

G-JR Chemical Injection Pump

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EN

Electric pump for injecting chemicals at well sites. For professional use only.

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

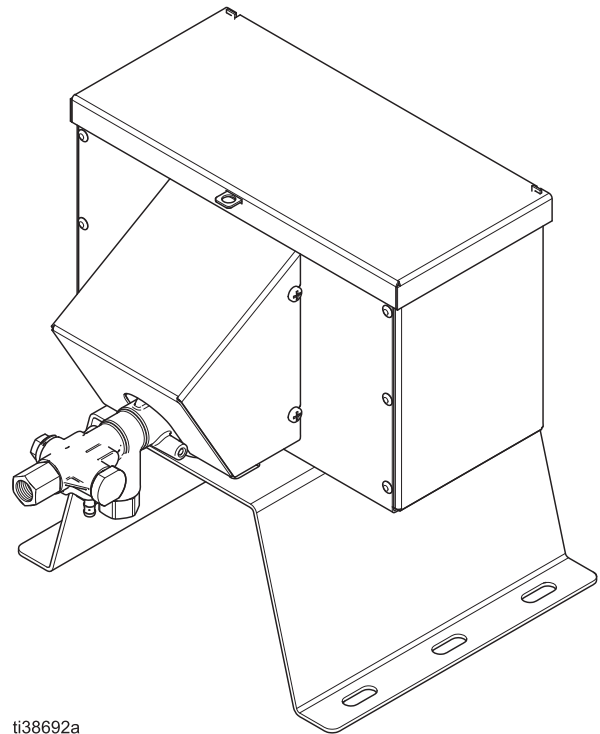
Not recommended for use with chemicals outside of the pH range of 4-9.

See page 2 for model information, including maximum working pressure.



Important Safety Instructions

Read all warnings and instructions in this manual and in the Harrier® EZ-JR manual before using the equipment. Save these instructions.



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Related Manuals











Manual No.	Description
334993	Harrier EZ-JR Injection Pump Controller

Models

Part No.	Voltage	Maximum Working Pressure psi (MPa, bar)
25T650	12 VDC	2000 (13.7, 137)
25T651	120 VAC	

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.

 <h1 style="margin: 0;">WARNING</h1>	
 	<p>FIRE AND EXPLOSION HAZARD</p> <p>When flammable fluids are present in the work area be aware that flammable fumes can ignite or explode. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> • Use equipment only in well ventilated area. • Eliminate all ignition sources, such as cigarettes and portable electric lamps. • Ground all equipment in the work area. • Keep work area free of debris, including rags and spilled or open containers of solvent. • Do not plug or unplug power cords or turn lights on or off when flammable fumes are present. • Use only grounded hoses. • 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.
    	<p>SKIN INJECTION HAZARD</p> <p>High-pressure fluid from dispensing device, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. Get immediate surgical treatment.</p> <ul style="list-style-type: none"> • Do not 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 before each use. Replace worn or damaged parts immediately.
 	<p>ELECTRIC SHOCK HAZARD</p> <p>This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock.</p> <ul style="list-style-type: none"> • 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.



WARNING



MOVING PARTS HAZARD

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

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



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 Sheet (SDS) to know the specific hazards of the fluids you are using.
- Store hazardous fluids 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 manufacturers.



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 manufacturers' warnings. For complete information about your material, request Safety Data Sheet (SDS) from material supplier or retailer.
- Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment regularly. 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.



Component Identification

Access the Harrier controller (3) and other components inside the enclosure (1) by removing the lid (7) and pump cover (4).

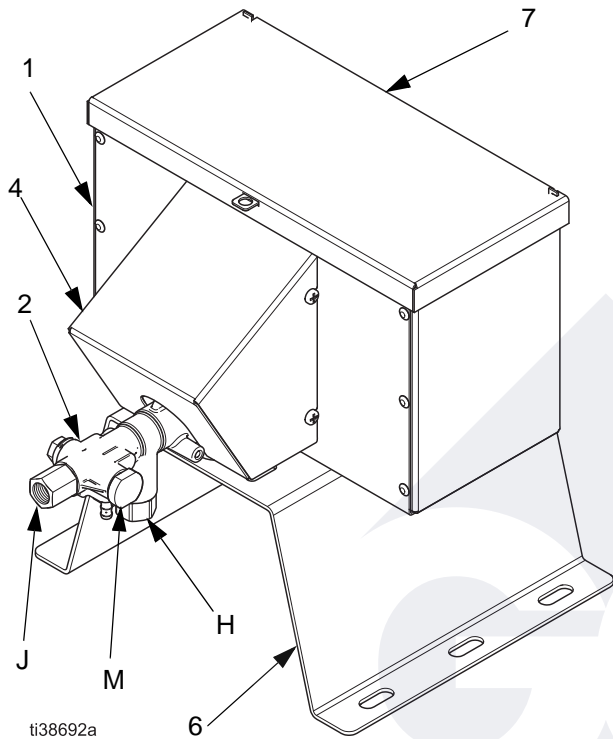


FIG. 1 G-JR Pump Components

Key:

- 1 Enclosure
- 2 G-JR Pump Module
- 3 Harrier EZ-JR Controller
- 4 Pump Cover
- 6 Base
- 7 Lid (included with Enclosure)
- H Pump Inlet
- J Pump Outlet
- M Priming Port Plug

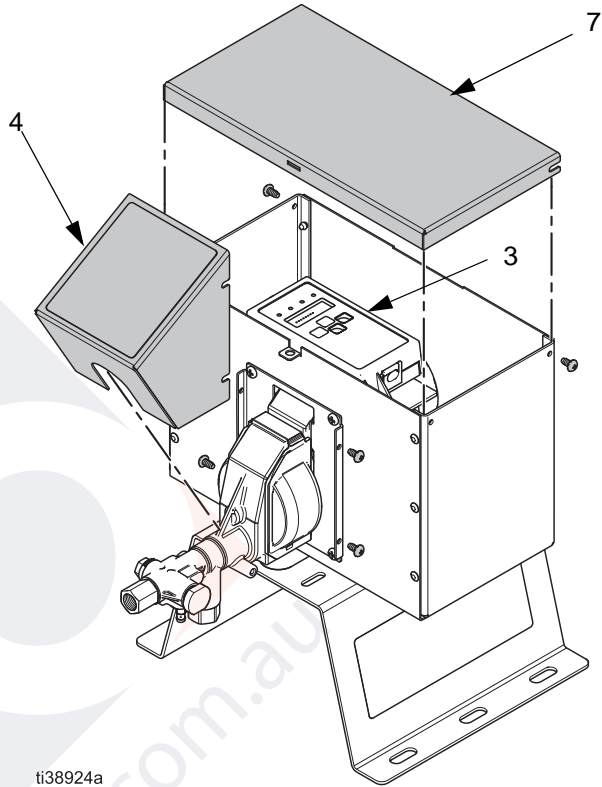
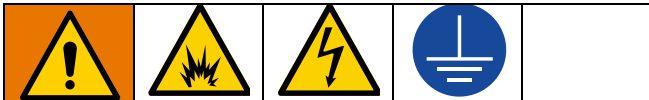


FIG. 2 Access to Enclosure Components

Installation

Grounding



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

Pump: grounded through **Motor Electrical Connections** on page 9.

Fluid lines: use only electrically conductive lines.

Fluid supply container: follow local codes and regulations.

Accessories

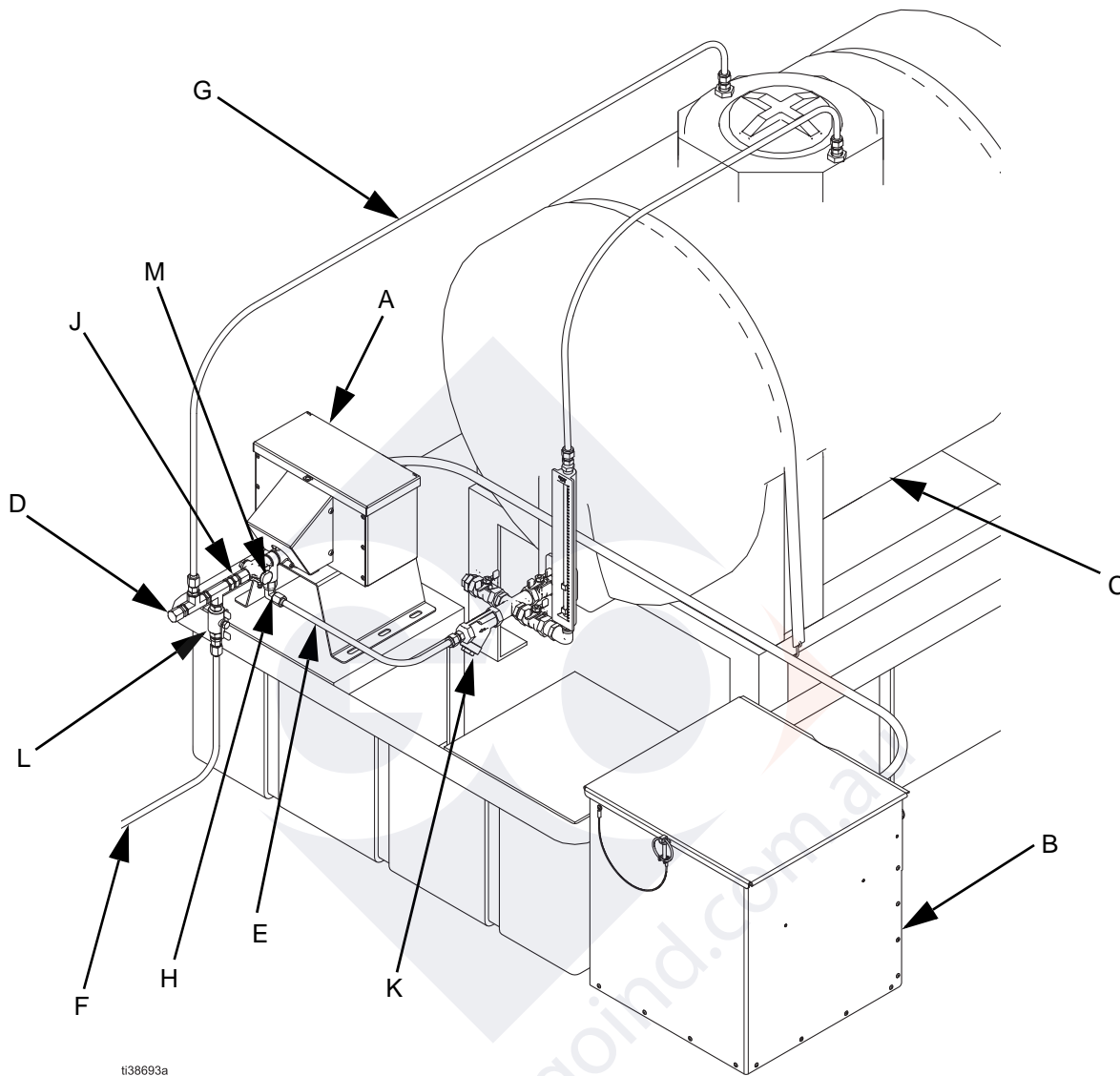
Install the following required accessories in the order shown in **Typical Installation**, page 7, using adapters as necessary. These required accessories must be supplied and installed by the customer before use.

- **Fluid Filter (Y-Strainer) (included in K):** with a 60 mesh (250 micron) stainless steel element to filter particles from the fluid before it reaches the pump.
- **Fluid Shutoff Valves (L):** shuts off fluid flow.
- **Pressure Relief Valve (D):** overpressure protection.

Flush Before Using Equipment

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. See **Flush the Equipment**, page 10.

Typical Installation



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FIG. 3 Typical Installation

FIG. 3 is an example of an installation with a G-JR chemical injection pump. Your installation may differ from what is shown here. The G-JR pump (A) is the only component in FIG. 3 supplied by Graco. All other components are supplied by customer.

- H Pump Inlet
- J Pump Outlet, 1/4 in. npt
- K Manifold Assembly (includes y-strainer)
- L Fluid Shutoff Valve (outlet) (Required)
- M Priming Port Plug

Key:

- A G-JR pump
- B Power Source
- C Tank
- D Pressure Relief Valve (Required)
- E Inlet Line
- F Outlet Line
- G Pressure Relief Line




Choosing an Installation Location

1. Select a location that will adequately support the weight of the pump, as well as all plumbing and electrical connections.
2. Always mount the pump upright.
3. Mount the pump above the top rim of the containment tank, if used, to prevent submersion.
4. If you have a mounting configuration that requires installation in a manner different than depicted in FIG. 3, please contact your Graco distributor.

Fluid Connections



1. Remove and discard the caps on the Pump Inlet (H) and Outlet (J). See FIG. 1 on page 5.
2. Connect a 1/4 npt(f) fluid line from the fluid source to the Pump Inlet (H).
3. Install a Pressure Relief Valve (D) on the outlet side of the pump. See FIG. 3 on page 7.

NOTE: A Pressure Relief Valve (D) is available from Graco (see **Kits and Accessories** on page 22) and can be connected back to the tank or directly to the inlet side of the pump.

				
To reduce the risk of skin injection and damage to the pump in the event of an outlet line blockage, ensure the pressure relief valve (D) is set at or below the maximum working pressure of the pump.				

4. Set the Pressure Relief Valve (D) at or below the maximum working pressure of the pump.
5. Connect a 1/4 npt(f) Outlet Line (F) from the Pump Outlet (J) to the injection point.

Motor Electrical Connections

				
<p>To reduce the risk of electrical shock;</p> <ul style="list-style-type: none"> • All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations. • Install the pump with a dedicated means to disconnect the main power to the pump. 				

NOTE: Over-current protection is provided, for both AC and DC models, within the enclosure (1).

NOTICE
<p>To avoid potential damage to equipment, verify that all system valves are open before connecting power to the pumps.</p>

The AC and DC models both have pre-wired controllers. The power sources and connections differ as follows:

- **For AC models (25T651)**, simply plug the power cord (18) into a standard 115 VAC receptacle. See FIG. 4.
- **For DC models (25T650)**, connect red wire on the controller (15) to the red wire on the power supply (13), and the black wire on the pump (2) to the black wire of the power supply (13).

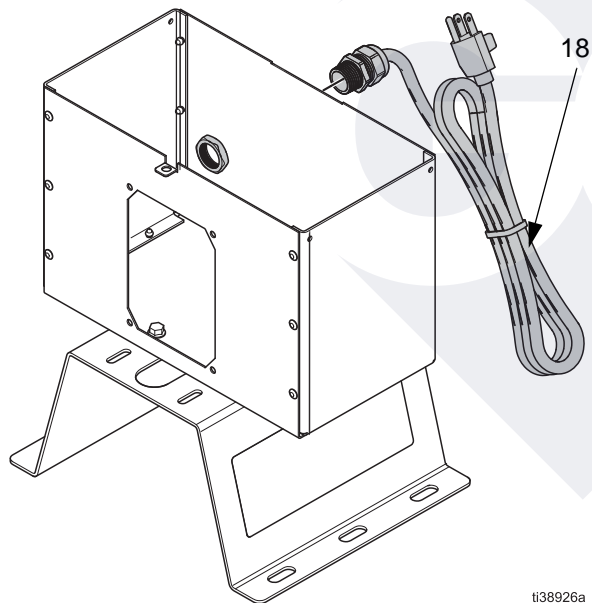



FIG. 4 AC Power Source

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Operation

Pressure Relief Procedure

 Follow the Pressure Relief Procedure whenever you see this symbol.

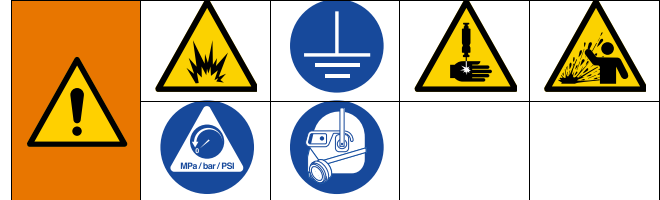


This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection and splashing fluid, follow the **Pressure Relief Procedure** when you stop dispensing and before cleaning, checking, or servicing the equipment.

NOTE: Always discharge fluid into an approved container or location.

1. Disconnect electrical power to the pump.
2. Shut off the inlet and outlet lines using the Fluid Shutoff Valves (L). See FIG. 3 on page 7.
3. Slowly loosen the pump outlet (J) fitting to relieve downstream fluid pressure. See FIG. 1 on page 5.
4. Disconnect and cap the Inlet (E) and Outlet (F) Lines.

Flush the Equipment



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.

- Check fittings for leaks and tighten as necessary.
 - Flush with a fluid that is compatible with the fluid being dispensed and the equipment's wetted parts.
1. Perform the **Pressure Relief Procedure**.
 2. Connect the Pump Inlet (H) to the flushing fluid supply source. See FIG. 1 on page 5.
 3. Connect the Pump Outlet (J) to a waste reservoir.
 4. Run the pump until the dispensed fluid is predominately flushing fluid.
 5. Perform the **Pressure Relief Procedure**.

Prime the Pump



NOTICE

To avoid potential damage to equipment, verify that all system valves are open before priming the pump.

1. Reconnect the Inlet (E) and Outlet (F) Lines that were disconnected in the **Pressure Relief Procedure**, 10.
2. Verify all system valves are open.
3. Verify all connections and fluid lines are tight.
4. In order to prime the pump, slowly loosen the Priming Port Plug (M) approximately 1/2 to 1 turn. See FIG. 1 on page 5.
5. Turn the pump on and begin cycling.
6. Fluid will begin dispensing from the port pointed downwards. The pump is primed when discharge has transitioned from air, to bubbly liquid chemical, to pure liquid chemical.
7. Tighten the Priming Port Plug (M) and verify that fluid has stopped draining from the port.

Calibrate Chemical Dosage



1. Follow the instructions provided with your calibration gauge and Harrier EZ-JR controller in conjunction with baseline chemical dosage settings in **Table 1: Baseline Chemical Dosage Settings**, page 12.
2. Adjust the cycle rate on time on your Harrier controller accordingly after the calibration test is performed. Increasing the cycle rate of the pump will increase the pump flow rate, while decreasing it will decrease the flow rate.
3. Repeat the instructions provided with your calibration gauge to verify changes.
4. Repeat steps 2 and 3, as necessary, until the desired flow rate is achieved.

NOTE: Flow rate and time settings are approximate, as every installation will vary due to external factors. Graco recommends using the on/off settings on this chart as a starting point and using a calibration column to fine tune the flow output. Adjusting on the time slightly up or down to fine tune the injection flow rate is recommended.

Table 1: Baseline Chemical Dosage Settings

Pressure (PSI)	Flow Rate											
	1 QPD (0.25 GPD) (0.9 LPD)		2 QPD (0.5 GPD) (1.9 LPD)		3 QPD (0.75 GPD) (2.8 LPD)		4 QPD (1 GPD) (3.8 LPD)		8 QPD (2 GPD) (7.8 LPD)		12 QPD (3 GPD) (11.4)	
	ON (sec)	OFF (sec)	ON (sec)	OFF (sec)	ON (sec)	OFF (sec)	ON (sec)	OFF (sec)	ON (sec)	OFF (sec)	ON (sec)	OFF (sec)
0	0.3	300	0.5	239	0.7	239	0.2	60	0.5	59	0.7	59
500	0.4	300	0.5	179	0.7	179	0.3	60	0.6	59	1.0	59
1000	0.4	240	0.6	179	0.9	179	0.4	60	0.8	59	1.2	59
1500	0.4	180	0.7	179	1.1	179	0.5	59	1.0	59	1.5	58
2000	0.5	179	0.9	179	0.9	119	0.6	59	1.2	59	1.8	58

Pressure (PSI)	Flow Rate									
	16 QPD (4 GPD) (15.1 LPD)		20 QPD (5 GPD) (18.9 LPD)		24 QPD (6 GPD) (22.7 LPD)		28 QPD (7 GPD) (26.5 LPD)		32 QPD (8 GPD) (30.3 LPD)	
	ON (sec)	OFF (sec)	ON (sec)	OFF (sec)	ON (sec)	OFF (sec)	ON (sec)	OFF (sec)	ON (sec)	OFF (sec)
0	0.9	59	1.2	59	1.4	59	1.6	58	1.9	58
500	1.3	58	1.6	58	1.9	58	2.2	58	2.5	57
1000	1.6	58	2.0	58	2.4	58	2.8	57	3.2	57
1500	2.0	58	2.4	58	2.9	57	3.4	57	3.9	56
2000	2.3	58	2.9	57	3.5	56	4.0	56	4.7	55

Flow rate and time settings in this table and on the **Flow Rate and Time Setting Charts**, page 13, are approximate. Every installation will vary due to external factors. Graco recommends using the On/Off settings in this table as a starting point and using a calibration column to fine tune the flow output. (Each column corresponds to one of the **Flow Rate and Time Setting Charts** on page 13.) Adjust the On time slightly up or down to fine tune the injection flow rate.

Flow Rate and Time Setting Charts

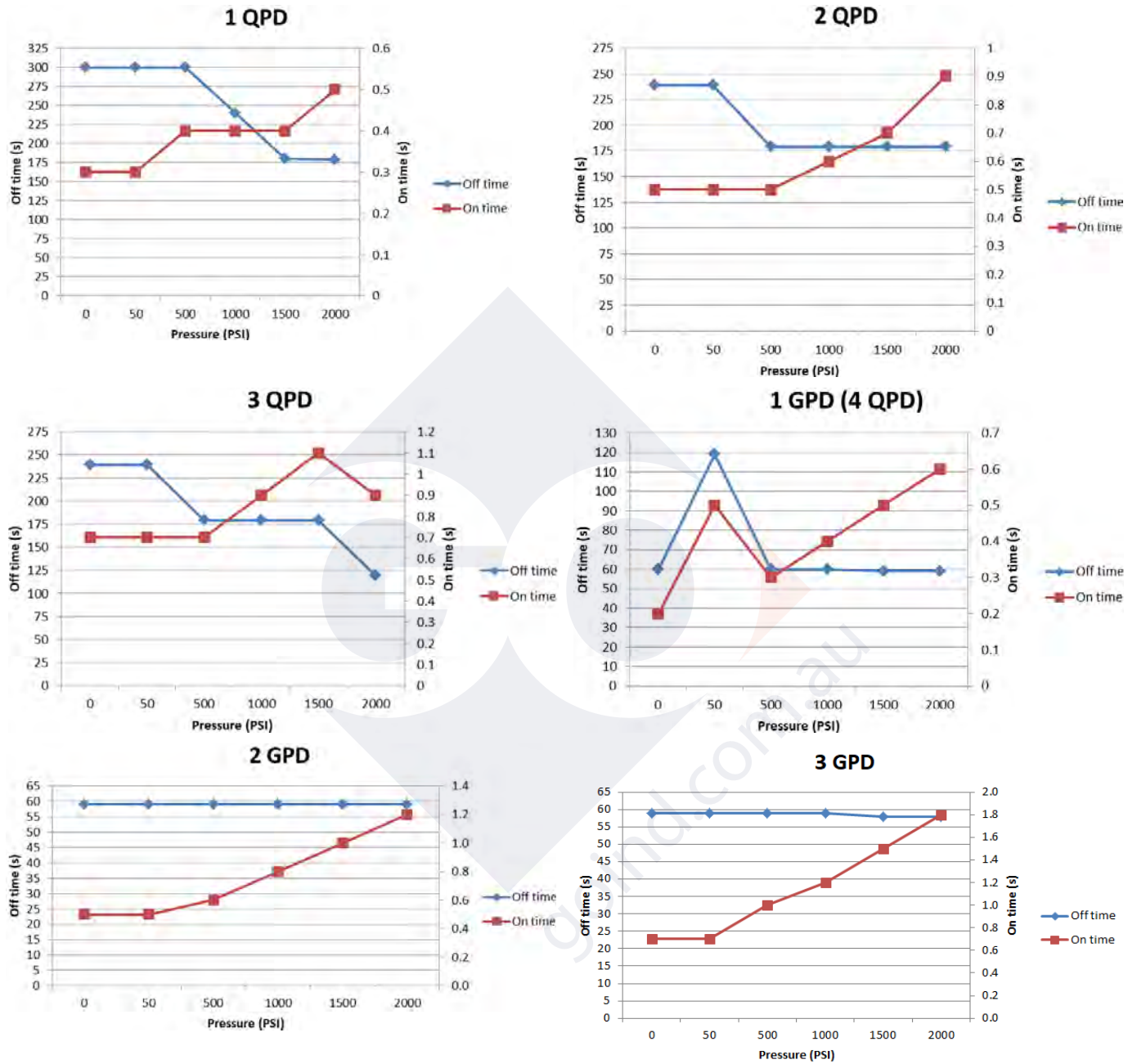


FIG. 5: Flow Rate and Time Setting Charts - 1 of 3

Operation

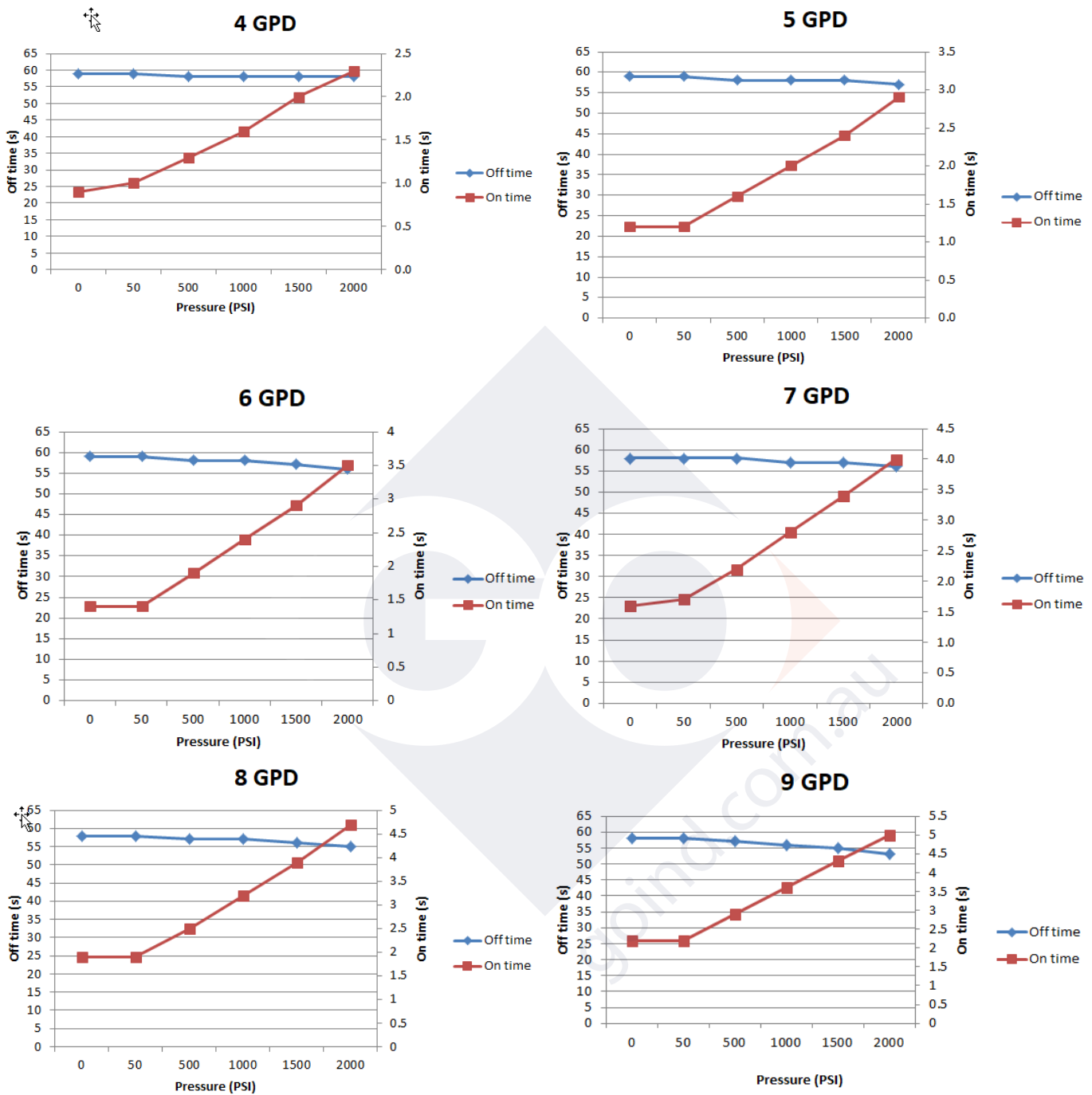


Fig. 6: Flow Rate and Time Setting Charts - 2 of 3

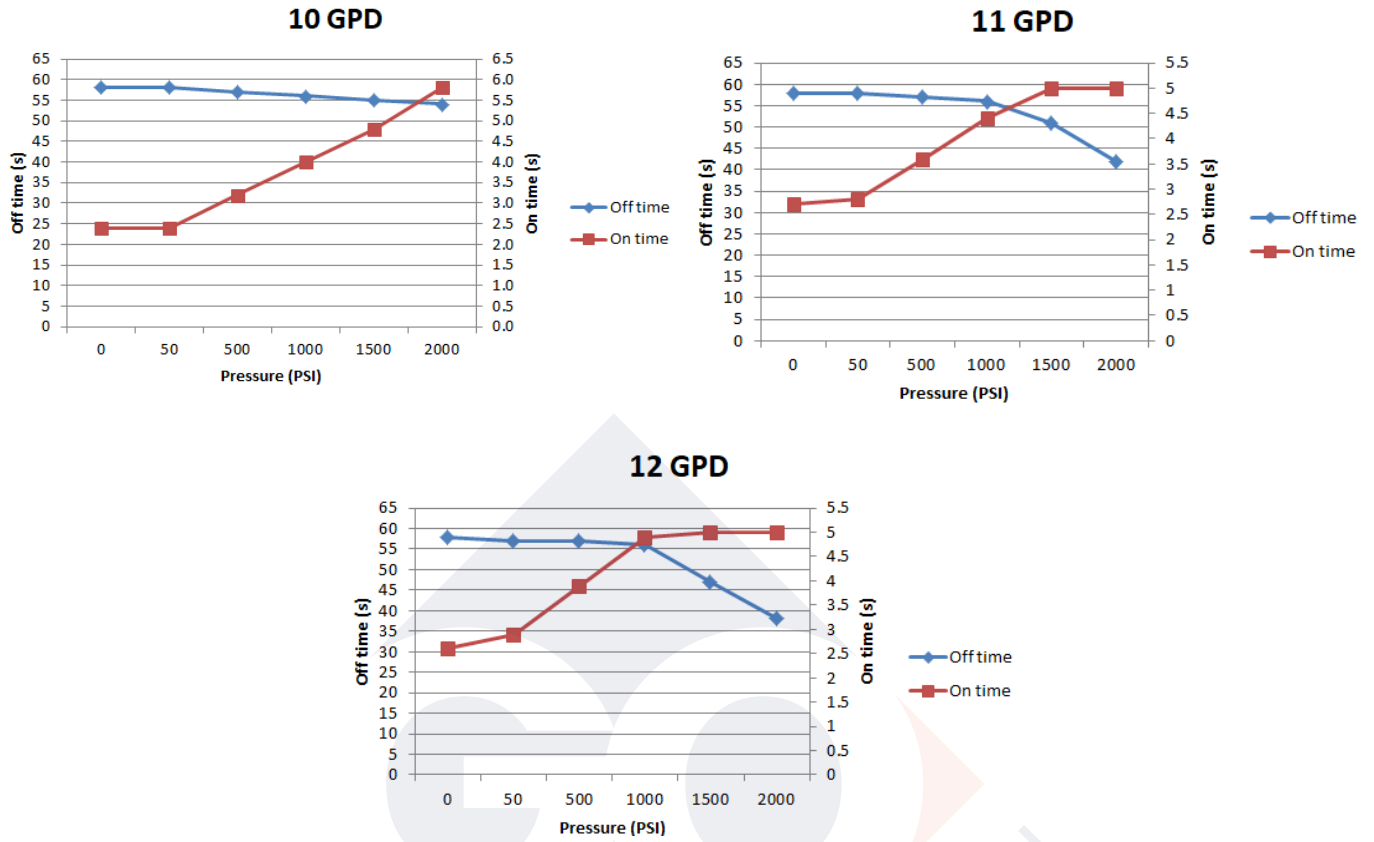
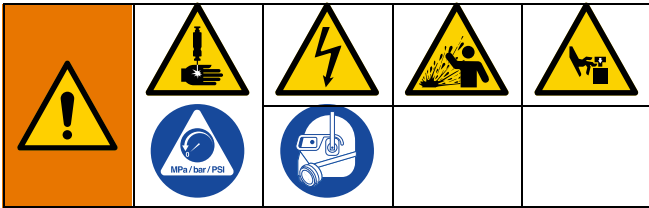


FIG. 7: Flow Rate and Time Setting Charts - 3 of 3

Troubleshooting



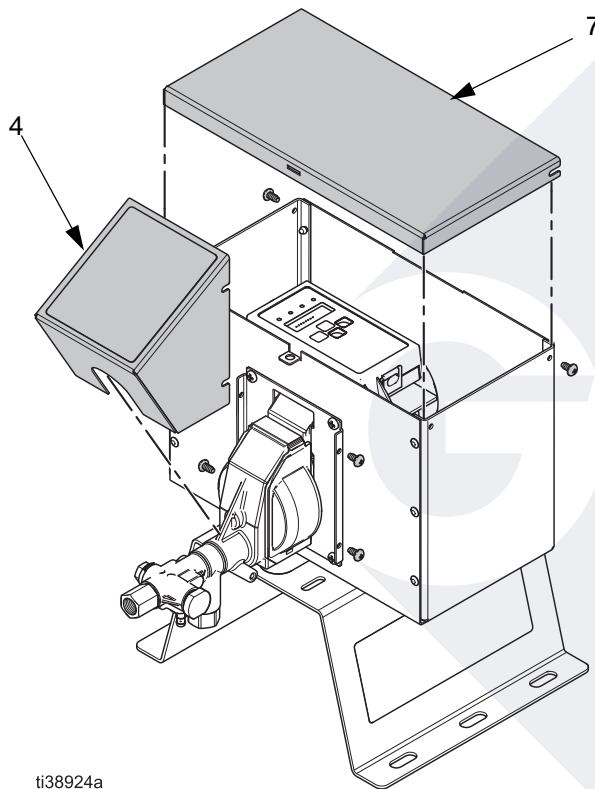
1. Perform the **Pressure Relief Procedure**, page 10, before checking or repairing the pump.

Problem	Cause	Solution
Air bubbles in fluid	Suction line is loose	Tighten
Fluid leaking	Loose fittings	Tighten fittings
	Worn or damaged seals and/or packing	Replace Fluid Module , page 18
Motor running but no fluid moving	Pump stalled	Check pump for contamination
	Air in pump	Prime pump
	Worn or damaged check valve seals	Replace Fluid Module , page 18
Motor not running	Loose wiring	Check electrical connectors
	Blown fuse	Replace fuse

Repair

Remove G-JR Pump

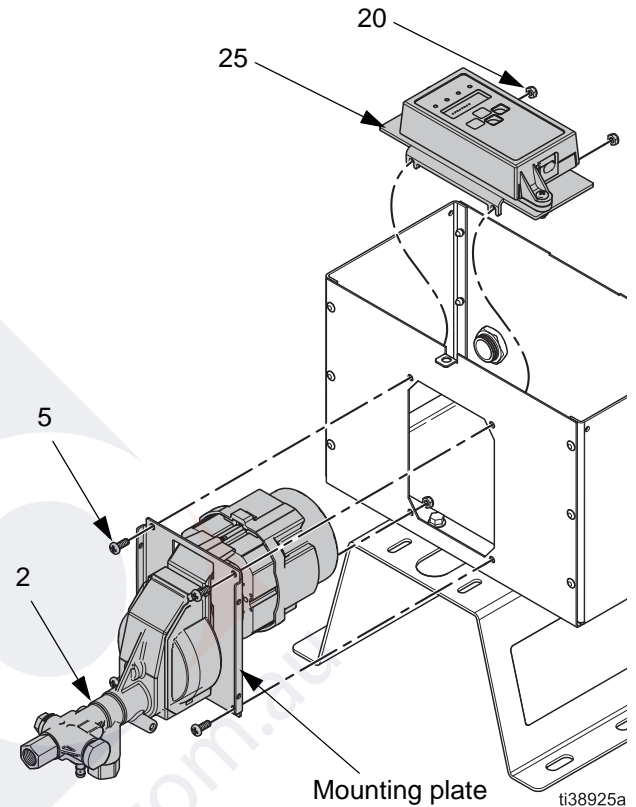
1. Perform the **Pressure Relief Procedure**, page 10.
2. Loosen the screws securing the pump cover (4) and the enclosure lid (7) just enough to remove the cover and lid.



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FIG. 8 Access the pump module and Harrier controller

3. Slightly loosen the top two screws (5) and lock nuts (20) to remove the Harrier controller bracket (25).



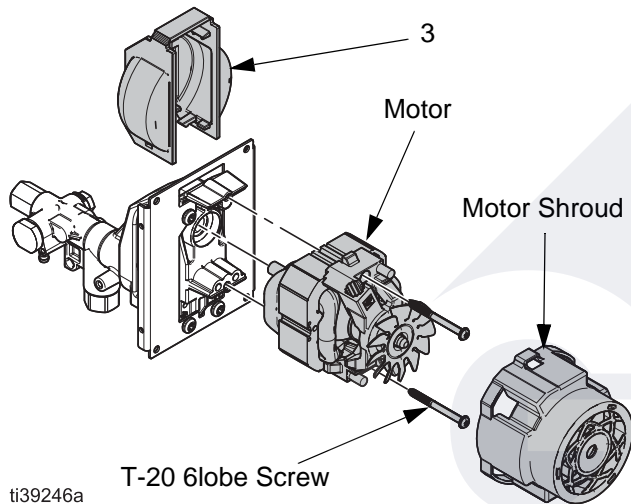
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FIG. 9 Remove the Harrier controller bracket

4. Remove the four screws (5) and lock nuts (20) to remove the G-JR pump (2) and mounting plate from the enclosure (1).
5. Unplug the two motor wires leading from the G-JR pump (2) and note which color wires were connected together.
6. Remove the G-JR pump (2).

Replace Fluid Module

1. Remove G-JR Pump, page 17.
2. Remove gear cover (3).
3. Remove the motor shroud by pressing the top and bottom tabs with a flat screwdriver.
4. Remove the two T-20 hexalobular (6lobe) screws from the back of the motor using a star screwdriver.



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FIG. 10 Remove the motor shroud and motor

5. Remove the motor.
6. Remove the four T-30 6lobe screws, using a star screwdriver, and the mounting plate from the pump.

NOTE: The screws are torqued tightly at the factory and may require a bend vise and a drill or impact driver to remove.

7. Pull the gear assembly off the pump.

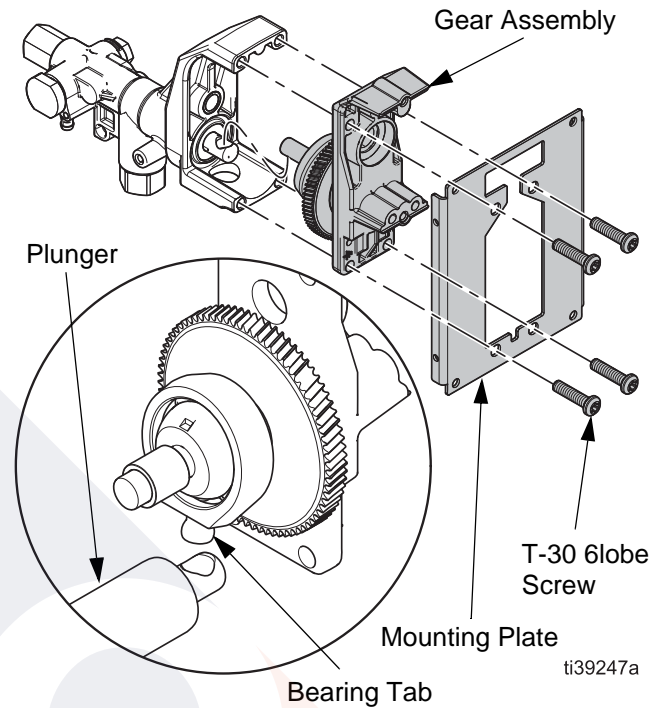


FIG. 11 Remove the gear assembly

NOTE: It is helpful to rock the gear back and forth or to spin the gear while pulling the fluid module and gear assembly apart.

8. Discard the fluid module and install the new fluid module.
9. Insert the bearing tab into the pocket on the plunger of the new fluid module, and rock the gear back and forth or spin the gear while pushing the fluid module and gear assembly together.
10. Continue to spin the gear until the plunger moves fully into the pump and the drive-train mounting plate is flush with the pump mounting plate.
11. Reinstall the mounting bracket and the four T-30 6lobe screws. Torque to 80-90 in-lbs (9-10 N•m).

NOTE: A bench vise and a drill or impact driver will be needed for reassembly with a new fluid module.

12. Install the new motor with the two T-20 6lobe screws. Torque to 26-32 in-lbs (3-4 N•m).

NOTICE

Do not over-torque the T-20 6lobe screws. Doing so may damage the plastic brush housing in the motor and result in problems with the motor shroud tabs locking properly.

13. Attach the new motor shroud to the motor with the top and bottom tabs.
14. Reinstall the gear cover (3).
15. Reinstall the gear assembly per step 3 of **Replace Gear Assembly**, page 19.

Replace Gear Assembly

1. Follow steps 1-7 in **Replace Fluid Module**, page 18.
2. Apply supplied grease to both bearing and gear of the new gear assembly.
3. Insert the bearing tab of the new gear assembly assembly into the pocket of the plunger, and rock the gear back and forth or spin the gear while pushing the fluid module and gear assembly together.
4. Follow steps 11-14 in **Replace Fluid Module**, page 18.

Replace Motor

1. Follow steps 1-4 in **Replace Fluid Module**, page 18.
2. Install the new motor with the two T-20 6lobe screws. Torque to 26-32 in-lbs (3-4 N•m).

NOTICE

Do not over-torque the T-20 6lobe screws. Doing so may damage the plastic brush housing in the motor and result in problems with the motor shroud tabs locking properly.

3. Attach the new motor shroud to the motor with the top and bottom tabs.
4. Reinstall the gear cover (3).
5. Reinstall the gear assembly per step 3 of **Replace Gear Assembly**, page 19.

Reinstall G-JR Pump

1. Reconnect the wires that were disconnected in step 5 in **Remove G-JR Pump**, page 17.

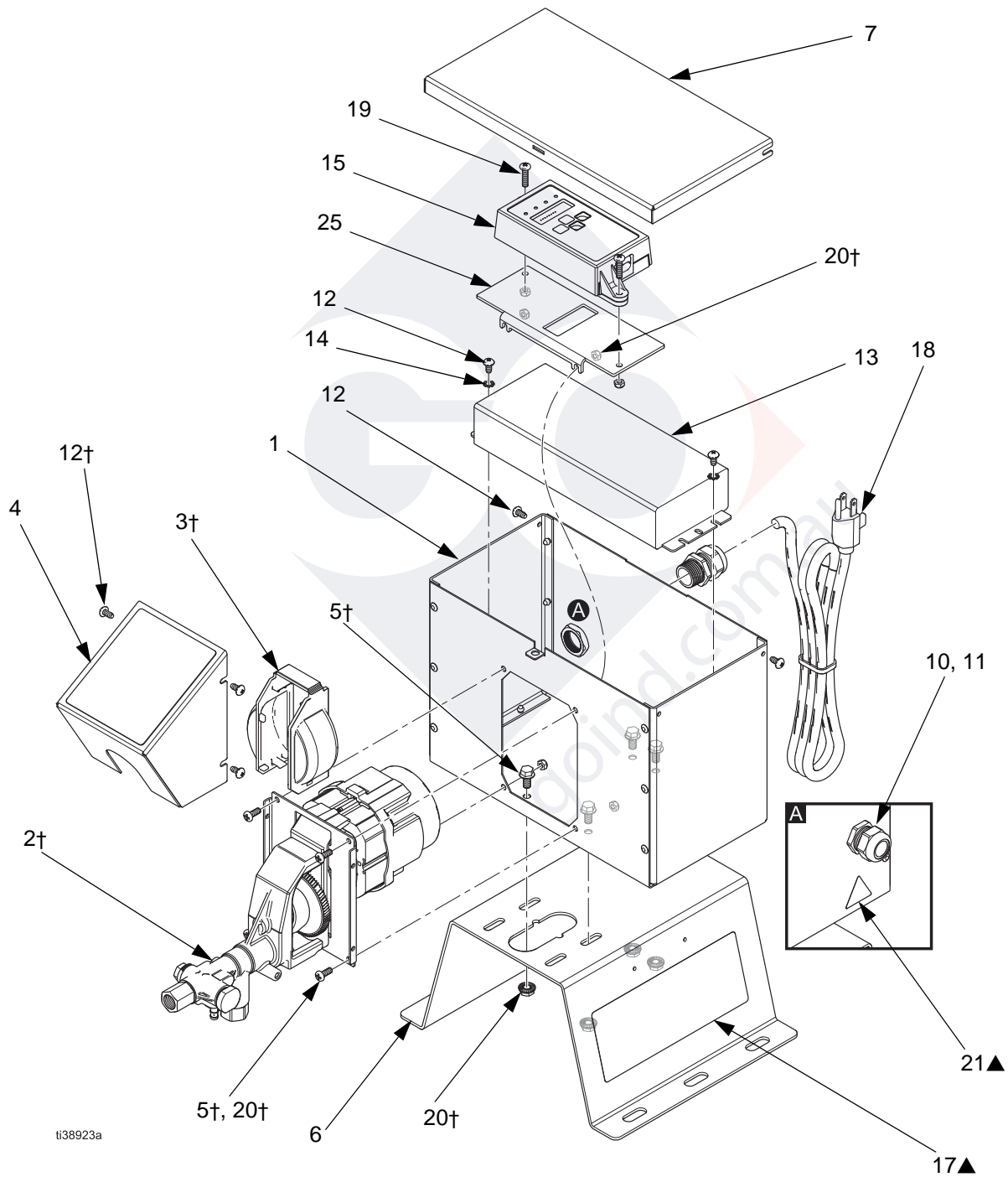
NOTE: Connect the white wire from the controller to the blue wire from the motor, and the black wire with the white stripe from the controller to the black wire from the motor.

2. Secure the mounting plate to the front of the enclosure (1) with the four screws (5) and lock nuts (20), with the Harrier controller bracket (25) secured by the top two screws.
3. Slide the enclosure lid (7) back into position and tighten the screws to secure.

Parts

G-JR Chemical Injection Pump

Models 25T650 (12 VDC) and 25T651 (115 VAC)



G-JR Chemical Injection Pump Parts List

Ref.	Part	Description	Qty
1	25T826	Enclosure (includes ref. 7, 8, 9, and 12)	1
2†	25T830	Module, G-JR pump (includes ref. 3, 5, and 20)	1
3†	---	Cover, gear housing (included with ref. 2)	1
4	25T827	Cover, pump (includes ref. 12)	1
5†	---	Screw, pan head, X recess, 10-24 UNC	8
6	B32817	Base	1
7	---	Lid, enclosure (included with ref. 1)	1
10	17F739	Bushing, strain relief (model 25T651 only)	1
11	17F740	Nut, strain relief (model 25T651 only)	1
12†	---	Screw, pan, type F, #10-24, 3/8 in., SST (included in ref. 1 and 2)	
		Model 25T650	6
		Model 25T651	8
13	25T667	Power supply (model 25T651 only)	1
14	C38163	Washer	2
15	B32001	Control, Harrier EZ-JR	1
17▲	17G318	Label, safety, warning, multiple	1
18	25T829	Cord set (model 25T651 only)	1
19	---	Screw, machine, phillips, pan head, #10-24 UNC, SST (included in ref. 25)	2
20†	---	Nut, lock, with nylon insert (included in ref. 2 and 25)	10
21▲	15G303	Label, warning, electrical (model 25T651 only)	1
25	25T828	Bracket, controller, G-JR (includes ref. 19, 20, and 25)	1

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

† Included in the G-JR Pump Module Repair Kit 25T830.

Kits and Accessories

Part	Description
B32045	225-750 psi Pressure Relief Valve Kit
B32046	750-1500 psi Pressure Relief Valve Kit
B32047	1500-2250 psi Pressure Relief Valve Kit
25T924	G-JR Fluid Module Repair Kit
25T923	G-JR Gear Drive Repair Kit
25T922	G-JR Motor Repair Kit
25T823	G-JR Inlet Check Valve Repair Kit
25T824	G-JR Bleed Valve/Plug Repair Kit
25T825	G-JR Outlet Check Valve Repair Kit



Technical Specifications

G-JR Chemical Injection Pump		
	US	Metric
Maximum fluid working pressure	2000 psi (13.7 MPa, 137 bar)	
Input Voltage		
	12 VDC	
	115 VAC	
Maximum Input Current		
	16 A @ 12 VDC	
	3.0 A @ 115 VAC Single Phase	
Power Connection	See Motor Electrical Connections on page 9.	
Environmental temperature range, ordinary location	-40°–120°F	-18°–50°C
Noise (dBa)		
Maximum sound pressure	<70 dBa	
Inlet/Outlet Sizes		
Fluid inlet size	1/4 in. npt(f)	
Fluid outlet size	1/4 in. npt(f)	
Materials of Construction		
Wetted materials on all models	300 Series SST, 400 Series SST, coated aluminum, silicon nitride, zirconium nitride-coated tungsten carbide, UHMWPE, and FKM-ETP	

California Proposition 65

CALIFORNIA RESIDENTS

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

Graco Standard Warranty

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

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

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

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

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

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

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

FOR GRACO CANADA CUSTOMERS

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

Graco Information

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

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

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

Phone: 612-623-6921 **or Toll Free:** 1-800-328-0211 **Fax:** 612-378-3505

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

Original instructions. This manual contains English. MM 3A8109

Graco Headquarters: Minneapolis

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www.graco.com
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