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— EVERY DAY SINCE 1946 —

Motor Shop Repairs

Job Number 97870

Prepared for Phelps Fan Manufacturing Co.

10701 Interstate 30
Little Rock AR 72209

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AC Recondition Repair Report

1.0

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

AC Recondition Repair Report

FolderID: 97870
FormID: 10005886

Phelps Fan Manufacturing Co.
10701 Interstate 30
Little Rock, AR 72209

*Additional Notes: Assembled and tested
by Terrence Holland*

Priorities Found: ● 1 - High ● 15 - Good

General

1. Job Number	97870
2. Report Date	
3. Customer	Phelps Fan

Name Plate Information

4. Manufacturer	ABB
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5. Model	M2AA 160L 2
6. Serial Number	1EC 160M/L 42
7. Horsepower	25
8. KW	
9. Volts	460
10. Amps	60
11. RPM	3528
12. Frame	160L
13. Enclosure	TEFC
14. Cycles	60
15. Phase	3
16. Service Factor	
17. Motor Mount Position	
Initial Inspection	
18. Number of Leads	6
19. Lead Length	8 Inches
20. Lead Size	10
21. Lead Condition	(P) Pass
22. Lead Markings	
23. Lug Size, Condition, and Type	<i>Broken terminal block. 6 pole 5/16 studs</i>
24. Winding RTD's	(NA) Not Applicable
25. Winding Rtd's Condition	(NA) Not Applicable
26. Shaft Run Out	
27. Does Shaft Turn Freely	yes
28. Does Shaft Have Visible Damage	no
29. Bearing Rtd's	(NA) Not Applicable
30. Bearing Rtd's Condition	(NA) Not Applicable
31. Contamination	
32. Frame Condition	(P) Pass
33. Fan Condition	(P) Pass
34. Broken or missing components	<i>Terminal block</i>
Initial Electric Test	

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36. Winding Resistance 1-2

37. Winding Resistance 2-3

38. Winding Resistance 1-3

39. Resistive Imbalance

40. Hi-Pot

41. Surge Test

42. Stator Condition

43. Failure Location

Initial Rotor Inspection44. Rotor Type **cast aluminum**


45. Air Gap <10% Variation

46. Number of Rotor Bars **28**

47. Number of Broken Rotor Bars

● 48. Growler Test **(P) Pass**● 49. Rotor Condition **(P) Pass****Mechanical Inspection**50. Bearing Manufacture **machine**51. Bearing DE Size **6209 2Z**52. Bearing DE Type **ball**53. DE Bearing Qty. **1**54. Bearing ODE Size **6209 2Z**

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55. Bearing ODE Type	ball
56. ODE Bearing Qty.	1
57. Insulated Bearing	
58. Lubrication Type	polyrex
59. Grease Condition	(F) Fail
60. Bearing Retainers	(NA) Not Applicable
61. Shaft Grounding Device	(NA) Not Applicable
62. DE Seal	(NA) Not Applicable
63. DE Seal Type/Size	
64. ODE Seal	(NA) Not Applicable
65. ODE Seal Type/Size	
Root Cause of Failure	
66. Component Failure	bearings
67. Cause of Failure <i>Thrust</i>	
68. Comments	
69. Service Technician	David Maclin
	
Machine Fit Inspection Report	
70. Shaft Run Out	
71. Initial Shaft Run Out	
72. Final Shaft Run Out	
73. DE Bearing Shaft Fit	(P) Pass
74. DE Initial Shaft Bearing Fit Size 1	1.7722 "
75. DE Initial Shaft Bearing Fit Size 2	1.7722 "
76. DE Initial Shaft Bearing Fit Size 3	1.7722 "
77. DE Finial Shaft Bearing Fit Size 1	
78. DE Finial Shaft Bearing Fit Size 2	
79. DE Finial Shaft Bearing Fit Size 3	
80. ODE Bearing Shaft Fit	(P) Pass
81. ODE Initial Shaft Bearing Fit Size 1	1.7722 "
82. ODE Initial Shaft Bearing Fit Size 2	1.7722 "
83. ODE Initial Shaft Bearing Fit Size 3	1.7722 "
84. ODE Finial Shaft Bearing Fit Size 1	
85. ODE Finial Shaft Bearing Fit Size 2	
86. ODE Finial Shaft Bearing Fit Size 3	
87. DE Air Seal Shaft Fit	
88. DE Initial Air Seal Shaft Size	
89. DE Final Air Seal Shaft Size	
90. ODE Air Seal Shaft Fit	
91. ODE Initial Air Seal Shaft Size	
92. ODE Final Air Seal Shaft Size	
93. DE Endbell Fit	(P) Pass
94. DE Initial Endbell Fit Size 1	3.3465 "

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95. DE Initial Endbell Fit Size 2	3.3465 "
96. DE Initial Endbell Fit Size 3	3.3465 "
97. DE Final Endbell Fit Size 1	
98. DE Final Endbell Fit Size 2	
99. DE Final Endbell Fit Size 3	
100. DE Endbell Fit Insulated	
101. DE Endbell Air Seal Fit	
102. Initial Endbell Air Seal Fit Size	
103. Final Endbell Air Seal Fit Size	
104. ODE Endbell Fit	(P) Pass
105. ODE Initial Endbell Fit Size 1	3.3465 "
106. ODE Initial Endbell Fit Size 2	3.3465 "
107. ODE Initial Endbell Fit Size 3	3.3465 "
108. ODE Final Endbell Fit Size 1	
109. ODE Final Endbell Fit Size 2	
110. ODE Final Endbell Fit Size 3	
111. ODE Endbell Fit Insulated	
112. ODE Endbell Air Seal Fit	
113. ODE Initial Endbell Seal Fit Size	
114. ODE Final Endbell Seal Fit Size	
115. Foot Flatness	(P) Pass
116. Foot Condition	(P) Pass
117. Flange Condition	(NA) Not Applicable
118. Service Technician	David Maclin



Balancing Report

- | |
|------------------------------|
| 119. Balance Type |
| 120. Balance Operating Speed |
| 121. Start Left End |
| 122. Start Right End |
| 123. Balancing Specification |
| 124. Finish Left End |
| 125. Finish Right End |
| 126. Service Technician |

Assembly and Final Test

- | |
|-------------------------------|
| 127. Meggar Testing Reading |
| 128. Surge Test |
| 129. Hi-Pot |
| 130. Winding Resistance 1-2 |
| 131. Winding Resistance 2-3 |
| 132. Winding Resistance 1-3 |
| 133. Test Run Voltage Phase A |
| 134. Test Run Amps A |
| 135. Test Run Voltage Phase B |

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136. Test Run Amps B
137. Test Run Voltage Phase C
138. Test Run Amps C
139. DE Horizontal Vibration Reading
140. DE Vertical Vibration Reading
141. DE Axial Vibration Reading
142. ODE Horizontal Vibration Reading
143. ODE Vertical Vibration Reading
144. ODE Axial Vibration Reading
145. Ambient Temp at start of Test Run
146. Temp at 5 minutes
147. Temp at 10 minutes
148. Temp at 15 minutes
149. Temp at 20 minutes
150. Temp at 25 minutes
151. Temp at 30 minutes
152. Temp at 35 minutes
153. Temp at 40 minutes
154. Temp at 45 minutes
155. Temp at 50 minutes
156. Temp at 55 minutes
157. Temp at 60 minutes
<div>● 158. Motor Paint</div> <div>(P) Pass</div>

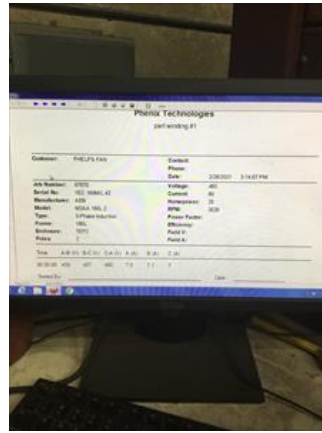




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159. Service Technician

David Maclin

David Maclin



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4. **BILLING AND PAYMENT TERMS.** Hi-Speed shall invoice Buyer for all goods and/or services as same are rendered at the address listed on the quotation. Payments for all goods and/or services shall be due thirty (30) days from the date of the current invoice or as otherwise set forth in the quotation. Late payments are subject to a late fee of 5% of the total invoice amount. Recurring late payments may lead to a deposit requirement on future services or sale of goods. Buyer shall be liable to Hi-Speed for any and all fees and expenses incurred by Hi-Speed to collect any invoices or to enforce these Standard Terms and Conditions, including but not limited to, attorney's fees.
5. **DELIVERY OF GOODS AND/OR SERVICES.** Unless otherwise identified in the quotation, all shipments are F.O.B. Hi-Speed's warehouse and the title to and all risk of loss with respect to any goods shipped shall pass to Buyer when such goods are delivered to the carrier at Hi-Speed's warehouse. Hi-Speed will use its best efforts to affect delivery by the date or dates specified in the quotation. However, Hi-Speed shall not be liable for delay in or failure to make shipment, or to perform services, by any identified date for any reason whatsoever, including but not limited to, causes beyond its reasonable control, such as strikes, fires, floods, epidemics, quarantines, restrictions, severe weather, embargos, acts of God, or public enemy, war, riot, delays in transportation or the inability to obtain necessary labor, materials or manufacturing facilities.
6. **DELIVERY SITE AND TIME FOR PERFORMANCE.** Hi-Speed and Buyer agree that time is of the essence for the purchase order and that Buyer shall fully cooperate with Hi-Speed in order to allow Hi-Speed full access to prosecute its work diligently and in an orderly manner. Buyer shall assist Hi-Speed in every way possible to avoid delaying, disrupting or interfering with the progress of Hi-Speed's work at the project site. In the event Hi-Speed's work is delayed, hindered, suspended, disrupted, re-sequenced or interfered with or rendered less efficient or more costly or adversely affected in any way as a result of acts or omissions of Buyer or other contractors or employees of Buyer or by any other reason beyond Hi-Speed's control and without the fault of Hi-Speed, then, in such event, Buyer shall be liable to Hi-Speed for any damages, additional costs, expenses, labor, materials, man hours, acceleration costs, overtime, additional jobsite overhead, extended home office overhead, and any and all other direct and indirect expenses of whatsoever nature or kind, caused in whole or in part, as a result of any of the above-referenced occurrences. Hi-Speed's project records will be the basis for computing the additional costs and damages of Hi-Speed's labor, materials, expenses and overhead related to such changes. BUYER WARRANTS THAT THE SITE FOR DELIVERY OR INSTALLATION OF ANY GOODS AND/OR FOR THE PERFORMANCE OF ANY SERVICES SHALL BE READY AND ADEQUATE FOR HI-SPEED'S DELIVERY OF GOODS AND/OR PERFORMANCE OF SERVICES AND THAT HI-SPEED SHALL HAVE FULL ACCESS THERETO, FREE OF ALL OBSTRUCTIONS. BUYER SHALL ASSUME ALL EXTRA COSTS ASSOCIATED WITH HI-SPEED'S INABILITY TO INSTALL ANY GOODS OR PERFORM ANY SERVICES AS A RESULT OF BUYER'S FAILURE TO COMPLY WITH THIS PROVISION. HI-SPEED MAY NOT INSPECT THE SITE PRIOR TO DELIVERY AND/OR INSTALLATION OF GOODS AND/OR PERFORMANCE OF SERVICES AND MAKES NO WARRANTY AS TO THE SUFFICIENCY OF THE SITE FOR THE DELIVERY AND/OR INSTALLATION OF GOODS AND/OR THE PERFORMANCE OF SERVICES AT SUCH SITE.
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8. **WARRANTIES.** Hi-Speed warrants that all goods shall conform in all material aspects to the goods identified in the quotation to Buyer and/or purchase order, and Hi-Speed makes to Buyer the manufacturer's express warranty for any goods sold to Buyer, which is offered by the manufacturer at the time of acceptance of any quotation by Buyer. This warranty is conditioned upon the installation, operation, and maintenance of the goods in accordance with the manufacturer's recommendations and/or standard industry practice and the goods at all times being operated or used under normal operating conditions for which they were designed. Hi-Speed, at its sole option, will repair or

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13. **FORCE MAJEURE.** Neither party shall be responsible for any delay or failure in performance of any party of the quotation, purchase order or these Standard Terms and Conditions to the extent that such delays or failures are caused by fire, flood, earthquake, explosion, war, embargo, government requirement, civil or military authority, acts of God, or any other circumstances beyond its reasonable control and not involving any fault or negligence on the party affected ("Condition"). If any such Condition occurs, the party delayed or unable to perform shall promptly give written notice to the other party and, if such Condition remains at the end of thirty (30) days, the party affected by the other party's delay and inability to perform may elect to (i) terminate such order or part thereof, or (ii) suspend the order for the duration of the Condition, if the Buyer is the suspending party, buy elsewhere comparable material to be sold under the order and apply to any commitment the purchase price of such purchase, and resume performance of the order once the Condition ceases, with an option in the affected party to extend the period of this order up to the length of the time the Condition endures.
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