

EQUIPMENT REPAIR REPORT

Date: April. 2010

Page 1 of 14

Customer:

Our Reference: 5000003874

Subject: Gorman Rupp Model S8B1 575 volt 100 hp
W/ 16 inch diameter impeller

Attention:

Thank you for choosing ProSpec Technologies Inc. as your source to recondition this pump. We appreciate the opportunity to provide you with this assessment. Following is a report of our findings and a quotation for the work required.

OBSERVATIONS

Upon receipt a thorough inspection of the unit was conducted. The exterior of the pump was found to be in generally good condition with some pitting corrosion over the entire pump housing. The strainer was bent but can be repaired. Prior to disassembly we conducted an air test at 7 psi (with soapy water) on the stator housing and found the air pressure leaking out through the splices in the electrical cord (seen in pictures two and three below).

The power cable has been breached which produced an entry point for water. We have attached a photo of this area below. The electrical tape used to prevent water from entering the pump did not work. It appears that the failure was due to the water entering the terminal board area and shorting out one of the terminals.

We then pressure tested the seal chamber at 5 psi and no leaks were detected. The terminal housing was found full of water and carbon. It is important to note that the water did not pass from the terminal housing into the stator housing. The oil in the stator housing was found dirty however no signs of process fluid were present. We conducted a non destructive electrical test on the stator. With readings of 0.5 ohm across all three phases and 2.2 G ohms from all three phase to earth it appears that the stator does not require a rewind. The stator will be washed and baked and re tested. Based on this initial testing a varnish and bake would be done.

Before we disassembled the lower end of the pump we drained the mechanical seal chamber oil

and found it clean with no signs of contamination. As part of a sound repair the mechanical seals will be replaced.

The upper and lower ball bearings are not damaged. However as part of a sound repair they will be replaced.

We removed the suction strainer assembly and found the impeller eroded at the vanes due to the effects of cavitation. The impeller is pictured below. The impeller will be repaired with a two part ceramic in the affected areas and balanced. It will then be suitable for reuse. The impeller wear area (that rides against the case wear rings) will be sleeved to within the required 0.014" gap between it and the case wear rings.

The suction head wear ring and diffuser wear ring have both worn away. We will replace the wear rings as part of a sound repair.

Although the picture of the diffuser below is out of focus we are attempting to show the wear that has occurred at each leading edge of the vane on the diffuser. Each vane has eroded back about 1-1/2 inches. The diffuser should be replaced. The diffuser is an expensive part of the pump and to that end the price is shown separately below. A diffuser contributes to the overall performance (pressure developed) and efficiency (electricity consumed to do the required work). This diffuser may work as is but is the weak link. Given the amount of erosion that has occurred and given how thin the remaining vane is we recommend replacing it.

SCOPE OF WORK FOR THE REPAIR

- Receive unit, perform initial visual inspection and record findings.
- Disassemble unit, perform rough cleaning, detailed inspection and record findings.
- Clean the interior and exterior surfaces using Ebony Grit copper slag and polish all machine fit surfaces.
- Chase all threads, utilize new fasteners as required and assemble with never seize thread lube.
- clean and bake the stator
- Reassemble pump with a new diffuser, suction head and diffuser wear rings, new upper and lower bearings, upper and lower mechanical seals, washers, shim set, lock nut, o-rings, gaskets, terminal housing components, transformer and seal oil, cable grip, bushings, power cable
- Perform final inspection and apply appropriate tags and identification plates.
- Paint the pump Gorman Rupp Silver enamel
- Touch up finish, package and prepare for shipment.

TOTAL PRICE FOR THE REPAIR.....\$

The price above includes a stator wash and dry with a varnish coating and a final baking. Once this is complete a final test is done and then the stator is ready for reuse. In the event that the washing and baking reveal a flaw in the stator a rewind would be required and a price adder of \$ to the price above would apply.

The diffuser should be replaced. The diffuser is an expensive part of the pump and to that end the price above includes the \$ diffuser.

The total price quoted for the repair is an estimate for the work we know is required. It is unlikely that the pump requires anything other than that described above. However, if we do find

the requirement for additional parts or labour we will stop and advise you prior to proceeding.

Delivery - Work can be complete within approximately 4 weeks of your approval.

ProSpec's evaluation fee for this pump is \$. Should the customer opt for repair or purchase a replacement, the above sum will be waived.

Standard repairs carry a 90 day limited warranty

Thank you very much for the opportunity to present our report. Please contact us with any questions or additional information requirements.

Best regards,

Mark Lemieux – mlemieux@prospectech.com

ProSpec Technologies Inc

3235 Wharton Way
Mississauga ON L4X 2B6, Canada
Phone 905-629-3100 ext 27
Fax 905-629-3500
www.prospectech.com



The power cable was cut and tapped.



The power cord leaked under a 7 psi air test.



The power cord integrity has been breached



The impeller has been eroded in some areas due to the effects or cavitation. These areas will be grit blasted and coated with ceramic.



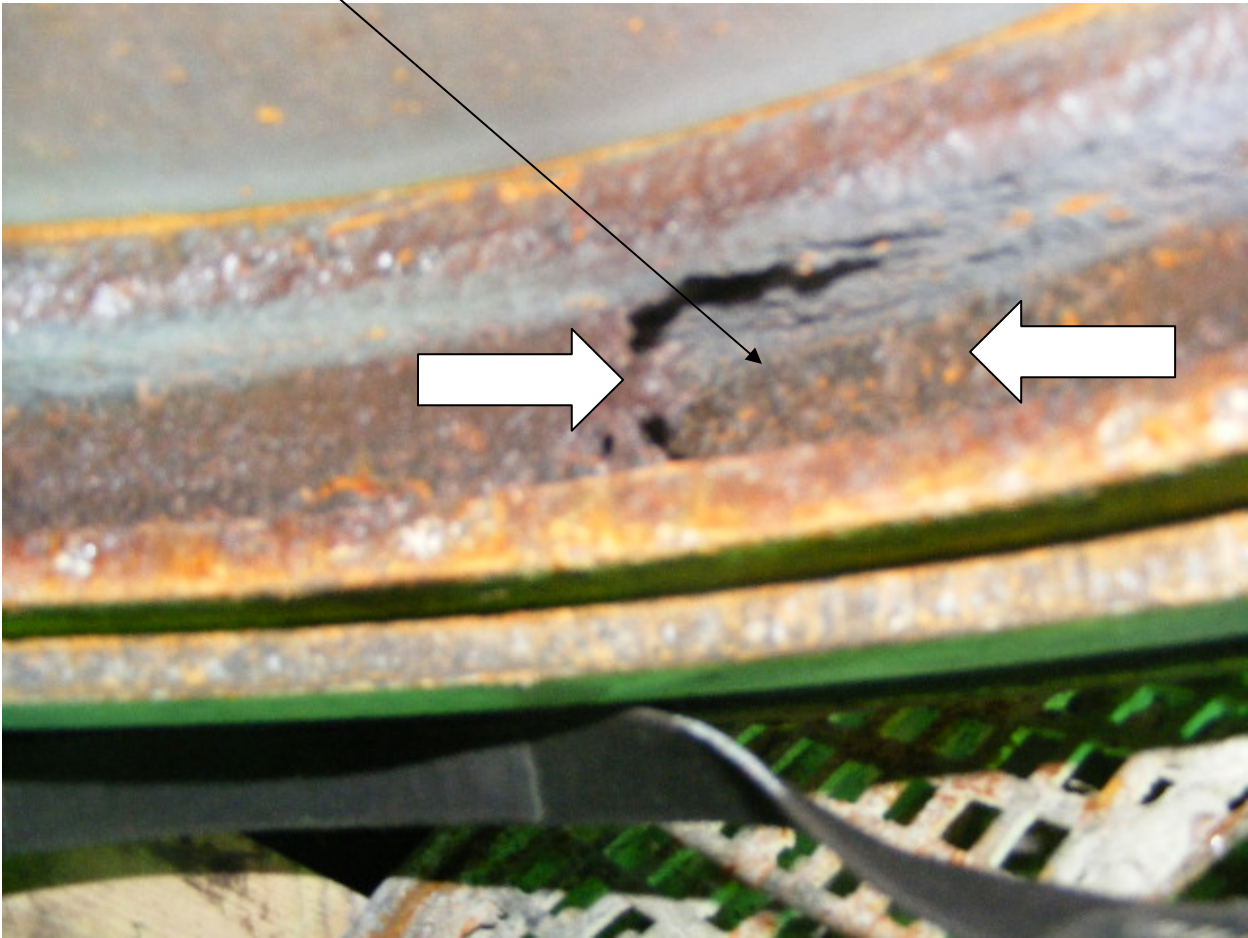
The impeller wear area (that rides against the case wear rings) will be sleeved to within the required 0.014" gap between it and the case wear ring.



The short occurred in the terminal housing.



Although this picture is out of focus we are showing the wear that has occurred at each leading edge of the vane on the diffuser. Each vane has eroded back about 1-1/2 inches. The diffuser should be replaced.



Completed repair at shipping.

