

ENGINEERED PUMP SERVICES, INC.

624 Perkins Drive ! Mukwonago, WI 53149-1454 (262)363-9002 ! (800)657-0845 ! fax (262) 363-9013 www.epspumps.com ! email: eps@epspumps.com

FINAL REPAIR SPECIFICATION

Ref. EPS order : 56912 Specification no. : 56912-RS1 Customer order: EKPC-0000157406 Specification date: 10/17/22 Ref. EPS report : 56912-CR1 Page : 1 of 3 pages

EAST KENTUCKY POWER COOPERATIVE

Cooper Power Station #2B Byron-Jackson 16/18 RL/KXH Condensate Pump

A) INSPECTION PROVIDED BY EPS

- 1) Completely dismantle the pump assembly.
- 2) During disassembly, carefully document the location of each impeller on the shaft.
- 3) Glass bead blast clean the pump components except the shafts which will be hand cleaned.
- 4) Check the shafts for straightness over the entire length.
- 5) Visually and dimensionally inspect all pump components.
- 6) The shafts will be ultrasonically tested for defects and magnetic particle tested for indications. The impellers will be dye penetrant tested for indications.

B) NEW PARTS PROVIDED BY EPS

Qty.	Part Description	Material
1	Pump Shaft	Type 410 Stainless Steel (PSQ)
1	Upper Shaft	Type 410 Stainless Steel (PSQ)
1	Suction Bell Wear Ring	C936 Bearing Bronze
1	1st Stage Case Wear Ring	C936 Bearing Bronze
6	Series Case Wear Ring	C936 Bearing Bronze
1	Suction Bell Bearing	C936 Bearing Bronze
7	Series Bearing	Babbitted Graphite
1	Spider Bearing	Babbitted Graphite
1	Stuffing Box Bearing	C936 Bearing Bronze
1	Intermediate Coupling	416 Stainless Steel
Lot	O-Rings (As-Required)	Ethylene Propylene Rubber (EPR)
Lot	Face Gaskets (As Required)	Garlock 9800
Lot	Assembly Hardware	18-8 Stainless Steel

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C) REPAIRS

- 1) 1st Stage Impeller and Series Impellers (6)
 - a) Excavate and weld repair cavitation damage and all indications per NDE report. Hand grind to hydraulic contour all repairs on non machined surfaces.
 - b) Machine existing wear ring turns to new design diameters and re-establish proper running clearances to the final case ring diameters.
 - c) Individually mount each impeller on a mandrel and dynamic balance to ISO 1.0 standard.

2) Suction Bell

- a) Remove existing wear ring and bearing then install new ones.
- b) Machine new case ring and new bearing bores to re-establish concentricity and design running clearances to the rotating components.
- c) Minimum skim cut the axial mounting faces to restore perpendicularity.

3) Bottom Case

- a) Remove existing wear ring and bearing then install new ones.
- b) Machine new case ring and new bearing bores to re-establish concentricity and design running clearances to the rotating components.
- c) Minimum skim cut the axial mounting faces to restore perpendicularity.

4) Series Case (6)

- a) Remove existing wear ring and bearing then install new ones.
- b) Machine new case ring and new bearing bores to re-establish concentricity and design running clearances to the rotating components.
- c) Minimum skim cut the axial mounting faces to restore perpendicularity.

5) Spider

- a) Remove existing bearing then install new one.
- b) Machine new bearing bore to re-establish concentricity and design running clearances to the upper shaft.
- c) Minimum skim cut the axial mounting faces to restore perpendicularity.

6) Stuffing Box

- a) Remove existing bearing then install new one.
- b) Machine new bearing bore to re-establish concentricity and design running clearances to the upper shaft.
- c) Minimum skim cut the axial mounting faces to restore perpendicularity.

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C) REPAIRS (PER PUMP, CONTINUED)

- 7) Stuffing Box
 - a) Remove existing bearing then install new one.
 - b) Machine new bearing bore to re-establish concentricity and design running clearances to the upper shaft.
 - c) Minimum skim cut the axial mounting faces to restore perpendicularity.
- 8) Discharge Head
 - a) Coat with red oxide primer followed by grey enamel.
- 9) Mechanical Seal
 - a) The mechanical seal will be refurbished and rebuilt to OEM specifications by a third party repair facility.
- 10) Assembly
 - a) Locate 1st stage impeller in same location on pump shaft as was documented during the disassembly process.
 - b) Set rotor vertically in suction bell then assemble the bottom and intermediate cases. Position 2nd stage impeller so that it makes contact with the hydraulic profile of the intermediate case. Position rotor to best operating position for the 1st stage impeller. Secure the 2nd stage impeller in this location by drilling the shaft and securing with set screws.
 - c) Install series case followed by 3rd stage impeller. With 3rd stage impeller in contact with hydraulic profile on case, secure with same method as the 2nd stage. Repeat this procedure for all remaining impellers and cases.
 - d) When all impellers are secure and lower element built, complete assembly by installing the upper shaft, column, spider, discharge head, and stuffing box.
 - e) Block the element in the "full down" position and prep for return shipment to Cooper Power Plant.