

# EVERY DAY SINCE 1946

LR Motor Shop Repairs

## Job Number 100154

Prepared for Kimberly Clark (10176-KCM)

500 Murphy Dr. Maumelle AR 72113

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AC Recondition As Found - Shop



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

> FolderID: 100154 FormID: 14283833

#### **AC Recondition As Found**

Kimberly Clark (10176-KCM) 500 Murphy Dr. Maumelle, AR 72113

#### AC Recondition - Rev. 2

Location:	Shop
Serial Number:	C1012021043
Deceminations (0) ID	DALDOD 4000DDM 224T

Description:40HP BALDOR 1800RPM 324T

Hi-Speed Job Number:	100154
Manufacturer:	Baldor
Product Number:	ECP4110T-4
Spec/ID #:	12E916X286G1
Serial Number:	C1012021043
HP/kW:	40 (HP)
RPM:	1775 (RPM)
Frame:	324T
Voltage:	460
Current:	46
Phase:	Three
Hz:	60 (Hz)
Service Factor:	1.15
Enclosure:	TEFC
J-box Included:	Complete
Bearing RTDs:	No
Stator RTDs:	No
Repair Stage:	Final
Heaters:	No
Winding Type :	Random Wound
Bearing Type:	Rolling Element

#### Priorities Found: 🔵 2 - High

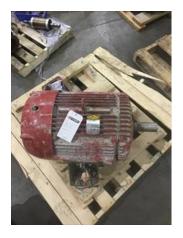
🔵 7 - Good

#### **Overall Condition**

- 1. Report Date
- 2. Nameplate Picture



3. Photos of all six sides of the machine.





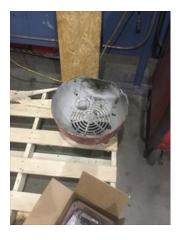




























4. Describe the Overall Condition of the Equipment as Received *Functional but dirty* 

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?



8.	Assembled Shaft Runout	0.002 Inches
9.	Assembled Shaft End Play	
10.	Air Gap Variation <10%	
11.	Lead Condition	(P) Pass
12.	Lead Length	15 Inches
13.	Frame Condition	good
14.	Fan Condition	(P) Pass



15.	Broken or Missing Components		
Initial	Electrical Inspection		
16.	Insulation Resistance/Megger		
17.	Winding Resistance		
	1-2	1-3	2-3



19. Stator Condition



#### **Mechanical Inspection**

20. Drive End Bearing Number-



21. Drive End Bearing Qty.

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6312

1

#### (Ball) Ball Bearing

#### 22. Drive End Bearing Type





23.	Drive End Lubrication Type	
24.	Drive End Bearing Insulation or Grounding Device?	none
25.	Drive End Wavy Washer/Snap-Ring Other Retention Device?	none
26.	Drive End Bearing Condition	grease dirty and contaminated
27.	Opposite Drive End Bearing Number-	6312
28.	Opposite Drive End Bearing Qty.	

29. Opposite Drive End Bearing Type







30. Opposite Drive End Lubrication Type

31. Opposite Drive End Bearing Insulation or Grounding Device?

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(Ball) Ball Bearing

(Grease) Grease Lubricated none



33.	Opposite Drive End Bearing Co	ndition	grease dirty and contaminated
34.	Drive End Seal		
35.	Opposite Drive End Seal		
Rotor	r Inspection		
36.	Rotor Type/Material		(Squirrel Aluminum) Squirrel Cage Aluminum Die Cast
37.	Growler Test		
38.	Number of Rotor Bars		
39.	Rotor Condition		
40.	List the Parts needed for the Re	epair Below	
-	/	Alla	$\sum$
-			
Mech	anical Fits- Rotor		
	anical Fits- Rotor Shaft Runout		0.002 inches
42.			0.002 inches
42.	Shaft Runout	Rotor Body	0.002 inches Opposite Drive End Bearing
42.	Shaft Runout Rotor Runout Drive End Bearing Fit	-	
42. 43.	Shaft Runout Rotor Runout Drive End Bearing Fit	-	
42. 43.	Shaft Runout Rotor Runout Drive End Bearing Fit Coupling Fit Closest to Bearing 0 Degrees	Housing 90 Degrees	Opposite Drive End Bearing
42. 43. 44.	Shaft Runout Rotor Runout Drive End Bearing Fit Coupling Fit Closest to Bearing 0 Degrees	Housing 90 Degrees	Opposite Drive End Bearing
42. 43. 44.	Shaft Runout Rotor Runout Drive End Bearing Fit Coupling Fit Closest to Bearing 0 Degrees Coupling Fit Closest to the end 0 Degrees	Housing 90 Degrees of the Shaft	Opposite Drive End Bearing 120 Degrees
42. 43. 44. 45.	Shaft Runout Rotor Runout Drive End Bearing Fit Coupling Fit Closest to Bearing 0 Degrees Coupling Fit Closest to the end 0 Degrees	Housing 90 Degrees of the Shaft	Opposite Drive End Bearing 120 Degrees
42. 43. 44. 45.	Shaft Runout Rotor Runout Drive End Bearing Fit Coupling Fit Closest to Bearing 0 Degrees Coupling Fit Closest to the end 0 Degrees	Housing 90 Degrees of the Shaft 60 Degrees	Opposite Drive End Bearing 120 Degrees 120 Degrees
42. 43. 44. 45.	Shaft Runout Rotor Runout Drive End Bearing Fit Coupling Fit Closest to Bearing 0 Degrees Coupling Fit Closest to the end 0 Degrees Drive End Bearing Shaft Fit 0 Degrees 2.3623	Housing 90 Degrees of the Shaft 60 Degrees 60 Degrees 2.3623	Opposite Drive End Bearing 120 Degrees 120 Degrees 120 Degrees
<ul><li>42.</li><li>43.</li><li>44.</li><li>45.</li><li>46.</li></ul>	Shaft Runout Rotor Runout Drive End Bearing Fit Coupling Fit Closest to Bearing 0 Degrees Coupling Fit Closest to the end 0 Degrees Drive End Bearing Shaft Fit 0 Degrees 2.3623 Drive End Bearing Shaft Fit Cor	Housing 90 Degrees of the Shaft 60 Degrees 60 Degrees 2.3623	Opposite Drive End Bearing 120 Degrees 120 Degrees 120 Degrees 2.3623
<ul> <li>42.</li> <li>43.</li> <li>44.</li> <li>45.</li> <li>46.</li> <li>47.</li> </ul>	Shaft Runout Rotor Runout Drive End Bearing Fit Coupling Fit Closest to Bearing 0 Degrees Coupling Fit Closest to the end 0 Degrees Drive End Bearing Shaft Fit 0 Degrees 2.3623 Drive End Bearing Shaft Fit Cor	Housing 90 Degrees of the Shaft 60 Degrees 60 Degrees 2.3623	Opposite Drive End Bearing 120 Degrees 120 Degrees 120 Degrees 2.3623

50	Shaft Air Seal Fits			
50.		Opposite Drive End Air Seel		
	Drive End Air Seal	Opposite Drive End Air Seal		
Mech	anical Fits- Bearing Housings			
	Drive End - Endbell Bearing Fit			
•	0 Degrees	60 Degrees	120 Degrees	
	5.1184	5.1185	5.1185	
52	Drive End - Endbell Bearing Fit Cond		5.1105	(P) Pass
	Opposite Drive End - Endbell Bearing			(1)1 466
	0 Degrees	60 Degrees	120 Degrees	
	5.1189	5.1188	5.119	
54	Opposite Drive End - Endbell Bearing		0.110	(P) Pass
	Bearing Cap Condition			(1)1035
00.	Drive End Bearing Cap	Opposite Drive End Bearing Cap		
	good	good		
56	End Bell Air Seal Fits	3004		
00.	Drive End Air Seal	Opposite Drive End Air Seal		
	Dive End All Seal	Opposite Drive End All Geal		
57.	List Machine Work Needed Below			
	None			
FO	Technician		Ter	rence. Holland
58.				
58.	1	1- 0		
58.	1 71	$n \cap$		
58.	1	le l		
58.	L H	lad		
_	mic Balance Report	lad		
Dyna	mic Balance Report Rotor Weight and Balance Grade	ll		
Dyna	Rotor Weight and Balance Grade	Balance Grade		
Dyna		Balance Grade		
<b>Dyna</b> 59.	Rotor Weight and Balance Grade	Balance Grade		
<b>Dyna</b> 59.	Rotor Weight and Balance Grade Rotor Weight	Balance Grade Opposite Drive End		
<b>Dyna</b> 59.	Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings			
<b>Dyna</b> 59. 60.	Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings			
<b>Dyna</b> 59. 60.	Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings Drive End			
<b>Dyna</b> 59. 60. 61.	Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings Drive End Final Balance Readings Drive End	Opposite Drive End		
<b>Dyna</b> 59. 60. 61.	Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings Drive End Final Balance Readings Drive End Technician	Opposite Drive End		
<b>Dyna</b> 59. 60. 61. 62. <b>Rewin</b>	Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings Drive End Final Balance Readings Drive End Technician	Opposite Drive End Opposite Drive End		
<b>Dyna</b> 59. 60. 61. 62. <b>Rewin</b>	Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings Drive End Final Balance Readings Drive End Technician	Opposite Drive End Opposite Drive End		
<b>Dyna</b> 59. 60. 61. 62. <b>Rewin</b>	Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings Drive End Final Balance Readings Drive End Technician	Opposite Drive End Opposite Drive End		
<b>Dyna</b> 59. 60. 61. 62. <b>Rewin</b> 63.	Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings Drive End Final Balance Readings Drive End Technician nd Core Test Results - Watts loss per Per Pre-Burnout	Opposite Drive End Opposite Drive End		
<b>Dyna</b> 59. 60. 61. 62. <b>Rewin</b> 63.	Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings Drive End Final Balance Readings Drive End Technician <b>nd</b> Core Test Results - Watts loss per Pe Pre-Burnout Core Hot Spot Test	Opposite Drive End Opposite Drive End		
<b>Dyna</b> 59. 60. 61. 62. <b>Rewin</b> 63.	Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings Drive End Final Balance Readings Drive End Technician nd Core Test Results - Watts loss per Per Pre-Burnout	Opposite Drive End Opposite Drive End		
<b>Dyna</b> 59. 60. 61. 62. <b>Rewi</b> 63. 64.	Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings Drive End Final Balance Readings Drive End Technician <b>nd</b> Core Test Results - Watts loss per Pe Pre-Burnout Core Hot Spot Test	Opposite Drive End Opposite Drive End ound Post Burnout Post-Burnout		
<b>Dyna</b> 59. 60. 61. 62. <b>Rewin</b> 63. 64.	Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings Drive End Final Balance Readings Drive End Technician <b>nd</b> Core Test Results - Watts loss per Pa Pre-Burnout Core Hot Spot Test Pre-Burnout Post Rewind Electrical Test- Insulation	Opposite Drive End Opposite Drive End ound Post Burnout Post-Burnout		
<ul> <li>Dyna</li> <li>59.</li> <li>60.</li> <li>61.</li> <li>62.</li> <li>Rewin</li> <li>63.</li> <li>64.</li> <li>65.</li> <li>66.</li> </ul>	Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings Drive End Final Balance Readings Drive End Technician <b>nd</b> Core Test Results - Watts loss per Pe Pre-Burnout Core Hot Spot Test Pre-Burnout Post Rewind Electrical Test- Insulation Post Rewind Polarization Index	Opposite Drive End Opposite Drive End ound Post Burnout Post-Burnout		
<ul> <li>Dyna</li> <li>59.</li> <li>60.</li> <li>61.</li> <li>62.</li> <li>Rewin</li> <li>63.</li> <li>64.</li> <li>65.</li> <li>66.</li> </ul>	Rotor Weight and Balance Grade Rotor Weight Initial Balance Readings Drive End Final Balance Readings Drive End Technician <b>nd</b> Core Test Results - Watts loss per Pa Pre-Burnout Core Hot Spot Test Pre-Burnout Post Rewind Electrical Test- Insulation	Opposite Drive End Opposite Drive End ound Post Burnout Post-Burnout	2-3	

#### 68. Post Rewind Surge Test



69. Post Rewind Hi-Pot

#### 70. Technician

#### **Root Cause of Failure**

71. Failure locations *Windings* 



72.	Root cause of failure		
	Coil phase to phase.		
Mecha	anical Fits- Rotor - Post Repair		
73.	Shaft Runout Post Repair		
74.	Rotor Runout Post Repair		
	Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing
75.	Coupling Fit Closest to Bearing Housi	ng Post Repair	
	0 Degrees	90 Degrees	120 Degrees
76.	Coupling Fit Closest to the end of the	Shaft Post Repair	
	0 Degrees	60 Degrees	120 Degrees
77.	Drive End Bearing Shaft Fit Post Repa	air	
	0 Degrees	60 Degrees	120 Degrees

78.	Opposite Drive End Bearing Shaft Fit	Post Repair	
	0 Degrees	60 Degrees	120 Degrees
79.	Shaft Air Seal Fits Post Repair		
	Drive End Air Seal	Opposite Drive End Air Seal	
80.	Shaft Repair Sign-off		
Mecha	anical Fits- Bearing Housings - P	ost Repair	
81.	Drive End - Endbell Bearing Fit Post F	Repair	
	0 Degrees	60 Degrees	120 Degrees
82.	Opposite Drive End - Endbell Bearing	Fit Post Repair	
	0 Degrees	60 Degrees	120 Degrees
83.	Bearing Cap Condition Post Repair		
	Drive End Bearing Cap	Opposite Drive End Bearing Cap	
84.	End Bell Air Seal Fits Post Repair		
	Drive End Air Seal	Opposite Drive End Air Seal	
	End Bell Repair Sign-off		
Asser	nbly		

86. Photograph All Major Components prior to assembly















88. Assembled Shaft Endplay         89. Assembled Shaft Runout         90. Test Run Voltage         Volts       Volts         91. Test Run Amperage         Amps       Amps         92. Drive End Vibration Readings - Inches Per Second         Horizontal       Vertical         93. Opposite Drive End Vibration Readings - Inches Per Second         Horizontal       Vertical         Axial	
90. Test Run Voltage       Volts       Volts         Volts       Volts       Volts         91. Test Run Amperage       Amps       Amps         Amps       Amps       Amps         92. Drive End Vibration Readings - Inches Per Second       Axial         93. Opposite Drive End Vibration Readings - Inches Per Second       Axial	
Volts     Volts       91.     Test Run Amperage       Amps     Amps       Amps     Amps       92.     Drive End Vibration Readings - Inches Per Second       Horizontal     Vertical       93.     Opposite Drive End Vibration Readings - Inches Per Second       Horizontal     Vertical	
91. Test Run Amperage         Amps       Amps         Amps       Amps         92. Drive End Vibration Readings - Inches Per Second         Horizontal       Vertical         93. Opposite Drive End Vibration Readings - Inches Per Second         Horizontal       Vertical         Vertical       Axial	
Amps       Amps       Amps         92. Drive End Vibration Readings - Inches Per Second       Vertical       Axial         93. Opposite Drive End Vibration Readings - Inches Per Second       Vertical       Axial	
Amps       Amps       Amps         92. Drive End Vibration Readings - Inches Per Second       Vertical       Axial         93. Opposite Drive End Vibration Readings - Inches Per Second       Vertical       Axial	
92. Drive End Vibration Readings - Inches Per Second         Horizontal       Vertical         93. Opposite Drive End Vibration Readings - Inches Per Second         Horizontal       Vertical         Axial	
Horizontal     Vertical     Axial       93.     Opposite Drive End Vibration Readings - Inches Per Second       Horizontal     Vertical     Axial	
Horizontal     Vertical     Axial       93.     Opposite Drive End Vibration Readings - Inches Per Second       Horizontal     Vertical     Axial	
93. Opposite Drive End Vibration Readings - Inches Per Second Horizontal Vertical Axial	
Horizontal Vertical Axial	
Horizontal Vertical Axial	
94. Ambient Temperature - Fahrenheit	
94. Ambient Temperature - Fahrenheit	
95. Drive End Bearing Temps - Fahrenheit	
5 Minutes 10 Minutes 15 Minutes	
96. Opposite Drive End Bearing Temps - Fahrenheit	
5 Minutes 10 Minutes 15 Minutes	

97. Final Test Run Sign-off

- 98. Document Final Condition with Pictures after paint
- 99. Final Pics and QC Review



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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, earth quake, 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.
- 14. <u>NONWAIVER</u>. No course of dealing or failure of either party to strictly enforce any term, right, or condition of these Standard Terms and Conditions will be construed as a waiver of such term, right or condition. Any waiver by Hi-Speed will only be in writing and will waive no succeeding breach of a term, right or condition.
- 15. <u>ASSIGNMENT.</u> The rights and obligations of the parties shall neither be assigned nor delegated without the prior written consent of the other party. However, any party may assign or delegate its respective rights and obligations, in whole or in part, (i) to any subsidiary, (ii) pursuant to other financing, merger or reorganization or (iii) pursuant to any sale or transfer of substantially all of the assets of the assigning party. These Standard Terms and Conditions shall bind the heirs, successors and assigns of the parties hereto.
- 16. <u>NO INDIVIDUAL LIABILITY</u>. Notwithstanding any other agreement to the contrary, the Buyer agrees that in no event will the Buyer hold and HI-Speed owner, director, officer or employee personally liable for unintentional tortious conduct or conduct that constitutes the breach of any contract between HI-Speed and the Buyer, even if the HI-Speed owner, director, officer or employee is or could be construed to be a party to such contract.