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

AC Inspection as Found

Entergy/AP&L (10879)
555 Point Ferry Rd
Newark, AR 72562

FolderID: 101898
FormID: 17968816

AC Inspection - Rev. 2

Location:	LR SHOP
Serial Number:	
Description:	400 HP SIEMENS ALLIS

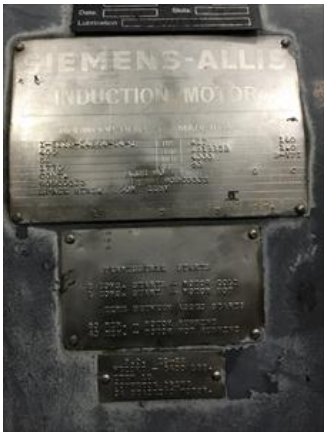
Hi-Speed Job Number:	101898
Manufacturer:	Louis Allis
Product Number:	150
Serial Number:	1-5113-14364-14-1
HP/kW:	400 (HP)
RPM:	1770 (RPM)
Frame:	2616SZ8
Voltage:	Other
Current:	52
Phase:	Three
Hz:	60 (Hz)
Service Factor:	1.00
# of Leads:	3
J-box Included:	None
Coupling/Sheave:	Coupling
Date Received:	09/22/2023
Repair Stage:	Final
Rewind:	Yes
Bearing Housing Machined Fit Repairs Required:	Yes
Heaters:	Yes

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

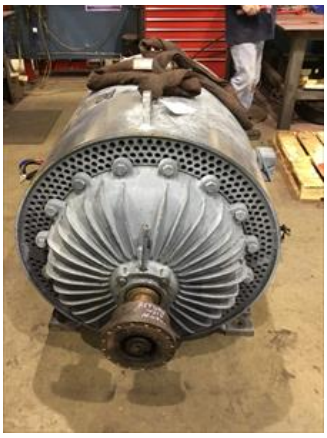
Overall Condition

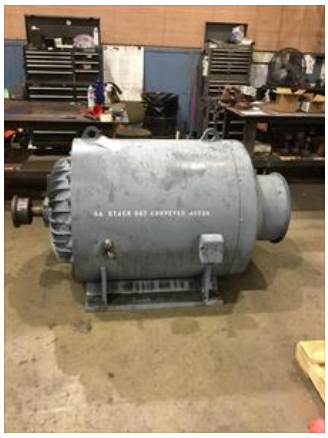
1. Report Date

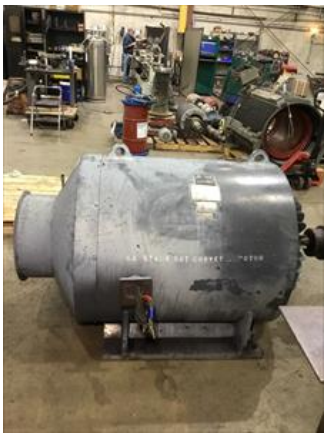
2. Nameplate Picture P37

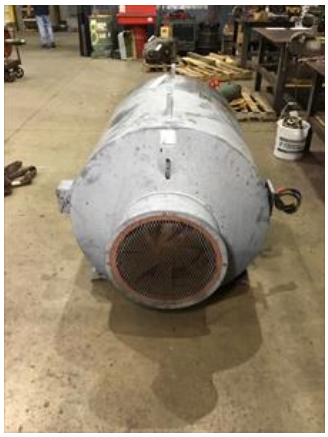


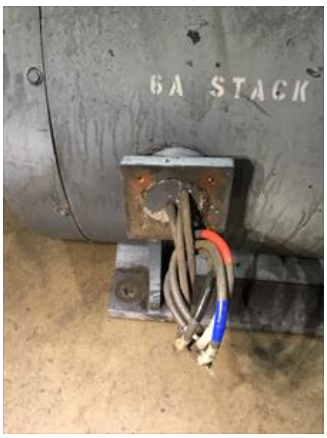
3. Photos of all six sides of the machine. P45

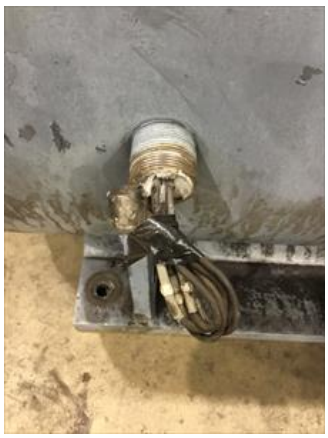


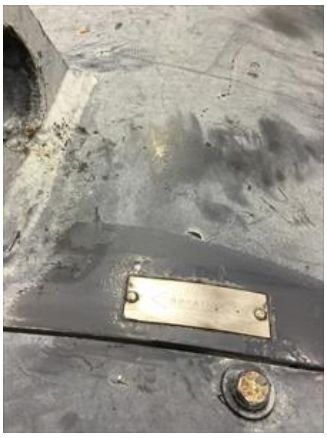


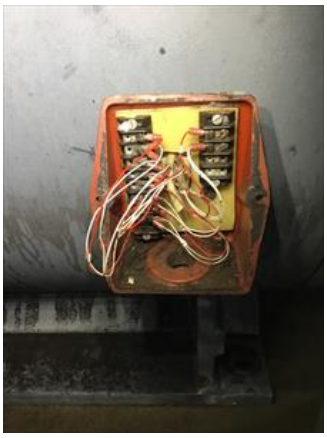


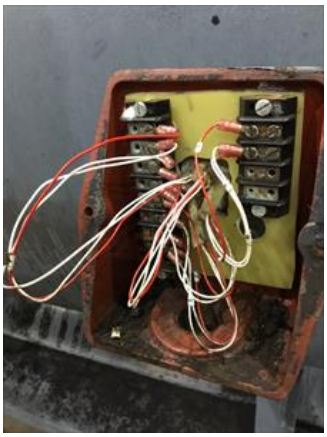


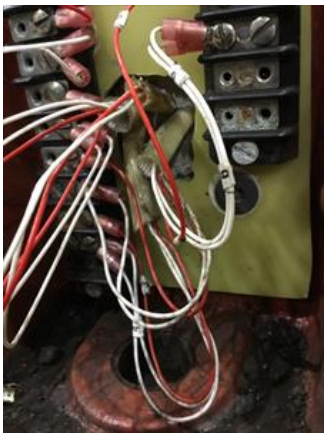


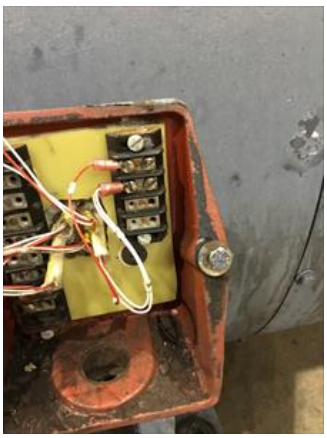


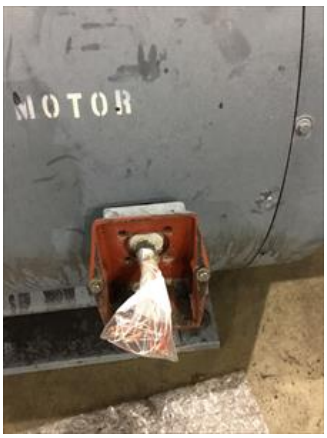


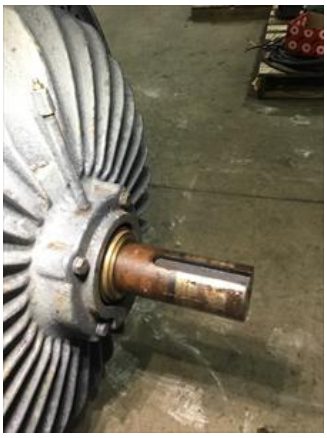


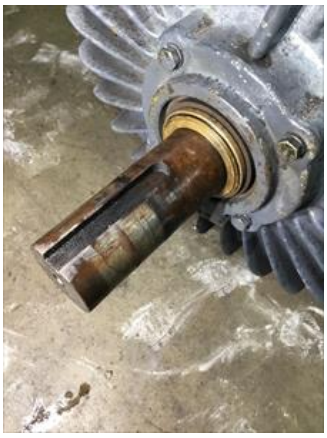


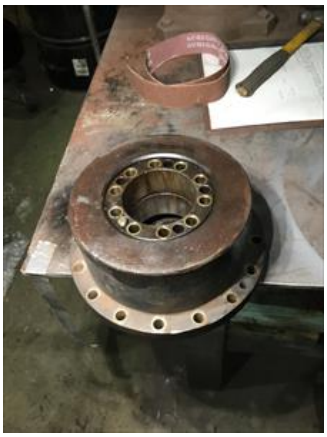


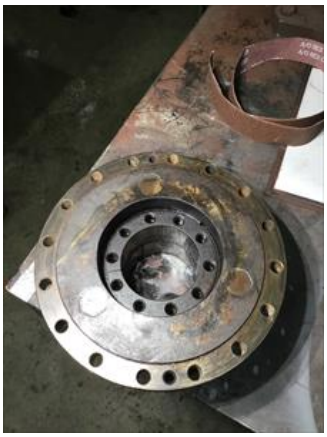


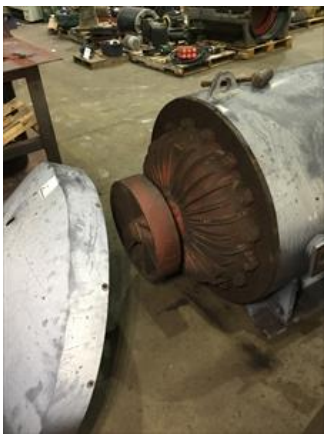


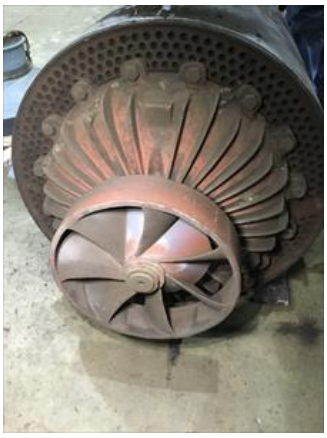


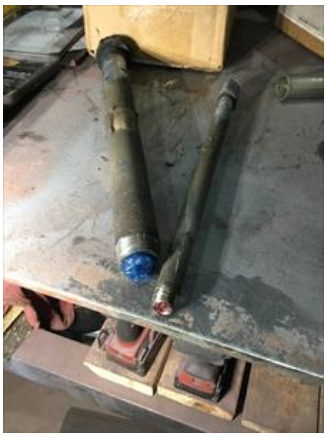


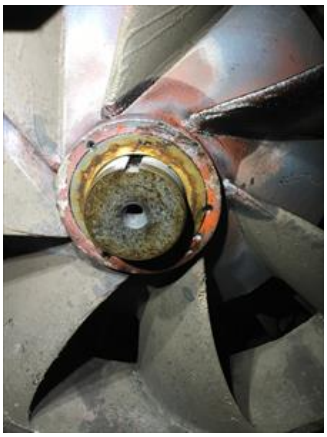


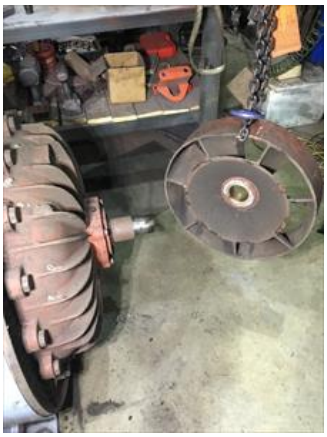


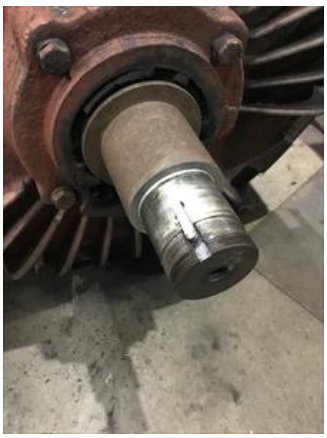


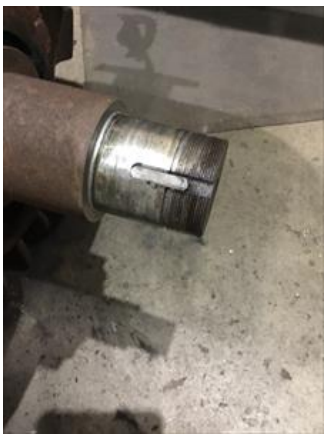


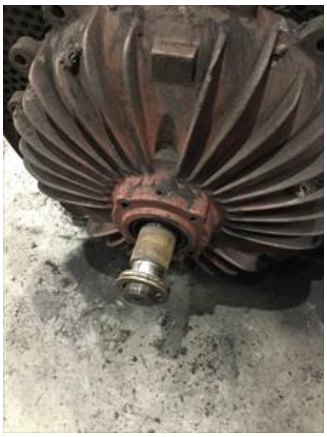


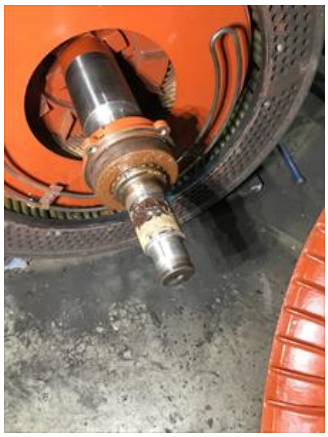


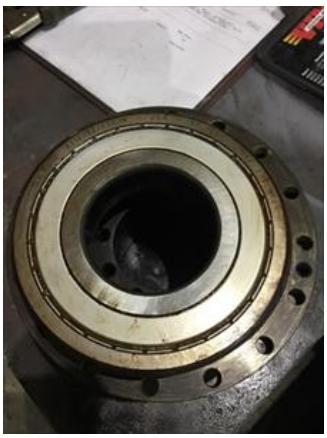


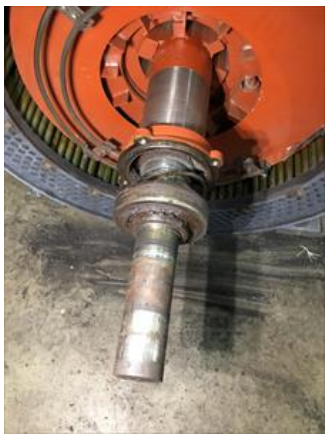


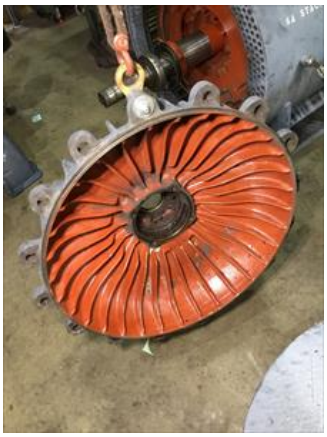


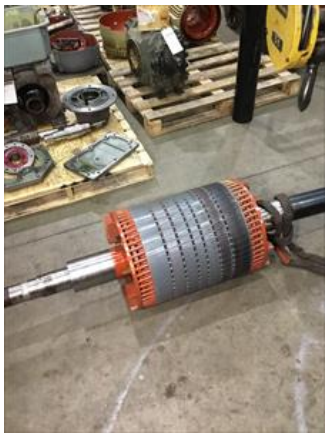


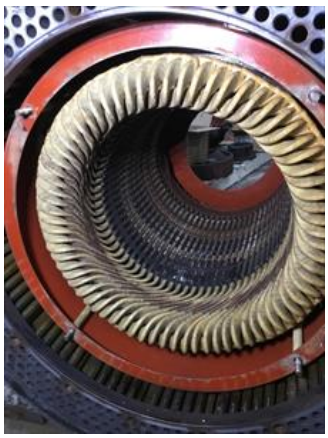


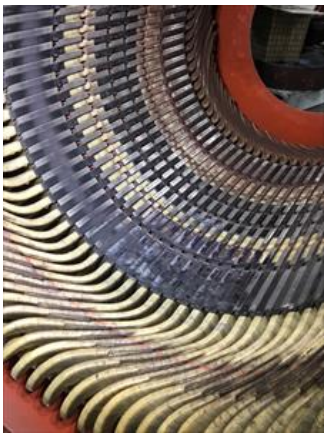


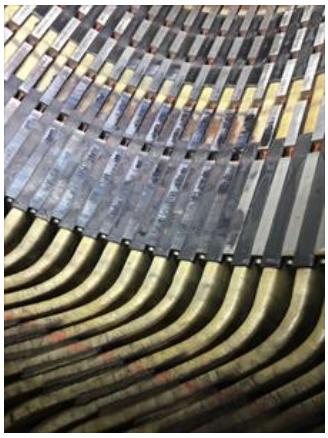


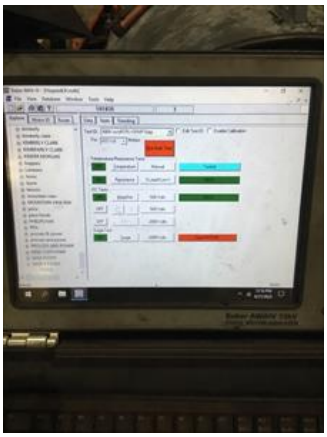










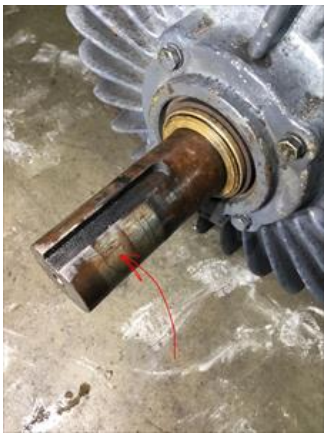


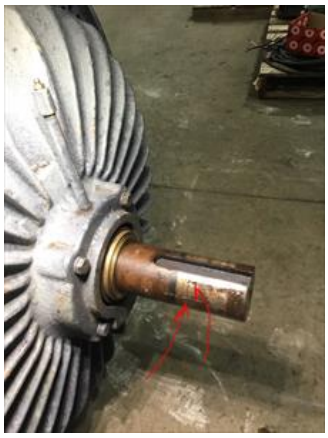
4.	Describe the Overall Condition of the Equipment as Received ***Serviceable***		
5.	Distance from the end of the shaft to the Coupling/Sheave	**inches**	

Initial Mechanical/Electrical

6.	Does Shaft Turn Freely?	**(Yes) Yes**	
7.	Does Shaft Have Visible Damage?	**(Yes) Yes**	P17

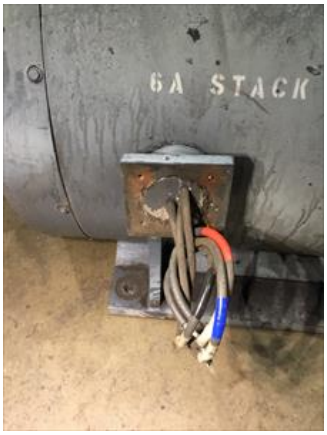
Multiple deep cuts.





8.	Assembled Shaft Runout		
9.	Assembled Shaft End Play		
10.	Air Gap Variation <10%		

11.	Lead Condition	**(P) Pass**	P56



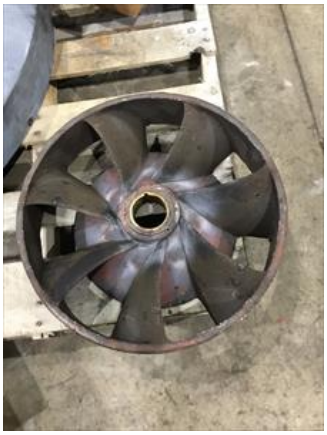
12.	Lead Length	**26.5 Inches**
13.	Lead Numbers	**1-3**
14.	Stator Temperature Detector Rating and Function	

Quantity	Rating	Quantity Passed

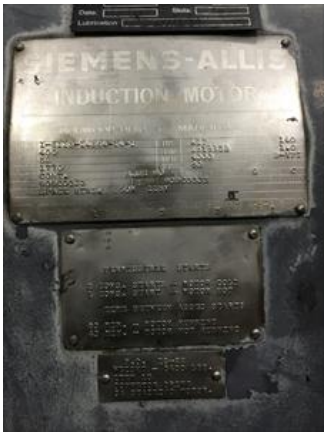
15.	Bearing Temperature Detector Rating and Function	

Quantity	Rating	Quantity Passed

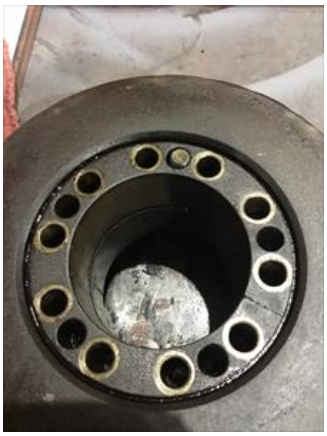
16.	Frame Condition	**pass**
17.	Fan Condition	**(P) Pass** P110



18.	Heater Quantity, Ratings			P112
	Quantity	Volts/Watts	Pass/Fail	
	2	**115/550**	**Pass**	



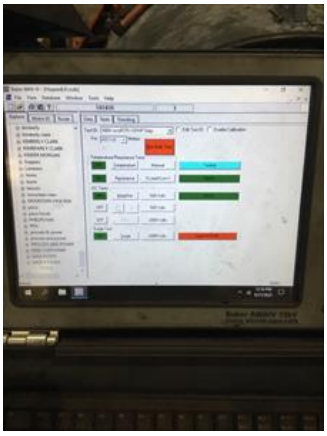
19.	Broken or Missing Components	**broken bolt in coupling hub**	P114

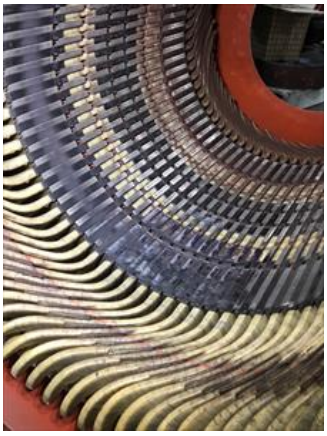


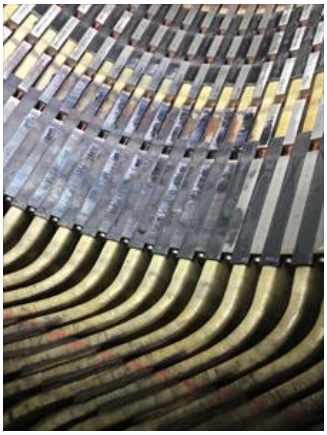
Initial Electrical Inspection

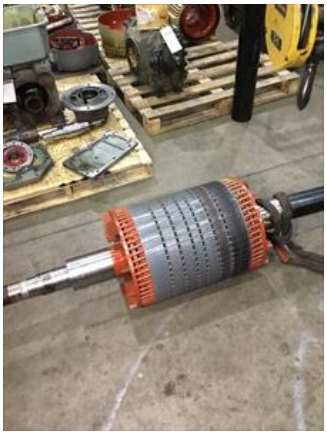
20.	Insulation Resistance/Megger			
21.	Winding Resistance			
	1-2	1-3	2-3	

22.	Perform Surge Test	**(F) Fail**	P58





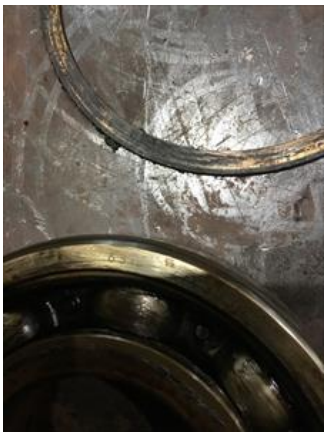




23.	Number of Stator Slots	**72**
24.	Stator Condition	**rewind**
25.	Stator Thermistors/Ohms	**10.4**
	1) 10.4 2)10.3 3)10.4 4)10.4. 5)10.4	
26.	Stator Overloads/Ohms	

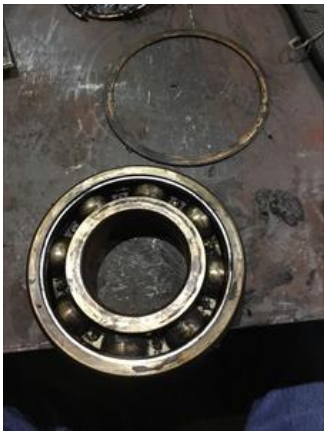
Mechanical Inspection

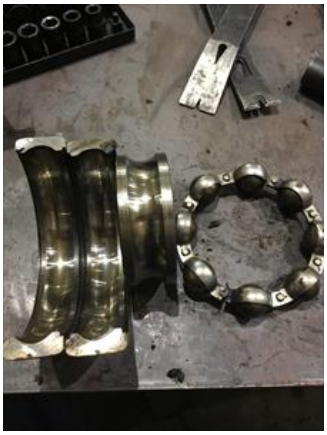
27.	Drive End Bearing Brand	**SKF**	
28.	Drive End Bearing Number-	**6316 2Z /C3 GJN**	P28



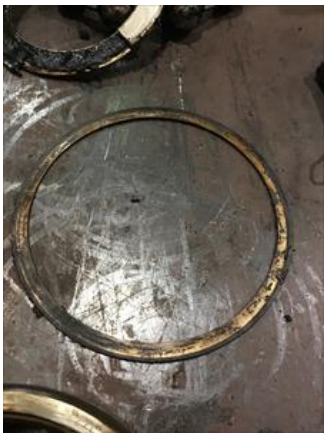
29.	Drive End Bearing Qty.	**1**

30.	Drive End Bearing Type	**(Ball) Ball Bearing**	P50

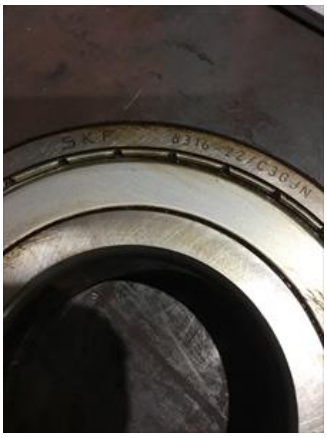




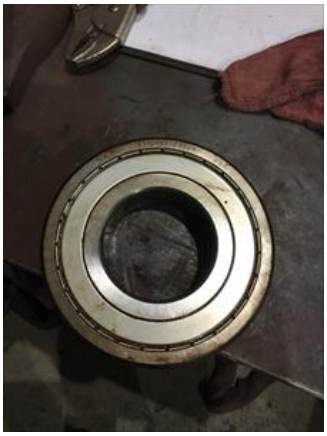
31.	Drive End Lubrication Type	**(Grease) Grease Lubricated**	
32.	Drive End Bearing Insulation or Grounding Device?	**none**	
33.	Drive End Wavy Washer/Snap-Ring Other Retention Device?	**star washer and lock / & spacer**	P76

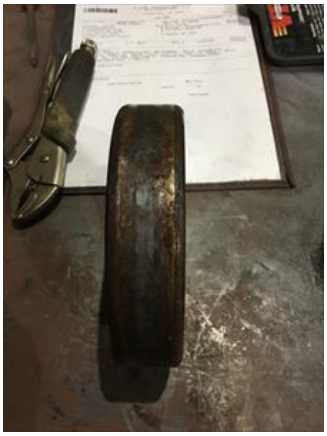


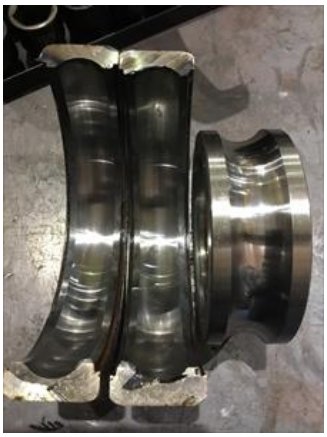
34.	Drive End Bearing Condition	**replace**	
35.	Opposite Drive End Bearing Brand	**SKF**	P93



36.	Opposite Drive End Bearing Number-	**6316-2Z / C3GJN**	
37.	Opposite Drive End Bearing Qty.	**1**	
38.	Opposite Drive End Bearing Type	**(Ball) Ball Bearing**	P107

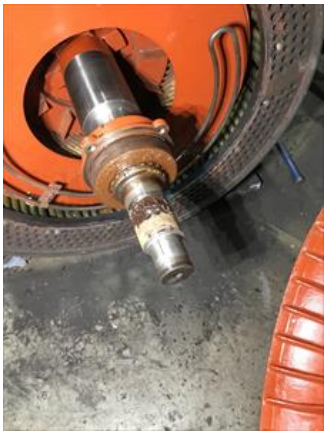




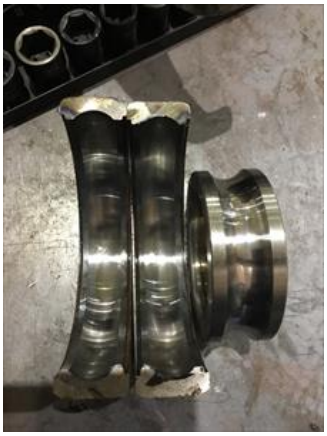


39.	Opposite Drive End Lubrication Type	**(Grease) Grease Lubricated**
40.	Opposite Drive End Bearing Insulation or Grounding Device?	**none**

41.	Opposite Drive End Wavy Washer/Snap-Ring Other Retention Device?	**star washer and lock nut**	P116



42.	Opposite Drive End Bearing Condition	**replace**	P117



43.	Drive End Seal	**AES seal L1123-PP-001-131-6BR6561.25**
44.	Opposite Drive End Seal	**J00314528**

45. DE Sleeve Bearing Inside Diameter

0 degrees	120 degrees	240 degrees

46. DE Sleeve Bearing Outside Diameter

0 degrees	120 degrees	240 degrees

47. DE Sleeve Bearing Housing Inside Diameter

0 degrees	120 degrees	240 degrees

48. DE Sleeve Bearing to Housing Clearance

0 degrees	120 degrees	240 degrees

49. ODE Sleeve Bearing Inside Diameter

0 degrees	120 degrees	240 degrees

50. ODE Sleeve Bearing Outside Diameter

0 degrees	120 degrees	240 degrees

51. ODE Sleeve Bearing Housing Inside Diameter

0 degrees	120 degrees	240 degrees

52. ODE Sleeve Bearing to Housing Clearance

0 degrees	120 degrees	240 degrees

Rotor Inspection

53.	Rotor Type/Material	**(Copper Barred) Copper Barred Rotor**
54.	Growler Test	**(Pass) Pass**
55.	Number of Rotor Bars	**58**
56.	Rotor Condition	**pass**
57.	List the Parts needed for the Repair Below ***Shaft has deep cuts on d.e***	
58.	Signature of Technician that Disassembled Motor	**Terrence Holland**

Mechanical Fits- Rotor

59.	Shaft Runout	**inches**
60.	Rotor Runout	

Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing

61. Coupling Fit Closest to Bearing Housing

0 Degrees	90 Degrees	120 Degrees

62. Coupling Fit Closest to the end of the Shaft

0 Degrees	60 Degrees	120 Degrees

63. Drive End Bearing Shaft Fit

0 Degrees	60 Degrees	120 Degrees
3.1504	**3.1506**	**3.1504**

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

65. Opposite Drive End Bearing Shaft Fit

0 Degrees	60 Degrees	120 Degrees
3.1504	**3.1502**	**3.1504**

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

67. Shaft Air Seal Fits

Drive End Air Seal	Opposite Drive End Air Seal

Mechanical Fits- Bearing Housings

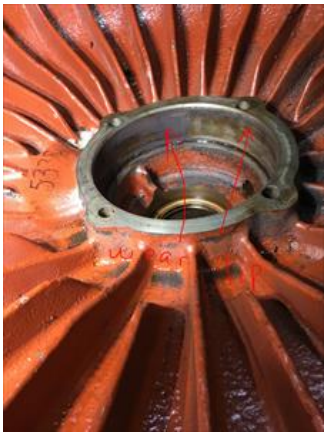
68. Drive End - Endbell Bearing Fit

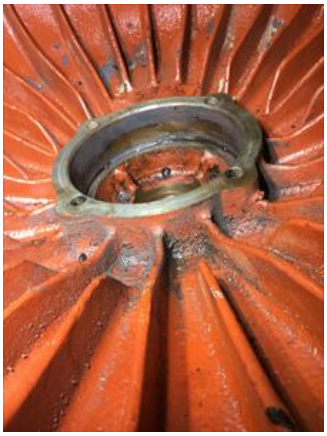
0 Degrees	60 Degrees	120 Degrees
6.7905	**6.7904**	**6.7906**

Max allowed is 6.6939

69. Drive End - Endbell Bearing Fit Condition **(F) Fail** P12

Excessive wear and lip worn in multiple places





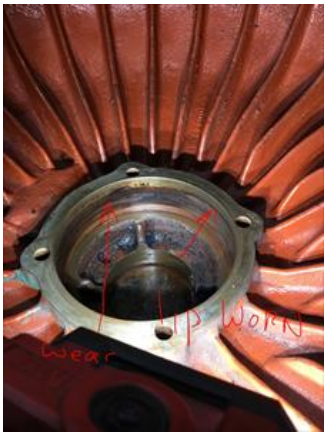
70. Opposite Drive End - Endbell Bearing Fit

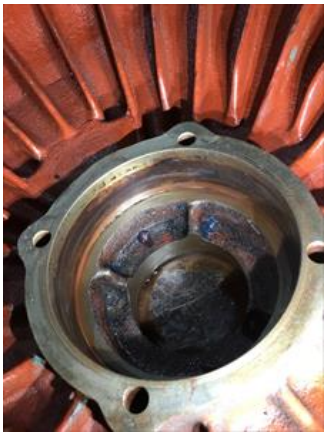
0 Degrees	60 Degrees	120 Degrees
6.72	**6.7203**	**6.7304**

Max allowed is 6.6939

71. Opposite Drive End - Endbell Bearing Fit Condition **(F) Fail** P38

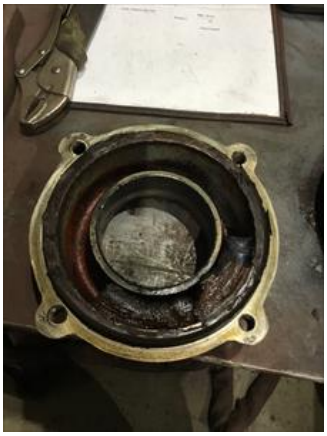
Lip worn in / excessively wear

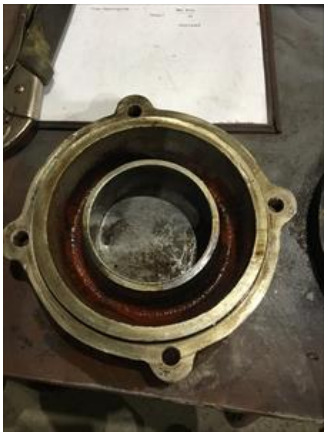




72. Bearing Cap Condition P52

Drive End Bearing Cap	Opposite Drive End Bearing Cap
pass	



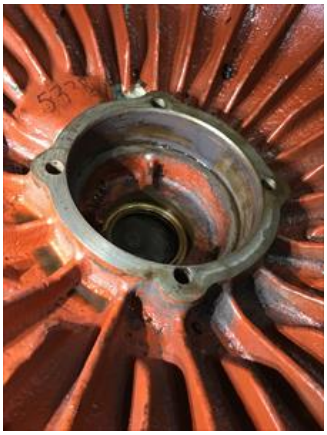


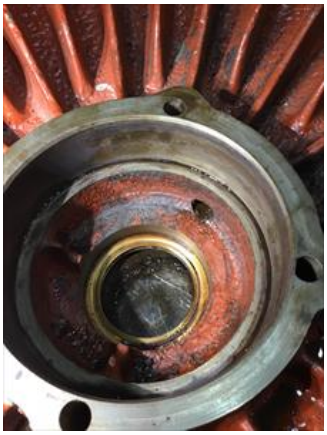
73. End Bell Air Seal Fits

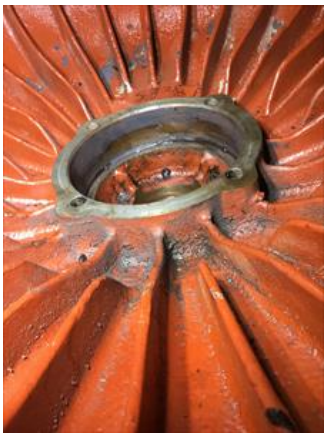
Drive End Air Seal	Opposite Drive End Air Seal

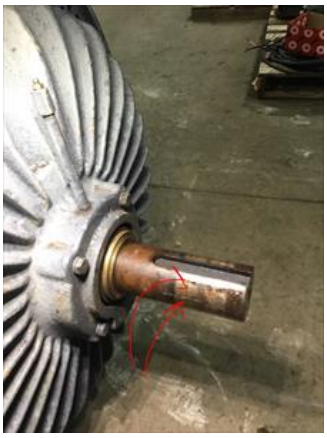
74. List Machine Work Needed Below P67

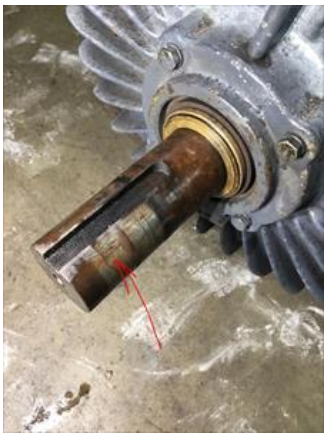
Sleeve D.e & Ode housing fits. D.e Shaft has deep cuts. Recommend sleeving bearing cap. Fan key wrong size.

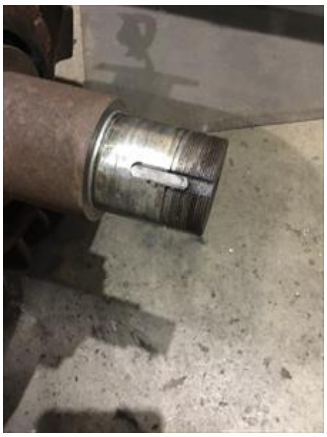


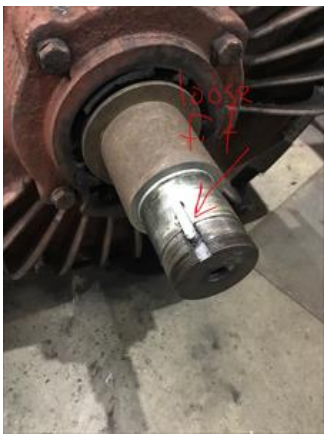












75. Technician **Terrence Holland**

Dynamic Balance Report

76. Rotor Weight and Balance Grade

Rotor Weight	Balance Grade

77. Initial Balance Readings

Drive End	Opposite Drive End

78. Final Balance Readings

Drive End	Opposite Drive End

79. Technician

Rewind

80. Core Test Results - Watts loss per Pound

Pre-Burnout	Post Burnout

81. Core Hot Spot Test

Pre-Burnout	Post-Burnout

82. Post Rewind Electrical Test- Insulation Resistance

83. Post Rewind Polarization Index

84. Post Rewind Winding Resistance

1-2	1-3	2-3

85. Post Rewind Surge Test

86. Post Rewind Hi-Pot

87. Technician

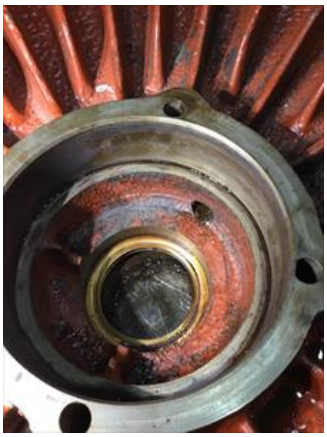
Root Cause of Failure

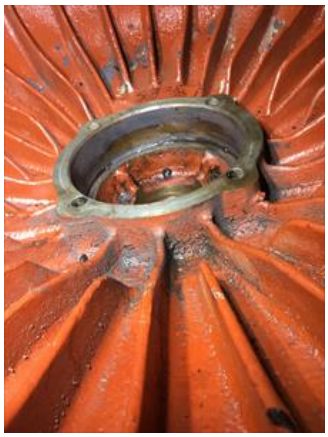
88. Failure locations

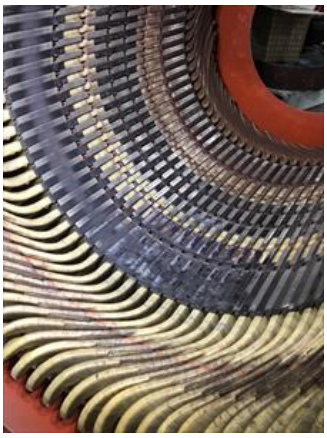
Both housing fits, and windings tested bad.

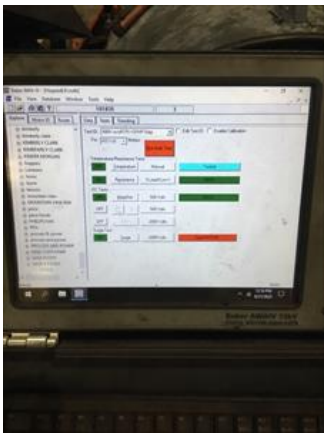
89. Root cause of failure P18

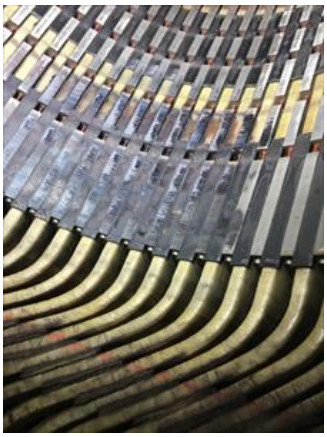
D. E & ODE housing fits head excessive wear lips worn in which allowed the rotor assembly to short or the stator windings. Also found two different types of grease were used which may have been incompatible. Grease was also very contaminated /dirty.

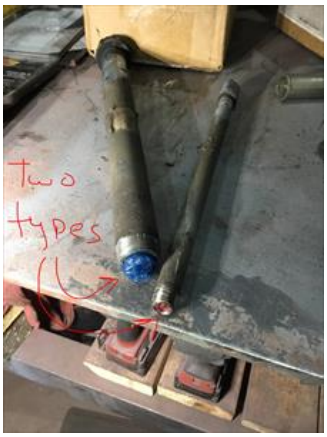


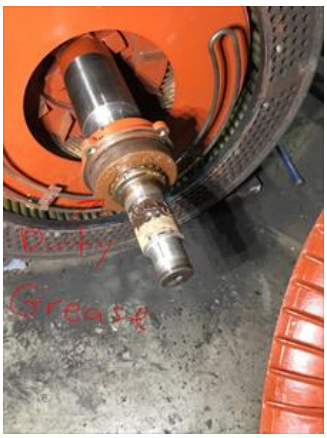












Mechanical Fits- Rotor - Post Repair

90.	Shaft Runout Post Repair		
91.	Rotor Runout Post Repair		
	Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing
92.	Coupling Fit Closest to Bearing Housing Post Repair		
	0 Degrees	90 Degrees	120 Degrees
93.	Coupling Fit Closest to the end of the Shaft Post Repair		
	0 Degrees	60 Degrees	120 Degrees

94.	Drive End Bearing Shaft Fit Post Repair		
	0 Degrees	60 Degrees	120 Degrees
95.	Opposite Drive End Bearing Shaft Fit Post Repair		
	0 Degrees	60 Degrees	120 Degrees
96.	Shaft Air Seal Fits Post Repair		
	Drive End Air Seal	Opposite Drive End Air Seal	
97.	Shaft Repair Sign-off		

Mechanical Fits- Bearing Housings - Post Repair

98.	Drive End - Endbell Bearing Fit Post Repair		
	0 Degrees	60 Degrees	120 Degrees
99.	Opposite Drive End - Endbell Bearing Fit Post Repair		
	0 Degrees	60 Degrees	120 Degrees
100.	Bearing Cap Condition Post Repair		
	Drive End Bearing Cap	Opposite Drive End Bearing Cap	
101.	End Bell Air Seal Fits Post Repair		
	Drive End Air Seal	Opposite Drive End Air Seal	
102.	DE Sleeve Bearing Inside ID Post Repair		
	Measure 1	Measure 2	Measure 3
103.	DE Sleeve Bearing Outside ID Post Repair		
	Measure 1	Measure 2	Measure 3
104.	DE Sleeve Bearing Inside OD Post Repair		
	Measure 1	Measure 2	Measure 3
105.	DE Sleeve Bearing Outside OD Post Repair		
	Measure 1	Measure 2	Measure 3
106.	End Bell Repair Sign-off		
107.	ODE Sleeve Bearing Inside ID Post Repair		
	Measure 1	Measure 2	Measure 3
108.	ODE Sleeve Bearing Outside ID Post Repair		
	Measure 1	Measure 2	Measure 3
109.	ODE Sleeve Bearing Inside OD Post Repair		
	Measure 1	Measure 2	Measure 3

110.	ODE Sleeve Bearing Outside OD Post Repair		
	Measure 1	Measure 2	Measure 3

Assembly

111.	QC Check All Parts for Cleanliness Prior to Assembly		
112.	Photograph All Major Components prior to assembly		
113.	Final Insulation Resistance Test		
114.	Assembled Shaft Endplay		
115.	Assembled Shaft Runout		
116.	Test Run Voltage		
	Volts	Volts	Volts
117.	Test Run Amperage		
	Amps	Amps	Amps
118.	Drive End Vibration Readings - Inches Per Second		
	Horizontal	Vertical	Axial
119.	Opposite Drive End Vibration Readings - Inches Per Second		
	Horizontal	Vertical	Axial
120.	Ambient Temperature - Fahrenheit		
121.	Drive End Bearing Temps - Fahrenheit		
	5 Minutes	10 Minutes	15 Minutes
122.	Drive End Bearing Temps - Fahrenheit 20-30 Minutes		
	20 Minutes	25 Minutes	30 Minutes
123.	Drive End Bearing Temps - Fahrenheit 35-45 Minutes		
	35 Minutes	40 Minutes	45 Minutes
124.	Drive End Bearing Temps - Fahrenheit 50-60 Minutes		
	50 Minutes	55 Minutes	60 Minutes
125.	Opposite Drive End Bearing Temps - Fahrenheit		
	5 Minutes	10 Minutes	15 Minutes
126.	Opposite Drive End Bearing Temps - Fahrenheit 20-30 Minutes		
	20 Minutes	25 Minutes	30 Minutes
127.	Opposite Drive End Bearing Temps - Fahrenheit 35-45 Minutes		
	35 Minutes	40 Minutes	45 Minutes
128.	Opposite Drive End Bearing Temps - Fahrenheit 50-60 Minutes		
	50 Minutes	55 Minutes	60 Minutes

129.	Stator Temperatures- Fahrenheit		
	5 Minutes	10 Minutes	15 Minutes
130.	Stator Temperatures- Fahrenheit 20-30 Minutes		
	20 Minutes	25 Minutes	30 Minutes
131.	Stator Temperatures- Fahrenheit 35-45 Minutes		
	35 Minutes	40 Minutes	45 Minutes
132.	Stator Temperatures- Fahrenheit 50-60 Minutes		
	50 Minutes	55 Minutes	60 Minutes
133.	Document Final Condition with Pictures after paint		
134.	Final Pics and QC Review		