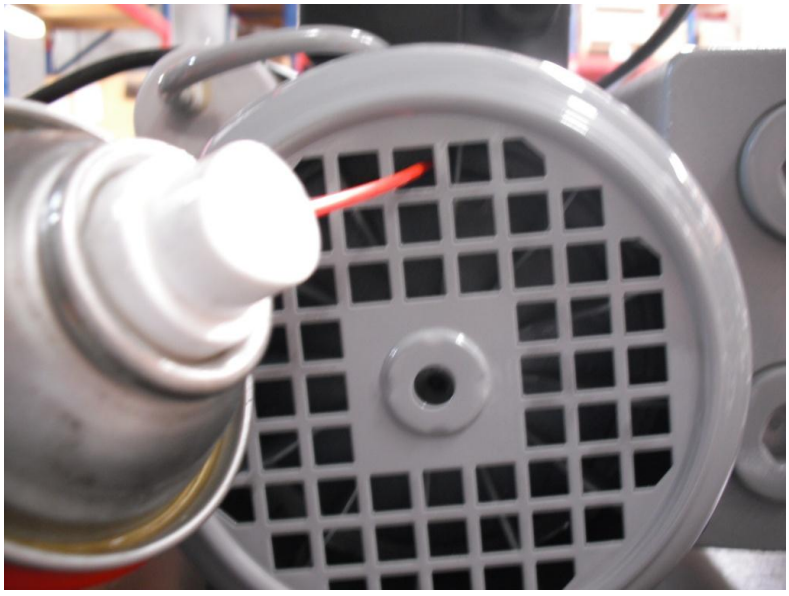
Eliminating squeal from the fan end of an EM20/B vacuum pump

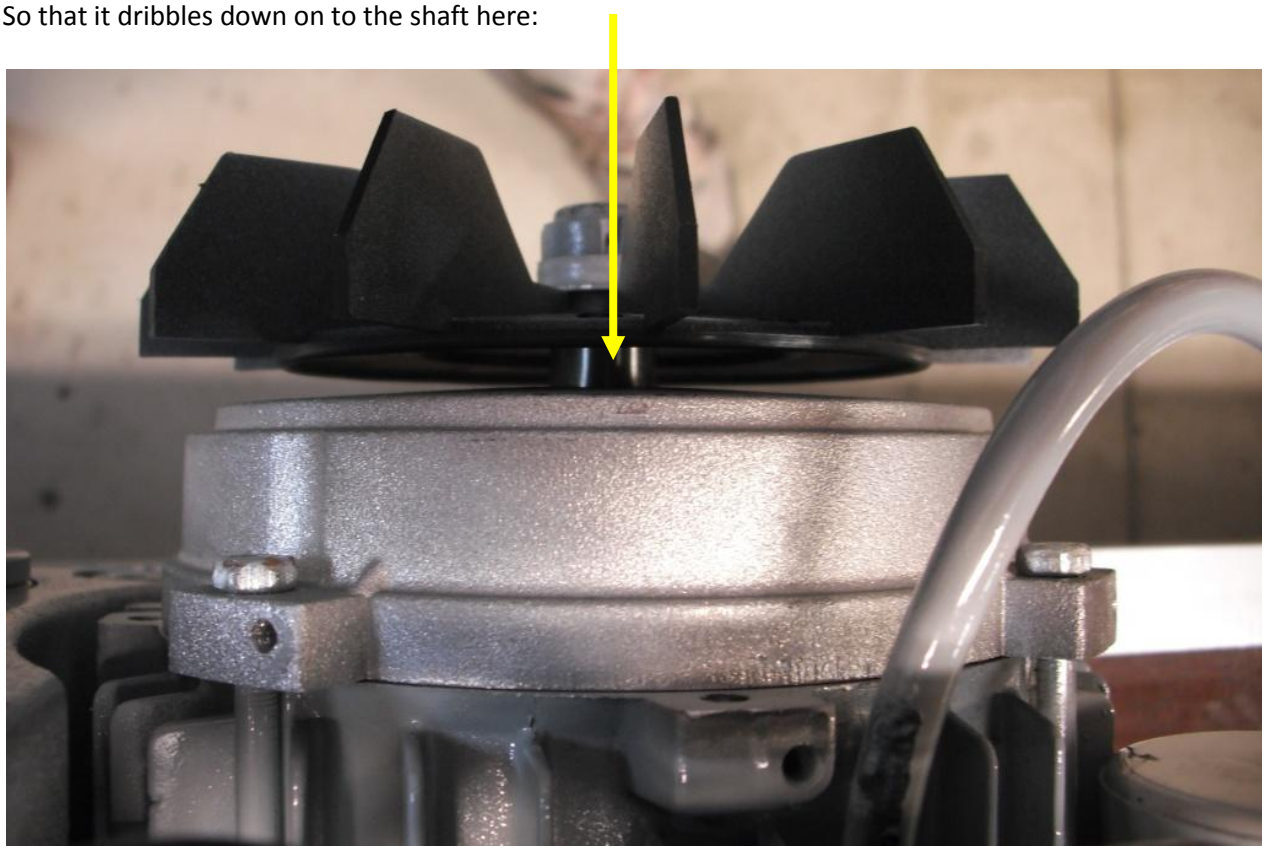
If the EM20/B pump develops a squeal from the motor fan end, this could be because of debris trapped between the fan and the fan cover. The first thing to do – with the motor RUNNING is to blow compressed air through all of the fan grills and also into the annulus between the fan cover and the motor fins (where the air exits from the fan cover). Not all of the annulus is accessible; just blow air into as much as you can get to. WHEN BLOWING INTO THE GRILL ON THE END OF THE FAN COVER – DO NOT POKE THE NOZZLE INTO THE MOVING FAN!

If thorough dust removal does not remove the squeal, it's possible the cause of the squeal is a dry seal where the shaft passes through the fan end bearing housing to support the fan. It is worth trying to lubricate the seal with the fan cover still in place. Before doing this, STOP THE PUMP! Apply a spray lubricant through the top centre hole in the grill. Locate the discharge of the spray tube above the solid centre of the fan so that the lubricant hits the fan end bearing housing and dribbles down onto the shaft. After spraying the lubricant, leave the pump stopped for a few minutes to allow excess to dribble out the bottom of the fan cover. After a few minutes, blow compressed air through the fan grill to remove as much excess lubricant as possible.



The aim is to get the lubricant to hit here:

So that it dribbles down on to the shaft here:



Note that the fan cover has been removed for the last 2 photos, but this should not be necessary.

If lubricating in this manner does not eliminate the squeal, it may be necessary to remove the fan cover to allow further inspection. This will be most easily done with the pump removed from its base panel. To do this:

1. Drain the pump oil.
2. Remove the nuts from the studs on the tops of the pump feet. (Do not unbolt from underneath the pump base, as the lower bolts are threadlocked in place.)
3. Remove the 4 screws holding the fan cover in place.
4. Clean any dust and debris from between the fan and the bearing housing.
5. Do not remove the motor fan, unless absolutely necessary, as this needs to be done with care to avoid breaking the fan.

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