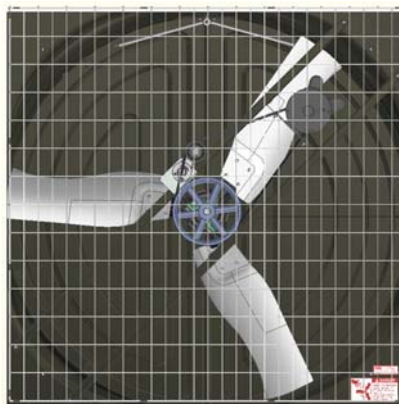
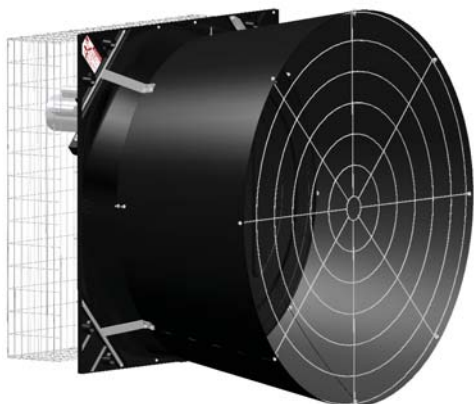




57" Endura® Fan Installation & Operator's Instruction Manual

Thank You The employees of CTB Inc. would like to thank you for your recent Chore-Time purchase. If a problem should arise, your Chore-Time distributor can supply the necessary information to help you.



Fan Part Numbers and Specifications

Fan Part No.	Bess Lab Test No.	Voltage	Phase	Hz	Nominal RPM	Amps	Starting Amps	Static Pressure at .10" w.c. [25 Pa]		Static Pressure at .15" w.c. [37.5 Pa]	
								CFM [cmh]	CFM/W [cmh/W]	CFM [cmh]	CFM/W [cmh/W]
53464-21 53464-21S	12615	230	1	60	542	6.9	36.0	30400 [51600]	20.4 [34.7]	28400 [48200]	18.1 [30.7]
53464-22 53464-22S	12614	230	1	60	543	5.4	27.5	27100 [46100]	23 [39.1]	25100 [42700]	20.1 [34.2]
53464-41 53464-41S	12616	230	3	60	534	4.8	40.0	30000 [51100]	20.9 [35.6]	27800 [47200]	18.1 [30.8]
53464-42 53464-42S	12619	230	3	60	539	4.1	40.0	26900 [45600]	23.3 [39.6]	24800 [42200]	20.4 [34.6]
53464-51 53464-51S	12617	230	3	50	527	5.2	45.0	29500 [50100]	20.8 [35.3]	27200 [46200]	18.1 [30.8]
53464-52 53464-52S	12618	230	3	50	534	4.7	45.0	26500 [45100]	22.9 [38.9]	24500 [41600]	20.1 [34.1]



Operating static pressure should be less than 0.15 inches water column [37.5 Pa].

The Fan Inlet and exhaust must be kept clear of obstructions. Failure to keep the Fan airflow path clear of obstructions could cause loss of Fan performance and Fan damage.

Safety Information

Carefully read all safety messages in this manual and on your equipment safety signs. Follow recommended precautions and safe operating practices. Keep safety signs in good condition. Replace missing or damaged safety signs.

DANGER: Electrical Hazard

Disconnect electrical power before inspecting or servicing equipment. Ground all electrical equipment for safety. All electrical wiring must be done by a qualified electrician in accordance with local and national electric codes. Ground all non-current carrying metal parts to guard against electrical shock. With the exception of motor overload protection, electrical disconnects and over current protection are not supplied with the equipment.



DANGER: Rotating Fan Blade

Keep Hands away. Disconnect power before servicing. Fan may start automatically. Do not operate the Fan without the screens in place. Disregard to these things will cause serious injury including death.



Warranty

LIMITED WARRANTY

Chore-Time Group, a division of CTB, Inc. ("Chore-Time") warrants new CHORE-TIME Endura® Fans manufactured by Chore-Time to be free from defects in material or workmanship under normal usage and conditions, for One (1) year from the date of installation by the original purchaser ("Warranty"). Chore-Time provides for an extension of the aforementioned Warranty period ("Extended Warranty Period") with respect to certain Product parts ("Component Part") as set forth in the table below. If such a defect is determined by Chore-Time to exist within the applicable period, Chore-Time will, at its option, (a) repair the Product or Component Part free of charge, F.O.B. the factory of manufacture or (b) replace the Product or Component Part free of charge, F.O.B. the factory of manufacture. This Warranty is not transferable, and applies only to the original purchaser of the Product.

Component Part	Extended Warranty Period
Endura® Fan Cast Aluminum Blades	Lifetime
Endura® Fan Housing and Cones (Including Composite Shrouds, Composite Doors and HDPE Cone Panels)	Five (5) Years

CONDITIONS AND LIMITATIONS

THIS WARRANTY CONSTITUTES CHORE-TIME'S ENTIRE AND SOLE WARRANTY AND CHORE-TIME EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, INCLUDING, BUT NOT LIMITED TO, EXPRESS AND IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, WARRANTIES AS TO MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSES. CHORE-TIME shall not be liable for any direct, indirect, incidental, consequential or special damages which any purchaser may suffer or claim to suffer as a result of any defect in the Product. Consequential or Special Damages as used herein include, but are not limited to, lost or damaged products or goods, costs of transportation, lost sales, lost orders, lost income, increased overhead, labor and incidental costs, and operational inefficiencies. *Some jurisdictions prohibit limitations on implied warranties and/or the exclusion or limitation of such damages, so these limitations and exclusions may not apply to you. This warranty gives the original purchaser specific legal rights. You may also have other rights based upon your specific jurisdiction.*

Compliance with federal, state and local rules which apply to the location, installation and use of the Product are the responsibility of the original purchaser, and CHORE-TIME shall not be liable for any damages which may result from non-compliance with such rules.

The following circumstances shall render this Warranty void:

- Modifications made to the Product not specifically delineated in the Product manual.
- Product not installed and/or operated in accordance with the instructions published by the CHORE-TIME.
- All components of the Product are not original equipment supplied by CHORE-TIME.
- Product was not purchased from and/or installed by a CHORE-TIME authorized distributor or certified representative.
- Product experienced malfunction or failure resulting from misuse, abuse, mismanagement, negligence, alteration, accident, or lack of proper maintenance, or from lightning strikes, electrical power surges or interruption of electricity.
- Product experienced corrosion, material deterioration and/or equipment malfunction caused by or consistent with the application of chemicals, minerals, sediments or other foreign elements.
- Product was used for any purpose other than for the care of poultry and livestock.

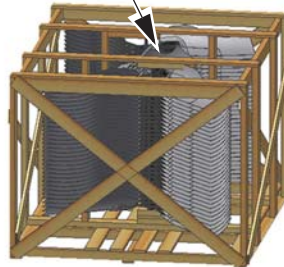
The Warranty and Extended Warranty may only be modified in writing by an officer of CHORE-TIME. CHORE-TIME shall have no obligation or responsibility for any representations or warranties made by or on behalf of any distributor, dealer, agent or certified representative.

Un-Assembled Parts Packages



(53843-XX)
Component Package

Fan Blade Part No.
(on Blade Spider)



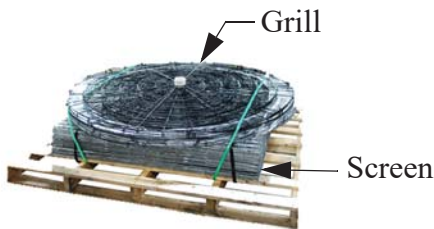
(53219-XX, 53532-XX, 54529-XX, or 54530-XX)
Fan Blade Package



(53850-XX)
Shroud and Door Package



(See Table Below)
Motor Pallet



(53129) Grill
(48794) Inlet Screen



(53788-AAXX, or -AAXXS)
Hardware Package



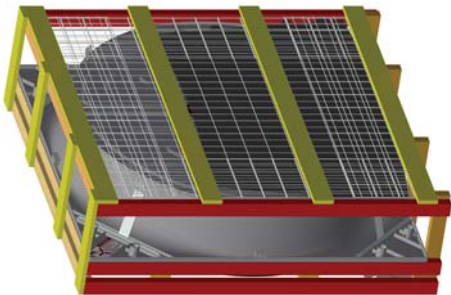
(53753-1, -2, -1S, -2S)
Drive Assembly
1 or 2 Drives per Box

Un-Assembled 57" Endura® Fan Component Part Numbers

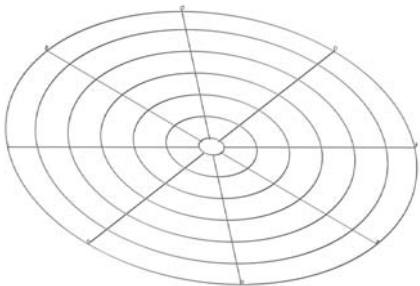
Fan Part No.	Drive Assembly	Motor	Hardware Pkg.	Fan Blade
53464-21	53753-1	50496	53788-21XX	53219
53464-21S	53753-1S	50496	53788-21XXS	54529
53464-22	53753-1	49903	53788-22XX	53532
53464-22S	53753-1S	49903	53788-22XXS	54530
53464-41	53753-1	48608	53788-41XX	53219
53464-41S	53753-1S	48608	53788-41XXS	54529
53464-42	53753-1	48608	53788-42XX	53532
53464-42S	53753-1S	48608	53788-42XXS	54530
53464-51	53753-2	48608	53788-51XX	53219
53464-51S	53753-2S	48608	53788-51XXS	54529
53464-52	53753-2	48608	53788-52XX	53532
53464-52S	53753-2S	48608	53788-52XXS	54530

XX= Number of Fans that can be built with components in Package.

Assembled Fan Component Part Numbers



(53464-XXXXP)
Fan Assembly



(53129)
57" Fan Grill

Assembled 57" Endura® Fan Component Part Numbers

Part Number	Qty									
	53464-21	53464-21S	53464-22	53464-22S	53464-41	53464-41S	53464-42	53464-42S	53464-51	53464-51S
Fan Assembly	1	53464-21P	53464-21PS	53464-22P	53464-41P	53464-41PS	53464-42P	53464-42PS	53464-51P	53464-51PS
Fan Grill	1	53219	53219	53219	53219	53219	53219	53219	53219	53219

Hardware Needed Per Fan (Un-Assembled)

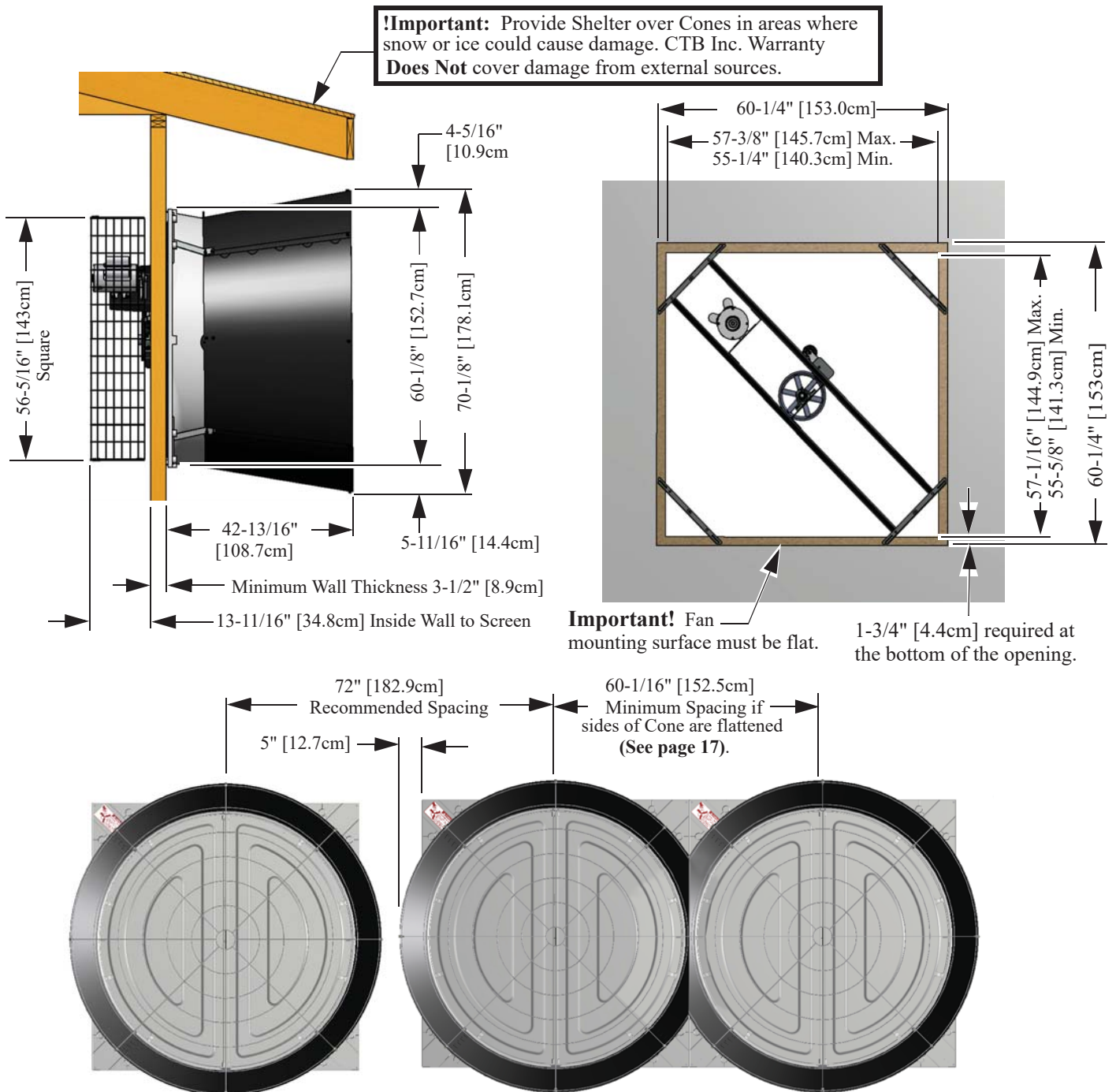
57" Endura® Fan Hardware Items Per Fan			
Items are Bulk packed in 53788-AAXX, or 53788-AAXXS (See previous page).			
Item	Qty.	Description	Part No.
1	1	Bottom Pivot Plate	53036
2	1	Top Pivot Plate	53037
3	4	Door Hinge Pin	53038
4	1	1/4 x 1-1/8" Sq. Key (For Blade)	2419-2
5	20	5/16-18 x HHBS Bolt	39-20073
6	55	5/16-18 Hx. Serrated SS Flange Nut	46764
7	20	5/16-18 x 1" SS Carriage Bolt	54184
8	2	.38 SS Flat Washer	ST99070
9	1	72.5" Fan Cone Cable	53399
10	1	5/16-18 x 3" Eye Bolt	30663
11	2	Ø1/2" x 11" Door Spring	49629
12	24	1/4-10 x 1-1/2" Lag Screw SS	41561
13	7	Open Eye Hook	1214
14	1	Screen Spring (4 pc. per package)	54480-4
15	6	Orifice Frame Bracket	53611
16	2	Cable Clamp	732
17	1	Fan Description Decal	39002-XXX
18	1/3	Anti-Seize Lubricant	47749
19	--	57" Endura® Fan Instruction Manual	MV2406

Tools Needed and Supplies

3/8" socket, 1/2" socket or wrench, Side cutters, 1/4" nut driver, Motor power cord, Wire nuts / terminals, Optional screw hook installation tool (CTB part number 13150-1), Caulking, 5/32" allen wrench (un-assembled)

New Installation Planning

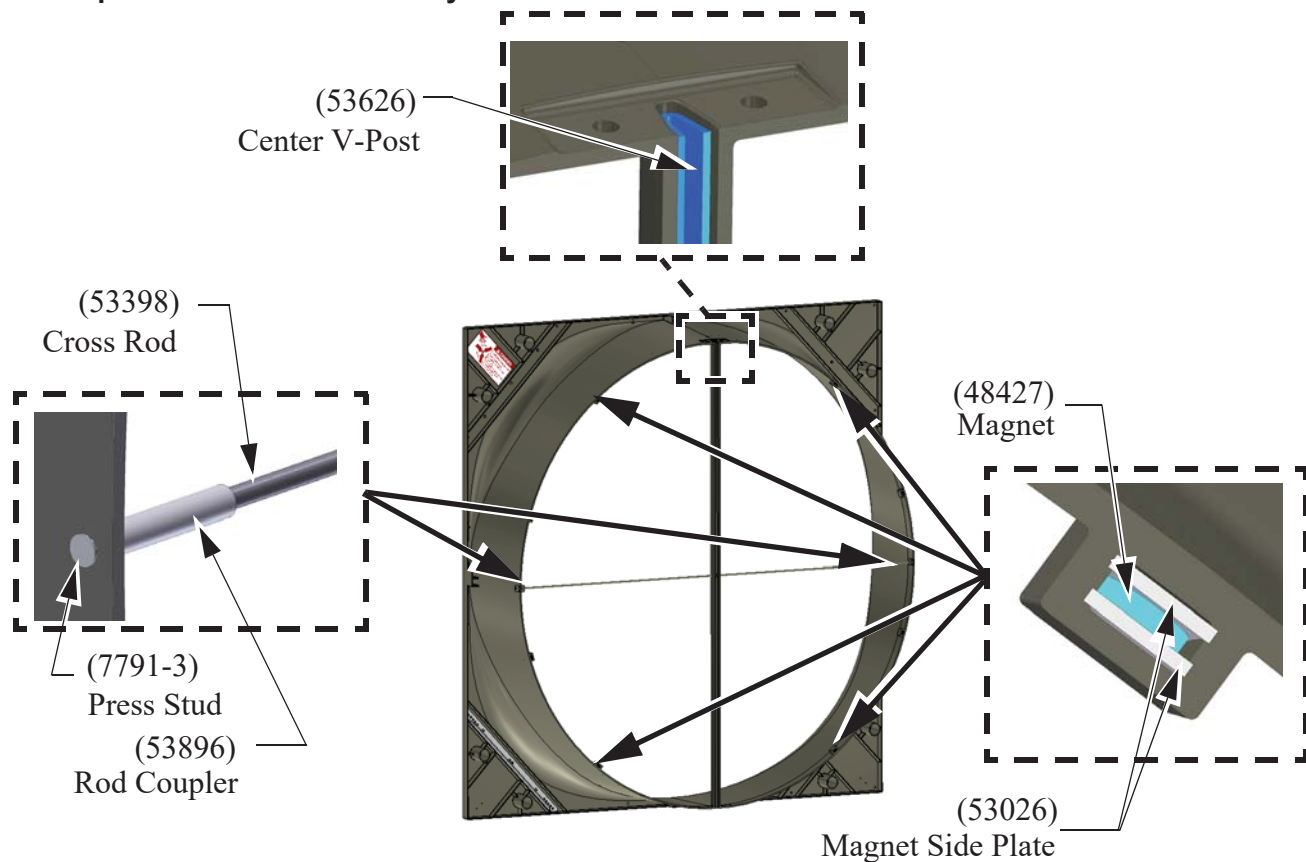
Planning the layout of the spacing between Fans is very important. Spacing too close together will cause interference between the discharge Cones.



Installation

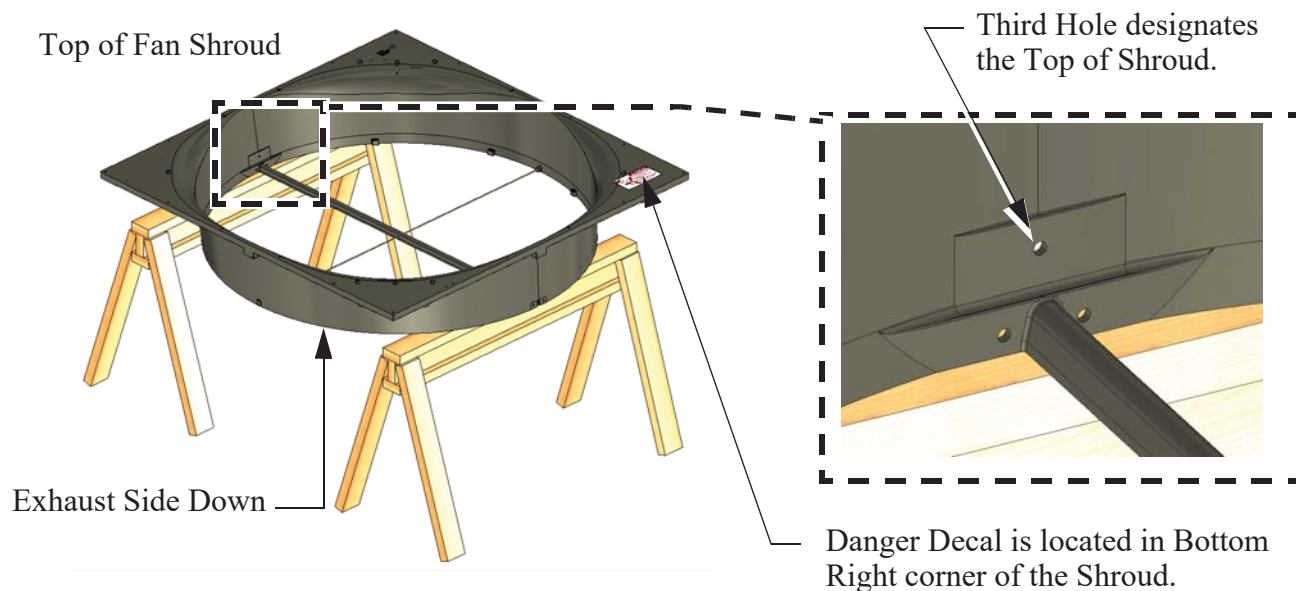
Inspecting the Shroud (For assembled versions skip to page 12)

Inspect the Shroud assembly for hardware as received.

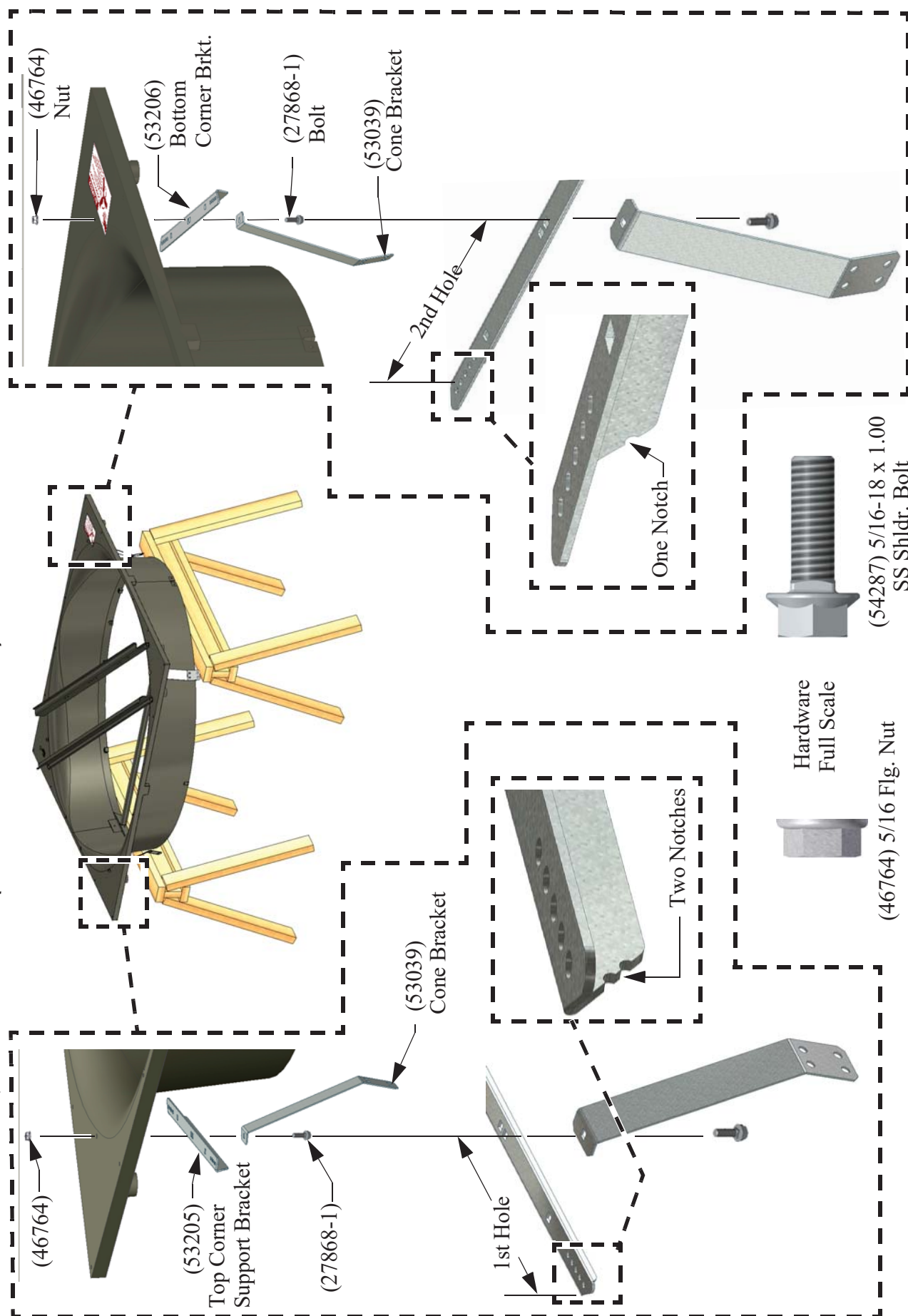


Fan Shroud Assembly (Unassembled version)

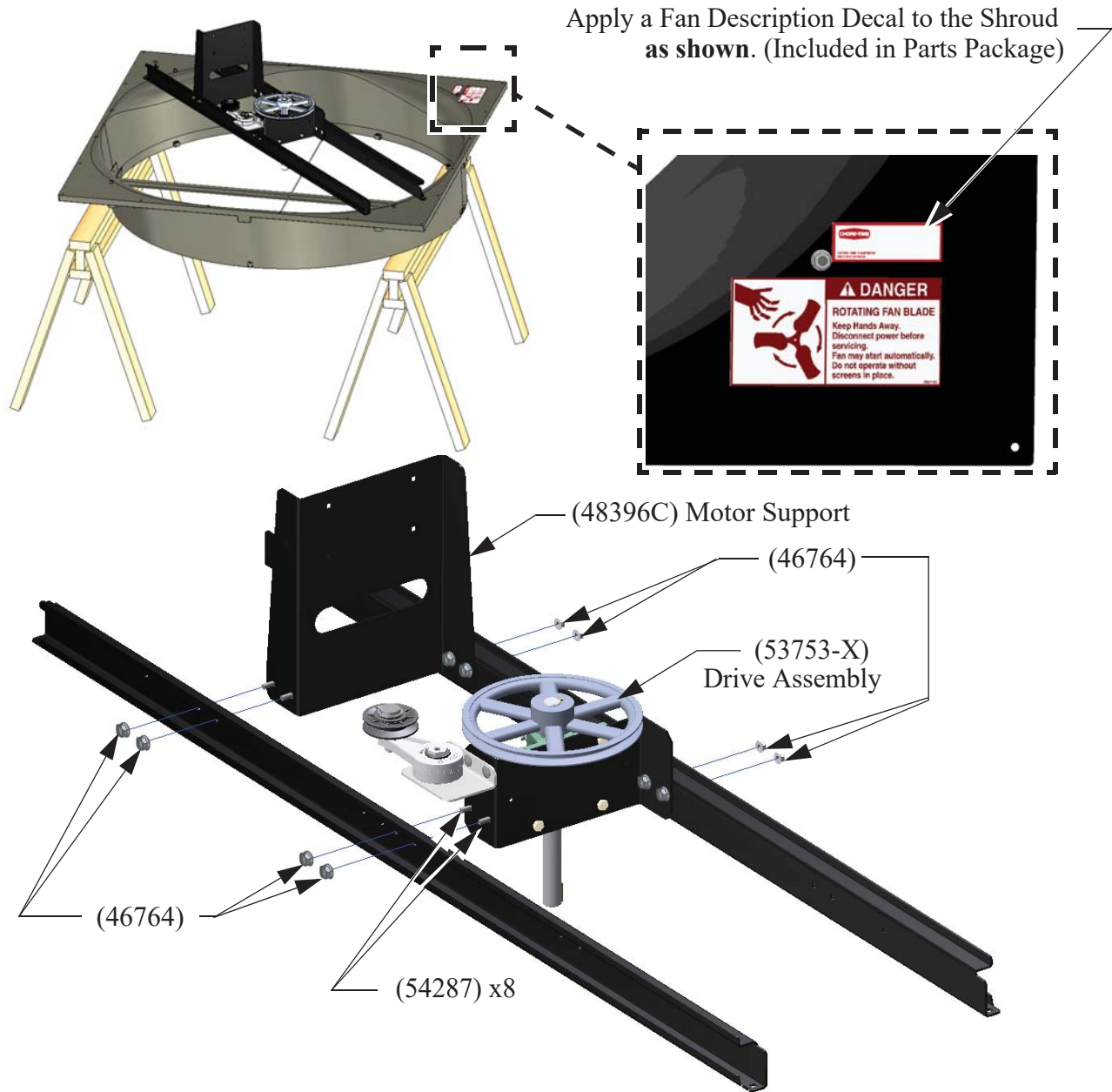
Rest Fan Shroud on Saw Horses for ease of Assembly



Cone Brackets, Corner Brackets (Corners without Posts)



Installing the Drive Assembly and Motor Mount



Use the Bottom Set of Holes in the Posts as shown.



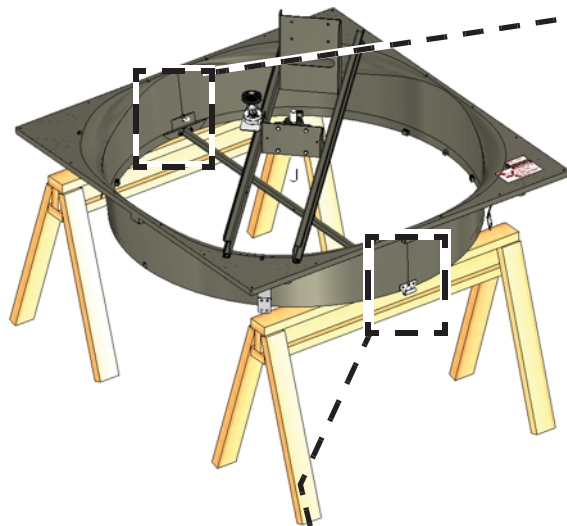
Hardware
Full Scale



(46764) 5/16 Flg. Nut

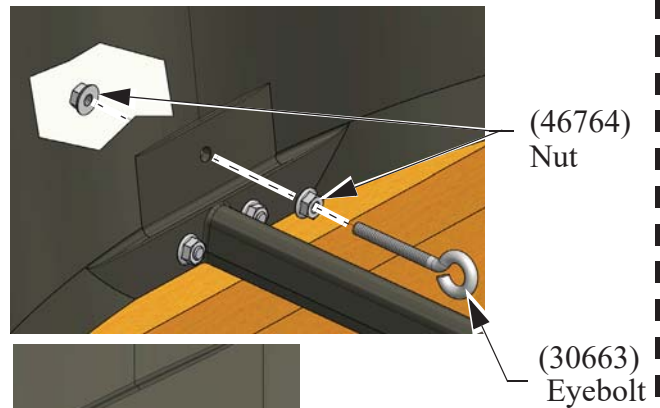
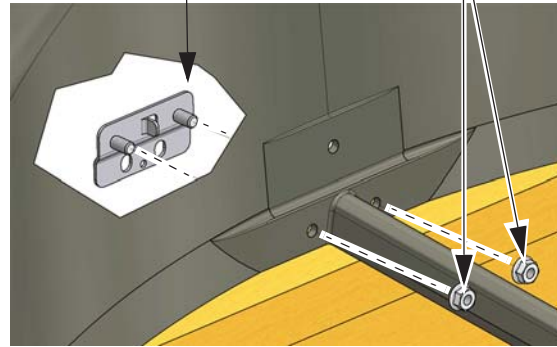
(54287) 5/16-18 x 1.00
SS Shldr. Bolt

Top and Bottom Pivot Plates and Eyebolt, Door Stop Cable



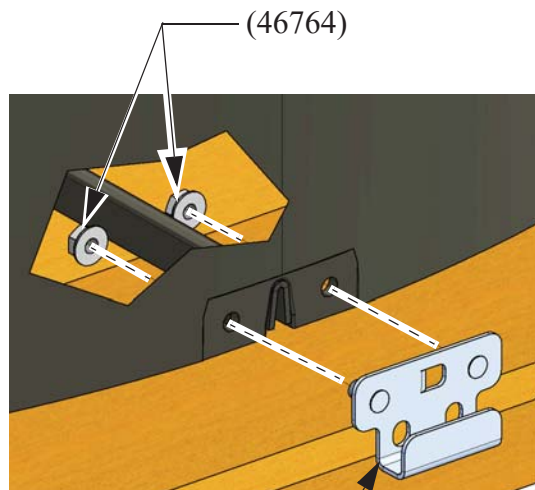
(53037)
Top Pivot Plate

(46764)
Nut



(46764)
Nut

(30663)
Eyebolt

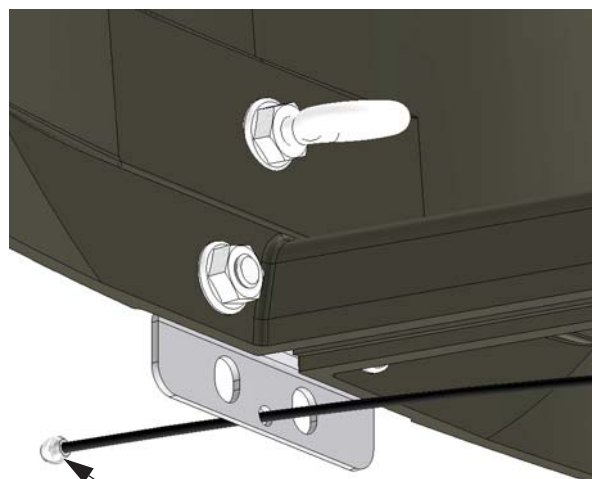


(46764)

(53036)
Bottom Pivot Plate

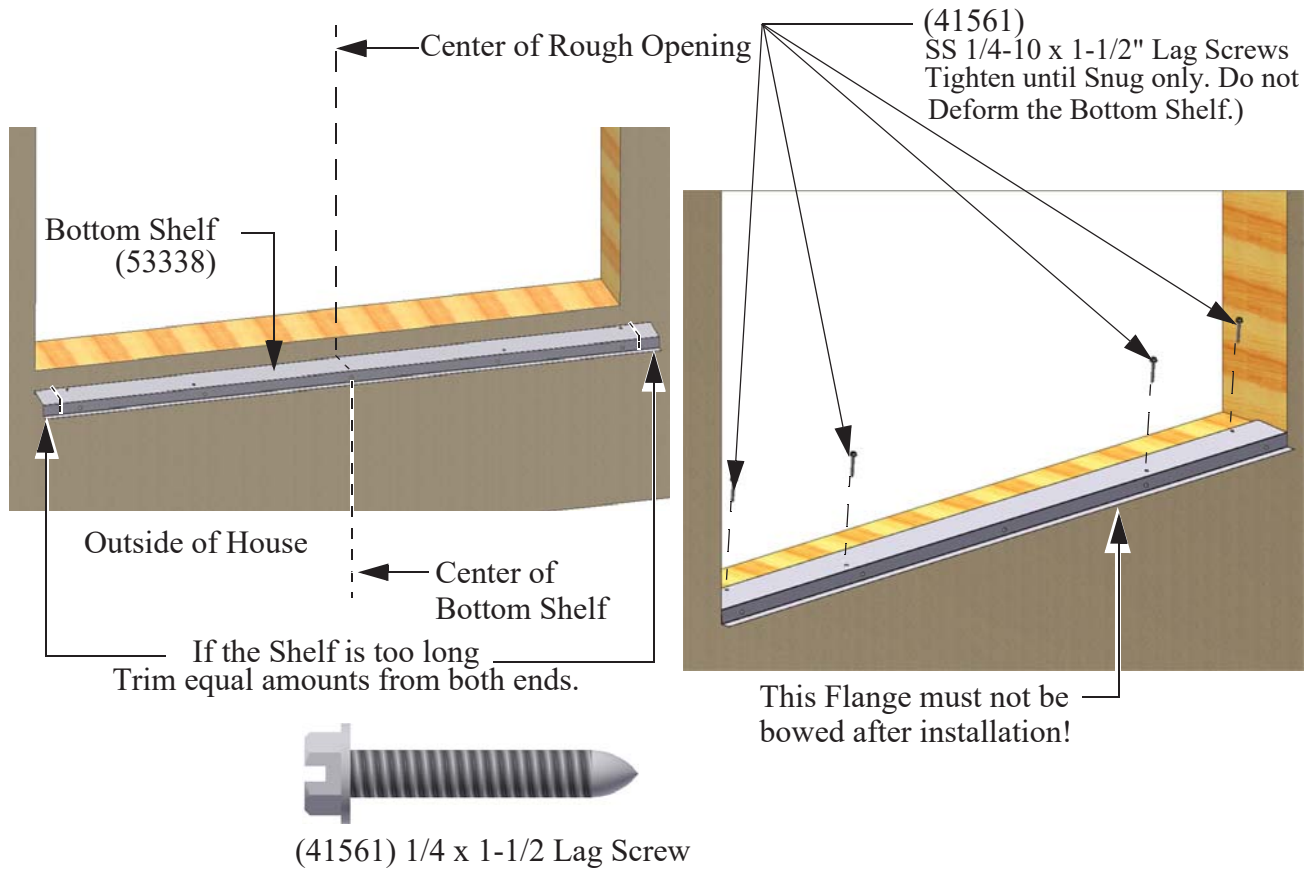


(46764) 5/16 Flg. Nut

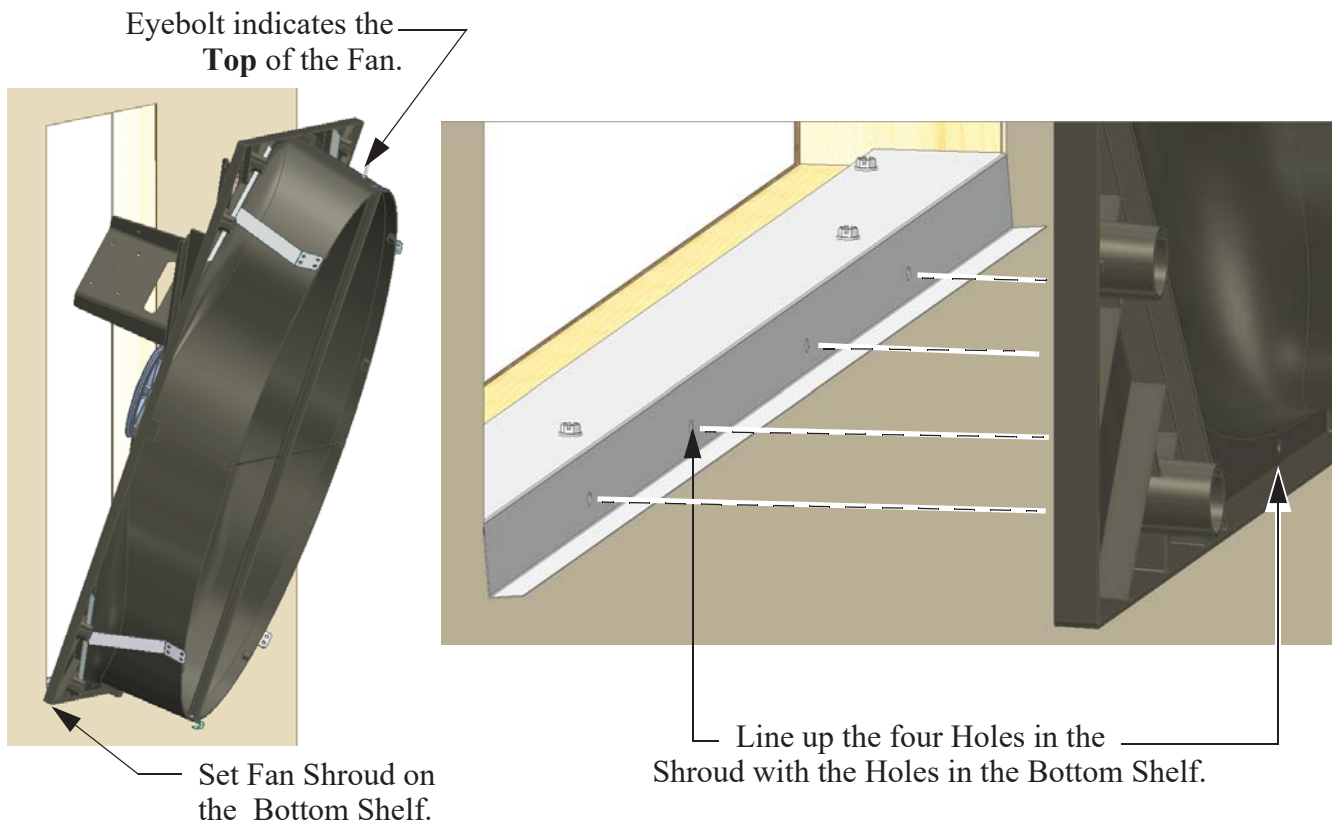


Insert (53399) Door Stop Cable
Assembly into Top Pivot Plate

Bottom Shelf Installation

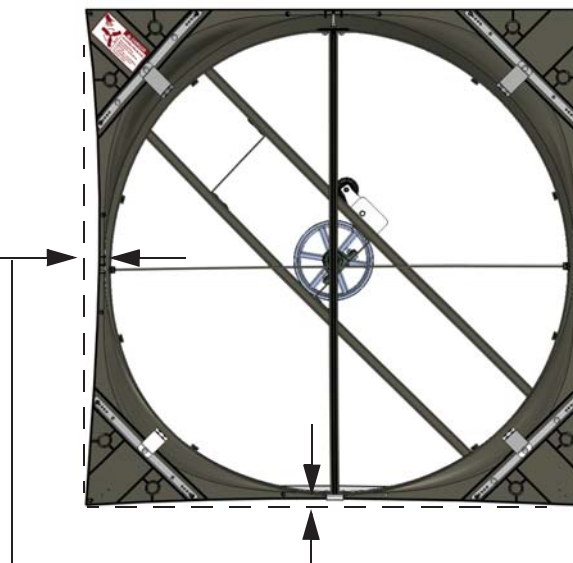


Attaching the Fan to the Wall

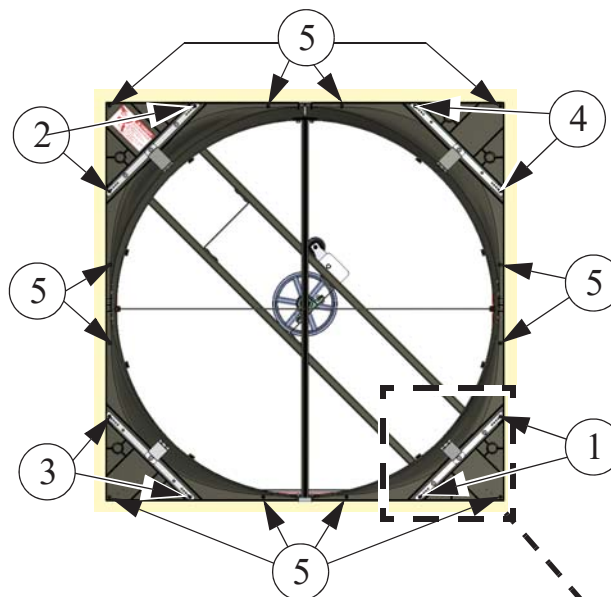


It is important when attaching the Fan to the Wall to keep edges of Shroud straight.

Keep Edges of Shroud Straight. **Do not** allow Shroud to bow inward.



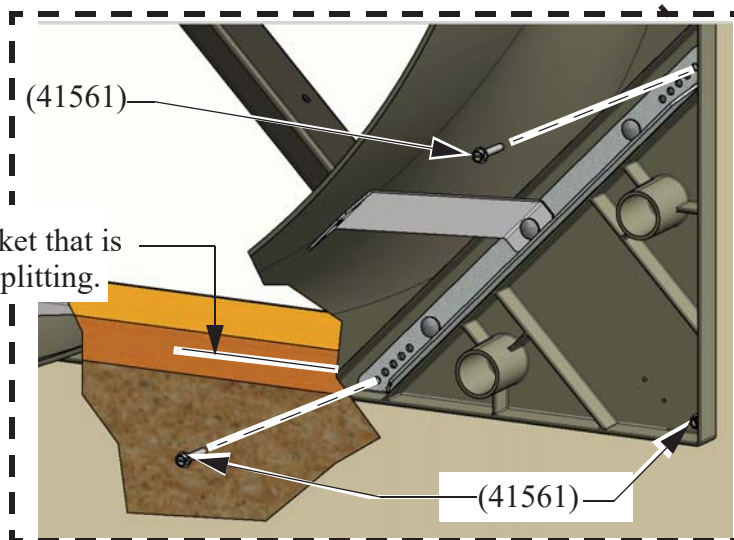
Pre-drill holes to 3/16" [4.8 mm] to avoid splitting lumber. If holes do not line up with the lumber it may be necessary to put Screws through Shroud. **Important! Attach the Fan to the Wall with 1/4 x 1-1/2" Lag Screws (41561) in the specific order shown. Attach with a total of 20 Lag Screws.**



Use the Hole in the Corner Bracket that is centered with Lumber to avoid splitting.

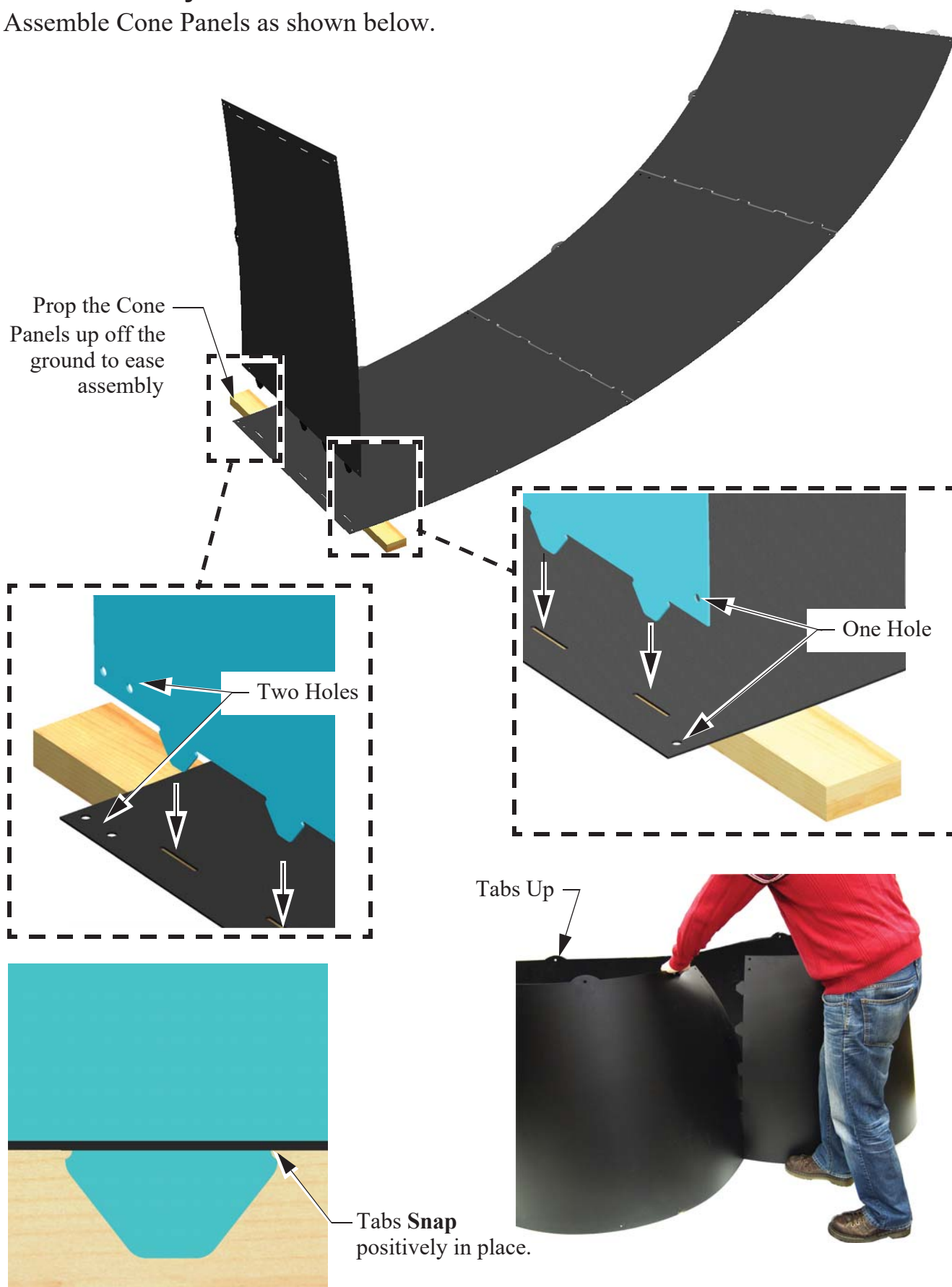


(41561) 1/4 x 1-1/2 Lag Screw

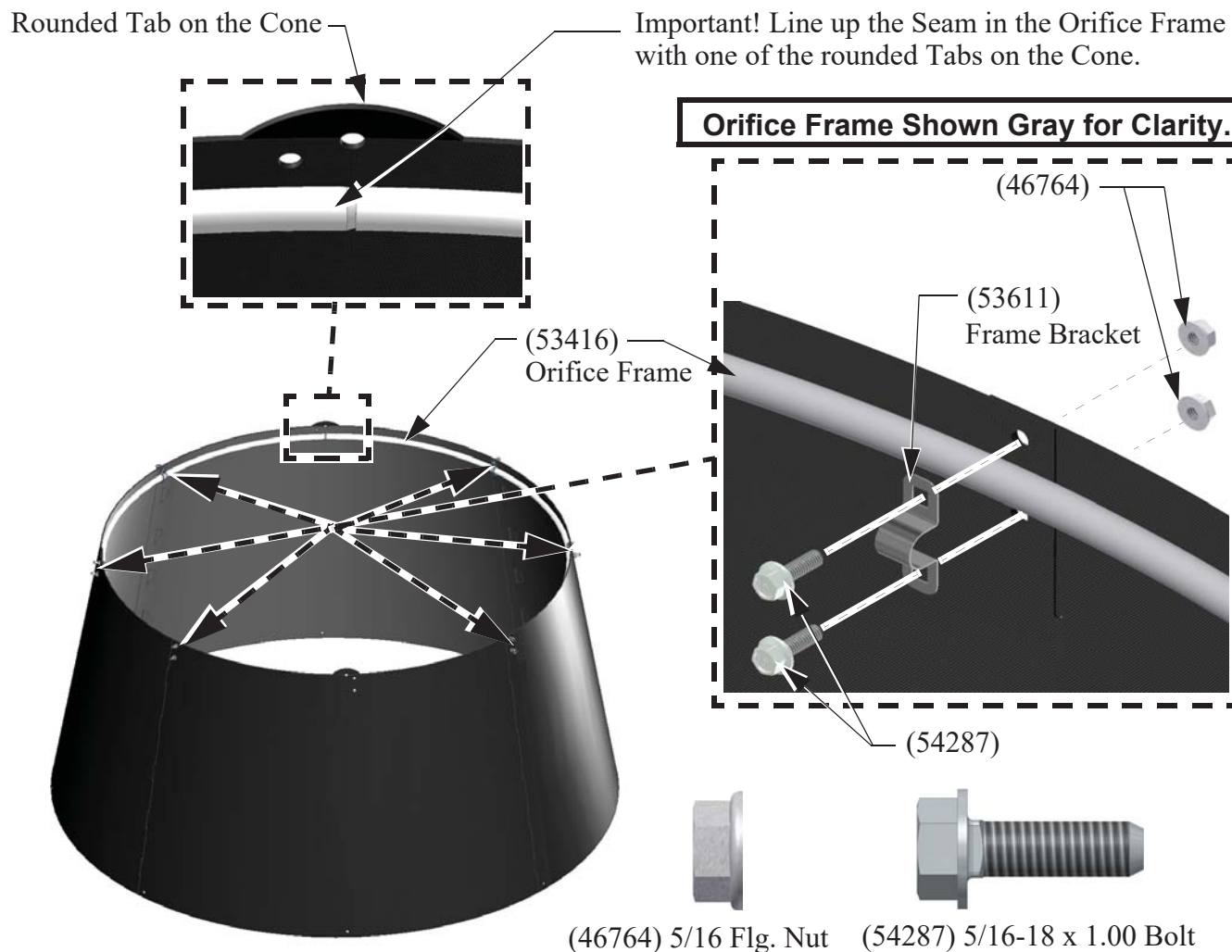


Cone Assembly

Assemble Cone Panels as shown below.

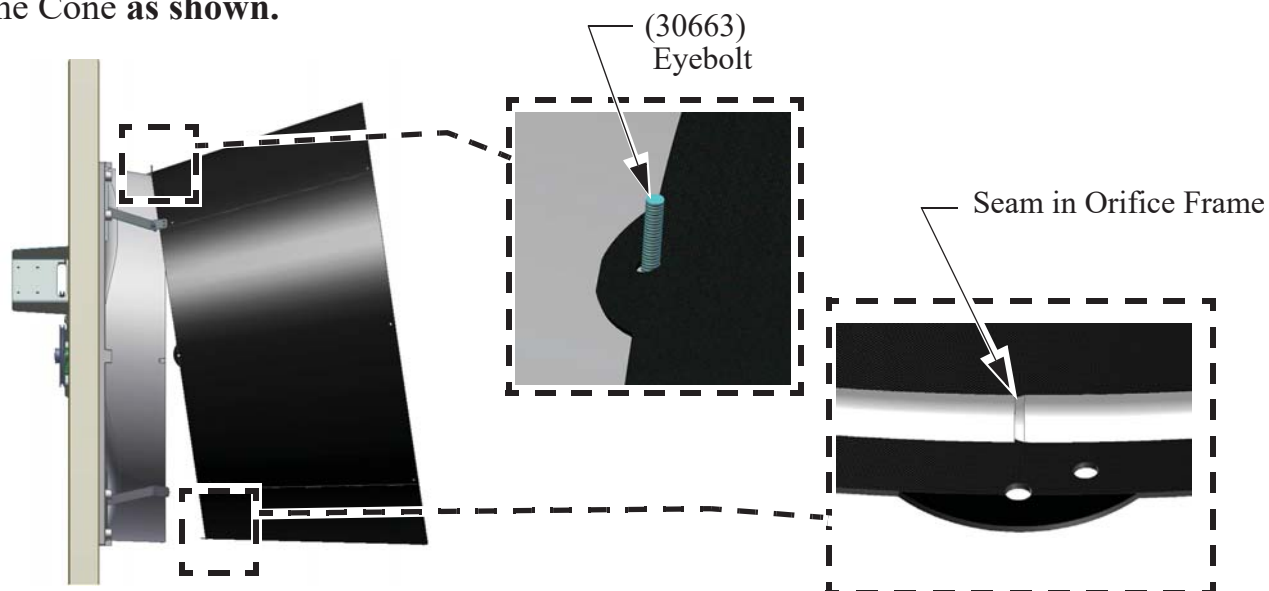


Installing the Orifice Frame

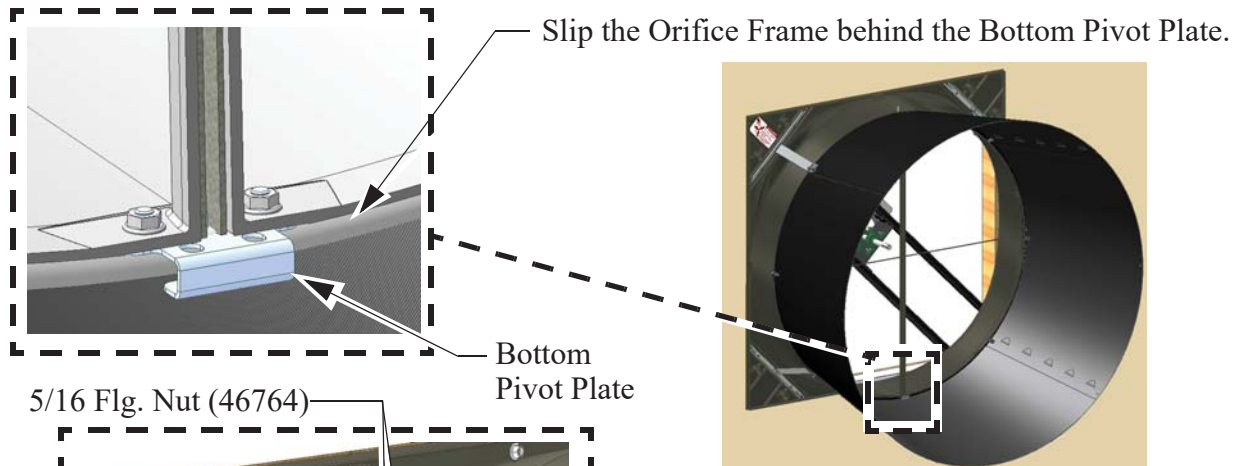


Cone Installation

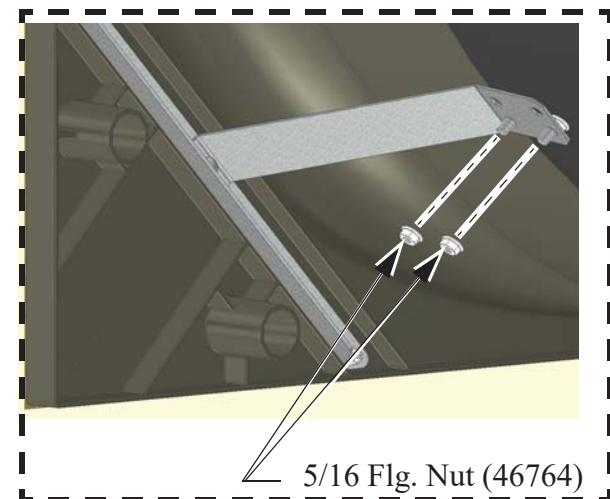
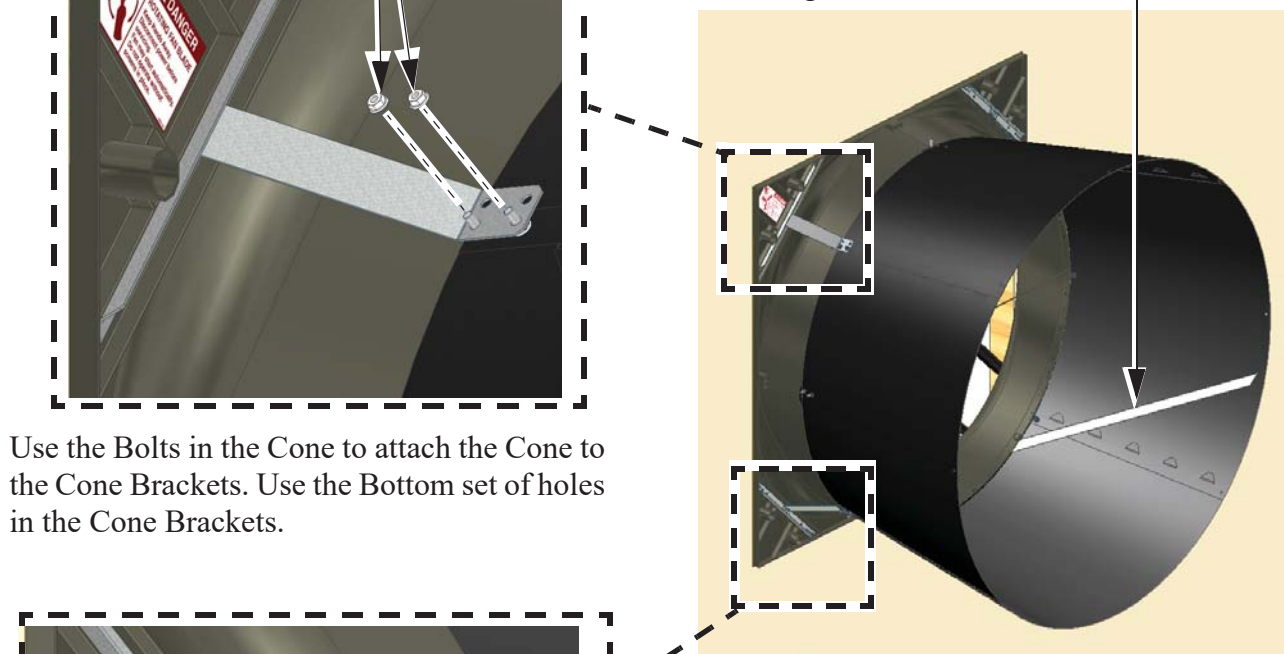
Hang the Cone on the Eye-Bolt extruding from the top of the Shroud using the hole in the Cone as shown.



Attach the cone to the Shroud **as shown below.**



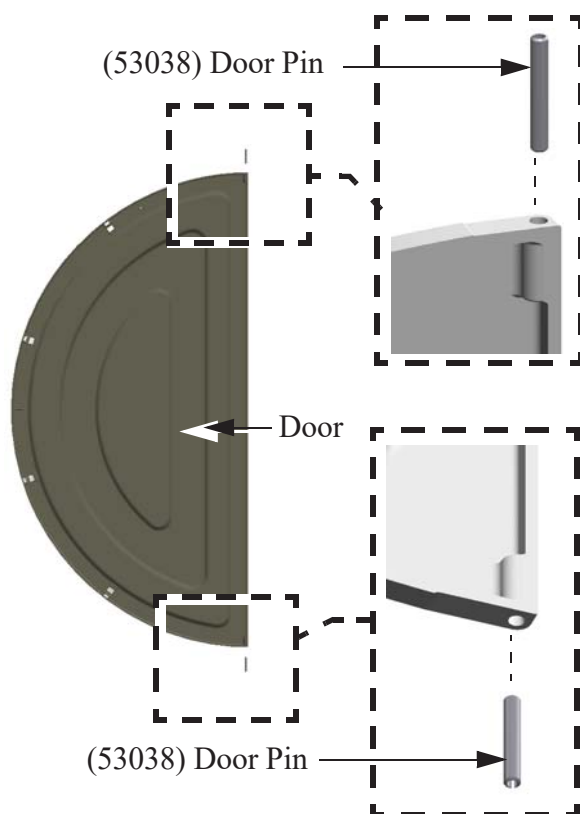
If necessary, slip a thin piece of metal between the Shroud and Cone and work it around the Cone to get it on.



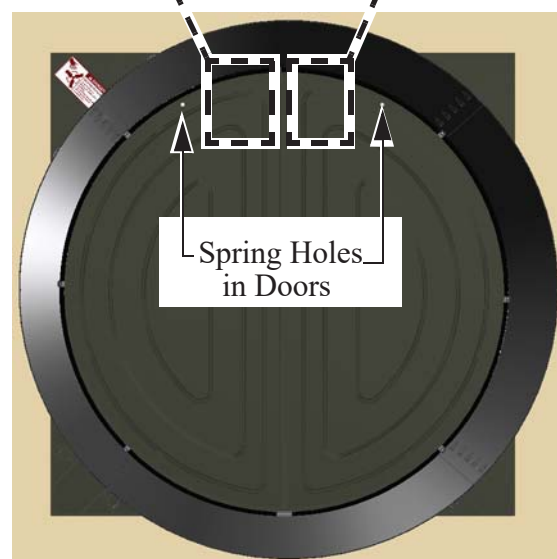
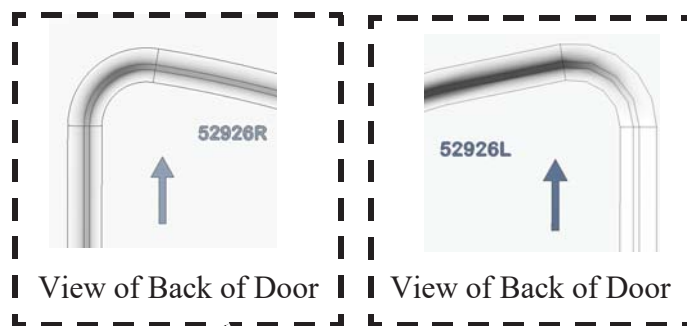
(46764) 5/16 Flg. Nut

Door Assembly and Installation

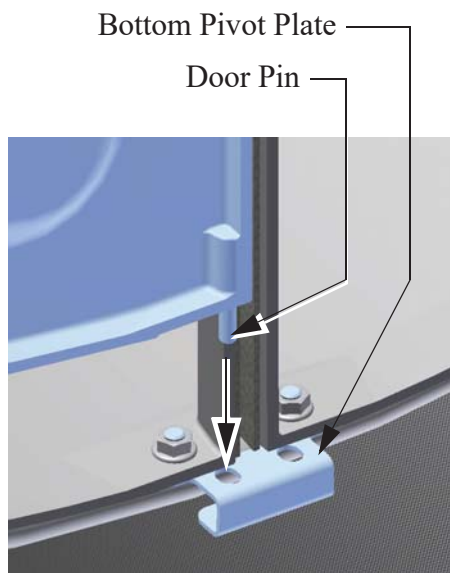
Insert Door Pins in both Doors as shown.
Push Pins in until they bottom out.



Doors are Left and Right specific.



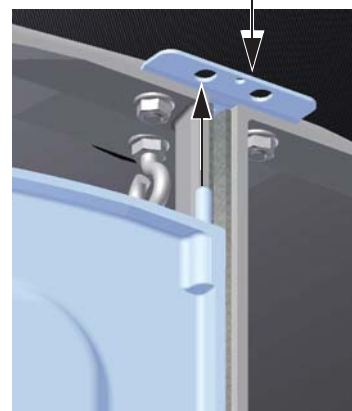
Insert Door Pins into Bottom Pivot Plate.



Grab the Door in the Center, Bow the Door outward, and insert the Top Door Pin into the Top Pivot Bracket as shown. **Do not Overbow the Doors!**

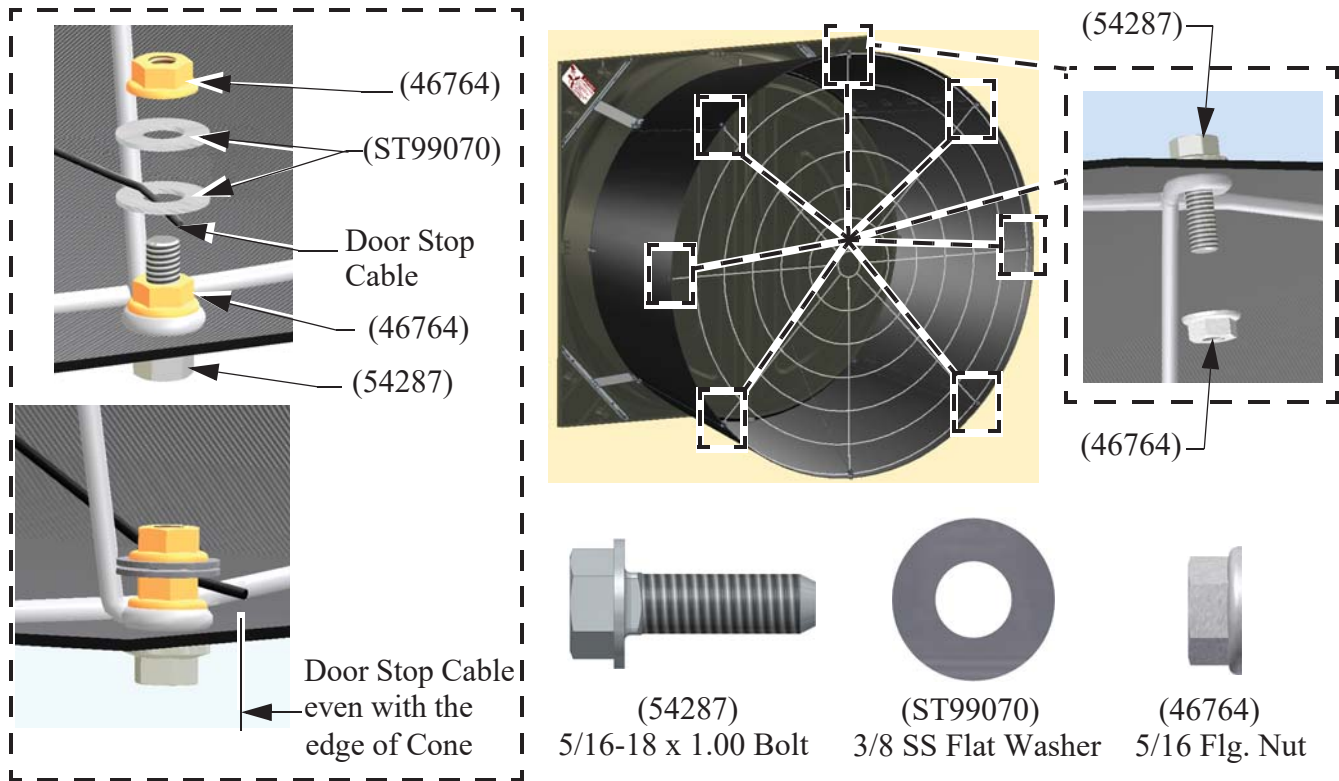


Top Pivot Plate

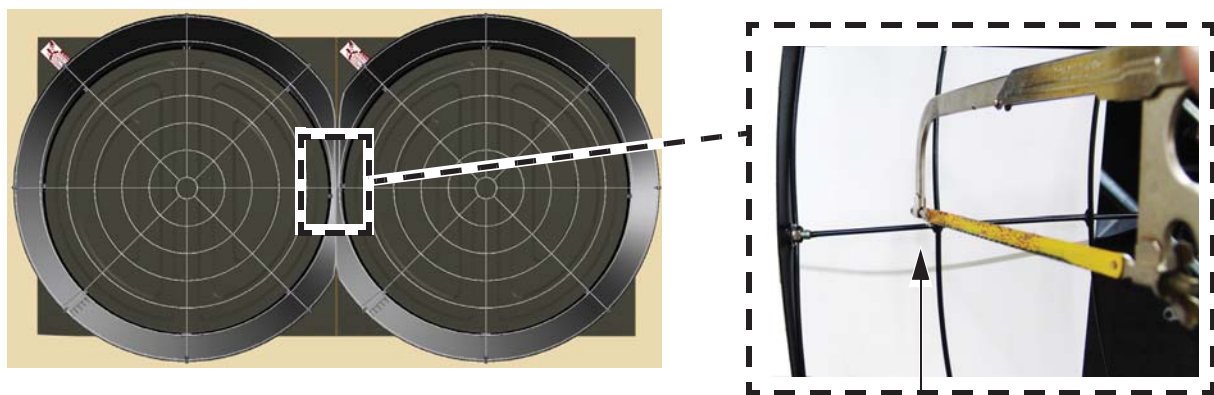


Grill Installation

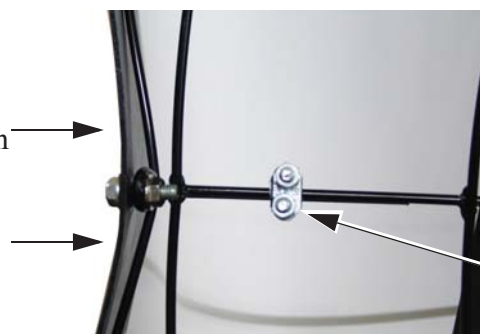
Install the Fan Cone Grill (as shown). Attach the end of the Door Stop Cable to the bottom Grill Leg as shown.



If it is desired to Mount Fans at the minimum spacing cutting the Grills is required **as shown.**



Push the Cone Side in and use a Clamp to secure the Grill Wires.



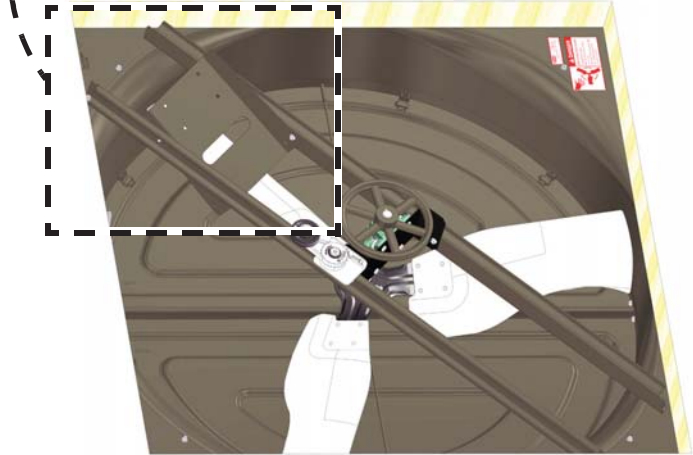
Cut the Grill here

(732) Clamp (In Parts Package)

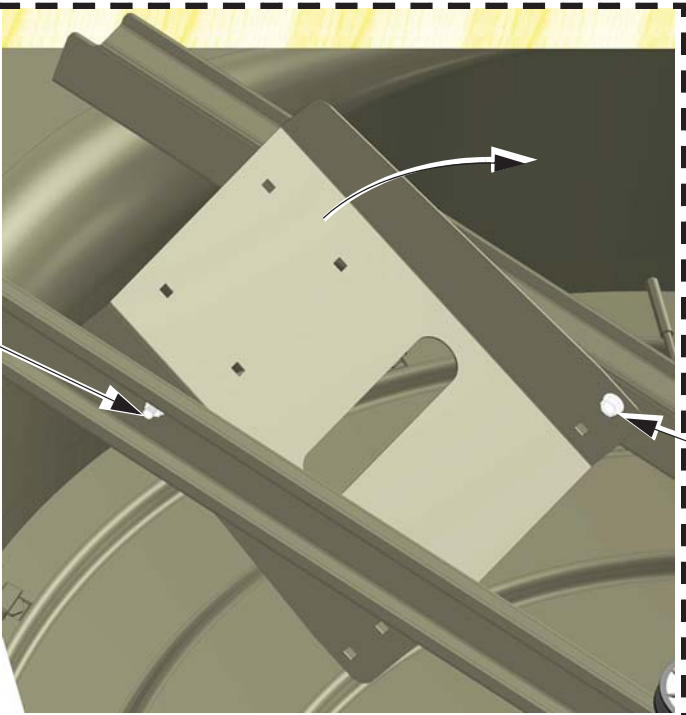
Rotate Motor Support (Assembled Fans)

Rotate the Motor Support Bracket into the upright position by removing the **upper Bolt and Nut**, and loosening the **lower Bolt and Nut**.

Attach the Motor Support Bracket to the Posts with 5/16 Bolts (54287) and 5/16 Flange Nuts (46764).



Remove Bolt



Loosen Bolt

4x (54287) 5/16-18 x 1.00

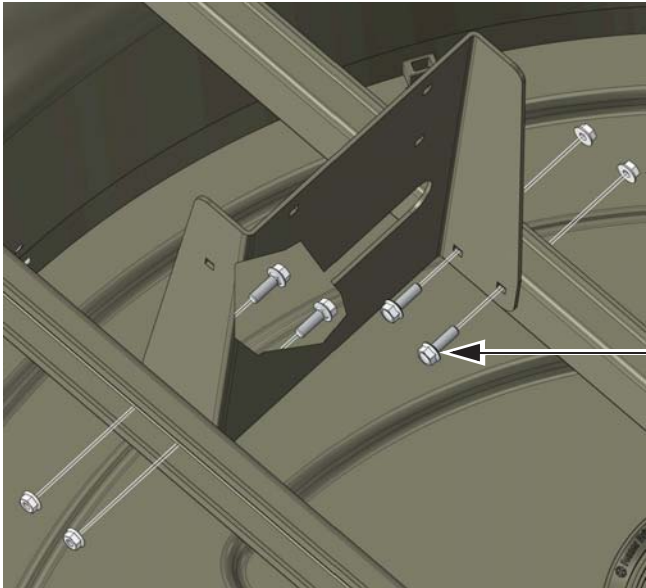
SS Shldr. Bolt



(46764) 5/16 Flg. Nut



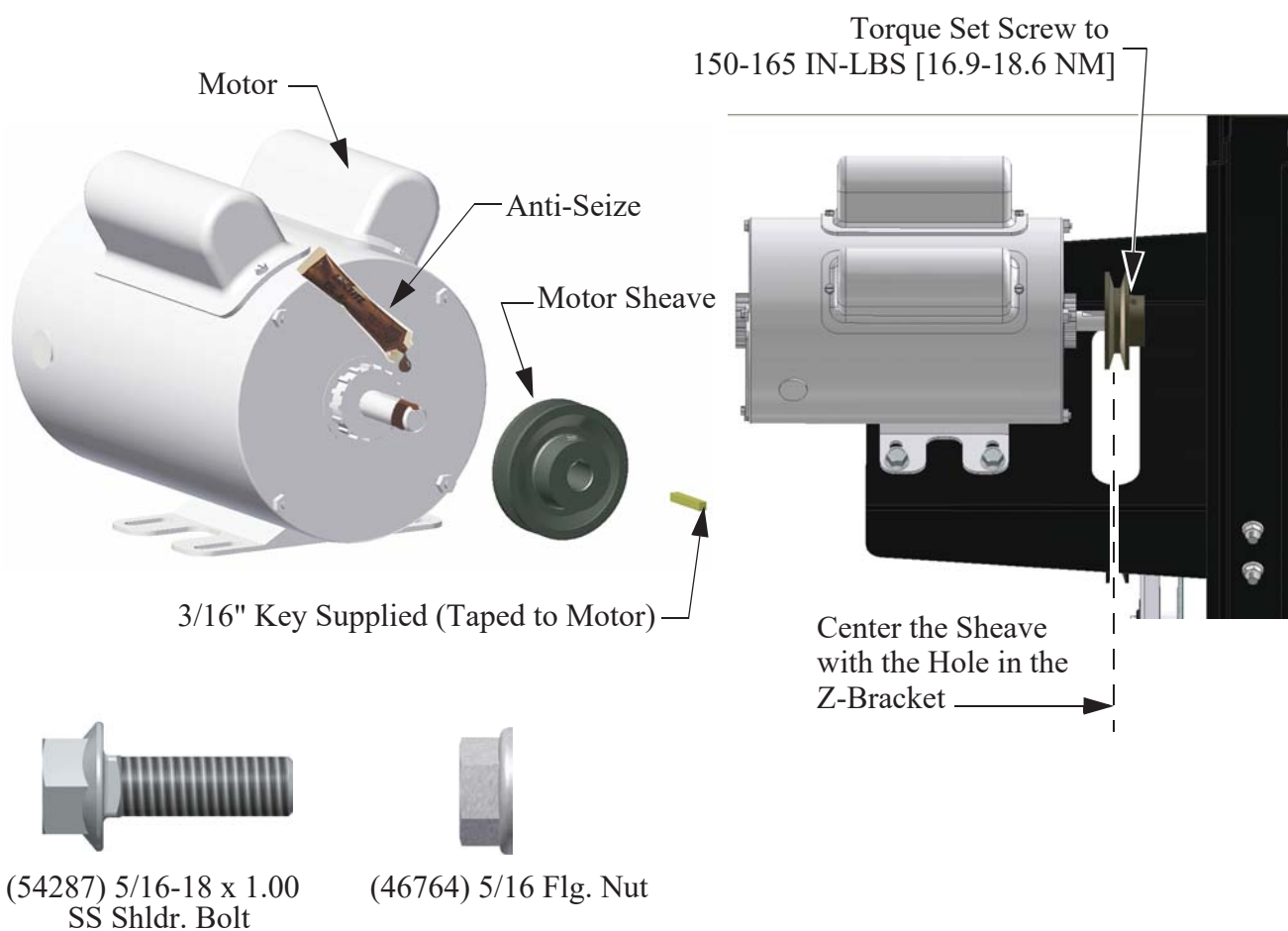
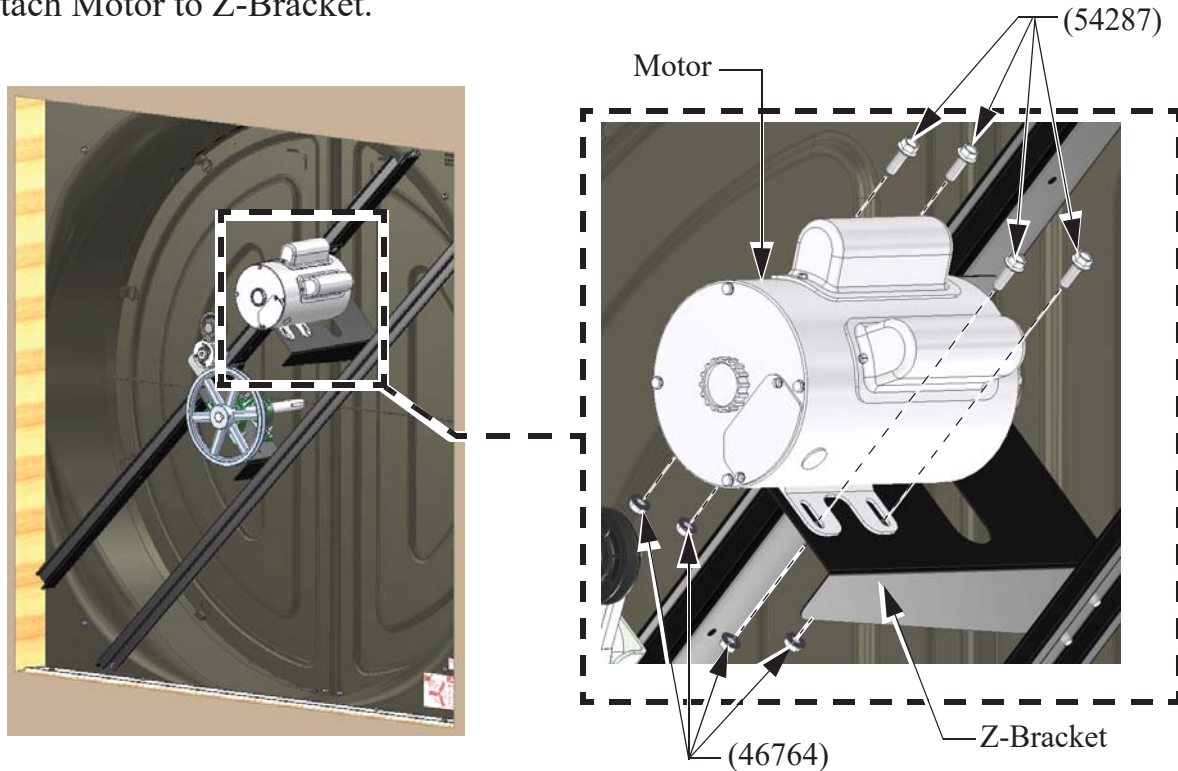
(54287) 5/16-18 x 1.00
SS Shldr. Bolt



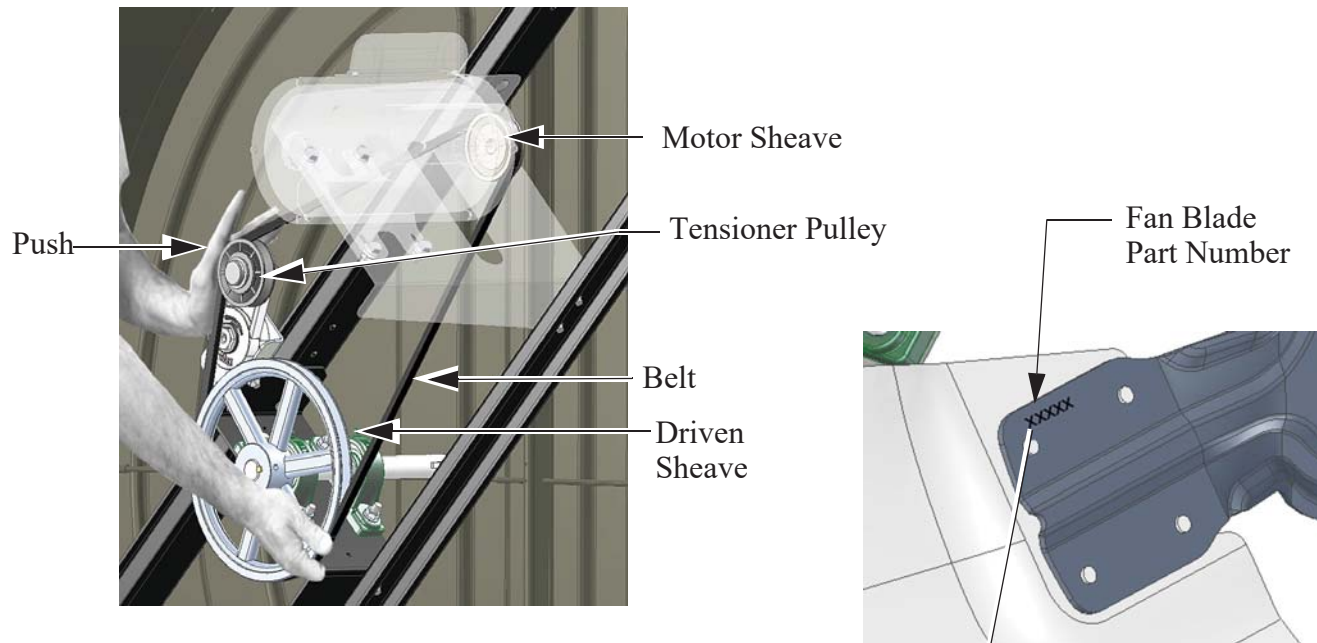
4x (46764) 5/16 Flg. Nut

Motor Installation

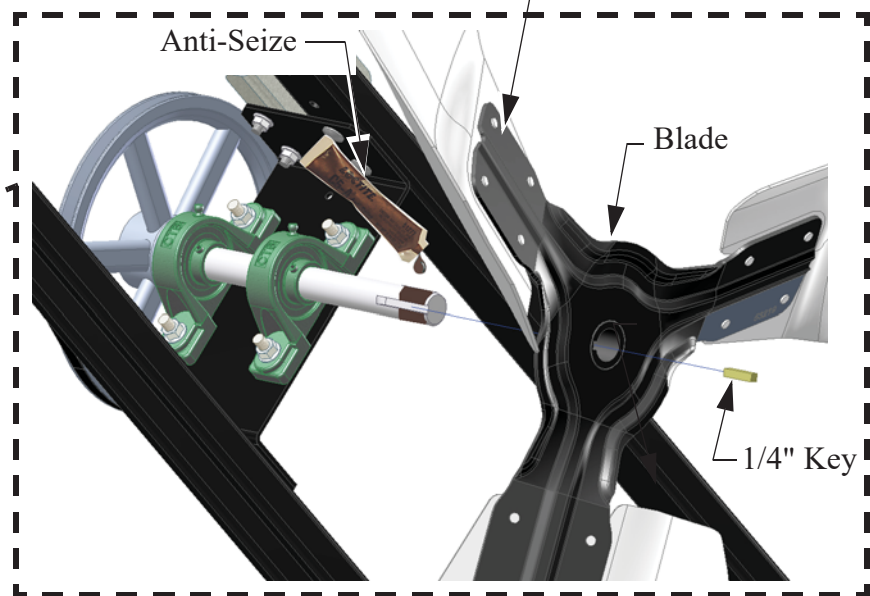
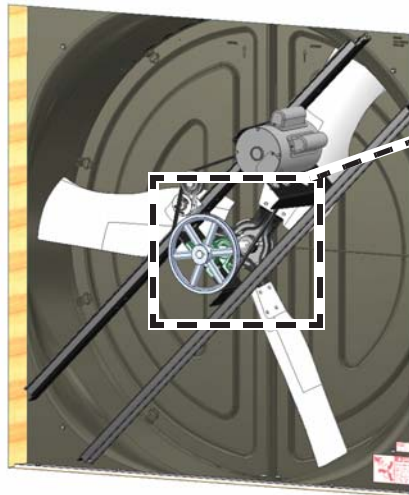
Attach Motor to Z-Bracket.



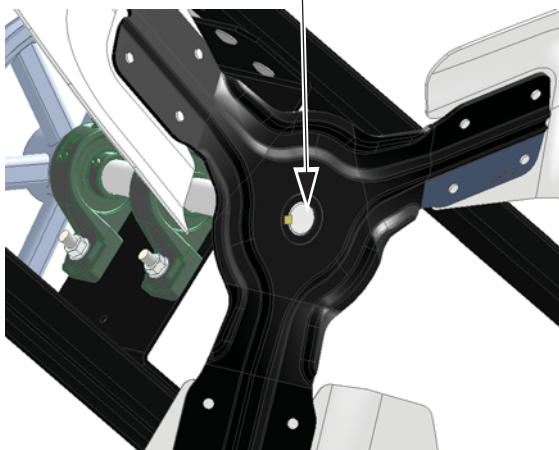
Belt Installation



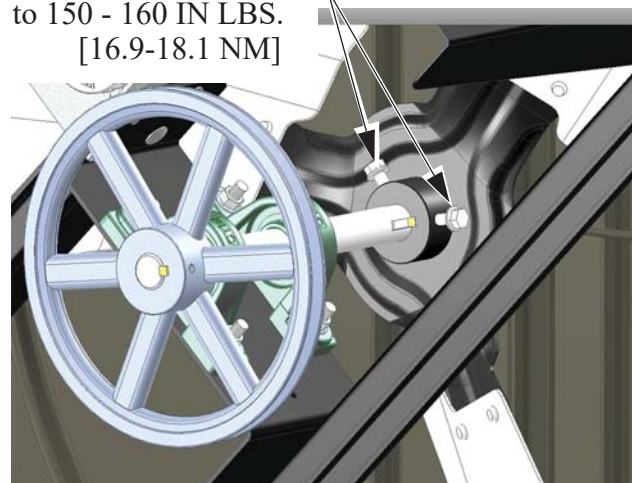
Blade Installation

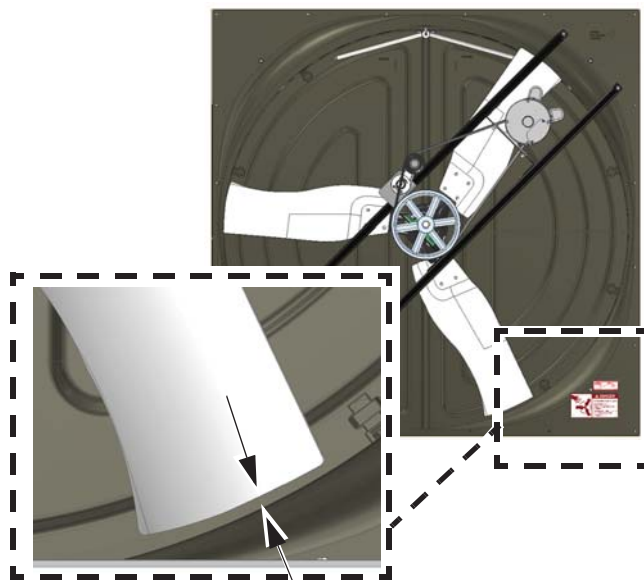


Fan Blade Flush
with the End of Shaft.



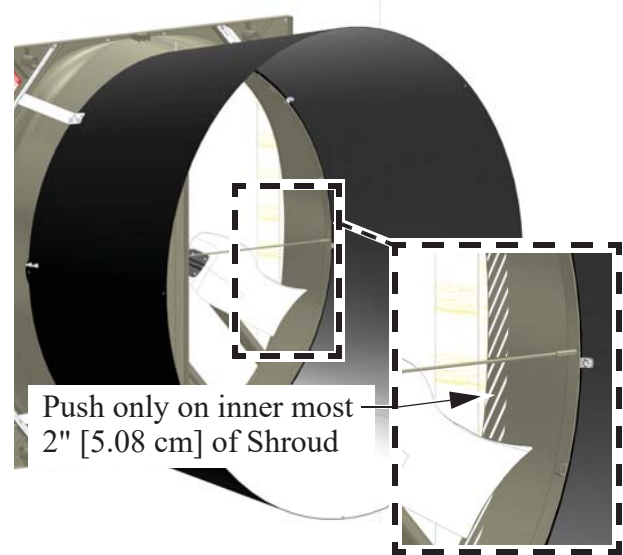
Torque Blade Set Screws
to 150 - 160 IN LBS.
[16.9-18.1 NM]





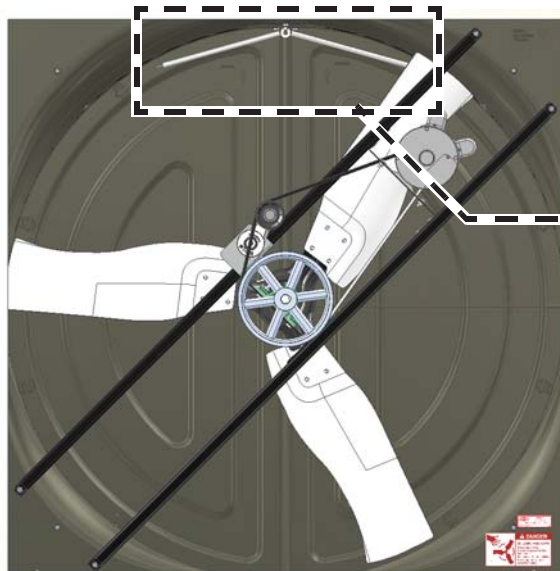
1/8" [3mm] Minimum

Spin the Blade by hand and check that there is minimum of 1/8" [3 mm] Clearance from the Shroud all the way around orifice.

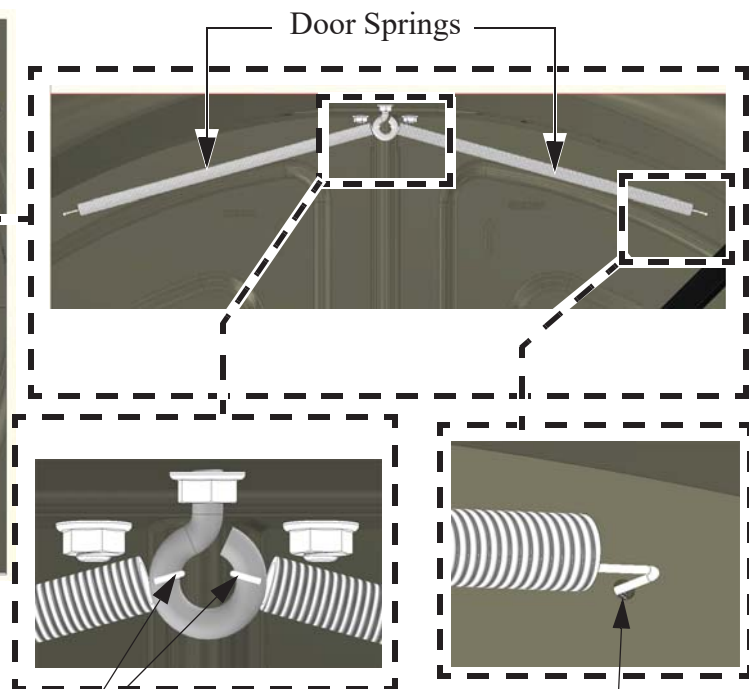


If Clearance is insufficient, check that the mounting surface is flat, and that the sides of the Shroud are straight. To Gain more Tip Clearance, remove the Lag Screws from the side with inadequate clearance, push out on the Shroud orifice. **(Push only on the inner most 2" [5.08 cm] of the Shroud or damage could occur)** Re-install Lag Screws in new holes.

Door Spring Installation



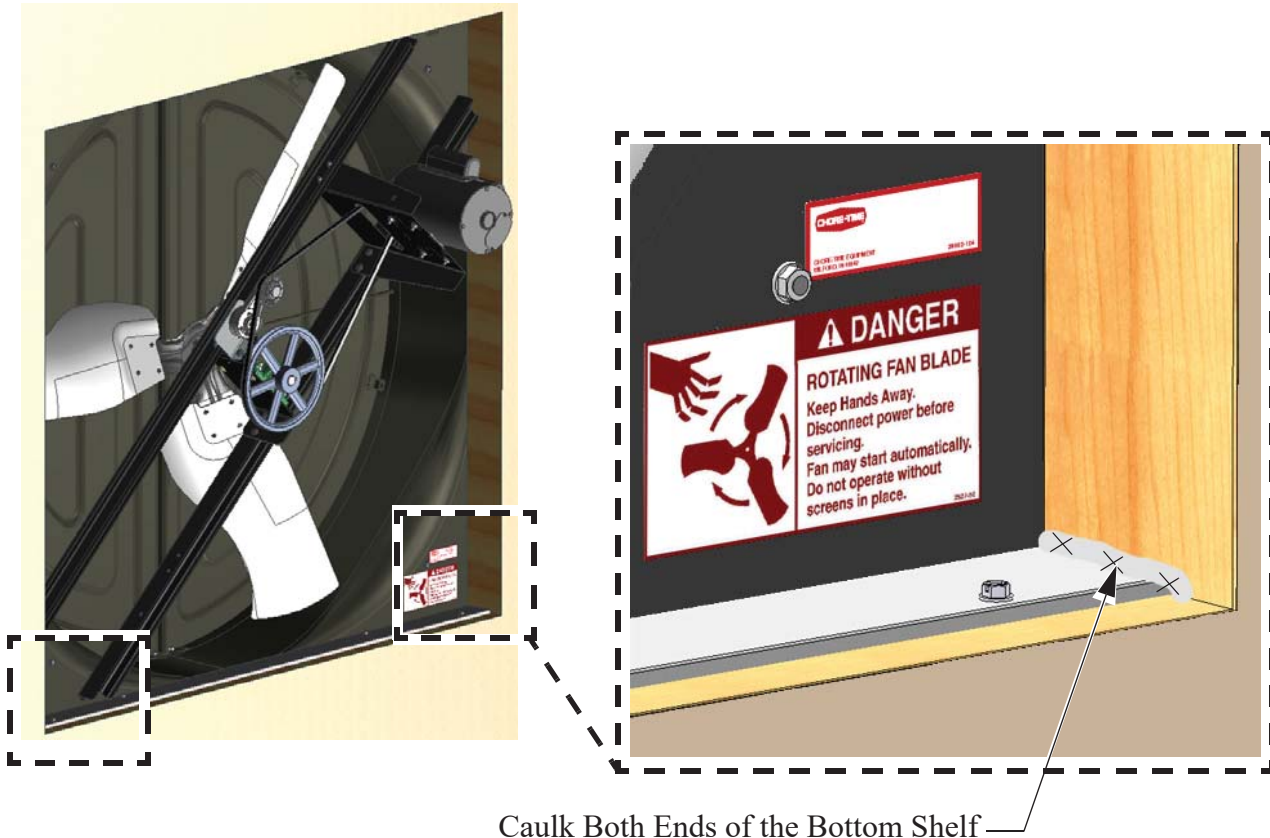
Round end of Springs attached to Eyehook



Elongated end of Spring attached to Door Hole

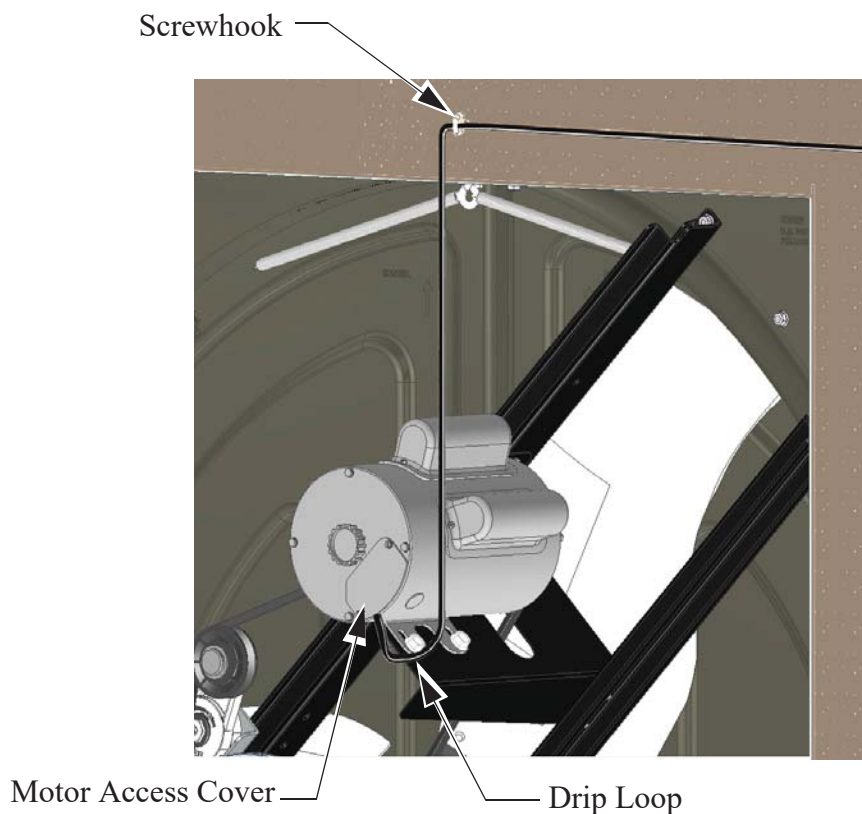
Caulking

Caulk both Ends of the Bottom Shelf and as needed to fill any gaps between the Shroud and the Framed opening.

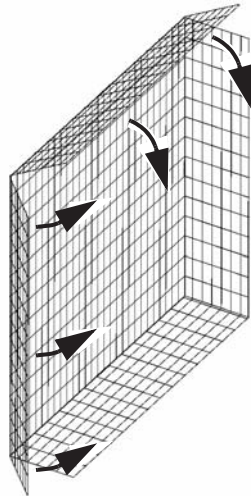


Motor Wiring

1. Check that the electrical power being supplied to the Fan matches the electrical Specifications on the Fan and Motor Decals.
2. Remove the Motor Access Cover.
3. Install an electrical disconnect within reach of each Fan installed.
4. Connect the cord to the motor according to the wiring diagram on the motor. Verify that the motor is connected for counter clockwise rotation (viewing the back of the motor, opposite the shaft end.)
5. Follow local, state, and national electrical codes for wiring.
6. Attach the Cord to the Wall using a Screwhook **as shown**. Allow enough slack in the cord to form a "drip loop" for moisture to fall away from the cord and not into the motor.

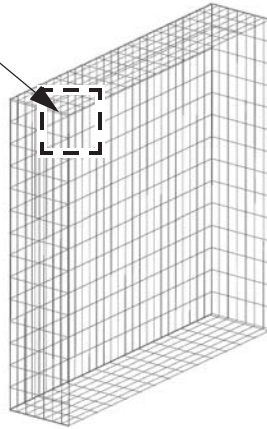


Screen Assembly

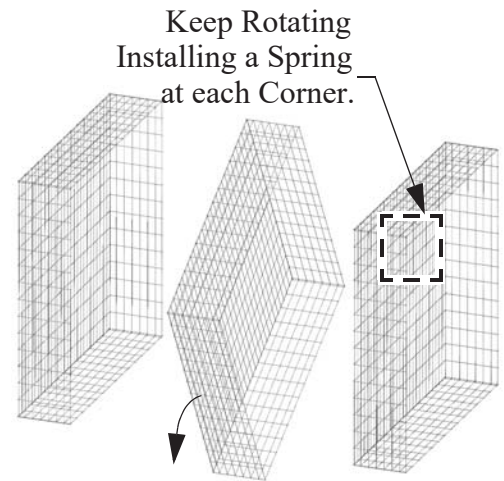


1. Fold the Screen Sides as shown.

Install Spring
per steps
A-D below.



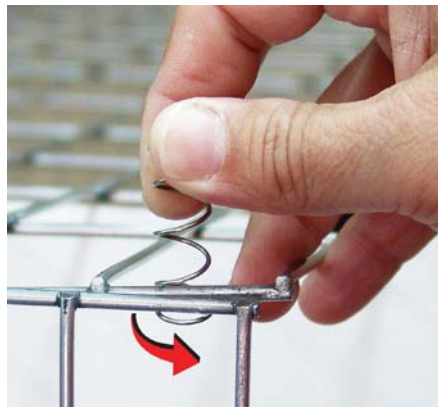
2. Install a spring (54480) **in the upper left corner** following steps A through D below. After Step D is complete go to step 3.



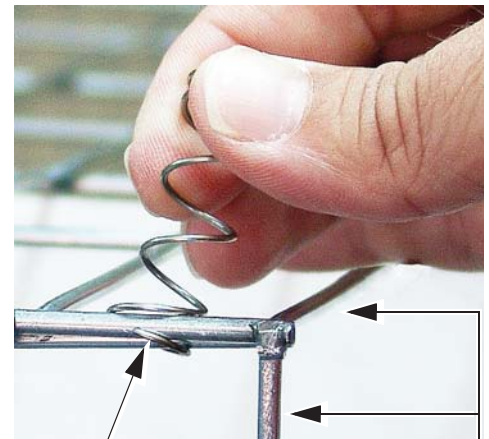
3. Rotate the Screen in the direction shown installing a Spring at a second corner. **Repeat for remaining Corners.**



A) Slide a Spring (54480) over both Screen Panel Wires exactly as shown.

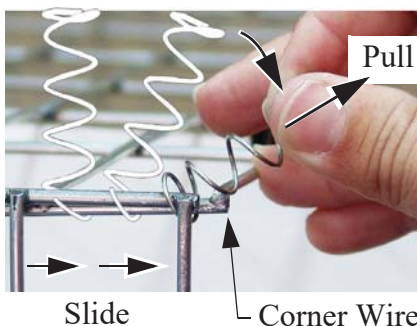


B) Rotate the Spring Counter-Clockwise until the end of the Spring snaps over the Side Panel Wire.

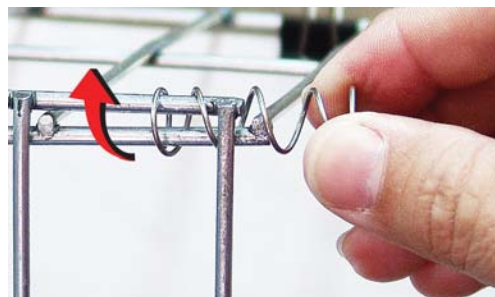


Adjust Screen Panels
so they are as even
as possible

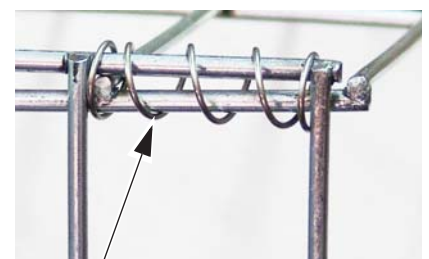
Snapped over Side Panel Wire



C) Slide and Pull Spring over Corner Panel Wire.

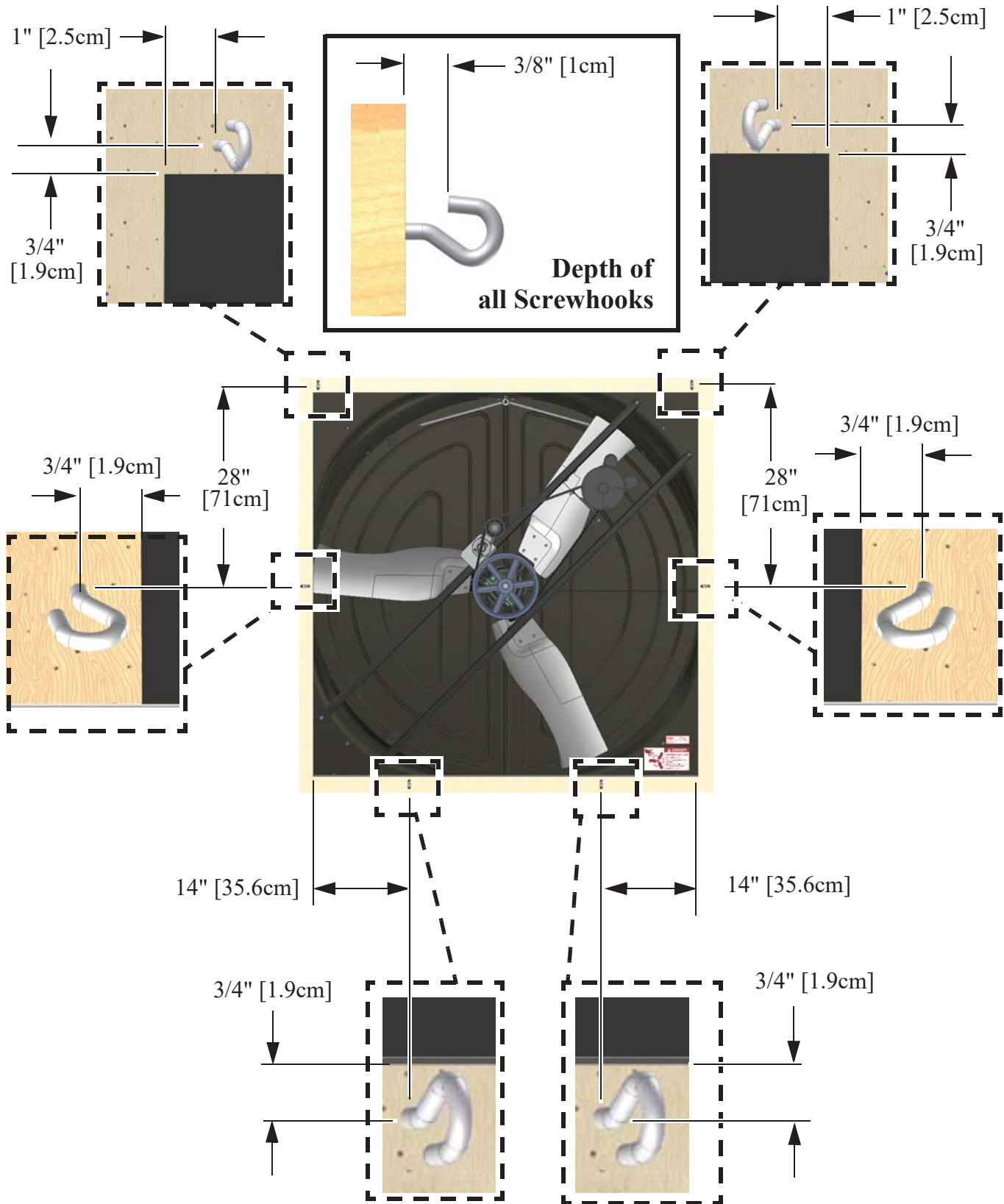


D) Twist Spring Clockwise until it is passed the outside wire and snapped firmly in place.



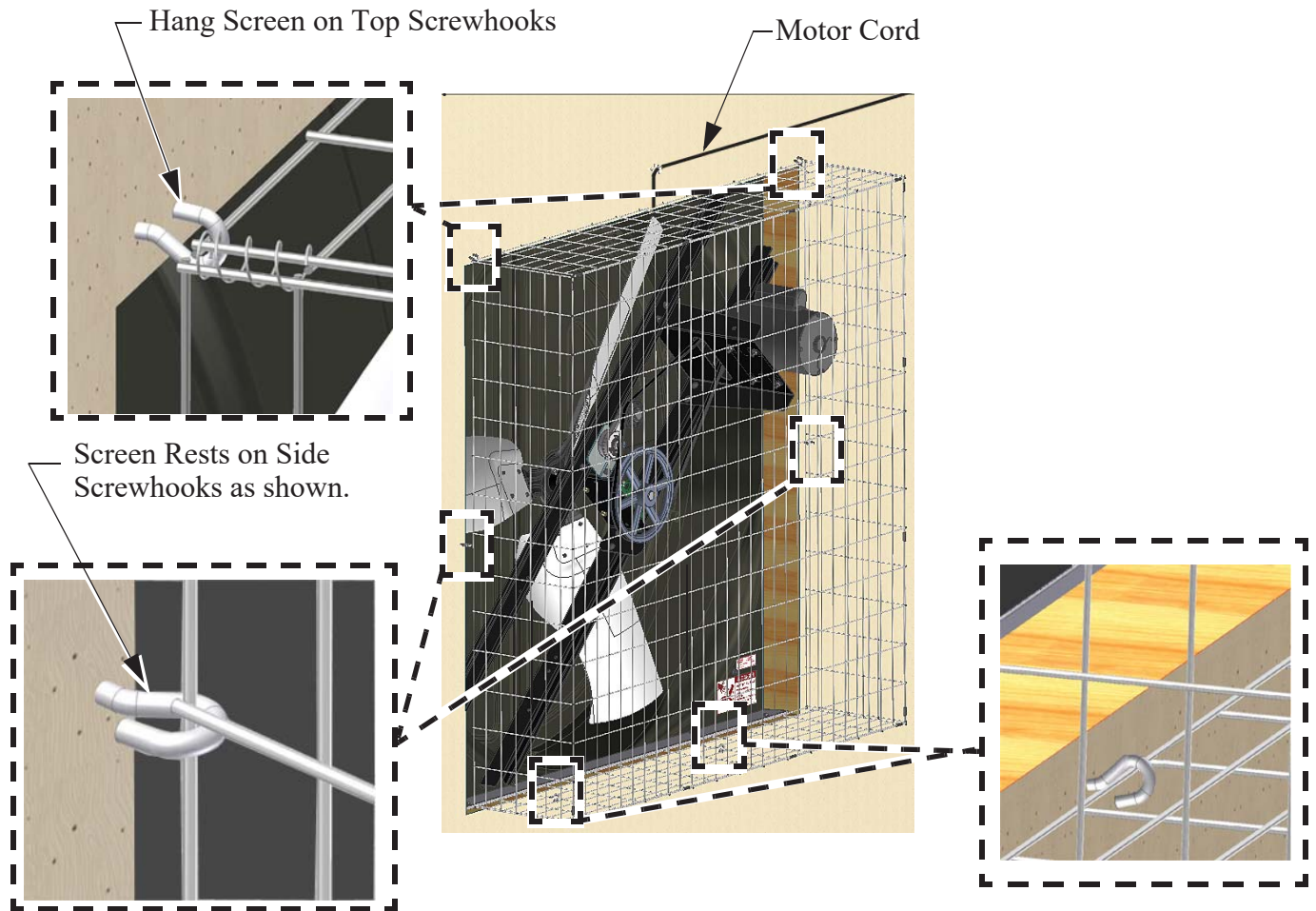
Spring snapped firmly
between wires.

Screen Installation



Continued on next page.....

Screen Installation Continued



Test Fan for proper operation.

Plug the Fan in and test for proper operation

Maintenance

IMPORTANT! Disconnect Power Prior To Maintaining Or Cleaning The Fan. The fan may start automatically causing serious injury or death.

- Service and repair of fans should be done only by a qualified technician.
- Minimize contact of moisture or corrosive chemicals to the surfaces of the fan components to maximize fan life.
- After washing fans, operate fans long enough to remove moisture from all fan surfaces.
- Keep the fan clean for maximum life and best performance. **Do Not spray water on the Fan Shaft Bearings, the Belt Tensioner, or the Motor.**
- Periodically check the V-Belt and replace if necessary. A worn Belt will cause a substantial drop in Fan performance or it can break and cause Fan failure. If a Belt rides below the Sheave edge, replace the belt. (See below)

1747-054 04/03



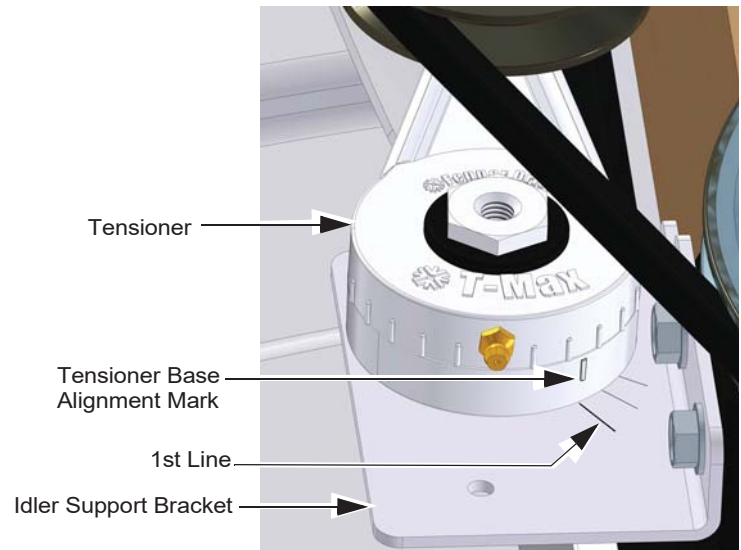
Good Belt



Bad Belt

Bad Belt (Needs Replaced)

- Check Belt Tension. The Belt should be tensioned just tight enough to minimize Belt slippage. Over tensioning the belt will cause premature Belt and Bearing wear.
- The Alignment Mark on the Tensioner Base should be lined up with the 1st line on the Idler Support Bracket.



- Check Sheaves for wear. Replace if a Sheave groove is worn.



Good Sheave



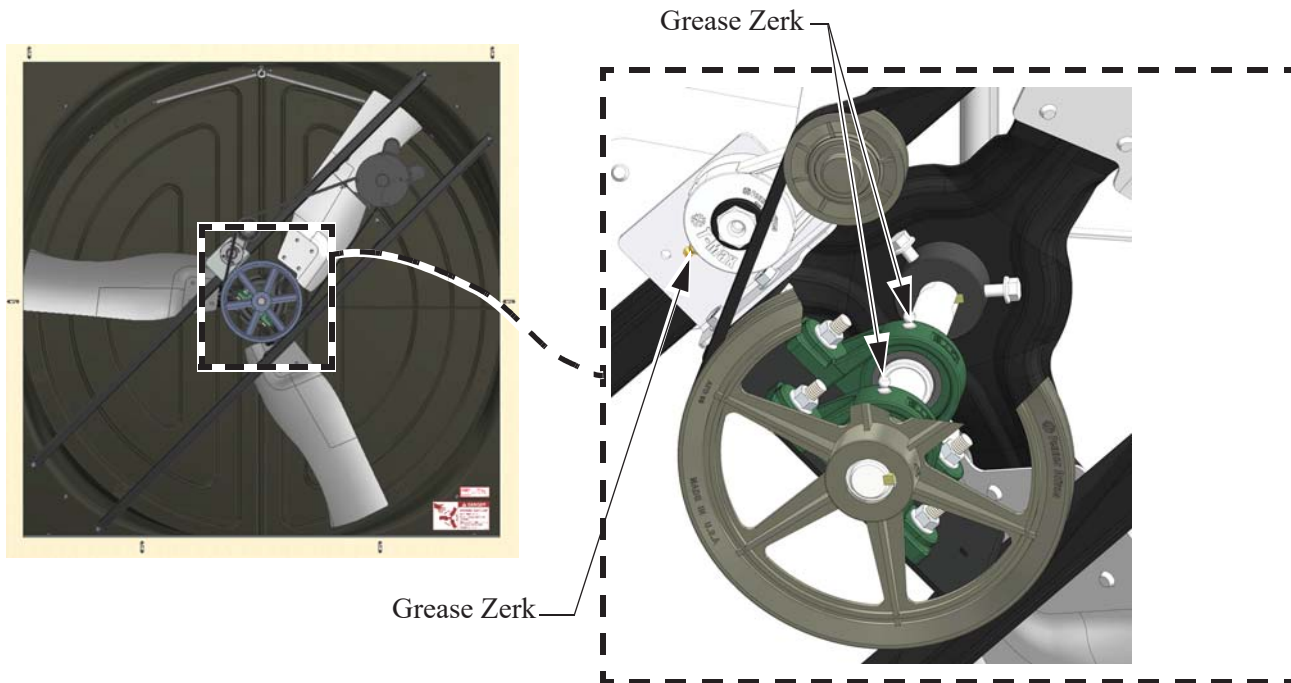
Bad Sheave

Bad Sheave (Needs Replaced)

1747-053 04/03

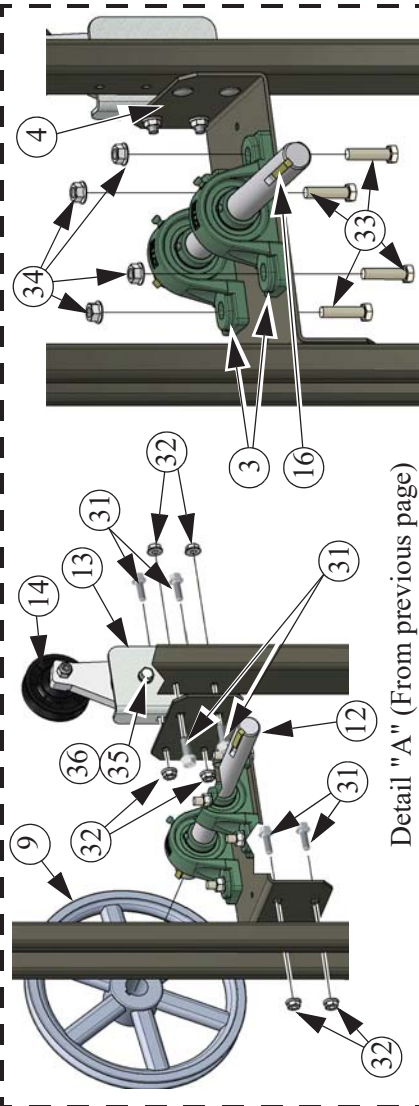
Fan Bearing and Belt Tensioner Lubrication

- Grease zerks are provided for lubrication on the fan shaft bearings and the belt tensioner.
- Lubricate the fan every 2-6 months or whenever these components get wet.
- Disconnect power to the fan before lubricating.
- Clean the zerk before lubricating to prevent contamination from entering the bearing.
- Use a high quality lithium based, NLGI #2, grease such as Shell Gadus S2 V100 2. Do not use incompatible greases containing aluminum, barium, calcium, bentonite clay or polyurea thickeners.
- Slowly rotate the fan shaft by hand while slowly applying the grease. Rapidly applying grease to a stationary bearing can damage the bearing seals.
- Apply about .10 oz (2.8 g, 3.1 cc) of grease at a time or until a slight amount of grease can be seen purging from the seal.

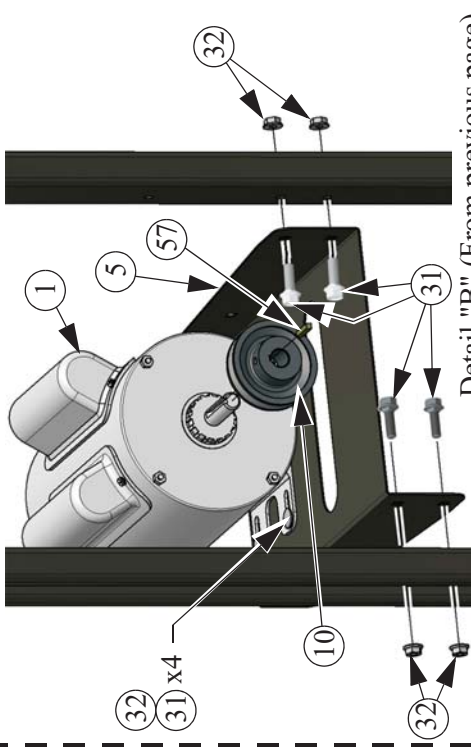


Note: Some Parts removed for Clarity

Part Numbers



Detail "A" (From previous page)



Detail "B" (From previous page)

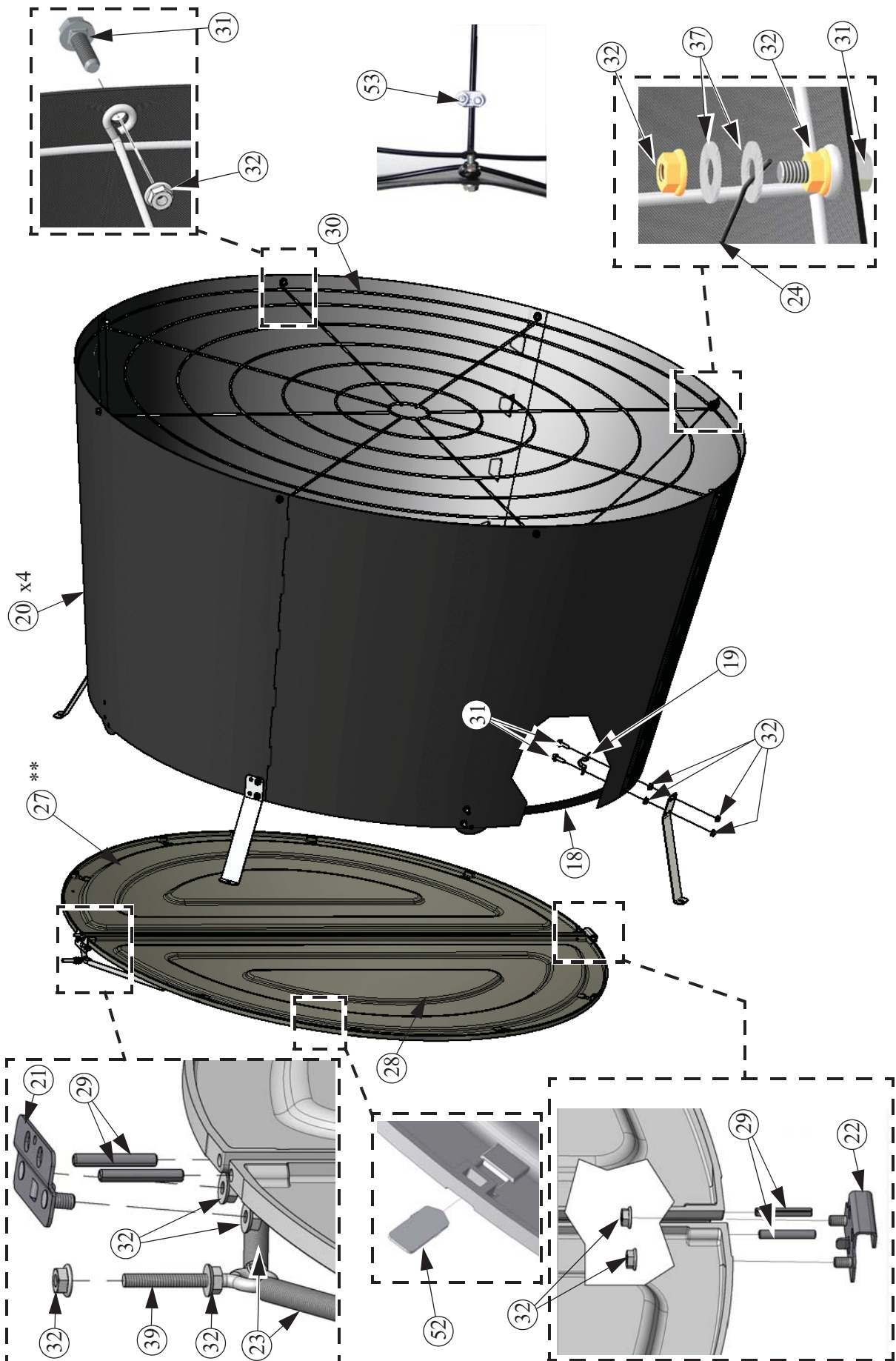
57" Endura® Fan Part Numbers 53464-XX, -XXS

Item	Qty.	Description	Part No.	Models
1	1	Motor, 1.5H 1PH-60HZ-230V	49903	-22, -22S
		Motor, 1.5H 3PH-60/50HZ-200/380-460V	48608	-41,-42,-51,-52,-41S,-42S,-51S,-52S
		Motor, 1.5H 1PH-60HZ-230V	50496	-21,-21S
2	2	57" Fan Post	53204	All
3	2	1" Pillow Block Bearing	50553	All
4	1	Idle Drive Bearing Support	48395C	All
5	1	Idle Drive Motor Support	48396C	All
*6	1	57" Fan Shroud Assembly	52925	All
7	2	Upper Corner Support (2 Notches)	53205	All
8	2	Lower Corner Support (1 Notch)	53206	All
9	1	AFD99100 Composite Sheave	54118	-21,-22,-41,-42,-21S,-22S,-41S,-42S
		AK94 x 1.00" Bore Driven Sheave	40274	-51,-52,-51S,-52S
10	1	AK30 3" O.D. x 5/8 Bore Motor Sheave	8773	-21,-22,-41,-42
		AK34	37919	-51,-52
11	1	AX60 V-Belt	48541	All
12	1	1" x 11.97" Fan Shaft	52083	-21,-22,-41,-42,-51,-52
		1" x 11.97 SS Fan Shaft	54438	-21S,-22S,-41S,-42S,-51S,-52S
13	1	Tensioner Support	49737	All
14	1	Tensioner Assembly 3.5" Arm 3" Dia.	48429	All
15	1	57" Galv. High Capacity Fan Blade	53219	-21,-41,-51
		57" Galv. E. Efficiency Fan Blade	53532	-22,-42,-52
		57" High Capacity SS Fan Blade	54529	-21S,-41S,-51S
		57" E. Efficiency SS Fan Blade	54530	-22S,-42S,-52S
16	2	1/4" Sq. 1.13" Key	2419-2	All

Item	Qty.	Description	Part No.	Models
17	4	Cone Bracket	53039	All
25	1	57" Fan Support Shelf	53338	All
26	1	56 x 56 x 12.35 Inlet Screen	48794	All
31	42	5/16-18 x 1 SS Shoulder Bolt	54287	All
32	57	5/16-18 Hx. Serrated SS Flange Nut	46764	All
33	4	3/8-16 x 1.50 SS HH Bolt	4413-10	All
34	4	3/8-16 SS Serrated Flange Nut	50191	All
35	1	3/8-16 x .75 SS Hx. Bolt	ST99277	All
36	1	3/8 SS Lock Washer	ST99780	All
40	24	1/4-10 x 1-1/2 Lag Screw SS	41561	All
41	9	Open Eye Hook	1214	All
42	1	Fan Decal	39002-XXX	All
46	4	.125 x .50 Magnet	48427	All
47	8	Magnet Side Plate	53026	All
*48	1	57" Fan Cross Rod	53398	All
*49	2	57" Fan Cross Rod Coupler	53896	All
50	2	1/4-20 x 1/2 Press Stud	7791-3	All
*51	1	57" Center V-Post	53626	All
55	1	Screen Spring (Package of 4)	54480-4	All
*56	2	Fan Danger Decal	2527-50	All
57	1	3/16 x 1-3/8 Key (w/motor)	--	All

* Fan Shroud Assembly (Item 6) Includes items 48,49,50,51, and 56

Part Numbers Itemized (Continued)



Part Numbers (Continued)

57" Endura® Fan Part Numbers 53464-XX, or 53464-XX,XXS				
Item	Qty.	Description	Part No.	Models
18	1	Orifice Frame	53416	All
19	6	Orifice Frame Bracket	53611	All
20	4	57" Cone Panel	53163	All
21	1	Top Pivot Plate	53037	All
22	1	Bottom Pivot Plate	53036	All
23	1	Ø1/2" x 11" Door Spring	49629	All
24	1	72.5" Fan Cone Cable	53399	All
27**	1	Left 57" Door Assembly	52926L	All
28**	1	Right 57" Door Assembly	52926R	All
29	4	1/4 x 1-3/4 420 SS Spring Pin	53038	All
30	1	70" Cone Grill	53129	All
31	42	5/16-18 x 1 HXWH SS Shoulder Bolt	54287	All
32	57	5/16-18 Hx. Serrated Flange Nut	46764	All
37	2	3/8 SS Flat Washer	ST99070	All
39	1	5/16-18 x 2 SS Eye Bolt	30663	All
52	4	Striker Plate	53027	All
53	2	Cable Clamp	732	All
54	1/3	Anti-Seize (Not Shown)	47749	All
**Doors Include 53027 Striker Plates (Item 52)				

**Made to work.
Built to last.®**

Revisions to this Manual

Page No.	Description of Change	ECO
28	Changed Tensioner position	32776



Contact your nearby Chore-Time distributor or representative for additional parts and information.

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