

LR Motor Shop Repairs

Job Number 101247

Prepared for Searcy Water and Sewer System (11242)

300 N. Elm Street Searcy AR 72145

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AC Inspection as Found

Searcy Water and Sewer System (11242)

300 N. Elm Street Searcy, AR 72145

AC Inspection - Rev. 2

Location: MOTOR SHOP LR Serial Number: XG E421A105012

Description: 7.5HP TECO 1800RPM 213TP

Hi-Speed Job Number:	101247
Manufacturer:	TECO Westinghouse
Product Number:	VHP7/54
Serial Number:	SG E421A105012
HP/kW:	7.5 (HP)
RPM:	1755 (RPM)
Frame:	213TP
Voltage:	230 / 460
Current:	19.1/9.53
Phase:	Three
Hz:	60 (Hz)
Service Factor:	1.15
Enclosure:	WPI
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: 1 - High



5 - Good

Overall Condition

- 1. Report Date
- 2. Nameplate Picture



Photos of all six sides of the machine.

























4. Describe the Overall Condition of the Equipment as Received

Initial Mechanical/Electrical

- 5. Does Shaft Turn Freely?
- 6. Does Shaft Have Visible Damage?
- 7. Assembled Shaft Runout
- 8. Assembled Shaft End Play
- 9. Air Gap Variation <10%





11. Lead Length

12. Frame Condition

13. Fan Condition(P) Pass



14.	Broken or Missing Components			
Initial	Electrical Inspection			
15.	Insulation Resistance/Megger			0 Megohms
16.	Winding Resistance			
	1-2	1-3	2-3	
17.	Perform Surge Test			
18.	Number of Stator Slots			

19. Stator Condition Rewind





20. Stator Thermistors/Ohms

21. Stator Overloads/Ohms

Mechanical Inspection

22. Drive End Bearing Brand SKF

. Drive End Bearing Number- 7310





Frosted

24. Drive End Bearing Qty.	1
25. Drive End Bearing Type	(Thrust) Thrust
26. Drive End Lubrication Type	(Grease) Grease Lubricated
27. Drive End Bearing Insulation or Grounding Device?	NA
28. Drive End Wavy Washer/Snap-Ring Other Retention Device?	
29. Drive End Bearing Condition	ok
30. Opposite Drive End Bearing Brand	
31. Opposite Drive End Bearing Number-	6209
32. Opposite Drive End Bearing Qty.	1
33. Opposite Drive End Bearing Type	(Ball) Ball Bearing
34. Opposite Drive End Lubrication Type	(Grease) Grease Lubricated
35. Opposite Drive End Bearing Insulation or Grounding Device?	NA
36. Opposite Drive End Wavy Washer/Snap-Ring Other Retention Device?	snap ring

37. Opposite Drive End Bearing Condition



38. Drive End Seal 45 68 12

Shaft seal surface bad



39. Opposite Drive End Seal

Rotor Inspection

40. Rotor Type/Material

(Squirrel Aluminum) Squirrel Cage Aluminum Die Cast

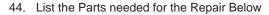
41. Growler Test

(Pass) Pass

42. Number of Rotor Bars

43. Rotor Condition







RW



Mech	anical Fits- Rotor		
46.	Shaft Runout		
47.	Rotor Runout		
	Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing
48.	Coupling Fit Closest to Bearing Housi	ng	
	0 Degrees	90 Degrees	120 Degrees
49.	Coupling Fit Closest to the end of the	Shaft	
	0 Degrees	60 Degrees	120 Degrees
50.	Drive End Bearing Shaft Fit		
	0 Degrees	60 Degrees	120 Degrees
	1.9687	1.9687	1.9687



51. Drive End Bearing Shaft Fit Condition

(P) Pass

52.	2. Opposite Drive End Bearing Shaft Fit		
	0 Degrees	60 Degrees	120 Degrees
	1.7721	1.7721	1.7721



5 3.	53. Opposite Drive End Bearing Shaft Fit Condition			(P) Pass
54.	Shaft Air Seal Fits			
	Drive End Air Seal	Opposite Drive End Air Seal		
Mecha	anical Fits- Bearing Housings			
55.	Drive End - Endbell Bearing Fit			
	0 Degrees	60 Degrees	120 Degrees	
	4.331	4.331	4.331	
56.	Drive End - Endbell Bearing Fit Condi	tion		(P) Pass



57.	57. Opposite Drive End - Endbell Bearing Fit				
	0 Degrees 60 Degrees 120 Degrees				
	3.3507	3.3507	3.3507		



59.	Bearing Cap Condition		
	Drive End Bearing Cap	Opposite Drive End Bearing Cap	
60.	End Bell Air Seal Fits		
	Drive End Air Seal	Opposite Drive End Air Seal	
61.	List Machine Work Needed Below		
	Shaft seal surface and ode end bell hou	using fit	
62.	Technician		RW



63. Rotor Weight and Balance Grade

Rotor Weight Balance Grade

64. Initial Balance Readings

Drive End Opposite Drive End

65. Final Balance Readings

Drive End Opposite Drive End

66. Technician

Rewind

67. Core Test Results - Watts loss per Pound
Pre-Burnout Post Burnout

68. Core Hot Spot Test

Pre-Burnout Post-Burnout

69. Post Rewind Electrical Test- Insulation Resistance

70. Post Rewind Polarization Index

71.	Post Rewind Winding Resistance		
	1-2	1-3	2-3
72.	Post Rewind Surge Test		
73.	Post Rewind Hi-Pot		
74.	Technician		
Root	Cause of Failure		
75.	Failure locations		
	Ode end bell and shaft seal surface		
76.	Root cause of failure		
	Water		



Mech	anical Fits- Rotor - Post Repair			
77.	Shaft Runout Post Repair			
78.	Rotor Runout Post Repair			
	Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing	
79.	Coupling Fit Closest to Bearing Hous	ing Post Repair		
	0 Degrees	90 Degrees	120 Degrees	
80.		·		
	0 Degrees	60 Degrees	120 Degrees	
0.4	D: E ID : 01 (1E) D . D			
81.	Drive End Bearing Shaft Fit Post Rep		_	
	0 Degrees	60 Degrees	120 Degrees	
92	Opposite Drive End Pooring Shoft Eit	Doot Panair		
02.	Opposite Drive End Bearing Shaft Fit	·	400 B	
	0 Degrees	60 Degrees	120 Degrees	
83	Shaft Air Seal Fits Post Repair			
00.	Drive End Air Seal	Opposite Drive End Air Seal		
	DIVE ENG All Ocal	Opposite Drive End Air Ocal		
84.	Shaft Repair Sign-off			
Mech	Mechanical Fits- Bearing Housings - Post Repair			
85.	Drive End - Endbell Bearing Fit Post I	Repair		
	0 Degrees	60 Degrees	120 Degrees	

86.	Opposite Drive End - Endbell Bearing	Fit Post Repair	
	0 Degrees	60 Degrees	120 Degrees
87.	Bearing Cap Condition Post Repair		
	Drive End Bearing Cap	Opposite Drive End Bearing Cap	
ΩΩ	End Bell Air Seal Fits Post Repair		
00.	Drive End Air Seal	Opposite Drive End Air Seal	
	Drive Life All Seal	Opposite Drive Life All Seal	
89.	End Bell Repair Sign-off		
Assen	nbly		
90.	QC Check All Parts for Cleanliness Pr	ior to Assembly	
91.	Photograph All Major Components pri	or to assembly	
92.	Final Insulation Resistance Test		
93.	Assembled Shaft Endplay		
94.	Assembled Shaft Runout		
95.	Test Run Voltage		
	Volts	Volts	Volts
06	Test Run Amperage		
90.		Amps	Amps
	Amps	Amps	Amps
97.	Drive End Vibration Readings - Inches	s Per Second	
	Horizontal	Vertical	Axial
98.	Opposite Drive End Vibration Reading	s - Inches Per Second	
	Horizontal	Vertical	Axial
ΩΩ	Ambient Temperature - Fahrenheit		
	Drive End Bearing Temps - Fahrenhei	t	
100.	5 Minutes	10 Minutes	15 Minutes
	o Minutes	10 Militates	10 Millutos
101.	Opposite Drive End Bearing Temps -	Fahrenheit	
	5 Minutes	10 Minutes	15 Minutes
	Document Final Condition with Picture	es after paint	
103.	Final Pics and QC Review		

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- 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.
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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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- 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.
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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.