

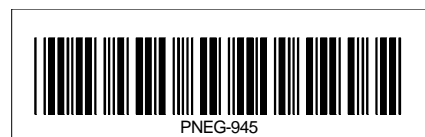


Direct Drive Galvanized Fans

Installation and Operation Manual

PNEG-945

Date: 07-09-08



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Safety Guidelines

This manual contains information that is important for you, the owner/operator, to know and understand. This information relates to protecting **personal safety** and **preventing equipment problems**. It is the responsibility of the owner/operator to inform anyone operating or working in the area of this equipment of these safety guidelines. To help you recognize this information, we use the symbols that are defined below. Please read the manual and pay attention to these sections. Failure to read this manual and its safety instructions is a misuse of the equipment and may lead to serious injury or death.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.



NOTE indicates information about the equipment that you should pay special attention.



WARNING! BE ALERT!

Personnel operating or working around electric fans should read this manual. This manual must be delivered with the equipment to its owner. Failure to read this manual and its safety instructions is a misuse of the equipment.

General Safety Statement

Thank you for choosing a Cumberland Galvanized Fan. It is designed to give excellent performance and service for many years. Cumberland's principle concern is your safety and the safety of others associated with poultry equipment. We want to keep you as a customer. This manual is to help you understand safe operating procedures and some problems which may be encountered by the operator and other personnel.

As owner and/or operator, you are responsible to know what requirements, hazards and precautions exist and inform all personnel associated with the equipment or in the area. Safety precautions may be required from the personnel. Avoid any alterations to the equipment, which may produce a very dangerous situation, where serious injury or death may occur.

Cumberland recommends that you contact your local power company and have a representative review your installation to verify that all wiring is compatible with their system and ensure an adequate power will be supplied to your unit.

Electrical Safety

An adequate and safe power supply to the Galvanized Fan is essential for safety. A competent and qualified electrician must undertake all electrical wiring. All wiring is to be installed according to the National Standards and Regulations relevant to your Country and Region.

Cumberland recommends that the electrical supply to the Galvanized Fan be provided with a single lockable isolator (not supplied) in accordance with the requirements of IEC 60204-1: 1997. The isolator should meet the requirements of IEC 60947-3. An isolator is essential for safety. This should be installed as indicated on the motor diagrams and in accordance with the relevant codes and directives.

Users Manual

This manual contains information and instructions essential to the safe installation and use of the Cumberland Galvanized Fans. Read this manual thoroughly **before** attempting any installation or use of the Galvanized Fans. Keep this manual with the Galvanized Fans or in a location where it can be readily accessed. Failure to read this manual and its safety instructions is a misuse of the equipment.

Structural Safety

Mounting the Galvanized Fans in a poultry house imposes additional load on the building. It is essential that the building is able to bear this additional load. Consult a structural engineer to verify the building's load capacity. Likely/estimated weights of the Galvanized Fans are provided in this manual.

Correct Use of Your Galvanized Fans

Only genuine Cumberland parts are to be used in the installation, maintenance and use of the Galvanized Fans. Use of other non-genuine parts is a misuse of the system and may lead to dangerous situations imperilling the safety and health of you and others.

This machine is not designed for use in atmospheres where there is a risk of explosion. Such environments may include enclosed areas of high dust concentrations, gas vapors and fumes. Use of the Galvanized Fans in such an environment is prohibited. If in doubt, contact Cumberland or your dealer.

Safety Guards

The Galvanized Fans contain many moving and electrical parts, which will cause serious injury or death if touched. Guards are placed on the units for your protection. Operating the units at any time with guards removed or incorrectly fitted is a serious misuse of the machine and endangers safety.

1. Safety

Safety in Handling the Galvanized Fans

Components of the Galvanized Fans require manual handling during assembly and installation. To prevent injury, seek assistance where necessary.

Some items may have sharp, rough or abrasive edges. To prevent injury, use suitable hand protection when manually handling the components of this system.

Safety in Maintenance

While the Galvanized Fans are designed to keep maintenance to a minimum, some repairs will be necessary in the course of the life of the unit. Do not attempt any repairs on the unit unless you are competent to do so. Never attempt any work on the Galvanized Fans without first isolating the unit from the power and locking the isolator so that only you can turn the power back ON.

Take special care when approaching the belt or other driven components as there may be tension stored up in the system which could cause injury when released. Approach these items with care using a suitable tool rather than your hands until it is clear that the tension is released.

Before restarting the Galvanized Fans, ensure that all electrical enclosures are locked closed and all guards and other safety measures are correctly fitted.

If in any doubt, contact your dealer or Cumberland for assistance.

Safety Signs and Warnings

The following pages show you exactly where the safety signs, warnings and other decals should be placed on the Galvanized Fans. If a decal is missing, damaged or unreadable, please contact your dealer or Cumberland, a member of the GSI Group, for a free replacement.

Installation Notes

To ensure the safety during installation, make all electrical connections as the final step of installation. This should be done only when the Galvanized Fans have been fully installed and all guards and covers are fixed in place. Electrical connection should be carried out only by a qualified electrical installer and should be to the relevant rules and directives in force in your region.

Installation Tools

The following are the recommended tools for assembly and installation of Galvanized Box Fans:

1. Cordless drill
2. 3/8" Drive ratchet
3. 1/2" and 9/16" Open end box wrench
4. 5/16" Nut driver bit for cordless drill
5. Hammer
6. Scratch awl (to help line up holes)
7. 3/8" Drive inch-pound torque wrench
8. 3/8" Drive 3" extension
9. 3/8" Drive 12 point 3/8" socket (to tighten propeller bolt)
10. 5/32" and 1/8" Hex key wrench
11. 3/16" Drift punch (to set lock collars)

NOTE: *It is recommended to use anti-seize compound (not supplied) for all shaft connections.*

For guidance or assistance on any issues relating to the safe use of the Galvanized Fans,

Contact:

Cumberland
1004 E. Illinois St.
Assumption, IL. 62510
Phone: 217-226-4421
Fax: 217-226-4420

Use Caution in the Operation of this Equipment

The design and manufacture of the Galvanized Fans is directed toward operator safety. However, the very nature of a Galvanized Fan requiring electrical power and possessing moving parts does present a hazard to personnel which cannot be completely safeguarded against without interfering with efficient operation and reasonable access to components.

Continued safe, dependable operation of automatic equipment depends, to a great degree, upon the owner/operator. For a safe and dependable Galvanized Fan, follow the recommendations within this manual and make it a practice to regularly inspect the operation of the unit for any developing problems or unsafe conditions.

Take special note of the safety precautions listed before attempting to operate the Galvanized Fans.

1. Safety

READ THESE INSTRUCTIONS BEFORE INSTALLATION, OPERATION AND SERVICE SAVE FOR FUTURE REFERENCE

1. Read and understand the operating manual before trying to install or operate the Galvanized Fans.
2. Power supply should be OFF and LOCKED OUT for service of electrical components. Use CAUTION in checking voltage or other procedures requiring power to be ON.
3. Never attempt to operate the Galvanized Fans by jumping or otherwise bypassing any safety devices on the unit.
4. Keep the Galvanized Fans clean. Do not allow debris to collect around motors, belts, pulleys or bearings.
5. Use CAUTION in working around the Galvanized Fans moving parts.

This product is intended for the use in ventilation of livestock buildings only. Any other use is considered a misuse of the product.

Some edges of the product's components are sharp. Examine each product component to determine if there are any safety considerations to be taken prior to use and/or installation. Any and all necessary personal protective equipment should be worn at all times when handling, assembling, installing and operation of the product and/or its components.

Throughout this manual, guards are removed for illustration purposes only. All guards must be in place before and during operation.

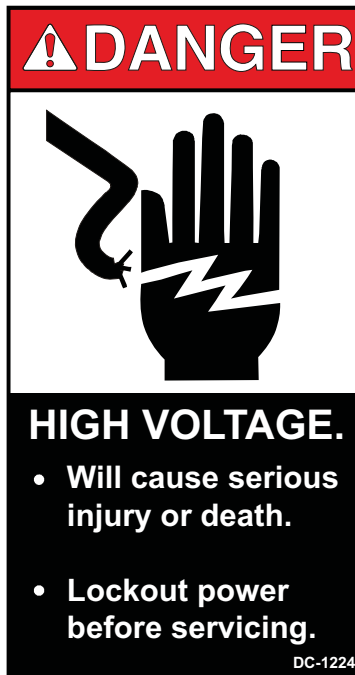
2. Safety Decals

This manual describes the installation and operation for all standard production Galvanized Fans. Safety decals should be read and understood by all people in the Galvanized Fan area. If a decal has been damaged or is missing, contact Cumberland for a free replacement:

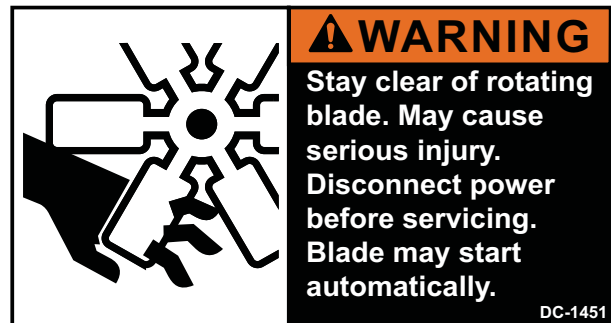
Cumberland
1004 E. Illinois St.
Assumption, IL. 62510
Phone: 217-226-4421
Fax: 217-226-4420

Decals are identified by the "DC" part number in the bottom right hand corner of all decals.

The decal for the Galvanized Fan is shown here. The following page shows its location on the Galvanized Fans.



DC-1224



DC-1451



DC-1452

DC-1224-1451-1452: These decals are located on the bottom right hand side of the venturi on all Galvanized Box Fans. It measures 7.5" (19 cm) long x 5.0" (12.7 cm) wide.



DC-994

DC-994: This decal is located on the bottom right hand side of the venturi on all Belt Drive Galvanized Box Fans. It measures 4.5" (11.4 cm) long x 2.25" (5.7 cm) wide.

Safety Decal Locations

This [Figure 2A](#) shows the location of the decals detailed on the [Page 10](#).



Figure 2A

3. Galvanized Fan Specifications

Rough in Openings

These are the exact sizes, including the protruding screw heads, for the openings for the fans. They do not include any extra clearance for installation. Any extra clearance should be added as desired to these numbers for frame size opening. Weights given are the maximum weight prior to shutter installation.

Model of Fan	Rough Opening	Maximum Weight (less shutter)
50" Box Fan	55-1/4" wide x 55-1/4" tall (140.34 cm x 140.34 cm)	215 lbs. (97.7 kg)
50" Slantwall and Cone Fan	55-1/4" wide x 57-1/2" tall (140.34 cm x 146.05 cm)	250 lbs. (95.5 kg)
36" Box Fan	40-1/2" wide x 40-1/2" tall (102.87 cm x 102.87 cm)	115 lbs. (52.3 kg)
36" Slantwall Fan	40-1/2" wide x 42-5/16" tall (102.87 cm x 107.47 cm)	150 lbs. (68.2 kg)
36" Slantwall Cone Fan	40-1/2" wide x 42-5/16" tall (102.87 cm x 107.47 cm)	170 lbs. (77.3 kg)

All of the above slant fans have a flat "step" at the flange and then begin to drop at 15°, except for the 36" cone fan, which begins the 15° drop right at the flange. It's horizontal mounting materials should also be tilted to 15°.

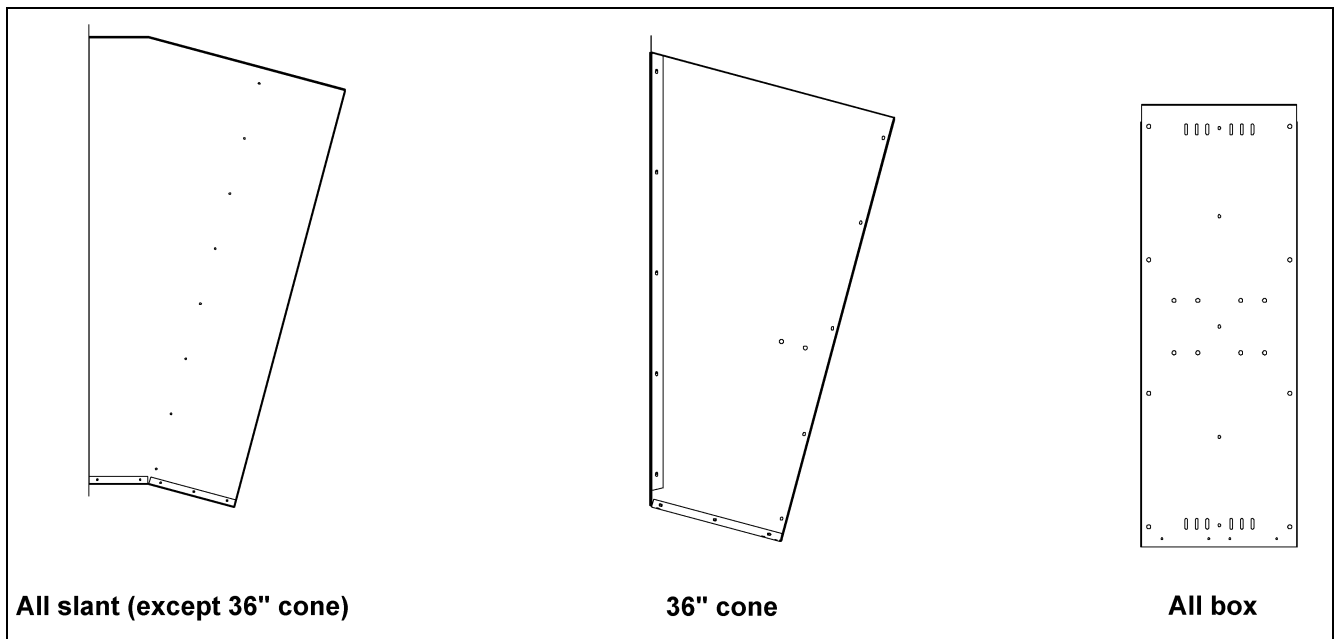


Figure 3A

36" Motor and Motor Mount/Upright Assembly Instructions

Step 1 for 36" Direct Drive Fans



Be careful, there are many sharp edges that can cut while assembling the Galvanized Fans. Wear protective clothing and gloves.

Use four (4) #10-32 nylock nuts and eight (8) 3/16" back up washers (four (4) on each side of the upright) to secure motor to uprights.



Motor mount uprights



Figure 4A

4. Direct Drive Galvanized Fan Assembly Instructions

Step 1 for 36" Direct Drive Fans (Continued)

Use 5/16"-18 x 3/4" hex washer head bolts and 5/16"-18 flange whiz nuts for steps mounting the uprights to the venturis.

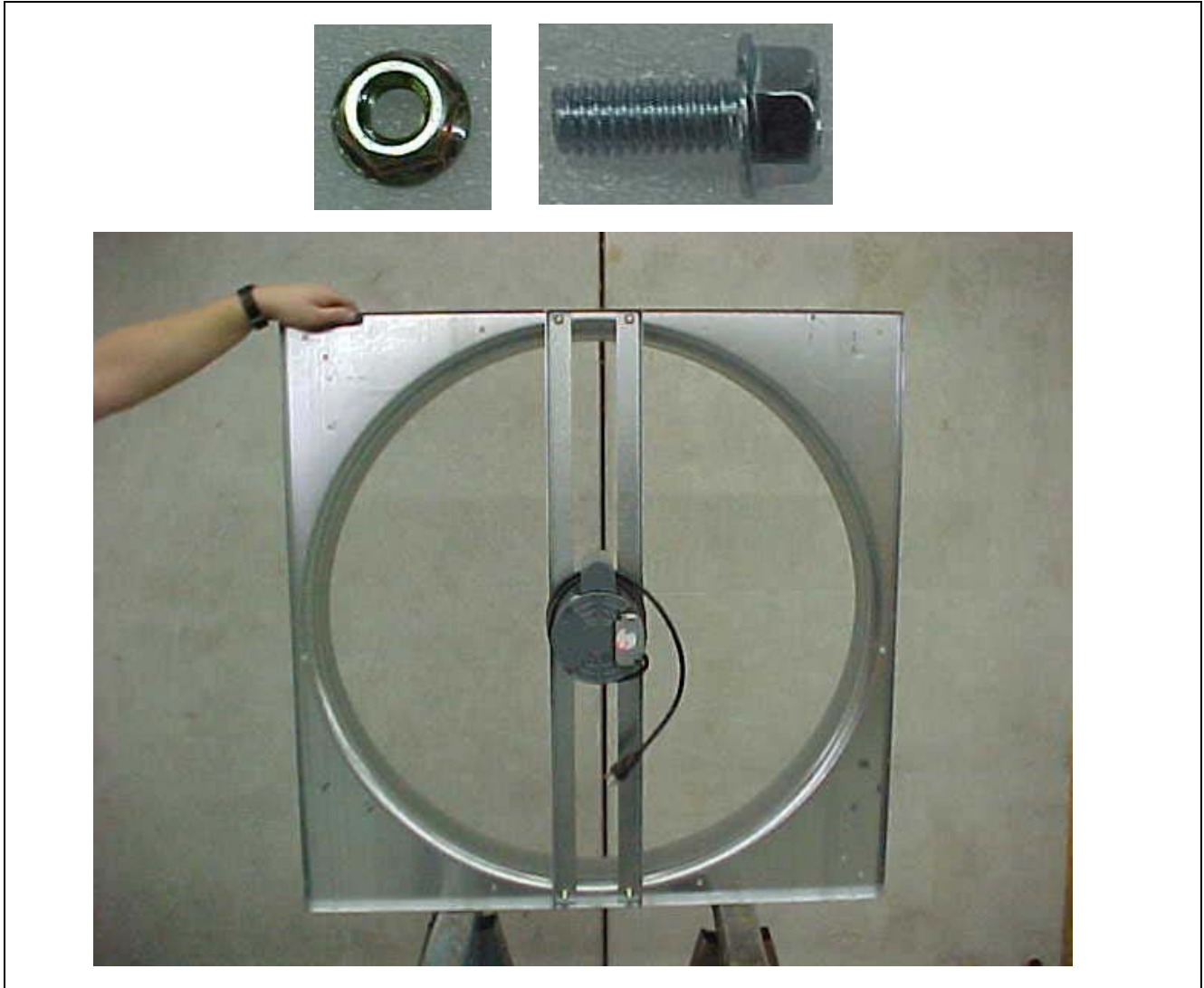


Figure 4B

50" Motor and Motor Mount/Upright Assembly Instructions

Step 1A for 50" Direct Drive Fans

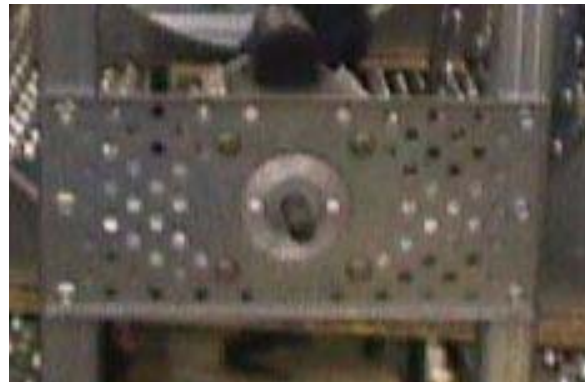
Use 5/16"-18 x 3/4" hex washer head bolts and 5/16"-18 flange whiz nuts to secure motor mount to uprights.
Use 3/8"-16 x 5/8" washer bolts to secure motor to motor mount plate.



50" Venturi



Motor mount channel



Motor mount plate



Figure 4C

Fan Housing Assembly Instructions

Step 2A for 36" and 50" Box Fans

NOTE: Do not overtighten type "F" screws or stripping of the holes and/or screws will occur.

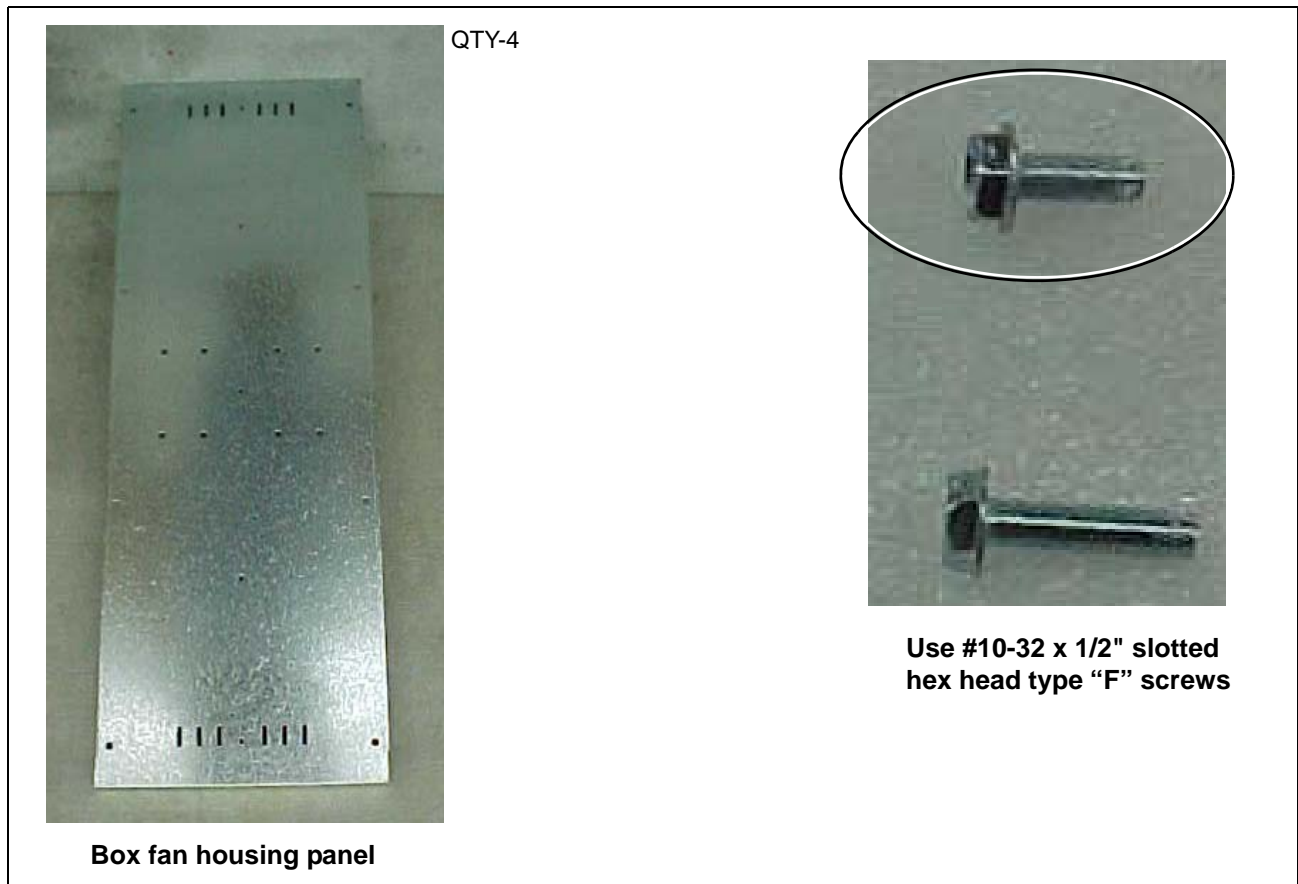


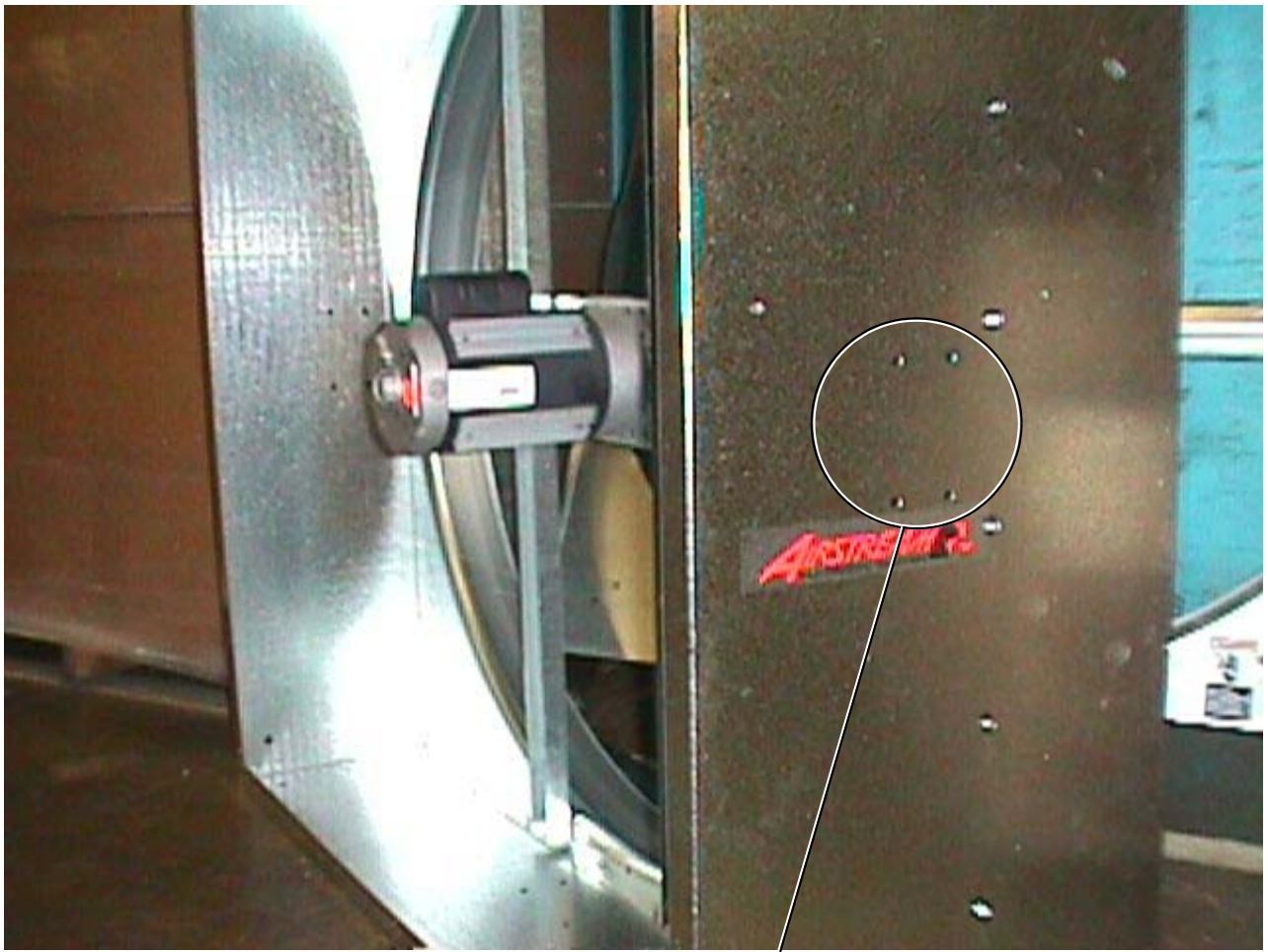
Figure 4D

Belt drive shown for illustration purposes only.



Figure 4E

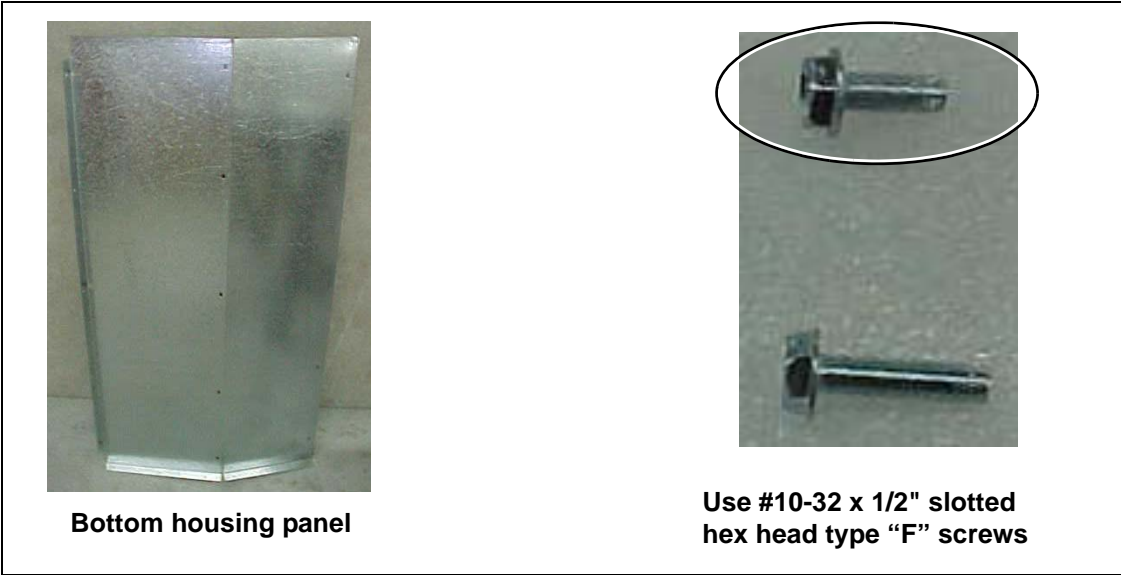
Step 2A for 36" and 50" Box Fans (Continued)



When assembling 50" box fan, note position of these four (4) holes to the rear of the fan.

Figure 4F

Step 2B for 36" and 50" Slantwall Fans



Step 2B for 36" and 50" Slantwall Fans (Continued)



Left and right hand housing side panels



Top housing panel



Figure 4I

4. Direct Drive Galvanized Fan Assembly Instructions

Step 2C for 50" Slantwall Cone Fans

Belt drive shown for illustration purposes only.



Use #10-32 x 1/2" slotted
hex head type "F" screws



Top panel



Bottom panel



Left and right hand side panels



Figure 4J

Step 2C for 50" Slantwall Cone Fans (Continued)

Belt drive shown for illustration purposes only.

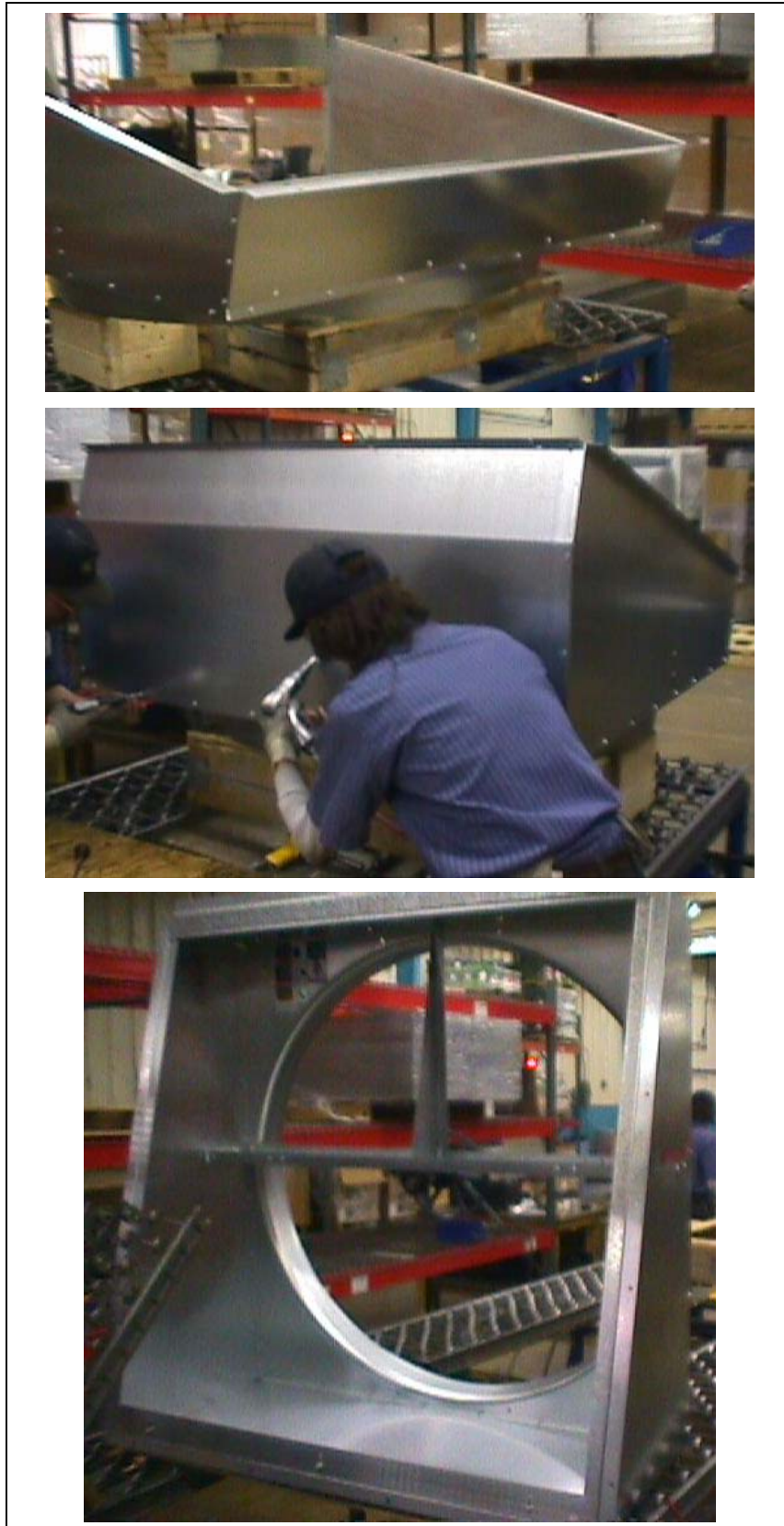


Figure 4K

Step 2D for 36" Slantwall Cone Fans

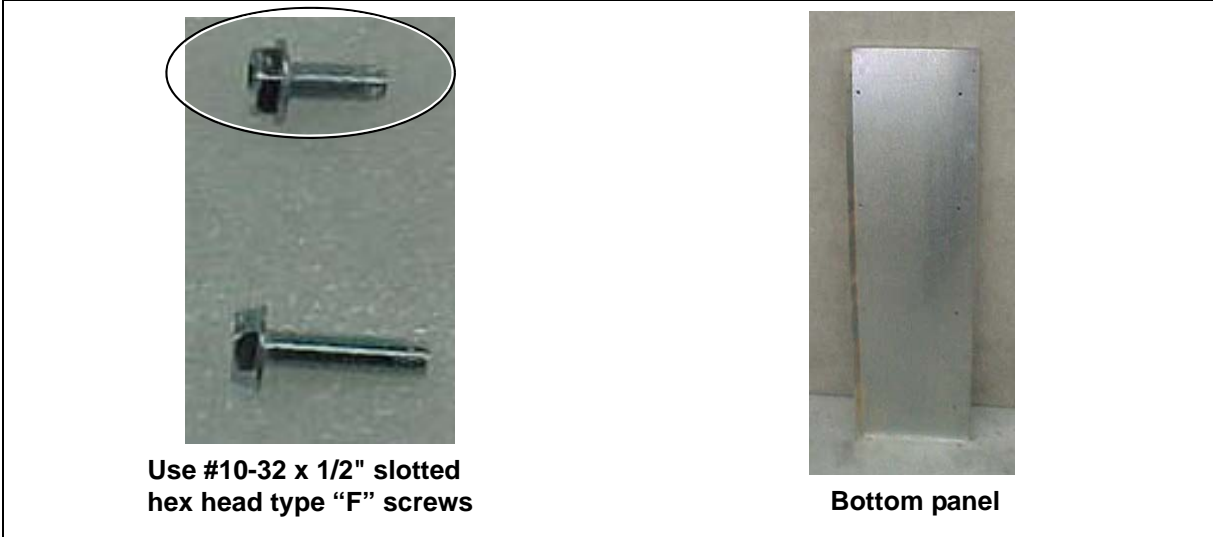


Figure 4L



Figure 4M

Step 2D for 36" Slantwall Cone Fans (Continued)



Figure 4N

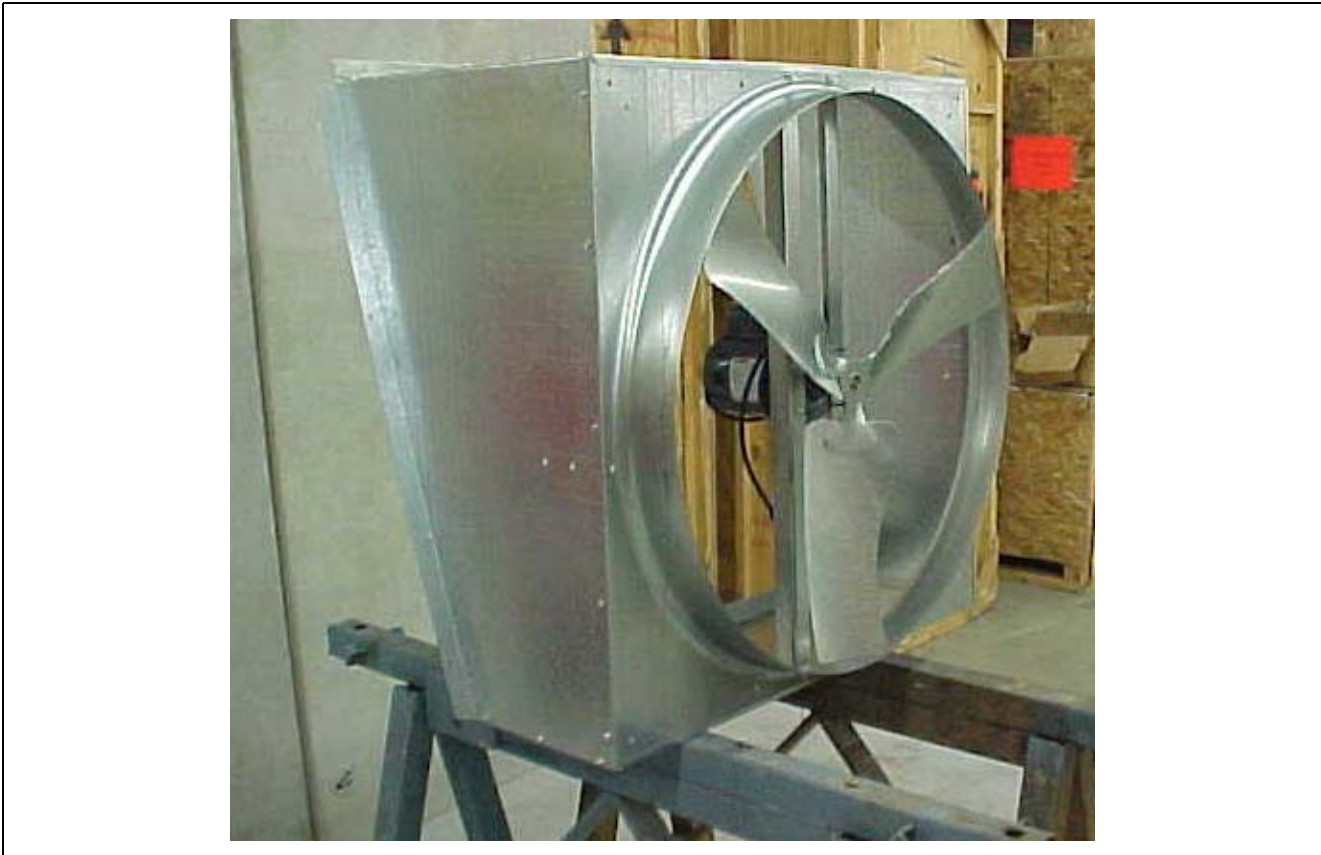


Figure 4O

Propeller Installation

Step 3 for All Direct Drive Fans

Place propeller on drive shaft until the outside of the hub of the propeller is flush with the end of the shaft. Tighten to 120 inch-pounds of torque.

Belt drive shown for illustration purposes only.



Figure 4P

Wire Mesh Guard Installation

Step 4 for all 36" and 50" Box (both sides) and Slantwall (discharge side) Direct Drive Fans

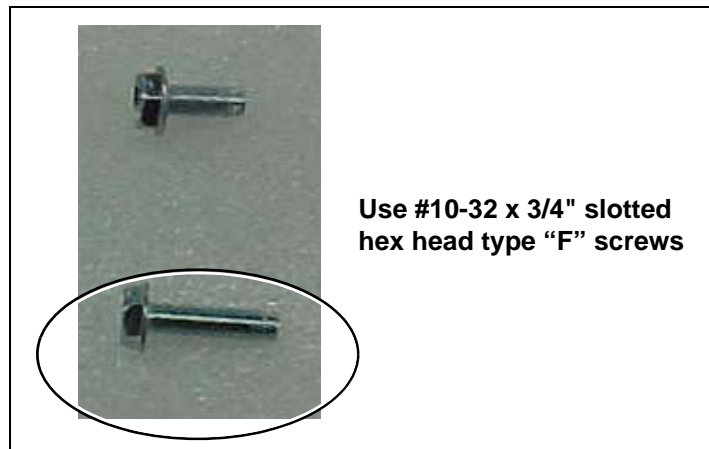


Figure 4Q

Place corner supports on corners as shown in [Figure 4R](#). Do not secure to housing yet.



Figure 4R

Place screen on assembled housing, make sure all four (4) corners of the screen match up to the four (4) corners of the housing. Repeat for both sides.

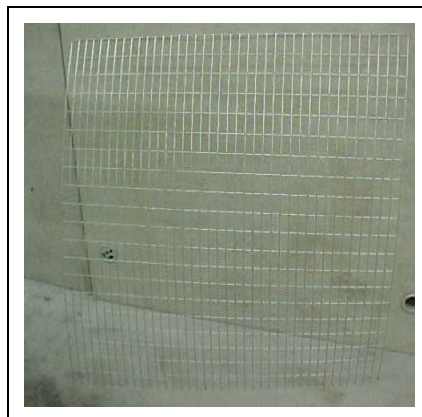


Figure 4S

4. Direct Drive Galvanized Fan Assembly Instructions

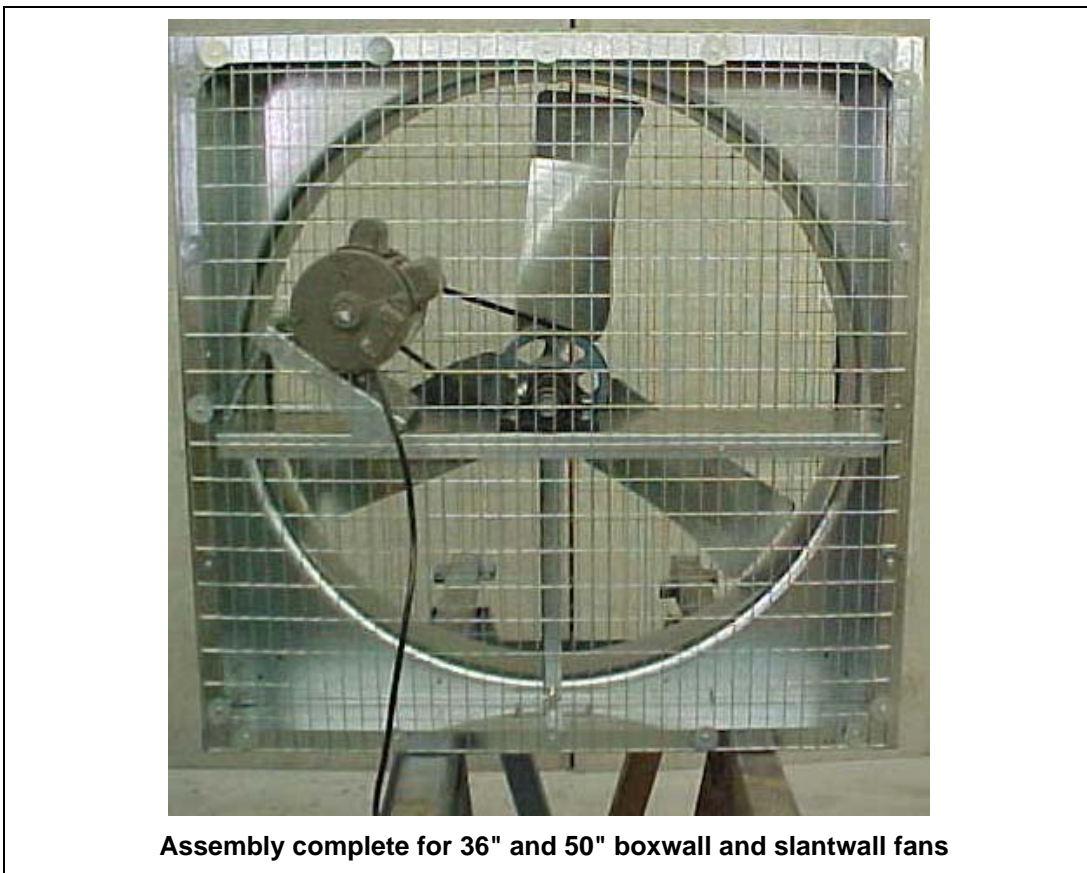
Step 4 for all 36" and 50" Box (both sides) and Slantwall (discharge side) Direct Drive Fans (Continued)

Secure wire mesh guard and corner supports on both sides of fan with #10-32 x 3/4" hex washer head type "F" screws and 1-1/2" outer diameter washers as shown in [Figure 4T](#).

Belt drive shown for illustration purposes only.



Figure 4T



Assembly complete for 36" and 50" boxwall and slantwall fans

Figure 4U

Cone and Guard Mounting Instructions

Step 5 for All 36" and 50" Cone Fans

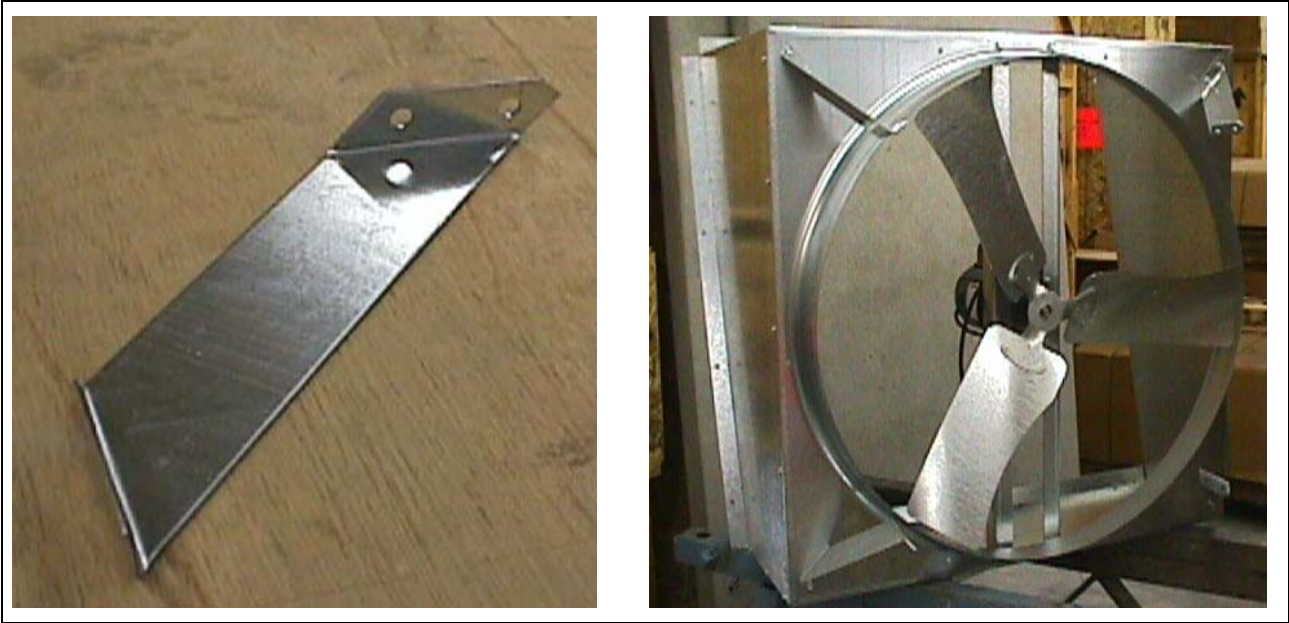


Figure 4V



Figure 4W

Step 5 for All 36" and 50" Cone Fans (Continued)



Figure 4X

Symptom	Probable Cause(s)	Corrective Action
Excessive noise.	Defective motor bearing.	Replace.
	Defective pillow block bearing (if applicable).	Replace.
	Damaged fan blade.	Replace blade. Recoat shaft with anti-seize lubricant.
	Motor not securely anchored.	Secure properly.
	Housing fasteners loose, causing housing to "oil can".	Tighten fasteners.
Fan inoperative.	Open power supply circuit.	Replace fuse or reset circuit breaker. Check for disconnected, cut or damaged power cord.
	Electricity turned OFF.	Contact local utility supplier.
	Defective motor.	Repair or replace.
	Belt broken (if applicable).	Replace.
Insufficient airflow.	Intake or exhaust shutter jammed/clogged.	Repair/replace/clean as necessary.
	Inlet/outlet guards clogged with dirt/debris.	Repair/replace/clean as necessary.
Excessive vibration.	Fan blade has excessive build up of dirt.	Clean unit.
	Fan blade is bent or otherwise damaged.	Replace blade. Recoat shaft with anti-seize lubricant.
	Motor/drive shaft (if applicable) is bent.	Replace.
Motor overheats and nuisance trips.	Intake or exhaust shutter jammed/clogged.	Repair/replace/clean as necessary.
	Inlet/outlet guards clogged with dirt/debris.	Repair/replace/clean as necessary.
	Building operating static pressure too high.	Adjust air inlets to lower static pressure.
	Motor has excessive build up of dirt.	Clean unit.
	Fan blade has excessive build up of dirt.	Clean unit.
	Power supply voltage is too low.	Check line voltage at motor, verify wiring is of sufficient gauge for load and length of conductor. Check with local utility supplier for possible line problems.

6. Replacement Parts List

50" Parts

Part #	Model	Description
13-0103R	Belt Drive	Propeller
13-0047	Direct Drive	Propeller
16-0065	Belt Drive	Belt
15-0029	Belt Drive	Motor
15-0112	Direct Drive	Motor
16-0069	Belt Drive	Bearing
16-0057	Belt Drive	Drive Shaft
16-0007	Belt Drive	Pulley (propeller)
16-0016	Belt Drive	Pulley (motor)
16-0066	Belt Drive	Tension Spring
10-0040	All	Shutter Mount Hardware

36" Parts

Part #	Model	Description
13-0100R	Belt Drive	Propeller
13-0100R	Direct Drive	Propeller
16-0061	Belt Drive	Belt
15-0032	Belt Drive	Motor
15-0082	Direct Drive	Motor
16-0069	Belt Drive	Bearing
16-0045	Belt Drive	Drive Shaft
16-0014	Belt Drive	Pulley (propeller)
16-0027	Belt Drive	Pulley (motor)
16-0066	Belt Drive	Tension Spring
10-0040	All	Shutter Mount Hardware

Parts shown for 1 Phase, 60 Hz application.

Call for others.



Limited Warranty

The GSI Group, LLC. ("GSI") warrants products which it manufactures to be free of defects in materials and workmanship under normal usage and conditions for a period of 12 months after sale to the original end-user or if a foreign sale, 14 months from arrival at port of discharge, whichever is earlier. The end-user's sole remedy (and GSI's only obligation) is to repair or replace, at GSI's option and expense, products that in GSI's judgment, contain a material defect in materials or workmanship. Expenses incurred by or on behalf of the end-user without prior written authorization from the GSI Warranty Group shall be the sole responsibility of the end-user.

Warranty Extensions: The Limited Warranty period is extended for the following products:

	Product	Warranty Period
AP Fans and Flooring	Performer Series Direct Drive Fan Motor	3 Years
	All Fiberglass Housings	Lifetime
	All Fiberglass Propellers	Lifetime
Cumberland Feeding/Watering Systems	Feeder System Pan Assemblies	5 Years **
	Feed Tubes (1.75" & 2.00")	10 Years *
	Centerless Augers	10 Years *
	Watering Nipples	10 Years *
Grain Systems	Grain Bin Structural Design	5 Years
Grain Systems Farm Fans Zimmerman	Portable & Tower Dryers	2 Years
	Portable & Tower Dryer Frames and Internal Infrastructure †	5 Years

* Warranty prorated from list price:
 0 to 3 years – no cost to end-user
 3 to 5 years – end-user pays 25%
 5 to 7 years – end-user pays 50%
 7 to 10 years – end user pays 75%

** Warranty prorated from list price:
 0 to 3 years – no cost to end-user
 3 to 5 years – end-user pays 50%

† Motors, burner components and moving parts not included. Portable Dryer screens included. Tower Dryer screens not included.

GSI further warrants that the portable and tower dryer frame and basket, excluding all auger and auger drive components, shall be free from defects in materials for a period of time beginning on the twelfth (12th) month from the date of purchase and continuing until the sixtieth (60th) month from the date of purchase (extended warranty period). During the extended warranty period, GSI will replace the frame or basket components that prove to be defective under normal conditions of use without charge, excluding the labor, transportation, and/or shipping costs incurred in the performance of this extended warranty.

Conditions and Limitations:

THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED WARRANTY DESCRIPTION SET FORTH ABOVE. SPECIFICALLY, GSI MAKES NO FURTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE IN CONNECTION WITH: (i) PRODUCT MANUFACTURED OR SOLD BY GSI OR (ii) ANY ADVICE, INSTRUCTION, RECOMMENDATION OR SUGGESTION PROVIDED BY AN AGENT, REPRESENTATIVE OR EMPLOYEE OF GSI REGARDING OR RELATED TO THE CONFIGURATION, INSTALLATION, LAYOUT, SUITABILITY FOR A PARTICULAR PURPOSE, OR DESIGN OF SUCH PRODUCTS.

GSI shall not be liable for any direct, indirect, incidental or consequential damages, including, without limitation, loss of anticipated profits or benefits. The sole and exclusive remedy is set forth in the Limited Warranty, which shall not exceed the amount paid for the product purchased. This warranty is not transferable and applies only to the original end-user. GSI shall have no obligation or responsibility for any representations or warranties made by or on behalf of any dealer, agent or distributor.

GSI assumes no responsibility for claims resulting from construction defects or unauthorized modifications to products which it manufactured. Modifications to products not specifically delineated in the manual accompanying the equipment at initial sale will void the Limited Warranty.

This Limited Warranty shall not extend to products or parts which have been damaged by negligent use, misuse, alteration, accident or which have been improperly/inadequately maintained. This Limited Warranty extends solely to products manufactured by GSI.

Prior to installation, the end-user has the responsibility to comply with federal, state and local codes which apply to the location and installation of products manufactured or sold by GSI.

This equipment shall be installed in accordance with the current installation codes and applicable regulations which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.



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