Aerotech Vortex Fan VX51 & VX55

with RC Cone and G2 Munters Drive*

*Protected by U.S. Patent No. 20230031171A1, 11632932B2 and other Patents Pending

Instruction Manual

VX51 and VX55 with G2 Munters Drive

51″ and 55″ Exhaust Fan

Models: VX51D2FxxCT-Hx • VX51D2FxxCP-Hx
VX55D2FxxCT-Hx • VX55D2FxxCP-Hx

Munters

VX51 and VX55 Fans

with RC Cone and G2 Munters Drive

Instructions for Use and Maintenance

Thank You:

Thank you for purchasing a Munters VX51 and VX55 Fan with RC Cone and G2 Munters Drive. Munters equipment is designed to be the highest performing, highest quality equipment you can buy. With the proper installation and maintenance it will provide many years of service.

Please Note:

To achieve maximum performance and insure long life from your Munters product it is essential that it be installed and maintained properly. Please read all instructions carefully before beginning installation.

Warranty:

For Warranty claims information see the "Warranty Claims and Return Policy" form QM1021 available from the Munters Corporation office at 1-800-227-2376 or by e-mail at aghort.info@munters.com.

Conditions and Limitations:

- Products and Systems involved in a warranty claim under the "Warranty Claims and Return Policy" shall have been properly installed, maintained and operated under competent supervision, according to the instructions provided by Munters Corporation.
- Malfunction or failure resulting from misuse, abuse, negligence, alteration, accident or lack of proper installation or maintenance shall not be considered a defect under the Warranty.

Index

Unpacking the Equipment

1.

1.1 Parts List

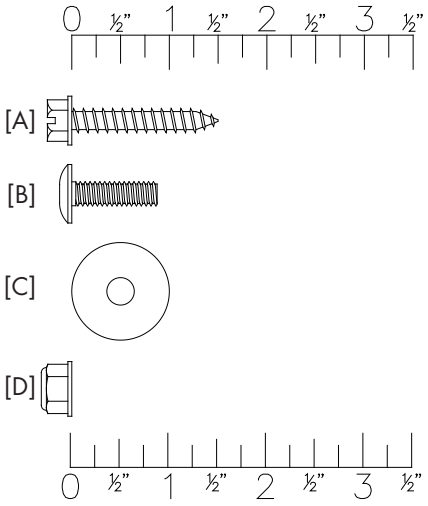
Before beginning installation, check the overall condition of the equipment. Remove packing materials, and examine all components for signs of shipping damage. Any shipping damage is the customer's responsibility and should be reported immediately to your freight carrier. Fan is shipped complete with all accessories. Remove shutter, guard and cone sections before proceeding with installation.

Each Fan includes:

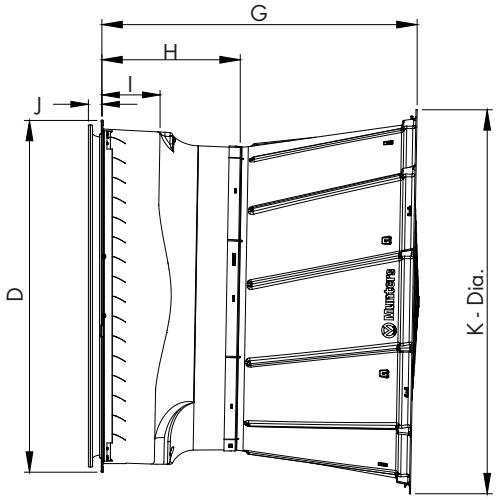
1 – G2 Munters Drive Fan
1 – Cone
1 – Guard
1 – Shutter
1 – Hardware Package as follows:

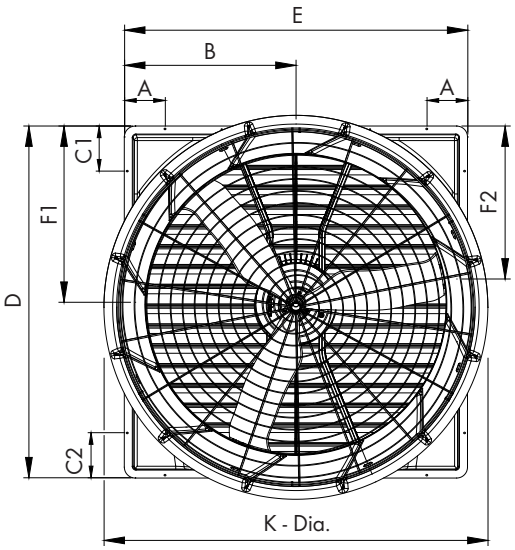
HP2656 – 51"/55" Fan, One Piece Cone, PT/PV Shutter

ID	Qty.	Cat. No.	Description
[A]	12	KS2105	#14 x 1.5" Lag Screw, SS
[B]	8	KS0650	¼"-20 x ⅞" Truss Head Bolt, SS
[C]	8	KW3012	¼" x 1" O.D. Flat Washer, SS
[D]	8	KN1717	¼"-20 Hex Flange, Nylock Nut, SS



1.2 Fan Dimensions





Fan Specifications: 60Hz shown (50Hz available)
Power: 230 VAC or 230/460 VAC
Phase: 1 or 3

Fan Dia.	A	B	C1*	C2*	D	E	F1*	F2*	G	H	I	J	K-Dia.	WALL OPENING (I.D., framed)
51"	7"	29½"	7½"	8"	60½"	59"	30¼"	26½"	54 3/16"	23 3/16"	11"	2 5/16"	65"	56¼"W. x 57¾"H.
55"	7⅜"	31⅜"	7¾"	7¾"	63⅝"	62¾"	27⅞"	31⅞"	58 9/16"	25 15/16"	11¾"	2 5/16"	70"	60" W. x 61¼" H.

*Dimensions Plus/Minus ¼", Field Verify

Installation Instructions

2.

2.1 Fan Installation

Step 1

When determining fan layout/spacing, keep in mind that the fan requires 1¼" clear space from the mounting flanges so the Shutter Clips have room to rotate to allow shutter to be removed and reinstalled. Construct framed opening to correct size according to the Wall Opening listed in Chart A below. *See Figure 1A and 1B.*

Chart A

Fan Dia.	Wall Opening (W. x H.)	Minimum Spacing 'Z'	Center To Center Dimension
51"	56¼"W. x 57¾"H.	12" recommended; 10" minimum	66" Minimum
55"	60" W. x 61¼" H.	12" recommended; 10" minimum	70" Minimum

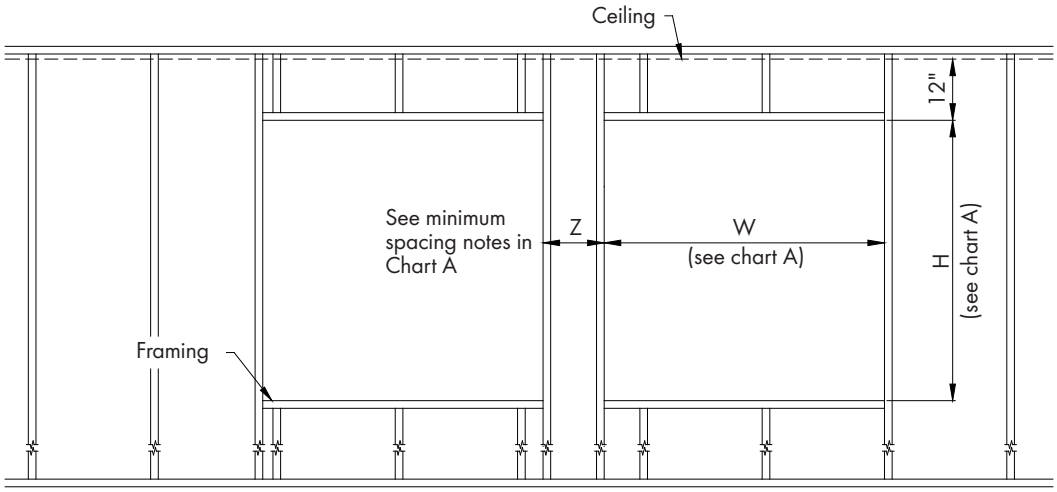


Figure 1A Frame Construction

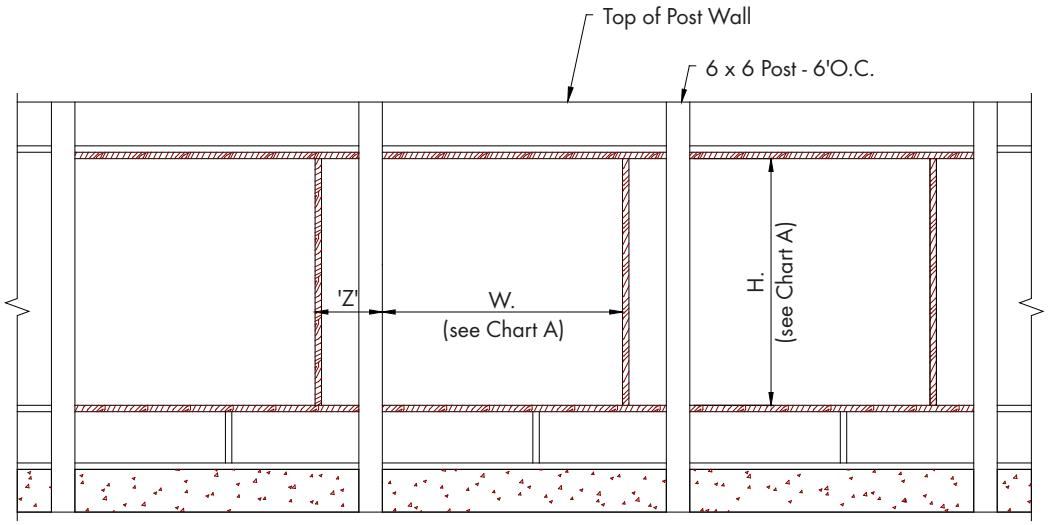


Figure 1B Post Construction

Step 2A

Insert fan into the framed opening from the inside. While lifting fan up tight to framing, fasten top of fan with (3) Lag Screw [A]. *See Figure 2A and 2B.* Next, fasten bottom of fan, then both sides with remaining (9) Lag Screw [A]. Install flashing around opening tight to fan and caulk around fan to seal.

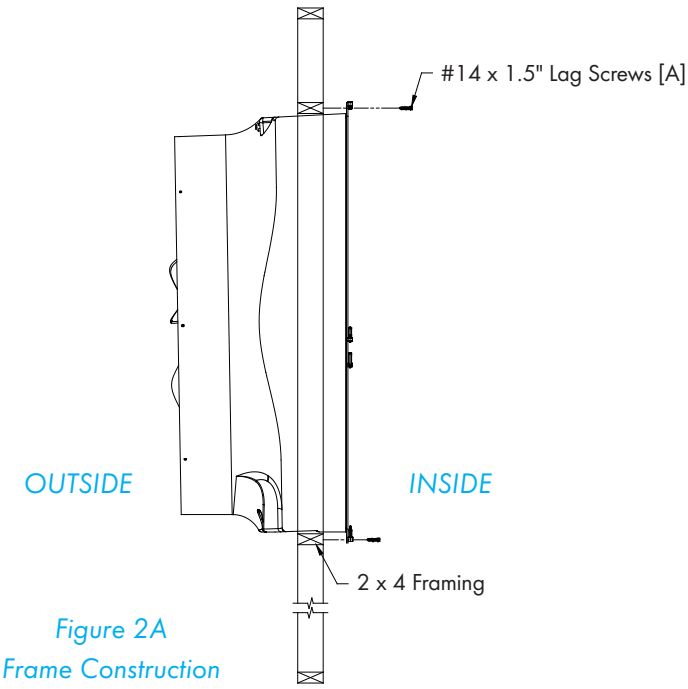


Figure 2A
Frame Construction

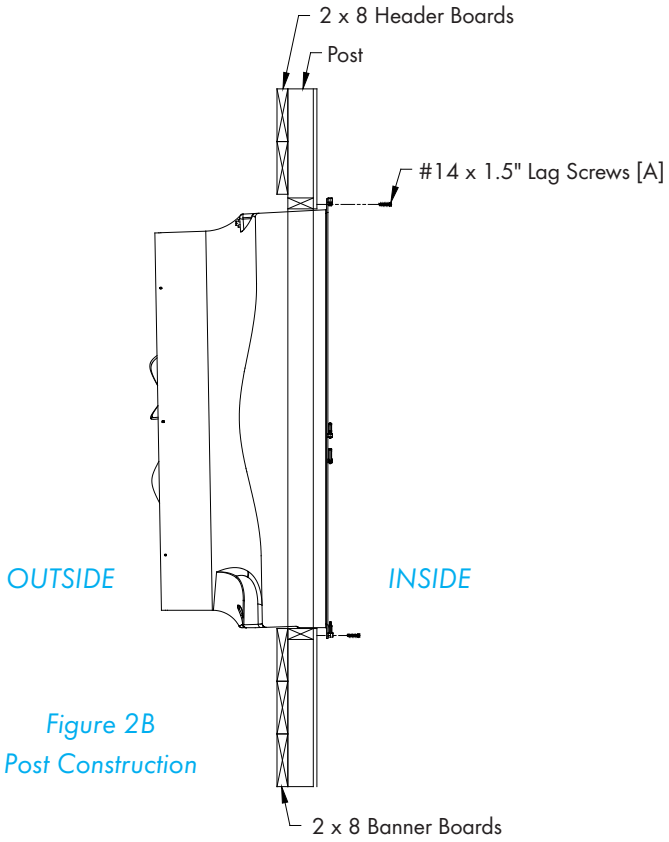


Figure 2B
Post Construction

Step 2B

If fan needs to be mounted, so that shutter does not stick into building then frame fan as shown in *Figure 3.* Top and sides require 4" minimum and bottom requires 2" minimum.

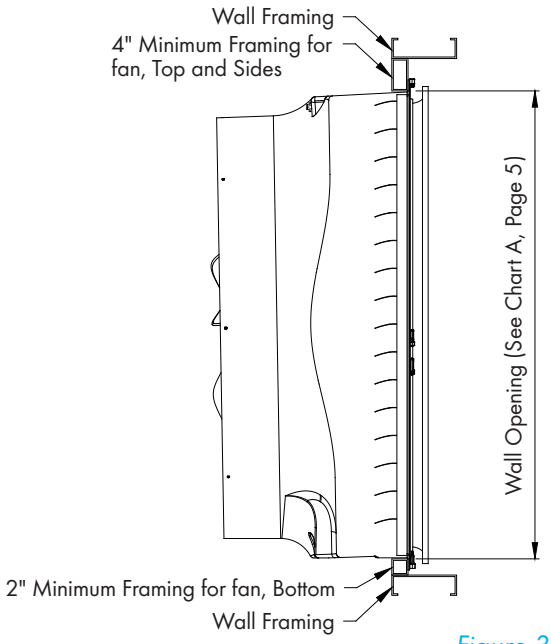


Figure 3

Step 3

Installing the one piece cone may require 2 people. If temperature is above 50°F then proceed to *Step 5*. If temperature is below 50°F then proceed to *Step 4*.

Step 4

Using Locking Sheet Metal Pliers bend the cone tabs outward to allow the cone to slide onto the fan easier. *See Figure 4.*

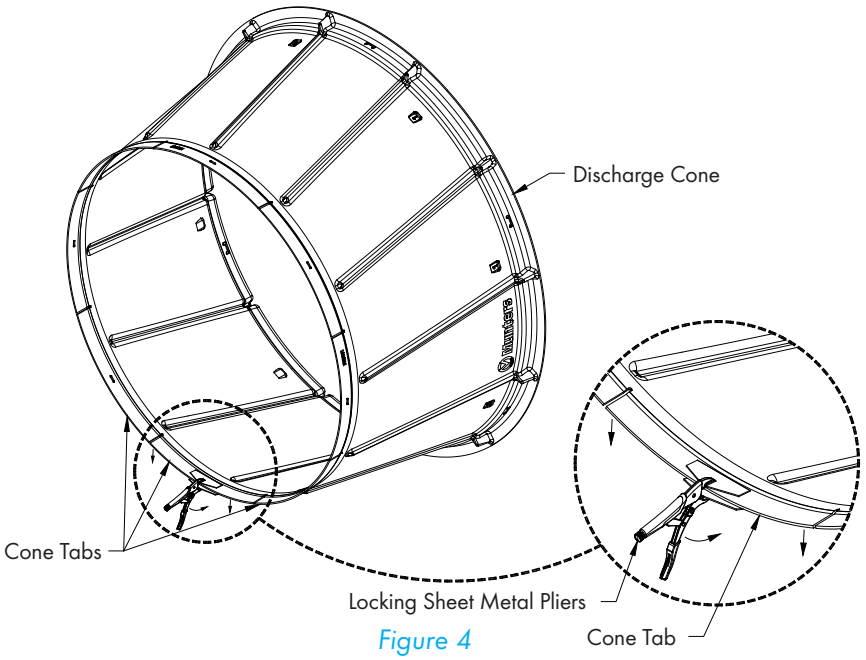


Figure 4

Step 5

Look for the "TOP" label on the Polycone and set the top of the Polycone on top of the fan orifice and install (2) Truss Head Bolts [B] through holes in fan outlet through the slots in the cone at about the 10 and 2 o'clock positions and fasten with Washers [C] and Flange Nuts [D]. Truss head of each bolt must be on the inside of the fan outlet; washers and flange nuts must be on outside of cone. *See Figure 5A and 5B.* Finger tighten nuts only at this time.

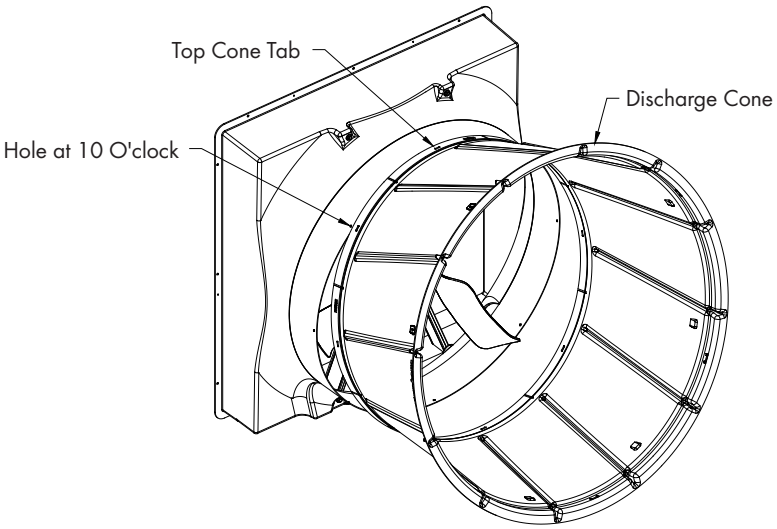


Figure 5A

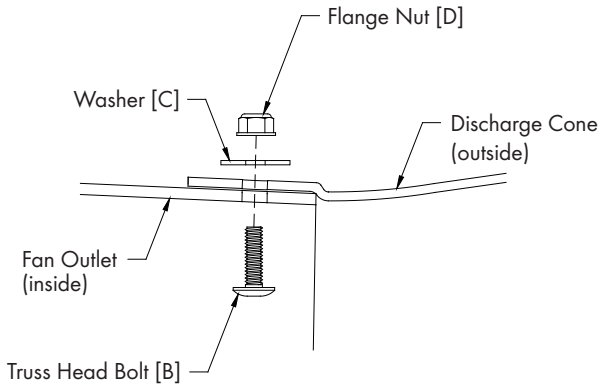


Figure 5B

Step 6

Work down the sides of the cone, sliding the cone tabs onto the fan until the bottom tab is in place. Keep pressure on the cone to make sure tabs stay on the fan. Install (6) Truss Head Bolts [B], Washers [C] and Flange Nuts [D] in the remaining holes in the fan outlet and slots in the cone to finish securing cone to fan. *See Figure 5B and Figure 6.* Tighten all nuts at this time, making sure not to over tighten.

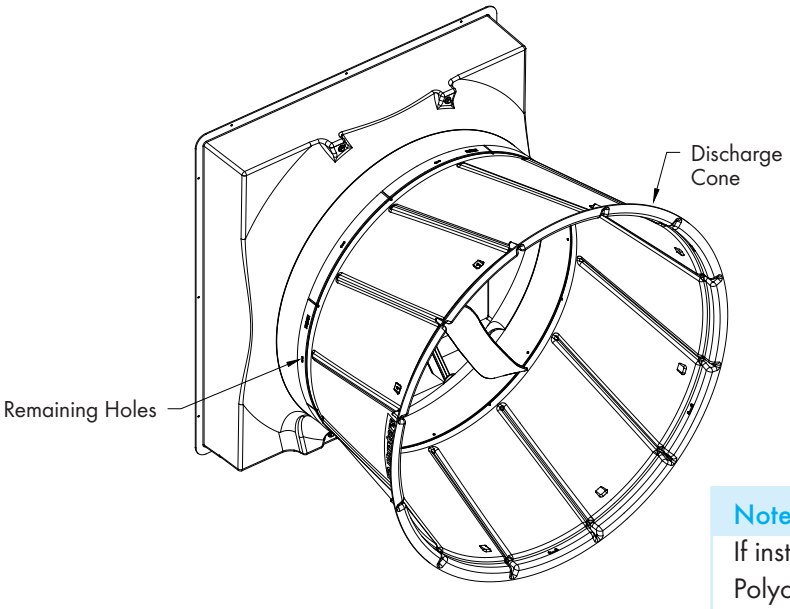


Figure 6

Note:
If installing your existing guard in the new Polycone, then proceed to Step 9. If installing the new snap-in guard then proceed to Step 7.

Step 7

The snap-in guard has a slight conical shape to it so, when installed the center of the guard should protrude out slightly. *See Figure 7A.*

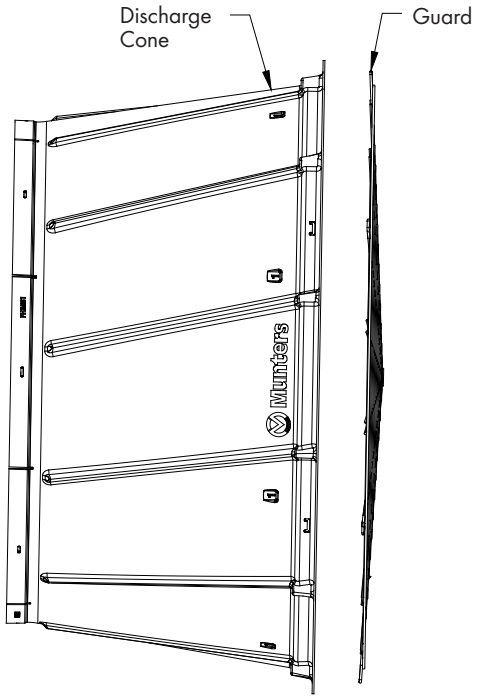


Figure 7A

Step 8

Starting at the bottom of the cone, locate one of the guard tabs and put the guard tab through the guard slot in the cone. *See Figure 7B.* Then work up around the guard and install each of the other guard tabs in each of the corresponding guard slots. Some force may be required to snap the last tab into the last slot, pull out on the center of the cone while pushing in on the guard tab until it snaps into place.

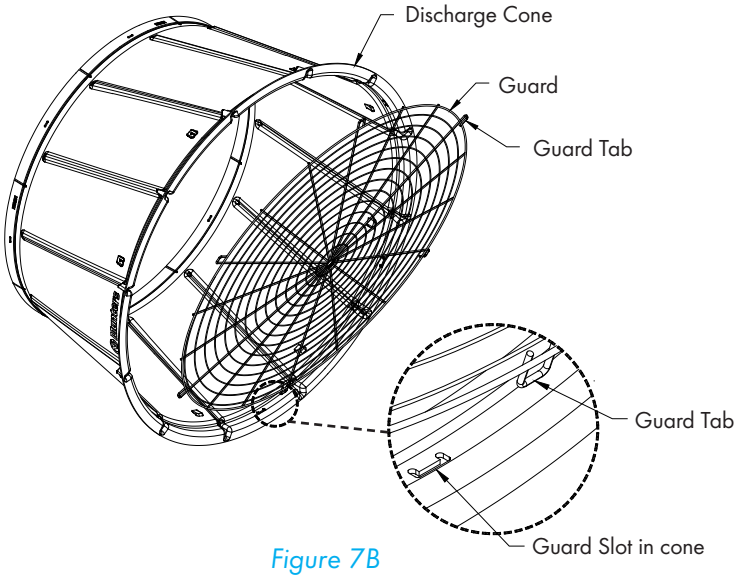


Figure 7B

Step 9

If installing your existing guard into the new cone, locate the flat guard mounting pads on the cone and drill a 9/32" dia. hole in the center of each pad. Then insert existing guard into cone with the guard eyelets facing away from you. Line up each eyelet with a hole in the guard pads. Secure guard to cone using (8) existing Bolts and Nuts. *See Figure 8A and 8B.* Tighten all nuts at this time.

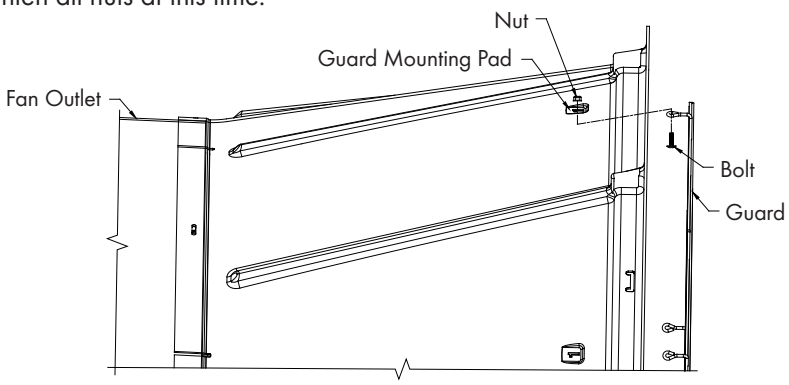


Figure 8A

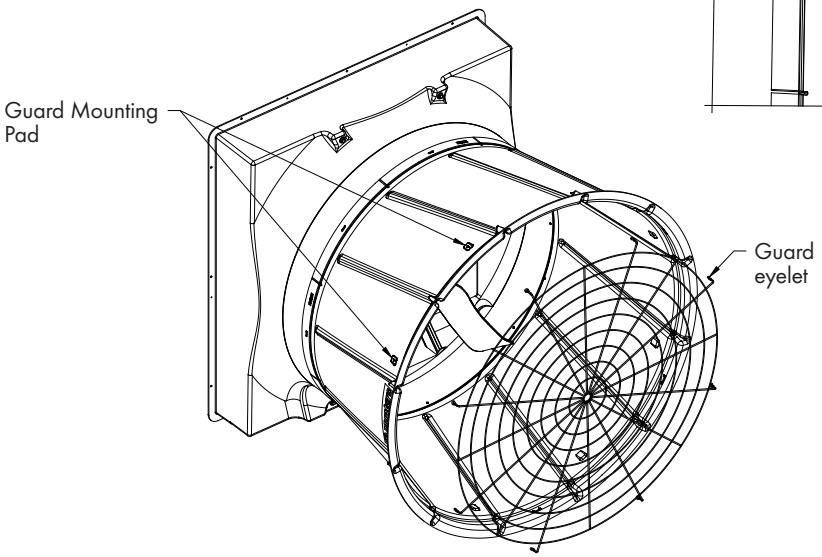
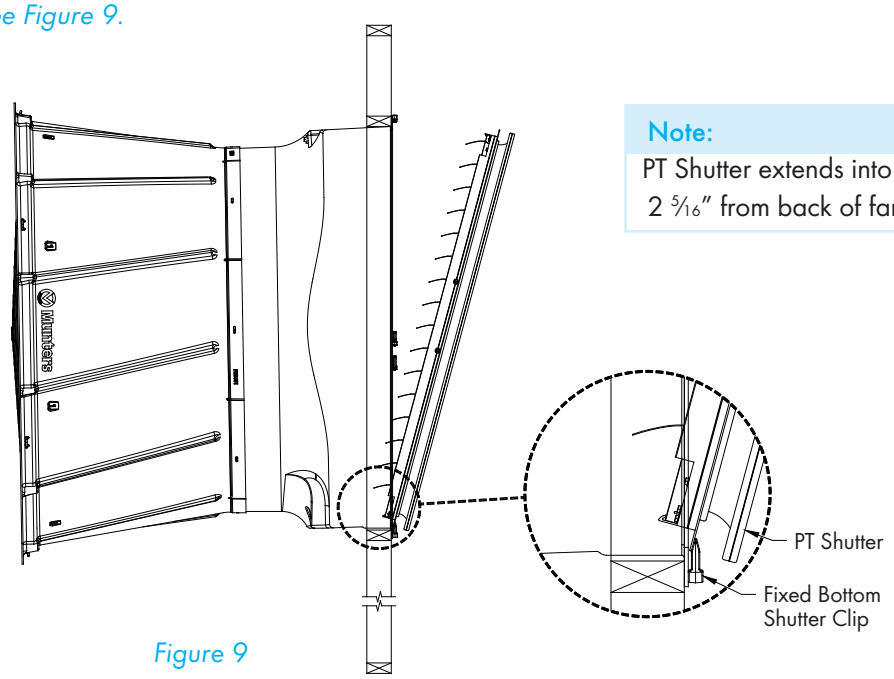


Figure 8B

2.2 PT Style Shutter

Step 10

Insert PT Shutter into fan by sliding the bottom flange of shutter into bottom shutter clips and pressing shutter inward. *See Figure 9.*



Note:
PT Shutter extends into room 2 5⁄16" from back of fan.

Figure 9

Step 11

Fasten shutter in place by rotating the side and top shutter clips over the shutter flanges. *See Figure 10.*

Installation is now complete, proceed to Electrical Wiring Section.

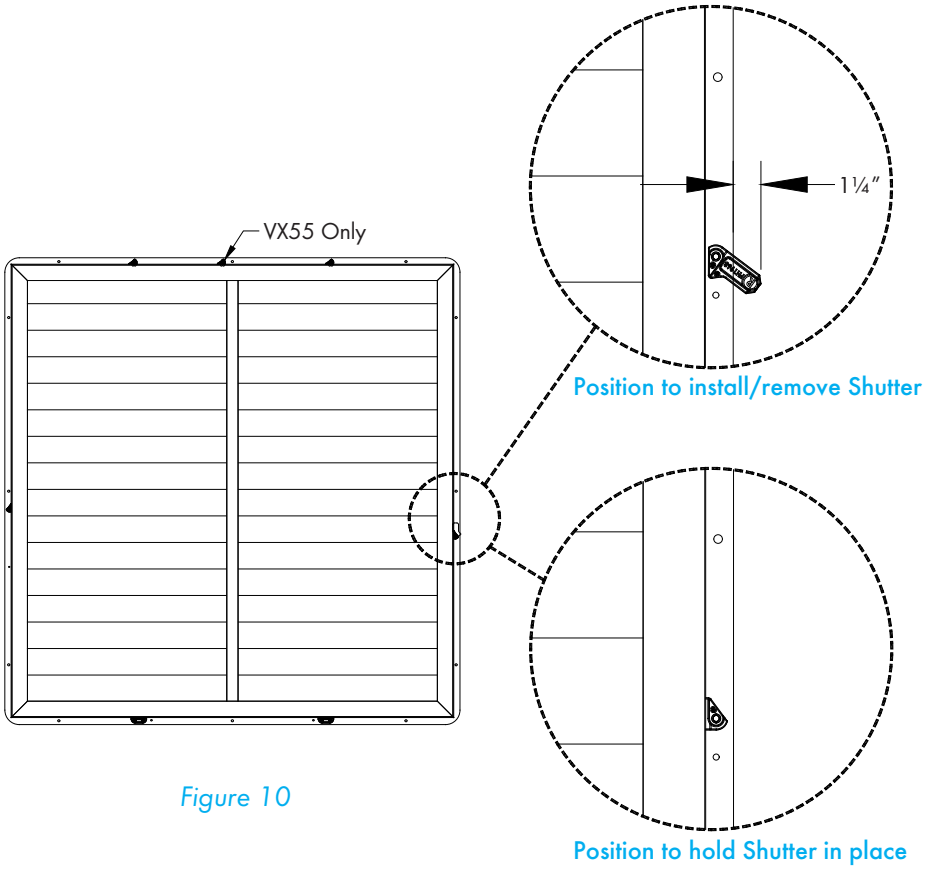


Figure 10

2.3 PV Style Shutter

Step 12

Insert PV shutter into fan by sliding the bottom flange of shutter into bottom shutter clips and pressing shutter inward, *See Figure 11A.* Fasten shutter in place by rotating the side and top shutter clips over the shutter flanges, *See Figure 11B.*

Installation is now complete, proceed to electrical wiring section.

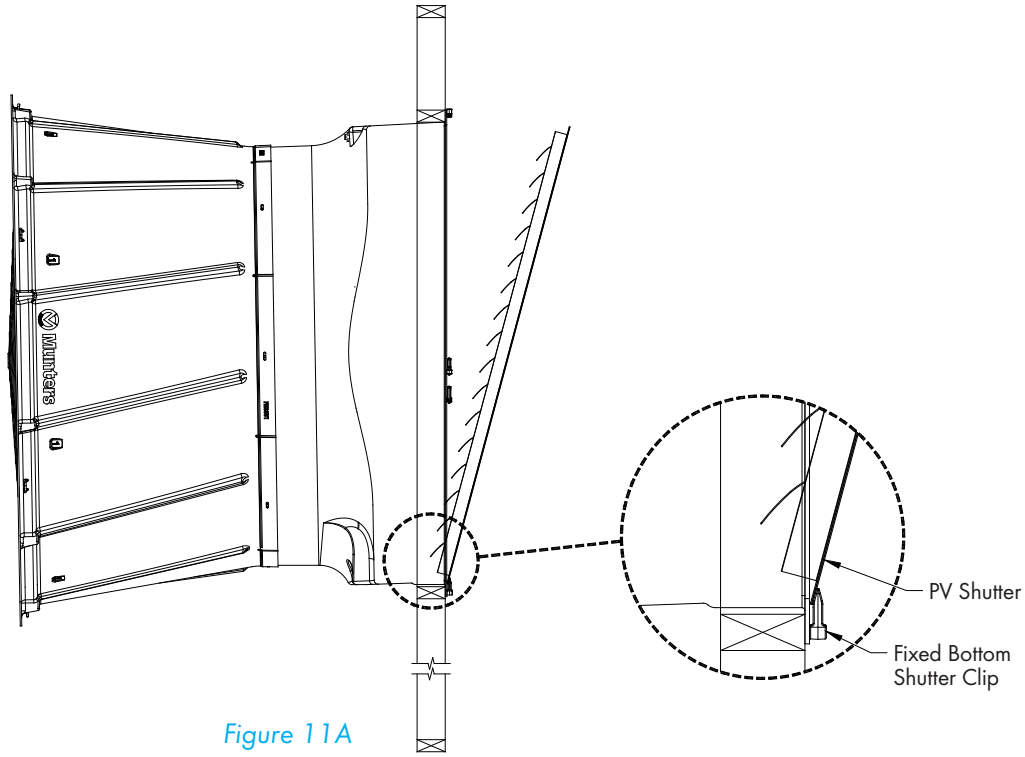


Figure 11A

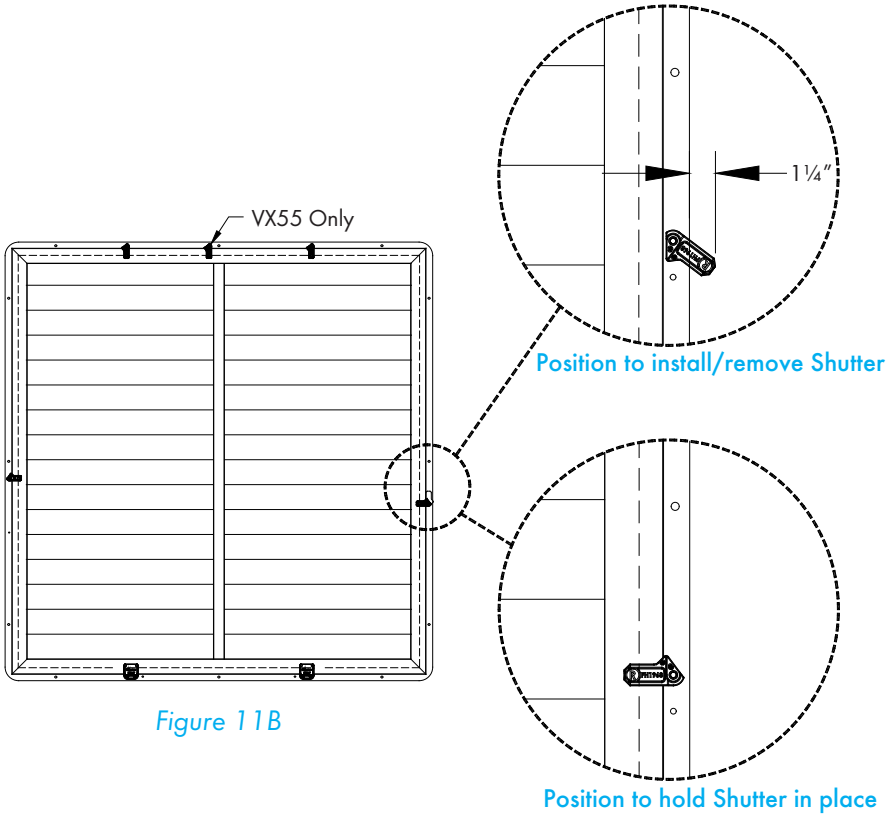


Figure 11B

Electrical Wiring

3.

3.1 Recommended Wire Routing:

Bring the Power Cable (not provided) into the fan from the incoming power supply and/or the safety cut-off switch. (Safety cut-off switch by others). Run the Cable along the Strut and "Zip" tie the cable to the strut to prevent cable from getting tangled in the propeller. Form a Drip Loop in cable and then run the cable through the watertight fitting into the Munters Drive Control Box. *See Figure 12A.*

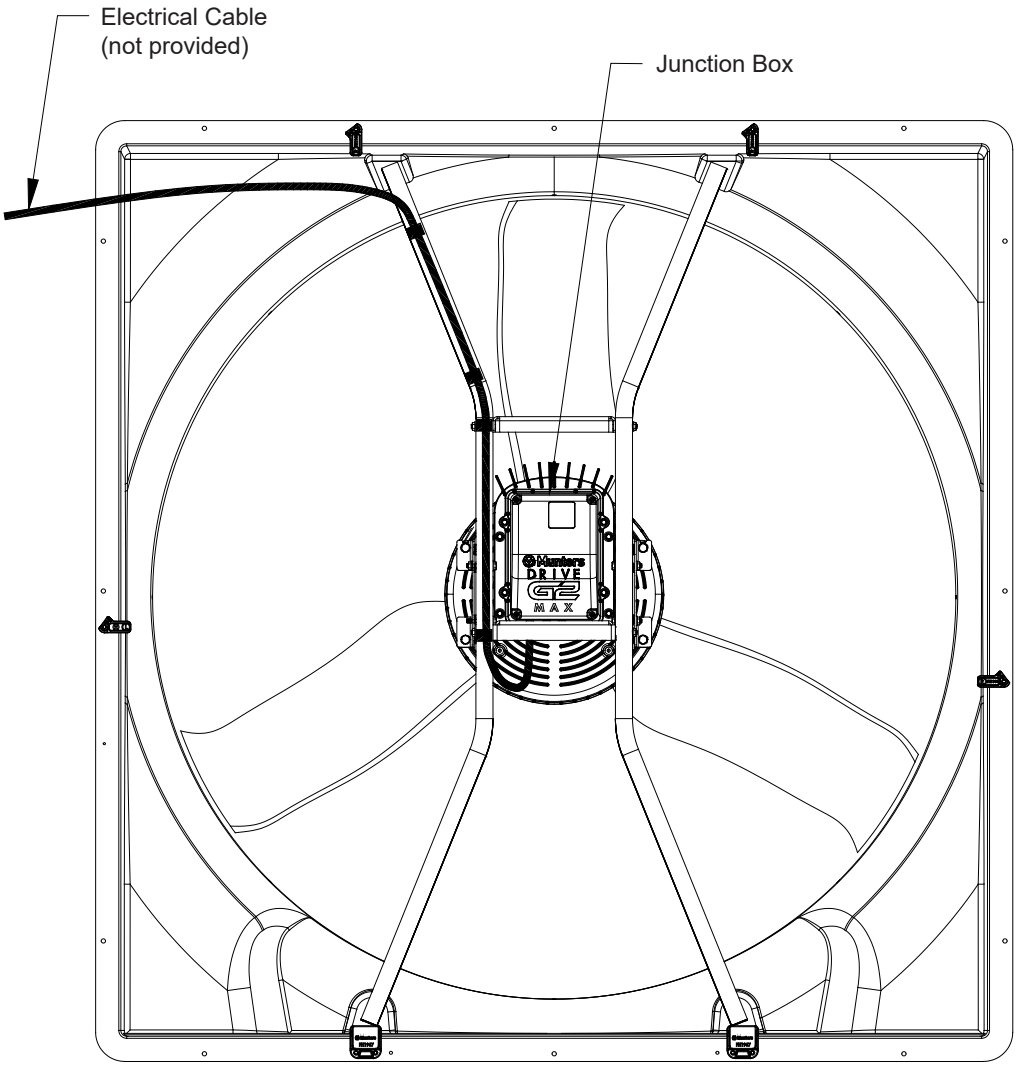


Figure 12A

WARNING: Fan is designed to be operated with shutter in place. Do not apply power to fan without shutter being installed.

3.2 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 circuits per room. For electrical connection requirements, refer to diagram on motor nameplate and to information enclosed with the environmental control to be used.

Single Phase and Three Phase Munters Drives: Power supply for fans to have Circuit Breaker or Fuse Protection. The installer must refer to NEC and local codes to ensure safety and compliance. *See Figure 12B & 12C.*

If recommended lightning protection was purchased, wire it to the fan power supply as shown and secure the lightning protection unit near the disconnect or the bus panel. *See Figure 12B & 12C.*

NOTE: A safety cut-off switch should be located adjacent to each fan.

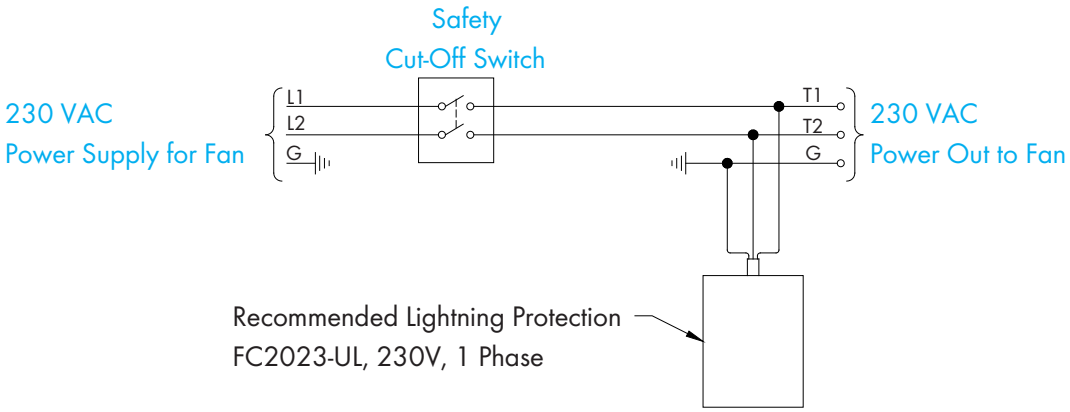
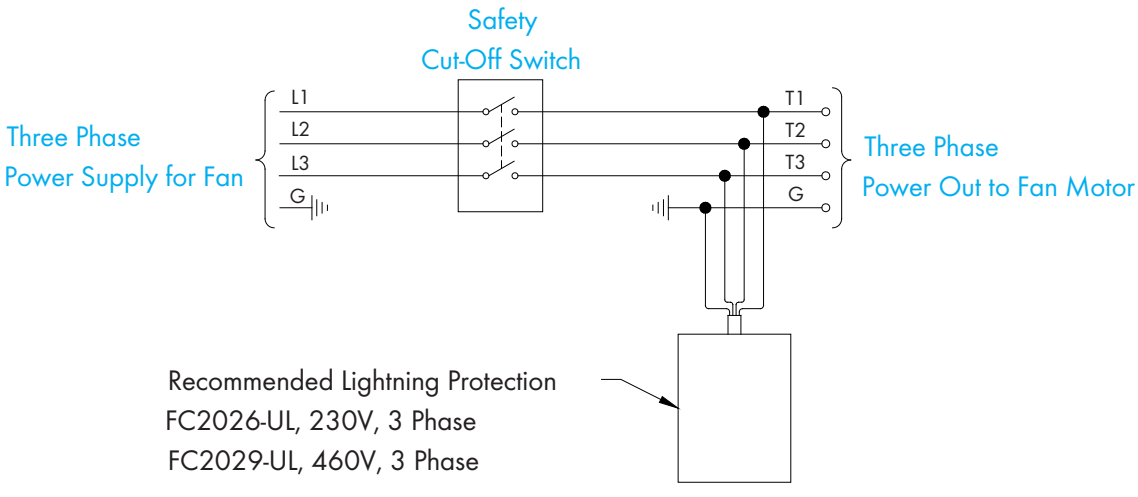


Figure 12B
Single Phase



KEY:
L1=Line 1
L2=Line 2
L3=Line 3
G=Ground

Figure 12C
Three Phase

3.3 Power Connection and Control Wiring

All cables that enter the Munters Drive box must enter through a properly sized watertight fitting. To access the Drive, loosen the (4) screws in the cover of the Munters Drive box to access the terminals inside to connect power and other cables. *See Figure 13.*

WARNING

Only the Cover of the Blue Box is designed to be removed. It has captured screws that remain in the cover. The Base of Blue Box and Heat Sink **must not** be removed from back of motor. Removing Base or Heat Sink from motor will void the warranty. Any water or other damage to the controller will not be covered if the either is removed.

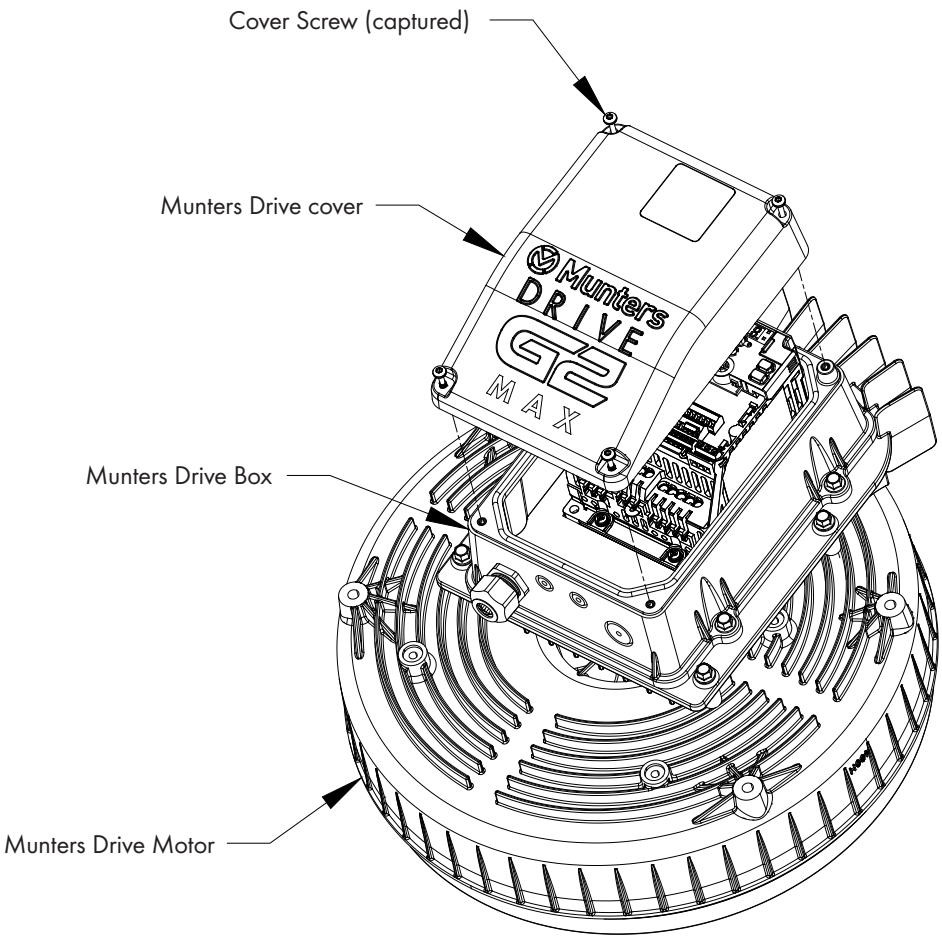


Figure 13

3.4 GA500 Drive Wiring

Single Phase Power connection:

Run the single phase power cable through watertight fitting into the Munters Drive box and connect to the terminals "R/L1, S/L2" and Ground in the box. *See Figure 14.* The Munters Drive is prewired to the Motor.

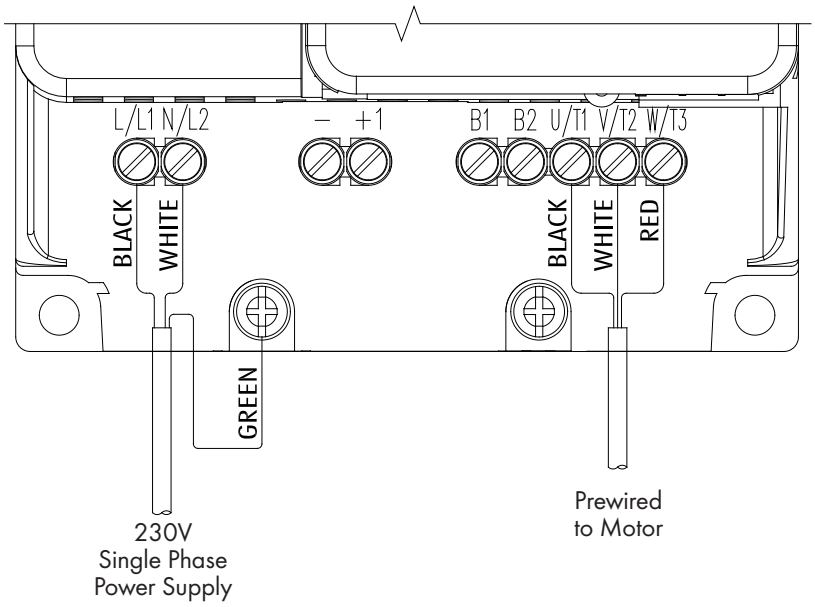


Figure 14

3 Phase Power connection:

Run the 3 phase power cable through watertight fitting into the Munters Drive box and connect to the terminals "R/L1, S/L2, T/L3" and Ground in the box. *See Figure 15.* The Munters Drive is prewired to the Motor.

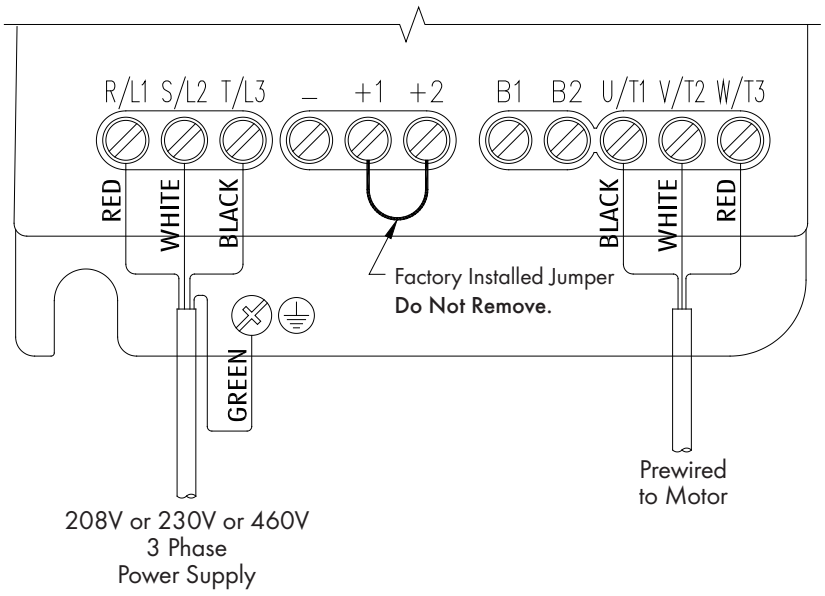


Figure 15

***NOTE* 230V, 1 Ph**

Power to the Drive must be within +/- 8% of nominal voltage.

Munters Recommended;
Absolute Minimum Voltage = 210V
Absolute Maximum Voltage = 254V

Munters Recommends Line to Line Voltage Unbalance to be 1% or less per NEMA MG-1-1998. Absolute maximum unbalance is 1.5%.

****NOTE**208V, 3 Ph**

Power to the Drive must be within -4%, +10% of nominal voltage.

Munters Recommended;
Absolute Minimum Voltage = 200V
Absolute Maximum Voltage = 230V

Munters Recommends Line to Line Voltage Unbalance to be 1% or less per NEMA MG-1-1998. Absolute maximum unbalance is 1.5%.

****NOTE**230V, 3 Ph**

Power to the Drive must be within +/- 8% of nominal voltage.

Munters Recommended;
Absolute Minimum Voltage = 210V
Absolute Maximum Voltage = 254V

Munters Recommends Line to Line Voltage Unbalance to be 1% or less per NEMA MG-1-1998. Absolute maximum unbalance is 1.5%.

****NOTE**460V, 3 Ph**

Power to the Drive must be within -4%, +8% of nominal voltage.

Munters Recommended;
Absolute Minimum Voltage = 440V
Absolute Maximum Voltage = 500V

Munters Recommends Line to Line Voltage Unbalance to be 1% or less per NEMA MG-1-1998. Absolute maximum unbalance is 1.5%.

Fan Operation with No Control - GA500

To operate the fan continuously with no control, provide a Jumper wires between terminals 'S1' and 'SN'. *See Figure 16.* Do not remove the Factory Installed Jumpers.

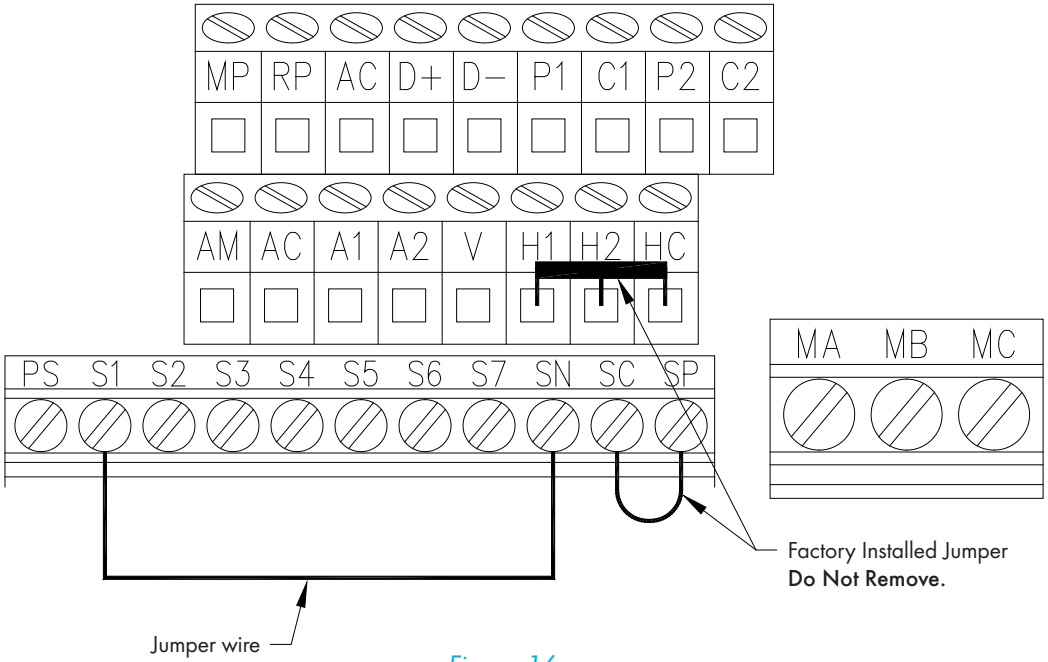


Figure 16

Fan Operation On/Off with Control - GA500

To operate the fan On/Off with a control, wire an 'ON' command from the 'SN' terminal to the input relay in the control and from the output of the control relay to the 'S1' terminal. *See Figure 17.* Do not remove the Factory Installed Jumpers.

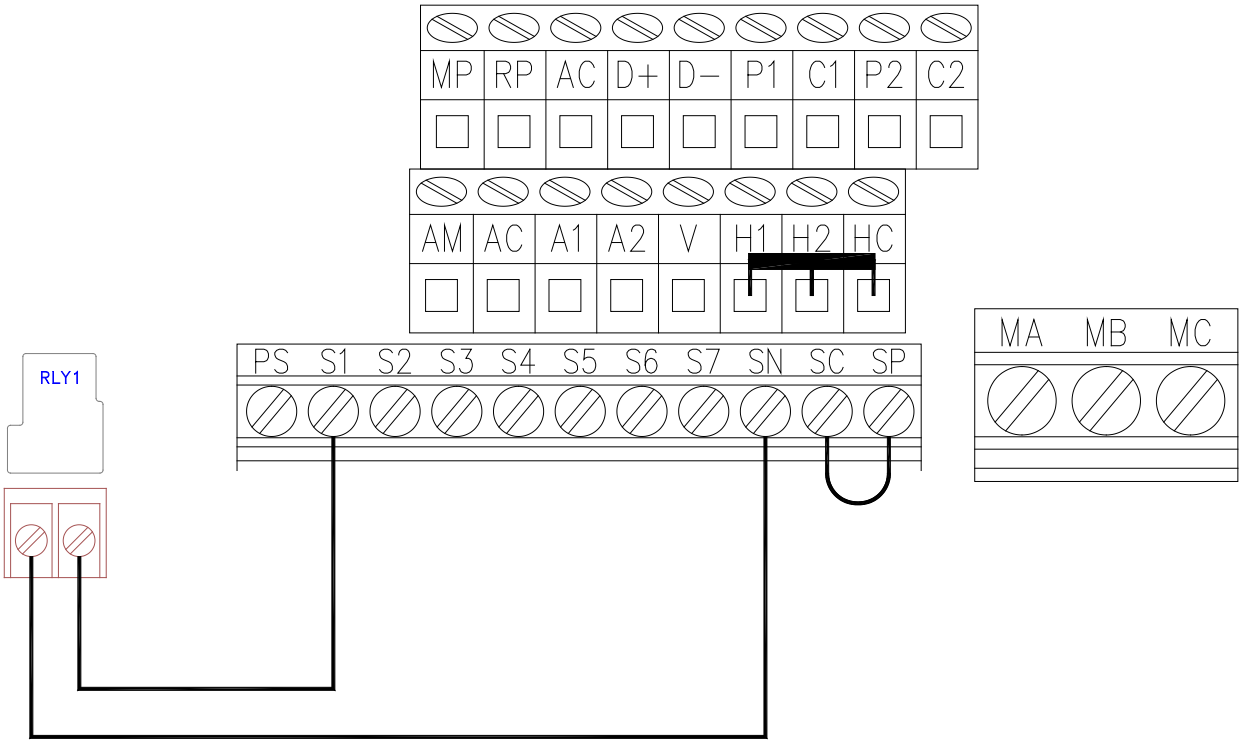


Figure 17

Fan Operation Off/Low/High - GA500

To operate the fan Off/Low/High with a control, connect a wire from 'SN' terminal to the input side of the 'ON' relay in the control, then install a jumper from the input side of the 'ON' relay to the input side of the 'LOW' relay in the control. Then connect a wire from 'S1' terminal to the output side of the 'ON' relay and then connect a wire from the 'S7' terminal to the ouput side of the 'LOW' relay. *See Figure 18.* Do not remove the Factory Installed Jumper.

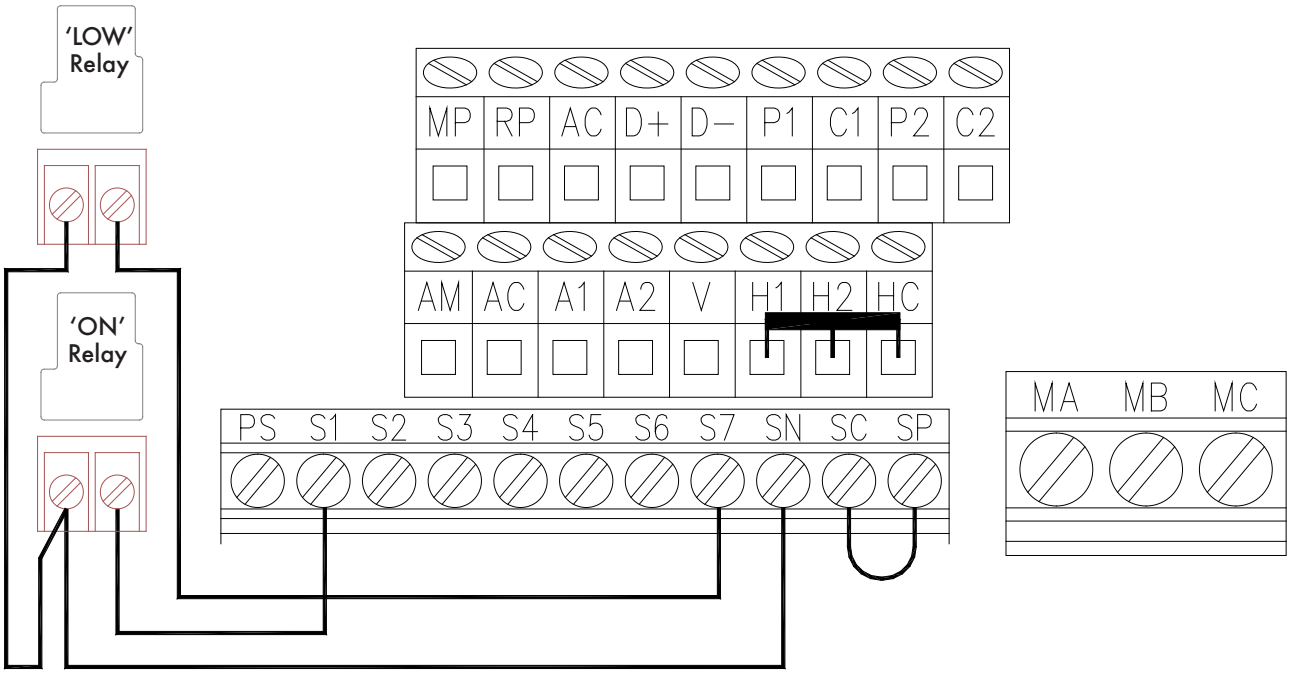
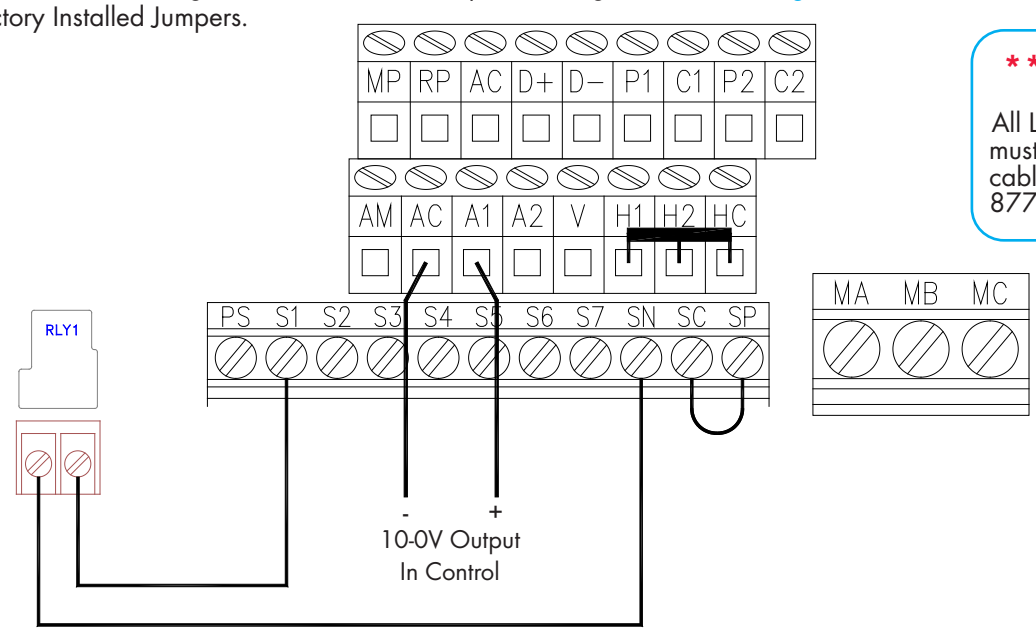


Figure 18

Fan Operation Off/Variable with 10-0V Signal - GA500

To operate the fan Off/Variable with a 10-0V Signal, wire an 'ON' command from the 'SN' terminal to the input relay in the control and from the output of the control relay to the 'S1' terminal. Then connect wires from the 10-0V output in the control to the 'A1' and 'AC' terminals in the Munters Drive Box. The '+' output in the control shoud go to 'A1' and the ' - ' output should go to 'AC'. *See Figure 19.* Do not remove the Factory Installed Jumpers.



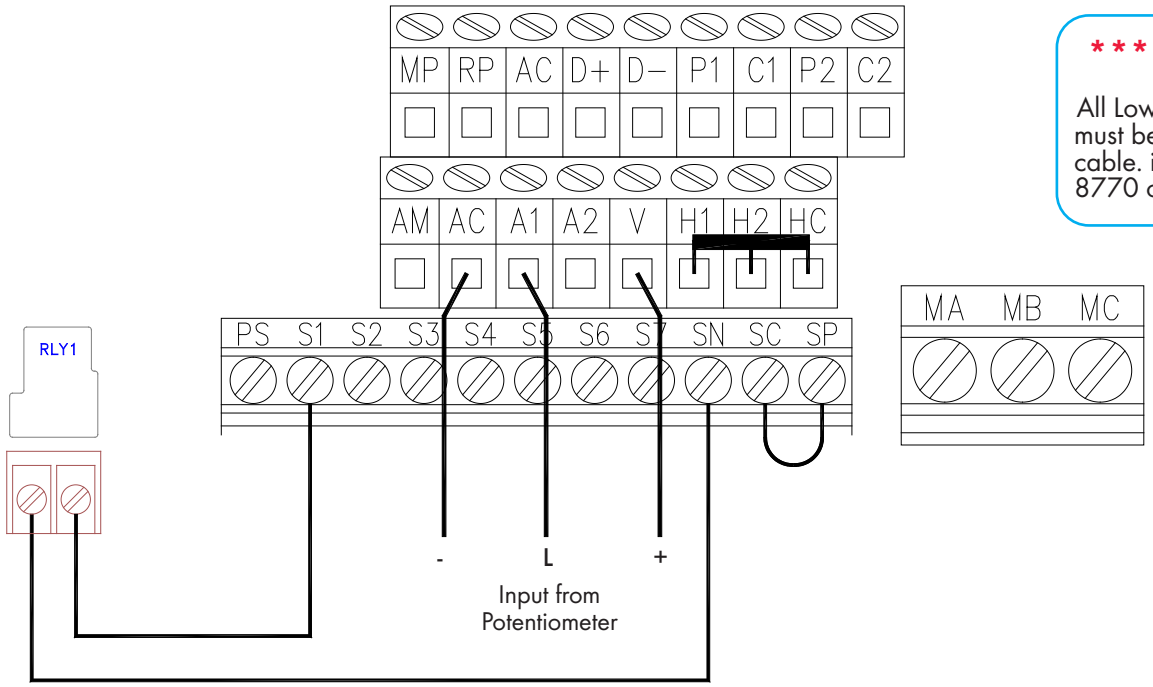
NOTE

All Low Voltage wire must be shielded cable. i.e. Belden 8770 or equivalent.

Figure 19

Fan Operation Off/Variable with Potentiometer - GA500

To operate the fan Off/Variable with a signal from a potemtiometer, wire an 'ON' command from the 'SN' terminal to the input relay in the control and from the output of the control relay to the 'S1' terminal. Then connect wires from the Potentiometer as follows, connect ' - ' to 'AC', connect 'L' to 'A1' and connect '+' to 'V'. *See Figure 20.* Do not remove the Factory Installed Jumpers.



NOTE

All Low Voltage wire must be shielded cable. i.e. Belden 8770 or equivalent.

Figure 20

Alarm Connections - GA500

The Munters Drive uses a Normally Closed circuit for alarm connections. To connect a control to the Normally Closed output make appropriate connecions from the control to 'MB' and 'MC' terminals. *See Figure 21.* Do not remove the Factory Installed Jumbers.

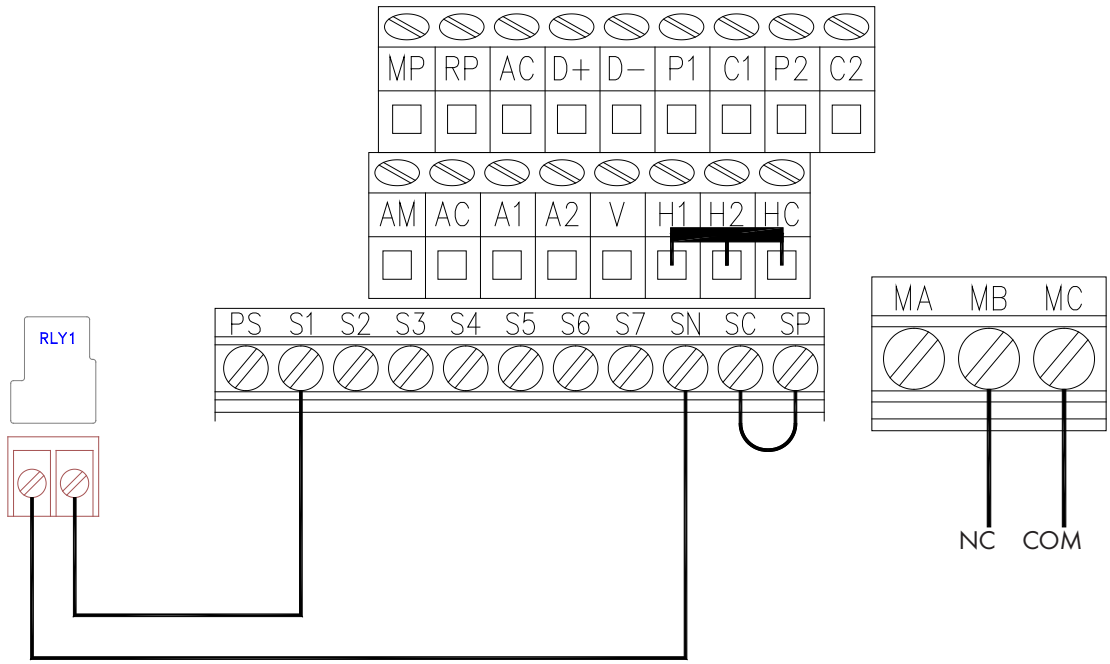


Figure 21

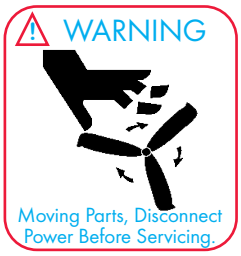
Operation and Maintenance

4.

4.1 Operation

1) *INITIAL START-UP:* With electrical power off, verify that the fan propeller turns freely and that all fasteners are secure. With shutter in place, turn on electrical power and confirm that the fan operates smoothly.

2) TEMPERATURE *ADJUSTMENTS*: Set the fan control to the temperature shown on your Munters ventilation system drawing, or to a value which will provide the desired environmental conditions.



4.2 Maintenance

The following inspection and cleaning procedures should be performed monthly:

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

2) *CLEAN* regularly for best results:
   - *FAN MOTOR:* Remove any dust accumulation from motor using a brush or cloth. (DO NOT use a pressure washer). A clean motor will run cooler and last longer. At the same time, verify that the motor is secure in its mount.
   - *SHUTTER:* Carefully clean dust from shutter and frame so that shutter opens and closes freely. A brush or cloth should be used.
   - *GUARD:* Clean any dust or feathers from fan guards using a brush. Dirty guards can reduce airflow.

3) *CHECK FASTENERS:* For safety, all fasteners should be inspected. Tighten any loose connections.

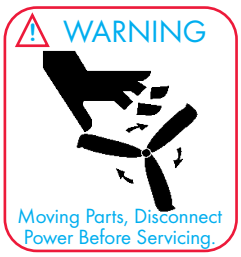
4) *INSPECT FAN CONTROL:* With power disconnected, inspect all electrical connections. Wiring should be secure and in good condition. Remove any dust build-up from control case and sensor using a soft brush or cloth.

NEVER CLEAN ELECTRICAL EQUIPMENT WITH A PRESSURE WASHER!

Troubleshooting

5.

5.1 Troubleshooting



SYMPTOM	POSSIBLE CAUSES	CORRECTIVE ACTION
• Fan Not Operating	• Fan control set above room temperature	• Set to a lower temperature
	• Blown Fuse or open circuit breaker	• Replace fuse or reset breaker
	• Propeller blade contacting fan housing	• Realign motor in fan housing
	• Fan control defective (i.e. Farm Premium, etc.)	• Repair or replace control
• Fan Does Not Start Caution: There is a 10 second delay for the fan to start when an 'On' command is present.	• Munters Drive motor/controller issue	1. Verify AC voltage is present at fan. 2. Turn AC power off to fan for 1 minute 3. Verify Prop turns freely a. If not contact Munters Product Support b. If it turns freely go to next step 4. Turn AC power back on to fan a. If starts up and runs, fan OK • Periodically observe fan to verify it is still running • If it continues to run, fan is OK • If fan stops, look through clear window in drive cover to check what drive display reads. Contact Munters Product Support b. If fan tries to start but stops, look through clear window in drive cover to check what drive display reads. Contact Munters Product Support c. If fan doesn't try to start, verify 'On' command signal is present at circuit board. Also, slide the switch on the circuit board to the 'On' position.
• Fan Operating - Insufficient Airflow	• Shutter or Damper door jammed	• Clean shutter or damper door
	• Guard dirty/clogged	• Clean guard
	• 10-0V signal set incorrectly	• Check and adjust 10-0V signal
• Excessive Noise	• Propeller blade contacting fan housing	• Sand fan housing to remove high spot
• Excessive Vibration	• Motor loose on mount	• Tighten fasteners
	• Propeller damaged	• Replace propeller

Winterizing

6.

6.1 Winterizing

In most climates, it is probable that the ventilation system will never need to operate at a total capacity during the colder winter months. Consequently, it is advisable to "winterize" those fans which will not be used in cold weather to avoid unnecessary heat loss and condensation.

To winterize, turn fan control "off". Install the insulated closure panel over the fan intake. If you don't have an insulated closure panel, a piece of rigid insulation material can be used. Remember the insulation panel must be removed before warmer weather returns.

NOTE: At least one single speed fan should be left uncovered and with power available to provide air movement in the event of variable speed control difficulties.

6.2 Winter Weather Protection

To prevent cone or fan damage from snow or ice sliding off building roof, weather protection must be provided. A weather shelter may be constructed to cover the entire fan, *See Figure 22,* or snow guards may be placed on the roof, *See Figure 23.*

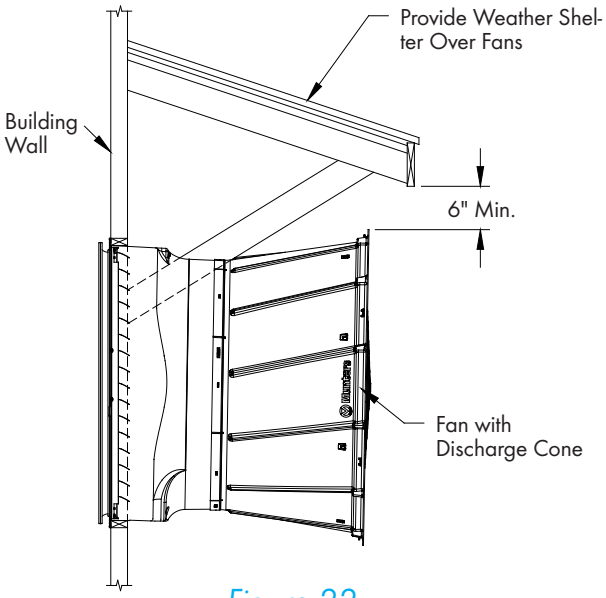


Figure 22

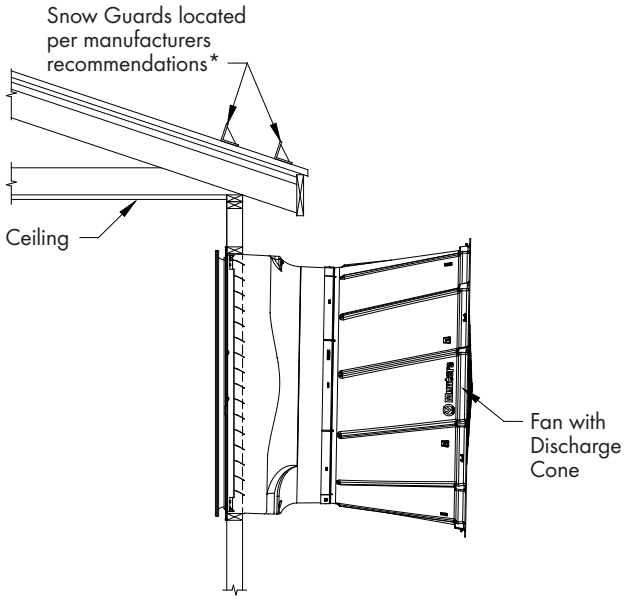


Figure 23

*Snow Guard Suppliers

Company Name	*Phone No.*	*Fax No.*	*Web Site*
Snojax, Inc.	800-766-5291	717-697-2452	www.snojax.com
Polar Blox	800-298-4328	814-629-9090	www.polarblox.com
LM Curbs	800-284-1412	903-759-3598	www.lmcurbs.com
Alpine Snow Guards	888-766-4273	888-766-9994	www.alpinesnowguards.com

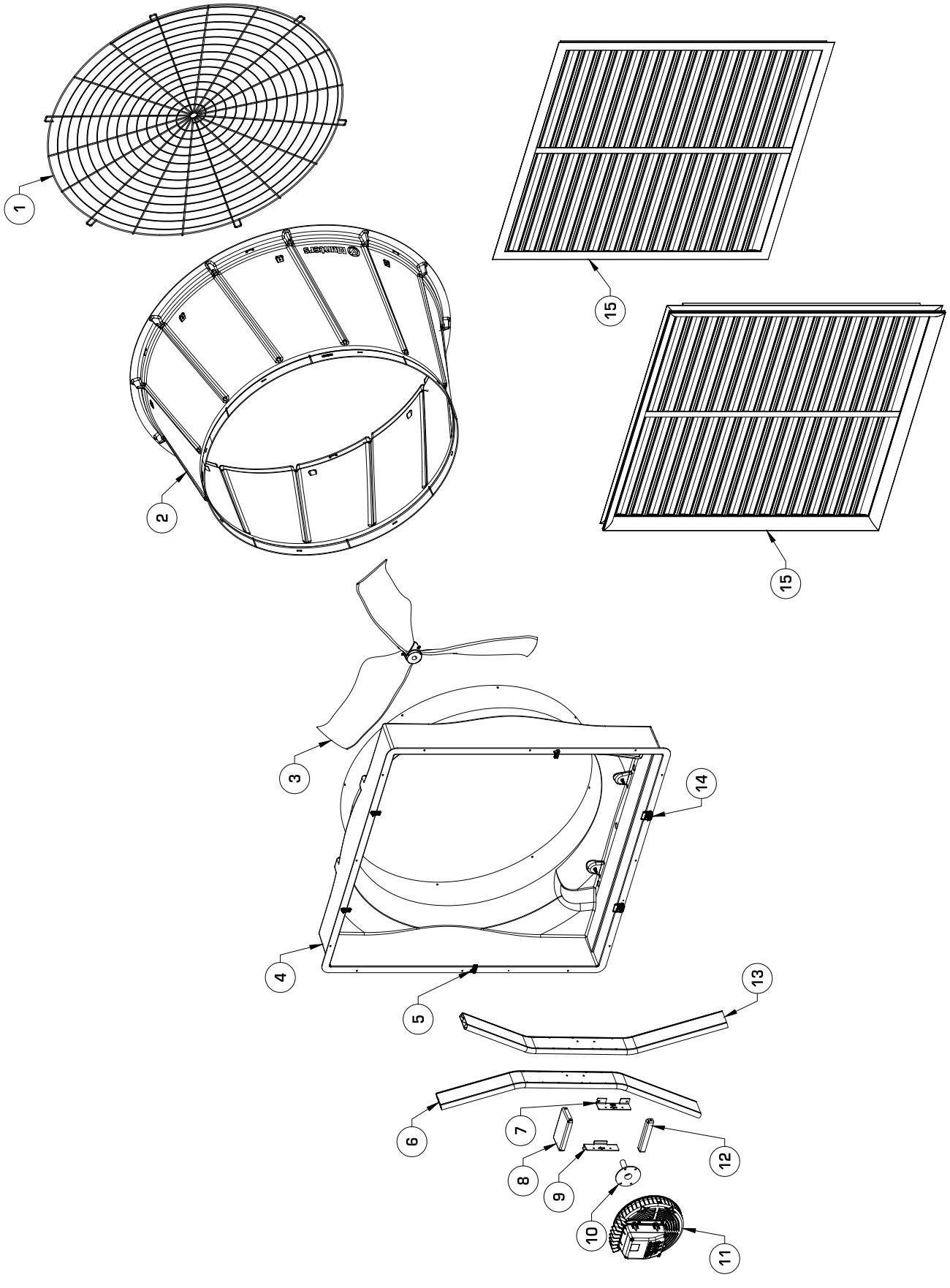
⚠ IMPORTANT

Munters Product and System Warranties do not cover cone or fan damage from external sources.

Note: Snow guards are designed to prevent sudden, dangerous snow and ice slides when attached to the building roof according to manufacturers recommendations. The supplier listing above is given as a reference only. Munters does not endorse any specific snow guard product and no performance warranty is implied.

Exploded View

7.



Item	Catalog No. VX51	Catalog No. VX55	Part Name/Description	Qty.
1	FH8851	FH8855	Guard Kit, cone, PVC CTD	1
2	FH3551	FH3555	Discharge cone, Plastic, (1) Piece	1
3	FP1151SS	FP1155SS	Propeller, 3-blade w/set screws, Aluminum	1
4	FH2352	FH2356	Fan housing w/clips, FG	1
5	FH1968	FH1968	Pivoting Shutter clip, PL	4/5
6	FH3723	FH3756	Strut, right, VX, Munters Drive ver2, w/inserts, Aluminum	1
7	FH2862	FH2862	Mounting Bracket, LH, G2 Munters Drive, AX/VX, CTD-GZ	1
8	FH3852	FH3852	Strut Brace, Upper, AX51/VX51/55, G2 Munters Drive, AL	1
9	FH2866	FH2866	Mounting Bracket, RH, G2 Munters Drive, AX/VX, CTD-GZ	1
10	FP2064	FP2064	Hub, Prop adapter, 1" DIA ODx4.5"L shaft, STL	1
11	Various*	Various*	Assembly, G2 Motor and Drive, Prgmd, VX	1
12	FH3851	FH3851	Strut Brace, Lower, AX51/VX51/55, G2 Munters Drive, AL	1
13	FH3722	FH3755	Strut, Left, VX, Munters Drive ver2, w/inserts, Aluminum	1
14	FH1967	FH1967	Fixed Shutter clip, PL	2
15	PT51	PT553	Shutter, belled inlet, plastic	1
	PV51	PV553	Shutter, all plastic	1

* Contact office for replacement part numbers for your fan configuration.

Vortex 51/55 G2 Munters Drive Fans are developed and produced by Munters Corporation, Lansing, Michigan U.S.A. 1-800-227-2376

Munters Europe AB, Isafjordsgatan 1, P.O. Box 1150, SE-164 26 Kista, Sweden. Phone +46 08 626 63 00, Fax +46 8 754 56 66.
Munters Corporation 2691 Ena Drive Lansing, MI 48917 U.S.A. Phone +1 800-227-2376, Fax +1 517-676-7078
www.munters.us

Australia Munters Pty Limited, Phone +61 2 6025 6422, Brazil Munters Brasil Industria e Comercio Ltda, Phone +55 41 3317 5050, Canada/US Munters Corporation Lansing, MI Phone +1 517 676 7070, China Munters Air Treatment Equipment (Beijing) Co. Ltd, Phone +86 10 80 481 121, Denmark Munters A/S, Phone +45 9862 3311, India Munters India, Phone +91 20 3052 2520, Indonesia Munters, Phone +62 818 739 235, Italy Munters Italy S.p.A., Chiusavecchia, Phone +39 0183 52 11, Japan Munters K.K., Phone +81 3 5970 0021, Korea Munters Korea Co. Ltd., Phone +82 2 761 8701, Mexico Munters Mexico, Phone +52 818 262 54 00, Russia Munters AB, Phone +7 812 448 5740, Singapore Munters Pte Ltd., Phone +65 744 6828, South Africa and Sub-Sahara Countries Munters (Pty) Ltd., Phone +27 11 997 2000, Spain Munters Spain S.A., Phone +34 91 640 09 02, Sweden Munters AB, Phone +46 8 626 63 00, Thailand Munters Co. Ltd., Phone +66 2 642 2670, Turkey Munters Form Endüstri Sistemleri A.Ş, Phone +90 322 231 1338, USA Munters Corporation Lansing, MI Phone +1 517 676 7070, Vietnam Munters Vietnam, Phone +84 8 3825 6838, Export & Other countries Munters Italy S.p.A., Chiusavecchia Phone +39 0183 52 11