

APP Series Fans

Installation and Operation Manual

PNEG-876

Date: 05-07-14



BY THE
GSI GROUP



APP Series Fans are manufactured, assembled and packaged with the highest standard of quality assurance. Please inspect and notify the factory in the unlikely event you discover defects in workmanship. We appreciate hearing from you and will correct immediately.

Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Use only genuine AP/Cumberland parts in the installation of fans, use of non-genuine parts or failure to comply with instructions could result in personal injury and/or property damage. This fan is not designed for use in atmospheres where risk of explosion is foreseen. Such environments may include enclosed areas of high dust concentrations, gas vapors and fumes. Use in such an atmosphere is prohibited. If in doubt contact AP/Cumberland or your dealer.

Retain instructions for future reference.

Fan Models	CFM at 0.00 SP	Weight Lbs./kgs	Cubic Ft./mtrs
APP-12F*	1700	37 Lbs./16.80 kgs	8.7 Ft./0.25 mtrs
APP-14F*	2487	47 Lbs./21.30 kgs	8.7 Ft./0.25 mtrs
APP-14FC*	2830	55 Lbs./25.00 kgs	14 Ft./0.40 mtrs
APP-18F*	4387	54 Lbs./24.50 kgs	18.2 Ft./0.52 mtrs
APP-18FC*	5090	65 Lbs./29.50 kgs	26.7 Ft./0.76 mtrs
APP-24F*	6442	75 Lbs./34.00 kgs	19.9 Ft./0.56 mtrs
APP-24FC*	7530	90 Lbs./40.80 kgs	34.2 Ft./0.97 mtrs
APP-36F*	11113	127 Lbs./57.60 kgs	34.5 Ft./0.97 mtrs
APP-36FC*	12290	162 Lbs./73.50 kgs	55.7 Ft./1.58 mtrs
APPB-36*	11113	135 Lbs./61.20 kgs	34.5 Ft./0.97 mtrs
APPB-36C*	12290	170 Lbs./77.10 kgs	55.7 Ft./1.58 mtrs
APPB-50*	20856	214 Lbs./97.00 kgs	65 Ft./1.85 mtrs
APPB-50C*	23894	265 Lbs./120.20 kgs	65 Ft./1.85 mtrs

* Add - BLK suffix to end of fan model number for black fans.

VFD Fan Models	CFM at 60 Hz CFM at 0.00 SP	Weight Lbs.	Cubic Ft.
APP-12F-VFD	1700	48 Lbs.	8.7 Ft.
APP-14F-VFD	2480	54 Lbs.	8.7 Ft.
APP-14FC-VFD	2830	62 Lbs.	14 Ft.
APP-18F-VFD	4380	64 Lbs.	18.2 Ft.
APP-18FC-VFD	5090	75 Lbs.	26.7 Ft.
APP-24F-VFD	6440	87 Lbs.	19.9 Ft.
APP-24FC-VFD	7250	102 Lbs.	34.2 Ft.

For guidance or assistance on any issues relating to the safe use of your APP Fan contact AP/Cumberland.

Our address is:

Cumberland
 1004 E. Illinois St.
 Assumption, IL. 62510
 Phone: 1-217-226-4421

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Safety Guidelines

This manual contains information that is important for you, the owner/operator, to know and understand. This information relates to protecting **personal safety** and **preventing equipment problems**. It is the responsibility of the owner/operator to inform anyone operating or working in the area of this equipment of these safety guidelines. To help you recognize this information, we use the symbols that are defined below. Please read the manual and pay attention to these sections. Failure to read this manual and its safety instructions is a misuse of the equipment and may lead to serious injury or death.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.



WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



NOTICE is used to address practices not related to personal injury.

Safety Instructions

Our foremost concern is your safety and the safety of others associated with this equipment. We want to keep you as a customer. This manual is to help you understand safe operating procedures and some problems that may be encountered by the operator and other personnel.

As owner and/or operator, it is your responsibility to know what requirements, hazards, and precautions exist, and to inform all personnel associated with the equipment or in the area. Safety precautions may be required from the personnel. Avoid any alterations to the equipment. Such alterations may produce a very dangerous situation where **SERIOUS INJURY** or **DEATH** may occur.

This equipment shall be installed in accordance with the current installation codes and applicable regulations, which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.

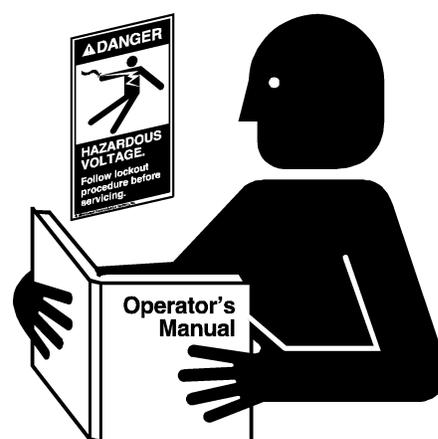
Follow Safety Instructions

Carefully read all safety messages in this manual and safety signs on your machine. Keep signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from the manufacturer.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machinery in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you do not understand any part of this manual or need assistance, contact your dealer.



Read and Understand Manual

User Manual

This manual contains information and instructions essential to the safe installation and use of the APP Fan. Read this manual thoroughly **before** attempting any installation or use of the APP Fan. Keep this manual with the APP Fan or in a location where it can be readily accessed. Failure to read this manual and its safety instructions is a misuse of the equipment.

Correct Use of the APP Fan

The APP Fan is designed solely for the purpose of ventilating agricultural buildings. Use of the system in any other way is a misuse of the system and may endanger safety and health.

Only genuine AP/Cumberland parts are to be used in the installation and use of the APP Fan. Use of other non-genuine parts is a misuse of the system and may lead to dangerous situations imperilling the safety and health of you and others.

This machine is not designed for use in atmospheres where there is a risk of explosion. Such environments may include enclosed areas of high dusts concentrations, gas vapors and fumes. Use of the APP Fan in such an environment is prohibited. If in doubt, contact AP/Cumberland or your dealer.

1. Safety

Unpacking

When receiving the unit, inspect carefully for any damage that may have occurred during transit. Shipping damage claim must be filed with carrier.

Electrical Safety

An adequate and safe power supply to the APP Fan unit is essential for safety. A competent and qualified electrician must undertake all electrical wiring. All wiring is to be installed according to the National Standards and Regulations relevant to your Country and Region.

Safety Guards

The APP Fan contains many moving and electrical parts, which will cause serious injury or death if touched. Guards are placed on the machine for your protection. Operating the machine at any time with guards removed or incorrectly fitted is a serious misuse of the machine and endangers safety.

Safety in Handling the APP Fan

Manual handling of the fans can be a cause of serious injury. Wherever possible, use mechanical lifting equipment when lifting or moving fans during installation. Where manual handling is required, seek assistance from other people.

To prevent injury, use suitable hand protection.

Safety in Maintenance

While the APP Fan is designed to keep maintenance to a minimum, some repairs will be necessary in the course of the life of the machine. Do not attempt any repairs on the machine unless you are competent to do so. Remember that the APP Fan may in cases operate under automatic control and start without warning. Never attempt any work on the APP Fan without first isolating the machine from the mains power and locking the isolator so that only you can turn the power back ON.

Follow all the guidelines given in the maintenance section [on Page 11](#) of this manual.

Before restarting the APP Fan, ensure that all electrical enclosures are locked closed and all guards and other safety measures are correctly fitted.

If in any doubt, contact your dealer or AP/Cumberland for assistance.

General Safety Information

This unit should be assembled and installed by a qualified technician.

Follow all local electrical and safety codes, as well as the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

Motor must be securely and adequately grounded. This can be accomplished by wiring with a grounded, metal-clad raceway system by using a separate ground wire connected to the motor's ground lug or other suitable means.

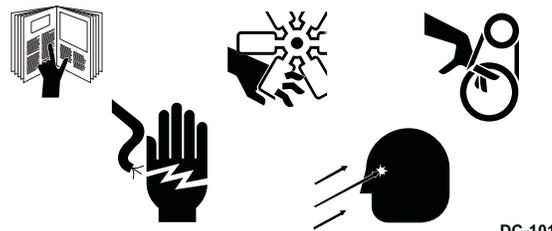
Protect power cable from coming in contact with sharp objects.

Do not kink power cable and never allow cable to come in contact with oil, grease, hot surfaces, or chemicals.

Make certain that the power source conforms to requirements of the equipment.

Safety Signs and Warnings

The following pages show you exactly where the safety signs and warnings (decals) should be placed on your APP Fan. If a decal is missing, damaged or unreadable, please contact your dealer or AP/Cumberland for a free replacement.

<p>⚠ DANGER</p>  <p>HIGH VOLTAGE</p> <ul style="list-style-type: none"> • Will cause serious injury or death. • Lockout power before servicing. <p><small>The GSI Group 217-226-4421</small></p>	<p>⚠ WARNING</p> <p>STAY CLEAR OF ROTATING BLADE</p> <ul style="list-style-type: none"> • Blade may start automatically. • May cause serious injury. • Disconnect and lockout power sources before servicing. 	 <p>⚠ WARNING</p> <p>SHEAR POINT</p> <p>Keep hands clear of moving parts. Do not operate with guard removed. Disconnect and lockout power before servicing.</p> <p><small>GSI Group Inc. 217-226-4421</small> <small>DC-995</small></p>
<p>⚠ WARNING</p> <p>FLYING OBJECTS HAZARD</p> <ul style="list-style-type: none"> • Danger of eye injury. • Wear eye protection. <p><small>DC-1540</small></p>	<p>⚠ WARNING</p>  <p><small>DC-1018</small></p>	

<p>⚠ DANGER</p>  <p>HIGH VOLTAGE</p> <ul style="list-style-type: none"> • Will cause serious injury or death. • Lockout power before servicing. <p><small>The GSI Group 217-226-4421</small></p>	<p>⚠ WARNING</p> <p>STAY CLEAR OF ROTATING BLADE</p> <ul style="list-style-type: none"> • Blade may start automatically. • May cause serious injury. • Disconnect and lockout power sources before servicing. 	
<p>⚠ WARNING</p> <p>FLYING OBJECTS HAZARD</p> <ul style="list-style-type: none"> • Danger of eye injury. • Wear eye protection. <p><small>DC-1540</small></p>	<p>Inside housing</p>	

2. Decals

<p>⚠ DANGER</p> 		<p>⚠ WARNING</p> <p>STAY CLEAR OF ROTATING BLADE</p> <ul style="list-style-type: none"> • Blade may start automatically. • May cause serious injury. • Disconnect and lockout power sources before servicing. 	
<p>HIGH VOLTAGE</p> <ul style="list-style-type: none"> • Will cause serious injury or death. • Lockout power before servicing. <p><small>The GSI Group 217-226-4421</small></p>		<p>⚠ WARNING</p> <p>FLYING OBJECTS HAZARD</p> <ul style="list-style-type: none"> • Danger of eye injury. • Wear eye protection. <p><small>DC-1540</small></p>	

Left side

<p>⚠ DANGER</p> 		<p>⚠ WARNING</p> <p>STAY CLEAR OF ROTATING BLADE</p> <ul style="list-style-type: none"> • Blade may start automatically. • May cause serious injury. • Disconnect and lockout power sources before servicing. 	
<p>HIGH VOLTAGE</p> <ul style="list-style-type: none"> • Will cause serious injury or death. • Lockout power before servicing. <p><small>The GSI Group 217-226-4421</small></p>		<p>⚠ WARNING</p> <p>FLYING OBJECTS HAZARD</p> <ul style="list-style-type: none"> • Danger of eye injury. • Wear eye protection. <p><small>DC-1540</small></p>	

Right side

<p>⚠ DANGER</p> 		<p>⚠ WARNING</p> <p>STAY CLEAR OF ROTATING BLADE</p> <ul style="list-style-type: none"> • Blade may start automatically. • May cause serious injury. • Disconnect and lockout power sources before servicing. 	
<p>HIGH VOLTAGE</p> <ul style="list-style-type: none"> • Will cause serious injury or death. • Lockout power before servicing. <p><small>The GSI Group 217-226-4421</small></p>		<p>⚠ WARNING</p> <p>FLYING OBJECTS HAZARD</p> <ul style="list-style-type: none"> • Danger of eye injury. • Wear eye protection. <p><small>DC-1540</small></p>	

Motor mount plate

Fans should be installed in an exterior wall located where there will be no obstructions to the flow of air into or out of the fan.

Once a location has been determined, an opening should be made in the wall and framed to provide enough clearance around the fan housing. (See rough opening chart [on Page 10.](#))

Framing must be able to support the weight of the fan assembly.

Manual handling of the fans may result in serious injury. Where appropriate, use mechanical methods of lifting during installation. Where manual handling is required, ensure you have adequate assistance.

Position fan assembly in the framed opening. Rigidly mount the housing side flanges to the framework using mounting screws.

Remove electrical cover and connect power leads to motor terminals, using approved wiring method. It is recommended to use the watertight connector included with the motor, if it is possible in the application. (Motor terminal connection data is provided on motor nameplate and in this manual.) Use adequate size wire for all branch and feeder runs. When speed control is used, follow the installation procedures recommended by the speed control manufacturer.

Re-install electrical cover.

Unit is now ready for operation.

4. Operation

Fan Model	Width (in.)	Inside Height (in.) (B)	Outside Height (in.)		
			4" Wall (A)	6" Wall (A)	8" Wall (A)
APP-12*	17	17-1/2	16-1/2	16	15-1/2
APP-14*	20	20	19-1/4	18-7/8	18-1/2
APP-18*	25-1/2	26	25	24-1/2	24
APP-24*	34-1/2	34-1/2	33-1/2	33	32-1/2
APP-36*	44-1/2	44-1/2	43-1/2	43	42-1/2
APPB-36*	44-1/2	44-1/2	43-1/2	43	42-1/2
APPB-50*	56	56	55	54-1/2	54

* Add - BLK suffix to end of fan model for black fans.

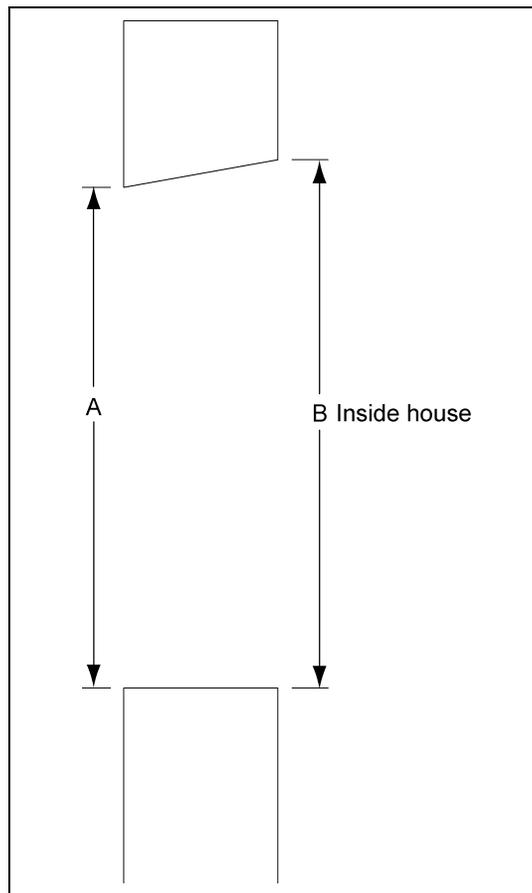


Figure 4A

Units may be operated using a switch, thermostat, timer or controller.

Follow wiring and operation instructions furnished with the control system selected.

When using speed controllers, follow the operation procedures recommended by the controller manufacturer.

1. Set thermostat setting to a desired temperature. Fan will operate only when ambient temperature is above the thermostat set temperature.
2. Some controllers have idle speed controls. Set idle speed such that the blade RPM is within the RPM range listed in the performance table.

Cleaning

It is advisable to clean blade and shutter at regular intervals. This will remove any accumulated dirt, which would cause fan blade to become unbalanced and result in excessive vibration and poor performance.

Lubrication

Motor is pre-lubricated at factory and will not require any further lubrication.

Greasing Pillow Block Bearings in Belt Driven Fan Applications

Bearings should be re-lubricated every 30 operating days and/or after each wash down cycle with three (3) shots of grease or until fresh grease is seen purging past seal. Lithium or lithium-complex based #2 NLGI grease must be used. Other types of grease are incompatible with the factory lubricant and will damage the bearing.



DO NOT use a pneumatic or powered grease gun.

Incompatible grease or lack of service will void bearing warranty.

6. Wiring

Electrical Wiring

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 (2) circuits per room. We strongly recommend the installation of supplementary natural ventilation as well as a back-up thermostat and an alarm system on at least one cooling stage.

For electrical connection requirements, refer to [Figure 6A](#) on motor nameplate and to information enclosed with the “AVS” fan control to be used.

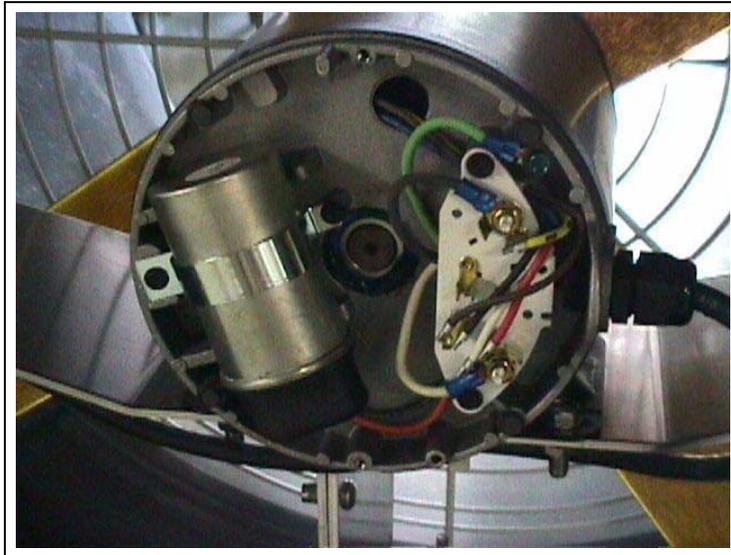


Figure 6A

Direct Drive Wirings

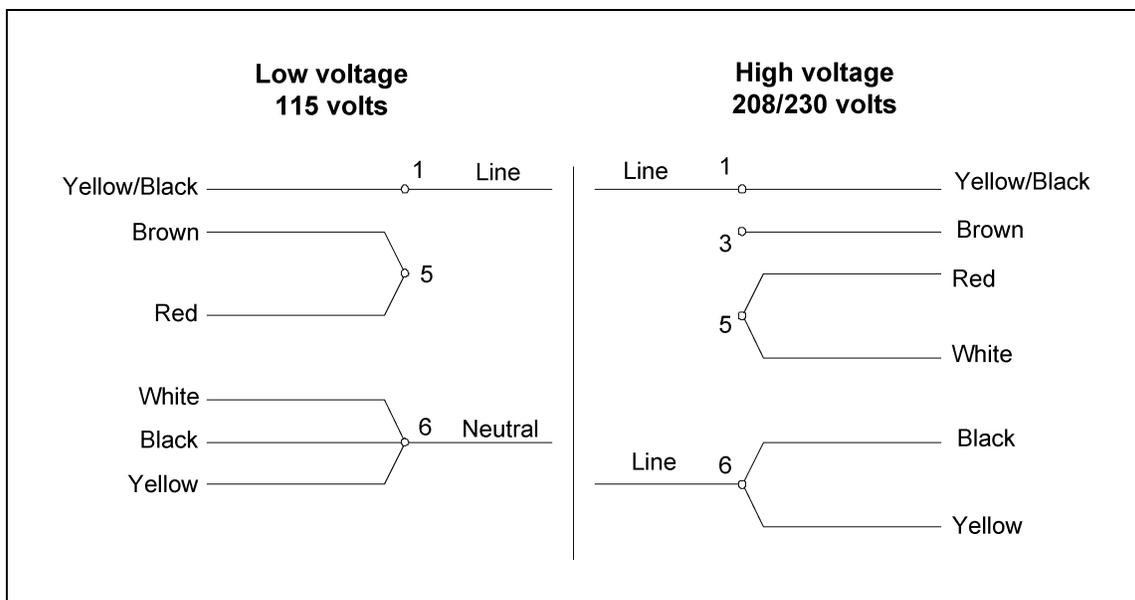


Figure 6B

To reverse, interchange Red and Black leads.

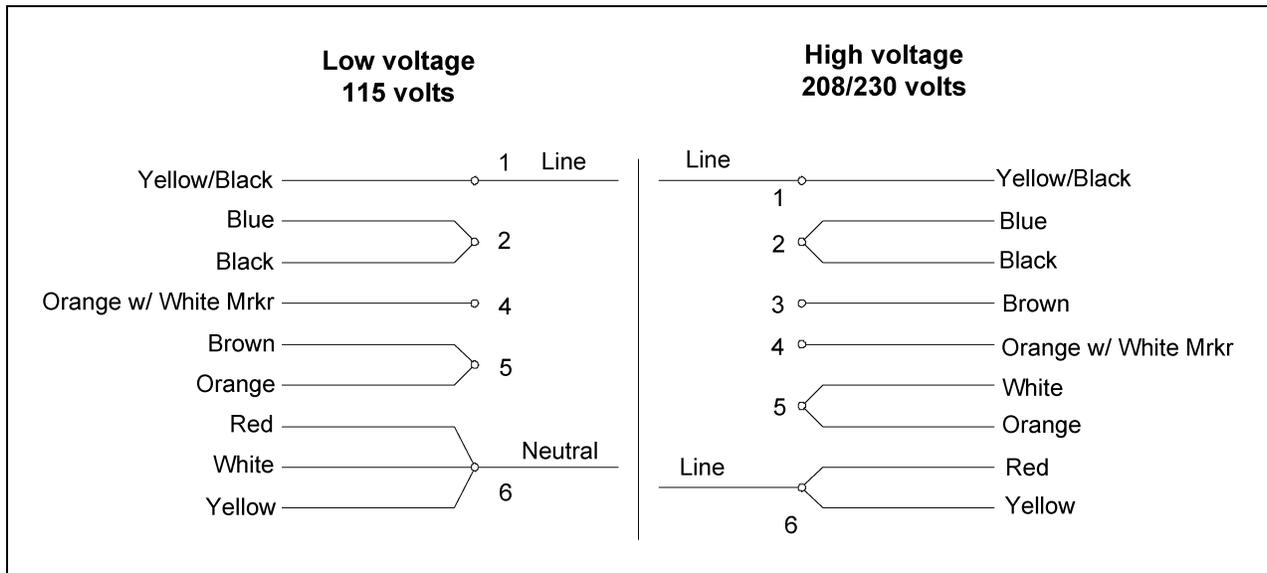


Figure 6C

Motor overload protection should be provided for each fan. A circuit breaker switch or slow blow motor type fuses must be used.

NOTE: A safety cut-off switch should be located adjacent to each fan, such as “AP” #'s:

- E100-A1063 - 2-1/2 Amp
- E100-A1064 - 5.0 Amp
- E100-A1065 - 8.0 Amp
- E100-A1066 - 15.0 Amp



Figure 6D

Back-up thermostats such as the TH-1, should always be used in conjunction with the control system. These should be placed on a separate circuit to give the animals ventilation in the event that the controller fails.



Figure 6E

Propeller speeds for APP Fans stated in the table are the maximum permissible speeds. Exceeding these may result in damage to the fan and serious injury to the operator. CFM ratings listed below were all taken at 0.05 static pressure. Performer series fans use TEAO (Totally Enclosed Air Over) motors.

Performer series fans use TEAO (Totally Enclosed Air Over) motors that require the air movement created by the fan to cool the motor as it passes over the motor housing. Be aware that operating variable speed fans at too low of speed can cause the motor to overheat and result in the tripping of the automatic thermal overload or unwarranted motor failure. There are a number of variables that affect the safe minimum speed of a ventilation fan including ventilation control curve selection, input voltage, static pressure and susceptibility to head winds. The correct minimum speed must be selected on a case by case basis to ensure adequate airflow for motor cooling.

	APP-12F*	Speed Curve #9	
Volts	RPM	CFM without Cone	CFM with Cone
230	1765	1432	N/A
135	1675	1351	N/A
119	1575	1251	N/A
115	1475	1133	N/A
112	1375	983	N/A
111	1275	964	N/A
109	1175	780	N/A
107	1075	700	N/A
105	975	590	N/A
104	875	520	N/A
103	775	445	N/A
102	675	380	N/A
101	575	310	N/A
99	475	242	N/A

* Add - BLK suffix to end of fan model for black fans.

	APP-14F*	Speed Curve #7	
Volts	RPM	CFM without Cone	CFM with Cone
230	1765	2367	2631
151	1675	2230	2487
145	1575	2100	2292
144	1475	1953	2130
143	1375	1808	2018
142	1275	1659	1813
140	1175	1471	1581
139	1075	1242	1487
137	975	1044	1280
135	875	854	1023
131	775	558	489
130	675	290	263
121	575	167	160

* Add - BLK suffix to end of fan model for black fans.

	APP-18F*	Speed Curve #8	
Volts	RPM	CFM without Cone	CFM with Cone
230	1765	3651	4394
174	1675	3480	4221
158	1575	3251	3898
142	1475	3012	3664
137	1375	2786	3480
133	1275	2508	3168
129	1175	2202	2788
126	1075	1990	2431
122	975	1710	2102
118	875	1396	1722
113	775	821	1401
109	675	566	762
107	575	273	298
103	475	112	153

* Add - BLK suffix to end of fan model for black fans.

6. Wiring

	APP-24F*	Speed Curve #4	
Volts	RPM	CFM without Cone	CFM with Cone
230	1040	5798	7386
194	940	5160	6353
176	840	4784	5648
157	740	3830	4688
143	640	2875	3842
130	540	2072	2902
115	440	823	1596
103	340	368	331

* Add - BLK suffix to end of fan model for black fans.

	APP-36F*	Speed Curve #5	
Volts	RPM	CFM without Cone	CFM with Cone
230	850	9260	11000
202	750	7894	9421
197	650	6587	7764
195	550	5482	6293
192	450	3516	2953
188	350	1286	1362

* Add - BLK suffix to end of fan model for black fans.

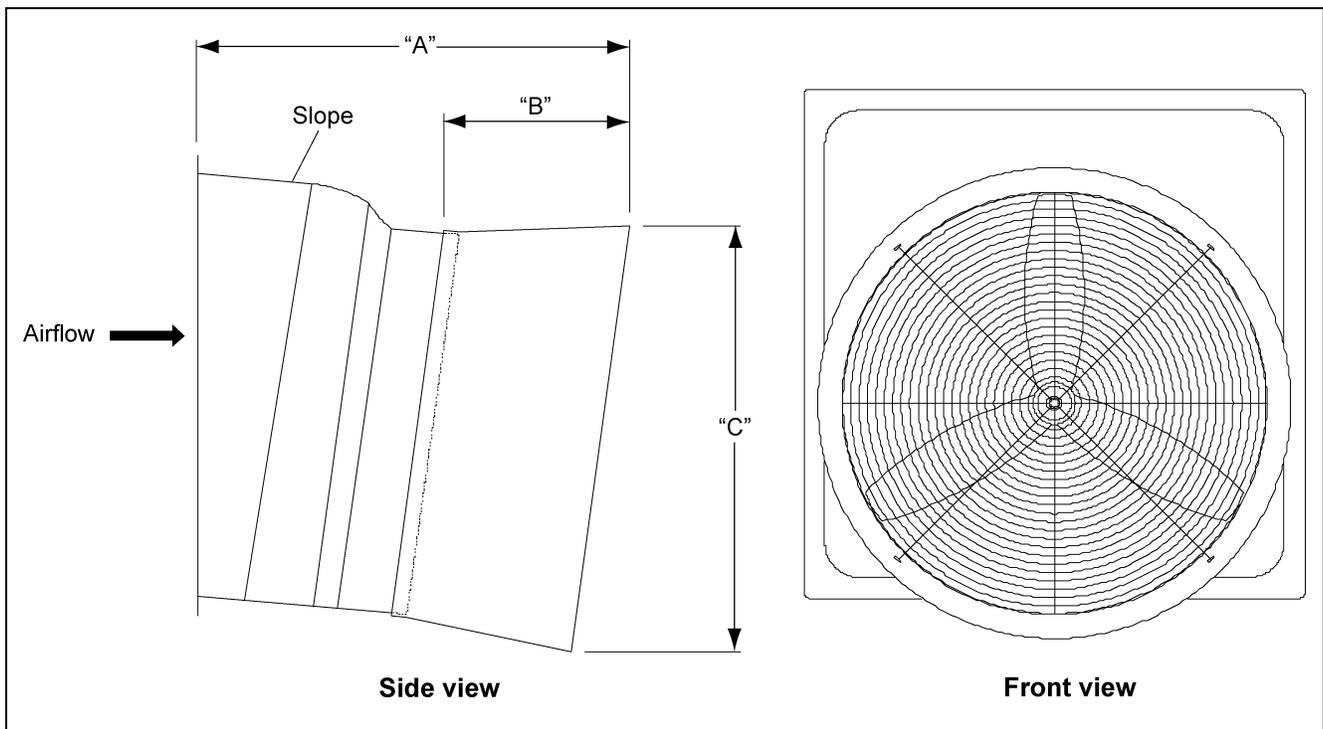
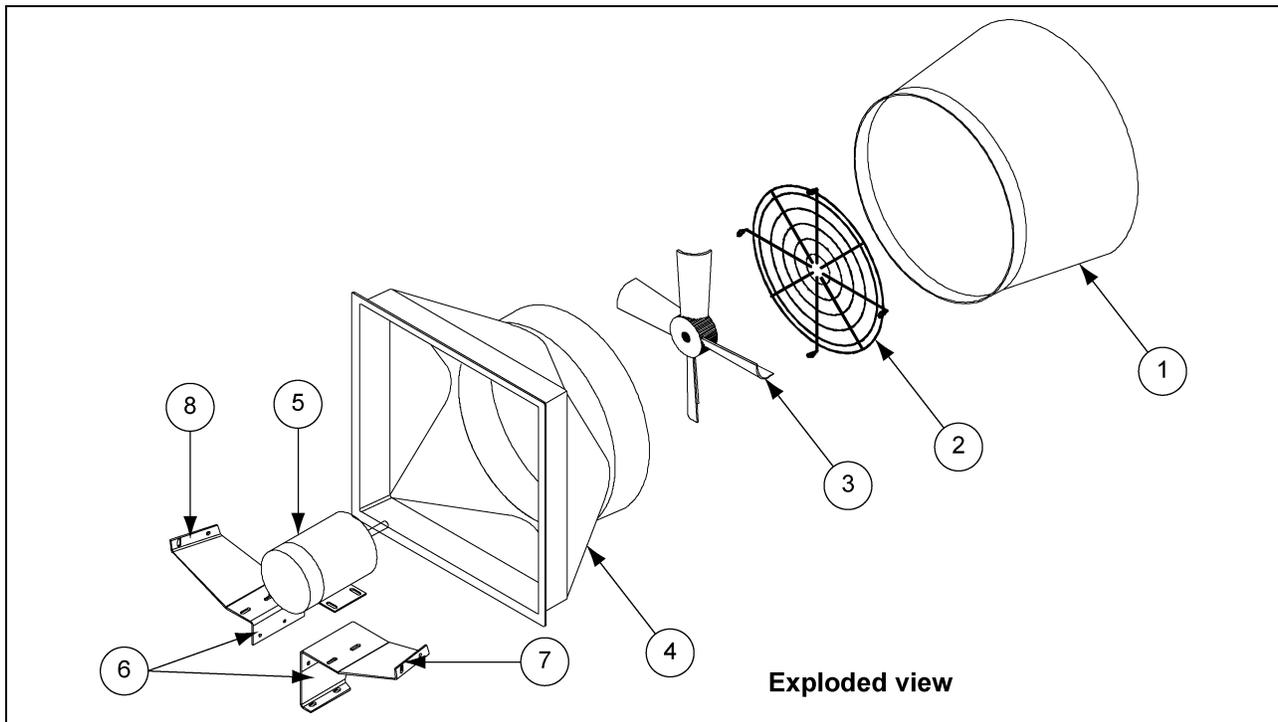


Figure 7A

Fan Model	"A"	"B"	"C"
APP-12F*	25-5/8"	N/A	12-1/2"
APP-14F*	21"	N/A	15-1/2"
APP-14FC*	40"	20-5/8"	20-5/8"
APP-18F*	22-3/16"	N/A	20"
APP-18FC*	40"	22"	25-3/8"
APP-24F*	22"	N/A	26"
APP-24FC*	41"	23-3/8"	31-7/8"
APP-36F/APPB-36F*	30-1/4"	N/A	37-7/8"
APP-36FC/APPB-36FC*	54-1/2"	27"	44-3/8"
APPB-50*	34-1/4"	N/A	50-3/8"
APPB-50C*	55"	24"	56-3/8"

* Add - BLK suffix to end of fan model for black fans.

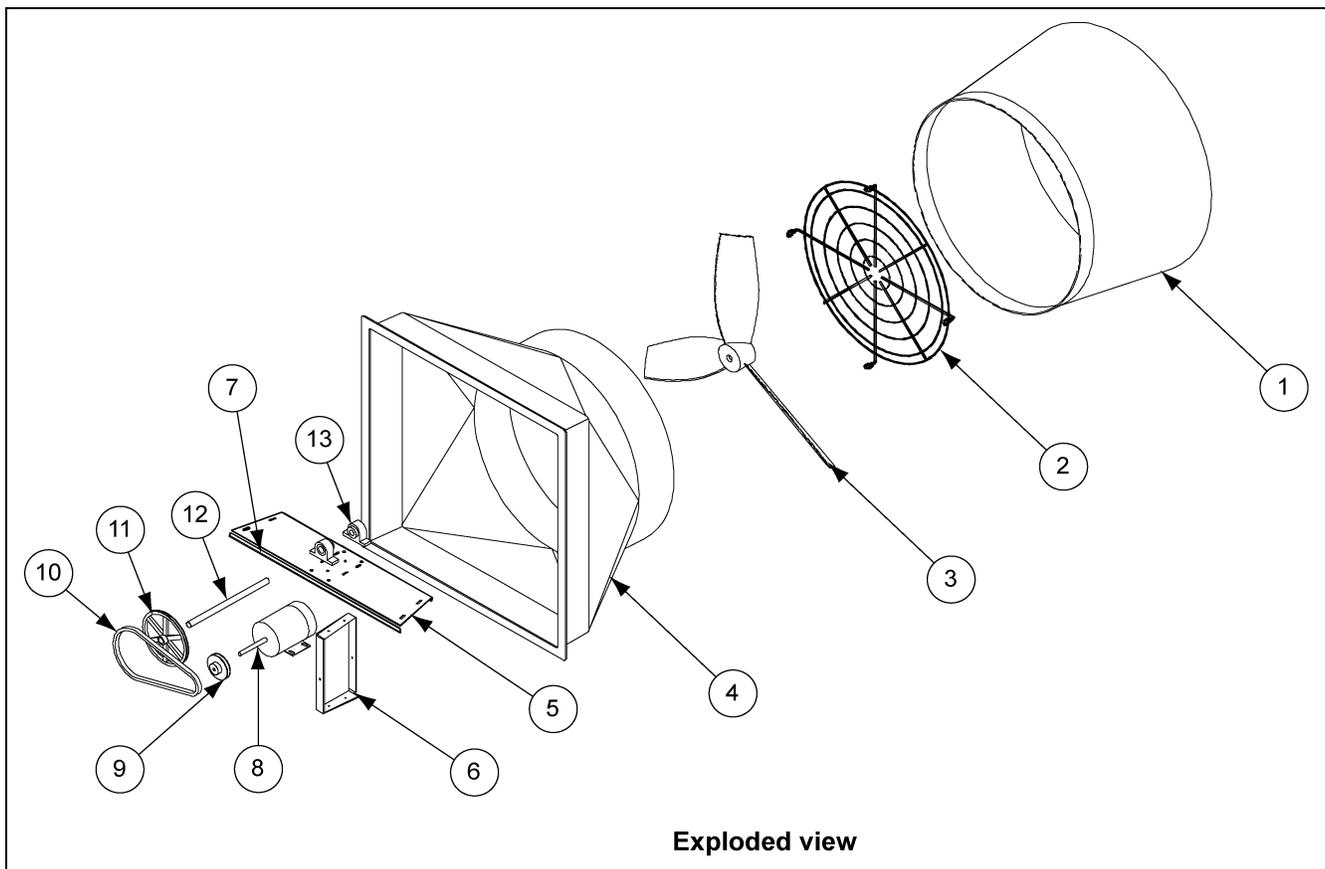
8. Parts List



Ref #	Part #					Description
	APP-12F	APP-14FC	APP-18FC	APP-24FC	APP-36FC	
1	N/A	12-0087F	12-0085F	12-0080F	12-0093	Cone *
2	11-0045-WH	11-0200-WH	11-0201-WH	11-0202-WH	11-0203-WH	Grill *
3	13-0130	13-0106	13-0107	13-0209	13-0129	Prop
4	12-0117	12-0086F	12-0084F	12-0083F	12-0091	Housing *
5	15-0109	15-0109	15-0110	15-0105	15-0116	Motor
6	11-0217	11-0193	11-0190	11-0181	11-0212	Motor Mount
7	N/A	11-0194	11-0192	11-0219	N/A	Right Motor Mount
8	N/A	11-0195	11-0191	11-0218	N/A	Left Motor Mount
N/S	PS-15SC	PS-18C	PS-24C	PS-32C	PS-42C	PVC Shutter *

Ref #	Part #				Description
	APP-12F-VFD	APP-14FC-VFD	APP-18FC-VFD	APP-24FC-VFD	
1	N/A	12-0087F	12-0085F	12-0080F	Cone *
2	11-0045-WH	11-0200-WH	11-0201-WH	11-0202-WH	Grill *
3	13-0130	13-0106	13-0107	13-0209	Prop
4	12-0117	12-0086F	12-0084F	12-0083F	Housing *
5	15-0203	15-0203	15-0205	15-0206	Motor
6	11-0217	11-0193	11-0190	11-0181	Motor Mount
7	N/A	11-0194	11-0192	11-0219	Right Motor Mount
8	N/A	11-0195	11-0191	11-0218	Left Motor Mount
N/S	PS-15SC	PS-18C	PS-24C	PS-32C	PVC Shutter *

* For black fans add -BLK suffix after the housing, cone, grill and PVC shutter part numbers.



Ref #	Part #		Description
	APPB-36C and APPB-36CHP	APPB-50C	
1	12-0093	12-0094	Cone (Optional) *
2	11-0203-WH	11-0325 (Cone) / 11-0204-WH (No Cone)	Grill *
3	13-0062 / (HP) 13-0223	13-0044	Prop
4	12-0091	12-0092	Housing *
5	11-0464	11-0208	Bearing Plate
6	11-0465	11-0209	Motor Mount Leg
7	91-0057	91-0057	Tensioner Arm
8	(1Ø) 15-0032 / (3Ø) 15-0086 / (HP) 15-0212	(1Ø) 15-0029 / (3Ø) 15-0084	Motor
9	16-0016 / (HP) 1011-2638	16-0016	Motor Sheave
10	16-0091	16-0012	Belt
11	16-0014	16-0099	Driven Pulley
12	(CR) 16-0083 / (SS) 16-0004 / (HP) 12-0477	(CR) 16-0083 / (SS) 16-0004	Shaft
13	1016-0100	1016-0100	Bearing
N/S	PS-42C	PS-54C	PVC Shutter *
N/S	HD42	HD54-F	Optional Aluminum Shutter

* For black fans add -BLK suffix after the housing, cone, grill and PVC shutter part numbers.

9. 50" Cone Assembly

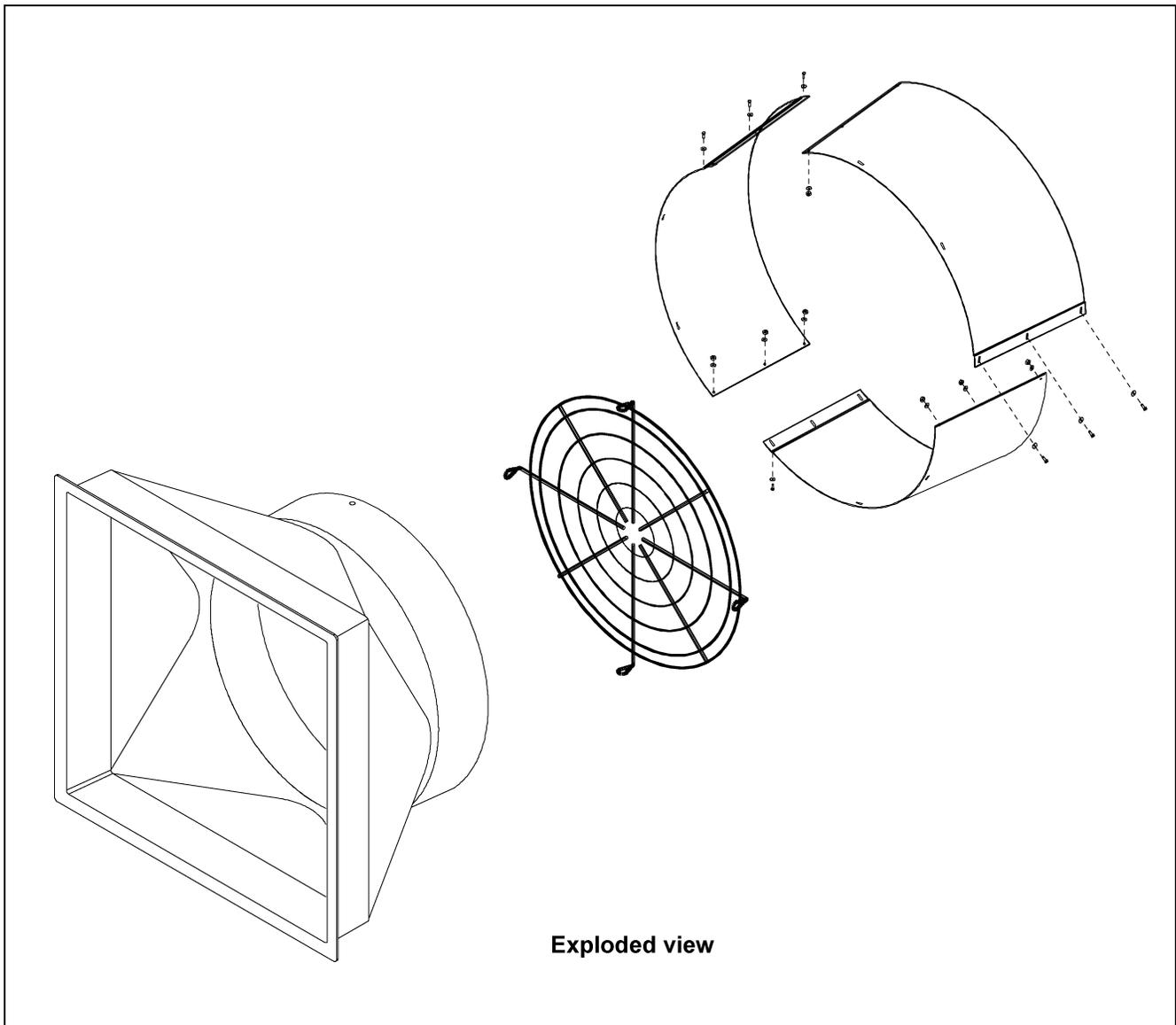


Figure 9A

NOTE: Fan must be installed in the wall before proceeding with discharge cone installation.

Remove packaging from cone and guard sections.

Find hardware package #10-0068 consisting of the following parts:

Part #	Description	Qty
S-8724	Fender Washer 5/16" x 1-1/2" x 1/16" SS	38
S-8452	Flange Nut 5/16"-18 SS Waxed (Must be Waxed)	20
S-7447	Flange Bolt 5/16"-18 x 1" SS (Full Thread)	7
S-8168	Flange Bolt 5/16"-18 x 1-1/2" SS	13

Cone Assembly Detail

See cone assembly detail in [Figure 9B](#) below. Partially assemble the cone on the ground by using only the outermost two (2) holes per overlap (six (6) total). Use the 1" bolts, fender washers and flange nuts, leaving bolts loose.

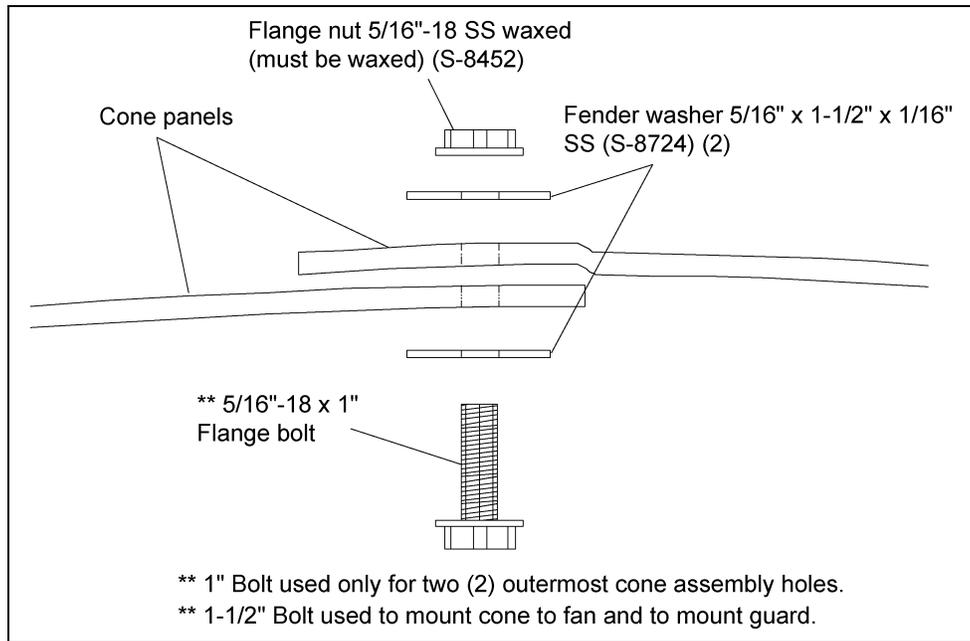


Figure 9B

Cone Mounting Detail

See cone mounting detail in [Figure 9C](#) below. Place the cone on the fan leaving a 2" overlap. Mark the nine (9) holes around fan orifice. Remove cone and drill 7/16" holes where marked. Mount the cone using the 1-1/2" bolts, fender washers and flange nuts. Tighten all hardware including cone panels.

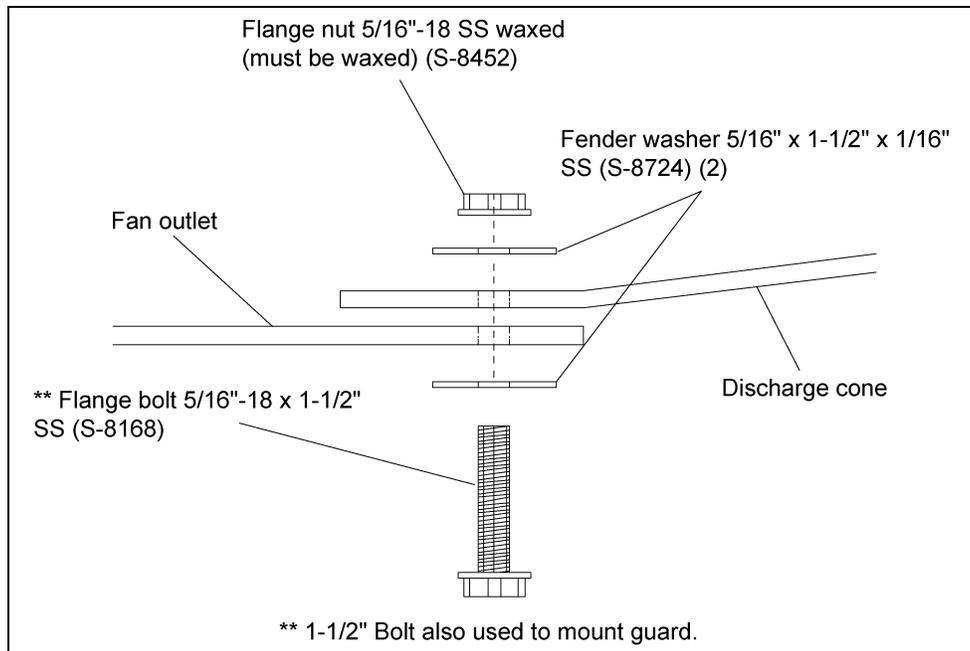


Figure 9C

Guard Detail

See guard detail in [Figure 9D](#) below for appropriate eyelets to be used with fiberglass fans. Push guard into fan until eyelets contact the center of each cone panel. Mark and drill three (3) 7/16" holes in the center of each cone panel. Use 1-1/2" bolts, fender washers and flange nuts to mount guard. Tighten hardware evenly.

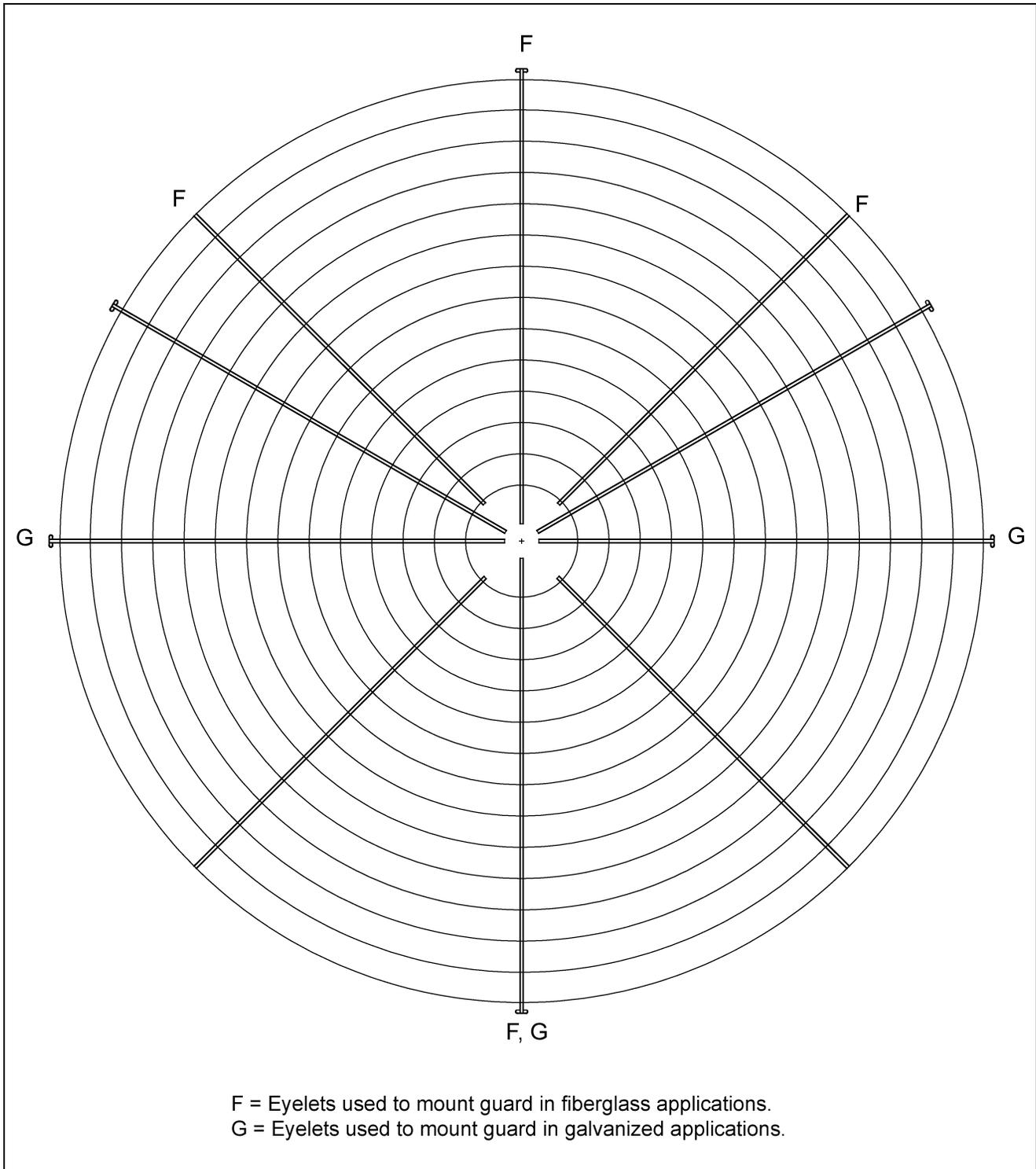


Figure 9D

GSI Group, LLC Limited Warranty

The GSI Group, LLC ("GSI") warrants products which it manufactures to be free of defects in materials and workmanship under normal usage and conditions for a period of 12 months after sale to the original end-user or if a foreign sale, 14 months from arrival at port of discharge, whichever is earlier. The end-user's sole remedy (and GSI's only obligation) is to repair or replace, at GSI's option and expense, products that in GSI's judgment, contain a material defect in materials or workmanship. Expenses incurred by or on behalf of the end-user without prior written authorization from the GSI Warranty Group shall be the sole responsibility of the end-user.

Warranty Extensions:

The Limited Warranty period is extended for the following products:

	Product	Warranty Period	
AP Fans and Flooring	Performer Series Direct Drive Fan Motor	3 Years	* Warranty prorated from list price: 0 to 3 years - no cost to end-user 3 to 5 years - end-user pays 25% 5 to 7 years - end-user pays 50% 7 to 10 years - end-user pays 75%
	All Fiberglass Housings	Lifetime	
	All Fiberglass Propellers	Lifetime	
AP and Cumberland	Flex-Flo/Pan Feeding System Motors	2 Years	
Cumberland Feeding/Watering Systems	Feeder System Pan Assemblies	5 Years **	** Warranty prorated from list price: 0 to 3 years - no cost to end-user 3 to 5 years - end-user pays 50%
	Feed Tubes (1-3/4" and 2.00")	10 Years *	
	Centerless Augers	10 Years *	
	Watering Nipples	10 Years *	
Grain Systems	Grain Bin Structural Design	5 Years	
Grain Systems Farm Fans Zimmerman	Portable and Tower Dryers	2 Years	† Motors, burner components and moving parts not included. Portable dryer screens included. Tower dryer screens not included.
	Portable and Tower Dryer Frames and Internal Infrastructure †	5 Years	

GSI further warrants that the portable and tower dryer frame and basket, excluding all auger and auger drive components, shall be free from defects in materials for a period of time beginning on the twelfth (12th) month from the date of purchase and continuing until the sixtieth (60th) month from the date of purchase (extended warranty period). During the extended warranty period, GSI will replace the frame or basket components that prove to be defective under normal conditions of use without charge, excluding the labor, transportation, and/or shipping costs incurred in the performance of this extended warranty.

Conditions and Limitations:

THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED WARRANTY DESCRIPTION SET FORTH ABOVE. SPECIFICALLY, GSI MAKES NO FURTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE IN CONNECTION WITH: (I) PRODUCT MANUFACTURED OR SOLD BY GSI OR (II) ANY ADVICE, INSTRUCTION, RECOMMENDATION OR SUGGESTION PROVIDED BY AN AGENT, REPRESENTATIVE OR EMPLOYEE OF GSI REGARDING OR RELATED TO THE CONFIGURATION, INSTALLATION, LAYOUT, SUITABILITY FOR A PARTICULAR PURPOSE, OR DESIGN OF SUCH PRODUCTS.

GSI shall not be liable for any direct, indirect, incidental or consequential damages, including, without limitation, loss of anticipated profits or benefits. The sole and exclusive remedy is set forth in the Limited Warranty, which shall not exceed the amount paid for the product purchased. This warranty is not transferable and applies only to the original end-user. GSI shall have no obligation or responsibility for any representations or warranties made by or on behalf of any dealer, agent or distributor.

GSI assumes no responsibility for claims resulting from construction defects or unauthorized modifications to products which it manufactured. Modifications to products not specifically delineated in the manual accompanying the equipment at initial sale will void the Limited Warranty.

This Limited Warranty shall not extend to products or parts which have been damaged by negligent use, misuse, alteration, accident or which have been improperly/inadequately maintained. This Limited Warranty extends solely to products manufactured by GSI.

Prior to installation, the end-user has the responsibility to comply with federal, state and local codes which apply to the location and installation of products manufactured or sold by GSI.

This equipment shall be installed in accordance with the current installation codes and applicable regulations, which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.



1004 E. Illinois St.
Assumption, IL 62510-0020
Phone: 1-217-226-4421
Fax: 1-217-226-4420
www.gsiag.com



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