Instructions

E-Flo® SP Air to Electric Conversion Kits

3A6931B

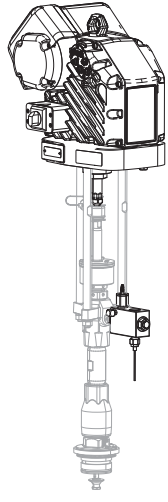
EN

For converting NXT® 3400 air motor pump and supply systems to electric driver systems for use with single-component sealant and adhesive materials. For professional use only.

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

Important Safety Instructions

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



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Related Manuals

Component Manuals in U.S. English

Manual	Description
3A6586	E-Flo SP Electric Pumps Installation-Parts
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313526	Supply Systems Operation
313527	Supply Systems Repair-Parts
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312375	Check-Mate 100cc, 200cc, 250cc, 500cc CS/CM/SS/SM Lower Instructions-Parts List
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Kits

NOTE: Select a kit based on the type of NXT 3400 air motor system you are using as well as the ram and pump lower size, where applicable. For the pump lower size, CM is Check-Mate and DF is Dura-Flo.

Kit No.	Description	Pump Lower Size	Ram Size	Air Motor Size
Pump System				
To Convert a Pump-only System				
25P277	KIT, pump, convert, small, relief, 240V	CM100	N/A	NXT 3400
25P278	KIT, pump, convert, small, no relief, 240V	CM200, CM250, DF115, DF145, DF180, DF220, DF290	N/A	NXT 3400
25P279	KIT, pump, convert, large, no relief, 240V	CM500, DF430	N/A	NXT 3400
Ram System				
To Convert a D60 Ram System				
25P280	KIT, ram, convert, D60, small, relief, 240V	CM100	D60	NXT 3400
25P281	KIT, ram, convert, D60, small, no relief, 240V	CM200, CM250, DF115, DF145, DF180, DF220, DF290	D60	NXT 3400
25P282	KIT, ram, convert, D60, large, no relief, 240V	CM500, DF430	D60	NXT 3400
To Convert a D200 Ram System				
25P283	KIT, ram, convert, D200, small, relief, 240V	CM100	D200	NXT 3400
25P284	KIT, ram, convert, D200, small, no relief, 240V	CM200, CM250, DF115, DF145, DF180, DF220, DF290	D200	NXT 3400
25P285	KIT, ram, convert, D200, large, no relief, 240V	CM500, DF430	D200	NXT 3400
To Convert a D200s Ram System				
25P286	KIT, ram, convert, D200s, small, relief, 240V	CM100	D200s	NXT 3400
25P287	KIT, ram, convert, D200s, small, no relief, 240V	CM200, CM250, DF115, DF145, DF180, DF220, DF290	D200s	NXT 3400
25P288	KIT, ram, convert, D200s, large, no relief, 240V	CM500, DF430	D200s	NXT 3400
Add an ADM				
To an Electric Pump System				
25E439	KIT, pump, ADM	All	N/A	N/A
To an Electric Ram System				
25E437	KIT, ram, ADM	All	All	N/A
Add a 480 V Transformer				
To an Electric Pump System				
25E268	KIT, pump, 480V	All	N/A	N/A
To an Electric Ram System				
25E203	KIT, ram, D60, D200, 480V	All	D60, D200	N/A
25E202	KIT, ram, D200S, 480V	All	D200S	N/A

Pressure Ratings

To help prevent serious injury from skin injection, verify that any components downstream of the pump are rated to the new, higher pressures shown in the table below. Replace any components that are not rated to the higher pressures.

The APD20 electric driver provides approximately 30% more thrust than an NXT 3400 air motor. The table below shows the pump working pressure and maximum dynamic pressure using the electric driver. The E-Flo SP Model column shows the E-Flo model the system will be similar to when the conversion is complete. After converting the system, follow all warnings and instructions for the E-Flo SP model listed instead of the previous air motor system.

For the pump lower size, CM is Check-Mate and DF is Dura-Flo.

		Pump Working (Stall) Pressure			Max Dynamic (Run) Pressure					
Kit No.	**Pump Lower Size**	**psi**	**bar**	**MPa**	**psi**	**bar**	**MPa**	**Ram Size**	**Air Motor Size**	**E-Flo SP Model**
25P277	CM100	6000	414	41.4	6000	414	41.4	N/A	NXT 3400	EC100XX3
25P278	CM200,	4200	290	29.0	3905	269	26.9	N/A		EC200XX3
	CM250	3400	234	23.4	3122	215	21.5	N/A		EC250XX3
	DF115	6000	414	41.4	6000	414	41.4	N/A		ED115XX3
	DF145	5600	386	38.6	5204	359	35.9	N/A		ED145XX3
	DF180	4500	310	31.0	4164	287	28.7	N/A		ED180XX3
	DF220	3700	255	25.5	3470	239	23.9	N/A		ED220XX3
	DF290	2800	193	19.3	2602	179	17.9	N/A		ED290XX3
25P279	CM500	1600	110	11.0	1487	103	10.3	N/A		EC500XX3
	DF430	1900	131	13.1	1735	120	12.0	N/A		ED430XX3
25P280	CM100	6000	414	41.4	6000	414	41.4	D60	NXT3400	EMC11X3
25P281	CM200	4200	290	29.0	3905	269	26.9	D60		EMC51X3
	CM250	3400	234	23.4	3122	215	21.5	D60		EMC91X3
	DF115	6000	414	41.4	6000	414	41.4	D60		EMD11X3
	DF145	5600	386	38.6	5204	359	35.9	D60		EMD21X3
	DF180	4500	310	31.0	4164	287	28.7	D60		EMD41X3
	DF220	3700	255	25.5	3470	239	23.9	D60		EMD61X3
	DF290	2800	193	19.3	2602	179	17.9	D60		EMD81X3
25P282	CM500	1600	110	11.0	1487	103	10.3	D60		EMCD1X3
	DF430	1900	131	13.1	1735	120	12.0	D60		EMDA1X3
25P283	CM100	6000	414	41.4	6000	414	41.4	D200		EMC12X3

		Pump Working (Stall) Pressure			Max Dynamic (Run) Pressure					
Kit No.	**Pump Lower Size**	**psi**	**bar**	**MPa**	**psi**	**bar**	**MPa**	**Ram Size**	**Air Motor Size**	**E-Flo SP Model**
25P284	CM200	4200	290	29.0	3905	269	26.9	D200	NXT3400	EMC52X3
	CM250	3400	234	23.4	3122	215	21.5	D200		EMC92X3
	DF115	6000	414	41.4	6000	414	41.4	D200		EMD12X3
	DF145	5600	386	38.6	5204	359	35.9	D200		EMD22X3
	DF180	4500	310	31.0	4164	287	28.7	D200		EMD42X3
	DF220	3700	255	25.5	3470	239	23.9	D200		EMD62X3
	DF290	2800	193	19.3	2602	179	17.9	D200		EMD82X3
25P285	CM500	1600	110	11.0	1487	103	10.3	D200		EMCD2X3
	DF430	1900	131	13.1	1735	120	12.0	D200		EMDA2X3
25P286	CM100	6000	414	41.4	6000	414	41.4	D200s		EMC13X3
25P287	CM200	4200	290	29.0	3905	269	26.9	D200s		EMC53X3
	CM250	3400	234	23.4	3122	215	21.5	D200s		EMC93X3
	DF115	6000	414	41.4	6000	414	41.4	D200s		EMD13X3
	DF145	5600	386	38.6	5204	359	35.9	D200s		EMD23X3
	DF180	4500	310	31.0	4164	287	28.7	D200s		EMD43X3
	DF220	3700	255	25.5	3470	239	23.9	D200s		EMD63X3
	DF290	2800	193	19.3	2602	179	17.9	D200s		EMD83X3
25P288	CM500	1600	110	11.0	1487	103	10.3	D200s		EMCD3X3
	DF430	1900	131	13.1	1735	120	12.0	D200s		EMDA3X3

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

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

WARNING

SKIN INJECTION HAZARD

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.**

- 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.

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.
- Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** and disconnect all power sources.

⚠ WARNING




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 dispensing device firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are anti-static or conductive.
- **Stop operation immediately** if static sparking occurs or you feel a shock**.** Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.


EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Specifications** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See T**echnical 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.

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.

- Use minimum air pressure when removing platen from drum.

⚠ 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) 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.

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:

- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

Installation

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** for the system you are using when you stop spraying and before cleaning, checking, or servicing the equipment.

Follow the Pressure Relief Procedure in the manual for the air motor system you are converting. See **Related Manuals** on page **2** for the air motor pump and supply systems manuals.

Air to Electric Pump Conversion Kits

The air to electric pump conversion kit is available in three options depending on the pump lower size.

Kit Number	Pump Lower Size
25P277	CM100
25P278	CM200, CM250, DF115, DF145, DF180, DF220, DF290
25P279	CM500, DF430

Disassemble the Air Motor Pump

NOTE: Pumps can be mounted various ways in a system. The following steps describe disassembling an air motor pump that is mounted in a way that the pump lower is easily accessible, such as on a wall mount or a stand. If the pump is floor mounted or mounted in some other way, you may need to remove the entire pump from the system before disassembling it.

1. Follow the **Pressure Relief Procedure** for the Check-Mate or Dura-Flo air motor pump system you are using. See **Related Manuals** on page **2**.
2. Remove the main air supply.
3. See **Figure 1** and remove the pump coupling, pump lower, and the three tie rods from the air motor pump assembly. Refer to the Check-Mate Pump Packages Instructions-Parts manual or the Dura-Flo Pumps Instructions-Parts manual. See **Related Manuals** on page **2**. Save these parts to be used when installing the kit.
4. Remove the air motor from the system.

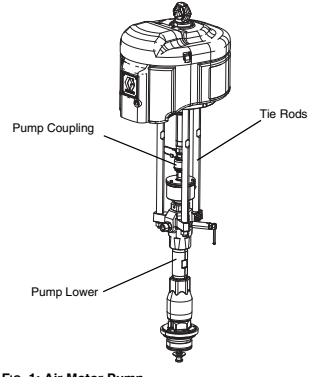


FIG. 1: Air Motor Pump

Assemble the Electric Pump Conversion Kit

NOTE: Refer to the **Air to Electric Pump Conversion Kit, 25P277-79** parts on page **30** for correct assembly.

1. Use the shaft adapter (8,9) included in the kit and connect the electric driver (1) to the pump coupling, pump lower, and tie rods that were removed from the air motor pump.

2. Connect the outlet check valve (2) using the adapter fitting (4,5,6,7 depending on the kit). Apply thread sealant to the threads of the check valve and the adapter fitting prior to installation. **Figure 2** shows options for the 100 cc Check-Mate 100 pump and the 115 cc Dura-Flo pump.

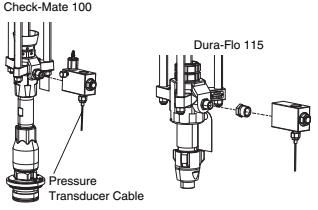


FIG. 2: Outlet Check Valve Options

3. The pressure transducer cable from the outlet check valve plugs into port 6 on the electric driver. See **Figure 3**.

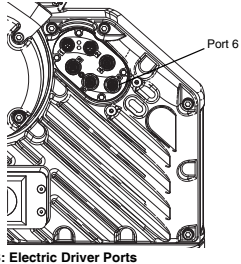


FIG. 3: Electric Driver Ports

4. Use the wire ties (3) to secure the pressure transducer cable to a tie rod.

5. Mount the electric pump as required for your system configuration.

Connect Power to the Electric Pump System

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

1. 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 **Figure 4**.

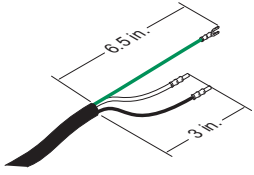


FIG. 4: Power Cord

2. Remove the four screws to separate the junction box cover and the disconnect switch from the junction box on the electric driver.

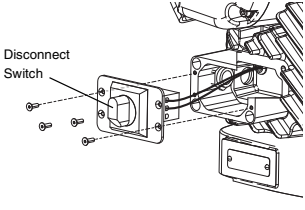


FIG. 5: Remove Driver Junction Box Cover

NOTE: Inside the junction box, power wires to the driver are connected to terminals 3L2 and 5L3 on the disconnect block. Refer to **Figure 6** for the terminal locations.

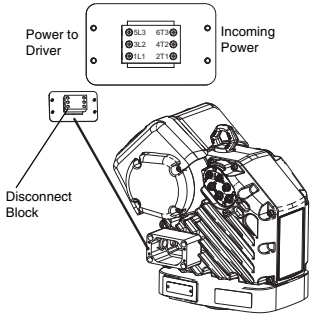


FIG. 6: Terminal Connections

3. Insert the power cord through the cord grip and into the driver junction box.

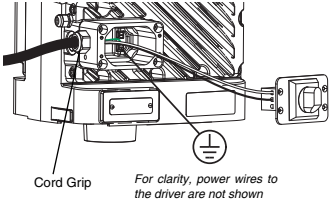


FIG. 7: Connect Driver Junction Box Power

4. Refer to **Figure 6** and connect the wires from the power cord into terminals 4T2 and 6T3. Each wire can be connected to either terminal.

5. Attach the ground wire to one of the two ground terminals inside the junction box as shown in **Figure 7**.

NOTE: Do not attach the ground wire to the grounding lug locknut located by the wiring cord grip on the outside of the electric driver. The lug locknut should only be used for other grounding purposes if needed.

6. Place the power wires into the open area on either side of the disconnect block as space permits.

7. Reinstall the driver junction box cover and disconnect switch using the four screws removed in step 2.

NOTICE

If wires get pinched when the screws are tightened, damage will occur. Make sure all wires are routed correctly before installation.

8. Tighten the cord grip to securely hold the power cord in the driver junction box.

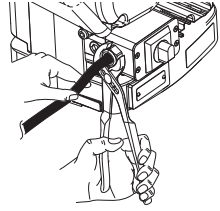


FIG. 8: Tighten Cord Grip

9. Place the identification label (16,17) included in the kit on the electric driver as shown in **Figure 9**.

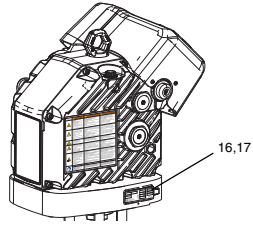


FIG. 9: Apply Label to Electric Driver

This conversion results in increased pressure to the system. To help prevent serious injury from skin injection, all components downstream of the pump must be rated to the new, higher maximum pressures. See the **Pressure Ratings** table on page **4**.

10. Verify all components downstream of the pump are rated to the new, higher pressure. Replace any components that are not rated to the higher pressures.

NOTE: Converting the pump from air to electric changes the operation of the pump system. Follow the E-Flo SP Electric Pumps Installation-Parts manual and the E-Flo SP Software Instructions for complete warnings and instructions for the system going forward. See **Related Manuals** on page **2**.

Air to Electric D60 Ram Conversion Kits

The air to electric D60 ram conversion kit is available in three options depending on the pump lower size.

Kit Number	Pump Lower Size
25P280	CM100
25P281	CM200, CM250, DF115, DF145, DF180, DF220, DF290
25P282	CM500, DF430

Disassemble the Air Motor Ram

1. Follow the **Pressure Relief Procedure** for the air motor pump and ram system you are using. See **Related Manuals** on page **2**.
2. Remove the main air supply from the air controls.
3. See **Figure 10** and remove the pump coupling, pump lower, and three tie rods from the air motor supply system. Save these parts to be used when installing the kit. Refer to the Supply Systems Operation manual and the Supply Systems Repair-Parts manual. See **Related Manuals** on page **2**.
4. Remove the air motor supply hose and fittings from the top of the air controls.
5. On the air controls, disconnect the air motor shutoff and control sections together by removing the two screws underneath the air motor control as shown in **Figure 10**. Lift the two sections to remove them. Remove the o-ring from around the hole in the top of the air controls.
6. Remove the air motor from the ram.

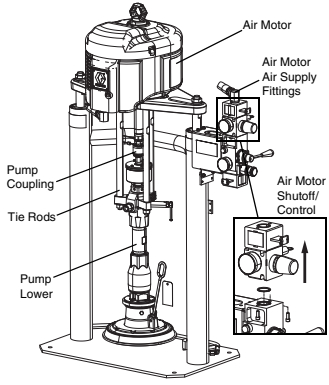


FIG. 10: D60 with Air Motor

Assemble the Electric D60 Ram Conversion Kit

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

NOTE: Refer to the **Air to Electric D60 Ram Conversion Kit, 25P280-82** parts on page **32** for correct assembly.

1. Refer to **Figure 11** on page **13** and remove the hex nut from the mounting plate. Place the cable track bracket (119) on the mounting plate and replace the hex nut.

2. Using the top mounting bracket (109), attach the ram junction box (108) to the ram using two screws (114) and washers (113) as shown in **Figure 11**.

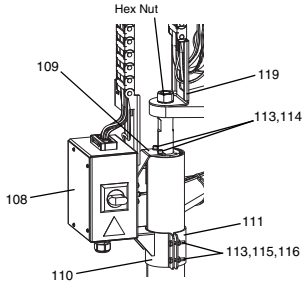


FIG. 11: Attach Ram Junction Box to the D60

3. Attach the bottom mounting brackets (110, 111) with four screws (115), nuts (116) and washers (113) as shown in **Figure 11**.

NOTICE

Do not over-torque the ram junction box mounting brackets. Over-torquing can damage the cylinder.

4. Disconnect the wires from the disconnect block (A).

5. Remove and discard the driver junction box cover (C) and the disconnect switch (B) from the driver. **See Figure 12**.

6. Remove and discard the extrusion (D), then remove and discard the plug (E).

7. Remove the cord grip and save it for reuse.

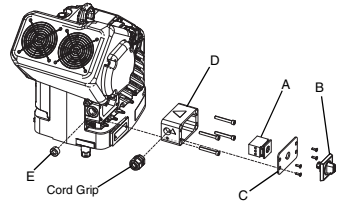


FIG. 12: Remove Driver Junction Box

8. Install the electric driver (101) with the four screws (132) and washers (133) included in the kit.

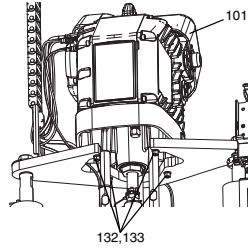


FIG. 13: Install D60 Electric Driver

9. Install the cord grip that was removed in step 7 into the driver junction box where the plug was removed. See **Figure 14** on page **14**.

10. The power cable from the ram junction box (108) is routed through the cable track. Run it through the cord grip and connect it using the supplied connectors. Connect the ground wire to one of the two green ground terminals inside the driver junction box.

11. Install the new driver junction box cover using the four screws. The cover and screws are included with the cable track assembly.

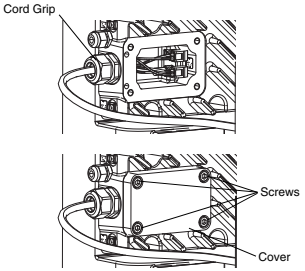


FIG. 14: D60 Driver Junction Box Cover

12. Connect the cable track connections as shown in **Figure 15**.
    a. Connect the two CAN connectors to ports 1 and 2.
    b. Connect the 5 pin connector to port 3.
    c. Connect the 8 pin connector to port 4.

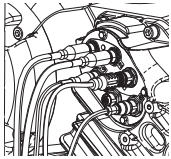


FIG. 15: D60 Cable Track Connections

NOTE: Use **Figure 3** on page **10** for further reference.

13. Use the shaft adapter included in the kit and connect the electric driver to the pump coupling, pump lower, and tie rods that were removed from the air motor pump. Refer to the E-Flo SP Supply Systems Installation-Parts manual. See **Related Manuals** on page **2**.

14. Connect the outlet check valve (102) using the adapter fitting (104) included in the kit. Apply thread sealant to the threads of the check valve and the adapter fitting prior to installation. See **Figure 16**.

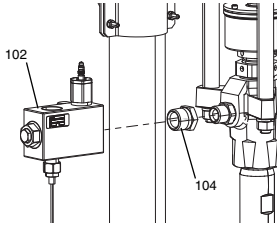


FIG. 16: D60 Outlet Check Valve Installation

15. The pressure transducer cable from the outlet check valve plugs into port 6 on the electric driver. Use **Figure 3** on page **10** for reference.

16. Use the wire ties (103) included in the kit to secure the pressure transducer cable to a tie rod.

17. Mount the assembled ADM mounting brackets with four screws (114) and washers (113) as shown in **Figure 17**.

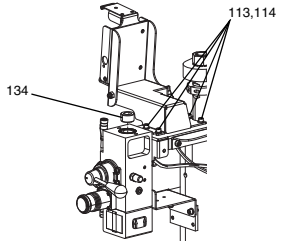


FIG. 17: D60 ADM Mounting Bracket

18. Plug the air line hole in the top of the air controls with the supplied plug (134) as shown in **Figure 17**.

19. Install the empty level sensor.
    a. Attach the actuator bracket (127) onto the ram air cylinder shaft as shown in **Figure 18**.
    b. Install the level sensor bracket (128) using two screws (114) and washers (113).

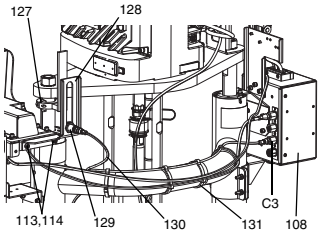


FIG. 18: D60 Empty Level Sensor

    c. Attach the level sensor (129) onto the level sensor bracket (128) as shown in **Figure 18**.
    d. Connect one end of the harness (130) to the level sensor. Connect the other end of the harness to the bulk head connection labeled C3 on the ram junction box (108).
    e. Use four wire ties (131) to secure the harness.


This conversion results in increased pressure to the system. To help prevent serious injury from skin injection, all components downstream of the pump must be rated to the new, higher maximum pressures. See the **Pressure Ratings** table on page **4**.

20. Verify all components downstream of the pump are rated to the new, higher pressure. Replace any components that are not rated to the higher pressures.

NOTE: Converting from air to electric changes the operation of the ram supply system. Follow the E-Flo SP Supply Systems Installation-Parts manual and the E-Flo SP Software Instructions for complete warnings and instructions for the system going forward. See **Related Manuals** on page **2**.

21. The identification label (137,138) included in the kit needs to be applied on the rear side of the ram cylinder where the original identification label is located below the ram junction box mounting bracket as shown in **Figure 19**.

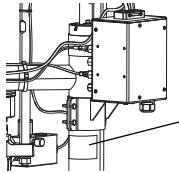
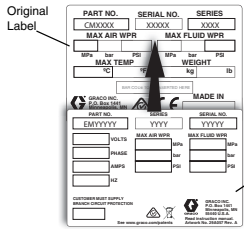


FIG. 19: D60 Identification Label Location

NOTE: When you are applying the new label, you must leave the part number, serial number, and series showing on the original label. The rest of the original identification label needs to be covered by the new one to allow for updated pressure and electrical information.

22. Carefully place the new identification label over the original one so they line up as shown in **Figure 20**.



Correct Label Alignment

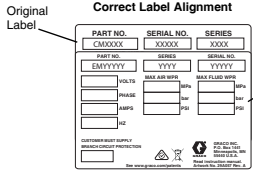


FIG. 20: Apply Identification Label on D60

23. Refer to **Connect Power to an Electric Ram System** on page **23** to connect power to the ram junction box.

Air to Electric D200 Ram Conversion Kits

The air to electric D200 ram conversion kit is available in three options depending on the pump lower size.

Kit Number	Pump Lower Size
25P283	CM100
25P284	CM200, CM250, DF115, DF145, DF180, DF220, DF290
25P285	CM500, DF430

Disassemble the Air Motor Ram

1. Follow the **Pressure Relief Procedure** for the air motor pump and ram system you are using. See **Related Manuals** on page **2**.

2. Remove the main air supply from the air controls.

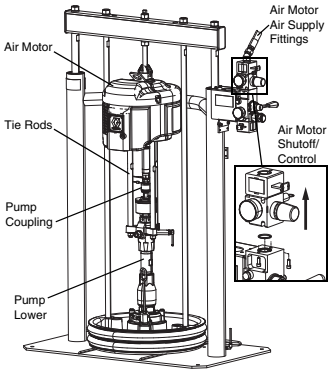


FIG. 21: D200 with Air Motor

3. See **Figure 21** and remove the pump coupling, pump lower, and three tie rods from the air motor supply system. Save these parts to be used when installing the kit. Refer to the Supply Systems Operation manual and the Supply Systems Repair-Parts manual. See **Related Manuals** on page **2**.

4. Remove the air motor supply hose and fittings from the top of the air controls.

5. On the air controls, disconnect the air motor shutoff and control sections together by removing the two screws underneath the air motor control as shown in **Figure 21**. Lift the two sections to remove them. Remove the o-ring from around the hole in the top of the air controls.

6. Remove the air motor from the ram.

Assemble the Electric D200 Ram Conversion Kit

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

NOTE: Refer to the **Air to Electric D200 Ram Conversion Kit, 25P283-85** parts on page **35** for correct assembly.

1. Refer to **Figure 22** and remove the hex nut from the ram's cross beam. Place the cable track bracket (219) on the cross beam with the track on the rear of the beam and replace the hex nut.

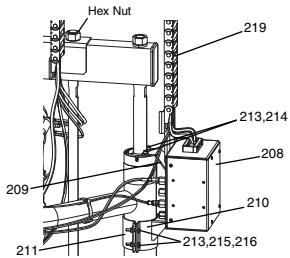


FIG. 22: D200 Cable Track and Ram Junction Box

2. Using the mounting bracket (209), attach the ram junction box (208) to the ram using two screws (214) and washers (213) as shown in **Figure 22** on page **16**.

3. Attach the mounting brackets (210, 211) with four screws (215), nuts (216), and washers (213).

NOTICE

Do not over-torque the ram junction box mounting brackets. Over-torquing can damage the cylinder.

4. Disconnect the wires from the disconnect block (A).

5. Remove and discard the driver junction box cover (C) and the disconnect switch (B) from the driver. See **Figure 23**.

6. Remove and discard the extrusion (D), then remove and discard the plug (E).

7. Remove the cord grip and save it for reuse.

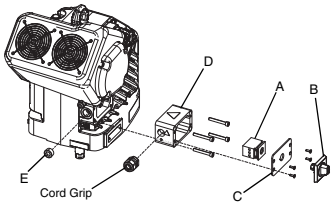


FIG. 23: Remove Driver Junction Box

8. Install the electric driver (201) using the same hardware that was used with the air motor.

9. Install the cord grip that was removed in step 7 into the driver junction box where the plug was removed. See **Figure 24**.

10. The power cable from the ram junction box (208) is routed through the cable track. Run it through the cord grip and connect it using the supplied connectors. Connect the ground wire to one of the two green ground terminals inside the driver junction box.

11. Install the new driver junction box cover using the four screws. The cover and screws are included with the cable track assembly.

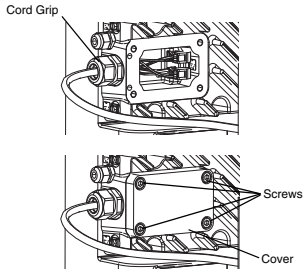


FIG. 24: D200 Driver Junction Box Cover

12. Connect the cable track connections as shown in **Figure 25**.

    a. Connect the two CAN connectors to ports 1 and 2.

    b. Connect the 5 pin connector to port 3.

    c. Connect the 8 pin connector to port 4.

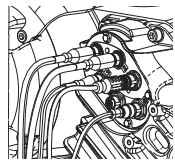


FIG. 25: D200 Cable Track Connections

NOTE: Use **Figure 3** on page **10** for further reference.

13. Use the shaft adapter included in the kit and connect the electric driver to the pump coupling, pump lower, and tie rods that were removed from the air motor pump. Refer to the E-Flo SP Supply Systems Installation-Parts manual. See **Related Manuals** on page **2**.

14. Connect the outlet check valve (202) using the adapter fitting (204) included in the kit. Apply thread sealant to the threads of the check valve and the adapter fitting prior to installation. See **Figure 26**.

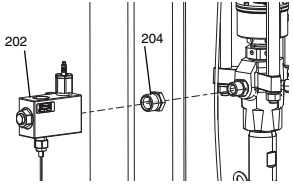


FIG. 26: D200 Outlet Check Valve Installation

15. The pressure transducer cable from the outlet check valve plugs into port 6 on the electric driver. See **Figure 3** on page **10** for reference.

16. Use the wire ties (203) included in the kit to secure the pressure transducer cable to a tie rod.

17. Mount the assembled ADM mounting bracket with four screws (214) and washers (213) as shown in **Figure 27**.

18. Plug the air line hole in the top of the air controls with the supplied plug (134) as shown in **Figure 27**.

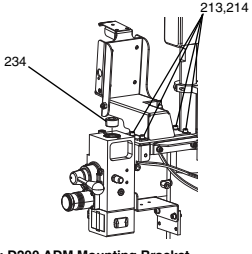


FIG. 27: D200 ADM Mounting Bracket

19. Install the empty level sensor.
    a. Attach the actuator bracket (227) onto the ram air cylinder shaft as shown in **Figure 28**.

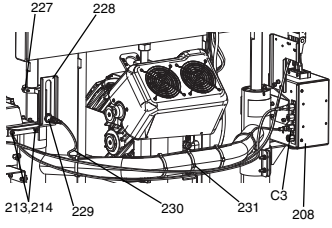


FIG. 28: D200 Empty Level Sensor

    b. Install the level sensor bracket (228) using two screws (214) and washers (213).
    c. Attach the level sensor (229) onto the level sensor bracket (228) as shown in **Figure 28**.
    d. Connect one end of the harness (230) to the level sensor. Connect the other end of the harness to the bulk head connection labeled C3 on the ram junction box (208).
    e. Use four wire ties (231) to secure the harness.

This conversion results in increased pressure to the system. To help prevent serious injury from skin injection, all components downstream of the pump must be rated to the new, higher maximum pressures. See the **Pressure Ratings** table on page **4**.

20. Verify all components downstream of the pump are rated to the new, higher pressure. Replace any components that are not rated to the higher pressures.

NOTE: Converting from air to electric changes the operation of the ram supply system. Follow the E-Flo SP Supply Systems Installation-Parts manual and the E-Flo SP Software Instructions for complete warnings and instructions for the system going forward. See **Related Manuals** on page **2**.

21. The identification label (237,238) included in the kit needs to be applied on the rear side of the ram cylinder where the original identification label is located below the ram junction box mounting bracket as shown in **Figure 29**.

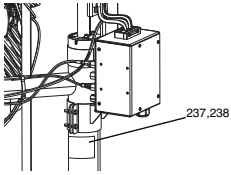


FIG. 29: D200 Identification Label Location

NOTE: When you are applying the new label, you must leave the part number, serial number, and series showing on the original label. The rest of the original identification label needs to be covered by the new one to allow for updated pressure and electrical information.

22. Carefully place the new identification label over the original one so they line up as shown in **Figure 30**.

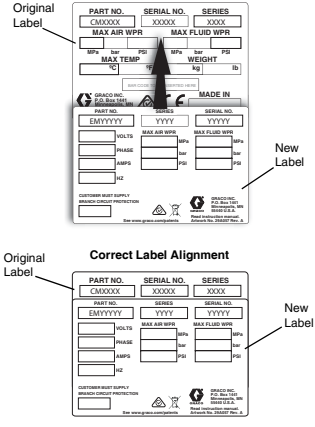


FIG. 30: Apply Identification Label on D200

23. Refer to **Connect Power to an Electric Ram System** on page **23** to connect power to the ram junction box.

Air to Electric D200s Ram Conversion Kits

The air to electric D200s ram conversion kit is available in three options depending on the pump lower size.

Kit Number	Pump Lower Size
25P286	CM100
25P287	CM200, CM250, DF115, DF145, DF180, DF220, DF290
25P288	CM500, DF430

Disassemble the Air Motor Ram

1. Follow the **Pressure Relief Procedure** for the air motor pump and ram system you are using. See **Related Manuals** on page **2**.

2. Remove the main air supply for the air controls.

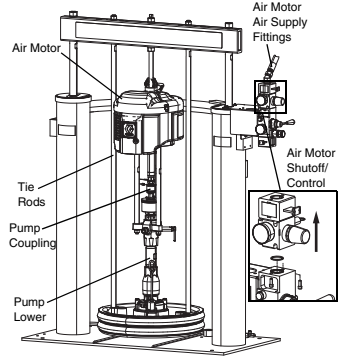


FIG. 31: D200s with Air Motor

3. See **Figure 31** on page **19** and remove the pump coupling, pump lower, and three tie rods from the air motor supply system. Save these parts to be used when installing the kit. Refer to the Supply Systems Operation manual and the Supply Systems Repair-Parts manual. See **Related Manuals** on page **2**.

4. Remove the air motor supply hose and fittings from the top of the air controls.

5. On the air controls, disconnect the air motor shutoff and control sections together by removing the two screws underneath the air motor control as shown in **Figure 31** on page **19**. Lift the two sections to remove them. Remove the o-ring from around the hole in the top of the air controls.

6. Remove the air motor from the ram.

Assemble the Electric D200s Ram Conversion Kit

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

NOTE: Refer to the **Air to Electric D200s Ram Conversion Kit, 25P286-88** parts on page **38** for correct assembly.

1. Refer to **Figure 32** and remove the hex nut from the ram's cross beam. Place the cable track bracket (311) on the cross beam with the track on the rear of the beam and replace the hex nut.

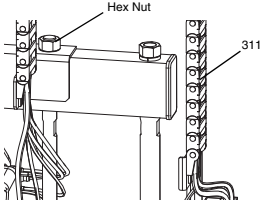


FIG. 32: D200s Cable Track Installation

2. Attach the ram junction box (308) to the ram using three screws (310) and washers (309) as shown in **Figure 33**.

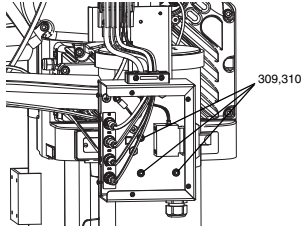


FIG. 33: D200s Ram Junction Box Installation

3. Disconnect the wires from the disconnect block (A).

4. Remove and discard the driver junction box cover (C) and the disconnect switch (B) from the driver. See **Figure 34**.

5. Remove and discard the extrusion (D), then remove and discard the plug (E).

6. Remove the cord grip and save it for reuse.

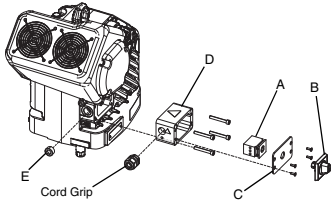


FIG. 34: Remove Driver Junction Box

7. Install the electric driver (301) using the same hardware that was used with the air motor.

8. Install the cord grip that was removed in step 6 in the driver junction box where the plug was removed. See **Figure 35** on page **21**.

9. The power cable from the ram junction box (308) is routed through the cable track. Run it through the cord grip and connect it using the supplied connectors. Connect the ground wire to one of the two green ground terminals inside the driver junction box.

10. Install the new driver junction box cover using the four screws. The cover and screws are included with the cable track assembly.

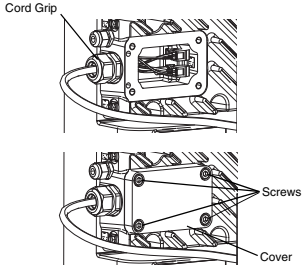


FIG. 35: D200s Driver Junction Box Cover

11. Connect the cable track connections as shown in **Figure 36**.
    a. Connect the two CAN connectors to ports 1 and 2.
    b. Connect the 5 pin connector to port 3.
    c. Connect the 8 pin connector to port 4.

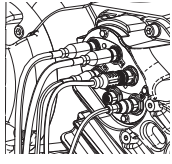


FIG. 36: D200s Cable Track Connections

NOTE: Use **Figure 3** on page **10** for further reference.

12. Use the shaft adapter included in the kit and connect the electric driver to the pump coupling, pump lower, and tie rods that were removed from the air motor pump. Refer to the E-Flo SP Supply Systems Installation-Parts manual. See **Related Manuals** on page **2**.

13. Connect the outlet check valve (302) using the adapter fitting (304) included in the kit. Apply thread sealant to the threads of the check valve and the adapter fitting prior to installation. See **Figure 37**.

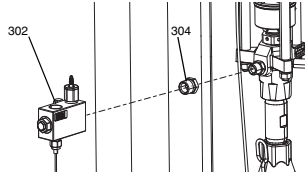


FIG. 37: D200s Outlet Check Valve Installation

14. The pressure transducer cable from the outlet check valve plugs into port 6 on the electric driver. See **Figure 3** on page **10** for reference.

15. Use the wire ties (303) included in the kit to secure the pressure transducer cable to a tie rod.

16. Mount the assembled ADM mounting bracket with four screws (310) and washers (309) as shown in **Figure 38**.

17. Plug the air line hole in the top of the air controls with the supplied plug (134) as shown in **Figure 38**.

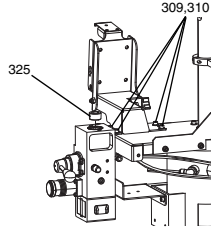


FIG. 38: D200s ADM Mounting Bracket

18. Install the empty level sensor.
    a. Attach the actuator bracket (321) onto the ram air cylinder shaft as shown in **Figure 39**.

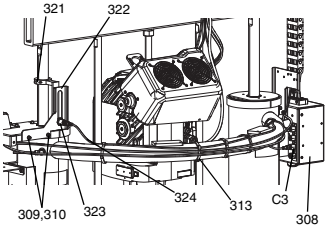


FIG. 39: D200s Empty Level Sensor

    b. Install the level sensor bracket (322) using two screws (310) and washers (309).
    c. Attach the level sensor (323) onto the level sensor bracket (322) as shown in **Figure 39**.
    d. Connect one end of the harness (324) to the level sensor. Connect the other end of the harness to the bulkhead connection labeled C3 on the ram junction box (308).
    e. Use five wire ties (313) to secure the harness.

This conversion results in increased pressure to the system. To help prevent serious injury from skin injection, all components downstream of the pump must be rated to the new, higher maximum pressures. See the **Pressure Ratings** table on page **4**.

19. Verify all components downstream of the pump are rated to the new, higher pressure. Replace any components that are not rated to the higher pressures.

NOTE: Converting from air to electric changes the operation of the ram supply system. Follow the E-Flo SP Supply Systems Installation-Parts manual and the E-Flo SP Software Instructions for complete warnings and instructions for the system going forward. See **Related Manuals** on page **2**.

20. The identification label (328,329) included in the kit needs to be applied on the rear side of the ram cylinder where the original identification label is located below the ram junction box mounting bracket and the safety labels as shown in **Figure 40**.

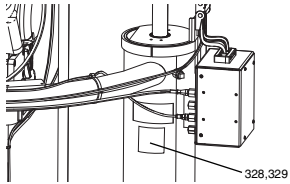


FIG. 40: D200s Identification Label Location

NOTE: When you are applying the new label, you must leave the part number, serial number, and series showing on the original label. The rest of the original identification label needs to be covered by the new one to allow for updated pressure and electrical information.

21. Carefully place the new identification label over the original one so they line up as shown in **Figure 41**.

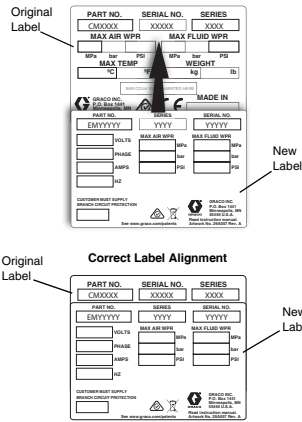


FIG. 41: Apply Identification Label on D200s

22. Refer to **Connect Power to an Electric Ram System** to connect power to the ram junction box.

Connect Power to an Electric Ram System

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

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.

Refer to the following steps to connect power to the junction box on the ram system.

1. 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 **Figure 42**.

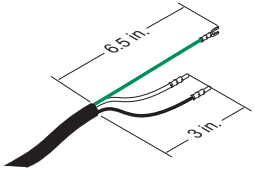


FIG. 42: Power Cord

2. Remove the six screws holding the cover of the ram junction box then remove the junction box cover.

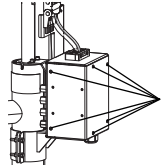


FIG. 43: Remove the Ram Junction Box Cover

3. Insert the power cord through the cord grip and into the ram junction box.

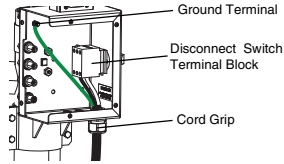


FIG. 44: Power Connection

4. Attach the ground wire to the ground terminal inside the ram junction box.
5. Tighten the cord grip to securely hold the power cord to the ram junction box.
6. Refer to **Figure 45** and connect the wires from the power cord into terminals 2T1 and 6T3 on the disconnect switch terminal block.

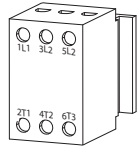


FIG. 45: Disconnect Switch Terminal Block

7. Replace the ram junction box cover and secure it with the six screws that were removed in step 2.

Pump ADM Kit

The pump ADM kit **25E439** comes fully assembled and ready to attach to the pump. The mounting holes for the ADM are located next to the ports for the cable connections as shown in **Figure 46**.

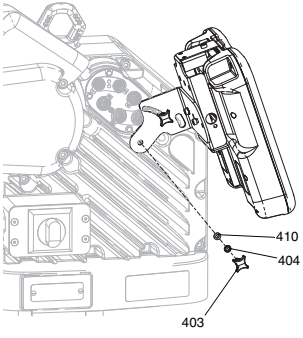


FIG. 46: Mount ADM to the Pump

1. Align the mounting bracket with the mounting holes on the pump.
2. Attach the ADM assembly using the washers (410), locking washers (404), and fastener knobs (403).
3. Adjust the ADM to the required angle and tighten the two knobs until it is secure.
4. Connect the CAN cable (407) to the ADM as shown in **Figure 47**.

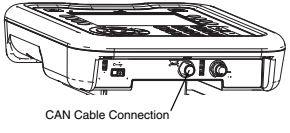


FIG. 47: ADM CAN Cable Connection

5. Connect the other end of the CAN cable (407) to the electric driver in Port 1.

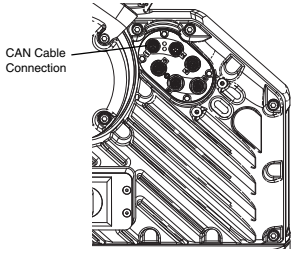


FIG. 48: Electric Driver Port for CAN Cable

6. Install the software as described in the E-Flo SP Software Instructions. See **Related Manuals** on page **2**.

Ram ADM Kit

The ram ADM kit **25E437** needs to be attached to the ADM bracket that is included in each of the ram conversion kits.

1. Mount the ADM (501) to the ADM bracket on the ram as shown in **Figure 49**.

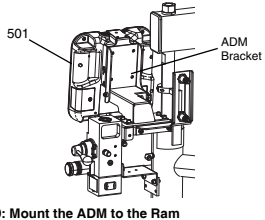


FIG. 49: Mount the ADM to the Ram

2. Connect the CAN cable (502) to the ADM (501) as shown in **Figure 47**.

3. Route the CAN cable (502) along the back frame of the ram. Use the six wire ties (503) to secure the cable. See **Figure 50**. Coil any excess cable under the ADM mounting bracket.

4. Connect the other end of the CAN cable (502) to the bulkhead connection labeled C1 on the ram junction box as shown in **Figure 50**.

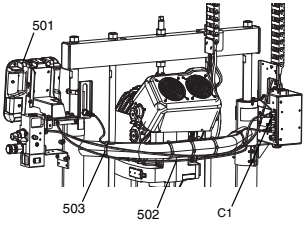


FIG. 50: Junction Box Connection for CAN Cable

5. Install the software as described in the E-Flo SP Software Instructions. See **Related Manuals** on page **2**.

Standalone Pump Transformer Kit

The pump transformer kit **25E268** is for pumps requiring 480 VAC power. Mount this transformer near the pump in a secure location that prevents damage to the transformer or the wiring to the pump.

Mount the Pump Transformer

1. Follow the **Pressure Relief Procedure** for the air motor pump and ram system you are using. See **Related Manuals** on page **2**.

2. Refer to the **Transformer Mounting Hole Diagram** on page **45**. Use the mounting holes as a guide to drill holes for 1/4 in. (6 mm) screws.

3. Attach the transformer securely to the mounting surface.

Connect the Pump Transformer Power

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

1. Follow the steps in **Connect Power to the Electric Pump System** on page **10** before connecting power to the transformer.

2. Remove the four screws on the transformer as shown in **Figure 51** and remove the front cover.

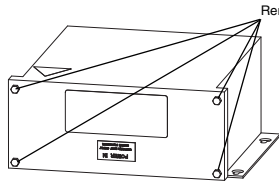


FIG. 51: Pump Standalone Transformer

3. Run the power cord from the pump through one of the punch-outs in the side of the transformer cover. Use a 1 in. (25 mm) cord grip or conduit connection (not included) where wiring passes through the punch-out. See **Figure 52**.

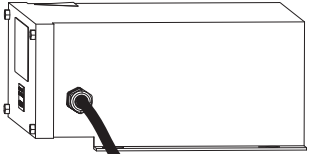


FIG. 52: Connect Cord to Transformer

4. Connect the wiring for providing power to the pump to X1 and X2 and a ground wire to the grounding bar.

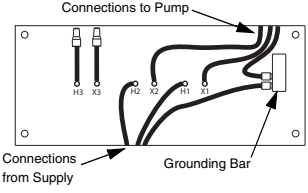


FIG. 53: Pump Transformer Wiring Connections

5. Insert the incoming power cord (not included) through another punch-out on the transformer. Use a 1 in. (25 mm) cord grip or conduit connection (not included) where wiring passes through the punch-out.

6. Refer to **Figure 53** and connect the wires from the power cord to H1 and H2 inside the transformer.

7. Connect the power cord ground wire to the grounding bar inside the transformer.

8. Replace the transformer cover using the four screws that were removed in step 2.

Ram Transformer Kits

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

The ram transformer kit is available in two options depending on the ram system model.

Kit Number	Ram System Model
25E202	D200s
25E203	D60 and D200

Mount the Ram Transformer

1. Follow the **Pressure Relief Procedure** for the supply system you are using. See **Related Manuals** on page **2**.

2. Remove the six screws holding the ram junction box cover. Then remove the cover and the cord grip.

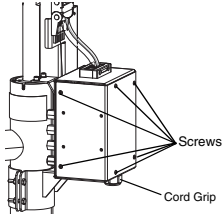


FIG. 54: Ram Junction Box

3. Mount the transformer onto the ram cylinder so the conduit (707 or 811 depending on the kit) containing the conductors from the transformer can reach the ram junction box as shown in **Figure 55**.

   a. For kit 25E203, use the eight screws (704), washers (705), and nuts (703) included in the kit to attach the transformer's mounting bracket to the cylinder.

   b. For kit 25E202, use the two U-bolts (805), four washers (807), and four nuts (804) included in the kit to attach the transformer's mounting bracket to the cylinder.

NOTICE

Do not over-torque the screws when mounting the transformer to the ram. Over-torquing can damage the cylinder.

4. Run the conduit and install the cord grip into the hole in the bottom of the ram junction box.

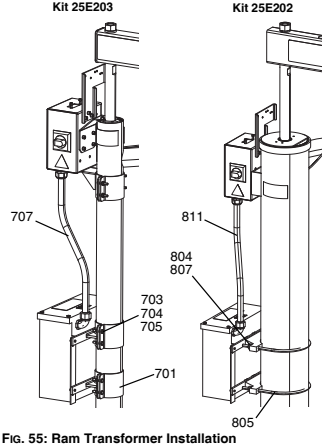


FIG. 55: Ram Transformer Installation

5. Use the two flat washers (719 or 821 depending on the kit) when attaching the cord grip. One washer should be on the outside of the ram junction box and the other on the inside. See **Figure 56**.

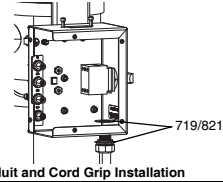


FIG. 56: Conduit and Cord Grip Installation

Connect the Ram Transformer Power

1. Follow the steps in **Connect Power to an Electric Ram System** on page **23** before connecting power to the transformer.

2. Remove the four screws on the transformer as shown in **Figure 57** and remove the front cover.

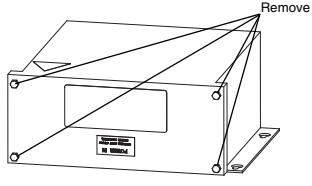


FIG. 57: Ram Transformer

3. Insert the incoming power cord (not included) through a punch-out on the side of the transformer. Use a 1 in. (25 mm) cord grip or conduit connection (not included) where wiring passes through the punch-out. See **Figure 58**.

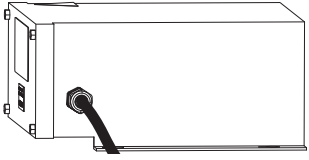


FIG. 58: Connect Cord to Transformer

4. Refer to **Figure 59** and connect the wires from the power cord to H1 and H2 inside the transformer.

5. Connect the power cord ground wire to the grounding bar inside the transformer.

NOTE: The wiring to the ram junction box is already connected to the transformer through the conduit.

6. Replace the transformer cover using the four screws that were removed in step 2.

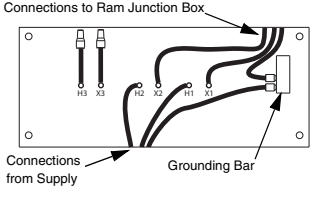


FIG. 59: Ram Transformer Wiring Connections

Notes

Parts

Air to Electric Pump Conversion Kits, 25P277-79

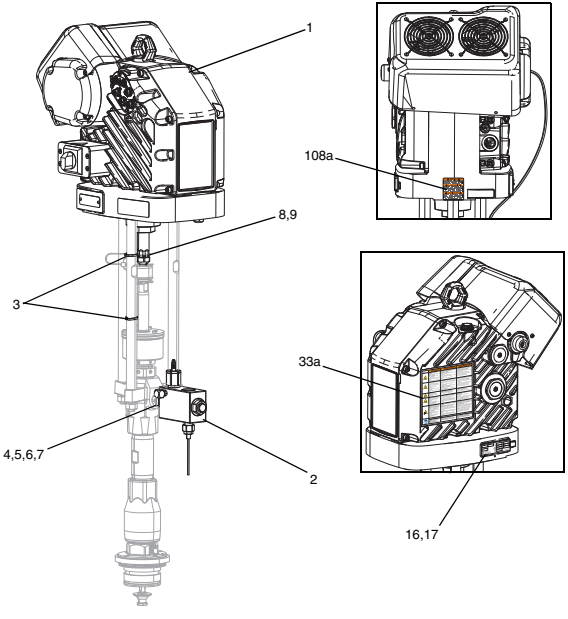


FIG. 60: Air to Electric Pump Conversion

Air to Electric Pump Conversion Parts List

			Quantity		
Ref	**Part**	**Description**	**25P277**	**25P278**	**25P279**
1	25N519	KIT, driver, apd 20, vertical	1	1	1
2	25N738	VALVE, check, 1 in. npt with relief	1		
	25N780	VALVE, check, 1 in.		1	
	25N739	VALVE, check, 1-1/2 in. npt			1
3	C38321	TIE, cable, 3.62 lg	2	2	2
4	131523	BUSHING, hex hd, 3/4 in. npt x 1 in. npt, ss	1		
	157191	FITTING, adapter, 1/2 in. npt x 3/4 in. npt		1	
5	158586	FITTING, bushing		1	
6	131524	FITTING, nipple, 1 in. npt, ss		1	
7	131525	FITTING, nipple, reducing, ss		1	
8	15H392	ROD, adapter xtreme	1	1	
	15H371	ADAPTER, M38 x 2			1
9	15H370	ADAPTER, 1 1/4-12		1	
16	15A611	BLANK, label, kit	1	1	1
17	29A056	ARTWORK, identification	1	1	1
Electric Driver Warning Labels					
33a	16W360▲◆	LABEL, safety, warning, multiple	1	1	1
	17J476▲❖	LABEL, safety, warning, multiple	1	1	1
108a	195792▲◆	LABEL, safety, warning, electric shock	1	1	1
	195793▲❖	LABEL, safety, warning, electric shock	1	1	1

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

◆ *English, Japanese, Korean, and Chinese.*

❖ *English, Spanish, French.*

Air to Electric D60 Ram Conversion Kits, 25P280-82

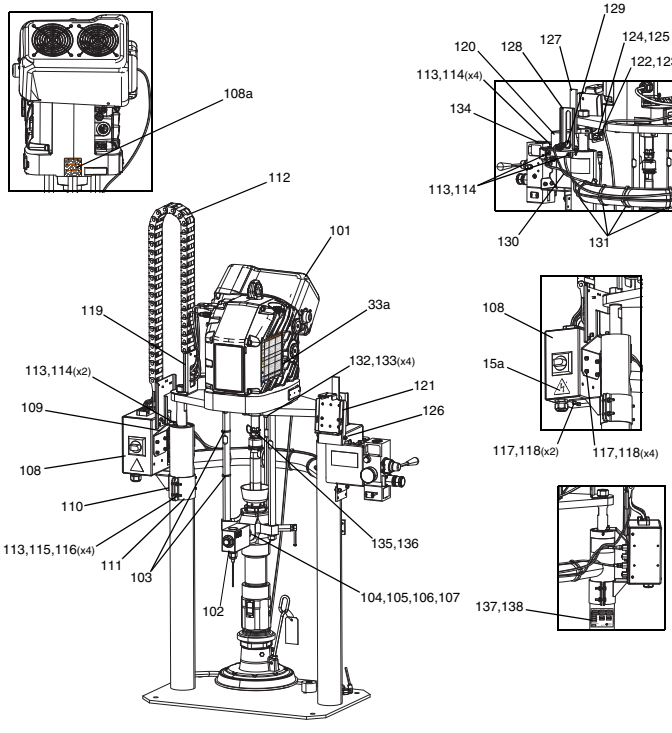


FIG. 61: Air to Electric D60 Ram Conversion

D60 Ram Conversion Parts List

			Quantity		
Ref	**Part**	**Description**	**25P280**	**25P281**	**25P282**
101	25N519	KIT, driver, apd20, vertical	1	1	1
102	25N738	VALVE, check, 1 in. npt with relief	1		
	25N780	VALVE, check, 1 in.		1	
	25N739	VALVE, check, 1-1/2 in. npt			1
103	C38321	TIE, cable, 3.62 lg	2	2	1
104	131523	BUSHING, hex hd, 3/4 in. npt x 1 in. npt, ss	1		
	157191	FITTING, adapter, 1/2 in. npt x 3/4 in. npt		1	
105	158586	FITTING, bushing		1	
106	131524	FITTING, nipple, 1 in. npt, ss		1	
107	131525	FITTING, nipple, reducing, ss		1	
108	25E207	JUNCTION BOX, ram mounted, e-drive	1	1	1
109	16A314	BRACKET, mounting, acc. box, painted	1	1	1
110	15W703	BRACKET, mnting, btm, 3 in. ram, wld, pain	1	1	1
111	16A566	BRACKET, mounting, ram, wrmmlt, 3 in.	1	1	1
112	25E346	CABLE, track assembly, d60	1	1	1
113	100016	WASHER, lock	16	16	16
114	121112	SCREW, cap, socket head	12	12	12
115	100014	SCREW, cap, hex hd	4	4	4
116	100015	NUT, hex mscr	4	4	2
117	108050	WASHER, lock, spring	6	6	6
118	121518	SCREW, cap, shc	6	6	6
119	17X806PKG	BRACKET, cable track, d60 ram, paint	1	1	1
120	255633	BRACKET, pendant pivot, painted	1	1	1
121	255639	BRACKET, mounting, assembly	1	1	1
122	110755	WASHER, plain	1	1	1
123	121250	SCREW, shcs, 1/4 unc x 4.25	1	1	1
124	117017	WASHER	1	1	1
125	121253	KNOB, display adj., ram pkgs	1	1	1
126	102040	NUT, lock, hex	1	1	1
127	255381	ACTUATOR, sensor, low/empty, painted	1	1	1
128	17Y702PKG	BRACKET, lvl sensor, dual, d200, pnt	1	1	1
129	130787PKG	SENSOR, barrel, m18 x 1, pnp, nc	1	1	1
130	123673	HARNESS	1	1	1
131	114958	STRAP, tie	4	4	4
132	110141	SCREW, cap, sch	4	4	4
133	100133	WASHER, lock, 3/8	4	4	4
134	102726	PLUG, pipe headles	1	1	1
135	15H392	ROD, adapter xtreme	1	1	
	15H371	ADAPTER, M38 x 2			1
136	15H370	ADAPTER, m38 x 2		1	
137	16D782	BLANK, label, kit, 3 x 3	1	1	1

			Quantity		
Ref	**Part**	**Description**	**25P280**	**25P281**	**25P282**
138	29A057	ARTWORK, identification	1	1	1
Ram Junction Box Warning Label					
15a	196548▲	LABEL, caution	1	1	1
Electric Driver Warning Labels					
33a	16W360▲◆	LABEL, safety, warning, multiple	1	1	1
	17J476▲❖	LABEL, safety, warning, multiple	1	1	1
108a	195792▲◆	LABEL, safety, warning, electric shock	1	1	1
	195793▲❖	LABEL, safety, warning, electric shock	1	1	1

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

◆ *English, Japanese, Korean, and Chinese.*

❖ *English, Spanish, French.*

Air to Electric D200 Ram Conversion Kits, 25P283-85

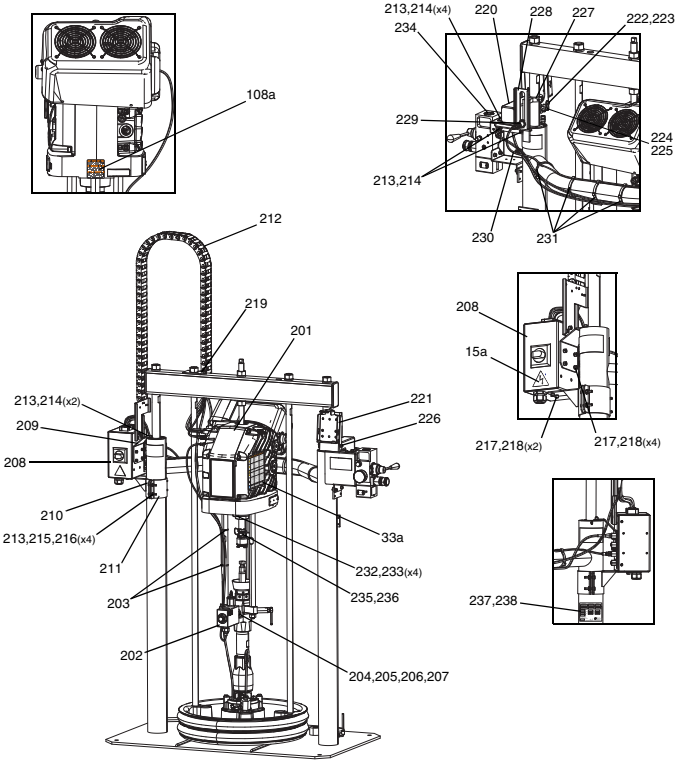


FIG. 62: Air to Electric D200 Ram Conversion

D200 Ram Conversion Parts List

			Quantity		
Ref	**Part**	**Description**	**25P283**	**25P284**	**25P285**
201	25N519	KIT, driver, apd20, vertical	1	1	1
202	25N738	VALVE, check, 1 in. npt with relief	1		
	25N780	VALVE, check, 1 in.		1	
	25N739	VALVE, check, 1-1/2 in. npt			1
203	C38321	TIE, cable, 3.62 lg	2	2	1
204	131523	BUSHING, hex hd, 3/4 in. npt x 1 in. npt, ss	1		
	157191	FITTING, adapter, 1/2 in. npt x 3/4 in. npt		1	
205	158586	FITTING, bushing		1	
206	131524	FITTING, nipple, 1 in. npt, ss		1	
207	131525	FITTING, nipple, reducing, ss		1	
208	25E207	JUNCTION BOX, ram mounted, e-drive	1	1	1
209	16A314	BRACKET, mounting, acc. box, painted	1	1	1
210	15W703	BRACKET, mnting, btm, 3 in. ram, wld, pain	1	1	1
211	16A566	BRACKET, mounting, ram, wrmmlt, 3 in.	1	1	1
212	25E347	CABLE, track assembly, d200	1	1	1
213	100016	WASHER, lock	16	16	16
214	121112	SCREW, cap, socket head	12	12	12
215	100014	SCREW, cap, hex hd	4	4	4
216	100015	NUT, hex mscr	4	4	4
217	108050	WASHER, lock, spring	6	6	6
218	121518	SCREW, cap, shc	6	6	6
219	17X808PKG	BRACKET, cable track, d200 ram, paint	1	1	1
220	255633	BRACKET, pendant pivot, painted	1	1	1
221	255639	BRACKET, mounting, assembly	1	1	1
222	110755	WASHER, plain	1	1	1
223	121250	SCREW, shcs, 1/4 unc x 4.25	1	1	1
224	117017	WASHER	1	1	1
225	121253	KNOB, display adj., ram pkgs	1	1	1
226	102040	NUT, lock, hex	1	1	1
227	255381	ACTUATOR, sensor, low/empty, painted	1	1	1
228	17Y702PKG	BRACKET, lvl sensor, dual, d200, pnt	1	1	1
229	130787PKG	SENSOR, barrel, m18 x 1, pnp, nc	1	1	1
230	123656	CABLE, 5-pin, male/female, (matrix)	1	1	1
231	114958	STRAP, tie	4	4	4
232	110141	SCREW, cap, sch	4	4	4
233	100133	WASHER, lock, 3/8	4	4	4
234	102726	PLUG, pipe headles	1	1	1
235	15H392	ROD, adapter xtreme	1	1	
	15H371	ADAPTER, M38 x 2			1
236	15H370	ADAPTER, 1 1/4-12		1	
237	16D782	BLANK, label, kit, 3 x 3	1	1	1

Ref	Part	Description	Quantity		
			25P283	25P284	25P285
238	29A057	ARTWORK, identification	1	1	1
Ram Junction Box Warning Label					
15a	196548▲	LABEL, caution	1	1	1
Electric Driver Warning Labels					
33a	16W360▲◆	LABEL, safety, warning, multiple	1	1	1
	17J476▲❖	LABEL, safety, warning, multiple	1	1	1
108a	195792▲◆	LABEL, safety, warning, electric shock	1	1	1
	195793▲❖	LABEL, safety, warning, electric shock	1	1	1

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

◆ *English, Japanese, Korean, and Chinese.*

❖ *English, Spanish, French.*

Air to Electric D200s Ram Conversion Kits, 25P286-88

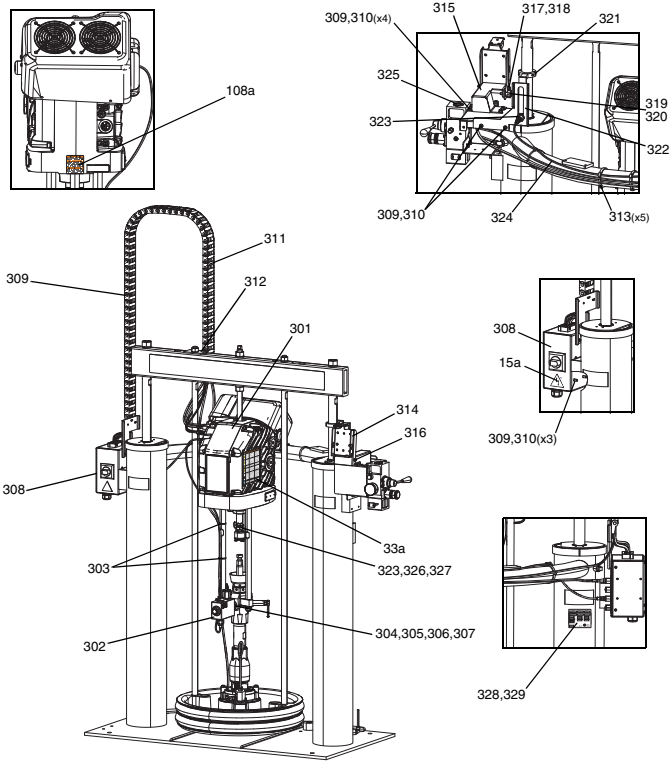


FIG. 63: Air to Electric D200s Ram Conversion

D200s Ram Conversion Kit Parts List

			Quantity		
Ref	**Part**	**Description**	**25P286**	**25P287**	**25P288**
301	25N519	KIT, driver, apd20, vertical	1	1	1
302	25N738	VALVE, check, 1 in. npt with relief	1		
	25N780	VALVE, check, 1 in.		1	
	25N739	VALVE, check, 1-1/2 in. npt			1
303	C38321	TIE, cable, 3.62 lg	2	2	2
304	131523	BUSHING, hex hd, 3/4 in. npt x 1 in. npt, ss	1		
	157191	FITTING, adapter (1/2 in. npt x 3/4 in. npt)		1	
305	158586	FITTING, bushing		1	
306	131524	FITTING, nipple, 1 in. npt, ss		1	
307	131525	FITTING, nipple, reducing, ss		1	
308	25E207	JUNCTION BOX, ram mounted, e-drive	1	1	1
309	100016	WASHER, lock	9	9	9
310	121112	SCREW, cap, socket head	9	9	9
311	25E348	CABLE, track assembly, d200s	1	1	1
312	17X808PKG	BRACKET, cable track, d200, painted	1	1	1
313	114958	STRAP, tie	7	7	7
314	255639	BRACKET, mounting, assembly	1	1	1
315	255633	BRACKET, pendant pivot, painted	1	1	1
316	102040	NUT, lock, hex	1	1	1
317	110755	WASHER, plain	1	1	1
318	121250	SCREW, shcs, 1/4 unc x 4.25	1	1	1
319	117017	WASHER	1	1	1
320	121253	KNOB, display adj., ram pkgs	1	1	1
321	24D006	ACTUATOR, sensor, low/empty, wmmlt, pt	1	1	1
322	17Y704PKG	BRACKET, lvl sensor, dual, d200s, pnt	1	1	1
323	130787PKG	SENSOR, barrel, m18 x 1, pnp, nc	1	1	1
324	123656	CABLE, 5-pin, male/female (matrix)	1	1	1
325	102726	PLUG, pipe headles	1	1	1
326	15H392	ROD, adapter xtreme	1	1	
	15H371	ADAPTER, M38 x 2			1
327	15H370	ADAPTER, 1 1/4-12		1	
328	16D782	BLANK, label, kit, 3 x 3	1	1	1
329	29A057	ARTWORK, identification	1	1	1
Ram Junction Box Warning Label					
15a	196548▲	LABEL, caution	1	1	1
Electric Driver Warning Labels					
33a	16W360▲◆	LABEL, safety, warning, multiple	1	1	1
	17J476▲❖	LABEL, safety, warning, multiple	1	1	1
108a	195792▲◆	LABEL, safety, warning, electric shock	1	1	1
	195793▲❖	LABEL, safety, warning, electric shock	1	1	1

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

◆ *English, Japanese, Korean, and Chinese.*
❖ *English, Spanish, French.*

E-Flo SP Pump ADM Kit, 25E439

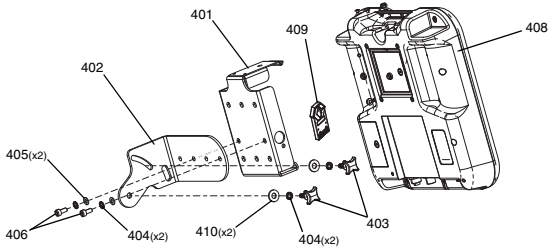


FIG. 64: E-Flo SP Pump ADM

Ref	Part	Description	Qty
401	16T234	BRACKET, display, mount	1
402	24A326	BRACKET, mounting, assembly	1
403	16T935	FASTENER, knob	2
404	111307	WASHER, lock, external	4
405	117017	WASHER	2
406	117026	SCREW, shcs m5 x 12	2
407	121001*	CABLE, can, female/female 1.0 m	1
408	24E451	MODULE, gca, adm	1
409	15M121	TOKEN, gca, key, sft32, black	1
410	110755	WASHER, plain	2

* *Not shown.*

E-Flo SP Ram ADM Kit, 25E437

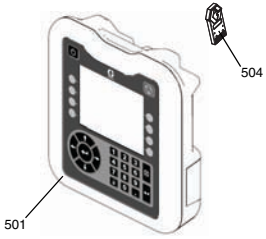


FIG. 65: E-Flo SP Ram ADM

Ref	Part	Description	Qty
501	24E451	MODULE, gca, adm	1
502	123652*	CABLE, can, male/female 3.5 m	1
503	261105*	TIE, cable 14 in.	6
504	15M121	TOKEN, gca, key, sft32, black	1

* *Not shown.*

E-Flo SP Pump Transformer Kit, 25E268

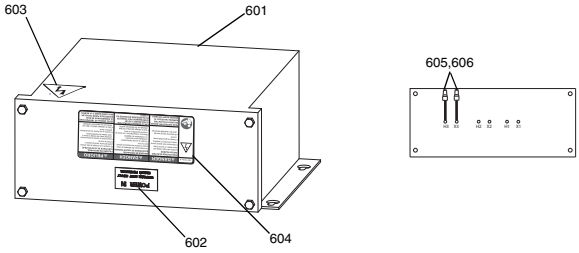


FIG. 66: E-Flo SP Pump Transformer

Ref	Part	Description	Qty
601	129626	TRANSFORMER, 480v	1
602	16K918	LABEL, power in, branch circuit	1
603	196548▲	LABEL, caution	1
604	25E178▲	LABEL, safety, danger	1
605	124436	CONNECTOR, splice, wire, (2)18-(4)12 ga	2
606	124437	CAP, splice, wire, (2)18-(4)12 ga	2

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

E-Flo SP Ram Transformer Kit, 25E203

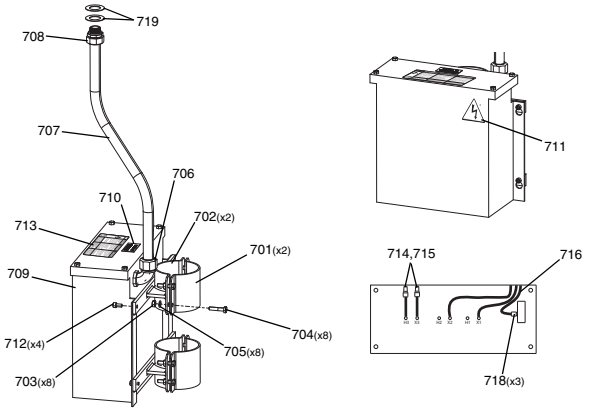


FIG. 67: E-Flo SP Ram Transformer, 25E203

Ref	Part	Description	Qty
701	16A566	BRACKET, mounting, ram, wrmmlt, 3 in.	2
702	17X839PKG	BRACKET, mtg, xformer, 3 in. ram, painted	2
703	100015	NUT, hex mscr	8
704	100014	SCREW, cap, hex hd	8
705	100016	WASHER, lock	8
706	17D989	CONNECTOR, conduit, liquid-tight, 90	1
707	120800	CONDUIT, 1/2	1
708	17D987	CONNECTOR, conduit, liquid-tight	1
709	129626	TRANSFORMER, 480v	1
710	16K918	LABEL, power in, branch circuit	1
711	196548▲	LABEL, caution	1
712	107530	SCREW, cap, sch, hex	4
713	25E178▲	LABEL, safety, danger	1
714	070414	TUBE, poly heat shrink	0.1
715	127431	CONNECTOR, butt splice, 12-10 awg, yl	2
716	065388	WIRE, copper, electric, 14 awg, g/y	1
717	124443*	TERMINAL, ring, insulated, 1/4, 12-10	1
718	127667	FERRULE, 16 ga twin wire	3
719	114170	WASHER, flat	2

* *Not shown.*

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

E-Flo SP Ram Transformer Kit, 25E202

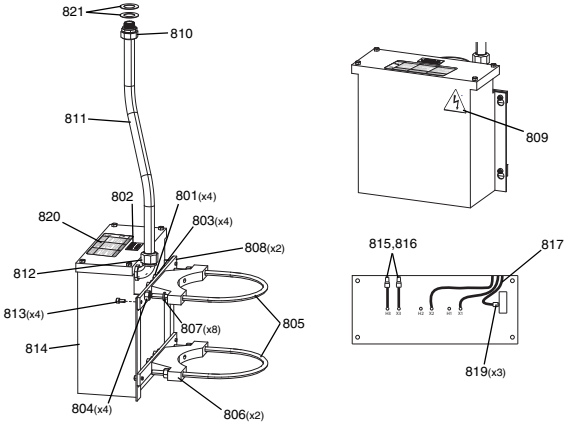


FIG. 68:E-Flo SP Ram Transformer, 25E202

Ref	Part	Description	Qty
801	100101	SCREW, cap, hex hd	4
802	16K918	LABEL, power in, branch circuit	1
803	C19200	WASHER, plain	4
804	100131	NUT, full hex	4
805	C32424	BOLT, u, 7 in.	2
806	617395	CLAMP, saddle	2
807	100133	WASHER, lock, 3/8	8
808	17X836	BAR, xformer mtg, 6 in. ram, painted	1
809	196548▲	LABEL, caution	1
810	17D987	CONNECTOR, conduit, liquid-tight	1
811	120800	CONDUIT, 1/2	1
812	17D989	CONNECTOR, conduit, liquid-tight, 0	1
813	107530	SCREW, cap, sch, hex	4
814	129626	TRANSFORMER, 480 v	1
815	127431	CONNECTOR, butt splice, 12-10 awg, yl	2
816	070414	TUBE, poly heat shrink	0.1
817	065388	WIRE, copper, electric, 14 awg, g/y	1
818	124443*	TERMINAL, ring, insulated, 1/4,12-10	1
819	127667	FERRULE, 16 ga twin wire	3
820	25E178▲	LABEL, safety, danger	1
821	114170	WASHER, flat	2

* *Not shown.*

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

Transformer Mounting Hole Diagram

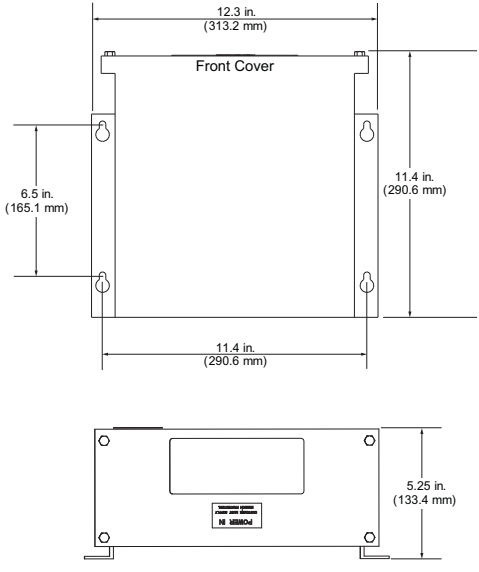


FIG. 69:Transformer Mounting Holes

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