



# Sidewall Propeller Fans Belt Drive and Direct Drive

## Installation, Operating and Maintenance Manual

Upon receiving the unit, check for any damage and report it immediately to the shipper. Also assure all accessory items are accounted for.

Move fan to the desired location and determine the method by which the fan is to be mounted as shown below in figures 1, 2 and 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.

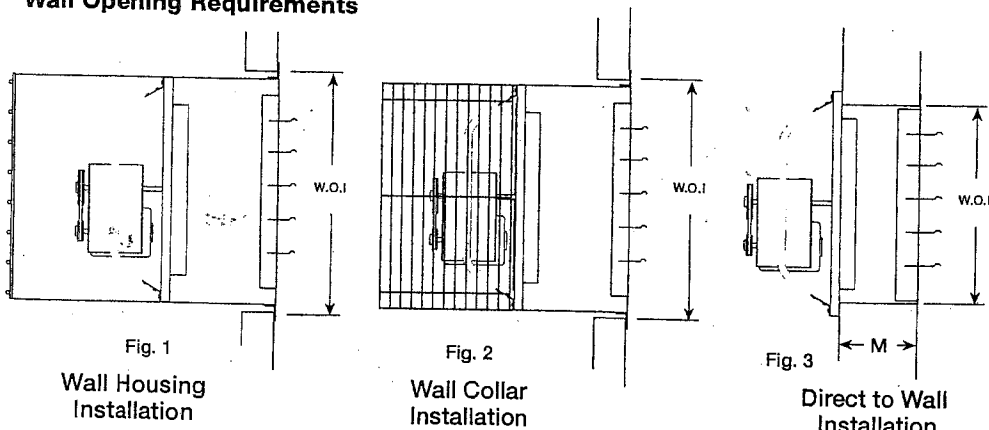
### TYPICAL INSTALLATIONS

Wall opening size and propeller-to-damper distance are two important dimensions for fan installation. Fans mounted to the wall require a different 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.

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

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.

### Wall Opening Requirements



Fan Size	D Damper Size	WO-I Sq.	WO-II Sq.	M Min.
8	10x10	14 <sup>1</sup> / <sub>4</sub>	10 <sup>1</sup> / <sub>2</sub>	13
10	12x12	16 <sup>1</sup> / <sub>4</sub>	12 <sup>1</sup> / <sub>2</sub>	13
12	14x14	19 <sup>1</sup> / <sub>4</sub>	14 <sup>1</sup> / <sub>2</sub>	13
14	16x16	21 <sup>1</sup> / <sub>4</sub>	16 <sup>1</sup> / <sub>2</sub>	13
16	18x18	23 <sup>1</sup> / <sub>4</sub>	18 <sup>1</sup> / <sub>2</sub>	13
18	20x20	25 <sup>1</sup> / <sub>4</sub>	20 <sup>1</sup> / <sub>2</sub>	13
20	22x22	27 <sup>1</sup> / <sub>4</sub>	22 <sup>1</sup> / <sub>2</sub>	13
24	26x26	33 <sup>3</sup> / <sub>4</sub>	26 <sup>1</sup> / <sub>2</sub>	13
30	32x32	39 <sup>3</sup> / <sub>4</sub>	32 <sup>1</sup> / <sub>2</sub>	13
36	38x38	45 <sup>3</sup> / <sub>4</sub>	38 <sup>1</sup> / <sub>2</sub>	14
42	44x44	51 <sup>3</sup> / <sub>4</sub>	45 <sup>1</sup> / <sub>2</sub>	15
48	50x50	57 <sup>3</sup> / <sub>4</sub>	50 <sup>1</sup> / <sub>2</sub>	16
54	56x56	63 <sup>3</sup> / <sub>4</sub>	56 <sup>1</sup> / <sub>2</sub>	17
60	62x62	69 <sup>3</sup> / <sub>4</sub>	62 <sup>1</sup> / <sub>2</sub>	18
72	74x74	83 <sup>3</sup> / <sub>4</sub>	74 <sup>1</sup> / <sub>2</sub>	19

### PRESTARTING 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. 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 name

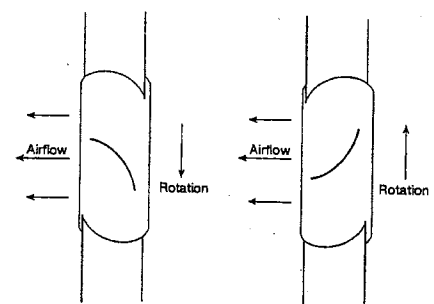


Fig. 4

## ROUTINE MAINTENANCE

2B

### WARNING

DISCONNECT AND SECURE TO THE "OFF" POSITION ALL ELECTRICAL POWER TO THE FAN PRIOR TO INSPECTION OR SERVICING. FAILURE TO COMPLY WITH THIS SAFETY PRECAUTION COULD RESULT IN SERIOUS INJURY OR DEATH.

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
- REMOVAL OF DUST/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  $1/64$ " for each inch of belt span. For example, if the belt span is 64 inches, the belt deflection should be one inch using moderate thumb pressure at midpoint of the drive (Fig. 5).

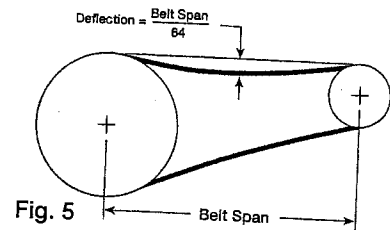


Fig. 5

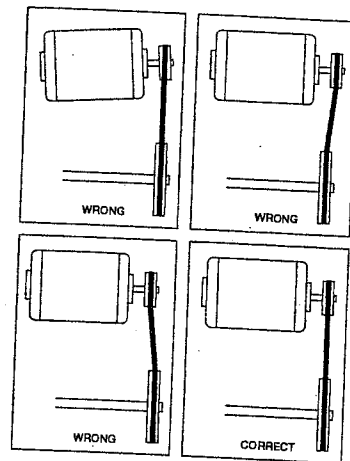


Fig. 6

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.

### 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./below 200°F., 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./above 200°F., 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

Dust 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. Under no circumstances should motors or bearings be sprayed with steam or water.

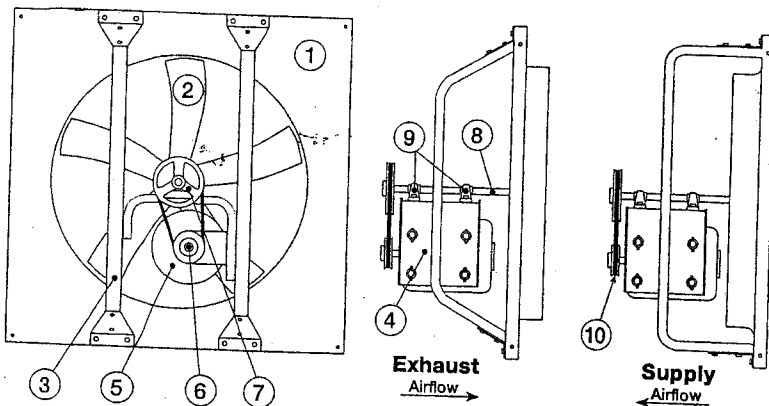
## TROUBLESHOOTING

PROBLEM	CAUSE	CORRECTIVE ACTION
Reduced airflow	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.
Excessive Noise	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 "Routine 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.

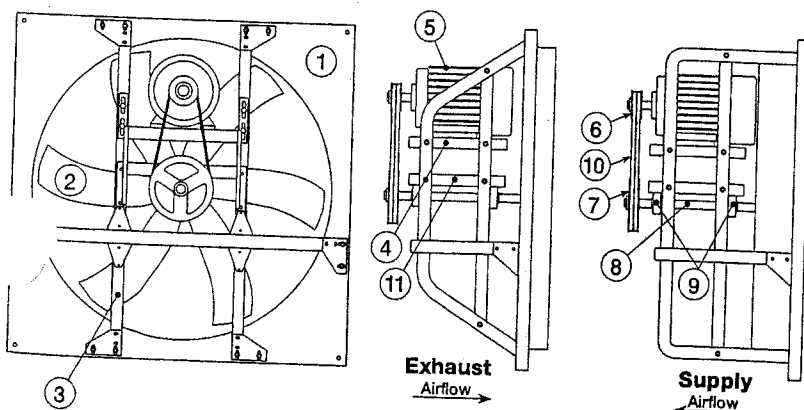
## Belt Drive Fans Parts List

For SB-1L/H and SBC-2L/H Fans



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

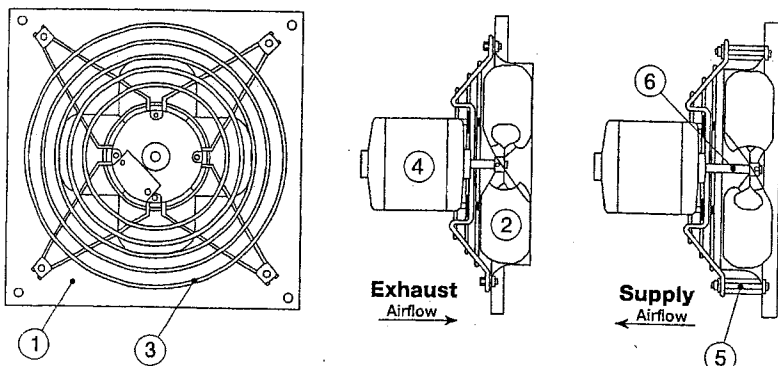
For SB-3L/H and SBC-3L/H Fans



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

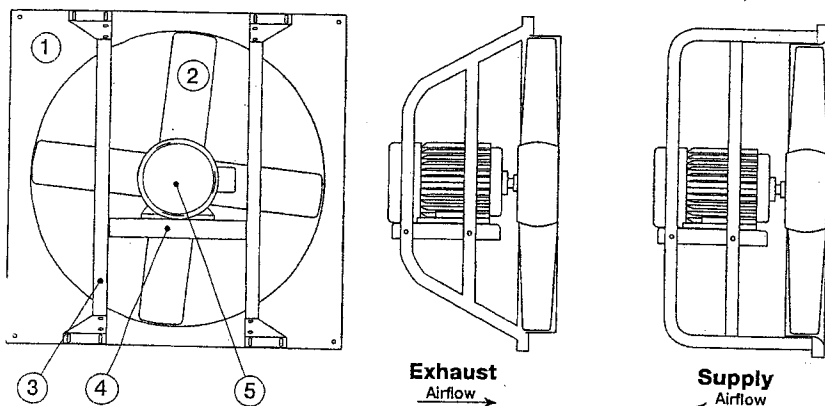
# Direct Drive Fans Parts List

For S1 Fans (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

For S1 (sizes 12 thru 24 A, B, and C motor speeds), S2, and SC3 Fans



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

## Warranty

Greenheck warrants its equipment to be free from defects in materials and workmanship for a period of one year from the date of purchase. Any unit or part which proves defective within this warranty period will be repaired or replaced at no charge. Return of defective units to our factory, by transportation charges prepaid by the purchaser, is required for warranty service.

Motors are warranted by the motor manufacturer for a period of one year. Should a motor manufactured by Greenheck prove defective during this period, they shall be repaired, replaced or returned to the motor manufacturer at no charge. Greenheck will be responsible for removal or installation of the motor.

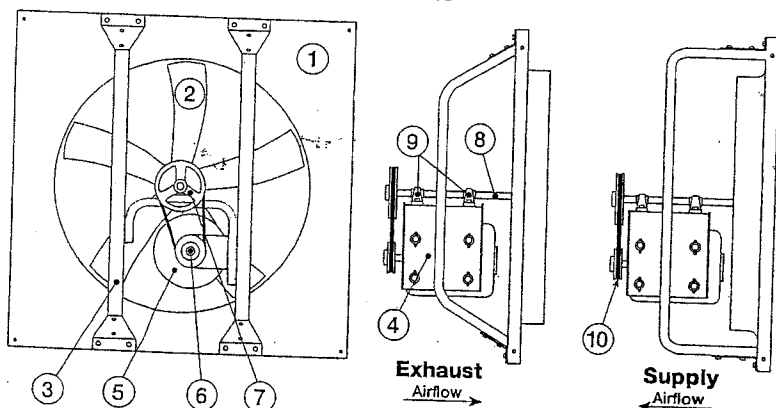
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	Excessive vibration	Clean dirt build-up from propeller. Check all set screws and fasteners for tightness. Check for worn bearing. Correct propeller imbalance. Check for loose dampers, guards or ductwork.
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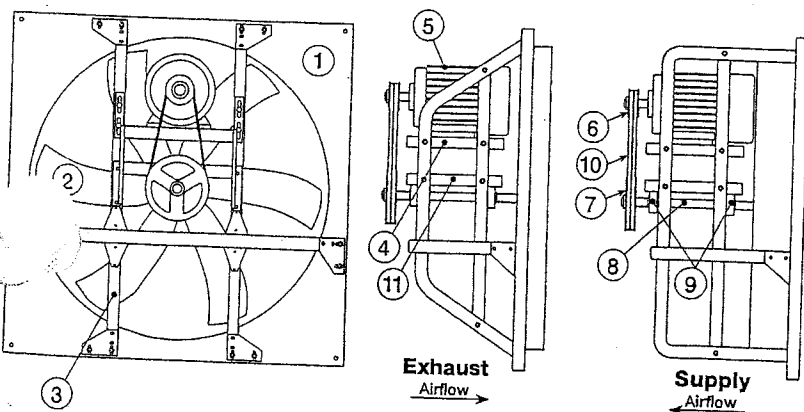
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For SB-1L/H and SBC-2L/H Fans



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

For SB-3L/H and SBC-3L/H Fans



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