User Manual

Aerotech
WM54K Wall Mount Shutter Fan - 6-pack

Model WM54xKxCP-SF-6PK



WM54K Fiberglass Wall Mount Shutter Fan
Instructions for Use and Maintenance

Thank You:

Thank you for purchasing a Aerotech® WM54K Shutter Fan. GrainProteinTech Climate Control & Air Treatment equipment is designed to be the highest performing, highest quality equipment you can buy. With the proper installation and maintenance it will provide many years of service.

Please Note:

To achieve maximum performance and insure long life from your Aerotech® product it is essential that it be installed and maintained properly. Please read all instructions carefully before beginning installation.

Warranty:

For Warranty claims information see the "Warranty Claims and Return Policy" form QM1021 available from the Grain & Protein Technologies office at 1-800-227-2376 or by e-mail at info@climatecontrolairtreatment.com.

Conditions and Limitations:

- Products and Systems involved in a warranty claim under the "Warranty Claims and Return Policy" shall have been properly installed, maintained and operated under competent supervision, according to the instructions provided by Grain & Protein Technologies.
- Malfunction or failure resulting from misuse, abuse, negligence, alteration, accident or lack of proper installation or maintenance shall not be considered a defect under the Warranty.

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Unpacking the Equipment

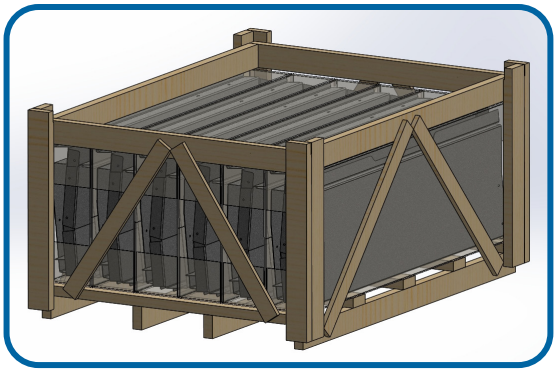
1.

1.1 Parts List

Crate with parts for Fan



Crate with parts for Shutter Box

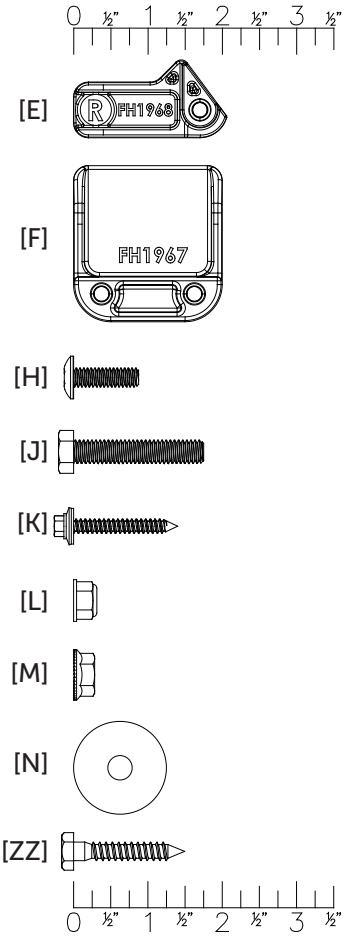


Each Shutter Box Crate Includes Parts to build 6 Shutter Boxes:

ID	Qty.	Cat. No.	Description
	6	BK2754	Bulk Parts Package WM54 shutter Box (1 Fan)
[A]	1	FH2320	LH Side Panel Shutter Box, PWDCTD, BLK
[B]	1	FH2321	RH Side Panel Shutter Box, PWDCTD, BLK
[C]	1	FH2322	Top Side Panel Shutter Box, PWDCTD, BLK
[D]	1	FH2323	Bottom Side Panel Shutter Box, PWDCTD, BLK
	1	HP1276	Hardware Package for 1 – WM__K-SF Shutter Box

HP1276 – Hardware Package for 1 – WM__K-SF Shutter Box

ID	Qty.	Cat. No.	Description
[E]	4	FH1968	1-Hole Pivoting Shutter Clip, BLK PL
[F]	2	FH1967	2-Hole Fixed Shutter Clip, BLK PL
[G]	4	FH2369	Corner Bracket, WM Shutter Box, PWDCTD, BLK
[H]	24	KS0650	¼"-20 x ⅞" HX-SCKT, Truss Head, Waxed, SS
[J]	1	KS1029	5⁄16"-18 x 1.75" Hex Head Bolt, SS
[K]	24	KS1402	#9-15 x 1.5", HXHD, Seal-Washer Screw, ZP
[L]	24	KN1717	¼"-20 Hex Flange Nylock Nut, SS
[M]	1	KN0704	5⁄16"-18 SRTD Flange Nut, SS
[N]	1	KW3011	5⁄16" x 1¼"O.D. Flat Washer, SS
[ZZ]	1	KS2463	¼" x 1.5" Lag Screw, ZP



Each WM54 Fan Crate Includes Parts to build 6 Fans:
Part required to build 1 Fan

ID	Qty.	Cat. No.	Description
[P]	1	FH3654	Orifice Panel, WM54, FG
[Q]	1	FP2454	3-Blade, Propeller, WM54, GA
[R]	1	FH1675	Center Strut, WM54, PWDCTD, BLK
[S]	4	FH4653	Cone Sections, w/Tabs, WM54-SF, BLK, PL
[T]	1	FH4654	Round Outlet Guard, 54PC/55PC, CTD, BLK
[U]	1	PWM54	Shutter for WM54-SF, WHT, PL
[V]	1	*	Motor
	½	BK1144	Bulk Parts Package, WM54K-SF, (2 Fans)
[W]	1	FP2060	Hub w/Bearing & Shaft, AL
[X]	1	FH2137	Propeller Sheave, A-Sect. AL
[Y]	4	FH1980	Strut/Cone Bracket, WM, GZ
[Z]	4	FH2431	Cone Support Bracket, PC Type, GZ
[AA]	1	*	V-Belt, A-Section, POLYSTR CORD
[BB]	1	*	Motor Sheave, CI
[CC]	1	FH2831	Motor Base Bracket, 56 Frame, CTD-GZ
[DD]	1	FH2505	Belt Tesioner Bracket, CTD-GZ
[EE]	1	FH7406C	3" Idler Pulley, A-Section C.I., BLUE
[FF]	1	FH2459	Rotary Tensioner Arm, AL
[GG]	1	FH2895	Motor Base Stiffener Bracket, PWDCTD, BLK
	1	HP1277	Hardware Pack WM__-SF Fan Install
	1	HP1489	Hardware Pack, WM__K, Belt-Drv, SHTR Box

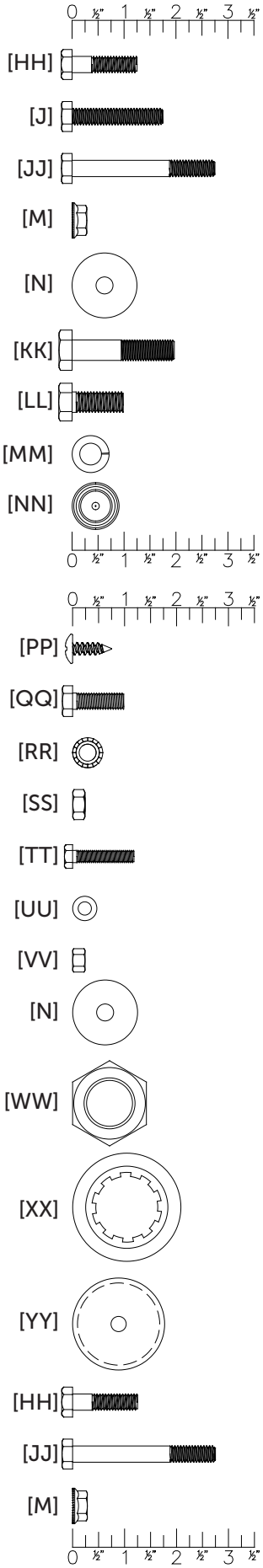
* Catalog Numbers for these items very depending on Fan Configuration

HP1277 – Hardware Package for 1 – WM__K-SF Fan Install

ID	Qty.	Cat. No.	Description
[HH]	16	KS1007	5/16"-18 x 1.25" Hex Head Bolt, SS
[J]	4	KS1029	5/16"-18 x 1.75" Hex Head Bolt, SS
[JJ]	3	KS1075	5/16"-18 x 2.75" Hex Head Bolt, SS
[M]	31	KN0704	5/16"-18 SRTD Flange Nut, SS
[N]	2	KW3011	5/16" x 1¼"O.D. Flat Washer, SS
[KK]	1	KS1046	M10-1.5 x 50mm Hex bolt, ZP
[LL]	1	KS1931	M10-1.5 x 25mm Hex Bolt, ZP
[MM]	1	KW3509	10mm Splitlock Washer, ZP
[NN]	2	KX1158	Hole Plug, 0.73"-0.76" Dia., BLK PL

HP1489 – Hardware Package for 1 – WM__K-SF

ID	Qty.	Cat. No.	Description
[PP]	1	KS1901	6.3mm x 19mm Tapping Screw, ZP
[QQ]	4	KS1928	M8-1.25 x 25mm Hex Bolt, ZP (HP1382 only)
[RR]	4	KW4906	M8 Star Lock Washer, BLK
[SS]	4	KN1849	M8-1.25 x 8mm Hex Nut, ZP
[TT]	4	KS1926	M6-1.0 x 30mm Hex Bolt, ZP
[UU]	4	KW4901	M6 x 12mm Flat Washer, ZP
[VV]	4	KN1855	M6-1.0 x 6mm Hex Nut, ZP
[N]	8	KW3011	5/16" x 1¼"O.D. Flat Washer, SS
[WW]	1	KN1860	M25-2.0 x 10mm Hex Nut, ZP
[XX]	1	KX1130	Shaft Shield for Prop Sheave, AL
[YY]	1	KX1208	40mm Cover Cap, Black PL
[HH]	2	KS1007	5/16"-18 x 1.25" Hex Head Bolt, SS
[JJ]	4	KS1075	5/16"-18 x 2.75" Hex Head Bolt, SS
[M]	6	KN0704	5/16"-18 SRTD Flange Nut, SS



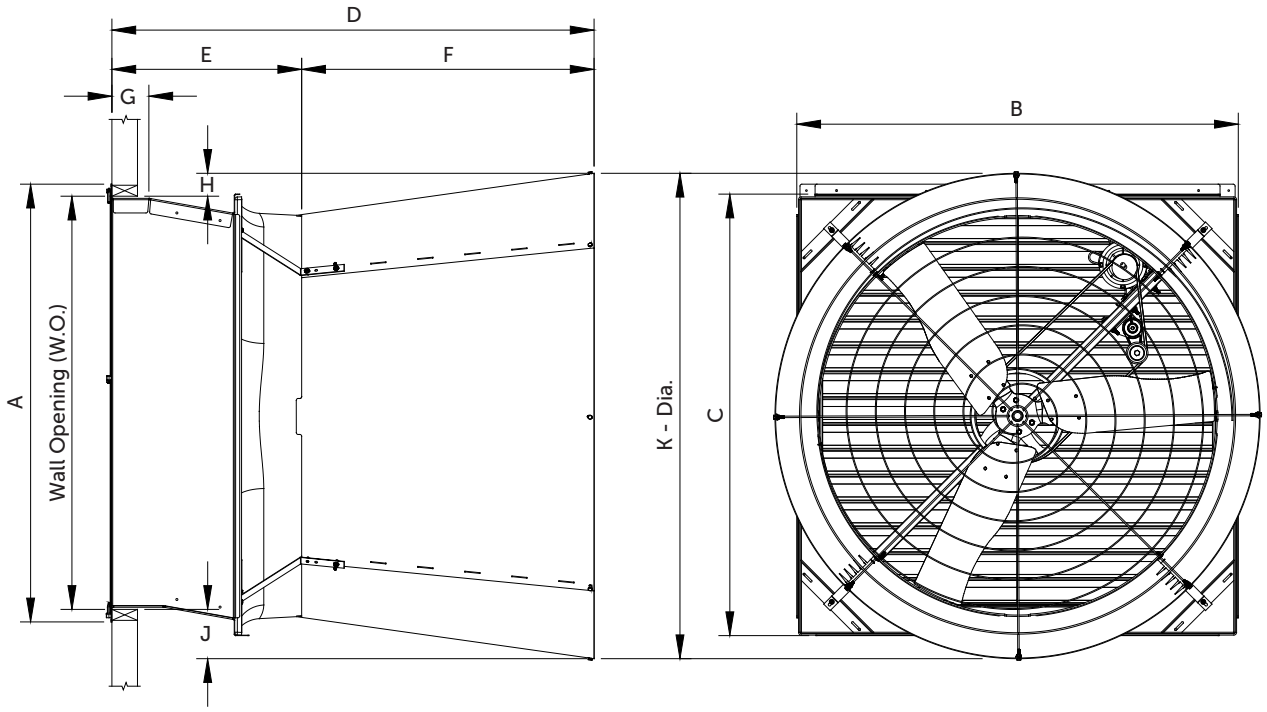
1.2 Fan dimensions

Fan Specifications: 60Hz shown (50Hz available)

Power: 115/230 VAC* or 208-230/460 VAC

Phase: 1 or 3

*Available voltages vary depending on HP



Dimensions:

Size	A	B	C	D	E	F	G	H	J	K - Dia.	Wall Openings
54"	59⅞"	60⅜"	60⅜"	66"	26"	40"	5"	3⅛"	6¾"	66⅜"	56½"W. x 56½"H.

1.3 Tools required for installation

10mm [⅜"] Socket

13mm [½"] Socket

17mm [11/16"] Socket or Wrench

27mm [1 1/16"] Wrench

36mm Socket or Wrench

5/16" Socket or Wrench

⅜" Socket

Phillips Screwdriver, #3 Size

⅛" Drill Bit

5/32" Hex Wrench

Wire Cutting Pliers

Installation Instructions

2.

2.1 Wall Framing

Step 1

Construct framed opening to correct size according to the Wall Opening listed in chart A below. *See Figure 1A and 1B.*

Chart A

Fan Dia.	Wall Opening (W. x H.)	Minimum Spacing 'Z'	Center-To-Center Dimension
54"	56½" W. x 56½" H.	12" recommended; 5½" minimum	62" min.

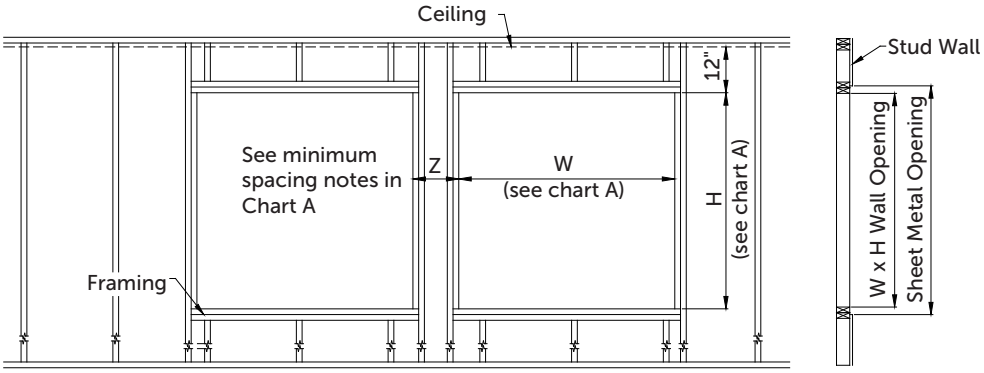
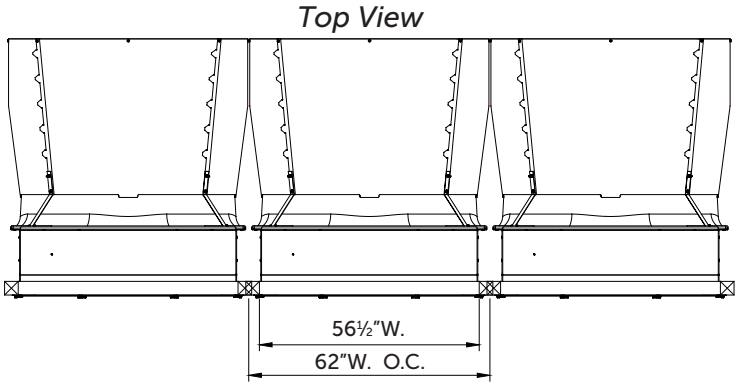


Figure 1A Frame Construction



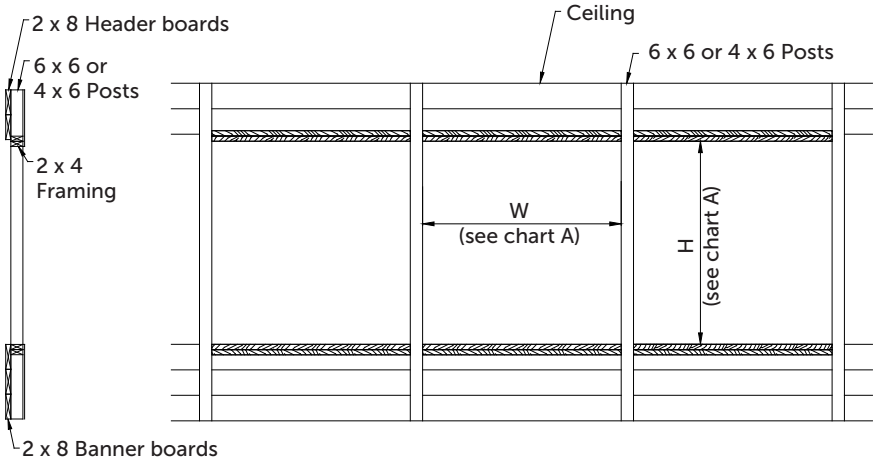


Figure 1B 6 x 6 Post Construction - Elevation View

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2.2 Shutter Box Assembly

Step 2

Insert the Top Panel [C], Bottom Panel [D], LH Side Panel [A] and RH Side Panel [B] into the framed opening. When each side panel is in the proper place the Arrow on the flange should point up. The side flanges of the of Top Panel [C] should be on the outside of the Side Panels and the side flanges of Bottom Panel [D] should be on the inside of the Side Panels. *See Figure 2.*

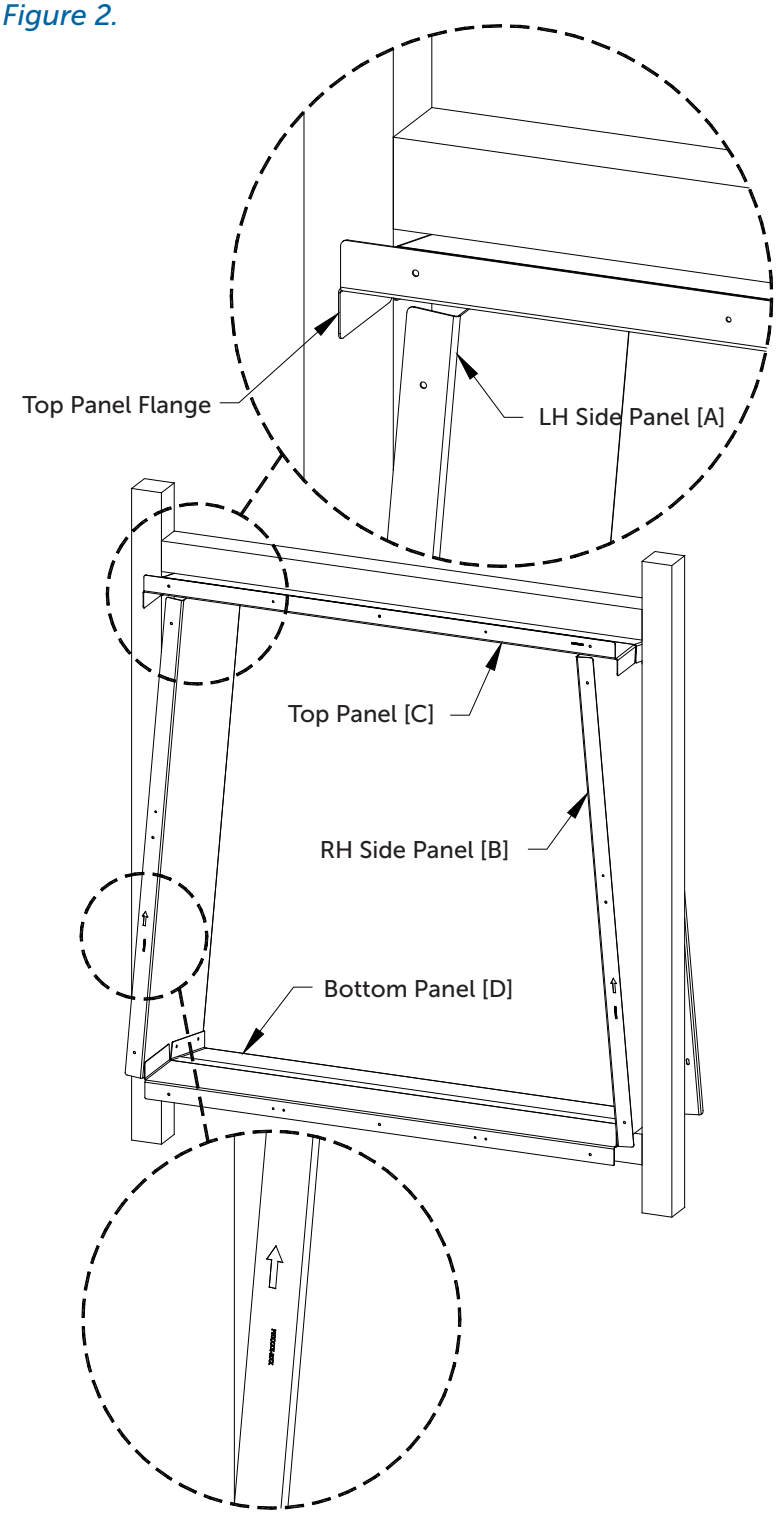


Figure 2

Step 3

Fasten each corner of the Shutter Box together using (2) Truss Head Bolts [H] and Nylock Nut [L]. *See Figure 3.*

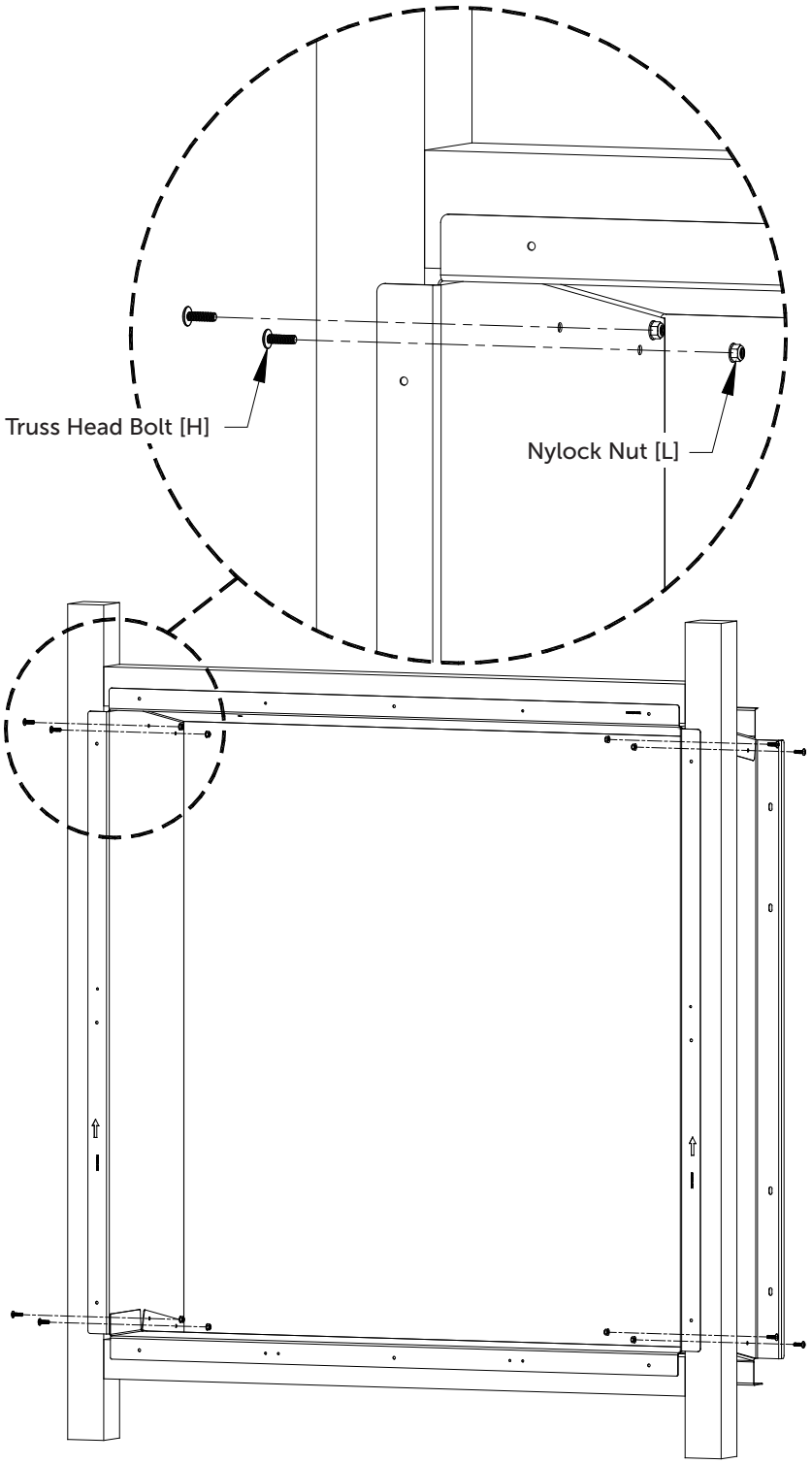


Figure 3

Step 4

Fasten the Shutter Box to the Framed Opening using (2) Corner Bracket [G] and (3) Barnscrews [K] at each corner. Also install a Barnscrew [K] in the center hole of each panel flange. *See Figure 4.*

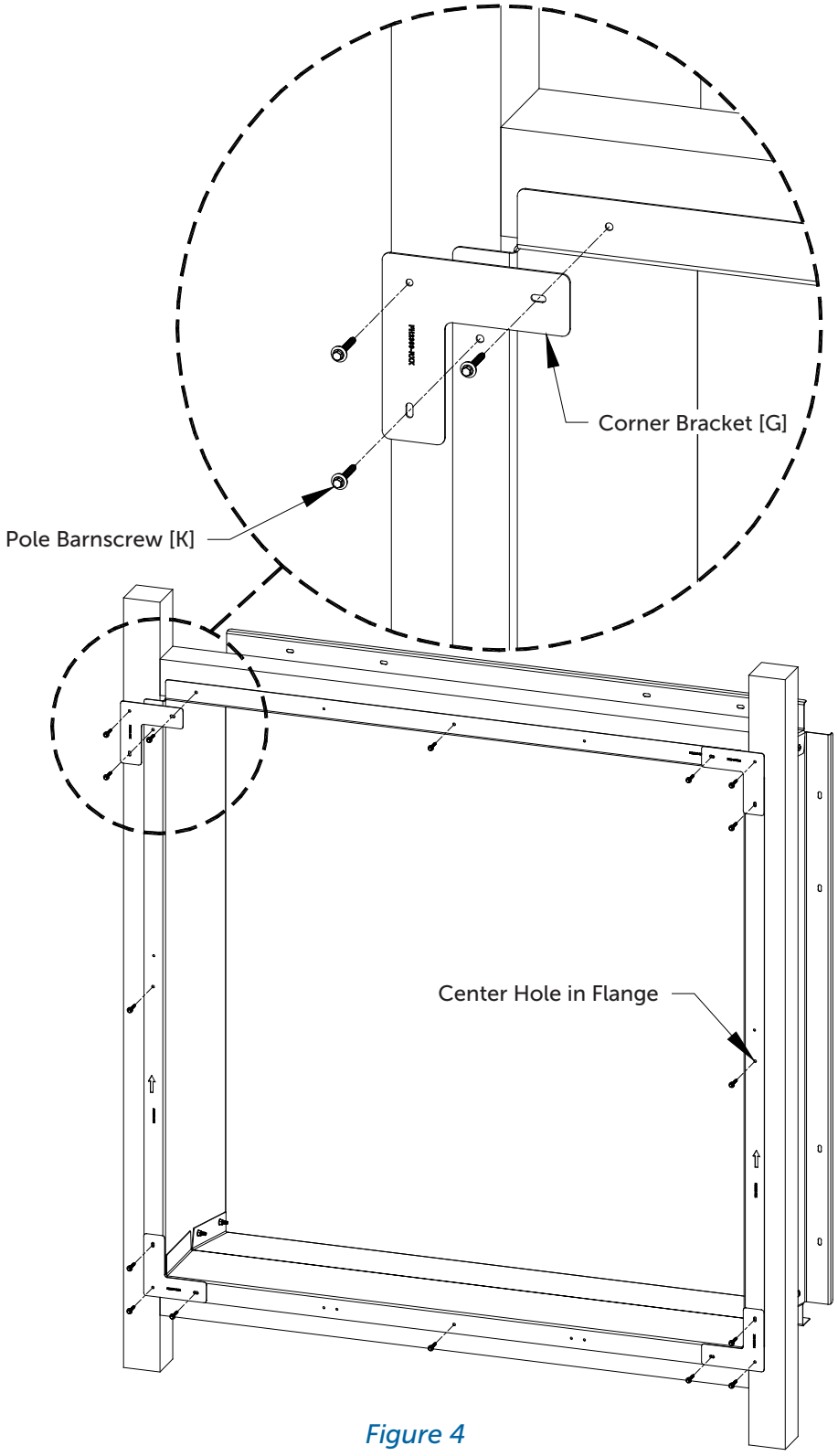


Figure 4

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Step 5

Secure (2) 1-Hole Clips [E] to the Top Panel Flange using (2) Barnscrew [K]. The left Clip should have the "L" facing out and the right Clip should have the "R" facing out. Also attach (1) 1-Hole Clip [E] to the LH Side and RH Side Panels using (1) Barnscrew [K]. Then attach (2) 2-Hole Clips [F] to the Bottom Panel Flange using (4) Barnscrews [K]. *See Figure 5.*

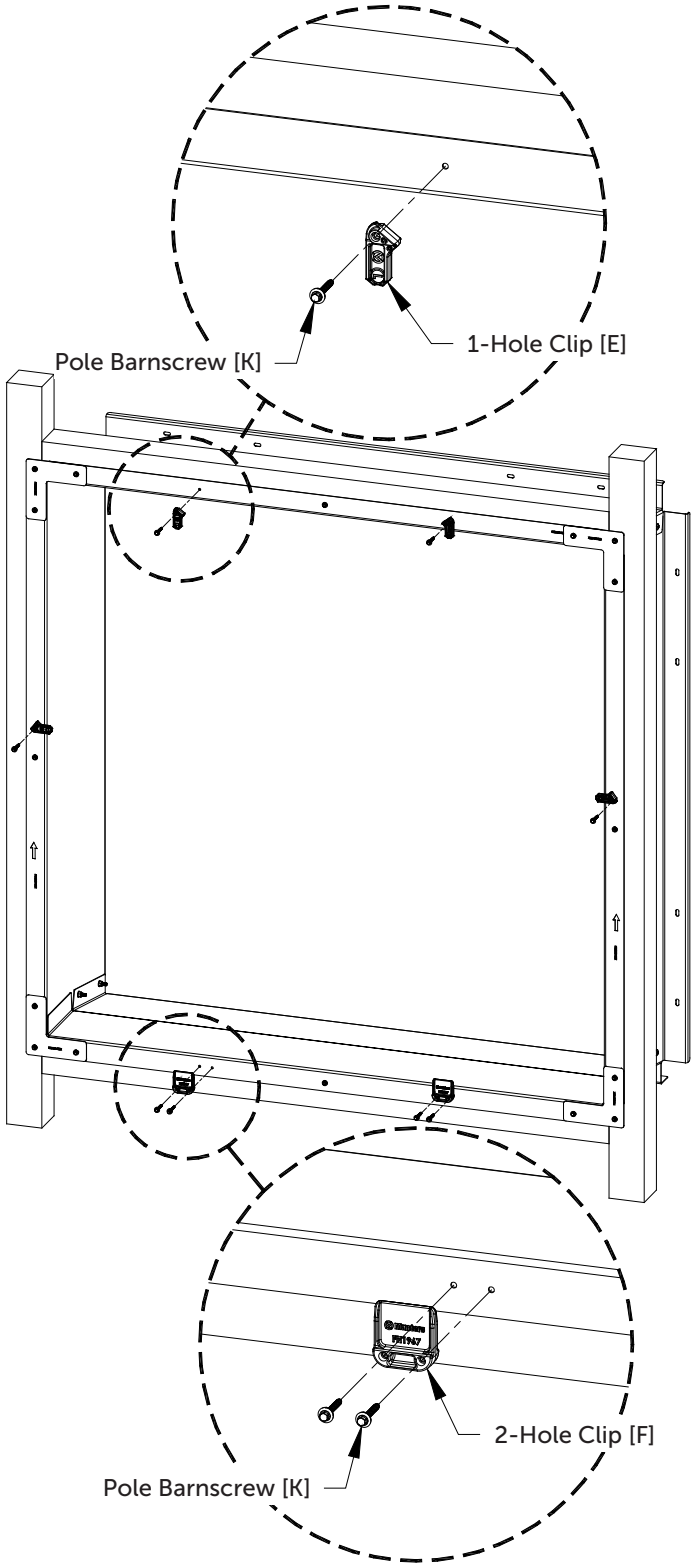


Figure 5

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2.3 Fan Assembly

Step 6

Place Tube Strut [R] on saw horses or a flat work surface. The large center hole should be pointing horizontally. Attach the Motor Base Bracket [CC] and the Belt Tensioner Bracket[DD] to the Tube Strut using (3) Long Bolts [JJ], (2) Washers [N] and (3) Nuts [M]. The Motor Bracket and the Tensioner Bracket share the middle hole. *See Figure 6.*

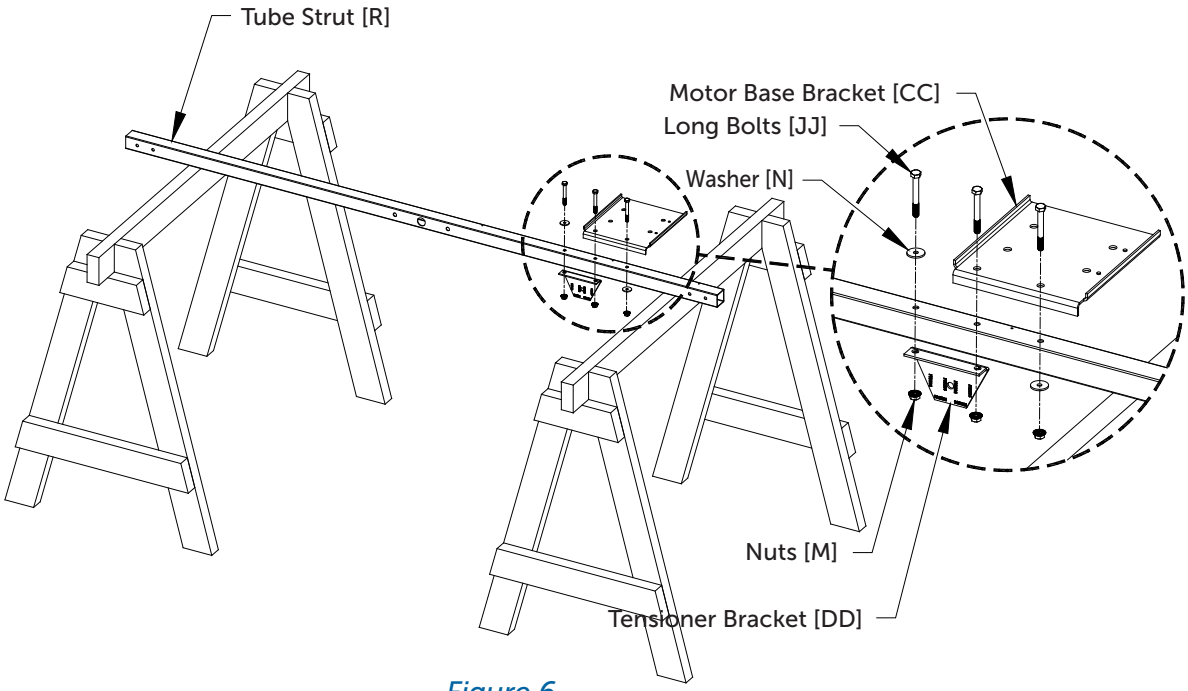


Figure 6

Step 7

Attach the 3" Idler Pulley [EE] to the Tensioner Arm [FF] using Bolt [KK]. Then attach the Tensioner Arm assembly to the Tensioner Bracket using Bolt [LL] and Splitlock Washer [MM]. Finger tighten only at this time. *See Figure 7.* Next attach the Specification Label to the Tube Strut as shown, and then mark the box for the appropriate model fan.

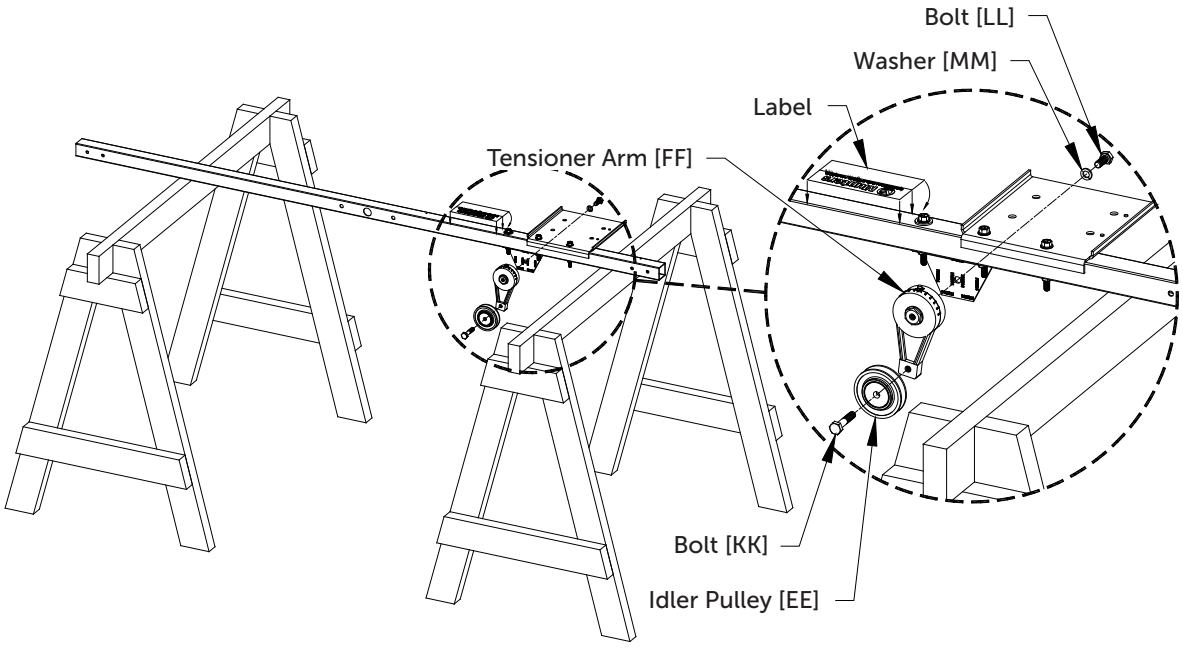


Figure 7

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Step 8

Attach Prop Sheave [X] to Hub [W] using (4) Bolt [TT], Washer [UU] and Nut [VV]. *See Figure 8.*

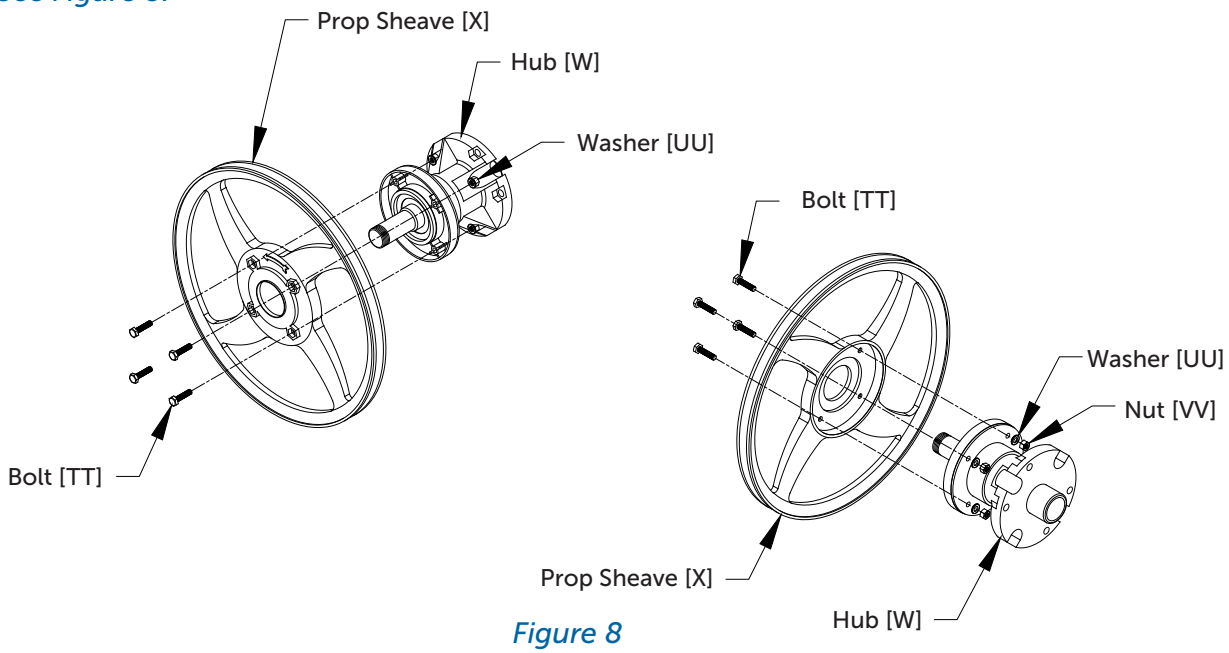


Figure 8

Step 9

Rotate Tube Strut on saw horses so Motor Bracket is pointing up. Slide Shaft Shield [XX] over hub shaft as shown in *Figure 4.* Attach Sheave/Hub Assembly to Tube Strut using (1) Hex Nut [WW] and tighten to 52 ft-lbs [70 N-m] torque. *See Figure 9.* Place Plastic Cover Cap [YY] over Hex Nut and fasten in place with (1) Tapping Screw [PP]. *See Figure 9.* Set aside the Strut Assembly for use in a later step.

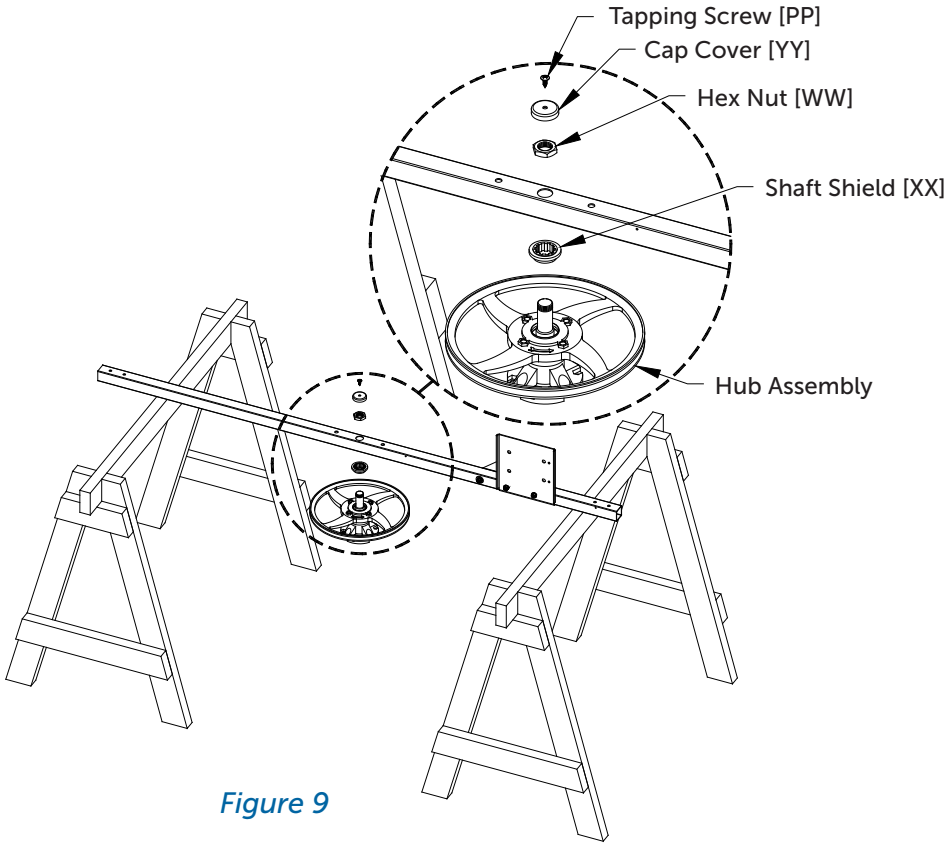


Figure 9

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Step 10

Place Orifice Panel [P] on saw horses with the round orifice pointing up and place (1) Cone/Strut Mounting Bracket [Y] in each corner of the Orifice Panel. *See Figure 10.*

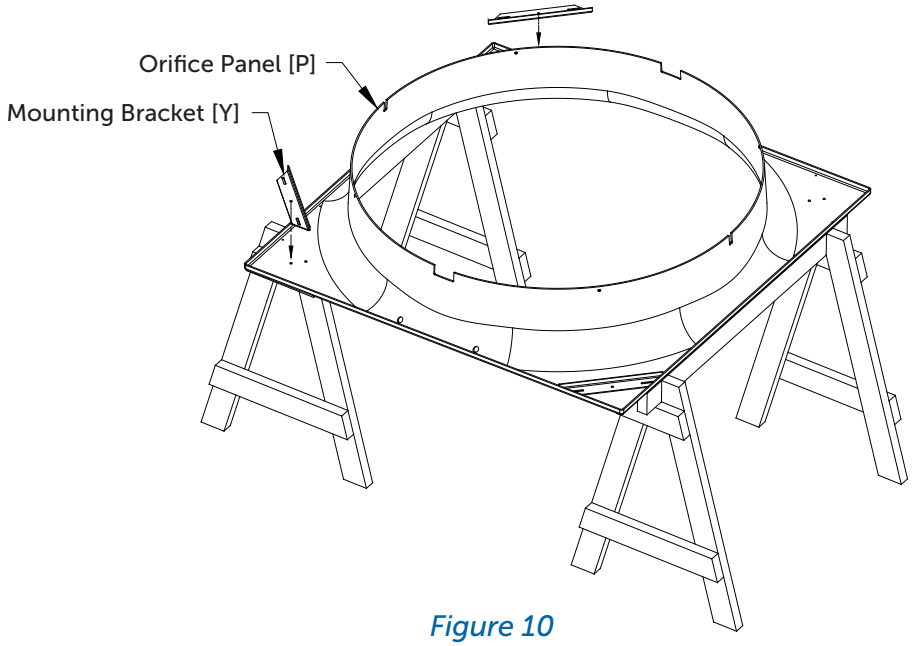


Figure 10

Step 11

Corners of Orifice Panel with 2 holes are corners where Strut Assembly attaches. Secure Strut Assembly using (4) Long Bolts [JJ], (6) Washers [N] and (4) Nuts [M]. In the opposite corners attach Cone/Strut Mounting Bracket to the orifice using (1) Short Bolt [HH], Washer [N] and Nut [M]. *See Figure 11.*

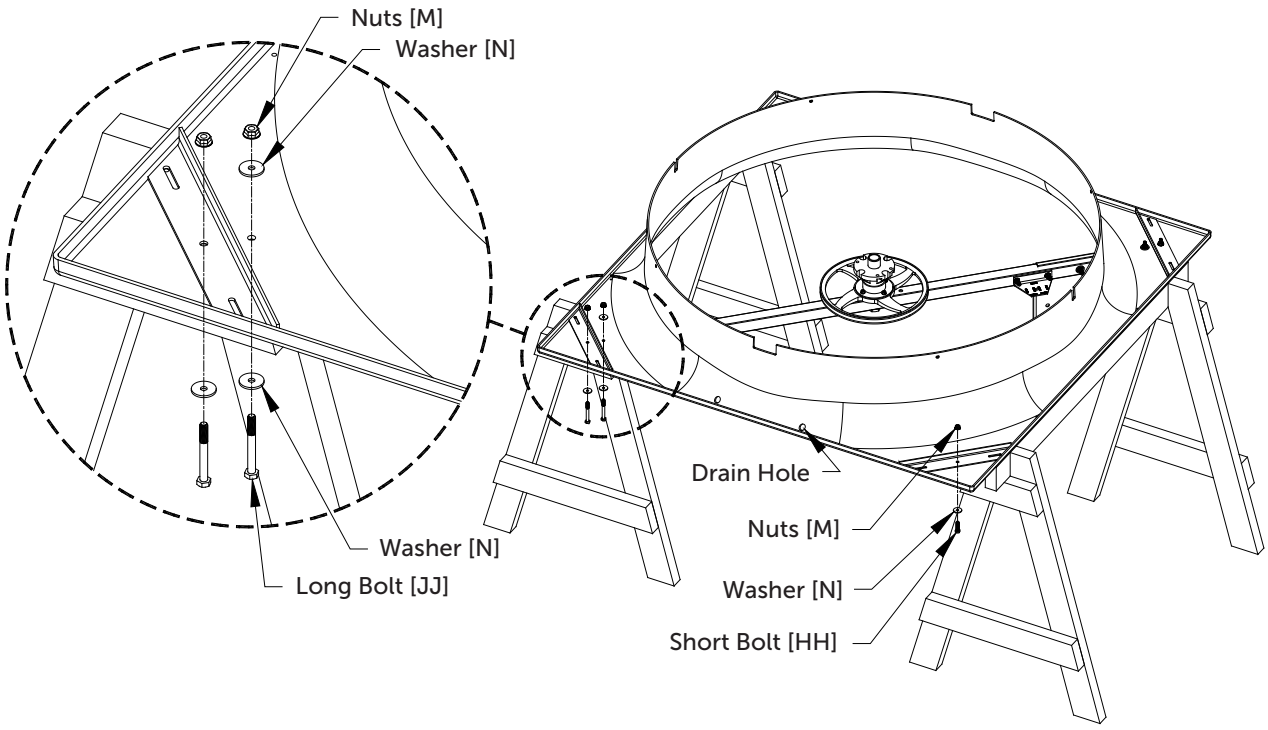


Figure 11

Step 12

Attach Propeller [Q] to Hub Assembly using (4) Bolts [QQ], Washers [RR] and Nuts [SS]. Tighten bolts to 180 in-lbs. of torque. *See Figure 12.*

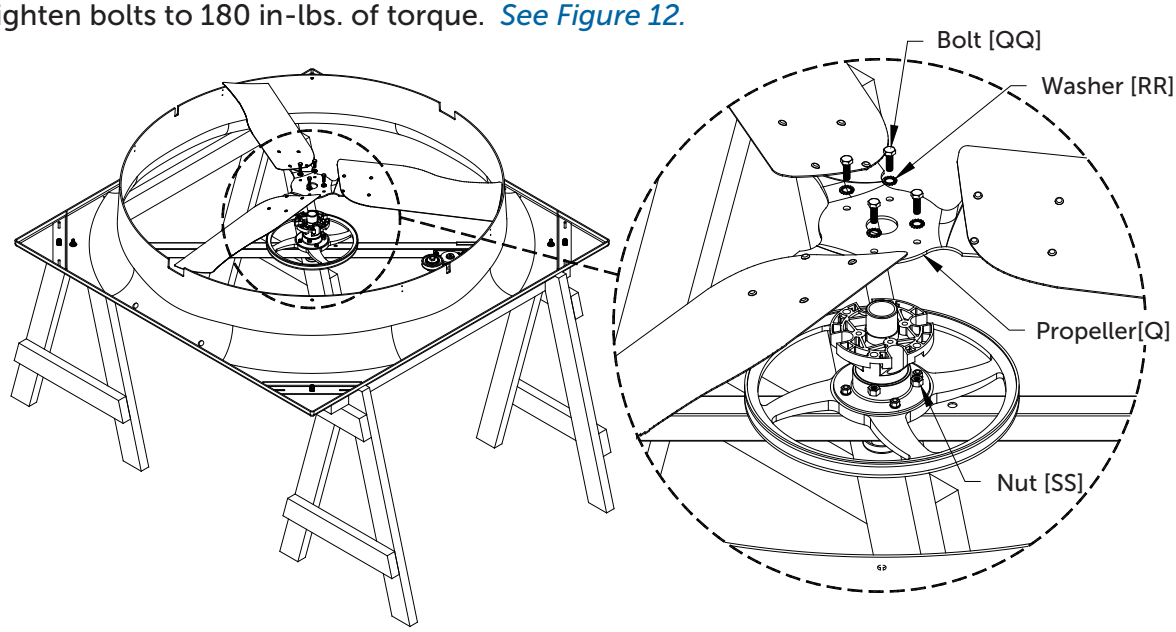


Figure 12

Step 13A

Locate Drain Hole in Orifice Panel. This is the bottom of the Panel. Set bottom edge of panel on bottom ledge of Shutter Box and center panel on opening. *See Figure13A.*

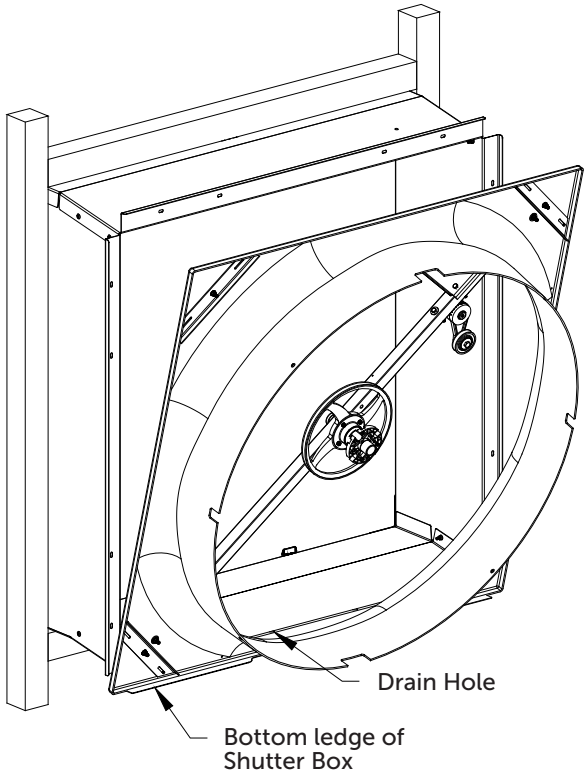


Figure 13A

Step 13B

Secure Panel to wall using (16) Truss Head Bolts [H] and Nylock Nut [L]. *See Figure13B.*

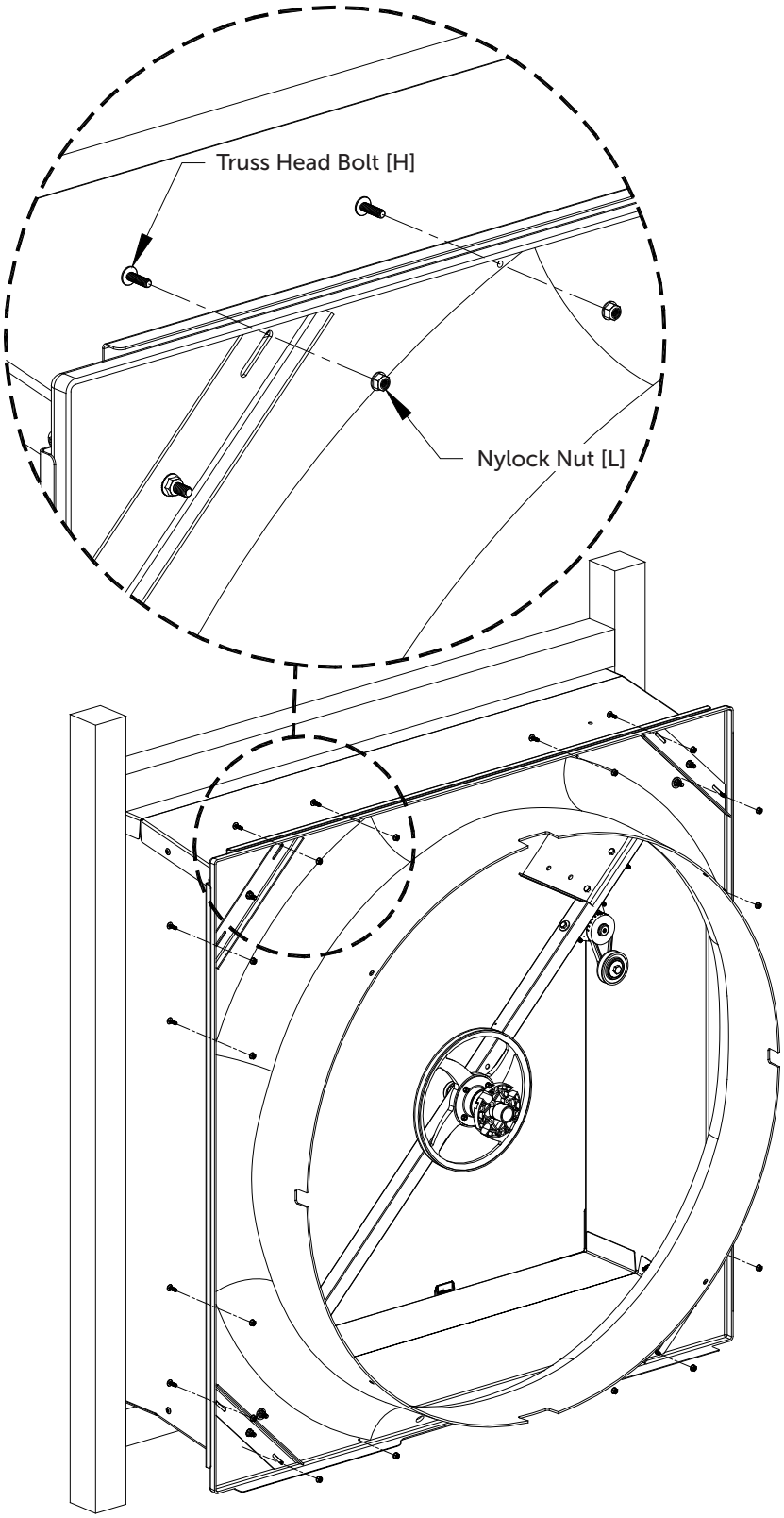


Figure 13B

2.4 Cone Installation

Step 14

Place all 4 Cone Sections [S] on a flat surface with tabs from one facing slots of the next. *See Figure 14A.* Curl up tab end of first cone section and insert tabs up into slots in the next cone section. A mallet may be needed to seat slots over tabs completely. *See Figure 14B.* Repeat this step until all 4 cone sections are connected and laying flat.

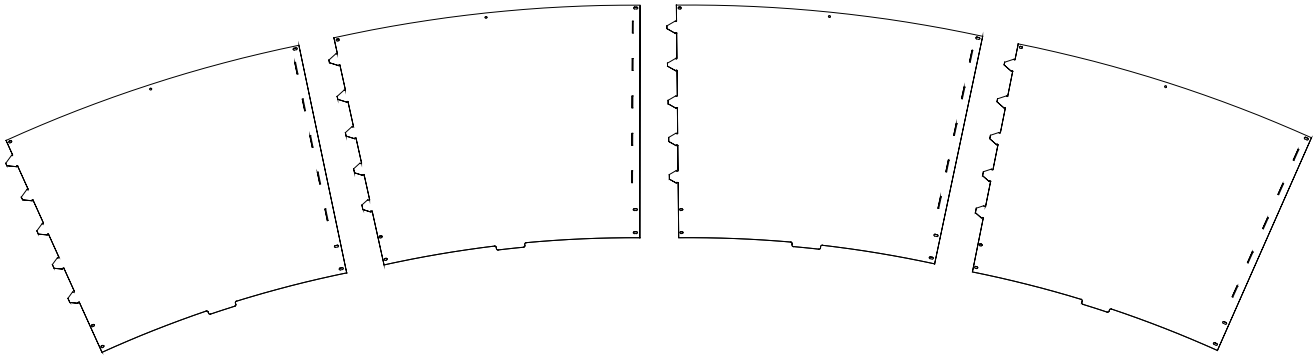


Figure 14A

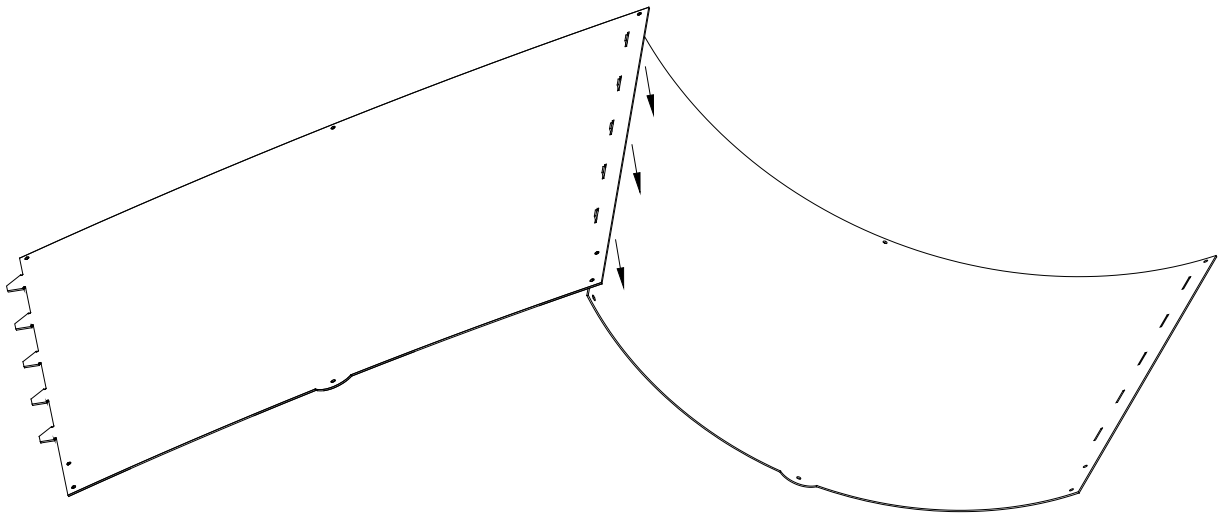


Figure 14B

Step 15A

Fasten each of the joints in the single outer hole using (1) Short Bolt [HH] and Nut [M], with the nut on the side with the tabs. At the inner pair of holes of each joint attach (1) Cone Support Bracket [Z] to the inner hole using (1) Bolt [HH] and Nut [M] with the bolt head on the side with the tabs. *See Figure 15A.*

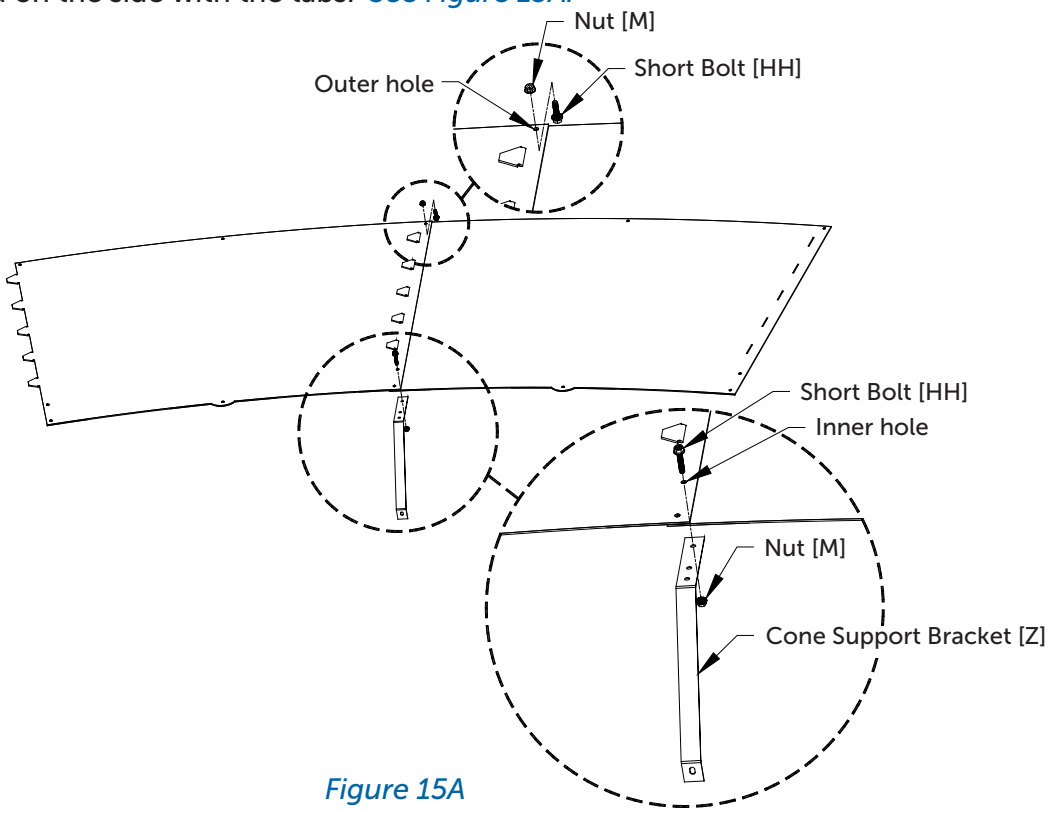


Figure 15A

Step 15B

Stand cone sections on end and curl ends around to form cone with Cone Support Bracket on outside and tabs on inside. Insert remaining tabs into slots so tabs are inside cone and fasten final joint using (1) Short Bolt [HH] and Nut [M], with nut on inside of cone. At the inner pair of holes attach (1) Cone Support Bracket [Z] to the inner hole using (1) Short Bolt [HH] and Nut [M] with bolt head on inside of cone. *See Figure 15B.*

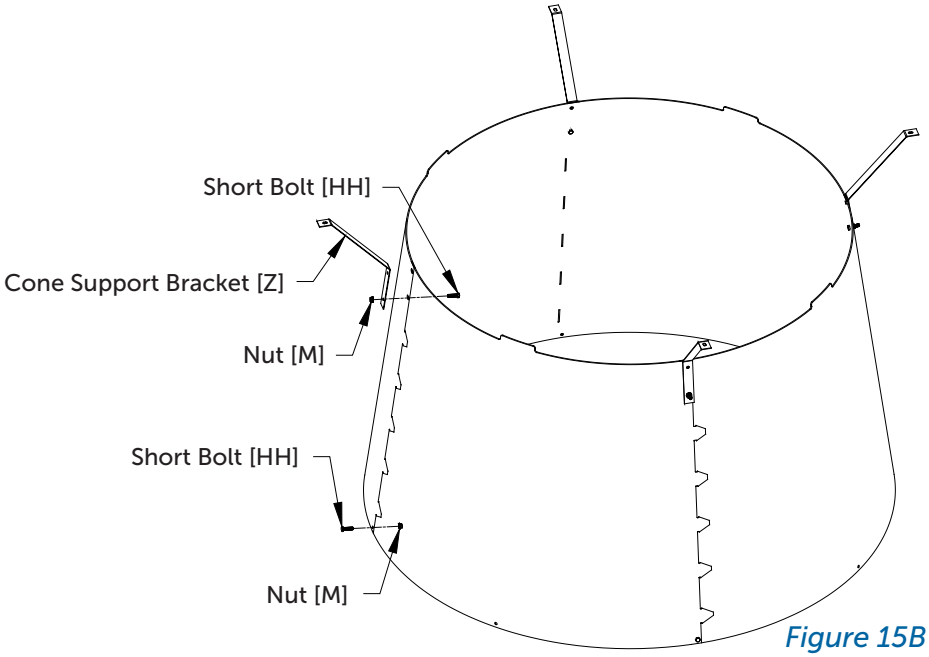


Figure 15B

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Step 16A

The tabs on each cone section will be placed a 12, 3, 6 and 9 o'clock on the orifice panel. Install cone onto fan by putting one of the cone section tabs over the top of the fan and then allow remainder of cone to slide over orifice panel making sure cone support brackets remain on outside of cone. *See Figure 16A.*

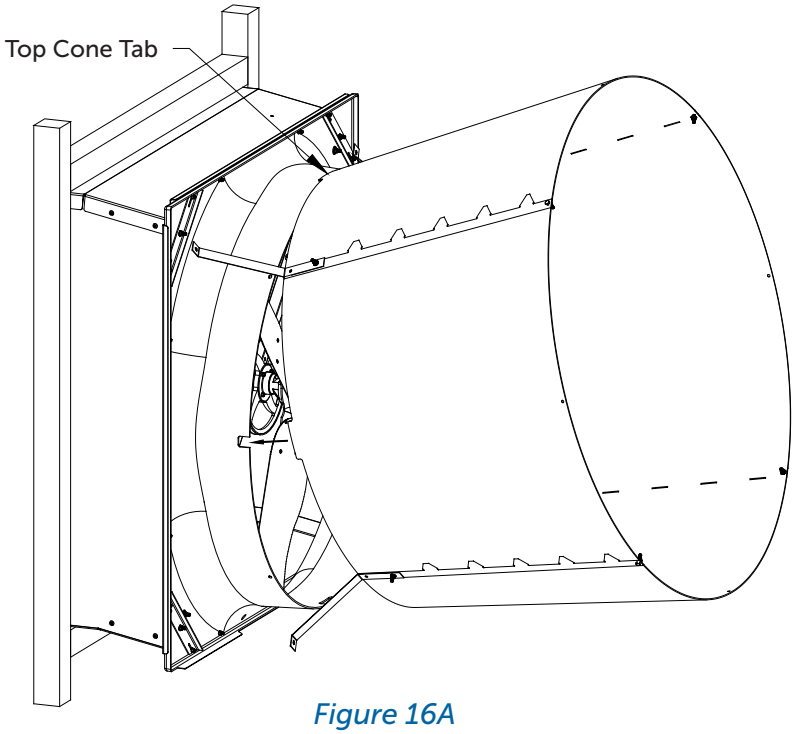


Figure 16A

Step 16B

Place end of Cone Support Bracket with slot over bolt holding Cone/Strut Mounting Bracket to the orifice and secure with Nut [M]. *See Figure 16B.* Secure Cone to Fan installing Medium Bolt [J] through the remaining hole in the Cone Support Bracket and fasten with Nut [M]. A long screwdriver may be needed to help align the holes through Cone Support Bracket, Cone, and Orifice. Repeat process for all 4 Cone Support Brackets. *See Figure 16B.*

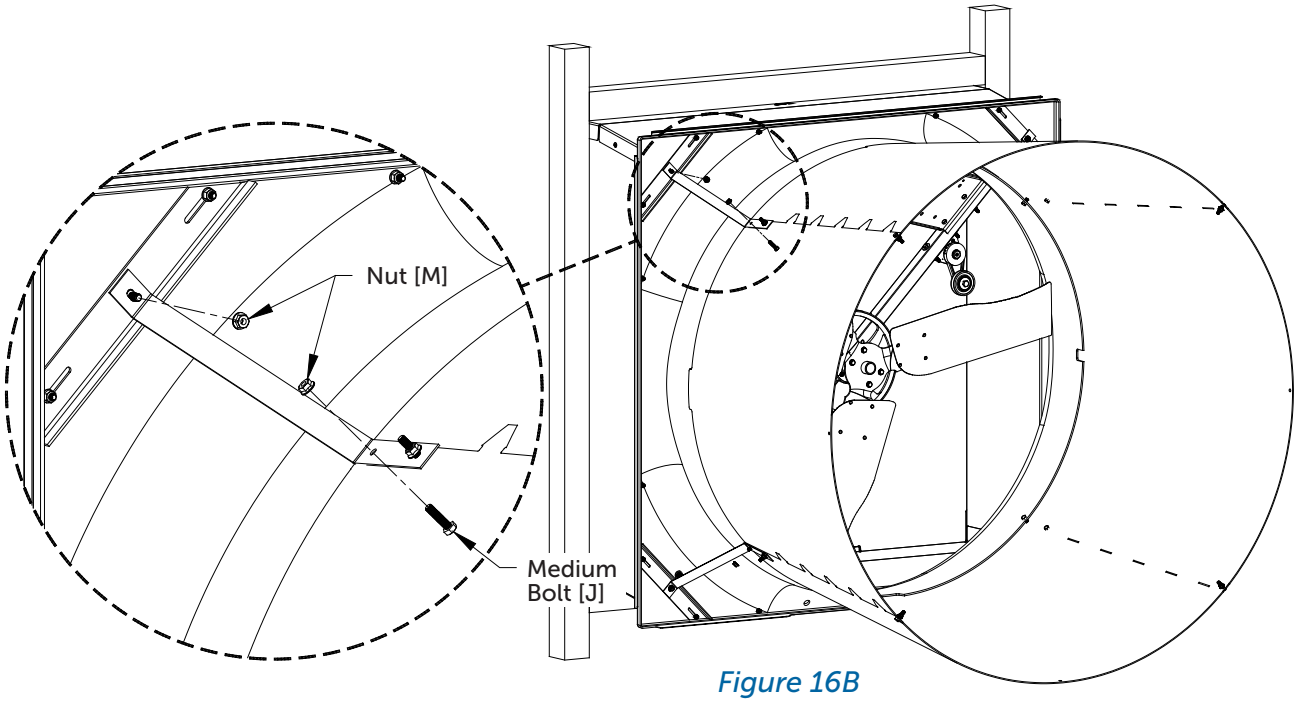


Figure 16B

Step 17

Insert guard into cone with the eyelets facing you. Install eyelets over bolts already installed in cone and fasten with Nut [M]. Secure remaining eyelets using Short Bolt [HH] and Nut [M]. *See Figure 17.*

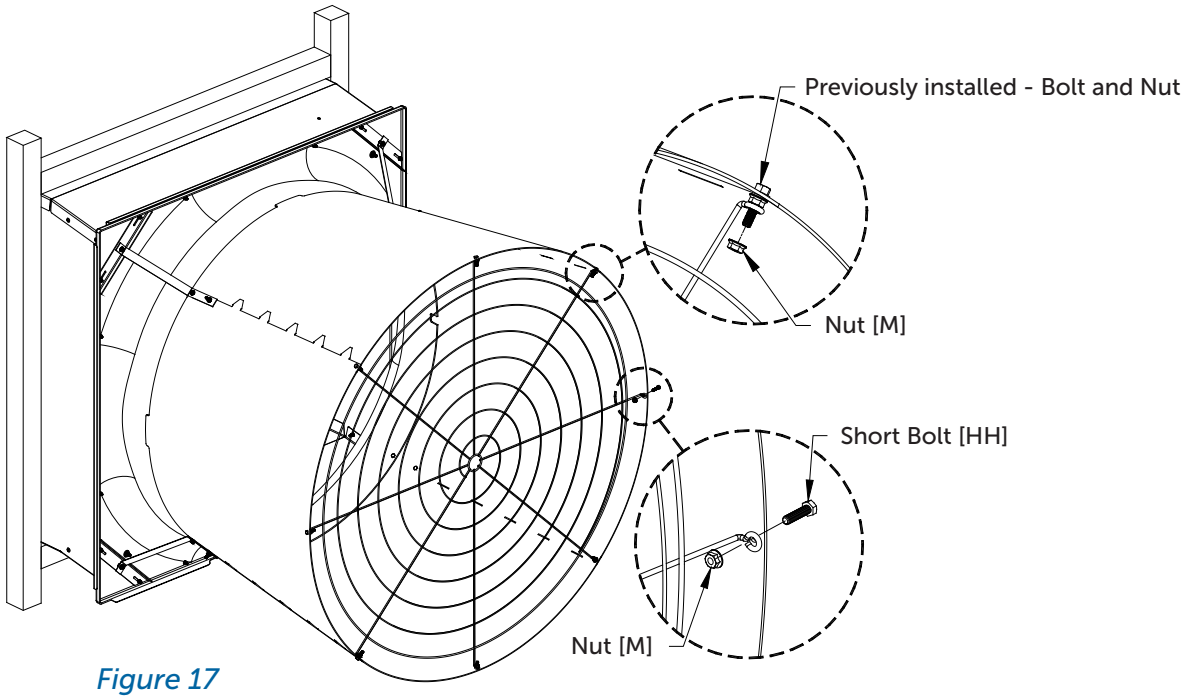


Figure 17

Step 18

If Fans are to be installed 62" O.C., cut the 3 o'clock and 9 o'clock guard wire in the position shown. Push the side of the cone in as far as possible and fasten the cut guard wire to the attached guard wire using Clamp. *See Figure 18.*

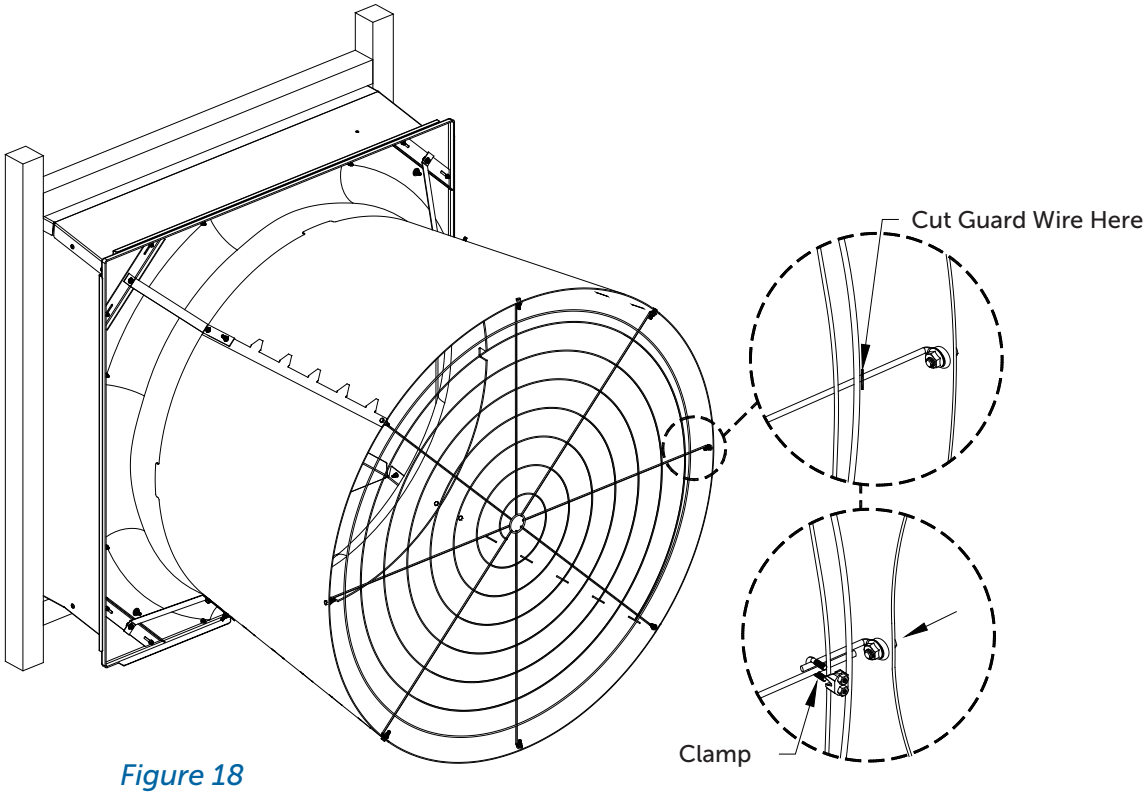
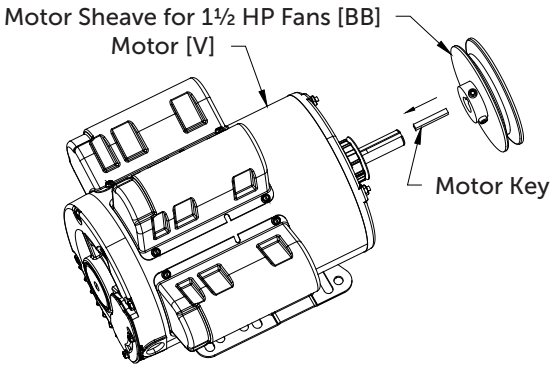


Figure 18

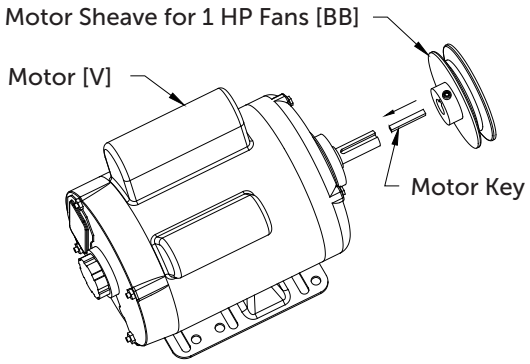
2.5 Motor Mounting

Step 19

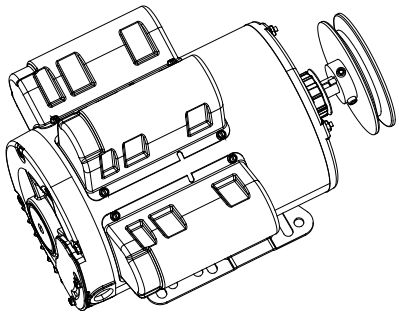
Find the Key provided with the Motor [V] and place it in the Keyway on the motor shaft. Place the Motor Sheave [BB] on the Motor shaft with the hub facing towards the motor. *See Figure 19.* ONLY tighten the set screw(s) enough to hold the Sheave in place at this time. The Motor Sheave for 1 HP fans will have one set screw and the Motor Sheave for 1½ HP fans will have two set screws.



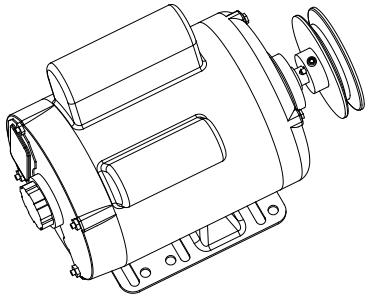
1½ HP Motor with 2 Set Screw Sheave



1 HP Motor with 1 Set Screw Sheave



1½ HP Motor with 2 Set Screw Sheave



1 HP Motor with 1 Set Screw Sheave

Note:
When wiring motor, check rotation of propeller. Internal wiring of motor may need to be changed to assure proper rotation of propeller.

Figure 19

Step 20

Set Motor [V] on Motor Bracket [CC] so Motor base rests against lower Motor Bracket flange. Align middle and front slots in Motor base with holes in Motor Bracket. *See Figure 20.*

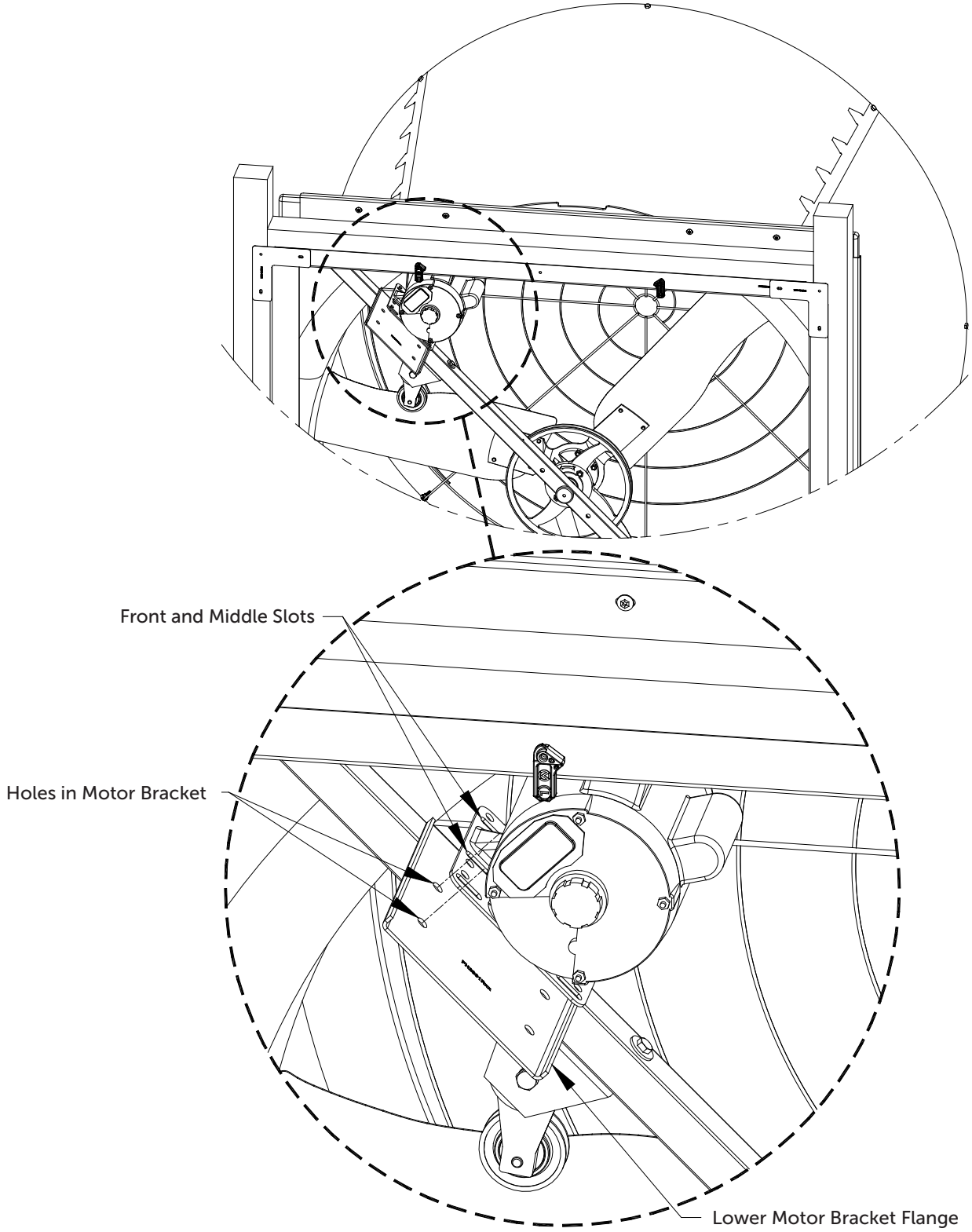


Figure 20

Step 21

Secure Motor to Motor Bracket and Motor Bracket Stiffener [GG] using (4) Short Bolts [HH] and Nuts [M]. The rear upper bolt is where Motor Bracket Stiffener [GG] is attached and use the hole indicated below on the Motor Bracket Stiffener for the WM54. *See Figure 21.*

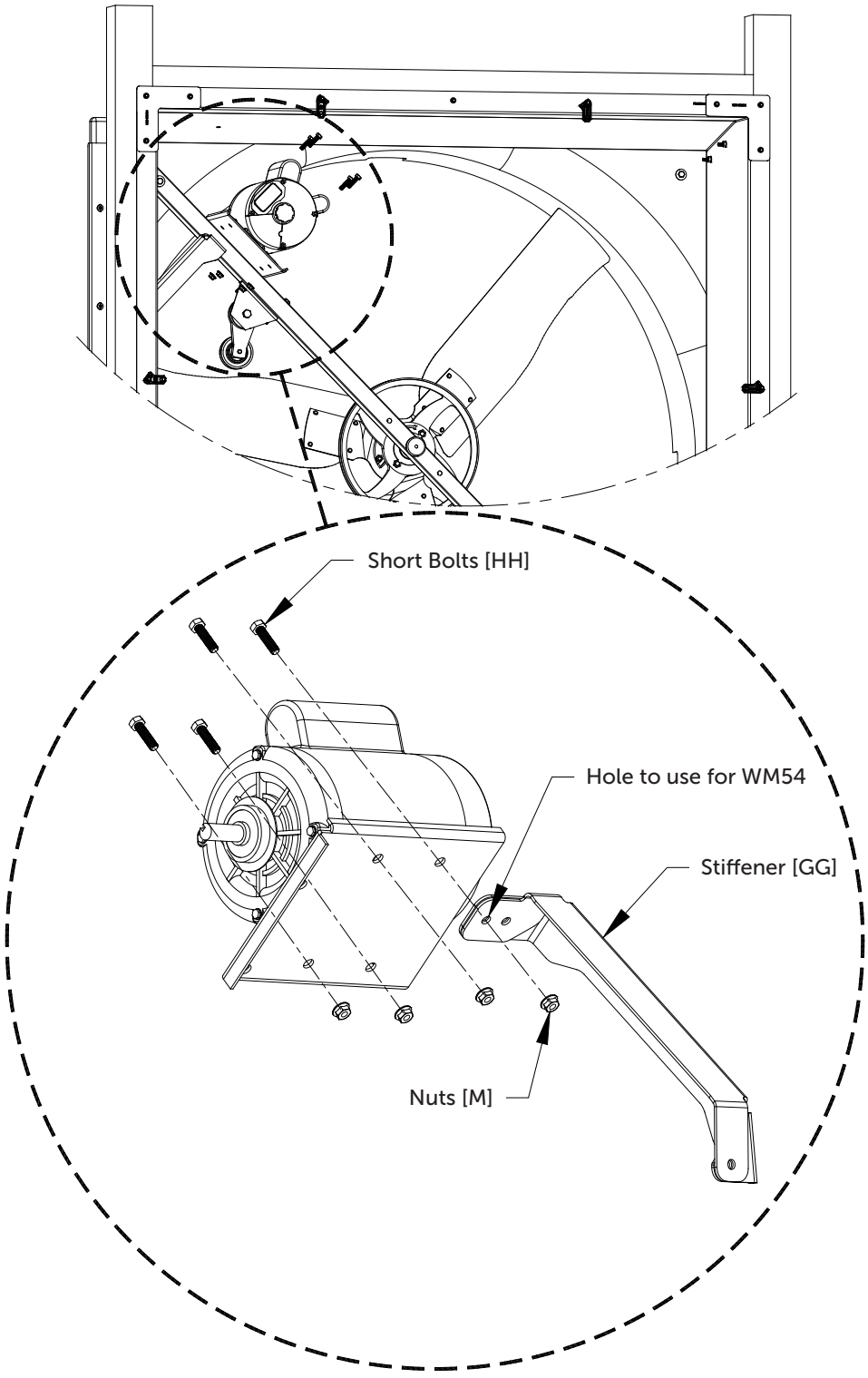


Figure 21

Step 22

Attach Motor Siffener Bracket [GG] to framing using (1) Lag Bolt [ZZ] or (1) Bolt [J], Washer [N] and Nut [M] if the lag screw will not go into the framing. *See Figure 22.*

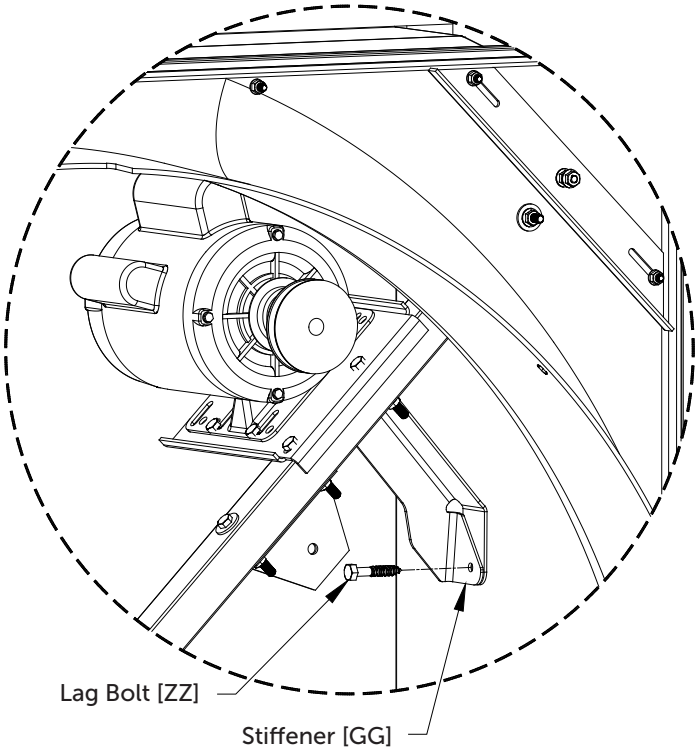


Figure 22

Step 23

Use a straight edge or level to check alignment of Propeller Sheave, Tensioner Pulley and Motor Sheave. If needed, adjust position of Motor Sheave so the 3 pulleys line up. Once Motor Sheave is aligned tighten the set screw(s) to 150 in-lbs [17 N-m] torque. *See Figure 23.* The Motor Sheave for 1 HP fans will have one set screw and the Motor Sheave for 1½ HP fans will have two set screws.

NOTE:
Motor Sheave set screws must be tightened to proper torque at this time. Failure to do so will result in damage to fan and will not be covered under warranty.

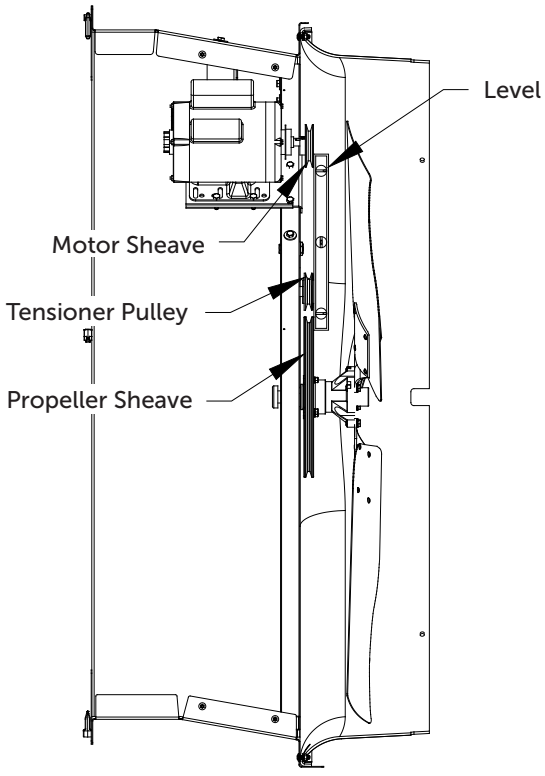


Figure 23

Step 24A

Slide V-belt [AA] over Propeller and install by wrapping it around the 2 smaller pulleys and starting it over larger Sheave. Continue rolling it onto the larger Sheave until it fits into groove. *See Figure 24A.*

If desired the 2 drain holes in the Orifice Panel can be plugged using (2) Hole Plugs [NN].

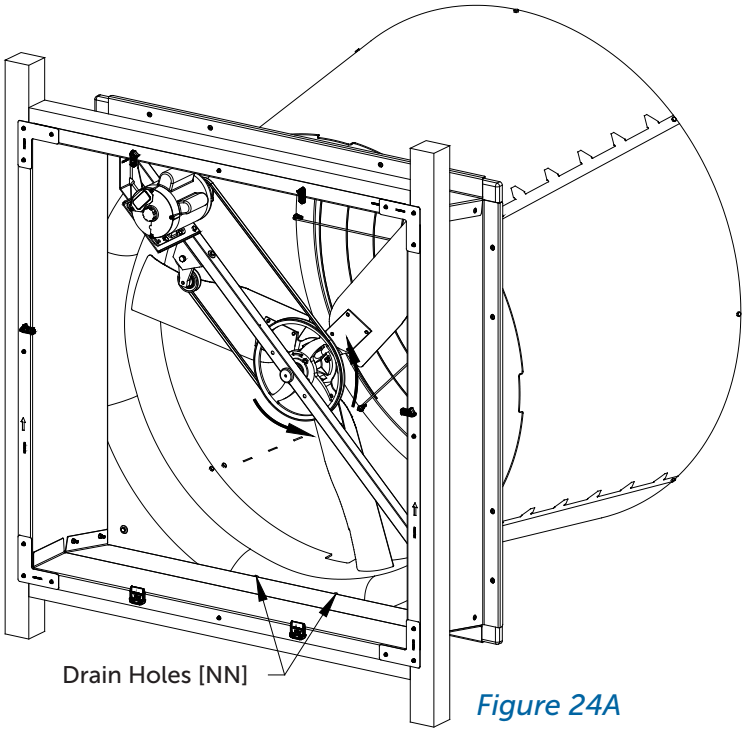


Figure 24A

Step 24B

To adjust belt tensioner to proper setting, loosen 10 mm bolt (using 17mm end wrench) to allow tensioner arm to rotate. Working from inlet/motor side of fan, place a 27 mm (1$\frac{1}{16}$") wrench onto the hex on the tensioner. Turn wrench clockwise until the single mark on base of belt tensioner is aligned with Mark 2 on tensioner arm. Hold tensioner at this setting and tighten the 10mm bolt to 40 ft.-lbs [54 N-m] torque. *See Figure 24B.*

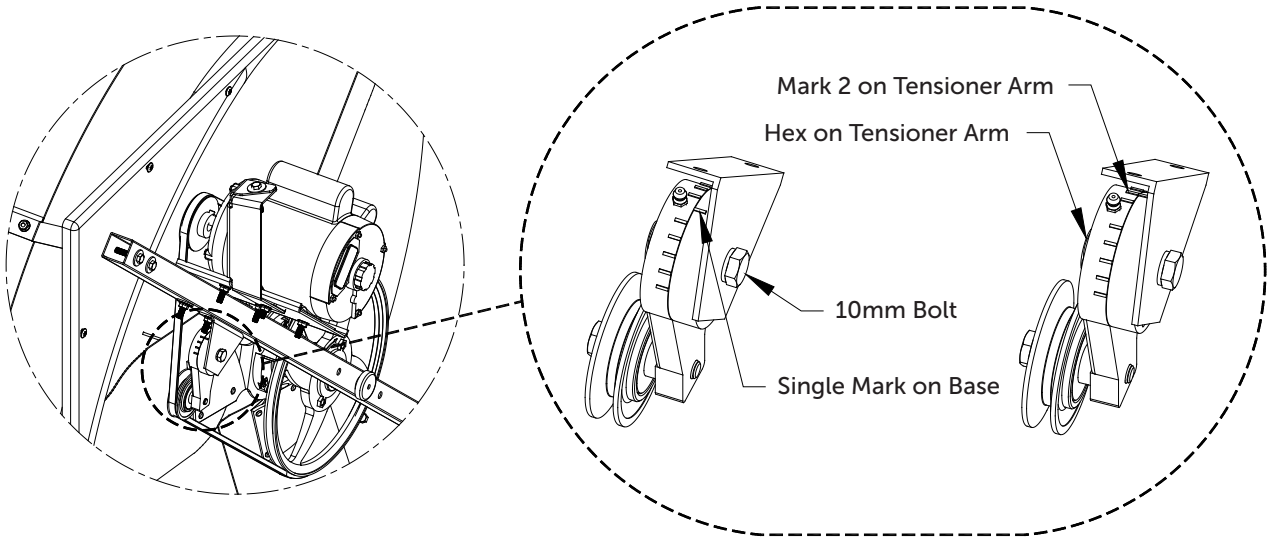


Figure 24B

2.6 Shutter Installation

Step 25

Insert PWM54 Shutter [U] into fan by sliding the bottom flange of shutter into bottom shutter clips and pressing the shutter inward, *See Figure 25A.* Fasten shutter in place by rotating the side and top shutter clips over the shutter flanges, *See Figure 25B.*

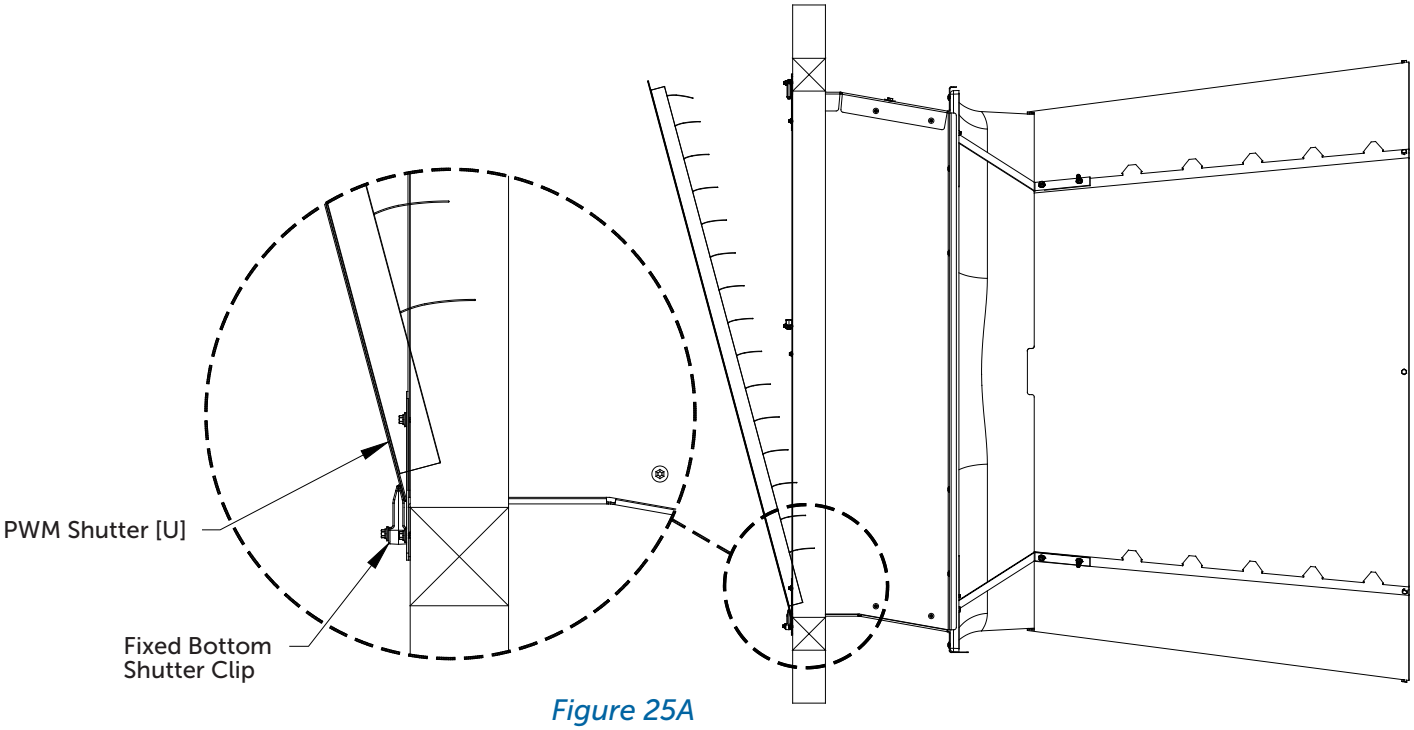


Figure 25A

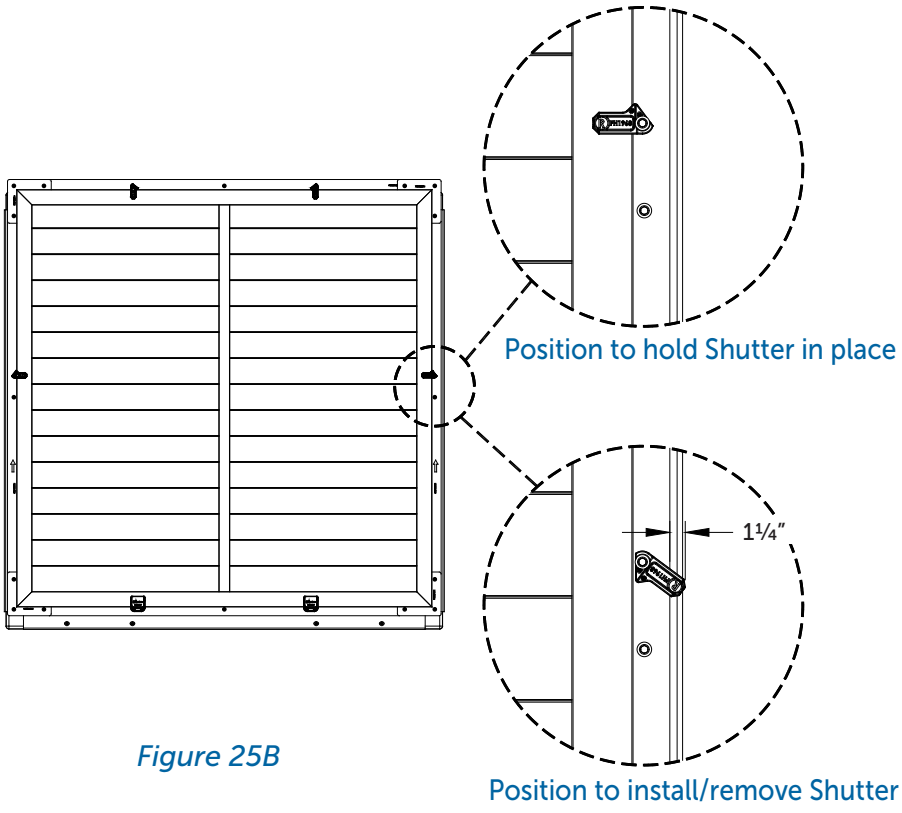


Figure 25B

Electrical Wiring

3.

All wiring should be installed in accordance with National, State, and Local electrical codes. Fans used to ventilate livestock buildings or other rooms where continuous air movement is essential should be connected to individual electrical circuits, with a minimum of two circuits per room. For electrical connection requirements, refer to diagram on motor nameplate and to information enclosed with the Munters environmental control to be used. After wiring check for proper motor rotation.

Single Phase Fans: motor overload protection should be provided for each fan. A Circuit Breaker Switch or slow blow motor type fuses must be used, *See Figure 26A. See form QM1400 for proper size*.

Three Phase Fans: motor overload protection should be provided for each fan. A three-pole motor starter or slow blow motor fuses must be used. *See Figure 26B*.

If a frequency drive (inverter) is used, confirm that motors are rated for inverter duty at the voltage used. Shielded power cable between frequency drive and each motor is highly recommneded. Installation of line reactors is recommended to reduce voltage spikes and harmonic distortion. Supplemental motor overload protection is also recommended.

NOTE: A safety cut-off switch should be located adjacent to each fan.

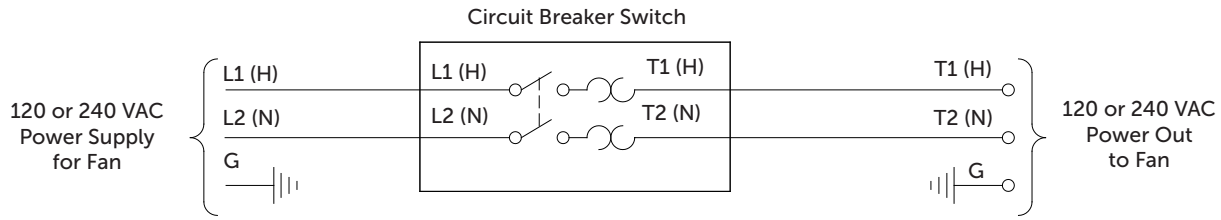


Figure 26A
Single Phase - Motor Overload Protection with Disconnect (SY2000 or Equivalent)

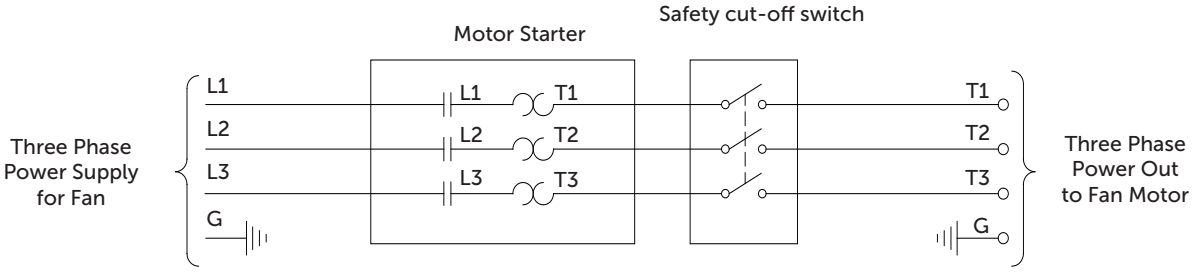


Figure 26B
Three Phase - Motor Overload Protection with Disconnect

KEY:
L1=Line 1
L2=Line 2
L3=Line 3
H=Hot
N=Neutral
G=Ground

NOTE: Information in parenthesis refers to 120 VAC control.

3.1 Recommended wiring

Step 27

As the power cable exits the back of the motor form a drip loop and then run cable to power source. *See Figure 27.*

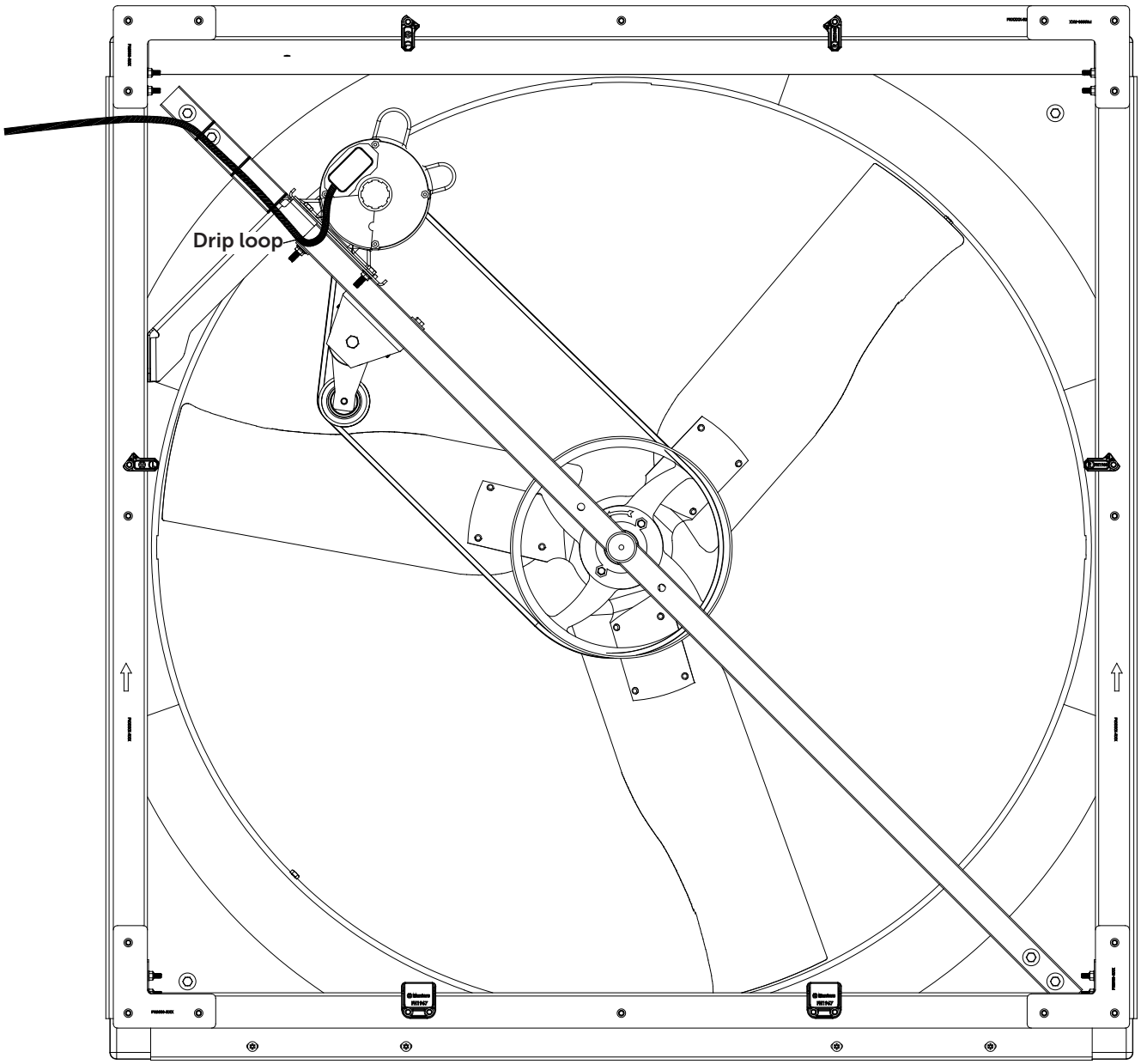


Figure 27

Operation

4.

4. Operation

1) *INITIAL START-UP:* With electrical power off, verify that the fan propeller turns freely and that all fasteners are secure. Turn on electrical power and confirm that the fan operates smoothly.

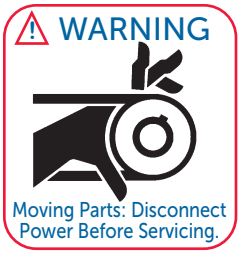
2) *ADJUSTMENTS*: Set fan control to temperature shown on your Aerotech ventilation system drawing, or to a value which will provide the desired environmental conditions.

Single Phase Fans: Single phase fans are designed for single speed operation only.

Three Phase Fans: If a frequency drive is used, the minimum operating frequency is 30 Hz.









Maintenance

5.

5. Maintenance

The following inspection and cleaning procedures should be performed monthly:

Tools Needed for Maintenance:
wrenches: 10mm, 13mm, 17mm, 27mm, ½", 6mm Hex









1) *INSPECT PROPELLER*: Check that propeller is secure on drive hub and that
there are no signs of damage. The blades are of a self-cleaning design and should
not require maintenance.

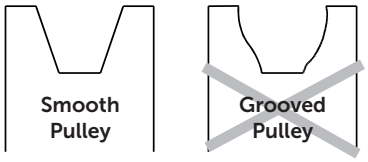
2) *CLEAN* regularly for best results:
   - *FAN MOTOR:* Remove any dust accumulation from motor using a brush or cloth. (DO NOT use a pressure washer). A clean motor will run cooler and last longer. At the same time, verify that the motor is secure in its mount.
   - *SHUTTER:* Carefully clean dust from shutter blades and frame so that shutter opens and closes freely. A brush or cloth should be used.
   - *GUARD:* Clean any dust or feathers from fan guards using a brush. Dirty guards can reduce airflow.

3) *CHECK FASTENERS:* For safety, all fasteners should be inspected 1 month after initial operation and yearly thereafter. Tighten any loose connections.

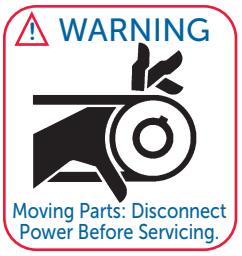
4) *INSPECT FAN CONTROL:* With power disconnected, inspect all electrical connections. Wiring should be secure and in good condition. Remove any dust build-up from control case and sensor using a soft brush or cloth.

NEVER CLEAN ELECTRICAL EQUIPMENT WITH A PRESSURE WASHER!

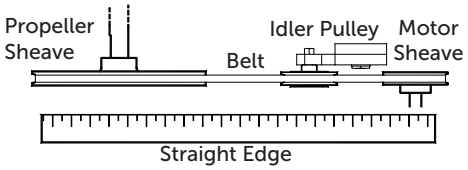
5) *CHECKING PULLEYS:* Roll the belt off and look at all pulleys. If a pulley has grooves in it or is no longer smooth, it needs replacement. A loose or slipping belt will reduce fan performance up to 60% and cause premature belt failure.



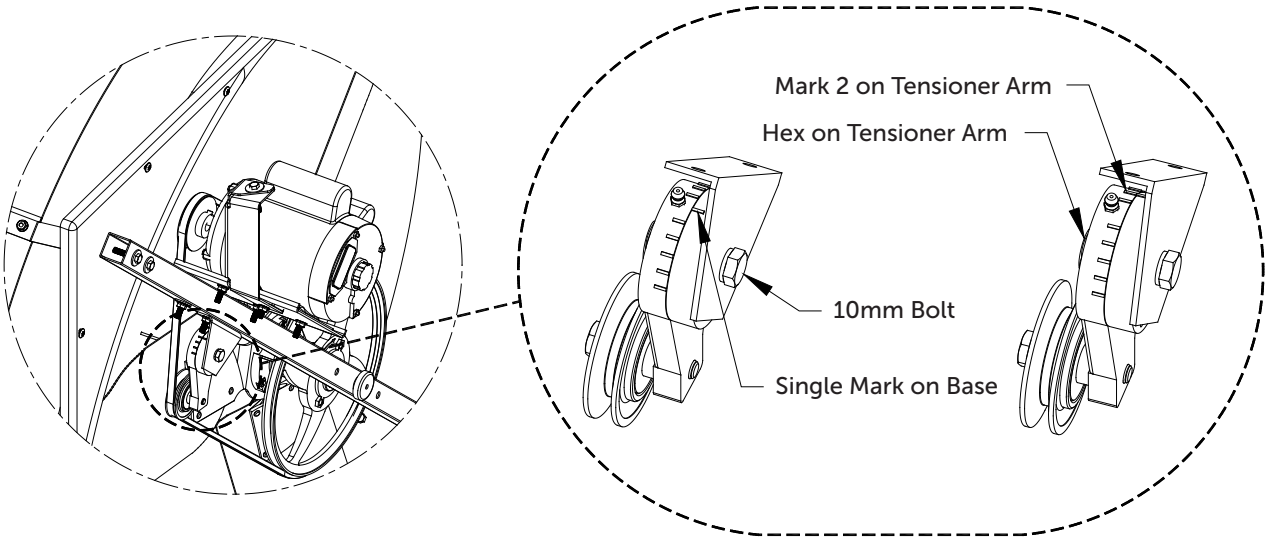




6) *CHECK DRIVE ALIGNMENT:* Check alignment of belt on idler pulley, it should be centered on the idler pulley. The belt tensioner idler pulley and propeller sheave are fixed in position, therefore, alignment must be obtained by adjusting the motor sheave. If an adjustment is needed, remove the belt, then loosen the set screws in the sheave and move as necessary to achieve proper alignment. Remember to tighten the set screws after making an adjustment. Drive alignment is very important for long belt life and proper operation.



7) *BELT TIGHTENING:* To adjust belt tensioner to the proper setting, loosen 10 mm bolt (using 17mm end wrench) to allow tensioner arm to rotate. Working from inlet/motor side of fan, place a 27 mm (1$\frac{1}{16}$") wrench onto the hex on tensioner. Turn wrench clockwise until the single mark on base of belt tensioner is aligned with Mark 2 on tensioner arm. Hold tensioner at this setting and tighten 10mm bolt to 40 ft.-lbs [54 N-m] torque.



Winterizing

6.

6.1 Winterizing

In most climates, it is probable that the ventilation system will never need to operate at a total capacity during the colder winter months. Consequently, it is advisable to "winterize" those fans which will not be used in cold weather to avoid unnecessary heat loss and condensation.

To winterize, turn fan control "off". Install the insulated closure panel over the fan intake. If you don't have an insulated closure panel, a piece of rigid insulation material can be used. Remember the insulation panel must be removed before warmer weather returns.

NOTE: At least one single speed fan should be left uncovered and with power available to provide air movement in the event of variable speed control difficulties.

6.2 Winter Weather Protection

To prevent cone or fan damage from snow or ice sliding off building roof, weather protection must be provided. A weather shelter may be constructed to cover the entire fan, *See Figure 28,* or snow guards may be placed on the roof, *See Figure 29.*

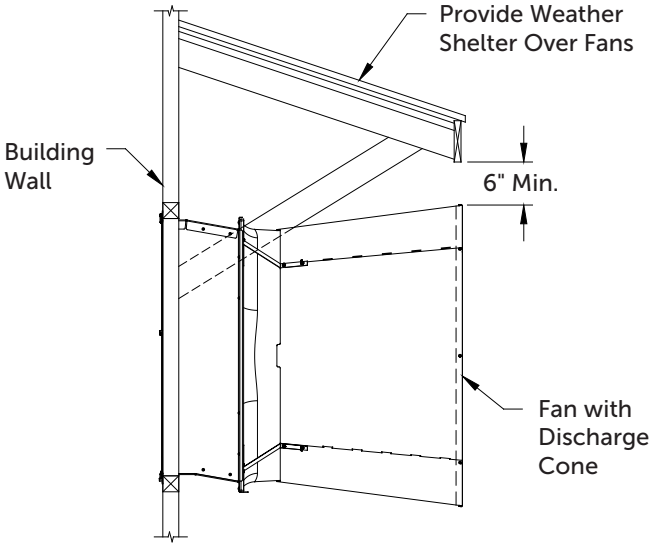


Figure 28

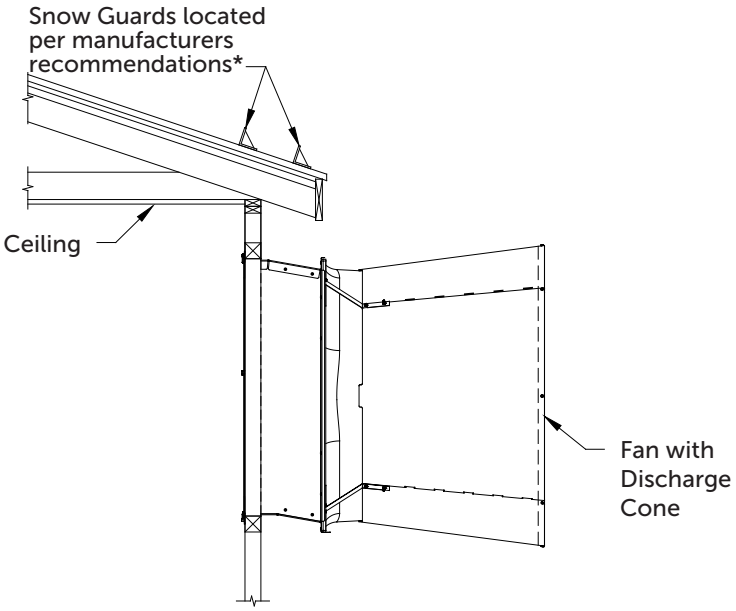


Figure 29

*Snow Guard Suppliers

Company Name	*Phone No.*	*Fax No.*	*Web Site*
Snojax, Inc.	800-766-5291	717-697-2452	www.snojax.com
Polar Blox	800-298-4328	814 629-9090	www.polarblox.com
LM Curbs	800-284-1412	903 759-3598	www.lmcurbs.com
Alpine Snow Guards	888-766-4273	888-766-9994	www.alpinesnowguards.com

⚠ IMPORTANT

Grain & Protein Technologies Product and System Warranties do not cover cone or fan damage from external sources.

Note: Snow guards are designed to prevent sudden, dangerous snow and ice slides when attached to the building roof according to manufacturers recommendations. The supplier listing above is given as a reference only. Grain & Protein Technologies does not endorse any specific snow guard product and no performance warranty is implied.

Troubleshooting

7.

7.1 Troubleshooting



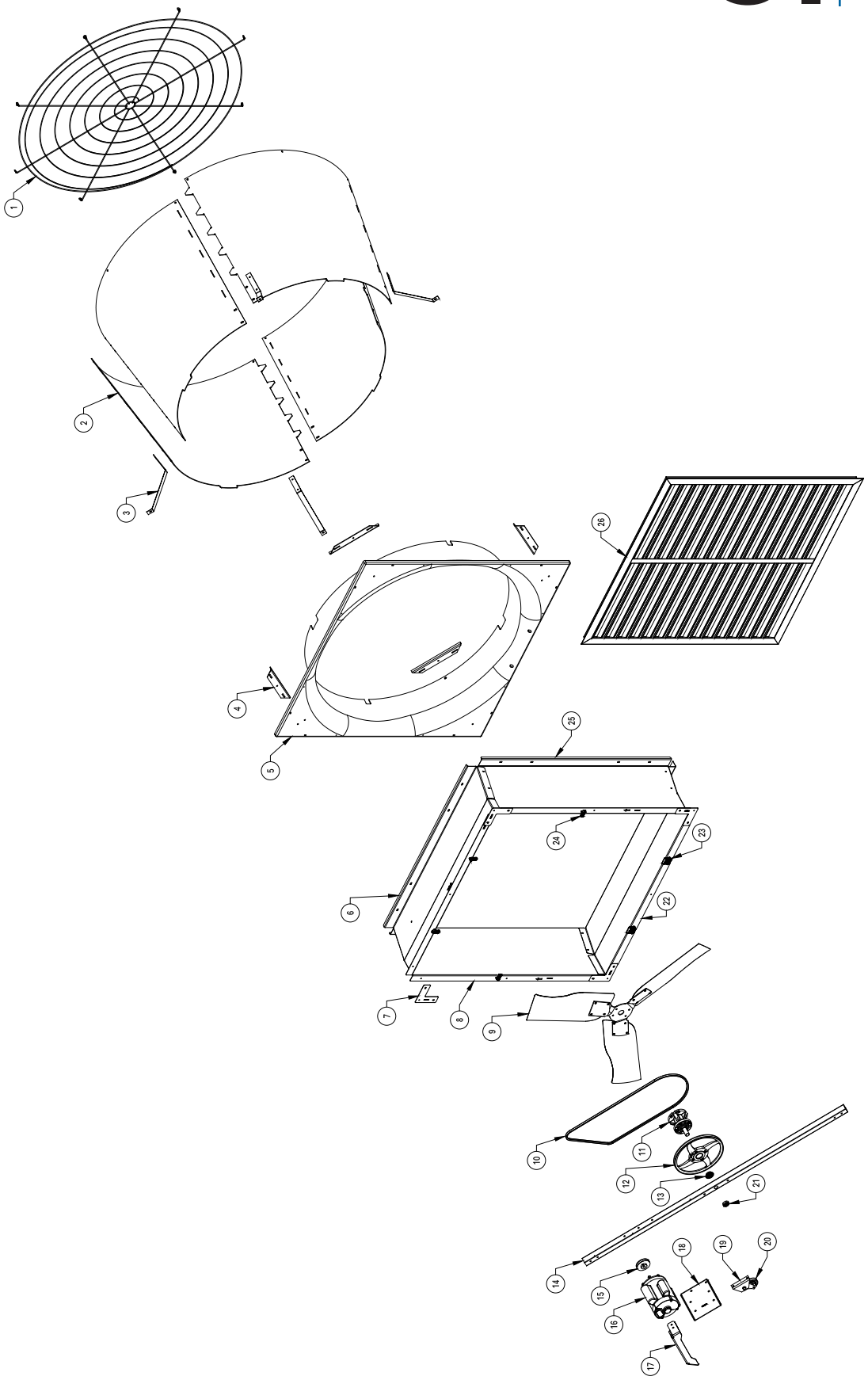




SYMPTOM	POSSIBLE CAUSES	CORRECTIVE ACTION
Fan Not Operating	1. Fan control set above room temperature 2. Blown fuse or open circuit breaker 3. Propeller blade contacting fan housing 4. Fan control defective 5. Motor defective	1. Set to a lower temperature 2. Replace fuse or reset breaker 3. Realign propeller in fan housing 4. Repair or replace control 5. Repair or replace motor
Fan Operating-Insufficient Airflow	1. Damper door jammed 2. Guard dirty	1. Clean damper door & fan housing 2. Clean guard
Excessive Noise	1. Propeller blade contacting fan housing	1. Sand fan housing to remove high spot
Excessive Vibration	1. Motor loose on mount 2. Propeller damaged 3. Motor or propeller shaft bent	1. Tighten fasteners 2. Replace propeller 3. Repair or replace motor or propeller shaft
Fan Never Turns Off	1. Override thermostat set incorrectly 2. Control set for continuous operation	1. Set to the correct temperature 2. Set control correctly

Exploded View

8.



QM1378r1

Item	Catalog No. WM54K-SF	Part Name/Description	Qty.
1	FH1454	Outlet Guard, Round, CTD BLK	1
2	FH4655	Discharge Cone Section, PL WHT	4
3	FH2431	Cone Support Bracket, PC type, GZ	4
4	FH1980	Cone/Strut Mounting Bracket, GZ	4
5	FH3654	Orifice Panel, FG	1
6	FH2322	Top Panel, WM54 Shutter Box, PWDCTD, BLK	1
7	FH2369	Corner Bracket, WM Shutter Box, PWDCTD, BLK	4
8	FH2320	LH Side Panel, WM54 Shutter Box, PWDCTD, BLK	1
9	FP2454	Prop Assembly, 3-Blade, GZ	1
10	various*	V-belt, A-section, Aramid Fiber	1
11	FP2060	Hub with Bearing and Shaft	1
12	FH2137	Propeller Sheave, AL	1
13	KX1130	Shaft Shield, AL	1
14	FH1675	Tube Strut, Center, PWDCTD	1
15	various*	Motor Sheave ⅝" bore with keyseat, CI	1
16	various*	Motor, 56 Frame	1
17	FH2895	Motor Bracket Support Stiffener, GZ	1
18	FH2831	Mounting Plate for NEMA 56 Motor, CTD-GZ	1
19	FH2505	Mounting Bracket for Belt Tensioner, CTD-GZ	1
20	FH2402K	Belt Tensioner Assembly with 3" Idler Pulley	1
	FH2406	3" Idler Pulley only, with Bolt	1
	FH2459	Tensioner Arm only, AL	1
21	KN1860	Hex Nut, M25x10mm, ZP	1
22	FH2323	Bottom Panel, WM54 Shutter Box, PWDCTD, BLK	1
23	FH1967	2-Hole Pivoting Shutter Clip, BLK PL	2
24	FH1968	1-Hole Pivoting Shutter Clip, BLK PL	4
25	FH2321	RH Side Panel, WM54 Shutter Box, PWDCTD, BLK	1
26	PWM54	Shutter, all plastic	1

* Parts listed are for specific fan configuration. Contact office for replacement part numbers for your fan configuration.

aerotech®

Aerotech WM54K Shutter Box Exhaust Fan is developed and produced by
GrainProteinTech Climate Control Air Treatment US, LLC.

2691 Ena Dr., Lansing, MI 48917 | 1-800-227-2376

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