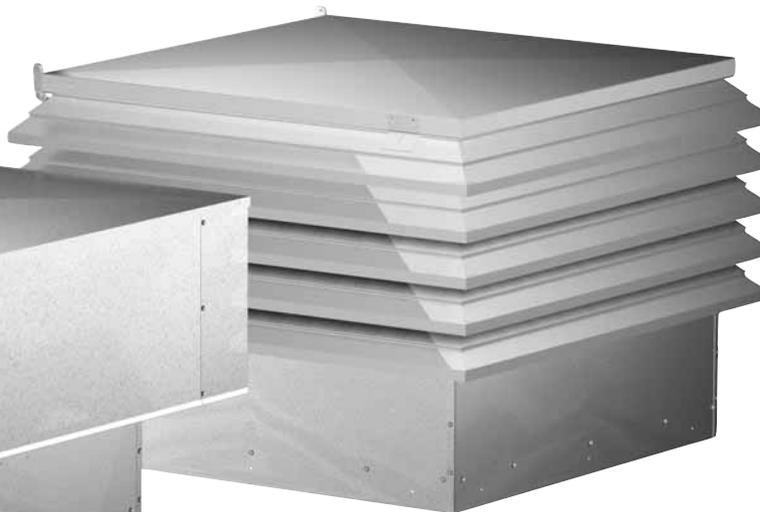




**Roof Supply Fans  
Models RSF and RSFP**

**Installation, Operation and Maintenance Manual**

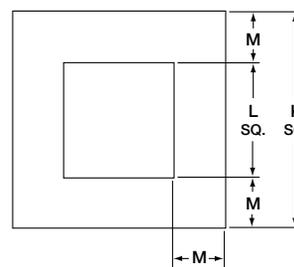
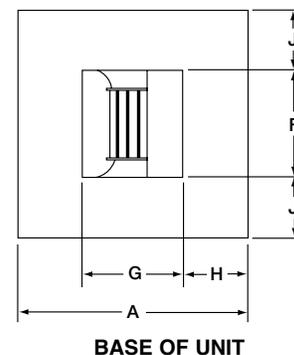
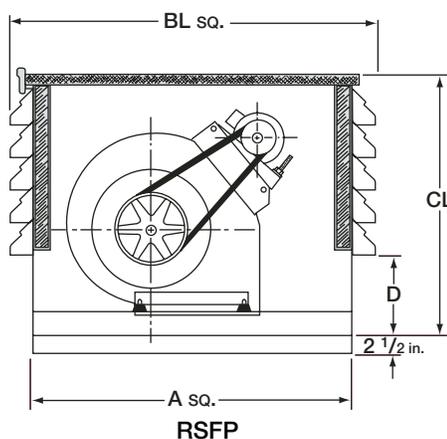
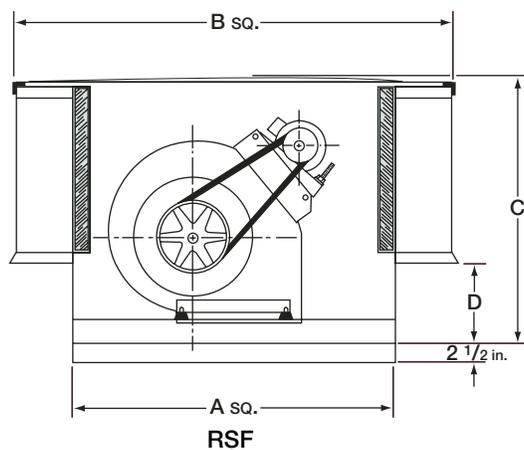
**Model RSF**



**Model RSFP**

Greenheck Model RSF and RSFP fans are thoroughly inspected and test run at the factory, however damage may occur during handling and shipping. Consequently, it is important to inspect the unit for visible and concealed damage before beginning installation. Report any damage to the shipper immediately. In addition, assure all accessory items are accounted for.

**Dimensional Data**



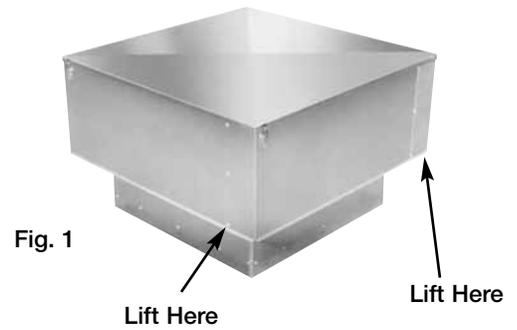
Fan Size	A SQ.	B SQ.	BL SQ.	C	CL	D	F	G	H	J	K SQ.	L SQ.	M	Nominal Filter	Louver Tiers RSFP	Weights	
																RSF	RSFP
90	26	35 <sup>1</sup> / <sub>8</sub>	31 <sup>7</sup> / <sub>8</sub>	23 <sup>1</sup> / <sub>4</sub>	25 <sup>3</sup> / <sub>8</sub>	10 <sup>1</sup> / <sub>4</sub>	12 <sup>1</sup> / <sub>4</sub>	10 <sup>3</sup> / <sub>4</sub>	7 <sup>5</sup> / <sub>8</sub>	6 <sup>7</sup> / <sub>8</sub>	24 <sup>1</sup> / <sub>2</sub>	12 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>8</sub>	(4) 12x20	3	145	126
100	30	41 <sup>1</sup> / <sub>8</sub>	35 <sup>7</sup> / <sub>8</sub>	23 <sup>1</sup> / <sub>4</sub>	25 <sup>3</sup> / <sub>8</sub>	10 <sup>1</sup> / <sub>4</sub>	13 <sup>3</sup> / <sub>8</sub>	11 <sup>7</sup> / <sub>8</sub>	9 <sup>1</sup> / <sub>16</sub>	8 <sup>3</sup> / <sub>16</sub>	28 <sup>1</sup> / <sub>2</sub>	14 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>	(4) 12x25	3	173	146
120	34	47 <sup>1</sup> / <sub>8</sub>	39 <sup>7</sup> / <sub>8</sub>	27 <sup>1</sup> / <sub>4</sub>	29 <sup>3</sup> / <sub>8</sub>	10 <sup>1</sup> / <sub>4</sub>	16 <sup>1</sup> / <sub>8</sub>	13 <sup>7</sup> / <sub>8</sub>	10 <sup>1</sup> / <sub>16</sub>	8 <sup>15</sup> / <sub>16</sub>	32 <sup>1</sup> / <sub>2</sub>	18 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>	(4) 16x25	4	225	180
150	40	53 <sup>1</sup> / <sub>8</sub>	45 <sup>7</sup> / <sub>8</sub>	31 <sup>1</sup> / <sub>4</sub>	33 <sup>3</sup> / <sub>8</sub>	10 <sup>1</sup> / <sub>4</sub>	19 <sup>1</sup> / <sub>8</sub>	16 <sup>1</sup> / <sub>2</sub>	11 <sup>1</sup> / <sub>4</sub>	10 <sup>7</sup> / <sub>16</sub>	38 <sup>1</sup> / <sub>2</sub>	20 <sup>1</sup> / <sub>4</sub>	9 <sup>1</sup> / <sub>8</sub>	(8) 16x20	5	336	250
180	46	61 <sup>1</sup> / <sub>8</sub>	51 <sup>7</sup> / <sub>8</sub>	34 <sup>1</sup> / <sub>4</sub>	35 <sup>3</sup> / <sub>8</sub>	12 <sup>1</sup> / <sub>4</sub>	22 <sup>1</sup> / <sub>2</sub>	19 <sup>1</sup> / <sub>2</sub>	10 <sup>1</sup> / <sub>8</sub>	11 <sup>3</sup> / <sub>4</sub>	44 <sup>1</sup> / <sub>2</sub>	26 <sup>1</sup> / <sub>4</sub>	9 <sup>1</sup> / <sub>8</sub>	(4) 16x20 (4) 20x20	5	400	285
200	52	73 <sup>1</sup> / <sub>8</sub>	58 <sup>3</sup> / <sub>16</sub>	39 <sup>1</sup> / <sub>4</sub>	40 <sup>3</sup> / <sub>8</sub>	12 <sup>1</sup> / <sub>4</sub>	23 <sup>1</sup> / <sub>4</sub>	25 <sup>1</sup> / <sub>4</sub>	13 <sup>3</sup> / <sub>8</sub>	14 <sup>3</sup> / <sub>8</sub>	50 <sup>1</sup> / <sub>2</sub>	30 <sup>1</sup> / <sub>4</sub>	10 <sup>1</sup> / <sub>8</sub>	(8) 20x25	6	620	431

All dimensions are in inches.

## Lifting

Lifting the RSF and RSFP model fans must be done with care to avoid damaging the housing. For Model RSF attach four lifting devices under the outer housing, each device beneath the vertical row of fasteners (Fig. 1). Lifting devices should be a minimum of 3 in. wide to avoid damaging the sheet metal housing. **Do not lift Model RSF near the center of the outer housing.**

For Model RSFP attach a minimum of four lifting devices under an exterior louver panel, each device near the corner of the louvered housing.



## Installation

Move the fan to its intended location and fasten it securely through mounting holes provided in the fan base. Shims may be necessary depending upon thickness of the roofing material. For ducted applications, an optional duct adapter (if provided) is attached and holds the ductwork in place prior to installing the unit. The following diagram shows a typical installation with prefab roof curb and ductwork.

RSF unit with prepunched mounting holes and 2 1/2 inch skirt to aid in installation.

Ductwork (by others)

Duct adapter (optional) allows ductwork to be completed prior to setting unit on curb.

Roof Curb

### TYPICAL INSTALLATION

Fan	Curb Size*	Recom. Roof Opening	Duct Size ID	Nominal Damper Size
RSF/RSFP- 90	24 1/2	15	12	12 x 12
RSF/RSFP- 100	28 1/2	17	14	14 x 14
RSF/RSFP- 120	32 1/2	21	18	18 x 18
RSF/RSFP- 150	38 1/2	23	20	20 x 20
RSF/RSFP- 180	44 1/2	29	26	26 x 26
RSF/RSFP- 200	50 1/2	33	30	30 x 30

All dimensions are in inches.

Note: In cases where extreme snow depths may be encountered, extended base may be required to raise unit or condensation pans may be required in ductwork.

\*Recommended curb size shown is outside curb dimension without roofing and flashing.

Access to the motor compartment is made by releasing four latches which secure the cover. The cover should be placed in an area where wind will not blow it off the roof.

## Electrical Connection

The electrical supply must be compatible with the fan motor with regard to voltage, phase and amperage capacity. Moreover, the electrical supply line must be properly fused and conform to local and national electrical codes. Electrical lead-in wires should be routed through the pre-punched hole in the optional duct adapter (if provided) and the punched hole in the bottom of the fan housing. Electrical wires must be located so as not to rub on moving components. The electrical supply line is connected to the optional safety disconnect switch (if provided) or wired directly to the motor.

## Pre-Starting Checks

Note: For units shipped with motor and drives separate, refer to the Motor Mounting Instructions included in the hardware bag.

### 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.**

Check all fasteners and set screws for tightness. Rotate the fan wheel by hand to assure it turns freely and is centered between the inlets. Check pulleys and belts for proper alignment to avoid premature belt wear, noise, vibration and power loss. Motor and fan pulleys must be parallel and in line (Fig. 2).

The adjustable motor pulley is set at the factory for the fan RPM specified. Fan speed can be increased by closing or decreased by opening the adjustable motor pulley. Two groove variable pitch pulleys must be adjusted an equal

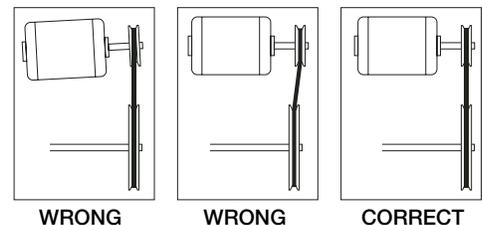


Fig. 2

number of turns open. Any increase in fan speed results in an increase in horsepower required for the motor. Motor load amperes should always be checked and compared to nameplate rating when changing fan speed.

Direction of fan wheel rotation is critical. A fan wheel rotating in the wrong direction will result in reduced airflow, motor overloading and possible burn-out. Check wheel rotation by momentarily turning the fan on.

Rotation should be in the same direction as airflow at the outlet. See housing and wheel examples in Fig. 3. **IMPORTANT NOTE: RSF/RSFP fans should be operated only when attached to the completed system.** Without proper static pressure loading, the motor may be overloaded and burnout may occur.

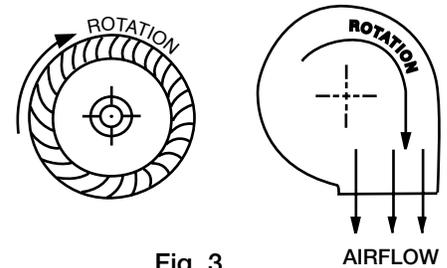


Fig. 3

## Routine Maintenance - See WARNING Page 2

To preserve the reliability and performance designed into the fan, regularly scheduled maintenance should be performed. Items to be checked at each maintenance interval are filters, belts, bearings, fasteners, lubrication and removal of dust and dirt.

### Filters

1 inch washable aluminum mesh filters are standard on Model RSF and RSFP fans. (Optional 2 inch filters may be supplied on some fans). Filters should be cleaned on a regular basis for optimum efficiency.

To remove the filters, first remove the fan cover by releasing the four latches. (Place the cover in an area where wind will not blow it off the roof). The filters can be lifted out and washed in a mild detergent solution. If desired, an adhesive spray available at most filter distributors can be applied to increase filter efficiency.

### Belts

Belt tension should be checked two times during the first 24 hours of operation and during each scheduled maintenance thereafter. Premature belt failures are frequently caused by improper belt tension, either too tight or loose. The proper belt tension for operating a V-belt is the lowest tension at which the belt will not slip at peak load conditions. For initial tensioning, belt deflection should be 1/64 inch for each inch of belt span, determined by using moderate thumb pressure half way between pulley centers. For example, the belt deflection should be 1/2 inch if the belt span is 32 inches (Fig. 4).

Belt tension can be adjusted by loosening the motor plate hinge bolts and adjusting the jack screws as required. RSF/RSFP units are supplied with either a painted steel motor bracket or a galvanized motor plate for larger motor frames. To adjust belt tension on units equipped with the painted steel motor bracket, simply adjust the single jack screw.

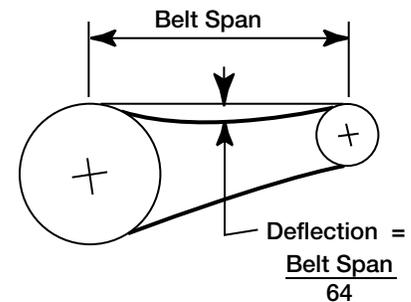


Fig. 4

For units equipped with a galvanized motor plate, both jack screws must be adjusted equally. Check pulley and belt alignment after adjusting belt tension (Fig. 2).

### Lubrication

Fan bearings on Model RSF and RSFP are permanently lubricated. Motor bearings equipped with grease fittings should be lubricated in accordance with instructions on the motor nameplate. Motors without grease fittings are lubricated for life.

### Cleaning

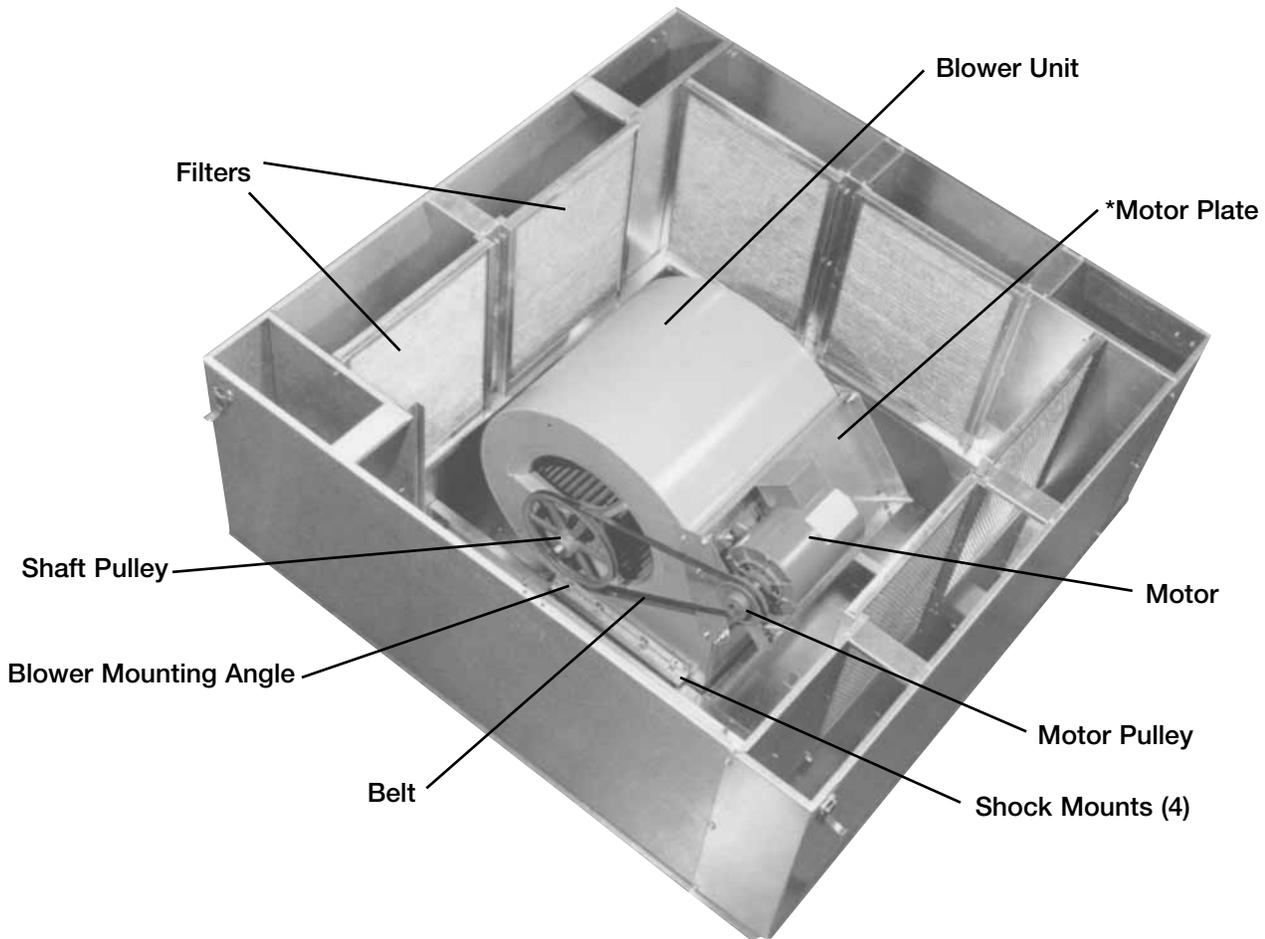
Motors and Fan Wheels require periodic cleaning to remove dust and dirt which may accumulate. Motor cleaning should be limited to the exterior surface only. Removing dust and dirt from the motor housing assists in motor cooling and prolongs motor life. Motors should never be sprayed with steam, water or solvents.

Fan wheels which are left to accumulate dust and dirt will have poor air performance, loss of efficiency and possible damaging vibration due to an unbalanced condition.

Periodic cleaning is a good investment in preserving the reliability and performance designed into the fan.

# PARTS LIST

---



\*Galvanized motor plate shown. Painted steel motor bracket used on units with smaller motor frame sizes.

Note: The unit serial number, located on the Greenheck name tag, should be provided when requesting parts or information.

## Warranty

Greenheck warrants this equipment to be free from defects in material and workmanship for a period of one year from the purchase date. 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.

The motor is warranted by the motor manufacturer for a period of one year. Should the motor furnished by Greenheck prove defective during this period, it 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.

