

36" & 48" Shutter Box Fan Installation & Operator's Instruction Manual



Mv1666-021 01/01



Mv1666-005 12/00

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.

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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 Shutter Fans are designed to be used as exhaust fans. The Shutter Fans are shipped unassembled to save on shipping charges. 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.

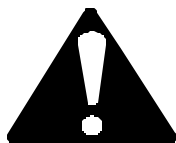


Safety Information

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

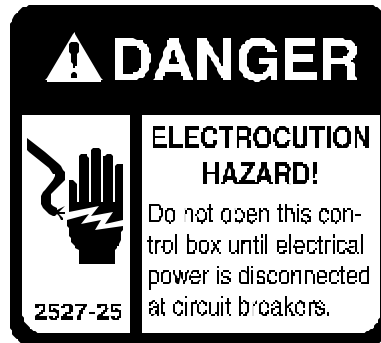
Disconnect electrical power before inspecting or servicing equipment unless maintenance instructions specifically state otherwise.

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.



DANGER: Rotating Fan Blade

This decal is placed on the Panel Weldment.

Severe personal injury will result, if the electrical power is not disconnected, prior to servicing the equipment.



The diagram below shows the proper location of the safety decal (DANGER--ROTATING FAN BLADE) as shipped from the factory. Replace damaged or missing decals. Make sure the decals may be easily seen at all times.

If the fan is purchased unassembled, the Chore-Time Fan Assembly Part Number Decal will be packed with this instruction manual. Make sure the decal location shown below is clean and dry. Remove the backing of the decal and affix it to the Fan Shroud.

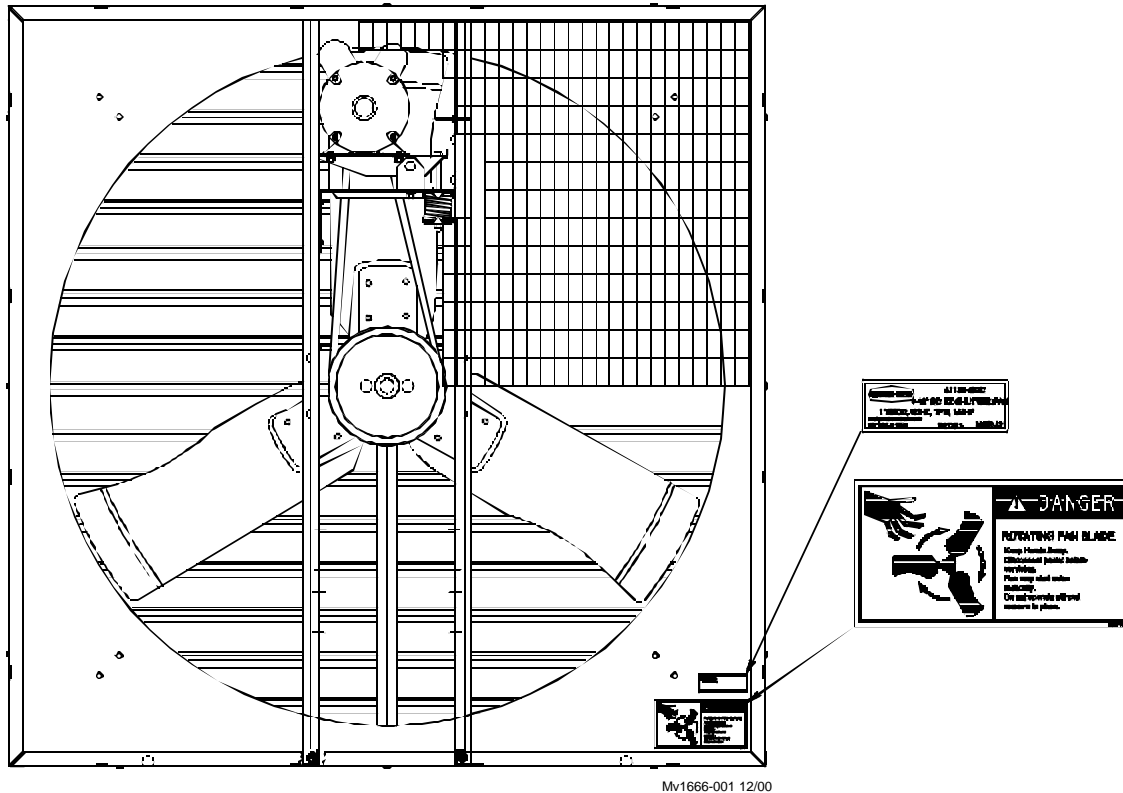


Figure 1. Decal Placement

Technical Information

Motor choices and specifications are provided in the Parts List section of this manual. See page 20 for 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

- 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 Assembly Procedure

For Factory Assembled Fans see Steps 3 through 6.

Step 1 - Secure Motor Mount Post to Fan Shroud

Secure the Motor Mount Post to the Fan Shroud using the 5/16-18 x 5/8" carriage bolts and hex nuts provided in the Hardware Package

The Motor Mount Post must be installed as shown in **Figure 2**.

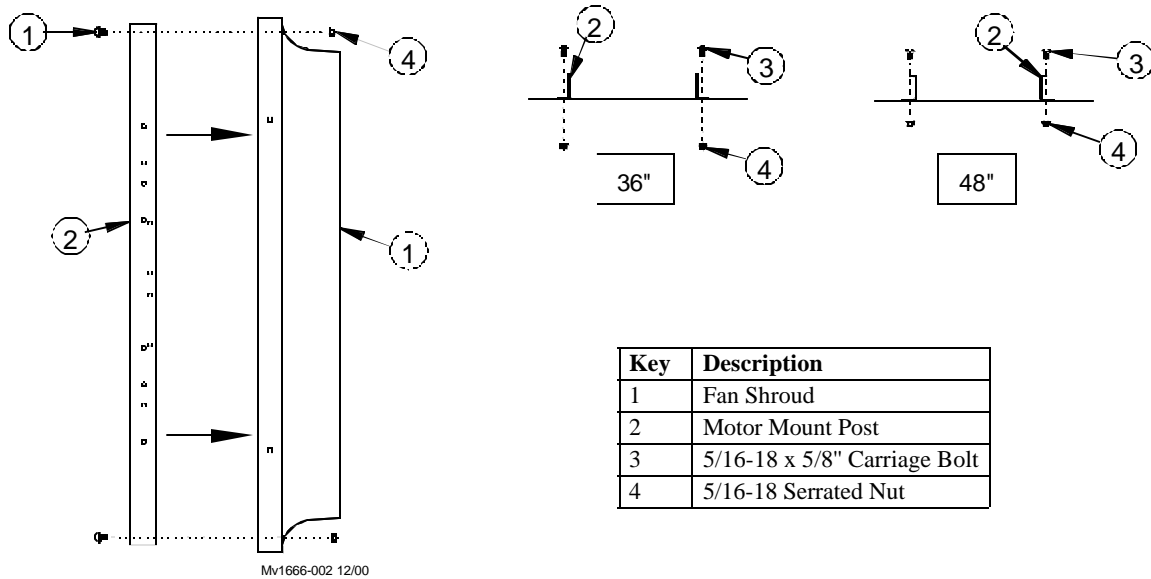


Figure 2. Motor Mount Installation

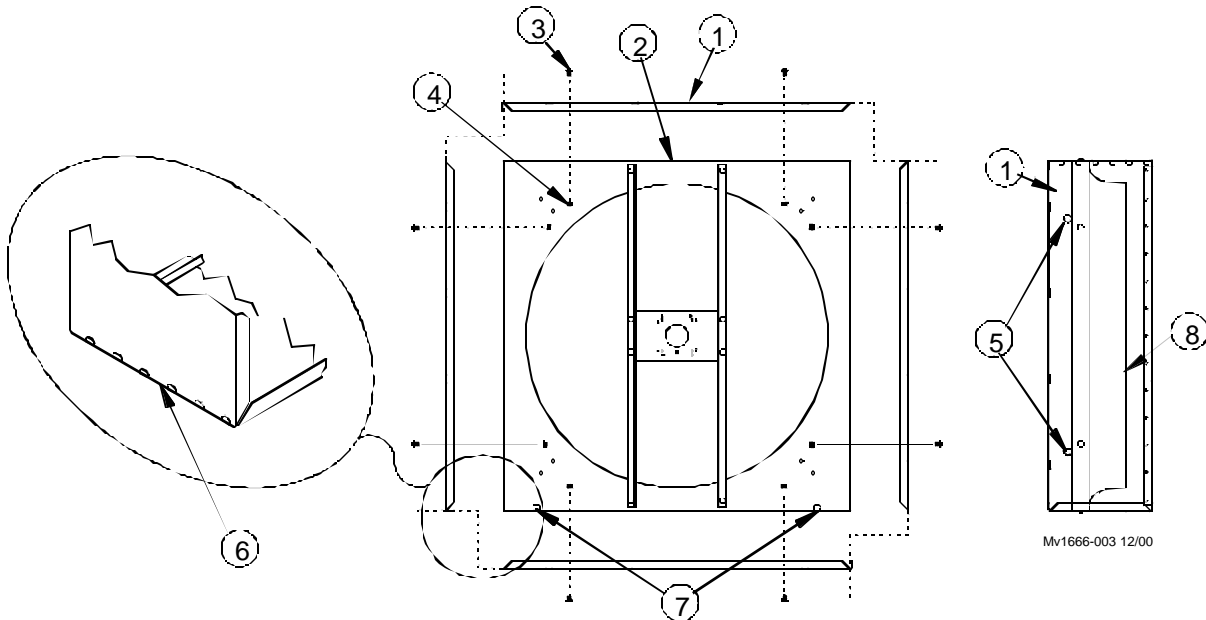
Step 2 - Mount Side Panels to Fan Shroud

The Side Panels for the Box Fans are identical. The Panels lock together by inserting the tabs of one Panel into the slot in the end of another Panel (See Figure 3). Orienting the Side Panels as shown in Figure 3, assemble the Side Panels together around the Shroud using the 5/16-18 hardware provided.

36" Fans use (2) bolts and nuts per side. 48" Fans use (3) bolts and nuts per side to attach shroud.

Use a hammer to carefully bend the corner tabs over to secure the Side Panels together.

Note: Orient the Shroud with the Shroud Drain Holes at the bottom of the Fan. Remove the (2) Knockouts from the bottom Side Panel for water drainage.



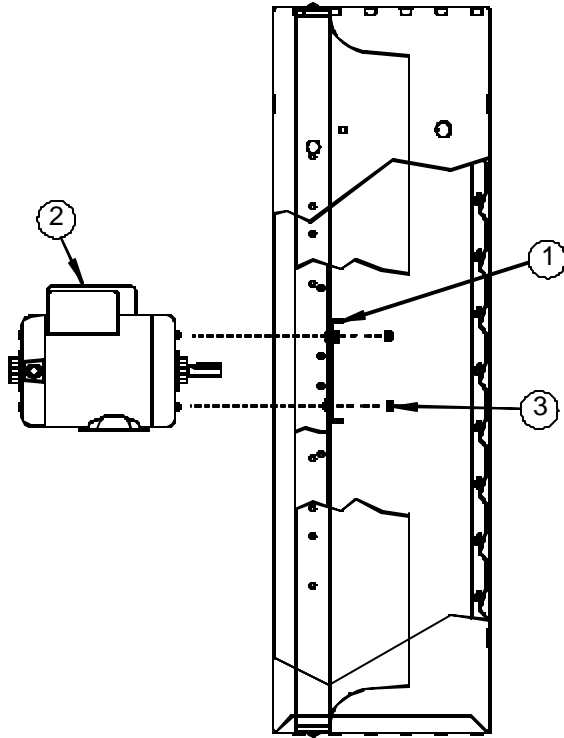
Item	Description
1	Side Panel
2	Fan Shroud
3	5/16-18 x 5/8" Carriage Bolt
4	5/16-18 Serrated Nut
5	Knockouts

Item	Description
6	Lock Side Panels together by bending tabs over.
7	Shroud Drain Holes
8	Shroud Orifice

Figure 3. Mounting Side Panels to shroud

Step 3A - (Direct Drive) Assembly Procedures

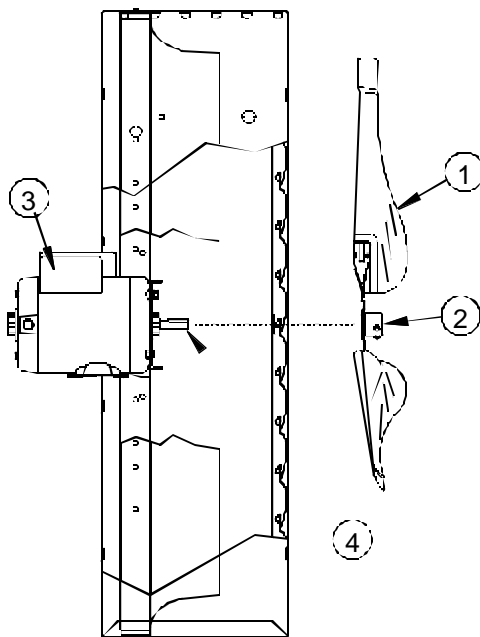
Motor Assembly



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Item	Description
1	Motor Support
2	Motor
3	#10-32 Serrated Flange Nut

Blade Assembly



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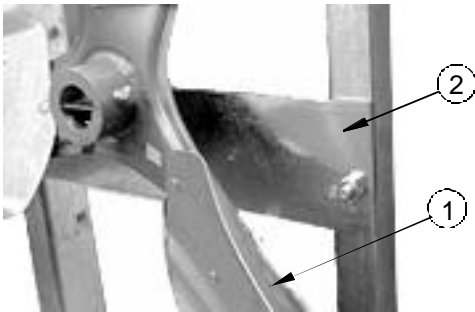
Item	Description
1	Blade Assembly
2	Fan Blade Hub
3	Motor
4	Motor Shaft With Key/Keyway and Flat

Step 3B - (Belt Drive Assembly Procedures)

Motor Mount Assy. to Posts

Note: The Shutter Fans may be ordered with or without the Motor.

If a Factory Assembled Fan was ordered, the Fan Blade was shipped mounted to a Shipping Bracket. The Shipping Bracket must be removed and discarded. (See Figure 4)



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Item	Description
1	Fan Blade
2	Shipping Bracket

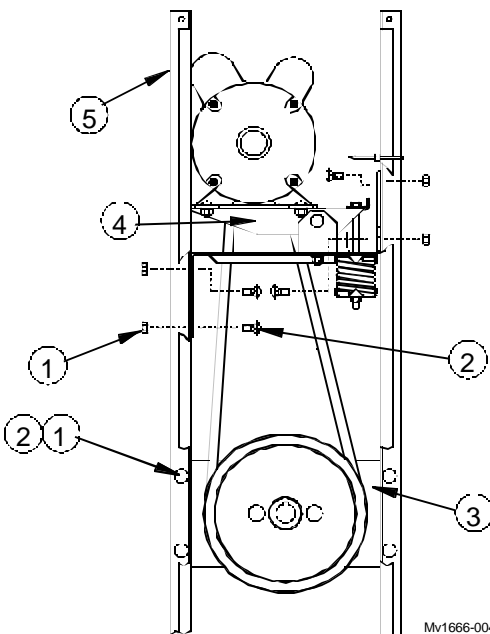
Figure 4. Detail of Shipping Bracket on Factory Assembled Fans (For Belt Drive Units Only)

Securing the Module Assembly and Motor

Secure the Module Assembly and Motor between the Motor Support Posts (Item 5, Figure 5). Hardware is included in the Hardware Package.

If your Fans do not have factory-included motors, set the Motor on the Module Assembly and secure in place with the 5/16"-18 x 5/8" carriage bolts, and 5/16"-18 Serrated Flange nuts. (See Figure 5)

The Motor is mounted in the rear set of holes.



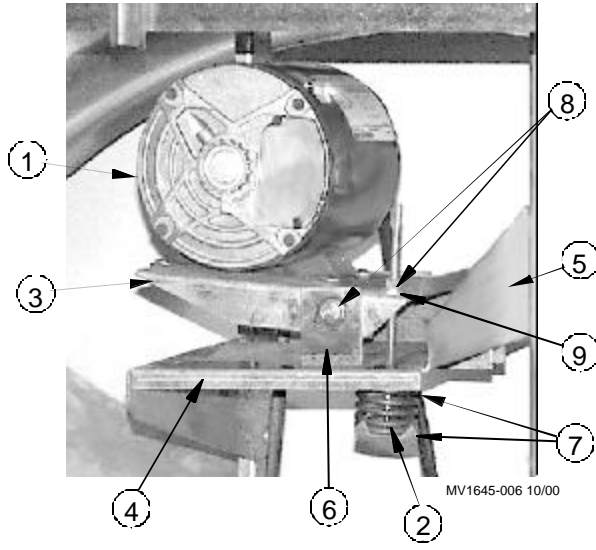
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Figure 5. Fan Module and Motor Installation

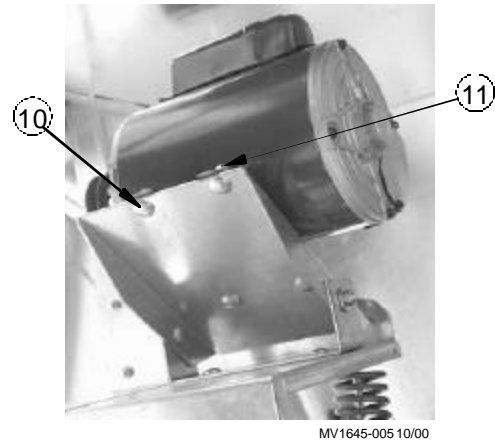
Key	Description	Part No.
1	5/16"-18 Hex Serr. Flange Nut	8490
2	5/16"-18 Carriage Bolt	8282
3	Module Assembly	45581
4	Motor Mount Assembly (BD)	45698
5	Motor Support Post	43688

Motor Sheave and Belt Installation

Mount the Motor (Item 1, Figure 6) to the Pivot Motor Mount Plate (Item 3, Figure 6) by using the supplied 5/16-18 x .625" Carriage Bolt (Item 10, Figure 6) with the heads coming up from the bottom and the 5/16-18" Flange Nut (Item 11, Figure 6) on top.



Rear View of Motor Installation



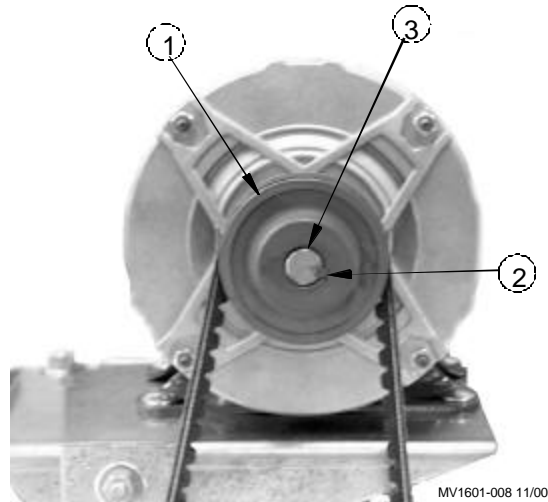
Motor position before putting Belt on Sheave and Pulley. Notice the bolt (Item 10) position.

Item	Description	Part Numbers
1	Motor	Varies
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 6. Motor Installation

Sheave Mounting

Apply Anti Seize to Motor Shaft (**Item 3, Figure 7**). Slide the Sheave onto the motor shaft as shown. Insert the key provided with the motor as shown in **Figure 7**, 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

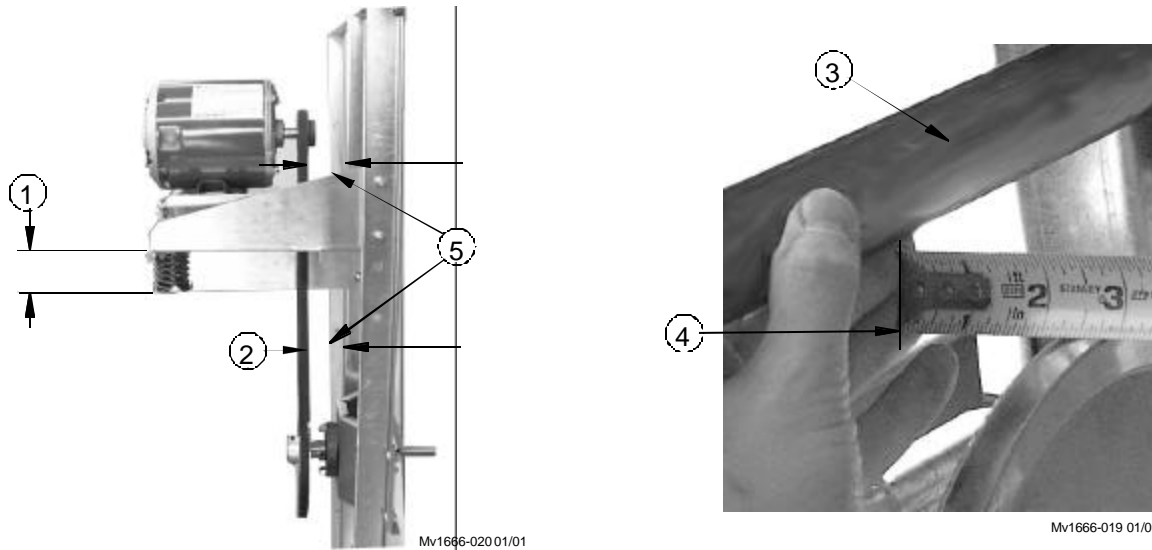
Figure 7. Sheave Mounting and Key Assembly.

Belt Alignment

- 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 8)

IMPORTANT! Figure 8. indicates the proper items to check to insure best installation and Fan life.

The spring is to be compressed to 2-1/4". (Item 1 Figure 8)



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 8. Belt Alignment

Fan Blade Installation

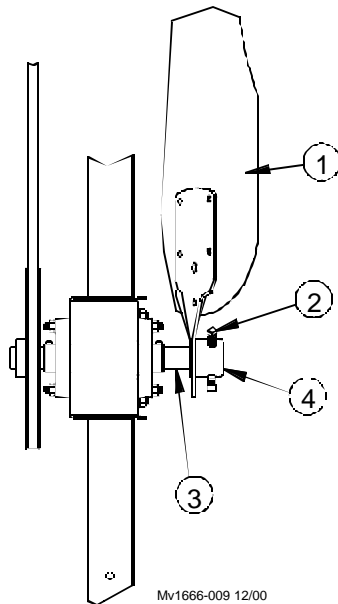
Slide the Fan Blade Assembly onto the shaft. The Hub of the Fan Blade should be flush with the end of the Shaft (**See Figure 9**). Apply grease or an anti-seize compound to the Fan Shaft before mounting the Fan Blade.

Insert key into keyway on shaft.

Tighten the set screw(s) using a 5/16" open end wrench or 12 point 3/8" socket and ratchet).

Torque the set screws to approximately 150 in./lbs (12.5 ft/lbs).

IMPORTANT! If Decals are not already installed, see the Decal placement instructions on page 7.



Item	Description
1	Blade Assembly
2	Torque to 150 in./lbs (12.5 ft/lbs)
3	Shaft with Keyway
4	Fan Blade Hub Flush with Shaft

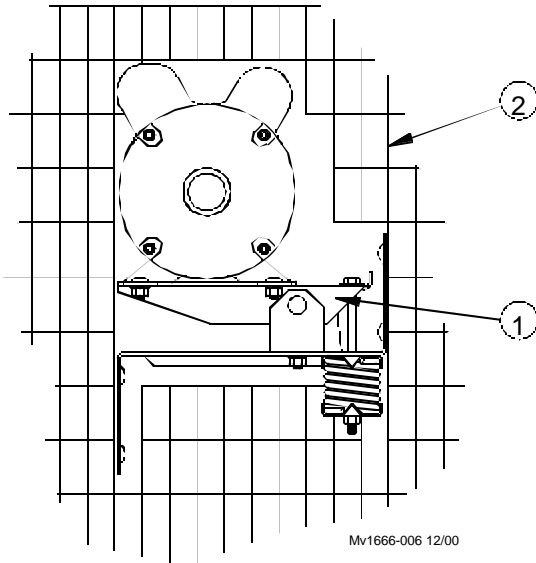
Figure 9. Blade Assembly Installation

Step 4 - Screen Installation



DANGER! The Wire Inlet Screen **MUST** be installed to prevent serious injury or death.

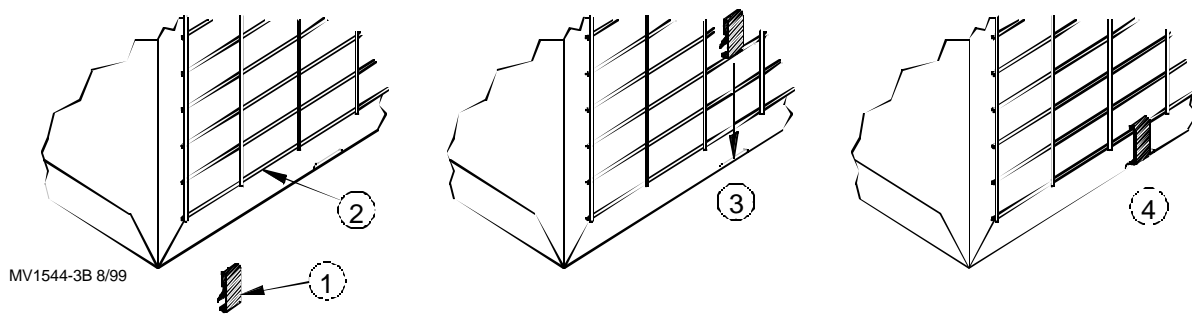
The Wire Inlet Screen has an opening to accommodate the Motor and Motor Mounting. Position the Wire Inlet Screen over the back of the fan with the screens natural bow out away from the fan.



Item	Description
1	Motor Module
2	Wire Inlet Screen

Figure 10. Positioning the Wire Inlet Screen to fit the Motor and Motor Module (Blade and Posts not shown for Clarity)

Install (4) Wire Clips on each side to secure the Wire Inlet Screen to the Side Panels. See **Figure 11**.



Item	Description
1	Screen Clip Part Number 38891
2	Wire Screen Part Numbers (36") 36629, and (48") 45865
3	Slip Screen Clip over Screen Wire.
4	Snap in slot on Fan Side Panel to secure.

Figure 11. Screen Installation

Step 5 - Shutter Louver Installation

Orient the Shutter Fan Assembly so that the drain holes are on the bottom. Insert the tab on the end of one of the Center Rails into the slot on the Bottom Side Panel. Slide the top of the Center Rail until it snaps into the corresponding slot in the Top Side Panel. Repeat for the other Center Rail. (See Figure 12)

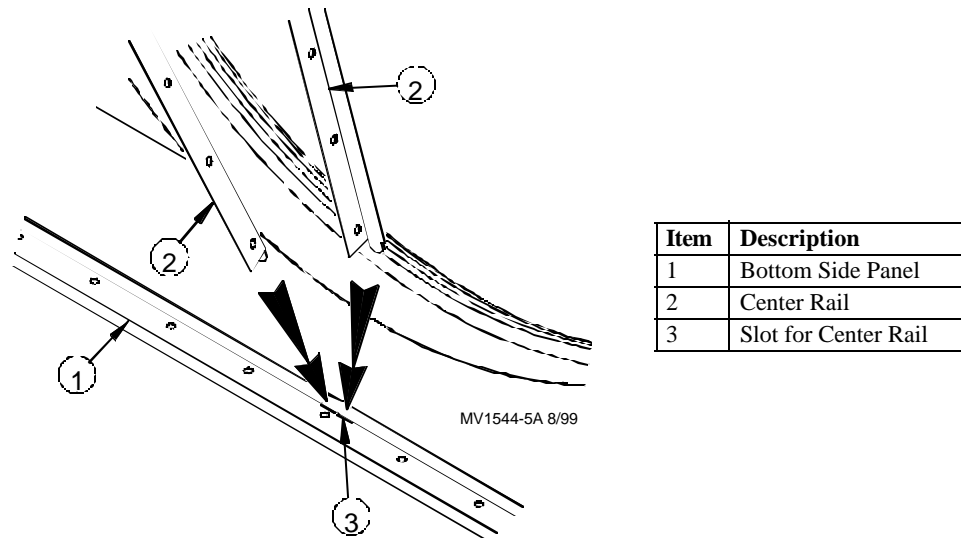


Figure 12. Installing Center Rails

Insert a Shutter Pivot Rod in the second hole up from the bottom of the Center Rails, through a Shutter Louver, and into the second hole up from the bottom on the Side Panel. (See Figure 13)

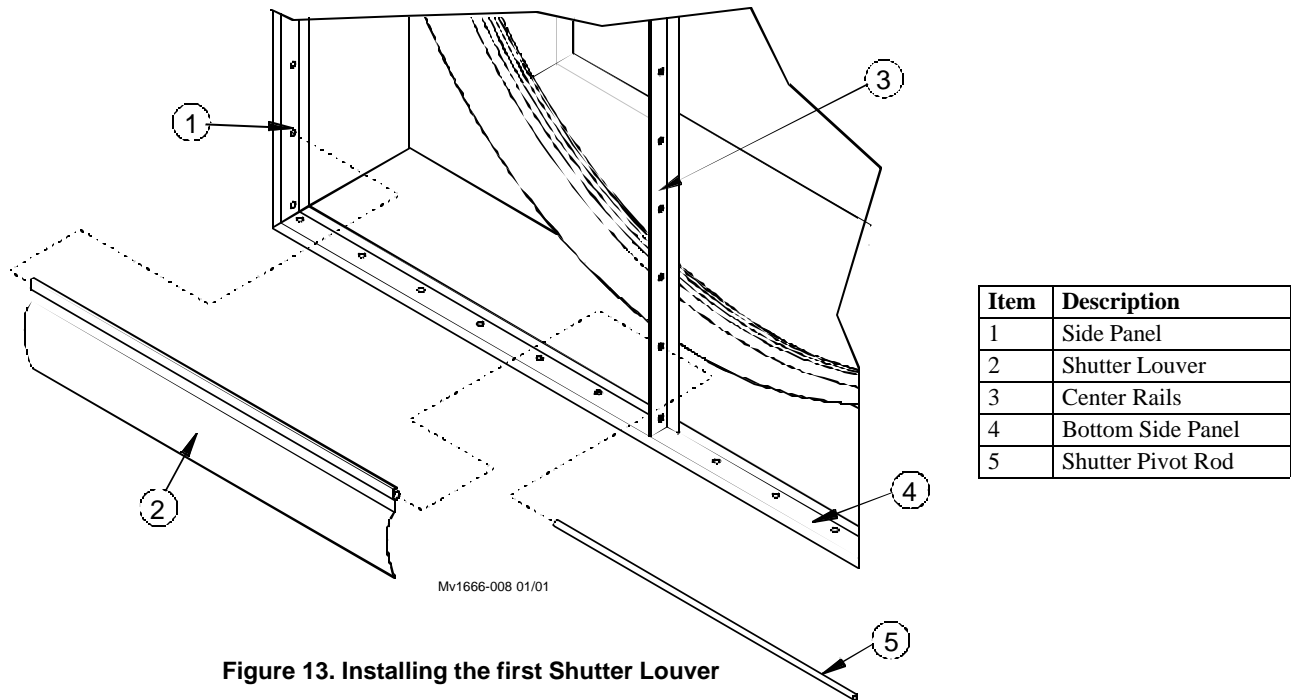
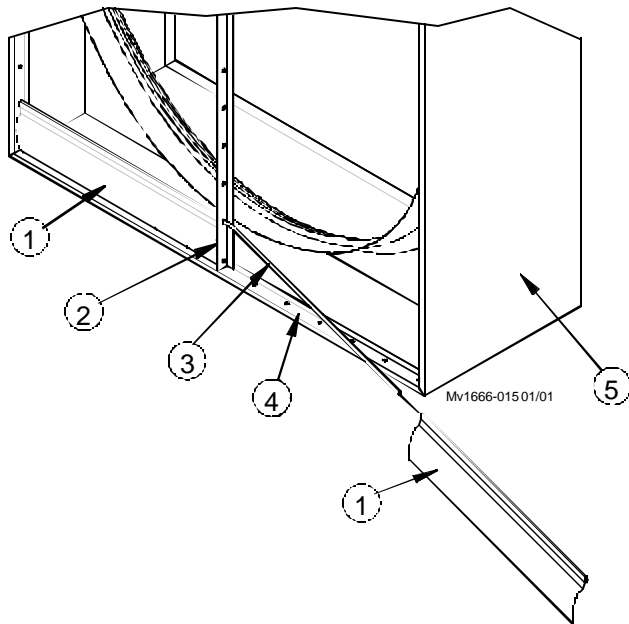


Figure 13. Installing the first Shutter Louver

Shutter Louver Installation Continued....

Slide the next Shutter Louver on the opposite end of the Shutter Pivot Rod, Bend the Shutter Pivot Rod - Shutter Louver combination and insert the free end of the Shutter Pivot Rod into the second hole up from the bottom of the other Side Panel. (See Figure 14)



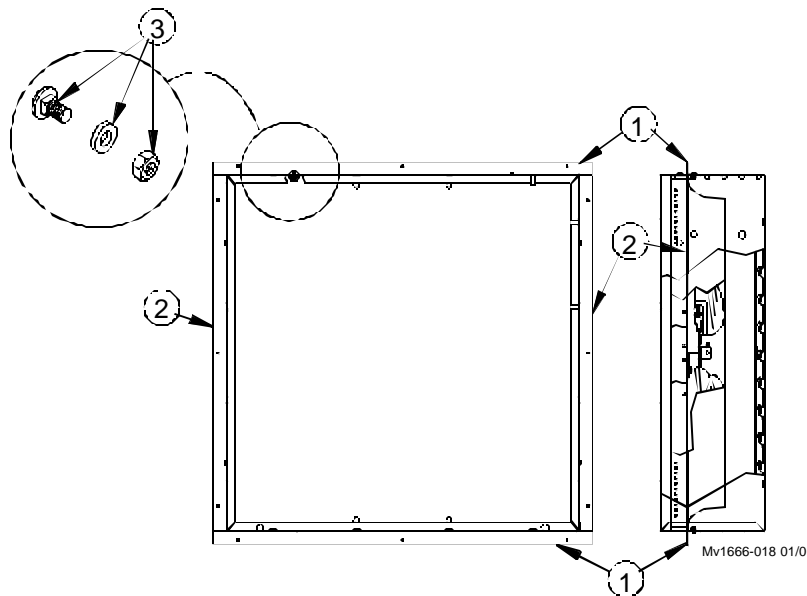
Item	Description
1	Shutter Louver
2	Center Rails
3	Shutter Pivot Rod
4	Bottom Side Panel
5	Side Panel

Figure 14. Installing the second Shutter Louver

Repeat these steps for the remaining Shutter Pivot Rods and Shutter Louvers.

(Optional) Mounting Kit

Figure 15 shows the optional Mounting Kit available through your local dealer.



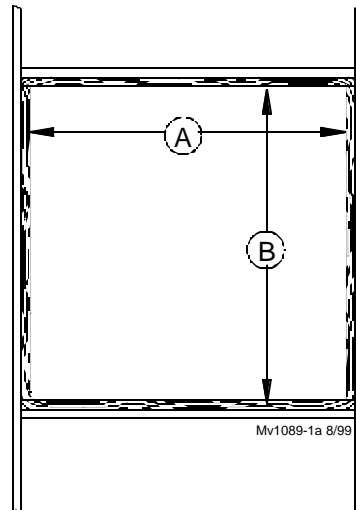
36" Shutter Fan Mounting Kit Part Number 44456		
1	Top 36" Shutter Fan Mount	44402
2	Side 36" Shutter Fan Mount	44403
3	Mounting Kit Package Hardware	44506

48" Shutter Fan Mounting Kit Part Number 44455		
1	Top 36" Shutter Fan Mount	44400
2	Side 36" Shutter Fan Mount	44401
3	Mounting Kit Package Hardware	44507

Figure 15. Optional Mounting Kit

Fan Installation

Build fan framing out of 2" (50 mm) lumber (not supplied). The required wall opening is provided in the chart below. See **Figure 16**.



Dimension (minimum)	A	B
36" Fan	42-1/4" [107.3 cm]	42-1/4" [107.3 cm]
48" Fan	54-5/8" [138.7 cm]	54-5/8" [138.7 cm]

Figure 16. Framing Diagram (front view)

Insert and secure the Fan Assembly in the framed opening in the side wall (hardware not supplied).

Wiring

See wiring diagram on Motor for Motor electrical connections. Follow local, state and national electric codes for wiring.

Install an electric disconnect within reach of each Fan.

Maintenance

Service and maintenance of fans should be done only by a qualified technician.

DANGER! DISCONNECT POWER PRIOR TO MAINTAINING OR CLEANING THE FAN! The fan may start automatically causing serious injury or death.

Keep the fan clean for maximum life and best performance. Do not spray water on Fan Shaft Bearings.

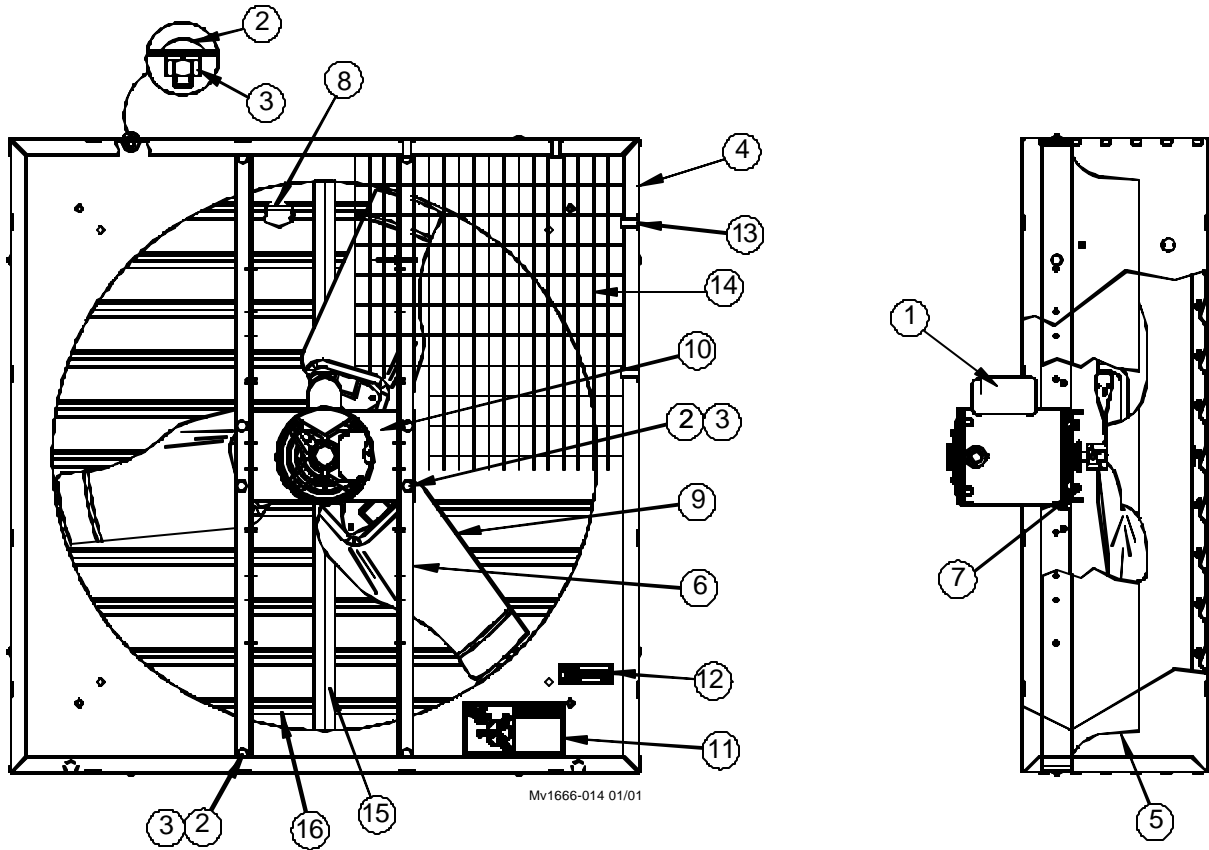
Periodically check the V-Belt. If necessary, adjust the spring tension to prevent the belt from slipping.

The Motor and Fan Shaft Bearings are permanently lubricated. Grease Zerks are provided on the Fan Shaft Bearings when relubrication is needed. Relubrication is required whenever water comes in contact with the Fan Shaft Bearings. Slowly rotate the Fan Shaft as bearing is filled with Grease. Use only high quality lithium soap base grease and clean all dirt from Zerk before applying grease.

Shutter Fan Specification

Fan Description	Assembled Fans	Unassembled Fans	Electrical			HP	Motor	Motor Sheave Part No.
	Fan Part No.	Fan Part No.	Volt	HZ	Phase			
36" Direct Drive Shutter Fans	44453-3620		115/230	60	1	1/2	28936	N/A
	44453-3640		208-230/460	60	3	1/2	42098	N/A
48" Belt Drive Shutter Fans	41134-4820	40921-4820	230	60	1	1	37729	35333
	41134-4830	40921-4830	230	50	1	1	37729	8773
	41134-4840	40921-4840	208-230/460	60	3	1	40157	35333
	41134-4850	40921-4850	220-240/380-415	50	3	1	36142	24697
	41134-4860	40921-4860	230/380-415	60	3	1	36142	35333

Itemized Parts and Listing: 36" DD Shutter Fan



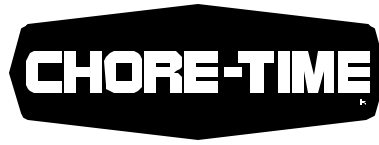
Item	Qty.	Description	Part Number
1*	1	Motor	Varies
2	16	Bolt, Carriage 5/16-18 x .625	8282
3	16	5/16-18 Hex Ser. Flange Nut	8490
4	4	36" Shutter Fan Panel	40705
5	1	Shroud 36" Fan	5538
6	2	36" Fan Post	46127
7	4	10-32 Serrated Flange Nut	48113
8	12	36" Shutter Rod	38702-10
9	1	36" Fan Blade	40358
10	1	36" DD Fan Motor Support	36564
11	2	Danger Decal	2527-50
12	1	EZ DD Shutter Fan Decal	39002-208
13	16	Screen Clip	38891
14	1	40" x 40" Wire Inlet Screen	36629
15	2	36" Fan Shutter Rail	40706
16	24	36" Shutter Louver	38038-11

*See Shutter Fan Specifications Page 20.

Parts Listing: 48" BD Shutter Fan

Item	Qty.	Description	Part Number
1*	1	Motor	Varies
2	38	Bolt, Carriage 5/16-18 x .625	8282
3	38	5/16-18 Hex Ser. Flange Nut	8490
4	4	48" Shutter Fan Panel	45719
5	1	Shroud 48" Fan	37583
6	2	48" Fan Post	43688
7	1	Motor Mount Pivot Plate	43713
8	1	Pivot Plate Mounting Bracket	46444
9	1	Z-Motor Mounting Bracket	46445
10	1	ST BD Module Bushing	38896
11	1	Spring	43715
12	1	48" Fan Blade	28140
13	1	5-16-18 x 3/8 Set Screw	1174
14	2	1/4 x 1 x 1/8 Square Key	2419-2
15	1	Shaft	43691
16	1	Rear Bearing Mount Plate	43690

Item	Qty.	Description	Part Number
17	1	Front Bearing Mount Plate	43689
18	2	1" Bore Cast Flange Bearing	43654
19	1	8-1/4" O.D 1" Bore Sheave	42072
20	1	AX56 V-Belt 58.2	43816
21	2	Danger Decal	2527-50
22	1	EZ Fan Decal	39002-131
23	16	Screen Clip	38891
24	1	48" Wire Screen	45865
25	1	5/16-18 x 5.5" Bolt	4412-21
26	2	Spring Coil Cap	44002
27	3	.375 x .875 x .078 Flat Washer	546
28	4	5/16-18 x 1.25 Carriage Bolt	34885-2
29	3	5/16-18 Hex Lock Nut	2148
30*	1	Cast Iron Sheave	Varies
31	1	48" Fan Shutter Rail	40510
32	32	48" Shutter Louver	38038-12
33	16	48" Shutter Rod	38702-11
*See Shutter Fan Specifications Page 20.			



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

Revisions to this Manual

Page No.	Description of Change
Various	Replaced 305 washer and 4297 nut with 48113 Serrated Flange Nut on 36 DD Fans

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

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