

Instructions



Harrier[®] AC Chemical Injection Controller

3A4047E
EN

For controlling an AC Wolverine or G-Chem chemical injection pump. For professional use only.

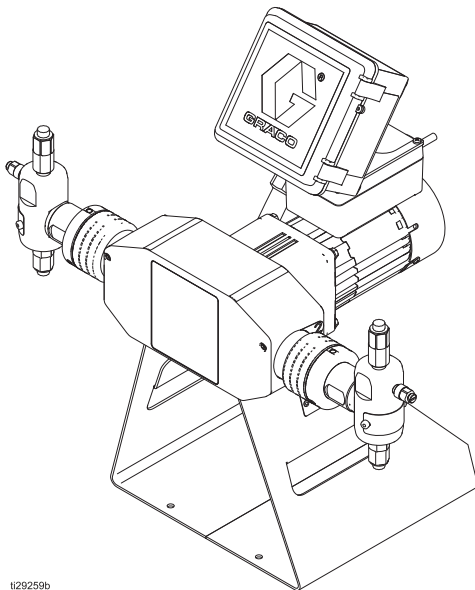
Not approved for use in explosive atmospheres or hazardous locations.

See page 3 for model information, including additional approvals.



Important Safety Instructions

Read all warnings and instructions in this manual and in the Wolverine Chemical Injection Pump manual. Save these instructions.



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Table of Contents

Approvals	3	Time Mode: Pump Off	22
Related Manuals	3	Priming the Lines	22
Models	3	Alarm Operation	23
Warnings	4	Alarm Types and Messages	23
Component Identification	6	Troubleshooting	24
Keypad, Display, and Icons	6	Repair	25
Mode LEDs (A & B)	6	Replacement Kits	25
Pump LEDs (C & D)	6	Replace Fuses	25
Auxiliary Switch Connector (E)	6	Dimensions	27
Auxiliary Switch LED (F)	6	Harrier AC Controller Dimensions	27
Up and Down Direction Arrows (G)	6	Harrier AC Mounting Bracket Dimensions	28
Right Direction Arrow / Manual Run / Enter (H)	6	B32696 (Wolverine Pump only)	28
Left Direction Arrow / Reset (J)	7	B32811 (G-Chem Pump only)	28
Common Fuse (K)	7	Technical Specifications	29
Line Fuse (L)	7	Graco Standard Warranty	30
Installation	8		
Typical Installations	8		
Wiring Diagram	9		
Installing the Injection Controller	10		
Rewire Motor Junction Box (Wolverine Pumps only)	10		
Rewire Motor Junction Box (G-Chem Pumps only)	11		
Wolverine Pump Mounting (Model B32852 only)	12		
G-Chem Pump Mounting (Model B32853 only)	13		
Remote Mounting (Model B32851 only) ...	14		
Install Fuses	14		
Connect Auxiliary Input (Optional)	15		
Harrier AC Pump Mounting Kits	16		
Auxiliary Thermostat Kits (optional)	18		
Programming	19		
Entering Setup Mode	19		
Programming On Duration	19		
Cycle Mode (on:CY) On Setup	19		
Time Mode (on:ti) On Setup	20		
Programming Off TIME Duration	21		
Programming the Auxiliary Switch Setting ...	21		
Run Mode	22		
Cycle Mode: Pump On	22		
Cycle Mode: Pump Off	22		
Time Mode: Pump On	22		

Approvals



Related Manuals







Manual No.	Description
334513	Wolverine Chemical Injection Pump

Models

Mounting	Controller Only	Controller with Bracket
Remote	B32691	B32851
Wolverine Pump	B32692	B32852
G-Chem Pump	B32692	B32853

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>FIRE AND EXPLOSION HAZARD</p> <p>Static charge may build up on plastic parts during cleaning and could discharge and ignite flammable vapors. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> • Clean plastic parts only in well ventilated area. • Do not clean with a dry cloth.
 	<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



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 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.



EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.



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

Component Identification

Keypad, Display, and Icons

NOTICE
To prevent damage to soft key buttons, do not press the buttons with sharp objects such as pens, plastic cards, or fingernails.

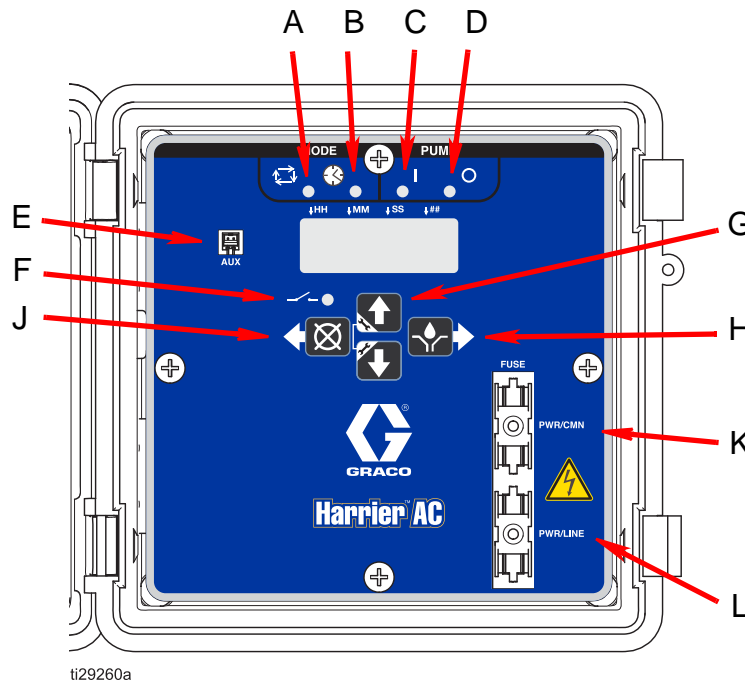


Fig. 1 Controller Keypad

Mode LEDs (A & B)

- A Cycle Mode LED: Indicates when the controller is operating in Cycle Mode.
- B Time Mode LED: Indicates when the controller is operating in Time Mode.

Pump LEDs (C & D)

- C On LED: In Run Mode, this LED illuminates when in the On portion of the Run cycle.
- D Off LED: In Run Mode, this LED illuminates when in the Off portion of the Run cycle.

Auxiliary Switch Connector (E)

- This is where the optional Auxiliary switch leads connect.

Auxiliary Switch LED (F)

- Illuminates when the Auxiliary Switch is closed.

Up and Down Direction Arrows (G)

- Press and hold both the Up and Down Arrow keys together for 3 seconds to enter Setup Mode.
- In Setup Mode, increase or decrease number values associated with the various Run Modes.

Right Direction Arrow / Manual Run / Enter (H)

- In Setup Mode, saves entry, moves cursor in display one field to the right or to the next setup step.
- In Run Mode, activates the pump for one complete On cycle if actuated during the Off portion of the Run cycle.

Left Direction Arrow / Reset (J)

- In Setup Mode, moves cursor in display one field to the left.
- In Run Mode, Pressing Reset starts a Pump Off cycle.
- In Alarm Mode, press and hold for 3 seconds to clear warning and switch controller to Run starting in the Off Cycle.

Common Fuse (K)

- Behind this cover is the Common/Line 2 fuse for the incoming power. (5A max for 120 VAC and 3A max for 240 VAC)
- Ensure all incoming power is shut off before removing the cover to service the fuse.
- Use a UL 248 5x20 mm barrel fuse.

Line Fuse (L)

- Behind this cover is the Line fuse for the incoming power. (5A max for 120 VAC and 3A max for 240 VAC)
- Ensure all incoming power is shut off before removing the cover to service the fuse.
- Use a UL 248 5x20 mm barrel fuse.

Installation

Typical Installations

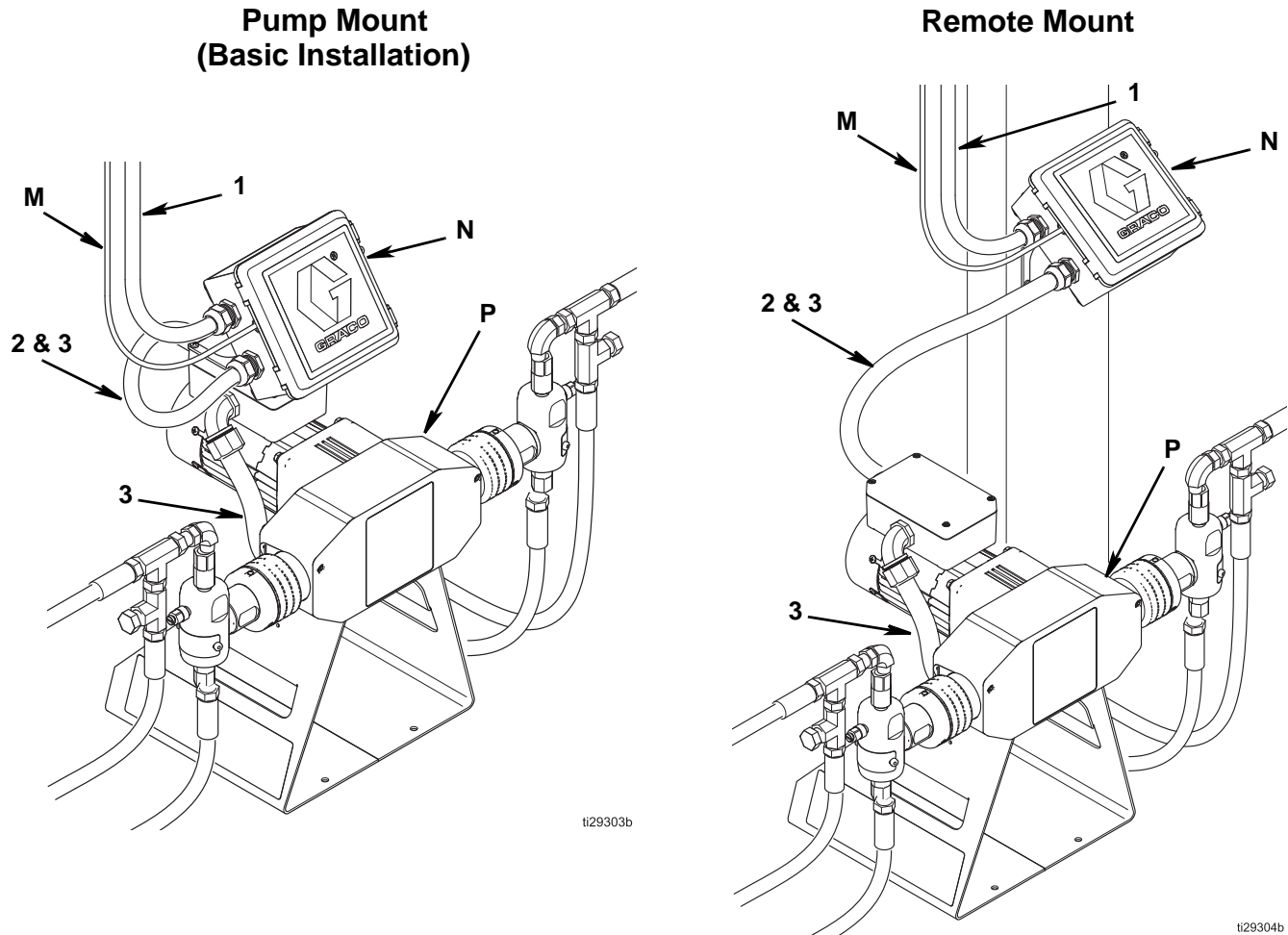


FIG. 2 Typical Installation

FIG. 2 is an example of a Harrier AC chemical injection controller installation. Your installation may differ from what is shown here. The controller, with wiring and mounting bracket, is supplied by Graco. All other components are supplied by the customer. Contact your Graco distributor for assistance in planning a system to suit your needs.

Key:

- 1 Incoming Power (see **Wiring Diagram**, page 9)
- 2 Motor Power (see **Wiring Diagram**, page 9)
- 3 Cycle Count (see **Wiring Diagram**, page 9)
- M Auxiliary Input (see **Wiring Diagram**, page 9)
- N Controller
- P Pump

Wiring Diagram

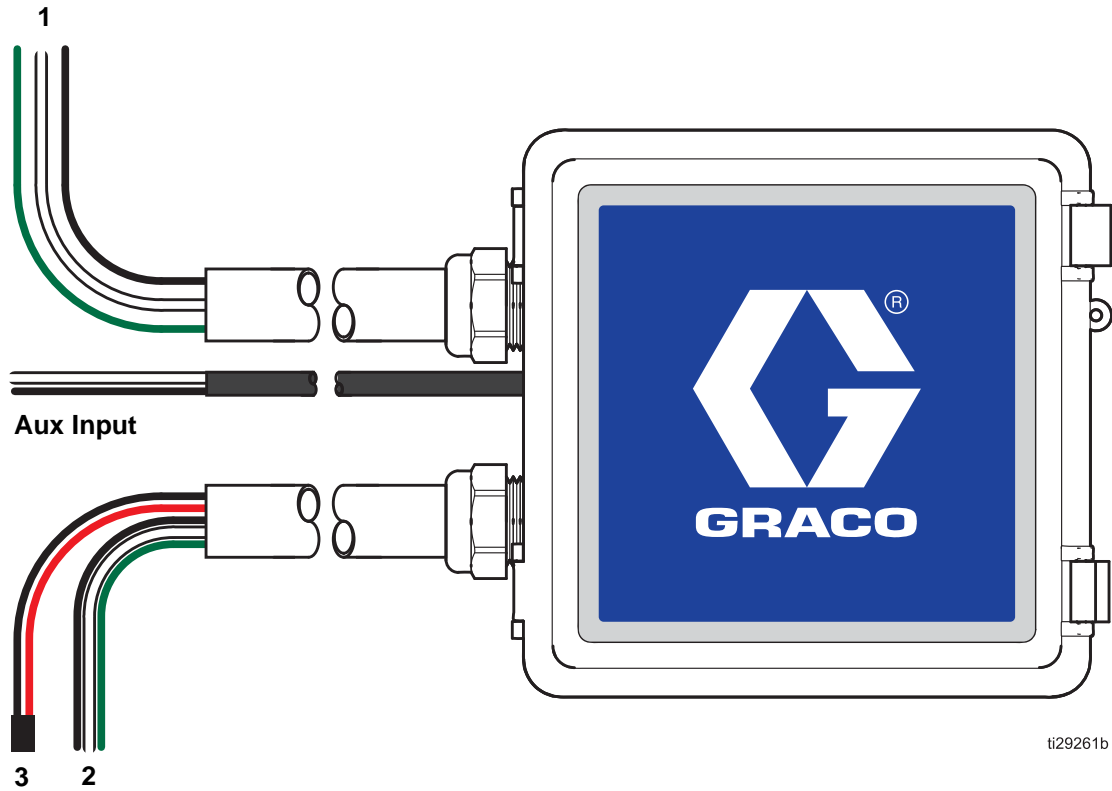


FIG. 3 Wiring Diagram

FIG. 3 is a wiring diagram of the Harrier AC chemical injection controller.

Incoming Power (1)

- Black - Line
- White - Common/Line 2
- Green/Yellow - Earth Ground

Motor Power (2)

- Black - Line
- White - Common/Line 2
- Green/Yellow - Earth Ground

Cycle Count (3)

Terminated with connector.




- Red - Positive
- Black - Negative

Aux Input (Optional Kit)

- White - Positive
- Black - Negative

See **Connect Auxiliary Input (Optional)**, page 15, for connecting the auxiliary input harness (B32695).

Installing the Injection Controller

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

Rewire Motor Junction Box (Wolverine Pumps only)

See **Wolverine Pump Mounting Kit (B32852)**, page 16, for a complete list of parts used to install a Harrier AC controller for a Wolverine pump.

1. Disconnect all power.
2. Remove the motor junction box cover on the Wolverine motor to gain access to the motor wiring.
3. Cut only the white, green, and black wires in the existing motor power cable (4). See FIG. 4.

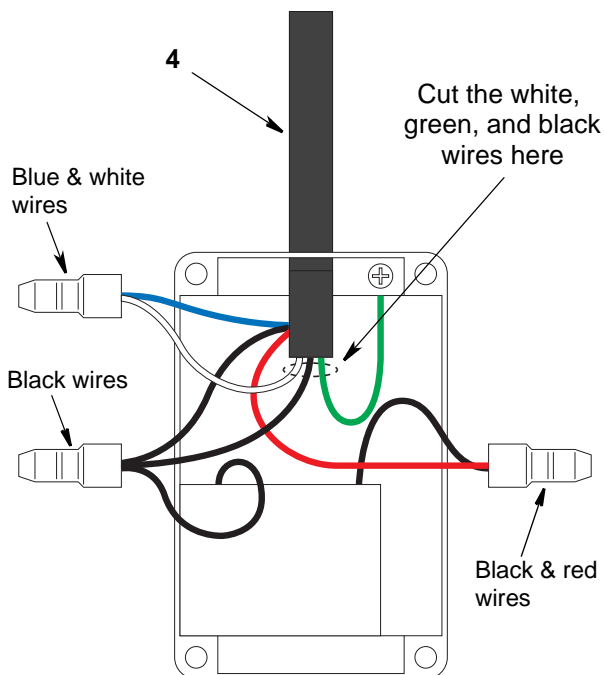


FIG. 4 Motor junction box with original motor power cable

4. Discard the motor power cable (4), conduit, and cord-grip.
5. Install the new motor power cable (2) (from the Harrier AC controller (see FIG. 3)) and cord-grip (5) into

the motor junction box, and secure with the supplied nut (15). See FIG. 5.

6. Connect the motor power cable (2) wires (green to green, white to white, and black to black) using the supplied wire connectors (14).

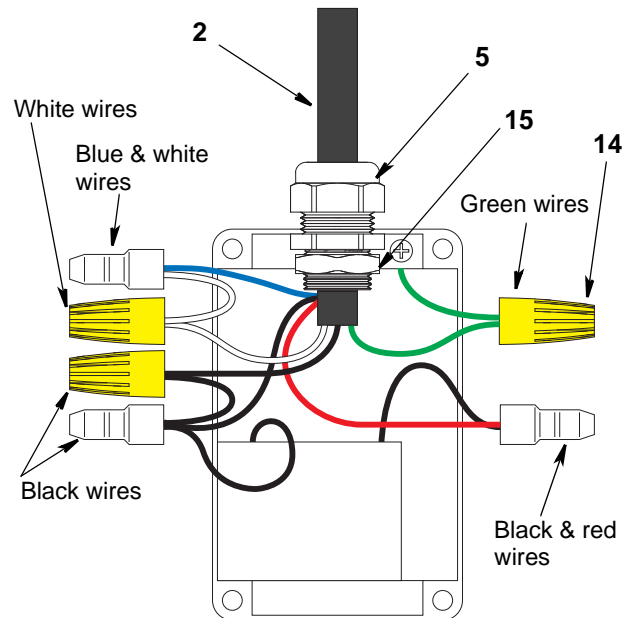


FIG. 5 Motor junction box with new motor power cable

7. Connect the cycle count connector (3), see FIG. 3, to the Wolverine pump cycle switch connector (if applicable).
8. Replace the motor junction box cover.
9. Proceed to **Wolverine Pump Mounting (Model B32852 only)**, page 12, or **Remote Mounting (Model B32851 only)**, page 14.

Wolverine Pump Mounting (Model B32852 only)

See **Wolverine Pump Mounting Kit (B32852)**, page 16, for a full list of parts included in the Wolverine pump mounting kit.

1. **Rewire Motor Junction Box (Wolverine Pumps only)**, page 10.
2. Place the mounting bracket (6) on the motor junction box and secure with supplied screws (7), washers (12), and spacers (10). See FIG. 8.

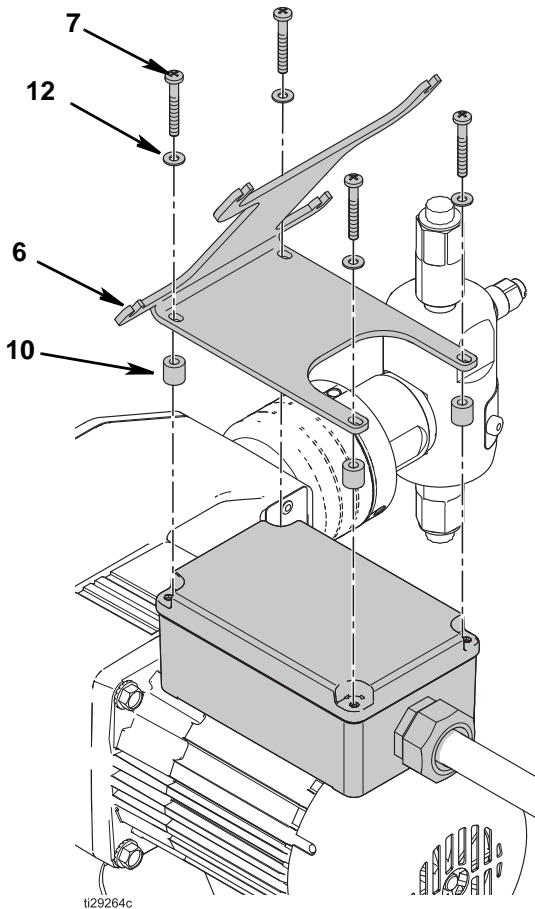


FIG. 8 Attach pump mounting bracket

4. **Install Fuses**, see page 14.

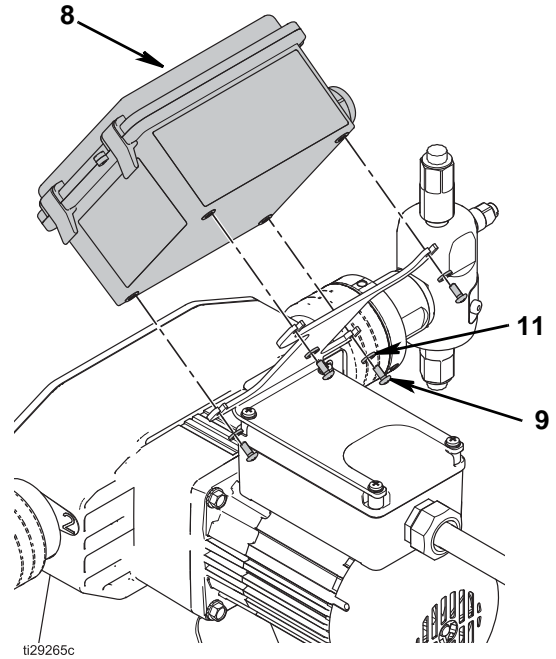


FIG. 9 Attach controller to pump mounting bracket

3. Attach the controller (8) to the mounting bracket (6) using supplied screws (9) and washers (11). See FIG. 9.

G-Chem Pump Mounting (Model B32853 only)

See **G-Chem Pump Mounting Kit (B32853)**, page 16, for a full list of parts included in the G-Chem pump mounting kit.

1. **Rewire Motor Junction Box (G-Chem Pumps only)**, page 11.
2. Attach the controller (8) to the mounting bracket (6) using supplied screws (9) and washers (11). See FIG. 10.

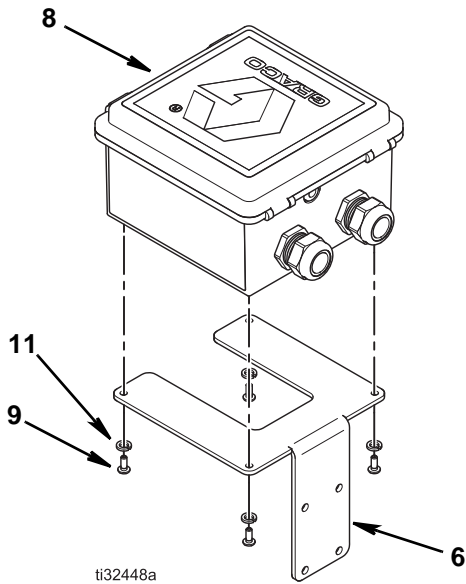


FIG. 10 Attach controller to pump mounting bracket

3. Place the mounting bracket (6), with attached controller (8), on the side of the motor and secure with supplied screws (7) and washers (12). See FIG. 11.

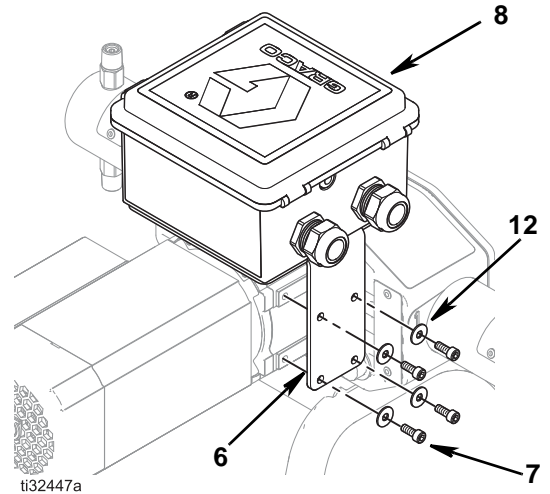


FIG. 11 Attach pump mounting bracket

4. **Install Fuses**, see page 14.

Remote Mounting (Model B32851 only)

See **Remote Mounting Kit (B32851)**, page 17, for a full list of parts included in the remote mounting kit.

1. **Rewire Motor Junction Box (Wolverine Pumps only)**, page 10.
2. Place the mounting bracket (6) on a sturdy surface and secure with user-provided screws (10). (Refer to **Harrier AC Mounting Bracket Dimensions**, page 28, for mounting holes.)

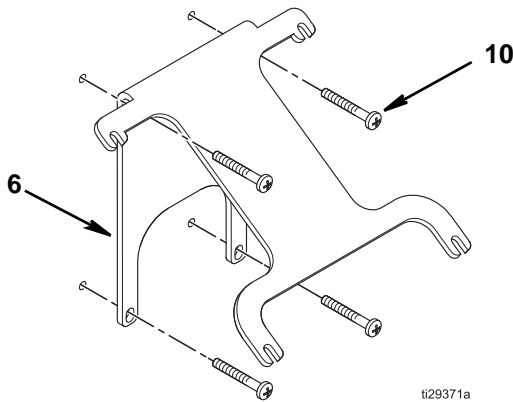


FIG. 12 Attach remote mounting bracket

3. Attach the controller (8) to the mounting bracket (6) using supplied screws (9) and washers (11). See FIG. 13.

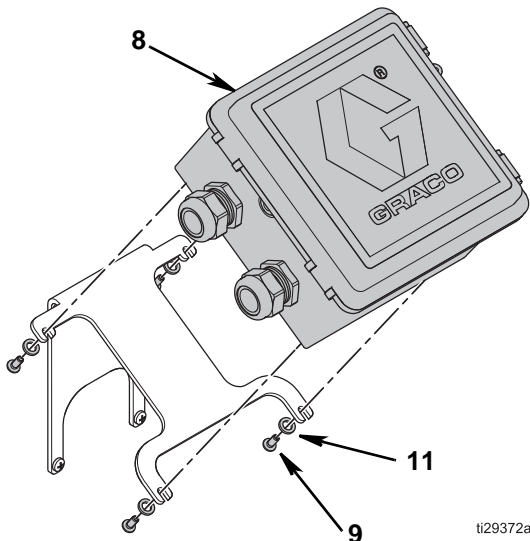


FIG. 13 Attach controller to remote mounting bracket

4. **Install Fuses**, see page 14.

Install Fuses

1. Install the supplied fuses (K and L) with the fuse holders (13). See FIG. 14.

- 120 VAC Wolverine pump uses 5A fuses (B32697).
- 240 VAC Wolverine pump uses 3A fuses (B32698).

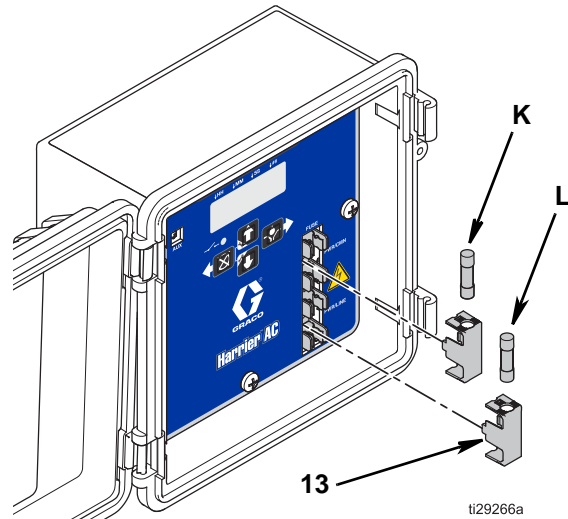


FIG. 14 Install fuses

2. Connect the controller incoming power (1) to a 120 or 240 VAC power source.

Connect Auxiliary Input (Optional)

1. Pierce the auxiliary input bushing on the controller box with a small pointed object. See FIG. 15.

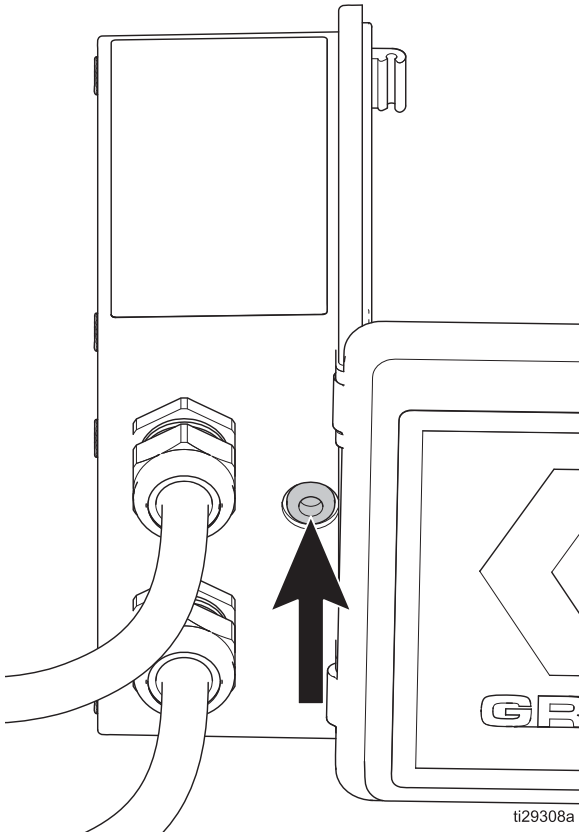


FIG. 15 Pierce the auxiliary input bushing

2. Push the auxiliary input connector through the hole and connect to the AUX port (E) on the controller keypad. See FIG. 16.

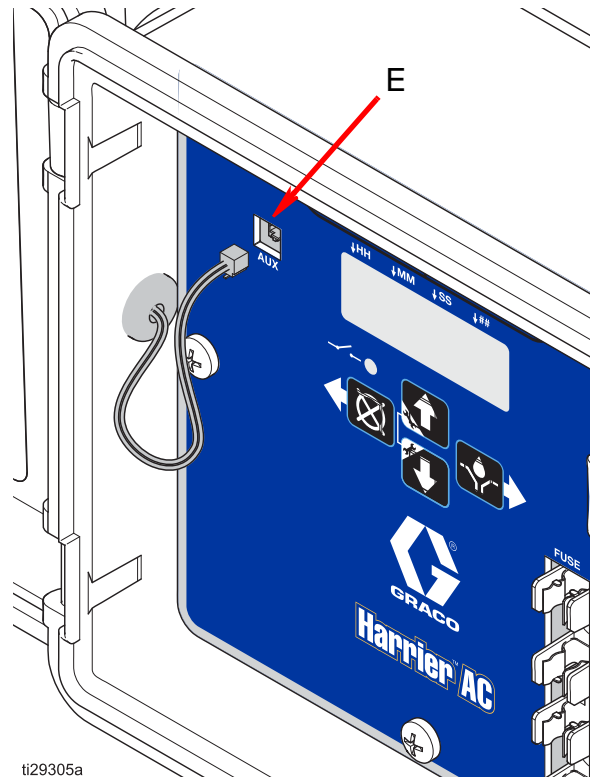


FIG. 16 Connect the auxiliary input connector to the AUX port

3. Connect the other end of the auxiliary input to a dry contact switch that is normally open. (See **Programming the Auxiliary Switch Setting**, page 21.)

Harrier AC Pump Mounting Kits

Wolverine Pump Mounting Kit (B32852)

The Model B32852 Wolverine Pump Mounting Kit includes a Harrier AC pump mount (B32692) and mounting bracket (B32696). Use the following table to identify parts in the **Wolverine Pump Mounting (Model B32852 only)** instructions on page 12.

Kit No.	Ref	Description	Qty	
B32692	5	BUSHING, strain relief; 1/2 npt	1	
	8	CONTROL, Harrier AC, pump mount; 22 in. harness	1	
	13	HOLDER, cartridge fuse	2	
	14	NUT, wire (p/n: 122032)	3	
	15	NUT, strain relief; 1/2 npt	1	
	K & L		FUSE, 5A, 5 x 20 mm (p/n: B32697)	2
			FUSE, 3A, 5 x 20 mm (p/n: B32698)	2
B32696	6	BRACKET, Harrier AC mounting	1	
	7	SCREW, machine, phil pan; m4 x 30 mm	4	
		FASTENER, captive; 8-32 x 1-1/4 (used only for terminal box mount)	4	
	9	SCREW, machine, pan; m4 x 30 mm (p/n: 105335)	4	
	10	SPACER, nylon; .375 x .375 (used only for terminal box mount)	4	
	11	WASHER, spring lock; #6	4	
	12	WASHER, flat, stainless steel; #6 (used only for terminal box mount)	4	

G-Chem Pump Mounting Kit (B32853)

The Model B32853 G-Chem Pump Mounting Kit includes a Harrier AC pump mount (B32692) and G-Chem mounting bracket (B32811). Use the following table to identify parts in the **G-Chem Pump Mounting (Model B32853 only)** instructions on page 13.

Kit No.	Ref	Description	Qty	
B32692	5	BUSHING, strain relief; 1/2 npt	1	
	8	CONTROL, Harrier AC, pump mount; 22 in. harness	1	
	13	HOLDER, cartridge fuse	2	
	14	NUT, wire (p/n: 122032)	3	
	15	NUT, strain relief; 1/2 npt	1	
	K & L		FUSE, 5A, 5 x 20 mm (p/n: B32697)	2
			FUSE, 3A, 5 x 20 mm (p/n: B32698)	2
B32811	6	BRACKET, Harrier AC G-Chem mounting	1	
	7	SCREW, cap, socket head; #10-32 x 1/2	4	
	9	SCREW, machine, pan; m4 x 30 mm (p/n: 105335)	4	
	11	WASHER, spring lock; #6	4	
	12	WASHER, plain; #10	4	

Remote Mounting Kit (B32851)

The Model B32852 Remote Pump Mounting Kit includes a Harrier AC remote pump mount (B32691) and mounting bracket (B32696).

Use the following table to identify parts in the **Remote Mounting (Model B32851 only)** instructions on page 14.

Kit No.	Ref	Description	Qty	
B32691	5	BUSHING, strain relief; 1/2 npt	1	
	8	CONTROL, Harrier AC, remote mount; 72 in. harness	1	
	13	HOLDER, cartridge fuse	2	
	14	NUT, wire (p/n: 122032)	3	
	15	NUT, strain relief; 1/2 npt	1	
	K & L		FUSE, 5A, 5 x 20 mm (p/n: B32697)	2
			FUSE, 3A, 5 x 20 mm (p/n: B32698)	2
B32696	6	BRACKET, Harrier AC mounting	1	
	7	SCREW, machine, phil pan; m4 x 30 mm	4	
		FASTENER, captive; 8-32 x 1-1/4 (used only for terminal box mount)	4	
	9	SCREW, machine, pan; m4 x 30 mm (p/n: 105335)	4	
	10	SPACER, nylon; .375 x .375 (used only for terminal box mount)	4	
	11	WASHER, spring lock; #6	4	
	12	WASHER, flat, stainless steel; #6 (used only for terminal box mount)	4	

Auxiliary Thermostat Kits (optional)

The auxiliary thermostat allows the Harrier AC controller to start chemical injection at a specified temperature. Two kits are available:

Kit No.	Description	Contents
B33004	Auxiliary Thermostat Kit	<ul style="list-style-type: none"> Auxiliary thermostat Self-tapping fasteners; four included Wiring harness; 12 ft. (B32695)
B33005	Auxiliary Thermostat (thermostat only)	<ul style="list-style-type: none"> Auxiliary thermostat

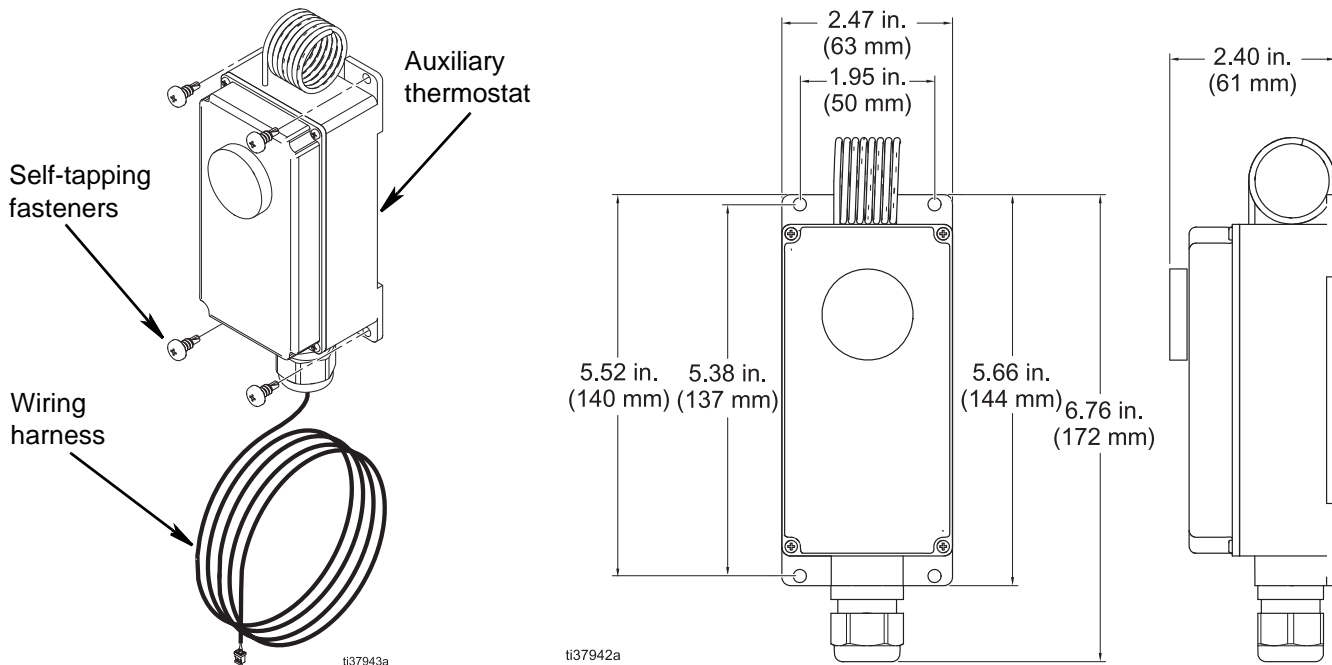


FIG. 17 Auxiliary thermostat kit components and mounting dimensions

Installation and Setup

1. Choose a mounting location within 12 ft. of the Harrier AC controller that is suitable for your application.
2. Use the four self-tapping fasteners to mount the thermostat to a flat surface in the desired location. Orientation will not affect thermostat performance.
3. Use the 12 ft. wiring harness to connect the auxiliary thermostat to the Harrier AC controller. See **Connect Auxiliary Input (Optional)** on page 15.
4. Turn the dial on the auxiliary thermostat to the temperature at which the Harrier AC controller will start chemical injection.

NOTICE

Mounting on rough or uneven surfaces with all four fasteners may deform the thermostat housing enough to affect thermostat calibration.

If you are unable to avoid a rough or uneven surface, use only two fasteners and the top two mounting holes.

NOTICE

Do not dent or deform the sensor coil of the thermostat. A dent or deformation will change the thermostat calibration and cause the Harrier AC controller to cycle at a temperature lower than the dial setting.

Programming

<p>AUTOMATIC SYSTEM ACTIVATION HAZARD</p> <p>Unexpected activation of the system could result in serious injury, including skin injection and amputation. See Wolverine Chemical Injection Pump manual for pressure relief procedure.</p> <p>This device has an automatic timer that activates the pump injection system when power is connected or when exiting the programming function. Before you install or remove the Injection Controller from the system, disconnect and isolate all power supplies.</p>				

Entering Setup Mode

Press both the Up and Down Arrow buttons together for three seconds.



NOTES:

- The controller stays in Setup Mode until exited by user.
- Setting changes are not stored unless programming is completed and setup mode is exited normally by pressing the Enter button.
- A blinking dot at the top of the display below HH, MM, SS, or ## indicates the field currently being programmed in the display.



Programming On Duration

- **on:CY** or **on:ti** appears on the display identifying the mode you are programming (see below).

on:CY on:ti

- The illuminated LED below the related symbol on the controller label also indicates the mode.

NOTE: Selection **on:CY** or **on:ti** designates the way the pump run time is controlled:

- **on:CY** = Cycle Mode, completing a specific number of cycles of an external cycle switch



on:CY

- **on:ti** = Time Mode, a specific duration of time elapses



on:ti

Cycle Mode (on:CY) On Setup

The LED for Cycle Mode will be lit, indicating that you are programming Cycle Mode settings. The On LED will be lit, indicating that you are programming the number of cycles the controller will run the pump.

1. Use the Up or Down Arrow until **on:CY** displays.

on:CY



2. Press the Enter button.



The following indicates the device is ready to program the number of cycles:

- The first number displayed after the **on:CY** is entered blinks.
- A dot appears under ##.

NOTE: The cycle entry is a 2-digit number. A leading zero (0) must be entered in the first field if the number of cycles is fewer than 10.

3. Program the cycles by pressing the Up or Down Arrow to move up or down through the numbers 0-9.

- When the correct first digit is displayed, press the Enter button.

NOTE: The cursor automatically moves to the second number field and flashes.

- Use the Up or Down Arrow to scroll until the desired number appears in the second cycle number field.
- Press the Enter button. After you press the Enter button, the controller saves the Cycle Control information and moves to setting Off Time, page 22.

NOTE: The program cycles must be completed within five minutes. If the cycles are not completed within five minutes, an alarm is triggered and the controller stops in the Pump Off state.

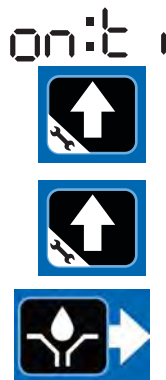
Time Mode (on:ti) On Setup

The LED for Time Mode will be lit, indicating that you are programming Time Mode settings. The On LED will be lit, indicating that you are programming the On Time the controller will run the pump.

NOTES:

- The HH, MM, and SS fields are 2-digit numbers.
- A leading zero (0) must be entered in the first field if the value is less than 10.
- The highest number that can be set for the HH field value is 99.
- The highest number that can be set for the MM and SS fields is 59.
- The HH, MM, and SS LEDs indicate which value is currently being set.

- Use the Up or Down Arrow to cycle through the settings until **on:ti** displays.



- Press the Enter button.

The following indicates the device is ready to program the On Time:

- The first number displayed after the **on:ti** is entered blinks.

- A dot appears under HH.
 - The On LED is lit.
- To set the On Time use the Up or Down Arrow to scroll until the desired number appears in the first Hours (HH) field.
 - Press the Enter button.

The next HH number field to the right flashes, indicating it is ready for programming.

- Use the Up or Down Arrow to scroll until the desired number appears in the second HH number field.
- Press the Enter button.

The next number field to the right flashes indicating it is ready to program the Minutes (MM) fields.

- Repeat steps 3 - 6 to set the MM fields.

The next number field to the right flashes indicating it is ready to program the Seconds (SS) fields.

- Repeat steps 3 - 6 to set the SS fields.
- Press the Enter button. After you press the Enter button the controller automatically switches to the Off Time Setup Mode.

Setting On Time to zero (0) will keep the controller in Off Mode.

Programming Off TIME Duration

After setting the parameters for either Cycle (CY) or Time (Ti) On Modes, the Off Time must be set up.

The Off LED will be lit, indicating that you are programming the Off Time the controller will stop the pump.

Setting Off Time to zero (0) will keep the controller in On Mode.

To set the Off Time:

1. Use the Up or Down Arrow to scroll until the desired number appears in the first Hours (HH) field.



2. Press Enter.



The next HH number field to the right flashes, indicating it is ready for programming.

3. Use the Up or Down Arrow to scroll until the desired number appears in the second HH field.
4. Press the Enter button.

The next number field to the right flashes indicating it is ready to program the Minutes (MM) fields.

5. Repeat steps 1 - 4 to set the MM fields.
6. Press the Enter button to lock in the last MM field.

The next number field to the right flashes indicating it is ready to program the Seconds (SS) fields.

7. Repeat steps 1 - 4 to set the SS fields.
8. Press the Enter button to lock in the last SS field.

The controller automatically switches to the Auxiliary Switch Setup next.

Programming the Auxiliary Switch Setting

The program is designed to work with a dry contact switch that is normally open. The program will Run starting in the Off state when the contact is closed.

AS:no



1. To have the program ignore the auxiliary switch input, use the Up and Down arrows to toggle until **AS:no** is displayed.

2. To have the program utilize the auxiliary switch input, use the Up or Down arrows to toggle until **AS:YS** is displayed.

AS:YS





3. Press the Enter button to save all settings and exit setup mode.



NOTES: When the user exits Setup Mode:

- All LEDs illuminate, indicating the new program settings are saved.
- The display shows the software version.
- The controller goes to the beginning of a Pump Off Cycle.

Operation

				
<p>AUTOMATIC SYSTEM ACTIVATION HAZARD</p> <p>Unexpected activation of the system could result in serious injury, including skin injection and amputation. See Wolverine Chemical Injection Pump manual for pressure relief procedure.</p> <p>This device has an automatic timer that activates the pump injection system when power is connected or when exiting the programming function. Before you install or remove the Injection Controller from the system, disconnect and isolate all power supplies.</p>				

Run Mode

The controller is in Run Mode providing the following circumstances are present:

- The controller is not in Setup Mode.
- An Alarm is not active.

Cycle Mode: Pump On

The display alternates between the number of cycles remaining and the amount of time remaining on the Cycle Timeout. Both values count down from their setting (see **Cycle Mode (on:CY) On Setup**, page 19).

NOTE: The program cycles must be completed within five minutes. If the cycles are not completed within five minutes, an alarm is triggered and the controller stops in the Pump Off state.

- The Cycle On LED illuminates and the pump output is enabled as long as the system is in the Pump On state.
- Cycle Timeout is shown in MM:SS (minutes:seconds).

Cycle Mode: Pump Off

The display indicates the amount of time remaining in the Pump Off cycle, counting down the Pump Off time value (see Programming Off Time Duration, page 21).

- The pump output does not run during the Pump Off time.
- The Time Off LED illuminates as long as the system is in the Pump Off state.
- Pump Off time is shown in HH:MM (hours:minutes) or MM:SS if the time remaining is less than an hour.

Time Mode: Pump On

The display indicates the amount of time remaining in the pump cycle, counting down the Pump On time value (see Time Control (on:ti) On Setup, page 20).

- The Pump output is enabled.
- Pump On time is shown in HH:MM (hours:minutes) or MM:SS if the time remaining is less than an hour.

Time Mode: Pump Off

The display indicates the amount of time remaining in the Pump Off cycle, counting down the Pump Off time value (see Programming Off Time Duration, page 21).

- The Time Off LED illuminates and the pump does not run during the Pump Off time.
- Pump Off time is shown in HH:MM (hours:minutes) or MM:SS if the time remaining is less than an hour.

Priming the Lines

The Continuous Time Mode is good for priming long lines.

To operate in Continuous Time Mode, set the controller up in Time Mode and set the Off time to zero. This will make it so the controller will always have the pump on. The timer will still count down; however, when it hits zero, it will reset to the On time and continue the On state.

You can also press the Enter button to restart the On sequence. This is useful when priming.



Alarm Operation

When an alarm situation occurs:

- Pump operation is disabled,
- An error code displays.

Press and hold for 3 seconds to clear alarm and switch controller to Off Mode.






See **Alarm Types and Messages** for additional information related to alarms and alarm messages.

Alarm Types and Messages

NOTE: Alarms are visual only.


Alarm Type	Error Code	Description	Things to Check/Do
Cycle	Er:04	Backup time expired prior to receiving programmed number of cycle counts	Inspect injection system for broken or plugged lines. Confirm pump is operating correctly. Inspect wiring and switch. Verify programming.
System Fault	Er:54	Internal system error occurred.	Cycle power. If the system error persists contact Graco Customer Support.

Troubleshooting

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

Description	Problem	Solution
Unit does not power on or display is dim/unresponsive	Incorrect or loose wiring	Refer to Installation instructions starting on page 8.
	Input voltage is out of range	Confirm power source is between 100 and 240 VAC.
	Blown fuse	Confirm that none of the devices or wiring connected to the controller are causing a short circuit connection. Replace Fuses , page 25. If fuse trips again, contact Graco Customer Support.

Repair

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

Replacement Kits

Part No.	Description
B32695	Auxiliary Harness Kit. See Connect Auxiliary Input (Optional) , page 15.
B32696	Harrier AC Controller Mount Kit. See Wolverine Pump Mounting (Model B32852 only) , page 12, and Remote Mounting (Model B32851 only) , page 14.
B32697	Harrier AC 5A Fuse Kit. See Replace Fuses , page 25.
B32698	Harrier AC 3A Fuse Kit. See Replace Fuses , page 25.
B32811	Harrier AC Controller Mount Kit. See G-Chem Pump Mounting (Model B32853 only) , page 13.

Replace Fuses

1. Disconnect all power.
2. Remove and inspect fuses (K and L). See FIG. 18.
3. Discard and replace any defective fuses.
 - 120 VAC Wolverine pump uses 5A fuses (B32697).
 - 240 VAC Wolverine pump uses 3A fuses (B32698).
4. Reinstall the fuses (K and L).

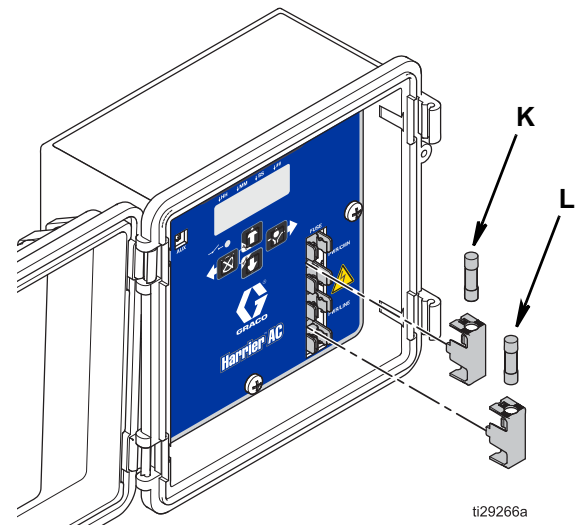
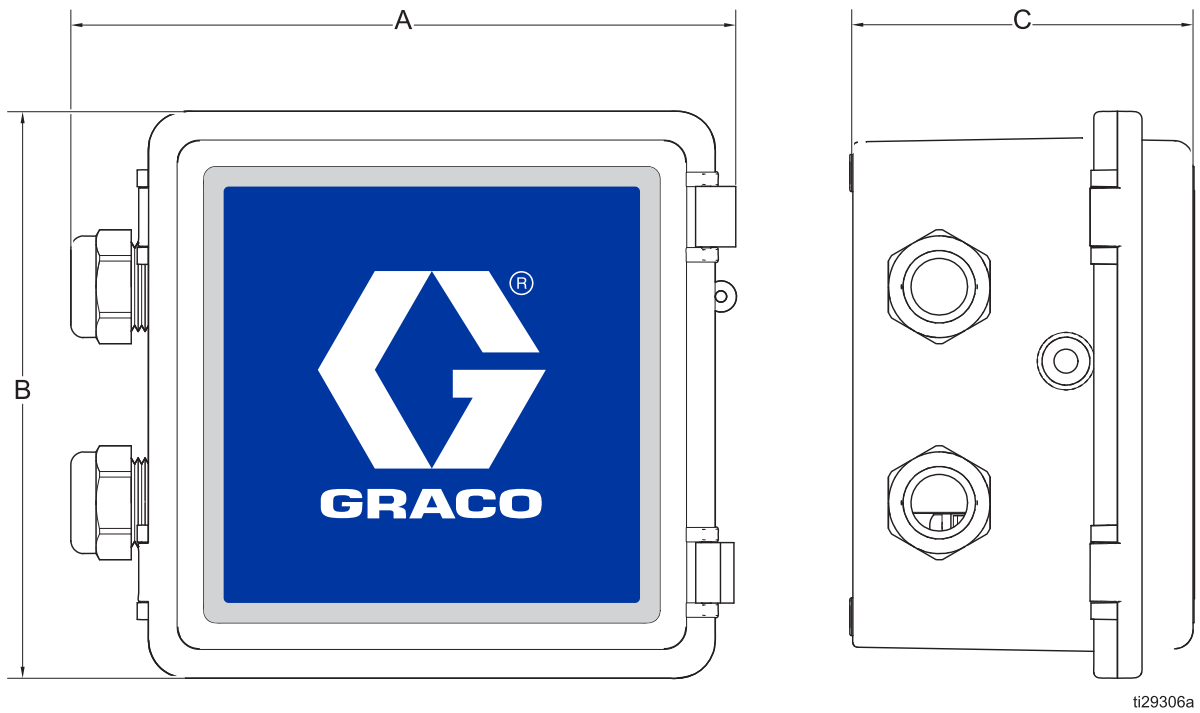


FIG. 18 Replace fuses

5. Reconnect all power.

Dimensions

Harrier AC Controller Dimensions



ti29306a

FIG. 19 Harrier AC Controller Dimensions

A	B	C
6.92 in. (17.6 cm)	5.89 in. (15.0 cm)	3.57 in. (9.1 cm)

Harrier AC Mounting Bracket Dimensions

B32696 (Wolverine Pump only)

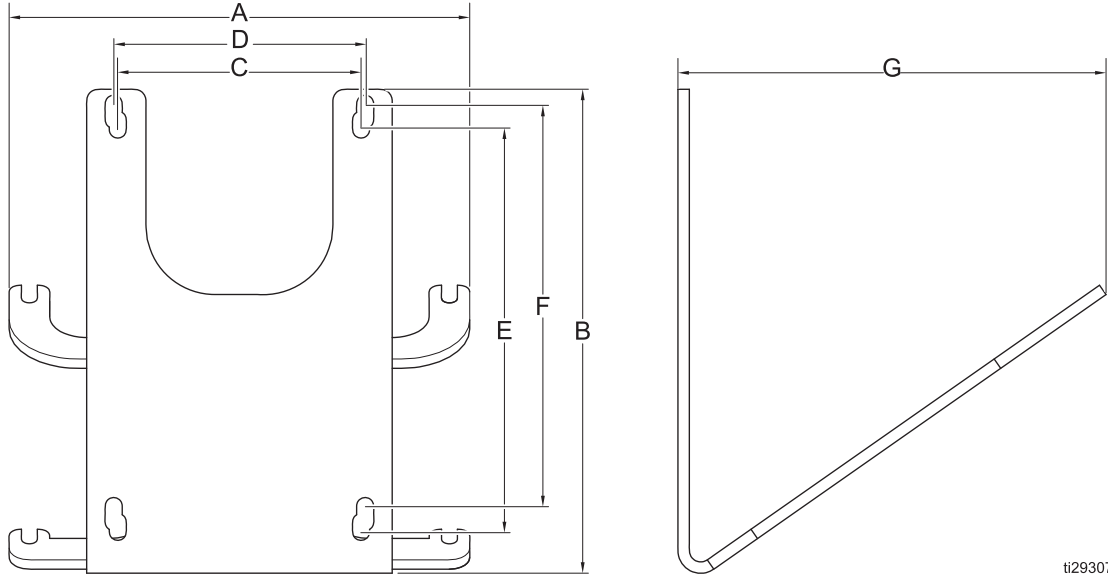
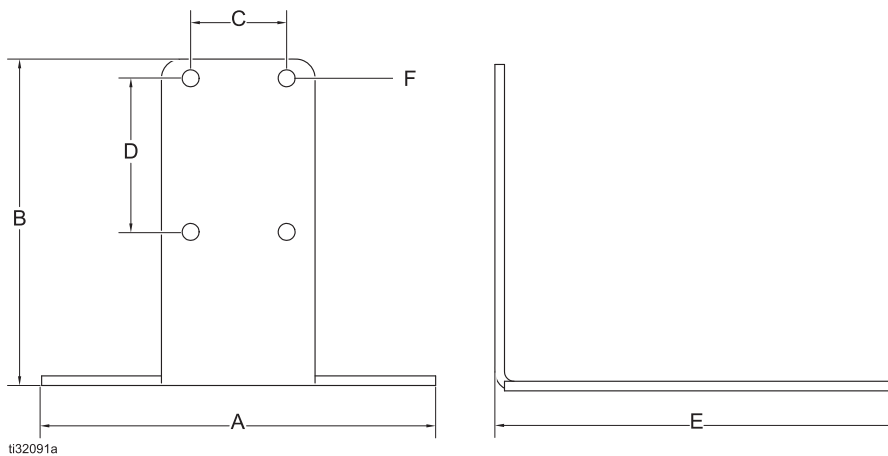


FIG. 20 Harrier AC Wolverine Pump Mounting Bracket Dimensions

ti29307b

A	B	C	D	E	F	G
5.05 in. (12.8 cm)	5.24 in. (13.3 cm)	2.67 (6.8 cm)	2.76 (7.0 cm)	4.41 (11.2 cm)	4.41 (11.2 cm)	4.25 in. (10.8 cm)

B32811 (G-Chem Pump only)



ti32091a

FIG. 21 Harrier AC G-Chem Pump Mounting Bracket Dimensions

A	B	C	D	E	F
5.13 in. (13.0 cm)	4.25 in. (10.8 cm)	1.250 in. (3.175 cm)	2.00 in. (5.1 cm)	5.13 in. (13.0 cm)	Ø 0.221 in. (Ø 0.56 cm)

Technical Specifications

Input Contact	
Power Source AC	100-240 VAC - 50/60 Hz
Power Consumption	720 Watts
Cycle Input (optional)	24 VDC cycle switch
Auxiliary Input (optional)	Normally open switch
Outputs	
Pump Control Voltage	Pump Control Voltage = Power Source
Max Switching Voltage	240 VAC
Max Switching Current	5A (120 VAC) / 3A (240 VAC)
Min Switching Current	100 mA
Protection grade	UL/NEMA 4X
Enclosure Material	ABS + Polycarbonate
Membrane Material	Polyester
Maximum Humidity	90% Relative Humidity (non-condensing)
Operating temperature range	- 40°F to 131°F (- 40°C to 55°C)
Storage Temperature	- 40°F to 176°F (- 40°C to 80°C)

California Proposition 65

CALIFORNIA RESIDENTS

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

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

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Original instructions. This manual contains English. MM 3A4047

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