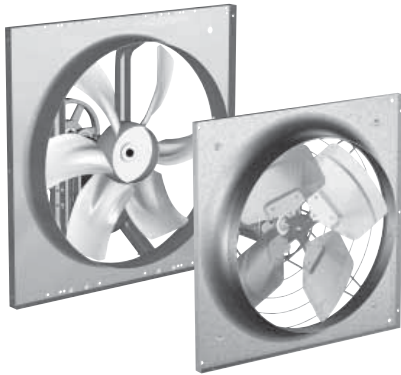




# Sidewall Propeller Fans Belt Drive and Direct Drive

## Installation, Operation, and Maintenance Manual



Please read and save these instructions for future reference. Read carefully before attempting to assemble, install, operate or maintain the unit. Failure to comply with instruction could result in personal injury and/or property damage!

Upon receiving unit, check for any damage that may have occurred during transit and report it immediately to the shipper. Also check to see that all accessory items are accounted for.

### Typical Installation

**WARNING:** Always disconnect, lock and tag power source before installing or servicing. Failure to disconnect power source can result in fire, shock or serious injury.

Move fan to the desired location and determine the method by which the fan is to be mounted as shown in Fig. 1, Fig. 2 and Fig. 3. Optional wall mount housings (Fig. 1) and wall mount collars (Fig. 2) provide a convenient means of mounting sidewall fans while maintaining the proper distance between propeller and damper.

Attach the fan by inserting a suitable fastener through each of the pre-punched mounting holes in the fan panel. Care should be taken not to bend or distort the fan panel or drive components during installation.

The motor voltage and amperage rating must be checked for compatibility with the electrical supply. Supply wiring to the fan must be properly fused and

conform to local and national electrical codes.

### WALL OPENING REQUIREMENTS

Wall opening size and propeller-to-damper distance are two important dimensions for fan installation. Fans mounted to the wall require a different wall opening (W.O.) size than those mounted in collars or wall housings. Propeller-to-damper distance (M) is important to reduce turbulence and damper flutter which may lead to premature damper failure.

Fan Size	Damper Size Sq.	Recommended Wall Opening (W.O.) Sq.		M Min.
		Fig. 1 & Fig. 2	Fig. 3	
8	10 (25)	14¼ (37)	10½ (27)	6 (15)
10	12 (30)	16¼ (41)	12½ (32)	6 (15)
12	14 (36)	19¼ (49)	14½ (37)	7 (18)
14	16 (41)	21¼ (54)	16½ (42)	8 (20)
16	18 (46)	23¼ (59)	18½ (47)	9 (23)
18	20 (51)	25¼ (64)	20½ (52)	10 (25)
20	22 (56)	27¼ (69)	22½ (57)	11 (28)
24	26 (66)	33¼ (86)	26½ (67)	12 (30)
30	32 (81)	39¼ (101)	32½ (83)	13 (33)
36	38 (97)	45¼ (116)	38½ (98)	14 (36)
42	44 (112)	51¼ (131)	45½ (116)	15 (38)
48	50 (127)	57¼ (147)	50½ (128)	16 (41)
54	56 (142)	63¼ (162)	56½ (144)	17 (43)
60	62 (157)	69¼ (177)	62½ (159)	19 (48)
72	74 (188)	84¼ (215)	74½ (189)	19 (48)

All dimensions are in inches (mm).

Fig. 1 and Fig. 2 show the wall opening (W.O.) required for installations with either a wall housing or collar.

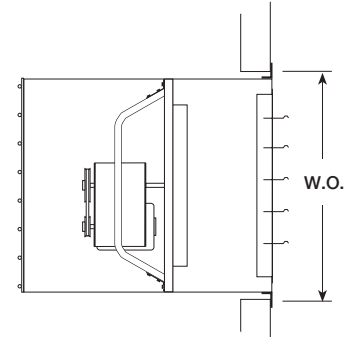


Fig. 1 - Wall Housing Installation

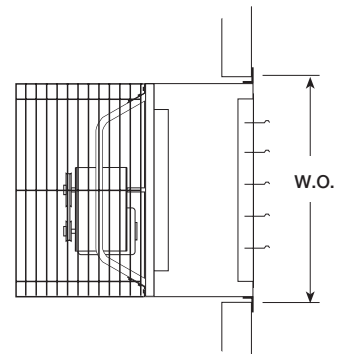


Fig. 2 - Wall Collar Installation

Fig. 3 shows the recommended wall opening (W.O.) and the minimum distance (M) suggested between the fan and damper for direct to wall installations.

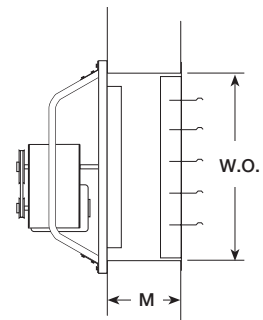


Fig. 3 - Direct to Wall Installation

### SUPPORT BRACES

Wall Housing sizes 42 and larger with heavy motors and all Filtered Wall Housings need additional bracing.

## Pre-Starting Checks

Check all fasteners and set screws for tightness. This is especially important for bearing set screws.

The propeller should rotate freely and not rub on the fan panel venturi. Rotation direction of the propeller should be checked by momentarily turning the unit on. Rotation should be in the same direction as the rotation decal affixed to the unit or as shown in Fig. 4.

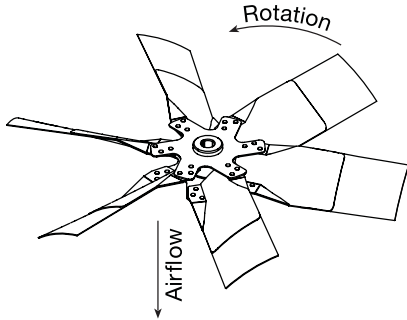


Fig. 4 - Propeller Rotation

For 3-phase installations, fan rotation can be reversed by simply interchanging any two of the three electrical leads. For single phase installations follow the wiring diagram located on the motor.

## FOR BELT DRIVE FANS

The adjustable motor pulley is preset at the factory for the specified fan RPM. Fan speed can be increased by closing or decreased by opening the adjustable pulley. Two or three groove variable pitch pulleys must be adjusted an equal number of turns open. Any increase in fan speed represents a substantial increase in horsepower required from the motor. Always check motor load amperage and compare to nameplate rating when changing fan speed.

## Maintenance

**WARNING:** Always disconnect, lock and tag power source before installing or servicing. Failure to disconnect power source can result in fire, shock or serious injury.

Once the fan has been put into operation, a periodic maintenance program should be set up to preserve the reliability and performance of the fan. Items to be included in this program are:

**BELTS, BEARINGS, FASTENERS, SET SCREWS, LUBRICATION, and REMOVAL OF DUST AND DIRT.**

## BELTS

Premature belt failures are frequently caused by improper belt tension (either too tight or too loose) or misaligned pulleys. The proper tension for operating a V-belt is the lowest tension at which the belts will not slip at peak load conditions. For initial tensioning, the proper belt deflection half way between pulley centers is 1/64 inch (0.4 mm) for each inch of belt span. For example, if the belt span is 64 inches (163 mm), the belt deflection should be one inch (3 mm) using moderate thumb pressure at midpoint of the drive. See Fig. 5.

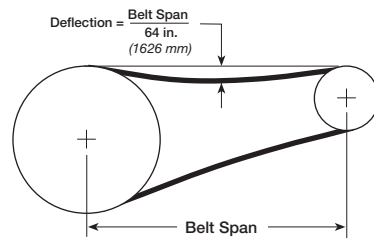


Fig. 5 - Belt Tension

Check belt tension two times during the first 24 hours of operation and periodically thereafter. To adjust belt tension, simply loosen four fasteners (two on each side of the motor plate) and slide the motor plate away from the fan shaft until proper belt tension is attained. On some fans, fasteners attaching the motor to the motor plate must be loosened in order to adjust the belt.

It is very important that the drive pulleys remain in proper alignment after adjustments are made. Misalignment of pulleys will result in premature belt wear noise, vibration and power loss. See Fig. 6.

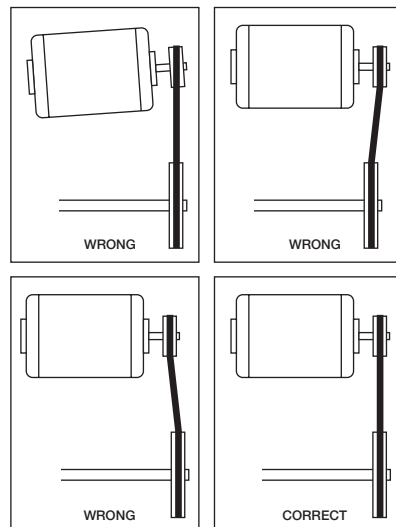


Fig. 6 - Pulley Alignment

## BEARINGS (For belt drive fans only)

Bearings are the most critical moving part of the fan and should be inspected at periodic intervals. Locking collars and set screws, in addition to fasteners attaching the bearings to the bearing plate, must be checked for tightness. In a clean environment and temperatures above 32°F (0°C) and below 200°F (93°C), fan shaft bearings with grease fittings should be lubricated semi-annually using a high quality lithium based grease. If unusual environmental conditions exist, temperatures below 32°F (0°C) and above 200°F (93°C), moisture or contaminants, more frequent lubrication is required.

With the unit running, add grease very slowly with a manual grease gun until a slight bead of grease forms at the seal. Be careful not to unseat the seal by over lubricating or using excessive pressure. Bearings without grease fittings are lubricated for life.

## FASTENERS AND SET SCREWS

Any fan vibration has a tendency to loosen mechanical fasteners. A periodic inspection should include checking all fasteners and set screws for tightness. Particular attention should be paid to set screws attaching the propeller to the shaft and the shaft to the bearings. Loose bearing set screws will lead to premature failure of the fan shaft.

## LUBRICATION

Refer to the paragraph on bearings for bearing lubrication. Many fractional horsepower motors installed on the smaller fans are lubricated for life and require no further attention. Motors equipped with oil holes should be oiled in accordance with the manufacturer's instructions printed on the motor. Use a high grade SAE 20 machine oil and use caution not to over lubricate. Motors supplied with grease fittings should be greased according to directions printed on the motor.

## REMOVAL OF DUST AND DIRT

Dirt clogs cooling openings on the motor housing, contaminates bearing lubricant and collects on propeller blades causing severe imbalance if left unchecked. The exterior surface of the motor, fan panel and entire propeller should be thoroughly cleaned periodically. Use caution and do not allow water or solvents to enter the motor or bearings. Motors or bearings must not be sprayed with steam or water.

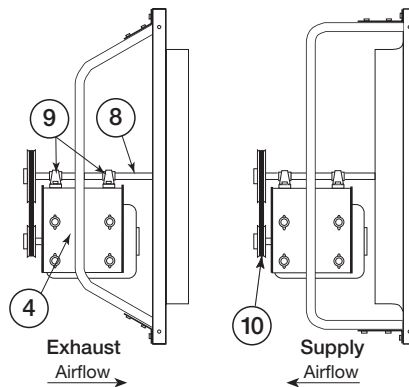
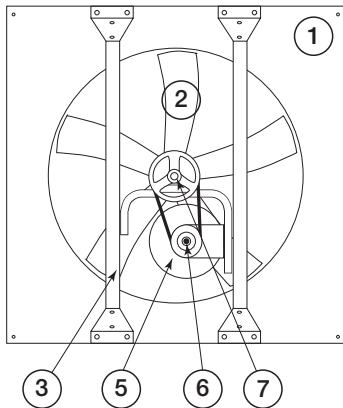
# Troubleshooting

PROBLEM	CAUSE	CORRECTIVE ACTION
<b>REDUCED AIRFLOW</b>	System resistance is too high.	Check backdraft dampers for proper operation. Remove obstructions in ductwork. Clean dirty filters. Check for adequate supply air for exhaust fans or exhaust air for supply fans.
	Fan too close to damper.	Increase distance between fan and damper.
	Unit running backwards.	See Pre-Starting Checks.
	Fan speed too low.	Increase fan speed.
	Excessive dirt on propeller.	Clean propeller.
<b>EXCESSIVE NOISE</b>	Bearings	Tighten bearing collars and set screws. Lubricate bearings. Replace defective bearings.
	V-Belt drive	Tighten pulleys on motor and fan shaft. Adjust belt tension. Align pulleys. Replace worn belts or pulleys. See Maintenance.
	Excessive vibration	Clean dirt build-up from propeller. Check all set screws and fasteners for tightness. Check for worn bearing. Correct propeller imbalance. Check for loose dampers, guards or ductwork.
	Defective motor	Replace motor.

Motor load amperage must be checked and compared to nameplate rating to avoid serious damage to motor when speed is increased.

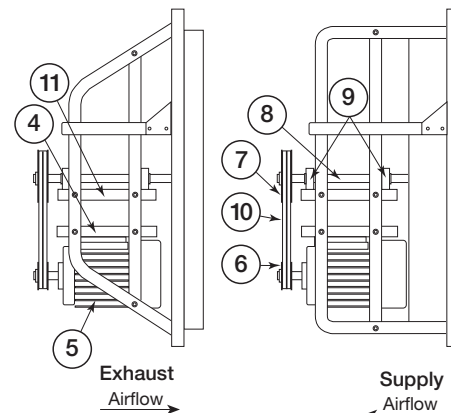
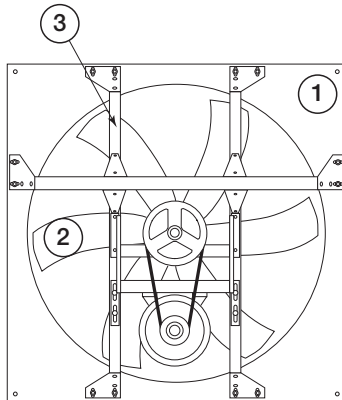
## Parts List (Belt Drive)

### • SB-1L/H AND SBC-2L/H



1. Fan Panel
2. Propeller
3. Drive Frame Channel (2)
4. Motor / Bearing Plate
5. Motor
6. Motor Pulley
7. Shaft Pulley
8. Fan Shaft
9. Bearings (2)
10. Belt

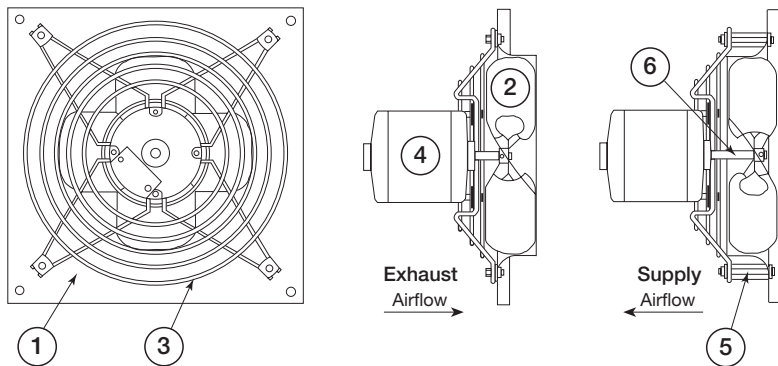
### • SB-3L/H AND SBC-3L/H



1. Fan Panel
2. Propeller
3. Drive Frame Channel (2)
4. Motor Plate
5. Motor
6. Motor Pulley
7. Shaft Pulley
8. Fan Shaft
9. Bearings (2)
10. Belt
11. Bearing Plate

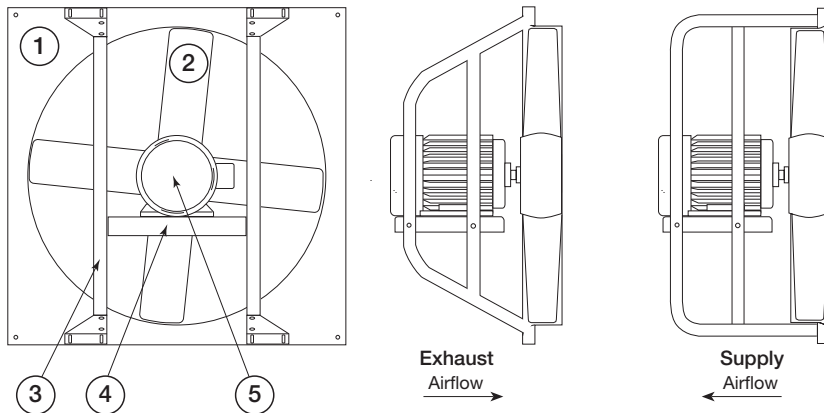
## Parts List (Direct Drive)

- S1 (SIZES 8 THRU 12 - D, G, AND E MOTOR SPEEDS)



1. Fan Panel
2. Propeller
3. Drive Frame/Motor Support
4. Motor
5. Riser Blocks (4) - supply fan only
6. Shaft Extension- supply fan only

- S1 (SIZES 12 THRU 24 - A, B, AND C MOTOR SPEEDS)
- S2
- SC3



1. Fan Panel
2. Propeller
3. Drive Frame Channels (2)
4. Motor Plate
5. Motor

### WARRANTY

Greenheck warrants this equipment to be free from defects in material and workmanship for a period of one year from the date of purchase. Any units or parts which prove to be defective during the warranty period will be replaced at our option when returned to our factory, transportation prepaid. Motors are warranted by the motor manufacturer for a period of one year. Should motors furnished by Greenheck prove defective during this period, they should be returned to the nearest authorized motor service station. Greenheck will not be responsible for any removal or installation costs.

*As a result of our commitment to continuous improvement, Greenheck reserves the right to change specifications without notice.*

