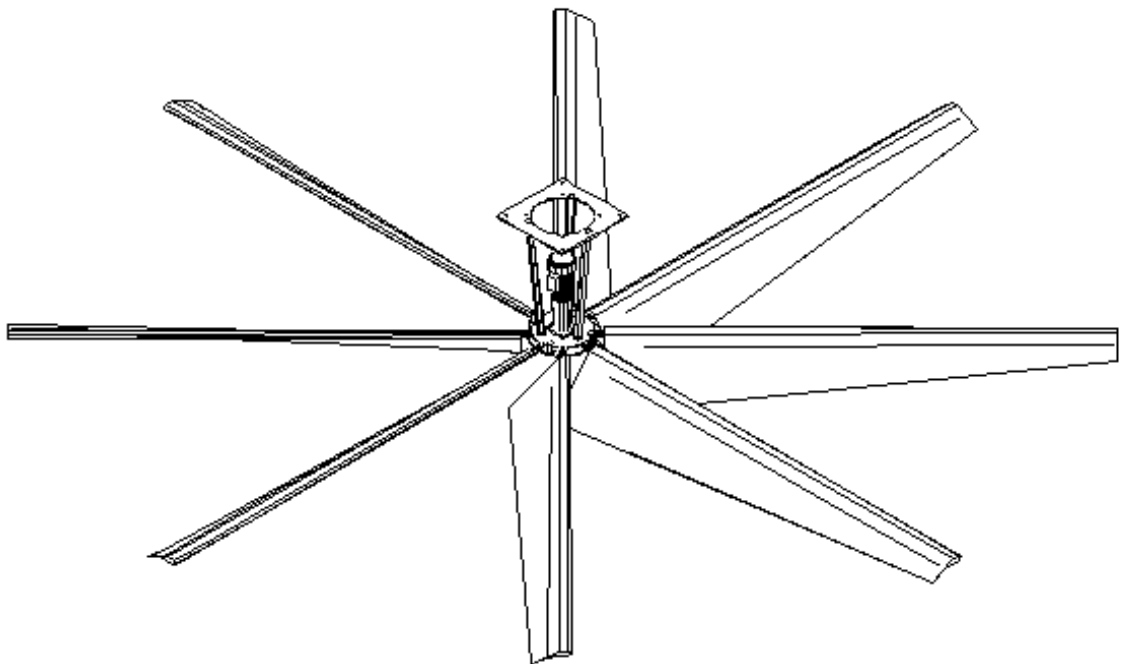




Humongous Fan

Installation Guide



Do not discard these instructions, save for further use

51512, Nov. 2008



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SAFETY PRECAUTIONS

READ, FOLLOW AND SAVE THESE INSTRUCTIONS!

1. Only use this fan in a manner intended by the manufacturer namely as a vertical, ceiling mounted, air moving device. Any attempt to use this fan for any other purpose without expressed, written permission from The Humongous Fan Company will invalidate the warranty.
2. Before servicing or cleaning the fan, all sources of electrical power must be disconnected. The user should take means to ensure that the device is not accidentally energized while being serviced, such as attaching a lockout tag (not included) to the power supply.
3. If a safety device is removed prior to servicing the fan, it must be properly reinstalled before re-energizing the fan.
4. Do not replace any parts to this fan with anything other than authentic Humongous Fan parts. This includes both mechanical and electrical components.
5. All electrical wiring must conform to the National Electric Code and all local codes. Code compliance is ultimately the responsibility of the installer.
6. The fan must be installed in a manner such that there is no chance for the fan blades to strike a person or object while in operation.
7. The fan and any supplemental devices must be installed by qualified personnel. The Humongous Fan Company will not be responsible for personal injuries or damage to property or equipment caused by improper installation.
8. The supplemental mounting kit must be installed in a manner as laid out in this manual. All safety devices and bracing cables must be used.



9. Integrity of the structure to which the fan is mounted is the sole responsibility of the installer. Consult a structural engineer if there is any question relating to the integrity of the structure.

PARTS LIST

BEFORE ATTEMPTING TO INSTALL YOUR HUMONGOUS FAN, PLEASE VERIFY THAT YOU HAVE THE FOLLOWING:

1. Motor/Hub Assembly
2. Blade Mounting Hardware Kit, containing:
 - a. 16 ea., 1/4-20 X 1" UNC Grade 5 Bolts
 - b. 16 ea., 1/4" Split Lock Washers.
3. Safety Cable Kit, containing:
 - a. 1 ea., 10 Ft. (3.1m) of 1/8" Galvanized Steel Cable
 - b. 4 ea., 1/8" Cable Clamps
4. 1 ea., Fan Controller
5. 8 ea., Fan Blades

If you are lacking any of the above items, please call us at 216-663-8830.



MOUNTING SCENARIOS

The Humongous Fan is designed to be mounted to either a series of braces spanning two joists or, directly to an I-beam. The mounting must be sufficiently secure to absorb up to 250 ft-lbs (340 N-M) of torque, plus an appropriate safety factor. All bolts must be torqued to the following values:

Table 1

Product	Torque [Ft·Lb]	Torque [N·m]
1/8" Wire Rope Clamps	4.5	6
1/4-20 UNC Grade 5 Bolts	8.5	12
3/8-16 UNC Grade 8 Bolts	44	60
1/2-13 UNC Grade 8 Bolts	106	143
The above values are based upon using clean, zinc plated, and non-lubricated fasteners.		

Joist Mounting Scenario

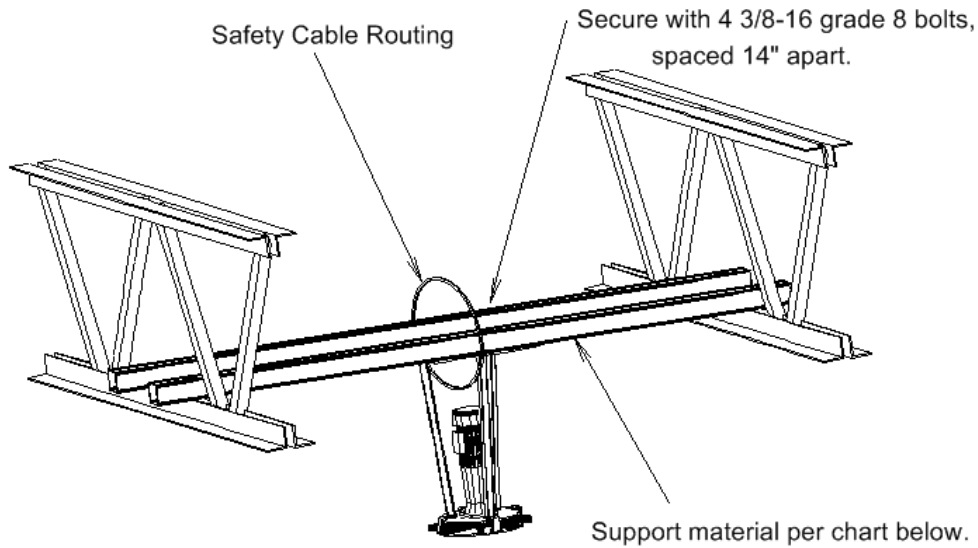
In general, mounting a Humongous Fan between joists is easier than clamping to a beam, especially if the joists are close together. Additionally, this type of mounting offers additional flexibility for fitting the fan between lights and avoiding the flickering caused by fan blades passing below a lighting fixture.

Since the motor/hub assembly is the heaviest part of the fan (weighing as much as 75 lbs/33KG), it will take two people to mount.



Below is a typical installation mounting across joists.

Figure 1
Typical Roof Joist Installation



As the span between joists is increased, heavier material must be used. The chart below indicates the minimum material cross sections for various spans. Please note the acceptable materials listed require the use of two sections spaced on 14" centers to create the mounting braces. A single angle, or section, should never be used as a beam.

Table 2

Joist Spans and Suggested Support Materials

Span	Acceptable Materials
6' or less	2 1/2" x2 1/2"x1/4" Angle Iron
	PowerStrut PS 210 or Equivalent
8' or less	3"x3"x1/4" Angle Iron
10' or less	3 1/2x3 1/2x1/4" Angle Iron
	PowerStrut PS 200-2T3 or Equivalent
12' or less	3"x3"x1/4" Square Tube, 4"x4"x1/4" Angle Iron
Above 12'	Consult Structural Engineer

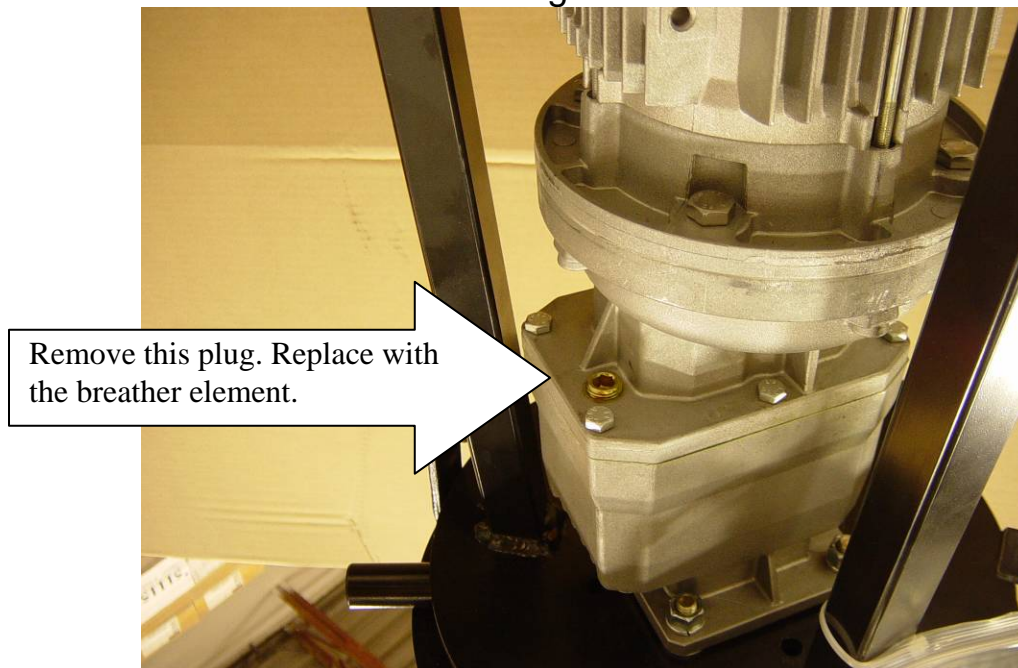


Support materials, including hardware to mount to support materials, are not normally provided with the fan. Use only Grade 8 fasteners for mounting the fan and support materials. Use of PowerStrut (or equivalent) products is generally encouraged as it can speed installation time and limit the weight of steel to be installed overhead.

The safety cable must be routed between the legs of the gearmotor base and over the support material as shown. The safety cables must be secured with the four cable clamps provided. Make sure the cable clamps are installed per the instructions on their packaging.

Once the fan hub is installed, the user must install the breather valve on the gearbox as shown in Figure 2. Once the breather valve is installed, you may not move the fan without replacing the plug.

Figure 2



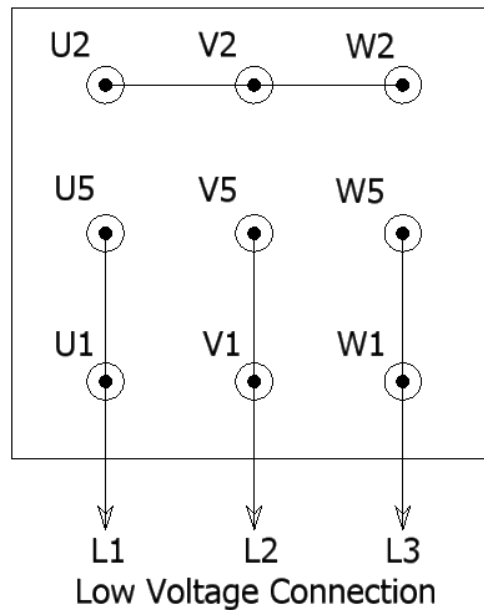
Once the fan motor/hub assembly is installed, electrical installation can proceed. Do not attempt to install fan blades until the electrical installation is complete and the system is tested.



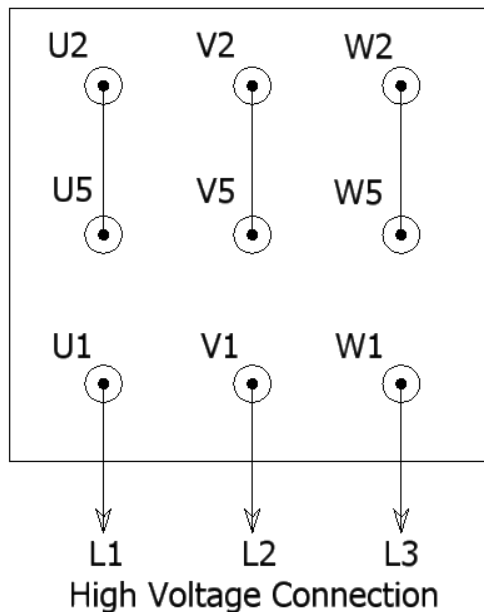
ELECTRICAL INSTALLATION

For electrical installation, please refer to the manual provided with the control cabinet.

For the motor, please refer to the following connection diagrams. For Low Voltage Connection see Motor Junction Box Figure below.



For the High Voltage Connection, see Motor Junction Box Figure below:

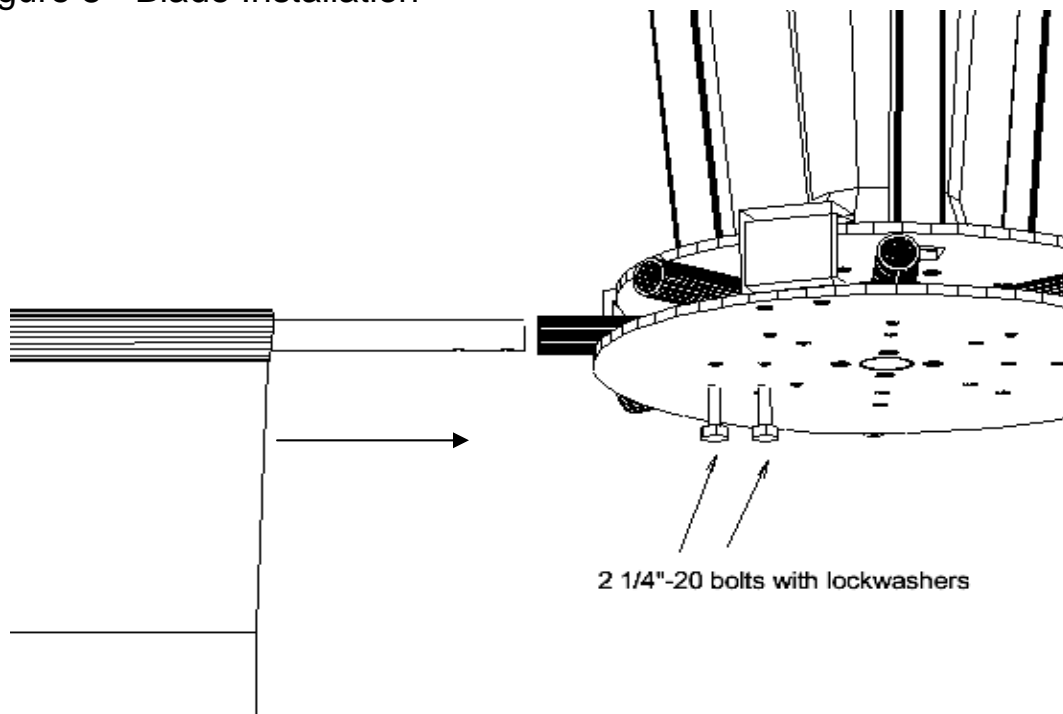




BLADE INSTALLATION

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 $\frac{1}{4}$ -20 bolts. The spars have a sliding fit into the spar tubes and may require some light lubrication to assemble. Do not hammer the blade into the spar tube as you could damage the blade or the gearmotor bearings. Gentle twisting should be sufficient to position the blades properly.

Figure 8 - Blade Installation



The blades must be installed such that the aluminum blade extensions are below the bottom of the fan hub as shown. Once the blades are positioned properly, they are to be secured with the $\frac{1}{4}$ -20 bolts and lock washers provided. The $\frac{1}{4}$ -20 bolts must be torqued to the values in Table 1. The blades have tapped holes to accept the bolts.



Once the blades are installed, the fan should be checked for interference with nearby objects by rotating it slowly by hand. The fan should then be run at the lowest speed possible (generally around 10 Hertz) for a few minutes. The fan should be rotating in a counter-clockwise direction when viewed from below. If the fan is rotating in the wrong direction, refer to the control manual for instructions on how to reverse. First, lock out the electrical connection. Reverse two motor leads to change the direction of the fan. The fan speed should then be increased to 60 HZ at 5 Hz intervals, running a minute or two at each speed. At each interval, the fan should be checked for interference and excessive vibration or rocking. If the fan rocks significantly at any speed, additional bracing may be required. Call the factory for assistance.

FAN OPERATION

While in operation, there are a few issues to consider:

1. 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.
2. Try to avoid installing the fan below lights, if possible. The blades passing below the lights may cause a flickering which some people find annoying.
3. In winter, maximum benefits are usually obtained by running the fan at about half speed. In summer it is usually advantageous to run the fan at the highest speed which will not inconvenience occupants by blowing around papers, etc...

PERIODIC MAINTENANCE

WARNING: Before attempting any maintenance, deenergize the fan and lock out the power to ensure that no one energizes the fan while maintenance is being performed.



Annual Maintenance:

1. Inspect blades for damage. Any noticeably bent blades must be replaced before reenergizing the fan. It is normal for the blades to droop slightly while installed (similar to an airplane wing). However, if one blade droops significantly more than the others, corrective action is required. Inspect for other damage, including glue failure of wing extensions. If you have any questions, contact the factory for assistance.
2. 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.
3. 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.
4. Check the controller and motor electrical power leads for tightness. This activity should be completed by a qualified electrician.

TROUBLESHOOTING

1. **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
2. **Fan rotates in the wrong direction.** The fan should rotate in a counterclockwise direction when viewed from below. If this is not the case, it will be necessary to switch two motor power leads in the controller. Refer to the electrical installation manual for instructions.
3. **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.
4. **Excessive audible noise.** Some noise is normal as with any fan. If you think the noise is excessive, please contact your



- Humongous fan representative or the factory for assistance.
5. **If fan hums or runs very slowly at more than 20 Hz, check motor voltage connection.**
 6. **Other problems such as excessive electrical noise are addressed in the Electrical Installation Manual provided with the drive/controller.**

WARRANTY

The following warranty shall apply to the various components of the Humongous Fan:

Blades, Fan Hubs, Fan Base,	
Beam Mounting Kit	5 Years (Parts Only)
Gear Motor.....	3 Years (Parts Only)
Controller and VFD.....	3 years (Parts Only)
Labor.....	1 Year

The warranty period shall commence 14 days after date of shipment unless the customer can prove that the fan was installed at a later date. In those cases, the customer must inform the Humongous Fan Company in writing of the delay in warranty commencement prior to fan installation.

For the first year of the warranty period, the Humongous Fan Company will reimburse the customer reasonable expenses for an outside contractor to complete any necessary repairs for the fan to operate as designed.

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

The Humongous 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.



Exclusions:

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

1. Failure to install the fan properly, including, but not limited to:
 - a. Failure to follow the appropriate national and local building and electrical codes.
 - b. Failure to follow the procedures in this installation manual.
 - c. Substitution of non-approved mounting hardware. Any deviation in mounting must be approved in writing the Humongous Fan Company.
2. Any modification of the fan whatsoever, including mechanical and electrical components. Any changing of software settings associated with the power electronics provided by the Humongous 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.
7. Failure to perform maintenance as directed in this manual and any other documentation provided by the Humongous Fan Company
8. Any consequential damages sustained as a result of a failure to follow these warranty exclusions.



The Humongous 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 Humongous Fan Company will determine the appropriateness of all remedies and repairs.

In the case of some purchased components, particularly electrical components, the manufacturer of the component may determine the cause of failure. In those cases, the Humongous Fan Company will defer to the expertise of the component supplier. If the component manufacturer determines that there was no manufacturing defect or improper system design by Humongous Fan, the Humongous Fan Company will take the same position.

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

Warranty Service

For prompt and courteous warranty service please call the Humongous Fan Company at 216-663-8830. We will fax or email over the necessary forms.