

# LR Motor Shop Repairs

## **Job Number 100046**

Prepared for ARKANSAS INDUSTRIAL MACHINERY

3804 N. NONA ST NORTH LITTLE ROCK AR 72118

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AC Recondition As Found - Shop

AC Recondition - Rev. 2: 1061037868

1.0



FolderID: 100046

FormID: 14064234



### **AC Recondition As Found ARKANSAS INDUSTRIAL MACHINERY**

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

AC Recondition - Rev. 2

Location:

Serial Number: 1061037868

Description:350HP WEG 1800RPM 447TS

Shop

Hi-Speed Job Number:	100046
Manufacturer:	WEG
Product Number:	350180T3G447/9TS-W40
Serial Number:	1061037868
HP/kW:	350 (HP)
RPM:	1780 (RPM)
Frame:	447TS
Voltage:	460
Current:	396
Phase:	Three
Hz:	60 (Hz)
Service Factor:	1.15
Repair Stage:	Final

Priorities Found: 1 - High

6 - Good

#### **Overall Condition**

Report Date

Nameplate Picture



















4900				
3.	Describe the Overall Condition of the Dirty	Equipment as Received		
4.	Distance from the end of the shaft to	the Coupling/Sheave		
5.	Photos of all six sides of the machine			
Initial	Mechanical/Electrical			
<b>6</b> .	Does Shaft Turn Freely?			(Yes) Yes
7.	Does Shaft Have Visible Damage?			(No) No
8.	Assembled Shaft Runout			
9.	Assembled Shaft End Play			
10.	Air Gap Variation <10%			
<b>1</b> 1.	Lead Condition			(P) Pass
12.	Lead Length			18 Inches
13.	Stator Temperature Detector Rating a	and Function		
	Quantity	Rating	Quantity Passed	
-	Na			
14.	Bearing Temperature Detector Rating	and Function		
	Quantity	Rating	Quantity Passed	
_	Ma			
45	Na Condition			
_	Frame Condition  Good			
16	Fan Condition			(AI) AI A
				(N) NA
17.	Heater Quantity, Ratings	\\-\t-\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Dana/Fail	
	Quantity	Volts/Watts	Pass/Fail	
-	Na			
18.	Broken or Missing Components			na
	Electrical Inspection			
19.	Insulation Resistance/Megger			
	Winding Resistance			
	1-2	1-3	2-3	
<b>2</b> 1.	Perform Surge Test		(NA) Not	Applicable
	•			

22	Stator Condition		
22.	Windings blown on ODE crown. Turn to	turn chart	
		turn snort	
	anical Inspection		C244
	<u> </u>		6314
24.	Drive End Bearing Qty.		(Pall) Pall Paging
25.	Drive End Bearing Type		(Ball) Ball Bearing
26.	Drive End Lubrication Type	dia a Davida a O	(Grease) Grease Lubricated
27.	Drive End Bearing Insulation or Groun		na
28.	Drive End Wavy Washer/Snap-Ring C	iner Retention Device?	na
29.	Drive End Bearing Condition		normal wear
30.	Opposite Drive End Bearing Number-		6314
31.	Opposite Drive End Bearing Qty.		1
32.	Opposite Drive End Bearing Type		(Ball) Ball Bearing
33.	Opposite Drive End Lubrication Type	as Crawadina Davisa?	(Grease) Grease Lubricated
34.	Opposite Drive End Bearing Insulation	-	na
35.	Opposite Drive End Wavy Washer/Sn		bearing cap springs
36.	Opposite Drive End Bearing Condition		normal wear
37.	Drive End Seal		na
38.	Opposite Drive End Seal		na
39.	3	120 dagge	240 dagger
	0 degrees	120 degrees	240 degrees
-	Na		
40.	DE Sleeve Bearing Outside Diameter		
	0 degrees	120 degrees	240 degrees
-	Na		
41.	DE Sleeve Bearing Housing Inside Dia	ameter	
	0 degrees	120 degrees	240 degrees
-	Na		
42.	DE Sleeve Bearing to Housing Cleara		
	0 degrees	120 degrees	240 degrees
	Na		
43.			
43.		120 degrees	240 degrees
	0 degrees	120 degrees	240 degrees
-	Na		
44.	ODE Sleeve Bearing Outside Diameter	r	
	0 degrees	120 degrees	240 degrees
		<u> </u>	
-	Na		
45.	ODE Sleeve Bearing Housing Inside I	Diameter	
	0 degrees	120 degrees	240 degrees
-	Na		

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46.	ODE Sleeve Bearing to Housing Clear	rance	
10.	0 degrees	120 degrees	240 degrees
	o degrees	120 dog1000	2 10 4091000
•	Na		
lotor	Inspection		
47.	Rotor Type/Material		(Squirrel Aluminum) Squirrel Cage Aluminum Die Cast
48.	Growler Test		(Pass) Pass
49.	Number of Rotor Bars		
50.	Rotor Condition		pass
51.	List the Parts needed for the Repair B 6314x2 bearings Wire for rewind	elow	
52.	Signature of Technician that Disassen		Cw
lecha	anical Fits- Rotor		
	Shaft Runout		0.001 inches
54.	Rotor Runout		
	Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing
-	0.002		
55.	Coupling Fit Closest to Bearing Housing	ng	
	0 Degrees	90 Degrees	120 Degrees
FG	Coupling Fit Closest to the and of the	Chaff	
ენ.	Coupling Fit Closest to the end of the	Snaπ 60 Degrees	
			120 Dograda
	0 Degrees	60 Degrees	120 Degrees
57.		ou Degrees	120 Degrees
57.	Drive End Bearing Shaft Fit  O Degrees	60 Degrees	
57.	Drive End Bearing Shaft Fit	ū	120 Degrees 120 Degrees
	Drive End Bearing Shaft Fit 0 Degrees	ū	
-	Drive End Bearing Shaft Fit  0 Degrees  2.7565x3  Drive End Bearing Shaft Fit Condition	ū	120 Degrees
<b>58.</b>	Drive End Bearing Shaft Fit  0 Degrees  2.7565x3  Drive End Bearing Shaft Fit Condition	60 Degrees	120 Degrees (P) Pass
58.	Drive End Bearing Shaft Fit  0 Degrees  2.7565x3  Drive End Bearing Shaft Fit Condition  Opposite Drive End Bearing Shaft Fit	ū	120 Degrees
58. 59.	Drive End Bearing Shaft Fit  0 Degrees  2.7565x3  Drive End Bearing Shaft Fit Condition Opposite Drive End Bearing Shaft Fit  0 Degrees	60 Degrees 60 Degrees	120 Degrees (P) Pass
58. 59.	Drive End Bearing Shaft Fit  0 Degrees  2.7565x3  Drive End Bearing Shaft Fit Condition Opposite Drive End Bearing Shaft Fit  0 Degrees  2.7564-2.7565x2	60 Degrees 60 Degrees	120 Degrees  (P) Pass  120 Degrees

**Mechanical Fits- Bearing Housings** 

62.	Drive End - Endbell Bearing Fit			
	0 Degrees	60 Degrees	120 Degrees	
	5.9066-5.9067-5.9066			
63.	Drive End - Endbell Bearing Fit Condi	tion		(P) Pass
64.	Opposite Drive End - Endbell Bearing	Fit		
	0 Degrees	60 Degrees	120 Degrees	
-	5.9061-5.9062-5.9062			
65.	Opposite Drive End - Endbell Bearing	Fit Condition		(P) Pass
66.	Bearing Cap Condition			
	Drive End Bearing Cap	Opposite Drive End Bearing Cap		
	Pass			



67. End Bell Air Seal Fits		
Drive End Air Seal	Opposite Drive End Air Seal	
68. List Machine Work Needed Below		
Na		
69. Technician		Cw

Dynar	nic Balance Report	
70.	Rotor Weight and Balance Grade	
	Rotor Weight	Balance Grade
71.	Initial Balance Readings	
	Drive End	Opposite Drive End
72.	Final Balance Readings	
	Drive End	Opposite Drive End
73.	Technician	

Rewir	nd		
	Core Test Results - Watts loss per Po	nund	
,	Pre-Burnout	Post Burnout	
	Tio Barriout	1 dot Barriodt	
75.	Core Hot Spot Test		
	Pre-Burnout	Post-Burnout	
	Post Rewind Electrical Test- Insulation	n Resistance	
	Post Rewind Polarization Index		
78.	Post Rewind Winding Resistance		
	1-2	1-3	2-3
70	Doot Dowind Come Toot		
	Post Rewind Surge Test Post Rewind Hi-Pot		
	Technician		
	Cause of Failure		
	Failure locations		
02.	Coil head of windings		
83	Root cause of failure		
05.	Turn to turn short		
Mech:	anical Fits- Rotor - Post Repair		
	Shaft Runout Post Repair		
	Rotor Runout Post Repair		
00.	Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing
	Dive Life Bearing 1 it	Note: Body	Opposite Brive Line Bearing
86.	Coupling Fit Closest to Bearing Hous	ing Post Repair	
86.	Coupling Fit Closest to Bearing Hous  O Degrees	ing Post Repair 90 Degrees	120 Degrees
	0 Degrees	90 Degrees	120 Degrees
	0 Degrees  Coupling Fit Closest to the end of the	90 Degrees Shaft Post Repair	_
	0 Degrees	90 Degrees	120 Degrees 120 Degrees
87.	0 Degrees  Coupling Fit Closest to the end of the 0 Degrees	90 Degrees Shaft Post Repair 60 Degrees	_
	O Degrees  Coupling Fit Closest to the end of the O Degrees  Drive End Bearing Shaft Fit Post Rep	90 Degrees Shaft Post Repair 60 Degrees air	120 Degrees
87.	0 Degrees  Coupling Fit Closest to the end of the 0 Degrees	90 Degrees Shaft Post Repair 60 Degrees	_
87. 88.	O Degrees  Coupling Fit Closest to the end of the O Degrees  Drive End Bearing Shaft Fit Post Rep O Degrees	90 Degrees  Shaft Post Repair 60 Degrees  air 60 Degrees	120 Degrees
87. 88.	O Degrees  Coupling Fit Closest to the end of the O Degrees  Drive End Bearing Shaft Fit Post Rep O Degrees  Opposite Drive End Bearing Shaft Fit	90 Degrees  Shaft Post Repair 60 Degrees  air 60 Degrees  Post Repair	120 Degrees 120 Degrees
87. 88.	O Degrees  Coupling Fit Closest to the end of the O Degrees  Drive End Bearing Shaft Fit Post Rep O Degrees	90 Degrees  Shaft Post Repair 60 Degrees  air 60 Degrees	120 Degrees
87. 88. 89.	O Degrees  Coupling Fit Closest to the end of the O Degrees  Drive End Bearing Shaft Fit Post Rep O Degrees  Opposite Drive End Bearing Shaft Fit	90 Degrees  Shaft Post Repair 60 Degrees  air 60 Degrees  Post Repair	120 Degrees 120 Degrees
87. 88. 89.	O Degrees  Coupling Fit Closest to the end of the O Degrees  Drive End Bearing Shaft Fit Post Rep O Degrees  Opposite Drive End Bearing Shaft Fit O Degrees	90 Degrees  Shaft Post Repair 60 Degrees  air 60 Degrees  Post Repair	120 Degrees 120 Degrees
87. 88. 89.	O Degrees  Coupling Fit Closest to the end of the O Degrees  Drive End Bearing Shaft Fit Post Rep O Degrees  Opposite Drive End Bearing Shaft Fit O Degrees  Shaft Air Seal Fits Post Repair Drive End Air Seal	90 Degrees  Shaft Post Repair 60 Degrees  air 60 Degrees  Post Repair 60 Degrees	120 Degrees 120 Degrees
87. 88. 89. 90.	O Degrees  Coupling Fit Closest to the end of the O Degrees  Drive End Bearing Shaft Fit Post Rep O Degrees  Opposite Drive End Bearing Shaft Fit O Degrees  Shaft Air Seal Fits Post Repair Drive End Air Seal  Shaft Repair Sign-off	90 Degrees  Shaft Post Repair 60 Degrees  air 60 Degrees  Post Repair 60 Degrees  Opposite Drive End Air Seal	120 Degrees 120 Degrees
87. 88. 89. 90. 91. <b>Mech</b>	O Degrees  Coupling Fit Closest to the end of the O Degrees  Drive End Bearing Shaft Fit Post Rep O Degrees  Opposite Drive End Bearing Shaft Fit O Degrees  Shaft Air Seal Fits Post Repair Drive End Air Seal  Shaft Repair Sign-off  anical Fits- Bearing Housings - Fite O Degrees	90 Degrees  Shaft Post Repair 60 Degrees  air 60 Degrees  Post Repair 60 Degrees  Opposite Drive End Air Seal	120 Degrees 120 Degrees
87. 88. 89. 90. 91. <b>Mech</b>	O Degrees  Coupling Fit Closest to the end of the O Degrees  Drive End Bearing Shaft Fit Post Rep O Degrees  Opposite Drive End Bearing Shaft Fit O Degrees  Shaft Air Seal Fits Post Repair Drive End Air Seal  Shaft Repair Sign-off  anical Fits- Bearing Housings - For Drive End - Endbell Bearing Fit Post	90 Degrees  Shaft Post Repair 60 Degrees  air 60 Degrees  Post Repair 60 Degrees  Opposite Drive End Air Seal	120 Degrees  120 Degrees  120 Degrees
87. 88. 89. 90. 91. <b>Mech</b>	O Degrees  Coupling Fit Closest to the end of the O Degrees  Drive End Bearing Shaft Fit Post Rep O Degrees  Opposite Drive End Bearing Shaft Fit O Degrees  Shaft Air Seal Fits Post Repair Drive End Air Seal  Shaft Repair Sign-off  anical Fits- Bearing Housings - Fite O Degrees	90 Degrees  Shaft Post Repair 60 Degrees  air 60 Degrees  Post Repair 60 Degrees  Opposite Drive End Air Seal	120 Degrees 120 Degrees
87. 88. 89. 90. 91. <b>Mech</b> a	O Degrees  Coupling Fit Closest to the end of the O Degrees  Drive End Bearing Shaft Fit Post Rep O Degrees  Opposite Drive End Bearing Shaft Fit O Degrees  Shaft Air Seal Fits Post Repair Drive End Air Seal  Shaft Repair Sign-off  anical Fits- Bearing Housings - F  Drive End - Endbell Bearing Fit Post O Degrees	90 Degrees  Shaft Post Repair 60 Degrees  air 60 Degrees  Post Repair 60 Degrees  Opposite Drive End Air Seal  Post Repair Repair 60 Degrees	120 Degrees  120 Degrees  120 Degrees
87. 88. 89. 90. 91. <b>Mech</b> a	O Degrees  Coupling Fit Closest to the end of the O Degrees  Drive End Bearing Shaft Fit Post Rep O Degrees  Opposite Drive End Bearing Shaft Fit O Degrees  Shaft Air Seal Fits Post Repair Drive End Air Seal  Shaft Repair Sign-off  anical Fits- Bearing Housings - For Drive End - Endbell Bearing Fit Post	90 Degrees  Shaft Post Repair 60 Degrees  air 60 Degrees  Post Repair 60 Degrees  Opposite Drive End Air Seal  Post Repair Repair 60 Degrees	120 Degrees  120 Degrees  120 Degrees

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94.	DE Sleeve Bearing Outside ID Post R	epair		
	Measure 1	Measure 2	Measure 3	
95.	DE Sleeve Bearing Inside OD Post Re	-		
	Measure 1	Measure 2	Measure 3	
96.	DE Sleeve Bearing Outside OD Post I	•		
	Measure 1	Measure 2	Measure 3	
07	ODE Sleeve Bearing Inside ID Post R	onair		
91.	Measure 1	Measure 2	Measure 3	
	weasure i	ivieasure 2	iviedsule 3	
98.	ODE Sleeve Bearing Outside ID Post	Repair		
	Measure 1	Measure 2	Measure 3	
99.	ODE Sleeve Bearing Inside OD Post I	Repair		
	Measure 1	Measure 2	Measure 3	
100.	ODE Sleeve Bearing Outside OD Pos	•		
	Measure 1	Measure 2	Measure 3	
101	Opposite Drive End - Endbell Bearing	Eit Doot Bonoir		
101.		·	420 Daggara	
	0 Degrees	60 Degrees	120 Degrees	
102.	Bearing Cap Condition Post Repair			
	Drive End Bearing Cap	Opposite Drive End Bearing Cap		
	2.110 2.11d 20d.illig Odp	opposite 21110 2110 Boating Cap		
103.	End Bell Air Seal Fits Post Repair			
	Drive End Air Seal	Opposite Drive End Air Seal		
104.	End Bell Repair Sign-off			
Assen	Assembly			

105. Photograph All Major Components prior to assembly





















106. Final Insulation Resistance Test

107. Assembled Shaft Endplay

108. Assembled Shaft Runout

109. Test Run Voltage

Volts Volts Volts











110.	Test Run Amperage		
	Amps	Amps	Amps
111.	Drive End Vibration Readings - Inches		
	Horizontal	Vertical	Axial
112	Opposite Drive End Vibration Reading	is - Inches Per Second	
112.	Horizontal	Vertical	Axial
	Honzontal	vertical	Axiai
113.	Ambient Temperature - Fahrenheit		
114.	Drive End Bearing Temps - Fahrenhe	it	
	5 Minutes	10 Minutes	15 Minutes
115.	Drive End Bearing Temps - Fahrenhe		
	20 Minutes	25 Minutes	30 Minutes
116	Drive End Dearing Temps - Februaries	it 25 45 Minuton	
116.	Drive End Bearing Temps - Fahrenhei		45 Minutes
	35 Minutes	40 Minutes	45 Minutes
117.	Drive End Bearing Temps - Fahrenhei	it 50-60 Minutes	
	50 Minutes	55 Minutes	60 Minutes
118.	Opposite Drive End Bearing Temps -		
	5 Minutes	10 Minutes	15 Minutes
110	Opposite Drive End Bearing Temps -	Enhanneit 20 20 Minutes	
119.	20 Minutes	25 Minutes	30 Minutes
	20 Millutes	23 Millutes	30 Millutes
120.	Opposite Drive End Bearing Temps -	Fahrenheit 35-45 Minutes	
	35 Minutes	40 Minutes	45 Minutes
121.	Opposite Drive End Bearing Temps -	Fahrenheit 50-60 Minutes	
	50 Minutes	55 Minutes	60 Minutes
122.	Stator Temperatures- Fahrenheit	40.04	
	5 Minutes	10 Minutes	15 Minutes

123. Stator Temperatures- Fahren	neit 20-30 Minutes		
20 Minutes	25 Minutes	30 Minutes	
124. Stator Temperatures- Fahren	neit 35-45 Minutes		
35 Minutes	40 Minutes	45 Minutes	
125. Stator Temperatures- Fahren	neit 50-60 Minutes		
50 Minutes	55 Minutes	60 Minutes	
126. Final Test Run Sign-off			
127. Document Final Condition wit	127. Document Final Condition with Pictures after paint		
128. Final Pics and QC Review			



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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.
- 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.
- 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.