

# EVERY DAY SINCE 1946

LR Motor Shop Repairs

## Job Number 102665

Prepared for Arkansas Box

100 William J Clark Drive Conway AR 72032

### **Table of Contents**

DC Repair Report - MOTOR SHOP LR



#### **DC Repair Report**

Arkansas Box 100 William J Clark Drive Conway, AR 72032

#### DC Repair Report Rev. 2

Location:	MOTOR SHOP LR
Job Number:	102665

Description:50 HP DC

Hi-Speed Job Number:	102665
Manufacturer:	Reliance
Serial Number:	01KSW06759H-ZH
HP/KW:	50 (HP)
RPM:	2100
Frame:	MC2512ATZ
Armature Voltage:	500 (Volts)
Armature Current:	86 (Amps)
Field Voltage:	300 (Volts)
Field Current :	1.9 (Amps)
J-Box Included:	Yes
Date Received:	03/19/2024
Bearing RTDS:	No
Winding RTDS:	No
Mounting Orientation :	Horizontal

Priorities Found: **10 - Good** 

#### **Overall Condition**

- 1. Describe the Overall Condition of the Equipment as Received *Tach shaft bent.*
- 2. Nameplate Picture





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

> FolderID: 102665 FormID: 19806452























	3.	Distance From the End of the Shaft to the end of the Face of the Sheave/Coupling			
	•	Na			
Ir	Initial Mechanical/Electrical				
	4.	Does the Shaft Turn Freely?	(Y) Yes		
	5.	Does Shaft Have Visible Damage?	(No) No		
	6.	Assembled Shaft Runout	0.001 Inches		
	7.	Assembled Shaft End Play	Inches		
	•	Na			
	8.	Air Gap Variation <10%			
	•	Na			
	9.	Lead Condition	(P) Pass		



10.	Lead Length	12 Inches
11.	Frame Condition	(P) Pass
12.	Fan Condition	(NA) Not Applicable

13. Brush Information			
Brush Number	Quantity	Condition	
0451AC	4	replace	
ANTA			

14. Brush Holder Condition - Verify proper gap to Commutator



Incoming Electrical Test 15. General Condition of the Armature/Commutator





Polished commutator Gary

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Polish

#### 16. Armature Insulation Resistance to Ground



17. Field Circuit Insulation Resistance to Ground



18. Interpole Circuit Insulation Resistance to Ground



19. Total Field Ohms

14.43 Gigohms

3.44 Gigohms

85.9000000000001



20. Field Ohms Between F1/F2

44

Between F3/F4

#### 42.1



21. MegOhms between Fields and Series



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Series 2

Na

ц.

23.	Series Drop Test 3&4		
	Series 3	Series 4	
	Na		
24.	Field Drop Test Fields 1&2		
	Total AC Voltage	Field #1	Field #2
	1.5	1.624	0.877
25.	Field Drop Test Fields 3&4		
	Field #3	Fleld #4	Field #2
	1.686	1.982	
26.	Field Drop Test Fields 5&6		
	Field #5	Fleld #6	Field #2
	Na		
-	Field Drop Test Fields 7&8		
21.	Field #7	Fleld #8	Field #2
	Na		
28.	Interpole Drop Test 1&2		
	Total AC Voltage	Interpole #1	Interpole #2
	, and the second s	20	20
	25 amps		
29.	Interpole Drop Test 3&4		
	Interpole #3	Interpole #4	Field #2
	20	20	
30.	Interpole Drop Test 5&6		
	Interpole #5	Interpole #6	Field #2
	and a strength of the strength		
1			
	102665 1500		
Field	20/1.435 20 5 0.411 1.982		
	20 1124 20		
@ 25A	20 1.424 20		
@ 25A	20, 1.624, 20 150 V		
© 25A			
	150 V	Interpole #8	Field #2
	Interpole Drop Test 7&8	Interpole #8	Field #2

	Armature Number of Bars - Bar to Bar	Test		
	Number of Bars	Bar to Bar Test		
	Na			
Mech	anical Inspection			
33.	Shaft Runout Drive End		0.00	)1 inches
34.	Shaft Runout Armature			
	Drive End Bearing Journal	Armature Core	ODE Bearing Journal	
-	Na Deixa Fast Deseiner Neustra			242.000
35.			6	312 2RS
36.	5		(Pall) Pal	1 L Bearing
37.	0 11		(Ball) Bal	-
38.		ding Device?	(Grease) Grease Lu	IDFICATED
39.	None	ang Device?		
40.		ther Retention Device?	W2\/	/ washer
40.				replace
42.	Opposite Drive End Bearing Number			6210
43.				1
44.	Opposite Drive End Bearing Type		(Ball) Bal	-
45.			-	
46.				
	None	J		
47.	Opposite Drive End Wavy Washer/Sn	ap-Ring Other Retention Device?		none
48.	Opposite Drive End Bearing Condition			replace
49.			Holland	
	- 1	11 0		
	$\overline{\gamma}$ $\gamma$			
	1 An	tel		
		/		
50	List Parts Needed Prior to Reassembl	V		
50.	Brushes, bearings, rewind, and recond	ition. Also need Aegis grounding ring and insul	ated bearing.	
50.				
	anical Fits - Armature		·	
Mech	anical Fits - Armature Coupling Fit Closest to Bearing Housin	ng	-	
Mech		ng 60 degrees	120 degrees	
Mech	Coupling Fit Closest to Bearing Housing			
<b>Mech</b> 51.	Coupling Fit Closest to Bearing Housin 0 Degrees <i>Na</i>	60 degrees		
<b>Mech</b> 51.	Coupling Fit Closest to Bearing Housing 0 Degrees Na Coupling Fit Closest to the End of the	60 degrees Shaft	120 degrees	
<b>Mech</b> 51.	Coupling Fit Closest to Bearing Housin 0 Degrees <i>Na</i>	60 degrees		
<b>Mech</b> 51.	Coupling Fit Closest to Bearing Housin 0 Degrees <i>Na</i> Coupling Fit Closest to the End of the 0 Degrees	60 degrees Shaft	120 degrees	
<b>Mech</b> 51. 52.	Coupling Fit Closest to Bearing Housing 0 Degrees Na Coupling Fit Closest to the End of the 0 Degrees Na	60 degrees Shaft	120 degrees	
<b>Mech</b> 51. 52.	Coupling Fit Closest to Bearing Housing 0 Degrees Na Coupling Fit Closest to the End of the 0 Degrees Na Drive End Bearing Shaft Fit	60 degrees Shaft 60 degrees	120 degrees 120 degrees	
<b>Mech</b> 51. 52.	Coupling Fit Closest to Bearing Housing 0 Degrees Na Coupling Fit Closest to the End of the 0 Degrees Na	60 degrees Shaft	120 degrees	
50			lated bearing.	

55.	Opposite Drive End Bearing Shaft Fit			
	0 Degrees	60 Degrees	120 Degrees	
	1.9687	1.9686	1.9687	
56.	Opposite Drive End Bearing Shaft Fit	Condition		(P) Pass
57.	Shaft Air Seal Fits			
	Drive End Air Seal	Opposite Drive End Air Seal		
-	Na			
	anical Fits- Bearing Housings			
58.	Drive End - End Bell Bearing Fit			
	0 Degrees	60 Degrees	120 Degrees	
	5.1189	5.1187	5.1189	
	Drive End - Endbell Bearing Fit Condi			(P) Pass
60.	Opposite Drive End - End Bell Bearing			
	0 Degrees	60 Degrees	120 Degrees	
	3.5442	3.544	3.5440	
	Opposite Drive End - Endbell Bearing	Fit Condition		(P) Pass
62.	Bearing Cap Condition			
	Drive End	Opposite Drive End		
	pass	na		
63.	End Bell Air Seal Fits			
	Drive End Air Seal	Opposite Drive End Air Seal		
	Na			
64.				
	Polish comm, and insulate one housing			
65	Signature of Technician Performing M		Terrence	. Holland
	7 7/1	<i>71</i> Л		
	/   <u> </u>			
	- April			
, Dest	/			
	Cause of Failure			
66.	Failure Locations	Fields shoels had Depless house		
07	Tach shaft bent from excessive force.	Fields check bad. Replace brushes		
67.	Root Cause of Failure			
0	Fields checked bad. Ohm readings out	or balance.		
	mutator Data			
	Total Copper Segment Length			inches
-	Na Number of Doro			
	Number of Bars			
-	Na			
70.	Number of Wires Per Copper Bar and			
	Number of Wires per Bar	Wire Size		
	Na			

71.	Equalizers per Copper Bar and Equal	zer Wire Size	
	Equalizers per Bar	Wire Size	
-	Na		
72.	,		
	Current Comm Diameter	Minimum Comm Diameter	Maximum Comm Diameter
	Na		
73.			
	Front Shaft Diameter	Back Shaft Diameter	
	Na		
74.	Commutator Type		
-	Na		
75.	Commutator Bore		
	Na		
76.	Signature of Technician Recording Da	ata	
-	Na		
Dynar	nic Balance Report		
77.	Rotor Weight and Balance Grade		
	Rotor Weight	Balance Grade	
-	Na		
78.	Initial Balance Readings		
	Drive End Readings	Opposite Drive End Readings	

	St	art	
Right End	Mils:	0.32	
a second	Angle:	276.56	
Left End	Mils:	0.73	
	Angle:	58.70	A
Begin	uning unk	alance:	10
			21.
Res	idual unb	alance:	3.
This item	in halan	and hor	4.1
		and cor	901
Key Used			
Drive End		n wide m	0.
Bear Ends		n wide x	0.4

79. Final Balance Readings		
Drive End Readings	Opposite Drive End Readings	
Conditions Finish Mils: 0.23 in/s: 0.005 Angle: 296.79 Mils: 0.30 in/s: 0.007 Angle: 66.22 10.5668 g-in. 0.373 oz-in Right Side 31.329 g-in. 0.373 oz-in Right Side 31.329 g-in. 0.373 oz-in Right Side 31.32 g-in. 0.322 cs-in Right Side		
80. Signature of the Balance Techr	nician	Cw
Post Armature Rewind Testing		
81. Post Rewind Armature Insulation	on Resistance to Ground	Megohms
82. Post Rewind Field Circuit Meas	sure the Insulation Resistance to Ground	Megohms
83. Post Rewind Armature Number	of Bars - Bar to Bar Test	
Number of Bars	Bar to Bar Test	
Ma Na		

- 85. Post Rewind Interpole Circuit Insulation Resistance to Ground
- Witness: TRH/RHR



86.	Post Rewind Field Drop Test Fields 1	&2	
	Total AC Voltage	Field #1	Field #2
	297	3.56	3.78
87.	Post Rewind Field Drop Test Fields 3	&4	
	Field #3	Fleld #4	Field #2
	3.78	3.78	
Ψ.	RHR. TRH		
88.	Post Rewind Field Drop Test Fields 5	&6	
	Field #5	Fleld #6	Field #2

🗭 Na





89.	Post Rewind Field Drop Test Fields 7&8			
	Field #7	Fleld #8	Field #2	
	Na			
90.	. Post Rewind Interpole Drop Test 1&2			
	Total AC Voltage	Interpole #1	Interpole #2	
	26	12.2	12.7	

91.	Post Rewind Interpole Drop Test 3&4		
	Interpole #3	Interpole #4	Field #2
	12.9	12.6	
92.	Post Rewind Interpole Drop Test 5&6		
	Interpole #5	Interpole #6	Field #2
-	Na		
93.	Post Rewind Interpole Drop Test 7&8		
	Interpole #7	Interpole #8	Field #2
	Na		
Post	Mechanical Repair		
	Post Repair Coupling Fit Closest to Be	aring Housing	
011	0 Degrees	60 degrees	120 degrees
	0 2091000	00 0091000	120 0091000
	Na		
95.	Post Repair Coupling Fit Closest to the	e End of the Shaft	
	0 Degrees	60 degrees	120 degrees
-	Na	-	
96.	Post Repair Drive End Bearing Shaft F		100 5
	0 Degrees	60 Degrees	120 Degrees
	Na		
97.	Post Repair Drive End Bearing Shaft F	Tit Condition	
I Na			
98.	Post Repair Drive End Opposite Drive	-	
	0 Degrees	60 Degrees	120 Degrees
-	Na		
99.	Post Repair Drive End Opposite Drive	End Bearing Shaft Fit Condition	
-	Na		
100.	Post Repair Drive End - End Bell Bear	ing Fit	
	0 Degrees	60 Degrees	120 Degrees
-	Na		
101.	Post Repair Drive End - Endbell Bearing	ng Fit Condition	
-	Na		
102.	Post Repair Opposite Drive End - End	Bell Bearing Fit	
	0 Degrees	60 Degrees	120 Degrees
	N.		
402	Na Dest Densis Osnasita Driva Fad. Fad.		
103.	Post Repair Opposite Drive End - End Na	Dell Bearing Fit Condition	
104	Post Repair Bearing Cap Condition		
104.	Drive End	Opposite Drive End	
	Na		

105.	Post Repair End Bell Air Seal Fits		
	Drive End Air Seal	Opposite Drive End Air Seal	
	Na		
106.	106. Signature of Tech Performing Mechanical Repairs		
	Na		
Assembly			

107. Take Pictures of all Major Components Prior to Reassembly











108. Verify Brush Box Holders Have the Proper Clearance, and Brushes have been Seated Properly (P) Pass

109. Assembled Shaft End Play and Runout			
Shaft Endplay	Shaft Runout		
🗭 Na			
110. Perform No-Load Test Run, Record Armature Voltage and Current			
Voltage	Current		



111. Perform No-Load Test Run, Record Field Voltage and Current Voltage Current



112.	12. Document Vibration Readings Drive End			
	Horizontal	Vertical	Axial	
	0.02	0.03	0.02	
113.	. Document Vibration Readings Opposite Drive End			
	Horizontal	Vertical	Axial	
	0.03	0.03	0.04	
114.	. Perform Full-Load Test Run, Record Armature Voltage and Current			
	Voltage	Current		

115.	Perform Full-Load Test Run, Record F	Field Voltage and Current		
	Voltage	Current		
	Na			
116.	Document Vibration Readings Under	Full Load Drive End		
	Horizontal	Vertical	Axial	
-	Na			
117.	Document Vibration Readings Under			
	Horizontal	Vertical	Axial	
	Na			
118.	Ambient Temperature Na			Fahrenheit
119.	Drive End Bearing Temps Under Full		45 Minutes	
	5 Minutes	10 Minutes	15 Minutes	
	Na			
120.	Opposite Drive End Bearing Temps U	nder Full Load		
	5 Minutes	10 Minutes	15 Minutes	
Ţ	Na			
121. Final Test Run Sign-Off Cw Co sign: RRW				
122.	Document Final Condition With Pictur	es		

123. Final QC Sign-Off

Win

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Cw



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- 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

**TermsAndConditions** 

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- 10. <u>SEVERABILITY</u>. 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. <u>GOVERNING LAW AND JURISDICTION.</u> 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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- 14. <u>NONWAIVER</u>. 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. <u>ASSIGNMENT.</u> 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.
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