



KEEPING YOUR FACILITY UP TO SPEED
— EVERY DAY SINCE 1946 —

LR Motor Shop Repairs

Job Number 103509

Prepared for 3M-Main Plant (10001)

310 Walter Road
Little Rock AR 72216

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AC Inspection as Found - *MOTOR SHOP LR*

AC Inspection - Rev. 2: 4659231

1.0

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AC Inspection as Found

3M-Main Plant (10001)

310 Walter Road
Little Rock, AR 72216

FolderID: 103509
FormID: 21612932

AC Inspection - Rev. 2

Location: MOTOR SHOP LR

Serial Number: 4659231

Description: 500HP ABB 507RPM

Hi-Speed Job Number: 103509

Manufacturer: ABB

Product Number: TYPE: HXR560LN14

Serial Number: 4659231

HP/kW: 500 (HP)

RPM: 507 (RPM)

Voltage: 4160

Phase: Three

Hz: 60 (Hz)

Service Factor: 1.00

Enclosure: TEFC

J-box Included: Complete

Coupling/Sheave: None

Bearing RTDs: Yes

Stator RTDs: Yes

Repair Stage: Final

Shaft Machined Fit Repairs
Required: No

Bearing Housing Machined
Fit Repairs Required: No

Heaters: Yes

Winding Type : Form Coil

Bearing Type: Rolling Element

Priorities Found: ● 1 - High ● 11 - Good

Overall Condition

- | | |
|----------------------|------------|
| 1. Report Date | 09/24/2024 |
| 2. Nameplate Picture | |



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3. Photos of all six sides of the machine.







4. Describe the Overall Condition of the Equipment as Received		
Serviceable		
5. Report Date [COPY]		
Initial Mechanical/Electrical		
6.	Does Shaft Turn Freely?	(Y) Yes
7.	Does the shaft require T.I.R in Lathe to identify additional repairs?	(No) No
8.	Does Shaft Have Visible Damage?	(No) No
9.	Assembled Shaft Runout	Inches
	Na	

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10. Assembled Shaft End Play	inches	
Na		
11. Air Gap Variation <10%		
Na		
12. Lead Condition	(P) Pass	
13. Lead Length	48 Inches	
14. Does it have Lugs?, If so what is the Stud Size?	(Yes) Yes	
15. Lead Numbers	1-2-3	
16. Stator Temperature Detector Rating and Function		
Quantity	Rating	Quantity Passed
17. Bearing Temperature Detector Rating and Function		
Quantity	Rating	Quantity Passed
2		
18. Frame Condition	pass	
19. Fan Condition	(F) Fail	



20.	Heater Quantity, Ratings		
	Quantity	Volts/Watts	Pass/Fail
	1		
21.	Broken or Missing Components		none
Initial Electrical Inspection			
22.	Insulation Resistance/Megger		3,068 Megohms



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23. Winding Resistance		
1-2	1-3	2-3
<div> <div></div> <div>Pass the Hi pot</div> </div>		
24. Perform Surge Test		(P) Pass
25. Number of Stator Slots		
26. Stator Condition		




27. Stator Thermistors/Ohms	
28. Stator Overloads/Ohms	
<div> <div></div> <div>Na</div> </div>	
Mechanical Inspection	
29. Drive End Bearing Brand	SKF



31. Drive End Bearing Qty.	2
32. Drive End Bearing Type	(Roller) Roller Bearing
And ball	
33. Drive End Lubrication Type	(Grease) Grease Lubricated
34. Drive End Bearing Insulation or Grounding Device?	Na
35. Drive End Wavy Washer/Snap-Ring Other Retention Device?	Na
36. Drive End Bearing Condition	normal wear with grease contamination
37. Opposite Drive End Bearing Brand	SKF
38. Opposite Drive End Bearing Number-	NU 322M C3



39. Opposite Drive End Bearing Qty.	1
40. Opposite Drive End Bearing Type	(Roller) Roller Bearing
41. Opposite Drive End Lubrication Type	(Grease) Grease Lubricated
42. Opposite Drive End Bearing Insulation or Grounding Device?	none
43. Opposite Drive End Wavy Washer/Snap-Ring Other Retention Device?	none
44. Opposite Drive End Bearing Condition	normal wear
45. Drive End Seal	
None	
46. Opposite Drive End Seal	
None	
Rotor Inspection	
47. Rotor Type/Material	(Copper Barred) Copper Barred Rotor
48. Growler Test	(Pass) Pass
49. Number of Rotor Bars	
50. Rotor Condition	pass
51. List the Parts needed for the Repair Below	
1-6034M-C3 2-NU1034M-C3 3-NU 322M-C3	
52. Signature of Technician that Disassembled Motor	RW
	
Co sign: CRW	
Mechanical Fits- Rotor	
53. Shaft Runout	inches
Na	
54. Rotor Runout	
Drive End Bearing Fit	Rotor Body
Opposite Drive End Bearing	
Na	
55. Coupling Fit Closest to Bearing Housing	
0 Degrees	90 Degrees
120 Degrees	
Na	

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56. Coupling Fit Closest to the end of the Shaft		
0 Degrees	60 Degrees	120 Degrees
Na		
57. Drive End Bearing Shaft Fit		
0 Degrees	60 Degrees	120 Degrees
58. Drive End Bearing Shaft Fit Condition		(P) Pass
59. Opposite Drive End Bearing Shaft Fit		
0 Degrees	60 Degrees	120 Degrees
4.3315	4.3315	4.3315
60. Opposite Drive End Bearing Shaft Fit Condition		(P) Pass
61. Shaft Air Seal Fits		
Drive End Air Seal	Opposite Drive End Air Seal	
pass	pass	
Mechanical Fits- Bearing Housings		
62. Drive End - Endbell Bearing Fit		
0 Degrees	60 Degrees	120 Degrees
63. Drive End - Endbell Bearing Fit Condition		(P) Pass
64. Opposite Drive End - Endbell Bearing Fit		
0 Degrees	60 Degrees	120 Degrees
9.449999999999999	9.449999999999999	9.449999999999999
65. Opposite Drive End - Endbell Bearing Fit Condition		(P) Pass



66. Bearing Cap Condition		
Drive End Bearing Cap	Opposite Drive End Bearing Cap	
pass	pass	
67. End Bell Air Seal Fits		
Drive End Air Seal	Opposite Drive End Air Seal	
pass		
68. List Machine Work Needed Below		

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69. Technician

RW


Root Cause of Failure

70. Failure locations

Fan

71. Root cause of failure

*Mixed grease in De bearing and fan**Blades breaking off***Dynamic Balance Report**

72. Rotor Weight and Balance Grade

Rotor Weight

Balance Grade

73. Initial Balance Readings

Drive End

Opposite Drive End

74. Final Balance Readings

Drive End

Opposite Drive End

75. Technician

Rewind

76. Core Test Results - Watts loss per Pound

Pre-Burnout

Post Burnout

77. Core Hot Spot Test

Pre-Burnout

Post-Burnout

78. Post Rewind Electrical Test- Insulation Resistance

79. Post Rewind Polarization Index

80. Post Rewind Winding Resistance

1-2

1-3

2-3

81. Post Rewind Surge Test

82. Post Rewind Hi-Pot

83. Technician

Assembly

84. QC Check All Parts for Cleanliness Prior to Assembly

85. Photograph All Major Components prior to assembly

86. Final Insulation Resistance Test

87. Assembled Shaft Endplay

88. Assembled Shaft Runout

89. Test Run Voltage

Volts

Volts

Volts

90. Test Run Amperage

Amps

Amps

Amps

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91. Drive End Vibration Readings - Inches Per Second			
Horizontal	Vertical	Axial	
92. Opposite Drive End Vibration Readings - Inches Per Second			
Horizontal	Vertical	Axial	
93. Ambient Temperature - Fahrenheit			
94. Drive End Bearing Temps - Fahrenheit			
5 Minutes	10 Minutes	15 Minutes	
95. Opposite Drive End Bearing Temps - Fahrenheit			
5 Minutes	10 Minutes	15 Minutes	
96. Stator Temperatures- Fahrenheit			
5 Minutes	10 Minutes	15 Minutes	
97. Document Final Condition with Pictures after paint			
98. Final Pics and QC Review			



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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.
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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.
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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

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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.
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