

# LR Motor Shop Repairs

## **Job Number 101189**

Prepared for Union Pacific-Vine St 10945

1020 N. Vine Street North Liittle Rock AR

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AC Recondition As Found - Shop

AC Recondition - Rev. 2: 840850H-5

1.0



FolderID: 101189

FormID: 16402806



### **AC Recondition As Found**

**Union Pacific-Vine St 10945** 

1020 N. Vine Street North Liittle Rock, AR

Location:

AC Recondition - Rev. 2

Serial Number: 840850H-5

Description: 0.75/0.25HP REULAND

Shop

1800/600RPM 184

Hi-Speed Job Number:	101189
Manufacturer:	Other
Product Number:	7994-HP0850B
Serial Number:	840850H-5
HP/kW:	0.75 (HP)
RPM:	1800 (RPM)
Frame:	184
Voltage:	460
Current:	1.3/1.4
Phase:	Three
Hz:	60 (Hz)
Enclosure:	TENV
J-box Included:	Complete
Coupling/Sheave:	Brake
Bearing RTDs:	No
Stator RTDs:	No
Repair Stage:	Final
Heaters:	No
Winding Type :	Random Wound
Bearing Type:	Rolling Element

Priorities Found: 1 - High

7 - Good

### **Overall Condition**

1. Report Date

Nameplate Picture





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	3.	Photos of all six sides of the machine.				
	4.	Describe the Overall Condition of the	Equipment as Receive	d		
	5.	Distance from the end of the shaft to t	he Coupling/Sheave			
Ir	itial	Mechanical/Electrical				
	6.	Does Shaft Turn Freely?				(Yes) Yes
	7.	Does Shaft Have Visible Damage?				(No) No
	8.	Assembled Shaft Runout				0.001 Inches
	9.	Assembled Shaft End Play				
	10.	Air Gap Variation <10%				
	11.	Lead Condition				(P) Pass
	12.	Lead Length				5 Inches
	13.	Frame Condition				
	14.	Fan Condition				
	15.	Broken or Missing Components				
Ir	itial	Electrical Inspection				
	16.	Insulation Resistance/Megger				2000 Megohms
	17.	Winding Resistance				
		1-2	1-3		2-3	
	18.	Perform Surge Test				(P) Pass
	19.	Number of Stator Slots				36 Megohms
	20.	Stator Condition				

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24	anical Inspection				
۷١.	Drive End Bearing Brand	ntn			
22.	Drive End Bearing Number-	6205			
23.	Drive End Bearing Qty.	1			
24.	Drive End Bearing Type	(Ball) Ball Bearing			
25.	Drive End Lubrication Type	(Grease) Grease Lubricated			
26.	Drive End Bearing Insulation or Grounding Device	?			
27.	Drive End Wavy Washer/Snap-Ring Other Retenti	on Device? wavy washer			
28.	Drive End Bearing Condition	worn			
29.	Opposite Drive End Bearing Brand	ntn			
30.	Opposite Drive End Bearing Number-	6205			
31.	Opposite Drive End Bearing Qty.	1			
32.	Opposite Drive End Bearing Type	(Ball) Ball Bearing			
33.	Opposite Drive End Lubrication Type	(Grease) Grease Lubricated			
34.	Opposite Drive End Bearing Insulation or Groundin	ng Device?			
35.	Opposite Drive End Wavy Washer/Snap-Ring Oth	er Retention Device?			
36.	Opposite Drive End Bearing Condition	worn			
37.	Drive End Seal				
38.	Opposite Drive End Seal				
Rotor	otor Inspection				
39.	Rotor Type/Material	(Squirrel Aluminum) Squirrel Cage Aluminum Die Cast			
40.	Growler Test	(Pass) Pass			
41.	Number of Rotor Bars	45			
42.	Rotor Condition				
43.	List the Parts needed for the Repair Below				
	6205 2rsr quantity of 3				
4.4	Circulture of Technician that Disconnehled Mateu	Travar Hall			
44.	Signature of Technician that Disassembled Motor	Trevor Hall			
	Signature of Technician that Disassembled Motor  anical Fits- Rotor	Trevor Hall			
Mecha	1 - Me	O.001 inches			
Mecha	anical Fits- Rotor Shaft Runout				
<b>Mech</b> a 45.	anical Fits- Rotor Shaft Runout	0.001 inches			
<b>Mech</b> a 45.	anical Fits- Rotor Shaft Runout Rotor Runout Drive End Bearing Fit Rotor Bod Coupling Fit Closest to Bearing Housing	0.001 inches  dy Opposite Drive End Bearing			
<b>Mech</b> 45. 46.	anical Fits- Rotor Shaft Runout Rotor Runout Drive End Bearing Fit Rotor Boo	0.001 inches  dy Opposite Drive End Bearing			
<b>Mech</b> 45. 46.	anical Fits- Rotor Shaft Runout Rotor Runout Drive End Bearing Fit Rotor Bod Coupling Fit Closest to Bearing Housing 0 Degrees 90 Degree	0.001 inches  dy Opposite Drive End Bearing			
<b>Mech</b> 45. 46. 47.	anical Fits- Rotor Shaft Runout Rotor Runout Drive End Bearing Fit Rotor Bod Coupling Fit Closest to Bearing Housing 0 Degrees 90 Degree	O.001 inches  dy Opposite Drive End Bearing  es 120 Degrees			
<b>Mech</b> : 45. 46. 47.	anical Fits- Rotor Shaft Runout Rotor Runout Drive End Bearing Fit Rotor Bod Coupling Fit Closest to Bearing Housing 0 Degrees 90 Degree Coupling Fit Closest to the end of the Shaft 0 Degrees 60 Degree Drive End Bearing Shaft Fit	Opposite Drive End Bearing  120 Degrees  120 Degrees			
<b>Mech</b> : 45. 46. 47.	anical Fits- Rotor Shaft Runout Rotor Runout Drive End Bearing Fit Rotor Bod Coupling Fit Closest to Bearing Housing 0 Degrees 90 Degree Coupling Fit Closest to the end of the Shaft 0 Degrees 60 Degree	Opposite Drive End Bearing  120 Degrees  120 Degrees			

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51.	Opposite Drive End Bearing Shaft Fit			
	· ·		100 Dagraga	
	0 Degrees	60 Degrees	120 Degrees	
	0.9846	0.9846	0.9846	(D) D
<b>5</b> 2.	11 0	Condition		(P) Pass
53.	Shaft Air Seal Fits			
	Drive End Air Seal	Opposite Drive End Air Seal		
	anical Fits- Bearing Housings			
54.	Drive End - Endbell Bearing Fit			
	0 Degrees	60 Degrees	120 Degrees	
	2.0477	2.0477	2.0478	
	Drive End - Endbell Bearing Fit Condi			(P) Pass
56.	Opposite Drive End - Endbell Bearing	Fit		
	0 Degrees	60 Degrees	120 Degrees	
	2.0478	2.0478	2.0478	
<b>5</b> 7.	Opposite Drive End - Endbell Bearing	Fit Condition		(P) Pass
58.	Bearing Cap Condition			
	Drive End Bearing Cap	Opposite Drive End Bearing Cap		
59.	End Bell Air Seal Fits			
	Drive End Air Seal	Opposite Drive End Air Seal		
	List Machine Work Needed Below			
61.	Technician			Trevor Hall
		7 - 1		
	_ / / /			
		W		
	-/~/n			
Dynai				
-	mic Balance Report			
-	mic Balance Report  Rotor Weight and Balance Grade			
-	mic Balance Report	Balance Grade		
-	mic Balance Report  Rotor Weight and Balance Grade  Rotor Weight			
62.	mic Balance Report  Rotor Weight and Balance Grade  Rotor Weight  Initial Balance Readings	Balance Grade		
62.	mic Balance Report  Rotor Weight and Balance Grade  Rotor Weight			
62.	mic Balance Report  Rotor Weight and Balance Grade  Rotor Weight  Initial Balance Readings	Balance Grade		
62.	mic Balance Report Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings Drive End Final Balance Readings	Balance Grade  Opposite Drive End		
62.	mic Balance Report Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings Drive End	Balance Grade		
62. 63.	mic Balance Report Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings Drive End Final Balance Readings	Balance Grade  Opposite Drive End		
62. 63.	mic Balance Report Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings Drive End Final Balance Readings Drive End Technician	Balance Grade  Opposite Drive End		
62. 63. 64. 65. <b>Rewir</b>	mic Balance Report Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings Drive End Final Balance Readings Drive End Technician	Balance Grade  Opposite Drive End  Opposite Drive End		
62. 63. 64. 65.	mic Balance Report Rotor Weight and Balance Grade Rotor Weight  Initial Balance Readings Drive End  Final Balance Readings Drive End  Technician  nd  Core Test Results - Watts loss per Po	Balance Grade  Opposite Drive End  Opposite Drive End		
62. 63. 64. 65.	mic Balance Report Rotor Weight and Balance Grade Rotor Weight  Initial Balance Readings Drive End  Final Balance Readings Drive End  Technician	Balance Grade  Opposite Drive End  Opposite Drive End		
62. 63. 64. 65.	mic Balance Report Rotor Weight and Balance Grade Rotor Weight  Initial Balance Readings Drive End  Final Balance Readings Drive End  Technician  nd  Core Test Results - Watts loss per Pore-Burnout	Balance Grade  Opposite Drive End  Opposite Drive End		
62. 63. 64. 65. <b>Rewir</b> 66.	mic Balance Report Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings Drive End Final Balance Readings Drive End Technician Core Test Results - Watts loss per Po	Balance Grade  Opposite Drive End  Opposite Drive End		
62. 63. 64. 65. <b>Rewir</b> 66.	mic Balance Report Rotor Weight and Balance Grade Rotor Weight  Initial Balance Readings Drive End  Final Balance Readings Drive End  Technician  Core Test Results - Watts loss per Pore-Burnout  Core Hot Spot Test	Balance Grade  Opposite Drive End  Opposite Drive End		
62. 63. 64. 65. <b>Rewir</b> 66.	mic Balance Report Rotor Weight and Balance Grade Rotor Weight  Initial Balance Readings Drive End  Final Balance Readings Drive End  Technician  nd  Core Test Results - Watts loss per Pore-Burnout  Core Hot Spot Test Pre-Burnout	Balance Grade  Opposite Drive End  Opposite Drive End  ound Post Burnout		

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70.	Post Rewind Winding Resistance		
	1-2	1-3	2-3
			2 0
71.	Post Rewind Surge Test		
72.	Post Rewind Hi-Pot		
73.	Technician		
	Cause of Failure		
	Failure locations		
	Root cause of failure		
	anical Fits- Rotor - Post Repair		
	Shaft Runout Post Repair		
77.	Rotor Runout Post Repair		
	Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing
78	Coupling Fit Closest to Bearing Hous	ng Post Repair	
70.	0 Degrees	90 Degrees	120 Degrees
	2 - 09.000		0 _09.000
79.	Coupling Fit Closest to the end of the	Shaft Post Repair	
	0 Degrees	60 Degrees	120 Degrees
80.	Drive End Bearing Shaft Fit Post Rep		
	0 Degrees	60 Degrees	120 Degrees
81.	Opposite Drive End Bearing Shaft Fit	Post Repair	
	0 Degrees	60 Degrees	120 Degrees
	0 2 0g. 000		0 _ 0 _ 0 _ 0
82.	Shaft Air Seal Fits Post Repair		
	Drive End Air Seal	Opposite Drive End Air Seal	
00	Ohatt Danain Oinna att		
	Shaft Repair Sign-off	leat Danain	
	anical Fits- Bearing Housings - P  Drive End - Endbell Bearing Fit Post I	•	
04.	0 Degrees	60 Degrees	120 Degrees
	0 Degrees	00 Degrees	120 Degrees
85.	Opposite Drive End - Endbell Bearing	Fit Post Repair	
	0 Degrees	60 Degrees	120 Degrees
		<u> </u>	
86.	J 1		
	Drive End Bearing Cap	Opposite Drive End Bearing Cap	
87	End Bell Air Seal Fits Post Repair		
07.	Drive End Air Seal	Opposite Drive End Air Seal	
	Divo Elia Ali Ocai	Opposite Diffe Life All Ocal	
88.	End Bell Repair Sign-off		
Asser	nbly		
89.	QC Check All Parts for Cleanliness P	rior to Assembly	
90.	Photograph All Major Components pr	ior to assembly	
91.	Final Insulation Resistance Test		
92.	Assembled Shaft Endplay		

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94. Test Run Voltage Volts Volts Volts Volts  95. Test Run Amperage Amps Amps Amps Amps  96. Drive End Vibration Readings - Inches Per Second Horizontal Vertical Axial  97. Opposite Drive End Vibration Readings - Inches Per Second Horizontal Vertical Axial  98. Ambient Temperature - Fahrenheit 99. Drive End Bearing Temps - Fahrenheit 5 Minutes  10 Minutes  10 Minutes  15 Minutes	93.	3. Assembled Shaft Runout			
95. Test Run Amperage Amps Amps Amps Amps  96. Drive End Vibration Readings - Inches Per Second Horizontal Vertical Axial  97. Opposite Drive End Vibration Readings - Inches Per Second Horizontal Vertical Axial  98. Ambient Temperature - Fahrenheit 99. Drive End Bearing Temps - Fahrenheit 5 Minutes 10 Minutes 15 Minutes  100. Opposite Drive End Bearing Temps - Fahrenheit 5 Minutes 10 Minutes 15 Minutes	94.	Test Run Voltage			
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Amps Amps Amps  96. Drive End Vibration Readings - Inches Per Second Horizontal Vertical Axial  97. Opposite Drive End Vibration Readings - Inches Per Second Horizontal Vertical Axial  98. Ambient Temperature - Fahrenheit 99. Drive End Bearing Temps - Fahrenheit 5 Minutes 10 Minutes 15 Minutes  100. Opposite Drive End Bearing Temps - Fahrenheit 5 Minutes 10 Minutes 15 Minutes					
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Horizontal  Vertical  Axial  98. Ambient Temperature - Fahrenheit  99. Drive End Bearing Temps - Fahrenheit  5 Minutes  10 Minutes  15 Minutes  15 Minutes  15 Minutes	0.7	0			
98. Ambient Temperature - Fahrenheit  99. Drive End Bearing Temps - Fahrenheit  5 Minutes  10 Minutes  10 Minutes  10 Minutes  15 Minutes	97.	• • • • • • • • • • • • • • • • • • • •			
99. Drive End Bearing Temps - Fahrenheit 5 Minutes 10 Minutes 15 Minutes  100. Opposite Drive End Bearing Temps - Fahrenheit 5 Minutes 10 Minutes 15 Minutes		Horizontal	Vertical	Axial	
99. Drive End Bearing Temps - Fahrenheit 5 Minutes 10 Minutes 15 Minutes  100. Opposite Drive End Bearing Temps - Fahrenheit 5 Minutes 10 Minutes 15 Minutes	00	Andriant Tananantus Falanahait			
5 Minutes 10 Minutes 15 Minutes  100. Opposite Drive End Bearing Temps - Fahrenheit 5 Minutes 10 Minutes 15 Minutes					
100. Opposite Drive End Bearing Temps - Fahrenheit 5 Minutes 10 Minutes 15 Minutes	99. Drive End Bearing Temps - Fahrenheit				
5 Minutes 10 Minutes 15 Minutes		5 Minutes	10 Minutes	15 Minutes	
5 Minutes 10 Minutes 15 Minutes					
	100.	100. Opposite Drive End Bearing Temps - Fahrenheit			
		5 Minutes	10 Minutes	15 Minutes	
101. Document Final Condition with Pictures after paint	101.	Document Final Condition with Picture	es after paint		
102. Final Pics and QC Review	102.	Final Pics and QC Review			



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- 8. <u>WARRANTIES.</u> 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

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- 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.
- 12. ABANDONED EQUIPMENT. Hi-Speed requires that Buyer promptly pick up or provide shipment instructions for Buyer equipment or other Buyer property in Hi-Speed's possession. If equipment or other Buyer property is left with Hi-Speed and not picked up within six (6) months after Hi-Speed's final action related to the applicable property (e.g. evaluation, teardown, estimate, completion of services), Hi-Speed will consider such property abandoned and may dispose of it in accordance with applicable law. Buyer agrees to hold Hi-Speed harmless for any damage or claim for such abandoned property and acknowledges that Hi-Speed may discard or recycle it at Hi-Speed's sole and absolute discretion. Specifically, Hi-Speed may sell Buyer's abandoned property at a private or public sale and retain the proceeds to offset Hi-Speed's storage, inspection and servicing costs. For the avoidance of doubt, Hi-Speed reserves its statutory and other lawful liens for unpaid charges related to abandoned property.
- 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, earth quake, 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. <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. **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.