

E-Flo[®] iQ Dispense System

333586C

EN

For dispensing and metering sealants, adhesives, and other medium to high viscosity fluids. For professional use only.

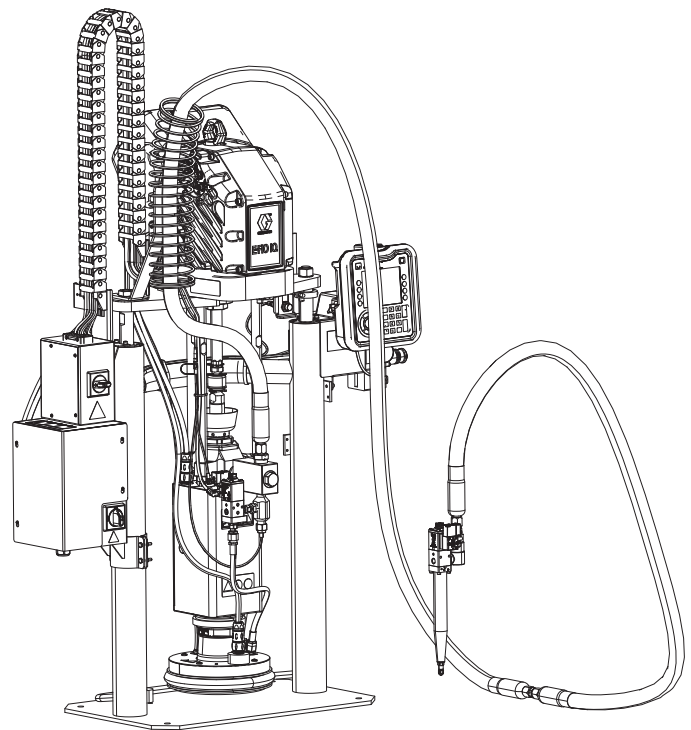
Not approved for use in explosive atmospheres or hazardous (classified) locations.

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
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
312494	Enclosed Wetcup Recirculation Kit Instructions - Parts
406681	Platen Cover Kit
334048	EPDM Hose Wiper Kit Instructions - Parts
3A6321	ADM Token In-System Programming Instructions
3A6482	APD20 Advanced Precision Driver Instructions
333585	iQ Dispense Valves, Instructions-Parts
3A1244	Graco Control Architecture Module
313138	Supply System Communications Gateway Module Installation Kit
3A4241	Hot Melt/Warm Melt Heated Hose Instructions

Dispense System Configurator

The E-Flo iQ dispense system provides the flexibility to configure a complete system to meet your specific needs. This includes offering multiple combinations of the following components:

- iQ Ram Supply Units
- iQ Dispense Valves
- Hoses and connectors

For dispense system component information, see **Dispense System Components** on page 5.

First, Second and Third Digit	Fourth Digit	Fifth Digit		Sixth Digit		Seventh Digit		Eighth Digit				Ninth Digit		Digits Ten through Seventeen	Digits Eighteen through Twenty Seven	
		Single or Tandem	Heat Option		Platen Valve Option		Ram Supply Unit Options				Fieldbus Option					
			Size	Drum Size	Pump Material	Seal Material	A	B	C	D	N					
EQC E-Flo iQ System	Revision	S	Single	H	Heated	Y	Yes	A	3 in.	20 L (5 Gal)	CS	EPDM	A	Ether-Net/IP	Hose Options for Tandem Hoses (Digits 10-13) and Supply Hoses (Digits 14-17) (See Hose Options on page 6)	Valve Options (See the iQ Dispense Valves Instructions - Parts manual for valve model options)
		T	Tandem	A	Ambient			B	3 in.	20 L (5 Gal)	CS	Neoprene	B	PROFINET		
								C	3 in.	20 L (5 Gal)	CM	EPDM	C	PROFIBUS		
								D	3 in.	20 L (5 Gal)	CM	Neoprene	D	DeviceNet		
								F	3 in.	200 L (55 Gal)	CS	EPDM	N	None		
								G	3 in.	200 L (55 Gal)	CS	Neoprene				
								H	3 in.	200 L (55 Gal)	CM	EPDM				
								J	3 in.	200 L (55 Gal)	CM	Neoprene				
								K	6 in.	200 L (55 Gal)	CS	EPDM				
								M	6 in.	200 L (55 Gal)	CS	Neoprene				
								N	6 in.	200 L (55 Gal)	CM	EPDM				
								P	6 in.	200 L (55 Gal)	CM	Neoprene				
								R	3 in.	60 L (16 Gal)	CS	PTFE				
						T	6 in.	60 L (16 Gal)	CS	PTFE						

KEY:

CS = Carbon Steel Severe Duty®

CM = Carbon Steel MaxLife®

Dispense System Components

NOTE: The Heated option for the E-Flo iQ system is for warm melt applications with a maximum temperature of 70° C (158° F).

iQ Ram Supply Units

Check the identification plate (ID) on the back of the ram post near the Power Junction Box (AJ) for the seven-digit part number of the iQ ram supply unit. Use the following matrix to define the construction of the unit, based on the seven digits. For example, Part No. **EZC2421** represents an electric supply unit (**EZ**), a carbon steel Check-Mate 200 Severe Duty displacement pump (**C2**), a 3 in. ram (**4**), a 5-gallon platen with a neoprene seal (**2**), and an Advanced Display Module (ADM) (**2**).

The digits in the following matrix do not correspond to the reference numbers in the Parts drawings and lists.

EZ	C2				4				2					2			
First and Second Digit	Third and Fourth Digit				Fifth Digit				Sixth Digit					Seventh Digit			
	Check-Mate Pump Options				Ram Options				Platen and Seal Options					Interface Options			
		Size	Pump Material	Heated/Ambient	Name	Size	Drum Size	Style	Platen Size	Platen Material	Seal Material	Wiper	Heated/Ambient		Interface		
EZ (Electric Supply System)	C1	200cc	CS	Ambient	1	D60	3 in.	20 L (5 Gal)	Ambient	1	20 L (5 Gal)	CST/AL	Neoprene	Single Ring	Ambient	2	ADM
	C2	200cc	CS	Heated ≤70° C	2	D200	3 in.	200 L (55 Gal)	Ambient	2	20 L (5 Gal)	CST/AL	Neoprene	Single Ring	Heated ≤70° C	4	No ADM
	C3	200cc	CM	Ambient	3	D200s	6 in.	200 L (55 Gal)	Ambient	3	20 L (5 Gal)	CST/AL	EPDM	Single Ring	Ambient		
	C4	200cc	CM	Heated ≤70° C	4	D60	3 in.	20 L (5 Gal)	Heated ≤70° C	4	20 L (5 Gal)	CST/AL	EPDM	Single Ring	Heated ≤70° C		
					5	D200	3 in.	200 L (55 Gal)	Heated ≤70° C	5	200 L (55 Gal)	AL	Neoprene	Double Ring	Ambient		
					6	D200s	6 in.	200 L (55 Gal)	Heated ≤70° C	6	200 L (55 Gal)	AL	Neoprene	Double Ring	Heated ≤70° C		
										7	200 L (55 Gal)	AL	EPDM	Double Ring	Ambient		
										8	200 L (55 Gal)	AL	EPDM	Double Ring	Heated ≤70° C		
									9	60 L (16 Gal)	CST/AL	PTFE Coated Nitrile	Single Flat	Ambient			
									A	60 L (16 Gal)	CST/AL	PTFE Coated Nitrile	Single Flat	Heated			

KEY:

- CS = Carbon Steel Severe Duty
- CM = Carbon Steel MaxLife
- CST/AL = Carbon Steel/Aluminum
- AL = Aluminum

iQ Dispense Valves

Check the identification plate on the valve for the ten-digit part number of the iQ dispense valve. Use the following matrix to define the construction of the valve, based on the ten digits. For example, Part No. **V25AB060BA** represents a valve (**V**) with 1/4" NPT inlet ports (**25**), NPT tip size (**A**), ball/seat type (**B**), 60 mm outlet block length (**060**), solenoid (**B**), with no heat (**A**).

First Digit	Second and Third Digit		Fourth Digit		Fifth Digit		Sixth, Seventh, and Eighth Digit		Ninth Digit		Tenth Digit	
	Size		Tip Size		Type		Outlet Block Length		Action		Heat	
V	25	1/4 in. NPT	A	1/4 in. NPT	B	Ball/Seat	000	NA	B	Valve Mounted Solenoid	A	None
			C	0.6 mm	S	Snuff-Back	060	60 mm	D	*Remote Solenoid Block	B	Heated ≤70° C
			D	1.0 mm	T	Tip Seal	200	200 mm				
			F	1.3 mm								
			G	1.7 mm								

* Remote solenoid supplied by customer.

NOTE: Refer to the iQ Dispense Valves Instructions-Parts manual for additional information about iQ Dispense Valves. See **Related Manuals** on page 3.

Hose Options

	Part No.	JIC Dash Size	Length	Heat	Working Pressure Temperature Rating
04	19M404	-10 (5/8 in, 15.9 mm)	6 ft	Heated	4000 psi (28 MPa, 276 bar) at -65° F - 212° F (-54° C - 100° C)
05	19M405	-10 (5/8 in, 15.9 mm)	10 ft	Heated	
06	19M406	-10 (5/8 in, 15.9 mm)	15 ft	Heated	
07	19M407	-10 (5/8 in, 15.9 mm)	20 ft	Heated	
08	19M408	-10 (5/8 in, 15.9 mm)	25 ft	Heated	
11	19M411	-12 (3/4 in, 19.0 mm)	6 ft	Heated	
12	19M412	-12 (3/4 in, 19.0 mm)	10 ft	Heated	
13	19M413	-12 (3/4 in, 19.0 mm)	15 ft	Heated	
14	19M414	-12 (3/4 in, 19.0 mm)	20 ft	Heated	
15	19M415	-12 (3/4 in, 19.0 mm)	25 ft	Heated	
16	19M416	-16 (1 in, 25.4 mm)	6 ft	Heated	3000 psi (21 MPa, 207 bar) at 213° F - 400° F (101° C - 204° C)
17	19M417	-16 (1 in, 25.4 mm)	10 ft	Heated	
18	19M418	-16 (1 in, 25.4 mm)	15 ft	Heated	
19	19M419	-16 (1 in, 25.4 mm)	20 ft	Heated	
20	19M420	-16 (1 in, 25.4 mm)	25 ft	Heated	

	Part No.	JIC Dash Size	Length	Heat	Working Pressure Temperature Rating
65	17K265	-10 (5/8 in, 15.9 mm)	6 ft	Ambient	4000 psi (28 MPa, 276 bar) at -65° F - 400° F (101° C - 204° C)
66	17K266	-10 (5/8 in, 15.9 mm)	10 ft	Ambient	
67	17K267	-10 (5/8 in, 15.9 mm)	15 ft	Ambient	
68	17K268	-10 (5/8 in, 15.9 mm)	20 ft	Ambient	
69	17K269	-10 (5/8 in, 15.9 mm)	25 ft	Ambient	
72	17K272	-12 (3/4 in, 19.0 mm)	6 ft	Ambient	
73	17K273	-12 (3/4 in, 19.0 mm)	10 ft	Ambient	
74	17K274	-12 (3/4 in, 19.0 mm)	15 ft	Ambient	
75	17K275	-12 (3/4 in, 19.0 mm)	20 ft	Ambient	
76	17K276	-12 (3/4 in, 19.0 mm)	25 ft	Ambient	
77	17K277	-16 (1 in, 25.4 mm)	6 ft	Ambient	
78	17K278	-16 (1 in, 25.4 mm)	10 ft	Ambient	
79	17K279	-16 (1 in, 25.4 mm)	15 ft	Ambient	
80	17K280	-16 (1 in, 25.4 mm)	20 ft	Ambient	
81	17K281	-16 (1 in, 25.4 mm)	25 ft	Ambient	
00	No Hose	N/A	N/A	N/A	

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.
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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.



WARNING

 	<p>EQUIPMENT MISUSE HAZARD Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> • 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.
	<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 iQ dispense valve. Some installations may require only one hose depending on the needs of the system.

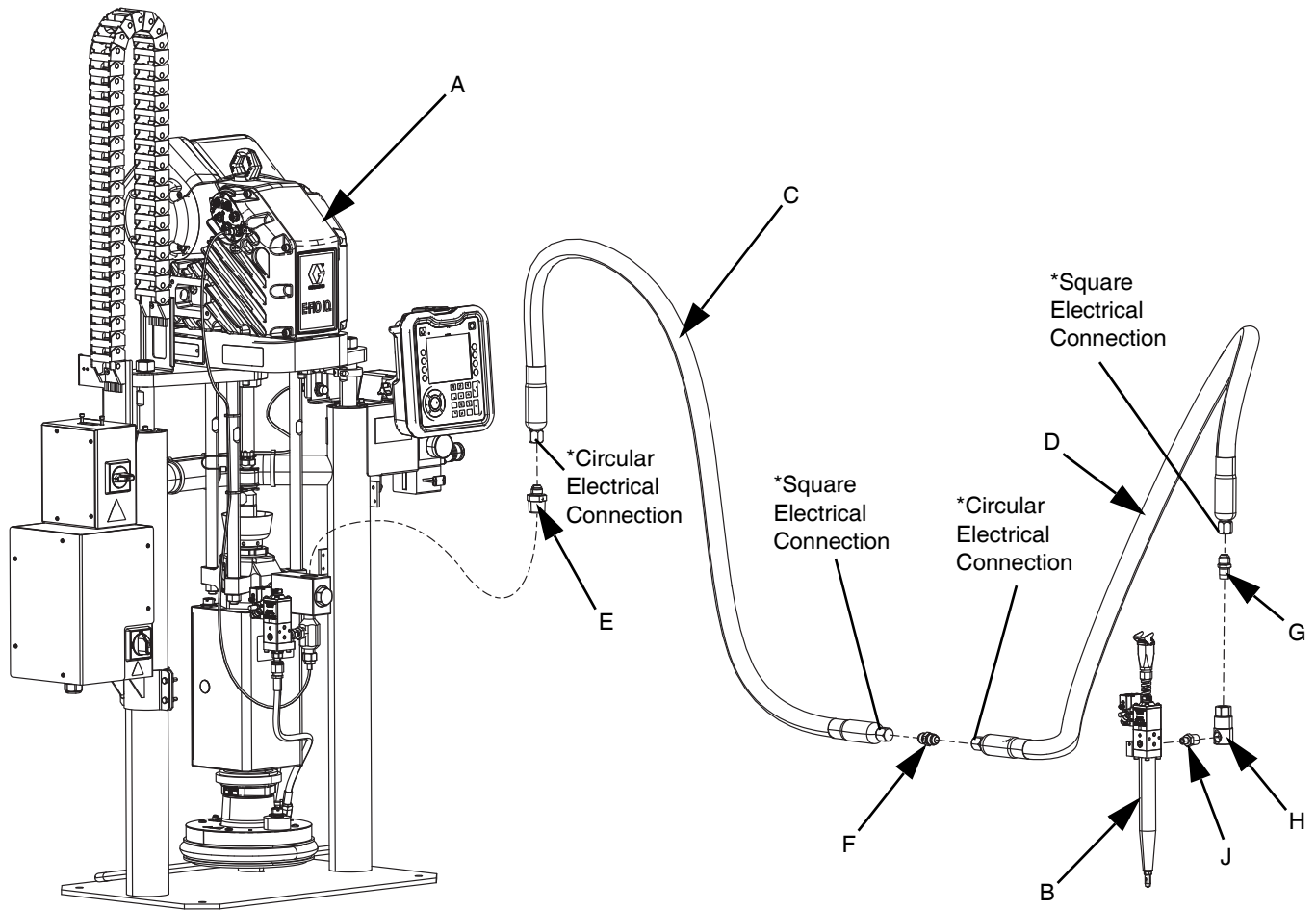


FIG. 1: Single E-Flo iQ Dispense System

Key:

- A iQ Ram Supply Unit
- B iQ 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
- G Supply Hose 2 to Swivel Fitting
- H Swivel Fitting
- J Swivel to Valve 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 iQ dispense valve. Some installations may not require Supply Hose 2 (D) to iQ Dispense Valve (B) depending on the needs of the system.

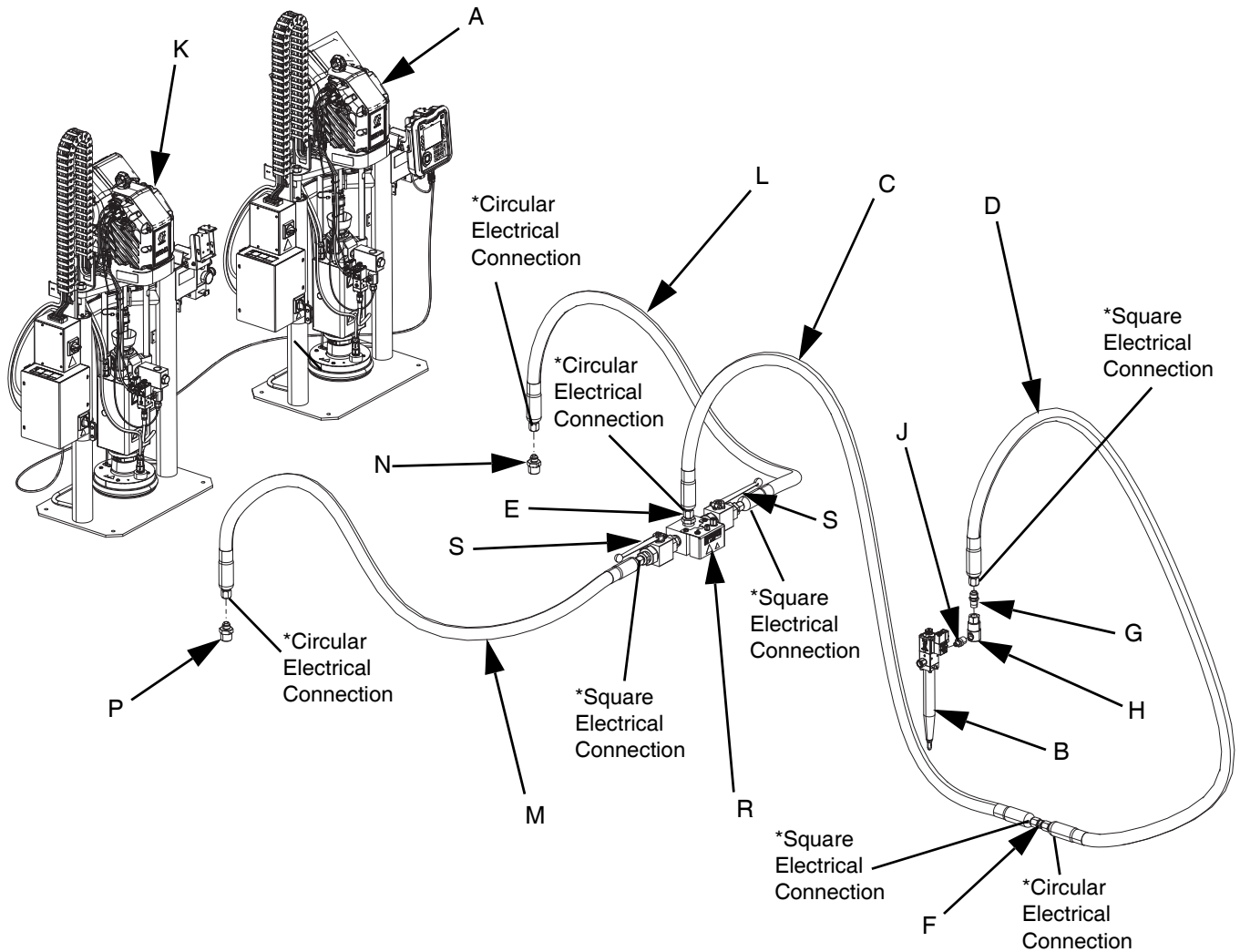


FIG. 2: Tandem E-Flo iQ Dispense System

Key:

- | | | | |
|---|--|---|--|
| A | iQ Ram Supply Unit 1 | L | Tandem Hose 1 |
| B | iQ Dispense Valve | M | Tandem Hose 2 |
| C | Supply Hose 1 | N | Ram Supply Unit 1 to Tandem Hose 1 Fitting |
| D | Supply Hose 2 | P | Ram Supply Unit 2 to Tandem Hose 2 Fitting |
| E | Tandem Block to Supply Hose 1 Fitting | R | Tandem Block |
| F | Supply Hose 1 to Supply Hose 2 Fitting | S | Ball Valve |
| G | Supply Hose 2 to Swivel Fitting | | |
| H | Swivel Fitting | | |
| J | Swivel to Valve Fitting | | |
| K | iQ Ram Supply Unit 2 | | |

* Applies to heated hoses only.

Supply Unit Component Identification

iQ Ram Supply Unit

D200 3 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.

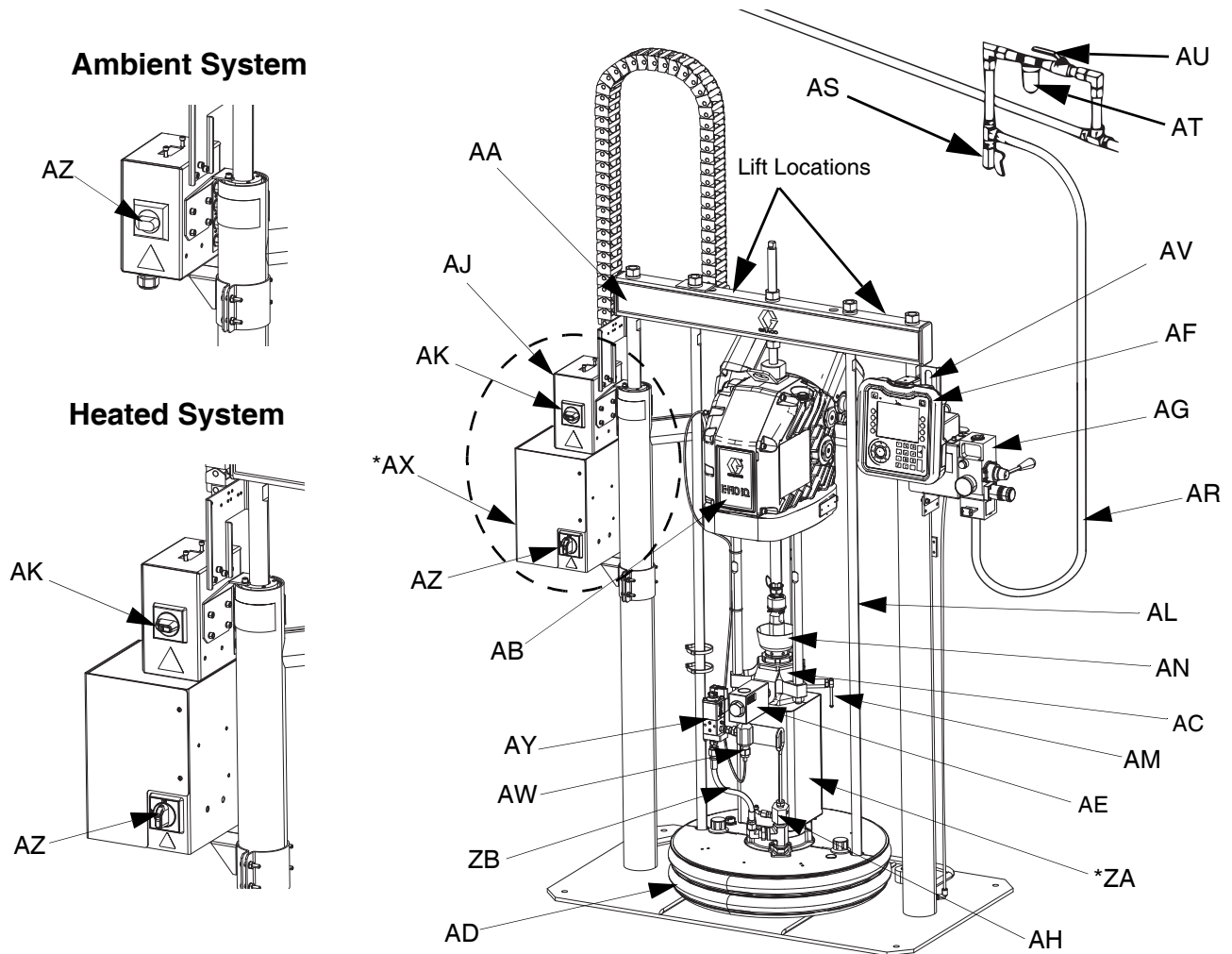


FIG. 3: iQ Ram Supply Unit

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 14)
AK Power Junction Box Switch	ZA *Pump Heater
AL Platen Lift Rod	ZB Recirculation Hose
AM Pump Bleed Valve	
AN Wet Cup	

* Parts on heated systems only.

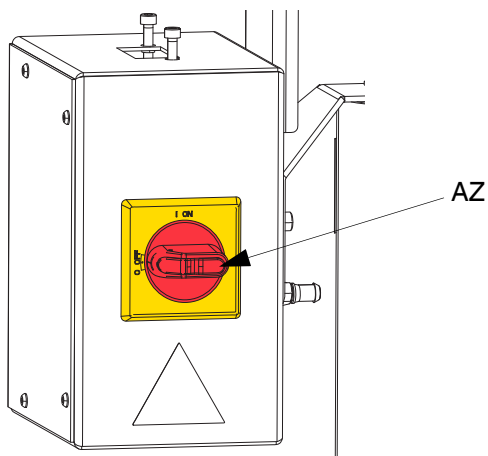
Power Disconnect

Every E-Flo iQ Dispense System has a red and yellow Disconnect Switch which shuts off power to the entire system. The location of the switch is different for ambient and heated systems. See FIG. 4.

On ambient systems, the Disconnect Switch (AZ) is located on the Power Junction Box (AJ).

On heated systems, the Disconnect Switch (AZ) is located on the Heat Control Box (AX). Heated systems also have 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.

Ambient System



Heated System

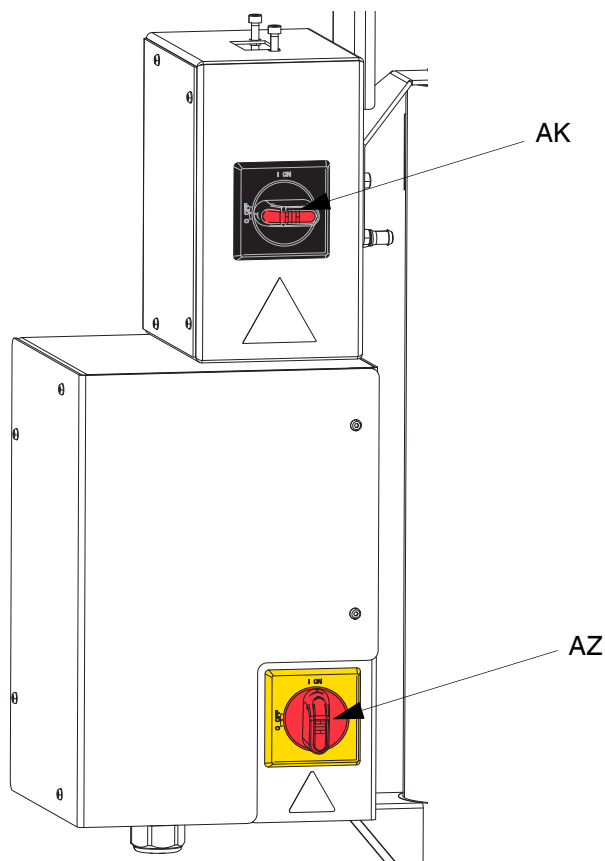


FIG. 4. Power Disconnect

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.

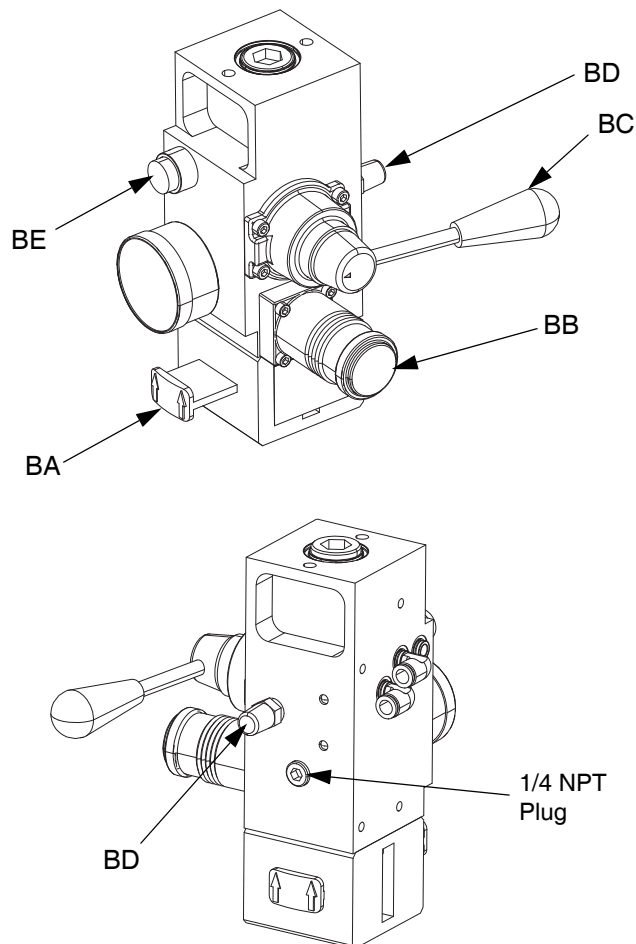


FIG. 5. Integrated Air Controls

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

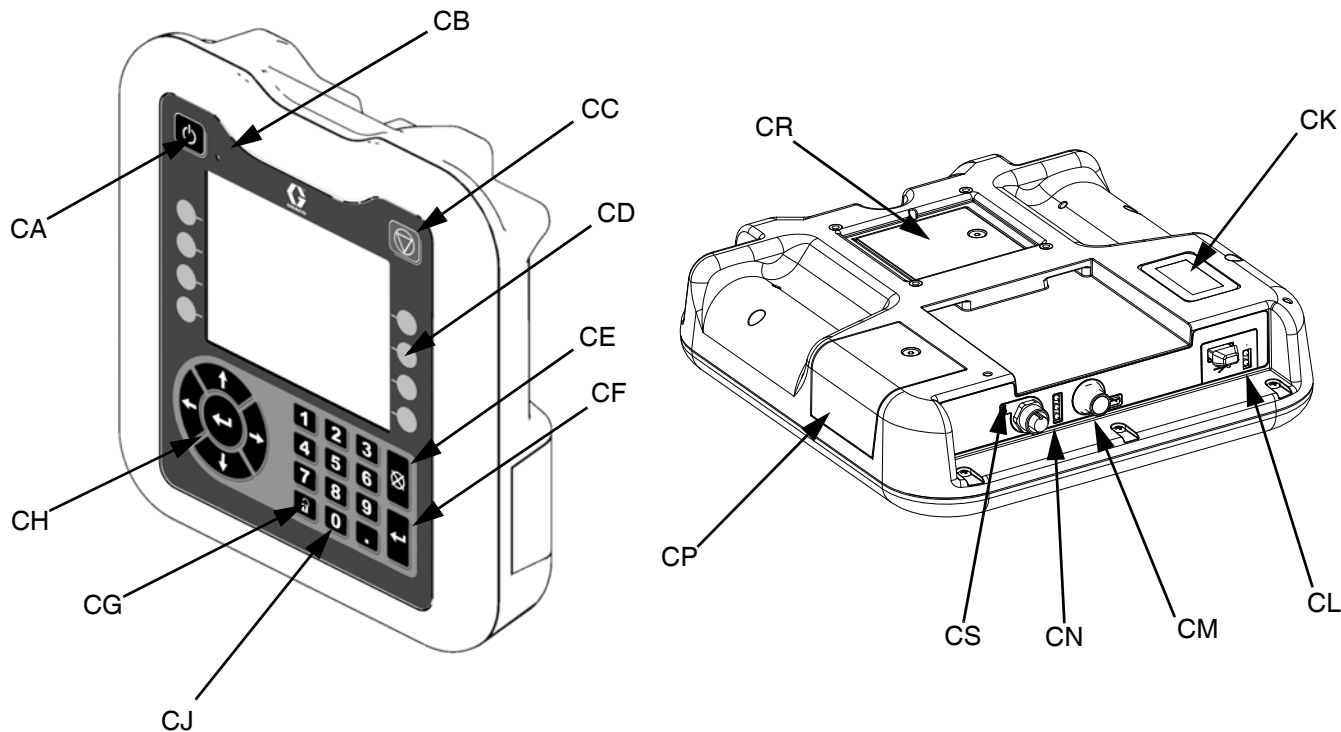


FIG. 6: ADM Component Identification

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

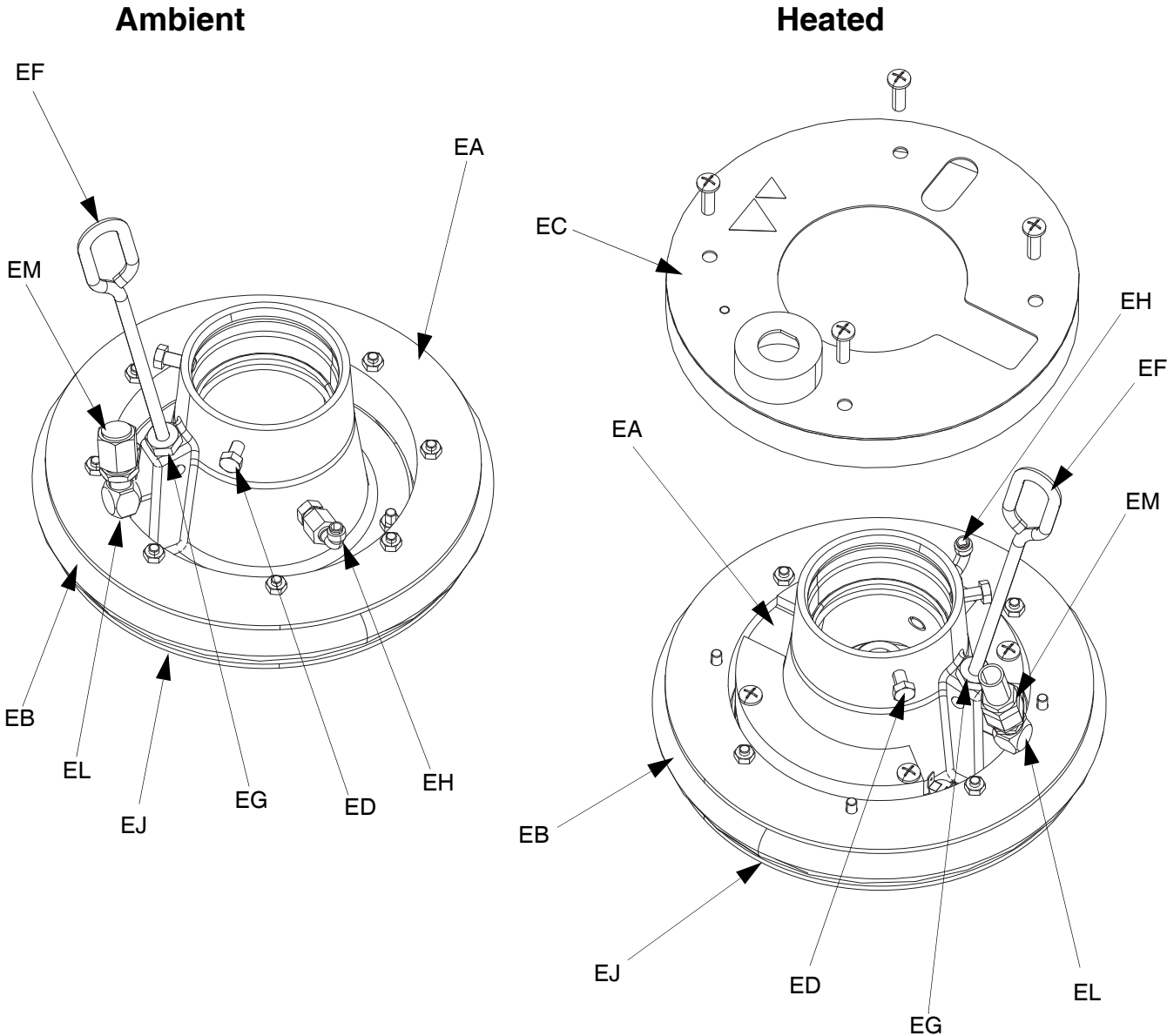


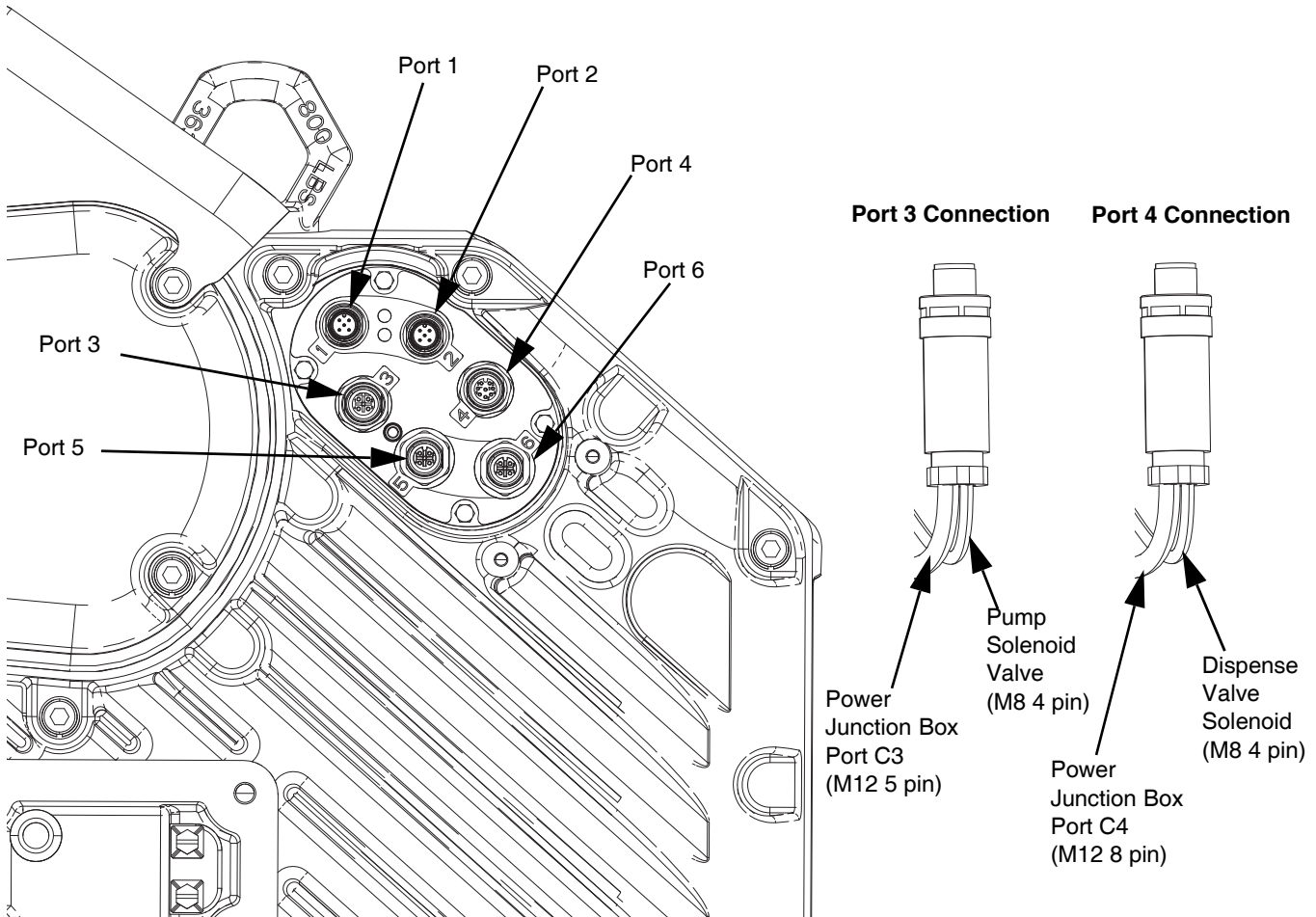
FIG. 7

- Key:**
EA Plate
EB Wiper
EC Heater Cover
ED Cap Screws
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



Key:

Port 1 Connects to port C1 on the Power Junction Box.

Port 2 Connects to port C2 on the Power Junction Box.

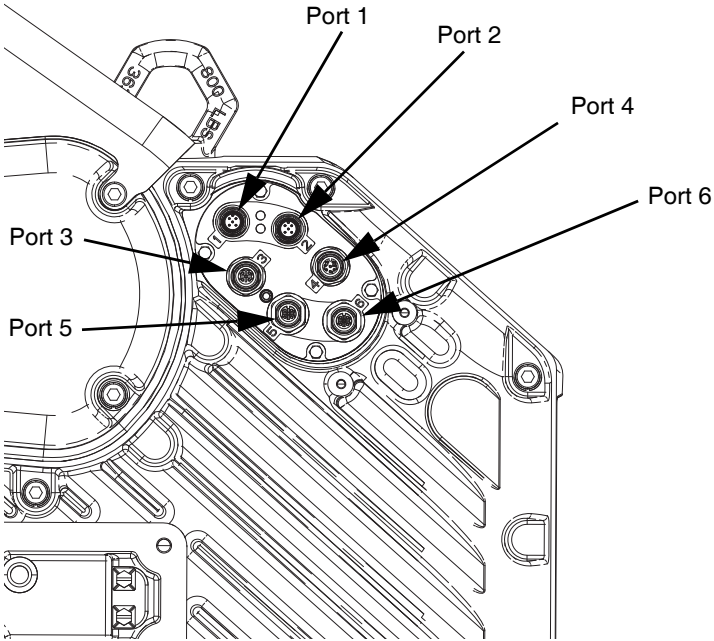
Port 3 Connects to port C3 on the Power Junction Box (M12 5 pin), and to the pump solenoid valve (M8 4 pin).

Port 4 Connects to port C4 on the Power Junction Box (M12 8 pin), and to the dispense valve solenoid (M8 4 pin).

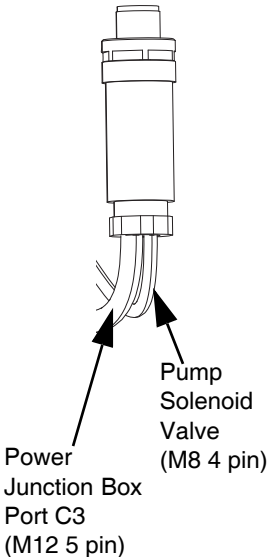
Port 5 Connects to the pump pressure transducer.

Port 6 Connects to the valve pressure transducer.

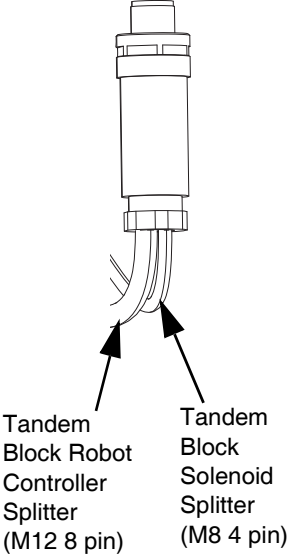
Tandem Ram



Port 3 Connection



Port 4 Connection



Tandem Block

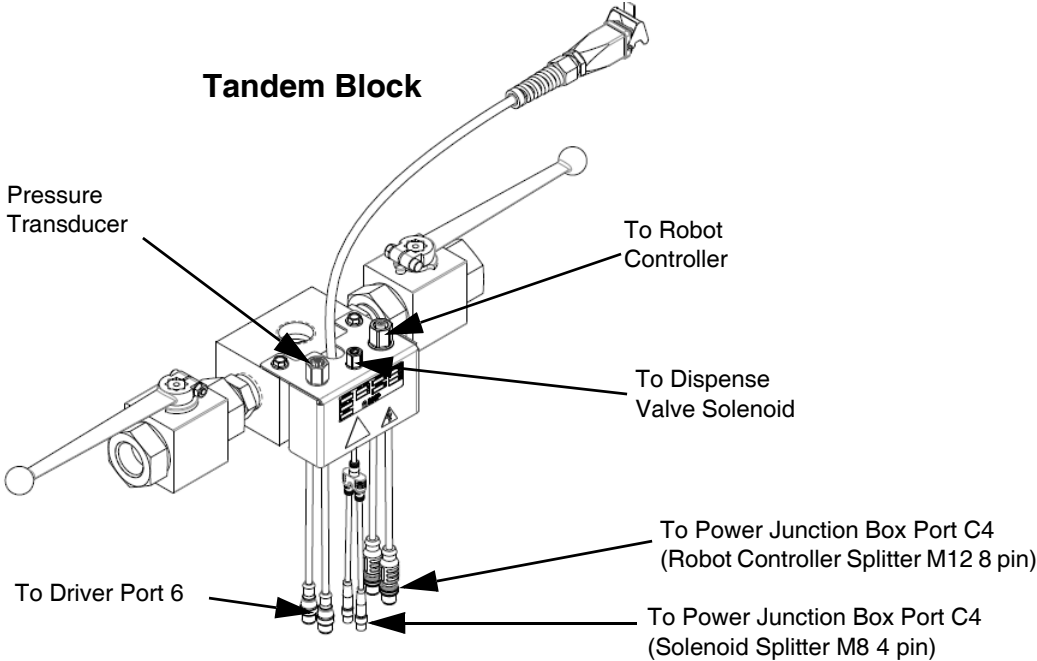


FIG. 9

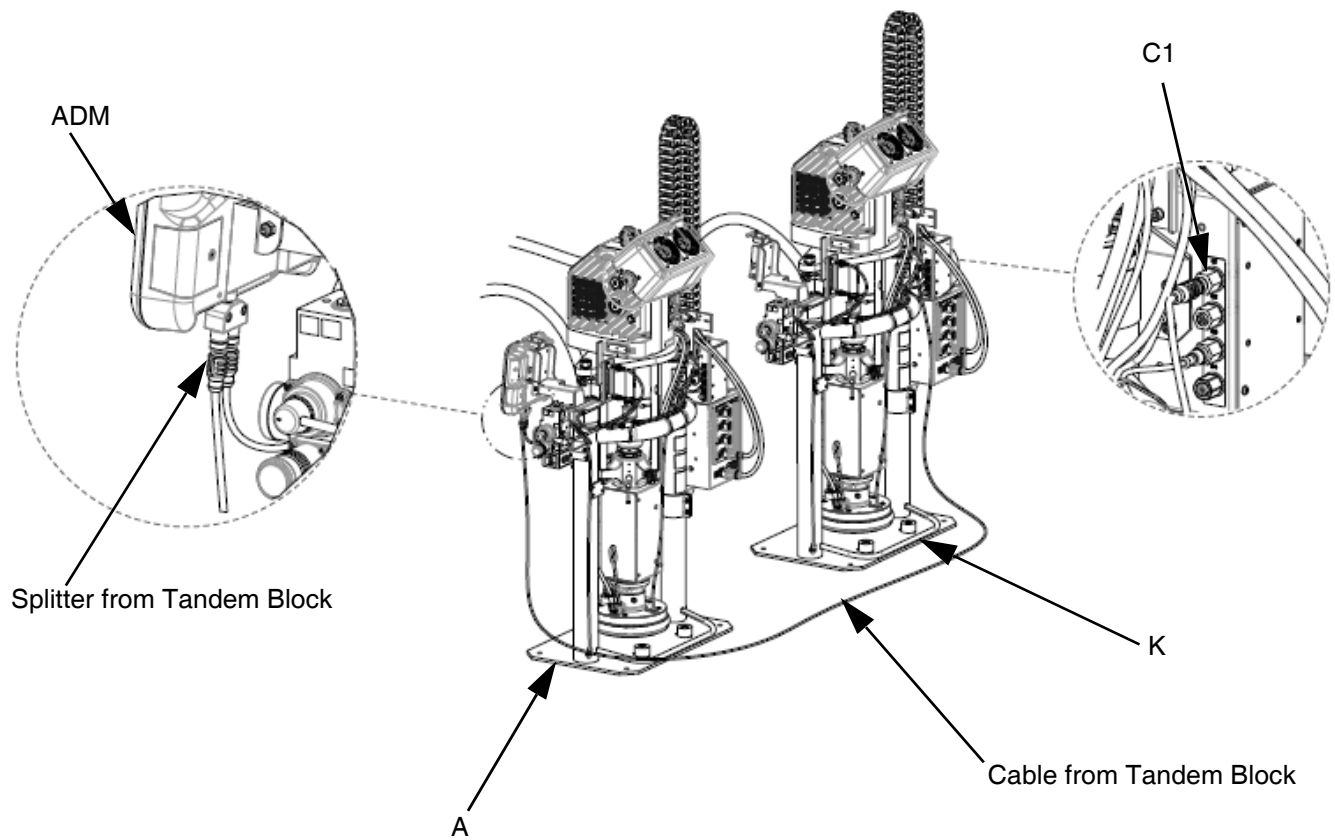


FIG. 10: Communication Connections

Key:

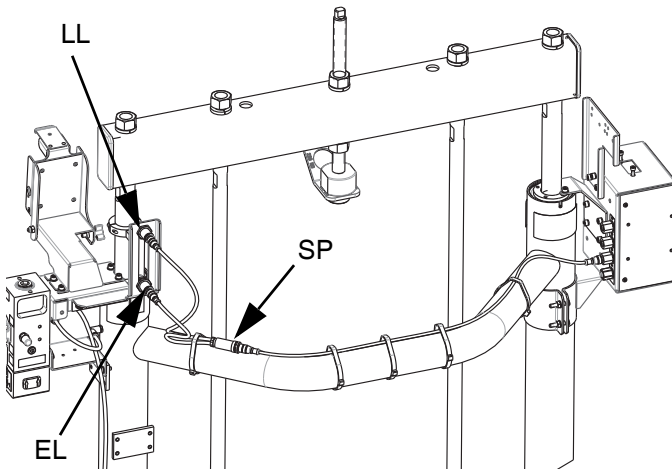
- Port 1 Connects to port C1 on the Power Junction Box.
- Port 2 Connects to port C2 on the Power Junction Box.
- Port 3 Connects to port C3 on the Power Junction Box (M12 5 pin), and to the platen valve solenoid (M8 4 pin).
- Port 4 Connects to port C4 on the Power Junction Box, and to the Tandem Block (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, 25E447

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:

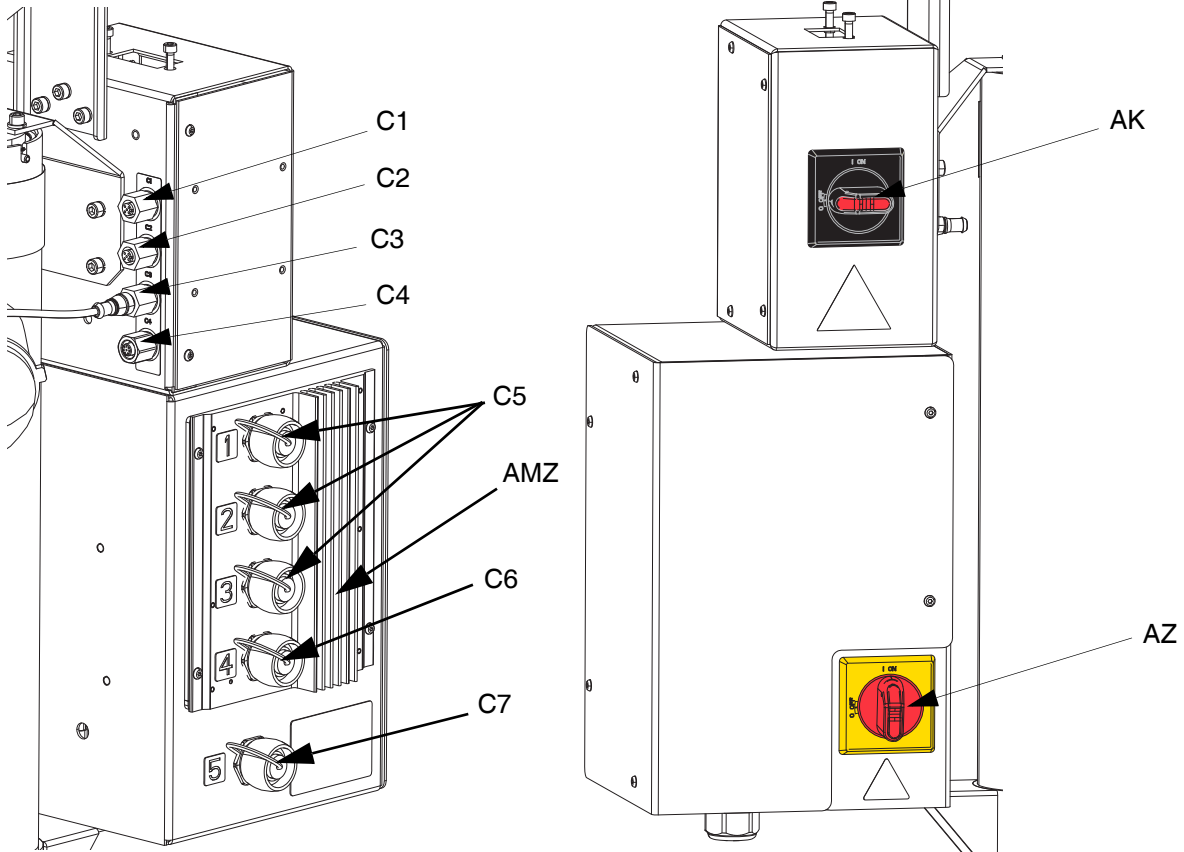
1. Turn the Disconnect Switch (AZ) OFF.
2. Disconnect cable from the empty level sensor (EL).
3. Mount the low level sensor (LL) on the mounting bracket.
4. Connect the splitter cable (SP) to the previously disconnected cable.
5. Connect the splitter cable (SP) lead labeled EMPTY to the empty level sensor (EL).
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

Heated



Ambient

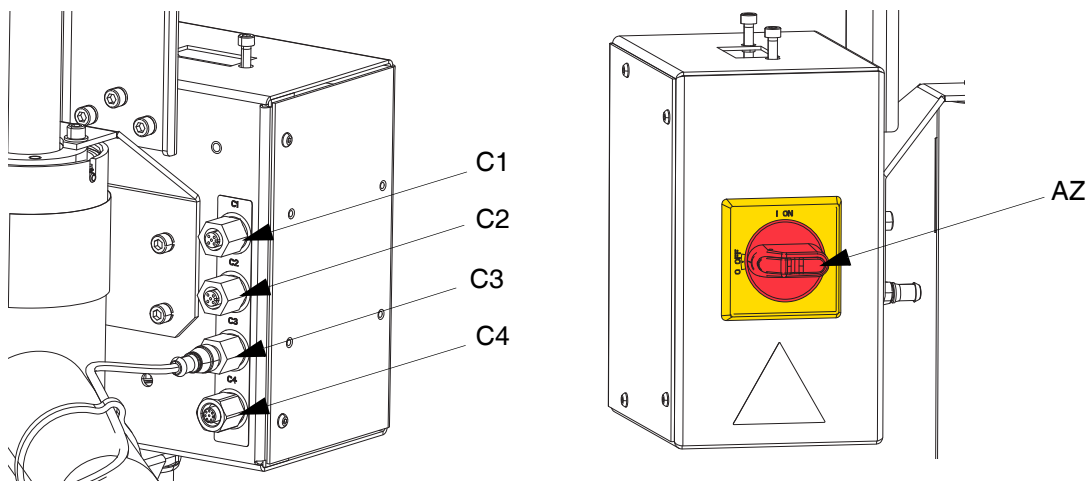


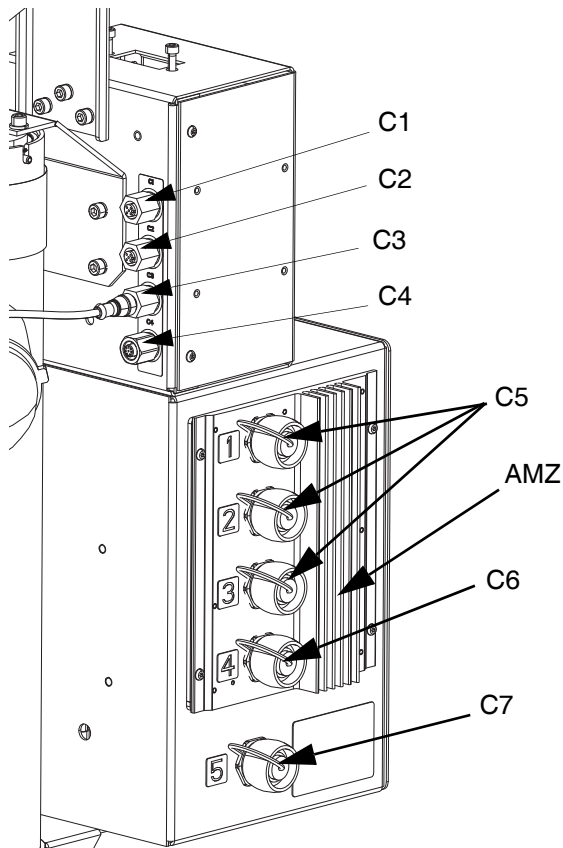
FIG. 11

Key:

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

Tandem Ram

Heated



Ambient

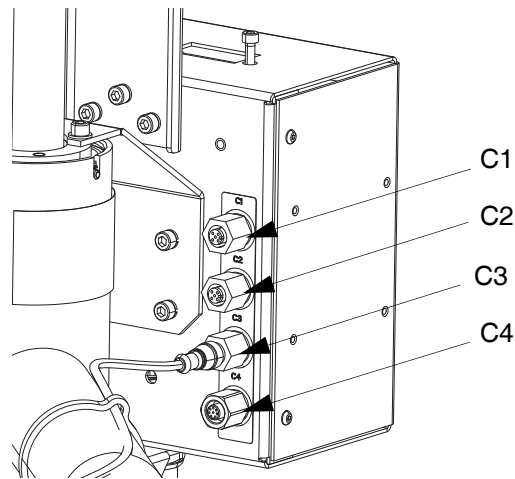


FIG. 12

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 Heated Hose/Accessory Connection
Port 1: Tandem Hose 1/Tandem Block
Port 2: Supply Hose 1/No Accessory (accessory connects to Valve if Supply Hose 2 is not used)
Port 3: Supply Hose 2/Valve (no connections if Supply Hose 2 is not used)
- C6 (Port 4) Pump
- C7 (Port 5) Platen
- AK Power Junction Box Switch (same as **Single Ram** on page 22)
- AZ Disconnect Switch (same as **Single Ram** on page 22)
- 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 Heated Hose/Accessory Connection
Port 1: Tandem Hose 2/No Accessory
Port 2: No Hose/No Accessory
Port 3: No Hose/No Accessory
- C6 (Port 4) Pump
- C7 (Port 5) Platen
- AK Power Junction Box Switch (same as **Single Ram** on page 22)
- AZ Disconnect Switch (same as **Single Ram** on page 22)
- AMZ Auto Multi-Zone

Installation

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

The E-Flo iQ Dispense System is shipped in five to six containers:

1. iQ Ram Supply Unit that includes the fully assembled ram, electric driver, and pump.
2. iQ Dispense Valve
3. Hoses (shipped in one or two containers depending on the number of hoses used)
4. Fittings
5. Cables and a pressure transducer

The E-Flo iQ Tandem Dispense System is shipped in ten to eleven containers:

1. iQ Ram Supply Unit that includes the fully assembled ram, electric driver, and pump.
2. Second iQ Ram Supply Unit that includes the fully assembled ram, electric driver, and pump.
3. iQ Dispense Valve
4. Hoses (shipped in three or four containers depending on the number of hoses used)
5. Fittings
6. Tandem fittings
7. Cables and a pressure transducer
8. Tandem Kit

NOTE: Additional items including CGM and accessories may be shipped in additional containers.

This section describes how to install and set up the E-Flo iQ system and make all the necessary component connections.

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 91.

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.

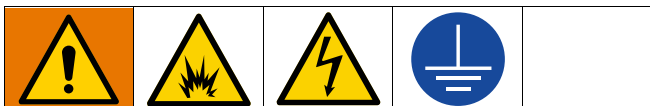
NOTE: The lift ring on the Driver (AB) is only to be used for replacing the Driver. Do not use it to lift the entire system.

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 25.

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 iQ Dispense Valves Instructions-Parts manual for grounding information.

Fluid supply container: follow local code.

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.

For Ambient Systems:

Voltage	Phase	Hz	Current
200-240 VAC	1	50/60	20 A

For Heated Systems:

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

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.

Ambient Systems

1. Turn the Disconnect Switch (AZ) OFF.
2. Cut power cord wires to the following lengths:
 - Ground wire - 6.5 inches (16.5 cm)
 - Power wires - 3.0 inches (7.6 cm)
 - Add ferrules as necessary. See FIG. 13.

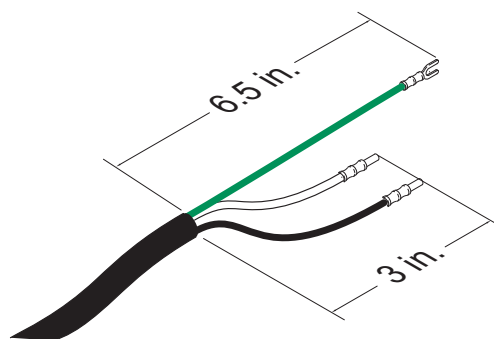


FIG. 13: Power Cord

3. Remove the six screws holding the cover of the Power Junction Box (AJ), then remove the Power Junction Box cover.

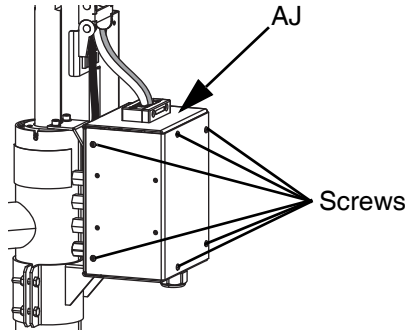


FIG. 14: Remove the Power Junction Box Cover

4. Insert the power cord through the cord grip and into the Power Junction Box (AJ).

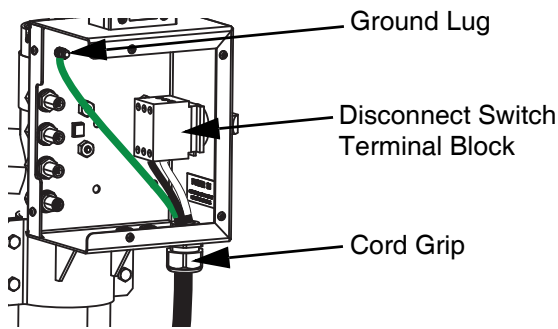


FIG. 15: Power Connection

5. Attach the ground wire to the ground lug inside the Power Junction Box (AJ).
6. Refer to FIG. 16 and connect the wires from the power cord into terminals 4T2 and 6T3 on the Disconnect Switch terminal block.

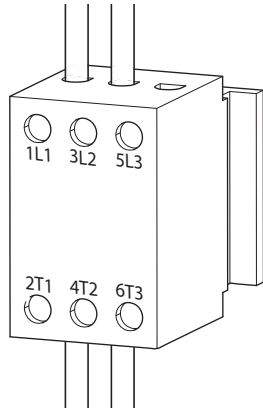


FIG. 16: Disconnect Switch Terminal Block

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

7. Tighten the cord grip to securely hold the power cord to the Power Junction Box (AJ).
8. Replace the Power Junction Box cover and secure it with the six screws that were removed in step 2.

Heated Systems

1. Turn the Heat Control Box Disconnect Switch (AZ) OFF.

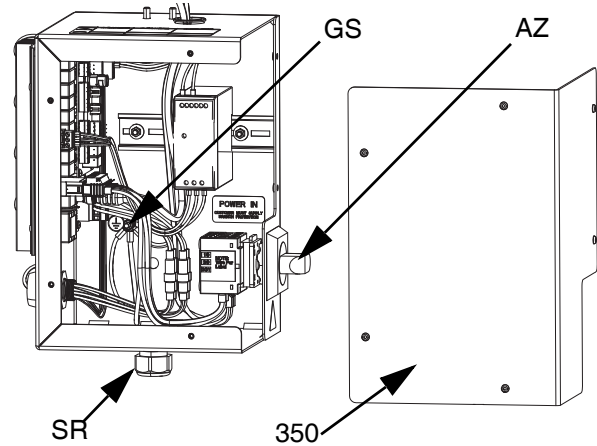
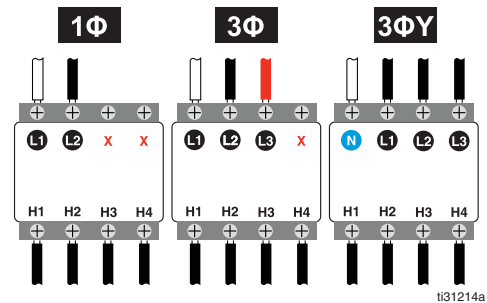


FIG. 17

2. Loosen the screws and remove the cover (350) on the Heat Control Box (AX).
3. Insert the electrical cord through the electrical enclosure strain relief bushing (SR).
4. Attach insulated ferrules to the end of each wire.
5. Connect the ground wire to the ground stud (GS).
6. Connect power wires to the Heat Control Box 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).

7. Tighten the strain relief bushing (SR) around the electrical cord.
8. Close the Heat Control Box door (350).

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.

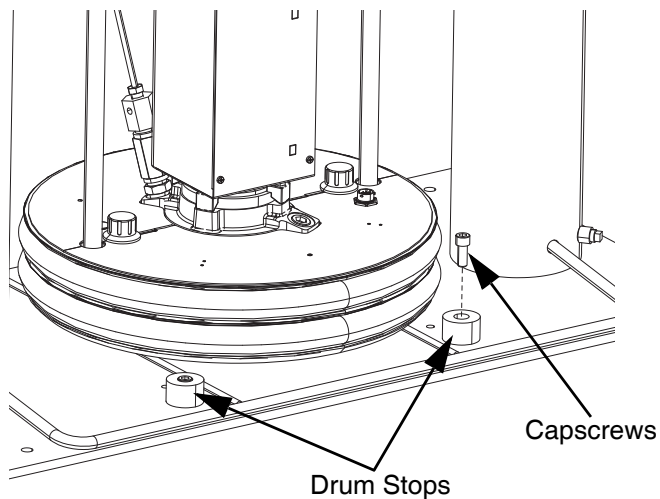


FIG. 18: Drum Stop Installation

1. Locate the correct set of mounting holes on the Ram Assembly base. See FIG. 19.
2. Using the capscrews and lock washers, attach the drum stops to the Ram Assembly base.

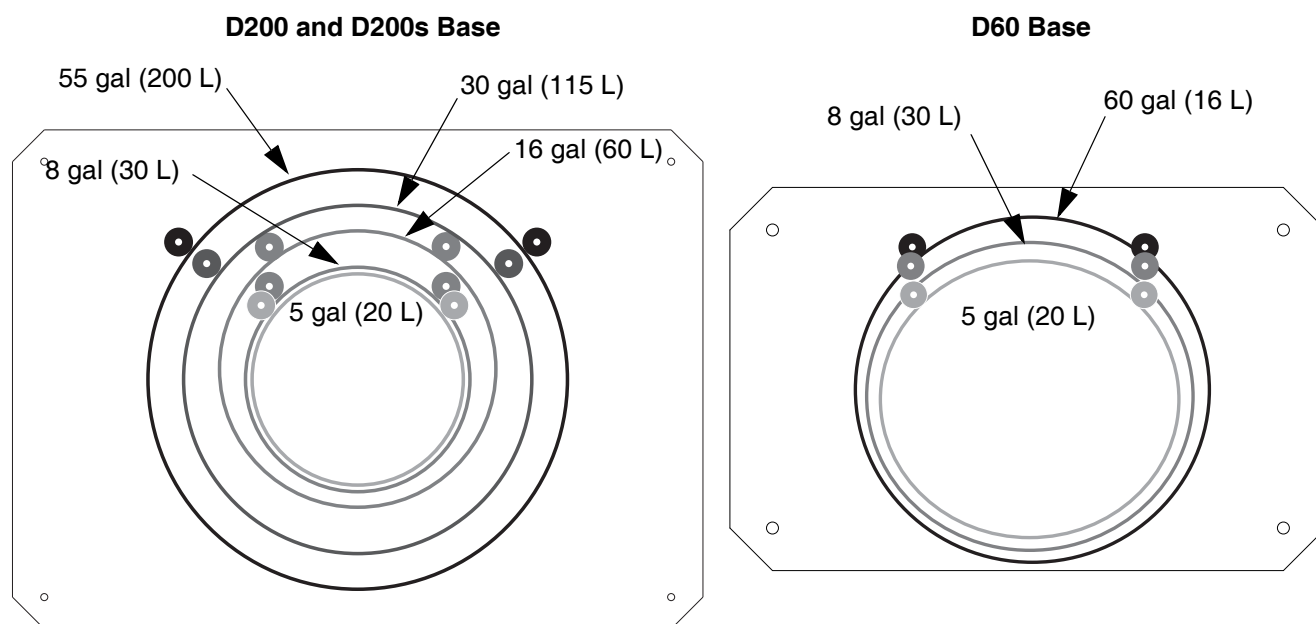


FIG. 19: Ram Base

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.

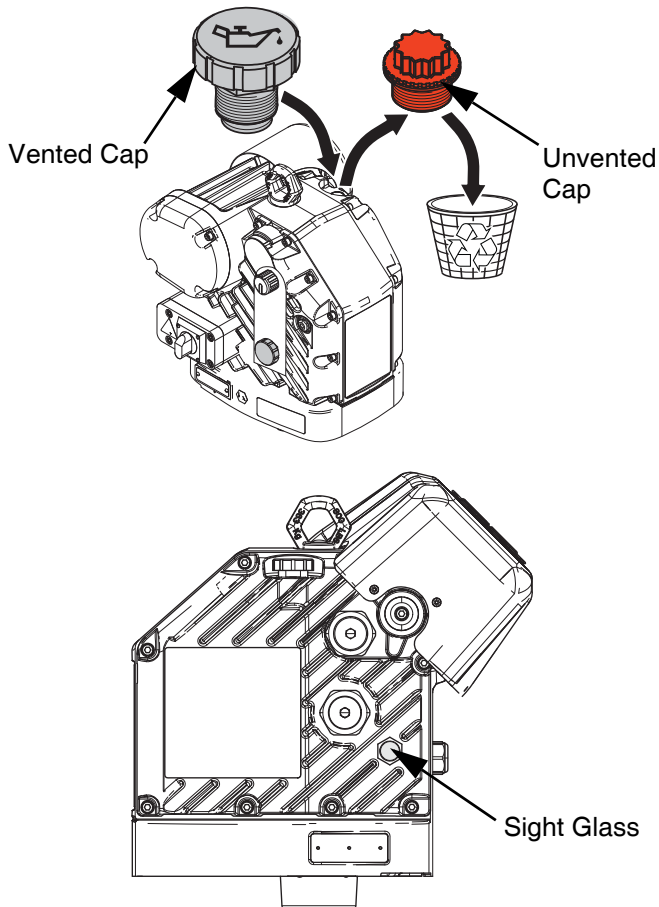


FIG. 20: Unvented and Vented Oil Caps

Setup



Remove the iQ Dispense Valve (B) from its packaging. Refer to the iQ Dispense Valves 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 13 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 11 and FIG. 2 on page 12. However, the steps for making the connections are the same.

See FIG. 1 on page 11 and FIG. 2 on page 12 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 37.

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

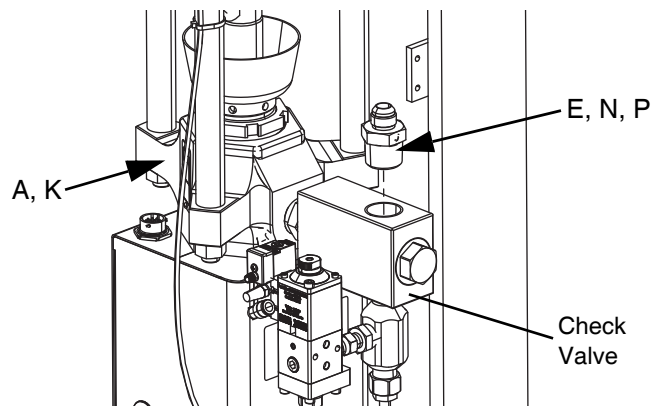


FIG. 21

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. 22.
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. 22.
 - b. Connect Tandem Hose 2 (M) to the Ram Supply Unit 2 to Tandem Hose 2 Fitting (P) as shown in FIG. 22.

- c. Connect Tandem Hose 1 (L) and Tandem Hose 2 (M) from the supply system to the Tandem Block (R). See FIG. 23.
- d. Connect Supply Hose 1 (C) to the Tandem Block (R). See FIG. 23.

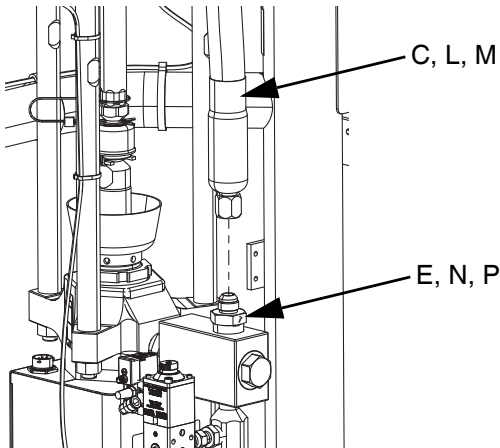


FIG. 22

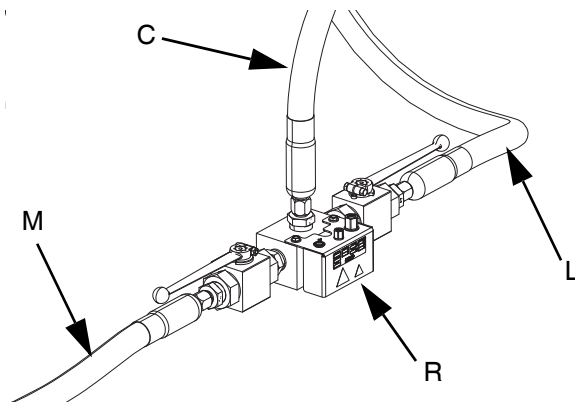


FIG. 23

- 6. If you are using two hoses, use the Supply Hose 1 to Supply Hose 2 Fitting (F) to connect Supply Hose 1 (C) to Supply Hose 2 (D). If using one hose in the system, proceed to step 5.

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 11 for proper hose orientation on the system.

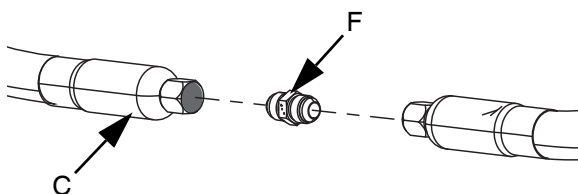


FIG. 24

- 7. Connect the Supply Hose 2 to Swivel Fitting (G) to the Swivel Fitting (H).

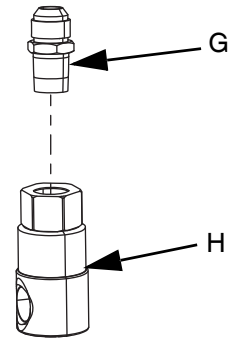


FIG. 25

- 8. Connect the Swivel to Valve Fitting (J) to the Dispense Valve (B) as shown in FIG. 26.

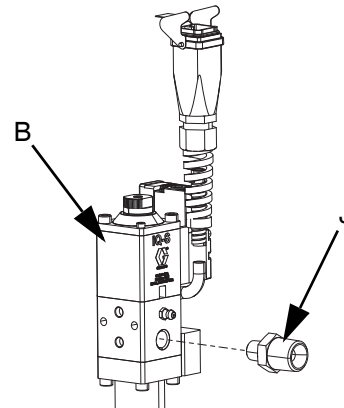


FIG. 26

- 9. Connect the Swivel Fitting (H) to the Dispense Valve (B) at the Swivel to Valve Fitting (J) that was connected in step 8.

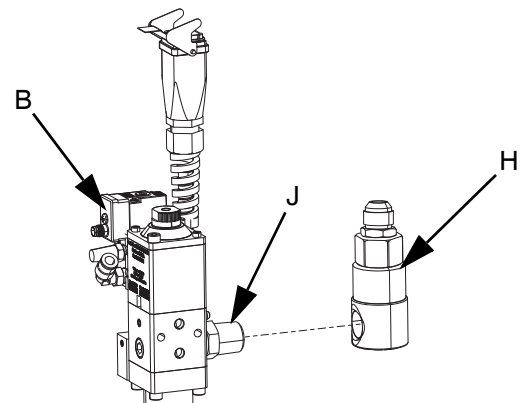


FIG. 27

10. If two hoses are used, connect Supply Hose 2 (D) to the Swivel Fitting (H) on the Dispense Valve (B) using the Supply Hose 2 to Swivel Fitting (G). If only one hose is used, connect Supply Hose 1 (C) to the Swivel Fitting (H) on the Dispense Valve (B) using the Supply Hose 2 to Swivel Fitting (G).

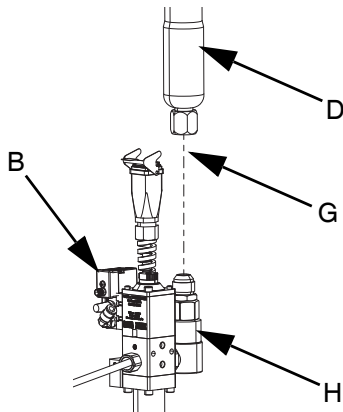


FIG. 28

11. Tighten all fittings until secure.
12. Connect the Air Line (AR) (not supplied) to the air fitting (FT) on the dispense valve solenoid. See the iQ Dispense Valves Instructions-Parts manual.

Electrical Connections

Pressure Transducer

1. If using a Single iQ Ram Supply System, connect the pressure transducer cable (PC) to Port 6 on the Electric Driver (AB). See **Electric Driver Communication Connections** for Single Rams on page 18.
2. If using a Tandem iQ Ram Supply System:
 - a. Connect the pressure transducer cable (PC) to the tandem block valve pressure transducer splitter. See **Electric Driver Communication Connections** for Tandem Rams on page 19.
 - b. Connect one male end of the M12 5 pin splitter on the tandem block to Port 6 on the Electric Driver (AB). Connect one cable to each Ram.

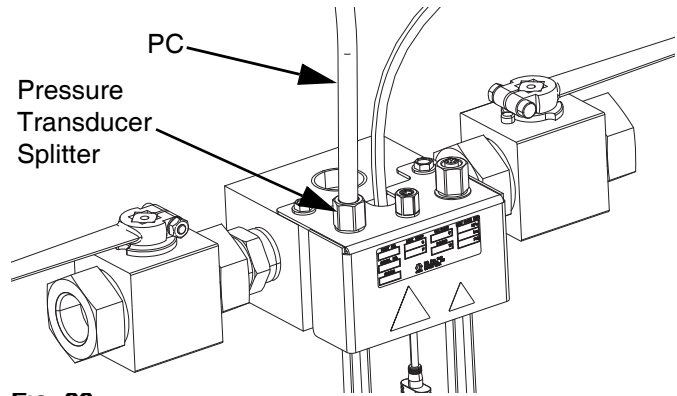


FIG. 29

Solenoid

3. If using a Single iQ Ram Supply System:
 - a. Connect the solenoid valve cable (VC) to Port 4 on the Electric Driver (AB). See **Electric Driver Communication Connections** for Single Rams on page 18.
 - b. Connect the straight end of the included angled M8 4 pin cable (15N040) to the dispense valve, and the straight end of the solenoid valve cable (VC).
4. If using an iQ Tandem Ram Supply System:
 - a. Connect the solenoid valve cable to the tandem block pump solenoid valve splitter. See **Electric Driver Communication Connections** for Tandem Rams on page 19.
 - b. Connect the straight end of the included angled M8 4 pin cable (15N040) to the dispense valve, and the straight end of the solenoid valve cable (VC).
 - c. Connect one male end of the M8 4 pin splitter on the tandem block to Port 4 on the Electric Driver (AB). Connect one cable to each ram.

NOTE: Make sure the pins on the solenoid valve cable are oriented as shown in FIG. 30 before the cable is plugged into the solenoid valve.

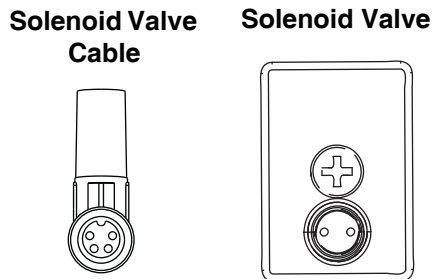


FIG. 30

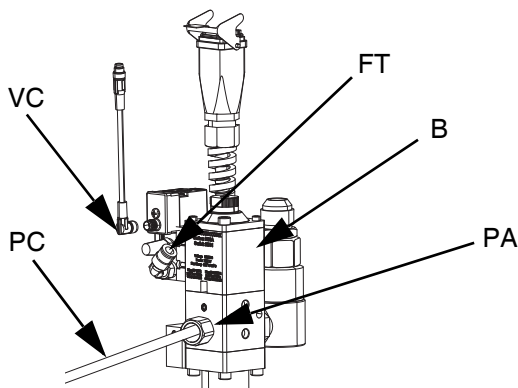


FIG. 31

Robot Controller (if used)

5. If using a Single iQ Ram Supply System:
 - a. Connect the included M12 8 pin cable (128441) from Port C4 to the robot controller (not included).
6. If using a Tandem iQ Ram Supply System:
 - a. Connect one end of the M12 8 pin splitter on the tandem block to Port C4 on the Electric Driver. Connect one cable to each ram.
 - b. Connect the included M8 12 pin cable (128441) from the female end of the tandem block splitter M12 8 pin to the robot controller (not included).

Heat (Hoses and Block)

7. If using a Single iQ Ram Supply System:
 - a. Connect Supply Hose 1 circular electrical connection to Power Junction Box port C5.

- b. Connect valve electrical connection to Supply Hose 1 square electrical connection if Supply Hose 2 is not used.
- c. If using Supply Hose 2, connect Supply Hose 2 circular electrical connection to Power Junction Box port C6 using the included extension cable.
- d. If using Supply Hose 2, connect the valve electrical connection to Supply Hose 2 square electrical connection.

8. If using a Tandem iQ Ram Supply System:
 - a. Connect Tandem Hose 1 circular electrical connection to Power Junction Box port C5 on iQ Ram Supply Unit 1.
 - b. Connect Tandem Hose 2 circular electrical connection to Power Junction Box port C5 on iQ Ram Supply Unit 2.
 - c. Connect the Tandem Block electrical connection to Tandem Hose 1 square electrical connection.
 - d. Connect Supply Hose 1 circular electrical connection to Power Junction Box port C6 on iQ Ram Supply Unit 1.
 - e. If using Supply Hose 2, connect Supply Hose 2 circular electrical connection to Power Junction Box port C7 on iQ Ram Supply Unit 1 using the included extension cable.
 - f. If using Supply Hose 2, connect the valve electrical connection to Supply Hose 2 square electrical connection.
 - g. If Supply Hose 2 is not used, connect the valve electrical connection to Supply Hose 1 square electrical connection.

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.

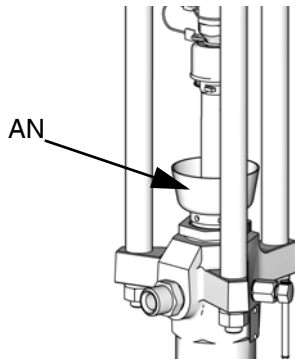


FIG. 32: Wet Cup

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

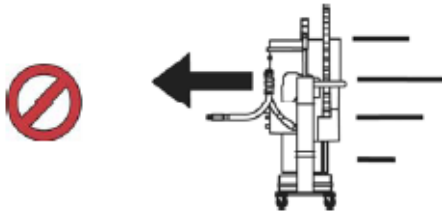
1. Follow the **Pressure Relief Procedure** on page 37.
2. Torque the Wet Cup (AN) 95-115 ft-lbs (128-155 N•m) using the packing nut wrench (supplied) whenever necessary. Do not overtighten the Wet Cup.

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 proactively 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 37.

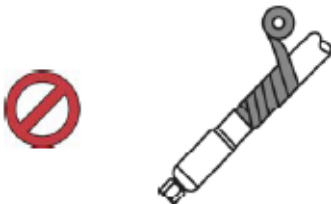
Do not use hose to pull the equipment.



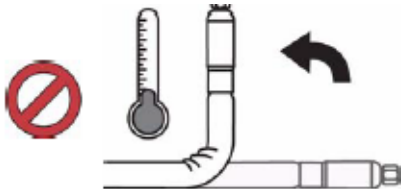
Use 2 wrenches to tighten. Torque to specification:

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

Do not tape or cover hose.



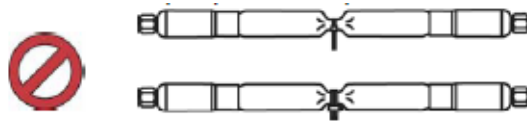
Do not flex hose when cold.



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)

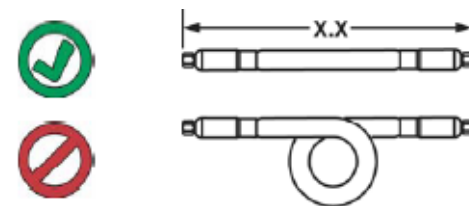
Do not bend or crimp hose.



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

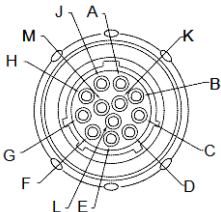
				
To reduce risk of injury or damage to equipment, conduct these electrical checks with the Power Junction Box Switch (AK) and the Disconnect Switch (AZ) OFF.				

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 36.

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 36.

Check Resistance (Heated Systems)

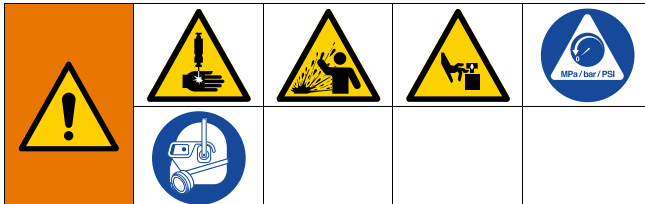
Table 1: Sensors

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.



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.

NOTE: The ADM must be in Local control mode to depressurize the system. See the 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.

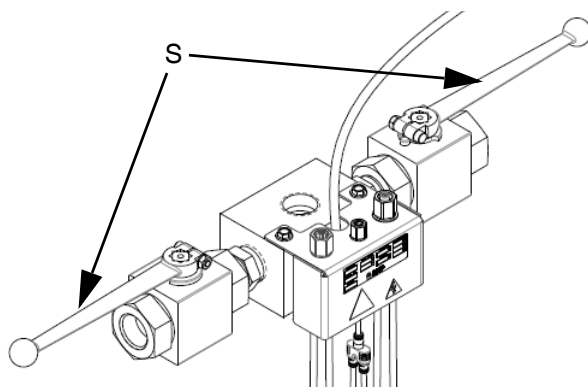


FIG. 33: Tandem Block Ball Valves

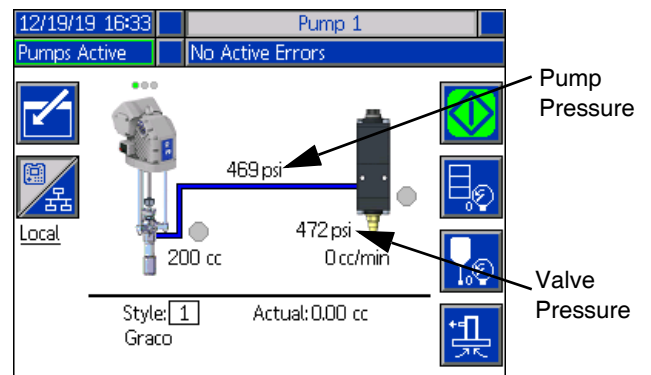
NOTE: To relieve pressure for the entire E-Flo iQ Dispense System, follow steps 1 through 12. To relieve pressure for the fluid side only, leaving air on to the ram cylinder follow steps 1 through 9.

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

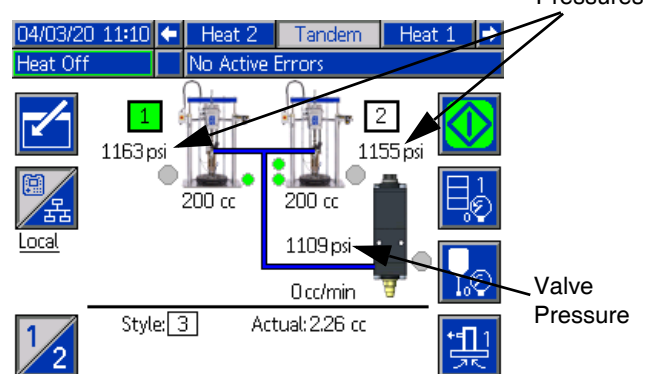
NOTE: If using a tandem system, perform steps 6-12 on

2. At the ADM (AF) Run screen, press the soft key for Valve Depressurization. Then press the soft key to open the iQ Dispense Valve (B) allowing the system to depressurize.

Single Unit Run Screen



Tandem Unit Run Screen



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 iQ Dispense Valve (B).
5. Press the soft key to exit the valve depressurization mode.

both units.

Pressure Relief Procedure

6. If using an ambient system, turn the Disconnect Switch (AZ) OFF. If using a heated system, 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).

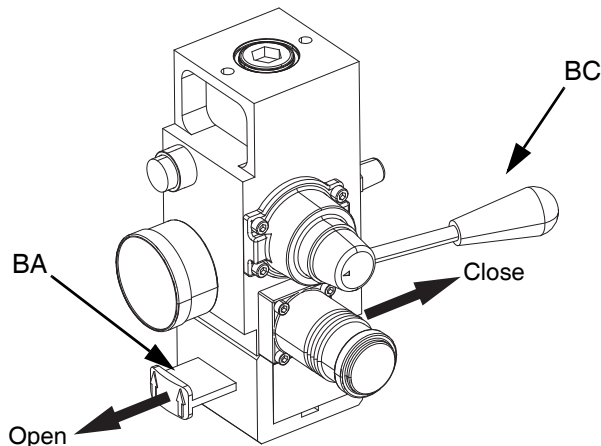


FIG. 34: Air Control for Pressure Relief

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 37.
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

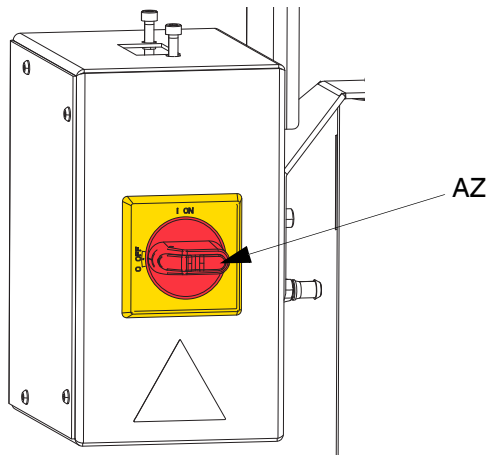


Keep hands away from the pump inlet to prevent serious injury from moving parts.

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. See FIG. 38 on page 42.

1. Turn off power to the Electric Driver (AB):
 - a. If using an ambient Single Ram Supply System, turn the red Disconnect Switch (AZ) OFF. See FIG. 35.
 - b. If using a heated Single Ram Supply System, turn the black Power Junction Box Switch (AK) OFF. See FIG. 35.
 - c. If using an ambient Tandem Ram Supply System, turn the red Power Junction Box Switch (AK) OFF on the Ram Supply Unit that requires a drum change only. See FIG. 35.
 - d. If using a heated Tandem Ram Supply System, turn the black Disconnect Switch (AZ) OFF on the Ram Supply Unit that requires a drum change only. See FIG. 35.

Ambient System



Heated System

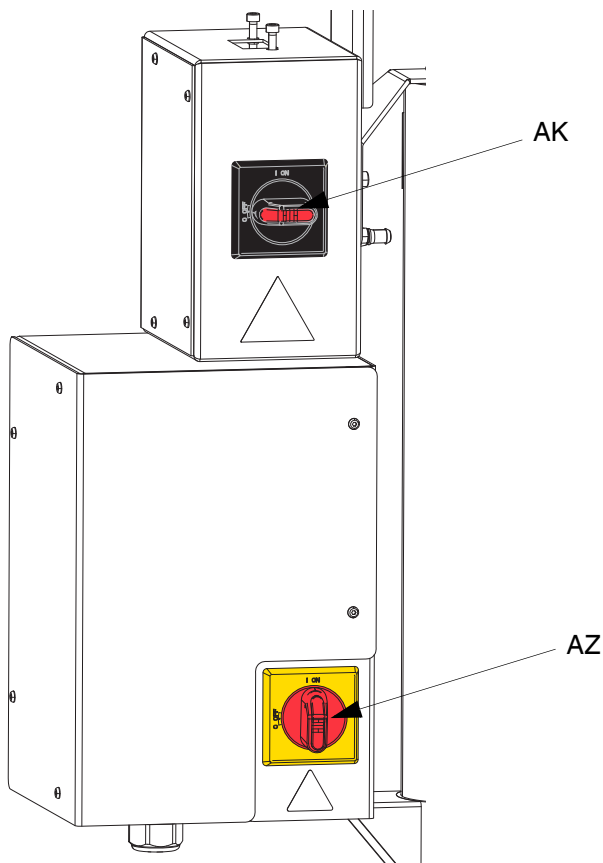


FIG. 35. Power Disconnect

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.

<p>Excessive air pressure in the material drum could cause the drum to rupture, causing serious injury. The Platen must be free to move out of the drum. Never use drum blowoff air with a damaged drum.</p>				

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

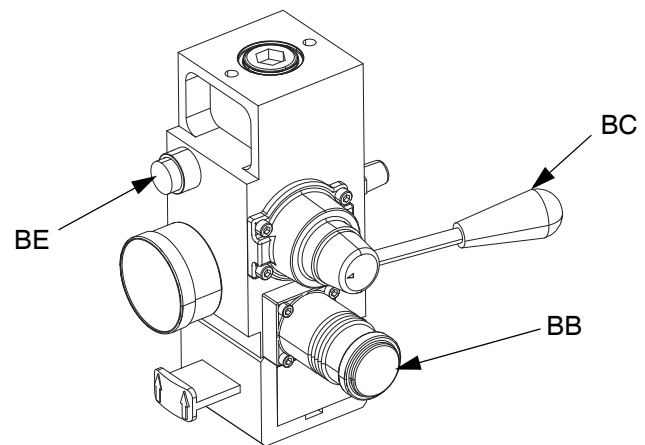


FIG. 36. Integrated Air Controls

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 37.
2. Place a minimum 2 quart (1.9 liter) container under the oil drain port.
3. Remove the oil drain plug. See FIG. 37 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. 37 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.

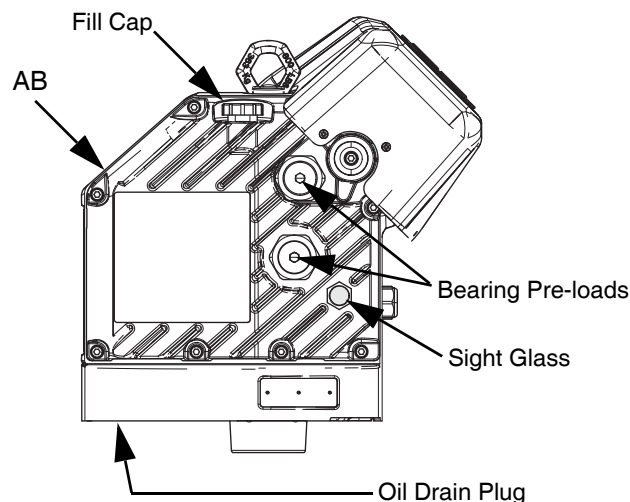


FIG. 37: Sight Glass and Oil Fill Cap

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 39.
2. Follow the **Pressure Relief Procedure** on page 37.
3. Refer to parts illustration on page 72 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.

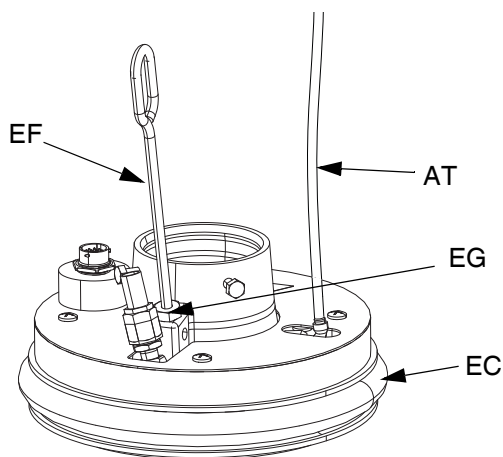


FIG. 38

Remove and Reinstall Wipers

Remove Platen Wipers

NOTE: Five gallon Platens have a single Wiper that must be removed, and 55 gallon Platens have a top and bottom Wiper that must be removed.

1. Follow the **Pressure Relief Procedure** on page 37.
2. If using an ambient system, turn the Disconnect Switch (AZ) OFF. If using a heated system, 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. 39.

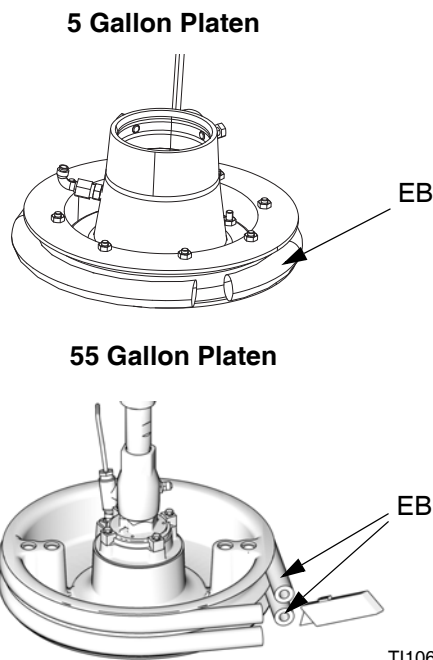


FIG. 39

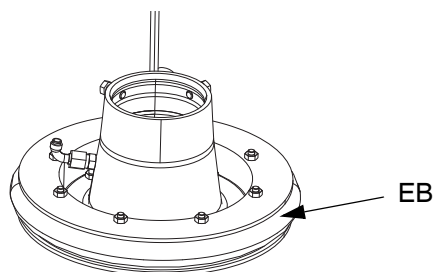
T110613A

Reinstall Platen Wipers

NOTE: Five gallon Platens have a single Wiper that must be reinstalled, and 55 gallon Platens have a top and bottom Wiper that must be reinstalled.

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. 40.
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.

5 Gallon Platen



55 Gallon Platen

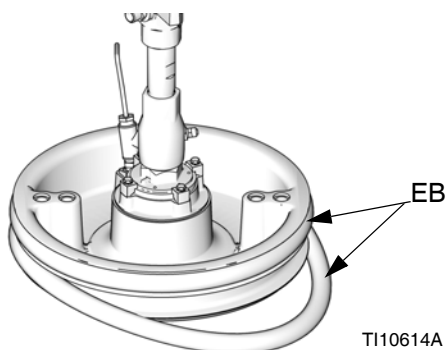



FIG. 40

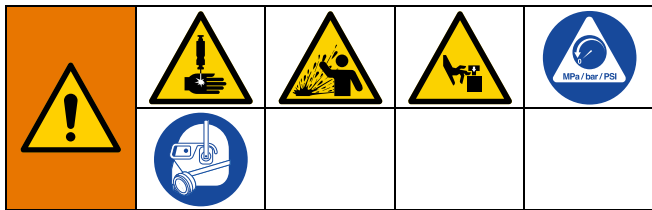
Recycling and Disposal

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 37, 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 Ram Supply Unit Repair on page 53.
	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 Ram Supply Unit Repair on page 53.
Fluid squeezes past ram plate wipers.	Air pressure too high.	Decrease.
	Worn or damaged wipers.	Replace. See Remove and Reinstall Wipers on page 42.
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 42.
	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 42.
	Not enough air pressure.	Increase.
	Valve passage clogged.	Clean. See Platen Maintenance on page 42.

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.
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 35.

Platen Valve Kit Troubleshooting

Problem	Cause	Solution
Material leak.	Loose fitting connection.	Ensure fittings are tight. See Parts on page 59 for part identification.
	Improper fitting used.	Replace fitting. See Parts on page 59 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

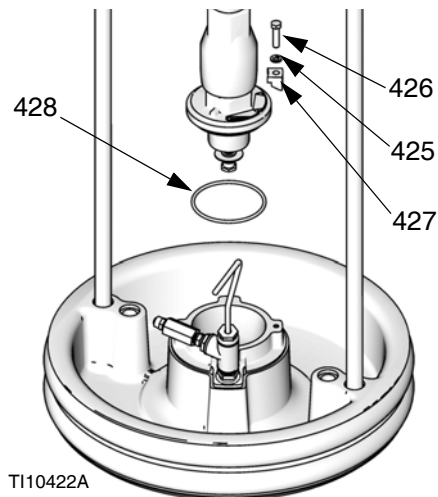


Disconnect Pump from Platen

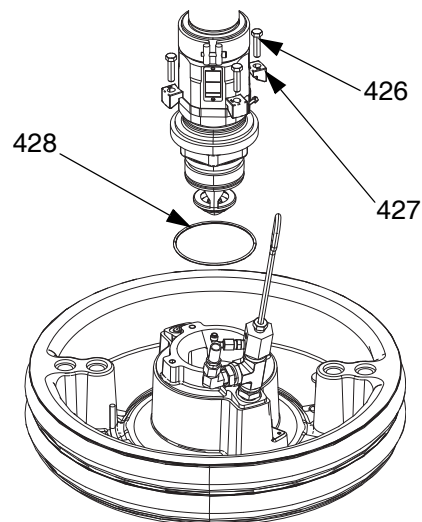
The Pump is mounted to the Platens by different mounting kits. See the Repair Kits on page 78.

55 Gallon Platen

1. Follow the **Pressure Relief Procedure** on page 37.
2. Turn off power to the ram:
 - a. If using an ambient Single Ram Supply System, turn the red Disconnect Switch (AZ) OFF.
 - b. If using a heated Single Ram Supply System, turn the red Disconnect Switch (AZ) OFF.
 - c. If using an ambient Tandem Ram Supply System, turn the red Disconnect Switch (AZ) OFF on the Ram Supply Unit that requires repair only.
 - d. If using a heated 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).



Ambient Platen



Heated Platen

FIG. 41: 55 Gallon Mounting Kit

20, 30, and 60 Liter Platen

1. Follow the **Pressure Relief Procedure** on page 37.
2. Turn off power to the ram:
 - a. If using an ambient Single Ram Supply System, turn the red Disconnect Switch (AZ) OFF.
 - b. If using a heated Single Ram Supply System, turn the red Disconnect Switch (AZ) OFF.
 - c. If using an ambient Tandem Ram Supply System, turn the red Disconnect Switch (AZ) OFF on the Ram Supply Unit that requires repair only.
 - d. If using a heated Tandem Ram Supply System, turn the red Disconnect Switch (AZ) OFF on the Ram Supply Unit that requires repair only.
3. Loosen two 5/16 in. screws (462) from Platen (AD).
4. Carefully pull Pump away to prevent damage to Pump inlet. If using a Pump with an intake adapter, remove screws (472), adapter (471), and o-rings (463) from Pump inlet.

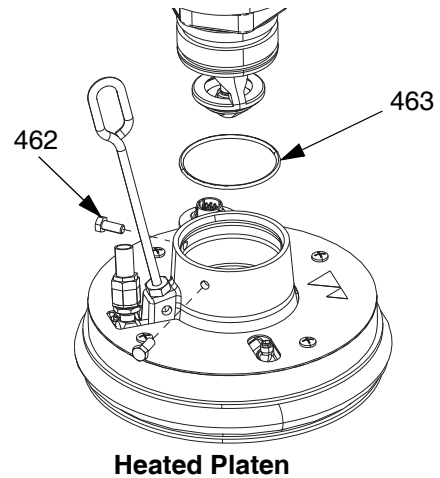
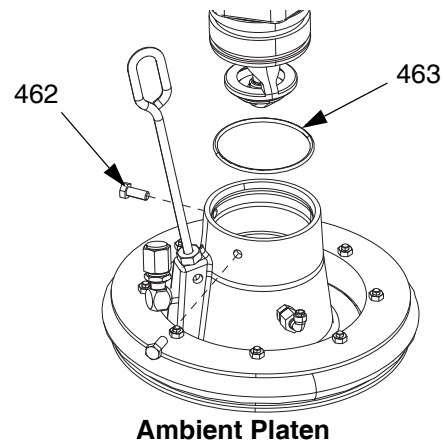


FIG. 42: 20 liter mounting kit

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. 41.
2. Secure Pump's intake flange to plate with screws (426), washers (425), and clamps (427) included in mounting kit 255392.

20 Liter Platen

NOTE: Before installing the 20, 30, or 60 liter Platen to a Pump with an intake adapter, install adapter and o-ring from mounting kit using the two set screws. See FIG. 42.

1. Place o-ring (463) from mounting kit on Pump intake. Loosen the Pump intake flange screws (462) and carefully lower Pump onto o-ring (463) and Platen.
2. Secure Pump's intake flange to plate with screws (462).

Remove Wipers

See **Remove and Reinstall Wipers** on page 42.

Install Wipers

See **Remove and Reinstall Wipers** on page 42.

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 50.

D200 3 in. and D200s 6.5 in. Ram Supply Units

1. Follow the **Pressure Relief Procedure** on page 37.
2. Turn off power to the ram:
 - a. If using an ambient Single Ram Supply System, turn the red Disconnect Switch (AZ) OFF.
 - b. If using a heated Single Ram Supply System, turn the red Disconnect Switch (AZ) OFF.
 - c. If using an ambient Tandem Ram Supply System, turn the red Disconnect Switch (AZ) OFF on the Ram Supply Unit that requires repair only.
 - d. If using a heated 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).

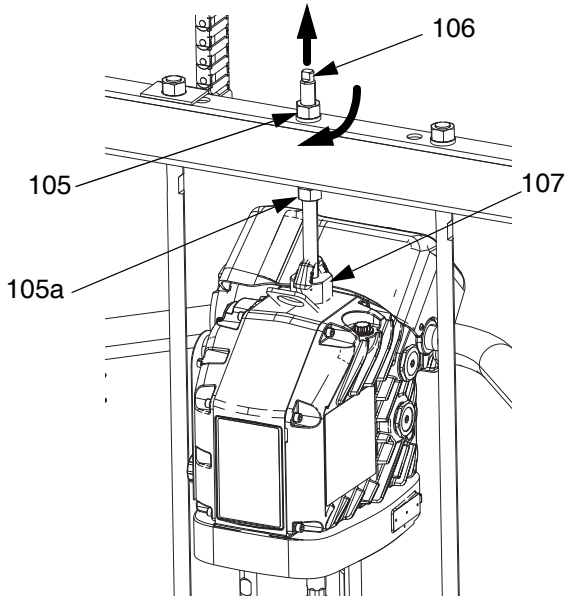


FIG. 43

- b. For Driver (AB) with smaller Platens (AD) and all ram supply units: See procedure for **D60 3 in. Dual Post Ram Supply Units** on page 49.
6. See **Disconnect Pump from Platen** on page 46 to disconnect the Platen (AD) from the Displacement Pump (AC).

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

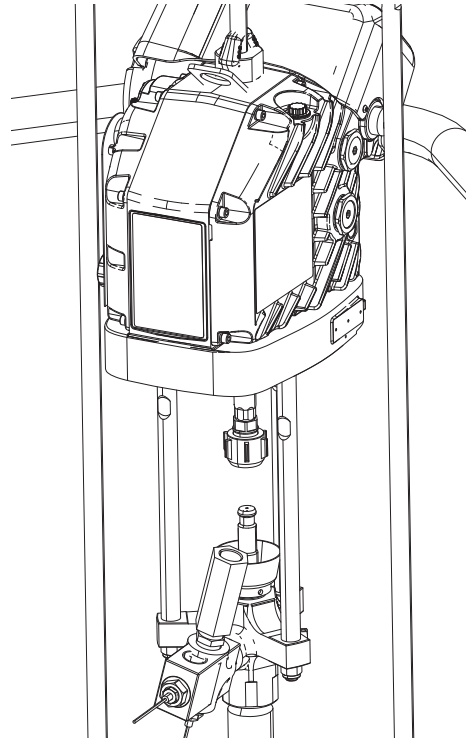


FIG. 44

D60 3 in. Dual Post Ram Supply Units

1. Follow the **Pressure Relief Procedure** on page 37.
2. Turn off power to the ram:
 - a. If using an ambient Single Ram Supply System, turn the red Disconnect Switch (AZ) OFF.
 - b. If using a heated Single Ram Supply System, turn the red Disconnect Switch (AZ) OFF.
 - c. If using an ambient Tandem Ram Supply System, turn the red Disconnect Switch (AZ) OFF on the Ram Supply Unit that requires repair only.
 - d. If using a heated 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 packages manual.

4. See **Disconnect Pump from Platen** on page 46 to disconnect the Platen (AD) from the Displacement Pump (AC).
5. Open the Main Air Slider Valve (BA).
6. Raise the Ram Assembly (AA) to lift the Driver (AB) away from the Displacement Pump (AC).
7. Remove Displacement Pump (AC) and service as needed.

Install Displacement Pump

D200 3 in. and D200s 6.5 in. Ram Supply Units

1. Insert Displacement Pump (AC) on Platen (AD). Follow **Connect Platen** steps on page 48.
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. 43 on page 49. Thread nut (105) up and tighten it under Ram bar. Tighten nut (105) below the crossbar to 25 ft-lb (34 N•m) maximum.

D60 3 in. Dual Post Ram Supply Units

1. Raise Ram (AA) to install Displacement Pump (AC) to Platen (AD).
2. Insert Displacement Pump (AC) on Platen (AD). Follow **Connect Platen** steps on page 48.
3. See **Reconnect Displacement Pump** in your Pump packages manual.

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 37.
2. Turn off power to the Ram:
 - a. If using an ambient Single Ram Supply System, turn the red Disconnect Switch (AZ) OFF.
 - b. If using a heated Single Ram Supply System, turn the red Disconnect Switch (AZ) OFF.
 - c. If using an ambient Tandem Ram Supply System, turn the red Disconnect Switch (AZ) OFF only on the Ram Supply Unit the Driver is being removed from.
 - d. If using a heated 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. 45.

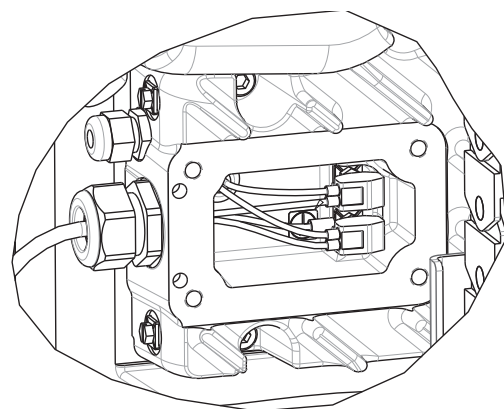


FIG. 45: Wires in Driver Housing

- 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. 47.

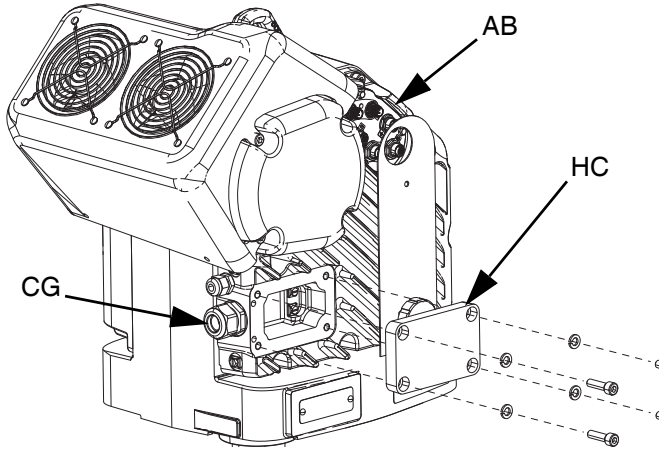


FIG. 46

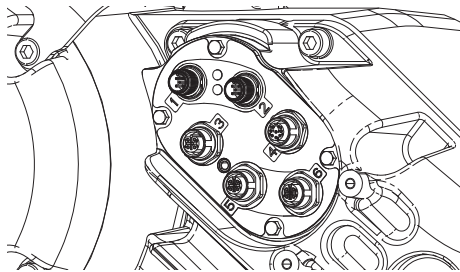


FIG. 47

5. Disconnect Driver (AB):

- a. *D200 3 in. and D200s 6.5 in. ram supply units:* Attach a secure hoist to the driver lift ring. Loosen nut (125) below crossbar. Use wrench to hold lift ring adapter (127) in place and loosen threaded rod (126) above crossbar with another wrench. See FIG. 48.

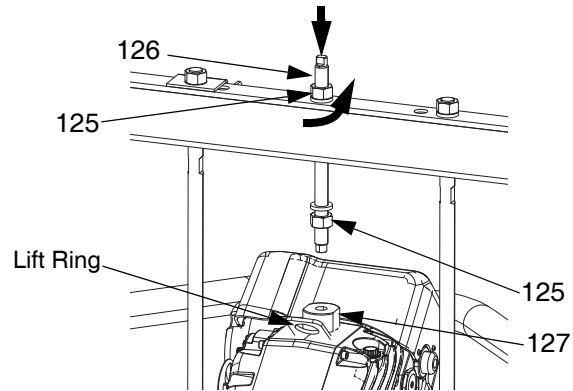


FIG. 48: 55 Gallon Platen

- b. *D60 3 in. ram supply units:* Remove screws (255) and washers (256) from mounting plate (259). Using a secure hoist, lift the Driver (AB) from the mounting plate (259). See FIG. 49.

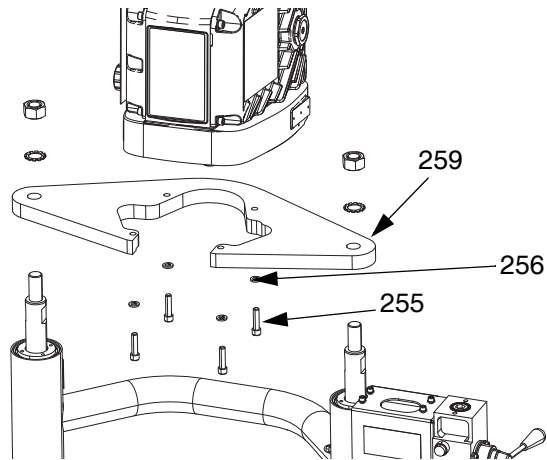
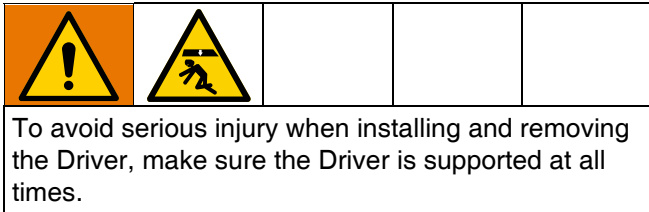


FIG. 49: D60 with Ram

Install Driver



D200 3 in. and 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. 50.
 - 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.

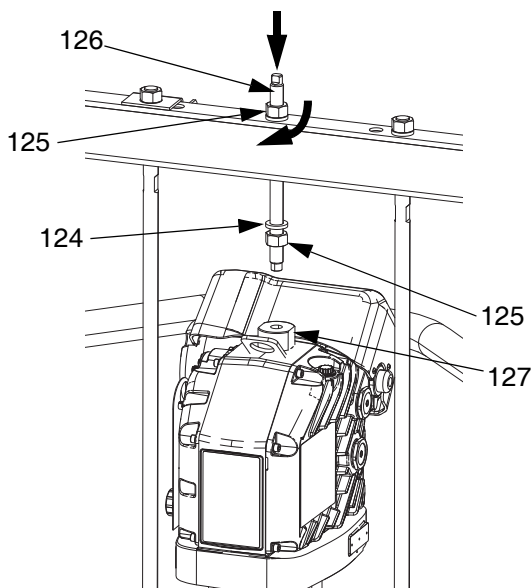


FIG. 50

2. Connect power to the Driver (AB). Follow a-e of step 4 on page 50 in reverse.
3. If using an ambient system, turn the Disconnect Switch (AZ) ON. If using a heated system, turn the Power Junction Box Switch (AK) and the Disconnect Switch (AZ) ON.

D60 3 in. Dual Post Supply Unit

1. Using a secure hoist, attach Driver (AB) to mounting plate (259) with screws (255) and washers (256). See FIG. 49 on page 51.
2. See **Reconnect Displacement Pump** in your Pump package manual.
3. Connect power to the Driver (AB). Follow a-e of step 4 on page 50 in reverse.

Ram Supply Unit Repair

			
<p>To reduce the risk of serious injury whenever you are instructed to relieve pressure always follow the Pressure Relief Procedure on page 37. Do not use pressurized air to remove the guide sleeve or the piston.</p>			

D200s 6.5 in. Ram Piston Rods

Always service both cylinders at the same time. When you service the Lift Rod (AL) always install new o-rings in the piston rod seal and Ram piston.

Disassemble Piston Rod Seal

1. Follow the **Pressure Relief Procedure** on page 37.
2. Turn off power to the ram:
 - a. If using an ambient Single Ram Supply System, turn the red Disconnect Switch (AZ) OFF.
 - b. If using a heated Single Ram Supply System, turn the red Disconnect Switch (AZ) OFF.
 - c. If using an ambient Tandem Ram Supply System, turn the red Disconnect Switch (AZ) OFF on the Ram Supply Unit that requires repair only.
 - d. If using a heated Tandem Ram Supply System, turn the red Disconnect Switch (AZ) OFF on the Ram Supply Unit that requires repair only.
3. Remove the nuts (123) and lockwashers (122) holding the tie bar (219) to the piston rods (132). See parts illustration on page 59.
4. Remove nuts (303, 305) and washers (302, 304). See parts illustration on page 65.
5. Lift tie bar (219) off of rods.
6. Remove retaining ring (136) by gripping the ring tab with a pair of pliers and rotating the ring out of its groove.
7. Remove snap ring (134) and rod wiper (133).

8. Remove guide sleeve (135) by sliding it off of rod (132). Four 1/4 in -20 holes are provided to ease removal of the guide sleeve.
9. Inspect parts for wear or damage.

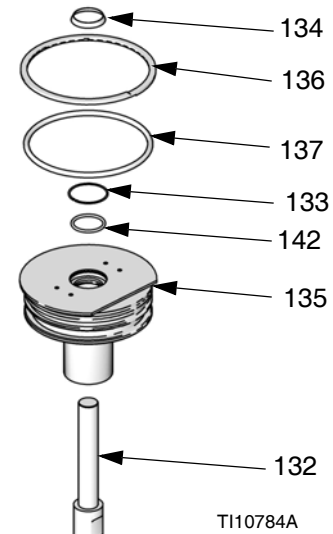


Fig. 51: 6.5 in. Piston Rod Seal

Assemble Piston Rod Seal

1. Install new o-rings (137, 142), rod wiper (133), and snap ring (134). Lubricate packings with o-ring lubricant.
2. Slide guide sleeve (135) onto rod (132) and push it into cylinder. Replace retaining ring (136) by feeding it around the guide sleeve groove.
3. Reinstall tie bar (219) using nuts (123) and lockwashers (122). Torque to 40 ft-lb (54 N•m).
4. Reinstall washers (302, 304) and nuts (303, 305).

Disassemble Ram Piston

1. Follow the **Pressure Relief Procedure** on page 37.
2. Turn off power to the ram:
 - a. If using an ambient Single Ram Supply System, turn the red Disconnect Switch (AZ) OFF.
 - b. If using a heated Single Ram Supply System, turn the red Disconnect Switch (AZ) OFF.

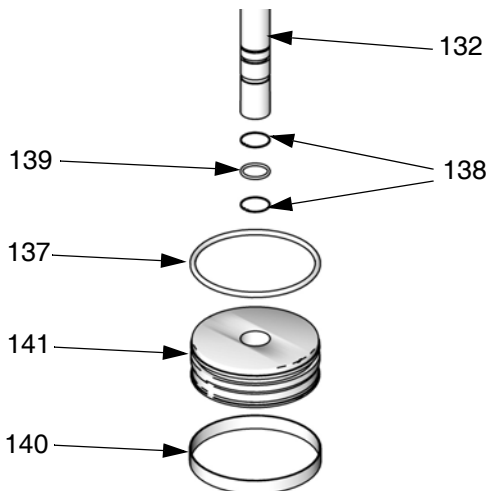
Repair

- c. If using an ambient Tandem Ram Supply System, turn the red Disconnect Switch (AZ) OFF on the Ram Supply Unit that requires repair only.
- d. If using a heated Tandem Ram Supply System, turn the red Disconnect Switch (AZ) OFF on the Ram Supply Unit that requires repair only.
3. Remove nuts (123) and lockwashers (122) holding the tie bar (219) to the piston rods (132). See page 59.
4. Remove nuts (303, 305) and washers (302, 304). See parts illustration on page 65.
5. Lift tie bar (219) off rods.
6. Remove retaining ring (136) by gripping the ring tab with a pair of pliers and rotating the ring out of its groove.
7. Remove guide sleeve (135) and slide it off piston rod (132).

NOTICE

Do not tilt the piston rod to one side when removing it from the base or when installing it. Such movement can damage the piston or inside surface of the base cylinder.

8. Carefully lay piston (141) and rod (132) down so rod will not be bent. Remove bottom retaining ring (138) and o-ring (139). Remove piston guide band (140). Slide piston (141) off piston rod (132).



TI10785A

FIG. 52: 6.5 in. Ram Piston

Assemble Ram Piston

1. Install new o-rings (139, 137) on piston rod (132) and piston (141). Lubricate the piston (141) and o-rings (139, 137). Reinstall piston (141) and lower retaining ring (138) onto piston rod (132). Install piston guide band (140) onto piston (141).
2. Carefully insert piston (141) into cylinder and push rod (132) straight down into cylinder. Add three ounces of lubricant to each cylinder after inserting the piston (141).
3. Slide guide sleeve (135) onto piston rod (132).
4. Install retaining ring (134) and tie bar (219). Perform steps to **Disassemble Ram Piston** in reverse order.

D200 and D60 3 in. Ram Piston Rods

Always service both cylinders at the same time. When you service the piston rod always install new o-rings in the piston rod seal and Ram piston.

Disassemble Piston Rod Seal and Bearing

1. Follow the **Pressure Relief Procedure** on page 37.
2. Access piston rod seal and bearing.
 - a. *For D200 3 in. Ram:* Remove nuts (125) and lockwashers (124) holding the tie bar (219) to the piston rods (246). Remove nuts (305) and washers (304). Remove tie bar (219). Refer to parts illustration on page 61.
 - b. *For D60 3 in. Ram:* Ensure Ram is in lowest position. Remove nuts (125) and lockwashers (254) from piston rods (261). Remove entire pump package, including the mounting plate (259) off of the piston rods (261). Secure Pump package so Pump (AC) and Platen (AD) will not fall. See page 66.
3. Remove retaining ring (218).
4. Remove piston rod seal and bearing.
 - a. Slide end cap (241), pin (238), o-ring (245), and spring (244) up off of the piston rod (261, 246). Remove retaining ring (242) and bearing (243) from end cap (241) and remove o-ring (240).
5. Inspect parts for wear or damage. Replace as necessary.

NOTE: Do not reinstall end cap assembly if the ram piston (247) needs to be removed from the piston rod. See the next page for ram piston repair instructions.

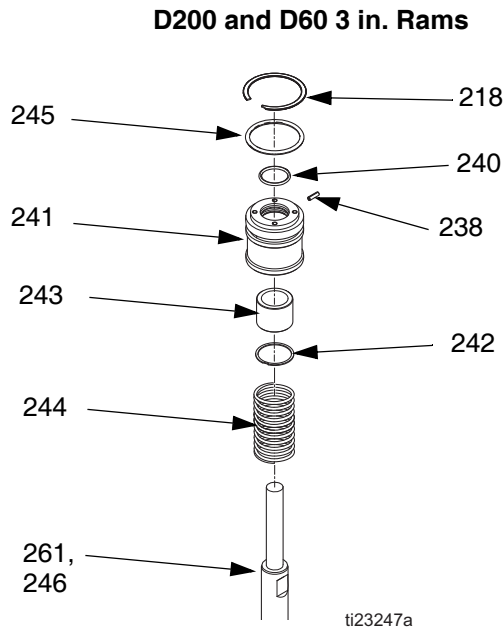


FIG. 53: 3 in. Piston Rod Seal

Assemble Piston Rod Seal and Bearing

See FIG. 53 on page 55.

1. Lubricate o-ring (240) and bottom bearing (243).
 - a. Install o-ring (240), bottom bearing (243), and retaining ring (242) into end cap (241).
 - b. Install new o-ring (245) and pin (238) on end cap (241). Lubricate o-ring (245) and end cap (241).
 - c. Slide spring (244) and end cap (241) on piston rod (261, 246).
2. Install retaining ring (218).
3. *For D200 3 in Ram:* Install tie bar (219), washers (124), and nuts (125).
4. *For D60 3 in. Ram:* Remount mounting plate (259) and attach nuts (255) and lockwashers (256). Torque to 40 ft-lb (54 N•m).

Disassemble Ram Piston

1. Complete steps 1-4 from **Disassemble Piston Rod Seal and Bearing** to remove the end cap from the piston rod.

NOTICE

Do not tilt the piston rod to one side when removing it from the base or when installing it. Such movement can damage the piston or inside surface of the base cylinder.

2. Carefully lay piston (247) and rod (261, 246) down so piston rod will not be bent. Remove nut (125), washer (124), piston (247), outer o-ring (245), and inner o-ring (239).
3. Inspect parts for wear or damage. Replace as necessary.

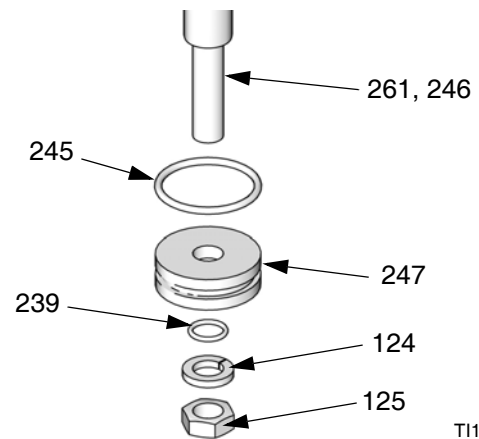



FIG. 54: 3 in. Ram Piston

Assemble Ram Piston

1. Install new o-rings (245, 239) and lubricate piston (247) and o-rings.
2. Apply medium strength thread sealant. Install piston (247), washer (124), and nut (125) on piston rod (261, 246).
3. Carefully insert piston (247) into cylinder and push piston rod (261, 246) straight down into cylinder.
4. Slide spring (244) and end cap (241) onto piston rod (261, 246).
5. *For D200 3 in. Rams:* Install retaining ring (218), tie bar (219), washers (124), and nuts (125).
6. *For D60 3 in. Rams:* Install retaining ring (218) and install mounting plate (259) with nuts (255) and washers (256) with Pump package and Platen.

Replace Heat Control Box Electrical Component(s)



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.

- Turn the Power Junction Box Switch (AK) and the Disconnect Switch (AZ) OFF before disconnecting any cables and before servicing equipment.

1. Turn the Heat Control Box 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

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

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

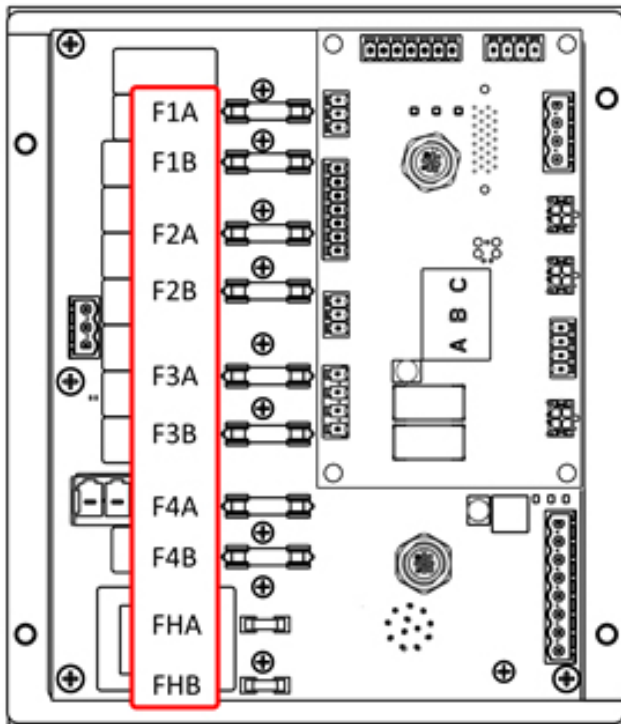


FIG. 55

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

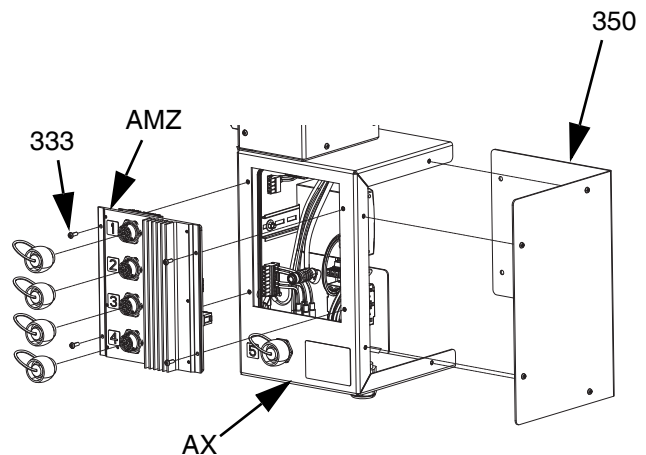


FIG. 56

NOTICE

To prevent system damage, always use fast acting fuses. Fast acting fuses are required for short-circuit protection.

3. Remove the AMZ:
 - a. Disconnect the heated electrical connections from the back of the AMZ.

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

- 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 according to the image below.

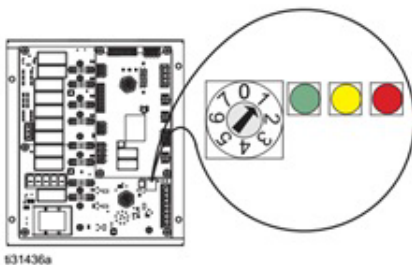


FIG. 57: AMZ Dial Position

- b. Mount the AMZ to the back of the Heat Control Box (AX) using the four screws (333) removed from the original AMZ.
 - c. Reconnect the cables on the inside of the Heat Control Box (AX) to the AMZ.
 - d. 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 Heat Control Box 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 59.
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 Heat Control Box 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 Heat Control Box 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.

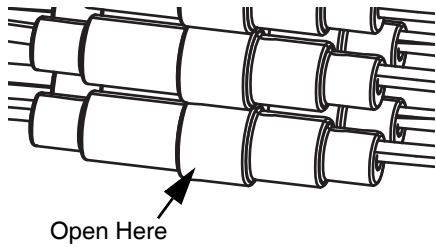


FIG. 58

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

NOTICE

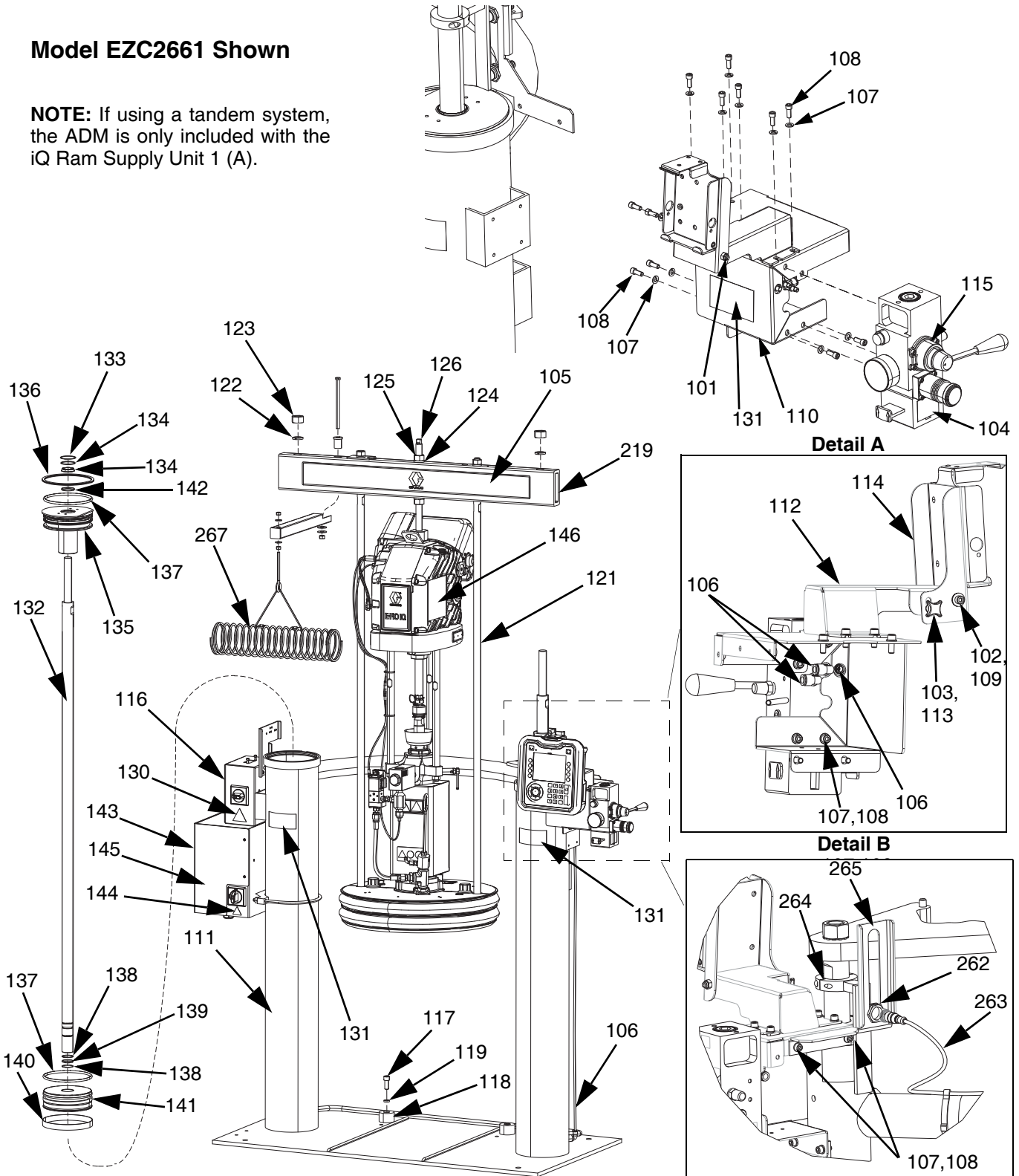
To prevent damage to the AMZ circuit board, use only 5 x 20 mm, 10 Amp AC, fast acting fuses. Fast acting fuses are required for short-circuit protection.

Parts

D200s 6.5 in. Ram Supply Units

Model Ezc2661 Shown

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, EZC2661

Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
101	102040	NUT	1	131▲	15J074	LABEL, safety, crush & pinch	3
102	110755	WASHER, plain	1	132	C32401	ROD	2
103	117017	WASHER	1	133*	C03043	RING, snap	2
104	15V954	LABEL, valve, shutoff, air control	1	134*	C31001	WIPER, rod	2
105	---	LABEL, cross bar	1	135	617414	SLEEVE, guide	2
106	C12509	TUBE, nylon	15	136*	C32409	RING, retaining	2
107	100016	WASHER, lock	15	137*	C38132	PACKING, o-ring	4
108	121112	SCREW	15	138*	C20417	RING, retaining	4
109	---	SCREW	1	139*	158776	PACKING, o-ring	2
110	---	BRACKET, mounting, painted	1	140*	C32408	BAND, guide	2
111	---	RAM, 6.5 in.	1	141	C32405	PISTON, elevator air	2
112	---	BRACKET, pendant pivot, painted	1	142*	C02073	PACKING, quad ring	2
113	---	FASTENER, knob	2	143	---	RAM, D60, electric driver, heat	1
114	---	BRACKET, mounting, assembly	1	144▲	15G303	LABEL, warning, electrical	1
115	24C824	KIT, air control	1	145	---	CONTROL, box, heat	1
116	---	JUNCTION BOX, ram mounted, E-drive	1	146▲	17J476	LABEL, safety, warning	1
117	C19853	SCREW	2	219	167646	BEAM, tie	1
118	C32467	STOP, drum	2	262	130787	SENSOR, barrel	1
119	C38185	WASHER, lock	2	263	123673	HARNESS	1
120✘	---	SEALANT, pipe, sst	1	264	255381	ACTUATOR, sensor, low/empty, painted	1
121	15M531	ROD, follower	2	265	---	BRACKET, lvl sensor, dual, D200	1
122	101015	WASHER, lock	2	267	234966	KIT, accessory, hose hanger	1
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				

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

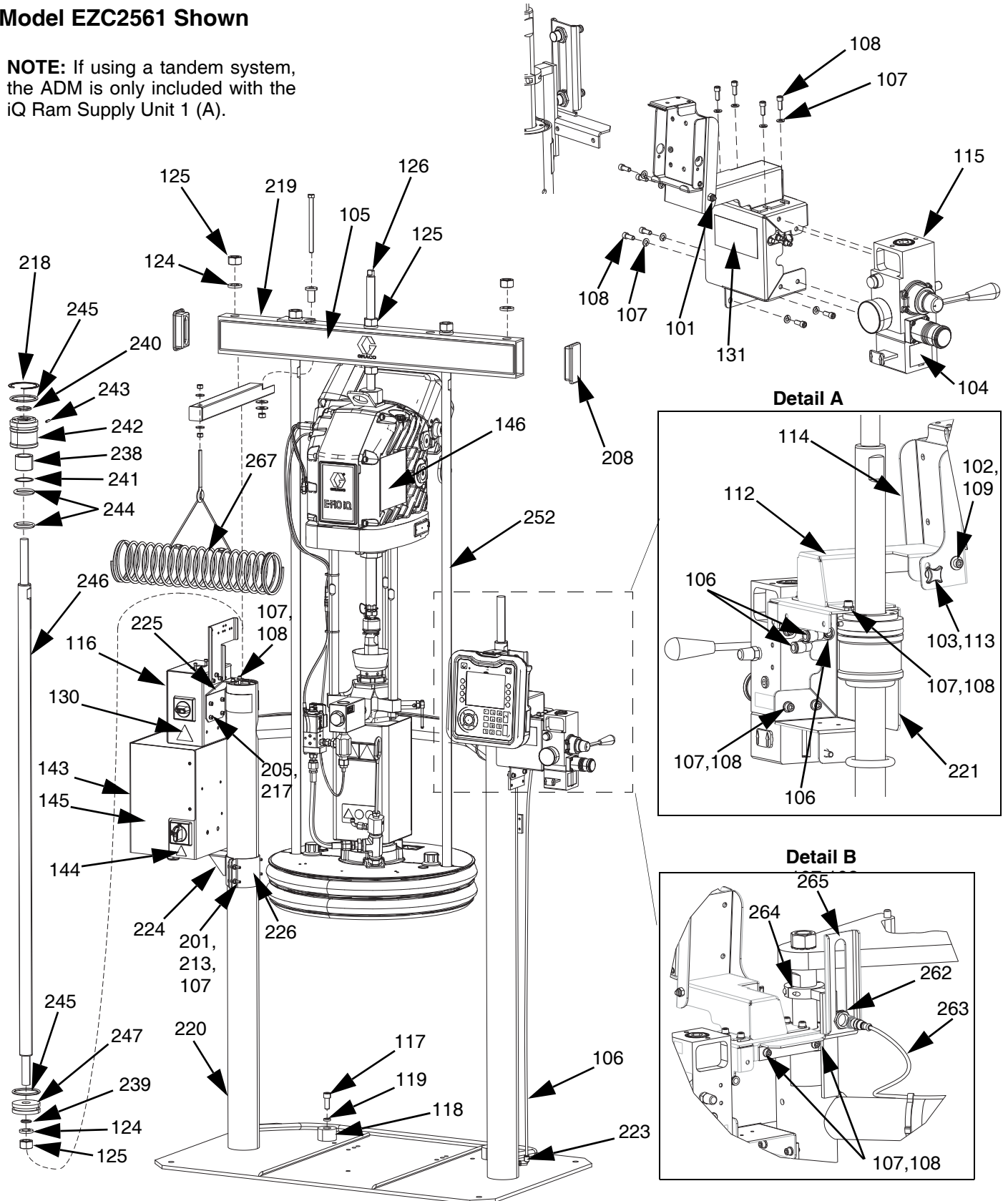
* Parts included in Ram Supply Units Repair Kit 918432 (purchase separately).

✘ Not shown.

D200 3 in. Ram Supply Units

Model EZC2561 Shown

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



D200 3 in. Ram Supply Units, EZC2561

Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
101	102040	NUT	1	219	167646	BEAM, tie	1
102	110755	WASHER, plain	1	220	---	RAM, weldment, 3"	1
103	117017	WASHER	1	221	255296	BRACKET, mounted, painted	1
104	15V954	LABEL, valve, shutoff, air control	1	223	597151	FITTING, elbow	2
105	---	LABEL, cross bar	1	224	---	BRACKET, mounting, btm	1
106	C12509	TUBE, nylon	15	225	---	BRACKET, mounting, acc. box	1
107	100016	WASHER, lock	16	226	---	BRACKET, mounting, ram	1
108	121112	SCREW	12	234✘	---	LUBRICANT, grease	1
109	---	SCREW	1	235✘	---	LUBRICANT, oil	1
112	---	BRACKET, pendant pivot, painted	1	237✘	---	SEALANT, thread, med strength	1
113	---	FASTENER, knob	1	238*	---	BEARING, ram end cap	1
114	---	BRACKET, mounting, assembly	1	239*	156401	PACKING, o-ring	1
115	24C824	KIT, air control	1	240*	156698	PACKING, o-ring	1
116	---	JUNCTION BOX, ram mounted, e-drive	1	241*	15F453	RETAINER, retaining ring	1
117	C19853	SCREW	2	242	15M295	BEARING, ram end cap	1
118	C32467	STOP, drum	2	243	15U979	PIN, spring, straight	1
119	C38185	WASHER, lock	2	244*	160138	SPRING, compression	1
120✘	---	SEALANT, pipe, sst	1	245*	160258	PACKING, o-ring	2
124*	101533	WASHER, spring lock	6	246	167651	ROD, piston ram	1
125*	101535	NUT, full hex	6	247	183943	PISTON	1
126	15J992	ROD, threaded	1	251✘	C20987	PACKING, o-ring	1
127✘	15J991	ADAPTER, lift ring	1	252	167652	ROD, tie ram	2
128✘	15J993	RING, lift, plate	1	262	130787	SENSOR, barrel	1
129✘	---	LUBRICANT, anti-seize	1	263	123673	HARNES	1
130▲	196548	LABEL, caution	1	264	255381	ACTUATOR, sensor, low/empty, painted	1
131▲	15J074	LABEL, safety, crush & pinch	4	265	---	BRACKET, lvl sensor, dual, D200, pnt	1
143	---	RAM, D60, electric driver, heat	1	267	234966	KIT, accessory, hose hanger	1
144▲	15G303	LABEL, warning, electrical	1				
145	---	CONTROL, box, heat	1				
146▲	17J476	LABEL, safety, warning	1				
201	100014	SCREW	4				
205	108050	WASHER, lock, spring	6				
208	189559	CAP, end	2				
213	100015	NUT	4				
217	121518	SCREW	6				
218*	127510	RING, retaining, internal	2				

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

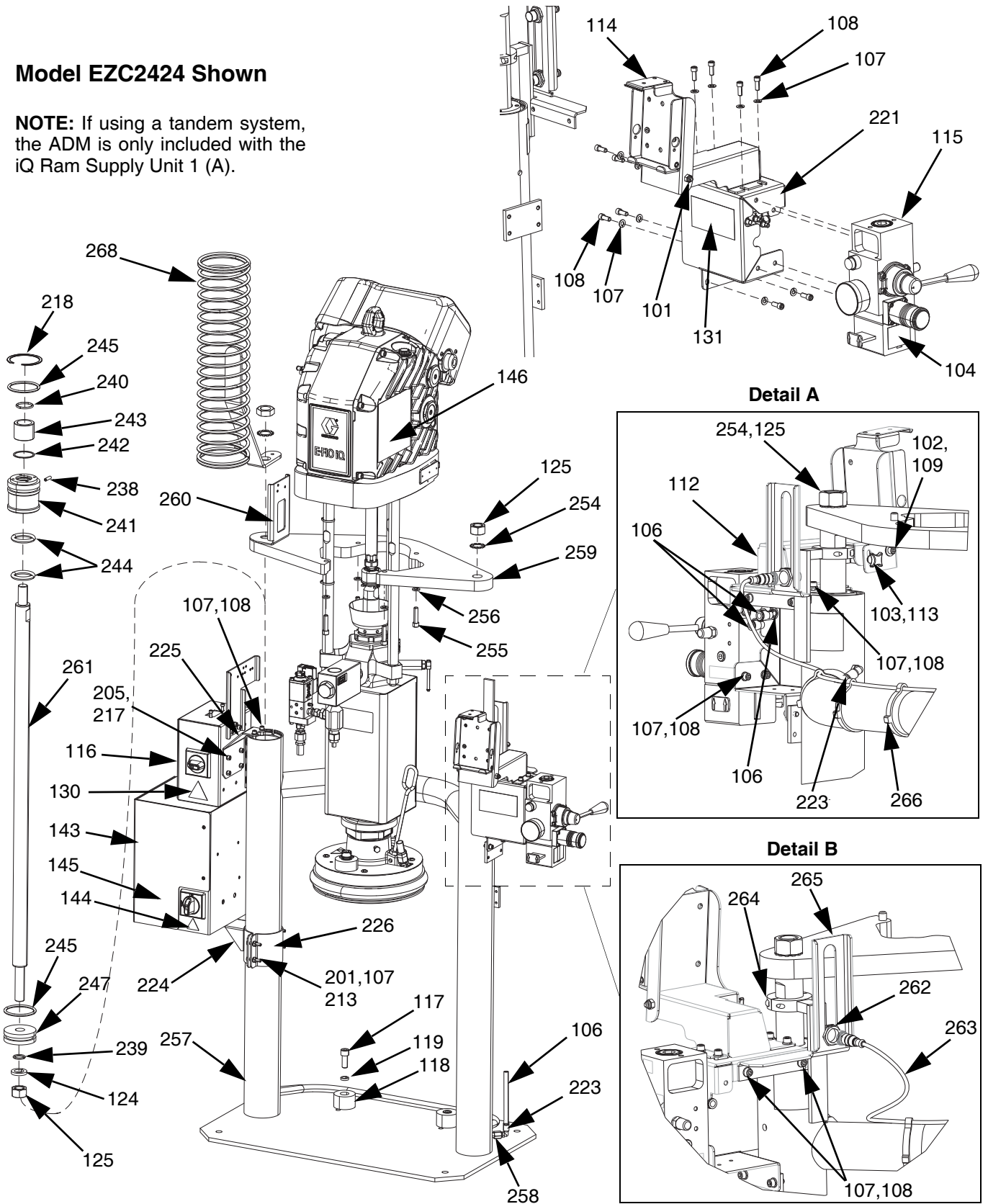
* Parts included in Ram Supply Units Repair Kit 255687 (purchase separately).

✘ Not shown.

D60 3 in. Ram Supply Units

Model EZC2424 Shown

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



D60 3 in. Ram Supply Units, EZC2424

Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
101	102040	NUT	1	237✘	---	SEALANT, thread, med strength	1
102	110755	WASHER, plain	1	238*	---	BEARING, ram end cap	1
103	117017	WASHER	1	239*	156401	PACKING, o-ring	1
104	15V954	LABEL, valve, shutoff, air control	1	240*	156698	PACKING, o-ring	1
106	C12509	TUBE, nylon, rnd	2	241*	15F453	RETAINER, retaining ring	1
107	100016	WASHER, lock	18	242	15M295	BEARING, ram end cap	1
108	121112	SCREW	14	243	15U979	PIN, spring, straight	1
109	---	SCREW	1	244*	160138	SPRING, compression	1
112	---	BRACKET, pendant pivot, painted	1	245*	160258	PACKING, o-ring, buna-n	2
113	---	FASTENER, knob	1	247	183943	PISTON	1
114	---	BRACKET, mounting, assembly	1	254	104395	WASHER, lock, tooth, external	2
115	24C824	CONTROL, air, ram, hyd driver	1	255	110141	SCREW	4
116	---	JUNCTION BOX, ram mounted, E-drive	1	256	100133	WASHER, lock	4
117	C19853	SCREW	2	257	---	RAM, dp, weldment	1
118	C32467	STOP, drum	2	258	16T421	ADAPTER, pipe hex	1
119	C38185	WASHER, lock	2	259	---	BRACKET, shelf, D60, 3400/6500, paint	1
120✘	---	SEALANT, pipe, sst	1	260	---	BRACKET, cable track, D60 ram, paint	1
124*	101533	WASHER, spring lock	1	261	---	ROD, piston, dp ram	1
125*	101535	NUT	3	262	130787	SENSOR, barrel	1
130▲	196548	LABEL, caution	1	263	123673	HARNESS	1
131▲	15J074	LABEL, safety, crush & pinch	4	264	255381	ACTUATOR, sensor, low/empty, painted	1
143	---	RAM, D60, electric driver, heat	1	265	---	BRACKET, lvi sensor, dual, D200, pnt	1
144▲	15G303	LABEL, warning, electrical	1	266	---	TIE, cable	4
145	---	CONTROL, box, heat	1	268	26B203	BRACKET, hose, spring	1
146▲	17J476	LABEL, safety, warning	1				
201	100014	SCREW	4				
205	108050	WASHER, lock, spring	6				
213	100015	NU	4				
217	121518	SCREW	6				
218*	127510	RING, retaining, internal	2				
221	255296	BRACKET, mounted, painted	1				
223	597151	FITTING, elbow	2				
224	---	BRACKET, mounting, btm	1				
225	---	BRACKET, mounting, acc. box	1				
226	---	BRACKET, mounting, ram	1				
234✘	---	LUBRICANT, grease	1				
235✘	---	LUBRICANT, oil	1				

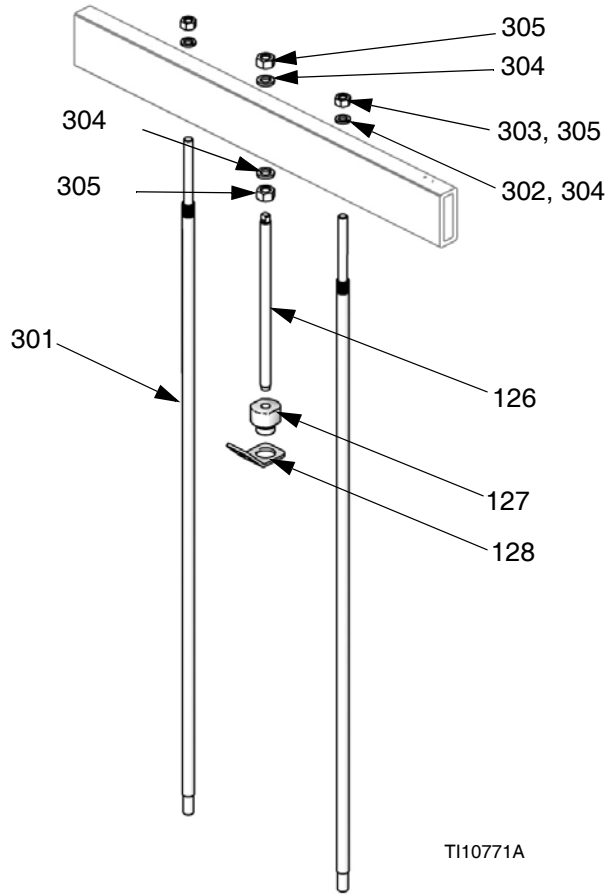
▲ Replacement safety labels, tags, and cards are available at no cost.

* Parts included in Ram Supply Units Repair Kit 255687 (purchase separately).

✘ Not shown.

D200, D200s Pump Mounts for 55 Gallon (200 Liter) Platen

Note: See page 59 for kit configuration table.

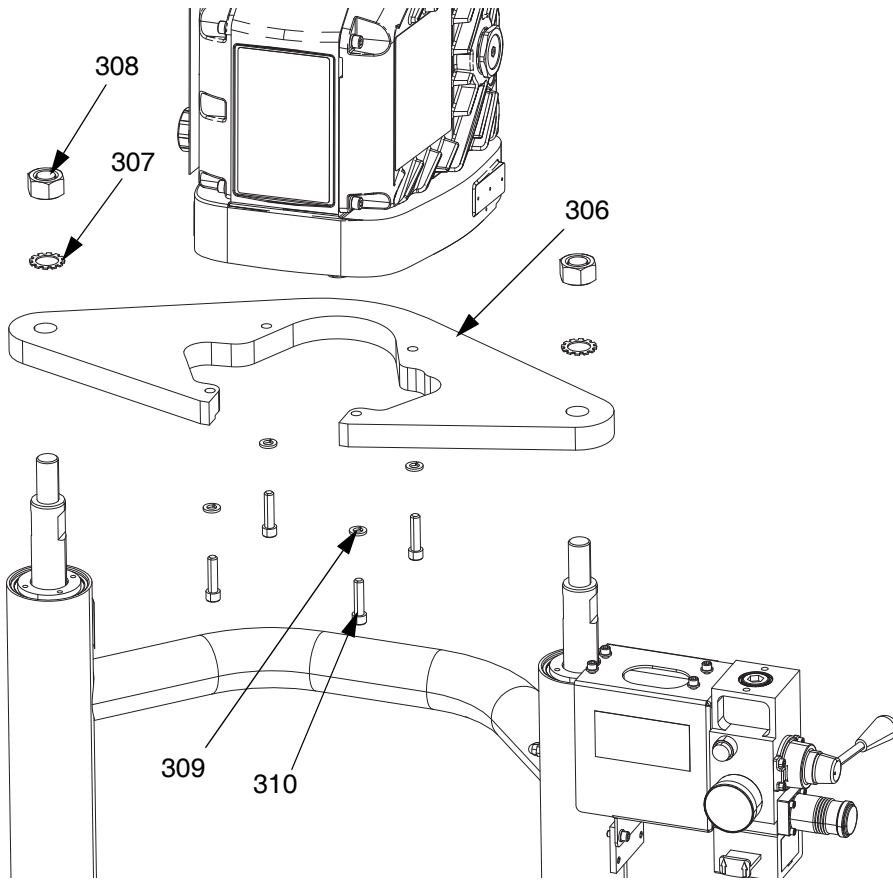


T110771A

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

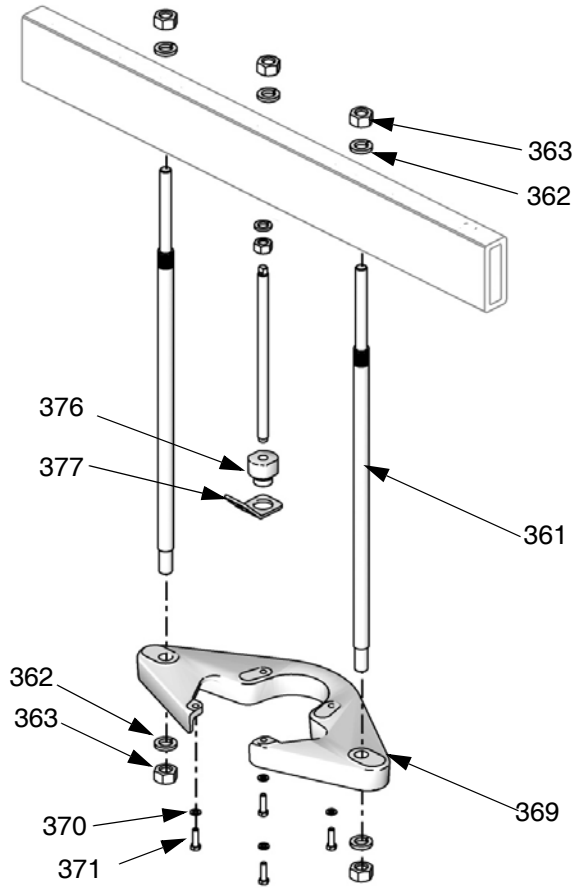
302	101015	WASHER, lock	2
303	C19187	NUT	2
304	101533	WASHER, spring lock	2
305	101535	NUT	2
126	---	ROD, threaded	1
127	15J991	ADAPTER, lift, ring	1
128	15J993	RING, lift, plate	1

D60 Pump Mount for 5 Gallon (20 Liter) Platen



Ref. Part	Description	Qty.
306*---	BRACKET, shelf, NXT3400 and NXT6500	1
307 101533	WASHER, spring lock	2
308 101535	NUT	2
309 100133	WASHER, lock	4
310 C38372	SCREW	4

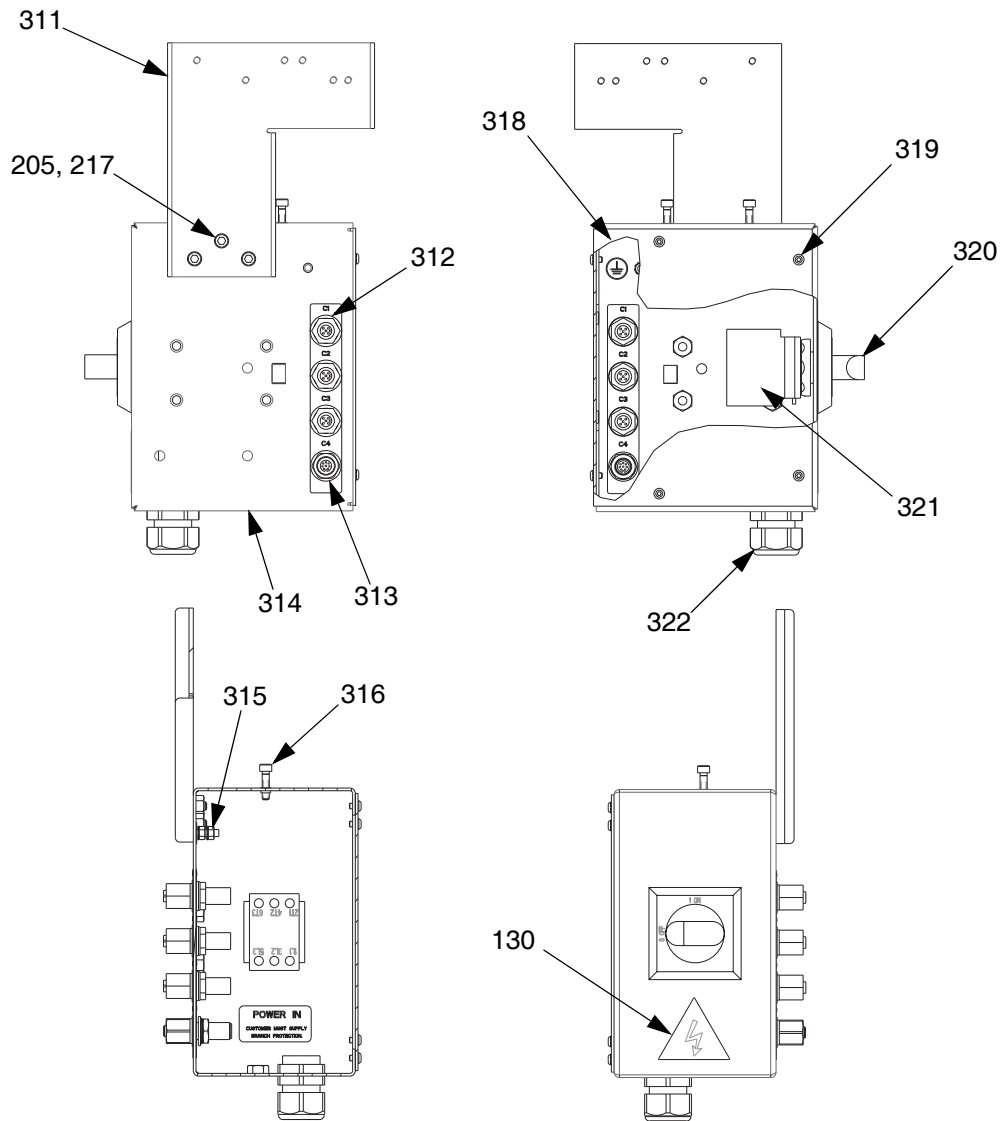
D200s Pump Mounts for 16 Gallon (60 Liter) Platens



Ref.	Part	Description	Qty.
361	15M298	ROD, tie bar, shelf	2
362	101533	WASHER, lock	4
363	101535	NUT, hex	4
364	---	BRACKET, shelf	1
365	100133	WASHER, lock	4
366	---	SCREW, cap, hex hd	4
367	---	ROD, threaded	1
368	---	ADAPTER, lift, ring	1
369	---	RING, lift, plate	1

Power Junction Box

Ambient Power Junction Box



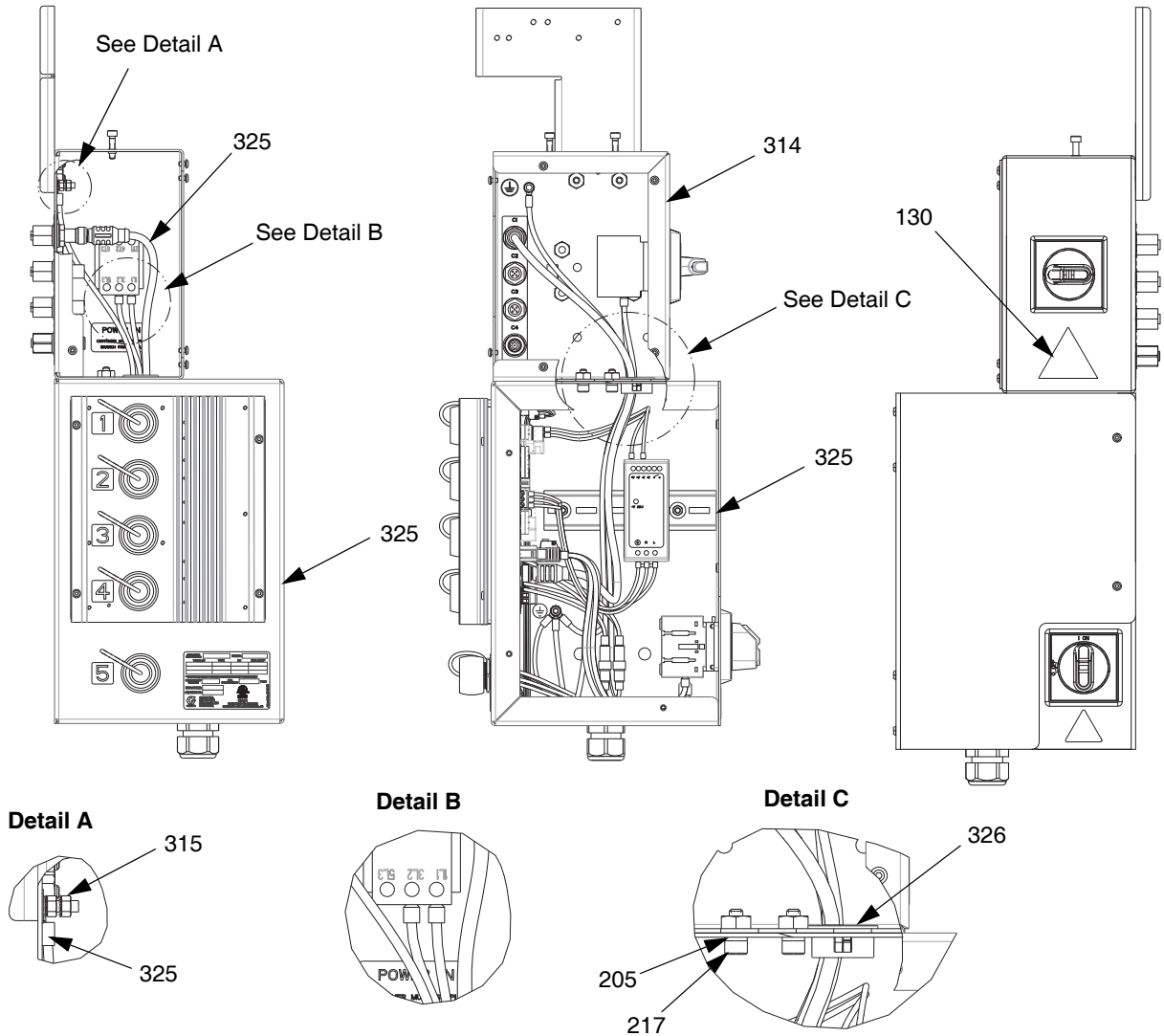
Ref.	Part	Description	Qty.
205	108050	WASHER, lock, spring	3
217	121518	SCREW	3
311	---	BRACKET, cable track mount, painted	1
312	121612	CONNECTOR, thru, M12, mx f	3
313	---	CONNECTOR, thru, M12, mx f, 8 pin	1
314	---	JUNCTION BOX, assembly, e-drive, painted	1
315	120993	NUT	2
316	108787	SCREW	2
317*	16K918	LABEL, power in, branch circuit	1
318	---	COVER, assy, j-box, e-drive, paint	1
319	114185	SCREW	6

Ref.	Part	Description	Qty.
320	123967	KNOB, disconnect, operator	1
321	123970	SWITCH, disconnect, 40A	1
322	121171	GRIP, cord	1
130▲	196548	LABEL, caution	1
324*	---	LABEL, multiple, emc and emd assy	1

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

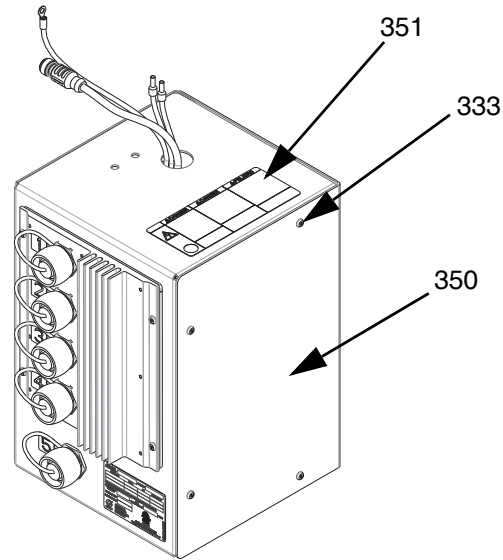
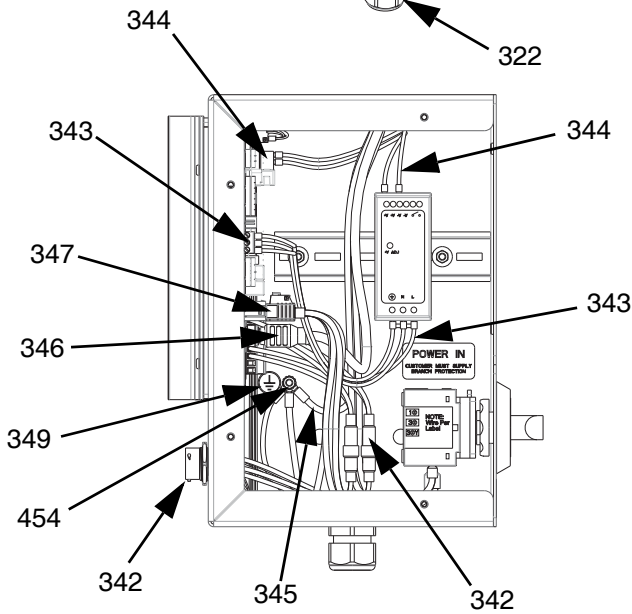
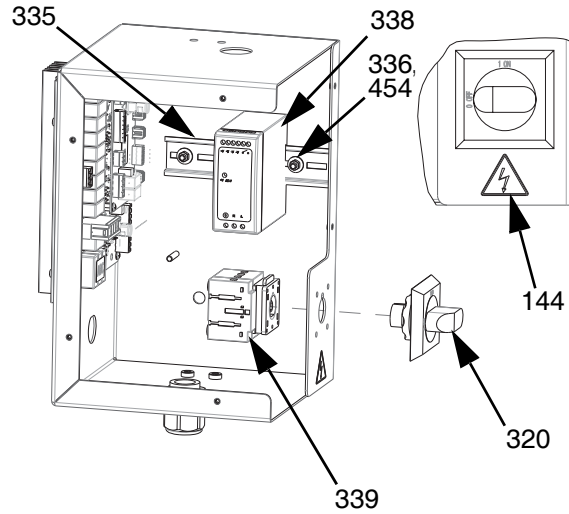
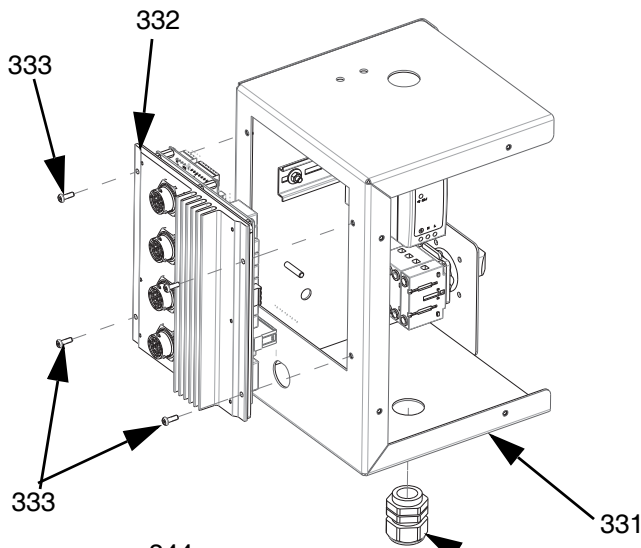
* Not shown.

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, mxf	3	325*	---	CONTROL BOX, heat	1
313†	---	CONNECTOR, thru, M12, mxf, 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.
331	---	ENCLOSURE, electrical, heat, painted	1
332	25R533	MODULE, gca	1
333	116595	SCREW	10
322	121171	GRIP, cord	1
335	---	RAIL, mt	0.5
336	112776	WASHER, plain	2
454	110911	NUT	4
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

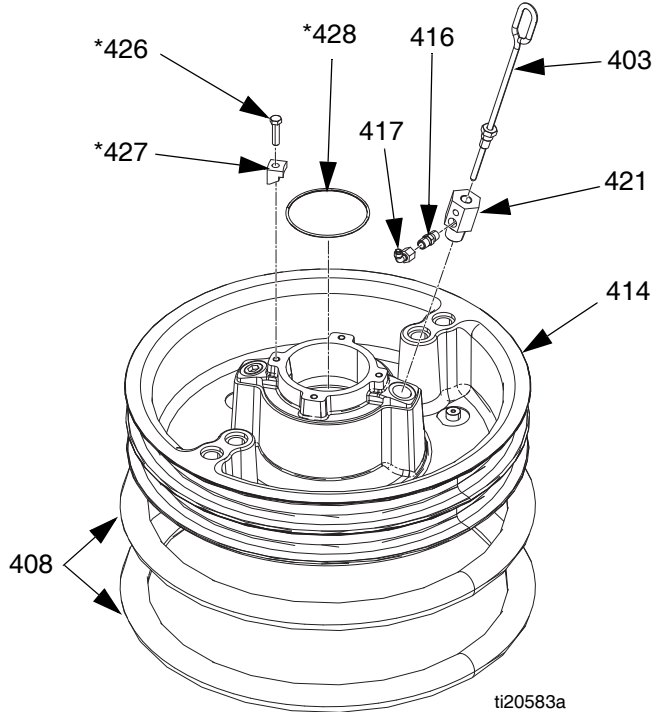
Ref.	Part	Description	Qty.
345	---	HARNESS, ground, heat	1
346	121000	CABLE, can, female/female 0.5m	1
347	---	HARNESS, power, incoming	1
441†	111307	WASHER, lock, external	5
348†	16T440	CAP	5
349	---	LABEL, multiple, control, heat	1
350	18B778	COVER, enclosure, electric, heat, paint	1
351▲	19B283	LABEL, multiple, control, 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	C20350	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.

20 Liter (5 Gallon) Platens

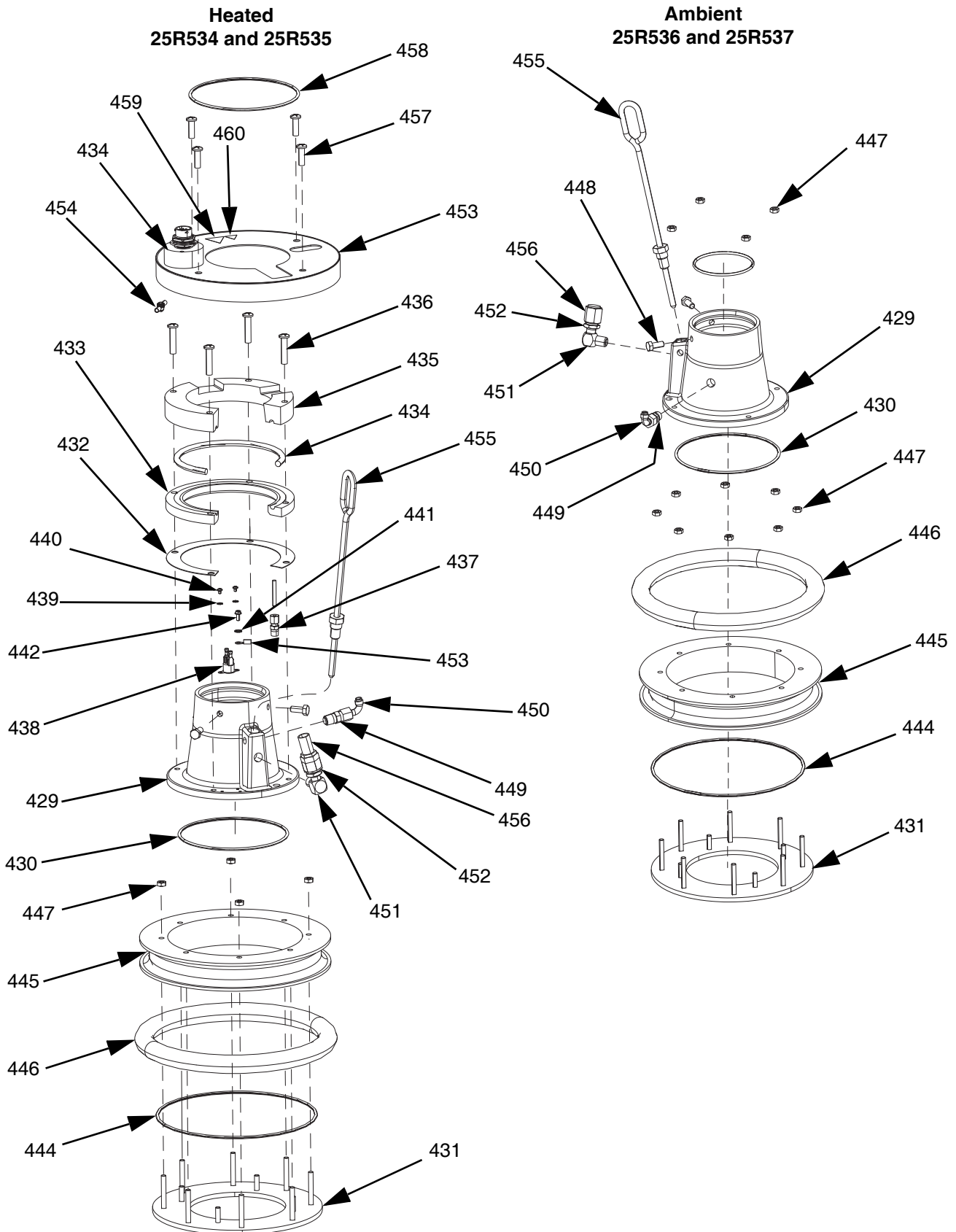


FIG. 59: Single and Double Wiper Assemblies

**20 Liter (5 Gallon) Platen Parts, Heated
(25R534 and 25R535)**

Ref.	Part	Description	Qty.
429	---	BASE, platen, heated, recharge	1
430	121829	O-RING, packing	1
431	---	PLATE, btm, 20 30L platen, warm melt	1
432	16C499	GASKET, heat transfer, D60, warm melt	1
433	---	PLATE, heater, lower, D60 warm melt	1
434	25R653	HARNES, heat, wiper, 5 gallon	1
435	---	PLATE, heater, upper, D60 warm melt	1
436	123744	SCREW	4
437	---	FITTING	1
438	---	SWITCH, over-temperature	1
439	103181	WASHER, lock external	2
440	104714	SCREW	2
441	111307	WASHER, lock, external	4
442	111593	SCREW	1
443	---	HARNES, ground, 14AWG,12" long	1
444	17T371	SEAL	1
445	---	PLATE	1
446	25R654	SEAL, drum, wiper, 5 gallon, neo- prene	1
	25R656	SEAL, drum, wiper, 5 gallon, EPDM	1
447	113504	NUT	8
448	100057	SCREW	2
449	122056	VALVE, check	1
450	C20350	FITTING, elbow 90°	1
451	100840	FITTING, elbow, street	1
452	121310	FITTING, connector	1
453	---	COVER, wiper, 5 gallon, heated, painted	1
454	110911	NUT	1
455	257697	HANDLE, bleed, SST, assembly	1
456	123140	FITTING	1
457	132371	SCREW	4
458	109482	PACKING, o-ring	1
459▲	15K616	LABEL, caution	1
460▲	189930	LABEL, caution	1

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

**20 Liter (5 Gallon) Platen Parts, Ambient
(25R536 and 25R537)**

Ref.	Part	Description	Qty.
429	---	BASE, platen, heated, recharge	1
430	121829	O-RING, packing	1
431	---	PLATE, btm, 20 30L platen, warm melt	1
444	17T371	SEAL	1
445	---	PLATE	1
446	25R654	SEAL, drum, wiper, 5 gallon, neo- prene	1
	25R656	SEAL, drum, wiper, 5 gallon, EPDM	1
447	113504	NUT	12
448	100057	SCREW	2
449	122056	VALVE, check	1
450	C20350	FITTING, elbow 90°	1
451	100840	FITTING, elbow, street	1
452	121310	FITTING, connector, NPT x JIC	1
455	257697	HANDLE, bleed, SST, assembly	1
456	123140	FITTING, cap, 1/2 JIC, CS	1
458	109482	PACKING, o-ring	1

60 Liter (16 Gallon) Platens

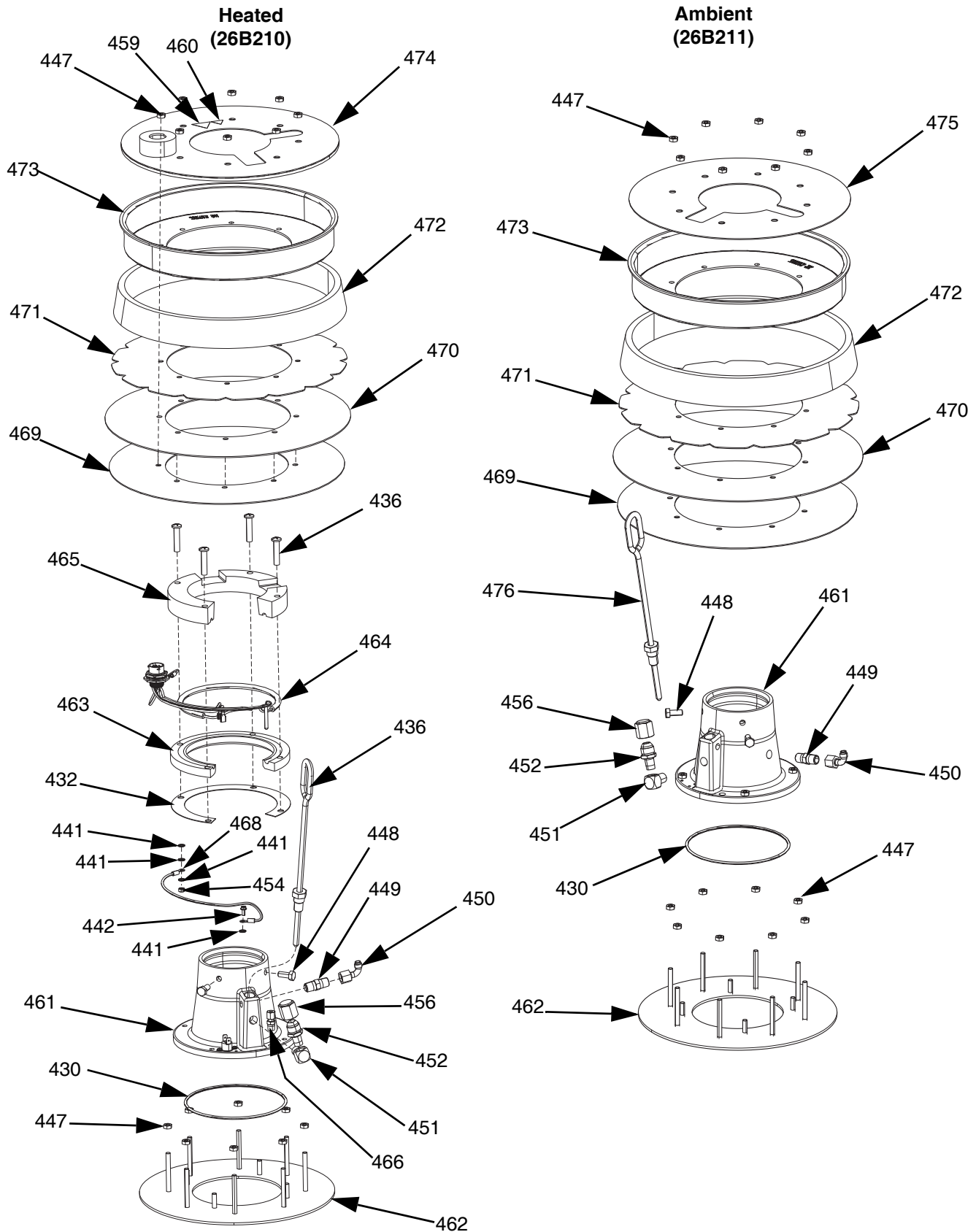


FIG. 60: Single and Double Wiper Assemblies

**60 Liter (16 Gallon) Platen Parts, Heated
(26B210)**

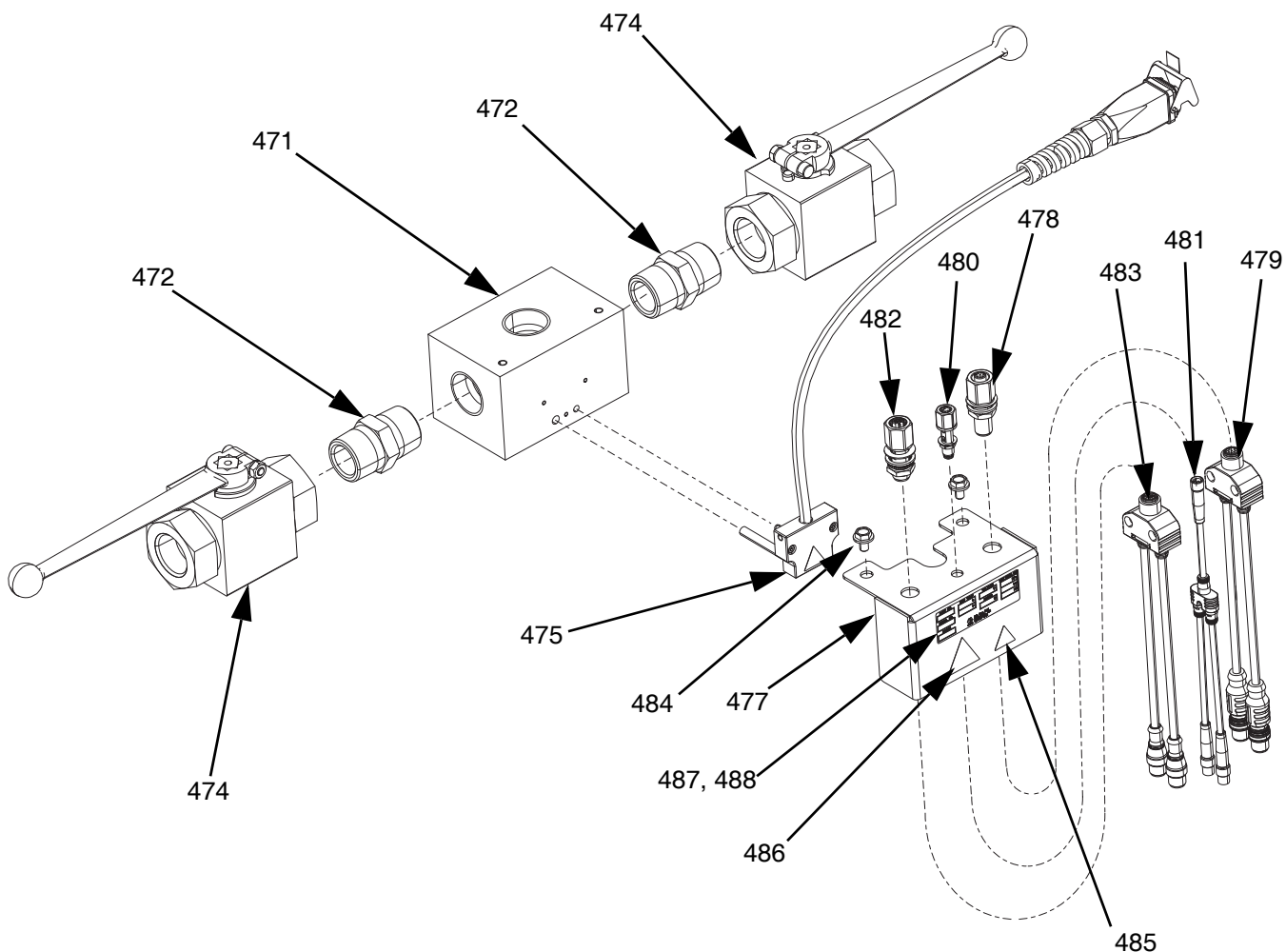
Ref.	Part	Description	Qty.
461	18B822	BASE, platen, heated, recharge	1
430	121829	O-RING, packing	1
462	256717	PLATE, bottom, platen	1
432	16C499	GASKET, heat transfer, D60, warm melt	1
463	16C413	PLATE, heater, lower, D60, warm melt	1
464	18B784	HARNES, heat, wiper, 5 gal	1
465	16C414	PLATE, heater, upper, D60, warm melt	1
436	123744	SCREW	4
466	123726	FITTING, 1/8" NPT	1
467	15B137	SWITCH, over temperature	1
439	103181	WASHER, lock external	2
440	104714	SCREW	2
441	111307	WASHER, lock, external	4
442	111593	SCREW	1
468	18B389	STOP, adjust, 1/4"	1
469	15V117	WIPER, PE support	1
470	15V111	WIPER, main	1
471	15V444	WIPPER, support	1
472	15V118	SPACER	1
473	15V119	CLAMP, retaining	1
447	113504	NUT	16
448	100057	SCREW, cap	2
449	122056	VALVE, check	1
450	C20350	FITTING, elbow 90 deg	1
451	100840	FITTING, elbow, street	1
452	121310	FITTING, connector, NPT x JIC	1
456	123140	FITTING, CAP, 1/2 JIC, cs	1
474	26B207	COVER, wiper, 60L, heated	1
460▲	189930	LABEL, caution	1
459▲	15K616	LABEL, caution	1
454	110911	NUT, hex	1
476	15W035	HANDLE, bleed, stainless steel, assembly	1
458	109482	PACKING, o-ring	1
477	070408	SEALANT, pipe, stainless steel	1
478	070268	LUBRICANT, grease	1
479	070303	LUBRICANT, grease	1

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

**60 Liter (16 Gallon) Platen Parts, Ambient
(26B211)**

Ref.	Part	Description	Qty.
461	18B822	BASE, platen, heated, recharge	1
430	121829	O-RING, packing	1
462	256717	PLATE, bottom, platen	1
447	113504	NUT	20
469	15V117	WIPER, PE support	1
470	15V111	WIPER, main	1
471	15V444	WIPPER, support	1
472	15V118	SPACER	1
473	15V119	CLAMP, retaining	1
448	100057	SCREW, cap	2
449	122056	VALVE, check	1
450	C20350	FITTING, elbow 90 deg	1
451	100840	FITTING, elbow, street	1
452	121310	FITTING, connector, NPT x JIC	1
456	123140	FITTING, CAP, 1/2 JIC, cs	1
475	15N060	COVER, wiper, 60L	1
476	15W035	HANDLE, bleed, sst, assy	1
458	109482	PACKING, o-ring	1
477	070408	SEALANT, pipe, sst	1
478	070268	LUBRICANT, grease	1
479	070303	LUBRICANT, grease	1

Tandem Block, 25R848, 25R849



Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
471	---	BLOCK, 3 way, S, 1" NPT	1	489*	124003	CABLE, can	1
472	C38302	FITTING, nipple	2	490*	124654	CONNECTOR, splitter	1
473*	---	SEALANT, pipe, SST	1	491*	25R439	KIT, low level sensor	2
474	521477	VALVE, ball, 1"	2	492*	121266	VALVE, shuttle 5/32	1
475†	24E413	KIT, heat, pgm, inlet, 25R848 only	1	493†*	129300	CABLE, ext, TOF hose	15 ft
476†*	---	LUBRICANT, thermal	1	▲ Replacement safety labels, tags, and cards are available at no cost.			
477	---	BRACKET, mounting, cables	1	† Parts included in 25R848 only.			
478	126496	CONNECTOR, thru, M12	1	* Not Shown.			
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				
488	---	ARTWORK, identification, block	1				

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

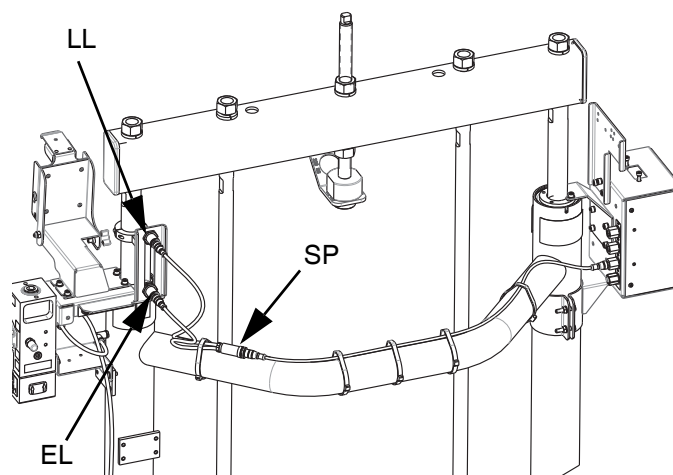
For D200s, D200, and D60 single supply systems.

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

Low Level Sensor Kit, 25E447

To install the Low Level Sensor:

1. Turn the Disconnect Switch (AZ) OFF.
2. Disconnect cable from the empty level sensor (EL).
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 (EL).
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

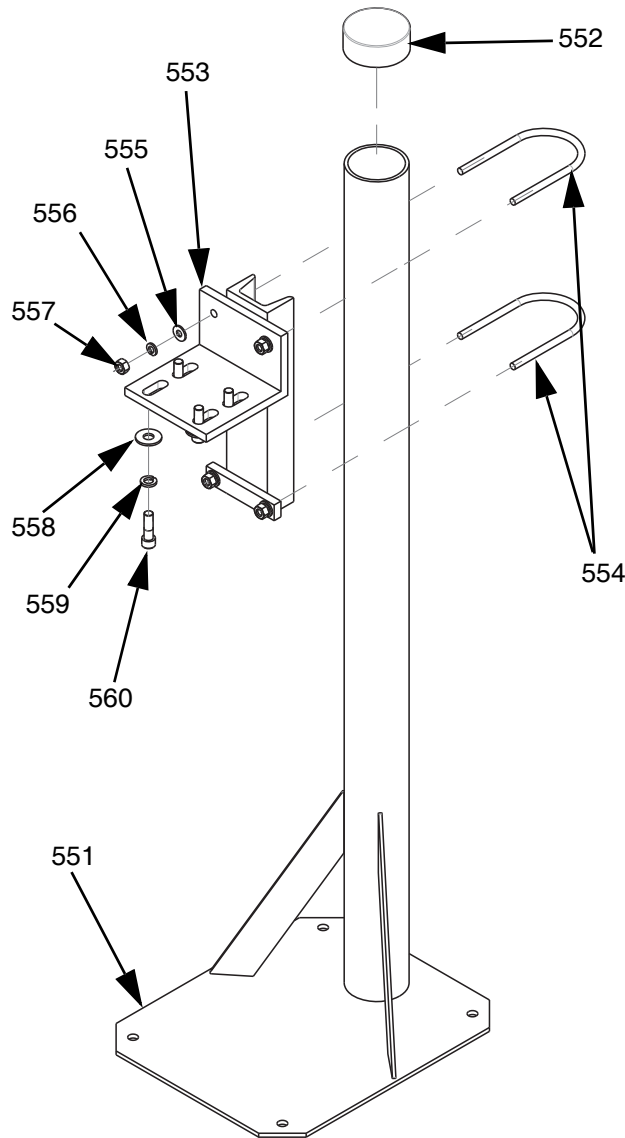
See the Enclosed Wetcup Recirculation Kit manual for more information.

Heat Control Box, 25R454

See **Heat Control Box** on page 70 for parts.

Tandem Block Stand, 26B177

For use with tandem systems only.



To install the Tandem Block Stand:

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 D200 and D200S Ram Supply Units, 255627

See the Drum Roller Kit manual for more information.

Drum Position Clamp Set for D200 Ram Supply Units, 206537

Includes two clamps.

Drum Position Clamp 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.

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

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	

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

Cable Kits

Part Number	Transducer and Solenoid Cable Length	Hose Cable Length	Transducer	Transducer Adapter	Hose Connections	
					Supply Hose 1	Supply Hose 2
25R342	33 ft (10 m)	NA	15M669	15N034		
25R343	33 ft (10 m)	8 ft (2.4 m)	15M669	15N034		
25R344	33 ft (10 m)	15 ft (4.6 m)	15M669	15N034		
25R345	33 ft (10 m)	25 ft (7.6 m)	15M669	15N034		
25R346	53 ft (16 m)	NA	15M669	15N034		
25R347	53 ft (16 m)	15 ft (4.6 m)	15M669	15N034		
25R348	53 ft (16 m)	25 ft (7.6 m)	15M669	15N034		

Tandem Fitting Kits

Part Number	Working Pressure	Hose Connections	
		Tandem Hose 1	Tandem Hose 2
25R891	4500 psi (31 MPa, 310 bar)	10	10
25R892	5000 psi (34.5 MPa, 345 bar)	12	12
25R893	5000 psi (34.5 MPa, 345 bar)	16	16

Tandem Kits

Part Number	System Type
25R848	Heated
25R849	Ambient

Fitting Kits

Part Number	Working Pressure	Hose Connections	
		Supply Hose 1	Supply Hose 2
25R319	4500 psi (31 MPa, 310 bar)	10	NA
25R320	5000 psi (34.5 MPa, 345 bar)	12	NA
25R321	4500 psi (31 MPa, 310 bar)	16	NA
25R322	4500 psi (31 MPa, 310 bar)	10	10
25R323	5000 psi (34.5 MPa, 345 bar)	12	12
25R324	5000 psi (34.5 MPa, 345 bar)	12	10
25R325	4000 psi (28 MPa, 276 bar)	16	16
25R326	4000 psi (28 MPa, 276 bar)	16	12

Additional Accessories

Part Number	Description
25R959	KIT, switch, foot

Check-Mate 200 CS Pump Heater Kit, 25R450

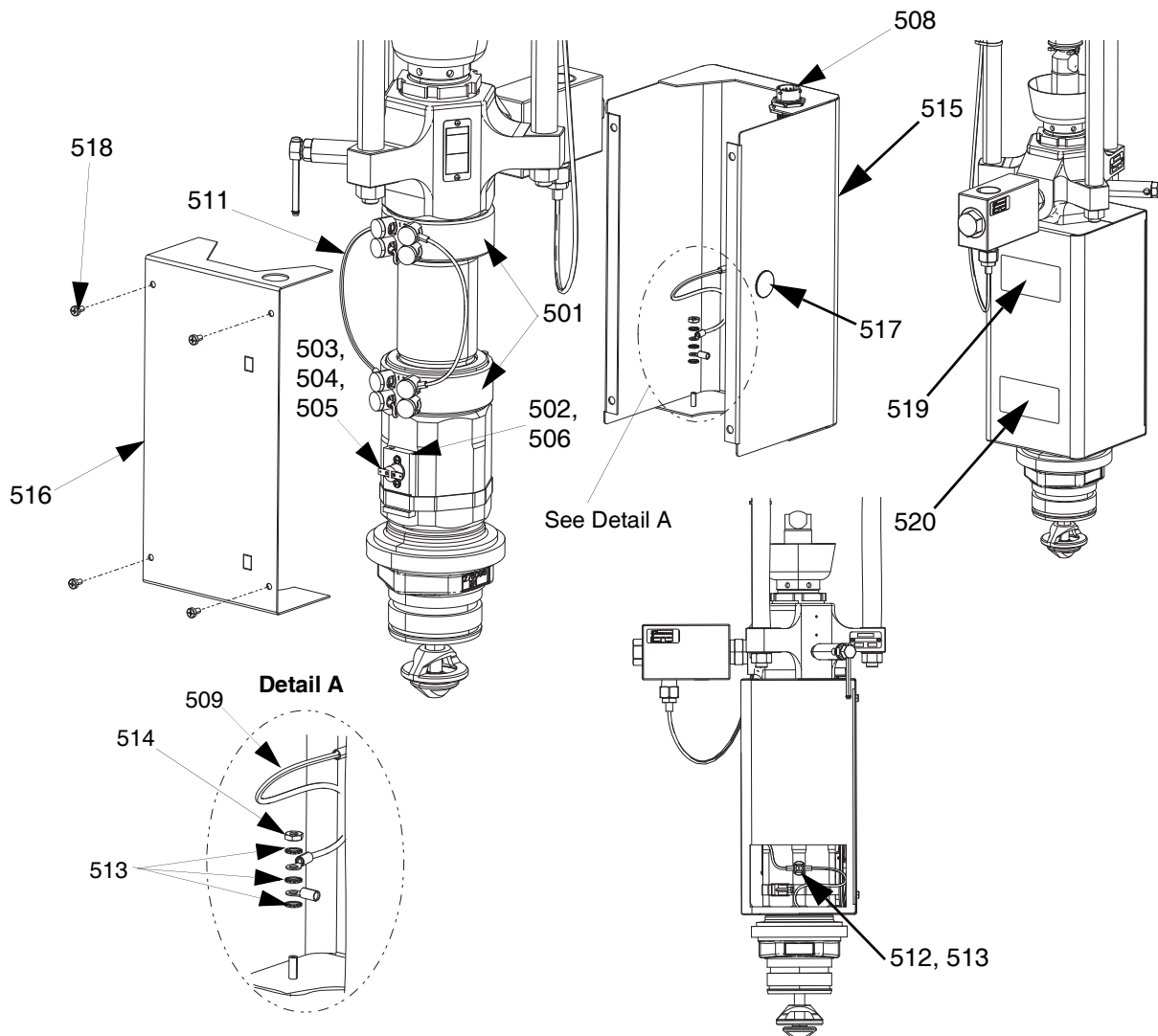


FIG. 61: Check-Mate 200 CS Pump Heater Kit, 25R450

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

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

Platen Heater Kit, 25R451

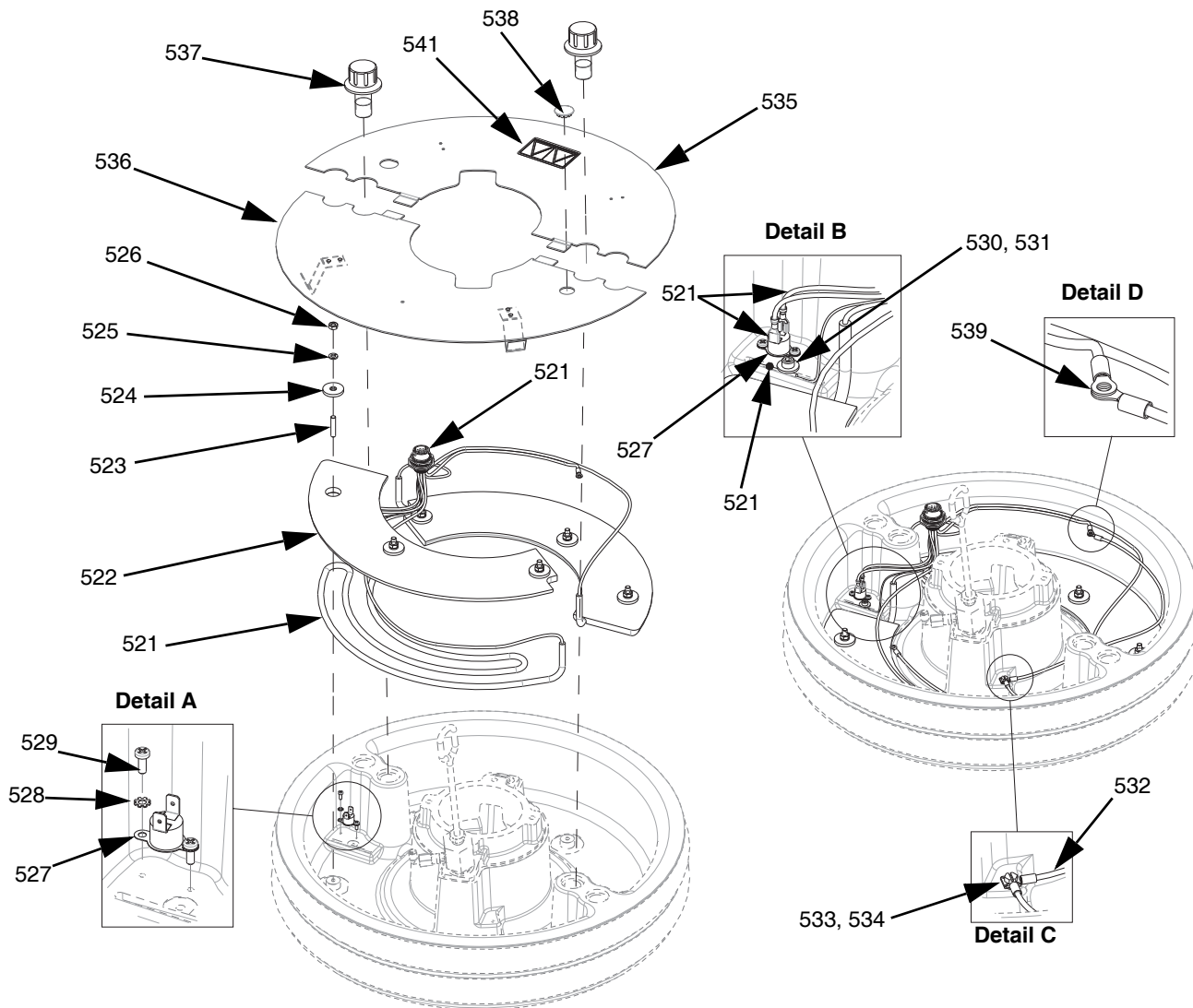


FIG. 62: Platen Heater Kit, 25R451

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

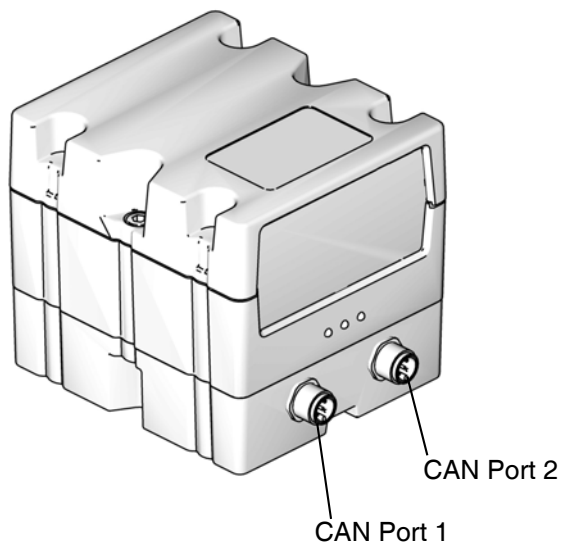


Fig. 63: CGM CAN Connections

CGM Kits

Part Number	Description	Heat Option
26B169	CGM Kit, EtherNet/IP	Heated
26B170	CGM Kit, DeviceNet	Heated
26B171	CGM Kit, PROFINET	Heated
26B172	CGM Kit, PROFIBUS	Heated
26B173	CGM Kit, EtherNet/IP	Ambient
26B174	CGM Kit, DeviceNet	Ambient
26B175	CGM Kit, PROFINET	Ambient
26B176	CGM Kit, PROFIBUS	Ambient

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 37.
2. Verify the power is off to the system.
3. Mount the CGM near the pump or near the integration point.
4. Drill the mounting holes using the mounting hole dimensions shown in Fig. 64.

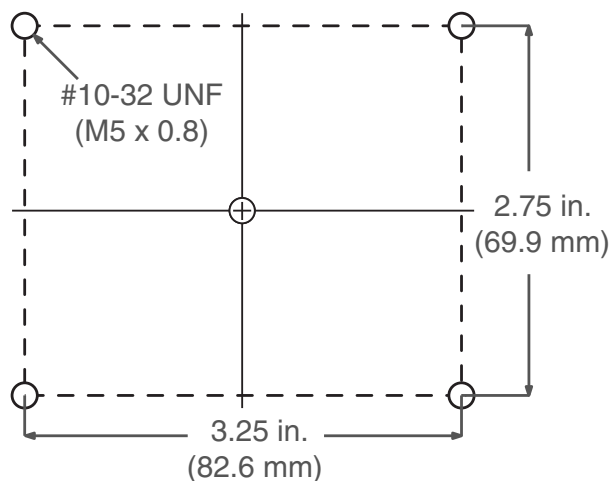


Fig. 64: CGM Mounting Holes

5. Remove the access cover from the CGM (DA). Loosen the two screws (DB) and remove the CGM (DC) from the base (DD) as shown in FIG. 65.

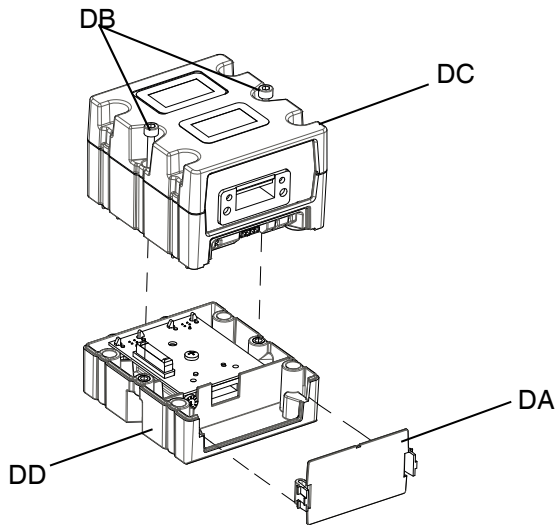


FIG. 65: Disassembling the CGM

6. Using the four 10-32 mounting screws included with the kit, mount the base (DD) in the holes you drilled.
7. Reattach the CGM (DC) on the base (DD) with the two screws (DB) that were removed in step 5.
8. Reattach the access cover (DA).
9. If using a Single iQ Ram Supply System:
 - a. If a CGM kit is not used, no changes are necessary.
 - b. If a CGM kit is used, connect the 1.5m CAN cable (122487) included in the CGM kit from either port on the CGM (1 or 2) to port C2 on the Power Junction Box (AJ). See FIG. 63 and FIG. 66.
10. If using a Tandem iQ Ram Supply System without a CGM kit:
 - a. Disconnect the CAN cable from the ADM and connect the cable to one end of the ADM splitter (124654) included in the tandem kit.
 - b. Connect the 0.4m CAN cable (121266) included in the tandem kit to the ADM.
 - c. Connect the other end of the 0.4m CAN cable (121266) to the ADM splitter (124654).

- d. On iQ Ram Supply Unit 1, ensure that the cable is connected from the ADM splitter (124654) to port C1 on the Power Junction Box. See FIG. 66.
 - e. Connect the 5m CAN cable (124003) included in the tandem kit to the ADM splitter (124654), and connect the other end to Port C1 on the Power Junction Box on iQ Ram Supply Unit 2. See FIG. 66.
11. If using a Tandem iQ Ram Supply System with a CGM kit:
 - a. Disconnect the ADM cable connected to Port 1 on the Electric Driver on iQ Ram Supply Unit 1. Connect the cable to Port 1 on the CGM. See FIG. 63.
 - b. Connect the 1.5m CAN cable (122487) included in the CGM kit from Port 2 on the CGM to the ADM splitter (124654). See FIG. 63.
 - c. Connect the 0.4m CAN cable (121266) included in the tandem kit from one end of the ADM splitter to port C1 on the Power Junction Box on either iQ Ram Supply Unit. See FIG. 66.
 - d. Connect the 5m CAN cable (124003) included in the tandem kit from the other end of the ADM splitter to port C1 on the Power Junction Box on the other iQ Ram Supply Unit. See FIG. 66.

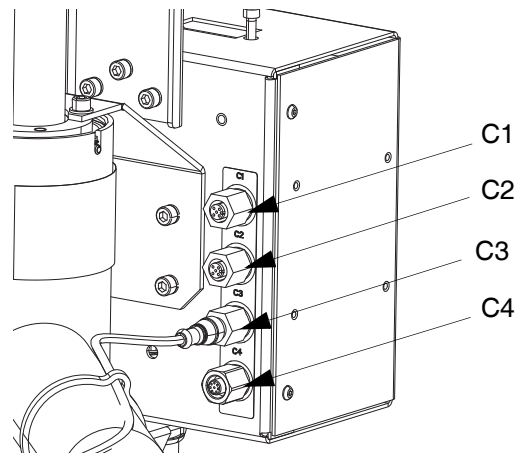


FIG. 66: Power Junction Box Port Locations

NOTE: Longer CAN cables, if required, are available from Graco. See **CAN Cables** on page 78.

12. Connect the EtherNet/IP, DeviceNet, or PROFIBUS cable to the fieldbus connection on the CGM as applicable. See Fig. 67.

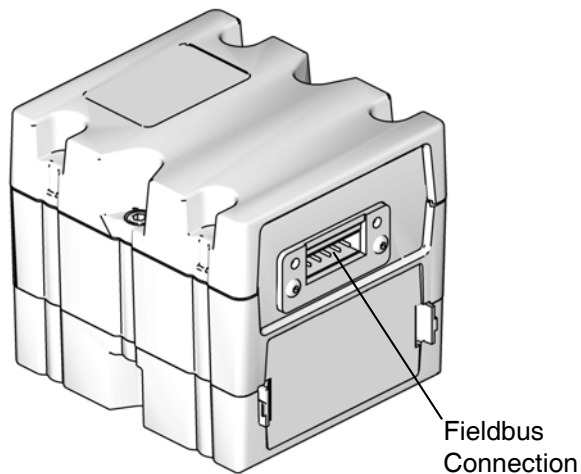


Fig. 67: CGM Fieldbus Connection

13. Connect the other end of the cable to the fieldbus device.
14. 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.
15. Refer to the E-Flo iQ Supply System Operation manual for details regarding the fieldbus pinout setup and to perform the setup procedure to configure the fieldbus. See **Related Manuals** on page 3.

Platen Valve Kit, 25R452

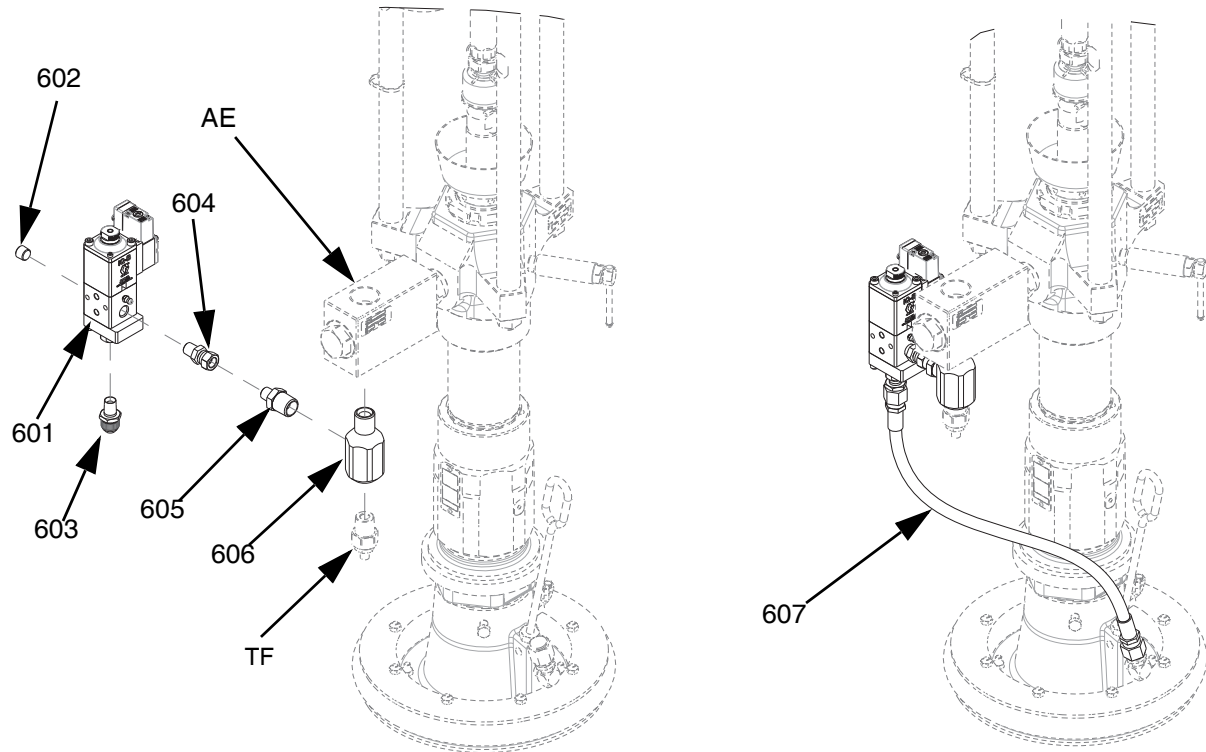


FIG. 68: Platen Valve Kit, 25R452

Ref.	Part	Description	Qty.
601	V25AB000BA	VALVE, 25, npt/b, 000, adj/sol, amb	1
602	100721	PLUG, pipe	1
603	121310	FITTING, connector	1
604	156823	FITTING, union, swivel	1
605	162449	FITTING, nipple, reducing	1
606	15R873	FITTING	1
607	16D270	HOSE, assy	1
608	---	SEALANT, pipe, sst	1
609	---	HARNESS, P20	1
610	054776	TUBE, nylon	12 ft
611	116197	FITTING, elbow	1

To install the Platen Valve Kit on a 5 gallon system:



1. Perform the **Pressure Relief Procedure** on page 37.

2. Disconnect the pressure transducer from port 5 on the Electric Driver (AB).
3. Remove the pressure transducer fitting (TF) and the fitting it is attached to from the Fluid Check Valve (AE).
4. Using thread tape, install the 1/2 NPT tee fitting (606) into the Fluid Check Valve (AE), then reinstall the pressure transducer fitting (TF) into the bottom of the 1/2 NPT tee fitting (606).
5. Using thread tape, install the 1/4 NPT x 1/2 NPT adapter (605) into the 1/2 NPT tee fitting (606). See FIG. 68.
6. Install the platen valve (601) onto the 1/4 NPT fitting (606) using the swivel fitting (604), then tighten.
7. Install the recirculation hose (607) onto the platen valve (601) and tighten.
8. Reconnect the pressure transducer to port 5 on the Electric Driver (AB).

NOTE: Do not install the recirculation hose (607) onto the platen valve fitting (603) until material has been loaded into the platen valve (601). See the E-Flo iQ Operation manual for instructions to load material into the platen and platen valve.

9. Unplug the existing M12 connector from port 3 on the Electric Driver (AB).
10. Connect the harness (609) to port 3 on the Electric Driver (AB).
11. The harness (609) 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 (609). Connect the M8 4 pin connector to the solenoid on the platen valve (601).

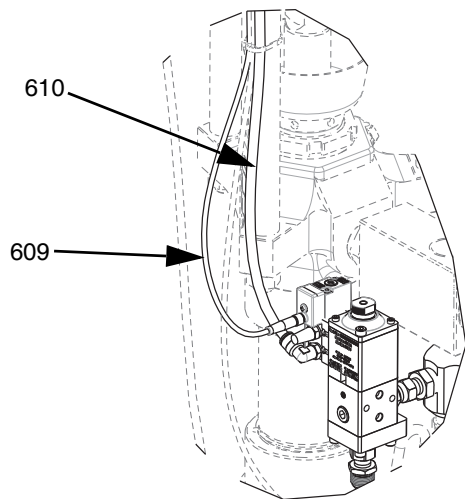
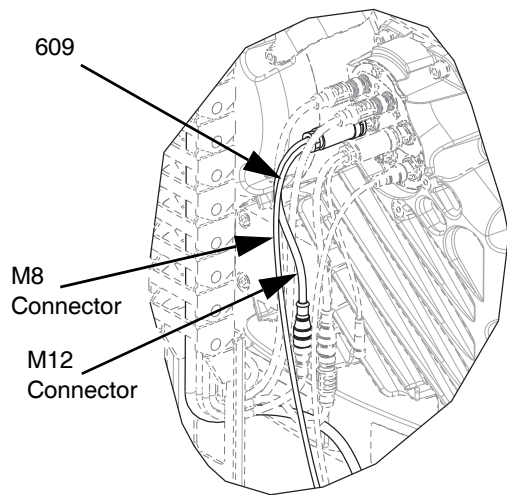


FIG. 69

12. Remove the 1/4 NPT plug from the Integrated Air Controls (AG). See **Integrated Air Controls (AG)** on page 15.
13. Insert the elbow fitting (611) into the Integrated Air Controls (AG).
14. Connect the nylon tube (610) to the elbow fitting (611) and the platen valve (601).

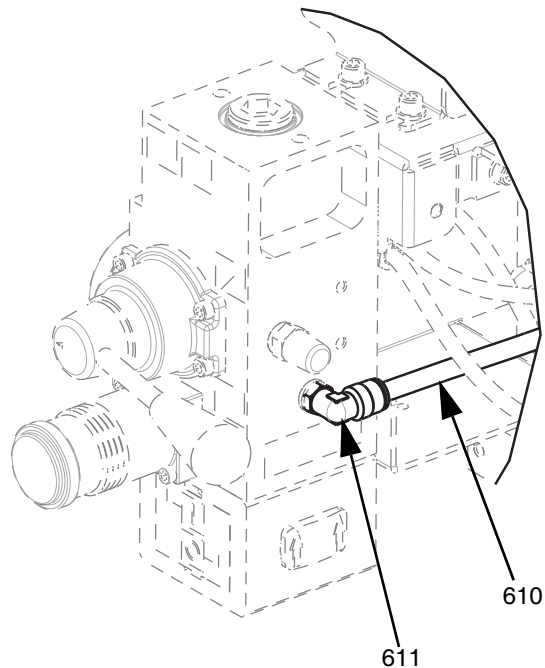


FIG. 70

NOTE: Make sure the pins on the solenoid valve cable are oriented as shown in FIG. 71 before the cable is plugged into the solenoid valve.

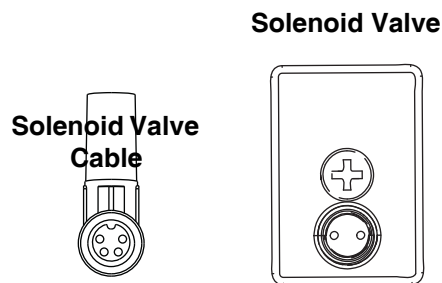


FIG. 71

Platen Valve Kit, 25R453

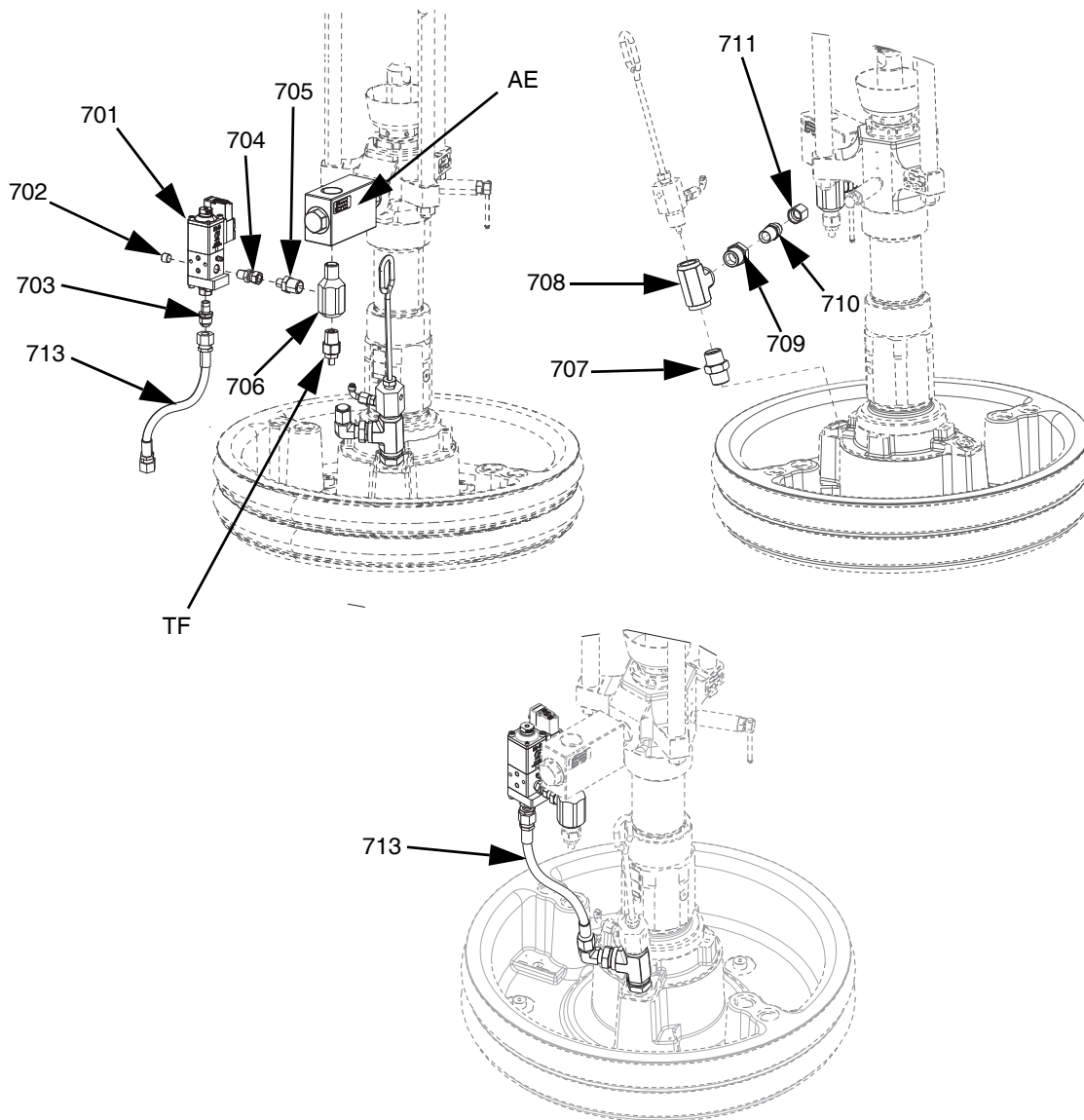


Fig. 72: Platen Valve Kit, 25R453

Ref.	Part	Description	Qty.
701	V25AB000BA	VALVE, 25, npt/b, 000, adj/sol, amb	1
702	100721	PLUG, pipe	1
703	121310	FITTING, connector	1
704	156823	FITTING, union, swivel	1
705	162449	FITTING, nipple	1
706	15R873	FITTING, tee	1
707	C20487	FITTING, nipple	1
708	801787	FITTING, tee	1
709	100896	FITTING, bushing, pipe	1

710	17K616	FITTING, nipple	1
711	123140	FITTING, cap	1
712	---	SEALANT, pipe, sst	1
713	16D269	HOSE, assy	1
714	---	HARNESS, P20	1
715	054776	TUBE, nylon, round	1
716	116197	FITTING, elbow	1

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



1. Perform the **Pressure Relief Procedure** on page 37.
 2. Disconnect the pressure transducer from port 5 on the Electric Driver (AB).
 3. Remove the pressure transducer fitting (TF) and the fitting it is attached to from the Fluid Check Valve (AE).
 4. Using thread tape, install the 1/2 NPT tee fitting (706) into the Fluid Check Valve (AE), then reinstall the pressure transducer fitting (TF) into the bottom of the 1/2 NPT tee fitting (706).
 5. Using thread tape, install the 1/4 NPT x 1/2 NPT adapter (705) into the 1/2 NPT tee fitting (706). See FIG. 68.
 6. Install the platen valve (701) onto the 1/4 NPT fitting (706) using the swivel fitting (704), then tighten.
 7. Install the recirculation hose (713) onto the platen valve (701) and tighten.
 8. Reconnect the pressure transducer to port 5 on the Electric Driver (AB).
 9. Remove the Bleed Stick (EF) and Bleed Port (EG), and install the fittings (707, 708, 709, 710, 711) as shown in FIG. 72.
- NOTE:** Do not install the recirculation hose (713) onto the platen valve fitting (703) until material has been loaded into the platen valve (701). See the E-Flo iQ Operation manual for instructions to load material into the platen and platen valve.
10. Unplug the existing M12 connector from port 3 on the Electric Driver (AB).
 11. Connect the harness (714) to port 3 on the Electric Driver (AB).

12. 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).

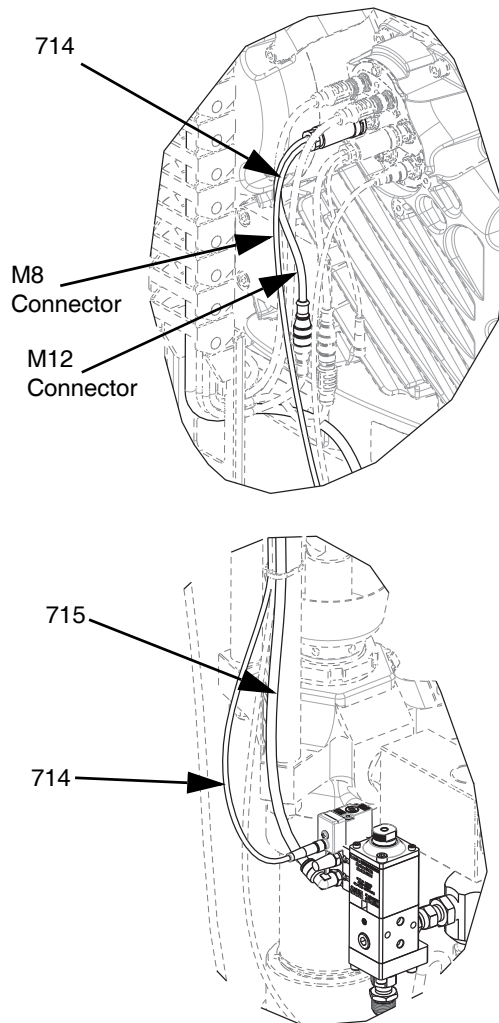


FIG. 73

13. Remove the 1/4 NPT plug from the Integrated Air Controls (AG). See **Integrated Air Controls (AG)** on page 15.
14. Insert the elbow fitting (716) into the Integrated Air Controls (AG).

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

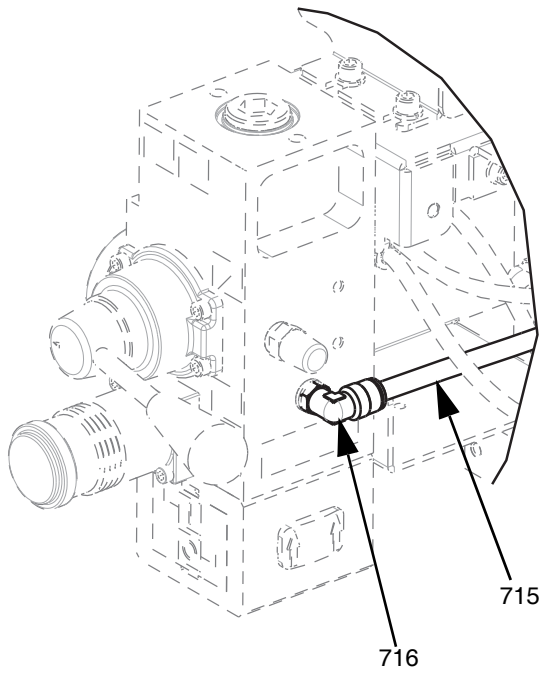
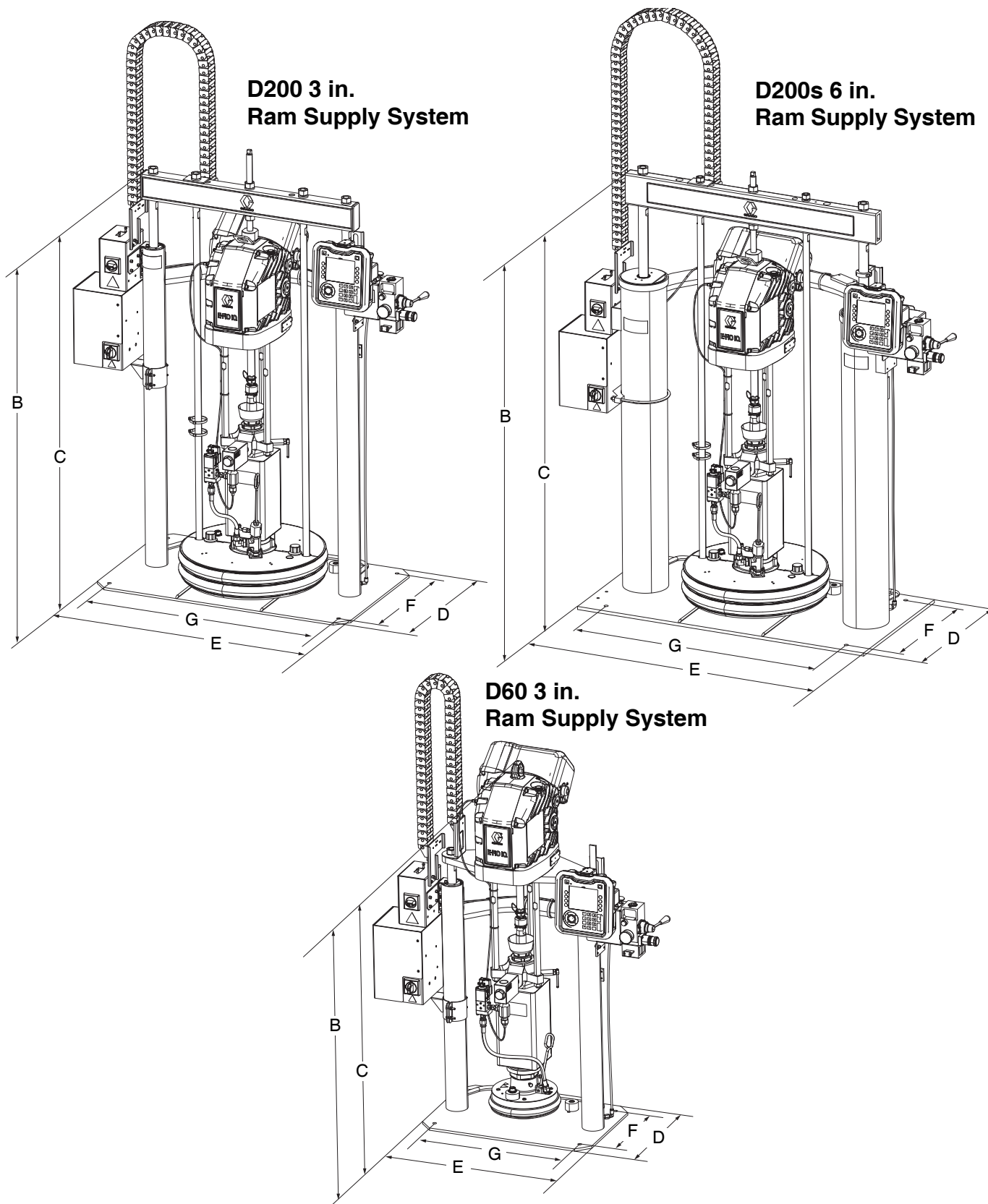


FIG. 74

Dimensions

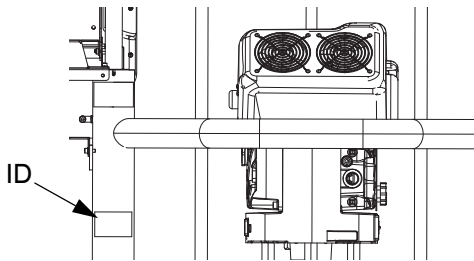


Dimensions

	Ram Size in. (mm)		
	D60	D200	D200s
Total Height (A)	70 (1778)	88 (2235)	96 (2438)
Ram Height (B)	57 (1448)	70 (1778)	69 (1753)
Extended Ram Height (C)	89 (2261)	118 (2997)	125 (3175)
Base Depth (D)	20 (508)	25 (635)	25 (635)
Machine Width (E)	45 (1143)	52 (1321)	45 (1143)
Mounting Hole Depth (F)	14 (356)	21 (533)	23 (584)
Mounting Hole Width (G)	24 (610)	38 (965)	45 (1143)

	Ram Weight lb (kg)		
	D60	D200	D200s
Ambient	451.6 (204.8)	593.6 (269.3)	869.6 (394.4)
Heated	501.6 (227.5)	643.6 (291.9)	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.

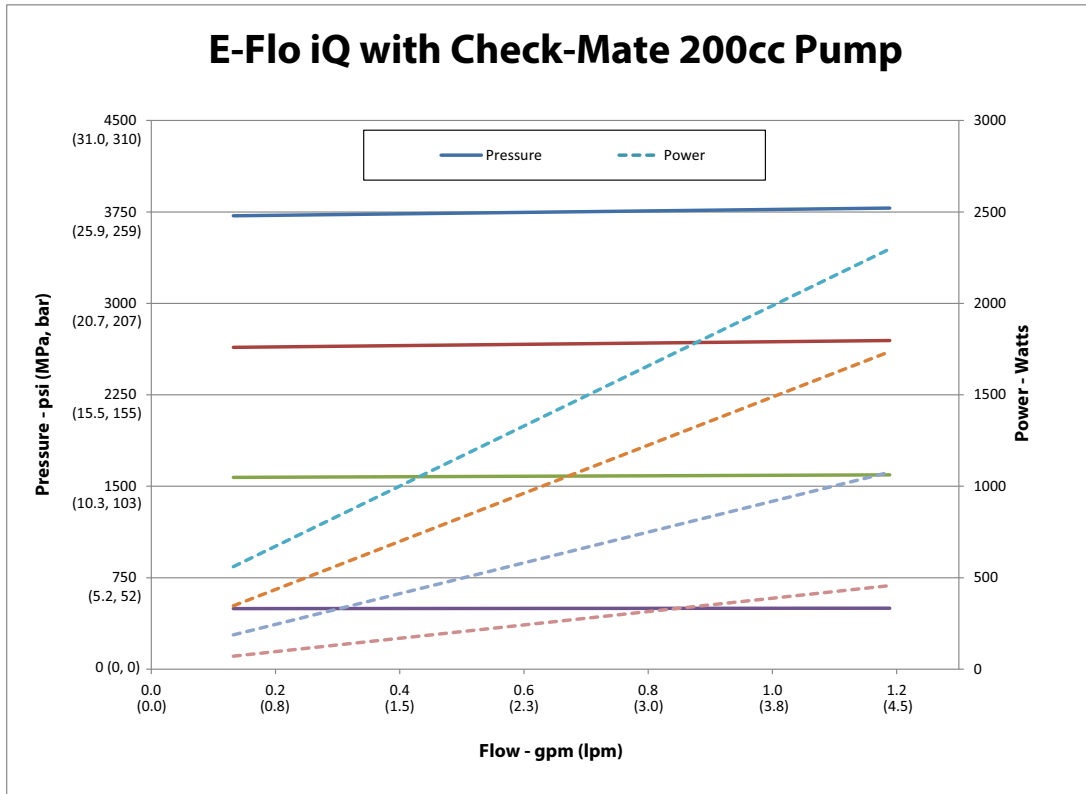
1. Refer to the desired flow along the bottom of the chart.
2. Follow the vertical line up to the intersection with the selected fluid outlet pressure curve. Follow left to the scale to read the fluid out pressure.

Calculate Electrical Power

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

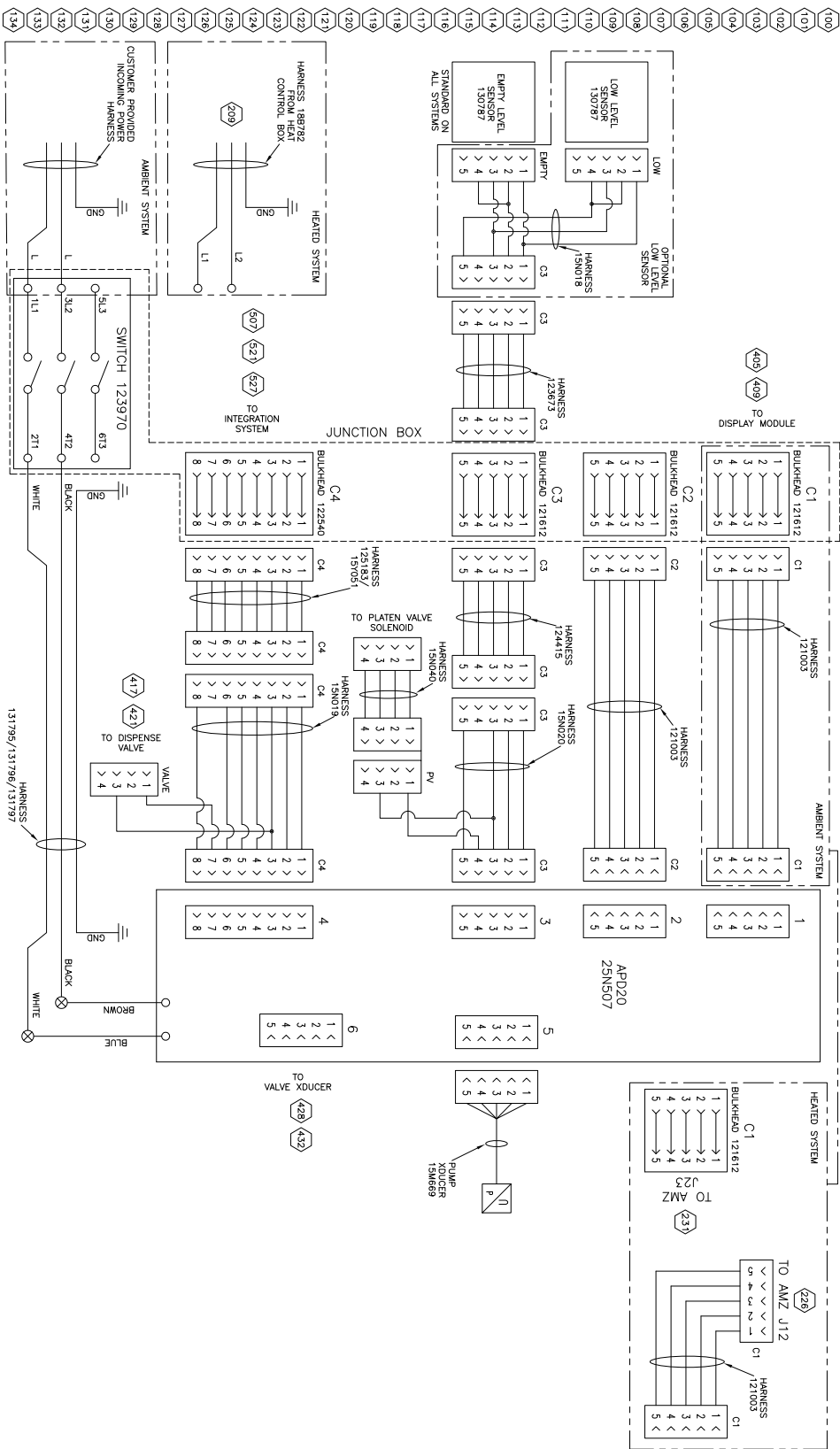
1. Refer to the desired flow along the bottom of the chart.
2. Follow the vertical line up to the intersection with the selected electrical power curve. Follow right to the scale to read the fluid out pressure.
3. **NOTE:** Performance is measured using 10 weight oil. System design and material being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

E-Flo iQ Dispense System Performance Chart

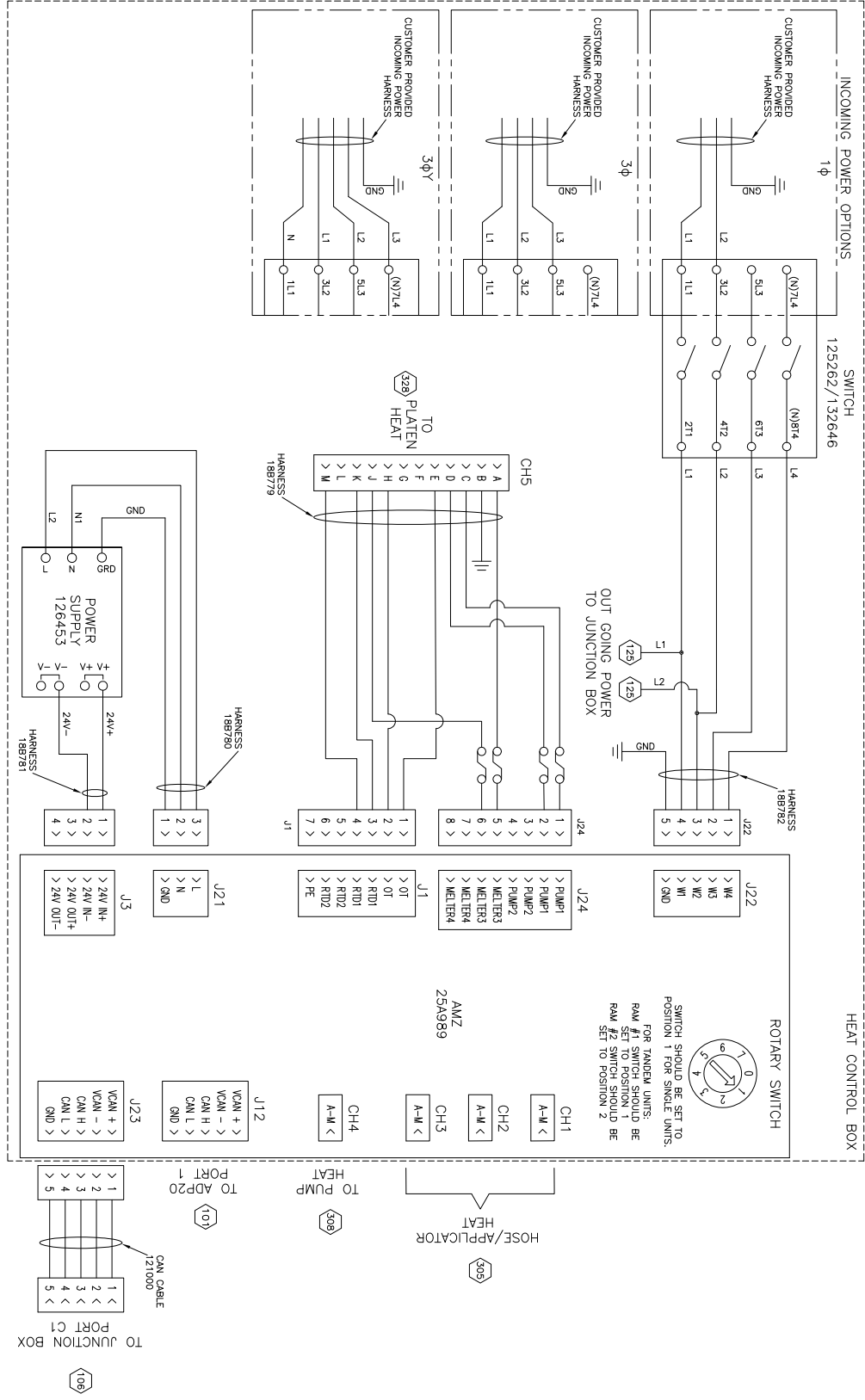


NOTE: Performance is measured using 10 weight oil. System design and material being pumped may produce different results.

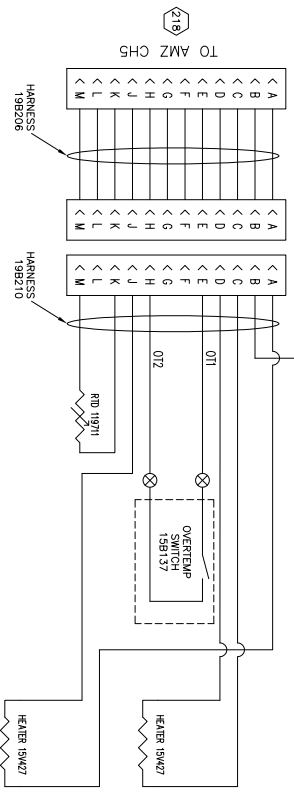
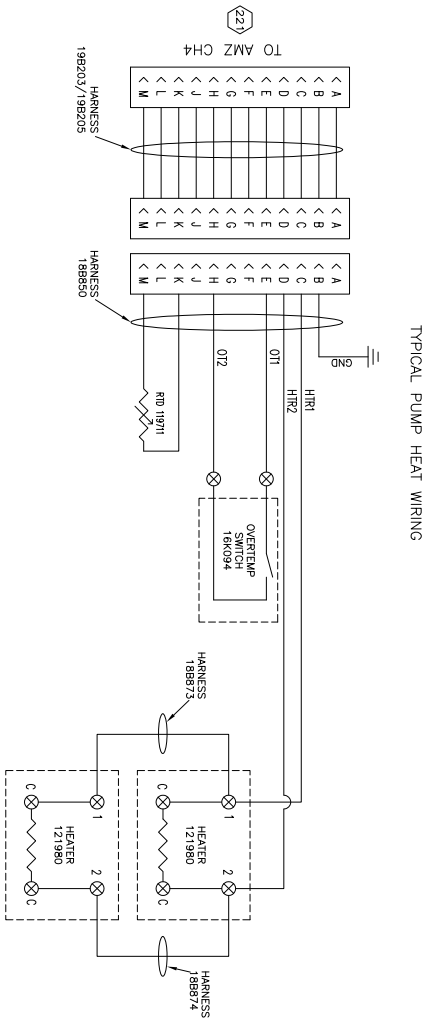
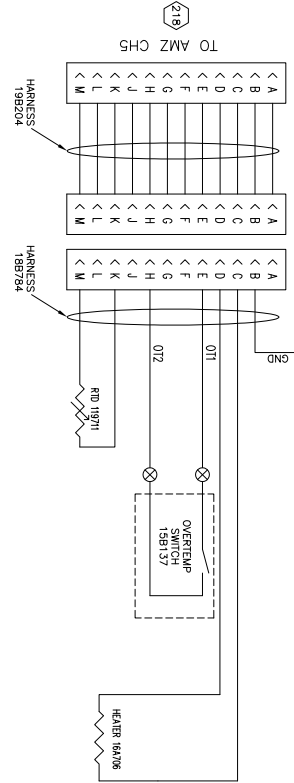
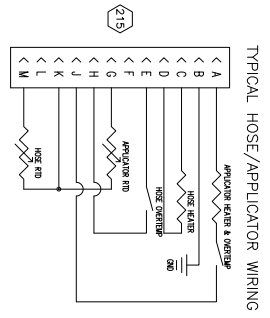
Wiring Diagrams



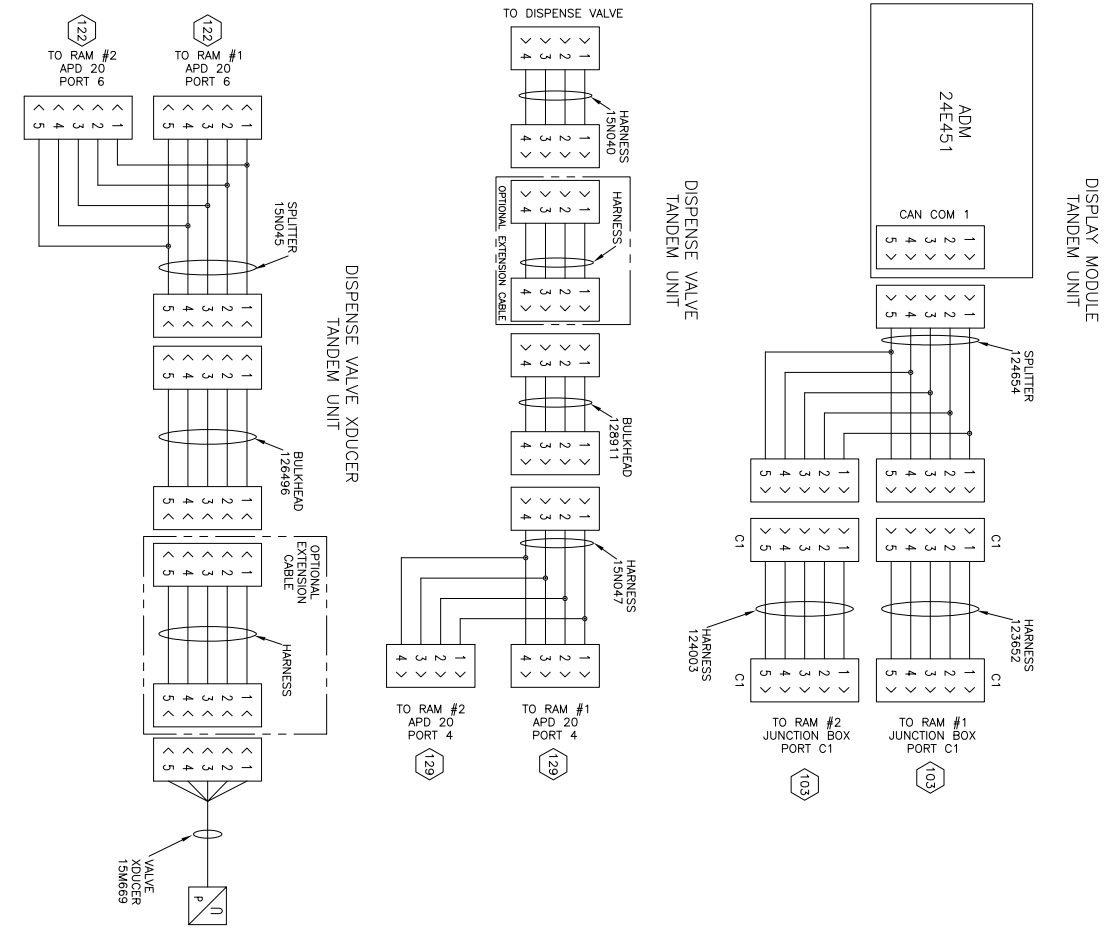
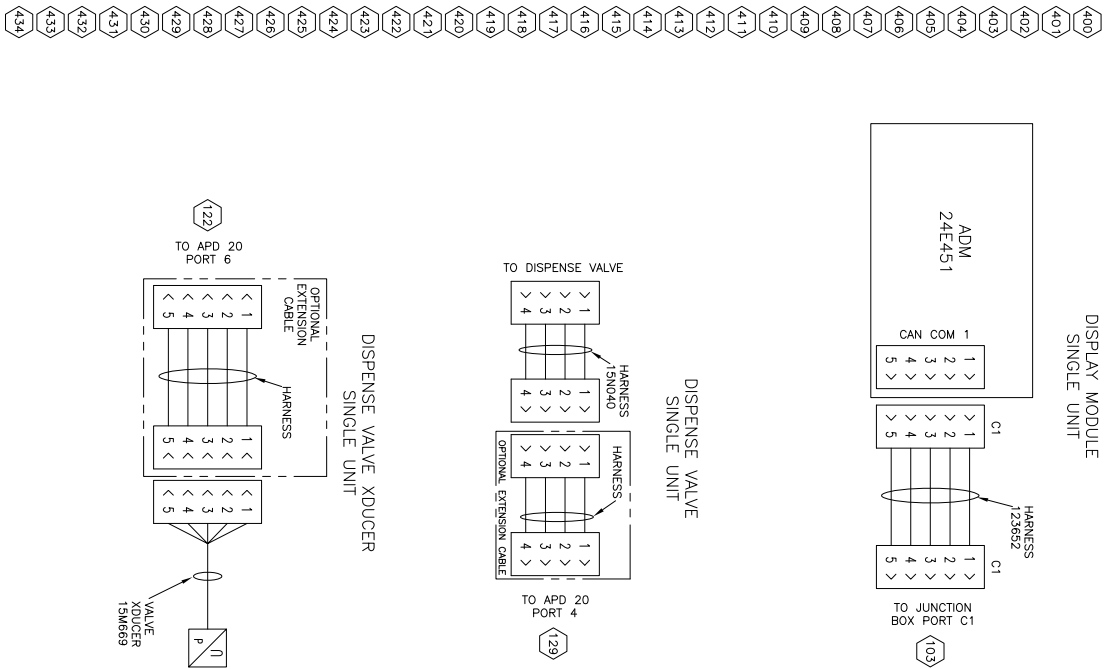
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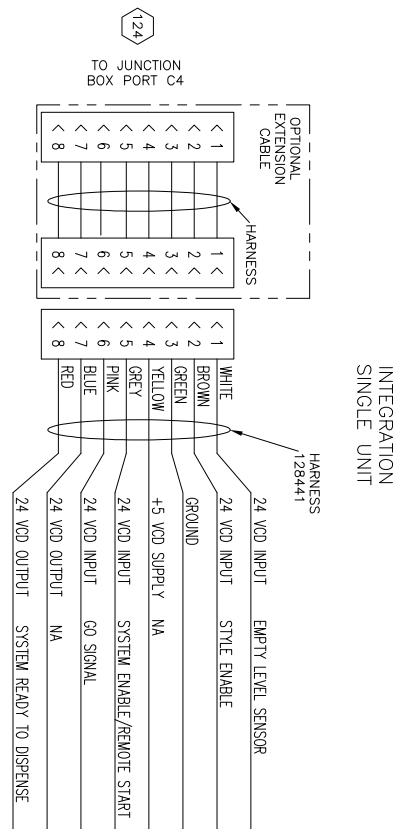
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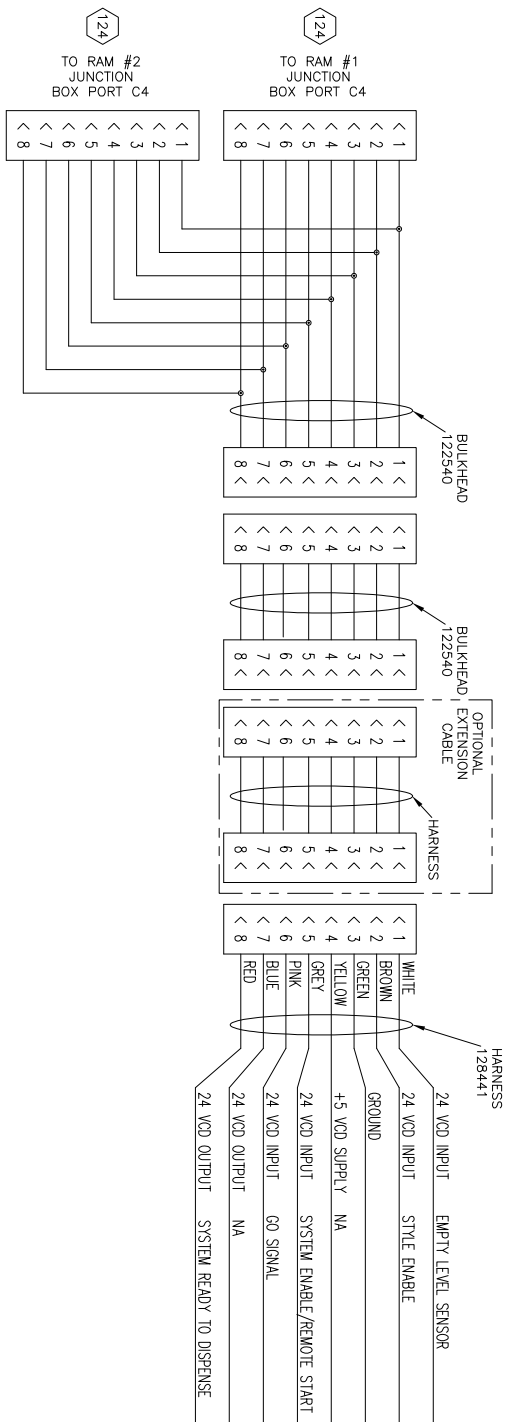
Wiring Diagrams



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INTEGRATION SINGLE UNIT



INTEGRATION TANDEM UNIT

Technical Specifications

E-Flo iQ Dispense System		
	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 manual. See Related Manuals on page 3.	
Platen wetted materials		
25R534, 5 gal. (20 L)	Electroless nickel plated ductile iron, Neoprene, PTFE coated aluminum, 6061 aluminum, Buna, Viton, Zinc plated steel, 316 stainless steel, 17-4 stainless steel	
25R536, 5 gal. (20 L)	Electroless nickel plated ductile iron, Neoprene, PTFE coated aluminum, 6061 aluminum, Buna, Viton, Zinc plated steel, 316 stainless steel, 17-4 stainless steel	
25R535, 5 gal. (20 L)	Electroless nickel plated ductile iron, EPDM, PTFE coated aluminum, 6061 aluminum, Buna, Viton, Zinc plated steel, 316 stainless steel, 17-4 stainless steel	
25R537, 5 gal. (20 L)	Electroless nickel plated ductile iron, EPDM, PTFE coated aluminum, 6061 aluminum, Buna, Viton, Zinc plated steel, 316 stainless steel, 17-4 stainless steel	
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		
Ambient system electrical ratings	200-240 VAC, 1 phase, 50/60 Hz, 20 A	
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)		
D60 - 3 in. dual post, 5 gal. (20 L)	150 psi	1.0 MPa, 10 bar
D200 - 3 in. dual post, 55 gal. (200 L)	150 psi	1.0 MPa, 10 bar
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.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

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.

FOR GRACO CANADA CUSTOMERS

The Parties acknowledge that they have required that the present document, as well as all documents, notices and legal proceedings entered into, given or instituted pursuant hereto or relating directly or indirectly hereto, be drawn up in English. Les parties reconnaissent avoir convenu que la rédaction du présente document sera en Anglais, ainsi que tous documents, avis et procédures judiciaires exécutés, donnés ou intentés, à la suite de ou en rapport, directement ou indirectement, avec les procédures concernées.

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.

If calling from the USA: 1-800-746-1334

If calling from outside the USA: 0-1-330-966-3000

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 333586

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Revision C, June 2020