



PARAG FAN & COOLING SYSTEMS LTD.

"AN ISO 9001:2000 COMPANY"

OWNERS MANUAL

FOR OPERATION AND MAINTENANCE

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INTRODUCTION

Thank you for purchasing the Parag Fan & Cooling Systems Limited industrial fan. Your new PFCSL energy efficient FRP fan is built to the highest industry standard. Great care has been taken to design and manufacture a high quality, low maintenance product that is economical to use and maintain.

This manual is intended to assist in the operation and maintenance of your FRP fan. The instructions in this manual are general in nature and apply to a variety of models. Each section explains the need for any special precautions and it the user's prime responsibility to ensure that adequate safety measures are followed in maintenance and operation.



OPERATION

❖ Pre-Start-Up Checklist

Kindly ensure the following before operating the fan for best results.

1. All Safety precautions have been followed
2. All Electrical connection made and locked off.
3. All bolt connections are secured tightly.
4. All obstructions in fan housing and drive are removed (like tools, assembly fixtures, etc)
5. Check all the blades are in one plane.
6. Check leading edge of all blades in direction of rotation.
7. Check Blade setting angle of all blades are equal.
8. Ensure minimum tip clearance (gap between blade tip and fan ring)
9. In case of Belt drive, check belt for adequate tension.
10. Turn the fan by hand to ensure that it does not strike housing.
11. Correct any problems found.
12. Close the Inspection doors (if present).
13. Start fan and bring to full speed. Observe operation for abnormal noise or vibration.
14. Caution: Do not run fan close to critical speed.
15. After 8-10 hours check for operating parameters and performance.
16. Stop the fan and recheck all the bolt connections and tighten if necessary.



ROUTINE MAINTENANCE

Once the unit has been put into operation, a routine maintenance schedule should be set up to accomplish the following:

- a. Remove seal disk first (if present).
- b. Lubrication of bearing and motor.
- c. Bolts and screws of fan should be checked for tightness.
- d. Any dirt accumulation on the fan (hub & blades) should be removed to prevent unbalance and possible damage.
- e. Inspect fan hub for fatigue, corrosion, or wear.
- f. Any damages on fan blades should be rectified.
- g. Ensure pre-start-up check list is being followed after maintenance.

CAUTION!
WHEN PERFORMING ANY SERVICE TO THE FAN,
DISCONNECT THE ELECTRICAL SUPPLY AND
SECURE FAN.



TROUBLE-SHOOTING

Air Flow or pressure below rating

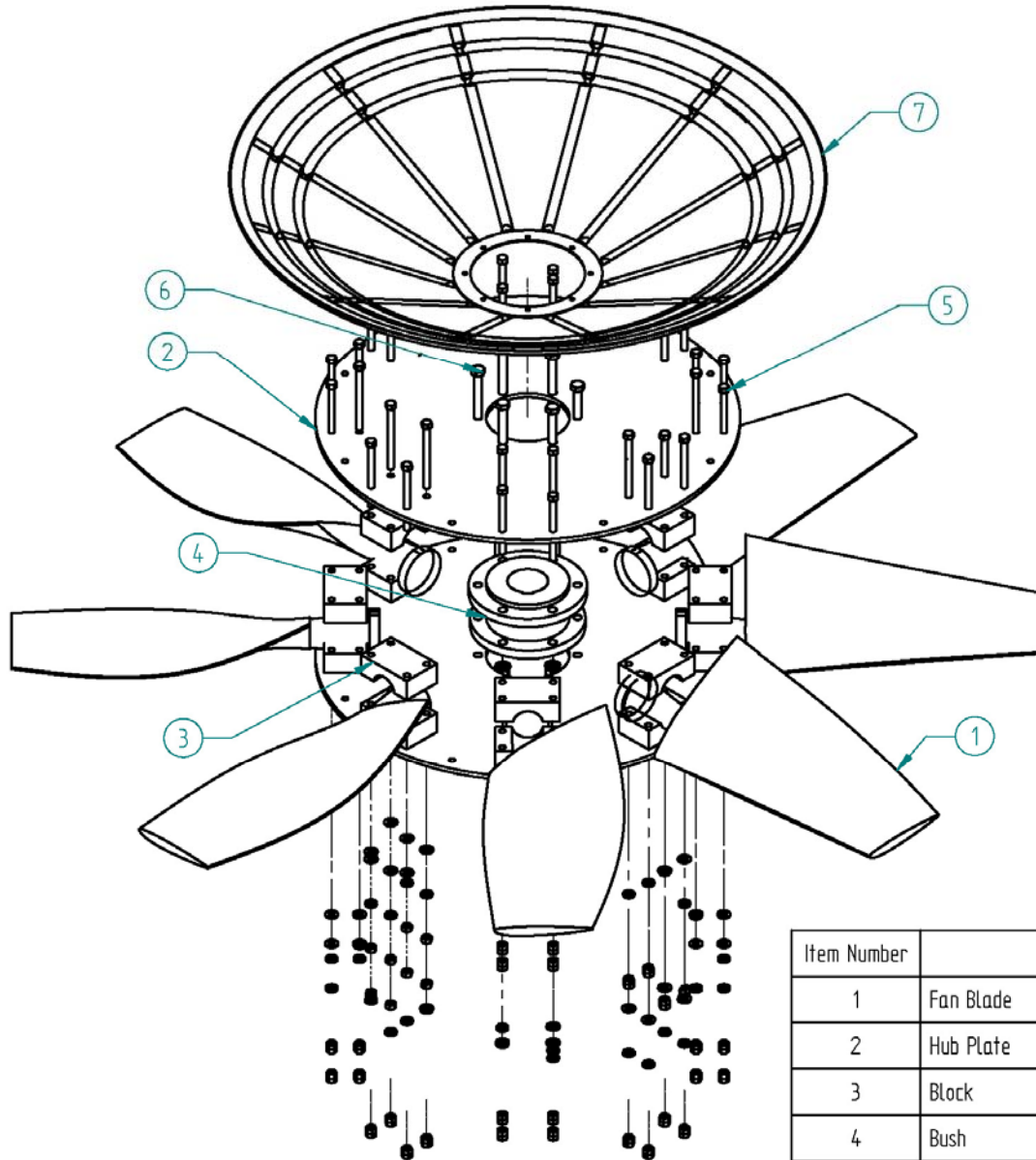
- ❖ Incorrect direction of fan rotation.
- ❖ Speed too slow.
- ❖ Poor fan inlet or outlet conditions.
- ❖ Air leak in system.
- ❖ Damaged Fan Blades.
- ❖ Total resistance of system higher than anticipated.

Vibration and noise

- a. Misalignment, damaged or loose bearing, coupling, Fan or V-belt drive.
- b. Unstable foundation or support.
- c. Foreign material in fan causing misalignment.
- d. Bearing worn or failed.
- e. Broken or loose bolts.
- f. Balancing weight loosens or removed causing unbalance.
- g. Bent shaft.
- h. Fan delivering more than rated capacity.
- i. Wide tip clearance (gap between blade tip and fan ring)
- j. Speed too high or fan rotating in wrong direction.
- k. Vibration transmitted to the fan from some other source.

Ensure performance of other system components like motor, drive shaft, bearings, gear box, belts, sheaves etc. as per manufacturer's specifications.

TYPICAL FAN ASSEMBLY DETAILS



Item Number	Title
1	Fan Blade
2	Hub Plate
3	Block
4	Bush
5	Hexagon head bolt set for Hub Plate
6	Hexagon head bolt set for Bush
7	Seal Disk