KEEPING YOUR FACILITY UP TO SPEED

EVERY DAY SINCE 1946

LR Motor Shop Repairs

Job Number 102808

Prepared for KONE INC (10211)

5003 NORTH SHORE LANE
NORTH LITTLE ROCK AR 72118

Table of Contents

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

AC Inspection as Found

KONE INC (10211)
5003 NORTH SHORE LANE
NORTH LITTLE ROCK, AR 72118

FolderID: 102808
FormID: 20120432

AC Inspection - Rev. 2

Location:	LITTLE ROCK MOTOR SHOP
Serial Number:	329138
Description:	23HP 1800 RPM

Hi-Speed Job Number:	102808
Product Number:	M: 343059
Spec/ID #:	NA
Serial Number:	329138
HP/kW:	23 (HP)
RPM:	1800 (RPM)
Frame:	UNKNOWN
Voltage:	480
Current:	29.5 (Amps)
Phase:	Three
Hz:	60 (Hz)
Service Factor:	1
Enclosure:	ODP
# of Leads:	6
J-box Included:	None
Coupling/Sheave:	None
Date Received:	05/08/2024
Bearing RTDs:	No
Stator RTDs:	No
Repair Stage:	Final
Rewind:	No
Shaft Machined Fit Repairs Required:	Yes
Bearing Housing Machined Fit Repairs Required:	Yes
Heaters:	No
Winding Type :	Random Wound
Bearing Type:	Rolling Element

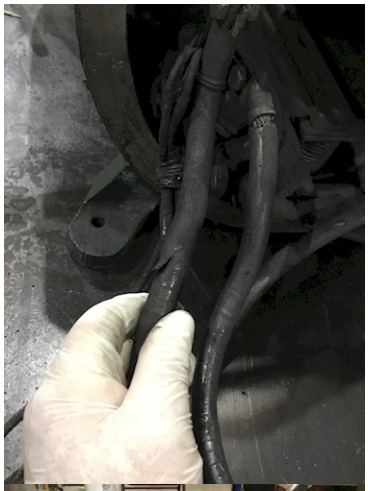
Priorities Found: **4 - High** **6 - Good**

Overall Condition

1.	Report Date	**05/06/2024**

2. Nameplate Picture

3. Photos of all six sides of the machine.






	4.	Describe the Overall Condition of the Equipment as Received ***Replace brushes, replace bearings, machine both shaft fits, machine both endbells, turn and undercut commutator***	
Initial Mechanical/Electrical			
●	5.	Does Shaft Turn Freely?	**(Y) Yes**
●	6.	Does the shaft require T.I.R in Lathe to identify additional repairs?	**(No) No**
	7.	Does Shaft Have Visible Damage?	**(No) No**
	8.	Assembled Shaft Runout ***Na***	**Inches**
	9.	Assembled Shaft End Play ***Na***	**inches**
	10.	Air Gap Variation <10% ***Na***	
●	11.	Lead Condition ***Need to replace a couple leads***	**(F) Fail**
	12.	Lead Length ***Lengths vary***	**Inches**
	13.	Does it have Lugs?, If so what is the Stud Size? ***Yes and no***	
	14.	Lead Numbers ***Odd numbering***	
	15.	Frame Condition	**good**
●	16.	Fan Condition	**(P) Pass**

17.	Broken or Missing Components			**no**
Initial Electrical Inspection				
18.	Insulation Resistance/Megger			**2000 Megohms**
19.	Winding Resistance			
	1-2	1-3	2-3	
	.0.2	**0.2**	**0.2**	
20.	Perform Surge Test			**(P) Pass**
21.	Number of Stator Slots			**48**
22.	Stator Condition			**good**
23.	Stator Thermistors/Ohms			
	Na			
24.	Stator Overloads/Ohms			
	Na			
Mechanical Inspection				
25.	Drive End Bearing Brand			**skf**
26.	Drive End Bearing Number-			**6309 2z c3**
27.	Drive End Bearing Qty.			**1**
28.	Drive End Bearing Type			**(Ball) Ball Bearing**
29.	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?			
	Bolt and washer			
32.	Drive End Bearing Condition			**fail**
33.	Opposite Drive End Bearing Brand			**fag**
34.	Opposite Drive End Bearing Number-			**6309rsr**
35.	Opposite Drive End Bearing Qty.			**1**
36.	Opposite Drive End Bearing Type			**(Ball) Ball 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?			**no**
40.	Opposite Drive End Bearing Condition			**worn**
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			**64**
46.	Rotor Condition			**pass**
47.	List the Parts needed for the Repair Below			
	6309 2zc3 x2 ***8 brushes***			

48. Signature of Technician that Disassembled Motor — **Trevor Hall**

Mechanical Fits- Rotor

49. Shaft Runout — **inches**

Na

50. Rotor Runout

Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing

Na

51. Coupling Fit Closest to Bearing Housing

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
1.7723	**1.7722**	**1.7721**

54. Drive End Bearing Shaft Fit Condition — **(P) Pass**

Egg shaped and over max.

55. Opposite Drive End Bearing Shaft Fit

0 Degrees	60 Degrees	120 Degrees
1.7715	**1.7734**	**1.7728**

56. Opposite Drive End Bearing Shaft Fit Condition — **(F) Fail**

Egg shaped and oversized.

57. Shaft Air Seal Fits

Drive End Air Seal	Opposite Drive End Air Seal

Na

Mechanical Fits- Bearing Housings

58. Drive End - Endbell Bearing Fit

0 Degrees	60 Degrees	120 Degrees
3.99	**3.99**	**3.99**

Bearing spun inside housing

59. Drive End - Endbell Bearing Fit Condition — **(F) Fail**

60. Opposite Drive End - Endbell Bearing Fit

0 Degrees	60 Degrees	120 Degrees
3.9378	**3.9383**	**3.9382**

Sleeved bearing fit.
3.9372, 3.9372, 3.9373
Gary

61. Opposite Drive End - Endbell Bearing Fit Condition **(F) Fail**

Oversized

62. Bearing Cap Condition

Drive End Bearing Cap	Opposite Drive End Bearing Cap
good	**good**

63. End Bell Air Seal Fits

Drive End Air Seal	Opposite Drive End Air Seal
good	**good**

64. List Machine Work Needed Below

Both endbells, both shaft fits, turn and undercut armature

65. Technician **Trevor Hall**

Co sign TRH

Root Cause of Failure

66. Failure locations

Endbells, shaft bearing fits, commutator, bearings, brushes

67. Root cause of failure

Normal wear over time

Dynamic Balance Report

68. Rotor Weight and Balance Grade

Rotor Weight	Balance Grade
na	**na**

69. Initial Balance Readings

Drive End	Opposite Drive End

Na

70. Final Balance Readings

Drive End	Opposite Drive End

Na

71. Technician **Trevor Hall**

Mechanical Fits- Rotor - Post Repair

72. Shaft Runout Post Repair **inches**

Na

73. Rotor Runout Post Repair

Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing

Na

74. Coupling Fit Closest to Bearing Housing Post Repair

0 Degrees	90 Degrees	120 Degrees

Na

75. Coupling Fit Closest to the end of the Shaft Post Repair

0 Degrees	60 Degrees	120 Degrees

Na

76. Drive End Bearing Shaft Fit Post Repair

0 Degrees	60 Degrees	120 Degrees

Na

77. Opposite Drive End Bearing Shaft Fit Post Repair

0 Degrees	60 Degrees	120 Degrees

Na

78. Shaft Air Seal Fits Post Repair

Drive End Air Seal	Opposite Drive End Air Seal

Na

79. Shaft Repair Sign-off

Na

Mechanical Fits- Bearing Housings - Post Repair

80. Drive End - Endbell Bearing Fit Post Repair

0 Degrees	60 Degrees	120 Degrees

Good

81. Opposite Drive End - Endbell Bearing Fit Post Repair

0 Degrees	60 Degrees	120 Degrees

Good

82.	Bearing Cap Condition Post Repair	
	Drive End Bearing Cap	Opposite Drive End Bearing Cap
	Na	
83.	End Bell Air Seal Fits Post Repair	
	Drive End Air Seal	Opposite Drive End Air Seal
	Na	
84.	End Bell Repair Sign-off	**Gary**
	Gary	

Assembly

85.	QC Check All Parts for Cleanliness Prior to Assembly	**Trevor Hall/ David Maclin**

86. Photograph All Major Components prior to assembly

87.	Final Insulation Resistance Test			**2000 Megohms**
88.	Assembled Shaft Endplay			**0.001 inches**
89.	Assembled Shaft Runout			**0.001 inches**
90.	Test Run Voltage			
	Volts	Volts	Volts	
	480	**480**	**480**	
91.	Test Run Amperage			
	Amps	Amps	Amps	
	13	**13**	**13**	
92.	Drive End Vibration Readings - Inches Per Second			
	Horizontal	Vertical	Axial	
	0.02	**0.2**	**0.01**	
93.	Opposite Drive End Vibration Readings - Inches Per Second			
	Horizontal	Vertical	Axial	
	0.02	**0.02**	**0.01**	
94.	Ambient Temperature - Fahrenheit			**75**
95.	Drive End Bearing Temps - Fahrenheit			
	5 Minutes	10 Minutes	15 Minutes	
	Na			
96.	Opposite Drive End Bearing Temps - Fahrenheit			
	5 Minutes	10 Minutes	15 Minutes	

Na

97. Document Final Condition with Pictures after paint

Done

98. Final Pics and QC Review

Done

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

DC Repair Report

KONE INC (10211)
5003 NORTH SHORE LANE
NORTH LITTLE ROCK, AR 72118

FolderID: 102808
FormID: 20332706

DC Repair Report Rev. 2

Location:	LITTLE ROCK MOTOR SHOP
Job Number:	102808

Description: Ac, Dc Generator

Hi-Speed Job Number:	102808
Manufacturer:	Other
HP/KW:	23 (HP)
RPM:	1800
Armature Voltage:	160 (Volts)
Armature Current:	94 (Amps)
J-Box Included:	No
Bearing RTDS:	No
Winding RTDS:	No
Mounting Orientation :	Horizontal

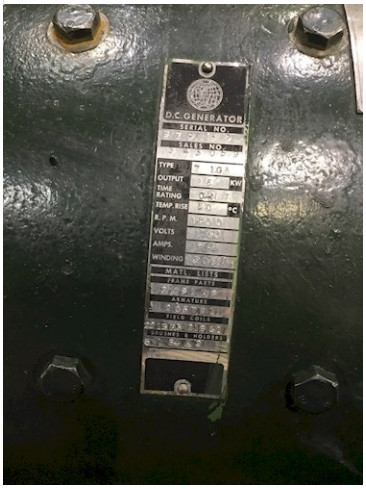
Priorities Found: **1 - High** **6 - Good**

Overall Condition

1. Describe the Overall Condition of the Equipment as Received

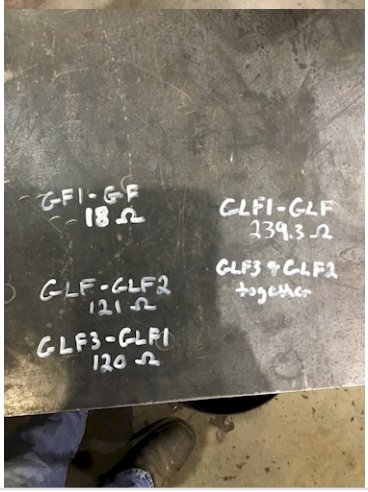
   Motor is full of carbon. Needs new brushes, shaft fits machined, both endbells sleeved, turn and undercut armature

2. Nameplate Picture







	3. Distance From the End of the Shaft to the end of the Face of the Sheave/Coupling	
	Na	
Initial Mechanical/Electrical		
●	4. Does the Shaft Turn Freely?	**(Y) Yes**
●	5. Does Shaft Have Visible Damage?	**(No) No**
	6. Assembled Shaft Runout	**Inches**
	Na	
	7. Assembled Shaft End Play	**Inches**
	Na	

8.	Air Gap Variation <10%		
	Na		
9.	Lead Condition		**(F) Fail**
	Need to replace a couple leads		
10.	Lead Length		**45 Inches**
11.	Frame Condition		**(P) Pass**
12.	Fan Condition		**(P) Pass**
13.	Brush Information		

Brush Number	Quantity	Condition
75-501533	**8**	**fail**

14.	Brush Holder Condition - Verify proper gap to Commutator	**good**

Incoming Electrical Test

15.	General Condition of the Armature/Commutator	**needs turned and full of carbon**
16.	Armature Insulation Resistance to Ground	**0 Megohms**
17.	Field Circuit Insulation Resistance to Ground	**0 Megohms**
18.	Interpole Circuit Insulation Resistance to Ground	**0 Megohms**
19.	Total Field Ohms	**239.3**
20.	Field Ohms	

Between F1/F2	Between F3/F4
121	**120**

21.	MegOhms between Fields and Series	**300**

22.	Series Drop Test 1&2		
	Series 1	Series 2	
	4.6	**4.6**	
23.	Series Drop Test 3&4		
	Series 3	Series 4	
	7.5	**7.5**	
	Connected on different tap than other two series coils		
24.	Field Drop Test Fields 1&2		
	Total AC Voltage	Field #1	Field #2
	115	**1.6**	**1.6**
25.	Field Drop Test Fields 3&4		
	Field #3	FIeld #4	Field #2
	115	**1.6**	
	115	**1.6**	
26.	Field Drop Test Fields 5&6		
	Field #5	FIeld #6	Field #2
	Na		
27.	Field Drop Test Fields 7&8		
	Field #7	FIeld #8	Field #2
	Na		
28.	Interpole Drop Test 1&2		
	Total AC Voltage	Interpole #1	Interpole #2
	29	**15**	**15**
29.	Interpole Drop Test 3&4		
	Interpole #3	Interpole #4	Field #2
	15	**15**	
30.	Interpole Drop Test 5&6		
	Interpole #5	Interpole #6	Field #2
	Na		
31.	Interpole Drop Test 7&8		
	Interpole #7	Interpole #8	Field #2
	Na		

32. Armature Number of Bars - Bar to Bar Test

Number of Bars	Bar to Bar Test
123	**pass**

Mechanical Inspection

33. Shaft Runout Drive End
34. Shaft Runout Armature

Drive End Bearing Journal	Armature Core	ODE Bearing Journal

35. Drive End Bearing Number
36. Drive End Bearing Quantity
37. Drive End Bearing Type
38. Drive End Lubrication Type
39. Drive End Bearing Insulation or Grounding Device?
40. Drive End Wavy Washer/Snap-Ring Other Retention Device?
41. Drive End Bearing Condition
42. Opposite Drive End Bearing Number
43. Opposite Drive End Bearing Quantity
44. Opposite Drive End Bearing Type
45. Opposite Drive End Lubrication Type
46. Opposite Drive End Bearing Insulation or Grounding Device?
47. Opposite Drive End Wavy Washer/Snap-Ring Other Retention Device?
48. Opposite Drive End Bearing Condition
49. Signature of Technician who Performed Teardown
50. List Parts Needed Prior to Reassembly

Mechanical Fits - Armature

51. Coupling Fit Closest to Bearing Housing

0 Degrees	60 degrees	120 degrees

52. Coupling Fit Closest to the End of the Shaft

0 Degrees	60 degrees	120 degrees

53. Drive End Bearing Shaft Fit

0 Degrees	60 Degrees	120 Degrees

54. Drive End Bearing Shaft Fit Condition

55.	Opposite Drive End Bearing Shaft Fit			
	0 Degrees	60 Degrees	120 Degrees	
56.	Opposite Drive End Bearing Shaft Fit Condition			
57.	Shaft Air Seal Fits			
	Drive End Air Seal	Opposite Drive End Air Seal		
Mechanical Fits- Bearing Housings				
58.	Drive End - End Bell Bearing Fit			
	0 Degrees	60 Degrees	120 Degrees	
59.	Drive End - Endbell Bearing Fit Condition			
60.	Opposite Drive End - End Bell Bearing Fit			
	0 Degrees	60 Degrees	120 Degrees	
61.	Opposite Drive End - Endbell Bearing Fit Condition			
62.	Bearing Cap Condition			
	Drive End	Opposite Drive End		
63.	End Bell Air Seal Fits			
	Drive End Air Seal	Opposite Drive End Air Seal		
64.	List any Machine work Needed Below			
65.	Signature of Technician Performing Measurements			
Root Cause of Failure				
66.	Failure Locations			
67.	Root Cause of Failure			
Commutator Data				
68.	Total Copper Segment Length			
69.	Number of Bars			**123**
70.	Number of Wires Per Copper Bar and Size			
	Number of Wires per Bar	Wire Size		
71.	Equalizers per Copper Bar and Equalizer Wire Size			
	Equalizers per Bar	Wire Size		
72.	Document Commutator Diameter, Minimum and Max			
	Current Comm Diameter	Minimum Comm Diameter	Maximum Comm Diameter	
73.	Commutator Shaft Diameter			
	Front Shaft Diameter	Back Shaft Diameter		
74.	Commutator Type			
75.	Commutator Bore			
76.	Signature of Technician Recording Data			
Dynamic Balance Report				
77.	Rotor Weight and Balance Grade			
	Rotor Weight	Balance Grade		

78.	Initial Balance Readings			
	Drive End Readings	Opposite Drive End Readings		
79.	Final Balance Readings			
	Drive End Readings	Opposite Drive End Readings		
80.	Signature of the Balance Technician			
Post Armature Rewind Testing				
81.	Post Rewind Armature Insulation Resistance to Ground			**Megohms**
82.	Post Rewind Field Circuit Measure the Insulation Resistance to Ground			**Megohms**
83.	Post Rewind Armature Number of Bars - Bar to Bar Test			
	Number of Bars	Bar to Bar Test		
84.	Post Rewind Field Circuit Insulation Resistance to Ground			**Megohms**
85.	Post Rewind Interpole Circuit Insulation Resistance to Ground			
86.	Post Rewind Field Drop Test Fields 1&2			
	Total AC Voltage	Field #1	Field #2	
87.	Post Rewind Field Drop Test Fields 3&4			
	Field #3	FIeld #4	Field #2	
88.	Post Rewind Field Drop Test Fields 5&6			
	Field #5	FIeld #6	Field #2	
89.	Post Rewind Field Drop Test Fields 7&8			
	Field #7	FIeld #8	Field #2	
90.	Post Rewind Interpole Drop Test 1&2			
	Total AC Voltage	Interpole #1	Interpole #2	
91.	Post Rewind Interpole Drop Test 3&4			
	Interpole #3	Interpole #4	Field #2	
92.	Post Rewind Interpole Drop Test 5&6			
	Interpole #5	Interpole #6	Field #2	
93.	Post Rewind Interpole Drop Test 7&8			
	Interpole #7	Interpole #8	Field #2	
Post Mechanical Repair				
94.	Post Repair Coupling Fit Closest to Bearing Housing			
	0 Degrees	60 degrees	120 degrees	
95.	Post Repair Coupling Fit Closest to the End of the Shaft			
	0 Degrees	60 degrees	120 degrees	
96.	Post Repair Drive End Bearing Shaft Fit			
	0 Degrees	60 Degrees	120 Degrees	

97.	Post Repair Drive End Bearing Shaft Fit Condition		
98.	Post Repair Drive End Opposite Drive End Bearing Shaft Fit		
	0 Degrees	60 Degrees	120 Degrees
	1.7722	**1.7722**	**1.7722**

99.	Post Repair Drive End Opposite Drive End Bearing Shaft Fit Condition	**(P) Pass**

100.	Post Repair Drive End - End Bell Bearing Fit		
	0 Degrees	60 Degrees	120 Degrees
	3.9372	**3.9372**	**3.9372**

101.	Post Repair Drive End - Endbell Bearing Fit Condition

102.	Post Repair Opposite Drive End - End Bell Bearing Fit		
	0 Degrees	60 Degrees	120 Degrees
	3.9372	**3.9372**	**3.9373**

103.	Post Repair Opposite Drive End - Endbell Bearing Fit Condition	**(P) Pass**
104.	Post Repair Bearing Cap Condition	
	Drive End / Opposite Drive End	
105.	Post Repair End Bell Air Seal Fits	
	Drive End Air Seal / Opposite Drive End Air Seal	
106.	Signature of Tech Performing Mechanical Repairs	**Gary**

Assembly

107.	Take Pictures of all Major Components Prior to Reassembly	
108.	Verify Brush Box Holders Have the Proper Clearance, and Brushes have been Seated Properly	
109.	Assembled Shaft End Play and Runout	
	Shaft Endplay / Shaft Runout	
110.	Perform No-Load Test Run, Record Armature Voltage and Current	
	Voltage / Current	
111.	Perform No-Load Test Run, Record Field Voltage and Current	
	Voltage / Current	
112.	Document Vibration Readings Drive End	
	Horizontal / Vertical / Axial	
113.	Document Vibration Readings Opposite Drive End	
	Horizontal / Vertical / Axial	
114.	Perform Full-Load Test Run, Record Armature Voltage and Current	
	Voltage / Current	
115.	Perform Full-Load Test Run, Record Field Voltage and Current	
	Voltage / Current	

116.	Document Vibration Readings Under Full Load Drive End		
	Horizontal	Vertical	Axial
117.	Document Vibration Readings Under Full Load Opposite Drive End		
	Horizontal	Vertical	Axial
118.	Ambient Temperature		
119.	Drive End Bearing Temps Under Full Load		
	5 Minutes	10 Minutes	15 Minutes
120.	Opposite Drive End Bearing Temps Under Full Load		
	5 Minutes	10 Minutes	15 Minutes
121.	Final Test Run Sign-Off		
122.	Document Final Condition With Pictures		
123.	Final QC Sign-Off		

STANDARD TERMS AND CONDITIONS FOR PURCHASE OF GOOD AND/OR SERVICES

1. **APPLICABILITY.** The sale of any and all goods and/or services by Mock, Inc. d/b/a Hi-Speed Industrial Service ("Hi-Speed") shall be specifically conditioned upon and subject to the following terms and conditions which are incorporated by reference into any contracts and purchase orders with Hi-Speed, and which shall form and become a part of any agreement related thereto. Buyer's acceptance of any offer or quotation made by Hi-Speed for sale of any goods or services is expressly made subject to the terms and conditions set forth herein and to be so effective, Buyer need not sign or approve these Terms and Conditions to be bound hereunder provided a copy of same is provided to Buyer through any means. None of the terms and conditions contained herein may be added to, expanded, changed, modified, superseded or otherwise altered except as revised in writing and duly executed by Hi-Speed, and all orders received by Hi-Speed shall be governed only by the terms and conditions contained herein, notwithstanding any terms, conditions or provisions of any purchase order, release order, authorization or any other form issued by the Buyer. Hi-Speed hereby objects to any additional, modified, changed, deleted, altered or other terms and conditions not contained herein and notifies Buyer that any such terms or provisions are expressly rejected by Hi-Speed.
2. **PRICE.** All quoted prices shall remain firm and binding for a period of thirty (30) days from the date of quotation or for the period specifically stated in the quotation. The price for any and all goods and/or services ordered or approved by Buyer after thirty (30) days from the date of any quotation are subject to any increase in price that may occur after the expiration of thirty (30) days from the issuance of the quotation and the date the Buyer releases any shipment.
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. **BILLING AND PAYMENT TERMS.** 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. **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.
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. **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

replace any defective or non-conforming goods in accordance with the applicable manufacturer's warranty. Warranty for any defective or incorrect parts is limited to the repair or replacement of those parts. Hi-Speed warrants that all services will conform in all material respects to the description of services identified in the quotation and will be performed in a good and workmanlike manner in accordance with industry practices and standards. Should the services be reasonably rejected or not conform with the foregoing warranties, Hi-Speed shall, at its sole cost, re-perform the defective or nonconforming services. Notwithstanding the foregoing, these warranties do not extend to goods or services to the extent that such goods have been subject to misuse, neglect or abuse not caused by Hi-Speed or have been used in violation of the approved written instructions furnished to Buyer. THE FOREGOING REPRESENTS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY HI-SPEED WITH RESPECT TO ALL GOODS SOLD AND IS IN LIEU OF ALL OTHER WARRANTIES EITHER EXPRESS OR IMPLIED. HI-SPEED EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICLAR USE OR PURPOSE. BUYER WAIVES ANY CLAIM THAT THESE EXCLUSIONS OR LIMITATIONS DEPRIVE IT OF AN ADEQUATE REMEDY AT EQUITY OR LAW OR CAUSE THIS AGREEMENT TO FAIL IN ITS ESSENTIAL PURPOSE. BUYER SHALL BE ENTITLED TO NO OTHER REMEDY OTHER THAN AS SET FORTH HEREIN, REGARDLESS OF THE CLAIM OR CAUSE OF ACTION, WHETHER BASED IN CONTRACT, TORT, NEGLIGENCE, GOODS LIABILITY, STRICT LIABILITY OR OTHERWISE.

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, 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. **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.