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

AC Inspection as Found

Searcy Water and Sewer System (11242)
300 N. Elm Street
Searcy, AR 72145

FolderID: 102417
FormID: 19224722

AC Inspection - Rev. 2

Location:	MOTOR SHOP LR
Serial Number:	
Description:	40 HP AERATOR

Hi-Speed Job Number:	102417
Manufacturer:	Reliance
Spec/ID #:	6835071-1
Serial Number:	L002FH
HP/kW:	40 (HP)
RPM:	1180 (RPM)
Frame:	364LPZ
Voltage:	460
Current:	49.4
Phase:	Three
Hz:	60 (Hz)
Service Factor:	1.15
Enclosure:	TEFC
# of Leads:	3
J-box Included:	Half
Coupling/Sheave:	Propeller
Date Received:	02/01/2024
Bearing RTDs:	No
Stator RTDs:	No
Repair Stage:	Final
Rewind:	Yes
Shaft Machined Fit Repairs Required:	Yes
Heaters:	No
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

4.	Describe the Overall Condition of the Equipment as Received ***Dirty***	
5.	Distance from the end of the shaft to the Coupling/Sheave	
Initial Mechanical/Electrical		
6.	Does Shaft Turn Freely? ***Yes.***	
7.	Does the shaft require T.I.R in Lathe to identify additional repairs?	
8.	Does Shaft Have Visible Damage?	**(Yes) Yes**
9.	Assembled Shaft Runout	**0.003 Inches**
10.	Assembled Shaft End Play	**inches**
11.	Air Gap Variation <10%	

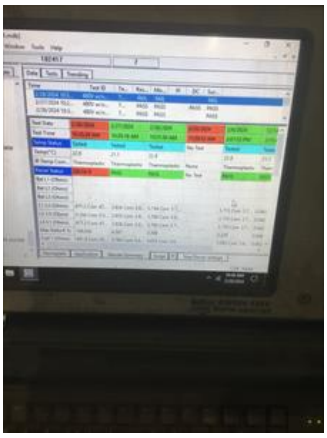
	12.	Lead Condition		P70

	13.	Lead Length	**15.75 Inches**	
●	14.	Does it have Lugs?, If so what is the Stud Size?	**(No) No**	
	15.	Lead Numbers	**1-3**	
	16.	Frame Condition	**pass**	
●	17.	Fan Condition	**(P) Pass**	P113

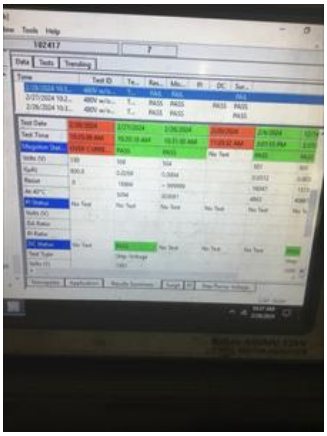
	18.	Broken or Missing Components	**connection box top cover missing**	

Initial Electrical Inspection

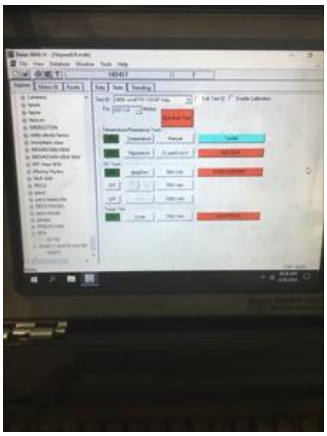
	19.	Insulation Resistance/Megger	**Megohms**	P8

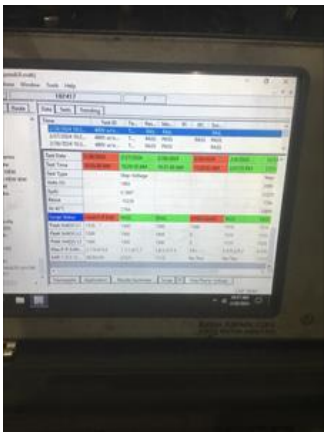


20.	Winding Resistance			P20
	1-2	1-3	2-3	



21.	Perform Surge Test	**(F) Fail**	P57





22.	Number of Stator Slots	**72**
23.	Stator Condition	**rusted internally**
24.	Stator Thermistors/Ohms	
25.	Stator Overloads/Ohms	

Mechanical Inspection

26.	Drive End Bearing Brand	**SKF**

27.	Drive End Bearing Number-	**3215 A/C3**	P31

Double wide double row.

28.	Drive End Bearing Qty.	**1**
29.	Drive End Bearing Type	**(Ball) Ball Bearing**
30.	Drive End Lubrication Type	**(Grease) Grease Lubricated**
31.	Drive End Bearing Insulation or Grounding Device?	**none**
32.	Drive End Wavy Washer/Snap-Ring Other Retention Device?	**none**
33.	Drive End Bearing Condition	**replace**
34.	Opposite Drive End Bearing Brand	**FAG**
35.	Opposite Drive End Bearing Number-	**6313 2Z - C3** P98

36.	Opposite Drive End Bearing Qty.	**1**
37.	Opposite Drive End Bearing Type	**(Ball) Ball Bearing**
38.	Opposite Drive End Lubrication Type	**(Grease) Grease Lubricated**
39.	Opposite Drive End Bearing Insulation or Grounding Device?	**none**
40.	Opposite Drive End Wavy Washer/Snap-Ring Other Retention Device?	**wavy washer** P114

41.	Opposite Drive End Bearing Condition	**replace**	
42.	Drive End Seal	**in pro seal**	
43.	Opposite Drive End Seal	**dust seal**	

Rotor Inspection

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

45.	Growler Test	**(Pass) Pass**	
46.	Number of Rotor Bars	**58**	
47.	Rotor Condition	**pass**	
48.	List the Parts needed for the Repair Below		
49.	Signature of Technician that Disassembled Motor	**Terrence Holland**	

Mechanical Fits- Rotor

50.	Shaft Runout	**0.002 inches**	
51.	Rotor Runout		

Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing

52.	Coupling Fit Closest to Bearing Housing			
	0 Degrees	90 Degrees	120 Degrees	
53.	Coupling Fit Closest to the end of the Shaft			
	0 Degrees	60 Degrees	120 Degrees	
54.	Drive End Bearing Shaft Fit			
	0 Degrees	60 Degrees	120 Degrees	
	2.9532	**2.9533**	**2.9531**	
55.	Drive End Bearing Shaft Fit Condition			**(P) Pass**
56.	Opposite Drive End Bearing Shaft Fit			
	0 Degrees	60 Degrees	120 Degrees	
	2.559	**2.5591**	**2.5592**	
57.	Opposite Drive End Bearing Shaft Fit Condition			**(P) Pass**
58.	Shaft Air Seal Fits			
	Drive End Air Seal	Opposite Drive End Air Seal		

Mechanical Fits- Bearing Housings

59.	Drive End - Endbell Bearing Fit			P2
	0 Degrees	60 Degrees	120 Degrees	

Bad, has excessive wear.

60.	Drive End - Endbell Bearing Fit Condition			**(F) Fail**
61.	Opposite Drive End - Endbell Bearing Fit			
	0 Degrees	60 Degrees	120 Degrees	
	5.5126	**5.1125**	**5.5126**	
62.	Opposite Drive End - Endbell Bearing Fit Condition			**(P) Pass**

63. Bearing Cap Condition

Drive End Bearing Cap	Opposite Drive End Bearing Cap
pass	

64. End Bell Air Seal Fits

Drive End Air Seal	Opposite Drive End Air Seal

65. List Machine Work Needed Below

Shaft seal surface worn. Drill and tap multiple ode housing fan cover mount bolt holes.

66. Technician **Terrence Holland**

Root Cause of Failure

67. Failure locations

Windings shorted to ground due to excessive amount of water penetration.

68. Root cause of failure

Water in housing.

Dynamic Balance Report

69. Rotor Weight and Balance Grade

Rotor Weight	Balance Grade

70. Initial Balance Readings

Drive End	Opposite Drive End

71. Final Balance Readings

Drive End	Opposite Drive End

72. Technician

Rewind

73. Core Test Results - Watts loss per Pound

Pre-Burnout	Post Burnout

74. Core Hot Spot Test

Pre-Burnout	Post-Burnout

75. Post Rewind Electrical Test- Insulation Resistance

76. Post Rewind Polarization Index

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

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