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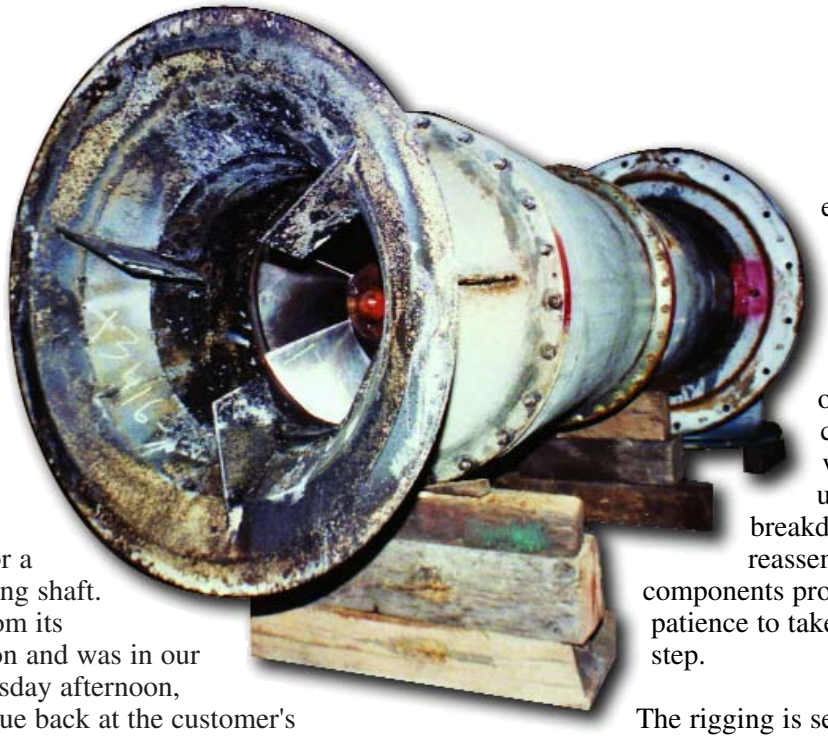
A PUMP IS LIKE A BOX OF CHOCOLATES...

CASE LONGO HISTORY



Once again the Longo shop in Wharton prepared for the arrival of another major pump assignment. This one came in the form of a 10+ ton, 68,500 GPM, 25ft long cooling pump with 5 foot intake and 4 foot discharge driven by a 2,100 HP motor. The pump was brought in for a refurbishing due to a wobbling shaft. The pump was picked up from its Northern New Jersey location and was in our Wharton Servicenter on Tuesday afternoon, October 25, and originally due back at the customer's site on November 2, essentially a 7 day turnaround.

For those of you who have never been up close and personal with one of these very, very large pumps, they exude a bad attitude. Rusty, corroded and sporting some sort of barnacle life, this pump definitely had a presence when it came into our high bay shop area. Since the assignment was a seven day turn around, the Longo pump team wasted no time rigging the pump for its disassembly.

Weighing over 10 tons the pump was supported below by a series of 12"x 12" timbers and from above by slings from our 25 ton crane. Obviously safety for the crew is paramount, and properly securing the pump is essential to prevent movement as the components are removed.

The experience of our pump team is critical here along with their understanding of breakdown and reassembling mechanical components properly and the patience to take things step by step.

The rigging is set in anticipation of the removal sequence and the proper sequence is vital. When the parts are separated they tend to have a life of their own. As the pressure of the bolts is released they want to tilt, rotate and move. Jumping in and just removing any and all bolts without regard to the dynamics involved can not only be unsafe, but cause damage to interior components such as shafts, sleeves and bearings. It doesn't take much movement from a loose section to make an expensive mistake.

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Once the pump is broken down into its major sections, the real work begins with the removal and examination of the shafts, couplings, sleeves, bearings, etc. Since we had a fairly accurate idea of what was going to be done, the necessary replacement and repair components were on the shop floor the day the pump arrived.

On the second day, we performed an analysis comparing the anticipated repairs with what we had discovered during the dismantling. This is where we not only itemize the necessary repairs, but delve into the cause and effect of the symptoms so that the repairs will last and the faults will not repeat themselves.

We discovered the line shaft bearing journal was under sized. The other potential problem was the 1 1/2 ton impeller which we anticipated would have to be dynamically balanced, and it in fact did need it. Line shaft sleeves and the lower casing bearing bore were repaired. New magnesium anodes were to be installed along with a host of bearings, The six 15 pound sacrificial anodes are designed to draw the galvanic action inside the pump column thereby protecting the actual carbon steel components The electrolytic action from the water and the metals will erode the anode sparing the steel casing. This is simple inexpensive protection, but not for the life of the pump. It will be a service item each time the pump is worked on.

Some of the additional repairs had a direct impact on the time and cost of the job. The re-machining of the center section bore took additional, unexpected time. Fortunately the customer's outage schedule had enough leeway to accommodate the additional repairs. The list of findings we prepared for the customer included both urgent repairs and those that could be postponed until the pumps next scheduled service. While we did not see these as immediate issues, we wanted to be sure the customer was aware of them now and be conscious of them the next time the pump is being serviced.

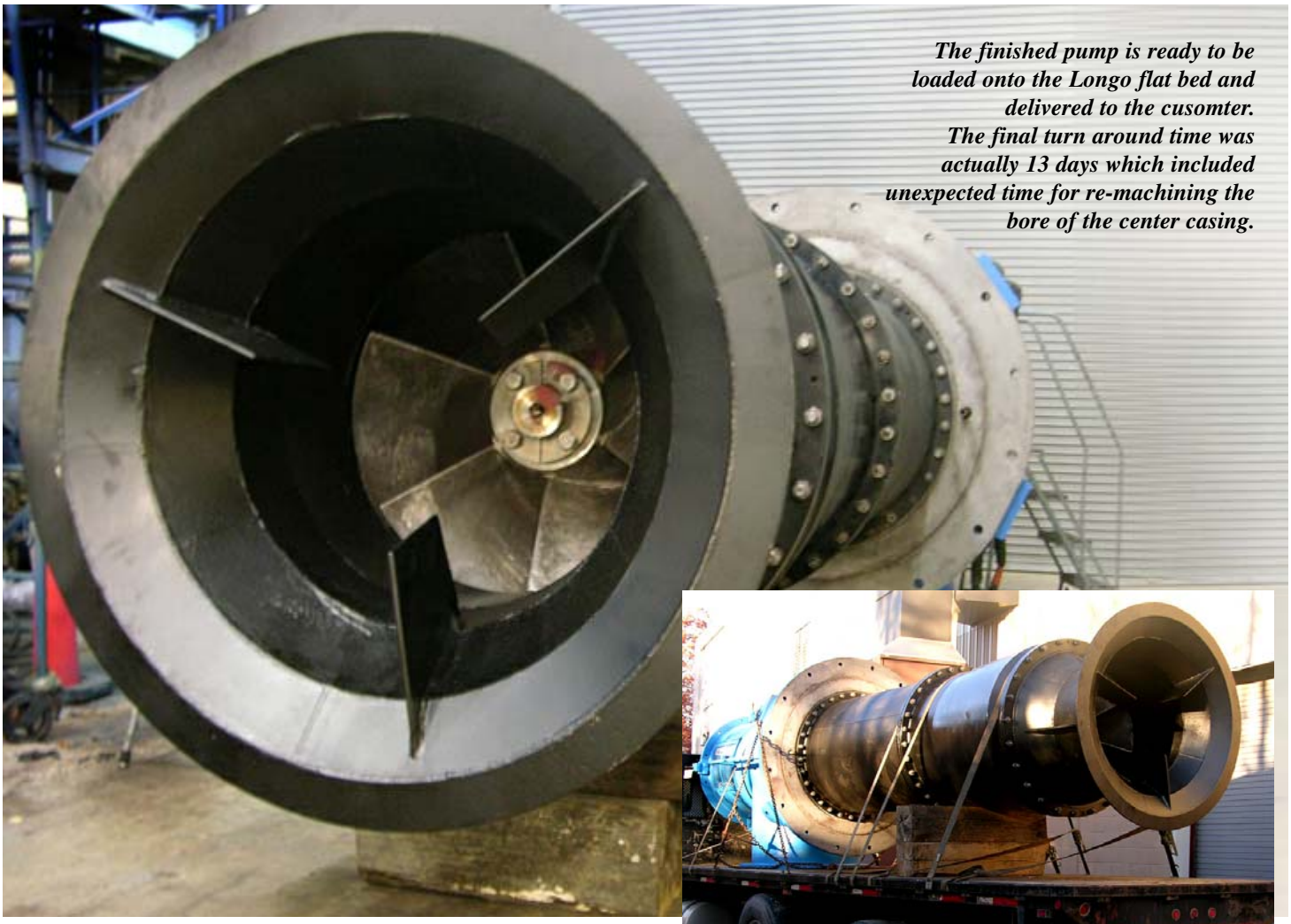
The reassembly went smoothly, again taking care to

Coordination bewteen management, engineering and the shop team keeps suprises to a minimum and provides a smooth execution.

Above: You see the size of the pump and its sections. The right equipment, a 25 ton crane, and correct rigging makes the disassembly of the giant pump seem like childs play..

Left: The magnesium anode is probably one of the most "low tech" solutions to corrosion still in use today.


5 TON



The finished pump is ready to be loaded onto the Longo flat bed and delivered to the cusomter. The final turn around time was actually 13 days which included unexpected time for re-machining the bore of the center casing.

secure each new part and section as it was placed in position for fastening. Seems simple, "installation is the reverse of removal" but again it is necessary to exhibit the same patience as was needed during the break down.

The atmosphere in the shop maintains an amazing steady hum whether things are going smoothly or if sudden unforeseen problems rear their ugly heads.
You never know what you'll find when you open one of these "box of chocolates". The objective is always to do the job right, the first time, and the Longo Pump Team has the resources to do just that. Sometimes it is the personal resources of the Pump Team to stick with it 24/7 and other times the technical "smarts" to come up with positive answers and solutions to seemingly job stopper problems.

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