

# LR Motor Shop Repairs

# **Job Number 100815**

Prepared for Union Pacific-Vine St 10945

1020 N. Vine Street North Liittle Rock AR

# **Table of Contents**

DC Repair Report - Shop

DC Repair Report Rev. 2: 100815 - 4343

1.0



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### DC Repair Report Union Pacific-Vine St 10945

1020 N. Vine Street North Liittle Rock, AR

DC Repair Rep	ort Rev. 2
Location:	Shop
Job Number:	100815
Serial Number:	4343
Status:	In For Repair
Description:HAU	LOTTE 48V DC HOIST MOTOR

Hi-Speed Job Number:	100815
Manufacturer:	Other
Product Number :	2901002650
Serial Number:	4343
Armature Voltage:	48 (Volts)
J-Box Included:	Yes
Bearing RTDS:	No
Winding RTDS:	No
Mounting Orientation :	Horizontal

Priorities Found: 9 - Good

#### **Overall Condition**

 Describe the Overall Condition of the Equipment as Received Commutator was burnt from brushes not making proper contact.

#### 2. Nameplate Picture











	3.	Distance From the End of the Shaft to the end of the Face of the Sheave/Coupling	
In	itial	l Mechanical/Electrical	
	4.	Does the Shaft Turn Freely?	(Y) Yes
	5.	Does Shaft Have Visible Damage?	(No) No
	6.	Assembled Shaft Runout	
	7.	Assembled Shaft End Play	
	8.	Air Gap Variation <10%	





10.	Lead Length		Inches
11.	Frame Condition		(P) Pass
12.	Fan Condition		(NA) Not Applicable
13.	Brush Information		
	Brush Number	Quantity	Condition
	B89-012F A-120	4	bad



#### 14. Brush Holder Condition - Verify proper gap to Commutator

pass



## **Incoming Electrical Test**

15.	General Condition of the Armature/0	Commutator	commutator is burnt and needs turned/undercut
7	Windings look good.		
16.	Armature Insulation Resistance to 0	Ground	2000 Megohms
17.	Field Circuit Insulation Resistance to	o Ground	2000 Megohms
18.	Interpole Circuit Insulation Resistan	ce to Ground	
19.	Total Field Ohms		0.8
20.	Field Ohms		
	Between F1/F2	Between F3/F4	
21.	MegOhms between Fields and Serie	es	
22.	Series Drop Test 1&2		
	Series 1	Series 2	
23.	Series Drop Test 3&4		
	Series 3	Series 4	
24.	Field Drop Test Fields 1&2		
	Total AC Voltage	Field #1	Field #2
	15	2	2
25.	Field Drop Test Fields 3&4		
	Field #3	Fleld #4	Field #2
	2	2	
26.	Field Drop Test Fields 5&6		
	Field #5	Fleld #6	Field #2
07	F: 11D		
27.	Field Drop Test Fields 7&8	<b>5</b> 1.1.1.10	F1 11 (10)
	Field #7	Fleld #8	Field #2
28.	Interpole Drop Test 1&2		
	Total AC Voltage	Interpole #1	Interpole #2
29.	Interpole Drop Test 3&4		
	Interpole #3	Interpole #4	Field #2
	,	,	
30.	Interpole Drop Test 5&6		
	Interpole #5	Interpole #6	Field #2
31.	Interpole Drop Test 7&8		

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32. Armature Number of Bars - Bar to Bar Test

Number of Bars Bar to Bar Test

57

good

Surge test good



Mech	anical Inspection		
33.	Shaft Runout Drive End		0.001 inches
34.	Shaft Runout Armature		
	Drive End Bearing Journal	Armature Core	ODE Bearing Journal
35.	Drive End Bearing Number		6206 2rsr



36. Drive End Bearing Quantity	1
37. Drive End Bearing Type	(Ball) Ball Bearing
38. Drive End Lubrication Type	(Grease) Grease Lubricated
39. Drive End Bearing Insulation or Grounding Device?	
40. Drive End Wavy Washer/Snap-Ring Other Retention Device?	
41. Drive End Bearing Condition	worn



43. Opposite Drive End Bearing Quantity	1
44. Opposite Drive End Bearing Type	(Ball) Ball Bearing
45. Opposite Drive End Lubrication Type	(Grease) Grease Lubricated
46. Opposite Drive End Bearing Insulation or Grounding Device?	
47. Opposite Drive End Wavy Washer/Snap-Ring Other Retention Device?	
48. Opposite Drive End Bearing Condition	
49. Signature of Technician who Performed Teardown	Trevor Hall

/ ~ / M

50. List Parts Needed Prior to Reassembly

4 brushes 6305 2rsr 6206 2rsr

#### **Mechanical Fits - Armature**

51.	Coupling Fit Closest to Bearing Housing	ng		
	0 Degrees	60 degrees	120 degrees	
52.	Coupling Fit Closest to the End of the	Shaft		
	0 Degrees	60 degrees	120 degrees	
53.	Drive End Bearing Shaft Fit			
	0 Degrees	60 Degrees	120 Degrees	
	1.1814	1.1814	1.1814	
54.	Drive End Bearing Shaft Fit Condition			(P) Pass
55.	Opposite Drive End Bearing Shaft Fit			
	0 Degrees	60 Degrees	120 Degrees	
	0.9846	0.9846	0.9846	
56.	Opposite Drive End Bearing Shaft Fit	Condition		(P) Pass
57.	Shaft Air Seal Fits			
	Drive End Air Seal	Opposite Drive End Air Seal		

## **Mechanical Fits- Bearing Housings**

58.	Drive End - End Bell Bearing Fit		
	0 Degrees	60 Degrees	120 Degrees
	2.4413	2.4413	2.4413



<b>9</b> 59.	Drive End - Endbell Bearing Fit Condi	tion		(P) Pass
60.	Opposite Drive End - End Bell Bearing	g Fit		
	0 Degrees	60 Degrees	120 Degrees	
	2.4413	2.4413	2.4413	
61.	Opposite Drive End - Endbell Bearing	Fit Condition		(P) Pass



**Root Cause of Failure** 

62.	Bearing Cap Condition		
	Drive End	Opposite Drive End	
63.	End Bell Air Seal Fits		
	Drive End Air Seal	Opposite Drive End Air Seal	
64.	List any Machine work Needed Below	V	
	List any Machine work Needed Below Signature of Technician Performing N		r Hall

66.	Failure Locations						
	Brushes, commutator, bearings						
67.	Root Cause of Failure						
	Brushes got stuck in brush rack and didn't make proper contact.						
Comn	Commutator Data						
68.	Total Copper Segment Length						
69.	Number of Bars						
70.	Number of Wires Per Copper Bar and Size						
	Number of Wires per Bar	Wire Size					
71.	Equalizers per Copper Bar and Equa						
	Equalizers per Bar	Wire Size					
72.	Document Commutator Diameter, Min	nimum and Max					
	Current Comm Diameter	Minimum Comm Diameter	Maximum Comm Diameter				
73.	Commutator Shaft Diameter						
	Front Shaft Diameter	Back Shaft Diameter					
7.4	O T						
	Commutator Type						
75.							
	Signature of Technician Recording D	ата					
-	mic Balance Report						
77.	Rotor Weight and Balance Grade						
	Rotor Weight	Balance Grade					
78.	Initial Balance Readings						
	Drive End Readings	Opposite Drive End Readings					
79.	Final Balance Readings						
	Drive End Readings	Opposite Drive End Readings					
80.	Signature of the Balance Technician						
Post A	Armature Rewind Testing						
	Post Rewind Armature Insulation Res	sistance to Ground					
82.	Post Rewind Field Circuit Measure th						
83.	Post Rewind Armature Number of Ba	rs - Bar to Bar Test					
	Number of Bars	Bar to Bar Test					
84.	Post Rewind Field Circuit Insulation F	Resistance to Ground					
85.	Post Rewind Interpole Circuit Insulation Resistance to Ground						
86.	Post Rewind Field Drop Test Fields 1	&2					
	Total AC Voltage	Field #1	Field #2				
0.7	Post Powind Field Pres Test Fields 0	9.4					
87.	Post Rewind Field Drop Test Fields 3		F:-I-I #0				
	Field #3	Fleld #4	Field #2				

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88.	Post Rewind Field Drop Test Fields 5&6					
	Field #5	Fleld #6	Field #2			
89.	Post Rewind Field Drop Test Fields 78	<b>3</b> 8				
	Field #7	Fleld #8	Field #2			
90	D. Post Rewind Interpole Drop Test 1&2					
30.	Total AC Voltage	Interpole #1	Interpole #2			
	Total AC Voltage	The pole #1	interpole #2			
91.	Post Rewind Interpole Drop Test 3&4					
	Interpole #3	Interpole #4	Field #2			
	D . D					
92.	Post Rewind Interpole Drop Test 5&6	1.1	F: -1-1 #0			
	Interpole #5	Interpole #6	Field #2			
93.	Post Rewind Interpole Drop Test 7&8					
	Interpole #7	Interpole #8	Field #2			
Post Mechanical Repair						
94.	Post Repair Coupling Fit Closest to Be	, , ,				
	0 Degrees	60 degrees	120 degrees			
95	Post Repair Coupling Fit Closest to the	e End of the Shaft				
00.	0 Degrees	60 degrees	120 degrees			
	0 D 0 g. 0 0 0		120 409,000			
96.	Post Repair Drive End Bearing Shaft F	Fit				
	0 Degrees	60 Degrees	120 Degrees			
07	Doct Donois Drive End Dooring Chaft I					
		Post Repair Drive End Bearing Shaft Fit Condition  Post Repair Drive End Opposite Drive End Bearing Shaft Fit				
30.	0 Degrees	60 Degrees	120 Degrees			
	o Degrees	oo begrees	120 Degrees			
99.	Post Repair Drive End Opposite Drive	Post Repair Drive End Opposite Drive End Bearing Shaft Fit Condition				
100.	Post Repair Drive End - End Bell Bearing Fit					
	0 Degrees	60 Degrees	120 Degrees			
101	Doot Donois Deivo End. Endhall Doos	na Fit Condition				
	Post Repair Drive End - Endbell Beari Post Repair Opposite Drive End - End	-				
102.	0 Degrees	60 Degrees	120 Degrees			
	o Degrees	oo begrees	120 Degrees			
103.	Post Repair Opposite Drive End - End	bell Bearing Fit Condition				
104.	Post Repair Bearing Cap Condition					
	Drive End	Opposite Drive End				
105	Post Repair End Bell Air Seal Fits					
100.	Drive End Air Seal	Opposite Drive End Air Seal				
	Z Z Elia / III Godi	opposite bitte bitte bitte bitte				
106.	Signature of Tech Performing Mechan	ical Repairs				
Asser	nbly					

	Take Pictures of all Major Component	-				
	Verify Brush Box Holders Have the Proper Clearance, and Brushes have been Seated Properly					
109.						
	Shaft Endplay	Shaft Runout				
110.	Perform No-Load Test Run, Record Armature Voltage and Current					
	Voltage	Current				
111.	Perform No-Load Test Run, Record F	rform No-Load Test Run, Record Field Voltage and Current				
	Voltage	Current				
112.	Document Vibration Readings Drive E					
	Horizontal	Vertical	Axial			
113.	13. Document Vibration Readings Opposite Drive End					
	Horizontal	Vertical	Axial			
114.	. Perform Full-Load Test Run, Record Armature Voltage and Current					
	Voltage	Current				
115.	Perform Full-Load Test Run, Record Field Voltage and Current					
	Voltage	Current				
116.	Document Vibration Readings Under I	Document Vibration Readings Under Full Load Drive End				
	Horizontal	Vertical	Axial			
117.	Document Vibration Readings Under Full Load Opposite Drive End					
	Horizontal	Vertical	Axial			
118.	Ambient Temperature					
	Drive End Bearing Temps Under Full	Load				
	5 Minutes	10 Minutes	15 Minutes			
120.	Opposite Drive End Bearing Temps U	nder Full Load				
	5 Minutes	10 Minutes	15 Minutes			
121	Final Test Run Sign-Off					
	Document Final Condition With Pictures					
	Final QC Sign-Off					
0.						

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