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— EVERY DAY SINCE 1946 —

LR Motor Shop Repairs

**Job Number 103781**

Prepared for Novus Arkansas, LLC (11612)

7920 Sloan Drive  
Little Rock AR 72206

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Split Case Centrifugal Pump Report - *LR Motor Shop* Split Case Centrifugal Pump Report: 231208B008

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1.0

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Hi-Speed Industrial Service  
7030 Ryburn Dr  
Millington, Tn 38053  
901-873-5300

## Split Case Centrifugal Pump Report

Novus Arkansas, LLC (11612)

7920 Sloan Drive  
Little Rock, AR 72206

FolderID: 103781  
FormID: 22399350

### Split Case Centrifugal Pump Report

Location: LR Motor Shop

Serial Number: 231208B008

Description: ROTECH PUMP

Make: ROTECH

Model: 1196MTR

Serial Number: 231208B008

Priorities Found: ● 2 - High ● 18 - Good

### General

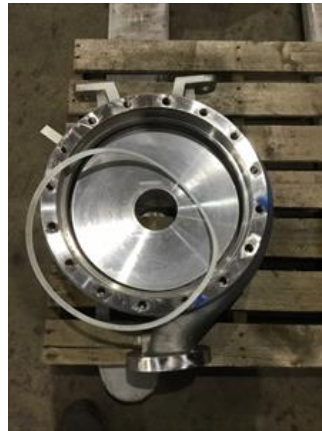
1. Job Number	103781
2. Report Date	01/07/2025
3. Customer	Novus

### Initial Inspection

4. Bowl Condition



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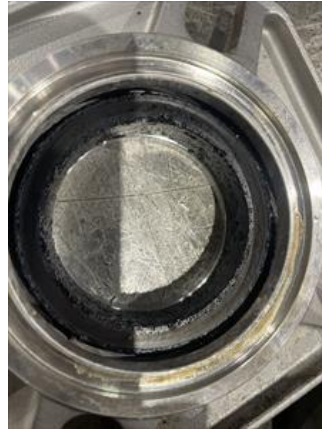


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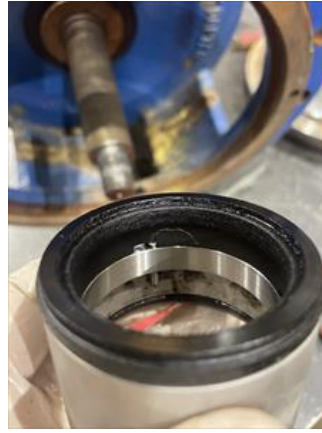




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5. Impeller Condition	(P) Pass
6. Wear Ring Condition	(N) NA
7. Wear Ring Material	Na
8. Seal Surfaces Condition	(F) Fail
9. Number of Seals	1
10. Seal Type	Mechanical
11. Seal Material on Rotary Face	carbon
12. Seal Material on Stationary Seat	sic
13. Mechanical Seal ID/Shaft Diameter	1.75 in
14. Mechanical Seal OD	in
15. Mechanical Seal Length	in
16. Lip Seal Elastic Material	Na
17. Lip Seal ID/Shaft Diameter	in
18. Lip Seal OD/Bore Diameter	in
19. Lip Seal Height	in

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Na	
20. Seal Sleeve Material	stainless
21. Seal Plate Condition	(P) Pass
22. Seal Cavity	
Lubricated with product	
23. Shaft Run Out	0.001
24. Does Shaft Turn Freely	yes
25. Does Shaft Have Visible Damage	no
Seal sleeve has fretting. Needs repaired	
26. Contamination	
No	
27. Frame Condition	(P) Pass
28. Fan Condition	(NA) Not Applicable
29. Broken or missing components	
Seal is broken	
<b>Mechanical Inspection</b>	
30. Bearing Manufacture	skf
31. Bearing DE Size	3309 a/c3
32. Bearing DE Type	double roll ball
33. DE Bearing Qty.	1
34. Bearing ODE Size	6309
35. Bearing ODE Type	ball
36. ODE Bearing Qty.	1
37. Insulated Bearing	(NA) Not Applicable
38. Lubrication Type	oil
39. Grease Condition	(NA) Not Applicable
40. Bearing Retainers	(N) No
41. Shaft Grounding Device	(NA) Not Applicable
42. DE Seal	(Y) Yes
43. DE Seal Type/Size	Labrynth
44. ODE Seal	(Y) Yes
45. ODE Seal Type/Size	Labrynth
46. Wear Ring Size	in
Na	
47. Clearances on Wear Ring to Impeller	in
Impellor should be .010" from front of pump	
48. Number of Wear Rings	0
49. Wear Ring Material	
Na	
<b>Root Cause of Failure</b>	
50. Component Failure	seal and rubber o-rings
51. Cause of Failure	
The rotary carbon part of the seal busted in 3 spots from pump starting after material glued the surfaces together from getting hot and cooling off. The seal surfaces have phonogrooving like a vinyl record on them instead of being smooth as glass. Surfaces also have trash between them not allowing a good seal. Seal sleeve has a small amount of fretting from the o-ring on it. O-rings became hard and cracked causing failure. New seal needs to be made of harder material. I recommend tungsten on tungsten with all o-rings made of Kalrez that is resistant to all chemicals.	
52. Comments	



### Machine Fit Inspection Report

54.	Shaft Run Out	(P) Pass	
55.	Shaft Run Out Measurements		
	Initial	Final	
	0.001		
56.	DE Bearing Shaft Fit	(P) Pass	
57.	DE Initial Shaft Bearing Fit Size		
	Measure 1	Measure 2	Measure 3
	1.772	1.772	1.772
58.	DE Final Shaft Bearing Fit Size		
	Measure 1	Measure 2	Measure 3
	Same		
59.	ODE Bearing Shaft Fit	(P) Pass	
60.	ODE Initial Shaft Bearing Fit Size		
	Measure 1	Measure 2	Measure 3
	1.772	1.772	1.772
61.	ODE Final Shaft Bearing Fit Size		
	Measure 1	Measure 2	Measure 3
	Same		
62.	DE Air Seal Shaft Fit		
	Na		
63.	DE Air Seal Shaft Size		
	Initial	Final	
	Na		
64.	ODE Air Seal Shaft Fit	(NA) Not Applicable	
65.	ODE Air Seal Shaft Size		
	Initial	Final	
	Na		
66.	DE Endbell Fit	(P) Pass	
67.	DE Initial Endbell Fit Size		
	Measure 1	Measure 2	Measure 3
	3.9375	3.9375	3.9375
68.	DE Final Endbell Fit Size		
	Measure 1	Measure 2	Measure 3
	Same		
69.	DE Endbell Fit Insulated	(NA) Not Applicable	
70.	DE Endbell Air Seal Fit	(NA) Not Applicable	

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71. DE Endbell Air Seal Fit Size			
Initial		Final	
<div> <div></div> Na </div>			
72. ODE Endbell Fit		(P) Pass	
73. ODE Initial Endbell Fit Size			
Measure 1		Measure 2	Measure 3
3.9375		3.9376	3.9376
74. ODE Final Endbell Fit Size			
Measure 1		Measure 2	Measure 3
<div> <div></div> Same </div>			
75. ODE Endbell Fit Insulated		(NA) Not Applicable	
76. ODE Endbell Air Seal Fit		(NA) Not Applicable	
77. ODE Endbell Seal Fit Size			
Initial		Final	
<div> <div></div> Na </div>			
78. Foot Flatness		(P) Pass	
79. Foot Condition		(P) Pass	
80. Flange Condition		(P) Pass	
81. Service Technician		Trevor Hall	
			
<b>Balancing Report</b>			
82. Balance Type			
83. Balance Operating Speed			
84. Starting Measurements			
Left End		Right End	
85. Balancing Specification			
86. Finished Measurements			
Left End		Right End	
87. Service Technician			
<b>Assembly and Final Test</b>			
88. Impeller Balanced			
89. Seal Cavity Test Pressure			
90. Pressure Test Time			
91. Painted			
92. Final Assembly Completed			
93. Service Technician			



## STANDARD TERMS AND CONDITIONS FOR PURCHASE OF GOOD AND/OR SERVICES

1. **APPLICABILITY.** The sale of any and all goods and/or services by Mock, Inc. d/b/a Hi-Speed Industrial Service ("Hi-Speed") shall be specifically conditioned upon and subject to the following terms and conditions which are incorporated by reference into any contracts and purchase orders with Hi-Speed, and which shall form and become a part of any agreement related thereto. Buyer's acceptance of any offer or quotation made by Hi-Speed for sale of any goods or services is expressly made subject to the terms and conditions set forth herein and to be so effective, Buyer need not sign or approve these Terms and Conditions to be bound hereunder provided a copy of same is provided to Buyer through any means. None of the terms and conditions contained herein may be added to, expanded, changed, modified, superseded or otherwise altered except as revised in writing and duly executed by Hi-Speed, and all orders received by Hi-Speed shall be governed only by the terms and conditions contained herein, notwithstanding any terms, conditions or provisions of any purchase order, release order, authorization or any other form issued by the Buyer. Hi-Speed hereby objects to any additional, modified, changed, deleted, altered or other terms and conditions not contained herein and notifies Buyer that any such terms or provisions are expressly rejected by Hi-Speed.
2. **PRICE.** All quoted prices shall remain firm and binding for a period of thirty (30) days from the date of quotation or for the period specifically stated in the quotation. The price for any and all goods and/or services ordered or approved by Buyer after thirty (30) days from the date of any quotation are subject to any increase in price that may occur after the expiration of thirty (30) days from the issuance of the quotation and the date the Buyer releases any shipment.
3. **SCOPE OF GOODS AND/OR SERVICES.** The goods and/or services provided by Hi-Speed pursuant to any quotation shall be limited exclusively to those goods and/or services expressly identified therein. Hi-Speed does not assume any responsibility and/or liability for the failure to provide any other goods and/or services not identified in any quotation. Modifications, additions or deletions to or from the scope referenced in any quotation shall only be effective if evidenced in writing and signed by Hi-Speed. The sale of any of all goods and/or services affected by such modification, addition or deletion shall be subject to these same Standard Terms and Conditions whether or not referenced therein.
4. **BILLING AND PAYMENT TERMS.** Hi-Speed shall invoice Buyer for all goods and/or services as same are rendered at the address listed on the quotation. Payments for all goods and/or services shall be due thirty (30) days from the date of the current invoice or as otherwise set forth in the quotation. Late payments are subject to a late fee of 5% of the total invoice amount. Recurring late payments may lead to a deposit requirement on future services or sale of goods. Buyer shall be liable to Hi-Speed for any and all fees and expenses incurred by Hi-Speed to collect any invoices or to enforce these Standard Terms and Conditions, including but not limited to, attorney's fees.
5. **DELIVERY OF GOODS AND/OR SERVICES.** Unless otherwise identified in the quotation, all shipments are F.O.B. Hi-Speed's warehouse and the title to and all risk of loss with respect to any goods shipped shall pass to Buyer when such goods are delivered to the carrier at Hi-Speed's warehouse. Hi-Speed will use its best efforts to affect delivery by the date or dates specified in the quotation. However, Hi-Speed shall not be liable for delay in or failure to make shipment, or to perform services, by any identified date for any reason whatsoever, including but not limited to, causes beyond its reasonable control, such as strikes, fires, floods, epidemics, quarantines, restrictions, severe weather, embargos, acts of God, or public enemy, war, riot, delays in transportation or the inability to obtain necessary labor, materials or manufacturing facilities.
6. **DELIVERY SITE AND TIME FOR PERFORMANCE.** Hi-Speed and Buyer agree that time is of the essence for the purchase order and that Buyer shall fully cooperate with Hi-Speed in order to allow Hi-Speed full access to prosecute its work diligently and in an orderly manner. Buyer shall assist Hi-Speed in every way possible to avoid delaying, disrupting or interfering with the progress of Hi-Speed's work at the project site. In the event Hi-Speed's work is delayed, hindered, suspended, disrupted, re-sequenced or interfered with or rendered less efficient or more costly or adversely affected in any way as a result of acts or omissions of Buyer or other contractors or employees of Buyer or by any other reason beyond Hi-Speed's control and without the fault of Hi-Speed, then, in such event, Buyer shall be liable to Hi-Speed for any damages, additional costs, expenses, labor, materials, man hours, acceleration costs, overtime, additional jobsite overhead, extended home office overhead, and any and all other direct and indirect expenses of whatsoever nature or kind, caused in whole or in part, as a result of any of the above-referenced occurrences. Hi-Speed's project records will be the basis for computing the additional costs and damages of Hi-Speed's labor, materials, expenses and overhead related to such changes. BUYER WARRANTS THAT THE SITE FOR DELIVERY OR INSTALLATION OF ANY GOODS AND/OR FOR THE PERFORMANCE OF ANY SERVICES SHALL BE READY AND ADEQUATE FOR HI-SPEED'S DELIVERY OF GOODS AND/OR PERFORMANCE OF SERVICES AND THAT HI-SPEED SHALL HAVE FULL ACCESS THERETO, FREE OF ALL OBSTRUCTIONS. BUYER SHALL ASSUME ALL EXTRA COSTS ASSOCIATED WITH HI-SPEED'S INABILITY TO INSTALL ANY GOODS OR PERFORM ANY SERVICES AS A RESULT OF BUYER'S FAILURE TO COMPLY WITH THIS PROVISION. HI-SPEED MAY NOT INSPECT THE SITE PRIOR TO DELIVERY AND/OR INSTALLATION OF GOODS AND/OR PERFORMANCE OF SERVICES AND MAKES NO WARRANTY AS TO THE SUFFICIENCY OF THE SITE FOR THE DELIVERY AND/OR INSTALLATION OF GOODS AND/OR THE PERFORMANCE OF SERVICES AT SUCH SITE.
7. **INSPECTION/ACCEPTANCE.** All goods and services ordered pursuant to any quotation shall be subject to inspection by Buyer after delivery or performance to determine conformity with the quotation and/or purchase order and Hi-Speed's advertised or published specifications. Buyer shall have a period of thirty (30) days from shipment of goods at the delivery destination specified in the quotation within which to inspect the goods for conformity with the quotation, order and/or Hi-Speed's advertised and published specifications and to provide Hi-Speed with written notice of any discrepancy or rejection. Buyer shall have a period of thirty (30) days following completion of any services within which to inspect the services for conformity with the quotation, purchase order and/or Hi-Speed's advertised and published specifications and to provide Hi-Speed with written notice of any discrepancy or rejection. If the goods delivered or services performed do not so conform, upon delivery of notice to Hi-Speed of any discrepancy, nonconformance or rejection, Hi-Speed shall have sixty (60) days to cure the alleged discrepancy and/or nonconformance. If Hi-Speed fails to cure in this time period, Buyer shall have the right to reject such goods or services. After the cure period, goods that have been delivered and rejected, in whole or in part, shall be returned to Hi-Speed. Buyer shall notify Hi-Speed and arrange for the return of the goods as required. Should such non-conforming services be rejected Hi-Speed shall, at its sole cost, re-perform the non-conforming services. Inspection or failure to inspect on any occasion shall not affect Buyer's rights under the warranty provisions herein.
8. **WARRANTIES.** Hi-Speed warrants that all goods shall conform in all material aspects to the goods identified in the quotation to Buyer and/or purchase order, and Hi-Speed makes to Buyer the manufacturer's express warranty for any goods sold to Buyer, which is offered by the manufacturer at the time of acceptance of any quotation by Buyer. This warranty is conditioned upon the installation, operation, and maintenance of the goods in accordance with the manufacturer's recommendations and/or standard industry practice and the goods at all times being operated or used under normal operating conditions for which they were designed. Hi-Speed, at its sole option, will repair or



replace any defective or non-conforming goods in accordance with the applicable manufacturer's warranty. Warranty for any defective or incorrect parts is limited to the repair or replacement of those parts. Hi-Speed warrants that all services will conform in all material respects to the description of services identified in the quotation and will be performed in a good and workmanlike manner in accordance with industry practices and standards. Should the services be reasonably rejected or not conform with the foregoing warranties, Hi-Speed shall, at its sole cost, re-perform the defective or nonconforming services. Notwithstanding the foregoing, these warranties do not extend to goods or services to the extent that such goods have been subject to misuse, neglect or abuse not caused by Hi-Speed or have been used in violation of the approved written instructions furnished to Buyer. THE FOREGOING REPRESENTS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY HI-SPEED WITH RESPECT TO ALL GOODS SOLD AND IS IN LIEU OF ALL OTHER WARRANTIES EITHER EXPRESS OR IMPLIED. HI-SPEED EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR USE OR PURPOSE. BUYER WAIVES ANY CLAIM THAT THESE EXCLUSIONS OR LIMITATIONS DEPRIVE IT OF AN ADEQUATE REMEDY AT EQUITY OR LAW OR CAUSE THIS AGREEMENT TO FAIL IN ITS ESSENTIAL PURPOSE. BUYER SHALL BE ENTITLED TO NO OTHER REMEDY OTHER THAN AS SET FORTH HEREIN, REGARDLESS OF THE CLAIM OR CAUSE OF ACTION, WHETHER BASED IN CONTRACT, TORT, NEGLIGENCE, GOODS LIABILITY, STRICT LIABILITY OR OTHERWISE.

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10. **SEVERABILITY.** The partial or complete invalidity of any provision of these Standard Terms and Conditions shall not affect the enforceability of the remainder of these Standard Terms and Conditions. If any provision is found to be invalid or unenforceable, that portion shall be modified to make it enforceable or shall be stricken and the remainder of these Standard Terms and Conditions shall enforced.
11. **GOVERNING LAW AND JURISDICTION.** Any controversy arising out of any quotation, the purchase order, the goods sold or delivered, repair or replacement thereof, or any services provided pursuant to any quotation or any purchase order, or these Standard Terms and Conditions shall be governed by the laws of the state of Tennessee without regard to any choice of law provisions and any cause of action related in any manner thereto shall be brought only in the state or federal courts of Shelby County, Tennessee.
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13. **FORCE MAJEURE.** Neither party shall be responsible for any delay or failure in performance of any party of the quotation, purchase order or these Standard Terms and Conditions to the extent that such delays or failures are caused by fire, flood, earthquake, explosion, war, embargo, government requirement, civil or military authority, acts of God, or any other circumstances beyond its reasonable control and not involving any fault or negligence on the party affected ("Condition"). If any such Condition occurs, the party delayed or unable to perform shall promptly give written notice to the other party and, if such Condition remains at the end of thirty (30) days, the party affected by the other party's delay and inability to perform may elect to (i) terminate such order or part thereof, or (ii) suspend the order for the duration of the Condition, if the Buyer is the suspending party, buy elsewhere comparable material to be sold under the order and apply to any commitment the purchase price of such purchase, and resume performance of the order once the Condition ceases, with an option in the affected party to extend the period of this order up to the length of the time the Condition endures.
14. **NONWAIVER.** No course of dealing or failure of either party to strictly enforce any term, right, or condition of these Standard Terms and Conditions will be construed as a waiver of such term, right or condition. Any waiver by Hi-Speed will only be in writing and will waive no succeeding breach of a term, right or condition.
15. **ASSIGNMENT.** The rights and obligations of the parties shall neither be assigned nor delegated without the prior written consent of the other party. However, any party may assign or delegate its respective rights and obligations, in whole or in part, (i) to any subsidiary, (ii) pursuant to other financing, merger or reorganization or (iii) pursuant to any sale or transfer of substantially all of the assets of the assigning party. These Standard Terms and Conditions shall bind the heirs, successors and assigns of the parties hereto.
16. **NO INDIVIDUAL LIABILITY.** Notwithstanding any other agreement to the contrary, the Buyer agrees that in no event will the Buyer hold and Hi-Speed owner, director, officer or employee personally liable for unintentional tortious conduct or conduct that constitutes the breach of any contract between Hi-Speed and the Buyer, even if the Hi-Speed owner, director, officer or employee is or could be construed to be a party to such contract.