



1) **Axial fan (Adjustable pitch type) (Appendix 1)**

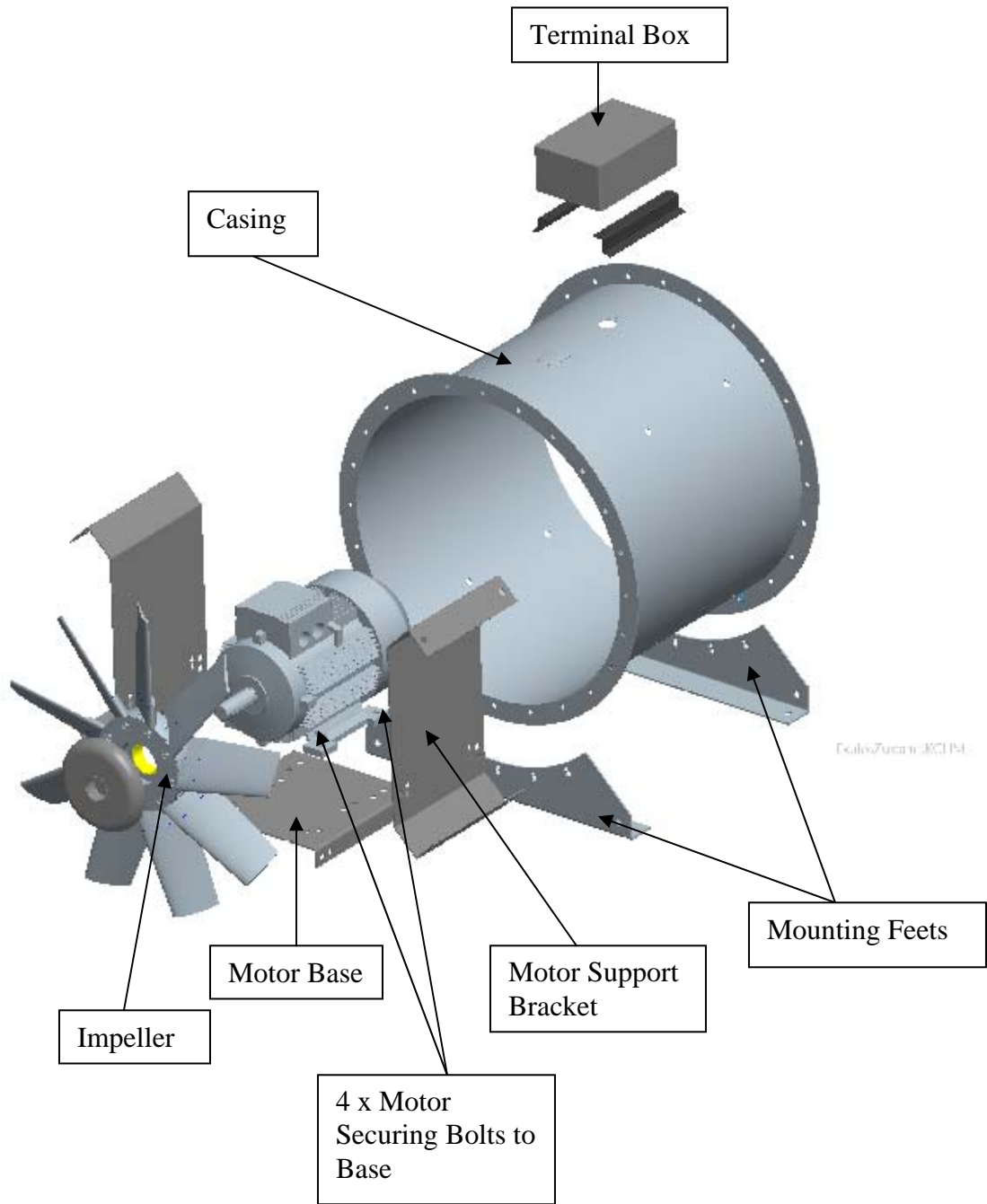
1.1) Disassembly of the motor and impeller

- a) Dismantle the taper lock bush of the impeller as in Appendix A
- b) Remove complete impeller
- c) Replace impeller where necessary
- d) Dismantle mounting screws of the motor from the motor base bracket
- e) Replace motor where necessary

1.2) Assembly of the motor and impeller

- a) Place the motor on the motor base and adjust till it is sitting in the center
- b) Tighten the motor to the base properly
- c) Put on the impeller and insert in the taper lock bush as in Appendix A explanations
- d) Adjust the impeller properly so that the impeller is not touching the casing
- e) Make sure that tip clearance is correct if impeller is changed
- f) Check that running ampere is same as original to ensure that angle is correct

Appendix 1



1.3 Adjustment of Angle for Axial Adjustable Impeller

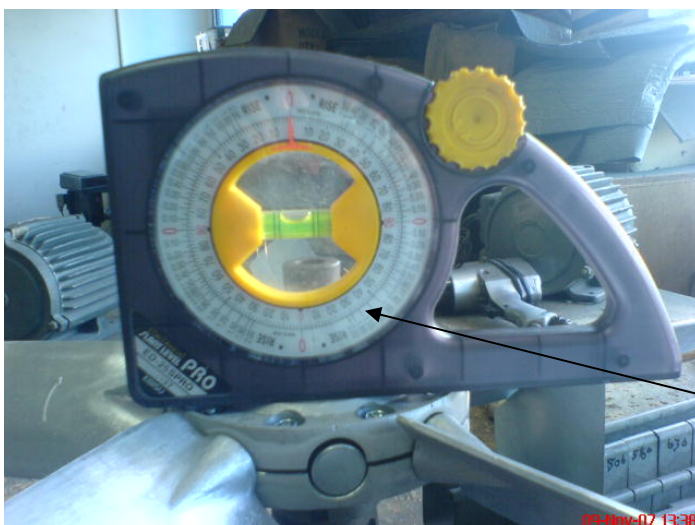


Bolts and nuts holding the blade to the hub

- 1) After dismantling the impeller, place them on a flat surface.
- 2) Use a digital or analogue protractor and make sure the hub level is zero.



- 3) Now, by placing the protractor on the edge of the blade, the angle of the blade can be recorded.
- 4) In case, we need to adjust the angle of the blade, loosen all the bolts and nuts holding the blade to the hub.
- 5) Using a mallet, tap the leading edge (thicker side) of the blade to the angle required.
- 6) Use the same method to adjust all the blade angle.
- 7) Make sure that all angle are +/- 0.5 degree tolerance.
- 8) Balance the impeller and fix the impeller back to the motor.
- 9) Make sure that there is no abnormal vibration and ampere of the motor does not exceed the full load ampere of the motor.

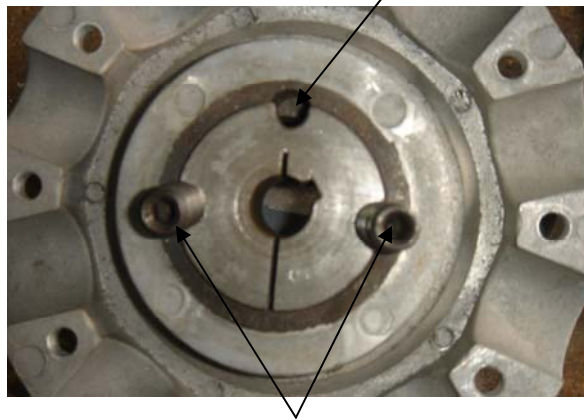


Analogue Protractor with leveling gauge

2. Dismantling of Taper Lock Bush

Appendix A

Jacking holes for removing bush



Locking screws

Removal of taper lock bush for MUB, AXV

- a) Using a hexagon allen key, slacken and remove both the locking set screws
- b) Use one of the set screw and screw to the jacking holes
- c) Tighten screws until taper lock bush is loosened in hub and free on the shaft.
- d) Remove the bush and then the impeller

Installing the taper lock bush

- a) Clean, polish and grease the motor shaft before putting on the key
- b) Put the impeller on the motor shaft
- c) Insert the taper lock bush and tap lightly till it seat squarely on the shaft and impeller hub
- d) Align the holes of the screw and tighten the two locking screws till the hub is in firm position

10. Replacement of motor bearings



Figure 1

Remove fan cover screws
Remove fan cover



Figure 2

Loosen cooling fan clamping screw



Figure 3

Use a big screw driver to jack out the
cooling fan



Figure 4

Remove the cooling fan



Figure 5

Unscrew the nut of the 4 studs holding the motor cover



Figure 6

Remove all 4 studs



Figure 7

Tap the end motor cover lightly



Figure 8

Remove both the front and end cover completely



Figure 9

Remove the stator and use a bearing puller to remove the bearing



Figure 10

The bearing is dismantled completely by jacking the screw on the puller



Figure 11

Replace a new bearing
Use a proper tool to that fit the inner race of the bearing



Figure 12

Use a mallet and tap the bearing in till it seat fully



Maintenance Manual

Fault troubleshooting

Common Faults and Answers

1. What to do if fan running current is higher than specified

a) Check electrical

- Make sure supply voltage are as accordance to what is specified in the name plate
- Make sure all electrical phases have constant supply for 3 phase motor
- Make sure all electrical terminals are tightened
- Make sure capacitor is correct and functioning for single phase motor
- Make sure resistance of motor winding is constant [measure (U1,U2), (V1,V2), (W1,W2)] for 3 phase motor
- Make sure all connection are as per our electrical diagram given

c) Check for fan vibration

- Check that fan is running smoothly and not shaken vigorously
- Check that fan blade is not rubbing against the casing

d) Make sure inlet or outlet air passage is not blocked

2) What to do if fan cannot run

a) Check that there is incoming electrical supply to the motor

- ❖ If no supply voltage across the motor
 - Check the MCB, overload, thermistor is not open circuit
 - Electrical panel circuit is functioning properly

b) Check that termination is correct at the motor

c) Check that capacitor is correct and is in working condition for single phase motor

d) Check that fan impeller is not stuck

e) Check that motor windings is OK as mentioned above

3) What to do if fan has abnormal normal noise and vibration

- a) Stop fan immediately
- b) Check that fan rotation is correct
- c) Check that fan blades are not touching casing or inlet cone
- d) Check that no foreign materials are stuck at the fan blades
- e) Check that fan blades are not broken
- f) Check that all fasteners are tightly secured
- g) Check that fan is isolated completely
- h) Check that inlet and outlet air passage is not blocked

If non of the above,

- ❖ Fan balancing is required
- ❖ Motor bearing may be faulty
- ❖ Fan may be running in unstable stage