

E-Flo[®] iQ Dispense System for Urethane

3A8217F

EN

For dispensing and metering single component urethane. For professional use only.

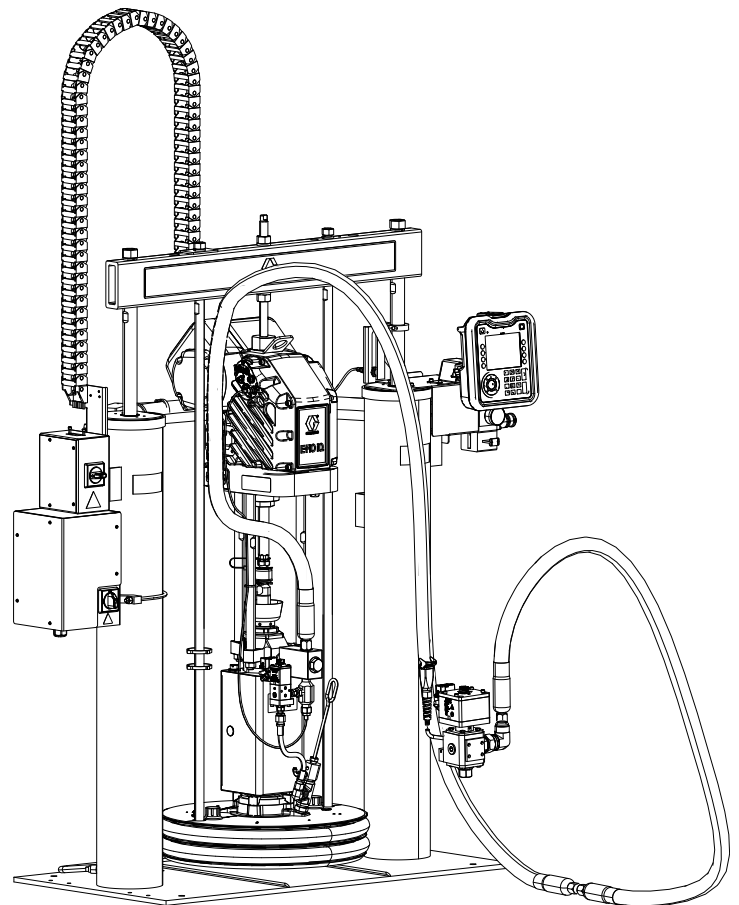
Not approved for use in explosive atmospheres or hazardous (classified) locations.

See page 4 for system component information.



Important Safety Instructions

Read all warnings and instructions in this manual and in related manuals before using the equipment. Save all instructions.



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Related Manuals

Related Manuals in English:

Manual in English	Description
333587	E-Flo iQ Supply System Operation
334198	55 Gal, 16 Gal, and 5 Gal Ram Module Repair-Parts
312375	Check-Mate® Displacement Pumps Instructions-Parts
312468	200 cc Check-Mate Displacement Pump Repair Parts
312374	Air Controls Instructions-Parts
312491	Pump Fluid Purge Kit Instructions - Parts
312492	Drum Roller Kit Instructions
312493	Light Tower Kit Instructions
406681	Platen Cover Kit
334048	EPDM Hose Wiper Kit Instructions - Parts
3A6321	ADM Token In-System Programming Instructions
3A6482	APD20 Advanced Precision Driver Instructions
3A8166	Axial Dispense Valve, Instructions-Parts
3A1244	Graco Control Architecture Module
3A4241	Hot Melt/Warm Melt Heated Hose Instructions
3B0243	Drum Stabilizers for D200 and D200s Dual Post Rams

Models

For dispense system component information, see **Dispense System Component Identification** on page 9.

Single Systems

Part No.	Hose Length From Pump	WIP Hose Length to the Valve	Hose	Ram Option	Platen Option	Pump Option	Valve Option
26B543	10 ft (3 m)	None	1 in. (25.4 mm) OD Heated Hoses	D200s	55 Gal (200 L) Heated Platen	Heated 200cc Severe Duty Checkmate Pump	Heated Axial Dispense Valve with Remote Mount Sole- noid
26B544	15 ft (4.6 m)						
26B545	20 ft (6.1 m)						
26B546	10 ft (3 m)	10 ft (3 m)					
26B547	15 ft (4.6 m)						
26B548	20 ft (6.1 m)						
26B549	15 ft (4.6 m)	15 ft (4.6 m)					
26B550	20 ft (6.1 m)						
26B551	20 ft (6.1 m)						

Tandem Systems

Part No.	Hose Length From Pump to Manifold (Two Hoses)	Hose Length From Manifold to Valve (One Hose)	Hose	Ram Option	Platen Option	Pump Option	Valve Option	Manifold Option
26B552	10 ft (3 m)	10 ft (3 m)	1 in. (25.4 mm) OD Heated Hoses	D200s	55 Gal (200 L) Heated Platen	Heated 200cc Severe Duty Check- mate Pump	Heated Axial Dispense Valve with Remote Mount Solenoid	Heated Manifold and Mounting Stand
26B553		15 ft (4.6 m)						
26B554		20 ft (6.1 m)						
26B555	15 ft (4.6 m)	10 ft (3 m)						
26B556		15 ft (4.6 m)						
26B557		20 ft (6.1 m)						
26B558	20 ft (6.1 m)	10 ft (3 m)						
26B559		15 ft (4.6 m)						
26B560		20 ft (6.1 m)						

Hose Options (From Manifold to Valve)

Part No.	JIC Dash Size	Length	Heat	Working Pressure Temperature Rating
19M417	-16 (1 in, 25.4 mm)	10 ft (3 m)	Heated	4000 psi (28 MPa, 276 bar) at -65° F - 212° F (-54° C - 100° C)
19M418	-16 (1 in, 25.4 mm)	15 ft (4.6 m)	Heated	
19M419	-16 (1 in, 25.4 mm)	20 ft (6.1 m)	Heated	3000 psi (21 MPa, 207 bar) at 213° F - 400° F (101° C - 204° C)




Dispense System Pressure







Due to factors such as the dispensing system design, the material being pumped, and the flow rate, the dynamic pressure will not reach the rated working (stall) pressure of the system.

		Pump Working (Stall) Pressure			Max Dynamic (Run) Pressure		
Lower Size		psi	bar	MPa	psi	bar	MPa
Check-Mate	200CS/CM	4,000	290	29.0	3,905	269	26.9

Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

 DANGER	
 	<p>SEVERE ELECTRIC SHOCK HAZARD</p> <p>This equipment can be powered by more than 240 V. Contact with this voltage will cause death or serious injury.</p> <ul style="list-style-type: none"> Turn off and disconnect power at main switch before disconnecting any cables and before servicing equipment. This equipment must be grounded. Connect only to grounded power source. All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.

 WARNING	
    	<p>SKIN INJECTION HAZARD</p> <p>High-pressure fluid from dispensing device, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. Get immediate surgical treatment.</p> <ul style="list-style-type: none"> Do not point dispensing device at anyone or at any part of the body. Do not put your hand over the fluid outlet. Do not stop or deflect leaks with your hand, body, glove, or rag. Follow the Pressure Relief Procedure when you stop dispensing and before cleaning, checking, or servicing equipment. Tighten all fluid connections before operating the equipment. Check hoses and couplings daily. Replace worn or damaged parts immediately.

! WARNING



MOVING PARTS HAZARD

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

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** and disconnect all power sources.



FIRE AND EXPLOSION HAZARD

Flammable fumes, such as solvent and paint fumes, in **work area** can ignite or explode. Paint or solvent flowing through the equipment can cause static sparking. To help prevent fire and explosion:






- Use equipment only in well-ventilated area.
- Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static sparking).
- Ground all equipment in the work area. See **Grounding** instructions.
- Never spray or flush solvent at high pressure.
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.
- Use only grounded hoses.
- Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are anti-static or conductive.
- **Stop operation immediately** if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.



EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Specifications** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Specifications** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheets (SDSs) from distributor or retailer.
- Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

 WARNING	
	<p>SPLATTER HAZARD Hot or toxic fluid can cause serious injury if splashed in the eyes or on skin. During blow off of platen, splatter may occur.</p> <ul style="list-style-type: none"> • Use minimum air pressure when removing platen from drum.
	<p>TOXIC FLUID OR FUMES HAZARD Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.</p> <ul style="list-style-type: none"> • Read Safety Data Sheets (SDSs) to know the specific hazards of the fluids you are using. • Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.
	<p>BURN HAZARD Equipment surfaces and fluid that is heated can become very hot during operation. To avoid severe burns:</p> <ul style="list-style-type: none"> • Do not touch hot fluid or equipment.
	<p>PERSONAL PROTECTIVE EQUIPMENT Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. Protective equipment includes but is not limited to:</p> <ul style="list-style-type: none"> • Protective eyewear, and hearing protection. • Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

Dispense System Component Identification

Single Ram

NOTE: FIG. 1 shows a typical E-Flo iQ dispense system installation with a single iQ ram supply unit, hoses, connectors, and an Axial Dispense Valve. Some installations may require only one hose depending on the needs of the system.

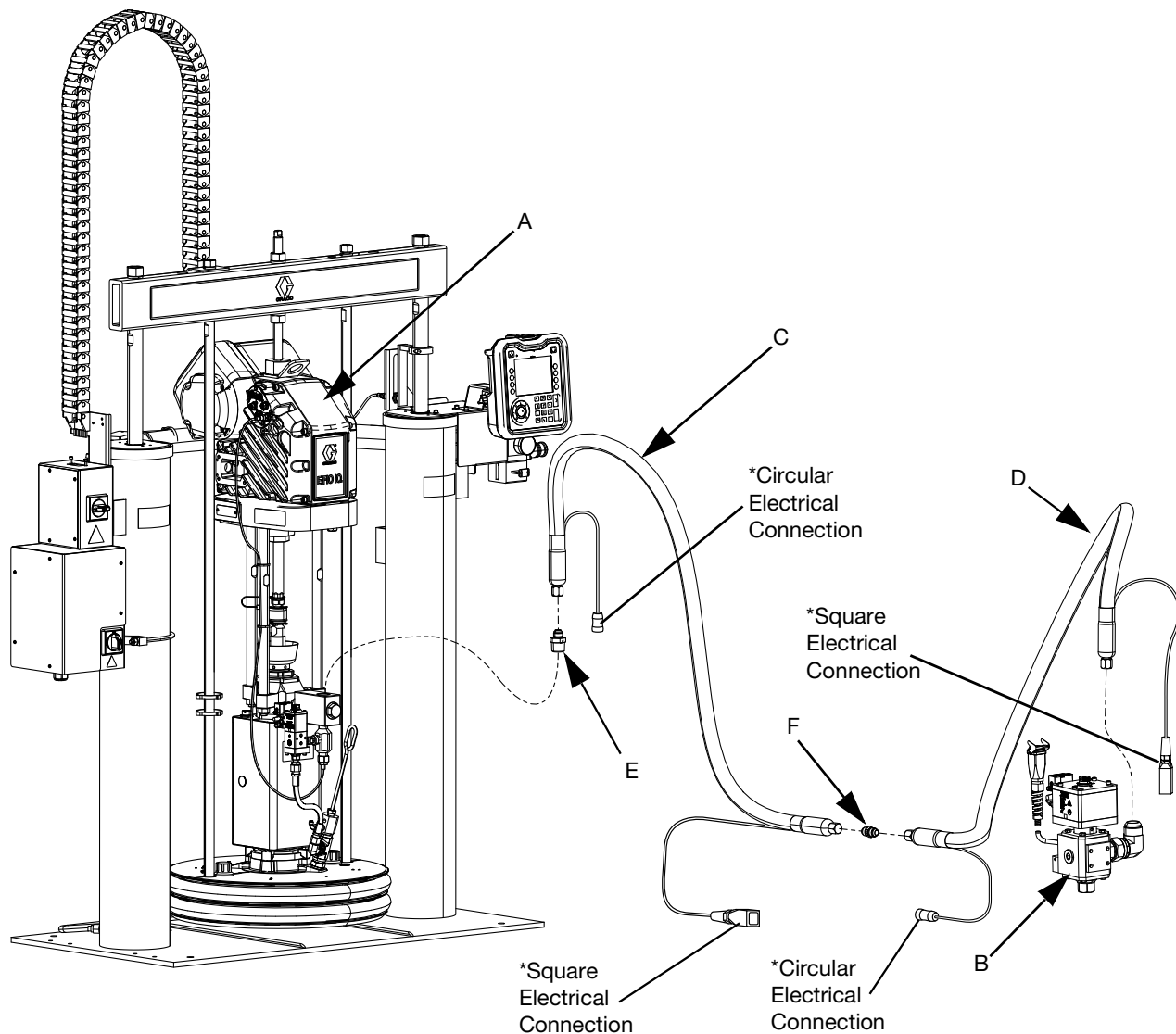


FIG. 1: Single E-Flo iQ Dispense System

Key:

- A iQ Ram Supply Unit
- B Axial Dispense Valve
- C Supply Hose 1
- D Supply Hose 2

- E Ram Supply System to Supply Hose 1 Fitting
- F Supply Hose 1 to Supply Hose 2 Fitting

* Applies to heated hoses only.

Tandem Ram

Tandem E-Flo iQ Dispense Systems consist of two rams connected using a 3-way block with ball valves, and are controlled by a single ADM. Tandem E-Flo iQ Dispense Systems operate identically to Single E-Flo iQ Dispense Systems, with the added benefit of dispensing from the second ram when the first drum is empty.

NOTE: FIG. 2 shows a typical E-Flo iQ dispense system installation with a tandem iQ ram supply unit, hoses, connectors, and an Axial Dispense Valve.

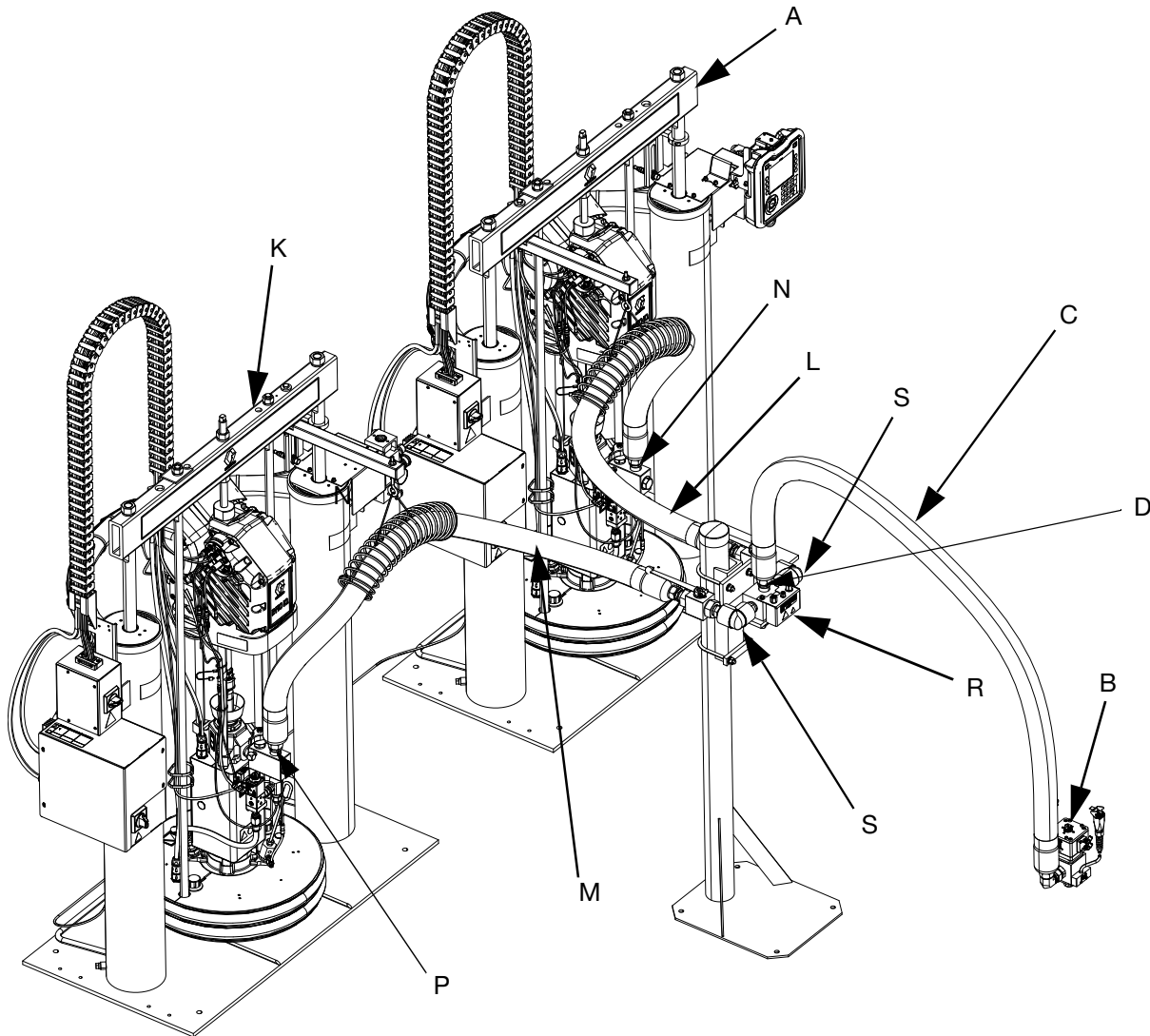


Fig. 2: Tandem E-Flo iQ Dispense System

Key:

- | | | | |
|---|---------------------------------------|---|--|
| A | iQ Ram Supply Unit 1 | M | Tandem Hose 2 |
| B | Axial Dispense Valve | N | Ram Supply Unit 1 to Tandem Hose 1 Fitting |
| C | Supply Hose 1 | P | Ram Supply Unit 2 to Tandem Hose 2 Fitting |
| D | Tandem Block to Supply Hose 1 Fitting | R | Tandem Block |
| K | iQ Ram Supply Unit 2 | S | Ball Valve |
| L | Tandem Hose 1 | | |

Supply Unit Component Identification

iQ Ram Supply Unit

D200s 6.5 in. Dual Post

NOTICE

Always lift the iQ Ram Supply Unit at the proper lift locations (see FIG. 3). Do **not** lift in any other way. Failure to lift at the proper lift locations can result in damage to the Supply System.

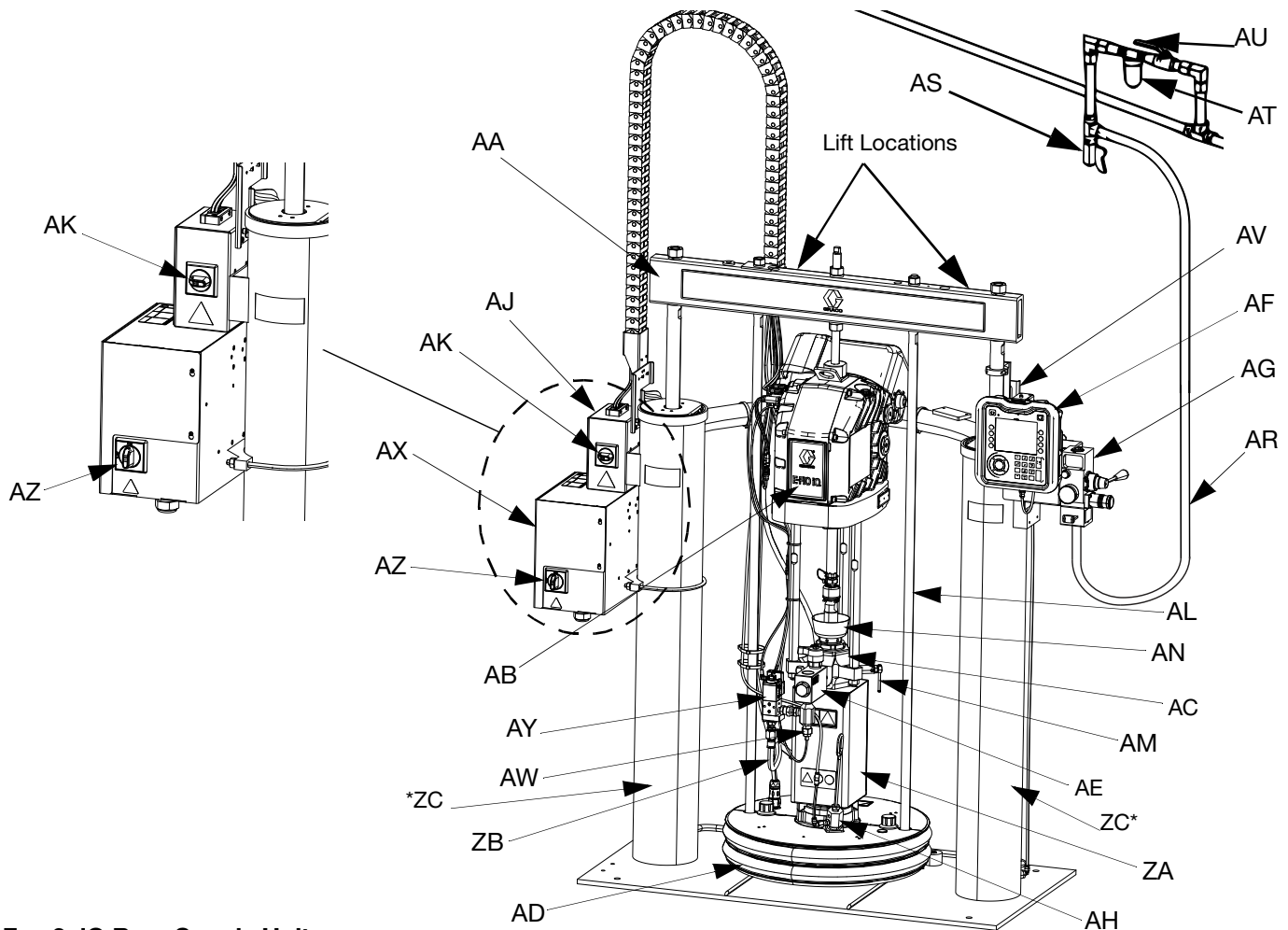


FIG. 3: iQ Ram Supply Unit

Key:

AA Ram Assembly	AR Air Line (not supplied)
AB Electric Driver	AS Air Line Drain Valve (not supplied)
AC Displacement Pump	AT Air Filter (not supplied)
AD Platen (see FIG. 7)	AU Bleed Type Air Shutoff Valve (required) (not supplied)
AE Fluid Check Valve	AV Level Sensors
AF Advanced Display Module (ADM)	AW Outlet Pressure Transducer
AG Integrated Air Controls (see FIG. 5)	AX Heat Control Box
AH Platen Bleed Port	AY Platen Valve Kit (optional)
AJ Power Junction Box	AZ Disconnect Switch (see Power Disconnect on page 12)
AK Power Junction Box Switch	ZA Pump Heater
AL Platen Lift Rod	ZB Recirculation Hose
AM Pump Bleed Valve	ZC Drum Stabilizer (optional, various styles, see page 24)*
AN Wet Cup	

Power Disconnect

Every E-Flo iQ Dispense System has a red and yellow Disconnect Switch which shuts off power to the entire system.

The Disconnect Switch (AZ) is located on the Heat Control Box (AX), see FIG. 4. There is also a red and black Power junction Box Switch (AK) located on the Power Junction Box (AJ). The Power Junction Box Switch (AK) removes power to everything EXCEPT heat. The Disconnect Switch (AZ) removes power to the entire system, including heat.

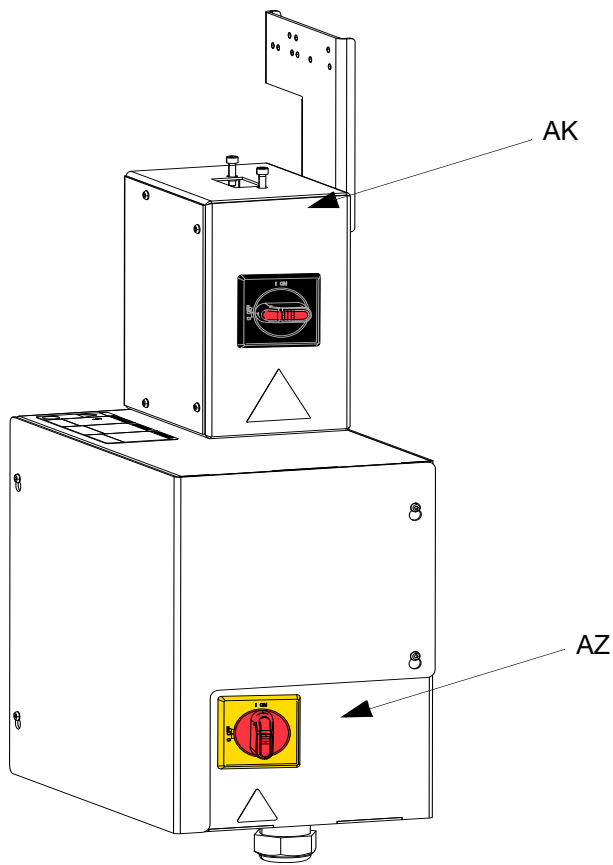


FIG. 4. Power Disconnect

Integrated Air Controls (AG)

The integrated air controls include:

- **Main Air Slider Valve (BA):** turns the air on and off to the iQ Ram Supply Unit. When closed, the valve relieves all air pressure downstream.
- **Ram Air Regulator (BB):** controls the Ram Assembly up and down pressure and the blowoff pressure.
- **Ram Director Valve (BC):** controls the Ram Assembly direction.
- **Exhaust Port with Muffler (BD)**
- **Blowoff Button (BE):** turns the air on and off to push the Platen (AD) out of an empty drum.

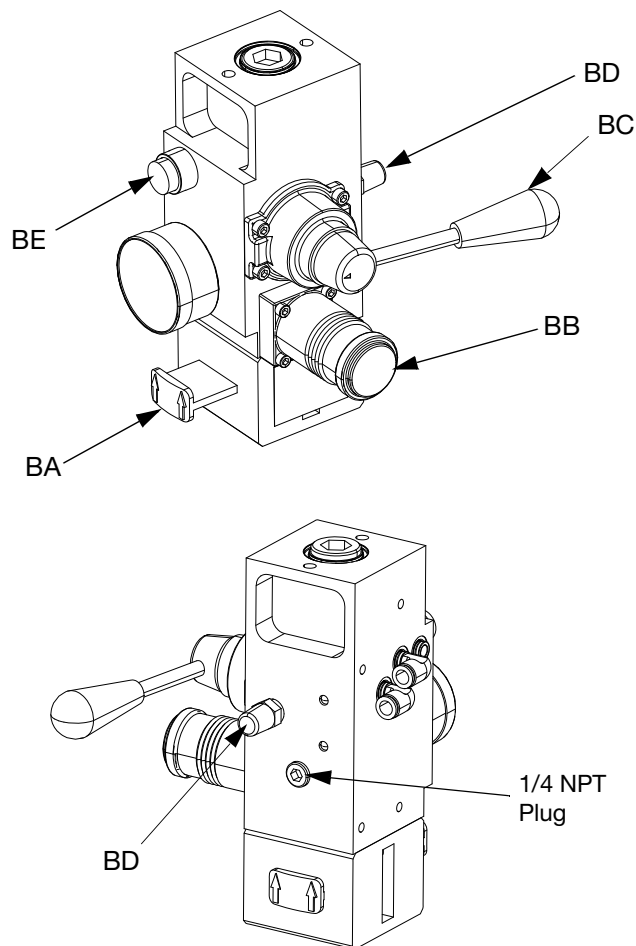


FIG. 5. Integrated Air Controls

Air Line Accessories

See FIG. 3.

- **Air Line Drain Valve (AS) (not supplied):** removes condensed water from air line.
- **Air Line Filter (AT) (not supplied):** removes harmful dirt and moisture from the compressed air supply.
- **Second Bleed-type Air Valve (AU) (required) (not supplied):** isolates the Air Line accessories for servicing. Locate upstream from all other Air Line accessories.

Advanced Display Module (ADM)

Front and Rear Views

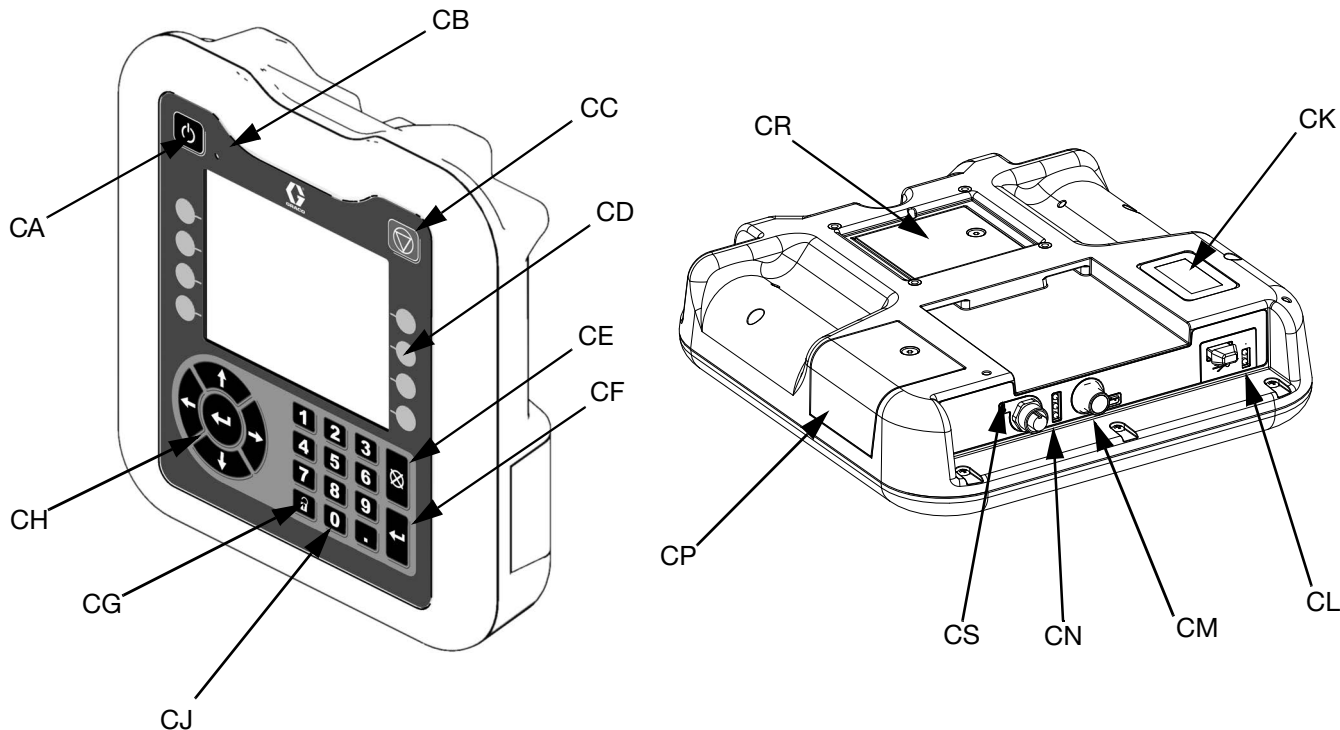


Fig. 6: ADM Component Identification

Key:

CA Startup/Shutdown

Starts up or shuts down the system. Toggles between Active and Inactive system.

CB System Status Indicator LED

CC Pump Soft Stop

Stops all pump processes and disables the pump. Also stops all heating processes and disables the heat. This is not a safety or emergency stop.

CD Soft Keys

Defined by the icon on the screen next to the soft key. Performs the specific operation for that icon when pressed.

CE Cancel

Cancels a selection or number entry while in the process of entering a number or making a selection. Cancels the pump processes. Exits a screen without saving changes.

CF Enter

Select to update a field, accept a selection or value, acknowledge an event, enter a screen, and toggle selected items.

CG Lock/Setup

Toggles between Run screens and the iQ Menu.

CH Directional Keypad

Navigate within a screen or to a new screen.

CJ Numeric Keypad

Input numeric values.

CK Part Number Identification Label

CL USB Interface

CM CAN Cable Connection

Power and communication.

CN Module Status LEDs

Visual indicators to show the status of the ADM.

CP Token Access Cover

Access cover for blue software token.

CR Battery Access Cover

CS Light Tower Connection

NOTE: If using a tandem system, the ADM is only included with the iQ Ram Supply Unit 1 (A).

Platen (AD) Component Identification

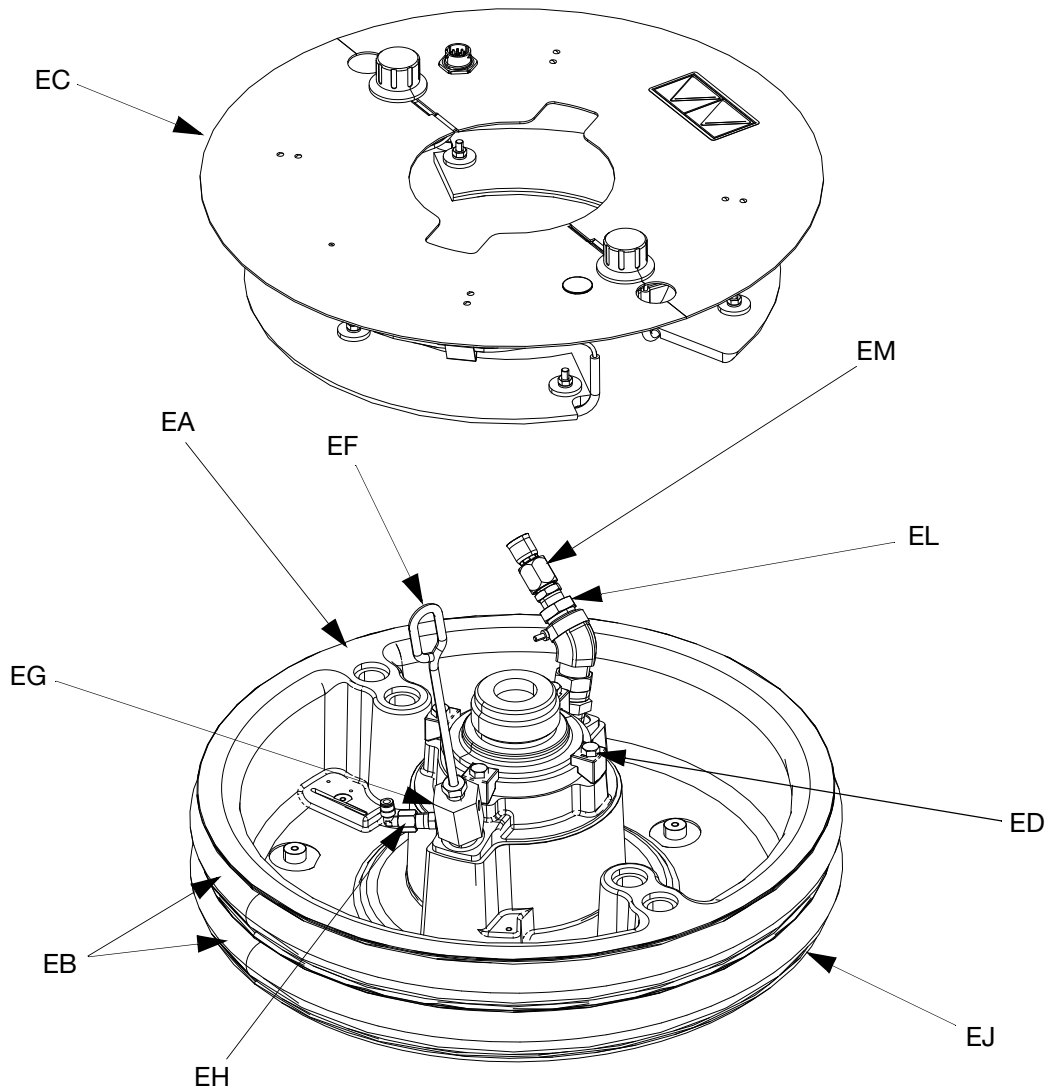


FIG. 7

Key:

- EA Plate
- EB Wiper
- EC Heater Cover
- EF Bleed Stick
- EG Bleed Port
- EH Air Assist Body Check Valve
- EJ Wiper Plate (under wiper)
- EK O-ring Seal (not shown)
- EL Platen Valve Port
- EM Platen Valve Cap

Electric Driver Communication Connections

Single Ram

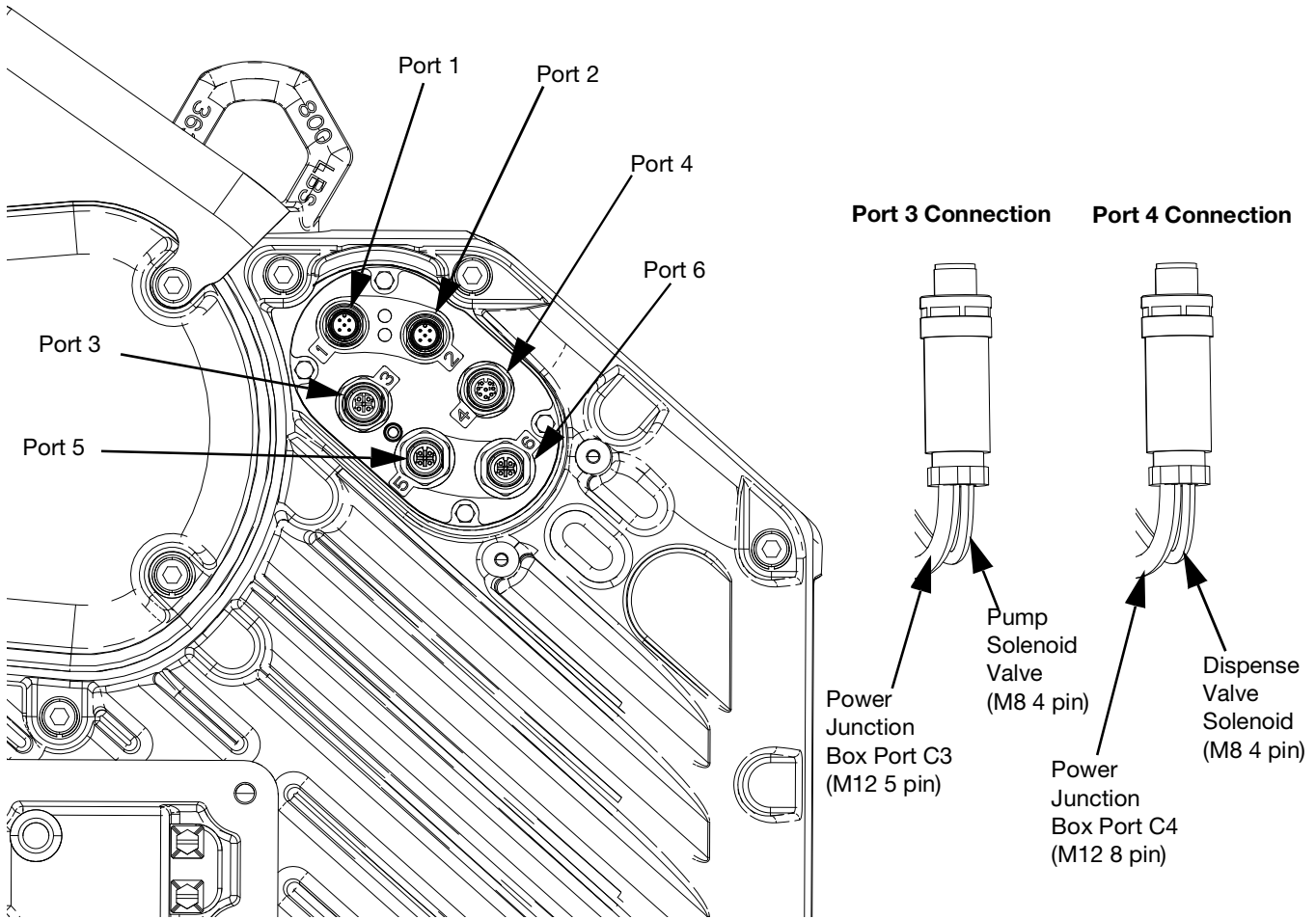
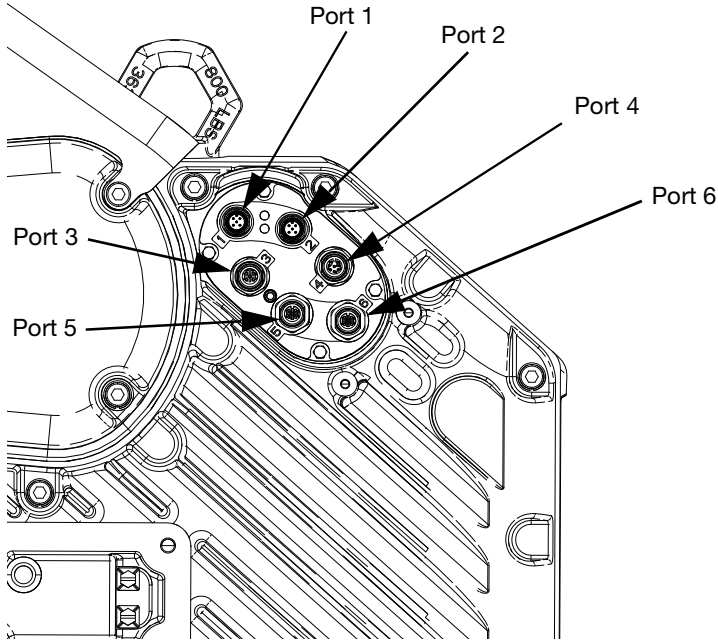


FIG. 8

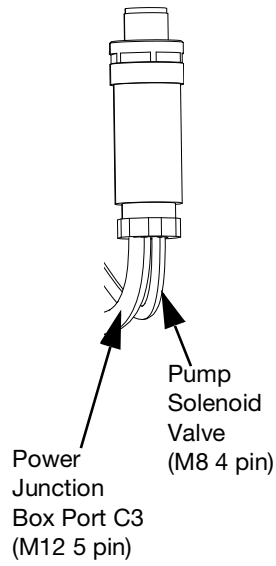
Key:

- Port 1 Connects to port C1 on the Power Junction Box.
- Port 2 Connects to port C2 on the Power Junction Box.
- Port 3 Connects to port C3 on the Power Junction Box (M12 5 pin), and to the pump solenoid valve (M8 4 pin).
- Port 4 Connects to port C4 on the Power Junction Box (M12 8 pin), and to the dispense valve solenoid (M8 4 pin).
- Port 5 Connects to the pump pressure transducer.
- Port 6 Connects to the valve pressure transducer.

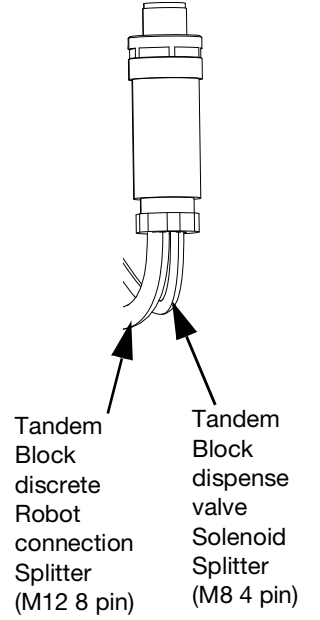
Tandem Ram



Port 3 Connection



Port 4 Connection



Tandem Block

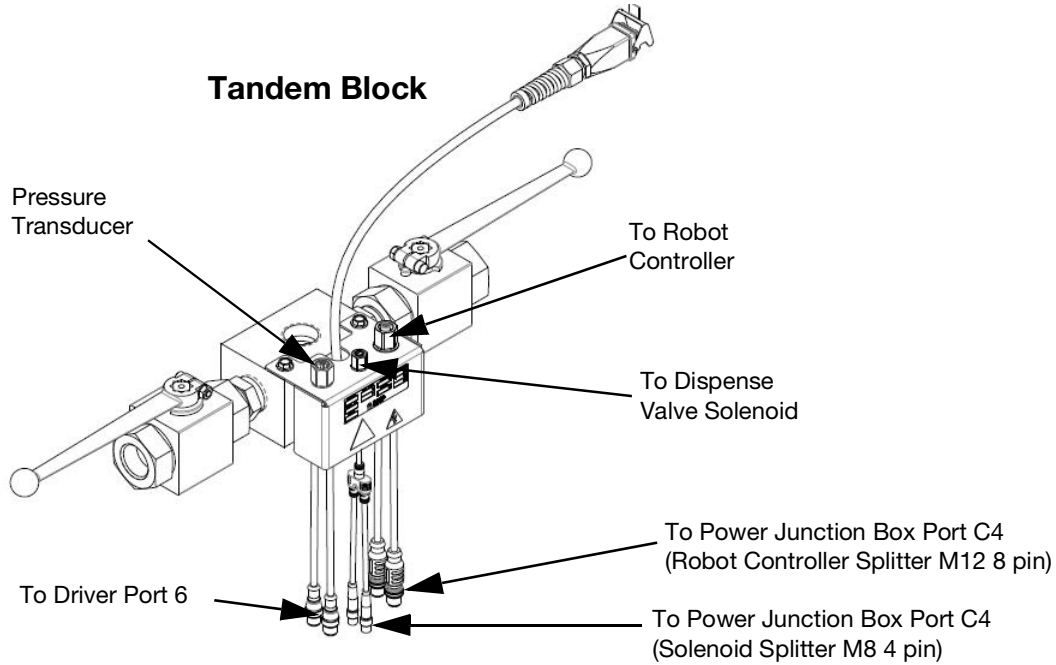


FIG. 9

Installing Tandem

1. Remove cable from port C1 on ram 1 and plug into female end of splitter. Splitter is included in tandem kit.
2. Install 0.4 m cable (121226) included in tandem kit from male end of splitter to part C1 on ram 1.
3. Install 5.0 m cable (124003) included in the tandem kit, from male end of splitter and connect to part C1 of ram 2.
4. Use zip ties included in kit to secure cables to ram frame. See FIG. 10 for cable routing.

NOTE: Ram 1 includes ADM, ram 2 has no ADM.

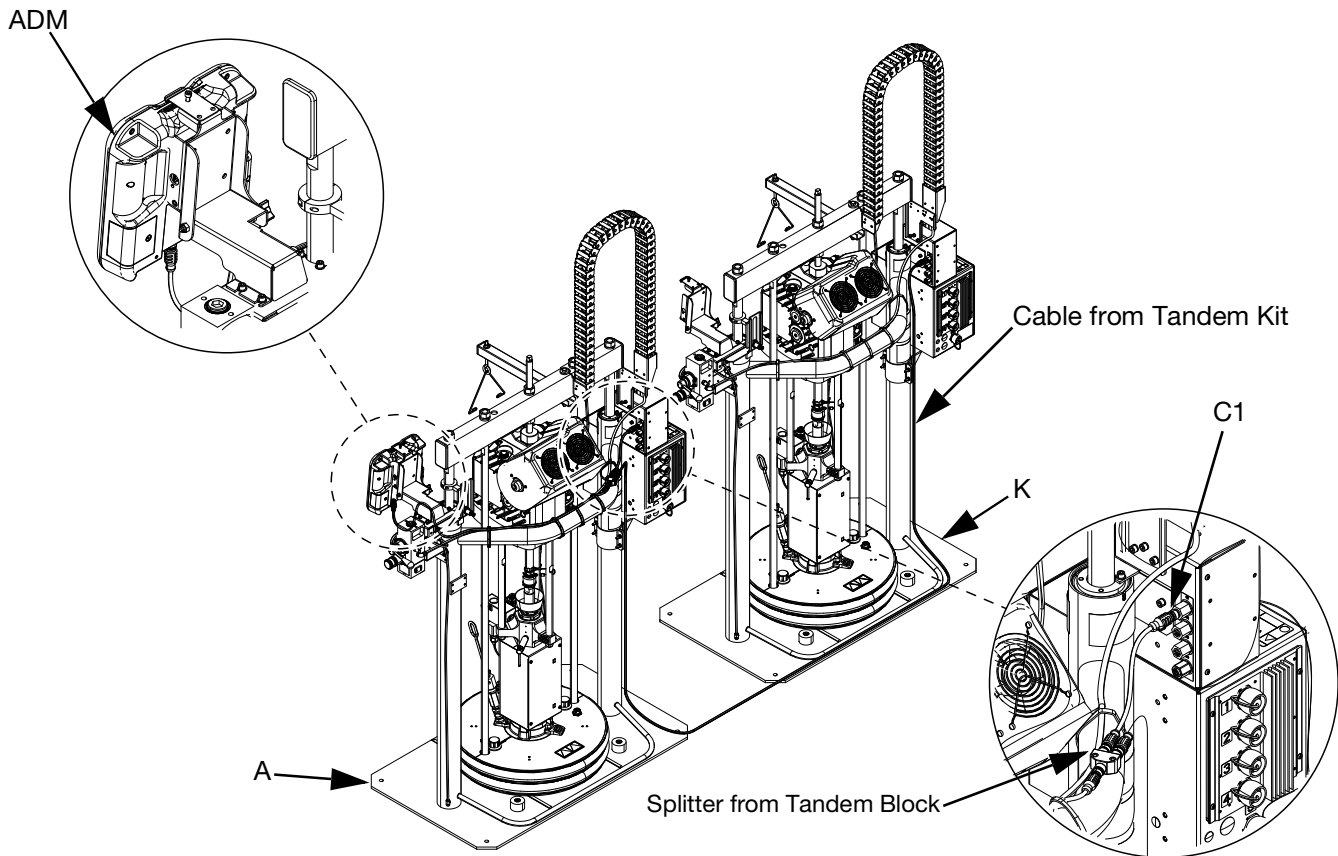


FIG. 10: Communication Connections

Key:

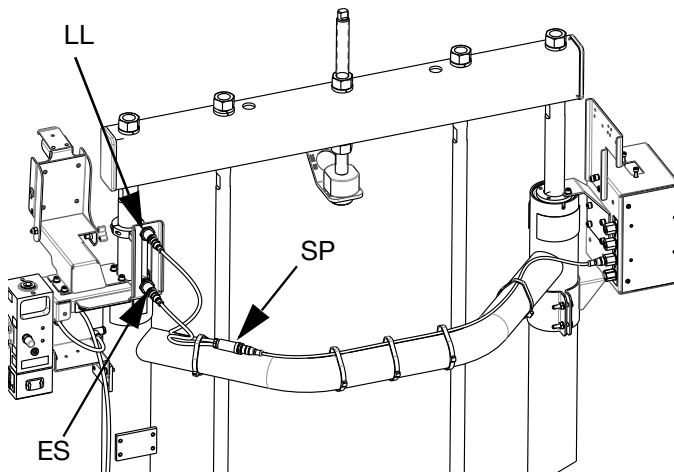
- Port 1 Connects to port C1 on the Power Junction Box.
- Port 2 Connects to port C2 on the Power Junction Box.
- Port 3 Connects to port C3 on the Power Junction Box (M12 5 pin), and to the platen valve solenoid (M8 4 pin).
- Port 4 Connects to port C4 on the Power Junction Box, and to the Tandem Block (R) solenoid splitter (M8 4 pin).
- Port 5 Connects to the pump pressure transducer.
- Port 6 Connects to the valve pressure transducer splitter on the Tandem Block (R).

Low Level Sensor Kit, 25R439

NOTE: The Low Level Sensor Kit is an optional accessory for Single Ram Systems, and a required accessory for Tandem Ram Systems.

To install the Low Level Sensor:

1. Turn the Disconnect Switch (AZ) OFF.
2. Disconnect cable from the empty level sensor (ES).
3. Mount the low level sensor (LL) on the mounting bracket.
4. Connect the splitter cable (SP) to the previously disconnected cable.
5. Connect the splitter cable (SP) lead labeled EMPTY to the empty level sensor (ES).
6. Connect the splitter cable (SP) lead labeled LOW to the low level sensor (LL).
7. Raise/lower the low level sensor (LL) to the desired position to activate the sensor.
8. See the E-Flo iQ Supply System Operation manual to set up the low level sensor.



Power Junction Box and Heat Control Box Connections

Single Ram

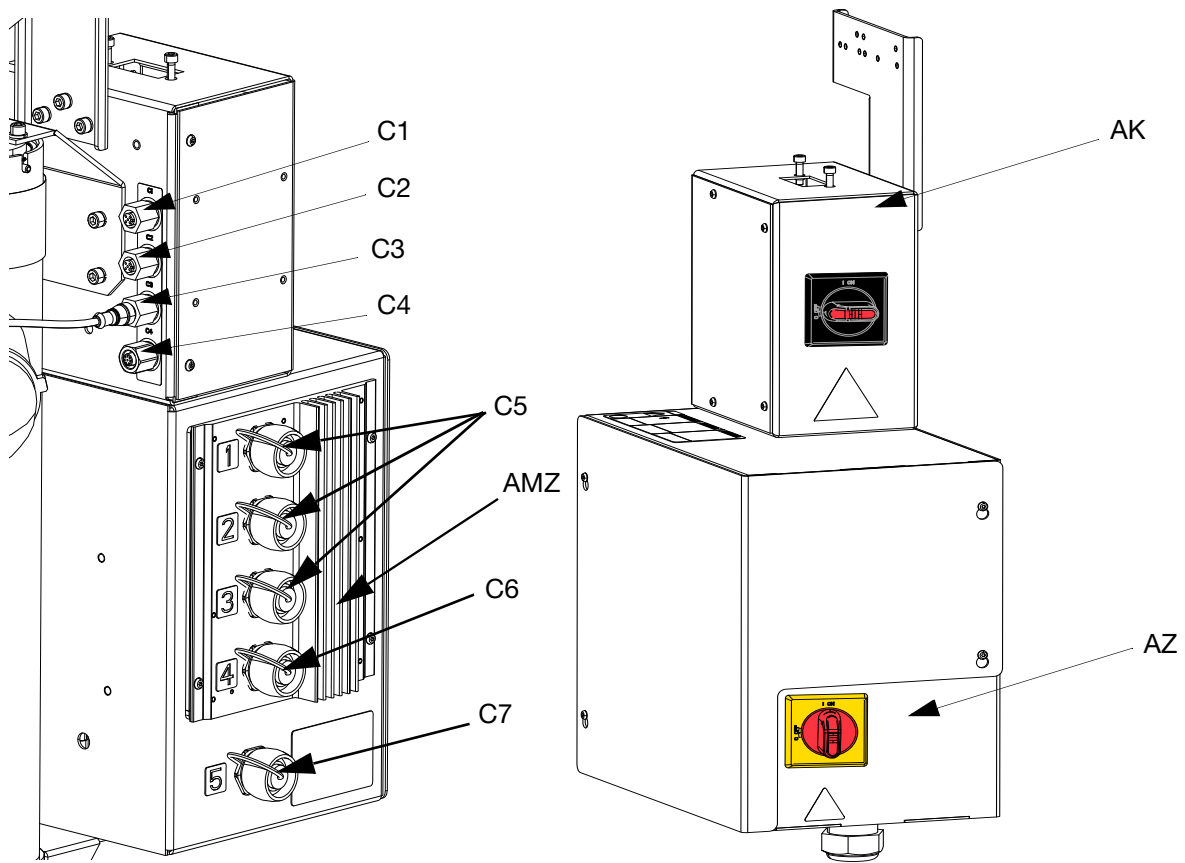


FIG. 11

Key:

- C1 GCA CAN Port (to ADM)
- C2 GCA CAN Port (to CGM)
- C3 Low and Empty Level Sensor Input
- C4 Discrete Integration Cable
- C5 Heated Hose/Accessory Connection
- C6 Heated Pump Connection
- C7 Heated Platen Connection
- AK Power Junction Box Switch
- AZ Disconnect Switch
- AMZ Auto Multi-Zone

Tandem Ram

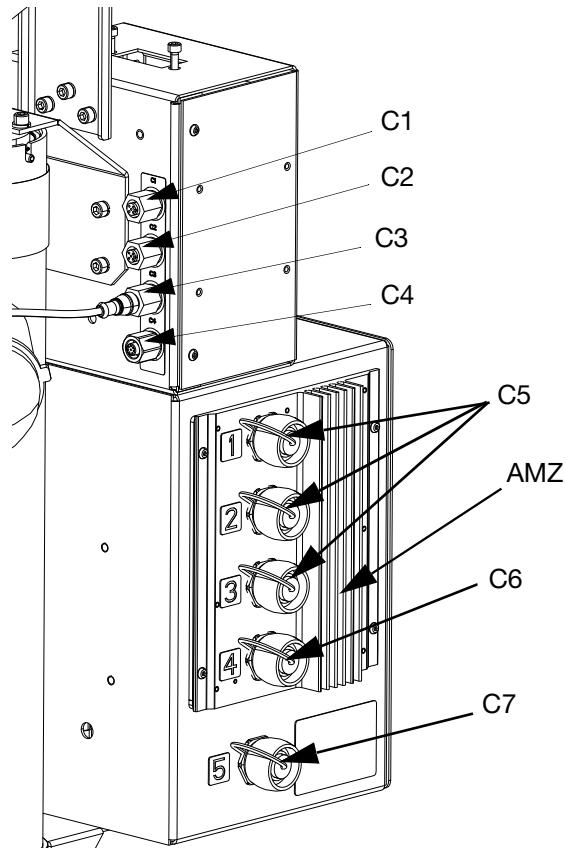


FIG. 12

iQ Ram Supply Unit 1

Key:

- C1 GCA CAN Port (to ADM splitter cable on Tandem Block (R) using the supplied CAN cable (124003))
- C2 GCA CAN Port (to CGM)
- C3 Low and Empty Level Sensor Input
- C4 Discrete Integration Cable (to robot splitter cable on tandem block)
- C5 Port 1, Port 2, Port 3: Heated Hose/Accessory Connection
- C6 (Port 4) Pump
- C7 (Port 5) Platen
- AK Power Junction Box Switch (same as **Single Ram** on page 20)
- AZ Disconnect Switch (same as **Single Ram** on page 20)
- AMZ Auto Multi-Zone

iQ Ram Supply Unit 2

Key:

- C1 GCA CAN Port (to ADM splitter cable on Tandem Block (R) using the supplied CAN cable (124003))
- C2 GCA CAN Port (to CGM)
- C3 Low and Empty Level Sensor Input
- C4 Discrete Integration Cable (to robot splitter cable on Tandem Block (R))
- C5 Port 1, Port 2, Port 3: Heated Hose/Accessory Connection
- C6 (Port 4) Pump
- C7 (Port 5) Platen
- AK Power Junction Box Switch (same as **Single Ram** on page 20)
- AZ Disconnect Switch (same as **Single Ram** on page 20)
- AMZ Auto Multi-Zone

Installation

				
All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.				

Location

Remove the iQ Ram Supply Unit from its crate. Attach a lifting sling at the proper lift locations (see FIG. 3). Lift off of the pallet using a crane or a forklift.

To properly locate and anchor the iQ Ram Supply Unit (A), see **Dimensions** on page 70.

NOTICE
Always lift the iQ Ram Supply Unit at the proper lift locations (see FIG. 3). Do not lift in any other way. Failure to lift at the proper lift locations can result in damage to the system.





NOTE: The lift ring on the Driver (AB) is only to be used for replacing the Driver. Do not use it to lift the entire system.

Position the Ram Assembly (AA) so the Driver (AB), Power Junction Box Switch (AK) and/or Disconnect Switch (AZ), Integrated Air Controls (AG), and ADM (AF) are easily accessible. Ensure that there is enough space overhead for the Ram Assembly to raise fully.

Use the holes in the Ram Assembly base as a guide and drill holes for 1/2 in. (13 mm) anchors.

Ensure that the Ram Assembly base is level in all directions. If necessary, level the base using metal shims. Secure the base to the floor using 1/2 in. (13 mm) anchors that are long enough to prevent the Ram Assembly from tipping.

Grounding

				
The equipment must be grounded to reduce the risk of static sparking and electric shock. Electric or static sparking can cause fumes to ignite or explode. Improper grounding can cause electric shock. Grounding provides an escape wire for the electric current.				

Ram Assembly: the iQ Ram Supply Unit is grounded through the incoming power cord. See **Connect Power** on page 23.

Air and fluid hoses: use only electrically conductive hoses with a maximum of 500 ft. (150 m) combined hose length to ensure grounding continuity. Check the electrical resistance of the hoses. If the total resistance to ground exceeds 29 megaohms, replace the hose immediately.

Air compressor: follow the manufacturer’s recommendations.

Dispense valve: see the Axial Dispense Valve Instructions-Parts manual for grounding information.

Fluid supply container: follow local codes and regulations.

Solvent pails used when flushing: follow local code. Use only conductive metal pails, placed on a grounded surface. Do not place the pail on a non-conductive surface, such as paper or cardboard, which interrupts the grounding continuity.

To maintain grounding continuity when flushing or relieving pressure: hold a metal part of the dispense valve firmly to the side of a grounded metal pail, then trigger the valve.

Power Requirements

Each iQ Ram Supply Unit requires a dedicated circuit protected with a circuit breaker.

Voltage	Phase	Hz	Current
200-240 VAC	1	50/60	60 A
200-240 VAC	3 (Δ)	50/60	38 A
380-420 VAC	3 (Y)	50/60	38 A
480 VAC	3 (Δ)	60	24A

Connect Power

NOTICE

To avoid equipment damage, route and secure a power cord that is long enough to allow the full range of movement for the Ram.

1. Turn the Disconnect Switch (AZ) OFF.

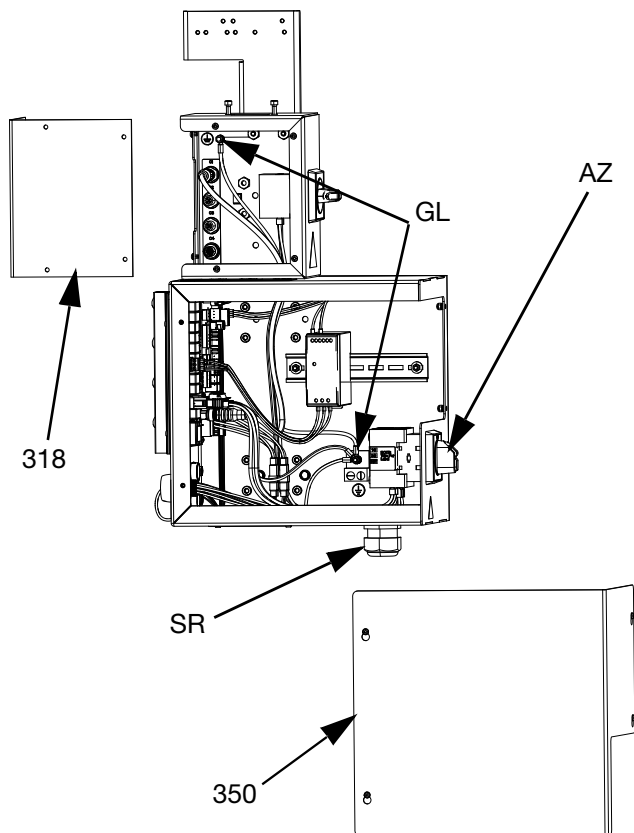
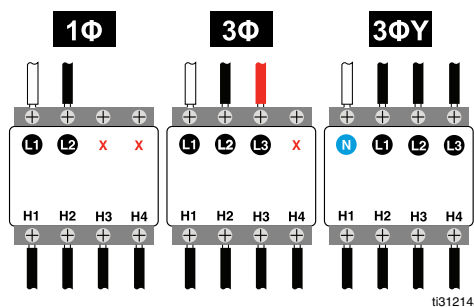


FIG. 13

2. Loosen the screws and remove the cover (318) on the Power Junction Box (AJ).
3. Loosen the screws and remove the cover (350) on the Heat Control Box (AX).
4. Insert the electrical cord through the electrical enclosure strain relief bushing (SR).
5. Attach insulated ferrules to the end of each wire.
6. Connect the ground wire to the ground lugs (GL).
7. Connect power wires to the Disconnect Switch (AZ) as shown below.



NOTE: Use a flat-head or Pozidriv screwdriver to tighten the terminals to 7-10 in-lb (0.8-1.1 N•m).

8. Tighten the strain relief bushing (SR) around the electrical cord.
9. Attach the Heat Control Box cover (350) and the Power Junction Box cover (318).

Attach Drum Stops

The iQ Ram Supply Units are shipped with drum stops in place to help position the drum on the Ram Assembly (AA). For replacement parts, order Kit 255477. The kit includes 2 each of capscrews, lock washers (not shown), and drum stops.

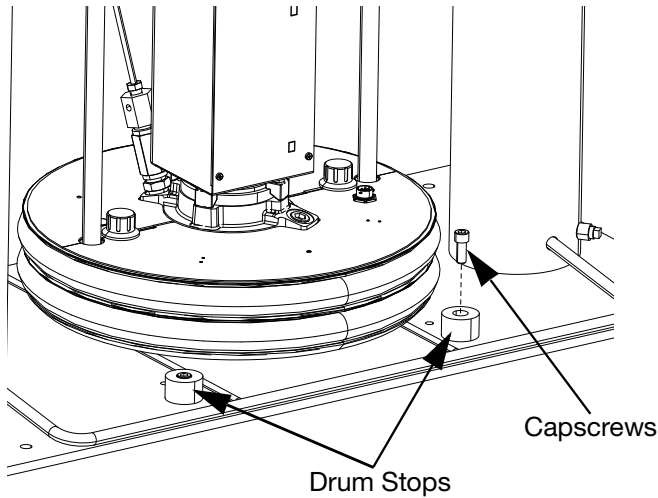


FIG. 14: Drum Stop Installation

1. Locate the correct set of mounting holes on the Ram Assembly base. See FIG. 15.
2. Using the capscrews and lock washers, attach the drum stops to the Ram Assembly base.

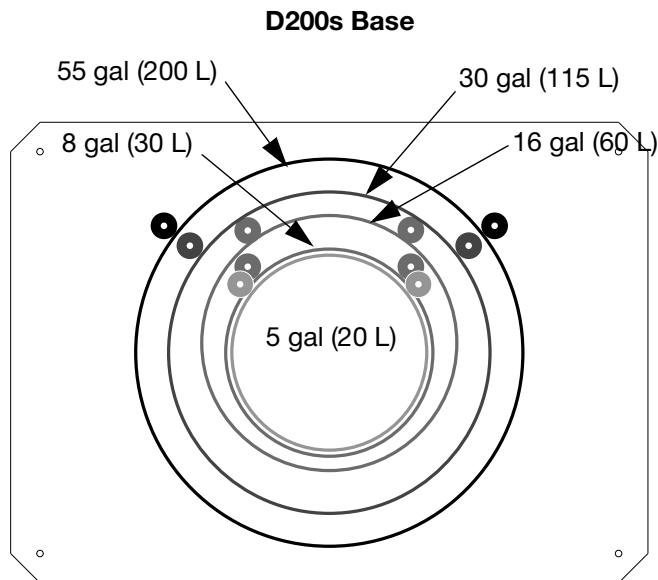
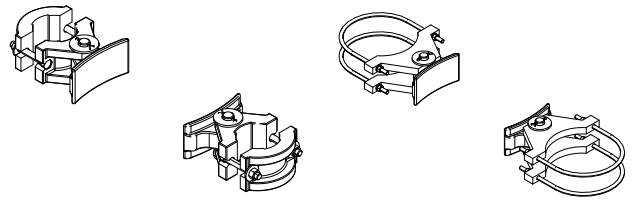


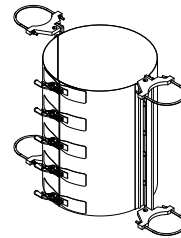
FIG. 15: Ram Base

Attach Drum Stabilizers (optional)

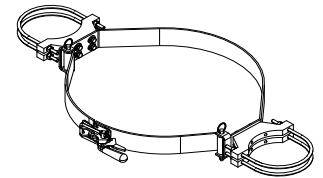


T102798
Kit 206537 For D200 Dual Post Ram

T102799
Kit C32463 For D200s Dual Post Ram (two kits shown)



T102900
Kit 918397 For D200s Dual Post Ram
FIG. 16



T102901
Kit 918395 For D200s Dual Post Ram

Kits are available for D200 and D200s rams. Install per manual (3B0243) included with kit. Read warnings and instructions included with the kit before operating the system with drum stabilizers installed.

Install Vented Oil Cap Before Using Equipment.

The Driver gear-box is shipped from the factory pre-filled with oil. The temporary unvented cap prevents oil leaks during shipment. Replace this temporary cap with the vented oil cap supplied with the equipment before use.

NOTE: Prior to use, check oil level. Oil level should be half way up the sight glass.

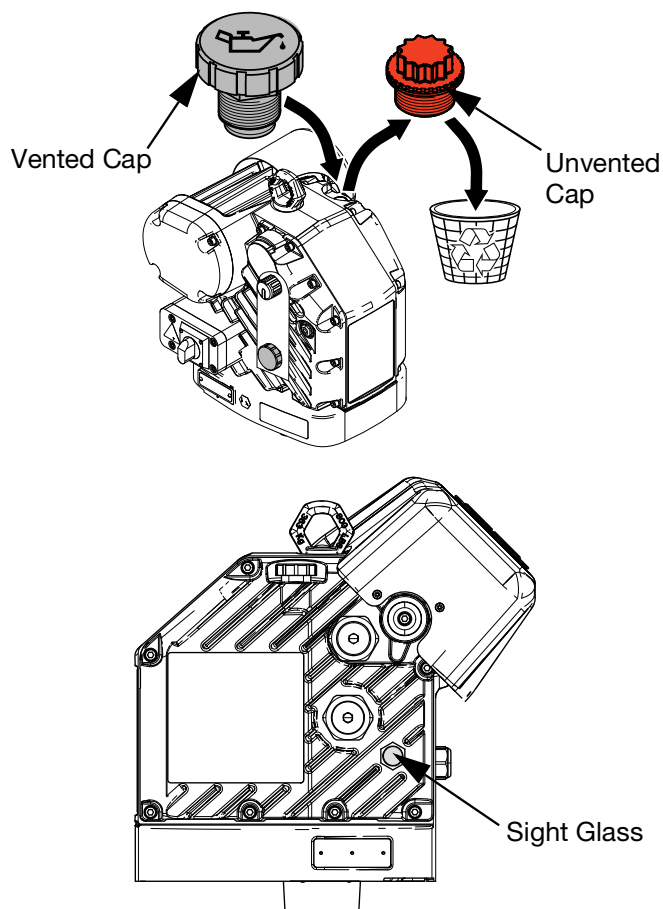


FIG. 17: Unvented and Vented Oil Caps

Setup



Remove the Axial Dispense Valve (B) from its packaging. Refer to the Axial Dispense Valve Instructions-Parts manual included with the valve for information about installing the valve. See **Related Manuals** on page 3.

Air Line Connections

Refer to FIG. 3 on page 11 for a typical installation.

Attach the Air Line (AR) (not supplied) to the bottom of the Integrated Air Control (AG) at the 3/4 in. NPT connection.

NOTE: Be sure all components are adequately sized and pressure rated to meet the system's requirements.

Hoses and Fittings

NOTE: A number of options are available for fittings, hoses, and cables for the E-Flo iQ Dispense System. Yours may differ in appearance from those shown in FIG. 1 on page 9 and FIG. 2 on page 10. However, the steps for making the connections are the same.

See FIG. 1 on page 9 and FIG. 2 on page 10 to connect the hoses and fittings to the iQ Ram Supply Unit(s) (A, K) and the Dispense Valve (B).

NOTE: Do not connect any hoses if flushing the pump for the first time. See the E-Flo iQ Dispense System Operation manual for instructions on flushing the pump and connecting hoses.

NOTE: To ensure the best crossover performance with an E-Flo iQ Tandem System, Tandem Hose 1 and Tandem Hose 2 must be the same inner diameter and length.

1. Follow the **Pressure Relief Procedure** on page 36.

2. If using a Single iQ Ram Supply System, connect the Ram Supply System to Supply Hose 1 Fitting (E) to the fluid check valve (AE) on the iQ Ram Supply Unit (A).
3. If using a Tandem iQ Ram Supply System:
 - a. Connect the Ram Supply Unit 1 to Tandem Hose 1 Fitting (N) to the fluid check valve (AE) on iQ Ram Supply Unit 1 (A).
 - b. Connect the Ram Supply Unit 2 to Tandem Hose 2 Fitting (P) to the fluid check valve (AE) on the iQ Ram Supply Unit 2 (K).

NOTE: The Recirculation Hose (ZB) should not be connected to the to the platen fitting at this time. See the E-Flo iQ Dispense System Operation manual for more information on when to connect the Recirculation Hose (ZB).

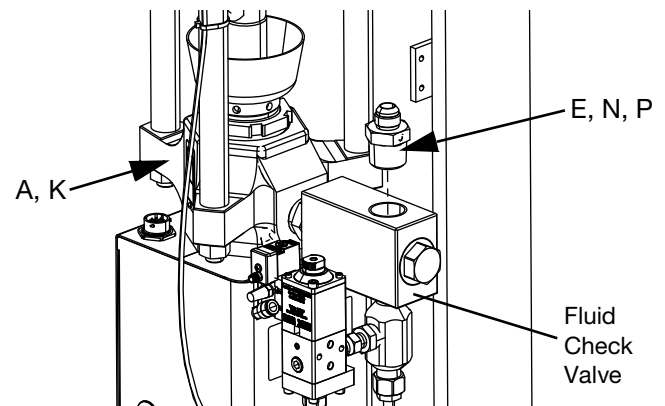


FIG. 18

4. If using a Single iQ Ram Supply System, connect Supply Hose 1 (C) to the Ram Supply System to Supply Hose 1 Fitting (E) as shown in FIG. 1 and FIG. 19.
5. If using a Tandem iQ Ram Supply System:
 - a. Connect Tandem Hose 1 (L) to the Ram Supply Unit 1 to Tandem Hose 1 Fitting (N) as shown in FIG. 2 and FIG. 19.
 - b. Connect Tandem Hose 2 (M) to the Ram Supply Unit 2 to Tandem Hose 2 Fitting (P) as shown in FIG. 2 and FIG. 19.

- c. Connect Tandem Hose 1 (L) and Tandem Hose 2 (M) from the supply system to the Tandem Block (R). See FIG. 20.
- d. Connect Supply Hose 1 (C) to the Tandem Block (R). See FIG. 20.

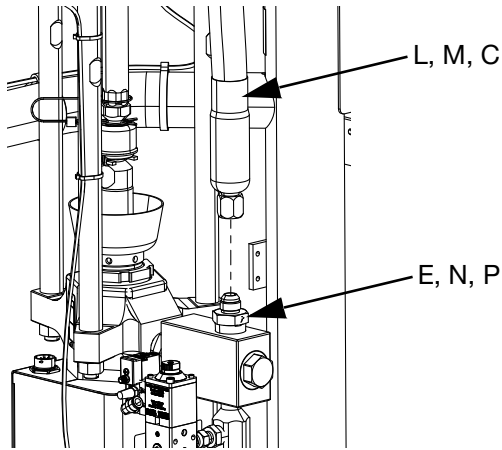


FIG. 19

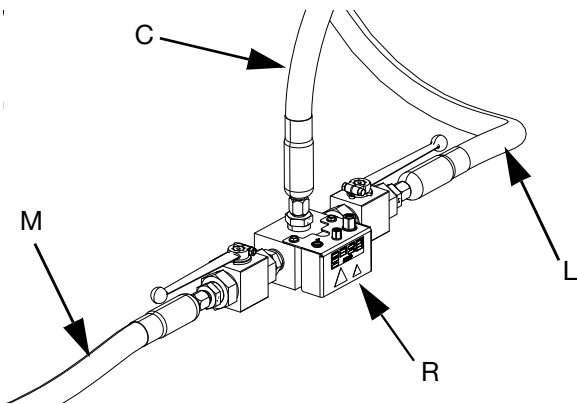


FIG. 20

- 6. If you are using two supply hoses (C and D), use the Supply Hose 1 to Supply Hose 2 Fitting (F) to connect Supply Hose 1 (C) to Supply Hose 2 (D). See FIG. 21.

NOTE: If using heated hoses, make sure the electrical connections of each hose are oriented correctly, with the circular electrical connector facing the Ram. See FIG. 1 on page 9 for proper hose orientation on the system.

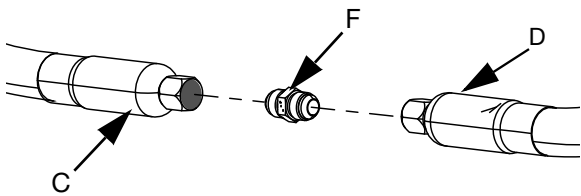


FIG. 21

- 7. If two hoses are used, connect Supply Hose 2 (D) to the inlet fitting on the Dispense Valve (B). If only one hose is used, connect Supply Hose 1 (C) to the inlet fitting on the Dispense Valve (B). See FIG. 22.

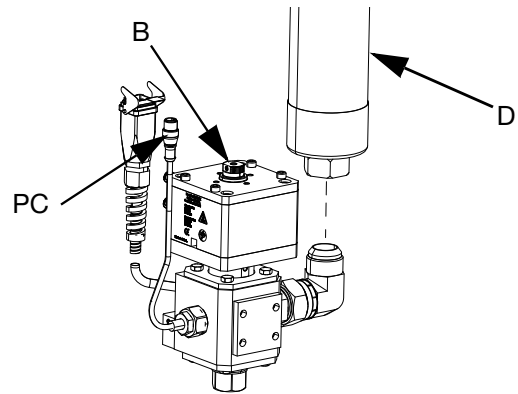


FIG. 22

- 8. Tighten all fittings until secure.
- 9. Connect the Air Line (AR) (not supplied) to the air fitting (FT) on the dispense valve solenoid. See the Axial Dispense Valve Instructions-Parts manual. See FIG. 25.

Electrical Connections

Pressure Transducer

1. If using a Single iQ Ram Supply System, connect the pressure transducer cable (PC) from dispense valve (B) to Port 6 on the Electric Driver (AB). See **Electric Driver Communication Connections** for Single Rams on page 16.
2. If using a Tandem iQ Ram Supply System:
 - a. Connect the Pressure Transducer Cable (PC) from the Dispense Valve (B) to the Tandem Block Valve Pressure Transducer Splitter. See FIG. 23.
 - b. Connect one male end of the M12 5 pin Pressure Transducer Splitter cable (ZZ) on the Tandem Block (R) to Port 6 on the Electric Driver (AB) on Ram 1. The second male end goes to Port 6 on Ram 2. See **Electric Driver Communication Connections** for **Tandem Rams** on page 17.

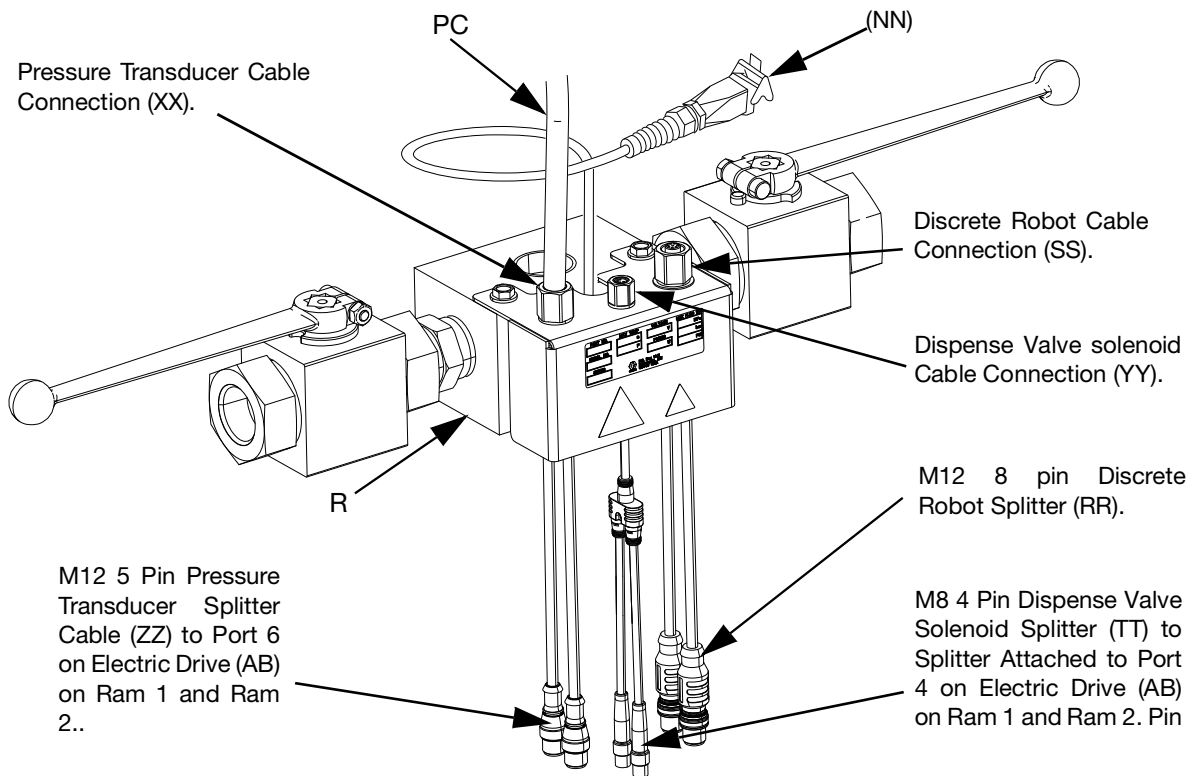


FIG. 23

Dispense Valve Solenoid

3. If using a Single iQ Ram Supply System:
 - a. Connect the solenoid valve cable (VC) to the M8 4 pin end of the splitter cable attached to Port 4 on the Electric Driver (AB). See **Electric Driver Communication Connections** for Single Rams on page 16. See FIG. 25.
 - b. Connect the 90 degree end of the included M8 4 pin cable (VD) to the dispense valve, and the straight end of the solenoid valve cable to (VC). See FIG. 25.
4. If using an iQ Tandem Ram Supply System:
 - a. Connect the dispense valve solenoid cable to the tandem dispense valve solenoid connector (YY) on tandem block (R).
 - b. Connect the 90 degree end of the included M8 4 pin cable (15N040) to the dispense valve, and the straight end of the solenoid valve cable to (VC). See FIG. 25.
 - c. Connect one male end of the M8 4 pin splitter (TT) on the tandem block (R) to the M8 4 pin end of the splitter cable attached to Port 4 on the Electric Driver (AB) for ram 1 and ram 2. See **Electric Driver Communication Connections** for **Tandem Rams** on page 17.

NOTE: Make sure the pins on the solenoid valve cable are oriented as shown in FIG. 24 before the cable is plugged into the solenoid valve.

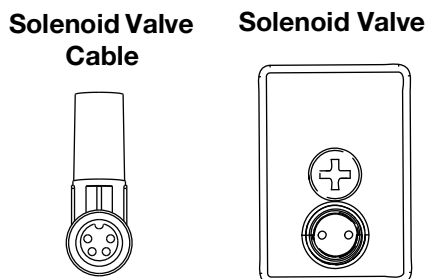


FIG. 24

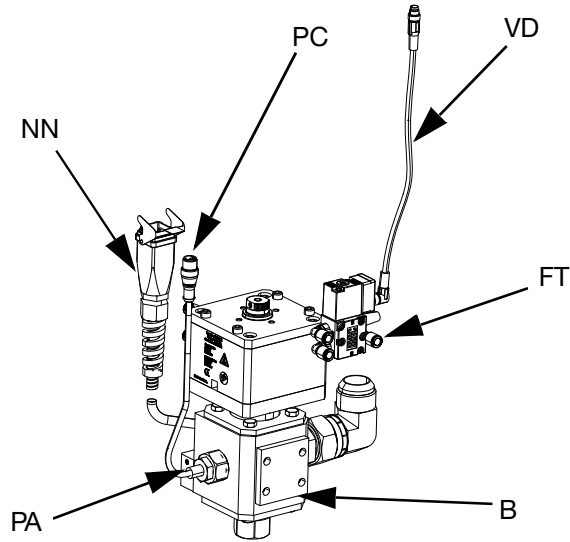


FIG. 25

Robot Connection (if used)

5. If using a Single iQ Ram Supply System:
 - a. Connect the included M12 8 pin cable with flying leads (128441) to Port C4 of the power junction box (AJ)
 - b. Flying leads of (128441) connect to robot controller (not included).
6. If using a Tandem iQ Ram Supply System:
 - a. Connect the included M12 8 pin cable with flying leads (128441) to discrete robot cable connector (SS) on tandem block (R).
 - b. Connect M12 8 pin discrete robot splitter (RR) to Port C4 of the power junction box (AJ) on ram 1 and ram 2.
 - c. Flying leads from (128441) connect to robot controller (not included).

Heat Connections (Hoses and Accessories)

1. Connect heated hoses (with circular electrical connectors) to Heat Control Box Ports 1, Port 2 or Port 3 (C5).
2. Connect heated accessories to the square electrical connector end of each heated hose that is used.

Example 1: Single system with two heated hoses and one heated dispense valve.

- Hose 1 - Circular electrical connection to Port 1 (C5).
- Hose 2 - Circular electrical connectors to Port 2 (C5). *
- Heated valve - Square electrical connections from hose 2 to Axial Dispense Valve (B). See FIG. 26.

Single System Example

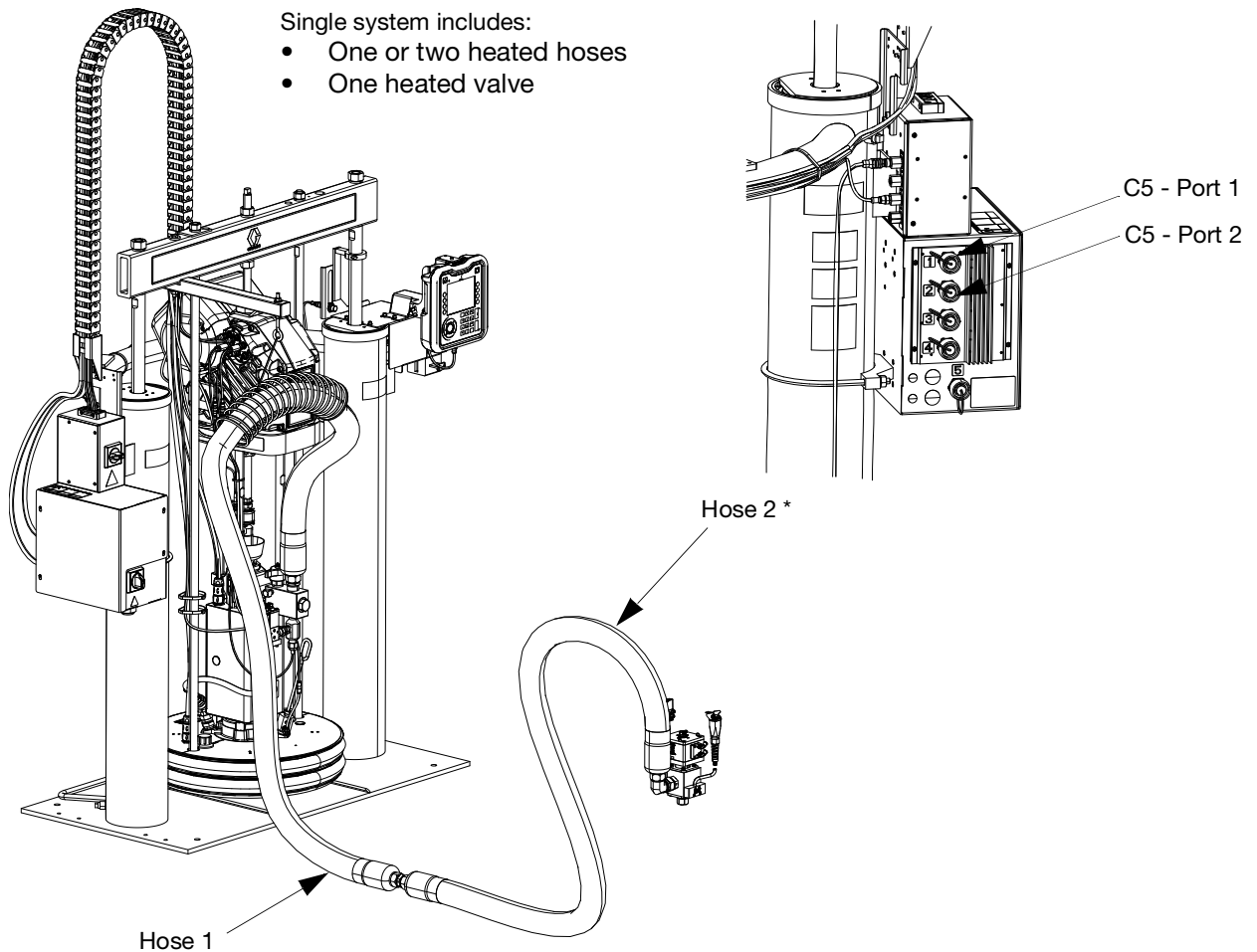


FIG. 26

Note: port 4 is always used for heated pump. Port 5 is always used for heated platen.

* Requires **Heat Extension Cables**. See page 62.

Example 2: Tandem system with three heated hoses, one heated tandem block and one heated dispense valve.

- Hose 1 - To tandem block from pump 1 - circular electrical connection to Port 1 (C5) of ram 1.
- Hose 2 - To tandem block from pump 2 - circular electrical connection to Port 1 (C5) of ram 2. **
- Hose 3 - From tandem block - circular electrical connector to port 2 (C5) of ram 1 or ram 2. *
- Heated Valve - Square electrical connection from hose 4 to Axial Dispense Valve (B).
- Heated Tandem Block - Square electrical connection from hose 1 or hose 2 to heated tandem block (R). See FIG. 27.

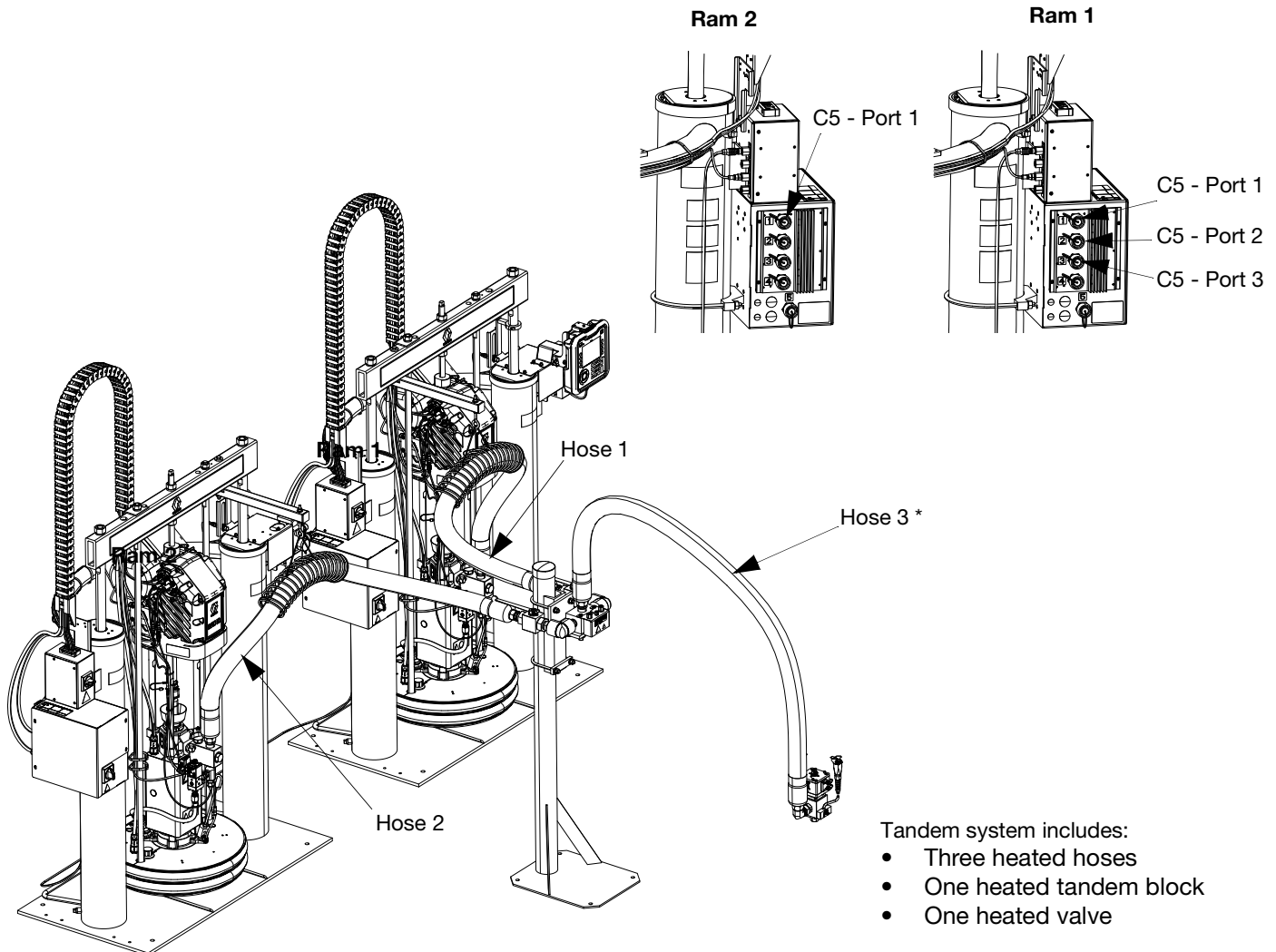


FIG. 27

Note: port 4 is always used for heated pump. Port 5 is always used for heated platen.

* Requires **Heat Extension Cables**. See page 62.

** Heat extension cable included in tandem block kit (26B488).

Wet Cup



Before starting, fill the Wet Cup (AN) 1/3 full with Graco Throat Seal Liquid (TSL) or a compatible solvent.

Torque the Wet Cup

The Wet Cup (AN) is torqued at the factory; however, throat packing seals on Severe Duty pumps may relax over time. Check Wet Cup torque frequently after initial start-up and periodically after the first week of production. Maintaining proper Wet Cup torque is important to extending seal life.

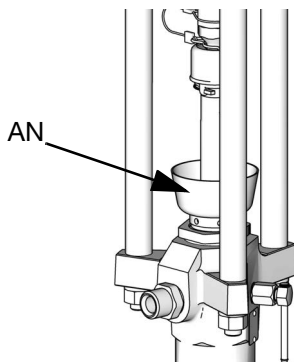


Fig. 28: Wet Cup

NOTE: MaxLife pumps use a special u-cup throat seal that is non-adjustable and does not require periodic torquing.

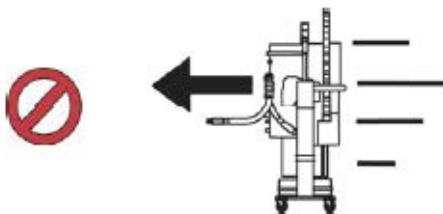
1. Follow the **Pressure Relief Procedure** on page 36.
2. Torque the Wet Cup (AN) 95-115 ft-lbs (128-155 N•m) using the packing nut wrench (supplied) whenever necessary. Do not overtighten the Wet Cup.

Hose Care Guidelines

<p>Fluids subjected to heat in confined spaces can create a rapid rise in pressure due to the thermal expansion. Over-pressurization can result in equipment rupture and serious injury.</p> <ul style="list-style-type: none"> • Open a valve to relieve the fluid expansion during heating. • Replace hoses pro actively at regular intervals based on your operating conditions. 				

NOTE: Pressure check the hose assemblies. Refer to the E-Flo iQ Supply System Operation manual for instructions on priming the system. Check carefully for leaks at the hose connections. If there are leaks, follow the **Pressure Relief Procedure** on page 36.

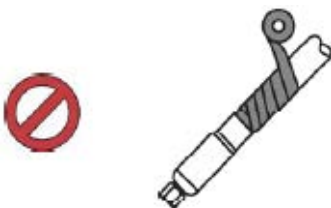
Do not use hose to pull the equipment.



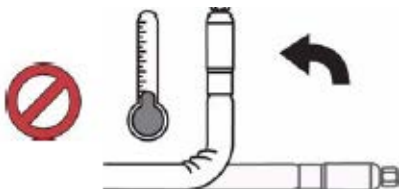
Use 2 wrenches to tighten. Torque to specification:

Fitting	Torque, in-lb (N•m)
-10	700 (79.1)
-12	1000 (113.0)
-16	1400 (158.2)

Do not tape or cover hose.



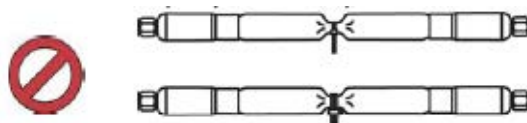
Do not flex hose when cold.



Use hose support spring.



Do not clamp, squeeze, or zip tie hose.



Minimum bend radius:

Fitting	Radius
-10	12 (305)
-12	14 (356)
-16	18 (457)

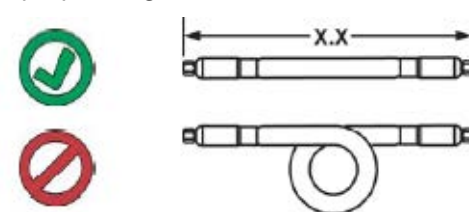
Do not bend or crimp hose.



Do not twist hose.



Use proper length hose.





Flush Before Using Equipment

The equipment was tested with lightweight oil, which is left in the fluid passages to protect parts. To avoid contaminating the fluid with oil, flush the equipment with a compatible solvent before using the equipment. See the E-Flo iQ Supply System Operation manual for information about flushing the equipment. See **Related Manuals** on page 3.

Check Resistance (Heated Systems)

Check Sensor Resistance

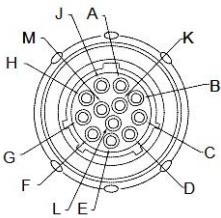
				
To reduce risk of injury or damage to equipment, conduct these electrical checks with the Power Junction Box Switch (AK) and the Disconnect Switch (AZ) OFF.				

NOTE: Instructions for checking sensor resistance applies to heated systems only.

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



1. Turn the Power Junction Box Switch (AK) and the Disconnect Switch (AZ) OFF.
2. Wait for components to cool down to ambient room temperature 63°-77°F (17°-25°C). Check electrical resistance for the components.

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

AMZ	Pins	Circular Hose Connector
First Heat Zone	A, J	
Second Heat Zone	C, D	
First RTD	G, K	
Second RTD	M, K	
Earth Ground	B	

3. Replace any parts whose resistance readings do not comply with the ranges listed in Table 1: Sensors on page 35.

Check Heater Resistance

				
To reduce risk of injury or damage to equipment, conduct these electrical checks with the Power Junction Box Switch (AK) and the Disconnect Switch (AZ) OFF.				

NOTE: Instructions for checking heater resistance applies to heated systems only.

1. Turn the Power Junction Box Switch (AK) and the Disconnect Switch (AZ) OFF.
2. Make electrical resistance checks for the components.
3. Replace any parts whose resistance readings do not comply with the ranges listed in **Table 1: Sensors** on page 35.

Table 1: Sensors

Port	Zone	Component	RTD Range (Ohms)	RTD Pin Numbers	Heater Element Resistance (Ohms)	Heater Pin Numbers
1	1	Heated Hose	100	G, K	See hose manual	See hose manual
	2	Heated Accessory 1	100	M, K	See accessory manual	See accessory manual
2	3	Heated Hose	100	G, K	See hose manual	See hose manual
	4	Heated Accessory 2	100	M, K	See accessory manual	See accessory manual
3	5	Heated Hose	100	G, K	See hose manual	See hose manual
	6	Heated Accessory 3	100	M, K	See accessory manual	See accessory manual
4	7	Not Used	NA	NA	NA	NA
	8	Pump	1000	M, K	37	C, D
5	9	5 gallon platen	100	M, K	80	C, D
		55 gallon platen	1000	M, K	15	C, D (#1) A, J (#2)

Pressure Relief Procedure



Follow the Pressure Relief Procedure whenever you see this symbol.

<p>This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the Pressure Relief Procedure when you stop spraying and before cleaning, checking, or servicing the equipment.</p>				

NOTE: The ADM must be in Local control mode to depressurize the system. See the E-Flo iQ Supply System Operation manual.

NOTE: For iQ Tandem Ram Supply Systems, make sure both Ball Valves (S) on the Tandem Block are open to ensure pressure is fully relieved.

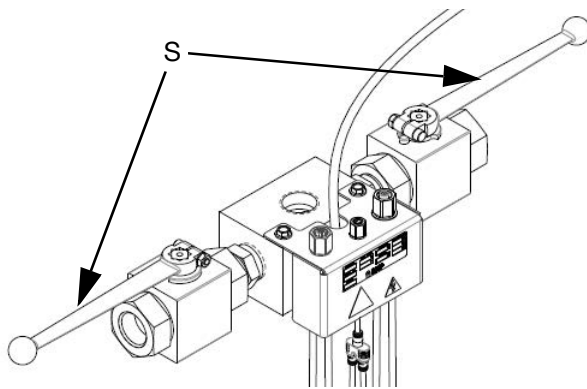


FIG. 29: Tandem Block Ball Valves

NOTE: To relieve pressure for the entire E-Flo iQ Dispense System, follow steps 1 through 12. To relieve pressure for the fluid side only, leaving air on to the ram cylinder follow steps 1 through 9.

1. Ensure the control mode is set to Local. See **Control Modes** in the E-Flo iQ Supply System Operation manual.

2. At the ADM (AF) Run screen, press the soft key for Valve Depressurization. Then press the key for Valve Depressurization.

soft key to open the Axial Dispense Valve (B) allowing the system to depressurize.

Single Unit Run Screen

12/19/19 16:33 Pump 1
Pumps Active No Active Errors

Local

469 psi
472 psi
200 cc
0 cc/min

Style: 1 Actual: 0.00 cc
Graco

Pump Pressure
Valve Pressure

Tandem Unit Run Screen

04/03/20 11:10 Heat 2 Tandem Heat 1
Heat Off No Active Errors

Local

1163 psi
1155 psi
200 cc
200 cc
1109 psi
0 cc/min

Style: 3 Actual: 2.26 cc

Pump Pressures
Valve Pressure

3. The current pump pressure and current dispense valve pressure show the progress of the depressurization on the Run screen.

4. When all of the pressure has been relieved in the system, press the soft key to close the Axial Dispense Valve (B).

5. Press the soft key to exit the valve depressurization mode.

NOTE: If using a tandem system, perform steps 6-12 on both units.

6. Turn the Power Junction Box Switch (AK) and the Disconnect Switch (AZ) OFF.

7. Open the Pump Bleed Valve (AM). Have a container ready to catch the drainage.
8. Leave the Pump Bleed Valve (AM) open until ready to dispense again.
9. If you suspect the dispense valve is clogged or that pressure has not been fully relieved:
 - a. VERY SLOWLY loosen the hose end coupling to relieve pressure gradually.
 - b. Loosen the coupling completely.
 - c. Clear the obstruction in the tip/nozzle of the valve.
10. Close the Main Air Slider Valve (BA).

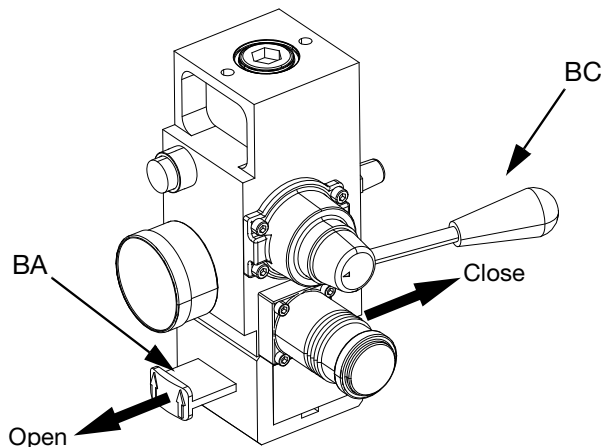




FIG. 30: Air Control for Pressure Relief

					
Drum Stabilizers (optional) can interfere with raising or lowering the ram resulting in injury and/or equipment damage. Read drum stabilizer manual 3B0243 before operating your ram if any of these devices are installed.					

11. Set the Ram Director Valve (BC) to DOWN. The Ram (AA) will slowly drop.
12. Once the Ram (AA) is completely down, jog the Ram Director Valve (BC) up and down to bleed air from the Ram (AA) cylinders.

Shutdown and Care of the Pump



NOTICE

To prevent damage to the pump from rust, never leave water or water-based fluid in a carbon steel pump overnight. If you are pumping a water-based fluid, flush with water first. Then flush with a rust inhibitor, such as mineral spirits. Relieve pressure, but leave the rust inhibitor in the pump to protect parts from corrosion.

1. Follow the **Pressure Relief Procedure** on page 36.
2. Set the Ram Director Valve (BC) to DOWN, and lower the Ram (AA) to the desired position for shutdown. If using a tandem system, perform this step on both units.
3. Set the Ram Director Valve (BC) to neutral.
4. Stop the Pump at the bottom of the stroke to prevent fluid from drying on the exposed displacement rod and damaging the throat packings. See the E-Flo iQ Supply System Operation manual for information about jogging the Pump. See **Related Manuals** on page 3.
5. Always flush the Pump before the fluid dries on the displacement rod. See the E-Flo iQ Supply System Operation manual for steps to flush the pump.

Change Drums



Keep hands away from the pump inlet to prevent serious injury from moving parts.

If the Platen (AD) does not come out of the pail easily when the Pump is being raised, the air assist tube (AT) or check valve (416) may be plugged. A plugged valve prevents air from reaching the underside of the plate to assist in raising it from the pail.

1. Turn off power to the Electric Driver (AB):
 - a. Turn the black Power Junction Box Switch (AK) OFF. See FIG. 31.
 - b. If using a Tandem Ram Supply System, turn the black Disconnect Switch (AZ) OFF on the Ram Supply Unit that requires a drum change only. See FIG. 31.

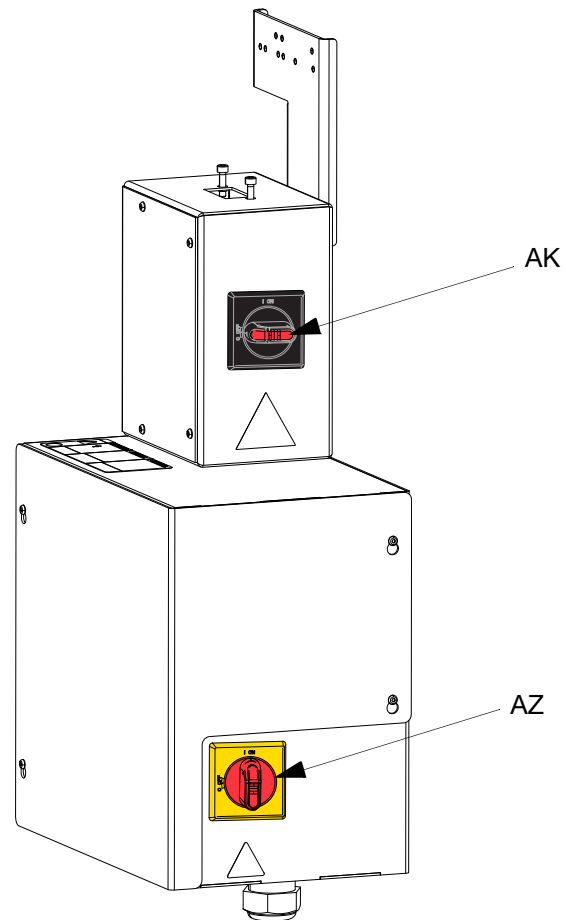
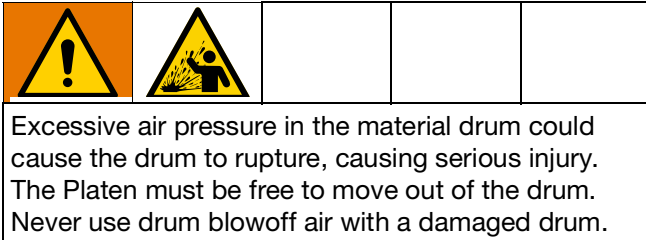


FIG. 31. Power Disconnect

2. Set the Ram Air Regulator (BB) to 0 psi.
3. Set the Ram Director Valve (BC) to UP.
4. Slowly increase the pressure on the Ram Air Regulator until the Platen (AD) starts to raise, and immediately press and hold the Blowoff Button (BE) until the Platen is completely out of the drum.



5. Release the Blowoff Button (BE) and allow the Ram to rise to its full height.

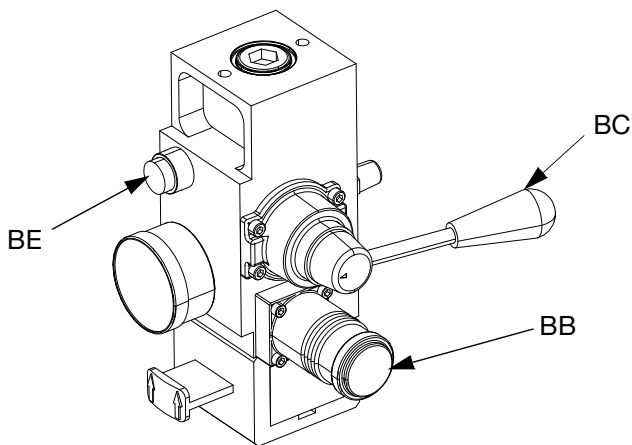


FIG. 32. Integrated Air Controls

6. Remove the empty drum.

Maintenance

Driver Maintenance



NOTICE

Do not open/remove the gear cover. The gear side is not intended to be serviced. Opening the gear cover may alter the factory set bearing pre-load and may reduce the product life.

Preventative Maintenance Schedule

The operating conditions of your particular system determine how often maintenance is required. Establish a preventative maintenance schedule by recording when and what kind of maintenance is needed, and then determine a regular schedule for checking your system.

Change the Oil

NOTE: Change the oil after a break-in period of 200,000 to 300,000 cycles. After the break-in period, change the oil once per year.

1. Follow the **Pressure Relief Procedure** on page 36.
2. Place a minimum 2 quart (1.9 liter) container under the oil drain port.
3. Remove the oil drain plug. See FIG. 33 for the location of the drain plug. Allow all oil to drain from the Driver (AB).
4. Reinstall the oil drain plug. Torque to 18-23 ft-lb (25-30 N•m).
5. Open the fill cap and add Graco Part 16W645 ISO 220 silicone-free synthetic EP gear oil. Check the oil level in the sight glass. Fill until the oil level is near the halfway point of the sight glass. The oil capacity is approximately 1.0 - 1.2 quarts (0.9 - 1.1 liters). **Do not overfill.**
6. Reinstall the fill cap.

Check Oil Level

See FIG. 33 below. Check the oil level in the sight glass on a regular basis. The oil level should be near the half-way point of the sight glass when the Driver (AB) is not running. If the oil is low, open the fill cap and add Graco Part No. 16W645 ISO 220 silicone-free synthetic EP gear oil.

The oil capacity is approximately 1.0 - 1.2 quarts (0.9 - 1.1 liters). **Do not overfill.**

NOTICE

Only use oil with Graco part number 16W645. Any other oil may not lubricate properly and can cause damage to the drive train.

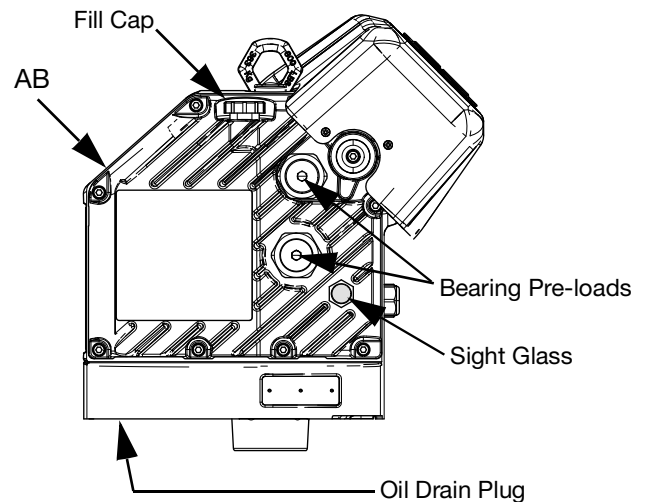


FIG. 33: Sight Glass and Oil Fill Cap

Bearing Pre-Load

The bearing pre-loads are factory set and are not user adjustable. Do not adjust the bearing pre-loads. See APD20 Advanced Precision Driver Instructions-Parts manual for maintenance information.

Platen Maintenance



1. Follow the steps to **Change Drums** on page 38.
2. Follow the **Pressure Relief Procedure** on page 36.
3. Refer to parts illustration on page 59 and remove the platen check valve (449) as shown.
4. Clear air assist tube (AT) in Platen (AD).
5. Clean all parts of the platen check valve (449) and replace if necessary.
6. Remove Bleed Stick (EF) from Platen (AD). Push Bleed Stick through Bleed Relieve Ports (EG) to remove material residue.

Remove and Reinstall Wipers

Remove Platen Wipers

1. Follow the **Pressure Relief Procedure** on page 36.
2. Turn the Power Junction Box Switch (AK) and the Disconnect Switch (AZ) OFF.
3. To replace worn or damaged Wipers (EB), raise Platen up out of drum. Remove drum from base. Wipe fluid off of Platen.
4. Cut the Wiper(s) (EB) with knife and remove from Platen. See FIG. 34.

55 Gallon Platen

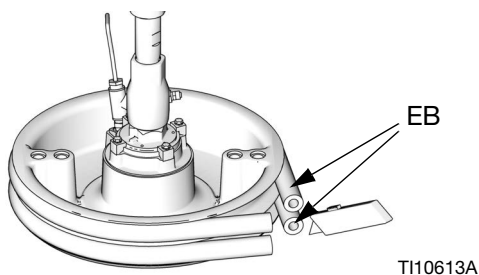


FIG. 34

Reinstall Platen Wipers

1. Using a wooden or plastic tool to prevent damage to the Wiper (EB), clean all material from the seal grooves.
2. *Working from the bottom*, angle one Wiper (EB) over the back of the Platen (AD). See FIG. 35.
3. Insert the Wiper (EB) in the top groove and run the front of the Wiper into the groove.
4. If using a 55 gallon Platen, insert the second Wiper (EB) in the lower groove and run the front of the Wiper into the groove.
5. Lubricate the outside of the Wiper with lubricant compatible with the material being pumped. Check with the material supplier.

55 Gallon Platen

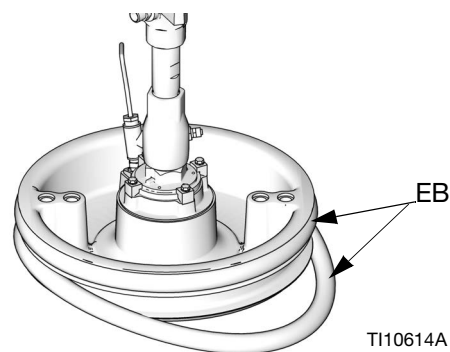


FIG. 35

Recycling and Disposal

End of Product Life

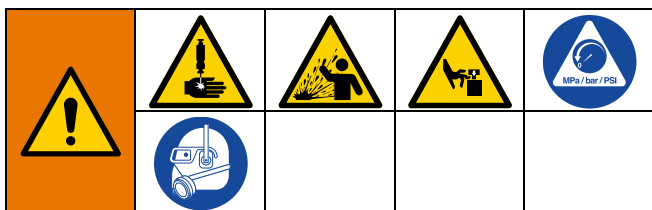
At the end of the product's useful life, dismantle and recycle it in a responsible manner.

- Perform the **Pressure Relief Procedure**.
- Drain and dispose of fluids according to applicable regulations. Refer to the material manufacturer's Safety Data Sheet.
- Remove motors, batteries, circuit boards, LCDs (liquid crystal displays), and other electronic components. Recycle according to applicable regulations.
- Do not dispose of batteries or electronic components with household or commercial waste.



- Deliver remaining product to a recycling facility.

Troubleshooting



1. Follow **Pressure Relief Procedure**, page 36, before checking or repairing the Ram, Pump, or Platen.

2. Check all possible problems and causes before disassembling the Ram, Pump, or Platen.

NOTE: Refer to Supply Unit Operation manual for descriptions of ADM diagnostic codes.

NOTE: Refer to your Pump package manual for Pump troubleshooting.

Supply Systems Troubleshooting

Problem	Cause	Solution
System will not turn ON.	No power to unit.	Check main power breaker is turned ON.
		Check power cord is connected.
Ram will not raise or lower.	Closed air valve or clogged air line.	Open, clear.
	Not enough air pressure.	Increase.
	Worn or damaged piston.	Replace. See 55 Gallon, 16 Gallon, and 5 Gallon Ram Modules Repair-Parts manual 334198.
	Hand valve closed or clogged.	Open, clear.
Ram raises and lowers too fast.	Air pressure is too high.	Decrease.
Air leaks around cylinder rod.	Worn rod seal.	Replace. See 55 Gallon, 16 Gallon, and 5 Gallon Ram Modules Repair-Parts manual 334198.
Fluid squeezes past ram plate wipers.	Air pressure too high.	Decrease.
	Worn or damaged wipers.	Replace. See Remove and Reinstall Wipers on page 41.
Pump will not prime properly or pumps air.	Not enough pressure.	Increase pressure setting.
	Worn or damaged piston.	Replace. See Pump manual.
	Hand valve closed or clogged.	Open, clear. See Platen Maintenance on page 41.
	Hand valve is dirty, worn, or damaged.	Clean, service.
Air assist valve will not hold drum down or push plate up.	Closed air valve or clogged air line.	Open, clear. See Platen Maintenance on page 41.
	Not enough air pressure.	Increase.
	Valve passage clogged.	Clean. See Platen Maintenance on page 41.

Heat Control Box Troubleshooting

Problem	Cause	Solution
System does not heat.	Blown fuse.	Replace fuse.
	Over-temperature switch tripped.	Measure over-temperature switch resistance. It should read close to 0 ohms when at room temperature. If open, replace over-temperature switch.
	Cable to over-temperature switch is off or broken.	Check connection of cable to over-temperature switch both to main board and to switch. If connection is good, look for a break in the wire.
	Electrical short.	Check jumpers.
		Check resistances on heater rods and RTDs.
	Check cable connections.	
	Disconnect switched OFF.	Check disconnects.
Slow warm-up time.	Low incoming voltage.	Verify incoming voltage is 200V L-N or 240V L-C.
	Insufficient power supplied to system.	Connect system to a power supply capable of maximum power per system specification. All changes must be performed by a qualified electrician.
	Zone Types set up incorrectly.	Ensure Zone Types are set up correctly in the ADM.
	Open heater.	Verify resistance of heaters. See Check Heater Resistance on page 34.

Platen Valve Kit Troubleshooting

Problem	Cause	Solution
Material leak.	Loose fitting connection.	Ensure fittings are tight. See Parts on page 53 for part identification.
	Improper fitting used.	Replace fitting. See Parts on page 53 for part identification.
System does not depressurize as expected.	Clogged hose or fittings.	Flush or replace clogged pieces.
Valve does not open or close as expected.	Failed solenoid actuation.	Replace solenoid.
	Solenoid mufflers plugged.	Replace solenoid mufflers.
	No air to solenoid.	Re-establish air supply to solenoid.

Repair



Disconnect Pump from Platen

The Pump is mounted to the Platens by different mounting kits. See the Repair Kits on page 61.

55 Gallon Platen

1. Follow the **Pressure Relief Procedure** on page 36.
2. Turn off power to the ram:
 - a. If using a Single Ram Supply System, turn the red Disconnect Switch (AZ) OFF.
 - b. If using a Tandem Ram Supply System, turn the red Disconnect Switch (AZ) OFF on the Ram Supply Unit that requires repair only.
3. Remove four hex screws (426), four clamps (427), and washers (425).
4. Carefully pull Pump away to prevent damage to Pump inlet and remove o-ring (428).

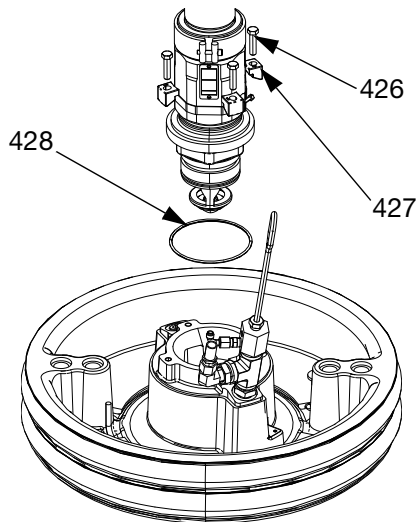


FIG. 36: 55 Gallon Mounting Kit

Connect Platen

55 Gallon Platen

1. Place o-ring (428) from mounting kit on the Platen (AD). If attached to plate, place Displacement Pump (AC) onto Platen (AD). See FIG. 36.
2. Secure Pump's intake flange to plate with screws (426), washers (425), and clamps (427) included in mounting kit 255392.

Remove Wipers

See **Remove and Reinstall Wipers** on page 41.

Install Wipers

See **Remove and Reinstall Wipers** on page 41.

Remove Displacement Pump



The procedure for removing the Displacement Pump (AC) depends on which Driver (AB) and Platen (AD) the unit uses. Find your Ram Assembly (AA), Driver (AB), and Platen (AD) below to remove the Displacement Pump (AC). Refer to your Displacement Pump manual to repair the Displacement Pump.

If the Driver does not require servicing, leave it attached to its mounting. If the Driver does need to be removed, see **Remove Driver** on page 47.

D200s 6.5 in. Ram Supply Units

1. Follow the **Pressure Relief Procedure** on page 36.
2. Turn off power to the ram:
 - a. If using a Single Ram Supply System, turn the red Disconnect Switch (AZ) OFF.
 - b. If using a Tandem Ram Supply System, turn the red Disconnect Switch (AZ) OFF on the Ram Supply Unit that requires repair only.
3. See **Disconnect Displacement Pump** in your Pump package manual.
4. Open the Main Air Slider Valve (BA).

5. Raise the Driver (AB):
 - a. Loosen nut (105a) under Ram bar and thread it down the threaded rod (106) to the lift ring adapter (107) holding the Driver (AB). Use wrench on nut (105) on top of Ram bar to raise Driver (AB).

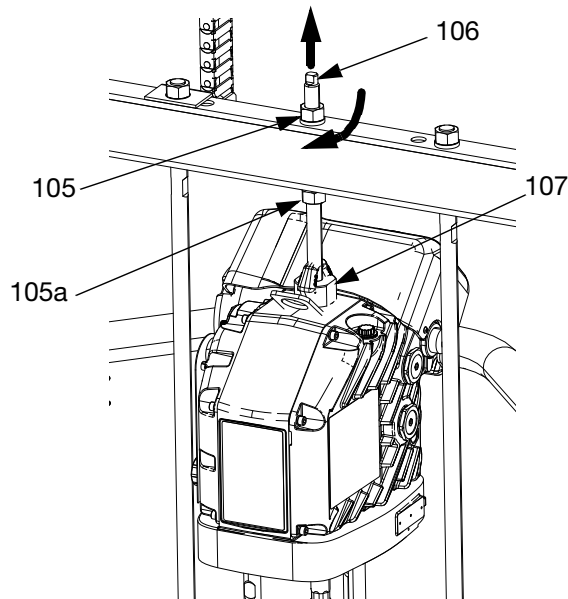


FIG. 37

- b. For Driver (AB) with smaller Platens (AD) and all ram supply units: See procedure for **Install Displacement Pump** on page 47.
6. See **Disconnect Pump from Platen** on page 45 to disconnect the Platen (AD) from the Displacement Pump (AC).

7. Use two people to lift out the Displacement Pump (AC).

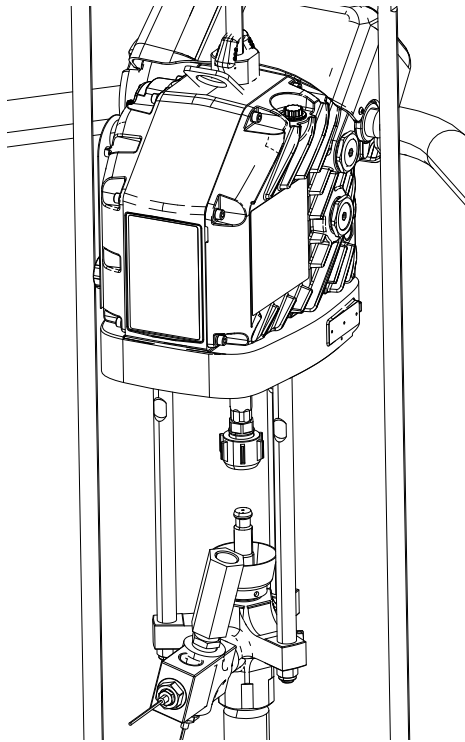


FIG. 38

Install Displacement Pump

D200s 6.5 in. Ram Supply Units

1. Insert Displacement Pump (AC) on Platen (AD). Follow **Connect Platen** steps on page 45.
2. See **Reconnect Displacement Pump** in your Pump package manual.
3. Connect Driver (AB):
 - a. Use wrench on nut (105) on top of Ram bar to lower Driver (AB) onto Displacement Pump (AC). See FIG. 37 on page 46. Thread nut (105) up and tighten it under Ram bar. Tighten nut (105) below the crossbar to 25 ft-lb (34 N•m) maximum.

Remove Driver



To avoid serious injury when installing and removing the Driver, make sure the Driver is supported at all times.

1. Follow the **Pressure Relief Procedure** on page 36.
2. Turn off power to the Ram:
 - a. If using a Single Ram Supply System, turn the red Disconnect Switch (AZ) OFF.
 - b. If using a Tandem Ram Supply System, turn the red Disconnect Switch (AZ) OFF only on the Ram Supply Unit the Driver is being removed from.
3. See **Disconnect Displacement Pump** in your Pump package manual.
4. Disconnect power from the Driver (AB):
 - a. Remove the Driver housing cover (HC).
 - b. Disconnect the wires inside the Driver housing. See FIG. 39.

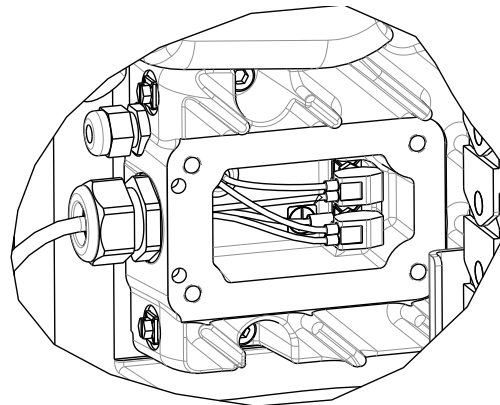


FIG. 39: Wires in Driver Housing

- c. Loosen the cord grip (CG).
- d. Remove wires from Driver housing by pulling them through the cord grip (CG).
- e. Disconnect the cables connected to ports 1-6 on the side of the Driver (AB), shown in FIG. 41.

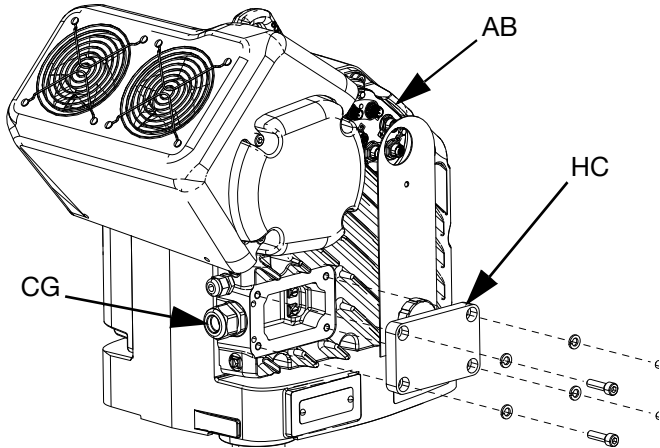


FIG. 40

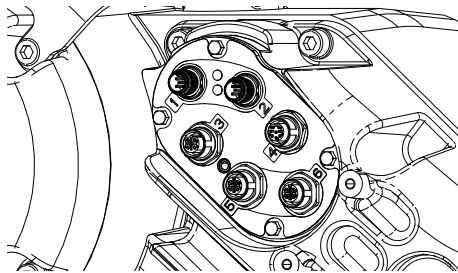


FIG. 41

5. Disconnect Driver (AB):

- a. Attach a secure hoist to the driver lift ring. Loosen nut (125) below crossbar.
- b. Use wrench to hold lift ring adapter (127) in place and loosen threaded rod (126) above crossbar with another wrench. See FIG. 42.

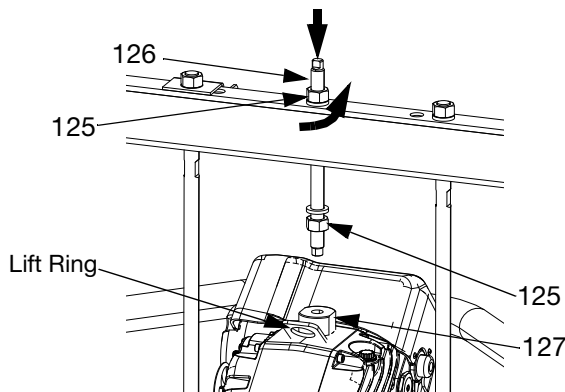


FIG. 42: 55 Gallon Platen

Install Driver

<p>To avoid serious injury when installing and removing the Driver, make sure the Driver is supported at all times.</p>				

D200s 6.5 in. Ram Supply Units

55 gallon platen:

1. Using a capable hoist, insert tie rods into the Displacement Pump (AC) and secure the Driver (AB) to the Pump (AC).
 - a. See **Reconnect Displacement Pump** in your Pump package manual.
 - b. Install threaded rod (126) through center hole in the crossbar. Install lock washers (124) and nuts (125) onto threaded rod (126), both above and below crossbar. Use wrench to hold lift ring adapter (127) and tighten threaded rod (106) into lift ring adapter (127) using another wrench. See FIG. 43.
 - c. Tighten nut (125) below crossbar to 25 ft-lb (34 N•m) maximum.
 - d. Tighten nut (125) above crossbar to lock Driver (AB) in place.

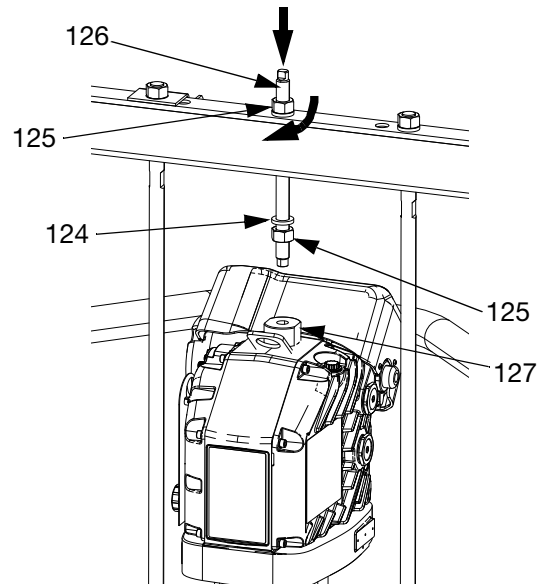




FIG. 43

2. Connect power to the Driver (AB). Follow a-e of step 4 on page 47 in reverse.
3. Turn the Power Junction Box Switch (AK) and the Disconnect Switch (AZ) ON.

Ram Supply Unit Repair

NOTE: For repair of D60, D200, and D200s rams see manual 334198. See **Related Manuals** page 3.

Replace Heat Control Box Electrical Component(s)

			
<p>DANGER SEVERE ELECTRIC SHOCK HAZARD This equipment can be powered by more than 240 V. Contact with this voltage will cause death or serious injury.</p> <ul style="list-style-type: none"> • Turn the Power Junction Box Switch (AK) and the Disconnect Switch (AZ) OFF before disconnecting any cables and before servicing equipment. 			

Replace Auto Multi-Zone (AMZ) Fuse(s)

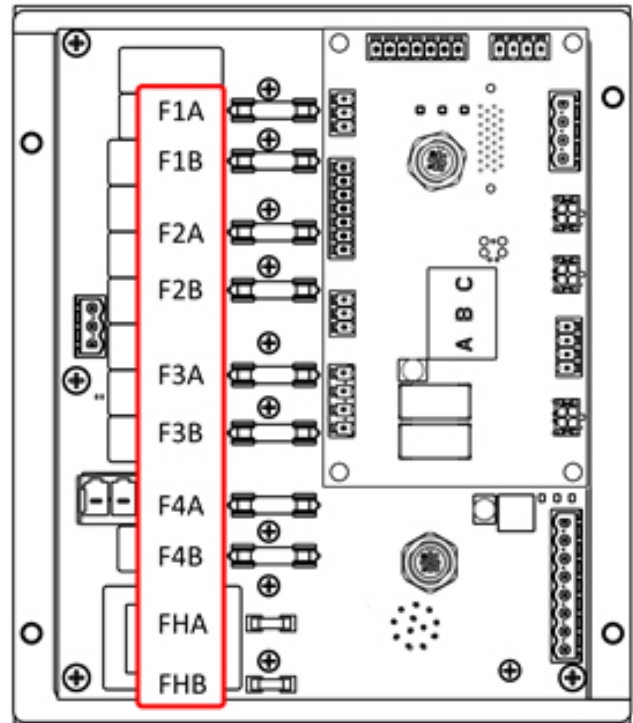


FIG. 44

NOTICE
<p>To prevent system damage, always use fast acting fuses. Fast acting fuses are required for short-circuit protection.</p>

Fuse	Part	Identification
F1A-F4B	129346	250VAC, 12.5A, fast acting
FHA-FHB	- - - - -	250VAC, 25A

1. Turn the Disconnect Switch (AZ) OFF.
2. Remove the door (350) on the Heat Control Box (AX).
3. Use a non-conductive fuse puller tool to remove the blown fuse.

NOTICE
<p>Using an improper tool, such as a screwdriver or pliers may break the fuse or cause damage to board.</p>

NOTE: Fuses FHA and FHB are not replaceable. If FHA or FHB fuses are blown, order AMZ Replacement Kit, 25R533.

4. Install a new fuse into the empty fuse holder.
5. Install the Heat Control Box door (350).

Replace Auto Multi-Zone (AMZ)

1. Turn the Disconnect Switch (AZ) OFF.
2. Loosen screws and remove the door (350) on the Heat Control Box (AX).

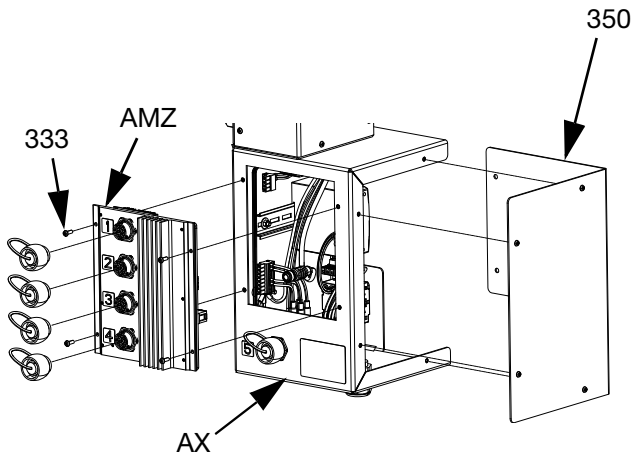


FIG. 45

3. Remove the AMZ:
 - a. Disconnect the heated electrical connections from the back of the AMZ.
 - b. Disconnect the cables from the AMZ on the inside of the Heat Control Box (AX).
 - c. Remove the four screws (333) used to mount the AMZ to the back of the Heat Control Box (AX) and remove the AMZ.
4. Insert the new AMZ:
 - a. Set the AMZ dial position number 1 on the dial for single ram systems.

- b. Set AMZ dial to position number 2 for ram 2 for a tandem system. NOTE: Ram 2 does not include an ADM. .

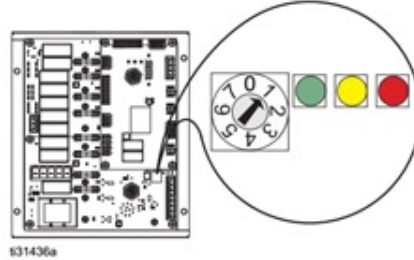


FIG. 46: AMZ Dial Position

- c. Mount the AMZ to the back of the Heat Control Box (AX) using the four screws (333) removed from the original AMZ.
 - d. Reconnect the cables on the inside of the Heat Control Box (AX) to the AMZ.
 - e. Reconnect the heated electrical connections to the back of the AMZ.
5. Replace the Heat Control Box door (350).

Replace Advanced Display Module (ADM)

NOTICE

The ADM stores useful lifetime and diagnostic data that will be lost when it is replaced. To keep this data, perform a USB download prior to replacing the ADM.

1. Turn the Disconnect Switch (AZ) OFF.
2. Disconnect the cable from the bottom of the ADM (AF).
3. Remove the ADM (AF) from the bracket (114). See **Parts** on page 53.
4. Install the new ADM (AF) into the bracket (114).
5. Connect the cable to the bottom of the new ADM (AF).

Replace Power Supply

NOTE: Instructions for replacing the power supply applies to heated systems only.

1. Turn the Disconnect Switch (AZ) OFF.
2. Loosen the screws and remove the door (350) on the Heat Control Box (AX).
3. Disconnect the power supply harness from the AMZ (headers J3 and J21).
4. Remove the power supply (338) from the din rail in the Heat Control Box (AX).
5. Disconnect the power supply harness from the power supply.
6. Mount the new power supply to the din rail in the Heat Control Box (AX).
7. Connect the power supply harness to the AMZ (headers J3 and J21).
8. Close the Heat Control Box door (350).

Replace Fuses in Harness (25R652)

The harness comes with fuses installed. Follow these steps to replace a fuse.

1. Turn the Disconnect Switch (AZ) OFF.
2. Remove the Heat Control Box door (350).
3. Unscrew the spring-loaded fuse holder to open it.
The fuse can be easily removed by hand.

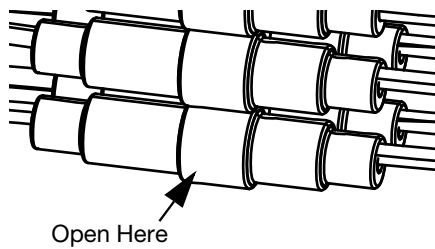


FIG. 47

4. Install the new fuse.
5. Reconnect and tighten the fuse holder.
6. Install the Heat Control Box Door (350).

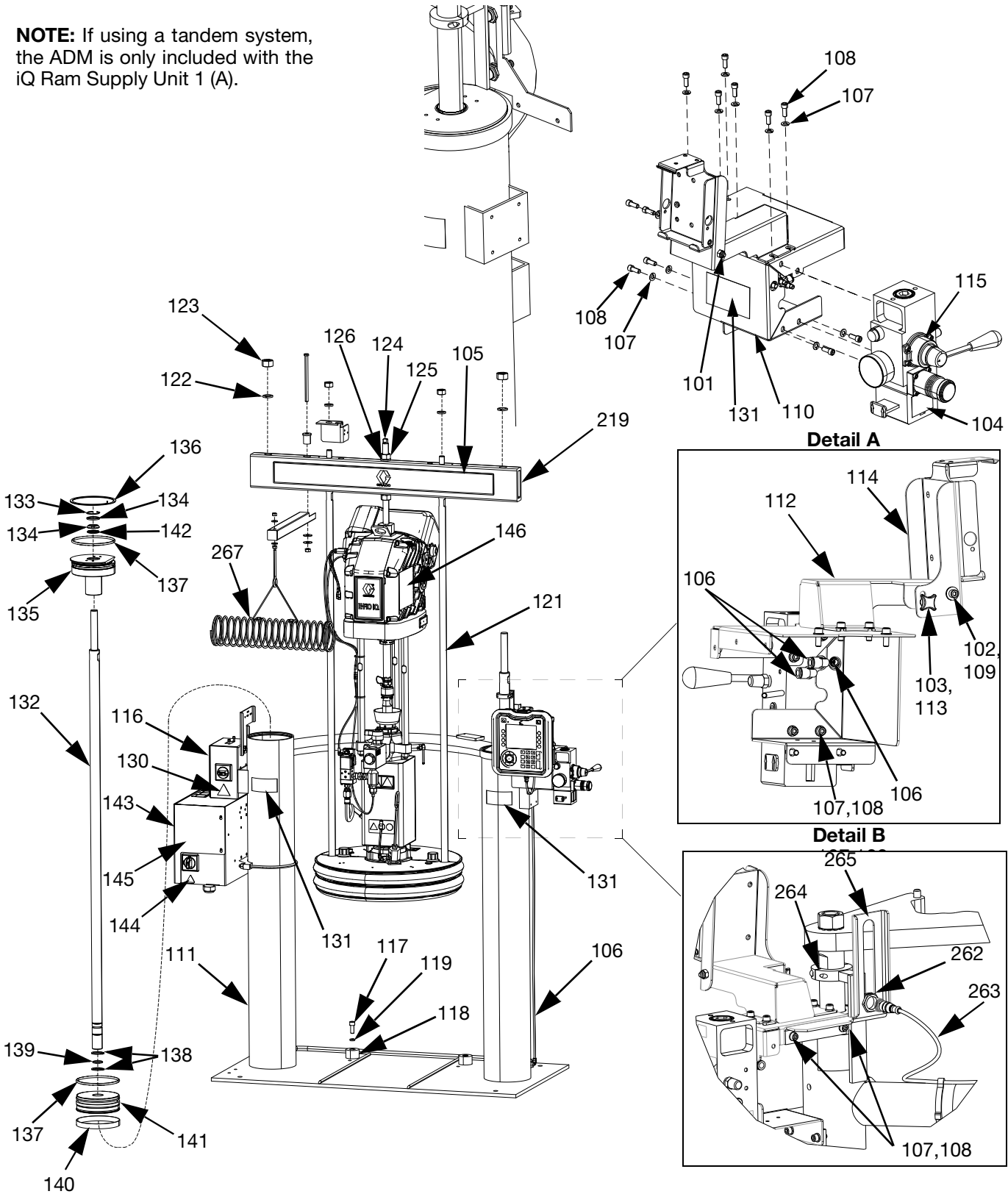
NOTICE

To prevent damage to the AMZ circuit board, use only 5 x 20 mm, 10 Amp AC, fast acting fuses. Fast acting fuses are required for short-circuit protection.

Parts

D200s 6.5 in. Ram Supply Units

NOTE: If using a tandem system, the ADM is only included with the iQ Ram Supply Unit 1 (A).



D200s 6.5 in. Ram Supply Units

Ref.	Part	Description	Qty.
101	102040	NUT	1
102	110755	WASHER, plain	1
103	117017	WASHER	1
104	15V954	LABEL, valve, shutoff, air control	1
105	---	LABEL, cross bar	1
106	C12509	TUBE, nylon	15
107	100016	WASHER, lock	15
108	121112	SCREW	15
109	---	SCREW	1
110	---	BRACKET, mounting, painted	1
111	---	RAM, 6.5 in.	1
112	---	BRACKET, pendant pivot, painted	1
113	---	FASTENER, knob	2
114	---	BRACKET, mounting, assembly	1
115	24C824	KIT, air control	1
116	---	JUNCTION BOX, ram mounted, E-drive	1
117	C19853	SCREW	2
118	C32467	STOP, drum	2
119	C38185	WASHER, lock	2
120	---	SEALANT, pipe, sst	1
121	15M531	ROD, follower	2
122	101015	WASHER, lock	2
123	C19187	NUT	2
124	101533	WASHER, spring lock	2
125	101535	NUT	2
126	15J992	ROD, threaded	1
127	15J991	ADAPTER, lift ring	1
128	15J993	RING, lift, plate	1
129	---	LUBRICANT, anti-seize	1
130	196548	LABEL, caution	1
131	15J074	LABEL, safety, crush & pinch	3
132	C32401	ROD	2
133*	C03043	RING, snap	2
134*	C31001	WIPER, rod	2
135	25T845	SLEEVE, guide	2
136*	C32409	RING, retaining	2
137*	C38132	PACKING, o-ring	4
138*	C20417	RING, retaining	4
139*	158776	PACKING, o-ring	2
140*	C32408	BAND, guide	2
141	C32405	PISTON, elevator air	2
142*	C02073	PACKING, quad ring	2
143	---	RAM, D60, electric driver, heat	1
144	15G303	LABEL, warning, electrical	1
145	---	CONTROL, box, heat	1
146	17J476	LABEL, safety, warning	1
219	167646	BEAM, tie	1
262	130787	SENSOR, barrel	1
263	123673	HARNESS	1
264	255381	ACTUATOR, sensor, low/empty, painted	1
265	---	BRACKET, lvl sensor, dual, D200	1
267	234966	KIT, accessory, hose hanger	1

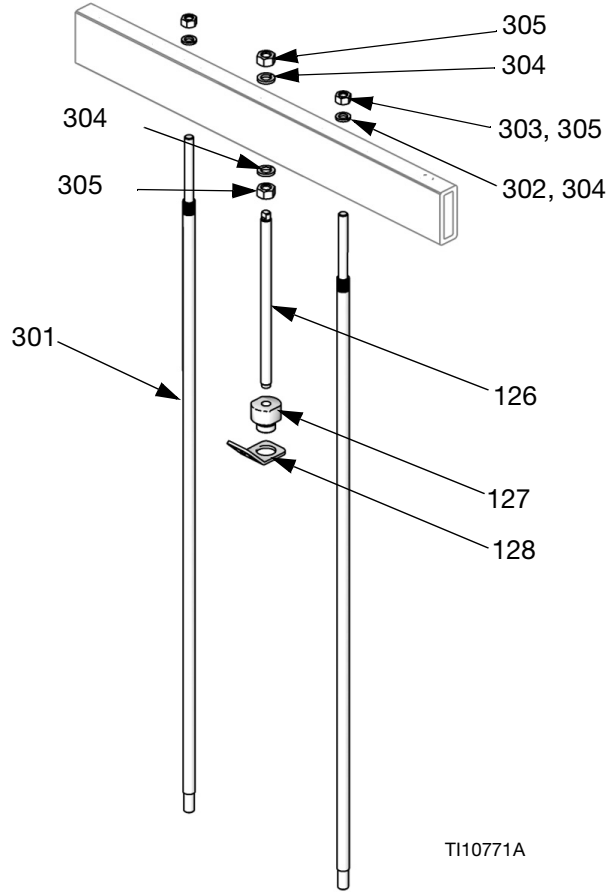
Replacement safety labels, tags, and cards are available at no cost.

* *Parts included in Ram Supply Units Repair Kit 918432 (purchase separately).*

Not shown.

D200s Pump Mounts for 55 Gallon (200 Liter) Platen

Note: See page 53 for kit configuration table.

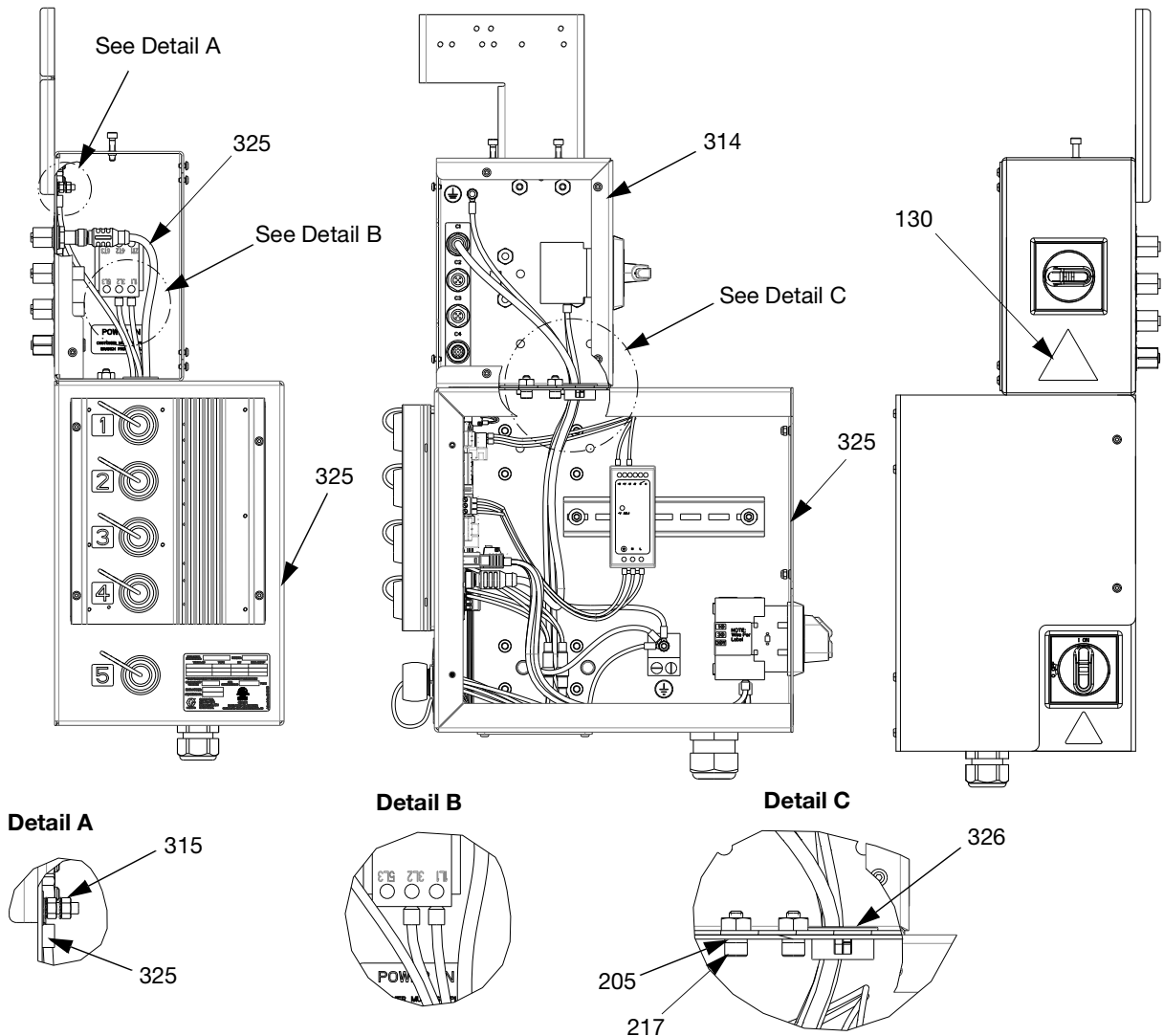


TI10771A

Ref.	Part	Description	Qty
301	15M531	ROD, platen	2

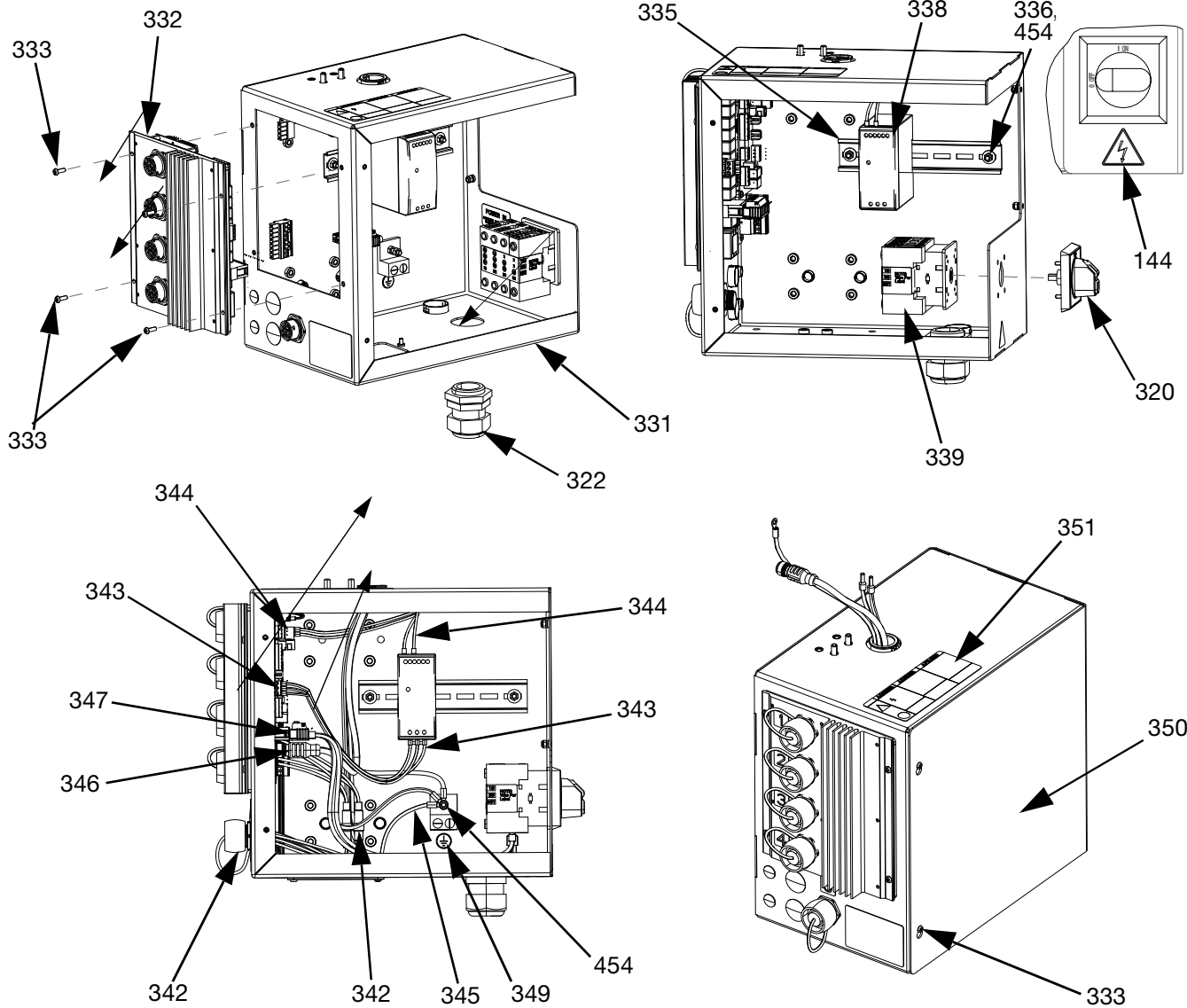
302	101015	WASHER, lock	2
303	C19187	NUT	2
304	101533	WASHER, spring lock	2
305	101535	NUT	2
126	---	ROD, threaded	1
127	15J991	ADAPTER, lift, ring	1
128	15J993	RING, lift, plate	1

Heated Power Junction Box



Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
205*	108050	WASHER, lock, spring	5	321†	123970	SWITCH, disconnect, 40A	1
217*	121518	SCREW	5	130▲	196548	LABEL, caution	1
311†	---	BRACKET, cable track mount, painted	1	324†	---	LABEL, multiple, emc and emd assy	1
312†	121612	CONNECTOR, thru, M12, mx f	3	325*	---	CONTROL BOX, heat	1
313†	---	CONNECTOR, thru, M12, mx f, 8 pin	1	326*	---	BUSHING, snap, nylon, black, 1.125"	1
314	---	JUNCTION BOX, assembly, e-drive, painted	1	* Parts included in kit 25R454.			
315	120993	NUT	2	▲ Replacement safety labels, tags, and cards are available at no cost.			
316†	108787	SCREW	2	† Not shown.			
317†	16K918	LABEL, power in, branch circuit	1				
318†	---	COVER, assy, j-box, e-drive, paint	1				
319†	114185	SCREW	6				
320†	123967	KNOB, disconnect, operator	1				

Heat Control Box



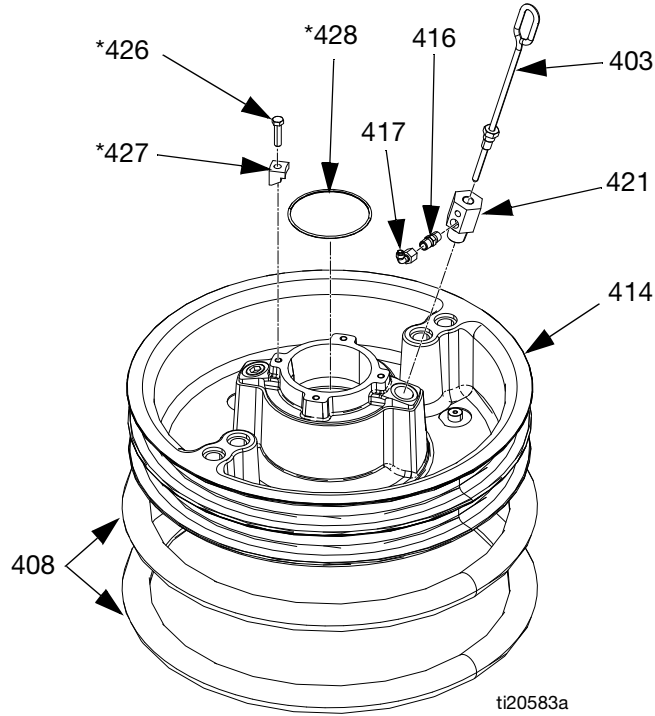
Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
331	---	ENCLOSURE, electrical, heat, painted	1	346	121000	CABLE, can, female/female 0.5m	1
332	25R533	MODULE, gca	1	347	---	HARNESS, power, incoming	1
333	116595	SCREW	10	441†	111307	WASHER, lock, external	5
322	121171	GRIP, cord	1	348†	16T440	CAP	5
335	---	RAIL, mt	0.5	349	---	LABEL, multiple, control, heat	1
336	112776	WASHER, plain	2	350	18B778	COVER, enclosure, electric, heat, paint	1
454	110911	NUT	4	351	19B283	LABEL, multiple, control, heat	1
338	126453	POWER SUPPLY, 24V	4				
339	---	SWITCH, disconnect, 40A	1				
320	123967	KNOB, disconnect, operator	1				
144	15G303	LABEL, warning, electrical	1				
342	25R652	HARNESS, heat, control	1				
343	---	HARNESS, power, heat	1				
344	---	HARNESS, 24V, heat	1				
345	---	HARNESS, ground, heat	1				

Replacement safety labels, tags, and cards are available at no cost.

† Not shown.

55 Gallon Platen

200 Liter (55 Gallon) Platen, 255319 and 255320



200 Liter (55 Gallon) Platen Parts

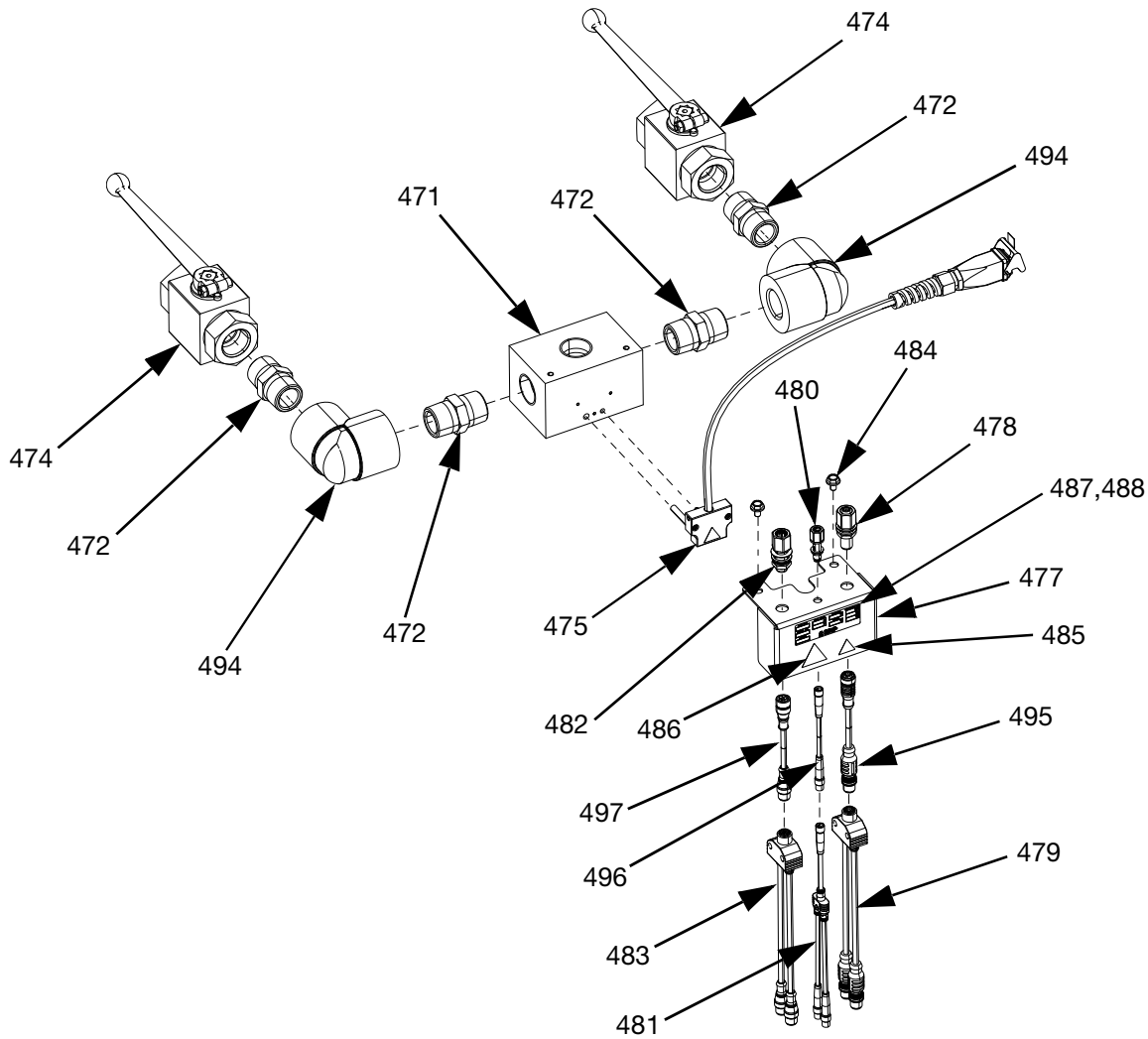
Ref.	Part	Description	Qty.
403	257697	HANDLE, bleed assy	1
408	255652	SEAL, wiper, drum, 55 gal., neo- prene; for 255664 only.	2
	255653	SEAL, wiper, drum, 55 gal., EPDM; for 255663 and 255662 only.	2
414	---	PLATE, ram 55 gal., for 255664 and 255663 only.	1
	---	PLATE, ram 55 gal., PTFE	1
416	122056	VALVE, check, 1/4, for 255662 and 255663 only	1
	501867	VALVE, check, 5/8, for 255664 only	1
417	17E556	FITTING, TUBE, quick disconnect	1
421	---	ADAPTER, for 255663, 255664, and 25N344	1
	16W974	ADAPTER, for 255662 only	1
426*	102637	SCREW, cap	4
427*	---	CLAMP	4
428*	109495	O-RING	1

* Parts included in 255392 Kit (purchase separately).

Parts not included with 255662, 663, and 664.

Parts not included with 25N344.

Tandem Block, Urethane, 26B488



Ref.	Part	Description	Qty.
471	---	BLOCK, 3 way, S, 1" NPT	1
472	C38302	FITTING, nipple	4
473*	---	SEALANT, pipe, SST	1
474	521477	VALVE, ball, 1"	2
475	24E413	KIT, heat, pgm, inlet	1
476*	---	LUBRICANT, thermal	1
477	---	BRACKET, mounting, cables	1
478	126496	CONNECTOR, thru, M12	1
479	15N045	HARNESS, splitter, M12	1
480	128911	CONNECTOR, thru, M8	1
481	15N047	HARNESS, splitter, M8	1
482	---	CONNECTOR, thru, M12	1
483	15N046	HARNESS, splitter, M12	1
484	127047	SCREW	2
485▲	189930	LABEL, caution	1
486▲	15K616	LABEL, caution	1
487	---	BLANK, label, kit	1

Ref.	Part	Description	Qty.
488	---	ARTWORK, identification, block	1
489*	124003	CABLE, can	1
490*	124654	CONNECTOR, splitter	1
491*	25R439	KIT, low level sensor	2
492*	121226	VALVE, shuttle 5/32	1
493*	129301	CABLE, ext, TOF hose, 25 ft	1
494	C19441	FITTING, elbow	2
495	124409	CABLE, M12, 5 pin	1
496	121683	CABLE, M8, 4 pin	1
497	15Y051	CABLE, M12, 8 pin	1

▲ Replacement safety labels, tags, and cards are available at no cost.

* Not Shown.

Kits and Accessories

Accessories are available from Graco. Make certain all accessories are adequately sized and pressure-rated to meet the system's requirements.

System Kits and Accessories

Light Tower Kit, 255467

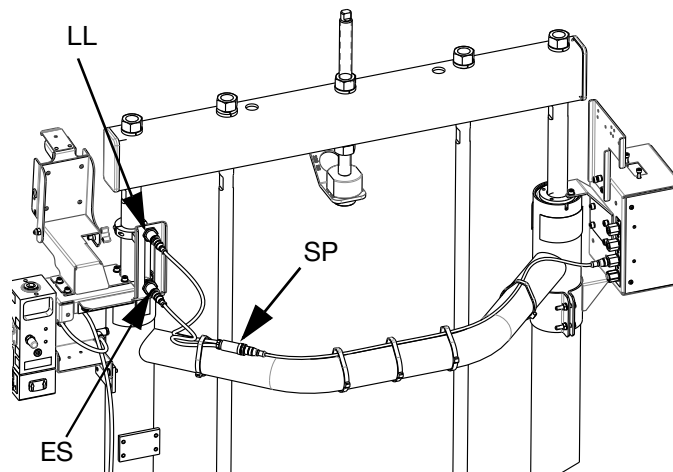
For D200s single supply systems.

See the E-Flo iQ Supply System Operation manual for more information.

Low Level Sensor Kit, 25R439

To install the Low Level Sensor:

1. Turn the Disconnect Switch (AZ) OFF.
2. Disconnect cable from the empty level sensor (ES).
3. Mount the low level sensor (LL) on the mounting bracket.
4. Connect the splitter cable (SP) to the previously disconnected cable.
5. Connect the splitter cable (SP) lead labeled EMPTY to the empty level sensor (ES).
6. Connect the splitter cable (SP) lead labeled LOW to the low level sensor (LL).
7. Raise/lower the low level sensor (LL) to the desired position to activate the sensor.
8. See the E-Flo iQ Supply System Operation manual to set up the low level sensor.



200 Liter (55 Gallon) Platen Cover Kits, 255691

See the Platen Cover Kit manual for more information.

ADM Kit, 25R542

Part	Description	Qty.
24E451	MODULE, gca, adm	1
18A921	TOKEN, gca, upgrade, E-Flo iQ	1

Enclosed Wet Cup Recirculation Kit

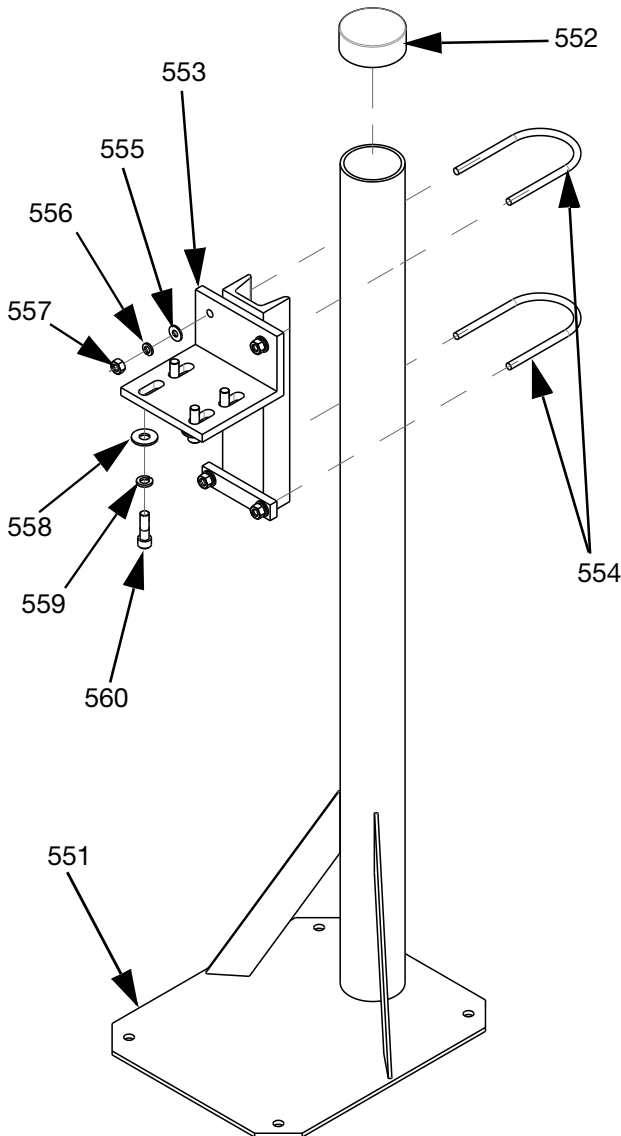
See the Enclosed Wetcup Recirculation Kit manual for more information.

Heat Control Box, 25R454

See **Heat Control Box** on page 57 for parts.

Tandem Block Stand, 26B482

For use with tandem systems only.



1. Use the holes in the Tandem Block Stand support (551) as a guide and drill holes for 1/2 in. (13 mm) anchors.
2. Secure the support (551) to the floor using 1/2 in. (13 mm) anchors that are long enough to prevent the Tandem Block Stand from tipping.
3. Attach the Tandem Block (R) to the Tandem Block Stand mounting base (553) using the supplied screws (560). The warning labels should be pointing away from the stand so they are visible after attaching the Tandem Block (R).

Drum Kits and Accessories

Drum Roller Kits for D200s Ram Supply Units, 255627

See the Drum Roller Kit manual for more information.

Drum Position Stabilizer for D200s Ram Supply Units

Order quantity 2 of C32463.

CAN Cables

The following CAN cables and splitter are available for use with E-Flo SP electric pumps.

Part	Description	Length
121000	CABLE, CAN, female/female	0.5 m
121001	CABLE, CAN, female/female	1.0 m
121002	CABLE, CAN, female/female	1.5 m
121003	CABLE, CAN, female/female	3.0 m
120952	CABLE, CAN, female/female	4.0 m
121201	CABLE, CAN, female/female	6.0 m
121004	CABLE, CAN, female/female	8.0 m
121228	CABLE, CAN, female/female	15.0 m
123341	CABLE, CAN, female/female	40.0 m
121807	CONNECTOR, splitter, male/male	

Ref.	Part	Description	Qty.
551	---	SUPPORT, stand	1
552	---	CAP PLUG, vinyl	1
553	---	BASE, mounting	1
554	C30021	BOLT, u	2
555	100023	WASHER, flat	4
556	100133	WASHER, lock	4
557	100131	NUT	4
558	101044	WASHER, plain	4
559	100018	WASHER, lock, spring	4
560	117638	SCREW	4

To install the Tandem Block Stand:

I/O Cable, 122029

See the E-Flo iQ Supply System Operation manual for setup and pin out information.

Part	Description	Length
128441	CABLE, GCA, M12-8p	15.0 m

Platen/Pump Heat Harness

Part	Description	Length
25R662	HARNESS, heat, platen/pump	3.0 m
25R663	HARNESS, heat, platen/pump	3.7 m
25R664	HARNESS, heat, platen/pump	4.3 m
25R665	HARNESS, heat, platen/pump	4.9 m

Pressure Transducer Cables

Part	Description	Length
124943	CABLE, M12, 5 pin	1.0 m
122497	CABLE, M12, 5 pin	2.0 m
124409	CABLE, M12, 5 pin	3.0 m
17H363	CABLE, M12, 5 pin	7.5 m
132457	CABLE, M12, 5 pin	10.0 m
17H364	CABLE, M12, 5 pin	16.1 m

Solenoid Cables

Part	Description	Length
132458	CABLE, M8, 4pin	10.0 m
17H352	CABLE, M8, 4pin	16.1 m

Integration Cables

Part	Description	Length
132459	CABLE	10.0 m
16P791	CABLE	16.1 m

Heat Extension Cables

Part	Description	Length
129300	CABLE, ext, TOF hose	4.6 m
129301	CABLE, ext, TOF hose	7.6 m

Cable Kits

Part Number	Transducer and Solenoid Cable Length	Hose Cable Length	Transducer	Transducer Adapter
26B613	33 ft (10 m)	NA	15M669	26B457
26B614	33 ft (10 m)	15 ft (4.6 m)	15M669	26B457
26B615	53 ft (16 m)	NA	15M669	26B457
26B616	53 ft (16 m)	15 ft (4.6 m)	15M669	26B457
26B617	53 ft (16 m)	25 ft (7.6 m)	15M669	26B457

Tandem Kits

Part Number	System Type
26B488	Heated

Additional Accessories

Part Number	Description
25R959	KIT, switch, foot

Check-Mate 200 CS Pump Heater Kit, 25R450

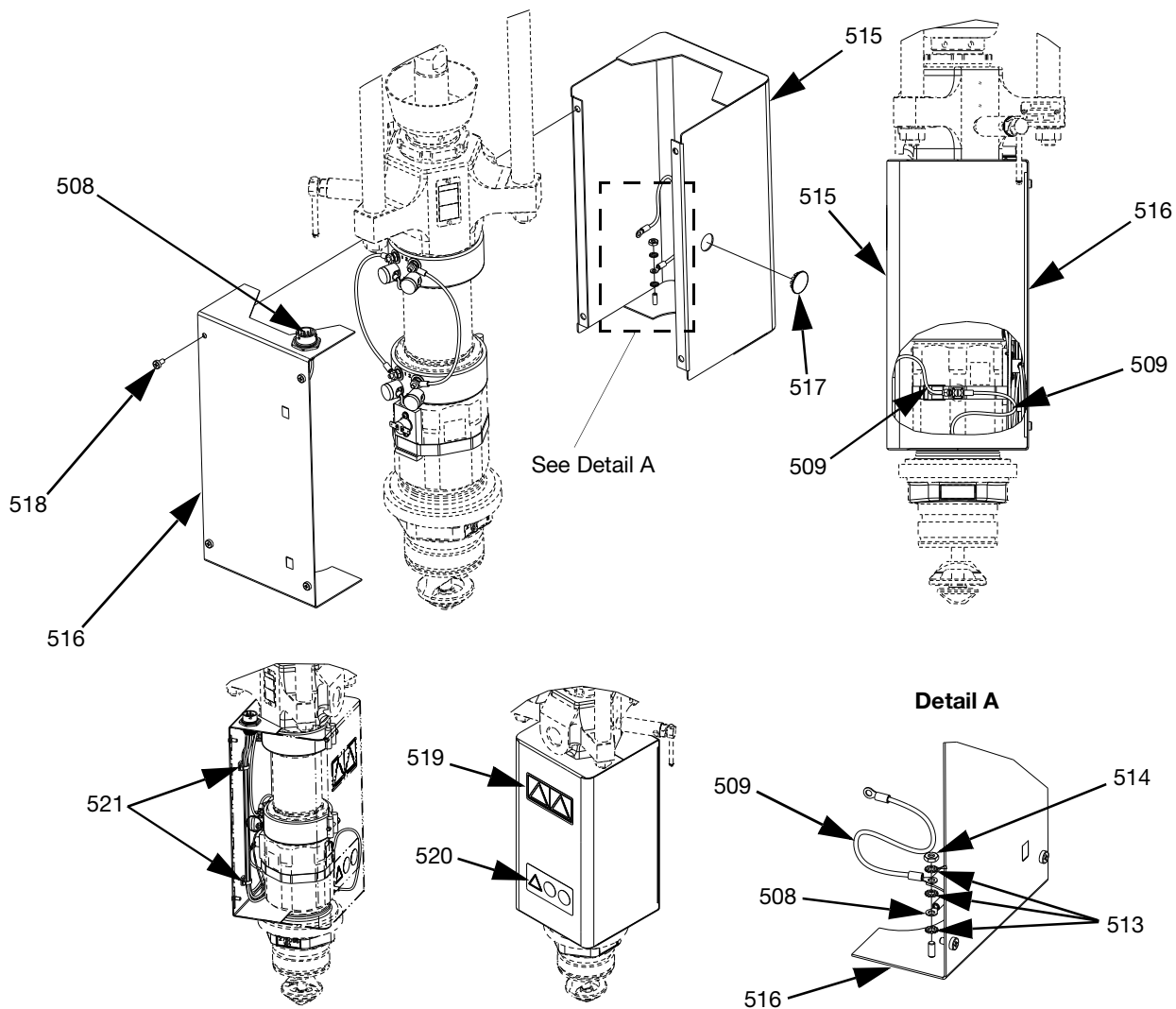


FIG. 48: Check-Mate 200 CS Pump Heater Kit, 25R450

Ref.	Part	Description	Qty.
501	121980	HEATER, pump, 725 watt	2
502	18B862	HOLDER, rtd, overtemp	1
503	16K094	SWITCH, overtemp, horizontal	1
504	103181	WASHER	2
505	104714	SCREW	2
506	102273	SCREW	1
507	C31012	CLAMP	1
508	25R660	HARNESS, heater, pump, rtd, overtemp	1
509	---	HARNESS, ground	2
510	---	HARNESS, heater, pump #1	1
511	---	HARNESS, heater, pump #2	1
512	116343	SCREW	1

513	111307	WASHER	7
514	100166	NUT	2
515	15W706	ENCLOSURE, pump, front	1
516	25R658	COVER, enclosure, pump, heat	1
517	---	PLUG	1
518	110637	SCREW	4
519▲	15J075	LABEL, safety, hot surface and energized	1
520▲	17V667	LABEL, safety, warning, amputation	1
521	114958	STRAP, tie	2

▲ Replacement safety labels, tags, and cards are available at no cost.

Platen Heater Kit, 25R451

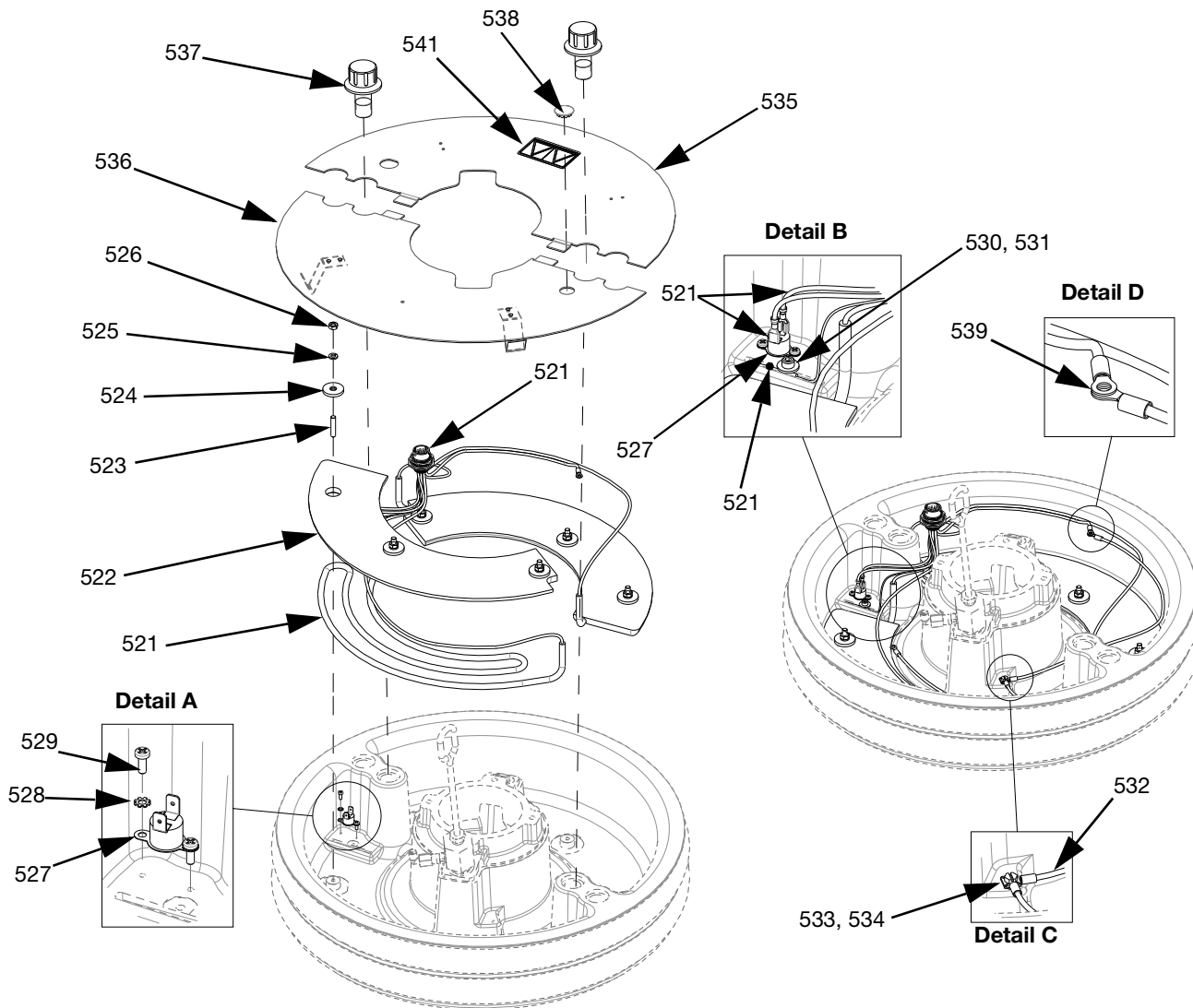


FIG. 49: Platen Heater Kit, 25R451

Ref.	Part	Description	Qty.
521	25R666	HARNESS, heat, wiper, 55 gallon	1
522	---	CONDUCTOR, block, heater	2
523	---	STUD	6
524	---	WASHER, flat	6
525	---	WASHER, lock	6
526	100015	NUT	6
527	15B137	SWITCH, over temperature	1
528	103181	WASHER	2
529	124131	SCREW	2
530	---	WASHER	1
531	117026	SCREW	1

532	---	HARNESS, ground, 14awg, 18" long	1
533	---	WASHER	7
534	116343	SCREW	1
535	---	COVER, platen, heated, rear	1
536	---	COVER, platen front, assy	1
537	---	FASTENER, platen, cover	2
538	---	PLUG	1
539	100166	NUT	2
540	---	LUBRICANT, thermal	1
541▲	15J075	LABEL, safety, hot surface and energized	1

▲ Replacement safety labels, tags, and cards are available at no cost.

Communication Gateway Module (CGM) Kits

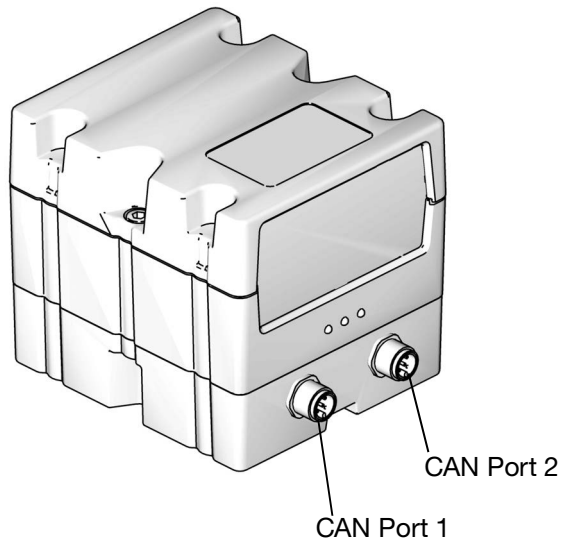


FIG. 50: CGM CAN Connections

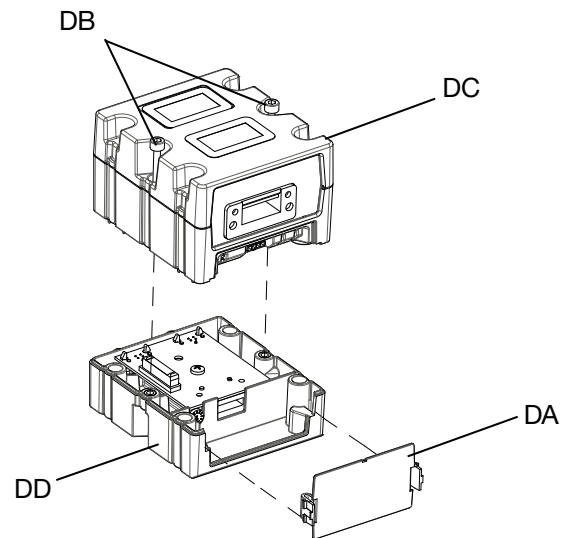


FIG. 51: Disassembling the CGM

CGM Kits

Part Number	Description	Heat Option
26B169	CGM, Kit, EtherNet/IP	Heated
26B170	CGM, Kit, PROFITNET	Heated
26B171	CGM, Kit, PROFIBUS	Heated
26B172	CGM, Kit, DeviceNet	Heated

Installing a CGM Kit



All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations

1. Follow the **Pressure Relief Procedure** on page 36.
2. Verify the power is off to the system.
3. Install the CGM bracket included with the kit to the ram post bracket with the four 1/4-20 x 0.5 in. screws included in the kit.
4. Remove the access cover from the CGM (DA). Loosen and save the two M5-0.8 x 45 mm x screws (DB), and remove the CGM (DC) from the base (DD). See FIG. 51.

5. Using the four M4-0.7 x 20 mm mounting screws included in the kit, mount the base (DD) to the CGM bracket.
6. Reattach the CGM (DC) onto the base (DD) with the two screws (DB) that were removed and saved from step 4.
7. Reattach the access cover (DA).
8. Unplug the cable from the ADM and plug the cable back into CGM (DC).
9. Plug 3.0 m cable (121003) included in the CGM kit from the CGM to the ADM.

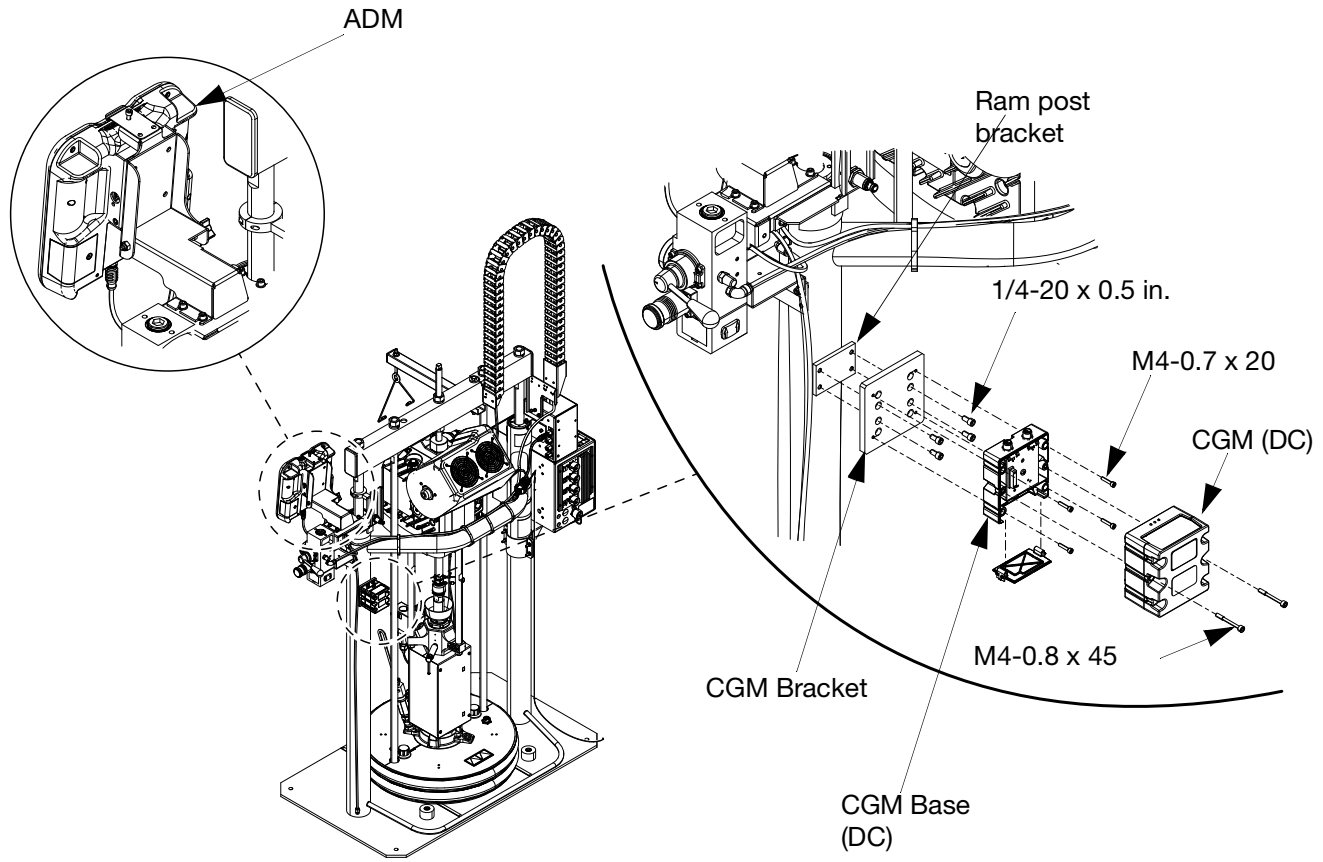


FIG. 52

10. connect the Ethernet/IP, DeviceNet, or PROFIBUS cable to the fieldbus connection on the CGM as applicable.

12. Refer to the Graco Control Architecture Module programming manual for step-by-step instructions on how to update the software version of GCA modules. See **Related Manuals** on page 3.

13. Refer to the E-Flo iQ Supply System Operation manual for details regarding the feildbus pinout setup and to perform the setup procedure to configure the feildbus. See **Related Manuals** on page 3.

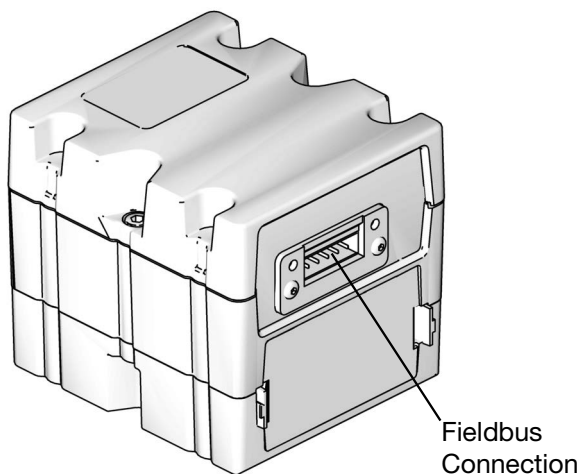


FIG. 53: CGM Fieldbus Connection

11. Connect the other end of the Ethernet/IP, DeviceNet, or PROFIBUS cable to the fieldbus device.

Platen Valve Kit, Urethane, 26B637

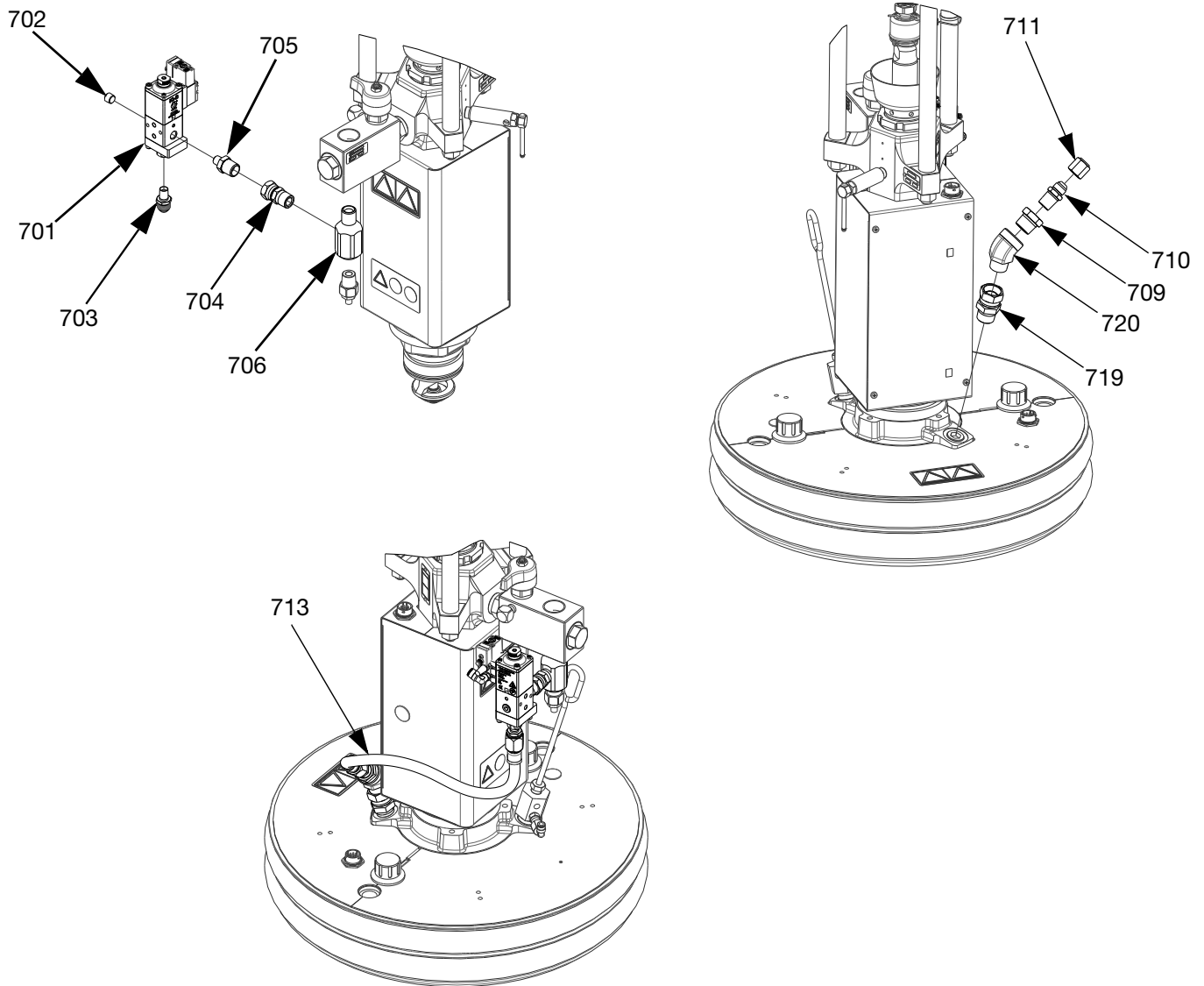


FIG. 54: Platen Valve Kit, Urethane, 26B637

Ref.	Part	Description	Qty.
701	V25AB000BA	VALVE, 25, npt/b, 000, adj/sol, amb	1
702	100721	PLUG, pipe	1
703	121310	FITTING, connector, npt x jic	1
704	156684	FITTING, union, adapter	1
705	162449	FITTING, nipple, reducing	1
706	15R873	FITTING, tee	1
707	C12509	TUBE, nylon, round	1
708	123789	COUPLER	1

709	100896	FITTING, bushing, pipe	1
710	17K616	FITTING, nipple	1
711	123140	FITTING, cap	1
712	---	SEALANT, pipe, sst	1
713	---	HOSE, assy	1
714	---	HARNES, P20	1
715	054776	TUBE, nylon, round	15ft
716	115948	FITTING, elbow	1
717	15N040	CABLE, M8	1

Kits and Accessories

718	114958	STRAP, tie	2
719	157785	FITTING, swivel	1

720	113445	FITTING, elbow, street	1
-----	--------	------------------------	---

To install the Platen Valve Kit on a 55 gallon system:

11. The harness (714) has an M8 connector and an M12 connector. Connect the M12 connector that was originally connected to port 3 on the Electric Driver (AB) to the M12 connector on the harness (714). Connect the M8 4 pin connector to the solenoid on the platen valve (701).

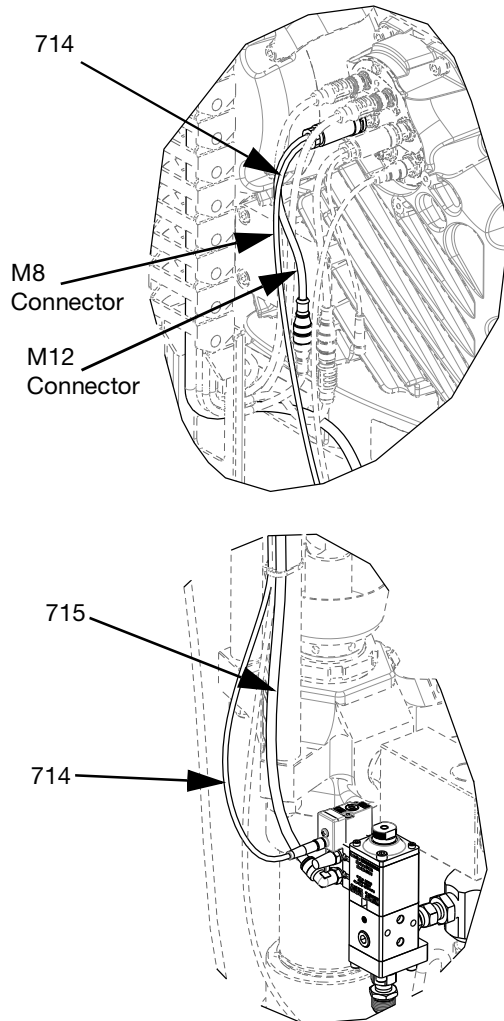


FIG. 55

12. Remove the 1/4 NPT plug from the Integrated Air Controls (AG). See **Integrated Air Controls (AG)** on page 13.
13. Insert the elbow fitting (716) into the Integrated Air Controls (AG).

14. Connect the nylon tube (715) to the elbow fitting (716) and the platen valve (701).

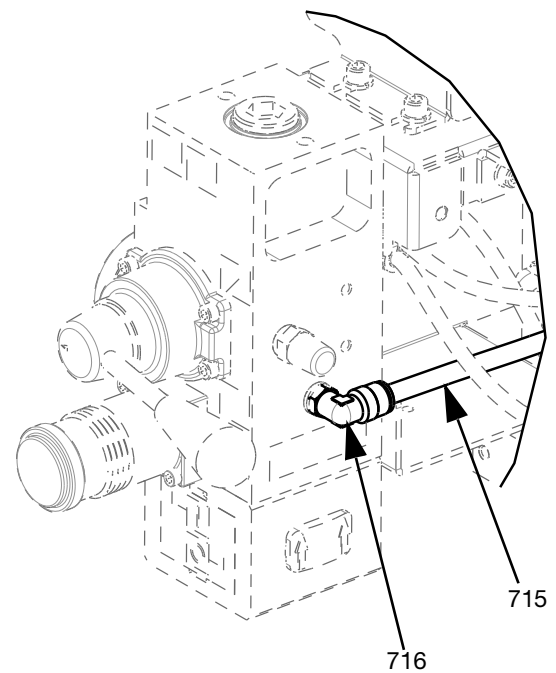
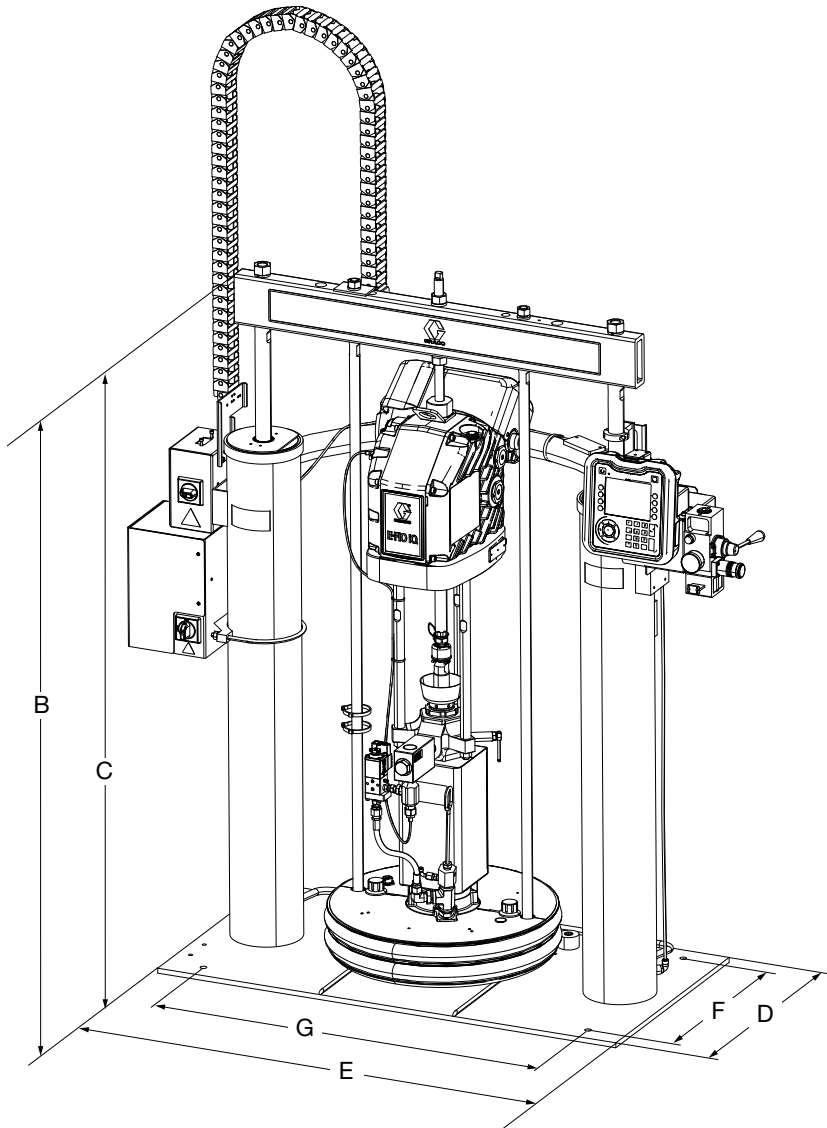


FIG. 56

Dimensions

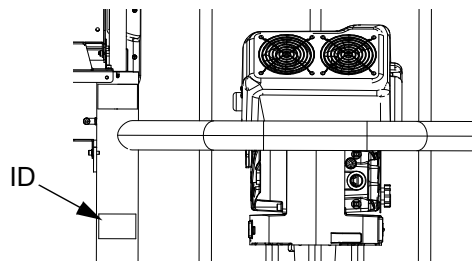


Dimensions

Ram Size in. (mm)	
Total Height (A)	96 (2438)
Ram Height (B)	69 (1753)
Extended Ram Height (C)	125 (3175)
Base Depth (D)	25 (635)
Machine Width (E)	45 (1143)
Mounting Hole Depth (F)	23 (584)
Mounting Hole Width (G)	45 (1143)

Ram Weight lb (kg)	
Ram Weight	919.6 (417.1)

See the identification plate (ID) for the weight of your Ram Supply Unit.



Pump Performance

Calculate Fluid Outlet Pressure

To calculate fluid outlet pressure (psi/MPa/bar) at a specific fluid flow (gpm/lpm) and electrical power, use the following instructions and pump data chart.

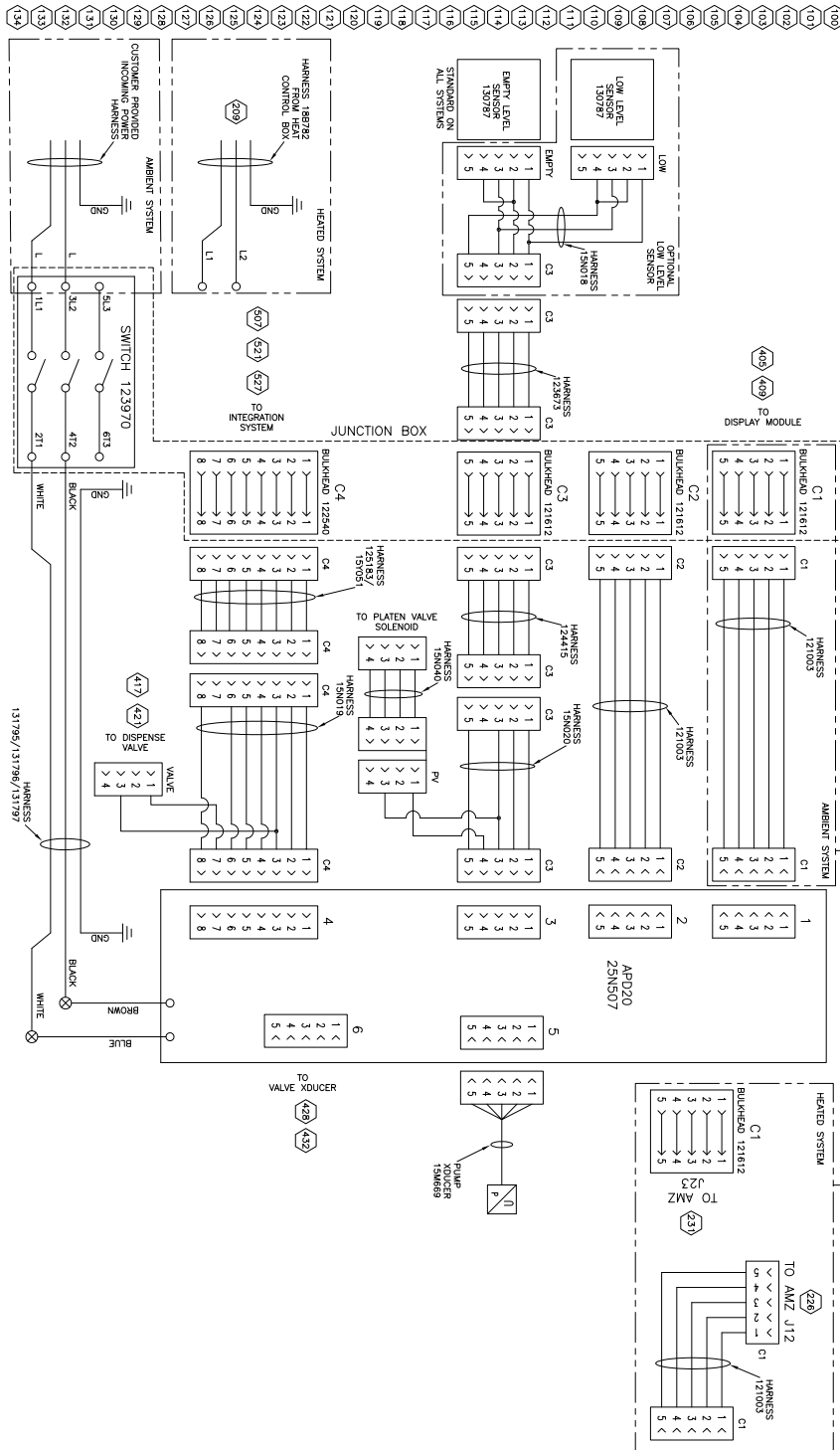
1. Refer to the desired flow along the bottom of the chart.
2. Follow the vertical line up to the intersection with the selected fluid outlet pressure curve. Follow left to the scale to read the fluid out pressure.

Calculate Electrical Power

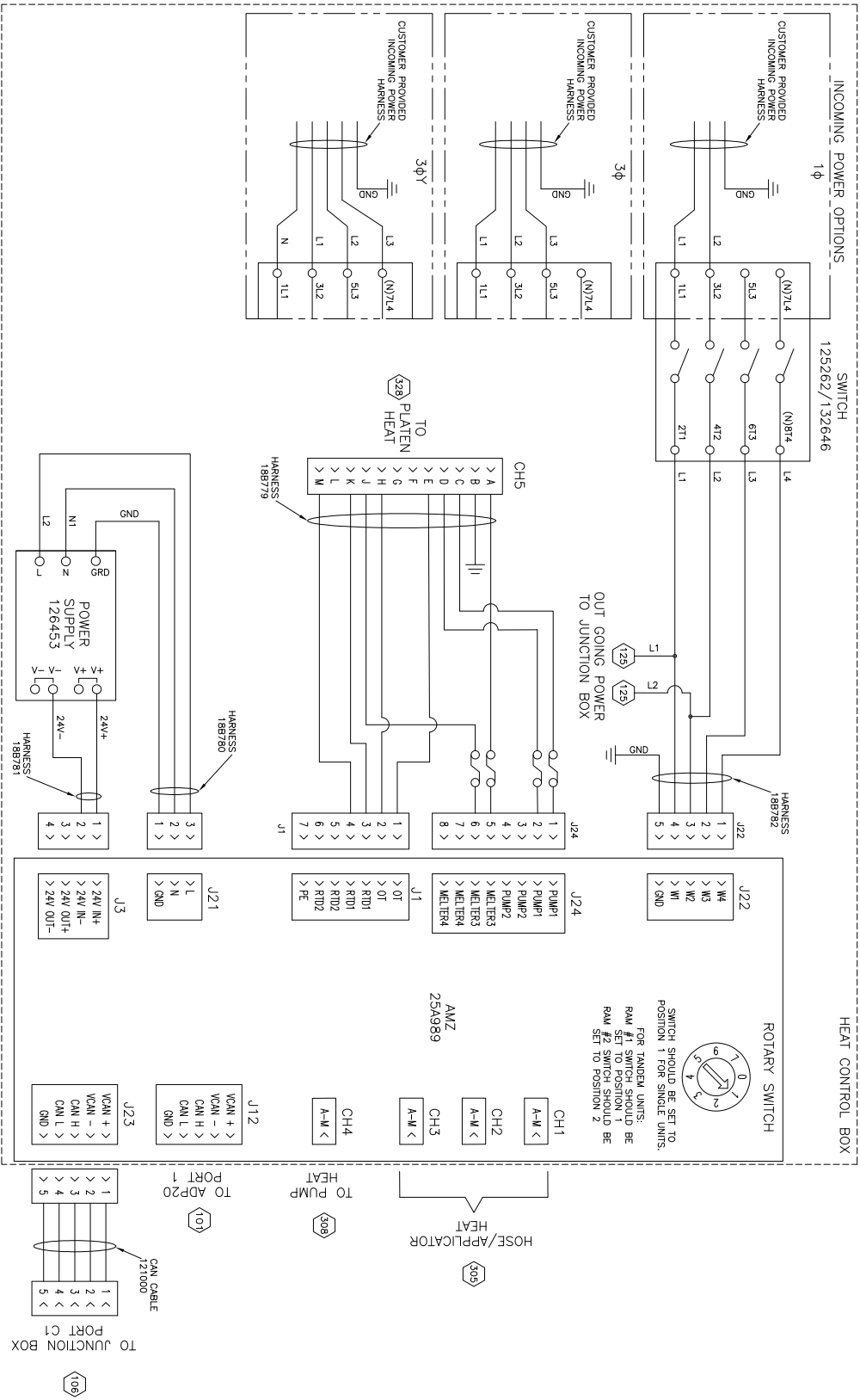
To calculate electrical power at a specific fluid flow (gpm/lpm), use the following instructions and pump data chart.

1. Refer to the desired flow along the bottom of the chart.
2. Follow the vertical line up to the intersection with the selected electrical power curve. Follow right to the scale to read the fluid out pressure.
3. **NOTE:** Performance is measured using 10 weight oil. System design and material being pumped may produce different results.

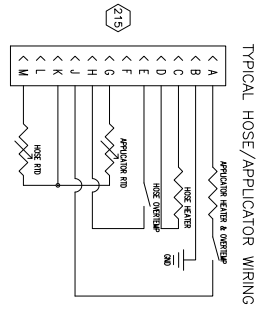
Wiring Diagrams



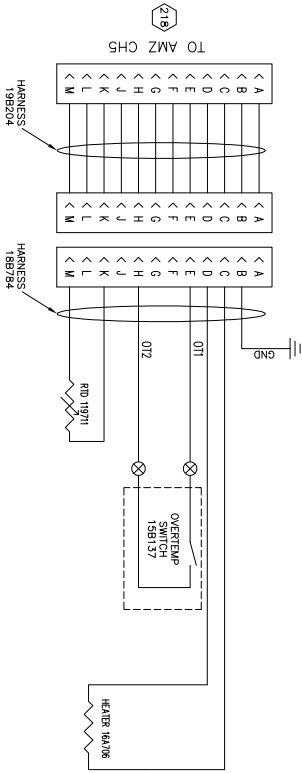
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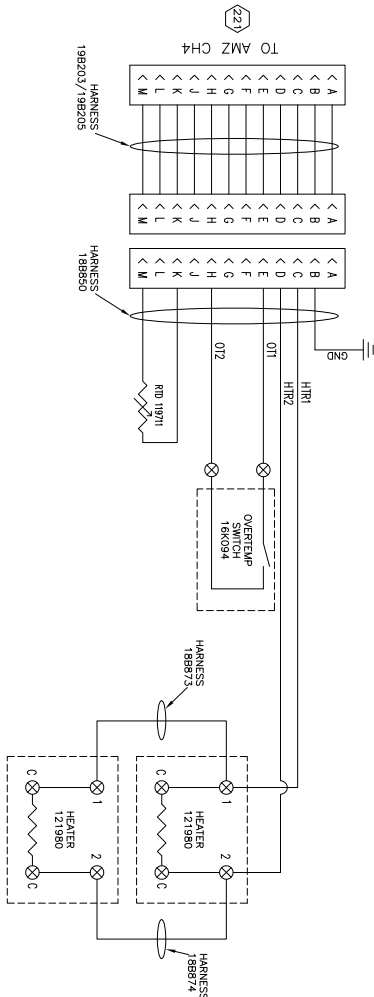
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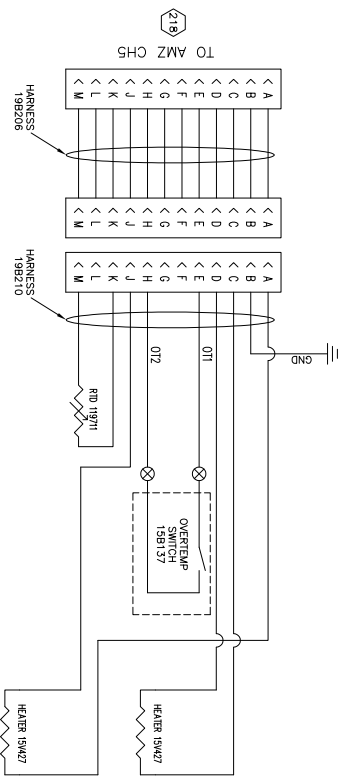
20L(5 GAL) PLATEN HEAT WIRING



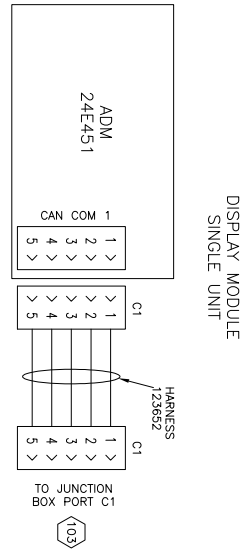
TYPICAL PUMP HEAT WIRING



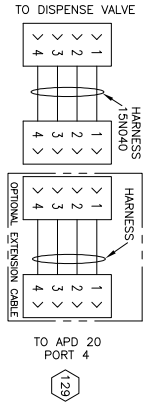
200L(55 GAL) PLATEN HEAT WIRING



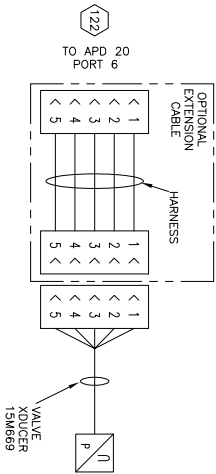
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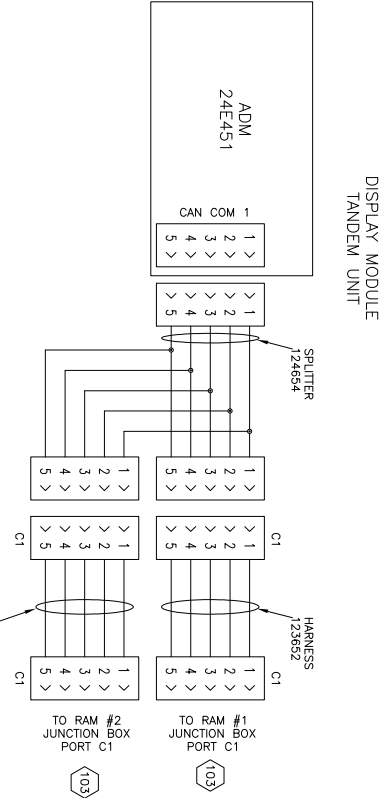
DISPLAY MODULE
SINGLE UNIT



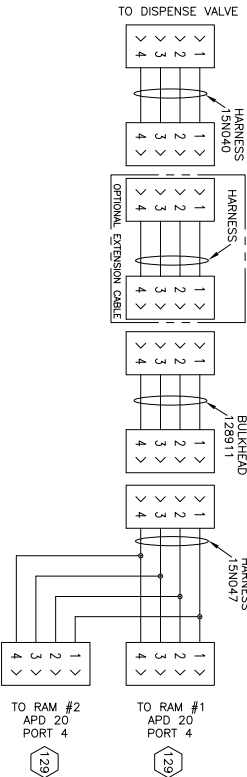
DISPENSE VALVE
SINGLE UNIT



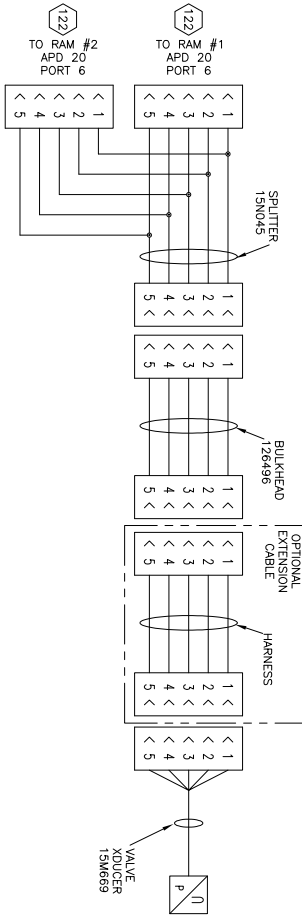
DISPENSE VALVE XUDCER
SINGLE UNIT



DISPLAY MODULE
TANDEM UNIT

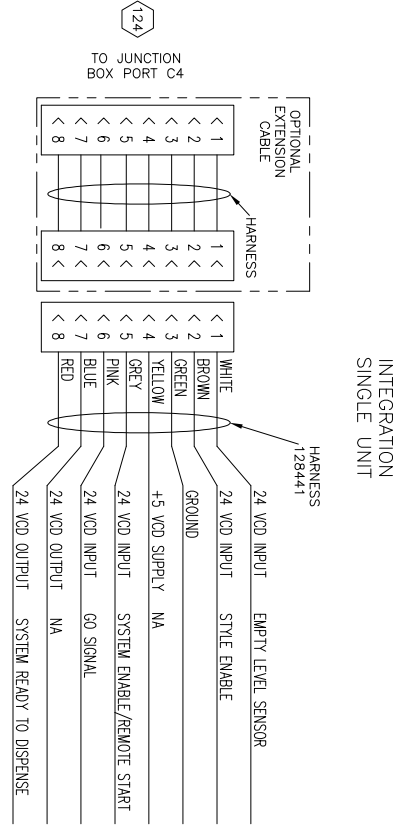


DISPENSE VALVE
TANDEM UNIT



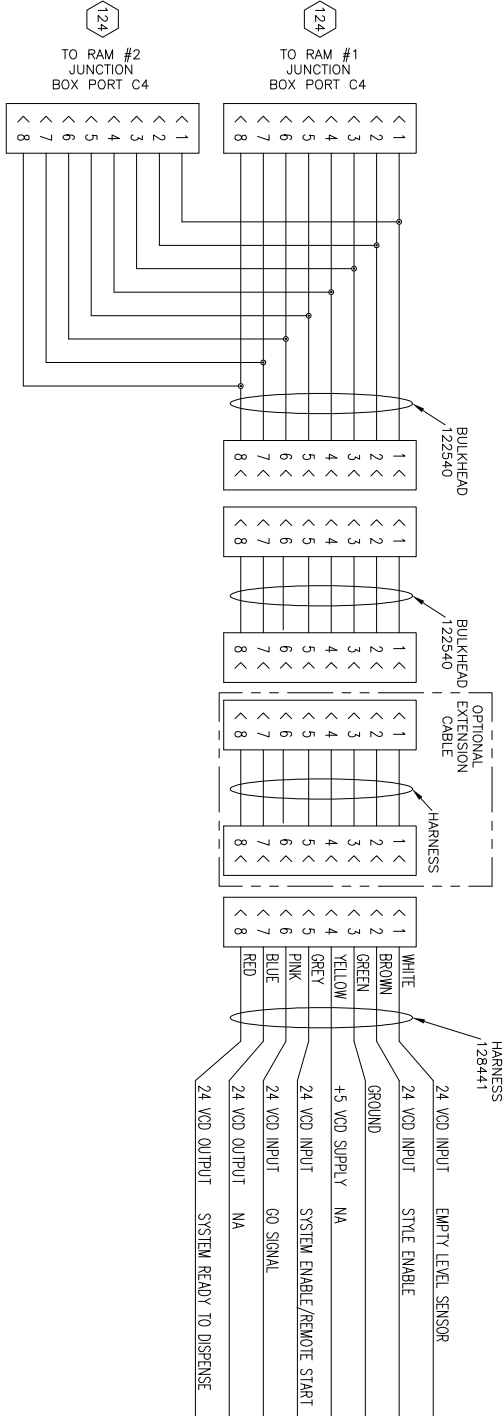
DISPENSE VALVE XUDCER
TANDEM UNIT

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INTEGRATION SINGLE UNIT

INTEGRATION TANDEM UNIT



Technical Specifications

E-Flo iQ Dispense System for Urethane		
	US	Metric
Maximum fluid operating temperature	158°F	70°C
Maximum working pressure	4000 psi	28 MPa, 276 bar
Maximum driver cycle rate	25 cycles per minute	
Air inlet size (supply system)	3/4 npt(f)	
Ambient operating temperature range (supply system)	32-120°F	0-49°C
Displacement pump effective area	See pump manual.	
Wetted parts	See component manuals. See Related Manuals on page 3.	
Platen wetted materials		
255319, 55 gal. (200 L)	319 cast aluminum, EPDM, zinc plated carbon steel, 316 stainless steel, 17-4 stainless steel	
255320, 55 gal. (200 L)	319 cast aluminum, neoprene, zinc plated carbon steel, 316 stainless steel, 17-4 stainless steel	
Sound pressure, measured per EN ISO 11202:2010		
Normal operation (dispensing)	< 70 dBA	
Drum Change	77 dBA	
Electrical requirements		
Heated system electrical ratings	200-240 VAC, 1 phase, 50/60 Hz, 60 A	
	200-240 VAC, 3 phase (Δ), 50/60 Hz, 38 A	
	380-420 VAC, 3 phase (Y), 50/60 Hz, 38 A	
Fluid outlet size		
Check-Mate 200	1" NPT female	
Maximum air input pressure (supply system)		
D200s - 6.5 in. dual post, 55 gal. (200 L)	125 psi	0.9 MPa, 9 bar

California Proposition 65

CALIFORNIA RESIDENTS

 **WARNING:** Cancer and reproductive harm – www.P65warnings.ca.gov.

Graco Standard Warranty

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

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

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

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Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

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Graco Information

Sealant and Adhesive Dispensing Equipment

For the latest information about Graco products, visit www.graco.com.

For patent information, see www.graco.com/patents.

TO PLACE AN ORDER, contact your Graco distributor, go to www.graco.com, or call to identify the nearest distributor.

Toll Free Phone Number: 1-800-328-0211

All written and visual data contained in this document reflects the latest product information available at the time of publication. Graco reserves the right to make changes at any time without notice.

Original instructions. This manual contains English. MM 3A8217

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