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# LR Motor Shop Repairs

# **Job Number 102740**

Prepared for acme brick

22145 US- 67 Malvern AR 72104

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1.0





# **AC Inspection as Found**

acme brick 22145 US-67 Malvern, AR 72104

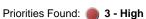
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#### AC Inspection - Rev. 2

Location: MOTOR SHOP LR Serial Number: Q2-E15T5803GPE 1

Description: 150HP SIEMENS 1190RPM

Hi-Speed Job Number:	102740
Manufacturer:	Siemens
Spec/ID #:	PART: 1LE22214CC312A
Serial Number:	Q2-E15T5803GPE
HP/kW:	150 (HP)
RPM:	1190 (RPM)
Frame:	447T
Voltage:	460
Phase:	Three
Hz:	60 (Hz)
Service Factor:	1.15
Enclosure:	TEFC
Repair Stage:	Final
Rewind:	No
Shaft Machined Fit Repairs Required:	No
Bearing Housing Machined Fit Repairs Required:	No
Heaters:	No
Winding Type :	Random Wound
Bearing Type:	Rolling Element





7 - Good

## **Overall Condition**

05/24/2024 Report Date

Nameplate Picture



Photos of all six sides of the machine.









Describe the Overall Condition of the Equipment as Received Partially disassembled Distance from the end of the shaft to the Coupling/Sheave 5. inches Na **Initial Mechanical/Electrical** (NA) Not Applicable Does Shaft Turn Freely? Na Does the shaft require T.I.R in Lathe to identify additional repairs? 7. (No) No Does Shaft Have Visible Damage? (No) No 8. 9. Assembled Shaft Runout Inches Unable to check due to partial disassembly by customer. 10. Assembled Shaft End Play inches Air Gap Variation <10%



One lead cut very short. Also several leads have insulation cut and showing bare wire.





100	A STATE OF THE PARTY OF THE PAR				
	13.	Lead Length			11 Inches
	14.	Does it have Lugs?, If so what is the	Stud Size?		(No) No
	15.	Lead Numbers			1,2,3
	-	6 leads			
	16.	Stator Temperature Detector Rating a	and Function		
		Quantity	Rating	Quantity Passed	
	-	Na			
	17.	Bearing Temperature Detector Rating	and Function		
		Quantity	Rating	Quantity Passed	
	-	Na			
	18.	Frame Condition			pass
	19.	Fan Condition			(F) Fail
	-	Cracked			





20. Broken or Missing Components

All end bell housing mount bolts missing.

# **Initial Electrical Inspection**

## 21. Insulation Resistance/Megger

Megohms



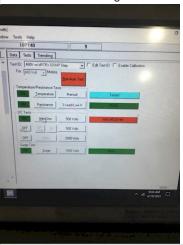
22. Winding Resistance

1-2 1-3 2-3

0.253 0.255 0.252



23. Perform Surge Test



(P) Pass

24. Number of Stator Slots25. Stator Conditionpass

26. Stator Thermistors/Ohms

Na

27. Stator Overloads/Ohms

Mechanical Inspection

28. Drive End Bearing Brand

29. Drive End Bearing Number
NU 320-E-M1-C3



30. Drive End Bearing Qty.
 31. Drive End Bearing Type
 (Roller) Roller Bearing



32. Drive End Lubrication Type	(Grease) Grease Lubricated
33. Drive End Bearing Insulation or Grounding Device?	none
34. Drive End Wavy Washer/Snap-Ring Other Retention Device?	none
35. Drive End Bearing Condition	replace
36. Opposite Drive End Bearing Brand	Nachi
37. Opposite Drive End Bearing Number-	6316



38.	Opposite Drive End Bearing Qty.		1	
39.	Opposite Drive End Bearing Type		(Ball) Ball Bearing	
40.	Opposite Drive End Lubrication Type	e	(Grease) Grease Lubricated	
41.	Opposite Drive End Bearing Insulati	on or Grounding Device?	none	
42.	Opposite Drive End Wavy Washer/S	Snap-Ring Other Retention Device?	snap ring	
43.	Opposite Drive End Bearing Condition	on	replace	
44.	Drive End Seal		na	
45.	Opposite Drive End Seal		na	
Rotor	Inspection			
46.	Rotor Type/Material		(Squirrel Aluminum) Squirrel Cage Aluminum Die Cast	
47.	Growler Test		(Pass) Pass	
48.	Number of Rotor Bars		54	
49.	Rotor Condition		pass	
50.	List the Parts needed for the Repair	Below		
	Sleeve ODE housing fit. Replace all attachment bolts for both housings and bearing caps.			
	Signature of Technician that Disasse	embled Motor	Terrence Holland	
		embled Motor	Terrence Holland	
51.		embled Motor	Terrence Holland	
51.	Signature of Technician that Disassi	embled Motor	Terrence Holland  0.002 inches	
51.  Mecha 52.	Signature of Technician that Disasso	embled Motor		
51.  Mecha 52.	Signature of Technician that Disasson  anical Fits- Rotor  Shaft Runout	Rotor Body		
51.  Mecha 52.	Signature of Technician that Disasson  anical Fits- Rotor  Shaft Runout Rotor Runout		0.002 inches	
51. Mecha 52. 53.	Signature of Technician that Disasson  anical Fits- Rotor  Shaft Runout  Rotor Runout  Drive End Bearing Fit	Rotor Body	0.002 inches	
51. Mecha 52. 53.	Signature of Technician that Disasson  anical Fits- Rotor  Shaft Runout  Rotor Runout  Drive End Bearing Fit  Na	Rotor Body	0.002 inches	
51. Mecha 52. 53.	Signature of Technician that Disasson  anical Fits- Rotor  Shaft Runout  Rotor Runout  Drive End Bearing Fit  Na  Coupling Fit Closest to Bearing Hou	Rotor Body	0.002 inches Opposite Drive End Bearing	
51. Mecha 52. 53. 54.	Signature of Technician that Disasson  anical Fits- Rotor  Shaft Runout  Rotor Runout  Drive End Bearing Fit  Na  Coupling Fit Closest to Bearing Hour  0 Degrees	Rotor Body sing 90 Degrees	0.002 inches Opposite Drive End Bearing	
51.  Mecha 52. 53.	Signature of Technician that Disasson  anical Fits- Rotor  Shaft Runout  Rotor Runout  Drive End Bearing Fit  Na  Coupling Fit Closest to Bearing Hour  0 Degrees	Rotor Body sing 90 Degrees	0.002 inches Opposite Drive End Bearing	
51.  Mecha 52. 53.	Signature of Technician that Disasson  anical Fits- Rotor  Shaft Runout  Rotor Runout  Drive End Bearing Fit  Na  Coupling Fit Closest to Bearing Hou  0 Degrees  Na  Coupling Fit Closest to the end of the	Rotor Body sing 90 Degrees e Shaft	0.002 inches  Opposite Drive End Bearing  120 Degrees	

	56.	Drive End Bearing Shaft Fit			
		0 Degrees	60 Degrees	120 Degrees	
		3.9379	3.9379	3.9381	
	57.	Drive End Bearing Shaft Fit Condition			(P) Pass
	58.	Opposite Drive End Bearing Shaft Fit			
		0 Degrees	60 Degrees	120 Degrees	
		3.1502	3.15	3.15	
	59.	Opposite Drive End Bearing Shaft Fit	Condition		(P) Pass
	60.	Shaft Air Seal Fits			
		Drive End Air Seal	Opposite Drive End Air Seal		
	7	Na			
M	echa	anical Fits- Bearing Housings			
	61.	Drive End - Endbell Bearing Fit			
		0 Degrees	60 Degrees	120 Degrees	
		8.46470000000001	8.464700000000001	8.4649	
	62.	Drive End - Endbell Bearing Fit Condit	ion		(P) Pass
	63.	Opposite Drive End - Endbell Bearing	Fit		
		0 Degrees	60 Degrees	120 Degrees	
		7.4817	7.4818	7.4818	
	-	Excessive pitting.			
	64.	Opposite Drive End - Endbell Bearing	Fit Condition		(F) Fail



## 65. Bearing Cap Condition

Drive End Bearing Cap

Opposite Drive End Bearing Cap

pass



66. End Bell Air Seal Fits

Drive End Air Seal

Opposite Drive End Air Seal

■ Na

67. List Machine Work Needed Below Sleeve ode housing fit.

68. Technician Terrence Holland

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## **Root Cause of Failure**

69. Failure locations

Motor requires re-lead de to insulation worn and cut on various leads. ODE housing worn and has excessive pitting. Bearing grease was dirty and contaminated.



70. Root cause of failure

Lead insulation was cut on various leads and one lead was cut very short. Also ODE housing fit is out of tolerance and pitted.

#### **Dynamic Balance Report**



Drive End Opposite Drive End	
2.25 1.88	
73. Final Balance Readings	
Drive End Opposite Drive End	
.70 .53	

74. Technician David Maclin



# **Assembly**

75. QC Check All Parts for Cleanliness Prior to Assembly

**David Maclin** 

76. Photograph All Major Components prior to assembly

(Complete) Complete

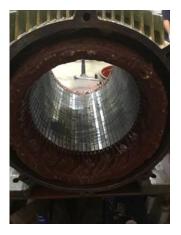
























77.	Final Insulation Resistance Test		2000 Megohms
78.	Assembled Shaft Endplay		0 inches
<b>9</b> 79.	Assembled Shaft Runout		0 inches
80.	Test Run Voltage		
	Volts	Volts	Volts
	459	459	460
-	Witnessed by Chris Wiley		



81. Test Run Amperage		
Amps	Amps	Amps

	73.3	73	72.3	
82.	Drive End Vibration Readings - Inches	Per Second		
	Horizontal	Vertical	Axial	
	0.02	0.01	0.01	
83.	Opposite Drive End Vibration Reading	s - Inches Per Second		
	Horizontal	Vertical	Axial	
	0.02	0.01	0.02	
84.	Ambient Temperature - Fahrenheit			70
85.	Drive End Bearing Temps - Fahrenhei	t		
	5 Minutes	10 Minutes	15 Minutes	
	70			
86.	Opposite Drive End Bearing Temps - I	Fahrenheit		
	5 Minutes	10 Minutes	15 Minutes	
	70			
87.	Document Final Condition with Picture	es after paint		good
88.	Final Pics and QC Review			











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