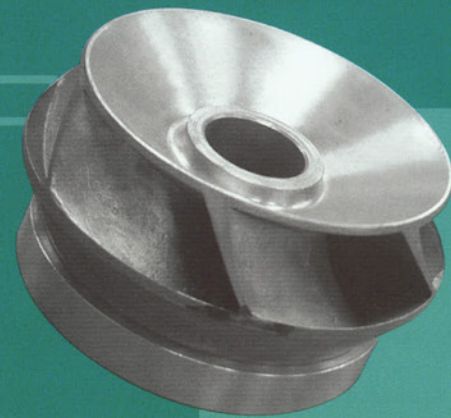


THE REPAIR PROCESS

receiving

After arriving (via our truck) at a Process Systems repair center, the pump is checked in. Any noticeable exterior wear or damage is identified and recorded. Obvious reasons for pump failure are also noted.



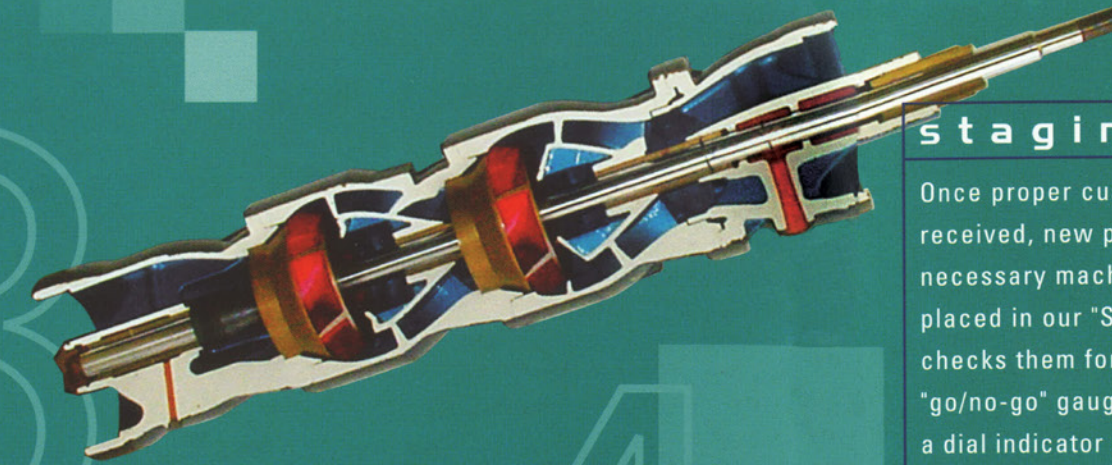
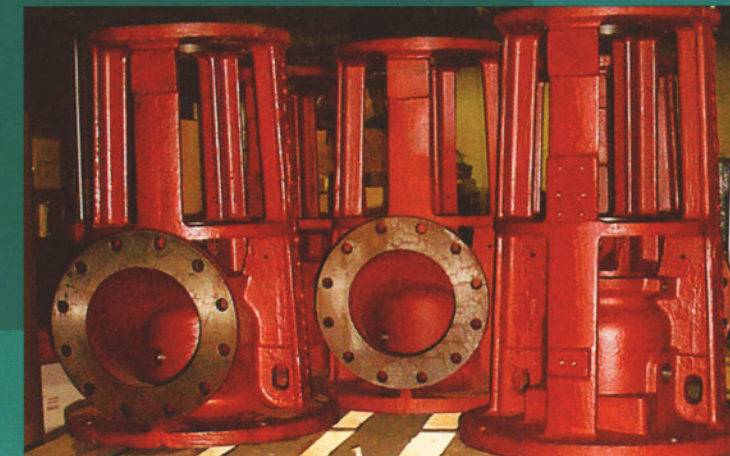
teardown & inspection

The pump is completely disassembled and all parts are thoroughly cleaned. A repair technician inspects each and every part to determine whether it is within the original design tolerances. From this point a decision is made to re-use or replace the part. Any part that failed for reasons other than wear are considered for engineering/material upgrades.

Because of our machining capabilities, we can often return expensive parts to original specifications less expensively than replacing them with new ones. For example, with enclosed impellers, both wearing surfaces can be machined to accept replaceable bronze or stainless steel wear rings. This maintains the integrity of the repair while reducing the overall cost.

write-up

At this point the technician reviews his inspection sheets and initiates a work order and bill-of-materials. He initiates the production process by creating a B.O.M., detailing parts for machining, and developing any special assembly instructions.



pricing

The Repair Department Manager then compiles a price quotation from the technician's "write-ups" and contacts the customer for authorization to proceed with the repair. The quotation may include a full report with photos and upgrade suggestions such as self seal, grease lube, and solid shaft motor conversion.

staging

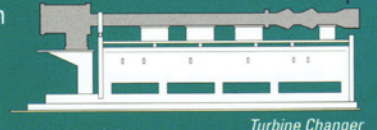
Once proper customer authorization has been received, new parts are allocated from stock and necessary machining is completed. All parts are placed in our "Staging Area" where the assembler checks them for proper fit using our proprietary "go/no-go" gauges. Pump shafting is checked with a dial indicator and adjusted for run-out (to .0005"/ft. maximum) if necessary. All connecting surfaces are cleaned and filed to ensure proper fit.



assembly

The pump is then reassembled according to detailed and specific instructions to ensure a trouble-free start-up. For example, the pump shaft, impeller lock collet, and impeller center bore are carefully cleaned to guarantee proper mechanical attachment of the impeller to the shaft. Check lists are maintained to insure all tolerances are met.

Process Systems has developed a patented assembly table, the **Turbine Changer**, to further promote a long life for the repaired pump. The Turbine Changer supports the entire length of the pump to facilitate the often difficult task of assuring a fully concentric assembly.



The pump is then given a final checkout and the results are reworked before painting and preparation for shipment.

REBUILT & REMANUFACTURED

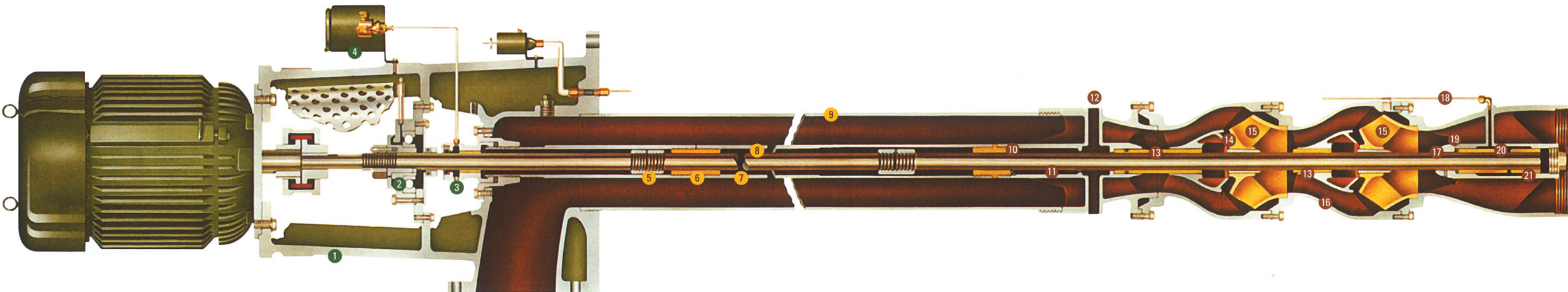
rebuilt

Completely rebuilt to like-new condition using original manufacturer's specifications. Original performance restored.

remanufactured

Completely remanufactured to highest efficiency with new bowl assembly. Guaranteed performance and improved hydraulics (if required) at a fraction of the cost of a new pump.

KEY ■ Rebuilt ■ Remanufactured ● Discharge Head Assembly ● Column Assembly ● Bowl Assembly



Discharge Head Assembly

Column Assembly

Bowl Assembly

Warranty

- Twelve month warranty — built to original bill of material unless mechanical changes are required for improved pump life.
- Twelve month warranty — consisting of a new pump, utilizing existing discharge piping, floor mounting and motor. Complete new bill of material.

Discharge Head Assembly

- 1 ■ ■ Use existing discharge head casting.
- 2 ■ ■ New thrust and up thrust bearings (if applicable).
- 3 ■ ■ Rebuilt or new top tube or packing box parts with new seals and bearing.
- 3 ■ ■ New top tube or packing box parts with new seals and bearing.
- 4 ■ ■ Rebuilt or new lubricator.

Column Assembly

- All components listed below are rebuilt or new as required except outer column.
- All components listed below are new except outer column.
- 5 ■ ■ Lineshaft couplings
- 6 ■ ■ Bearings
- 7 ■ ■ Enclosing tubes (if applicable)
- 8 ■ ■ Shafting
- 9 ■ ■ Shorten or lengthen outer column to accommodate new bowl assembly

Bowl Assembly

- 10 ■ ■ Connector Bearing and Seal
 - New seal added if basic design permits. Prevents contaminated solution from entering lineshaft enclosing tube and bearings.
 - New. Prevents contaminated solution from entering lineshaft enclosing tube and bearings.
- 11 ■ ■ Bowl Shaft
 - New — 416SS (700 brn. chrome plated is optional for extended life).
 - New extra large diameter — 416SS (700 brn. chrome plated is optional for extended life).

12 Bypass Ports

- New. Oversize combined with slinger on shaft to prevent clogging by fines from pumped solution.

13 Bowl Bearings

- New.
- New. Extra long for greater support and longer wear. Heavier wall thickness prevents shaft from wearing into bowl casting.

14 Lock Collets

- Inspected — New if required.
- Precision taper machined to positively lock impeller to shaft.

15 Impellers

- Repaired or new. All dynamically balanced.
- Ultra-high flow. Dynamically balanced, precision machined and hand finished. Average 4% better efficiency over working range of pump.

16 Bowl Castings

- Repaired or new as required.

17 Sand Collar

- New. Set screwed to shaft running over seal. Keeps contamination off seal.

18 Grease Line

- New — securely attached with SS banding.

19 Suction Case Bearing Seal

- New. Seals bearing from the pumped solution. Grease lubricated by automatic or manual lubricator.

20 Grease Line

- Enters side of suction case — less vulnerable to damage. Grease enters bearing at midpoint and from bottom — flushes upward between shaft and bearing.

21 Bearing Treatment

- Optional. Exclusive space age fluoropolymer treatment available for extended life.

22 Suction Case Plug

- large size makes bearing accessible for removal in an arbor press.

FACILITIES, INVENTORY, EXPERTISE

facilities

Facilities specifically designed for Vertical Pump Work. Patented Special Machines, Tools and Processes. In-House Shaft Straightening. Also repair many other types of pumps including horizontal, vertical, and submersible.



Hazleton Factory Trained Repair Center.

expertise

Over thirty years of experience repairing verticals makes the difference. Visit your in-house repair facility or your current outside source's facility — then visit ours. You will then understand why we can provide the best repaired or remanufactured pump with a "New PUMP WARRANTY" at substantial savings.



replacement parts for:

Replacement Parts For:

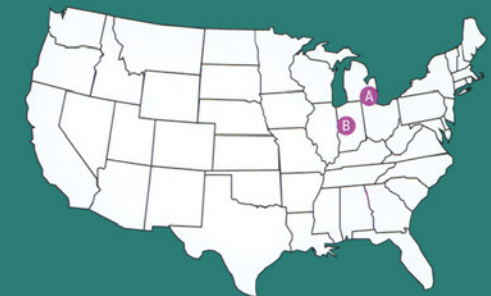
- Allis Chalmers
- American
- Aurora
- Byron Jackson
- Cascade
- Crane Deming
- Fairbanks Morse
- Goulds
- Graco
- Hazleton
- Ingersoll Rand
- Jacuzzi
- Johnston
- Layne/Bowler
- Peabody Floway
- Peerless
- Process Systems
- Tait
- Valley
- Worthington

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 Phone (586) 757-5711
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- INSTALLATION & REMOVAL



quality industrial vertical

PUMP
 repair

