

# EVERY DAY SINCE 1946 —

### Motor Shop Repairs

### **Job Number 99785**

Prepared for George's Inc

1810 S. St. Louis Street Batesville AR 72501

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Submersible Pump Repair Report - Shop

Submersible Pump Repair Report: 6SE2004

1.0





## Submersible Pump Repair Report George's Inc

George's Inc 1810 S. St. Louis Street Batesville, AR 72501 FolderID: 99785 FormID: 13560557

Submersible Pump Repair Report	Make:	Barnes
Location: Shop	HP:	20 (HP)
Serial Number: 6SE2004	Model:	6SE2004
Description: 20HP Barnes Pump NO NP	Serial:	6SE2004
	Phase:	3

Priorities Found: 7 - High 24 - Good

General	
1. Job Number	99785
2. Report Date	05/11/2022
3. Customer	George's

























Init	ial	Pump Inspection	
	4.	Power Cord Wire Size	2 AWG
	5.	Power Cord # of Conductors	4
	6.	Power Cord Length	32 ft
	7.	Power Cord Condtion	(F) Fail
	8.	Sensor Cord Wire Size	16 AWG
	9.	Sensor Cord # of Conductors	5
1	10.	Sensor Cord Length	32 ft
• 1	11.	Sensor Cord Condition	(F) Fail
• 1	12.	Sensor Cord for Thermal Protection?	(Y) Yes
• 1	13.	Sensor Cord for Water Protection	(Y) Yes
1	14.	Bowl Condition	



Loose impeller to shaft fit. Wear ring surface on impeller broken.

Bored shaft fit to 1.750 and cut new key way. Sleeved wear ring surface.



	16.	Number of Wear Rings	1
	17.	Wear Ring Condition	(F) Fail
	18.	Wear Ring Size	
	19.	Wear Ring Clearance to Impeller	
	20.	Wear Ring Material	
	21.	Seal Surfaces Condition	
	22.	Seal Type	
	23.	Number of Seals	
	24.	Seal Material on Rotary Face	
	25.	Seal Material on Stationary Seat	
	26.	Elastic Component Material	
	27.	Seal OD	
	28.	Seal ID	
	29.	Seal Sleeve Material	
	30.	Seal Plate Condition	(P) Pass
	31.	Water Sensor in Seal Cavity?	(Y) Yes
	32.	Oil Filled Seal Cavity?	(Y) Yes
	33.	Oil Filled Stator?	(Y) Yes
Ini	itial	Inspection	
	34.	Number of Leads	3
	35.	Lead Length	Inches
	36.	Lead Size	
		Lead Condition	(P) Pass
		Lead Markings	
		Lead Size for Oil Filled Stator	
		Lug Size, Condition, and Type	
	41.	Overload Required?	
	42.	Winding RTD's	
	43.	Winding Rtd's Condition	
		Shaft Run Out	
	45.	Does Shaft Turn Freely	no

#### 46. Does Shaft Have Visible Damage

Shaft key way wallowed. Outer Seal surface worn





yes

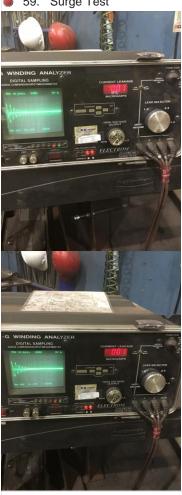
- 47. Bearing Rtd's
- 48. Bearing Rtd's Condition
- 49. Contamination Water from seal failure.
- 50. Frame Condition
- (P) Pass 51. Fan Condition (NA) Not Applicable
- 52. Broken or missing components

Impeller worn. Replace.

#### **Initial Electric Test**

- 53. Resistance to Ground
- 54. Winding Resistance 1-2
- 55. Winding Resistance 2-3
- 56. Winding Resistance 1-3
- 57. Resistive Imbalance
- 58. Hi-Pot

● 59. Surge Test (F) Fail





- 60. Stator Condition
- 61. Failure Location

#### **Initial Rotor Inspection**

62. Rotor Type

squirrel cage laminate 56 bars

56



63. Air Gap <10% Variation

Number of Rotor Bars

65. Number of Broken Rotor Bars

● 66. Growler Test (P) Pass

67. Rotor Condition(P) Pass

#### **Mechanical Inspection**

68. Bearing Manufacturer koyo/MRC

69. Bearing DE Size 5310 dbl wide/dbl row



70. Bearing DE Type



71. DE Bearing Qty.

2. Bearing ODE Size 207 M



73. Bearing ODE Type





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74.	ODE Bearing Qty.	1
75.	Insulated Bearing	no
76.	Lubrication Type	oil
<b>77</b> .	Grease Condition	(NA) Not Applicable
78.	Bearing Retainers	(NA) Not Applicable
79.	Shaft Grounding Device	(NA) Not Applicable
<b>8</b> 0.	DE Seal	(Y) Yes
81.	DE Seal Type/Size	
82.	ODE Seal	
83.	ODE Seal Type/Size	

#### **Root Cause of Failure**

84. Component Failure Windings/impeller

85. Cause of Failure

Found impeller mount bolt loose enough to move impeller up and down on the shaft by hand which caused seals to fail and allow water to enter the stator housing. Electrical test after wash and bake shows coil to coil short between 1&2, and 1&3.

86. Comments

Shaft work needed on key way and seal surfaces.



	87.	Service Technician		Terrence. Holland
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		/-e	74	
		,	\	
M		ne Fit Inspection Report		
		Shaft Run Out		(F) Fail
		Initial Shaft Run Out		0.01 "
		Final Shaft Run Out		
		DE Bearing Shaft Fit		(P) Pass
	92.	DE Initial Shaft Bearing Fit Size		
		Measure 1	Measure 2	Measure 3
		1.9689	1.9687	1.9688
	93.	DE Final Shaft Bearing Fit Size		
		Measure 1	Measure 2	Measure 3
	Q <sub>2</sub> 1	ODE Bearing Shaft Fit		(P) Pass
		ODE Initial Shaft Bearing Fit Size		(٢) ٢ α33
	33.	Measure 1	Measure 2	Measure 3
		1.3781	1.3781	1.3782
	96	ODE Final Shaft Bearing Fit Size	1.3701	1.3702
	30.	Measure 1	Measure 2	Measure 3
		ivieasure i	iviedsure 2	ivieasure 3
	97.	DE Air Seal Shaft Fit		
	98.	DE Air Seal Shaft Size		
		Initial	Final	
	99.	ODE Air Seal Shaft Fit		
		ODE Air Seal Shaft Size		
		Initial	Final	
		a	T III C	
	101.	DE Endbell Fit		(P) Pass
	102.	DE Initial Endbell Fit Size		
		Measure 1	Measure 2	Measure 3
		4.3309	4.331	4.309
	103.	DE Final Endbell Fit Size		
		Measure 1	Measure 2	Measure 3
	104	DE Endbell Fit Insulated		(NA) Not Applicable
		DE Endbell Air Seal Fit		(itri) ito: Applicable
		DE Endbell Air Seal Fit Size		
	100.	Initial	Final	
		muai	i iiidi	
	107.	ODE Endbell Fit		(F) Fail
	108.	ODE Initial Endbell Fit Size		
		Measure 1	Measure 2	Measure 3
		2.8356	2.8356	2.8354

109. ODE Final Endbell I	Fit Size		
Measure 1	Measure 2	Measure 3	
2.835	2.835	2.8351	



110. ODE Endbell Fit Insulate	ed	(NA) Not Applicable
111. ODE Endbell Air Seal Fi	t	
112. ODE Endbell Air Seal Fi	Size	
Initial	Final	
113. Foot Flatness		(P) Pass
114. Foot Condition		(P) Pass
115. Flange Condition		(P) Pass
116. Service Technician		Terrence Holland
7	Helled	

#### **Balancing Report**

117. Balance Type



- 118. Balance Operating Speed
- 119. Start Left End
- 120. Start Right End
- 121. Balancing Specification

Assembly and Final Test	
125. Rotor and Impeller Balanced	
<ul><li>126. Stator Housing Refilled with Oil (if required)</li></ul>	(Y) Yes
127. Stator Pressure Test	(P) Pass
128. Seal Cavity Pressure Test	(P) Pass
	30 min
129. Time Under Pressure	30 111111
<ul><li>129. Time Under Pressure</li><li>130. Overload Continuity</li></ul>	30 111111
	30 111111



133.	Surge Test			
134.	Hi-Pot			
135.	Winding Resistance			
	1-2	2-3	3-1	
136.	Test Run			(P) Pass



137. Test Run Voltage			
Phase A	Phase B	Phase C	
453	454	456	





138.	Test Run Current		
	Phase A	Phase B	Phase C
	11.6	11.5	11.6
139.	DE Vibration Reading		
	Horizontal	Vertical	Axial
140.	ODE Vibration Reading		
	Horizontal	Vertical	Axial
4.44	A 1: .T		
	Ambient Temp at start of Test Run		
	Temp at 5 minutes		
143.	Temp at 10 minutes		
144.	Temp at 15 minutes		
145.	Temp at 20 minutes		
146.	Temp at 25 minutes		
147.	Temp at 30 minutes		
148.	Temp at 35 minutes		
149.	Temp at 40 minutes		
150.	Temp at 45 minutes		
151.	Temp at 50 minutes		
152.	Temp at 55 minutes		
153.	Temp at 60 minutes		
<b>154</b> .	Motor Paint		(P) Pass

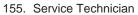














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- 4. <u>BILLING AND PAYMENT TERMS.</u> Hi-Speed shall invoice Buyer for all goods and/or services as same are rendered at the address listed on the quotation. Payments for all goods and/or services shall be due thirty (30) days from the date of the 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.
- 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.