

LR Motor Shop Repairs

Job Number 100503

Prepared for ARKANSAS INDUSTRIAL MACHINERY

3804 N. NONA ST NORTH LITTLE ROCK AR 72118

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AC Recondition As Found ARKANSAS INDUSTRIAL MACHINERY

3804 N. NONA ST NORTH LITTLE ROCK, AR 72118

AC Recondition - Rev. 2

Location: Shop Serial Number: 1708/203492701

Description:315KW SIEMENS 1800RPM 315L

Hi-Speed Job Number:	100503
Manufacturer:	Siemens
Product Number:	1LG 312-4MA91-Z 315L
Serial Number:	1708/203492701
HP/kW:	315 (kW)
RPM:	2515 (RPM)
Frame:	315L
Voltage:	460
Current:	540
Phase:	Three
Hz:	84 (Hz)
Service Factor:	1.25
Enclosure:	TEFC
J-box Included:	Complete
Coupling/Sheave:	None
Bearing RTDs:	No
Stator RTDs:	No
Repair Stage:	Final
Bearing Housing Machined Fit Repairs Required:	Yes
Heaters:	No
Winding Type :	Random Wound
Bearing Type:	Rolling Element

Priorities Found: 4 - High



) 5 - Good

Overall Condition

- 1. Report Date
- Nameplate Picture









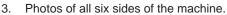
























	4. Describe the Overall Condition of the Equipment as Received			
h	Initial Mechanical/Electrical			
	5.	Does Shaft Turn Freely?	(Yes) Yes	
	6.	Does Shaft Have Visible Damage?	(No) No	
	7.	Assembled Shaft Runout	0.001 Inches	
	8.	Assembled Shaft End Play	inches	
	9.	Air Gap Variation <10%		
	10.	Lead Condition	(P) Pass	
	11.	Lead Length	131 Inches	





	12.	Frame Condition			good
	13.	Fan Condition			(P) Pass
	14.	Broken or Missing Components			none
In	itial	Electrical Inspection			
	15.	Insulation Resistance/Megger		0 M	legohms
	•	585 ohm varistor			
	16.	Winding Resistance			
		1-2	1-3	2-3	
	17.	Perform Surge Test			(F) Fail
	18.	Stator Condition			blown
M	echa	anical Inspection			



0.001

20				
20.	Drive End Bearing Qty.		1	
21.	Drive End Bearing Type		(Ball) Ball Bearing	
22.	Drive End Lubrication Type		(Grease) Grease Lubricated	
23.	Drive End Bearing Insulation or Gro	ounding Device?	none	
24.	Drive End Wavy Washer/Snap-Ring	g Other Retention Device?	spring loaded cap	
25.	Drive End Bearing Condition		bad	
26.	Opposite Drive End Bearing Number	er-	6319	
27.	Opposite Drive End Bearing Qty.		1	
28.	Opposite Drive End Bearing Type		(Ball) Ball Bearing	
29.	Opposite Drive End Lubrication Typ	e	(Grease) Grease Lubricated	
30.	Opposite Drive End Bearing Insulat	ion or Grounding Device?	none	
31.	Opposite Drive End Wavy Washer/S	Snap-Ring Other Retention Devic	e? none	
32.	Opposite Drive End Bearing Condit	ion	bad	
33.	Drive End Seal		none	
34.	Opposite Drive End Seal		none	
Rotor	Inspection			
35	Rotor Type/Material		(Squirrel Aluminum) Squirrel	
55.	31		Cage Aluminum Die Cast	
36.	Growler Test		Cage Aluminum Die Cast (Pass) Pass	
			-	
36.	Growler Test		(Pass) Pass	
36. 37.	Growler Test Number of Rotor Bars Rotor Condition	r Below	(Pass) Pass 39	
36. 37. 38.	Growler Test Number of Rotor Bars Rotor Condition		(Pass) Pass 39	
36. 37. 38. 39.	Growler Test Number of Rotor Bars Rotor Condition List the Parts needed for the Repair	re de	(Pass) Pass 39	
36. 37. 38. 39.	Growler Test Number of Rotor Bars Rotor Condition List the Parts needed for the Repair 6319; 6319, rewind, sleeve ode, sleeve	re de	(Pass) Pass 39 good	
36. 37. 38. 39. 40.	Growler Test Number of Rotor Bars Rotor Condition List the Parts needed for the Repair 6319; 6319, rewind, sleeve ode, sleev Signature of Technician that Disass	re de	(Pass) Pass 39 good	
36. 37. 38. 39. 40.	Growler Test Number of Rotor Bars Rotor Condition List the Parts needed for the Repair 6319; 6319, rewind, sleeve ode, sleev Signature of Technician that Disass anical Fits- Rotor	re de	(Pass) Pass 39 good David Maclin	
36. 37. 38. 39. 40.	Growler Test Number of Rotor Bars Rotor Condition List the Parts needed for the Repair 6319; 6319, rewind, sleeve ode, sleev Signature of Technician that Disass anical Fits- Rotor Shaft Runout	re de	(Pass) Pass 39 good David Maclin	

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0.001

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	43.	Coupling Fit Closest to Bearing Housing	•		
		0 Degrees	90 Degrees	120 Degrees	
			01. 6		
	44.	Coupling Fit Closest to the end of the		100 B	
		0 Degrees	60 Degrees	120 Degrees	
	15	Drive End Bearing Shaft Fit			
	45.		CO Degrees	120 Degrees	
		0 Degrees	60 Degrees	120 Degrees	
	46	3.7405	3.7405	3.7405	(D) Doos
		Drive End Bearing Shaft Fit Condition			(P) Pass
	47.	Opposite Drive End Bearing Shaft Fit	CO D	400 Dawns	
		0 Degrees	60 Degrees	120 Degrees	
	40	3.7405	3.7404	3.7404	(D) D
		Opposite Drive End Bearing Shaft Fit	Condition		(P) Pass
	49.	Shaft Air Seal Fits			
		Drive End Air Seal	Opposite Drive End Air Seal		
В.4		mical Fita Bassina Haveinas			
IVI		inical Fits- Bearing Housings			
	50.	Drive End - Endbell Bearing Fit			
		0 Degrees	60 Degrees	120 Degrees	
		7.8762	7.8762	7.8763	
		Drive End - Endbell Bearing Fit Condit			(F) Fail
	52.	Opposite Drive End - Endbell Bearing			
		0 Degrees	60 Degrees	120 Degrees	
		7.8762	7.8762	7.8762	
		11	Fit Condition		(F) Fail
	54.	Bearing Cap Condition			
		Drive End Bearing Cap	Opposite Drive End Bearing Cap		
	_				
		Good			
	55.	End Bell Air Seal Fits			
		Drive End Air Seal	Opposite Drive End Air Seal		
	EG	List Machine Work Needed Below			
	56.	Sleeve both end bells			
	F7	Technician			David Maalin
	57.	rechnician			David Maclin
		7			
	l				
Dy	ynan	nic Balance Report			
	58.	Rotor Weight and Balance Grade			
		Rotor Weight	Balance Grade		
	59.	Initial Balance Readings			
			O (c. D.)		
		Drive End	Opposite Drive End		

60	Final Balance Readings		
00.	Drive End	Opposite Drive End	
	.9	1.1	
61.	Technician		David Maclin
Rewir	nd	,	
62.	Core Test Results - Watts loss per Po	ound	
	Pre-Burnout	Post Burnout	
63.	Core Hot Spot Test		
	Pre-Burnout	Post-Burnout	
64.	Post Rewind Electrical Test- Insulation	n Resistance	
65.			
66.	Post Rewind Winding Resistance		
	1-2	1-3	2-3
67	Post Rewind Surge Test		
68.	Post Rewind Hi-Pot		
	Technician		
	Cause of Failure		
	Failure locations		
	Connection at windings burned		
71.	Connection at windings burned Root cause of failure Overload		
71.	Root cause of failure Overload anical Fits- Rotor - Post Repair		
71. Mech a 72.	Root cause of failure Overload Anical Fits- Rotor - Post Repair Shaft Runout Post Repair		
71. Mech a 72.	Root cause of failure Overload anical Fits- Rotor - Post Repair	Rotor Body	Opposite Drive End Bearing
71. Mecha 72. 73.	Root cause of failure Overload Anical Fits- Rotor - Post Repair Shaft Runout Post Repair Rotor Runout Post Repair Drive End Bearing Fit	·	Opposite Drive End Bearing
71. Mecha 72. 73.	Connection at windings burned Root cause of failure Overload anical Fits- Rotor - Post Repair Shaft Runout Post Repair Rotor Runout Post Repair Drive End Bearing Fit Coupling Fit Closest to Bearing Hous	ing Post Repair	· ·
71. Mecha 72. 73.	Root cause of failure Overload Anical Fits- Rotor - Post Repair Shaft Runout Post Repair Rotor Runout Post Repair Drive End Bearing Fit	·	Opposite Drive End Bearing 120 Degrees
71. Mecha 72. 73.	Connection at windings burned Root cause of failure Overload anical Fits- Rotor - Post Repair Shaft Runout Post Repair Rotor Runout Post Repair Drive End Bearing Fit Coupling Fit Closest to Bearing Hous	ing Post Repair 90 Degrees	· ·
71. Mecha 72. 73.	Root cause of failure Overload Anical Fits- Rotor - Post Repair Shaft Runout Post Repair Rotor Runout Post Repair Drive End Bearing Fit Coupling Fit Closest to Bearing Hous 0 Degrees	ing Post Repair 90 Degrees	· ·
71. Mecha 72. 73.	Root cause of failure Overload anical Fits- Rotor - Post Repair Shaft Runout Post Repair Rotor Runout Post Repair Drive End Bearing Fit Coupling Fit Closest to Bearing Hous 0 Degrees Coupling Fit Closest to the end of the	ing Post Repair 90 Degrees Shaft Post Repair 60 Degrees	120 Degrees
71. Mecha 72. 73.	Root cause of failure Overload Anical Fits- Rotor - Post Repair Shaft Runout Post Repair Rotor Runout Post Repair Drive End Bearing Fit Coupling Fit Closest to Bearing Hous 0 Degrees Coupling Fit Closest to the end of the	ing Post Repair 90 Degrees Shaft Post Repair 60 Degrees	120 Degrees
71. Mecha 72. 73. 74. 75.	Root cause of failure Overload anical Fits- Rotor - Post Repair Shaft Runout Post Repair Rotor Runout Post Repair Drive End Bearing Fit Coupling Fit Closest to Bearing Hous O Degrees Coupling Fit Closest to the end of the O Degrees Drive End Bearing Shaft Fit Post Rep O Degrees	ing Post Repair 90 Degrees Shaft Post Repair 60 Degrees air 60 Degrees	120 Degrees 120 Degrees
71. Mecha 72. 73. 74. 75.	Root cause of failure Overload anical Fits- Rotor - Post Repair Shaft Runout Post Repair Rotor Runout Post Repair Drive End Bearing Fit Coupling Fit Closest to Bearing Hous 0 Degrees Coupling Fit Closest to the end of the 0 Degrees Drive End Bearing Shaft Fit Post Rep 0 Degrees Opposite Drive End Bearing Shaft Fit	ing Post Repair 90 Degrees Shaft Post Repair 60 Degrees air 60 Degrees Post Repair	120 Degrees 120 Degrees 120 Degrees
71. Mecha 72. 73. 74. 75.	Root cause of failure Overload anical Fits- Rotor - Post Repair Shaft Runout Post Repair Rotor Runout Post Repair Drive End Bearing Fit Coupling Fit Closest to Bearing Hous O Degrees Coupling Fit Closest to the end of the O Degrees Drive End Bearing Shaft Fit Post Rep O Degrees	ing Post Repair 90 Degrees Shaft Post Repair 60 Degrees air 60 Degrees	120 Degrees 120 Degrees
71. Mecha 72. 73. 74. 75.	Root cause of failure Overload anical Fits- Rotor - Post Repair Shaft Runout Post Repair Rotor Runout Post Repair Drive End Bearing Fit Coupling Fit Closest to Bearing Hous 0 Degrees Coupling Fit Closest to the end of the 0 Degrees Drive End Bearing Shaft Fit Post Rep 0 Degrees Opposite Drive End Bearing Shaft Fit	ing Post Repair 90 Degrees Shaft Post Repair 60 Degrees air 60 Degrees Post Repair	120 Degrees 120 Degrees 120 Degrees
71. Mecha 72. 73. 74. 75.	Root cause of failure Overload anical Fits- Rotor - Post Repair Shaft Runout Post Repair Rotor Runout Post Repair Drive End Bearing Fit Coupling Fit Closest to Bearing Hous O Degrees Coupling Fit Closest to the end of the O Degrees Drive End Bearing Shaft Fit Post Rep O Degrees Opposite Drive End Bearing Shaft Fit O Degrees	ing Post Repair 90 Degrees Shaft Post Repair 60 Degrees air 60 Degrees Post Repair	120 Degrees 120 Degrees 120 Degrees

79. Shaft Repair Sign-off

Mechanical Fits- Bearing Housings - Post Repair

80. Drive End - Endbell Bearing Fit Post Repair

0 Degrees 60 Degrees 120 Degrees 7.8748 7.8749 7.8749

 81. Opposite Drive End - Endbell Bearing Fit Post Repair

 0 Degrees
 60 Degrees
 120 Degrees

 7.8749
 7.8748
 8.87470000000001



82. Bearing Cap Condition Post Repair

Drive End Bearing Cap

Opposite Drive End Bearing Cap

Installed Agis ring drive end.



83. End Bell Air Seal Fits Post Repair

Drive End Air Seal

Opposite Drive End Air Seal

84. End Bell Repair Sign-off

Assembly

85. Photograph All Major Components prior to assembly













- 86. Final Insulation Resistance Test87. Assembled Shaft Endplay88. Assembled Shaft Runout
 - 89. Test Run Voltage

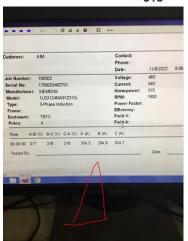
 Volts

 Volts

 Volts

317 316 318





90.	Test Run Amperage		
	Amps	Amps	Amps
	304.5	294.9	304.7
91.	Drive End Vibration Readings - Inches	Per Second	
	Horizontal	Vertical	Axial
	0.0566	0.0655	0.0286
92.	Opposite Drive End Vibration Reading	s - Inches Per Second	
	Horizontal	Vertical	Axial
	0.0455	0.0677	0.0355
93.	Ambient Temperature - Fahrenheit		
94.	Drive End Bearing Temps - Fahrenhei	t	
	5 Minutes	10 Minutes	15 Minutes
95.	Opposite Drive End Bearing Temps -	Fahrenheit	
	5 Minutes	10 Minutes	15 Minutes

97. Document Final Condition with Pictures after paint





98. Final Pics and QC Review













FolderID: 100503 FormID: 15020960



AC Random Coil Rewind Report

ARKANSAS INDUSTRIAL MACHINERY

3804 N. NONA ST NORTH LITTLE ROCK, AR 72118

Priorities Found: 2 - Good

Ger	neral		
1	. Job Number	100503	
2	2. Report Date	11/06/2022	
3	3. Customer	AIM	
Sta	tor Winding		
4	l. Core Length	26.125 "	





5.	Core ID	13 "
6.	Back Iron Depth	1.625 "
7.	Slot Depth	1.25 "
8.	Tooth Width	"
9.	Number of Vents	
10.	Vent Width	
11.	Before Burnout Core loss	
12.	Flux Before Burnout	
13.	Watts before burnout	
14.	Watts loss per lb. before burnout	
15.	After Burnout Core Loss	
16.	Flux After burnout	
17.	Watts After Burnout	
18.	Watts loss per lb After Burnout	
19.	Core Iron Condition	
20.	RTD's	
21.	RTD's Reading	

22.	Motor Heaters	
23.	Heater Qty.	
	Heater Voltage	
	Heater Wattage	
26.	Thermistors	(Y) Yes
27.	Number of Poles	4
28.	Slots	48
29.	Number of Coils	36
30.	Coil Weight	263 Lbs.
31.	Lead Markings	
32.	Grouping	
	12 of 3	
	Multiple Wires	(Y) Yes
34.	Wire Size	
	2#14 10#15 6#16	
	Turns per coil	
36.	Pitch 1 to:	
-	8-10 12-14	
37.	Connection	
	2+4	
	Lead Length	13 "
	Lead Size	2
	Number of Leads	12
	Megger Reading After Rewind	Mohms
	Coil Machine Slot	
	Coil Machine Tip	
	Coil Machine Pitch	
	Hi Pot Reading After Rewind	
	Surge Pattern After Rewind	
47.	Service Technician H H H H H H H H H H H H H	Robert Roberson

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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.