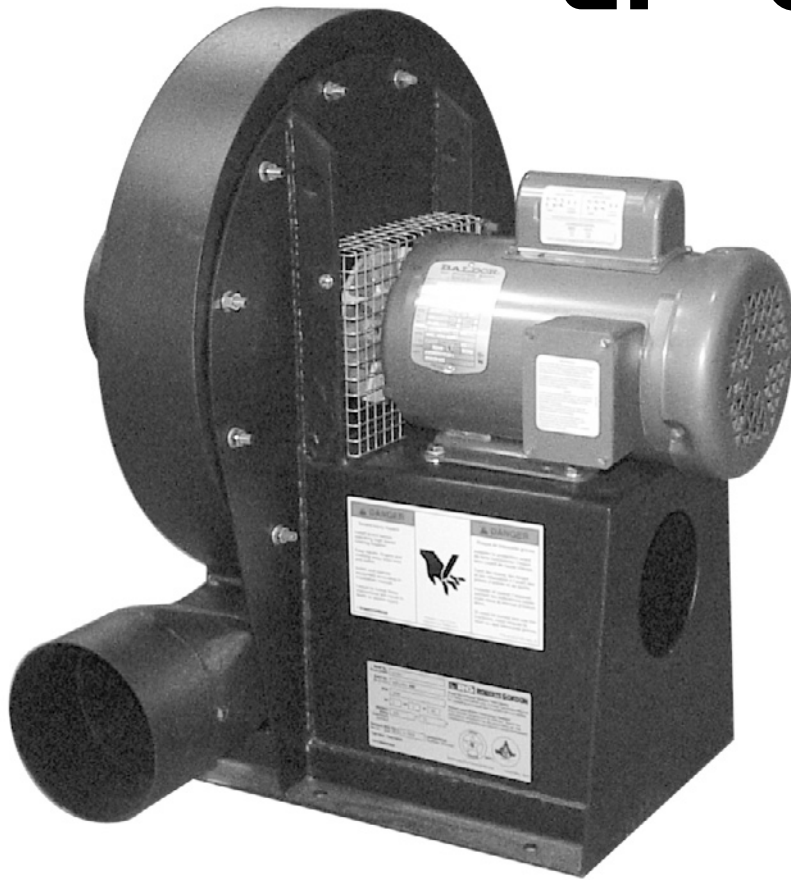


EP-300 Series



Installation, Operation & Service Manual

⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance can result in death, injury or property damage. Read the installation, operation and service manual thoroughly before installing or servicing this equipment.

Installation must be done by a contractor qualified in the installation and service of gas-fired heating equipment or your gas supplier.

Installer

Please take the time to read and understand these instructions prior to any installation. Installer must give a copy of this manual to the owner.

Owner

Keep this manual in a safe place in order to provide your serviceman with necessary information.



Quality in Any Language™

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SECTION 1: HEATING SYSTEM SAFETY



Your Safety is Important to Us!

This symbol is used throughout the manual to notify you of possible fire, electrical or burn hazards. Please pay special attention when reading and following the warnings in these sections.

Installation, Service and Annual Inspection of heater and pump must be done by a contractor qualified in the installation and service of gas-fired heating equipment.

Read this manual carefully before installation, operation or service of this equipment.

This heating system is designed for heating nonresidential indoor spaces. Do not install in residential spaces. These instructions, the layout drawing, local codes and ordinances, and applicable standards that apply to electrical wiring, venting, etc., must be thoroughly understood before proceeding with the installation.

Thin sheet metal parts, such as the various venting components, have sharp edges. To prevent injury, the use of work gloves is recommended.

Do not attempt to operate the pump until all steps of the installation have been accomplished.

1.1 Manpower Requirements


To prevent personal injury and damage to the pump, two persons will be required for installation.

SECTION 2: INSTALLER RESPONSIBILITY

The installer is responsible for the following:

- To install the pump and electrical supplies, in accordance with applicable specifications and codes. Roberts-Gordon recommends the installer contact a local building inspector or Fire Marshal for guidance.
- To use the information given in a layout drawing and in the manual together with the cited codes and regulations to perform the installation.
- To furnish all needed materials not furnished as standard equipment.
- To plan location of supports.
- To provide access to pump for servicing on all sides and for pump removal.
- To provide the owner with a copy of this installation, operation and service manual.
- To never use pump or pump platform as support for ladder or other access equipment and never hang or suspend anything from pump or pump platform.
- To safely and adequately install pump using materials with a minimal working load of 400 lbs (181 kg).

2.1 Corrosive Chemicals

 CAUTION
<p>Do not use heater and pump in an area containing corrosive chemicals.</p> <p>Avoid the use of corrosive chemicals to ensure a longer life of the pump, burner, tubing and other parts.</p> <p>Failure to follow these instructions can result in property damage.</p>

Roberts-Gordon cannot be responsible for ensuring that all appropriate safety measures are undertaken prior to installation; this is entirely the responsibility of the installer. It is essential that the contractor, the sub-contractor, or the owner identifies the presence of combustible materials, corrosive chemicals or halogenated hydrocarbons* anywhere in the premises.

* **Halogenated Hydrocarbons** are a family of chemical compounds characterized by the presence of halogen elements (fluorine, chlorine, bromine, etc.). These compounds are frequently used in refrigerants, cleaning agents, solvents, etc. If these compounds enter the air supply of the burner, the life span of the heater components will be greatly reduced. An outside air supply must be provided to the burners whenever the presence

of these compounds is suspected. Warranty will be invalid if the heater is exposed to halogenated hydrocarbons.


2.2 National Standards and Applicable Codes

All Appliances must be installed in accordance with the latest revision of the applicable standards and national codes. This refers also to the electric, gas and venting installation. Note: Additional standards for installations in Public Garages, Aircraft Hangars, etc. may be applicable.

SECTION 3: UNPACKING THE PUMP

3.1 Open Shipping Cartons

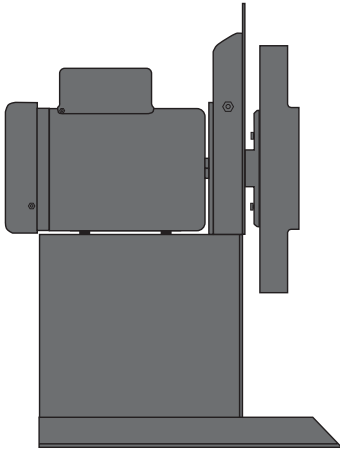
Open cartons and remove packing inserts. Carefully remove pump components from the cartons. Lift assembly by gripping metal pump frame. Two people are required (weight 135 lbs, 61 kg). This pump has been tested prior to packing. The impeller was dynamically balanced before assembly and requires care in handling to avoid damage.

 WARNING	
	<p>Severe Injury Hazard</p>
	<p>Install pump scroll and inlet assembly before operating high speed rotating impeller.</p>
	<p>Keep hands, fingers and clothing away from inlet and outlet.</p>
	<p>Install and operate equipment according to installation manual.</p>
<p>Failure to follow these instructions can result in death or severe injury.</p>	

SECTION 4: MAJOR COMPONENTS

FIGURE 1: Major Component Descriptions

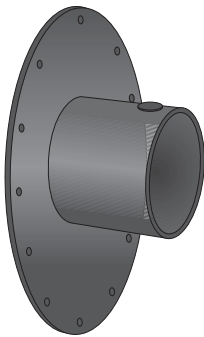
EP-301 Pump Assembly - 02730101
 EP-303 Pump Assembly - 02730301



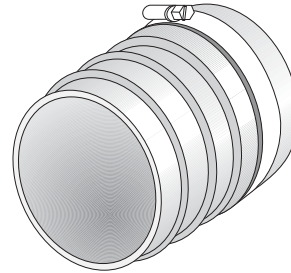
Pump Scroll Assembly - 90713451



Pump Inlet Assembly - 90713454



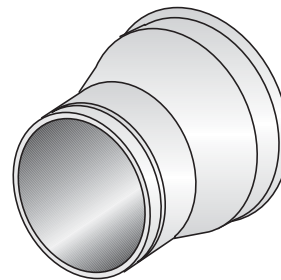
Pump Boot 4" (10 cm) - 91412800
 Pump Boot 6" (15 cm) - 91412802



Band Clamp 4" (10 cm) - 91901300
 Band Clamp 6" (15 cm) - 91913703



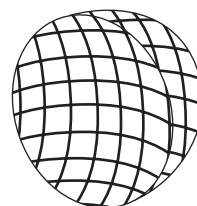
4" to 6" (10 cm x 15 cm)
 Adapter - 02719903



Mounting Angle - 01365000



Bird Screen 6" (15 cm) - 01397400



4.1 Standard Parts List

Table 1: EP-301 Pump Package 4" (P/N 02723014)

Part No.	Description	Quantity
	Box 1 of 2	
02730101	EP-301 Pump Assembly	1
	Box 2 of 2	
02730104	EP-300 Accessory Package 4"	1
90713454	Pump Inlet Assembly, 455 mm dia	1
90713451	Pump Scroll Assembly, 529 mm dia	1
02719903	4" to 6" Adapter	1
90430600	Pressure Switch	1
91412800	Pump Boot (4" x 8")	1
91412802	Pump Boot (6" x 8")	1
91901300	Band Clamp, 4"	2
91913703	Band Clamp, 6"	3
01397400	Bird Screen, 6"	1
01365000	Mounting Angle	6
01311701	EP-300 Accessory Package	1
T00680	Isolator Pad	4
93413912	Bolt (5/16 -18 x 3/4)	6
97213920	Bolt (5/16 -18 x 1 1/4)	4
95211600	Flat Washer (5/16)	20
96411600	Lockwasher (5/16)	10
92113900	Hex Nut	10
T0010	Screw #10	3
01312105	EP-300 Scroll/Inlet Fastener Package	1
92204502	Hex Nut, M8	24
95204502	Washer, M8 x 16 OD x 1.6	24
127202NA	EP-300 Series Installation, Operation and Service Manual	1

Table 2: EP-301 Pump Package 6" (P/N 02723016)

Part No.	Description	Quantity
	Box 1 of 2	
02730101	EP-301 Pump Assembly	1
	Box 2 of 2	
02730106	EP-300 Accessory Package 6"	1
90713454	Pump Inlet Assembly, 455 mm dia	1
90713451	Pump Scroll Assembly, 529 mm dia	1
90430600	Pressure Switch	1
91412802	Pump Boot (6" x 8")	2
91913703	Band Clamp, 6"	5
01397400	Bird Screen, 6"	1
01365000	Mounting Angle	6
01311701	EP-300 Accessory Package	1
T00680	Isolator Pad	4
93413912	Bolt (5/16 -18 x 3/4)	6
97213920	Bolt (5/16 -18 x 1 1/4)	4
95211600	Flat Washer (5/16)	20
96411600	Lockwasher (5/16)	10
92113900	Hex Nut	10
T0010	Screw #10	3
01312105	EP-300 Scroll/Inlet Fastener Package	1
92204502	Hex Nut, M8	24
95204502	Washer, M8 x 16 OD x 1.6	24
127202NA	EP-300 Series Installation, Operation and Service Manual	1

Table 3: EP-303 Pump Package 4" (P/N 02723034)

Part No.	Description	Quantity
	Box 1 of 2	
02730103	EP-303 Pump Assembly	1
	Box 2 of 2	
02730104	EP-300 Accessory Package 4"	1
90713454	Pump Inlet Assembly, 455 mm dia	1
90713451	Pump Scroll Assembly, 529 mm dia	1
02719903	4" to 6" Adapter	1
90430600	Pressure Switch	1
91412800	Pump Boot (4" x 8")	1
91412802	Pump Boot (6" x 8")	1
91901300	Band Clamp, 4"	2
91913703	Band Clamp, 6"	3
01397400	Bird Screen, 6"	1
01365000	Mounting Angle	6
01311701	EP-300 Accessory Package	1
T00680	Isolator Pad	4
93413912	Bolt (5/16 -18 x 3/4)	6
97213920	Bolt (5/16 -18 x 1 1/4)	4
95211600	Flat Washer (5/16)	20
96411600	Lockwasher (5/16)	10
92113900	Hex Nut	10
T0010	Screw #10	3
01312105	EP-300 Scroll/Inlet Fastener Package	1
92204502	Hex Nut, M8	24
95204502	Washer, M8 x 16 OD x 1.6	24
127202NA	EP-300 Series Installation, Operation and Service Manual	1

Table 4: EP-303 Pump Package 6" (P/N 02723036)

Part No.	Description	Quantity
	Box 1 of 2	
02730103	EP-303 Pump Assembly	1
	Box 2 of 2	
02730106	EP-300 Accessory Package 6"	1
90713454	Pump Inlet Assembly, 455 mm dia	1
90713451	Pump Scroll Assembly, 529 mm dia	1
90430600	Pressure Switch	1
91412802	Pump Boot (6" x 8")	2
91913703	Band Clamp, 6"	5
01397400	Bird Screen, 6"	1
01365000	Mounting Angle	6
01311701	EP-300 Accessory Package	1
T00680	Isolator Pad	4
93413912	Bolt (5/16 -18 x 3/4)	6
97213920	Bolt (5/16 -18 x 1 1/4)	4
95211600	Flat Washer (5/16)	20
96411600	Lockwasher (5/16)	10
92113900	Hex Nut	10
T0010	Screw #10	3
01312105	EP-300 Scroll/Inlet Fastener Package	1
92204502	Hex Nut, M8	24
95204502	Washer, M8 x 16 OD x 1.6	24
127202NA	EP-300 Series Installation, Operation and Service Manual	1

SECTION 5: PUMP INSTALLATION

5.1 Pump Assembly Instructions

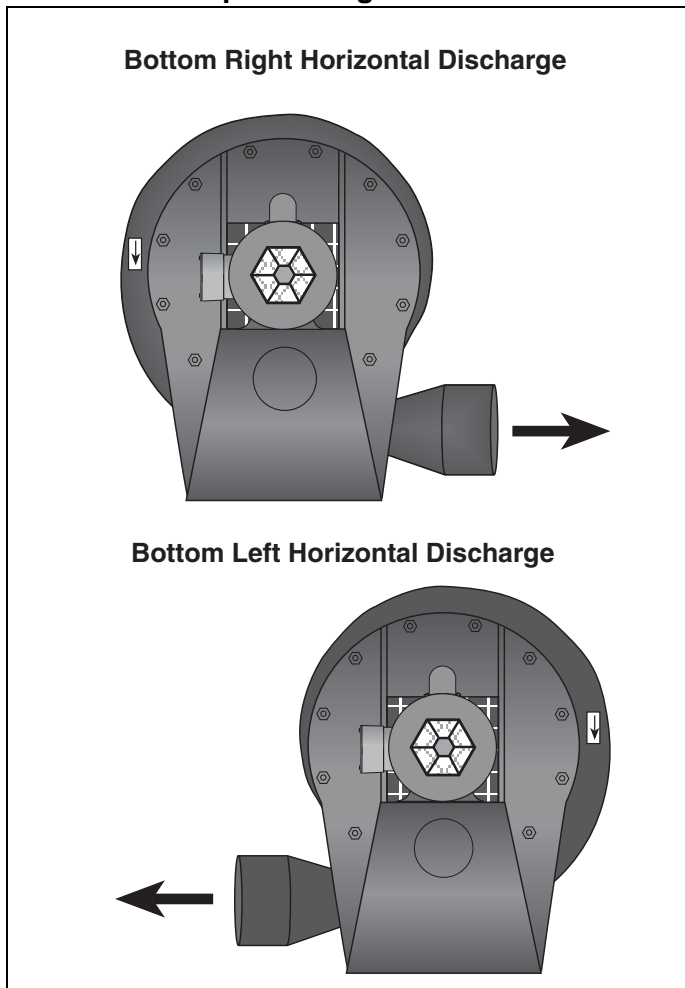
5.1.1 Determine Orientation of Pump Discharge

To ensure your safety, and comply with the terms of the warranty, all units must be installed in accordance with these instructions.

The pump must be installed in a location that it is readily accessible for servicing.

Pump discharge orientation is viewed from the rear of the motor as shown in *on Page 8, Figure 2*. Note that the pump scroll outlet must always be positioned at the bottom horizontal position.

FIGURE 2: Pump Discharge Orientation



5.1.2 Attaching Pump Scroll

After determining the correct orientation of the pump scroll outlet, attach the pump scroll to the pump frame as follows:

- In Box 2 of 2, locate the EP-300 Scroll/Inlet fastener package containing hex nuts and washers.

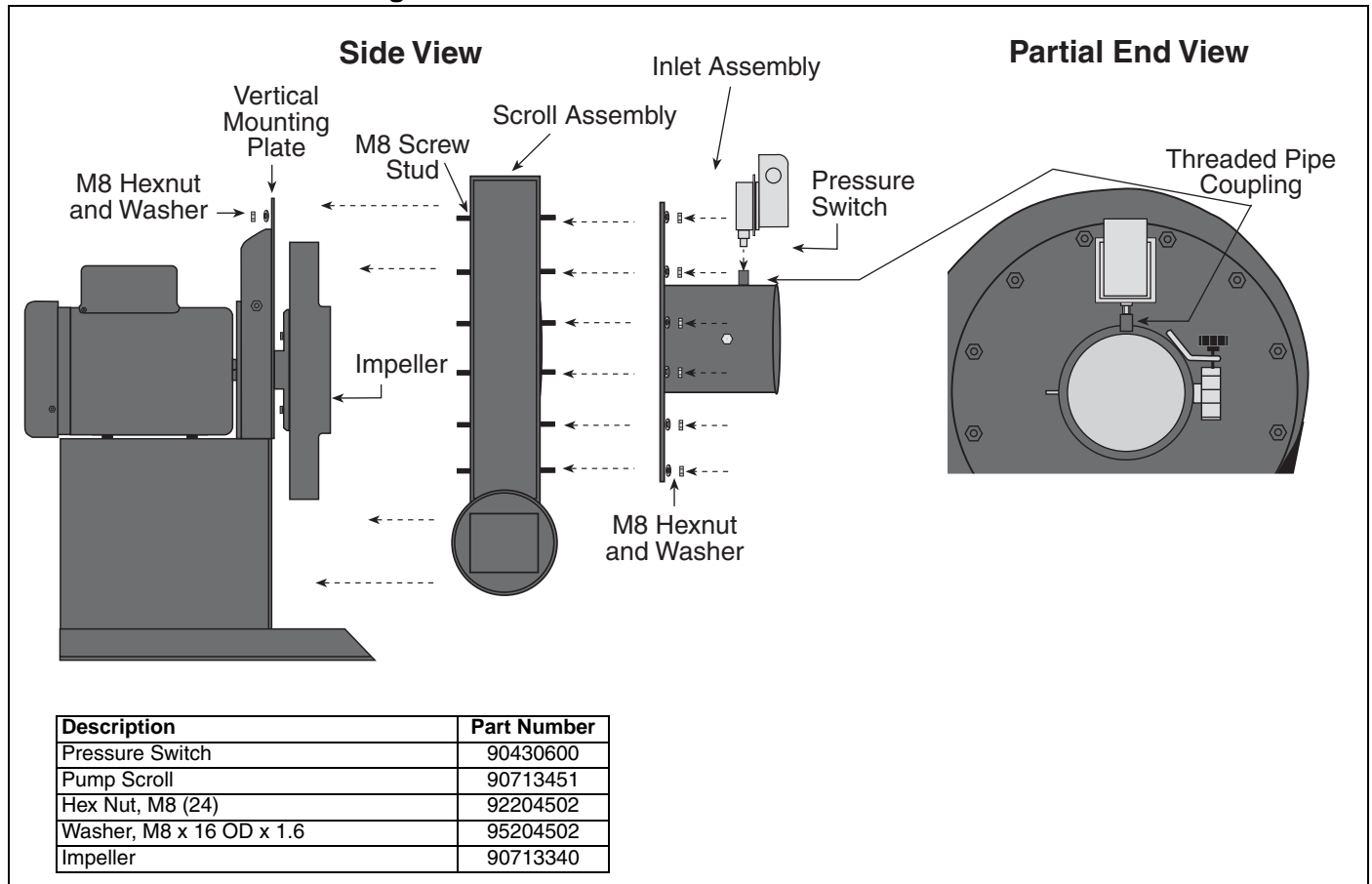
- Place scroll assembly over impeller and align M8 screw studs on the scroll assembly with the holes on the frame. Place the scroll assembly onto the pump frame. Be careful not to damage gasket.
- From the motor side of the vertical mounting plate of the frame, place an M8 washer onto the M8 screw stud. Then thread the M8 hexnut onto the M8 screw stud, finger tighten. Repeat for all 12 screw studs. *See Page 9, Figure 3.*

NOTE: While tightening the nuts that secure the pump scroll to the pump frame, periodically spin the impeller to be sure that adequate clearance is maintained between the impeller blades and the body of the pump scroll.

5.1.3 Attaching the Inlet Plate Assembly

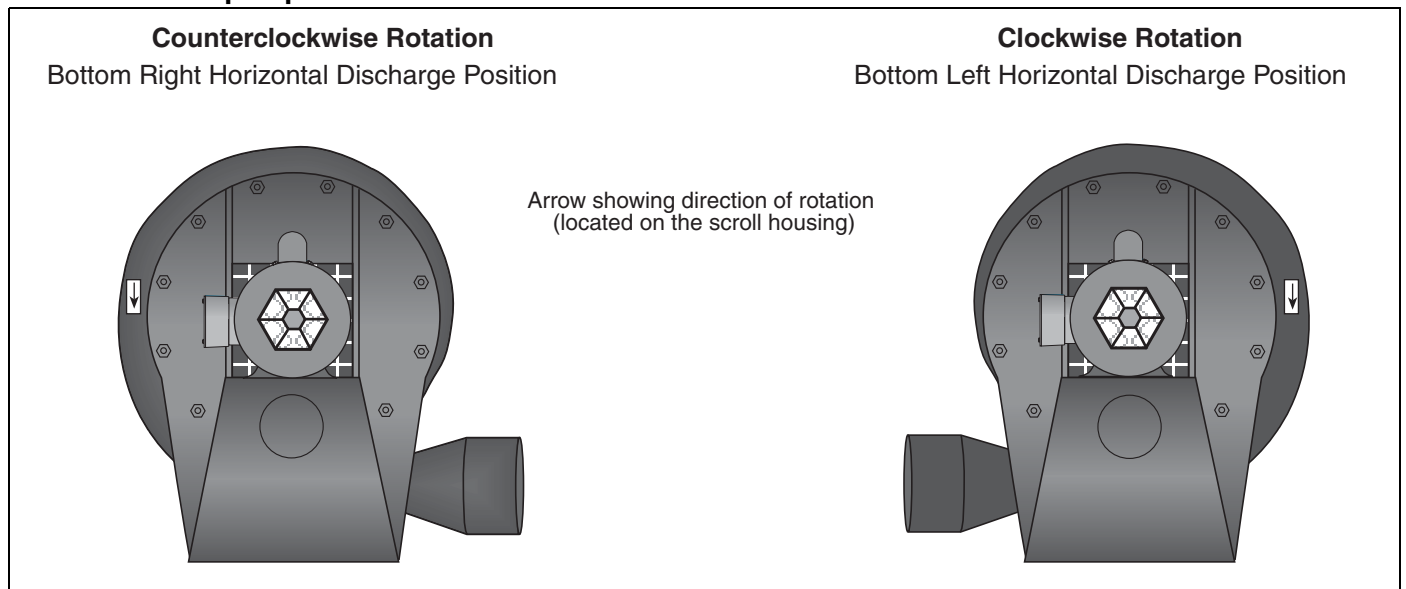
From the scroll assembly side of the pump, orient the inlet assembly so the threaded pipe coupling is on the top. *See partial end view on Page 9, Figure 3.*

- Place inlet assembly onto the scroll assembly by fitting the inlet assembly onto the M8 screw studs on the scroll assembly. Be careful not to damage gasket.
- Place M8 washers onto the M8 screw stud. Thread the M8 hex nuts onto the M8 screw studs, finger tighten. Repeat for all 12 screw studs. *See Page 9, Figure 3.*
- Go back and tighten all 24 M8 hex nuts with a wrench to completely secure pump scroll assembly to the pump frame and pump inlet assembly to the pump scroll assembly.


FIGURE 3: Installation Configurations**5.2 Pump Impeller Rotation**

The rotation of the impeller, as viewed from behind the motor, must be clockwise when the pump discharge orientation is bottom left horizontal. The rotation of the impeller, as viewed from behind the motor, must be counterclockwise when the pump discharge

orientation is bottom right horizontal. An arrow label on the pump scroll indicates the direction of the impeller rotation. To set the rotation direction, See *Page 14, Figure 13 and Page 15, Figure 15* after completing *Section 5*.

FIGURE 4: Pump Impeller Rotation

5.3 Mounting Wall Bracket Assembly

⚠ WARNING	
	Suspension Hazard
	Mount pump with materials with a minimum working load of 400 lbs (181 kg).
	Failure of the supports can result in death, injury or property damage.

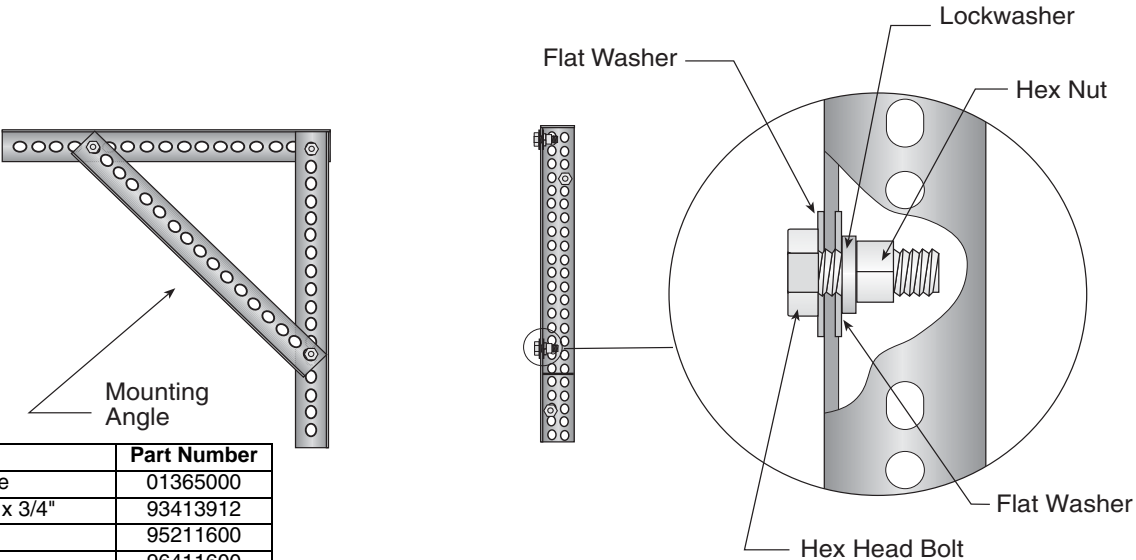
5.3.1 Mounting Platform

The standard method of mounting the pump is on an outside wall and venting directly through the wall.

The pump may be mounted by using mounting angles as shown in *Figure 5* and *Figure 6*. The two mounting angles form a mounting platform to which the pump will be attached.

Fix the mounting frame to the wall using anchors. Select an anchor that will give equal to or greater than 2000 lbs ultimate pull-out strength.

FIGURE 5: Wall Bracket Assembly

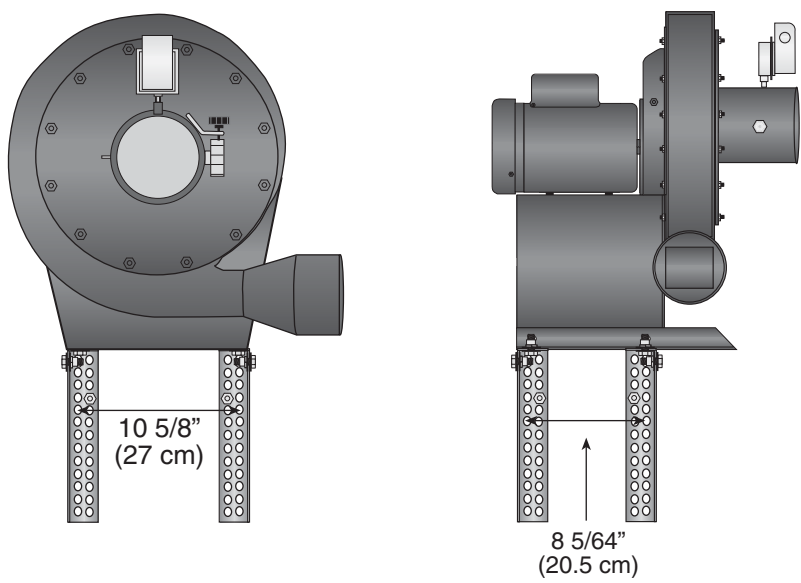


The diagram shows a mounting angle being attached to a wall. A detailed view of the fastener assembly includes the following components:

- Flat Washer
- Lockwasher
- Hex Nut
- Hex Head Bolt
- Flat Washer

Description	Part Number
Mounting Angle	01365000
Hex Bolt 5/16" x 3/4"	93413912
Flat Washer	95211600
Lockwasher	96411600
Hex Nut	92113900

FIGURE 6: Mounting Platform Options



The diagram illustrates two mounting platform options for a pump. The dimensions for the mounting platforms are:

- Option 1: 10 5/8" (27 cm)
- Option 2: 8 5/64" (20.5 cm)

5.3.2 Attaching Pressure Switch to Pump Inlet

Apply silicone sealant (600° F) to the threads of the pressure switch and then screw the pressure switch into the 1/8" NPT hole provided on the pump inlet. See Page 9, Figure 3. Care must be taken to make certain that the application of silicone does not plug the orifice hole of the pressure switch. Without pump verification, the system will not operate.

5.3.3 Pump Inlet Adapter for 4" (10 cm) Tubing

Apply a bead of silicone sealant (600° F) to the 6" (15 cm) inside of the adapter (6" x 4") (15 cm x 10 cm). Mount the adapter to the inlet of the pump scroll using the 3 - #10 self drilling screws provided. See Page 11, Figure 7.

IMPORTANT: To prevent leakage of condensate, do not install screws at the 6 o'clock position.

Mount the pump boot to the inlet adapter using the band clamp provided. See Page 11, Figure 7.

5.3.4 Pump Inlet for 6" (15 cm) Tubing

Attach 6" (15 cm) pump boot to the inlet See Figure 8, then See Section 5.3.5.

FIGURE 7: Pump Inlet Side 4"

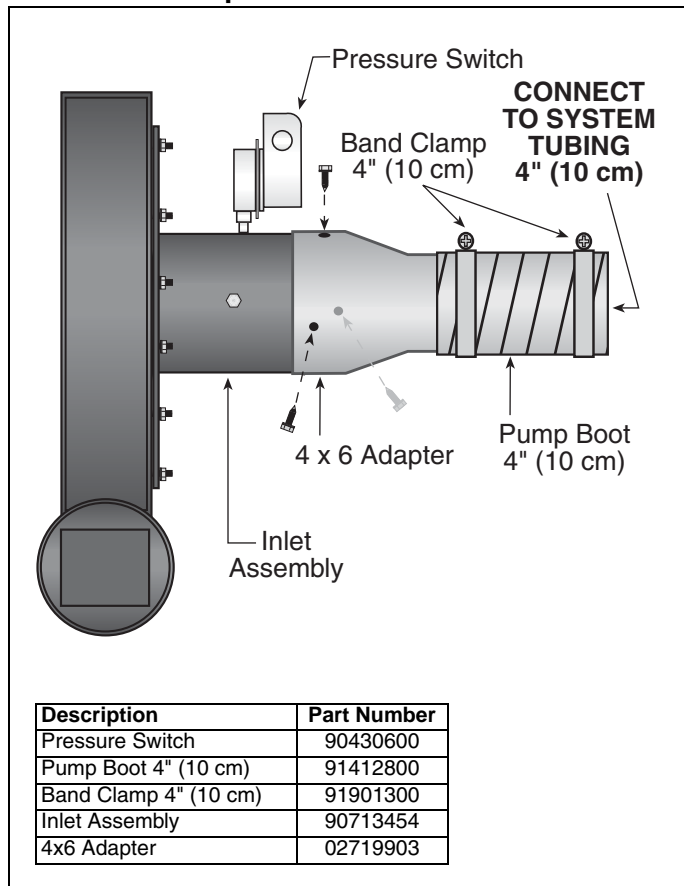
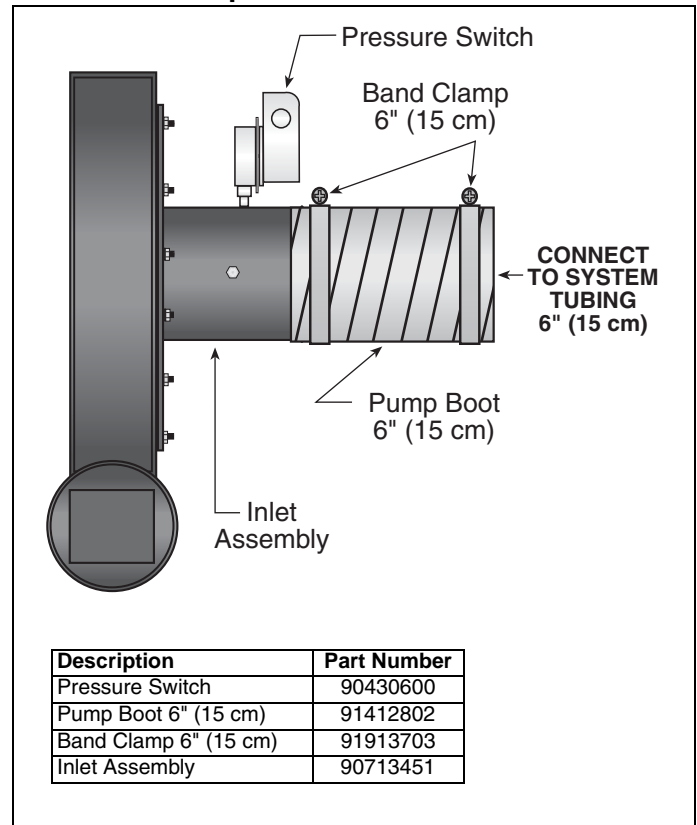


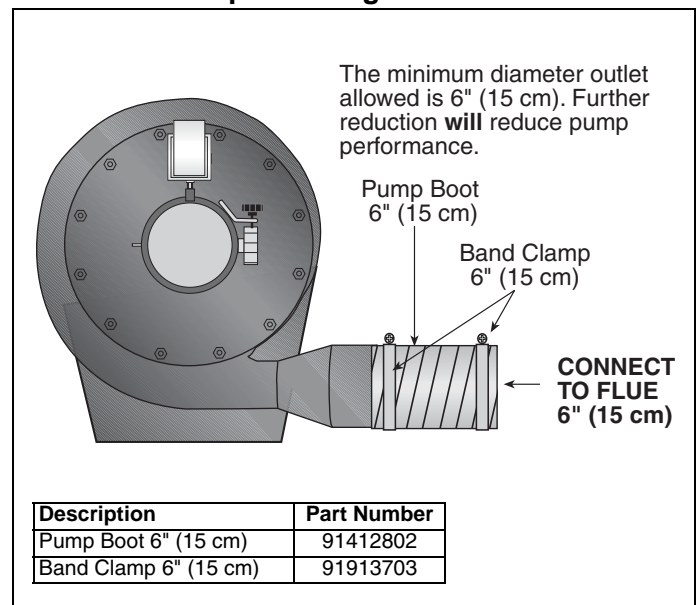
FIGURE 8: Pump Inlet Side 6"



5.3.5 Discharge Connection to 6" (15 cm) Flue

Mount the 6" (15 cm) pump boot to the pump outlet using the 6" (15 cm) band clamp provided. See Page 11, Figure 9.

FIGURE 9: Pump Discharge Side



5.4 Condensate Tee Assembly

The condensate tee assembly is composed of a tee, draincap, and condensate trap.

If the system is designed in the condensing mode, then the installation of a condensate tee assembly is required. The condensate tee assembly, must be installed on the inlet side of the pump assembly if there is horizontal venting of the pump, *See Page 12, Figure 10.*

A condensate drain on the discharge side is required if there is vertical venting of the pump or if there is a vertical rise in the discharge line away from the pump. *See Page 13, Figure 11.*

The condensate tee assembly in the discharge line can be eliminated if the discharge line is horizontal through the wall and pitched down at least 1/4" per 10' (6 mm per 3 m). This arrangement will permit drainage of condensate through the pump and outside via the horizontal (pitched) discharge line.

FIGURE 10: Condensate Tee Assembly at Pump Inlet

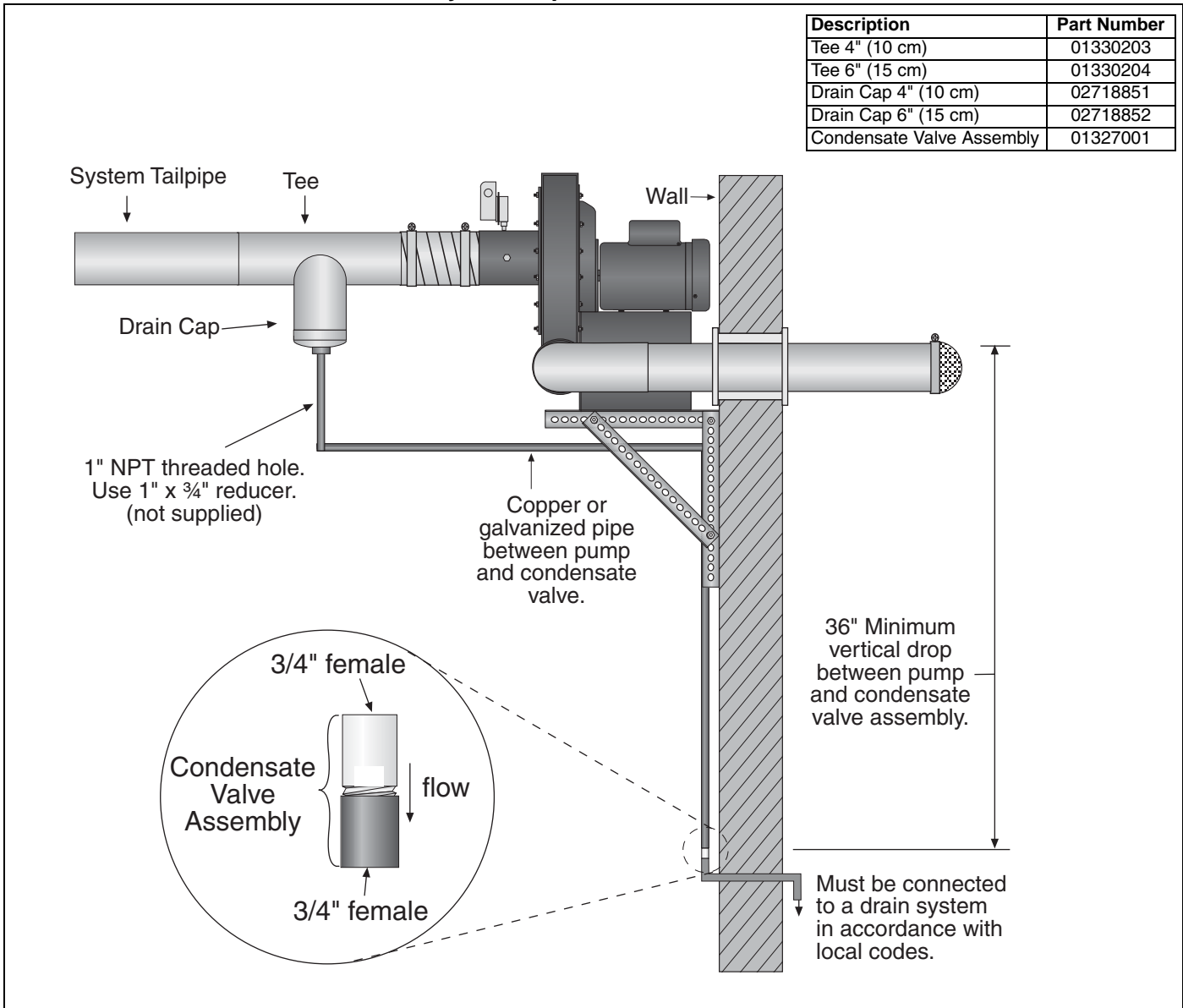
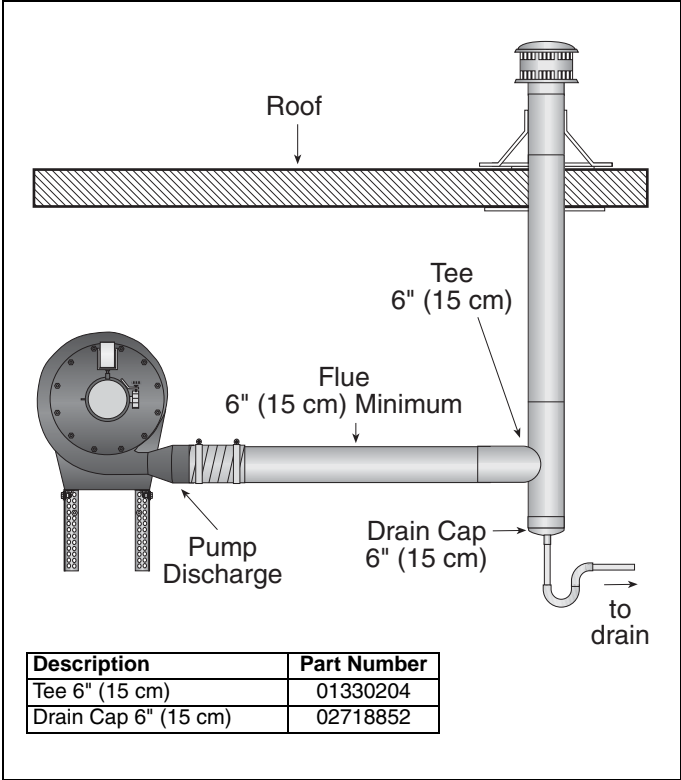
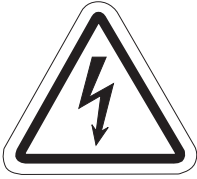


FIGURE 11: Condensate Drain for Vertical Venting



SECTION 6: MOTOR WIRING

⚠ WARNING



Electrical Shock Hazard

Disconnect electrical power and gas supply before servicing.

This appliance must be connected to a properly grounded electrical source.

Failure to follow these instructions can result in death or electrical shock.

All wiring must comply with current wiring regulations and any local regulations which may apply. Always switch off the supply and disconnect before servicing.

6.1 Prior to Operation

Prior to operation of the pump in the heating system, operation and proper rotation of the impeller must be verified. See impeller rotation direction arrow label on the pump scroll for the correct rotation direction.

The motor must be wired for clockwise or counterclockwise rotation as shown on *Page 14, Figure 13 and Page 15, Figure 15*.

IMPORTANT: Improper rotation of the impeller will not produce the vacuum required for proper system operation.

6.2 EP-301 Wiring

The EP-301 motor is wired for 1 Ø, 230 V, 60 Hz operation.

Wire the pressure switch per the CORAYVAC® Installation, Operation and Service Manual (P/N 127102NA) or appropriate controller installation manual.

Do not directly connect the controller relay terminals to the pump motor.

The power to the EP-301 pump is not supplied by the controller. Power is supplied by a separate circuit and is switched by the controller via a contactor with a 120 V AC coil. See Page 14, Figure 12.

FIGURE 12: EP-301 Contactor Wiring Diagram

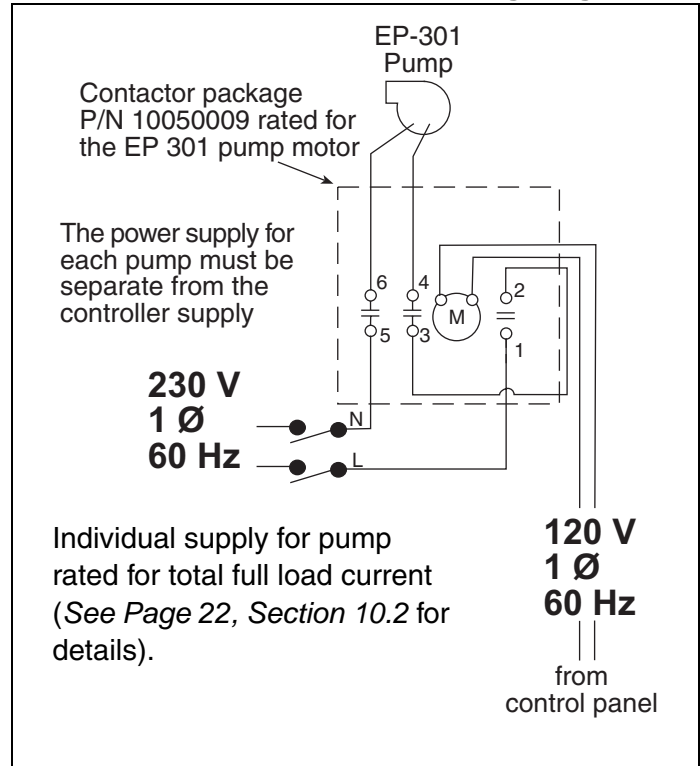
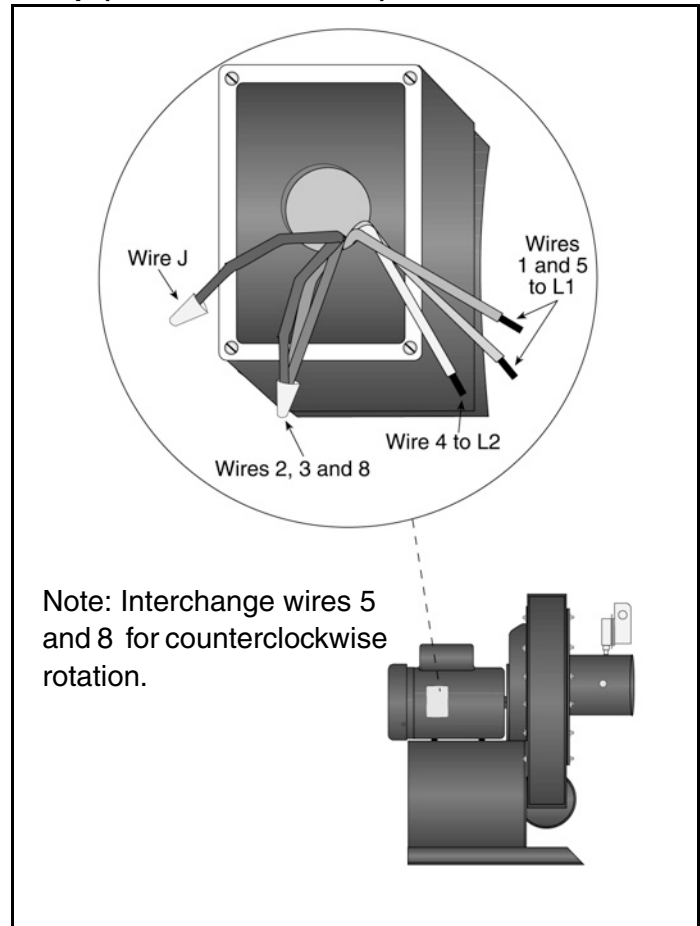


FIGURE 13: Impeller Direction Wiring for EP-301 Pump (Clockwise Rotation)



6.3 EP-303 Wiring

The EP-303 motor can be wired for 3 \emptyset , 208 V - 230 V/460 V, 60 Hz operation.

Do not directly connect the controller relay terminals to the pump motor.

When controlled by a System Control or BZC 700, use starter package P/N 10050010. See Page 15, Figure 14. See Controller Installation Manual for (P/N 10091601NA) wiring details.

Wire the pressure switch per the appropriate wiring diagram in the Controller Installation Manual.

If using ROBERTS GORDON® ULTRAVAC™ controls, the power to the EP-303 pump is not supplied by the controller. Power is supplied by a separate circuit and is switched by the controller via the Variable Frequency Drive (VFD) 208 - 230 V only. See the ROBERTS GORDON® ULTRAVAC™ Installation Manual (P/N 10081601NA) for wiring details.

FIGURE 14: EP-303 208 V - 230 V (or 460 V) 3 \emptyset Pump Starter Wiring Diagram

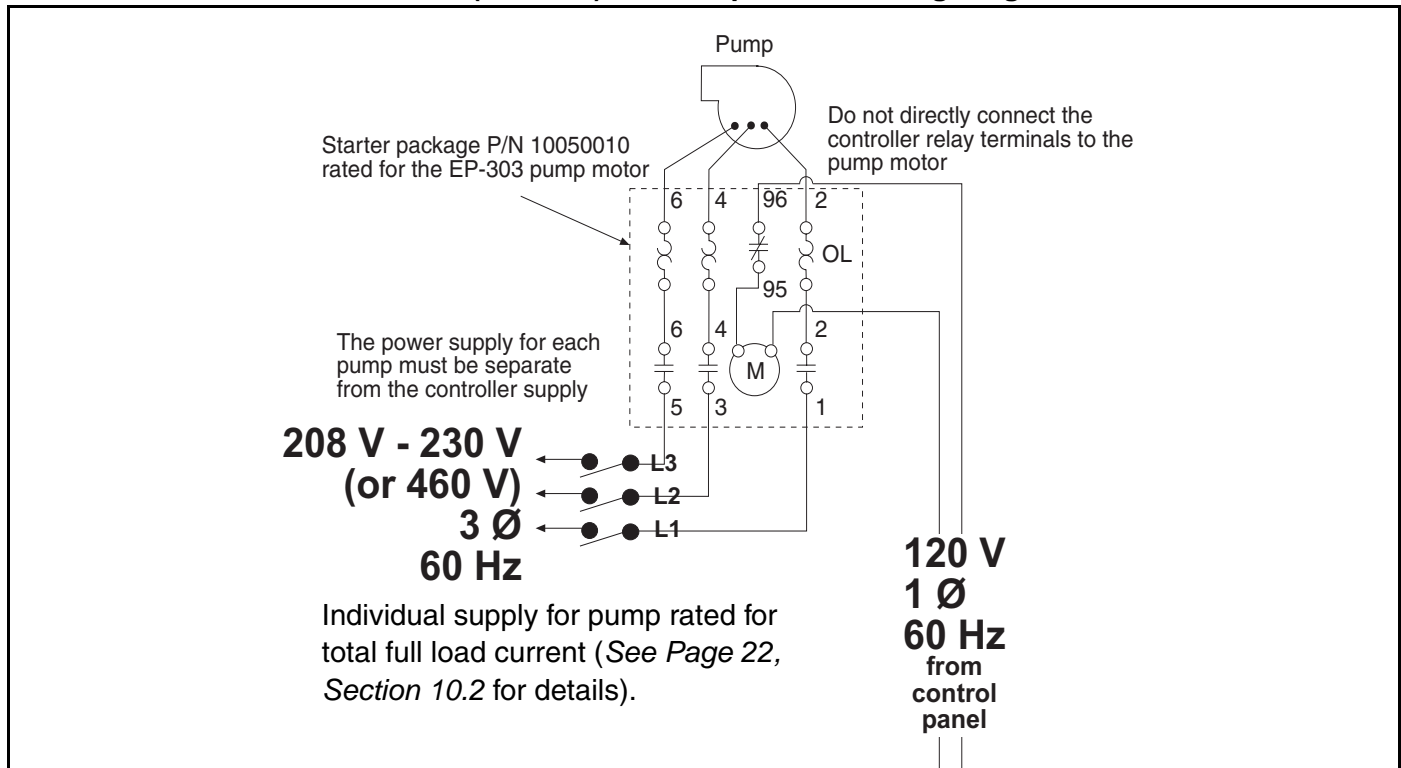
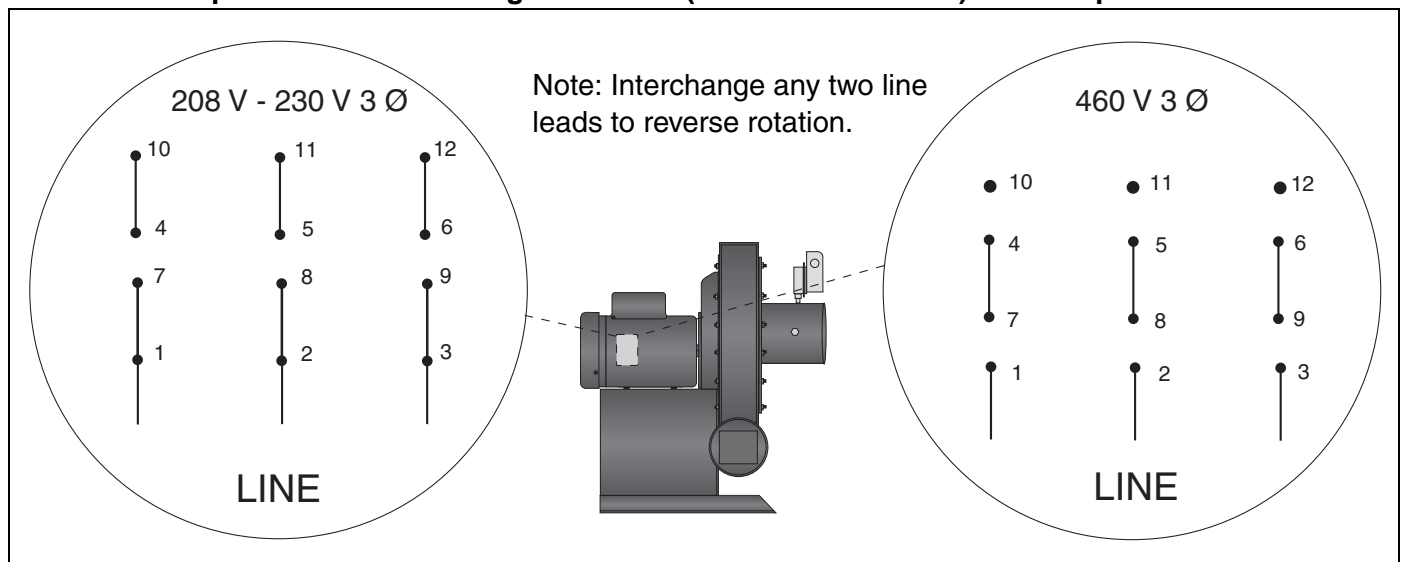



FIGURE 15: Impeller Direction Wiring for EP-303 (208 V - 230 V/460 V) 3 \emptyset Pump



SECTION 7: VENTING

⚠ WARNING	
	<p>Carbon Monoxide Hazard Pump must be vented to the outside.</p>
	<p>Heaters must be installed according to the installation manual.</p>
	<p>Failure to follow these instructions can result in death or injury.</p>

7.1 General Venting Requirements

Install the venting in accordance with the requirements within this manual and the National Fuel Gas Code, ANSI Z223.1/NFPA-54 - latest revision and CSA 22.1 - latest revision. This section provides partial information about this specification with regard to size and configuration for venting requirements (see following figures). However, to provide assurance of proper and safe operation, it is the responsibility of the installer to make sure the installation is in strict accordance with all local and national codes.

7.2 Venting the Pump

- The exhaust connection from the pump is 6" (15 cm) diameter.
- Connect the 6" (15 cm) pump boot (provided) to the 6" (15 cm) flue pipe, using the 6" (15 cm) band clamp provided.
- Venting from the pump may discharge either horizontally or vertically. **Horizontal discharge is preferred.** See Page 17, Figure 16. Vertical discharge must be arranged as shown on Page 18, Figure 17. Corrosion resistant pipe is required.
- Both horizontal and vertical venting must be supported by suitable hangers.
- Vent lengths are allowed as follows:

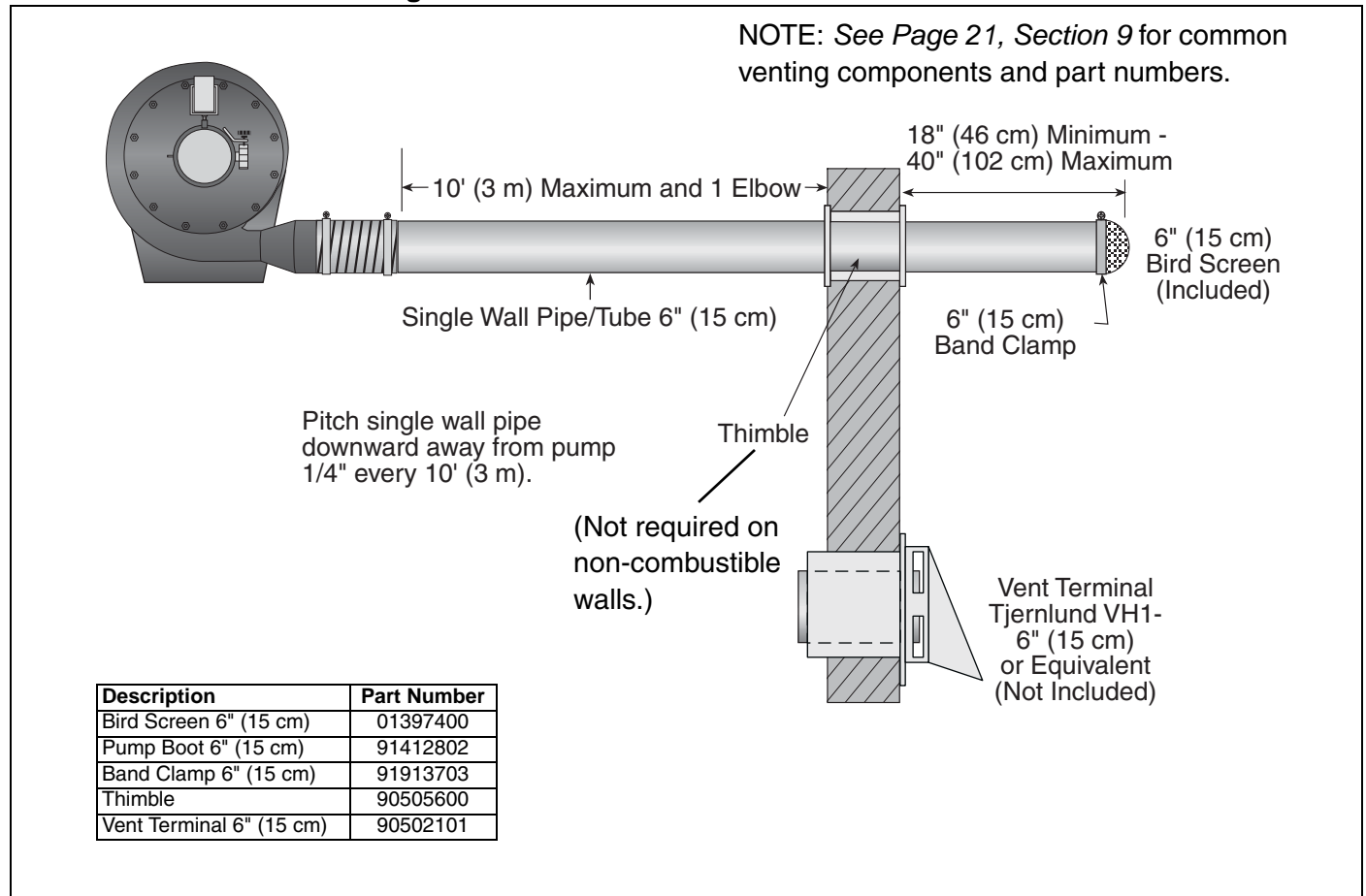
VENT LENGTH	VENT SIZE
Up To 10' (3 m)	6" (15 cm) vent - 1 elbow
Up To 25' (8 m)	7" (18 cm) vent - 3 elbow
Up To 50' (15 m)	8" (20 cm) vent - 3 elbow

7.3 Horizontal Venting

The vent material must be either heat treated aluminum tubing 6" (15 cm) O.D. (P/N E0009105) or single wall flue pipe minimum 26 Ga. Vent length be limited to less than 20' (6 m). If using vent lengths greater than 20' (6 m), condensation will form in the vent pipe. Insulation and additional sealing measures will be required.

7.3.1 Horizontal Venting Guidelines

- Vent must exit building not less than 7' (2 m) above grade when located adjacent to public walkways.
- Vent must terminate at least 3' (1 m) above any forced air inlet located within 10' (3 m).
- Vent must terminate at least 4' (1.2 m) below 4' (1.2 m) horizontally from or 12" (30 cm) above any door, window or gravity air inlet into building.
- Locate vent terminal at least 12" (30 cm) from any opening through which vent gases could enter a building.
- Use only corrosion resistant materials for the discharge line from the pump to the point of discharge.
- Vent terminal opening must extend beyond any combustible overhang.
- Install vent terminal at a height sufficient to prevent blockage by snow.
- Protect building materials from degradation by flue gases.
- Any portion of flue pipe passing through a combustible wall must be dual insulated and an approved thimble must be used.

FIGURE 16: Horizontal Venting

7.4 Vertical Venting

The vent material must be either heat treated aluminum tubing 6" (15 cm) O.D. (P/N E0009105) or single wall flue pipe minimum 26 Ga.). Vent length should be limited to less than 20' (6 m). If using vent lengths greater than 20' (6 m), condensation will form in the vent pipe. Insulation and additional sealing

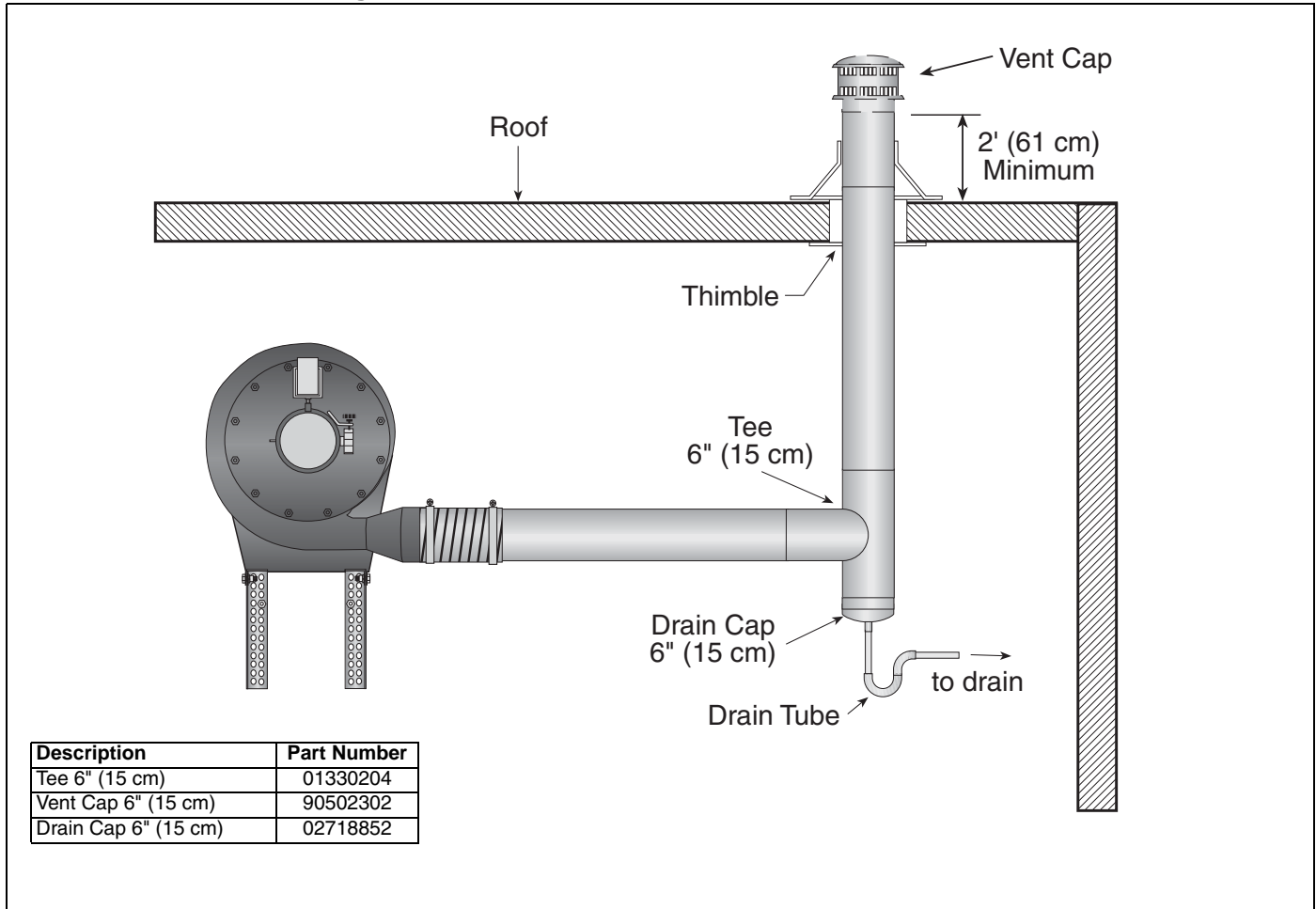
measures will be required. Length of flue pipe is equal to total of vertical and horizontal length.

7.5 Venting Accessories


NOTE: 4" (10 cm) accessories may only be used on the inlet side of the EP-301 pump.


See Page 21, Section 9 for venting accessories.

FIGURE 17: Vertical Venting



SECTION 8: SERVICING INSTRUCTIONS

! WARNING	
	<p>Severe Injury Hazard</p> <p>Install pump scroll and inlet assembly before operating high speed rotating impeller.</p> <p>Keep hands, fingers and clothing away from inlet and outlet.</p> <p>Install and operate equipment according to installation manual.</p> <p>Failure to follow these instructions can result in death or severe injury.</p>

! WARNING	
	<p>Electrical Shock Hazard</p> <p>Heater must be installed and grounded according to national codes.</p> <p>Disconnect electrical power and gas supply before installation or service.</p> <p>Failure to follow these instructions can result in death or electrical shock.</p>

Disassembly and removal or replacement of any pump components must be done by a service contractor or electrician qualified in the installation and service of gas-fired heating equipment.

Overtorquing can result in a failure of components. Failure to follow these instructions can compromise pump operation and void warranty.

8.1 Pre-Season Maintenance and Annual Inspection

To ensure your safety and years of trouble-free operation of the pump, service and annual inspections must be done by a contractor qualified in the installation and service of gas-fired heating equipment.

Disconnect electric and gas supplies before performing service or maintenance.

Before every heating season, a contractor qualified in the installation and service of gas-fired heating equipment must perform a thorough safety inspection of the pump.

For safety and best performance, the electrical, venting, suspensions and overall pump condition are

some of the areas requiring inspection.

Please see *Page 20, Section 8.3* for suggested items to inspect.

8.2 To Change the Motor and/or the Impeller

Disconnect electrical power before servicing.

Remove the pump boots from the inlet and outlet of the scroll assembly, disconnecting the pump from tailpipe and vent pipe.

To remove the motor or impeller, the scroll must be opened. Remove the nuts (12) on the motor side of the pump frame.

Remove the scroll assembly and inlet assembly from the frame as one piece.

The impeller can be removed by loosening the (4) set screws in the cooling disc, then removing the hex head bolt (M8 x 1 x 50) and washer from the end of the motor shaft. With an appropriate wheel puller, remove the impeller.

The motor can now be removed, if necessary, by removing the attachment hardware.

Re-assembly of motor/impeller combination requires proper alignment. Be certain of proper motor alignment and free rotation.

The (4) set screws should be reinstalled with a drop of thread locking sealant and remain unseated during initial re-assembly.

Slide the impeller onto the motor shaft end. Apply a drop of thread locking sealant to the threads of the hex head bolt. Slide the washer onto the hex head bolt and thread the bolt into the shaft so that it bottoms on the end of the shaft and hub of the impeller. Torque to 120 in/lbs.

Seat the (4) set screws. Torque to 140 in/lbs.

Re-attach the scroll and tighten the nuts (12).

8.3 Maintenance Checklist

Installation, Service and Annual Inspection of the pump must be done by a contractor qualified in the installation and service of gas-fired heating equipment.

Turn off the system and ensure power and gas supply is shut off before servicing equipment.

Read this manual carefully before installation, operation, or service of this equipment.

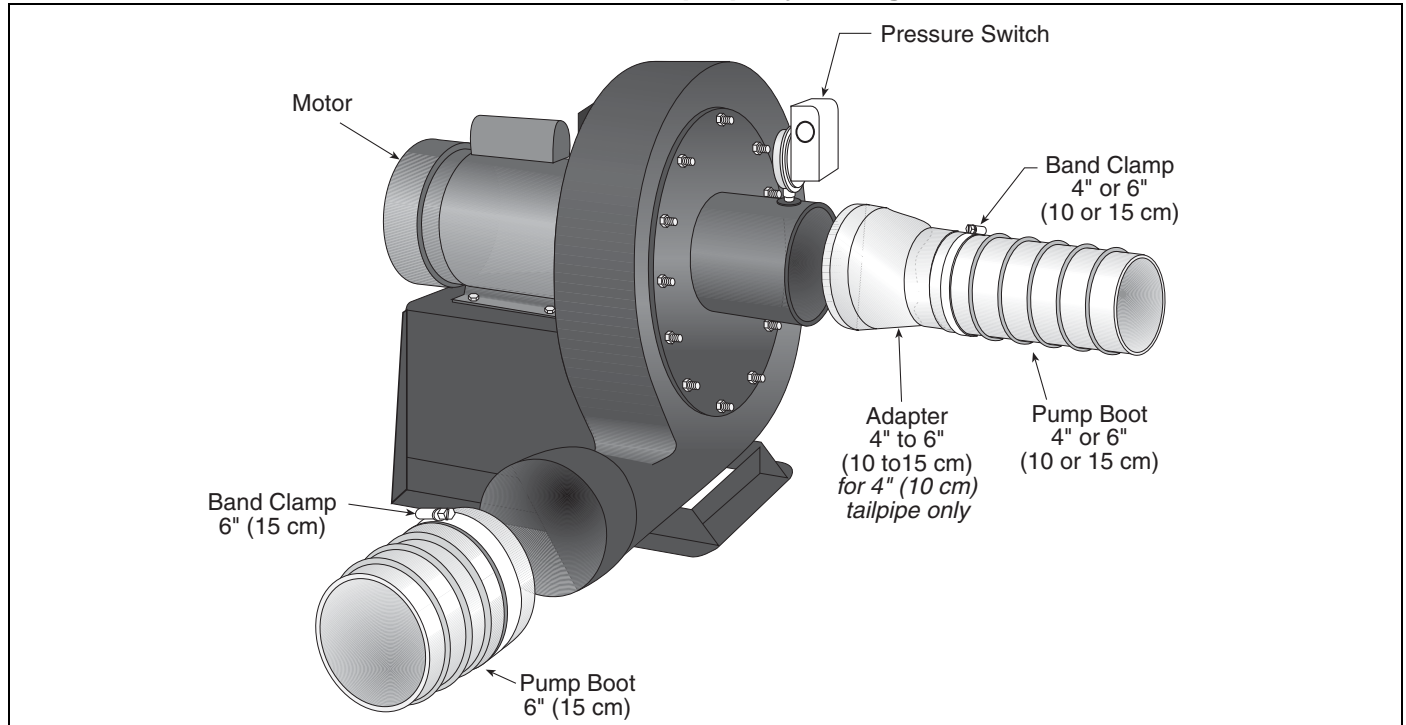
System Tubing and Vent Pipe	<p>Venting must be intact. Using a flashlight, look for obstructions, cracks on the pipe, gaps in the sealed areas or corrosion.</p> <p>The area must be free of dirt and dust or blockage.</p> <p>Remove any carbon deposits or scale using a wire brush.</p> <p>Replace pipe if there are any holes due to corrosion. Seal any gaps in venting to prevent condensate leakage.</p>
Pump Scroll, Impeller and Motor	<p>Compressed air or a vacuum cleaner may be used to clean dust and dirt.</p> <p>Check for corrosion, if any parts have corroded through, replace as necessary.</p> <p>Ensure all M8 nuts are tight for proper seal.</p>
Suspension Points	<p>Make sure the pump is hanging securely.</p> <p>Look for signs of wear on the mounting angles, wall mounting points or ceiling mounting points.</p>
Pump Boot	<p>Inspect pump boot at pump inlet and outlet for cracking or deterioration.</p> <p>Replace if cracks are found.</p> <p>Ensure band clamps are tight at all connection points.</p>
Condensate Trap, Drain Cap	<p>Check connection of tee to drain cap and between tee and condensate trap.</p> <p>Seal connections between tee and drain cap to prevent condensate leakage.</p> <p>Screw condensate trap tightly into drain cap to prevent leakage.</p> <p>Condensate trap should be filled with water.</p>
Pressure Switch	<p>Ensure that wiring is intact.</p>

SECTION 9: REPLACEMENT PARTS AND ACCESSORIES

Use only genuine ROBERTS GORDON® replacement parts.

Use of parts not specified by Roberts-Gordon voids warranty.

Failure to follow these instructions can result in property damage.

**9.1 Replacement Parts**

Description	Part Number
Motor 2 HP, 230 V, 1 Ø	90605102
Motor 2 HP, 208 V - 230 V/460 V, 3 Ø	90605103
Impeller Assembly, 340 mm dia.	90713340
4" (10 cm) Band Clamp	91901300
6" (15 cm) Band Clamp	91913703
Pressure Switch	90430600

Description	Part Number
Isolator Pads	T00680
4" (10 cm) Pump Boot	91412800
6" (15 cm) Pump Boot	91412802
Mounting Angle	01365000
Adapter 6" x 4" (15 cm x 10 cm)	02719903

9.2 Accessories

Description	Part Number
Contactors Package (for EP-301)	10050009
Starter Package (for EP-303)	10050010
4" Plain Coupling	01312700
6" Plain Coupling	01312706
4" Lined Coupling	01312701
4" Damper Coupling	01331900
6" Damper Coupling	E0009356
4" Aluminized Tee	01330203
6" Aluminized Tee	01330204
4" Coated Tee	0133022D
4" Aluminized Cross	01330903
6" Aluminized Cross	01330904

Description	Part Number
4" Coated Cross	0133092D
4" Aluminized 90° Elbow	01335801
6" Aluminized 90° Elbow	T0100320
4" Coated 90° Elbow	0133580D
4" Aluminized Non Heat Treated 10' Tube	91409403
6" Aluminized Non Heat Treated 10' Tube	91409420
4" Coated 10' Tube	9141030D
Aluminized Tube adapter (6" dia. x 4" dia.)	91418200
6" Tube Hangar	91240010
4" Drain Cap	02718851
6" Drain Cap	02718852
Condensate Valve Assembly	01327001

SECTION 10: SPECIFICATIONS

10.1 Material Specification

10.1.1 Pump Frame, Inlet, Scroll and Impeller

3 mm welded steel construction

10.1.2 Pump Weight

135 lbs (61 kg)

10.2 Motor Specifications

MODEL:	EP-301	EP-303
TYPE:	TEFC	TEFC
PHASE:	1	3
VOLTS:	208 V - 230 V	208 V - 230 V/ 460 V
FULL LOAD CURRENT:	12.8 A - 11.5 A	5.5 A - 5.2 A/ 2.6 A
FREQUENCY:	60 Hz	60 Hz
HP:	2	2
RPM:	3450	3450
FRAME:	90	90

10.3 Suspension Specifications

10.4 EP-301 Controls Specifications

Motor controls and contactors are sold separately. Use contactor package P/N 10050009.

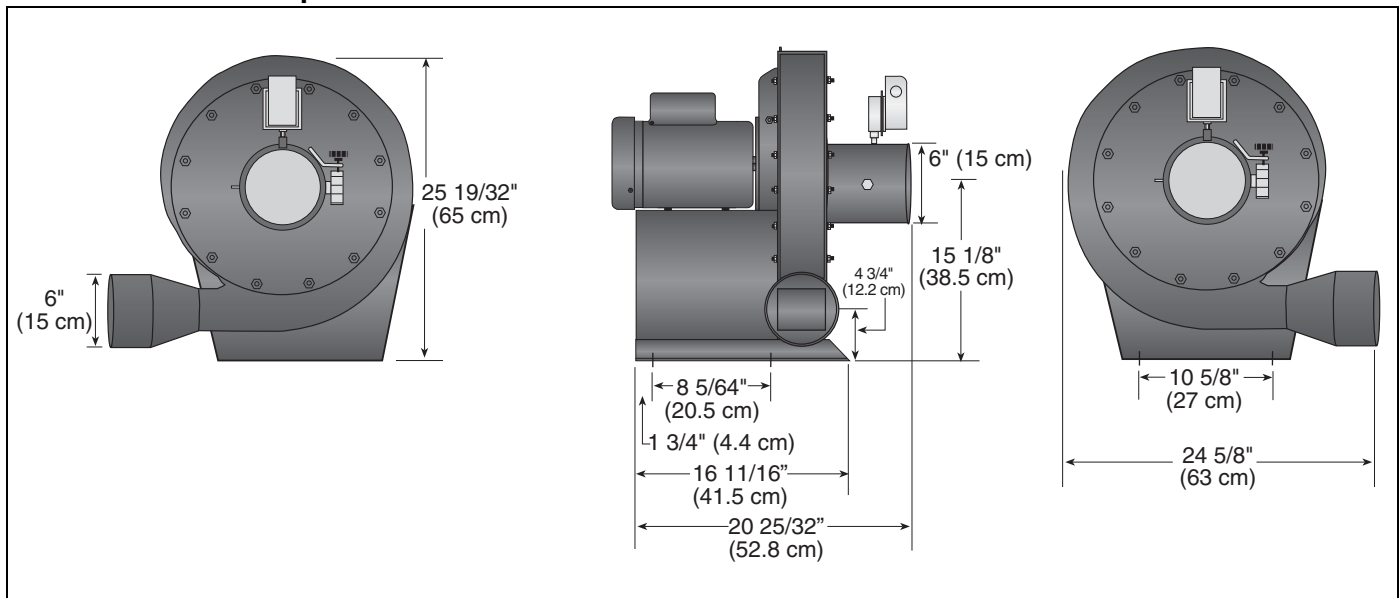
10.5 EP-303 Controls Specifications

Motor starters are sold separately.

When using a System Control or BZC 700 Controller, use Starter Package P/N 10050010.

With ROBERTS GORDON® ULTRAVAC™, use variable frequency drive (P/N VFD20230), sold separately.

General Dimension Specifications



SECTION 11: THE ROBERTS GORDON® EP-300 SERIES PUMP LIMITED WARRANTY

ROBERTS-GORDON WILL PAY FOR:

ROBERTS GORDON® warrants to the original owner-user that this ROBERTS GORDON® product will be free from defects in material and workmanship. This warranty is limited to thirty-six (36) months from the date of purchase by the original consumer, or forty-two (42) months from date of shipment by Roberts-Gordon, whichever occurs first.

ROBERTS GORDON® replacement parts are warranted for the period of the original ROBERTS GORDON® EP-300 SERIES PUMP Warranty.

ROBERTS-GORDON WILL NOT PAY FOR:

Service trips, service calls and labor charges.

Shipment of replacement parts.

Damage due to:

Failure to install, operate or maintain the ROBERTS GORDON® EP-300 SERIES PUMP as directed in the Installation, Operation and Service Manual. You must follow requirements printed in this manual.

Misuse, abuse, neglect or modification of the ROBERTS GORDON® EP-300 SERIES PUMP in any way.

Improper service, use of replacement parts or accessories that are not specified by Roberts-Gordon.

Improper installation, or any relocation of the ROBERTS GORDON® EP-300 SERIES PUMP after initial installation.

Incorrect supply, accident, fire, flood, acts of God or other casualty.

Use of the ROBERTS GORDON® EP-300 SERIES PUMP for other than its intended purpose.

Use of the ROBERTS GORDON® EP-300 SERIES PUMP in a corrosive atmosphere or any atmosphere containing contaminants.

Shipping. Claim must be filed with carrier.

Use of the ROBERTS GORDON® EP-300 SERIES PUMP in the vicinity of combustible or explosive materials.

Any defect in the ROBERTS GORDON® EP-300 SERIES PUMP arising from a drawing, design or specification supplied by or on behalf of the consumer.

Failure of parts not manufactured by Roberts-Gordon in respect of any claim where the total price of the goods has not been paid.

WARRANTY IS VOID IF:

The ROBERTS GORDON® EP-300 SERIES PUMP is not installed by a contractor qualified in the installation and service of gas fired heating equipment.

You cannot prove original purchase date and required annual maintenance history.

The data plate and/or serial number are removed, defaced, modified or altered in any way.

The ROBERTS GORDON® EP-300 SERIES PUMP is transferred. This warranty is nontransferable.

Roberts-Gordon is not permitted to inspect the damaged burner and/or component parts.

READ YOUR INSTALLATION, OPERATION AND SERVICE MANUAL

If you have questions about your heater, contact your installing professional. Should you need Replacement Parts or have additional questions, call or write ROBERTS-GORDON®:

U.S.A.

1250 William Street
P.O. Box 44
Buffalo, New York 14240-0044
716.852.4400

CANADA

76 Main Street West, Unit 10
Grimsby, Ontario L3M 1R6
905.945.5403

ON THE WEB AT:

www.rg-inc.com

Roberts-Gordon's liability, and your exclusive remedy, under this warranty or any implied warranty (including the implied warranties of merchantability and fitness for a particular purpose) is limited to providing replacement parts during the term of this warranty. Some jurisdictions do not allow limitations on how long an implied warranty lasts, so this limitation may not apply to you. There are no rights, warranties or conditions, expressed or implied, statutory or otherwise, other than those contained in this warranty.

Roberts-Gordon shall in no event be responsible for incidental or consequential damages or incur liability for damages in excess of the amount paid by you for the ROBERTS GORDON® EP-300 SERIES PUMP. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from jurisdiction to jurisdiction.

Roberts-Gordon shall not be responsible for failure to perform under the terms of this warranty if caused by circumstances out of its control, including but not limited to fire, flood, strike, government or court orders, unavailability of supplies, parts or power. No person is authorized to assume for Roberts-Gordon any other warranty, obligation or liability.

LIMITATIONS ON AUTHORITY OF REPRESENTATIVES:

No representative of Roberts-Gordon, other than an Executive Officer, has authority to change or extend these provisions. Changes or extensions shall be binding only if confirmed in writing by Roberts-Gordon's duly authorized Executive Officer.

