READ AND SAVE THESE INSTRUCTIONS

ROMLAIR
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PH. 310-538-9188

MODEL "HFS"
FILTERED AIR SUPPLY FANS

INSTALLATION AND MAINTENANCE INSTRUCTIONS

SHIPPPING INSPECTION

Check unit for any damage upon delivery. Also check to see that accessory items are included. It is important to report any damage to the shipping company immediately.

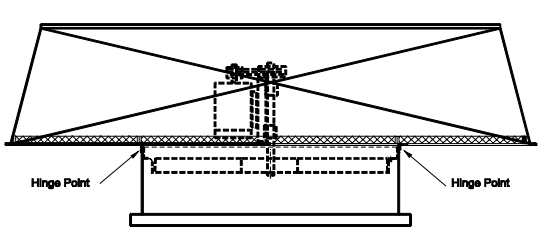
INSTALLATION

Move fan to desired location and fasten securely to the roof curb. Use fasteners to suit construction and material. Fasteners are not supplied by Romla Ventilator Company.

MOTOR AND DRIVE ACCESS

On all sizes the hood easily hinges from the base section of the fan. Remove the two bolts on one side of the fan base where the hood angles are attached.

Use caution when working with the hoods. Make sure hoods are safely secured when servicing the fans.



ELECTRICAL

The motor's amperage and voltage rating must be checked for compatibility to the supply voltage prior to final electrical connection.

The electrical supply normally will come up from the roof opening. The conduit will then be secured to a disconnect switch (optional) or directly to the motor junction box. If the wiring has to be routed through the outside enclosure, the wiring is to be routed through an opening in the unit enclosure which is slightly larger than the conduit fittings. Please note that the opening in the outer enclosure through which the conduit would pass, should be below the opening of the motor junction box where the conduit would be installed. Consult local code authorites for your specific requirement.

Lock off all power sources before unit is wired to power source.

Leave enough slack in the wiring to allow for motor movement when adjusting belt tension.

Disconnect switches are recommended. Place the disconnect switch near the fan in order that the power can be swiftly cut off in case of an emergency,k and in order that maintenance personnel are provided complete control of the power source.

PRE START-UP CHECKS

- Lock out all the primary and secondary power sources.
- Inspect fasteners and setscrews, particulary those used for mounting the unit, and tighten if necessary.
- Inspect belt tension and pulley alignment.
- Inspect motor wiring.
- Ensure the belt touches only the pulleys
- Rotate the fan propeller to ensure it does not rub against the venturi.
- Direction of wheel rotation is critical. Reversed rotation will result in poor air performance, motor overloading and possible burnout. Rotation should correspond to the rotation arrow located on the fan propeller.

CARE AND MAINTENANCE

Good Fan maintenance requires regular and systematatic inspection of all fan parts. Severity of the application should determine frequency of inspection. Regular inspections are recommended for fans exhausting non-contaiminated air. It is recommended the following inspections be conducted twice per year.

- Inspect bolts and setscrews for tightness. Tighten as necessary.
- Inspect belt wear and alignment. Replace worn belts with new belts and adjust alignment as needed.
- Bearings should be inspected.
- Inspect for cleanliness. Clean exteior surfaces only. Removing dust and grease on motor housing assures proper motor cooling.

WARNING

BEFORE INSPECTING OR SERVICING THE FAN, DISCONNECT ALL ELECTRICAL POWER TO THE FAN. FAILURE TO COMPLY COULD RESULT IN SERIOUS INJURY OR DEATH.

V-BELT DRIVE: Check V-belt drive for proper alignment and tension.

Belt tension should be reasonable. When in operation, the tight side of the belts shold be in a straight line from sheave to sheave and with a slight bow in the slack side. Check belt tension after eight hours of operation. All drives should be inspected periodically to be sure belts are under proper tension and are not slipping.The V-belts should be set at the lowest tension at which the belts will not slip at peak operating conditions.

1. When adjusting the belts, the motor hold down bolts must be loosened. Tighten the belt,by sliding the motor until the belt is tight.

2. Be sure that you block the motor tightly and squarely when retightening the motor hold down bolts. This will keep the motor sheave in line with the belt. Start the fan, and if the belt screeches on start up, it is too loose and should be tightened further.

3. After the fan has been running for a while, stop the fan and check the temperature of the sheave. The sheave will get to hot to touch with your hand if the belts are too taut.

To prolong the life of the drive, Romlair fans are sized to handle considerable more load then would be necessary for normal drive design. Replace belts when they show definite signs of wear, otherwise the sheaves will become worn. Do not install new sets of belts in drives where the sheaves have worn grooves. Such sheaves should be replaced with new sheaves to insure a proper fit of the belts in the grooves, thus eliminating the possibility of premature belt failure.

LUBRICATION INSTRUCTIONS FOR FAN BEARINGS

Greasable fan bearings are lubricated through a grease connector and should be lubricated by the schedule. For best results, lubricate the bearings while the fan is rotating. Slowly pump grease into the bearing until a slight bead forms around the bearing seals. Excessive grease can burst seals thus reduce bearing life. In the event bearings cannot be seen, use no more than three injections with a hand-operated grease gun.

For normal conditions lubricate the bearings with or equivalent to Shell Alvania #3 (Lithium Base) grease. Other grades of grease should not be used unless the bearings and lines have been flushed clean.

Greasing Intrerval

Operating temperature of bearing		Greasing interval		
		Environmental condition		
°C	°F	Clean	Dirty	Very dirty heavy humid
50	122	3 years	6 months	3 months
*70	158	1 year	2 months	1 month
100	212	3 months	2 weeks	1 week
120	248	6 weeks	1 week	3 days
150	302	2 weeks	3 days	Daily

*Normal bearing temperature

LUBRICATION INSTRUCTIONS FOR BALL BEARING MOTORS

This is a ball bearing motor. Most fractional horse-power motors are lubricated for life and require no additional lubrication. Intregal horsepower motors have been given initial lubrication at the factory, and are adequate for a long period of operation without relubrication.

Regreasing will vary depending on motor size, speed, and environment. Refer to the motor manufacturer's instructions printed on the motor.

REPLACING BELTS AND BEARINGS

Belts can be replaced without removing the fan from the installation.

1. Loosen the bolts securing the motor, and slide the motor so that the belt can be removed from the motor sheave and then removed from the driven sheave (Propeller shaft).

2. Be sure to replace the worn belt with the same type and size of belt.

3. Install new belt and slide motor so that belt is taut (see belt tension instructions).

Since the new belts have a tendency to stretch, it will be necessary to readadjust the belt tension after a few hours of operation. If it is necessary to remove the fan bearings for cleaning or replacement, read the following instructions.

1. Place the new bearings on the shaft loosely. Drop mounting bolts in place, snug them and adjust the position of shaft with proper spacing at either end.

2. Center both shaft ends in housing using the clearance in the mouting holes for horizontal adjustment and shims if necessary for vertical adjustment.

3. Tighten the bearing on the propeller end first, then tighten the bearing on the sheave side of the shaft.

4. Tap the locking collar lightly at the sheave end. The shaft should slide freely end to end.

5. The final step is to align the shaft with the motor sheave and tighten locking collars.

ADJUSTING VARIABLE PITCH SHEAVES

Many Romlair belt driven fans are furnished with variable-pitch motor sheaves. On some of these fans sheaves may be adjusted for lower fan speeds without concern of over-loading motors. When adjusting sheaves to increase fan speed, check motor current to be sure motor is not overloaded. Keep motor current within nameplate and service factor ratings.

The sheaves used are the VL,VM, and the VP Type. Thesse sheaves are easily adjussted and come in various styles depending upon the size drive and motor shaft.

The following steps should be taken to adjust the pitch diameter:

1. Release belt tension and remove belt or belts from sheave.

2. Loosen setscrew and remove key holding adjust-able half of the groove.

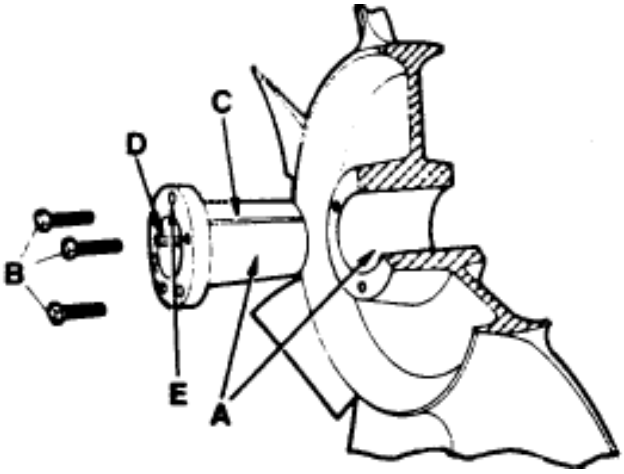
3. Screw adjustable half of sheave out for a smaller pitch diameter (decreased speed), or in for a larger pitch diameter (increased speed). Each one-half turn will change the pitch diameter one tenth of an inch. Adjust two-groove sheaves the same amount on each groove. 4L or A belts will operate satisfactory with the sheave fully closed to a maximum of five full turns open. 5L or B belts will operate satisfacorily with the sheave one full turn open to a maximum of six full turns open.

4. Replace the key and tighten set-screw to lock sheave half in position.

5. Replace the blets and tighten to proper tension.

INSTALLATION INSTRUCTIONS FOR PROPELERS EQUIPPED WITH BROWNING MALLEABLE IRON SPLIT TAPER BUSHING

Romlair cast aluminum and steel fabricated propellers are furnished with split taper bushings for mounting the propeller to the shaft. When properly assembled, the bushinngs grip the hub with a positive clamping action.



A. Bushing barrrel and bore of propeller are tapered-this assures concentric mounting and a true running propeller.

B. Capscrews, when tightened, lock bushing in propeller. Use plated cap-screws threaded full length.

BUSHIN-G NO.	DIA.	LENGTH	TORQUE FT. LBS.
H	1/4 - 20	1-1/4"	7-1/2
P-1	5/16 - 18	1-1/2"	13
P-2	5/16 - 18	1-3/4"	13
Q-2	3/8 - 16	2-1/2"	24
R-2	3/8 - 16	3"	24

C. Bushing is split so that when the locking capscrews force the bushing into the tapered bore, the bushing grips the shaft with a positive clamping fit-this will withstand vibration and punishing loads without being lossened.

D. Propeller and bushing assembly is keyed to shaft and held in place by compression.

Put bushing loosely into propeller. Do not press or drive. Start cap-screws by hand, turning them just enough to engage threads in tapped holes on propeller. Do not use a wrench at the time. The bushing should be loose enough in the propeller to move slightly.

Be sure shaft and keyway are clean and smooth. Check key size with both shaft and bushing keyways.

Slide propeller and bushing assembly onto the shaft, making allowance for end play of shaft to prevent rubbing. Do not force propeller and bushing onto shaft. If it does not go on easily, check shaft, bushing and key sizes.

Tighten capscrews progressively with wrench. Do this evenly as in mounting an automobile wheel. Take a part turn on each capscrew successively until all are tight. These capscrews force the taper bushing into the hub which in turn compresses the bushing onto the shaft. This makes a positive clamping fit. The torque must not exceed that shown in table at left.

WARNING: Do not attempt to pull bushing flange flush with hub end-there should be 1/8” to 1/4” clearance when tightened.

REMOVING PROPELLER ASSEMBLY FROM SHAFT

1. Remove all three capscrews from propeller and hub assembly.

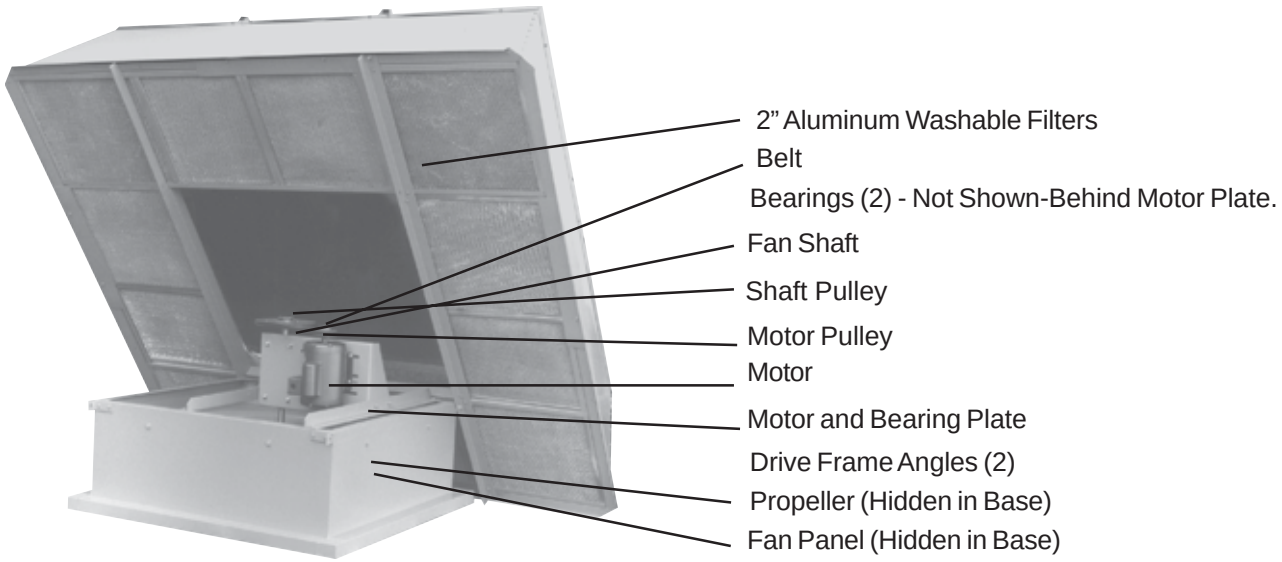
2. Start capscrews into the threaded holes in the bushing flange.

3. Tighten each bolt part of a turn successively to force the propeller off the bushing.

4. Pull the bushing off the shaft.

TROUBLE SHOOTING	
PROBLEM	CAUSE
Low Capacity or Pressure	Incorrect direction of rotation. Make sure the fan rotates in same direction as the arrows on the propeller.
	Poor fan inlet conditions. There should be a straight clear duct at the inlet.
	Improper propeller alignment.
Excessive Vibration and Noise	Damaged or unbalanced propeller.
	Belts too loose: worn or oily belts.
	Speed too high.
	Incorrect direction of rotation. Make sure the fan rotates in same direction as the arrows on the propeller.
	Bearing need lubrication or replacement.
Overheated Motor	Motor improperly wired.
	Incorrect direction of rotation. Make sure the fan rotates in same direction as the arrows on the propeller.
	Cooling air diverted or blocked.
	Improper inlet clearance.
	Incorrect fan RPM's
	Incorrect voltage.
Overheated Bearings	Improper bearing lubrication.
	Excessive belt tension.

MODEL HFS PARTS LIST



FILTERS AND FILTER CARE (FILTERED SUPPLY FANS)

The standard filters furnished with the Romlair Filtered Air Supply Fan are permanent washable type.

Filters must be cleaned regularly to prevent undue resistance and a loss of filtering efficiency. Visual inspection at regular intervals is probably the best method for determining when it is time to clean and change filters.

To clean filters the standard aluminum filters, remove and flush filter with water containing ordinary detergent. Rinse with clean water. Drain and allow to dry, then recoat the filter with filter coat adhesive such as RP Super Filter Coat Adhesive; Research Products Corporation, Madison, Wisconson. Never replace these washable type filters without coating.

The filters on all sizes can be easily replaced without removing the hood. Simply unbolt the two bolts that hold the filter holder in place. See Figure 1.

With the filter holder removed, the filters will drop out of the filter channels. See Figure 2 Slide all the filters out, clean, and re-install.

Note that it is not necessary to hinge the hood back for filter replacement.

Figure 1

Figure 2