

48" Vanguard Slant Wall and Cone Belt Drive Fans

Installation & Operator's Instruction Manual



MV1600-1C 9/99



MV1601-9 9/99

Chore-Time Warranty

Chore-Time Equipment (“Chore-Time”) warrants each new Chore-Time product manufactured by it to be free from defects in material or workmanship for one year from and after the date of initial installation by or for the original purchaser. If such a defect is found by the Manufacturer to exist within the one-year period, the Manufacturer will, at its option, (a) repair or replace such product free of charge, F.O.B. the factory of manufacture, or (b) refund to the original purchaser the original purchase price, in lieu of such repair or replacement. Labor costs associated with the replacement or repair of the product are not covered by the Manufacturer.

Conditions and Limitations

1. The product must be installed by and operated in accordance with the instructions published by the **Manufacturer or Warranty will be void.**
2. Warranty is void if **all components** of the system are not original equipment supplied by the **Manufacturer.**
3. This product must be purchased from and installed by an authorized distributor or certified representative thereof or the Warranty will be void.
4. Malfunctions or failure resulting from misuse, abuse, negligence, alteration, accident, or lack of proper maintenance shall not be considered defects under the Warranty.
5. This Warranty applies only to systems for the care of poultry and livestock. Other applications in industry or commerce are not covered by this Warranty.

The **Manufacturer** shall not be liable for any **Consequential or Special Damage** which any purchaser may suffer or claim to suffer as a result of any defect in the product. **“Consequential” or “Special Damages”** *as used herein include, but are not limited to, lost or damaged products or goods, costs of transportation, lost sales, lost orders, lost income, increased overhead, labor and incidental costs and operational inefficiencies.*

THIS WARRANTY CONSTITUTES THE MANUFACTURER’S ENTIRE AND SOLE WARRANTY AND THIS MANUFACTURER EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, INCLUDING, BUT NOT LIMITED TO, EXPRESS AND IMPLIED WARRANTIES AS TO MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSES SOLD AND DESCRIPTION OR QUALITY OF THE PRODUCT FURNISHED HEREUNDER.

Chore-Time Distributors are not authorized to modify or extend the terms and conditions of this Warranty in any manner or to offer or grant any other warranties for Chore-Time products in addition to those terms expressly stated above. An officer of CTB, Inc. must authorize any exceptions to this Warranty in writing. The Manufacturer reserves the right to change models and specifications at any time without notice or obligation to improve previous models.

Effective: **March 2002**

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Thank You

The employees of Chore-Time Equipment would like to thank you for your recent Chore-Time purchase. If a problem should arise, your Chore-Time distributor can supply the necessary information to help you.

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General

Support Information

The Chore-Time 48" Vanguard Series Cone and Slant Wall Fans are designed to be used as exhaust fans. Using this equipment for any other purpose or in a way not within the operating recommendations specified in this manual will void the warranty and may cause personal injury.

This manual is designed to provide comprehensive planning, installation, safety, operation, and parts listing information. The Table of Contents provides a convenient overview of the information in this manual. The Table of Contents also specifies which pages contain information for the sales personnel, installer, and consumer (end user).

Distributor and Installer Information

**Please fill in the following information about your Product.
Keep this manual in a clean, dry place for future reference.**

Distributor's Name _____

Distributor's Address _____

Distributor's Phone _____ **Date of Purchase** _____

Installer's Name _____

Installer's Address _____

Installer's Phone _____ **Date of Installation** _____

System Specifications _____

About This Manual

The intent of this manual is to help you in two ways. One is to follow step-by-step in the order of assembly of your product. The other way is for easy reference if you have questions in a particular area.

Important ! Read **ALL** instructions carefully before starting construction.

Important ! Pay particular attention to all **SAFETY** information.

- *Metric measurements are shown in millimeters and in brackets, unless otherwise specified. “ ” equals inches and “ ’ ” equals feet in English measurements.*

Examples:

1" [25.4]

4' [1 219]

- Optional equipment contains necessary instructions for assembly or operation.
- Major changes from the last printing will be listed on the back cover.
- This Planning Symbol is used in areas where planning needs to take place before construction continues.
- Very small numbers near an illustration (*i.e.*, 1257-48) are identification of the graphic, not a part number.



Safety Information

Caution, Warning and Danger Decals have been placed on the equipment to warn of potentially dangerous situations. Care should be taken to keep this information intact and easy to read at all times. Replace missing or damaged safety decals immediately.

Using the equipment for purposes other than specified in this manual may cause personal injury and/or damage to the equipment.



Safety–Alert Symbol

This is a safety–alert symbol. When you see this symbol on your equipment, be alert to the potential for personal injury. This equipment is designed to be installed and operated as safely as possible...however, hazards do exist.

Understanding Signal Words

Signal words are used in conjunction with the safety–alert symbol to identify the severity of the warning.



DANGER indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.



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



CAUTION indicates a hazardous situation which, if not avoided, **MAY** result in minor or moderate injury.

Safety Information

Follow Safety Instructions

Carefully read all safety messages in this manual and on your equipment safety signs. Follow recommended precautions and safe operating practices.

Keep safety signs in good condition. Replace missing or damaged safety signs.

Decal Descriptions

DANGER: Electrical Hazard

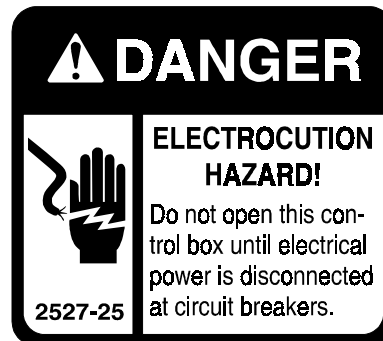
Disconnect electrical power before inspecting or servicing equipment unless maintenance instructions specifically state otherwise.

Ground all electrical equipment for safety.

All electrical wiring must be done by a qualified electrician in accordance with local and national electric codes.

Ground all non-current carrying metal parts to guard against electrical shock.

With the exception of motor overload protection, electrical disconnects and over current protection are not supplied with the equipment.

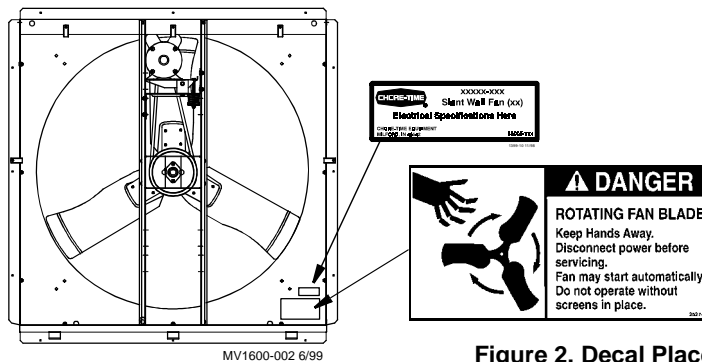


Safety Information Continued.....

Decal Placement

This diagram shows the proper location of the safety decal “**DANGER—ROTATING FAN BLADE**” as shipped from the factory.

- Keep all Safety Signs and decals in good condition.
- Replace damaged or missing decals.
- Make sure the decals may be seen at all times.



The Danger Decal
(Part Number 2527-50) is placed on
both sides of the shroud.

Figure 2. Decal Placement

Technical Information

Motor choices and specifications are provided in the Parts List section of this manual. See **Page 21** Fan Motor specifications.

Important! Chore-Time Equipment strongly recommends that a good alarm system should be installed in confinement buildings to warn of power failure and high temperature.

Chore-Time Equipment also recommends that an alternate power source be available for confinement buildings in case of power failure.

Tools Required

- Regular Screwdriver
- Hammer
- 1/2" Open End Wrench or Socket Wrench with 1/2" Socket
- Wire Cutters & Strippers
- Adequate Size & Quantity of Electrical Wire
- 5/16" Hex Key Wrench
- 5/16" Open End Wrench or a 12 Point 3/8" Socket and Ratchet

Fan Installation

Important! The 48" Cone and Slant Wall Fan must be installed in a side wall.

Build fan framing out of 2" [50 mm] lumber (not supplied). The required rough opening is provided in the table below. Allow a minimum 4" spacing between framed openings for adjacent fans, this will provide clearance for the mounting flange.

Insert the Fan Assembly in the framed opening in the side wall

Center the Fan Assembly in the framed opening, left to right. Allow the Fan Housing to set on the bottom of the framed opening.

Secure the Fan Assembly to the framed opening, using the included 1/4" x 1-3/4" Lag Screws starting with the center holes in each panel. The end holes will also be used for attaching the Corner Flange Angles.

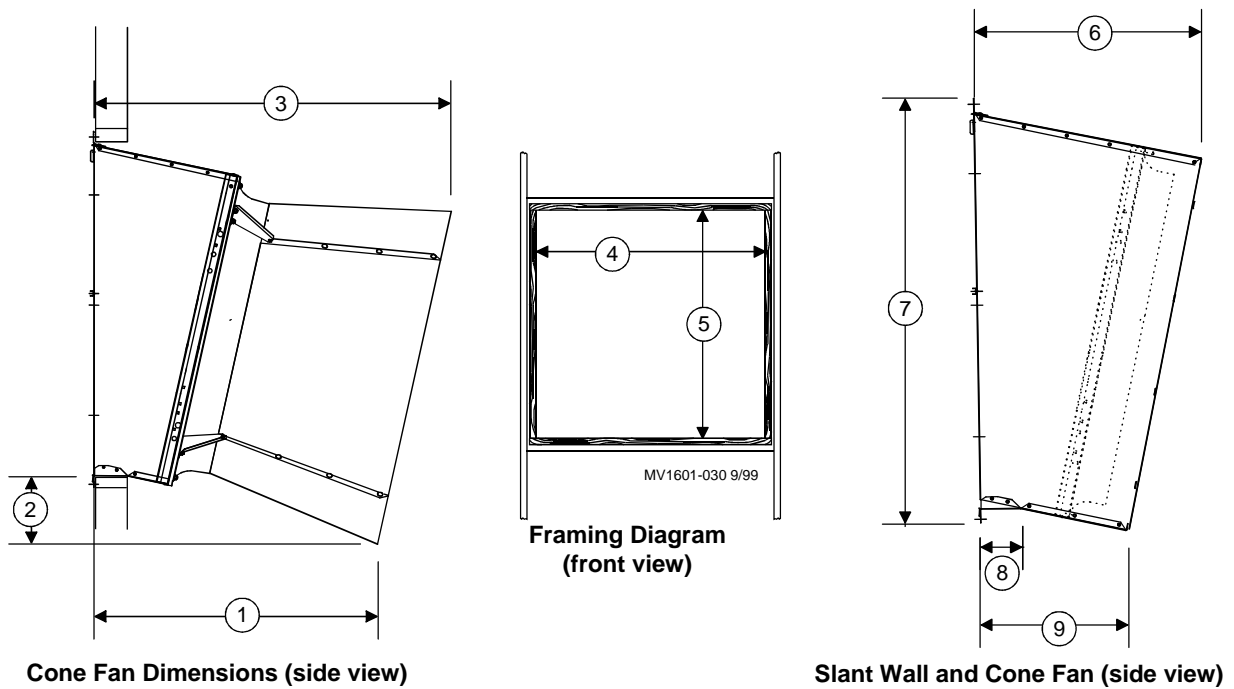
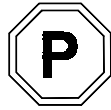


Table 1. Framing Size

Item	Description	Dimension
1	Bottom Length	41"
2	Vertical Dim. of Cone	8"
3	Top Length	53-1/4"
4	Rough Opening	55"
5	Rough Opening	57-1/2"
6	Top Length	33-3/8"
7	Height	60-7/8" x 58.3"
8	Slant Dim.	5-3/4"
9	Bottom Length	21"

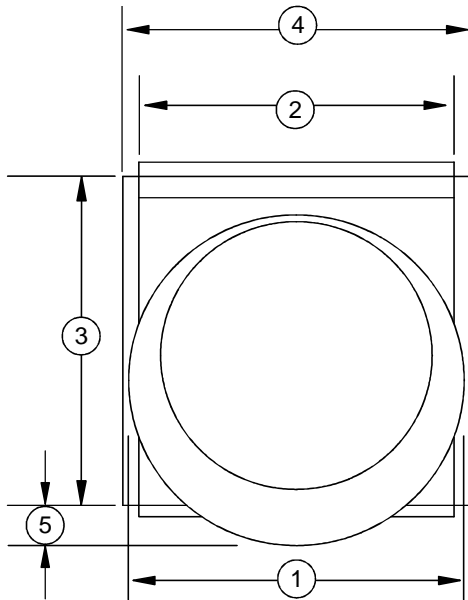
Figure 3. Slant Wall and Cone Fan Framing Dimensions

Fan Dimensions

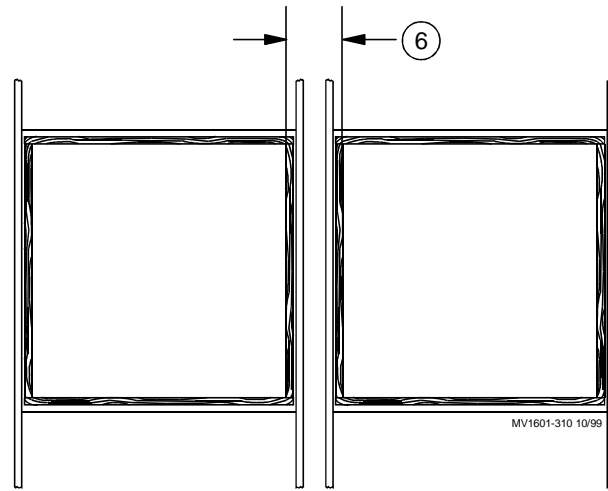


Planning the layout of the spacing between Cone Fans is very important. **SPACING TO CLOSE TOGETHER WILL CAUSE INTERFERENCE** with the flanges.

Allow a minimum 4" spacing between framed openings for adjacent Cone Fans.



Cone Fan Dimensions
(Item 5, is for Cone Fans Only)



Spacing between framed openings 4".

Table 1:

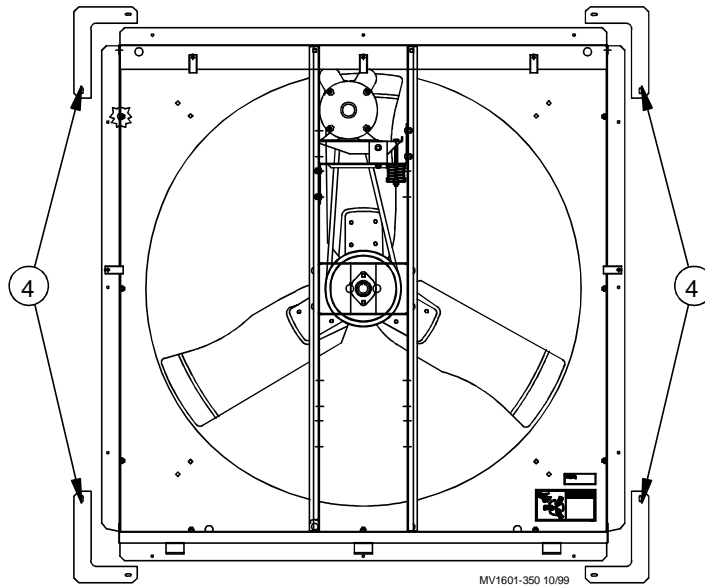
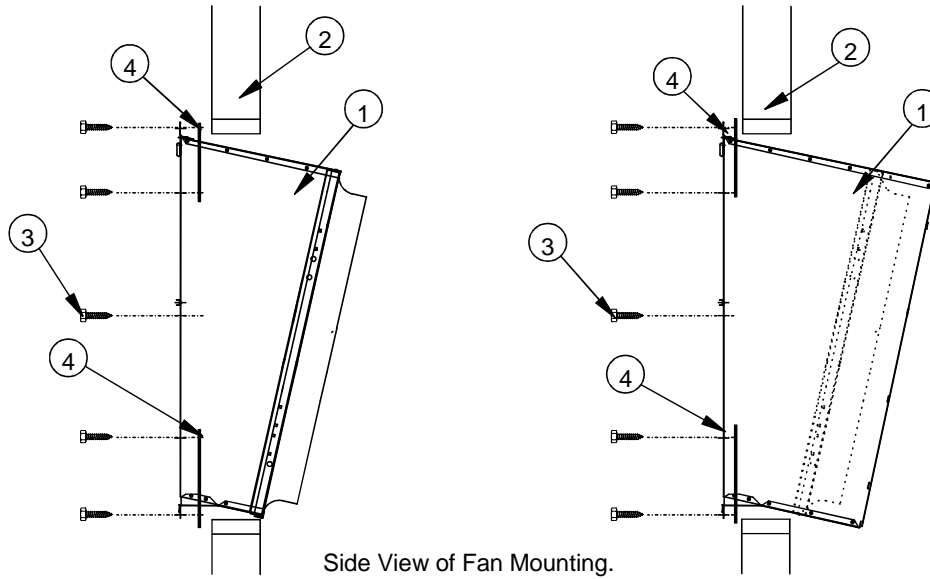
Table: 2 Fan Dimensions

	1	2	3	4	5	6
48" BD Fans	58.25" [148.0 cm]	54.5" [138.4 cm]	57" [144.8 cm]	57" [144.8 cm]	9.5" [24.13 cm]	4" Min. Spacing [10.16 cm] Critical for All Fans

Figure 4. Allow 4" spacing between framed openings for Cone Fans.
The Slant Wall Fans can be closer together.

Fan Assembly

Assemble the Corner Flange Angles between the Fan Flange and framed opening.



Front View of Flange Angle and Fan assembly.
The Flange Angles are to be placed between the building and the Fan Flange.

Item	Description
1	Fan Assembly
2	Side Wall of Building
3	1/4"x1-3/4" Lag Screw
4	Corner Flange Angles

Figure 5. Fan Assembly (side view)

Cone Assembly

The Cone must be assembled and installed in the field.

Important! The Fan must be installed in the wall before installing the Cone to the Fan.

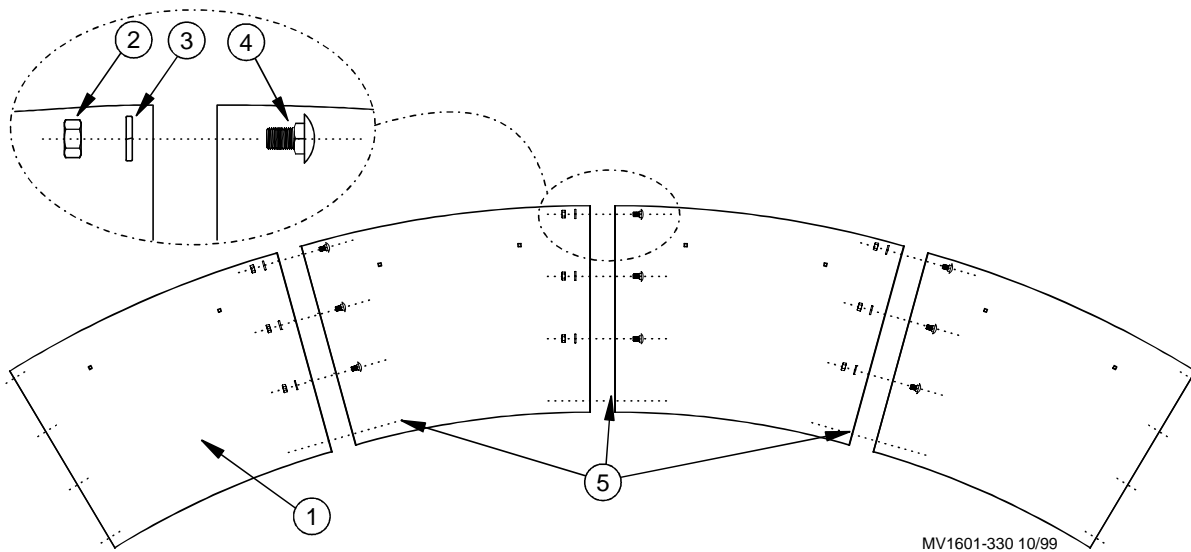
Lay the Cone Panels, with the flanges up, on a flat surface, as shown in **Figure 6**.

Important! Do not tighten the hardware.

Loosely, fasten the Side Panels together with (3) 5/16-18 x 5/8" carriage bolts, (3) 3/8" lock washers, and (3) 5/16"-18 hex nuts per joint. Only install hardware at the locations shown in **Figure 6**.

Set the Cone Side Panels up and align the ends to create the cone shaped housing. **Loosely**, secure the ends similar to the other joints.

Note: The Flanges should be on the outside of the Cone.



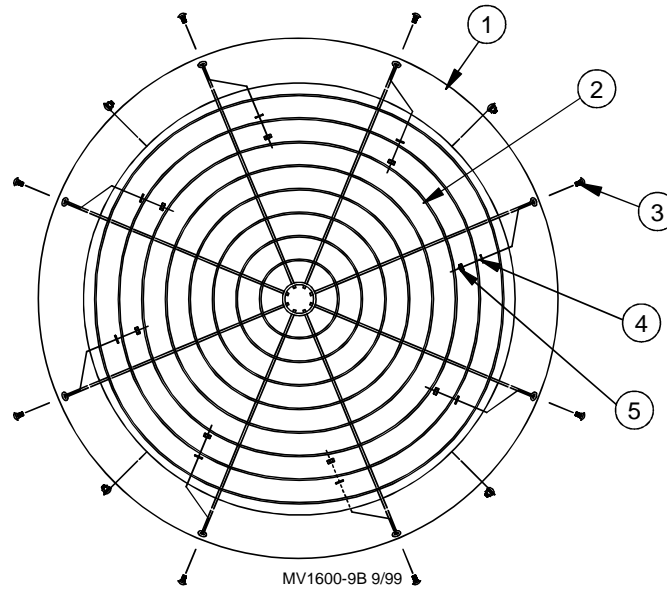
Cone Assembly		
Item	Description	Part Numbers
1	Cone Panel	37805
2	5/16-18" Hex Nut	2145
3	3/8" Lock Washer	5747
4	5/16-18 x 5/8" Carriage Bolt	8282
5	Do not install Hardware here.	

Figure 6. Cone Assembly (Top View)

Grill Installation

Notice: Position the Grill in the larger end of the Cone Assembly.
 Secure the Grill in place using the 5/16"-18 carriage bolts, 3/8" lock washers, and 5/16"-18 hex nuts. See Figure 7.

This will help maintain the shape of the Cone Assembly while it is being secured to the Fan Shroud.



Grill Installation		
Item	Description	Part Numbers
1	48" EZ Fan Cone Kit	37935
2	Grill	37630
3	5/16-18" Hex Nut	2145
4	3/8" Lock Washer	5747
5	5/16-18 x 5/8" Carriage Bolt	8282

Figure 7. Grill Installation Diagram

Secure the Cone Hanger Brackets to the Fan Shroud, using 5/16"-18 carriage bolts, 3/8" lock washers, and 5/16"-18 hex nuts. See **Figure 8**.

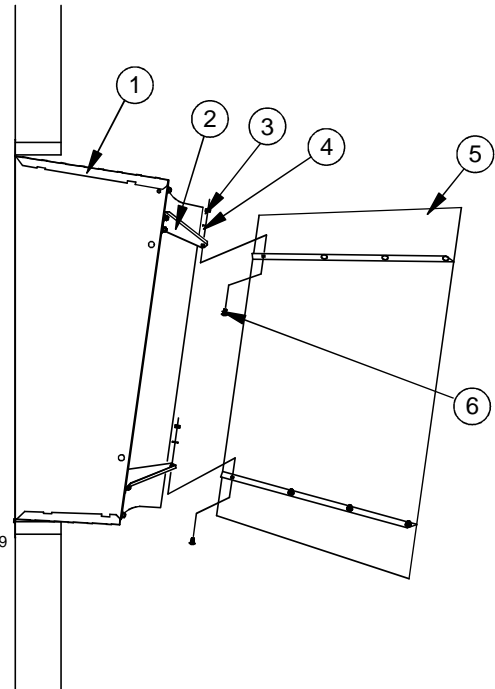
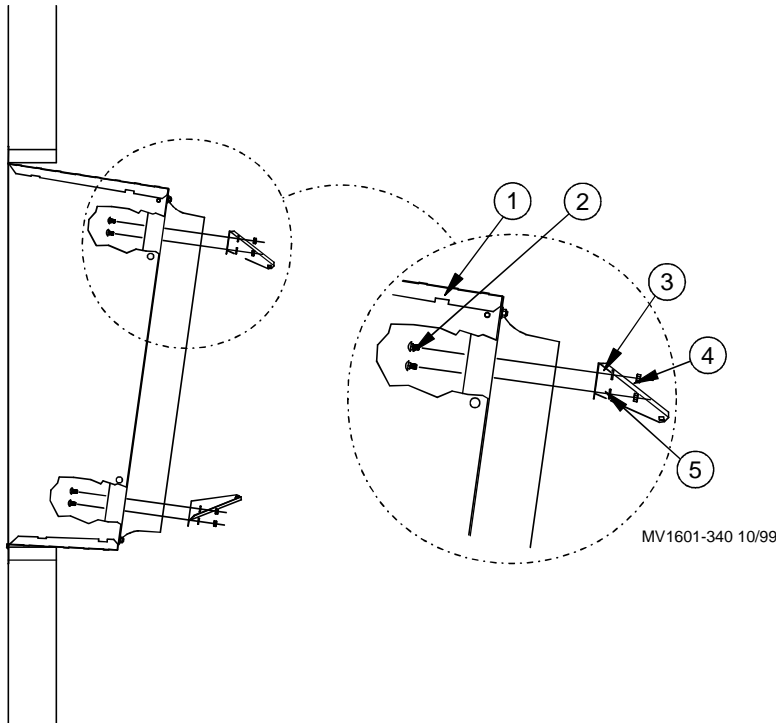


With the help of an assistant, lift the Cone Assembly to the Fan Shroud.

Slide the smaller end of the Cone Assembly over the Fan Shroud. Rotate the Cone Assembly to align the Cone Flanges with the Cone Hanger Brackets.

Secure the Cone Assembly to the Cone Hanger Brackets using (4) 5/16"-18 carriage bolts, 3/8" lock washers, and 5/16"-18 hex nuts. See **Figure 8 and 9**.

Tighten all the hardware after the cone assembly is secure and in place.



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Hanger Bracket Installation		
Item	Description	Part Number
1	Fan Assembly	
2	5/16-18 x 5/8" Carriage Bolt	8282
3	Cone Hanger Bracket	37806
4	5/16-18" Hex Nut	2145
5	3/8" Lock Washer	5747

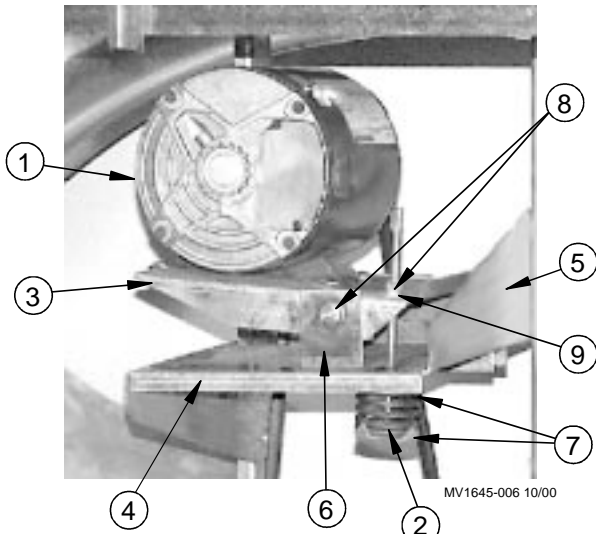
Figure 8. Hanger Bracket Installation (Side View)

Cone Assembly		
Item	Description	Part Number
1	Fan Assembly	
2	Cone Hanger Bracket	37806
3	5/16-18" Hex Nut	2145
4	3/8" Lock Washer	5747
5	48" EZ Fan Cone Kit	37935
6	5/16-18 x 5/8" Carriage Bolt	8282

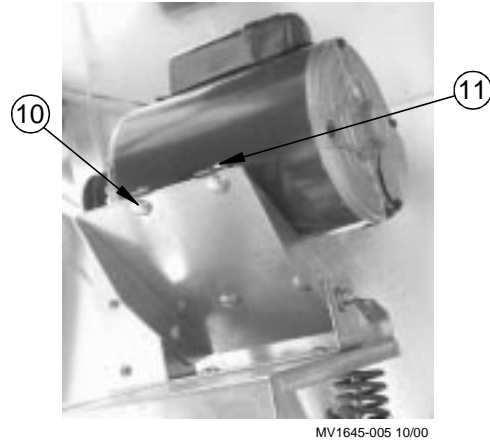
Figure 9. Cone Installation (Side View).

Motor Installation

Mount the Motor **Item 1** to the Pivot Motor Mount Plate **Item 3** by using the supplied 5/16-18 x .625" Carriage Bolt **Item 10** with the heads coming up from the bottom and the 5/16-18" Flange Nut **Item 11** with a 5/16" Flat Washer — **Item 9**, on top.



Rear View of Motor Installation



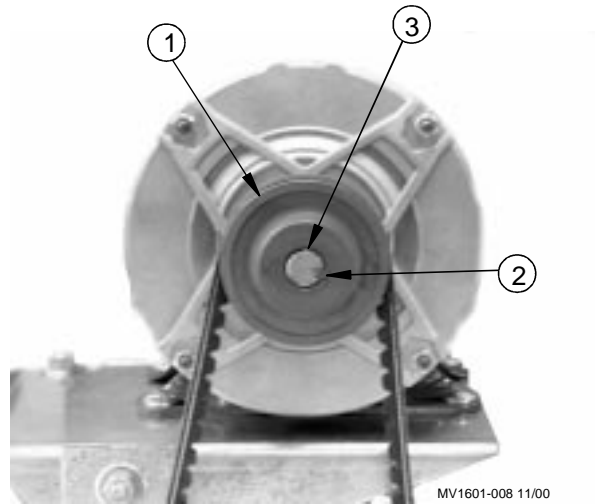
Motor position before putting Belt on Sheave and Pulley. Notice the bolt (Item 10) position.

Item	Description	Part Numbers
1	Motor Wiring Cover Plate	Motors Vary
2	Spring (Compress to 2-1/4")	43715
3	Pivot Motor Mount Plate	43713
4	Pivot Plate Mounting Bracket	43714
5	Z-Motor Mounting Bracket	43712
6	Bolt, 5/16-18 x 5.5"	4412-21
7	Spring Cap (2 pcs)	44002
8	5/16" Flange Nut	2148
9	5/16" Flat Washer	546
10	5/16-18 x .625" Carriage Bolt	8282
11	5/16-18" Flange Nut	8490

Figure 10. Motor Installation

Sheave Mounting

Apply Anti Seize to Motor Shaft (**Item 3, Figure 11**). Slide the Sheave onto the motor shaft as shown. Insert the key provided with the motor as shown in **Figure 11**. to lock the Sheave in place. Once the belt has been aligned, torque the set screw to 150-165 in-lbs to secure Sheave in place. (Do not tighten set screw until the belt is aligned.)



Item	Description
1	Sheave
2	Key
3	Anti-Seize

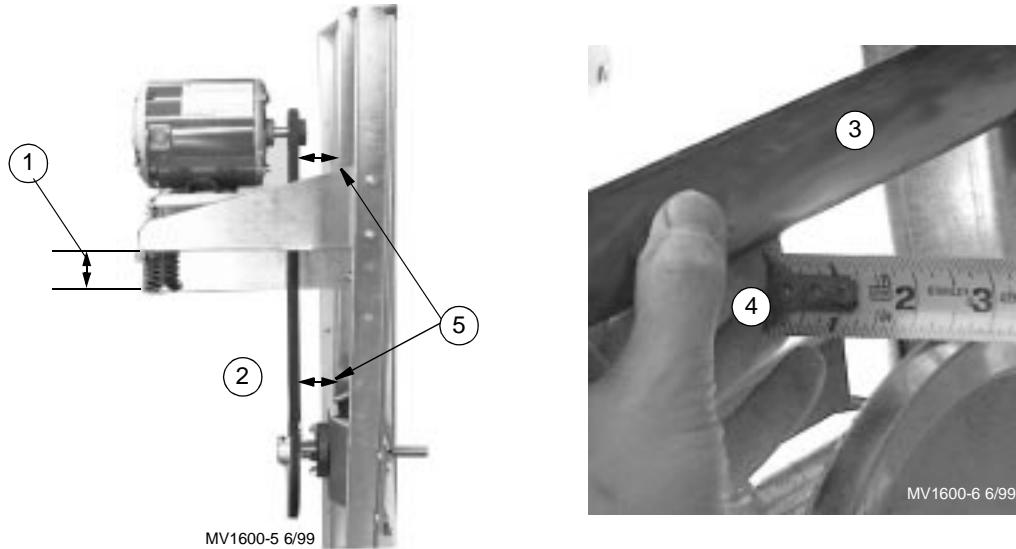
Figure 11. Sheave Mounting and Key Assembly.

Belt Alignment

Notice: Figure 12. indicates the proper items to check to insure best installation and Fan life.

- Belt must be vertical to obtain maximum Belt Life.
- Measure from a straight edge to the belt to make sure that there is equal distance. **See Figure 12.**

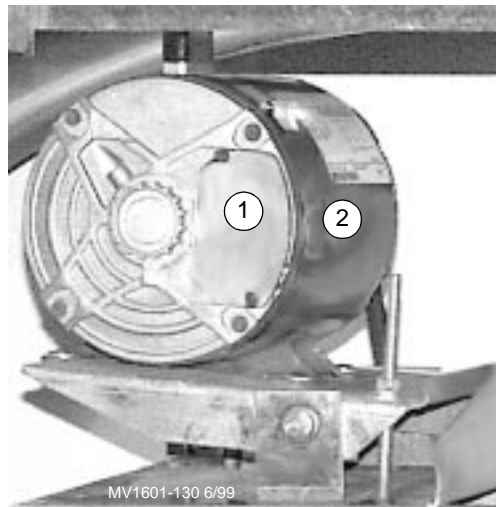
The spring is to be compressed to 2-1/4".



Belt Alignment	
Item	Description
1	Spring Compression to 2-1/4".
2	Install Belt as shown.
3	Straight edge
4	Measure from straight edge to belt.
5	Frame to belt measurement to be the same at motor and driven sheaves.

Figure 12. Belt Alignment

Wiring



Item	Description
1	Motor Wiring Cover Plate
2	Motor

Figure 13. Remove Motor Wiring Cover Plate.

1. Remove Cover Plate **Item 1**.
2. Install an electrical disconnect within reach of each fan installed.
3. Remove the electrical knock-out nearest the fan power supply outlet.
4. Install the romex connector and cord throughout the knock-out selected before wiring the motor.
5. Connect the cord to the motor according to the wiring diagram on the motor. Verify that the motor is connected for counter clockwise rotation (viewing the opposite shaft end of the motor.)

Important! Follow local, state, and national electrical codes for wiring.

6. Attach the cord to the top panel of the fan using the cord clip to keep the cord off the shutter.
7. Allow enough slack in the cord to form a "drip loop" for moisture to fall away from the cord and not into the motor.
8. Remove the slack in the cord between the cord clip and the romex connector and then tighten the romex connector.

Note: For both the Aluminum or Plastic Shutter, route the motor cord through the Knock-outs as shown in Figure 14.

Knock-outs allow the cord to be placed out of the way of the operation of the Fan

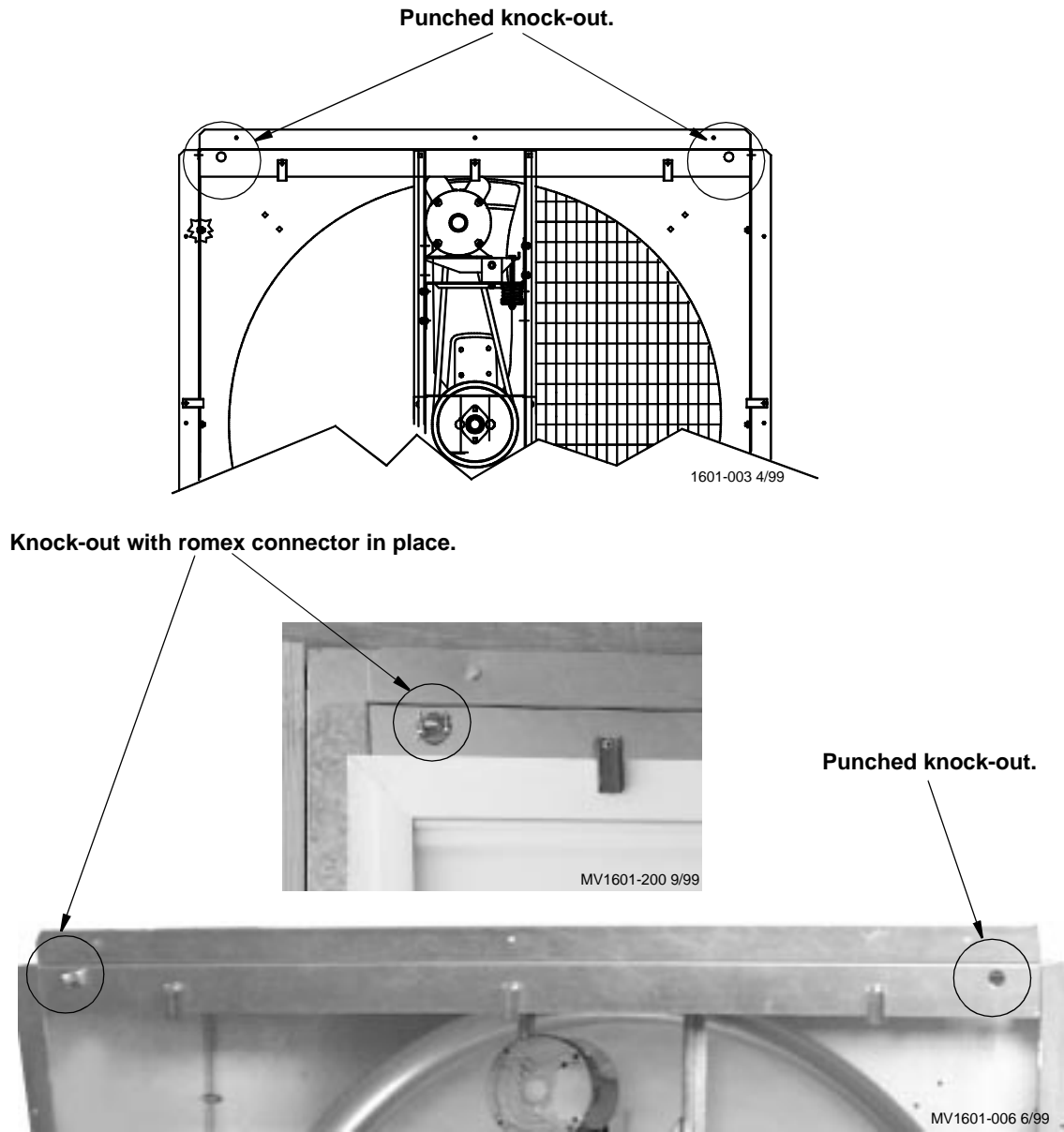


Figure 14. Knock out areas for Installation of Motor Cord

Shutter Installation

Plastic and Aluminum Shutters are available.

The Bottom Panel is designed with 3 tabs to hold the Shutter. **Shown in Figure 15.** Slide the bottom of the Shutter into position in the Bottom Panel Slots, lean the Shutter back and lock it in place by rotating the Shutter Clips. Check the Shutter for proper operation—the shutter must be able to open and close freely without obstructions.

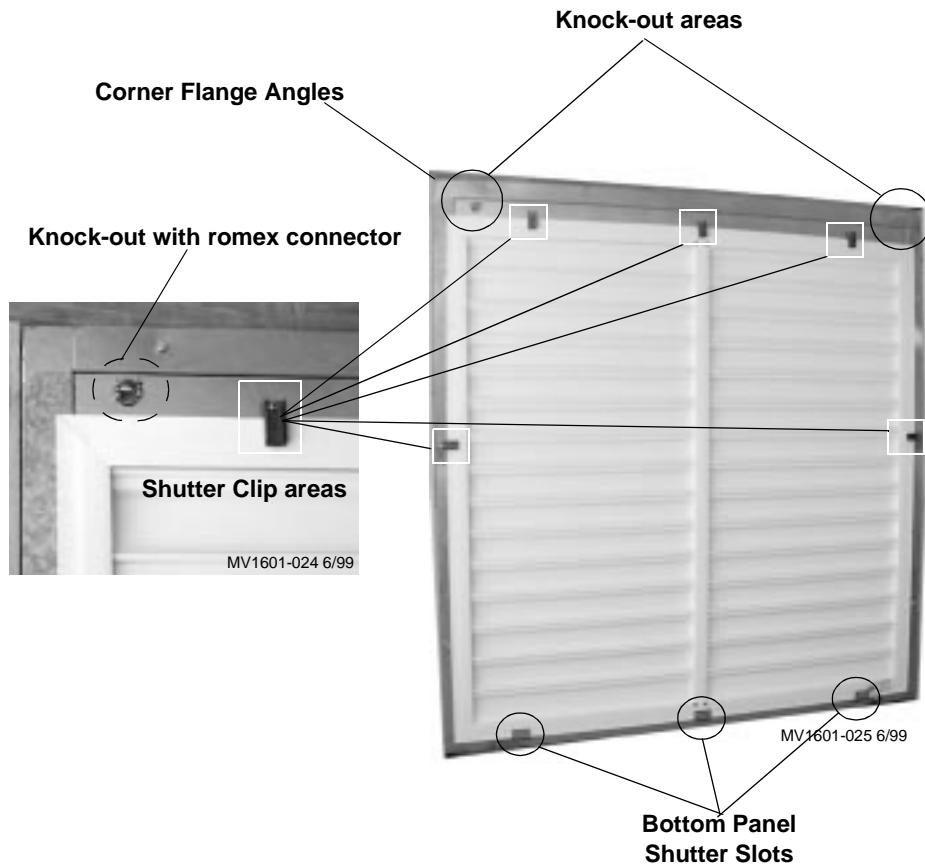


Figure 15. Shutter Placement Assembly

Maintenance

**Danger!**

Disconnect Power Prior To Maintaining Or Cleaning The Fan. The fan may start automatically causing serious injury or death.

- Service and repair of fans should be done only by a qualified technician.
- Keep the fan clean for maximum life and best performance. **Avoid spraying water on fan shaft bearings.**
- Periodically check the V-Belt. If necessary, adjust the spring tension to prevent the belt from slipping.
- Keep Shutters, Blades, and Housing clear of obstacles for best air performance.

The motor and fan shaft bearings are prelubricated. Grease zerks are provided on the fan shaft bearings for installations where relubrication is needed.

Important!

Relubrication is required once annually or immediately after cleaning with a pressure washer. For lubricants, add only a small amount of grease to purge impurities out of the bearing seals.

DO NOT OVER GREASE!

Use only high quality lithium soap base grease and clean all dirt from zerk before applying grease. Chore-Time recommends using Shell Alvania # 2 in the fan shaft bearings.

Specifications and Part Numbers

Table 3. Motor Specifications and Part Numbers										
Fan Specifications			Motor Specifications							
Description	*Assembled Part No.	*Unassembled Part No.	Voltage	HZ	Phase	HP	Motor P/N	Motor Sheave P/N	Fan Sheave P/N	Blade No.
48" Slant Wall Belt Drive Fan	43679-482X	N/A	115/230	60	1	1	37729	42072	42072	28140
	43679-484X	N/A	208-230/460	60	3	1	40157	42072	42072	28140
48" Cone Belt Drive Fan	43680-482X	46221-482X	115/230	60	1	1	37729	42072	42072	28140
	43680-484X	46221-484X	208-230/460	60	3	1	40157	42072	42072	28140
	43680-485X	46221-485X	230/380-415	50	3	1	36142	24697	42072	28140
48" SW High Capacity BD Fan	45576-482X	N/A	115/230	60	1	1	37729	42072	42072	46409
48" Cone High Capacity Bd Fan	45575-482X	46359-482X	115/230	60	1	1	37729	42072	42072	46409
48" Cone High Capacity Bd Fan	45575-484X	46359-484X	208-230/460	60	3	1	40157	42072	42072	46409
48" Cone High Capacity Bd Fan	45575-485X	46359-485X	230/380-415	50	3	1	36142	24697	42072	46409
48" Cone High Efficiency BD Fan	45962-482X	N/A	115/230	60	1	1	37729	1381	42072	45932
48" Cone High Efficiency BD Fan	45962-484X	N/A	208-230/460	60	3	1	46488	1381	42072	45932

* Replace the "X" in fan P/N with "1" for an aluminum Shutter, "2" for a plastic shutter.

Shutter Part Numbers

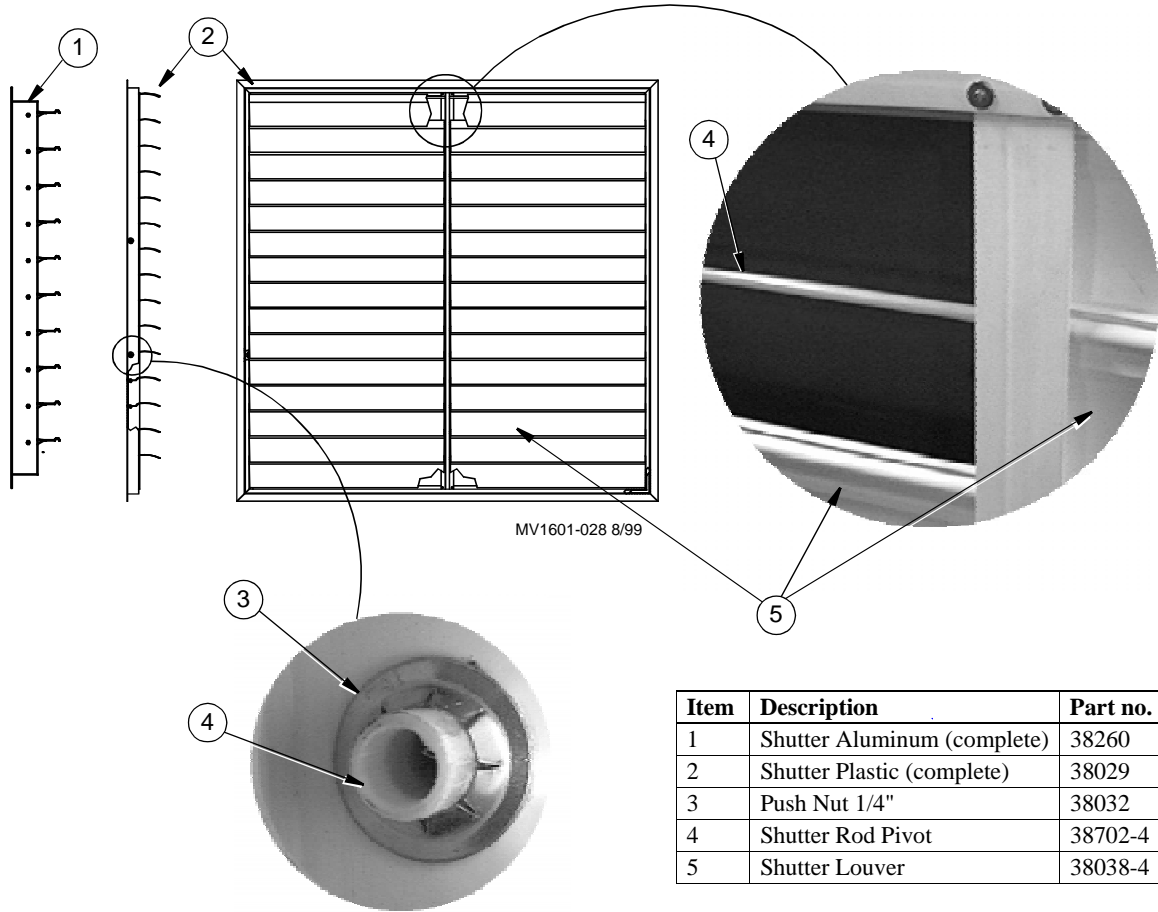


Figure 16. Plastic Shutter Parts

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48" BD Part Numbers

Parts Specific to Slant Wall Fan			Parts Specific to Cone Fan		
Item	Description	Part No	Item	Description	Part No
*1	Motor (See Motor Specification Table)	Varies	*1	Motor (See Motor Specification Table)	Varies
2	Bolt, Carriage 5/16-18 x .625"	8282	2	Bolt, Carriage 5/16-18 x .625	8282
3	Flange Nut, Hex 5/16"-18	8490	3	Flange Nut, Hex 5/16-18	8490
4	Top Panel 48" SW 12.5°	43667	4	Top Panel 48" SW 12.5°	43670
5	Bottom Panel 48" SW 12.5°	43668	5	Bottom Panel 48" SW 12.5°	43671
6	Side Panel 48" SW 12.5° RH	43669-2	6	Side Panel 48" SW 12.5° RH	43672-2
7	Side Panel 48" SW 12.5° LH	43669-1	7	Side Panel 48" SW 12.5° LH	43672-1
8	Shroud 48" Fan (54)	37583	8	Shroud 48" Fan (54)	37583
9	48" Shutter Mounting Brace	43673	9	48" Shutter Mounting Brace	43673
10	Post 48" x 12.5° Fan	43688	10	Post 48" x 12.5° Fan	43688
11	Plate, Pivot Motor Mount	43713	11	Plate, Pivot Motor Mount	43713
12	Bracket, Pivot Plate Mounting	46444	12	Bracket, Pivot Plate Mounting	46444
13	Bracket, Z-Motor Mounting	46445	13	Bracket, Z-Motor Mounting	46445
14	Bushing, St Bd Module	38896	14	Bushing, St Bd Module	38896
15	Spring	43715	15	Spring	43715
16*	Blade, 48" Fan	Varies	16*	Blade, 48" Fan	Varies
17	Screw 5/16-18 x 3/8" Set	1174	17	Screw 5/16-18 x 3/8" Set	1174
18	Sq. Key 1/4 x 1 x 1/8"	2419-2	18	Sq. Key 1/4 x 1x 1/8"	2419-2
19	Shaft, 1"	43691	19	Shaft, 1"	43691
20	Plate, Bearing Mount, Rear	43690	20	Plate, Bearing Mount, Rear	43690
21	Plate, Bearing Mount, Front	43689	21	Plate, Bearing Mount, Front	43689
22	Bearing, Cast Flange 1" Bore	43654	22	Bearing, Cast Flange 1" Bore	43654
23	Sheave, 8-1/4" O.D. 1" Bore	42072	23	Sheave, 8-1/4 O.D. 1" Bore	42072
24	V-Belt, 58.2"	43816	24	V-Belt, 58.2"	43816
25	Decal, Danger	2527-50	25	Decal, Danger	2527-50
26	Decal, 48" Slant Wall Fan (BD)	39002-206	26	Decal, 48" SW Cone Fan (BD)	39002-207
27	Clip, Screen EZ Fan	38891	27	Grill	37630
28	Clip, Shutter SS 2.00 x .70"	36729	28	Clip, Shutter SS 2.00 x .70	36729
29	Washer, Nylon .260 x .69 x .060"	4856	29	Washer, Nylon .260 x .69 x .060	4856
30	Corner Flange Angle	44284	30	Corner Flange Angle	44284
31	Wire Screen	6023-22	31	Does Not Apply to this Style Fan	-
32	5/16"-18 x 5.5" Bolt	4412-21	32	5/16"-18 x 5.5" Bolt	4412-21
33	Pop Rivet	2569	33	Pop Rivet	2569
34	Coil Spring Cap	44002	34	Coil Spring Cap	44002
35	Flat Washer .375 x .875 x .078	546	35	Flat Washer .375 x .875 x .078	546
36	Carriage Bolt 5/16"-18 x 1.25	34885-2	36	Carriage Bolt 5/16"-18 x 1.25	34885-2
37	10-16 x .5 HX WH Screw	3037	37	10-16 x .5 HX WH Screw	3037
38	5/16"-18 Hex Lock Nut	2148	38	5/16"-18 Hex Lock Nut	2148
39**	Shutter	Varies	39**	Shutter	Varies
40***	Cast Iron Sheave	Varies	40***	Cast Iron Sheave	Varies
-			-	Pkg., Hardware BD Fan	44036
-	Pkg., Hardware BD Fan	44036	-	Kit, EZ Fan Cone	37935

*See Motor Specifications on **Page 21**.

View Motor detail **Figure 10**.

See Shutter Part Numbers **Page 22 for Shutter Part Numbers

***See Specifications and Part Numbers **Page 21** for Sheave Part Numbers.

*See Motor Specifications on **Page 21**.

View Motor detail **Figure 10**.

See Shutter Part Numbers **Page 22 for Shutter Part Numbers

***See Specifications and Part Numbers **Page 21** for Sheave Part Numbers.

Itemized 48" Belt Drive Fan Parts

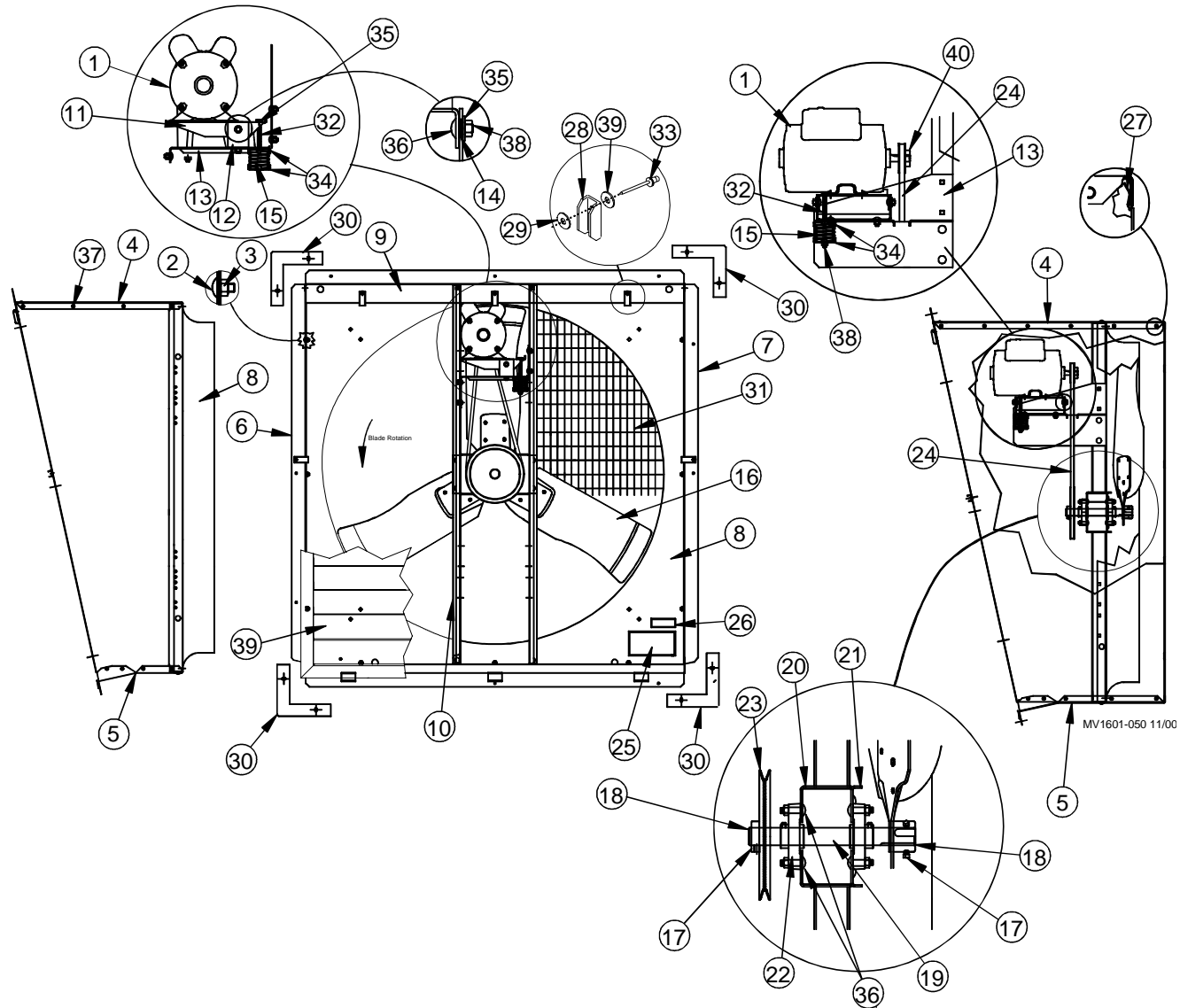


Figure 17. Assembly Drawing

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**Made to work.
Built to last.**

Revisions to this Manual

Page No.	Description of Change
	Added High Efficiency and High Capacity Model Fans

Contact your nearby Chore-Time distributor or representative for additional parts and information.

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