OPERATION MANUAL

MANUAL NUMBER X034651 | REVISION A | ENGLISH (US)

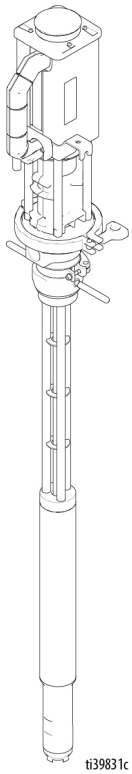
Core™ Electric Transfer Pump

For use with polyurethane foam, polyurea, and similar non-flammable materials. For use with Reactor® 3 Systems only. For professional use only.

Not approved for use in explosive atmospheres or hazardous (classified) locations. This product is not compatible with GFCI outlets. Electric motor controllers can cause GFCI outlets to trip.

Important Safety Instructions

Read all warnings and instructions in this manual before using the equipment. Be familiar with the proper control and usage of the equipment. Save these instructions.



ti39831c

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MOVING MATERIALS THAT MATTER

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MODELS

The part numbers reflect distinct features and characteristics of the Core™ Electric Transfer Pump.

Maximum Fluid Working Pressure: 315 psi (2.17 MPa, 21.7 bar)

PART	DESCRIPTION	TPC 19B841	PUMP LOWER MATERIAL
26D000	Core E1 Transfer Pump Controller (TPC)	✔	
26D004	Core E1 Pump		Carbon Steel
26D005	Two Core E1 Pumps with TPC	✔	
26D006	Two Core E1 Pumps with TPC and Fluid	✔	
26D277	Two Core E1 Pumps with TPC, Fluid, and Air	✔	
2010456	Core E2 Transfer Pump		
2010538	Two Core E2 Pumps with TPC	✔	
2010539	Two Core E2 Pumps with TPC, Fluid	✔	
2010540	Two Core E2 Pumps with TPC, Fluid and Air	✔	

PART	FLUID SUPPLY ACCESSORIES		AIR SUPPLY ACCESSORIES		
	SWIVEL FITTING 157785	10 FT FLUID HOSE 217382	15 FT AIR HOSE, ¼ NPSM 210866	NIPPLE, ¼ NPT X ¼ NPSM 162453	DESICCANT DRYER KIT 247616
26D000					
26D004					
26D005					
26D006	✔	✔			
26D277	✔	✔	✔	✔	✔
2010456					
2010538					
2010539	✔	✔			
2010540	✔	✔	✔	✔	✔

AGENCY APPROVALS

PART	DESCRIPTION	APPROVALS			
		CE	UKCA	ETL C US LISTED Intertek	
19B841	Core E1 Transfer Pump Controller (TPC)	✔	✔	✔	✔
26D004	Core E1 Pump	✔	✔		
26D009	E1 Motor without power cable	✔	✔		
25T322	E1 Motor with power cable	✔	✔		
273295	ProConnect CS Pump Lower, without bung adapter				
2010456	Core E2 Pump	✔	✔		
2010455	E2 Motor without power cable	✔	✔		
2010443	E2 Motor with power cable	✔	✔		

RELATED MANUALS

Additional documents are available to support the operation, repair, and maintenance of the Core™ Electric Transer Pump. Find English manuals and any available translations at www.graco.com.

Table 2-1: Related Manuals for Core™ Electric Transfer Pump Operation Manual X034651

ENGLISH MANUAL	DESCRIPTION
3A8500	Reactor® 3 Proportioning Systems, Operation
3A8501	Reactor® 3 Proportioning Systems, Repair, Parts
3A8598	ProConnect® CS Pump Lower, Parts
3A7683	Reactor® 3 Heated Hose, Instructions

TRANSLATED MANUALS

Additional language documents are available to support all regions where the Core™ Electric Transfer Pump is sold. Find any available translations at www.graco.com

Table 2-2: Translations for Core™ Electric Transfer Pump Operation Manual

LANGUAGE	MANUAL NUMBER
English	X034651EN
French	X034651FR
Spanish	X034651ES
Dutch	X034651NL
German	X034651DE
Italian	X034651IT
Polish	X034651PL
Portuguese	X034651PT
Swedish	X034651SV
Turkish	X034651TR
Chinese	X034651ZH
Japanese	X034651JA
Korean	X034651KO

SAFETY SYMBOLS

The following safety symbols appear throughout this manual and on warning labels. Read the table below to understand what each symbol means.

SYMBOL	MEANING
	Burn Hazard
	Electric Shock Hazard
	Equipment Misuse Hazard
	Moving Parts Hazard
	Pressurized Equipment Hazard
	Skin Injection Hazard
	Splash Hazard

SYMBOL	MEANING
	Toxic Fluid or Fumes Hazard
	Follow Pressure Relief Procedure
	Ground Equipment
	Read Manual
	Ventilate Work Area
	Wear Personal Protective Equipment



Safety Alert Symbol

This symbol indicates: Attention! Become Alert! Look for this symbol throughout the manual to indicate important safety messages.

GENERAL WARNINGS

The following warnings apply throughout this manual. Read, understand, and follow the warnings before using this equipment. Failure to follow these warnings can result in serious injury.

⚠ WARNING



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.

- Read Safety Data Sheets (SDSs) for handling instructions and to know the specific hazards of the fluids you are using, including the effects of long-term exposure.
- When spraying, servicing equipment, or when in the work area, always keep work area well-ventilated and always wear appropriate personal protective equipment. See **Personal Protective Equipment** warnings in this manual.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.



PERSONAL PROTECTIVE EQUIPMENT

Always wear appropriate personal protective equipment and cover all skin when spraying, servicing equipment, or when in the work area. Protective equipment helps prevent serious injury, including long-term exposure; inhalation of toxic fumes, mists or vapors; allergic reaction; burns; eye injury; and hearing loss. This protective equipment includes but is not limited to:

- A properly fitting respirator, which may include a supplied-air respirator, chemically impermeable gloves, protective clothing, and foot coverings as recommended by the fluid manufacturer and local regulatory authority.
- Protective eyewear and hearing protection.

⚠ WARNING



EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Specifications** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Specifications** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheets (SDSs) from distributor or retailer.
- Do not leave the work area while equipment is energized or under pressure.
- 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 overbend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

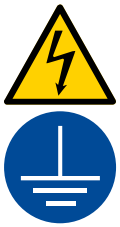


PRESSURIZED EQUIPMENT HAZARD

Fluid from the equipment, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury.

- Follow the **Pressure Relief Procedure** when you stop spraying/dispensing and before cleaning, checking, or servicing equipment.
- Tighten all fluid connections before operating the equipment.
- Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.

⚠ WARNING



ELECTRIC SHOCK HAZARD

This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock.

- Turn off and disconnect power at main switch before disconnecting any cables and before servicing or installing equipment.
- Connect only to grounded power source.
- All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.



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.



BURN HAZARD

Equipment surfaces and fluid that is heated can become very hot during operation. To avoid severe burns:

• Do not touch hot fluid or equipment.

IMPORTANT ISOCYANATE (ISO) INFORMATION

Isocyanates (ISO) are catalysts used in two component materials.

ISOCYANATE CONDITIONS

⚠ WARNING





Spraying or dispensing fluids that contain isocyanates creates potentially harmful mists, vapors, and atomized particulates.

- Read and understand the fluid manufacturer's warnings and Safety Data Sheets (SDSs) to know specific hazards and precautions related to isocyanates.
- Use of isocyanates involves potentially hazardous procedures. Do not spray with this equipment unless you are trained, qualified, and have read and understood the information in this manual and in the fluid manufacturer's application instructions and SDSs.
- Use of incorrectly maintained or mis-adjusted equipment may result in improperly cured material, which could cause off gassing and offensive odors. Equipment must be carefully maintained and adjusted according to instructions in the manual.
- To prevent inhalation of isocyanate mists, vapors and atomized particulates, everyone in the work area must wear appropriate respiratory protection. Always wear a properly fitting respirator, which may include a supplied-air respirator. Ventilate the work area according to instructions in the fluid manufacturer's SDSs.
- Avoid all skin contact with isocyanates. Everyone in the work area must wear chemically impermeable gloves, protective clothing and foot coverings as recommended by the fluid manufacturer and local regulatory authority. Follow all fluid manufacturer recommendations, including those regarding handling of contaminated clothing. After spraying, wash hands and face before eating or drinking.
- Hazard from exposure to isocyanates continues after spraying. Anyone without appropriate personal protective equipment must stay out of the work area during application and after application for the time period specified by the fluid manufacturer. Generally this time period is at least 24 hours.
- Warn others who may enter work area of hazard from exposure to isocyanates. Follow the recommendations of the fluid manufacturer and local regulatory authority. Posting a placard such as the following outside the work area is recommended:



KEEP COMPONENTS A AND B SEPARATE

⚠ WARNING




Cross-contamination can result in cured material in fluid lines which could cause serious injury or damage equipment. To prevent cross-contamination:

- **Never** interchange component A and component B wetted parts.
- Never use solvent on one side if it has been contaminated from the other side.

MOISTURE SENSITIVITY OF ISOCYANATES

Exposure to moisture (such as humidity) will cause ISO to partially cure, forming small, hard, abrasive crystal that become suspended in the fluid. Eventually a film will form on the surface and the ISO will begin to gel, increasing in viscosity.

NOTICE

Partially cured ISO will reduce performance and the life of all wetted parts.

- Always use a sealed container with a desiccant dryer in the vent, or a nitrogen atmosphere. **Never** store ISO in an open container.
- Use only moisture-proof hoses compatible with ISO.
- Never use reclaimed solvents, which may contain moisture. Always keep solvent containers closed when not in use.
- Always lubricate threaded parts with an appropriate lubricant when reassembling.

NOTE:

The amount of film formation and rate of crystallization varies depending on the blend of ISO, the humidity, and the temperature.

CHANGING MATERIALS

NOTICE

Changing the material types used in your equipment requires special attention to avoid equipment damage and downtime.

- When changing materials, flush the equipment multiple times to ensure it is thoroughly clean.
- Check with your material manufacturer for chemical compatibility.
- When changing between epoxies and urethanes or polyureas, disassemble and clean all fluid components and change hoses. Epoxies often have amines on the B (hardener) side. Polyureas often have amines on the B (resin) side.

FOAM RESINS WITH 245 FA BLOWING AGENTS

Some foam blowing agents will froth at temperatures above 90°F (33°C) when not under pressure, especially if agitated. To reduce frothing, minimize preheating in a circulation system.

MATERIAL SELF-IGNITION

⚠ WARNING



Some materials may become self-igniting if applied too thick. Read material manufacturer's warnings and Safety Data Sheets (SDSs).

TECHNICAL SPECIFICATIONS

The table provides important information related to the Core™ Electric Transfer Pump, including product attributes, measurements, and performance characteristics that support the use of the equipment.

Table 6-1: Technical Specifications for Core™ Electric Transfer Pump

	US	METRIC
Maximum fluid working pressure	315 psi	2.17 MPa, 21.7 bar
Maximum continuous outlet flow	4.5 gpm	17.03 lpm
Pump cycles per 1 gallon (3.8 liters)	30	
Volume per pump cycle	0.034 gal.	0.128 l
Maximum ambient temp CE (North America)	120°F (104°F)	49°C (40°C)
Maximum fluid temperature	190°F	88°C
Ball screw diameter	0.472 in.	12 mm
Ball screw load rating	1713 lb	777 kg
Motor thrust bearing load rating	3372 lb	1530 kg
Motor thrust bearing type	Needle roller bearing (2x)	
Inlet/Outlet Sizes		
Fluid outlet size	¾-14 in. npt (f)	
Materials of Construction		
Wetted materials on 26D004	Carbon steel, stainless steel, PTFE	
Weight		
All models	29 lb	13 kg
Electrical		
Electrical ratings for the entire transfer pump system (TPC with two E1 transfer pumps):		
100-120 VAC	8A 50/60 Hz	
200-240 VAC	4A, 50/60 Hz	
Notes		
Maximum continuous flow mix chamber size	0.06 in. (03)	
Maximum recommended pump speed for continuous operation:		
100-120 VAC	100 cpm	
200-240 VAC	120 cpm	
All trademarks or registered trademarks are the property of their respective owners.		

INSTALLATION

Properly install the Core™ Electric Transfer Pump equipment to ensure optimal performance during use.

TYPICAL INSTALLATION

The diagram can be used as a guide for selecting and installing system components and accessories on the Core™ Electric Transfer Pump.

TYPICAL INSTALLATION WITHOUT CIRCULATION

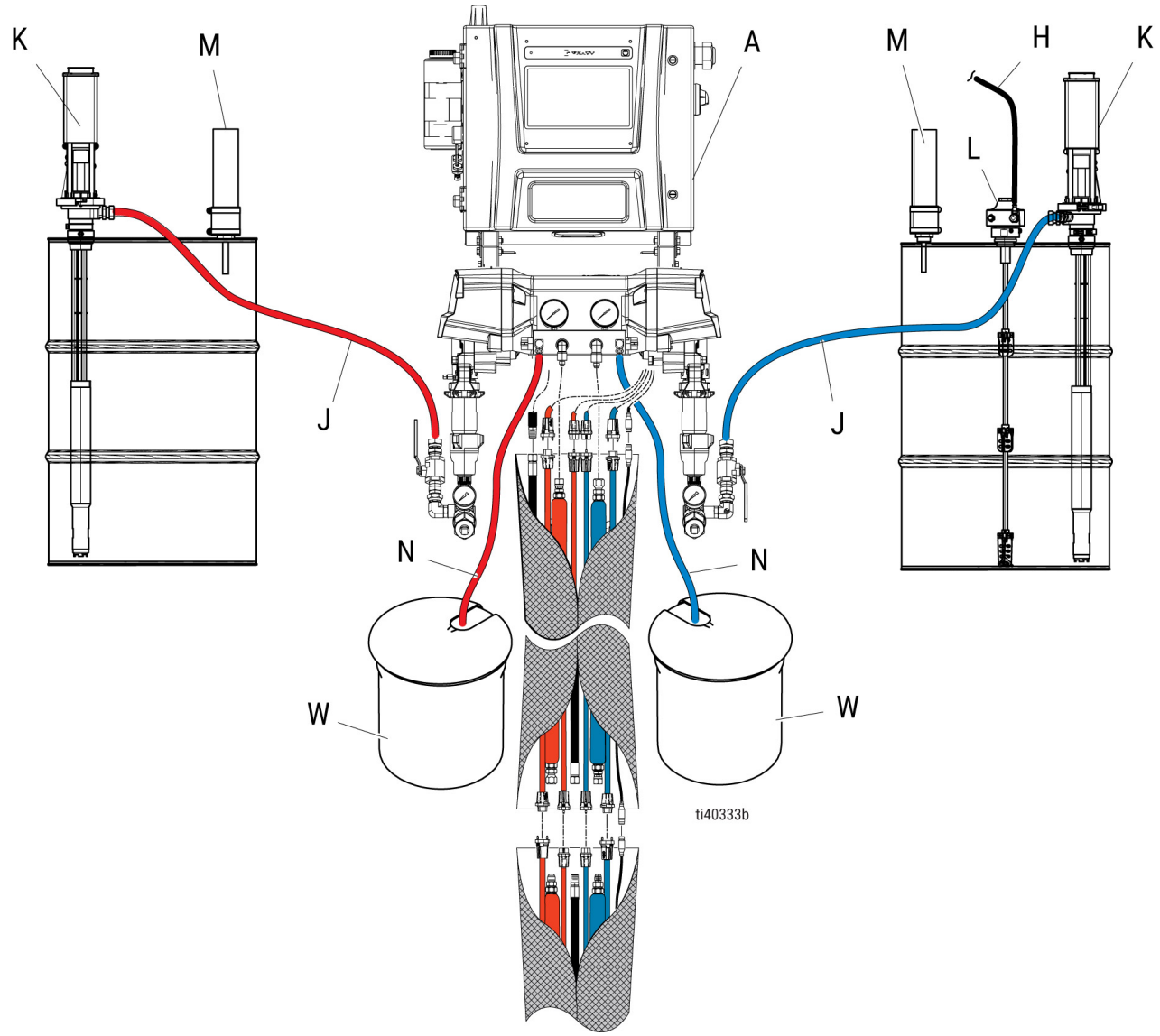


Figure 7-1: Typical Installation without Circulation

REF.	DESCRIPTION
A	Proportioner
H	Agitator Air Supply Line
J	Fluid Supply Lines
K	Transfer Pumps (other items purchased separately)
L	Agitator
M	Desiccant Dryer
N	Bleed Lines
W	Waste Containers

NOTE:

See **Typical Pump and Transfer Pump Controller Installation** for required components.

TYPICAL INSTALLATION WITH CIRCULATION

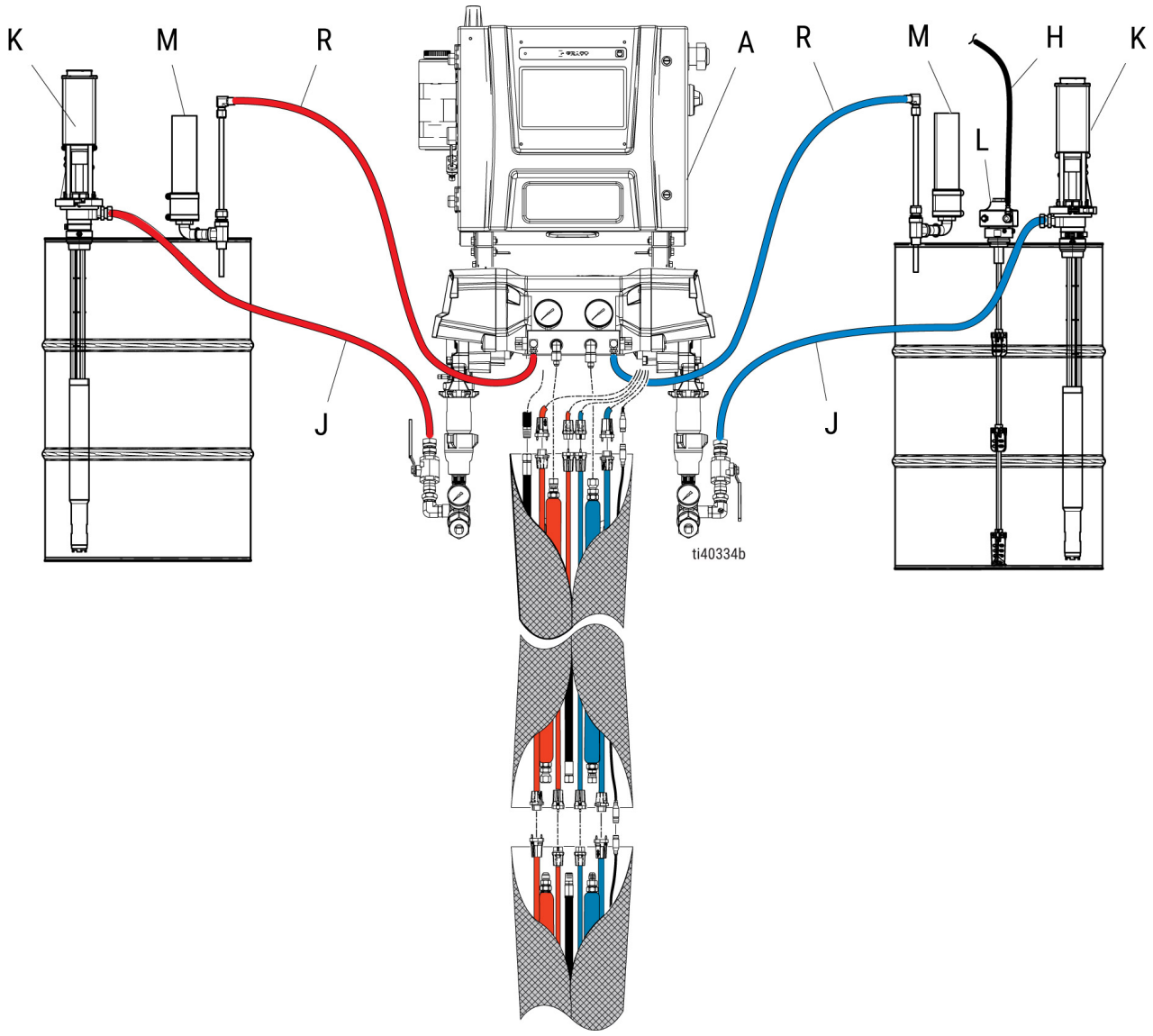


Figure 7-2: Typical Installation with Circulation

REF.	DESCRIPTION
A	Proportioner
H	Agitator Air Supply Line
J	Fluid Supply Lines
K	Transfer Pumps (other items purchased separately)
L	Agitator
M	Desiccant Dryer
R	Circulation Lines

NOTE:

See **Typical Pump and Transfer Pump Controller Installation** for required components.

TYPICAL PUMP AND TRANSFER PUMP CONTROLLER INSTALLATION

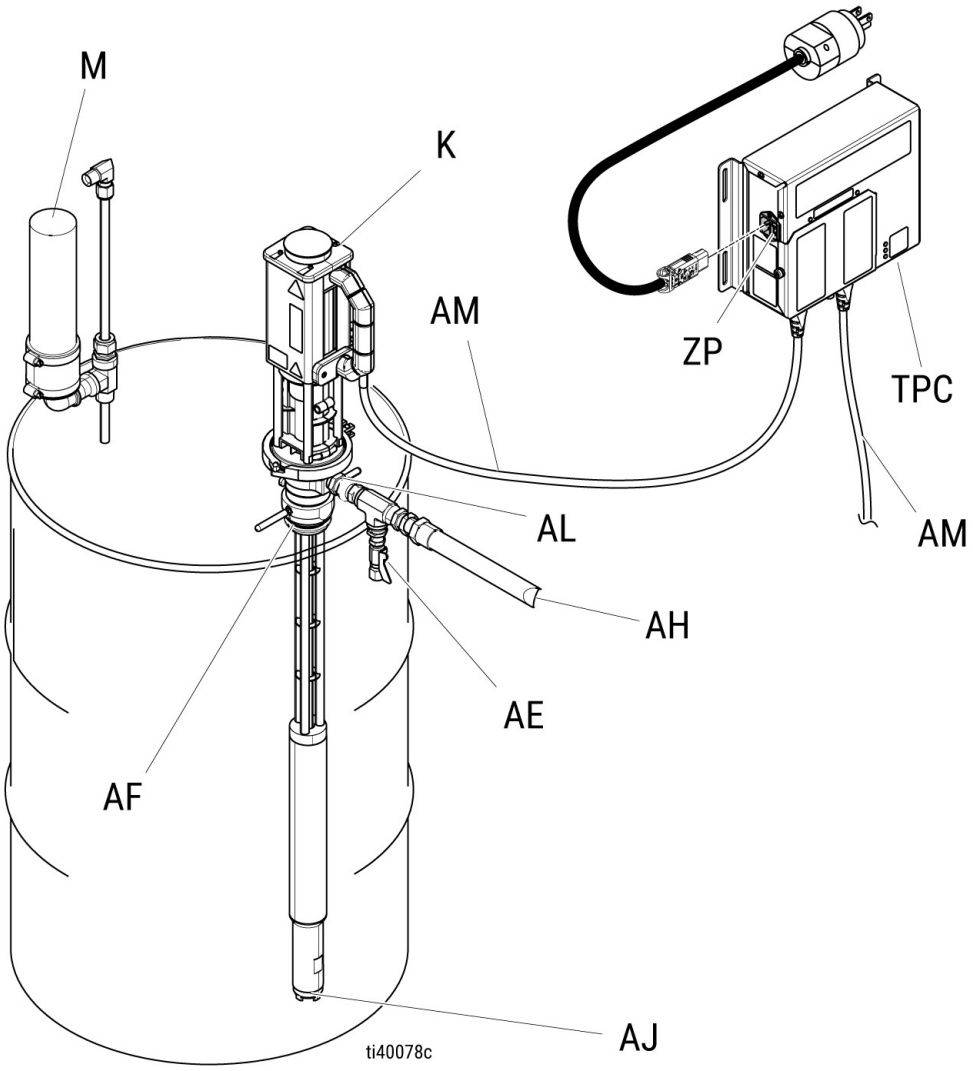


Figure 7-3: Typical Pump and Transfer Pump Controller Installation

REF.	DESCRIPTION
K	Transfer Pump
M*	Desiccant Dryer
AE*	Fluid Drain Valve (required)
AF	Bung Adapter
AH*	Grounded Fluid Hose
AJ	Pump Fluid Inlet
AL	Pump Fluid Outlet, 3/4 npt(f)
AM	Electric Motor Cable
TPC	Transfer Pump Controller
ZP	Power Switch

* *Sold Separately*

TYPICAL MULTIPLE PUMP LOWERS INSTALLATION

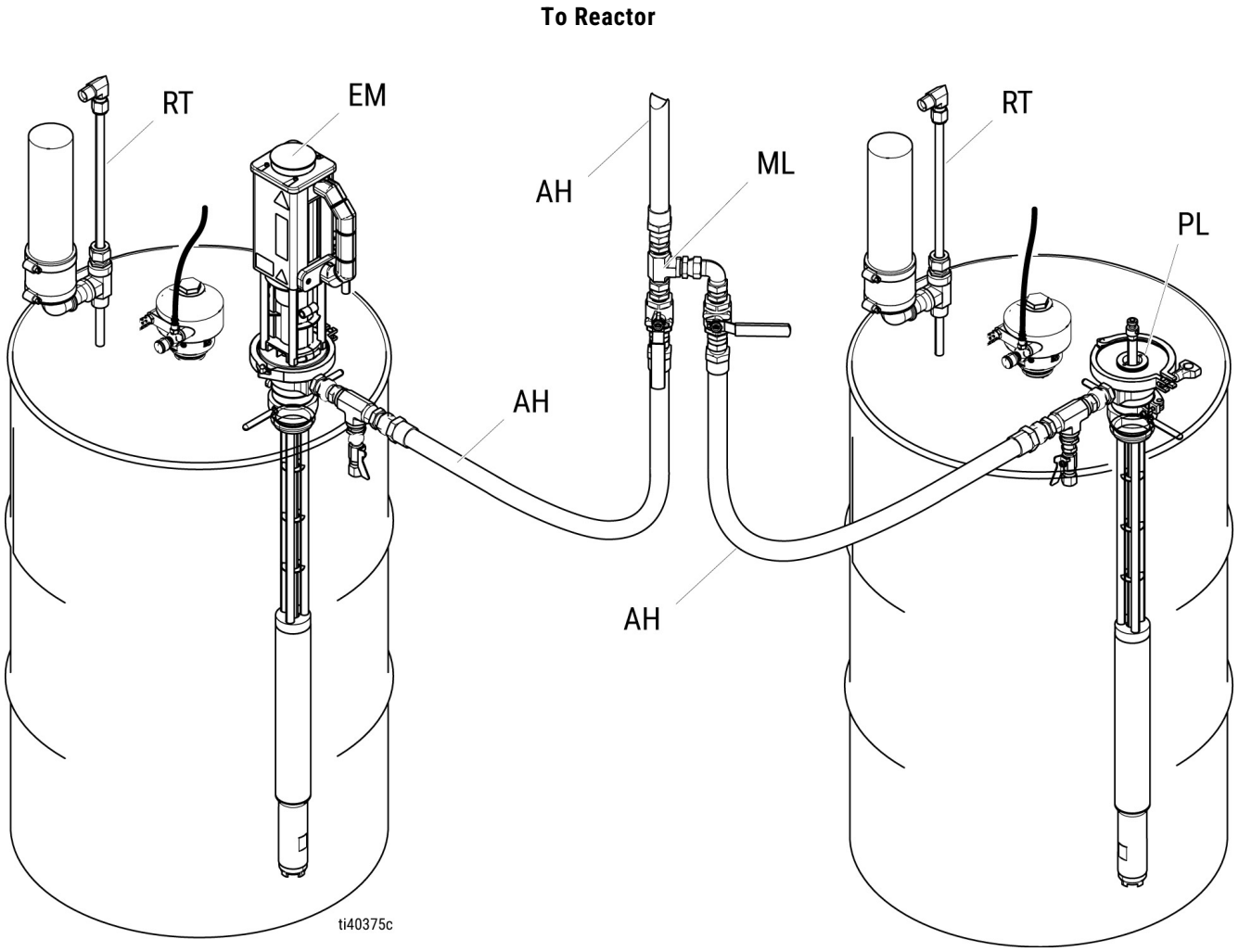


Figure 7-4: Typical Multiple Pump Lowers Installation

REF.	DESCRIPTION
RT	Return Tube Kit (not included)
ML	Multiple Pump Lower Fluid Kit (not included)
AH	Grounded Fluid Hose (not included)
EM	E1 Motor
PL	ProConnect Pump Lower

NOTE:

Material drums used are either two A side material drums, or two B side material drums.

GROUNDING

Properly ground the Core™ Electric Transfer Pump to help ensure correct operation.

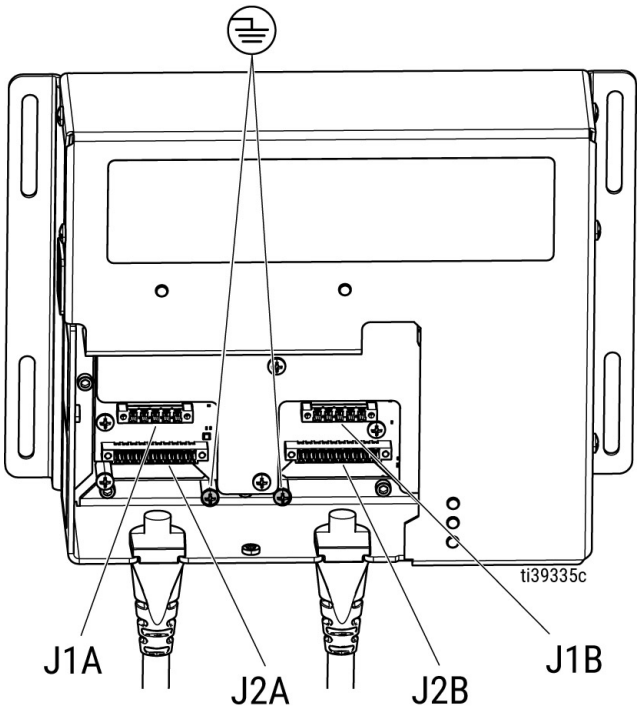
⚠ WARNING




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

Transfer Pump Controller: Grounded through the power cord.

Transfer Pump: Grounded through the Transfer Pump Controller. Follow **Connect Electric Motor Cables to the TPC**.



THE FOLLOWING ITEMS ARE SOLD SEPARATELY:

Fluid hoses: Use only electrically conductive hoses with a maximum of 300 ft (91 m) combined hose length to ensure grounding continuity. Check electrical resistance of hoses. If total resistance to ground exceeds 29 megohms, replace the hose immediately.

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 grounding continuity.

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

INSTALL THE TRANSFER PUMP CONTROLLER (TPC)

⚠ WARNING



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

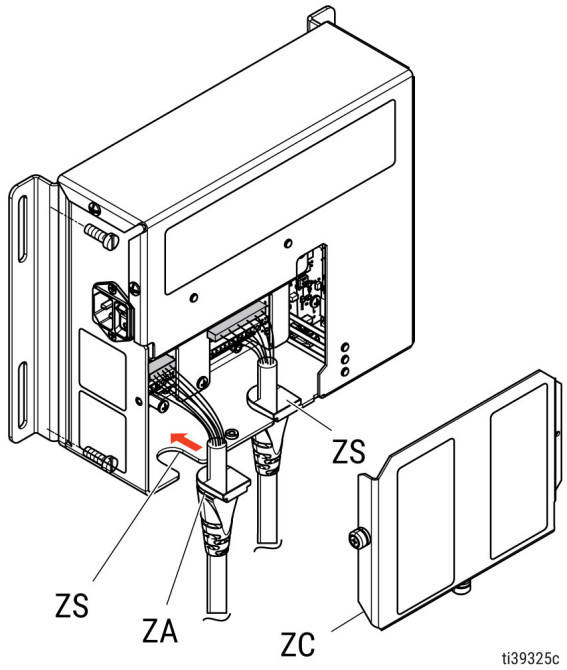
Switch off power and unplug the TPC. Wait five minutes for power to dissipate before servicing.

CONNECT ELECTRIC MOTOR CABLES TO THE TPC

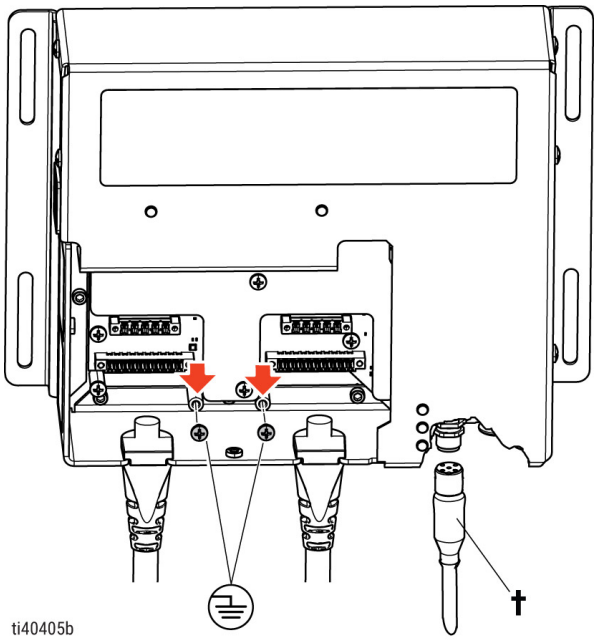
NOTE:

Refer to your Reactor 3 manual for proportioner component identification.

1. Loosen captive fasteners and remove TPC cover (ZC).



2. Remove the ground screws (green) from the grounding standoffs.

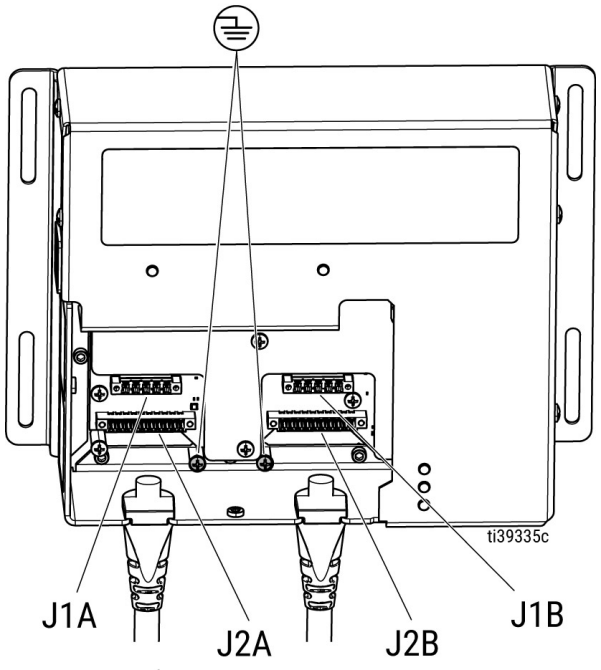


† CAN Cable

3. Use ground screws to install the ground ring terminal onto the ground standoffs for each cable.
4. Slide the strain relief (ZA, ZB) into the TPC enclosure slots (ZS).
5. Plug in the connectors (J1A, J2A, J1B, J2B) and tighten connector screws.

NOTE:

The A-side connectors (J1A, J2A) are on the left. The B-side connectors (J1B, J2B) are on the right.



6. Reinstall the TPC cover (ZC).

CONNECT THE CAN CABLE TO THE TPC

NOTE:

The CAN cable allows the TPC to communicate with the Reactor and provides low voltage power to the TPC. It does not provide power to run the electric motor.

1. Connect the CAN cable to the TPC.
2. Connect the other end of the CAN cable to the open CAN communication connection on the electric motor control module (MCM). See the Component Identification section in your Reactor 3 operation manual.

CONNECT POWER TO THE TPC

TPC Power

100-120 Vac, 8 A, 50/60 Hz

200-240 Vac, 4A, 50/60 Hz

NOTE:

This product is not compatible with GFCI outlets. Electric motor controllers can cause GFCI outlets to trip.

Utilize the included field wireable IEC320 C13 plug, or a cable with a C13 plug to provide power to the TPC.

PART	DESCRIPTION
121055	CORD, SET, US MX, PR, CA, TW. 115V, 10A
121054	CORD, SET, US, 250V, 10A, 10 FT
121056	CORD, SET, FR, GER, IS, NL, NO, TR, 250V
121057	CORD, SET, UK, IE, MY, SG, 250V, 10A
121058	CORD, SET, ISRAEL, 250V, 10A
124864	CORD, SET, ADPTR, AUSTRALIA, 8 FT
124861	CORD, SET, ADPTR, ITALY, 8 FT
124863	CORD, SET, ADPTR, SWITZERLAND, 8 FT
124862	CORD, SET, ADPTR, DENMARK, 8 FT
121060	CORD, SET, S AFRICA, INDIA, 250V, 16A

When installed in a truck or trailer, ground the TPC to the frame of the truck or trailer.

PUMP SETUP

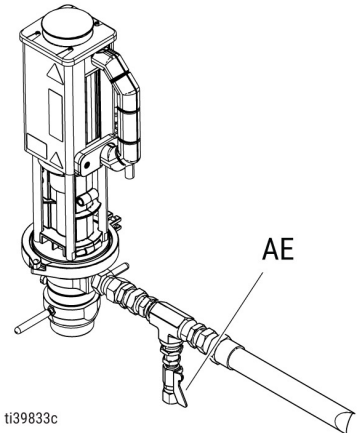
⚠ WARNING



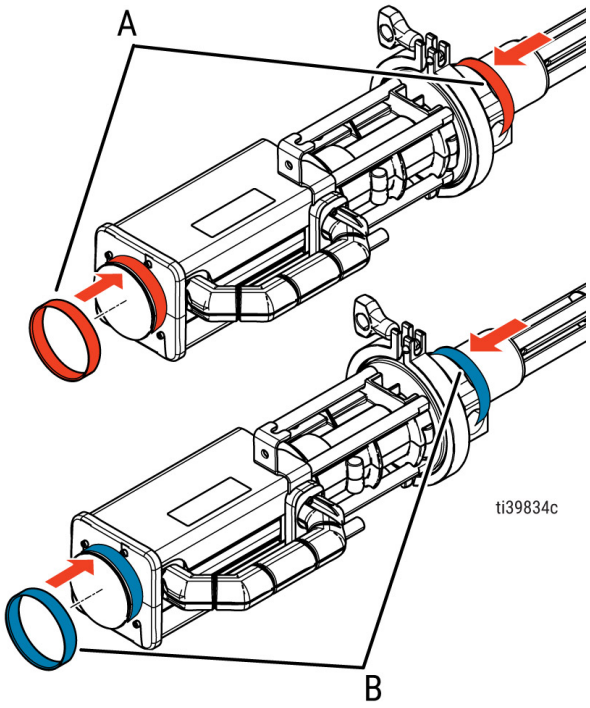
A fluid drain valve (AE) is required in your system to help reduce the risk of serious injury, including splashing fluid in the eyes or on the skin, and injury from moving parts when you are adjusting or repairing the pump.

The fluid drain valve (AE) helps relieve pressure in the displacement pump, hose, and gun when shutting off the pump. Actuating the gun to relieve pressure may not be sufficient, especially if there is a clog in the hose or the spray gun.

1. Apply thread sealant to all non-swivel connections and install the outlet fitting (not supplied) and required fluid drain valve (AE) to the pump outlet.



2. Use the colored pump identification bands provided to identify the appropriate pump for your material.



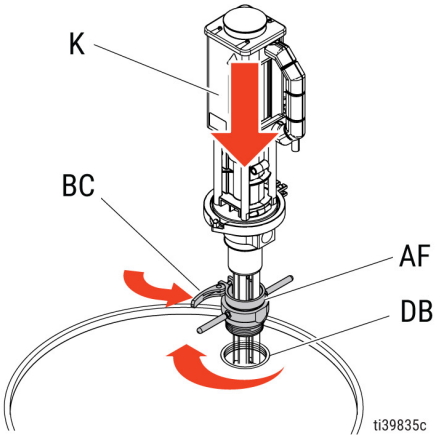
NOTE:

Use the provided labels to identify the ends of the motor cables as A side and B side.

A - Red band A side
B - Blue band B side

INSTALL THE PUMP

1. Lubricate the o-ring on the outside of the bung adapter (AF) and screw the bung adapter securely into the bunghole (DB) of the drum.



2. Insert the pump (K) through the bung adapter (AF) and lock the bung adapter clamp (BC) into place.

The instructions provide guidance on how to use the Core™ Electric Transfer Pump.

NOTICE

Do not operate if the pump lower and electric motor are not properly coupled together or without the clamp installed and tightened. Damage to the equipment could occur.

FLUSH BEFORE USING EQUIPMENT

⚠ WARNING



To avoid fire and explosion, always ground equipment and waste container. To avoid static sparking and injury from splashing, always flush at the lowest possible pressure.

The equipment was tested with lightweight oil, which is left in the fluid passages to protect parts. To avoid contaminating your fluid with oil, flush the equipment with a compatible solvent before using the equipment. Flush the equipment. See your Reactor 3 operation manual.

PRESSURE RELIEF PROCEDURE

Relieve pressure on the Core™ Electric Transfer Pump when operation is stopped, and before cleaning, checking, or servicing the equipment.

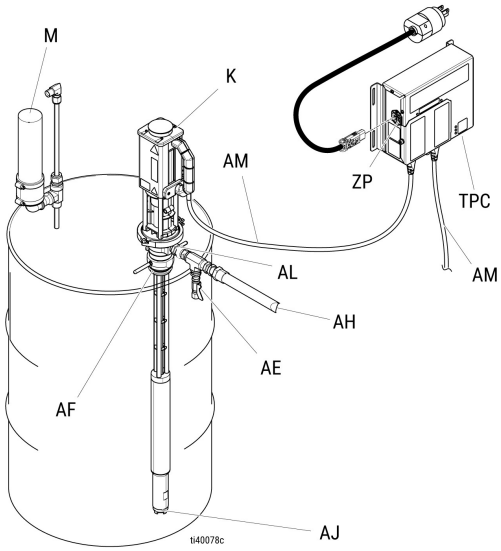


Follow the Pressure Relief Procedure whenever you see this symbol.

⚠ WARNING



1. Follow the **Pressure Relief Procedure** in your Reactor 3 operation manual to relieve system pressure.
2. Turn the TPC power switch (ZP) to OFF.



3. Open the fluid drain valve (AE).

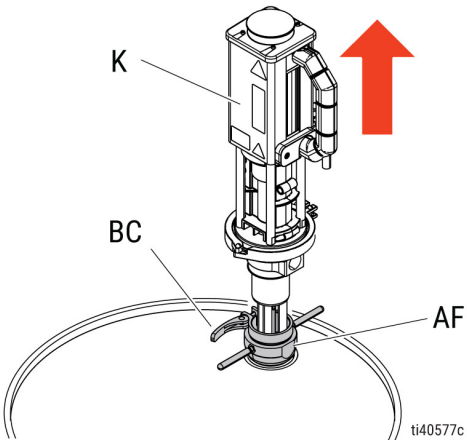
CHANGING MATERIAL DRUMS

NOTE:

If the height of your ceiling or trailer prohibits removal of the pump, remove the electric motor before swapping out material drums.

REMOVE THE PUMP

1. Follow the **Pressure Relief Procedure**.
2. Loosen the bung adapter clamp (BC).
3. Carefully lift the pump (K) up and out of the bung adapter (AF) and completely remove it from the drum.



⚠ WARNING

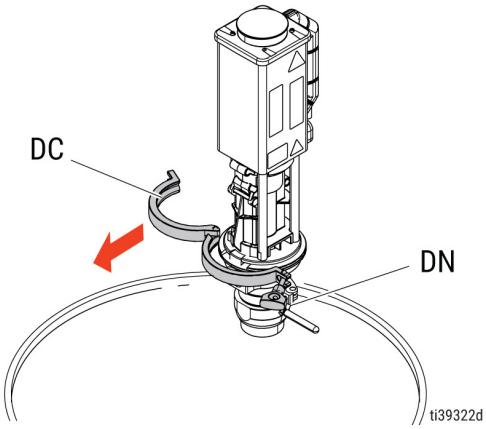
Never use the power cord to lift or adjust the pump. Lifting or adjusting the pump with the power cord can damage it and cause injury from electric shock.

NOTE:

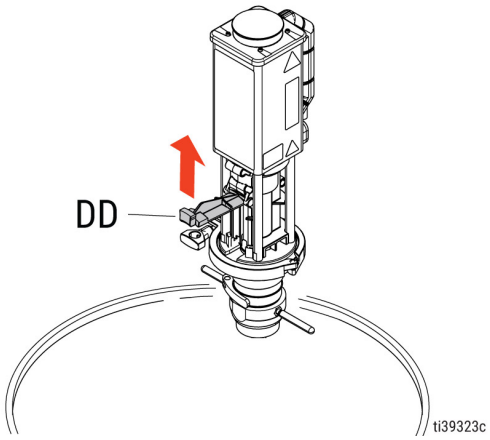
To reinstall the pump, see **Install the Pump**.

REMOVE THE ELECTRIC MOTOR

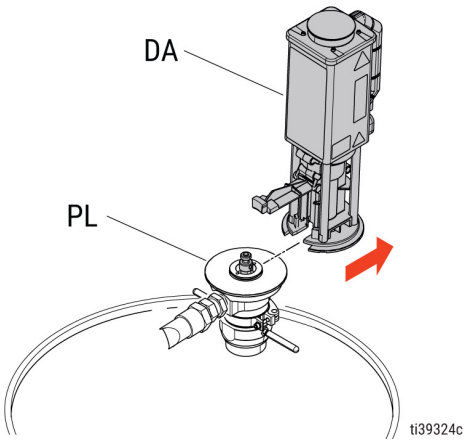
1. Follow the **Pressure Relief Procedure**.
2. Loosen the clamp nut (DN) on the pump clamp (DC), then remove the clamp.



3. Open the electric motor access door (DD).

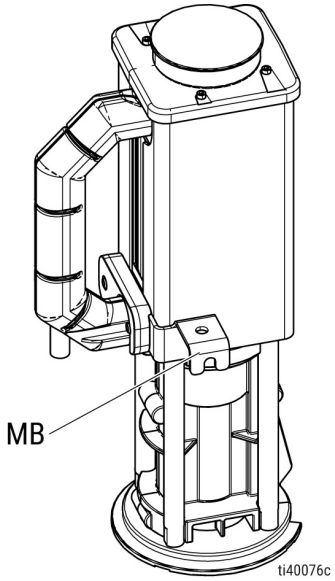


4. Slide the electric motor away from the pump and remove the electric motor (DA).



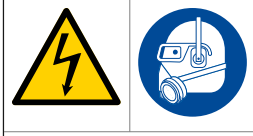
NOTE:

Use the mounting bracket (MB) to hang the electric motor in a secure location when not in use.



INSTALL THE ELECTRIC MOTOR

⚠ WARNING



Never use the power cord to lift or adjust the pump. Lifting or adjusting the pump with the power cord can damage it and cause injury from electric shock.

1. Follow the **Pressure Relief Procedure**.
2. Disconnect power to the TPC.

⚠ WARNING



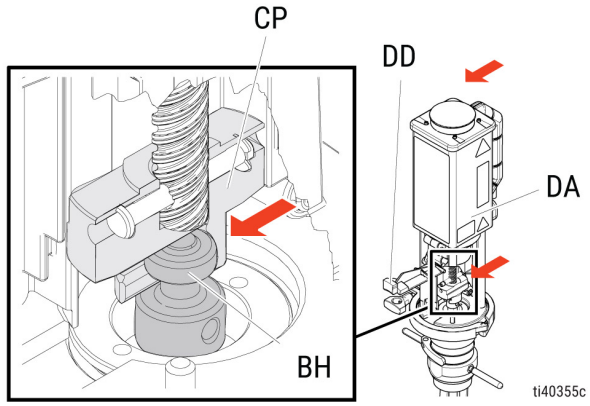
Switch off power and unplug the TPC. Wait five minutes for power to dissipate before servicing.

3. If the pump has not been parked, pull the pump lower rod up so that it can be coupled to the electric motor.

NOTE:

Parking the pump increases seal life on the proportioner pump and increases the ease of aligning the ProConnect features on the transfer pump. The pump will automatically park at the bottom of the stroke when the Reactor 3 is in Park mode.

4. Open the electric motor access door (DD).
5. Align the notch of the electric motor coupler (CP) with the button head (BH) of the pump lower.



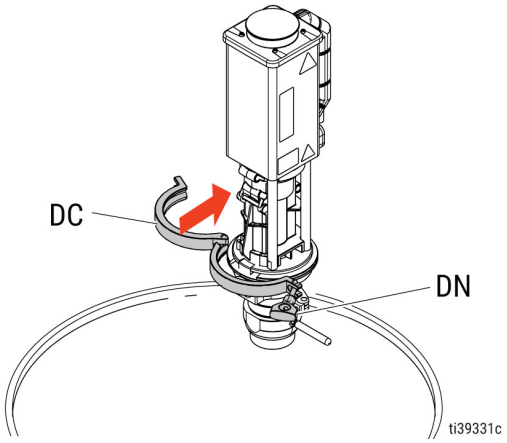
6. Simultaneously slide the electric motor coupler (CP) onto the button head of the pump lower and the electric motor onto the pump lower. Close the electric motor access door (DD).

⚠ WARNING



Always keep the electric motor access door (DD) closed and secured with the clamp to prevent injury from moving parts.

7. Install the pump clamp (DC). Use a screwdriver or rod to tighten the clamp nut (DN) 1/2 turn past finger tight.



USING THE ELECTRIC MOTOR

A new electric motor needs to be calibrated when connected to a Transfer Pump Controller (or if the connections are swapped at the TPC). To calibrate the pump, see your Reactor 3 operation manual.

Upon each power-on cycle the electric motor will run slowly for the first several strokes until the end stops are established.

The TPC will proactively change pump direction in order to minimize the number of times the pump needs to switch direction when pumping. The pumps may not necessarily change direction at the absolute top and bottom of the stroke.

NOTE:

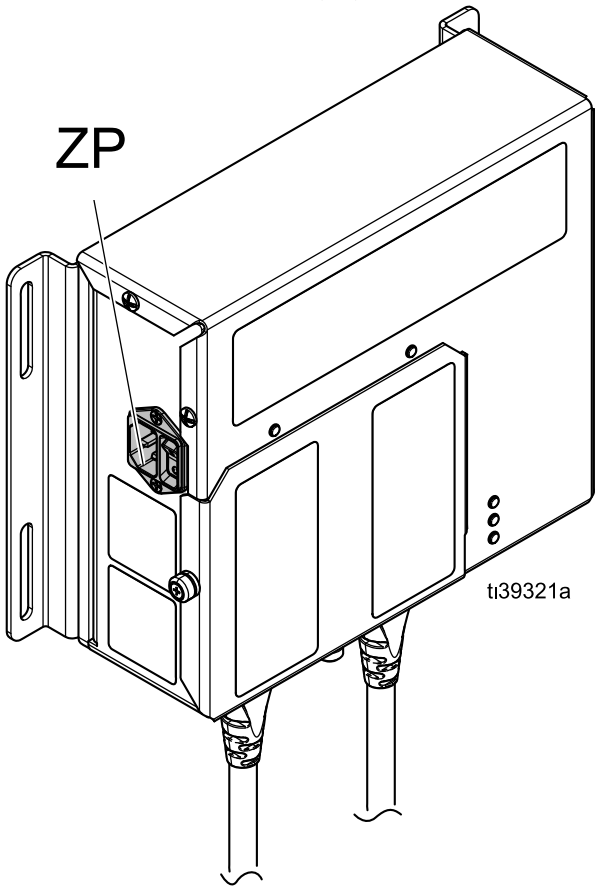
Electric motors do not need pressure transducers to operate, but can offer additional features when used with a Reactor 3 system that has inlet pressure transducers.

CONTROLLING THE PUMP

The pressure and speed for this pump are controlled through the Reactor proportioner. See your Reactor 3 operation manual for additional instructions.

DAILY STARTUP

1. Turn the TPC power switch (ZP) to ON.



2. Follow the **Startup** procedure in your Reactor 3 operation manual.

NOTICE

Never allow the pump to run dry of the fluid being pumped. A dry pump will quickly accelerate to a high speed and could cause damage to the pump. If the pump accelerates quickly or starts running too fast, stop it immediately and check the fluid supply. If the supply container is empty or air has been pumped into the lines, refill the container and prime the pump and the lines with fluid, or flush and leave it filled with a compatible solvent. Be sure to eliminate all air from the fluid system.

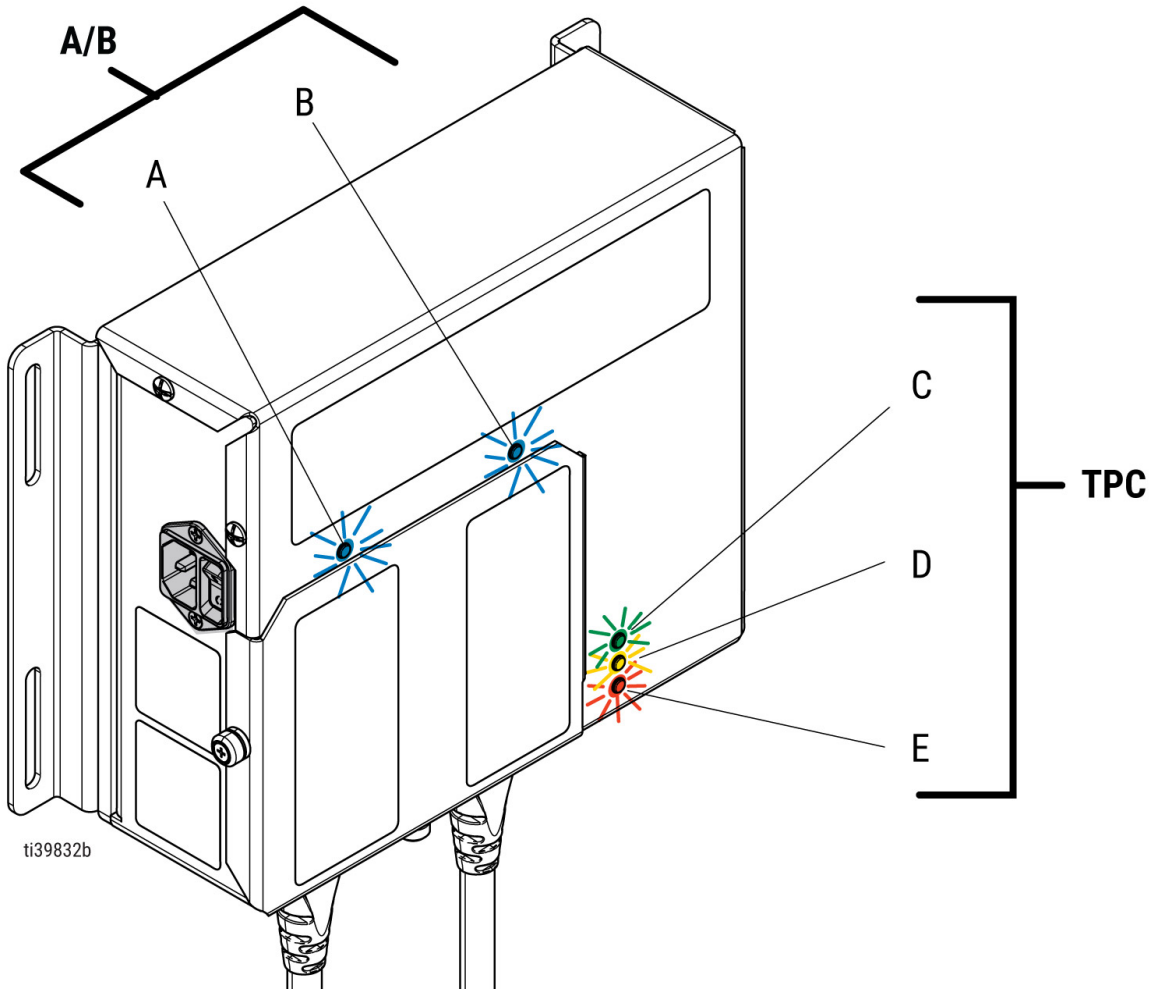
Do not attempt to operate unless it is securely mounted in a drum.

DAILY SHUTDOWN

1. Follow the **Shutdown** procedure in your Reactor 3 operation manual.
2. Turn the TPC power switch (ZP) to OFF.

PUMP STATUS LEDS

The Transfer Pump Controller (TPC) uses five LEDs to communicate the current status of the pumps and TPC. The two LEDs on the top relate to the electric motor status (A on the left, B in the center). The three LEDs on the bottom right are the TPC status LEDs.



A/B Motor	
A	A Blue
B	B Blue
TPC Status	
C	Green
D	Yellow
E	Red

LED STATUS DEFINITIONS

LED	CONDITIONS	DESCRIPTION
A/B Electric Motor Status LEDs **NOTE:** The A/B electric motor status LEDs may remain lit for up to one minute after the power switch (ZP) is turned off.	Off	No AC Power Detected
	Red and Blue	Startup
	Purple	Idle
	Blue	On: • 1 flash for top changeover • 2 flashes for bottom changeover
	Red	Error
TPC Status	Green Solid	Low voltage power applied to module
	Yellow Flashing	Active communication
	Red Steady Flashing	Software update in progress
	Red Random Flashing or Solid	Module error exists

MAINTENANCE

Follow the service schedule to keep the Core™ Electric Transfer Pump in good condition for optimal use.

MONTHLY

Electrical connections can loosen over time due to transporting equipment and normal operation. Periodically check all electrical connections and tighten as needed.

DAILY

Check the clamp nut (DN) on a daily basis and tighten if necessary.

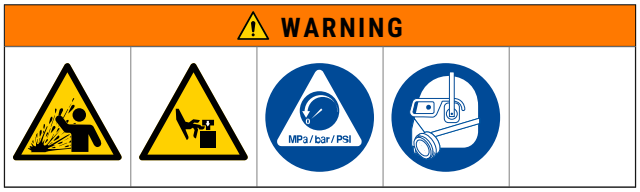
RECYCLING OR DISPOSAL

Properly recycle and dispose of the Core™ Electric Transfer Pump at the end of its useful life.

END OF PRODUCT LIFE

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

When problems occur, use the table to identify potential causes and solutions to repair the Core™ Electric Transfer Pump.



1. Follow **Pressure Relief Procedure**, before checking or repairing pump.
2. Check all possible problems and causes before disassembling pump.

PROBLEM	CAUSE	SOLUTION
The pump fails to operate	Clogged fluid hose or valve	Clear the hose or valves.
The pump operates, but the output is low on both strokes	Clogged fluid hose or valve	Clear the hose or valves.
	Exhausted fluid supply	Refill the fluid supply and reprime the pump.
	Worn or damaged valves or seals	Service the valves or seals.
The pump operates, but the output is low on the down stroke	Held open or worn intake valve	Clear or service the valve.
	Worn or damaged valves or seals	Service the valves or seals.
The pump operates, but the output is low on the upstroke	Held open or worn piston valve	Clear or service the valve.
	Worn or damaged valves or seals	Service the valves or seals.
Erratic or accelerated operation	Exhausted fluid supply	Refill the fluid supply and reprime the pump.
Pump slowly moves after fluid shutoff in the down stroke	Clogged or dirty intake valve check ball	Clean ball and seat.
	Worn or damaged valves or seats	Install repair kit.
Pump moves slowly after fluid shutoff in the upstroke	Clogged or dirty piston ball or seat	Clean ball and seat.
	Worn or damaged valves or seats	Install repair kit.

NOTE:

For additional troubleshooting information, go to **help.graco.com** and search for E1 Transfer Pumps.

When replacing parts, follow the instructions to restore the components on the Core™ Electric Transfer Pump.

REPLACE THE MOTOR CABLE

REQUIRED TOOLS

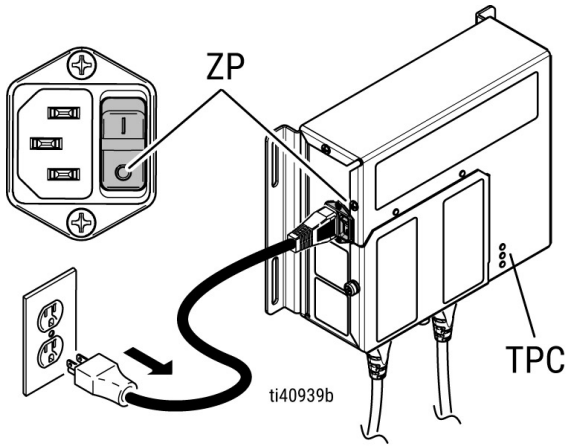
- 2.5 mm Allen wrench
- 3.0 mm (E1) or 3/16 in. (E2) Allen wrench
- No. 2 Philips screwdriver
- 1/8 in. or 3 mm slotted screwdriver
- 1/4 in. or 6 mm slotted screwdriver
- Torque wrench capable of 30 in-lb (3.4 N•m) of torque

DE-ENERGIZE THE SYSTEM

⚠ WARNING



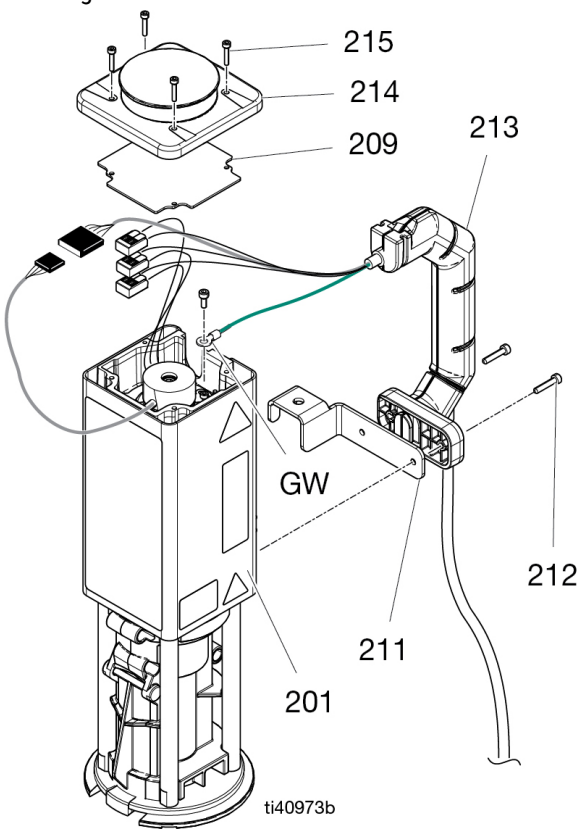
1. Follow the Shutdown procedure in your Reactor 3 operation manual.
2. Turn the TPC switch (ZP) to OFF and unplug the power cord



3. Wait five minutes for power to dissipate prior to servicing.

MOTOR END DISASSEMBLY

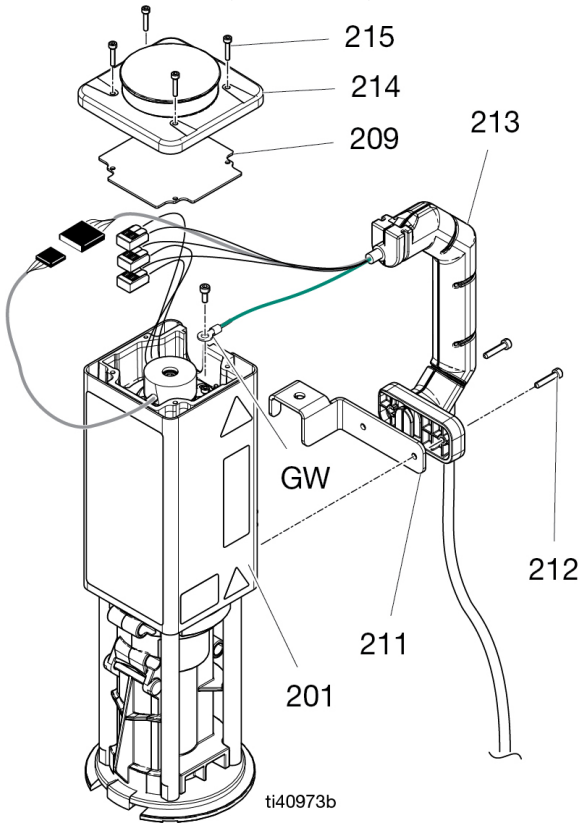
1. Use a 2.5 mm Allen wrench to remove the four screws (215) from the top of the motor (201).
2. Remove plastic cover (214) and metal cable support (209).
3. Use a 2.5 mm Allen wrench to remove the fastener connecting the ground wire (GW) to the motor housing.
4. Disconnect the 8-pin encoder connector from the 8-pin connector on the motor cable.
5. Disconnect the three motor wires from the three wires of the motor cable.
6. Use a 3.0 mm or 3/16 in. Allen wrench to remove the two screws (212) from handle (213).
7. Lift the handle (213) out of the groove in the motor housing.



MOTOR END REASSEMBLY

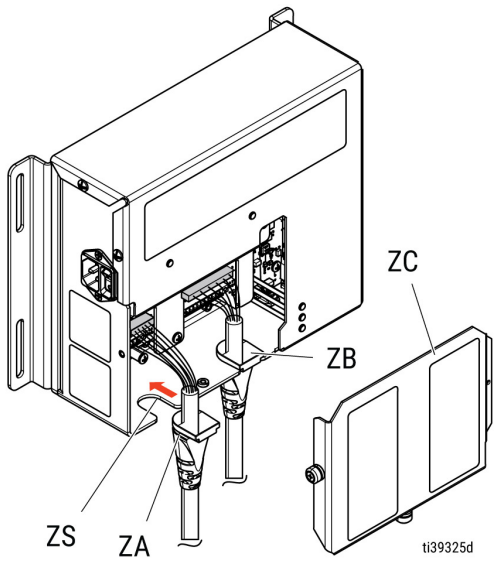
1. Install the handle (213) into the groove in the motor housing.
2. install the mounting bracket (211) into handle (213), between the handle and the motor (201).
3. Use a 3.0 mm (E1) or 3/16 in. (E2) Allen wrench to install the two screws (212) into handle (213) and torque to 10-15 in-lb (1.1-1.7 N•m) (E1) or 25-30 in-lb (2.8-3.4 N•m) (E2).

4. Install the fastener through the ring terminal of the ground wire (GW) on the motor cable. Use a 2.5 mm Allen wrench to connect the wire to the motor housing.
5. Connect the 8-pin encoder connector to the 8-pin connector on the motor cable.
6. Connect any three motor wires to any three wires on the motor cable (color matching of wires not required).
7. Install the metal cable support plate (209) and plastic cover (214).
8. Use a 2.5 mm Allen wrench to install the four screws (215) into the top of the motor and torque them to 10-15 in-lb (1.1-1.7 N•m).

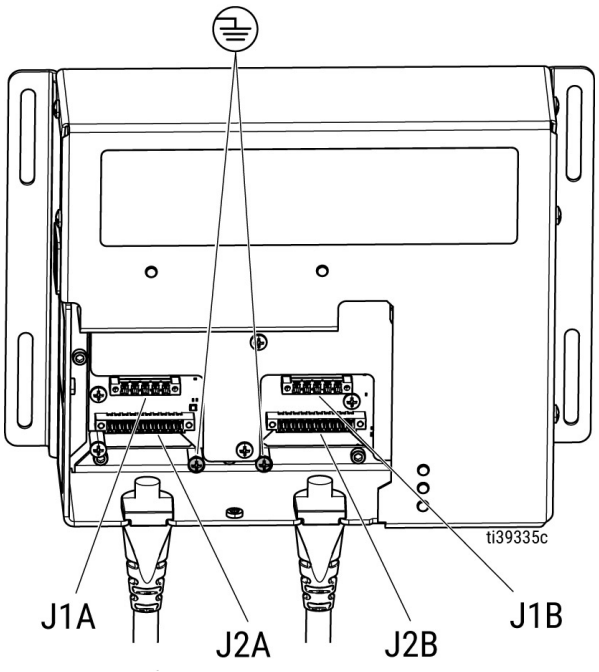


TPC END DISASSEMBLY

1. Use a No. 2 Phillips screwdriver to loosen captive fasteners and remove the TPC access cover (ZC).



2. Use a 1/4 in. or 6 mm slotted screwdriver to remove the fastener (green) of the ground wire on the cable being replaced.



3. Use a 1/8 in. or 3 mm slotted screwdriver to loosen the screws on both connectors (J1A/J2A or J1B/J2B) of the cable being replaced.
4. Unplug both connectors (J1A/J2A or J1B/J2B) from the board of the TPC.
5. Lift the motor cable strain relief (ZA or ZB) out of the groove (ZS) in the TPC.

TPC END REASSEMBLY

1. Follow the **Install the Transfer Pump Controller (TPC)** procedure.

CALIBRATION

After replacing the motor cable, the pump must be calibrated. See your Reactor 3 operation manual for the calibration procedure.

REPLACE THE ENCODER

REQUIRED TOOLS

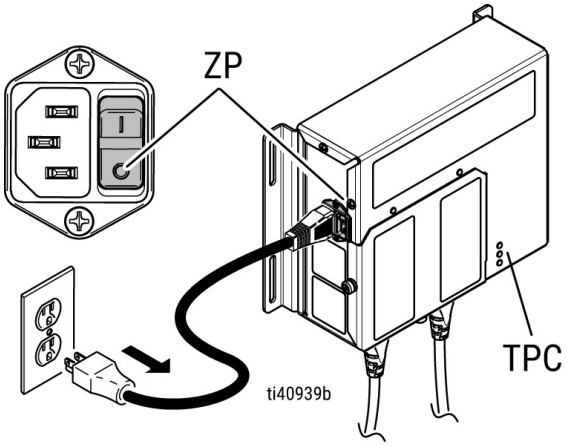
- 5 mm and 3/16 in. Allen wrench
- Torque wrench capable of 30 in-lb (3.4 N•m)
- Medium strength thread locking compound

DE-ENERGIZE THE SYSTEM

⚠ WARNING



1. Follow the shutdown procedure in your Reactor 3 operation manual.
2. Turn the TPC switch (ZP) to OFF and unplug the power cord.



3. Wait five minutes for power to dissipate before servicing.

ENCODER DISASSEMBLY

1. Use a 2.5 mm Allen wrench to remove the four screws (215) from the top of the motor (201).
2. Remove the plastic cover (214) and metal cable support plate (209).
3. Disconnect 8-pin encoder connector from the 8-pin connector on the motor cable.
4. Use a 2.5 mm Allen wrench to remove two encoder mounting fasteners.

5. Use a 3/16 in. Allen wrench to remove the encoder (216) from the motor shaft.

NOTE:

The fastener may rotate several times as the motor ball screw moves towards the end of its travel prior to the fastener loosening.

NOTICE

Do not use the ball end of an Allen wrench to remove the encoder. Damage could occur.

ENCODER ASSEMBLY

1. Add a drop of medium strength thread locking compound to the threads of the encoder (216) stem.
2. Use a 3/16 in. Allen wrench to install the encoder (216) into the motor shaft and torque to 20-25 in-lb (2.3-2.8 N•m).

NOTE:

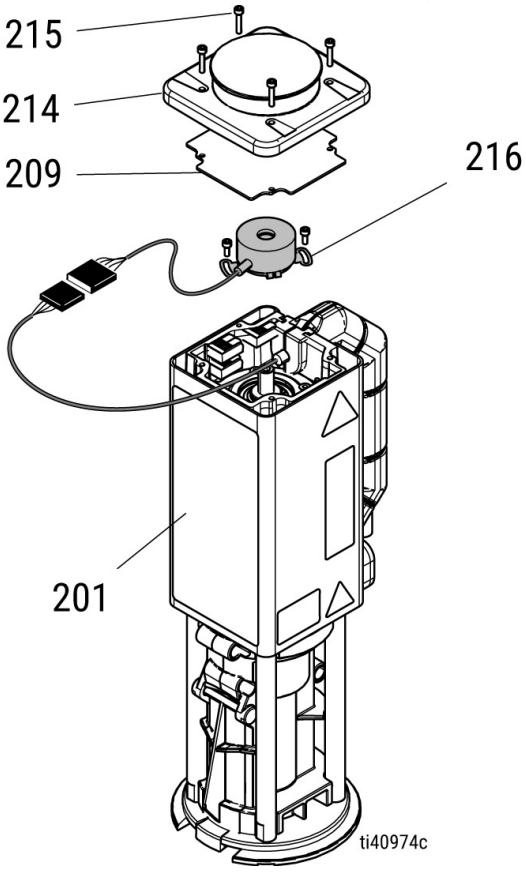
The fastener may rotate several times as the motor ball screw moves towards the end of its travel prior to the fastener tightening.

3. Use a 2.5 mm Allen wrench to install two encoder mounting screws. Torque to 10-15 in-lb (1.1-1.7 N•m).

NOTE:

The encoder (216) does not require specific mounting orientation.

4. Connect the 8-pin encoder connector to the 8-pin connector on the motor cable.
5. Install the metal cable support plate (209) and plastic cover (214).
6. Use a 2.5 mm Allen wrench to install the four screws (215) into the top of the motor (201) and torque them to 10-15 in-lb (1.1-1.7 N•m).



CALIBRATION

After replacing the encoder, the pump must be calibrated. See your Reactor 3 operation manual for the calibration procedure.

REPLACE THE GUIDE COVER

REQUIRED TOOLS

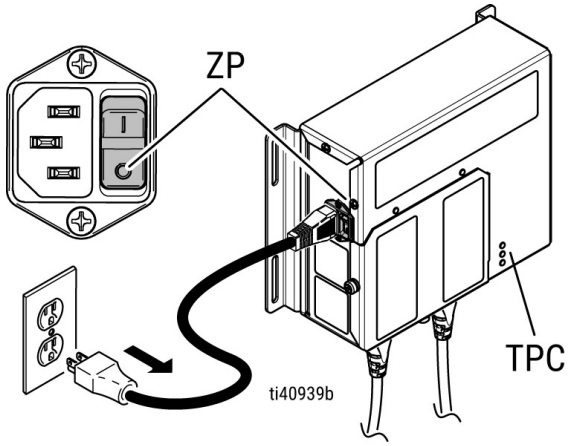
- 3/16 in. Allen wrench
- Torque wrench capable of 125 in-lb (14.1 N•m) of torque
- Synthetic grease with Syncolon (PTFE)
- Medium strength thread locking compound
- Rubber Mallet

DE-ENERGIZE THE SYSTEM

⚠ WARNING



1. Follow the **Pressure Relief Procedure**.
2. Follow the Shutdown procedure in your Reactor 3 operation manual.
3. Turn the TPC switch (ZP) to OFF and unplug the power cord.



4. Wait five minutes for power to dissipate prior to servicing.

GUIDE COVER DISASSEMBLY

1. Follow **Remove the Electric Motor**.
2. Use a 3/16 in. Allen wrench to remove the four fasteners (207) from the bottom of the mounting clamp ring (206).
3. Remove the mounting clamp ring (206) from the tie rods (203).
4. Slide the guide cover (208) out of the tie rods.

NOTE:

The guide cover may need to be tapped out with a rubber mallet.

GUIDE COVER ASSEMBLY

1. Apply synthetic grease with Syncolon (PTFE) to internal flat surfaces of the new guide cover (208).
2. Manually rotate the ball screw (204) until the coupler reaches the midpoint of the tie rods (203) and orient the ProConnect notch of the coupler so it is facing the side opposite the motor cable.
3. Install the guide cover (208) into the tie rods (203) and over the ball screw (204) coupler. Make sure the guide cover access door is facing the same direction as the ProConnect notch of the ball screw coupler.

NOTE:

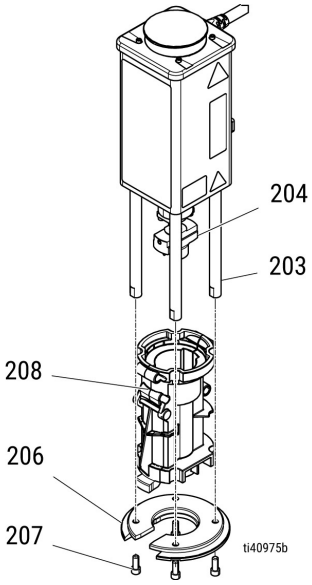
The guide cover may need to be tapped into place with a rubber mallet.

4. Install the mounting clamp ring (206) onto the tie rods (203) and guide cover (208).

NOTE:

The notch in the mounting clamp ring (206) aligns with the tab on the guide cover (208) access door.

5. Put a drop of medium strength thread locking compound onto the threads of each of the four fasteners (207). Use a 3/16 in. Allen wrench to install fasteners through the mounting clamp ring (206) and into the tie rods (203), then torque to 110-120 in-lb (12.4-13.6 N•m).



REPLACE THE BALL SCREW ASSEMBLY

REQUIRED TOOLS

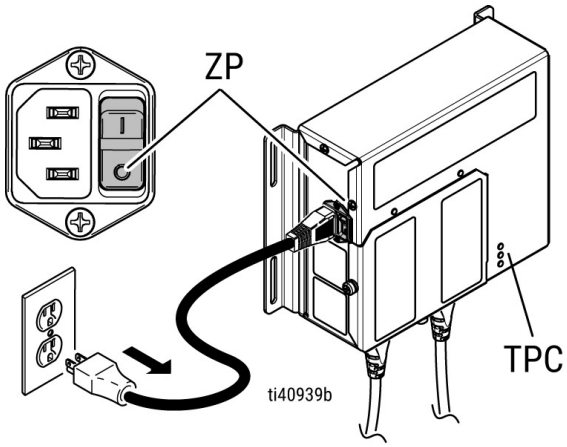
- 3/16 in. Allen wrench
- 3 mm (E1) or 4 mm (E2) Allen wrench
- 24 mm (E1) or 41 mm (E2) open end wrench
- 7/16 in. open end wrench
- Torque wrench capable of 25-125 in-lb (2.8-14.1 N•m) of torque
- Synthetic grease with Syncolon (PTFE)
- Medium strength thread locking compound
- Rubber mallet

DE-ENERGIZED THE SYSTEM

⚠ WARNING




1. Follow the **Pressure Relief Procedure**.
2. Follow the Shutdown procedure in your Reactor 3 operation manual.
3. Turn the TPC switch (ZP) to OFF and unplug the power cord.



4. Wait five minutes for power to dissipate prior to servicing.

BALL SCREW DISASSEMBLY

1. Follow **Remove the Electric Motor**.
2. Use a 3/16 in. Allen wrench to remove four fasteners (207) from the bottom of the mounting clamp ring (206).
3. Remove the mounting clamp ring (206) from the tie rods (203).
4. Slide the guide cover (208) out of the tie rods (203).

NOTE:

The cover may need to be tapped out with a rubber mallet.

5. Place the open end of a 24 mm (or 41 mm) wrench on the flats (FL) of the ball screw assembly (204) to prevent rotation and use a 3 mm (or 4 mm) Allen wrench to remove four fasteners (205) that secure the ball screw to the motor (201).

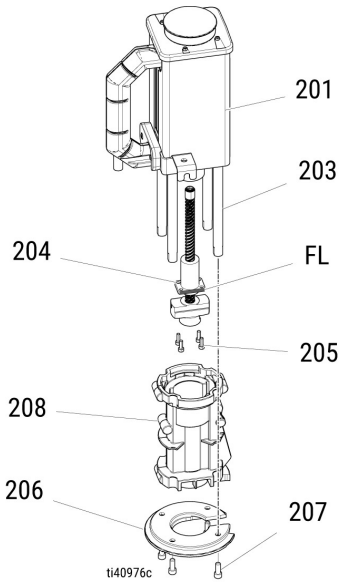
NOTE:

Use the open end of a 7/16 in. wrench to remove a tie rod (203) if additional clearance is needed to gain access to the flats (FL) of the ball screw assembly (204).

NOTICE

Do not use the ball end of an Allen wrench to remove the four fasteners. Damage could occur.

6. Slide the ball screw assembly (204) out of the motor (201).



BALL SCREW REASSEMBLY

1. Thoroughly clean all grease and debris from the inside of the guide cover (208) and inside the motor shaft.
2. Apply synthetic grease with Syncolon (PTFE) to all grooves of the ball screw (204) and install the ball screw into the motor (201).
3. Place the open end of a 24 mm (or 41 mm) wrench on the flats (FL) of the ball screw assembly (204) to prevent rotation and use a 3 mm (or 4 mm) Allen wrench to install the four fasteners (205) to secure the ball screw to the motor (201). Torque fasteners to 30-35 in-lb (3.3-3.9 N•m) or 40-45 in-lb (4.5-5.1 N•m).
4. If a tie rod was removed during the disassembly process, apply a drop of medium strength thread locking compound to the male threads and use a 7/16 in. open end wrench to install the tie rod. Torque to 110-120 in-lb (12.4-13.6 N•m).
5. Apply synthetic grease with Syncolon (PTFE) to internal flat surfaces of the guide cover (208).
6. Manually rotate the ball screw (204) until the coupler reaches the midpoint of the tie rods (203) and orient the ProConnect notch of the coupler so it is facing the side opposite the motor cable.
7. Install the guide cover (208) into the tie rods (203) and over the ball screw (204) coupler. Make sure the guide cover access door is facing the same direction as the ProConnect notch of the ball screw coupler.

NOTE:

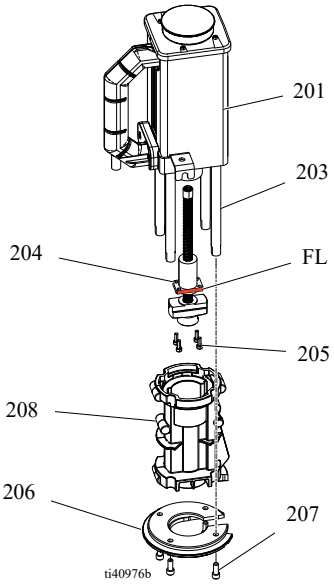
The guide cover may need to be tapped into place with a rubber mallet.

8. Install the mounting clamp ring (206) onto the tie rods (203) and guide cover (208).

NOTE:

The notch in the mounting clamp ring (206) aligns with the tab on the guide cover (208) access door.

9. Put a drop of medium strength thread locking compound onto the threads of each of the four fasteners (207). Use a 3/16 in. Allen wrench to install fasteners through the mounting clamp ring (206) and into the tie rods (203), then torque to 110-120 in-lb (12.4- 13.6 N•m).
10. To re-install the motor, follow the **Install the Electric Motor** procedure.



The parts illustration and list shows the components of the Core™ Electric Transfer Pump and the connections that are required for assembly, repair, and maintenance.

PUMP LOWER 26D004 (E1) AND 2010456 (E2) PARTS

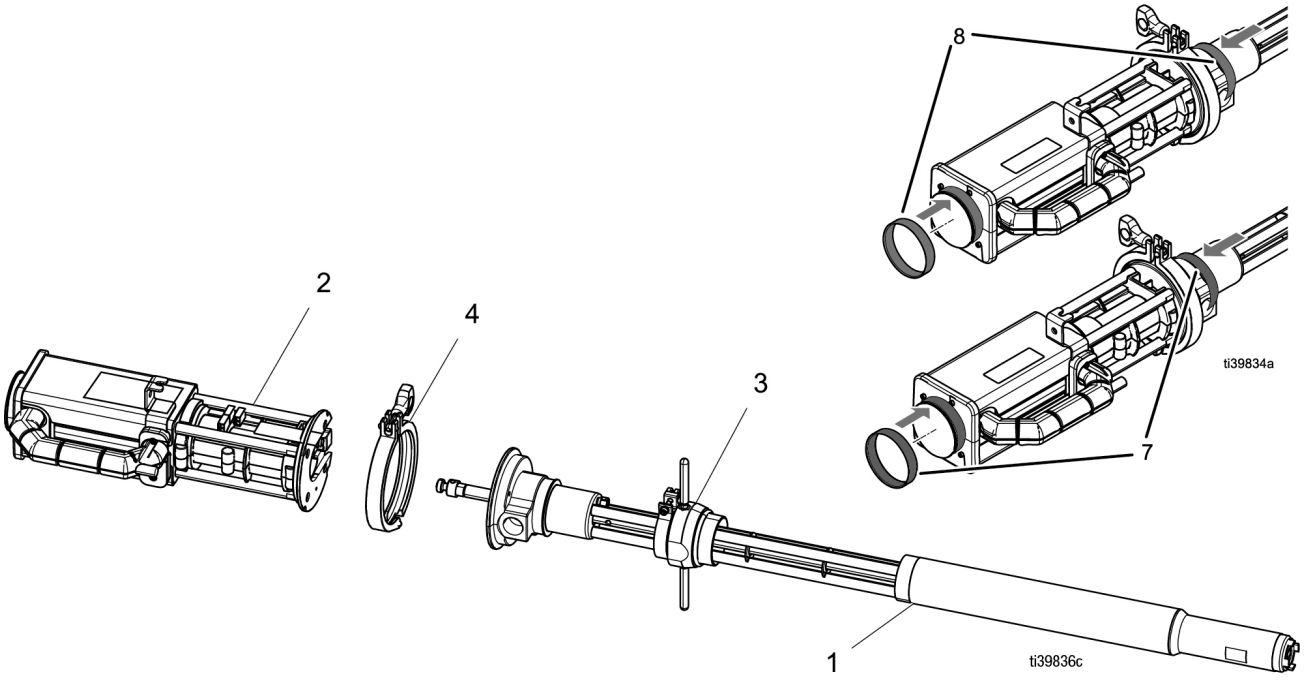


Figure 13-1: Pump Lower 26D004 (E1) and 2010456 (E2) Parts Diagram

REF.	PART	DESCRIPTION	QTY.
1*	273295	PUMP, lower, Pro-Connect, CS, without bung adapter	1
2		ELECTRIC MOTOR	1
	25T322	Model 26D004	
	2010443	Model 2010465	
3*	26A342	ADAPTER, bung, 2 in., EZ removal	1
4*	510490	CLAMP, pump	1
7*	26D216	BAND, identity, res (blue)	1
8*	26D216	BAND, identity, iso (red)	1

* *Included in Pump Lower Kit 2003965*

ELECTRIC MOTOR 25T322, 26D009 (E1) AND 2010455, 2010443 (E2) PARTS

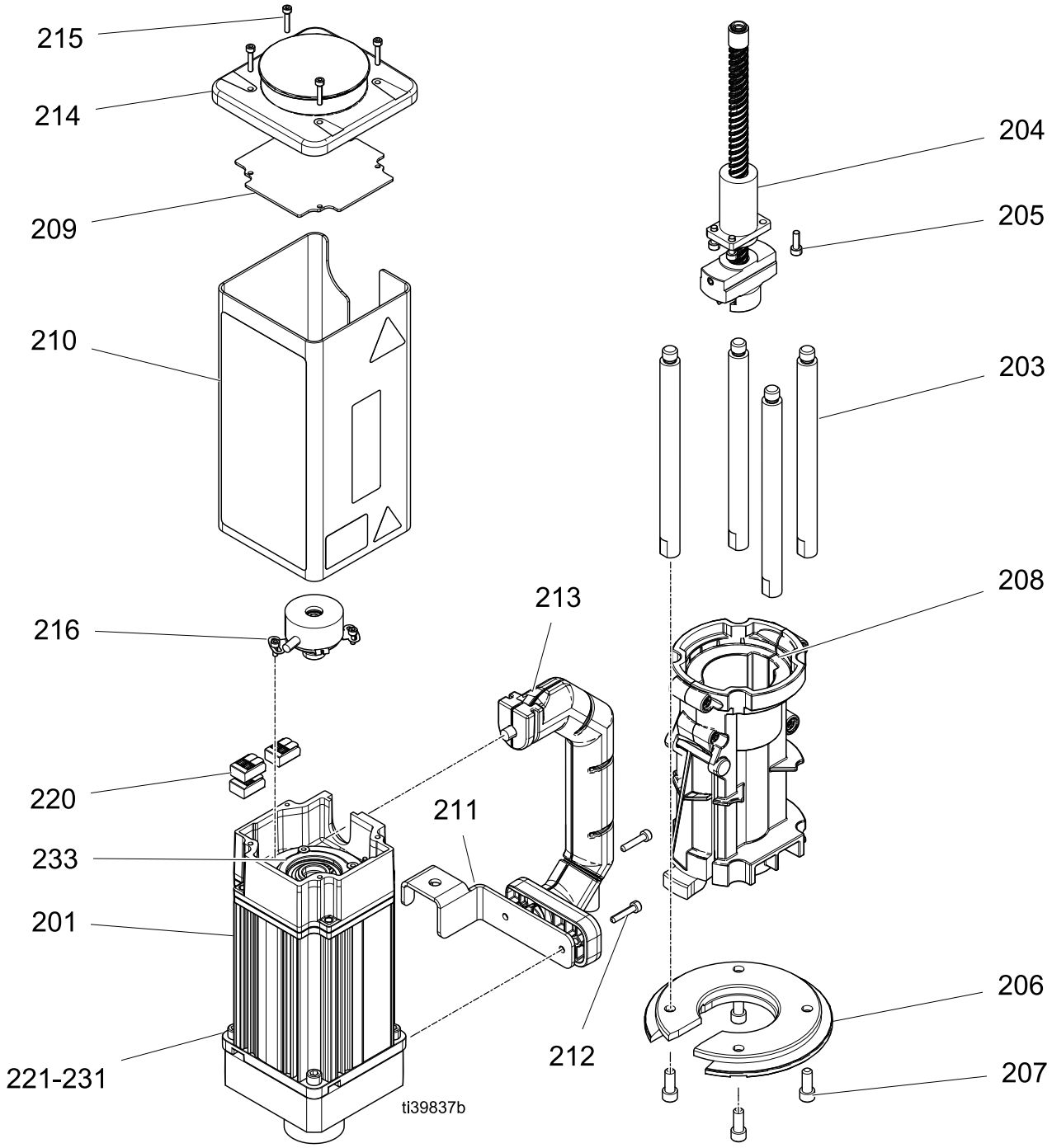


Figure 13-2: Electric Motor 25T322, 26D009 (E1) and 2010455, 2010443 (E2) Parts Diagram

REF.	PART	DESCRIPTION	QTY.
201	- - - - -	MOTOR, electric	1
203	- - - - -	ROD, tie	4
204		SCREW, ball, assembly	1
	26D008	Models 26D009 and 25T322	
	2010558	Models 2010455 and 2010443	
205	- - - - -	SCREW, shcs	4
206	- - - - -	RING, mounting clamp	1
207	- - - - -	SCREW, cap, sch	8
208		GUIDE, cover	1
	26D288	Models 26D009 and 25T322	
	2010559	Models 2010455 and 2010443	
209	- - - - -	SUPPORT, cable, E1 motor, painted	1
210		COVER, E1 motor, w/label	1
	26D290	Models 26D009 and 25T322	
	2010557	Models 2010455 and 2010443	
211	- - - - -	BRACKET, mounting	1
212	- - - - -	SCREW, shcs, m4 x 0.7, 20 mm lng	4
213*	- - - - -	CABLE, motor with handle	1
214 †	- - - - -	COVER, motor	1
215 †	- - - - -	SCREW, shcs, M3-0.5x16, sst	4
216‡	- - - - -	ENCODER, 24V	1
217‡	- - - - -	SCREW, shc, m 3-0.5x8, ss	2
220*	- - - - -	CONNECTOR, lever nut	3

REF.	PART	DESCRIPTION	QTY.
221	- - - - -	HOUSING, thrust bearing	1
222	- - - - -	WASHER, housing, 30 mm	1
223	- - - - -	BEARING, thrust, roller, 30 mm	1
224	- - - - -	WASHER, thrust, 30 mm	1
225	- - - - -	COUPLER, motor shaft	1
226	- - - - -	WASHER, thrust, 40 mm	1
227	- - - - -	BEARING, thrust, roller, 40 mm	1
228	- - - - -	WASHER, housing, 40 mm	1
229	- - - - -	SPRING, wave	1
230	- - - - -	COVER, thrust bearing	1
231	- - - - -	SCREW, set, 4 mm	8
233	- - - - -	GASKET, motor	1
234 ▲	15G303	LABEL, warning, electrical	1
235 ▲	15H108	LABEL, safety, warning, pinch	1

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

* *Included in kit 26D287, not included in kit 26D009.*

† *Included in kit 26D291.*

‡ *Included in kit 26D286.*

TPC (26D000) PARTS

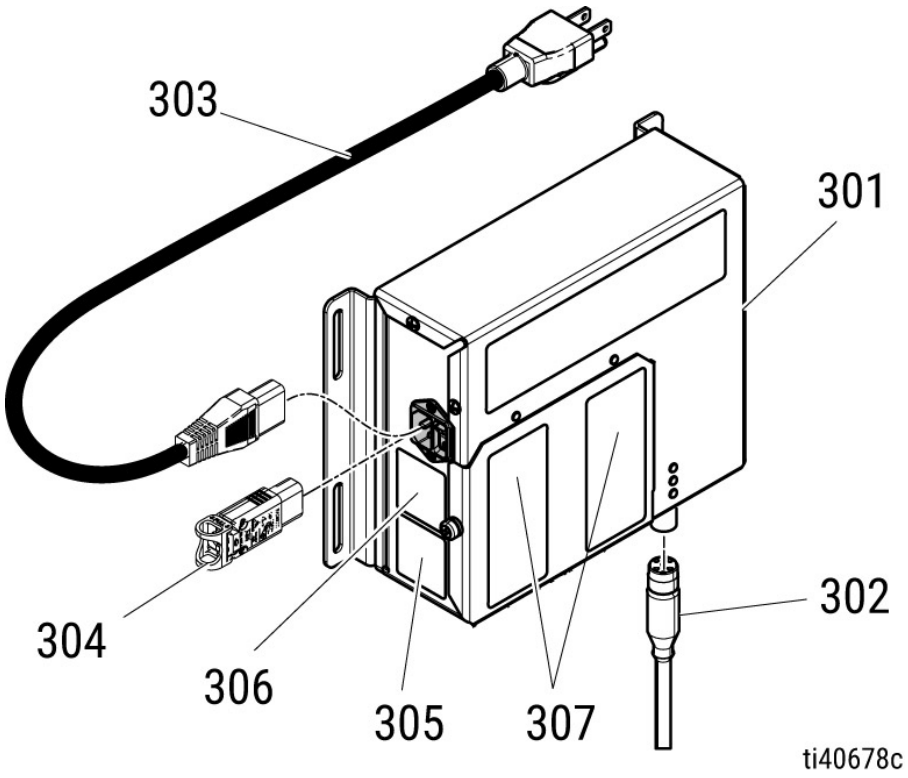


Figure 13-3: TPC (26D000) Parts Diagram

REF.	PART	DESCRIPTION	QTY.
301	19B841	CONTROLLER, CORE E1 transfer pump	1
302	121004	CABLE, can, female/female 8.0 m. See **Connect Power to the TPC**.	1
303	121055	CORD SET (US, MX, PR, CA, TW, 115V, 10 A)	1
304	26D296	KIT, install, IEC field wireable C13 plug	1
305	25U011▲	LABEL, safety	1
306	195793▲	LABEL, warning	1
307	186620▲	LABEL, symbol, ground	1

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

HANDLE KIT 26D674 (E1) AND 2010536 (E2) PARTS

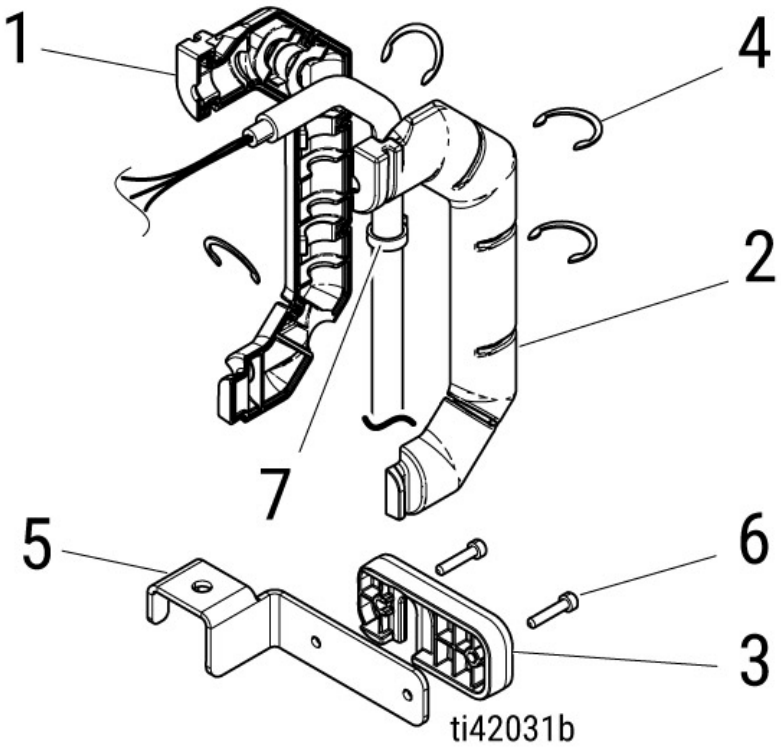


Figure 13-4: Handle Kit 26D674 (E1) and 2010536 (E2) Parts Diagram

REF.	DESCRIPTION	QTY.
1	HANDLE, E1, side A	1
2	HANDLE, E1, side B	1
3	HANDLE, E1, plate	1
4	RING, retaining, ext, .938 sft	4
5	BRACKET, hanging, core E1 driver	1
6	SCREW, shcs, M4X20	2
7*	STRAP, tie, wire	1

* *Prior to installing the cable into the handle, place tie strap (7) onto the cable (not included). Make sure the strap is positioned between two internal ribs of the handle.*

Accessories are items that are offered by Graco and available to purchase separately. Accessories use a Graco part number.

To ensure maximum pump performance, make sure all accessories are properly sized to meet your system requirements.

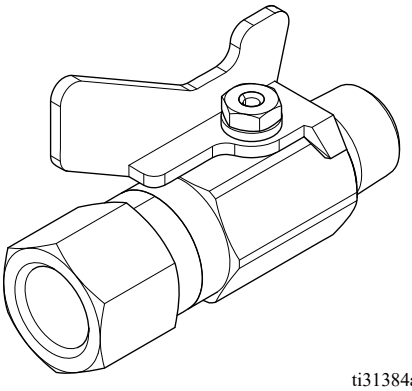
FLUID LINE

Fluid drain valve (AE): Required in your system to relieve fluid pressure in the hose and gun. Install the drain valve so that it points down and the handle points up when the valve is opened.

FLUID DRAIN VALVE (NOT INCLUDED)

Maximum Working Pressure: 500 psi (3.5 MPa, 35 bar)

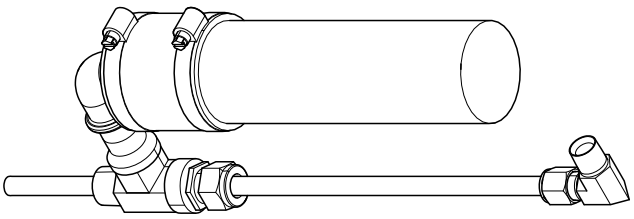
PART	DESCRIPTION	QTY.
208630	VALVE, ball; 1/2 npt(m) x 3/8 npt(f) for non-corrosive fluids; carbon steel and PTFE	1
237534	VALVE, ball; 3/8 npt(m) x 3/8 npt(f) for corrosive fluids; SST and PTFE	1



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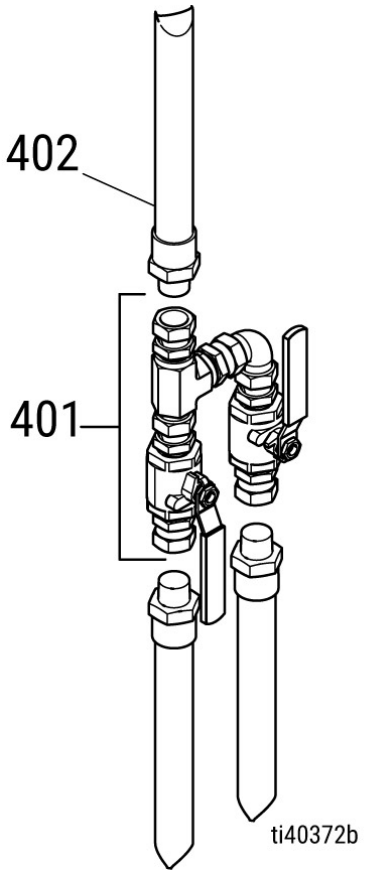
RETURN TUBE KIT (NOT INCLUDED)

PART	DESCRIPTION	QTY.
246477	KIT, carbon steel return tube	1
24D106	KIT, stainless steel return tube	1
246978	KIT, carbon steel return tube; with hose	1
24E379	KIT, carbon steel return tube; with moisture-loc hose	1
24D107	KIT, stainless steel return tube; with moisture-loc hose	1
247616	KIT, desiccant dryer, no return tube	1



MULTIPLE PUMP LOWERS FLUID KIT (NOT INCLUDED)

REF.	PART	DESCRIPTION	QTY.
401	26D219	Fluid Coupling Kit	1
402	217382	Fluid Supply Hose (10 ft)	1

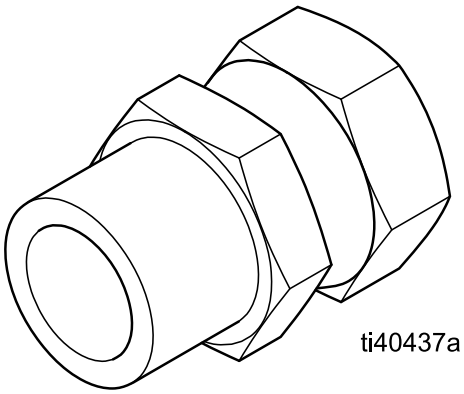


NOTE:

For Multiple Pump Lowers Fluid Kit installation, see Typical Multiple Pump Lowers.

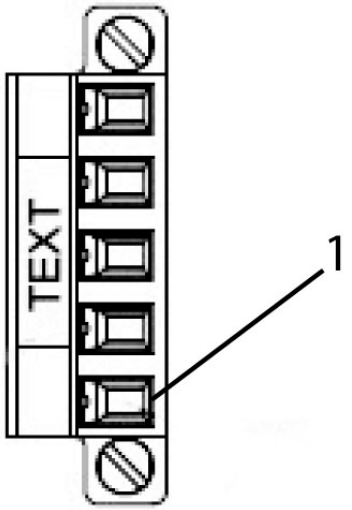
SWIVEL FITTING (NOT INCLUDED)

PART	DESCRIPTION	QTY.
157785	FITTING, swivel	1



CONNECTORS J1A AND J1B

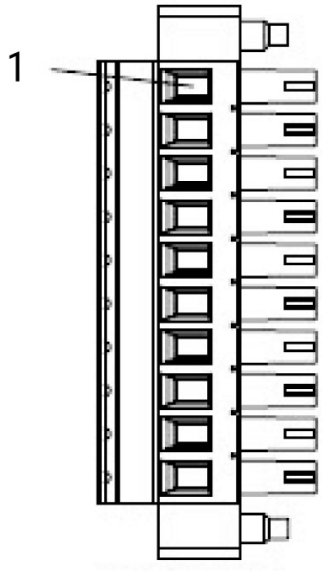
POSITION	SIGNAL	WIRE COLOR
1	Motor Output C	White
2	Motor Output B	Red
3	Motor Output A	Black
4	(Not Used)	None
5	Motor Shield	Bare with sleeve



Terminal Insertion View

CONNECTORS J2 AND J2B

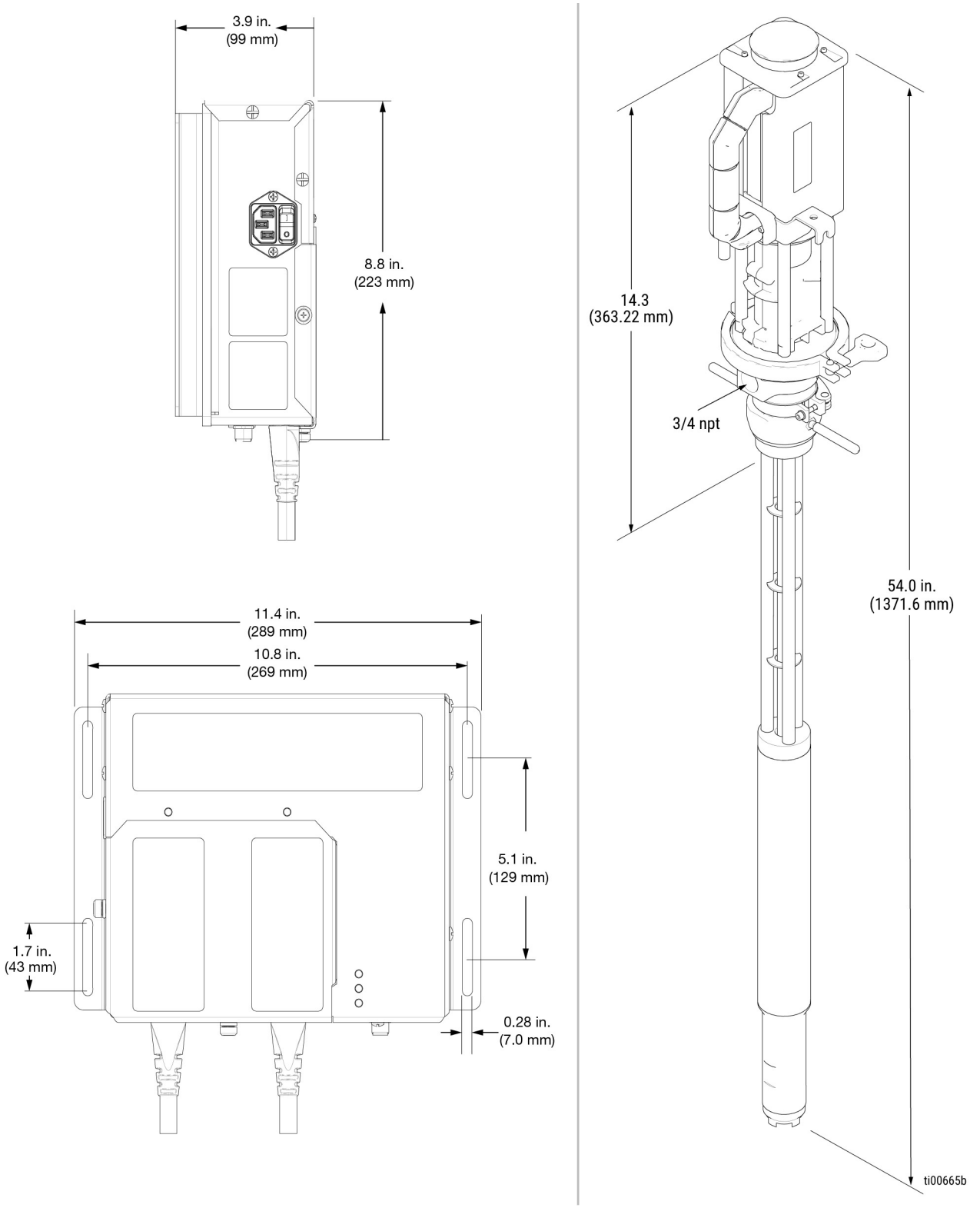
POSITION	SIGNAL	WIRE COLOR
1	Encoder Power (24 Vdc)	White / Violet
2	Encoder Return (0 Vdc)	Violet
3	Encoder A Signal	White / Blue
4	Encoder A' Signal	Blue
5	Encoder B Signal	White / Brown
6	Encoder B' Signal	Brown
7	Encoder Z Signal	White / Orange
8	Encoder Z' Signal	Orange
9	(Not Used)	None
10	(Not Used)	None



Terminal Insertion View

DIMENSIONS

The dimension diagram shows detailed measurements and specifications to ensure accurate installation and operation of the Core™ Electric Transfer Pump.



CALIFORNIA PROPOSITION 65

CALIFORNIA RESIDENTS

⚠**WARNING** Cancer and reproductive harm — www.P65warnings.ca.gov.

GRACO EXTENDED WARRANTY FOR REACTOR® COMPONENTS

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.

GRACO PART NUMBER	DESCRIPTION	WARRANTY PERIOD
26D009	Core E1 Electric Motor	36 Months
19B841	Core Transfer Pump Controller	36 Months
2010455	Core E2 Electric Motor	36 Months
All other Core Parts		12 Months

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.

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Revision A, November 2025