



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

Motor Shop Repairs

Job Number 99877

Prepared for Little Rock Federal Building

700 W Capital
Little Rock AR 72201

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

AC Recondition As Found

Little Rock Federal Building

700 W Capital
Little Rock, AR 72201

FolderID: 99877
FormID: 13761620

AC Recondition - Rev. 2

Location: MOTOR SHOP LR
Serial Number: HAN009592
Description: 100HP MARATHON 1800RPM
404TCV

Hi-Speed Job Number:	99877
Manufacturer:	US Motors/Nidec
Product Number:	CMTTRS61037207
Spec/ID #:	M190009
Serial Number:	HAN009592
HP/kW:	100 (HP)
RPM:	1785 (RPM)
Frame:	405TCV
Voltage:	460
Current:	115
Phase:	Three
Hz:	60 (Hz)
Service Factor:	1.15
Enclosure:	ODP
J-box Included:	None
Coupling/Sheave:	None
Date Received:	06/03/2022
Bearing RTDs:	No
Stator RTDs:	No
Repair Stage:	Final
Heaters:	No
Winding Type :	Random Wound
Bearing Type:	Rolling Element

Priorities Found: ● 2 - High ● 5 - Good

Overall Condition

1. Report Date

06/06/2022

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2. Nameplate Picture



3. Describe the Overall Condition of the Equipment as Received

Clean and dry



Initial Mechanical/Electrical

4. Does Shaft Turn Freely?	(Yes) Yes
5. Does Shaft Have Visible Damage?	(No) No
6. Assembled Shaft Runout	Inches
7. Assembled Shaft End Play	
8. Air Gap Variation <10%	
9. Lead Condition	(P) Pass
10. Lead Length	12 Inches
11. Frame Condition	good
12. Fan Condition	(N) NA
13. Broken or Missing Components	none

Initial Electrical Inspection

14. Insulation Resistance/Megger	0 Megohms
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15. Winding Resistance		
1-2	1-3	2-3
16. Perform Surge Test		(F) Fail
17. Stator Condition		rewind
Mechanical Inspection		
18. Drive End Bearing Number-		6316 2Z
		
19. Drive End Bearing Qty.		1
20. Drive End Bearing Type		(Ball) Ball Bearing
21. Drive End Lubrication Type		(Grease) Grease Lubricated
22. Drive End Bearing Insulation or Grounding Device?		pressed in aegis
		
4.0645 (4 1/16) OD, 3.0 Shaft diameter		
23. Drive End Wavy Washer/Snap-Ring Other Retention Device?		
24. Drive End Bearing Condition		good
25. Opposite Drive End Bearing Number-		6313 2RS
26. Opposite Drive End Bearing Qty.		1
27. Opposite Drive End Bearing Type		(Ball) Ball Bearing
28. Opposite Drive End Lubrication Type		(Grease) Grease Lubricated
29. Opposite Drive End Bearing Insulation or Grounding Device?		
30. Opposite Drive End Wavy Washer/Snap-Ring Other Retention Device?		wavy washer
31. Opposite Drive End Bearing Condition		good
32. Drive End Seal		
33. Opposite Drive End Seal		
Rotor Inspection		
34. Rotor Type/Material		(Squirrel Aluminum) Squirrel Cage Aluminum Die Cast
35. Growler Test		(Pass) Pass
36. Number of Rotor Bars		52
37. Rotor Condition		good
38. List the Parts needed for the Repair Below		
Rewind, 6316 2Z, 6313 2RS. Recommend replace aegis ring.		

39. Signature of Technician that Disassembled Motor

David Maclin



Mechanical Fits- Rotor

40. Shaft Runout

41. Rotor Runout

Drive End Bearing Fit

Rotor Body

Opposite Drive End Bearing

42. Coupling Fit Closest to Bearing Housing

0 Degrees

90 Degrees

120 Degrees

43. Coupling Fit Closest to the end of the Shaft

0 Degrees

60 Degrees

120 Degrees

44. Drive End Bearing Shaft Fit

0 Degrees

60 Degrees

120 Degrees

45. Drive End Bearing Shaft Fit Condition

(P) Pass

46. Opposite Drive End Bearing Shaft Fit

0 Degrees

60 Degrees

120 Degrees

47. Opposite Drive End Bearing Shaft Fit Condition

(P) Pass

48. Shaft Air Seal Fits

Drive End Air Seal

Opposite Drive End Air Seal

Mechanical Fits- Bearing Housings

49. Drive End - Endbell Bearing Fit

0 Degrees

60 Degrees

120 Degrees

50. Drive End - Endbell Bearing Fit Condition

(P) Pass

51. Opposite Drive End - Endbell Bearing Fit

0 Degrees

60 Degrees

120 Degrees

52. Opposite Drive End - Endbell Bearing Fit Condition

(F) Fail

53. Bearing Cap Condition

Drive End Bearing Cap

Opposite Drive End Bearing Cap

54. End Bell Air Seal Fits

Drive End Air Seal

Opposite Drive End Air Seal

55. List Machine Work Needed Below

56. Technician

Dynamic Balance Report

57. Rotor Weight and Balance Grade

Rotor Weight

Balance Grade

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58. Initial Balance Readings			
Drive End	Opposite Drive End		
59. Final Balance Readings			
Drive End	Opposite Drive End		
60. Technician			
Rewind			
61. Core Test Results - Watts loss per Pound			
Pre-Burnout	Post Burnout		
62. Core Hot Spot Test			
Pre-Burnout	Post-Burnout		
63. Post Rewind Electrical Test- Insulation Resistance			
64. Post Rewind Polarization Index			
65. Post Rewind Winding Resistance			
1-2	1-3	2-3	
66. Post Rewind Surge Test			
67. Post Rewind Hi-Pot			
68. Technician			
Root Cause of Failure			
69. Failure locations			
<i>Stator, ODE bearing cap</i>			
70. Root cause of failure			
<i>At some point the bolts broke on the bearing cap and were replaced. However a piece of the broken bolt was not removed from the interior of the motor and was slung around in the stator. This piece hit the windings and caused the motor to short to ground.</i>			
Mechanical Fits- Rotor - Post Repair			
71. Shaft Runout Post Repair			
72. Rotor Runout Post Repair			
Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing	
73. Coupling Fit Closest to Bearing Housing Post Repair			
0 Degrees	90 Degrees	120 Degrees	
74. Coupling Fit Closest to the end of the Shaft Post Repair			
0 Degrees	60 Degrees	120 Degrees	
75. Drive End Bearing Shaft Fit Post Repair			
0 Degrees	60 Degrees	120 Degrees	
76. Opposite Drive End Bearing Shaft Fit Post Repair			
0 Degrees	60 Degrees	120 Degrees	
77. Shaft Air Seal Fits Post Repair			
Drive End Air Seal	Opposite Drive End Air Seal		
78. Shaft Repair Sign-off			

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Mechanical Fits- Bearing Housings - Post Repair

79. Drive End - Endbell Bearing Fit Post Repair

0 Degrees

60 Degrees

120 Degrees

80. Opposite Drive End - Endbell Bearing Fit Post Repair

0 Degrees

60 Degrees

120 Degrees

5.5124

5.5124

5.5122



81. Bearing Cap Condition Post Repair

Drive End Bearing Cap

Opposite Drive End Bearing Cap

82. End Bell Air Seal Fits Post Repair

Drive End Air Seal

Opposite Drive End Air Seal

83. End Bell Repair Sign-off

Assembly

84. Photograph All Major Components prior to assembly

85. Final Insulation Resistance Test

86. Assembled Shaft Endplay

87. Assembled Shaft Runout

88. Test Run Voltage

Volts

Volts

Volts

459

459

462



89. Test Run Amperage

Amps

Amps



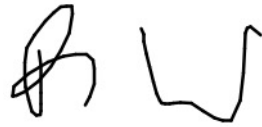


Amps

36.2

35.4

35.9



90. Drive End Vibration Readings - Inches Per Second		
Horizontal	Vertical	Axial
0.04	0.06	0.01
91. Opposite Drive End Vibration Readings - Inches Per Second		
Horizontal	Vertical	Axial
0.03	0.06	0.01
92. Ambient Temperature - Fahrenheit		
93. Drive End Bearing Temps - Fahrenheit		
5 Minutes	10 Minutes	15 Minutes
94. Opposite Drive End Bearing Temps - Fahrenheit		
5 Minutes	10 Minutes	15 Minutes
95. Final Test Run Sign-off		
96. Document Final Condition with Pictures after paint		yes
 		
97. Final Pics and QC Review		RW
		
 		



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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.
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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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14. **NONWAIVER.** 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.
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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.