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

AC Inspection as Found

ARKANSAS INDUSTRIAL MACHINERY
3804 N. NONA ST
NORTH LITTLE ROCK, AR 72118

FolderID: 103442
FormID: 21428152

AC Inspection - Rev. 2

Location:	Shop
Serial Number:	68690303J
Description:	184/245 MARATHON

Hi-Speed Job Number:	103442
Manufacturer:	Marathon
Product Number:	TYPE: HK-315M-4
Serial Number:	68690303J
HP/kW:	184 (HP)
RPM:	1780 (RPM)
Frame:	315M
Voltage:	460
Current:	276 (Amps)
Phase:	Three
Hz:	60 (Hz)
Service Factor:	1.00
Enclosure:	TEFC
# of Leads:	6
J-box Included:	Half
Coupling/Sheave:	None
Date Received:	08/28/2024
Bearing RTDs:	No
Stator RTDs:	No
Repair Stage:	Final
Rewind:	No
Shaft Machined Fit Repairs Required:	No
Bearing Housing Machined Fit Repairs Required:	Yes
Heaters:	No
Winding Type :	Random Wound
Bearing Type:	Rolling Element

Priorities Found: **2 - High** **16 - Good**

Overall Condition

1.	Report Date	**08/27/2024**

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.	Report Date [COPY]	**08/27/2024**	
Initial Mechanical/Electrical				
🟢	6.	Does Shaft Turn Freely?	**(Y) Yes**	
🟢	7.	Does the shaft require T.I.R in Lathe to identify additional repairs?	**(No) No**	
	8.	Does Shaft Have Visible Damage?	**(No) No**	P26

🔴	9.	Assembled Shaft Runout	**0.001 Inches**	
	10.	Assembled Shaft End Play	**0 inches**	
🟢	11.	Air Gap Variation <10%		
🟢	12.	Lead Condition	**(P) Pass**	

13.	Lead Length	**96 Inches**	
14.	Does it have Lugs?, If so what is the Stud Size?	**(Yes) Yes**	P94

15.	Lead Numbers		P98

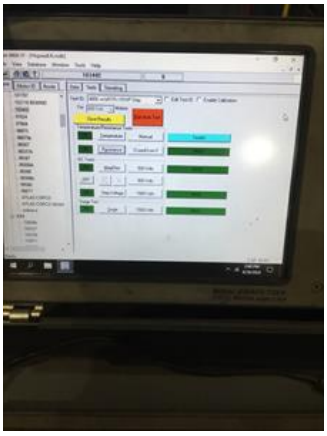
U1-V1-W1
U2-V2-W2

16.	Frame Condition	**pass**	
17.	Fan Condition	**(P) Pass**	P116

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

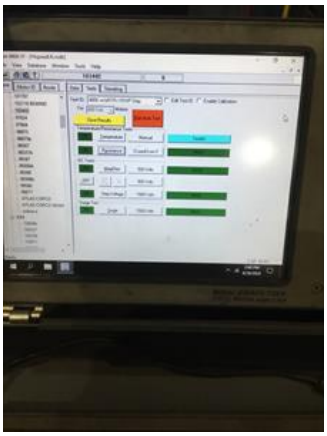
Initial Electrical Inspection

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

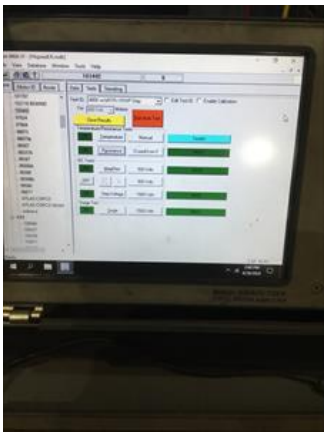


20.	Winding Resistance		P20

1-2	1-3	2-3



21.	Perform Surge Test	**(P) Pass**	
22.	Number of Stator Slots	**72**	
23.	Stator Condition	**pass**	
24.	Stator Thermistors/Ohms		
25.	Stator Overloads/Ohms		P97



Mechanical Inspection

26.	Drive End Bearing Brand	**SKF**	P12

27.	Drive End Bearing Number-	**6319 C3**	P32

28.	Drive End Bearing Qty.	**1**	
29.	Drive End Bearing Type	**(Ball) Ball Bearing**	P51

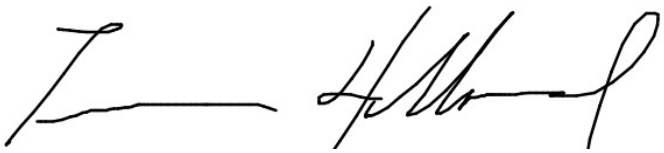
30.	Drive End Lubrication Type	**(Grease) Grease Lubricated**
31.	Drive End Bearing Insulation or Grounding Device?	**none**
32.	Drive End Wavy Washer/Snap-Ring Other Retention Device?	**none**
33.	Drive End Bearing Condition	**replace**
34.	Opposite Drive End Bearing Brand	P93

35.	Opposite Drive End Bearing Number-	P100

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?	**snap ring**
41.	Opposite Drive End Bearing Condition	**replace**
42.	Drive End Seal	
43.	Opposite Drive End Seal	

Rotor Inspection

44.	Rotor Type/Material	**(Squirrel Aluminum) Squirrel Cage Aluminum Die Cast**
45.	Growler Test	**(Pass) Pass**
46.	Number of Rotor Bars	**62**
47.	Rotor Condition	**pass**
48.	List the Parts needed for the Repair Below ***Sleeve ODE housing fit***	
49.	Signature of Technician that Disassembled Motor	**Terrence Holland**



Mechanical Fits- Rotor

50.	Shaft Runout			**0.001 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	
	3.15	**3.1501**	**3.1501**	
53.	Coupling Fit Closest to the end of the Shaft			
	0 Degrees	60 Degrees	120 Degrees	
	3.1501	**3.15**	**3.1501**	
54.	Drive End Bearing Shaft Fit			
	0 Degrees	60 Degrees	120 Degrees	
	3.7407	**3.7406**	**3.7407**	
55.	Drive End Bearing Shaft Fit Condition			**(P) Pass**
56.	Opposite Drive End Bearing Shaft Fit			
	0 Degrees	60 Degrees	120 Degrees	
	3.7409	**3.741**	**3.7409**	
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			
	0 Degrees	60 Degrees	120 Degrees	
	7.8746	**7.8748**		
60.	Drive End - Endbell Bearing Fit Condition			**(P) Pass**
61.	Opposite Drive End - Endbell Bearing Fit			
	0 Degrees	60 Degrees	120 Degrees	
	7.8745	**7.8756**	**7.8752**	
	Verified by machinist.			
62.	Opposite Drive End - Endbell Bearing Fit Condition			**(F) Fail**
	Oval shape. Verified by machinist.			
63.	Bearing Cap Condition			
	Drive End Bearing Cap	Opposite Drive End Bearing Cap		
	pass	**pass**		
64.	End Bell Air Seal Fits			
	Drive End Air Seal	Opposite Drive End Air Seal		
65.	List Machine Work Needed Below			
	ODE housing fit			

66. Technician **Terrence Holland**

Co sign: CRW

Root Cause of Failure

67. Failure locations

ODE housing fit.

68. Root cause of failure P18

Contaminated/hardened grease in both bearings. ODE housing fit out of tolerance. DE bearing shows signs of frosting. Recommend aegis shaft grounding ring.

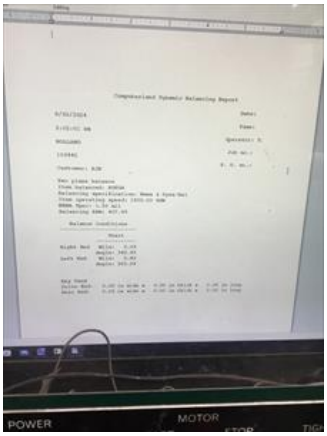
Dynamic Balance Report

69. Rotor Weight and Balance Grade

Rotor Weight	Balance Grade

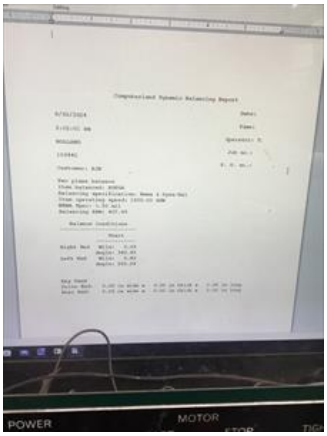
70. Initial Balance Readings P11

Drive End	Opposite Drive End



71. Final Balance Readings P27

Drive End	Opposite Drive End



72. Technician **Terrence Holland**

Mechanical Fits- Bearing Housings - Post Repair

73. Drive End - Endbell Bearing Fit Post Repair

0 Degrees	60 Degrees	120 Degrees

74. Opposite Drive End - Endbell Bearing Fit Post Repair

0 Degrees	60 Degrees	120 Degrees

75. Bearing Cap Condition Post Repair

Drive End Bearing Cap	Opposite Drive End Bearing Cap

76. End Bell Air Seal Fits Post Repair

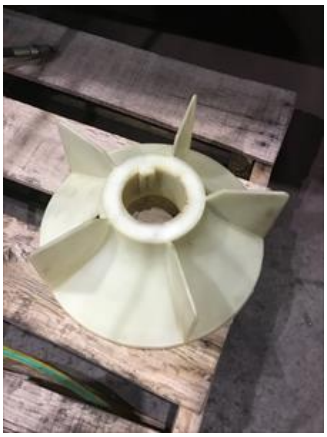
Drive End Air Seal	Opposite Drive End Air Seal

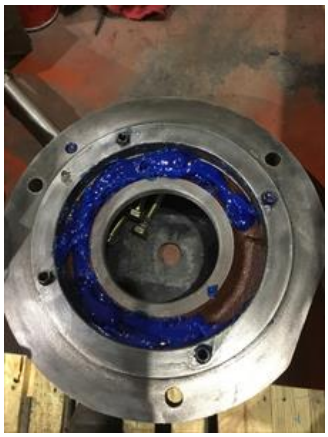
77. End Bell Repair Sign-off

Assembly

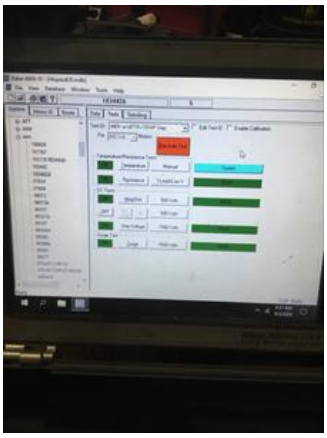
78. QC Check All Parts for Cleanliness Prior to Assembly **Terrence Holland**

79. Photograph All Major Components prior to assembly P17





80.	Final Insulation Resistance Test	**Megohms**	P31



	81.	Assembled Shaft Endplay		**0 inches**	
	82.	Assembled Shaft Runout		**0.001 inches**	
	83.	Test Run Voltage			P56
		Volts	Volts	Volts	
		456	**455**	**458**	

	84.	Test Run Amperage			
		Amps	Amps	Amps	
		73.8	**67.8**	**68.8**	
	85.	Drive End Vibration Readings - Inches Per Second			
		Horizontal	Vertical	Axial	
		0.02	**0.04**	**0.01**	
	86.	Opposite Drive End Vibration Readings - Inches Per Second			
		Horizontal	Vertical	Axial	
		0.02	**0.02**	**0.01**	
	87.	Ambient Temperature - Fahrenheit			
	88.	Drive End Bearing Temps - Fahrenheit			
		5 Minutes	10 Minutes	15 Minutes	
	89.	Opposite Drive End Bearing Temps - Fahrenheit			
		5 Minutes	10 Minutes	15 Minutes	
	90.	Document Final Condition with Pictures after paint		**See below**	
	91.	Final Pics and QC Review		**Terrence Holland**	P132

Witness: CW