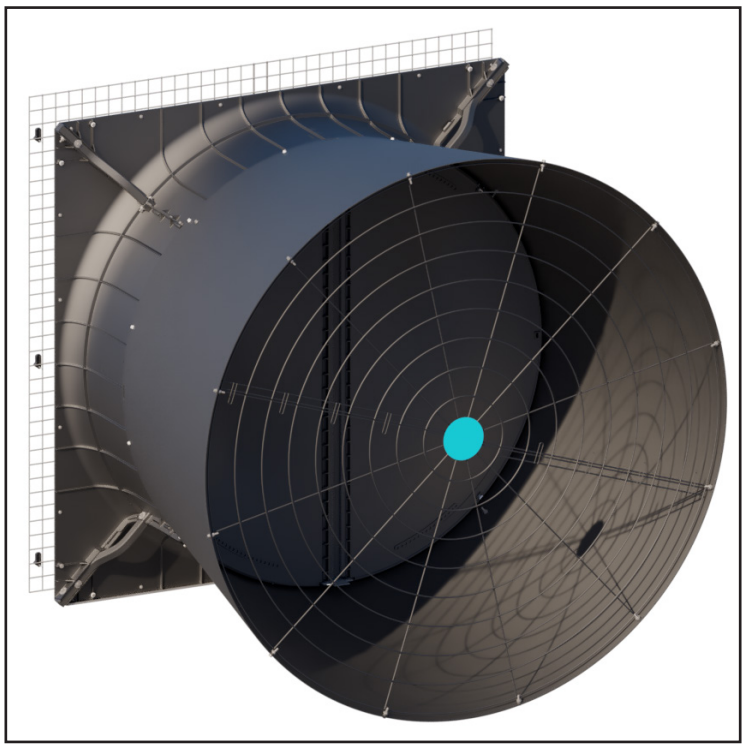
Saturn 60
Wall Mount Fan
with Damper Door
6-pack

Instruction Manual



Saturn 60 Wall Mount Fan

with Damper Door - 6 pack

Models: SAT6015P1CB-E-6PK • SAT6015P1CB-P-6PK
• SAT6015P3CB-E-6PK • SAT602P3CB-P-6PK

Munters

SAT60 Wall Mount Fan with Damper
Instructions for Use and Maintenance

Thank You:

Thank you for purchasing a Munters Wall Mount Fan with Damper. Munters 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 Munters 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 Munters Corporation office at 1-800-227-2376 or by e-mail at aghort.info@munters.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 Munters Corporation.
- 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.

Index

Unpacking the Equipment

1.

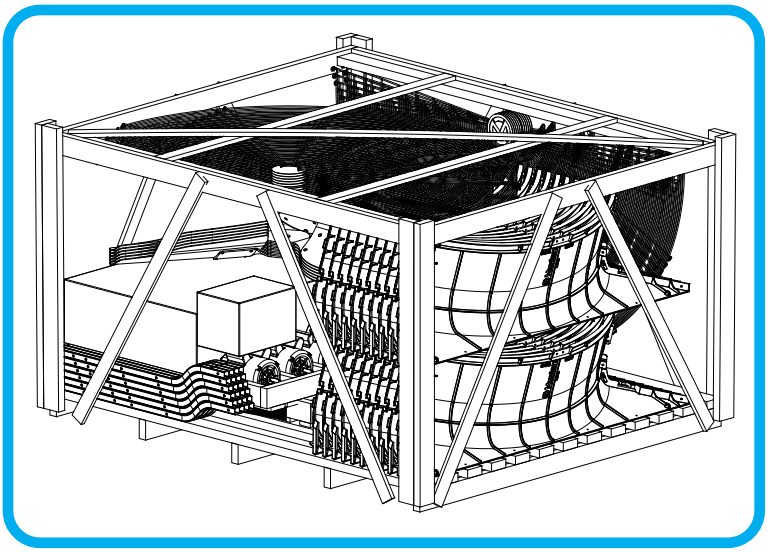
1.1 Parts List

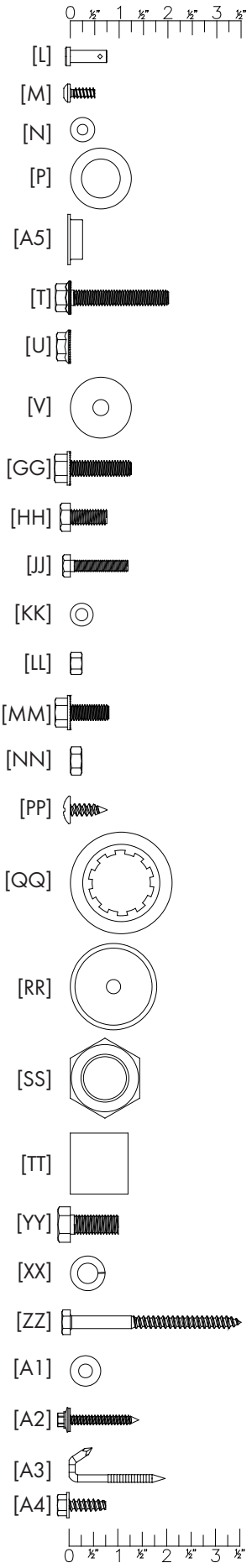
Each Crate Includes Parts to build 6 fans:
Each SAT60P/SAT60E Fan Requires:

ID	Qty.	Cat. No.	Description
[A]	4	FH6002	Orifice Panel Quarter, Black, PL
[B]	1	FP1060	Propeller, GZ
[C]	1	FM1046PE	Motor
[D]	1	FH6046	Drip Shield, AL
[E]	4	FH4670	Cone Sections, Black, PL
[F]	2	FH6045	Outlet Guard Half, CTD-Black
[G]	2	FH1352	Inlet Guard Half
	½	BH3601	Bulk Hardware Package (BH3601) - 2 Fans
	½	BH3602	Bulk Hardware Package (BH3602) - 2 Fans
	½	BK????/BK2165	Bulk Parts Pack (BK????/BK2165; -P/-E) - 2 Fans
BH3601 - ½ of Bulk Hardware Package needed for 1 - SAT60P Fan			
[H]	2	BP1060	One Half Butterfly Door Assembly, Black, PL
[J]	2	KA2260	Seal, 60" Saturn Damper Door, Flexible
[K]	2	FA2176	Deflector Wing, SAT60 Damper, BLK, PL
	1	HP2201	Hardware Package,Door Install, (HP2201)
[L]	4	KP1259	¼"D. x ¾"L. Clevis Pin, SS
[M]	4	KS2542	#10 x 1/2"L., T-25 Plastic Screw, ZP
[N]	4	KW3028	0.219"IDx0.500"ODx.046"T., Flat Washer, ZP
[P]	8	KW3030	0.800"IDx1.25"ODx.094"T., Flat Washer, NY
[A5]	4	KX1260	Sleave Bushing w/Flange,¾"ID, NY
[Q]	2	KX1469	Tensioner Spring, 11.0"L., C-Hooks, SS
BH3602 - ½ of Bulk Hardware Package needed for 1 - SAT60P Fan			
[R]	4	FH6071	Center Strut,SAT60,46.95"L., CTD-GZ
	1	HP2202	Hardware Package, Strut Install, (HP2202)
[S]	4	FH6050	Strut End Plug, Black, PL
[T]	8	KS0792	5⁄16"-18 x 2" SRTD HX Flange Bolt, SS
[U]	8	KN0704	5⁄16"-18 SRTD HX Flange Nut, SS
[V]	16	KW3055	5⁄16" x 0.875"OD Flat Washer, SS
BK????/BK2165 - ½ of Bulk Parts Package needed for 1 - SAT60 -P/-E Fan			
[W]	2	FH6070	Center Plate, CTD-GZ
[X]	1	FP2060	Hub with Bearing and Shaft
[Y]	1	FH2137	Prop Sheave, AL
[AA]	1	FH1533/FH1532	V-Belt, A-Section, -P/-E
[BB]	1	FH2019/FH2029	Motor Sheave, -P/-E, CI
[CC]	1	FH2505	Mounting Bracket for Belt Tensioner, CTD-GZ
[DD]	1	FH2831	Motor Mount Plate, CTD-GZ
[EE]	1	FH2855	Motor Mount Stiffener Bracket, CTD-GZ
[FF]	1	FH2413	Tensioner Arm/5" Pulley, Assembly
	1	HP2203	Hardware Package, Main Assembly, (HP2203)
[GG]	8	KS0780	5⁄16"-18 x 1.25" SRTD HX Flange Screw, SS
[HH]	4	KS1016	5⁄16"-18 x ¾" Hex Bolt, SS
[T]	8	KS0792	5⁄16"-18 x 2" SRTD HX Flange Bolt, SS
[U]	20	KN0704	5⁄16"-18 SRTD HX Flange Nut, SS
[V]	20	KW3055	5⁄16" x 0.875"OD Flat Washer, SS
HP2203 - continued on next page			

HP2203 – continued

ID	Qty.	Cat. No.	Description
[JJ]	4	KS1926	M6-1.0 x 30mm Hex Bolt, ZP
[KK]	4	KW4901	M6 x 12mm Flat Washer, ZP
[LL]	4	KN1855	M6-1.0 x 6mm Hex Nut, ZP
[MM]	4	KS1959	M8-1.25 x 20mm, SRRTD HX, Bolt, ZP
[NN]	4	KN1849	M8-1.25 x 8mm Hex Nut, ZP
[PP]	1	KS1901	6.3mm x 19mm Tapping Screw, ZP
[QQ]	1	KX1130	Shaft Shield for Prop Sheave, AL
[RR]	1	KX1208	40mm Cover Cap, Black PL
[SS]	1	KN1860	M25-2.0 x 10mm Hex Nut, ZP
[TT]	1	KX1367	Center Hub Spacer, 60" Saturn, SS
[UU]	4	KX1362	Strike Plate, GZ
[VV]	2	KX1363	Strike Plate, 2.625"L., GZ
[WW]	2	KX1384	Hinge Plate, .75"D, SAT60, Black, PL
	1	HP2260	Hardware Package, Belt-Drv 6PK, (HP2260)
[GG]		KS0780	5⁄16"-18 x 1.25" SRTD HX Flange Screw, SS
[T]		KS0792	5⁄16"-18 x 2" SRTD HX Flange Bolt, SS
[U]		KN0704	5⁄16"-18 SRTD HX Flange Nut, SS
[V]		KW3055	5⁄16" x 0.875"OD Flat Washer, SS
[YY]		KS1931	M10-1.5 x 25mm Hex Bolt, ZP
[XX]		KW3509	10mm Splitlock Washer, ZP
	1	HP2031	Hardware Package, Install Fasteners, (HP2031)
[ZZ]	9	KS2467	¼" x 3.5" HEX Lag Screw, ZP
[A1]	8	KW3001	¼" Type-A Narrow Flat Washer, ZP
[A2]	19	KS1402	#9-15 x 1½" Seal Washer Polebarn Screw, ZP
[A3]	12	KX1095	1.75" L. x .5" One-Legged J-Nail, GZ
	1	HP2032	Hardware Package, Cone and Guard, (HP2032)
[GG]	26	KS0780	5⁄16"-18 x 1.25" SRTD HX Flange Screw, SS
[U]	26	KN0704	5⁄16"-18 SRTD HX Flange Nut, SS
[A4]	12	KS2540	¼"-10 x ¾" HX Thread Forming Screw, ZP



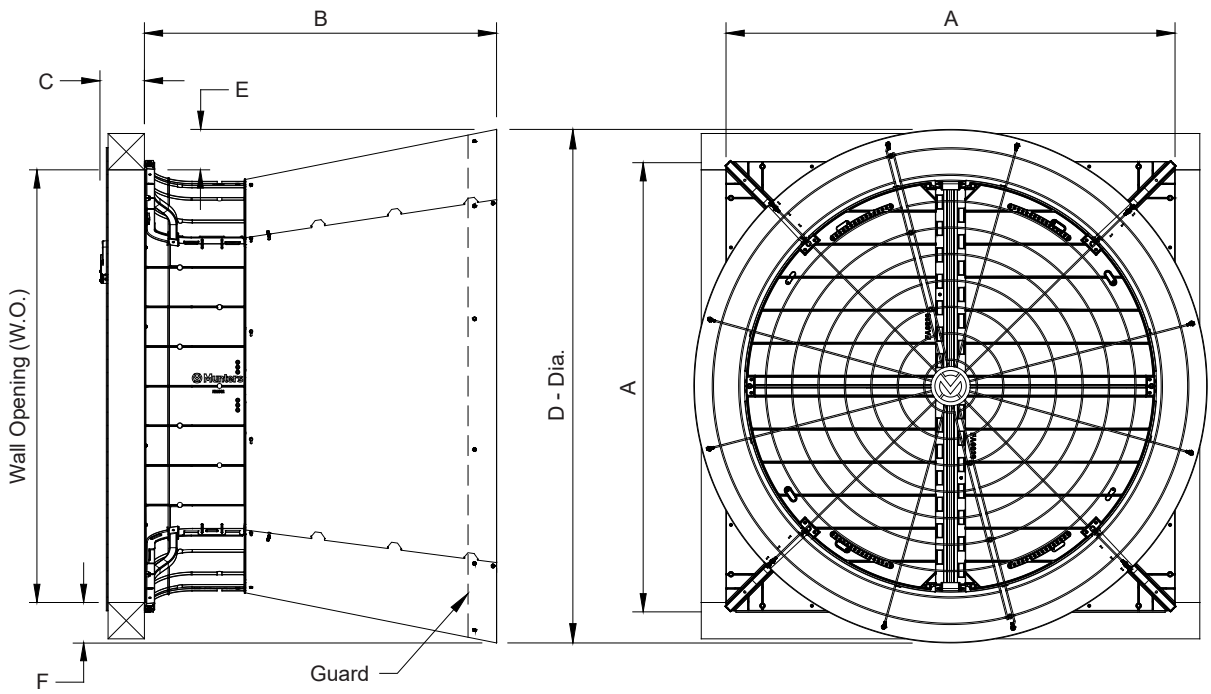


1.2 Fan dimensions

Fan Specifications: 60Hz shown (50Hz available)

Power: 208/230 VAC

Phase: 1



Dimensions:

Size	A	B	C	D - Dia.	E (Above W.O.)	F (Below W.O.)	Wall Openings (W.O.
60″	68″ W. x 68″ H.	53⅜″	6¾″	77¾″	6⅛″	6⁵⁄₁₆″	65½″W. x 65½″H.

1.3 Tools required for installation

10mm [⅜″] Socket
13mm [½″] Socket
17mm [¹¹⁄₁₆″] Socket
27mm [1 ⁱ⁄₁₆″] Wrench
36mm Socket
Torque Wrench
⁵⁄₁₆″ Socket or Wrench
⅜″ Socket
Phillips Screwdriver, #3 Size
T-25 Torx Bit Screwdriver
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.* When installing exterior sheet metal before fan, leave 2" of the framing exposed on all sides so the orifice can mount flush to the frame.

Chart A

Fan Dia.	Wall Opening (W. x H.)	Minimum Spacing 'Z'	Center To Center Dimension
60"	65½" W. x 65½" H.	18"	80" Minimum

Note:
Damper doors should be carefully set aside out of direct sunlight until needed.

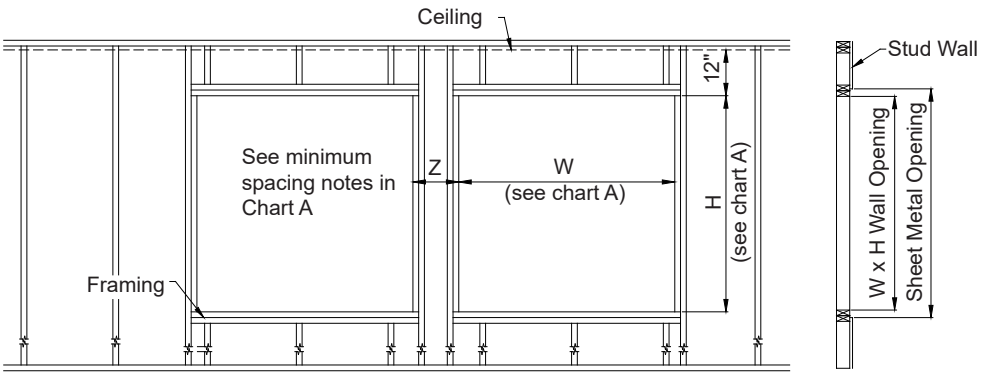
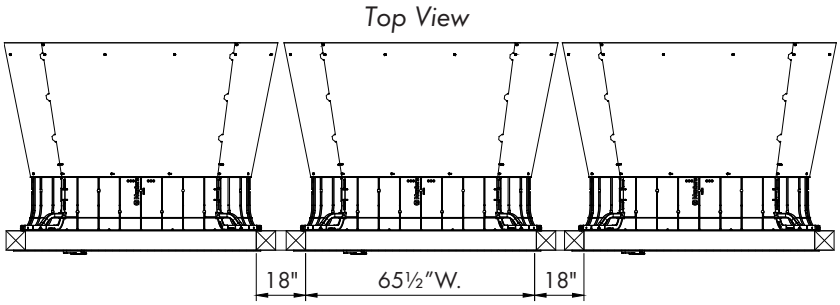


Figure 1A Frame Construction



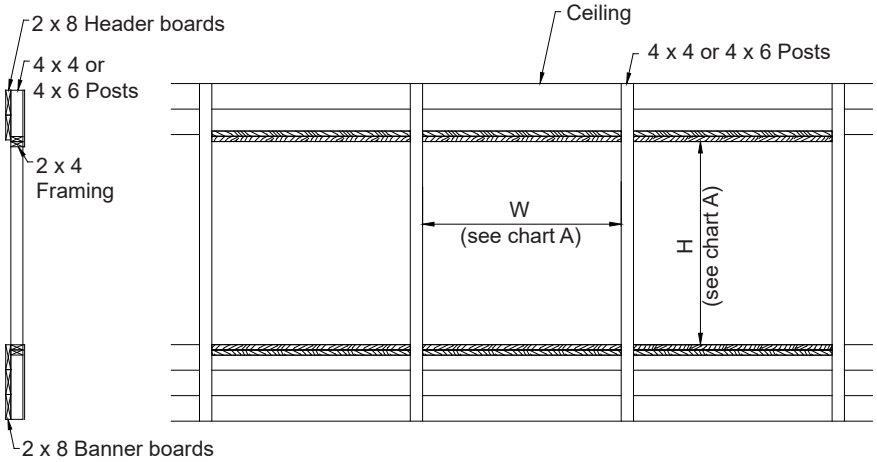


Figure 1B 4 x 4 Post Construction - Elevation View

2.2 Fan Assembly

Step 2

Take (2) Orifice Quarter Sections [A] and snap the ends together. *See Figure 2.* Repeat with the remaining Quarter Sections until there is a complete Orifice Panel.

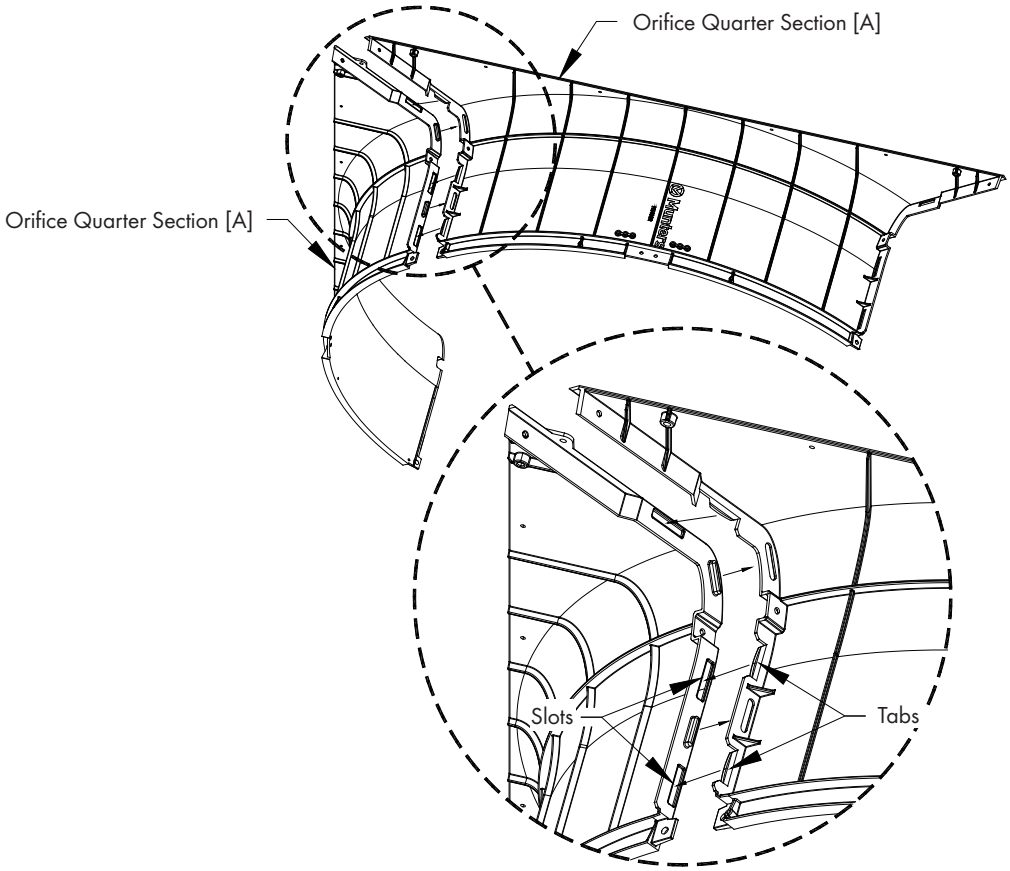
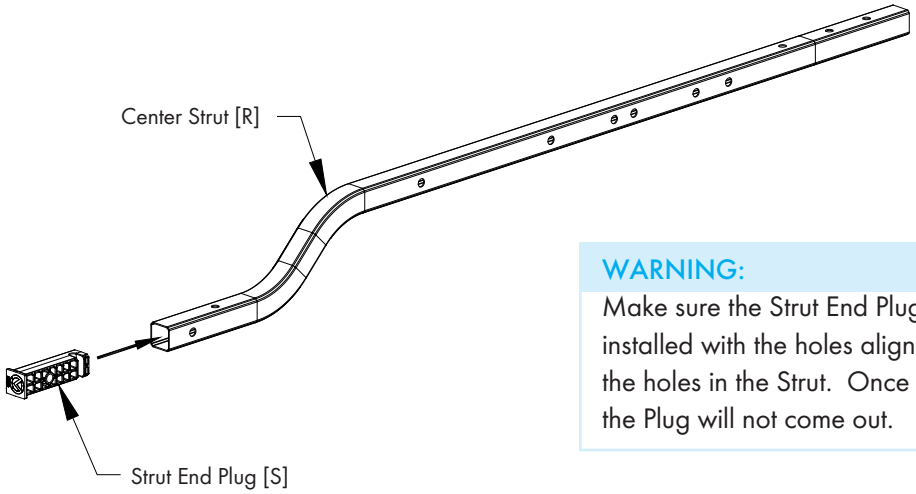


Figure 2

Step 3

Insert the Strut End Plug [S] into the short straight end of the Center Strut [R], making sure the holes in the Plug line up with the holes in the Strut. *See Figure 3.* Repeat for 3 more Strut End Plugs [S] and Center Strut [R].



WARNING:
Make sure the Strut End Plug [S] is installed with the holes aligned with the holes in the Strut. Once installed the Plug will not come out.

Figure 3

Step 4

Insert (1) Center Strut with End Plug into each corner of the Orifice Panel Assembly and secure in place using (3) Bolt [T], (6) Washer [V] and (3) Flange Nut [U]. The ends of each Center Strut should meet at the center of the Orifice Panel. *See Figure 4.*

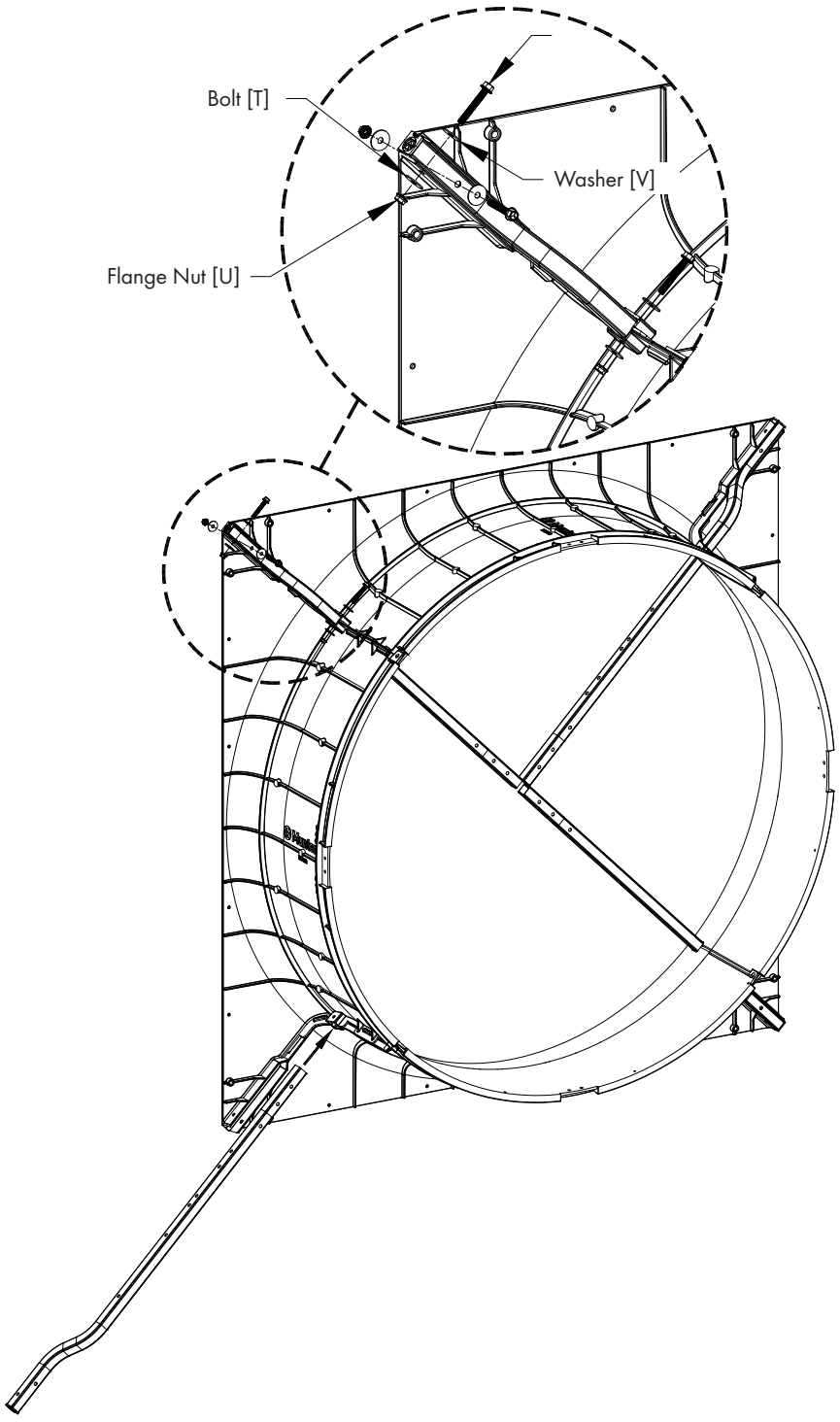


Figure 4

Step 5

Attach Prop Sheave [Y] to Hub [X] using (4) Bolts [JJ], Washers [KK] and Nuts [LL]. *See Figure 5.*

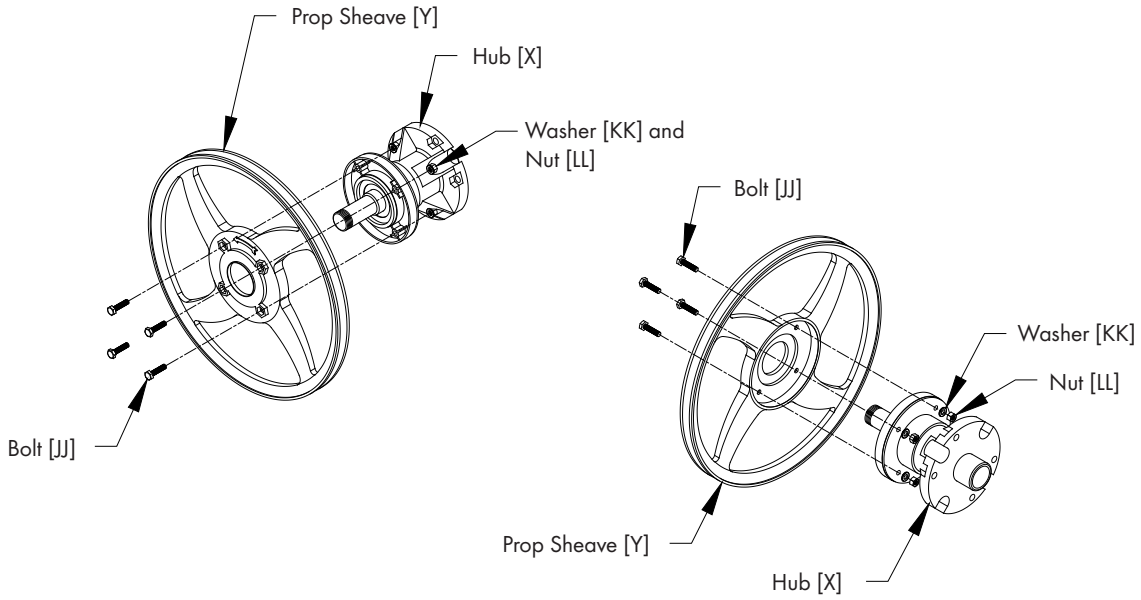


Figure 5

Step 6

Slide Shaft Shield [QQ] over Hub Shaft as shown in *Figure 6*. Secure Sheave/Hub Assembly to the (4) Struts using (1) Hex Nut [SS] making sure there is a Center Plate [W] on each side of the Struts and the Center Hub Spacer [TT] over the Hub Shaft and between the Center Plates and Struts. Hex Nut [SS] should be tightened to 52 ft-lbs [70 N-m] torque. *See Figure 6.* The Sheave/Hub Assembly should protrude down into the center of the Orifice Panel and the Hex Nut should be on the flat side of the Orifice Panel.

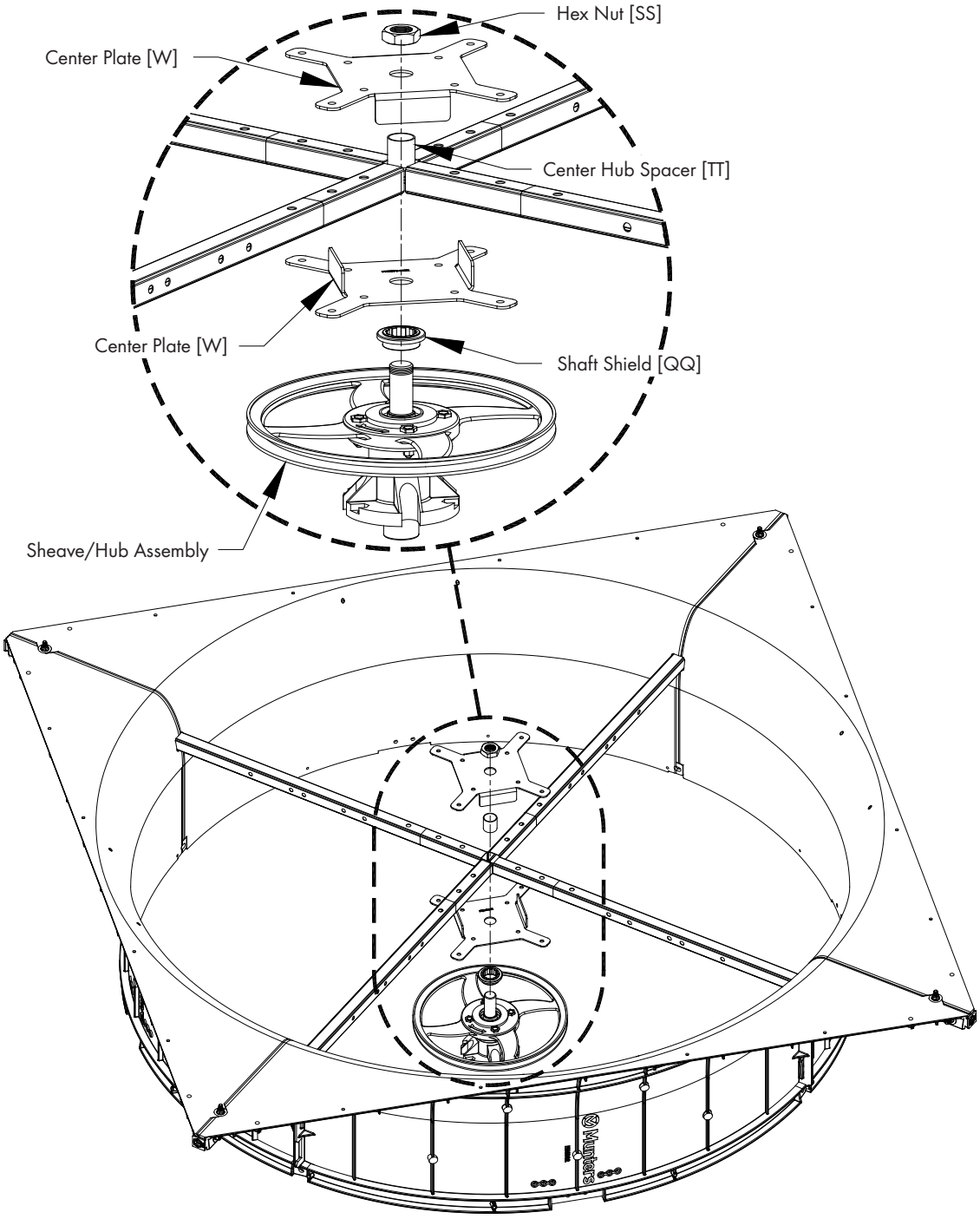


Figure 6

Step 7

Secure Center Plates [W] to Struts using (2) Bolt [T], (4) Washer [V] and (2) Flange Nut [U] per Strut. *See Figure 7.* Place Plastic Cap Cover [RR] over Hex Nut and fasten in place with (1) Tapping Screw [VV]. *See Figure 7.*

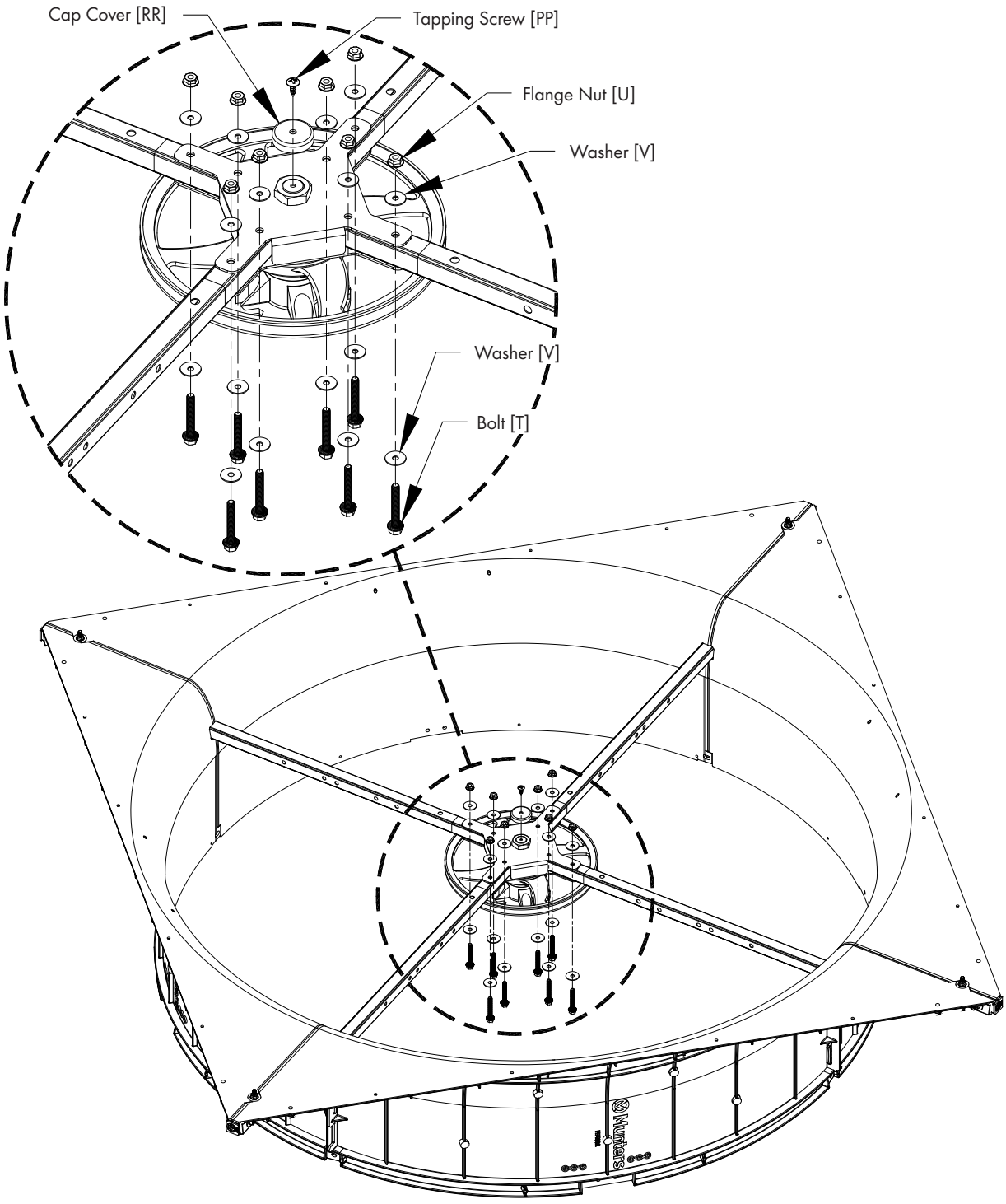


Figure 7

Step 8

With the circular Orifice of the fan pointing up attach the Motor Mount Plate [DD] to the (2) outer most holes of one of the struts with the lip of the Plate resting on top of the strut and the Plate protruding down away from the circular Orifice using (2) Bolt [T], Washer [V] and Flange Nut [U]. *See Figure 8.* Attach Tensioner Bracket [CC] to the next (2) holes in strut using (2) Bolt [T], Washer [V] and Flange Nut [U]. *See Figure 8.*

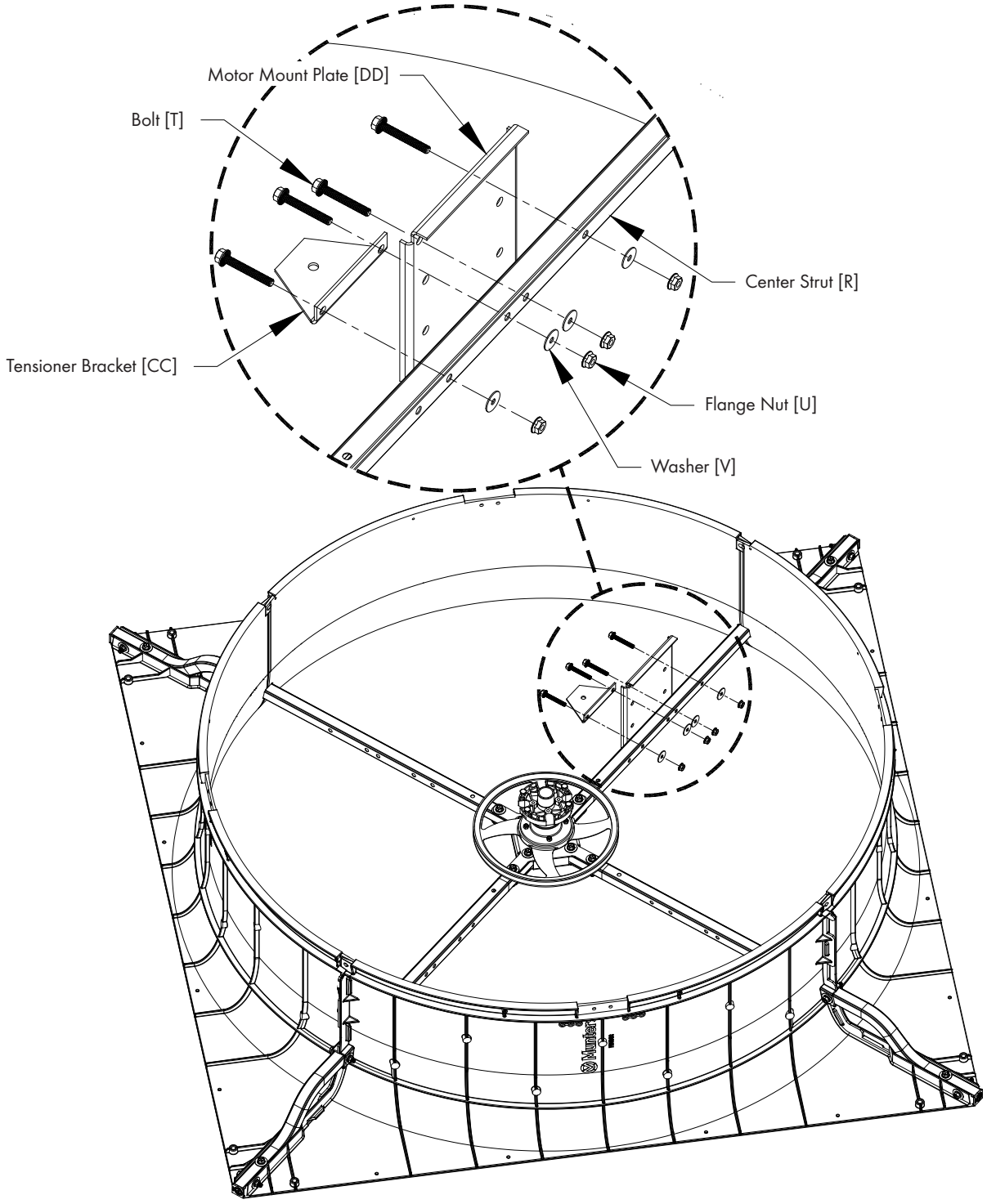


Figure 8

Step 9

Attach the Tensioner Arm/Pulley Assembly [FF] to the Tensioner Bracket [CC] using Bolt [YY] and Splitlock Washer [XX]. Finger tighten only at this time. *See Figure 9.*

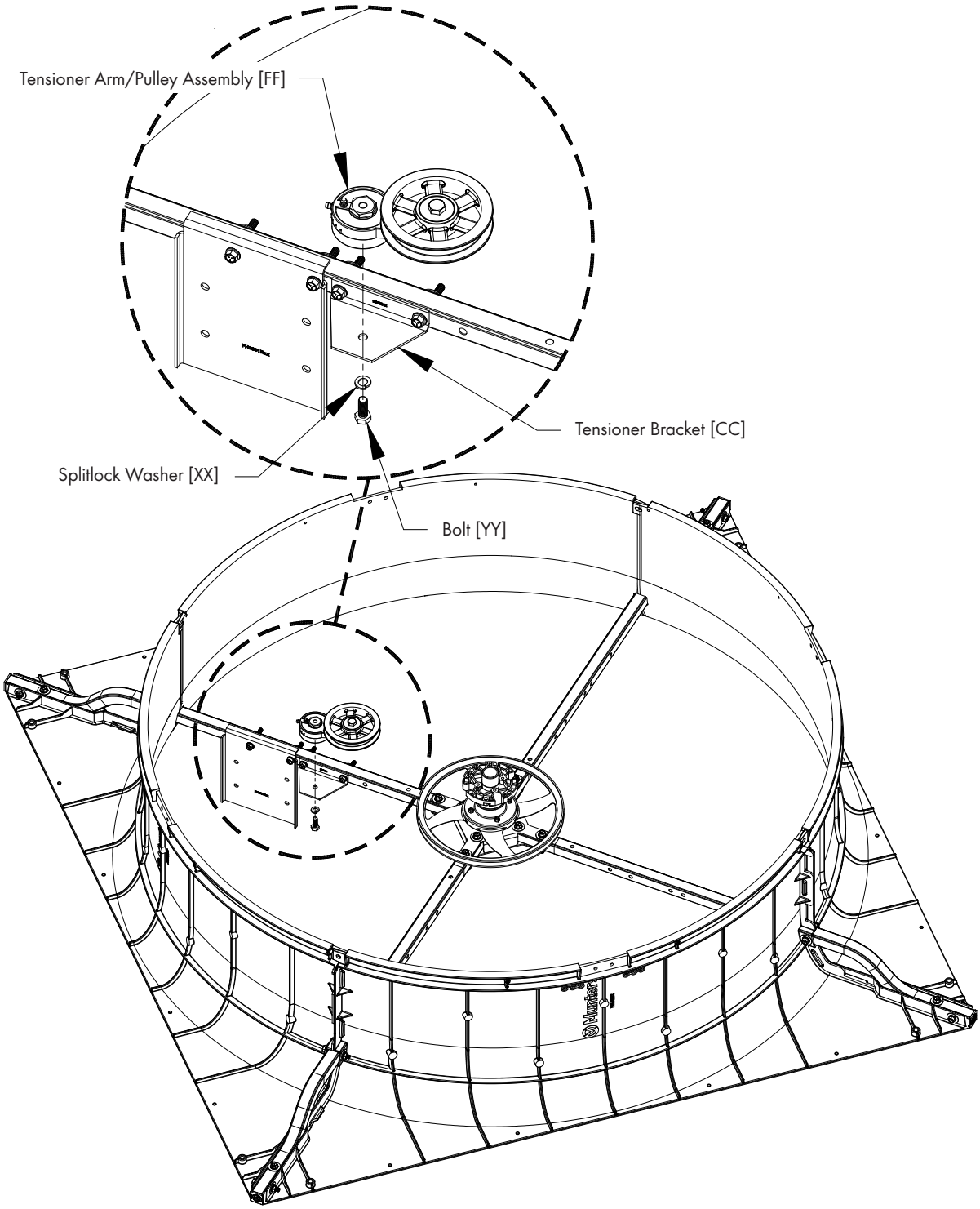


Figure 9

Step 10

Secure a Hinge Plate [WW] to the Top of Fan Orifice and Bottom of Fan Orifice using (2) Bolt [HH] and Flange Nut [U], making sure the head of the bolts sit in the recess in Hinge Plate [WW]. Then secure Strike Plate (2.625"L.) [VV] to the left and right of the Orifice using (2) Bolt [GG] and Flange Nut [U]. Finally at the 4 joints of the Orifice Panel attach Strike Plate [UU] using (1) Bolt [GG] and Flange Nut [U]. *See Figure 10.*

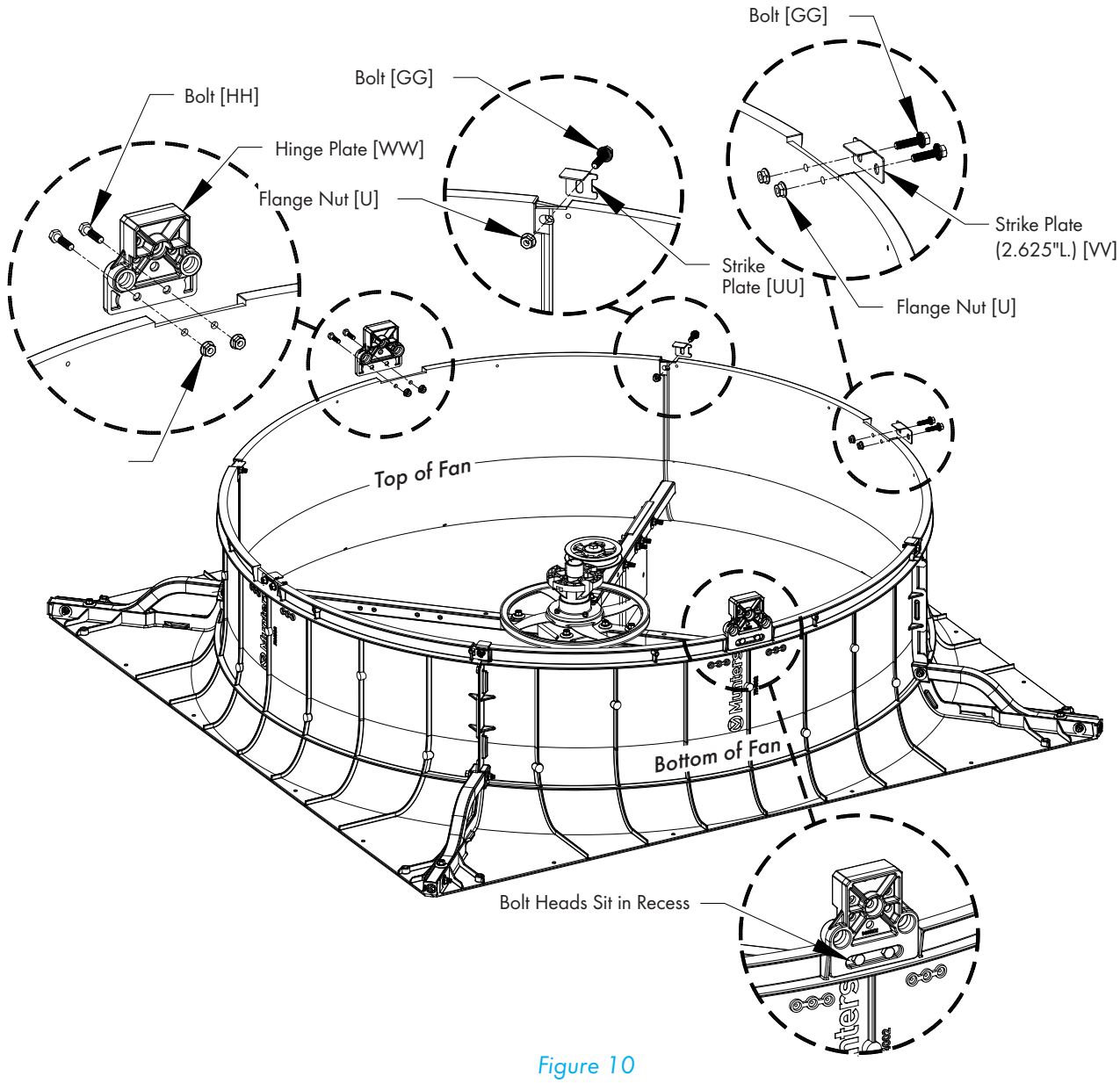


Figure 10

Step 11

Attach Propeller [B] to Sheave/Hub Assembly using (4) Bolts [MM] and Nuts [NN]. Tighten bolts to 180 in-lbs. [20 Nm] of torque. *See Figure 11.*

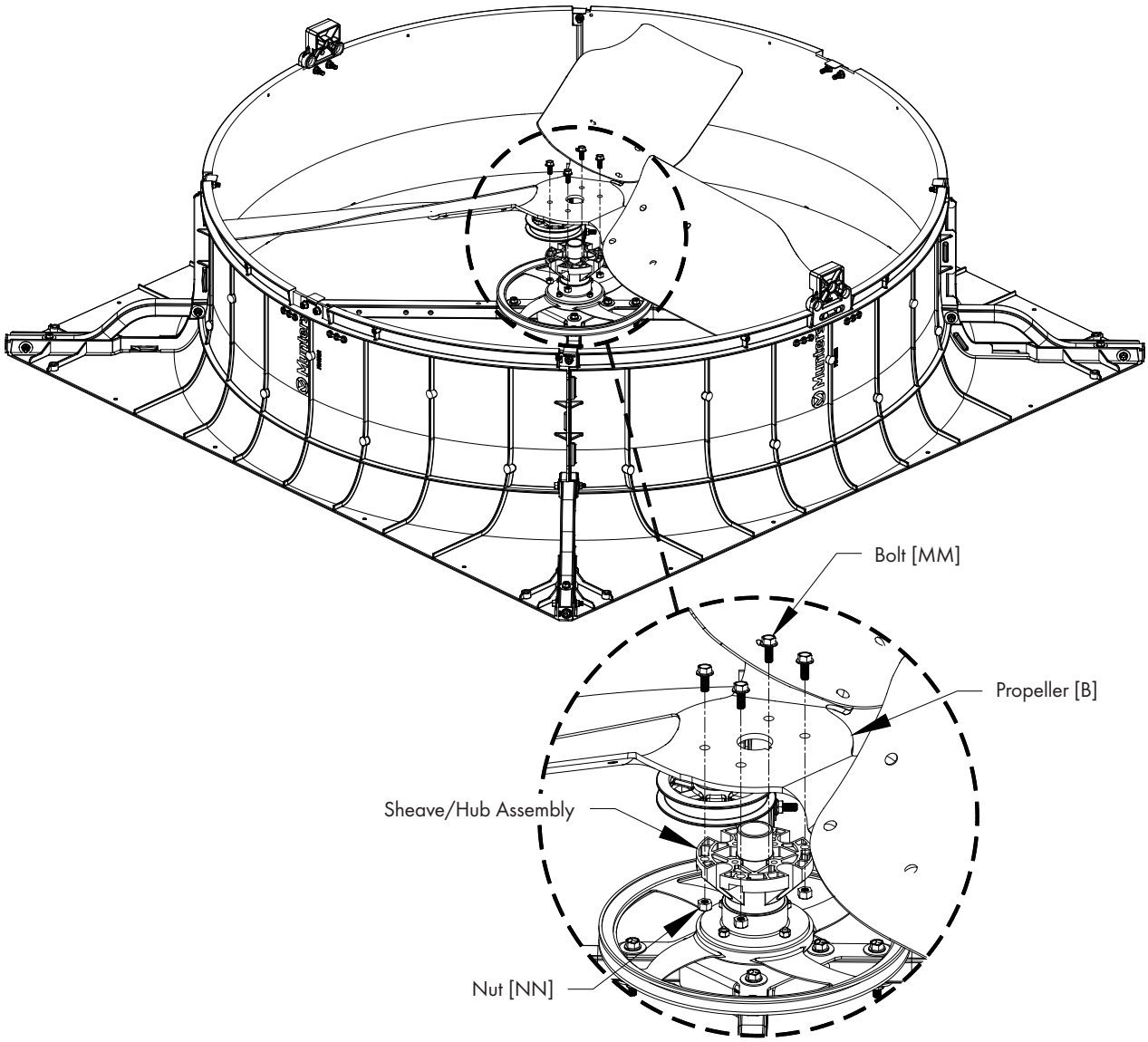


Figure 11

Step 12

Attach Drip Shield [D] to bottom of framed opening using (3) Polebarn Screws [A2]. *See Figure 12A and 12B.* If a 4" wall is used a support board must be installed as shown in Figure 12B. Be sure not to deform Drip Shield when installing screws.

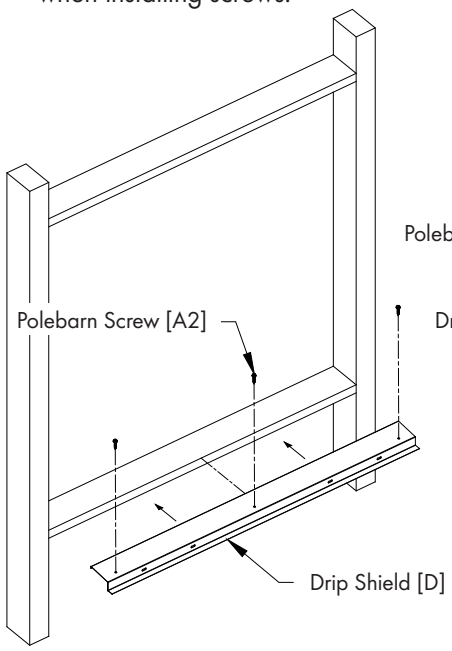
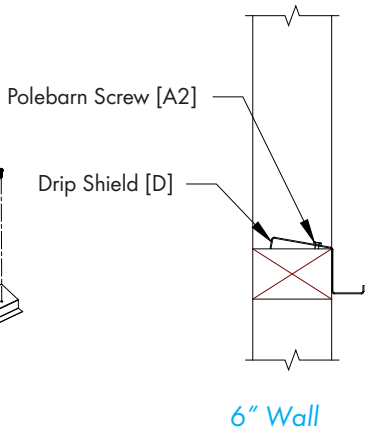
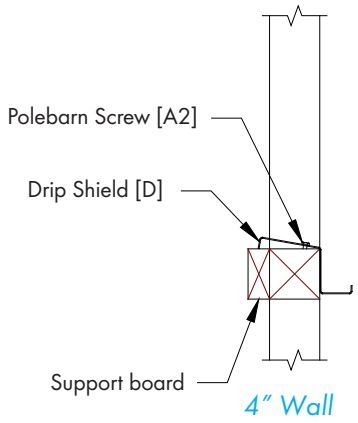


Figure 12A



6" Wall



4" Wall

Figure 12B

Step 13

The bottom of the fan is the side oposite the Motor Plate and Tensioner Arm. Set bottom edge of Orifice Panel on Drip Shield ledge and center panel on opening. Secure Panel to wall using (8) Lag Screws [ZZ] and Washers [A1] in each of the 2 raised holes in each of the corners. *See Figure13A and 13B.*

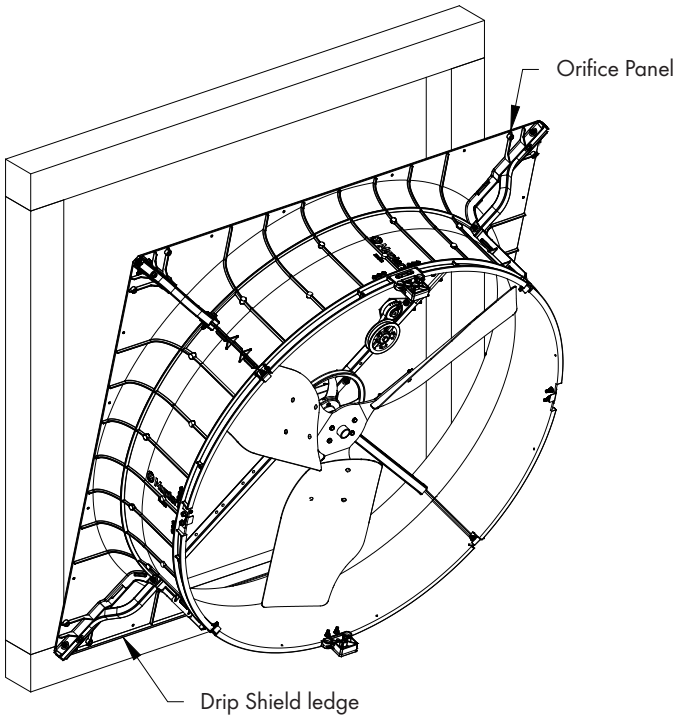


Figure 13A

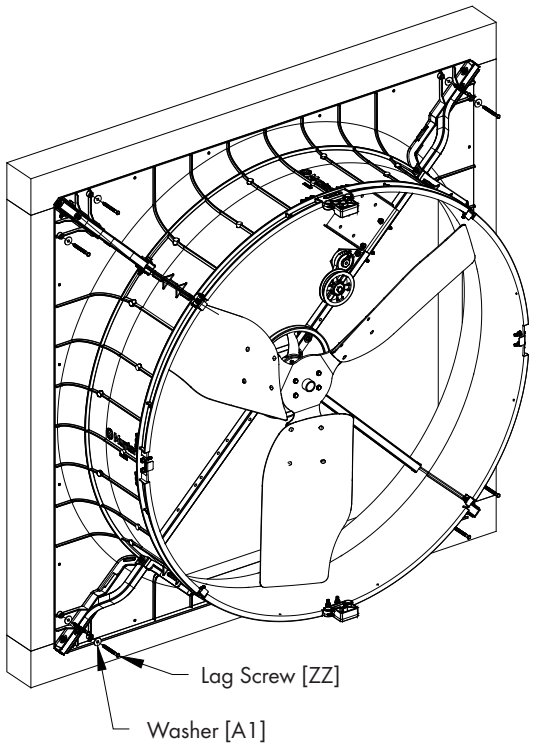


Figure 13B

Step 14

Secure each side of the Orifice Panel to the framing using (16) Polebarn Screws [A2]. *See Figure14.*

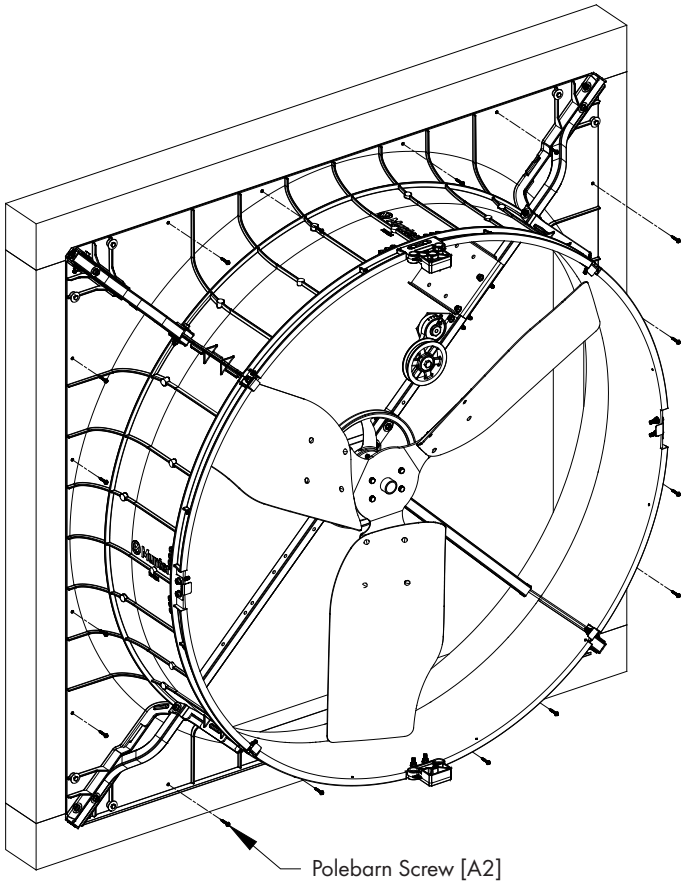


Figure 14

2.3 Motor Mounting

Step 15

Find the Key provided with the Motor [C] and place it in the Keyway on the motor shaft. Place the Motor Sheave [AA] on the Motor shaft with the hub facing towards the motor. *See Figure 15.* ONLY tighten the set screw enough to hold the Sheave in place at this time.

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

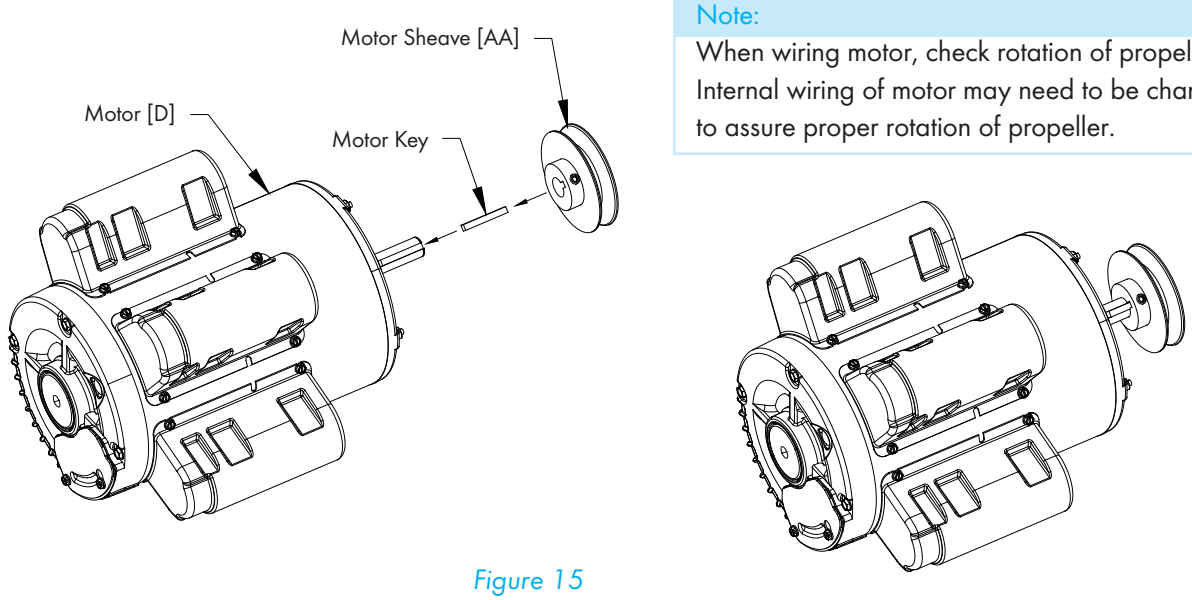


Figure 15

Step 16

Set Motor on Motor Bracket so Motor base rests against lower Motor Bracket flange. Align middle and front slots in Motor base with holes in Motor Bracket. *See Figure 16.*

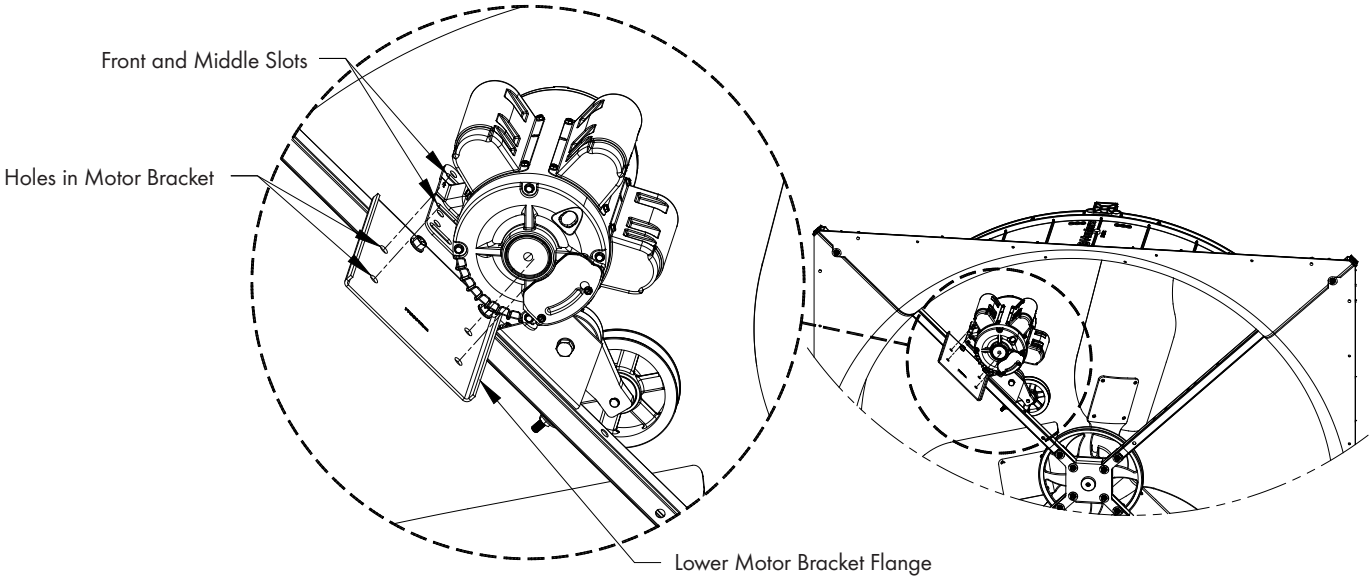


Figure 16

Step 17A

The Motor Bracket Stiffener [EE] will attach to the Motor Bracket in the rear upper hole. Hold the Bracket Stiffener in place and using channel locks and/or a hammer twist the Bracket Stiffener so that the holes in the bracket lay flat against the framing and the bracket does not touch any part of the motor. Then secure Motor to Motor Bracket and Motor Bracket Stiffener [EE] using (4) Bolts [GG] and Nuts [U]. *See Figure 17A.*

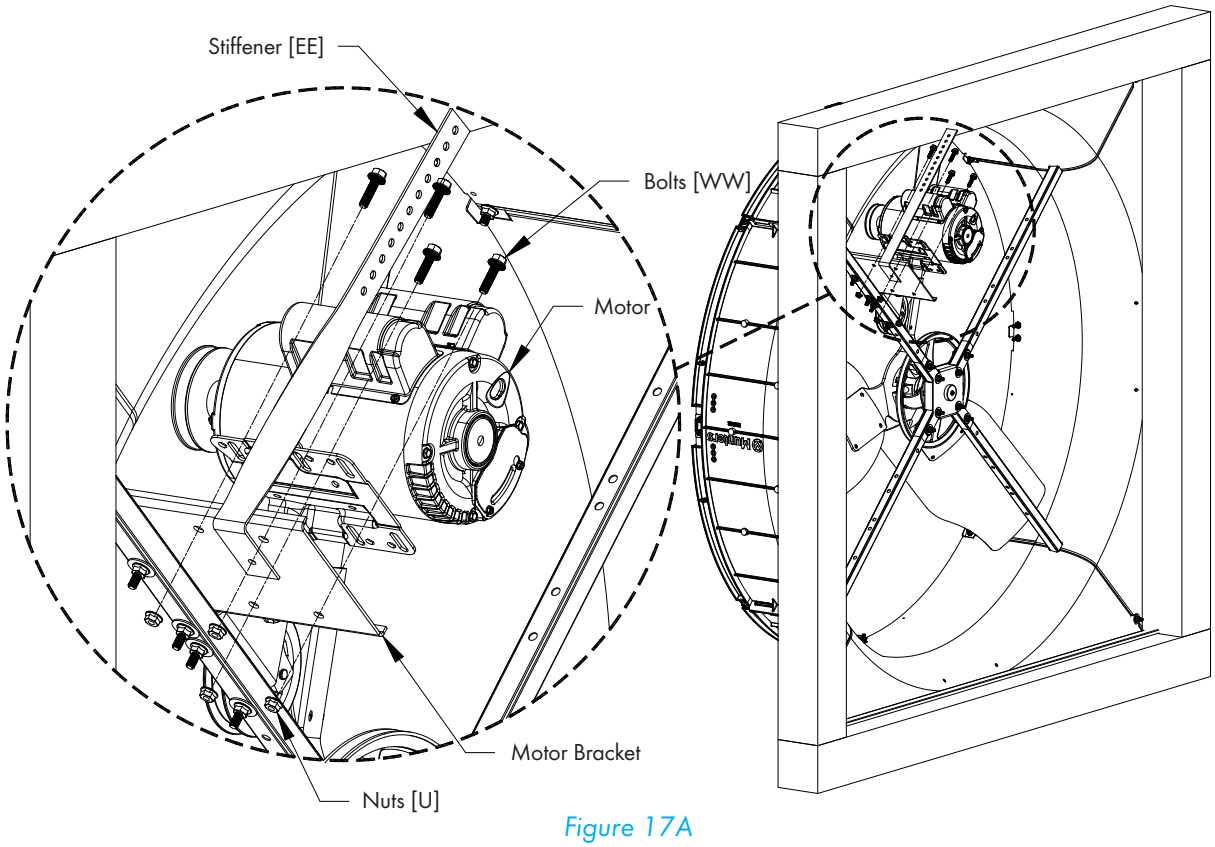


Figure 17A

Step 17B

Attach Motor Bracket Stiffener [EE] to framing using (1) Lag Screw [ZZ]. *See Figure 17B.*

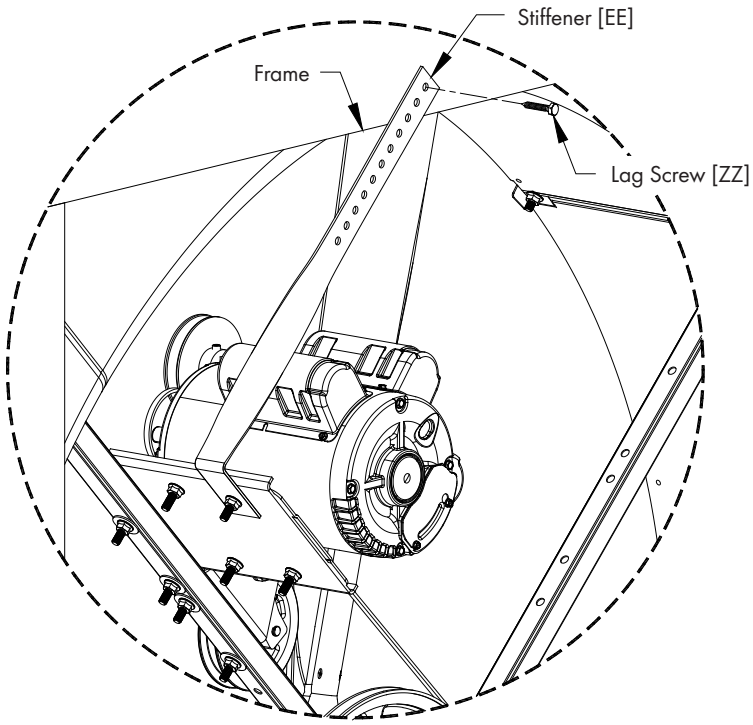


Figure 17B

Step 18

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 to 75 in-lbs [9 N-m] torque.
See Figure 18.

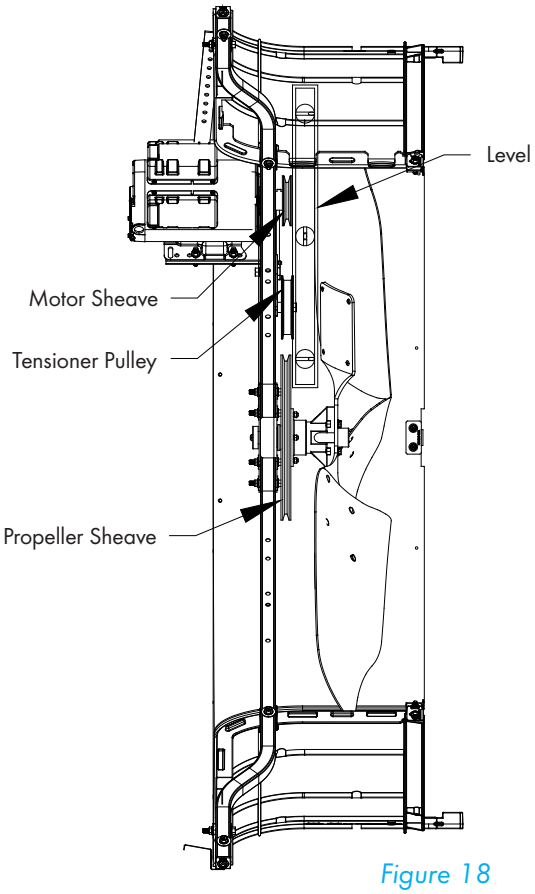


Figure 18

Step 19A

Slide V-belt [AA] over Propeller and install by wrapping it around 2 smaller pulleys, with the V of the belt in the groove of the Motor Pulley and the flat of the belt over the Tensioner Pulley, then start it over larger Sheave. Continue rolling it onto the larger Sheave until it fits into groove. *See Figure 19A.*

Drill ¾" or 1" holes through 2 dimples in the bottom of the orifice for optional Drain Holes. *See Figure 19A.*

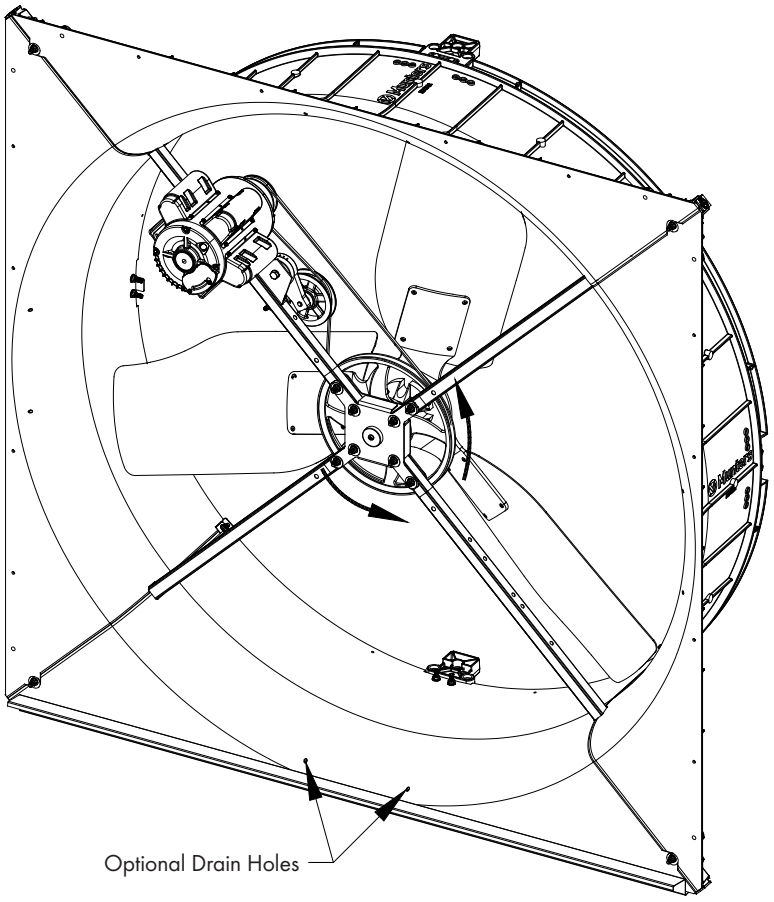


Figure 19A

Step 19B

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 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 19B.*

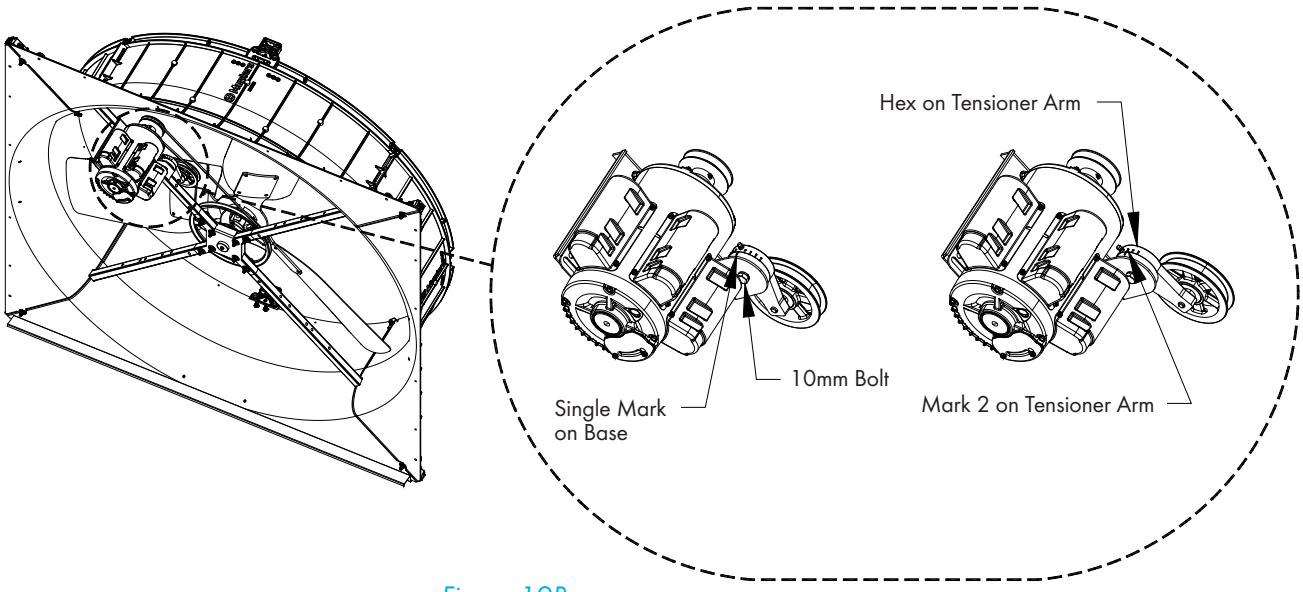


Figure 19B

2.4 Damper Door Installation

Step 20

Push the Barb of (1) Seal [J] into groove in each Door Half [H], making sure it is fully seated in the groove along the full length of the door. *See Figure 20.* Trim off any excess Seal that may be protruding from the top or bottom of the Door.

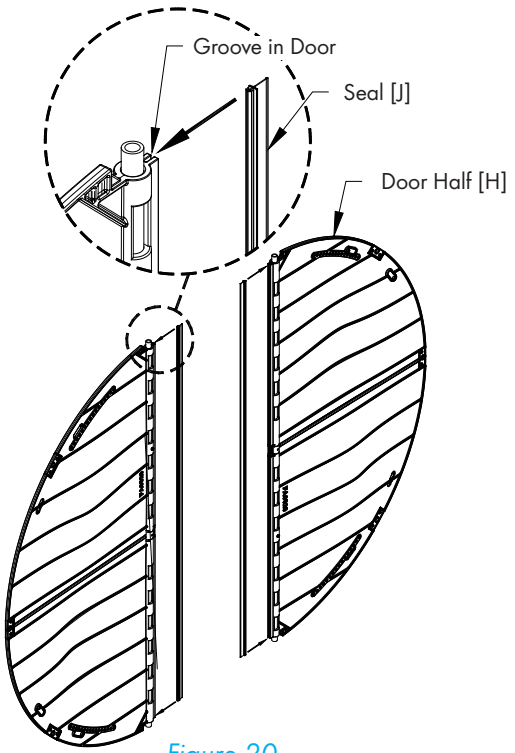


Figure 20

Step 21

On the Barn side of the Damper Doors, install a Deflector Wing [K] to the upper half of Right Door and the lower half of Left Door using (2) T-25 Screws [M] and Flat Washers [N]. The Barn side of the Doors have (3) Magnet Plates installed. *See Figure 21.*

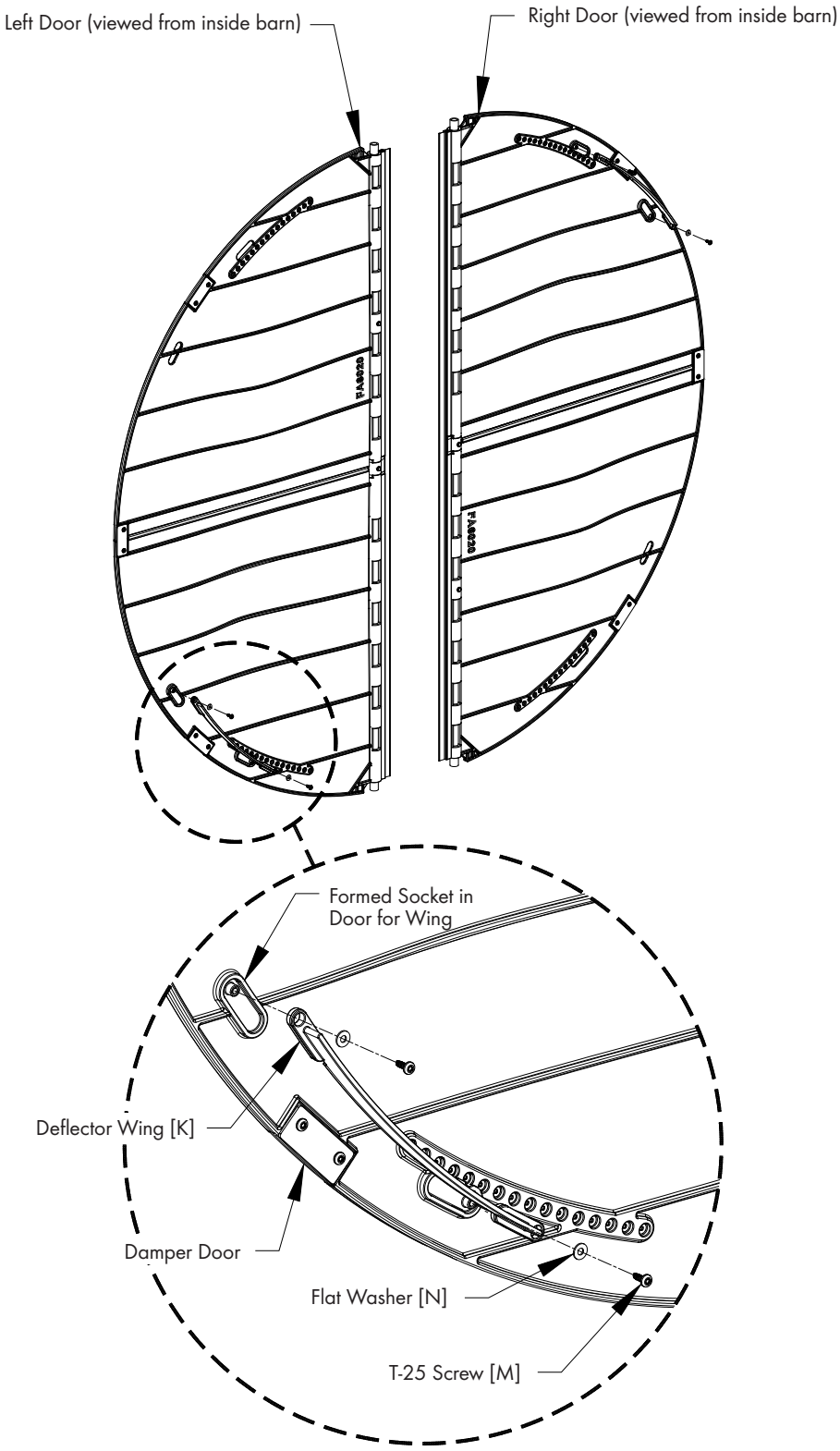


Figure 21

Step 22

Loosen the (2) Bolts holding the upper Hinge Plate [WW] in place. Insert (4) Sleave Bushings [A5] into the (2) holes in the underside of upper Hinge Plate and top side of lower Hinge Plate. Take one of the Door Halves [H] and insert the Damper Hinge Tube through (3) Nylon Washers [P] into Sleave Bushing in the lower Hinge Plate and then fit the upper Hinge Plate with Sleave Bushing over the top of the Damper Hinge Tube. The Wing and the Magnet Plates should face towards the fan. *See Figure 22.* Repeat for other Door Half and then retighten the (2) bolts for the upper Hinge Plate.

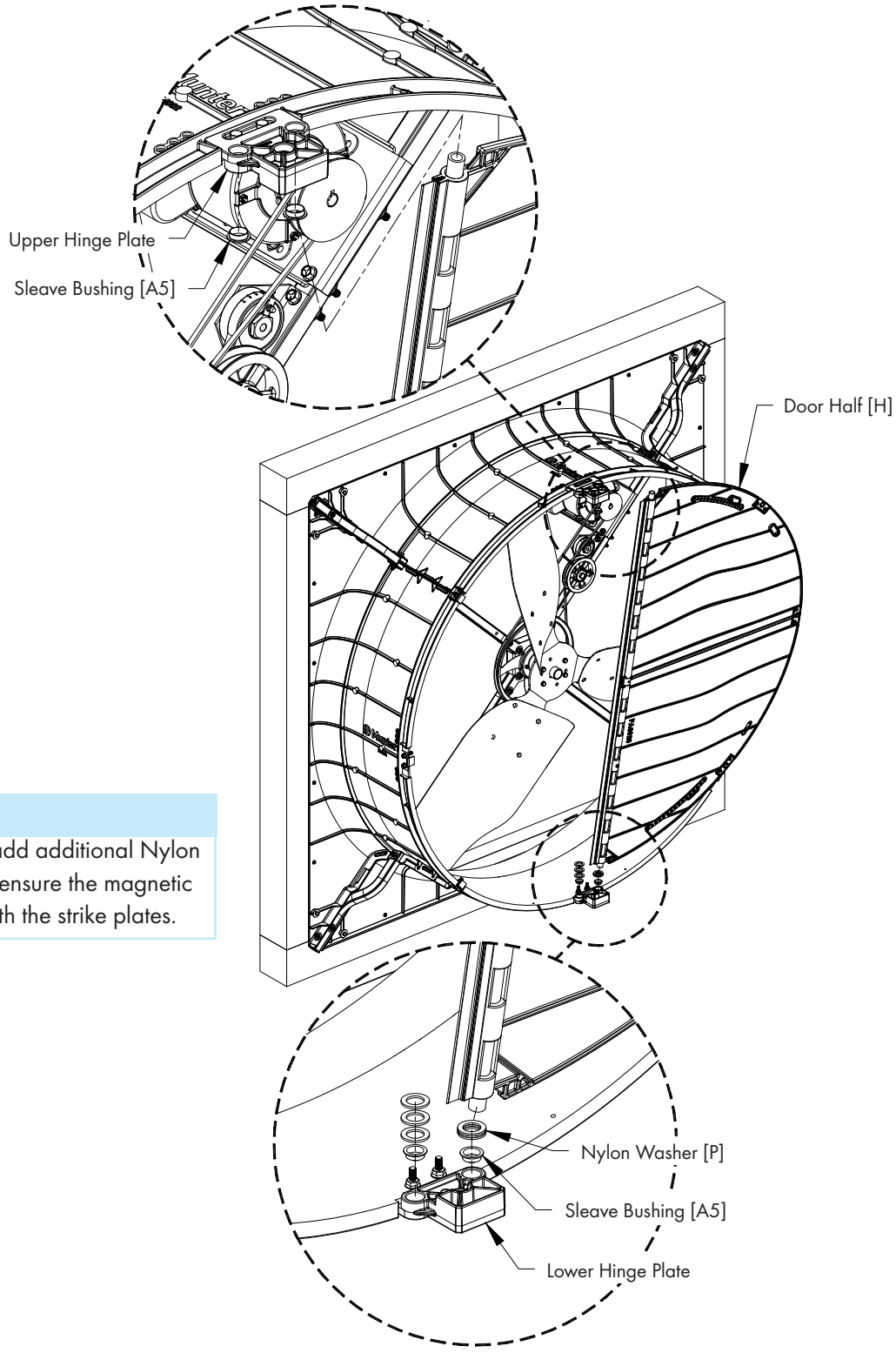


Figure 22

Note:
May need to add additional Nylon Washer [P] to ensure the magnetic plates align with the strike plates.

Step 23

Each Door Half has a set of 16 Dimples in the top half and bottom half of the door. On each door drill a ¼" dia. hole in the 6th Dimple in the top half of the door. Then drill a ¼" dia. hole in the center Dimple in each set of Dimples on the top of the Orifice Panel. *See Figure 23.*

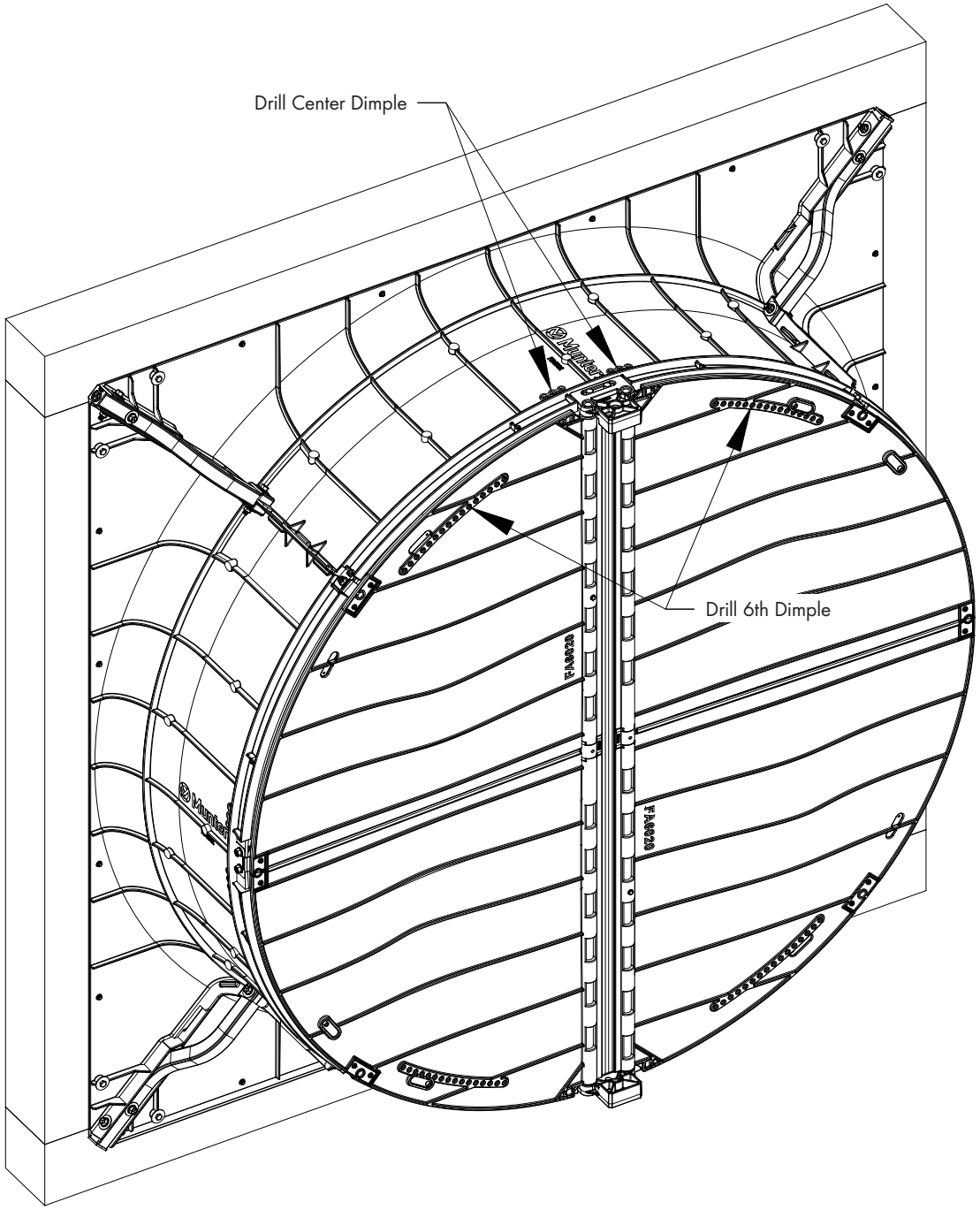


Figure 23

Step 24

In each of the (4) holes drilled in the last step, insert (1) Clevis Pin [L] into the hole. *See Figure 24.*

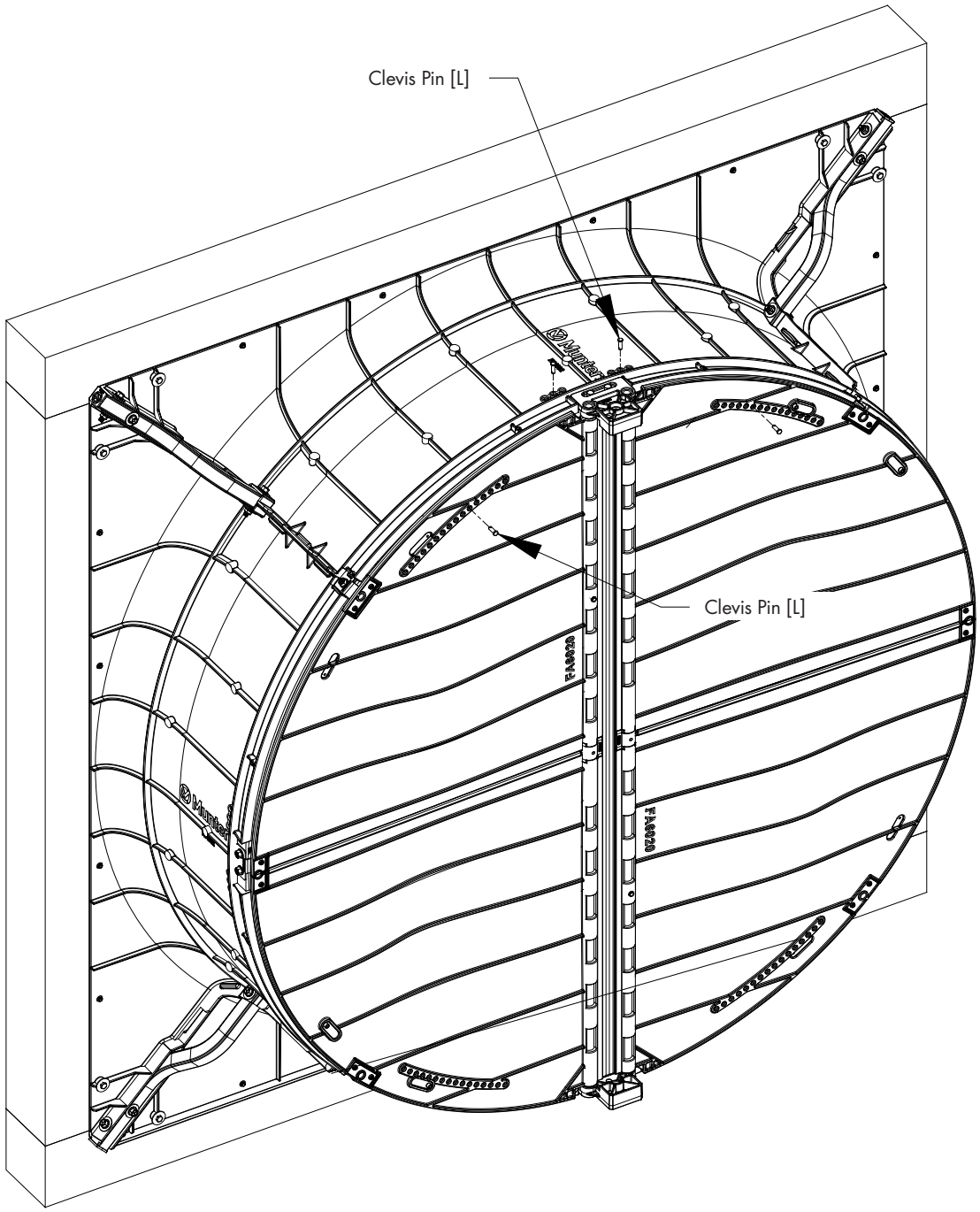


Figure 24

Step 25

From the inside attach one end of Tension Spring [Q] to hole in Left Clevis Pin [L] in top of Orifice Panel. Then stretch Tension Spring [Q] and connect the other end to hole in Clevis Pin [L] in Left Door. *See Figure 25.* Repeat for other Door. The initial placement of the Clevis Pins in the Doors are just a starting point, if needed the Clevis Pins can be moved to other dimple locations as needed for the Doors to open and shut properly.

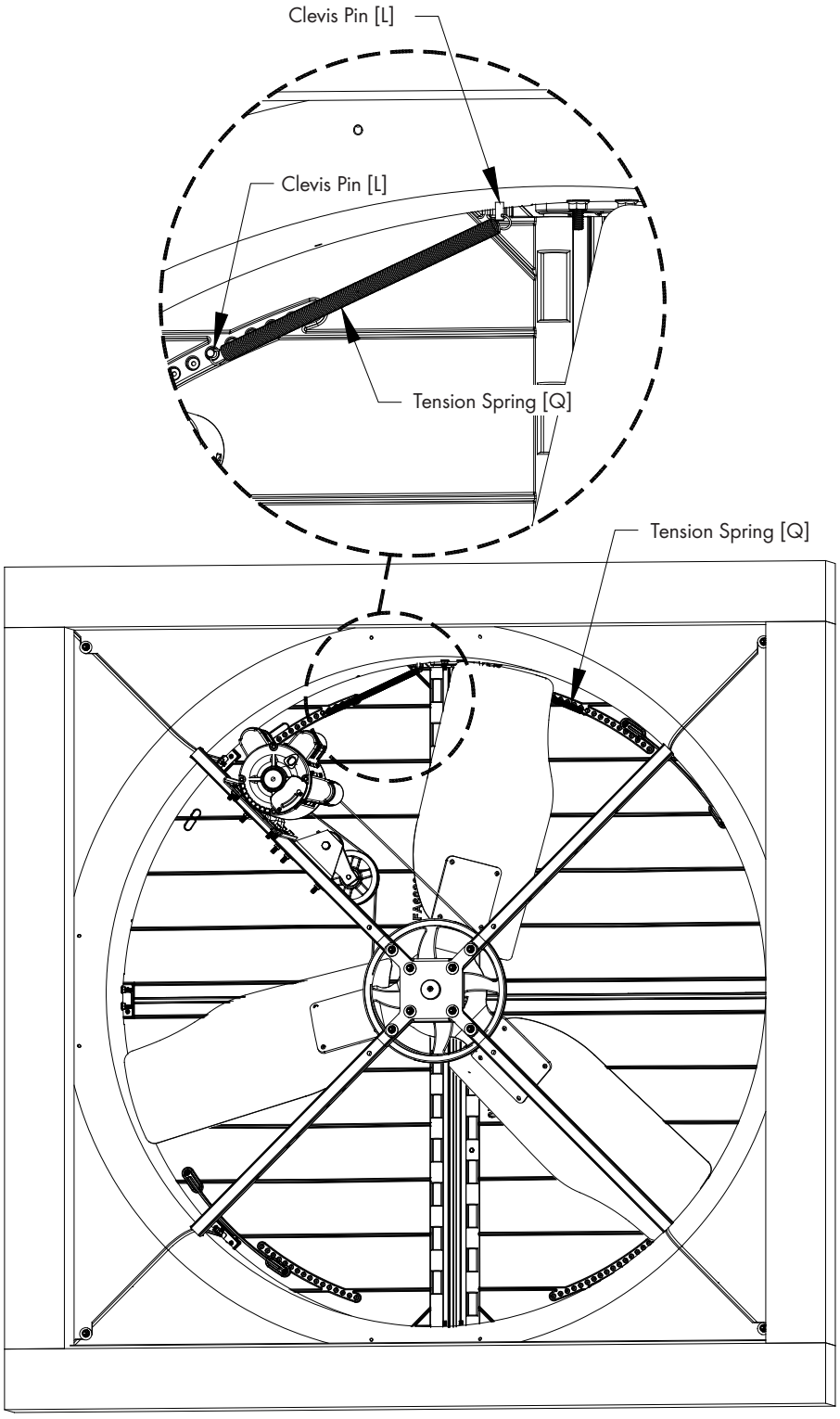


Figure 25

2.5 Cone Installation

Step 26

Place all 4 Cone Sections [E] on a flat surface with tabs from one facing slots of the next. *See Figure 26A.* 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 26B.* Repeat this step until all 4 cone sections are connected and laying flat.

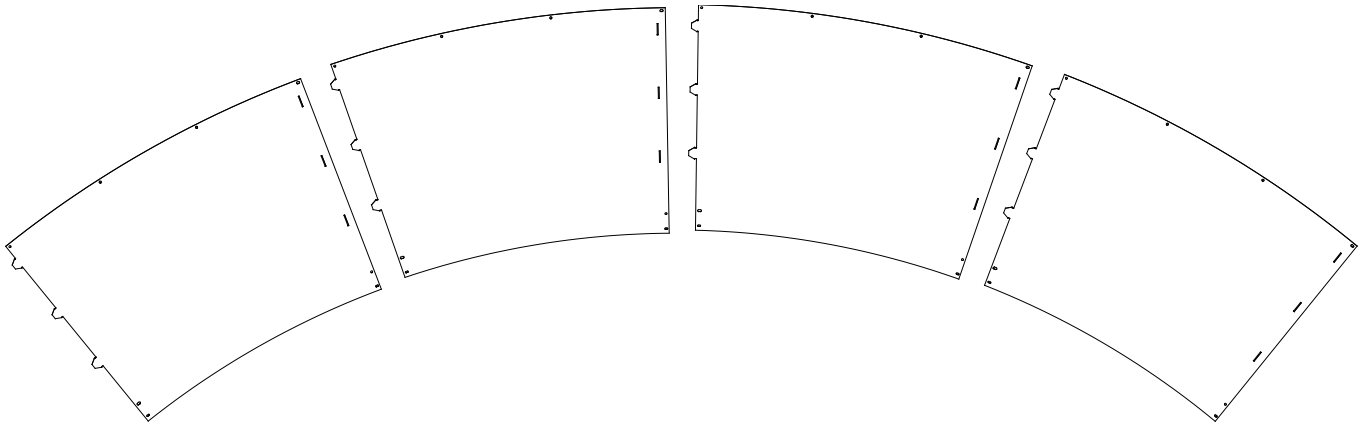


Figure 26A

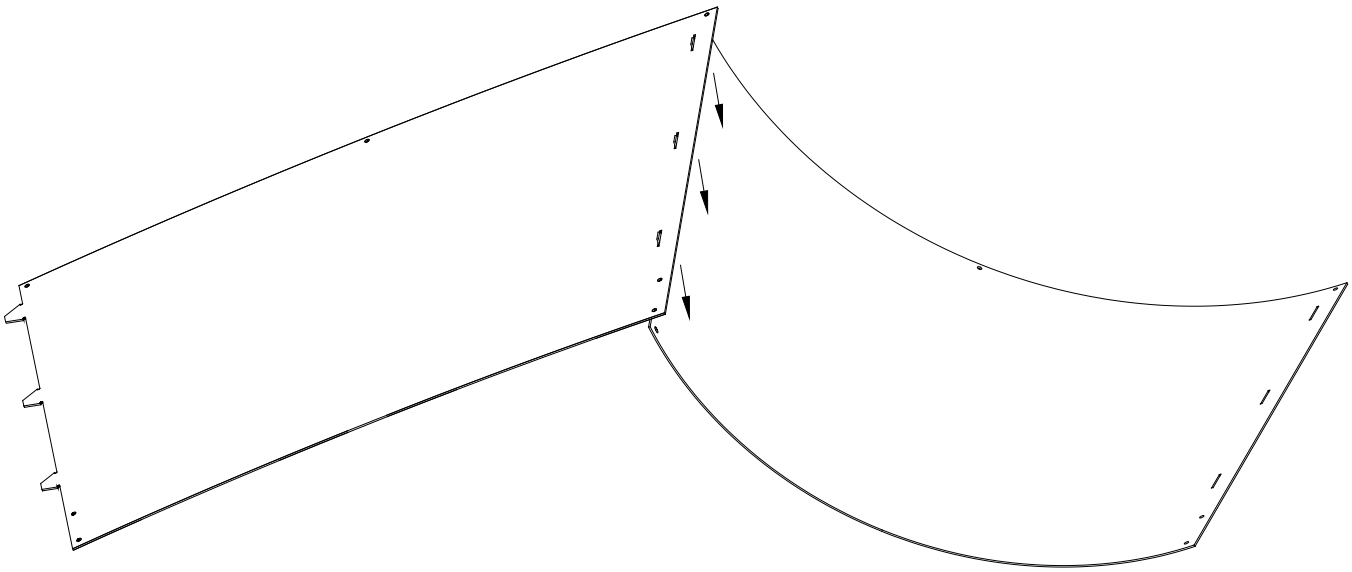


Figure 26B

Step 27A

Fasten each of the joints in the outer hole using (1) Bolt [GG] and Flange Nut [U], with the nut on the side with the tabs. At the inner pair of holes secure joint using (1) Bolt [GG] and Flange Nut [U] with the bolt head on the side with the tabs. *See Figure 27A.* Do **NOT** tighten at this time.

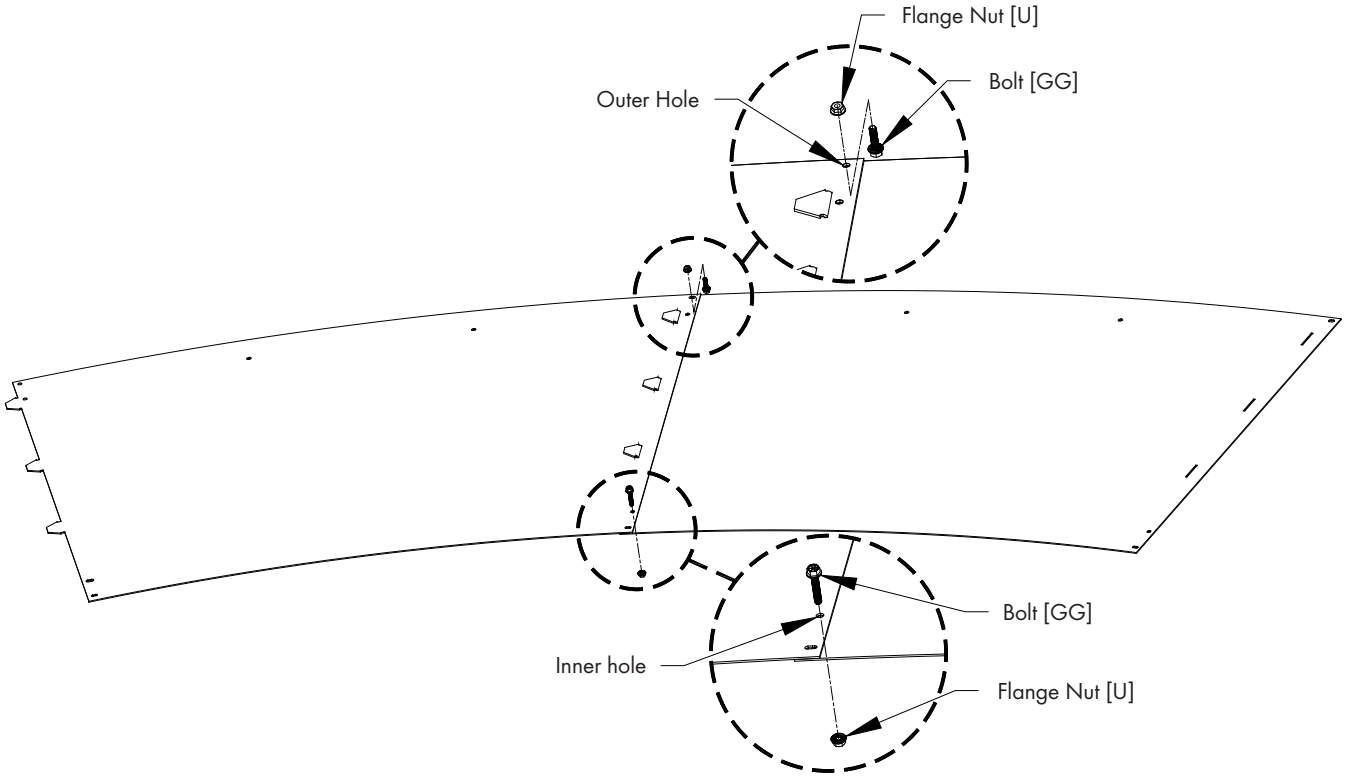


Figure 27A

Step 27B

Stand cone sections on end and curl ends around to form cone with tabs on inside and the bolt heads in the larger end of the cone on the outside. Insert remaining tabs into slots so tabs are inside cone and fasten final joint using (1) Bolt [GG] and Flange Nut [U], with nut on inside of cone. At the inner pair of holes secure joint at inner hole using (1) Bolt [GG] and Flange Nut [U] with bolt head on inside of cone. *See Figure 27B.*

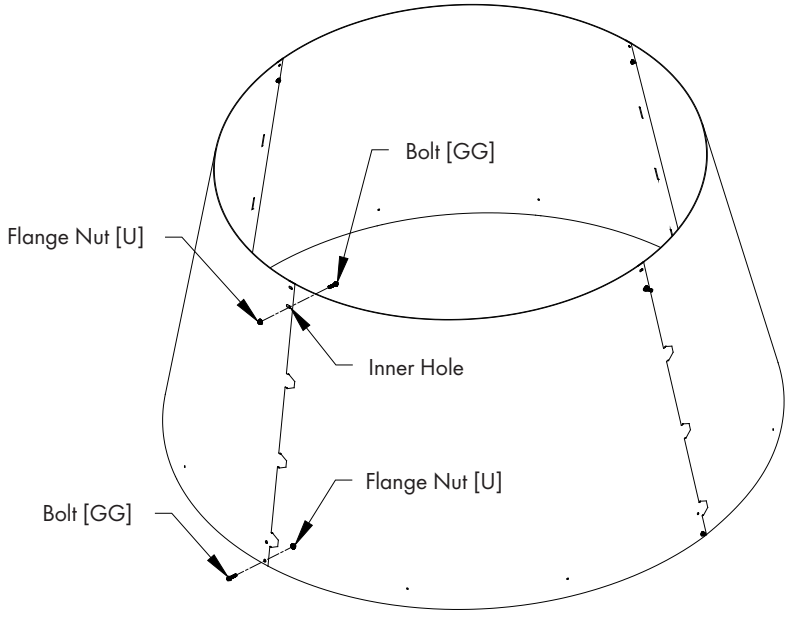


Figure 27B

Step 28

Secure the 2 halves of the Outlet Guard [H] together using (6) Bolts [GG] and Flange Nuts [U] in the eyelets running along the center axis of each Guard half. Make sure the outer eyelets are pointing in the same direction and the Munters Logo is facing out. *See Figure 28.*

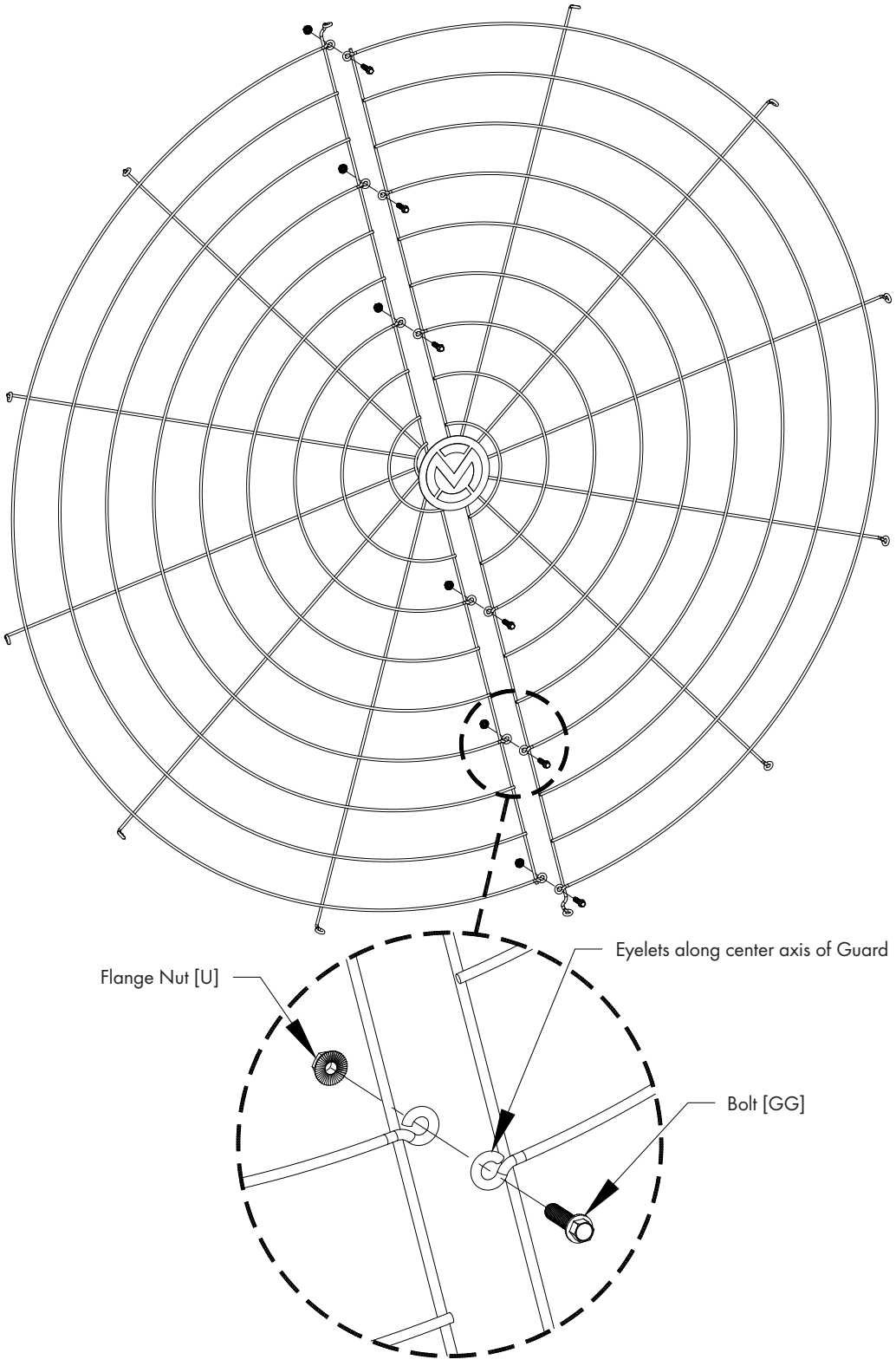


Figure 28

Step 29

Insert the Guard into cone with the Guard Eyelets and Munters Logo facing away from the fan. Line up each eyelet with a hole in the guard and secure in place using (12) Bolts [GG] and Flange Nuts [U]. Bolt heads should be on the outside of the cone with the nuts on the inside. *See Figure 29.*

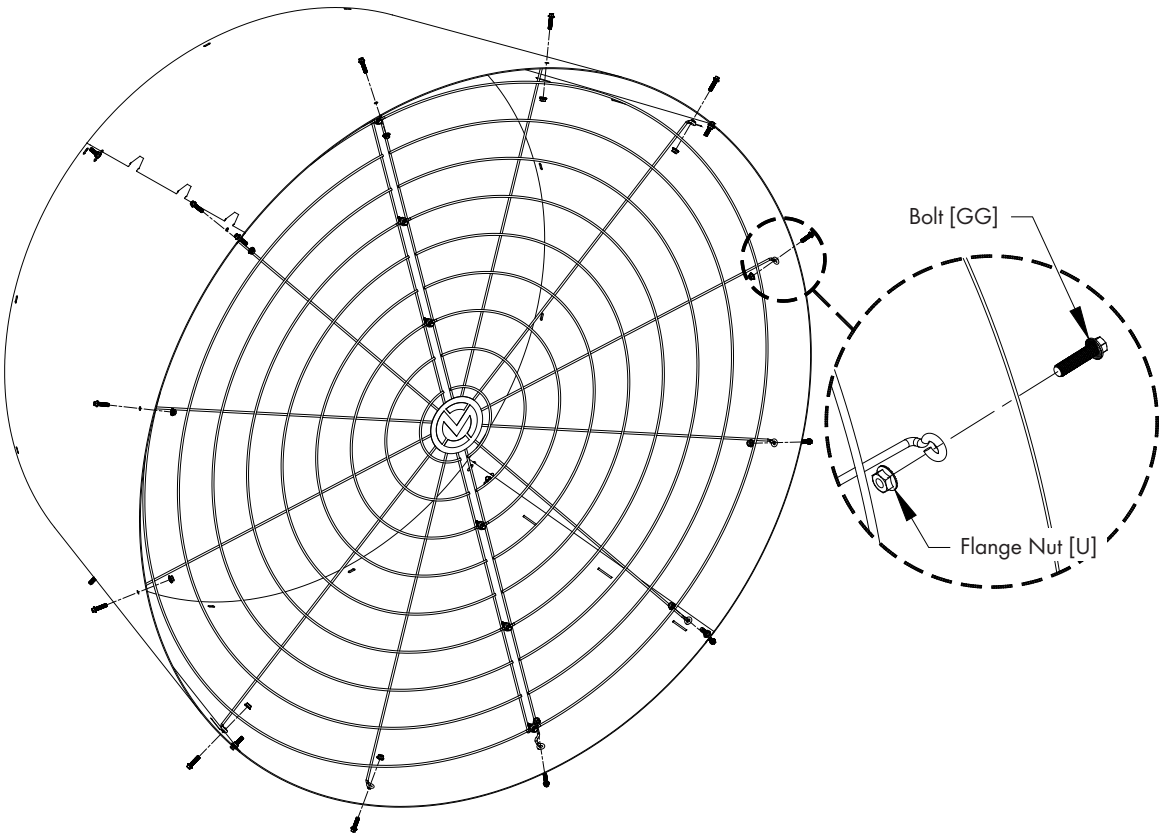


Figure 29

Step 30A

Install cone onto fan by lining up the slots in the small end of cone with the screw holes around the end of the Orifice Panel. Slide the cone over the end of the Orifice Panel. *See Figure 30A.*

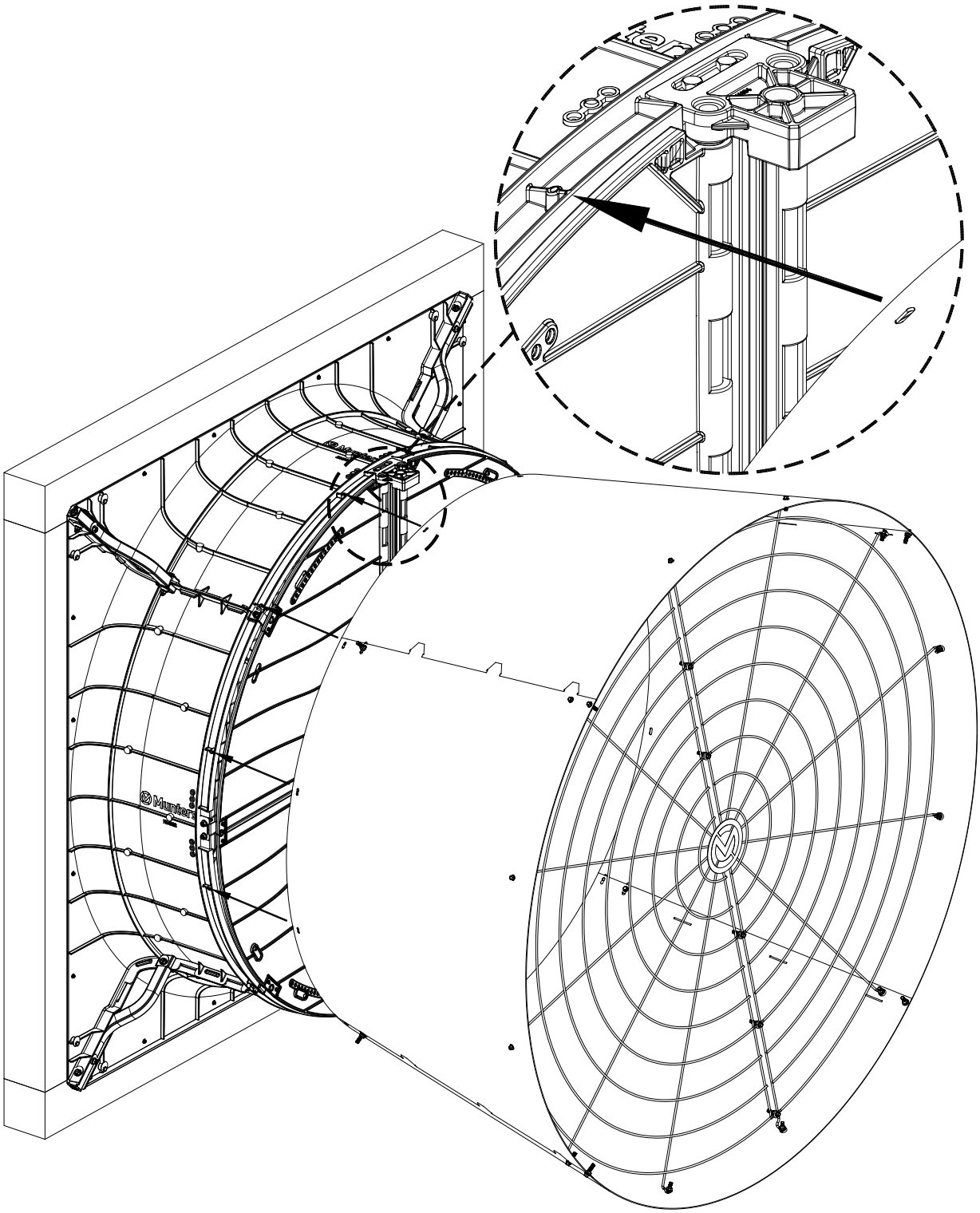


Figure 30A

Step 30B

Once Cone is on end of Orifice Panel, secure Cone to Orifice Panel using (12) Thread Forming Screw [A4] through cone into Screw Holes. *See Figure 30B.*

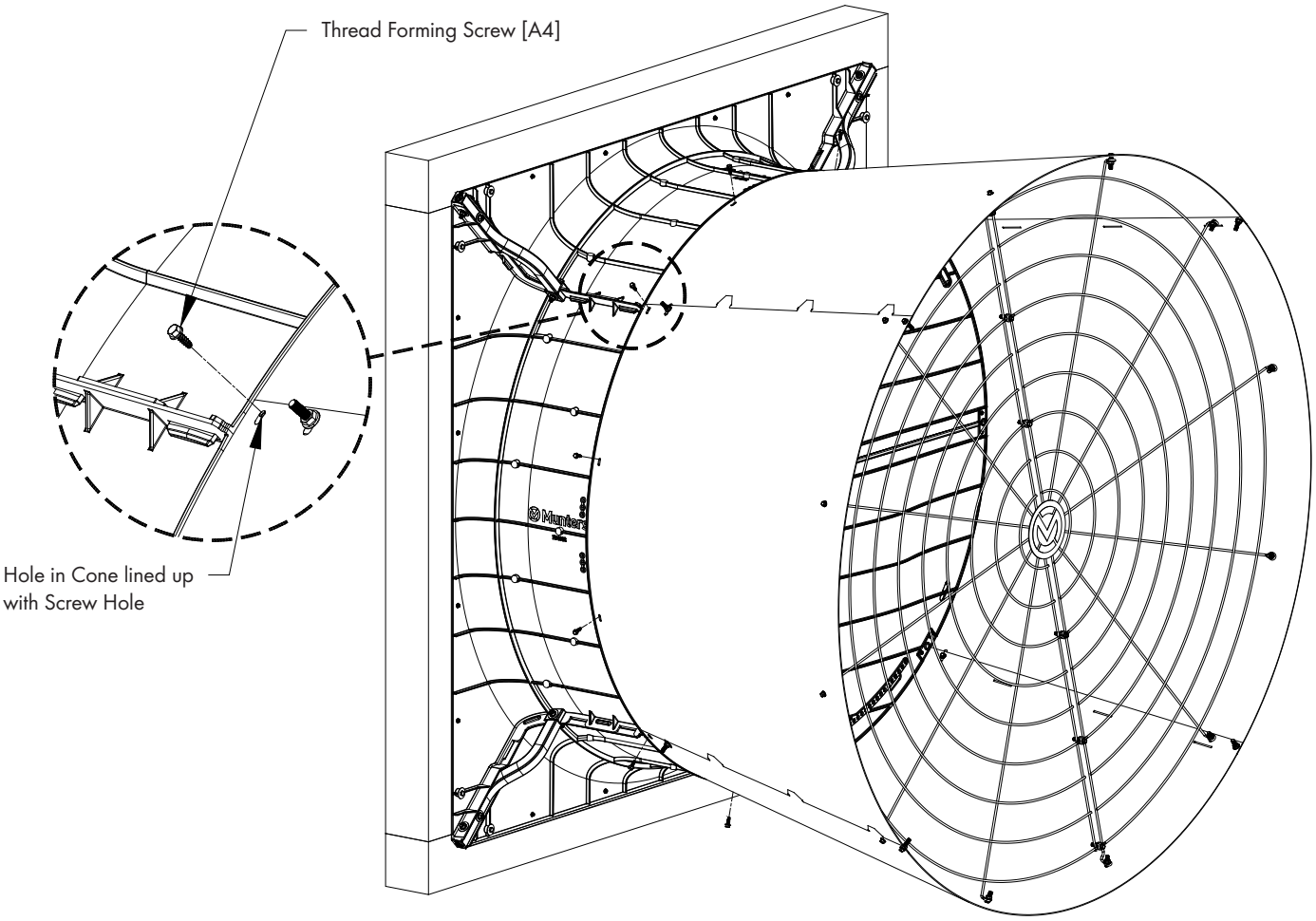


Figure 30B

Step 31A

There are (2) Inlet Guard [G] halves that will overlap at the center of the fan. On (1) Inlet Guard [G] half, cut a section of the inlet guard out to fit over the motor as shown below. When cutting the guard wires make sure to cut them as close to the other wires as possible. *See Figure 31A.*

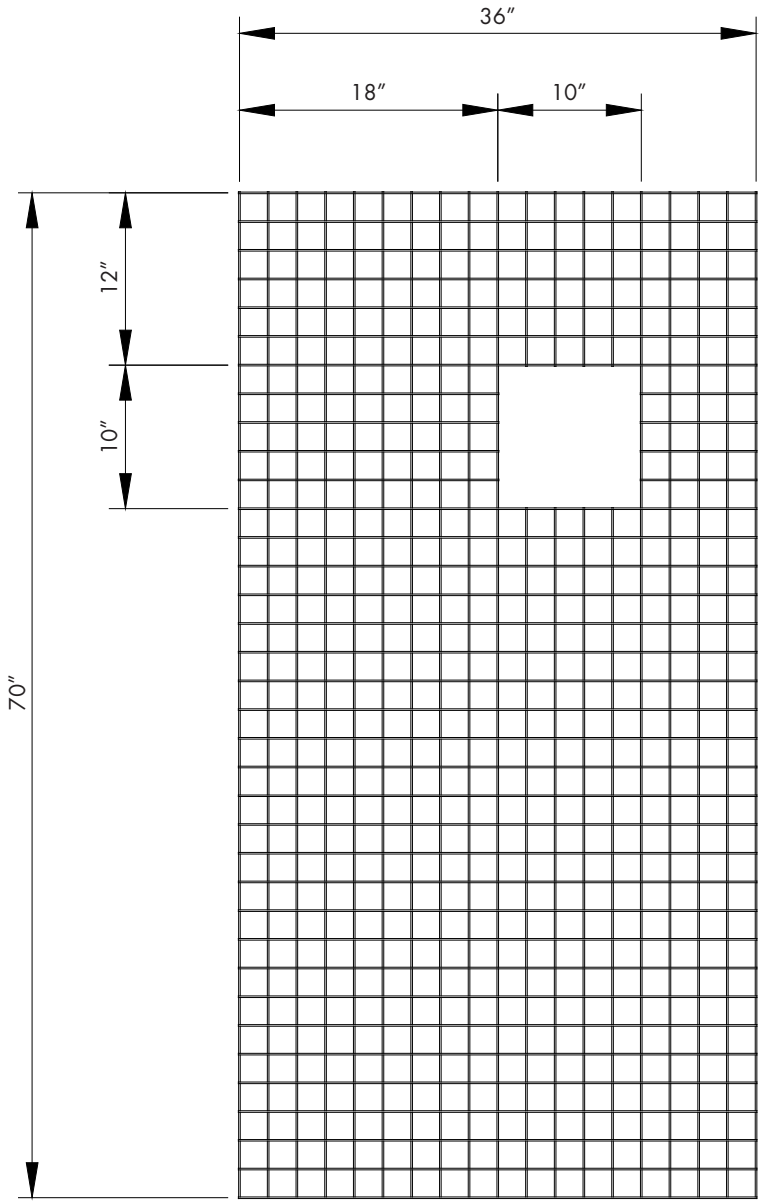


Figure 31A

Step 31B

Place Inlet Guard Half [G] with cut-out against left framing with cut-out over motor. The left edge of guard should overhang the framing by 2⅜" and the top of the guard should overhang the top framing by 3⅜" and fasten in place using (4) J-Nails [A3] along the left side of guard. *See Figure 31B.* Place other Inlet Guard Half [G] over the right framing, right edge of guard should overhang the framing by 2⅜" and the top of the guard should overhang the top framing by 3⅜" and fasten in place using (4) J-Nails [A3] along right side of guard. *See Figure 31B.* Secure top and bottom of each Inlet Guard half using (1) J-Nail [A3] driven in partially to allow them to rotate and release guard when needed. *See Figure 31B.* When needed rotate the J-Nails in the top and bottom framing to release the guard and then rotate the guard halves open to access the fan components. *See Figure 31C.*

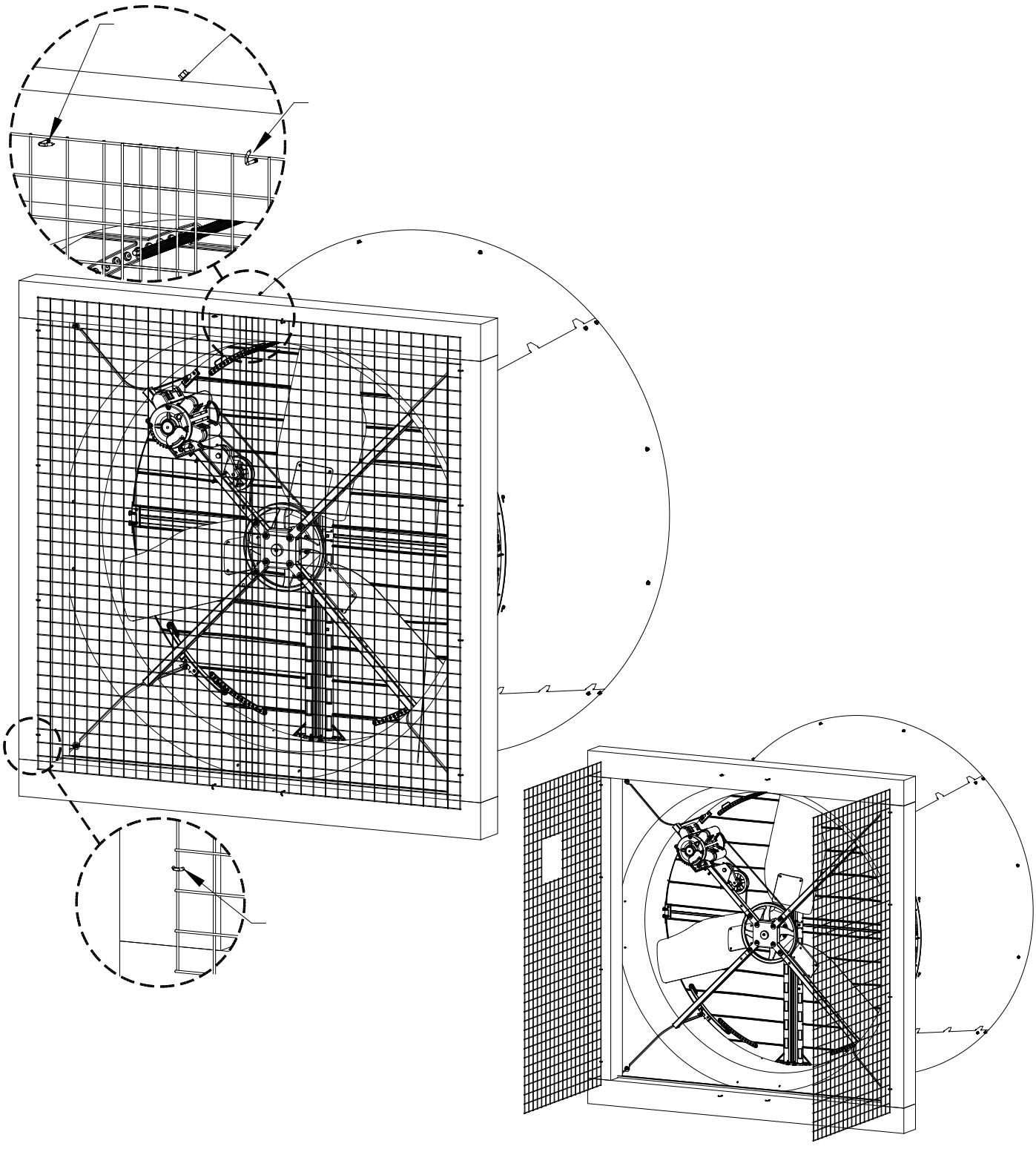


Figure 31C

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 32A. 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 32B*.

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 recommended. 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.

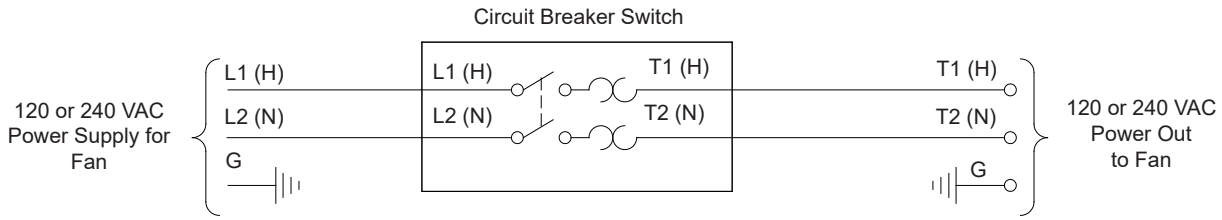


Figure 32A
Single Phase - Motor Overload Protection with Disconnect (SY2000 or Equivalent)

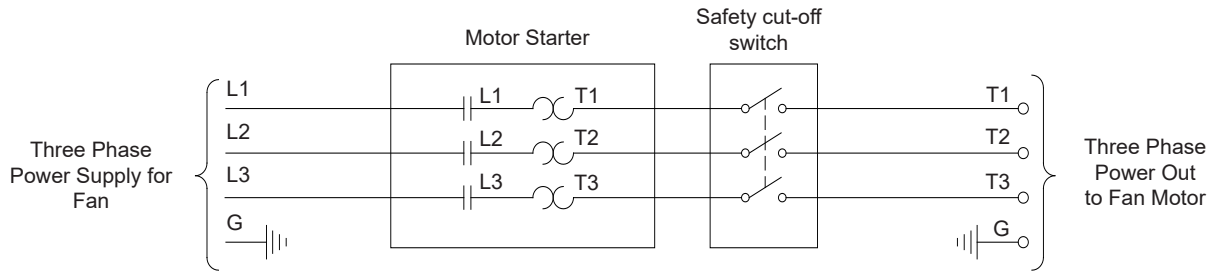


Figure 32B
Three Phase - Motor Overload Protection with Disconnect

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 32

As the power cable exits the back of the motor form a drip loop and then run cable to power source. *See Figure 33.*

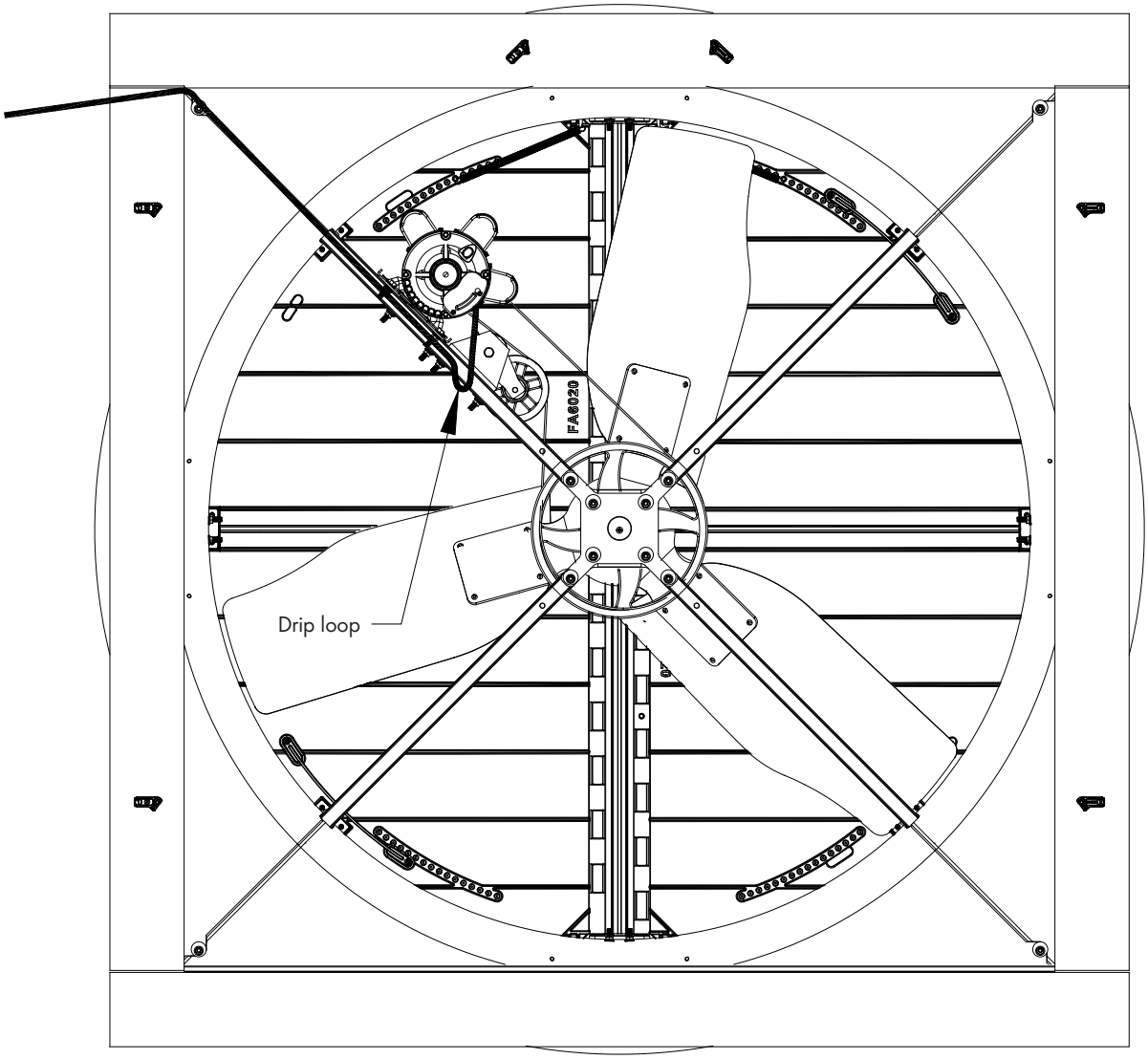


Figure 33

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.

5. Maintenance

The following inspection and cleaning procedures should be performed monthly:

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

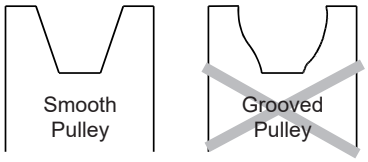
1) *INSPECT PROPELLER*: Check that propeller is secure on drive hub and that there are no signs of damage. The blades are of a self-cleaning design and should not require maintenance.

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.
   - *DAMPER:* Carefully clean dust from damper doors and frame so that doors open and close 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.

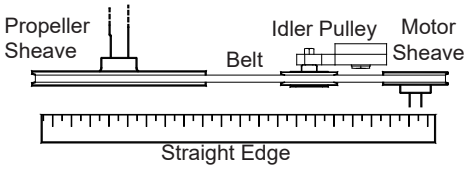
3) *CHECK FASTENERS:* For safety, all fasteners should be inspected 1 month after initial operation and yearly thereafter. Tighten any loose connections.

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!*

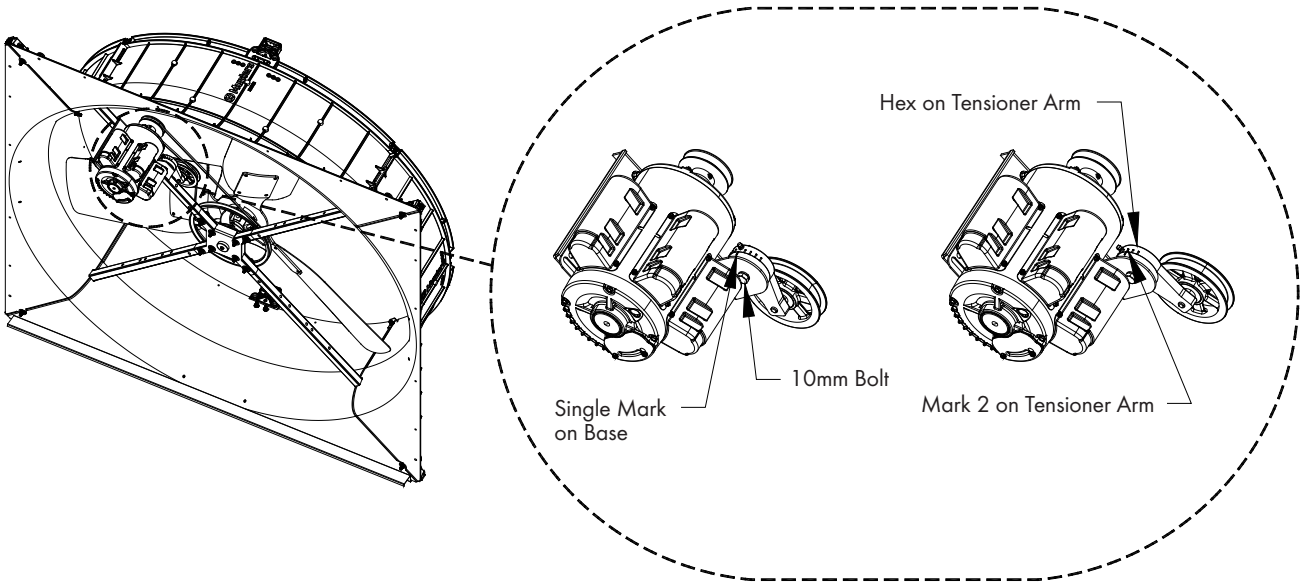
5) *CHECKING PULLEYS:* Roll the belt off and look at all pulleys. If a pulley has grooves in it or is no longer smooth, it needs replacement. A loose or slipping belt will reduce fan performance up to 60% and cause premature belt failure.



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 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 34,* or snow guards may be placed on the roof, *See Figure 35.*

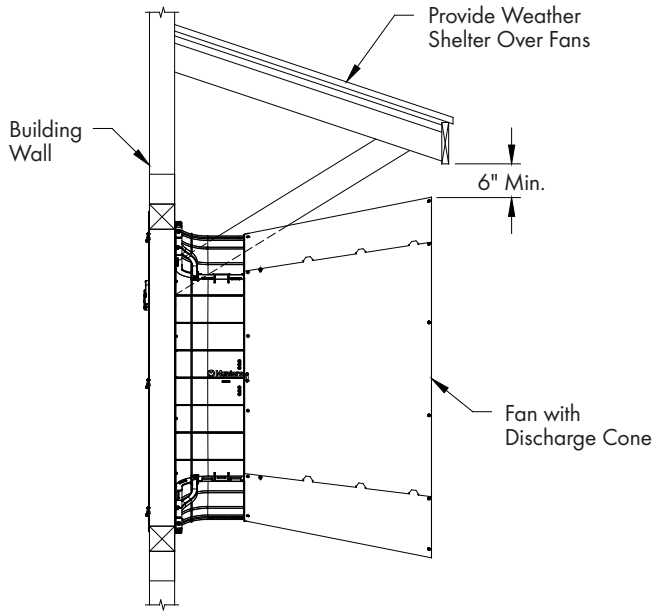


Figure 34

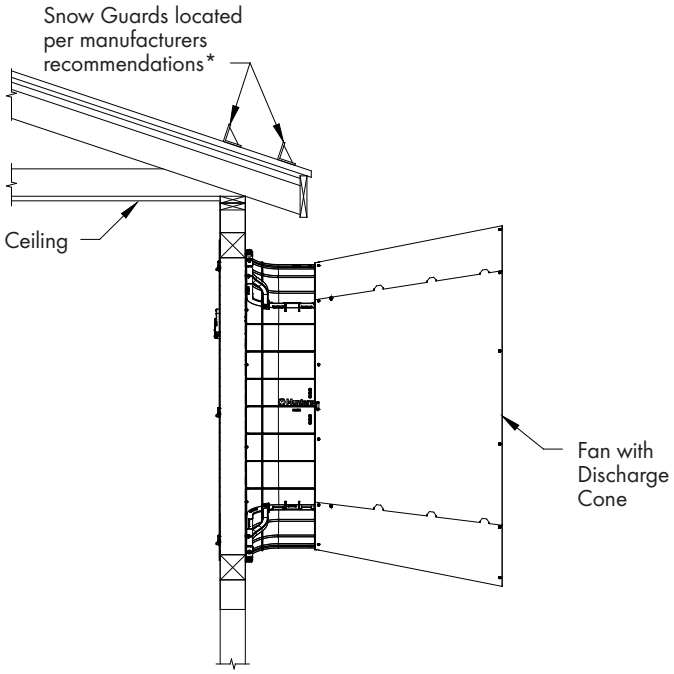


Figure 35

*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

Munters 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. Munters does not endorse any specific snow guard product and no performance warranty is implied.

Troubleshooting

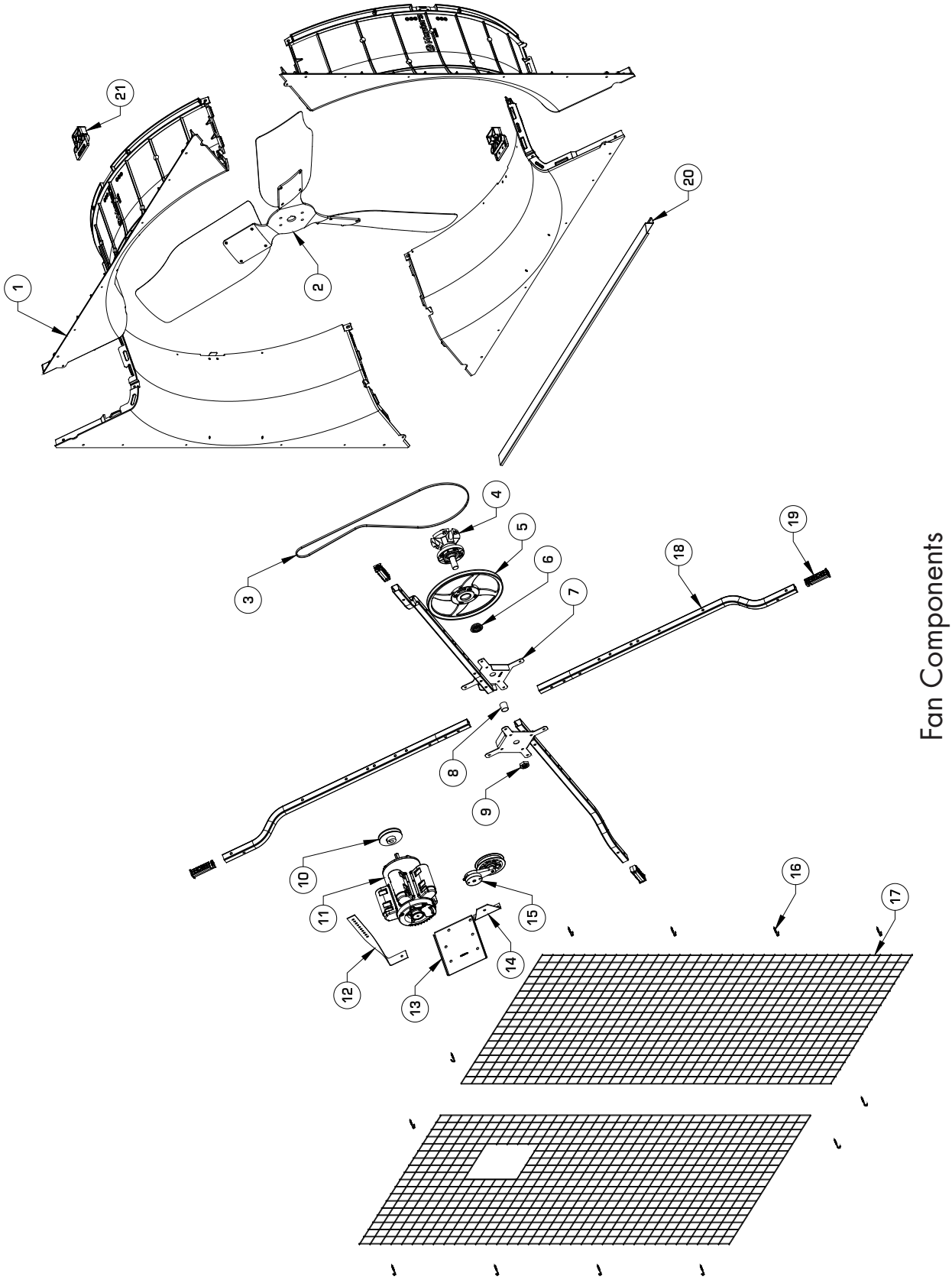
7.

7.1 Troubleshooting

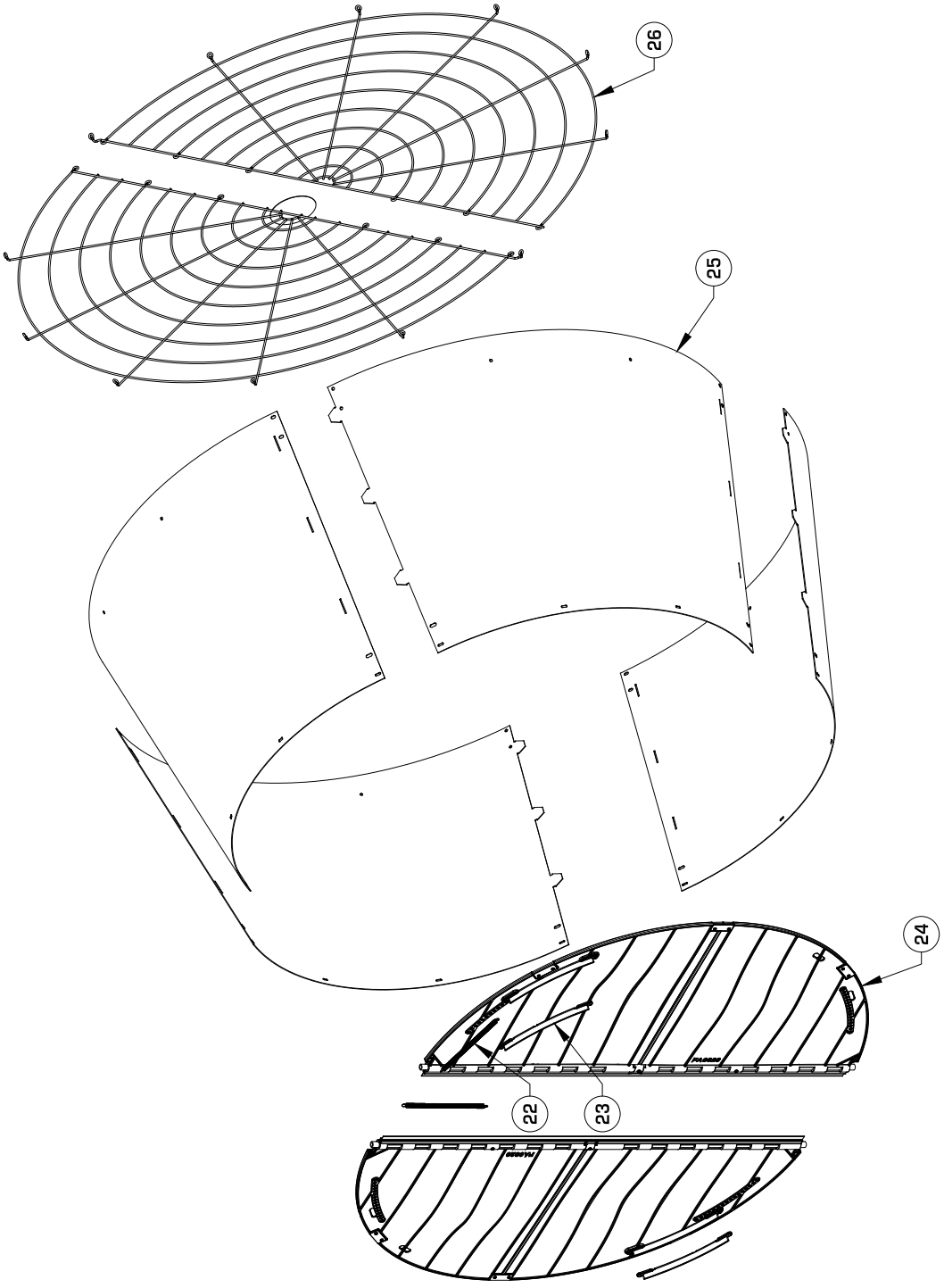
SYMPTOM	POSSIBLE CAUSES	CORRECTIVE ACTION
Fan Not Operating	1. Fan control set above room temperature 2. Blown fuse or open circuit breaker 3. Propeller blade contacting fan housing 4. Fan control defective 5. Motor defective	1. Set to a lower temperature 2. Replace fuse or reset breaker 3. Realign propeller 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.



Fan Components



Damper/Cone Components

Item	Catalog No. SAT60P/SAT60E	Part Name/Description	Qty.
1	FH6002	Orifice Panel Quarter, Black, PL	4
2	FP1060	Propeller, 3-Blade, GZ	1
3	FH1533/FH1532	V-belt, A-section, Aramid Fiber	1
4	FP2060	Hub with Bearing and Shaft	1
5	FH2137	Propeller Sheave, AL	1
6	KX1130	Shaft Shield, AL	1
7	FH6070	Center Plate, CTD-GZ	2
8	KX1367	Center Spacer Bushing, SS	1
9	KN1860	Hex Nut, M25x10mm, ZP	1
10	FH2019/FH2029	Motor Sheave 5/8" bore with keyseat, P/E, CI	1
11	FM1046PE	Motor	1
12	FH2855	Motor Bracket Support Stiffener, GZ	1
13	FH2801	Mounting Plate for NEMA 56 Motor, CTD-GZ	1
14	FH2505	Mounting Bracket for Belt Tensioner, CTD-GZ	1
15	FH2413	Belt Tensioner Assembly with 5" Idler Pulley	1
	FH7411	5" Idler Pulley only, with Bolt	1
	FH2459	Tensioner Arm only, AL	1
16	KX1095	1.75"L. x .5" One-Legged J-Nail, GZ	12
17	FH1352	Inlet Guard Half, 2" x 2" Mesh, GZ	2
18	FH6071	Tube Strut, Center, CTD-GZ	4
19	FH6050	Strut End Plug, Black, PL	4
20	FH6046	Drip Shield Plate, AL	1
21	KX1384	Hinge Plate, .75"D, SAT60, Black, PL	2
22	KX1469	Tensioner Spring, 11.0"L., C-Hooks, SS	2
23	FA2176	Deflector Wing, SAT60 Damper, BLK, PL	2
24	BP1060	One Half, Door Assembly, PL	2
25	FH4670	Discharge Cone Section, Black, PL	4
26	FH6045	Outlet Guard Half, Round, CTD BLK	2

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

Saturn 60 is developed and produced by Munters Corporation, Lansing, Michigan U.S.A. 1-800-227-2376

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