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

# AC Inspection as Found

**CONWAY COUNTY WATER**
**30 H2O DRIVE**
**PLUMMERVILLE, AR 72127**

FolderID: 102382
FormID: 19126641

**AC Inspection - Rev. 2**

| | |
|---|---|
| **Location:** | MOTOR SHOP LR |
| **Serial Number:** | |

| | |
|---|---|
| **Hi-Speed Job Number:** | 102382 |
| **Manufacturer:** | US Motors/Nidec |
| **Product Number:** | CAT# HO350V2SLH-C |
| **Spec/ID #:** | Z010828327-0001-GT-0 |
| **HP/kW:** | 350 (HP) |
| **RPM:** | 1785 (RPM) |
| **Frame:** | 447TPA |
| **Voltage:** | 460 |
| **Current:** | 389 |
| **Phase:** | Three |
| **Hz:** | 60 (Hz) |
| **Service Factor:** | 1.15 |
| **Enclosure:** | WPI |
| **Date Received:** | 01/24/2024 |
| **Repair Stage:** | Final |

Priorities Found: **7 - 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*** | | |
| 5. | Distance from the end of the shaft to the Coupling/Sheave | | |

## Initial Mechanical/Electrical

| | | | |
|---|---|---|---|
| 6. | Does Shaft Turn Freely? | | **(Yes) Yes** |
| 7. | Does Shaft Have Visible Damage? | | **(No) No** |
| 8. | Assembled Shaft Runout | | |
| 9. | Assembled Shaft End Play | | |
| 10. | Air Gap Variation <10% | | |
| 11. | Lead Condition | | **(P) Pass** |
| 12. | Lead Length | | **27 Inches** |
| 13. | Lead Numbers | | **1-12** |
| 14. | Stator Temperature Detector Rating and Function | | |

| Quantity | Rating | Quantity Passed |
|---|---|---|
| | | |

| | | |
|---|---|---|
| 15. | Bearing Temperature Detector Rating and Function | |

| Quantity | Rating | Quantity Passed |
|---|---|---|
| | | |

| | | |
|---|---|---|
| 16. | Frame Condition | |
| 17. | Fan Condition | **(N) NA** |
| 18. | Heater Quantity, Ratings | |

| Quantity | Volts/Watts | Pass/Fail |
|---|---|---|
| | | |

| | | |
|---|---|---|
| 19. | Broken or Missing Components | |

## Initial Electrical Inspection

| | | |
|---|---|---|
| 20. | Insulation Resistance/Megger | **Megohms** |
| 21. | Winding Resistance | |

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

| | | | |
|---|---|---|---|
| 22. | Perform Surge Test | **(NA) Not Applicable** | P58 |

| | | | |
|---|---|---|---|
| 23. | Number of Stator Slots | **72** | |
| 24. | Stator Condition | **rewind** | P85 |

| | | | |
|---|---|---|---|
| 25. | Stator Thermistors/Ohms | | |
| 26. | Stator Overloads/Ohms | **0.1** | |

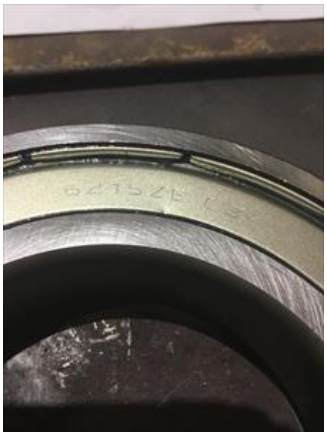
## Mechanical Inspection

| | | | |
|---|---|---|---|
| 27. | Drive End Bearing Brand | **FAG** | |
| 28. | Drive End Bearing Number- | **7322-B-XL-MP-UA** | P28 |

| | | | |
|---|---|---|---|
| 29. | Drive End Bearing Qty. | **1** | |
| 30. | Drive End Bearing Type | **(Thrust) Thrust** | |
| 31. | Drive End Lubrication Type | **(Oil) Oil Lubricated** | |

| | | | |
|---|---|---|---|
| 32. | Drive End Bearing Insulation or Grounding Device? | **none** | |
| 33. | Drive End Wavy Washer/Snap-Ring Other Retention Device? | **one** | |
| 34. | Drive End Bearing Condition | **replace** | |
| 35. | Opposite Drive End Bearing Brand | **nachi** | P93 |

| | | | |
|---|---|---|---|
| 36. | Opposite Drive End Bearing Number- | **6215 ZE C3** | P98 |



| | | | |
|---|---|---|---|
| 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? | **aegis ring** | |
| 41. | Opposite Drive End Wavy Washer/Snap-Ring Other Retention Device? | **snap ring and spacer** | |
| 42. | Opposite Drive End Bearing Condition | **replace** | P117 |

| | | | |
|---|---|---|---|
| 43. | Drive End Seal | | |
| 44. | Opposite Drive End Seal | **dust seal** | P122 |

| | | | |
|---|---|---|---|
| 45. | DE Sleeve Bearing Inside Diameter | | |
| | 0 degrees | 120 degrees | 240 degrees |
| 46. | DE Sleeve Bearing Outside Diameter | | |
| | 0 degrees | 120 degrees | 240 degrees |
| 47. | DE Sleeve Bearing Housing Inside Diameter | | |
| | 0 degrees | 120 degrees | 240 degrees |
| 48. | DE Sleeve Bearing to Housing Clearance | | |
| | 0 degrees | 120 degrees | 240 degrees |
| 49. | ODE Sleeve Bearing Inside Diameter | | |
| | 0 degrees | 120 degrees | 240 degrees |
| 50. | ODE Sleeve Bearing Outside Diameter | | |
| | 0 degrees | 120 degrees | 240 degrees |
| 51. | ODE Sleeve Bearing Housing Inside Diameter | | |
| | 0 degrees | 120 degrees | 240 degrees |
| 52. | ODE Sleeve Bearing to Housing Clearance | | |
| | 0 degrees | 120 degrees | 240 degrees |

## Rotor Inspection

| | | |
|---|---|---|
| 53. | Rotor Type/Material | **(Squirrel Aluminum) Squirrel Cage Aluminum Die Cast** |
| 54. | Growler Test | **(Pass) Pass** |

| | | |
|---|---|---|
| 55. | Number of Rotor Bars | **57** |

| | | |
|---|---|---|
| 56. | Rotor Condition | **pass** |
| 57. | List the Parts needed for the Repair Below<br>***Replace Bearings and rewind stator.*** | |
| 58. | Signature of Technician that Disassembled Motor | **Terrence Holland** |

## Mechanical Fits- Rotor

| | | |
|---|---|---|
| 59. | Shaft Runout | **0.003 inches** |

60. Rotor Runout

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

61. Coupling Fit Closest to Bearing Housing

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

62. Coupling Fit Closest to the end of the Shaft

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

63. Drive End Bearing Shaft Fit

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

64. Drive End Bearing Shaft Fit Condition **(P) Pass** P80

65. Opposite Drive End Bearing Shaft Fit

| 0 Degrees | 60 Degrees | 120 Degrees |
|---|---|---|
| **2.953** | **2.9529** | **2.5529** |

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

67. Shaft Air Seal Fits

| Drive End Air Seal | Opposite Drive End Air Seal |
|---|---|

## Mechanical Fits- Bearing Housings

68. Drive End - Endbell Bearing Fit

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

69. Drive End - Endbell Bearing Fit Condition

70. Opposite Drive End - Endbell Bearing Fit

| 0 Degrees | 60 Degrees | 120 Degrees |
|---|---|---|
| **5.1187** | **5.1188** | **5.1188** |

71. Opposite Drive End - Endbell Bearing Fit Condition

72. Bearing Cap Condition

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

73. End Bell Air Seal Fits

| Drive End Air Seal | Opposite Drive End Air Seal |
|---|---|

74. List Machine Work Needed Below

***None.***

75. Technician **Terrence Holland**

## Root Cause of Failure

76. Failure locations

77. Root cause of failure

***Windings shorted to ground in slot. Cause is indeterminate.***

## Dynamic Balance Report

78. Rotor Weight and Balance Grade

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

79. Initial Balance Readings

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

80. Final Balance Readings

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

81. Technician

## Rewind

82. Core Test Results - Watts loss per Pound

| Pre-Burnout | Post Burnout |
|---|---|

83. Core Hot Spot Test

| Pre-Burnout | Post-Burnout |
|---|---|

84. Post Rewind Electrical Test- Insulation Resistance

85. Post Rewind Polarization Index

| | | | |
|---|---|---|---|
| 86. | Post Rewind Winding Resistance | | |
| | 1-2 | 1-3 | 2-3 |
| 87. | Post Rewind Surge Test | | |
| 88. | Post Rewind Hi-Pot | | |
| 89. | Technician | | |

**Mechanical Fits- Rotor - Post Repair**

| | | | |
|---|---|---|---|
| 90. | Shaft Runout Post Repair | | |
| 91. | Rotor Runout Post Repair | | |
| | Drive End Bearing Fit | Rotor Body | Opposite Drive End Bearing |
| 92. | Coupling Fit Closest to Bearing Housing Post Repair | | |
| | 0 Degrees | 90 Degrees | 120 Degrees |
| 93. | Coupling Fit Closest to the end of the Shaft Post Repair | | |
| | 0 Degrees | 60 Degrees | 120 Degrees |
| 94. | Drive End Bearing Shaft Fit Post Repair | | |
| | 0 Degrees | 60 Degrees | 120 Degrees |
| 95. | Opposite Drive End Bearing Shaft Fit Post Repair | | |
| | 0 Degrees | 60 Degrees | 120 Degrees |
| 96. | Shaft Air Seal Fits Post Repair | | |
| | Drive End Air Seal | Opposite Drive End Air Seal | |
| 97. | Shaft Repair Sign-off | | |

**Mechanical Fits- Bearing Housings - Post Repair**

| | | | |
|---|---|---|---|
| 98. | Drive End - Endbell Bearing Fit Post Repair | | |
| | 0 Degrees | 60 Degrees | 120 Degrees |
| 99. | Opposite Drive End - Endbell Bearing Fit Post Repair | | |
| | 0 Degrees | 60 Degrees | 120 Degrees |
| 100. | Bearing Cap Condition Post Repair | | |
| | Drive End Bearing Cap | Opposite Drive End Bearing Cap | |
| 101. | End Bell Air Seal Fits Post Repair | | |
| | Drive End Air Seal | Opposite Drive End Air Seal | |
| 102. | DE Sleeve Bearing Inside ID Post Repair | | |
| | Measure 1 | Measure 2 | Measure 3 |
| 103. | DE Sleeve Bearing Outside ID Post Repair | | |
| | Measure 1 | Measure 2 | Measure 3 |

| | | | |
|---|---|---|---|
| 104. | DE Sleeve Bearing Inside OD Post Repair | | |
| | Measure 1 | Measure 2 | Measure 3 |
| 105. | DE Sleeve Bearing Outside OD Post Repair | | |
| | Measure 1 | Measure 2 | Measure 3 |
| 106. | End Bell Repair Sign-off | | |
| 107. | ODE Sleeve Bearing Inside ID Post Repair | | |
| | Measure 1 | Measure 2 | Measure 3 |
| 108. | ODE Sleeve Bearing Outside ID Post Repair | | |
| | Measure 1 | Measure 2 | Measure 3 |
| 109. | ODE Sleeve Bearing Inside OD Post Repair | | |
| | Measure 1 | Measure 2 | Measure 3 |
| 110. | ODE Sleeve Bearing Outside OD Post Repair | | |
| | Measure 1 | Measure 2 | Measure 3 |

## Assembly

| | | | |
|---|---|---|---|
| 111. | QC Check All Parts for Cleanliness Prior to Assembly | | |
| 112. | Photograph All Major Components prior to assembly | | |
| 113. | Final Insulation Resistance Test | | |
| 114. | Assembled Shaft Endplay | | |
| 115. | Assembled Shaft Runout | | |
| 116. | Test Run Voltage | | |
| | Volts | Volts | Volts |
| 117. | Test Run Amperage | | |
| | Amps | Amps | Amps |
| 118. | Drive End Vibration Readings - Inches Per Second | | |
| | Horizontal | Vertical | Axial |
| 119. | Opposite Drive End Vibration Readings - Inches Per Second | | |
| | Horizontal | Vertical | Axial |
| 120. | Ambient Temperature - Fahrenheit | | |
| 121. | Drive End Bearing Temps - Fahrenheit | | |
| | 5 Minutes | 10 Minutes | 15 Minutes |
| 122. | Drive End Bearing Temps - Fahrenheit 20-30 Minutes | | |
| | 20 Minutes | 25 Minutes | 30 Minutes |
| 123. | Drive End Bearing Temps - Fahrenheit 35-45 Minutes | | |
| | 35 Minutes | 40 Minutes | 45 Minutes |

| | | | |
|---|---|---|---|
| 124. | Drive End Bearing Temps - Fahrenheit 50-60 Minutes | | |
| | 50 Minutes | 55 Minutes | 60 Minutes |
| 125. | Opposite Drive End Bearing Temps - Fahrenheit | | |
| | 5 Minutes | 10 Minutes | 15 Minutes |
| 126. | Opposite Drive End Bearing Temps - Fahrenheit 20-30 Minutes | | |
| | 20 Minutes | 25 Minutes | 30 Minutes |
| 127. | Opposite Drive End Bearing Temps - Fahrenheit 35-45 Minutes | | |
| | 35 Minutes | 40 Minutes | 45 Minutes |
| 128. | Opposite Drive End Bearing Temps - Fahrenheit 50-60 Minutes | | |
| | 50 Minutes | 55 Minutes | 60 Minutes |
| 129. | Stator Temperatures- Fahrenheit | | |
| | 5 Minutes | 10 Minutes | 15 Minutes |
| 130. | Stator Temperatures- Fahrenheit 20-30 Minutes | | |
| | 20 Minutes | 25 Minutes | 30 Minutes |
| 131. | Stator Temperatures- Fahrenheit 35-45 Minutes | | |
| | 35 Minutes | 40 Minutes | 45 Minutes |
| 132. | Stator Temperatures- Fahrenheit 50-60 Minutes | | |
| | 50 Minutes | 55 Minutes | 60 Minutes |
| 133. | Document Final Condition with Pictures after paint | | |
| 134. | Final Pics and QC Review | | |