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

AC Inspection as Found

Flywheel Energy (12096)
1408 Hwy 124 E
Damascus,, AR 72039

FolderID: 101444
FormID: 16924427

AC Inspection - Rev. 2

Location:	MOTOR SHOP LR
Serial Number:	YYH613A306 020
Description:	20HP TECO 1800RPM 256T

Hi-Speed Job Number:	101444
Manufacturer:	TECO Westinghouse
Product Number:	NP0204
Serial Number:	YYH613A306 020
HP/kW:	20 (HP)
RPM:	1760 (RPM)
Frame:	256T
Voltage:	230 / 460
Current:	46/23
Phase:	Three
Hz:	60 (Hz)
Service Factor:	1.15
Enclosure:	TEFC
J-box Included:	Half
Coupling/Sheave:	None
Bearing RTDs:	No
Stator RTDs:	No
Repair Stage:	Final
Heaters:	No
Winding Type :	Random Wound
Bearing Type:	Rolling Element

Priorities Found: **2 - 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

Serviceable

Initial Mechanical/Electrical

●	5.	Does Shaft Turn Freely?	**(Yes) Yes**	
	6.	Does Shaft Have Visible Damage?	**(No) No**	P20

	7.	Assembled Shaft Runout		
	8.	Assembled Shaft End Play		
	9.	Air Gap Variation <10%		
●	10.	Lead Condition	**(P) Pass**	P55

	11.	Lead Length	**7 Inches**	
	12.	Frame Condition	**pass**	

13.	Fan Condition	**(P) Pass**	P93

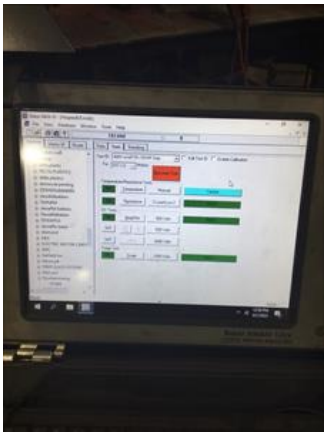
14.	Broken or Missing Components	

Initial Electrical Inspection

15.	Insulation Resistance/Megger	
16.	Winding Resistance	

1-2	1-3	2-3

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



18.	Number of Stator Slots	
19.	Stator Condition	**pass**
20.	Stator Thermistors/Ohms	
21.	Stator Overloads/Ohms	

Mechanical Inspection

22.	Drive End Bearing Brand	**Fag**

23.	Drive End Bearing Number-	**6309**	P32

24.	Drive End Bearing Qty.	**1**
25.	Drive End Bearing Type	**(Ball) Ball Bearing**
26.	Drive End Lubrication Type	**(Grease) Grease Lubricated**
27.	Drive End Bearing Insulation or Grounding Device?	**none**
28.	Drive End Wavy Washer/Snap-Ring Other Retention Device?	**none**
29.	Drive End Bearing Condition	**replace**
30.	Opposite Drive End Bearing Brand	
31.	Opposite Drive End Bearing Number-	**6307** P88

32.	Opposite Drive End Bearing Qty.	**1**
33.	Opposite Drive End Bearing Type	**(Ball) Ball Bearing**
34.	Opposite Drive End Lubrication Type	**(Grease) Grease Lubricated**
35.	Opposite Drive End Bearing Insulation or Grounding Device?	**none**
36.	Opposite Drive End Wavy Washer/Snap-Ring Other Retention Device?	**wavy washer**
37.	Opposite Drive End Bearing Condition	**replace**
38.	Drive End Seal	P100

39.	Opposite Drive End Seal		

Rotor Inspection

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

41.	Growler Test	
42.	Number of Rotor Bars	
43.	Rotor Condition	**pass**
44.	List the Parts needed for the Repair Below	
45.	Signature of Technician that Disassembled Motor	**Terrence Holland**

Mechanical Fits- Rotor

46.	Shaft Runout		**0.001 inches**
47.	Rotor Runout		

Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing

48.	Coupling Fit Closest to Bearing Housing	

0 Degrees	90 Degrees	120 Degrees

49.	Coupling Fit Closest to the end of the Shaft			
	0 Degrees	60 Degrees	120 Degrees	
50.	Drive End Bearing Shaft Fit			
	0 Degrees	60 Degrees	120 Degrees	
	1.7717	**1.7717**	**1.7717**	
51.	Drive End Bearing Shaft Fit Condition			**(P) Pass**
52.	Opposite Drive End Bearing Shaft Fit			
	0 Degrees	60 Degrees	120 Degrees	
	1.378	**1.378**	**1.378**	
53.	Opposite Drive End Bearing Shaft Fit Condition			**(P) Pass**
54.	Shaft Air Seal Fits			
	Drive End Air Seal	Opposite Drive End Air Seal		

Mechanical Fits- Bearing Housings

55.	Drive End - Endbell Bearing Fit			
	0 Degrees	60 Degrees	120 Degrees	
	3.9412	**3.9413**	**3.9412**	
56.	Drive End - Endbell Bearing Fit Condition			**(F) Fail**
	Oversized			
57.	Opposite Drive End - Endbell Bearing Fit			
	0 Degrees	60 Degrees	120 Degrees	
	Bad: lip worn in.			
58.	Opposite Drive End - Endbell Bearing Fit Condition			**(F) Fail**
59.	Bearing Cap Condition			
	Drive End Bearing Cap	Opposite Drive End Bearing Cap		
60.	End Bell Air Seal Fits			
	Drive End Air Seal	Opposite Drive End Air Seal		
61.	List Machine Work Needed Below			
	Sleeve both housing fits			
62.	Technician			**Terrence Holland**

Dynamic Balance Report

63.	Rotor Weight and Balance Grade		
	Rotor Weight	Balance Grade	
64.	Initial Balance Readings		
	Drive End	Opposite Drive End	

65. Final Balance Readings

Drive End	Opposite Drive End

66. Technician

Rewind

67. Core Test Results - Watts loss per Pound

Pre-Burnout	Post Burnout

68. Core Hot Spot Test

Pre-Burnout	Post-Burnout

69. Post Rewind Electrical Test- Insulation Resistance

70. Post Rewind Polarization Index

71. Post Rewind Winding Resistance

1-2	1-3	2-3

72. Post Rewind Surge Test

73. Post Rewind Hi-Pot

74. Technician

Root Cause of Failure

75. Failure locations

76. Root cause of failure

Housing fits bad & contaminated grease.

Mechanical Fits- Rotor - Post Repair

77. Shaft Runout Post Repair

78. Rotor Runout Post Repair

Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing

79. Coupling Fit Closest to Bearing Housing Post Repair

0 Degrees	90 Degrees	120 Degrees

80. Coupling Fit Closest to the end of the Shaft Post Repair

0 Degrees	60 Degrees	120 Degrees

81. Drive End Bearing Shaft Fit Post Repair

0 Degrees	60 Degrees	120 Degrees

82. Opposite Drive End Bearing Shaft Fit Post Repair

0 Degrees	60 Degrees	120 Degrees

83. Shaft Air Seal Fits Post Repair

Drive End Air Seal	Opposite Drive End Air Seal

84. Shaft Repair Sign-off

Mechanical Fits- Bearing Housings - Post Repair

85.	Drive End - Endbell Bearing Fit Post Repair		
	0 Degrees	60 Degrees	120 Degrees
86.	Opposite Drive End - Endbell Bearing Fit Post Repair		
	0 Degrees	60 Degrees	120 Degrees
87.	Bearing Cap Condition Post Repair		
	Drive End Bearing Cap	Opposite Drive End Bearing Cap	
88.	End Bell Air Seal Fits Post Repair		
	Drive End Air Seal	Opposite Drive End Air Seal	
89.	End Bell Repair Sign-off		
Assembly			
90.	QC Check All Parts for Cleanliness Prior to Assembly		
91.	Photograph All Major Components prior to assembly		
92.	Final Insulation Resistance Test		
93.	Assembled Shaft Endplay		
94.	Assembled Shaft Runout		
95.	Test Run Voltage		
	Volts	Volts	Volts
96.	Test Run Amperage		
	Amps	Amps	Amps
97.	Drive End Vibration Readings - Inches Per Second		
	Horizontal	Vertical	Axial
98.	Opposite Drive End Vibration Readings - Inches Per Second		
	Horizontal	Vertical	Axial
99.	Ambient Temperature - Fahrenheit		
100.	Drive End Bearing Temps - Fahrenheit		
	5 Minutes	10 Minutes	15 Minutes
101.	Opposite Drive End Bearing Temps - Fahrenheit		
	5 Minutes	10 Minutes	15 Minutes
102.	Document Final Condition with Pictures after paint		
103.	Final Pics and QC Review		