

## LR Motor Shop Repairs

## **Job Number 103912**

Prepared for BAD BOY

102 INDUSTRIAL DRIVE BATESVILLE AR 72501

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MOTOR SHOP LR

# AC Inspection as Found BAD BOY

**102 INDUSTRIAL DRIVE** BATESVILLE, AR 72501

AC Inspection - Rev. 2

Serial Number: 1048348652

Description:50 HP

Location:

Hi-Speed Job Number:	103912
Manufacturer:	WEG
Serial Number:	1048348652
HP/kW:	50 (HP)
RPM:	1775 (RPM)
Frame:	326TSC
Voltage:	208-230/460
Hz:	60 (Hz)
Enclosure:	ODP
J-box Included:	Complete
Coupling/Sheave:	None
Bearing RTDs:	No
Stator RTDs:	No
Repair Stage:	Final
Heaters:	No
Winding Type :	Random Wound
Bearing Type:	Rolling Element

Priorities Found: 4 - High



8 - Good

#### **Overall Condition**

Report Date

Nameplate Picture



Photos of all six sides of the machine.











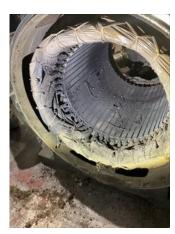












4. Describe the Overall Condition of the Equipment as Received Serviceable

#### Initial Mechanical/Electrical Does Shaft Turn Freely? (Y) Yes Does the shaft require T.I.R in Lathe to identify additional repairs? (No) No 6. Does Shaft Have Visible Damage? (No) No 7. 8. Assembled Shaft Runout 0 Inches Assembled Shaft End Play inches 9. Na

10. Air Gap Variation <10%

Na

11. Lead Condition(P) Pass



12.	Lead Length			12 Inches
<ul><li>13.</li></ul>	Does it have Lugs?, If so what is the	Stud Size?		(Yes) Yes
14.	Lead Numbers			1-12
15.	Frame Condition			pass
16.	Fan Condition			(N) NA
17.	Broken or Missing Components			
-	None			
Initial	Electrical Inspection			
18.	Insulation Resistance/Megger			0 Megohms
19.	Winding Resistance			
	1-2	1-3	2-3	
	0	0	0	
<b>2</b> 0.	Perform Surge Test			(F) Fail
21.	Number of Stator Slots			48
22.	Stator Condition		rewind with	n core repair





- 23. Stator Thermistors/Ohms
- Na
- 24. Stator Overloads/Ohms
- Na

### **Mechanical Inspection**

25. Drive End Bearing Brand

26. Drive End Bearing Number- 6312Z

C&U



27. Drive End Bearing Qty.128. Drive End Bearing Type(Ball) Ball Bearing29. Drive End Lubrication Type(Grease) Grease Lubricated



30. Drive End Bearing Insulation or Grounding Device?

Na

31. Drive End Wavy Washer/Snap-Ring Other Retention Device?

Na

32. Drive End Bearing Condition axial load



### Some frosting

33. Opposite Drive End Bearing Brand	NSK
34. Opposite Drive End Bearing Number-	6212 <b>Z</b>



35.	Opposite Drive End Bearing Qty.	1
36.	Opposite Drive End Bearing Type	(Tapered) Tapered Roller Bearing
37.	Opposite Drive End Lubrication Type	(Grease) Grease Lubricated
38.	Opposite Drive End Bearing Insulation or Grounding Device?  Na	
39.	Opposite Drive End Wavy Washer/Snap-Ring Other Retention Device?	wavy washer



#### Axial load

41. Drive End Seal

Na

42. Opposite Drive End Seal

Na

#### **Rotor Inspection**

43. Rotor Type/Material

(Squirrel Aluminum) Squirrel Cage Aluminum Die Cast

44. Growler Test (Pass) Pass



45. Number of Rotor Bars	40
46. Rotor Condition	wash
47. List the Parts needed for the Repair Below  1-6312Z Bearing 2-6212Z Bearing	
48. Signature of Technician that Disassembled Motor	RW

**Mechanical Fits- Rotor** 

49. Shaft Runout **0 inches** 

50.	Rotor Runout		
	Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing
	0	0	0
51.	Coupling Fit Closest to Bearing Housi	ng	
	0 Degrees	90 Degrees	120 Degrees
-	Na		
52.	Coupling Fit Closest to the end of the	Shaft	
	0 Degrees	60 Degrees	120 Degrees
-	Na		
53.	Drive End Bearing Shaft Fit		
	0 Degrees	60 Degrees	120 Degrees
	2.3628	2.3628	2.3628
<b>5</b> 4.	Drive End Bearing Shaft Fit Condition		(P) Pass



55.	55. Opposite Drive End Bearing Shaft Fit			
	0 Degrees	60 Degrees	120 Degrees	
	2.3627	2.3627	2.3627	
56.	56. Opposite Drive End Bearing Shaft Fit Condition			(P) Pass



57.	Shaft Air Seal Fits	
	Drive End Air Seal	Opposite Drive End Air Seal
	pass	pass

Mechanic	cal Fits- Bearing Housings			
58. Dri	ive End - Endbell Bearing Fit			
0 0	Degrees	60 Degrees	120 Degrees	
5.1	1192	5.1193	5.1192	
59. Dri	59. Drive End - Endbell Bearing Fit Condition			(P) Pass



60. Opposite Drive End - Endbe	60. Opposite Drive End - Endbell Bearing Fit		
0 Degrees	60 Degrees	120 Degrees	
4.3311	4.3311	4.3311	
61. Opposite Drive End - Endbell Bearing Fit Condition		(P) Pass	



62.	Bearing Cap Condition	
	Drive End Bearing Cap	Opposite Drive End Bearing Cap
	pass	
63.	End Bell Air Seal Fits	
	Drive End Air Seal	Opposite Drive End Air Seal
	pass	
64.	List Machine Work Needed Below	
	None	

65. Technician RW **Root Cause of Failure** 66. Failure locations Winding very dirty 67. Root cause of failure Winding shorted at edge of slot **Dynamic Balance Report** 68. Rotor Weight and Balance Grade Rotor Weight Balance Grade 69. Initial Balance Readings Drive End Opposite Drive End 70. Final Balance Readings Drive End Opposite Drive End 71. Technician Rewind 72. Core Test Results - Watts loss per Pound Pre-Burnout Post Burnout 73. Core Hot Spot Test Post-Burnout Pre-Burnout 74. Post Rewind Electrical Test- Insulation Resistance 75. Post Rewind Polarization Index 76. Post Rewind Winding Resistance 1-3 2-3 77. Post Rewind Surge Test 78. Post Rewind Hi-Pot 79. Technician Mechanical Fits- Rotor - Post Repair 80. Shaft Runout Post Repair 81. Rotor Runout Post Repair Drive End Bearing Fit Rotor Body Opposite Drive End Bearing 82. Coupling Fit Closest to Bearing Housing Post Repair 0 Degrees 90 Degrees 120 Degrees 83. Coupling Fit Closest to the end of the Shaft Post Repair 0 Degrees 120 Degrees 60 Degrees

84.	Drive End Bearing Shaft Fit Post Repa	air	
	0 Degrees	60 Degrees	120 Degrees
85.	Opposite Drive End Bearing Shaft Fit	Post Repair	
	0 Degrees	60 Degrees	120 Degrees
00	Ob att Air Coal Fits Boot Barrain		
86.	Shaft Air Seal Fits Post Repair	Occasion Del la Facilità Card	
	Drive End Air Seal	Opposite Drive End Air Seal	
87.	Shaft Repair Sign-off		
	anical Fits- Bearing Housings - P	ost Repair	
	Drive End - Endbell Bearing Fit Post F	-	
	0 Degrees	60 Degrees	120 Degrees
		3	
89.	Opposite Drive End - Endbell Bearing	Fit Post Repair	
	0 Degrees	60 Degrees	120 Degrees
90.	Bearing Cap Condition Post Repair		
	Drive End Bearing Cap	Opposite Drive End Bearing Cap	
01	End Bell Air Seal Fits Post Repair		
31.	Drive End Air Seal	Opposite Drive End Air Seal	
	Drive Life All Seal	Opposite Drive Life All Geal	
92.	End Bell Repair Sign-off		
Assen	nbly		
93.	QC Check All Parts for Cleanliness Pr	rior to Assembly	
94.	Photograph All Major Components pri	or to assembly	
95.	Final Insulation Resistance Test		
96.	Assembled Shaft Endplay		
97.	Assembled Shaft Runout		
98.	Test Run Voltage		
	Volts	Volts	Volts
99.	Test Run Amperage		•
	Amps	Amps	Amps
100	Drive End Vibration Readings - Inches	s Per Second	
100.	Horizontal	Vertical	Axial
	Tionzoniai	Vortiour	/ Widi
101.	Opposite Drive End Vibration Reading	gs - Inches Per Second	
	Horizontal	Vertical	Axial
	Ambient Temperature - Fahrenheit		
103.	Drive End Bearing Temps - Fahrenhe		
	5 Minutes	10 Minutes	15 Minutes
104	Opposite Drive End Booring Towns	Eahranhait	
104.	Opposite Drive End Bearing Temps -		15 Minutos
	5 Minutes	10 Minutes	15 Minutes

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105.	. Document Final Condition with Pictures after paint
106.	. 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.
- 7. INSPECTION/ACCEPTANCE. All goods and services ordered pursuant to any quotation shall be subject to inspection by Buyer after delivery or performance to determine conformity with the quotation and/or purchase order and Hi-Speed's advertised or published specifications. Buyer shall have a period of thirty (30) days from shipment of goods at the delivery destination specified in the quotation within which to inspect the goods for conformity with the quotation, order and/or Hi-Speed's advertised and published specifications and to provide Hi-Speed with written notice of any discrepancy or rejection. Buyer shall have a period of thirty (30) days following completion of any services within which to inspect the services for conformity with the quotation, purchase order and/or Hi-Speed's advertised and published specifications and to provide Hi-Speed with written notice of any discrepancy or rejection. If the goods delivered or services performed do not so conform, upon delivery of notice to Hi-Speed of any discrepancy, nonconformance or rejection, Hi-Speed shall have sixty (60) days to cure the alleged discrepancy and/or nonconformance. If Hi-Speed fails to cure in this time period, Buyer shall have the right to reject such goods or services. After the cure period, goods that have been delivered and rejected, in whole or in part, shall be returned to Hi-Speed. Buyer shall notify Hi-Speed and arrange for the return of the goods as required. Should such non-conforming services be rejected Hi-Speed shall, at its sole cost, re-perform the non-conforming services. Inspection or failure to inspect on any occasion shall not affect Buyer's rights under the warranty provisions herein.
- 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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- 10. <u>SEVERABILITY.</u> The partial or complete invalidity of any provision of these Standard Terms and Conditions shall not affect the enforceability of the remainder of these Standard Terms and Conditions. If any provision is found to be invalid or unenforceable, that portion shall be modified to make it enforceable or shall be stricken and the remainder of these Standard Terms and Conditions shall enforced.
- 11. **GOVERNING LAW AND JURISDICTION.** Any controversy arising out of any quotation, the purchase order, the goods sold or delivered, repair or replacement thereof, or any services provided pursuant to any quotation or any purchase order, or these Standard Terms and Conditions shall be governed by the laws of the state of Tennessee without regard to any choice of law provisions and any cause of action related in any manner thereto shall be brought only in the state or federal courts of Shelby County, Tennessee.
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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.
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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.