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

AC Inspection as Found

Kimberly Clark (10176-KCM)
500 Murphy Dr.
Maumelle, AR 72113

FolderID: 102456
FormID: 19281272

AC Inspection - Rev. 2

Location:	MOTOR SHOP LR
Serial Number:	RKG173045
Description:	150HP GE 1800RPM 449T

Hi-Speed Job Number:	102456
Manufacturer:	GE
Product Number:	5KAF44933229AP
Serial Number:	RKG173045
HP/kW:	150 (HP)
RPM:	1790 (RPM)
Frame:	449T
Voltage:	460
Current:	161
Phase:	Three
Hz:	60 (Hz)
Service Factor:	1.15
Enclosure:	TEFC
J-box Included:	Complete
Coupling/Sheave:	None
Bearing RTDs:	No
Stator RTDs:	No
Repair Stage:	Final
Heaters:	No
Winding Type :	Random Wound
Bearing Type:	Rolling Element

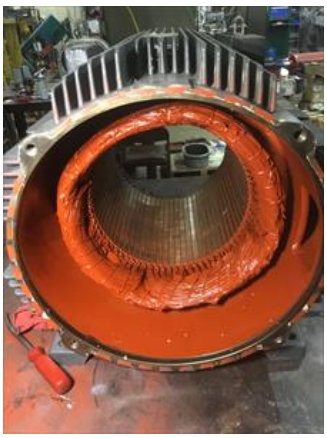
Priorities Found: **3 - High** **5 - Good**

Overall Condition

1. Report Date

2. Nameplate Picture P35

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



4.	Describe the Overall Condition of the Equipment as Received ***Serviceable***	
Initial Mechanical/Electrical		
5.	Does Shaft Turn Freely?	**(No) No**
6.	Does the shaft require T.I.R in Lathe to identify additional repairs?	
7.	Does Shaft Have Visible Damage?	**(Yes) Yes**
8.	Assembled Shaft Runout	**Inches**
9.	Assembled Shaft End Play	**inches**
10.	Air Gap Variation <10%	

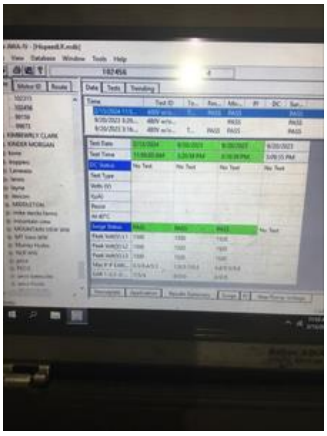
11.	Lead Condition	**(P) Pass**	P65

12.	Lead Length	**7 Inches**
13.	Does it have Lugs?, If so what is the Stud Size?	
14.	Lead Numbers	**1-3**
15.	Frame Condition	**pas**
16.	Fan Condition	**(P) Pass** P100

17.	Broken or Missing Components

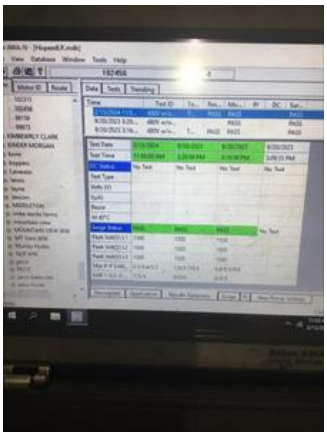
Initial Electrical Inspection

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

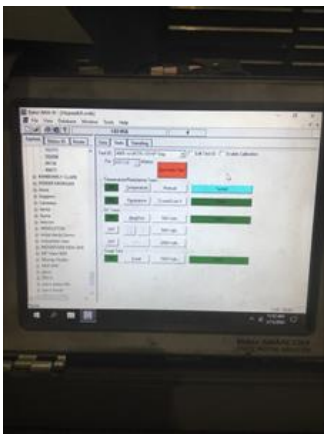


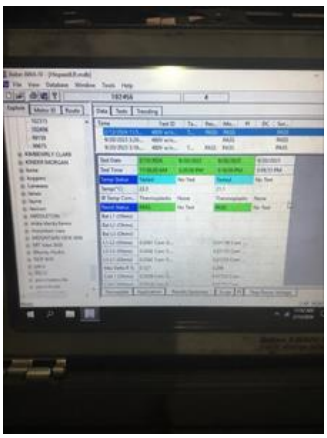
19. Winding Resistance P19

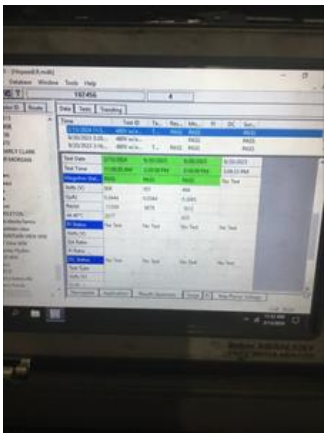
1-2	1-3	2-3

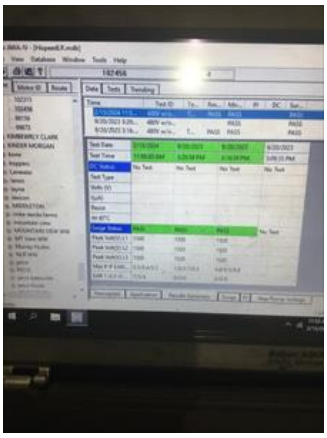


20. Perform Surge Test **(P) Pass** P57









21.	Number of Stator Slots	**72**	
22.	Stator Condition	**pass**	
23.	Stator Thermistors/Ohms		
24.	Stator Overloads/Ohms	**.1**	

Mechanical Inspection

25.	Drive End Bearing Brand	**FAG**	
26.	Drive End Bearing Number-	**NU 318-E-XL-M1-C3**	P33

Motor to be engineered for a 318 ball bearing instead of a NU 318.

27.	Drive End Bearing Qty.	**1**	
28.	Drive End Bearing Type	**(Roller) Roller Bearing**	
29.	Drive End Lubrication Type	**(Grease) Grease Lubricated**	

30.	Drive End Bearing Insulation or Grounding Device?	**aegis ring**	P63

31.	Drive End Wavy Washer/Snap-Ring Other Retention Device?	**none**	
32.	Drive End Bearing Condition	**destroyed**	P78

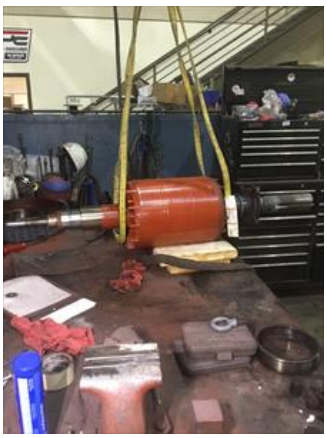
33.	Opposite Drive End Bearing Brand	**FAG**	P86

34.	Opposite Drive End Bearing Number-		P92

35.	Opposite Drive End Bearing Qty.	**1**
36.	Opposite Drive End Bearing Type	**(Ball) Ball Bearing**
37.	Opposite Drive End Lubrication Type	**(Grease) Grease Lubricated**
38.	Opposite Drive End Bearing Insulation or Grounding Device?	**none**
39.	Opposite Drive End Wavy Washer/Snap-Ring Other Retention Device?	**snap ring**
40.	Opposite Drive End Bearing Condition	**replace**
41.	Drive End Seal	
42.	Opposite Drive End Seal	

Rotor Inspection

43.	Rotor Type/Material	**(Squirrel Aluminum) Squirrel Cage Aluminum Die Cast**	P3



44.	Growler Test	**(Pass) Pass**
45.	Number of Rotor Bars	**58**
46.	Rotor Condition	

Good, needs new shaft.

47. List the Parts needed for the Repair Below

New shaft, and new DE bearing cap. Sleeve DE housing and shaft opening. Replace plastic fan with metal one. Replace aegis ring, shaft diameter 4.1875. Drill and tap ODE fan cover mount bolt hole. Motor needs to be converted from using a 318 NU to a 318 ball bearing.

48. Signature of Technician that Disassembled Motor **Terrence Holland**

Mechanical Fits- Rotor

49. Shaft Runout **inches**

New shaft needed.

50. Rotor Runout

Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing

51. Coupling Fit Closest to Bearing Housing

0 Degrees	90 Degrees	120 Degrees

52. Coupling Fit Closest to the end of the Shaft

0 Degrees	60 Degrees	120 Degrees

53. Drive End Bearing Shaft Fit P69

0 Degrees	60 Degrees	120 Degrees

54. Drive End Bearing Shaft Fit Condition **(F) Fail**

55. Opposite Drive End Bearing Shaft Fit

0 Degrees	60 Degrees	120 Degrees
3.5431	**3.543**	**3.5431**

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

57. Shaft Air Seal Fits

Drive End Air Seal	Opposite Drive End Air Seal

Mechanical Fits- Bearing Housings

58. Drive End - Endbell Bearing Fit

0 Degrees	60 Degrees	120 Degrees

Lip worn in.

59. Drive End - Endbell Bearing Fit Condition **(F) Fail**

Lip ring worn in.

60. Opposite Drive End - Endbell Bearing Fit

0 Degrees	60 Degrees	120 Degrees
7.4811	**7.4812**	**7.4812**

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

62. Bearing Cap Condition

Drive End Bearing Cap	Opposite Drive End Bearing Cap
fail	**pass**

D.E bearing cap stuck on shaft.

63. End Bell Air Seal Fits

Drive End Air Seal	Opposite Drive End Air Seal

64. List Machine Work Needed Below

Recommend new shaft. Sleeve D.E housing, shaft opening. Repair D.E bearing cap. Remove, drill and tap ODE housing fan cover mount bolt.

65. Technician **Terrence Holland**

Root Cause of Failure

66. Failure locations

D.E housing and shaft-fits.

67. Root cause of failure

Wrong bearing for application and contaminated lubrication.

Dynamic Balance Report

68. Rotor Weight and Balance Grade

Rotor Weight	Balance Grade

69. Initial Balance Readings

Drive End	Opposite Drive End

70. Final Balance Readings

Drive End	Opposite Drive End

71. Technician

Rewind

72. Core Test Results - Watts loss per Pound

Pre-Burnout	Post Burnout

73. Core Hot Spot Test

Pre-Burnout	Post-Burnout

74. Post Rewind Electrical Test- Insulation Resistance

75. Post Rewind Polarization Index

76.	Post Rewind Winding Resistance		
	1-2	1-3	2-3
77.	Post Rewind Surge Test		
78.	Post Rewind Hi-Pot		
79.	Technician		
Mechanical Fits- Rotor - Post Repair			
80.	Shaft Runout Post Repair		
81.	Rotor Runout Post Repair		
	Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing
82.	Coupling Fit Closest to Bearing Housing Post Repair		
	0 Degrees	90 Degrees	120 Degrees
83.	Coupling Fit Closest to the end of the Shaft Post Repair		
	0 Degrees	60 Degrees	120 Degrees
84.	Drive End Bearing Shaft Fit Post Repair		
	0 Degrees	60 Degrees	120 Degrees
85.	Opposite Drive End Bearing Shaft Fit Post Repair		
	0 Degrees	60 Degrees	120 Degrees
86.	Shaft Air Seal Fits Post Repair		
	Drive End Air Seal	Opposite Drive End Air Seal	
87.	Shaft Repair Sign-off		
Mechanical Fits- Bearing Housings - Post Repair			
88.	Drive End - Endbell Bearing Fit Post Repair		
	0 Degrees	60 Degrees	120 Degrees
89.	Opposite Drive End - Endbell Bearing Fit Post Repair		
	0 Degrees	60 Degrees	120 Degrees
90.	Bearing Cap Condition Post Repair		
	Drive End Bearing Cap	Opposite Drive End Bearing Cap	
91.	End Bell Air Seal Fits Post Repair		
	Drive End Air Seal	Opposite Drive End Air Seal	
92.	End Bell Repair Sign-off		
Assembly			
93.	QC Check All Parts for Cleanliness Prior to Assembly		
94.	Photograph All Major Components prior to assembly		
95.	Final Insulation Resistance Test		
96.	Assembled Shaft Endplay		
97.	Assembled Shaft Runout		

98.	Test Run Voltage		
	Volts	Volts	Volts
99.	Test Run Amperage		
	Amps	Amps	Amps
100.	Drive End Vibration Readings - Inches Per Second		
	Horizontal	Vertical	Axial
101.	Opposite Drive End Vibration Readings - Inches Per Second		
	Horizontal	Vertical	Axial
102.	Ambient Temperature - Fahrenheit		
103.	Drive End Bearing Temps - Fahrenheit		
	5 Minutes	10 Minutes	15 Minutes
104.	Opposite Drive End Bearing Temps - Fahrenheit		
	5 Minutes	10 Minutes	15 Minutes
105.	Document Final Condition with Pictures after paint		
106.	Final Pics and QC Review		