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

# AC Inspection as Found

**Novus Arkansas, LLC (11612)**
**7920 Sloan Drive**
**Little Rock, AR 72206**

FolderID: 102593
FormID: 19644628

**AC Inspection - Rev. 2**

| | |
|---|---|
| **Location:** | LR Motor Shop |
| **Serial Number:** | |
| **Description:** | 150HP 1780RPM WEG |

| | |
|---|---|
| **Hi-Speed Job Number:** | 102593 |
| **Manufacturer:** | WEG |
| **Product Number:** | 15018EP3GBB445T |
| **Spec/ID #:** | ET |
| **HP/kW:** | 150 (HP) |
| **RPM:** | 1780 (RPM) |
| **Frame:** | 444/5T |
| **Voltage:** | 460 |
| **Current:** | 168 (Amps) |
| **Phase:** | Three |
| **Hz:** | 60 (Hz) |
| **Service Factor:** | 1.15 |
| **Enclosure:** | TEFC |
| **# of Leads:** | 12 |
| **J-box Included:** | Complete |
| **Coupling/Sheave:** | None |
| **Bearing RTDs:** | No |
| **Stator RTDs:** | No |
| **Repair Stage:** | Final |
| **Rewind:** | No |
| **Shaft Machined Fit Repairs Required:** | Yes |
| **Bearing Housing Machined Fit Repairs Required:** | No |
| **Heaters:** | No |
| **Winding Type :** | Random Wound |
| **Bearing Type:** | Rolling Element |

Priorities Found: **2 - High** **10 - 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? | **(Y) Yes** | |
| 6. | Does the shaft require T.I.R in Lathe to identify additional repairs? | **(Yes) Yes** | |

***ODE bearing journal egg shaped***

| | | | | |
|---|---|---|---|---|
| | 7. | Does Shaft Have Visible Damage? | **(No) No** | P26 |
| | | ***Some minor rust*** | | |

| | | | | |
|---|---|---|---|---|
| ● | 8. | Assembled Shaft Runout | **0.001 Inches** | |
| | 9. | Assembled Shaft End Play | **0 inches** | |
| | 10. | Air Gap Variation <10% | **pass** | |
| ● | 11. | Lead Condition | **(P) Pass** | P69 |

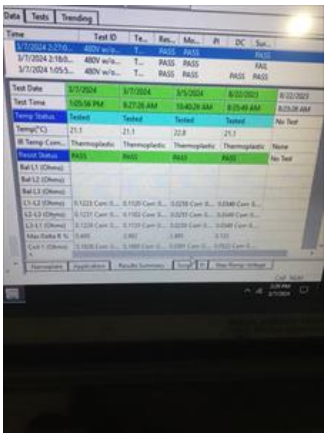
| | | | | |
|---|---|---|---|---|
| | 12. | Lead Length | **12 Inches** | |
| ● | 13. | Does it have Lugs?, If so what is the Stud Size? | **(No) No** | |
| | 14. | Lead Numbers | | P97 |
| | | ***2,4,8,10***<br>***5,9,3,11***<br>***1,6,7,12*** | | |

| | | | |
|---|---|---|---|
| 15. | Frame Condition | **pass** | |
| 16. | Fan Condition | **(P) Pass** | P115 |

| | | | |
|---|---|---|---|
| 17. | Broken or Missing Components | **none** | |

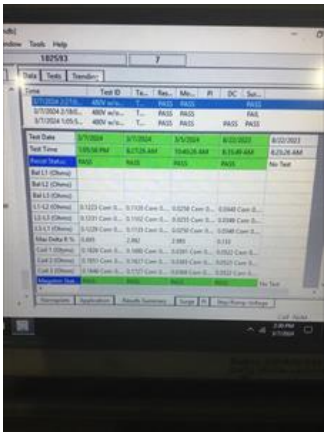
## Initial Electrical Inspection

| | | | |
|---|---|---|---|
| 18. | Insulation Resistance/Megger | **Megohms** | P8 |

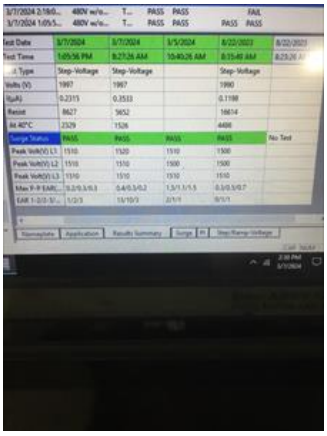


| | | | |
|---|---|---|---|
| 19. | Winding Resistance | | P20 |

| 1-2 | 1-3 | 2-3 |
|---|---|---|



| | | | |
|---|---|---|---|
| 20. | Perform Surge Test | **(P) Pass** | P57 |



| | | |
|---|---|---|
| 21. | Number of Stator Slots | **72** |
| 22. | Stator Condition | **pass** |
| | ***Wash and bake*** | |
| 23. | Stator Thermistors/Ohms | **254.7** P90 |

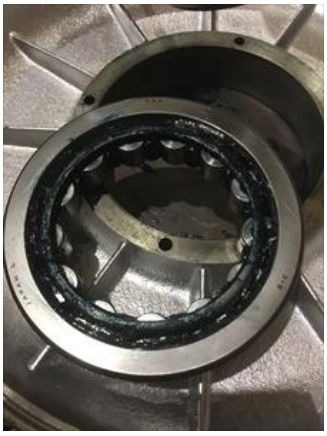


| | | |
|---|---|---|
| 24. | Stator Overloads/Ohms | |
| | ***Na*** | |

## Mechanical Inspection

| | | |
|---|---|---|
| 25. | Drive End Bearing Brand | **NSK** |

| | | | |
|---|---|---|---|
| 26. | Drive End Bearing Number- | **NU 319 C3** | P32 |




| | | | |
|---|---|---|---|
| 27. | Drive End Bearing Qty. | **1** | |
| 28. | Drive End Bearing Type | **(Roller) Roller Bearing** | |
| 29. | Drive End Lubrication Type | **(Grease) Grease Lubricated** | |
| 30. | Drive End Bearing Insulation or Grounding Device? | **none** | |
| 31. | Drive End Wavy Washer/Snap-Ring Other Retention Device? | **snap ring** | |
| 32. | Drive End Bearing Condition | **replace** | P82 |

| | | | |
|---|---|---|---|
| 33. | Opposite Drive End Bearing Brand | **SKF** | |
| 34. | Opposite Drive End Bearing Number- | **6316 2Z/C3** | P99 |


| | | | |
|---|---|---|---|
| 35. | Opposite Drive End Bearing Qty. | **1** | |
| 36. | Opposite Drive End Bearing Type | **(Ball) Ball Bearing** | |
| 37. | Opposite Drive End Lubrication Type | **(Grease) Grease Lubricated** | |
| 38. | Opposite Drive End Bearing Insulation or Grounding Device? | **none** | |
| 39. | Opposite Drive End Wavy Washer/Snap-Ring Other Retention Device? | **snap ring** | |
| 40. | Opposite Drive End Bearing Condition | **replace** | P118 |

| | | | |
|---|---|---|---|
| 41. | Drive End Seal | **dust seal** | |
| 42. | Opposite Drive End Seal | **none** | |

## Rotor Inspection

| | | | |
|---|---|---|---|
| 43. | Rotor Type/Material | **(Squirrel Aluminum) Squirrel Cage Aluminum Die Cast** | |

| | | |
|---|---|---|
| 44. | Growler Test | **(Pass) Pass** |
| 45. | Number of Rotor Bars | **58** |
| 46. | Rotor Condition | **pass** |
| 47. | List the Parts needed for the Repair Below<br>***NU 319 roller bearing.***<br>***6316 2Z / C3 ball bearing*** | |
| 48. | Signature of Technician that Disassembled Motor | **Terrence Holland** |

## Mechanical Fits- Rotor

| | | |
|---|---|---|
| 49. | Shaft Runout | **0.002 inches** |
| 50. | Rotor Runout | |

| Drive End Bearing Fit | Rotor Body | Opposite Drive End Bearing |
|---|---|---|

*Na*

| | | |
|---|---|---|
| 51. | Coupling Fit Closest to Bearing Housing | |

| 0 Degrees | 90 Degrees | 120 Degrees |
|---|---|---|

*Na*

| | | |
|---|---|---|
| 52. | Coupling Fit Closest to the end of the Shaft | |

| 0 Degrees | 60 Degrees | 120 Degrees |
|---|---|---|

*Na*

| | | |
|---|---|---|
| 53. | Drive End Bearing Shaft Fit | |

| 0 Degrees | 60 Degrees | 120 Degrees |
|---|---|---|
| **3.7409** | **3.7407** | **3.7409** |

| | | |
|---|---|---|
| 54. | Drive End Bearing Shaft Fit Condition | **(P) Pass** |
| 55. | Opposite Drive End Bearing Shaft Fit | |

| 0 Degrees | 60 Degrees | 120 Degrees |
|---|---|---|
| **3.15** | **3.1497** | **3.1443** |

*Egg shaped.*

| | | |
|---|---|---|
| 56. | Opposite Drive End Bearing Shaft Fit Condition | **(F) Fail** |
| 57. | Shaft Air Seal Fits | |

| Drive End Air Seal | Opposite Drive End Air Seal |
|---|---|
| **good** | **good** |

## Mechanical Fits- Bearing Housings

| | | |
|---|---|---|
| 58. | Drive End - Endbell Bearing Fit | |

| 0 Degrees | 60 Degrees | 120 Degrees |
|---|---|---|
| **7.474** | **7.4738** | **7.4738** |

| | | |
|---|---|---|
| 59. | Drive End - Endbell Bearing Fit Condition | **(P) Pass** |
| 60. | Opposite Drive End - Endbell Bearing Fit | |

| 0 Degrees | 60 Degrees | 120 Degrees |
|---|---|---|
| **6.6935** | **6.6932** | **6.6933** |

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

62. Bearing Cap Condition

| Drive End Bearing Cap | Opposite Drive End Bearing Cap |
|---|---|
| **pass** | |

63. End Bell Air Seal Fits

| Drive End Air Seal | Opposite Drive End Air Seal |
|---|---|
| **pass** | **pass** |

64. List Machine Work Needed Below

***Repair ODE shaft bearing journal. It is egg shaped.***

65. Technician **Terrence Holland**

**Root Cause of Failure**

66. Failure locations

***Opposite drive end shaft bearing journal out of tolerance. Egg shaped. Bearing grease dirty/contaminated.***

67. Root cause of failure

***Both bearings had contaminated grease inside them and the ODE shaft bearing journal was out of allowable tolerance.***

## Dynamic Balance Report

68. Rotor Weight and Balance Grade

| Rotor Weight | Balance Grade |
|---|---|

69. Initial Balance Readings

| Drive End | Opposite Drive End |
|---|---|

70. Final Balance Readings

| Drive End | Opposite Drive End |
|---|---|

71. Technician

## Mechanical Fits- Rotor - Post Repair

72. Shaft Runout Post Repair

73. Rotor Runout Post Repair

| Drive End Bearing Fit | Rotor Body | Opposite Drive End Bearing |
|---|---|---|

| | | | |
|---|---|---|---|
| 74. | Coupling Fit Closest to Bearing Housing Post Repair | | |
| | 0 Degrees | 90 Degrees | 120 Degrees |
| 75. | Coupling Fit Closest to the end of the Shaft Post Repair | | |
| | 0 Degrees | 60 Degrees | 120 Degrees |
| 76. | Drive End Bearing Shaft Fit Post Repair | | |
| | 0 Degrees | 60 Degrees | 120 Degrees |
| 77. | Opposite Drive End Bearing Shaft Fit Post Repair | | |
| | 0 Degrees | 60 Degrees | 120 Degrees |
| 78. | Shaft Air Seal Fits Post Repair | | |
| | Drive End Air Seal | Opposite Drive End Air Seal | |
| 79. | Shaft Repair Sign-off | | |
| **Assembly** | | | |
| 80. | QC Check All Parts for Cleanliness Prior to Assembly | | |
| 81. | Photograph All Major Components prior to assembly | | |
| 82. | Final Insulation Resistance Test | | |
| 83. | Assembled Shaft Endplay | | |
| 84. | Assembled Shaft Runout | | |
| 85. | Test Run Voltage | | |
| | Volts | Volts | Volts |
| 86. | Test Run Amperage | | |
| | Amps | Amps | Amps |
| 87. | Drive End Vibration Readings - Inches Per Second | | |
| | Horizontal | Vertical | Axial |
| 88. | Opposite Drive End Vibration Readings - Inches Per Second | | |
| | Horizontal | Vertical | Axial |
| 89. | Ambient Temperature - Fahrenheit | | |
| 90. | Drive End Bearing Temps - Fahrenheit | | |
| | 5 Minutes | 10 Minutes | 15 Minutes |
| 91. | Opposite Drive End Bearing Temps - Fahrenheit | | |
| | 5 Minutes | 10 Minutes | 15 Minutes |
| 92. | Document Final Condition with Pictures after paint | | |
| 93. | Final Pics and QC Review | | |