



HEMISPHERE® FAN

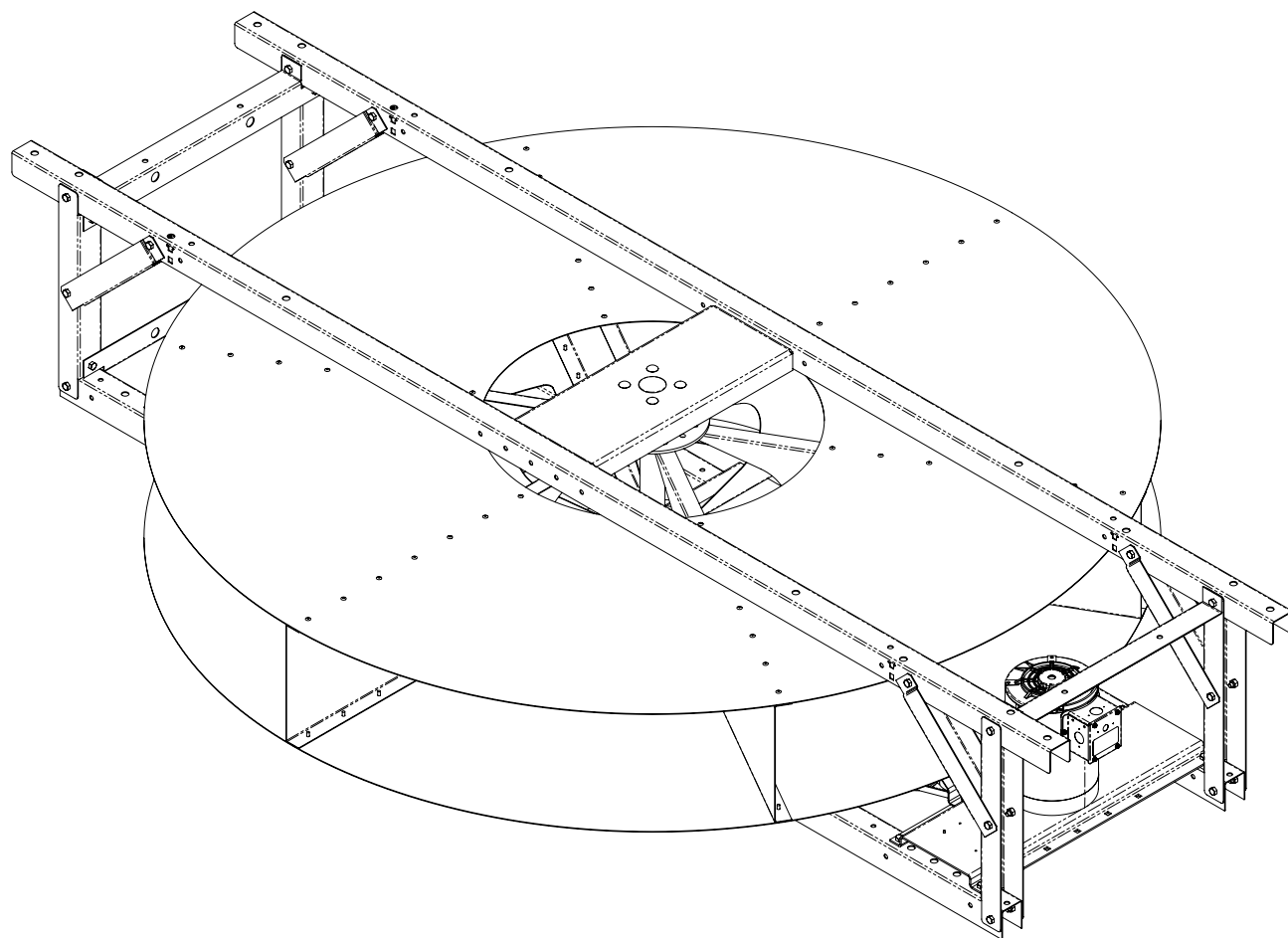
972090, 972140, 972180, 972380 & 972420 - 48" Hemisphere 360

972120, 972160, 972280 & 972360 - 72" Hemisphere 360

972185 & 972425 - 48" Directional

972125 - 72" Directional

Installation Manual



990080

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VAL PRODUCTS, INC. WARRANTIES

For Warranty claims information, please see the “Manufactured Products Standard Warranty” form QMS101 available from Val Products, Inc. by:

- Phone: 1-800-998-2526
- Email: marcom@val-co.com
- Online: <http://val-co.it/warranty>

Conditions and Limitations:

- Products and Systems involved in a warranty claim under the “Manufactured Products Standard Warranty” shall have been properly installed, maintained and operated under competent supervision, according to the instructions provided by Val Products, Inc.
- 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.

Introduction

Hemisphere Fans come pre-assembled, except for wire guards.

- Read all safety information, instructions and illustrations before starting to install your new fan. Please review the complete assembly manual before starting and be sure to check your shipment with the packing list for any shortages. Please report shortages promptly.
- Metric measurements are shown in millimeters and in parenthesis throughout the manual. Example: 13” (330mm)

Symbols

Our concern is for your safety. The safety warnings are included in this manual as a guide to help and encourage the safe operation of your equipment. It is your responsibility to evaluate the hazards of each operation and implement the safest method of protecting yourself as owner and/or operator.



= NOTICE - Important information. Be sure to read.



= WARNING - The safety alert symbol is used on warning signs that describe the importance of a feature or explain a step that one should pay close attention to avoid problems or personal injury.

**DANGER**

Hazardous situation, if not avoided, will result in serious injury or death.

**WARNING**

Hazardous situation, if not avoided, could result in serious injury or death.

**CAUTION**

Hazardous situation, if not avoided, could result in minor or moderate injury.

Tools Required

- *Standard (Flat-Head) Screwdriver and/or Phillips Screwdriver*
- *Hammer*
- *1/2", 9/16", 5/16", 15/16", Open End Wrenches or Socket Wrench with 1/2", 9/16", 5/16", 15/16", Sockets*
- *Wire Cutters and Strippers*
- *1/8" Hex Key Wrench*
- *5/16" Nut Driver*
- *Impact Driver*
- *Drill*

Screwdriver



Hammer



Open End Wrenches



Socket Wrench with Sockets



Wire Cutters



Wire Strippers



Hex Key Wrench



Nut Driver



Impact Driver



Drill



Framing Instructions: 48" & 72" Hemisphere 360 Fans

Framing required for 48" fan (972180, 972380 & 972420) and/or 72" fan (972120, 972160, 972360 & 972280) install.

The diagram illustrates the framing for a fan installation. It shows a cross-section of the roof structure with vertical roof trusses and horizontal fan mounting boards. Key dimensions and labels include:

- Inlet Rough Opening:** Indicated by an arrow pointing to the top opening.
- 22.00" (559mm):** Dimension from the top of the fan mounting board to the top of the inlet rough opening.
- X:** Dimension from the centerline to the inner edge of the fan mounting board.
- Y:** Dimension from the centerline to the outer edge of the fan mounting board.
- A:** Total width of the fan mounting board.
- Centerline:** A vertical dashed line indicating the center of the fan.
- Roof Truss:** Indicated by an arrow pointing to a vertical truss.
- 1.50" (38mm):** Dimension from the bottom of the fan mounting board to the ceiling, labeled as "(clearance between ceiling and fan mounting)".

TABLE 1

FAN SIZE	A
48" FAN	86.50" (2197mm)
72" FAN	100.00" (2540mm)

Optional inlet requires an opening for placement over center of fan (see Table 2 for dimensions).

Refer to specific Attic Inlet manual for more detailed instructions.

Use (4) 2" x 10" (minimum size) boards per fan to connect to roof trusses, trim boards to size to span trusses. The boards must connect to (4) trusses minimum, as shown. It is important to center fan under the attic inlet.

! DANGER

NO STEP!

If chimney is used in a space with human access, safety rails must be added around chimney opening.

Fan mounting boards are installed below ceiling to allow room for the homerun line & inlet cables.

WARNING: Installation of 48" fan (972180, 972380 & 972420) and/or 72" fan (972120, 972160, 972360 & 972280) creates additional loads on the building. See Table 3 for the combined weight of the fan & inlet. Consult with a local structural engineer to verify that your building can handle the required loads. Valco is not responsible for building damage or personal injury due to inadequate structural support or improper use of fan.

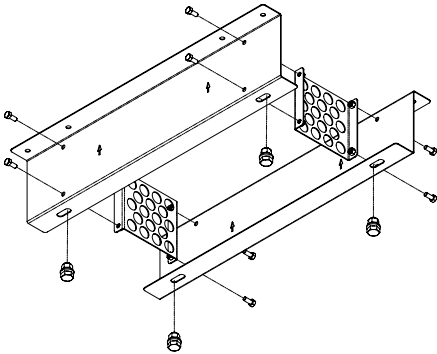
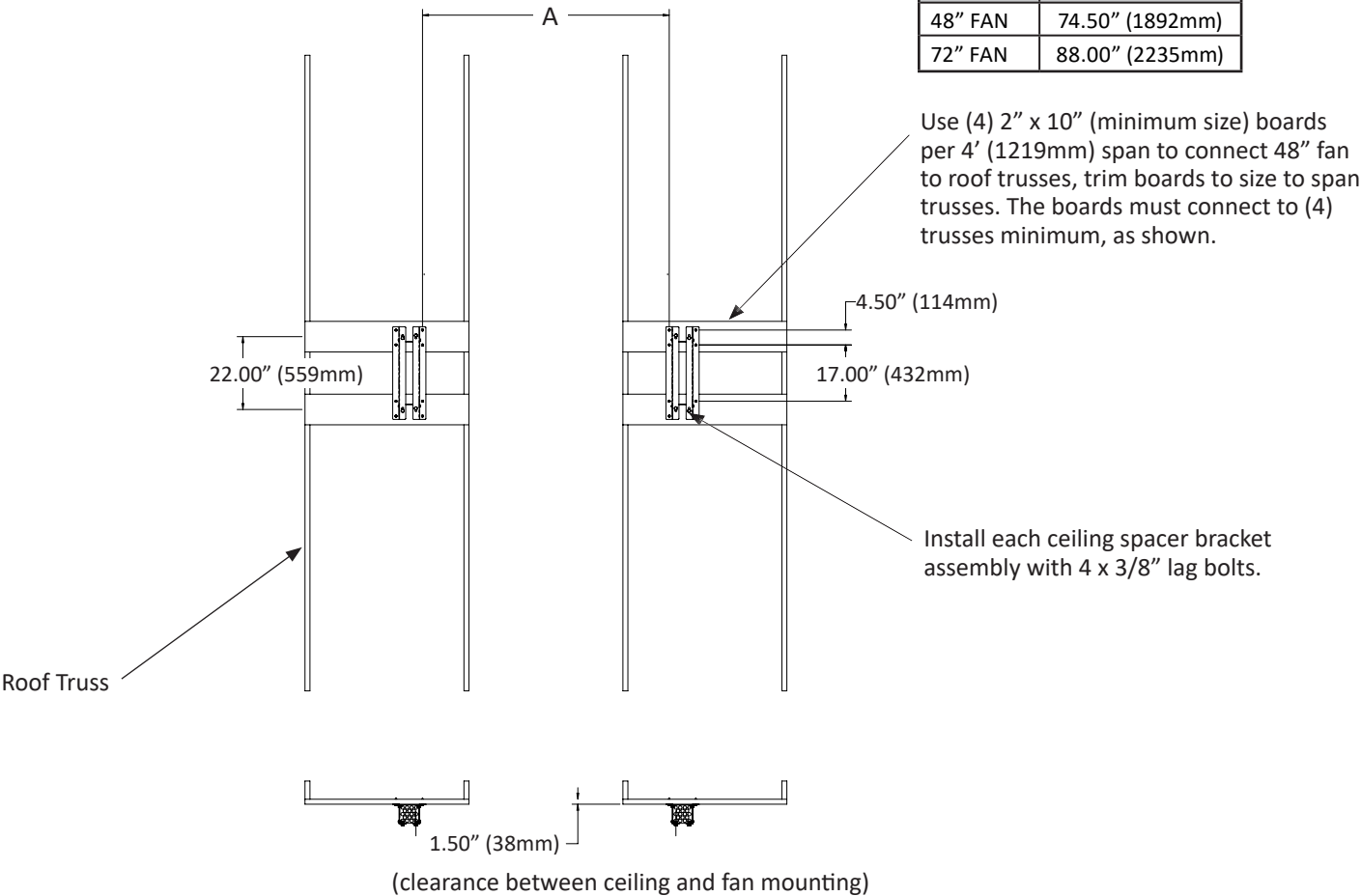
PART #	DESCRIPTION	X	Y
812245	24" INLET	27.75" (705mm)	27.75" (705mm)
812265	24" INLET W/ DOME	27.75" (705mm)	27.75" (705mm)
812340	30" INLET	32.50" (826mm)	35.00" (889mm)
812365	36" INLET	36.50" (927mm)	36.50" (927mm)
812385	36" INLET W/ DOME	36.50" (927mm)	36.50" (927mm)

FAN PART #	COMBINED WEIGHT
ALL 48" FANS	300 lbs (136kg)
72" FAN: 972120	420 lbs (191kg)
72" FAN: 972280	450 lbs (204kg)
72" FANS: 972160 & 972360	550 lbs (249kg)

Framing Instructions: 48" & 72" Directional Fans

Framing required for 48" directional fan (972185, 972385 & 972425) and/or 72" directional fan (972125) installation.

TABLE 1	
FAN SIZE	A
48" FAN	74.50" (1892mm)
72" FAN	88.00" (2235mm)



Keep area between ceiling spacers clear for proper air flow.

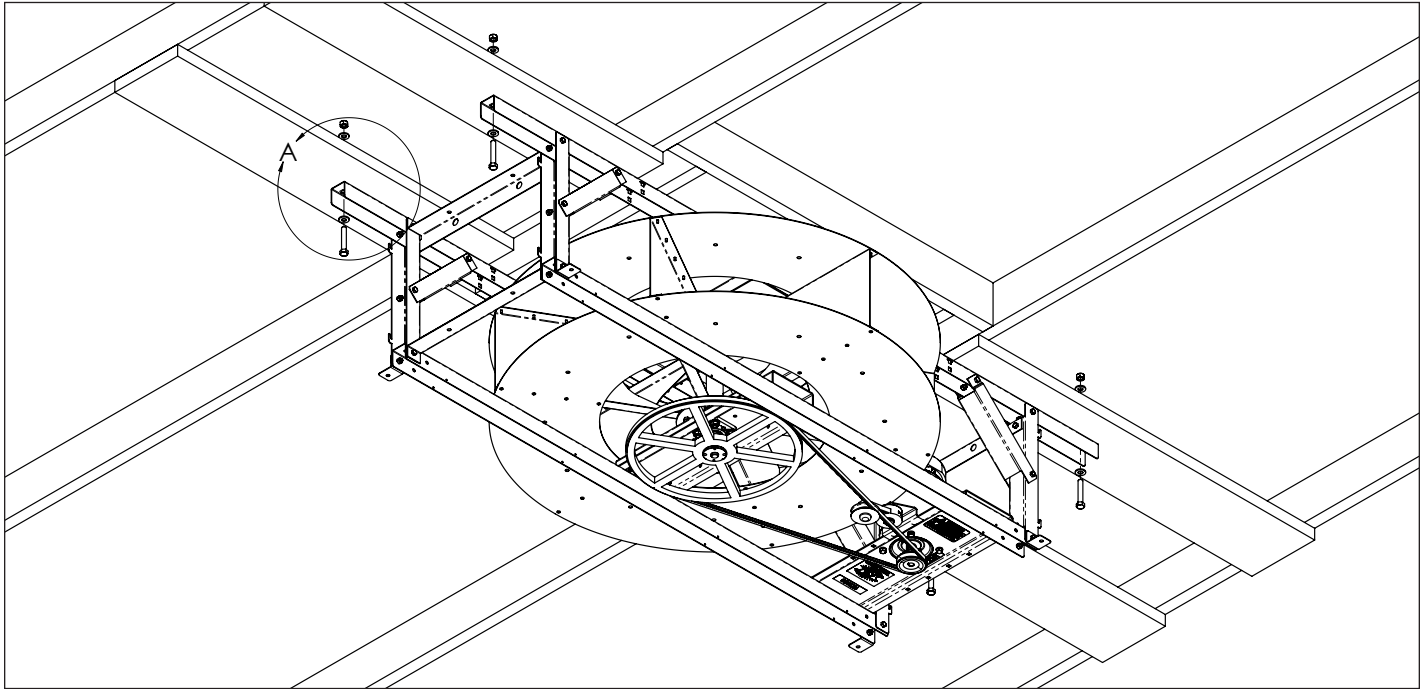
NOTE: Ceiling spacers may be installed on the ceiling as shown, or may be first installed on the hemisphere fan. Up arrows point toward ceiling. Hardware for attaching hemisphere fan can be found on the next page.

WARNING: Installation of 48" directional fans (972185, 972385 & 972425) and/or 72" fan (972125), creates additional loads on the building. See Table 5 for the weight of the fan. Consult with a local structural engineer to verify that your building can handle the required loads. Valco is not responsible for building damage or personal injury due to inadequate structural support or improper use of fan.

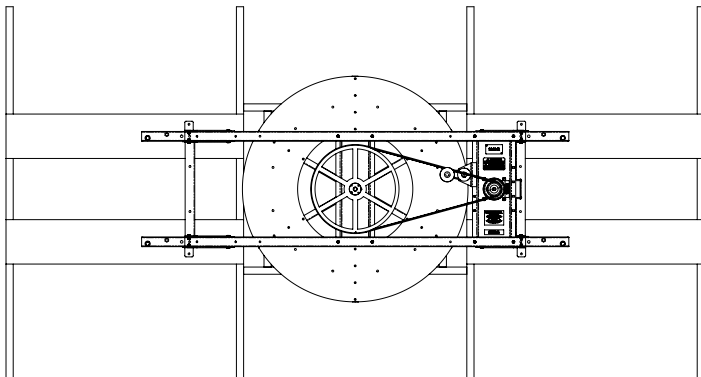
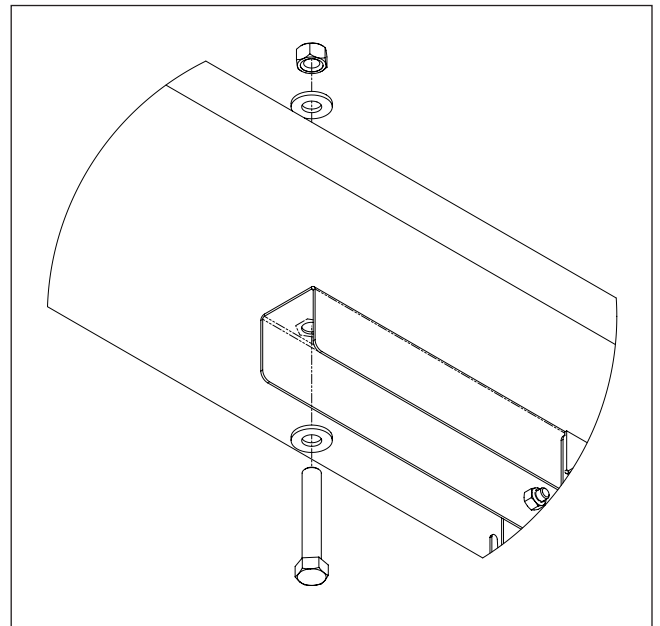
TABLE 5	
FAN PART #	WEIGHT
ALL 48" FANS	300 lbs (136kg)
ALL 72" FANS	420 lbs (191kg)

Installation & Orientation Instructions: 48" & 72" Hemisphere 360 Fans

Center fan on ceiling framing to create the proper alignment of fan and guard.

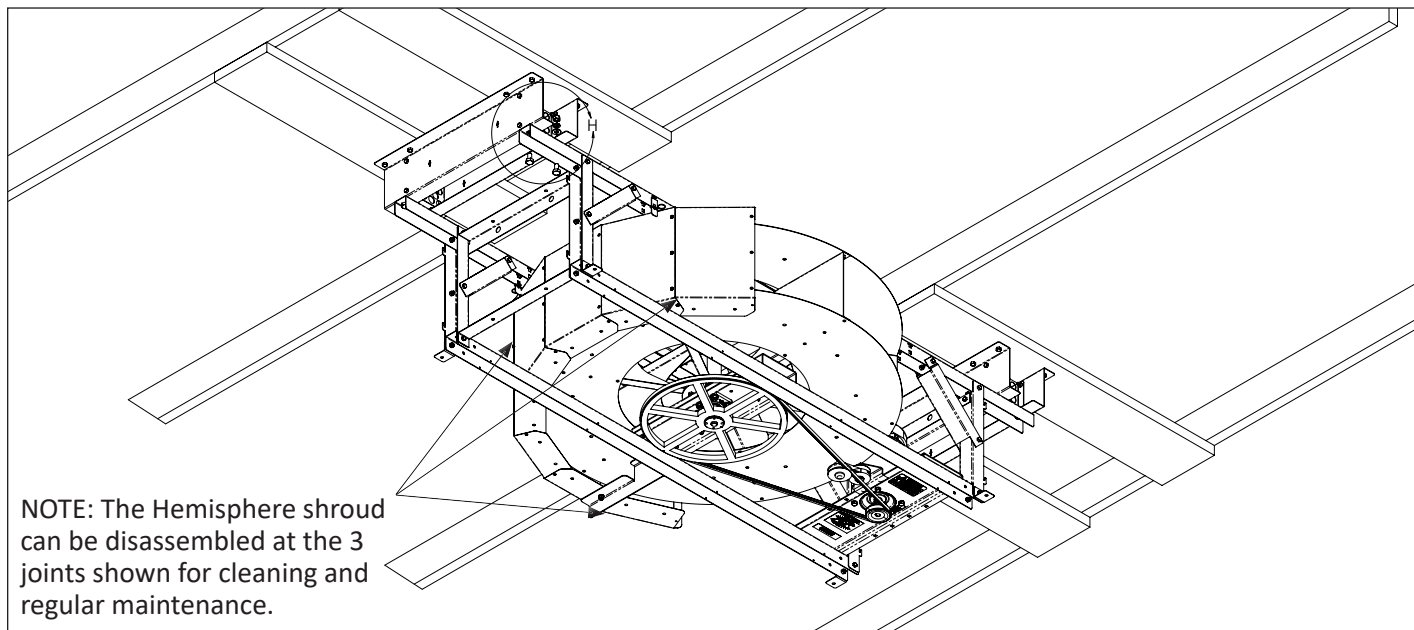


Attach fan to ceiling with a minimum of (4) 1/2" bolts, with flat washers and locking nuts as shown in Figure 5 (or use (8) 3/8" lag screws (not shown) if mounting a 48" fan). Hardware is mounted through the ceiling framing. Length of bolts will vary depending on house construction. Hardware is not included.



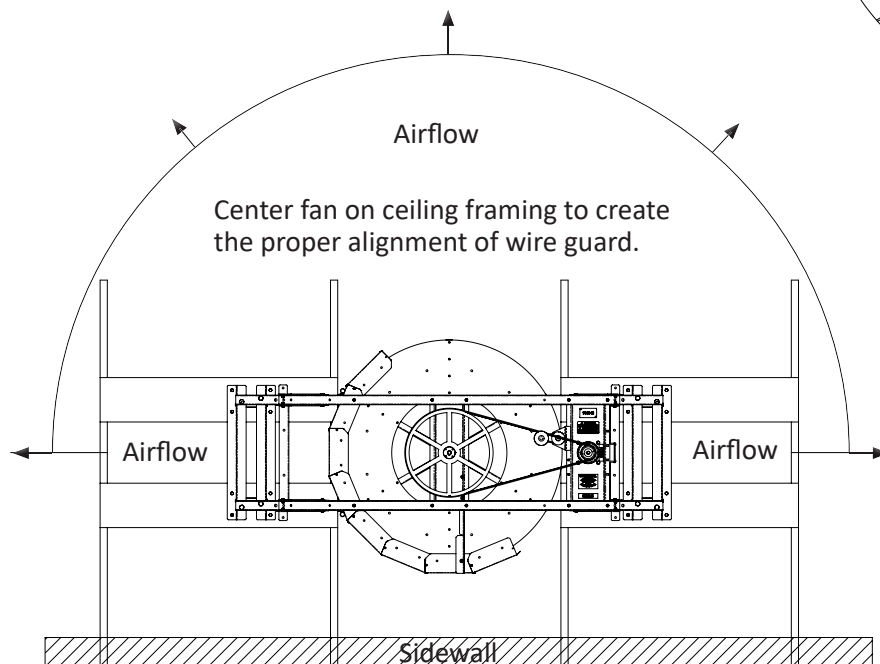
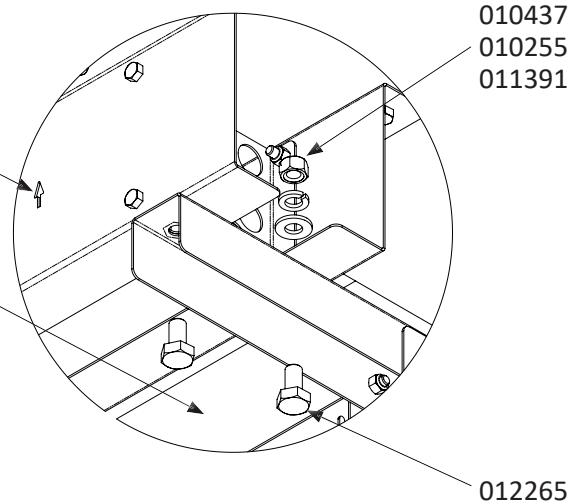
Fan centered on ceiling framing, showing proper alignment of fan and guard.

Installation & Orientation Instructions: 48" & 72" Directional Fans



Verify ceiling brackets are installed with arrow up.

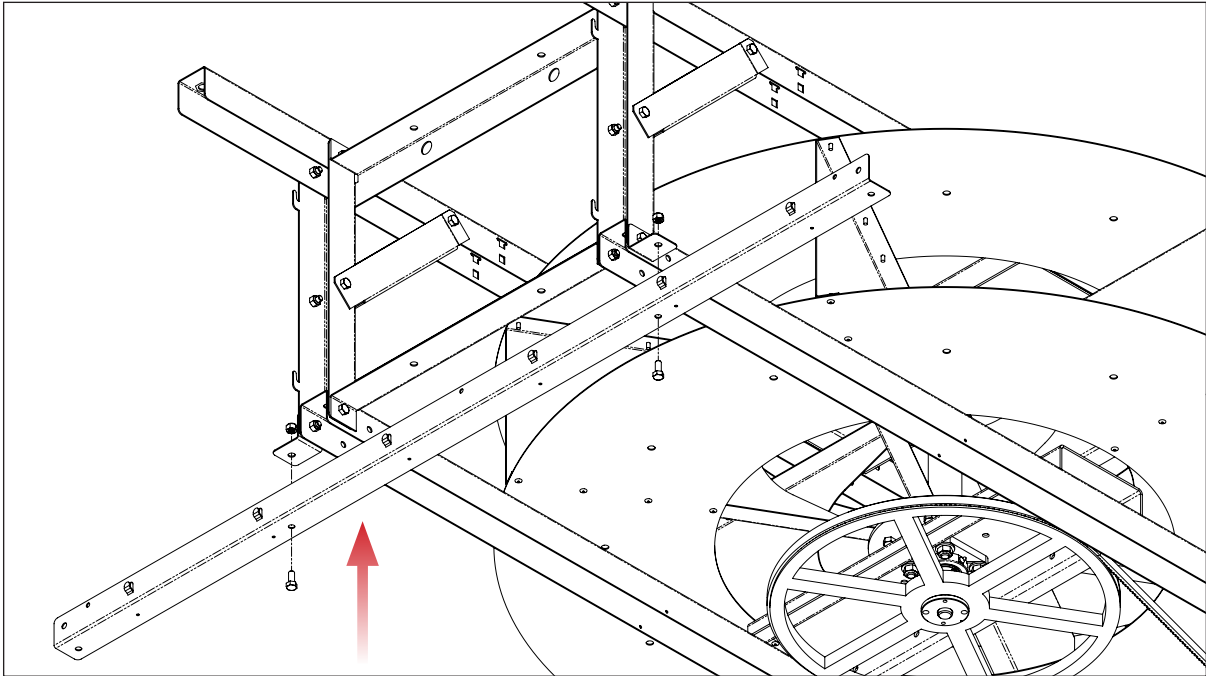
Install Hemisphere fan using hardware provided with 972196 / 972197 ceiling bracket kit.



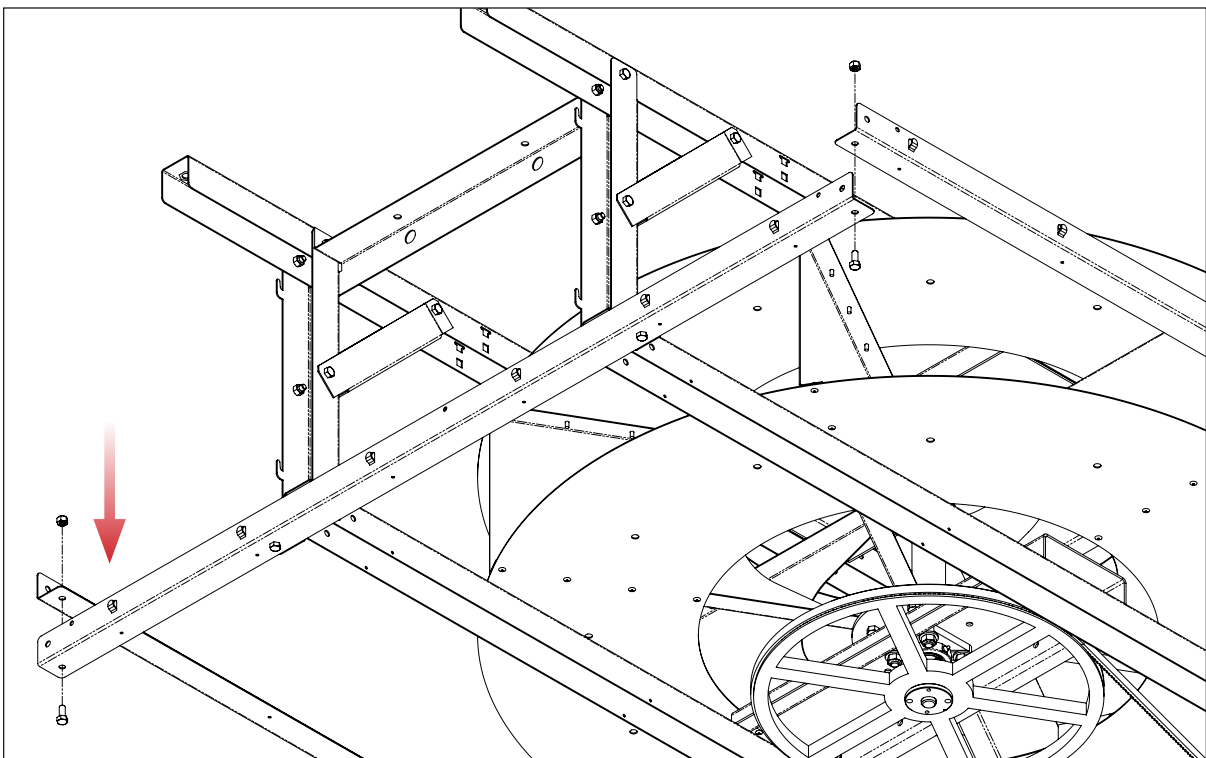
NOTE: Orient fan relative to house so the airflow direction is on the desired wall. A typical installation is shown with the fan placed near a sidewall.

Once the fan is mounted, the airflow direction cannot be changed.

Wire Guard Installation Instructions: All Hemisphere Fans

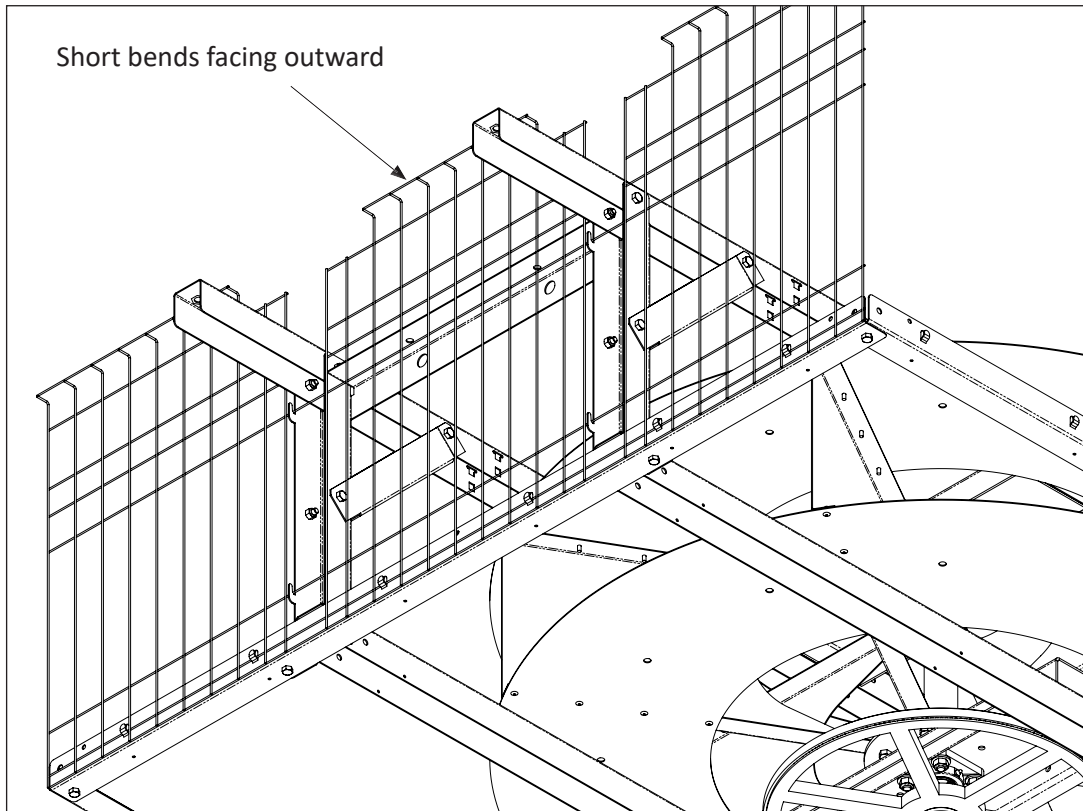


Bolt the two shorter end angles to the bottom ends of the fan frame using 5/16-18 X 3/4" hex bolts and 5/16-18 nylock nuts.

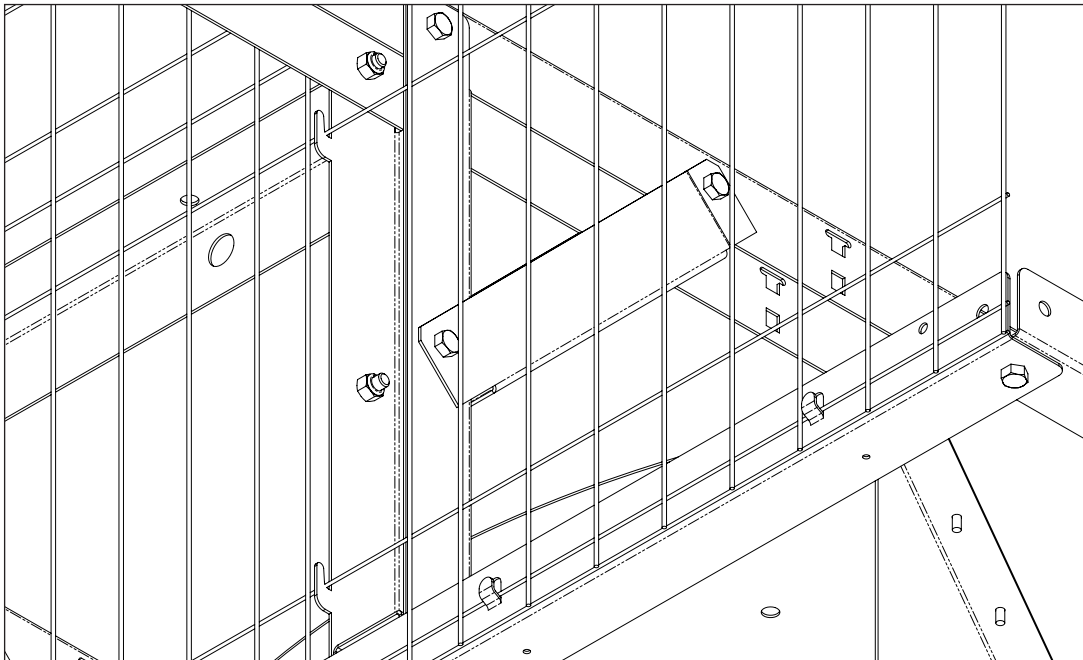


Place the two longer side angles on top of the shorter end angles and bolt together using 5/16-18 X 3/4" hex bolts and 5/16-18 nylock nuts.

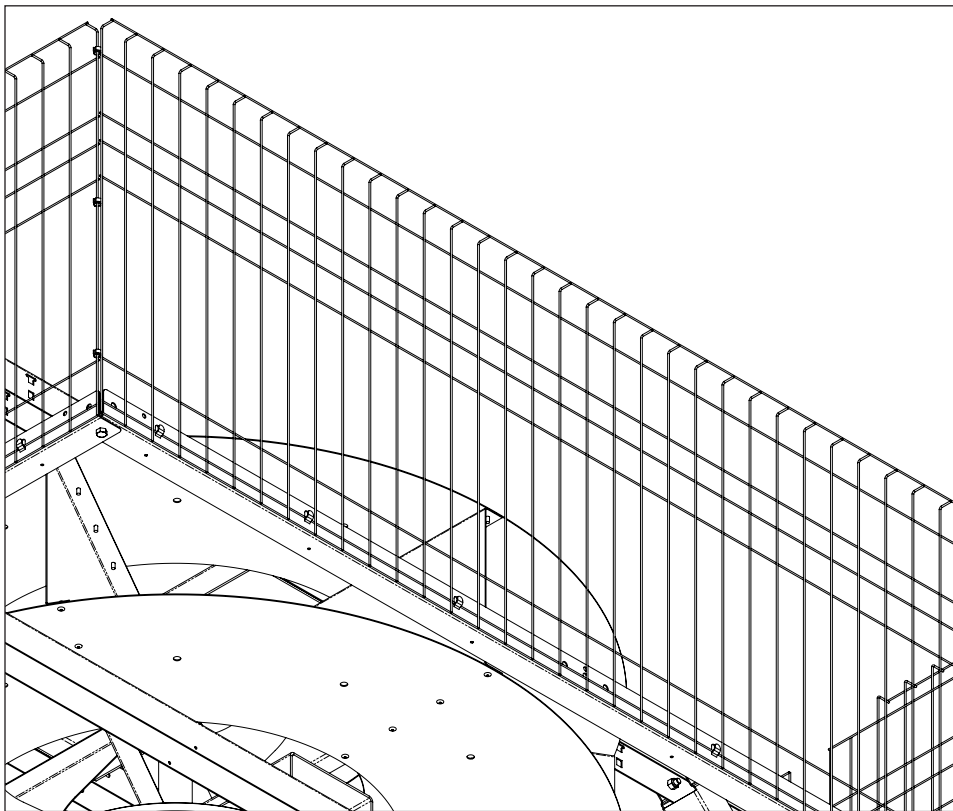
Wire Guard Installation Instructions: All Hemisphere Fans - continued



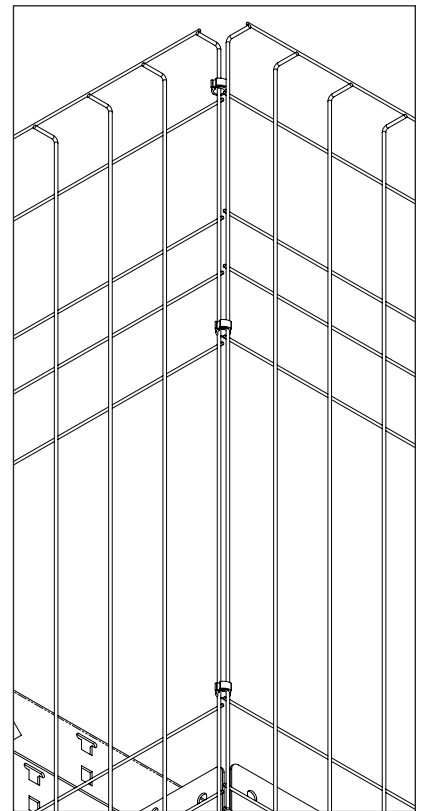
Position the short bends of the wire end panels to be facing outward, away from the fan. Attach the wire end panels to the end of the fan frame and end angles by hanging the wire end panels on lances, as shown in detail view.



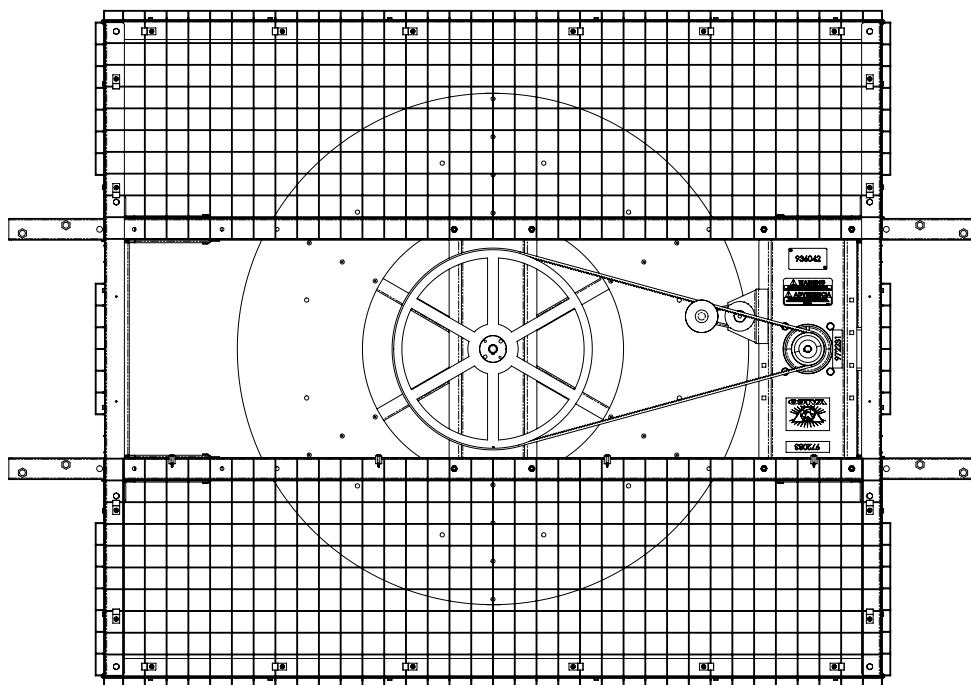
Wire Guard Installation Instructions: All Hemisphere Fans - continued



Attach the wire side panels to the side angles by hanging them on the lower lances, then clamp together corners of end and side wire panels using hose clamps, as shown in detail view.



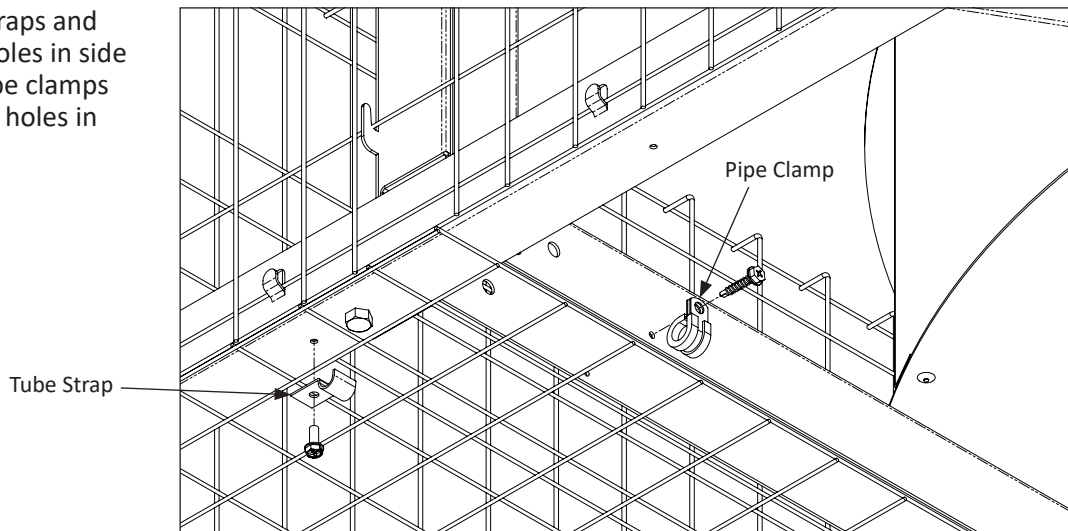
Detail view showing corners of end and side wire panels clamped together.



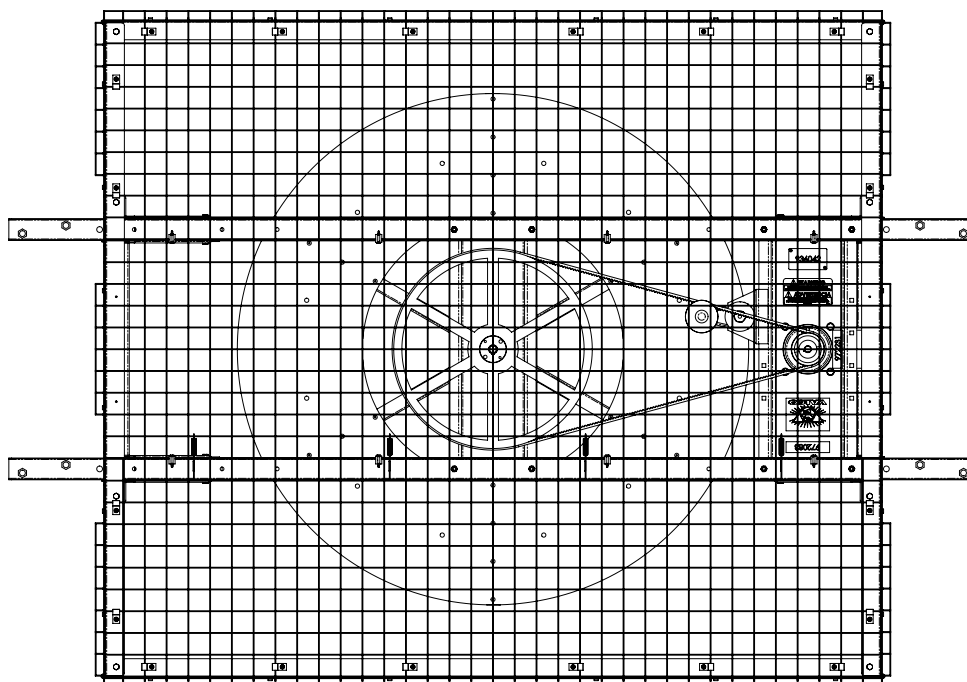
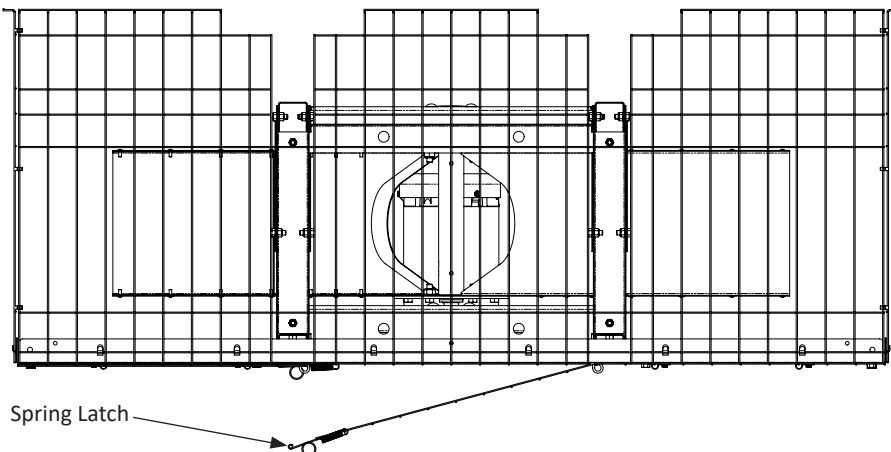
Attach wire bottom panels to side angles and bottom channels of fan. Attach panels to outer side angles using tube straps and #10 X 1/2" screws at pilot holes. Use 1/2" pipe clamps and #10 X 1" screws at pilot holes in bottom channels to attach panels to fan. Attach one panel completely on all four sides. The other bottom panel will attach to the middle panel using pipe clamps to create a hinged access door, as shown in detail views on the next page.

Wire Guard Installation Instructions: All Hemisphere Fans - continued

Detail view showing tube straps and #10 X 1/2" screws at pilot holes in side and end angles and 1/2" pipe clamps and #10 X 1" screws at pilot holes in bottom channels.



Detail view showing the center panel attached to bottom side panel using pipe clamps that allow the center panel to be the access door without removing. Secure panel using evenly spaced spring latches on the opposite side to hold it shut as shown in end view.



Bottom view of fan showing all wire panels fully attached, using tube straps, pipe clamps, and spring latches.

Wiring the Motor

- Be sure power is “OFF” before doing any wiring. All wiring shall be installed in accordance with national, state and local electrical codes. For electrical connection requirements, refer to diagram on the motor nameplate or the enclosed wiring diagram. A circuit breaker switch or slow blow motor type fuse must be used. Single Phase motors on Hemisphere fans come with Automatic Thermal overload protection. It is recommended to add protection for 3 phase motors with a VFD or a motor starter. Specifications are subject to change without notice.
- All Hemisphere fan motors are able to spin in either direction, so it is important that after wiring the motor, to check that the blade is rotating CCW from underneath, as the directional arrow indicates.



Maintenance

Inspect rotor

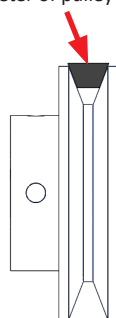
Check to see that the rotor is secure and clean, and that there are no signs of damage.

Proper Tensioning

1. Remove the belt or 2 belts by pulling auto tensioner in and pulling the belts down.
2. Inspect belts for excessive wear, replace belt(s) if needed. Replace only with Cogged (AX) belts.
3. Reinstall the belt(s) onto the large pulley followed by the drive pulley. Pull the auto tensioner in and place belt(s) in track.
4. Set auto tensioner to 1.5 ticks. Check belt tension every 6 months.

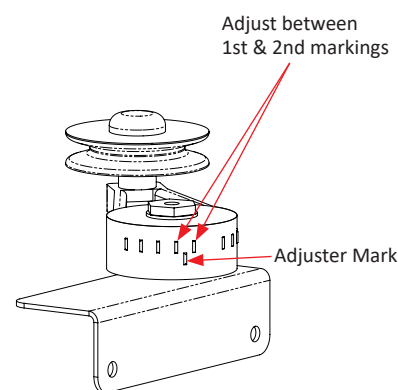
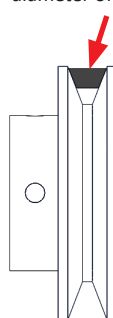
New Belt

Belt is above outer diameter of pulley



Worn Belt

Belt is below outer diameter of pulley



Fasteners: Retighten hardware as needed. Follow the torque specifications as outlined below.

FASTENER / DEVICE	RECOMMENDED TORQUE
1/4" Setscrews (Bearings)	6.8 - 7.1 FT. LBS. (9.2 - 9.6 Nm)
5/16" Setscrews (Pulleys)	6.8 - 7.1 FT. LBS. (9.2 - 9.6 Nm)
5/16" Setscrews (Blade)	12 -13 FT. LBS. (16.3 - 17.6 Nm)

Lubrication

- Lubricate the bottom 4 bolt flange mount bearing on a quarterly basis with a NLG2 type grease.
- Hex shaft top bearing is permanently sealed.
- Lubricate auto-tensioner on a quarterly basis with a NLG2 type grease.
- Lubricate motor bearings every 12,000 hours with Polyrex EM grease

Clean Fan

Motor: Remove any dust accumulation from motor using a brush or cloth every 6 months. (DO NOT USE A PRESSURE WASHER ON THE MOTOR) A clean motor will run cooler and last longer. Check if the motor is secure in its mount.

Guard: Clean any dust or dirt buildup from fan guards using a brush. Dirty guards can also reduce airflow.

Frame

Remove dust and dirt accumulations from frame with a pressure washer. Do not wash or spray motor directly.

Maintenance - continued



If any portion of the fan is cleaned with a power washer or any liquid it is highly recommended to run the fan for a minimum of 15 minutes to allow the fan and motor to dry before it is left idle for any length of time.

Inspect Fan Controls:

All controls should be inspected every six months to assure optimum protection of your ventilation system.

- Check all covers for a tight fit.
- Wipe enclosures with a damp rag to remove dirt and dust.



IMPORTANT!

1. NEVER SPRAY ELECTRICAL EQUIPMENT WITH A POWER WASHER!
2. SINGLE PHASE MOTORS ON HEMISPHERE FANS COME WITH AUTOMATIC THERMAL OVERLOAD PROTECTION. IT IS RECOMMENDED TO ADD PROTECTION FOR 3 PHASE MOTORS WITH A VFD OR A MOTOR STARTER.
3. A SAFETY CUT-OFF SWITCH SHOULD BE LOCATED ADJACENT TO THE FAN.

Regulation and Warning

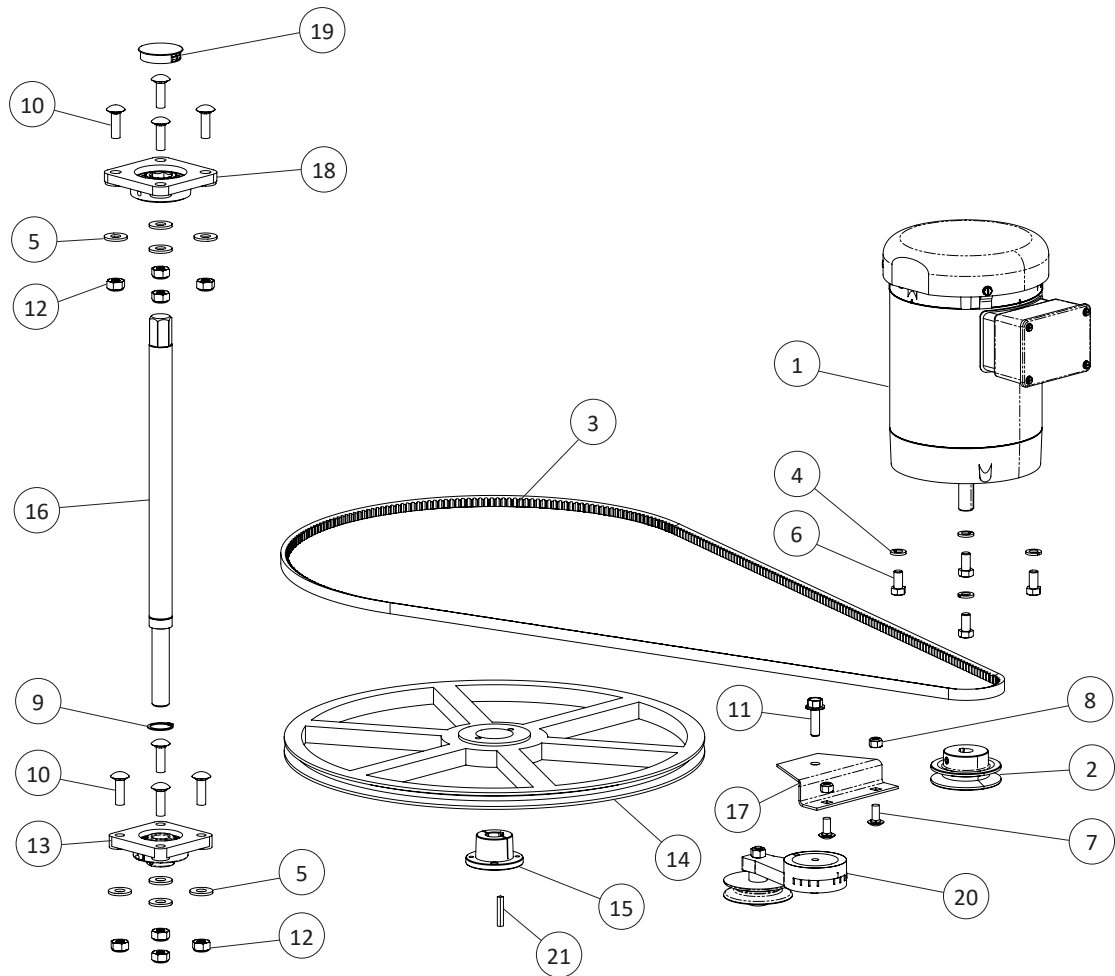
WARNING

Do not install fan with moving parts within seven feet of floor or grade level without a guard that complies with OSHA Regulations. Do not use unless electrical wiring complies with all applicable codes. Do not wire without providing for power source disconnect at the fan itself. Do not service except by a qualified maintenance technician and only after disconnecting the power source. Do not install in room where flammable material is stored or flammable vapors might build up. Failure to observe all of these precautions can result in serious injury or death.

WARNING

If these ventilation products are used to support life in agricultural structures where failure of the system could result in loss or injury, the user must provide an adequate backup and alarm system. The user must accept all risks of such loss or injury due to the possible failure of the ventilation system.

Drive Components - Parts List



HEMISPHERE FANS - DRIVE COMPONENTS - TABLE										
360° FAN		*972140	*972090	972180	*972380	972420	972120	972280	972160	*972360
DIRECTIONAL FAN		-	-	972185	-	972425	972125	-	-	-
ITEM #	DESCRIPTION	48" FAN					72" STANDARD		72" HIGH CAPACITY	
1	MOTOR	972095	972086	980109	980109	980102	972119	972129	972128	972128
2	MOTOR SHEAVE	980025 3.0"	980025 3.0"	980025 3.0"	980007 3.5"	980025 3.0"	972105 2.7"	972131 3.25"	972157 972158 3.25"	972117 972158 3.75"
3	V BELT	972071 AX92 (1X)	972071 AX92 (1X)	972071 AX92 (1X)	972071 AX92 (1X)	972071 AX92 (1X)	972093 AX112 (1X)	972159 AX120 (1X)	972159 AX120 (2X)	972159 AX120 (2X)

* obsolete

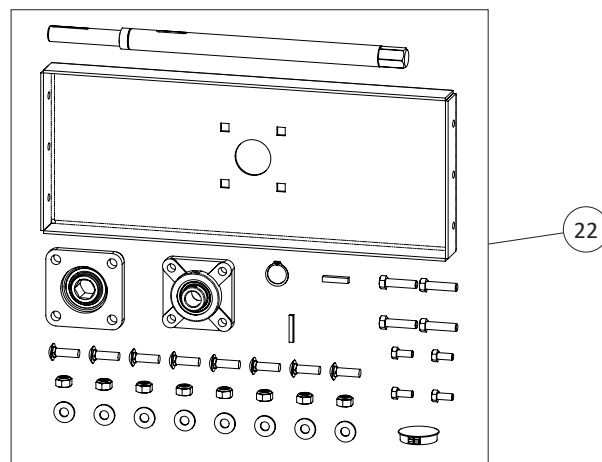
Drive Components & Hex Shaft Conversion Kit - Parts List

HEMISPHERE FANS - DRIVE COMPONENTS - PARTS LIST					
ITEM #	48" FAN (*972090, *972140, 972180, 972185, 972380, 972420, 972425)	72" STANDARD FAN (972120, 972125 / 972280)	72" HI CAPACITY FAN (972160, 972360)	QTY	DESCRIPTION
1	SEE TABLE	SEE TABLE	SEE TABLE	1	MOTOR
2	SEE TABLE	SEE TABLE	SEE TABLE	1	MOTOR SHEAVE
3	SEE TABLE	SEE TABLE	SEE TABLE	-	V BELT
4	010253	010253 / 010255	010255	4	3/8" / 1/2" SPLIT LOCK WASHER
5	010430	010430	010430	8	3/8" FLAT WASHER
6	010662	010662 / 012265	012265	4	3/8" X 3/4" / 1/2" X 1" HEX BOLT
7	011453	011453	011453	2	5/16-18 X 3/4" CARRIAGE BOLT
8	012789	012789	012789	2	5/16-18 NYLOCK NUT
9	690295	690295	690295	1	EXTERNAL RETAINING RING
10	690309	690309	690309	8	3/8-16 X 1-1/4" CARRIAGE BOLT
11	936026	936026	936026	1	3/8-16 X 1-1/4" FLANGED HEX BOLT
12	936054	936054	936054	8	3/8-16 NYLOK NUT
13	972021	972021	972021	1	FLANGE BEARING, .75" SHAFT
14	972022	972022	972165	1	DRIVEN SHEAVE, 18.25" OD
15	972023	972023	972156	1	FAN SHEAVE BUSHING, 2.5"
16	972055	972055	972055	1	1" DIA SHAFT, FOR HEX BEARING
17	972069	972069 / 972191	972191	1	AUTO TENSIONER BRACKET
18	972118	972118	972118	1	FLANGE BEARING, 7/8" HEX BORE
19	972127	972127	972127	1	NYLON CAP FOR 1.75" HOLE
20	980066	980066	972164	1	AUTO TENSIONER
21	ZV7611	ZV7611	ZV7611	1	3/16" X 3/16" X 1-5/16" KEY

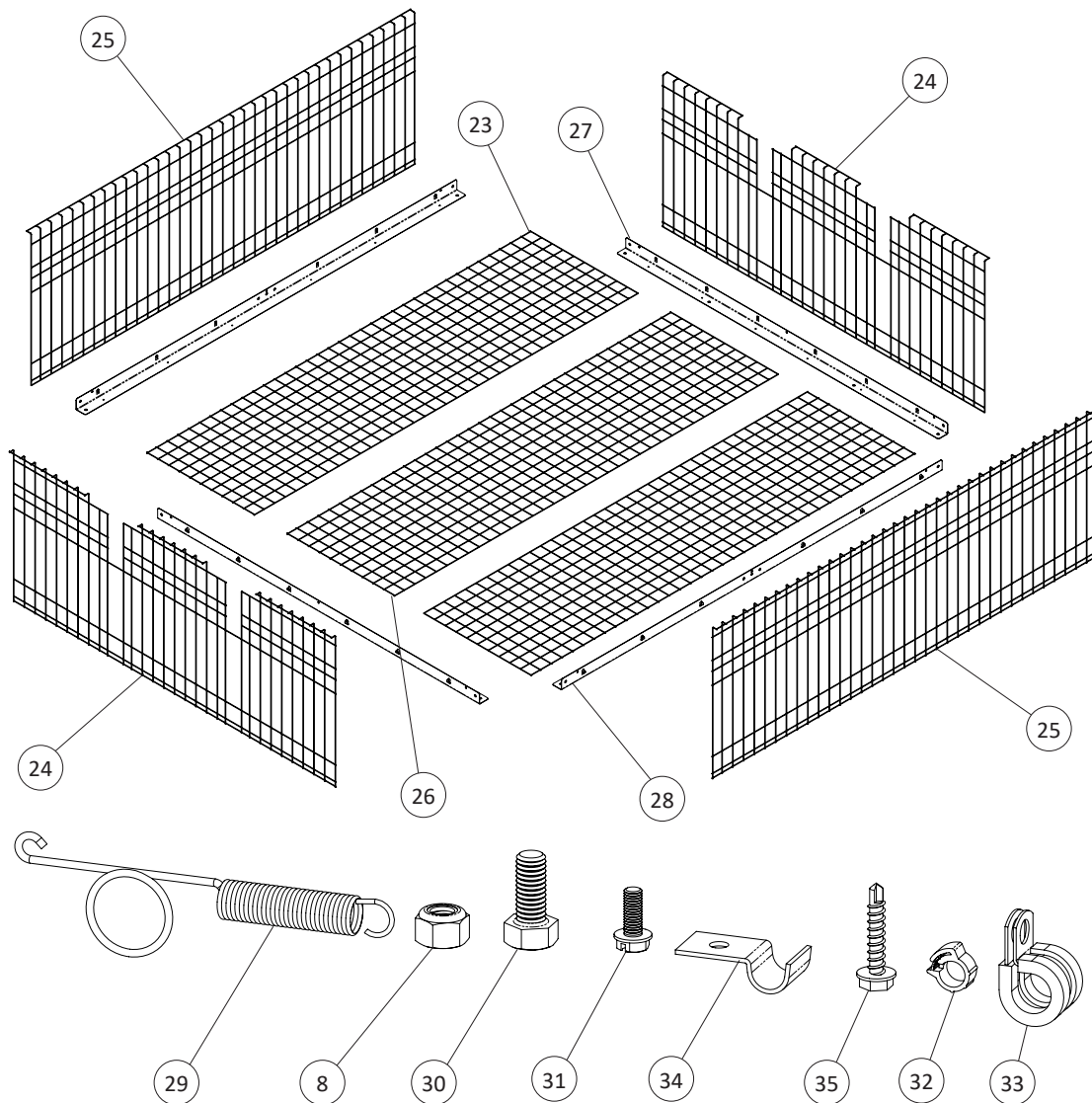
* obsolete

Hemisphere Fans - Hex Shaft Conversion Kit - Parts List

HEMISPHERE FANS - HEX SHAFT CONVERSION KIT			
ITEM #	PART #	QTY	DESCRIPTION
22	972194	1	HEX SHAFT CONVERSION PARTS

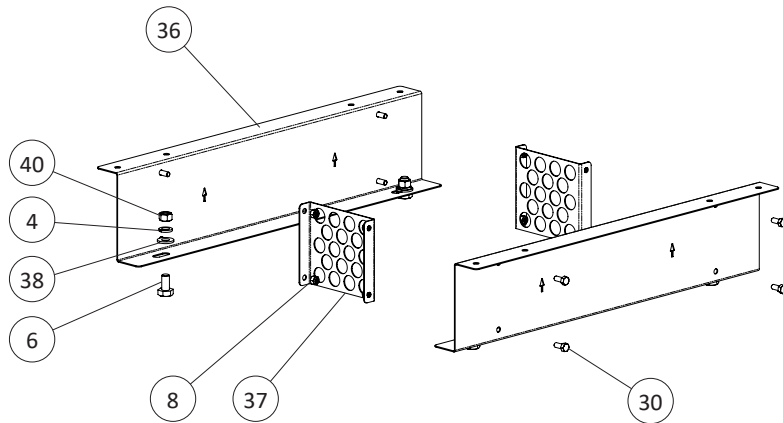


Wire Guard - Parts List

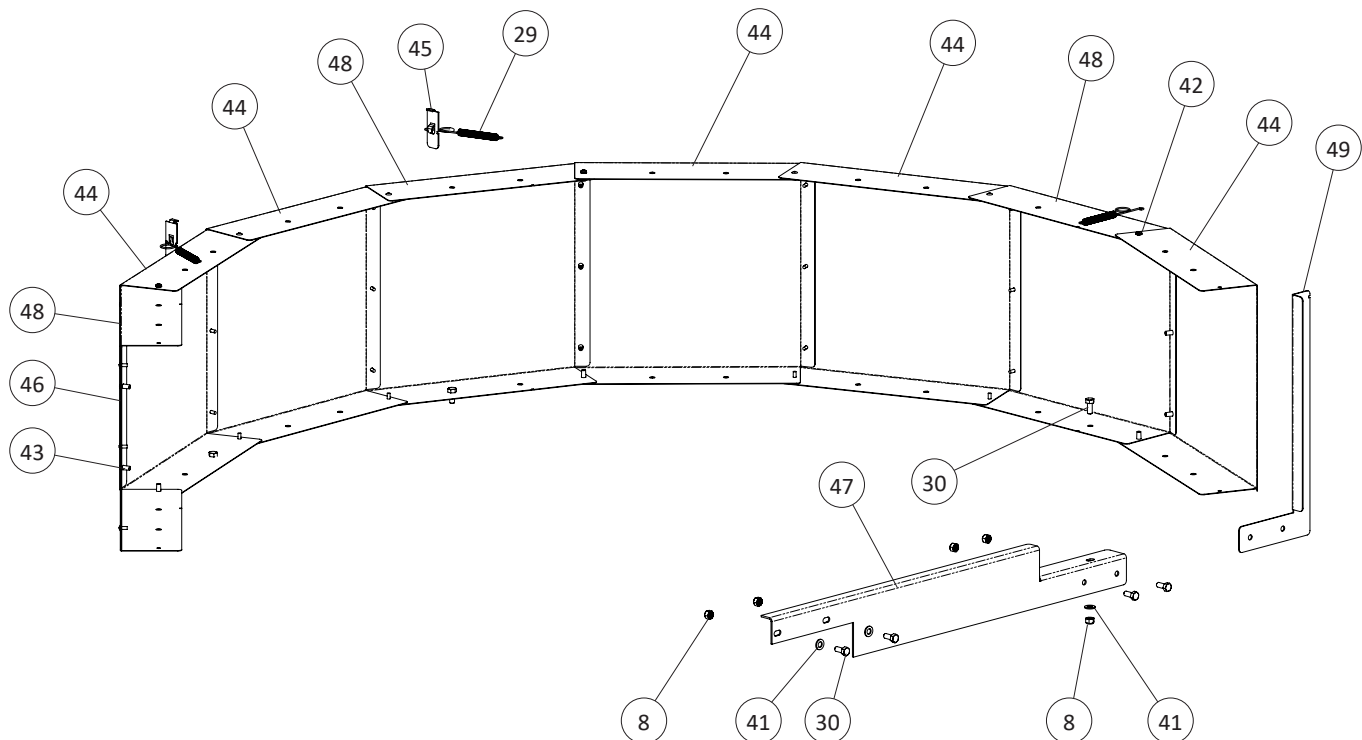


HEMISPHERE FANS - WIRE GUARD - PARTS LIST						
ITEM #	48" STANDARD	48" DIRECTIONAL	72" STANDARD	72" DIRECTIONAL	QTY	DESCRIPTION
-	972275	972256	972320	972315	1	WIRE GUARD KIT
23	972077	972077	972317	972317	2	WIRE PANEL, BOTTOM, SIDES
24	972147	972254	972264	972259	2	WIRE PANEL, END
25	972253	972252	972265	972263	2	WIRE PANEL, SIDE
26	972077	972077	972316	972316	1	WIRE PANEL, BOTTOM, CENTER
27	972258	972258	972257	972257	2	ANGLE, WIRE GUARD, END
28	972267	972267	972266	972266	2	ANGLE, WIRE GUARD, SIDE
-	972236	972236	972236	972236	1	HARDWARE BAG, WIRE GUARD
29	00050282	00050282	00050282	00050282	5	SPRING LATCH
30	010643	010643	010643	010643	8	5/16-18 X 3/4" HEX BOLT
8	012789	012789	012789	012789	8	5/16-18 NYLOCK NUT
31	936053	936053	936053	936053	28	#10 X 1/2" SHEET METAL SCREW
32	980105	980105	980105	980105	12	HOSE CLAMP, .246-.290" GRIP
33	PMSC1-2CLMPONLY	PMSC1-2CLMPONLY	PMSC1-2CLMPONLY	PMSC1-2CLMPONLY	10	1/2" PIPE CLAMP
34	PMSTRAP375	PMSTRAP375	PMSTRAP375	PMSTRAP375	28	.375" TUBE STRAP
35	VAHXHDSR10X1ZP	VAHXHDSR10X1ZP	VAHXHDSR10X1ZP	VAHXHDSR10X1ZP	10	#10 X 1" SCREW, SELF-DRILLING

Directional Spacer & Shroud - Parts List

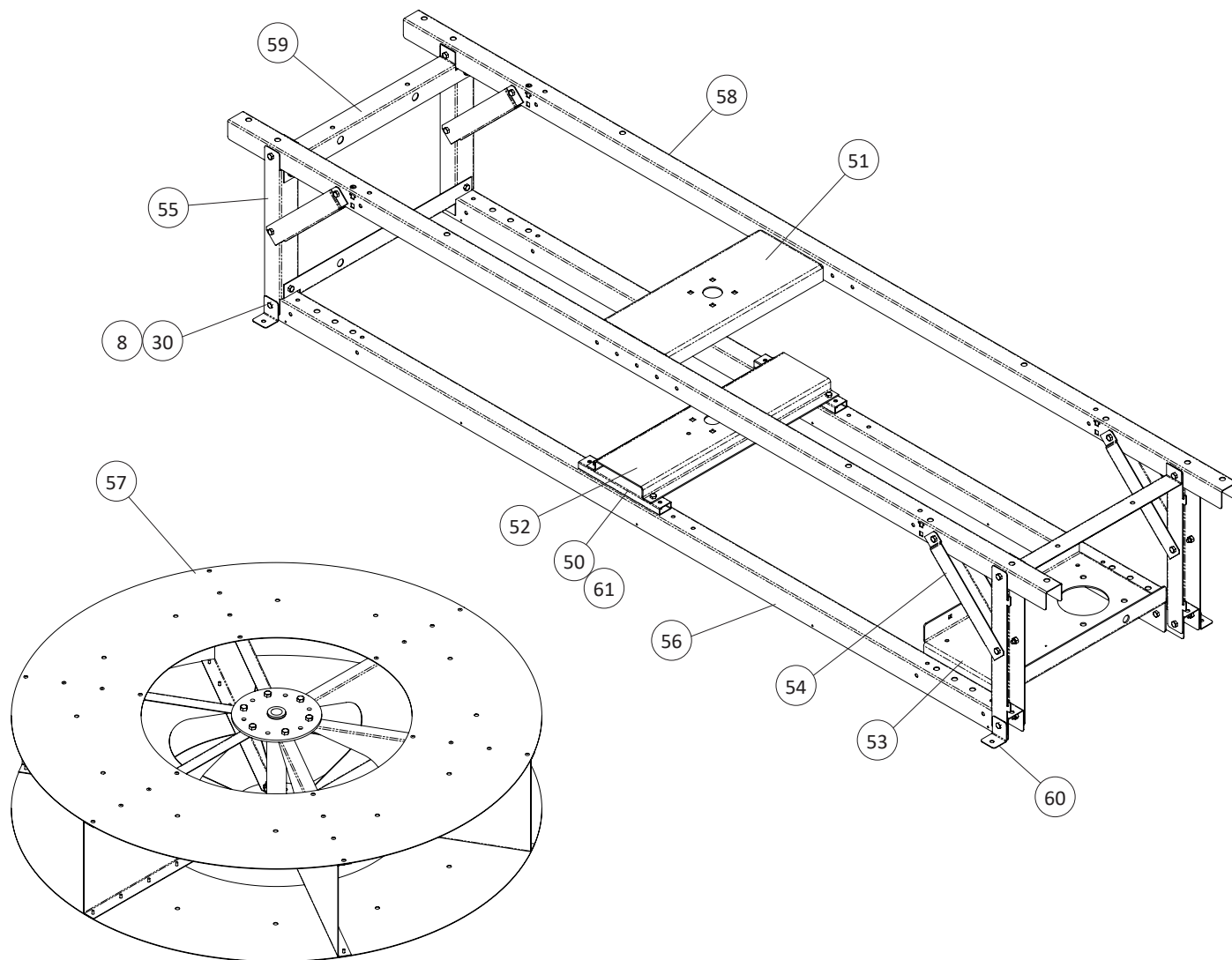


HEMISPHERE FANS - 972196 DIRECTIONAL SPACER KIT				
ITEM #	PART #	QTY	DESCRIPTION	
36	972124	4	6" CEILING SPACER BRACKET	
37	972126	4	6" CEILING SPACER BRACE	
-	972138	-	HDW BAG, CEILING SPACER	
4	010255	8	1/2" SPLIT LOCK WASHER	
38	010437	8	1/2" FLAT WASHER	
30	010643	16	5/16-18 X 3/4" HEX BOLT	
40	011391	8	1/2-13 HEX NUT	
6	012265	8	1/2" X 1" HEX BOLT	
8	012789	16	5/16-18 NYLOCK NUT	



HEMISPHERE FANS - DIRECTIONAL SHROUD - PARTS LIST					
ITEM #	48" DIRECTIONAL FAN	QTY	72" DIRECTIONAL FAN	QTY	DESCRIPTION
29	00050282	2	00050282	3	LATCH SPRING
41	010426	3	010426	3	5/16" FLAT WASHER
30	010643	5	010643	7	5/16-18 X 3/4" HEX BOLT
8	012789	5	012789	7	5/16-18 NYLOCK NUT
42	690402	15	690402	15	10-24 X 3/8" SCREW W/WASHER
43	954099	23	954099	23	3/16" X .126" X .250" POP RIVET
44	972058	5	972238	5	SHROUD SEGMENT
45	972227	2	972227	2	TOP SHROUD SUPPORT BRACKET
46	972228	1	972228	1	SHROUD SEGMENT BRACE
47	972229	1	972237	1	CENTER BRACE, SHROUD SUPPORT
48	972232	3	972239	3	SHROUD SEGMENT ASSEMBLY
49	-	1	972142	1	VERTICAL SHROUD BRACE

Frame & Fan Body - Parts List



HEMISPHERE FANS - FRAME & FAN BODY - PARTS LIST					
ITEM #	48" STANDARD FAN 972180, 972185, 972380, 972420, 972425	72" STANDARD FAN 972120, 972125 / 972280	72" HI CAPACITY FAN 972160, 972360	QTY	DESCRIPTION
30	010643	010643	010643	52	5/16-18 X 3/4" HEX BOLT
50	-	-	010648	4	5/16-18 X 1-1/2" HEX HEAD BOLT
8	012789	012789	012789	52	5/16-18 NYLOCK NUT
51	972054	972054	972054	1	HEX BEARING, TOP SUPPORT
52	972062	972062	972192	1	BOTTOM SUPPORT PLATE
53	972063	972063 / 972132	972132	1	MOTOR SUPPORT PLATE
54	972066	972066	972066	4	CROSS BRACE, 12.6"
55	972067	972067	972067	4	VERTICAL CHANNEL, 17.63"
56	972068	972163	972163	2	BOTTOM CHANNEL
57	972075	972020	972020	1	FAN BODY ASSEMBLY
58	972136	972065	972065	2	TOP CHANNEL
59	972154	972154	972154	3	SUPPORT ANGLE, 24"
60	972166	972166	972166	4	SHIPPING BRACKET ANGLE
61	-	-	972193	2	SPACER TUBE

Customer Service

Dealer Name: _____

Street / PO Box _____

City _____

State / Province _____

Zip / Postal _____

Phone _____

Fax _____

E-mail _____

Website _____

Customer Service
210 E. Main Street
Coldwater, OH 45828
800.998.2526



North America:
Phone: 800.99VALCO (800.998.2526)
Fax: 419.678.2200
Email: sales@val-co.com

International:
Phone: (+1) 419.678.8731
Fax: (+1) 419.678.2200
Email: intl.sales@val-co.com