

## TROUBLE SHOOTING GUIDE

### MAGNET DECOUPLES

1. The drive magnet and impeller magnet have a given torque. When this torque exceeds that given value, they will decouple. Usually the problem is the specific gravity as the flow increases will load the torque sooner. Refer to impeller diameter trim sizes on the MARCH pump performance curves.
2. A second solution can be done first before trimming the impeller diameter. Throttle the pump discharge which will put back pressure on the pump. A valve on the pump discharge can be partially closed or, in instances where tubing is used, it can be bent or squeezed to create back pressure.
3. Check to see if a foreign object has penetrated the pump suction.
4. Solution being pumped out is not compatible with material and swelling of impeller magnet on the spindle caused it to lock up.
5. Check NPSHa/NPSHr - usually if the pump cover is removed and circular grooves appear on both the front of the impeller shroud and pump housing, it indicates heavy forward thrust. The impeller is trying to pull liquid into the pump and the impeller shroud is rubbing on the pump housing. You will probably notice wear on the thrust washer and the bushing if the pump is equipped with one.
6. High temperature effects magnets.

REAR HOUSING WORN:

If the rear housing shows holes wearing thru or if it shows that marks are on the interior sides of the rear housing.

1. Check for foreign object.
2. Check alignment of drive magnet around the housing.
3. Check to see if abrasives are present and causing the inside diameter of the impeller bushing to become egg-shaped, which causes the impeller to ride high on the spindle.
4. Check impeller magnet for swelling, as liquid being pumped may not be compatible.
5. Check spindle for damage, it may have not been properly seated or the boss may have been damaged and allowed the spindle to become off center.
6. If the pump is on a duty cycle where it runs at dead head for considerable time periods, the heat build up can cause expansion. The time to expand will be determined on the size of the pump and length of running at shut off (dead head).
7. Running the pump dry, regardless of bushing, causes heat. Running dry will get you into serious trouble.
8. Combination of high temperature and high suction pressure will cause the rear housing to expand and make contact with the drive magnet. It is adviseable to avoid both high temperature and high suction pressure on all plastic pumps. When this combination occurs, use metal pumps.

NOISE/VIBRATION:

Smaller pumps may seem noisy, especially when used in aquariums or in cabinets, where the motor and pump are mounted without fasteners.

1. Clear pump of foreign objects.
2. Sound magnifies in closed cabinets. Check to be sure the pump is bolted in place. Possible rubber grommet could be used between the motor foot and mounting support.
3. Create an artificial head or back pressure by closing the discharge valve or by pinching the discharge tubing.
4. Check all connections to see if inlet and outlet pipe or tubing is not rubbing cabinet etc.
5. Motor fan may be loose or the air current thru the motor may be causing the noise.
6. Liquid in pump - Pump running dry or have air entering system, or air in the system. Cavitation - check NPSHa.
7. Check pipe sizes, has suction side been reduced?
8. Check electrical connections - loose leads vibrate = noise.
9. Check pump size for application. Is the pump too large for the application?
10. Check drive magnet balance. Remove liquid end from pump and run motor. If vibration continues, check the balance on the drive magnet.

LIQUID NOT BEING DELIVERED

1. Liquid in system
2. Valves open suction and discharge
3. Check rotation
4. Air in system
5. Air being drawn into suction
6. Plugged suction
7. Plugged filter
8. Wrong rotation.
9. Discharge head too high
10. Speed too low
11. Trying to pull suction lift
12. Decoupled check - S. G.
13. Low voltage
14. Specific gravity high

NOT ENOUGH LIQUID BEING DELIVERED

1. Air leaks in suction line
2. Clogged suction
3. Valve not fully open or fully ported
4. Not enough suction head - check NPSH
5. Supply tank too small
6. Speed too low
7. Check rotation
8. Total head too high
9. Low voltage
10. Damaged impeller
11. Closed discharge valve or clogged
12. Suction lift
13. Specific gravity high
14. Reduced suction size starves pump

## TROUBLE SHOOTING

Rear housing breaks or cracks:

When a crack develops or breakage occurs either near the back of the housing or separation occurs just behind the flat face of it, this usually indicates a water hammer taking place.

If the back of the housing (where the rear thrust washer is) is rounded or ballooned out it indicates high suction pressure. Also, a cause could be high suction pressure and high temperature liquid. If this occurs, you may have to replace the rear housing with stainless steel. As an example: A TE-7R-MD has a suction pressure of 40 to 50 PSI and temperature is 180 . The chances of the rear housing ballooning is great and it will probably expand enough for the drive magnet to strike the outer diameter of the housing and cause it to fail.