

# LR Motor Shop Repairs

**EVERY DAY SINCE 1946** 

## **Job Number 102790**

Prepared for Essick Air Products (10100)

5800 Murray Little Rock AR 72209

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AC Inspection as Found -  $\it LITTLE$  ROCK MOTOR SHOP

AC Inspection - Rev. 2: CAT: HVW10V2B

1.0

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#### **AC Inspection as Found** Essick Air Products (10100)

5800 Murray Little Rock, AR 72209

FolderID: 102790 FormID: 20095265

#### AC Inspection - Rev. 2

LITTLE ROCK MOTOR SHOP Location:

Serial Number: CAT: HVW10V2B

Description: 10HP US 1760 RPM

Hi-Speed Job Number:	102790
Manufacturer:	US Motors/Nidec
Spec/ID #:	H04-AM79-M
Serial Number:	CAT:HVW10V2B
HP/kW:	10 (HP)
RPM:	1760 (RPM)
Frame:	215T
Voltage:	230 / 460
Phase:	Three
Hz:	60 (Hz)
Service Factor:	1.15
Repair Stage:	Final
Rewind:	No
Shaft Machined Fit Repairs Required:	No
Bearing Housing Machined Fit Repairs Required:	Yes
Heaters:	No
Winding Type :	Random Wound
Bearing Type:	Rolling Element
Rewind: Shaft Machined Fit Repairs Required: Bearing Housing Machined Fit Repairs Required: Heaters: Winding Type:	No No Yes No Random Wound

Priorities Found: **a** 2 - High

9 - Good

#### **Overall Condition**

Report Date 04/24/2024

Nameplate Picture





Photos of all six sides of the machine.

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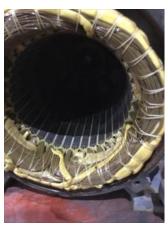












4.	Describe the Overall Condition of the <i>Ok</i>	Equipment as Received		
5.	Distance from the end of the shaft to t	he Coupling/Sheave		0 inches
Initial	Mechanical/Electrical			
<b>6</b> .	Does Shaft Turn Freely?			(Y) Yes
<b>7</b> .	Does the shaft require T.I.R in Lathe t	o identify additional repairs?		(No) No
8.	Does Shaft Have Visible Damage?			(No) No
9.	Assembled Shaft Runout			0 Inches
10.	Assembled Shaft End Play			0 inches
11.	Air Gap Variation <10%			none
<b>1</b> 2.	Lead Condition			(P) Pass
13.	Lead Length			8 Inches
<b>1</b> 4.	Does it have Lugs?, If so what is the S	Stud Size?		(No) No
15.	Lead Numbers			1-9
16.	Stator Temperature Detector Rating a	nd Function		
	Quantity	Rating	Quantity Passed	
	0			
17.	Bearing Temperature Detector Rating	and Function		
	Quantity	Rating	Quantity Passed	
	0			
18.	Frame Condition			good
19.	Fan Condition			(N) NA
20.	Broken or Missing Components			none
Initial	Electrical Inspection			

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22.	Winding Resistance		
	1-2	1-3	2-3
	.398	.398	.398
23.	Perform Surge Test		(P) Pass
24.	Number of Stator Slots		36
25.	Stator Condition		good
26.	Stator Thermistors/Ohms		na
27.	Stator Overloads/Ohms		na
Mech	anical Inspection		
28.	Drive End Bearing Brand		SKF



29. Drive End Bearing Number-	6208
30. Drive End Bearing Qty.	1
31. Drive End Bearing Type	(Ball) Ball Bearing
32. Drive End Lubrication Type	(Grease) Grease Lubricated
33. Drive End Bearing Insulation or Grounding Device?	none
34. Drive End Wavy Washer/Snap-Ring Other Retention Device?	none
35. Drive End Bearing Condition	normal wear
36. Opposite Drive End Bearing Brand	SKF
37. Opposite Drive End Bearing Number-	6206
38. Opposite Drive End Bearing Qty.	1
39. Opposite Drive End Bearing Type	(Ball) Ball Bearing

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	Opposite Drive End Lubrication Type		(Grease) Grease Lubricated
	Opposite Drive End Bearing Insulation	n or Grounding Device?	none
42.			wavy
43.	Opposite Drive End Bearing Condition	· ·	normal wear
44.			none
45.	Opposite Drive End Seal		none
Rotor	Inspection		
	Rotor Type/Material		(Squirrel Aluminum) Squirrel Cage Aluminum Die Cast
47.	Growler Test		(Pass) Pass
48.	Number of Rotor Bars		46
49.	Rotor Condition		good
50.	List the Parts needed for the Repair E 62062RS 62082RS	Below	
51.	Signature of Technician that Disasser	mbled Motor	David Maclin
-2	///		
2			
		\	
	anical Fits- Rotor		
	Shaft Runout		inches
53.	Rotor Runout		
	Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing
	0		
54.	Coupling Fit Closest to Bearing House	ing	
	0 Degrees		
	0 Degrees	90 Degrees	120 Degrees
	1.3775	1.3777	120 Degrees 1.3776
55.	· ·	1.3777	· ·
55.	1.3775	1.3777	· ·
55.	1.3775  Coupling Fit Closest to the end of the	1.3777 Shaft	1.3776
	1.3775  Coupling Fit Closest to the end of the 0 Degrees	1.3777 Shaft 60 Degrees	1.3776 120 Degrees
	<ul><li>1.3775</li><li>Coupling Fit Closest to the end of the</li><li>0 Degrees</li><li>1.378</li></ul>	1.3777 Shaft 60 Degrees	1.3776 120 Degrees
	1.3775  Coupling Fit Closest to the end of the 0 Degrees 1.378  Drive End Bearing Shaft Fit	1.3777 Shaft 60 Degrees 1.3781	1.3776 120 Degrees 1.378
56. 57.	1.3775 Coupling Fit Closest to the end of the 0 Degrees 1.378 Drive End Bearing Shaft Fit 0 Degrees 1.575 Drive End Bearing Shaft Fit Condition	1.3777 Shaft 60 Degrees 1.3781 60 Degrees 1.5749	1.3776  120 Degrees 1.378  120 Degrees
56. 57.	1.3775  Coupling Fit Closest to the end of the 0 Degrees 1.378  Drive End Bearing Shaft Fit 0 Degrees 1.575	1.3777 Shaft 60 Degrees 1.3781 60 Degrees 1.5749	1.3776  120 Degrees 1.378  120 Degrees 1.5749
56. 57.	1.3775 Coupling Fit Closest to the end of the 0 Degrees 1.378 Drive End Bearing Shaft Fit 0 Degrees 1.575 Drive End Bearing Shaft Fit Condition	1.3777 Shaft 60 Degrees 1.3781 60 Degrees 1.5749	1.3776  120 Degrees 1.378  120 Degrees 1.5749
56. 57.	1.3775 Coupling Fit Closest to the end of the 0 Degrees 1.378 Drive End Bearing Shaft Fit 0 Degrees 1.575 Drive End Bearing Shaft Fit Condition Opposite Drive End Bearing Shaft Fit	1.3777 Shaft 60 Degrees 1.3781 60 Degrees 1.5749	1.3776  120 Degrees 1.378  120 Degrees 1.5749  (P) Pass
56. 57. 58.	1.3775 Coupling Fit Closest to the end of the 0 Degrees 1.378 Drive End Bearing Shaft Fit 0 Degrees 1.575 Drive End Bearing Shaft Fit Condition Opposite Drive End Bearing Shaft Fit 0 Degrees	1.3777 Shaft 60 Degrees 1.3781 60 Degrees 1.5749 60 Degrees 1.1812	1.3776  120 Degrees 1.378  120 Degrees 1.5749  (P) Pass
56. 57. 58.	1.3775 Coupling Fit Closest to the end of the 0 Degrees 1.378 Drive End Bearing Shaft Fit 0 Degrees 1.575 Drive End Bearing Shaft Fit Condition Opposite Drive End Bearing Shaft Fit 0 Degrees 1.1812	1.3777 Shaft 60 Degrees 1.3781 60 Degrees 1.5749 60 Degrees 1.1812	1.3776  120 Degrees 1.378  120 Degrees 1.5749  (P) Pass  120 Degrees 1.1812
56. 57. 58.	1.3775 Coupling Fit Closest to the end of the 0 Degrees 1.378 Drive End Bearing Shaft Fit 0 Degrees 1.575 Drive End Bearing Shaft Fit Condition Opposite Drive End Bearing Shaft Fit 0 Degrees 1.1812 Opposite Drive End Bearing Shaft Fit	1.3777 Shaft 60 Degrees 1.3781 60 Degrees 1.5749 60 Degrees 1.1812	1.3776  120 Degrees 1.378  120 Degrees 1.5749  (P) Pass  120 Degrees 1.1812
56. 57. 58.	1.3775 Coupling Fit Closest to the end of the 0 Degrees 1.378 Drive End Bearing Shaft Fit 0 Degrees 1.575 Drive End Bearing Shaft Fit Condition Opposite Drive End Bearing Shaft Fit 0 Degrees 1.1812 Opposite Drive End Bearing Shaft Fit Shaft Air Seal Fits	1.3777 Shaft 60 Degrees 1.3781  60 Degrees 1.5749  60 Degrees 1.1812 Condition	1.3776  120 Degrees 1.378  120 Degrees 1.5749  (P) Pass  120 Degrees 1.1812
56. 57. 58. 59.	1.3775 Coupling Fit Closest to the end of the 0 Degrees 1.378 Drive End Bearing Shaft Fit 0 Degrees 1.575 Drive End Bearing Shaft Fit Condition Opposite Drive End Bearing Shaft Fit 0 Degrees 1.1812 Opposite Drive End Bearing Shaft Fit Shaft Air Seal Fits Drive End Air Seal	1.3777 Shaft 60 Degrees 1.3781  60 Degrees 1.5749  60 Degrees 1.1812 Condition  Opposite Drive End Air Seal	1.3776  120 Degrees 1.378  120 Degrees 1.5749  (P) Pass  120 Degrees 1.1812
56. 57. 58. 60. Mechanical	1.3775 Coupling Fit Closest to the end of the 0 Degrees 1.378 Drive End Bearing Shaft Fit 0 Degrees 1.575 Drive End Bearing Shaft Fit Condition Opposite Drive End Bearing Shaft Fit 0 Degrees 1.1812 Opposite Drive End Bearing Shaft Fit Shaft Air Seal Fits Drive End Air Seal ok	1.3777 Shaft 60 Degrees 1.3781  60 Degrees 1.5749  60 Degrees 1.1812 Condition  Opposite Drive End Air Seal	1.3776  120 Degrees 1.378  120 Degrees 1.5749  (P) Pass  120 Degrees 1.1812
56. 57. 58. 60. Mechanical	1.3775 Coupling Fit Closest to the end of the 0 Degrees 1.378 Drive End Bearing Shaft Fit 0 Degrees 1.575 Drive End Bearing Shaft Fit Condition Opposite Drive End Bearing Shaft Fit 0 Degrees 1.1812 Opposite Drive End Bearing Shaft Fit Shaft Air Seal Fits Drive End Air Seal ok anical Fits- Bearing Housings	1.3777 Shaft 60 Degrees 1.3781  60 Degrees 1.5749  60 Degrees 1.1812 Condition  Opposite Drive End Air Seal	1.3776  120 Degrees 1.378  120 Degrees 1.5749  (P) Pass  120 Degrees 1.1812
56. 57. 58. 60. Mechanical	1.3775  Coupling Fit Closest to the end of the 0 Degrees 1.378  Drive End Bearing Shaft Fit 0 Degrees 1.575  Drive End Bearing Shaft Fit Condition Opposite Drive End Bearing Shaft Fit 0 Degrees 1.1812  Opposite Drive End Bearing Shaft Fit Shaft Air Seal Fits Drive End Air Seal ok  anical Fits- Bearing Housings Drive End - Endbell Bearing Fit	1.3777 Shaft 60 Degrees 1.3781  60 Degrees 1.5749  60 Degrees 1.1812 Condition  Opposite Drive End Air Seal ok	1.3776  120 Degrees 1.378  120 Degrees 1.5749  (P) Pass  120 Degrees 1.1812  (P) Pass

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63.	Opposite Drive End - Endbell Bearing	ı Fit		
	0 Degrees	60 Degrees	120 Degrees	
	2.443	2.443	2.443	
64.	Opposite Drive End - Endbell Bearing	Fit Condition		(F) Fail
65.	Bearing Cap Condition			
	Drive End Bearing Cap	Opposite Drive End Bearing Cap		
	na	na		
66.	End Bell Air Seal Fits			
	Drive End Air Seal	Opposite Drive End Air Seal		
	ok	ok		
67.	List Machine Work Needed Below			
	Sleeve ode			
68.	Technician			David Maclin
	/ $ /$			
<b>3</b> 1 :	( /			
	Cause of Failure			
69.	Failure locations			
70	Ode bearing fit			
70.	Root cause of failure			
_	Wear			
-	mic Balance Report			
71.	Rotor Weight and Balance Grade			
	Rotor Weight	Balance Grade		
	0	0		
72.	Initial Balance Readings			
	Drive End	Opposite Drive End		
	0	0		
73.	Final Balance Readings			
	Drive End	Opposite Drive End		
	0	0		
74.	Technician			David Maclin
		7		
	and all Etter Board at the Etter			
	anical Fits- Bearing Housings - F			
75.	Drive End - Endbell Bearing Fit Post			
	0 Degrees	60 Degrees	120 Degrees	

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76.	Opposite Drive End - Endbell Bearing	Fit Post Repair	
	0 Degrees	60 Degrees	120 Degrees
	2.4414	2.4414	2.4414



77. Bearing Cap Condition Post Repair	ir	
Drive End Bearing Cap	Opposite Drive End Bearing Cap	
78. End Bell Air Seal Fits Post Repair		
Drive End Air Seal	Opposite Drive End Air Seal	
79. End Bell Repair Sign-off		RW

#### Assembly

80. QC Check All Parts for Cleanliness Prior to Assembly David Maclih















8	82. Final Insulation Resistance Test	2000 Megohms
8	83. Assembled Shaft Endplay	0 inches
• 8	84. Assembled Shaft Runout	0 inches

85.	Test Run Voltage		
	Volts	Volts	Volts
	457	457	460
-	Witness: TRH		





00.	Test Run Amperage		
	Amps	Amps	Amps
	3.9	4	4.1
87.	Drive End Vibration Readings - Inches	s Per Second	
	Horizontal	Vertical	Axial
	0.0587	0.0276	0.0159
88.	Opposite Drive End Vibration Reading	gs - Inches Per Second	
	Horizontal	Vertical	Axial
	0.0645	0.0364	0.0197
00	Analistant Tanananatuma - Falananiasit		
89.	Ambient Temperature - Fahrenheit		74
90.		it	/4
	·	it 10 Minutes	15 Minutes
	Drive End Bearing Temps - Fahrenhe		
90.	Drive End Bearing Temps - Fahrenhe 5 Minutes	10 Minutes 74	15 Minutes
90.	Drive End Bearing Temps - Fahrenhe 5 Minutes 74	10 Minutes 74	15 Minutes
90.	Drive End Bearing Temps - Fahrenhe 5 Minutes 74 Opposite Drive End Bearing Temps -	10 Minutes 74 Fahrenheit	15 Minutes 74
90.	Drive End Bearing Temps - Fahrenhe 5 Minutes 74 Opposite Drive End Bearing Temps - 5 Minutes	10 Minutes 74 Fahrenheit 10 Minutes 74	15 Minutes 74 15 Minutes

Witnessed by ZTW

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- 5. <u>DELIVERY OF GOODS AND/OR SERVICES.</u> 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.
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- 8. <u>WARRANTIES.</u> 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, 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. **ASSIGNMENT.** 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. NO INDIVIDUAL LIABILITY. 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.