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: 102665
FormID: 19806452

DC Repair Report Rev. 2

Location:	MOTOR SHOP LR
Job Number:	102665
Description:	50 HP DC

Hi-Speed Job Number:	102665
Manufacturer:	Reliance
Serial Number:	01KSW06759H-ZH
HP/KW:	50 (HP)
RPM:	2100
Frame:	MC2512ATZ
Armature Voltage:	500 (Volts)
Armature Current:	86 (Amps)
Field Voltage:	300 (Volts)
Field Current :	1.9 (Amps)
J-Box Included:	Yes
Date Received:	03/19/2024
Bearing RTDS:	No
Winding RTDS:	No
Mounting Orientation :	Horizontal

Priorities Found: **9 - Good**

Overall Condition

1. Describe the Overall Condition of the Equipment as Received

   Tach shaft bent.

2. Nameplate Picture

P17

	3.	Distance From the End of the Shaft to the end of the Face of the Sheave/Coupling		
		Na		
Initial Mechanical/Electrical				
●	4.	Does the Shaft Turn Freely?	**(Y) Yes**	
●	5.	Does Shaft Have Visible Damage?	**(No) No**	
	6.	Assembled Shaft Runout	**0.001 Inches**	
	7.	Assembled Shaft End Play	**Inches**	
	8.	Air Gap Variation <10%		
●	9.	Lead Condition	**(P) Pass**	P55

	10.	Lead Length	**12 Inches**	
●	11.	Frame Condition	**(P) Pass**	
●	12.	Fan Condition	**(NA) Not Applicable**	

13. Brush Information P87

Brush Number	Quantity	Condition
0451AC	**4**	**replace**

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

Incoming Electrical Test

15. General Condition of the Armature/Commutator **Polish** P6

Polished commutator
Gary

16. Armature Insulation Resistance to Ground **3.585 Gigohms** P19

17. Field Circuit Insulation Resistance to Ground **14.43 Gigohms** P30

18. Interpole Circuit Insulation Resistance to Ground **3.44 Gigohms** P46

19. Total Field Ohms **85.90000000000001** P60

20. Field Ohms P70

Between F1/F2	Between F3/F4
44	**42.1**

21. MegOhms between Fields and Series P83

22. Series Drop Test 1&2

Series 1	Series 2

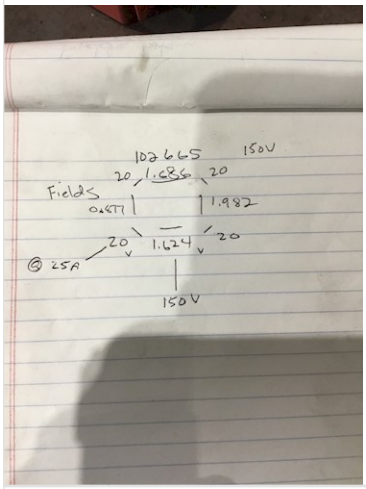
23. Series Drop Test 3&4

Series 3	Series 4

24.	Field Drop Test Fields 1&2		
	Total AC Voltage	Field #1	Field #2
	1.5	**1.624**	**0.877**
25.	Field Drop Test Fields 3&4		
	Field #3	FIeld #4	
	1.686	**1.982**	
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
		20	**20**

25 amps

29.	Interpole Drop Test 3&4		
	Interpole #3	Interpole #4	
	20	**20**	
30.	Interpole Drop Test 5&6		P119
	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	

Na

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	**6312 2RS**

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?	
	None	
40.	Drive End Wavy Washer/Snap-Ring Other Retention Device?	**wavy washer**
41.	Drive End Bearing Condition	**replace**
42.	Opposite Drive End Bearing Number	**6210**
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	
	Brushes, bearings, rewind, and recondition. Also need Aegis grounding ring and insulated bearing.	

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
	2.3622	**2.3621**	**2.3622**
54.	Drive End Bearing Shaft Fit Condition		**(P) Pass**
55.	Opposite Drive End Bearing Shaft Fit		
	0 Degrees	60 Degrees	120 Degrees
	1.9687	**1.9686**	**1.9687**
56.	Opposite Drive End Bearing Shaft Fit Condition		**(P) Pass**
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		
	0 Degrees	60 Degrees	120 Degrees
	5.1189	**5.1187**	**5.1189**
59.	Drive End - Endbell Bearing Fit Condition		**(P) Pass**

60. Opposite Drive End - End Bell Bearing Fit

0 Degrees	60 Degrees	120 Degrees
3.5442	**3.544**	**3.5440**

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

62. Bearing Cap Condition

Drive End	Opposite Drive End
pass	**na**

63. End Bell Air Seal Fits

Drive End Air Seal	Opposite Drive End Air Seal

64. List any Machine work Needed Below

Polish comm, and insulate one housing fit.

65. Signature of Technician Performing Measurements **Terrence. Holland**

Root Cause of Failure

66. Failure Locations

Tach shaft bent from excessive force. Fields check bad. Replace brushes

67. Root Cause of Failure

Fields checked bad. Ohm readings out of balance.

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

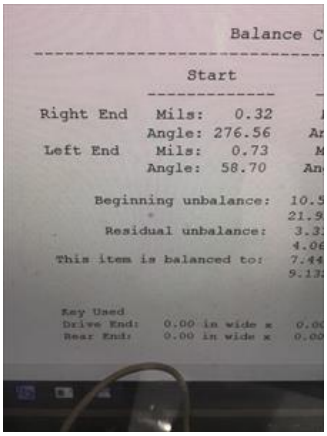
Dynamic Balance Report

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 P27

Drive End Readings | Opposite Drive End Readings

80. Signature of the Balance Technician **Cw**

Post Armature Rewind Testing

81. Post Rewind Armature Insulation Resistance to Ground

82. Post Rewind Field Circuit Measure the Insulation Resistance to Ground **Megohms** P25

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 **2.135 Gigohms** P59

Witness: TRH/RHR

86. Post Rewind Field Drop Test Fields 1&2

Total AC Voltage	Field #1	Field #2
297	**3.56**	**3.78**

87. Post Rewind Field Drop Test Fields 3&4

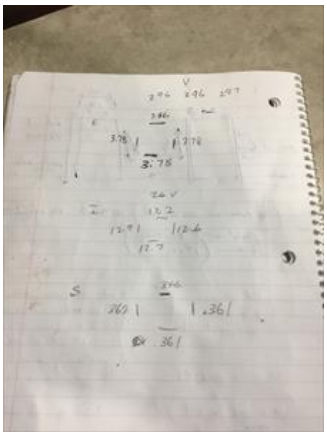
Field #3	FIeld #4
3.78	**3.78**

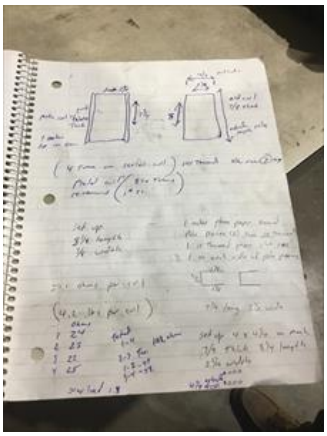
RHR. TRH

88. Post Rewind Field Drop Test Fields 5&6

Field #5	FIeld #6

Na





89. Post Rewind Field Drop Test Fields 7&8

Field #7	FIeld #8

Na

90. Post Rewind Interpole Drop Test 1&2

Total AC Voltage	Interpole #1	Interpole #2
26	**12.2**	**12.7**

91. Post Rewind Interpole Drop Test 3&4

Interpole #3	Interpole #4
12.9	**12.6**

92. Post Rewind Interpole Drop Test 5&6

Interpole #5	Interpole #6

Na

93. Post Rewind Interpole Drop Test 7&8

Interpole #7	Interpole #8

Na

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

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

Assembly

107. Take Pictures of all Major Components Prior to Reassembly

108. Verify Brush Box Holders Have the Proper Clearance, and Brushes have been Seated Properly

109. Assembled Shaft End Play and Runout

Shaft Endplay	Shaft Runout

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

Voltage	Current

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

Voltage	Current

112. Document Vibration Readings Drive End

Horizontal	Vertical	Axial

113. Document Vibration Readings Opposite Drive End

Horizontal	Vertical	Axial

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		
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		
122.	Document Final Condition With Pictures		
123.	Final QC Sign-Off		