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

# AC Inspection as Found

**DEWITT MUNICIPAL WATERWORKS**
**428 COURT SQUARE**

FolderID: 104088
FormID: 23260952

**AC Inspection - Rev. 2**

| | |
|---|---|
| **Location:** | LR MOTOR SHOP |
| **Serial Number:** | C1983937 |
| **Description:** | PUMP FOR EVALUATION NO DATA |

| | |
|---|---|
| **Hi-Speed Job Number:** | 104088 |
| **Manufacturer:** | Other |
| **Product Number:** | SVG3072L |
| **Spec/ID #:** | 111608 |
| **Serial Number:** | C1983937 |
| **HP/kW:** | 3 (HP) |
| **RPM:** | 3450 (RPM) |
| **Voltage:** | 220-240 |
| **Current:** | 25.2/21.7 (Amps) |
| **Phase:** | Single |
| **Hz:** | 60 (Hz) |
| **Enclosure:** | Submersible |
| **# of Leads:** | 3 |
| **J-box Included:** | None |
| **Coupling/Sheave:** | Propeller |
| **Date Received:** | 02/04/2025 |
| **Bearing RTDs:** | No |
| **Stator RTDs:** | No |
| **Repair Stage:** | Final |
| **Rewind:** | Yes |
| **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: **1 - High** **8 - Good**

## Overall Condition

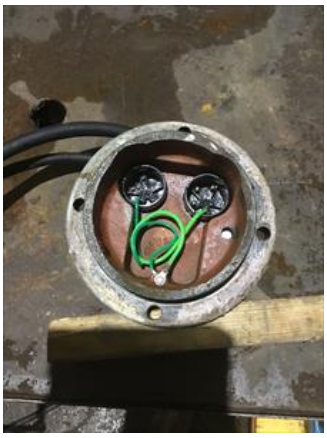
| | | |
|---|---|---|
| 1. | Report Date | **02/04/2025** |

2. Nameplate Picture P37

3. Photos of all six sides of the machine. P45

*Sensor cord. 3C 14awg  30ft long*

*4C 10awg.  30ft long*



*Outer seal O.D 1.7560*
*Shaft diameter: 1.1255*
*Carbon ceramic*

*Inner seal OD: 1.8825*
*Shaft diameter: 1.2502*

*Outer seal surface has wear.*

| | | |
|---|---|---|
| 4. | Describe the Overall Condition of the Equipment as Received<br>***Leaking oil, but serviceable.*** | |
| 5. | Distance from the end of the shaft to the Coupling/Sheave | **inches** |

## Initial Mechanical/Electrical

| | | |
|---|---|---|
| 6. | Does Shaft Turn Freely? | **(N) No** |
| 7. | Does the shaft require T.I.R in Lathe to identify additional repairs? | |

| | | | |
|---|---|---|---|
| 8. | Does Shaft Have Visible Damage? | **(No) No** | P26 |

| | | | |
|---|---|---|---|
| 9. | Assembled Shaft Runout | **Inches** | |
| 10. | Assembled Shaft End Play | **inches** | |
| 11. | Air Gap Variation <10% | | |
| | *A* | | |
| 12. | Lead Condition | **(P) Pass** | P69 |

| | | | |
|---|---|---|---|
| 13. | Lead Length | **18.25 Inches** | |
| 14. | Does it have Lugs?, If so what is the Stud Size? | **(No) No** | |
| 15. | Lead Numbers | **1,2,3** | |
| | ***Lead # Red (1)***<br>***Lead # White (2)***<br>***Lead # Black (3)*** | | |
| 16. | Frame Condition | | |
| 17. | Fan Condition | | |
| 18. | Does motor have internal fan? | **(No) No** | |
| 19. | Broken or Missing Components | **none** | |

## Initial Electrical Inspection

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


*Stator*


*Power cord*


*Sensor cord*

| | | | | | |
|---|---|---|---|---|---|
| | 21. | Winding Resistance | | | |
| | | 1-2 | 1-3 | 2-3 | |
| | | **0** | **0** | **0.9** | |
| | 22. | Perform Surge Test | | **(NA) Not Applicable** | |
| | 23. | Number of Stator Slots | | **24** | |
| | 24. | Stator Condition | | **rewind** | |
| | 25. | Stator Thermistors/Ohms | | | |
| | 26. | Stator Overloads/Ohms | | | P96 |


## Mechanical Inspection

| | | | |
|---|---|---|---|
| 27. | Drive End Bearing Brand | **WD** | |
| 28. | Drive End Bearing Number- | **6207 C3** | P32 |

| | | | |
|---|---|---|---|
| 29. | Drive End Bearing Qty. | **1** | |
| 30. | Drive End Bearing Type | **(Ball) Ball Bearing** | |
| 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? | **snap ring** | |
| 34. | Drive End Bearing Condition | **replace** | |
| 35. | Opposite Drive End Bearing Brand | **CU** | P92 |

| | | | |
|---|---|---|---|
| 36. | Opposite Drive End Bearing Number- | **6207** | P99 |

| | | | |
|---|---|---|---|
| 37. | Opposite Drive End Bearing Qty. | **1** | |
| 38. | Opposite Drive End Bearing Type | **(Ball) Ball Bearing** | |
| 39. | Opposite Drive End Lubrication Type | **(Oil) Oil Lubricated** | |
| 40. | Opposite Drive End Bearing Insulation or Grounding Device? | | |
| 41. | Opposite Drive End Wavy Washer/Snap-Ring Other Retention Device? | **wavy washer** | |
| 42. | Opposite Drive End Bearing Condition | **replace** | |
| 43. | Drive End Seal | **Outer seal** | P120 |

***Seal O.D 1.7560***
***Shaft I.D 1.1255***
***Carbon ceramic***

| | | | |
|---|---|---|---|
| 44. | Opposite Drive End Seal | **Inner seal** | P123 |

***Seal O.D 1.8825***
***Shaft I.D 1.2502***
***Carbon ceramic***

## Rotor Inspection

| | | |
|---|---|---|
| 45. | Rotor Type/Material | **(Squirrel Aluminum) Squirrel Cage Aluminum Die Cast** |
| 46. | Growler Test | **(Pass) Pass** |
| 47. | Number of Rotor Bars | **34** |
| 48. | Rotor Condition | **pass** |
| 49. | List the Parts needed for the Repair Below | |
| 50. | Signature of Technician that Disassembled Motor | **Terrence Holland** |

## Mechanical Fits- Rotor

| | | |
|---|---|---|
| 51. | Shaft Runout | **0.002 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 |
|---|---|---|

*Threaded shaft*

| | | |
|---|---|---|
| 55. | Drive End Bearing Shaft Fit | |

| 0 Degrees | 60 Degrees | 120 Degrees |
|---|---|---|
| **1.3785** | **1.3786** | **1.3785** |

| | | |
|---|---|---|
| 56. | Drive End Bearing Shaft Fit Condition | **(P) Pass** |
| 57. | Opposite Drive End Bearing Shaft Fit | |

| 0 Degrees | 60 Degrees | 120 Degrees |
|---|---|---|
| **0.6692** | **0.6692** | **0.6692** |

| | | |
|---|---|---|
| 58. | Opposite Drive End Bearing Shaft Fit Condition | **(P) Pass** |

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 |
|---|---|---|
| **2.8349** | **2.8351** | **2.835** |

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

62. Opposite Drive End - Endbell Bearing Fit

| 0 Degrees | 60 Degrees | 120 Degrees |
|---|---|---|
| **1.575** | **1.575** | **1.5752** |

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

64. Bearing Cap Condition

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

65. End Bell Air Seal Fits

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

66. List Machine Work Needed Below

***Polish seal surface on D.E***

67. Technician **Terrence Holland**

***Co witness: RRW***

## Root Cause of Failure

68. Failure locations

***Windings show open between leads 1&2, & leads 1&3. Both bearings show water contamination.***

69. Root cause of failure

***Seal failure allow water to saturate the stator windings.***

## Dynamic Balance Report

70. Rotor Weight and Balance Grade

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

71. Initial Balance Readings

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

72. Final Balance Readings

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

73. Technician

## Rewind

74. Core Test Results - Watts loss per Pound

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

| | | | |
|---|---|---|---|
| 75. | Core Hot Spot Test | | |
| | Pre-Burnout | Post-Burnout | |
| 76. | Post Rewind Electrical Test- Insulation Resistance | | |
| 77. | Post Rewind Polarization Index | | |
| 78. | Post Rewind Winding Resistance | | |
| | 1-2 | 1-3 | 2-3 |
| 79. | Post Rewind Surge Test | | |
| 80. | Post Rewind Hi-Pot | | |
| 81. | Technician | | |
| **Mechanical Fits- Rotor - Post Repair** | | | |
| 82. | Shaft Runout Post Repair | | |
| 83. | Rotor Runout Post Repair | | |
| | Drive End Bearing Fit | Rotor Body | Opposite Drive End Bearing |
| 84. | Coupling Fit Closest to Bearing Housing Post Repair | | |
| | 0 Degrees | 90 Degrees | 120 Degrees |
| 85. | Coupling Fit Closest to the end of the Shaft Post Repair | | |
| | 0 Degrees | 60 Degrees | 120 Degrees |
| 86. | Drive End Bearing Shaft Fit Post Repair | | |
| | 0 Degrees | 60 Degrees | 120 Degrees |
| 87. | Opposite Drive End Bearing Shaft Fit Post Repair | | |
| | 0 Degrees | 60 Degrees | 120 Degrees |
| 88. | Shaft Air Seal Fits Post Repair | | |
| | Drive End Air Seal | Opposite Drive End Air Seal | |
| 89. | Shaft Repair Sign-off | | |
| **Assembly** | | | |
| 90. | QC Check All Parts for Cleanliness Prior to Assembly | | |
| 91. | Photograph All Major Components prior to assembly | | |
| 92. | Final Insulation Resistance Test | | |
| 93. | Assembled Shaft Endplay | | |
| 94. | Assembled Shaft Runout | | |
| 95. | Test Run Voltage | | |
| | Volts | Volts | Volts |
| 96. | Test Run Amperage | | |
| | Amps | Amps | Amps |
| 97. | Drive End Vibration Readings - Inches Per Second | | |
| | Horizontal | Vertical | Axial |

| | | | |
|---|---|---|---|
| 98. | Opposite Drive End Vibration Readings - Inches Per Second | | |
| | Horizontal | Vertical | Axial |
| 99. | Ambient Temperature - Fahrenheit | | |
| 100. | Drive End Bearing Temps - Fahrenheit | | |
| | 5 Minutes | 10 Minutes | 15 Minutes |
| 101. | Opposite Drive End Bearing Temps - Fahrenheit | | |
| | 5 Minutes | 10 Minutes | 15 Minutes |
| 102. | Document Final Condition with Pictures after paint | | |
| 103. | Final Pics and QC Review | | |