

Instructions



# Harrier<sup>®</sup> AC Chemical Injection Controller

3A4047D  
EN

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

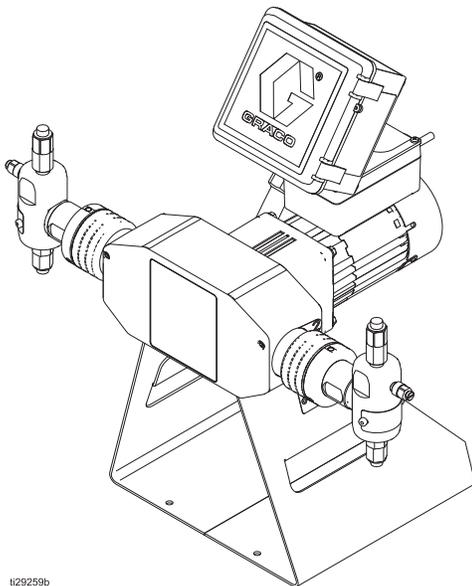
Not approved for use in explosive atmospheres or hazardous locations.

See page 2 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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## Approvals

RECOGNIZED  
COMPONENT



**Intertek**

3151640

Certified to CAN/CSA C22.2 No. 14  
Conforms to UL 508

## 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.

 <b>WARNING</b>	
  	<p><b>FIRE AND EXPLOSION HAZARD</b></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"> <li>• Use equipment only in well ventilated area.</li> <li>• Eliminate all ignition sources, such as cigarettes and portable electric lamps.</li> <li>• Ground all equipment in the work area.</li> <li>• Keep work area free of debris, including rags and spilled or open containers of solvent.</li> <li>• Do not plug or unplug power cords or turn lights on or off when flammable fumes are present.</li> <li>• Use only grounded hoses.</li> <li>• <b>Stop operation immediately</b> if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem.</li> <li>• Keep a working fire extinguisher in the work area.</li> </ul> <p><b>FIRE AND EXPLOSION HAZARD</b></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"> <li>• Clean plastic parts only in well ventilated area.</li> <li>• Do not clean with a dry cloth.</li> </ul>
 	<p><b>ELECTRIC SHOCK HAZARD</b></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"> <li>• Turn off and disconnect power at main switch before disconnecting any cables and before servicing or installing equipment.</li> <li>• Connect only to grounded power source.</li> <li>• All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.</li> </ul>

# ⚠ WARNING

	<p><b>SKIN INJECTION HAZARD</b></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. <b>Get immediate surgical treatment.</b></p> <ul style="list-style-type: none"> <li>• Do not put your hand over the fluid outlet.</li> <li>• Do not stop or deflect leaks with your hand, body, glove, or rag.</li> <li>• Follow the <b>Pressure Relief Procedure</b> when you stop dispensing and before cleaning, checking, or servicing equipment.</li> <li>• Tighten all fluid connections before operating the equipment.</li> <li>• Check hoses and couplings daily. Replace worn or damaged parts immediately.</li> </ul>
	<p><b>EQUIPMENT MISUSE HAZARD</b></p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> <li>• Do not operate the unit when fatigued or under the influence of drugs or alcohol.</li> <li>• Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See <b>Technical Specifications</b> in all equipment manuals.</li> <li>• Use fluids and solvents that are compatible with equipment wetted parts. See <b>Technical Specifications</b> 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.</li> <li>• Turn off all equipment and follow the <b>Pressure Relief Procedure</b> when equipment is not in use.</li> <li>• Check equipment regularly. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.</li> <li>• Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.</li> <li>• Make sure all equipment is rated and approved for the environment in which you are using it.</li> <li>• Use equipment only for its intended purpose. Call your distributor for information.</li> <li>• Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.</li> <li>• Keep children and animals away from work area.</li> <li>• Comply with all applicable safety regulations.</li> </ul>

# 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.

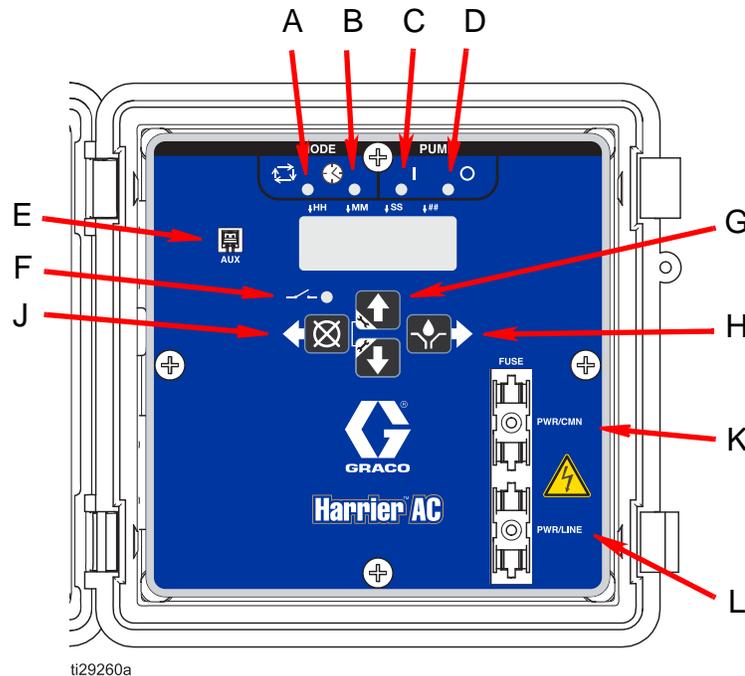


Fig. 1 Controller Keypad

### 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)**

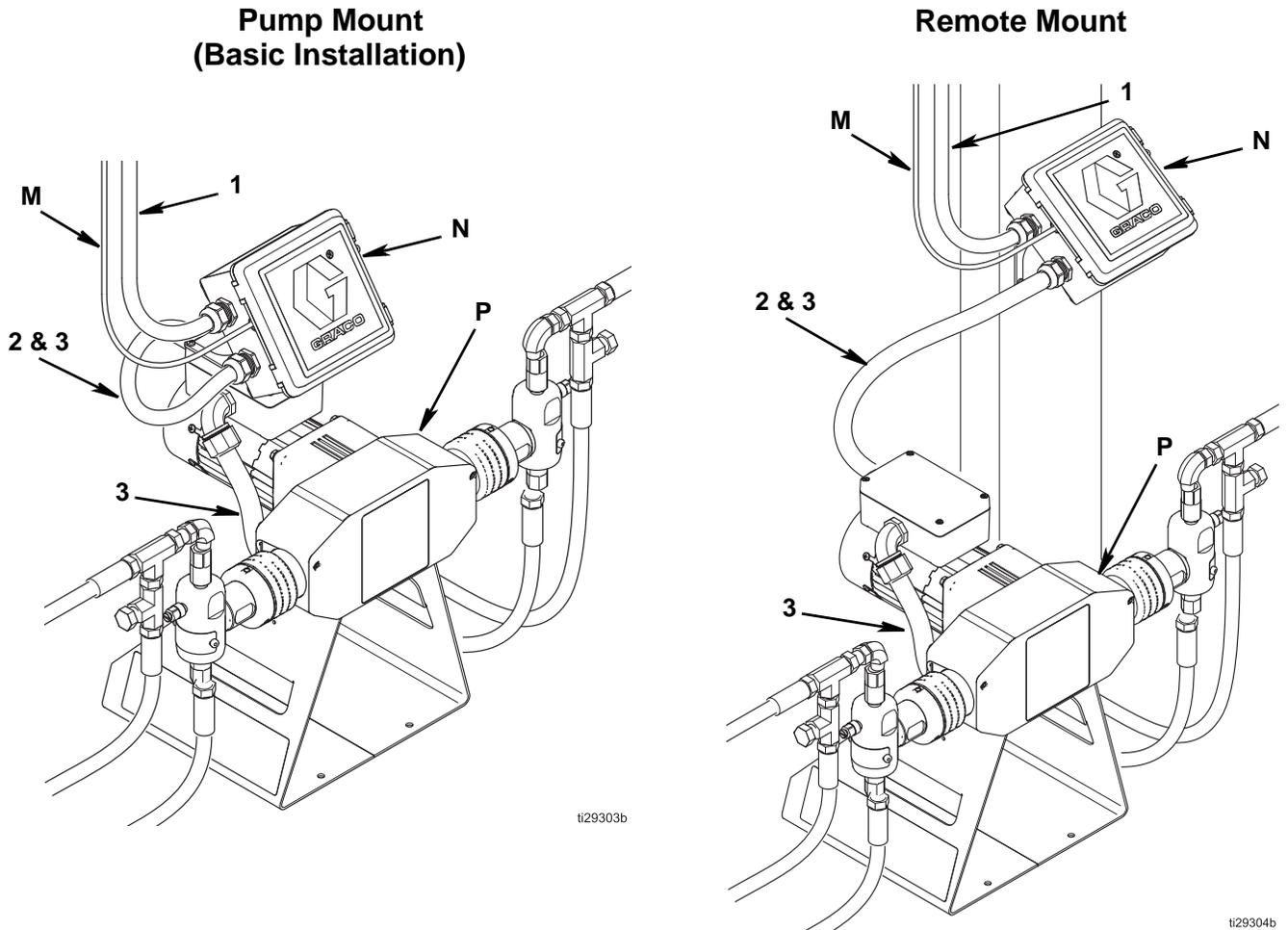
- Behind this cover is the Common/Line 2 fuse for the incoming power. (5A max for 120 VAC an 3A max for 240 VAC)
- Ensure all incoming power is shut off before removing the cover to service the fuse.
- Use a UL 248 5x20 mm barrel fuse.

### **Line Fuse (L)**

- Behind this cover is the Line fuse for the incoming power. (5A max for 120 VAC an 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 8)
- 2 Motor Power (see **Wiring Diagram**, page 8)
- 3 Cycle Count (see **Wiring Diagram**, page 8)
- M Auxiliary Input (see **Wiring Diagram**, page 8)
- N Controller
- P Pump

## Wiring Diagram

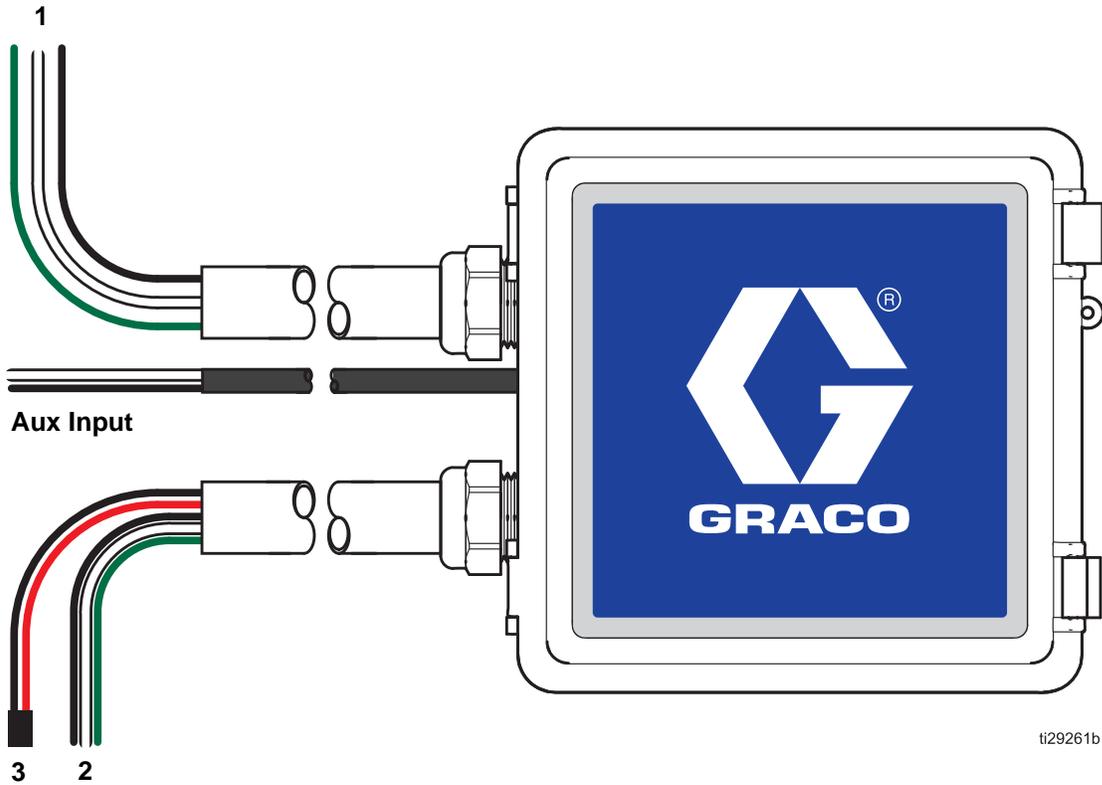


FIG. 3 Wiring Diagram

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

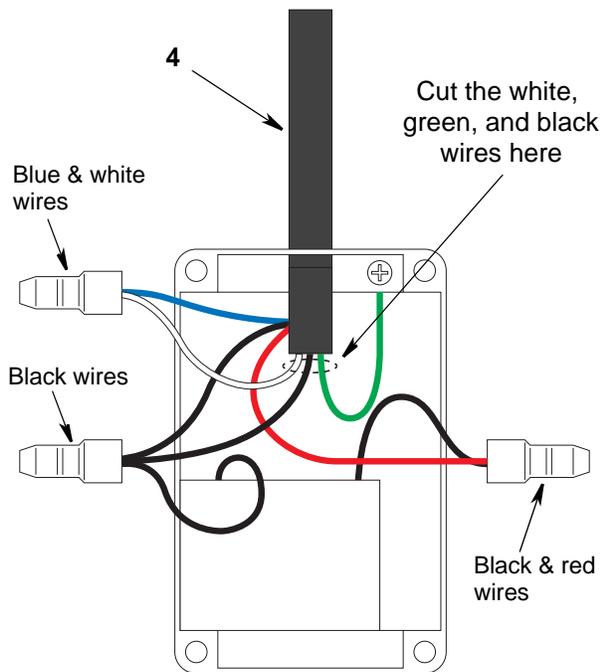
See **Connect Auxiliary Input (Optional)**, page 14, for connecting the auxiliary input harness (B32695).

## Installing the Injection Controller

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

### Rewire Motor Junction Box (Wolverine Pumps only)

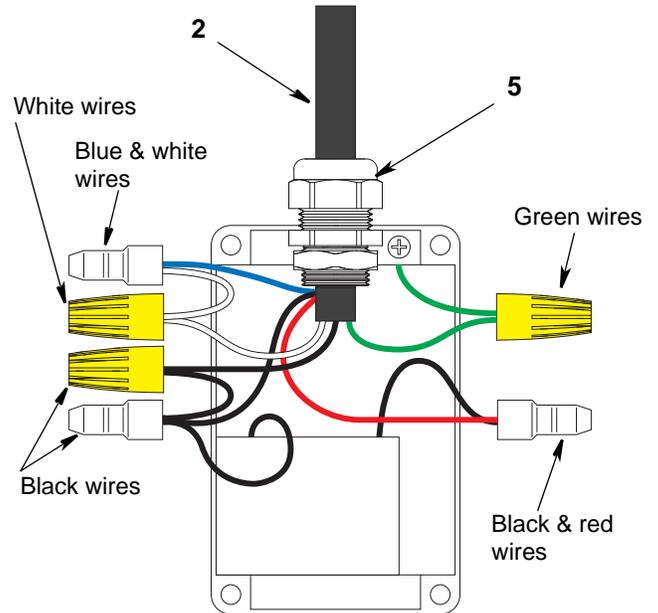
1. Disconnect all power.
2. Remove the motor junction box cover on the Wolverine motor to gain access to the motor wiring.
3. Cut only the white, green, and black wires in the existing motor power cable (4). See FIG. 4.



**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), see FIG. 3, and cord-grip (5) into the motor junction box.

6. Connect the motor power cable (2) wires (green to green, white to white, and black to black) using the supplied wire connectors. See FIG. 5.

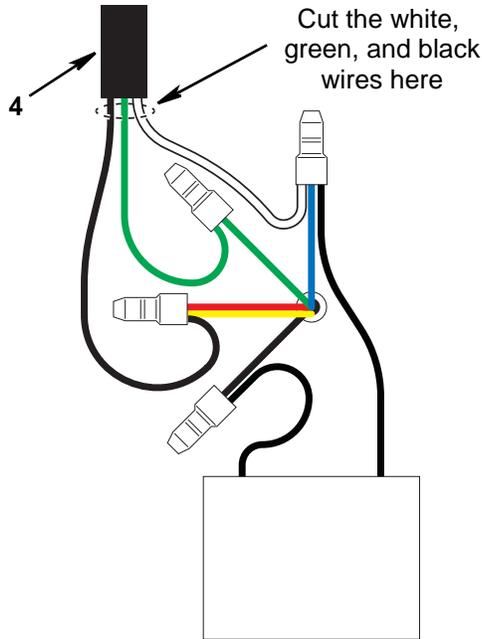


**FIG. 5 Motor junction box with new motor power cable**

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 11, or **Remote Mounting (Model B32851 only)**, page 13.

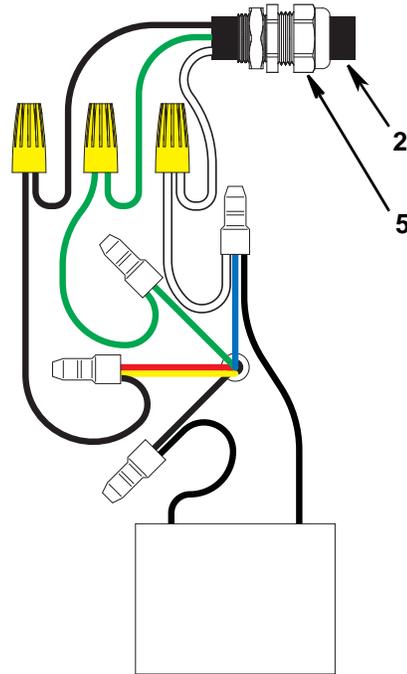
## Rewire Motor Junction Box (G-Chem Pumps only)

1. Disconnect all power.
2. Remove the motor junction box cover on the G-Chem 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. 6.



**FIG. 6 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), see FIG. 3, and cord-grip (5) into the motor junction box.
6. Connect the motor power cable (2) wires (green to green, white to white, and black to black) using the supplied wire connectors. See FIG. 7.

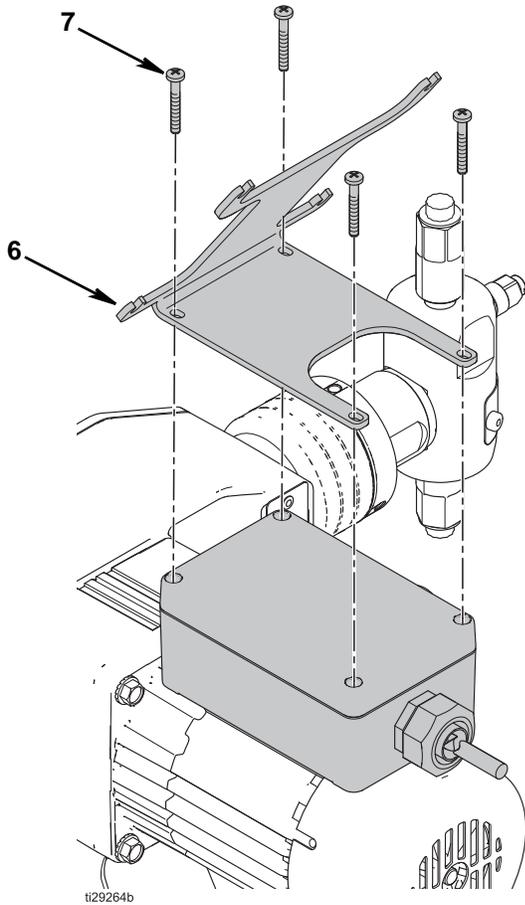


**FIG. 7 Motor junction box with new motor power cable**

7. Connect the cycle count connector (3), see FIG. 3, to the G-Chem pump cycle switch connector (if applicable).
8. Replace the motor junction box cover.
9. Proceed to **G-Chem Pump Mounting (Model B32853 only)**, page 12, or **Remote Mounting (Model B32851 only)**, page 13.

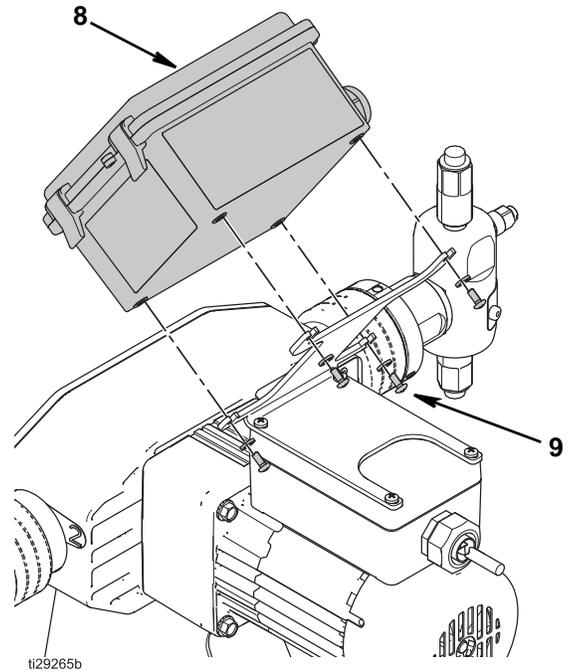
### Wolverine Pump Mounting (Model B32852 only)

1. **Rewire Motor Junction Box (Wolverine Pumps only)**, page 9.
2. Place the mounting bracket (6) on the motor junction box and secure with supplied screws (7). See FIG. 8.
4. **Install Fuses**, see page 13.



**FIG. 8 Attach pump mounting bracket**

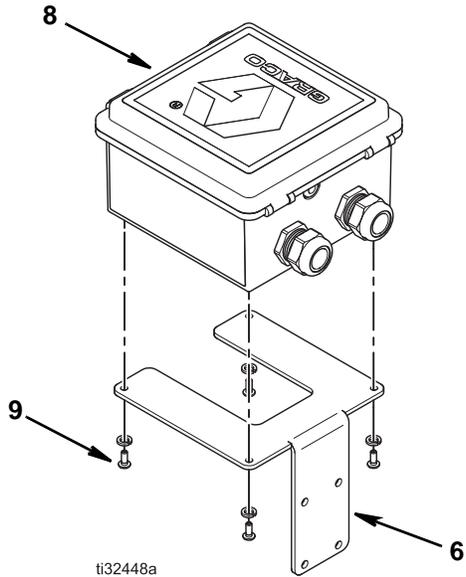
3. Attach the controller (8) to the mounting bracket (6) using supplied screws (9). See FIG. 9.



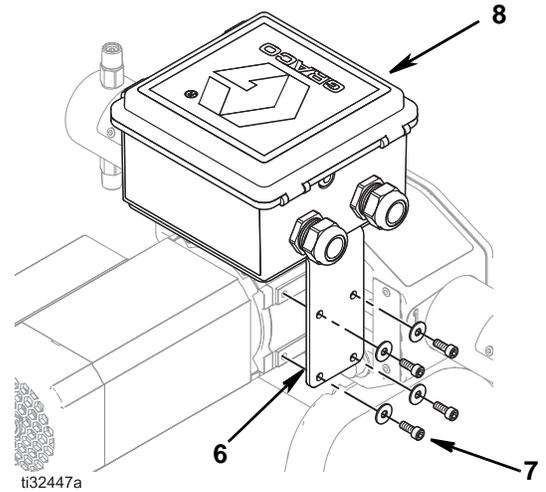
**FIG. 9 Attach controller to pump mounting bracket**

### G-Chem Pump Mounting (Model B32853 only)

1. Rewire Motor Junction Box (G-Chem Pumps only), page 10.
2. Attach the controller (8) to the mounting bracket (6) using supplied screws (9). See FIG. 10.
3. Place the mounting bracket (6), with attached controller (8), on the side of the motor and secure with supplied screws (7). See FIG. 11.



**FIG. 10 Attach controller to pump mounting bracket**

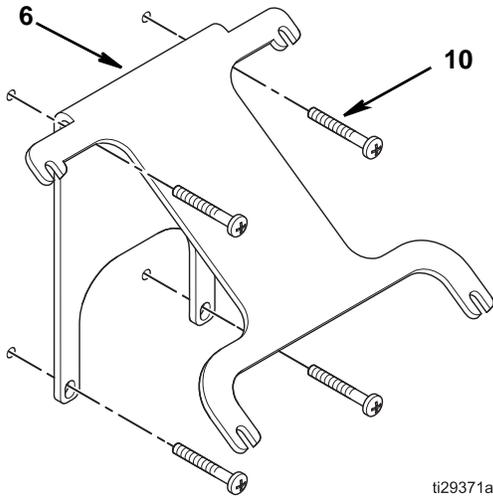


**FIG. 11 Attach pump mounting bracket**

4. Install Fuses, see page 13.

### Remote Mounting (Model B32851 only)

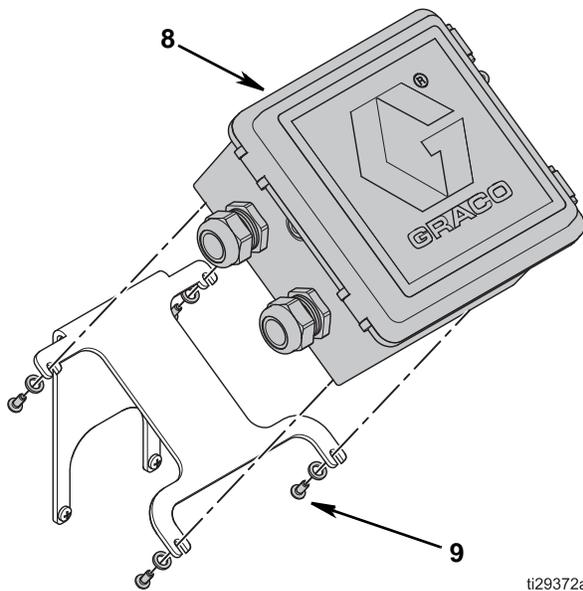
1. **Rewire Motor Junction Box (Wolverine Pumps only)**, page 9.
2. Place the mounting bracket (6) on a sturdy surface and secure with user-provided screws (10). (Refer to **Harrier AC Mounting Bracket Dimensions**, page 24, for mounting holes.)



ti29371a

**FIG. 12 Attach remote mounting bracket**

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



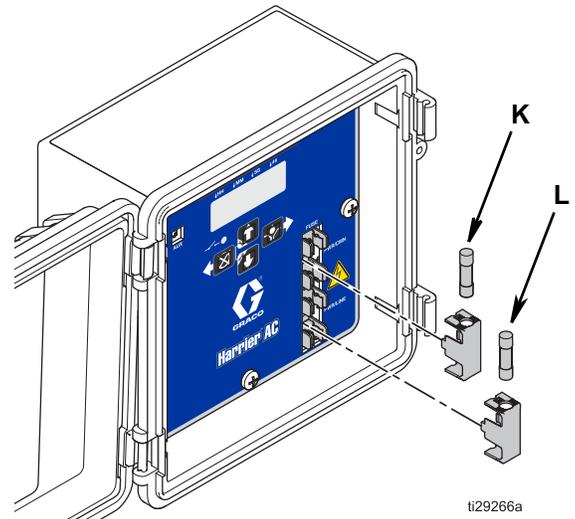
ti29372a

**FIG. 13 Attach controller to remote mounting bracket**

4. **Install Fuses**, see page 13.

### Install Fuses

1. Install the supplied fuses (K and L). See FIG. 14.
  - 120 VAC Wolverine pump uses 5A fuses (B32697).
  - 240 VAC Wolverine pump uses 3A fuses (B32698).



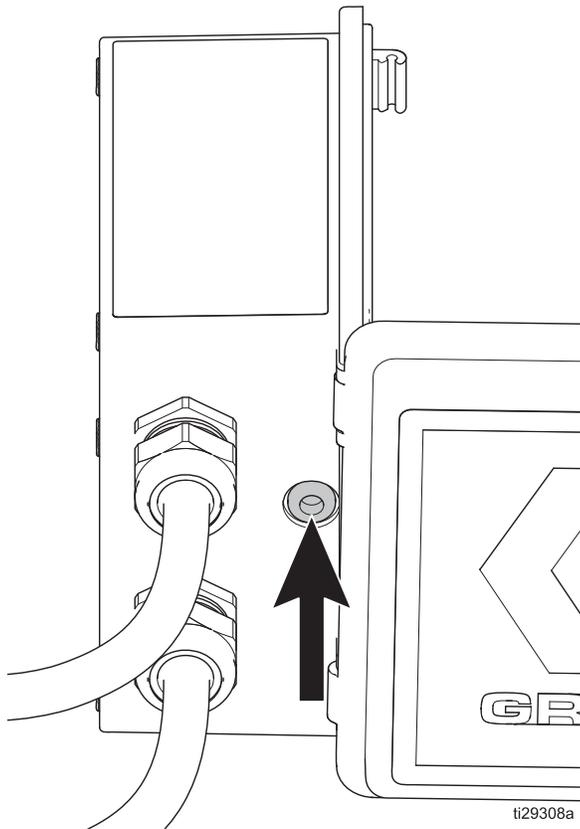
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**FIG. 14 Install fuses**

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

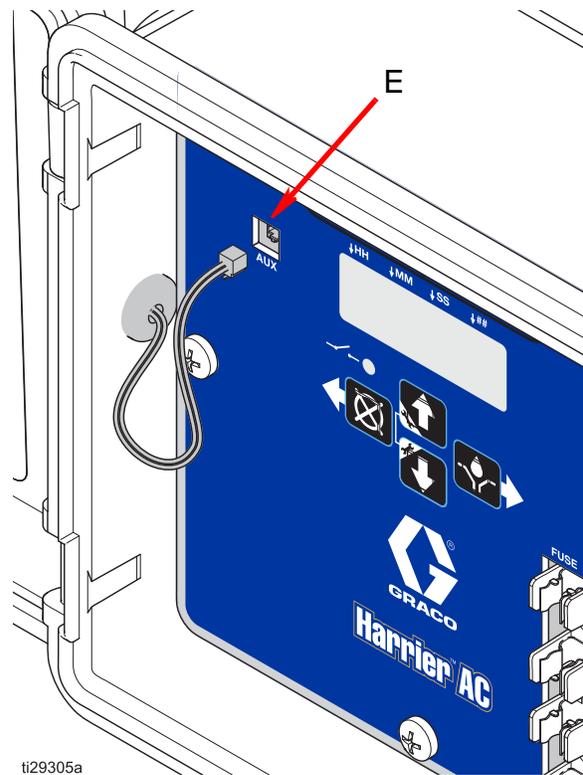
## Connect Auxiliary Input (Optional)

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 17.)

# Programming

<p><b>AUTOMATIC SYSTEM ACTIVATION HAZARD</b></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).



- 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 18.

**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><b>AUTOMATIC SYSTEM ACTIVATION HAZARD</b></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 15).

**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 17).

- 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 16).

- 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 17).

- 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 <b>Installation</b> instructions starting on page 7.
	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. <b>Replace Fuses</b> , page 21. If fuse trips again, contact Graco Customer Support.

# Repair

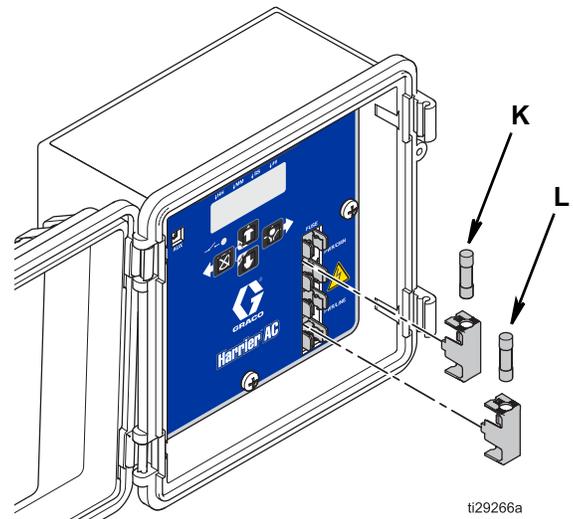
				
All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.				

## Replacement Kits

Part No.	Description
B32695	Auxiliary Harness Kit. See <b>Connect Auxiliary Input (Optional)</b> , page 14.
B32696	Harrier AC Controller Mount Kit. See <b>Wolverine Pump Mounting (Model B32852 only)</b> , page 11, and <b>Remote Mounting (Model B32851 only)</b> , page 13.
B32697	Harrier AC 5A Fuse Kit. See <b>Replace Fuses</b> , page 21.
B32698	Harrier AC 3A Fuse Kit. See <b>Replace Fuses</b> , page 21.
B32811	Harrier AC Controller Mount Kit. See <b>G-Chem Pump Mounting (Model B32853 only)</b> , page 12.

## Replace Fuses

1. Disconnect all power.
2. Remove and inspect fuses (K and L). See FIG. 17.
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).



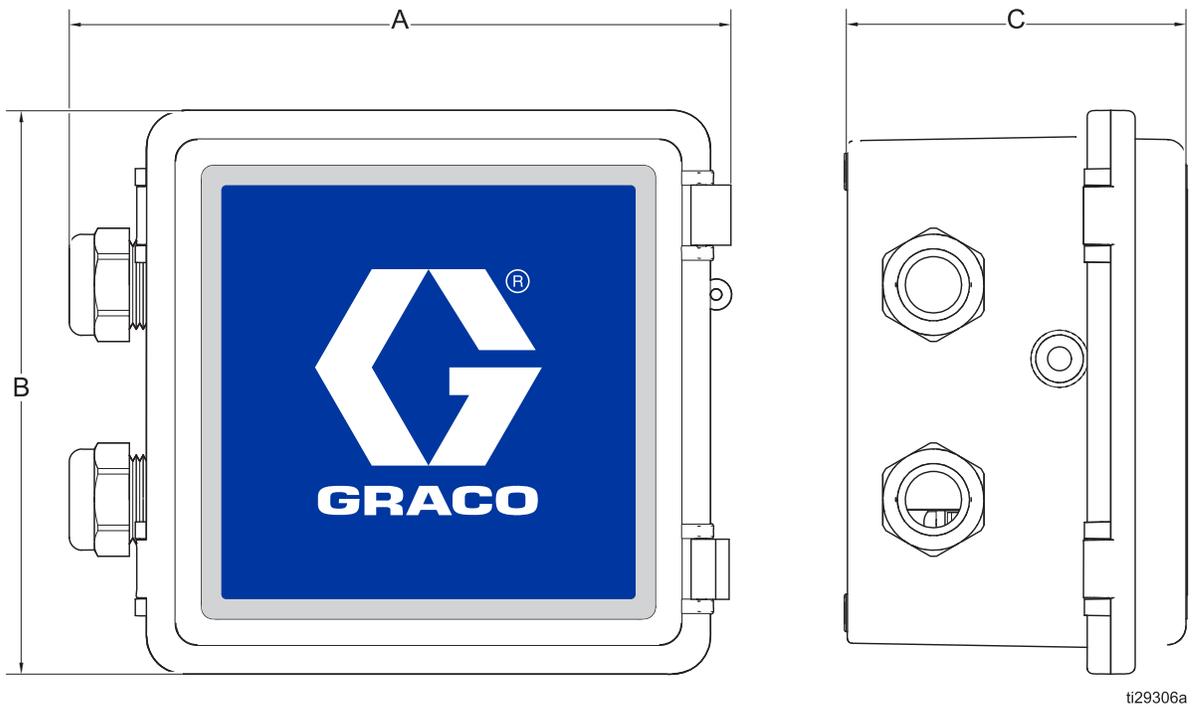
**FIG. 17 Replace fuses**

5. Reconnect all power.



# Dimensions

## Harrier AC Controller Dimensions

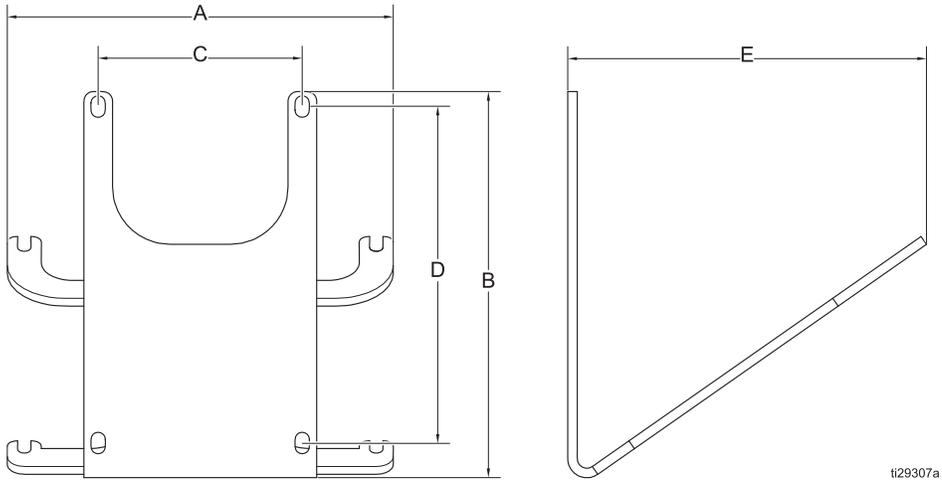


**FIG. 18 Harrier AC Controller Dimensions**

<b>A</b>	<b>B</b>	<b>C</b>
6.92 in. (17.6 cm)	5.89 in. (15.0 cm)	3.57 in. (9.1 cm)

# Harrier AC Mounting Bracket Dimensions

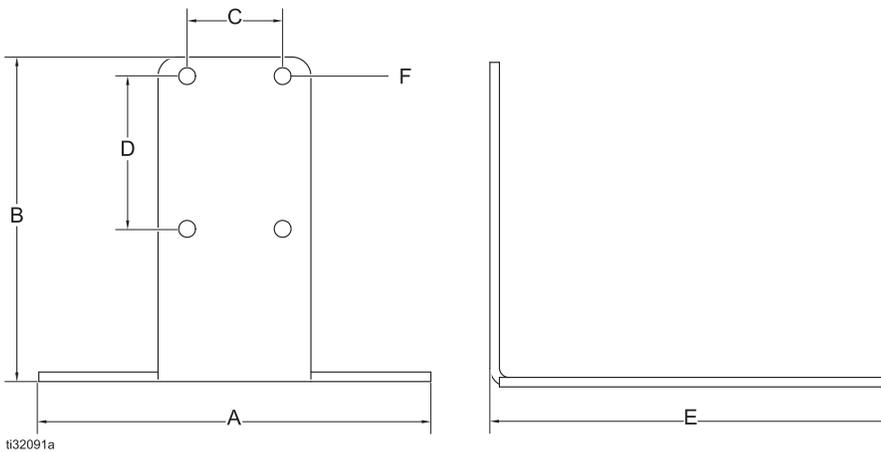
**B32696 (Wolverine Pump only)**



**FIG. 19 Harrier AC Wolverine Pump Mounting Bracket Dimensions**

A	B	C	D	E
5.05 in. (12.8 cm)	4.80 in. (12.2 cm)	2.67 in. (6.8 cm)	4.40 in. (11.2 cm)	4.25 in. (10.8 cm)

**B32811 (G-Chem Pump only)**



**FIG. 20 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)

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