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

AC Inspection as Found

Bryce Corporation (10053-BRC)
450 S. Benton
Searcy, AR 72143

FolderID: 101995
FormID: 18166368

AC Inspection - Rev. 2

Location:	MOTOR SHOP LR
Serial Number:	
Description:	15 HP SIEMENS RUSH!

Hi-Speed Job Number:	101995
Manufacturer:	Siemens
Serial Number:	1LE10031DA234AB4-Z
HP/kW:	15 (HP)
RPM:	3560 (RPM)
Frame:	160M
Voltage:	460
Current:	17.2
Phase:	Three
Hz:	60 (Hz)
Service Factor:	1.15
Enclosure:	TEFC
# of Leads:	6
J-box Included:	Half
Coupling/Sheave:	None
Date Received:	10/16/2023
Bearing RTDs:	No
Stator RTDs:	No
Repair Stage:	Final

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**
●	7.	Assembled Shaft Runout	**0.001 Inches**
	8.	Assembled Shaft End Play	**0 inches**
	9.	Air Gap Variation <10%	

10.	Lead Condition	**(P) Pass**	P56

11.	Lead Length	**7 Inches**
12.	Lead Numbers	**1-6**
13.	Frame Condition	**pass**
14.	Fan Condition	**(P) Pass** P106

15. Heater Quantity, Ratings

Quantity	Volts/Watts	Pass/Fail

Na

16.	Broken or Missing Components	**top connection box cover**	P111

Initial Electrical Inspection

17.	Insulation Resistance/Megger	
18.	Winding Resistance	

1-2	1-3	2-3

19.	Perform Surge Test	
20.	Number of Stator Slots	**36**
21.	Stator Condition	**rewind**
22.	Stator Thermistors/Ohms	
23.	Stator Overloads/Ohms	**192.3**

Mechanical Inspection

24.	Drive End Bearing Brand	**fag**
25.	Drive End Bearing Number-	**6209**
26.	Drive End Bearing Qty.	**1**
27.	Drive End Bearing Type	**(Ball) Ball Bearing**
28.	Drive End Lubrication Type	**(Grease) Grease Lubricated**
29.	Drive End Bearing Insulation or Grounding Device?	**none**
30.	Drive End Wavy Washer/Snap-Ring Other Retention Device?	**wavy washer**
31.	Drive End Bearing Condition	**destroyed**
32.	Opposite Drive End Bearing Brand	**fag**
33.	Opposite Drive End Bearing Number-	**6209** P96

34.	Opposite Drive End Bearing Qty.	**1**
35.	Opposite Drive End Bearing Type	**(Ball) Ball Bearing**
36.	Opposite Drive End Lubrication Type	**(Grease) Grease Lubricated**
37.	Opposite Drive End Bearing Insulation or Grounding Device?	**none**
38.	Opposite Drive End Wavy Washer/Snap-Ring Other Retention Device?	**snap ring**
39.	Opposite Drive End Bearing Condition	**replace**
40.	Drive End Seal	**VA 045**
41.	Opposite Drive End Seal	**VA-045**
42.	DE Sleeve Bearing Inside Diameter	

0 degrees	120 degrees	240 degrees

NA

43.	DE Sleeve Bearing Outside Diameter	

0 degrees	120 degrees	240 degrees

NA

44.	DE Sleeve Bearing Housing Inside Diameter		
	0 degrees	120 degrees	240 degrees

NA

45.	DE Sleeve Bearing to Housing Clearance		
	0 degrees	120 degrees	240 degrees

NA

46.	ODE Sleeve Bearing Inside Diameter		
	0 degrees	120 degrees	240 degrees

NA

47.	ODE Sleeve Bearing Outside Diameter		
	0 degrees	120 degrees	240 degrees

NA

48.	ODE Sleeve Bearing Housing Inside Diameter		
	0 degrees	120 degrees	240 degrees

NA

49.	ODE Sleeve Bearing to Housing Clearance		
	0 degrees	120 degrees	240 degrees

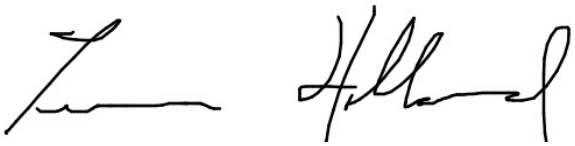
NA

Rotor Inspection

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

51.	Growler Test	**(Pass) Pass**	P22

52.	Number of Rotor Bars	**28**
53.	Rotor Condition	**pass**
54.	List the Parts needed for the Repair Below ***(2) 6209 2Z C3 bearings and sleeves.***	
55.	Signature of Technician that Disassembled Motor	**Terrence Holland**



Mechanical Fits- Rotor

56.	Shaft Runout			**0.001 inches**
57.	Rotor Runout			
	Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing	
58.	Coupling Fit Closest to Bearing Housing			
	0 Degrees	90 Degrees	120 Degrees	
59.	Coupling Fit Closest to the end of the Shaft			
	0 Degrees	60 Degrees	120 Degrees	
60.	Drive End Bearing Shaft Fit			
	0 Degrees	60 Degrees	120 Degrees	
	1.7722	**1.7722**	**1.7722**	
61.	Drive End Bearing Shaft Fit Condition			**(P) Pass**
62.	Opposite Drive End Bearing Shaft Fit			
	0 Degrees	60 Degrees	120 Degrees	
	1.772	**1.772**	**1.7722**	
63.	Opposite Drive End Bearing Shaft Fit Condition			**(P) Pass**
64.	Shaft Air Seal Fits			
	Drive End Air Seal	Opposite Drive End Air Seal		

Mechanical Fits- Bearing Housings

65. Drive End - Endbell Bearing Fit

0 Degrees	60 Degrees	120 Degrees
3.3479	**3.3479**	**3.3478**

66. Drive End - Endbell Bearing Fit Condition **(F) Fail** P13

Excessive wear from bearing failure.

67. Opposite Drive End - Endbell Bearing Fit

0 Degrees	60 Degrees	120 Degrees
3.3477	**3.3477**	**3.3476**

68. Opposite Drive End - Endbell Bearing Fit Condition **(F) Fail** P38

Excessive wear

69. Bearing Cap Condition

Drive End Bearing Cap	Opposite Drive End Bearing Cap

70. End Bell Air Seal Fits

Drive End Air Seal	Opposite Drive End Air Seal

71. List Machine Work Needed Below P67

Sleeve both housing fits. Possibly sleeve D.E housing shaft opening.

72. Technician **Terrence Holland**

Dynamic Balance Report

73. Rotor Weight and Balance Grade

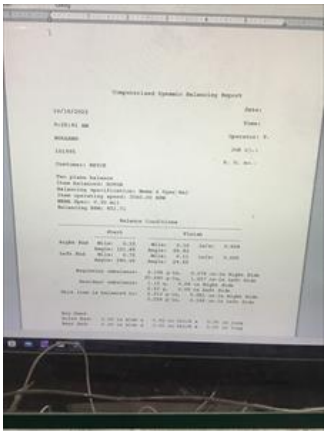
Rotor Weight	Balance Grade

74. Initial Balance Readings P11

Drive End	Opposite Drive End

75. Final Balance Readings P27

Drive End	Opposite Drive End



76. Technician **Terrence Holland**

Rewind

77. Core Test Results - Watts loss per Pound

Pre-Burnout	Post Burnout

78. Core Hot Spot Test

Pre-Burnout	Post-Burnout

79. Post Rewind Electrical Test- Insulation Resistance

80. Post Rewind Polarization Index

81. Post Rewind Winding Resistance

1-2	1-3	2-3

82. Post Rewind Surge Test

83. Post Rewind Hi-Pot

84. Technician

Root Cause of Failure

85. Failure locations P9

86. Root cause of failure

D.E bearing suffered total cage failure due to lack of lubricant. This caused to rotor to drop onto the stator core and short out the windings.

Mechanical Fits- Rotor - Post Repair

87. Shaft Runout Post Repair

88. Rotor Runout Post Repair

Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing

89. Coupling Fit Closest to Bearing Housing Post Repair

0 Degrees	90 Degrees	120 Degrees

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

0 Degrees	60 Degrees	120 Degrees

91. Drive End Bearing Shaft Fit Post Repair

0 Degrees	60 Degrees	120 Degrees

92. Opposite Drive End Bearing Shaft Fit Post Repair

0 Degrees	60 Degrees	120 Degrees

93. Shaft Air Seal Fits Post Repair

Drive End Air Seal	Opposite Drive End Air Seal

94. Shaft Repair Sign-off

Mechanical Fits- Bearing Housings - Post Repair

95. Drive End - Endbell Bearing Fit Post Repair

0 Degrees	60 Degrees	120 Degrees

96. Opposite Drive End - Endbell Bearing Fit Post Repair P19

0 Degrees	60 Degrees	120 Degrees
3.347	**3.347**	**3.347**

97. Bearing Cap Condition Post Repair

Drive End Bearing Cap	Opposite Drive End Bearing Cap

98. End Bell Air Seal Fits Post Repair

Drive End Air Seal	Opposite Drive End Air Seal

99. DE Sleeve Bearing Inside ID Post Repair

Measure 1	Measure 2	Measure 3

100. DE Sleeve Bearing Outside ID Post Repair

Measure 1	Measure 2	Measure 3

101. DE Sleeve Bearing Inside OD Post Repair

Measure 1	Measure 2	Measure 3

102. DE Sleeve Bearing Outside OD Post Repair

Measure 1	Measure 2	Measure 3

103. End Bell Repair Sign-off **Gary**

104. ODE Sleeve Bearing Inside ID Post Repair

Measure 1	Measure 2	Measure 3

105. ODE Sleeve Bearing Outside ID Post Repair

Measure 1	Measure 2	Measure 3

106. ODE Sleeve Bearing Inside OD Post Repair

Measure 1	Measure 2	Measure 3

107. ODE Sleeve Bearing Outside OD Post Repair

Measure 1	Measure 2	Measure 3

Assembly

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

109. Photograph All Major Components prior to assembly P16

110. Final Insulation Resistance Test

111. Assembled Shaft Endplay

112. Assembled Shaft Runout

113. Test Run Voltage P55

Volts	Volts	Volts
459	**458**	**459**

114. Test Run Amperage P65

Amps	Amps	Amps
5.9	**5.9**	**5.8**

115. Drive End Vibration Readings - Inches Per Second

Horizontal	Vertical	Axial

116. Opposite Drive End Vibration Readings - Inches Per Second

Horizontal	Vertical	Axial

117. Ambient Temperature - Fahrenheit

118. Drive End Bearing Temps - Fahrenheit

5 Minutes	10 Minutes	15 Minutes

119. Drive End Bearing Temps - Fahrenheit 20-30 Minutes

20 Minutes	25 Minutes	30 Minutes

120. Drive End Bearing Temps - Fahrenheit 35-45 Minutes

35 Minutes	40 Minutes	45 Minutes

121. Drive End Bearing Temps - Fahrenheit 50-60 Minutes

50 Minutes	55 Minutes	60 Minutes

122. Opposite Drive End Bearing Temps - Fahrenheit

5 Minutes	10 Minutes	15 Minutes

123. Opposite Drive End Bearing Temps - Fahrenheit 20-30 Minutes

20 Minutes	25 Minutes	30 Minutes

124. Opposite Drive End Bearing Temps - Fahrenheit 35-45 Minutes

35 Minutes	40 Minutes	45 Minutes

125. Opposite Drive End Bearing Temps - Fahrenheit 50-60 Minutes

50 Minutes	55 Minutes	60 Minutes

126. Stator Temperatures- Fahrenheit

5 Minutes	10 Minutes	15 Minutes

127.	Stator Temperatures- Fahrenheit 20-30 Minutes		
	20 Minutes	25 Minutes	30 Minutes
128.	Stator Temperatures- Fahrenheit 35-45 Minutes		
	35 Minutes	40 Minutes	45 Minutes
129.	Stator Temperatures- Fahrenheit 50-60 Minutes		
	50 Minutes	55 Minutes	60 Minutes

130. Document Final Condition with Pictures after paint P124






131. Final Pics and QC Review **Terrence Holland**

Witness: Trent Bullock.