



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

LR Motor Shop Repairs

Job Number 102594

Prepared for Arkansas Electric Coop. (11681)

17400 highway 365 south
Little Rock AR 72206

Table of Contents

AC Inspection as Found - *MOTOR SHOP LR*

AC Inspection - Rev. 2: *F0206185435*

1.0

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

AC Inspection as Found
Arkansas Electric Coop. (11681)
17400 highway 365 south
Little Rock, AR 72206

FolderID: 102594
FormID: 19644681

AC Inspection - Rev. 2

Location: MOTOR SHOP LR

Serial Number: F0206185435

Description: AMETEK BLOWER 7 1/2HP

Hi-Speed Job Number: 102594

Manufacturer: Other

Product Number: CAT: 511570

Serial Number: F0206185435

HP/kW: 7.5 (HP)

RPM: 3450 (RPM)

Frame: 215TCZ

Voltage: 208-230/460

Phase: Three

Hz: 60 (Hz)

Service Factor: 1.15

Enclosure: TEFC

of Leads: 9

J-box Included: Complete

Coupling/Sheave: None

Date Received: 03/13/2024

Bearing RTDs: No

Stator RTDs: No

Repair Stage: Final

Rewind: No

Shaft Machined Fit Repairs Required: Yes

Bearing Housing Machined Fit Repairs Required: Yes

Heaters: No

Winding Type : Random Wound

Bearing Type: Rolling Element

Priorities Found: ● **5 - High** ● **6 - Good**

Overall Condition

1. Report Date 03/13/2024

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2. Nameplate Picture



3. Photos of all six sides of the machine.



4. Describe the Overall Condition of the Equipment as Received









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3/13/2024 8:37:...	480V w/o...	T...	PASS	PASS
3/13/2024 8:24:...	480V w/o...	T...	PASS	PASS
3/13/2024 8:09:...	480V w/o...	T...	FAIL	FAIL
Date	3/13/2024	3/13/2024	3/13/2024	
Time	8:37:44 AM	8:24:05 AM	8:09:34 AM	
Test Status	PASS	PASS	DELTA R	
L1 (Ohms)				
L2 (Ohms)				
L3 (Ohms)				
L1-L2 (Ohms)	1.470 Corr: 1.4...	1.551 Corr: 1.5...	1.357 Corr: 1.5...	
L2-L3 (Ohms)	1.551 Corr: 1.5...	1.554 Corr: 1.5...	1.357 Corr: 1.5...	
L3-L1 (Ohms)	1.554 Corr: 1.5...	1.470 Corr: 1.4...	1.473 Corr: 1.4...	
Max Delta R %	5.517	5.517	5.503	
Coil 1 (Ohms)	2.131 Corr: 2.1...	2.364 Corr: 2.4...	2.375 Corr: 2.4...	
Coil 2 (Ohms)	2.364 Corr: 2.4...	2.373 Corr: 2.4...	2.375 Corr: 2.4...	
Coil 3 (Ohms)	2.373 Corr: 2.4...	2.131 Corr: 2.1...	2.134 Corr: 2.1...	
Megohm Stat...	PASS	PASS	USER AB...	
Volts (V)	494	511	504	
Il(μA)	0.5527	0.7473	0.0084	
Resist	894	684	59935	
At 40°C	241	184	16183	
HI Status	No Test	No Test	No Test	
Volts (V)	No Test	No Test	No Test	
Nameplate	Application	Results Summary	Surge	P



Coil 1 (Ohms)	2.131 Corr: 2.1...	2.364 Corr: 2.4...	2.375 Co
Coil 2 (Ohms)	2.364 Corr: 2.4...	2.373 Corr: 2.4...	2.375 Co
Coil 3 (Ohms)	2.373 Corr: 2.4...	2.131 Corr: 2.1...	2.134 Co
Megohm Stat...	PASS	PASS	USER AB...
Volts (V)	494	511	504
Il(μA)	0.5527	0.7473	0.0084
Resist	894	684	59935
At 40°C	241	184	16183
HI Status	No Test	No Test	No Test
Volts (V)	No Test	No Test	No Test
Nameplate	Application	Results Summary	Surge



Initial Mechanical/Electrical

5.	Does Shaft Turn Freely?	(Y) Yes
6.	Does the shaft require T.I.R in Lathe to identify additional repairs?	(No) No
7.	Does Shaft Have Visible Damage?	(No) No
8.	Assembled Shaft Runout	Inches
	Na	
9.	Assembled Shaft End Play	inches
	Na	

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10. Air Gap Variation <10%	
Na	
11. Lead Condition	(P) Pass
	
12. Lead Length	8 Inches
13. Does it have Lugs?, If so what is the Stud Size?	(No) No
	
14. Lead Numbers	1-9
15. Frame Condition	pass
16. Fan Condition	(F) Fail
Fan blades were soldered together	



17. Broken or Missing Components

fan and a base couple bolt is broke

Initial Electrical Inspection

18. Insulation Resistance/Megger

Megohms

Coil 1 (Ohms)	2.131 Corr: 2.1...	2.364 Corr: 2.4...	2.375 Co
Coil 2 (Ohms)	2.364 Corr: 2.4...	2.373 Corr: 2.4...	2.375 Co
Coil 3 (Ohms)	2.373 Corr: 2.4...	2.131 Corr: 2.1...	2.134 Co
Megohm Stat...	PASS	PASS	USER AB
Volts (V)	494	511	504
µA	0.5527	0.7473	0.0084
Resist	894	684	59935
At 40°C	241	184	16183
PI Status	No Test	No Test	No Test
Moisture (%)			
Nameplate	Application	Results Summary	Surge

19. Winding Resistance

1-2

1-3

2-3

3/13/2024 8:37:...	480V w/o...	T...	PASS	PASS
3/13/2024 8:24:...	480V w/o...	T...	PASS	PASS
3/13/2024 8:09:...	480V w/o...	T...	FAIL	FAIL
Date	3/13/2024	3/13/2024	3/13/2024	
Time	8:37:44 AM	8:24:05 AM	8:09:34 AM	
Test Status	PASS	PASS	DELTA R	
L1 (Ohms)				
L2 (Ohms)				
L3 (Ohms)				
1-L2 (Ohms)	1.470 Corr: 1.4...	1.551 Corr: 1.5...	1.557 Corr: 1.5...	
2-L3 (Ohms)	1.551 Corr: 1.5...	1.554 Corr: 1.5...	1.557 Corr: 1.5...	
3-L1 (Ohms)	1.554 Corr: 1.5...	1.470 Corr: 1.4...	1.473 Corr: 1.4...	
Max Delta R %	5.517	5.517	5.503	
Coil 1 (Ohms)	2.131 Corr: 2.1...	2.364 Corr: 2.4...	2.373 Corr: 2.4...	
Coil 2 (Ohms)	2.364 Corr: 2.4...	2.373 Corr: 2.4...	2.375 Corr: 2.4...	
Coil 3 (Ohms)	2.373 Corr: 2.4...	2.131 Corr: 2.1...	2.134 Corr: 2.1...	
Megohm Stat...	PASS	PASS	DELTA R	
Moisture (%)				
Nameplate	Application	Results Summary	Surge	PI

20. Perform Surge Test

Failed surge but passed on test panel

Tools	Help
102594	4
Tests	Trending
Test ID: 480V w/UTR101HP Step	Edit Test ID Enable Calibration
For: 480V w/UTR101HP Step	Motor
Surge Test	
Temperature/Resistance Tests	
Temperature	Manual
Resistance	3 Lead Low V
DC Test	500Vdc
500Vdc	500Vdc
500Vdc	500Vdc
500Vdc	500Vdc
Surge Test	1000Vdc
1000Vdc	1000Vdc

21. Number of Stator Slots

36

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22. Stator Condition	pass
23. Stator Thermistors/Ohms	Na
24. Stator Overloads/Ohms	Na
Mechanical Inspection	
25. Drive End Bearing Brand	koyo
26. Drive End Bearing Number-	6309-2RS
27. Drive End Bearing Qty.	1
28. Drive End Bearing Type	(Ball) Ball Bearing
Sealed	
29. Drive End Lubrication Type	(Grease) Grease Lubricated
30. Drive End Bearing Insulation or Grounding Device?	na
31. Drive End Wavy Washer/Snap-Ring Other Retention Device?	sleeve after bearing
32. Drive End Bearing Condition	
Signs of fluting	



33. Opposite Drive End Bearing Brand	nachi
34. Opposite Drive End Bearing Number-	6206-2RS
35. Opposite Drive End Bearing Qty.	1
36. Opposite Drive End Bearing Type	(Ball) Ball Bearing
Sealed	
37. Opposite Drive End Lubrication Type	(Grease) Grease Lubricated
38. Opposite Drive End Bearing Insulation or Grounding Device?	na
39. Opposite Drive End Wavy Washer/Snap-Ring Other Retention Device?	na

40. Opposite Drive End Bearing Condition

Signs of fluting



41. Drive End Seal

na

42. Opposite Drive End Seal

Na

Rotor Inspection

43. Rotor Type/Material

(Squirrel Aluminum) Squirrel
Cage Aluminum Die Cast

44. Growler Test

(Pass) Pass

45. Number of Rotor Bars

28

46. Rotor Condition

pass

47. List the Parts needed for the Repair Below

6309-2RS

6206-2RS

New sound dampening filters

New fan

New bolt or base couple

48. Signature of Technician that Disassembled Motor

Cw

Mechanical Fits- Rotor

49. Shaft Runout

0.002 inches

50. Rotor Runout

Drive End Bearing Fit

Rotor Body

Opposite Drive End Bearing

Na

51. Coupling Fit Closest to Bearing Housing

0 Degrees

90 Degrees

120 Degrees

Na


52. Coupling Fit Closest to the end of the Shaft

0 Degrees


60 Degrees

120 Degrees

Na

53.	Drive End Bearing Shaft Fit		
	0 Degrees	60 Degrees	120 Degrees
	1.7715	1.7714	1.7714
54.	Drive End Bearing Shaft Fit Condition (F) Fail		
55.	Opposite Drive End Bearing Shaft Fit		
	0 Degrees	60 Degrees	120 Degrees
	1.1811	1.1809	1.1811
56.	Opposite Drive End Bearing Shaft Fit Condition (F) Fail		
57.	Shaft Air Seal Fits		
	Drive End Air Seal	Opposite Drive End Air Seal	
	Na		
Mechanical Fits- Bearing Housings			
58.	Drive End - Endbell Bearing Fit		
	0 Degrees	60 Degrees	120 Degrees
	3.9375	3.9381	3.9377
59.	Drive End - Endbell Bearing Fit Condition (P) Pass		
60.	Opposite Drive End - Endbell Bearing Fit		
	0 Degrees	60 Degrees	120 Degrees
	2.442	2.4419	2.4417
61.	Opposite Drive End - Endbell Bearing Fit Condition (F) Fail		
62.	Bearing Cap Condition		
	Drive End Bearing Cap	Opposite Drive End Bearing Cap	
	Pass		
63.	End Bell Air Seal Fits		
	Drive End Air Seal	Opposite Drive End Air Seal	
	Na		
64.	List Machine Work Needed Below		
	<i>Bothe shaft bearing fits and ODE end bell bearing fit</i>		
65.	Technician		
			
	Witness- Trevor		
Root Cause of Failure			
66.	Failure locations		
	<i>Lead connection, bearings, shaft bearing fits, and ODE end bell bearing fit</i>		
67.	Root cause of failure		
	<i>Loose connection on 4&7 leads, bearings have fluting, and bearings fits are worn</i>		
Dynamic Balance Report			
68.	Rotor Weight and Balance Grade		
	Rotor Weight	Balance Grade	
	Na		

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69. Initial Balance Readings			
Drive End		Opposite Drive End	
Na			
70. Final Balance Readings			
Drive End		Opposite Drive End	
Na			
71. Technician			Cw
			
Mechanical Fits- Rotor - Post Repair			
72. Shaft Runout Post Repair			0.001 inches
73. Rotor Runout Post Repair			
Drive End Bearing Fit		Rotor Body	Opposite Drive End Bearing
0.001		0.002	0.002
74. Coupling Fit Closest to Bearing Housing Post Repair			
0 Degrees		90 Degrees	120 Degrees
Na			
75. Coupling Fit Closest to the end of the Shaft Post Repair			
0 Degrees		60 Degrees	120 Degrees
Na			
76. Drive End Bearing Shaft Fit Post Repair			
0 Degrees		60 Degrees	120 Degrees
1.7722		1.7721	1.7722



77. Opposite Drive End Bearing Shaft Fit Post Repair

0 Degrees	60 Degrees	120 Degrees
1.1815	1.1815	1.1815



78. Shaft Air Seal Fits Post Repair

Drive End Air Seal	Opposite Drive End Air Seal
--------------------	-----------------------------

Na

79. Shaft Repair Sign-off

Gary

[Handwritten signature]

Mechanical Fits- Bearing Housings - Post Repair

80. Drive End - Endbell Bearing Fit Post Repair



0 Degrees	60 Degrees	120 Degrees
-----------	------------	-------------

Na

81. Opposite Drive End - Endbell Bearing Fit Post Repair

0 Degrees	60 Degrees	120 Degrees
2.441	2.441	2.4409



82. Bearing Cap Condition Post Repair		
Drive End Bearing Cap		Opposite Drive End Bearing Cap
<div><div></div><div>Na</div></div>		
83. End Bell Air Seal Fits Post Repair		
Drive End Air Seal		Opposite Drive End Air Seal
<div><div></div><div>Na</div></div>		
84. End Bell Repair Sign-off		Gary
<div><div></div><div></div></div>		
Assembly		
85. QC Check All Parts for Cleanliness Prior to Assembly		Cw
<div><div></div><div></div></div>		
86. Photograph All Major Components prior to assembly		



87. Final Insulation Resistance Test		Megohms
<div> <div></div> <div>Pass</div> </div>		

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88. Assembled Shaft Endplay	inches	
Na		
89. Assembled Shaft Runout	inches	
Na		
90. Test Run Voltage		
Volts	Volts	Volts
Witnessed by: RRW		



With blower fan and cover



91. Test Run Amperage		
Amps	Amps	Amps



With blower fan and cover

92. Drive End Vibration Readings - Inches Per Second		
Horizontal	Vertical	Axial
0.003	0.004	0.02
93. Opposite Drive End Vibration Readings - Inches Per Second		
Horizontal	Vertical	Axial
0.004	0.004	0.003
94. Ambient Temperature - Fahrenheit		
Na		

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95. Drive End Bearing Temps - Fahrenheit			
5 Minutes		10 Minutes	
15 Minutes			
	Na		
96. Opposite Drive End Bearing Temps - Fahrenheit			
5 Minutes		10 Minutes	
15 Minutes			
	Na		
97. Document Final Condition with Pictures after paint			



98. Final Pics and QC Review			Cw
<div> <div></div> <div> <div></div> <div> <div></div> <div></div> </div> </div> </div>			
<div> <div></div> <div>Co sign: RRW</div> </div>			



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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, 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.
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.
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.