PROPELLER INLINE

Tube Axial Fans

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

This publication contains the installation, operation and maintenance instructions for standard units of the ADD, ADB, AI, EDD, EDB, TID and TIB *Tube Axial Fans.*

Carefully read this publication and any supplemental documents prior to any installation or maintenance procedure.

Loren Cook catalog, *Propeller Inline,* provides additional information describing the equipment, fan performance, available accessories and specification data.

For additional safety information, refer to AMCA Publication 410-96, *Safety Practices for Users and Installers of Industrial and Commercial Fans*.

All of the publications listed above can be obtained from:

- lorencook.com
- *info@lorencook.com*
- 417-869-6474 ext. 166

For information and instructions on special equipment, contact Loren Cook Company at 417-869-6474.

Receiving and Inspection

Carefully inspect the fan and accessories for any dam-age and shortage immediately upon receipt of the fan.

- Turn the propeller by hand to ensure it turns freely and does not bind
- Record on the *Delivery Receipt* any visible sign of damage

Handling

Lift tube axial fans by placing a sling around the fan housing or mounting brackets.

NOTICE! Never lift by the shaft or motor.

Storage

If the fan is stored for any length of time prior to installation, rotate the propeller several revolutions every three to five days. This keeps a coating of grease on all internal bearing parts. Coat the shaft and bearings with grease or rust preventative compound to help seal out moisture Block propeller to prevent natural rotation and store it in its original shipping crate and protect it from dust, debris and weather.

EDB

WARNING

Rotating Parts & Electrical Shock Hazard:

Fans should be installed and serviced by qualified personnel only.

Disconnect electric power before working on unit (prior to removal of guards or entry into access doors).

Follow proper lockout/tagout procedures to ensure the unit cannot be energized while being installed or serviced.

A disconnect switch should be placed near the fan in order that the power can be swiftly cut off, in case of an emergency and in order that maintenance personnel are provided complete control of the power source.

Grounding is required. All field-installed wiring must be completed by qualified personnel. All field installed wiring must comply with National Electric Code (NFPA 70) and all applicable local codes. Ensure the power supply (voltage, frequency and current carrying capacity of wires) is in accordance with the motor nameplate.

Fans and blowers create pressure at the discharge and vacuum at the inlet. This may cause objects to get pulled into the unit and objects to be propelled rapidly from the discharge. The discharge should always be directed in a safe direction and inlets should not be left unguarded. Any object pulled into the inlet will become a projectile capable of causing serious injury or death.

When air is allowed to move through a non-powered fan, the impeller can rotate, which is referred to as windmilling. Windmilling will cause hazardous conditions due to unexpected rotation of components. Impellers should be blocked in position or air passages blocked to prevent draft when working on fans.

Friction and power loss inside rotating components will cause them to be a potential burn hazard. All components should be approached with caution and/or allowed to cool before contacting them for maintenance.

Under certain lighting conditions, rotating components may appear stationary. Components should be verified to be stationary in a safe manner, before they come into contact with personnel, tools or clothing.

Failure to follow these instructions could result in death or serious injury.

The attachment of roof mounted fans to the roof curb as well as the attachment of roof curbs to the building structure must exceed the structural requirements based on the environmental loading derived from the applicable building code for the site. The local code official may require variations from the recognized code based on local data. The licensed engineer of record will be responsible for prescribing the correct attachment based on construction materials, code requirements and environmental effects specific to the installation.

Installation

Motor Installation

To prevent damage to the fan during shipping, motors 5 HP and larger and extremely heavy motors (cast iron or severe duty) are shipped loose and must be field mounted by bolting the motor on the motor mounting plate in the existing mounting slots If drive pulley is shipped loose, install on motor shaft.

Belt Installation

If your fan is a direct drive, proceed to *Isolator Installation*. Belt tension is determined by the sound the belts make when the fan is first started. The belts will produce a loud squeal which dissipates after the fan is operating at full capacity. If belt tension is too tight or too loose, lost efficiency and damage can occur.

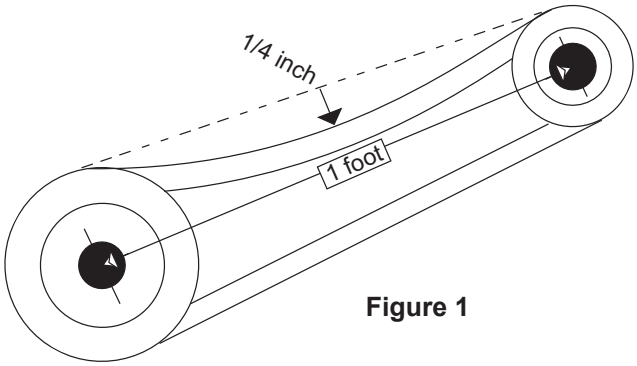


Figure 1

Do not change the pulley pitch diameter to change tension. This will result in a different fan speed.

1. Loosen motor plate adjustment nuts on motor base and move motor plate in order that the belts can easily slip into grooves on pulleys. Never pry, roll or force the belts over the rim of the pulley.
2. Adjust the motor plate until proper tension is reached. 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 1.
3. Lock the motor plate adjustment nuts in place.
4. Ensure pulleys are properly aligned. Refer to Figure 2.

Tolerance

Center Distance	Max. Gap
Up through 12"	1/16"
12" through 48"	1/8"
Over 48"	1/4"

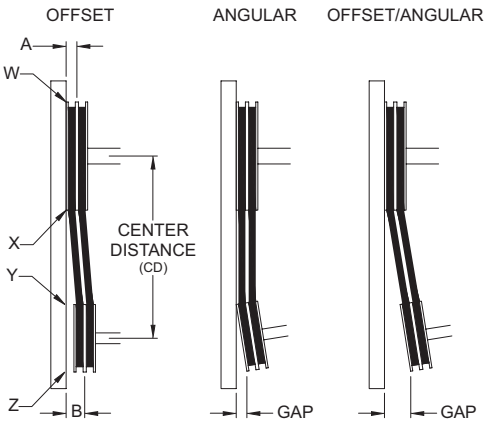


Figure 2

Pulley Alignment

Pulley alignment is adjusted by loosening the motor pulley setscrew and by moving the motor pulley on the motor shaft.

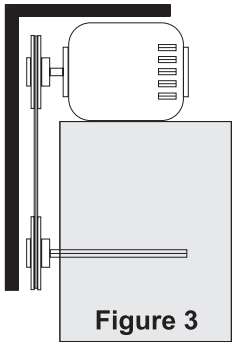


Figure 3

Figure 2 indicates where to measure the allowable gap for the drive alignment tolerance. All contact points (indicated by WXYZ) are to have a gap less than the tolerance shown in the table. When the pulleys are not the same width, the allowable gap must be adjusted by half of the difference in width (as shown in A & B of *Figure 2*). *Figure 3* illustrates using a carpenter's square to adjust the position of the motor pulley until the belt is parallel to the longer leg of the square.

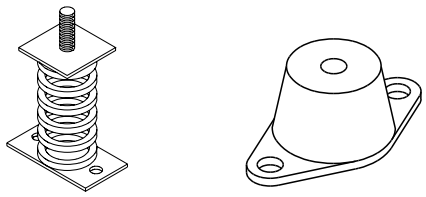
NOTICE! Although a certain amount of vibration is inherent in operating fans, extreme vibration is a serious problem that may cause structural and mechanical failure.

Isolation Installation

To help prevent vibration and noise from being transferred to the building, isolators are recommended.

Floor Mounted Spring Isolators

1. Mount fan on isolation base or rails (if supplied).
2. Elevate fan (or isolation base) to operating height and insert blocks to hold in position.
3. Position isolators under the fan and vertically align by inserting leveling bolt through mounting holes in the fan or the base. The isolator must be installed on a level surface.
4. Adjust the isolators by turning the leveling nut counterclockwise several turns at a time alternately on each isolator until the fan weight is transferred onto the isolators and the fan raises uniformly off the blocks. Then remove the blocks.
5. Turn lock nut onto leveling bolt and secure firmly in place against the top of the mounting flange or frame.
6. Secure isolators to mounting surface.



Spring Isolator Rubber-in-Shear Isolator

Figure 1 - Floor Mount Isolators

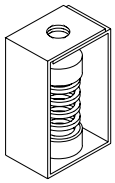
Floor Mounted Rubber-In-Shear (RIS) Isolators

1. Mount fan on isolation base or rails (if supplied).
2. Elevate fan to provide room to insert isolators between the fan and foundation and block in position.
3. Position isolators under fan and secure bolts.
4. Remove blocks and allow fan to rest on floor. Isolators must be installed on a level surface (leveling should not be required).
5. Secure isolators to mounting surface.

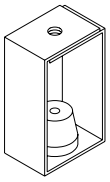
Ceiling Mounted Spring and Rubber-in-Shear (RIS)Isolators

1. Elevate fan to operating height and brace.
2. Attach threaded rod to overhead support structure directly

above each mounting hole. Rod should extend to within a few feet of fan.
3. Attach isolator to end of threaded rod using a nut on each side of isolator bracket.
4. Insert another section of threaded rod through the fan mounting hole and isolator.
5. Attach two nuts to threaded rod in isolator.
6. Place adjusting nut and locking nut on threaded rod near fan mounting bracket.
7. Alternately rotate adjusting nut at each mounting location until the fan weight is uniformly transferred to the isolators. Remove bracing.



Ceiling Mounted Spring Isolator



Rubber-in-Shear Ceiling Isolator

Figure 2 - Ceiling Mount Isolators

Duct Installation

If your fan is a direct drive, proceed to *Wiring Installation* before completing attachment to the duct.

Floor Mounted Units

1. When the fan is secure, attach the duct to the flanges.
2. Drill holes through the flanges to match the duct, then bolt the duct and flanges together.

Ceiling Mounted Units

1. When all the installation supports have been removed and the fan is support only by the permanent structure, attach the duct works.
2. Drill holes through the flanges to match the duct, then bolt the duct and flanges together.

Wiring Installation

Leave enough slack in the wiring to allow for motor movement when adjusting belt tension. Some fractional motors have to be removed in order to make the connection with the terminal box at the end of the motor.

⚠ ***NOTICE! Follow the wiring diagram in the disconnect switch and the wiring diagram provided with the motor. Correctly label the circuit on the main power box and always identify a closed switch to promote safety (i.e., red tape over a closed switch).***

Belt Drive Fans

1. Run wire to the fan. Restrain wire to the housing or motor plate to prevent it from being pulled into the shaft.
2. Pull the wire into the motor. For final connections, follow the wiring diagram provided on the motor.

Direct Drive Fans

1. If the unit does not have an external wiring box then drill a hole through the fan housing at a convenient location and pull the wire through it or pull the wire through the intake duct.
2. Pull the wire into the motor wiring box. Restrain the wire to prevent it from being pulled into the shaft.
3. For final connections, follow the wiring diagram provided on the motor.

Final Installation Steps

1. Inspect fasteners and setscrews, particularly fan mounting and bearing fasteners then tighten according to *Recommended Torque for Setscrews/Bolts*.
2. Inspect for correct voltage with voltmeter.
3. Ensure all accessories are installed.
4. Test the fan to be sure the rotation is the same as indicated by the arrow marked Rotation.

⚠ ***NOTICE! Do not allow the fan to run in the wrong direction. This will overheat the motor and cause serious damage. For 3-phase motors, if the fan is running in the wrong direction, check the control switch. It is possible to interchange two leads at this location so that the fan is operating in the correct direction.***

Operation

Pre-Start Checks

1. Lock out all the primary and secondary power sources.
2. Inspect fasteners and setscrews, particularly those used for mounting the unit, and tighten if necessary.
3. Inspect belt tension and pulley alignment. (Remember, if belt tension is correct, a loud squeal occurs as the fan increases to full power).
4. Inspect motor wiring.
5. Ensure belt touches only the pulleys.
6. Rotate the propeller to ensure it does not rub against the venturi.
7. Ensure fan and ductwork are clean and free of debris.
8. Test the fan to ensure the rotation of the propeller is the same as indicated by the *Rotation* label.
9. Close and secure all access doors.
10. Restore power to unit.

Recommended Torque for Setscrews/Bolts (IN-LB)

Setscrews				Hold Down Bolts	
Size	Key Hex Across Flats	Recommended Torque		Size	Recommended Torque
		Min.	Max.		
#8	5/64”	15	21	3/8”-16	324
#10	3/32”	27	33	1/2”-13	780
1/4	1/8”	70	80	5/8”-11	1440
5/16	5/32”	140	160	3/4”-10	2400
3/8	3/16”	250	290	7/8”-9	1920
7/16	7/32”	355	405	1”-8	2700
1/2	1/4”	560	640	1-1/8”-7	4200
5/8	5/16”	1120	1280	1-1/4”-7	6000
3/4	3/8”	1680	1920	-	-
7/8	1/2”	4200	4800	-	-
1	9/16”	5600	6400	-	-

Start-Up

Ensure free rotation of the prop. Turn on the fan. In variable speed units, set fan to its lowest speed and inspect for the following:

- Direction of rotation
- Excessive vibration
- Unusual noise
- Bearing noise
- Improper belt alignment or tension (listen for a continuous squealing noise)
- Improper motor amperage or voltage

⚠ ***NOTICE! If a problem is discovered, immediately shut off the fan. Lock out all electrical power and check for the cause of the trouble. Refer to Troubleshooting.***

Inspection

Inspection of the fan should be conducted at the first **30 minute**, **8 hour** and **24 hour** intervals of satisfactory operation. During the inspections, stop the fan and inspect as per the *Conditions Chart*, page 5.

30 Minute Interval

Inspect bolts, setscrews and motor mounting bolts. Adjust and tighten as necessary.

8 Hour Interval

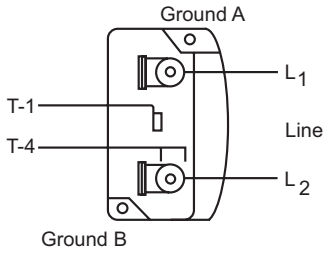
Inspect belt alignment and tension. Adjust and tighten as necessary.

24 Hour Interval

Inspect belt tension. Adjust and tighten as necessary.

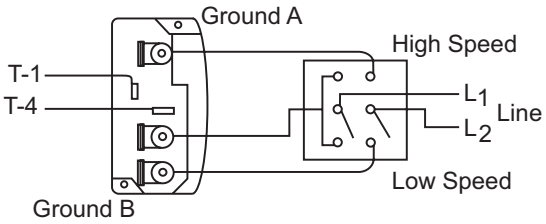
Wiring Diagrams

Single Speed, Single Phase Motor



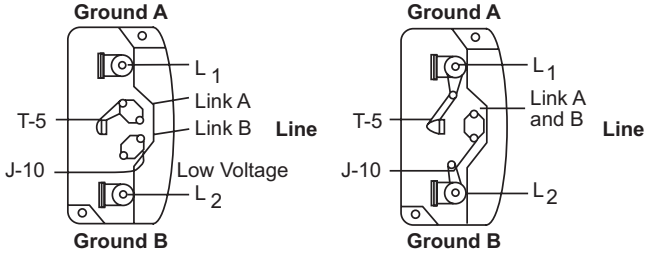
When ground is required, attach to ground A or B with No. 6 thread forming screw. To reverse, interchange T-1 and T-4.

2 Speed, 2 Winding, Single Phase Motor



When ground is required, attach to ground A or B with No. 6 thread forming screw. To reverse, interchange T-1 and T-4 leads.

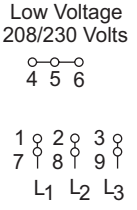
Single Speed, Single Phase, Dual Voltage

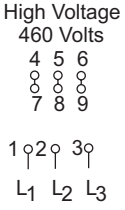


When ground is required, attach to ground A or B with No. 6 thread forming screw. To reverse, interchange T-5 and J-10 leads.

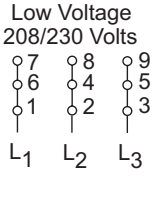
3 Phase, 9 Lead Motor

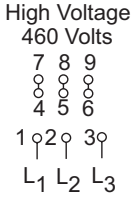
Y-Connection





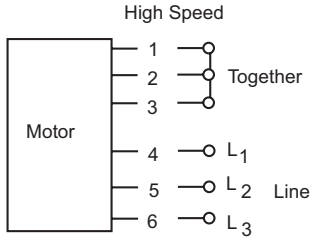
Delta-Connection

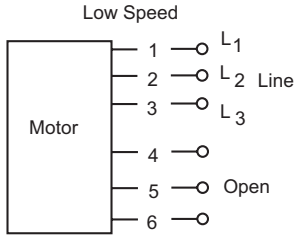




To reverse, interchange any two line leads.

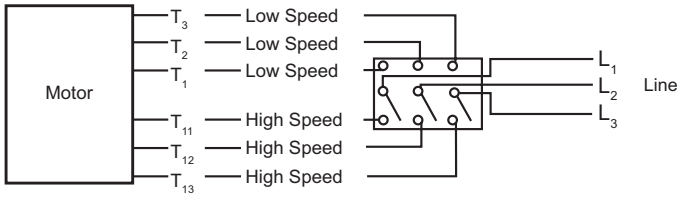
2 Speed, 1 Winding, 3 Phase Motor





To reverse, interchange any two line leads. Motors require magnetic control.

2 Speed, 2 Winding, 3 Phase



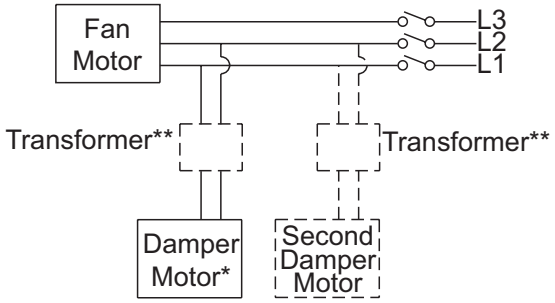
To reverse, High Speed: interchange leads T11 and T12; Low Speed: interchange leads T1 and T2; Both Speeds: interchange any two line leads.

Typical Damper Motor Schematic

For 3 phase, damper motor voltage should be the same between L_1 and L_2. For single phase application, disregard L_3.

* Damper motors may be available in 115, 230 and 460 volt models. The damper motor nameplate voltage should be verified prior to connection.

** A transformer may be provided in some installations to correct the damper motor voltage to the specified voltage.



Maintenance

Establish a schedule for inspecting all parts of the fan. The frequency of inspection depends on the operating conditions and location of the fan.

Inspect fans exhausting corrosive or contaminated air within the first month of operation. Fans exhausting contaminated air (airborne abrasives) should be inspected every three months. Clean the propeller and air inlets if material build-up is excessive. Excessive build-up can cause imbalance and failure of the propeller. Always clean the entire propeller as partial cleaning will cause imbalance and fan failure.

Regular inspections are recommended for fans exhausting non-contaminated 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. Refer to *Belt and Pulley Installation*, page 2
- Bearings should be inspected as recommended in the *Conditions Chart* below

- Inspect for cleanliness. Clean exterior surfaces only. Removing dust and grease on motor housing assures proper motor cooling

Lubrication

Loren Cook Company uses petroleum lubricant in a lithium base conforming to NLGI grade 2 consistency. Other grades of grease should not be used unless the bearings and lines have been flushed clean. If another grade of grease is used, it should be lithium-based.

An NLGI grade 2 grease is a light viscosity, low-torque, rust-inhibiting lubricant that is water resistant. Its temperature range is from -30°F to +200°F and capable of intermit-tent highs of +250°F.

Motor Bearings

Motors are provided with prelubricated bearings. Any lubrication instructions shown on the motor nameplate supersede instructions below.

Motor bearings without provisions for relubrication will operate up to 10 years under normal conditions with no maintenance. In severe applications, high temperatures or excessive contaminates, it is advisable to have the maintenance department disassemble and lubricate the bearings after 3 years of operation to pre-vent interruption of service.

For motors with provisions for relubrication, follow intervals of the table below.

Relubrication Intervals						
Service Conditions	NEMA Frame Size					
	Up to and including 184T		213T–365T		404T and larger	
	1800 RPM and less	Over 1800 RPM	1800 RPM and less	Over 1800 RPM	1800 RPM and less	Over 1800 RPM
Standard	3 yrs.	6 months	2 yrs.	6 months	1 yr.	3 months
Severe	1 yr.	3 months	1 yrs.	3 months	6 months	1 month

Motors are provided with a polyurea mineral oil NGLI #2 grease. All additions to the motor bearings are to be with a compatible grease such as Exxon Mobil Polyrex EM and Chevron SRI.

The above intervals should be reduced to half for vertical shaft installations.

Fan Bearings

Conditions Chart

RPM	Temperature (°F)	Fan Status	Greasing Interval
100	Up to 120	Clean	6 to 12 months
500	Up to 150	Clean	2 to 6 months
1000	Up to 210	Clean	2 weeks to 2 months
1500	Over 210	Clean	Weekly
Any Speed	Up to 150	Dirty	1 week to 1 month
Any Speed	Over 150	Dirty	Daily to 2 weeks
Any Speed	Any Temperature	Very Dirty	Daily to 2 weeks
Any Speed	Any Temperature	Extreme Conditions	Daily to 2 weeks

Fan bearings are lubricated through a grease connector and should be lubricated by the schedule, *Conditions Chart*, shown above.

For best results, lubricate the bearing 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 the bearing cannot be seen, use no more than three injections with a hand-operated grease gun.

Motor Services

Should the motor prove defective within a one-year period, contact your local Loren Cook representative or your nearest authorized electric motor service representative.

Changing Shaft Speed

All belt driven Tube Axial fans with motors up to and including 5HP are equipped with variable pitch pulleys. To change the fan speed, perform the following:

1. Loosen setscrew on driver (motor) pulley and remove key, if equipped.
2. Turn the pulley rim to open or close the groove facing. If the pulley has multiple grooves, all must be adjusted to the same width.
3. Verify belt alignment see page 2 figure 2.
4. After adjustment, inspect for proper belt tension.

Speed Reduction

Open the pulley in order that the belt rides deeper in the groove (smaller pitch diameter).

Speed Increase

Close the pulley in order that the belt rides higher in the groove (larger pitch diameter). Ensure that the RPM limits of the fan and the horsepower limits of the motor are maintained.

Pulley and Belt Replacement

1. Clean the motor and fan shafts.
2. Loosen the motor plate mounting bolts to relieve the belt tension. Remove the belt.
3. Loosen the pulley setscrews and remove the pulleys from the shaft.
   - If excessive force is required to remove the pulleys, a three-jaw puller can be used. This tool, however, can easily warp a pulley. If the puller is used, inspect the trueness of the pulley after it is removed from the shaft. The pulley will need replacement if it is more than 0.020” out of true.
4. Clean the bores of the pulleys and place a light coat of oil on the bores.
5. Remove grease, rust and burrs from the shaft.
6. Place fan pulley on fan shaft and motor pulley on motor shaft. Damage to pulleys can occur when excessive force is used in placing the pulleys on their respective shafts.
7. After the pulleys have been correctly placed back onto their shafts, tighten the pulley setscrews.
8. Install belts on pulleys. Align and adjust the belts to the proper tension as described in *Belt Installation*, page 2.

Bearing and/or Shaft Replacement

The fan bearings are pillow block ball bearings.

1. Loosen the motor plate mounting bolts and remove the drive belts.
2. Gain access to the interior of the fan. Remove duct work and/or guards as necessary.
3. Remove the propeller from the shaft.
4. Remove the bearing cover from the bearing plate.
5. Remove the four bearing hold-down bolts and then remove the shaft, bearings and driven sheave from the unit as an assembly.
6. Mark the location of the bearings and sheave on the shaft. This will aid the reassembly.
7. Remove the anti-corrosion coating from the shaft with a suitable degreaser and then remove the pulley from the shaft.

8. Remove the bearings from the shaft using a bearing puller.
9. When replacing the shaft, lay the old and new shafts side by side and transfer bearing location marks.
10. Clean the shaft and bearing bores thoroughly.
11. Place the bearings into position making sure they are not on a worn section of the shaft. Tapping the inner ring face with a soft driver may be required.

NOTICE! Do not hammer on the housing. This may cause damage to the bearings.

12. Install the pulley in the correct location on the shaft. Secure the bearing hold-down bolts, but do not fully tighten.
13. Align the setscrews on the top bearing with those on the lower bearing. Tighten one of the setscrews on each bearing.
14. Rotate the shaft to allow the bearing outer rings to find their center of free movement. If your fan is supplied with a lube line, attach it to the grease connection.
15. Install the propeller on the shaft and adjust bearing position to center the propeller in the opening.
16. Tighten hold-down bolts to proper torque. Refer to the *Recommended Torque Chart*, page 3.
17. Turn the shaft by hand. Resistance should be the same as it was before hold-down bolts were fully tightened.
18. Re-assemble the fan.

After 24 hours of continuous operation, tighten the setscrews to the appropriate torque. This assures the full locking of the inner race to the shaft. Ensure the socket key or driver is in good condition with no rounded corners. The key should be fully engaged in the setscrew and held squarely to prevent the rounding out of the setscrew socket when applying maximum torque.

Propeller and Shaft Replacement Precautions

- If the shaft is dropped and bent, it may cause unbalanced operation of the fan
- When handling the propeller separately from the shaft, place a support through the hub for lifting, making sure not to injure the finished bore of the propeller
- Never allow the propeller to rest its entire weight on the blades. The propeller and shaft can be lifted by slings around the shaft on each side of the propeller so the propeller is supported by its hub
- If using a chain to lift the propeller, make sure there is sufficient padding on the shaft and propeller. This pre-vents the scoring of the shaft or injury to the propeller. The chain or cable should be spread with timbers, or braced by some other method to prevent damage to the propeller side plates

Troubleshooting

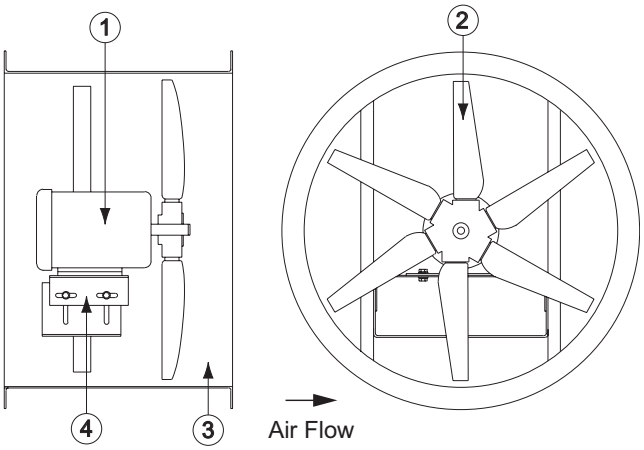
Problem and Potential Cause
Low Capacity or Pressure: • Incorrect direction of rotation. Make sure the fan rotates in same direction as the arrows on the motor or belt drive assembly • Poor fan inlet conditions. There should be a straight clear duct at the inlet • Improper propeller alignment
Excessive Vibration and Noise: • Damaged or unbalance 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 motor or belt drive assembly • Bearings need lubrication or replacement • Fan surge • For direct drive, make sure hub setscrew, if available, is tightened down on motor shaft or on key. For direct drive units with bushing, the hub setscrew, if available, needs to go through the bushing and then tightened down on the motor shaft or on key.
Overheated Motor: • Motor improperly wired • Incorrect direction of rotation. Make sure the fan rotates in same direction as the arrows on the motor or belt drive assembly • Cooling air diverted or blocked • Improper inlet clearance • Incorrect fan RPMs • Incorrect voltage
Overheated Bearings: • Improper bearing lubrication • Excessive belt tension

Parts List

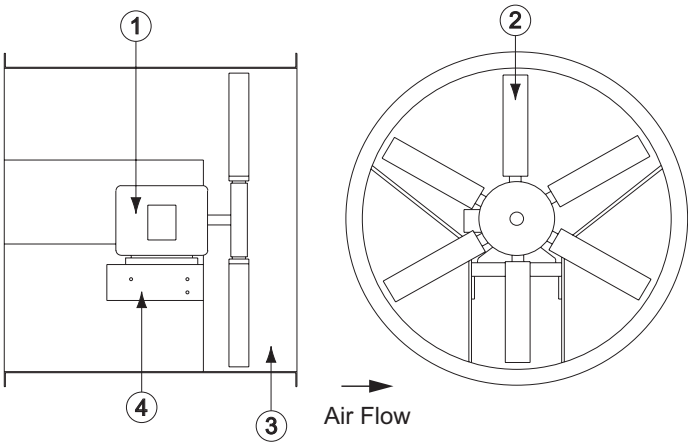
ADD, EDD, TID

Part No.	Description		
	ADD Sizes 12–24	EDD Sizes 24–48	TID Sizes 20–60
1	Motor (as required)	Motor (as required)	Motor (as required)
2	Cast Aluminum Propeller	Extruded Aluminum Propeller	Welded Steel Propeller
3	Housing/Power Assembly	Housing/Power Assembly	Housing/Power Assembly
4	Motor Plate	Motor Plate	Motor Plate

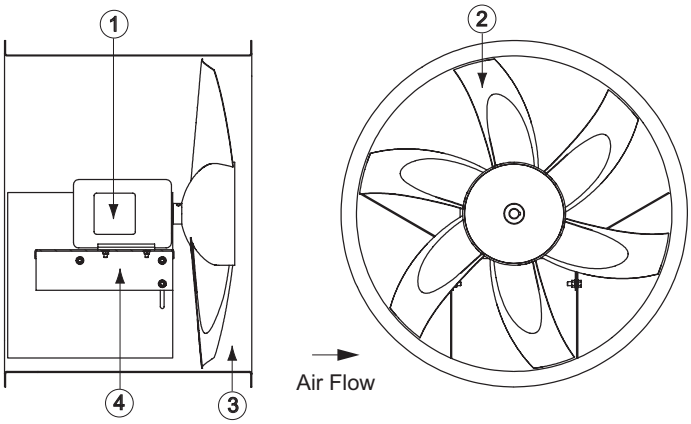
ADD



EDD



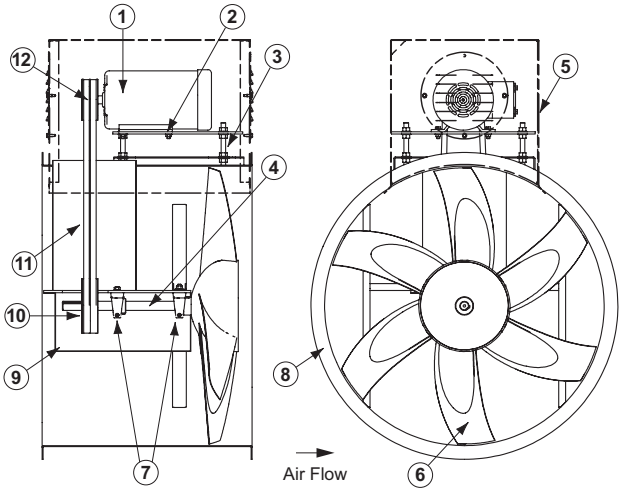
TID



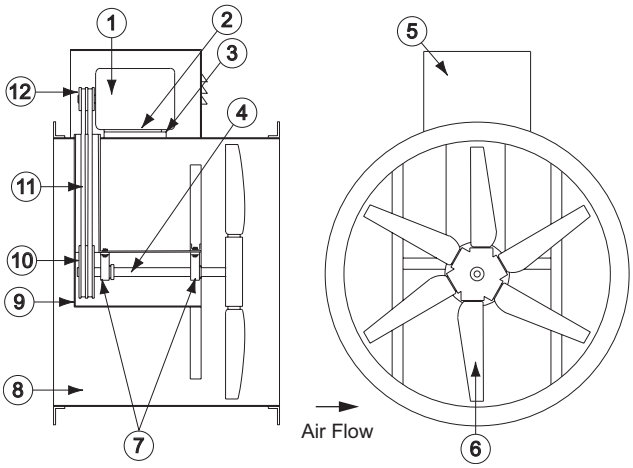
ADB, EDB, TIB

Part No.	Description		
	ADB Sizes 16–48	EDB Sizes 24–60	TIB Sizes 20–72
1	Motor	Motor	Motor
2	Motor Plate	Motor Plate	Motor Plate
3	Motor Plate Studs (4)	Motor Plate Studs (4)	Motor Plate Studs (4)
4	Shaft	Shaft	Shaft
5	Weather Cover (optional)	Weather Cover (optional)	Weather Cover (optional)
6	Cast Aluminum Propeller	Extruded Aluminum Propeller	Welded Steel Propeller
7	Bearings	Bearings	Bearings
8	Housing/Power Assembly	Housing/Power Assembly	Housing/Power Assembly
9	Bearing Cover	Bearing Cover	Bearing Cover
10	Driven Sheave	Driven Sheave	Driven Sheave
11	Belt Set	Belt Set	Belt Set
12	Driver Sheave	Driver Sheave	Driver Sheave

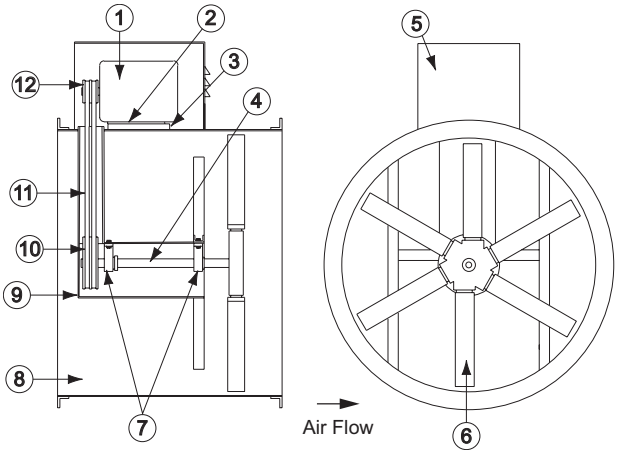
TIB



ADB



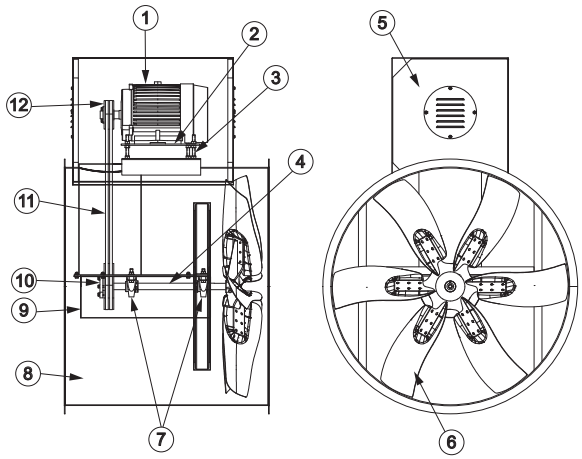
EDB



XIB

Part No.	Description
1	Motor
2	Motor Plate
3	Motor Plate Studs (4)
4	Shaft
5	Weather Cover (optional)
6	Steel Propeller
7	Bearings
8	Housing/Power Assembly
9	Bearing Cover
10	Driven Sheave
11	Belt Set
12	Driver Sheave

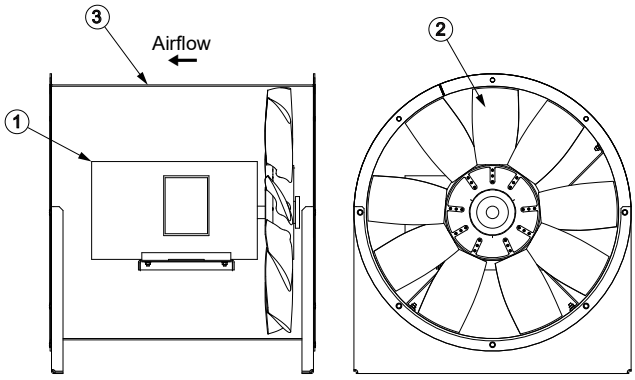
XIB



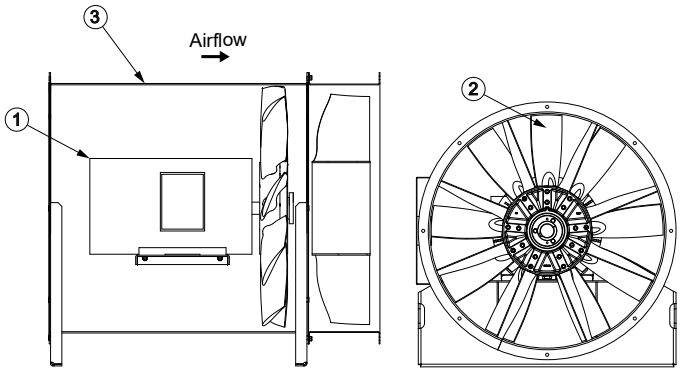
AI

Part No.	Description
1	Motor (as required)
2	Cast Aluminum Propeller
3	Housing/Power Assembly/Legs or Feet

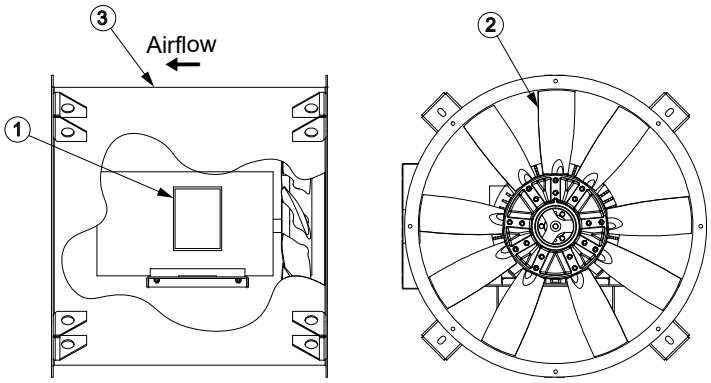
AI Horizontal



AI With Vane Section



AI Vertical



Notes:

Limited Warranty

Loren Cook Company warrants that your Loren Cook fan was manufactured free of defects in materials and workmanship, to the extent stated herein. For a period of one (1) year after date of shipment, we will replace any parts found to be defective without charge, except for shipping costs which will be paid by you. This warranty is granted only to the original purchaser placing the fan in service. This warranty is void if the fan or any part thereof has been altered or modified from its original design or has been abused, misused, damaged or is in worn condition or if the fan has been used other than for the uses described in the company manual. This warranty does not cover defects resulting from normal wear and tear. To make a warranty claim, notify Loren Cook Company, General Offices, 2015 East Dale Street, Springfield, Missouri 65803-4637, explaining in writing, in detail, your complaint and referring to the specific model and serial numbers of your fan. Upon receipt by Loren Cook Company of your written complaint, you will be notified, within thirty (30) days of our receipt of your complaint, in writing, as to the manner in which your claim will be handled. If you are entitled to warranty relief, a warranty adjustment will be completed within sixty (60) business days of the receipt of your written complaint by Loren Cook Company. This warranty gives only the original purchaser placing the fan in service specifically the right. You may have other legal rights which vary from state to state. For fans provided with motors, the motor manufacturer warrants motors for a designated period stated in the manufacturer's warranty. Warranty periods vary from manufacturer to manufacturer. Should motors furnished by Loren Cook Company prove defective during the designated period, they should be returned to the nearest authorized motor service station. Loren Cook Company will not be responsible for any removal or installation costs.

LOREN COOK COMPANY

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