

# LR Motor Shop Repairs

## **Job Number 103372**

Prepared for Process & Power

1625 East 145th Street Little Rock AR 72206

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AC Inspection as Found - MOTOR SHOP LR

AC Inspection - Rev. 2: 230029

1.0



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

> FolderID: 103372 FormID: 21300089

## **AC Inspection as Found**

Process & Power

1625 East 145th Street Little Rock, AR 72206

AC Inspection - Rev. 2

Location: MOTOR SHOP LR

Serial Number: 230029

Description: 200HP HEBEI ELECTRIC MOTOR

**EVAL** 

Manufacturer: Other Product Number: F445TDZ-2;0012  Serial Number: 230029  HP/kW: 200 (HP)  RPM: 3575 (RPM)  Frame: 445TDZ  Voltage: 460  Current: 277.2A  Phase: Three  Hz: 60 (Hz)  Service Factor: 1.25  Enclosure: TEFC  # of Leads: 6  J-box Included: Half  Coupling/Sheave: None  Date Received: 08/14/2024  Bearing RTDs: No  Stator RTDs: No  Repair Stage: Final  Rewind: Yes  Shaft Machined Fit Repairs Yes Required:  Bearing Housing Machined Fit Repairs Required:  Heaters: No  Winding Type: Random Wound  Pagering Type: Replice Element	Hi-Speed Job Number:	103372
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Required:  Bearing Housing Machined Yes Fit Repairs Required: Heaters: No Winding Type: Random Wound	Rewind:	Yes
Fit Repairs Required: Heaters: No Winding Type: Random Wound		Yes
Winding Type : Random Wound		Yes
	Heaters:	No
Pooring Types Polling Flamont	Winding Type :	Random Wound
rolling Element	Bearing Type:	Rolling Element

Priorities Found: **10 - High** 





5 - Good

### **Overall Condition**

08/20/2024 1. Report Date

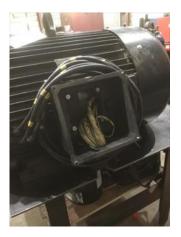
### 2. Nameplate Picture



3. Photos of all six sides of the machine.



























	4.	Describe the Overall Condition of the Equipment as Received	
	5.	Dirty  Report Date [COPY]	
In		Mechanical/Electrical	
	6.	Does Shaft Turn Freely?	(N) No
	7.	Does the shaft require T.I.R in Lathe to identify additional repairs?	(No) No
	8.	Does Shaft Have Visible Damage?	(Yes) Yes
	9.	Assembled Shaft Runout	Inches
	10.	Assembled Shaft End Play	inches
	11.	Air Gap Variation <10%	
	12.	Lead Condition	(NA) Not Applicable
	-	Rewind	
	13.	Lead Length	100 Inches
	14.	Does it have Lugs?, If so what is the Stud Size?	(No) No
	15.	Lead Numbers	t1-T6
	16.	Frame Condition	pass
	17.	Fan Condition	(P) Pass
	18.	Broken or Missing Components	yes
	-	J box cover. DE end bell	
In	itial	Electrical Inspection	
	19.	Insulation Resistance/Megger	Megohms

20.	Winding Resistance		
	1-2	-3	2-3
<b>a</b> 21	Perform Surge Test		(NA) Not Applicable
21.	Re wind		(NA) NOT Applicable
22.			
23.			core damage
24.			coro damage
25.	Stator Overloads/Ohms		
Mech	anical Inspection		
26.			
27.			6317 c4
28.	Drive End Bearing Qty.		1
29.	Drive End Bearing Type		(Ball) Ball Bearing
30.	Drive End Lubrication Type		(Grease) Grease Lubricated
31.	Drive End Bearing Insulation or Groundi	ng Device?	
32.	Drive End Wavy Washer/Snap-Ring Oth	er Retention Device?	
<ul><li>33.</li></ul>	Drive End Bearing Condition		bearing is welded to shaft and end bell
34.	Opposite Drive End Bearing Brand		NTN
35.	Opposite Drive End Bearing Number-		6317 C4
36.	Opposite Drive End Bearing Qty.		1
37.	Opposite Drive End Bearing Type		(Ball) Ball Bearing
38.	Opposite Drive End Lubrication Type		(Grease) Grease Lubricated
39.	Opposite Drive End Bearing Insulation of	r Grounding Device?	
40.	Opposite Drive End Wavy Washer/Snap	-Ring Other Retention Device?	
41.	Opposite Drive End Bearing Condition		
-	Contamination		



42.	Drive End Seal		
43.	Opposite Drive End Seal		

42.	Drive End Sear			
43.	Opposite Drive End Seal			
Rotor	Rotor Inspection			
44.	Rotor Type/Material	(Squirrel Aluminum) Squirrel Cage Aluminum Die Cast		
45.	Growler Test			
46.	Number of Rotor Bars			

47. Rotor Condition 48. List the Parts needed for the Repair Below New shaft New DE end bell 6317 C4x2 New DE bearing cap 49. Signature of Technician that Disassembled Motor Cw Kin **Mechanical Fits- Rotor** 50. Shaft Runout inches 51. Rotor Runout Opposite Drive End Bearing Drive End Bearing Fit Rotor Body 52. Coupling Fit Closest to Bearing Housing 90 Degrees 120 Degrees 0 Degrees 53. Coupling Fit Closest to the end of the Shaft 0 Degrees 60 Degrees 120 Degrees 54. Drive End Bearing Shaft Fit 0 Degrees 60 Degrees 120 Degrees Unable to get measurements due to bearing being seized on shaft 55. Drive End Bearing Shaft Fit Condition (F) Fail 56. Opposite Drive End Bearing Shaft Fit 120 Degrees 0 Degrees 60 Degrees 3.3469 3.347 3.3469 57. Opposite Drive End Bearing Shaft Fit Condition (P) Pass 58. Shaft Air Seal Fits Drive End Air Seal Opposite Drive End Air Seal **Mechanical Fits- Bearing Housings** 59. Drive End - Endbell Bearing Fit 60 Degrees 120 Degrees 0 Degrees DE end bell is seized on shaft

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Opposite Drive End Bearing Cap

60 Degrees

7.0877

60. Drive End - Endbell Bearing Fit Condition

61. Opposite Drive End - Endbell Bearing Fit

62. Opposite Drive End - Endbell Bearing Fit Condition

0 Degrees

63. Bearing Cap Condition

Drive End Bearing Cap

DE bearing cap is seized on shaft

7.0876

(F) Fail

(P) Pass

120 Degrees

7.0877

64.	End Bell Air Seal Fits		
	Drive End Air Seal	Opposite Drive End Air Seal	
65.	List Machine Work Needed Below		
	New shaft		
66.	Technician		Cw
-	Co sign: TRH		
Root	Cause of Failure		
<b>6</b> 7.	Failure locations		
	DE end bell and bearing cap, DE bearing	g, shaft, windings, stator iron	
68.	Root cause of failure		
	DE bearing seized causing DE end bell them to blow and blow out some of the	and bearing cap and bearing to seize to shaft a iron in stator core	and over heating the winding causing
Dynar	mic Balance Report		
69.	Rotor Weight and Balance Grade		
	Rotor Weight	Balance Grade	
70	Initial Balance Readings		
70.	Drive End	Opposite Drive End	
	Drive Eria	Opposite Drive End	
71.	Final Balance Readings		
	Drive End	Opposite Drive End	
72.	Technician		
Rewir	nd		
73.	Core Test Results - Watts loss per Po	und	
	Pre-Burnout	Post Burnout	
74.	Core Hot Spot Test		
	Pre-Burnout	Post-Burnout	
75	Post Rewind Electrical Test- Insulation	a Pocietaneo	
	Post Rewind Electrical Test- Insulation Post Rewind Polarization Index	I VESISIGIICE	
	Post Rewind Winding Resistance		
11.	1-2	1-3	2-3
	1-4	1-J	2-3
78.	Post Rewind Surge Test		
	Post Rewind Hi-Pot		
80.	Technician		
Mecha	anical Fits- Rotor - Post Repair		
	Shaft Runout Post Repair		
82.	Rotor Runout Post Repair		
	Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing
	•	•	

83.	Coupling Fit Closest to Bearing Housing Post Repair			
	0 Degrees	90 Degrees	120 Degrees	
84.	Coupling Fit Closest to the end of the Shaft Post Repair			
	0 Degrees	60 Degrees	120 Degrees	
85.	Drive End Bearing Shaft Fit Post Repair			
	0 Degrees	60 Degrees	120 Degrees	
86.	Opposite Drive End Bearing Shaft Fit Post Repair			
30.	0 Degrees	60 Degrees	120 Degrees	
		30 2 3g. 333	0 _ 0	
87.	Shaft Air Seal Fits Post Repair			
	Drive End Air Seal	Opposite Drive End Air Seal		
	Shaft Repair Sign-off			
	anical Fits- Bearing Housings - Po	•		
89.	Drive End - Endbell Bearing Fit Post F	•	400 5	
	0 Degrees	60 Degrees	120 Degrees	
90	Opposite Drive End - Endbell Bearing	Fit Post Repair		
30.	0 Degrees	60 Degrees	120 Degrees	
	o Degrees	00 Degrees	120 Degrees	
91.	Bearing Cap Condition Post Repair			
	Drive End Bearing Cap	Opposite Drive End Bearing Cap		
92.	. End Bell Air Seal Fits Post Repair			
	Drive End Air Seal	Opposite Drive End Air Seal		
93	End Bell Repair Sign-off			
Assen	· •			
	QC Check All Parts for Cleanliness Prior to Assembly			
	Photograph All Major Components prior to assembly			
97.	Assembled Shaft Endplay			
98.	Assembled Shaft Runout			
99.	Test Run Voltage			
	Volts	Volts	Volts	
100.	Test Run Amperage			
	Amps	Amps	Amps	
101	Drive End Vibration Readings - Inches	e Per Second		
101.	Horizontal	Vertical	Axial	
	Honzontal	voitioai	MAIGH	
102.	2. Opposite Drive End Vibration Readings - Inches Per Second			
	Horizontal	Vertical	Axial	
	Ambient Temperature - Fahrenheit			

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104. Drive End Bearing Temps - Fahrenheit			
5 Minutes	10 Minutes	15 Minutes	
105. Opposite Drive End Bearing Temps - Fahrenheit			
5 Minutes	10 Minutes	15 Minutes	
106. Document Final Condition with Pictures after paint			
107. Final Pics and QC Review			



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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.