



SM

# INSTALLATION GUIDE

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Hours: M-F: 7:00amCST - 5:00pmCST  
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# THANK YOU!

AND CONGRATULATIONS ON YOUR NEW HVLS FANS.

**Before you begin, please read the important info below:**

**Your shipment should appear like this when it arrives**

One Fan:



Two Fans:



Inspect packaging for external damage and photograph any irregularities.  
Claims are **much** more likely to succeed the sooner they are made!

## Pre-Install Checklist

### Hardware

- ☐ Ensure that the Controller you have received is rated for the same voltage and phase as listed on your order confirmation. Rating information is provided on the box of the unit. If your hardware is different do not install. Contact the manufacturer.
- ☐ Ensure that the gearbox assembly is configured for the proper voltage setting (refer to page 4) and that terminal leads are in good condition.
- ☐ Ensure the distance from the Pioneer Fan to the controller is within the maximum distance as stated in this manual (see page 7).
- ☐ Ensure no components have been separated, lost or damaged in shipment, or else immediately report damages to the manufacturer and freight carrier.
- ☐ Has your contractor or facility manager approved of the mounting scenario which you intend for your installation?

### Obstructions

- ☐ Overhead Clearance: Will the Pioneer Fan be installed such that it will meet the OSHA standard that the blades are a minimum of 10 ft. or more from floor level?
- ☐ Horizontal Clearance: Will the Pioneer Fan be installed such that any obstructions are 2 feet or more, horizontally, from the tips of of the blades?
- ☐ Vertical Clearance: Will the Pioneer Fan be installed such that it will meet the minimum clearances to the ceiling deck, as stated in table 1.
- ☐ Direct Winds: Ensure that the fan will not be subject to direct, high winds. Powerful gusts or strong, sustained winds pose a potential threat to the blades. Pioneer Fans are designed for indoor use.

### Parts Checklist

Standard Hardware Components, per fan:

- ☐ (1) Motor Powerhead Assembly
- ☐ (1) VFD Controller
- ☐ (1) Set of 8 Pioneer Fan blades
- ☐ (1) 10' Length of 1/8" Galvanized Steel Cable
- ☐ (4) 1/8" Cable Clamps
- ☐ (16) 1/4"-20x1 1/4" Grade 5 UNC Serrated Flange Bolts

## Parts Checklist

(continued)

**Mounting extension kit** hardware package (if ordered) also includes:

☐ ¼" Steel Plate Mounting Extension Kit:

- ☐ (1) Upper Yoke Weldment
- ☐ (1) 3' or 6' Steel Extension Tube
- ☐ (2) Beam clamps
- ☐ (4) 10' Guy Wires
- ☐ (1) 10' of ½" Galv. Safety Cable
- ☐ (20) 1/8" Cable Clamps
- ☐ (4) Turnbuckles
- ☐ (8) Thimbles

Installation Hardware Kit:

- ☐ (4) ⅜-16 x 1-¾" G.5 HHCS
- ☐ (4) ⅜-16 G.5 Nylon Lock Nut
- ☐ (3) ½-13 G.5 Nylon Lock Nut
- ☐ (3) ½-13 x 4-½" G.5 HHCS
- ☐ (6) ½" Flat Washers

**Tools required** to carry out installation of Pioneer Fans:

- ☐ (1) ⅜" Wrench
- ☐ (1) ⅜" Socket
- ☐ (1) ¾" Wrench
- ☐ (1) ¾" Socket
- ☐ (1) ⅝" Wrench
- ☐ (1) Torque Wrench
- ☐ (1) Level (<24")
- ☐ (⅜) Allen Key

## Safety Checklist

**Important:** Read Before Proceeding



**CAUTIONS** help you avoid issues during installation & use.



**WARNINGS** are designed to protect your safety and that of your product.



Disconnect all power at the source before attempting servicing or cleaning. Use lockout and tag out procedures to prevent the inadvertent reapplication of power.



Installation to be done by state certified electricians and contractors familiar with local and national codes. This is the owner's responsibility: failure to do so may result in damage to property or personnel.



Damage will be done to the controller by misconnection of input and output terminals. Destruction of controller due to miswiring is not covered by warranty.



Safety devices removed during maintenance must be properly reinstalled prior to reapplying power to the fan.



High voltages drive this product. Always disconnect and lockout all power sources prior to accessing internal components of the fan or its controller.



All VFD parameters have been pre-set by the manufacturer. Do not change VFD settings without first consulting the factory.

# Performance, Placement, and Specs

Fan placement is critical to ensuring optimal performance. Be certain that all minimum clearances are met when determining the placement for your fan (Column "E" in Table 1).

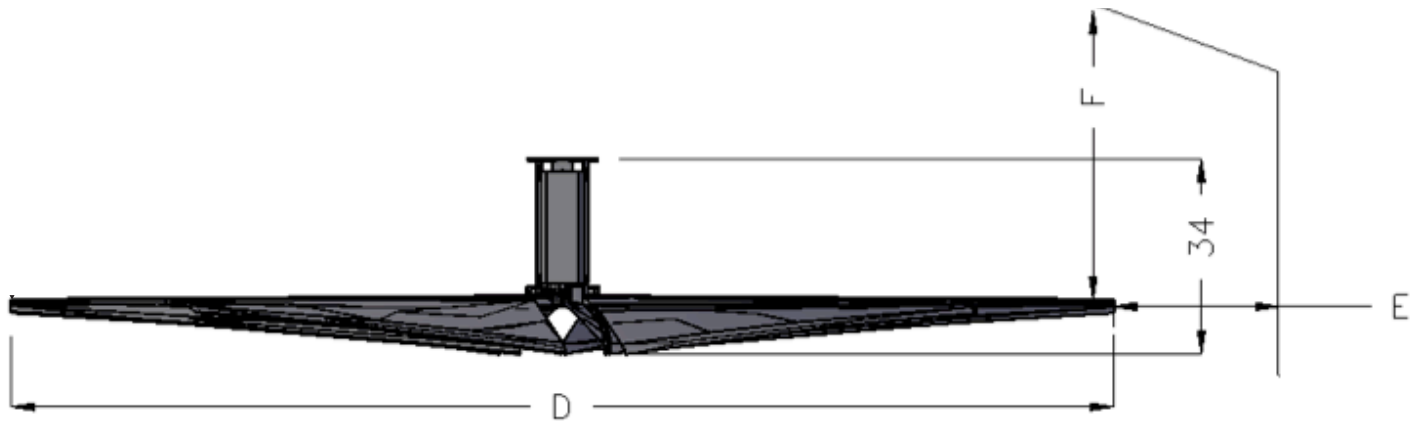


Fig. 1 - Fan Dimensions & Clearance Requirements

Diameter (D)	Motor Size	Minimum Required Supply Circuit	Nominal Output Voltage	Input Power	Max Output RPM	Minimum Clearance to Ceiling Deck (F)	Minimum Horizontal Clearance (E)
8'	½ hp (0.375 kWh)	110-115V 1P: 15A 208-240V 1P: 10A 208-240V 3P: 10A 460-480V 3P: 10A	230V 230V 230V 460V	10.25 A 5.13 A 3.00 A 1.50 A	44	4 ft.	2 ft.
12'	½hp (0.375 kWh)	110-115V 1P: 15A 208-240V 1P: 10A 208-240V 3P: 10A 460-480V 3P: 10A	230V 230V 230V 460V	10.25 A 5.13 A 3.00 A 1.50 A	44	5 ft.	2 ft.
16'	½hp (0.375 kWh)	110-115V 1P: 15A 208-240V 1P: 10A 208-240V 3P: 10A 460-480V 3P: 10A	230V 230V 230V 460V	10.25 A 5.13 A 3.00 A 1.50 A	44	6 ft.	2 ft.
20'	1.0hp (0.75 kWh)	110-115V 1P: 15A 208-240V 1P: 10A 208-240V 3P: 10A 460-480V 3P: 10A	230V 230V 230V 460V	17.00A 8.5 A 4.90 A 2.45 A	36	6 ft.	2 ft.

Table 1 - Weights and Clearances

## □ STEP 1

# Installing the VFD Controller and Preparing Conduit

In almost all cases electrical installation will be done before installing fan hardware.

Depending on whether this is a 1 $\phi$  or a 3 $\phi$  input the number of wires may change. (See Table 1 for the circuit protection. Refer to NEC to determine the wire size necessary for the installation.) The installer must adhere to the NEC and all local codes for this installation.

Connection between the VFD controller and the fan motor will be 4 wires: three leads and one ground.

**!** Regardless of whether the input voltage is 1 $\phi$  or 3 $\phi$ , the power to the fan motor will always be 3 $\phi$ . See figure 3 on the right.

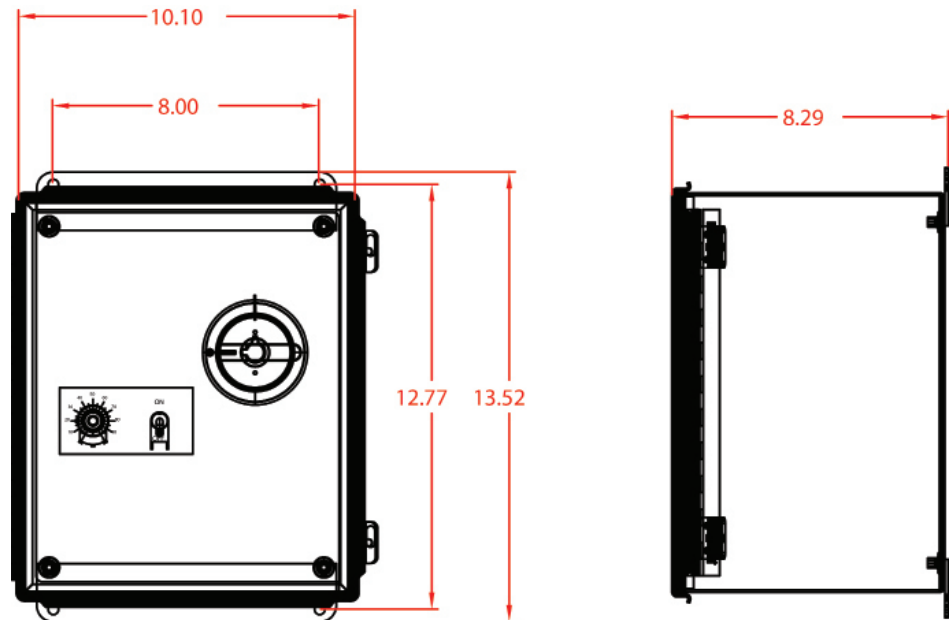


Fig. 2 - VFD Controller

**!** Power input current is not the same as output current to the motor. Input current will always be more than the output. Depending on the number of phases, input current may be much more than the output current. (See Table 1 on page 6 for fan sizes to determine the minimum supply circuit required.)

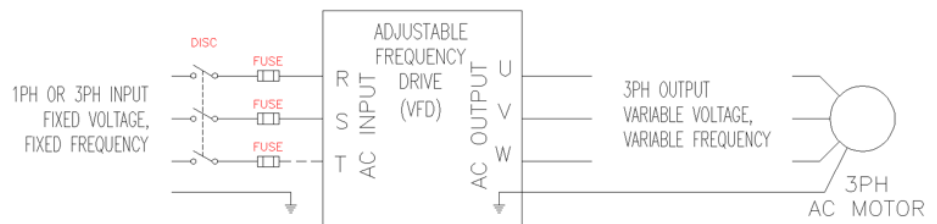


Fig. 3 - VFD Input/Output Connections

## Maximum Length of Cable Runs

Please review and understand the maximum cable runs associated with the size of your drive and the type of power supply circuit with which you are working.

It is crucial to the proper functioning of the fan that these limits are observed.

If you have questions or need more information please call the factory for technical support before wiring.

Motor Size	Power Supply Circuit	Maximum Cable Run from Controller to Motor
1/2hp (0.375kWh)	110-115V 1p	650'
	208-240V 1p	650'
	208-240V 3p	650'
	460-480V 3p	98'
1.0hp (0.75kWh)	110-115V 1p	980'
	208-240V 1p	980'
	208-240V 3p	980'
	460-480V 3p	325'

Table 2 - Maximum Cable Runs



## STEP 2a

# Open/Bar-Joist Standard Mount

In general mounting a Pioneer Fan between joists is easier than clamping to a beam, especially if the joists are close together. Furthermore, this type of mounting offers flexibility in fitting the fan between lights and avoiding the potential for shadows cast by fan blades passing beneath a light source.

Support materials including hardware to mount to support materials are not provided with the fan. Use of PowerStrut (or equivalent) products is encouraged as it can speed installation time and limit the weight of steel to be installed overhead. Wider spans will require heavier materials. Please refer to Table 4 for specific details.

Span	Acceptable Materials
6' or Less	2-1/2" x 2-1/2" x 1/4" Angle Iron
	Powerstrut™ PS210 or Equivalent
8' or Less	3" x 3" x 1/4" Angle Iron
10' or Less	3-1/2" x 3-1/2" x 1/4" Angle Iron
	Powerstrut™ PS200-2t3 or Equivalent
12' or Less	3"x1/4" Square Tube
	4"x4"x1/4" Angle Iron
Above 12'	Contact Factory

Table 4 - Required Support Materials

Product	Torque (Ft-Lb)	Torque (N-M)
1/4-20 UNC Grade 5 Bolts	9	12
5/16-18 Cable Clamp Nuts	19	26
3/8-16 UNC Grade 5 Bolts	33	44.7
1/2-13 UNC Grade 5 Bolts	78	106

Table 5 - Required Torque Values

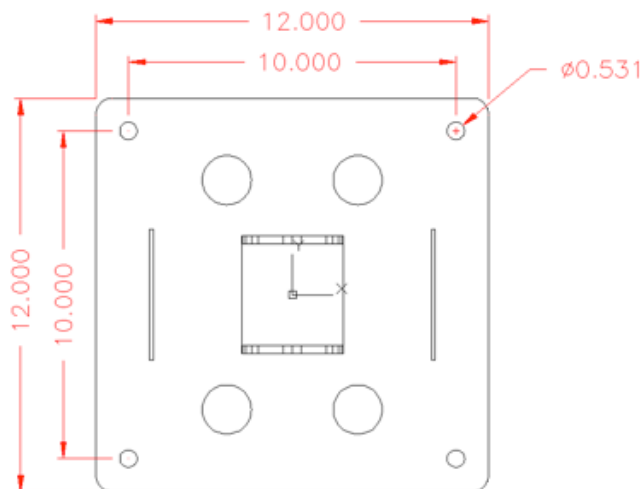


Fig. 5 - Baseplate Dimensions

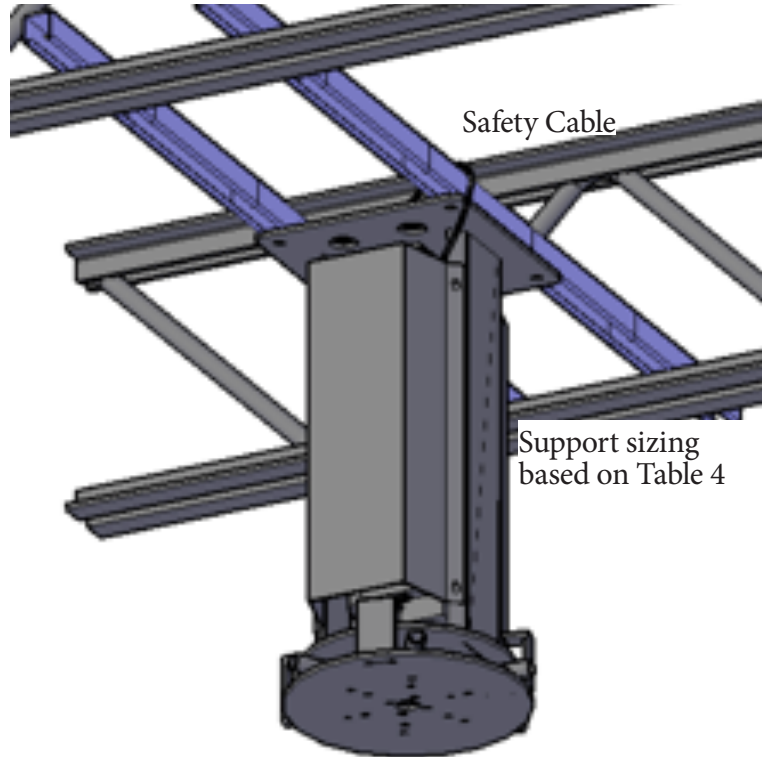


Fig. 4 - Mounting Across Joists

**⚠** The safety cable must be routed between the legs of the gearmotor base and over the support material as shown and must be secured with the four cable clamps provided.

**⚠** The mounting must be sufficiently secure to absorb 250 ft-lbs (340 N-M) of torque, plus an appropriate safety factor. All bolts must be torqued to the value in Table 5.

**⚠** Baseplate must be secured to material with (4) 3/8-16 Grade 5 bolts spaced 10" apart.

**⚠** The integrity of the mounting is the responsibility of the owner/installer alone and not Pioneer Fan.



## □ STEP 2b

# I-Beam Mount with Extension Kit

For beam mount scenarios it is normally necessary to purchase a Mounting Extension Kit, which is sold separately. The beam mounting kit allows you to install the fan on a sloped beam while ensuring the fan remains vertical. The weldment allows the fan to clamp directly to a beam with a flange width between 7" and 15".


Only use the beam clamps provided with the Beam Mounting Kit. Any attempt to use a different fastening method will invalidate your warranty.

## Angle Adjustment

The weldment is capable of adjusting for angles up to 30 degrees from horizontal. This capability must not be used to mount the fan in any shaft orientation other than vertical.

## Installation

- ① The mounting weldment should be mounted to the beam using the (2) beam clamps, (4)  $\frac{3}{8}$ -16 x 1- $\frac{3}{4}$ " G.5 HHCS and G.5 Nylon Lock Nuts.

 Ensure that the narrowest possible set of mounting holes is used on the upper yoke. This maximizes engagement between beam clamp and the beam. It is not necessary that the beam mount be exactly centered under the beam. The bolts must be installed using the provided lock washers and torqued to the appropriate value called out in Table 5, page 8.

- ② Attach and fasten the steel downrod using (2)  $\frac{1}{2}$ -13 x 4- $\frac{1}{2}$ " G.5 HHCS, (2)  $\frac{1}{2}$ -13 G.5 Nylon Lock Nut, and (4) 1/2" Flat Washers. Secure as shown in Fig 7.
- ③ Fasten the powerhead assembly to the steel downrod using (1)  $\frac{1}{2}$ -13 x 4- $\frac{1}{2}$ " G.5 HHCS, (1)  $\frac{1}{2}$ -13 G.5 Nylon Lock Nut, and (2) 1/2" Flat Washers. Secure the second safety cable, as shown in Fig 8.

Optional mounting extension kit hardware package includes the following. If any items are missing or damaged contact the factory for replacement.

- |  |  |
|--|--|
| <input type="checkbox"/> (1) Upper Yoke Weldment                       | <input type="checkbox"/> (4) $\frac{3}{8}$ -16 x 1- $\frac{3}{4}$ " G.5 HHCS |
| <input type="checkbox"/> (1) 3' or 6' Steel Extension Tube             | <input type="checkbox"/> (4) $\frac{3}{8}$ -16 G.5 Nylon Lock Nut            |
| <input type="checkbox"/> (2) Beam clamps                               | <input type="checkbox"/> (3) $\frac{1}{2}$ -13 G.5 Nylon Lock Nut            |
| <input type="checkbox"/> (4) 10' Guy Wires                             | <input type="checkbox"/> (3) $\frac{1}{2}$ -13 x 4- $\frac{1}{2}$ " G.5 HHCS |
| <input type="checkbox"/> (1) 10' of $\frac{1}{8}$ " Galv. Safety Cable | <input type="checkbox"/> (6) $\frac{1}{2}$ " Flat Washers                    |
| <input type="checkbox"/> (20) 1/8" Cable Clamps                        |  |
| <input type="checkbox"/> (4) Turnbuckles                               |  |
| <input type="checkbox"/> (8) Thimbles                                  |  |

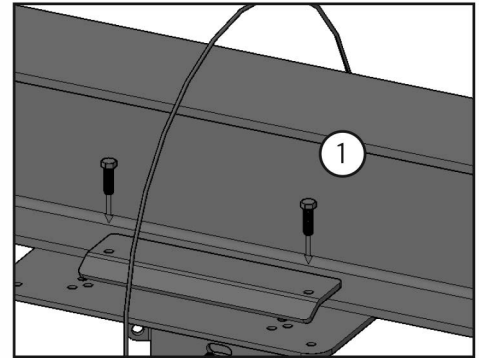


Fig. 6 - Weldment secured with beam clamps

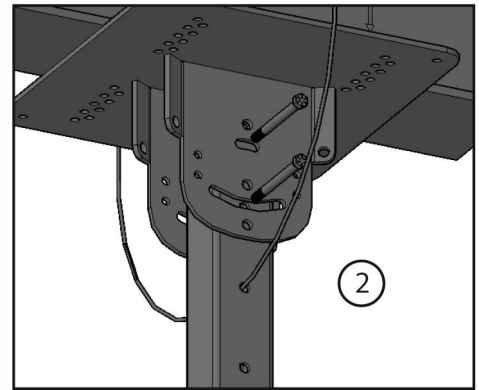


Fig. 7 - Attaching steel downrod

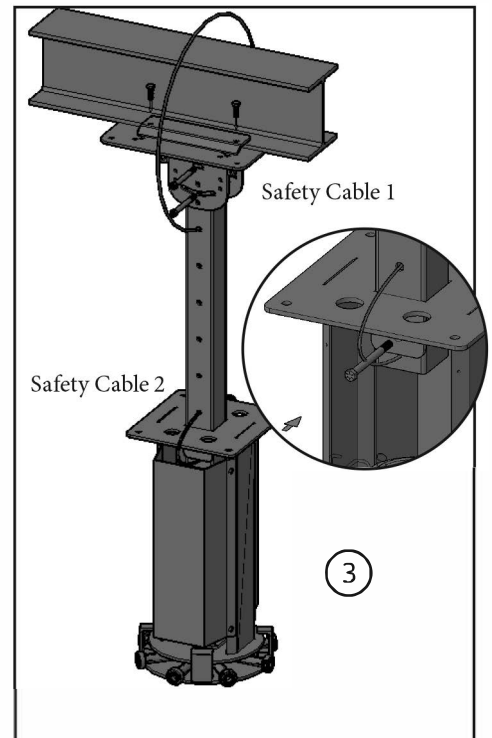


Fig. 8 - Attaching the powerhead assembly

## □ STEP 2c

### Open/Bar-Joist Mount with Extension Kit

If using structural iron or strut to support the fan, the structural iron should be drilled and bolted directly to the mounting base plate. The beam clamps are intended to be used only when mounting directly to a wide flanged beam (I-beam).

- ① Drill and mount the support materials according to Fig 9, at right, using appropriate hardware as directed in Tables 4 and 5, page 8.
- ② Attach and secure the steel downrod and powerhead assembly using the factory provided hardware following the process detailed under Step 2b, page 9.

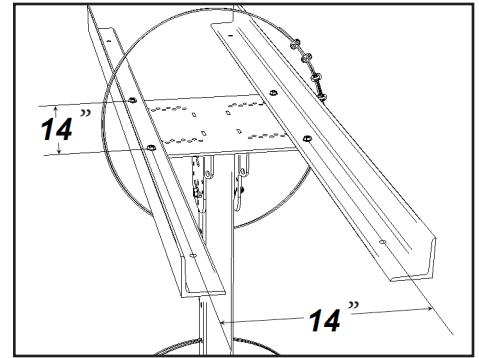


Fig. 9 - Attaching extension between joists

## □ STEP 3

### Safety Cable & Guy Wire Routing

Ensure that the safety cable is installed with all four cable clamps. The cable clamps should be installed 2 each on the turnback of each end of the cable as shown below and torqued to the value listed in Table 2.

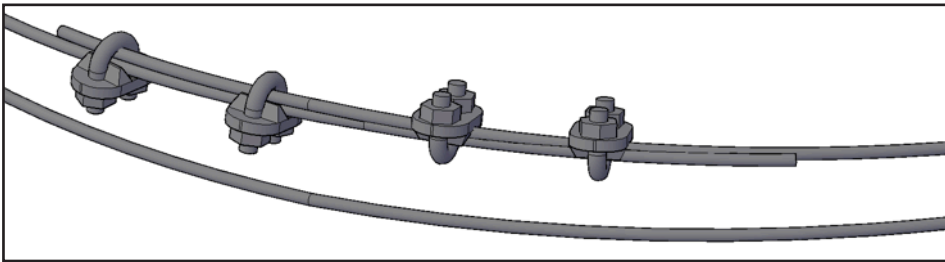


Fig. 10 - Detail of safety cable clamps

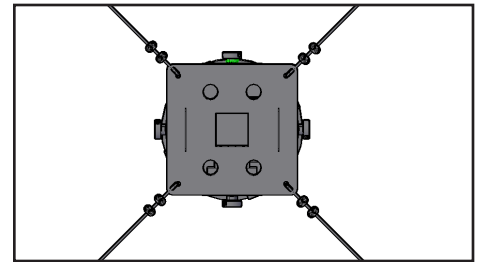


Fig. 11- Detail of guy wire config viewed from above the powerhead assembly.

The safety cable must be looped between the legs of the fan/hub assembly and through the 3/8" diameter hole near the bottom of the downrod as shown on the drawing in Fig 8 on page 9. As before, the cable clamps must be torqued to the proper value as listed in Table 1.

## □ STEP 4

### Remove Breather Plug

Once the fan hub is installed, the user must remove the black plastic breather plug from its brass fitting as shown in Figure 12. Once the breather plug is removed, you may not move the fan without replacing the plug.

If the motor must be removed from the ceiling the breather plug must always be re-inserted. Failure to reinsert the breather plug will result in gearbox oil draining from the unit.

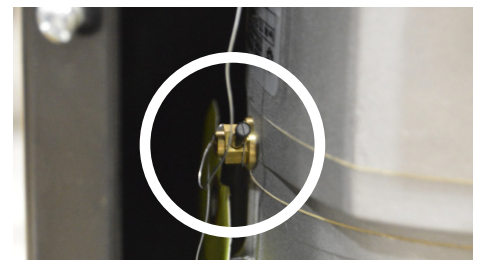


Fig. 12 - Detail of Breather Plug Insert

## STEP 5

# Connect Motor Terminal Leads

Once the fan motor/hub assembly is installed, electrical installation can proceed. Do not attempt to install fan blades until the electrical installation is complete and the system is tested.

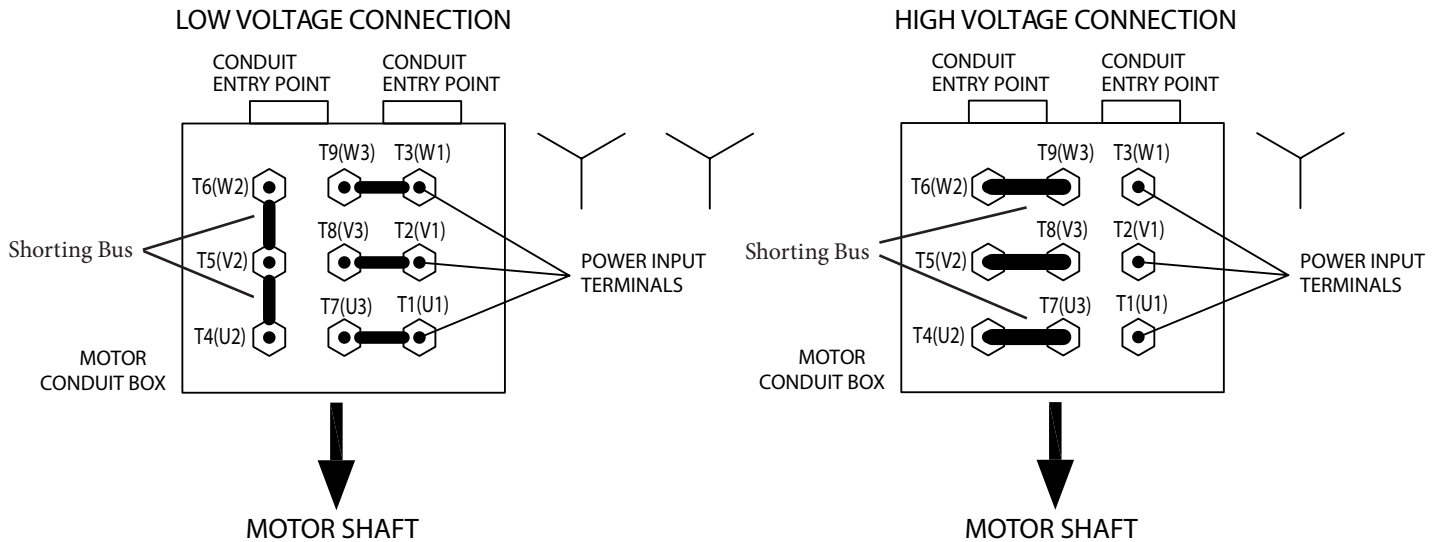


Fig. 12 - Detail of gearmotor terminal connections

## STEP 6

# Check Motor Rotation Direction

- ① Double-check the installation before applying power to prevent costly damage due to incorrect wiring. Do NOT turn on the power at the power distribution panel at this time.
- ② Turn the speed potentiometer fully counter-clock wise for minimum speed.
- ③ Place the ON-OFF toggle switch in the OFF position.
- ④ With the enclosure door open twist the red disconnect handle clockwise. No lights or signs of power should be visible.
- ⑤ Turn on power at the power distribution panel. The VFD will display "0.00". The indicators for Hz, MON and EXT will also activate.
- ⑥ Place the ON-OFF switch in the ON position.
- ⑦ Slowly turn the Potentiometer clockwise until you see approximately 5.00 hz on the display.
- ⑧ Observe the fan rotation for counter-clockwise movement when viewed from underneath.
- ⑨ If the fan rotates clockwise disconnect and lock off power at the distribution panel and switch any two output leads to the motor . This can be done either at the controller or the motor itself. The fan will now rotate counter-clockwise.
- ⑩ Disconnect and lock off power at the distribution panel. Installation of the fan blades may now be carried out.

## STEP 7

# Blade Installation

Once the electrical installation is completed and tested, the blades can be installed. The blades have a solid spar which is tapped to accept two ¼-20 bolts each.

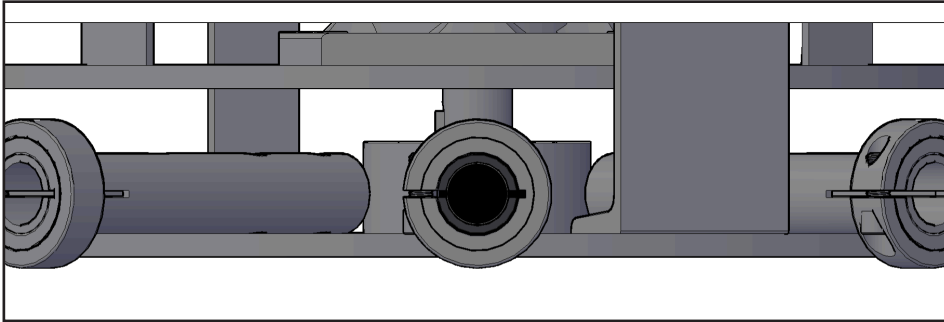


Fig. 13 - Detail of Blade Locking Collar Alignment

⚠ Ensure that the **slots in the collar and in the tubes** of the blade hub are aligned as shown in the diagram at left.

⚠ Be certain that the Allen key slot faces the floor before installing the blades. If they are not, you will not be able to reach them after the blades are installed.

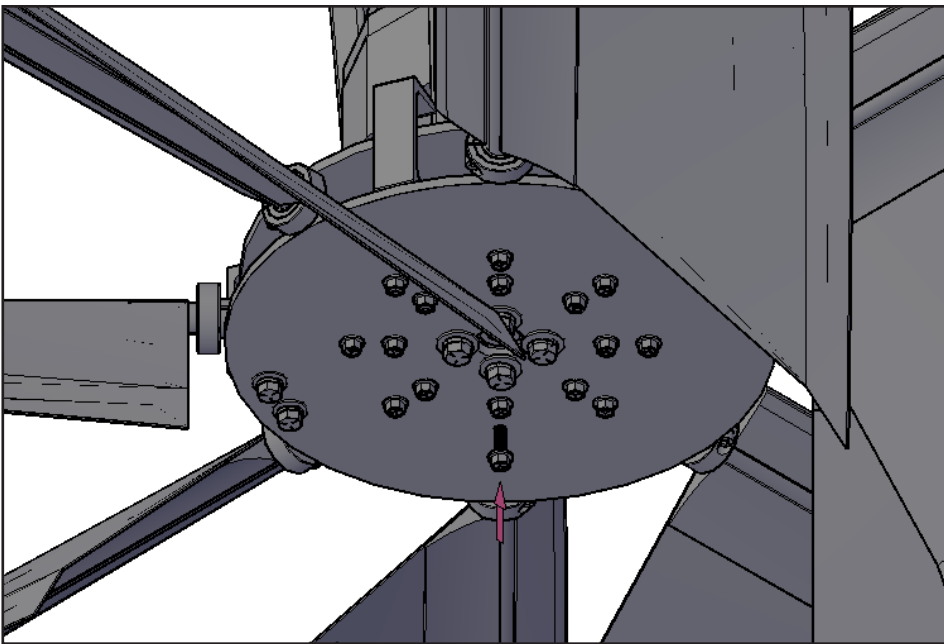


Fig. 14 - Detail of serrated washer head bolt installation

⚠ The spars have a sliding fit into the spar tubes. **Do not hammer** the blade into the spar tube as you could damage the blade or the gear motor bearings.

Gentle twisting should be sufficient to position the blades properly.

⚠ The blades **must** be installed with the **aluminum blade extensions** hanging **below** the bottom of the fan hub as shown.

⚠ With a ⅜" socket wrench insert and tighten the (16) ¼" serrated bolts to 10ft/lbs.

Using a ⅜" Allen key tighten the (8) blade collars until firmly snug.

## □ STEP 8

# First Time Full Startup & Operation

Activate power to the fan at the power distribution panel.

Determine the preferred speed setting for operation and leave the potentiometer at that setting.

Place the ON-OFF switch in the “OFF” position

Disconnect power at the power distribution point.

Once power is off, rotate the RED disconnect handle counter-clockwise to the OFF position and close the door of the enclosure.

Turn the external handle to the “I” or “ON” position and reapply power at the power distribution point.

The fan can now be controlled with the potentiometer and using the ON-OFF switch directly. Use the potentiometer to set the best speed, and the ON-OFF to start and stop fan operation.

## General Notes on Operation

Avoid blocking air flow to areas where people will benefit from it. This may involve moving obstructions or changing the orientation of obstructions to take maximum advantage of the airflow provided.

Minimize interaction between the path of the fan blades and the direction of local area lighting. Multiple light sources will dramatically reduce the shadow casting of lights positioned above fan blades.

In winter, maximum benefits are obtained by running the fan at a speed setting just below that which produces a noticeable breeze. In summer it is advantageous to run the fan at the highest speed which balances comfort and the work environment's airspeed tolerance.

## Fan Maintenance

Before attempting any maintenance, de-energize the fan and lockout the system to ensure that no one energizes the fan while maintenance is being performed.

To ensure the longevity of your Pioneer Fan please conduct the following annually:

- Check the torque of all mounting fasteners. Do not loosen and re-torque the fasteners. Instead, check the torque in the tightening direction only with a calibrated torque wrench.
- Check the gear motor for oil leaks. If there are no noticeable leaks, no further action is required as the motor is lubricated for life.
- Check the controller and motor electrical power leads for tightness. This activity should be completed by a qualified electrician.
- Ensure that all safety cables are present and have been fastened with the least possible slack between linked components.
- Remove any dust accumulation to prevent the fan from becoming unbalanced

## Troubleshooting & FAQ

**WARNING:** Before attempting any maintenance, de-energize the fan and take steps (such as a lock out/tag out procedures) to ensure that no one energizes the fan while maintenance is being performed.

**Fan wobbles noticeably while in use.** This may be caused by a variety of problems, such as installing the fan in an open-sided structure, such as a barn, or installing the fan indoors near another air supply. In this case, it may be necessary to restrain the fan externally. Please call the factory for assistance.

**Fan won't start.** Ensure that the disconnect (if provided) is in the ON position or that power is supplied to the variable frequency drive if a controller is not provided. If that does not solve the problem, have a qualified electrician troubleshoot the circuit.

**Excessive audible noise.** Some noise is normal as with any fan. If you think the noise is excessive, please contact your Pioneer fan representative or the factory for assistance.

**Control.** The speed of the fan is controlled by the potentiometer located on the door of the enclosure. Turning it clockwise direction increases the speed of the fan. This may be left in the desired speed setting and just the ON-OFF switch can be used to turn the fan on. All the way clockwise is the full speed setting of the VFD.

**The ON-OFF toggle** switch determines whether the VFD is told to run or to stop. When moved to the ON position the Fan will ramp up to the speed setting on of the potentiometer. Positioning it to the OFF position will cause the fan to decelerate to stop.

The OFF position of the ON-OFF switch does not remove power from the controller. This must be done by turning the disconnect handle to the OFF position. If there is any reason to enter the controller cabinet, the power must be disconnected at the power source. Putting the disconnection handle to the OFF position will not suffice as power is still entering the cabinet.

### Faults and Reset

**Faults:** In normal operation, a fault will not occur. However, the VFD is constantly checking to make sure that it can protect itself from damaging situations such as over current conditions, high voltage or power loss and may fault

When a fault occurs in the VFD, the VFD trips and the Parameter Unit (PU) display on the front of the VFD inside the cabinet automatically changes to show the fault condition as an error code on the display. The fault display is located behind the door of the enclosure and may not be visible. Please contact the factory for assistance when assessing the source and solution to VFD faults.

**Fault or alarm indication.** When a fault or alarm occurs, the operation panel display automatically switches to the fault or alarm indication.

**Resetting method.** When a fault occurs, the VFD output is kept stopped. Unless reset, the VFD will not restart.

**Reset:** the VFD can be reset by performing any of the following operations. The VFD recovers about 1s after the reset is released.

- Operation 1: Using the operation panel, press to reset the inverter.
- Operation 2: Switch power OFF once. After the indicator of the operation panel turns OFF, switch it ON again.

When any fault occurs, take the appropriate corrective action, then reset the VFD, and resume operation. Not doing so may lead to the VFD fault and damage.

**Failure to reach desired speed:** The 1/2 HP VFD is designed to reach 60 hz, the 1 HP VFD is designed to reach 50Hz. If this cannot be reached, please consult the factory after ensuring that the motor has the correct electrical connection. (A motor configured for 230v when connected to a 460v controller will cause the VFD to protect itself, by limiting the current.)

Any abnormal functioning should be noted and corrective action taken immediately to remedy the situation in order to prevent damage to the fan.



# Variable Frequency Drive Fault Codes

Operation Panel Indication			Name	Refer to Page
Error message	E---	E---	Faults history	244
	HOLD	HOLD	Operation panel lock	250
	LOCd	LOCd	Password locked	250
	Er 1 to Er 4	Er1 to 4	Parameter write error	250
	Err.	Err.	Inverter reset	251
Warnings	OL	OL	Stall prevention (overcurrent)	251
	oL	oL	Stall prevention (overvoltage)	251
	rb	RB	Regenerative brake prealarm	252
	TH	TH	Electronic thermal relay function prealarm	252
	PS	PS	PU stop	252
	MT	MT	Maintenance signal output	252
	UV	UV	Undervoltage	252
	SA	SA	Safety stop	253
	FN	FN	Fan alarm	253
Fault	E.OC1	E.OC1	Overcurrent trip during acceleration	253
	E.OC2	E.OC2	Overcurrent trip during constant speed	253
	E.OC3	E.OC3	Overcurrent trip during deceleration or stop	254
	E.OV1	E.OV1	Regenerative overvoltage trip during acceleration	254
	E.OV2	E.OV2	Regenerative overvoltage trip during constant speed	254
	E.OV3	E.OV3	Regenerative overvoltage trip during deceleration or stop	254
	E.THT	E.THT	Inverter overload trip (electronic thermal relay function)	255
	E.THM	E.THM	Motor overload trip (electronic thermal relay function)	255
	E.FIN	E.FIN	Fin overheat	255

Operation Panel Indication			Name	Refer to Page
Fault	E.ILF	E.ILF *	Input phase loss	256
	E.OLT	E.OLT	Stall prevention	256
	E. bE	E. BE	Brake transistor alarm detection	256
	E. GF	E.GF	Output side earth (ground) fault overcurrent at start	256
	E. LF	E.LF	Output phase loss	256
	E.OHT	E.OHT	External thermal relay operation	257
	E.PTC	E.PTC*	PTC thermistor operation	257
	E. PE	E.PE	Parameter storage device fault	257
	E.PUE	E.PUE	PU disconnection	257
	E. RET	E.RET	Retry count excess	257
	E. S1	E.S1 / E.CPU	CPU fault	258
	E.CDO	E.CDO*	Output current detection value exceeded	258
	E.IOH	E.IOH *	Inrush current limit circuit fault	258
	E.AIE	E.AIE *	Analog input fault	258
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\* If a fault occurs when using with the FR-PU04, "Fault 14" is displayed on the FR-PU04.

## Warranty Information

The following warranty shall apply to the various components of the Pioneer

Fan:	
Blades, Fan Hub and Frame.....	5 Years
Beam Mounting Kit.....	5 Years (Parts Only)
Gear Motor.....	5 Years (Parts Only)
Controller and VFD.....	5 years (Parts Only)

The warranty period shall commence at the date of shipment.

The Pioneer Fan Company warranty is limited to repair and replacement of failed components during the warranty period. The Pioneer Fan Company will not pay liquidated damages for loss of production or productivity potentially associated with a Pioneer Fan under warranty.

The Pioneer Fan Company does not warrant that the fan will supply a certain amount of air since airflow is highly dependent on building and mounting geometry and the presence of obstacles at floor level.

The following actions and conditions will cause the warranty to become void:

1. Failure to install the fan properly, including, but not limited to:
  - Failure to follow the appropriate national and local building and electrical codes.
  - Failure to follow the procedures in this installation manual.
  - Substitution of non-approved mounting hardware. Any deviation in mounting must be approved in writing by the Pioneer Fan Company.
2. Any modification of the fan whatsoever, including mechanical and electrical components. Any changing of soft-ware settings associated with the power electronics provided by the Pioneer Fan company.
3. Incorrect voltage supply.
4. Any misuse or abuse, including the introduction of foreign objects.
5. Acts of God or other accidents.
6. Running the fan at greater than 60 Hz (1/2 HP models) or 50Hz (1 HP models).
7. Failure to perform maintenance as directed in this manual and any other documentation provided by the Pioneer Fan Company.
8. Any consequential damages sustained as a result of a failure to follow these warranty exclusions.

The Pioneer Fan Company reserves the sole right to determine whether or not a component has failed as a result of a warrantable design, manufacturing, or material defect or as a result of a warranty exclusion. The Pioneer Fan Company will determine the appropriateness of all remedies and repairs.

This is the only warranty associated with Pioneer Fan Company products. This warranty supersedes any other warranty or statement by any person.

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