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

DC Repair Report

Arkansas Box
100 William J Clark Drive
Conway, AR 72032

FolderID: 102301
FormID: 18961406

DC Repair Report Rev. 2

Location:	MOTOR SHOP LR
Job Number:	102301
Serial Number:	44596-AL
Status:	In For Repair
Description:	30HP ELECTROSTAT DC 2500RPM 327AT

Hi-Speed Job Number:	102301
Manufacturer:	Other
Product Number :	32700350013
Serial Number:	44596-AL
HP/KW:	30 (HP)
RPM:	2500
Frame:	327AT
Armature Voltage:	500 (Volts)
Armature Current:	49 (Amps)
Field Voltage:	300 (Volts)
Field Current :	1.68 (Amps)
J-Box Included:	Yes
Bearing RTDS:	No
Winding RTDS:	No
Mounting Orientation :	Horizontal

Priorities Found: **1 - High** **9 - Good**

Overall Condition

1. Describe the Overall Condition of the Equipment as Received

   Serviceable

2. Nameplate Picture

P17

3. Distance From the End of the Shaft to the end of the Face of the Sheave/Coupling

Initial Mechanical/Electrical

4. Does the Shaft Turn Freely? **(Y) Yes**

●	5.	Does Shaft Have Visible Damage?	**(No) No**	P22

	6.	Assembled Shaft Runout	**0.001 Inches**	
	7.	Assembled Shaft End Play	**0 Inches**	
	8.	Air Gap Variation <10%		
●	9.	Lead Condition	**(P) Pass**	P55

	10.	Lead Length	**Inches**	
●	11.	Frame Condition	**(P) Pass**	
●	12.	Fan Condition	**(P) Pass**	P81

Front fan.

13. Brush Information P87

Brush Number	Quantity	Condition
	4	**replace**

14. Brush Holder Condition - Verify proper gap to Commutator P92

Incoming Electrical Test

15. General Condition of the Armature/Commutator **worn un-evenly** P6

16. Armature Insulation Resistance to Ground **Megohms** P19

97.8 G ohms

17. Field Circuit Insulation Resistance to Ground

18. Interpole Circuit Insulation Resistance to Ground

19. Total Field Ohms P60

20. Field Ohms

Between F1/F2	Between F3/F4
127.5	**127.5**

F1&F4. F2&F3

21. MegOhms between Fields and Series

22. Series Drop Test 1&2

Series 1	Series 2

23. Series Drop Test 3&4

Series 3	Series 4

24. Field Drop Test Fields 1&2

Total AC Voltage	Field #1	Field #2
115	**0.42**	**0.424**

25. Field Drop Test Fields 3&4

Field #3	FIeld #4

26.	Field Drop Test Fields 5&6		
	Field #5	FIeld #6	
27.	Field Drop Test Fields 7&8		
	Field #7	FIeld #8	
28.	Interpole Drop Test 1&2		
	Total AC Voltage	Interpole #1	Interpole #2
		1.97	**1.97**
29.	Interpole Drop Test 3&4		
	Interpole #3	Interpole #4	
30.	Interpole Drop Test 5&6		
	Interpole #5	Interpole #6	
31.	Interpole Drop Test 7&8		
	Interpole #7	Interpole #8	
32.	Armature Number of Bars - Bar to Bar Test		
	Number of Bars	Bar to Bar Test	
	120	**pass?**	

Used growler to test bar to bar. Shorted several bars together, and armature pulled.

Mechanical Inspection

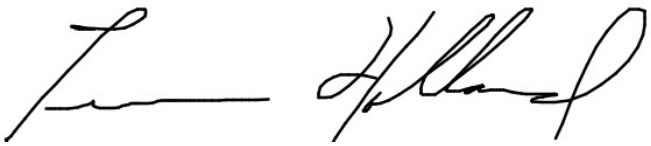
33.	Shaft Runout Drive End	**0.001 inches**
34.	Shaft Runout Armature	
	Drive End Bearing Journal / Armature Core / ODE Bearing Journal	
35.	Drive End Bearing Number	**NTN 63211 LB** P28

36.	Drive End Bearing Quantity	**1**
37.	Drive End Bearing Type	**(Ball) Ball Bearing**
38.	Drive End Lubrication Type	**(Grease) Grease Lubricated**
39.	Drive End Bearing Insulation or Grounding Device?	**(NA)**
40.	Drive End Wavy Washer/Snap-Ring Other Retention Device?	**none**
41.	Drive End Bearing Condition	**replace**

42.	Opposite Drive End Bearing Number	**Fafnir W210PPC1 FS5000**

Caused by grease contamination.

43.	Opposite Drive End Bearing Quantity	**1**
44.	Opposite Drive End Bearing Type	**(Ball) Ball Bearing**
45.	Opposite Drive End Lubrication Type	**(Grease) Grease Lubricated**
46.	Opposite Drive End Bearing Insulation or Grounding Device?	
	None	
47.	Opposite Drive End Wavy Washer/Snap-Ring Other Retention Device?	**none**
48.	Opposite Drive End Bearing Condition	**replace**
49.	Signature of Technician who Performed Teardown	**Terrence Holland**



50.	List Parts Needed Prior to Reassembly
	Bearings, sleeve D.E housing fit.

Mechanical Fits - Armature

51.	Coupling Fit Closest to Bearing Housing		
	0 Degrees	60 degrees	120 degrees
52.	Coupling Fit Closest to the End of the Shaft		
	0 Degrees	60 degrees	120 degrees
53.	Drive End Bearing Shaft Fit		
	0 Degrees	60 Degrees	120 Degrees
	2.1656	**2.1654**	**2.1655**

54. Drive End Bearing Shaft Fit Condition **(P) Pass** P40

55. Opposite Drive End Bearing Shaft Fit

0 Degrees	60 Degrees	120 Degrees
1.9686	**1.9685**	**1.9687**

56. Opposite Drive End Bearing Shaft Fit Condition **(P) Pass** P53

57. Shaft Air Seal Fits

Drive End Air Seal	Opposite Drive End Air Seal

Mechanical Fits- Bearing Housings

58.	Drive End - End Bell Bearing Fit			P9
	0 Degrees	60 Degrees	120 Degrees	
	3.5445	**3.5446**	**3.5446**	

59.	Drive End - Endbell Bearing Fit Condition	**(F) Fail**	P18

Excessive pitting and wear.

60.	Opposite Drive End - End Bell Bearing Fit			
	0 Degrees	60 Degrees	120 Degrees	
	3.5436	**3.5434**	**3.5435**	
61.	Opposite Drive End - Endbell Bearing Fit Condition		**(NA) Not Applicable**	
62.	Bearing Cap Condition			
	Drive End	Opposite Drive End		
63.	End Bell Air Seal Fits			
	Drive End Air Seal	Opposite Drive End Air Seal		
64.	List any Machine work Needed Below		**D.E housing fit bad**	
65.	Signature of Technician Performing Measurements		**Terrence Holland**	

Root Cause of Failure

66. Failure Locations

Both bearings worn from grease contamination. D.E housing fit pitted possibly from minute electrical discharge. Comm is unevenly worn and needs undercut and turned.

67. Root Cause of Failure

Housing fit pitted from electrical discharges and bearing has frosting. Recommend Aegis ring combined with insulation of end bell housing or insulated bearing.

Commutator Data

68. Total Copper Segment Length

69. Number of Bars

70. Number of Wires Per Copper Bar and Size

Number of Wires per Bar	Wire Size

71. Equalizers per Copper Bar and Equalizer Wire Size

Equalizers per Bar	Wire Size

72. Document Commutator Diameter, Minimum and Max

Current Comm Diameter	Minimum Comm Diameter	Maximum Comm Diameter

73. Commutator Shaft Diameter

Front Shaft Diameter	Back Shaft Diameter

74. Commutator Type

75. Commutator Bore

76. Signature of Technician Recording Data

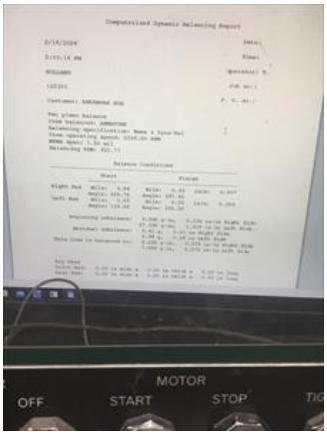
Dynamic Balance Report

77. Rotor Weight and Balance Grade

Rotor Weight	Balance Grade

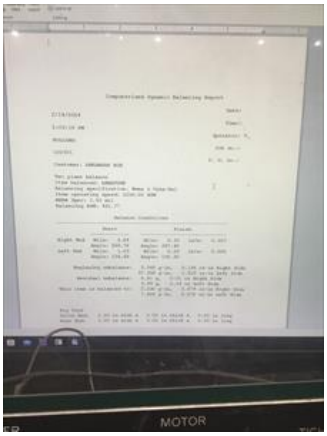
78. Initial Balance Readings P16

Drive End Readings	Opposite Drive End Readings



79. Final Balance Readings

Drive End Readings	Opposite Drive End Readings



80. Signature of the Balance Technician **Terrence Holland**

Post Armature Rewind Testing

81. Post Rewind Armature Insulation Resistance to Ground

82. Post Rewind Field Circuit Measure the Insulation Resistance to Ground

83. Post Rewind Armature Number of Bars - Bar to Bar Test

Number of Bars	Bar to Bar Test

84. Post Rewind Field Circuit Insulation Resistance to Ground

85. Post Rewind Interpole Circuit Insulation Resistance to Ground

86. Post Rewind Field Drop Test Fields 1&2

Total AC Voltage	Field #1	Field #2

87. Post Rewind Field Drop Test Fields 3&4

Field #3	FIeld #4

88. Post Rewind Field Drop Test Fields 5&6

Field #5	FIeld #6

89. Post Rewind Field Drop Test Fields 7&8

Field #7	FIeld #8

90. Post Rewind Interpole Drop Test 1&2

Total AC Voltage	Interpole #1	Interpole #2

91. Post Rewind Interpole Drop Test 3&4

Interpole #3	Interpole #4

92. Post Rewind Interpole Drop Test 5&6

Interpole #5	Interpole #6

93. Post Rewind Interpole Drop Test 7&8

Interpole #7	Interpole #8

Post Mechanical Repair

94. Post Repair Coupling Fit Closest to Bearing Housing

0 Degrees	60 degrees	120 degrees

95. Post Repair Coupling Fit Closest to the End of the Shaft

0 Degrees	60 degrees	120 degrees

96. Post Repair Drive End Bearing Shaft Fit

0 Degrees	60 Degrees	120 Degrees

97. Post Repair Drive End Bearing Shaft Fit Condition

98. Post Repair Drive End Opposite Drive End Bearing Shaft Fit

0 Degrees	60 Degrees	120 Degrees

99. Post Repair Drive End Opposite Drive End Bearing Shaft Fit Condition

100. Post Repair Drive End - End Bell Bearing Fit

0 Degrees	60 Degrees	120 Degrees

101. Post Repair Drive End - Endbell Bearing Fit Condition

102. Post Repair Opposite Drive End - End Bell Bearing Fit

0 Degrees	60 Degrees	120 Degrees

103. Post Repair Opposite Drive End - Endbell Bearing Fit Condition **(P) Pass** P84

3.9373 3.9373 3.9373

104. Post Repair Bearing Cap Condition

Drive End	Opposite Drive End

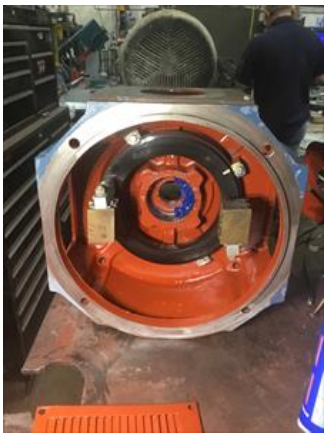
105. Post Repair End Bell Air Seal Fits

Drive End Air Seal	Opposite Drive End Air Seal

106. Signature of Tech Performing Mechanical Repairs **Gary**

Assembly

107. Take Pictures of all Major Components Prior to Reassembly P7



108.	Verify Brush Box Holders Have the Proper Clearance, and Brushes have been Seated Properly	**(P) Pass**	

109. Assembled Shaft End Play and Runout

Shaft Endplay	Shaft Runout

110. Perform No-Load Test Run, Record Armature Voltage and Current P43

Voltage	Current

111. Perform No-Load Test Run, Record Field Voltage and Current P58

Voltage	Current

112. Document Vibration Readings Drive End

Horizontal	Vertical	Axial
.03	**.02**	**.01**

113. Document Vibration Readings Opposite Drive End

Horizontal	Vertical	Axial
.03	**.02**	**.03**

114. Perform Full-Load Test Run, Record Armature Voltage and Current

Voltage	Current

115. Perform Full-Load Test Run, Record Field Voltage and Current

Voltage	Current

116. Document Vibration Readings Under Full Load Drive End

Horizontal	Vertical	Axial

117. Document Vibration Readings Under Full Load Opposite Drive End

Horizontal	Vertical	Axial

118. Ambient Temperature **Fahrenheit**

119. Drive End Bearing Temps Under Full Load

5 Minutes	10 Minutes	15 Minutes

120. Opposite Drive End Bearing Temps Under Full Load

5 Minutes	10 Minutes	15 Minutes

121. Final Test Run Sign-Off **Terrence Holland**

RRW

122. Document Final Condition With Pictures P116

123. Final QC Sign-Off **Terrence Holland**

RRW