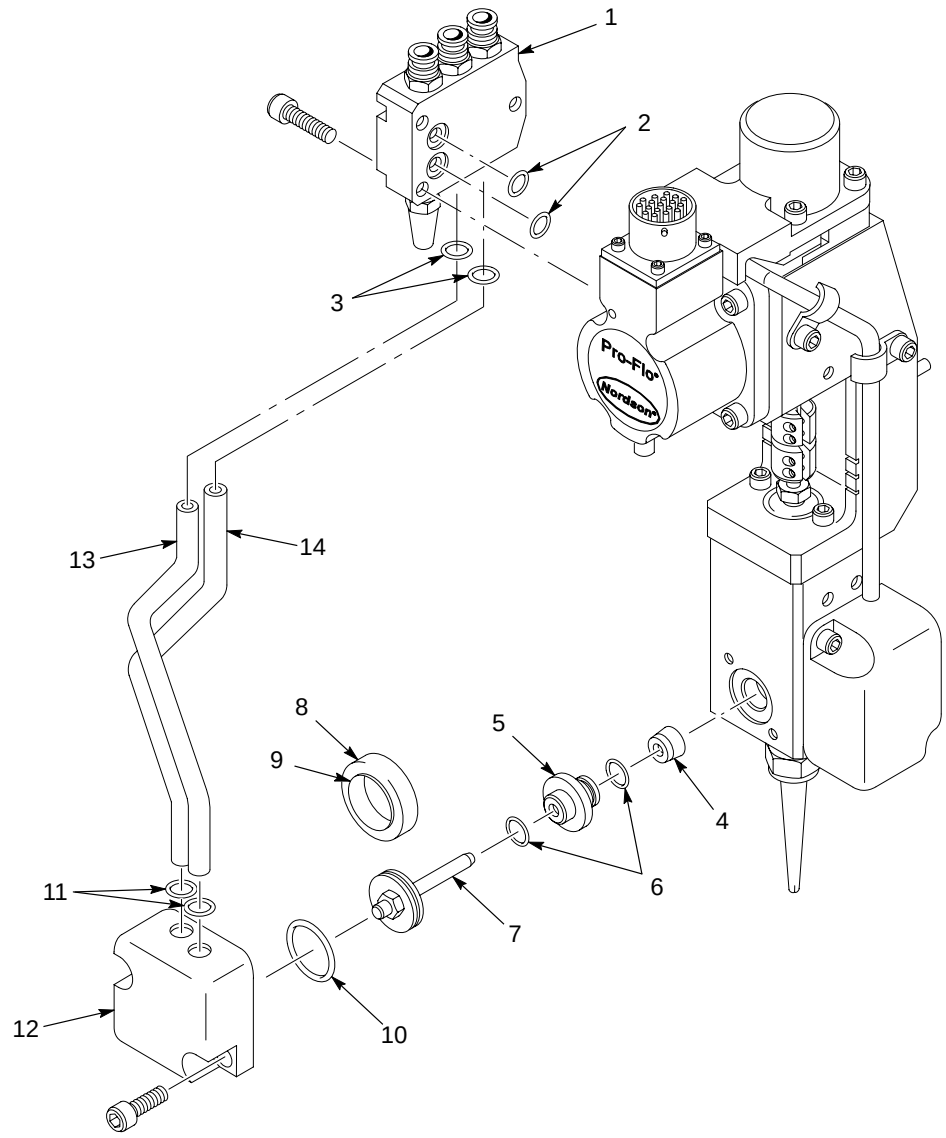

Fig. 6-12 Installing the MCO Assembly

1. Air manifold
2. Manifold O-rings
3. Air line O-rings
4. MCO seal
5. Seal housing
6. O-rings
7. Piston
8. Piston seal forming tool
9. Ramped end of tool
10. O-ring
11. Air line O-rings
12. MCO housing
13. MCO extend air line
14. MCO retract air line

Installing the MCO

1. See Figure 6-12. Install the MCO seal (4) in the trimset with the flared edge inward.

2. Place the O-rings (6) on the seal housing (5) and install the seal housing in the trimset.

3. Remove the piston (7) from the piston seal forming tool (8) and coat the seals and shaft with lubricant.

4. Insert the piston in the ramped end (9) of the piston seal forming tool so the seals are not folded.

5. Hold the ramped end of the piston seal forming tool against the bore of the MCO housing (12). Push the piston until it enters the bore. If the seals pinch, add more lubricant and insert again.

6. Tighten the screws securing the MCO housing on the trimset valve.

7. Coat both ends of the extend (13) and retract (14) air lines with lubricant. Coat the air manifold O-rings (2) and air line O-rings (3, 11) with lubricant, and with the O-rings in place, insert the air lines in the air manifold (1) and MCO housing (12).

8. Be sure the air manifold O-rings (2) are in place and tighten the screws securing the air manifold to the actuator.

9. See Figure 6-13. Make the necessary connections for the extend air supply line (1) and the retract air supply line (2) to the MCO from the MCO solenoid valve (3). Install the MCO control air inlet (6) and connect the MCO cable (5) to the gun control cable (4).

Installing the MCO (contd)

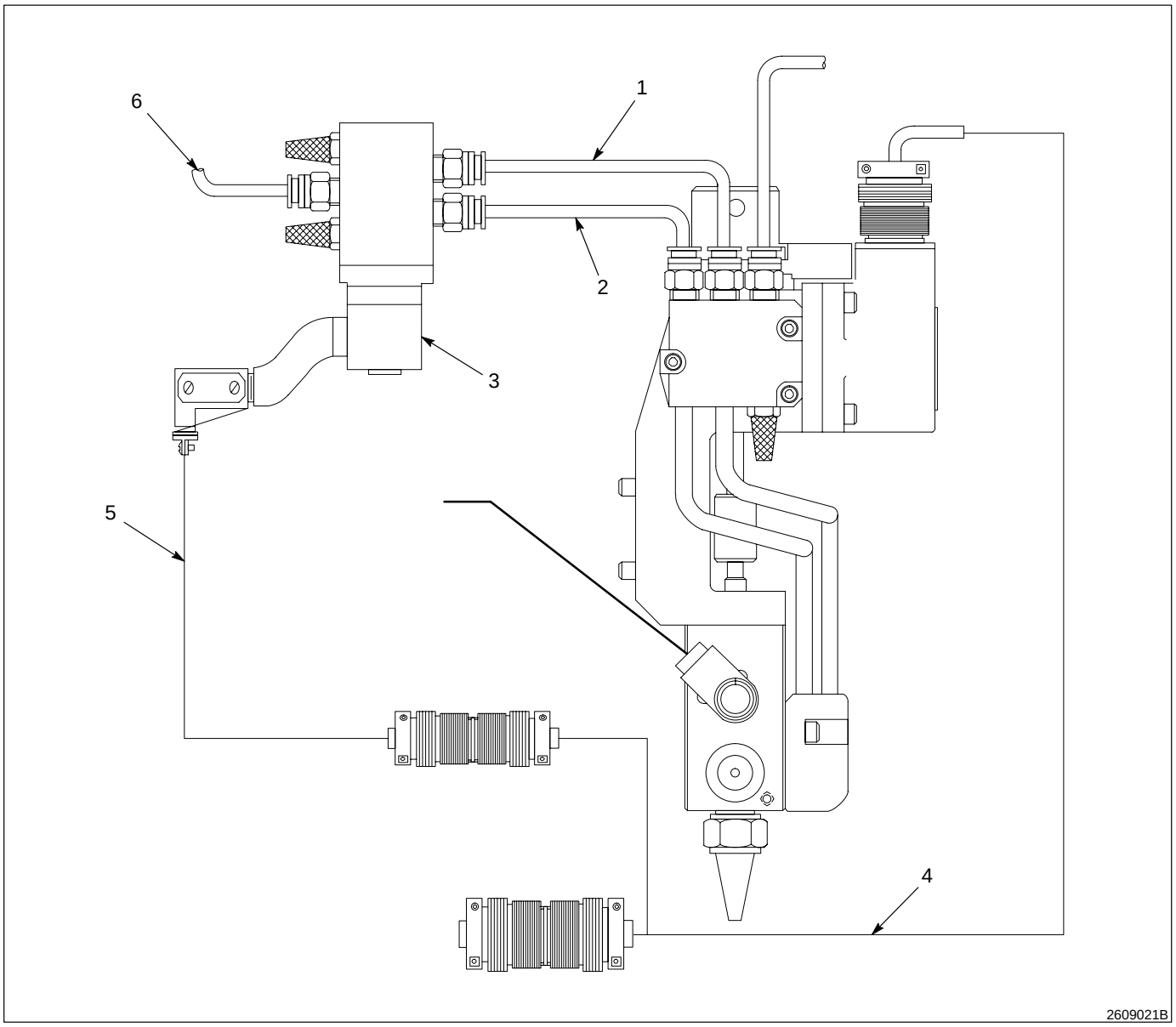

Fig. 6-13 MCO Cable Connections

1. Extend air supply line
2. Retract air supply line
3. MCO solenoid valve
4. Gun control cable
5. MCO cable
6. MCO control air inlet

12. Heater and Temperature Conditioner

This section provides information about the Pro-Flo extrude dispensing gun heater and the Pro-Flo II extrude dispensing gun temperature conditioner. The heater is available in 120 and 240 Volt line voltages.

Heater Installation

Perform the following steps to install the heater:

1. Remove the gun from the robot. Refer to *Removing the Gun from the Robot.*
2. See Figure 6-14. Align the heater (1) on the trimset valve and tighten the screws (2).
3. Attach the heater cable to the heater receptacle (3). See Figure 6-15 for the receptacle wiring diagram.
4. Install the gun on the robot. Refer to *Installing the Gun on the Robot.*

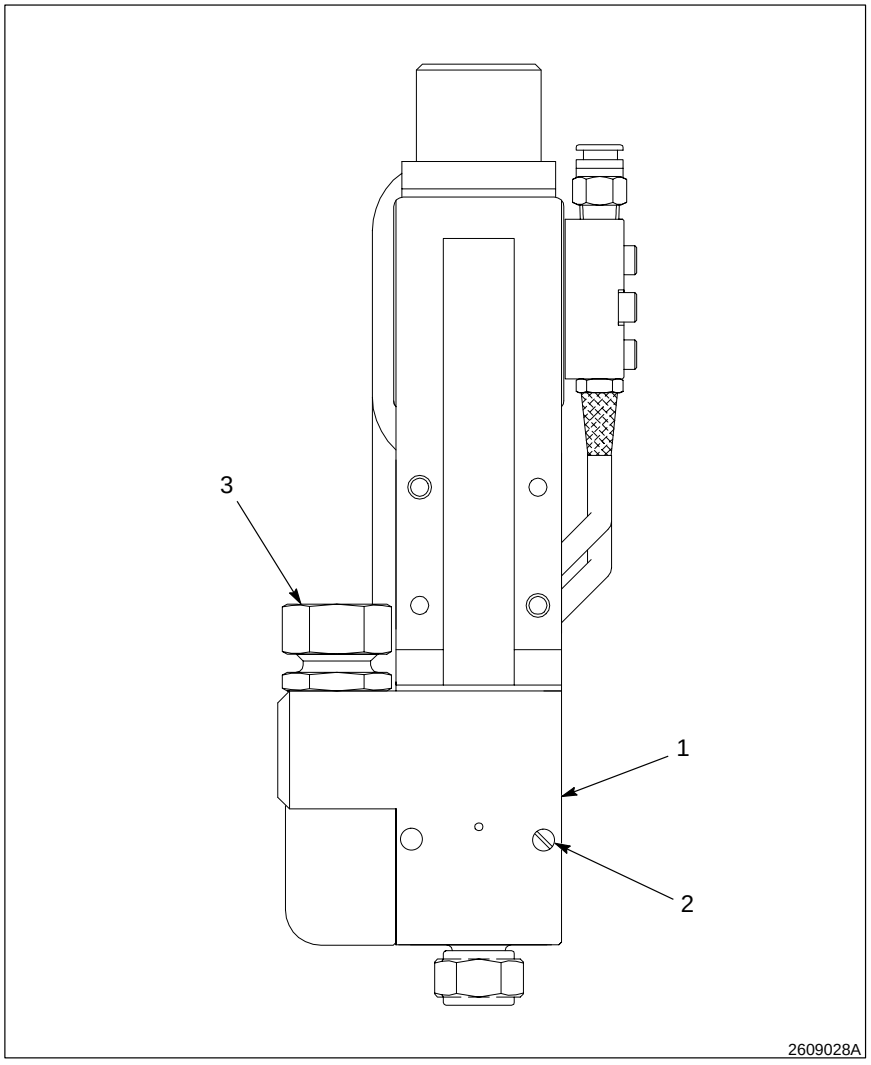

Fig. 6-14 Heater

1. Heater
2. Screw
3. Receptacle

Heater Installation *(contd)*

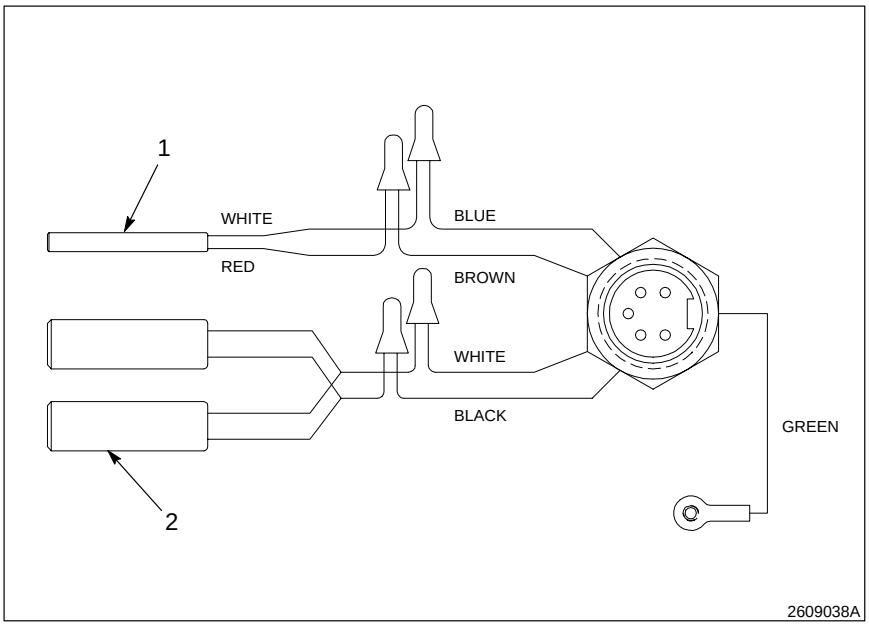

Fig. 6-15 Heater Wiring Diagram

1. Sensor RTD
2. Heater

Temperature Conditioner Installation

1. Remove the gun from the robot. Refer to *Removing the Gun from the Robot.*
2. See Figure 6-16. Align the temperature conditioner manifold (1) on the trimset valve and tighten the screws (2).
3. Install the gun on the robot. Refer to *Installing the Gun on the Robot.*
4. Connect the water supply from the temperature controller to the in and out water supply connections (3).

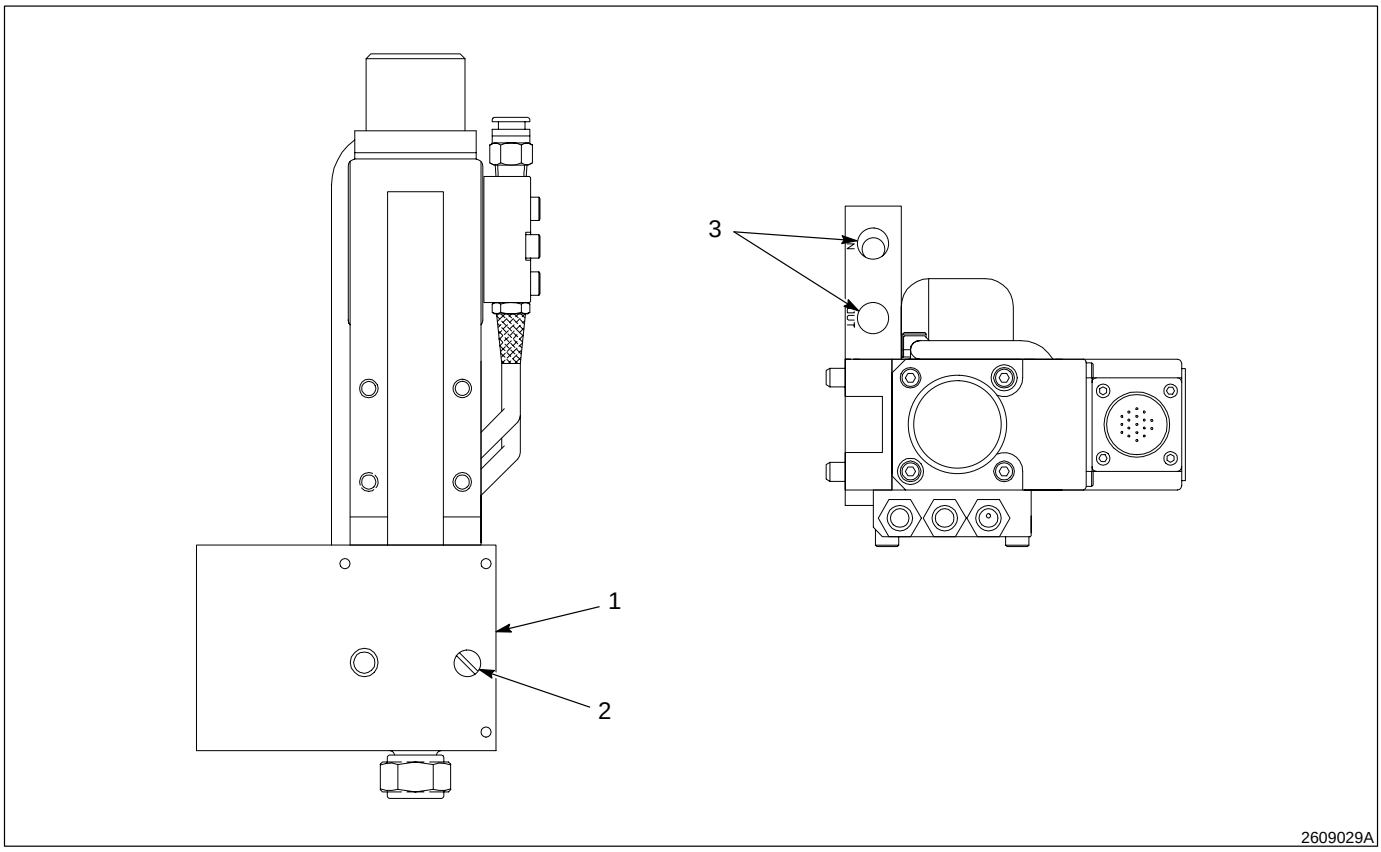

Fig. 6-16 Temperature Conditioner

1. Temperature conditioner manifold
2. Screw
3. Water supply connections

Section 7

Parts

Section 7
Parts

1. Introduction

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

Using the Illustrated Parts List

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

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

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

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

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

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

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

2. Air Manifold

See Figure 7-1.

Item	Part	Description	Quantity	Note
1	972 716	Connector, $^1/_4$ OD x $^1/_8$ NPT air tube	3	
2	940 101	O-ring, 0.239 ID x 0.070 w	2	A
3	241 040	Muffler, air $^1/_8$ NPT	1	B
4	982 028	Screw, socket, M5 x 20	3	
5	152 388	Manifold, air	1	

NOTE A: Apply lubricant, part 900 349.
B: Apply sealant, part 900 236.

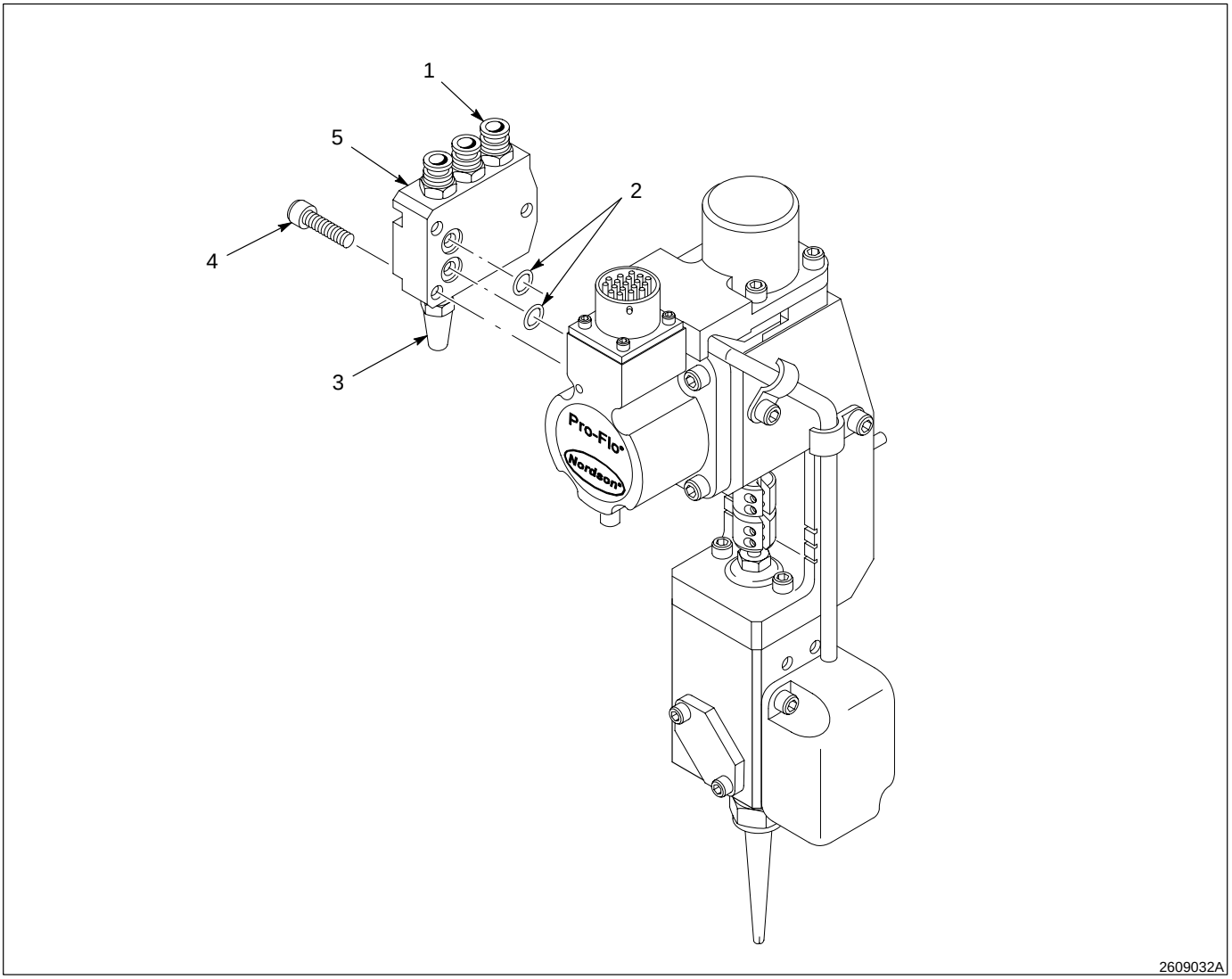

Fig. 7-1 Air Manifold

3. Pneumatic Actuator

See Figure 7-2.

Item	Part	Description	Quantity	Note
—	152 513	Service kit, pneumatic actuator	1	
1	- - - - - -	• Screw, socket, M5 x 16	6	B
2	987 071	• Spring, compression, 1.25 x 1.10 x 0.082	1	
3	- - - - - -	• Board, with junction block	1	
4	- - - - - -	• Body, actuator	1	
5	- - - - - -	• Clamp, tube, Pro-Flo	2	
6	- - - - - -	• Screw, #1	2	B
7	940 101	• O-ring, Viton, 0.239 ID x 0.070 w	4	A
8	982 028	• Screw, socket, M5 x 20	4	B
9	- - - - - -	• Valve, servo	1	
10	- - - - - -	• Cover, spring, Pro-Flo	1	
NS	221 849	Kit, velocity/position transducer	1	C

NOTE A: Apply lubricant, part 900 349.

B: Apply anti-seize compound, part 900 341.

C: The velocity/position transducer kit is required to update PFE guns built before June 1995 to be used with Pro Flo II controller.

NS: Not Shown

3. Pneumatic Actuator
(contd)

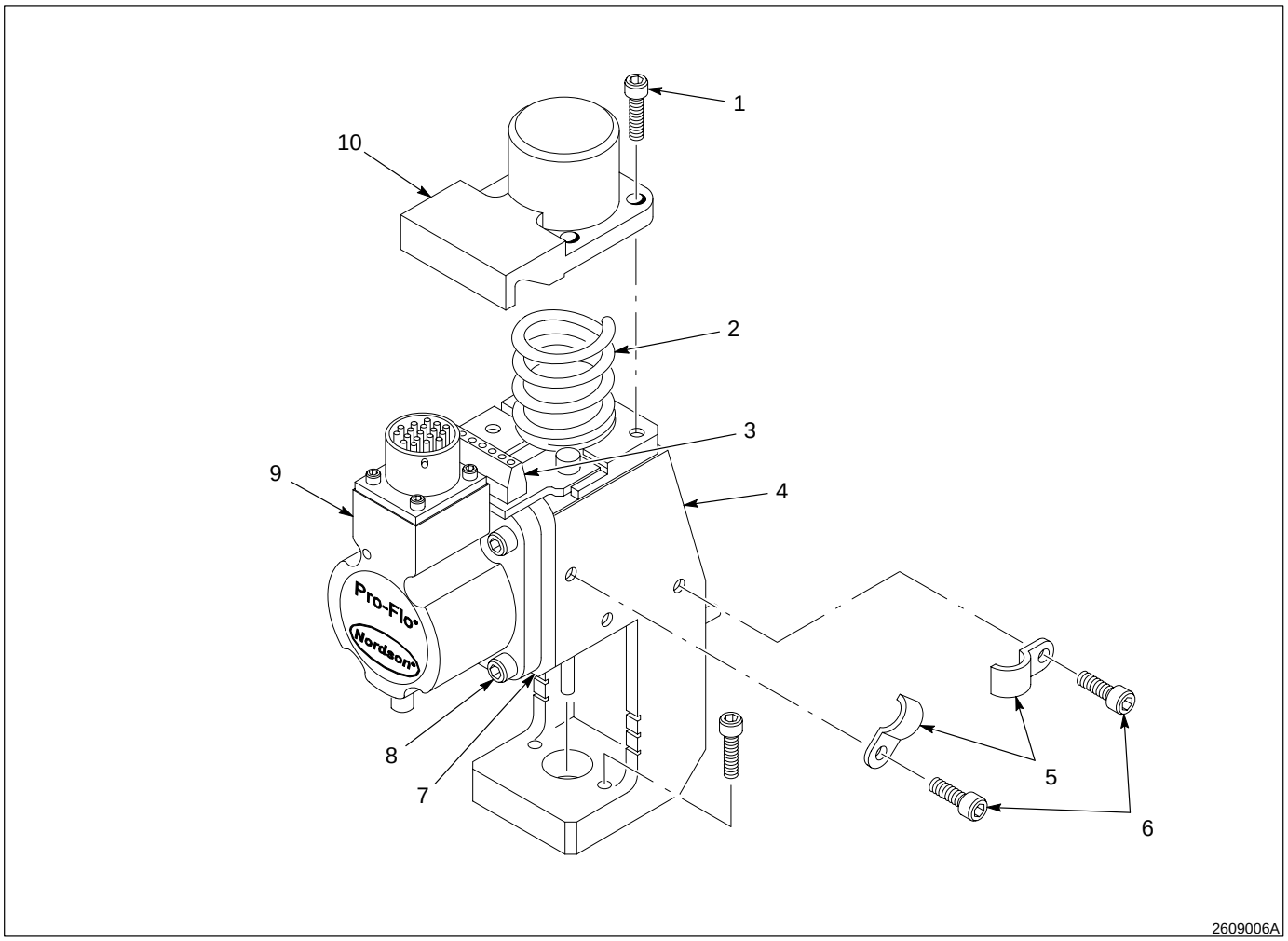

Fig. 7-2 Pneumatic Actuator

4. Trimset Valves

See Figure 7-3.

Item	Part	Description	Quantity	Note
—	152 383	Service kit, trimset, lip seal	1	
1	- - - - - -	• Body with seat, Pro-Flo	1	
2	152 402	• Body, bonnet, lip seal, Pro-Flo	1	
3	- - - - - -	• • Stem	1	
4	154 362	• Plug, minimum cavity, $^{9}/_{16}$-18	1	
5	945 032	• O-ring, Viton, $^{3}/_{8}$ tube	1	
6	154 365	• Plug, minimum cavity, $^{3}/_{8}$-24	1	
7	945 038	• O-ring, Viton, $^{3}/_{16}$ tube	1	A
8	152 290	• Nut, nozzle	1	
9	- - - - - -	Screw, M5 x 16	2	B
10	158 990	Plug, MCO, Pro-Flo	1	B
11	940 111	O-ring, Viton, 0.301 ID x 0.070 w	1	A, B

NOTE A: Apply lubricant, part 900 349.
B: For guns without MCO or special nozzles only.

See Figure 7-3.

Item	Part	Description	Quantity	Note
—	152 384	Service kit, trimset, packings	1	
1	- - - - - -	• Body with seat, Pro-Flo	1	
2	- - - - - -	• Body, packing, Pro-Flo	1	
3	- - - - - -	• • Stem	1	
4	154 362	• Plug, minimum cavity, $^{9}/_{16}$-18	1	
5	945 032	• O-ring, Viton, $^{3}/_{8}$ tube	1	A
6	154 365	• Plug, minimum cavity, $^{3}/_{8}$-24	1	
7	945 038	• O-ring, Viton, $^{3}/_{16}$ tube	1	A
8	152 290	• Nut, nozzle	1	
9	- - - - - -	Screw, M5 x 16	2	B
10	158 990	Plug, MCO, Pro-Flo	1	B
11	940 111	O-ring, Viton, 0.301 ID x 0.070 w	1	A, B

NOTE A: Apply lubricant, part 900 349.
B: For guns without MCO or special nozzles only.

4. Trimset Valves (contd)

See Figure 7-3.

Item	Part	Description	Quantity	Note
—	185 777	Trimset, 200/2000 Vohm, lip seal, polymyte, aluminum	1	
1	173 751	• Body with seat, Pro-Flo, aluminum	1	
2	152 402	• Body, bonnet lip seal, Pro-Flo	1	
3	- - - - - -	• • Stem	1	
4	154 362	• Plug, minimum cavity, $^{9}/_{16}$-18	1	
5	945 032	• O-ring, Viton, $^{3}/_{8}$ tube	1	A
6	154 365	• Plug, minimum cavity, $^{3}/_{8}$-24	1	
7	945 038	• O-ring, Viton, $^{3}/_{16}$ tube	1	A
8	152 290	• Nut, nozzle	1	
9	- - - - - -	Screw, M5 x 16	2	B
10	158 990	Plug, MCO, Pro-Flo	1	B
11	940 111	O-ring, Viton, 0.301 ID x 0.070 w	1	A, B

NOTE A: Apply lubricant, part 900 349.
B: For guns without MCO or special nozzles only.

See Figure 7-3.

Item	Part	Description	Quantity	Note
—	185 776	Trimset, 200/200 Vohm, lip seal, polymyte, stainless steel	1	
1	- - - - - -	• Body with seat, Pro-Flo, stainless steel	1	
2	- - - - - -	• Body, bonnet lip seal, Pro-Flo	1	
3	- - - - - -	• • Stem	1	
6	154 365	• Plug, minimum cavity, $^{3}/_{8}$-24	1	
7	945 038	• O-ring, Viton, $^{3}/_{16}$ tube	1	A
8	152 290	• Nut, nozzle	1	
9	- - - - - -	Screw, M5 x 16	2	B
10	158 990	Plug, MCO, Pro-Flo	1	B
11	940 111	O-ring, Viton, 0.301 ID x 0.070 w	1	A, B

NOTE A: Apply lubricant, part 156 289.
B: For guns without MCO or special nozzles only.

See Figure 7-3.

Item	Part	Description	Quantity	Note
—	175 586	Trimset, 200/2000 Vohm, peek lip seal for grease fitting	1	
1	- - - - - -	• Body with seat, Pro-Flo, lube	1	
2	- - - - - -	• Body, bonnet lip seal, Pro-Flo, lube	1	
3	- - - - - -	• • Stem	1	
4	154 362	• Plug, minimum cavity, $^{9}/_{16}$-18	1	
5	945 032	• O-ring, Viton, $^{3}/_{8}$ tube	1	A
6	154 365	• Plug, minimum cavity, $^{3}/_{8}$-24	1	
7	945 038	• O-ring, Viton, $^{3}/_{16}$ tube	1	A
8	152 290	• Nut, nozzle	1	
9	- - - - - -	Screw, M5 x 16	2	B
10	158 990	Plug, MCO, Pro-Flo	1	B
11	940 111	O-ring, Viton, 0.301 ID x 0.070 w	1	A, B

NOTE A: Apply lubricant, part 900 349.
B: For guns without MCO or special nozzles only.

4. Trimset Valves (contd)

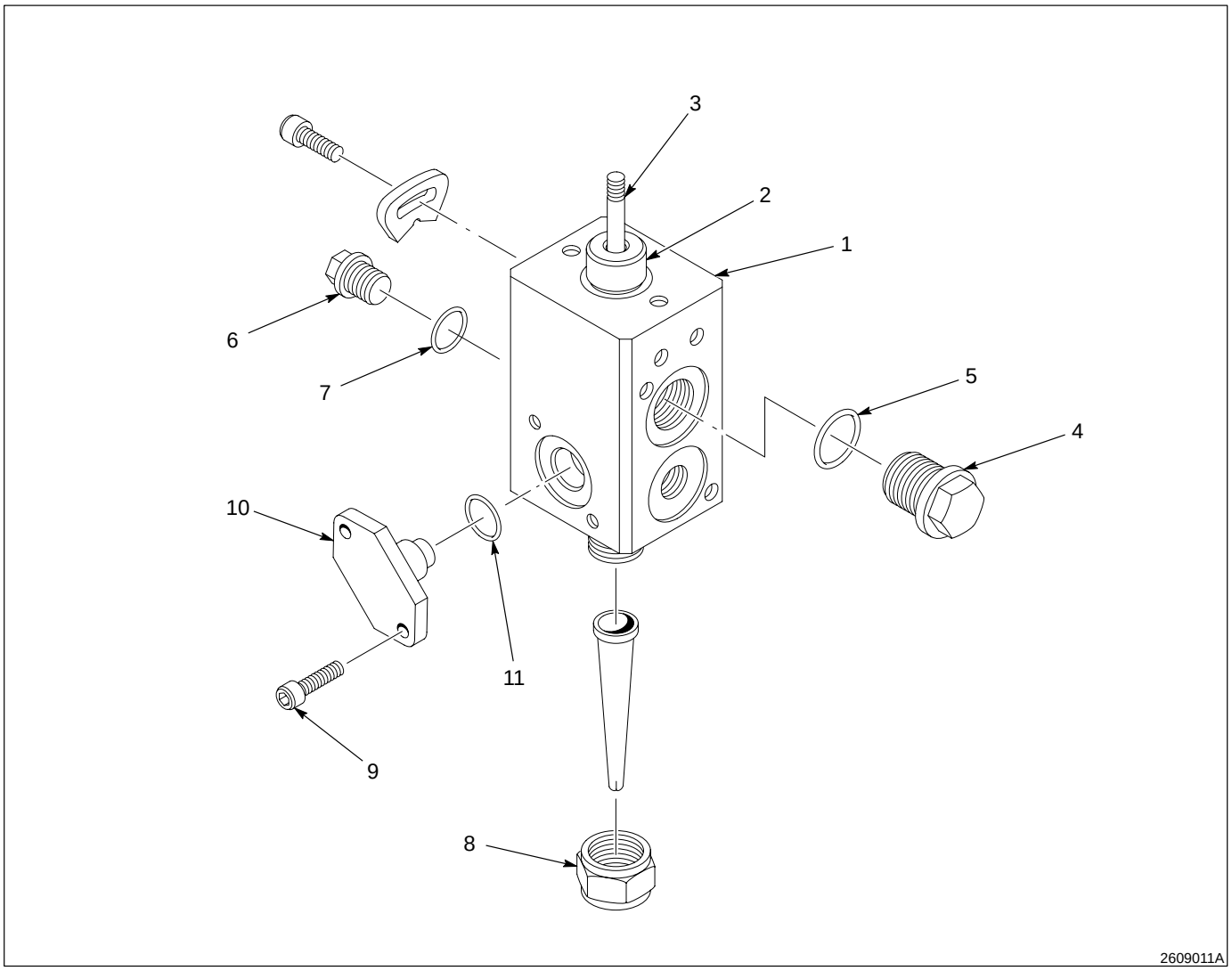

Fig. 7-3 Trimset Valve

5. Lip Seal Bonnets

See Figure 7-4.

Item	Part	Description	Quantity	Note
—	179 845	Service kit, lip seal, peek, for grease fitting, 200/2K	1	
1	- - - - - -	• Body, bonnet, lip seal, Pro-Flo	1	
2	940 166	• O-ring, Viton, blk, 0.625 x 0.750	1	A
3	945 045	• Back-up ring, single, $^5/_8$ x $^3/_4$	1	
4	940 181	• O-ring, Viton, 0.739 x 0.70	1	A
NOTE A: Apply lubricant, part 900 349.				

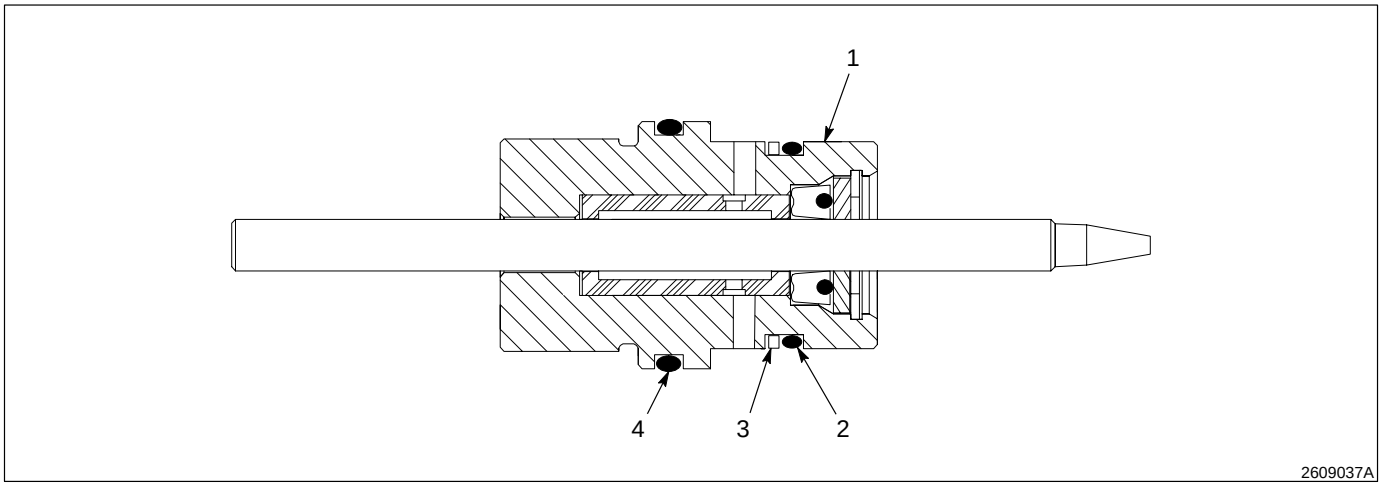

Fig. 7-4 Lubrication Fitting Bonnet

5. Lip Seal Bonnets (contd)

See Figure 7-5.

Item	Part	Description	Quantity	Note
—	239 815	Service kit, lip seal, peek, 200/2K	1	
1	- - - - - -	• Body, bonnet, lip seal, Pro-Flo	1	
2	940 166	• O-ring, Viton, blk, 0.625 x 0.750	1	A
3	954 045	• Back-up ring, single, $^5/_8$ x $^3/_4$	1	
NS	- - - - - -	• Stem	1	

NOTE A: Apply lubricant, part 900 349.
NS: Not Shown

See Figure 7-5.

Item	Part	Description	Quantity	Note
—	185 778	Service kit, lip seal, polymyte, bonnet, stainless steel, 200/2K	1	
1	- - - - - -	• Body, bonnet, lip seal, Pro-Flo	1	
2	940 166	• O-ring, Viton, blk, 0.625 x 0.750	1	A
3	954 045	• Back-up ring, single, $^5/_8$ x $^3/_4$	1	
NS	- - - - - -	• Stem	1	

NOTE A: Apply lubricant, part 900 349.
NS: Not Shown

See Figure 7-5.

Item	Part	Description	Quantity	Note
—	185 779	Service kit, lip seal, polymyte, bonnet, aluminum	1	
1	- - - - - -	• Body, bonnet, lip seal, Pro-Flo	1	
2	940 166	• O-ring, Viton, blk, 0.625 x 0.750	1	A
3	954 045	• Back-up ring, single, $^5/_8$ x $^3/_4$	1	
NS	- - - - - -	• Stem	1	

NOTE A: Apply lubricant, part 900 349.
NS: Not Shown

See Figure 7-5.

Item	Part	Description	Quantity	Note
—	228 545	Service kit, lip seal, bonnet, polymyte, ARW 200/2K	1	
1	- - - - - -	• Body, bonnet, lip seal, Pro-Flo	1	
2	940 166	• O-ring, Viton, blk, 0.625 x 0.750	1	A
3	954 045	• Back-up ring, single, $^5/_8$ x $^3/_4$	1	
NS	- - - - - -	• Stem	1	

NOTE A: Apply lubricant, part 900 349.
NS: Not Shown

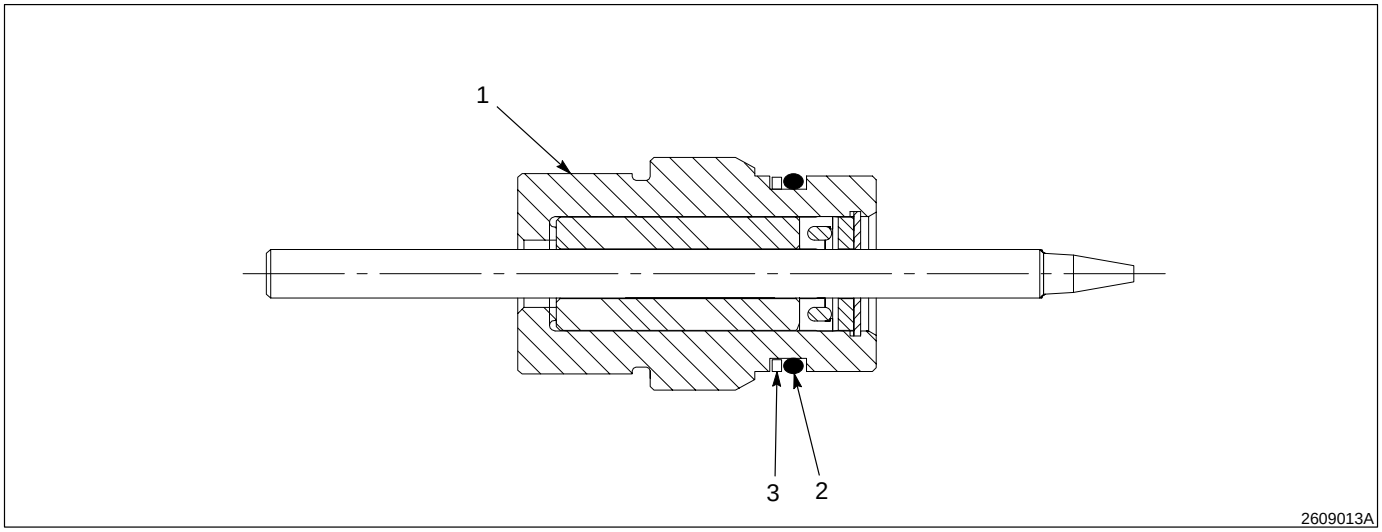

Fig. 7-5 Lip Seal Bonnet

5. Lip Seal Bonnets (contd)

See Figure 7-6.

Item	Part	Description	Quantity	Note
—	161 583	Service kit, packing, bonnet, 200/2K	1	
1	- - - - - -	• Body, packing, Pro-Flo	1	
2	940 166	• O-ring, Viton, blk, 0.625 x 0.750	1	A
3	954 045	• Back-up ring, single, $^5/_8$ x $^3/_4$	1	
NS	- - - - - -	• Stem	1	

NOTE A: Apply lubricant, part 900 349.
NS: Not Shown

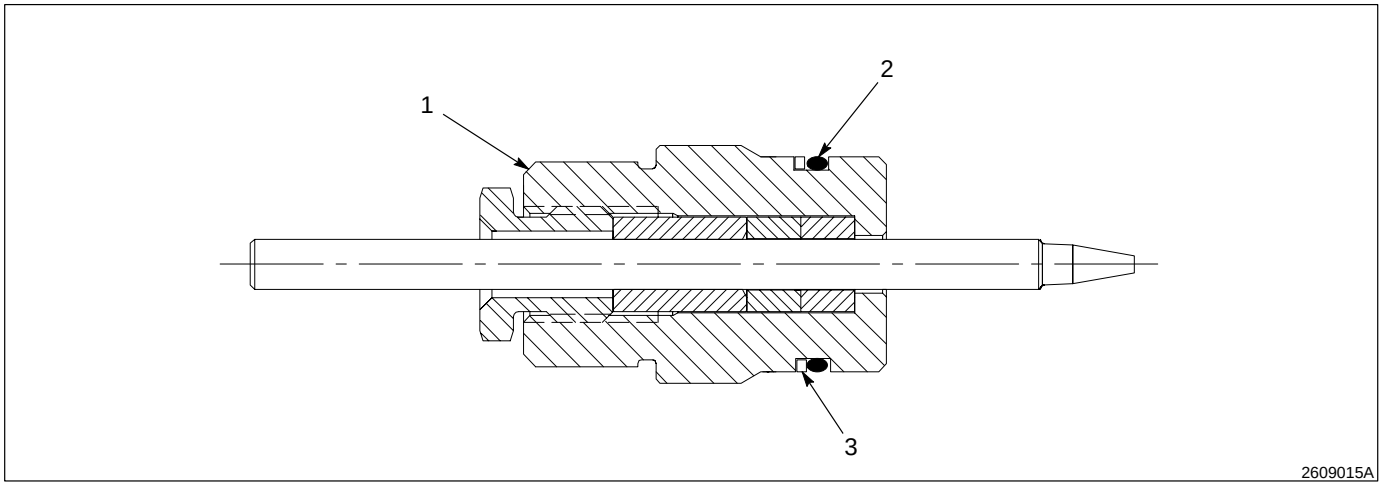

Fig. 7-6 Packing Bonnet

6. Pressure Transducer

See Figure 7-7.

Item	Part	Description	Quantity	Note
1	945 038	O-ring, pressure transducer	1	A
2	139 578	Transducer, pressure, 500 psi	1	
2	139 582	Transducer, pressure, 1000 psi	1	
2	139 596	Transducer, pressure, 2000 psi	1	
2	139 603	Transducer, pressure, 3000 psi	1	
3	152 403	Cover, pressure transducer	1	
4	- - - - - -	Screw, M5 x 16	2	
5	153 078	Cordset, right hand	1	
NS	153 079	Cordset, left hand	1	

NOTE A: Apply lubricant, part 900 349.
NS: Not Shown

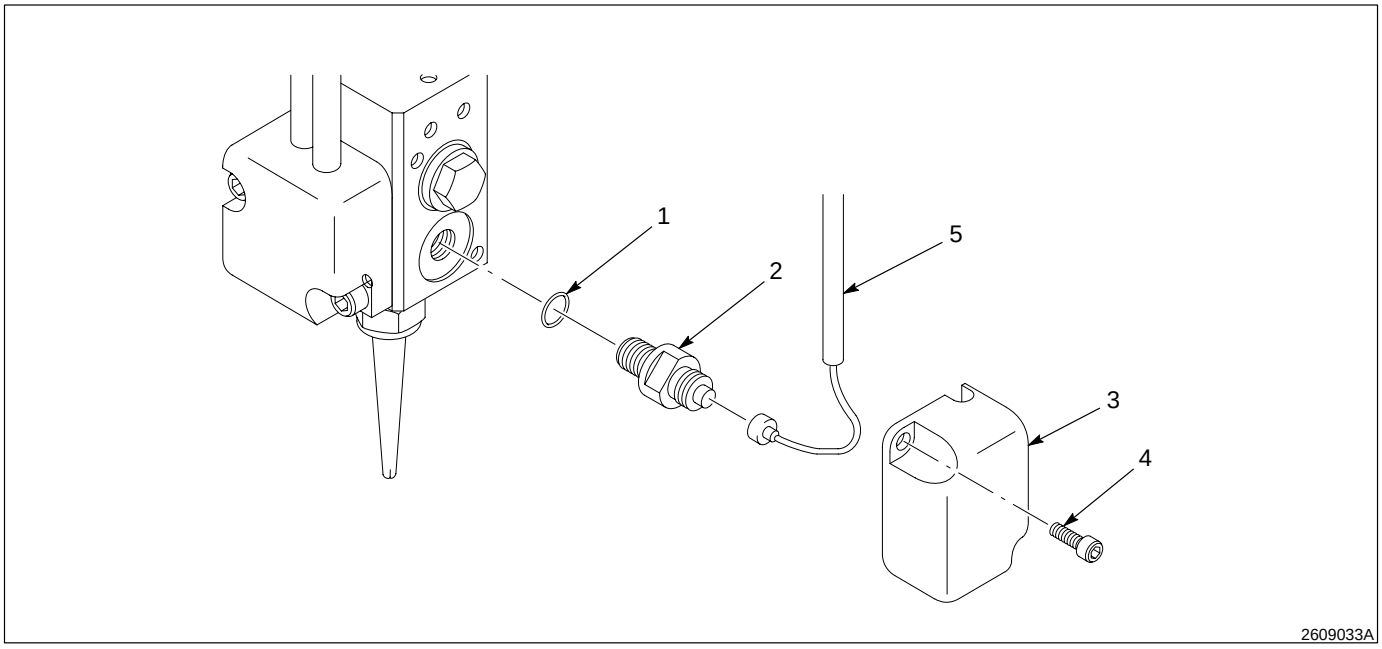

Fig. 7-7 Pressure Transducer

7. Material Cutoff Module

See Figure 7-8.

Item	Part	Description	Quantity	Note
—	- - - - - -	Module, MCO, Pro-Flo, polymyte	1	
1	322 775	• Kit, service, unheated, MCO, Pro-Flo	1	A
2	982 166	• Screw, socket, M5 x 16, bl	2	
3	152 394	• Housing, MCO, Pro-Flo	1	
—	162 758	• Service kit, tube assembly, MCO	1	
4	940 101	• • O-ring, Viton, 0.239 ID x 0.070 w, br	4	
5	- - - - - -	• • Tube, air, extend, MCO, Pro-Flo	1	
6	- - - - - -	• • Tube, air, retract, MCO, Pro-Flo	1	
NS	900 349	• • Lubricant, TFE grease, 0.75-oz tube	AR	B

NOTE A: MCO service kits include all MCO piston parts as well as item 4 (quantity 4) and PTFE lubricant. Order this service kit for use with the unheated (polymyte) MCO, part 327 506.

B: Apply PTFE lubricant to the O-rings, items 4 and 5.

AR: As Required

NS: Not Shown

Item	Part	Description	Quantity	Note
—	183 514	Manifold module assy, zero cavity, Pro-Flo	1	
NS	- - - - - -	• Manifold, HP 20 lb	1	
NS	165 177	• Plug, manifold, module, zero cavity	1	
NS	940 115	• O-Ring, Buna-N	2	A

NOTE A: Apply lubricant, part 900 349 (included in service kit, part 183 514).

NS: Not Shown

Item	Part	Description	Quantity	Note
—	175 631	Manifold Module assy, zero cavity, HP20 Pro-Flo	1	
NS	- - - - - -	• Manifold, HP 20 lbs	1	
NS	165 176	• Plug, trimset, Pro-Flo	1	
NS	- - - - - -	• Gun, HP20 zero cavity, 3 mm	1	A

NOTE A: Apply lubricant, part 900 349 (included in service kit, part 183 514).

NS: Not Shown

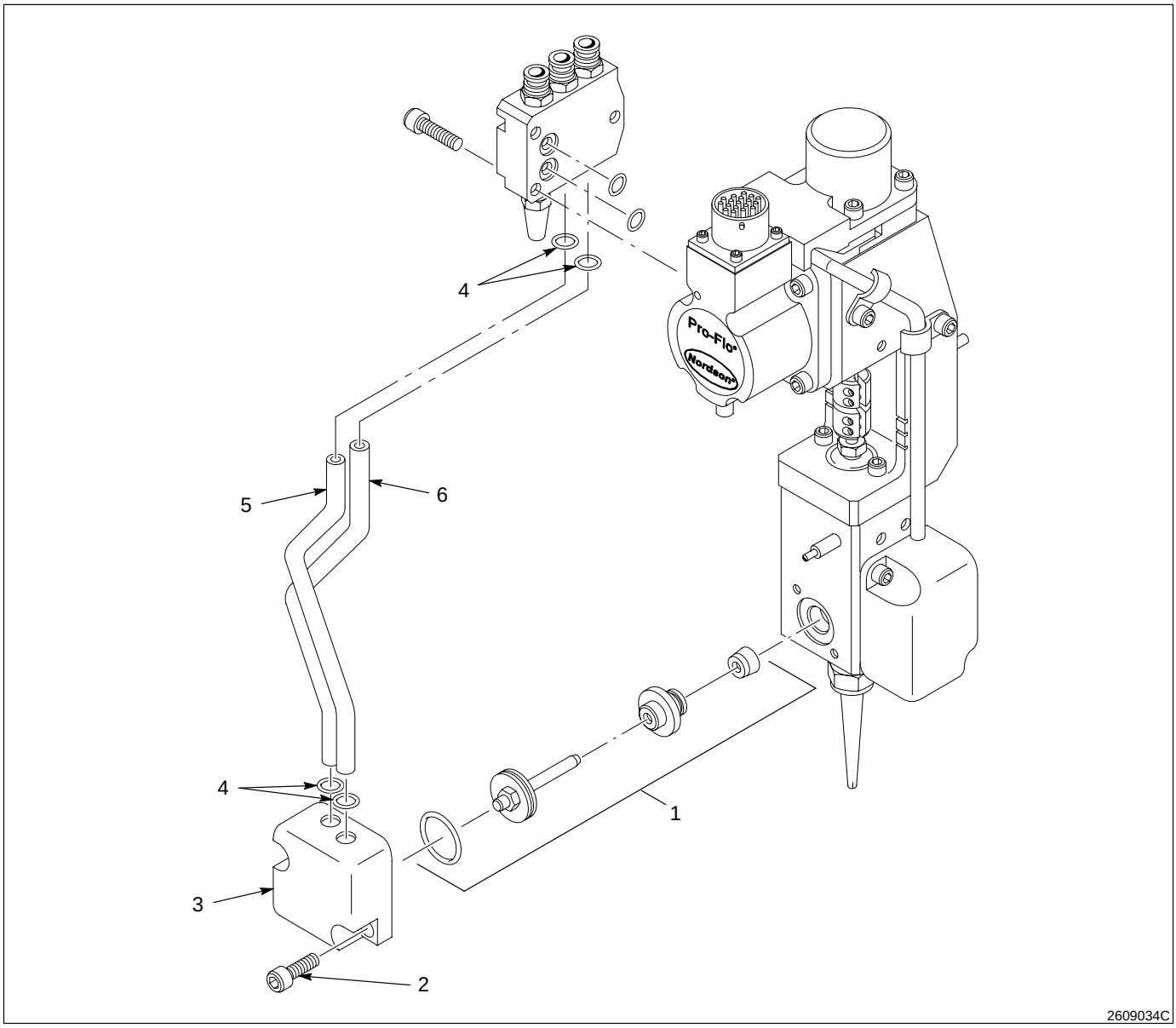

Fig. 7-8 Material Cutoff Module

8. Zero Cavity H200 Long Nozzle

See Figure 7-9.

Item	Part	Description	Quantity	Note
—	169 294	Module, zero cavity, Pro-Flo, long	1	
NS	900 349	Lube, PTFE, grease	1	
1	165 174	Module H-200, zero cavity, 0.070 dia	1	A
2	- - - - - -	Manifold, module assy, zero cavity, Pro-Flo	1	
NS	165 179	• Manifold, module, zero cavity, Pro-Flo	1	A
NS	165 177	• Plug, manifold, module, zero cavity, Pro-Flo	1	
NS	940 115	• O-ring, 0.321 x 0.438 x 0.063	2	
3	165 176	Plug, trimset, Pro-Flo	1	A

NOTE A: Apply lubricant, part 900 349.
NS: Not Shown

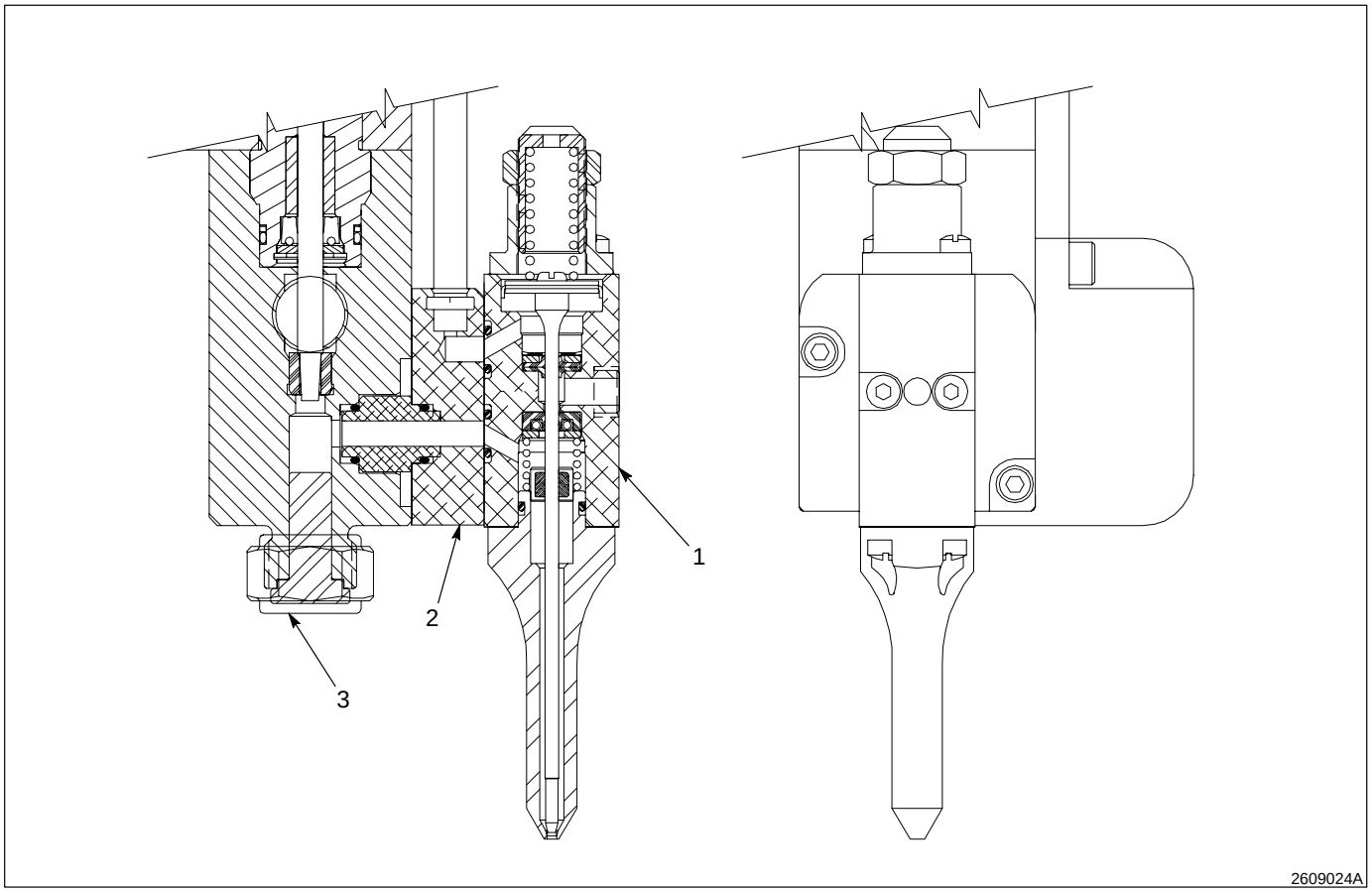

Fig. 7-9 Zero Cavity H200 Long Nozzle

9. Zero Cavity H200 Short Nozzle

See Figure 7-10.

Item	Part	Description	Quantity	Note
—	165 175	Service kit, module, zero cavity, short	1	
NS	900 349	Lube, PTFE, grease	1	
1	165 174	Module, H-200 zero cavity, 0.065 dia	1	A
NS	144 378	• Needle/nozzle assy	1	
2	- - - - - -	Manifold module assy, zero cavity	1	
NS	165 179	• Manifold, module, zero cavity	1	A
NS	165 177	• Plug, manifold, module, zero cavity, Pro-Flo	1	
NS	940 115	• O-ring, 0.321 x 0.438 x 0.063	2	
3	165 176	• Plug, trimset, Pro-Flo	1	A

NOTE A: Apply lubricant, part 900 349.
NS: Not Shown

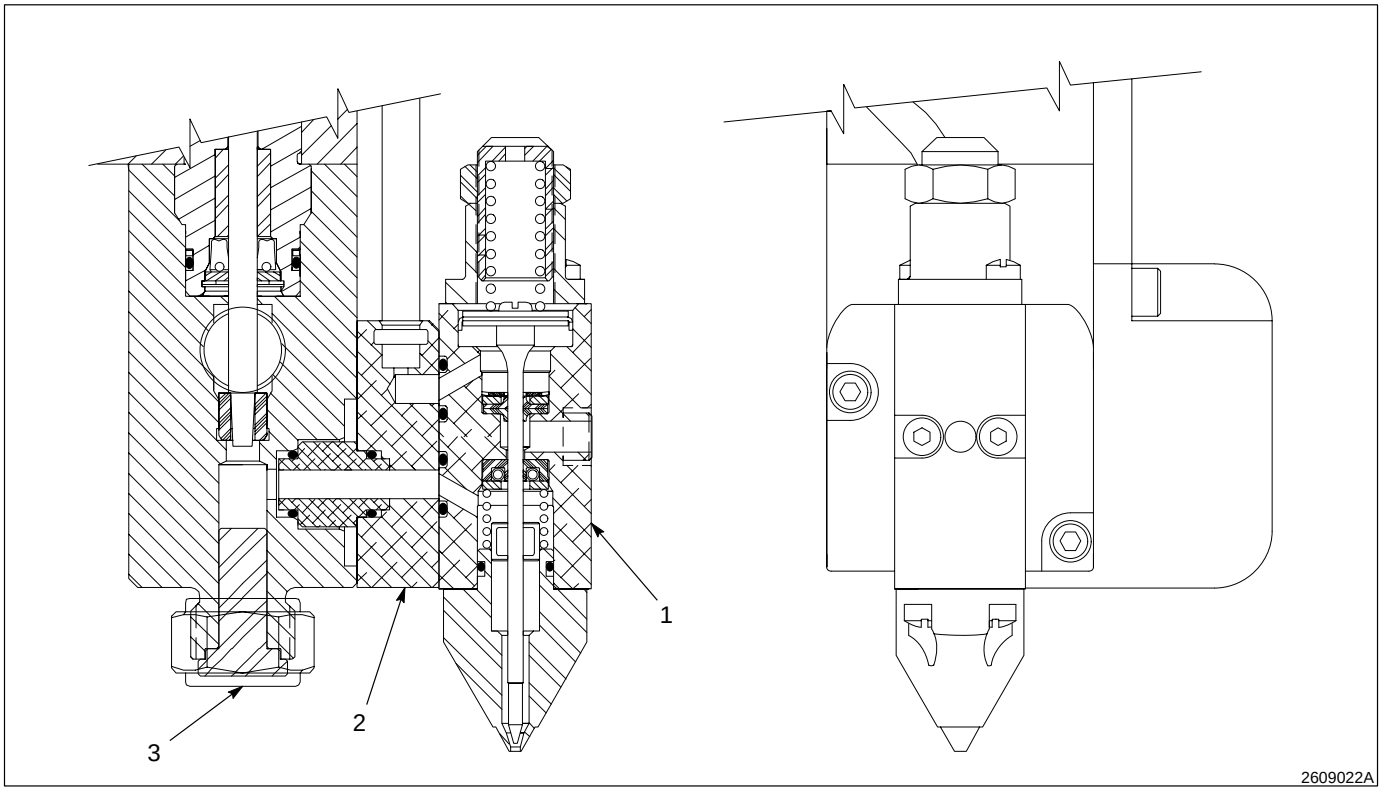

Fig. 7-10 Zero Cavity H200 Short Nozzle

10. Heater

See Figure 7-11.

Item	Part	Part	Description	Quantity
1	281 619		Heater kit, 120 V, Pro-Flo	1
1		282 819	Heater kit, 240 V, Pro-Flo	1
NS	938 161		• Heater, 120 V	2
NS		938 123	• Heater, 240 V	2
2	982 367	982 367	• Screw M5 x 30 mm	1
NS	939 523	939 523	• Sensor, RTD	1
3	- - - - - -	- - - - - -	• Receptacle	1
NS: Not Shown				

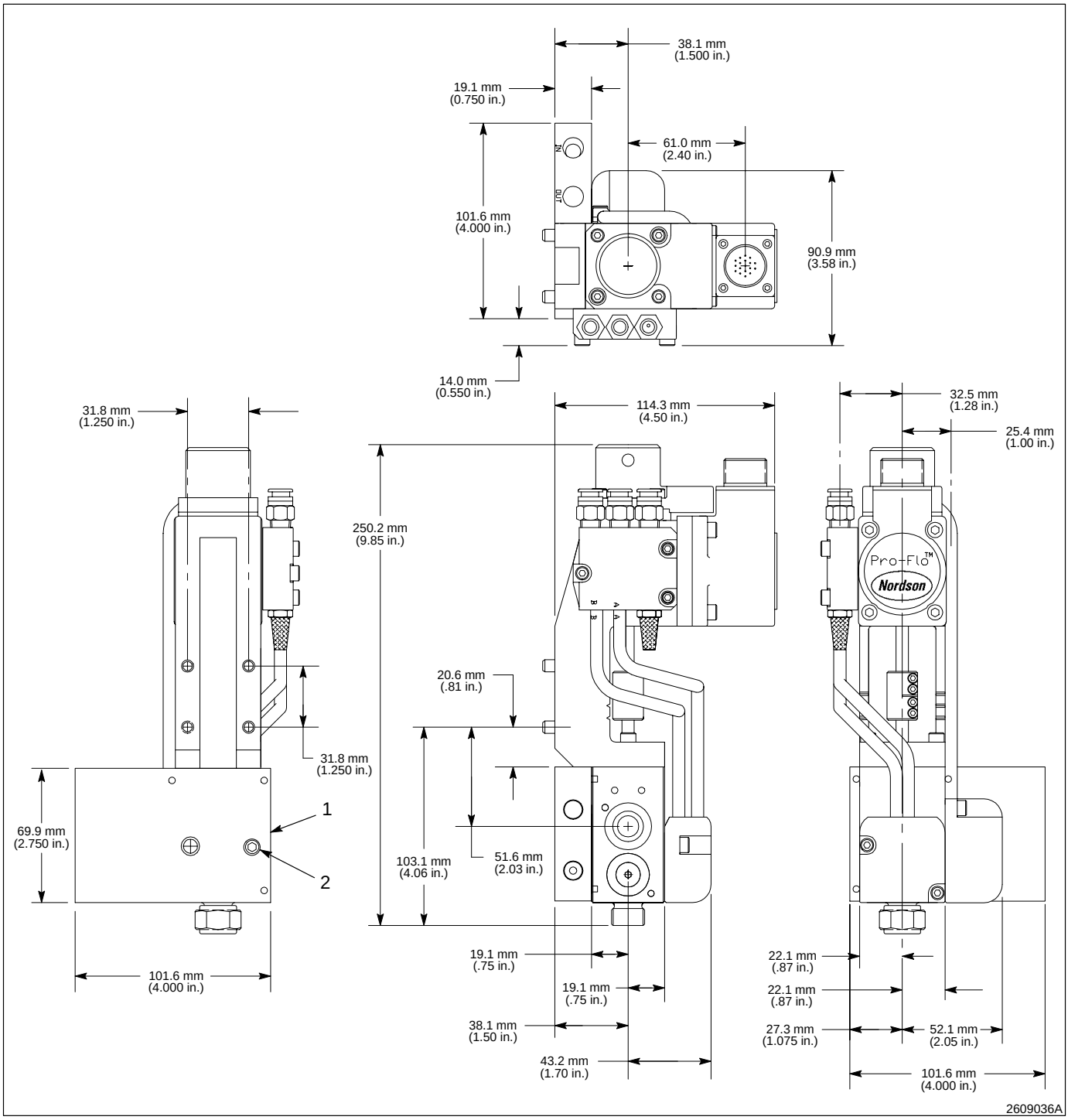

Fig. 7-11 Heater Dimensions

11. Temperature Conditioner

See Figure 7-12.

Item	Part	Description	Quantity	Note
—	183 515	Manifold module, temperature conditioner	1	
1	170 524	• Manifold, Pro-Flo, temperature conditioner	1	
2	982 028	• Screw, socket head, M5 x 20	2	

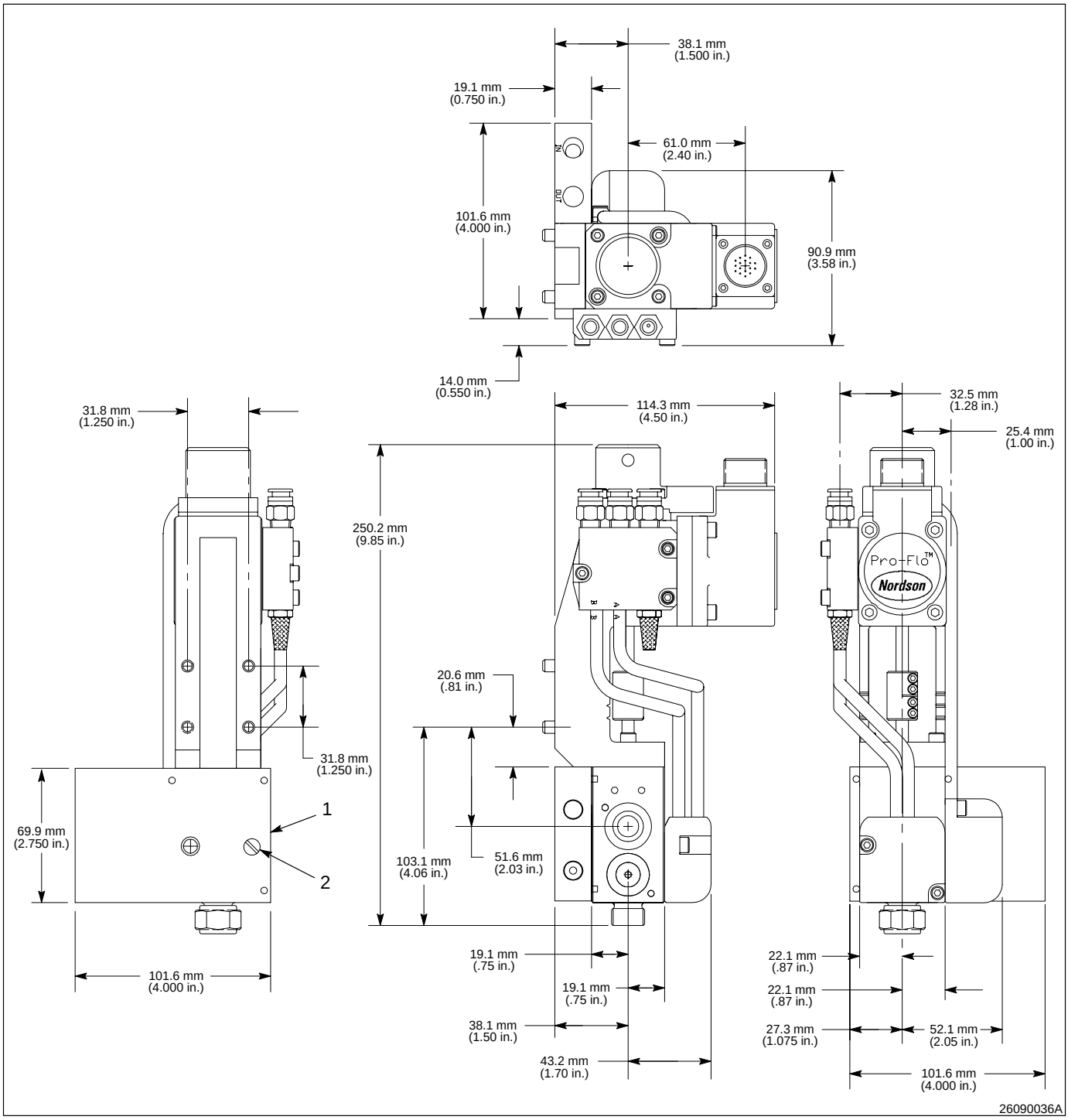

Fig. 7-12 Temperature Conditioner Dimensions

Section 8

Specifications

Section 8
Specifications

1. Introduction

This section describes specifications for the Pro-Flo II extrude dispensing gun and material characteristics.

Weight

1.13 kg (2 lbs 8 oz)

Operating Air Pressure

4.83–8.38 bar (70–120 psi)

Air Flow

0.023 m^3/min (0.8 scfm) maximum

Ambient Air Temperature

4–71 °C (40–160 °F)

Static Fluid Pressure

206.90 bar (3000 psi), maximum

Material Temperature

48 °C (120 °F) maximum

Material Viscosity

10,000–3,000,000 cps

Material Flow Rate

0–158 kg/hr (0–350 lbs/hr)

Dimensions

See Figure 8-1 for standard nozzles.

See Figure 8-2 for long nozzles.

See Figure 8-3 for short nozzles.

Dimensions *(contd)*

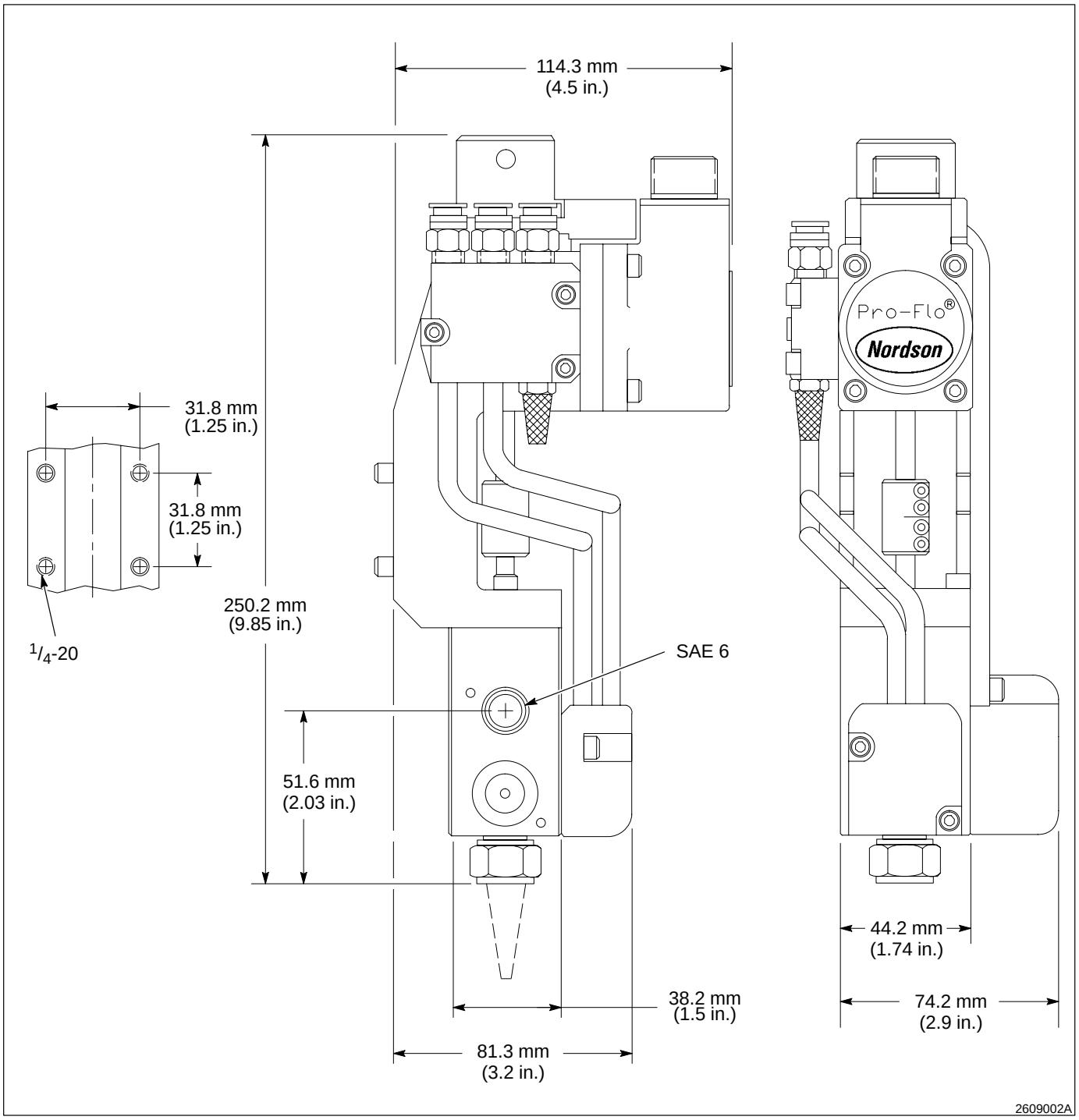

Fig. 8-1 Pro-Flo II Extrude Dispensing Gun

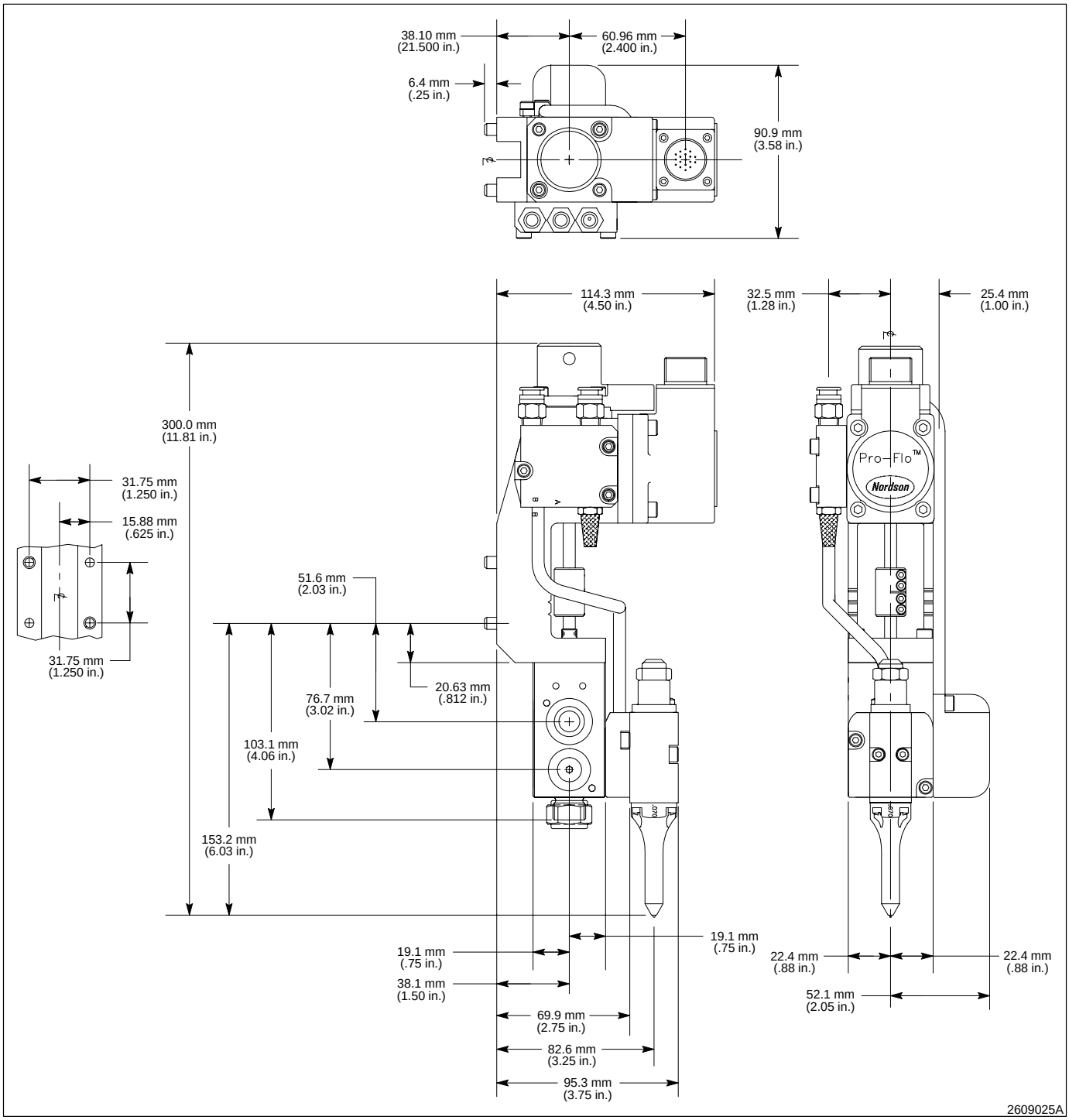

Fig. 8-2 Pro-Flo II Extrude Dispensing Gun with Optional Long Nozzle

Dimensions *(contd)*

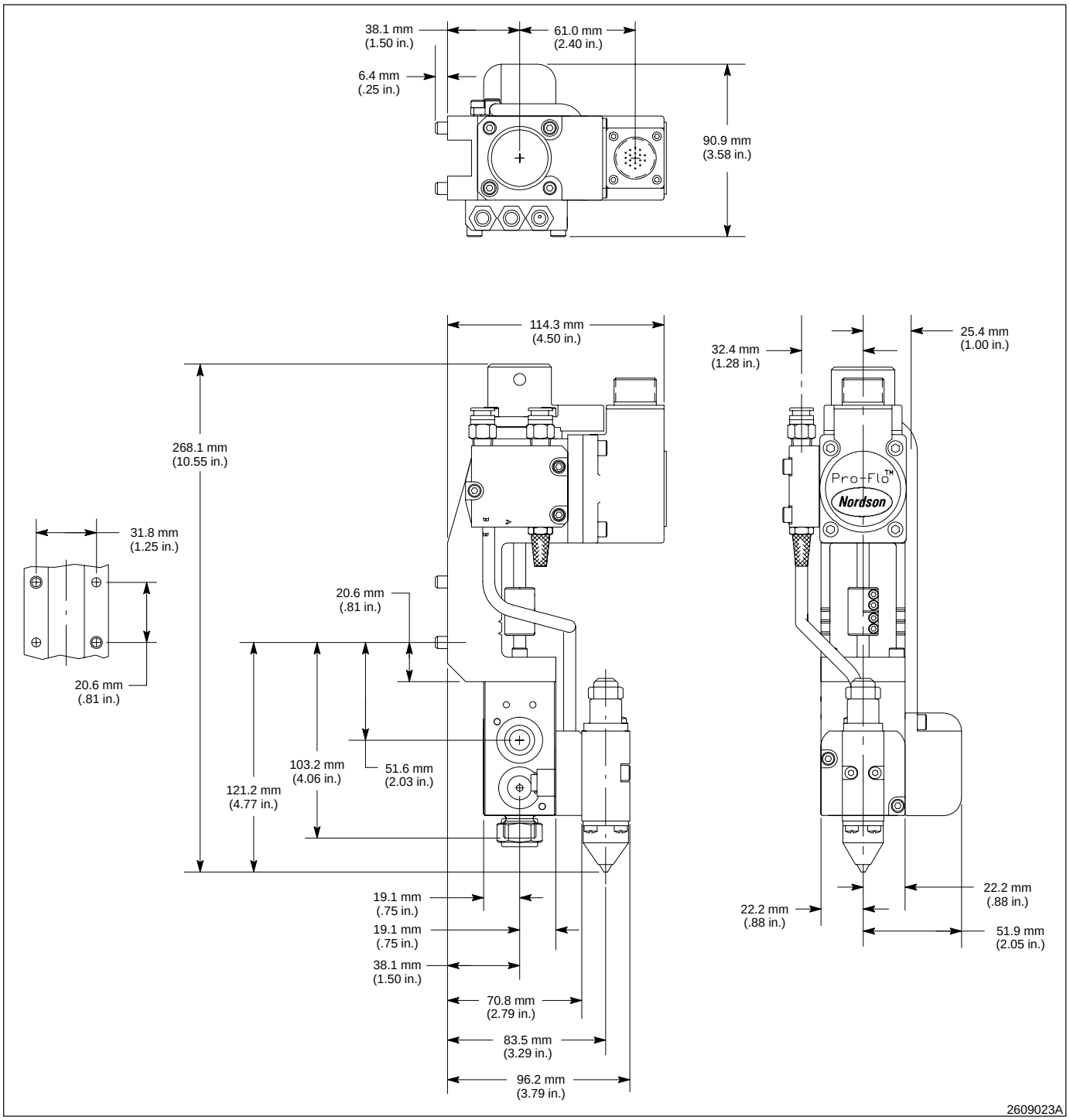

Fig. 8-3 Pro-Flo II Extrude Dispensing Gun with Optional Short Nozzle