



KEEPING YOUR FACILITY UP TO SPEED
— EVERY DAY SINCE 1946 —

LR Motor Shop Repairs

Job Number 101989

Prepared for US MOTORS WARRANTY REPAIR

8100 W. FLORISSENT
ST. LOUIS MO 63136

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

AC Inspection as Found
US MOTORS WARRANTY REPAIR
8100 W. FLORISSENT
ST. LOUIS, MO 63136

FolderID: 101989
FormID: 18147564

AC Inspection - Rev. 2

Location: LR MOTOR SHOP

Serial Number:

Description: 200 HP VERTICLE WARRANTY
EVAL

Hi-Speed Job Number: 101989

Manufacturer: US Motors/Nidec

Product Number: HF16

Spec/ID #: E057830766-0004R00

Serial Number: CAT # H0200P2SLG

HP/kW: 200 (HP)

RPM: 1785 (RPM)

Frame: H445TP

Voltage: 460

Current: 225

Hz: 60 (Hz)

Service Factor: 1.15

Enclosure: WPI

J-box Included: Complete

Date Received: 10/13/2023

Repair Stage: Final

Priorities Found: ● 1 - High ● 2 - Good

Overall Condition

1. Report Date
2. Nameplate Picture



3. Photos of all six sides of the machine.

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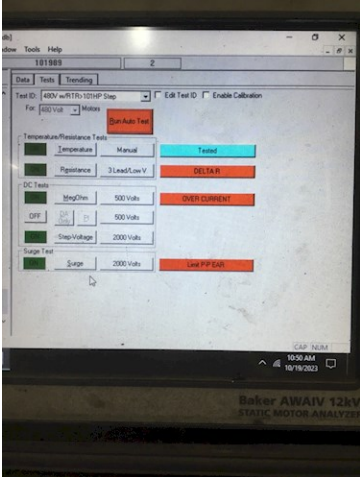


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1.1



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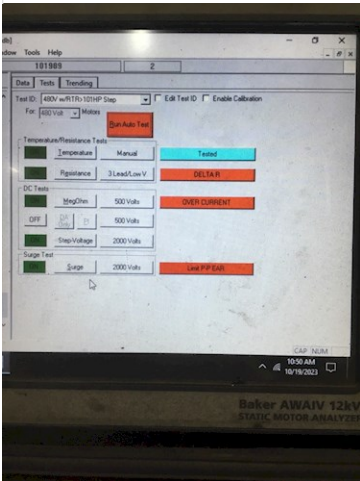
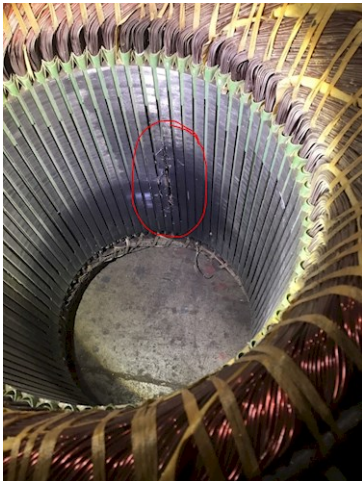
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1.3



4. Describe the Overall Condition of the Equipment as Received		
<i>Clean has wrong J-box on motor</i>		
5. Distance from the end of the shaft to the Coupling/Sheave		
Initial Mechanical/Electrical		
6. 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%		
11. Lead Condition		(P) Pass
12. Lead Length		
13. Lead Numbers		T1-T3/T7-T9
14. Stator Temperature Detector Rating and Function		
Quantity	Rating	Quantity Passed
15. Bearing Temperature Detector Rating and Function		
Quantity	Rating	Quantity Passed
16. Frame Condition		
17. Fan Condition		

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18. Heater Quantity, Ratings		
Quantity	Volts/Watts	Pass/Fail
19. Broken or Missing Components		
Initial Electrical Inspection		
20. Insulation Resistance/Megger		
21. Winding Resistance		
1-2	1-3	2-3
22. Perform Surge Test		(F) Fail
<div> <div>Blown in slot</div> <div>   </div> </div>		
23. Number of Stator Slots		
24. Stator Condition		
25. Stator Thermistors/Ohms		
26. Stator Overloads/Ohms		
Mechanical Inspection		
27. Drive End Bearing Brand		
28. Drive End Bearing Number-		
29. Drive End Bearing Qty.		
30. Drive End Bearing Type		
31. Drive End Lubrication Type		
32. Drive End Bearing Insulation or Grounding Device?		
33. Drive End Wavy Washer/Snap-Ring Other Retention Device?		
34. Drive End Bearing Condition		
35. Opposite Drive End Bearing Brand		
36. Opposite Drive End Bearing Number-		
37. Opposite Drive End Bearing Qty.		
38. Opposite Drive End Bearing Type		
39. Opposite Drive End Lubrication Type		
40. Opposite Drive End Bearing Insulation or Grounding Device?		
41. Opposite Drive End Wavy Washer/Snap-Ring Other Retention Device?		
42. Opposite Drive End Bearing Condition		
43. Drive End Seal		
44. Opposite Drive End Seal		

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45. DE Sleeve Bearing Inside Diameter		
0 degrees	120 degrees	240 degrees
46. DE Sleeve Bearing Outside Diameter		
0 degrees	120 degrees	240 degrees
47. DE Sleeve Bearing Housing Inside Diameter		
0 degrees	120 degrees	240 degrees
48. DE Sleeve Bearing to Housing Clearance		
0 degrees	120 degrees	240 degrees
49. ODE Sleeve Bearing Inside Diameter		
0 degrees	120 degrees	240 degrees
50. ODE Sleeve Bearing Outside Diameter		
0 degrees	120 degrees	240 degrees
51. ODE Sleeve Bearing Housing Inside Diameter		
0 degrees	120 degrees	240 degrees
52. ODE Sleeve Bearing to Housing Clearance		
0 degrees	120 degrees	240 degrees
Rotor Inspection		
53. Rotor Type/Material		
54. Growler Test		
55. Number of Rotor Bars		
56. Rotor Condition		
57. List the Parts needed for the Repair Below		
58. Signature of Technician that Disassembled Motor		
Mechanical Fits- Rotor		
59. Shaft Runout		
60. Rotor Runout		
Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing
61. Coupling Fit Closest to Bearing Housing		
0 Degrees	90 Degrees	120 Degrees
62. Coupling Fit Closest to the end of the Shaft		
0 Degrees	60 Degrees	120 Degrees
63. Drive End Bearing Shaft Fit		
0 Degrees	60 Degrees	120 Degrees
64. Drive End Bearing Shaft Fit Condition		
65. Opposite Drive End Bearing Shaft Fit		
0 Degrees	60 Degrees	120 Degrees


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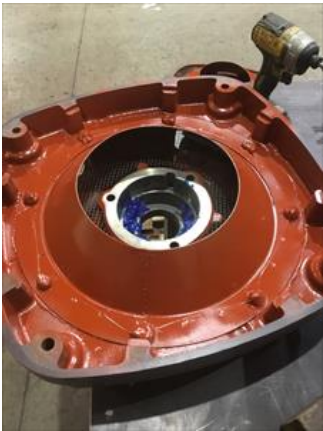
66.	Opposite Drive End Bearing Shaft Fit Condition		
67.	Shaft Air Seal Fits		
	Drive End Air Seal	Opposite Drive End Air Seal	
Mechanical Fits- Bearing Housings			
68.	Drive End - Endbell Bearing Fit		
	0 Degrees	60 Degrees	120 Degrees
69.	Drive End - Endbell Bearing Fit Condition		
70.	Opposite Drive End - Endbell Bearing Fit		
	0 Degrees	60 Degrees	120 Degrees
71.	Opposite Drive End - Endbell Bearing Fit Condition		
72.	Bearing Cap Condition		
	Drive End Bearing Cap	Opposite Drive End Bearing Cap	
73.	End Bell Air Seal Fits		
	Drive End Air Seal	Opposite Drive End Air Seal	
74.	List Machine Work Needed Below		
75.	Technician		
Root Cause of Failure			
76.	Failure locations		
77.	Root cause of failure		
Dynamic Balance Report			
78.	Rotor Weight and Balance Grade		
	Rotor Weight	Balance Grade	
79.	Initial Balance Readings		
	Drive End	Opposite Drive End	
80.	Final Balance Readings		
	Drive End	Opposite Drive End	
81.	Technician		
Rewind			
82.	Core Test Results - Watts loss per Pound		
	Pre-Burnout	Post Burnout	
83.	Core Hot Spot Test		
	Pre-Burnout	Post-Burnout	
84.	Post Rewind Electrical Test- Insulation Resistance		
85.	Post Rewind Polarization Index		
86.	Post Rewind Winding Resistance		
	1-2	1-3	2-3
87.	Post Rewind Surge Test		
88.	Post Rewind Hi-Pot		

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89. Technician		
Mechanical Fits- Rotor - Post Repair		
90. Shaft Runout Post Repair		
91. Rotor Runout Post Repair		
Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing
92. Coupling Fit Closest to Bearing Housing Post Repair		
0 Degrees	90 Degrees	120 Degrees
93. Coupling Fit Closest to the end of the Shaft Post Repair		
0 Degrees	60 Degrees	120 Degrees
94. Drive End Bearing Shaft Fit Post Repair		
0 Degrees	60 Degrees	120 Degrees
95. Opposite Drive End Bearing Shaft Fit Post Repair		
0 Degrees	60 Degrees	120 Degrees
96. Shaft Air Seal Fits Post Repair		
Drive End Air Seal	Opposite Drive End Air Seal	
97. Shaft Repair Sign-off		
Mechanical Fits- Bearing Housings - Post Repair		
98. Drive End - Endbell Bearing Fit Post Repair		
0 Degrees	60 Degrees	120 Degrees
99. Opposite Drive End - Endbell Bearing Fit Post Repair		
0 Degrees	60 Degrees	120 Degrees
100. Bearing Cap Condition Post Repair		
Drive End Bearing Cap	Opposite Drive End Bearing Cap	
101. End Bell Air Seal Fits Post Repair		
Drive End Air Seal	Opposite Drive End Air Seal	
102. DE Sleeve Bearing Inside ID Post Repair		
Measure 1	Measure 2	Measure 3
103. DE Sleeve Bearing Outside ID Post Repair		
Measure 1	Measure 2	Measure 3
104. DE Sleeve Bearing Inside OD Post Repair		
Measure 1	Measure 2	Measure 3
105. DE Sleeve Bearing Outside OD Post Repair		
Measure 1	Measure 2	Measure 3
106. End Bell Repair Sign-off		

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107. ODE Sleeve Bearing Inside ID Post Repair		
Measure 1	Measure 2	Measure 3
108. ODE Sleeve Bearing Outside ID Post Repair		
Measure 1	Measure 2	Measure 3
109. ODE Sleeve Bearing Inside OD Post Repair		
Measure 1	Measure 2	Measure 3
110. ODE Sleeve Bearing Outside OD Post Repair		
Measure 1	Measure 2	Measure 3
Assembly		
111. QC Check All Parts for Cleanliness Prior to Assembly		Cw
		
112. Photograph All Major Components prior to assembly		





113. Final Insulation Resistance Test	Megohms	
Na		
114. Assembled Shaft Endplay	inches	
Na		
115. Assembled Shaft Runout	inches	
Na		
116. Test Run Voltage		
Volts	Volts	Volts
In picture		



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117. Test Run Amperage		
Amps	Amps	Amps
<div> <div></div> <div>In picture</div> </div>		



118. Drive End Vibration Readings - Inches Per Second		
Horizontal	Vertical	Axial
0.0098	0.0086	0.0099000000000000001
119. Opposite Drive End Vibration Readings - Inches Per Second		
Horizontal	Vertical	Axial
0.008999999999999999	0.008999999999999999	0.01
120. Ambient Temperature - Fahrenheit		
<div> <div></div> <div>Na</div> </div>		
121. Drive End Bearing Temps - Fahrenheit		
5 Minutes	10 Minutes	15 Minutes
<div> <div></div> <div>Na</div> </div>		
122. Drive End Bearing Temps - Fahrenheit 20-30 Minutes		
20 Minutes	25 Minutes	30 Minutes
<div> <div></div> <div>Na</div> </div>		
123. Drive End Bearing Temps - Fahrenheit 35-45 Minutes		
35 Minutes	40 Minutes	45 Minutes
<div> <div></div> <div>Na</div> </div>		
124. Drive End Bearing Temps - Fahrenheit 50-60 Minutes		
50 Minutes	55 Minutes	60 Minutes
<div> <div></div> <div>Na</div> </div>		
125. Opposite Drive End Bearing Temps - Fahrenheit		
5 Minutes	10 Minutes	15 Minutes
<div> <div></div> <div>Na</div> </div>		
126. Opposite Drive End Bearing Temps - Fahrenheit 20-30 Minutes		
20 Minutes	25 Minutes	30 Minutes
<div> <div></div> <div>Na</div> </div>		

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127. Opposite Drive End Bearing Temps - Fahrenheit 35-45 Minutes		
35 Minutes	40 Minutes	45 Minutes
Na		
128. Opposite Drive End Bearing Temps - Fahrenheit 50-60 Minutes		
50 Minutes	55 Minutes	60 Minutes
Na		
129. Stator Temperatures- Fahrenheit		
5 Minutes	10 Minutes	15 Minutes
Na		
130. Stator Temperatures- Fahrenheit 20-30 Minutes		
20 Minutes	25 Minutes	30 Minutes
Na		
131. Stator Temperatures- Fahrenheit 35-45 Minutes		
35 Minutes	40 Minutes	45 Minutes
Na		
132. Stator Temperatures- Fahrenheit 50-60 Minutes		
50 Minutes	55 Minutes	60 Minutes
Na		
133. Document Final Condition with Pictures after paint		





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Co sign: TRH





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

AC Random Coil Rewind Report

FolderID: 101989
FormID: 18582637

US MOTORS WARRANTY REPAIR

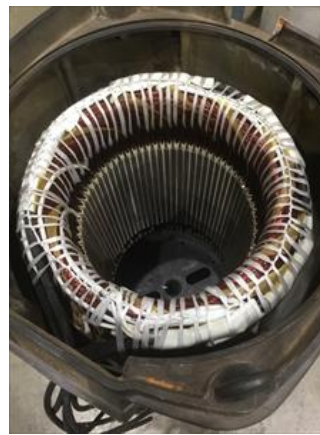
8100 W. FLORISSENT
ST. LOUIS, MO 63136

LR MOTOR SHOP

Priorities Found: ● 2 - Good

General

1. Job Number	101989
2. Report Date	
3. Customer	Layne



Stator Winding

4. Core Length	13 "
5. Core ID	11 "
6. Back Iron Depth	1 "
7. Slot Depth	1.625 "
8. Tooth Width	0.284 "
9. Number of Vents	0
10. Vent Width	0 "

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11.	Before Burnout Core loss	Na
12.	Flux Before Burnout	0
13.	Watts before burnout	0 Watts
14.	Watts loss per lb. before burnout	0 W/lbs.
15.	After Burnout Core Loss	0
16.	Flux After burnout	0
17.	Watts After Burnout	Watts
18.	Watts loss per lb After Burnout	0 W/lbs.
19.	Core Iron Condition	
20.	RTD's	0
21.	RTD's Reading	0 Ohm's
22.	Motor Heaters	0
23.	Heater Qty.	0
24.	Heater Voltage	0 Volts
25.	Heater Wattage	0 Watts
26.	Thermistors	0
27.	Number of Poles	4
28.	Slots	72
29.	Number of Coils	72
30.	Coil Weight	145 Lbs.
31.	Lead Markings 1-2-3-7-8-9	
32.	Grouping 12-6	
33.	Multiple Wires 5#17-3#18	
34.	Wire Size 5#17-3#18	
35.	Turns per coil	9
36.	Pitch 1 to:	15
37.	Connection 2d-2d pws	
38.	Lead Length	2 "
39.	Lead Size	2
40.	Number of Leads	6
41.	Megger Reading After Rewind	2000 Mohms
42.	Coil Machine Slot	
43.	Coil Machine Tip	
44.	Coil Machine Pitch	

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45. Hi Pot Reading After Rewind

● 46. Surge Pattern After Rewind

(P) Pass



47. Service Technician



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5. **DELIVERY OF GOODS AND/OR SERVICES.** 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.
6. **DELIVERY SITE AND TIME FOR PERFORMANCE.** Hi-Speed and Buyer 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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9. **LIMITATION OF DAMAGES.** HI-SPEED SHALL HAVE NO LIABILITY TO BUYER WITH RESPECT TO THE SALE OR DELIVERY OF ANY GOODS OR THE REPAIR THEREOF OR WITH RESPECT TO THE SALE OR PERFORMANCE OF ANY SERVICES, FOR LOST PROFITS, SPECIAL, CONSEQUENTIAL, EXEMPLARY, PUNITIVE OR INCIDENTAL DAMAGES OF ANY KIND OR NATURE WHETHER ARISING IN CONTRACT, TORT, GOODS LIABILITY OR OTHERWISE, EVEN IF HI-SPEED WAS ADVISED OF THE POSSIBILITY OF SUCH LOSS OR DAMAGES. HI-SPEED SHALL NOT BE LIABLE FOR ANY DAMAGES OR DELAYS CAUSED BY ANY FAILURE TO MAKE ANY DELIVERY OF GOODS BY ANY EXPECTED TIME OR DATE OR THE FAILURE TO PROVIDE OR COMPLETE ANY SERVICES BY ANY EXPECTED DATE OR TIME. IN NO EVENT SHALL HI-SPEED BE LIABLE TO BUYER FOR ANY DAMAGES WHATSOEVER IN EXCESS OF THE TOTAL PRICE PAID FOR ALL GOODS AND/OR SERVICES HEREUNDER OR REFERENCED IN ANY QUOTATION OR THE PURCHASE ORDER.
10. **SEVERABILITY.** 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, earthquake, 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. **NONWAIVER.** 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.