

READ AND SAVE THESE INSTRUCTIONS

PN 453005



Model GB Belt Drive Centrifugal Roof Exhaust Fans

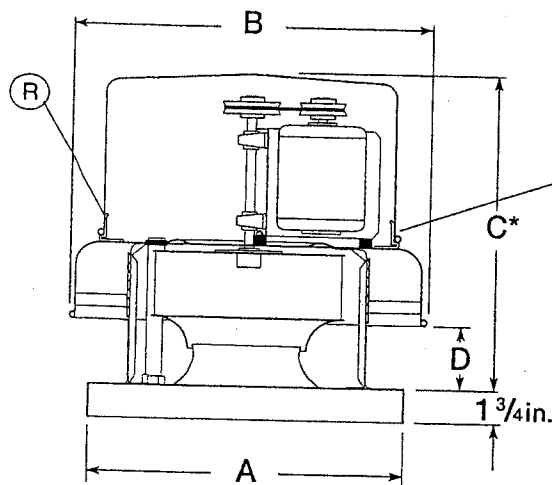
Installation, Operation and Maintenance Manual

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

Move fan to desired location and fasten securely through mounting holes in base. Shims may be necessary depending upon roofing material thickness. The diagram below shows dimensions for Model GB.

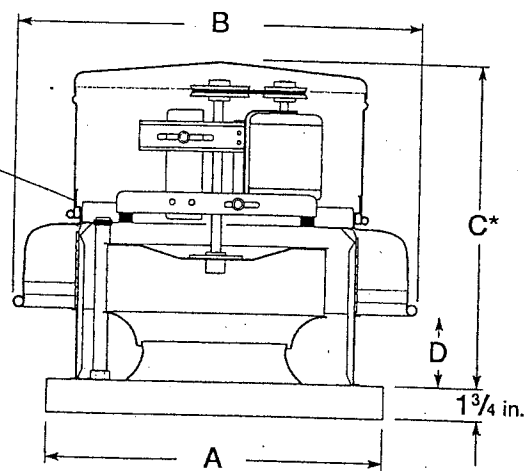
Access to the motor compartment is accomplished by removing the screws designated "R" in Fig. 1 and 2. The cover can then be removed and placed on a flat surface in an area protected from strong winds.

The motor's amperage and voltage ratings must be checked for compatibility to supply voltage prior to final electrical connection. For GB installations, the electrical supply should be routed through the conduit chase provided between the curb cap and the bottom of the motor compartment. Wiring must conform to local and national codes.



GB Sizes 070-130

Fig. 1



GB Sizes 141-540

Fig. 2

Model	A	B	C*	D	Damper	Roof Opening	Approx. Unit Wt.**
GB 070,080,090	17	21 ³ / ₄	20 ³ / ₄	4	10x10	12 ¹ / ₂ x12 ¹ / ₂	43
GB 101,101HP,121	19	24 ³ / ₈	23 ³ / ₄	4 ³ / ₈	12x12	14 ¹ / ₂ x14 ¹ / ₂	66
GB 131	19	28 ³ / ₈	23 ³ / ₄	4	12x12	14 ¹ / ₂ x14 ¹ / ₂	67
GB 141,141HP,161,161HP	22	28 ³ / ₈	23 ³ / ₄	4	16x16	18 ¹ / ₂ x18 ¹ / ₂	89
GB 180,180HP,200,200HP	30	35 ¹ / ₂	28	5 ¹ / ₂	18x18	20 ¹ / ₂ x20 ¹ / ₂	139
GB 220,220HP,240,240HP	34	42 ³ / ₄	31 ¹ / ₂	5 ³ / ₄	24x24	26 ¹ / ₂ x26 ¹ / ₂	159
GB 260,300,300HP	40	50	36	8 ¹ / ₄	30x30	32 ¹ / ₂ x32 ¹ / ₂	323
GB 330,360,360HP	46	58 ³ / ₄	38 ¹ / ₂	8 ³ / ₈	36x36	38 ¹ / ₂ x38 ¹ / ₂	406
GB 420	52	65 ¹ / ₄	44	9 ³ / ₄	42x42	44 ¹ / ₂ x44 ¹ / ₂	499
GB 480	58	73 ³ / ₄	47 ¹ / ₄	11 ¹ / ₄	48x48	50 ¹ / ₂ x50 ¹ / ₂	629
GB 500,540	64	83	50 ³ / ₄	14 ¹ / ₂	54x54	56 ¹ / ₂ x56 ¹ / ₂	755

*May be greater depending on motor.

**Weight shown is largest cataloged Open Drip Proof motor.

All dimensions are in inches.

Dimension "A" given is the inside dimension of the curb cap.

The roof curb should be 1-1/2 in. less than the curb cap to allow for roofing and flashing.

Pre-Starting Checks

Check all fasteners for tightness. The wheel should rotate freely and be aligned as shown in Fig. 3 (see page 2). Wheel position is preset and the unit is test run at the factory. Movement may occur during shipment, and realignment may be necessary. Centering can be accomplished by loosening the bolts holding the drive frame to the shock mounts and repositioning the drive frame. Wheel and inlet cone overlap can be adjusted by loosening the set screws in the wheel and motor.

WHEEL OVERLAP DIMENSIONS

MODEL	GB
070-161	1/4 in.
180-240	3/8 in.
260-540	1/2 in.

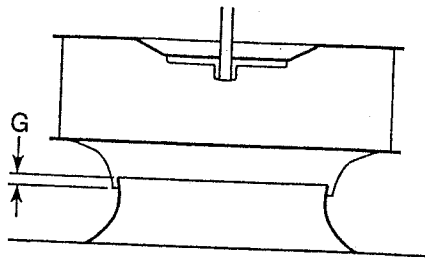


Fig. 3

WHEEL ROTATION

All GB fans have CW wheel rotation when viewed from top of fan.

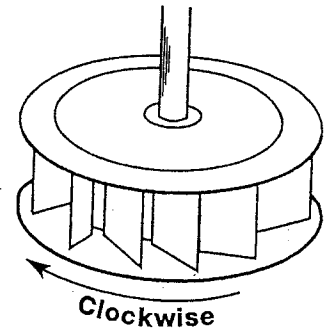


Fig. 4

Direction of wheel rotation is critical. Reversed rotation will result in poor air performance, motor overloading and possible burnout. Check wheel rotation (viewing from the shaft side) by momentarily energizing the unit. Rotation should be clockwise as shown in Fig. 4 and correspond to the rotation decal on the unit.

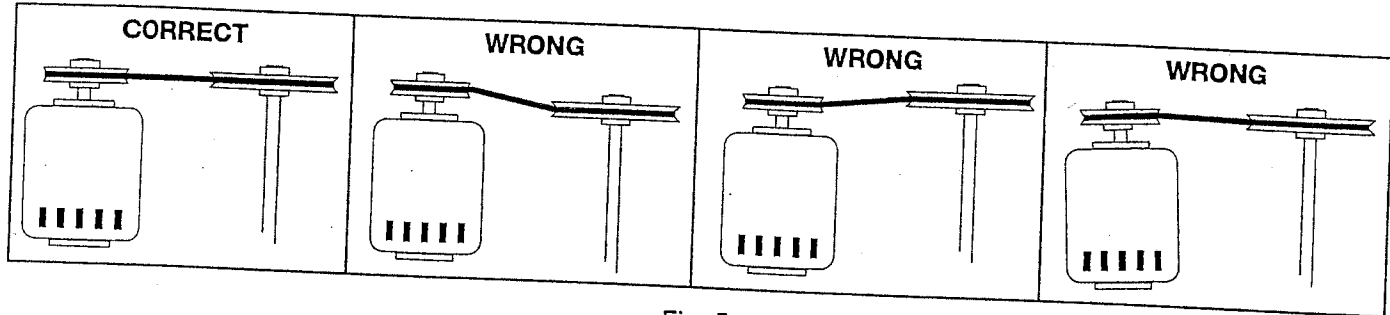


Fig. 5

If adjustments are made, it is very important to check the pulleys for proper alignment. Misaligned pulleys lead to excessive belt wear, vibration, noise and power loss (see Fig. 5).

Belt tension can be adjusted by loosening four fasteners (marked "R") on the drive frame. For GB 70-130 units, pull motor until desired tension is achieved and retighten bolts (see Fig. 6). For GB 140-540 units, the motor plate slides on the slotted adjusting arms and drive frame angles in the same manner (see Fig. 7). Belt tension should be adjusted to allow 1/64 in. of deflection per inch of belt span. For example, a 15 in. belt span should have 15/64 in. (or about 1/4 in.) of deflection with moderate thumb pressure at mid-point between pulleys (see Fig. 8). Over tightening will cause excessive bearing wear and noise. Too little tension will cause slippage at startup and uneven wear.

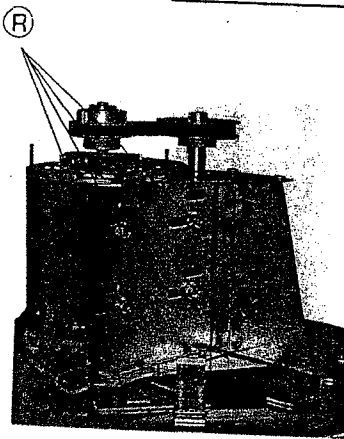


Fig. 6
GB 070-130

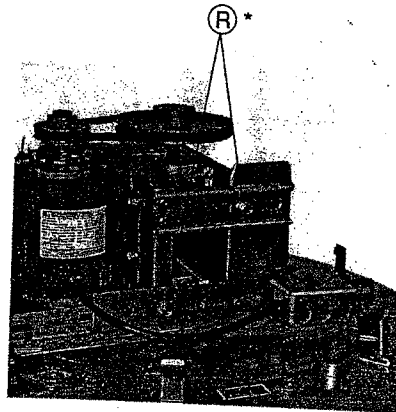


Fig. 7
GB 140-540

$$\text{Deflection} = \frac{\text{Belt Span}}{64}$$

* NOTE:
Identical
fasteners on
opposing side
must also be
loosened.

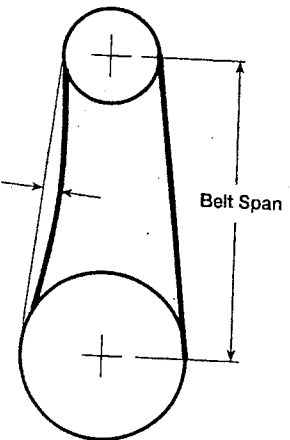


Fig. 8

The adjustable motor pulley is factory set for the RPM specified. Speed can be increased by closing or decreased by opening the adjustable motor sheave. Two groove variable pitch pulleys must be adjusted an equal number of turns open or closed. An increase in speed represents a substantial increase in the horsepower required by a unit. Motor amperage should always be checked to avoid serious damage to the motor when speed is varied.

MAINTENANCE

Belts tend to stretch after a period of time. They should be checked periodically for wear and tightness. When replacing belts, use the same type as supplied with the unit. Matched belts should always be used on units with multigroove pulleys. For belt replacement, loosen the tensioning device far enough to allow removal of the belt by hand. Do not force belts on or off. This may cause cords to break, leading to premature belt failure. Once installed, adjust belts as shown in "Pre-Starting Checks."

Shaft bearings can be classified in two groups: relubricating and non-relubricating. All bearings on standard Model GB fans are factory lubricated and require no further lubrication under normal use (between -20°F and 180°F in a relatively clean environment). Units installed in hot, humid or dirty locations should be equipped with special bearings. These bearings will require frequent lubrication. Caution should be employed to prevent overpacking or contamination. Grease fittings should be wiped clean. The unit should be in operation while lubricating. Extreme care should be used around moving parts. Grease should be pumped in very slowly until a slight bead forms around the seal. A high grade lithium base grease is recommended.

Motor maintenance is generally limited to cleaning and lubrication (where applicable). Cleaning should be limited to exterior surfaces only. Removing dust buildup on motor housing ensures proper motor cooling. Greasing of motors is only intended when fittings are provided. Many fractional hp motors are permanently lubricated and should not be lubricated further. Motors supplied with grease fittings should be greased in accordance with manufacturers' recommendations. Where motor temperatures do not exceed 104°F (40°C), the grease should be replaced after 2000 hours of running time as a general rule.

Wheels require very little attention when moving clean air. Occasionally, oil and dust may accumulate causing imbalance. When this occurs, the wheel and housing should be cleaned to ensure smooth and safe operation.

The unit should be made non-functional when cleaning the wheel or housing (fuses removed, disconnect locked off, etc.).

All fasteners should be checked for tightness each time maintenance checks are performed prior to restarting unit.

A proper maintenance program will help these units deliver years of dependable service.

TROUBLESHOOTING

PROBLEM	CAUSE	CORRECTIVE ACTION
REDUCED AIR FLOW	System resistance too high.	Check system: Proper operation of backdraft or control dampers, obstruction in ductwork, etc.
	Unit running backwards.	Correct as shown in Fig. 4.
	Excessive dirt buildup on wheels.	Clean wheel.
	Improper wheel alignment.	Center wheel on inlets.
EXCESSIVE NOISE OR VIBRATION	Bad bearings.	Replace.
	Belts too tight or too loose.	Refer to Fig. 8 and adjust tension.
	Wheel improperly aligned and rubbing.	Center wheel on inlets (see Fig. 3).
	Loose drive or motor pulleys.	Align and tighten. See "Pre-Starting Checks."
	Foreign objects in wheel or housing.	Remove objects, check for damage or unbalance.
	Unbalance of wheel caused by excessive dirt and grease buildup.	Remove buildup.

: Before taking any corrective action, make certain unit is not capable of operation during repairs.

READ AND SAVE THESE INSTRUCTIONS

PN 453149



Model G Direct Drive Centrifugal Roof Exhaust Fans

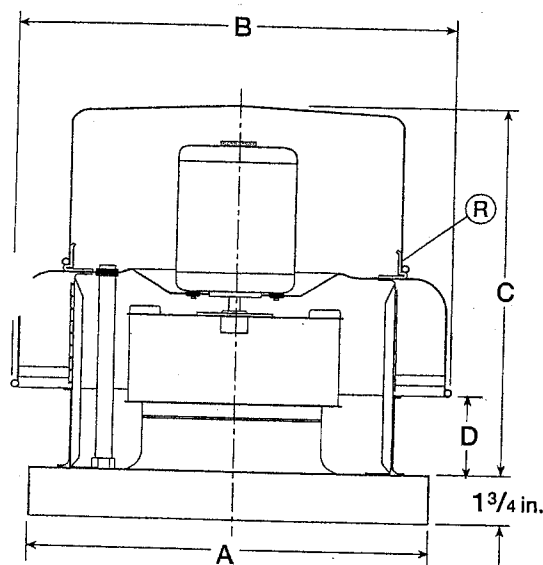
Installation, Operation and Maintenance Manual

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

Move fan to desired location and fasten securely through mounting holes in base. Shims may be necessary depending upon roofing material thickness. The diagram below shows dimensions for Model G.

Access to the motor compartment is accomplished by removing the screws designated "R" in the drawing below. The cover can then be removed and placed on a flat surface in an area protected from strong winds that could blow it off the roof.

The voltage rating of the motor must be checked for compatibility to supply voltage prior to final electrical connection. Electrical lead-in wires should be run through the conduit provided between the curb and the bottom of the motor compartment. Wiring must conform to local and national codes.



Model	A	B	C*	D	Damper	Roof Opening	Approx. Unit Wt.**
G 060,065,070,075	17	19 ³ / ₈	12 ¹ / ₈	3	8x8	10 ¹ / ₂ x10 ¹ / ₂	18
G 080,085,090,095	17	21 ³ / ₄	14 ⁵ / ₈	4	10x10	12 ¹ / ₂ x12 ¹ / ₂	26
G 101,121	19	24 ⁵ / ₈	20	5 ¹ / ₁₆	12x12	14 ¹ / ₂ x14 ¹ / ₂	43
G 131,141	22	28 ⁷ / ₈	20	5 ¹ / ₁₆	16x16	18 ¹ / ₂ x18 ¹ / ₂	58
G 150	26	35 ¹ / ₂	21 ¹ / ₈	4	16x16	18 ¹ / ₂ x18 ¹ / ₂	59
G 160,170	30	35 ¹ / ₂	21 ⁵ / ₈	5 ¹ / ₂	18x18	20 ¹ / ₂ x20 ¹ / ₂	81
G 180	30	35 ¹ / ₂	22 ³ / ₄	6 ³ / ₈	18x18	20 ¹ / ₂ x 20 ¹ / ₂	118

*May be greater depending on motor.

**Weight shown is largest cataloged Open Drip Proof motor.

All dimensions are in inches.

Dimension "A" given is the inside dimension of the curb cap.

The roof curb should be 1-1/2 in. less than the curb cap to allow for roofing and flashing.

Pre-Starting Checks

Check all fasteners for tightness. The wheel should rotate freely and be aligned as shown below. Wheel position is preset and the unit tested at the factory. However, movement may occur during shipment, and realignment may be necessary. Centering (height alignment) may be accomplished by loosening the set screws in the wheel and moving the wheel to the desired position.

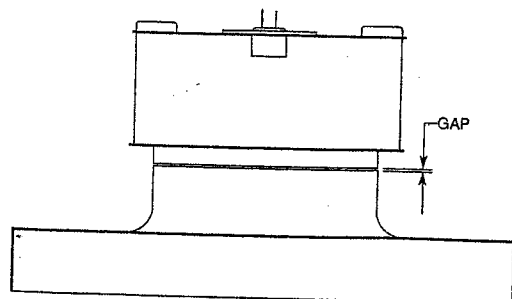
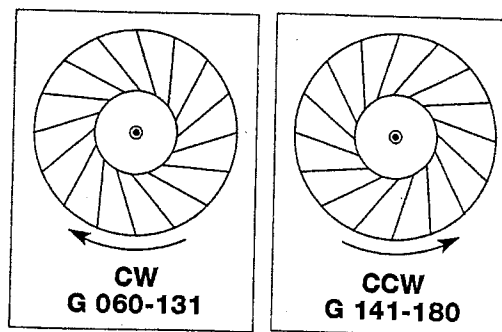


Fig. 1

Wheel Rotation

Direction of rotation is very critical. Improper rotation will result in excessive horsepower and possible motor burnout. Check rotation by energizing the unit only momentarily. The rotation should be as shown in the diagrams below and should be in the same direction as the rotation decals affixed to the unit.



Wheel rotation shown as viewed from top of fan.

Fig. 2

Maintenance

Motor maintenance is generally limited to cleaning and lubrication (where applicable). Cleaning should be limited to exterior surfaces only. Removing dust buildup on motor housing ensures proper motor cooling. Greasing of motors is only intended when fittings are provided. Many fractional motors are permanently lubricated and should not be lubricated after installation. Motors supplied with grease fittings should be greased in accordance with manufacturers' recommendations. With motor temperatures under 104°F (40°C), the grease should be replaced after 2000 hours of running time as a general rule.

Wheels require very little attention when moving clean air. Occasionally, oil and dust may accumulate causing imbalance. When this occurs, the wheel and housing should be cleaned to ensure smooth and safe operation.

All fasteners should be checked for tightness each time maintenance checks are performed prior to restarting unit.

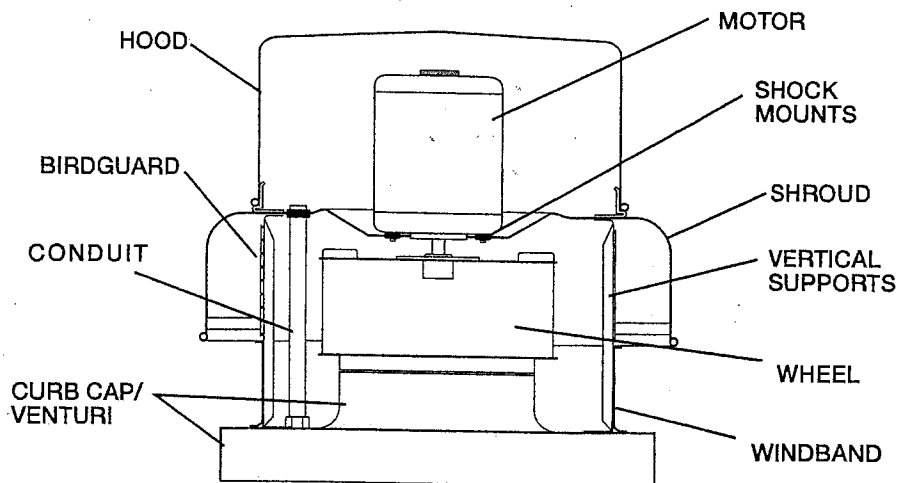
A proper maintenance program will help these units deliver years of dependable service.

Troubleshooting

PROBLEM	CAUSE	CORRECTIVE ACTION
REDUCED AIRFLOW	System resistance too high.	Check system: Proper operation of backdraft or control dampers, obstruction in ductwork, etc.
	Improper wheel alignment.	See Fig. 1 and Pre-Starting Checks.
	Excessive dirt buildup on wheel.	Clean wheel.
	Unit running backwards.	Correct as shown in Fig. 2.
EXCESSIVE NOISE OR VIBRATION	Wheel improperly aligned and rubbing.	See Fig. 1 and Pre-Starting Checks.
	Foreign objects in wheel or housing.	Remove objects, check for damage.
	Unbalance of wheel caused by excessive dirt and grease buildup.	Remove buildup.

NOTE: Before taking any corrective action, make certain unit is not capable of operation during repairs.

Replacement Parts



NOTE: Each fan bears a manufacturer's nameplate with model number and serial number embossed. This information will assist the local Greenheck representative and the factory in providing service and replacement parts.

Warranty