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

AC Inspection as Found

MIDDLETON INCORPORATED
P.O. BOX 506
BRYANT, AR 72089

FolderID: 103911
FormID: 22680996

AC Inspection - Rev. 2

Location:	MOTOR SHOP LR
Serial Number:	0913023
Description:	1.5KW

Hi-Speed Job Number:	103911
Manufacturer:	Other
Product Number:	TYPE: IE2-90S-2
Serial Number:	0913023
HP/kW:	1.5 (kW)
RPM:	3485 (RPM)
Voltage:	230 / 460
Current:	5.52 / 2.76 (Amps)
Phase:	Three
Hz:	60 (Hz)
Enclosure:	TEFC
# of Leads:	9
J-box Included:	Complete
Coupling/Sheave:	Propeller
Date Received:	12/23/2024
Bearing RTDs:	No
Stator RTDs:	No
Repair Stage:	Final
Rewind:	Yes
Shaft Machined Fit Repairs Required:	No
Bearing Housing Machined Fit Repairs Required:	No
Heaters:	No
Winding Type :	Random Wound
Bearing Type:	Rolling Element

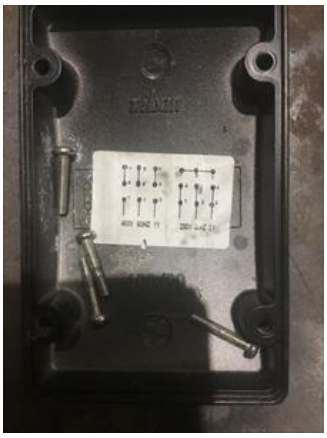
Priorities Found: **2 - High** **9 - Good**

Overall Condition

1.	Report Date	**12/23/2024**

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.	Distance from the end of the shaft to the Coupling/Sheave	**inches**	P76

Initial Mechanical/Electrical

🟢	6.	Does Shaft Turn Freely?	**(Y) Yes**	
	7.	Does the shaft require T.I.R in Lathe to identify additional repairs?		
	8.	Does Shaft Have Visible Damage?	**(No) No**	
🔴	9.	Assembled Shaft Runout	**0.002 Inches**	
	10.	Assembled Shaft End Play	**0 inches**	
	11.	Air Gap Variation <10%		
🟢	12.	Lead Condition	**(P) Pass**	P69

	13.	Lead Length	**8 Inches**	
🟢	14.	Does it have Lugs?, If so what is the Stud Size?	**(Yes) Yes**	
	15.	Lead Numbers	**1-9**	
	16.	Frame Condition	**pass**	

17.	Fan Condition	**(P) Pass**	P115

18.	Broken or Missing Components	**none**

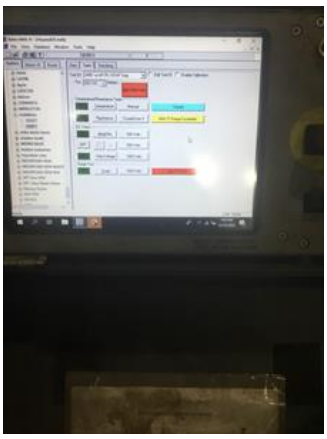
Initial Electrical Inspection

19.	Insulation Resistance/Megger	**25.48 Gigohms**	P8

20. Winding Resistance

1-2	1-3	2-3
0	**10.4**	**0**

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



22.	Number of Stator Slots	**24**
23.	Stator Condition	**rewind**
24.	Stator Thermistors/Ohms	

25.	Stator Overloads/Ohms		

Mechanical Inspection

26.	Drive End Bearing Brand		P12

27.	Drive End Bearing Number-	**6305Z**	
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?		
32.	Drive End Wavy Washer/Snap-Ring Other Retention Device?	**snap ring**	
33.	Drive End Bearing Condition	**fail/rusted**	P82

34.	Opposite Drive End Bearing Brand	**NSK**	P92

35.	Opposite Drive End Bearing Number-	**6205**	
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**	
41.	Opposite Drive End Bearing Condition	**fail / rusted**	P118

42. Drive End Seal P120

43. Opposite Drive End Seal P123

Rotor Inspection

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

45.	Growler Test	**(Pass) Pass**
46.	Number of Rotor Bars	**20**
47.	Rotor Condition	**pass**
48.	List the Parts needed for the Repair Below ***6205 & 6305 2Z bearings.*** ***Rewind stator.***	
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
0.9845	**0.9845**	**0.9845**

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

56. Opposite Drive End Bearing Shaft Fit

0 Degrees	60 Degrees	120 Degrees
0.09846000000000001	**0.9844000000000001**	**0.9844000000000001**

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
2.4413	**2.4415**	**2.4413**

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

61. Opposite Drive End - Endbell Bearing Fit

0 Degrees	60 Degrees	120 Degrees
2.048	**2.0478**	**2.048**

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

63. Bearing Cap Condition

Drive End Bearing Cap	Opposite Drive End Bearing Cap

64. End Bell Air Seal Fits

Drive End Air Seal	Opposite Drive End Air Seal

65. List Machine Work Needed Below

None

66. Technician **Terrence. Holland**

Co sign RRW

Root Cause of Failure

67. Failure locations

Windings / bearings.

68. Root cause of failure

Stator windings soaked with water caused motor windings to fail.

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	**Megohms**
76.	Post Rewind Polarization Index	**Polarization Index**
77.	Post Rewind Winding Resistance	

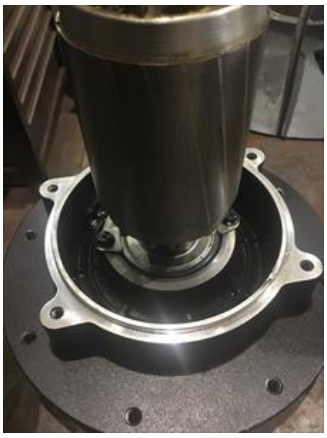
1-2	1-3	2-3

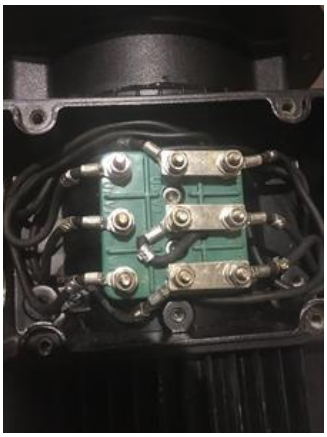
78.	Post Rewind Surge Test	
79.	Post Rewind Hi-Pot	**micro-amps**
80.	Technician	

Assembly

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

82. Photograph All Major Components prior to assembly P17





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

84.	Assembled Shaft Endplay		**0 inches**	
85.	Assembled Shaft Runout		**0.002 inches**	
86.	Test Run Voltage			P56
	Volts	Volts	Volts	
	460	**458**	**461**	

87.	Test Run Amperage		
	Amps	Amps	Amps
	1.3	**1.2**	**1.3**
88.	Drive End Vibration Readings - Inches Per Second		
	Horizontal	Vertical	Axial
89.	Opposite Drive End Vibration Readings - Inches Per Second		
	Horizontal	Vertical	Axial
90.	Ambient Temperature - Fahrenheit		
91.	Drive End Bearing Temps - Fahrenheit		
	5 Minutes	10 Minutes	15 Minutes
92.	Opposite Drive End Bearing Temps - Fahrenheit		
	5 Minutes	10 Minutes	15 Minutes
93.	Document Final Condition with Pictures after paint		
	See below		

Co sign: