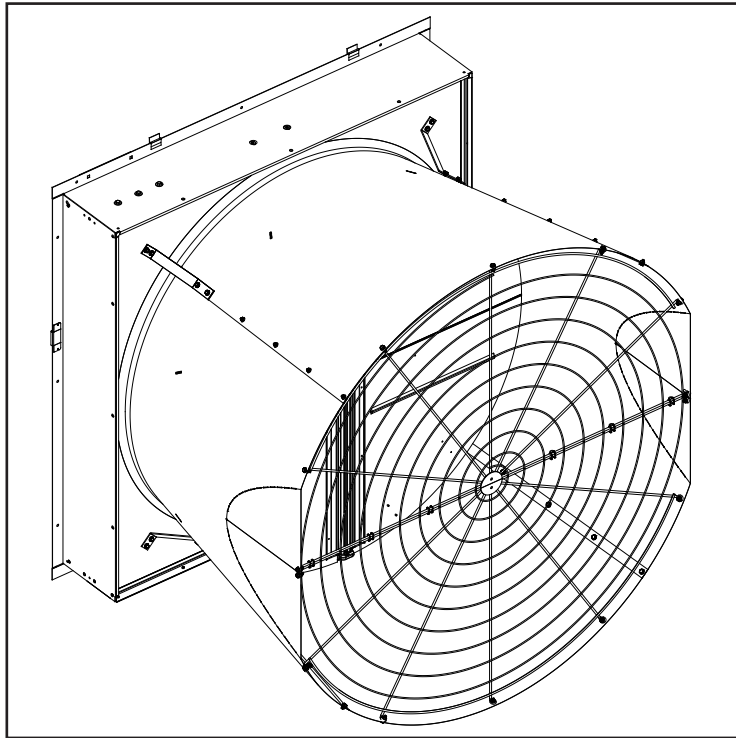


# Instruction Manual



**WF50 Fan  
with Dragonfly  
Damper Door  
Galvanized**

## WF50 Fan with Dragonfly Damper Door

Models: WF501VxCD • WF5015VxCD



# WF50 Fan with Dragonfly Damper Door

## Instructions for Use and Maintenance

### Thank You:

Thank you for purchasing a Munters WF50 Dragonfly Fan. 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](http://Munters Corporation office at 1-800-227-2376) or by e-mail at [aghort.info@munters.com](mailto: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.

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# Unpacking the Equipment

# 1.

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.

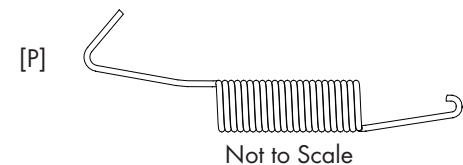
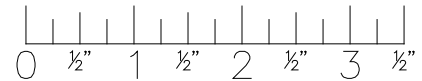
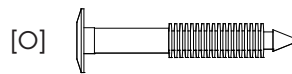
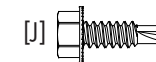
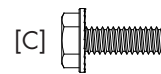
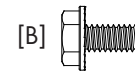
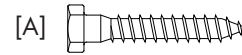
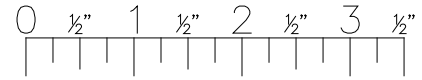
## 1.1 Parts List

Each Fan includes:

- 1 - 50" Belt Drive Fan
- 1 - Dragonfly Door Assembly
- 4 - Cone Sections (2 side, 2 top/bottom)
- 1 - Cone Guard
- 1 - Inlet Guard
- 1 - Hardware Package (HP1119):

*HP1119 - for WF50 Dragonfly Fans*

ID	Qty.	Cat. No.	Description
[A]	12	KS2463	1/4" x 1.5" Hex Lag Screw, ZP
[B]	24	KS1153	1/4"-20 x 1/2" SRTD Flange Head Bolt, ZP
[C]	14	KS1151	1/4"-20 x 3/4" SRTD Flange Head Bolt, ZP
[D]	8	KR1060	1/8"D x 1/16-1/8" Grip Pop Rivet, SS
[F]	38	KN0730	1/4"-20 SRTD Flange Nut, ZP
[G]	12	KX1256	.32"IDx.75"ODx1"L. Spacer, Black, NY
[J]	8	KS2260	1/4"-20 x 3/4" SRTDHWWSHR TEK Screw, ZP
[L]	2	FA1730	Tall Wing Brackets, GZ
[M]	2	FA1732	Short Wing Brackets, GZ
[N]	2	FA1733	Dragonfly Door Wings, PL
[O]	4	KX1043	5/16" Push-in Fasteners, NY
[P]	2	KX1470	Retainer Spring, SS

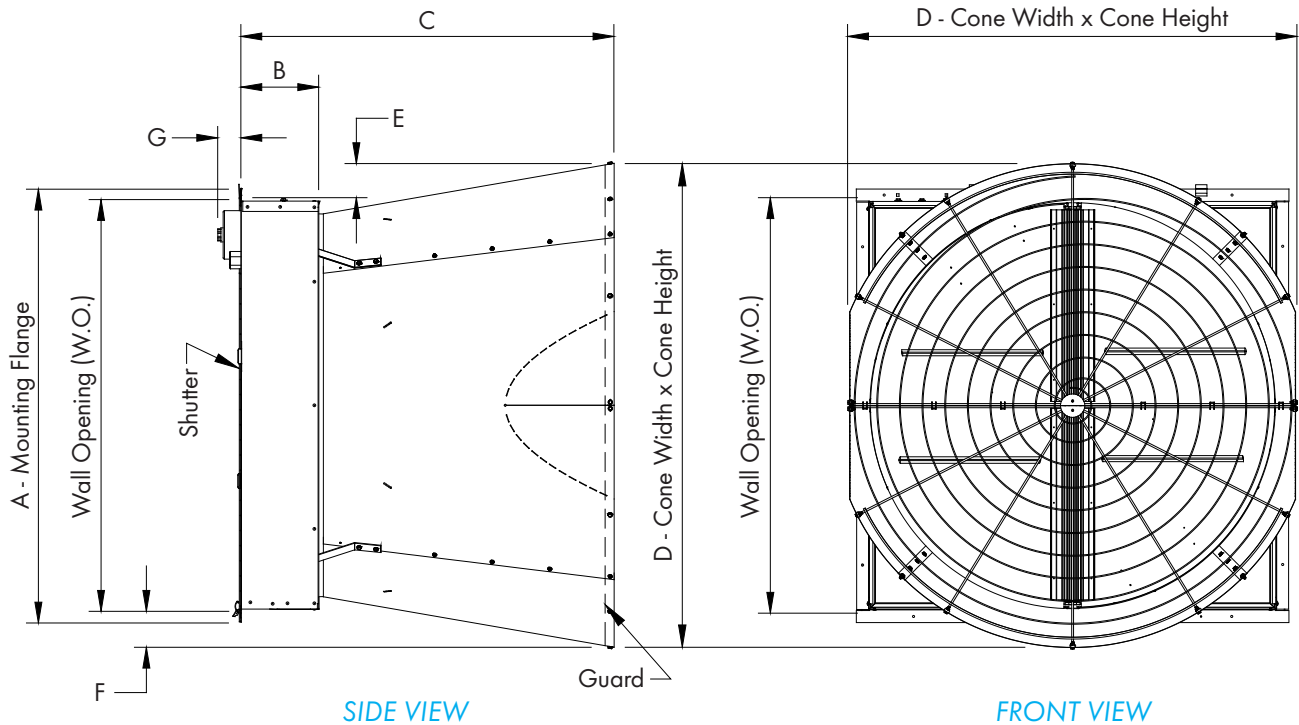


## 1.2 Fan Dimensions

Fan Specifications: (50Hz available)

Hertz:      60                      60  
 Voltage: 120/240VAC or 208-240/480VAC  
 Phase:      1                      or                      3

NOTE: Crate may contain Fan Accessories.



FAN DIA.	A	B	C	D Cone Width x Cone Height	E Above W.O.	F Below W.O.	G	Wall Opening (W.O.)
50"	57 <sup>7</sup> / <sub>16</sub> " x 57 <sup>7</sup> / <sub>16</sub> "	10 <sup>5</sup> / <sub>16</sub> "	49 <sup>3</sup> / <sub>8</sub> "	59 <sup>1</sup> / <sub>2</sub> "W. x 64"H.	4 <sup>9</sup> / <sub>16</sub> "	4 <sup>1</sup> / <sub>2</sub> "	3 <sup>1</sup> / <sub>16</sub> "	54 <sup>1</sup> / <sub>2</sub> "W. x 54 <sup>1</sup> / <sub>2</sub> "H.

\*Opening based on 2 x 4 framing.

# Installation Instructions

# 2.

## 2.1 Installation

### Step 1

Construct the framed opening to correct size according to the Chart A (below) and your fan size. See Figure 1A and 1B. If fan and housing is to be framed into a 2 x 4 wall or concrete wall, See Figure 1A, 1B, 1C and Chart A for details. For greater than 4" wall thickness, See Figure 1D.

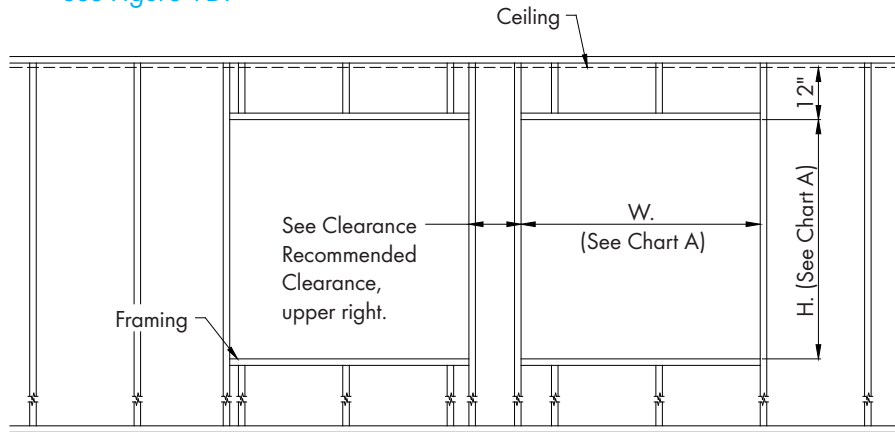
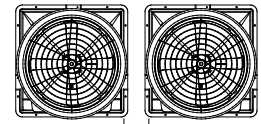


Figure 1A

### Recommended Clearance\*



- Fan with outlet guard: maintain 8" minimum clearance on all sides
- Fan with discharge cone: maintain 12" minimum clearance on all sides

Figure 1B  
2 x 4 Framing

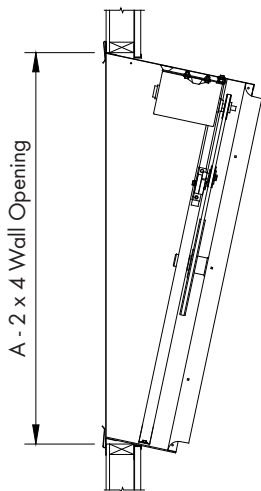


Figure 1B  
Concrete Framing

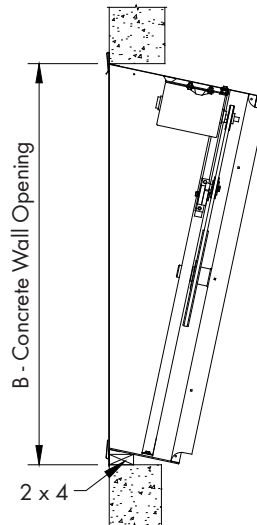
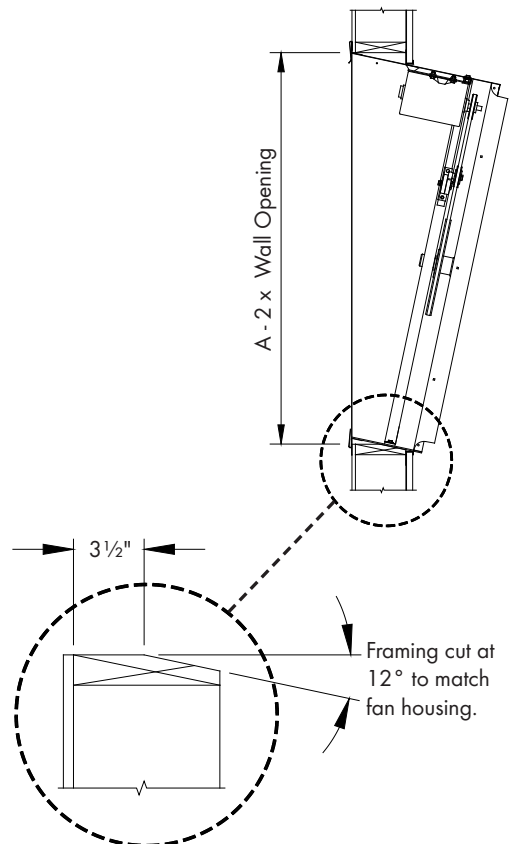


Figure 1D  
Greater Than 4" Wall Thickness



Catalog No.	A 2 x 4 Framing	B Concrete Framing
WF50	55"W. x 56¼"H.	55"W. x 57¾"H.

Chart A

**Step 2**

Slide fan and housing into framed wall opening. *See Figure 2.*

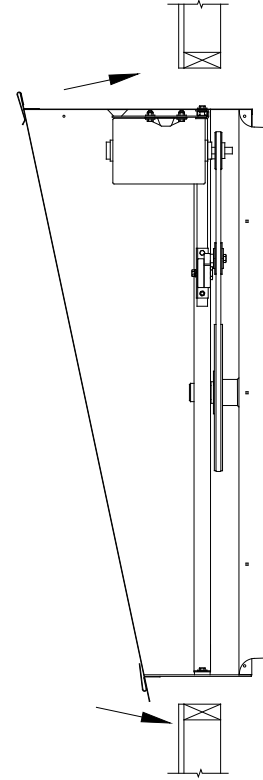


Figure 2

**Step 3**

Confirm that housing inside dimensions match those shown in *Figure 3A*. Then secure housing to wall using (12) Lag Screws [F], through holes in each mounting flange. *See Figure 3B.*

**Step 4**

Proceed to Installation Instructions for Discharge Cone, Form [QM1033](#) for 50" Fans.

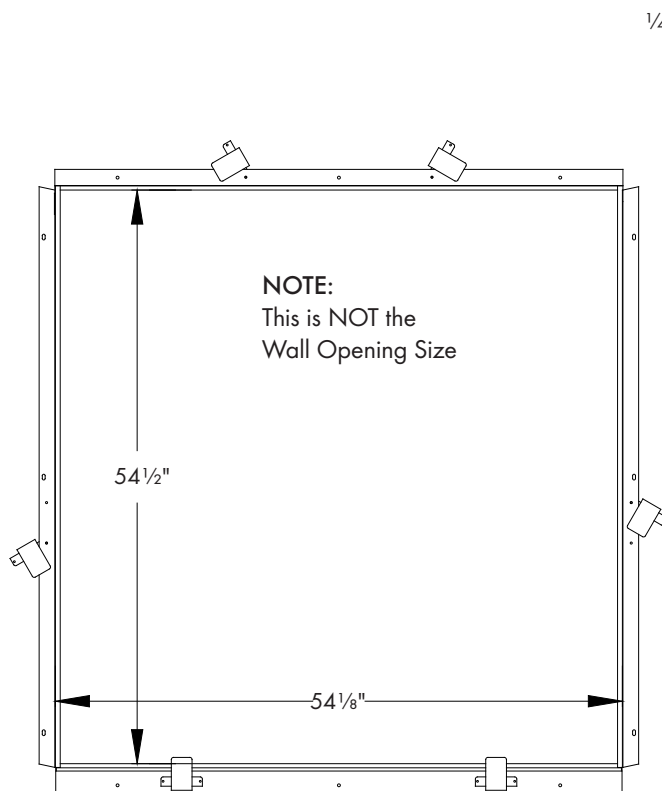


Figure 3A

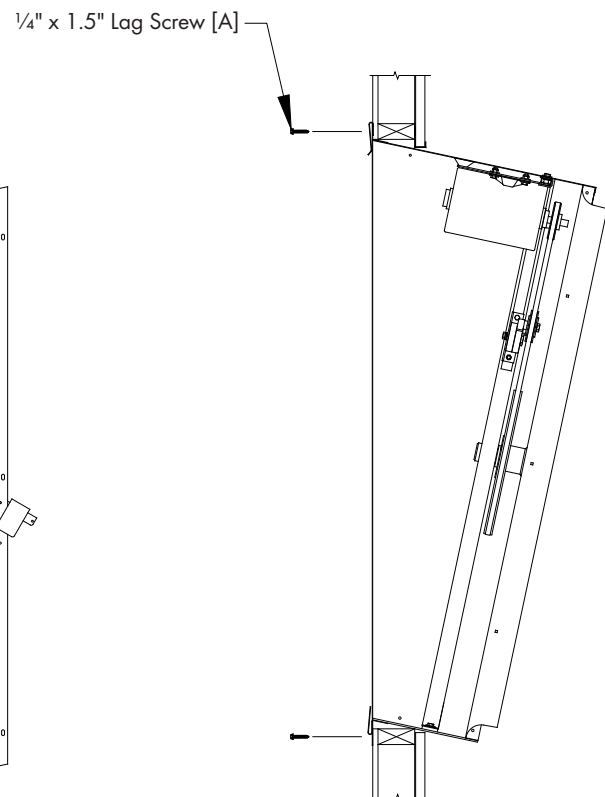


Figure 3B

## 3.1 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 Munters environmental control to be used. After wiring check for proper motor rotation.

**Single Phase Fans:** motor overload protection should be provided for each fan. A Circuit Breaker Switch or slow blow motor type fuses must be used, [See Figure 4A](#). [See form QM1400 for proper size](#).

**Three Phase Fans:** motor overload protection should be provided for each fan. A three-pole motor starter or slow blow motor fuses must be used. [See Figure 4B](#).

If a frequency drive (inverter) is used, confirm that motors are rated for inverter duty at the voltage used. Shielded power cable between frequency drive and each motor is highly recommended. Installation of line reactors is recommended to reduce voltage spikes and harmonic distortion. Supplemental motor overload protection is also recommended.

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

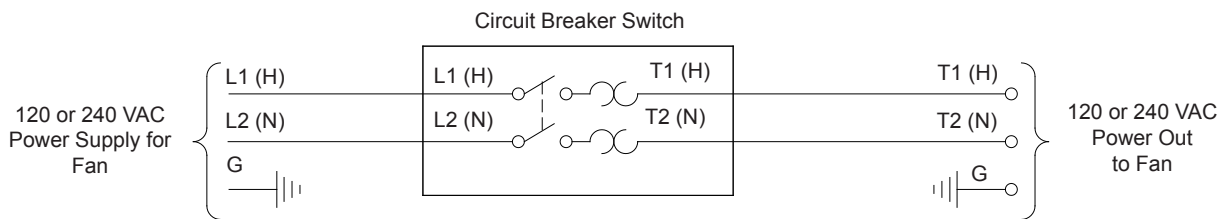


Figure 4A

Single Phase - Motor Overload Protection with Disconnect  
(SY2000 or Equivalent)

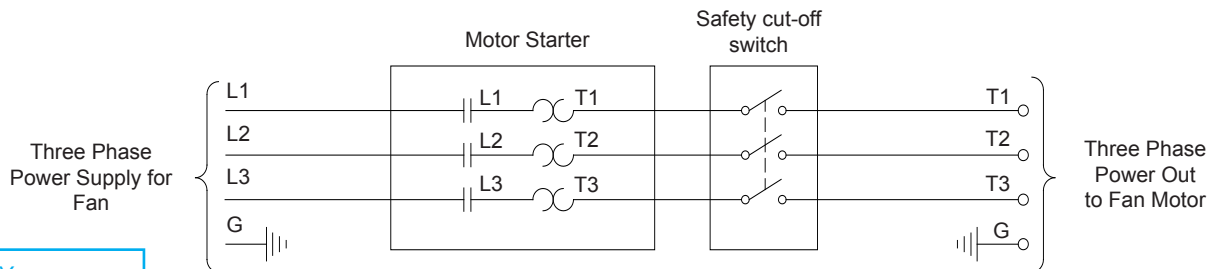


Figure 4B

Three Phase - Motor Overload Protection with Disconnect

**KEY:**

- L1=Line 1
- L2=Line 2
- L3=Line 3
- H=Hot
- N=Neutral
- G=Ground

**NOTE:** Information in parenthesis refers to 120 VAC control.



### 3.2 Recommended Wire Routing (two options):

#### Step 5

As the power cable exits the back of motor, form a drip loop and then run cable through side of fan housing, through flexible conduit and into building. *See Figure 5A and 5B.*

#### Step 6

As the power cable exits the back of motor, form a drip loop and then run cable up through fan housing and frame into wall cavity and into building. *See Figure 6A and 6B.*

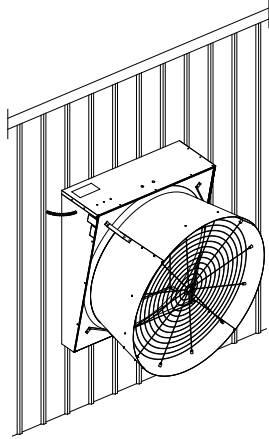


Figure 5A

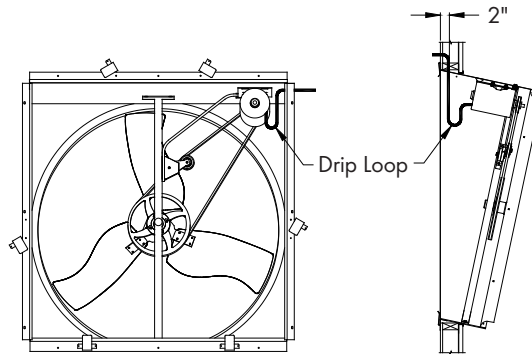


Figure 5B

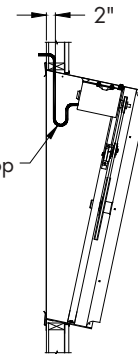


Figure 6A

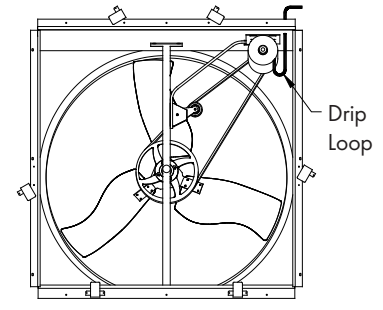


Figure 6B

#### Step 7

Add flashing and/or caulk around completed housing on exterior side of building wall.

### Shutter Installation

#### Step 8

Insert shutter into fan by sliding the bottom flange of shutter into bottom shutter clips and pressing shutter inward. *See Figure 7A.* Fasten shutter in place by rotating top and side shutter clips over shutter flanges. *See Figure 7B.*

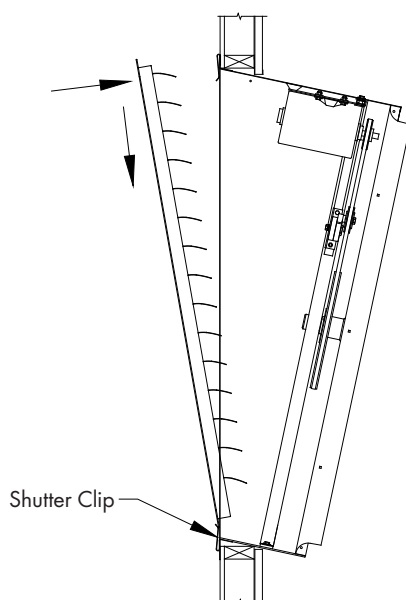


Figure 7A

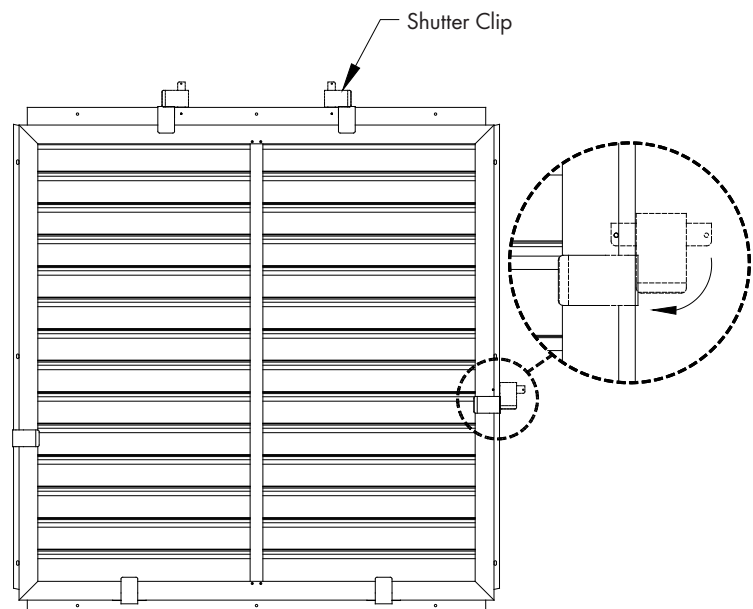


Figure 7B

## 4.1 Operation

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

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

**Single Phase Fans:** When variable speed controls are used, the fan's idle speed will need to be set to the recommended minimum airflow rate. Refer to the procedures included with each control. The table below provides airflow rates at various propeller speeds for fans wired for 240 VAC.

### Three Phase Fans:

- 1) The use of a quality frequency drive and the installation of line reactors is recommended to reduce voltage spikes and harmonic distortion.
- 2) Minimum operating frequency of 30 Hz.
- 3) Will require three pole contractors with overload protection (by others).



## 5.1 Maintenance

The following inspection and cleaning procedures should be performed monthly:

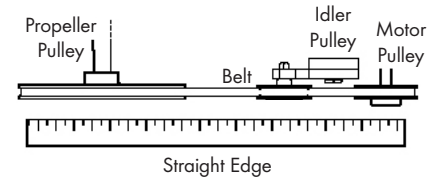
### Tools Needed for Maintenance:

wrenches: 10mm, 13mm, 17mm, 27mm

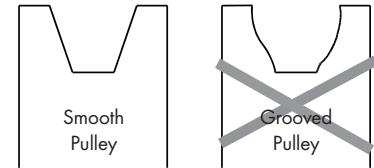
- 1) **INSPECT PROPELLER:** Check that propeller is secure on prop shaft or motor shaft and that there are no signs of damage. The blades are of a self-cleaning design and should not require maintenance.
- 2) **CLEAN** regularly for best results:
  - **FAN MOTOR:** Remove any dust accumulation from motor 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 blades and frame so that blades open and close 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 1 month after initial operation and yearly thereafter. 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!**



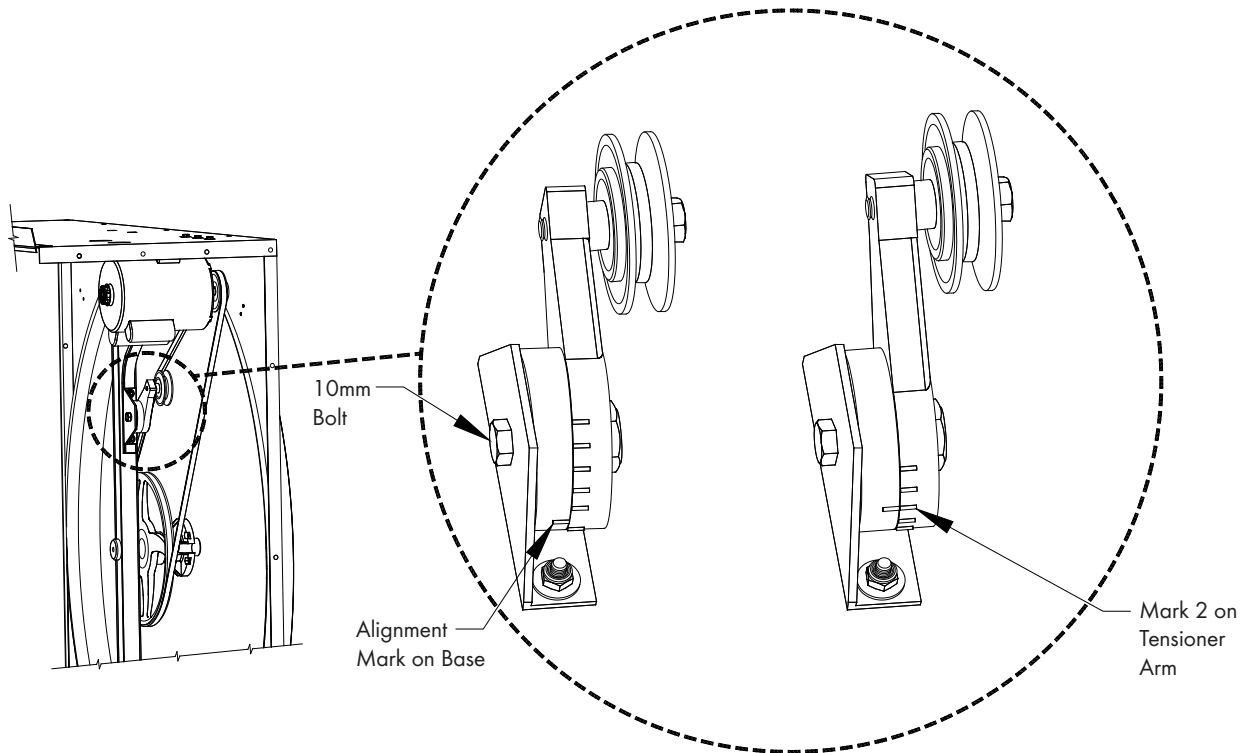
- 5) **CHECK DRIVE ALIGNMENT:** Check to make sure the belt is centered on the idler pulley, then use a straight edge to check the alignment of the drive pulleys. If an adjustment is needed, remove the belt, then loosen the set screw in one pulley and move it. Remember to tighten the set screw after making an adjustment. Drive alignment is very important for long belt life and proper operation.



- 6) **CHECKING PULLEYS:** Roll the belt off and look at both pulleys. If the pulley has grooves in it or is no longer smooth, it needs replacement. A loose or slipping belt will reduce fan performance up to 60% and cause premature belt failure.



- 7) **BELT TIGHTENING:** To adjust belt tensioner to the proper setting, loosen 10 mm bolt (using 17mm end wrench) to allow tensioner arm to rotate. Working from inlet/motor side of fan, place a 27 mm (1 1/8") wrench onto the hex on tensioner. Turn wrench clockwise until the single mark on base of belt tensioner is aligned with Mark 2 on the tensioner arm. Hold tensioner at this setting and tighten 10mm bolt to 40 ft.-lbs [54 N-m] torque.



# 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 8*, or snow guards may be placed on the roof, *See Figure 9*.

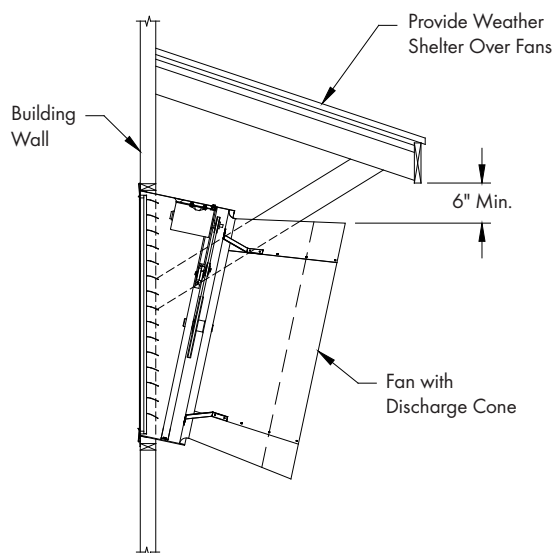


Figure 8

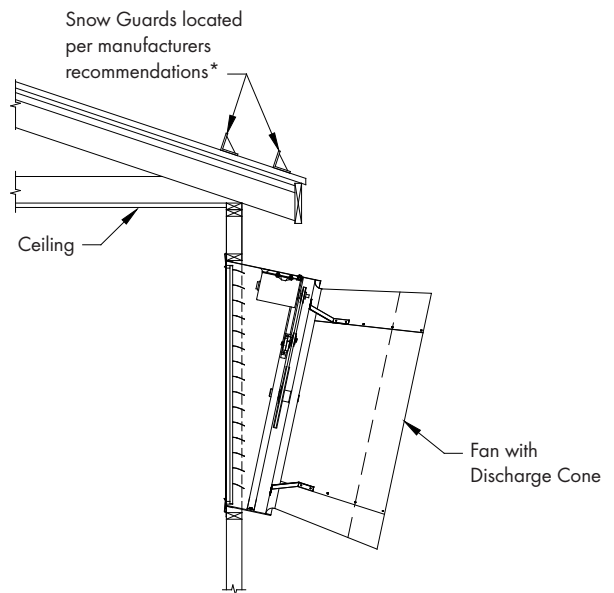


Figure 9

### \* 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.

## 7.1 Troubleshooting

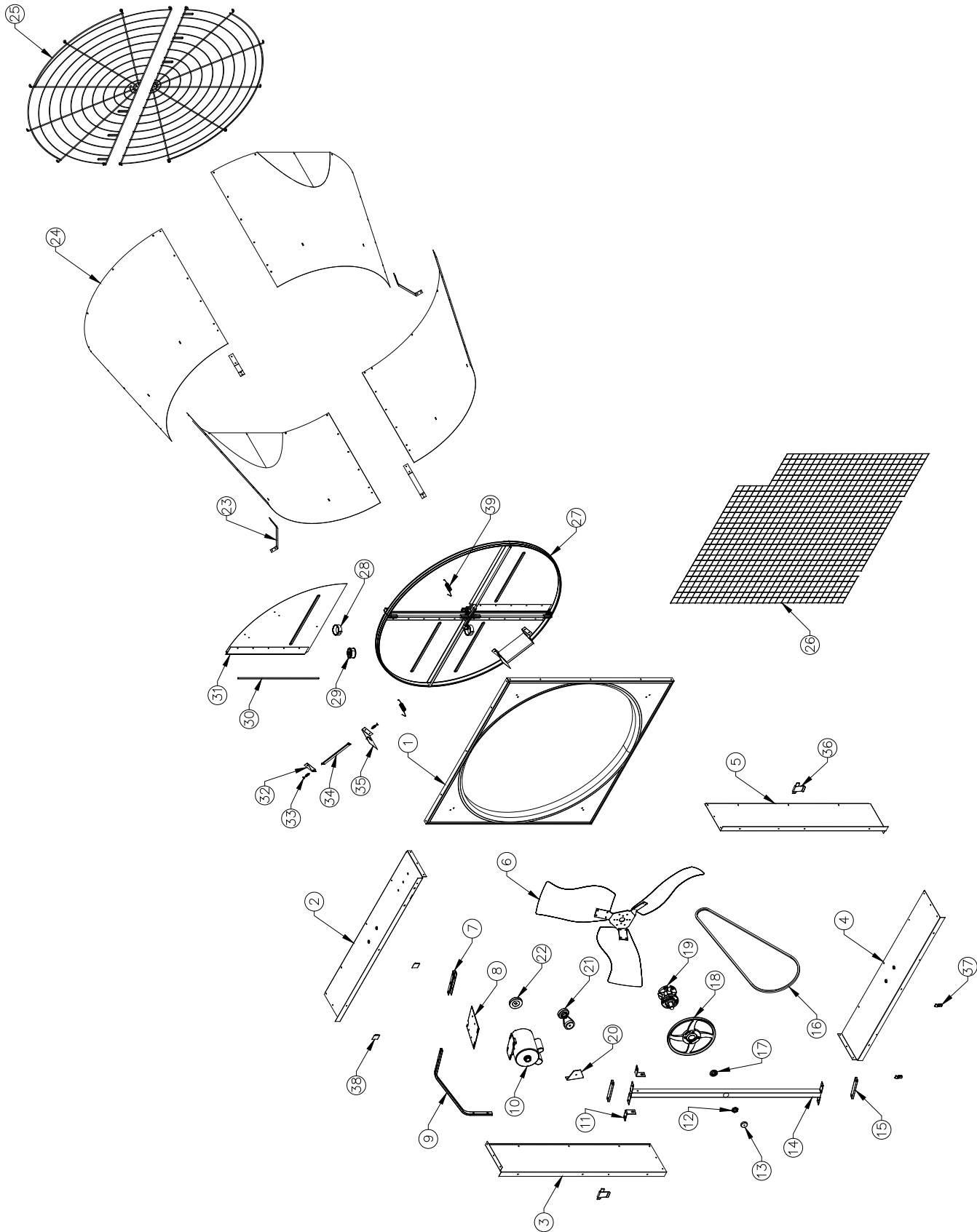


SYMPTOM	POSSIBLE CAUSES	CORRECTIVE ACTION
Fan Not Operating	<ol style="list-style-type: none"> <li>1. Fan control set above room temperature</li> <li>2. Blown fuse or open circuit breaker</li> <li>3. Fan control defective</li> <li>4. Fan motor defective</li> </ol>	<ol style="list-style-type: none"> <li>1. Set to a lower temperature</li> <li>2. Replace fuse or reset breaker</li> <li>3. Repair or replace control</li> <li>4. Repair or replace motor</li> </ol>
Fan Operating- Insufficient Airflow	<ol style="list-style-type: none"> <li>1. Damper jammed or dirty</li> <li>2. Guard dirty</li> <li>3. Frequency drive improperly adjusted</li> <li>4. Incorrect Belt Tension/worn belt</li> </ol>	<ol style="list-style-type: none"> <li>1. Unjam and clean Damper</li> <li>2. Clean guard</li> <li>3. See operation, Step 2 for adjustments guidelines</li> <li>4. See Maintenance Section, Belt Tensioning</li> </ol>
Excessive Noise	<ol style="list-style-type: none"> <li>1. Motor bearing or shaft bearing defective</li> <li>2. Frequency drive improperly adjusted</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair or replace motor or shaft bearings</li> <li>2. See operation, Step 2 for adjustments guidelines</li> </ol>
Excessive Vibration	<ol style="list-style-type: none"> <li>1. Motor loose on mount</li> <li>2. Propeller damaged</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten fasteners</li> <li>2. Replace propeller</li> <li>3. Repair or replace motor or propeller shaft</li> </ol>

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# Exploded View

# 8.





Item	Catalog No.	Description	Qty.
1	FH1951	Orifice Panel, GZ	1
2	FH4061	Top Housing Panel, GZ	1
3	FH4062	Left/Right Side Housing Panel, GZ	1
4	FH4060	Bottom Housing Panel, GZ	1
5	FH4062	Left/Right Side Housing Panel, GZ	1
6	FP2549	Prop Assembly, 3-Blade, GZ	1
7	FH2429	Support Bracket for Motor Mounting Plate, GZ	1
8	FH2846	Mounting Plate for NEMA 56 Frame Motor, GZ	1
9	FH2428	Center Support Brace for Strut, GZ	1
10	FM1024*	Motor, 1HP, 1725 RPM, 56Fr, 1ph., 120/240V	1
11	FH1302	Reinforcement Brackets for Strut, GZ	2
12	KN1860	Hex Nut, M25x10mm, ZP	1
13	KX1208	Cover Cap, Black, PL	1
14	FH1930	Center Strut, GZ	1
15	FH1932	Spacer Plate, PL	2
16	FH1505*	V-Belt, 87" A-Section	1
17	KX1130	Shaft Shield for Prop Sheave, AL	1
18	FH2137	Propeller Sheave, AL	1
19	FP2060	Hub with Bearing and Shaft	1
20	FH2505	Mounting Bracket for Belt Tensioner, CTD-GZ	1
21	FH2402K	Belt Tensioner Assembly with 3" Idler Pulley	1
	FH2406	3" Idler Pulley only, with Bolt	1
	FH2439	Tensioner Arm only, AL	1
22	FH2138*	Motor Sheave, AK35x <sup>5</sup> / <sub>8</sub> " Bore with Keyseat, CI	1
23	FH2130	Cone Support Brackets, GC Type, GZ	4
24	FH4349	Discharge Cone (Top/Bottom Section), GZ	2
	FH4450	Discharge Cone (Left/Right Section), GZ	2
25	FH2654	Guard, Flat Side Cone, 1/2 Circle, PVC Coated	2
26	FH1750	Inlet Guard, 56" Sq., 2" x 2", GZ	1
27	DG1050	Assembly, 4-Door Damper, 50" Fan	1
28	KX1459	Spring, Constant Force, 1"W., 1.15LB	2
29	AC2072	Spring Reel Spool, 2.75" O.D., 1.25"W., PL	2
30	FA2712	Tube Hinge, 26.2"L., AL	4
31	FA2722	50" Damper Door, Flat, GZ	2
	FA2724	50" Damper Door, Offset, GZ	2
32	FA1732	Short Wing Support Bracket, GZ	2
33	KX1043	<sup>5</sup> / <sub>16</sub> " Push-in Fastener, NY	4
34	FA1733	4-Door Damper Wing, PL	2
35	FA1730	Tall Wing Support Bracket, GZ	2
36	FH1965	Universal Shutter Clip, GZ	2
37	KX1015	Draw Latches, SS	2
38	FH1278	Guard Support Clips, GZ	2
39	KX1470	Retainer Spring, SS	2

\* Parts listed are for standard configuration with 1HP motor and other drive components operating on 60Hz power. Contact office for replacement part numbers for your fan configuration.

WF50 Tilt Fan with "GC" Cone is developed and produced by Munters Corporation, Lansing, Michigan U.S.A. 1-800-227-2376



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