

Cleveland  
Pump  
Repair &  
Services, LLC

1761 Highland Road, Twinsburg, Ohio 44087  
Tel 330 963 3100 Fax 330 963 3199  
[www.clevelandpumprepair.com](http://www.clevelandpumprepair.com)

December 21, 2011

RockTenn Coshocton  
500 North 4<sup>th</sup> Street  
Coshocton, OH 43812

Mr. Pender,

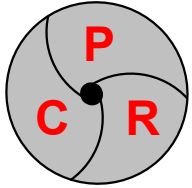
Enclosed is our inspection report and repair proposal concerning the above referenced unit.

If you have any questions concerning this material, please contact Bob Lindsey at 330-241-8085 or the undersigned.

Very truly yours,

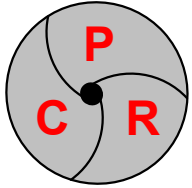
James E. Durkin

JED:vm



# **RockTenn Coshocton 1307 Ingersoll Rand 4x11 DA-8 Boiler Feed Pump S/N 1281126, PO 00575247 Inspection Report**

- A. The pump with coupling half was received.
- B. During our inspection process, the following conditions were noted:
1. Impellers (8) Photos 1 - 3
    - a. All hubs have wear rings.
    - b. The 1<sup>st</sup> stage front hub is seized to its mating case ring.
    - c. #3 Back hub ring was loose.
    - d. All bores are out of round and have excessive interference to their shaft fits.
    - e. Inlet – exit vanes are in relatively good condition.
  2. Case rings Photos 4 – 6
    - a. The 1<sup>st</sup> stage ring is seized to the impeller.
    - b. The seven (7) radial rings have rub/wear indications in the bore.
    - c. The ODs are slightly out of round.
  3. Channel rings (6) Photos 7 – 9
    - a. Components are of the split design.
    - b. Bores have rub/wear indications.
    - c. OD fits are within specification.
  4. Center bushing and sleeve (1) Photo 10
    - a. There are minor wear indicators.
    - b. Running clearance has increased to .020 - .029.
  5. Throttle bushing and sleeve (1) Photo 11
    - a. Minor wear indicators
    - b. Running clearance has increased to .021 - .025.
  6. Stuffing box bushings (2) No photo
    - a. Both are in good condition and reuseable.
  7. Bearing inserts Photo 12
    - a. Both sets are damaged and beginning to wipe.



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8. Thrust bearing assembly Photo 13
  - a. All components are in good condition.
9. Bearing housings Photos 14 – 15

Note: During disassembly it was noted that there were no gaskets on the split lines. Dimensional data indicates that gaskets are required, as does the parts list.

  - a. All fits and faces are in good condition.
10. Laby seals (3) No photo
  - a. All can be re-used
11. Casing Photos 16 – 17

Note: By design, the DA pump cases are machined with a slight taper on the parting flanges. This, along with a specific torque procedure/pattern is required to insure proper sealing. The taper has been eliminated during a previous repair, the flanges are flat and there are lead indications thru to the stud holes.
12. Shaft Photos 18 – 20
  - a. T.I.R. is .005.
  - b. There are heavy gaul marks in areas from the excessive impeller bore interference.
  - c. Bearing fits are worn.

**RockTenn – Coshocton 1307**

**Ingersoll Rand 4x11 DA-8 Boiler Feed Pump**

**PHOTO #1**



**PHOTO #2**



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**Ingersoll Rand 4x11 DA-8 Boiler Feed Pump**

**PHOTO #3**



**PHOTO #4**



**RockTenn – Coshocton 1307**

**Ingersoll Rand 4x11 DA-8 Boiler Feed Pump**

**PHOTO #5**



**PHOTO #6**



RockTenn – Coshocton 1307

Ingersoll Rand 4x11 DA-8 Boiler Feed Pump

PHOTO #7



PHOTO #8



RockTenn – Coshocton 1307

Ingersoll Rand 4x11 DA-8 Boiler Feed Pump

PHOTO #9



PHOTO #10





RockTenn – Coshocton 1307

Ingersoll Rand 4x11 DA-8 Boiler Feed Pump

PHOTO #11



PHOTO #12



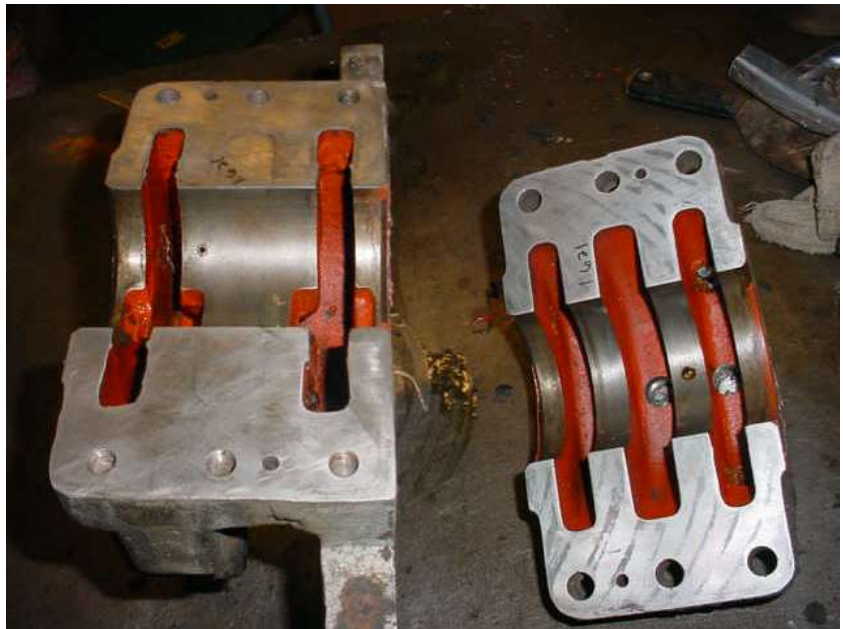
RockTenn – Coshocton 1307

Ingersoll Rand 4x11 DA-8 Boiler Feed Pump

PHOTO #13



PHOTO #14



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Ingersoll Rand 4x11 DA-8 Boiler Feed Pump

PHOTO #15

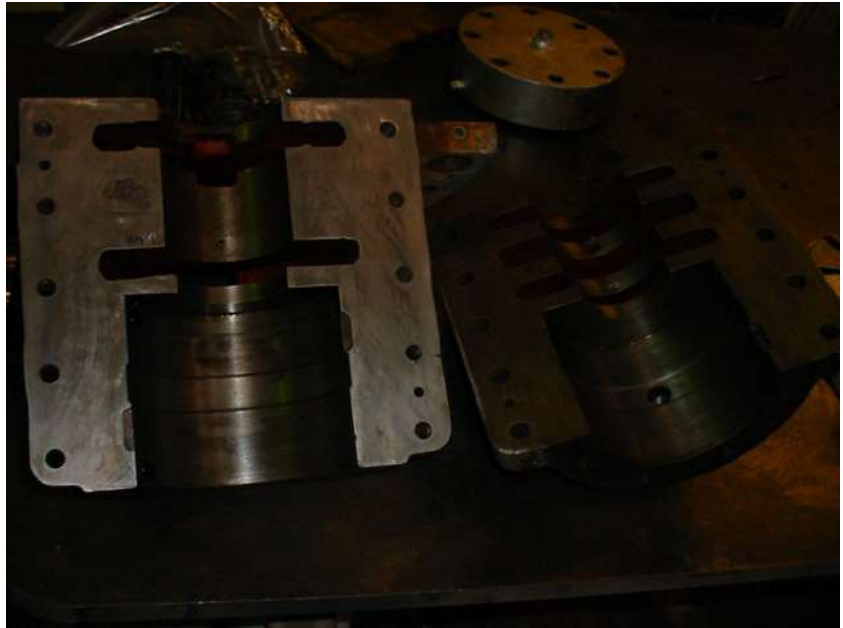
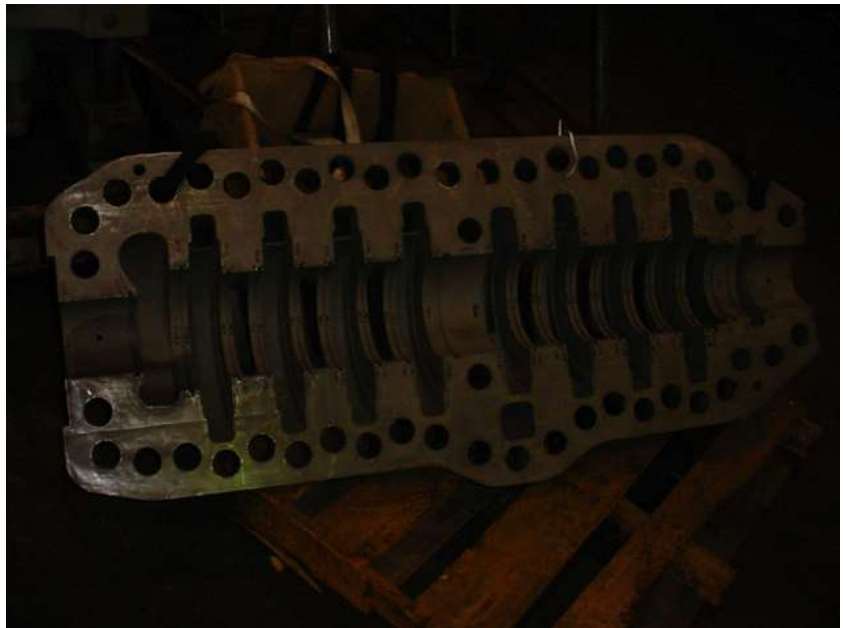


PHOTO #16



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Ingersoll Rand 4x11 DA-8 Boiler Feed Pump

PHOTO #17

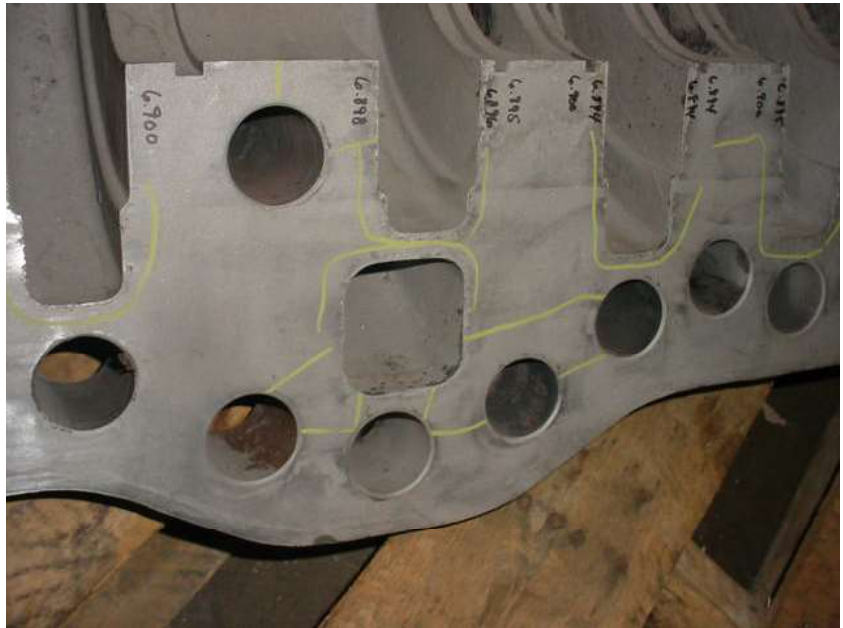
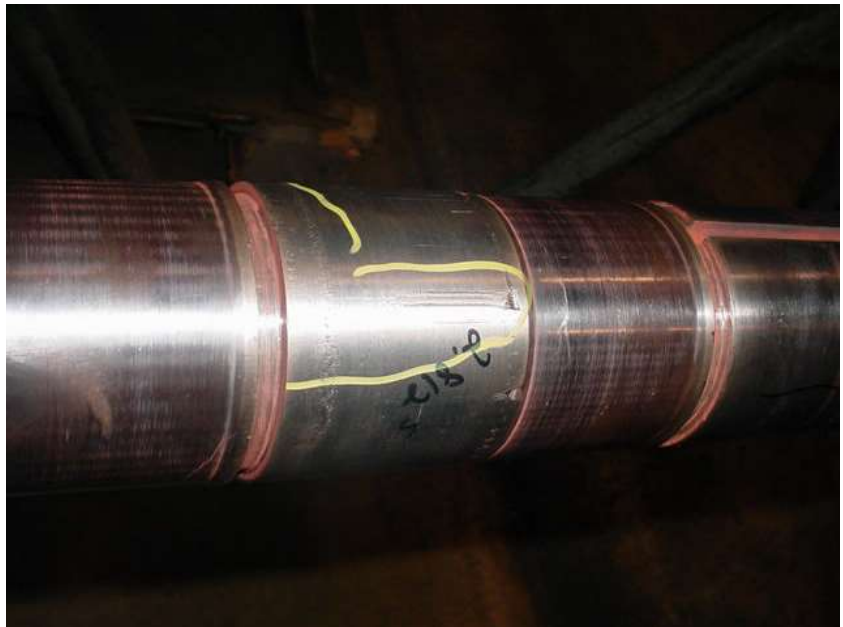


PHOTO #18



RockTenn – Coshocton 1307

Ingersoll Rand 4x11 DA-8 Boiler Feed Pump

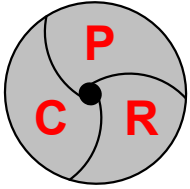
PHOTO #19



PHOTO #20



# REPAIR QUOTATION



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**R**epair &  
Services, LLC

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Tel 330 963 3100 Fax 330 963 3199  
www.clevelandpumprepair.com

**To:** RockTenn – Coschocton  
500 North 4<sup>th</sup> Street  
Coschocton, OH 43812

**Date:** December 21, 2011  
**Quote Number:** 1307  
**Reference Number:**

**Attention:** **Equipment:** Ingersoll Rand 4x11 DA-8 Boiler Feed Pump

## Cleveland Pump Repair & Services proposes to perform the following:

1. Impellers – 8
  - A. Removed the seized wear/case ring from the front hub.
  - B. Remove all wear rings and record fit sizes.
  - C. Repair and hand dress vanes as required.
  - D. Install new wear rings and finish machine.
  - E. Prep chrome plate and finish grind the bores to obtain the correct shaft fits.
  - F. Individually balance to 2 w/n specification.
  - G. Clean for reassembly.
2. Case rings, radial (7)
  - A. Machine bores to true-up to a common size.
3. Channel rings (6)
  - A. Machine bores to true-up to a common size.
4. Center bushing (1)
  - A. Machine bore to true-up to a common size.

CLEVELAND PUMP REPAIR & SERVICES, LLC
By: James Durkin
Title: General Manager

- Now accepting: Master Card® and Visa®
- This offer and any work performed as a result are exclusively governed by our Terms and Conditions attached. Any additional or conflicting terms contained in any document or purchase order issued authorizing work are expressly objected to in advance and shall not apply, except with the express written consent of Cleveland Pump Repair & Services.
- This proposal is subject to acceptance within 60 days from the date thereof.
- Payment terms: 30 days.

**PROPRIETARY**

## REPAIR QUOTATION

**Customer Name:** RockTenn – Coshocton

**Quote Number:** 1307

**Page 2 of 3**

5. Throttle bushing (1)
  - A. Machine bore to true-up to a common size.
6. Stuffing box bushings (2)
  - A. Clean and reuse.
7. Thrust bearing assembly.
  - A. Polish the shoes and thrust collar.
  - B. Clean all components for reassembly.
8. Bearing housings (2)
  - A. Stone fits and faces.
  - B. Thoroughly clean.
9. Laby seals (3)
  - A. Clean and reuse.
10. Casing
  - A. Remove all studs.
  - B. Grind the parting flanges to collapse the bores and establish the pinch taper.
  - C. Assemble and line bore all internal fits.
  - D. Machine the mechanical seal and bearing housing mounting surfaces to clean-up.
  - E. Clean and deburr.
  - F. Replace anti-rotation pins as required.
  - G. Retap and clean stud holes.
  - H. Make new gasket.
  - I. Thoroughly clean for reassembly.
11. Rebuild two mechanical seals.
12. Assemble rotor.
  - A. Record T.I.R.
  - B. Dynamically balance to 2 w/n specification.

## REPAIR QUOTATION

**Customer Name:** RockTenn – Coshocton

**Quote Number:** 1307

**Page 3 of 3**

- C. Disassemble.
- 13. Assemble element.
- 14. Completely assemble pump.
  - A. Air test mechanical seals.
  - B. Clean and paint.
- 15. Prep for shipment.
  - A. Deliver to plant site.

CPR will furnish the following parts for this repair.

- 1 # 1 Impeller Wear Ring, Front
- 1 # 1 Impeller Wear Ring, Back
- 7 Radial Impeller Wear Rings, Front
- 5 Radial Impeller Wear Rings, Back
- 1 # 1 Case Ring
- 1 Center Sleeve
- 1 Throttle Sleeve
- 1 Pump Shaft with Keys
- 1 Case Gasket
- 2 sets Bearing Linings
- Assembly Hardware as Required
- 2 Bearing Housing Gaskets