

# LR Motor Shop Repairs

## **Job Number 103289**

Prepared for ARKANSAS INDUSTRIAL MACHINERY

3804 N. NONA ST NORTH LITTLE ROCK AR 72118

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AC Inspection as Found - Shop

AC Inspection - Rev. 2

1.0



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

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#### **AC Inspection as Found** ARKANSAS INDUSTRIAL MACHINERY

**3804 N. NONA ST** NORTH LITTLE ROCK, AR 72118

Description:140HP/104KW

AC Inspection - Rev. 2 Location: Shop Serial Number:

Hi-Speed Job Number:	103289
Manufacturer:	Siemens
Product Number:	1622-4608-80
HP/kW:	140 (HP)
RPM:	2510 (RPM)
Voltage:	Other
Current:	194A
Phase:	Three
Hz:	84.3 (Hz)
Enclosure:	TEFC
# of Leads:	6
J-box Included:	Half
Coupling/Sheave:	Gear
Date Received:	07/30/2024
Bearing RTDs:	No
Stator RTDs:	No
Repair Stage:	Final
Rewind:	No
Shaft Machined Fit Repairs Required:	Yes
Bearing Housing Machined Fit Repairs Required:	Yes
Heaters:	No
Winding Type :	Random Wound
Bearing Type:	Rolling Element

Priorities Found: 8 - High

5 - Good

#### **Overall Condition**

08/02/2024 1. Report Date

#### 2. Nameplate Picture



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





























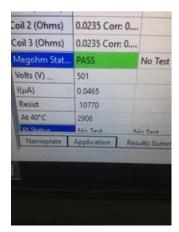


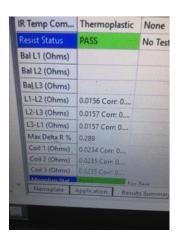


	4.	Describe the Overall Condition of the Equipment as Received  Dirty	
	5.	Distance from the end of the shaft to the Coupling/Sheave  Flush	inches
	6.	Report Date [COPY]	
Init	Initial Mechanical/Electrical		
	7.	Does Shaft Turn Freely?	(N) No
	8.	Does the shaft require T.I.R in Lathe to identify additional repairs?	(No) No



10.	Assembled Shaft Runout	Inches
11.	Assembled Shaft End Play	inches
12.	Air Gap Variation <10%	
13.	Lead Condition	(P) Pass
14.	Lead Length	Inches
15.	Does it have Lugs?, If so what is the Stud Size?	
16.	Lead Numbers	1-6
17.	Frame Condition	pass
18.	Fan Condition	(P) Pass
19.	Broken or Missing Components	shaft
Initial	Electrical Inspection	
20.	Insulation Resistance/Megger	Megohms



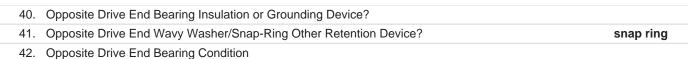


#### 22. Perform Surge Test

(P) Pass



Stator Slots	
ition needs cle	eaned
nistors/Ohms	
oads/Ohms	
ection	
earing Brand	SKF
earing Number-	1215EC
earing Qty.	1
earing Type (Roller) Roller E	3earing
ubrication Type (Oil) Oil Lub	oricated
earing Insulation or Grounding Device?	
/avy Washer/Snap-Ring Other Retention Device?	p ring
earing Condition re	eplace
ive End Bearing Brand	KOYO
ive End Bearing Number-	6215
ive End Bearing Qty.	1
ive End Bearing Type (Ball) Ball E	3earing
ive End Lubrication Type (Grease) Grease Lub	ricated



Signs of frosting



43.	Drive End Seal	seal kit
44.	Opposite Drive End Seal	
Rotor	Inspection	
45.	Rotor Type/Material	(Squirrel Aluminum) Squirrel Cage Aluminum Die Cast
46.	Growler Test	(Pass) Pass
47.	Number of Rotor Bars	
48.	Rotor Condition	
-	Pass	
49.	List the Parts needed for the Repair Below  NU215EC 6215  New shaft Seal kit	
50.	Signature of Technician that Disassembled Motor	Cw

Mechanical Fits- Rotor			
51.	Shaft Runout		inches
52.	Rotor Runout		
	Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing
53.	Coupling Fit Closest to Bearing House	ing	
	0 Degrees	90 Degrees	120 Degrees
54.	Coupling Fit Closest to the end of the	Shaft	
	0 Degrees	60 Degrees	120 Degrees

55	. Drive End Bearing Shaft Fit			
	0 Degrees	60 Degrees	120 Degrees	
56	. Drive End Bearing Shaft Fit Condition		(F	) Fail
57	. Opposite Drive End Bearing Shaft Fit			
	0 Degrees	60 Degrees	120 Degrees	
58	. Opposite Drive End Bearing Shaft Fit	Condition	(F	) Fail
59	. Shaft Air Seal Fits			
	Drive End Air Seal	Opposite Drive End Air Seal		
Mec	hanical Fits- Bearing Housings			
60	. Drive End - Endbell Bearing Fit			
	0 Degrees	60 Degrees	120 Degrees	
	5.1168	5.1174	5.1201	
61	. Drive End - Endbell Bearing Fit Condi	tion	(F	) Fail
62	. Opposite Drive End - Endbell Bearing	Fit		
	0 Degrees	60 Degrees	120 Degrees	
	5.1181	5.1182	5.1182	
63	. Opposite Drive End - Endbell Bearing	Fit Condition	(P)	Pass
64			. ,	
	Drive End Bearing Cap	Opposite Drive End Bearing Cap		
	2 2	opposite 2 o 2a 20ag cap		
-	Pass			
65	. End Bell Air Seal Fits			
	Drive End Air Seal	Opposite Drive End Air Seal		
		· ·		
66	. List Machine Work Needed Below			
	New shaft			
67	. Technician			Cw
	( Men	_		
_	0 / 5511/			
-	Co sign: RRW			
	Cause of Failure			
68	. Failure locations			
	Bearings, shaft, key, seal and DE end b	ell bearing fit		
69	. Root cause of failure			
		pace between spacer and bearing allowing spa p and breaking the key and shaft also taking o		al
Dyna	amic Balance Report			
70	. Rotor Weight and Balance Grade			
	Rotor Weight	Balance Grade		
	<u> </u>			
71	. Initial Balance Readings			
	Drive End	Opposite Drive End		

72.	Final Balance Readings		
	Drive End	Opposite Drive End	
70	<b>+</b> 1 · ·		
	Technician		
	anical Fits- Rotor - Post Repair		
	Shaft Runout Post Repair		
75.	Rotor Runout Post Repair		
	Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing
76	Coupling Fit Closest to Bearing Housi	ng Doot Popoir	
70.		•	420 Daggara
	0 Degrees	90 Degrees	120 Degrees
77.	Coupling Fit Closest to the end of the	Shaft Post Repair	
	0 Degrees	60 Degrees	120 Degrees
	0 20g.000	00 D0g1000	120 Dog1000
78.	Drive End Bearing Shaft Fit Post Rep	air	
	0 Degrees	60 Degrees	120 Degrees
	-	-	J
79.	Opposite Drive End Bearing Shaft Fit	Post Repair	
	0 Degrees	60 Degrees	120 Degrees
80.	Shaft Air Seal Fits Post Repair		
	Drive End Air Seal	Opposite Drive End Air Seal	
91	Shaft Repair Sign-off		
	anical Fits- Bearing Housings - P	ost Panair	
	Drive End - Endbell Bearing Fit Post F	-	
02.	•	60 Degrees	120 Degrees
	0 Degrees	ou Degrees	120 Degrees
83.	Opposite Drive End - Endbell Bearing	Fit Post Repair	
	0 Degrees	60 Degrees	120 Degrees
	•	9	Ü
84.	Bearing Cap Condition Post Repair		
	Drive End Bearing Cap	Opposite Drive End Bearing Cap	
	E 15 1141 0 151 5 15		
85.	End Bell Air Seal Fits Post Repair	0	
	Drive End Air Seal	Opposite Drive End Air Seal	
98	End Bell Repair Sign-off		
Asser	· · · · ·		
	QC Check All Parts for Cleanliness Pr	rior to Assembly	
88.	Photograph All Major Components pri	•	
89.	Final Insulation Resistance Test	or to assembly	
	Assembled Shaft Endplay		
	Assembled Shaft Runout		
	Test Run Voltage		
92.	-	Volta	Volta
	Volts	Volts	Volts

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93.	Test Run Amperage		
	Amps	Amps	Amps
94.	Drive End Vibration Readings - Inches	s Per Second	
	Horizontal	Vertical	Axial
95.	95. Opposite Drive End Vibration Readings - Inches Per Second		
	Horizontal	Vertical	Axial
96.	. Ambient Temperature - Fahrenheit		
97.	Drive End Bearing Temps - Fahrenhei	it	
	5 Minutes	10 Minutes	15 Minutes
98.	Opposite Drive End Bearing Temps -	Fahrenheit	
	5 Minutes	10 Minutes	15 Minutes
99.	Document Final Condition with Picture	es after paint	
100.	Final Pics and QC Review		

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- 3. SCOPE OF GOODS AND/OR SERVICES. The goods and/or services provided by Hi-Speed pursuant to any quotation shall be limited exclusively to those goods and/or services expressly identified therein. Hi-Speed does not assume any responsibility and/or liability for the failure to provide any other goods and/or services not identified in any quotation. Modifications, additions or deletions to or from the scope referenced in any quotation shall only bee effective if evidenced in writing and signed by Hi-Speed. The sale of any of all goods and/or services affected by such modification, addition or deletion shall be subject to these same Standard Terms and Conditions whether or not referenced therein.
- 4. <u>BILLING AND PAYMENT TERMS.</u> 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. <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.
- **DELIVERY SITE AND TIME FOR PERFORMANCE.** Hi-Speed and Buver 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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- 12. ABANDONED EQUIPMENT. Hi-Speed requires that Buyer promptly pick up or provide shipment instructions for Buyer equipment or other Buyer property in Hi-Speed's possession. If equipment or other Buyer property is left with Hi-Speed and not picked up within six (6) months after Hi-Speed's final action related to the applicable property (e.g. evaluation, teardown, estimate, completion of services), Hi-Speed will consider such property abandoned and may dispose of it in accordance with applicable law. Buyer agrees to hold Hi-Speed harmless for any damage or claim for such abandoned property and acknowledges that Hi-Speed may discard or recycle it at Hi-Speed's sole and absolute discretion. Specifically, Hi-Speed may sell Buyer's abandoned property at a private or public sale and retain the proceeds to offset Hi-Speed's storage, inspection and servicing costs. For the avoidance of doubt, Hi-Speed reserves its statutory and other lawful liens for unpaid charges related to abandoned property.
- 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.
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- 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.