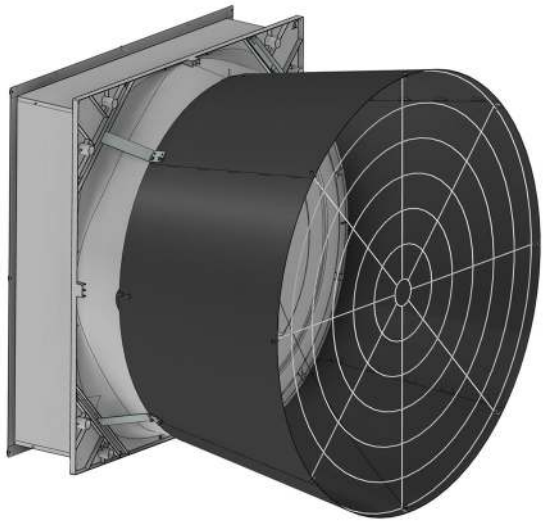
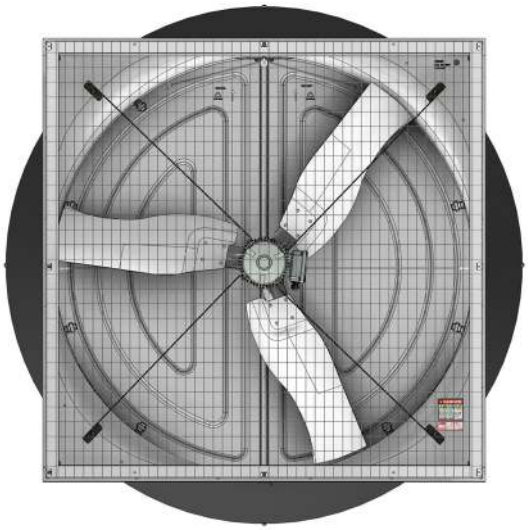
57" Flush Mount Direct Drive Endura® Fan

Installation and Operators Manual





56911-X					
Fan	**Bess Lab Test***	**Phase**	**Voltage**	**Hz**	**Full Speed RPM**
56911-1	21079	1	230	60	630
56911-2	21080	3	230	60	630
56911-3	20436	3	380	50	630
*Bess Lab test data available at http://bess.illinois.edu/type.asp					

Operating static pressure should be less than 0.25 inches water column [62 Pa].

The fan inlet and exhaust must be kept clear of obstructions. Failure to keep the fan air-flow path clear of obstructions could cause loss of fan performance and fan damage.

Installation and Operators Manual

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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.



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 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.

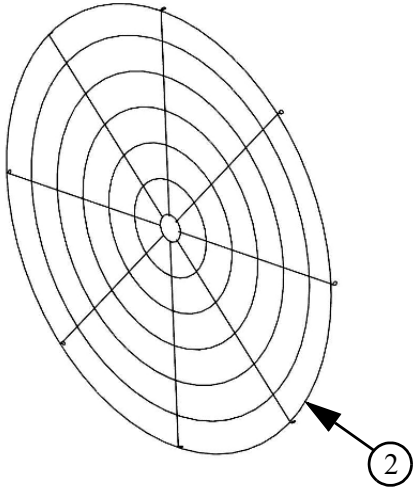
The following circumstances shall render this Warranty void:

- 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.

Fan Component Part Numbers







57" DD Fan Kit Part Numbers							
Fan Kit Part Number		56911-1	56911-2	56911-3	56911-1S	56911-2S	56911-3S
Phase		1	3	3	1	3	3
Voltage		230	230	380-480	230	230	380-480
Cone Grill Ring Spacing		6" [152mm]	6" [152mm]	6" [152mm]	6" [152mm]	6" [152mm]	6" [152mm]
Fan Blade Material		Galv.	Galv.	Galv.	SS	SS	SS
Item	**Description**	**Component Part No.**					
1	57" DD Fan Sub-Assembly	56911-1P	56911-1P	56911-3P	56911-1PS	56911-1PS	56911-3PS
2	57" Fan Cone Grill	53129	53129	53129	53129	53129	53129
3	Programmed VFD	56541-1-1	56541-2-1	56541-3-2	56541-1-1	56541-2-1	56541-3-2

Tools Needed and Supplies

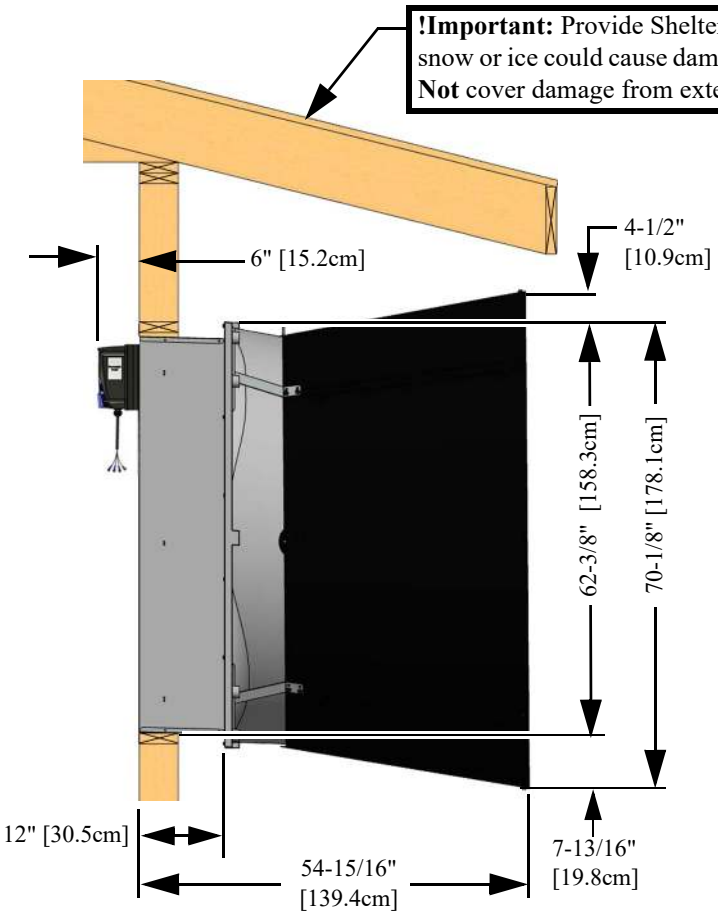
•Level
•Ratchet or Impact Wrench
•Phillips Screwdriver
•Drill
•3/16" Drill Bit
•Expansion Clamp (See **"Cone Assembly" on page 12**)
•3/8" Socket
•1/2" Socket or Wrench
•Side Cutters
•Caulking

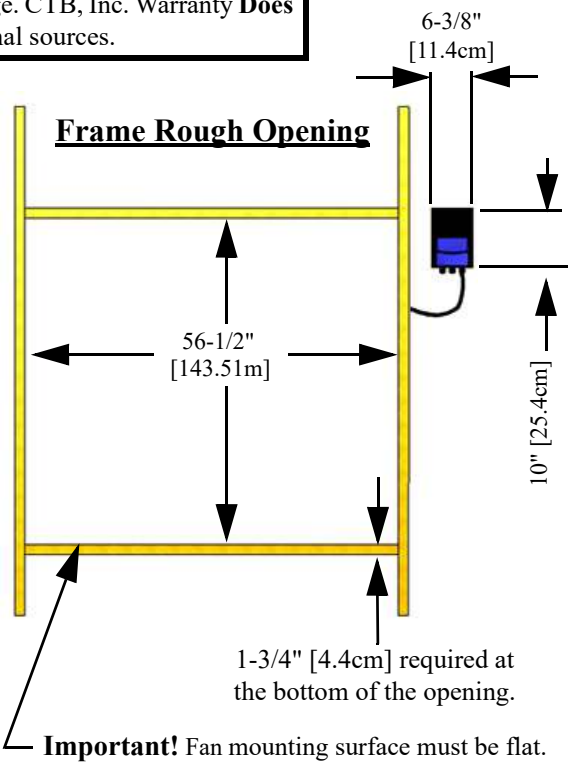
VFD Cross Reference Part Numbers

Chore-Time Part Number	Invertek Model Number
56541-1-X	ODE-3-120070-101A
56541-2-X	ODE-3-120070-301A
56541-3-X	ODE-3-140041-301A

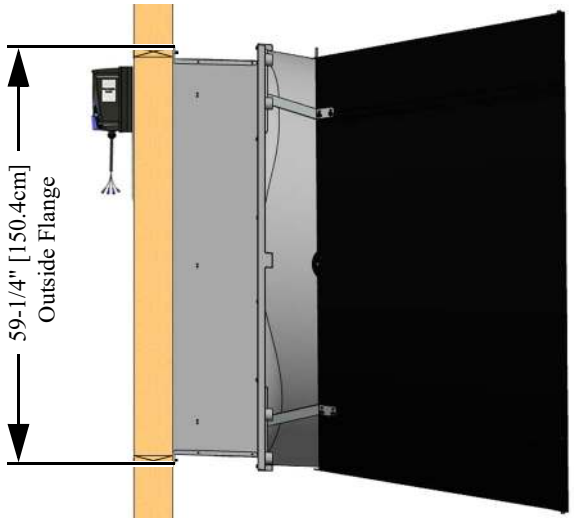
Endura® DD Flush Mount Fan New Installation Planning

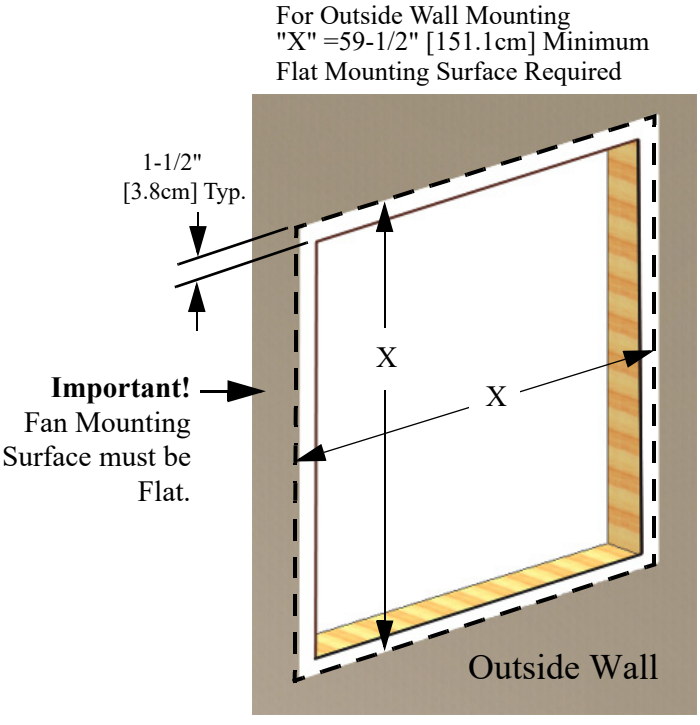
Planning the layout of the spacing between Fans is very important. Spacing too close together will cause interference between the discharge Cones. See the Invertek ODE-3 IP66 Outdoor User Guide, (MV2493) at **www.choretime.com/documents, Manuals, Ventilation, Fans & Shutters, 57-Inch Endura Fans, MV2493** for additional drive mounting requirements.





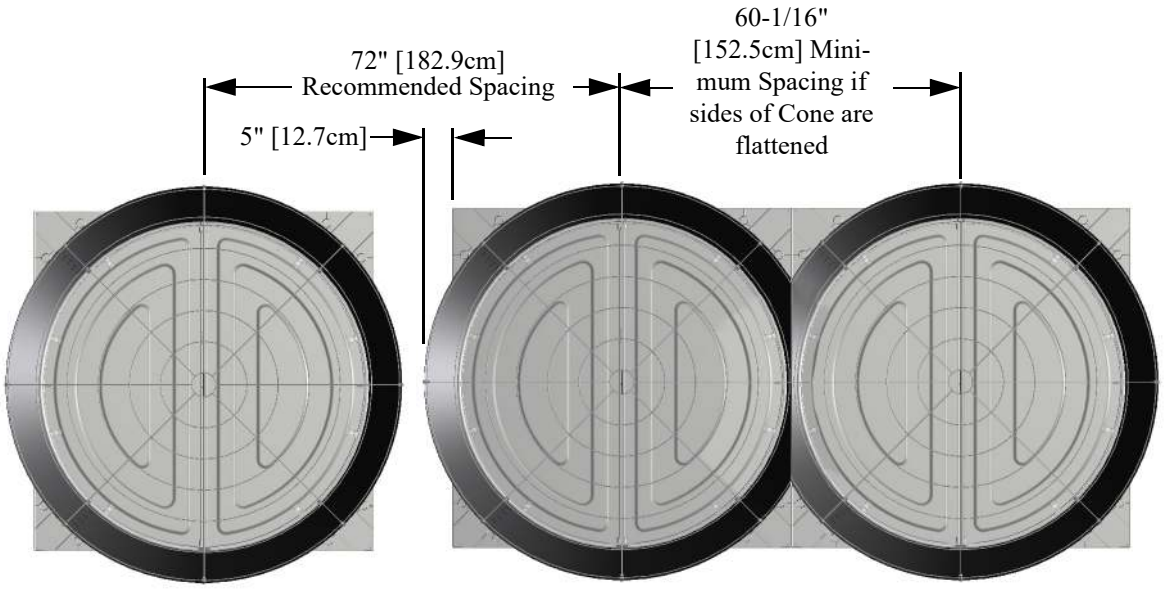
Outside the Wall Installation





Spacing

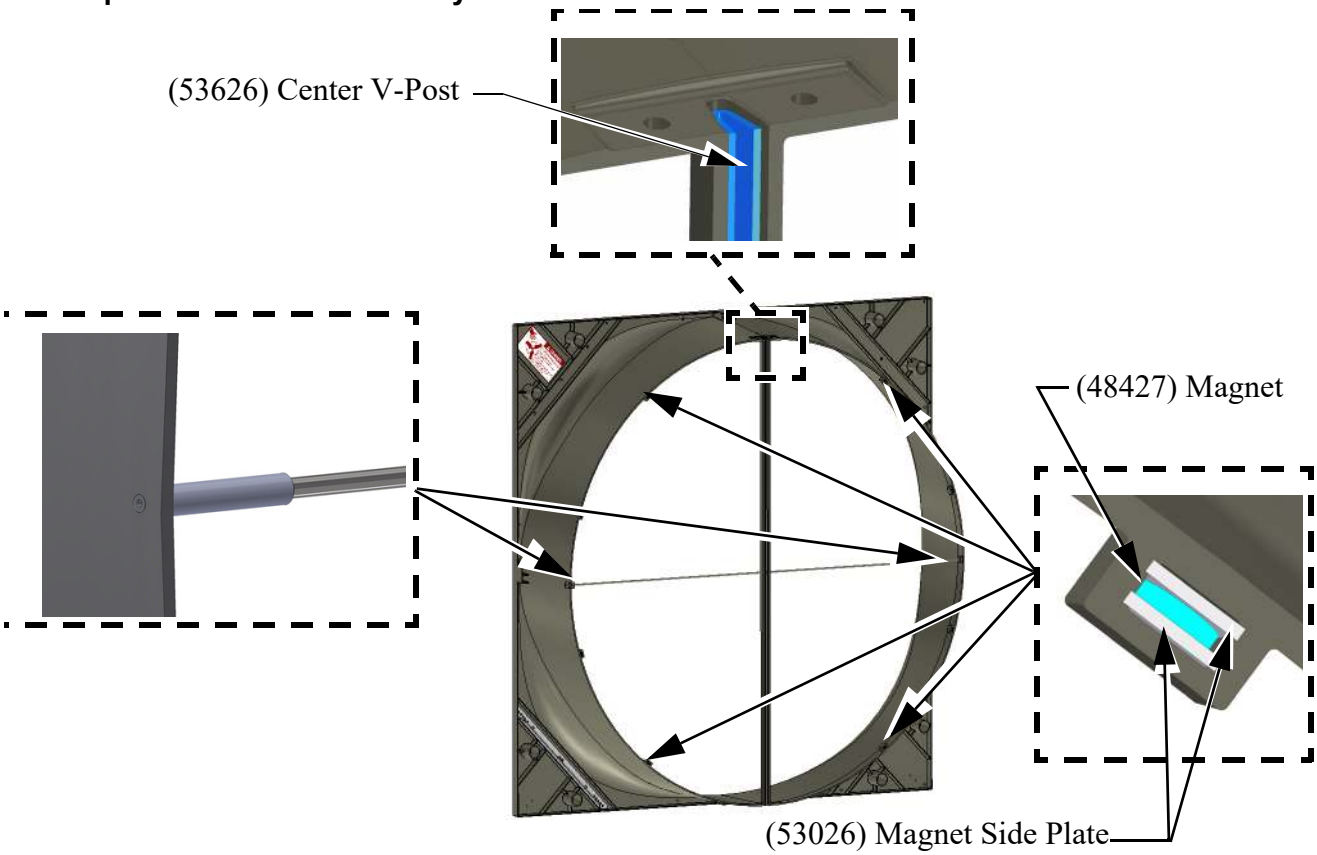
Planning the layout of the spacing between fans is very important. Spacing too close together will cause interference between the discharge cones.



Installation

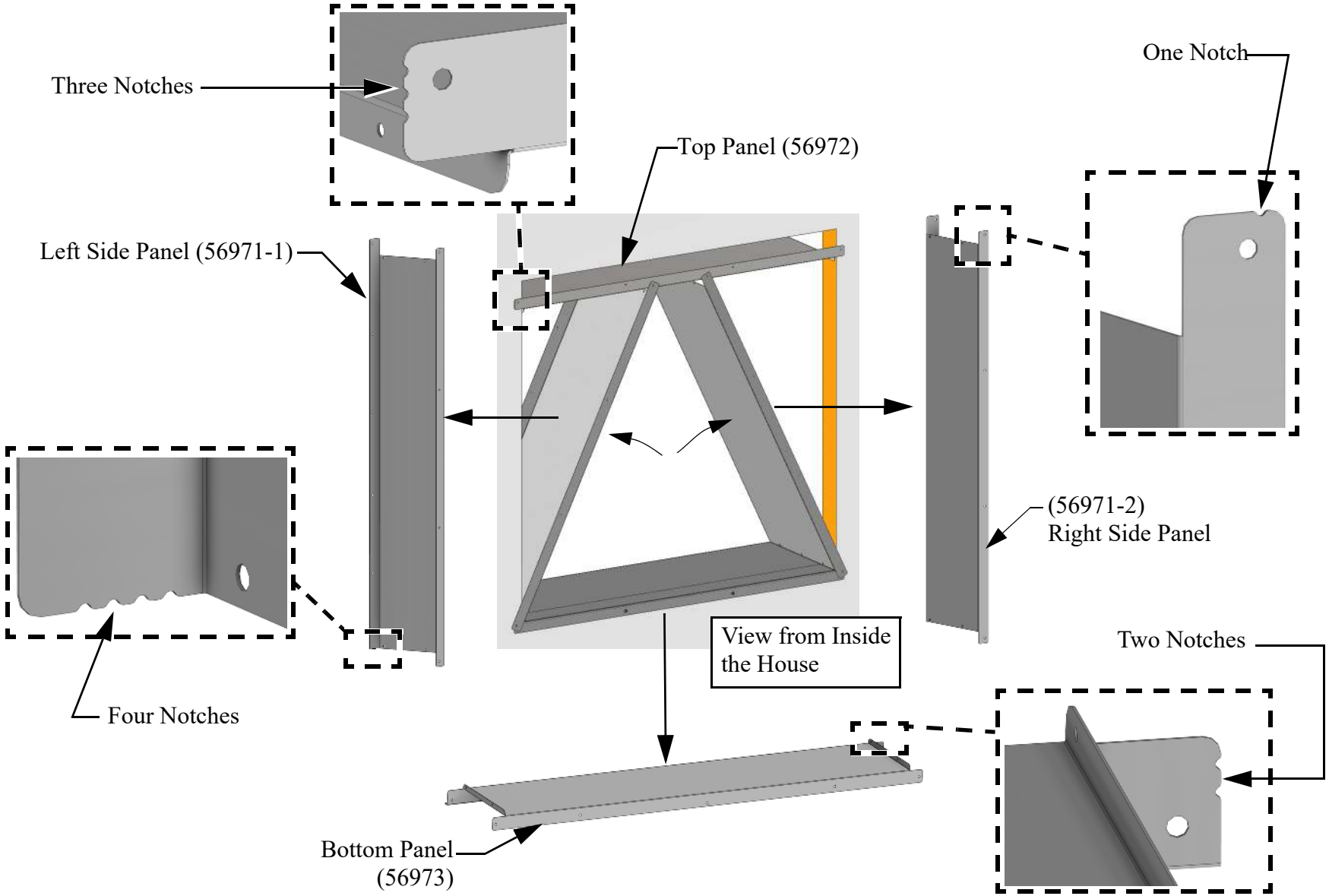
Inspecting the Shroud

Inspect the Shroud assembly for hardware as received.

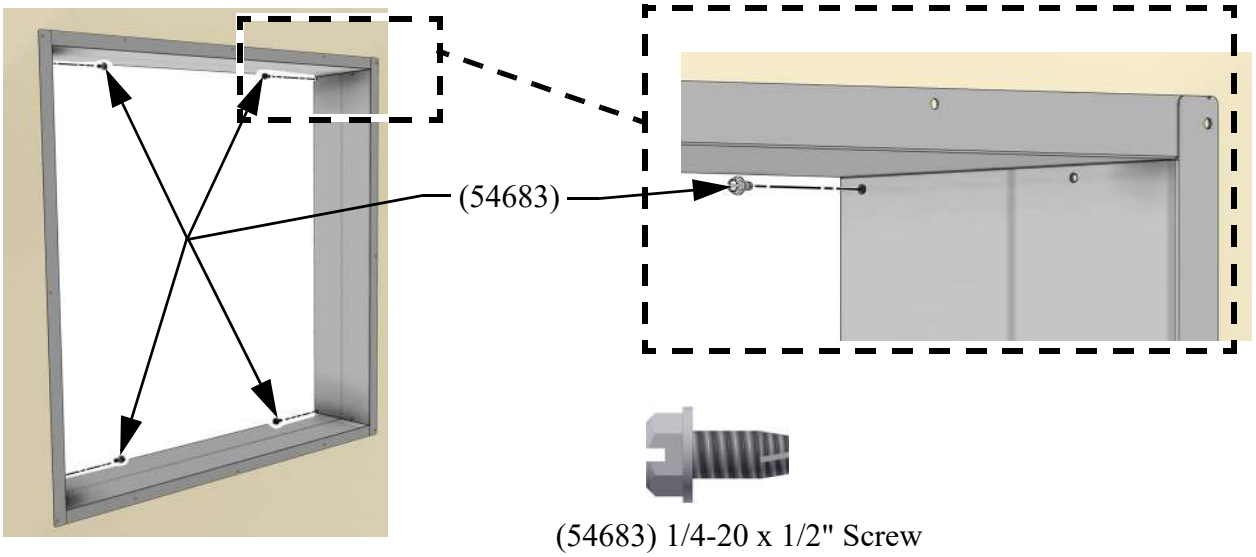


Assembling the Extension Housing

Step 1: Set the panels in the framed opening as shown.

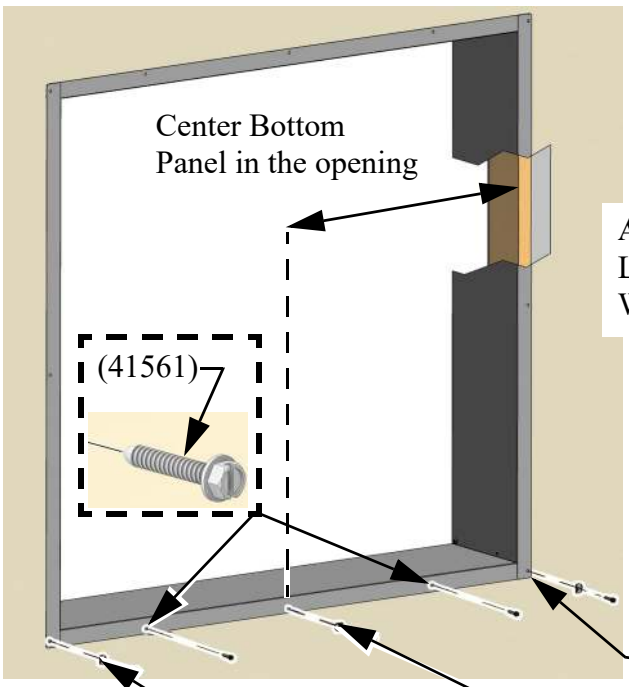


Step 2: Use four Self Tapping Screws **(54683)** to Fasten the Panels together using the holes provided toward the outside of the house **as shown**. Other four Screws will be installed after squaring.



(54683) 1/4-20 x 1/2" Screw

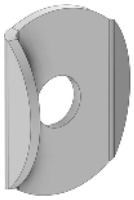
Step 3: Center the Bottom Panel and fasten to the wall with Screen Clip Washers **(56671)** and 1/4-10 x 1-1/2" Lag Screws **(41561) as shown**. Angle Lags away from Fan to allow for easier removal of Screen later. Do not tighten down the Lag Screws at the Washer locations at this time. They will be tightened later when the Screen is installed.





(41561) 1/4-10 x 1-1/2" Lag Screw

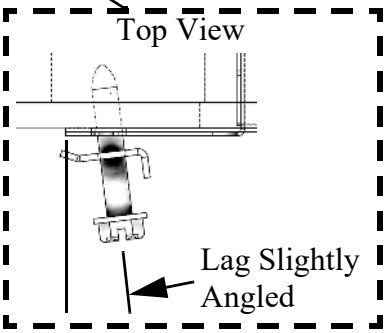
Attention! Do not tighten Lags all the way at three Washer locations.

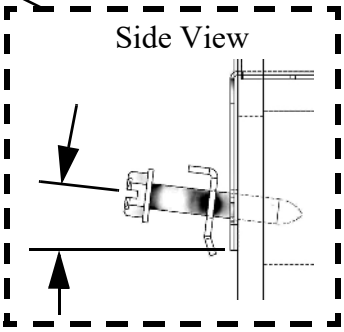


(56671) Screen Clip Washer

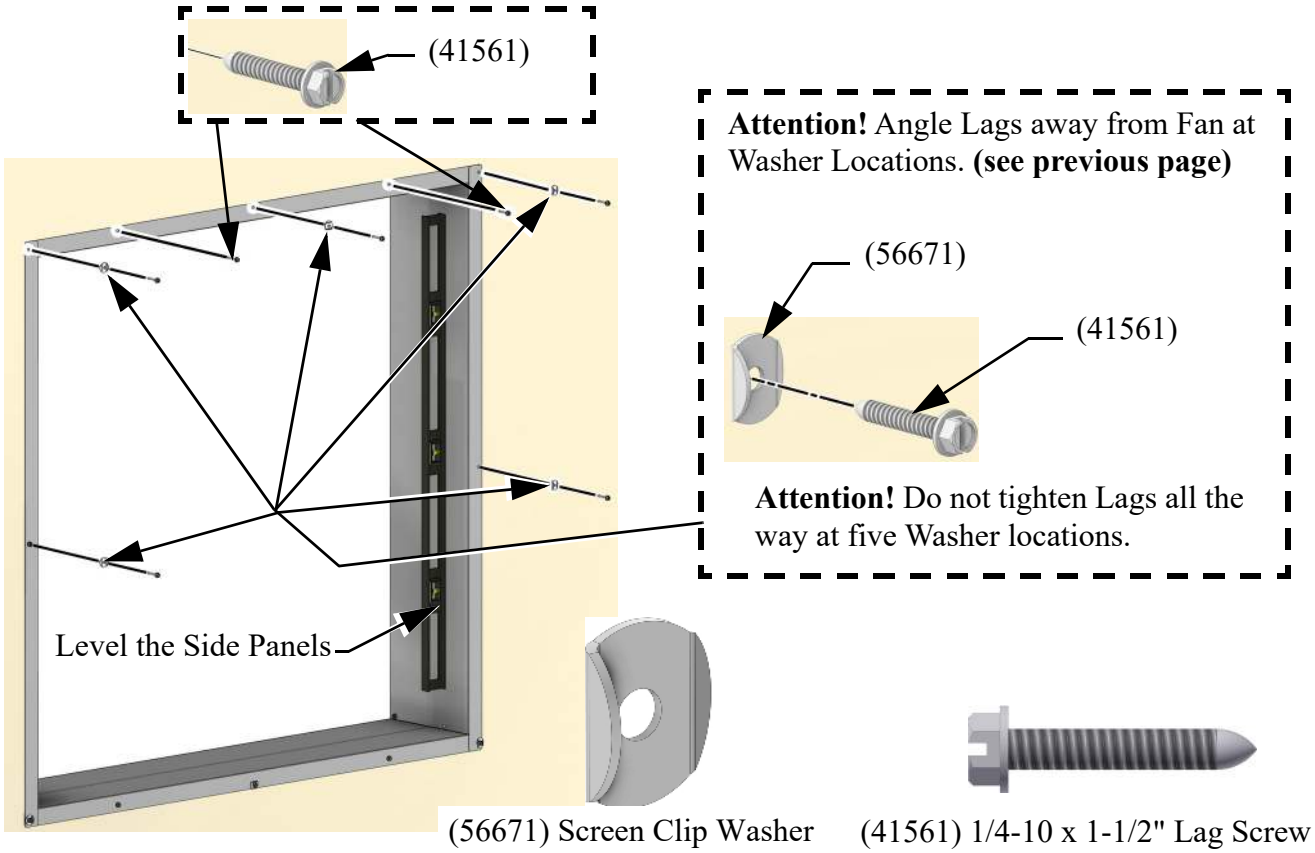
Shown with Screen Installed for reference only.



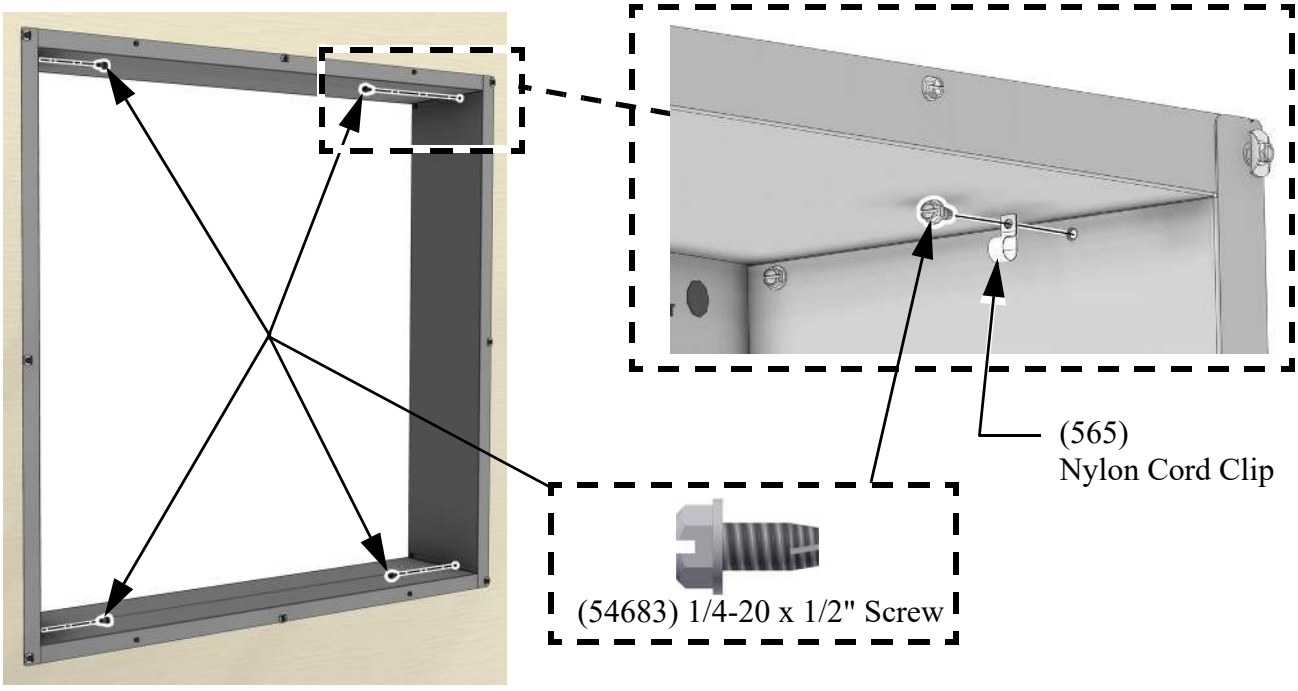




Step 4: Use a Level to level the Side Panels and attach them to the Wall with Screen Clip Washers **(56671)** and 1/4-10 x 1-1/2" Lag Screws **(41561) as shown**. Angle Lag Screws away from Fan **as shown** on the previous page. **Do not** tighten down the Lag Screws at the Washer locations at this time. They will be tightened later when the Screen is installed.

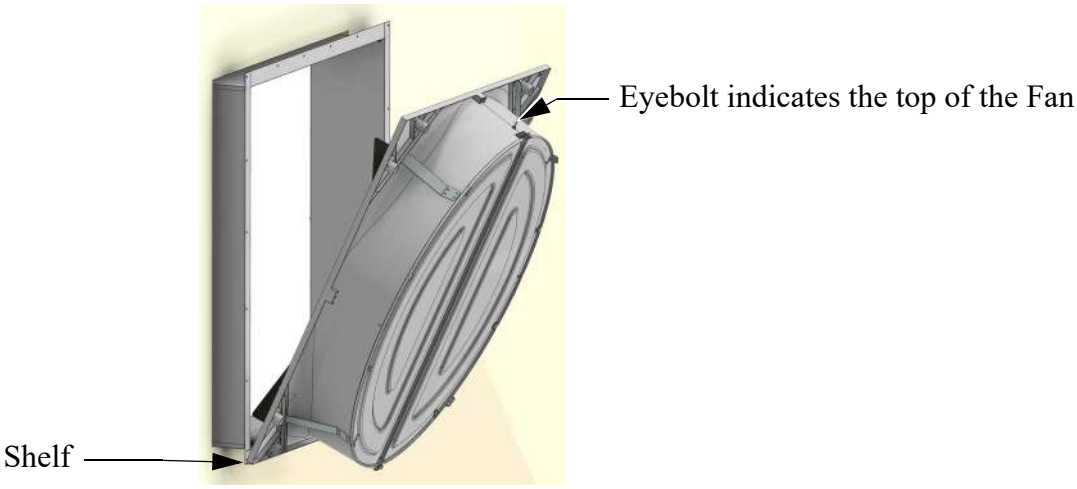


Step 5: Use four Self Tapping Screws **(54683)** to finish fastening the Panels together. Install a Nylon Cord Clip **(565)** in the top corner nearest where the VFD Control will be mounted **as shown. See "Fan Drive (VFD) Mounting" on page 17.**

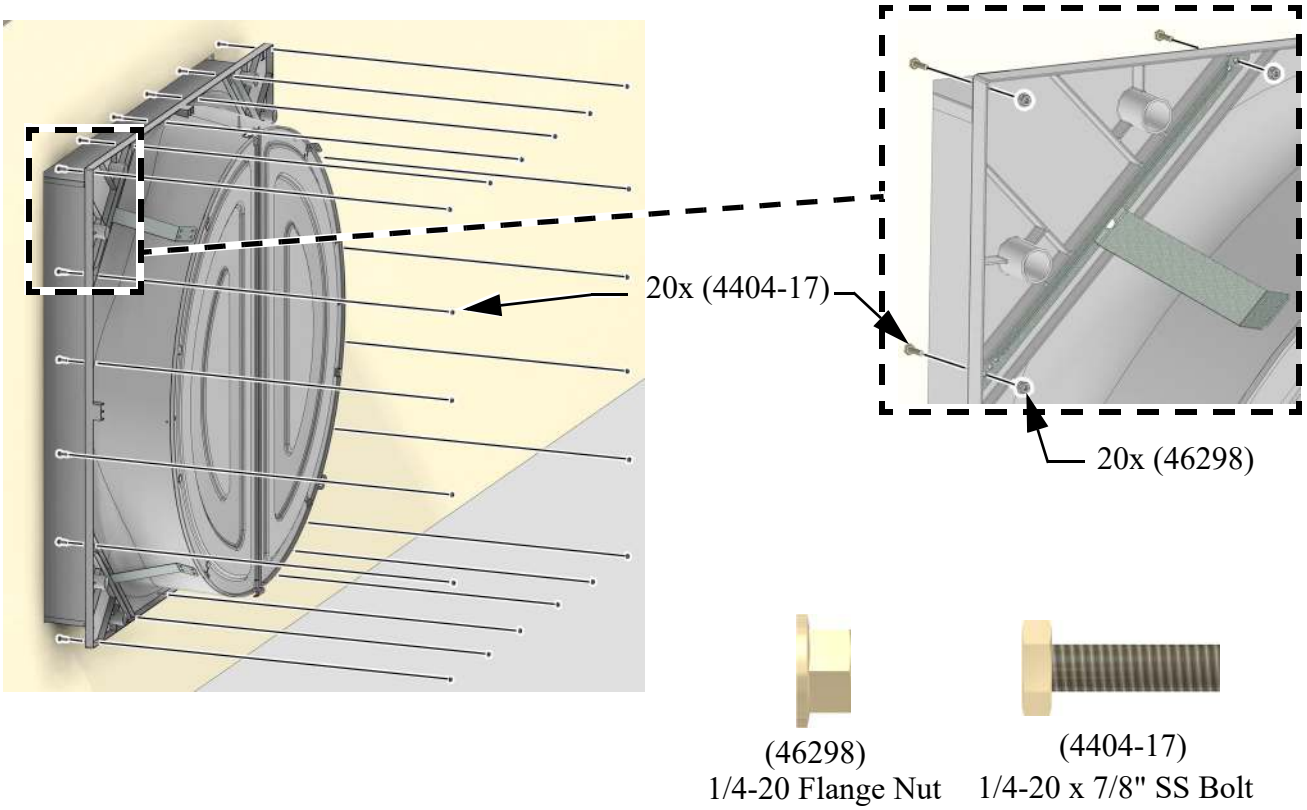


Attaching the Fan to the Extension Housing

Step 1: Set the Fan on the Bottom Panel Shelf **as shown**.

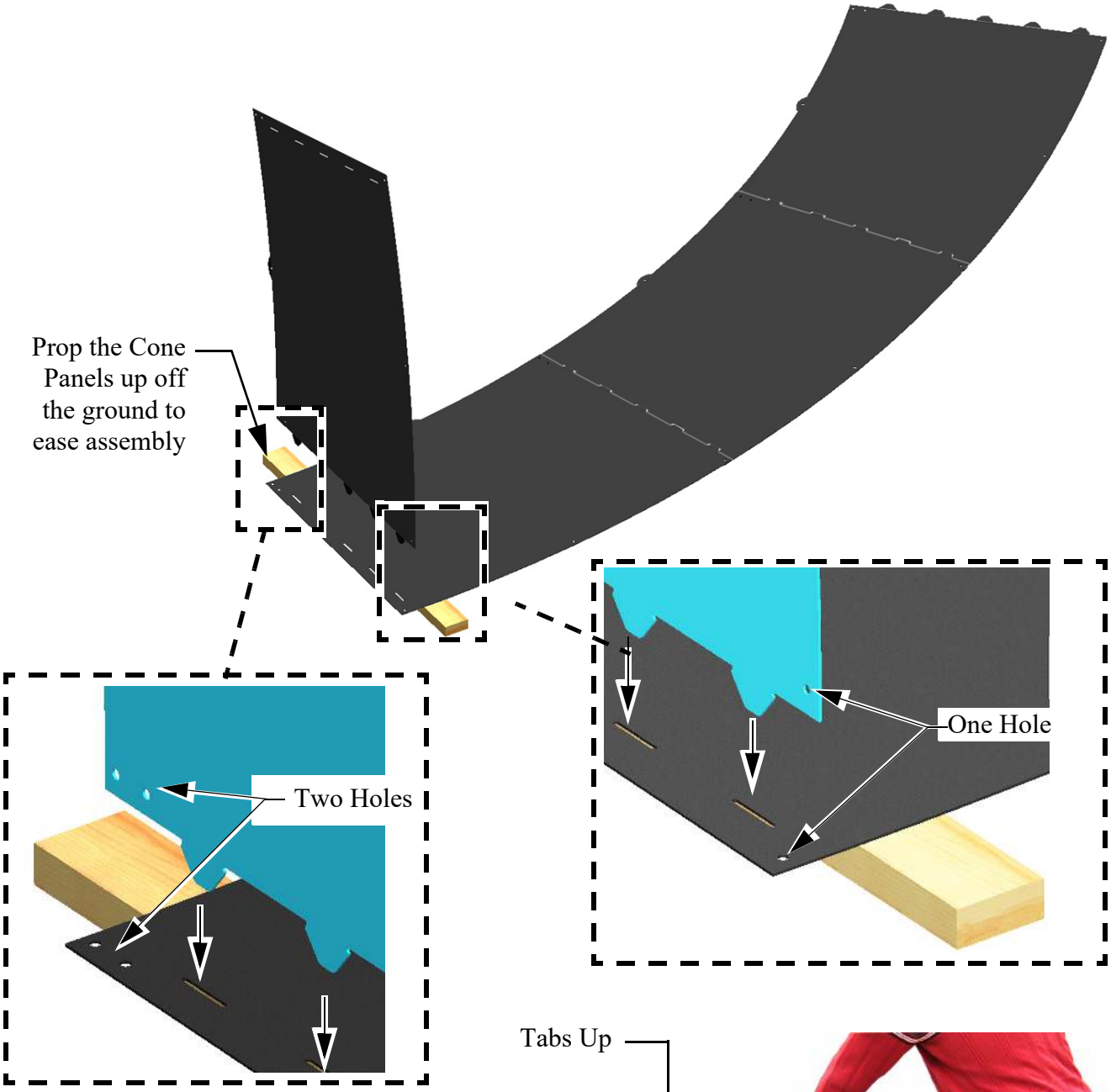


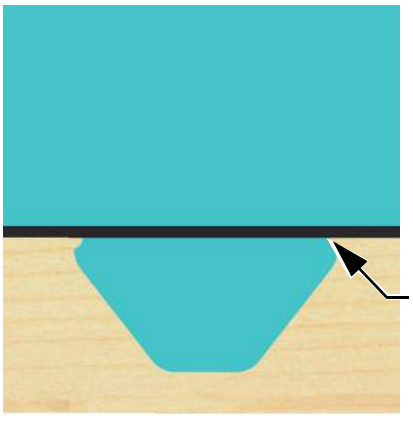
Step 2: Attach the Shroud to the Extension Box Panels with 20x 1/4-20 x 7/8" SS Bolts **(4404-17)** and 1/4-20 Flange Nuts **(46298) as shown**.



Cone Assembly

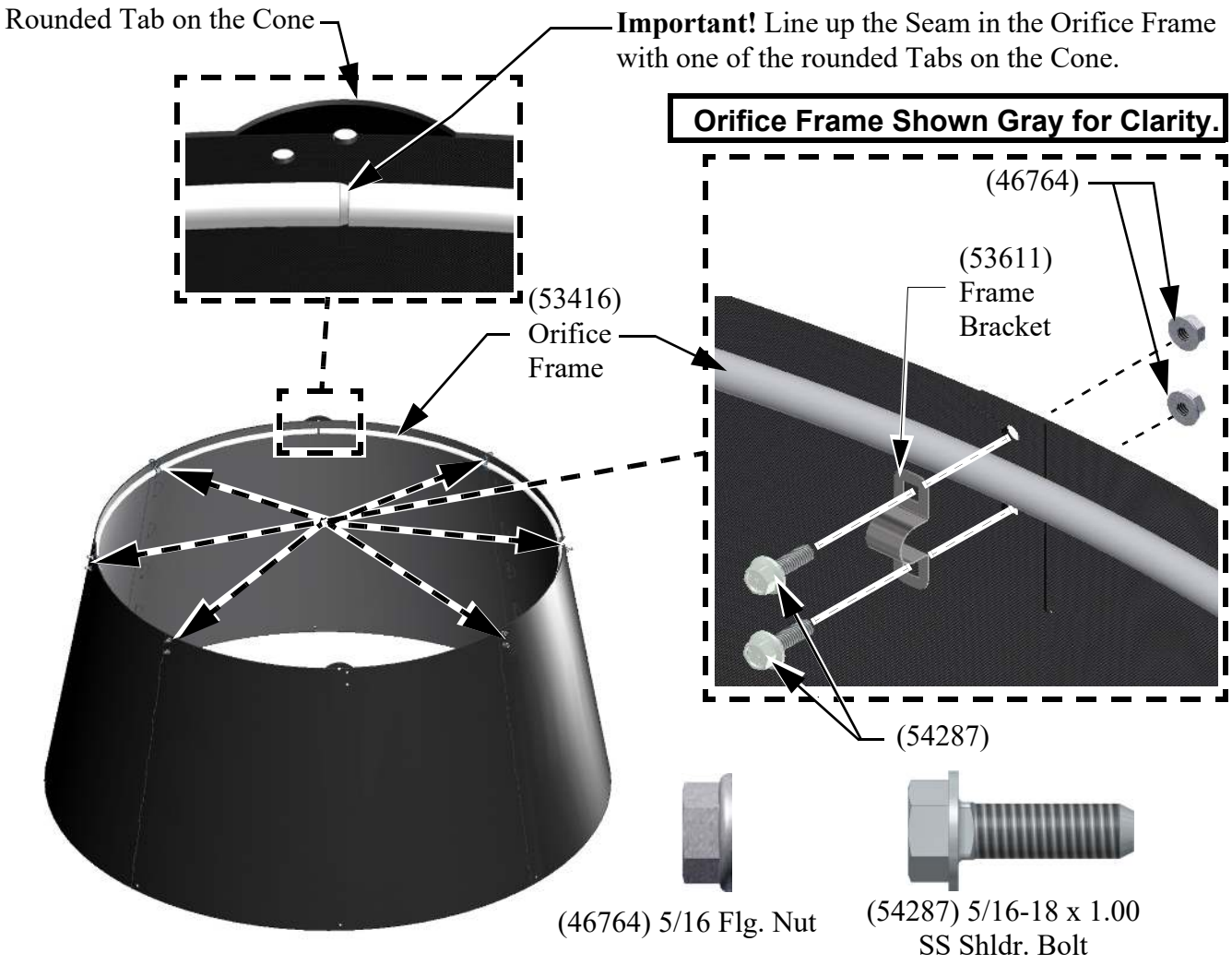
Assemble Cone Panels as shown below.







Installing the Orifice Frame



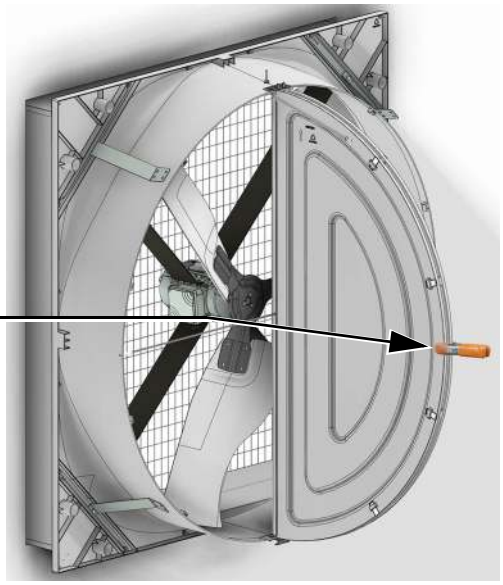
Cone Installation

Important! Before installing a Cone on assembled fan models do either **A or B below**.

A: Remove the Doors (Below): To remove the Doors Pull near the center of the Door to allow the Door Pins to slide out of the top Door Pivot Bracket. Once the Door is clear of the Top Pivot Bracket lift it from the Bottom Pivot Plate and set aside somewhere safe to be reinstalled later.

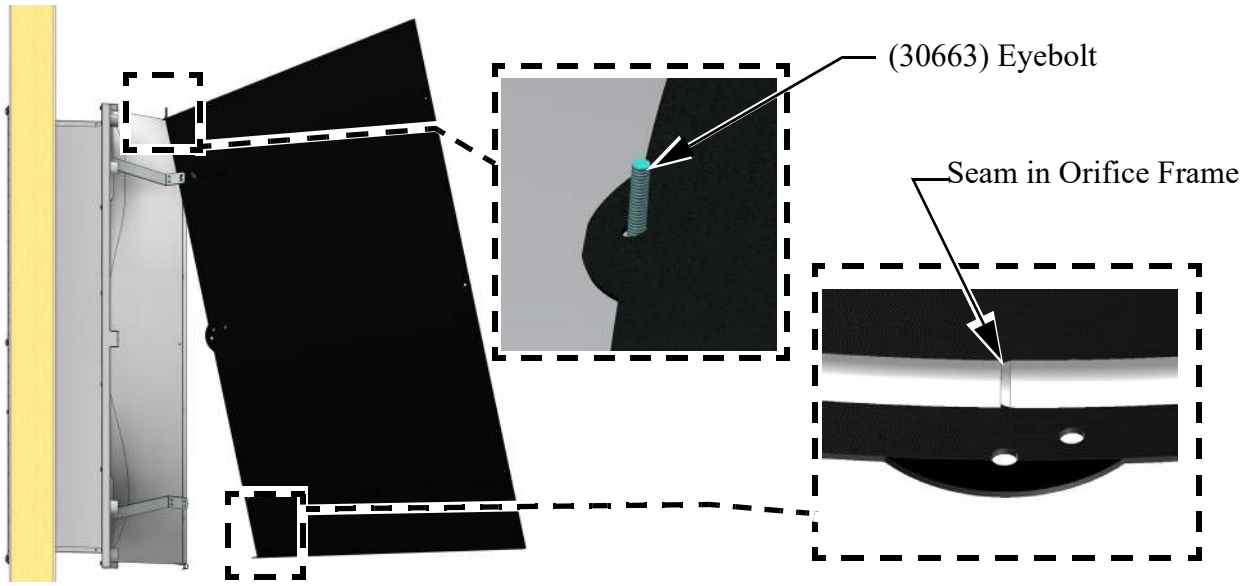


B: Clamp the Doors (Below)

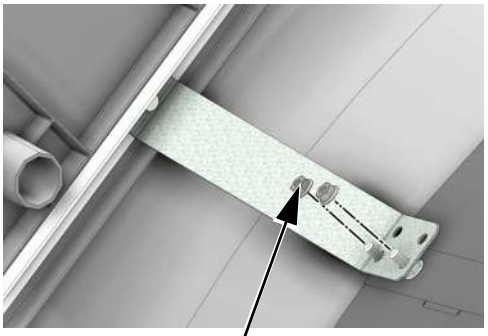


Cone Installation

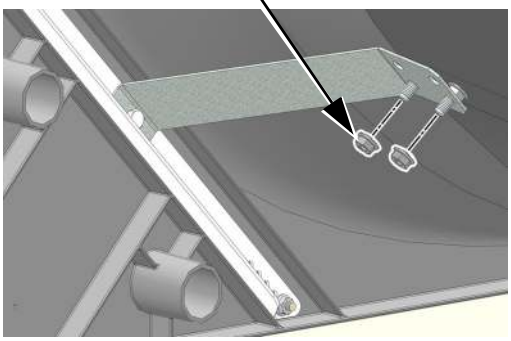
Step 1: Hang the Cone on the Eye-Bolt extruding from the top of the Shroud using the hole in the Cone as shown.



Step 2: Attach the Cone to the Shroud with 5/16 Flg. Nuts (46764) **as shown**

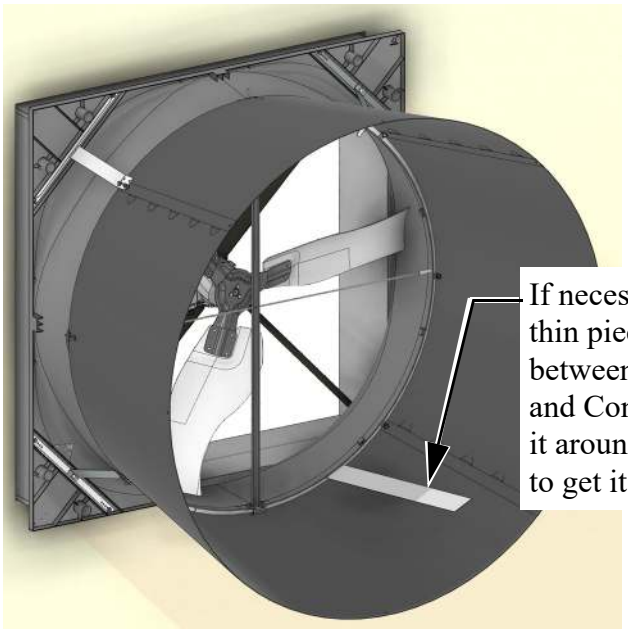


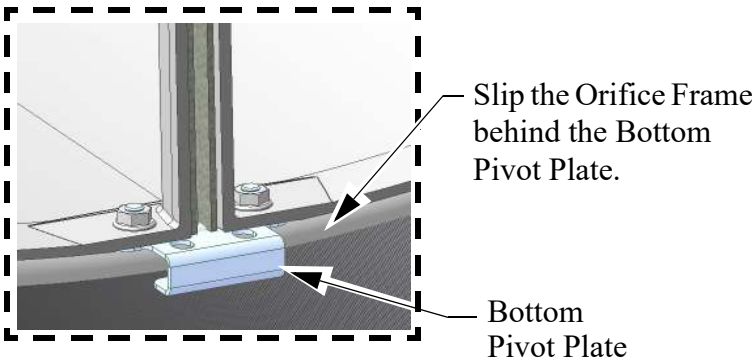
(46764)





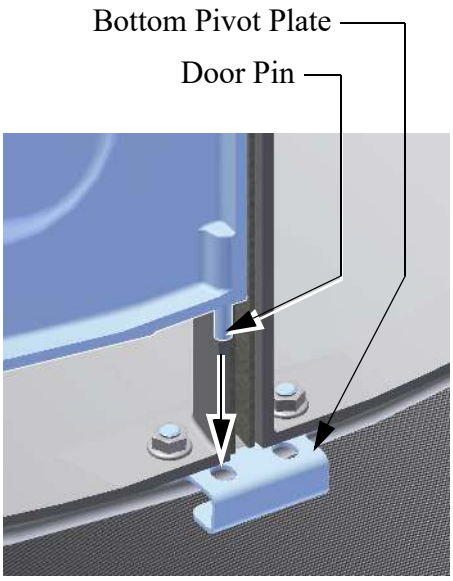
(46764) 5/16 Flg. Nut



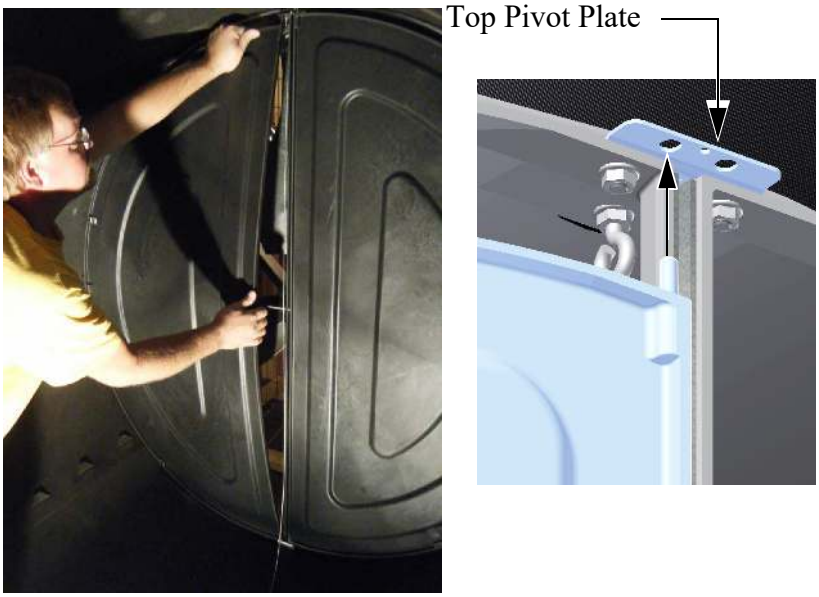


Re-install Doors

Insert Door Pins into Bottom Pivot Plate.

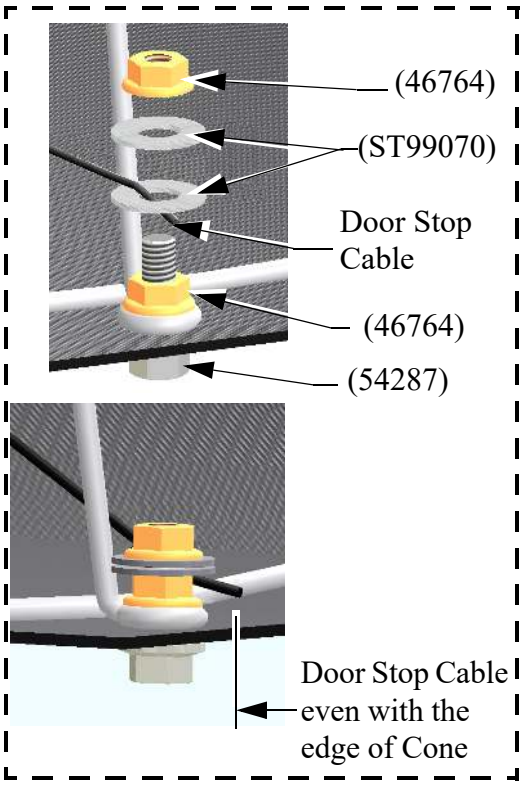


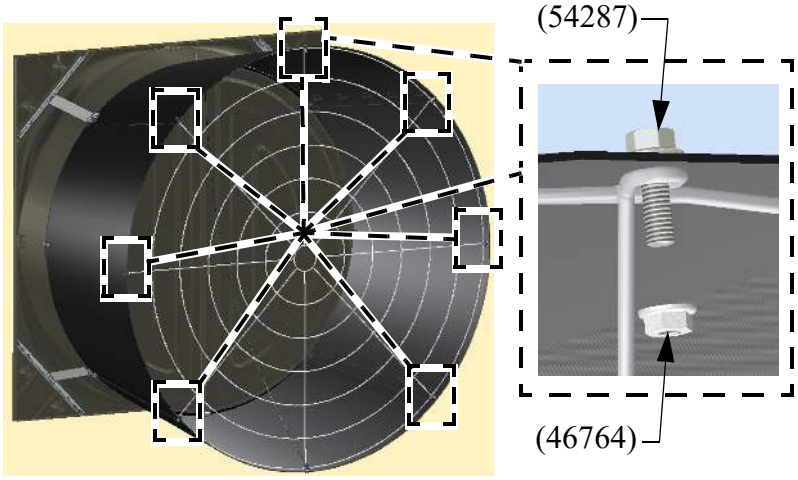
Grab the Door in the center, bow the Door outward, an insert the Top Door Pin in the Top Pivot Bracket as shown. **Do not Overbow the Doors!**



Grill Installation

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







(54287)
5/16-18 x 1.00 Bolt

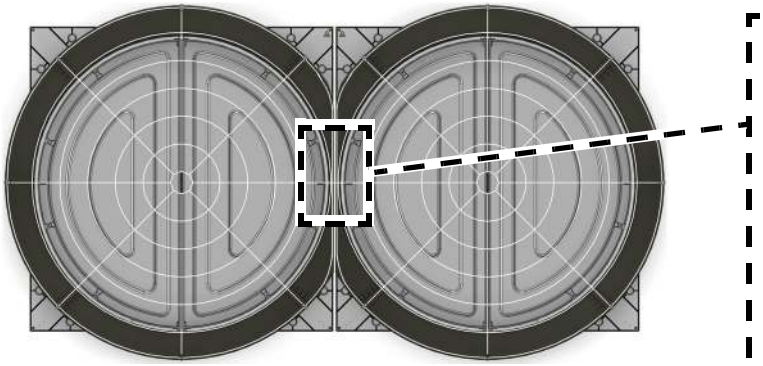


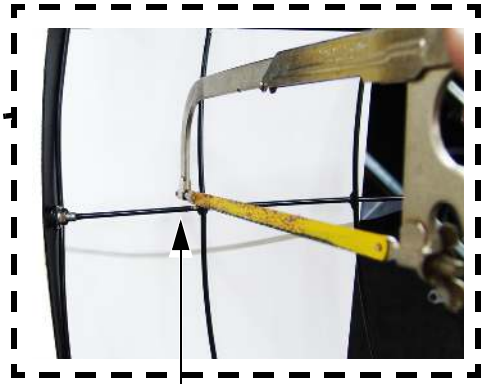
(ST99070)|
3/8 SS Flat Washer



(46764)
5/16 Flg. Nut

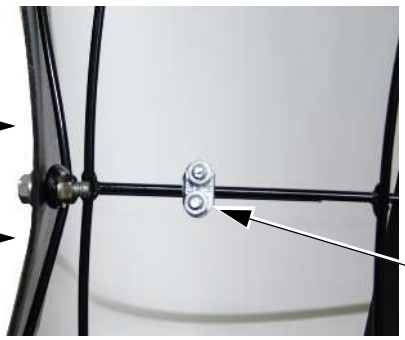
If it is desired to Mount Fans at the minimum spacing cutting the Grills is required **as shown.**





Cut the Grill here

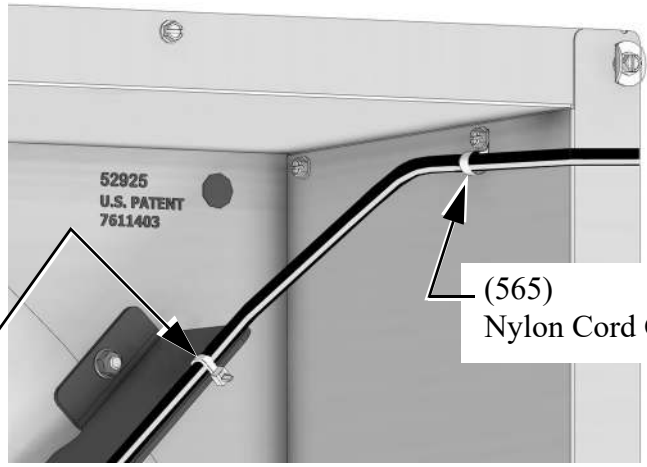
Push the Cone Side in and use a Clamp to secure the Grill Wires.

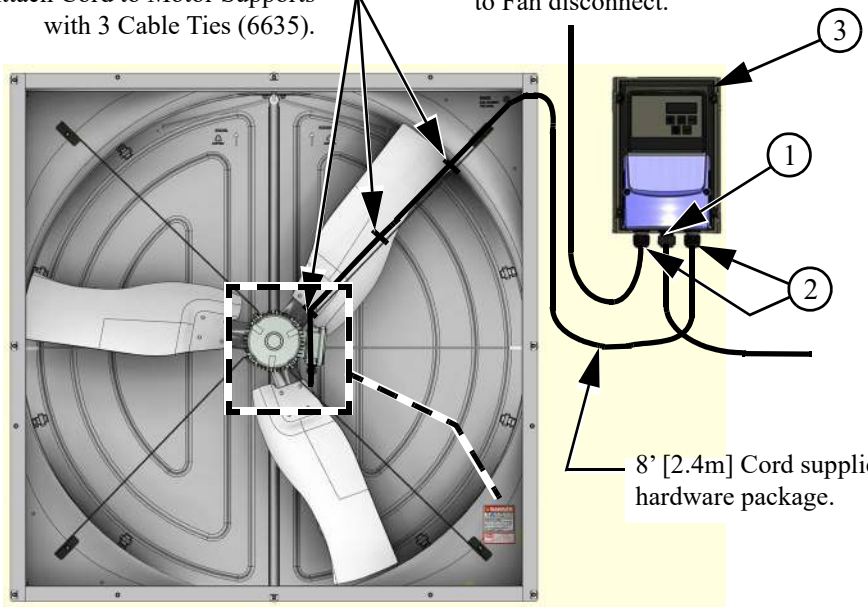


(732) Clamp (In Parts Package)

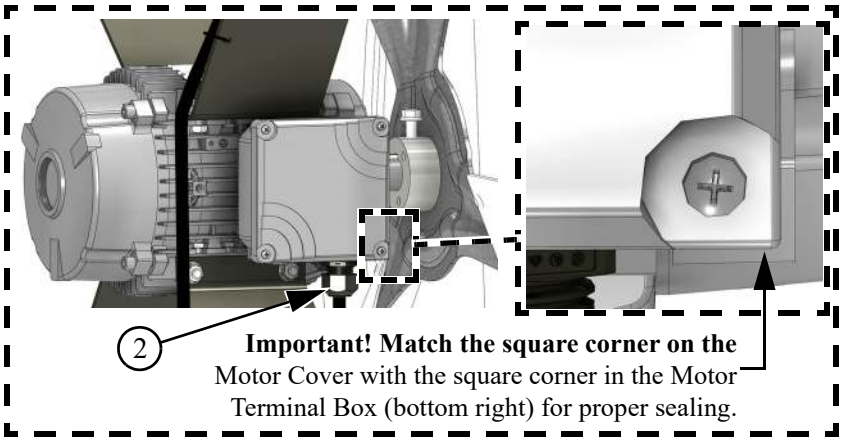
Fan Drive (VFD) Mounting

Select a location next to the Fan to install the Fan Drive. See the Invertek VFD Quick Start Guide (MV2492) that comes with the drive, or online at **www.choretime.com/documents, Manuals, Ventilation, Fans & Shutters, 57" Endura Fans, MV2492**. See the Invertek User Manual (MV2493) at **www.choretime.com/documents, Manuals, Ventilation, Fans & Shutters, 57-Inch Endura Fans, MV2493** for mounting details and general wiring instructions.



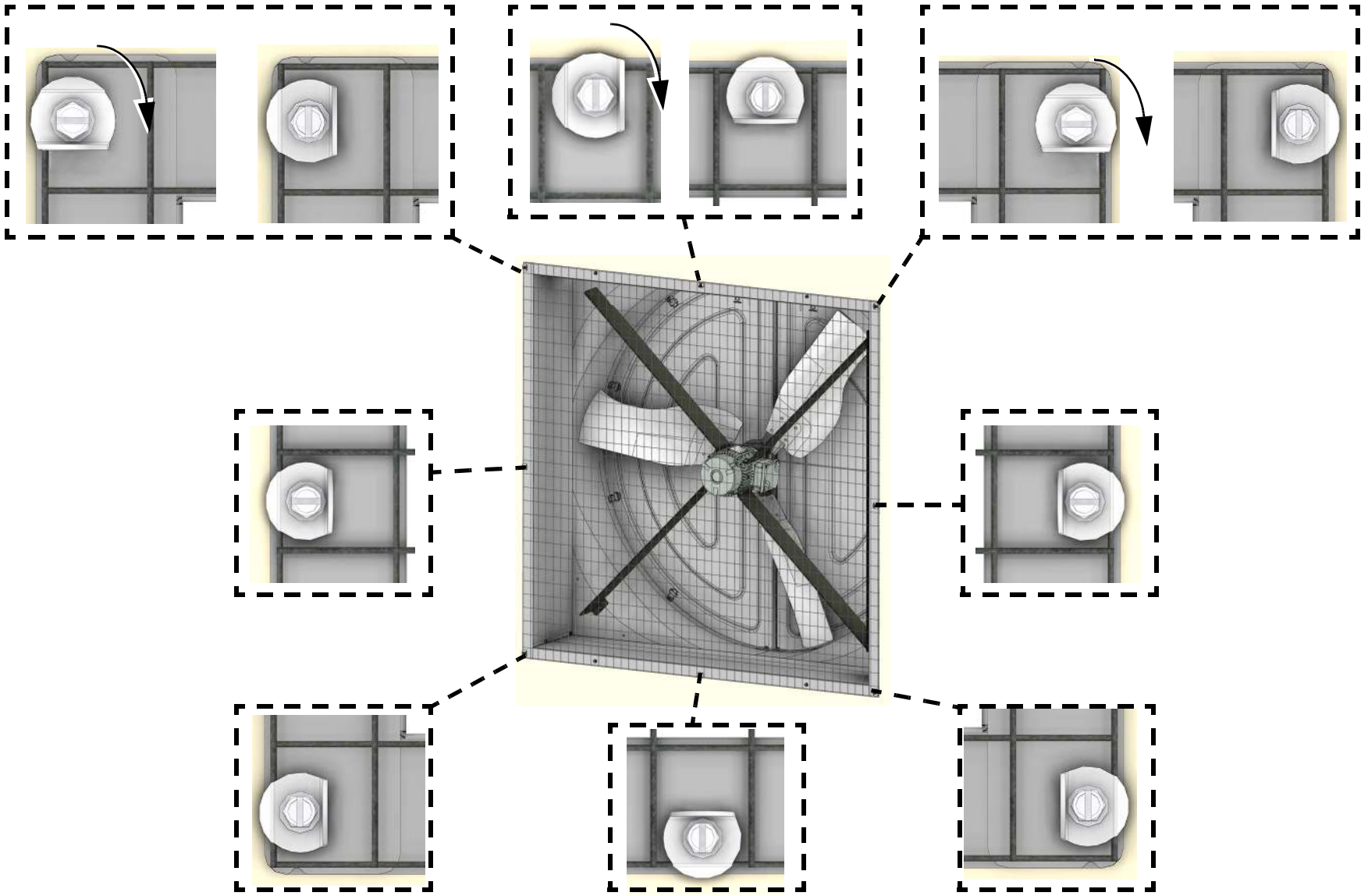


Item	Description	Part No.
1	1/2 NPT Cord grip	23779
2	M20 Cord Grip	56847
3	Invertek Optidrive™	Varies



Screen Installation

Center Screen on the wall opening. Loosen the Lag Screws enough to allow the Screen to be captured by the Screen Clip Washers and Rotate them **as shown**. Tighten down the Lags to Secure Fan and Screen to the Wall.

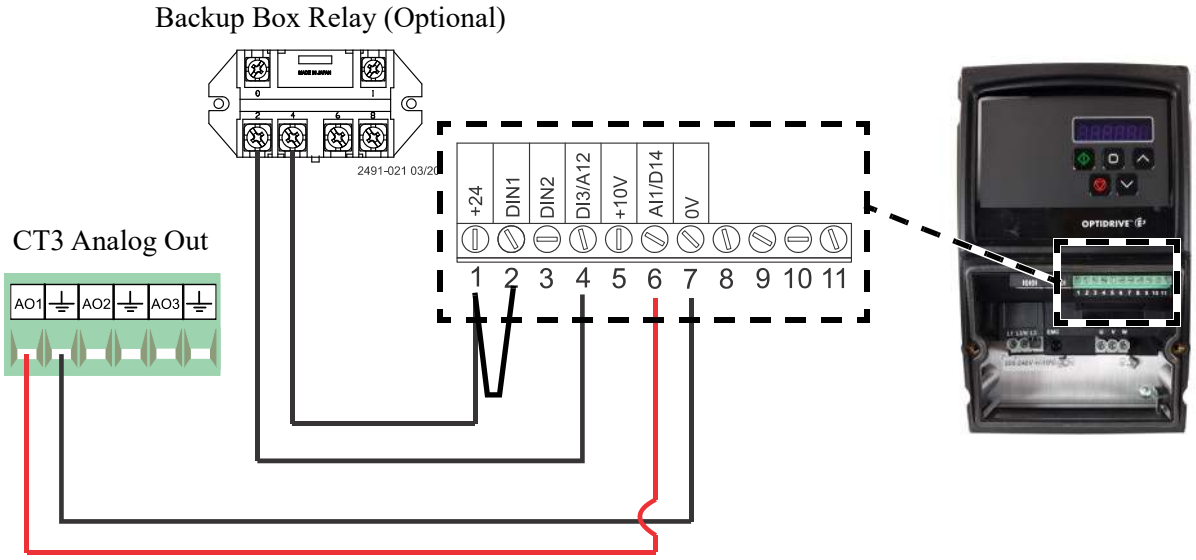


Control Signal Wiring

See the Invertek Quick Start Guide that comes packaged with the VFD for VFD wiring instructions. Further information is also available in the Invertek ODE-3 IP66 Outdoor User Guide (MV2493). It can be viewed online at **www.choretime.com/documents, Manuals, Ventilation, Fans & Shutters, 57-Inch Endura Fans, MV2493.** For variable speed fan control connect the 10-0 vdc analog signal from the main control to VFD terminals 6 (positive) and 7. The Fan will run full speed with an analog signal of 0 vdc and slow down to a stop as the signal is increased to 10 vdc.

For optional Fan Backup Control, in case of main control failure, connect a backup relay to terminals 1 and 4. The Fan will run full speed when the backup relay contacts are closed.

The jumper from terminals 1 to 2 is required for Fan operation.



Drive Parameters

The Drives come pre-programmed with parameters for operation with the corresponding 57" Direct Drive Endura Fans. The following parameter have been changed from the drive default values:

			Parameter Sets*	
No.	**Defaults**	**Description**	**-1**	**-2**
P-01	60	Maximum Frequency/Speed Limit (rpm)	630	630
P-03	5	Acceleration Ramp Time (sec)	3	3
P-04	5	Deceleration Ramp Time (sec)	30	30
P-05	0	Stop Mode Select	4	4
P-06	0	Energy Optimiser	1	1
P-07	230	Motor Rated Voltage	170	303
P-09	60	Motor Rated Frequency (Hz)	42	42
P-10	0	Motor Rated Speed (rpm)	630	630
P-13	0	Industrial / Fan-Pump Control Mode	2	2
P-14	0	Extended Menu Access Code	201	201
P-16	U 0-10	Analog input 1 Format	U10-0	U10-0
P-30	Edge-r	Terminal Mode Restart Function	Auto-5	Auto-5
P-33	0	Spin Start Enable	1	1
P-48	0.0	Standby' Activation Delay Time (sec)	0.1	0.1
P-51	0	Motor Control Mode	2	2
P-54	150	Maximum Current Limit	110	110
P-55	1.40	Motor Stator Resistance	3.4	9.8
P-56	120	Motor Stator d-axis Inductance (Lsd)	25	57
P-57	12.0	Motor Stator q-axis Inductance (Lsq)	26	55.7
P-60	o 0	Thermal Overload Management	o 1	o 1
*Last digits of the 56541 Programmed VFD Part Numbers are the Parameter Set numbers, ie "-2" parameter set is used in the 56541-3-2 VFD				

Test Fan for proper operation

Supply power to the VFD and check for proper operation. If the Fan turns in the wrong direction interchange any two wire connections between the drive and the motor to correct the direction of fan blade rotation.

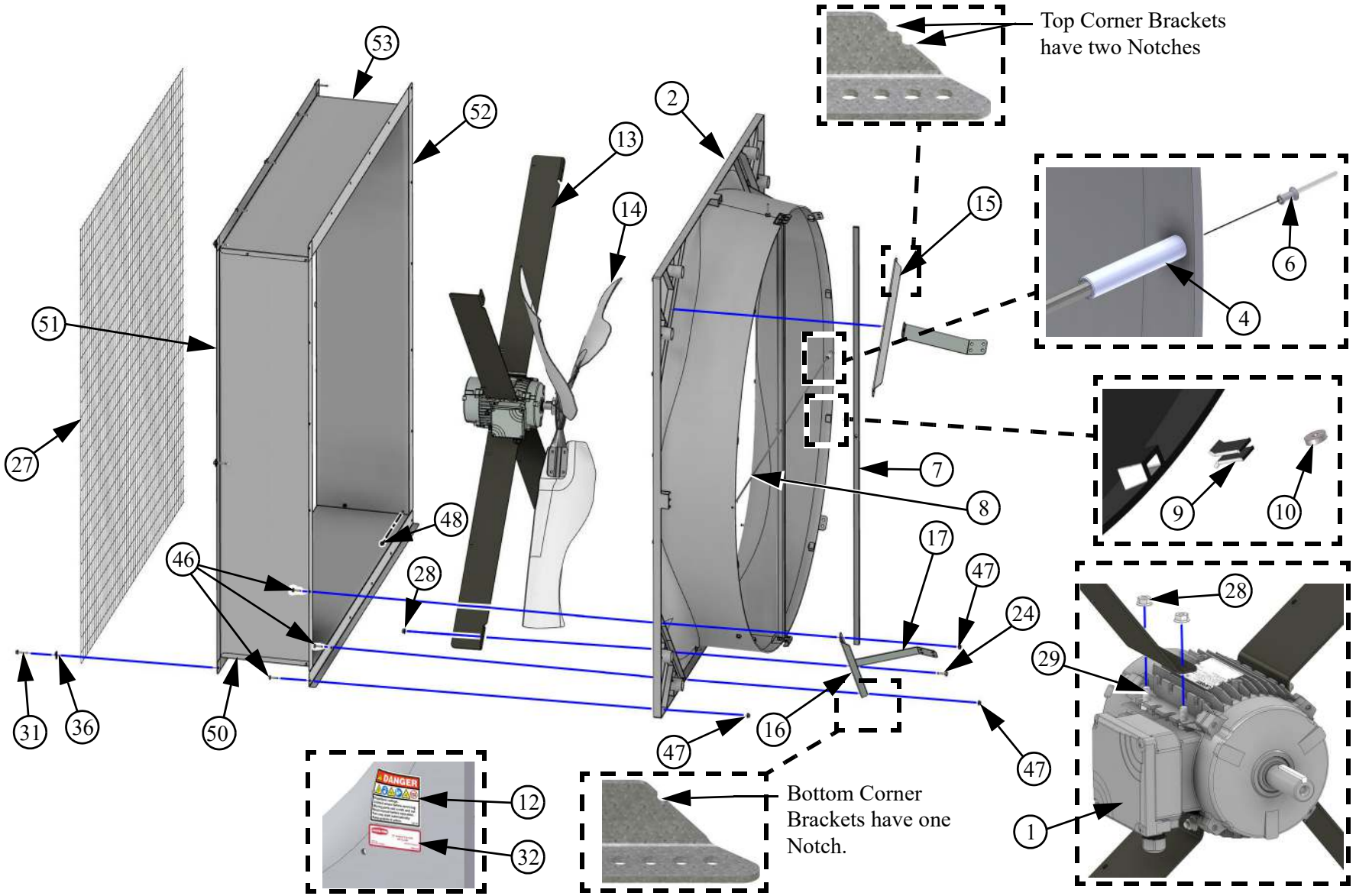
Maintenance

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.

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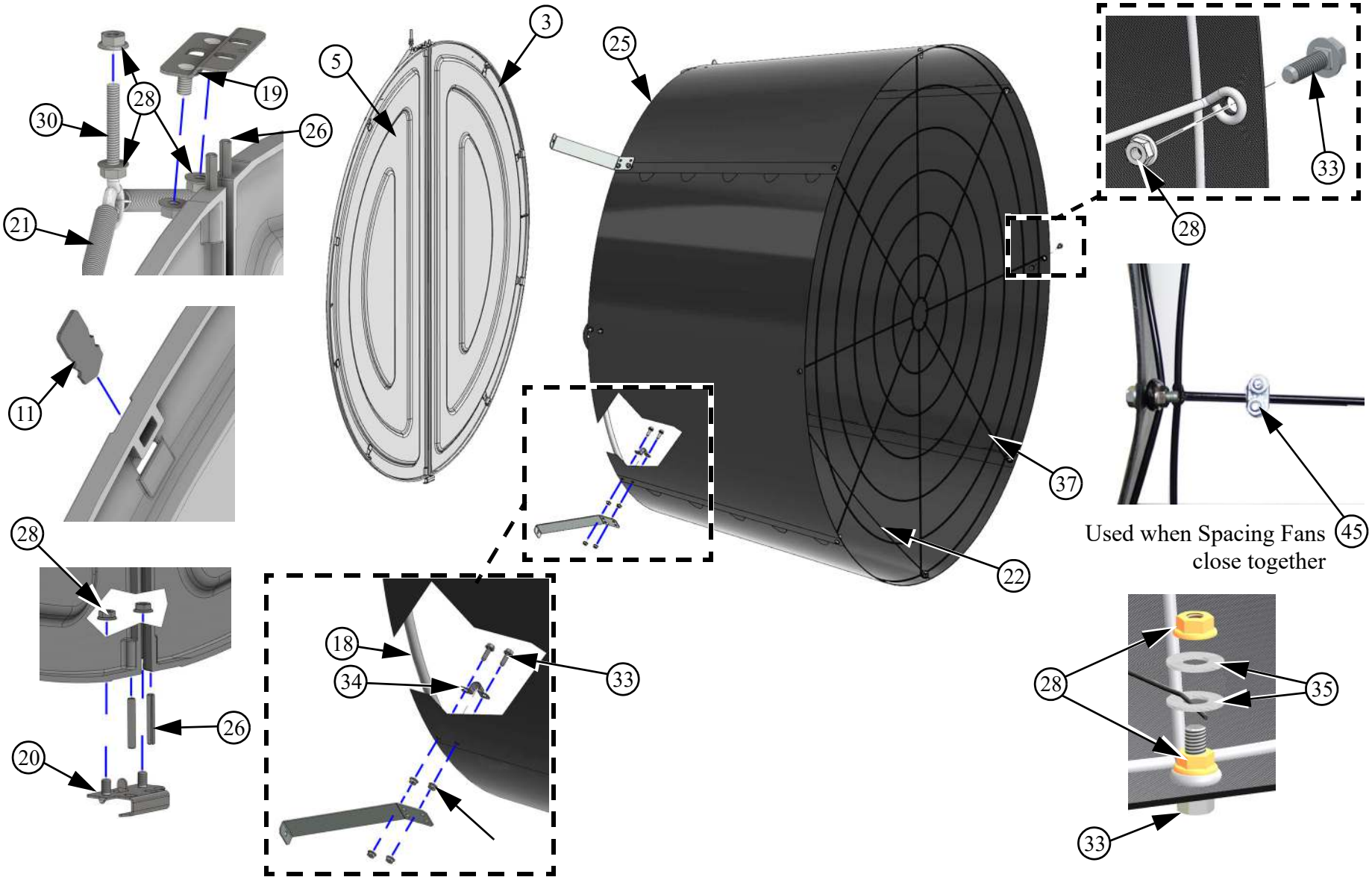
Parts Numbers (Itemized)



Item	Qty.	Description	Part No.	57" Direct Drive Endura® Fan (56911-X,-XS) Part Numbers
1	1	Motor, 230V, 7A, 630RPM PMSM	56501	-1,-2,-1S,-2S
		Motor, 380-480V, 4.1A, 630RPM PMSM	56704	-3,-3S
2*	1	57" Fan Shroud Assembly	52925	All
4*	2	57" Cross Rod Coupler	56339	All
6*	2	Rivet	48936	All
7*	1	57" Fan Center Post Stiffener	53626	All
8*	1	57" Fan Cross Rod	53398	All
9*	8	Magnet Side Plate	53026	All
10*	4	.125 x 50 Magnet	48427	All
12*	1	Fan Danger Decal	2527-90	All
13	4	57" DD Fan Motor Support	56502	All
14	1	57" Galv. Bolted Hub Blade	56494	-1,-2,-3
		57" Bolted Hub SS Blade	57022	-1S,-2S,-3S
15	2	Upper Corner 57" DD Fan Support (2 Notches)	56592	All
16	2	Lower Corner 57" DD Fan Support (1 Notch)	56593	All
17	4	Cone Bracket	53039	All
24	4	5/16-18 x 1.25 HH 316SS Bolt	4412-28	All
27	1	59" Square 1.25 x 2 Wire Screen	56540	All
28	47	5/16-18 x Hx. Serrated SS Flange Nut	46764	All
29	8	5/16-18 x 3/4 HH SS Bolt	4412-11	All
31	12	1/4-10 x 1.5 HXWH SS Lag Screw	41561	All
32	1	57" DD Endura Fan Decal	39002-XXX	All
36	8	Screen Clip	56671	All
46***	20	1/4-20 x 7/8 SS Bolt	4404-17	All
47***	20	1/4-20 SS Serrated Flange Nut	46298	All
48***	8	1/4-20 x 1/2 SS Screw	54683	All
50	1	57" DD Flush Mount Bottom Panel (2 Notches)	56973	All
51	1	57" DD Flush Mount (Right) Side Panel (1 Notch)	56971-2	All
52	1	57" DD Flush Mount (Left) Side Panel (4 Notches)	56971-1	All
53	1	57" DD Flush Mount Top Panel (3 Notches)	56972	All

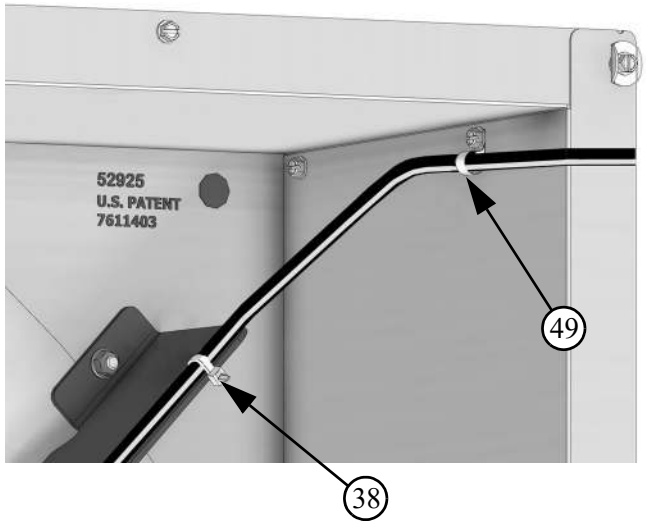
*** Fan Shroud Assembly (Item 2) includes items 4,6,7,8,9,10, & 12**
*****Included in Flush Mount Hardware Package (pn 56978)**

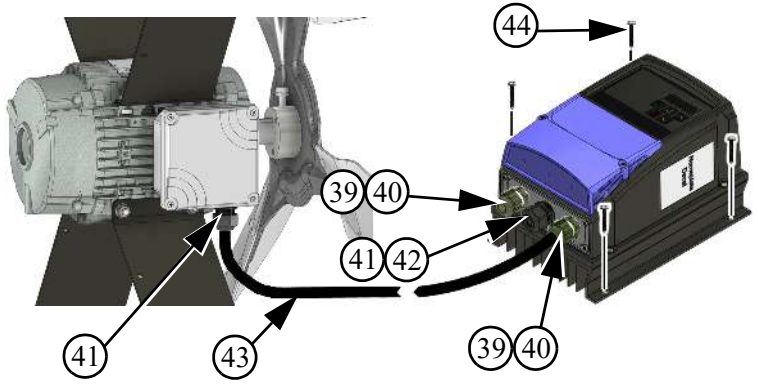
Part Numbers (Itemized) continued



Item	Qty.	Description	Part No.	57" DD Endura® Fan (56911-X, -XS, -XT) Part Numbers
3**	1	57" Left Hand Fan Door	52926L	All
5**	1	57" Right Hand Fan Door	52926R	All
11**	4	Magnet Striker Plate	53027	All
18	1	57" Fan Orifice Frame	53416	All
19	1	57" Fan Top Pivot Plate	53037	All
20	1	57" Bottom Pivot Plate	53036	All
21	1	.50 OD x 11 x .055 SS Spring	49629	All
22	1	3/32 SS Fan Cone Cable Ass'y.	53399	All
25	4	Cone Panel	53163	All
26	4	1/4 x 1-3/4 420SS Spring Pin	53038	All
30	1	5/16-18 x 2 SS Eye Bolt	30663	All
33	20	5-16-18 x 1 SS HXWH Bolt	54287	All
34	6	57" Fan Orifice Frame Brckt.	53611	All
35	2	3/8 SS Flat Washer	ST99070	All
37	1	70" Cone Grill with 6" Spacing	53129	All
38	3	Cable Tie	6635	All
39	2	1/2 NPT Nylon Cord grip	23779	All
40	2	1/2 NPT Galv. Lock Nut	3357	All
41	2	M20 Nylon Cord grip	56847	All
42	1	M20 Nylon Lock Nut	56848	All
43	1	8' Cord Assembly	4999-133	All
44	4	#8 x 1 HH Machine Screw	5998	All
45	2	3/16" Cable Clamp	732	All
49***	1	Nylon Cord Clip	565	

****Door Assemblies include Magnet Striker Plates (Item 11)**
*****Included in Flush Mount Hardware Package (pn 56978)**





MADE TO WORK.
BUILT TO LAST.®

Revisions to this Manual

Page No.	Description of Change	ECO
1	Added Bess Lab Test Results	35514
23	Changed 54530 to 57022 Blade	

For additional parts and information, contact your nearest Chore-Time distributor or representative.
Find your nearest distributor at: www.choretime.com/contacts

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