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

AC Inspection as Found

Arkansas Lime Company
600 Limedale Rd
Batesville, AR 72501

FolderID: 104402
FormID: 23980593

AC Inspection - Rev. 2

Location: LITTLE ROCK MOTOR SHOP

Serial Number:

Description: 250 HP TOSHIBA

Hi-Speed Job Number:	104402
Manufacturer:	Toshiba
Product Number:	E2506FLF4BM
HP/kW:	250 (HP)
RPM:	1185 (RPM)
Frame:	N587UZ
Voltage:	460
Current:	296 (Amps)
Phase:	Three
Hz:	60 (Hz)
Service Factor:	1.15
Enclosure:	TEFC
# of Leads:	12
J-box Included:	None
Coupling/Sheave:	Sheave
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

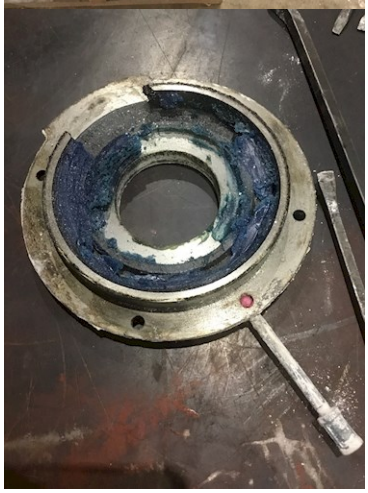
Priorities Found: **8 - High** **1 - Low** **13 - Good**

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

Dirty

Initial Mechanical/Electrical

5.	Does Shaft Turn Freely?	**(Y) Yes**	
6.	Does the shaft require T.I.R in Lathe to identify additional repairs?	**(No) No**	
7.	Does Shaft Have Visible Damage?	**(Yes) Yes**	P26

8.	Assembled Shaft Runout	**0.001 Inches**

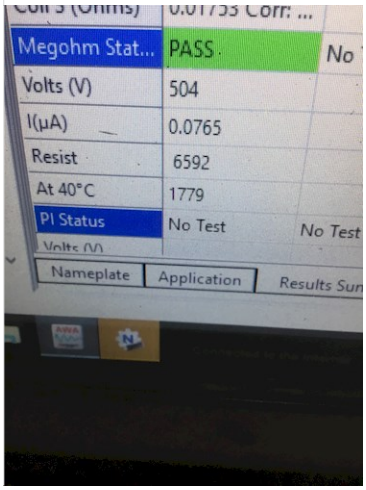
	9.	Distance from the end of the shaft to the Coupling/Sheave	**inches**	P76

2.0405 in

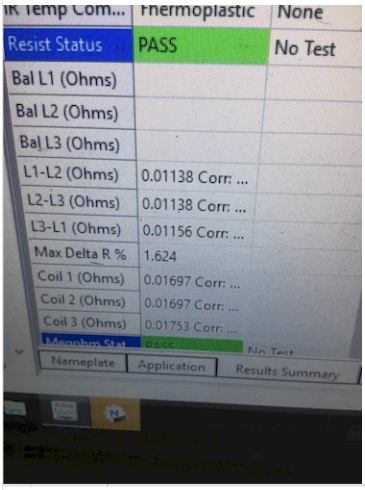
	10.	Assembled Shaft End Play	**inches**
	11.	Air Gap Variation <10%	
🟢	12.	Lead Condition	**(P) Pass**
	13.	Lead Length	**12 Inches**
🟢	14.	Does it have Lugs?, If so what is the Stud Size?	**(No) No**
	15.	Lead Numbers	**1-12**
🟢	16.	Frame Condition	
🟢	17.	Fan Condition	**(P) Pass**
🔴	18.	Does motor have internal fan?	**(Yes) Yes**
🟡	19.	Broken or Missing Components	
		J-box and bolts	

Initial Electrical Inspection

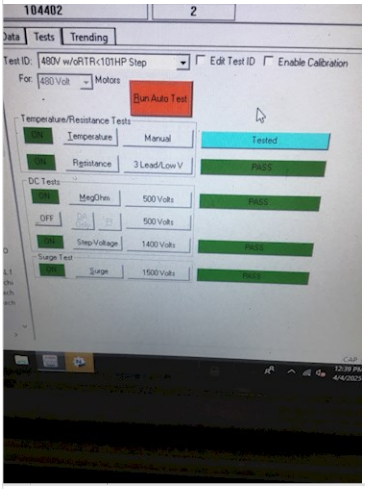
	20.	Insulation Resistance/Megger	**Megohms**	P8



	21.	Winding Resistance		P20
		1-2	1-3	2-3



●	22.	Perform Surge Test	**(P) Pass**	P57



	23.	Number of Stator Slots	**72**
●	24.	Stator Condition	
	25.	Stator Thermistors/Ohms	
	26.	Stator Overloads/Ohms	

Mechanical Inspection

	27.	Drive End Bearing Brand	**KOYO**
	28.	Drive End Bearing Number-	**NU324**
	29.	Drive End Bearing Qty.	**1**
	30.	Drive End Bearing Type	**(Roller) Roller Bearing**
	31.	Drive End Lubrication Type	**(Grease) Grease Lubricated**
	32.	Drive End Bearing Insulation or Grounding Device?	
	33.	Drive End Wavy Washer/Snap-Ring Other Retention Device?	**snap ring**

34.	Drive End Bearing Condition		P82
	Contamination		

35.	Opposite Drive End Bearing Brand	**KOYO**	
36.	Opposite Drive End Bearing Number-	**6320**	
37.	Opposite Drive End Bearing Qty.	**1**	
38.	Opposite Drive End Bearing Type	**(Ball) Ball Bearing**	
39.	Opposite Drive End Lubrication Type	**(Grease) Grease Lubricated**	
40.	Opposite Drive End Bearing Insulation or Grounding Device?		
41.	Opposite Drive End Wavy Washer/Snap-Ring Other Retention Device?	**snap ring**	
42.	Opposite Drive End Bearing Condition		P117
	Normal wear		

43.	Drive End Seal		
44.	Opposite Drive End Seal		

Rotor Inspection

45.	Rotor Type/Material	**(Squirrel Aluminum) Squirrel Cage Aluminum Die Cast**	
46.	Growler Test	**(Pass) Pass**	
47.	Number of Rotor Bars	**60**	
48.	Rotor Condition		
49.	List the Parts needed for the Repair Below		
	NU324 *6320*		

50. Signature of Technician that Disassembled Motor **Cw**

Mechanical Fits- Rotor

51. Shaft Runout **inches**

52. Rotor Runout

Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing

53. Coupling Fit Closest to Bearing Housing

0 Degrees	90 Degrees	120 Degrees

54. Coupling Fit Closest to the end of the Shaft

0 Degrees	60 Degrees	120 Degrees

55. Drive End Bearing Shaft Fit

0 Degrees	60 Degrees	120 Degrees

4.7251-4.7253-4.7254

56. Drive End Bearing Shaft Fit Condition **(F) Fail**

Recommend new shaft due to gouging

57. Opposite Drive End Bearing Shaft Fit

0 Degrees	60 Degrees	120 Degrees

3.9370-3.9372-3.9372

58. Opposite Drive End Bearing Shaft Fit Condition **(F) Fail**

59. Shaft Air Seal Fits

Drive End Air Seal	Opposite Drive End Air Seal

Mechanical Fits- Bearing Housings

60. Drive End - Endbell Bearing Fit

0 Degrees	60 Degrees	120 Degrees

Excessive pitting and gouge marks

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

62. Opposite Drive End - Endbell Bearing Fit

0 Degrees	60 Degrees	120 Degrees

Excessive pitting and gouge marks

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

64. Bearing Cap Condition

Drive End Bearing Cap	Opposite Drive End Bearing Cap

65. End Bell Air Seal Fits

Drive End Air Seal	Opposite Drive End Air Seal

66. List Machine Work Needed Below

Both end bell bearing fits and recommend new shaft due to damage on DE shaft bearing fit

67. Technician **Cw**

Co sign: DM

Root Cause of Failure

68. Failure locations

Bearings and bearing fits

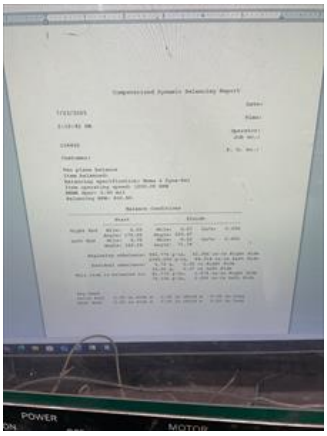
69. Root cause of failure

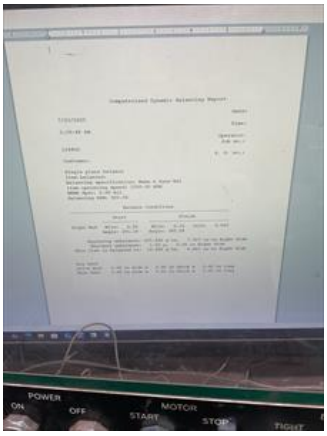
Excessive wear and contamination due to mixing of grease

Dynamic Balance Report

70. Rotor Weight and Balance Grade P7

Rotor Weight	Balance Grade





Fan

71. Initial Balance Readings

Drive End	Opposite Drive End
6.20	**6.75**

2.50

72. Final Balance Readings

Drive End	Opposite Drive End
.27	**.22**

0.15

73. Technician **RW**

Mechanical Fits- Bearing Housings - Post Repair

74. Drive End - Endbell Bearing Fit Post Repair P0

0 Degrees	60 Degrees	120 Degrees
10.237	**10.237**	**10.237**

75. Opposite Drive End - Endbell Bearing Fit Post Repair P100

0 Degrees	60 Degrees	120 Degrees
8.4648	**8.4648**	**8.4648**

76. Bearing Cap Condition Post Repair

Drive End Bearing Cap	Opposite Drive End Bearing Cap

77. End Bell Air Seal Fits Post Repair

Drive End Air Seal	Opposite Drive End Air Seal

78. End Bell Repair Sign-off **Gary** P800

Machined and installed new shaft.

Assembly

79. QC Check All Parts for Cleanliness Prior to Assembly **RW**

80. Photograph All Major Components prior to assembly **(Complete) Complete** P17

81.	Final Insulation Resistance Test	**5912 Megohms**
82.	Assembled Shaft Endplay	**0 inches**
83.	Assembled Shaft Runout	**0.0002 inches**
84.	Test Run Voltage	P55

Volts	Volts	Volts
458	**454**	**461**

85.	Test Run Amperage	P65

Amps	Amps	Amps
90.7	**84.7**	**86.09999999999999**

86.	Drive End Vibration Readings - Inches Per Second	

Horizontal	Vertical	Axial

	0.02	**0.04**	**0.04**
87.	Opposite Drive End Vibration Readings - Inches Per Second		
	Horizontal	Vertical	Axial
	0.04	**0.01**	**0.04**
88.	Ambient Temperature - Fahrenheit		
89.	Drive End Bearing Temps - Fahrenheit		
	5 Minutes	10 Minutes	15 Minutes
90.	Opposite Drive End Bearing Temps - Fahrenheit		
	5 Minutes	10 Minutes	15 Minutes
91.	Document Final Condition with Pictures after paint		**see pics below**
92.	Final Pics and QC Review		**Terrence Holland**

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