



ROMLAI

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**MODEL TB & TD
TUBULAR BELT - DIRECT INLINE FANS**

INSTALLATION OPERATION AND MAINTENANCE INSTRUCTIONS

RECEIVING/SHIPPING 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.

HANDLING

Be sure NOT to lift fans by the fan shaft, housing, motor or belt guard.

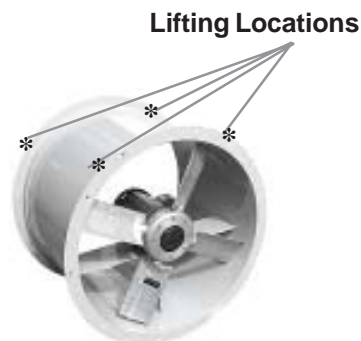


Fig. 1

Fan - Angle Ring Flanges

The factory recommends using a minimum of four bolt holes (2 per each flange), or attach two straps or chains around the fan housing when lifting large fans in a horizontal position.

If the fan is for a vertical installation, attach lifting straps or chains to the inlet/out flange or the fan housing.

STORAGE - INDOOR AND OUTDOOR

If the fan is stored for any length of time prior to installation, rotate the propeller several revolutions every seven days. This keeps a coating of grease on all internal bearing parts. Block propeller to prevent natural rotation and store it in its original shipping crate and protect it from dust and moisture.

If the fan is stored outdoors, maintain a coating of grease or rust preventative compound on the fan shafts. Cover the drive sheaves and motor with plastic wrap.



Model TD



Model TB

ELECTRICAL CONNECTIONS

The motor's amperage and voltage rating must be checked for compatibility to the supply voltage prior to final electrical connection. Consult local and national electrical codes regarding supply wiring requirements.

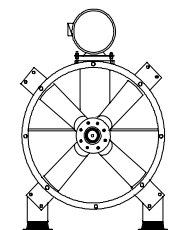
PRE START-UP CHECKS

Check all fasteners for tightness. Movement may occur during shipment and it is very important that all fasteners are secure, This is very important on the bearings and propellers. Manually rotate the propeller by hand to make sure it turns freely and does not make contact with the fan housing.

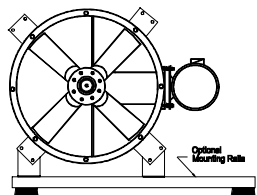
Direction of propeller rotation is critical. Reversed rotation will result in poor air performance, motor overloading and possible burnout. Rotation should correspond to the rotation arrow located on the fan propeller.

TYPICAL INSTALLATIONS - WITH OPTIONAL MOUNTING BRACKETS

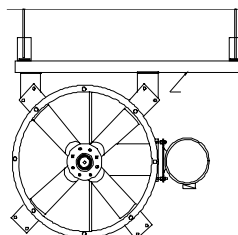
Following are typical mounting installations for models with optional mounting brackets. To facilitate installation, these optional mounting brackets can be welded on each fan. Optional mounting rails are required in mounting arrangements 2 & 3.



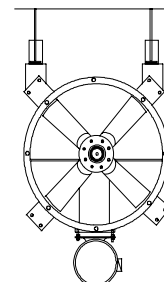
Horizontal Base Mount
Fig. 1



Horizontal Base Mount
Motor at 3 or 9 O'clock Position
Fig. 2



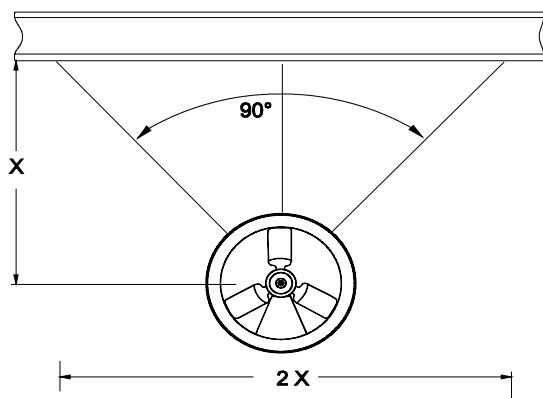
Ceiling Hung-Horizontal
Motor at 3 Or 9 O'clock
Fig. 3



Ceiling Hung -Horizontal
Fig. 4

MODEL TD AND MODEL AF CHAIN SUSPENDED MOUNTING INSTALLATION (MODEL AF SHOWN)

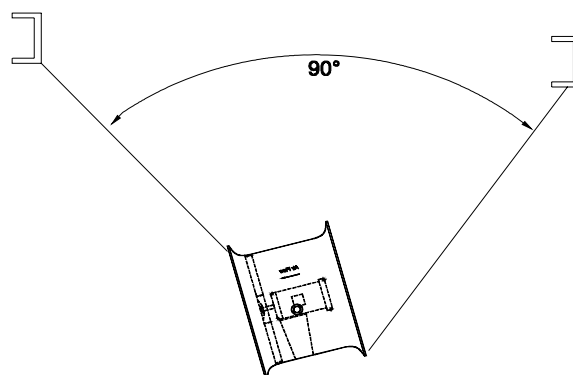
MANCOOLER-AIR CIRCULATION APPLICATIONS



CHAIN SUSPENDED INSTALLATION

A Romlair Model TD fan can be chain suspended in many different ways. What is most important is that the fan must be hung at the three points provided by eye bolts on the fan. Also verify the materials used to suspend the fan should be rated for the proper operating weight of the fan and workload.

1. On chain suspended applications, the fan is shipped with the 3 eyebolts fastened to the fan and pointed out. This will provide more stability.
2. With the assistance of a mechanical lift, bring the factory assembled fan to the spot you wish to suspend. It is recommended that you take 3 lengths of chain, chains connectors, hardware, and cutter with you.



APPROX 30° TILT

3. From the point of desired fan location, secure 2 of the lengths of chain to the beam approximately 2 times the distance the fan will be hanging down from the beam. (SEE ILLUSTRATION). Center the third length of chain between the two front lengths of chain. Secure the chains to the beams.
4. Connect the chains to the eyebolts of the fan using the chain connectors.
5. Point the fan on your target area while still on the mechanical lift.
6. Request a co-worker to stand at the target area. Have another person plug the fan in and let the fan run for approximately 30 seconds. Adjust the fan with someone at the target area, someone at the fan, and someone at the power. **CAUTION: DO NOT ADJUST FAN WHILE IT IS OPERATING.**
7. Cut off any excess chain.

CARE AND MAINTENANCE

WARNING

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

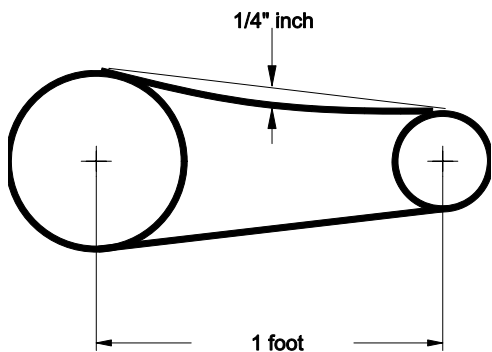
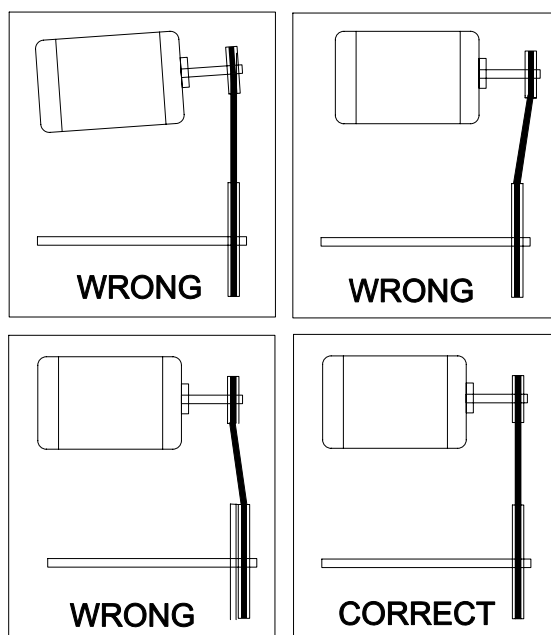


Fig. 3

Improper belt tension or misaligned pulleys frequently cause premature belt failures. The V-belt tension should be at the lowest tension where the belts will not slip at peak load. For proper tension, a deflection of approximately 1/4" per foot of center distance should be obtained by firmly pressing the belt. Refer to Figure 3

Belt tension should be checked during the first 24 hours of operation and re-adjusted if required. Fasteners attaching the motor to the motor plate must be loosened in order to adjust the belt.

Drive pulleys must remain in proper alignment after adjustments are made. Figure 4 illustrates correct and incorrect pulley alignment.



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 Interval

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

LUBRICATION INSTRUCTIONS FOR BALL BEARING MOTORS

Most fraction horsepower and many integral horsepower motors are lubricated for life and require no additional lubrication. 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.

REPLACING BELTS AND BEARINGS

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

1. Lower the motor plate by turning the adjusting bolts that adjust the height of the motor plate, This loosen the the belt tension to the point of being able to remove the belts from both the motor sheave and then 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 (See Belts and Pulleys).

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. These sheaves are easily adjusted 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 the belt tension and remove belt or belts from the sheave.

2. Loosen the set screw and remove key holding adjustable 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 satisfactory 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 belts 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 bushings grip the hub with a positive clamping action.

A. Bushing barrel 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.

BUSHING 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

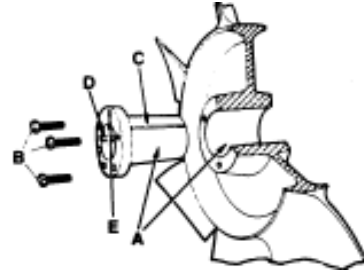
C. Bushing is split so that when the locking capscrews force the bushing into the tapered bore, the bushing grips the shaft with a positive clamping fit- this will withstand vibration and punishing loads without being loosened.

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.



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.

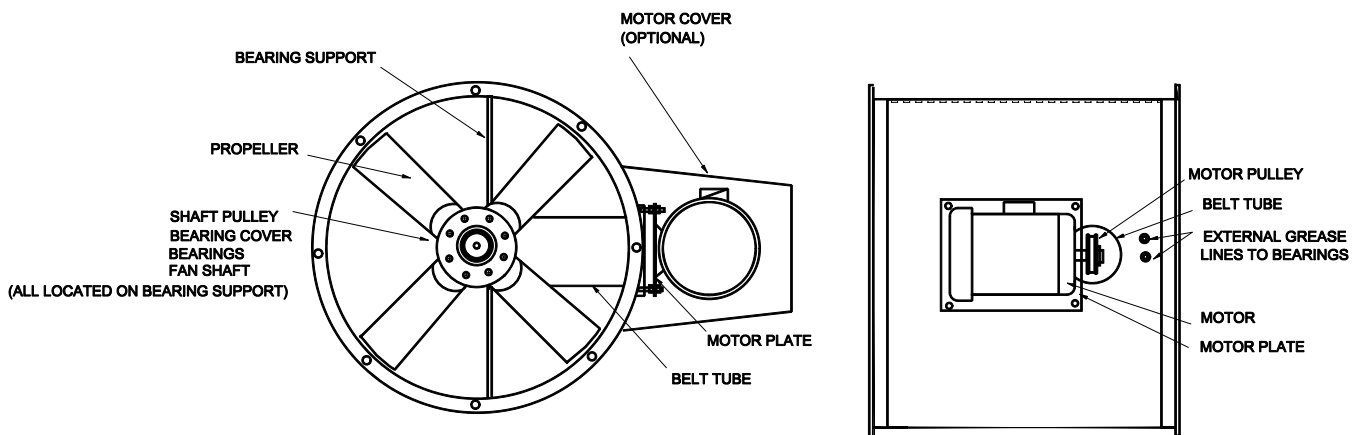
REMOVING PROPELLER ASSEMBLY FROM SHAFT

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.

PARTS LIST



VENTILATION PRODUCTS

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