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

AC Inspection as Found

acme brick
22145 US- 67
Malvern, AR 72104

FolderID: 102740
FormID: 19984372

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
Winding Type :	Random Wound
Bearing Type:	Rolling Element

Priorities Found: **3 - High** **6 - Good**

Overall Condition

1. Report Date

2. Nameplate Picture P37

3. Photos of all six sides of the machine. P45

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	4.	Describe the Overall Condition of the Equipment as Received ***Partially disassembled***	
	5.	Distance from the end of the shaft to the Coupling/Sheave ***Na***	**inches**
Initial Mechanical/Electrical			
	6.	Does Shaft Turn Freely? ***Na***	**(NA) Not Applicable**
	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 ***Unable to check due to partial disassembly by customer.***	**Inches**
	10.	Assembled Shaft End Play ***Na***	**inches**
	11.	Air Gap Variation <10% ***Na***	

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12. Lead Condition **(F) Fail** P69

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

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 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** P115

Cracked

20. Heater Quantity, Ratings

Quantity	Volts/Watts	Pass/Fail

Na

21. Broken or Missing Components

All end bell housing mount bolts missing.

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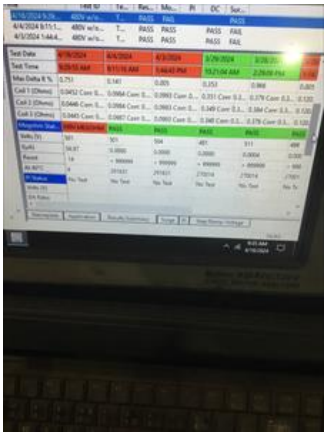
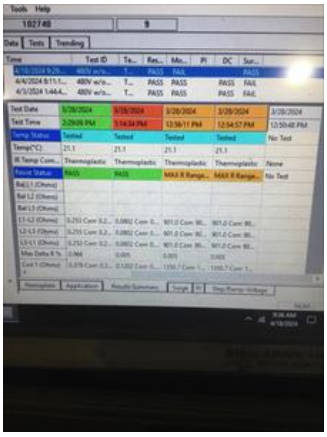
Initial Electrical Inspection

22.	Insulation Resistance/Megger	**Megohms**	P8

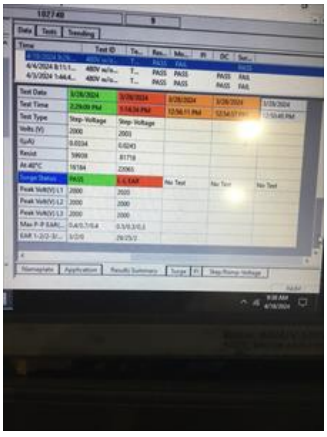


23.	Winding Resistance		P20

1-2	1-3	2-3
0.253	**0.255**	**0.252**



24.	Perform Surge Test	**(P) Pass**	P57



25.	Number of Stator Slots	**72**
26.	Stator Condition	**pass**
27.	Stator Thermistors/Ohms	
	Na	
28.	Stator Overloads/Ohms	**Na**

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Mechanical Inspection

29.	Drive End Bearing Brand	**FAG**	
30.	Drive End Bearing Number-	**NU 320-E-M1-C3**	P32

31.	Drive End Bearing Qty.	**1**	
32.	Drive End Bearing Type	**(Roller) Roller Bearing**	P51

33.	Drive End Lubrication Type	**(Grease) Grease Lubricated**	
34.	Drive End Bearing Insulation or Grounding Device?	**none**	
35.	Drive End Wavy Washer/Snap-Ring Other Retention Device?	**none**	
36.	Drive End Bearing Condition	**replace**	
37.	Opposite Drive End Bearing Brand	**Nachi**	
38.	Opposite Drive End Bearing Number-	**6316**	P99

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39.	Opposite Drive End Bearing Qty.	**1**
40.	Opposite Drive End Bearing Type	**(Ball) Ball 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?	**snap ring**
44.	Opposite Drive End Bearing Condition	**replace**
45.	Drive End Seal	**na**
46.	Opposite Drive End Seal	**na**

Rotor Inspection

47.	Rotor Type/Material	**(Squirrel Aluminum) Squirrel Cage Aluminum Die Cast**
48.	Growler Test	**(Pass) Pass**
49.	Number of Rotor Bars	**54**
50.	Rotor Condition	**pass**
51.	List the Parts needed for the Repair Below ***Sleeve ODE housing fit. Replace all attachment bolts for both housings and bearing caps.***	
52.	Signature of Technician that Disassembled Motor	**Terrence Holland**

Mechanical Fits- Rotor

53.	Shaft Runout	**0.002 inches**
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

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
3.9379	**3.9379**	**3.9381**

58.	Drive End Bearing Shaft Fit Condition	**(P) Pass**

59. Opposite Drive End Bearing Shaft Fit

0 Degrees	60 Degrees	120 Degrees
3.1502	**3.15**	**3.15**

60.	Opposite Drive End Bearing Shaft Fit Condition	**(P) Pass**

61. Shaft Air Seal Fits

Drive End Air Seal	Opposite Drive End Air Seal

Na

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Mechanical Fits- Bearing Housings

62. Drive End - Endbell Bearing Fit

0 Degrees	60 Degrees	120 Degrees
8.464700000000001	**8.464700000000001**	**8.4649**

63. Drive End - Endbell Bearing Fit Condition **(P) Pass**

64. Opposite Drive End - Endbell Bearing Fit

0 Degrees	60 Degrees	120 Degrees
7.4817	**7.4818**	**7.4818**

Excessive pitting.

65. Opposite Drive End - Endbell Bearing Fit Condition **(F) Fail** P39

66. Bearing Cap Condition P52

Drive End Bearing Cap	Opposite Drive End Bearing Cap
	pass

67. End Bell Air Seal Fits

Drive End Air Seal	Opposite Drive End Air Seal

Na

68. List Machine Work Needed Below

Sleeve ode housing fit.

69. Technician **Terrence Holland**

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Root Cause of Failure

70. Failure locations P9

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.

71. 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

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

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82.	Post Rewind Hi-Pot		
83.	Technician		
Mechanical Fits- Rotor - Post Repair			
84.	Shaft Runout Post Repair		
85.	Rotor Runout Post Repair		
	Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing
86.	Coupling Fit Closest to Bearing Housing Post Repair		
	0 Degrees	90 Degrees	120 Degrees
87.	Coupling Fit Closest to the end of the Shaft Post Repair		
	0 Degrees	60 Degrees	120 Degrees
88.	Drive End Bearing Shaft Fit Post Repair		
	0 Degrees	60 Degrees	120 Degrees
89.	Opposite Drive End Bearing Shaft Fit Post Repair		
	0 Degrees	60 Degrees	120 Degrees
90.	Shaft Air Seal Fits Post Repair		
	Drive End Air Seal	Opposite Drive End Air Seal	
91.	Shaft Repair Sign-off		
Mechanical Fits- Bearing Housings - Post Repair			
92.	Drive End - Endbell Bearing Fit Post Repair		
	0 Degrees	60 Degrees	120 Degrees
93.	Opposite Drive End - Endbell Bearing Fit Post Repair		
	0 Degrees	60 Degrees	120 Degrees
94.	Bearing Cap Condition Post Repair		
	Drive End Bearing Cap	Opposite Drive End Bearing Cap	
95.	End Bell Air Seal Fits Post Repair		
	Drive End Air Seal	Opposite Drive End Air Seal	
96.	End Bell Repair Sign-off		
Assembly			
97.	QC Check All Parts for Cleanliness Prior to Assembly		
98.	Photograph All Major Components prior to assembly		
99.	Final Insulation Resistance Test		
100.	Assembled Shaft Endplay		
101.	Assembled Shaft Runout		
102.	Test Run Voltage		
	Volts	Volts	Volts

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103.	Test Run Amperage		
	Amps	Amps	Amps
104.	Drive End Vibration Readings - Inches Per Second		
	Horizontal	Vertical	Axial
105.	Opposite Drive End Vibration Readings - Inches Per Second		
	Horizontal	Vertical	Axial
106.	Ambient Temperature - Fahrenheit		
107.	Drive End Bearing Temps - Fahrenheit		
	5 Minutes	10 Minutes	15 Minutes
108.	Opposite Drive End Bearing Temps - Fahrenheit		
	5 Minutes	10 Minutes	15 Minutes
109.	Document Final Condition with Pictures after paint		
110.	Final Pics and QC Review		

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